

भारत सरकार, अंतरिक्ष विभाग/Government of India, Department of Space
यू. आर. राव उपग्रह केन्द्र (यू. आर. एस. सी.) /U R Rao Satellite Centre [URSC]
(पूर्व में इसरो उपग्रह केन्द्र/(Formerly known as ISRO Satellite Centre)
एच.ए.एल. एयरपोर्ट रोड, विमानपुरा पोस्ट,
HAL Airport Road, Vimanapura Post,
बेंगलूरु/Bengaluru - 560 017
भारत/India



URSC/PUBLIC TENDER NOTICE NO. A-06/26-27

29.09.2026

भारत के राष्ट्रपति की ओर से व. प्रधान, क्रय एवं भंडार, यू.आर. राव उपग्रह केन्द्र (यू.आर.एस.सी.), द्वारा निम्नलिखित मदों की आपूर्ति के लिए केवल ई-प्रापण के जरिए निविदाएं आमंत्रित हैं।

On behalf of the President of India, Sr. Head, Purchase & Stores, U R Rao Satellite Centre [URSC] invites tenders ONLY through e-procurement for supply of the following.

दो भाग निविदा / PT Two Part Tender

क्र.सं. Sl.No.	निविदा संदर्भ TENDER REFERENCE	संक्षिप्त विवरण BRIEF DESCRIPTION
01	ISMS 2026068362	एसएडीएम हार्डवेयर का उत्पादनीकरण Productionisation of SADM Hardware

बोली प्रस्तुत करने हेतु प्रारंभिक तिथि / Bid Submission Start Date : 29.09.2026 (16.00 Hrs.)

बोली प्रस्तुत करने हेतु प्रारंभिक तिथि / Bid Clarification Date up to : 09.10.2026 (16.00 Hrs.)

बोली प्रस्तुत करने की नियत तिथि / Bid Submission Due Date : 22.10.2026 (14.00 Hrs.)

बोली खोलने की तिथि / Bid Opening Date : 22.10.2026 (14.30 Hrs.)

वैध डिजिटल हस्ताक्षर प्रमाणपत्र (डी.एस.सी) प्राप्त इच्छुक निविदाकार <https://eproc.isro.gov.in> पर लॉग इन करके अपना प्रस्ताव ऑनलाईन भेज सकते हैं। कोई निविदा शुल्क लागू नहीं है।

Interested Tenderers having valid Digital Signature Certificate [DSC] may login to <https://eproc.isro.gov.in> and submit Offers online. No Tender fees applicable.

निविदाओं को उपरोक्त निर्दिष्ट दिनांक पर खोला जाएगा। अर्ह विक्रेताओं के दर बोली (दो भाग निविदाओं के मामले में) खोलने की समय सूची को बाद में सूचित किया जाएगा। बोली लगाने से संबंधित विवरण इसरो ई-प्रापण पोर्टल में लागिन करके देखा जा सकता है।

Tenders will be opened on the date specified above. Schedule for opening of the Price Bid (in case of Two-Part Tenders) of Qualified Vendors will be intimated later. Bidding details can be seen by the participated vendors by logging into ISRO e-procurement portal.

उपरोक्त के संबंध में शुद्धिपत्र/अनुशेष, यदि कोई हो, तो उसे हमारे ई-पोर्टल एवं वेबसाइट पर प्रकाशित किया जाएगा।

Corrigendum/Addendum, if any, related to above shall be hosted in our e-portal and Website.

Sd/-

व. प्रधान, क्रय व भंडार / Sr. Head, Purchase & Stores

भारत सरकार
अंतरिक्ष विभाग (अं.वि.)

GOVERNMENT OF INDIA
DEPARTMENT OF SPACE (DOS)
PURCHASE & STORES

स्मग/सिस्टो

फोन नं Ph No. / Fax. / ईमेल e-mail:
INVITATION TO TENDER
निविदा आमंत्रण

M/s.
मेसर्स

00000

Our Ref. No.
हमारी संदर्भ सं.

ISMS 2026-068362-01

Tender Due at 14:00 hrs IST on 22/10/2026
निविदा अंतिम तिथि

महोदय

Dear Sirs,

कृपया निम्नलिखित मदों की आपूर्ति के लिए अनुलग्नक (फार्म सं. संलग्न) में उल्लिखित निबंधन एवं शर्तों के अनुसार संलग्न निविदा प्रपत्र में वर्णनात्मक सूचीपत्र/पैम्फलेट/साहित्य सहित हमारी संदर्भ सं. एवं अंतिम तिथि (मोटे अक्षरों में) ऊपर लिखते हुए अपनी मुहरबंद निविदा प्रस्तुत करें।

Please submit your sealed quotation, in the Tender Form enclosed here along with the descriptive catalogues /pamphlets /literature, superscribed with Our Ref.No. and Due Date for the supply of the following items as per the terms & conditions mentioned in Annexure(Form No. As per Annexure)

क्र.सं. Sl. No.	विनिर्देशों सहित मद का विवरण Description of items with Specifications	इकाई Unit	मात्रा Quantity
1	PRODUCTIONISATION OF EOS TYPE SOLAR ARRAY DEPLOYMENT MECHANISM HARDWARE	WINGS	8
2	PRODUCTIONISATION OF I-1K TYPE SOLAR ARRAY DEPLOYMENT MECHANISM HARDWARE	WINGS	8
3	PRODUCTIONISATION OF I-1K TYPE SOLAR ARRAY DEPLOYMENT MECHANISM HARDWARE (DEVELOPMENTAL)	WINGS	1

सुपुर्दगी स्थल

Delivery At SMG/ISITE STORES, BANGALORE

प्रेषण की विधि

Mode of Despatch BY ROAD

शुल्क छूट

Duty Exemptions -

विशेष अनुदेश

Special Instructions NIL

विशेष निबंधन

Specific Terms As per Annexure

निविदाकारों को अनुदेश

Instructions to Tenderers

- (1) Technical Specifications as per Annexure-A, Instructions to Tenderer as per Annexure-B and Specific Terms & Conditions as per Annexure-C.
- (2) All Annexures with due compliance, signature of Authorized signatory and Company Seal shall be provided along with the quotation.
- (3) Please submit the hard-copy quote/s in Company Letterhead in a sealed envelope superscribing the Tender number within the tender due date and time through offline only by Post/Courier.
- (4) Please note e-mail/Fax quotations are not acceptable.
- (5) Quotations shall be sent to: Purchase & Stores Officer, Group-A U. R. Rao Satellite Centre, HAL Airport Road, Vimanapura Post, Bengaluru- 560 017.
- (6) This is a Two-Part Tender. Please DO NOT indicate price details in the technical offer failing which offer will be liable for rejection.
- (7) Quotations shall be sent in separate envelopes for Technical cum Commercial terms (Part-1) & Price (Part-2).
- (8) For any query regarding this Tender, vendor may contact: Purchase and Stores Officer, Group-A, U R Rao Satellite Centre (URSC), Bengaluru 560017. Tel. No. 91+ 80 6108 4015, Email ID: pso_a@ursc.gov.in

स्टीवन अलोइस सोलंकी / STEVEN ALUIS SOLANKI

क्रय व भंडार अधिकारी / Purchase & Stores Officer
यू.आर. राव उपग्रह केन्द्र / U.R. Rao Satellite Centre

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ABBREVIATION LIST

- **SADM:** Solar array Deployment Mechanism
- **SOW:** Statement of Work
- **PMI:** Positive Material Identification
- **NCR:** Non Conformance Reports
- **MIP:** Mandatory Inspection Points
- **PSR:** Pre-shipment Review
- **TRR:** Test Readiness Review
- **MRR:** Manufacturing Readiness Review
- **ESD:** Electro Static Discharge
- **CMM:** Co-ordinate Measuring Machine
- **PA:** Product Assurance
- **FAI:** First Article dimensional Inspection
- **SD:** Sand Blasting and Dry Lubrication
- **SAD:** Sand Blasting, Anodisation and Dry Lubrication
- **HAD:** Hard Anodisation and Dry lubrication
- **GP:** Gold Plating
- **QA:** Quality Assurance
- **NDA:** Non-Disclosure Agreement
- **NABL:** National Accreditation Board for Laboratories
- **EOS:** Earth Observation Satellite

REFERENCE DOCUMENTS

- Procurement Specification Document (Raw Material and standard Components): ISRO-URSC-ST-0159
- Components and sub-assembly specification document for SADM: ISRO-ISAC-ST-0089
- Test Specification and Test Procedure Document: ISRO-ISAC/INSAT-3C-TE-0890
- Assembly Procedure Document

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1 INTRODUCTION

The Spacecraft Mechanisms Group (SMG) of the U. R. Rao Satellite Centre (URSC) has been engaged in the development of deployment mechanisms for the various satellites being built by ISRO. Some of the important mechanisms developed by the group are Solar array deployment mechanism, Antenna reflector deployment mechanism, Solar sail/boom, Pointing mechanism, Electro mechanical drives etc.

The Solar Array Deployment Mechanism (SADM) is one of the mission critical systems in the satellite. The solar arrays are used for generating power for the satellite. The payload area available inside the heat shield of the launch vehicle will not be sufficient to keep these appendages in deployed state. These appendages are fragile/ flexible in nature and cannot withstand the launch vibrations if kept deployed during launch. Hence, it is essential to stow these appendages on to the satellite body during launch and to deploy them once the satellite is in orbit by a ground command, thus mechanisms are required. A Hold down & release mechanism ensures safe stowing and hinge mechanism provides the necessary energy for deployment in orbit. Such deployment mechanisms have already been developed by URSC and are being used in various Spacecrafts.

In order to meet the present requirement of the organisation, it has been decided to realise the solar array deployment mechanism through external agencies. This document provides the details of activities to be carried out for an end-to-end realisation of solar array deployment mechanisms.

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Solar Array Deployment Mechanism (SADM) consists of the following sub-assemblies

A) EOS type SADM:

SL. No.	ASSEMBLY	Number / Wing
1	S/C - P1 CCL Hinge Assembly	1
2	S/C - P1 NON-CCL Hinge Assembly	1
3	P1-P2 CCL Hinge Assembly	1
4	P1-P2 NON-CCL Hinge Assembly	1
5	PANEL HOLD-DOWN ASSEMBLY	1+1+1+1+4+LOOSE PARTS
	TOP LHS HD BASE SUB-ASSEMBLY	1
	TOP RHS HD BASE SUB-ASSEMBLY	1
	BOT LHS HD BASE SUB-ASSEMBLY	1
	BOT RHS HD BASE SUB-ASSEMBLY	1
	BOLT WIRE SWAGING SUB-ASSEMBLY	4
	PANEL HOLD DOWN LOOSE PARTS	LOOSE PARTS
6	RELEASE LOOP ASSEMBLY	1+1+1+LOOSE PARTS
	LOOP END BRACKET ASSEMBLY	1
	STOPPER BRACKET ASSEMBLY	1
	HOLD DOWN & RELEASE MECHANISM ASSY.	1
	LOOP ASSY-A & LOOP ASSY-B	LOOSE PARTS
7	CCL ASSEMBLY	1 (LOOSE PARTS)
8	INTER-PANEL HARNESS ASSEMBLY	1 (LOOSE PARTS)
9	SPARE COMPONENTS	1 (LOOSE PARTS)

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B) I-K type SADM:

Sl. No.	ASSEMBLY	NUMBER/WING
1	SADA-YOKE HINGE ASSEMBLY	1 No.
2	Y-P1 HINGE ASSEMBLY	1 Set (1Top + 1 Bottom)
3	P1-P2 HINGE ASSEMBLY	1 Set (1Top + 1 Bottom)
4	END HINGE ASSEMBLY	1 Set (1Top + 1 Bottom)
5	PANEL HOLD DOWN (PHD) ASSEMBLY HINGE HOLDER ASSEMBLY PHD LOOSE PARTS	1 Set (Four Nos) 1 Set (Four Nos) 1 Set
6	CCL ASSEMBLY (CCL-1, CCL-2, CCL3 & CCL Loose)	1 Set (Loose Parts)
7	HARNESS ASSEMBLY	Loose Parts
8	SNUBBER ASSEMBLY	Loose Parts
9	HOLD DOWN RELEASE LOOP ASSEMBLY List of Sub-assemblies: CORNER PULLEY ASSEMBLY PYRO BRACKET ASSEMBLY LOOP END ASSEMBLY (TOP & BOTTOM) STOPPER BRACKET ASSEMBLY (TOP & BOTTOM) TOP LOOP ASSEMBLY BOTTOM LOOP ASSEMBLY	1 Set (9 sub-assemblies & Loose Parts) 2 Nos 1 Nos 2 Nos 2 Nos 1 No (Loose Parts) 1 No (Loose Parts)
10	SPARE COMPONENTS	Loose Parts

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2. SCOPE

This Statement of Work (SOW) defines the nature of work required from the vendor for the realisation of Solar Array Deployment Mechanism (SADM). Any conflicting requirements arising between this Statement of Work and documents reference shall be referred in writing to URSC for resolution.

The activity includes required materials & standard parts procurement, fabrication, secondary treatment, component level testing, assembly and testing, packaging and delivery of SADM hardware with parts tracker CD. The details are listed below,

- 2.1 Procurement of raw materials like AA6061-T651/T6511, Ti-6Al-4V, SS304, SS430, SS 440C, SS 304 CW, Be-Cu (1/2 H), Delrin 500 AF, GFRP, Viton, Vespel, paraffin wax etc., along with test certificates from original source. The raw materials and standard components shall be stored in separate place with proper identification, and shall not be mixed with any current running purchase orders.
- 2.2 After receipt of raw materials, tests to be conducted for chemical composition, mechanical properties and other tests mentioned in the specification document, at NABL certified lab taking minimum three sample per heat / lot number. The test report should be provided by the vendor as in Annexure-10.
- 2.3 Procurement of Standard parts like Spherical bearings, Micro-switches, disc springs, Fasteners, Helicoil thread inserts (self-locking), DU bushes (as per the quantity indicated in the drawings) and assembly tools, measuring instruments as indicated in the logbooks and assembly drawings.
- 2.4 Strain gauge bonding on Spring holders and Terminals for Strain Gauge mounting and testing to be carried out at URSC approved vendors (Refer: Annexure-7).
- 2.5 All micro switches shall be submitted to URSC for electrical screening test after procurement and incoming inspection by the vendor at vendors place.
- 2.6 Fabrication of all components and parts as per Annexure-1 (Approved drawings in pdf format supplied by URSC). 3D CAD models will not be provided.
- 2.7 Minor modifications in drawings during tenure of contract as communicated by URSC shall be implemented by the vendor at no additional cost and change in delivery schedule.

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- 2.8 100% PMI (Positive Material Identification) testing to be conducted on fabricated parts by the vendor and each inspection report to be stamped with PMI completed.
- 2.8.1 After receipt of the disc springs, sample test to be conducted for the chemical composition, mechanical properties and dimensional inspection.
- 2.8.2 All hold down bolt sub-assemblies shall be subjected to die penetration, radiography, cycling and proof loading. Pull out/Failure test to be conducted on swaged two hold down bolt sub-assemblies. These hold down bolt sub-assemblies after swaging are to be submitted to URSC as a batch with dimensional inspection details and test reports for secondary treatment clearance. (Refer: Annexure-5)
- 2.8.3 All hold down bolt sub-assemblies shall be subjected to die penetration, radiography, cycling and proof loading. Pull out/Failure test to be conducted on swaged two hold down bolt sub-assemblies per lot, batch size should not exceed 20 bolts. These accepted hold down bolt sub-assemblies after swaging are to be submitted to URSC as a batch with dimensional inspection details, all test results along with reports for secondary treatment clearance.
- 2.9 Secondary treatment on components
 - o Normal / hard anodization of fabricated components as per drawing (through URSC approved vendors)
 - o Sand blasting & MoS₂ coating on identified components including springs are to be done by M/s. Trusted services or M/S Avasarala Technologies-Bangalore (for information).
 - o Heat treatment and chemical cleaning of springs as per procedure given by URSC (Annexure-5 for information).
- 2.10 Tools/fixtures and other equipment's required for assembly and testing of components/sub-assemblies as per Annexure-2 for reference
- 2.11 Facilities required for storage, assembly and testing including Nitrogen purged desiccators.
- 2.12 Carrying out the Assemblies in clean area as per point no. 3.3.2.
- 2.13 Characterisation & testing as indicated in the test procedure document (Testing of Compression & Tension springs to be done after secondary treatment wherever applicable).

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- 2.14 Preparation of relevant documentation & reports, like Inspection reports, Secondary treatment process route sheets, NCRs (Non-Conformance reports), Assembly logbooks, Closeout of actions of MIPs (Mandatory Inspection Points) etc.
- 2.15 Availability or procurement of Packaging material, Vacuum packing & Nitrogen purging equipment.
- 2.16 Packaging and delivery of the assemblies as per logbooks with relevant documentation in hard and soft form (Parts tracker CD). Parts tracker CD shall contain and not limited to traceability details like raw material details and standard parts with certificates, fabrication inspection reports, PMI reports, secondary treatment route sheets and certificates, assembly and testing records, NCR's and close outs at all stages, MIP reports, minutes of meetings, PSR details, Logbooks etc. Parts tracker software should have the capability to search and provide the traceability records from Raw material to finished components/assemblies delivered to URSC. The software to be developed with any web based software which should not demand procurement of software's by URSC for usage of parts tracker software.
- 2.17 ISRO will not fund for any facilities to setup also for realisation/procurement of any kind of tools, fixtures, jigs etc.
- 2.17a TEST SPECIFICATIONS & TEST PROCEDURES: All the tests shall be conducted in accordance with "Component & Sub-assembly specification document for Solar array deployment mechanism" supplied by URSC.
- 2.18 VENDOR QUALIFICATION / ELIGIBILITY: Vendor need to meet the following mandatory requirements at the time of bid submission and evidence for the same need to be produced along with the quotation, without this the bid shall not be considered.
 - a) Vendor need to be an ISO 9001:2015 or AS9100:2016 certified agency at the time of bid submission.
 - b) Vendor need to have a clean room (12x15 ft. or bigger) 1,00,000 class.. Height greater than 8 ft
 - c) 100 class Laminar flow tables (W: 3ft x L: 5ft x H: 3ft or better) for assembly with temperature, humidity control and ESD control.

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Solar Array Deployment Mechanism (SADM) performance is mission critical and has no redundant system on-board spacecraft. Hence SADM need to perform as designed. Also the mechanism realisation needs lot of special processes which calls for establishment of clean room, development of test fixtures, jigs and test systems, also exhaustive documentation and traceability records.

To execute the contract following are mandatory.

The vendor must provide the photographs and documentary evidences of the below listed facilities as part of bid and if the vendor is a new entry and do not have the facilities mentioned below, he need to give in writing in Technical bid that he shall establish the following facilities within 6 months from the date of P.O. Sl. No. 1 to 8 should be at vendor's premises and Sl. No. 9 to 11 can be outsourced to a sub-vendor. If Sl. No.09 is planned to outsource the vendor need to submit the details of Industry they are planning to outsource and letter of understanding/ MOU with that company need to be submitted along with the bid.

1. Torsion, extension and Compression springs testing machine for load (1 to 100 N) vs deflection (5 to 70 mm) & Torque (0.11 to 1.5 N-m) vs angle (0 to 180 deg)
2. Automated Hinge characterization Test facility to characterize the hinges (0.1 to 1.5 N-m) vs angle (0 to 180 deg).
3. Set-up for staking of bearings, Du-bushes, bearing clearance measurement and proof loading of stacked bearings.
4. Universal Testing machine from 1 kg to 2000 kg capacity.
5. Storage facility with temperature and humidity control and with dry nitrogen purging facility to store secondary treated parts and sub-assemblies and standard parts like spherical bearings etc. at vendor's premises.
6. Furnace for heat treatment of springs etc., Temperature up to 800 degrees centigrade.
7. Chemical cleaning facility for cleaning of springs.
8. Functional and other test fixtures as referred in Annexure-5.
9. Hold down bolt swaging (SS-304 Cold worked terminals to SS-304 wire ropes) facility and proof load facility for 3000 kg at own or sub vendor's place.
10. NDT facility for testing of swaged elements (X-Ray, Dye penetration test) and UTM facility for proof loading & pull out test at own or sub vendor's place.
11. Raw material storage area and fabrication facility at own or sub vendor's place.

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Note: No additional time for facility establishment and operationalize the facility will be provided.

Team from URSC shall visit the vendor's premises to verify the claims made by the vendor in technical bid and before opening the commercial bid. If the claims made are not meeting the above mentioned requirements the bid shall not be considered and declare the bid as technically not competent. **This is NOT APPLICABLE for the vendors who have already supplied similar SADM hardware to URSC.**

URSC will not assure continuity of orders to any vendor

No payment will be provided by URSC for setting up the test facilities, fixtures & jigs etc...

The existing vendors if propose any change in facility/process [Hold down bolt swaging, die penetration, Radiography and proof loading] at any stage of implementation of this contract, shall also require a re-qualification program and approval from URSC.

2.19 MANDATORY INSPECTION POINTS (MIPs): The following mandatory inspections shall be carried-out by URSC personnel at vendor's site. The details of activities (and not limited to), in each of the inspections points, are as given in the section - 3: work flow of activities.

- MIP-1:** After raw materials procurement & before release of components for fabrication
- MIP-2:** Before release of components for secondary treatment (MRR)
- MIP-3:** Before starting sub-assembly
- MIP-4:** Before sub-assembly testing (TRR)
- MIP-5:** Before Pre-Shipment Review (PSR)

2.20 MANUFACTURE AND TEST FACILITIES REQUIRED: The vendor shall prepare a document indicating execution plan of this contract which clearly specifies the manufacture and test facilities available or plan to set up before placement of the purchase order from URSC for executing this order and submit the same for approval of URSC. The facilities listed below from 2.20.1 to 2.20.11 are mandatory to have at the vendor's premises. All facilities needed for the manufacturing and testing of the solar array deployment mechanisms.

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Subsequently, such facilities must be approved by URSC before commencing flight unit assembly and test.

The facilities are listed below are required, but not limited to...

- 2.20.1 Raw material storage area with traceability.
- 2.20.2 Storage facility with temperature and humidity control and with dry nitrogen purge facility to store fabricated parts, secondary treated parts and sub-assemblies and standard parts like spherical bearings etc.
- 2.20.3 Clean room (15x15 ft. or bigger) 1, 00,000 class and 100 class Laminar flow table (W: 3ft x L: 5ft x H: 3ft or better) for assembly with temperature, humidity control and ESD control.
- 2.20.4 Positive Material Identification (PMI) equipment.
- 2.20.5 Inspection - 3D CMM, profile projector, etc. at own place or at sub-contractors'.
- 2.20.6 Heat treatment, cleaning and characterisation of compression, tension and torsion springs.
- 2.20.7 Automated Hinge characterisation facility to characterise the hinges.
- 2.20.8 Characterisation of micro switches.
- 2.20.9 Set-up for staking of bearings, Du-bushes, bearing clearance measurement and proof loading of stacked bearings.
- 2.20.10 Functional and other test fixtures (refer Annexure-5).
- 2.20.11 Hold down bolt swaging (SS-304 CW terminals to SS-304 wire ropes) facility and proof load facility for 340 kgf at own or sub vendors place.
- 2.20.12 NDT facility for testing of swaged elements (X-Ray, Dye penetration test) and UTM facility for proof loading & pull out test.
- 2.20.13 Fabrication facilities to fabricate the components as per the drawings.
- 2.20.14 Anodisation and Hard Anodisation facility.
- 2.20.15 Sand blast & Dry lubrication and testing facility.

Fabrication, Anodisation and dry lubrication facilities can be utilised from URSC approved vendors. Please refer Annexure-4. If the vendor is sub-contracting the fabrication activity to URSC approved vendors it is required to intimate the details of sub-contractor. Also it is vendor's responsibility to make sure that it is not further sub-contracted to some other party by the sub-contractor / sub-vendor except for any special process of a particular dimension / process related to a specific component which needs to be discussed and get approval from URSC.

The vendor will have a minimum of one exclusive test facility needed to perform testing of the deliverable flight units, including all standard test instruments and

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support equipment needed to conduct testing. URSC reserves the right to review the setup of these test facility as and when deemed necessary. The vendor shall maintain and periodically calibrate the test facility and test equipment for the duration of the contract.

2.21 PRODUCT ASSURANCE (PA): The Vendor shall prepare, maintain and implement a Product Assurance Plan in compliance with section No. 3. The vendor shall submit PA plan for URSC approval. The PA plan shall define the program to be implemented in such areas as Program Management and Planning, Identification, traceability and data retrieval, procurement controls, fabrication controls, inspection and test, Metrology controls and planning of various milestone reviews.

2.21.1 Product assurance: organisation and compliance matrix

As a part of the plan, the vendor shall define the organisation to implement the Product Assurance, including ARB (Anomaly Review Board) members, with specific responsible individuals identified for each of the product assurance activities. The product assurance plan shall include the compliance matrix to section 3.

2.21.2 Traceability

Individual part traceability shall be maintained at all levels, starting from raw material heat number to final delivered product. Refer Section 3.9 of this document for details.

2.21.3 Inspection

URSC shall have the right, but not the obligation, to perform inspection of the work at either the vendor's and or a sub-vendor's plant as required. To allow URSC to effectively schedule its inspections, the vendor shall include in its progress reports a detailed schedule of upcoming tests, fabrication and assembly operations, and other events. Following URSC inspection, the vendor shall correct deviation, if any, to meet the contract requirements. Inspection carried out by URSC of components/sub assembly (including standard parts) does not relieve the vendor to its obligation to comply with all requirements of the contract.

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2.21.4 Non-conformance/Failure Control

The vendor shall constitute an Anomaly Review Board, which will review and give disposition for all deviations of fabricated parts, secondary treated parts, component level test results, assembly and characterisation. All the minor deviations and the corresponding dispositions shall be referred to URSC, for approval. All visual and dimensional NCRs shall be referred to URSC for review and approval.

The vendor shall report all non-conformances to URSC in pre-decided format giving details of cause, effect and proposed corrective/preventive action. The vendor shall not, in any case, implement corrective action without prior approval of URSC. The vendor shall implement an effective system of formal close-out. Summary of NCRs shall also be included in the monthly progress report. The reports shall be included in parts tracker CD. The vendor shall put effort to minimise non-conformance at all levels.

2.21.5 Changes Approval

The vendor shall not make any changes in URSC specifications, URSC approved drawings, documents like Sub-assembly procedure logbooks, test plan, processes and test procedures, without prior approval of URSC by writing.

2.21.6 Records

The vendor and his sub-vendors, if any, shall maintain complete files of all documentation and records relating to product assurance generated under this contract, and they shall be responsible for ensuring that all such documentation is made available to URSC. The vendor shall keep all the records pertaining to this product for five years minimum after delivery.

2.21.7 Training and Certification

URSC will give training for inspection of anodisation and hard anodisation. The vendor shall use the services of only trained and certified personnel for hardware testing. The vendor shall submit the man power details along with their qualification/experience to URSC, and inform of any changes made till the completion of this project post training by URSC.

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2.21.8 Product Assurance Engineer

Product Assurance is one of the major requirements for the successful completion of this contract. The vendor shall identify a dedicated product assurance engineer as the focal point for all activities. He will be responsible for imposing and implementing the Product Assurance requirements of this plan and for assuring conformance to these requirements. He will also be responsible for the following:

- 2.21.8.1 Assuring conformance of the products to drawing and other specifications.
- 2.21.8.2 Performing quality audit on fabricated parts.
- 2.21.8.3 Performing quality audit and visual inspection on secondary treated parts.
- 2.21.8.4 Performing in-process, assembly and final inspection of all subassemblies.
- 2.21.8.5 Assuring calibration validity of all measuring and test equipment.
- 2.21.8.6 Inspection and certification of all functional and applicable testing on the assembled units.
- 2.21.8.7 Inspection and certification of packaging.
- 2.21.8.8 Ensuring that proper handling procedures and proper environmental control during assembly and testing operations.
- 2.21.8.9 Reporting all non-conformances to URSC and ensuring their closeout.

2.22 DOCUMENTATION

2.22.1 General

This contract requires the preparation and submission of a number of documents to URSC as given below, at various stages of the contract, besides the deliverables accounted under section-6 of this document.

All deliverable documentation defined in this chapter, including test reports and results shall be presented in a manner consistent with good commercial practice in content and quality of material as well as reproduction. Documentation may be presented in the vendor's customary formats provided such formats meet the requirements stated above and are approved by URSC.

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2.22.2 Project Plan

The vendor shall submit a project plan (PP) that provides visibility of all matters relating to the performance of all phases of this contract. This plan shall be updated as required and shall summarise all major program activities and timelines in bar-chart form. The plan shall establish milestones and identify all hardware and other deliverables specified in this document. Sufficient milestones shall be established to allow URSC to assess for progress.

2.22.3 Progress Reports

The vendor shall submit to URSC at one-month (first week of every month) intervals a progress report covering the contract activities during the preceding one-month period. The report shall provide a complete description of the progress on the contract and explain fully any problems encountered along with proposed or implemented solutions. The report shall include the following:

- 2.22.3.1 Overview
- 2.22.3.2 Program status
- 2.22.3.3 Action items status
- 2.22.3.4 Meeting summaries
- 2.22.3.5 Problems, schedule slippages, if any, and proposed solutions.
- 2.22.3.6 Qualification status.
- 2.22.3.7 Product Assurance including NCRs and associated closeout actions
- 2.22.3.8 Status of sub-vendor deliverables
- 2.22.3.9 Next month projection.
- 2.22.3.10 Summary of updated schedule.

2.22.4 Test Reports

This report shall include, but not limited to, test results, documentation regarding the test facility, test equipment, test conditions, date of test, compliance statements, list of anomalies, their close-out action details, failures and test review meeting summaries (if any).

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2.22.5 Logbooks

The vendor shall prepare the logbooks as per given formats. The vendor shall maintain separate logbooks for each sub-assembly, which documents the build and test effort, from raw material details to delivery of tested unit. The logbook shall be maintained throughout the duration of this contract and submitted along with the test report for review and approval by URSC. The various test results of the sub-assembly in the prescribed formats given in Test Procedure Document along with graphs, have to be appended to the logbook as annexure and suitably cross-referenced in the logbook for ready reference. The NCRs raised and their closeouts shall also be appended to the logbooks and adequately referenced. Each logbook shall include, but not limited to, unit identification data, inspection history, component remove and replace history, summary information relating to discrepancies, test results, failures and failure closure. Each logbook shall be submitted to URSC for approval following unit testing. *No hardware shall be shipped prior to URSC approval. The vendor shall prepare and submit three copies (1 original + 2 xerox) of log books for each tested assembly at the time of dispatch of the assemblies.* Each logbook shall contain a summary checklist that attests the compliance with respect to all test requirements.

2.22.6 Other documents

The vendor shall prepare the following documents and submit the same for approval by URSC.

- 2.22.6.1 Process qualification document.
- 2.22.6.2 Parts list and specifications including kitting list.
- 2.22.6.3 Process list and specifications.
- 2.22.6.4 Manufacturing and test facilities/equipment.
- 2.22.6.5 Parts tracker CD shall contain and not limited to traceability details like raw material details and standard parts with certificates, fabrication inspection reports, PMI reports, secondary treatment route sheets and certificates, Micro switch screening reports, HD bolt reports, HD load caps strain gauge bonding & testing reports, assembly and testing records, NCRs and close outs at all stages, MIP reports, minutes of meetings, PSR details, Logbooks etc. Parts tracker software should have the capability to search and provide the traceability records from Raw material to finished components/assemblies delivered to URSC. The software to be

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developed with any web based software which should not demand procurement of software's by URSC for usage of parts tracker software.

- 2.22.6.6 Process logs and inspection reports.
- 2.22.6.7 Test data log for component/sub-assembly tests.
- 2.22.6.8 Handling and packaging procedures.

Note: The vendor shall submit the documents for point nos. 2.22.6.2 to 2.22.6.8 for each wing.

3. WORK FLOW & ACTIVITY DETAILS: FOR SOLAR ARRAY DEPLOYMENT MECHANISM SUB- ASSEMBLY REALISATION

- 3.1 On receipt of the Purchase Order, the vendor shall prepare and submit an overall plan for executing the order (flow chart given in Figure-1) giving details of following as a "Project Plan"
 - 3.1.1 Procurement data of raw material and standard parts required for executing the contract as per Annexure-1.
 - 3.1.2 Prepare and submit to URSC the raw material storage & inventory control plan.
 - 3.1.3 Fabrication and inspection – details of sub-vendors, identification of sub assembly work centres, as applicable etc.
 - 3.1.4 Secondary treatment – vendor/sub vendor details. Dry lubrication (MoS₂)/Anodisation/Hard Anodisation should be executed at URSC approved vendors only.
 - 3.1.5 An overall flow chart indicating the location of different activities and the flow pattern of the hardware from raw material to packaging and shipping.
 - 3.1.6 Detailed schedule of activities indicating the realisation of hardware in stages and the delivery dates for the finished sub-assemblies. The schedule should also indicate the identified milestones by URSC like, Mandatory Inspection Points (MIPs) and reviews etc. The schedule should be month wise and have to be updated regularly every month.

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- 3.1.7 Availability of packaging / sealing equipment as per URSC requirement (Annexure-3 for information).
- 3.1.8 Product Assurance plan preparation.
- 3.1.9 Availability of desiccators and timely procurement of packaging material for storage of dry lubricated components.

- 3.2 Vendor shall identify an overall in-charge (Programme Manager) for this entire activity. He will coordinate with URSC for all activities connected with this contract. The Vendor shall also identify a Product Assurance Engineer. The Programme Manager, Product Assurance Engineer and other key personnel identified, shall be reflected in the "Project Plan". All communications and interactions with URSC shall be through the Programme Manager.

- 3.3 Pre-requisites from the vendor before commencement of activities

- 3.3.1 Realisation of fixtures required as per Annexure-2.

- 3.3.2 Availability of 1, 00,000 Class or better clean area, Class 100 or better for laminar flow table and nitrogen purged desiccators.

- 3.4 The vendor shall ensure a strict and comprehensive inventory control of all raw materials & standard parts.

- 3.5 First set of critical components, if any, identified by URSC to be fabricated (with commercial / actual alloy material) and submitted for First Article dimensional inspection (FAI) and only after obtaining clearance from URSC for further sets fabrication to be initiated. Third party inspection for all 100% components is required. This clause is not applicable, if the fabrication is done at URSC approved vendors or at vendor's in-house fabrication facility.

- 3.6 Fabrication of springs (approved vendor as per Annexure-4).

- 3.6.1 Procurement of raw material taking into account additional requirement for rejections.

- 3.6.2 Supply of raw material to spring fabricator.

- 3.6.3 Incoming inspection of springs as per drawings after receipt.

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- 3.6.4 Heat treatments of springs (along with minimum two numbers of test coupon rods of 2mm diameter and minimum length of 200 +/- 10 mm for tensile test) angle correction, cleaning, dimensional inspection and characterisation after secondary treatment.

- 3.6.5 Secondary treatment of springs as applicable.

- 3.7 MIP-1 (Refer Figure-2) to be conducted prior to starting of fabrication, wherein audit of the following points will be carried out by URSC at vendor's premises.

- 3.7.1 Availability of URSC approved master list of drawings.

- 3.7.2 Availability of approved fabrication drawings.

- 3.7.3 URSC clearance for raw materials/standard parts procured as per specification, storage of raw materials and traceability procedure (Route sheets to indicate the material details, engraving of heat number on both ends of rods, flat etc.).

- 3.7.4 Listing of inspection equipment required by the vendor. Availability of calibration details of inspection equipment (Traceability for inspection equipment).

- 3.7.5 Clearance for FAI components, if applicable.

- 3.7.6 Clearance for fabrication for first set of components.

- 3.8 Vendor shall be responsible for the fabrication and inspection of the mechanism parts as per the drawings supplied. All components have to be inspected for 100% dimensions specified in the respective drawings. All dimensional deviations to be reported to URSC as NCR in standard format approved by URSC and will be used only after getting clearance from URSC. The vendor shall use only accepted parts for further activities. The vendor shall devise a fool proof method to identify and remove the rejected parts out of the assembly line and also keep an account of these parts. If the vendor sub-contracts the fabrication, third party inspection of the all the fabricated parts to be carried out and witnessed by the same team. URSC approval before finalizing the third party (ISO certified/Aerospace certified) for inspection to be taken. The vendor may sub-contract the partial order for fabrication and

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secondary treatment only with prior approval from URSC without affecting the quality standards.

- 3.9 Regarding identification marking and serial numbering of items like parts, standard components and sub-assemblies, the following points shall be complied with.

- 3.9.1 The numbering system for identification of fabricated parts and sub-assemblies shall be adopted in consultation with URSC.

- 3.9.2 The serial number on fabricated parts shall be engraved at the location as indicated in the respective drawings. Adequate care shall be taken to safeguard the functionality of the tested sub-assemblies while engraving the identification serial number on them.

- 3.9.3 For small parts like springs, washers, pins, etc., where identification marking is difficult, it has to be carried-out by a suitable loop tag/ sticker which contains part serial number.

- 3.10 Wherever the vendor sub-contracts some of the activities/processes, the necessary details about the capabilities and quality assurance system of such sub-vendor are to be provided to URSC for approval. The order shall be placed on the sub-vendor only after obtaining approval from URSC. URSC reserves the right of access and may inspect/audit the works as well as any associated facilities and documentation as and when required at vendor/ sub-vendor's premises.

- 3.11 MIP-2 (Refer Figure-3) to be conducted after completion of fabrication and prior to Secondary treatment / heat treatment, taking into consideration the following points.

The readiness of parts for

- 3.11.1 Anodisation,

- 3.11.2 Sand blasting & Dry Lubrication (SD),

- 3.11.3 Sand blasting, Anodisation & Dry Lubrication (SAD),

- 3.11.4 Hard Anodisation & Dry lubrication (HAD),

- 3.11.5 Gold plating (GP) will be carried out at URSC once all the fabricated stand-off parts / conduction strips and contact pins are handed over

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in one batch to URSC after MIP-2 clearance for. (All the wings stand-off components including 2 coupons)

Parts details to be prepared in the standard route sheet format given by URSC (As per Annexure-6, check for latest formats from URSC), as per batch details attached along with the indent, indicating all parts killed in each batch. Each secondary treatment batch will be allotted with test coupons. (Coupon drawing details (as per Annexure-2) to be finalized prior to MIP-2 in consultation with URSC, normal batch size is 30 items max., including coupons). All the components required for all the wings as per purchase order to be fabricated and given to URSC for gold plating in single batch. Two flat coupons to be provided for co-processing. The batch size of components varies based on the component size. Ex: batch size of hold down base is approximately 3 per batch and approximately 30 no's for disc springs.

- 3.11.6 Ensure all dimensions of all the fabricated parts are inspected, and accepted, with the inspection report and all NC's are closed.
- 3.11.7 Ensure that all the fabricated parts are identified with serial numbers engraved on it or tagged, as applicable.
- 3.11.8 Ensure availability of acceptance certificates for all bought-out components.
- 3.11.9 Ensure 100 % PMI testing for all fabricated parts.
- 3.11.10 Ensure that secondary treatment (anodization, sand blasting and dry lubrication, hard anodization) is carried out with URSC approval as per section 2.9.
- 3.11.11 Ensure that proper documents are prepared for packing of components during transportation (Based on guide lines given in Annexure-3) (Since the components are prone for deterioration once exposed to humidity after the above mentioned operations).
- 3.11.12 Ensure availability of necessary packing materials and humidity indicators for the same. System should be available in time for use.

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3.11.13 Clearance to release for secondary treatment of components.

3.12 All secondary treatment activities shall be performed as per URSC approved formats like drawings and secondary process route sheets as applicable (As per Annexure-1 & 6). These route sheets shall be signed for each operation by the concerned engineer and QA engineer as and when the operation is done. The latest route sheet formats to be taken from URSC before releasing it to secondary treatment.

3.13 Secondary treatment of components to be carried out by the vendor as per the following details after MIP-2. Also ensure

a) For anodisation, the components and coupons are of the same material. For normal anodisation use flat coupon with 3mm thickness and for hard anodisation use flat coupons with 12mm thickness. Each anodisation batch of components to be supplied with 3 coupons. The coupon size should be (65 mm x 35 mm).

3.13.1 For SD, SAD, HAD etc. where dry lubrication is involved, flat and cylindrical coupons material to be of the same of component material and V-blocks are simulating the mating material without MoS2 coating. As per the assembly drawing if the component which is being released for dry lubrication is made of SS-304 and the mating material part is Ti6AL-4V with dry lubrication, then flat and cylindrical coupons are to be SS-304 material and V-blocks are to be of Ti-6AL-4V without dry lubrication condition (all mating coupons are to be without MoS2 coating irrespective of mating component condition).

3.13.2 Parts requiring Anodisation

3.13.2.1 The MIP cleared batch components along with coupons to be handed over to URSC approved vendor.

3.13.2.2 Anodising agency to carry out the masking & anodization operations as given in respective drawings.

3.13.2.3 After anodization, coupons processed along with the components to be inspected for coating thickness.

3.13.2.4 Visual observation on components if any shall be recorded.

3.13.2.5 The above inspection shall be carried out by URSC qualified inspectors and clearance provided for further operation.

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3.13.2.6 Deviations if any, to be referred to URSC for disposition.

3.13.3 Parts requiring Sand blasting & Dry Lubrication

3.13.3.1 MIP cleared batch components along with coupons to be handed over to URSC approved vendor.

3.13.3.2 URSC approved vendor to carry out the masking & sand blasting operations as per relevant drawings.

3.13.3.3 Sand blasted components along with the coupons to be offered by the vendor to URSC for QA clearance.

3.13.3.4 After inspection, the same to be dry lubricated as per drawings.

3.13.3.5 The batch components along with coupons after dry lubrication to be inspected visually, for coating thickness and functional testing by URSC qualified inspectors or URSC inspectors and to be offered by the vendor to URSC for clearance.

3.13.3.6 Clearance by URSC, QA for further operation.

3.13.4 Parts requiring Sand blasting, Anodisation & Dry Lubrication

3.13.4.1 The MIP cleared batch components along with coupons to be handed over to URSC approved vendor.

3.13.4.2 URSC approved vendor will carry out the masking & sand blasting operations as per relevant drawings.

3.13.4.3 Sand blasted components along with the coupons to be offered by the vendor to URSC for clearance.

3.13.4.4 The batch components along with coupons to be handed over to URSC approved vendor for anodization.

3.13.4.5 Anodising agency to carry out the masking & anodization operations as given in respective drawings.

3.13.4.6 After anodization, coupons processed along with the components to be inspected for coating thickness.

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3.13.4.7 Visual observation on components if any shall be recorded.

3.13.4.8 The above inspection shall be carried out by URSC qualified inspectors and clearance provided for further operation.

3.13.4.9 Deviations if any, to be referred to URSC for disposition.

3.13.4.10 After inspection, the same to be dry lubricated as per drawings.

3.13.4.11 The batch components along with coupons after dry lubrication to be inspected visually, for coating thickness and functional testing by URSC qualified inspectors or URSC inspectors and to be offered by the vendor to URSC for clearance.

3.13.4.12 Clearance by URSC, QA for further operation.

3.13.5 Parts requiring Hard Anodisation & Dry Lubrication

3.13.5.1 The MIP cleared batch components along with coupons to be handed over to URSC approved vendor.

3.13.5.2 Hard Anodisation will be done at URSC approved vendor as per the masking details given in respective part drawings.

3.13.5.3 Coupons along with the components to be inspected after Hard Anodisation for coating thickness by URSC qualified inspectors.

3.13.5.4 Clearance by URSC QA for further operation.

3.13.5.5 After inspection, the same to be dry lubricated as per drawings.

3.13.5.6 The batch components along with coupons after dry lubrication to be inspected visually, for coating thickness and functional testing by URSC qualified inspectors or URSC inspectors and to be offered by the vendor to URSC for clearance.

3.14 MIP-3 (Refer Figure-4) to be conducted prior to assembly, taking into consideration the following points.

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- 3.14.1 Ensure that all processes related to assembly & testing like bearing staking, proof loading and clearance measurement, springs heat treatment and cleaning, helicoil insertion, Du-bush insertion are qualified and approved by URSC as per Annexure-2.
- 3.14.2 Ensure all fabricated parts are dimensionally inspected and accepted.
- 3.14.3 Ensure all pending NCRs are closed.
- 3.14.4 Ensure availability of acceptance certificates for all bought-out components including fasteners and other standard items.
- 3.14.5 Ensure that all the fixtures as per Annexure-2 are available and are cleared for assembly.
- 3.14.6 Ensure periodic environmental control for cleanliness of assembly areas (clean area – class 1,00,000 and Laminar Flow Table – class 100) temperature, humidity and ESD control with appropriate records.
- 3.14.7 Ensure secondary treatment on components have been carried out as per requirement and has been accepted by URSC QA.
- 3.14.8 Ensure helicoil insertion is done as per drawing.
- 3.14.9 Carry out visual inspection of secondary treated parts. Notify URSC for any abnormality observation and obtain its concurrence for further proceeding.
- 3.14.10 Ensure availability of approved assembly procedure logbooks and test procedures.
- 3.14.11 Ensure that all parts have undergone necessary component level characterisation/ proof loading/ screening accompanied with test results as identified in respective logbooks/drawings (Test procedure document for Solar Array Deployment Mechanism components and sub-assemblies).
- 3.14.12 Verify calibration validity of all equipment, jigs and fixtures required for assembly.

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- 3.14.13 Clearance for sub-assembly.
- 3.15 Ensure the completion of the following activities before commencement of sub-assemblies.
- 3.15.1 Component level activities (As per Annexure-5):**
- 3.15.1.1 Proof load test on staked spherical bearing
- 3.15.1.2 Characterisation of springs and micro switches
- 3.15.1.3 Screening of Micro switches through URSC
- 3.15.1.4 DU-Bush Insertion
- 3.15.1.5 Squeeze boot inspection and NDT.
- 3.15.1.6 Squeeze boot high vacuum leak test (components to be provided to URSC for testing and clearance).
- 3.15.1.7 Viton seal dimensional inspection report and COC to be provided to URSC for clearance.
- 3.15.2 Sub-assembly level activities (As per Annexure-1 and applicable logbooks):**
- Ensure all the activities are carried out by the vendor with proper documentation and traceability.
- 3.16 Sub-assemblies of all parts have to be carried out inside a laminar flow table of class 100. The assembly operations have to be performed using clean, lint free gloves. All operations like functional testing, final inspection and packaging activities have to be carried out in a clean area of 1,00,000 Class (A/C area with controlled entry, identified exclusively for this contract).
- 3.17 Operations like staking of bearings, which are carried-out on the components after secondary treatment, have to be done with utmost care and as per assembly procedure logbooks. Helicoil insertion and any other mechanical operation which can generate loose metal particles shall not be done in the clean area as the metallic chips may affect the functional performance of the assemblies. Hence, such operations shall be done

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- outside the clean area with the component suitably covered so that the secondary treated surfaces are suitably masked to avoid contamination.
- 3.18 MIP-4 (Refer Figure-5) to be conducted at vendor's premises prior to sub-assembly level testing, taking into consideration the following points.
- 3.18.1 Verify logbooks are completed in all respects including:**
- 3.18.1.1 Raw material and component certification
- 3.18.1.2 Fabricated parts certification
- 3.18.1.3 Secondary process details including route sheets and certificates
- 3.18.1.4 All assembly operations
- 3.18.2 Sub-assembly clearance measurements
- 3.18.3 Verify that Sub-assemblies are identified.
- 3.18.4 Verify that all NCRs have been closed after approval from URSC.
- 3.18.5 Visually inspect the Sub-assemblies.
- 3.18.6 Ensure availability of test procedures.
- 3.18.7 Verify calibration validity of equipment, test set-ups required for testing/characterisation.
- 3.18.8 Verify end-to-end traceability of the hardware.
- 3.18.9 Vendor to carry out the sub-assembly level tests like hinge Characterisation, Ejector force measurement etc., as per test procedure document, Test specification document and record the details in the respective test results formats.
- 3.18.10 Assembly and tests will be carried-out in a dust free enclosure of 1,00,000 class, with a relative humidity of 50 % $\pm$ 10 % and temperature of 20 $\pm$ 2°C.

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- 3.18.11 Functional and other tests are to be conducted on sub-assemblies using special fixtures fabricated by the Vendor and approved by URSC.
- 3.19 MIP-5 & PSR: After completion of all the sub-assembly tests, the vendor has to arrange for MIP-5 & PSR, at the vendor's premises, as a final clearance prior to shipment to URSC taking into consideration the following requirements.
- 3.19.1 Verify end-to-end traceability of the hardware.
- 3.19.2 Verify that all testing has been performed as per requirement.
- 3.19.3 Verify that all test data have been recorded
- 3.19.4 Verify that all logbooks are complete in all respects.
- 3.19.5 Verify that the results are within specifications.
- 3.19.6 Verify that all NCR's have been closed after approval from URSC (Non-conformance summary).
- 3.19.7 Verify the availability of parts tracker CD.
- 3.19.8 Verification of vendor clearance reports for spring holders and strain gauges.
- 3.19.9 Verify that all MIP-1 to MIP-5 actions are closed for PSR clearance.

Note:

URSC team will participate in MIP- 5. However, vendor is required to intimate URSC at least 10 working days prior to the planned MIP-5 date. Before shipment of hardware to URSC, MIP-5 clearance is required and pre-shipment clearance (PSR) to be taken from URSC before delivery of hardware as per the contract.

URSC team will also participate in MIP 1 to 4. Based on Vendor performance URSC may authorize VENDOR's QC team to conduct MIP-1 to MIP-4 and submit the reports to URSC team for clearance.

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4 APPLICABLE DOCUMENTS TO BE PROVIDED BY URSC

Templates for the documents/route sheets will be provided by URSC. If the P.O is awarded to already URSC developed vendor for SADM hardware, only drawings shall be provided as all other details are already provided to them earlier.

- 4.1 Drawings in pdf format (As per Annexure-1). 3D CAD models will not be provided to the vendor. The drawings already provided with RFP/Tender.
- 4.2 Secondary treatment details as given in respective drawings.
- 4.3 Raw Material and standard parts procurement specifications, if requested by the vendor (not applicable for existing vendors).
- 4.4 Tools & Fixtures details as given in Annexure-2 (Vendor may develop additional / similar tools as per their assessment).
- 4.5 Process qualification document as given in Annexure-5.
- 4.6 URSC approved vendor's details as given in Annexure-4.
- 4.7 Packing details as given in Annexure-3.
- 4.8 Secondary treatment Route sheets (Template) as given in Annexure-6.
- 4.9 "Test procedures document for Solar Array Deployment Mechanism components and sub-assemblies", if requested by the vendor
- 4.10 "Component and sub-assembly test specification document for Solar Array Deployment Mechanism components and sub-assemblies", if requested by the vendor
- 4.11 Raw material test certification requirements as in Annexure-10.

Note: Only drawings shall be provided by URSC for the existing vendors as rest of the documents are already shared with them. Only New vendors will be provided the above mentioned documents as applicable.

5 DELIVERABLES AS PER RFP BY THE VENDOR

- 5.1 Raw material test certificates (chemical composition, mechanical properties and other tests mentioned in the specification document as per Annexure-10).
- 5.2 Solar array deployment mechanism parts and sub-assemblies to be delivered as per Annexure-1.

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- 5.3 Completely assembled, tested and packed hardware as per bill of materials (BOM) with nitrogen purging.
- 5.4 Inspection reports of all the components (fabrication, secondary treatment, assembly and testing (NCRs closeouts/Sub System Review Board (SSRB) close outs)).
- 5.5 Logbooks with test data and traceability data for all sub-assemblies along with test data sheets/ graphs, NCR and associated closeouts appended to them.
- 5.6 Checklist to ensure that all the relevant documentation and hardware processes have been completed.
- 5.7 All MIP, MRR, TRR and PSR reports.
- 5.8 "Acceptance certificate" by the Product Assurance in-charge identified by the vendor for the supplied hardware.
- 5.9 Standard components certification.
- 5.10 Separate Parts Tracker CD for each wing of SADM.
- 5.11 Secondary treatment witness coupons duly identified in sealed covers.
- 5.12 Facilities and process qualification document.

6 REVIEWS AND MEETINGS

The vendor shall identify a Program Manager for the period extending from the date of contract to the final hardware delivery to URSC. The program Manager shall be the focal point of contact for formal meetings, reviews and for informal discussions as necessary. And arrange status review meetings with URSC at regular intervals. He shall be responsible for the preparation and submission of the progress report described in 2.19. He shall also provide the necessary information and support for conducting MIPs by URSC.

The vendor will convene the following review meetings.

- Manufacturing Readiness Review (MRR)
- Assembly Readiness Review (ARR)
- Test Readiness Review (TRR)
- Pre Shipment Review (PSR)

All the above-mentioned reviews will be held at the vendor's facility with URSC participation. URSC shall be notified at least 10 days prior to each review.

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6.1 Manufacturing Readiness Review (MRR)

MRR shall be conducted at three different stages (MIP-1, 2 & 3) prior to commencement of manufacture for the purpose of establishing that adequate documentation, tooling and facilities are available for manufacturing and assembly. MRR can be clubbed with MIP-1, 2 & 3 activities as given in Work flow details, Section 3.

The MRR shall include but not be limited to the following.

- 6.1.1 Manufacturing flow plan with Mandatory Inspection Points (MIP).
- 6.1.2 Description of facilities and equipment used for manufacturing, inspection and testing along with documentation, including assembly and inspection instructions.
- 6.1.3 Verification of parts and materials in conformance to requirements.
- 6.1.4 Verification of personnel, equipment and processes.

6.2 Test Readiness Review (TRR)

The vendor shall conduct a pre-test review for tests (Can be clubbed with MIP-4 activities as given in Work flow details, Section 3) that shall concentrate on, but not be confined to, the following areas. Completeness and acceptability of documentation and the test article.

- 6.2.1 Facility and equipment acceptability.
- 6.2.2 Test personnel identification.
- 6.2.3 Test Anomaly notification procedures.
- 6.2.4 The vendor's designated executive shall prepare and submit a review Summary of each pre-test review to URSC. TRR shall be conducted prior to the commencement of testing of sub-assemblies.

The TRR shall include but not be limited to the following.

- Test specification and procedures.
- Sample data sheets and/or printouts showing test results.
- Verification of personnel, equipment and process certifications.

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6.3 Pre Shipment Review (PSR)

Primary objective of this review shall be to assess the readiness of subassemblies / units for shipment. The vendor shall conduct a post-test review (can be clubbed with MIP – 5 activities as given in Work flow details, Section 3) for tests that shall concentrate on, but not be confined to, the following areas.

- 6.3.1 Test data of all assemblies/units
- 6.3.2 Procedure for the resolution of anomalies noticed during the test
- 6.3.3 Recommendations for additional testing
- 6.3.4 Agreement that the test is complete and satisfies the requirements.
- 6.3.5 Logbook of all assemblies/units.
- 6.3.6 Inspection reports and log sheets of all parts fabrication and secondary treatments.
- 6.3.7 Non-conformance/anomaly summary from MIP-1 to MIP-5.
- 6.3.8 Final clearance for shipment by vendor's QA.
- 6.3.9 Parts tracker CD.

The vendor's designated executive shall prepare and submit a review summary of each of post-test review to URSC. The review will be considered closed after URSC approves the disposition of all discrepancies, anomalies and failures.

6.4 Liaison Services and Consultation

The vendor shall furnish liaison services and consultation as required to obtain proper exchange of information between the vendor and URSC. These services shall include participation in technical and ad-hoc review meetings (with URSC's representative including URSC's Engineering consultants and possibly including representatives of URSC's customers). Minutes of each review meeting shall be prepared and issued by the meeting host and documented in the subsequent progress report. The vendor shall provide adequate office facilities and support as necessary to allow URSC representatives including Engineering consultants to properly conduct all duties and tasks necessary for the evaluation and verification of conformance to all provisions of this Statement of Work and the contract.

6.5 The vendor shall manage all matters relating to the performance of the contract and ensure that the personnel and facilities necessary for the performance of the contract are assigned and made available at the times and places necessary to meet the schedule established by the contract.

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6.6 The vendor shall agree to assign to the performance of this Statement of Work on a first priority non-interference basis, the employees who are identified in the project plan. Key personnel will be designated by the vendor in the vendor's proposal and will be approved by URSC. A proposal for substitution of key personnel must provide

6.6.1 A complete resume of the proposed candidate.

6.6.2 Any additional information requested by URSC that is reasonably required to properly evaluate the qualifications of the proposed candidate for substitution.

6.6.3 A reasonably detailed explanation of the circumstances necessitating the proposed substitution.

6.7 No substitution of key personnel shall be made except in accordance with the provisions of this clause. For purposes of this key personnel provision, the parties recognise that some key personnel may be assigned to jobs or responsibilities in addition to those required under performance of this Statement of Work.

6.8 URSC Review Summary

The vendor's designated executive shall prepare and submit to URSC a Review Summary of each review defined in 2.21 (PA) that shall include at least the following:

6.8.1 Purpose of review

6.8.2 Date and time of review meeting

6.8.3 List of attendees with the name of their organisation

6.8.4 Record of recommendations, agreements and action items

6.8.5 Conclusions

6.9 The vendor shall provide written notification of ten working days in advance before the start of any hardware testing or any test review meetings. URSC and its representatives shall have the right, but not the obligation, to participate in and to witness any testing of hardware and software. Summaries of any requested test reviews shall be documented in the appropriate status report.

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7 Delivery Schedule, Payment Terms & conditions and Quotation details:

I. DELIVERY SCHEDULE: EOS type 08 wings and I-1K type 08 wings of SADM hardware with spare parts.

Delivery of required number of sub-assemblies and spare parts for the solar array wings as per the following table-1 & 2.

Table-1 (EOS type SADM, Qty: 08 wings)

Sl. No	DESCRIPTION	DELIVERY DATE
1	Delivery of SADM Wings 1 & 2	* T0 + 14 Months
2	Delivery of SADM Wings 3 & 4	* T0 + 16 Months
3	Delivery of SADM Wings 5 & 6	* T0 + 18 Months
4	Delivery of SADM Wings 7 & 8	* T0 + 20 Months

Table-2 (I-1K type SADM, Qty: 08 wings)

Sl. No	DESCRIPTION	DELIVERY DATE
1	Delivery of SADM Wings 1 & 2	* T0 + 14 Months
2	Delivery of SADM Wings 3 & 4	* T0 + 16 Months
3	Delivery of SADM Wings 5 & 6	* T0 + 18 Months
4	Delivery of SADM Wings 7 & 8	* T0 + 20 Months

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a) * T0 starts from the date of acceptance of Purchase Order (PO) by the vendor within 7 days of receipt of purchase order.

b) T0+14 months include procurement of raw material, standard parts, packing material, readiness of test setup, documentation & delivery of flight hardware at ISITE/URSC stores by the vendor.

c) The vendor shall comply with any minor changes communicated during course of execution of the contract in writing by URSC.

II. PAYMENT TERMS & CONDITIONS:

An advance payment 30 % of PO value (excluding taxes) will be paid after the successful completion of MIP-1 (Refer Section 3.7 & Annexure-8) against bank guarantee as per URSC/DOS procedures.

70% of the remaining PO value shall be paid on pro-rata basis for each wing/set of hardware against delivery and acceptance of the hardware by URSC at URSC/SITE.

III. QUOTATION DETAILS:

a) Vendor shall submit quotation for EOS type (Table-1) and I-1K type (Table-2) SADM wings separately. Price quoted to be firm and fixed and no price variation clause is accepted.

b) L1 for EOS type and L1 for I-1K type SADM will be decided separately based on price bid evaluation. The quantity is divisible.

c) Cost/wing should include spare parts listed for each wing in annexure-1, secondary treatment coupons cost and all associated costs.

d) It's a two-part bid, Technical and commercial bids to be submitted. Technical bid should not contain any commercial information (price details). Any commercial information leads to rejection of the bid. The technical bid should be as per Table-4

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e) **Non-Disclosure Agreement:** All the drawings and documents involved in execution of this contract are confidential and without the prior approval of URSC, vendors are not to disclose/share the information to any third party.

f) The warranty period shall be 12 months from the date of delivery of the hardware at URSC/SITE stores and acceptance by URSC.

g) During the warranty, the repair or replacement should be at vendor's cost. The faulty product to be collected by the vendor from URSC/SITE stores and repaired or replaced product to be delivered at URSC/SITE stores with due clearance from URSC.

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7.1 PARALLEL CONTRACT TO DEVELOP NEW VENDOR THROUGH DEVELOPMENTAL ORDER:

(Not applicable to existing qualified vendors)

1. URSC may enter into parallel PURCHASE ORDER with one new vendor as an exploration.
2. Only technically suitable new vendor will be given opportunity to execute realisation of end-to-end Productionisation of one wing of I-1k type solar array deployment mechanism hardware as a qualification order separately.
3. This qualification order shall not have any implication of regular quantity of 8+8 wings as per SOW (ISRO-URSC-TR-1974) hence the URSC/ISRO project schedules will not get affected.
4. New vendor shall comply the availability of all facilities as per section 2.18 in their premises or at sub-vendor by submitting the details along with the Technical bid.
5. The facilities to be established as per section 2.18 in SOW (ISRO-URSC-TR-1974) within 06 months from date of release of P.O and same to be offered to URSC team for inspection and qualification of the same.
6. The cost per solar array wing should be L1. If the quote is more than L1 quote, the new vendor shall be given opportunity to match the L1 price, if the vendor agrees for L1 price the purchase order will be awarded for one solar array wing.
7. After successful execution of developmental order by the new vendor, the vendor will be qualified for future RFPs along with existing vendors.
8. All other SOW terms & conditions shall also apply for the new vendor during execution of qualification order.
9. Delivery period for ONE WING hardware is 18 months (refer below Table-3)

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Table-3 (I-1K type SADM, Qty: 01 wing)

Sl. No	DESCRIPTION	DELIVERY DATE
1	Delivery of SADM Wing-1	* T0 + 16 Months

- *T0 starts from the date of acceptance of Purchase Order (PO) by the vendor within 7 days of receipt of purchase order.
- T0+16 months include procurement of raw material, standard parts, packing material, readiness of test setup, documentation & delivery of flight hardware at ISITE/URSC stores by the vendor.
- The vendor shall comply with any minor changes communicated during course of execution of the contract in writing by URSC.
- Vendor shall submit quotation for I-1K type SADM wing (Table-3). Price quoted to be firm and fixed and no price variation clause is accepted.
- Cost/wing should include spare parts listed for each wing in annexure-1, secondary treatment coupons cost and all associated costs.
- It's a two-part bid, Technical and commercial bids to be submitted. Technical bid should not contain any commercial information (price details). Any commercial information leads to rejection of the bid. The technical bid should to be as per Table-4
- Non-Disclosure Agreement:** All the drawings and documents involved in execution of this contract are confidential and without the prior approval of URSC, vendors are not to disclose/share the information to any third party.
- The warranty period shall be 12 months from the date of delivery of the hardware at URSC stores and acceptance by URSC.
- During the warranty, the repair or replacement should be at vendor's cost. The faulty product to be collected by the vendor from URSC stores and repaired or replaced product to be delivered at URSC/SITE stores with due clearance from URSC.

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TABLE-4: TECHNICAL BID COMPLAINT

The vendor to provide the details clearly and should not write Yes/No

SL. No.	DESCRIPTION	Details
1.	Clean room (12x15x8 feet LxWxH or bigger) 1,00,000 class and year of establishment with humidity and particle count latest certificate from the agency	
2.	Organization Certificate, ISO 9001:2015 or AS9100D	
3.	Details of Engineers, Diploma and ITI employees: Employee No, EPF No, qualification, working since in the present organization	
4.	Compliance to all terms and conditions mentioned in SOW DOC. ISRO-URSC-TR-1974 Rev.00	
5.	PMI (Positive Material Identification) test equipment	
6.	Parts Tracker software (web based)- Type of software	
7.	100 class Laminar flow tables (W: 3ft x L: 5ft x H: 3ft or better) for assembly with temperature, humidity control and ESD control	
8.	Torsion, extension and Compression springs testing machine for load (1 to 100 N) vs deflection (5 to 70 mm) & Torque (0.11 to 1.5 N-m) vs angle (0 to 180 deg)	
9.	Automated Hinge characterization facility to characterize the hinges (0.1 to 1.5 N-m) vs angle (0 to 180 deg)	
10.	Universal Testing machine from 1kg to 2000kg capacity	
11.	Set-up for staking of bearings, Du-bushes, bearing clearance measurement and proof loading of stacked bearings	
12.	Furnace for heat treatment of springs etc., Temperature up to 600 degrees centigrade	
13.	Chemical cleaning facility for cleaning of springs	
14.	Storage facility with temperature and humidity control and with dry nitrogen purging facility to store secondary treated parts and sub-assemblies and standard parts like spherical bearings etc. at vendor's premises	
15.	Acceptance of delivery of first set of flight hardware (Wings 1 & 2) at ISITE/URSC stores in T0+14 months (T0 starts from the date of acceptance of PO by the vendor or 30 days from the date of purchase order whichever is earlier)	

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A). SOLAR ARRAY DEPLOYMENT MECHANISM (EOS type):

List of sub-assemblies to be realised and delivered to URSC

Sl. No.	Description	Number / Wing
1	S/C - P1 CCL Hinge Assembly	1
2	S/C - P1 NON-CCL Hinge Assembly	1
3	P1-P2 CCL Hinge Assembly	1
4	P1-P2 NON-CCL Hinge Assembly	1
5	PANEL HOLD-DOWN ASSEMBLY	1+1+1+1+4+LOOSE PARTS
	TOP LHS HD BASE SUB-ASSEMBLY	1
	TOP RHS HD BASE SUB-ASSEMBLY	1
	BOT LHS HD BASE SUB-ASSEMBLY	1
	BOT RHS HD BASE SUB-ASSEMBLY	1
	BOLT WIRE SWAGING SUB-ASSEMBLY	4
	PANEL HOLD DOWN LOOSE PARTS	LOOSE PARTS
6	RELEASE LOOP ASSEMBLY	1+1+1+LOOSE PARTS
	LOOP END BRACKET ASSEMBLY	1
	STOPPER BRACKET ASSEMBLY	1
	HOLD DOWN & RELEASE MECHANISM ASSY.	1
	LOOP ASSY-A & LOOP ASSY-B	LOOSE PARTS
7	CCL ASSEMBLY	1 (LOOSE PARTS)
8	INTER-PANEL HARNESS ASSEMBLY	1 (LOOSE PARTS)
9	SPARES	1 (LOOSE PARTS)

ANNEXURE - 1

LIST OF DELIVERABLES

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Details of Parts list (for reference only): All the parts are listed in bill of materials in each of the above assembly drawings. Parts list is given below for completeness sake.
Parts list:

TOP LHS HD BASE ASSY

SL.NO.	PART NAME	DRAWING NO.	REV.NO
A	TOP LHS HD. BASE ASSY.	ISAC-SCMG-RIZB-SA-00005-001	1
1	BASE-A	ISAC-SCMG-EMST-SA-11001-000	1
2	HORIZONTAL SPIGOT	ISAC-SCMG-EMST-SA-11002-001	1
3	PLUNGER	ISAC-SCMG-SARL-S3-21003-001	1
4	SPRING ANCHOR	ISAC-SCMG-EMST-SA-11004-000	1
5	PRIMARY LEVER	ISAC-SCMG-SARL-S3-21005-001	1
6	SECONDARY LEVER	ISAC-SCMG-EMST-SA-11006-000	1
7	ROLLER	ISAC-SCMG-EMST-SA-11007-000	0
8	BOLT WIRE ROPE SWAGING SUB-ASSY.	ISAC-SCMG-RIZB-SA-00060-000	0
9	BOTTOM END TERMINAL	ISAC-SCMG-EMST-SA-11101-000	0
10	TOP END TERMINAL	ISAC-SCMG-EMST-SA-11102-000	0
11	RELEASE PULLEY	ISAC-SCMG-EMST-SA-11008-000	0
12	ROLLER SHAFT	ISAC-SCMG-EMST-SA-11009-000	0
13	LEVER SHAFT	ISAC-SCMG-EMST-SA-11010-000	0
14	LEVER SPACER	ISAC-SCMG-EMST-SA-11011-000	0
15	ROLLER SPACER	ISAC-SCMG-EMST-SA-11012-000	0
16	SHOULDER SCREW	ISAC-SCMG-EMST-SA-11013-000	0
17	PLUNGER SPRING	ISAC-SCMG-SARL-S3-21018-001	1
18	LEVER RELEASE SPRING	ISAC-SCMG-RIZB-SA-00062-000	0
19	EJECTOR PIN-2	ISAC-SCMG-EMST-SA-11016-001	1
20	SPRING HOLDER	ISAC-SCMG-EMST-SA-11017-000	0
21	SEPARATOR SPRING	ISAC-SCMG-PROD-S3-11051-001	1
22	LEVER SPRING SHAFT	ISAC-SCMG-EMST-SA-11020-000	0
23	STOPPER SHAFT	ISAC-SCMG-EMST-SA-11021-000	0
24	STOPPER SHAFT BUSH	ISAC-SCMG-EMST-SA-11022-000	0

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TOP RHS HD BASE ASSY

SL.NO.	PART NAME	DRAWING NO.	REV.NO
B	TOP RHS HD. BASE ASSY	ISAC-SCMG-RIZB-SA-00007-001	1
1	BASE-B	ISAC-SCMG-EMST-SA-12001-000	0
2	CIRCULAR SPIGOT	ISAC-SCMG-EMST-SA-14001-000	0
3	PLUNGER	ISAC-SCMG-SARL-S3-21003-001	1
4	SPRING ANCHOR	ISAC-SCMG-SARL-S3-21004-000	0
5	PRIMARY LEVER	ISAC-SCMG-SARL-S3-21005-001	1
6	SECONDARY LEVER	ISAC-SCMG-EMST-SA-11006-000	0
7	ROLLER	ISAC-SCMG-EMST-SA-11007-000	0
8	BOLT WIRE ROPE SWAGING SUB-ASSY.	ISAC-SCMG-RIZB-SA-00060-000	0
9	BOTTOM END TERMINAL	ISAC-SCMG-EMST-SA-11101-000	0
10	TOP END TERMINAL	ISAC-SCMG-EMST-SA-11102-000	0
11	RELEASE PULLEY	ISAC-SCMG-EMST-SA-11008-000	0
12	ROLLER SHAFT	ISAC-SCMG-EMST-SA-11009-000	0
13	LEVER SHAFT	ISAC-SCMG-EMST-SA-11010-000	0
14	LEVER SPACER	ISAC-SCMG-EMST-SA-11011-000	0
15	ROLLER SPACER	ISAC-SCMG-EMST-SA-11012-000	0
16	SHOULDER SCREW	ISAC-SCMG-EMST-SA-11013-000	0
17	PLUNGER SPRING	ISAC-SCMG-SARL-S3-21018-001	1
18	LEVER RELEASE SPRING	ISAC-SCMG-RIZB-SA-00062-000	0
19	EJECTOR PIN-2	ISAC-SCMG-EMST-SA-11016-001	1
20	SPRING HOLDER-1	ISAC-SCMG-EMST-SA-12003-000	0
21	SEPARATOR SPRING	ISAC-SCMG-PROD-S3-11051-001	1
22	LEVER SPRING SHAFT	ISAC-SCMG-EMST-SA-11020-000	0
23	STOPPER SHAFT	ISAC-SCMG-EMST-SA-11021-000	0
24	STOPPER SHAFT BUSH	ISAC-SCMG-EMST-SA-11022-000	0

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BOT LHS HD BASE ASSY

SL.NO.	PART NAME	DRAWING NO.	REV.NO
C	BOT LHS HD. BASE ASSY.	ISAC-SCMG-RIZB-SA-00008-001	1
1	BASE-B	ISAC-SCMG-EMST-SA-12001-000	0
2	CROSS SPIGOT	ISAC-SCMG-RIZB-SA-00066-000	0
3	SPRING HOLDER-1	ISAC-SCMG-EMST-SA-12003-000	0
4	SPRING ANCHOR	ISAC-SCMG-EMST-SA-11004-000	0
5	PRIMARY LEVER	ISAC-SCMG-SARL-S3-21005-001	1
6	SECONDARY LEVER	ISAC-SCMG-EMST-SA-11006-000	0
7	ROLLER	ISAC-SCMG-EMST-SA-11007-000	0
8	BOLT WIRE ROPE SWAGING SUB-ASSY.	ISAC-SCMG-RIZB-SA-00060-000	0
9	BOTTOM END TERMINAL	ISAC-SCMG-EMST-SA-11101-000	0
10	TOP END TERMINAL	ISAC-SCMG-EMST-SA-11102-000	0
11	RELEASE PULLEY	ISAC-SCMG-EMST-SA-11008-000	0
12	ROLLER SHAFT	ISAC-SCMG-EMST-SA-11009-000	0
13	LEVER SHAFT	ISAC-SCMG-EMST-SA-11010-000	0
14	LEVER SPACER	ISAC-SCMG-EMST-SA-11011-000	0
15	ROLLER SPACER	ISAC-SCMG-EMST-SA-11012-000	0
16	SHOULDER SCREW	ISAC-SCMG-EMST-SA-11013-000	0
17	PLUNGER SPRING	ISAC-SCMG-SARL-S3-21018-001	1
18	LEVER RELEASE SPRING	ISAC-SCMG-RIZB-SA-00062-000	0
19	EJECTOR PIN-2	ISAC-SCMG-EMST-SA-11016-001	1
20	SPRING HOLDER-1	ISAC-SCMG-EMST-SA-12003-000	0
21	SEPARATOR SPRING	ISAC-SCMG-PROD-S3-11051-001	1
22	LEVER SPRING SHAFT	ISAC-SCMG-EMST-SA-11020-000	0
23	STOPPER SHAFT	ISAC-SCMG-EMST-SA-11021-000	0
24	STOPPER SHAFT BUSH	ISAC-SCMG-EMST-SA-11022-000	0

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BOT RHS HD BASE ASSY

SL.NO.	PART NAME	DRAWING NO.	REV.NO
D	BOTTOM RHS HD BASE ASSY	ISAC-SCMG-RIZB-SA-00009-001	1
1	BASE-A	ISAC-SCMG-EMST-SA-11001-000	0
2	HORIZONTAL SPIGOT	ISAC-SCMG-EMST-SA-11002-001	1
3	PLUNGER	ISAC-SCMG-SARL-S3-21003-001	1
4	SPRING ANCHOR	ISAC-SCMG-EMST-SA-11004-000	1
5	PRIMARY LEVER	ISAC-SCMG-SARL-S3-21005-001	1
6	SECONDARY LEVER	ISAC-SCMG-EMST-SA-11006-000	0
7	ROLLER	ISAC-SCMG-EMST-SA-11007-000	0
8	BOLT WIRE ROPE SWAGING SUB-ASSY.	ISAC-SCMG-RIZB-SA-00060-000	0
9	BOTTOM END TERMINAL	ISAC-SCMG-EMST-SA-11101-000	0
10	TOP END TERMINAL	ISAC-SCMG-EMST-SA-11102-000	0
11	RELEASE PULLEY	ISAC-SCMG-EMST-SA-11008-000	0
12	ROLLER SHAFT	ISAC-SCMG-EMST-SA-11009-000	0
13	LEVER SHAFT/ROLLER SHAFT	ISAC-SCMG-EMST-SA-11010-000	0
14	LEVER SPACER	ISAC-SCMG-EMST-SA-11011-000	0
15	ROLLER SPACER	ISAC-SCMG-EMST-SA-11012-000	0
16	SHOULDER SCREW	ISAC-SCMG-EMST-SA-11013-000	0
17	PLUNGER SPRING	ISAC-SCMG-SARL-S3-21018-001	1
18	LEVER RELEASE SPRING	ISAC-SCMG-RIZB-SA-00062-000	0
19	EJECTOR PIN-2	ISAC-SCMG-EMST-SA-11016-001	1
20	SPRING HOLDER	ISAC-SCMG-EMST-SA-11017-000	0
21	MICROSWITCH BRACKET	ISAC-SCMG-EMST-SA-11018-000	0
22	SEPARATOR SPRING	ISAC-SCMG-PROD-S3-11051-001	1
23	LEVER SPRING SHAFT	ISAC-SCMG-EMST-SA-11020-000	0
24	STOPPER SHAFT	ISAC-SCMG-EMST-SA-11021-000	0
25	STOPPER SHAFT BUSH	ISAC-SCMG-EMST-SA-11022-000	0

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BOLT-WIRE ROPE SWAGING SUB-ASSY			
SL.NO.	PART NAME	DRAWING NO.	REV.NO
E	BOLT-WIRE ROPE SWAGING SUB-ASSY.	ISAC-SCMG-R12B-SA-00060-000	0
1	BOTTOM END TERMINAL	ISAC-SCMG-EMST-SA-11101-000	0
2	TOP END TERMINAL	ISAC-SCMG-EMST-SA-11102-000	0
3	WIRE ROPE Ø 2.4	STD	0

STOPPER BKT ASSY			
SL.NO.	PART NAME	DRAWING NO.	REV.NO
F	STOPPER BKT ASSY	ISAC-SCMG-R12B-SA-00095-000	0
1	STOPPER BRACKET	ISAC-SCMG-SARL-S3-81001-000	0
2	PULLEY	ISAC-SCMG-SARL-S3-81002-000	0
3	PIN	ISAC-SCMG-SARL-S3-81003-000	0
4	SPACER	ISAC-SCMG-SARL-S3-81004-001	0

LOOP END BKT ASSY			
SL.NO.	PART NAME	DRAWING NO.	REV.NO
G	LOOP END BKT ASSY	ISAC-SCMG-R12B-SA-00096-000	0
1	LOOP END BKT	ISAC-SCMG-SARL-S3-71001-000	0
2	SHAFT	ISAC-SCMG-SARL-S3-71004-000	0
3	SPACER	ISAC-SCMG-SARL-S3-81004-001	0

LOOP ASSY-A			
SL.NO.	PART NAME	DRAWING NO.	REV.NO
H	LOOP ASSY-A	ISAC-SCMG-R12B-SA-00013-000	0
1	TURN BUCKLE TERMINAL (RH)	ISAC-SCMG-SARL-S3-91001-000	0
2	TERMINAL FOR S.G MOUNTING	ISAC-SCMG-RST2-B5-00007-000	0
3	LOOP END TERMINAL	ISAC-SCMG-SARL-S3-71002-000	0
4	HEX LOCK NUT (RH)	ISAC-SCMG-PROD-S2-11018-001	1

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HOLD DOWN AND RELEASE MECHANISM			
SL.NO.	PART NAME	DRAWING NO.	REV.NO
I	HOLD DOWN AND RELEASE MECHANISM	ISAC-SCMG-R12B-SA-00060-000	0
1	COMPACT PARAFFIN ACTUATOR	ISAC-SCMG-R12B-SA-00070-001	1
1a	HOUSING	ISAC-SCMG-ASTR-PA-00001-000	0
1b	SQUEEZE BOOT	ISAC-SCMG-ASTR-PA-00002-000	0
1c	SHAFT	ISAC-SCMG-ASTR-PA-00003-001	1
1d	COVER	ISAC-SCMG-DGEN-35-00920-001	1
1e	STOPPER	ISAC-SCMG-ASTR-PA-00005-000	0
1f	COMPRESSION HELICOIL SPRING	ISAC-SCMG-ASTR-PA-00006-000	0
1g	SPACER	ISAC-SCMG-ASTR-PA-00007-000	0
1h	WASHER M5	ISAC-SCMG-DGEN-35-00924-000	0
2	HOUSING	ISAC-SCMG-DGEN-35-00570-002	2
3	COVER PLATE	ISAC-SCMG-ASTR-HD-80102-000	0
4	LOOP BOLT TERMINAL	ISAC-SCMG-SARL-S3-81003-000	0
5	TAB	ISAC-SCMG-SARL-S3-81004-000	0
6	TAB-1	ISAC-SCMG-SARL-S3-81005-000	0
7	LEVER	ISAC-SCMG-DGEN-35-00571-001	2
8	LOCK LINK	ISAC-SCMG-DGEN-35-00575-001	1
9	SPRING MANDREL BUSH	ISAC-SCMG-DGEN-35-00559-001	1
10	SHAFT	ISAC-SCMG-ASTR-HD-80007-000	0
11	DELRIIN SPACER	ISAC-SCMG-DGEN-35-00890-000	0
12	ROTATING SHAFT	ISAC-SCMG-ASTR-HD-80009-001	0
13	INSULATING WASHER	ISAC-SCMG-DGEN-35-00662-000	0
14	TORSION SPRING	ISAC-SCMG-R12B-SA-00068-000	0
15	BOTTOM SPRING	ISAC-SCMG-ASTR-HD-80012-000	0
16	CONDUCTION STRIP	ISAC-SCMG-DGEN-35-00583-001	1
17	DELRIIN BUSH	ISAC-SCMG-DGEN-35-00661-000	0
18	HOP SPACER	ISAC-SCMG-DGEN-35-00588-002	0
19	CONTACT PIN	ISAC-SCMG-ASTR-HD-80015-001	1

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LOOP ASSY-B			
SL.NO.	PART NAME	DRAWING NO.	REV.NO
J	LOOP ASSY-B	ISAC-SCMG-R12B-SA-00063-000	0
1	TURN BUCKLE TERMINAL (LH)	ISAC-SCMG-SARL-S3-81002-000	0
2	LOOP BOLT TERMINAL	ISAC-SCMG-SARL-S3-81003-000	0
3	TAB	ISAC-SCMG-SARL-S3-81004-000	0
4	TAB-1	ISAC-SCMG-SARL-S3-81005-000	0
5	TURNBUCKLE BODY	ISAC-SCMG-PROD-S2-11021-001	1
6	HEX LOCK NUT (LH)	ISAC-SCMG-PROD-S2-11017-001	1

LOOSE COMPONENTS			
SL.NO.	PART NAME	DRAWING NO.	REV.NO
1	HDRM MOUNTING BKT	ISAC-SCMG-SARL-S3-11002-000	0
2	SPACER	ISAC-SCMG-R12B-SA-00014-000	0
3	SPACER	ISAC-SCMG-R12B-SA-00015-000	0
4	SPACER	ISAC-SCMG-R12B-SA-00016-000	0

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CCL ASSY			
SL.NO.	PART NAME	DRAWING NO.	REV.NO
K	CCL ASSY	ISAC-SCMG-R12B-SA-00048-000	0
1	GUIDE BUSH	ISAC-SCMG-PROD-S4-11008-001	1
2	FLANGE TERMINAL	ISAC-SCMG-PROD-S4-11009-001	1
3	LINK	ISAC-SCMG-PROD-S4-11010-001	1
4	BOLT TERMINAL	ISAC-SCMG-PROD-S4-11011-001	1
5	NUT	ISAC-SCMG-PROD-S4-11012-001	1
6	WASHER	ISAC-SCMG-PROD-S4-11013-001	1
7	TAB	ISAC-SCMG-PROD-S4-11018-001	1
8	WASHER	ISAC-SCMG-PROD-S4-11017-001	1
9	CCL SPRING	ISAC-SCMG-PROD-S4-11019-001	1
10	CCL BRACKET	ISAC-SCMG-PROD-S4-11020-001	1
11	PULLEY-C	ISAC-SCMG-PROD-S4-11021-001	1
12	PIN-C	ISAC-SCMG-PROD-S4-11022-001	1

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SP-01 ASSY
S/C - P1 CCL HINGE ASSY

SL.NO.	PART NAME	DRAWING NO.	REV.NO
1	S/C - P1 CCL HINGE ASSY	ISAC-SCMG-R12B-SA-00024-001	1
1	FORK END BRACKET	ISAC-SCMG-SARL-38-31001-000	0
2	EYE END BRACKET	ISAC-SCMG-R12B-SA-00025-000	0
3	HINGE SHAFT	ISAC-SCMG-R12B-SA-00040-000	0
4	PAWL SHAFT	ISAC-SCMG-SARL-38-31007-000	0
5	PAWL	ISAC-SCMG-SARL-38-31008-001	1
6	TORSION/PAWL SPRING	ISAC-SCMG-ASTR-HD-00011-000	0
7	PAWL PIN-1	ISAC-SCMG-SARL-38-31019-000	0
8	DEPLOYMENT SPRING (LH & RH)	ISAC-SCMG-R12B-SA-00043-000	0
9	SPRING MANDREL	ISAC-SCMG-SARL-38-31010-000	0
10	MANDREL BUSH	ISAC-SCMG-SARL-38-31013-000	0
11	SPRING ADAPTOR	ISAC-SCMG-SARL-38-31013-000	0
12	SPACER	ISAC-SCMG-PROD-S1-11023-001	1
13	MANDREL WASHER	ISAC-SCMG-SARL-38-31009-000	0
14	HINGE SPACER	ISAC-SCMG-SARL-38-31014-000	0
15	CCL PULLEY	ISAC-SCMG-R12B-SA-00039-000	0
16	PIN- 4	ISAC-SCMG-C802-SA-10018-000	0
17	PIN	ISAC-SCMG-CHN1-H4-00010-000	0
18	PIN	ISAC-SCMG-PROD-S1-11016-001	1

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S/C - P1 NON CCL HINGE ASSY

SL.NO.	PART NAME	DRAWING NO.	REV.NO
1	S/C - P1 NON CCL HINGE ASSY	ISAC-SCMG-R12B-SA-00023-001	1
1	FORK END BRACKET	ISAC-SCMG-SARL-38-31001-000	0
2	EYE END BRACKET	ISAC-SCMG-R12B-SA-00025-000	0
3	HINGE SHAFT	ISAC-SCMG-R12B-SA-00041-000	0
4	PAWL SHAFT	ISAC-SCMG-SARL-38-31007-000	0
5	PAWL	ISAC-SCMG-SARL-38-31008-001	1
6	TORSION/PAWL SPRING	ISAC-SCMG-ASTR-HD-00011-000	0
7	PAWL PIN-1	ISAC-SCMG-SARL-38-31019-000	0
8	DEPLOYMENT SPRING (LH & RH)	ISAC-SCMG-R12B-SA-00043-000	0
9	SPRING MANDREL	ISAC-SCMG-SARL-38-31010-000	0
10	MANDREL BUSH	ISAC-SCMG-SARL-38-31013-000	0
11	SPRING ADAPTOR	ISAC-SCMG-SARL-38-31013-000	0
12	SPACER	ISAC-SCMG-PROD-S1-11023-001	1
13	MANDREL WASHER	ISAC-SCMG-SARL-38-31009-000	0
14	HINGE SPACER	ISAC-SCMG-SARL-38-31014-000	0
15	PIN	ISAC-SCMG-PROD-S1-11016-001	1
16	MICRO SWITCH BRACKET 1	ISAC-SCMG-SARL-38-31021-001	1

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LOOSE COMPONENTS (SP-01):

SL.NO.	PART NAME	DRAWING NO.	REV.NO
1	SP-01 CIRCULAR SPIGOT BUSH	ISAC-SCMG-R12B-SA-00051-000	0
2	SP-01 HORIZONTAL SPIGOT BUSH	ISAC-SCMG-R12B-SA-00052-000	0
3	SP-01 CROSS SPIGOT BUSH	ISAC-SCMG-R12B-SA-00053-000	0
4	SP-01 DELRIN SPACER	ISAC-SCMG-SARL-38-81006-000	0
5	SP-01 BOLT	ISAC-SCMG-R12B-SA-00054-000	0
6	HINGE FIXING SCREW	ISAC-SCMG-R12B-SA-00061-000	0
7	SPACER	ISAC-SCMG-R12B-SA-00026-000	0
8	GFRP BUSH	ISAC-DTDF-EMBT-35-00003-000	0

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SP-02 ASSY
P1 - P2 CCL HINGE ASSY

SL.NO.	PART NAME	DRAWING NO.	REV.NO
1	P1 - P2 CCL HINGE ASSY	ISAC-SCMG-R12B-SA-00035-000	0
1	FORK END BRACKET	ISAC-SCMG-R12B-SA-00044-000	0
2	EYE END BRACKET	ISAC-SCMG-R12B-SA-00045-000	0
3	HINGE SHAFT	ISAC-SCMG-R12B-SA-00042-000	0
4	SPACER	ISAC-SCMG-PROD-S1-11003-001	1
5	PAWL SHAFT	ISAC-SCMG-PROD-S1-11004-001	1
6	PAWL	ISAC-SCMG-PROD-S1-11001-001	1
7	PAWL SPACER	ISAC-SCMG-PROD-S1-11006-001	1
8	SPRING ANCHOR PIN	ISAC-SCMG-PROD-S1-11007-001	1
9	PIN	ISAC-SCMG-CHN1-H4-00010-000	0
10	SPACER	ISAC-SCMG-PROD-S1-11005-001	1
11	WASHER	ISAC-SCMG-PROD-S1-11016-001	1
12	PAWL SPRING	ISAC-SCMG-PROD-S1-11011-001	1
13	MANDREL	ISAC-SCMG-SARL-38-31010-000	0
14	SPACER	ISAC-SCMG-PROD-S1-11023-001	1
15	MANDREL BUSH	ISAC-SCMG-SARL-38-31013-000	0
16	SPRING ADAPTOR	ISAC-SCMG-PROD-S1-11012-001	1
17	SPRING POST	ISAC-SCMG-PROD-S1-11013-001	1
18	SPRING ANCHOR	ISAC-SCMG-PROD-S1-11014-001	1
19	PIN	ISAC-SCMG-PROD-S1-11016-001	1
20	SPACER	ISAC-SCMG-PROD-S1-11017-001	1
21	DEPLOYMENT SPRING	ISAC-SCMG-PROD-S1-31003-001	1
22	WASHER	ISAC-SCMG-PROD-S1-11015-001	1
23	CCL PULLEY	ISAC-SCMG-R12B-SA-00036-000	0
24	CCL PIN	ISAC-SCMG-C802-SA-10019-000	0

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P1 - P2 NON CCL HINGE ASSY

SL.NO.	PART NAME	DRAWING NO.	REV.NO
0	P1 - P2 NON CCL HINGE ASSY	ISAC-SCMG-R12B-SA-00034-000	0
1	FORK END BRACKET	ISAC-SCMG-R12B-SA-00044-000	0
2	EYE END BRACKET	ISAC-SCMG-R12B-SA-00045-000	0
3	HINGE SHAFT	ISAC-SCMG-PROD-S1-11004-001	1
4	SPACER	ISAC-SCMG-PROD-S1-11003-001	1
5	PAWL SHAFT	ISAC-SCMG-PROD-S1-11004-001	1
6	PAWL	ISAC-SCMG-PROD-S1-11005-001	1
7	PAWL SPACER	ISAC-SCMG-PROD-S1-11005-001	1
8	SPRING ANCHOR PIN	ISAC-SCMG-PROD-S1-11007-001	1
9	PIN	ISAC-SCMG-CHN1-H400010-000	0
10	SPACER	ISAC-SCMG-PROD-S1-11008-001	1
11	WASHER	ISAC-SCMG-PROD-S1-11010-001	1
12	PAWL SPRING	ISAC-SCMG-PROD-S1-11011-001	1
13	MANDREL	ISAC-SCMG-SARL-3S-31010-000	0
14	SPACER	ISAC-SCMG-PROD-S1-11023-001	1
15	MANDREL BUSH	ISAC-SCMG-SARL-3S-31012-000	0
16	SPRING ADAPTOR	ISAC-SCMG-PROD-S1-11012-001	1
17	SPRING POST	ISAC-SCMG-PROD-S1-11013-001	1
18	SPRING ANCHOR	ISAC-SCMG-PROD-S1-11014-001	1
19	PIN	ISAC-SCMG-PROD-S1-11016-001	1
20	SPACER	ISAC-SCMG-PROD-S1-11017-001	1
21	DEPLOYMENT SPRING	ISAC-SCMG-PROD-S1-31003-001	1
22	WASHER	ISAC-SCMG-PROD-S1-11019-001	1
23	LIMIT SWITCH BRACKET 2	ISAC-SCMG-PROD-S1-11028-001	1

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LOOSE COMPONENTS (SP-02)

SL.NO.	PART NAME	DRAWING NO.	REV.NO
1	SERRATED PANEL 2 BUSH	ISAC-SCMG-SARL-3S-51002-000	0
2	SP-02 GUIDE BUSH	ISAC-SCMG-R12B-SA-00056-000	4
3	SPRING HOLDER (NEW)	ISAC-DTDF-EMST-3S-00001-001	1
4	EJECTOR PIN	ISAC-SCMG-SARL-3S-21004-001	1
5	BOLT EJECTOR SPRING (TYPE-1)	ISAC-SCMG-SARL-3S-51004-002	2
6	SEPARATOR SPRING	ISAC-SCMG-PROD-S3-11051-001	1
7	HINGE FIXING SCREW	ISAC-SCMG-R12B-SA-00059-000	0
8	SP-02 BOLT	ISAC-SCMG-R12B-SA-00059-000	0
9	SS WASHER	ISAC-SCMG-R12B-SA-00059-000	0

INTER - PANEL HARNESS ASSY

SL.NO.	PART NAME	DRAWING NO.	REV.NO
1	P1-P2 BRACKET	ISAC-SCMG-C603-SA-01803-0002	2
2	SIC-P1 BRACKET	ISAC-SCMG-CS03-SA-01801-0003	3
3	P1-SIC BRACKET	ISAC-SCMG-CS03-SA-01802-0001	1
4	CLAMP PAD	ISAC-SAMG-CS03-SA-01804-0003	3
5	SUPPORT STRIP	ISAC-SAMG-CS03-SA-01805-0001	1
6	CONNECTOR BRACKET- 37 PIN	ISAC-SCMG-R12A-S8-20017	0

Note:

1). Delivery of RTV enubbers, Kapton sheet parts are not in the scope of vendor's supply. They are part of assembly drawings for completeness sake.

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SPARE COMPONENTS - EOS Type SADM (Loose Parts per Wing)

To take care of assembly and execution of the project at URSC, the parts listed below are required to be delivered as extra (spares) per wing besides the quantity required as per the assembly drawings. The following fabricated parts (as per the approved drawing) should be shipped to URSC after secondary treatment as applicable.

S.NO.	PART NAME	DRAWING NO.	QTY/ WING
1	Turn buckle terminal RH	ISAC-SCMG-SARL-S3-01001-000	07
2	Tab	ISAC-SCMG-SARL-S3-01004-000	07
3	Tab 1	ISAC-SCMG-SARL-S3-01005-000	07
4	Hex Lock nut (RH)	ISAC-SCMG-PROD-S2-11016-001	05
5	Turn buckle terminal LH	ISAC-SCMG-SARL-S3-01002-000	07
6	Terminal for SG mounting	ISAC-SCMG-RST2-B5-00007-000	02
7	Loop end terminal	ISAC-SCMG-SARL-S3-71002-000	04
8	Hex Lock nut (LH)	ISAC-SCMG-PROD-S2-11017-001	05
9	Turn buckle body	ISAC-SCMG-PROD-S2-11021-001	05
10	Bolt Wire Swaging Sub Assembly	ISAC-SCMG-R12B-SA-00060-000	02
11	GFRP Bush	ISAC-DTDF-EMST-3S-00003-000	08
12	Hinge Fixing Screw	ISAC-SCMG-R12B-SA-00061-000	20
13	Micro switch Bracket-1	ISAC-SCMG-SARL-3S-31021-001	02
14	Spring Adaptor	ISAC-SCMG-SARL-3S-31013-000	06
15	Micro switch Bracket	ISAC-SCMG-EMST-SA-11018-000	02
16	Ejector pin	ISAC-SCMG-SARL-3S-21004-001	04
17	Ejector pin -2	ISAC-SCMG-EMST-SA-11016-001	04
18	Base Assy, GFRP Sheet	ISAC-SCMG-XPST-SA-20100-000	04
19	SP-01 Circular Spigot bush	ISAC-SCMG-R12B-SA-00061-000	01
20	SP-01 Horizontal Spigot bush	ISAC-SCMG-R12B-SA-00062-000	02

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S.NO.	PART NAME	DRAWING NO.	QTY/ WING
21	SP-01 Cross Spigot bush	ISAC-SCMG-R12B-SA-00063-000	01
22	SP-01 Delrin spacer	ISAC-SCMG-SARL-3S-51005-000	02
23	Panel 2 bush guide	ISAC-SCMG-R12B-SA-00058-000	02
24	Spacer	ISAC-SCMG-PROD-S1-11017-001	02
25	Ejector pin	ISAC-SCMG-SARL-3S-21004-001	08
26	Serrated Panel-2 Bush	ISAC-SCMG-SARL-3S-51002-000	04
27	Separator Spring	ISAC-SCMG-PROD-S3-11051-001	04
28	SP02 bush guide	ISAC-SCMG-R12B-SA-00065-000	02
29	SP-01 BOLT	ISAC-SCMG-R12B-SA-00064-000	08
30	Spring holder	ISAC-DTDF-EMST-3S-00001-001	02
31	Bolt Ejector Spring	ISAC-SCMG-SARL-3S-51004-002	04
32	SS Washer	ISAC-SCMG-R12B-SA-00058-000	04
33	Disc Spring (Ø 6)	STANDARD PART	06
34	M6 X 16 Titanium Socket Head Screw (TI-6AL-4V)	STANDARD PART	20
35	M4 X 14 Titanium Socket Head Screw (TI-6AL-4V)	STANDARD PART	6
36	M4 X 14 Titanium Socket Head Screw (TI-6AL-4V)	STANDARD PART	9
37	Loop End Bkt GFRP Sheet	ISAC-SCMG-XPST-SA-20300	02
38	Stopper Bkt GFRP Sheet	ISAC-SCMG-XPST-SA-20400-000	02
39	Swaging Terminal	ISAC-SCMG-SMGG-SF-11007-000	03
40	Harness clamp	ISAC-SCMG-SARL-3S-91001-001	1
41	Harness clamp-2	ISAC-SCMG-EMST-SA-50004-001	1
42	Harness bracket	ISAC-SCMG-SARL-3S-51002-000	1
43	Connector Bracket 37 Pin	ISAC-SCMG-R12A-S8-20017	4
44	Paraffin wax	STANDARD PART	1 kg
45	Seal/ O Ring	STANDARD PART	10
47	Housing	ISAC-SCMG-ASTR-PA-00001-000	03

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S.NO.	PART NAME	DRAWING NO.	QTY/ WING
48	Squeeze boot	ISAC-SCMG-ASTR-PA-00002-000	03
49	Shaft	ISAC-SCMG-ASTR-PA-00003-001	03
50	Cover	ISAC-SCMG-DGEN-35-00920-001	03
51	Stopper	ISAC-SCMG-ASTR-PA-00005-000	03
52	Compression spring	ISAC-SCMG-ASTR-PA-00006-000	03
53	Spacer	ISAC-SCMG-ASTR-PA-00007-000	03
54	Washer	ISAC-SCMG-DGEN-35-00924-000	03
55	Housing	ISAC-SCMG-DGEN-35-00570-002	03
56	Cover Plate	ISAC-SCMG-ASTR-HD-00002-000	03
57	Lever	ISAC-SCMG-DGEN-35-00574-002	01
58	Lock Link	ISAC-SCMG-DGEN-35-00575-001	03
59	Spring Mandrel Bush	ISAC-SCMG-DGEN-35-00589-001	06
60	Shaft	ISAC-SCMG-ASTR-HD-00007-000	06
61	Delrin Spacer	ISAC-SCMG-DGEN-35-00590-000	06
62	Rotating shaft	ISAC-SCMG-ASTR-HD-00008-001	03
63	Insulating washer	ISAC-SCMG-DGEN-35-00662-000	12
64	Torsion spring	ISAC-SCMG-RIZB-SA-00068-000	01
65	Bottom spring	ISAC-SCMG-ASTR-HD-00012-000	03
66	Conduction strip	ISAC-SCMG-DGEN-35-00683-001	03
67	Delrin Bush	ISAC-SCMG-DGEN-35-00687-000	03
68	HOP spacer	ISAC-SCMG-DGEN-35-00688-002	03
69	Contact pin	ISAC-SCMG-ASTR-HD-00016-001	03
70	HDRM Mounting Bracket	ISAC-SCMG-SARL-S3-11002-000	01
71	Foil Heater (36 Ohms)	---	10

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B). SOLAR ARRAY DEPLOYMENT MECHANISM (I-K type):

List of sub-assemblies to be realised and delivered to IAR:

SL NO	ASSEMBLY NAME	DRAWING NUMBER	QUANTITY WING
1	PANEL HOLD DOWN ASSY (RS TYPE)	A1-105-35-1-0053-02-00-000	4
2	HOLD DOWN RELEASE LOOP ASSY	A1-105-35-1-0052-02-00-000	1 SET
3	SADA YOKE HINGE ASSY	A1-105-35-1-0051-02-00-000	1
4	YOKE PANEL-1 HINGE (TOP)	A2-105-35-1-0050-07-00-000	1
5	YOKE PANEL-1 HINGE (BOTTOM)	A2-105-35-1-0050-08-00-000	1
6	PANEL-1 PANEL-2 (TOP)	A2-105-35-1-0050-09-00-000	1
7	PANEL-1 PANEL-2 (BOTTOM)	A2-105-35-1-0050-10-00-000	1
8	END HINGE (TOP)	A2-105-35-1-0050-11-00-000	1
9	END HINGE (BOTTOM)	A2-105-35-1-0050-12-00-000	1
10	CCL ASSY	A0-105-35-1-0054-02-00-000	1 SET
11	SNUBBER ASSEMBLY - LOOSE ITEMS	REFER PARTS LIST	1 SET
12	HARNES (LOOP) ASSEMBLY - LOOSE ITEMS	REFER PARTS LIST	1 SET

Details of Parts list (for reference only): All the parts are listed in bill of materials in each of the above assembly drawings. Parts list is given below for completeness sake.

SL NO	PART NAME	DRAWING NUMBER	REV NO
1	PANEL HOLD DOWN ASSY (RS TYPE)	A1-105-35-1-0053-02-00-000	2
2	Base-A	A1-105-35-1-0053-01-00-001	2
3	Base-B	A1-105-35-1-0053-01-00-002	1
4	Stack Spacer-A	A4-105-35-1-0053-02-00-003	1
5	Stack Spacer-B	A4-105-35-1-0053-02-00-004	0
6	Panel-1 Bush-A	A3-105-35-1-0053-02-00-005	1
7	Panel-1 Bush-B	A3-105-35-1-0053-02-00-006	0
8	Delrin Spacer	A4-105-35-1-0053-01-00-009	0
9	Panel-2 Spacer	A3-105-35-1-0053-01-00-010	0
10	Panel-2 Bush-A	A3-105-35-1-0053-02-00-007	0
11	Panel-2 Bush-B	A3-105-35-1-0053-02-00-008	1
12	Panel-3 Spacer-A	A3-105-35-1-0053-02-00-009	0
13	Panel-3 Spacer-B	A3-105-35-1-0053-02-00-010	1
14	Hinge Holder	A3-105-35-1-0053-01-00-017	0
15	Separator Pin	A4-105-35-1-0053-01-00-018	1
16	Ejector Pin-A	A4-105-35-1-0053-01-00-019	0
17	Ejector Pin-B	A4-105-35-1-0053-01-00-020	0
18		A4-105-35-1-0053-01-00-021A	1
19	CSK Screw	A4-105-35-1-0053-01-00-021B	3

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SL NO	PART NAME	DRAWING NUMBER	REV NO
20	Spacer	A4-105-35-1-0053-01-00-022	1
21	Hex. Hd. Screw	A4-105-35-1-0053-01-00-023	0
22	Plunger	A4-105-35-1-0053-01-00-024	1
23	Pin	A4-105-35-1-0053-01-00-025	1
24	Roller	A4-105-35-1-0053-01-00-026	1
25	Lever-B	A3-105-35-1-0053-01-00-028	0
26	Lever-C	A3-105-35-1-0053-01-00-029	1
27	Shoulder Screw	A4-105-35-1-0053-01-00-030	0
28	Slider Bush	A4-105-35-1-0053-01-00-031	1
29	Bracket-1	A4-105-35-1-0053-01-00-032	0
30	Anchor Pin	A4-105-35-1-0053-01-00-033	1
31	Hinge Shaft	A4-105-35-1-0053-01-00-034	0
32	Spring Holder	A4-105-35-1-0053-01-00-035	0
33	Spring Guide	A4-105-35-1-0053-01-00-036	1
34	Bush	A4-105-35-1-0053-01-00-037	0
35	M6 Lock Nut	A4-105-35-1-0053-01-00-038	1
36	Washer	A4-105-35-1-0053-01-00-040	0
37	Stopper-B	A4-105-35-1-0053-01-00-042	1
38	Stepped Washer	A4-105-35-1-0053-01-00-043	0
39	Washer	A4-105-35-1-0053-01-00-044	1
40	Washer	A4-105-35-1-0053-01-00-045	0
41	Washer	A4-105-35-1-0053-01-00-046	0
42	Washer	ISAC-SCMG-GT10-43-1013/000	1
43	Microswitch Bracket	A4-105-35-1-0053-01-00-048	0
44	Pullout Spring	A3-105-35-1-0053-01-00-050	1
45	Plunger Spring	A3-105-35-1-0053-01-00-051	0
46	Separator Spring	A3-105-35-1-0053-01-00-052	1
47	Ejector Spring	A3-105-35-1-0053-01-00-053	0
48	Panel-3 Front Side Spacer	A4-105-35-1-0053-01-00-054	0
49	Panel-3 Back Side Spacer	A4-105-35-1-0053-02-00-011	0
50	Stopper Bracket Screw M3	A4-105-35-1-0053-01-00-056	0
51	Disc Spring	A4-105-35-1-0052-01-07-005	1
52	BOLT ASSY	A3-105-35-1-0053-01-38-000	1
53	Base End Terminal	A3-105-35-1-0053-01-38-001	1
54	Top End Terminal	A3-105-35-1-0053-01-38-002	0
55	HOLD DOWN RELEASE LOOP ASSEMBLY	A1-105-35-1-0052-02-00-000	1
56	CORNER PULLEY ASSEMBLY	A3-105-35-1-0052-02-00-001	1
57	STOPPER ASSEMBLY	A3-105-35-1-0052-02-00-002	0
58	PYRO LOOP ASSEMBLY	ISAC-SCMG-GT11-SA-14500/000	0
59	GUIDE PULLEY ASSEMBLY	A3-105-35-1-0052-02-00-000	0

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SL NO	PART NAME	DRAWING NUMBER	REV NO
60	ROUTING PULLEY ASSEMBLY	A3-105-35-1-0052-02-00-000	0
61	LOOP END ASSEMBLY	A3-105-35-1-0052-02-00-000	0
62	TOP LOOP ASSEMBLY	A2-105-35-1-0052-01-06-000	0
63	BOTTOM LOOP ASSEMBLY	A2-105-35-1-0052-01-07-000	0
64	YOKE GUIDE	A4-105-35-1-0052-03-00-001	0
65	HOLD DOWN BASE-A ASSY	A1-105-35-1-0053-02-00-000	2
66	PANEL HOLD DOWN-B ASSY	A1-105-35-1-0053-02-00-000	2
67	CORNER PULLEY ASSY-B	A3-105-35-1-0052-02-00-001	1
68	Corner Pulley Bkt-3	A3-105-35-1-0052-02-00-001	1
69	Bracket	A3-105-35-1-0052-01-00-002	1
70	Pulley	A3-105-35-1-0052-01-00-003	1
71	Shaft	A4-105-35-1-0052-01-00-004	1
72	Washer	A4-105-35-1-0052-01-00-005	0
73	STOPPER ASSY	A3-105-35-1-0052-01-00-000	1
74	Stopper Bracket	A3-335-35-1-0002-10-02-001	1
75	Pin	A4-105-35-1-0052-01-00-002	1
76	Pulley	A4-105-35-1-0052-01-00-003	0
77	Washer	A4-105-35-1-0052-01-00-004	0
78	PYRO LOOP ASSY	ISAC-SCMG-GT11-SA-14500/000	1
79	Pyro Mounting Bracket	ISAC-SCMG-GT11-SA-14501/001	1
80	Bottom Bush	ISAC-SCMG-GT11-SA-14502/001	1
81	Top Bush	ISAC-SCMG-GT11-SA-14503/001	1
82	Bottom Metal Bush	ISAC-SCMG-GT11-SA-14504/001	1
83	Stand Off	A4-105-35-1-0052-01-04-002	0
84	Insulating Bush	A4-105-35-1-0052-01-04-003	1
85	Connecting Strip	A4-105-35-1-0052-01-04-004	0
86	Insulating Strip	A4-105-35-1-0052-01-04-005	1
87	Hex. Locknut (RH)	A4-105-35-1-0052-01-04-006	0
88	Hex. Locknut (LH)	A4-105-35-1-0052-01-04-007	0
89	Tab	A4-105-35-1-0052-01-04-008	1
90	TURN BUCKLE TERMINAL I&K (RH)	ISAC-SCMG-GT11-RP-00015/001	1
91	TURN BUCKLE TERMINAL I&K (LH)	ISAC-SCMG-GT11-RP-00018/001	1
92	Turn Buckle Body	ISAC-SCMG-GT11-RP-00017/000	0
93	GUIDE PULLEY ASSY	A3-105-35-1-0052-02-00-000	1
94	Bracket	A4-105-35-1-0052-02-00-001	0
95	Pin	A4-105-35-1-0052-01-00-002	1
96	Pulley	A4-105-35-1-0052-01-00-003	0
97	Washer	A4-105-35-1-0052-01-00-004	0
98	ROUTING PULLEY ASSY	A3-105-35-1-0052-02-00-000	0
99	Bracket	A4-105-35-1-0052-02-00-001	0

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SL NO	PART NAME	DRAWING NUMBER	REV NO
100	Pin	A4-105-35-1-0052-01-03-002	0
101	Pulley	A4-105-35-1-0052-01-03-003	0
102	Washer	A4-105-35-1-0052-01-03-004	0
103	LOOP END ASSY	A3-105-35-1-0052-02-05-000	0
104	Loop End Bkt-2	A4-105-35-1-0052-02-05-001	0
105	Extension Spring	A4-105-35-1-0052-01-06-002	1
106	Bush	A4-105-35-1-0052-01-06-003	0
107	Pin	A4-105-35-1-0052-01-06-004	0
108	TOP LOOP ASSY	A2-105-35-1-0052-02-06-000	0
109	Shaft	A4-105-35-1-0052-01-07-001	0
110	Washer	A4-105-35-1-0052-01-07-002	0
111	Spring Mandrel	A3-105-35-1-0052-01-07-003	1
112	Spring Holder-1	A4-105-35-1-0052-02-06-001	0
113	Disc Spring	A4-105-35-1-0052-01-07-005	1
114	TURN BUCKLE TERMINAL ISK (RH)	ISAC-SCMG-GT11-RP-00019/003	1
115	Bracket (Guide Pulley Assy)	A3-105-35-1-0052-02-03-001	1
116	Hex. Locknut (RH), M6	A4-105-35-1-0052-01-04-006	0
117	Slider Bush (Panel Hold Down Assy)	A4-105-35-1-0053-01-00-031	0
118	Shaft-1	A4-105-35-1-0052-02-06-002	0
119	BOTTOM LOOP ASSY	A2-105-35-1-0052-02-07-000	0
120	Pyro End Terminal	A4-105-35-1-0052-01-08-001	0
121	Hex. Locknut (RH), M6	A4-105-35-1-0052-01-04-006	0
122	Bracket (Guide Pulley Assy)	A3-105-35-1-0052-02-03-001	0
123	Shaft	A4-105-35-1-0052-01-07-001	0
124	Washer	A4-105-35-1-0052-01-07-002	0
125	Spring Mandrel	A3-105-35-1-0052-01-07-003	1
126	Spring Holder-1	A4-105-35-1-0052-02-06-001	0
127	Disc Spring	A4-105-35-1-0052-01-07-005	1
128	Slider Bush (Panel Hold Down Assy)	A4-105-35-1-0053-01-00-031	0
129	Shaft-1	A4-105-35-1-0052-02-06-002	0
130	SADA YOKE HINGE ASSY	A3-105-35-1-0051-02-00-000	1
131	Interface Bkt	ISAC-SCMG-G205-SI-21002/001	1
132	Shaft (A)	A3-105-35-1-0051-01-00-002	0
133	Shaft (B)	A3-105-35-1-0051-01-00-003	0
134	Washer	A4-105-35-1-0051-01-00-004	0
135	Hinge Bkt (A)	A1-105-35-1-0051-02-00-002	0
136	Hinge Bkt (B)	A1-105-35-1-0051-02-00-003	0
137	Pin	A4-105-35-1-0051-01-00-007	0
138	CCL Pulley	A3-105-35-1-0051-02-00-004	0
139	Spacer	A4-105-35-1-0051-02-00-005	0

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SL NO	PART NAME	DRAWING NUMBER	REV NO
140	Mandrel	A4-105-35-1-0051-02-00-006	0
141	Spacer	A4-105-35-1-0051-02-00-007	0
142	Bush	A4-105-35-1-0051-02-00-008	0
143	Spring Adaptor	A4-105-35-1-0051-02-00-009	0
144	Torsion Spring (RH)	A4-105-35-1-0051-02-00-010	0
145	Torsion Spring (LH)	A4-105-35-1-0051-02-00-011	1
146	Spring Anchor Pin (A)	A4-105-35-1-0051-01-00-015	1
147	Spring Anchor Pin (B)	A4-105-35-1-0051-01-00-016	0
148	Spring Anchor	A4-105-35-1-0051-02-00-012	1
149	Stopper Plate	A4-105-35-1-0051-01-00-018	0
150	Shaft Pin	A4-105-35-1-0051-01-00-019	0
151	Bolt	A4-105-35-1-0051-01-00-020	1
152	Bracket (A)	A3-105-35-1-0051-01-00-021	0
153	Bracket (B)	A3-105-35-1-0051-01-00-022	0
154	Pawl Shaft	A4-105-35-1-0051-01-00-023	0
155	Pawl (A)	A4-105-35-1-0051-01-00-024	0
156	Pawl (B)	A3-105-35-1-0051-01-00-025	0
157	Spring Post	A4-105-35-1-0051-01-00-026	0
158	Pawl Spring	A4-105-35-1-0051-01-00-027	0
159	Pin	A4-105-35-1-0051-01-00-028	0
160	Washer-1	A4-105-35-1-0051-01-00-029	0
161	Insulating Bush	ISAC-SCMG-G205-SI-21001/000	0
162	Spacer (GFRP)	ISAC-SCMG-G205-SI-21003/001	1
163	YOKE PANEL-1 HINGE (TOP)	A2-105-35-1-0050-07-00-000	0
164	Fork End Bracket	A2-105-35-1-0050-01-00-001	0
165	Eye End Bracket	A2-105-35-1-0050-01-00-002	0
166	Spacer	A4-105-35-1-0050-01-00-003	0
167	Pawl Shaft	A4-105-35-1-0050-01-00-004	0
168	Pawl	A3-105-35-1-0050-01-00-005	0
169	Pawl Spacer	A4-105-35-1-0050-01-00-006	0
170	Spring Anchor Pin	A4-105-35-1-0050-01-00-007	0
171	Pin	A4-105-35-1-0050-01-00-008	0
172	Spacer	A4-105-35-1-0050-01-00-009	0
173	Washer	A4-105-35-1-0050-01-00-010	0
174	Pawl Spring	A4-105-35-1-0050-01-00-011	1
175	Spring Adaptor	A4-105-35-1-0050-01-00-012	0
176	Spring Post	A4-105-35-1-0050-01-00-013	0
177	Spring Anchor	A4-105-35-1-0050-01-00-014	0
178	Hinge Bracket Bolt	A4-105-35-1-0050-01-00-015	0
179	Pin	A4-105-35-1-0050-01-00-016	0

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SL NO	PART NAME	DRAWING NUMBER	REV NO
180	Spacer	A4-105-35-1-0050-01-00-017	0
181	Deployment Spring (LH)	A4-105-35-1-0050-01-00-018	4
182	Washer	A4-105-35-1-0050-01-00-019	0
183	Pin	A4-105-35-1-0050-01-00-020	0
184	CCL Pulley	A3-105-35-1-0050-07-00-001	0
185	Mandrel	A4-105-35-1-0050-01-00-022	0
186	Spacer	A4-105-35-1-0050-01-00-023	1
187	Bush	A4-105-35-1-0050-01-00-024	0
188	Shaft	A4-105-35-1-0050-01-00-025	0
189	Limit Switch Bkt-2	A4-105-35-1-0050-01-00-026	0
190	YOKE PANEL-1 HINGE (BOTTOM)	A2-105-35-1-0050-06-00-000	0
191	Fork End Bracket	A2-105-35-1-0050-01-00-001	0
192	Eye End Bracket	A2-105-35-1-0050-01-00-002	1
193	Spacer	A4-105-35-1-0050-01-00-003	0
194	Pawl Shaft	A4-105-35-1-0050-01-00-004	0
195	Pawl	A4-105-35-1-0050-01-00-005	0
196	Pawl Spacer	A4-105-35-1-0050-01-00-006	0
197	Spring Anchor Pin	A4-105-35-1-0050-01-00-007	0
198	Pin	A4-105-35-1-0050-01-00-008	0
199	Spacer	A4-105-35-1-0050-01-00-009	0
200	Washer	A4-105-35-1-0050-01-00-010	0
201	Pawl Spring	A4-105-35-1-0050-01-00-011	1
202	Spring Adaptor	A4-105-35-1-0050-01-00-012	0
203	Spring Post	A4-105-35-1-0050-01-00-013	0
204	Spring Anchor	A4-105-35-1-0050-01-00-014	0
205	Hinge Bracket Bolt	A4-105-35-1-0050-01-00-015	0
206	Pin	A4-105-35-1-0050-01-00-016	0
207	Spacer	A4-105-35-1-0050-01-00-017	0
208	Deployment Spring (LH)	A4-105-35-1-0050-01-00-018	4
209	Washer	A4-105-35-1-0050-01-00-019	0
210	Pin	A4-105-35-1-0050-01-00-020	0
211	CCL Pulley	A3-105-35-1-0050-07-00-001	0
212	Mandrel	A4-105-35-1-0050-01-00-022	0
213	Spacer	A4-105-35-1-0050-01-00-023	1
214	Bush	A4-105-35-1-0050-01-00-024	0
215	Shaft	A4-105-35-1-0050-01-00-025	0
216	PANEL-1 PANEL-2 (TOP)	A2-105-35-1-0050-09-00-000	0
217	Fork End Bracket	A2-105-35-1-0050-03-00-001	0
218	Eye End Bracket	A2-105-35-1-0050-03-00-002	0
219	Spacer	A4-105-35-1-0050-01-00-003	0

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SL NO	PART NAME	DRAWING NUMBER	REV NO
220	Pawl Shaft	A4-105-35-1-0050-01-00-004	0
221	Pawl	A4-105-35-1-0050-01-00-001	0
222	Pawl Spacer	A4-105-35-1-0050-01-00-006	0
223	Spring Anchor Pin	A4-105-35-1-0050-01-00-007	0
224	Pin	A4-105-35-1-0050-01-00-008	0
225	Spacer	A4-105-35-1-0050-01-00-009	0
226	Washer	A4-105-35-1-0050-01-00-010	0
227	Pawl Spring	A4-105-35-1-0050-01-00-011	1
228	Spring Adaptor	A4-105-35-1-0050-01-00-012	0
229	Spring Post	A4-105-35-1-0050-01-00-013	0
230	Spring Anchor	A4-105-35-1-0050-01-00-014	0
231	Hinge Bracket Bolt	A4-105-35-1-0050-01-00-015	0
232	Pin	A4-105-35-1-0050-01-00-016	0
233	Spacer	A4-105-35-1-0050-01-00-017	0
234	Deployment Spring (LH)	A4-105-35-1-0050-01-00-018	4
235	Washer	A4-105-35-1-0050-01-00-019	0
236	Pin	A4-105-35-1-0050-01-00-020	0
237	CCL Pulley	A3-105-35-1-0050-07-00-001	0
238	Mandrel	A4-105-35-1-0050-01-00-022	0
239	Spacer	A4-105-35-1-0050-01-00-023	1
240	Bush	A4-105-35-1-0050-01-00-024	0
241	Shaft	A4-105-35-1-0050-01-00-025	0
242	PANEL-1 PANEL-2 (BOTTOM)	A2-105-35-1-0050-10-00-000	0
243	Fork End Bracket	A2-105-35-1-0050-03-00-001	0
244	Eye End Bracket	A2-105-35-1-0050-03-00-002	0
245	Spacer	A4-105-35-1-0050-01-00-003	0
246	Pawl Shaft	A4-105-35-1-0050-01-00-004	0
247	Pawl	A3-105-35-1-0050-01-00-005	0
248	Pawl Spacer	A4-105-35-1-0050-01-00-006	0
249	Spring Anchor Pin	A4-105-35-1-0050-01-00-007	0
250	Pin	A4-105-35-1-0050-01-00-008	0
251	Spacer	A4-105-35-1-0050-01-00-009	0
252	Washer	A4-105-35-1-0050-01-00-010	0
253	Pawl Spring	A4-105-35-1-0050-01-00-011	1
254	Spring Adaptor	A4-105-35-1-0050-01-00-012	0
255	Spring Post	A4-105-35-1-0050-01-00-013	0
256	Spring Anchor	A4-105-35-1-0050-01-00-014	0
257	Hinge Bracket Bolt	A4-105-35-1-0050-01-00-015	0
258	Pin	A4-105-35-1-0050-01-00-016	0
259	Spacer	A4-105-35-1-0050-01-00-017	0

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SL NO	PART NAME	DRAWING NUMBER	REV NO
260	Deployment Spring (LH)	A4-105-35-1-0050-01-00-018	4
261	Washer	A4-105-35-1-0050-01-00-019	0
262	Pin	A4-105-35-1-0050-01-00-020	0
263	CCL Pulley	A3-105-35-1-0050-07-00-001	0
264	Mandrel	A4-105-35-1-0050-01-00-021	0
265	Spacer	A4-105-35-1-0050-01-00-022	1
266	Bush	A4-105-35-1-0050-01-00-024	0
267	Shaft	A4-105-35-1-0050-01-00-025	0
268	Limit Switch Bkt-2	A4-105-35-1-0050-01-00-026	0
269	END HINGE (TOP)	A2-105-35-1-0050-11-00-000	0
270	Fork End Bracket	A2-105-35-1-0050-09-00-001	0
271	Eye End Bracket	A3-105-35-1-0050-03-00-002	0
272	Spacer	A4-105-35-1-0050-01-00-003	0
273	Pawl Shaft	A4-105-35-1-0050-01-00-004	0
274	Pawl	A4-105-35-1-0050-02-00-001	0
275	Pawl Spacer	A4-105-35-1-0050-01-00-006	0
276	Spring Anchor Pin	A4-105-35-1-0050-01-00-007	0
277	Pin	A4-105-35-1-0050-01-00-008	0
278	Spacer	A4-105-35-1-0050-01-00-009	0
279	Washer	A4-105-35-1-0050-01-00-020	0
280	Pawl Spring	A4-105-35-1-0050-01-00-011	1
281	Spring Adaptor	A4-105-35-1-0050-01-00-012	0
282	Spring	A4-105-35-1-0050-01-00-013	0
283	Spring Anchor	A4-105-35-1-0050-01-00-014	0
284	Hinge Bracket Bolt	A4-105-35-1-0050-01-00-015	0
285	Pin	A4-105-35-1-0050-01-00-016	0
286	Spacer	A4-105-35-1-0050-01-00-017	0
287	Deployment Spring (LH)	A4-105-35-1-0050-01-00-001	0
288	Washer	A4-105-35-1-0050-01-00-019	0
289	Mandrel	A4-105-35-1-0050-01-00-022	0
290	Spacer	A4-105-35-1-0050-01-00-023	1
291	Bush	A4-105-35-1-0050-01-00-024	0
292	Shaft	A4-105-35-1-0050-01-00-025	1
293	END HINGE (BOTTOM)	A2-105-35-1-0050-11-00-000	0
294	Fork End Bracket	A2-105-35-1-0050-09-00-001	0
295	Eye End Bracket	A2-105-35-1-0050-03-00-002	0
296	Spacer	A4-105-35-1-0050-01-00-003	0
297	Pawl Shaft	A4-105-35-1-0050-01-00-004	0
298	Pawl	A3-105-35-1-0050-01-00-005	0
299	Pawl Spacer	A4-105-35-1-0050-01-00-006	0

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SL NO	PART NAME	DRAWING NUMBER	REV NO
300	Spring Anchor Pin	A4-105-35-1-0050-01-00-007	0
301	Pin	A4-105-35-1-0050-01-00-008	0
302	Spacer	A4-105-35-1-0050-01-00-009	0
303	Washer	A4-105-35-1-0050-01-00-010	0
304	Pawl Spring	A4-105-35-1-0050-01-00-011	1
305	Spring Adaptor	A4-105-35-1-0050-01-00-012	0
306	Spring Rest	A4-105-35-1-0050-01-00-013	0
307	Spring Anchor	A4-105-35-1-0050-01-00-014	0
308	Hinge Bracket Bolt	A4-105-35-1-0050-01-00-015	0
309	Pin	A4-105-35-1-0050-01-00-016	0
310	Spacer	A4-105-35-1-0050-01-00-017	0
311	Deployment Spring (LH)	A4-105-35-1-0050-01-00-001	0
312	Washer	A4-105-35-1-0050-01-00-019	0
313	Pin	A4-105-35-1-0050-01-00-020	0
314	CCL Pulley	A3-105-35-1-0050-07-00-001	0
315	Mandrel	A4-105-35-1-0050-01-00-022	0
316	Spacer	A4-105-35-1-0050-01-00-023	1
317	Bush	A4-105-35-1-0050-01-00-024	0
318	Shaft	A4-105-35-1-0050-01-00-025	0
319	Limit Switch Bkt-2	A4-105-35-1-0050-01-00-026	0
320	CCL ASSY	A3-105-35-1-0054-02-00-000	0
321	CCL-1	A3-105-35-1-0054-02-01-000	0
322	CCL-2	A3-105-35-1-0054-02-02-000	0
323	CCL-3	A3-105-35-1-0054-02-03-000	0
324	Offset Pin	A4-105-35-1-0054-01-00-004	0
325	Pulley-A	A4-105-35-1-0054-01-00-005	0
326	Washer-1	A4-105-35-1-0054-01-00-006	0
327	Washer-2	A4-105-35-1-0054-01-00-007	0
328	Screw	A4-105-35-1-0054-01-00-008	0
329	CCL-1	A3-105-35-1-0054-02-01-000	1
330	Routing Bit	A3-105-35-1-0054-01-01-001	0
331	Guide Bush	A4-105-35-1-0054-01-01-002	0
332	Flange Terminal	A4-105-35-1-0054-01-01-003	0
333	Link	A3-105-35-1-0054-01-01-004	0
334	Bolt Terminal	A4-105-35-1-0054-01-01-005	0
335	Nut	A4-105-35-1-0054-01-01-006	0
336	Washer	A4-105-35-1-0054-01-01-007	0
337	Corner Bkt	A4-105-35-1-0054-01-01-008	0
338	Corner Bkt-2	A4-105-35-1-0054-02-01-001	0
339	Pulley-B	A4-105-35-1-0054-01-01-009	0

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SL NO	PART NAME	DRAWING NUMBER	REV NO
340	Pin-B	A4-105-35-1-0054-01-01-010	0
341	Washer	A4-105-35-1-0054-01-01-011	0
342	Tab	A4-105-35-1-0054-01-01-012	0
343	CCL Spring	A3-105-35-1-0054-01-01-013	0
344	CCL-2	A4-105-35-1-0054-01-01-002	0
345	Guide Bush	A4-105-35-1-0054-01-01-003	0
346	Flange Terminal	A4-105-35-1-0054-01-01-004	0
347	Link	A3-105-35-1-0054-01-01-004	0
348	Bolt Terminal	A4-105-35-1-0054-01-01-005	0
349	Nut	A4-105-35-1-0054-01-01-006	0
350	Washer	A4-105-35-1-0054-01-01-007	0
351	Washer (Part No. 11A)	A4-105-35-1-0054-01-01-011	0
352	Tab	A4-105-35-1-0054-01-01-012	0
353	CCL Spring	A3-105-35-1-0054-01-01-013	0
354	CCL Bkt	A3-105-35-1-0054-01-02-001	0
355	Pulley-C	A4-105-35-1-0054-01-02-002	0
356	Pin-C	A4-105-35-1-0054-01-02-003	0
357	CCL-3	A3-105-35-1-0054-02-03-000	1
358	Guide Bush	A4-105-35-1-0054-01-01-002	0
359	Flange Terminal	A4-105-35-1-0054-01-01-003	0
360	Link	A3-105-35-1-0054-01-01-004	0
361	Bolt Terminal	A4-105-35-1-0054-01-01-005	0
362	Nut	A4-105-35-1-0054-01-01-006	0
363	Washer	A4-105-35-1-0054-01-01-007	0
364	Washer (Part No. 11A)	A4-105-35-1-0054-01-01-011	1
365	Tab	A4-105-35-1-0054-01-01-012	0
366	CCL Spring	A3-105-35-1-0054-01-01-013	0
367	CCL Bkt	A3-105-35-1-0054-01-02-001	0
368	Pulley-C	A4-105-35-1-0054-01-02-002	0
369	Pin-C	A4-105-35-1-0054-01-02-003	0
370	SNUBBER ASSEMBLY		
371	Support Bracket	A4-105-35-1-0057-02-00-001	1
372	Spacer	A4-105-35-1-0057-02-00-002	1
373	Top Plate	ISAC-SCMG-NV32-SA-31003/000	
374	Yoke Support Bracket	ISAC-SCMG-CHN2-X1-00034/001	
375	Bracket-1 (Call Side)	ISAC-SCMG-SMGG-3M-11012/000	
376	Bracket-2 (Back Side)	ISAC-SCMG-SMGG-3M-11007/000	
377	HARNESSE (LOOP) ASSEMBLY		
378	Y-P1 Harness Clamp on Yoke	ISAC-SCMG-RS03-SA-91001/000	0
379	Y-P1 Harness Clamp on P1	ISAC-SCMG-RS03-SA-91002/000	0

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SL NO	PART NAME	DRAWING NUMBER	REV NO
380	P1-P2 Harness Clamp	ISAC-SCMG-RS03-SA-91003/000	0
381	P2-P3 Harness Clamp	ISAC-SCMG-RS03-SA-91004/000	0
382	Harness Clamp Pad	ISAC-SCMG-RS03-SA-91006/000	0
383	Harness Clamp pad - 1	A4-105-35-1-0060-03-01-005	0
384	Harness Guide	ISAC-SCMG-RS2A-SC-11013/000	0
385	Harness Connector Clamp (17 Pin)	ISAC-SCMG-GT11-4A-20110/000	0
386	Harness Connector Clamp (50 Pin)	ISAC-SCMG-GT11-5A-20109/000	0
387	SPSS Interface Bracket	ISAC-SCMG-RS03-SP-41001/000	0
388	Swaging Terminal	ISAC-SCMG-SMGG-3F-11007/000	0

SPARE PARTS PER WING 1:1 type SADM:

To take care of assembly and execution of the project at URSC, the parts listed below are required to be delivered as extra (spares) per wing besides the quantity required as per the assembly drawings.

SL NO	SPARES - LOOSE ITEMS	DRAWING NUMBER	QUANTITY /WING
1	Separator Pin	A4-105-35-1-0053-01-00-018	4
2	Electro Pin-A	A4-105-35-1-0053-01-00-019	2
3	Electro Pin-B	A4-105-35-1-0053-01-00-020	2
4	CSK Screw	A4-105-35-1-0053-01-00-021	4+4+4=12
5	Slender	A4-105-35-1-0053-01-00-022	4
6	Hex. Hd. Screw	A4-105-35-1-0053-01-00-023	4
7	Plunger	A4-105-35-1-0053-01-00-024	1
8	Shoulder Screw	A4-105-35-1-0053-01-00-030	4
9	Spring Holder	A4-105-35-1-0053-01-00-035	
10	MG Lock Nut	A4-105-35-1-0053-01-00-039	2
11	Washer	A4-105-35-1-0053-01-00-040	4
12	Stainless-B	A4-105-35-1-0053-01-00-042	1
13	Washer	ISAC-SCMG-GT30-53-41033/000	2
14	Separator Spring	A3-105-35-1-0053-01-00-052	2
15	Electro Spring	A3-105-35-1-0053-01-00-053	2
16	Stiffener Bracket Screw M3	A4-105-35-1-0053-01-00-056	
17	Dmc Spring	A4-105-35-1-0052-01-07-005	50
18	BOLT ASSY	A3-105-35-1-0053-01-38-000	
19	Hex. Locknut (RH)	A4-105-35-1-0052-01-04-006	2
20	Hex. Locknut (LH)	A4-105-35-1-0052-01-04-007	
21	Tab	A4-105-35-1-0052-01-04-008	40
22	TURN BUCKLE TERMINAL BK (RH)	ISAC-SCMG-GT11-RP-40018/001	12
23	TURN BUCKLE TERMINAL BK (LH)	ISAC-SCMG-GT11-RP-00018/001	12
24	Turn Buckle Bolt	ISAC-SCMG-GT11-RP-00017/000	1

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SL NO	SPARES - LOOSE ITEMS	DRAWING NUMBER	QUANTITY / WING
25	Pin	A4-105-35-1-0052-01-03-002	3
26	Extension Spring	A4-105-35-1-0052-01-06-002	3
27	Shaft	A4-105-35-1-0052-01-07-003	4
28	Washer	A4-105-35-1-0052-01-07-002	4
29	Spring Mandrel	A4-105-35-1-0052-01-07-003	4
30	Spring Holder-1	A4-105-35-1-0052-02-06-001	2
31	Disc Spring	A4-105-35-1-0052-01-07-005	1
32	Shaft-1	A4-105-35-1-0052-02-06-003	1
33	Pyro End Terminal	A4-105-35-1-0052-01-08-001	1
34	Spring Adaptor	A4-105-35-1-0051-02-00-009	2
35	Bolt	A4-105-35-1-0051-01-00-020	8
36	Panel A1	A4-105-35-1-0051-01-00-024	1
37	Panel B1	A4-105-35-1-0051-01-00-025	1
38	Insulating Bush	ISAC-SCMG-G205-S1-21003/000	3
39	Spacer ISFRP	ISAC-SCMG-G205-S1-21003/001	2
40	Spring Adaptor	A4-105-35-1-0050-01-00-012	8
41	Hinge Bracket Bolt	A4-105-35-1-0050-01-00-015	12
42	Washer-1	A4-105-35-1-0054-01-00-006	1
43	Washer-2	A4-105-35-1-0054-01-00-007	2
44	Screw	A4-105-35-1-0054-01-00-008	4
45	Guide Bush	A4-105-35-1-0054-02-01-002	2
46	Flange Terminal	A4-105-35-1-0054-01-01-003	6
47	Bolt Terminal	A4-105-35-1-0054-01-01-005	6
48	Nut	A4-105-35-1-0054-01-01-006	6
49	Washer	A4-105-35-1-0054-01-03-007	2
50	Washer	A4-105-35-1-0054-01-01-012	4+2=6
51	Tab	A4-105-35-1-0054-01-01-012	20
52	Support Bracket	A4-105-35-1-0057-02-00-001	5
53	Spacer	A4-105-35-1-0057-02-00-002	5
54	Top Plate	ISAC-SCMG-NV52-SA-31003-000	10
55	Yoke Support Bracket	ISAC-SCMG-CHN2-X3-09034-001	2
56	Sheet-2 (Cell Side)	ISAC-SCMG-SMGG-SM-1-11002/000	50
57	Sheet-1 (Back Side)	ISAC-SCMG-SMGG-SM-1-11007/000	15
58	Y-P1 Harness Clamp on Yoke	ISAC-SCMG-R503-SA-91001/000	12
59	Y-P1 Harness Clamp on Yoke	ISAC-SCMG-R503-SA-91002/000	12
60	P1-P2 Harness Clamp	ISAC-SCMG-R503-SA-91003/000	12
61	P2-P2 Harness Clamp	ISAC-SCMG-R503-SA-91004/000	8
62	Harness Clamp Pad	ISAC-SCMG-R503-SA-91006/000	48
63	Harness Clamp Pad - 1	A4-105-35-1-0060-03-01-005	48
64	Harness Guide	ISAC-SCMG-R52A-SG-11013/000	2

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SL NO	SPARES - LOOSE ITEMS	DRAWING NUMBER	QUANTITY / WING
65	Harness Connector Clamp (37 Pin)	ISAC-SCMG-GT11-SA-20109/000	30
66	Harness Connector Clamp (30 Pin)	ISAC-SCMG-GT11-SA-20109/000	30
67	SPSS Interface Bracket	ISAC-SCMG-R503-SP-41001/000	1
68	Spraying Terminal	ISAC-SCMG-SMGG-SF-11007/000	30
69	M6X16 TI 6Al 4V Socket Head Screw	STD with MoS2 Coating	40
70	M6X18 TI 6Al 4V Socket Head Screw	STD with MoS2 Coating	50
71	M6X20 TI 6Al 4V Socket Head Screw	STD with MoS2 Coating	12
72	M6X16 TI 6Al 4V Cheese Head Screw	STD with MoS2 Coating	8
73	M4X10 TI 6Al 4V Socket Head Screw	STD with MoS2 Coating	200
74	M4X20 TI 6Al 4V Socket Head Screw	STD with MoS2 Coating	20
75	M4X22 TI 6Al 4V Socket Head Screw	STD with MoS2 Coating	20
76	M4X25 TI 6Al 4V Socket Head Screw	STD with MoS2 Coating	20
77	M3X6 Socket Head Screw (SS304)	STD	100
78	M3X8 Socket Head Screw (SS304)	STD	100
79	M4X10 Socket Head Screw (SS304)	STD	100
80	M4X12 Socket Head Screw (SS304)	STD	100
81	M3 Washer (SS304)	STD	300
82	M4 Washer (SS304)	STD	100
83	M5 Washer (SS304)	STD	50
84	M6 Nut (SS304)	STD	40
85	M3 Nyllock Nut	STD	100
86	M4 Nyllock Nut	STD	10
87	M5 Nyllock Nut	STD	25
88	O Anne Spring (SS304)	STD	50

Spare parts / Wing Note:

To take care of assembly and execution of the project at URSC, the parts are listed above are required to be delivered as extra (spares) per wing besides the quantity required as per the assembly drawings. Cost per wing quotation to include the above parts also that include raw material, fabrication, secondary treatment and shipment to URSC.

Note-1: Delivery of Pyro cutters, SADA motor, RTV anubbers, Kapton sheets are not in the scope of vendor's supply. They are part of assembly drawings for completeness sake.

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DETAILS OF TOOLS & FIXTURES

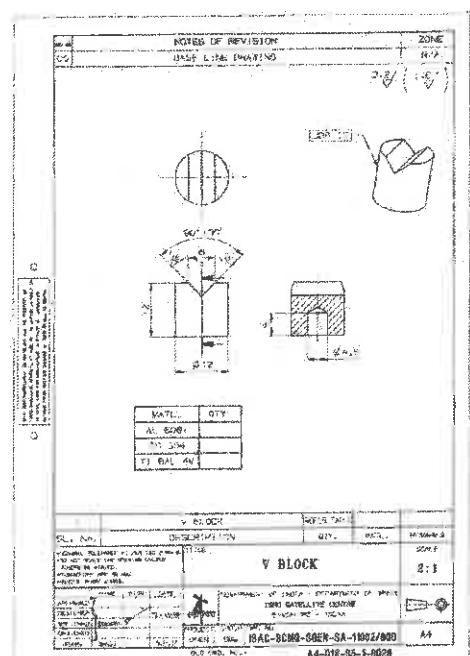
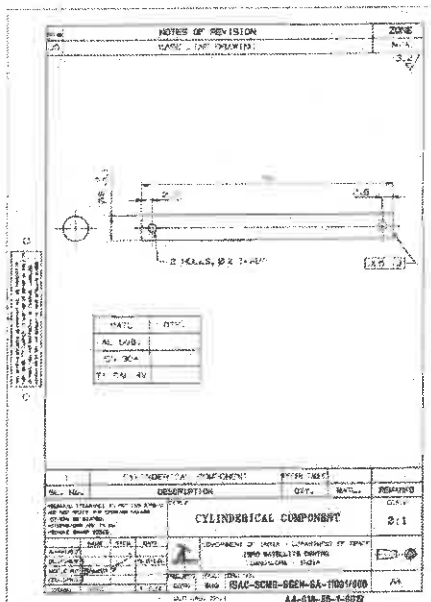
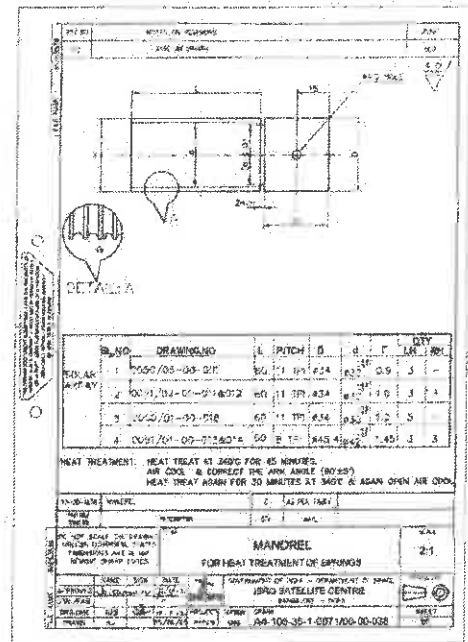
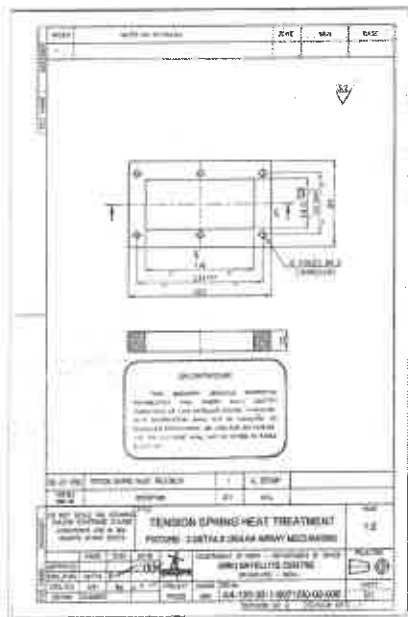
1. Tension spring heat treatment fixture: As per drawing enclosed (A4-105-35-1-0071/00-00-005 & A4-105-35-1-0071/00-00-008)
2. Tension spring heat treatment: (Drawing No. A4-105-35-1-0071/00-00-038)
 - Mandrel-1: As per drawing enclosed
 - Mandrel-2: As per drawing enclosed
 - Mandrel-3: As per drawing enclosed
 - Mandrel-4: As per drawing enclosed
3. Spherical bearing stacking and clearance measurement tools
4. Micro switch calibration
5. Load cells
6. Force gauges
7. Miscellaneous fixtures if any required by the contractor for executing the contract
8. Coupons required for carrying secondary treatment of components.

ANNEXURE – 2

DETAILS OF TOOLS & FIXTURES

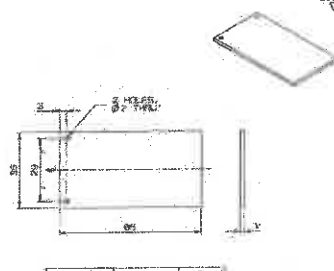
(For Information)

Sl. No.	COUPON TYPE	DRAWING NO
1.	Cylindrical component	ISAC-SCMG-SGEN-SA-11001/000
2.	V-Block	ISAC-SCMG-SGEN-SA-11002/000
3.	Flat test coupon (2 mm thick)	ISAC-SCMG-SGEN-SA-11003/001
4.	Flat test coupon (12 mm thick)	ISAC-SCMG-SGEN-SA-11003/001
5.	Flat round coupon	ISAC-SCMG-SGEN-SA-11005/000



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NOTES OF REVISION		SCALE
00	BASE LINE DRAWING	N/A
01	TABLE ADDED	N/A



MATL.	THICKNESS	QTY.
AL 6061		
SS 304		
TI GAL 4V		

NOTES:- 1. "AS SUPPLIED, NO MACHINING REQUIRED.
2. "VARIES FROM 1-2 mm.
3. ADD ID BY TAG.

SL. No.	DESCRIPTION	QTY.	MATL.	REMARKS
FLAT TEST COUPON				
1	FLAT TEST COUPON	1	AL 6061	1:1

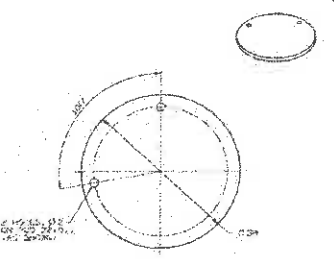
REVISIONS OF INDIA - DEPARTMENT OF SPACE
ISRO SATELLITE CENTRE
SHARADHA ROAD
CHENNAI 600 025

ISSUED BY: [Signature] DATE: 14-03-2001
CHECKED BY: [Signature] DATE: 14-03-2001
REVIEWED BY: [Signature] DATE: 14-03-2001

ISRO-URSC-TR-1974-001

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NOTES OF REVISION		SCALE
00	BASE LINE DRAWING	N/A
01	TABLE ADDED	N/A



NOTE: 1. "AS SUPPLIED, NO MACHINING REQUIRED.
2. "VARIES FROM 1-2 mm.
3. ADD ID BY TAG.

SL. No.	DESCRIPTION	QTY.	MATL.	REMARKS
FLAT ROUND COUPON				
1	FLAT ROUND COUPON	1	AL 6061	2:1

REVISIONS OF INDIA - DEPARTMENT OF SPACE
ISRO SATELLITE CENTRE
SHARADHA ROAD
CHENNAI 600 025

ISSUED BY: [Signature] DATE: 14-03-2001
CHECKED BY: [Signature] DATE: 14-03-2001
REVIEWED BY: [Signature] DATE: 14-03-2001

ISRO-URSC-TR-1974-001

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DETAILS OF PACKING & STORAGE SCHEME

MATERIAL SPECIFICATIONS:

SL No.	Material Description	Specifications	Vendor
1.	Polyethylene bags	-	Indian Suppliers
2.	Bag inner	Nylon Richmond A-124	Richmond Technology Inc., Red Lands, CA 92374
3.	Bag outer	MIL-B-117 Type-1, Class-E Style 1,2,3 made from material conforming to MIL-B-131, Type -I Class 1,2,3 or MIL-B-22191, Type-1 Class 1 or 2	YAIL-NOA Agencies, 15, Hasatut Street Industrial Zone P.O. Box 319 Holon 58856 ISRAEL
4.	Humidity indicator	MS 20003 - 2 as per MIL-26860, Type-II	1) YAIL-NOA Agencies, 15, Hasatut Street Industrial Zone P.O. Box 319 Holon 58856 ISRAEL 2) BEE CHEMS E-5, Panki Industrial Area Site-1, Kanpur-208022 Ph.No: +91-512-2692481 Fax No: +91-512-2691219
5.	Desiccant	MIL-D-3464, Type - II	1) YAIL-NOA Agencies, 15, Hasatut Street Industrial Zone P.O. Box 319 Holon 58856 ISRAEL 2) BEE CHEMS E-5, Panki Industrial Area Site-1, Kanpur-208022 Ph.No: +91-512-2692481 Fax No: +91-512-2691219
6.	Cushioning material	Polyurethane foam	Indian suppliers
7.	Protective container	Plastic or fibre glass or metal	Indian suppliers

ANNEXURE - 3

DETAILS OF PACKING & STORAGE SCHEME (For Information)

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Packing Procedure:

a) FOR IN-PLANT MOVEMENT

For inter departmental transportation, the components/assemblies will be put in a polyethylene bag with suitable tag identification. These bags will be closed by press grip type of locking.

b) FOR COMPLETED COMPONENTS AND SUB ASSEMBLIES

- The operation of packaging and positioning of components and assemblies will be performed in a clean room with regulated atmosphere

Clean room class	-	1, 00,000
Humidity	-	50 ± 10%
Temperature	-	20°C ± 2°C

- The packing operations will be performed in the presence of identified QA engineers

- Before commencing the packaging, the QA engineer shall ensure that all operations related to the assembly and testing are complete and the assemblies are cleared for shipping by authorised representatives,

- Before starting the packaging operations, the container has to be cleaned thoroughly using a vacuum cleaner

Completely tested and accepted sub-assemblies should be put in one bag as per the procedure given below

- Each of the sub-assemblies are put in an inner bag of Nylon (Richmond A-124) material, separately and heat sealed.
- Both these inner bags will be kept in an intermediate bag of polyethylene material.

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- Place the desiccant packs in the intermediate bag along with the humidity indicator card.
- Purge the intermediate bag in an outer bag; purge dry nitrogen and heat seal it, with sufficient material left for two additional heat seals.

- Marking: Inspection status tag giving the following information is to be used for labelling the cover

- ☐ Supplier's name and address
- ☐ Sub assembly name
- ☐ Part number/Serial number
- ☐ Order reference
- ☐ Date packaged
- ☐ Quantity
- ☐ Contract number
- ☐ Special precautions, if any

c) FOR SHIPMENT

- All the components/assemblies already packaged will be packed in a suitable container large enough to accommodate the bagged units and the cushioning material.

- Polyurethane foam of a minimum thickness of 0.5" shall be provided on all six internal faces of the container box. Cushioning will also be provided between the individual sealed bags.

- Close the lid, lock and seal the edges.

- All deliverable documents shall be packed inside a separate package.

The top and sides of the container and documents package shall be labelled, containing all the information like supplier's name, address, etc., as mentioned earlier for labelling the cover.

d) STORAGE SCHEME

- All fabricated components have to be stored with proper identification in polythene covers with press grip sealing.
- All secondary treated components should be stored in polythene covers with heat sealing to protect it from humidity.
- For long term storage, the secondary treated components should be stored in dry Nitrogen purged chambers (desiccators).

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ANNEXURE - 4

LIST OF URSC APPROVED VENDORS (For Information)

FOLLOWING IS A LIST OF VENDORS APPROVED BY URSC FOR DIFFERENT SERVICES AS ON DATE

Sl. No.	ACTIVITY	URSC APPROVED VENDORS (NAME AND ADDRESS)
1	FABRICATION OF SPRINGS	M/s. LAKSHMI SPRING INDUSTRIES #31/13, 1st Cross M.C. Layout (Behind Vijayanagara Telephone Exchange) Bangalore -560 079 Ph: (080)23358873 / 23104284, Fax: (080)23104286
2	ANODISATION / HARD ANODISATION	M/s. PUSHPAK INDUSTRIAL SERVICES Anodising Plant, No. 303, MES Ring road Jalahalli, Bangalore-13 Ph: (080)26382031/4844
3	SAND BLASTING & DRY LUBRICATION	1) M/s. TRUSTED SERVICES No. 1062, 5th Cross, 1st Main, Kengeri Satellite Town Bangalore-560 060 Mobile: 9845949465 Email: kanthiraj@hotmail.com , or trustserv@hotmail.com 2) M/s. AVASARALA TECHNOLOGIES LTD., Huskur Road, Bommasandra industrial area, Bommasandra, Bangalore-560 099
4	STRAIN GAUGE BONDING & TESTING ON SPRING HOLDERS	1) M/s. LOAD MASTERS No: 595/a, Mallasandra Main Road -T. Dasarahalli post, Bangalore-560057, Ph.no: 9036612800, 9448080519 2) M/s. AJAY SENSORS # 45/17, Gubbanna Industrial Garden, 12th Cross, 8th Block, Rajaji Nagar, Bangalore-560010. PIN: 9845048010

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Sl. No.	ACTIVITY	URSC APPROVED VENDORS (NAME AND ADDRESS)
		Sl. No. Name & address of the party
		01 M/s SMART Technologies , B-128, 3rd Cross 1st Stage, Peenya Industrial Estate , BANGALORE Karnataka, India, PinCode : 560066 Telephone No. : 080-28370980
		02 M/s DUCOM AEROSPACE TECHNOLOGIES PVT. LTD. , A-101 3rd Main Road, 2nd Stage Peenya Industrial Area, Bengaluru, PinCode : 560059 Telephone No. : 28396695
		03 M/s MULTITECK ENGINEERING SOLUTIONS , 143/151 Byraveshwara Industrial Estate Main Road, Andrahalli,Peenya 2nd Stage Vishwanedam Post, BANGALORE , Karnataka India, PinCode : 560091 Telephone No. : 080-28360100
		04 M/s SOUTHERN ELECTRONICS (BANGALORE) PRIVATE LIMITED , #16-A, Peenya Industrial Area, Phase - 1 Peenya, Bengaluru, Karnataka India, PinCode : 560064 Telephone No. : 08039280348
		05 M/s ARTHA TECHNOLOGIES , #C-77, 3rd Cross, 3rd Stage , Peenya Industrial Area , Bengaluru Karnataka , India, PinCode : 560068 Telephone No. : 9980110967
		06 M/s Bhagyashri Home Appliances Pvt. Ltd. , N-93 Hingna MIDC , Hingna Road , Nagpur Maharashtra , India PinCode : 440016 Telephone No. : 9823978536
		07 M/s DELTA TECHNOLOGIES , #7 Mudappa Industrial Estate, Boralingappa Garden Near SRB Road, Peenya BANGALORE , Karnataka India PinCode : 560069 Telephone No. : 123
		08 M/s SAAB ENGINEERING CENTRE , Shed No.4 , # 31/1 Seetharampalya, Graphite India Road , Mahadevapura Post , BANGALORE Karnataka , India PinCode : 690048 Telephone No. : 08028522515

ANNEXURE - 5

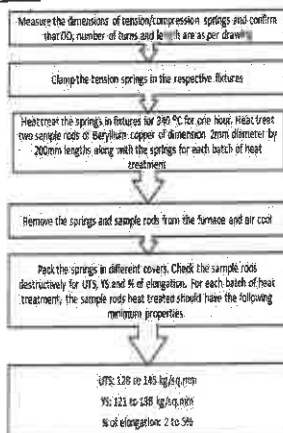
PROCESS QUALIFICATION

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The procedure for required process is mentioned below. Vendor has to qualify all these process from URSC before assembly at different stages.

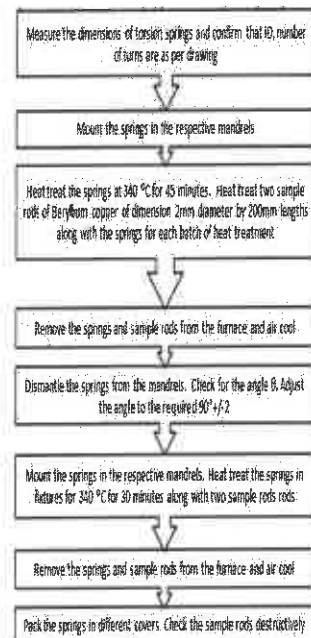
1. PROCESS CHART FOR BE-CU TENSION/COMPRESSION SPRINGS HEAT TREATMENT
2. PROCESS CHART FOR BE-CU TORSION SPRINGS HEAT TREATMENT
3. CLEANING PROCEDURE FOR SPRINGS
4. MICROSWITCH CALIBRATION
5. SPHERICAL BEARING STAKING MEASUREMENT
6. SPHERICAL BEARING CLEARANCE MEASUREMENT (BEFORE AND AFTER STAKING)
7. HOLD DOWN BOLT SWAGING & TESTING
8. DU-BUSH INSERTION

1. PROCESS CHART FOR BE-CU TENSION/COMPRESSION SPRINGS HEAT TREATMENT



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2. PROCESS CHART FOR BE-CU TORSION SPRINGS HEAT TREATMENT



4. MICROSWITCH CALIBRATION

4.1.5 Characterisation of Limitswitches



The purpose of this test is to find out the force/displacement characteristics of the limit switch.

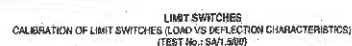
3. PROCEDURE

Calibrate X and Y scales of the graph plotter using a known/calibrated source of Force/deflection and record scale readings on the graph paper. Select scale of deflection of the load cell to be less than 10mm/deflection in force scale than 0.1mm in deflection measurement.

Fix the Limit switch (which is electrically screened and cleared by GSI) on the load cell so that the force measured is in the higher value.

Position the plunger so as to load the lever at the specified distance from its fulcrum, as shown in figure 1.5, apply the load gradually up to actuation. Apply a load 1mm more at displacement (Over-travel) beyond actuation and note down the load. The load Vs deflection graph (continuous graph) has to be plotted. Obtain actuation, de-actuation and 1mm over-travel points from the graph. (Actuation and de-actuation of the load cell can be noted by the sound produced by the load cell. The dip seen in the load/deflection plots.)

- Limit switch is a delicate component. It has to be handled with care. Switch fixing screws should not be tightened higher than 1.7 kg-cm torque as it can damage the switch.
- Ensure that the lever does not get loaded more than 1mm over-travel.

[illegible]

1. Limit switches, which have undergone screening only, have to be calibrated.
2. A continuous graph of Lead Vs Deflection is to be obtained and enclosed.

Tested by (name) : _____ Checked by (name) : _____
Signature with date : _____ Signature with date : _____

5. SPHERICAL BEARING STAKING MEASUREMENT

SPECIFICATIONS

BEARINGS

SIZES: DIAMETER 6 MM

MAKE: FRANKENJURA, GERMANY

SETUPS USED:

BEARING LOCATING/INSERTION

FIXTURE CAPACITY: 10T HYDRAULIC

PRESS LOAD CELL-RANGE:

SPECIFICATIONS

Bearings

Sizes Dia 6 mm - 2 nos
Dia 8 mm - 2 nos

Make Frankenjura, Germany

Setup used

Clearance measurement setup - For radial and axial clearance measurement
Bearing locating/insertion fixture
30 T hydraulic press
Load cell - Range: 0-5 T, least count = 5kg
Pull-out test setup using Support Tube, Mechanical Jack and spring balance (0 to 200 kg) refer Fig 1.



HYDRAULIC PRESS

QUALIFICATION

Qualification of the procedure was done by measuring bearing clearance before and after staking.

Test Procedure

Staking

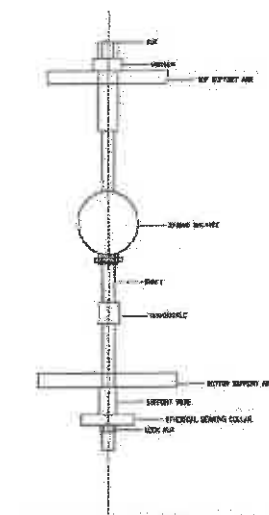
- Radial and axial clearance measurement is done for all bearings. The readings are recorded.
- The bearings are located and inserted using mechanical force in the respective fixture.
- The bearings are staked in the respective fixtures by applying load from hydraulic press as follows:

Bearing Size (Dia.in mm)	Staking Load (kgf)	Set pressure corresponding to load (kgf/cm ²)
6	3800	38

Proof loading

The bearings are subjected to 100kg load in axial direction for 2 minutes.

- Set up the support tube on the pull-out fixture as shown in the figure.
- Place the test sample on bottom of the support tube centrally located so that the bearing which is flared in Aluminium collar will not obstruct the ID of the support tube.
- Spherical Bearing Collar is locked by locknut. Apply the load on the spring balance gradually by means of tightening nut over the top support arm as shown in the figure.
- Set load of 100 kg on spring balance for a period of 2 min.(holding time). Use same procedure for Dia.6 mm and Dia.8 mm Spherical Bearing.
- For pull out, the load is increased till the bearing slides out from the housing. The load at which the bearing is pulled out is recorded.



Precaution

- Support tube should guide the Spherical Bearing. OD of the support should be less in diameter than the ID of the bearing.

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6. SPHERICAL BEARING CLEARANCE MEASUREMENT

The purpose of this test is to measure the axial and radial clearance in spherical bearing between the inner race and outer race before staking in the hinge eye end bracket.

TEST SET UP

Sl No	Description Drawing No.	Equipment Serial No. / Drgs
1.	Auxiliary Clamp for Bearings	
2.	Spherical bearing inspection fixture	
3.	Dial indicator (1 micron resolution), 2Nos	
4.	Standard pins	
5.	Micrometer (1 micron resolution)	

PROCEDURE

Radial Clearance

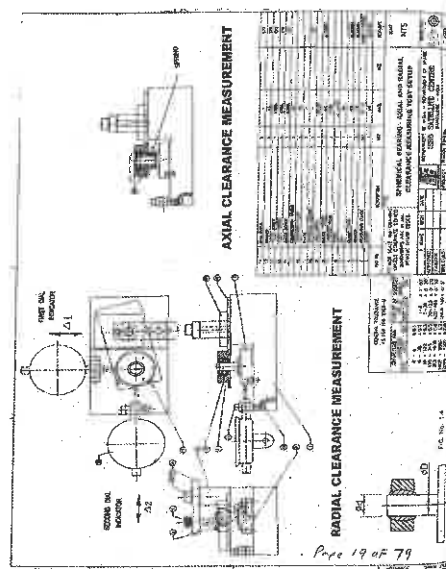
1. Measure bore diameter of bearing and diameter of the measuring gauge.
2. Fix the bearing on the inspection fixture using the auxiliary clamp system, after inserting the measuring gauge.
3. Pull the measuring gauge towards Dial indicator (gauge)-1 and away from the Dial indicator (gauge)-2 using a rubber band (to limit the pull force to ≤ 500 gms)
4. obtain the maximum and minimum reading from the dial gauge-1
5. obtain the algebraic difference, $\Delta 1$.
6. Repeat the same procedure in the direction (normal to previous measurement direction) of the dial gauge-2 and obtain $\Delta 2$ Ref. Fig. No.1.4

The radial clearance = $((\Delta 1 + \Delta 2)/4) - ((d-D)/2)$

Where

$\Delta 1$ = Algebraic difference in readings of first dial indicator
 $\Delta 2$ = Algebraic difference in readings of second dial indicator
 d = bore diameter of bearing.
 D = Measuring gauge diameter.

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Axial Clearance

1. The measuring gauge along with the compression spring is located on the block with two locating plugs.
2. A plate is clamped to the block.
3. The bearing is placed on the clamped extension plate such that the bore of the bearing and the measuring gauge match closely.
4. The bearing is located by means of a cover fixed by three screws to the clamped plate. In this condition, the compression spring is not active.
5. The height of the top surface of the ball in the bearing is measured by means of the dial indicator.
6. The spring is compressed by inserting a plate of sufficient thickness so as to apply a positive upward force on the ball of the spherical bearing.
7. Measure the height of the top surface of the ball.
8. The algebraic difference of the two readings gives the axial clearance of the bearing.

PRECAUTION

1. Ensure that the ID of the bearing is lubricated / burnished with MoS₂.
2. Test to be done inside the laminar flow table (100 class).
3. The two dial gauges are to be at 90° to each other.
4. Ensure that the measuring gauge does not lift (tilt) during measurement (Sudden jump in dial indicator reading is an indication of this phenomena)
5. Ensure that the dial indicator reading does not change more than 1 or 2 microns when pulling load is removed.

Note: The same procedure as described above has to be adopted for measurement of radial and axial clearance of spherical bearings after staking, the only difference being that a different method of bracket clamping will have to be used.

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7. DETAILS OF SWAGING AND HOLD DOWN BOLT TESTING AS PART OF ACCEPTANCE

Tests to be carried out on all the swaged bolts

1. Dimensional inspection as per drawing no.
2. DP test
3. X-ray NDT verification of wire rope engagement
4. Proof load test 340 kgf for 10 minutes duration (Bolts have to be subjected to load cycling for 5 times before proof loading)
5. DP test after proof loading.

All the swaged bolts which clear the above tests will be accepted to form a batch. The minimum and maximum nos. of swaged bolts required to form a batch is as follows,

Swaging qty.	=	6 nos.
(min)		
Swaging qty.	=	20 nos.
(max)		

6. Failure test on 1 no. of swaged bolt (to meet ≥ 1100 Kgf) from the above accepted quantity to be carried out for batch clearance each time the bolts are swaged. If the operations are carried out by a new Vendor who has not carried out this operation to URSC, the hold down bolt swaging process to be qualified by testing for failure at least 2 or more number of bolts before starting the swaging of flight bolts for process qualification by the individual.

7. The balance qty. of swaged bolts will be accepted and cleared for secondary treatment and later for usage in flight assembly.

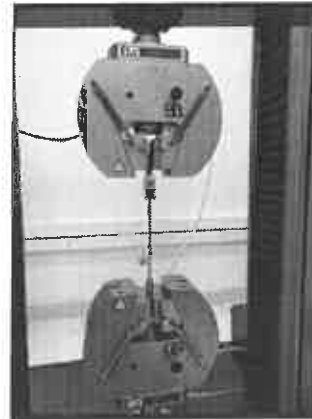
HOLD DOWN BOLT TESTING PROCEDURE

1. After swaging, conduct dimensional inspection and ensure they are within limit.
2. Visually inspect for any cracks or inclusion on swaged surfaces using magnification lens of 10X.
3. Conduct dye penetrant test to rule out surface defects.
4. Carry out X-ray inspection of swaged bolts at least two exposures-90 degrees rotated, to rule out sub-surface defects.
5. Mechanical Testing
 - 5.1 Load cycling of hold down bolts in UT14 to 225 kgf load five times. Record the load vs deflection plot.

Note: Ensure top end terminal thread engagement should be at least 1D in the round grip bar.

 - 5.2 Proof loading the hold down bolts to 340 kgf load and dwell time of 10 mins. Record the load vs deflection plot.

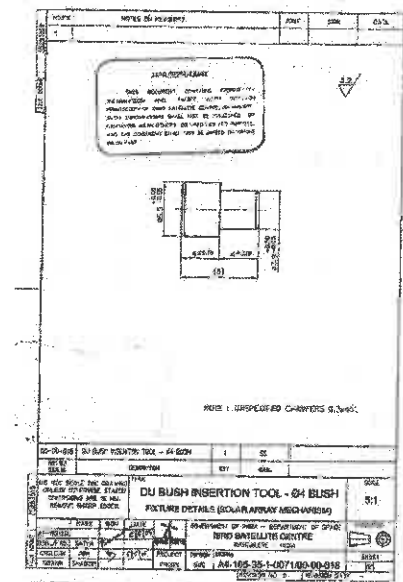
Note: Before start of proof loading, the nut should be torqued to 45 kgf-cm.
6. Repeat step 3 and 4.
7. Repeat step 2.
8. Failure test on 2 nos of swaged bolt (to meet > 488 kgf) from the accepted quantity to be carried out for batch clearance each time the bolts are swaged.
9. Submit the plots generated in step 5 (i.e. 5.1 & 5.2) with QA certification to URSC.

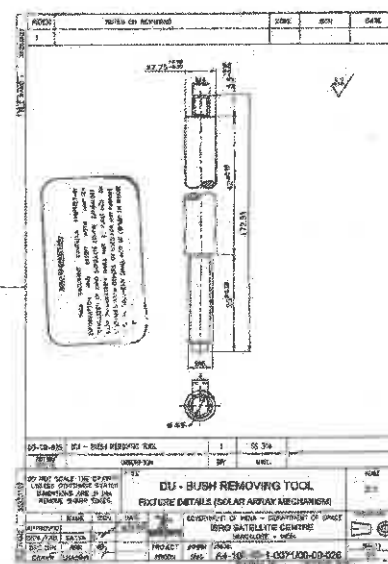
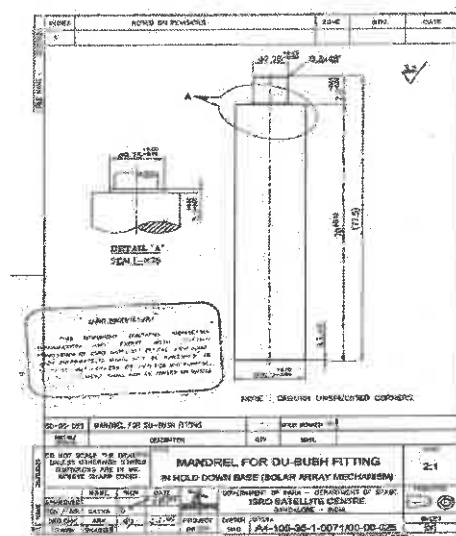
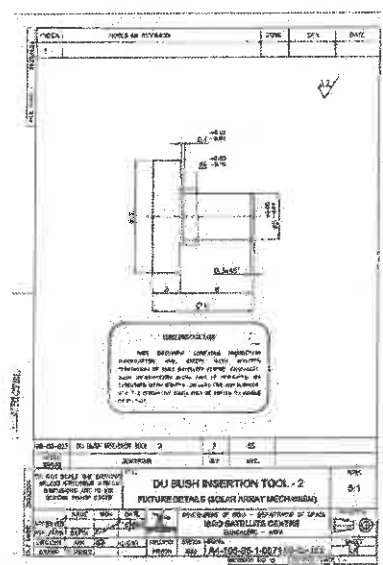
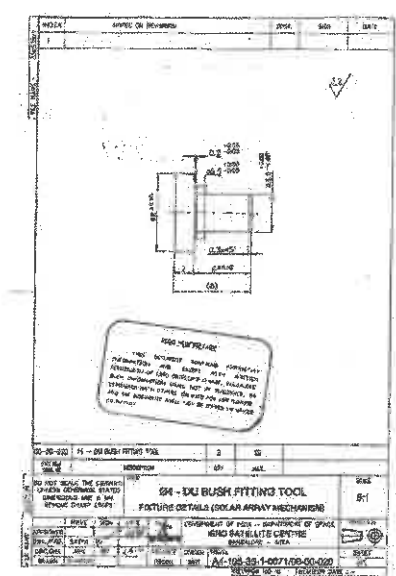


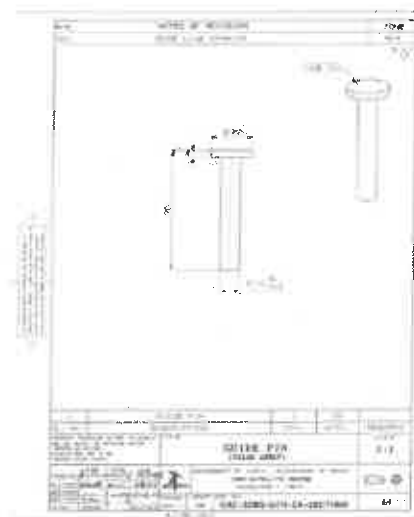
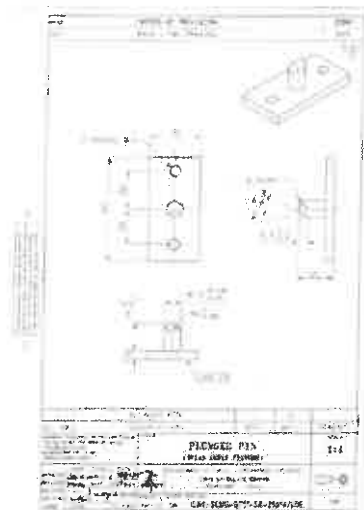
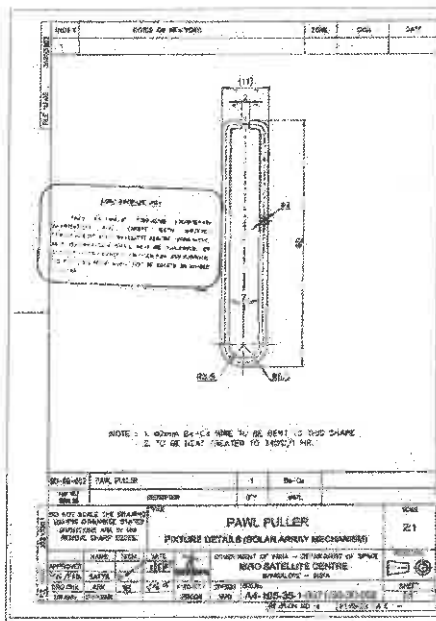
Typical test set up of hold down bolt proof loading

8. DU-BUSH INSERTION: DU-bushes to be inserted in housings and other parts (where ever applicable) with the help of insertion tools with suitable toggle press (Sample drawings of Ø4 DU-bush insertion, fitting and removable tools) for reference are given below. Vendor in consultation with URSC shall fabricate necessary tools for DU-bush insertion of required sizes.

1. DU-Bush insertion tool-Ø4 bush (Drwg.No: A4-105-35-1-0071/00-00-018)
2. DU-Bush fitting tool- Ø4 bush (Drwg.No: A4-105-35-1-0071/00-00-020)
3. DU-Bush insertion tool-2 (Drwg.No: A4-105-35-1-0071/00-00-023)
4. Mandrel for DU-Bush fitting (Drwg.No: A4-105-35-1-0071/00-00-025)
5. DU-Bush removing tool (Drwg.No: A4-105-35-1-0071/00-00-026)
6. Pawl Puller (A4-105-35-1-0071/00-00-002)
7. Plunger Pin (ISAC-SCMG-GT11-SA-25014/000)
8. Proof Load Fixture (ISAC-SCMG-GT11-SA-25015/000)
9. Torquing Adapter-2 (A4-105-35-1-0071/00-00-004)







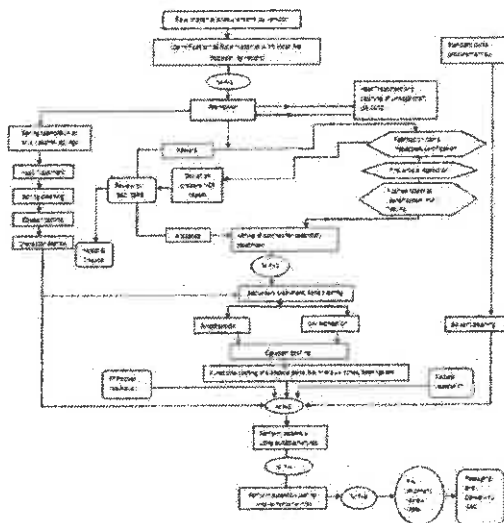


Figure-1: WORK FLOW CHART FOR SOLAR ARRAY DEPLOYMENT MECHANISM

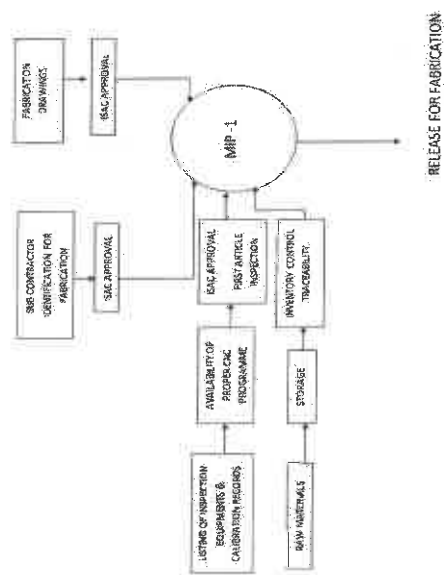


Figure-2: MIP – 1 DETAILS

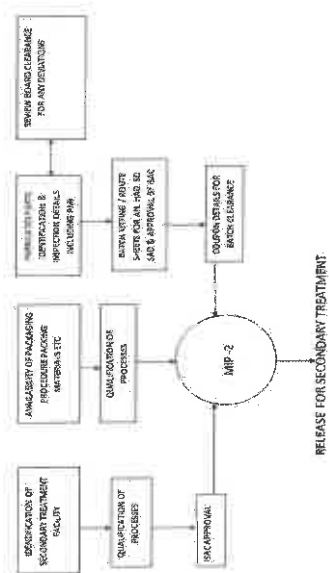


Figure-3: MP – 2 DETAILS

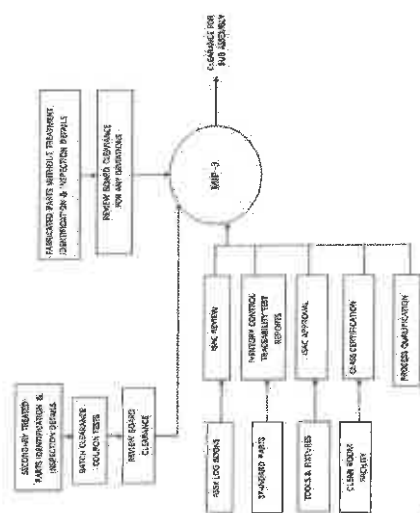


Figure-4: MIP – 3 DETAILS

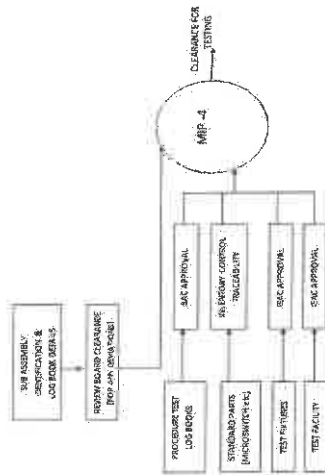


Figure-5: MIP - 4 DETAILS

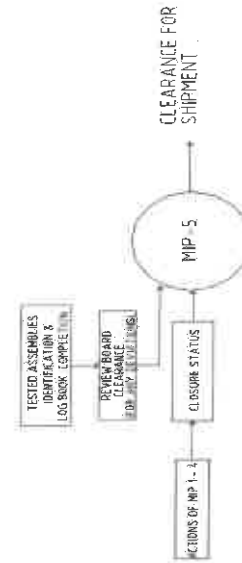


Figure-6: MIP - 5 Details

ANNEXURE - 7

SPECIFICATIONS FOR STRAIN GAUGE BONDING AND TESTING

SPECIFICATIONS FOR STRAIN GAUGE BONDING AND TESTING

This section provides the details of activities to be carried out on:

- 1) Spring holders and
- 2) Terminals for S.G Mounting

(Refer Annexure-1; List of Deliverables; drawing numbers ISAC-DTDF-EMST-3500001/001, ISAC-SCMG-EMST-SA-18092/000 and A4-105-35-1-0053-01-00-035) for strain gauge bonding and detailed calibration and testing.

This activity shall be outsourced to URSC approved vendors as provided in Annexure-7B.

The following activities are to be carried out by the vendor.

- 1.1 Vendor has to procure the strain gauges, adhesive; potting agent (as per Annexure-7B) and same has to be used on to the components as per the table below. The strain gauge bonding activity/testing can be outsourced to URSC approved vendors.

SL. No.	Component	Material	Strain Gauge Type	Brand/Make	Adhesive	Potting
1	Spring Holder	Ti-6Al4V	FLA- 2-11	TML/Micro measurements	(M610) to be used for bonding of strain gauge	RTV (789)
2	Terminals for S.G Mounting	AL6061 T651	FLA- 2-23	TML/Micro measurements	(M610) to be used for bonding of strain gauge	RTV (789)

- 1.2 The procured strain gauges and adhesive (chemical composition and material properties) certificates to be provided along with the hardware delivery.

- 1.3 Bonding of strain gauge on the spring holder and Terminals for S.G. mounting has to be done as per Annexure-7A.

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- 1.4 Space qualified electrical wires should be wires of 28 AWG gauge with the following colour coding and identification and should withstand the temperature range of -40°C to +80°C.
- RED COLOUR WIRE : + P
 - BLACK COLOUR WIRE : - P
 - GREEN COLOUR WIRE : + S
 - WHITE COLOUR WIRE : - S
- 1.5 All calibration and tests have to be carried out on the components in the order mentioned below and the test data should be entered in the appropriate formats given in Annexure-7A.
- Load cycling
 - Thermal Cycling.
 - Long term loading for stabilization for one month.
 - Calibration.
 - Graphs.
- 1.6 The following facilities are required to carry out the strain gauge bonding and testing on spring holders and Terminals for S.G. mounting.
- Thermal cycling chamber
 - Universal testing machine
 - Strain Indicator
 - Infra-red Lamp
 - Heat sealing machine
- 1.7 Vendor has to use the Strain Indicator as per Annexure-7B for measuring the strain values of spring holders and Terminals for S.G. mounting.

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- 1.8 The vendor has to supply one shielded 4-leads cable of length 4 meters with same colour coding mentioned (point 1.4 above) with miniature mating Male-connector at one end and banana pins at the other end as detailed below. The party should give 2 spare cables for connecting spring holder and the strain indicator and 2 spare cables for connecting Terminals for S.G. mounting and the strain indicator.
- 1.9 Vendor has to prepare the preparation and bonding procedures, log sheets, non-conformance reports, test data sheets and close outs.
- 1.10 Each finished component to be packed separately in cleaned polythene bags with adequate protection for wiring and connectors.
- 1.11 Strain gauge bonded, tested, packed (as described in Annexures-7A and 7B) along with 4 m long shielded cable, duly approved and certified spring holders are to be delivered to URSC (after MIP-5 clearance).
- 1.12 Logbooks with test data and traceability data for all spring holders along with test data sheets/graphs, NCR (Non-Conformance Report) and associated close-outs appended to them.
- 1.13 Check list to ensure that all the relevant documentation have been completed.

Mandatory Inspection Points (MIP's)

Vendor shall conduct following MIP's for strain gauge bonding on Spring holder, Terminals for S.G. mounting and testing activities as given below

MIP-1:

Activities to be completed for MIP-1 Clearance

- Vendor clearance for procured items like Strain Gauges, Adhesives etc.

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MIP-2:

Activities to be completed for MIP-2 Clearance

- Strain Indicator, Cables and Miniature MALE and FEMALE end connectors list to be available with the vendor before releasing the fabricated spring holders for strain gauge bonding.
- Vendor to verify the sub-vendor storage plan for the spring holders and Terminals for S.G. mounting.
- Sub-vendor shall prepare an overall flow chart indicating the location of different activities and the flow pattern of the spring holders and Terminals for S.G. mounting from strain gauge bonding and testing to packaging to be prepared and clearance be obtained from the vendor.

MIP-3:

Activities to be completed for MIP-3 Clearance

- Strain gauge bonded, tested, packed (as described in Annexures-7A and 7B) along with 4 m long shielded cable, duly approved and certified spring holders, Terminals for S.G. mounting to be provided from sub-vendor for vendor MIP inspection.
- Verification of Logbooks with test data and traceability data for all spring holders and Terminals for S.G. mounting along with test data sheets/graphs, NCR (Non-Conformance Report) and associated close-outs appended to them.
- Verification of Check list to ensure that all the relevant documentation has been completed.
- Strain gauges and adhesive certificates (chemical composition and material properties).

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MIP-4:

- Verify end-to-end traceability of the hardware.
- Verify that all testing has been performed as per requirement.
- Verify that all tests data have been recorded
- Verify that all logbooks are complete in all respects.
- Verify that the results are within specifications.
- Verify that all NCR's have been closed after approval from (Non-conformance summary).
- Verify that all MIP-1 to MIP-3 actions are closed.

Annexure-7A

PROCEDURE FOR STRAIN GAUGE MOUNTING AND TESTING

THE BONDING OF STRAIN GAUGES, CALIBRATION AND TESTING TO BE DONE ON THE SPRING HOLDERS ACCORDING TO THE SPECIFICATIONS AND TEST PROCEDURES GIVEN BELOW.

1. SPECIFICATIONS:

1.1. Load Details:

- Refer table given in Annexure-2
- Non-linearity in working range (0 to Proof Load (as per table): <3%
- Calibration load: Proof Load (as per table) Repeatability errors: <3%

1.2. Zero offset < 100 micro strain

1.3. Zero shift < 20 micro-strains for full load

1.4. Insulation resistance > 100 M ohms @ 50 V DC

1.5. Operating temperature: - 100° C to + 100° C

1.6. Vacuum operation at < 1 x 10⁻⁶ torr or better

1.7. TML: < 0.1% and < 1% respectively (Total Mass Loss for wires and gauges)

1.8. Bridge: Full Bridge (4 strain gauge per component)

2. PROCEDURE FOR SURFACE PREPARATION:

- ENSURE THAT THE ANODIC LAYER, PLATING AND RUST IS REMOVED AT THE AREA OF STRAIN GAUGE BONDING. USING A SAND CLOTH (300 TO 400 GRT), POLISH THE STRAIN GAUGE BONDING SITE OVER A WIDER AREA THAN THE STRAIN GAUGE SIZE.
- MARK WITH PENCIL THE EXACT POSITION OF THE STRAIN GAUGE ON THE COMPONENTS AS PER DRAWING.
- USING AN INDUSTRIAL TISSUE PAPER DIPPED IN ACETONE, CLEAN THE STRAIN GAUGE BONDING SITE. STRONGLY WIP THE SURFACE IN A SINGLE DIRECTION TO COLLECT DUST AND REMOVE IT BY WIPING IN THE SAME DIRECTION. (RECIPROCAL WIPING DOES NOT ENSURE CLEANING). AFTER CLEANING HEAT UNDER A LAMP (60 DEGREE C, FOR 1 HOUR) TO ENSURE THAT THE SURFACE IS FREE OF HUMIDITY.

3. PROCEDURE FOR STRAIN GAUGE BONDING

OPERATIONS TO BE DONE IN A CLEAN ENVIRONMENT, PREFERABLY IN LAMINAR FLOW TABLE.

- GAUGE SELECTED TO BE TRIMMED AND CLEANED WITH ISOPROPYL ALCOHOL.
- ADHESIVE (M610) TO BE USED FOR BONDING OF GAUGES.
- SMEAR THE ADHESIVE ON THE "COMPONENT" AT THE DESIGNATED PLACE AND AT THE BACK OF THE STRAIN GAUGE. ALLOW ADHESIVE TO SEMI DRY FOR THREE MINUTES.
- BOND THE GAUGE ON THE "COMPONENT" ENSURING AS PER THE DRAWING. CARE IS TO BE TAKEN TO ENSURE LINING UP OF CENTRE MARK ON THE GAUGE WITH THAT OF THE MARKING LINES.
- APPLY A CLAMPING PRESSURE THROUGH AN ALUMINIUM FIXTURE WITH SILICONE RUBBER PAD AND A TEFLON SHEET. ENSURE TEFLON SHEET IS PLACED BETWEEN SILICONE RUBBER AND THE STRAIN GAUGE. FIXTURE FOR CLAMPING SHOULD ENSURE A UNIFORM PRESSURE OF 3 TO 4 KGF/CM² ON THE BONDING SURFACES.
- THE SURFACE PREPARATION AND BONDING OF STRAIN GAUGES TO BE DONE ON THE COMPONENTS.
- CONNECTING WIRES WITH A MINIMUM OF 350 MM LENGTH SHOULD BE PROPERLY ANCHORED USING WAGG (LACING THREADS ON THE COMPONENT).
- SUITABLE MINATURE FEMALE GOLD PLATED END-CONTACTS TO BE PROVIDED AT THE END OF THE LEAD WIRES.
- SPACE QUALIFIED RTV (789) POTTING PROTECTION COVER TO BE PROVIDED AROUND THE STRAIN GAUGES AND LEAD ANCHOR LOCATION.

4. PROCEDURE FOR TESTING:

- CURING CYCLE:** FOLLOW THE CURING CYCLE GIVEN IN FIG. 1 BELOW. TEMPERATURE: 165°C, CURING DURATION: 2½ HOURS.

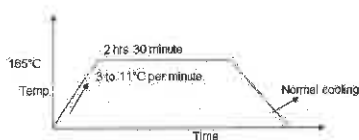


FIG. 1: CURING CYCLE

- CARRY OUT ELECTRICAL WIRING, INSULATION AND ZERO BALANCING, M-COAT SEAL TO BE APPLIED FOR PROTECTION AGAINST HUMIDITY AND HANDLING.

- POST CURING CYCLE:** POST CURING TO BE DONE FOR THE FOLLOWING SPECIFICATION, TEMPERATURE: 175°C, POST CURING DURATION: 3½ HOURS AS SHOWN IN FIG. 2.

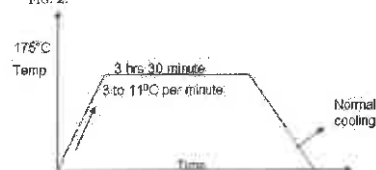


FIG. 2: POST CURING CYCLE

- THERMAL CYCLING:** THERMAL CYCLING TO BE DONE BETWEEN AMBIENT TEMPERATURE TO 80°C, SIX TIMES WITH A SOAK OF ½ HOUR DURING EACH CYCLE. THIS IS TO BE DONE FOR STABILIZATION AND REDUCE ZERO SHIFTS.

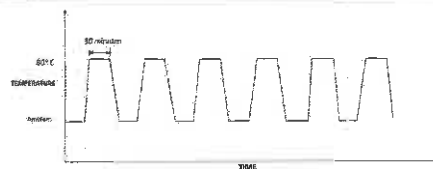


FIG.3: THERMAL CYCLE

5. Long Term Loading for Stabilization for One Month (At room temperature):

- All the spring holders and Terminals for S.O. mounting are to be pre-loaded to about 50% of the specified load (Using bolt and nut method, dead weight method etc.) for a period of 30 days.
- The load values are to be monitored on daily basis and load vs strain values are to be entered in the log sheet for first week. At the end of one week, the load is to be corrected (for any load drop) and test to be continued for the remaining period.

6. Load Cycling and Calibration of Components:

- MEASURE & RECORD THE STRAIN (READING) AT ZERO LOAD (ZERO-OFFSET) BEFORE TAKING THE PLOTS.
- TAKE THE PLOT OF LOAD VS MICRO STRAIN DURING 1st, 6th, 11th, 16th AND 20th CYCLES WHILE LOAD- CYCLING THE COMPONENTS TO CALIBRATION LOAD 20 TIMES.

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FORMAT FOR STRAIN GAUGE TEST DATA ON COMPONENT

TABLE 1: TEST REPORT BEFORE THERMAL CYCLING

COMPONENT SL. No. = (ENGRAVED NUMBER AVAILABLE ON THE COMPONENT IS TO BE WRITTEN)
 ZERO OFFSET = (RECORD ZERO OFFSET VALUE IN MICRO STRAIN)
 NUMBER OF CYCLES DONE PRIOR TO TEST =
 TYPE AND MAKE OF STRAIN INDICATOR USED = (RECORD)
 DATE OF CALIBRATION = (RECORD)
 BRIDGE CONFIGURATION = FULL BRIDGE
 GAUGE FACTOR = (RECORD AS MENTIONED ON SUPPLIED GAUGE)

1) LOAD CAP TYPE: 2) LOAD RANGE: 0 TO KGF

*LOADING TO BE DONE AS PER ANNEXURE-2

SL. No.	LOAD (KGF)	MICRO READING (µε)	STRAIN	SL. No.	LOAD (KGF)	MICRO STRAIN READING (µε)
1.				31.		
2.				32.		
3.				33.		
4.				34.		
5.				35.		
6.				36.		
7.				37.		
8.				38.		
9.				39.		
10.				40.		
11.				41.		
12.				42.		
13.				43.		
14.				44.		
15.				45.		

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16.		46.		
17.		47.		
18.		48.		
19.		49.		
20.		50.		
21.		51.		
22.		52.		
23.		53.		
24.		54.		
25.		55.		
26.		56.		
27.		57.		
28.		58.		
29.		59.		
30.		60.		

NOTE: PLOT OF LOAD VS. MICRO STRAIN TO BE PROVIDED

DATE _____ NAME AND SIGNATURE OF THE PERSON CONDUCTING THE TEST _____

NAME AND SIGNATURE OF THE QA REPRESENTATIVE _____

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**TABLE 2: TEST REPORT AFTER THERMAL CYCLING
(20°C TO 80°C WITH ½ HR SOAKING FOR 6 CYCLES)**

COMPONENT SL. No. = (ENGRAVED NUMBER AVAILABLE ON THE COMPONENT IS TO BE WRITTEN)
 ZERO OFFSET = (RECORD ZERO OFFSET VALUE IN MICRO STRAIN)
 NUMBER OF CYCLES DONE PRIOR TO TEST =
 TYPE AND MAKE OF STRAIN INDICATOR USED = (RECORD)
 DATE OF CALIBRATION = (RECORD)
 BRIDGE CONFIGURATION = FULL BRIDGE
 GAUGE FACTOR = (RECORD AS MENTIONED ON SUPPLIED GAUGE).

1) LOAD CAP TYPE: 2) LOAD RANGE: 0 TO KGF

*LOADING TO BE DONE AS PER ANNEXURE-2

SL. No.	LOAD (KGF)	MICRO READING (µε)	STRAIN	SL. No.	LOAD (KGF)	MICRO STRAIN READING (µε)
31.	0			61.		
32.	25			62.		
33.	50			63.		
34.	75			64.		
35.	100			65.		
36.	125			66.		
37.	150			67.		
38.	175			68.		
39.	200			69.		
40.	225			70.		
41.	250			71.		
42.	275			72.		
43.	300			73.		
44.	325			74.		
45.	350			75.		

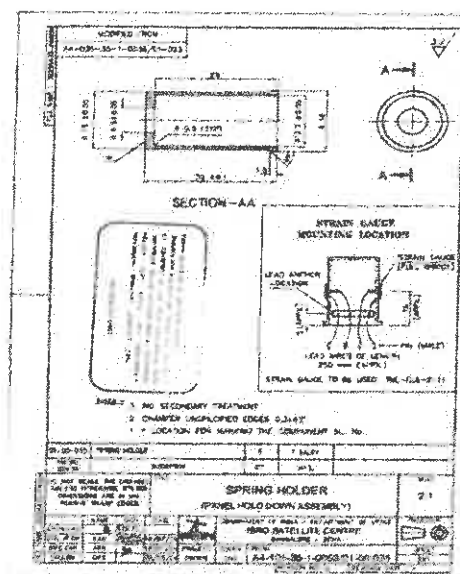
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46.	375		76.		
47.	400		77.		
48.	425		78.		
49.	450		79.		
50.	475		80.		
51.	500		81.		
52.	525		82.		
53.	550		83.		
54.	575		84.		
55.	600		85.		
56.	625		86.		
57.	650		87.		
58.	675		88.		
59.	700		89.		
60.			90.		
61.			91.		

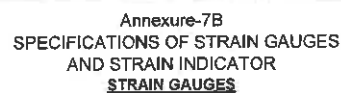
- AFTER TESTING UP TO A LOAD OF 400 KGF, THE ZERO DRIFT FOR MICRO STRAIN (RECORD THE DATA).
- SUBSEQUENT TO THE START OF THE TEST IN TABLE 1, FURTHER DATA ARE TO BE TAKEN WITHOUT BALANCING THE BRIDGE AND THE SAME STRAIN INDICATOR IS TO BE USED FOR FBS AND POST THERMAL CYCLE TESTS.
- PLOT OF LOAD VS. MICRO STRAIN TO BE PROVIDED

DATE _____ NAME AND SIGNATURE OF THE PERSON CONDUCTING THE TEST _____

NAME AND SIGNATURE OF THE QA REPRESENTATIVE _____



SPRING HOLDER DRAWING (I-1K Type)



Specifications:

1. Carrier matrix : Glass fibre reinforced epoxy phenolic resin
2. Foil alloy : Nickel-Chromium alloy/Cu-Ni alloy (K alloy)
3. Self-Temperature Compensation: For Stainless Steel
4. Temperature Compensated Range: $+10^{\circ}\text{C}$ to $+80^{\circ}\text{C}$
5. Active gauge dimensions : $2 \times 1.5 \text{ mm}$ (Length x width)
6. Grid and Tab geometry : Uni-axial grid with leads attached
7. Gauge Resistance : $120 \pm 0.3\%$ ohms
8. Gauge factor : 2.0
9. Operating Temperature Range : -20°C to $+80^{\circ}\text{C}$ (Normal)
 -196°C to $+80^{\circ}\text{C}$ (Short Term)
10. Pressure : The strain gauges must be compatible to be
Used in Vacuum (10^{-6} torr)

Fully encapsulated uni-axial foil type strain gauge with leads attached.

Specifications:

- | | |
|------------------------------------|--|
| i. Carrier matrix | : Glass fibre reinforced epoxy phenolic resin |
| ii. Foil alloy | : Nickel-Chromium alloy/Cu-Ni alloy (K alloy) |
| iii. Self-Temperature Compensation | : For Al 5061 (Aluminium Alloy) |
| iv. Temperature Compensated Range | : $+10^{\circ}\text{C}$ to $+80^{\circ}\text{C}$ |
| v. Active gauge dimensions | : $2 \times 1.5\text{ mm}$ (Length x width) |
| vi. Grid and Tab geometry | : Uni-axial grid with leads attached |
| vii. Gauge Resistance | : $120 \pm 0.3\%$ ohms |
| viii. Gauge factor | : 2.1 |

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- ix. Operating Temperature Range : -20° C to +80 ° C (Normal)
-196 ° C to +80° C (Short Term)
- x. Pressure : The strain gauges must be compatible to be Used in Vacuum (10⁻⁶ torr). Fully encapsulated uni-axial foil type strain gauge with leads attached.

ADHESIVE

Strain gauge adhesive: M-Bond 610

- Operating Temperature Range:
Short Term: -452° to +700°F [-269° to +370°C].
Long Term: -452° to +500°F [-269° to +260°C].
- Shelf Life: Minimum 9 months at +75°F [+24°C]; or 15 months at +40°F [+5°C].
- Pot Life: 6 Weeks at +75°F [+24°C]; 12 weeks at +40°F [+5°C].
- Clamping Pressure:
10 to 70 psi [70 to 480 kN/m2].
30 to 40 psi optimum [200 to 275 kN/m2].
- Cure Requirements:
Recommended Post cure: 2 hours at 50° to 75°F [30° to 40°C] above maximum operating temperature or cure temperature, whichever is higher.

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POTTING

RTV 789:

- Room cure, RTV silicon rubber sealant.
- No toxic,
- Pollution and corrosion.
- Excellent performance of electric insulation and resistance, aging resistance, damp and moisture proof.
- Long working temperature (-60°c~ 250°c)
- Appearance: Transparent liquid
- Usage
 - First, the surface should be clean and dry before application.
 - Squeeze out the glue to bond in the surface, it can get the working strength and put into use after 24-hour room curing time.

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STRAIN INDICATOR

HARDWARE SPECIFICATIONS

All specifications nominal or typical at + 23° C unless noted.

INPUTS:

Eccentric-lever-release terminal blocks accept up to four independent bridge inputs. Accommodates 18-28 AWG (1.3 to 0.35 mm dia)

BRIDGE CONFIGURATIONS:

Quarter-, half-, and full-bridge circuits, Internal bridge completion provided for 1200, 350 Ω and 1000 Ω quarter bridges, 60 to 2000 Ω half or full bridge.

DISPLAY:

Full dot matrix structure with 128 dots x 64 dots FSTN positive, gray transitive LCD with backlight. Display update is twice a second.

DATA CONVERSION:

High-resolution sigma-delta converter. 60Hz or Hz noise rejection. User selectable.

BASIC RANGE:

± 31,000 microstrain (±1 microstrain resolution) at Gage Factor = 2.000.

ACCURACY:

± 0.1% of reading ± 3 counts. (Normal mode operation at Gage Factor = 2.000)

GAGE FACTOR SETTINGS:

Range 0.500 to 9.900.

BALANCE:

Single key operation to initiate automatic software balance.

BRIDGE EXCITATION:

1.5Vdc nominal. Readings are fully ratio metric, and not degraded by variation by variation in excitation voltage.

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COMMUNICATION INTERFACE:

Universal Serial Bus with type B connector.

CALIBRATION:

Shunt calibration across each dummy resistor to simulate 5000 micro-strain (±0.1%). Remote calibration supported via assessable switch contacts at input terminal block.

ANALOG OUTPUT:

BNC Connector. 0 to 2.5 V maximum output. Device impedance of 2000Ω or greater. 490Hz output update rate.

POWER:

Internal battery pack using two "D" cells. Battery life up to 600 hours (single channel, normal mode.) Can also be powered from USB or by external battery or other power source of 6 to 15Vdc. AC adapter optional.

OPERATIONAL ENVIRONMENT:

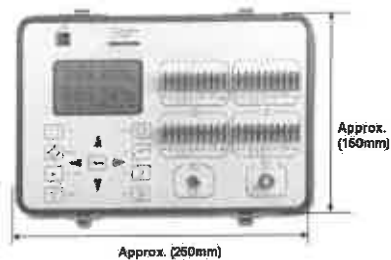
Temperature 0 to + 50° C. Humidity up to 90% RH. Non-condensing.

SIZE AND HANDLING:

To be compact in size and handling should be easy. (As indicated in figure)

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**FIGURE
FOR REPRESENTATION ONLY**



KNOWN SUPPLIERS FOR STRAIN GAUGE

1. M/s. Vishay Micro Measurements P.O.
Box. No: 27777 Raleigh NC 27611-7777
USA, Ph. No: (919) 365-3900, Fax. No: (919) 365-3945

Indian Agent address:

M/s. Dynatech,
No: 130, Place Cross Road, Bangalore-560020,
Ph. No: 080-23362448, Fax. No: 080-23348880

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Approved vendors by URSC for strain gauge bonding

1. M/s. LOAD MASTERS
No: 595/a, Mallasandra Main Road -T, Dasarahalli post,
Bangalore-560057
Ph.no: 9036612900, 9448080519
2. M/s. AJAY SENSORS
45/17, Gubbanna Industrial Garden,
12th Cross, 6th Block,
Rajaji Nagar, Bangalore-560010
Ph.no: 9845048010

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MIP-1 Status & Claim for 30% of P.O Value

Sl. No.	Description	Claim from the vendor	MIP-1 completed on	Signature of the indenter	Signature of URSC QA engineer
01	MIP-1 status				

ANNEXURE-8

MIP-1 Completion statement form

MIP-1 is completed as per RFP/SOW section 3.7 and we request 30% of P.O value to be paid as per P.O terms and conditions.

Signature of the vendor with the seal

	"STATEMENT OF WORK" PRODUCTIONISATION OF EOS TYPE SOLAR ARRAY DEPLOYMENT MECHANISM	ISRO-URSC-TR-1974 Rev: 00 Status: Restricted Page 149 of 155
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	"STATEMENT OF WORK" PRODUCTIONISATION OF EOS TYPE SOLAR ARRAY DEPLOYMENT MECHANISM	ISRO-URSC-TR-1974 Rev: 00 Status: Restricted Page 150 of 155
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ANNEXURE-9

FABRICATION AND TESTING OF SQUEEZE BOOT

Fabrication and Testing of Squeeze Boot:

1. Material of the Squeeze Boot: DYNEON FC 2174 (VITON)
2. Refer Drawing No: ISAC-SCMG-ASTR-PA-00002/000 (A4-021-35-1-0015/00-00002)
3. Squeeze Boot should be tested for following properties as per given specification in the table below :

SL No	Properties	Specification	Obtained
1	Shore Hardness , A	70 ± 5	
2	Tensile Strength (kgf/cm, cm)	100 MIN.	
3	Elongation at Break,	150 MIN	
4	Compression Set, % (24 Hrs. /200 °C)	15 MAX.	

4. NOTE: Squeeze boot will only be accepted after high vacuum leak test (component to be provided to URSC for testing and clearance).

Approved vendor by URSC for making and Testing of Squeeze boot

1. BOMBAY OIL SEALS COMPANY
Sanghavi House, UNICO Industrial Park,
Bldg. No. 4, Tungar Phata, Tungarashwar Road,
Village Sativali, Vasai (East), Dist. Thane – 401208
Ph.no: 0250 – 2480140
E-mail: boscomum@gmail.com

	"STATEMENT OF WORK" PRODUCTIONISATION OF EOS TYPE SOLAR ARRAY DEPLOYMENT MECHANISM	ISRO-URSC-TR-1974 Rev: 00 Status: Restricted Page 151 of 155
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	"STATEMENT OF WORK" PRODUCTIONISATION OF EOS TYPE SOLAR ARRAY DEPLOYMENT MECHANISM	ISRO-URSC-TR-1974 Rev: 00 Status: Restricted Page 152 of 155
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ANNEXURE-10

CERTIFICATION AND REPORTS FOR RAW MATERIALS AND STANDARD PARTS

CERTIFICATION AND REPORTS FOR RAW MATERIALS & STANDARD PARTS

The vendor shall furnish certified reports for the following:

1. Beryllium copper Be-Cu (c17200) wire (round) and strip with TD-II condition
 - Product Chemical Analysis
 - Metallurgical Analysis
 - Mechanical Test Report
 - Dimensional Inspection Report
 - Heat treatment report
 - Check list before packing
2. SS 430 bar SS 440C Bars
 - Product Chemical Analysis
 - Metallurgical Analysis
 - Mechanical Test Report (UTS, 0.2%Yield Strength (in MPa), %Elongation in 50.8 mm, Hardness & Reduction in Area)
 - NDT (Ultrasonic Inspection Report (100%),
 - Dimensional Inspection Report
 - Magnetic property report (600 - 1100 H/m)
3. SS 304 COLD WORKED & SS 304 Annealed Bars
 - Product Chemical Analysis
 - Metallurgical Analysis
 - Mechanical Test Report (UTS, Yield Strength (0.2% proof stress), %Elongation in 50.8 mm & hardness)
 - NDT inspection Reports (Ultrasonic inspection and Dye penetrant test reports on all products)
 - Dimensional Inspection Report

	"STATEMENT OF WORK" PRODUCTIONISATION OF EOS TYPE SOLAR ARRAY DEPLOYMENT MECHANISM	ISRO-URSC-TR-1974 Rev: 00 Status: Restricted Page 153 of 155
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4. TITANIUM ALLOY (Ti-6Al-4V) for rods and plates

- Product Chemical Analysis
- Metallurgical Analysis
- Mechanical Test Report (UTS, Yield Strength (0.2% proof stress), % Elongation in 50.8 mm, % Reduction in area, Impact strength (Charpy-V) & hardness 290 – 330 BHN for rods and 310 – 330 BHN for plates).
- Fracture toughness K1C and KQ values
- NDT Inspection Reports (Ultrasonic Inspection and Dye penetrant test reports on all products)
- Dimensional Inspection Report

5. ALUMINUM ALLOY AA6061 bars/rods T6511/T651, sheet T6 and plates

T651

- Manufacturer shall furnish the following certificates and test reports:
 - Chemical Analysis
 - Heat Treatment Report
 - Metallurgical Analysis
 - Mechanical Test Report UTS, Yield Strength (0.2% proof stress), %Elongation in 50.8 mm & hardness 95 HB10/500 for T6 & T651 Tempers)
 - Ultrasonic inspection

6. O-Rings

- Material: Fluorocarbon Elastomer Rubber
- Material MIL Specification: MIL-R-83485,AM3,Ty1
- Product Identification No : M83485/1-014 (as per Parker Handbook)
Width 0.070 ± 0.003 Inch (1.778 ± 0.0762 mm)
Internal dia 0.489 ± 0.005 inch (12.42 ± 0.127 mm)

	"STATEMENT OF WORK" PRODUCTIONISATION OF EOS TYPE SOLAR ARRAY DEPLOYMENT MECHANISM	ISRO-URSC-TR-1974 Rev: 00 Status: Restricted Page 154 of 155
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Quantity: 500 to 1000 no's

Note:

The following certificates should be supplied along with the consignment

- a) Certificate for mechanical properties.
- b) Certificate for physical properties.
- c) Certificate of conformance.

7. Paraffin Wax

Specifications:

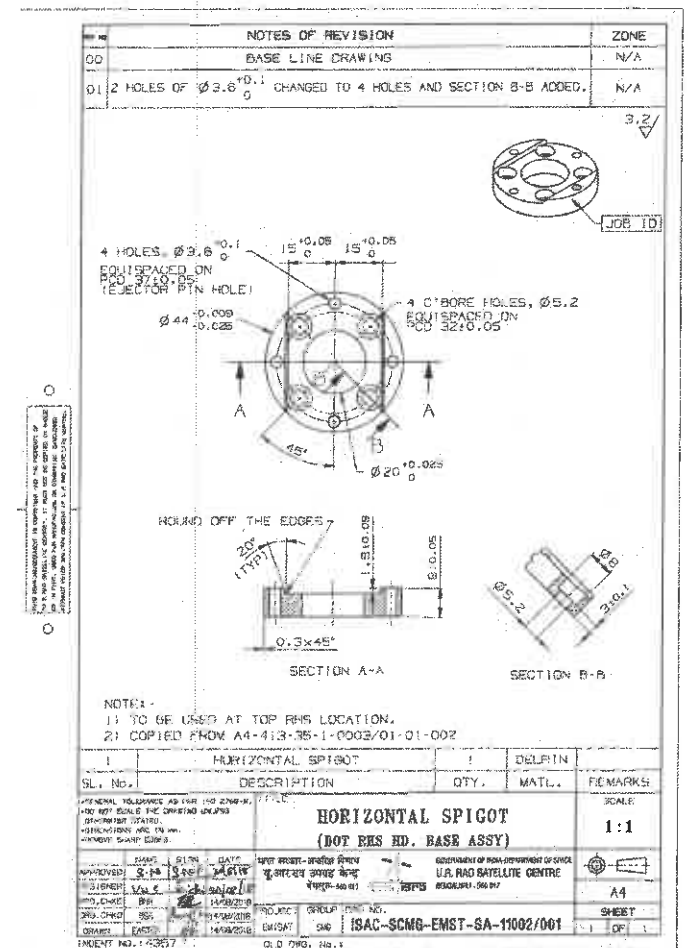
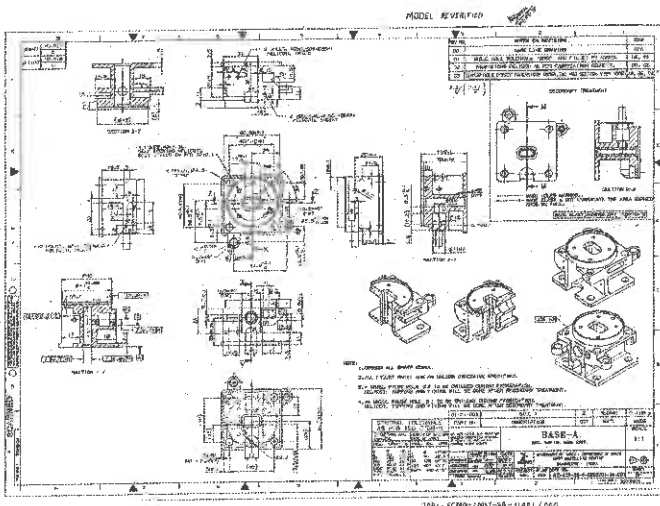
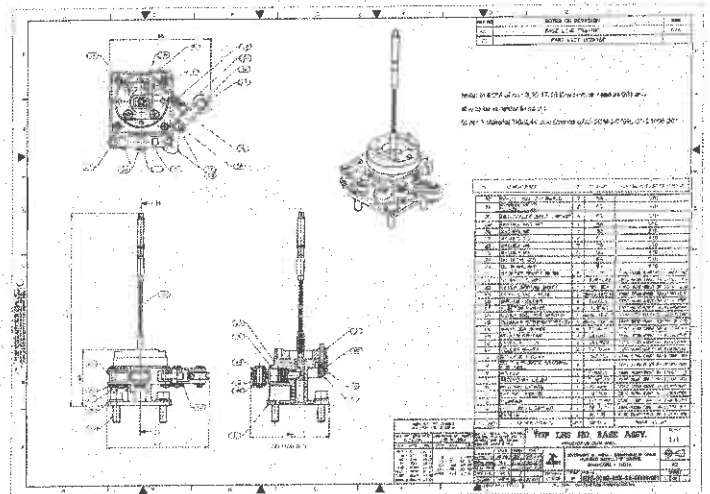
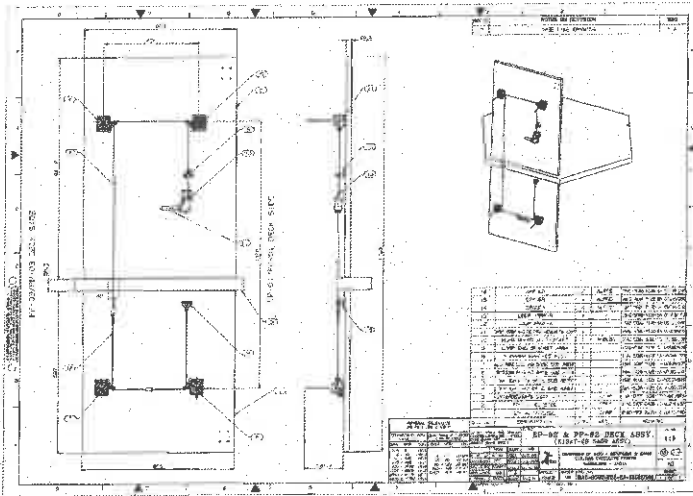
1. Paraffin wax flakes melting temperature: 73 °C to 80 °C.
2. Make: Aldrich
3. Product No: 411671 CAS No, 8002-74-2

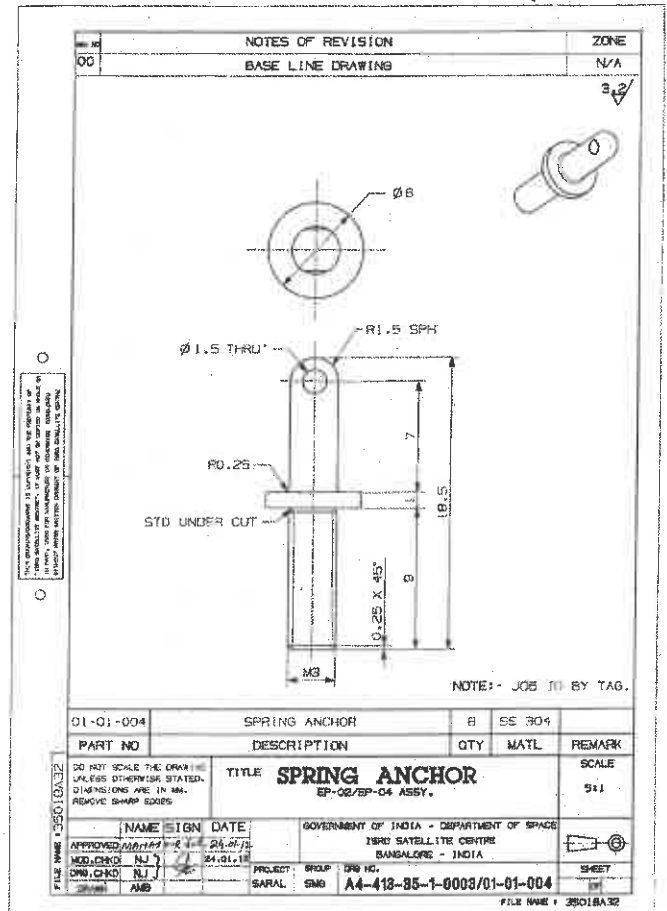
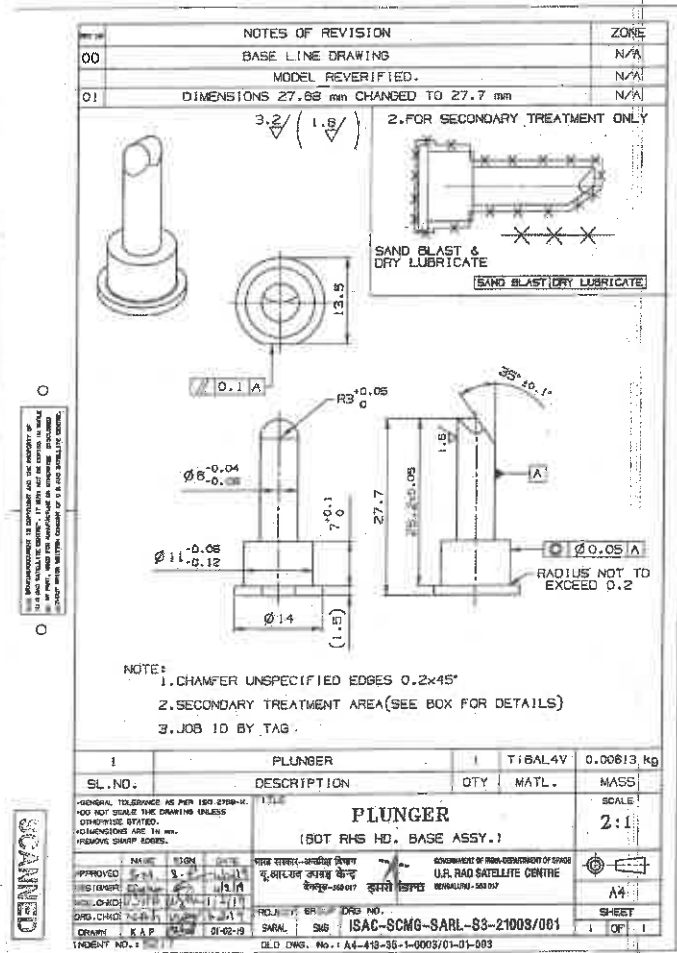
Note:

1. Wax should be supplied in sealed container.
2. Certificate of analysis (COA) should contain the following.
A. product no, Batch no, the certificates of physical and chemical properties, certificate for confirming the melting temperature of the supplied wax.

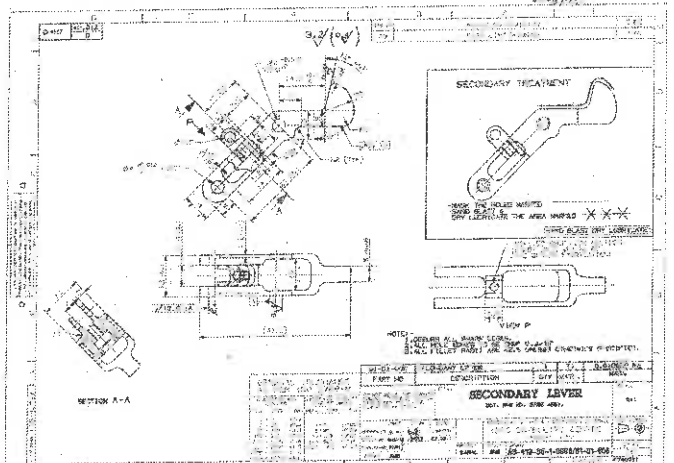
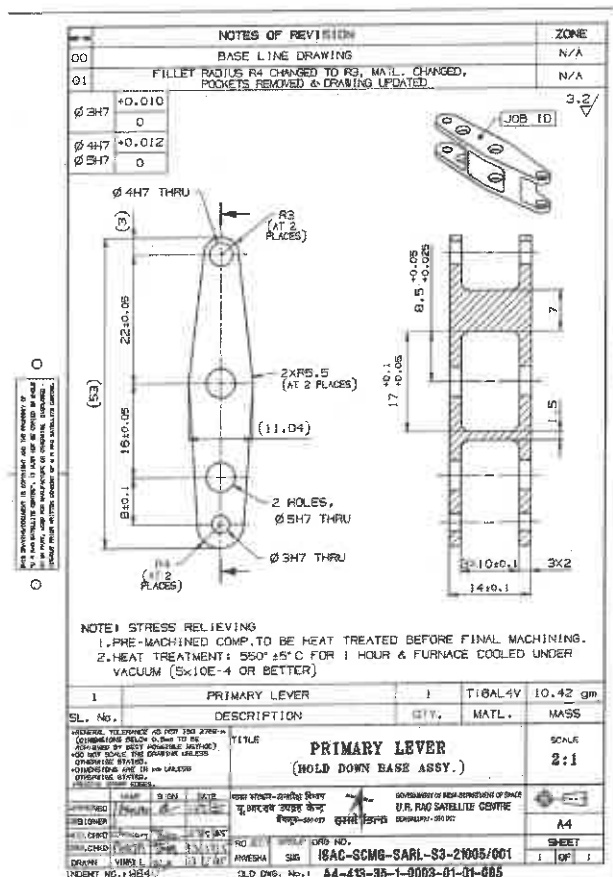
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EOS TYPE SADM DRAWINGS





ISAC-SCMG-EMST-SA-11004/000



MODEL REVERIFIED

00	NOTES OF REVISION BASE LINE DRAWING	ZONE N/A
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3.2/

NOTE:-
1. Ø5.5 TO BE REDUCED TO Ø4.75 TO Ø4.85 AFTER SWAGING.

01-01-012	TOP END TERMINAL	1	SS304 CW	0.102512K
PART NO	DESCRIPTION	QTY	MATL.	MASS

DO NOT SCALE THE DRAWING
UNLESS OTHERWISE STATED.
DIMENSIONS ARE IN MM.
REMOVE SHARP CORNERS.

TOP END TERMINAL

SOT. RHE HD. BASE ASSY.

SCALE
2:1

APPROVED	SIGNED	DATE	GOVERNMENT OF INDIA - DEPARTMENT OF SPACE LEAD SATELLITE CENTRE BANGALORE - INDIA
MOD. CHG	ENGR.	09.11	
DRG. CHG	M/H		
DATE	AMS		

A4-418-35-1-0003/01-01-012

ISAC - SCMG - FMST - SA - 11102/000 FILE NAME : 25740983

NOTES OF REVISION		ZONE	
00	BASE LINE DRAWING	N/A	

3.2/

SECONDARY TREATMENT

MASK AREA MARKED
HARD ANODISE
SAND BLAST & DRY LUBRICATE
AREA MARKED
HARD ANODISE/SAND BLAST/DRY LUBRICATE

MODEL REVERIFIED:
Hedder 12/07/18

ISAC - SCMG - EMST - SA - 11009/000

PART NO	DESCRIPTION	QTY	MATL.	MASS
01-01-009	RELEASE PULLEY	1	AL8081	0.00180Kg

SCALE: 2:1

DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES

NAME SIGN DATE

GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
ISRO SATELLITE CENTRE
BANGALORE - INDIA

PROJECT NO. A4-413-35-1-0003/01-01-009

SHEET 1 OF 1

FILE NAME: 35740928

NOTES OF REVISION		ZONE	
00	BASE LINE DRAWING	N/A	
01	TOLERANCE ON DIMENSION IS ±0.1	N/A	

3.2/

MODEL REVERIFIED:
Hedder 12/07/18

ISAC - SCMG - EMST - SA - 11009/000

PART NO	DESCRIPTION	QTY	MATL.	MASS
01-01-010	ROLLER SHAFT	1	TIGAL4V	3.00714Kg

SCALE: 2:1

DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES

NAME SIGN DATE

GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
ISRO SATELLITE CENTRE
BANGALORE - INDIA

PROJECT NO. A4-413-35-1-0003/01-01-010

SHEET 1 OF 1

FILE NAME: 35740963

NOTES OF REVISION		ZONE	
00	BASE LINE DRAWING	N/A	

MODEL REVERIFIED:
Hedder 12/07/18

3.2/

SECONDARY TREATMENT

SAND BLAST
DRY LUBRICATE

ISAC - SCMG - EMST - SA - 11010/000

PART NO	DESCRIPTION	QTY	MATL.	MASS
01-01-013	LEVER SHAFT	1	SS 440C	0.001840Kg

SCALE: 5:1

DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES

NAME SIGN DATE

GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
ISRO SATELLITE CENTRE
BANGALORE - INDIA

PROJECT NO. A4-413-35-1-0003/01-01-013

SHEET 1 OF 1

FILE NAME: 35740970

NOTES OF REVISION		ZONE	
00	BASE LINE DRAWING	N/A	
00	MODEL REVERIFIED	N/A	

3.2/

NOTE: JOB ID BY TAG.

SL. NO.	DESCRIPTION	QTY.	MATL.	REMARKS
1	LEVER SPACER	1	DELFIN	

SCALE: 5:1

DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES

NAME SIGN DATE

GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
ISRO SATELLITE CENTRE
BANGALORE - INDIA

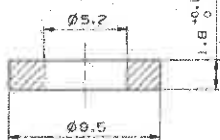
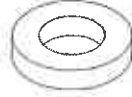
PROJECT NO. A4-413-35-1-0003/01-01-014

SHEET 1 OF 1

FILE NAME: 35740970

NO.	NOTES OF REVISION	ZONE
00	BASE LINE DRAWING	N/A
00	MODEL REVERIFIED	N/A

3.2/

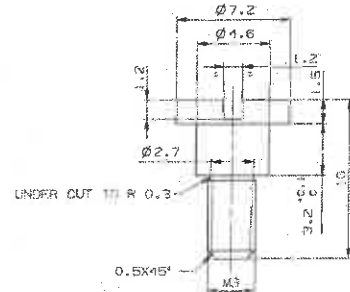
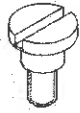


NOTE: JOB ID BY TAG.

SL. NO.	DESCRIPTION	QTY.	MATL.	REMARKS
1	ROLLER SPACER (BOT. RHS HD. BASE ASSY.)		DELNIN	
GENERAL TOLERANCES AS PER IS: 2700-1983 DO NOT SCALE THE DRAWING UNLESS OTHERWISE SPECIFIED. DIMENSIONS ARE IN MM. HIDE SHARP EDGES.				
NAME	DATE	BY	DATE	BY
APPROVED: H. P.	20/10/18	DESIGNED: S. H. P.	20/10/18	BY
MOD. CHG. NO.	1	GROUP	1	NO.
PROJECT	GROUP	NO.	1	NO.
ISAC-SCMG-EMST-SA-11012/000				
OLD Dwg. No. 1A-413-35-1-0003/01-01-018				

NO.	NOTES OF REVISION	ZONE
00	BASE LINE DRAWING	N/A
00	MODEL REVERIFIED	N/A

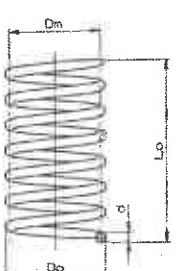
3.2/



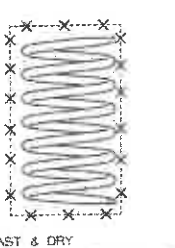
NOTE: JOB ID BY TAG.

SL. NO.	DESCRIPTION	QTY.	MATL.	REMARKS
1	SHOULDER SCREW (BOT. RHS HD. BASE ASSY.)	4	T1	0.82gm
GENERAL TOLERANCES AS PER IS: 2700-1983 DO NOT SCALE THE DRAWING UNLESS OTHERWISE SPECIFIED. DIMENSIONS ARE IN MM. HIDE SHARP EDGES.				
NAME	DATE	BY	DATE	BY
APPROVED: H. P.	20/10/18	DESIGNED: S. H. P.	20/10/18	BY
MOD. CHG. NO.	1	GROUP	1	NO.
PROJECT	GROUP	NO.	1	NO.
ISAC-SCMG-EMST-SA-11013/000				
OLD Dwg. No. 1A-413-35-1-0003/01-01-017				

NO.	NOTES OF REVISION	ZONE
00	BASE LINE DRAWING	N/A
00	SPRING SPECIFICATION UPDATED	N/A



FOR SECONDARY TREATMENT ONLY
(REF. PARTS & PROCESS SPECIFICATION DOCUMENT)



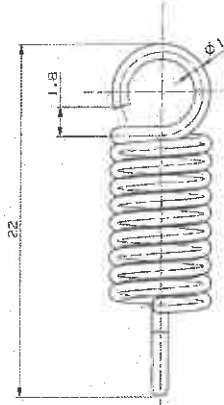
SAND BLAST & DRY LUBRICATE

HELIICAL COMPRESSION SPRING NOMENCLATURE	SPECIFICATIONS
WIRE DIAMETER (mm)	(d) 1.2
MEAN DIAMETER (mm)	(D) 8.8
OUTSIDE DIAMETER (mm)	(Do) 10.0 ± 0.2
FREE LENGTH OF SPRING (mm)	(L0) 16.0 ± 1.0
WORKING DEFLECTION (mm)	(δ) 7.4
TOTAL NO. OF COILS	(N+2) 6.5 (4.5+2)
PITCH (mm)	(P) 2.8
SPRING RATE (Kg/mm)	(K) 0.4069
SOLID LENGTH OF SPRING (mm)	(Ls) 7.8
WORKING LOAD (Kg)	(F) 3.00
WORKING SHEAR STRESS (Kg/mm²)	39

NOTE:
1. HEAT TREATMENT-HEAT TREAT AT 340°C FOR 1 H.
2. BOTH ENDS TO BE SQUARED AND GROUND.

SL. NO.	DESCRIPTION	QTY.	MATL.	REMARKS
1	PLUNGER SPRING (PANEL HOLD-DOWN ASSY.)		BeCu 1/2H	
GENERAL TOLERANCES AS PER IS: 2700-1983 DO NOT SCALE THE DRAWING UNLESS OTHERWISE SPECIFIED. DIMENSIONS ARE IN MM. HIDE SHARP EDGES.				
NAME	DATE	BY	DATE	BY
APPROVED: H. P.	16/10/18	DESIGNED: S. H. P.	16/10/18	BY
MOD. CHG. NO.	1	GROUP	1	NO.
PROJECT	GROUP	NO.	1	NO.
ISAC-SCMG-SARL-83-21018/001				
OLD Dwg. No. 1				

NO.	NOTES OF REVISION	ZONE
00	BASE LINE DRAWING	N/A



LEVER RELEASE TENSION SPRING	SPECIFICATIONS
WIRE DIAMETER	1.0
OUTER DIA	6
NUMBER OF TURNS	10
K OF SPRING	4.843 N/mm
INITIAL TENSION	10.85 N
BODY LENGTH	11
HOOK LENGTH	5.5
WORKING LOAD	17.8 N

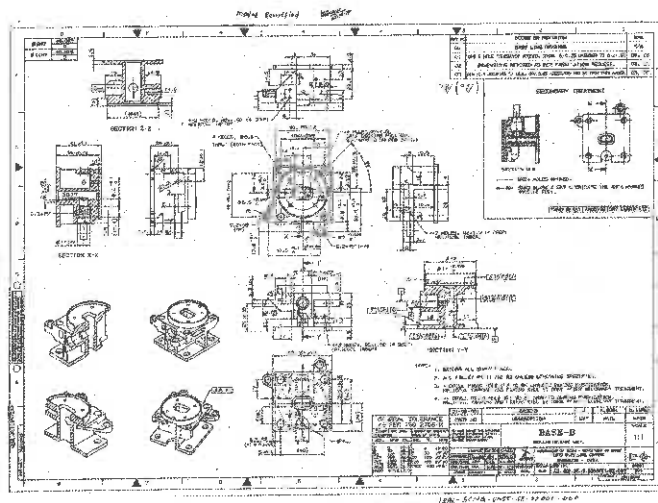
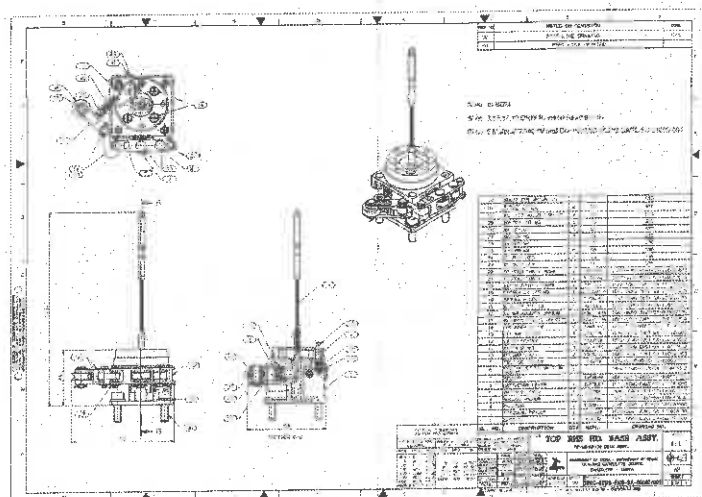
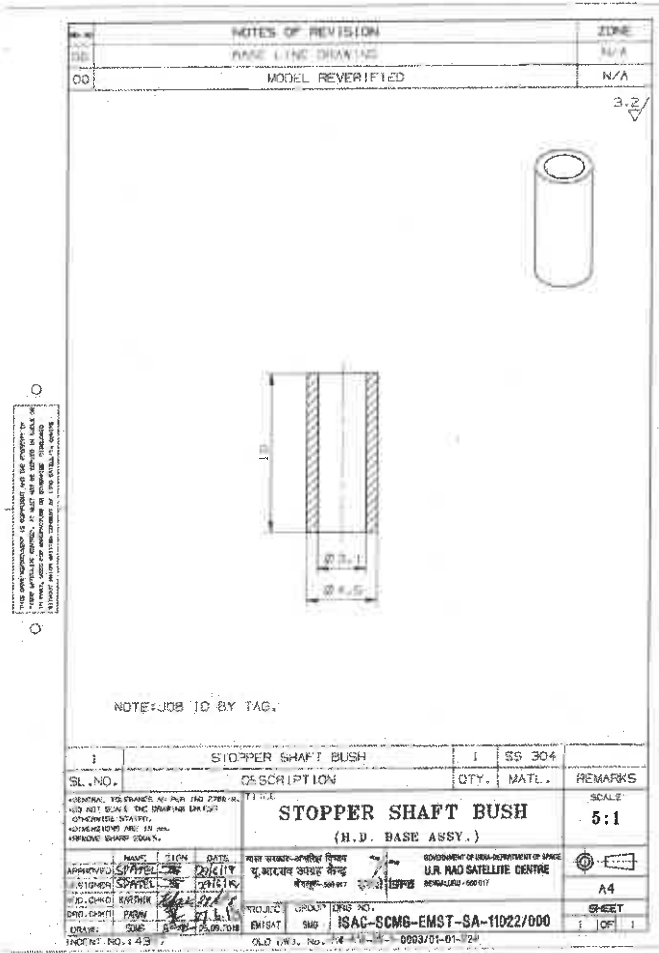
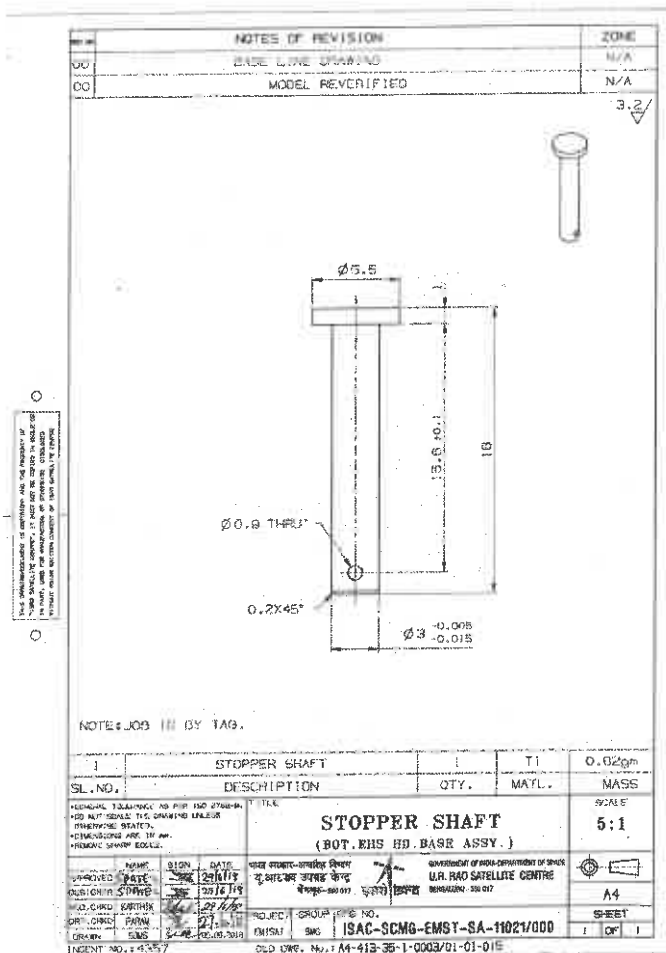
NOTE: JOB ID BY TAG

SL. NO.	DESCRIPTION	QTY.	MATL.	REMARKS
1	LEVER RELEASE TENSION SPRING (H/D BASE SUB ASSY.)	8	Be-Cu 11/2H	
GENERAL TOLERANCES AS PER IS: 2700-1983 DO NOT SCALE THE DRAWING UNLESS OTHERWISE SPECIFIED. DIMENSIONS ARE IN MM. HIDE SHARP EDGES.				
NAME	DATE	BY	DATE	BY
APPROVED: H. P.	16/10/18	DESIGNED: S. H. P.	16/10/18	BY
MOD. CHG. NO.	1	GROUP	1	NO.
PROJECT	GROUP	NO.	1	NO.
ISAC-SCMG-R12B-SA-00062/000				
OLD Dwg. No. 1A-413-35-1-0003/01-01-019				

MTF-PLC

"THIS CASE IS RECORDED AS DEPOSITING THE INQUIRY BY
"THE MAIL SERVICE." IT WAS NOT THE INTENTION OF ANY OF
"US," SAYS THE MAILMAN, "TO BE ABLE TO OBTAIN A COPY
"OF THE LETTERS FROM THE MAILMAN."

[illegible][illegible]



Handwritten: 07-07-15

PAGE 00	NOTES OF REVISION BASE LINE DRAWING	ZONE N/A
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3.2

4 HOLES, Ø3.6
 EQUI-SPACED ON
 PCD 37±0.05

4 BORE HOLES
 EQUI-SPACED ON
 PCD 32±0.1

SECTION B-B

SECTION A-A

ROUND OFF THE EDGES

THIS DRAWING IS CONTAINED WITH THE PROPERTY OF
 THE GOVERNMENT OF INDIA. IT IS NOT TO BE REPRODUCED OR
 TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC
 OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR
 BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT
 PERMISSION IN WRITING FROM THE DIRECTOR GENERAL OF
 DEFENSE PRODUCTION.

01-04-001	CIRCULAR SPIGOT	1	DELFIN	
PART NO	DESCRIPTION	QTY	MATL.	WASS

DO NOT SCALE THE DRAWING
 DIMENSIONS ARE IN MM.
 REMOVE SHARP EDGES

CIRCULAR SPIGOT

TOP FMS ID, BASE ARRY.

SCALE

1:1

APPROVED	SIGN DATE	GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
MOD. CHK	24-08-11	18RD SATELLITE CENTRE
DES. CHKD		BANGLORE - INDIA
DRWN	AMS	

FILE NAME: 35740928

PROJCT: SCMB-EM57-SA-14001-000

SAPAL: EMB

A4-413-35-1-0003/01-04-001

DATE NAME: 1 35740928

[illegible]

12V 2000 cc Diesel Engine (Type 12V 2000)

Exploded view of the engine components, including the cylinder head, piston, and crankshaft.

Parts List:

No.	Part Name	Qty.	Part Name	Qty.
1	Cylinder Head	1	11	Valve Spring
2	Valve	2	12	Valve Spring
3	Valve Spring	2	13	Valve Spring
4	Valve Spring	2	14	Valve Spring
5	Valve Spring	2	15	Valve Spring
6	Valve Spring	2	16	Valve Spring
7	Valve Spring	2	17	Valve Spring
8	Valve Spring	2	18	Valve Spring
9	Valve Spring	2	19	Valve Spring
10	Valve Spring	2	20	Valve Spring

12V 2000 cc Diesel Engine (Type 12V 2000)

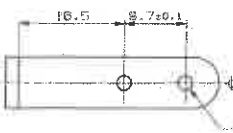
Exploded view of the engine components, including the cylinder head, piston, and crankshaft.

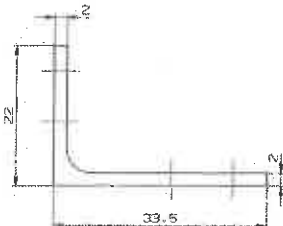
Parts List:

No.	Part Name	Qty.	Part Name	Qty.
1	Cylinder Head	1	11	Valve Spring
2	Valve	2	12	Valve Spring
3	Valve Spring	2	13	Valve Spring
4	Valve Spring	2	14	Valve Spring
5	Valve Spring	2	15	Valve Spring
6	Valve Spring	2	16	Valve Spring
7	Valve Spring	2	17	Valve Spring
8	Valve Spring	2	18	Valve Spring
9	Valve Spring	2	19	Valve Spring
10	Valve Spring	2	20	Valve Spring

00	NOTES OF REVISION	ZONE
00	BASE LINE DRAWING	N/A
00	MODEL REVERIFIED	N/A



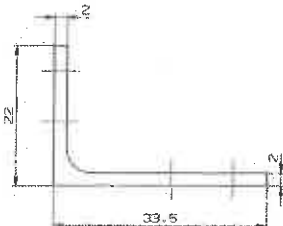




3.2/√

SECONDARY TREATMENT

ANODISE FULL




NOTE: 1. ALL FILLET RADII ARE TO BE R4 UNLESS OTHERWISE SPECIFIED.
 2. JOB ID BY TAG.

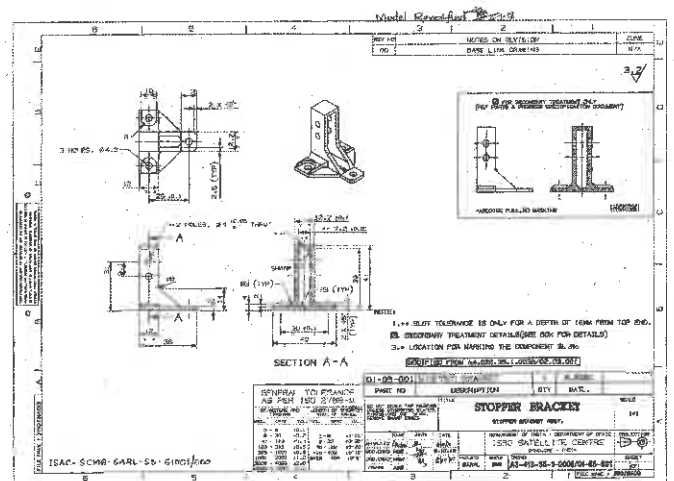
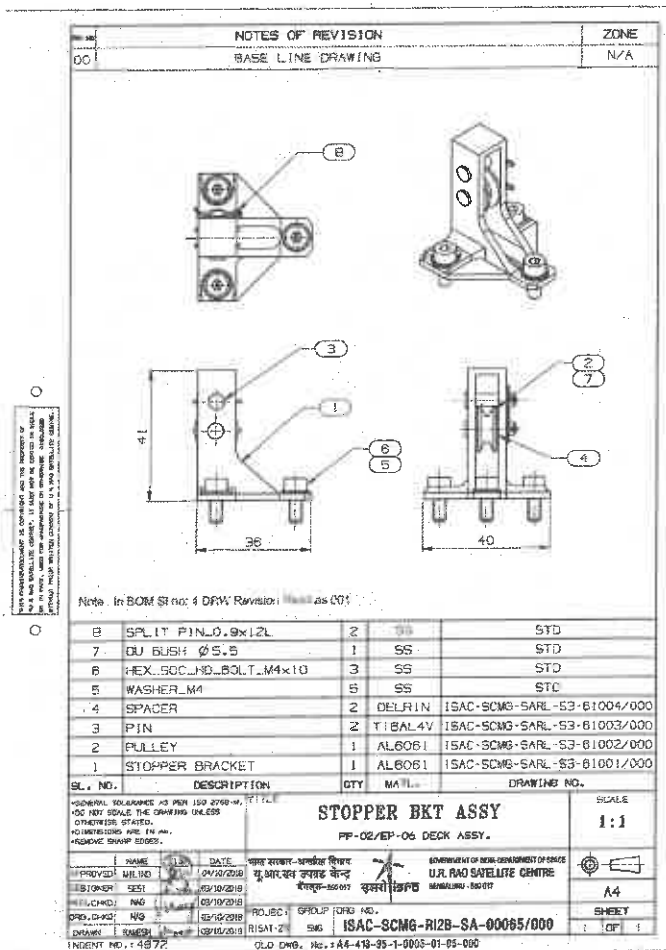
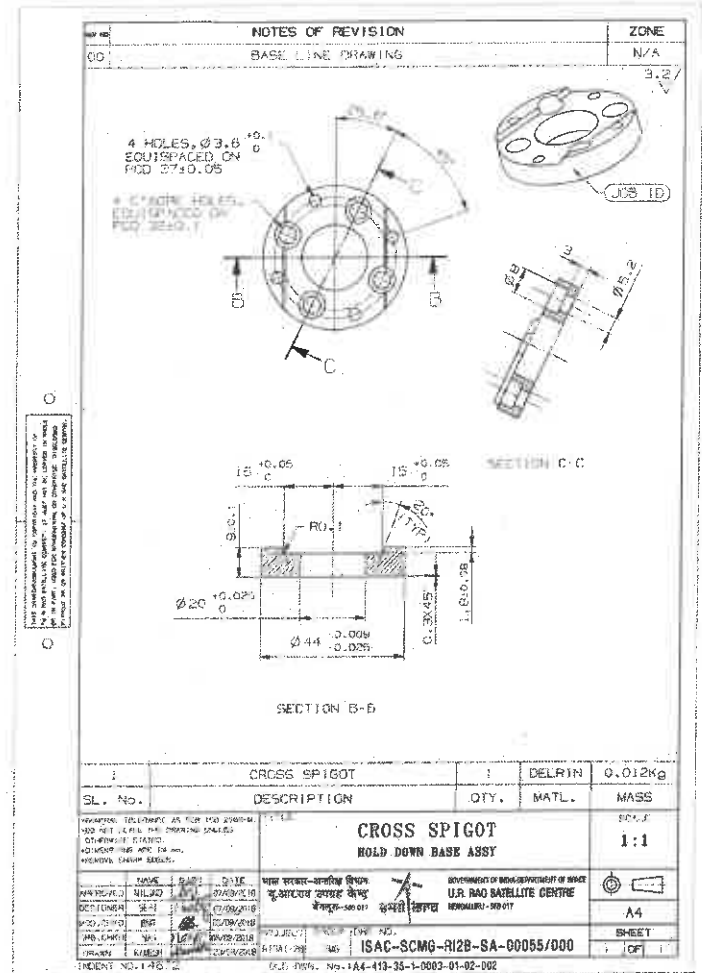
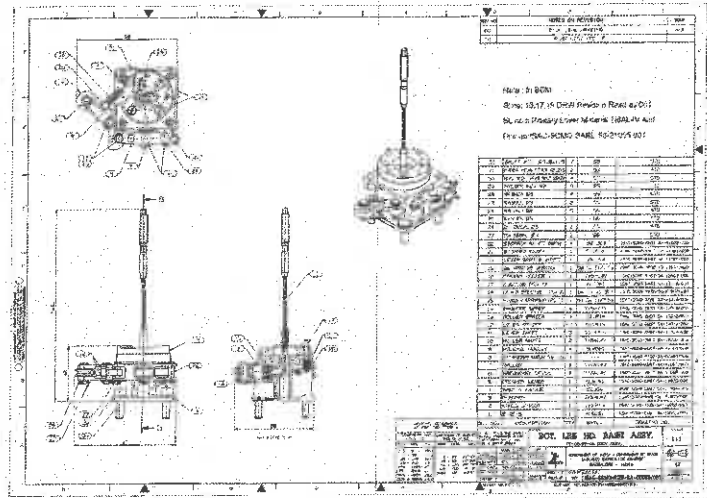
1	MICRO SWITCH BRACKET	AL 6061	2.2mm
SL. NO.	DESCRIPTION	QTY.	MATERIAL

REVISION TO: CHANGE AS PER STD 878-81
 YOU NOT SCALE THE DRAWING LARGER
 OTHERWISE STATED.
 DIMENSIONS ARE IN IN.
 PREPARE SHARP EDGES.

NAME: S. S. SETHI DATE: 04/07/87 DESIGNER: S. S. SETHI MODIFIED BY: S. S. SETHI DATE: 14/11/87 DESIGNED BY: S. S. SETHI DATE: 14/11/87 DRAWN BY: S. S. SETHI DATE: 14/11/87	TYPE: MICRO SWITCH BRACKET उ. शास्त्राण अणुपट्ट केंद्र पैपेट-सोवत PROJECT GROUP CODE NO. EMISAT SNO ISAC-SCMG-EMST-SA-11013/000	GOVERNMENT OF INDIA-GOVERNMENT OF SPACE I.I.R. RAD SATELLITE CENTRE RE-200/L-200-017 SCALE: 2:1 A4 SHEET 1 OF 1
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INCIDENT NO.: 14357

OLD DWG. NO.: 124-613-35-1-0003/01-01-027



06-07-2018

MODEL REVERIFIED

NOTES OF REVISION		ZONE
00	BASE LINE DRAWING	N/A
01	MACHINING SYMBOL ADDED	N/A

3.2/0.8

FOR SECONDARY TREATMENT (REF. PARTS & PROCESS SPECIFICATION DOCUMENT)

MASKING AREA
HARD ANODISE FULL
DRY LUBRICATE
HARD ANODISE/DRY LUBRICATE

PART NO.	DESCRIPTION	QTY	MATL.	SCALE
01-05-002	PULLEY	1	AL6061	2:1

DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES.

NAME: [Signature] SIGN: [Signature] DATE: 10/10/18

APPROVED: [Signature] MOD. CHKD: [Signature] DES. CHKD: [Signature] DRAWN: [Signature]

GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
ISRO SATELLITE CENTRE
BANGALORE - INDIA

PROJECT: A4-413-35-1-0003/01-05-002

FILE NAME: 35018A09

ISAC-SCMG-SARL-S3-61002/000

Model Reverified 6-1-18

NOTES OF REVISION		ZONE
00	BASE LINE DRAWING	N/A
01	MACHINING SYMBOL ADDED	N/A

3.2/0.8

PART NO.	DESCRIPTION	QTY	MATL.	SCALE
01-05-003	PIN	2	TIGAL4V	0.00083kg

DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES.

NAME: [Signature] SIGN: [Signature] DATE: 10/10/18

APPROVED: [Signature] MOD. CHKD: [Signature] DES. CHKD: [Signature] DRAWN: [Signature]

GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
ISRO SATELLITE CENTRE
BANGALORE - INDIA

PROJECT: A4-413-35-1-0003/01-05-003

FILE NAME: 35018A10

ISAC-SCMG-SARL-S3-61003/000

NOTES OF REVISION		ZONE
00	BASE LINE DRAWING	N/A
01	MACHINING SYMBOL ADDED	N/A

3.2/0.8

NOTE: IDENTIFY PART SL. NO BY A SEPARATE TAB ONLY.

PART NO.	DESCRIPTION	QTY	MATL.	SCALE
01	SPACER	2	DELFIN.500AF	5:1

DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES.

NAME: [Signature] SIGN: [Signature] DATE: 10/10/18

APPROVED: [Signature] MOD. CHKD: [Signature] DES. CHKD: [Signature] DRAWN: [Signature]

GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
ISRO SATELLITE CENTRE
BANGALORE - INDIA

PROJECT: ISAC-SCMG-SARL-S3-61004/001

FILE NAME: 35018A11

NOTES OF REVISION		ZONE
00	BASE LINE DRAWING	N/A
01	MACHINING SYMBOL ADDED	N/A

3.2/0.8

NOTE: IDENTIFY PART SL. NO BY A SEPARATE TAB ONLY.

PART NO.	DESCRIPTION	QTY	MATL.	SCALE
01	LOOP END BKT ASSY	1	AL6061	1:1

DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES.

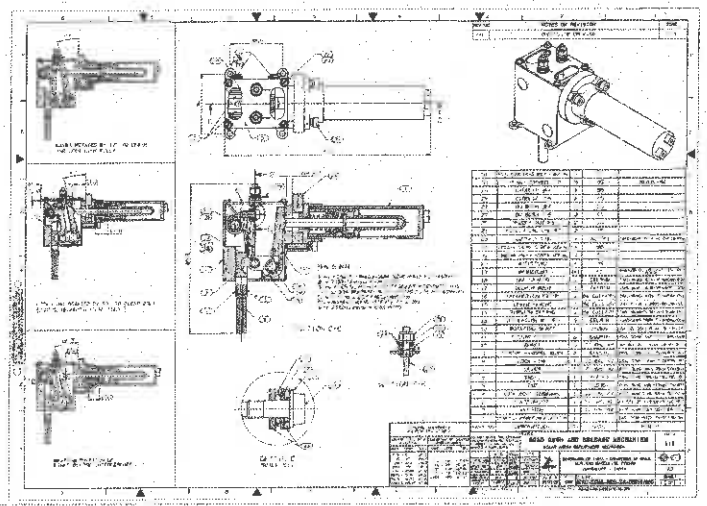
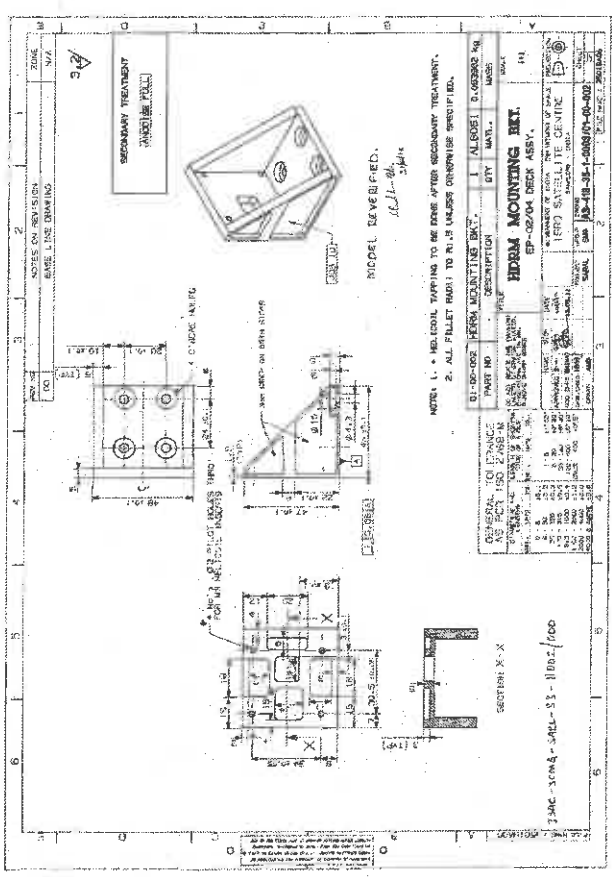
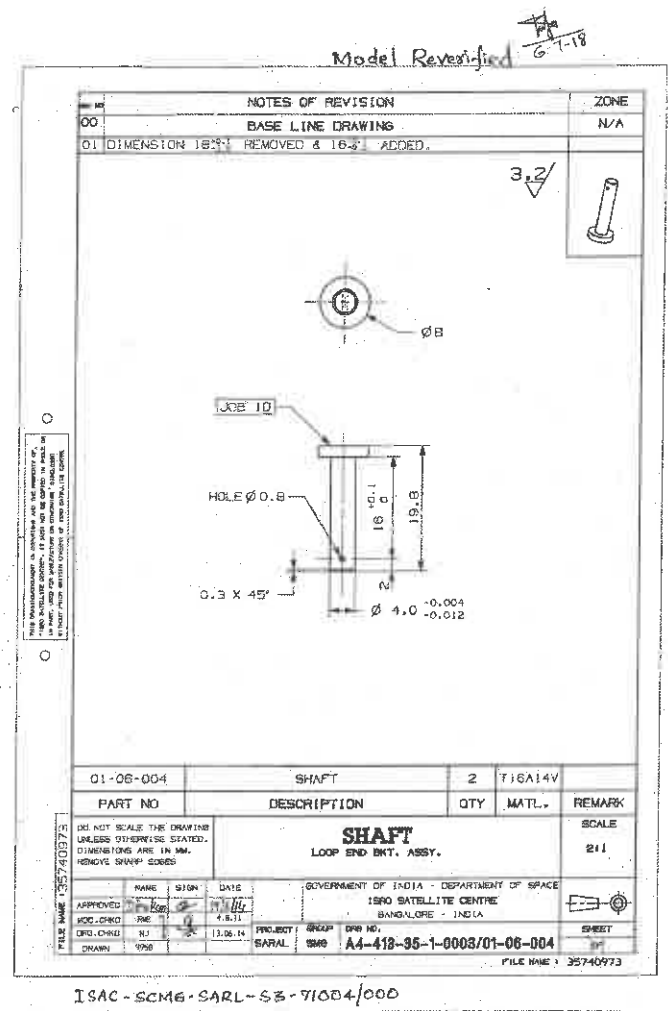
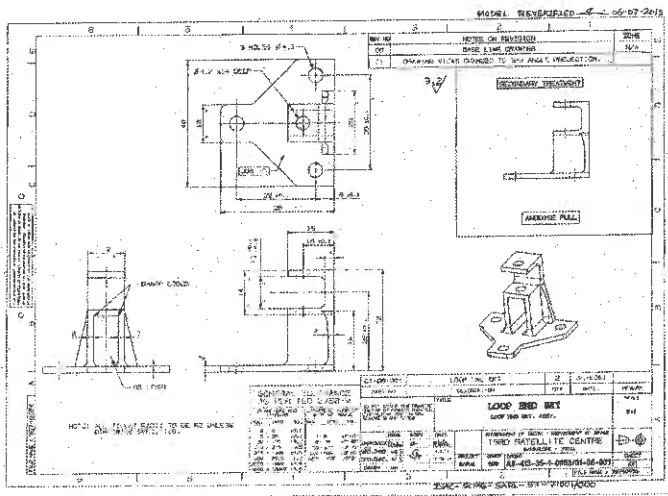
NAME: [Signature] SIGN: [Signature] DATE: 10/10/18

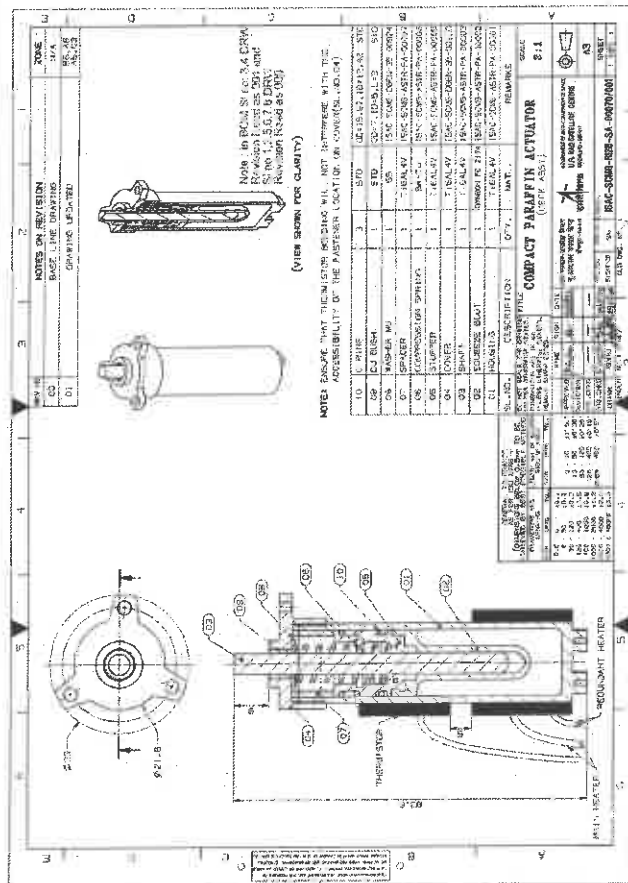
APPROVED: [Signature] MOD. CHKD: [Signature] DES. CHKD: [Signature] DRAWN: [Signature]

GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
ISRO SATELLITE CENTRE
BANGALORE - INDIA

PROJECT: ISAC-SCMG-SARL-S3-61004/001

FILE NAME: 35018A12

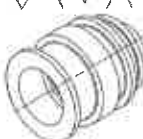


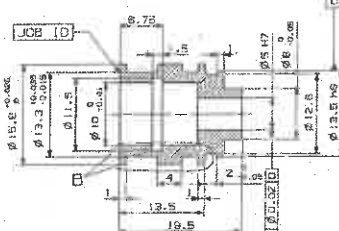


REV NO		NOTES OF REVISION		ZONE	
00		BASE LINE DRAWING		N/A	

Ø 5H7	+0.012 0
Ø 13.5h6	0 -0.011

$3 \frac{1}{2} \left(\frac{0.8}{\sqrt{2}} \right) \left(\frac{1.6}{\sqrt{2}} \right)$

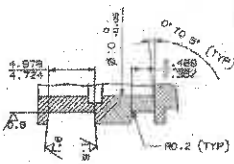




SECTION A-A

MODEL REVERIFIED.

Model OK 15/11/88



DETAIL B
SCALE: N.T.S.

00-00-005	STOPPER	I	T16A14v	REMARKS
PART NO	DESCRIPTION	QTY	MATL.	

DO NOT SCALE THE DRAWING
UNLESS OTHERWISE STATED.
DIMENSIONS ARE IN MM.
REMOVE SWAMP EDGES

STOPPER
COMPACT PARAFIN ACTUATOR

SCALE
2:1

NAME	IGN DATE	GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
APPROVED BY	12/11/88	ISRO SATELLITE CENTRE
MOD. CLERK	14/11/88	BANGLORE - INDIA
DRAWN	MAHAJ	PROJECT ASTRO SMO
		FILE NO: 1-0015/00-00-005

ISAC - SCMG - ASTE - PA - 00005/000

FILE NAME : 35756605

NOTES OF REVISION		ZONE
00	BASE LINE DRAWING	N/A

3.2/

PART NO	DESCRIPTION	QTY	MATERIAL
00-00-007	SPACER	1	TISAL 4V

DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES

SPACER

COMPACT PAMIN ACTUATOR

SCALE

2:1

APPROVED	NAME	SIGN	DATE	PROJECT	GROUP	Dwg No.	SHEET
EXT. CHD	MAN		3/3/13	ASTRO	SNS	A4-021-35-1-0015/00-00-007	1
EXT. CHD	MAN		3/3/13	ASTRO	SNS	A4-021-35-1-0015/00-00-007	1

GOVERNMENT OF INDIA - DEPARTMENT OF SPACE

ISRO SATELLITE CENTRE

BANGALORE - INDIA

TSAL - SCMG - ASTR - PA - 00007/000

FILE NAME : 3575607

NOTES OF REVISION		ZONE
00	BASE LINE DRAWING	N/A
		3.2/

NOTE: JOB ID BY TAG.

SL. No.	DESCRIPTION	QTY.	MATL.	REMARKS
1	WASHER	1	SS	

DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES.

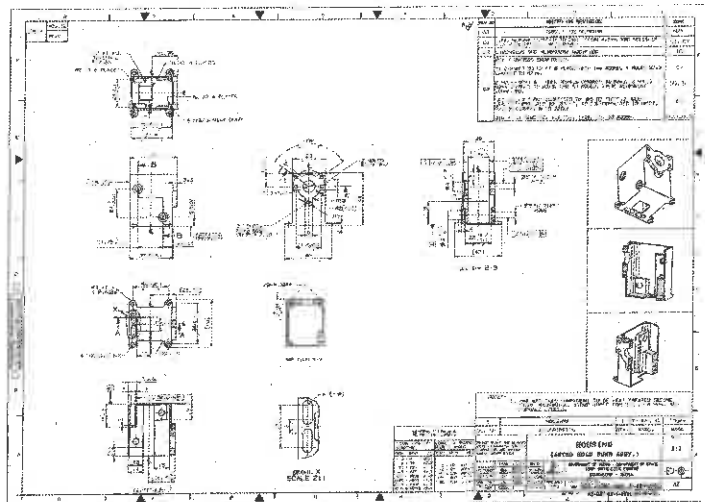
WASHER
COMPACT PARAFFIN ACTUATOR

SCALE: 2:1

NAME	SIGN	DATE	GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
APPROVED			ISRO SATELLITE CENTRE
MOD. CING			BANGALORE - INDIA
DRW. CING			
DRW. CING			

PROJECT: ASTRO SMC A4-021-35-1-0001/00-00-002

FILE NAME: 35792403



MODEL REVERIFIED

00-00-014 COVER PLATE 1 TI 6Al4V 0.0033 Kg

PART NO DESCRIPTION QTY MATL. MASS

COVER PLATE

DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES.

NAME: SGN DATE: 27.6.11

GOVERNMENT OF INDIA - DEPARTMENT OF SPACE

ISRO SATELLITE CENTRE

BANGALORE - INDIA

PROJECT: ASTRO SMC A4-021-35-1-0001/00-00-002

FILE NAME: 35792403

01-07-003 LOOP BOLT TERMINAL 1 TI 0.004872Kg

PART NO DESCRIPTION QTY MATL. MASS

LOOP BOLT TERMINAL

TOP LOOP ASBY.

DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES.

NAME: SGN DATE: 12.06.11

GOVERNMENT OF INDIA - DEPARTMENT OF SPACE

ISRO SATELLITE CENTRE

BANGALORE - INDIA

PROJECT: ASTRO SMC A4-413-35-1-0003/01-07-003

FILE NAME: 35818A07

ISAC-SCMG-SARL-S3-81003/000

Model Reverified

6-7-18

NOTES OF REVISION		ZONE
00	BASE LINE DRAWING	N/A
01	LENGTH CHANGED 4mm TO 8mm	

3.2

NOTE: JOB ID BY SEPERATE TAG ONLY

PART NO	DESCRIPTION	QTY	MATL.	MASS	SCALE
01-07-004	TAB	1	AL6061	0.000236kg	3:1

TAB
TOP LOOP ASSY.

APPROVED	BY	DATE	GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
MOD. CHD	USHA	08-11-18	ISRO SATELLITE CENTRE BANGALORE - 70014
CHG. CHD	NJ	26-10-18	PROJECT
DESIGN	AND		SARAL

DRW NO. A4-418-35-1-0003/01-07-004

FILE NAME: 23018A18

ISAC-SCMG-SARL-S3-81004/000

Model Reverified

NOTES OF REVISION		ZONE
00	BASE LINE DRAWING	N/A

3.2

NOTE: JOB ID BY SEPERATE TAG ONLY

PART NO	DESCRIPTION	QTY	MATL.	MASS	SCALE
01-07-005	TAB-1	1	AL 6061		3:1

TAB-1
TOP LOOP ASSY.

APPROVED	BY	DATE	GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
MOD. CHD	USHA	25-11-18	ISRO SATELLITE CENTRE BANGALORE - 70014
CHG. CHD	NJ	6-11-18	PROJECT
DESIGN	AND		SARAL

DRW NO. A4-418-35-1-0003/01-07-005

FILE NAME: 23018A34

ISAC-SCMG-SARL-S3-81005/000

NOTE: JOB ID BY SEPERATE TAG ONLY

APPROVED	BY	DATE	GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
MOD. CHD	USHA	08-11-18	ISRO SATELLITE CENTRE BANGALORE - 70014
CHG. CHD	NJ	26-10-18	PROJECT
DESIGN	AND		SARAL

DRW NO. A4-418-35-1-0003/01-07-004

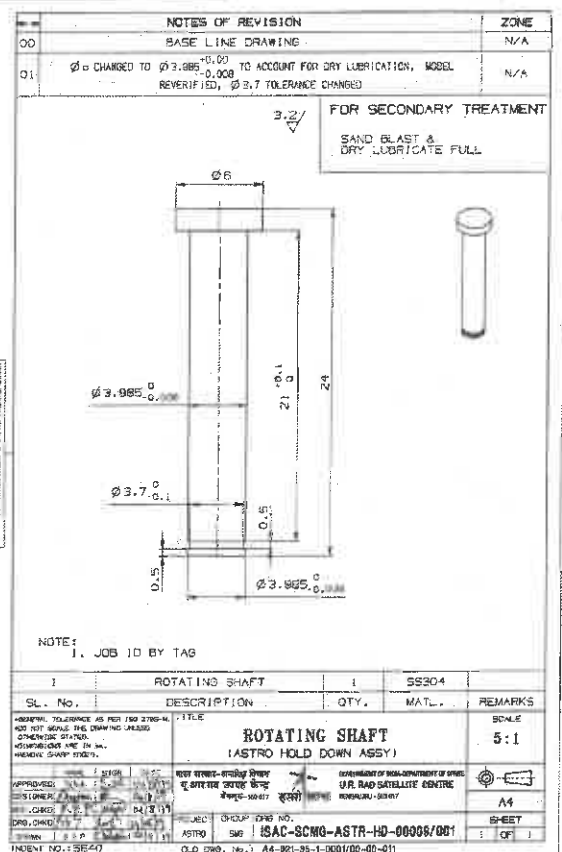
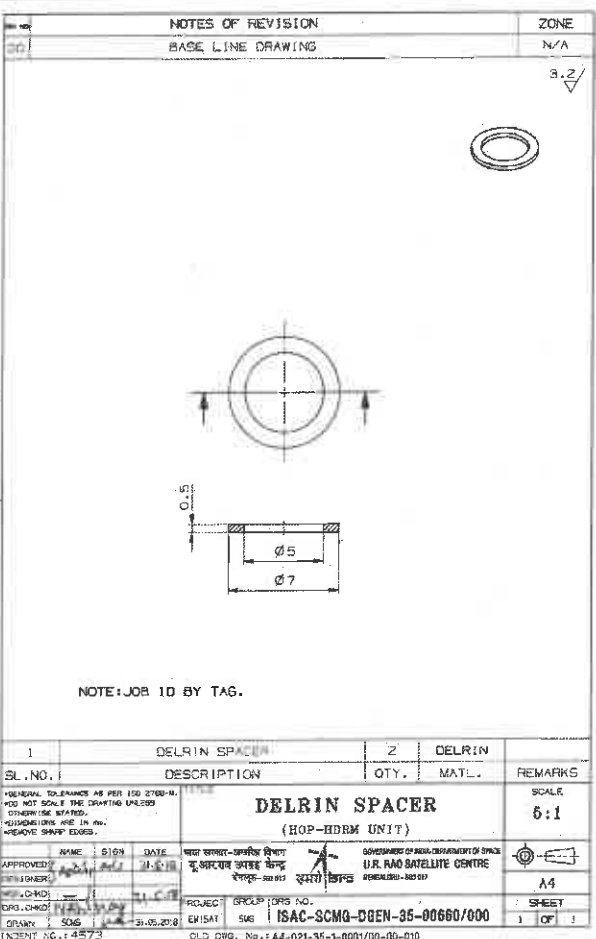
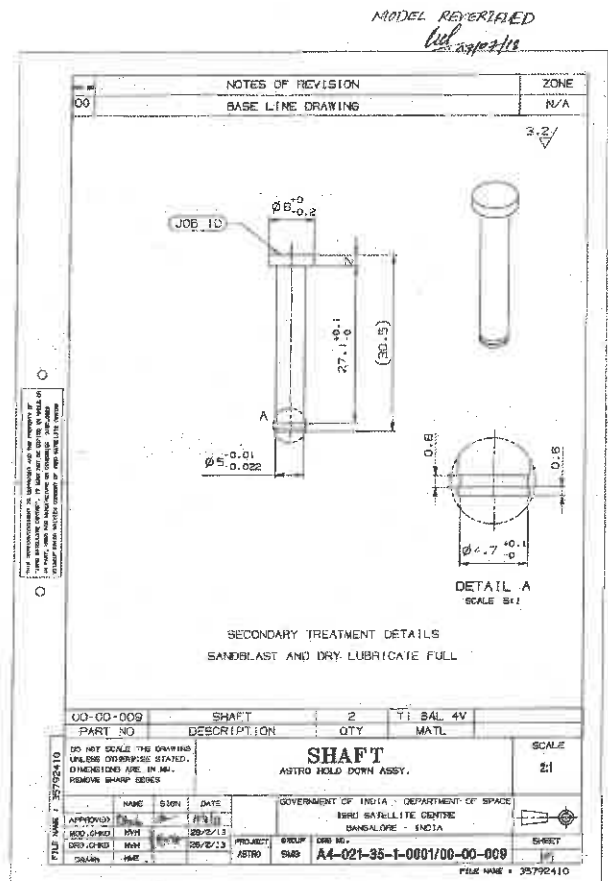
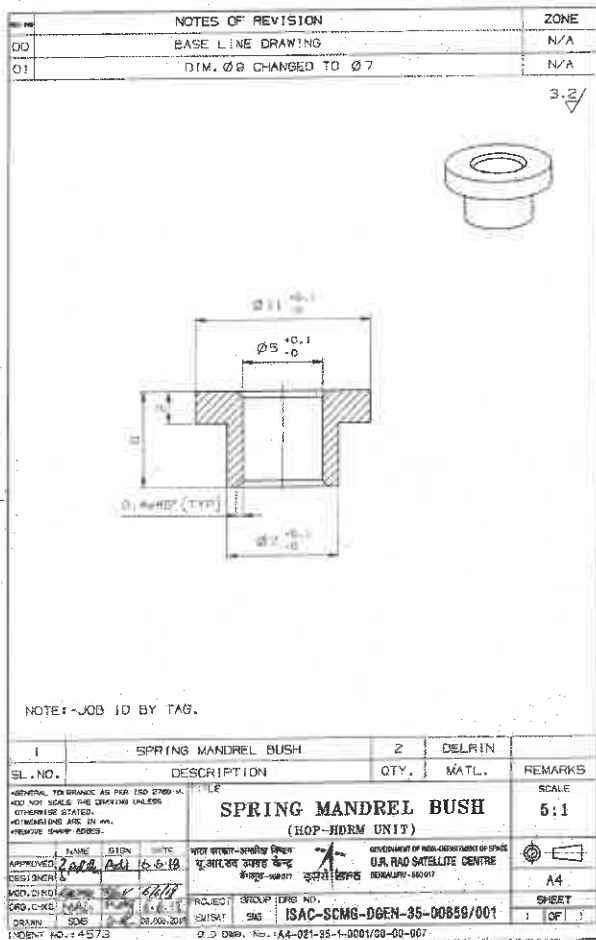
FILE NAME: 23018A18

NOTE: JOB ID BY SEPERATE TAG ONLY

APPROVED	BY	DATE	GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
MOD. CHD	USHA	08-11-18	ISRO SATELLITE CENTRE BANGALORE - 70014
CHG. CHD	NJ	26-10-18	PROJECT
DESIGN	AND		SARAL

DRW NO. A4-418-35-1-0003/01-07-004

FILE NAME: 23018A18



NOTES OF REVISION		ZONE
00	BASE LINE DRAWING	N/A

3.2/

TYPE	T	QTY.	REMARKS
1	1	2	AT CONDUCTING STRIP
2	3	2	USED AT ELECTRICAL TAB

NOTE: JOB ID BY TAG.

SL. NO.	DESCRIPTION	QTY.	MATL.	REMARKS
1	INSULATING WASHER (HOP-HORM UNIT)		DEL RIN	

GENERAL TOLERANCE AS PER IS 2768-M. DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES.

APPROVED: DATE: 12.08.2018 PROJECT: GROUP 1 (HOP-HORM UNIT) U.R. RAO SATELLITE CENTRE BANGALORE - INDIA

DESIGNED: DATE: 12.08.2018 PROJECT: GROUP 1 (HOP-HORM UNIT) U.R. RAO SATELLITE CENTRE BANGALORE - INDIA

CHECKED: DATE: 12.08.2018 PROJECT: GROUP 1 (HOP-HORM UNIT) U.R. RAO SATELLITE CENTRE BANGALORE - INDIA

DRWN: DATE: 12.08.2018 PROJECT: GROUP 1 (HOP-HORM UNIT) U.R. RAO SATELLITE CENTRE BANGALORE - INDIA

INDENT NO. 14573 C.D. DWS. No. 1 A4-021-35-1-0001/00-00-016

NOTES OF REVISION		ZONE
00	BASE LINE DRAWING	N/A

SPRING NOMENCLATURE		SPECIFICATION
DIA OF SPRING	ϕ d mm	0.9
OUT SIDE DIA	ϕ Do mm	10
SPRING RATE	K (N-mm/DEG)	1.2
NO. OF COILS	n	3 ON EACH SIDE

NOTE: HEAT TREATMENT- HEAT TREAT AT 340°C FOR 1 Hr.

SL. No.	DESCRIPTION	QTY.	MATL.	REMARKS
1	TOPTION SPRING (HORM ASSY(HOP ACTUATOR))		BeCu(1/2H)	

GENERAL TOLERANCE AS PER IS 2768-M. DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES.

APPROVED: DATE: 12.08.2018 PROJECT: GROUP 1 (HOP-HORM UNIT) U.R. RAO SATELLITE CENTRE BANGALORE - INDIA

DESIGNED: DATE: 12.08.2018 PROJECT: GROUP 1 (HOP-HORM UNIT) U.R. RAO SATELLITE CENTRE BANGALORE - INDIA

CHECKED: DATE: 12.08.2018 PROJECT: GROUP 1 (HOP-HORM UNIT) U.R. RAO SATELLITE CENTRE BANGALORE - INDIA

DRWN: DATE: 12.08.2018 PROJECT: GROUP 1 (HOP-HORM UNIT) U.R. RAO SATELLITE CENTRE BANGALORE - INDIA

INDENT NO. 14573 C.D. DWS. No. 1 A4-021-35-1-0001/00-00-016

MODEL REVERIFIED

02/8/19

NOTES OF REVISION		ZONE
00	BASE LINE DRAWING	N/A
01	FIGURE CHANGED TO TORSION SPRING	N/A

3.2/ SECONDARY TREATMENT GOLD PLATE FULL

NOTE: JOB ID BY TAG

SPRING PROPERTIES	
DIAMETER OF WIRE	ϕ 0.8mm
OUTSIDE DIAMETER	ϕ 7.0mm
INSIDE DIAMETER	ϕ 6.2mm
NUMBER OF COILS	2.34 ON EACH SIDE
PITCH OF COILS	1.0mm
SPRING RATE	0.445 N-mm/DEG
STARTING TORQUE	16.48
MAX. TORQUE	25.7

HEAT TREATMENT: HEAT TREAT AT 340°C FOR 1hr.

SL. NO.	DESCRIPTION	QTY.	MATL.	REMARKS
1	BOTTOM SPRING (ASTRO HOLD DOWN ASSY.)		BeCu(1/2H)	

GENERAL TOLERANCE AS PER IS 2768-M. DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES.

APPROVED: DATE: 12/08/19 PROJECT: GROUP 1 (HOP-HORM UNIT) U.R. RAO SATELLITE CENTRE BANGALORE - INDIA

DESIGNED: DATE: 12/08/19 PROJECT: GROUP 1 (HOP-HORM UNIT) U.R. RAO SATELLITE CENTRE BANGALORE - INDIA

CHECKED: DATE: 12/08/19 PROJECT: GROUP 1 (HOP-HORM UNIT) U.R. RAO SATELLITE CENTRE BANGALORE - INDIA

DRWN: DATE: 12/08/19 PROJECT: GROUP 1 (HOP-HORM UNIT) U.R. RAO SATELLITE CENTRE BANGALORE - INDIA

INDENT NO. 14573 C.D. DWS. No. 1 A4-021-35-1-0001/00-00-016

NOTES OF REVISION		ZONE
00	BASE LINE DRAWING	N/A
01	HOLE DIA CHANGED TO ϕ 5.1 FROM ϕ 5	N/A
02	TABLE CONTAINING 't' VALUE 0.3, 0.8, 0.9 REMOVED AND 0.2 THICKNESS UPDATED IN MODEL	N/A

3.2/ SECONDARY TREATMENT GOLD PLATE FULL

HEAT TREATMENT: HEAT TREAT AT 340°C FOR 1 hr.

• PUT A SEPARATE TAG FOR IDENTIFICATION

• 0.2 MM BeCu SHEET WILL BE SUPPLIED

SL. No.	DESCRIPTION	QTY.	MATL.	REMARKS
1	CONDUCTION STRIP (ASTRO HOLD DOWN ASSY.)		BeCu(1/2H)	

GENERAL TOLERANCE AS PER IS 2768-M. DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES.

APPROVED: DATE: 12/08/19 PROJECT: GROUP 1 (HOP-HORM UNIT) U.R. RAO SATELLITE CENTRE BANGALORE - INDIA

DESIGNED: DATE: 12/08/19 PROJECT: GROUP 1 (HOP-HORM UNIT) U.R. RAO SATELLITE CENTRE BANGALORE - INDIA

CHECKED: DATE: 12/08/19 PROJECT: GROUP 1 (HOP-HORM UNIT) U.R. RAO SATELLITE CENTRE BANGALORE - INDIA

DRWN: DATE: 12/08/19 PROJECT: GROUP 1 (HOP-HORM UNIT) U.R. RAO SATELLITE CENTRE BANGALORE - INDIA

INDENT NO. 14573 C.D. DWS. No. 1 A4-021-35-1-0001/00-00-016

NOTES OF REVISION		ZONE
00	BASE LINE DRAWING	N/A
		3.2/

NOTE: JOB ID BY TAG.

SL. NO.	DESCRIPTION	QTY.	MATL.	REMARKS
1	DELIN BUSH (HOP-HDRM UNIT)			SCALE 5:1

NAME	DESIGN	DATE	DESIGNER	CHECKED	DATE	GROUP	DRG. NO.	EMISAT	END	ISAC-SCMG-DSEN-35-00661/000

GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
ISRO SATELLITE CENTRE
BANGALORE - INDIA

OLD DWS. No. 1 A4-021-35-1-000/05-05-08

NOTES OF REVISION		ZONE
00	BASE LINE DRAWING	N/A
01	DIMENSION $\phi 12$, ANGLE 125° THICKNESS TABLE ARE ADDED & MATERIAL IS CHANGED	
02	THICKNESS (1.7 & 6.5) ADDED TO THICKNESS TABLE.	

NOTE: JOB ID BY TAG.

SL. NO.	DESCRIPTION	QTY.	MATL.	REMARKS
1	HOP SPACER COMPACT PARAFIN ACTUATOR			SCALE 2:1

NAME	DESIGN	DATE	DESIGNER	CHECKED	DATE	GROUP	DRG. NO.	EMISAT	END	ISAC-SCMG-DSEN-35-00588/002

GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
ISRO SATELLITE CENTRE
BANGALORE - INDIA

OLD DWS. No. 1 A4-021-35-1-000/05-05-02

NOTES OF REVISION		ZONE
00	BASE LINE DRAWING	N/A
01	HEAT TREATMENT REMOVED	N/A
		3.2/

NOTE: JOB ID BY TAG.

SL. No.	DESCRIPTION	QTY.	MATL.	REMARKS
1	CONTACT PIN (ASTRO HOLD DOWN ASSY)	2	AL8051	0.386gm

NAME	DESIGN	DATE	DESIGNER	CHECKED	DATE	GROUP	DRG. NO.	EMISAT	END	ISAC-SCMG-ASTR-HD-00018/001

GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
ISRO SATELLITE CENTRE
BANGALORE - INDIA

OLD DWS. No. 1 A4-021-35-1-000/05-05-08

NOTE: JOB ID BY TAG.

SL. No.	DESCRIPTION	QTY.	MATL.	REMARKS
1	LOOP ASSY-A			SCALE 5:1

NAME	DESIGN	DATE	DESIGNER	CHECKED	DATE	GROUP	DRG. NO.	EMISAT	END	ISAC-SCMG-ASTR-HD-00018/001

GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
ISRO SATELLITE CENTRE
BANGALORE - INDIA

OLD DWS. No. 1 A4-021-35-1-000/05-05-08

ISAC-SCMG-SARL-S3-91001/000

LSAC - SCMBG - RST2 - B5 - 00007/000

TSAC-SCMG-SARL-S3-71002/000

SAC (SAC-SCMG-PROD-S2-11016/001)

Model Rev: 1.0
6-7-13

00	NOTES OF REVISION	ZONE
	BASE LINE DRAWING	N/A

1.6

FOR SECONDARY TREATMENT ONLY
(Ref. parts & process specification document)

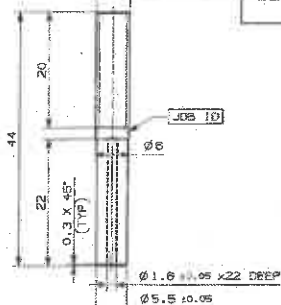


- SAND BLAST
- DRY LUBRICATE
- ANODISE FULL EXCEPT MASKED AREA
- MASKING AREA

(SAND BLAST/ANODISE DRY LUBRICATE)



M 8 (L.H. THREAD)



JOB ID



01-07-002 TURN BUCKLE TERMINAL (LH)	1	AL6081
PART NO	DESCRIPTION	QTY MATL.
TURN BUCKLE TERMINAL (LH) TOP LOOP ASBY.		

DO NOT SCALE THE DRAWING
UNLESS OTHERWISE STATED.
DIMENSIONS ARE IN MM.
REMOVE SHARP EDGES

SCALE
2:1

NAME/ SIGN DATE:	GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
APPROVED	ISRO SATELLITE CENTRE
ADD. CHG.	BANGLORE - INDIA
DRG. CHG.	
INCH	
MM	
DATE	
PROJECT	
SERIAL	
NO.	
A4-413-35-1-0003/01-07-002	

FILE NAME : J501BA14

ISAC-SCMG-SARL-43-81002/000

Model Reverified
 6-7-18

00	NOTES OF REVISION	ZONE
01	BASE LINE DRAWING	N/A
	LENGTH CHANGED 4mm TO 8mm.	

3/2

NOTE: JOB ID BY SEPARATE TAB ONLY

01-07-004	TAB	1	AL8081	0.000238kg
PART NO	DESCRIPTION	QTY	MATL.	MASS

TAB

TOP LOOP ASBY.

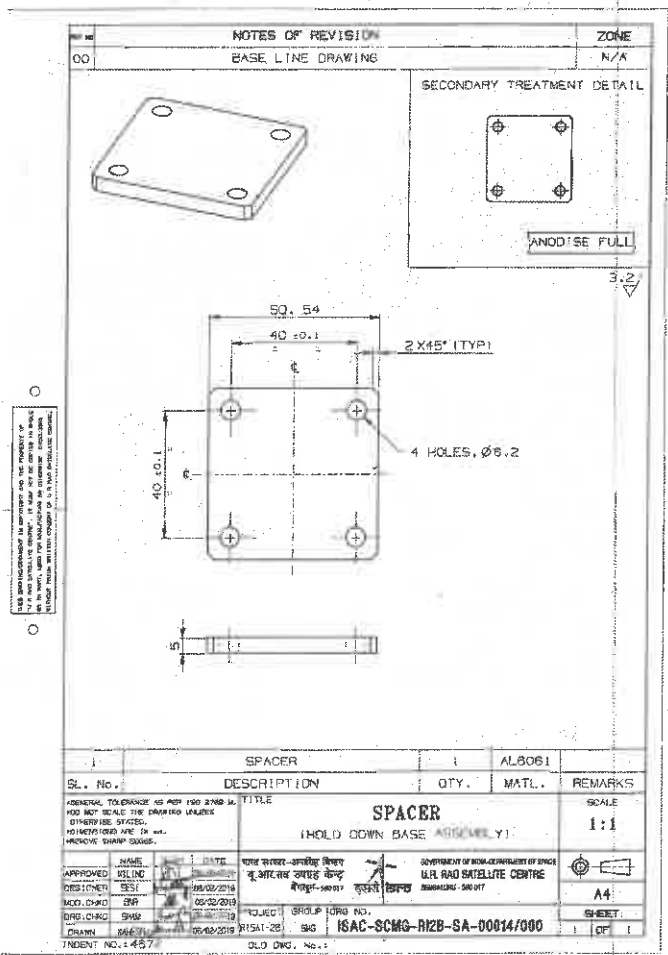
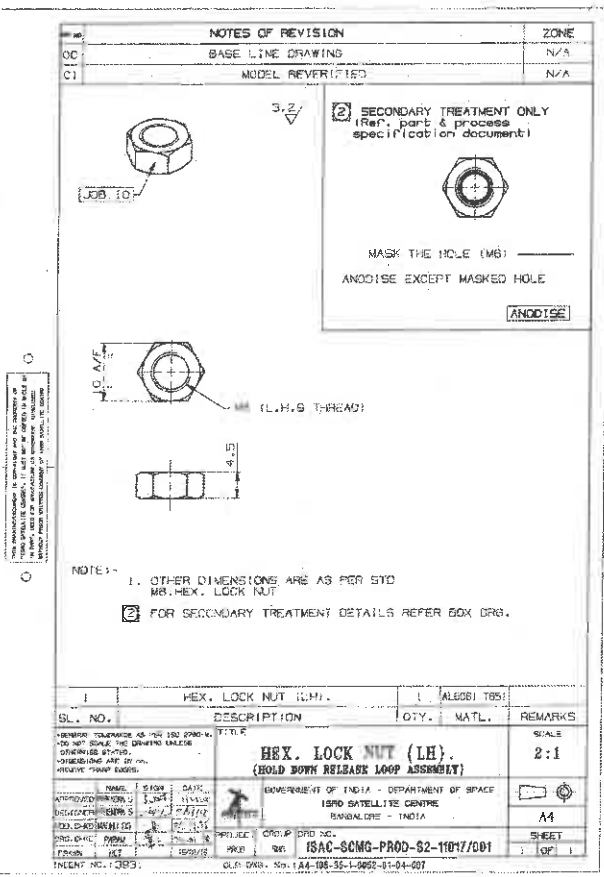
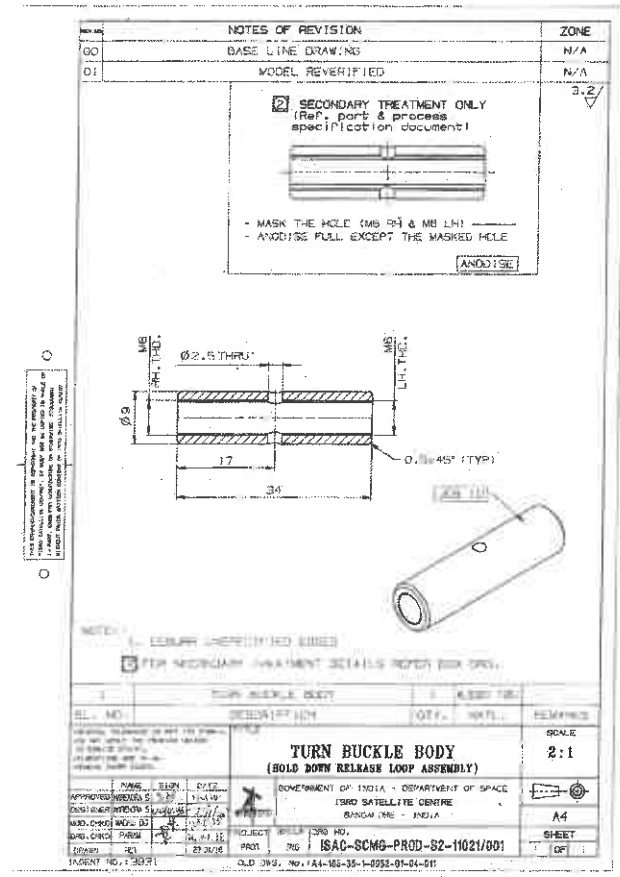
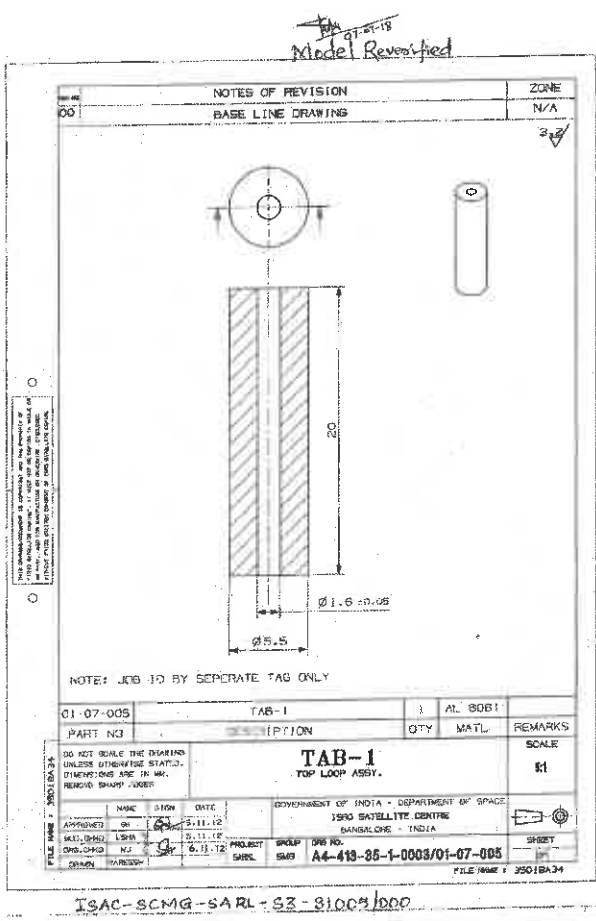
SCALE

5:1

DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES.	GOVERNMENT OF INDIA - DEPARTMENT OF SPACE ISRO SATELLITE CENTRE BANGALORE - INDIA																			
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>NAME</th> <th>SIGN</th> <th>DATE</th> </tr> <tr> <td>APPROVED: SR</td> <td></td> <td>05.11.18</td> </tr> <tr> <td>MODIFIED: USMA</td> <td></td> <td>05.11.18</td> </tr> <tr> <td>DWG. NO. BLJ</td> <td></td> <td></td> </tr> </table>	NAME	SIGN	DATE	APPROVED: SR		05.11.18	MODIFIED: USMA		05.11.18	DWG. NO. BLJ			<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>GROUP</th> <th>PRO NO.</th> <th>PRISET</th> </tr> <tr> <td>GROUP SRM</td> <td></td> <td></td> </tr> </table>	GROUP	PRO NO.	PRISET	GROUP SRM			FILE NAME: 32018A18
NAME	SIGN	DATE																		
APPROVED: SR		05.11.18																		
MODIFIED: USMA		05.11.18																		
DWG. NO. BLJ																				
GROUP	PRO NO.	PRISET																		
GROUP SRM																				
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>DESIGN</th> <th>FILE</th> </tr> <tr> <td>DESIGN ALB</td> <td></td> </tr> </table>	DESIGN	FILE	DESIGN ALB		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>SHEET</th> </tr> <tr> <td>1</td> </tr> </table>	SHEET	1	FILE NAME: 32018A18												
DESIGN	FILE																			
DESIGN ALB																				
SHEET																				
1																				

ISAC-SCMG-SARL-SS-31004/000

THIS DRAWING IS PREPARED AND ISSUED IN ACCORDANCE WITH THE REQUIREMENTS OF THE ISRO SATELLITE CENTRE, BANGALORE. IT IS THE RESPONSIBILITY OF THE USER TO ENSURE THAT THE DRAWING IS USED IN ACCORDANCE WITH THE REQUIREMENTS OF THE ISRO SATELLITE CENTRE, BANGALORE.



[illegible][illegible]

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[illegible][illegible][illegible]

NOTES OF REVISION		ZONE
00	BASE LINE DRAWING	N/A
01	MODEL REVERIFIED	N/A

3.2/

SL. NO.	DESCRIPTION	QTY	MATL.	REMARKS
01	NUT	12	AL 6061 T651	

GENERAL TOLERANCE AS PER ISO 2768-M.
DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED.
DIMENSIONS ARE IN MM.
REMOVE SHARP EDGES.

NAME: [Signature] SIGN: [Signature] DATE: 12.02.18
GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
ISRO SATELLITE CENTRE
BANGALORE - INDIA

APPROVED: [Signature] DATE: 12.02.18
DESIGNED: [Signature] DATE: 12.02.18
DRAWN: [Signature] DATE: 12.02.18
PROJECT: ISAC-SCMG-PROD-S4-11012/001
SHEET: 1 OF 1

INDENT NO.: 3831 OLD DWS. No. 1A4-105-35-1-0054-01-01-008

NOTES OF REVISION		ZONE
00	BASE LINE DRAWING	N/A
01	MODEL REVERIFIED	N/A

3.2/

2. FOR SECONDARY TREATMENT ONLY
Ref parts & process specification document

- SAND BLAST
- ANODISE FULL
- DRY LUBRICATE

SAND BLAST ANODISE DRY LUBRICATE

NOTE: 1. USE SEPARATE TAG FOR JOB ID.
2. FOR SECONDARY TREATMENT DETAILS REFER BOX DRG.

SL. NO.	DESCRIPTION	QTY	MATL.	REMARKS
01	WASHER	6	AL 6061 T651	

GENERAL TOLERANCE AS PER ISO 2768-M.
DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED.
DIMENSIONS ARE IN MM.
REMOVE SHARP EDGES.

NAME: [Signature] SIGN: [Signature] DATE: 12.02.18
GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
ISRO SATELLITE CENTRE
BANGALORE - INDIA

APPROVED: [Signature] DATE: 12.02.18
DESIGNED: [Signature] DATE: 12.02.18
DRAWN: [Signature] DATE: 12.02.18
PROJECT: ISAC-SCMG-PROD-S4-11013/001
SHEET: 1 OF 1

INDENT NO.: 3831 OLD DWS. No. 1A4-105-35-1-0054-01-01-007

NOTES OF REVISION		ZONE
00	BASE LINE DRAWING	N/A
01	MODEL REVERIFIED	N/A

3.2/

NOTE: 1. JOB ID BY TAG.

SL. NO.	DESCRIPTION	QTY	MATL.	REMARKS
01	TAB	6	AL 6061 T651	

GENERAL TOLERANCE AS PER ISO 2768-M.
DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED.
DIMENSIONS ARE IN MM.
REMOVE SHARP EDGES.

NAME: [Signature] SIGN: [Signature] DATE: 12.02.18
GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
ISRO SATELLITE CENTRE
BANGALORE - INDIA

APPROVED: [Signature] DATE: 12.02.18
DESIGNED: [Signature] DATE: 12.02.18
DRAWN: [Signature] DATE: 12.02.18
PROJECT: ISAC-SCMG-PROD-S4-11018/001
SHEET: 1 OF 1

INDENT NO.: 3831 OLD DWS. No. 1A4-105-35-1-0054-01-01-012

21-07-2018
MODEL REVERIFIED

NOTES OF REVISION		ZONE
00	BASE LINE DRAWING	N/A
01	JOB ID NOTE ADDED AND SECTION ADDED.	N/A

3.2/

SECTION A-A

PART NO	QTY.	REMARKS
01-01-011A	0.9	CCL-1
01-01-011B	1.2	CCL-2
01-01-011C	1.2	CCL-3
01-01-011D	1.2	CCL-1

NOTE: 1. NO SECONDARY TREATMENT
2. JOB ID TO BE PROVIDED WITH TAG.

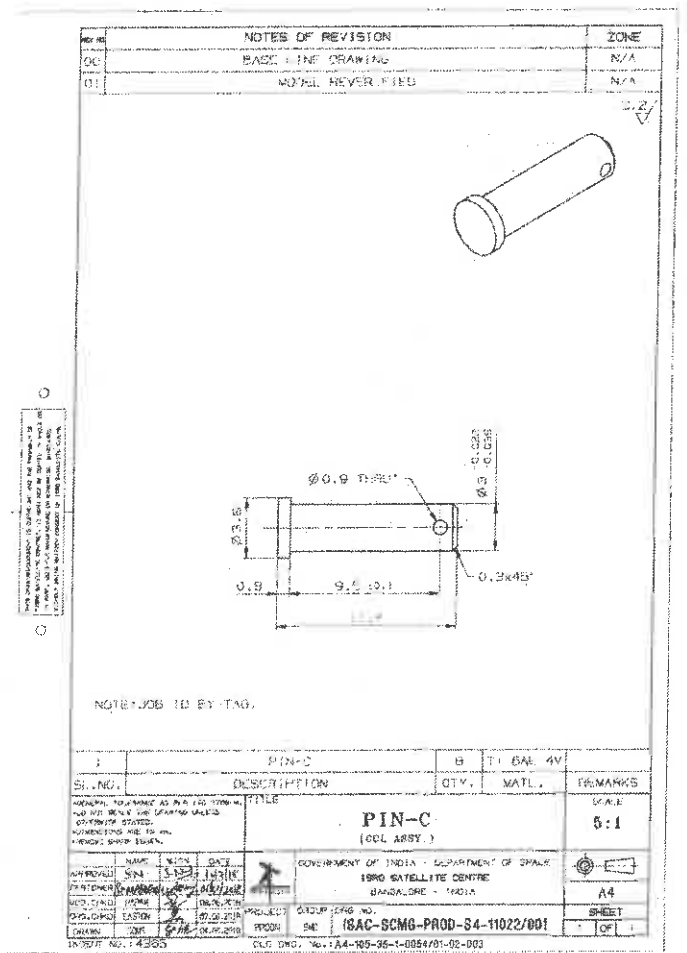
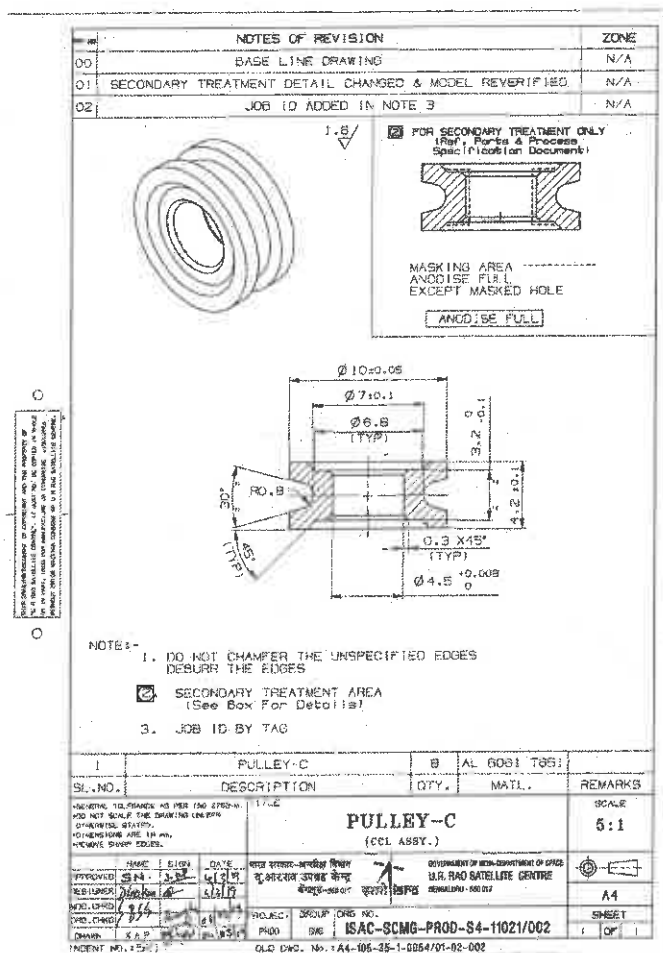
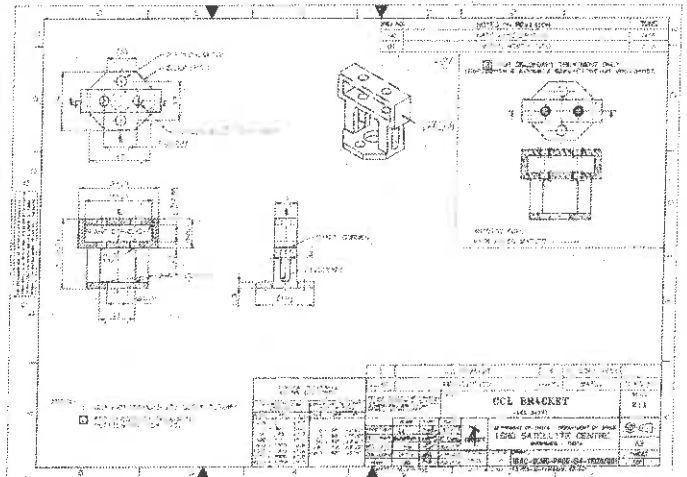
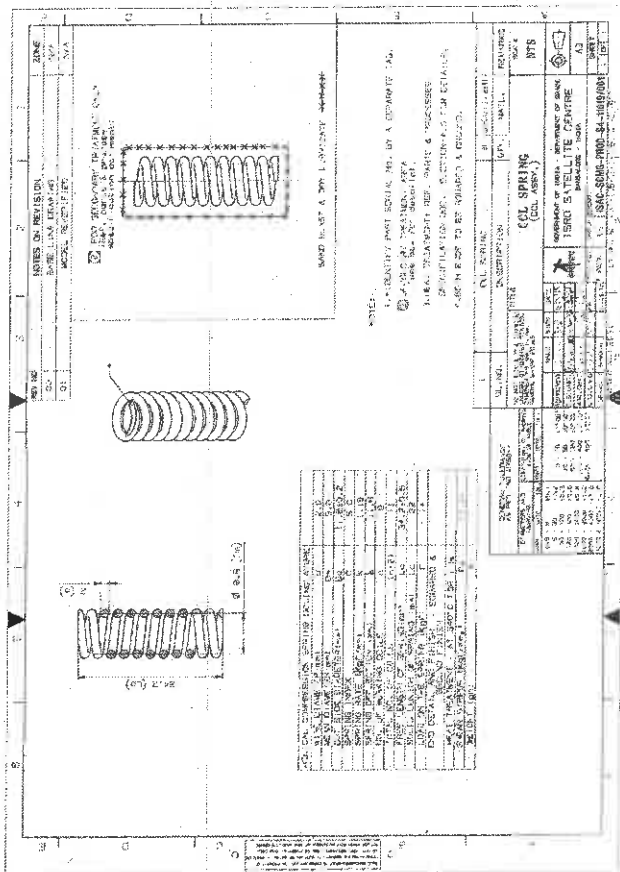
SL. NO.	DESCRIPTION	QTY	MATL.	REMARKS
01-01-011	WASHER	2	DELFIN 500AF	

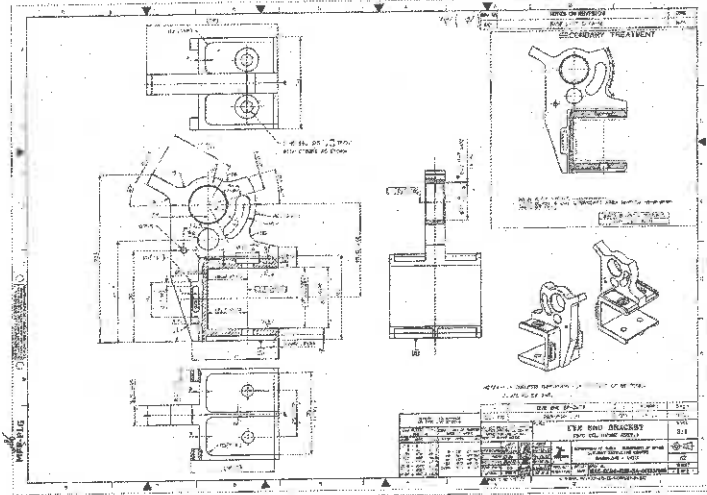
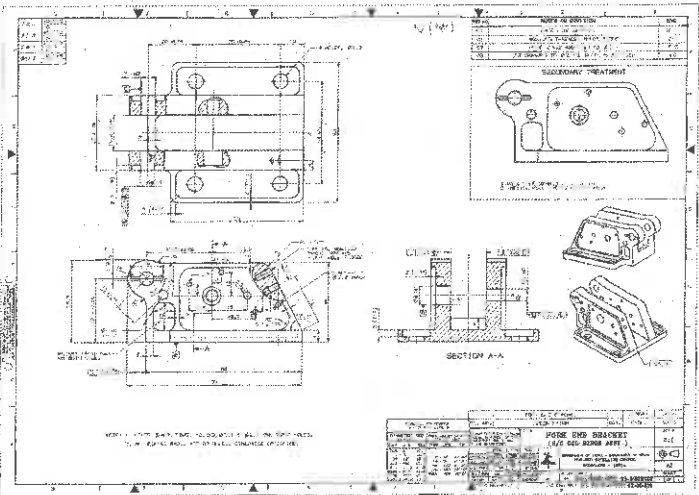
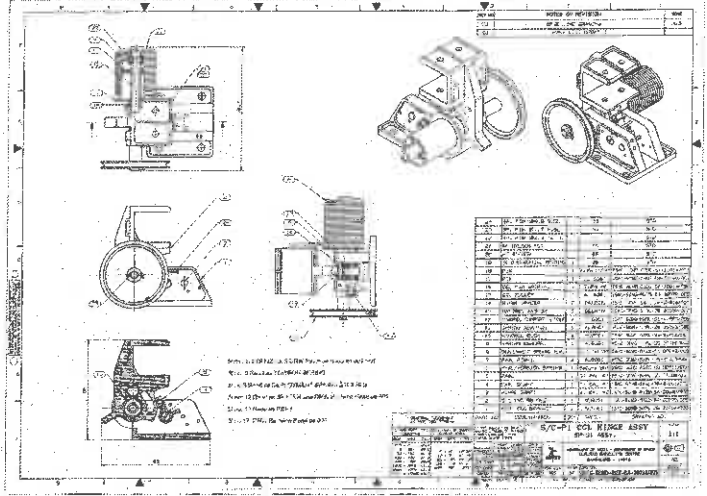
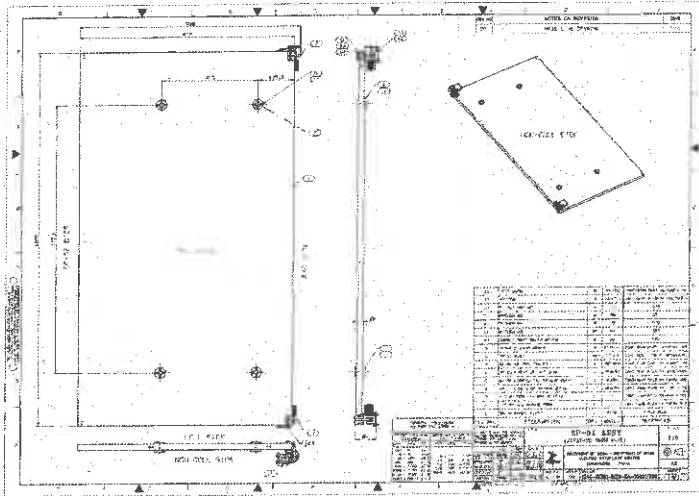
GENERAL TOLERANCE AS PER ISO 2768-M.
DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED.
DIMENSIONS ARE IN MM.
REMOVE SHARP EDGES.

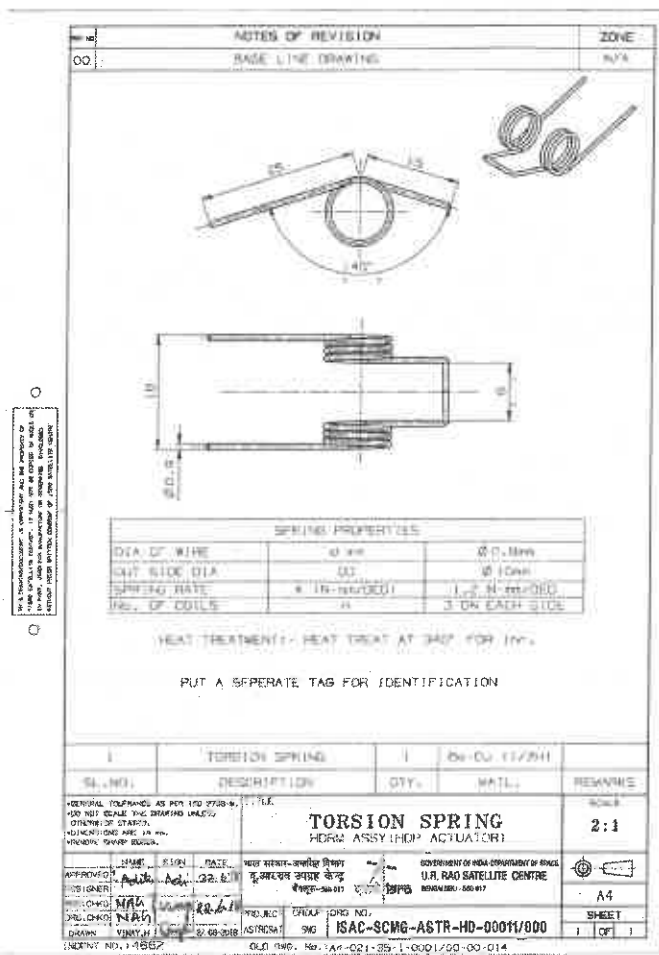
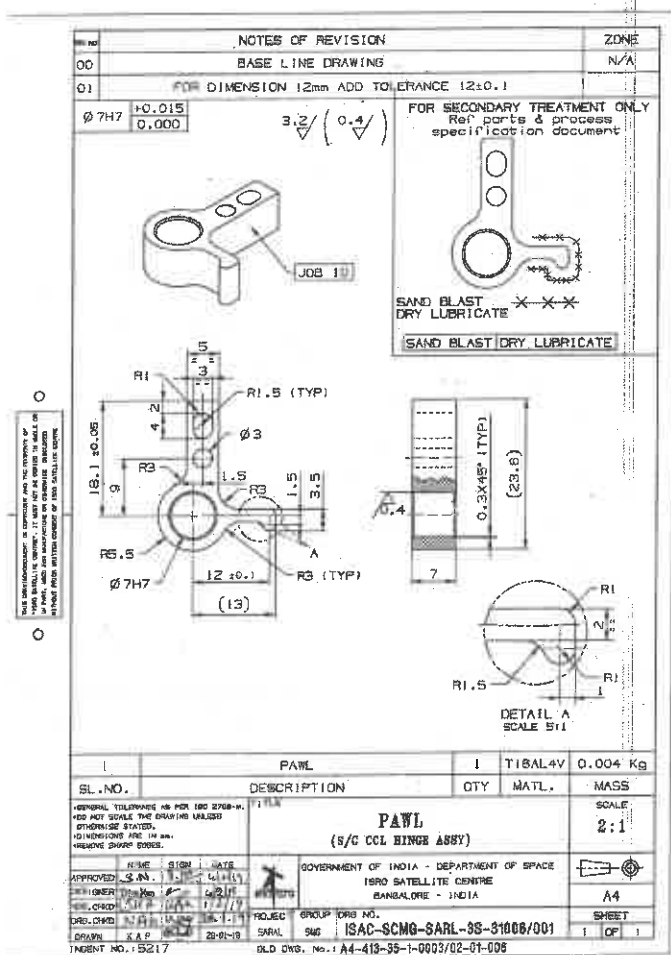
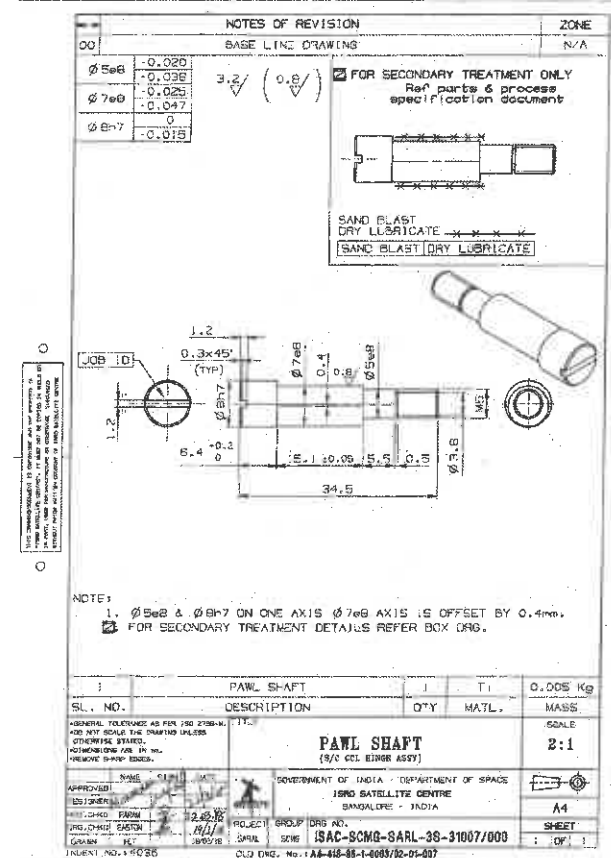
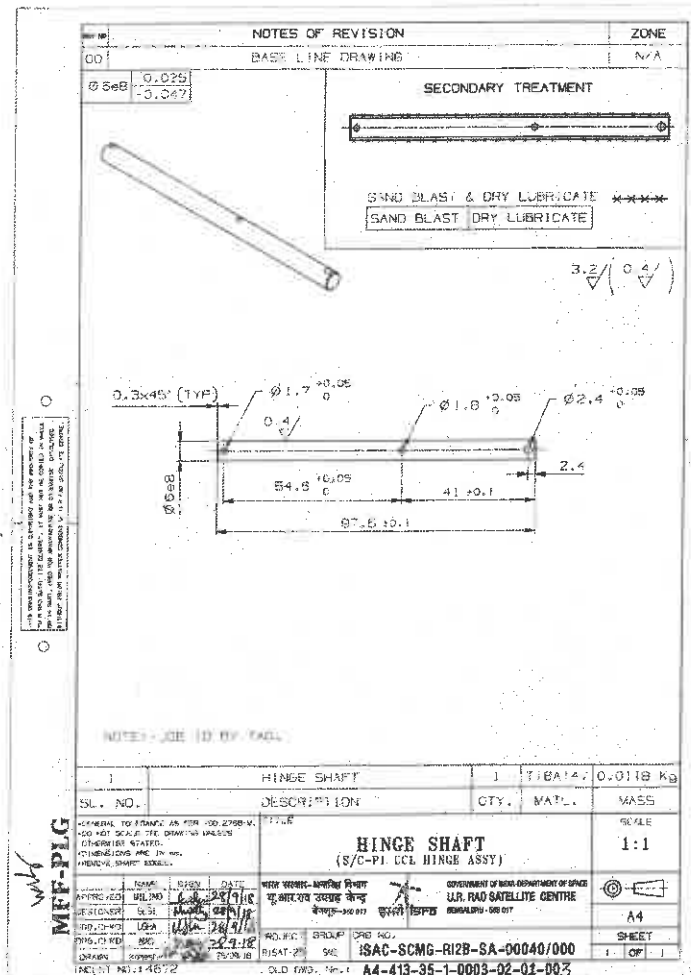
NAME: [Signature] SIGN: [Signature] DATE: 21.07.18
GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
ISRO SATELLITE CENTRE
BANGALORE - INDIA

APPROVED: [Signature] DATE: 21.07.18
DESIGNED: [Signature] DATE: 21.07.18
DRAWN: [Signature] DATE: 21.07.18
PROJECT: ISAC-SCMG-PROD-S4-11017/001
SHEET: 1 OF 1

INDENT NO.: 3831 OLD DWS. No. 1A4-105-35-1-0054-01-01-011







NOTES OF REVISION		ZONE	
00	BASE LINE DRAWING	N/A	
3.2	FOR SECONDARY TREATMENT ONLY (REF. PARTS & PROCESSES SPECIFICATION CODE)		

ANDDISE FULL

JOB ID

SCALE: 5:1

ISAC-SCMG-SARL-35-31019/000

PART NO	DESCRIPTION	QTY	MATL	REMARKS
02-01-019	PAWL PIN-1 IS/C CCL HINGE ASSY.1	2	AL6061	

NAME	SIGN	DATE	GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
APPROVED: [Signature]	[Signature]	12/01/18	ISRO SATELLITE CENTRE BANGALORE - INDIA
MOD. CHG: [Signature]	[Signature]	12/01/18	
DRW. CHG: [Signature]	[Signature]	12/01/18	
DRW. NO.	001		
PROJECT	SARL		
DRG NO.	A4-413-35-1-0003/02-01-019		
FILE NAME	354462005		

NOTES OF REVISION		ZONE	
00	BASE LINE DRAWING	N/A	
3.2	FOR SECONDARY TREATMENT ONLY (REF. PARTS & PROCESSES SPECIFICATION CODE)		

ANDDISE FULL

JOB ID

WIRE DIA (IN)	2.00 ± 0.02
NUMBER OF TURNS (IN)	17.5
STIFFNESS (K) Kg-Cm/dcg	0.015
STRESS Kg/mm	74
STARTING TORSION Kg-Cm (IT)	0.05
FREE LENGTH	30
ROTATION ANGLE (STARTING)	435°
END TORSION Kg-Cm (LH)	3.02
ROTATION ANGLE (ENDING)	575°

NOTES: 1. DRAWN TO BY 140.
2. MAX TREATMENT: REF. PARTS & PROCESSES SPECIFICATION CODE FOR DETAILS.

PART NO	DESCRIPTION	QTY	MATL	REMARKS
02-01-012	DEPLOYMENT SPRING LH IS/C-PL CCL & NON-CCL HINGE ASSY.1	1	AL6061	

NAME	SIGN	DATE	GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
APPROVED: [Signature]	[Signature]	12/01/18	ISRO SATELLITE CENTRE BANGALORE - INDIA
MOD. CHG: [Signature]	[Signature]	12/01/18	
DRW. CHG: [Signature]	[Signature]	12/01/18	
DRW. NO.	001		
PROJECT	SARL		
DRG NO.	A4-413-35-1-0003/02-01-012		
FILE NAME	354462005		

NOTES OF REVISION		ZONE	
00	BASE LINE DRAWING	N/A	
3.2	SECONDARY TREATMENT		

ANDDISE FULL

JOB ID

SCALE: 1:1

ISAC-SCMG-SARL-35-31010/000

PART NO	DESCRIPTION	QTY	MATL	REMARKS
02-01-010	SPRING MANDREL IS/C CCL HINGE ASSY.	1	AL6061	

NAME	SIGN	DATE	GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
APPROVED: [Signature]	[Signature]	12/01/18	ISRO SATELLITE CENTRE BANGALORE - INDIA
MOD. CHG: [Signature]	[Signature]	12/01/18	
DRW. CHG: [Signature]	[Signature]	12/01/18	
DRW. NO.	001		
PROJECT	SARL		
DRG NO.	A4-413-35-1-0003/02-01-010		
FILE NAME	35740910		

NOTES OF REVISION		ZONE	
00	BASE LINE DRAWING	N/A	
3.2	SECONDARY TREATMENT		

ANDDISE FULL

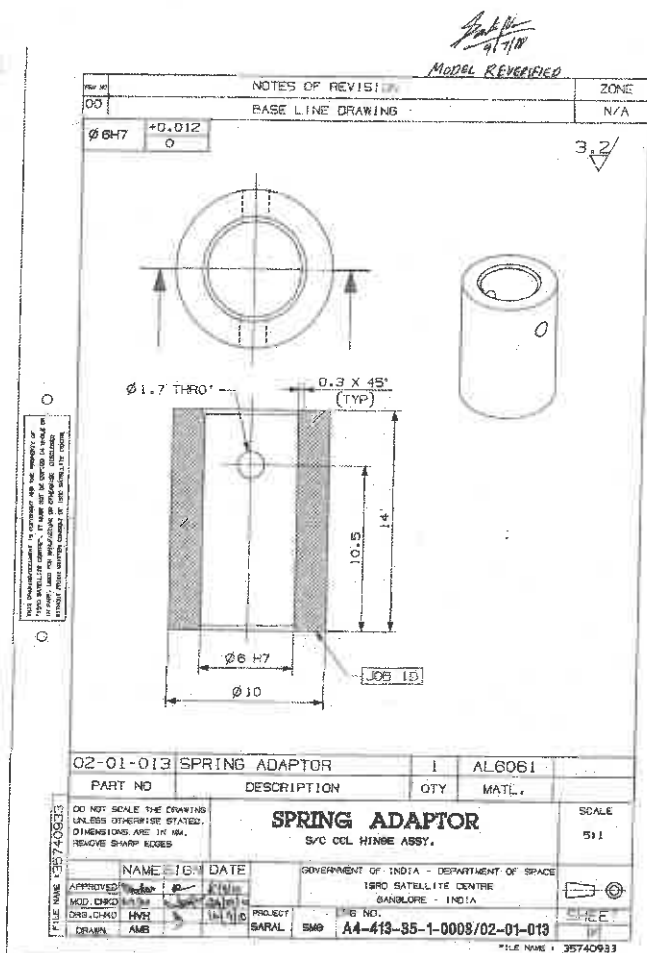
JOB ID

SCALE: 2:1

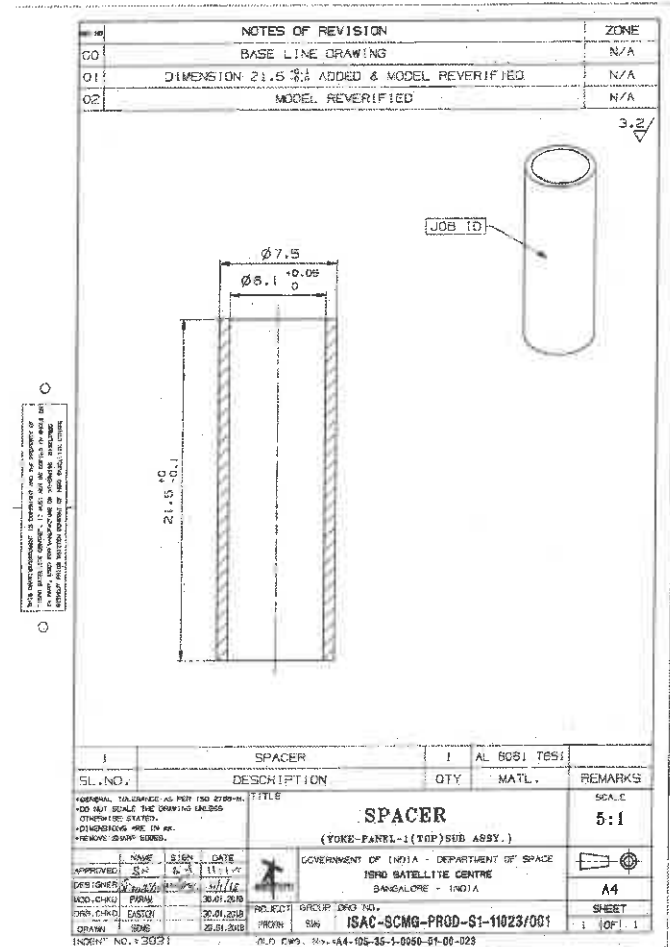
ISAC-SCMG-SARL-35-31012/000

PART NO	DESCRIPTION	QTY	MATL	REMARKS
02-01-012	MANDREL BUSH IS/C CCL HINGE ASSY.	1	AL6061	

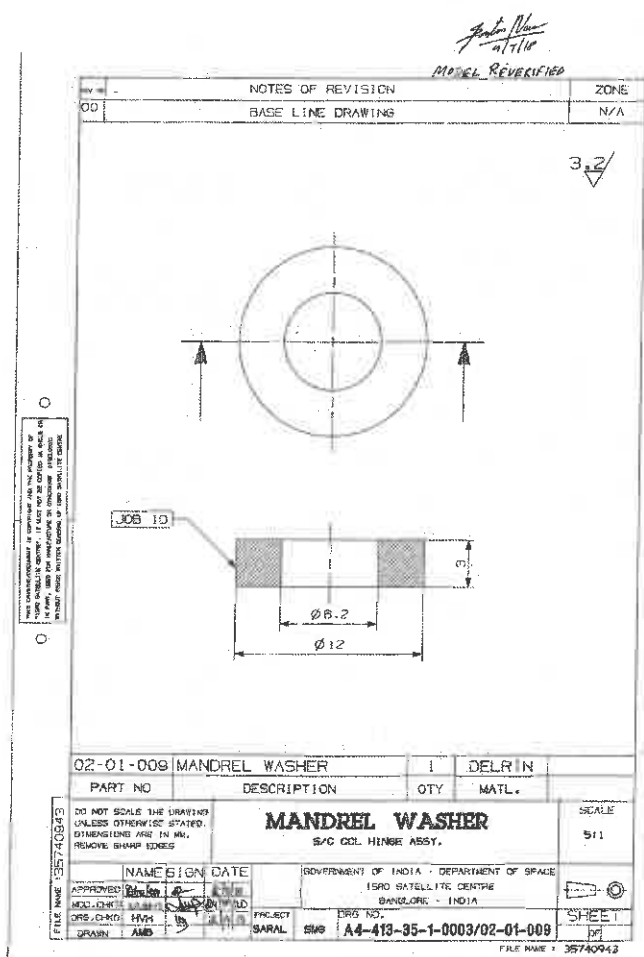
NAME	SIGN	DATE	GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
APPROVED: [Signature]	[Signature]	12/01/18	ISRO SATELLITE CENTRE BANGALORE - INDIA
MOD. CHG: [Signature]	[Signature]	12/01/18	
DRW. CHG: [Signature]	[Signature]	12/01/18	
DRW. NO.	001		
PROJECT	SARL		
DRG NO.	A4-413-35-1-0003/02-01-012		
FILE NAME	35740921		



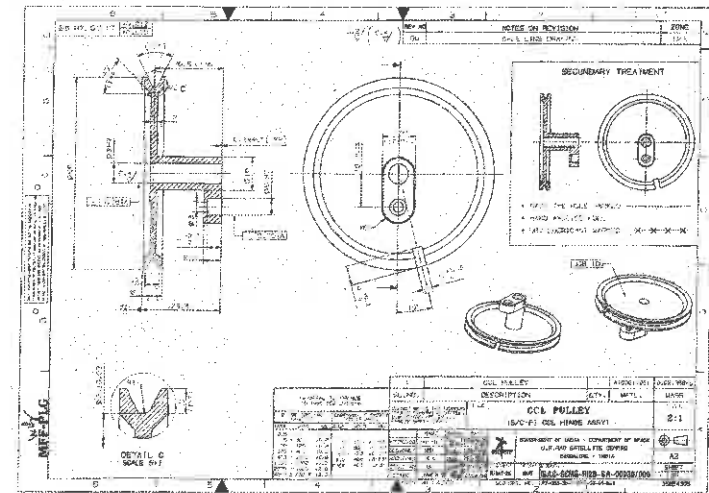
ISAC-SCMG-SARL-35-31013/000



ISAC-SCMG-SARL-35-31014/000



ISAC-SCMG-SARL-35-31009/000



THIS DRAWING IS TO BE USED FOR THE PURPOSE OF MANUFACTURING THE PARTS OF THE ASSEMBLY. IT DOES NOT SHOW THE DIMENSIONS OF THE PARTS OF THE ASSEMBLY. THE DIMENSIONS OF THE PARTS OF THE ASSEMBLY ARE TO BE DETERMINED BY THE MANUFACTURER.

NOTES OF REVISION		ZONE
00	BASE LINE DRAWING	N/A
01	MODEL REVERIFIED	N/A

Ø 4m6	+0.012 +0.004
Ø 5m6	+0.012 +0.004

Isometric view of a pulley assembly. Dimensions are provided for various parts of the assembly. The drawing is labeled 'JOB ID' and 'Ø 5m6'.

PIN-4		T16AL4V		REMARKS
SL.NO.	DESCRIPTION	QTY	MATL.	REMARKS
PIN-4 (IS/C-PI TOP HINGE ASSEMBLY)				SCALE 5:1
GOVERNMENT OF INDIA - DEPARTMENT OF SPACE ISRO SATELLITE CENTRE BANGALORE - INDIA				A4
PROJECT: ISAC-SCMG-C602-SA-10010/000 GROUP: CMT0-2 SHEET: 1 OF 1				SHEET
PROJECT NO. 14300				OLD ENG. No. 144-038-35-1-0010/02-01-019

Sal. H. 11/1/10
Model Reverified

NOTES OF REVISION		ZONE
00	BASE LINE DRAWING	N/A

APPROVED FROM
A4-038-35-1-0010/02-01-019

FOR SECONDARY TREATMENT ONLY
(Ref. parts & drawings specification document)

Ø 1.9 CLOS

2. 100L.1, Ø 0.8 3.0"

0.3x45° (TYP)

1.6

29.8 ± 0.1

32.1

ISO. VIEW

NOTE:-

1. SECONDARY TREATMENT DETAIL (See Box for Details)

2. USE SEPARATE TAG FOR JOB ID.

PIN		AL 6061		REMARKS
PART NO.	DESCRIPTION	QTY	MATL.	REMARKS
PIN (Y-PI HINGE BOTTOM ASSY.)				SCALE 2:1
GOVERNMENT OF INDIA - DEPARTMENT OF SPACE ISRO SATELLITE CENTRE BANGALORE - INDIA				A4
PROJECT: ISAC-SCMG-C602-SA-10010/000 GROUP: CMT0-2 SHEET: 1 OF 1				SHEET
PROJECT NO. 14300				OLD ENG. No. 144-038-35-1-0010/02-01-019

FILE NAME: 35399810

ISAC-SCMG-C602-SA-10010/000

NOTES OF REVISION		ZONE
00	BASE LINE DRAWING	N/A
01	MODEL REVERIFIED	N/A

Isometric view of a pin. Dimensions are provided for various parts of the assembly. The drawing is labeled '0.3x45° (TYP)' and '13.2 ± 0.1'.

NOTE:-

- JOB ID TAG.
- TO BE HEAT TREATED AFTER MACHINING
- HEAT TREAT AT 340° FOR 1 HOUR

PIN		Be Cu (1/2H)		REMARKS
SL.NO.	DESCRIPTION	QTY	MATL.	REMARKS
PIN (YORK-PANEL-1(TOP) SUB ASSY.)				SCALE 5:1
GOVERNMENT OF INDIA - DEPARTMENT OF SPACE ISRO SATELLITE CENTRE BANGALORE - INDIA				A4
PROJECT: ISAC-SCMG-PROD-S1-11010/001 GROUP: SAE SHEET: 1 OF 1				SHEET
PROJECT NO. 14301				OLD ENG. No. 144-038-35-1-0010/01-01-019

MODEL REVERIFIED

REF NO: _____ ZONE: _____
 GO: _____ BASE LINE DRAWING: _____ N/A

3.2/

4 C BORE HOLES
EQUI-SPACED
ON PCD 32.10-05

SECTION A-A

PART NO	DESCRIPTION	QTY	NATL.	SCALE
02-00-002	SP-01 DELRIN SPACER	4	DELRIN	1:1

SP-01 DELRIN SPACER

SP-01 ASSY.

GOVT. OF INDIA - DEPARTMENT OF SPACE
 ISRO SATILLITE CENTRE
 BANGLORE - INDIA

PROJECT NO. _____
 SERIAL NO. _____
 DATE _____

APPROVED BY: _____
 M.C. CHID BHIVA
 DRO. CHID BHIVA
 DESK: _____

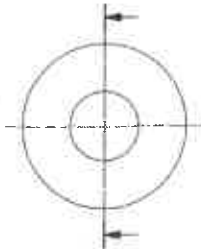
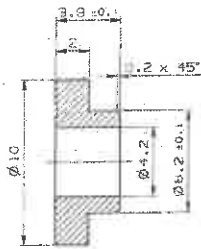
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35740960

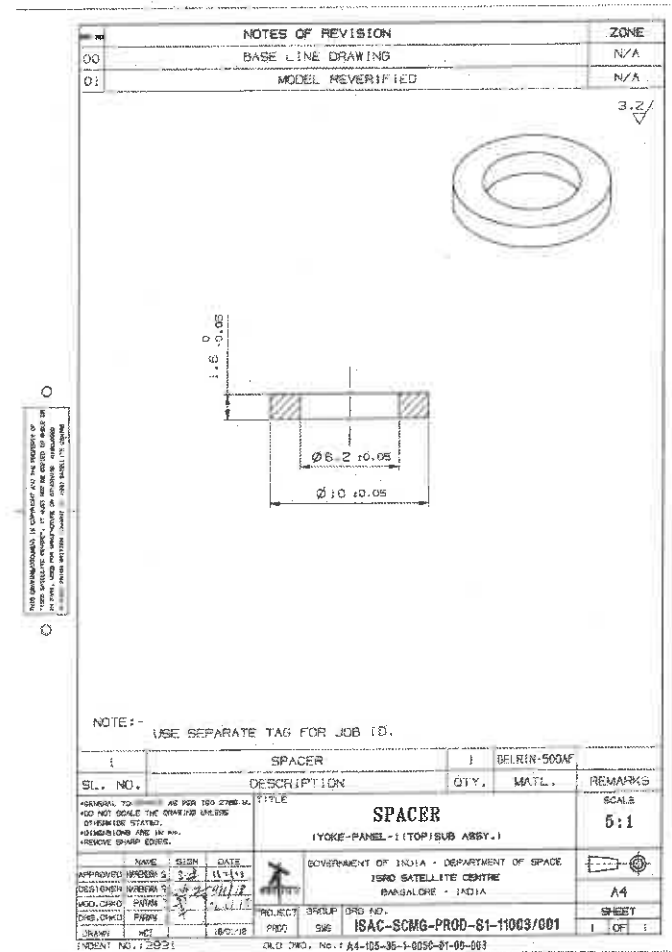
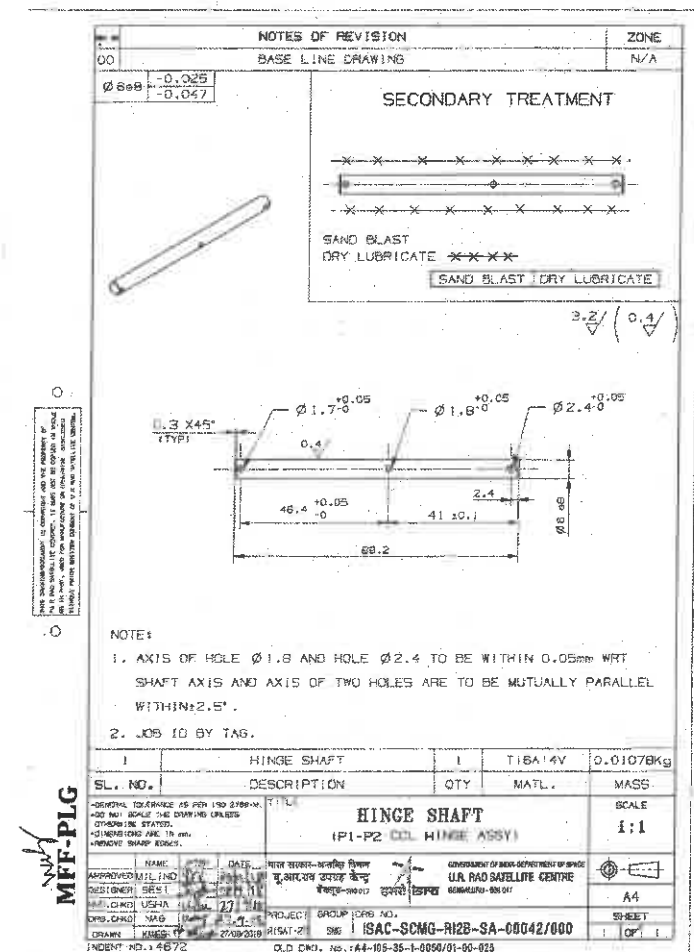
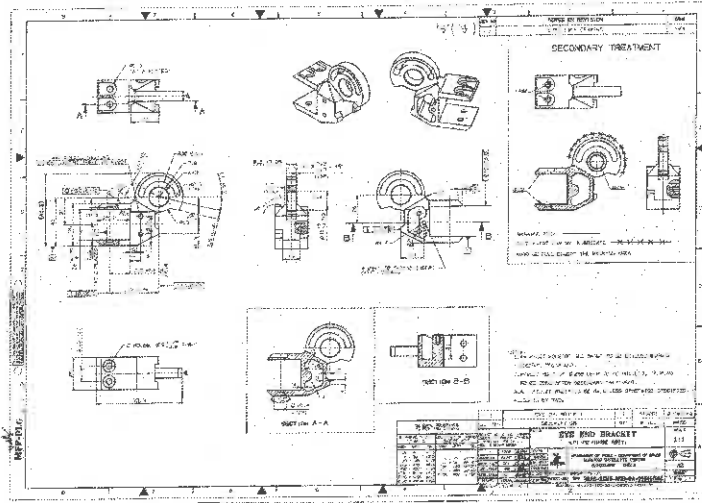
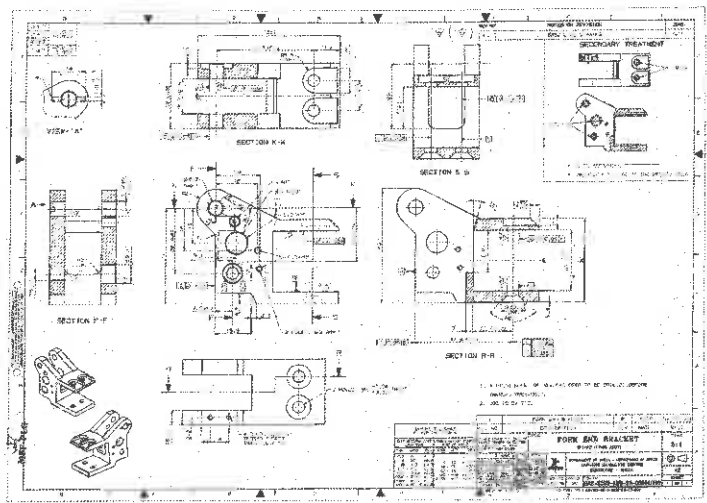
REV NO		NOTES OF REVISION		ZONE	
00		BASE LINE DRAWING		N/A	
Ø 57	-0.010 -0.022			3.2/	(0.4/)

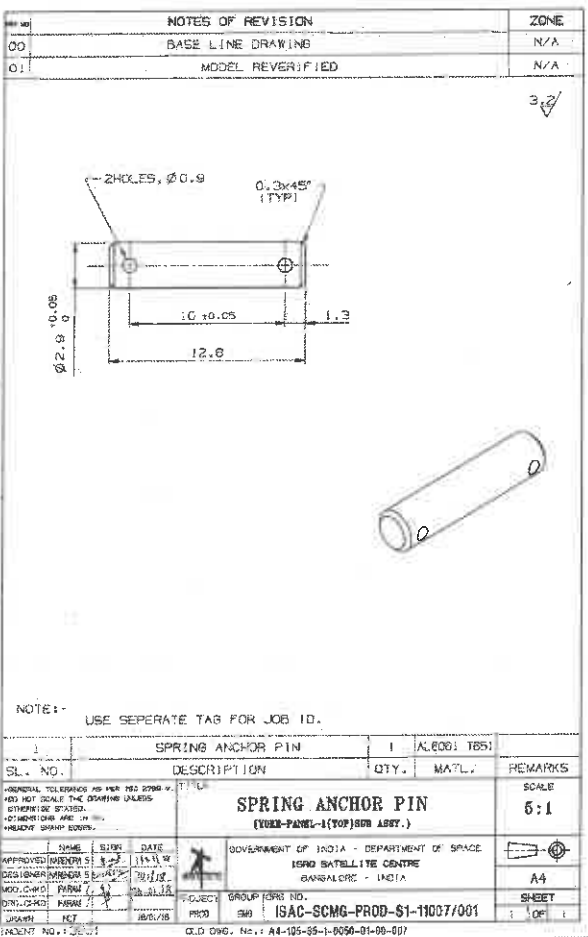
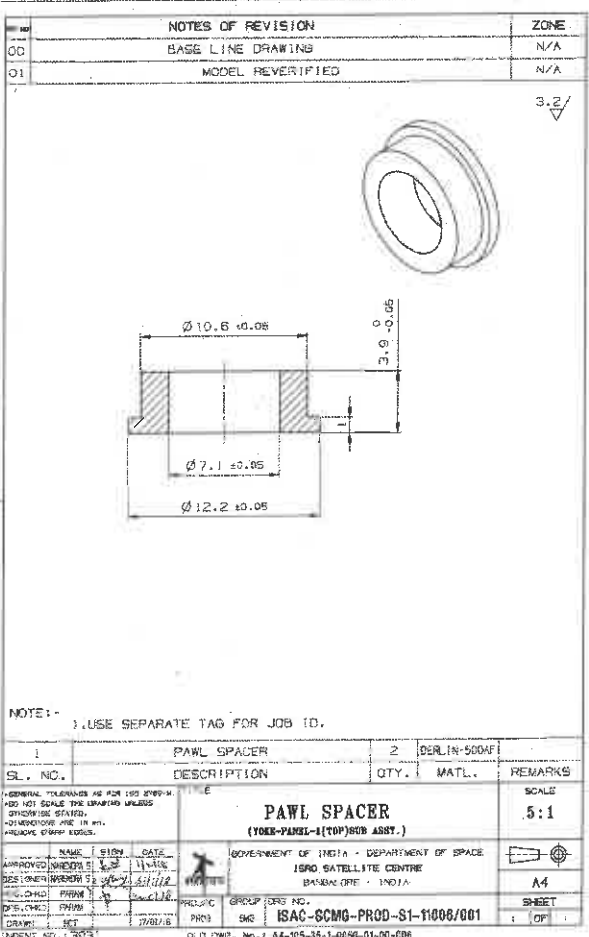
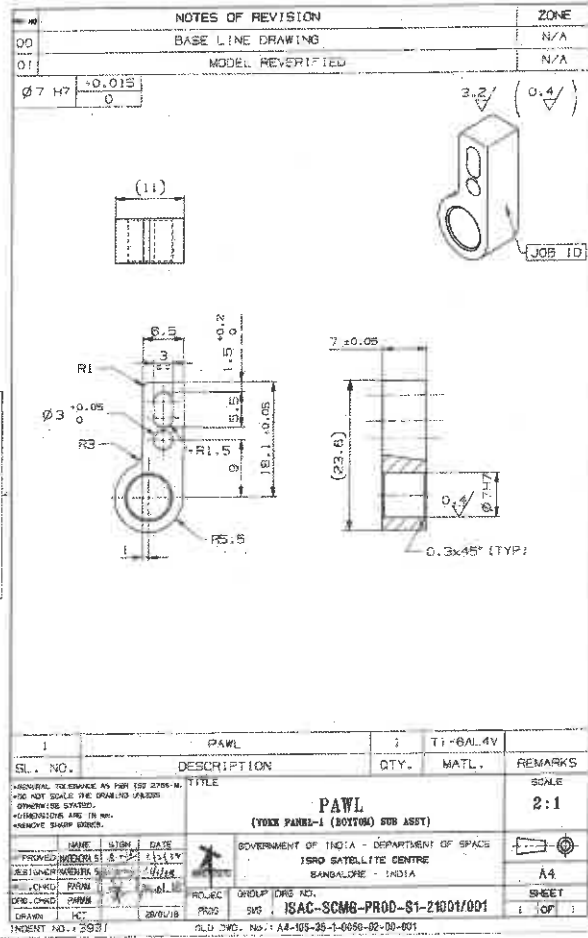
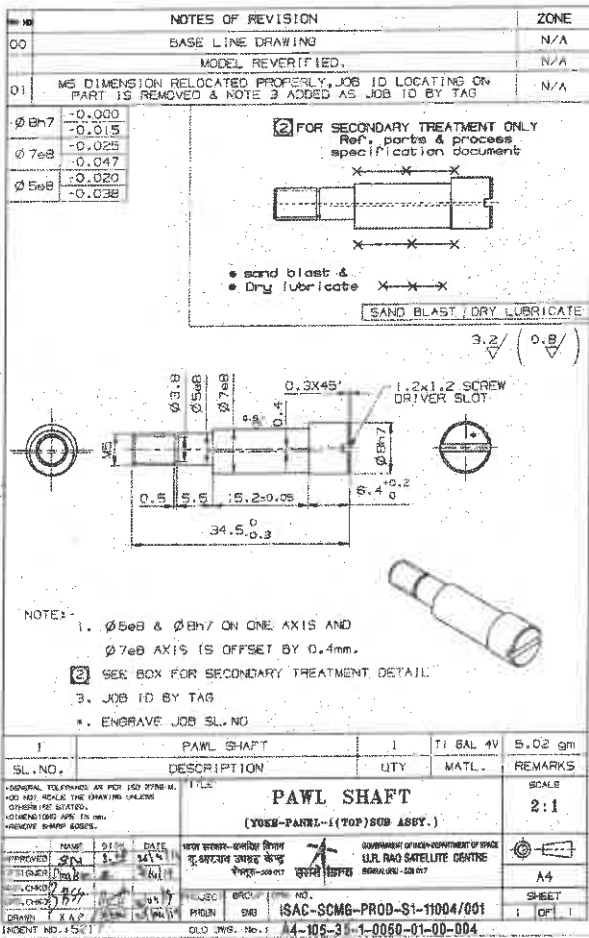
NOTE: JOB ID BY TAO

1		HINGE FIXING SCREW		1	1 BAL 4V	00354K9
SER. NO.	DESCRIPTION	QTY	MATL.			
• CHECKING TOLERANCE OF THIS PART SHALL BE AS NOTED. THE PART SHALL BE SHIPPED UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. STANDARD PLAIN LETTERS.						
NAME: [Signature] DATE: 02/03/2019 DESIGNED BY: [Signature] DATE: 02/03/2019 CHECKED BY: [Signature] DATE: 02/03/2019 DRAWN BY: [Signature] DATE: 02/03/2019		PROJECT: [Signature] DATE: 02/03/2019 HINGE FIXING SCREW U.R. RAO SATELLITE CENTRE HINGE FIXING SCREW				
REVISION NO. 1 DATE: 02/03/2019 BY: [Signature]		PROJECT: [Signature] DATE: 02/03/2019 HINGE FIXING SCREW U.R. RAO SATELLITE CENTRE HINGE FIXING SCREW				
REVISION NO. 2 DATE: 02/03/2019 BY: [Signature]		PROJECT: [Signature] DATE: 02/03/2019 HINGE FIXING SCREW U.R. RAO SATELLITE CENTRE HINGE FIXING SCREW				
REVISION NO. 3 DATE: 02/03/2019 BY: [Signature]		PROJECT: [Signature] DATE: 02/03/2019 HINGE FIXING SCREW U.R. RAO SATELLITE CENTRE HINGE FIXING SCREW				
REVISION NO. 4 DATE: 02/03/2019 BY: [Signature]		PROJECT: [Signature] DATE: 02/03/2019 HINGE FIXING SCREW U.R. RAO SATELLITE CENTRE HINGE FIXING SCREW				
REVISION NO. 5 DATE: 02/03/2019 BY: [Signature]		PROJECT: [Signature] DATE: 02/03/2019 HINGE FIXING SCREW U.R. RAO SATELLITE CENTRE HINGE FIXING SCREW				
REVISION NO. 6 DATE: 02/03/2019 BY: [Signature]		PROJECT: [Signature] DATE: 02/03/2019 HINGE FIXING SCREW U.R. RAO SATELLITE CENTRE HINGE FIXING SCREW				
REVISION NO. 7 DATE: 02/03/2019 BY: [Signature]		PROJECT: [Signature] DATE: 02/03/2019 HINGE FIXING SCREW U.R. RAO SATELLITE CENTRE HINGE FIXING SCREW				
REVISION NO. 8 DATE: 02/03/2019 BY: [Signature]		PROJECT: [Signature] DATE: 02/03/2019 HINGE FIXING SCREW U.R. RAO SATELLITE CENTRE HINGE FIXING SCREW				
REVISION NO. 9 DATE: 02/03/2019 BY: [Signature]		PROJECT: [Signature] DATE: 02/03/2019 HINGE FIXING SCREW U.R. RAO SATELLITE CENTRE HINGE FIXING SCREW				
REVISION NO. 10 DATE: 02/03/2019 BY: [Signature]		PROJECT: [Signature] DATE: 02/03/2019 HINGE FIXING SCREW U.R. RAO SATELLITE CENTRE HINGE FIXING SCREW				
REVISION NO. 11 DATE: 02/03/2019 BY: [Signature]		PROJECT: [Signature] DATE: 02/03/2019 HINGE FIXING SCREW U.R. RAO SATELLITE CENTRE HINGE FIXING SCREW				
REVISION NO. 12 DATE: 02/03/2019 BY: [Signature]		PROJECT: [Signature] DATE: 02/03/2019 HINGE FIXING SCREW U.R. RAO SATELLITE CENTRE HINGE FIXING SCREW				
REVISION NO. 13 DATE: 02/03/2019 BY: [Signature]		PROJECT: [Signature] DATE: 02/03/2019 HINGE FIXING SCREW U.R. RAO SATELLITE CENTRE HINGE FIXING SCREW				
REVISION NO. 14 DATE: 02/03/2019 BY: [Signature]		PROJECT: [Signature] DATE: 02/03/2019 HINGE FIXING SCREW U.R. RAO SATELLITE CENTRE HINGE FIXING SCREW				
REVISION NO. 15 DATE: 02/03/2019 BY: [Signature]		PROJECT: [Signature] DATE: 02/03/2019 HINGE FIXING SCREW U.R. RAO SATELLITE CENTRE HINGE FIXING SCREW				
REVISION NO. 16 DATE: 02/03/2019 BY: [Signature]		PROJECT: [Signature] DATE: 02/03/2019 HINGE FIXING SCREW U.R. RAO SATELLITE CENTRE HINGE FIXING SCREW				
REVISION NO. 17 DATE: 02/03/2019 BY: [Signature]		PROJECT: [Signature] DATE: 02/03/2019 HINGE FIXING SCREW U.R. RAO SATELLITE CENTRE HINGE FIXING SCREW				
REVISION NO. 18 DATE: 02/03/2019 BY: [Signature]		PROJECT: [Signature] DATE: 02/03/2019 HINGE FIXING SCREW U.R. RAO SATELLITE CENTRE HINGE FIXING SCREW				
REVISION NO. 19 DATE: 02/03/2019 BY: [Signature]		PROJECT: [Signature] DATE: 02/03/2019 HINGE FIXING SCREW U.R. RAO SATELLITE CENTRE HINGE FIXING SCREW				
REVISION NO. 20 DATE: 02/03/2019 BY: [Signature]		PROJECT: [Signature] DATE: 02/03/2019 HINGE FIXING SCREW U.R. RAO SATELLITE CENTRE HINGE FIXING SCREW				
REVISION NO. 21 DATE: 02/03/2019 BY: [Signature]		PROJECT: [Signature] DATE: 02/03/2019 HINGE FIXING SCREW U.R. RAO SATELLITE CENTRE HINGE FIXING SCREW				
REVISION NO. 22 DATE: 02/03/2019 BY: [Signature]		PROJECT: [Signature] DATE: 02/03/2019 HINGE FIXING SCREW U.R. RAO SATELLITE CENTRE HINGE FIXING SCREW				
REVISION NO. 23 DATE: 02/03/2019 BY: [Signature]		PROJECT: [Signature] DATE: 02/03/2019 HINGE FIXING SCREW U.R. RAO SATELLITE CENTRE HINGE FIXING SCREW				
REVISION NO. 24 DATE: 02/03/2019 BY: [Signature]		PROJECT: [Signature] DATE: 02/03/2019 HINGE FIXING SCREW U.R. RAO SATELLITE CENTRE HINGE FIXING SCREW				
REVISION NO. 25 DATE: 02/03/2019 BY: [Signature]		PROJECT: [Signature] DATE: 02/03/2019 HINGE FIXING SCREW U.R. RAO SATELLITE CENTRE HINGE FIXING SCREW				
REVISION NO. 26 DATE: 02/03/2019 BY: [Signature]		PROJECT: [Signature] DATE: 02/03/2019 HINGE FIXING SCREW U.R. RAO SATELLITE CENTRE HINGE FIXING SCREW				
REVISION NO. 27 DATE: 02/03/2019 BY: [Signature]		PROJECT: [Signature] DATE: 02/03/2019 HINGE FIXING SCREW U.R. RAO SATELLITE CENTRE HINGE FIXING SCREW</				

REV. NO.		NOTES OF REVISION		ZONE																	
00		BASE LINE DRAWING		N/A																	
$3.2/\sqrt{\quad}$   																					
1		GFRP BUSH		1.2 gm																	
SL. No.		DESCRIPTION		QTY. MATL. MASS																	
DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES		GFRP BUSH		SCALE 5:1																	
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%;">APPROVED</td> <td style="width: 20%;">NAME</td> <td style="width: 20%;">SIGN</td> <td style="width: 20%;">DATE</td> </tr> <tr> <td style="text-align: center;">MDG-CHD</td> <td style="text-align: center;">RJ</td> <td style="text-align: center;">[Signature]</td> <td style="text-align: center;">15.05.14</td> </tr> <tr> <td style="text-align: center;">JED-CHD</td> <td style="text-align: center;">RJ</td> <td style="text-align: center;">[Signature]</td> <td style="text-align: center;">15.05.14</td> </tr> <tr> <td style="text-align: center;">DRAWN</td> <td style="text-align: center;">H0588</td> <td></td> <td style="text-align: center;">15.05.14</td> </tr> </table>		APPROVED	NAME	SIGN	DATE	MDG-CHD	RJ	[Signature]	15.05.14	JED-CHD	RJ	[Signature]	15.05.14	DRAWN	H0588		15.05.14	 GOVERNMENT OF INDIA - DEPARTMENT OF SPACE ISRO SATELLITE CENTRE BANGALORE - INDIA			
APPROVED	NAME	SIGN	DATE																		
MDG-CHD	RJ	[Signature]	15.05.14																		
JED-CHD	RJ	[Signature]	15.05.14																		
DRAWN	H0588		15.05.14																		
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PROJECT: DRON-10 DRAWN: DRON-10		PROJECT: DRON-10 																			

[illegible]





NOTES OF REVISION		ZONE
00	BASE LINE DRAWING	N/A
01	MODEL REVERIFIED	N/A

3.2/

JOB ID

SL. NO.	DESCRIPTION	QTY.	MATL.	REMARKS
1	SPACER	1	AL6061 T651	

GENERAL TOLERANCES AS PER ISO 2768-M.
DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED.
DIMENSIONS ARE IN MM.
REMOVE SHARP EDGES.

SPACER
(YOKE-PANEL-1(TOP) SUB ASSY.)

SCALE: 5:1

APPROVED: [Signature] DATE: 16/11/18
DESIGNED: [Signature] DATE: 16/11/18
MOD. CHG: [Signature] DATE: 16/11/18
DRG. CHG: [Signature] DATE: 16/11/18
DRAWN: [Signature] DATE: 16/11/18

GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
ISRO SATELLITE CENTRE
BANGALORE - INDIA

PROJECT: [Signature] JOB NO.
ISAC-SCMG-PROD-S1-11009/001

SHEET 1 OF 1

INCIDENT NO.: 13931
OLD DWS. No.: A4-105-35-1-0050-01-00-009

NOTES OF REVISION		ZONE
00	BASE LINE DRAWING	N/A
01	MODEL REVERIFIED	N/A

3.2/

② FOR SECONDARY TREATMENT ONLY
Ref parts & process
specification document

JOB ID

NOTE:-
1. USE SEPARATE TAG FOR JOB ID.
2. FOR SECONDARY TREATMENT DETAILS REFER BOX DRG.

SL. NO.	DESCRIPTION	QTY.	MATL.	REMARKS
1	WASHER	1	AL6061 T651	

GENERAL TOLERANCES AS PER ISO 2768-M.
DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED.
DIMENSIONS ARE IN MM.
REMOVE SHARP EDGES.

WASHER
(YOKE-PANEL-1(TOP) SUB ASSY.)

SCALE: 5:1

APPROVED: [Signature] DATE: 16/11/18
DESIGNED: [Signature] DATE: 16/11/18
MOD. CHG: [Signature] DATE: 16/11/18
DRG. CHG: [Signature] DATE: 16/11/18
DRAWN: [Signature] DATE: 16/11/18

GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
ISRO SATELLITE CENTRE
BANGALORE - INDIA

PROJECT: [Signature] JOB NO.
ISAC-SCMG-PROD-S1-11010/001

SHEET 1 OF 1

INCIDENT NO.: 13931
OLD DWS. No.: A4-105-35-1-0050-01-00-010

NOTES OF REVISION		ZONE
00	BASE LINE DRAWING	N/A
01	NOTE No. 2 & TABLE MODIFIED.	N/A
02	MODEL REVERIFIED	N/A

3.2/

JOB ID

SL. NO.	DESCRIPTION	QTY.	MATL.	REMARKS
1	PAWL SPRING-RH	1	Be Cu 11/2H	
2	PAWL SPRING-LH	1	Be Cu 11/2H	

GENERAL TOLERANCES AS PER ISO 2768-M.
DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED.
DIMENSIONS ARE IN MM.
REMOVE SHARP EDGES.

PAWL SPRING
(YOKE-PANEL-1(TOP) SUB ASSY.)

SCALE: 2:1

APPROVED: [Signature] DATE: 16/11/18
DESIGNED: [Signature] DATE: 16/11/18
MOD. CHG: [Signature] DATE: 16/11/18
DRG. CHG: [Signature] DATE: 16/11/18
DRAWN: [Signature] DATE: 16/11/18

GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
ISRO SATELLITE CENTRE
BANGALORE - INDIA

PROJECT: [Signature] JOB NO.
ISAC-SCMG-PROD-S1-11011/001

SHEET 1 OF 1

INCIDENT NO.: 13931
OLD DWS. No.: A4-105-35-1-0050-01-00-011

NOTES OF REVISION		ZONE
00	BASE LINE DRAWING	N/A
01	MODEL REVERIFIED	N/A

3.2/

Ø 6H7 +0.012
+0.000

JOB ID

NOTE: HOLE WILL BE DRILLED DURING ASSY.
TO SUIT SPRING STIFFNESS.

SL. NO.	QTY.	L	USED AT	PROJECT
A	2	15	Y-P1 & P1-P2 HINGES	G-SAT & TRS
B	2	13.5	END HINGES	G-SAT & TRS
C	2	18	Y-P1 & P1-P2 HINGES	INSAT
D	2	15	END HINGES	INSAT

GENERAL TOLERANCES AS PER ISO 2768-M.
DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED.
DIMENSIONS ARE IN MM.
REMOVE SHARP EDGES.

SPRING ADAPTOR
(YOKE-PANEL-1(TOP) SUB ASSY.)

SCALE: 2:1

APPROVED: [Signature] DATE: 16/11/18
DESIGNED: [Signature] DATE: 16/11/18
MOD. CHG: [Signature] DATE: 16/11/18
DRG. CHG: [Signature] DATE: 16/11/18
DRAWN: [Signature] DATE: 16/11/18

GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
ISRO SATELLITE CENTRE
BANGALORE - INDIA

PROJECT: [Signature] JOB NO.
ISAC-SCMG-PROD-S1-11012/001

SHEET 1 OF 1

INCIDENT NO.: 13931
OLD DWS. No.: A4-105-35-1-0050-01-00-012

REV 00	NOTES OF REVISION	ZONE	N/A
00	BASE LINE DRAWING		N/A
01	MODEL REVERIFIED		N/A

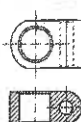
Ø 5H7

+0.012
+0.000

3.2

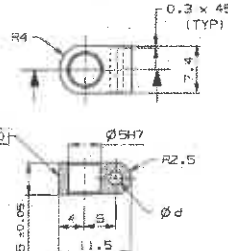
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☒ FOR SECONDARY TREATMENT ONLY
(REF. PARTS & PROCESS SPEC. DOC.)



AND USE

● AND USE FULL



SL. NO.	Ø d	QTY.	USED AT
01	2.12	4	Y-PL & P- PZ HINGES
02	1.92	2	END HINGES

NOTES:

- JOB ID BY TAG.
- SECONDARY TREATMENT DETAILS (SEE BOX FOR DETAILS).
- CHAMFER UNSPECIFIED EDGES 0.3X45°

I	SPRING ANCHOR	AS PER TABLE AL 6061 T65
SL. NO.	DESCRIPTION	QTY
	GENERAL TOLERANCE AS PER ISO 2768-M. DO NOT SCALE TO CHAMFER UNLESS OTHERWISE NOTED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES.	SCALE 2:1

NAME	SIGN	DATE	REVISION	GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
NAME	SIGN	DATE		ISRO SATELLITE CENTRE
NAME	SIGN	DATE		BANGALORE - INDIA
NAME	SIGN	DATE		
NAME	SIGN	DATE		
NAME	SIGN	DATE		

PROJECT: ISAC-8CNG

PROJ. NO. 86-1-0050-01-00-01A

CLD DWG. NO. 86-1-0050-01-00-01A

ISAC-8CNG-PROD-81-11014/001

REVISION

NO. 1

DATE

REASON

A4

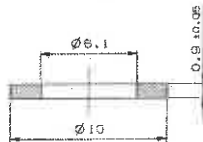
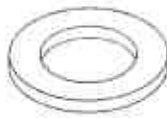
SHEET

1 OF 1

[illegible]

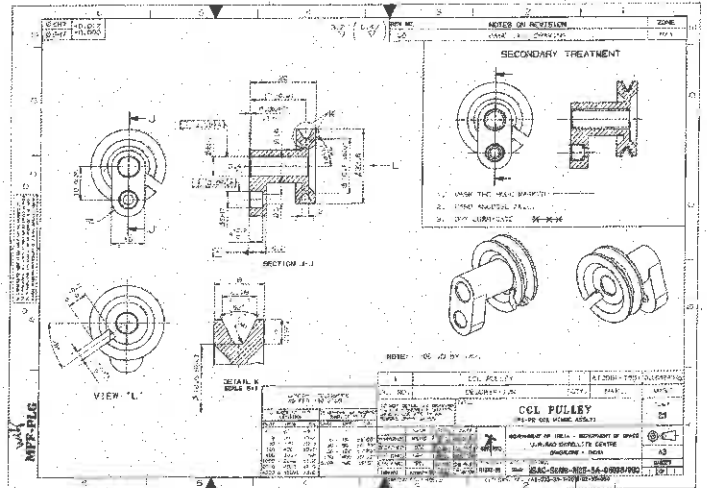
NOTES OF REVISION		ZONE
00	BASE LINE DRAWING	N/A
01	MODEL REVERTIFIED	N/A

3.2/



NOTE: JOB ID BY TAB.

SL. No.	DESCRIPTION	QTY.	MATL.	REMARKS
1	WASHER (YOKE-PANEL-1(TOP) SUB ASSY.)		SS 304	
GENERAL TOLERANCE AS PER IS 2768-M-1983 DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES. GOVERNMENT OF INDIA - DEPARTMENT OF SPACE ISRO SATELLITE CENTRE BANGALORE - INDIA PROJECT: ISAC-SCMG-PROD-S1-11019/001 GROUP: SAG SHEET: 1 OF 1				SCALE: 5:1 A4

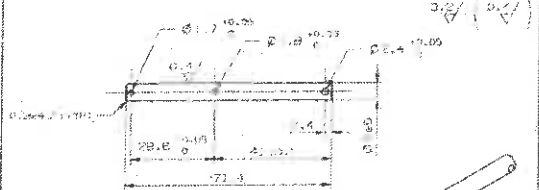


NOTES OF REVISION		ZONE
00	BASE LINE DRAWING	N/A
01	TOLERANCE ON 1st & 2nd MODIFIED NOTES REMOVED & MODEL REVERTIFIED	N/A

FOR SECONDARY TREATMENT ONLY
Ref parts & process
specification document

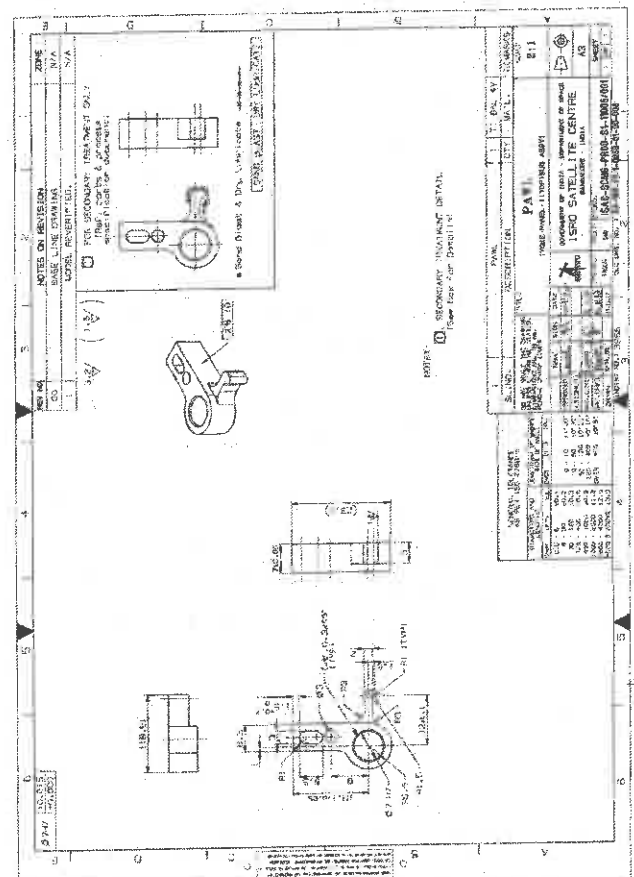
Sand blast & Dry lubricate

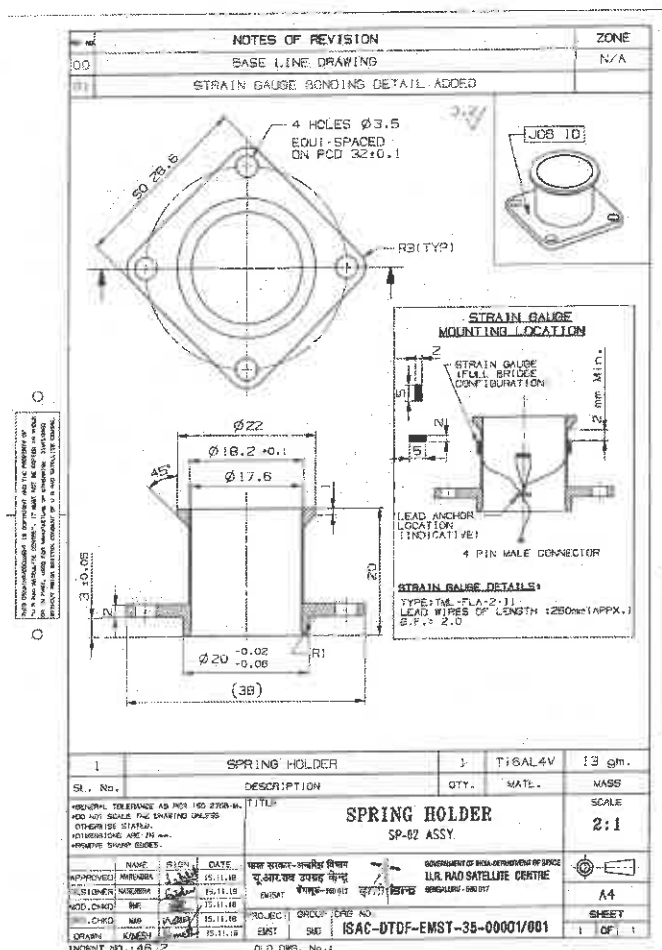
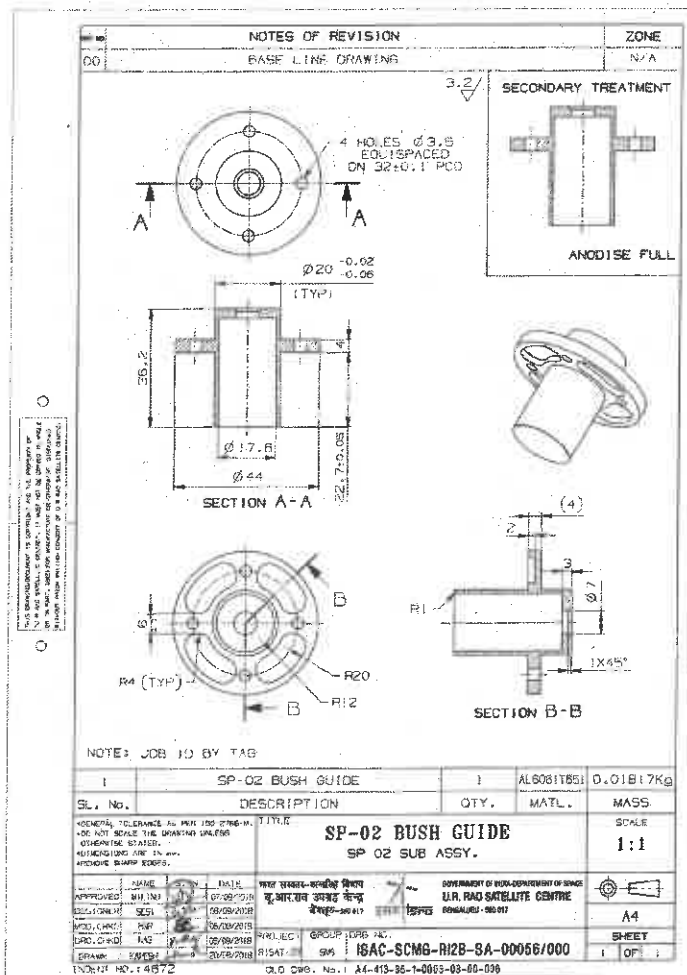
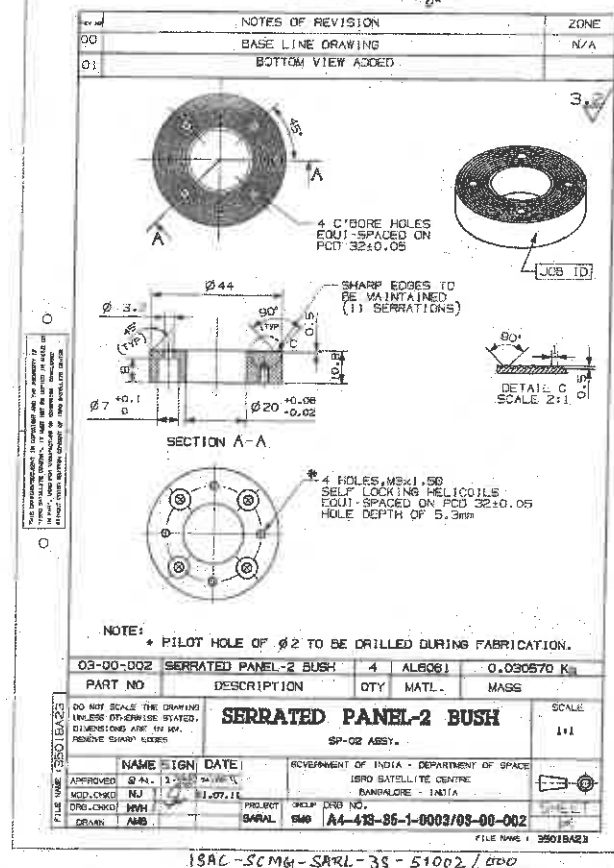
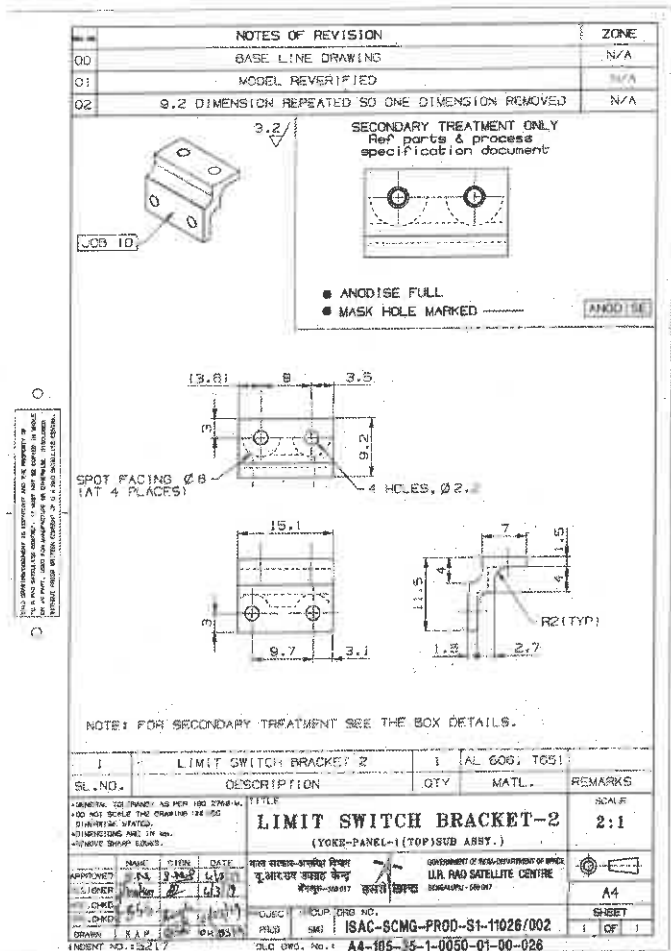
SAND BLAST DRY LUBRICATE

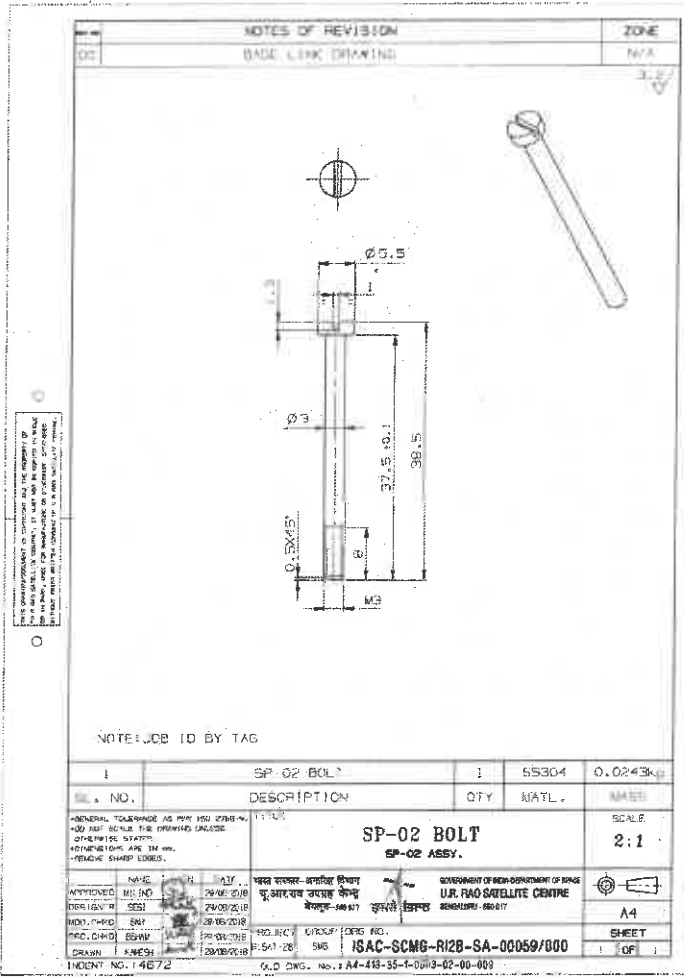
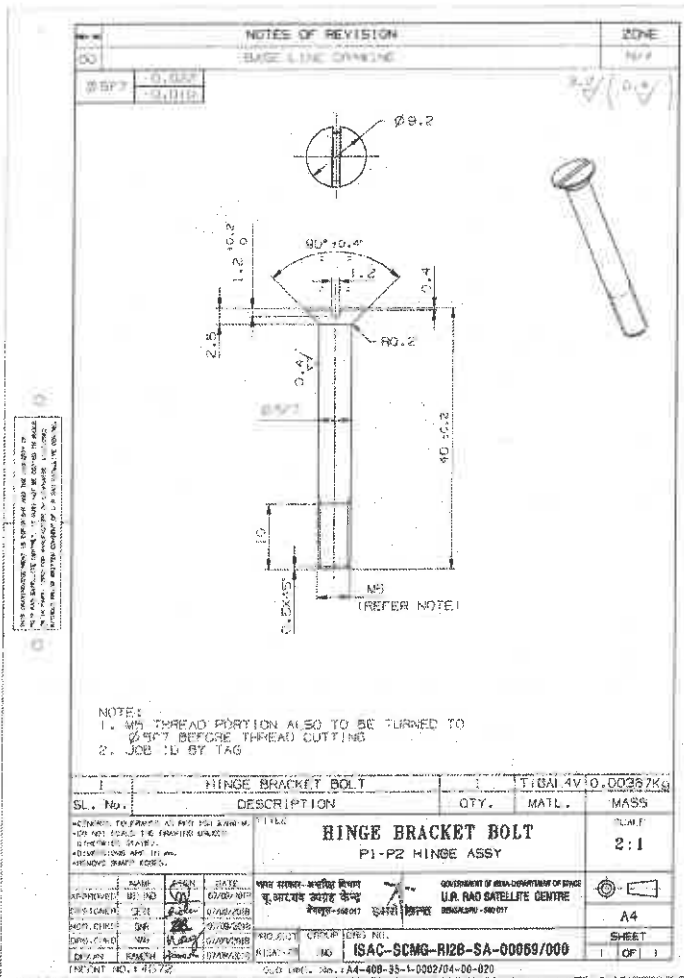
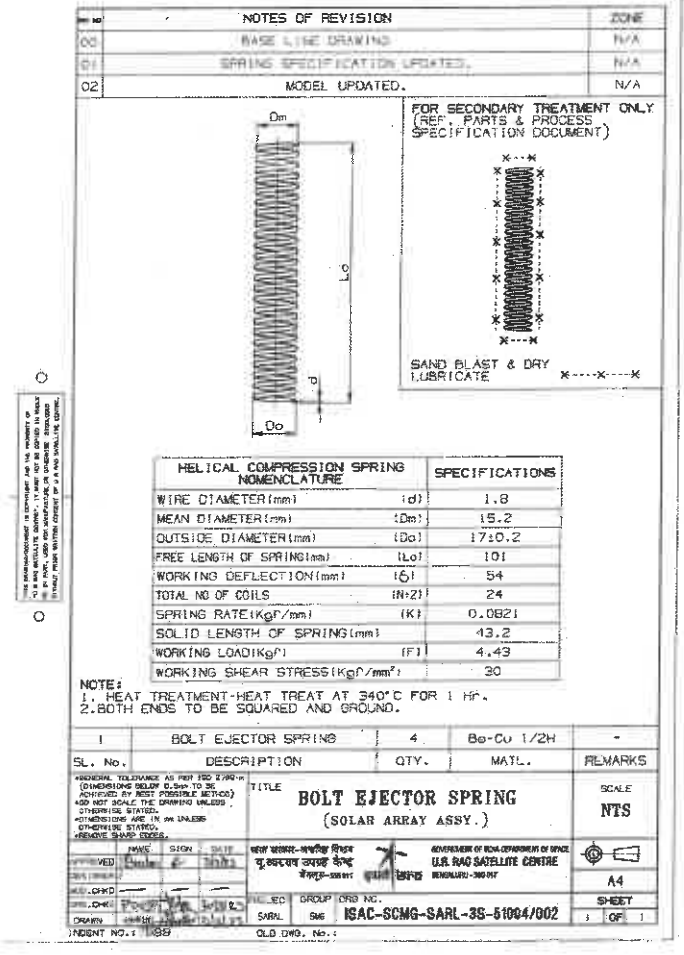
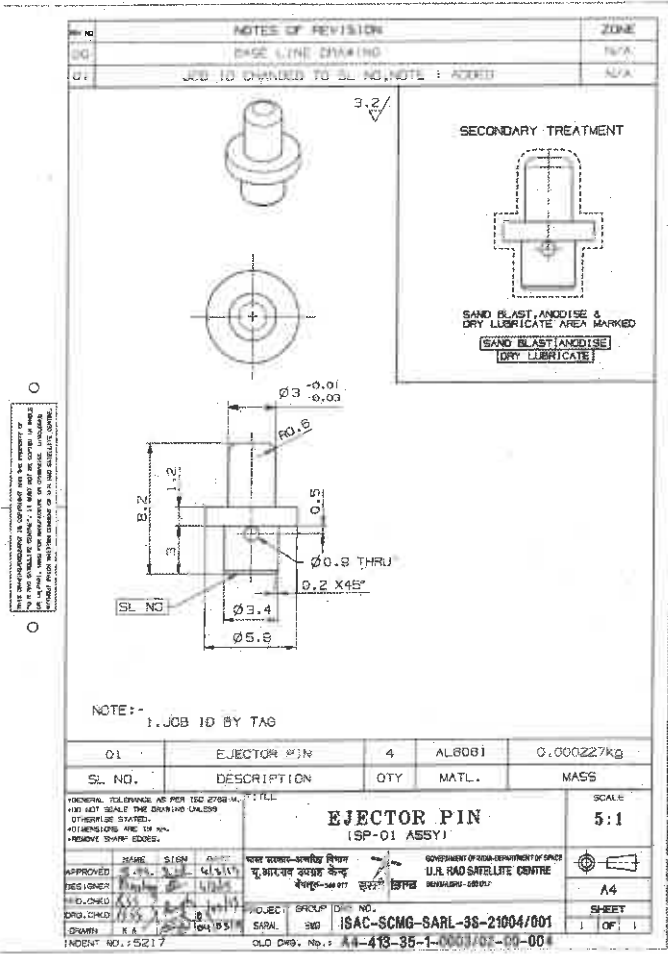


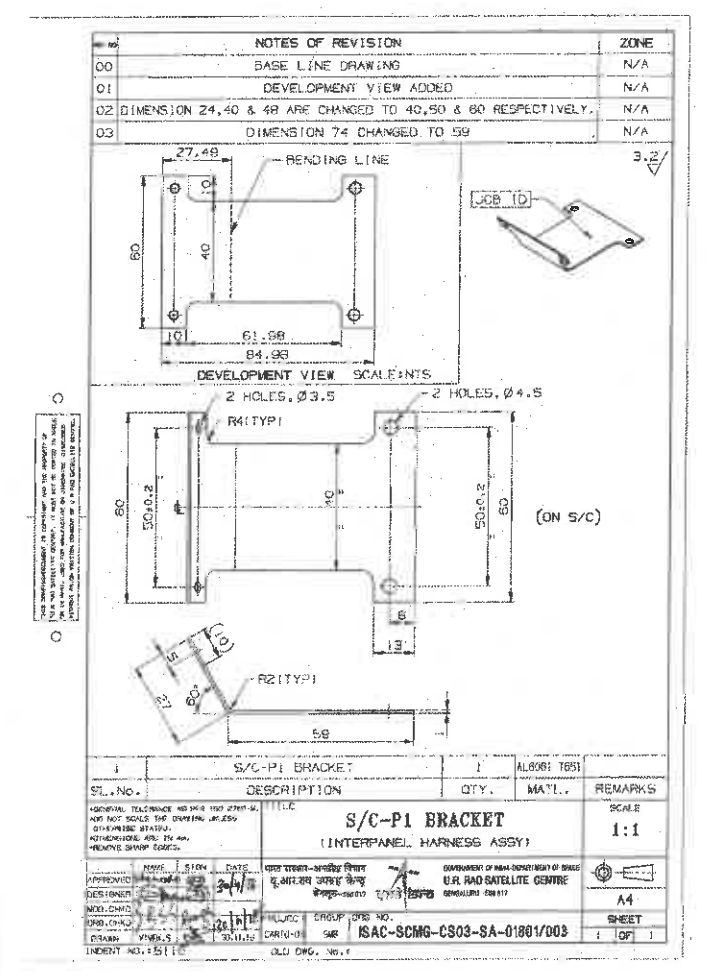
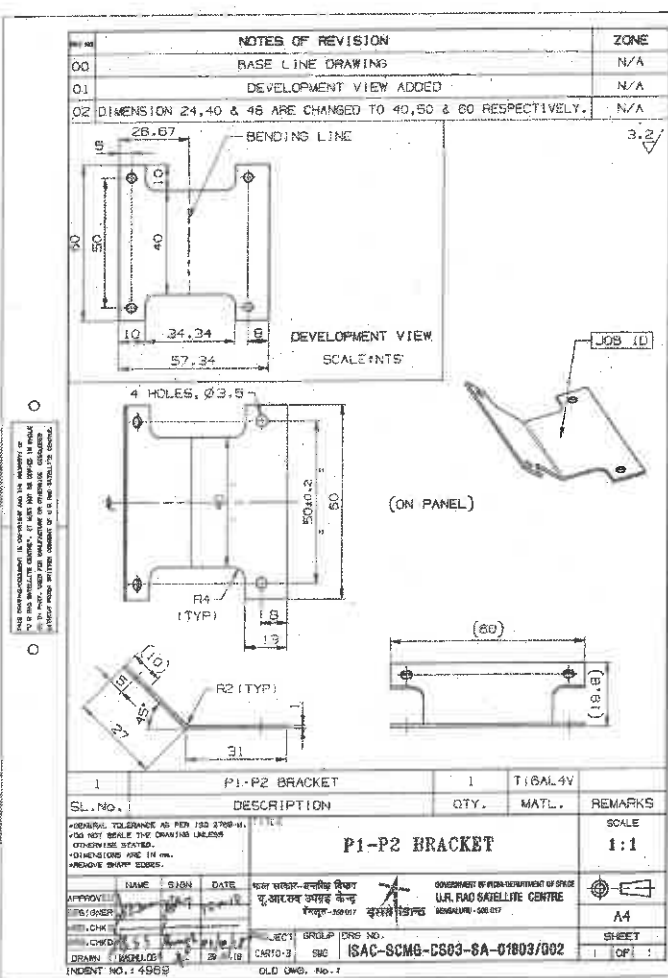
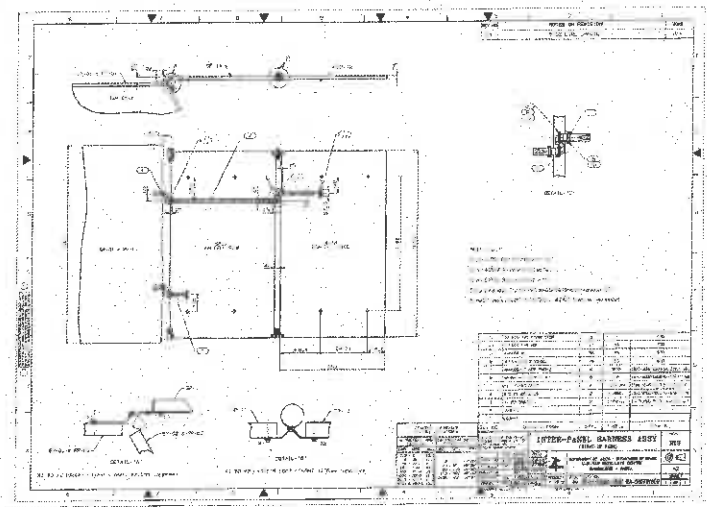
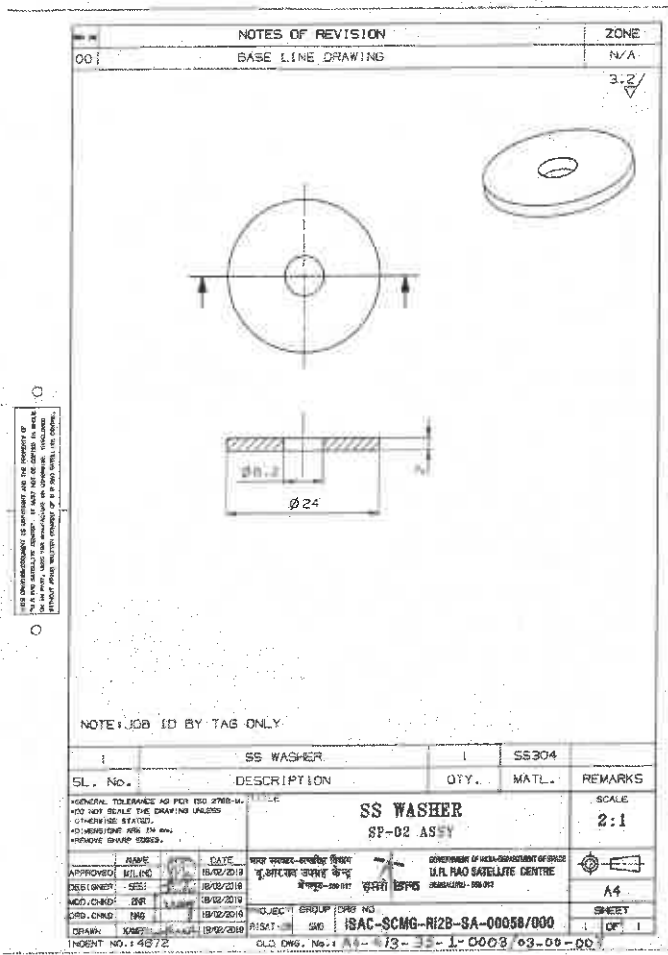
- NOTE:-
- AXIS OF HOLE $\phi 1.8$ AND HOLE $\phi 2.4$ TO BE WITHIN 0.05mm RTT SHAFT
 - AXIS AND AXIS OF TWO HOLES ARE TO BE MUTUALLY PARALLEL WITHIN 0.5°
 - THE SHAFT IS USED AT END MOUNT (TYP)
 - USE SEPARATE TAB FOR JOB ID.

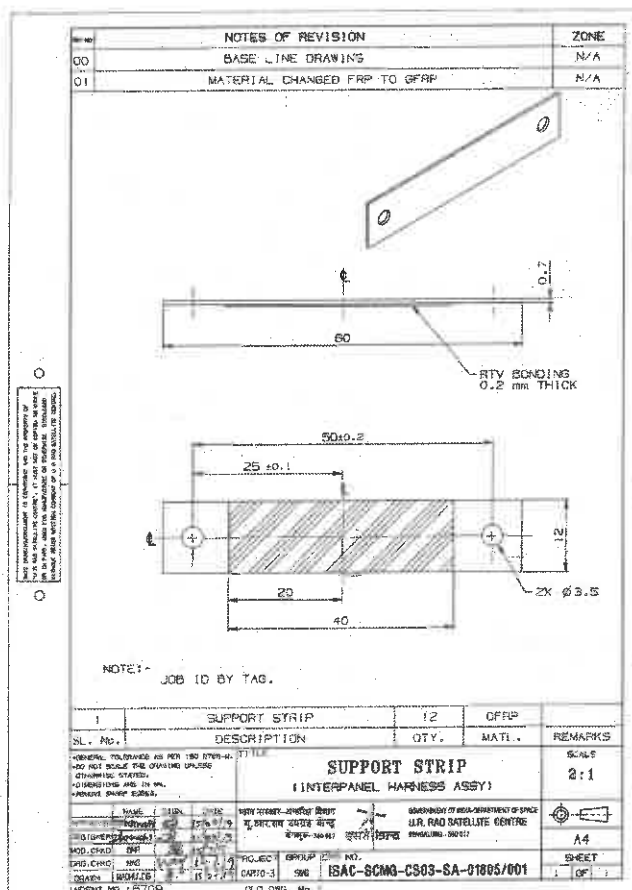
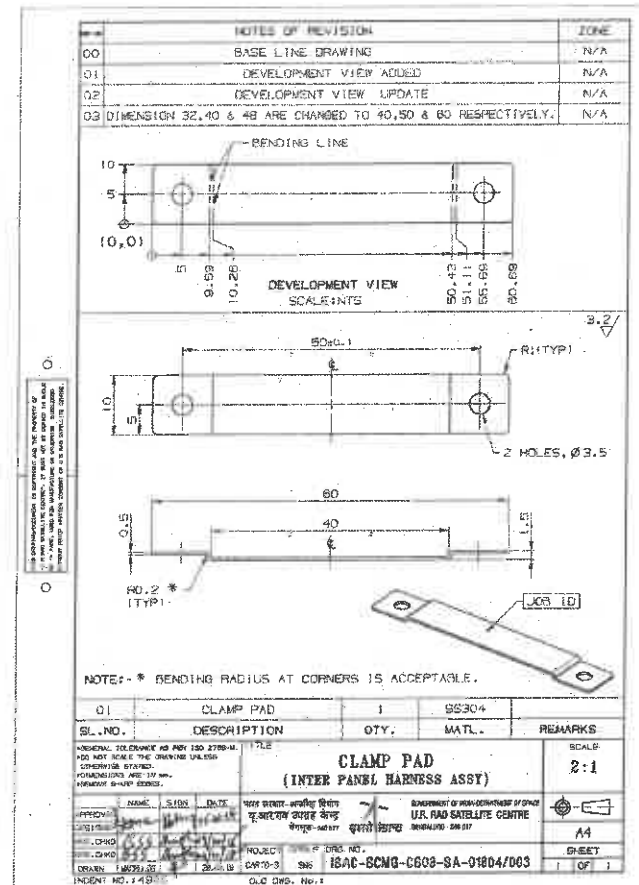
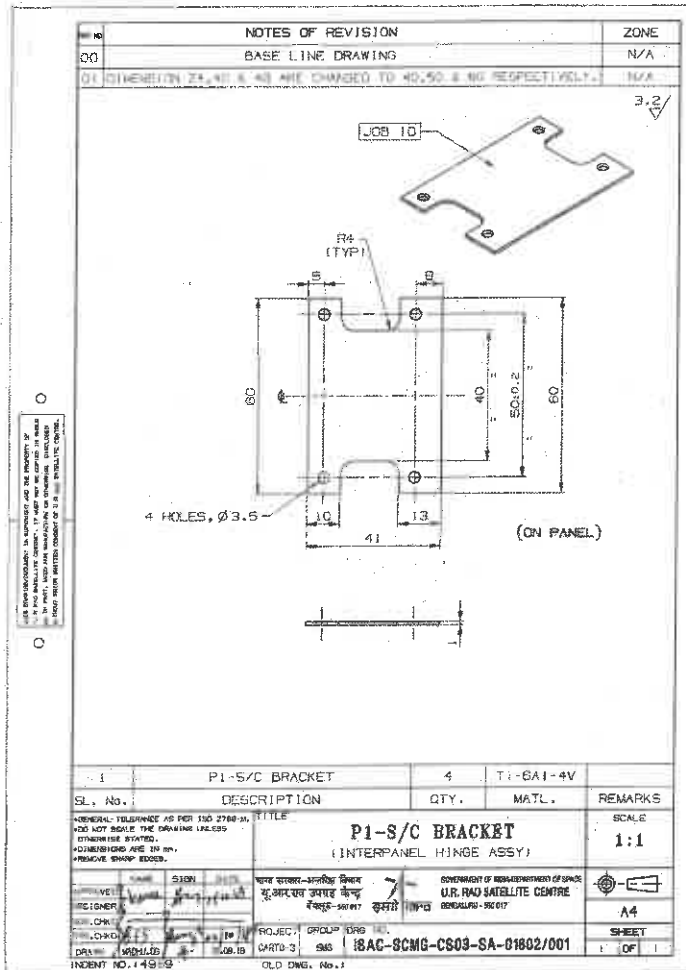
SL. No.	DESCRIPTION	QTY.	MATL.	REMARKS
1	SHAFT (YOKE-PANEL-1(TOP) SUB ASSY.)		SS 304	
GOVERNMENT OF INDIA - DEPARTMENT OF SPACE ISRO SATELLITE CENTRE BANGALORE - INDIA PROJECT: ISAC-SCMG-PROD-S1-31604/001 GROUP: SAG SHEET: 1 OF 1				SCALE: 1:1 A4





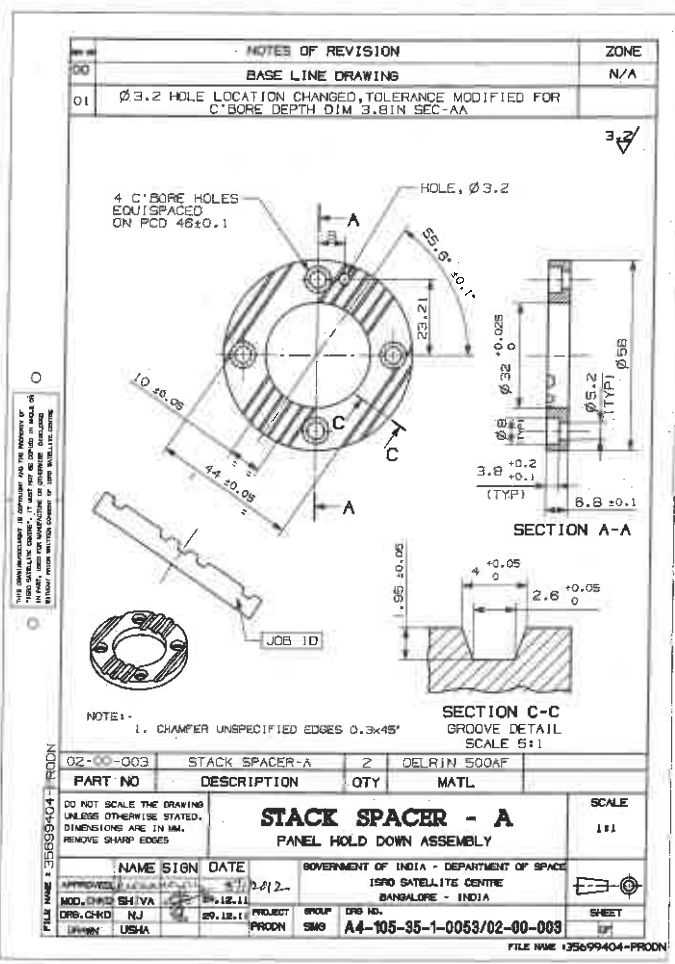
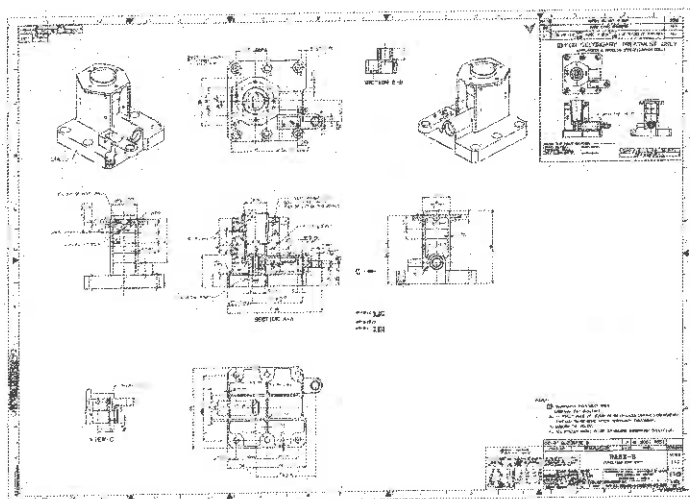
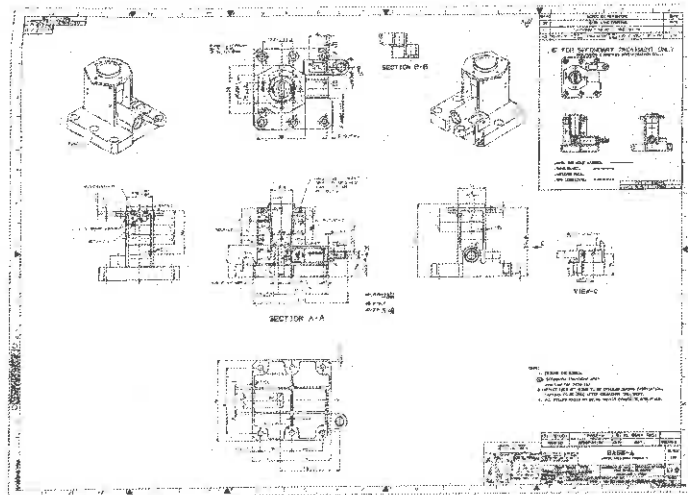
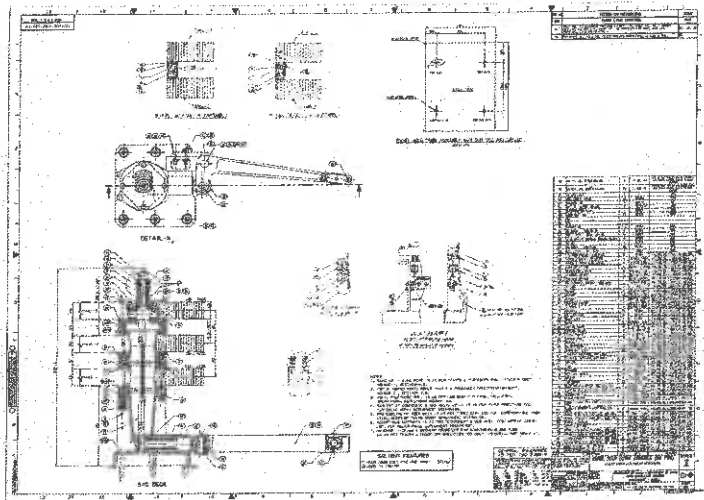


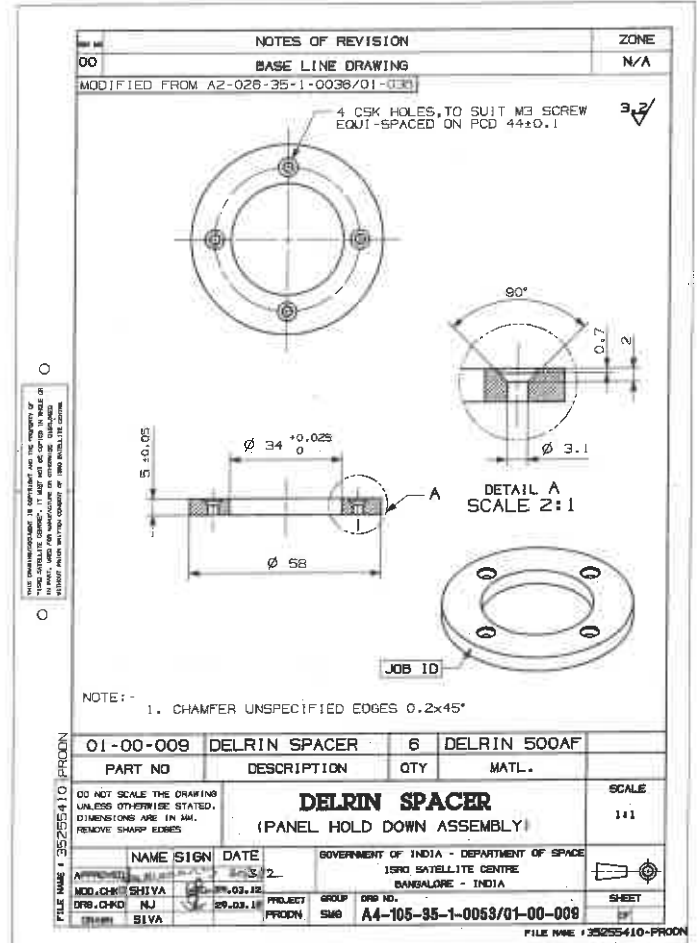
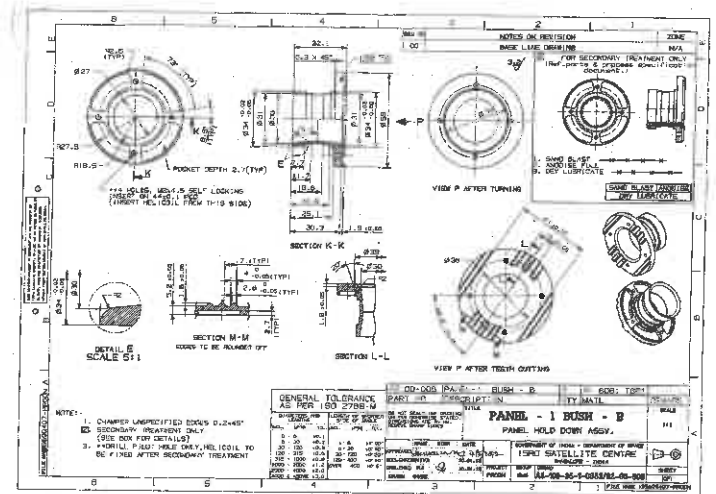
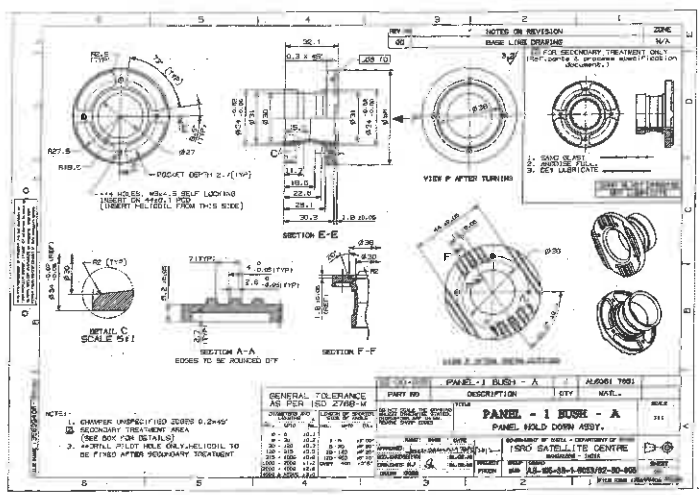
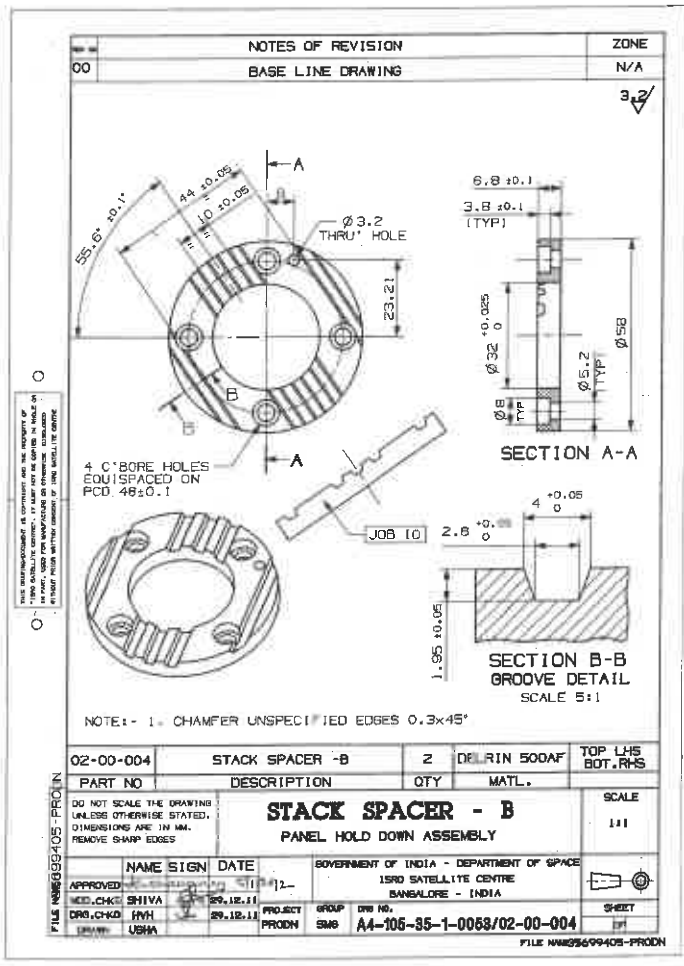


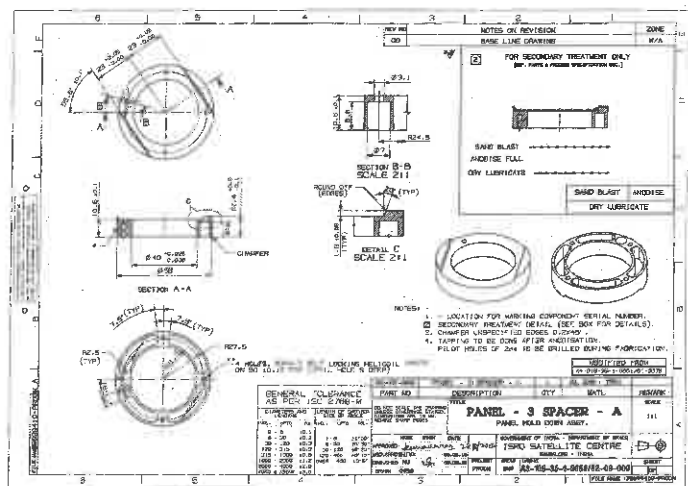
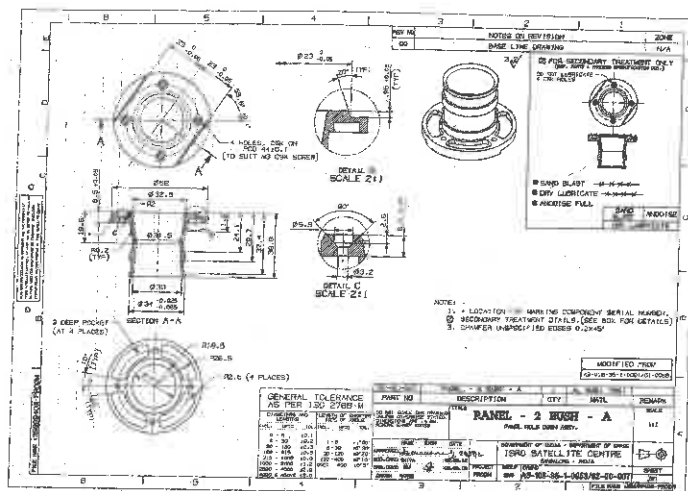


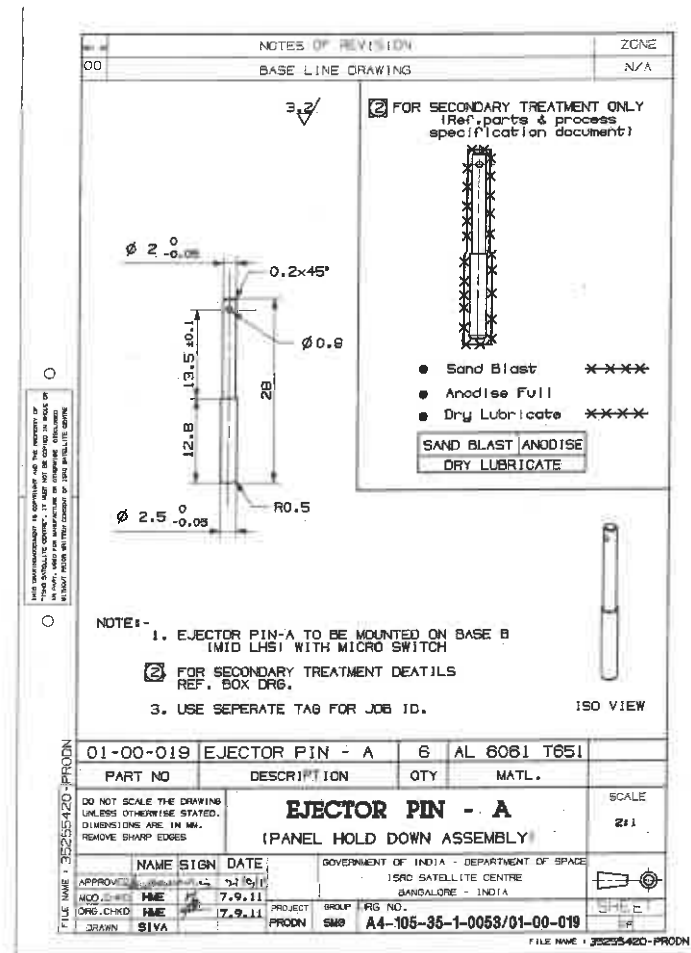
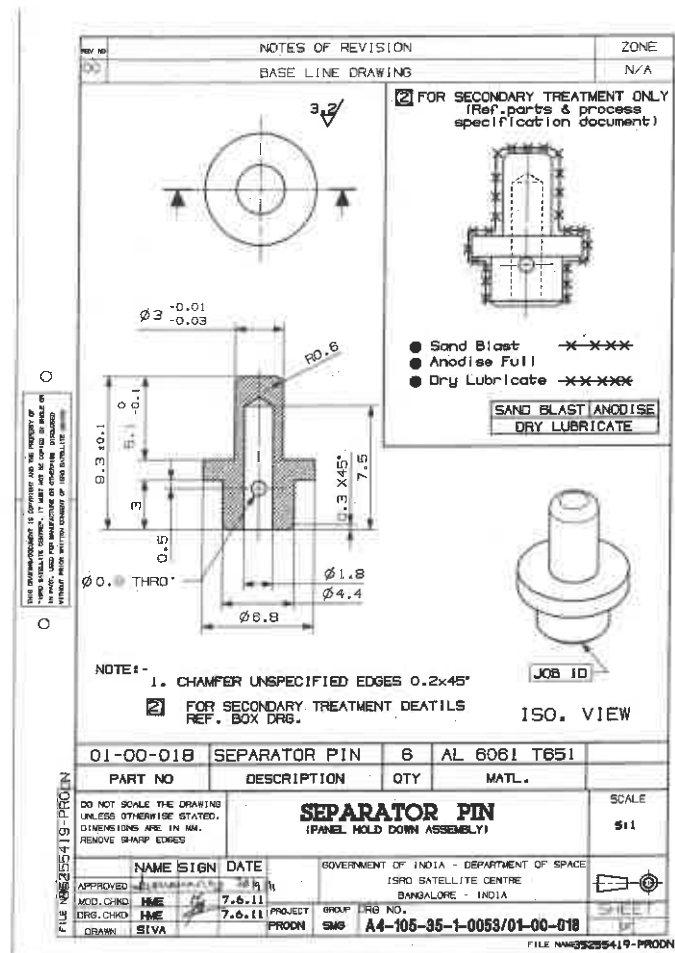
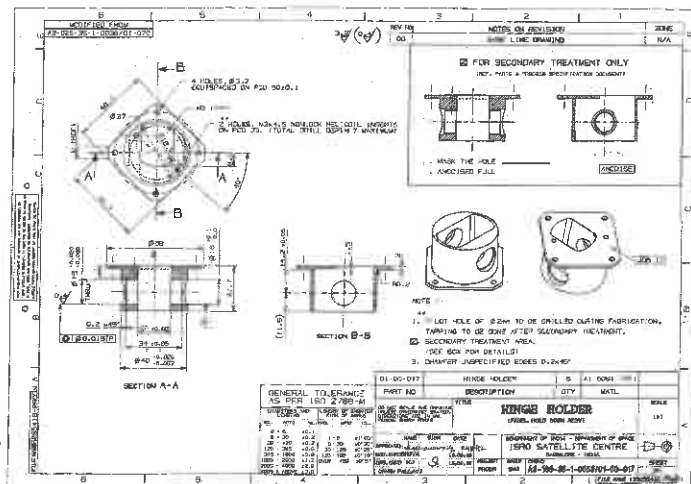
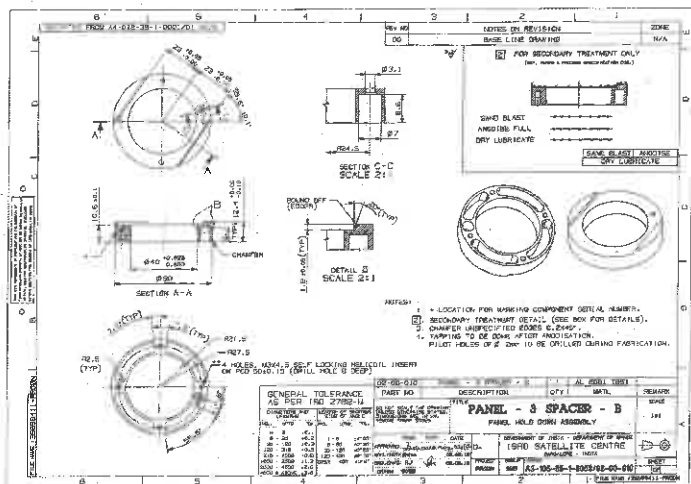
I-1K Type SADM Drawings

SOLAR ARRAY DEPLOYMENT MECHANISM









REV	NOTES OF REVISION	ZONE
00	BASE LINE DRAWING	N/A

3.2/

② FOR SECONDARY TREATMENT ONLY
(Ref. parts & process specification document)

● Sand blast
● Anodise Full
● Dry Lubricate

SAND BLAST ANODISE DRY LUBRICATE

NOTE:-
1. + IDENTIFY COMPONENT SL.NO BY 10x10mm AL TAG
2. FOR SECONDARY TREATMENT DETAILS REF.BOX.DRG.

PART NO	DESCRIPTION	QTY	MATL.
01-00-020	EJECTOR PIN - B	1	AL 6061 T651

DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES.

EJECTOR PIN - B
(PANEL HOLD DOWN ASSEMBLY)

SCALE 2:1

NAME	SIGN	DATE	GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
APPROVE		23.04.13	ISRO SATELLITE CENTRE BANGALORE - INDIA
MOD.CHG	HME	08.09.11	
ORG.CHG	HME	08.09.11	
DRAWN	SIVA		

PROJECT PRODN SMG A4-105-35-1-0053/01-00-020

FILE NAME: 35255457-PRODN

REV	NOTES OF REVISION	ZONE
00	BASE LINE DRAWING	N/A
01	DIMENSION 30 & 6 CHANGED TO L & 7 AND TABLE ADDED	N/A
02	TOLERANCE CHANGED FROM 0.1 TO 0.2	N/A
03	TABLE MODIFIED	N/A

MODIFIED FROM A4-028-1-0036/01-012

3.2/

NOTE: NO SECONDARY TREATMENT REQUIRED

PART NO	DESCRIPTION	QTY	MATL.
01-00-021A	30	24	INSAT : PANEL-2 IP SPACER FIXING DRG.NO. A1-105-35-1-0053/01-00-000
01-00-021B	31.5	16	IRS: PANEL-2 IP SPACER FIXING DRG.NO. A1-105-35-1-0053/02-00-000
01-00-021C	28.3	24	INSAT : PANEL-1 IP SPACER FIXING DRG.NO. A1-105-35-1-0053/01-00-000
01-00-021D	28.3	16	IRS: PANEL-1 IP SPACER FIXING DRG.NO. A1-105-35-1-0053/02-00-000
01-00-021E	28.3	24	G SAT : PANEL-1 IP SPACER FIXING DRG.NO. A1-105-35-1-0053/03-00-000

DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES.

CSK SCREW
(PANEL HOLD DOWN ASSEMBLY)

SCALE 2:1

NAME	SIGN	DATE	GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
APPROVE		23.04.13	ISRO SATELLITE CENTRE BANGALORE - INDIA
MOD.CHG	HME	08.09.11	
ORG.CHG	HME	08.09.11	
DRAWN	SIVA		

PROJECT PRODN SMG A4-105-35-1-0053/01-00-021

FILE NAME: 35255421-PRODN

REV	NOTES OF REVISION	ZONE
00	BASE LINE DRAWING	N/A

MODIFIED FROM A4-026-35-1-0038/1-60

3.2/

JOB ID

NOTE: NO SECONDARY TREATMENT REQUIRED.

PART NO	DESCRIPTION	QTY	MATL.
01-00-022	SPACER	06	AL 6061 T651

DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES.

SPACER
(PANEL HOLD DOWN ASSEMBLY)

SCALE 5:1

NAME	SIGN	DATE	GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
APPROVE		23.04.13	ISRO SATELLITE CENTRE BANGALORE - INDIA
MOD.CHG	HME	07.09.11	
ORG.CHG	HME	23.04.13	
DRAWN	KIRAN		

PROJECT PRODN SMG A4-105-35-1-0053/01-00-022

FILE NAME: 35255458-PRODN

REV	NOTES OF REVISION	ZONE
00	BASE LINE DRAWING	N/A

3.2/

JOB ID

NOTE: NO SECONDARY TREATMENT REQUIRED.

PART NO	DESCRIPTION	QTY	MATL.
01-00-023	HEX. HD SCREW	24	SS304

DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES.

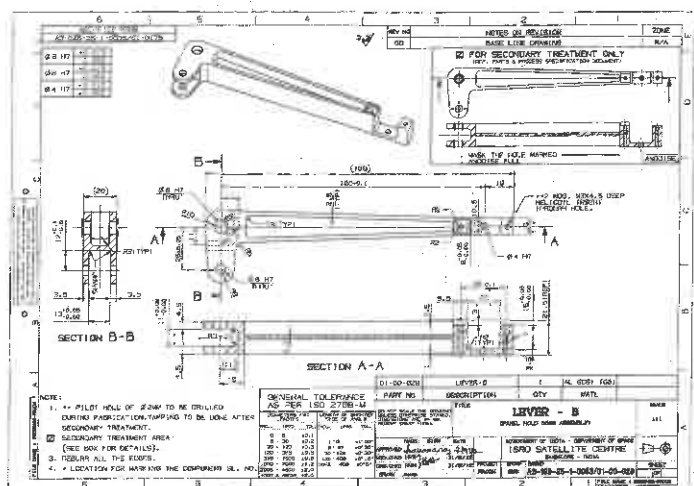
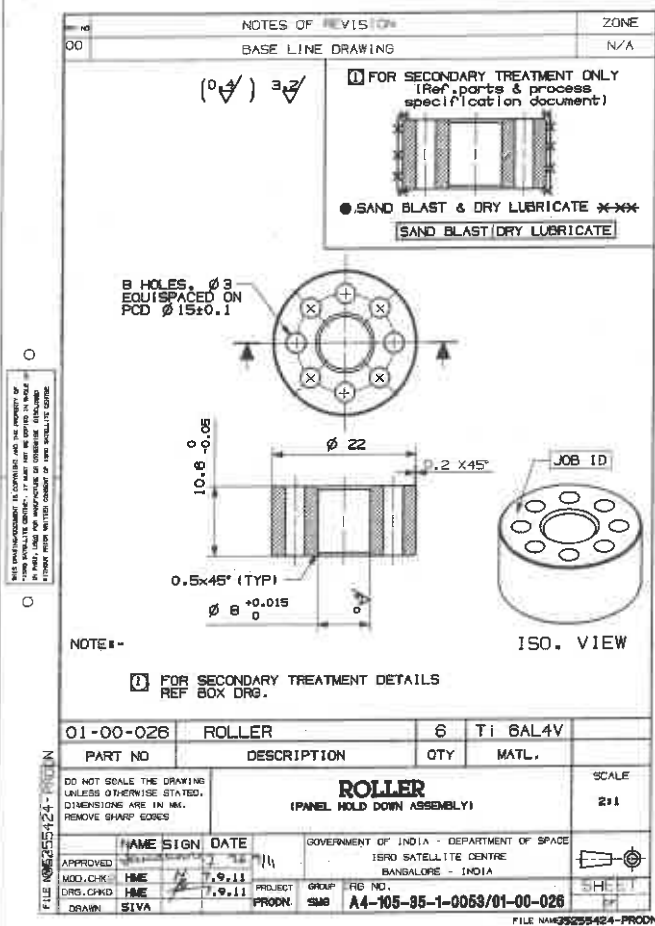
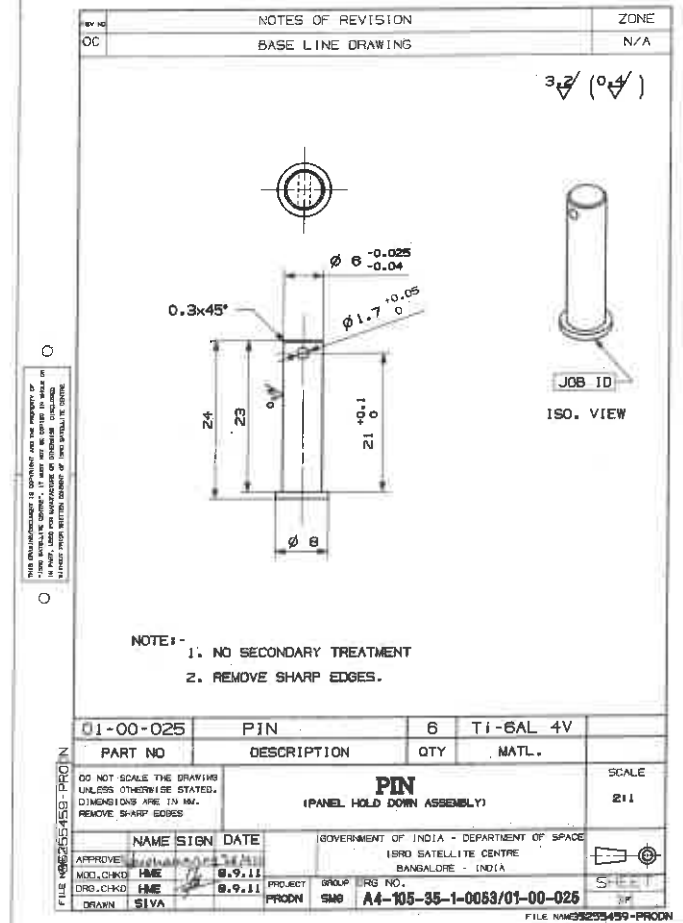
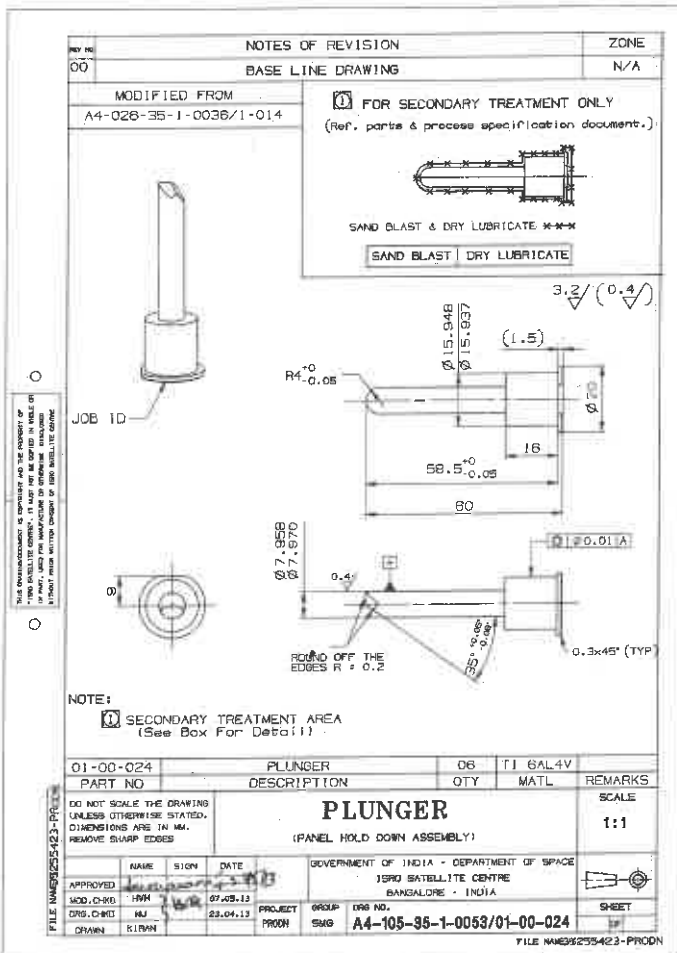
HEX. HD SCREW
(PANEL HOLD DOWN ASSEMBLY)

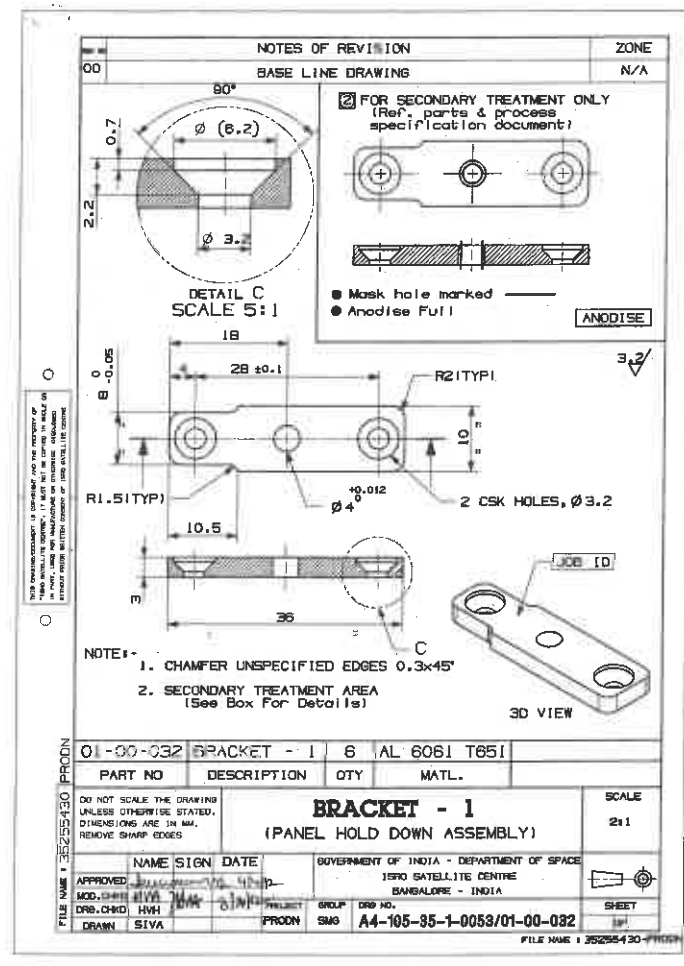
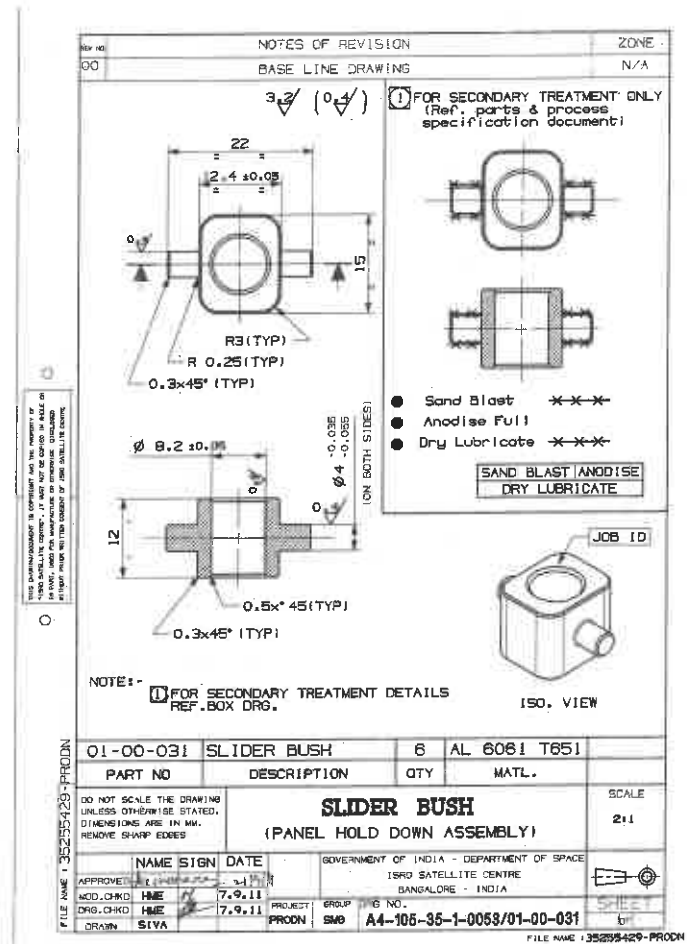
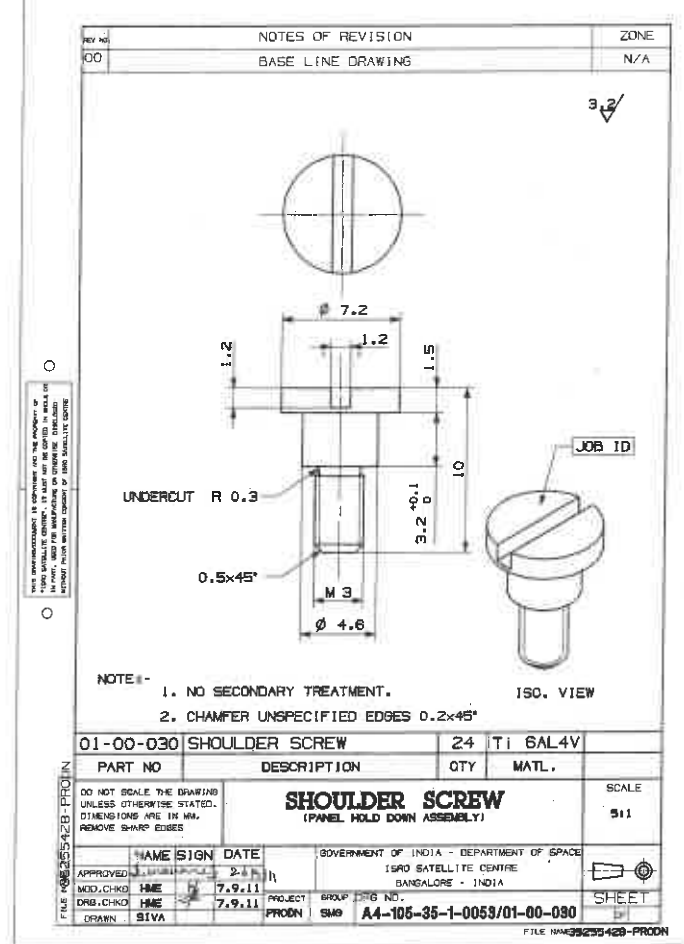
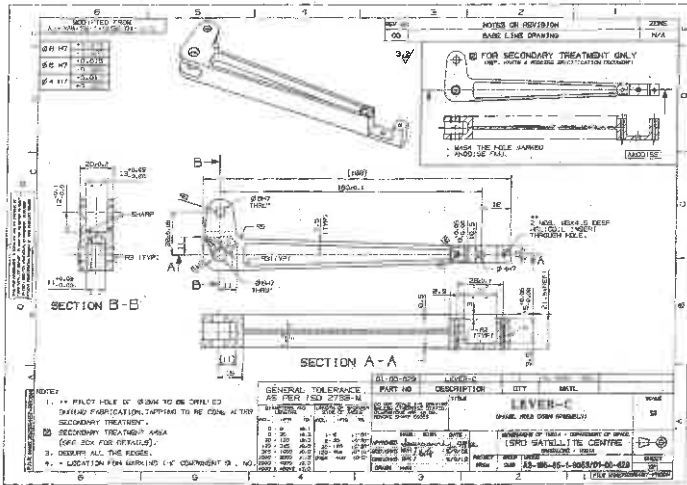
SCALE 2:1

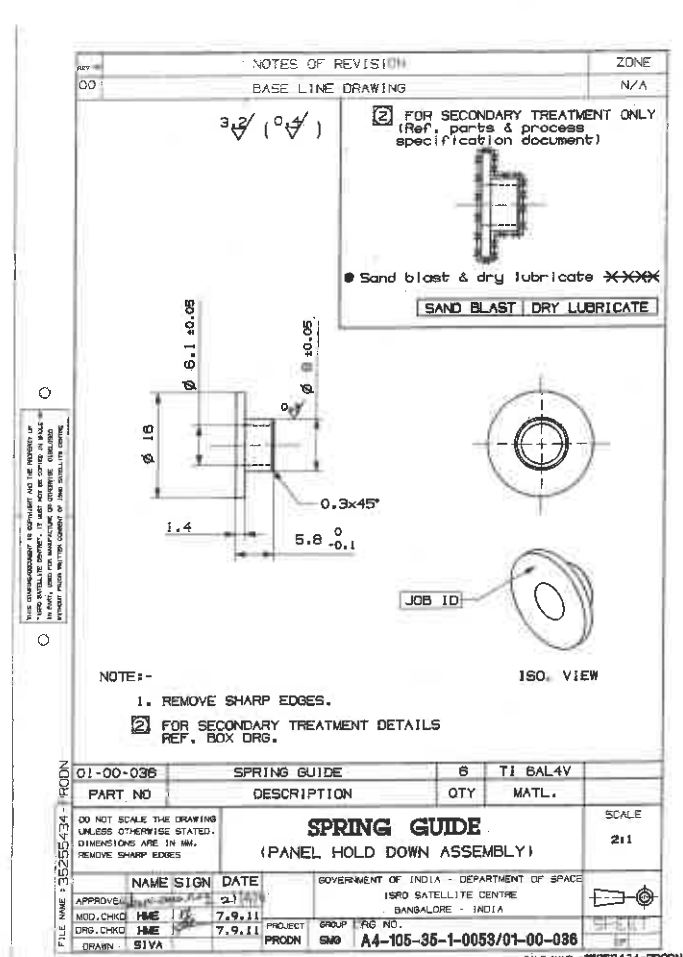
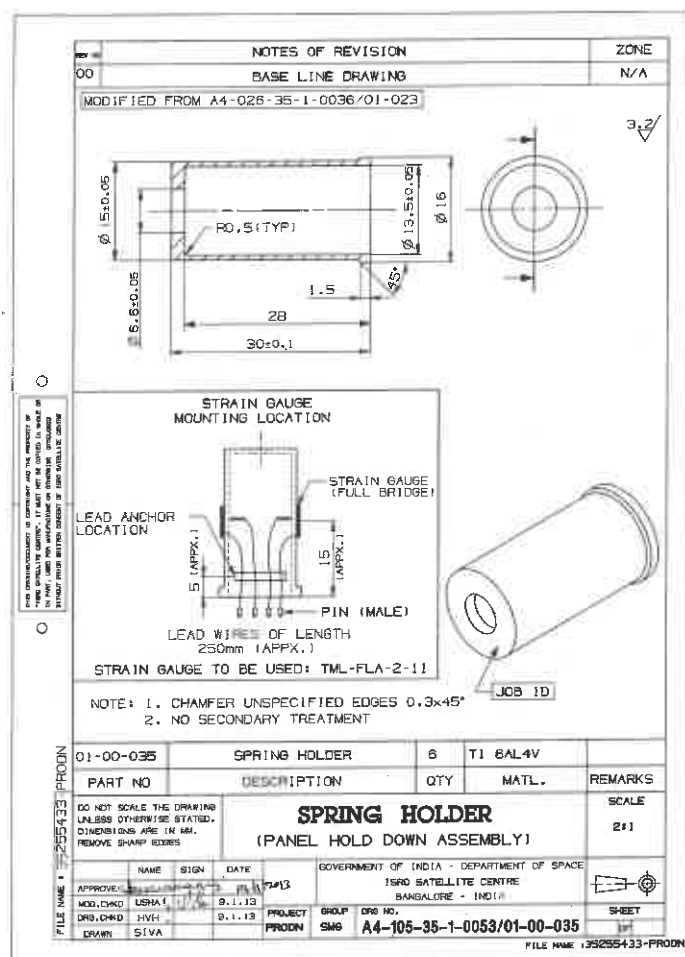
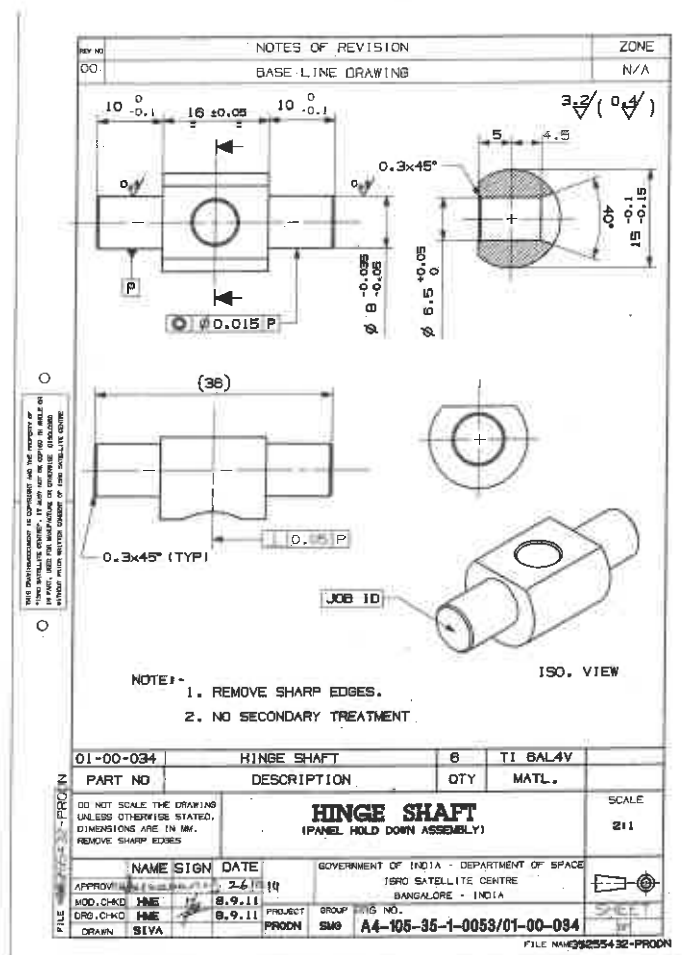
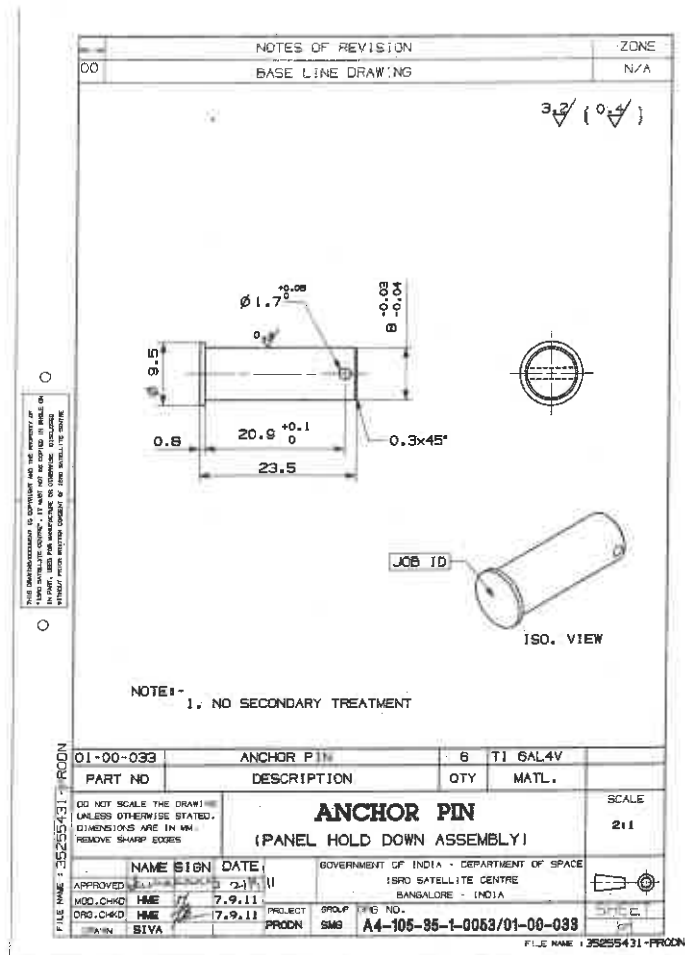
NAME	SIGN	DATE	GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
APPROVE		23.04.13	ISRO SATELLITE CENTRE BANGALORE - INDIA
MOD.CHG	HME	07.09.11	
ORG.CHG	HME	23.04.13	
DRAWN	SIVA		

PROJECT PRODN SMG A4-105-35-1-0053/01-00-023

FILE NAME: 35255422-PRODN







NO	NOTES OF REVISION			ZONE
00	BASE LINE DRAWING			N/A

ISO. VIEW

NOTE:-

1. NO SECONDARY TREATMENT
2. OTHER DIMENSION AS PER STD. M6 HEX. LOCKNUT

01-00-039	M6 - LOCKNUT	8	S5304	
PART NO	DESCRIPTION	QTY	MATL.	
DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES				SCALE 2:1
M6 - LOCKNUT (PANEL HOLD DOWN ASSEMBLY)		GOVERNMENT OF INDIA - DEPARTMENT OF SPACE ISRO SATELLITE CENTRE BANGALORE - INDIA		
APPROVED: 11/6/11 MD, CHKO: HME 7.9.11 DRG: HME 7.9.11 DRAWN: SIVA	PROJECT: GROUP: 3 NO. PROCN: SM9	A4-105-35-1-0053/01-00-039		

FILE NAME: 35255438-PROCN

00	NOTES OF REVISION BASE LINE DRAWINGS	ZONE	N/A								
MODIFIED FROM A4-026-35-1-0036/01-029B											
3.2 SPOT FACE Ø8 (AT 2 PLACES) 2 HOLES, Ø3.2 ② FOR SECONDARY TREATMENT ONLY (Ref. parts & process specification documents) ● Anodise full ANODISE											
NOTE:- 1. CHAMFER UNSPECIFIED EDGES 0.3x45° ② SECONDARY TREATMENT DETAILS (see box for details)											
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 25%;">01-00-042</td> <td style="width: 35%;">STOPPER - B</td> <td style="width: 10%;">4</td> <td style="width: 30%;">AL 8081 T651</td> </tr> <tr> <td>PART NO</td> <td>DESCRIPTION</td> <td>QTY</td> <td>MATL.</td> </tr> </table>				01-00-042	STOPPER - B	4	AL 8081 T651	PART NO	DESCRIPTION	QTY	MATL.
01-00-042	STOPPER - B	4	AL 8081 T651								
PART NO	DESCRIPTION	QTY	MATL.								
STOPPER - B (PANEL HOLD DOWN ASSEMBLY)											
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 40%;"> DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SWAMP EDGES </td> <td style="width: 60%;"> GOVERNMENT OF INDIA - DEPARTMENT OF SPACE ISRO SATELLITE CENTRE BANGALORE - INDIA </td> </tr> <tr> <td> NAME SIGN DATE MOD. CHKD SHIVA 1.11.12 DRG. CHKD DRG. SHIVA 01.04.12 DRAWN SHIVA 01.04.12 </td> <td> PROJECT GROUP DRO NO. PRODN SMO A4-106-35-1-0053/01-00-042 </td> </tr> </table>				DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SWAMP EDGES	GOVERNMENT OF INDIA - DEPARTMENT OF SPACE ISRO SATELLITE CENTRE BANGALORE - INDIA	NAME SIGN DATE MOD. CHKD SHIVA 1.11.12 DRG. CHKD DRG. SHIVA 01.04.12 DRAWN SHIVA 01.04.12	PROJECT GROUP DRO NO. PRODN SMO A4-106-35-1-0053/01-00-042				
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<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 60%;"> APPROVED MOD. CHKD SHIVA DRG. CHKD DRG. SHIVA DRAWN SHIVA </td> <td style="width: 40%;"> SCALE 2:1 SHEET </td> </tr> </table>				APPROVED MOD. CHKD SHIVA DRG. CHKD DRG. SHIVA DRAWN SHIVA	SCALE 2:1 SHEET						
APPROVED MOD. CHKD SHIVA DRG. CHKD DRG. SHIVA DRAWN SHIVA	SCALE 2:1 SHEET										
FILE NAME: 35255441-PRODN											

NOTES OF REVISION		ZONE
00	BASE LINE DRAWING	N/A

3.2/

NOTE:-
1. NO SECONDARY TREATMENT
2. USE SEPERATE TAG FOR JOB ID.

ISO. VIEW

01-00-043	STEPPED WASHER	4	AL 6061 T6S1
PART NO	DESCRIPTION	QTY	MATL.

DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES.

STEPPED WASHER
(PANEL HOLD DOWN ASSEMBLY)

SCALE: 5:1

NAME	SIGN	DATE	GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
APPROVED		21/11/13	ISRO SATELLITE CENTRE BANGALORE - INDIA
MOD. CHD	HME	8.9.11	
DRS. CHD	HME	8.9.11	
DRAWN	SIVA		

PROJECT PRODN SMG

FILE NAME: 35255442-PRODN

NOTES OF REVISION		ZONE
00	BASE LINE DRAWING	N/A

3.2/

MODIFIED FROM A4-026-35-1-0036/01-031 TO 034

NOTE:-
1. NO SECONDARY TREATMENT
2. USED AT ROLLER 1/F
3. JOB ID BY SEPERATE TAG

01-00-044	WASHER	4	DELFIN 500AF
PART NO	DESCRIPTION	QTY	MATL.

DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES.

WASHER
(PANEL HOLD DOWN ASSEMBLY)

SCALE: 5:1

NAME	SIGN	DATE	GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
APPROVED		15/11/2013	ISRO SATELLITE CENTRE BANGALORE - INDIA
MOD. CHD	USHA	9.1.13	
DRS. CHD	HVH	9.1.13	
DRAWN	SIVA	29.09.10	

PROJECT PRODN SMG

FILE NAME: 35255443-PRODN

MODIFIED FROM A4-026-35-1-0036/01-031 TO 034

ISRO PROPRIETARY

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NOTE:-
NO SECONFARY TREATMENT
USED AT - ANCHOR PIN 1/F
- HINGE SHAFT 1/F

01-00-045	WASHER	6	DELFIN-500AF
PART NO / SERIAL	DESCRIPTION	QTY	MATL.

DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES.

WASHER
(PANEL HOLD DOWN ASSEMBLY)

SCALE: 1:1

NAME	SIGN	DATE	GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
APPROVED		25/10/13	ISRO SATELLITE CENTRE BANGALORE - INDIA
DESIGN	KAK	10-11-13	
DRS. CHD	ARK	23-01-14	
DRAWN	GKS		

PROJECT PRODN SMG

FILE NAME: 35255451-PRODN

NOTES OF REVISION		ZONE
00	BASE LINE DRAWING	N/A

3.2/

MODIFIED FROM A4-026-35-1-0036/01-031 TO 034

NOTE:-
1. NO SECONDARY TREATMENT
2. USED AT SLIDER BUSH 1/F
3. TAG TO BE USED FOR JOB ID

01-00-046	WASHER	6	DELFIN 500AF
PART NO	DESCRIPTION	QTY	MATL.

DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES.

WASHER
(PANEL HOLD DOWN ASSEMBLY)

SCALE: 2:1

NAME	SIGN	DATE	GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
APPROVED		24/11/13	ISRO SATELLITE CENTRE BANGALORE - INDIA
MOD. CHD	SHIVA	13.06.12	
DRS. CHD	NJ	13.06.12	
DRAWN	PALLAVI		

PROJECT PRODN SMG

FILE NAME: 35255454-PRODN

"A TWO-BATTLE CARRIER. IT MUST NOT BE COPIED IN TOTAL OR IN PART, UNDER PENALTY OF AN ATROPHOUS DISCIPLINE. MINUTELY REVISOR WRITTEN COMMAND OF A TWO-BATTLE CARRIER."

THIS INDIVIDUALS REPORT HIS COMPANY HAS THE PROPERTY OF "LAND SATELLITE SYSTEM". IT MAY NOT BE COPIED IN WHOLE OR IN PART, USED FOR REPRODUCTION OR OTHERWISE DISCLOSED WITHOUT PRIOR WRITTEN CONSENT OF LAND SATELLITE SYSTEM.

PLATE NUMBER 375444-1 PROTON

1. The first step is to identify the problem or goal. This involves understanding the current situation and what needs to be achieved.

NOTES OF REVISION				ZONE
00	BASE LINE DRAWING			N/A
MODIFIED FROM				3/2
A4-028-35-1-0003/01-049				

NOTE : USE TAG FOR JOB ID

01-00-056	STOPPER BRACKET SCREW	6	SS 302
PART NO	DESCRIPTION	QTY	MATL

DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES.

STOPPER BRACKET SCREW
IPANEL HOLD DOWN ASSEMBLY

SCALE: 5:1

NAME	SIGN	DATE	GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
MOD. CHD	SHIVA	12.09.12	ISRO SATELLITE CENTRE
DRG. CHD	NJ	12.09.12	BANGALORE - INDIA
PROJ. NO.	SMO	A4-105-35-1-0053/01-00-056	

FILE NAME : 35255452-PROJ

NOTES OF REVISION				ZONE
00	BASE LINE DRAWING			N/A
01	DEFLECTION TABLE IS MODIFIED			N/A

2 FOR SECONDARY TREATMENT ONLY
Ref parts & process specification document

Sand Blast & Dry Lubricate

SAND BLAST DRY LUBRICATE

NOTE:-

1. USE SEPERATE TAG FOR JOB ID
2. SECONDARY TREATMENT DETAILS (see box for details)

01-07-005	DISC SPRING	60	SS 304	7.0g
PART NO	DESCRIPTION	QTY	MATL	REMARKS

DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES.

DISC SPRING
HOLD DOWN RELEASE LOOP ASSEMBLY

SCALE: NTS

NAME	SIGN	DATE	GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
MOD. CHD	SHIVA	12.09.12	ISRO SATELLITE CENTRE
DRG. CHD	NJ	12.09.12	BANGALORE - INDIA
PROJ. NO.	SMO	A4-105-35-1-0052/01-07-005	

FILE NAME : 35270440-PROJ

NOTES OF REVISION				ZONE
00	BASE LINE DRAWING			N/A
01	TITLE CHANGED FROM BOLT ASSY (IRS TYPE) TO BOLT ASSY (IRS TYPE) (DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES.)			2-4

2 FOR SECONDARY TREATMENT ONLY
Ref parts & process specification document

SAND BLAST & DRY LUBRICATE

SAND BLAST DRY LUBRICATE

NOTE:-

1. THE BOLT LENGTH TO BE MADE FOR FINISHING CAN BE ALTERED ACCORDINGLY AFTER FIRST TITL. PIERCE DRILLING TO ACHIEVE THE BOLT LENGTH 122.
2. SECONDARY TREATMENT (SAND BLAST & DRY LUBRICATE) IS TO BE DONE FOR FINISHING.
3. ALL SPECIFIED DIMENSIONS TO BE SPACED FIRST.
4. TOP AND TERMINAL TO BE MADE WITH B-27E.
5. BOLT TO BE MADE WITH B-27E.
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100. BOLT TO BE MADE WITH B-27E.

SCALE: 1:1

NAME	SIGN	DATE	GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
MOD. CHD	SHIVA	12.09.12	ISRO SATELLITE CENTRE
DRG. CHD	NJ	12.09.12	BANGALORE - INDIA
PROJ. NO.	SMO	A4-105-35-1-0053/01-00-056	

FILE NAME : 35255452-PROJ

NOTES OF REVISION				ZONE
00	BASE LINE DRAWING			N/A
01	TITLE CHANGED FROM BOLT ASSY (IRS TYPE) TO BOLT ASSY (IRS TYPE) (DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES.)			2-4

2 FOR SECONDARY TREATMENT ONLY
Ref parts & process specification document

SAND BLAST & DRY LUBRICATE

SAND BLAST DRY LUBRICATE

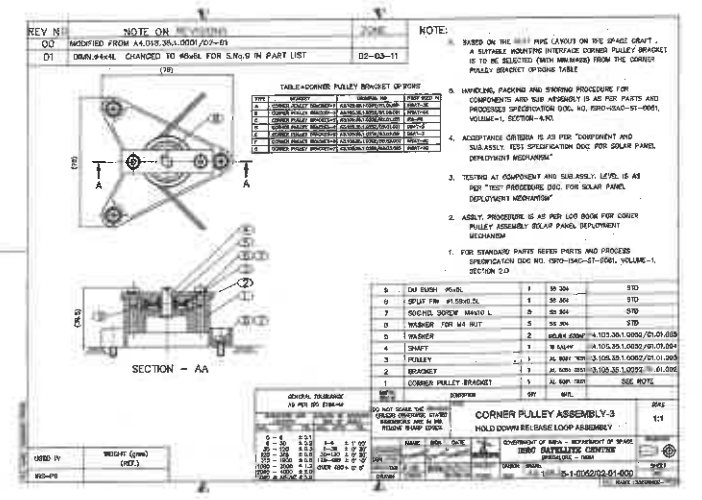
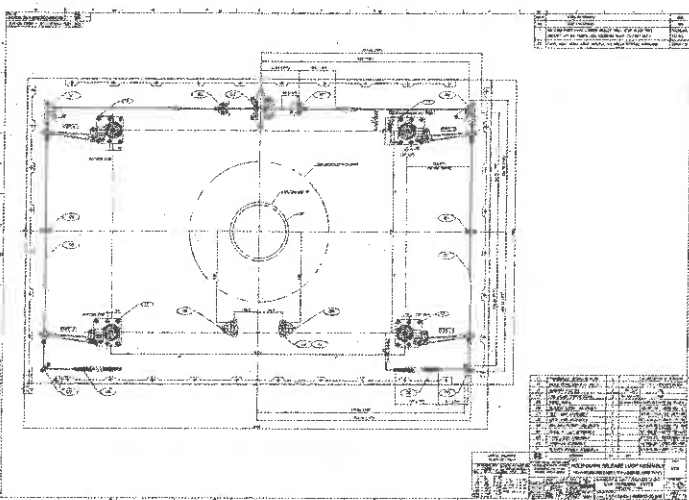
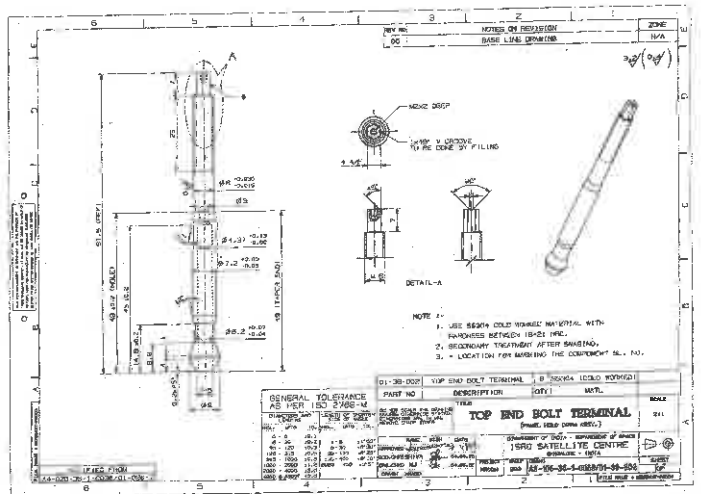
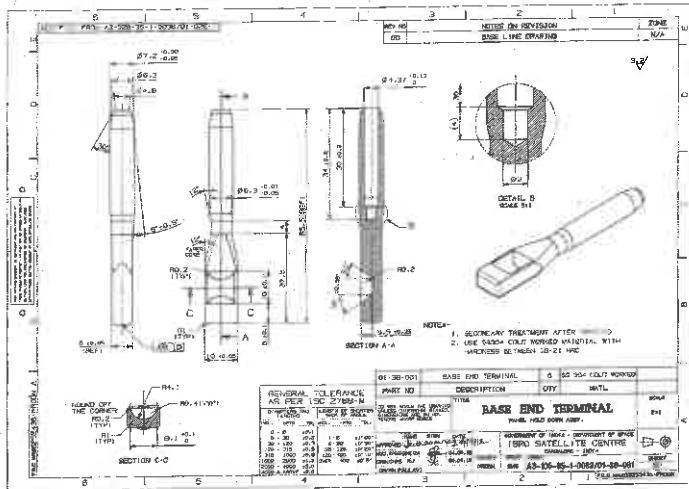
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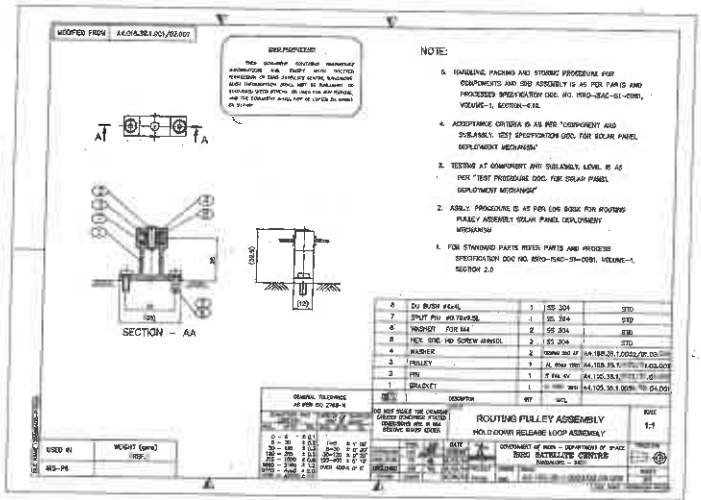
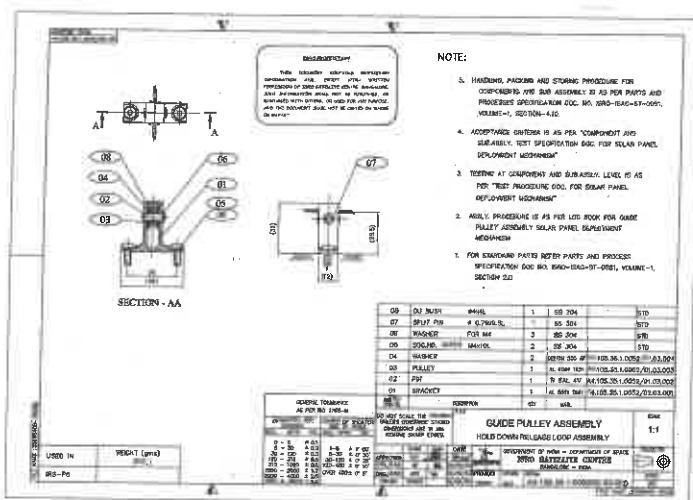
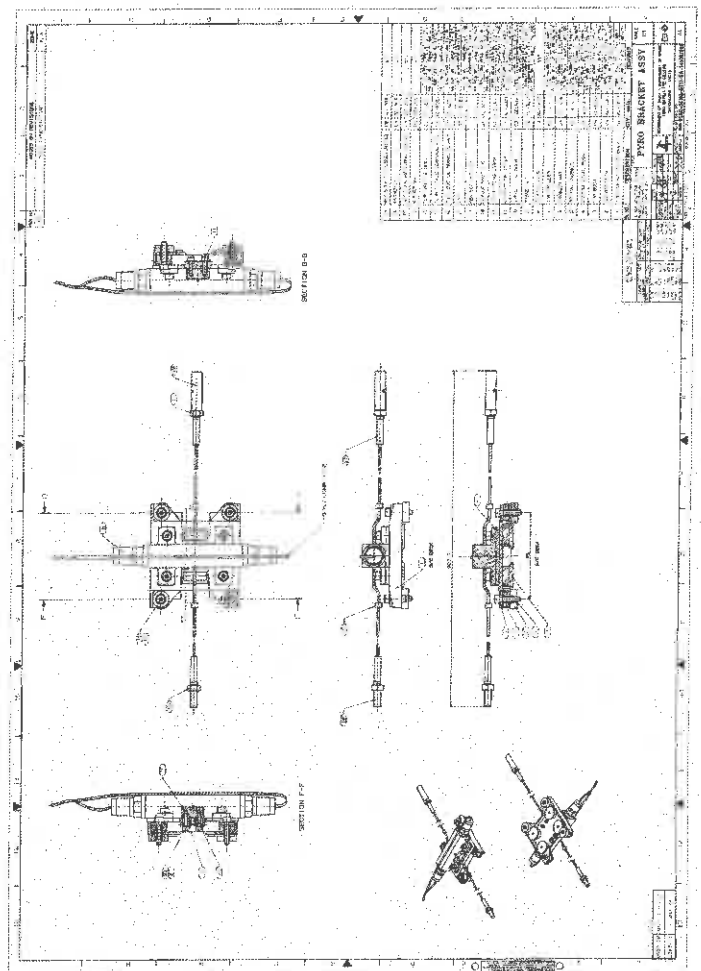
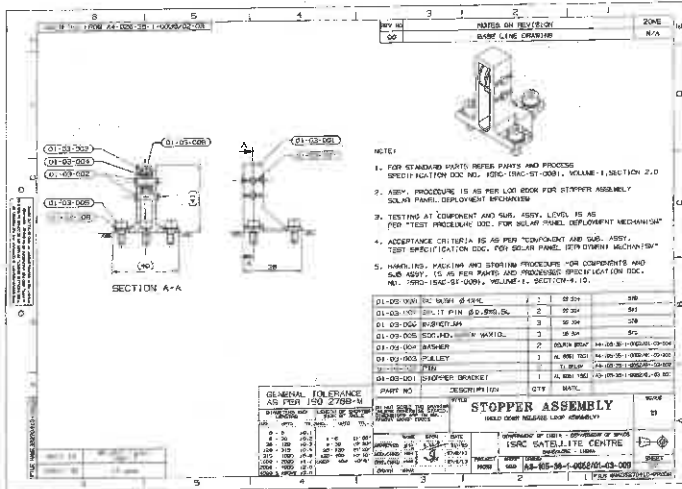
1. THE BOLT LENGTH TO BE MADE FOR FINISHING CAN BE ALTERED ACCORDINGLY AFTER FIRST TITL. PIERCE DRILLING TO ACHIEVE THE BOLT LENGTH 122.
2. SECONDARY TREATMENT (SAND BLAST & DRY LUBRICATE) IS TO BE DONE FOR FINISHING.
3. ALL SPECIFIED DIMENSIONS TO BE SPACED FIRST.
4. TOP AND TERMINAL TO BE MADE WITH B-27E.
5. BOLT TO BE MADE WITH B-27E.
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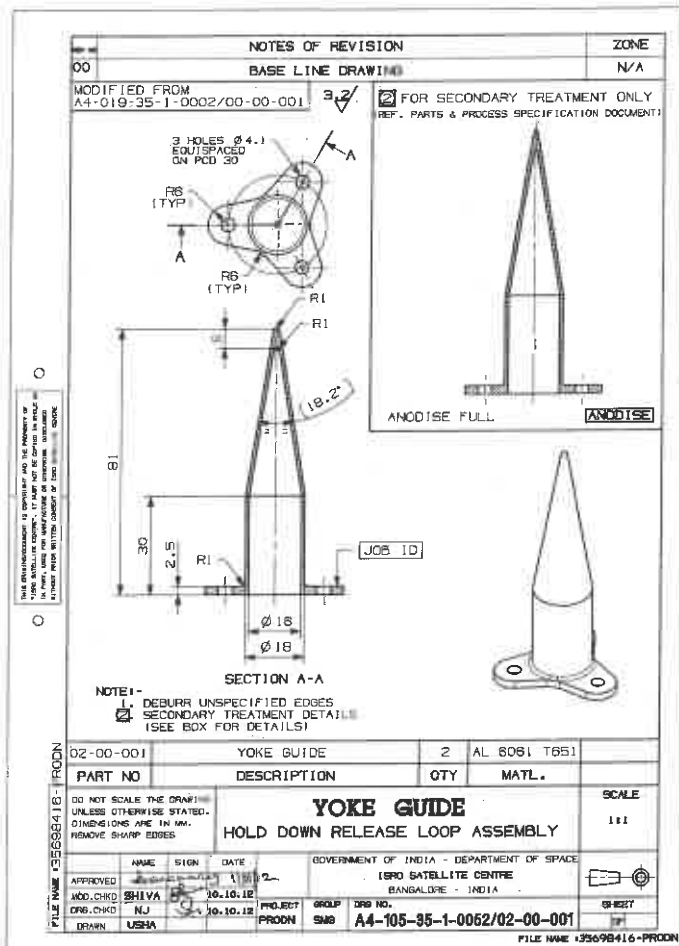
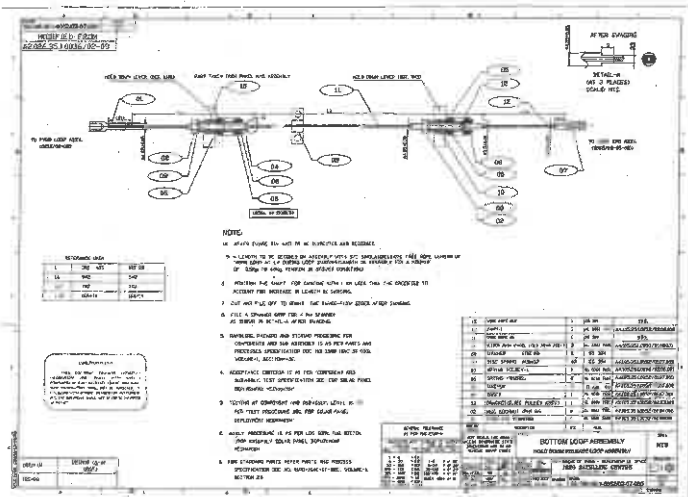
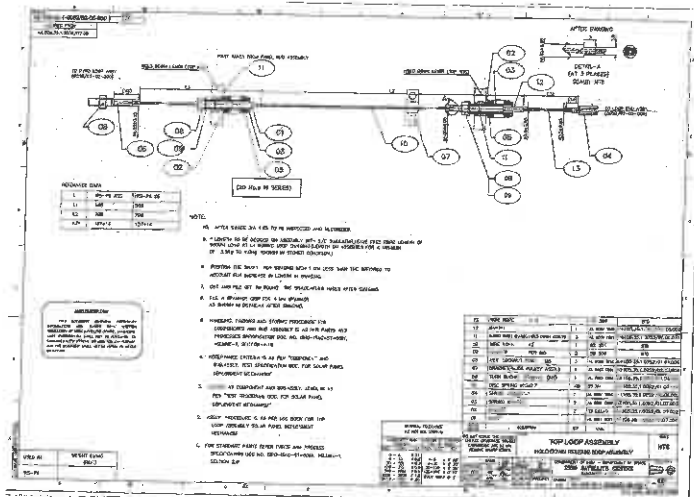
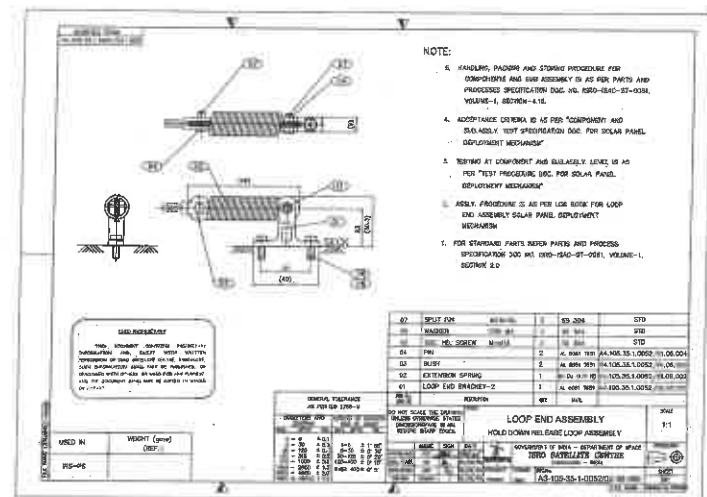
SCALE: 1:1

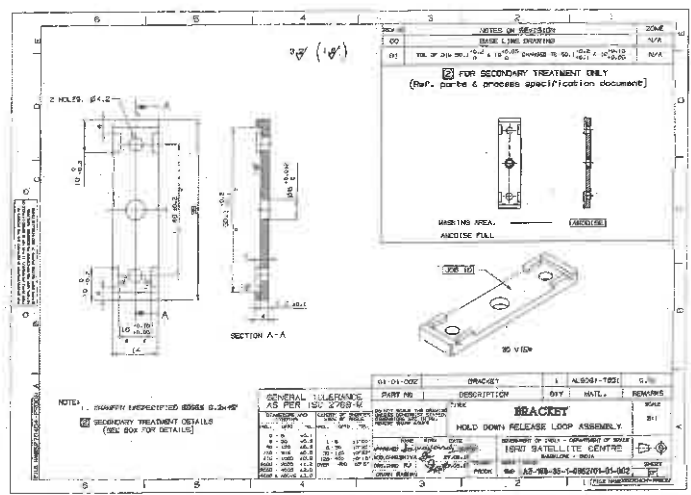
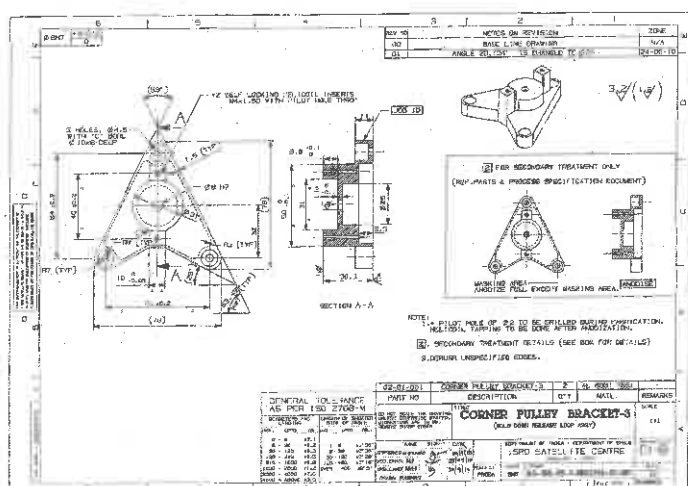
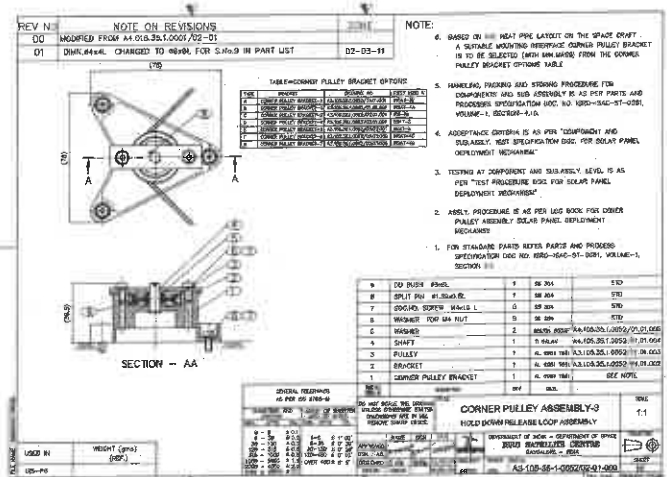
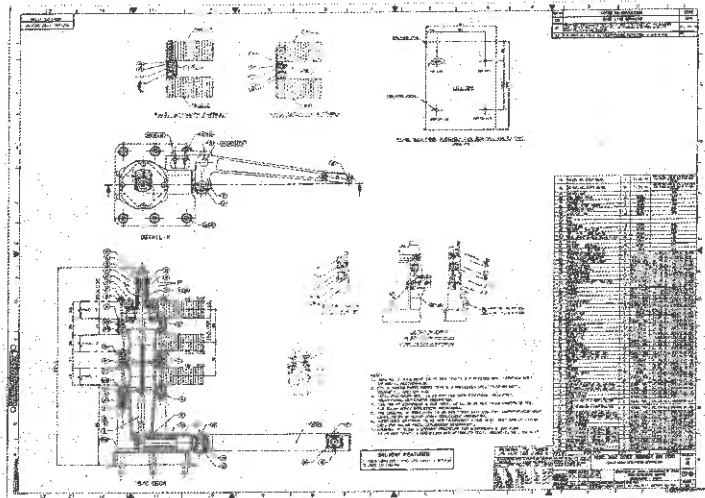
NAME	SIGN	DATE	GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
MOD. CHD	SHIVA	12.09.12	ISRO SATELLITE CENTRE
DRG. CHD	NJ	12.09.12	BANGALORE - INDIA
PROJ. NO.	SMO	A4-105-35-1-0053/01-00-056	

FILE NAME : 35255452-PROJ









REV		NOTES OF REVISION		ZONE	
00		BASE LINE DRAWING		N/A	

3.2 / (0.8)

JOB ID

3D VIEW

01-01-004		SHAFT		1		TI 6AL4V	
PART NO		DESCRIPTION		QTY		MATL.	

DO NOT SCALE THE DRAWING
UNLESS OTHERWISE STATED.
DIMENSIONS ARE IN MM.
REMOVE SHARP EDGES

SHAFT

(HOLD DOWN RELEASE LOOP ASSEMBLY)

SCALE

2:1

NAME SIGN DATE		GOVERNMENT OF INDIA - DEPARTMENT OF SPACE	
APPROVED BY: 21-10-20		ISRO SATELLITE CENTRE	
MOD. CHKD: SHIVA		BANGALORE - INDIA	
DRG. CHKD: JMT		PROJECT GROUP NO. 1	
DRAWN: SIVA		PROJ. NO. A4-105-35-1-0052/01-01-004	

FILE NAME: 35270406-PROJON

SHEET 1

SHEET NO. 00	NOTES OF REVISION BASE LINE DRAWING	ZONE N/A
-----------------	--	-------------

3.2 /

3D VIEW

NOTE:-

1. CHAMFER CORNERS 0.3x15°
2. IDENTIFY PART No. BY A SEPARATE TAG

01-01-005	WASHER	2	DELIN 500A
PART NO	DESCRIPTION	QTY	MATL.

DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED.
 DIMENSIONS ARE IN MM.
 REMOVE SHARP EDGES

WASHER

(HOLD RELEASE LOOP ASSEMBLY)

NAME SHIVA	SIGN 	DATE 13.06.11	GOVERNMENT OF INDIA - DEPARTMENT OF SPACE ISRO SATELLITE CENTRE BANGALORE - INDIA
APPROVED DRS.CHKD	DATE 13.06.11	PROJECT PRODIN	GROUP SMG

G NO.
A4-105-35-1-0052/01-01-005

SCALE
5:1

SEE
P

FILE NAME: 3270407-PRODIN

FILE NAME: 3270407-PRODIN

NOTES OF REVISION

ZONE

BASE LINE DRAWING

N/A

3/2 (0/1)

Ø 0.9

0.3 ± 0.045

12.7 ± 0.1

13.8

14.8

0.3x45°

3D VIEW

JOB ID

01-03-002	PIN	2	T 6AL4V
PART NO	DESCRIPTION	QTY	MATL.

DO NOT SCALE THE DRAWING
UNLESS OTHERWISE STATED.
DIMENSIONS ARE IN MM.
REMOVE SHARP EDGES

PIN
(HOLD DOWN RELEASE LOOP ASSEMBLY)

SCALE
5:1

GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
ISRO SATELLITE CENTRE
BANGALORE - INDIA

APPROVED: [Signature] DATE: 01-03-02
MOD. CHKD: SHIVA
DRG. CHKD: [Signature]
DESKN: SHIVA

PROJECT: PRODN
GROUP: SMC

FIG NO.
A4-105-35-1-0052/01-03-002

FILE NAME: 35270412-PROD

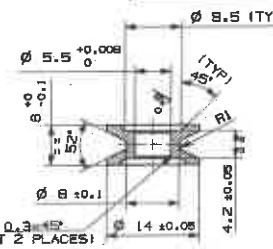
NOT NO	NOTES OF REVISION	ZONE
00	BASE LINE DRAWING	N/A

$(0.8) \quad 3.2\sqrt{}$

[1] FOR SECONDARY TREATMENT ONLY
(Ref. parts & process specification details)



- MASKING AREA _____
- HARD AMNODIASE FULL
- DRY LUBRICATE *****
- [HARD AMNODIASE DRY LUBRICATE]



ISO VIEW



JOB ID

NOTE:-
[1] SECONDARY TREATMENT DETAILS
(see box for details)

PART NO	DESCRIPTION	QTY.	MATL.	SCALE
01-03-003	PULLEY	1	AL 6061 T651	2:1

DO NOT SCALE THE DRAWINGS UNLESS OTHERWISE STATED.
DIMENSIONS ARE IN MM.
REMOVE SHARP EDGES

PULLEY

(HOLD DOWN RELEASE LOOP ASSEMBLY)

NAME SIGN	DATE	GOVERNMENT OF INDIA - DEPARTMENT OF SPACE			
APPROVED - PR	3-11-88	ISRO SATELLITE CENTRE			
MOD. CHKD - SHIVA	3-10-88	BANGALORE - INDIA			SHEET No.
DWG. CHKD - RAJESH	15-7-88	PROJECT PRODN	GROUP SMS	A4-105-85-1-0052/01-03-003	
DESIGN - SIVA					

FILE NAME : 35270413-PRODIN

00	NOTES OF REVISION BASE LINE DRAWING	ZONE N/A
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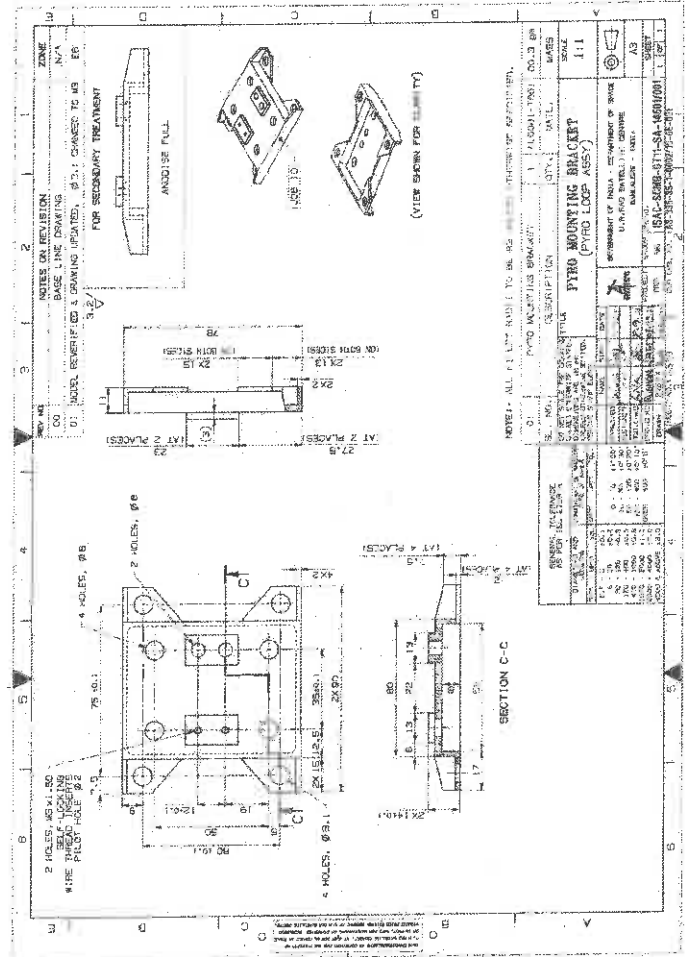
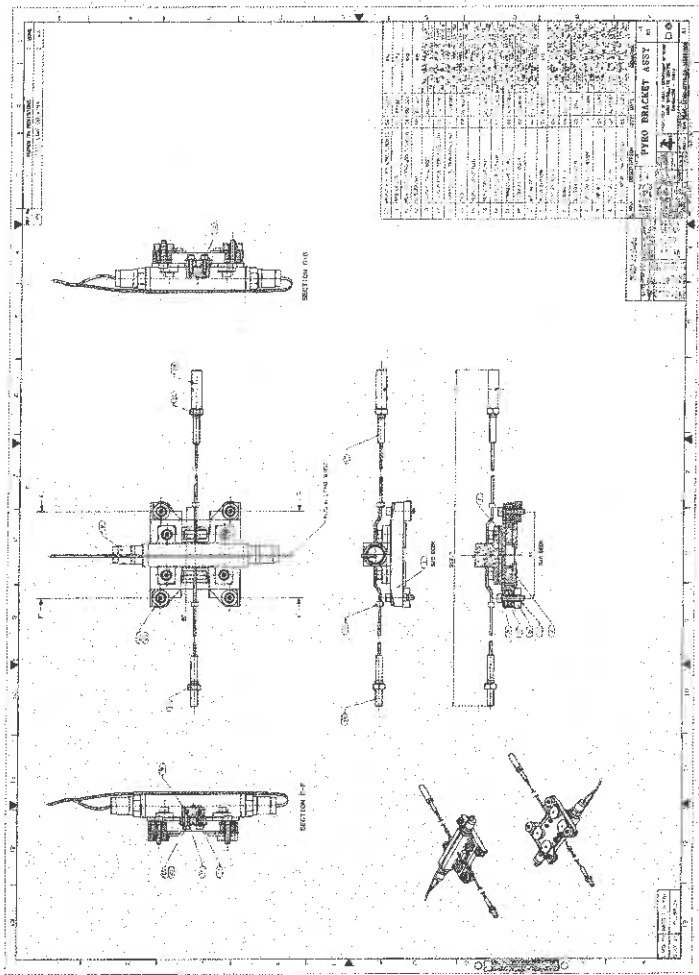
MODIFIED FROM A4-026.35.1.0036/02.05.005

3.2

NOTE:- IDENTIFY PART SL. NO. BY A SEPERATE TAG

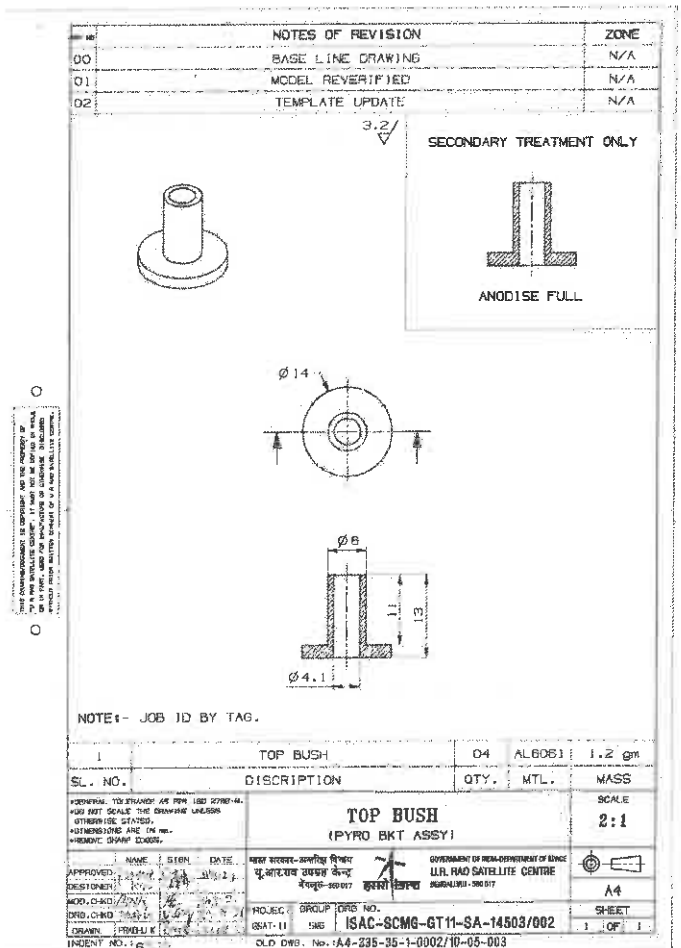
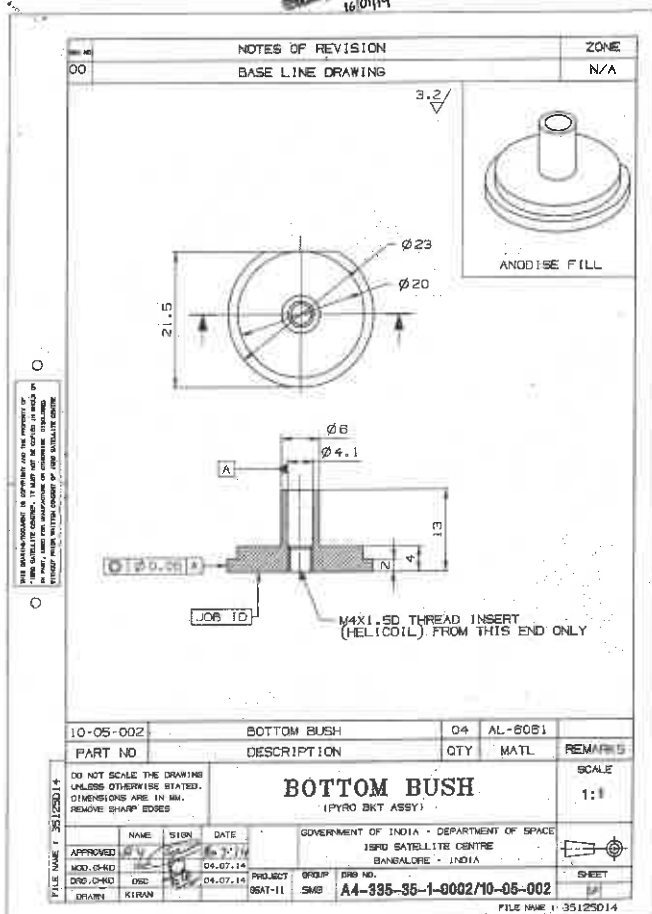
01-03-004	WASHER	9	DELRIIN 500AF	
PART NO	DESCRIPTION	QTY	MATL.	REMARKS
WASHER (HOLD DOWN RELEASE LOOP ASSEMBLY)				SCALE 5:1
DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES				
APPROVED MOD. CHKD DES. CHKD SIYA	NAME SIGN HVN HVN SIYA	DATE 20/3/12 20/3/12	GOVERNMENT OF INDIA - DEPARTMENT OF SPACE ISRO SATELLITE CENTRE BANGALORE - INDIA	SHEET 01
PROJECT PRODN		GROUP SNO	DRS NO. A4-105-35-1-0052/01-03-004	

FILE NAME 135270414-PRODIN
FILE NAME 135270414-PRODIN



MODEL REVERTIFIED

16/01/19



ISAC-SCMG-GT11-SA-14502/001

MODEL REVERIFIED *3.2/*

NOTES OF REVISION		ZONE
00	BASE LINE DRAWING	N/A

3.2/

NOTE: USE SEPERATE TAG FOR JOB ID.

PART NO	DESCRIPTION	QTY	MATL	REMARKS
10-05-004	BOTTOM METAL BUSH	4	AL-6061	

DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES.

BOTTOM METAL BUSH
(PYRO BKT ASSY)

SCALE: 1:1

NAME	SIGN	DATE	GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
MOD. CHD	SHIVA	04.07.14	ISRO SATELLITE CENTRE BANGALORE - INDIA
ORG. CHD	SHIVA	04.07.14	
DRWN	SHIVA		

PROJECT: 65AT-11 GROUP: SMR IRG NO. A4-335-35-1-0002/10-05-004

FILE NAME: 3512SD16

ISAC - SCMG - GT11-SA -14504/001

NOTES OF REVISION		ZONE
00	BASE LINE DRAWING	N/A

3.2/

FOR SECONDARY TREAMNET ONLY
(Ref. parts & process specification document.)

NOTE: 1. TO BE GOLD PLATED AFTER MACHINING
2. SECONDARY TREATMENT DETAILS (see box for details)
3. TAPPING TO BE DONE AFTER GOLD PLATING
PILOT HOLE OF Ø2 TO BE DRILLED DURING FABRICATION

PART NO	DESCRIPTION	QTY	MATL.	REMARKS
01-04-002	STAND OFF	2	AL 6061 T651	

DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES.

STAND OFF
(HOLD DOWN RELEASE LOOP ASSEMBLY)

SCALE: 2:1

NAME	SIGN	DATE	GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
MOD. CHD	SHIVA	04.07.14	ISRO SATELLITE CENTRE BANGALORE - INDIA
ORG. CHD	SHIVA	04.07.14	
DRWN	SHIVA		

PROJECT: 65AT-11 GROUP: SMR IRG NO. A4-105-35-1-0052/01-04-002

FILE NAME: 35270417-PROD

FILE NAME: 35270417-PROD

NOTES OF REVISION		ZONE
00	BASE LINE DRAWING	N/A

3.2/

NOTE: 1. CHAMFER EDGES 0.2x45°
2. IDENTIFY PART SL. NO. BY A SEPERATE TAG

PART NO	DESCRIPTION	QTY	MATL.	REMARKS
01-04-003	INSULATING BUSH	1	DELTRIN 500AF	

DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES.

INSULATING BUSH
(HOLD DOWN RELEASE LOOP ASSEMBLY)

SCALE: 1:1

NAME	SIGN	DATE	GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
MOD. CHD	SHIVA	04.07.14	ISRO SATELLITE CENTRE BANGALORE - INDIA
ORG. CHD	SHIVA	04.07.14	
DRWN	SHIVA		

PROJECT: 65AT-11 GROUP: SMR IRG NO. A4-105-35-1-0062/01-04-003

FILE NAME: 35270418-PROD

FILE NAME: 35270418-PROD

NOTES OF REVISION		ZONE
00	BASE LINE DRAWING	N/A

3.2/

NOTE: 1. USE SEPERATE TAG FOR JOB ID.

PART NO	DESCRIPTION	QTY	MATL.	REMARKS
01-04-004	CONNECTING STRIP	1	AL 6061 T651	

DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES.

CONNECTING STRIP
(HOLD DOWN RELEASE LOOP ASSEMBLY)

SCALE: 2:1

NAME	SIGN	DATE	GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
MOD. CHD	SHIVA	04.07.14	ISRO SATELLITE CENTRE BANGALORE - INDIA
ORG. CHD	SHIVA	04.07.14	
DRWN	SHIVA		

PROJECT: 65AT-11 GROUP: SMR IRG NO. A4-105-35-1-0062/01-04-004

FILE NAME: 35270419-PROD

FILE NAME: 35270419-PROD

REV NO	NOTES OF REVISION	ZONE
00	BASE LINE DRAWING	N/A

3.2/

NOTE:-
1. IDENTIFY PART SL. NO. BY A SEPERATE TAG
2. USE STD. PCB FIBRE GLASS TAG.

PART NO	DESCRIPTION	QTY	MATL.
01-04-005	INSULATING STRIP	1	FIBER GLASS

DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES

INSULATING STRIP
(HOLD DOWN RELEASE LOOP ASSEMBLY)

SCALE: 2:1

NAME	SIGN	DATE	GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
MOD. CHKD SHIVA		21.11.06	ISRO SATELLITE CENTRE
DRG. CHKD HVH		04.10.10	BANGALORE - INDIA
DRWN SIVA		04.10.10	

PROJECT: PRODN GROUP: SMO Dwg NO. A4-105-35-1-0052/01-04-005

FILE NAME: 35270420-PRODN

REV NO	NOTES OF REVISION	ZONE
00	BASE LINE DRAWING	N/A

3.2/

2 SECONDARY TREATMENT ONLY (Ref. part & process specification document)

MASK THE HOLE (M6) ————
ANODISE EXCEPT MASKED HOLE

ANODISE

NOTE:-
1. OTHER DIMENSIONS ARE AS PER STD M6.HEX. LOCK NUT
2. SECONDARY TREATMENT DETAILS (see box for details)

PART NO	DESCRIPTION	QTY	MATL.
01-04-006	HEX. LOCK NUT RH.	7	AL 6061 T651

DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES

HEX. LOCK NUT RH
(HOLD DOWN RELEASE LOOP ASSEMBLY)

SCALE: 2:1

NAME	SIGN	DATE	GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
MOD. CHKD SHIVA		21.11.06	ISRO SATELLITE CENTRE
DRG. CHKD HVH		04.10.10	BANGALORE - INDIA
DRWN SIVA		04.10.10	

PROJECT: PRODN GROUP: SMO Dwg NO. A4-105-35-1-0052/01-04-006

FILE NAME: 35270421-PRODN

REV NO	NOTES OF REVISION	ZONE
00	BASE LINE DRAWING	N/A

3.2/

2 SECONDARY TREATMENT ONLY (Ref. part & process specification document)

MASK THE HOLE (M6) ————
ANODISE EXCEPT MASKED HOLE

ANODISE

NOTE:-
1. OTHER DIMENSIONS ARE AS PER STD M6.HEX. LOCK NUT
2. SECONDARY TREATMENT DETAILS (see box for details)

PART NO	DESCRIPTION	QTY	MATL.
01-04-007	HEX. LOCK NUT LH.	1	AL 6061 T651

DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES

HEX LOCK NUT LH
(HOLD DOWN RELEASE LOOP ASSEMBLY)

SCALE: 2:1

NAME	SIGN	DATE	GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
MOD. CHKD SHIVA		21.11.06	ISRO SATELLITE CENTRE
DRG. CHKD HVH		04.10.10	BANGALORE - INDIA
DRWN SIVA		04.10.10	

PROJECT: PRODN GROUP: SMO Dwg NO. A4-105-35-1-0052/01-04-007

FILE NAME: 35270422-PRODN

REV NO	NOTES OF REVISION	ZONE
00	BASE LINE DRAWING	N/A

3.2/

NOTE:-
1. IDENTIFY PART SL. NO. BY A SEPEARATE TAG

PART NO	DESCRIPTION	QTY	MATL.
01-04-008	TAB	12	AL 6061 T651

DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES

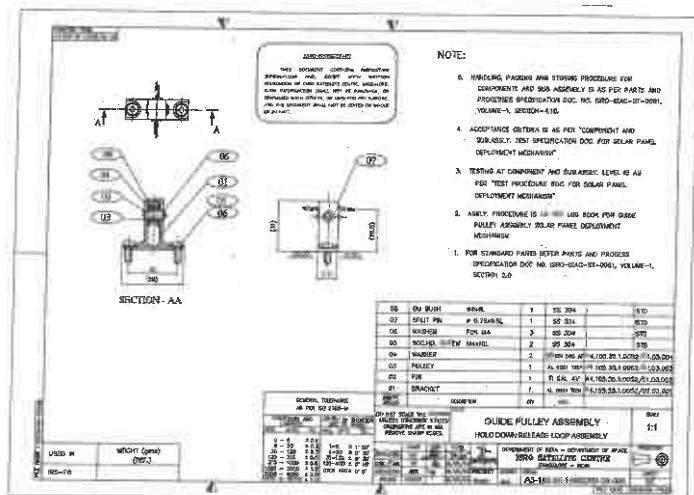
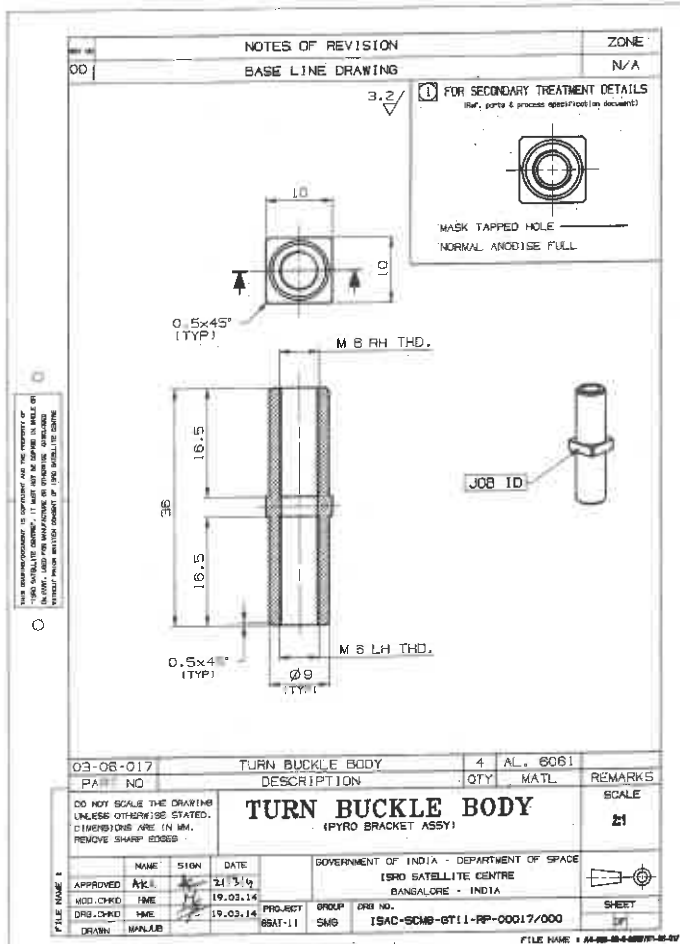
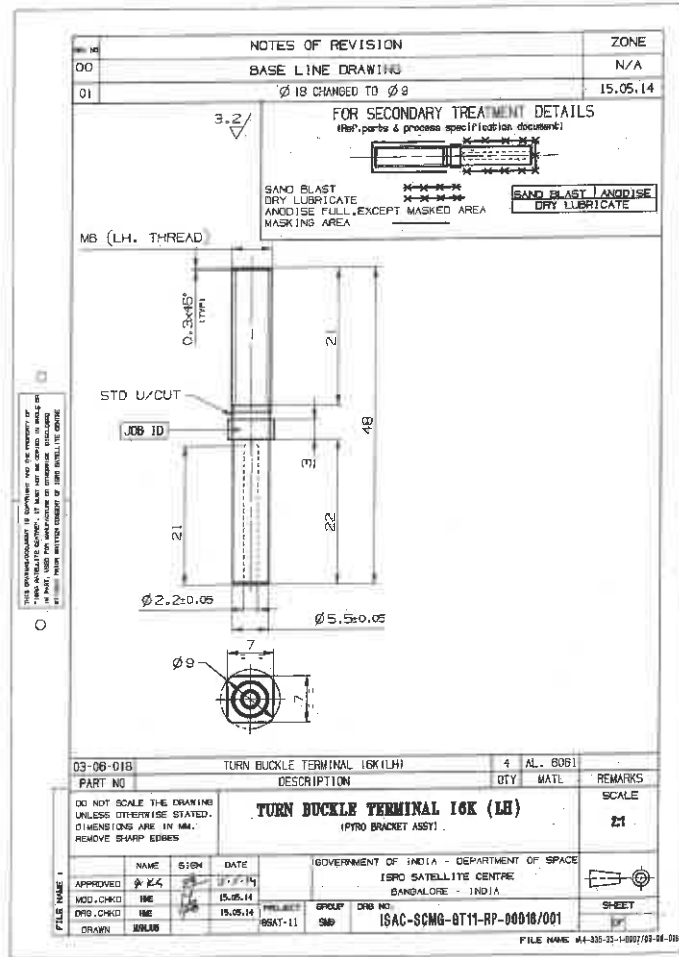
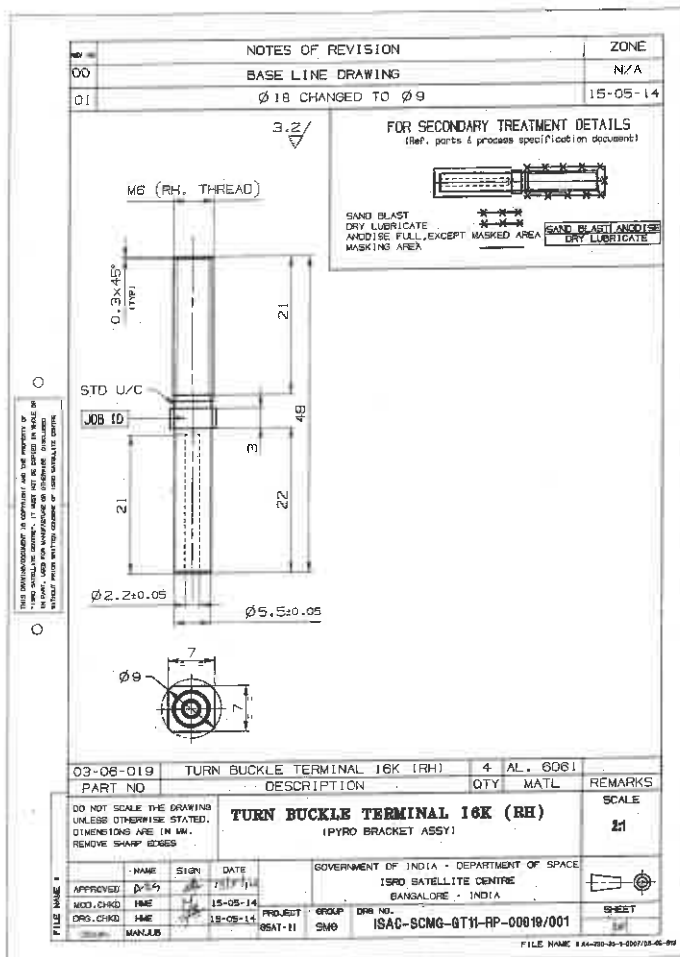
TAB
(HOLD DOWN RELEASE LOOP ASSEMBLY)

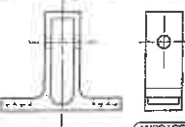
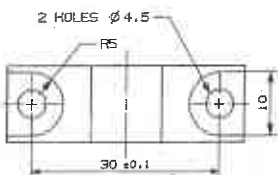
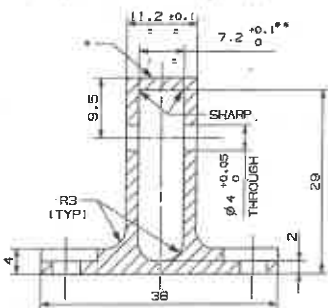
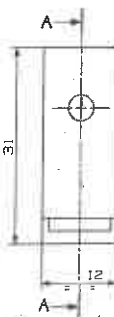
SCALE: 5:1

NAME	SIGN	DATE	GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
MOD. CHKD SHIVA		21.11.06	ISRO SATELLITE CENTRE
DRG. CHKD HVH		04.10.10	BANGALORE - INDIA
DRWN SIVA		04.10.10	

PROJECT: PRODN GROUP: SMO Dwg NO. A4-105-35-1-0052/01-04-008

FILE NAME: 35270423-PRODN



NOTES OF REVISION				ZONE N/A
BASE LINE DRAWING				② FOR SECONDARY TREATMENT ONLY. REF. PARTS & PROCESS SPECIFICATION DOC.  AND USE FULLY AND USE
 2 HOLES Ø 4.5 R5 30 ± 0.1 1.0				
 11.2 ± 0.1 7.2 ± 0.1** SHARP TROUGH Ø 4 ± 0.05 R3 (TYP) 29 38 2				
SECTION A-A  A 31 12 A				
NOTE: 1. * LOCATION FOR MARKING COMPONENT SERIAL NUMBER. ② SECONDARY TREATMENT DETAILS. (SEE BOX FOR DETAILS). 3. ** SLOT TOLERANCE IS ONLY FOR A DEPTH OF 15mm FROM TOP END. 4. DEBURR UNSPECIFIED EDGES.				
02.03.001 BRACKET		3		A1 6051-TB51
PART NO	DESCRIPTION	QTY	MATL.	
BRACKET HOLD DOWN RELEASE LOOP ASSEMBLY				
DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES.			SCALE 2:1	
NAME IG DATE		GOVERNMENT OF INDIA - DEPARTMENT OF SPACE		
APPROVED MOD./CHKD DNG./CRKD		ISRO SATELLITE CENTRE BANGLORE - INDIA		
PROJECT PRGDN		SMB		
DRAWN USH		NO. A4-105-85-1-0052/02-03-001		

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FILE NAME : 35698404

FILE NAME : 35698404

REV NO	NOTES OF REVISION	ZONE
00	BASE LINE DRAWING	N/A

3/2 (A/4)

Ø 5

12.7 ± 0.1

13.8

14.6

Ø 0.9

4 ± 0.05

0.3x45°

3D VIEW

3D VIEW

JOBS ID

FILE NAME : 35270412-PROD

01-03-002	PIN	2	TI 6AL4V
PART NO	DESCRIPTION	QTY	MATL.

DO NOT SCALE THE DRAWING
UNLESS OTHERWISE STATED.
DIMENSIONS ARE IN MM.
REMOVE SHARP EDGES

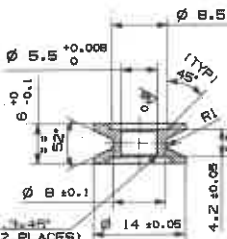
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(HOLD DOWN RELEASE LOOP ASSEMBLY)

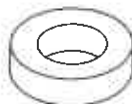
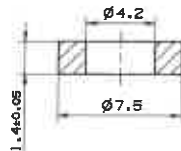
APPROVED: MOD. CHKD: BIVA DRG. CHKD: BIVA	GOVERNMENT OF INDIA - DEPARTMENT OF SPACE ISRO SATELLITE CENTRE BANGALORE - INDIA
DATE: 06.11.2011 BY: T. S.	GROUP: G NO. PROJECT: PRODN SMO: A4-105-35-1-0052/01-03-002

SCALE: 5:1

FILE NAME : 35270412-PROD

THIS DRAWING/REVISION IS CONTROLLED AND THE PROPERTIES OF THE MATERIAL ARE GUARANTEED BY THE MANUFACTURER. IT IS NOT TO BE USED FOR MANUFACTURE OF MATERIALS, DISCREPANCY WITHOUT PRIOR WRITTEN CONSENT OF IRO SATELLITE CENTRE.	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">NOTES OF REVISION</td> <td style="width: 50%;">ZONE</td> </tr> <tr> <td>00</td> <td>N/A</td> </tr> </table>	NOTES OF REVISION	ZONE	00	N/A	(0.5) 3/2					
NOTES OF REVISION	ZONE										
00	N/A										
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 5%; text-align: center;">①</td> <td>FOR SECONDARY TREATMENT ONLY (Ref. parts & process specification document)</td> </tr> <tr> <td colspan="2" style="text-align: center;">  </td> </tr> <tr> <td colspan="2"> - MASKING AREA _____ - HARD ANODISE FULL - DRY LUBRICATE -X-X-X-X- </td> </tr> <tr> <td colspan="2" style="text-align: center;"> HARD ANODISE DRY LUBRICATE </td> </tr> </table>			①	FOR SECONDARY TREATMENT ONLY (Ref. parts & process specification document)			- MASKING AREA _____ - HARD ANODISE FULL - DRY LUBRICATE -X-X-X-X-		HARD ANODISE DRY LUBRICATE		
①	FOR SECONDARY TREATMENT ONLY (Ref. parts & process specification document)										
											
- MASKING AREA _____ - HARD ANODISE FULL - DRY LUBRICATE -X-X-X-X-											
HARD ANODISE DRY LUBRICATE											
 Ø 5.5 (TYP) Ø 5.5 +0.008 0 -0.1 Ø 8 +0.1 0 -0.0 14 ±0.05 4.2 ±0.05 R1.5 45° (AT 2 PLACES) JOB ID  ISO VIEW											
NOTE:- ① SECONDARY TREATMENT DETAILS (see box for details)											
FILE NAME : 35270413-1 DRAWN : SIVA DESIGNED : SIVA CHECKED : SIVA APPROVED : SIVA DATE : 15-7-11 PROJECT : PRODN GROUP : SMO	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 25%;">01-03-003</td> <td style="width: 25%;">PULLEY</td> <td style="width: 10%;">I</td> <td style="width: 40%;">AL 6061 T6S1</td> </tr> <tr> <td>PART NO</td> <td>DESCRIPTION</td> <td>QTY</td> <td>MATL.</td> </tr> </table>			01-03-003	PULLEY	I	AL 6061 T6S1	PART NO	DESCRIPTION	QTY	MATL.
	01-03-003	PULLEY	I	AL 6061 T6S1							
	PART NO	DESCRIPTION	QTY	MATL.							
	PULLEY (HOLD DOWN RELEASE LOOP ASSEMBLY)										
	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">NAME SIGN</td> <td style="width: 20%;">DATE</td> <td style="width: 50%;">GOVERNMENT OF INDIA - DEPARTMENT OF SPACE ISRO SATELLITE CENTRE BANGALORE - INDIA</td> </tr> <tr> <td>SIVA</td> <td>15-7-11</td> <td></td> </tr> </table>			NAME SIGN	DATE	GOVERNMENT OF INDIA - DEPARTMENT OF SPACE ISRO SATELLITE CENTRE BANGALORE - INDIA	SIVA	15-7-11			
NAME SIGN	DATE	GOVERNMENT OF INDIA - DEPARTMENT OF SPACE ISRO SATELLITE CENTRE BANGALORE - INDIA									
SIVA	15-7-11										
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">APPROVED</td> <td style="width: 20%;">DATE</td> <td style="width: 50%;">FILE NO.</td> </tr> <tr> <td>SIVA</td> <td>15-7-11</td> <td>A4-105-35-1-0052/01-03-003</td> </tr> </table>			APPROVED	DATE	FILE NO.	SIVA	15-7-11	A4-105-35-1-0052/01-03-003			
APPROVED	DATE	FILE NO.									
SIVA	15-7-11	A4-105-35-1-0052/01-03-003									
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">SCALE</td> <td style="width: 70%;">2:1</td> </tr> </table>			SCALE	2:1							
SCALE	2:1										

FILE NAME : 35270413-PRODIN

THIS DRAWING/SCHEMATIC IS HEREBY ON THE PROPERTY OF THE UNITED STATES GOVERNMENT AND IS NOT TO BE REPRODUCED IN ANY FORM, USED FOR REPRODUCTION OR FOR ANY OTHER PURPOSE WITHOUT WRITTEN PERMISSION OF THE ISSUING AGENCY.	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%; text-align: center;">REV</td> <td style="width: 10%; text-align: center;">NO</td> <td style="width: 60%; text-align: center;">NOTES OF REVISION</td> <td style="width: 20%; text-align: center;">ZONE</td> </tr> <tr> <td style="text-align: center;">00</td> <td></td> <td style="text-align: center;">BASE LINE DRAWING</td> <td style="text-align: center;">N/A</td> </tr> </table> MODIFIED FROM A4-026-35-1-0036/02.05.005 3.2/✓   NOTE:- IDENTIFY PART SL. NO. BY A SEPERATE TAG	REV	NO	NOTES OF REVISION	ZONE	00		BASE LINE DRAWING	N/A	
REV	NO	NOTES OF REVISION	ZONE							
00		BASE LINE DRAWING	N/A							

01-03-004	WASHER	9	DELRIIN 500AF	
PART NO	DESCRIPTION	QTY	MATL.	REMARKS

DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES.

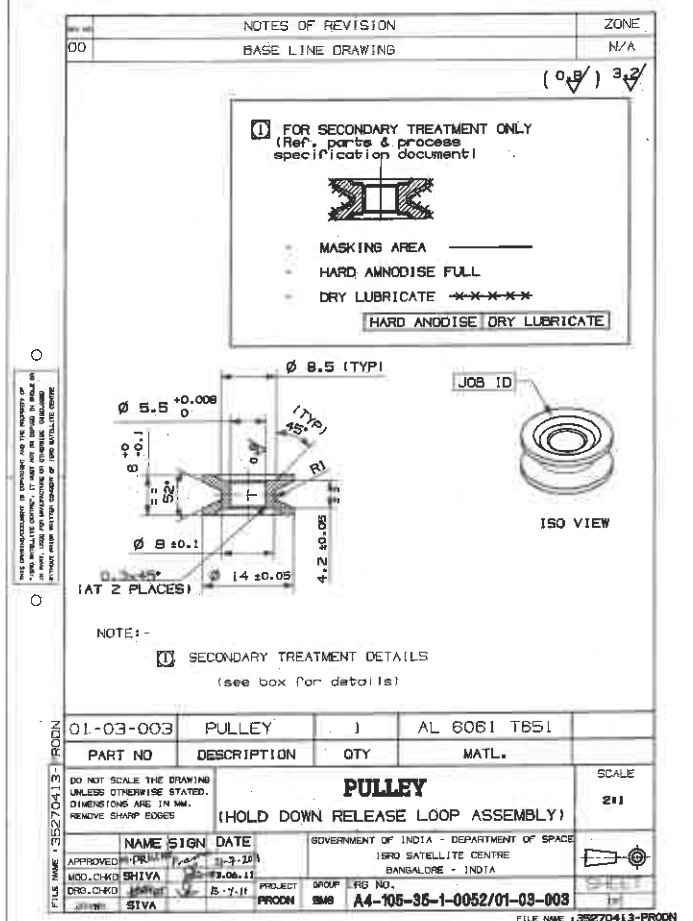
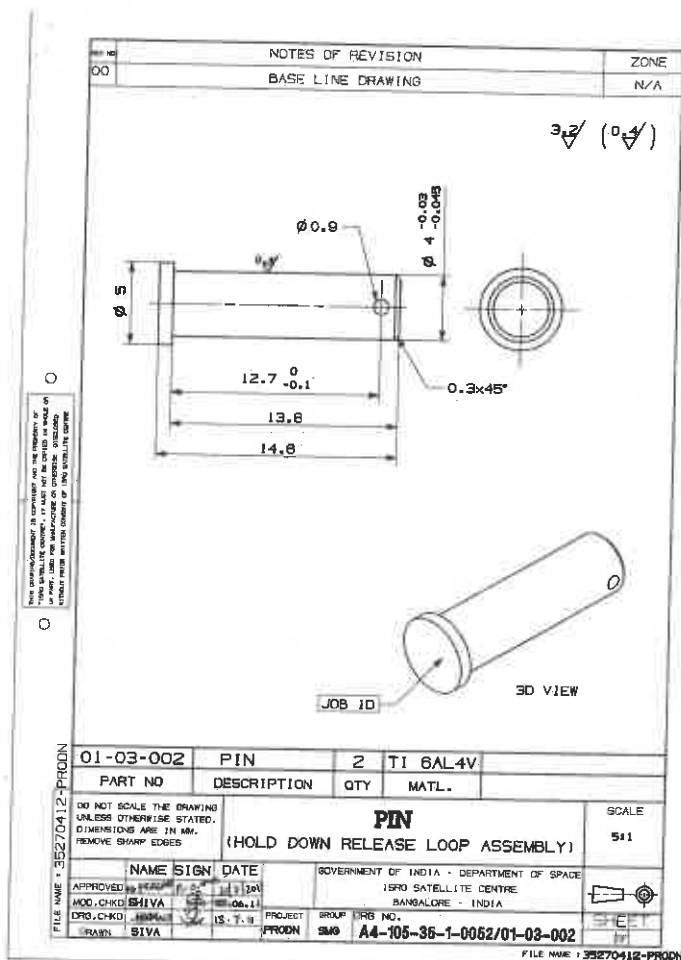
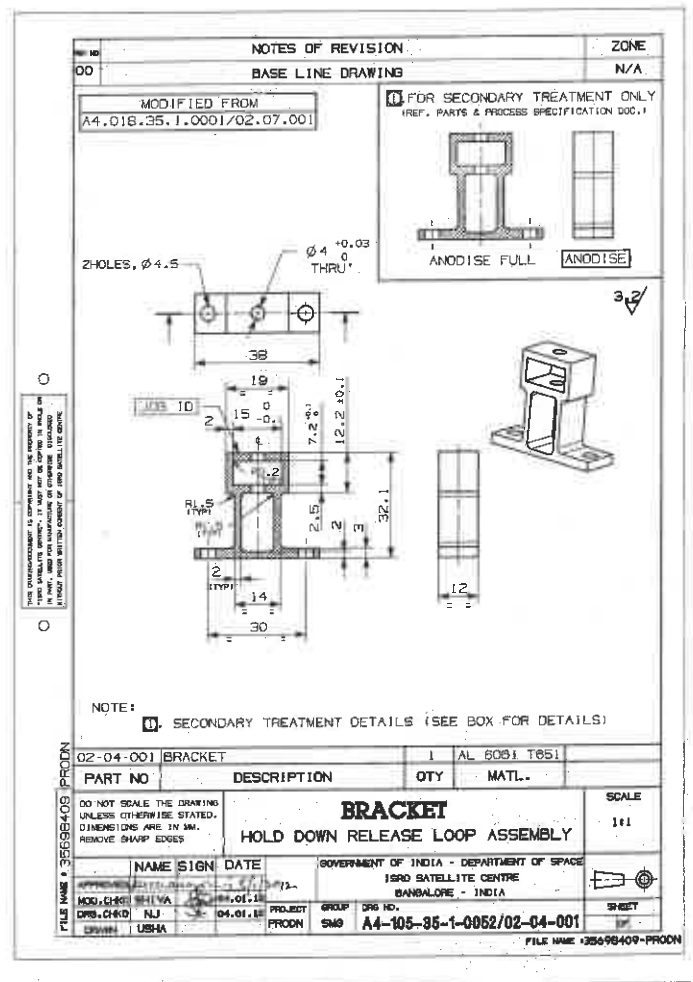
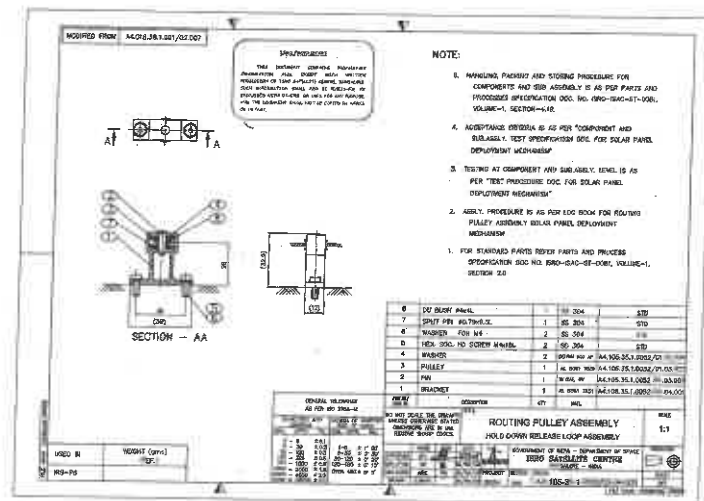
WASHER (HOLD DOWN RELEASE LOOP ASSEMBLY)				SCALE 5:1
NAME	SIGN	DATE	GOVERNMENT OF INDIA - DEPARTMENT OF SPACE ISRO SATELLITE CENTRE BANGALORE - INDIA	
APPROVED		20/3/12	PROJECT	GROUP
DRG. CHKD	HVH	20/2/12	PROOIN	SMB
DRWING	SIVA			

FILE NAME: 35270414-PRODIN

A4-105-35-1-0052/01-03-004

SHEET
 1

FILE NAME: 35270414-PRODIN



NOTES OF REVISION		ZONE
00	BASE LINE DRAWING	N/A

MODIFIED FROM A4-026-35-1-0036/02-05-005

3.2

NOTE:- IDENTIFY PART SL. NO. BY A SEPERATE TAG

PART NO	DESCRIPTION	QTY	MATL.	REMARKS
01-03-004	WASHER	9	DELRIIN 500AF	

DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES

WASHER
(HOLD DOWN RELEASE LOOP ASSEMBLY)

SCALE: 5:1

NAME	SIGN	DATE	GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
APPROVED		20/2/12	ISRO SATELLITE CENTRE BANGALORE - INDIA
MOD. CHKD	HVH	20/2/12	
DRG. CHKD	HVH	20/2/12	
DRWN	SIVA		

PROJECT: PRODN SMG A4-105-35-1-0052/01-03-004

FILE NAME: 35270414-PRODN

NOTES OF REVISION		ZONE
00	BASE LINE DRAWING	N/A

MODIFIED FROM A4-026-35-1-0036/02-05-005

3.2

NOTE:- IDENTIFY PART SL. NO. BY A SEPERATE TAG

PART NO	DESCRIPTION	QTY	MATL.	REMARKS
01-03-004	WASHER	9	DELRIIN 500AF	

DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES

WASHER
(HOLD DOWN RELEASE LOOP ASSEMBLY)

SCALE: 5:1

NAME	SIGN	DATE	GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
APPROVED		20/2/12	ISRO SATELLITE CENTRE BANGALORE - INDIA
MOD. CHKD	HVH	20/2/12	
DRG. CHKD	HVH	20/2/12	
DRWN	SIVA		

PROJECT: PRODN SMG A4-105-35-1-0052/01-03-004

FILE NAME: 35270414-PRODN

NOTES OF REVISION		ZONE
00	BASE LINE DRAWING	N/A

MODIFIED FROM A4-026-35-1-0036/02-05-005

3.2

NOTE:- IDENTIFY PART SL. NO. BY A SEPERATE TAG

PART NO	DESCRIPTION	QTY	MATL.	REMARKS
02-05-001	LOOP END BRACKET-2	4	AL 6061 T651	

DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES

LOOP END BRACKET-2
(HOLD DOWN RELEASE LOOP ASSEMBLY)

SCALE: 2:1

NAME	SIGN	DATE	GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
APPROVED		20/2/12	ISRO SATELLITE CENTRE BANGALORE - INDIA
MOD. CHKD	HVH	20/2/12	
DRG. CHKD	HVH	20/2/12	
DRWN	USHA		

PROJECT: PRODN SMG A4-105-35-1-0052/02-05-001

FILE NAME: 35698411

NOTES OF REVISION		ZONE
00	BASE LINE DRAWING	N/A

MODIFIED FROM A4-026-35-1-0036/02-05-005

3.2

NOTE:- IDENTIFY PART SL. NO. BY A SEPERATE TAG

PART NO	DESCRIPTION	QTY	MATL.	REMARKS
01-06-002	EXTENSION SPRING	1	BE CU11/2H	

DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES

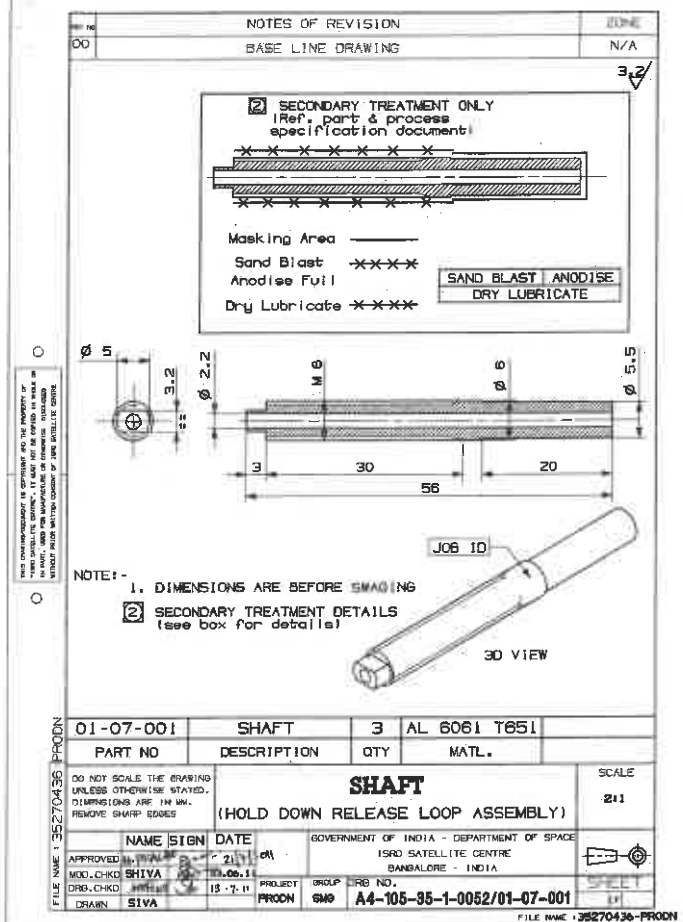
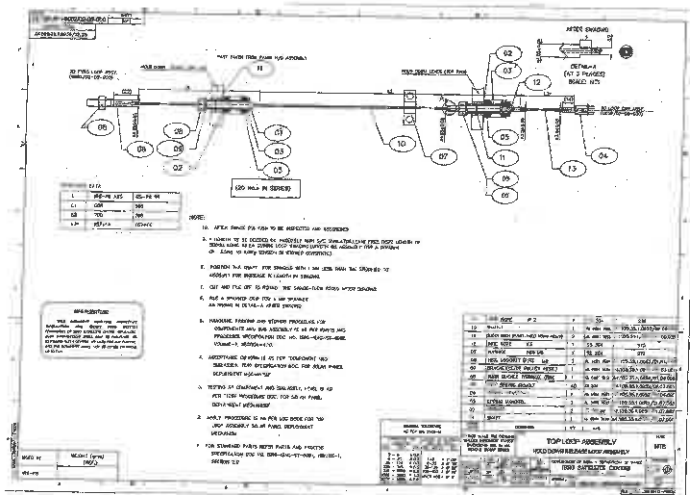
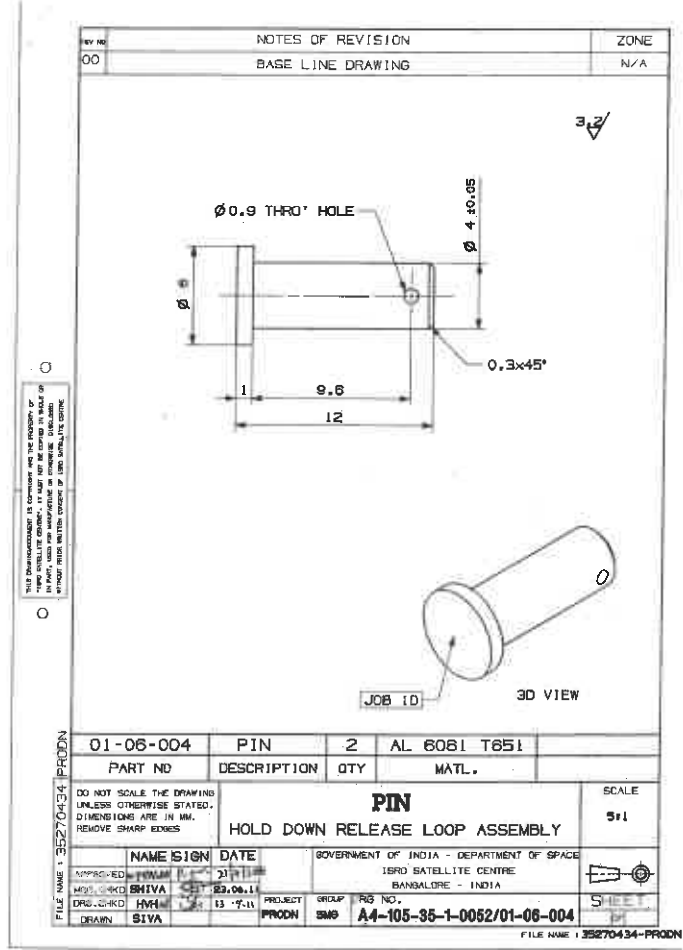
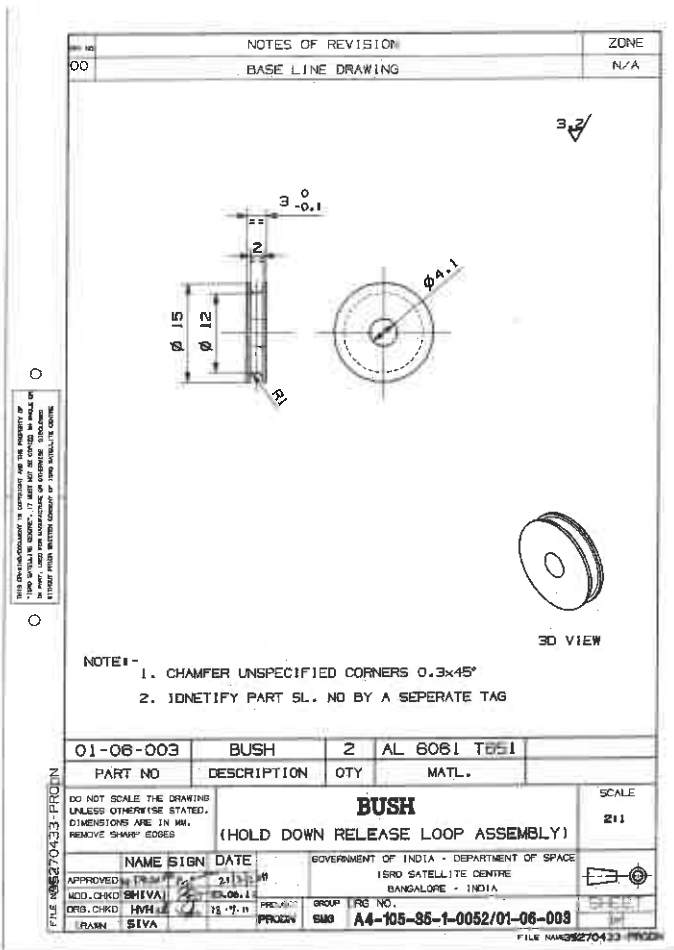
EXTENSION SPRING
(HOLD DOWN RELEASE LOOP ASSEMBLY)

SCALE: NTS

NAME	SIGN	DATE	GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
APPROVED		20/2/12	ISRO SATELLITE CENTRE BANGALORE - INDIA
MOD. CHKD	HVH	20/2/12	
DRG. CHKD	HVH	20/2/12	
DRWN	SIVA		

PROJECT: PRODN SMG A4-105-35-1-0052/01-06-002

FILE NAME: 35270432-PRODN



REV NO	NOTES OF REVISION	ZONE
00	BASE LINE DRAWING	N/A

3.2/

2 SECONDARY TREATMENT ONLY
(Ref. parts & processes specification document)

sand Blast *****
Dry Lubricate *****

SAND BLAST DRY LUBRICATE

JOB ID

3D VIEW

NOTE:-

1. REMOVE SHARP EDGES.
2. FOR SECONDARY TREATMENT DETAILS REFER BOX DRG.

PART NO	DESCRIPTION	QTY	MATL.	REMARKS
01-07-002	WASHER	3	TI 6AL4V	

WASHER
(HOLD DOWN RELEASE LOOP ASSEMBLY)

SCALE: 2:1

DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES.

APPROVED: [Signature] DATE: 3.9.11
MOD. CHKD: [Signature] DATE: 13.9.11
DRG. CHKD: [Signature] DATE: 13.9.11
DRAWN: SIVA

GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
ISRO SATELLITE CENTRE
BANGALORE - INDIA

PROJECT: [Blank] GROUP: [Blank] DRG NO.: A4-105-35-1-0052/01-07-002

FILE NAME: 35270437-PROJIN

REV NO	NOTES OF REVISION	ZONE
00	BASE LINE DRAWING	N/A
01	NOTE: 1.1 IS CHANGED TO 0.2	3.2

2 SECONDARY TREATMENT ONLY
(Ref. parts & processes specification document)

sand Blast *****
Dry Lubricate *****

SAND BLAST DRY LUBRICATE

JOB ID

3D VIEW

NOTE:-

1. 20 RD CHAMFER THE UNSPECIFIED EDGES. DEBURR THE EDGES.
2. SECONDARY TREATMENT AREA USED FOR DISC SPRING

PART NO	DESCRIPTION	QTY	MATL.	REMARKS
01-07-003	SPRING MANDREL	1	AL 6061 T651	

SPRING MANDREL
(HOLD DOWN RELEASE LOOP ASSEMBLY)

SCALE: 1:1

DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES.

APPROVED: [Signature] DATE: 3.9.11
MOD. CHKD: [Signature] DATE: 13.9.11
DRG. CHKD: [Signature] DATE: 13.9.11
DRAWN: SIVA

GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
ISRO SATELLITE CENTRE
BANGALORE - INDIA

PROJECT: [Blank] GROUP: [Blank] DRG NO.: A4-105-35-1-0052/01-07-003

FILE NAME: 35270437-PROJIN

REV NO	NOTES OF REVISION	ZONE
00	BASE LINE DRAWING	N/A

2 FOR SECONDARY TREATMENT ONLY
(Ref. parts & processes specification document)

sand Blast *****
Dry Lubricate *****

SAND BLAST DRY LUBRICATE

JOB ID

3D VIEW

NOTE:-

1. * LOCATION FOR MAKING COMPONENT SEALS NO.
2. SECONDARY TREATMENT DETAILS. (SEE BOX FOR DETAILS)
3. DEBURR UNSPECIFIED EDGES.

PART NO	DESCRIPTION	QTY	MATL.	REMARKS
02-06-001	SPRING HOLDER - 1	1	AL 6061 T651	

SPRING HOLDER - 1
(HOLD DOWN RELEASE LOOP ASSEMBLY)

SCALE: 1:1

DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES.

APPROVED: [Signature] DATE: 24/11/11
MOD. CHKD: [Signature] DATE: 29/11/11
DRG. CHKD: [Signature] DATE: 29/11/11
DRAWN: PALLAV

GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
ISRO SATELLITE CENTRE
BANGALORE - INDIA

PROJECT: [Blank] GROUP: [Blank] DRG NO.: A4-105-35-1-0052/02-06-001

FILE NAME: 35270440-PROJIN

REV NO	NOTES OF REVISION	ZONE
00	BASE LINE DRAWING	N/A
01	DEFLECTION TABLE IS MODIFIED	N/A

2 FOR SECONDARY TREATMENT ONLY
(Ref. parts & process specification document)

sand Blast *****
Dry Lubricate *****

SAND BLAST DRY LUBRICATE

JOB ID

3D VIEW

NOTE:-

1. USE SEPERATE TAG FOR JOB ID
2. SECONDARY TREATMENT DETAILS (see box for details)

PART NO	DESCRIPTION	QTY	MATL.	REMARKS
01-07-005	DISC SPRING	60	SS 304	7.0g

DISC SPRING
(HOLD DOWN RELEASE LOOP ASSEMBLY)

SCALE: NTS

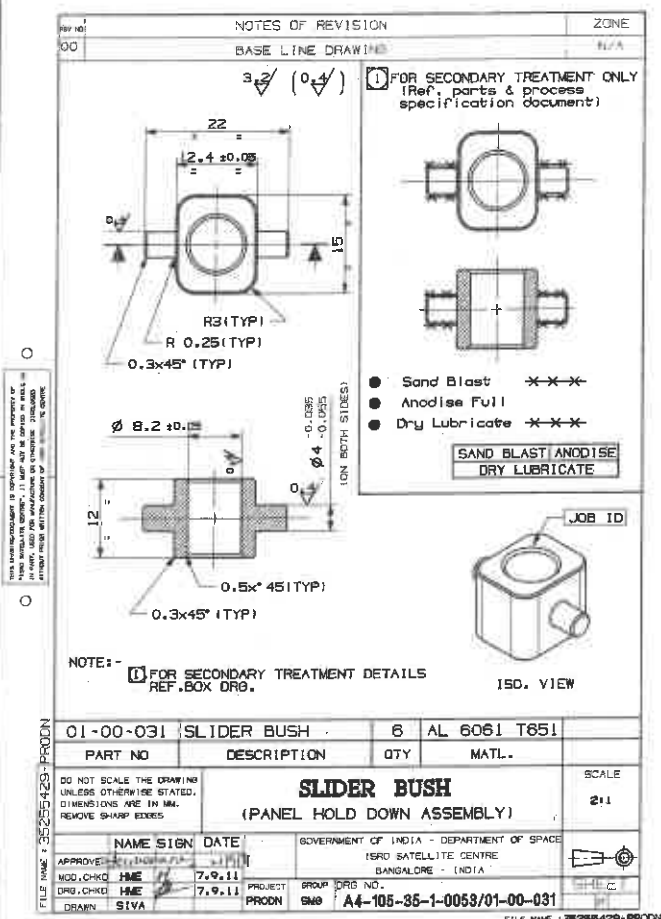
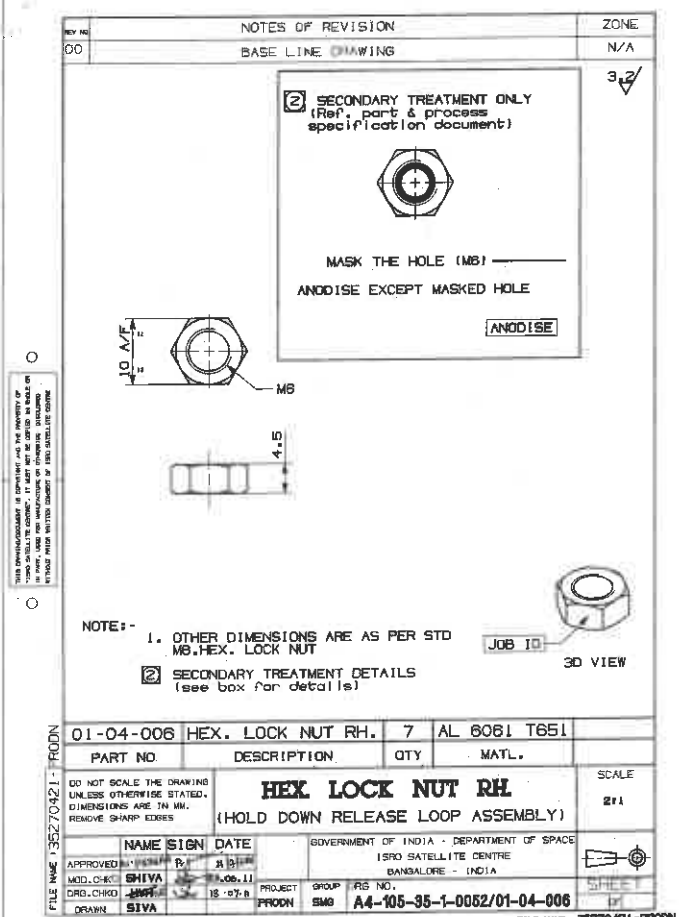
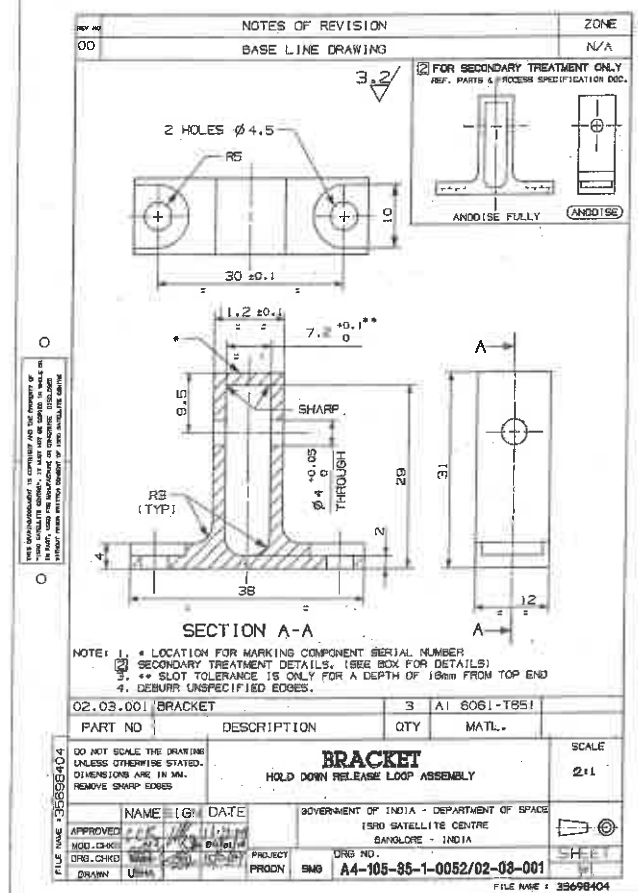
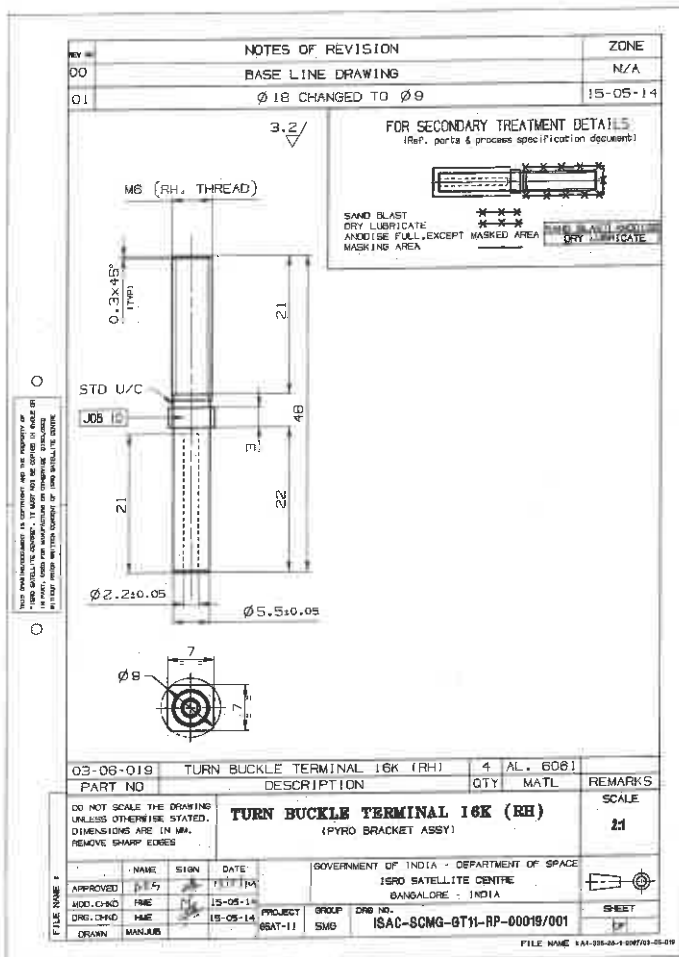
DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES.

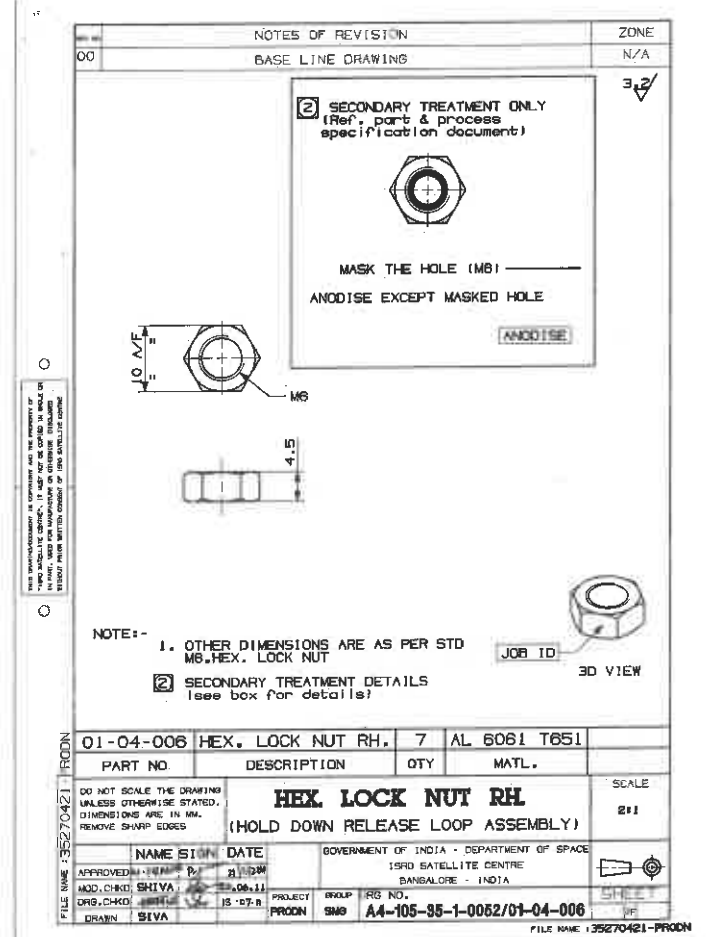
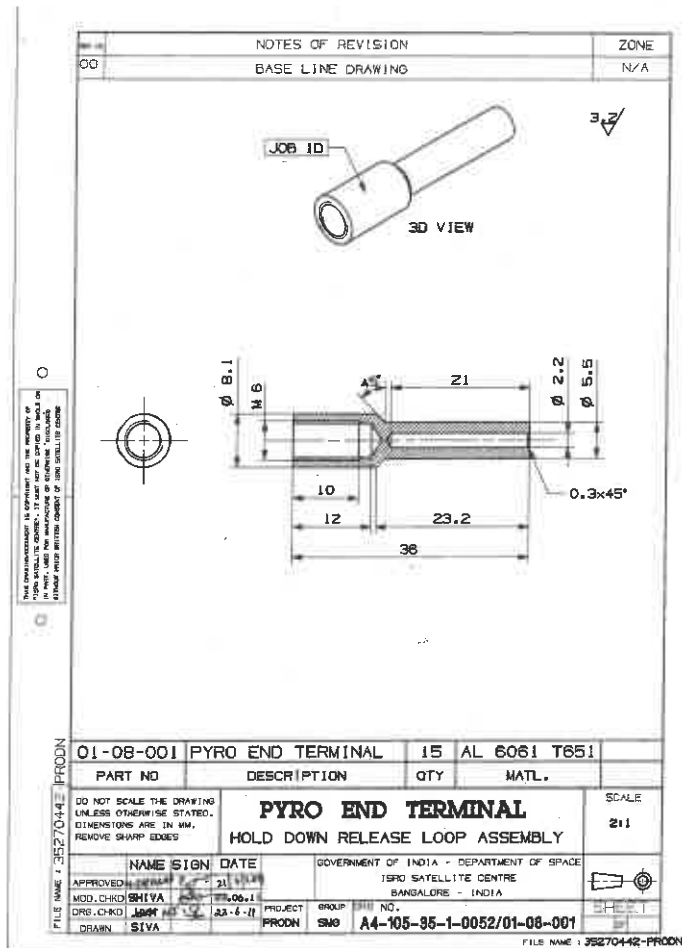
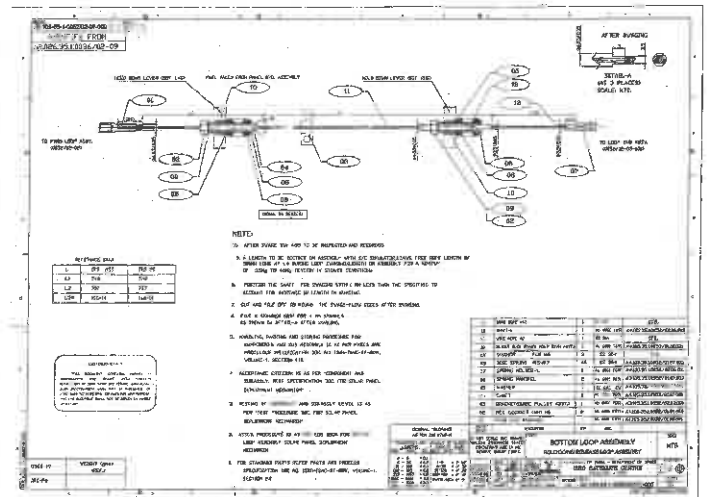
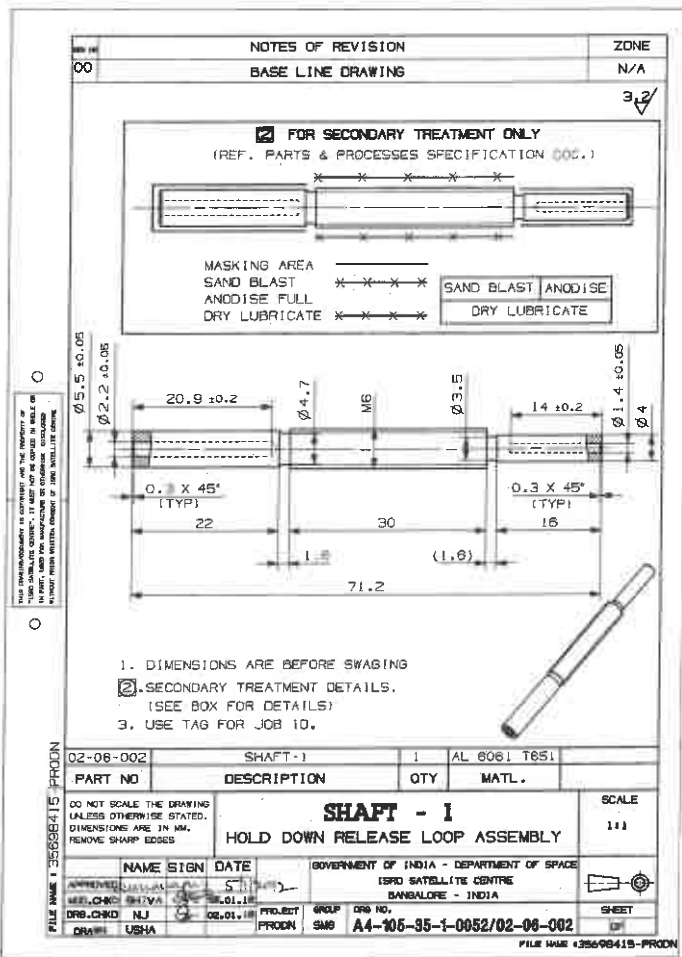
APPROVED: [Signature] DATE: 3.9.11
MOD. CHKD: [Signature] DATE: 13.9.11
DRG. CHKD: [Signature] DATE: 13.9.11
DRAWN: SIVA

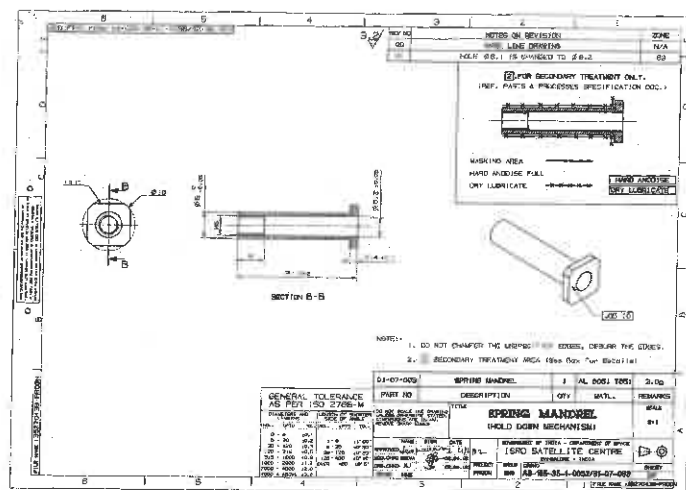
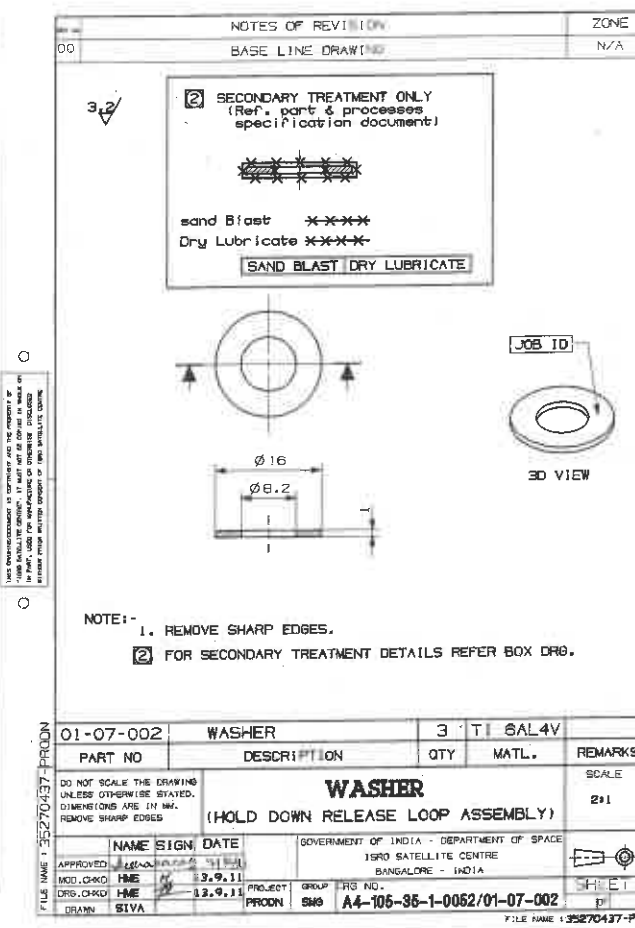
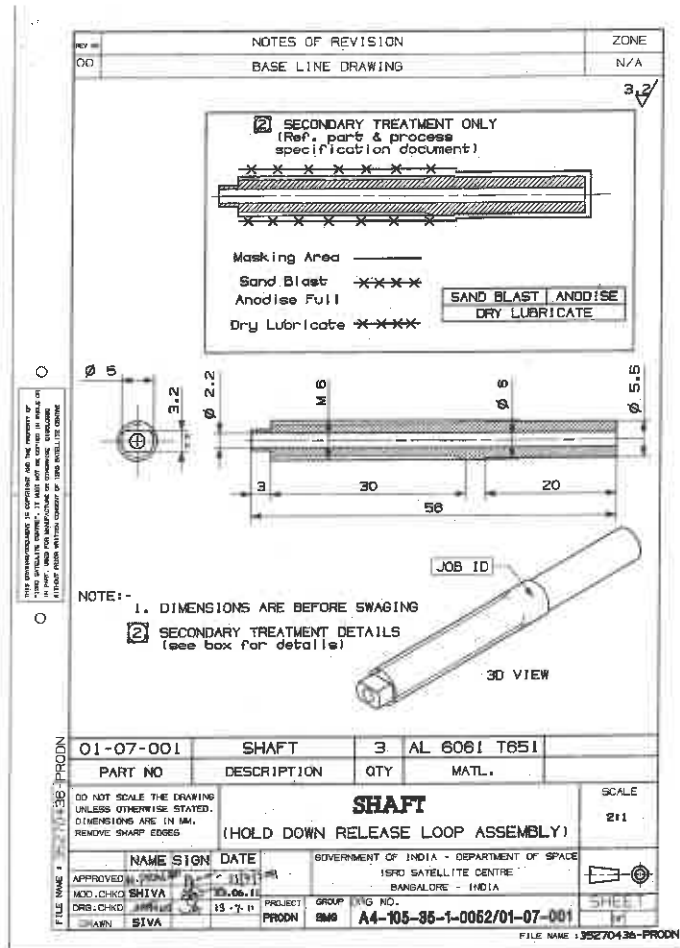
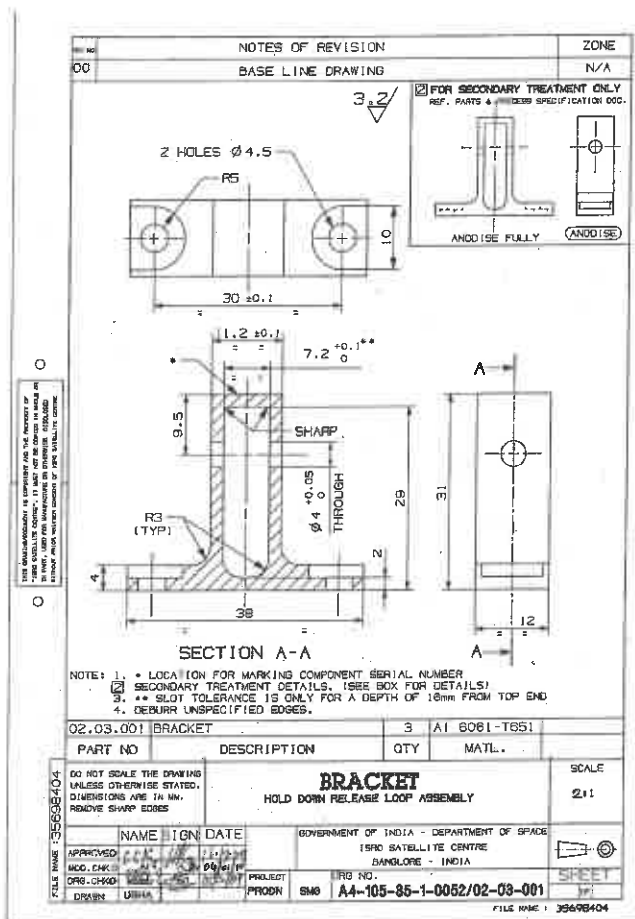
GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
ISRO SATELLITE CENTRE
BANGALORE - INDIA

PROJECT: [Blank] GROUP: [Blank] DRG NO.: A4-105-35-1-0052/01-07-005

FILE NAME: 35270440-PROJIN



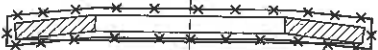




00	NOTES OF REVISION	ZONE
01	BASE LINE DRAWING	N/A
01	DEFLECTION TABLE IS MODIFIED	N/A

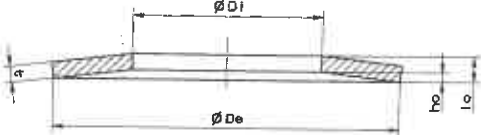
342

[2] FOR SECONDARY TREATMENT ONLY
Ref parts & process
specification document



Sand Blast & Dry Lubricate x x x

SAND BLAST DRY LUBRICATE



NOMENCLATURE		DIMENSION	
De		15	
Di		8.2	
t		0.7	
ho		0.4	
lo		1.1	

DEFLECTION		FORCE IN
%	MM	"N"
30	0.12	279
50	0.2	437
75	0.3	614
90	0.36	714

NOTE:-

- USE SEPERATE TAG FOR JOB ID
- SECONDARY TREATMENT DETAILS (see box for details)

01-07-005	DISC SPRING	60	S5 304	7.0g
PART NO	DESCRIPTION	QTY	MATL.	REMARKS

DISC SPRING

HOLD DOWN RELEASE LOOP ASSEMBLY

DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED.
DIMENSIONS ARE IN MM.
REMOVE SHARP EDGES

SCALE
NTS

GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
ISRO SATELLITE CENTRE
BANGALORE - INDIA



APPROVED	DRAWN	SIGN	DATE	PROJECT	GROUP	DWS NO.
MOD. C-90	MOD. C-90		3.10.10	PRODN	SAB	A4-105-35-1-0052/01-07-005
DWG. C-90	DWG. C-90					
DRAWN	SIVA					

FILE NAME : 35270440-PRODIN

SCALE



FILE NAME : 35270440-PRODIN

REV NO: 00

NOTES: ☒ REVISION

BASE LINE DRAWING

ZONE: N/A

3/2 (0.4)

1 FOR SECONDARY TREATMENT ONLY
(Ref. parts & process specification documents)

22

2.4 ± 0.05

15

R3 (TYP)

R 0.25 (TYP)

0.3x45° (TYP)

Ø 8.2 ± 0.1

12

0.5x45° (TYP)

0.3x45° (TYP)

Ø 4 -0.035 -0.055

ON BOTH SIDES!

● Sand Blast ***

● Anodise Full

● Dry Lubricate ***

SAND BLAST ANODISE
DRY LUBRICATE

JOB ID

ISO. VIEW

NOTE: -

1 FOR SECONDARY TREATMENT DETAILS
REF. BOX DRG.

PART NO	DESCRIPTION	QTY	MATL.
01-00-031	SLIDER BUSH	6	AL 6061 T651

DO NOT SCALE THE DRAWING
UNLESS OTHERWISE STATED.
DIMENSIONS ARE IN MM.
REMOVE SHARP EDGES

SLIDER BUSH
(PANEL HOLD DOWN ASSEMBLY)

SCALE
2:1

NAME	SIGN	DATE	GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
APPROVE			ISRO SATELLITE CENTRE
MOD. CHKD	ME	7.9.11	BANGALORE - INDIA
DRG. CHKD	ME	7.9.11	
DRWING	SVIA		

PROJECT: PRODN

GROUP: SWS

IRG NO.: A4-105-35-1-0053/01-00-031

FILE NAME: 35255429-PRODN

REV	NOTES OF REVISION	ZONE
00	BASE LINE DRAWING	N/A

3/2 ✓

☑ FOR SECONDARY TREATMENT ONLY
(REF. PARTS & PROCESSES SPECIFICATION DOC.)

$\varnothing 5.5 \pm 0.05$
 $\varnothing 2.2 \pm 0.05$
 20.9 ± 0.2
 $\varnothing 4.7$
 $M6$
 $\varnothing 3.5$
 14 ± 0.2
 $\varnothing 1.4 \pm 0.05$
 $\varnothing 4$
 $0.3 \times 45'$ (TYP)
 22
 30
 16
 1.6
 (1.6)
 71.2

1. DIMENSIONS ARE BEFORE SWAGING
 2. SECONDARY TREATMENT DETAILS.
 (SEE BOX FOR DETAILS)
 3. USE TAG FOR JOB ID.

PART NO	DESCRIPTION	QTY	MATL.
02-06-002	SHAFT-1		AL 8061 T651

DO NOT SCALE THE DRAWING
 UNLESS OTHERWISE STATED.
 DIMENSIONS ARE IN MM.
 REMOVE SHARP EDGES

SHAFT - 1

HOLD DOWN RELEASE LOOP ASSEMBLY

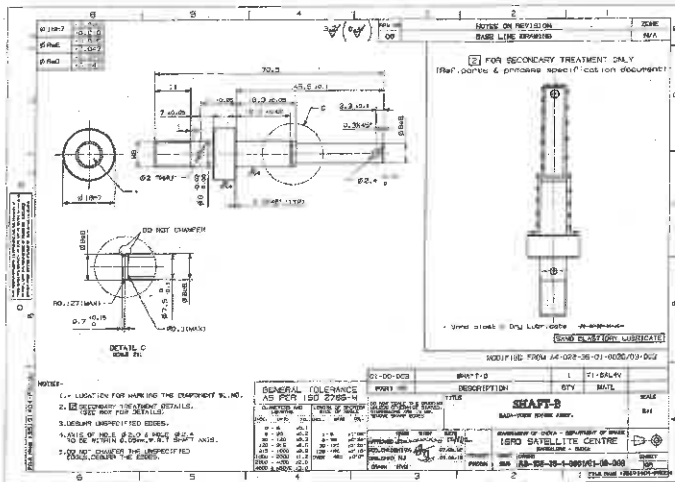
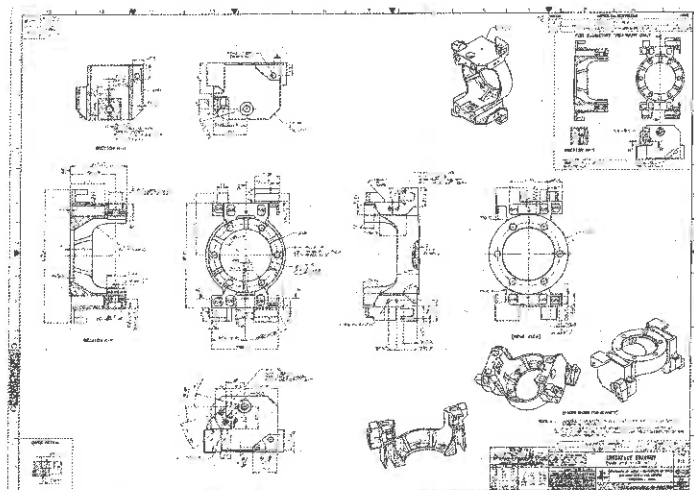
SCALE
1:1

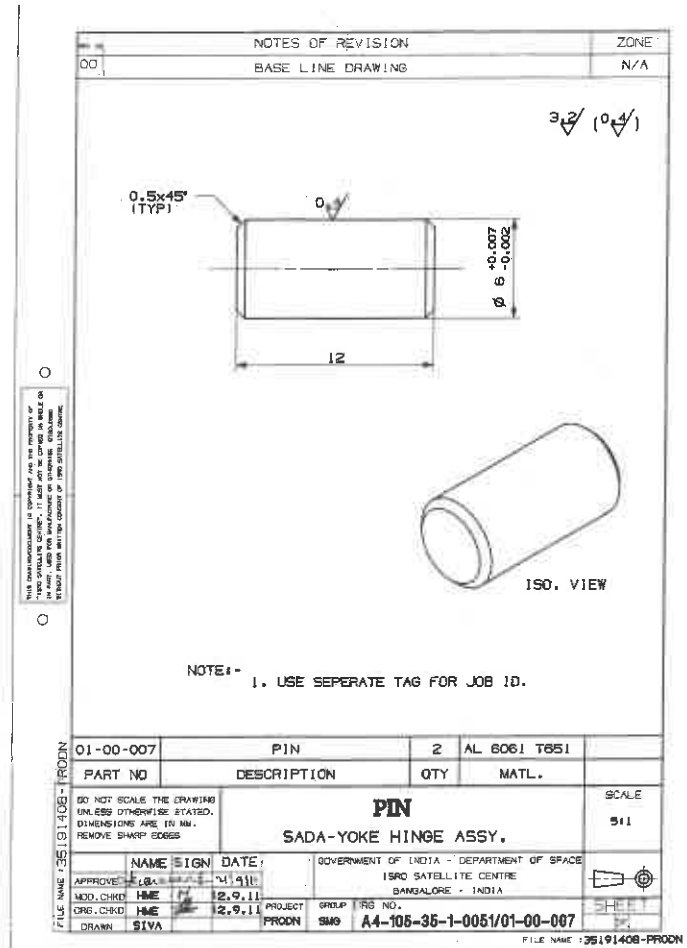
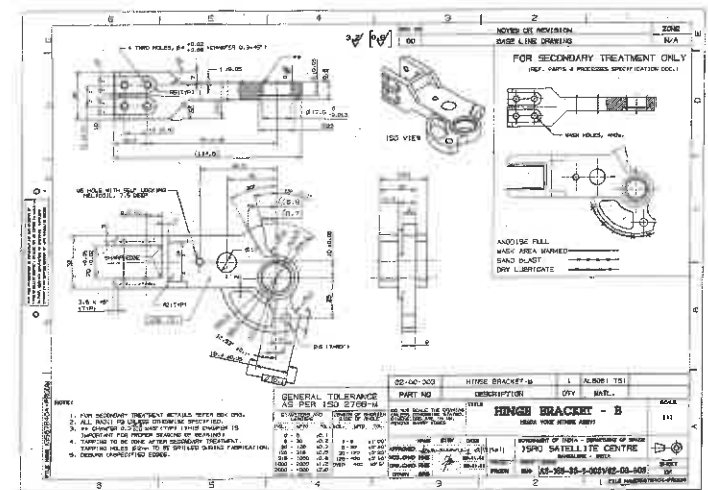
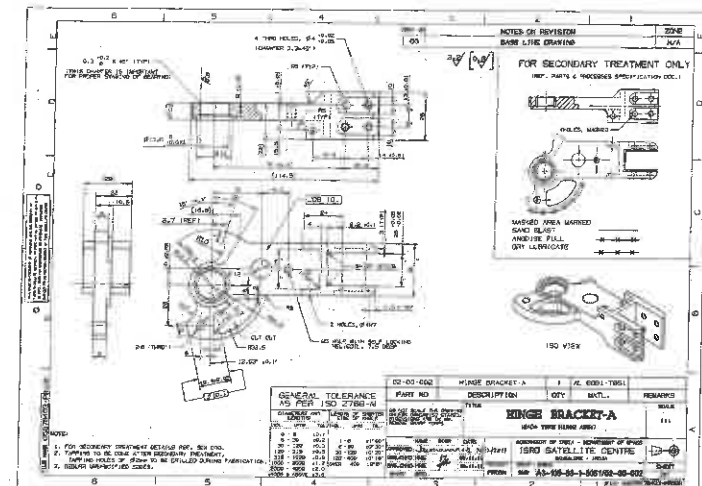
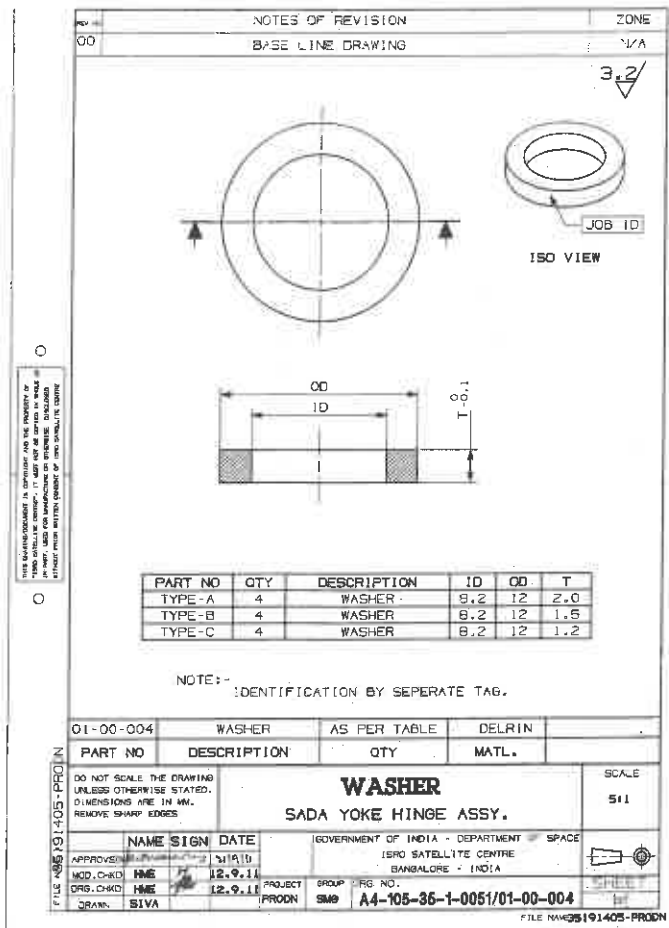
NAME SIGN	DATE	GOVERNMENT OF INDIA - DEPARTMENT OF SPACE	SHEET
APPROVED: MOD. CHKD. DRG. CHKD. UBAHA	02.01.15	INDIA SATELLITE CENTRE BANGALORE - INDIA	1

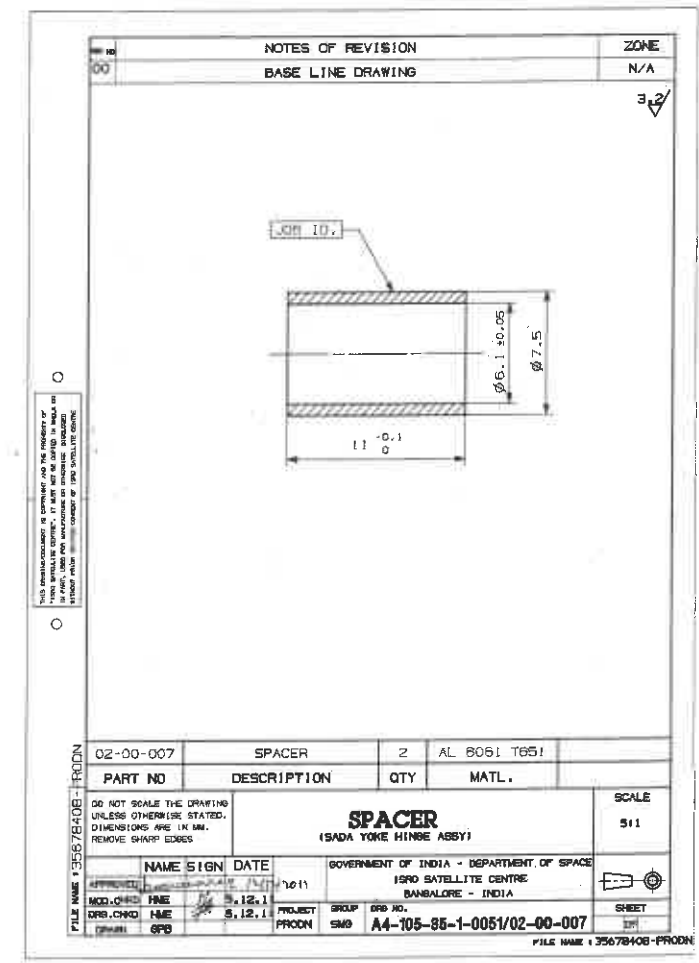
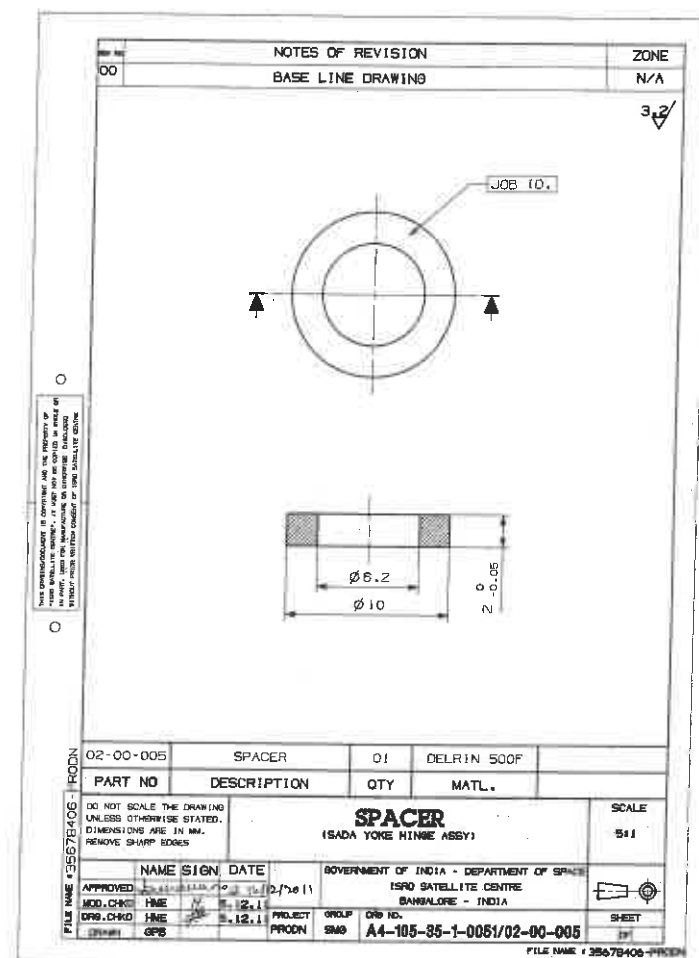
FILE NAME: 35698415-PROON

A4-105-95-1-0052/02-08-002

FILE NAME: 35698415-PROON







NOTES OF REVISION		ZONE
00	BASE LINE DRAWING	N/A

3/2 ② SECONDARY TREATMENT DETAILS

ISO VIEW

ANODISE FULL

NOTE: 1. DEBURR UNSPECIFIED EDGES.
2. FOR SECONDARY TREATMENT DETAILS REF. BOX DRG.

PART NO	DESCRIPTION	QTY	MATL.
02-00-008	BUSH	2	AL 6061 T651

BUSH
(SADA YOKE HINGE ASSEMBLY)

DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES.

SCALE: 2:1

NAME	SIGN	DATE	GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
APPROVED		12/04	ISRO SATELLITE CENTRE BANGALORE - INDIA
MOD. CHKD	HME	12.11	
DRG. CHKD	HME	12.11	
DRAWN	GPB		

PROJECT: PRODN GROUP: SMG DRG NO: A4-105-35-1-0051/02-00-008

FILE NAME: 35678409-PRODN

NOTES OF REVISION		ZONE
00	BASE LINE DRAWING	N/A

3/2

ISO VIEW

SECTION A-A

SECTION B-B

NOTE: 1. DEBURR UNSPECIFIED EDGES.
2. FOR SECONDARY TREATMENT DETAILS REF. BOX DRG.

PART NO	DESCRIPTION	QTY	MATL.
02-00-009	SPRING ADAPTOR	2	AL6061 T651

SPRING ADAPTOR
SUB TITLE

DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES.

SCALE: 2:1

NAME	SIGN	DATE	GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
APPROVED		12/04	ISRO SATELLITE CENTRE BANGALORE - INDIA
MOD. CHKD	HME	12.11	
DRG. CHKD	HME	12.11	
DRAWN	GPB		

PROJECT: PRODN GROUP: SMG DRG NO: A4-105-35-1-0051/02-00-009

FILE NAME: 35678410-PRODN

NOTES OF REVISION		ZONE
00	BASE LINE DRAWING	N/A

RH SPRING

PARAMETER	VALUE
d	2
ID	30
N	13
FREE LENGTH AFTER HEAT TREATMENT	11.1 ±0.2mm
L1	6
L2	60
T MAX	5.3 Kgf/cm
K	0.0139 Kgf/cm/deg
WEIGHT	67Kgf/cm²
ROTATION ANGLE (START)	130°
ROTATION ANGLE (END)	130°

NOTE: 1. HEAT TREATMENT: REF. PARTS & PROCESSES SPECIFICATION DOCUMENT FOR DETAILS. HEAT TREATMENT TO BE DONE AS PER DRG A4-105-35-1-0071/00-00-038.
2. ** COMPONENT SERIAL NO. TO BE ENGRAVED ON AN AL-SHEET 10x10x0.3mm THICK AND TIED TO THE SPRING COIL WIRE USING A THIN SS BINDING WIRE.

PART NO	DESCRIPTION	QTY	MATL.
02-00-010	TORSION SPRING (RH)	1	BeCu(1/2H)

TORSION SPRING (RH)
(SADA YOKE HINGE ASSEMBLY)

DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES.

SCALE: 1:1

NAME	SIGN	DATE	GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
APPROVED		12/04	ISRO SATELLITE CENTRE BANGALORE - INDIA
MOD. CHKD	HME	12.11	
DRG. CHKD	HME	12.11	
DRAWN	GPB		

PROJECT: PRODN GROUP: SMG DRG NO: A4-105-35-1-0051/02-00-010

FILE NAME: 35678411-PRODN

NOTES ON REVISIONS		ZONE	SIGN	DATE
1	MODIFIED FROM A4-102-35-01-0001/03-015			
2	FREE LENGTH DIMENSION CHANGED.			16-10-07

LH SPRING

PARAMETER	VALUE
d	2.00
ID	30.00
N	13
FREE LENGTH AFTER HEAT TREATMENT	34
L1	6.00
L2	60.00
T MAX	5.3
K	0.0139 Kgf/cm/deg
WEIGHT	67Kgf/cm²
ROTATION ANGLE (START)	130°
ROTATION ANGLE (END)	130°

NOTE: 2. ** COMPONENT SERIAL NO. TO BE ENGRAVED ON AN AL-SHEET OF 10x10x0.3mm THICK AND TIED TO THE SPRING COIL WIRE USING A THIN SS BINDING WIRE.
1. HEAT TREATMENT: REF. PARTS & PROCESSES SPECIFICATION DOCUMENT FOR DETAILS. HEAT TREATMENT IS TO BE DONE AS PER DRG: NO: A4-105-35-1-0071/00-00-038.

PART NO	DESCRIPTION	QTY	MATL.
02-00-011	TORSION SPRING (LH)	1	BeCu(1/2H)

TORSION SPRING (LH)
(SADA YOKE HINGE ASSEMBLY)

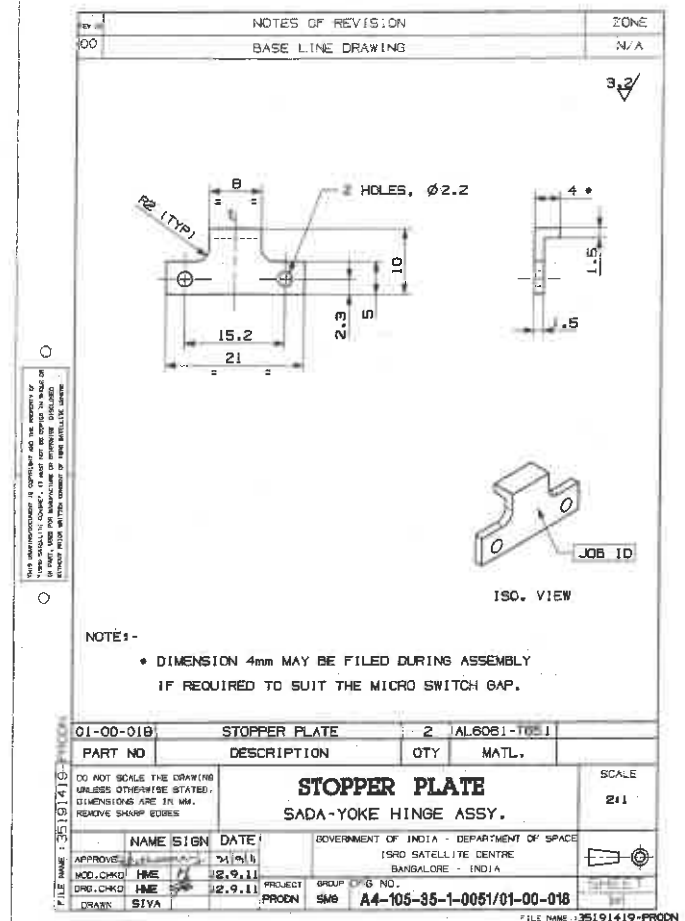
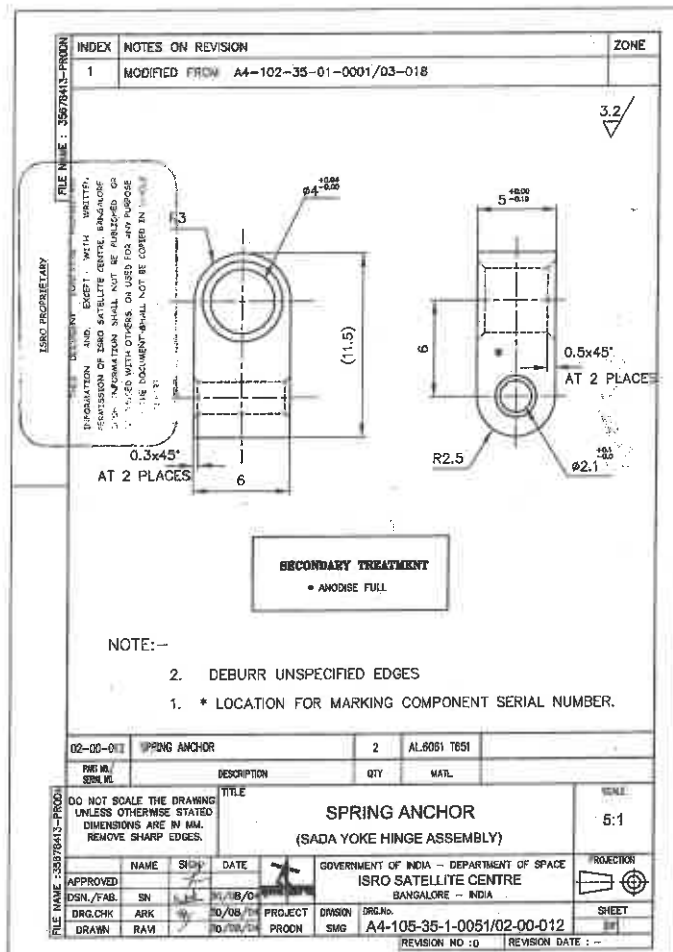
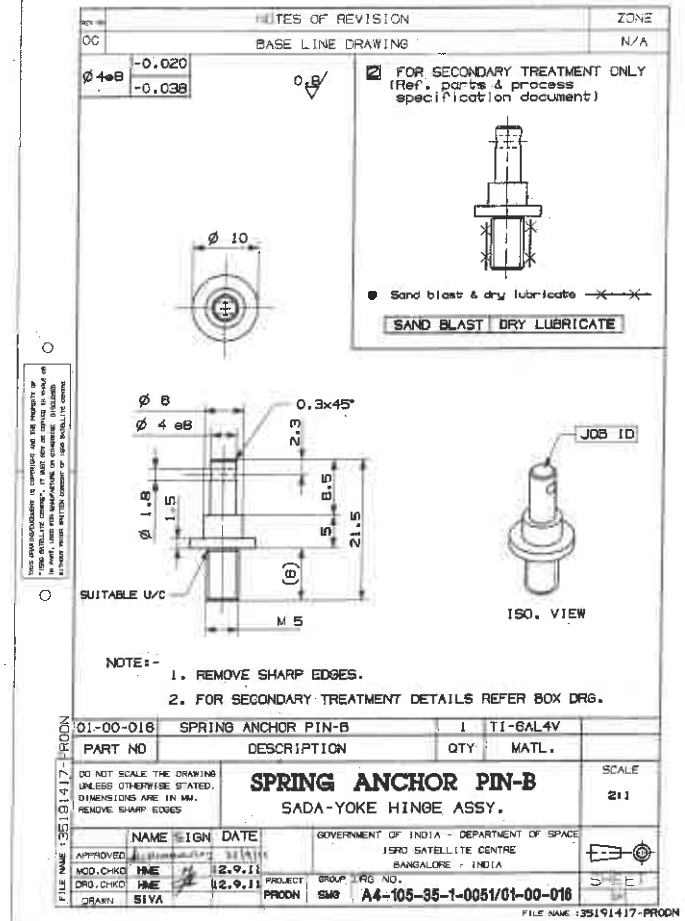
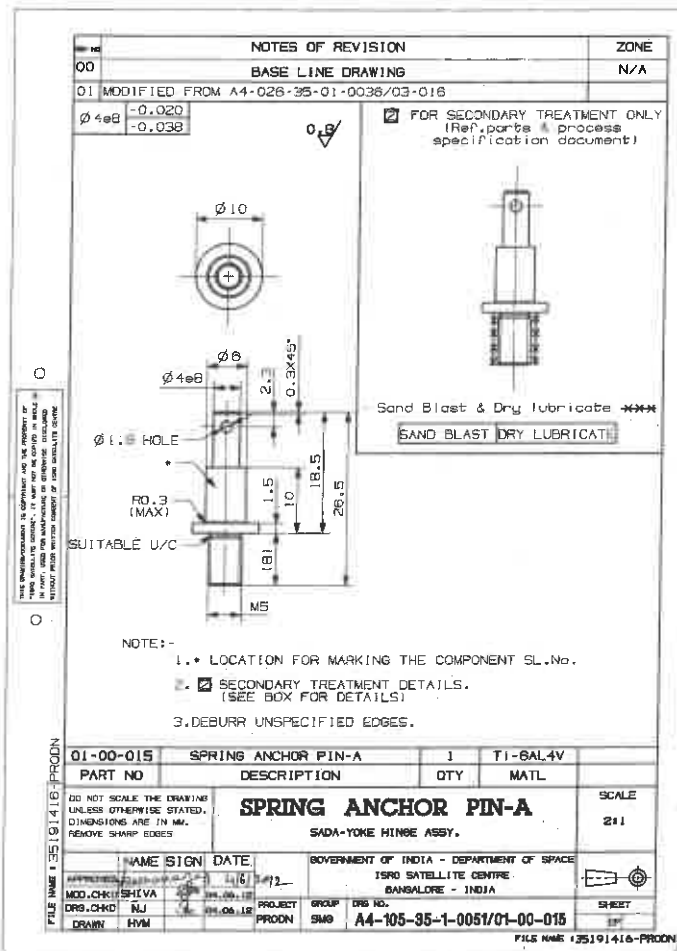
DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES.

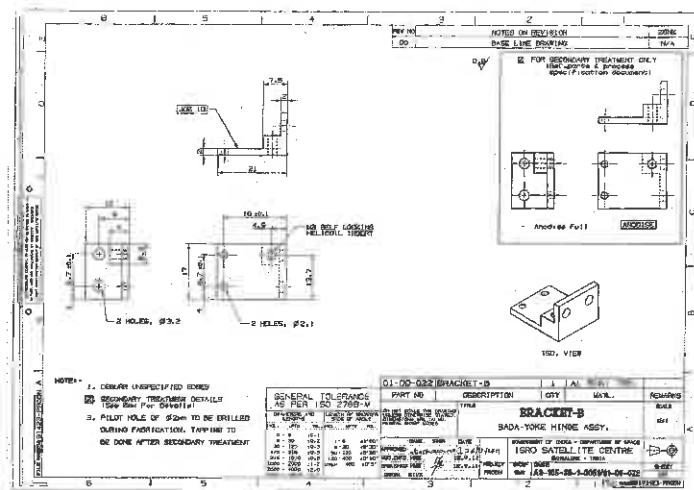
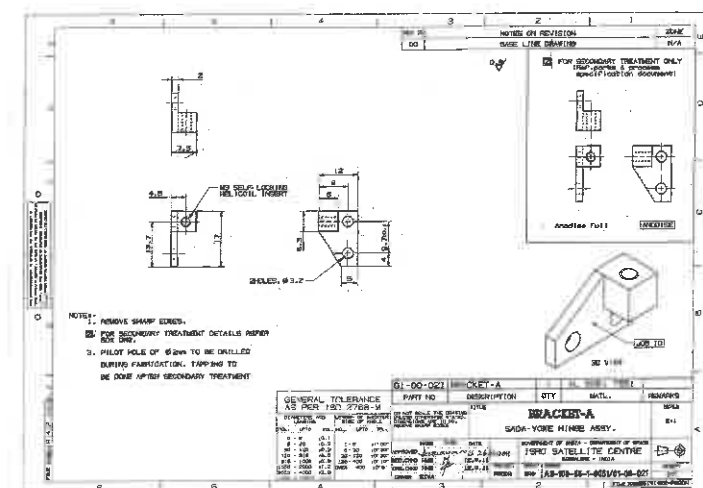
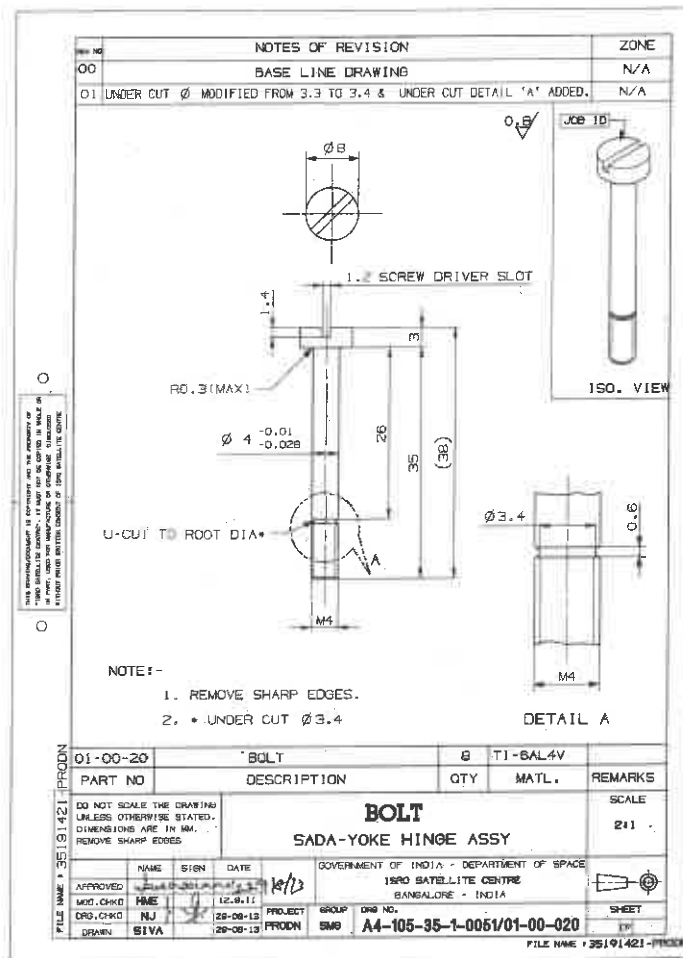
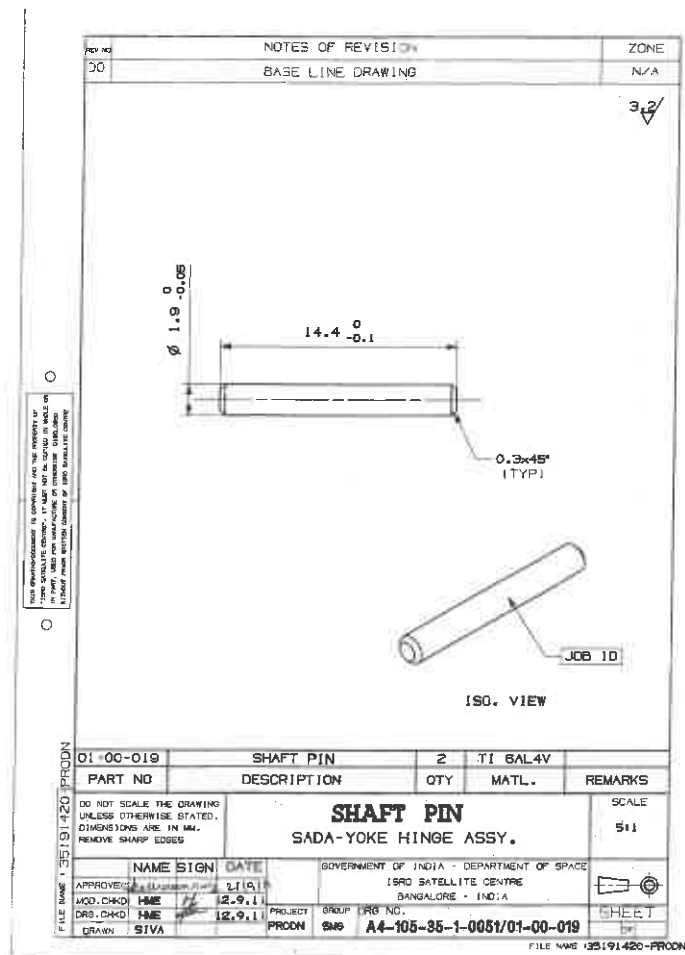
SCALE: 1:1

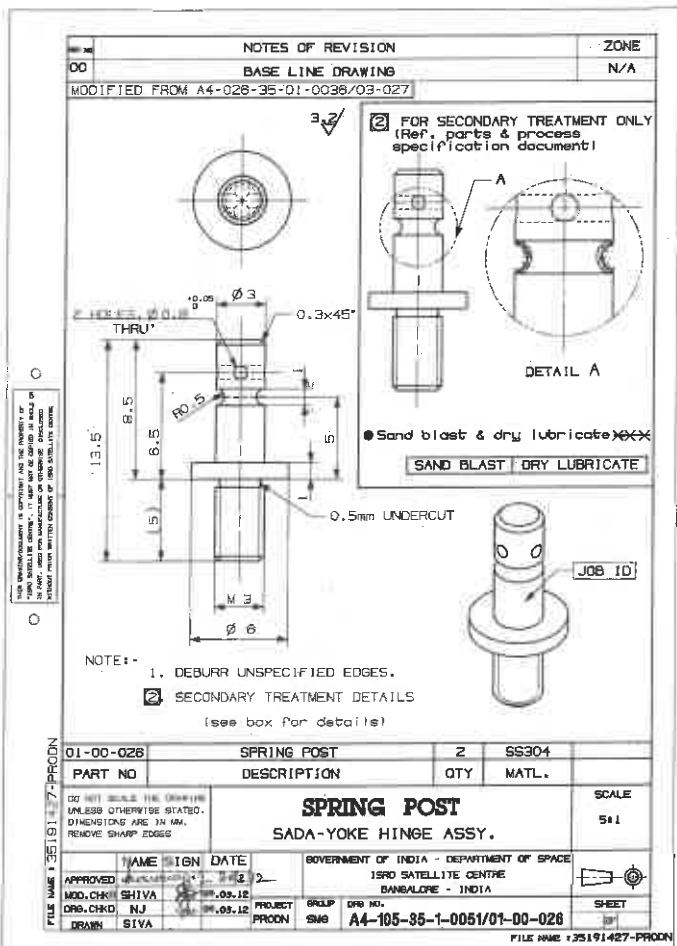
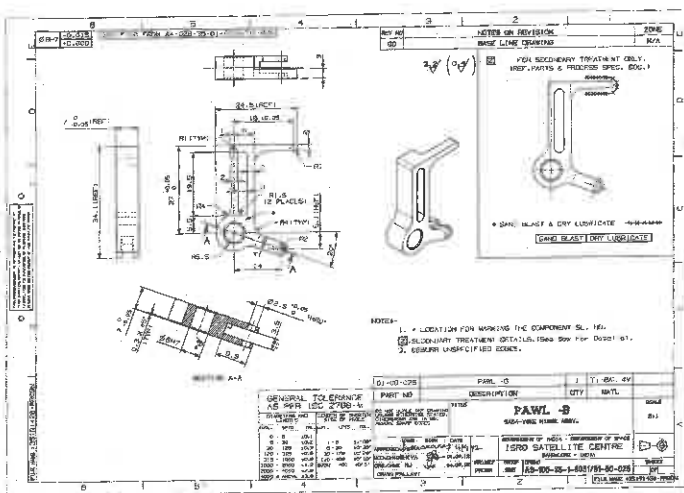
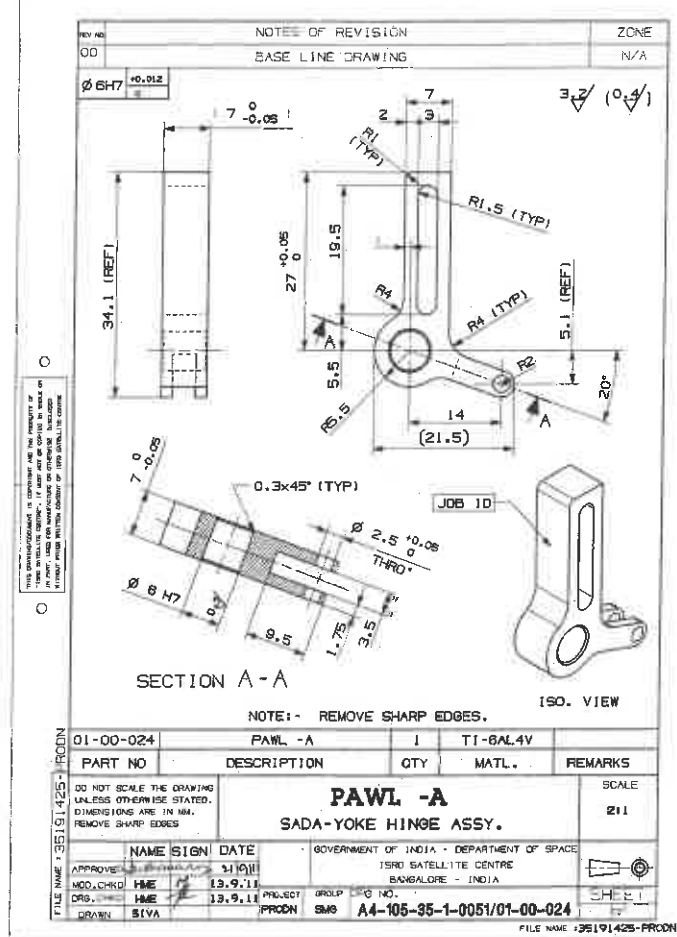
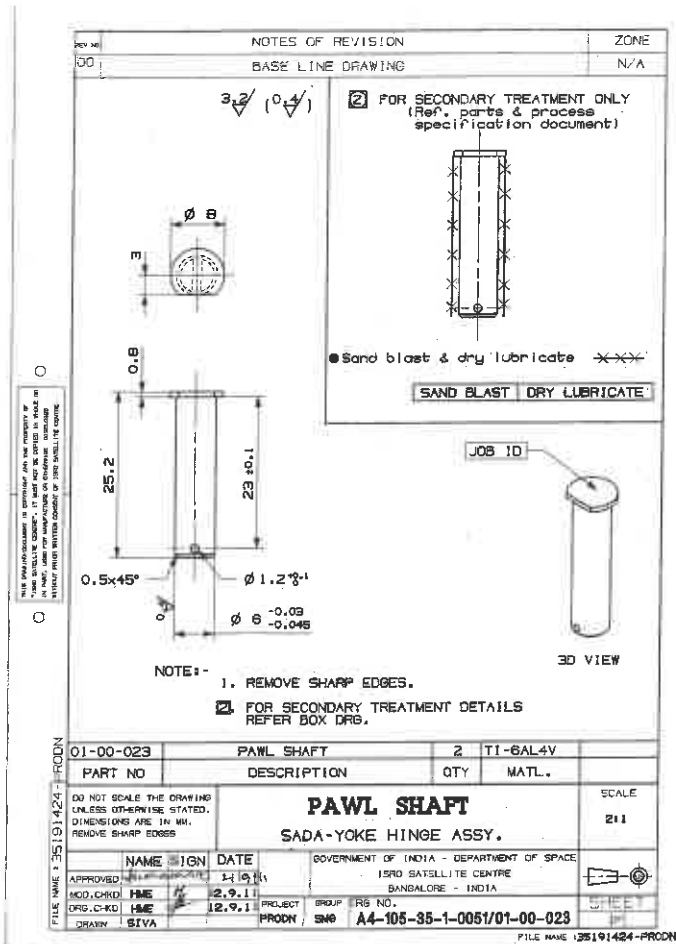
NAME	SIGN	DATE	GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
APPROVED		12/04	ISRO SATELLITE CENTRE BANGALORE - INDIA
MOD. CHKD	HME	12.11	
DRG. CHKD	HME	12.11	
DRAWN	RAVI	20/04/04	

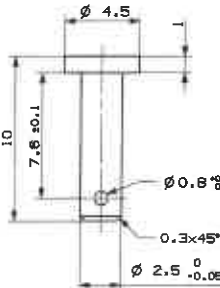
PROJECT: PRODN GROUP: SMG DRG NO: A4-105-35-1-0051/02-00-011

FILE NAME: 35678412-PRODN







THIS DRAWING IS TO BE CONSIDERED AS THE PROPERTY OF "ISRO INTELLIGENCE DIVISION". IT SHALL NOT BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, WITHOUT PRIOR WRITTEN CONSENT OF ISRO INTELLIGENCE DIVISION.	NOTES OF REVISION BASE LINE DRAWING	ZONE N/A
O.B. ✓		
2 FOR SECONDARY TREATMENT ONLY (Ref. part & process specification document)		
		
• Sand blast & dry lubricate xxx SAND BLAST DRY LUBRICATE		
		
ISO. VIEW		
NOTE:-		
1. REMOVE SHARP EDGES.		
2 FOR SECONDARY TREATMENT DETAILS REFER BOX DRG.		
3. USE SEPARATE TAG FOR JOB ID.		

01-00-028	PIN	2	T1-6AL4V	
PART NO	DESCRIPTION	QTY	MATL.	REMARKS
DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES PIN SADA-YOKE HINGE ASSY. SCALE 5:1				
APPROV. _____ DATE 21.11.19 MOD. CHKD. HSE 13.9.1 DES. CHKD. HSE 13.9.1				
PROJECT _____ GROUP _____ NO. _____ DRAWN: SIVA PRODN: SMG		GOVERNMENT OF INDIA - DEPARTMENT OF SPACE ISRO SATELLITE CENTRE BANGALORE - INDIA A4-105-36-1-0051/01-00-028		

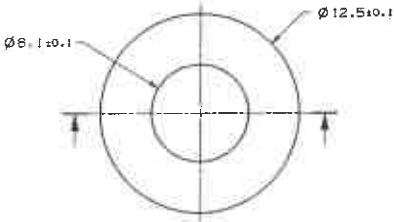
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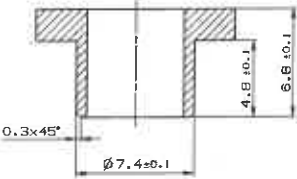
FILE NAME: 36191429-PRODIN

NO	NOTES OF REVISION	ZONE
00	BASE LINE DRAWING	N/A

B.3 ✓







NOTE : JOB ID BY TAG.

1	INSULATING BUSH	6	GFRP	0.63 gm
SL. No.	DESCRIPTION	QTY.	MATL.	MASS

MINIMUM TOLERANCE AS PER ISO 2768-M
(DIMENSIONS FOLLOWING TO BE
ACHIEVED BY BEST POSSIBLE METHOD)
AND NOT SCALE THE DRAWING UNLESS
OTHERWISE STATED.
NOT INDICATED ARE IN MM UNLESS
OTHERWISE STATED.

TITLE

INSULATING BUSH

(SADA HINGE ASSY.)

SCALE

5:1

APPROVED	NAME	SIGN	DATE	प्रमुख सचिव-अंतरिक्ष विभाग यू.आर.ओ उपग्रह केंद्र बंगलूरु-560 017	DEPARTMENT OF SPACE U.R. RAO SATELLITE CENTRE BANGALURU - 560 017
DESIGNER	NAME	SIGN	DATE	प्रमुख सचिव-अंतरिक्ष विभाग यू.आर.ओ उपग्रह केंद्र बंगलूरु-560 017	DEPARTMENT OF SPACE U.R. RAO SATELLITE CENTRE BANGALURU - 560 017
MOD. CHG	NAME	SIGN	DATE	प्रमुख सचिव-अंतरिक्ष विभाग यू.आर.ओ उपग्रह केंद्र बंगलूरु-560 017	DEPARTMENT OF SPACE U.R. RAO SATELLITE CENTRE BANGALURU - 560 017
DRG. CHG	NAME	SIGN	DATE	प्रमुख सचिव-अंतरिक्ष विभाग यू.आर.ओ उपग्रह केंद्र बंगलूरु-560 017	DEPARTMENT OF SPACE U.R. RAO SATELLITE CENTRE BANGALURU - 560 017
DRW. CHG	NAME	SIGN	DATE	प्रमुख सचिव-अंतरिक्ष विभाग यू.आर.ओ उपग्रह केंद्र बंगलूरु-560 017	DEPARTMENT OF SPACE U.R. RAO SATELLITE CENTRE BANGALURU - 560 017

PROJECT NO. : 1100111

ISAC-SCMG-G208-S1-21001/000

OLD DWG. No.:

APPROVED

ISAC-SCMG-G208-S1-21001/000

OLD DWG. No.:

APPROVED

ISAC-SCMG-G208-S1-21001/000

OLD DWG. No.:

APPROVED

ISAC-SCMG-G208-S1-21001/000

OLD DWG. No.:

APPROVED

ISAC-SCMG-G208-S1-21001/000

OLD DWG. No.:

APPROVED

ISAC-SCMG-G208-S1-21001/000

OLD DWG. No.:

APPROVED

ISAC-SCMG-G208-S1-21001/000

OLD DWG. No.:

APPROVED

ISAC-SCMG-G208-S1-21001/000

OLD DWG. No.:

APPROVED

ISAC-SCMG-G208-S1-21001/000

OLD DWG. No.:

APPROVED

ISAC-SCMG-G208-S1-21001/000

OLD DWG. No.:

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ISAC-SCMG-G208-S1-21001/000

OLD DWG. No.:

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APPROVED

ISAC-SCMG-G208-S1-21001/000

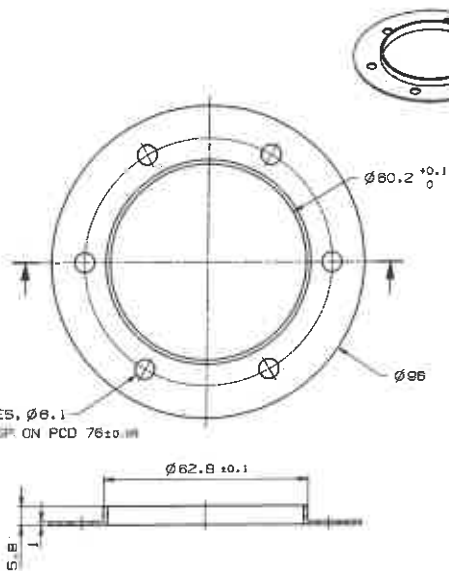
OLD DWG. No.:

APPROVED

ISAC-SCMG-G208-S1

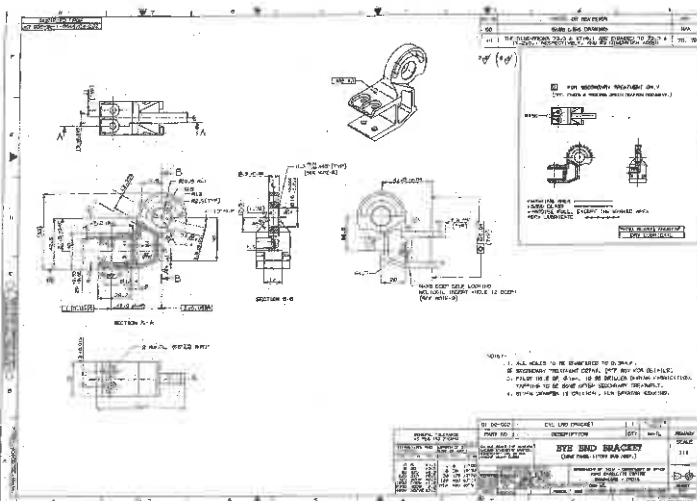
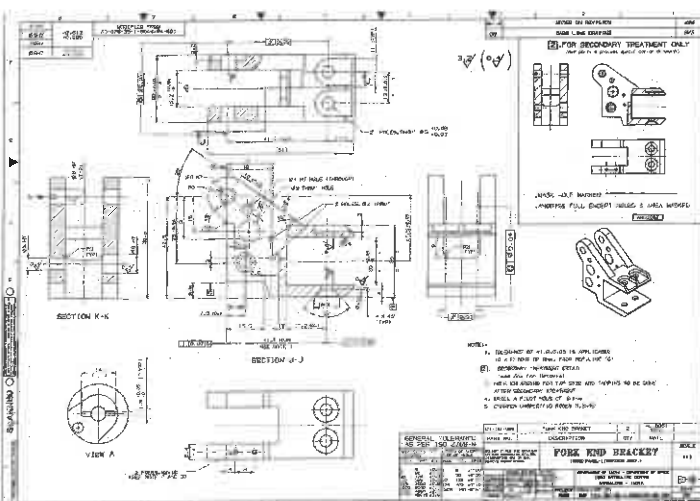
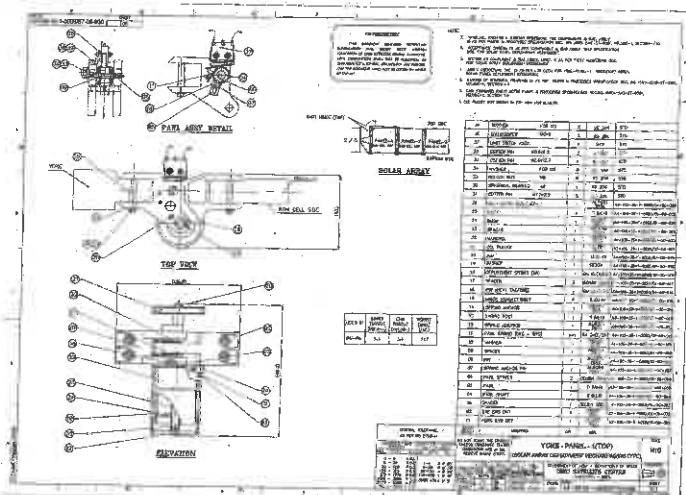
REV NO	NOTES OF REVISION	ZONE
00	BASE LINE DRAWING	N/A
01	DESIGN MODIFIED AND DRAWING UPDATED	N/A

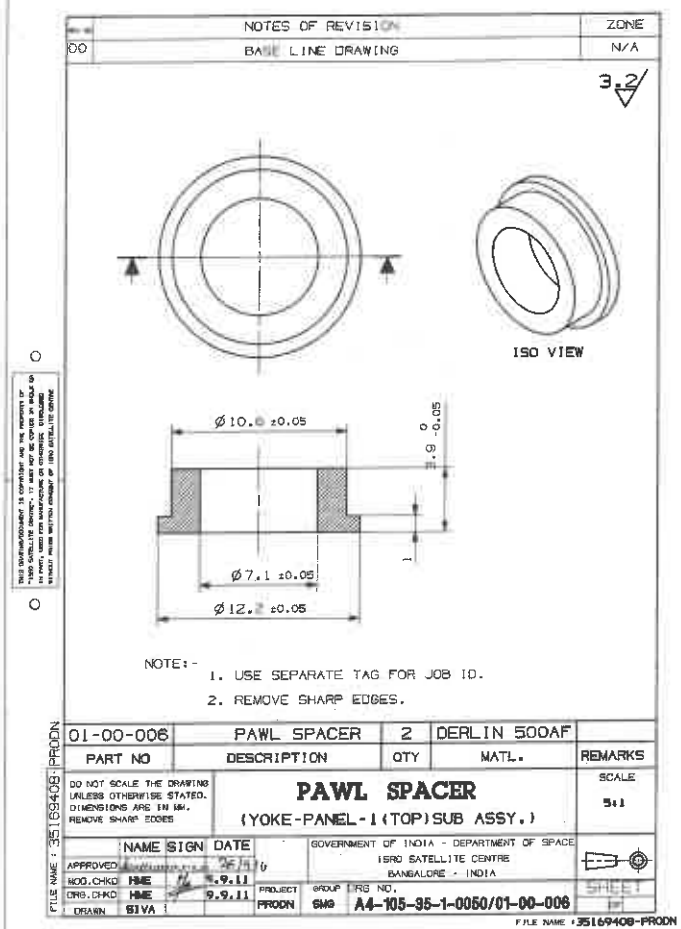
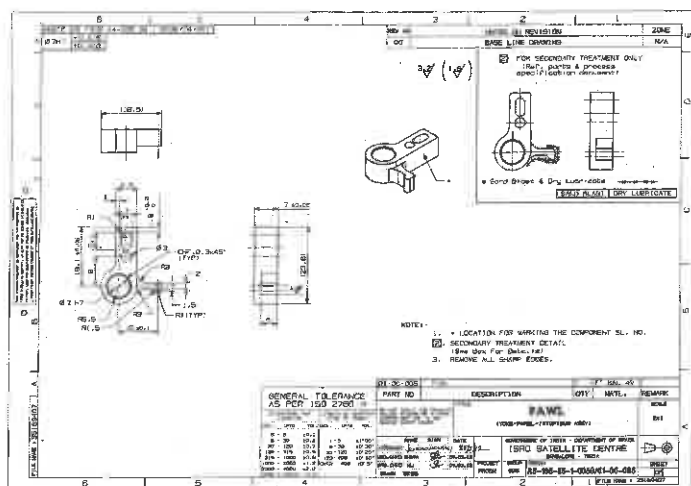
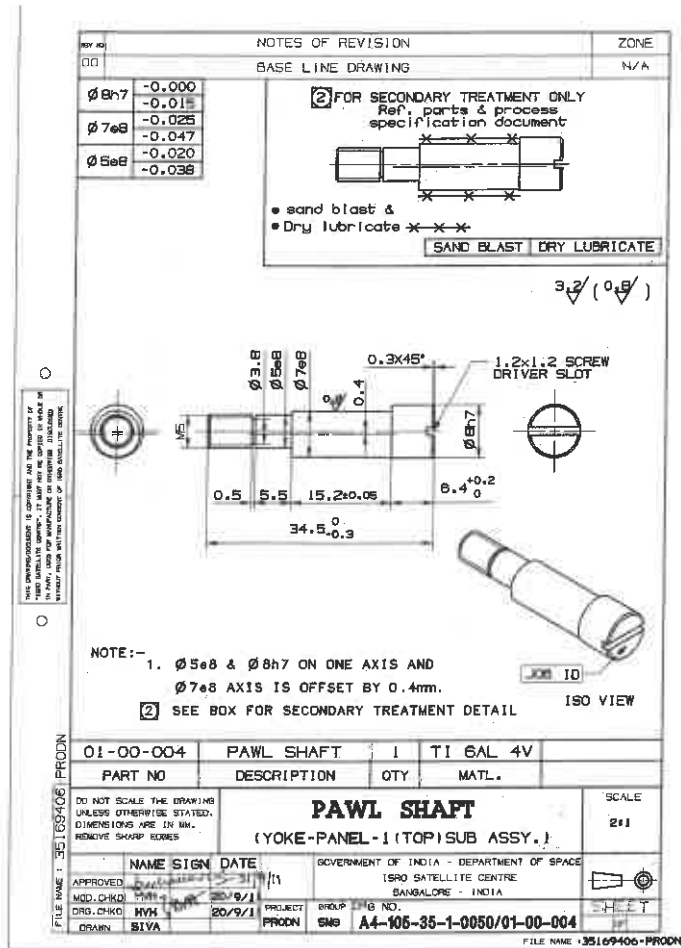
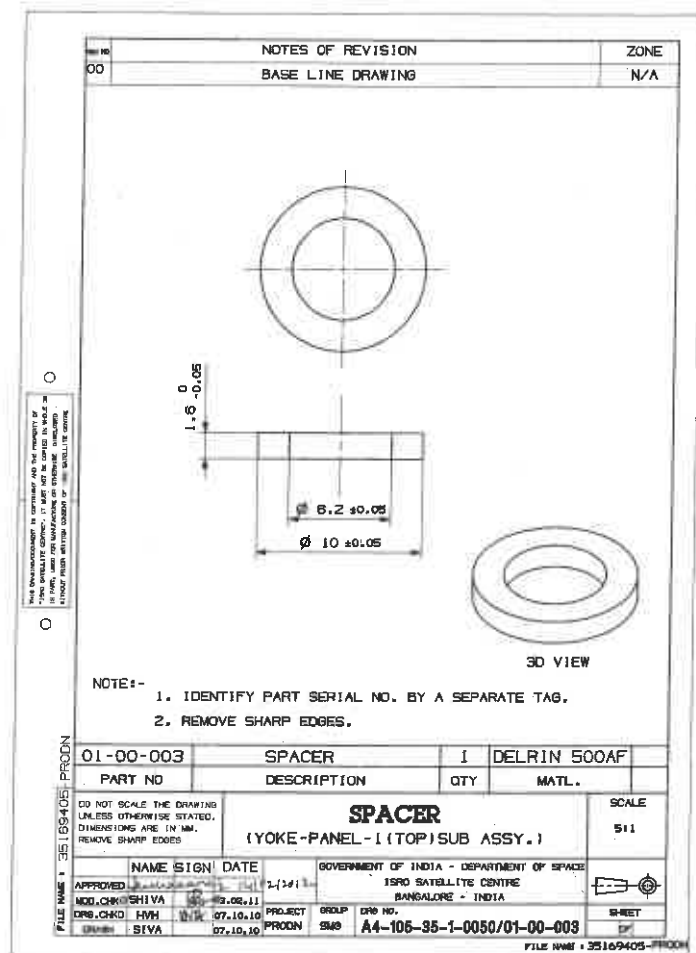
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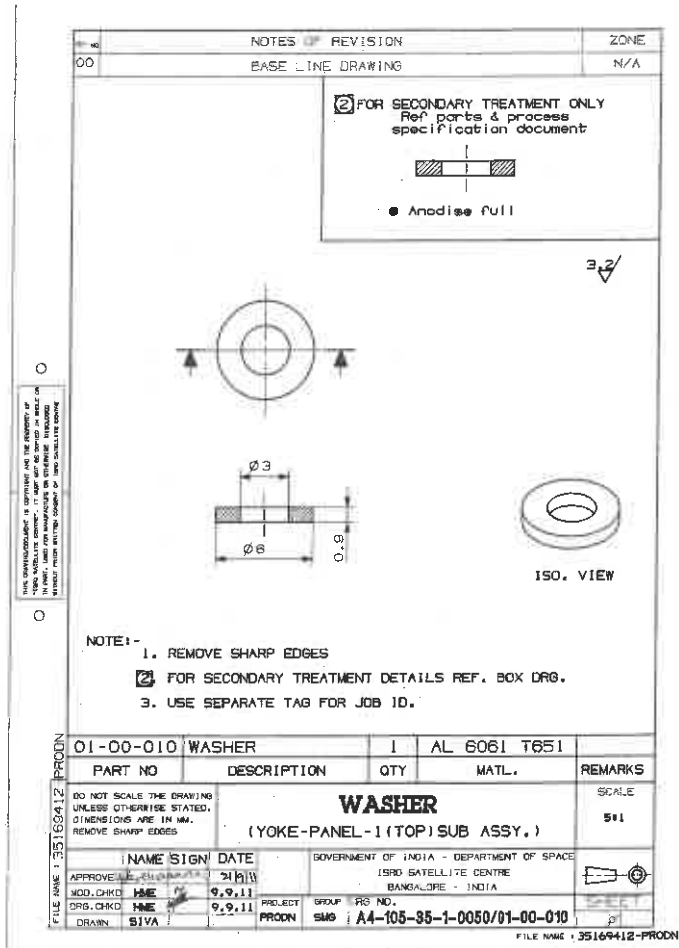
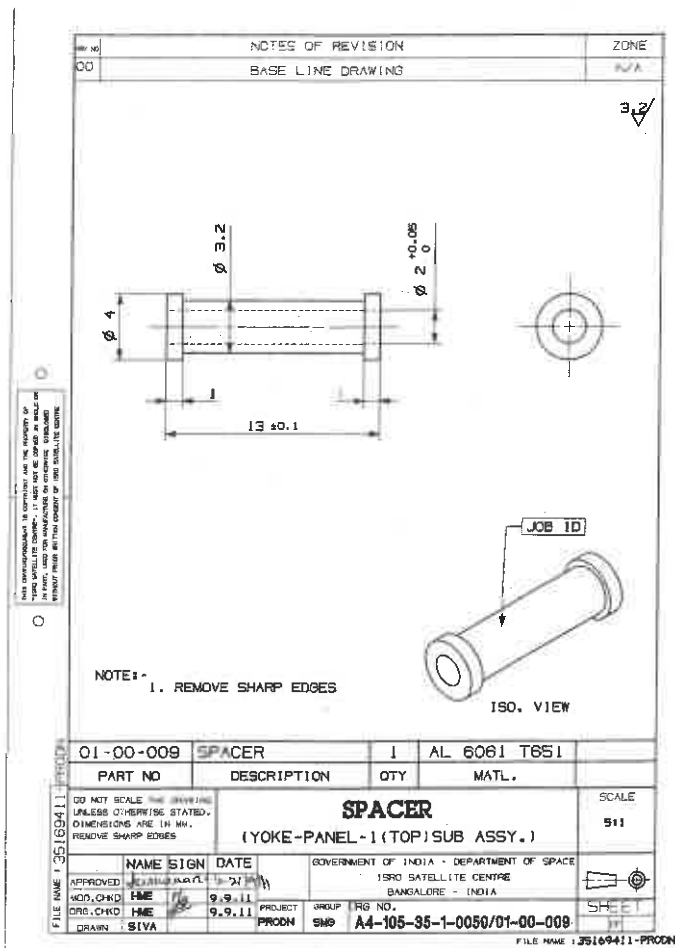
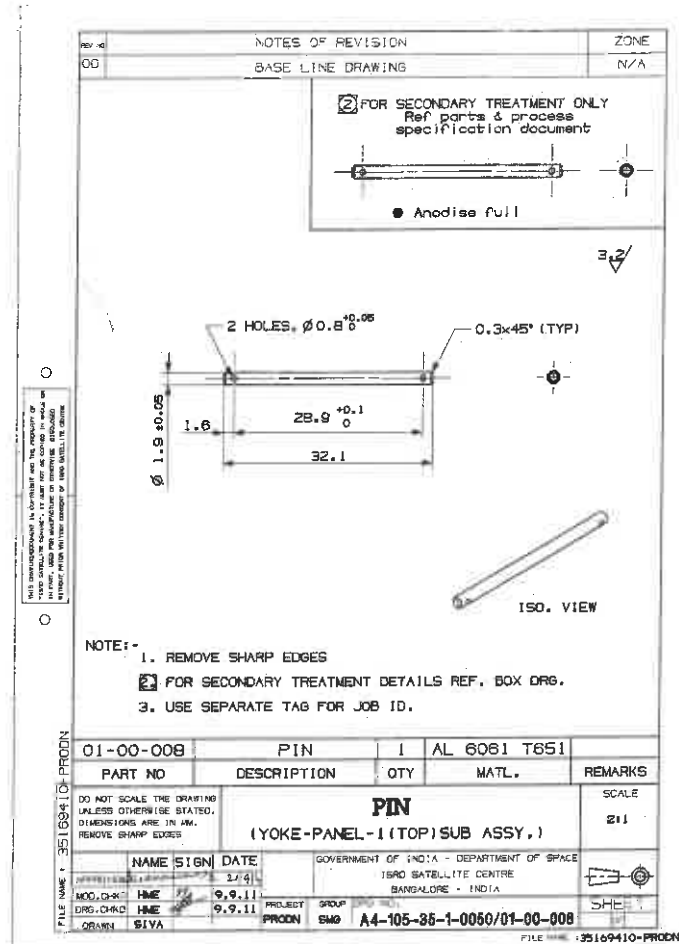
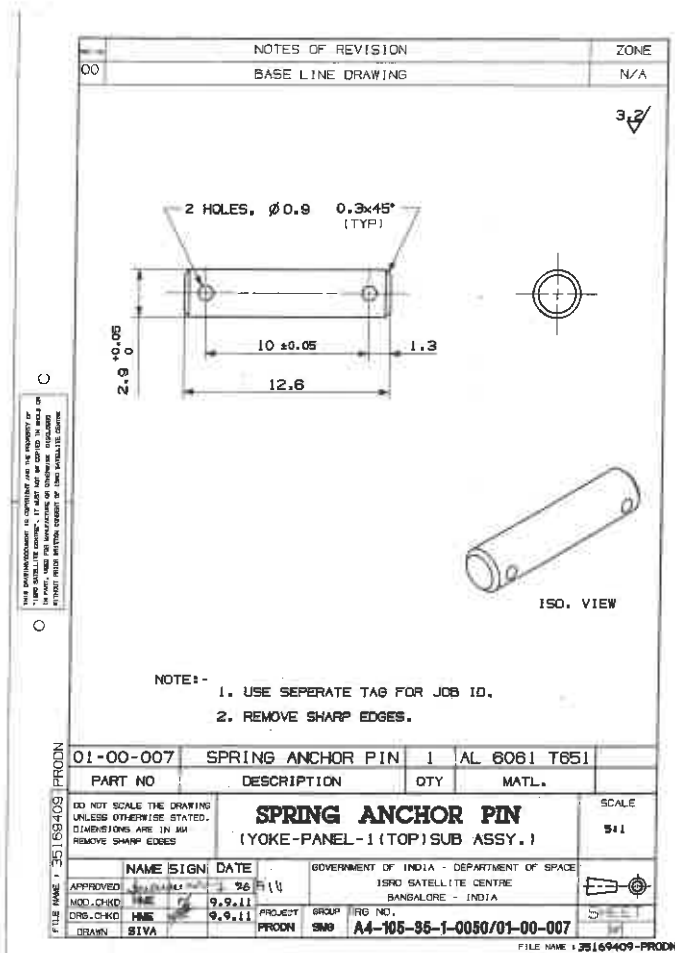


NOTE: JOB ID BY TAG.

SL. No.	SPACER	QTY.	MATL.	MASS
1	SPACER	1	ULTEM-8085	7.22 gm
GENERAL TOLERANCES AS PER ISO 2768-1 (DIMENSIONS BELOW 0.250 TO BE GOVERNED BY BEST POSSIBLE METHOD) AND NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. SPACER (SADA HINGE ASSY.) SCALE 1:1 APPROVED: NAME: SION, DATE: 15/11/2017, DESIGNED: NAME: PS, DATE: 15/11/2017, MOD. CHKD: NAME: PS, DATE: 15/11/2017, CRO. CHKD: NAME: PS, DATE: 15/11/2017, DRAWN: NAME: PS, DATE: 15/11/2017, INDENT NO.: 11004B, OLD DWG. No.: 1				





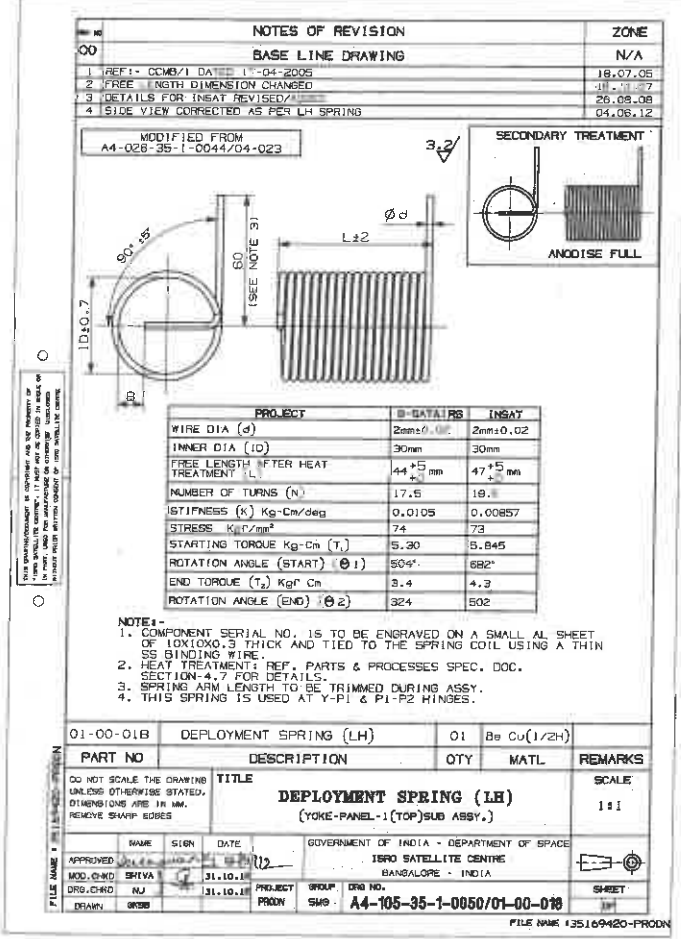
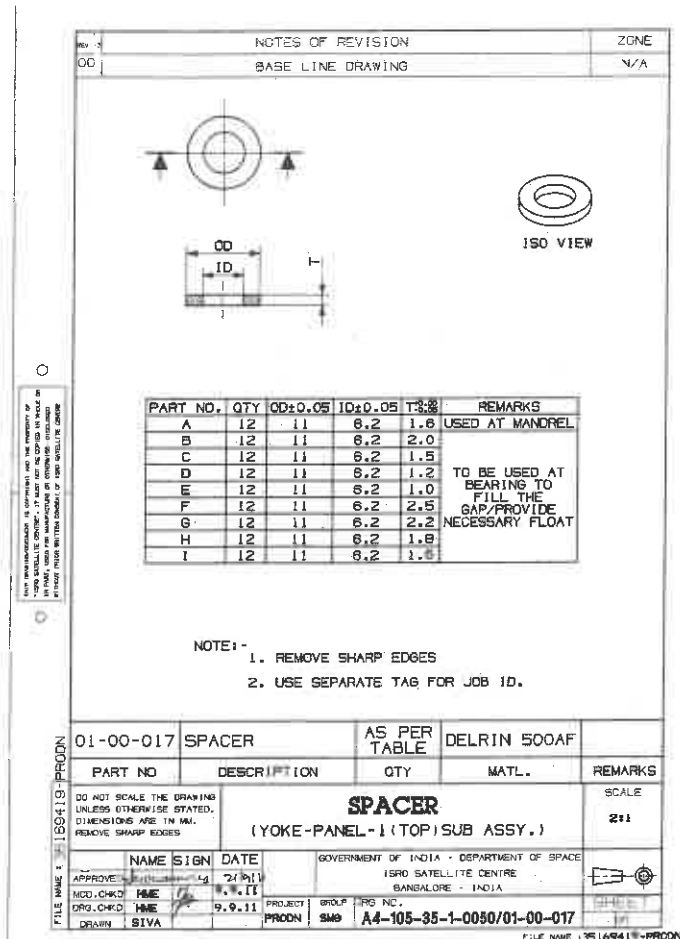
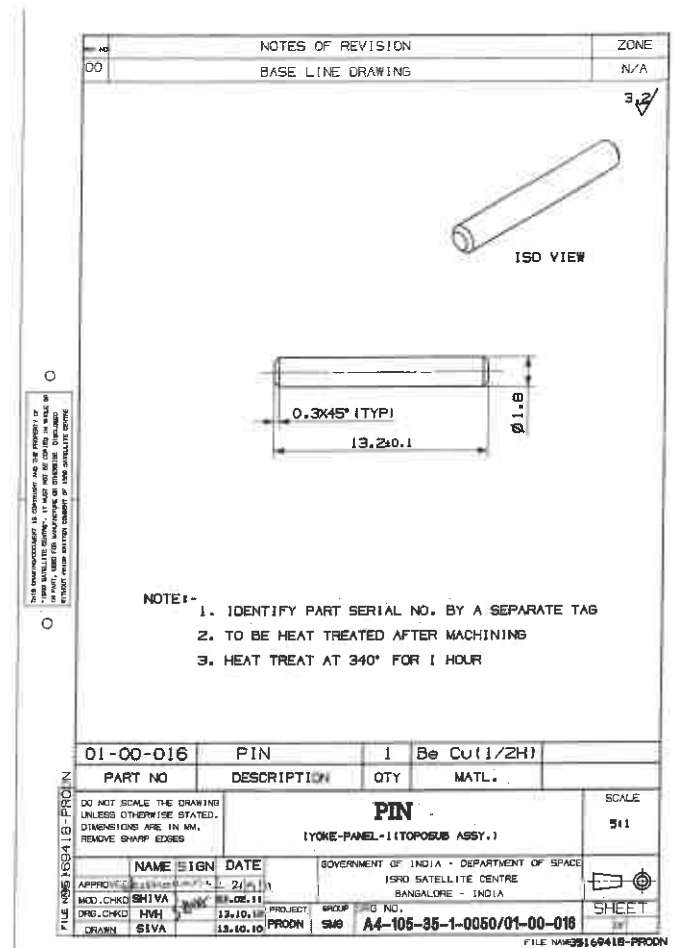
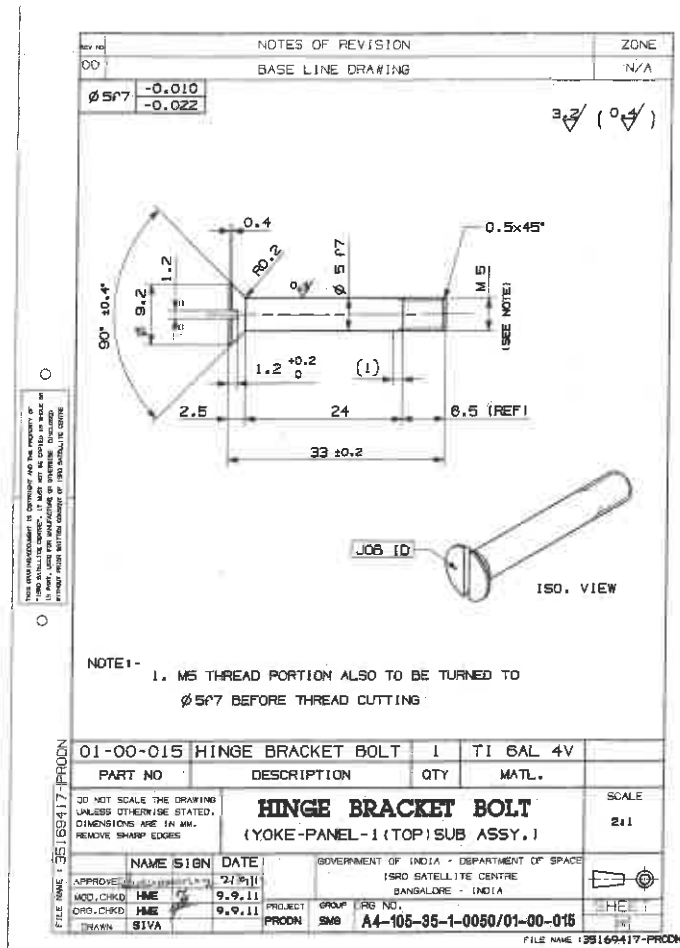


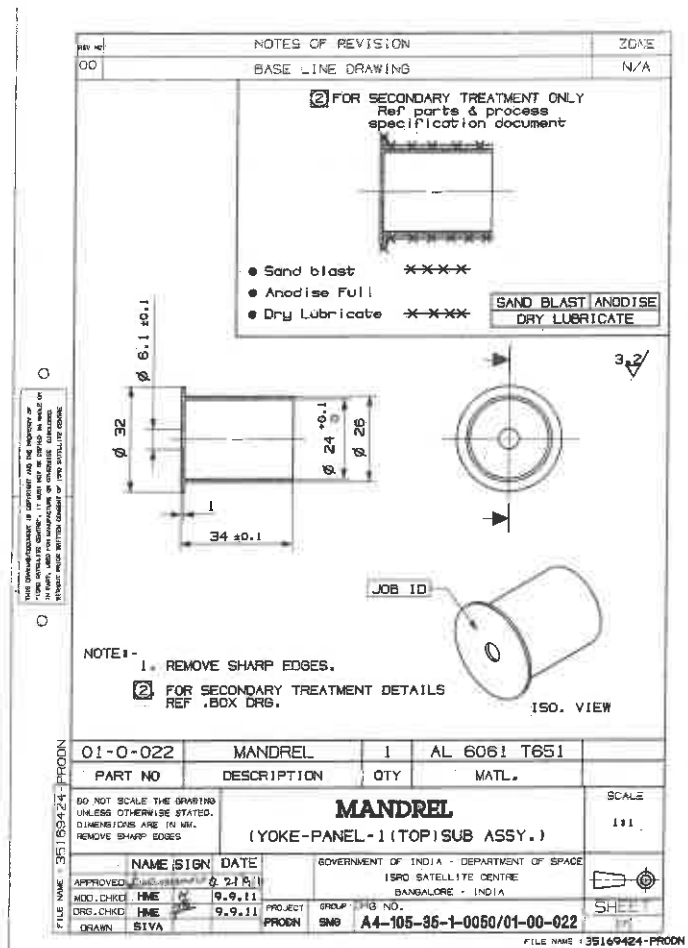
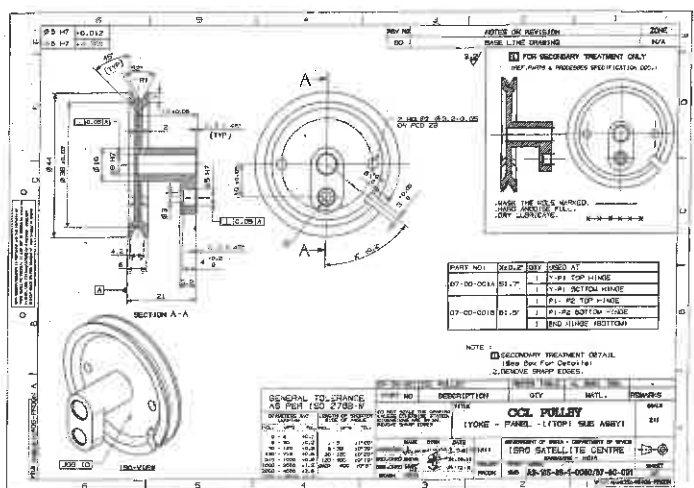
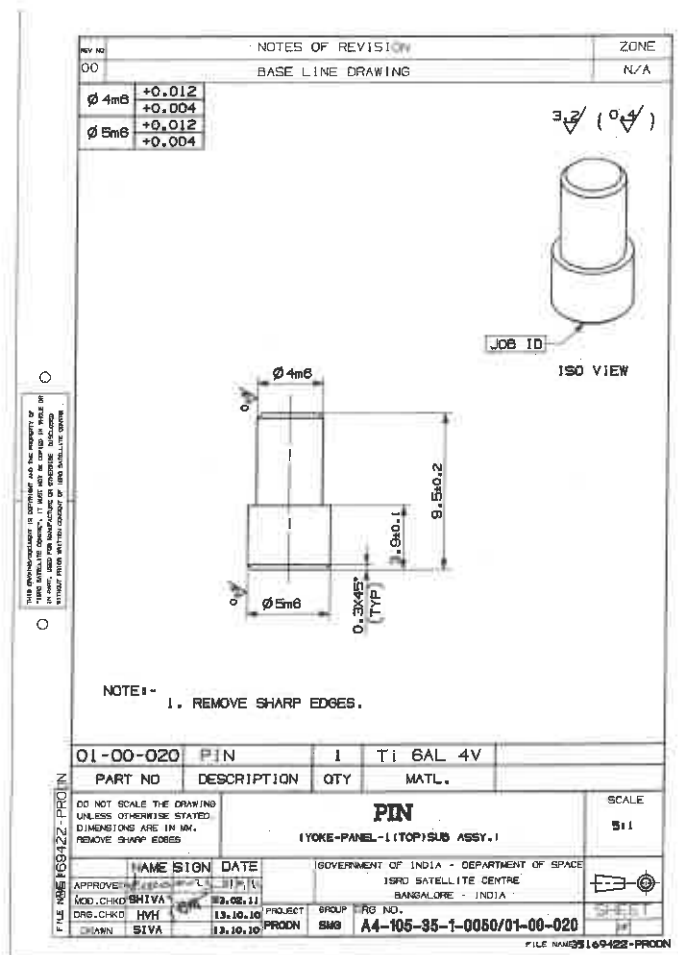
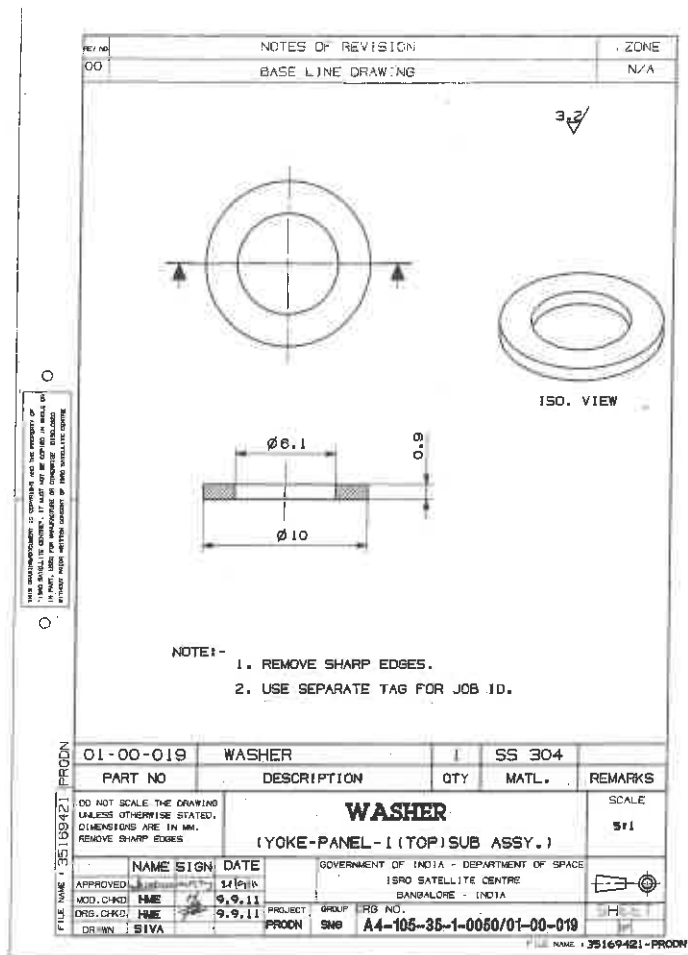
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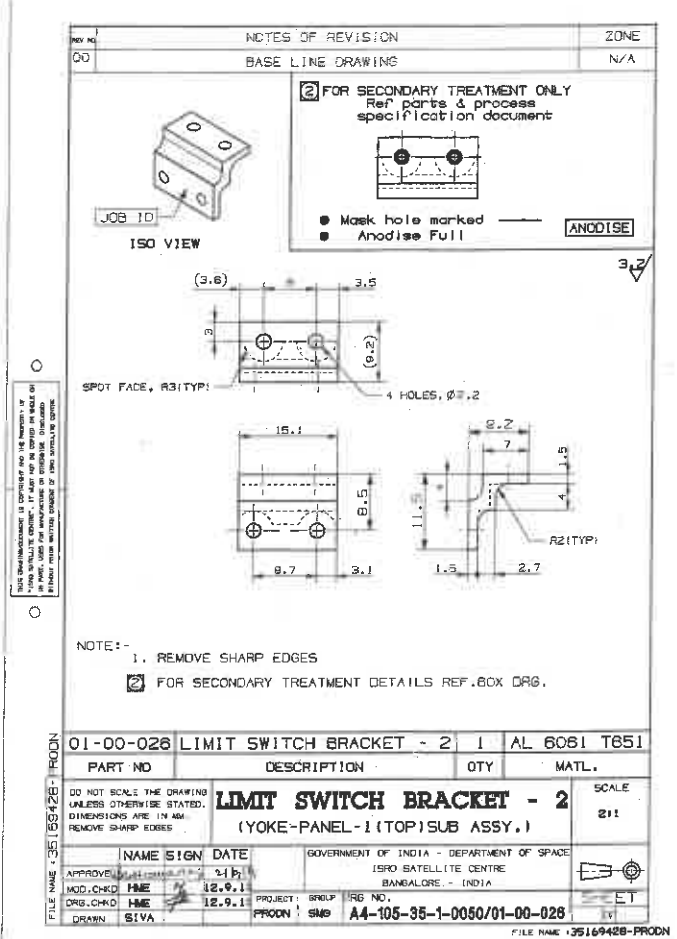
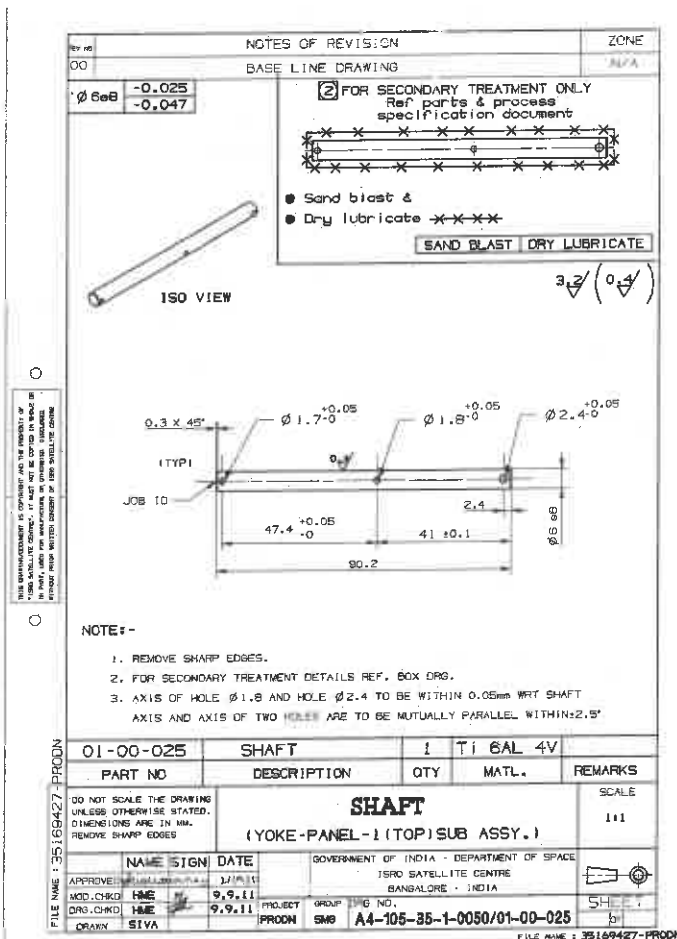
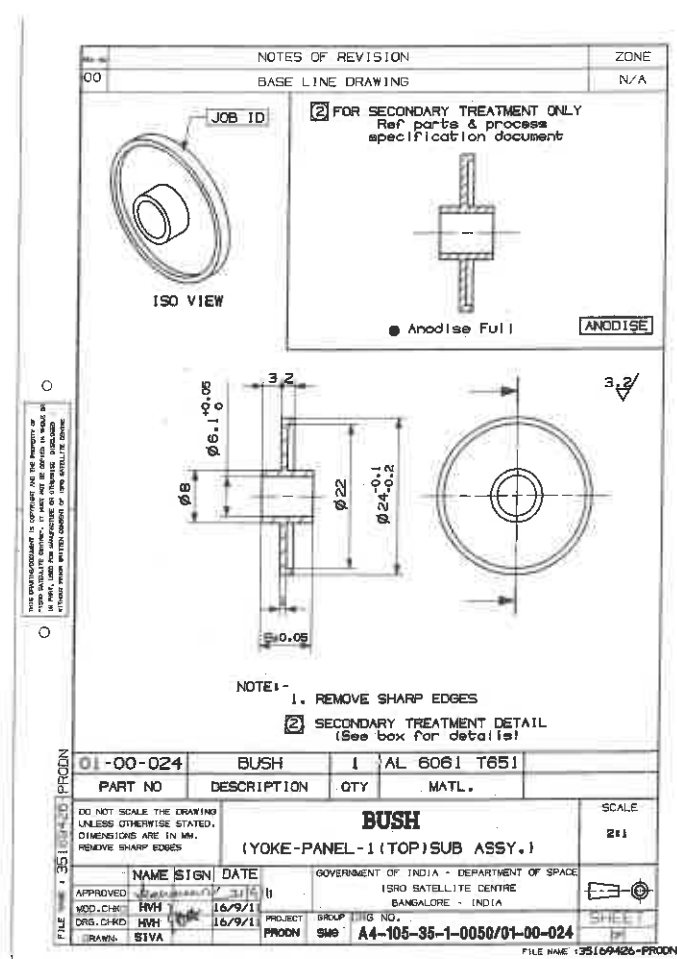
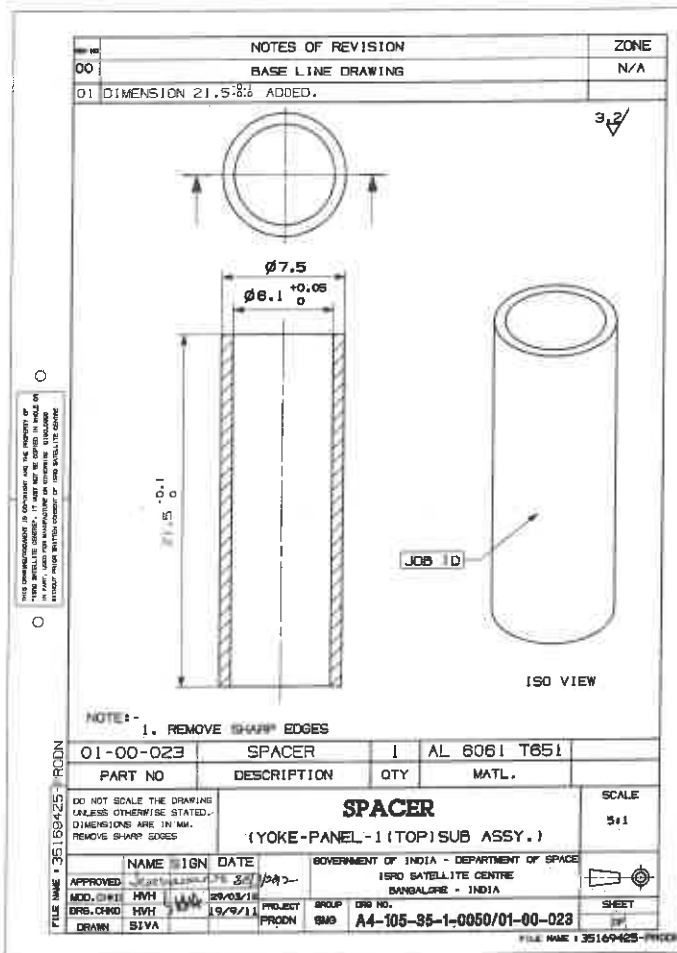
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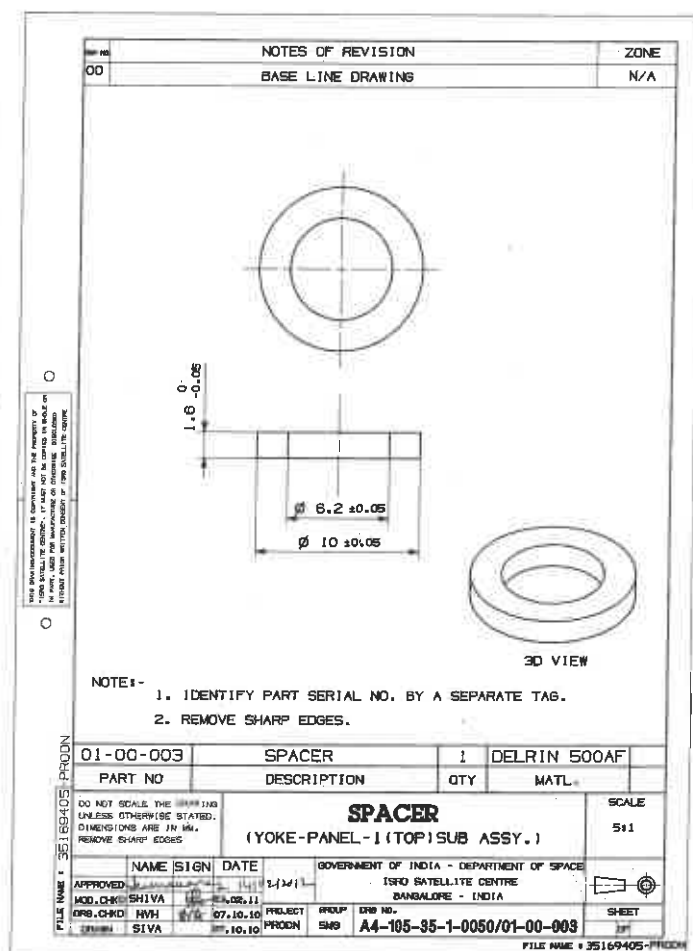
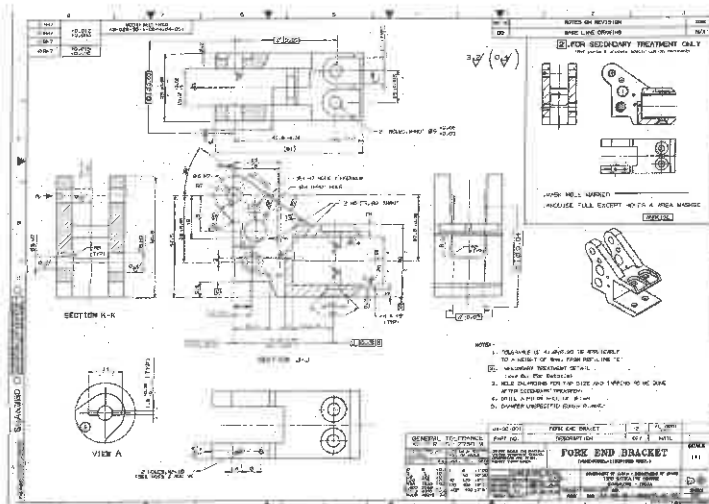
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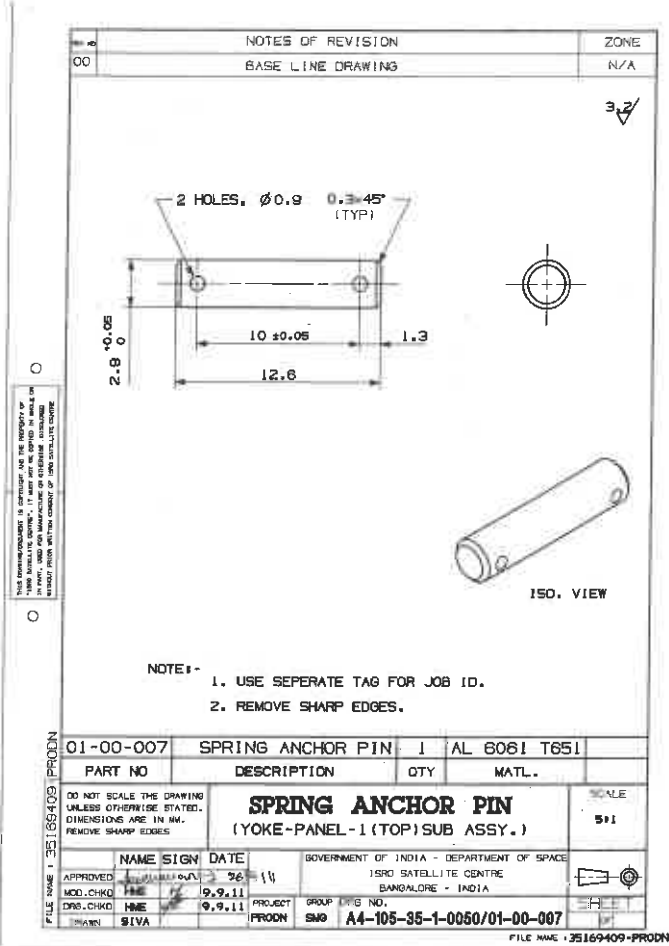
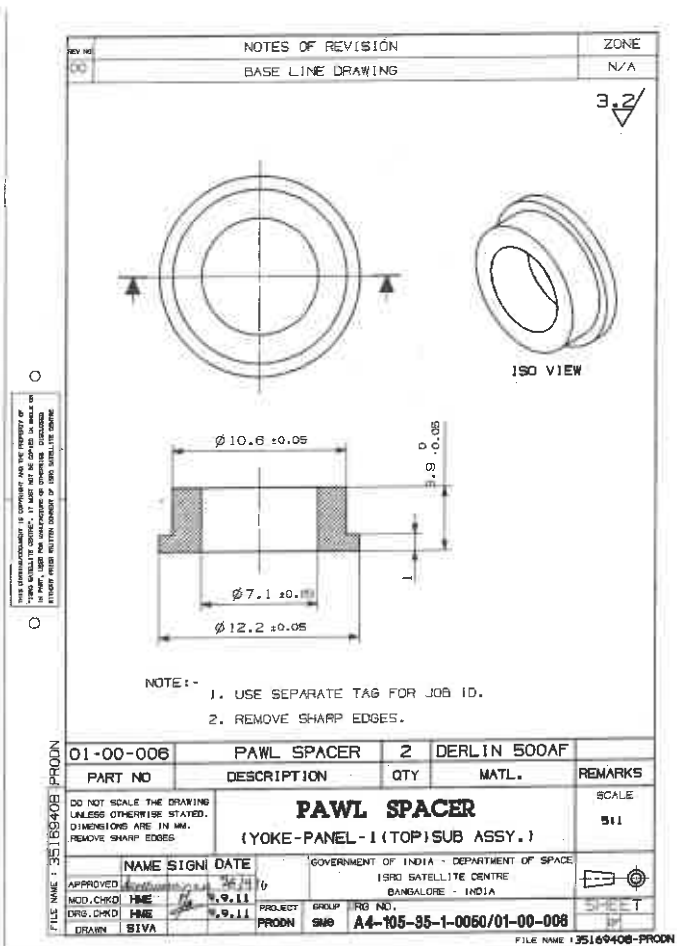
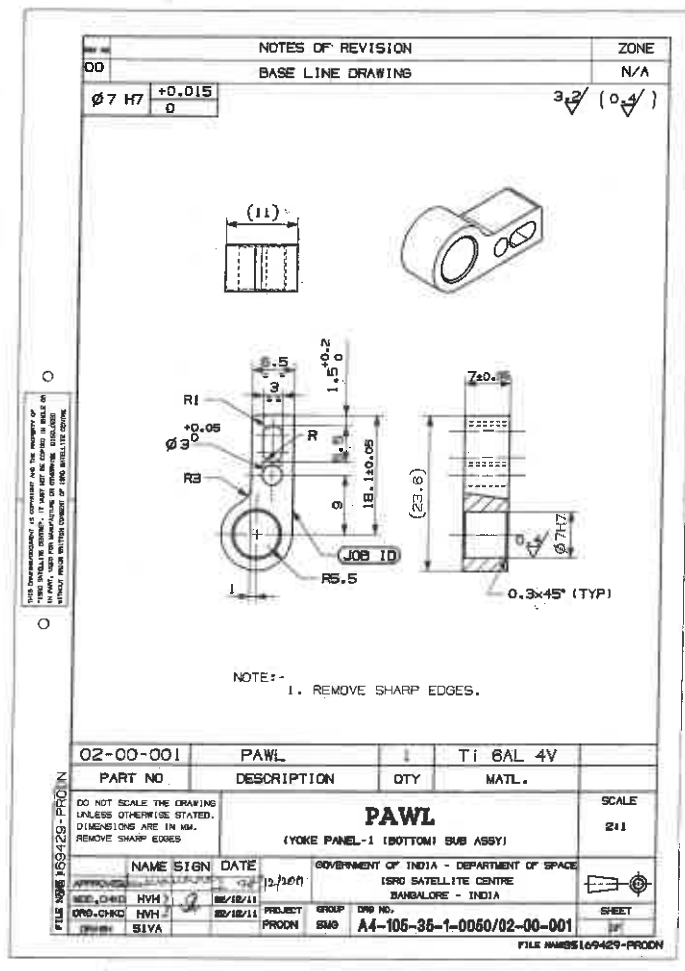
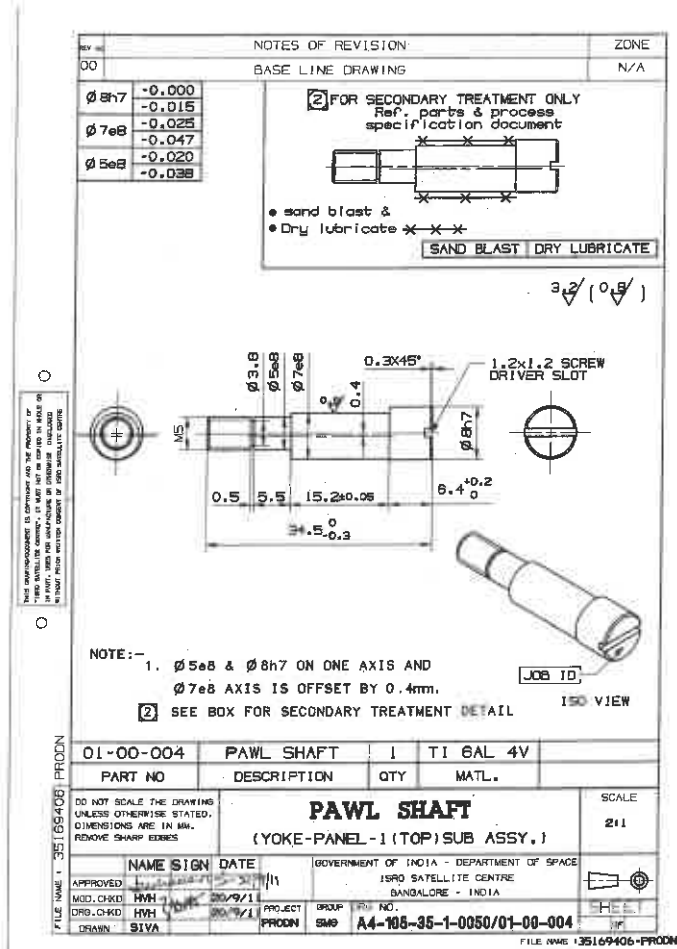
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NOTE -
1. REMOVE SHARP EDGES

ISO. VIEW

JOB ID

3.2

13 ± 0.1

2 ± 0.05

4

1

1

BASE LINE DRAWING

ZONE
N/A

REV	NOTES OF REVISION	ZONE
00	BASE LINE DRAWING	N/A
01	NOTE No. 2 & TABLE MODIFIED	

Top View: Square shape with side length 15. Inner circle diameter Ø ID, outer circle diameter Ø OD. Distance from corner to center is 15±.3.

Side View: Shows thickness P.

3D VIEW

DESCRIPTION	SPECIFIED VALUE
OD	13.8mm
ID	12.2±0.2mm
P	1mm
dW	Ø 0.8±0.02
N° INO OF TURN	1.475
STIFFNESS (Kg.-cm./deg.)	0.0079
STRESS (Kg./mm ²)	77.5
STARTING TORQUE (Kg.-cm)	0.17
STARTING ANGLE (DEG)	51°
END TORQUE (Kg.-cm)	0.23
END ANGLE (DEG)	31°

NOTES:-

- HEAT TREATMENTS- HEAT TREAT AT 340°C FOR 1 H+
- HEAT TREATMENT PARTS & PROCESSING SPECIFICATION DOC.. ISO-15AC-ST-0001 VOL-1 SECTION 4.7 FOR DETAILS
- WILL BE TRIMMED TO ACTUAL LENGTH DURING ASSEMBLY
- COMPONENT SERIAL NO. TO BE ENGRAVED ON A-SHEET OF CONTOUR SHEET AND TIED TO THE SPRING COIL USING A THIN SWIRLING WIRE

01-00-011B	PAWL SPRING-RH	1	Be Cu (1/2H)	
01-00-011A	PAWL SPRING-LH	1	Be Cu (1/2H)	
PART NO	DESCRIPTION	QTY	MATL.	REMARKS

DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED.
DIMENSIONS ARE IN MM.
REMOVE SHARP EDGES

PAWL SPRING

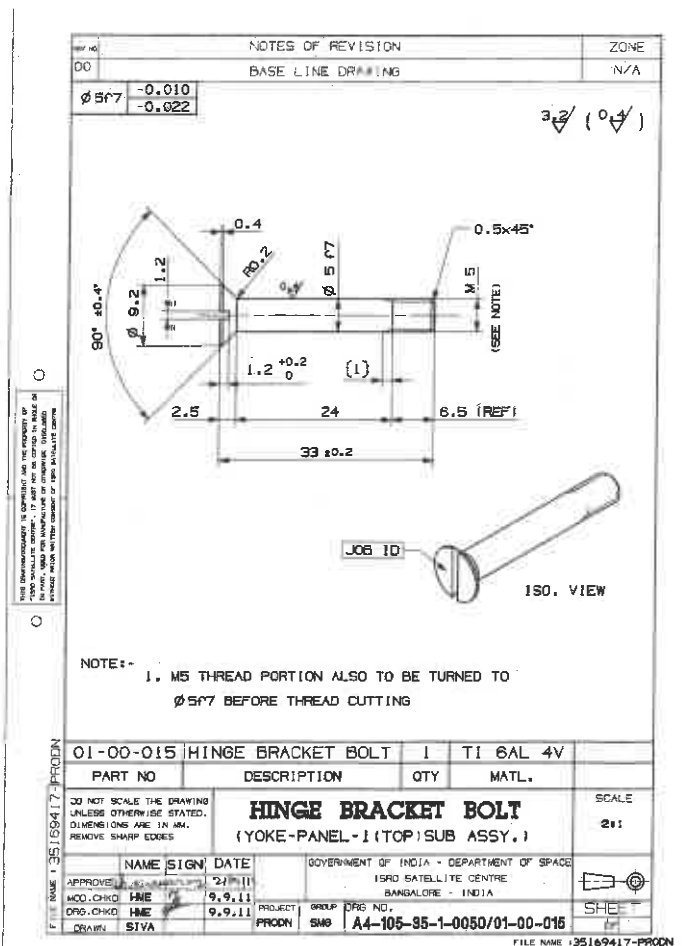
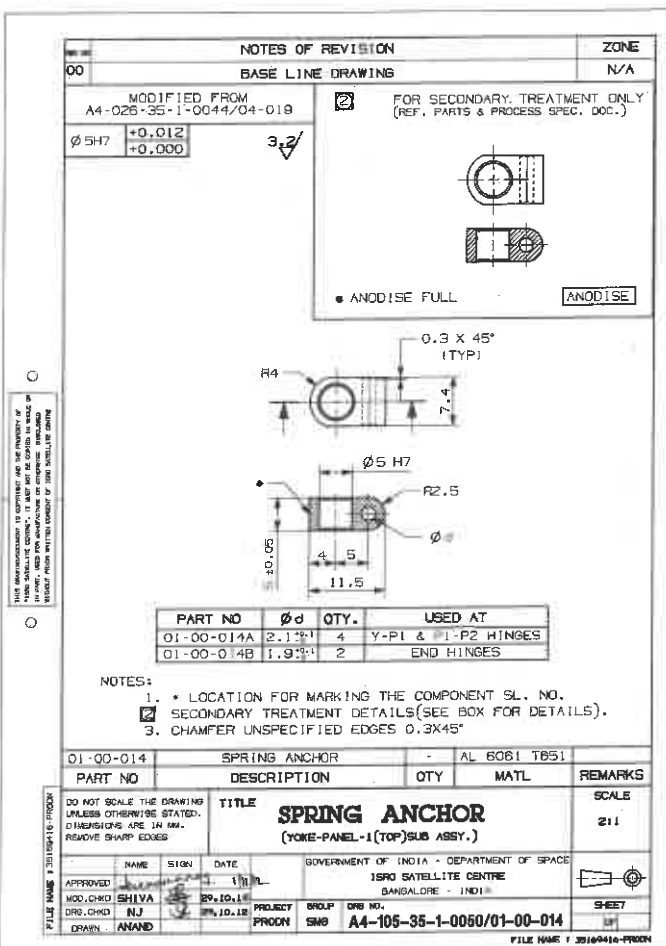
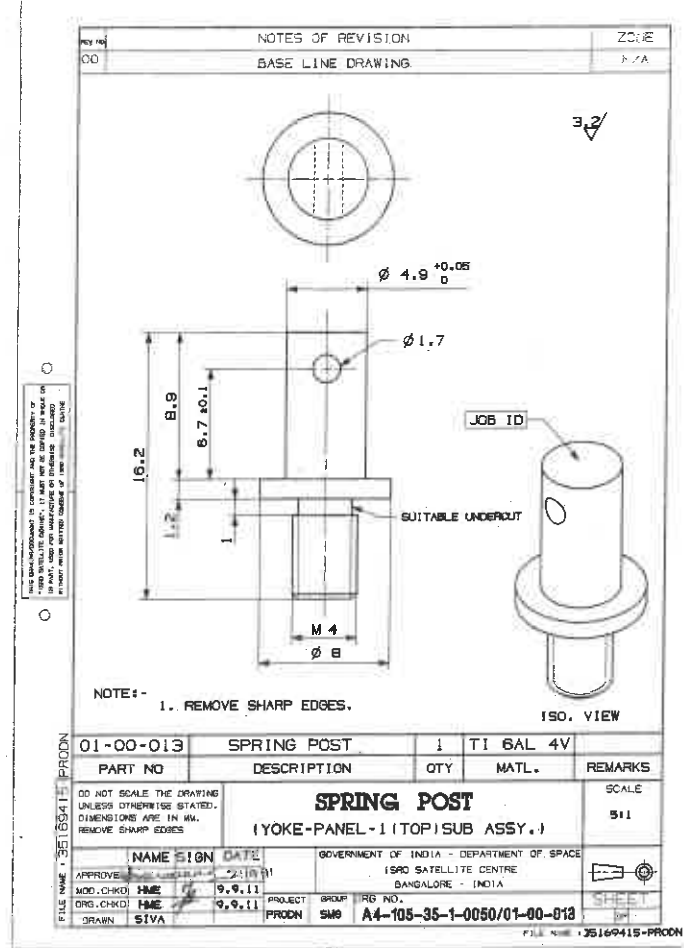
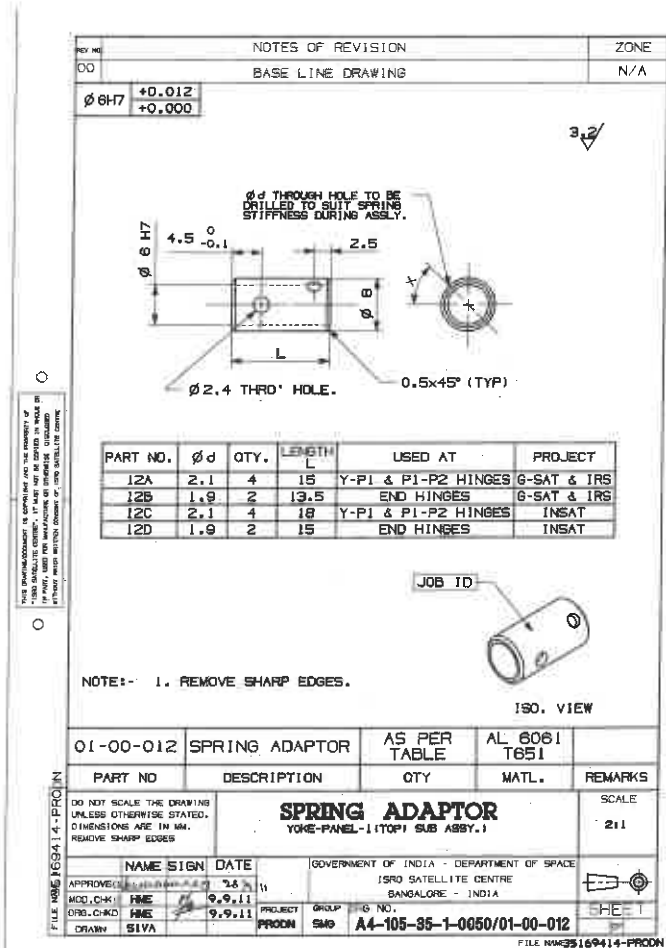
(YOKE-PANEL 1 (TOP) SUB ASSY.)

SCALE

NTS

APPROVED	NAME	SIGN	DATE	GOVERNMENT OF INDIA - DEPARTMENT OF SPACE	ISRO SATELLITE CENTRE BANGALORE - INDIA
MOD.CHKD	HME	[Signature]	7/13		
DRG.CHECKD	NJ	[Signature]	3.07.13		
DRAWN	SIVA				

PROJECT	GROUP	DIB NO.	FILE NAME
PRODIN	SMG	A4-105-35-1-0050/01-00-01	13-PRODIN



NOTES OF REVISION		ZONE
00	BASE LINE DRAWING	N/A

3/2

ISO VIEW

NOTE:-

1. IDENTIFY PART SERIAL NO. BY A SEPARATE TAG
2. TO BE HEAT TREATED AFTER MACHINING
3. HEAT TREAT AT 340° FOR 1 HOUR

PART NO	DESCRIPTION	QTY	MATL.	REMARKS
01-00-016	PIN	1	Be Cu(1/2H)	

PIN
(YOKE-PANEL-1(TOP)SUB ASSY.)

DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES.

SCALE: 5:1

NAME	SIGN	DATE	GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
APPROVED		21.10.11	ISRO SATELLITE CENTRE
MOD. CHKD	BHIVA	13.10.11	BANGALORE - INDIA
DRG. CHKD	BHIVA	13.10.11	
DRAWN	BHIVA	13.10.11	

PROJECT: PRODN GROUP: SMS DRG NO: A4-105-35-1-0050/01-00-016

FILE NAME: 35169418-PROD

NOTES OF REVISION		ZONE
00	BASE LINE DRAWING	N/A

3/2

ISO VIEW

PART NO.	QTY	OD±0.05	ID±0.05	T±0.1	REMARKS
A	12	11	6.2	1.6	USED AT MANDREL
B	12	11	6.2	2.0	
C	12	11	6.2	1.5	
D	12	11	6.2	1.2	
E	12	11	6.2	1.0	
F	12	11	6.2	2.5	
G	12	11	6.2	2.2	
H	12	11	6.2	1.8	
I	12	11	6.2	1.6	

TO BE USED AT BEARING TO FILL THE GAP/PROVIDE NECESSARY FLOAT

NOTE:-

1. REMOVE SHARP EDGES
2. USE SEPARATE TAG FOR JOB ID.

PART NO	DESCRIPTION	QTY	MATL.	REMARKS
01-00-017	SPACER	AS PER TABLE	DELFIN 500AF	

SPACER
(YOKE-PANEL-1(TOP)SUB ASSY.)

DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES.

SCALE: 2:1

NAME	SIGN	DATE	GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
APPROVED		21.10.11	ISRO SATELLITE CENTRE
MOD. CHKD	HME	9.9.11	BANGALORE - INDIA
DRG. CHKD	HME	9.9.11	
DRAWN	BHIVA	9.9.11	

PROJECT: PRODN GROUP: SMS DRG NO: A4-105-35-1-0050/01-00-017

FILE NAME: 35169419-PROD

NOTES OF REVISION		ZONE
00	BASE LINE DRAWING	N/A

3/2

MODIFIED FROM A4-026-35-1-0044/04-023

SECONDARY TREATMENT
ANODISE FULL

PROPERTY	INSAT	INSAT
WIRE DIA (d)	2mm±0.02	2mm±0.02
INNER DIA (ID)	30mm	30mm
FREE LENGTH AFTER HEAT TREATMENT (L)	44±5 mm	47±5 mm
NUMBER OF TURNS (N)	17.5	18.5
STIFFNESS (K) Kg-Cm/deg	0.0106	0.0067
STRESS Kg/mm²	74	73
STARTING TORQUE Kg-Cm (T)	5.30	5.845
ROTATION ANGLE (START) (θ 1)	504°	582°
END TORQUE (T₂) Kg-Cm	3.4	4.3
ROTATION ANGLE (END) (θ 2)	324	502

NOTE:-

1. COMPONENT SERIAL NO. IS TO BE ENGRAVED ON A SMALL AL SHEET OF 10X10X0.3 THICK AND TIED TO THE SPRING COIL USING A THIN SS BINDING WIRE.
2. HEAT TREATMENT: REF. PARTS & PROCESSES SPEC. DOC. SECTION-4.7 FOR DETAILS.
3. SPRING ARM LENGTH TO BE TRIMMED DURING ASSY.
4. THIS SPRING IS USED AT Y-P1 & P1-P2 HINGES.

PART NO	DESCRIPTION	QTY	MATL.	REMARKS
01-00-018	DEPLOYMENT SPRING (LH)	01	Be Cu(1/2H)	

DEPLOYMENT SPRING (LH)
(YOKE-PANEL-1(TOP)SUB ASSY.)

DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES.

SCALE: 1:1

NAME	SIGN	DATE	GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
APPROVED		31.10.11	ISRO SATELLITE CENTRE
MOD. CHKD	BHIVA	31.10.11	BANGALORE - INDIA
DRG. CHKD	BHIVA	31.10.11	
DRAWN	BHIVA	31.10.11	

PROJECT: PRODN GROUP: SMS DRG NO: A4-105-35-1-0050/01-00-018

FILE NAME: 35169420-PROD

NOTES OF REVISION		ZONE
00	BASE LINE DRAWING	N/A

3/2

ISO VIEW

NOTE:-

1. REMOVE SHARP EDGES.
2. USE SEPARATE TAG FOR JOB ID.

PART NO	DESCRIPTION	QTY	MATL.	REMARKS
01-00-019	WASHER	1	SS 304	

WASHER
(YOKE-PANEL-1(TOP)SUB ASSY.)

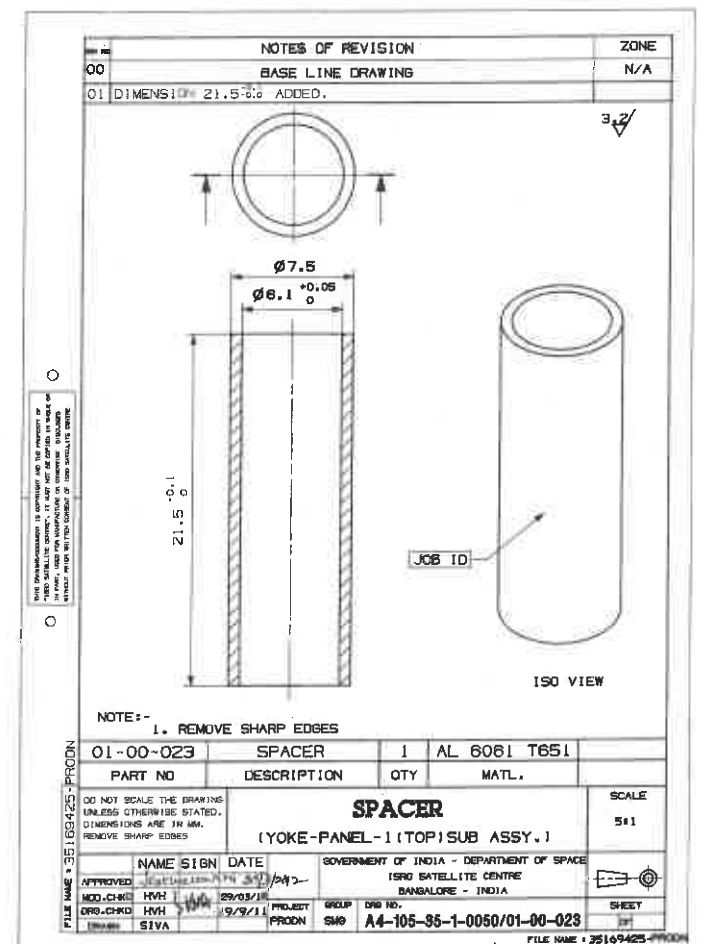
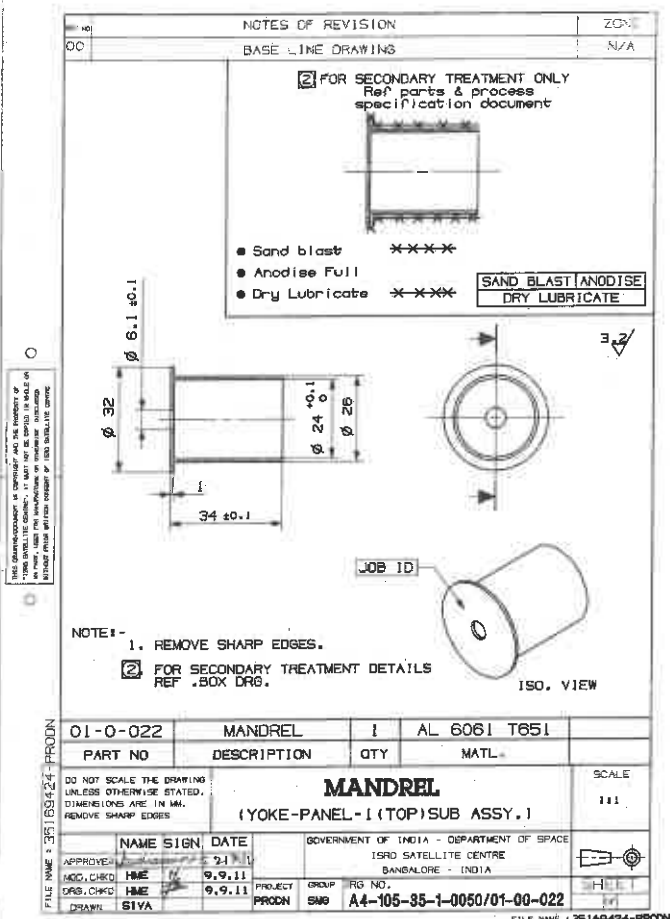
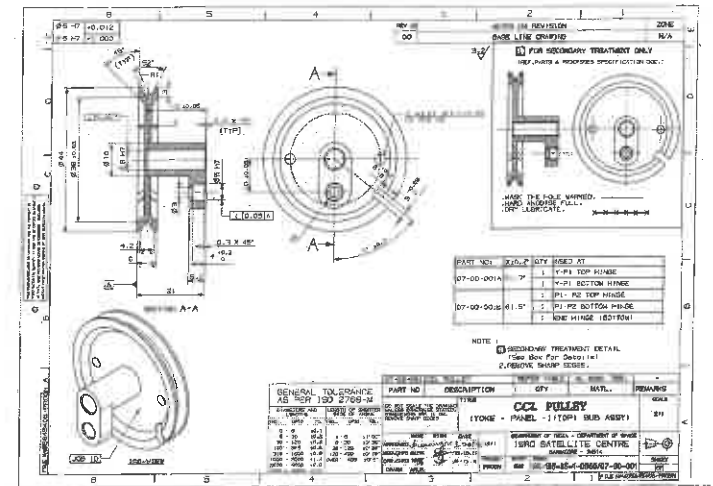
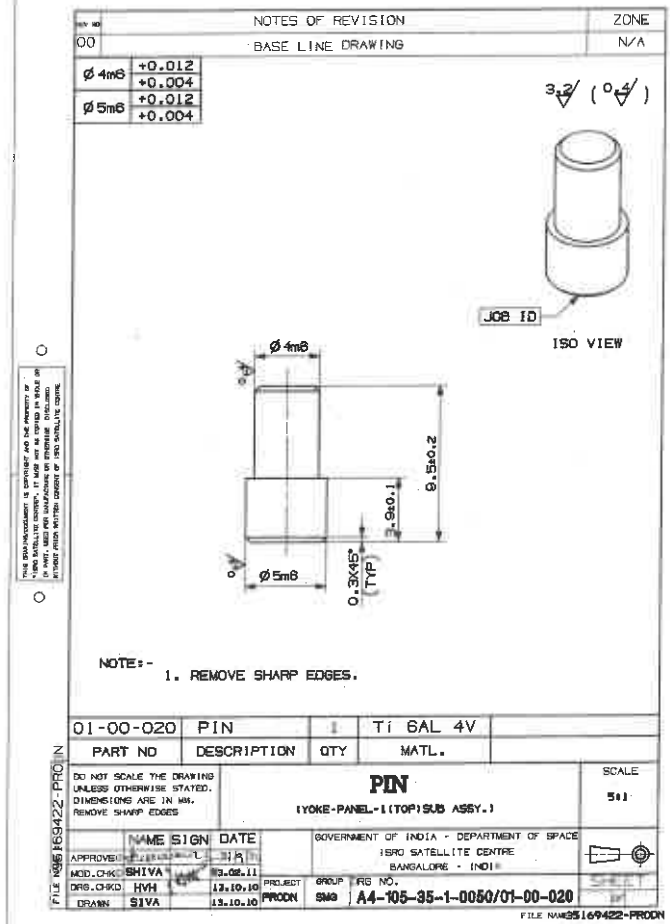
DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES.

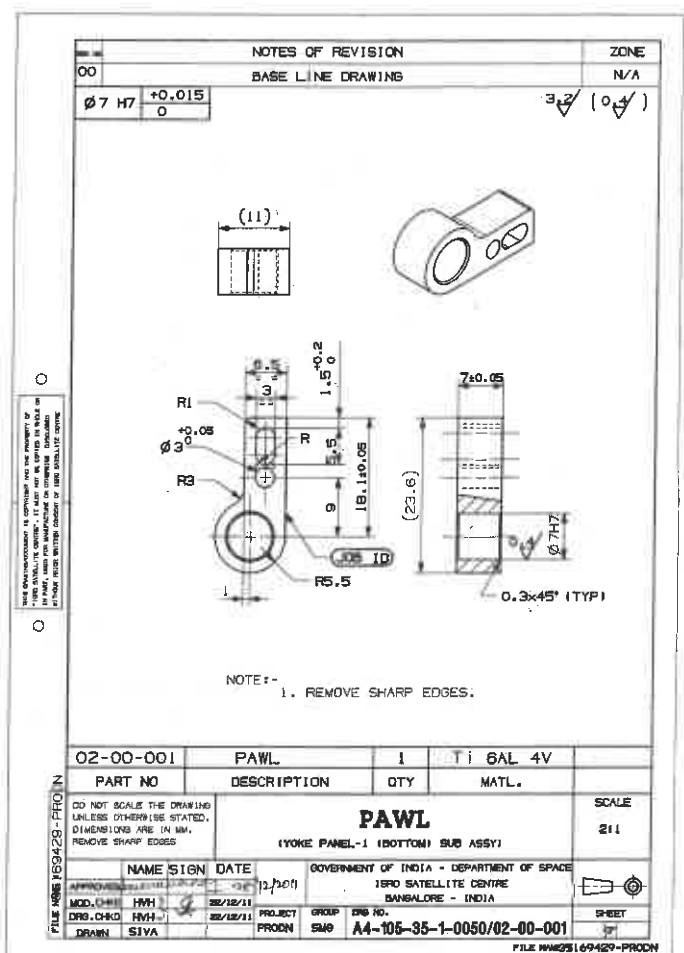
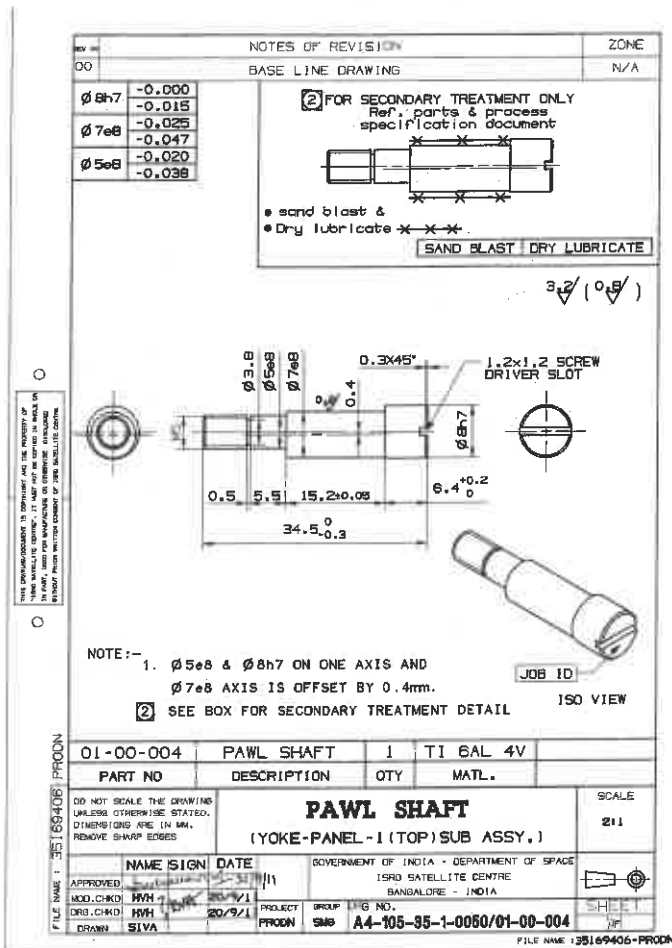
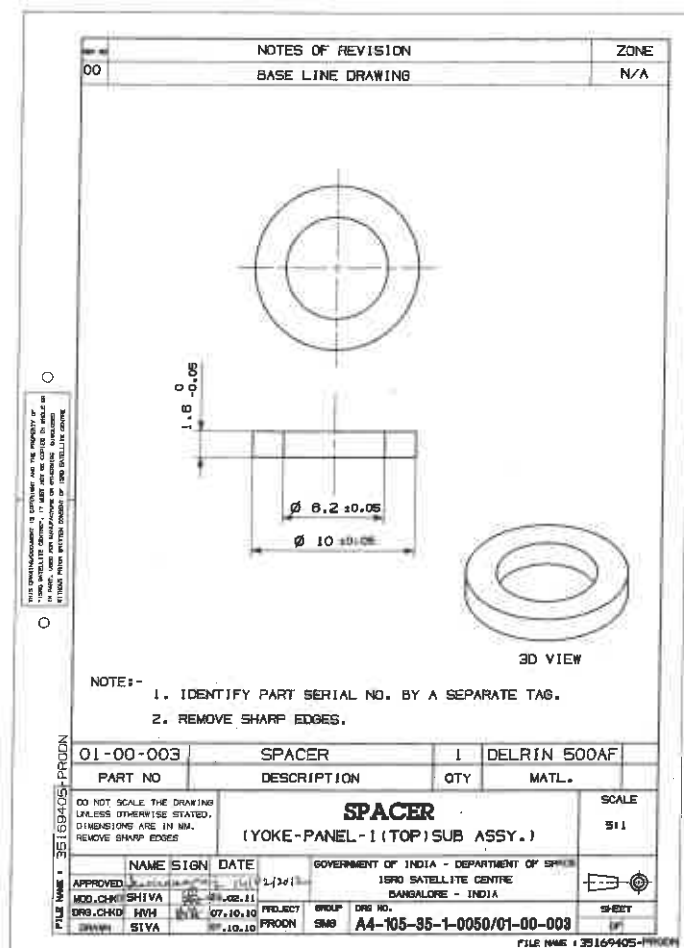
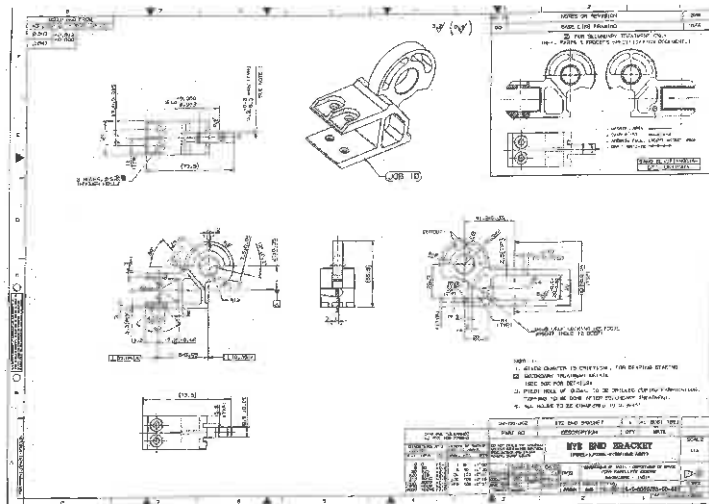
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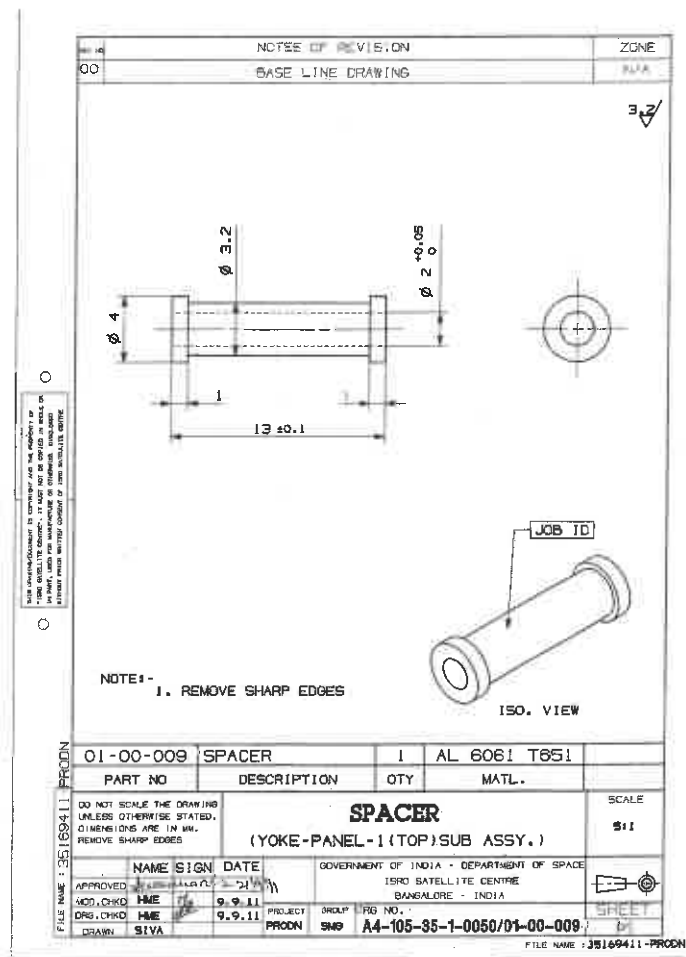
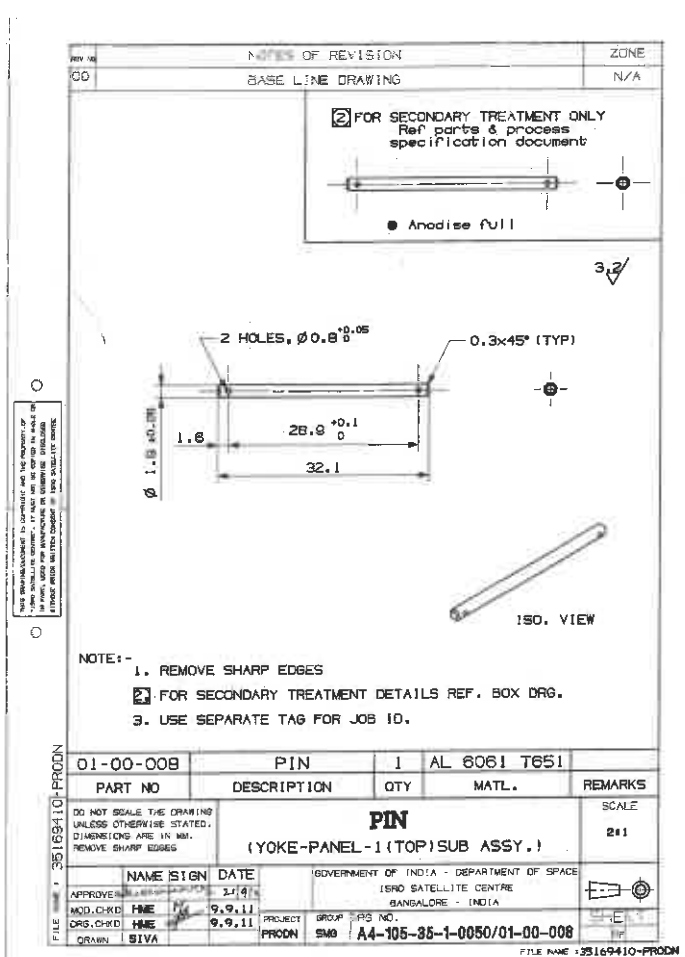
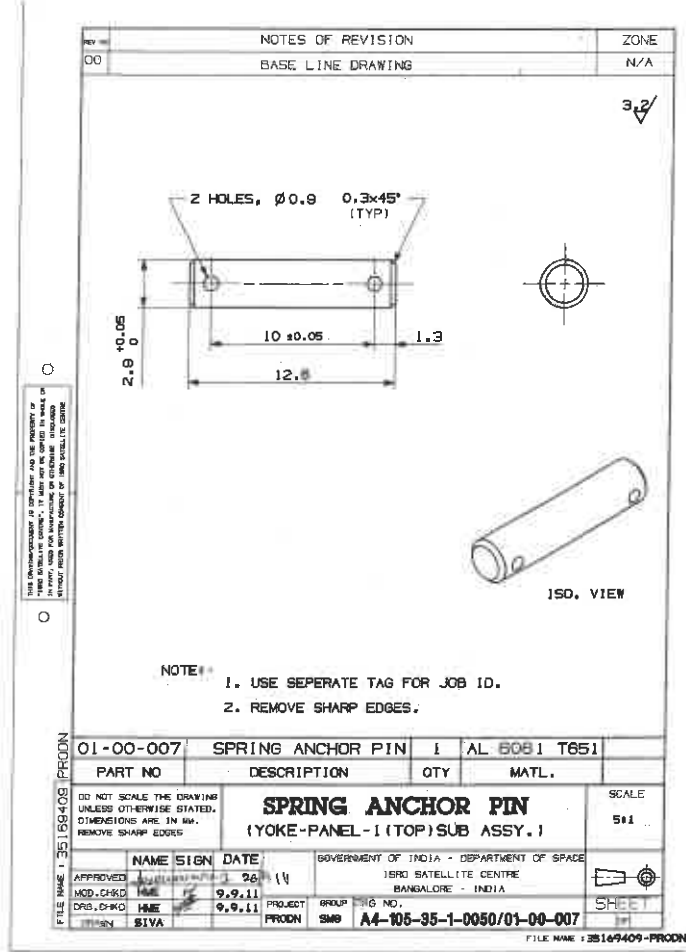
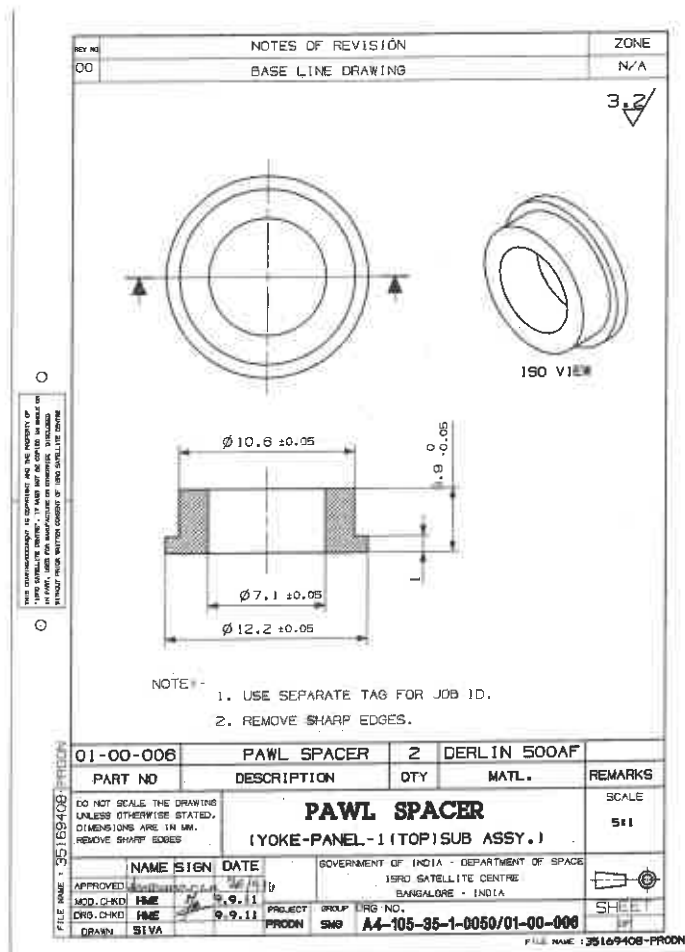
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APPROVED		31.10.11	ISRO SATELLITE CENTRE
MOD. CHKD	HME	9.9.11	BANGALORE - INDIA
DRG. CHKD	HME	9.9.11	
DRAWN	BHIVA	9.9.11	

PROJECT: PRODN GROUP: SMS DRG NO: A4-105-35-1-0050/01-00-019

FILE NAME: 35169421-PROD

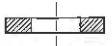






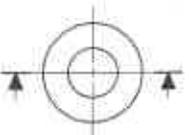
REV NO	NOTES OF REVISION	ZONE
00	BASE LINE DRAWING	N/A

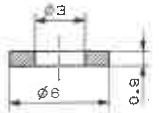
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Ref parts & process specification document

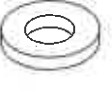


● Anodise full

3.2







ISO. VIEW

NOTE:-

1. REMOVE SHARP EDGES
2. FOR SECONDARY TREATMENT DETAILS REF. BOX DRG.
3. USE SEPARATE TAG FOR JOB ID.

PART NO	DESCRIPTION	QTY	MATL.	REMARKS
01-00-010	WASHER	1	AL 6061 T651	

WASHER
(YOKE-PANEL-1(TOP) SUB ASSY.)

DO NOT SCALE THE DRAWING
UNLESS OTHERWISE STATED.
DIMENSIONS ARE IN MM.
REMOVE SHARP EDGES

SCALE
5:1

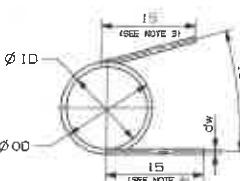
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APPROVED		26.11.11	ISRO SATELLITE CENTRE BANGALORE - INDIA
MOD. CHKD	HME	9.9.11	
DRG. CHKD	HME	9.9.11	
DRWN	SIVA		

PROJECT GROUP IRS NO.
PRDGN SMG A4-105-35-1-0050/01-00-010

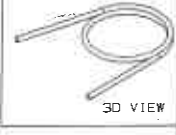
FILE NAME: 35169412-PRODN

REV NO	NOTES OF REVISION	ZONE
00	BASE LINE DRAWING	N/A
01	NOTE No. 2 & TABLE MODIFIED	

3.2







ISO VIEW

DESCRIPTION	SPECIFIED VALUE
OD	13.8mm
ID	12.2±0.2mm
P	1mm
dW	0.8±0.02
N (NO OF TURNS)	1.475
STIFFNESS (Kg-cm/deg)	0.007
STRESS (Kg/mm ²)	77.5
STARTING TORQUE (Kg-cm)	0.37
STARTING ANGLE (DEG)	51°
END TORQUE (Kg-cm)	0.23
END ANGLE (DEG)	31°

NOTE:-

1. HEAT TREATMENT: HEAT TREAT AT 340°C FOR 1 H.
2. HEAT TREATMENT: REF. PARTS & PROCESS SPECIFICATION DOC., 1590-1590-ST-0081, VOL. 1 SECTION 4.7 FOR DETAILS
3. WILL BE TRIMMED TO ACTUAL LENGTH DURING ASSEMBLY
4. COMPONENT SERIAL NO. TO BE ENGRAVED ON A SURFACE OF THE SPRING AND THE SPRING COIL BEING A THIN 55 BIRCHING WIRE

PART NO	DESCRIPTION	QTY	MATL.	REMARKS
01-00-011	PAWL SPRING-RH	1	Be Cu 11/2H	
01-00-011A	PAWL SPRING-LH	1	Be Cu 11/2H	

PAWL SPRING
(YOKE-PANEL-1(TOP) SUB ASSY.)

DO NOT SCALE THE DRAWING
UNLESS OTHERWISE STATED.
DIMENSIONS ARE IN MM.
REMOVE SHARP EDGES

SCALE
NTS

NAME	SIGN	DATE	GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
APPROVED		2/13	ISRO SATELLITE CENTRE BANGALORE - INDIA
MOD. CHKD	HME	9.9.11	
DRG. CHKD	NJ	13.07.13	
DRWN	SIVA		

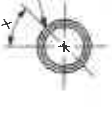
PROJECT GROUP IRS NO.
PRDGN SMG A4-105-35-1-0050/01-00-011

FILE NAME: 35169413-PRODN

REV NO	NOTES OF REVISION	ZONE
00	BASE LINE DRAWING	N/A

3.2







ISO. VIEW

NOTE:-

1. REMOVE SHARP EDGES.

PART NO.	QTY.	LENGTH	USED AT	PROJECT
12A	2.1	4	Y-P1 & P1-P2 HINGES	G-SAT & IRS
12B	1.9	2	END HINGES	G-SAT & IRS
12C	2.1	4	Y-P1 & P1-P2 HINGES	INSAT
12D	1.9	2	END HINGES	INSAT

PART NO	DESCRIPTION	QTY	MATL.	REMARKS
01-00-012	SPRING ADAPTOR	AS PER TABLE	AL 6061 T651	

SPRING ADAPTOR
(YOKE-PANEL-1(TOP) SUB ASSY.)

DO NOT SCALE THE DRAWING
UNLESS OTHERWISE STATED.
DIMENSIONS ARE IN MM.
REMOVE SHARP EDGES

SCALE
2:1

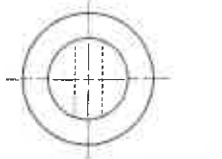
NAME	SIGN	DATE	GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
APPROVED		26.11.11	ISRO SATELLITE CENTRE BANGALORE - INDIA
MOD. CHKD	HME	9.9.11	
DRG. CHKD	HME	9.9.11	
DRWN	SIVA		

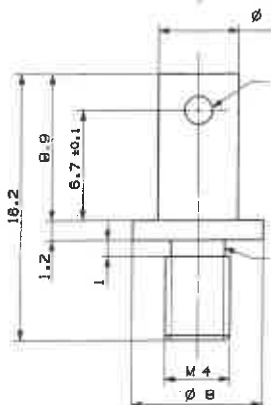
PROJECT GROUP IRS NO.
PRDGN SMG A4-105-35-1-0050/01-00-012

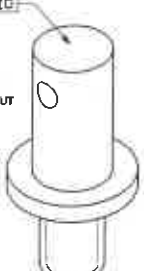
FILE NAME: 35169414-PRODN

REV NO	NOTES OF REVISION	ZONE
00	BASE LINE DRAWING	N/A

3.2







ISO. VIEW

NOTE:-

1. REMOVE SHARP EDGES.

PART NO	DESCRIPTION	QTY	MATL.	REMARKS
01-00-013	SPRING POST	1	TI 6AL 4V	

SPRING POST
(YOKE-PANEL-1(TOP) SUB ASSY.)

DO NOT SCALE THE DRAWING
UNLESS OTHERWISE STATED.
DIMENSIONS ARE IN MM.
REMOVE SHARP EDGES

SCALE
5:1

NAME	SIGN	DATE	GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
APPROVED		21.9.11	ISRO SATELLITE CENTRE BANGALORE - INDIA
MOD. CHKD	HME	9.9.11	
DRG. CHKD	HME	9.9.11	
DRWN	SIVA		

PROJECT GROUP IRS NO.
PRDGN SMG A4-105-35-1-0050/01-00-013

FILE NAME: 35169415-PRODN

NOTES OF REVISION		ZONE
00	BASE LINE DRAWING	N/A

MODIFIED FROM
A4-028-35-1-0044/04-019

2 FOR SECONDARY TREATMENT ONLY
(REF. PARTS & PROCESS SPEC. DOC.)

Ø 5H7 +0.012
+0.000

3.2

ANODISE FULL

ANODISE

0.3 X 45°
(TYP)

7.4

Ø 5 H7

R2.5

Ø d

11.5

1. * LOCATION FOR MARKING THE COMPONENT SL. NO.
2. SECONDARY TREATMENT DETAILS (SEE BOX FOR DETAILS).
3. CHAMFER UNSPECIFIED EDGES 0.3X45°

PART NO	Ø d	QTY.	USED AT
01-00-014A	2.1	4	Y-P1 & P1-P2 HINGES
01-00-014B	1.9	2	END HINGES

NOTES:-

PART NO	DESCRIPTION	QTY	MATL	REMARKS
01-00-014	SPRING ANCHOR	1	AL 6061 (T6)	

DO NOT SCALE THE DRAWING
UNLESS OTHERWISE STATED.
DIMENSIONS ARE IN MM.
REMOVE SHARP EDGES

TITLE
SPRING ANCHOR
(YOKE-PANEL-1(TOP) SUB ASSY.)

SCALE
2:1

APPROVED: NAME SIGN DATE
MOD. CHKD: SHIVA 27.10.11
DRG. CHKD: NJ 29.10.11
DRAWN: ANAND

GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
ISRO SATELLITE CENTRE
BANGALORE - INDIA

PROJECT: PROON GROUP: SMO DRG NO. A4-105-35-1-0050/01-00-014

FILE NAME: 35169411-PROON

NOTES OF REVISION		ZONE
00	BASE LINE DRAWING	N/A

Ø 5F7 -0.010
-0.022

3.2 (0.4)

0.4

1.2

R0.2

Ø 5 F7

0.5x45°

9.2

90° 30.4°

1.2 +0.2
0

(1)

2.5

24

6.5 (REF)

33 ±0.2

ISO VIEW

NOTE:-
1. M5 THREAD PORTION ALSO TO BE TURNED TO
Ø 5F7 BEFORE THREAD CUTTING

PART NO	DESCRIPTION	QTY	MATL.	REMARKS
01-00-015	HINGE BRACKET BOLT	1	T1 6AL 4V	

DO NOT SCALE THE DRAWING
UNLESS OTHERWISE STATED.
DIMENSIONS ARE IN MM.
REMOVE SHARP EDGES

TITLE
HINGE BRACKET BOLT
(YOKE-PANEL-1(TOP) SUB ASSY.)

SCALE
2:1

APPROVED: NAME SIGN DATE
MOD. CHKD: HME 9.9.11
DRG. CHKD: HME 9.9.11
DRAWN: SIVA

GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
ISRO SATELLITE CENTRE
BANGALORE - INDIA

PROJECT: PROON GROUP: SMO DRG NO. A4-105-35-1-0050/01-00-015

FILE NAME: 35169417-PROON

NOTES OF REVISION		ZONE
00	BASE LINE DRAWING	N/A

3.2

ISO VIEW

0.3X45° (TYP)

13.2±0.1

Ø 1.8

NOTE:-
1. IDENTIFY PART SERIAL NO. BY A SEPARATE TAG
2. TO BE HEAT TREATED AFTER MACHINING
3. HEAT TREAT AT 340° FOR 1 HOUR

PART NO	DESCRIPTION	QTY	MATL.	REMARKS
01-00-016	PIN	1	Be Cu (1/2H)	

DO NOT SCALE THE DRAWING
UNLESS OTHERWISE STATED.
DIMENSIONS ARE IN MM.
REMOVE SHARP EDGES

TITLE
PIN
(YOKE-PANEL-1(TOP) SUB ASSY.)

SCALE
5:1

APPROVED: NAME SIGN DATE
MOD. CHKD: SHIVA 27.10.11
DRG. CHKD: HME 13.10.11
DRAWN: SIVA

GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
ISRO SATELLITE CENTRE
BANGALORE - INDIA

PROJECT: PROON GROUP: SMO DRG NO. A4-105-35-1-0050/01-00-016

FILE NAME: 35169418-PROON

NOTES OF REVISION		ZONE
00	BASE LINE DRAWING	N/A

ISO VIEW

PART NO.	QTY	ØD±0.05	ID±0.05	T±.1	REMARKS
A	12	11	6.2	1.6	USED AT MANDREL
B	12	11	6.2	2.0	
C	12	11	6.2	1.5	
D	12	11	6.2	1.2	
E	12	11	6.2	1.0	
F	12	11	6.2	2.5	
G	12	11	6.2	2.2	
H	12	11	6.2	1.8	
I	12	11	6.2	1.6	

TO BE USED AT
BEARING TO
FILL THE
GAP/PROVIDE
NECESSARY FLOAT

NOTE:-
1. REMOVE SHARP EDGES
2. USE SEPARATE TAG FOR JOB ID.

PART NO	DESCRIPTION	QTY	MATL.	REMARKS
01-00-017	SPACER	AS PER TABLE	DELFIN 500AF	

DO NOT SCALE THE DRAWING
UNLESS OTHERWISE STATED.
DIMENSIONS ARE IN MM.
REMOVE SHARP EDGES

TITLE
SPACER
(YOKE-PANEL-1(TOP) SUB ASSY.)

SCALE
2:1

APPROVED: NAME SIGN DATE
MOD. CHKD: HME 9.9.11
DRG. CHKD: HME 9.9.11
DRAWN: SIVA

GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
ISRO SATELLITE CENTRE
BANGALORE - INDIA

PROJECT: PROON GROUP: SMO DRG NO. A4-105-35-1-0050/01-00-017

FILE NAME: 35169419-PROON

NOTES OF REVISION		ZONE
REV	BASE LINE DRAWING	N/A
00		
1	REF:- COMB/L DATED 17-04-2005	18.07.05
2	FREE LENGTH DIMENSION CHANGED	18.10.07
3	DETAILS FOR INSAT REVISED/ADDED	26.08.08
4	SIDE VIEW CONNECTED AS PER LH SPRING	04.05.12

MODIFIED FROM
A4-026-35-1-0044/04-023

SECONDARY TREATMENT

PROJECT	INSAT	INSAT
WIRE (A) (d)	2mm ±0.02	2mm ±0.02
INNER DIA (ID)	31mm	31mm
FREE LENGTH AFTER HEAT TREATMENT (L)	44 ± 5 mm	47 ± 5 mm
NUMBER OF TURNS (N)	17.5	18.5
STIFFNESS (K) Kg-Cm/deg	0.0105	0.00857
STRESS Kgf/mm²	74	73
STARTING TORQUE Kg-Cm (T ₁)	5.30	5.815
ROTATION ANGLE (START) (θ ₁)	504°	662°
END TORQUE (T ₂) Kg-Cm	3.4	4.3
ROTATION ANGLE (END) (θ ₂)	324	502

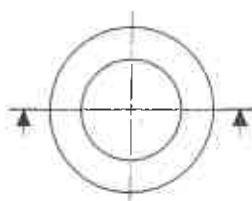
NOTE:-

- COMPONENT SERIAL NO. IS TO BE ENGRAVED ON A SMALL AL SHEET OF 10X10X0.3 THICK AND TIED TO THE SPRING COIL USING A THIN SS BINDING WIRE.
- HEAT TREATMENT: REF. PARTS & PROCESSES SPEC. DOC. SECTION-4.7 FOR DETAILS.
- SPRING ARM LENGTH IS TO BE TRIMMED DURING ASSY.
- THIS SPRING IS USED AT Y-P1 & P1-P2 HINGES.

01-00-01B	DEPLOYMENT SPRING (LH)	01	Be Cu(1/2H)	REMARKS
PART NO	DESCRIPTION	QTY	MATL	REMARKS
DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES DEPLOYMENT SPRING (LH) (YOKE-PANEL-1(TOP)SUB ASSY.)		SCALE 1:1		
APPROVED	NAME SIGN DATE	GOVERNMENT OF INDIA - DEPARTMENT OF SPACE		
MOD. CHKD	NAME SIGN DATE	ISRO SATELLITE CENTRE		
DRG. CHKD	NAME SIGN DATE	BANGALORE - INDIA		
DRWN	NAME SIGN DATE	PROJECT	GROUP	DRD NO.
		PROJON	SING	A4-105-35-1-0050/01-00-018

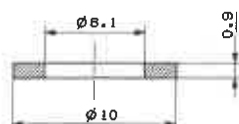
NOTES OF REVISION	ZONE
00	N/A

3.2/





ISO. VIEW



NOTE:-

1. REMOVE SHARP EDGES.
2. USE SEPARATE TAG FOR JOB ID.

PART NO	DESCRIPTION	QTY	MATL.	REMARKS
01-00-019	WASHER	1	SS 304	

DO NOT SCALE THE DRAWING
UNLESS OTHERWISE STATED.
DIMENSIONS ARE IN MM.
REMOVE SHARP EDGES

WASHER
(YOKE-PANEL-1 (TOP) SUB ASSY.)

NAME SIGN DATE	GOVERNMENT OF INDIA - DEPARTMENT OF SPACE ISRO SATELLITE CENTRE BANGALORE - INDIA
APPROVED:  21/01/11 W.D.-CHIC: HME 9.9.11 DWG.-CHIC: HME 9.9.11 DRAWN: SIVA PROJECT: PRODN GROUP: SMS	DWG NO. A4-105-35-1-0050/01-00-019



FILE NAME: 35169421-PROD

SCALE: 5:1

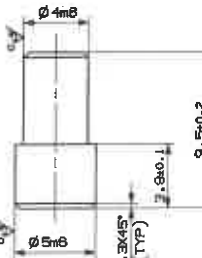
NO.	NOTES OF REVISION	ZONE
00	BASE LINE DRAWING	N/A

Ø 4m8	+0.012
	+0.004
Ø 5m8	+0.012
	+0.004



3.2 / 0.4

ISO VIEW



NOTE:-
1. REMOVE SHARP EDGES.

01-00-020	PIN	1	Ti 6AL 4V	
PART NO	DESCRIPTION	QTY	MATL.	

DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES

PIN (YOKE-PANEL-1(TOPI)SUB ASSY.)	SCALE 5:1																		
GOVERNMENT OF INDIA - DEPARTMENT OF SPACE ISRO SATELLITE CENTRE BANGALORE - INDIA																			
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">NAME SIGN DATE</td> <td style="width: 70%;"></td> </tr> <tr> <td>APPROVE</td> <td></td> </tr> <tr> <td>HCD, CHKO SHIVA</td> <td>13.08.11</td> </tr> <tr> <td>DRS, CHKO HH</td> <td>13.10.11</td> </tr> <tr> <td>DRAWN SIVA</td> <td>13.10.10</td> </tr> </table>	NAME SIGN DATE		APPROVE		HCD, CHKO SHIVA	13.08.11	DRS, CHKO HH	13.10.11	DRAWN SIVA	13.10.10	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%;">PROJECT</td> <td style="width: 10%;">GROUP</td> <td style="width: 10%;">RS NO.</td> <td style="width: 50%;"></td> </tr> <tr> <td>PRODN</td> <td>SMS</td> <td></td> <td>A4-105-35-1-0050/01-00-020</td> </tr> </table>	PROJECT	GROUP	RS NO.		PRODN	SMS		A4-105-35-1-0050/01-00-020
NAME SIGN DATE																			
APPROVE																			
HCD, CHKO SHIVA	13.08.11																		
DRS, CHKO HH	13.10.11																		
DRAWN SIVA	13.10.10																		
PROJECT	GROUP	RS NO.																	
PRODN	SMS		A4-105-35-1-0050/01-00-020																



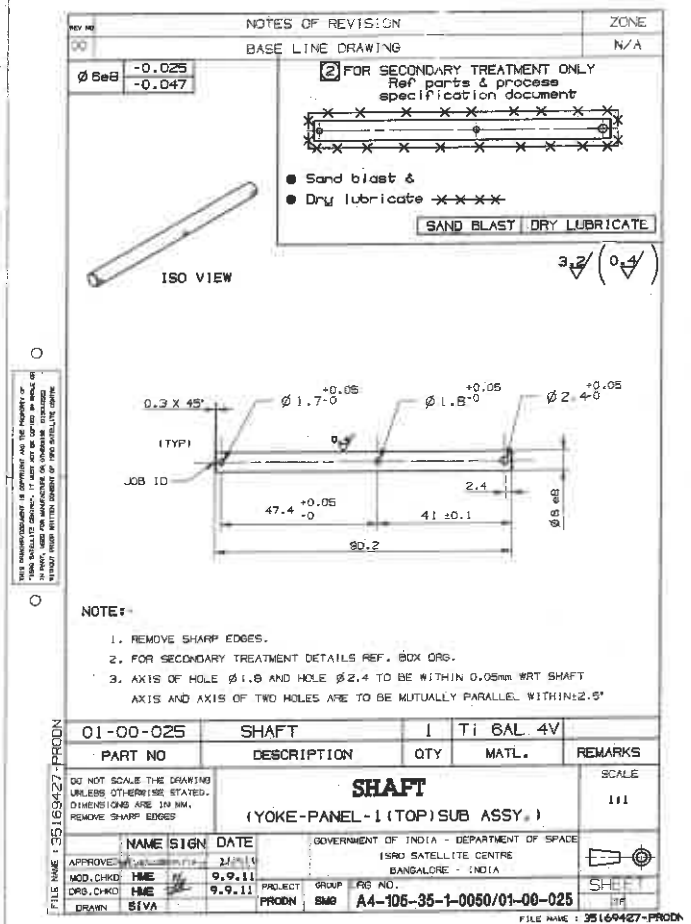
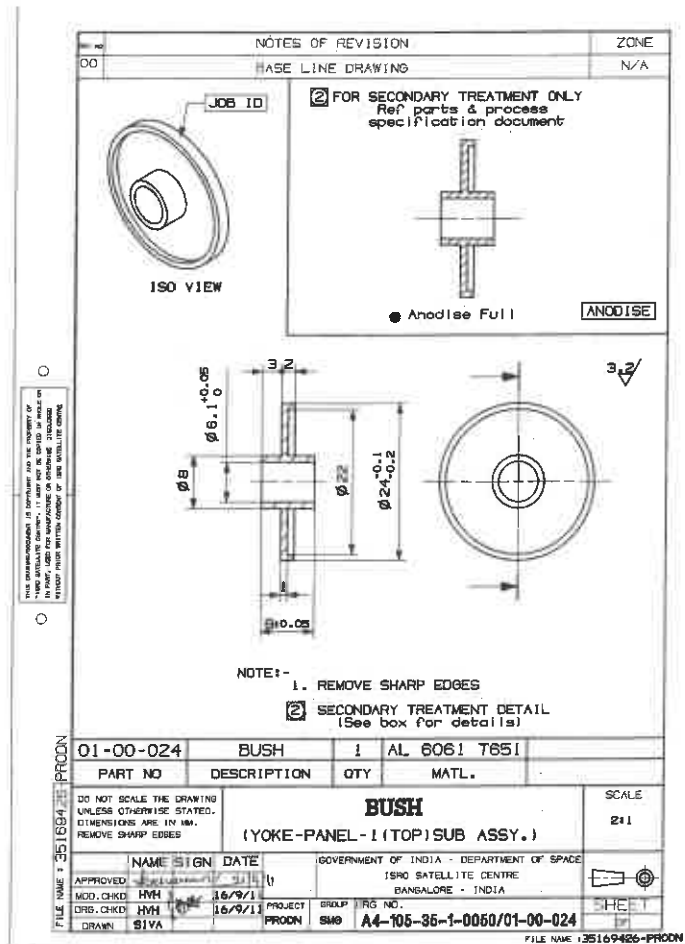
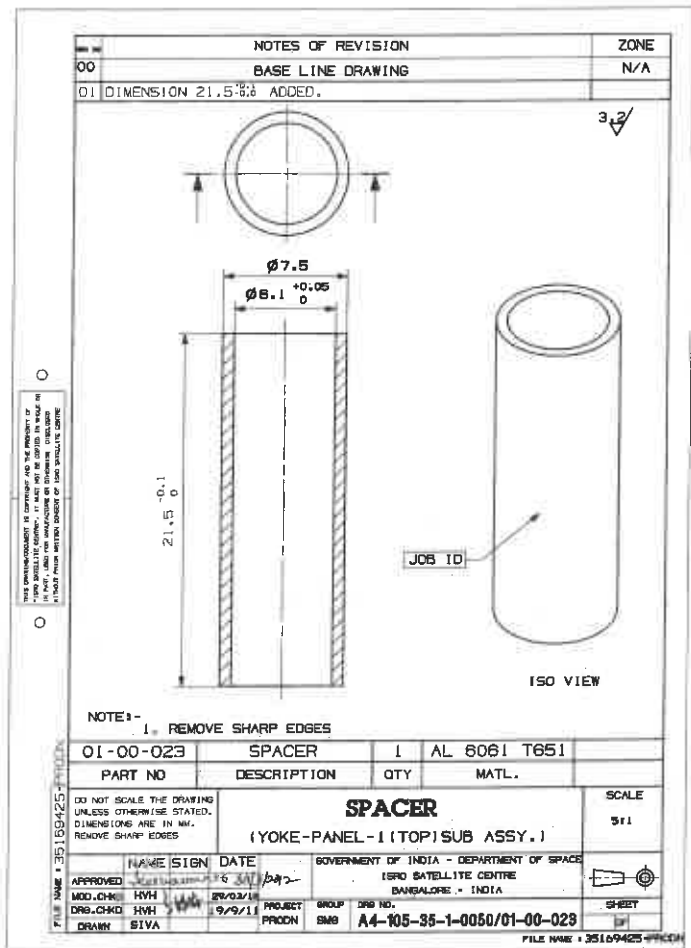
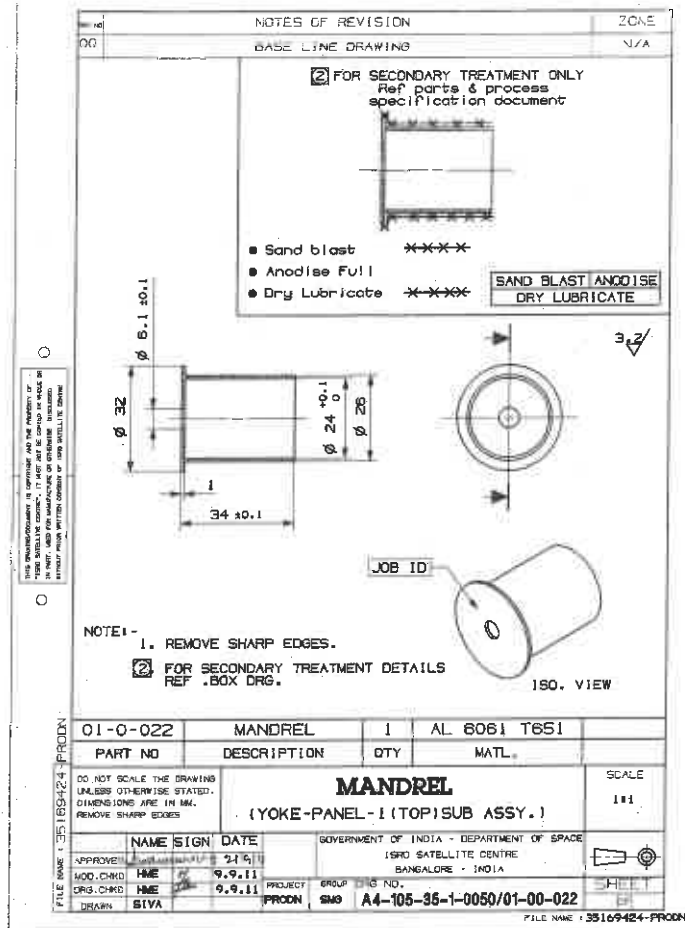
SHEET 1 OF 1

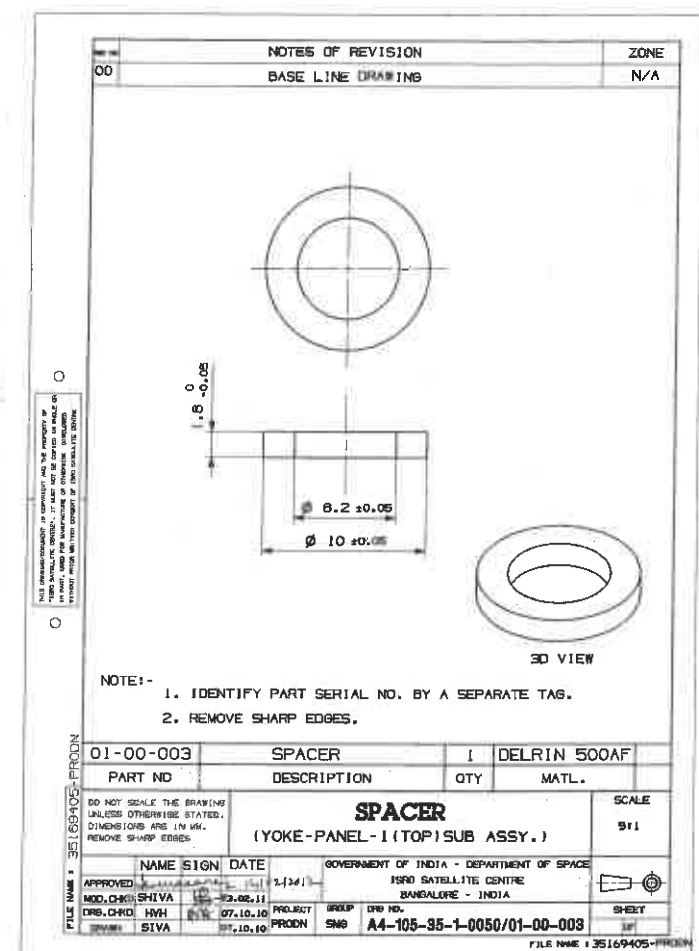
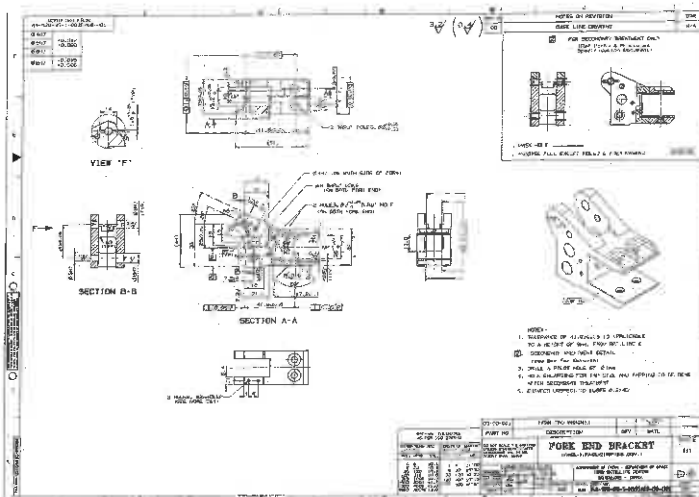
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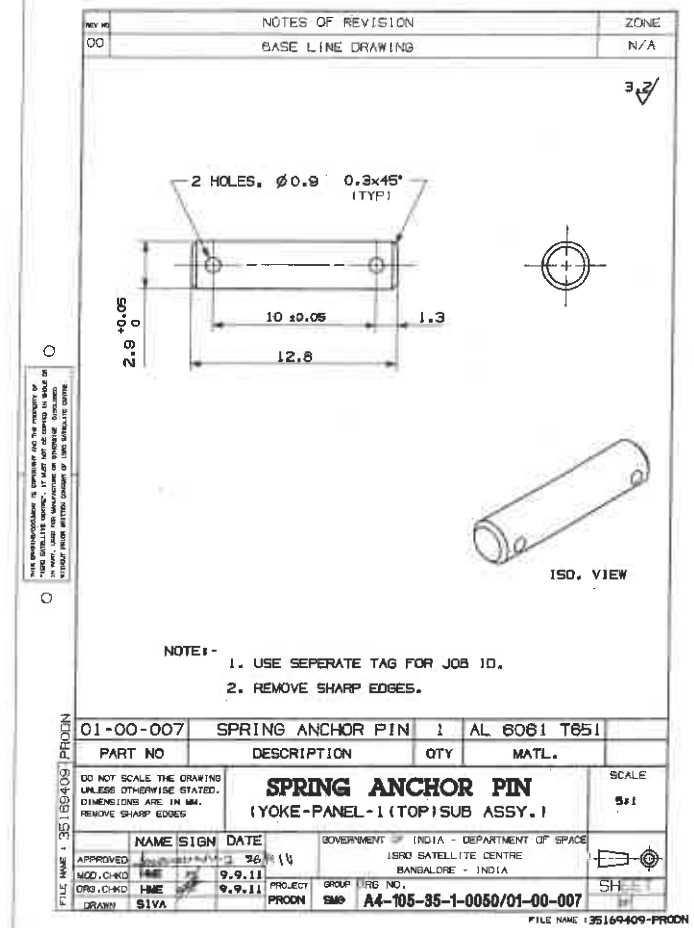
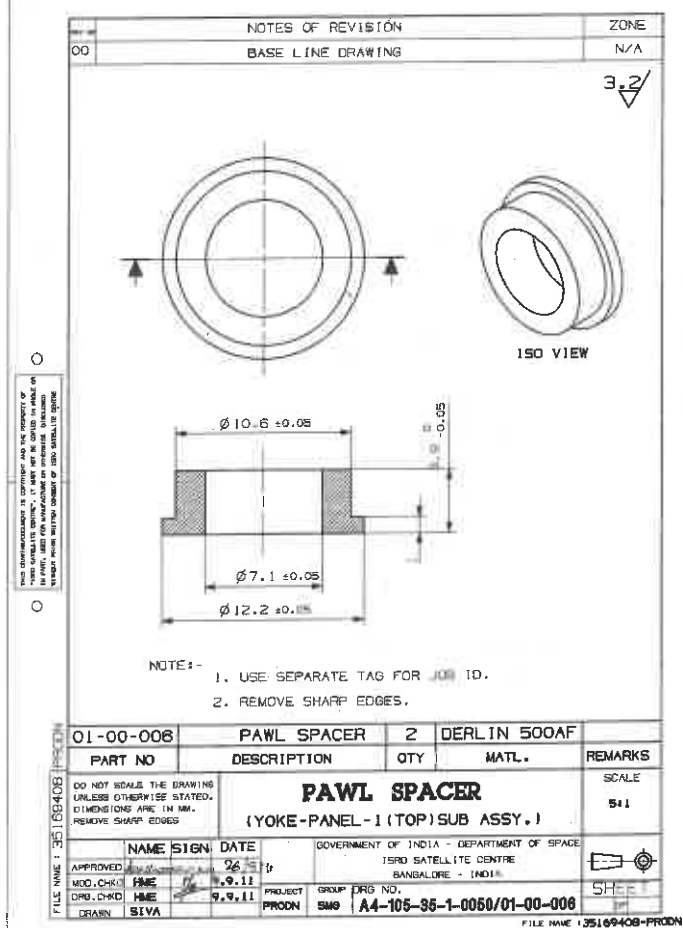
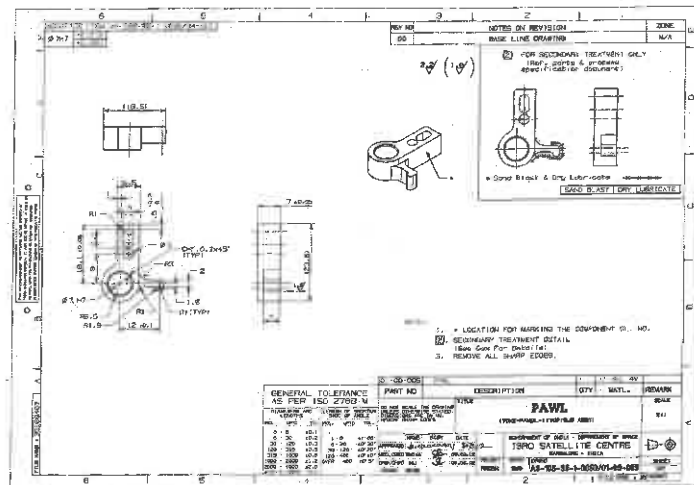
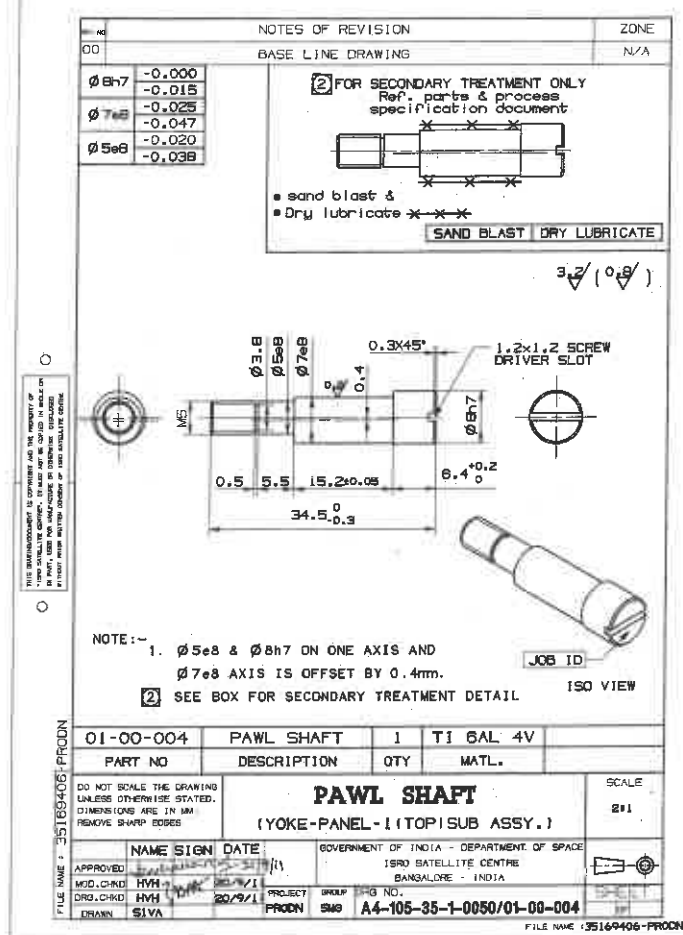
SECTION A-A

GENERAL TOLERANCE
UNLESS OTHERWISE SPECIFIED

PART NO.	DESCRIPTION	CITY	MATERIAL	TREATMENT
07-00-001A	1	1	1	1
07-00-001A	2	2	2	2
07-00-001A	3	3	3	3
07-00-001A	4	4	4	4
07-00-001A	5	5	5	5
07-00-001A	6	6	6	6
07-00-001A	7	7	7	7
07-00-001A	8	8	8	8
07-00-001A	9	9	9	9
07-00-001A	10	10	10	10
07-00-001A	11	11	11	11
07-00-001A	12	12	12	12
07-00-001A	13	13	13	13
07-00-001A	14	14	14	14
07-00-001A	15	15	15	15
07-00-001A	16	16	16	16
07-00-001A	17	17	17	17
07-00-001A	18	18	18	18
07-00-001A	19	19	19	19
07-00-001A	20	20	20	20
07-00-001A	21	21	21	21
07-00-001A	22	22	22	22
07-00-001A	23	23	23	23
07-00-001A	24	24	24	24
07-00-001A	25	25	25	25
07-00-001A	26	26	26	26
07-00-001A	27	27	27	27
07-00-001A	28	28	28	28
07-00-001A	29	29	29	29
07-00-001A	30	30	30	30
07-00-001A	31	31	31	31
07-00-001A	32	32	32	32
07-00-001A	33	33	33	33
07-00-001A	34	34	34	34
07-00-001A	35	35	35	35
07-00-001A	36	36	36	36
07-00-001A	37	37	37	37
07-00-001A	38	38	38	38
07-00-001A	39	39	39	39
07-00-001A	40	40	40	40
07-00-001A	41	41	41	41
07-00-001A	42	42	42	42
07-00-001A	43	43	43	43
07-00-001A	44	44	44	44
07-00-001A	45	45	45	45
07-00-001A	46	46	46	46
07-00-001A	47	47	47	47
07-00-001A	48	48	48	48
07-00-001A	49	49	49	49
07-00-001A	50	50	50	50
07-00-001A	51	51	51	51
07-00-001A	52	52	52	52
07-00-001A	53	53	53	53
07-00-001A	54	54	54	54
07-00-001A	55	55	55	55
07-00-001A	56	56	56	56
07-00-001A	57	57	57	57
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07-00-001A	60	60	60	60
07-00-001A	61	61	61	61
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07-00-001A	63	63	63	63
07-00-001A	64	64	64	64
07-00-001A	65	65	65	65
07-00-001A	66	66	66	66
07-00-001A	67	67	67	67
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07-00-001A	69	69	69	69
07-00-001A	70	70	70	70
07-00-001A	71	71	71	71
07-00-001A	72	72	72	72</







NOTES OF REVISION

BASE LINE DRAWING

2 FOR SECONDARY TREATMENT ONLY
Ref parts & process
specification document

3.2

2 HOLES, $\varnothing 8.0^{+0.05}_0$

0.3x45° (TYP)

1.6

28.9 $^{+0.1}_0$

32.1

ISO. VIEW

NOTE:-

1. REMOVE SHARP EDGES
2. FOR SECONDARY TREATMENT DETAILS REF. BOX DRG.
3. USE SEPARATE TAG FOR JOB ID.

FILE NAME	32169410-PROJIN	01-00-008	PIN	I	AL 6061 T651	
PART NO.		DESCRIPTION	QTY	MATL.	REMARKS	
DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES	PIN (YOKE-PANEL-1(TOP)SUB ASSY.)				SCALE	2:1
APPROVE	NAME SIGN	DATE	GOVERNMENT OF INDIA - DEPARTMENT OF SPACE		ISRO SATELLITE CENTRE	
MOD./CHKD	HME	3/9/11	BANGALORE - INDIA		SHEET	
DRG./CHKD	HME	9.9.11	PROJECT	GROUP	ISS NO.	
RAWN	SIVA		PROJON	SMB	A4-105-95-1-0050/01-00-008	

FILE NAME : 32169410-PROJIN

FILE NAME : 32169410-PROJIN

REV NO 00	NOTES OF REVISION BASE LINE DRAWING	ZONE N/A
--------------	--	-------------

3/2

ISO. VIEW

NOTE:-
1. REMOVE SHARP EDGES

01-00-009	SPACER	1	AL 8061 T651
PART NO	DESCRIPTION	QTY	MATL.

DO NOT SCALE THE DRAWING
UNLESS OTHERWISE STATED.
DIMENSIONS ARE IN MM,
REMOVE SHARP EDGES

SPACER

(YOKE-PANEL-1(TOP) SUB ASSY.)

SCALE
5:1

APPROVED	NAME	SIGN	DATE	GOVERNMENT OF INDIA - DEPARTMENT OF SPACE (ISRO SATELLITE CENTRE BANGALORE - INDIA)
WGD, CHND	HME	[Signature]	21/11	
DRS, CHND	HME	[Signature]	9.9.11	
DRAWN	SIVA			

PROJECT	GROUP	RD NO.	A4-105-35-1-0050/01-00-009
PROON	SMS		

FILE NAME: A35106411

PROJNO: 01

35169411 - PROON

REV 00	NOTES OF REVISION	ZONE
00	BASE LINE DRAWING	N/A

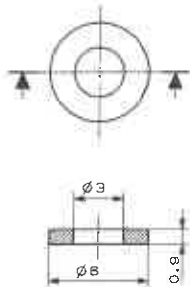
2 FOR SECONDARY TREATMENT ONLY
Ref parts & process
specification document



■ Anodise full



ISO. VIEW



NOTE:-

1. REMOVE SHARP EDGES
2. FOR SECONDARY TREATMENT DETAILS REF. BOX DRG.
3. USE SEPARATE TAB FOR JOB ID.

01-00-010	WASHER	1	AL 6061 T851	
PART NO	DESCRIPTION	QTY	MATL.	REMARKS
DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES WASHER (YOKE-PANEL-1(TOP) SUB ASSY.)				SCALE 3:1
NAME SIGN DATE APPROVE:  30.11 MO. CHKO: AME 9.9.11 CRG. CHKO: AME 9.9.11 DRAWN: SIVA		GOVERNMENT OF INDIA - DEPARTMENT OF SPACE ISRO SATELLITE CENTRE BANGALORE - INDIA PROJECT: PROTON GROUP: SRG NO. FILE NO: A4-105-35-1-0050/01-00-010		

FILE NAME : 35169412

PROTON

FILE NAME : 35169412-PROTON

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REV	NOTES OF REVISION	ZONE
00	BASE LINE DRAWING	N/A
01	CONTROL No. 2 & TABLE MODIFIED	

DESCRIPTION	SPECIFIED VALUE
OD	13.8mm
ID	12.2±0.2mm
P	1mm
dw	Ø0.8±0.02
N (NO OF TURNS)	1.475
STIFFNESS (K _s cm/ds)	0.0073
STRESS (K _s /mm ²)	77.5
STARTING TORQUE (K _s -cm)	0.37
STARTING ANGLE (DEG)	51°
END TORQUE (K _s -cm)	0.23
END ANGLE (DEG)	31°

NOTE:-

1. HEAT TREATMENT:- HEAT TREAT AT 340°C FOR 1 Hr.
2. HEAT TREATMENT REF. PARTS & PROCESSING SPECIFICATION DOC., 1995-154C-ST-008, VOL. 1 SECTION 4.7 FOR DETAILS
3. WILL BE TRIMMED TO ACTUAL LENGTH DURING ASSEMBLY
4. COMPONENT SERIAL NO. TO BE SHOWN ON A 1/8" SHEET OF 10X10" 300 GRID AND TIED TO THE SPRING COIL USING A 10X10 300 GRID WIRE

01-00-071B	PAWL SPRING-RH	1	Be Cu (1/2H)	
01-00-011A	PAWL SPRING-LH	1	Be Cu (1/2H)	
PART NO	DESCRIPTION	QTY	MATL.	REMARKS

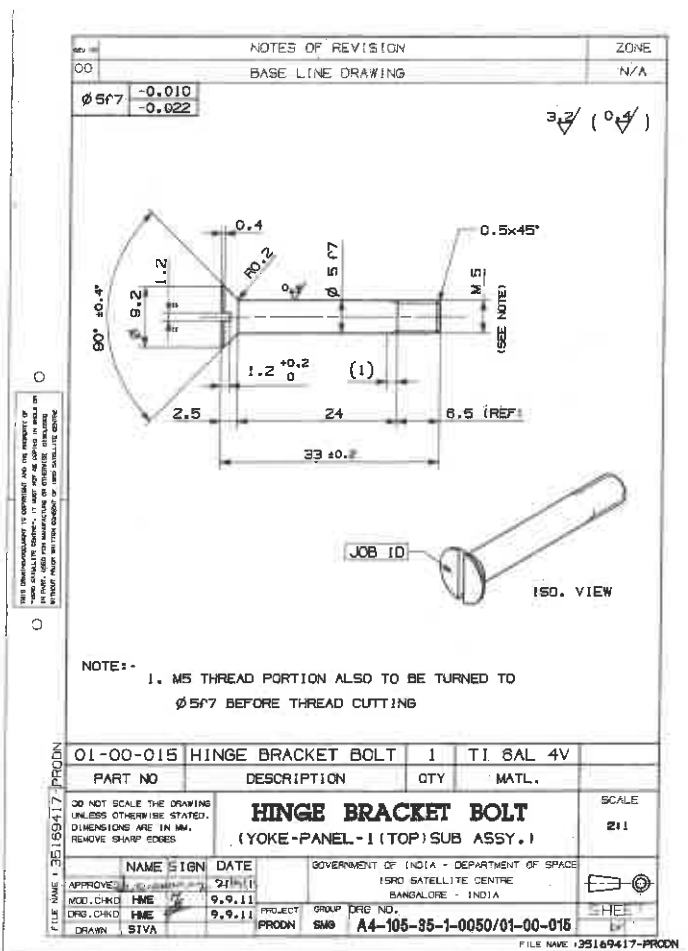
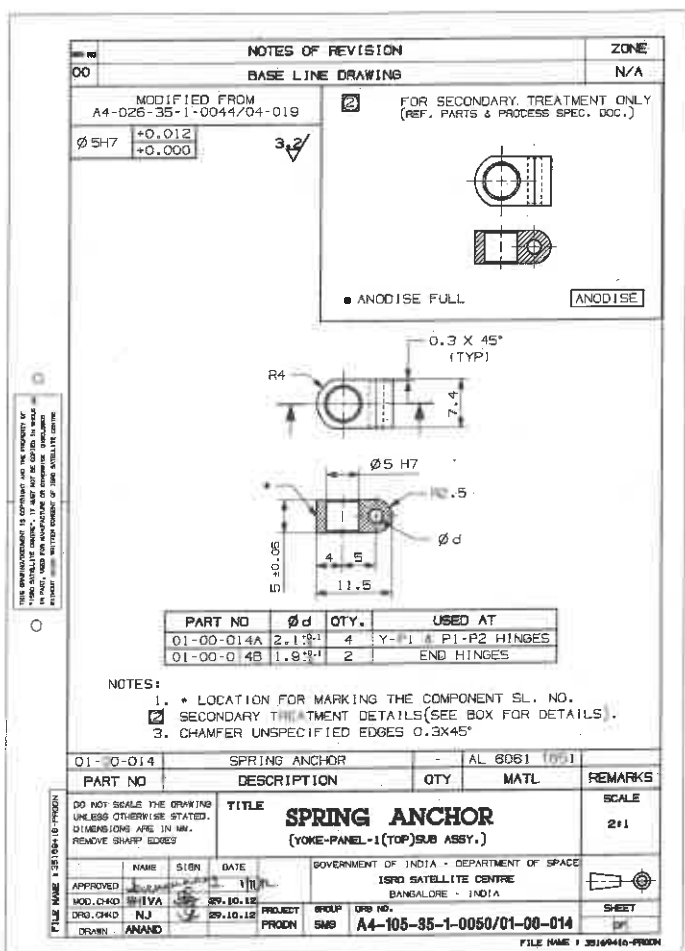
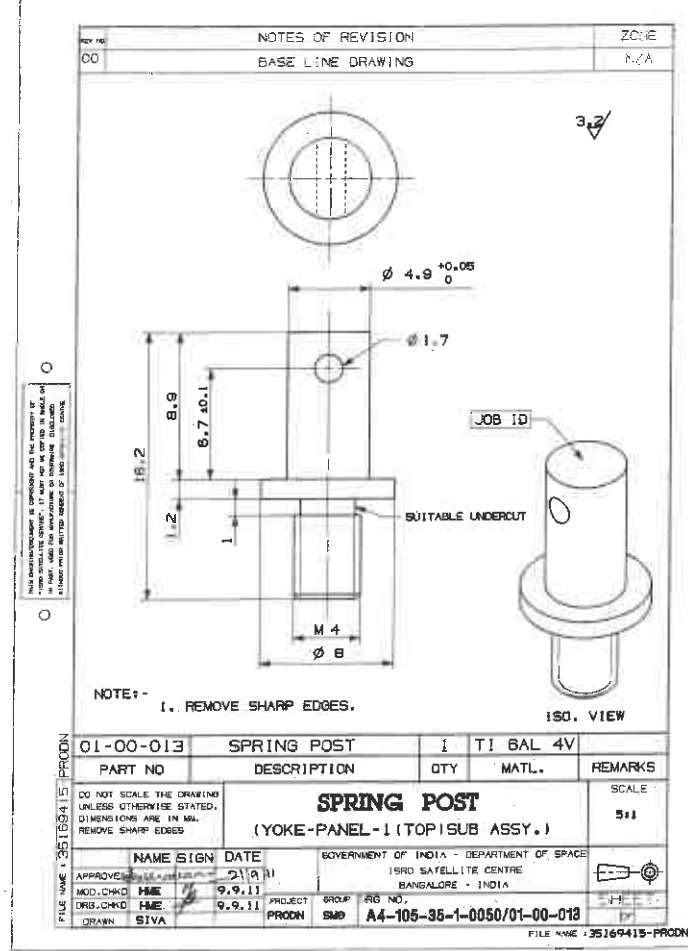
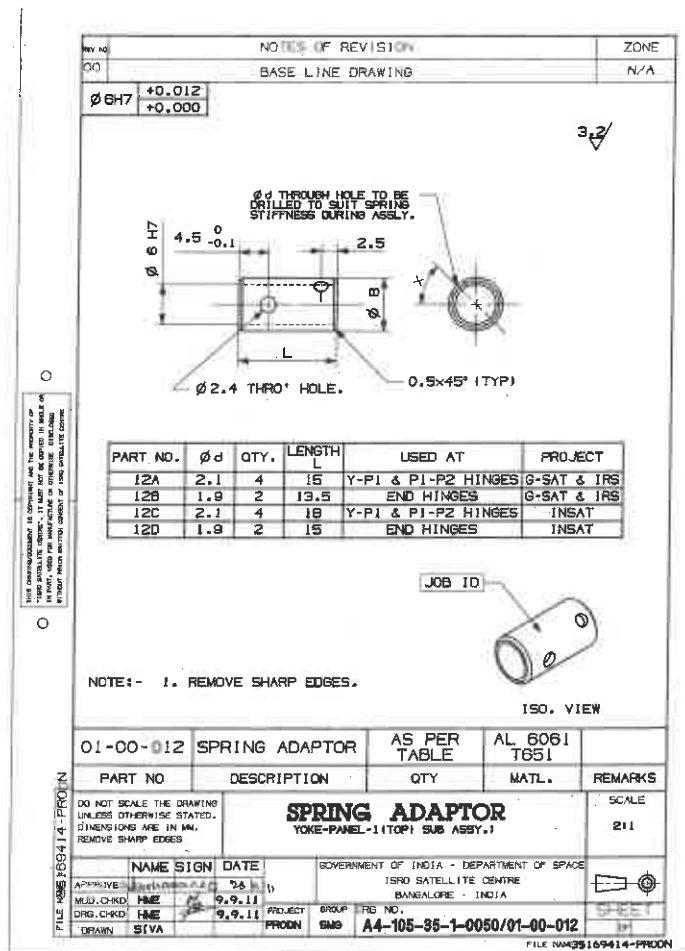
DO NOT SCALE THE DRAWING
UNLESS OTHERWISE STATED.
DIMENSIONS ARE IN MM.
REMOVE SHARP EDGES

PAWL SPRING
(YOKO-PANEL 1 (TOP) SUB ASSY.)

SCALE
NTS

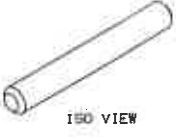
APPROVED	NAME	SIGN	DATE	GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
MOD. CHKD	HME		9.9.11	ISRO SATELLITE CENTRE
ENG. CHKD	NJ		3.07.13	BANGALORE - INDIA
DRWN	SIVA			
				GROUP
				DWG NO.
				PROJECT
				PROCON
				FILE NO.
				DATE
				SHEET
				NO.

FILE NO. 169413-PROCON

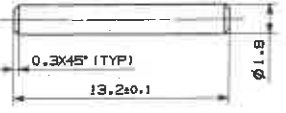


REV. NO.	NOTES OF REVISION	ZONE
00	BASE LINE DRAWING	N/A

3.2



ISO VIEW



NOTE:-

1. IDENTIFY PART SERIAL NO. BY A SEPARATE TAG
2. TO BE HEAT TREATED AFTER MACHINING
3. HEAT TREAT AT 340° FOR 1 HOUR

PART NO.	DESCRIPTION	QTY	MATL.
01-00-016	PIN	1	Be Cu(1/2H)

PIN
(YOKE-PANEL-1(TOP)SUB ASSY.)

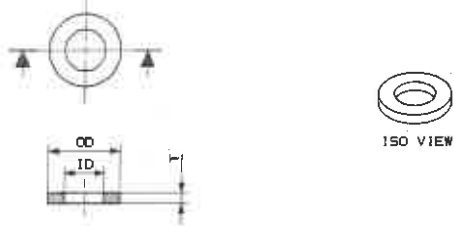
DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES.

NAME	SIGN	DATE	GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
APPROVED		21.11.11	ISRO SATELLITE CENTRE BANGALORE - INDIA
MOD. CHKD	SHIVA	21.11.11	
DRG. CHKD	HMH	13.10.11	
DRAWN	SIVA	13.10.10	

PROJECT: A4-105-35-1-0050/01-00-016

FILE NAME: 35169418-PROJ

REV. NO.	NOTES OF REVISION	ZONE
00	BASE LINE DRAWING	N/A



ISO VIEW

PART NO.	QTY	OD±0.05	ID±0.05	REMARKS
A	12	11	6.2	1.8
B	12	11	6.2	2.0
C	12	11	6.2	1.5
D	12	11	6.2	1.2
E	12	11	6.2	1.0
F	12	11	6.2	2.5
G	12	11	6.2	2.2
H	12	11	6.2	1.8
I	12	11	6.2	1.8

NOTE:-

1. REMOVE SHARP EDGES
2. USE SEPARATE TAG FOR JOB ID.

PART NO.	DESCRIPTION	QTY	MATL.	REMARKS
01-00-017	SPACER	AS PER TABLE	DELFIN 500AF	

SPACER
(YOKE-PANEL-1(TOP)SUB ASSY.)

DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES.

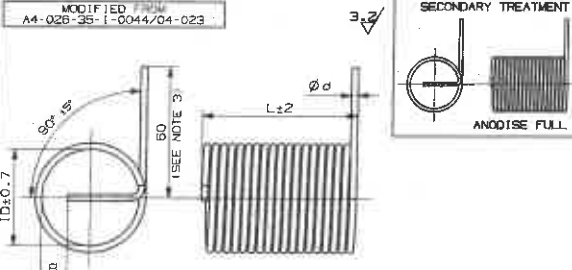
NAME	SIGN	DATE	GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
APPROVED		21.11.11	ISRO SATELLITE CENTRE BANGALORE - INDIA
MOD. CHKD	HME	9.9.11	
DRG. CHKD	HME	9.9.11	
DRAWN	SIVA		

PROJECT: A4-105-35-1-0050/01-00-017

FILE NAME: 35169419-PROJ

REV. NO.	NOTES OF REVISION	ZONE
00	BASE LINE DRAWING	N/A

3.2



SECONDARY TREATMENT
ANODISE FULL

PROJECT	ISATGIRS	ISRA
WIRE DIA (d)	2mm±0.02	2mm±0.02
INNER DIA (ID)	30mm	30mm
FREE LENGTH AFTER HEAT TREATMENT (L)	44±5 mm	47±5 mm
NUMBER OF TURNS (N)	17.5	18.5
STIFFNESS (K) Kg-Cm/deg	0.0105	0.00857
STRESS Kg/cm²	74	73
STARTING TORQUE Kg-Cm (T ₁)	5.3	5.845
ROTATION ANGLE (START) (Θ ₁)	504°	882°
END TORQUE (T ₂) Kg-Cm	3.4	4.3
ROTATION ANGLE (END) (Θ ₂)	324	502

NOTE:-

1. COMPONENT SERIAL NO. IS TO BE ENGRAVED ON A SMALL AL SHEET OF 10X10X0.3 THICK AND TIED TO THE SPRING COIL USING A THIN SS BINDING WIRE.
2. HEAT TREATMENT: REF. PARTS & PROCESSES SPEC. DOC. SECTION-4.7 FOR DETAILS.
3. SPRING ARM LENGTH TO BE TRIMMED DURING ASSY.
4. THIS SPRING IS USED AT Y-P1 & P1-P2 HINGES.

PART NO.	DESCRIPTION	QTY	MATL.	REMARKS
01-00-018	DEPLOYMENT SPRING (LH)	01	Be Cu(1/2H)	

DEPLOYMENT SPRING (LH)
(YOKE-PANEL-1(TOP)SUB ASSY.)

DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES.

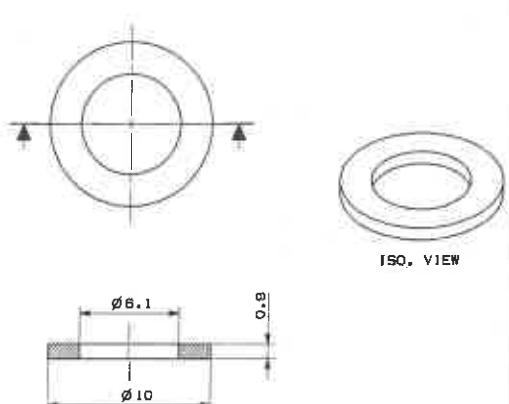
NAME	SIGN	DATE	GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
APPROVED		31.10.11	ISRO SATELLITE CENTRE BANGALORE - INDIA
MOD. CHKD	SHIVA	31.10.11	
DRG. CHKD	NJ	31.10.11	
DRAWN	SHIVA		

PROJECT: A4-105-35-1-0050/01-00-018

FILE NAME: 35169420-PROJ

REV. NO.	NOTES OF REVISION	ZONE
00	BASE LINE DRAWING	N/A

3.2



ISO VIEW

NOTE:-

1. REMOVE SHARP EDGES
2. USE SEPARATE TAG FOR JOB ID.

PART NO.	DESCRIPTION	QTY	MATL.	REMARKS
01-00-019	WASHER	1	SS 304	

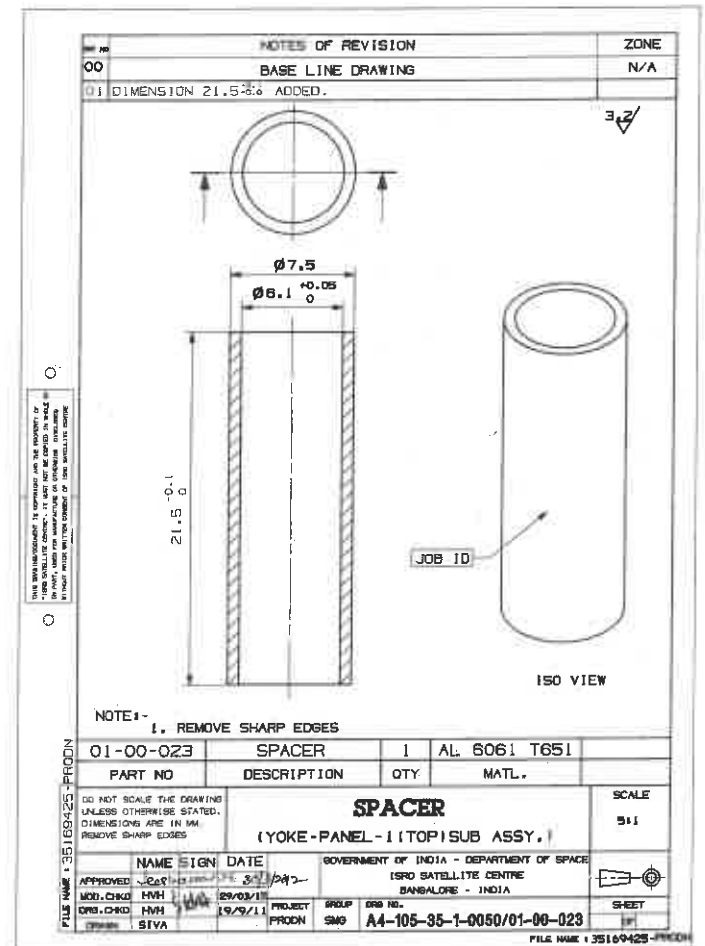
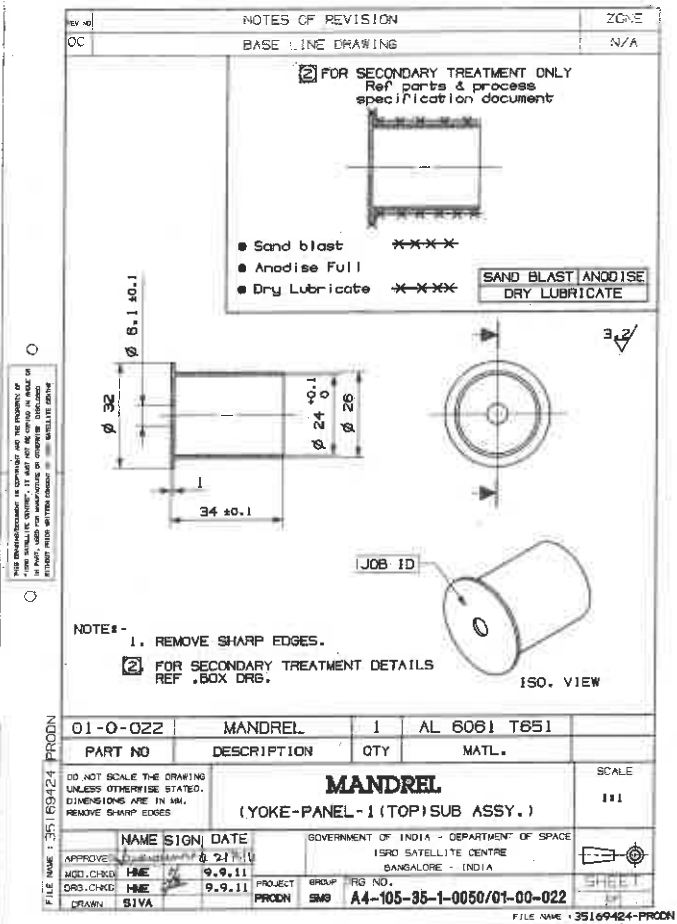
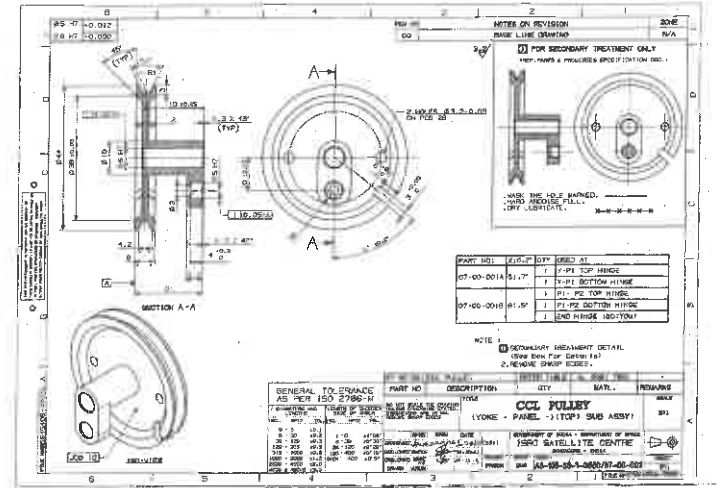
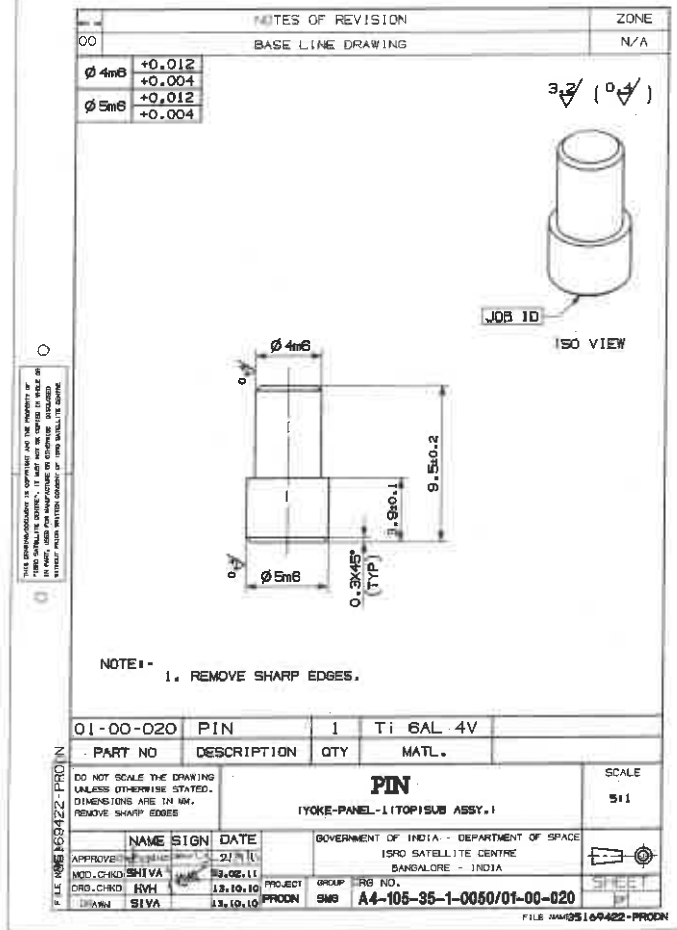
WASHER
(YOKE-PANEL-1(TOP)SUB ASSY.)

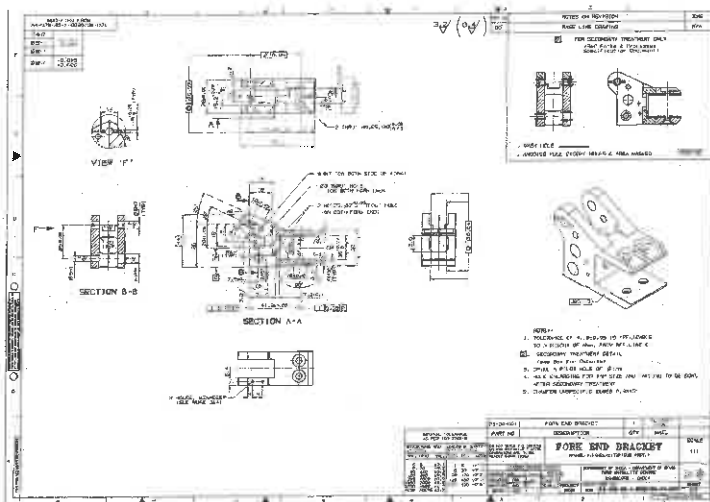
DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES.

NAME	SIGN	DATE	GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
APPROVED		31.10.11	ISRO SATELLITE CENTRE BANGALORE - INDIA
MOD. CHKD	HME	9.9.11	
DRG. CHKD	HME	9.9.11	
DRAWN	SIVA		

PROJECT: A4-105-35-1-0050/01-00-019

FILE NAME: 35169421-PROJ

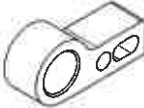


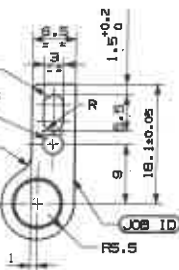
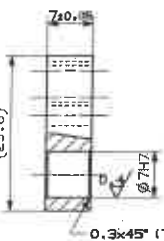


NOTES OF REVISION		ZONE
00	BASE LINE DRAWING	N/A

Ø 7 H7
+0.015
0

3/2 (0/1)

NOTE:-
1. REMOVE SHARP EDGES.

02-00-001	PAWL	1	Ti 6AL 4V
PART NO.	DESCRIPTION	QTY	MATL.

DO NOT SCALE THE DRAWINGS
UNLESS OTHERWISE STATED.
DIMENSIONS ARE IN MM.
REMOVE SHARP EDGES

PAWL

(YOKE PANEL-1 (BOTTOM) SUB ASSY)

SCALE
2:1

APPROVED	NAME	SIGN	DATE	GOVERNMENT OF INDIA - DEPARTMENT OF ISRO SATELLITE CENTRE BANGALORE - INDIA	
MOD. CHKD	HVH		22/12/11	PROJECT GROUP Dwg No.	SHEET
DWG. CHKD	HVH		22/12/11		
DRWING	SIVA			PROJECT GROUP Dwg No.	SHEET

A4-106-35-1-0050/02-00-001

FILE NAME: 169429-PRODIN

NOTE:-

1. USE SEPARATE TAG FOR JOB ID.
2. REMOVE SHARP EDGES.

PAWL SPACER
(YOKE-PANEL-1(TOP)SUB ASSY.)

2 HOLES, $\phi 0.9$ $0.3 \times 45^\circ$ (TYP)
 2.9 ± 0.05
 10 ± 0.05
 12.8
 1.3

ISO. VIEW

NOTE:-
 1. USE SEPERATE TAG FOR JOB ID.
 2. REMOVE SHARP EDGES.

01-00-007				SPRING ANCHOR PIN		1	AL 6061 T651
PART NO		DESCRIPTION		QTY	MATL.		
DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES.				SPRING ANCHOR PIN (YOKE-PANEL-1 (TOP) SUB ASSY.)			SCALE 5:1
NAME SIGN DATE		26/11		GOVERNMENT OF INDIA - DEPARTMENT OF SPACE			
APPROVED				ISRO SATELLITE CENTRE			
MOD. CHKD		9.9.11		BANGALORE - INDIA			
DES. CHKD		9.9.11		PROJECT	GROUP	RG NO.	
DRAWN		SIVA		PRODIN	END	A4-105-35-1-0050/01-00-007	

FILE NAME: 135169409-PRODIN

REV: 02	NOTES OF REVISION:	ZONE
00	BASE LINE DRAWING	N/A

② FOR SECONDARY TREATMENT ONLY
Ref: parts & process specification document

● Anodise full

3/2

2 HOLES, $\phi 0.8^{+0.05}_0$

0.3x45° (TYP)

1.8 ± 0.05

0.6

28.9 $\pm 0.1_0$

32.1

ISO. VIEW

NOTE:-

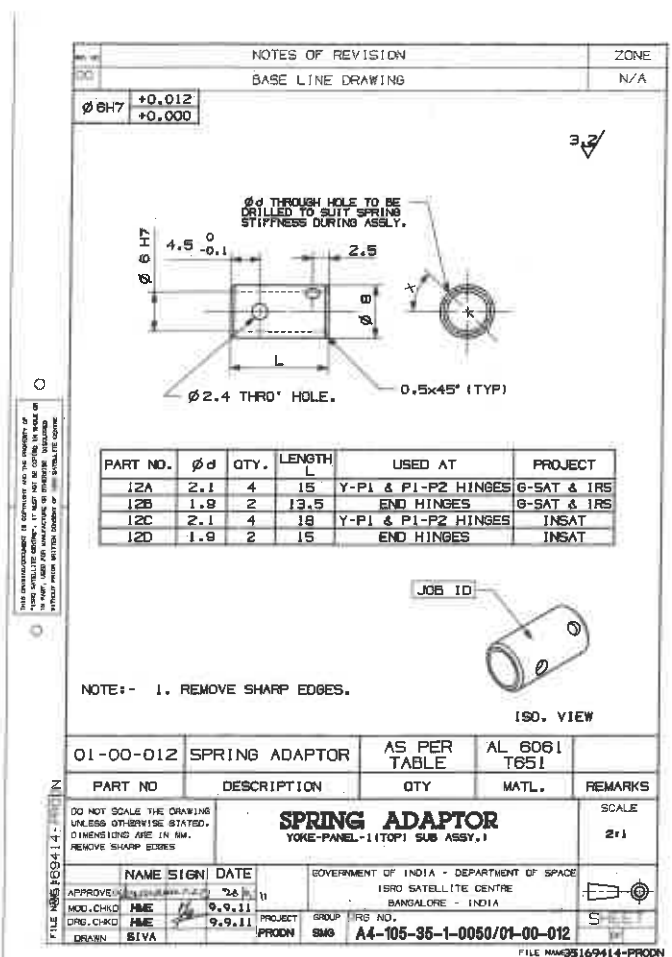
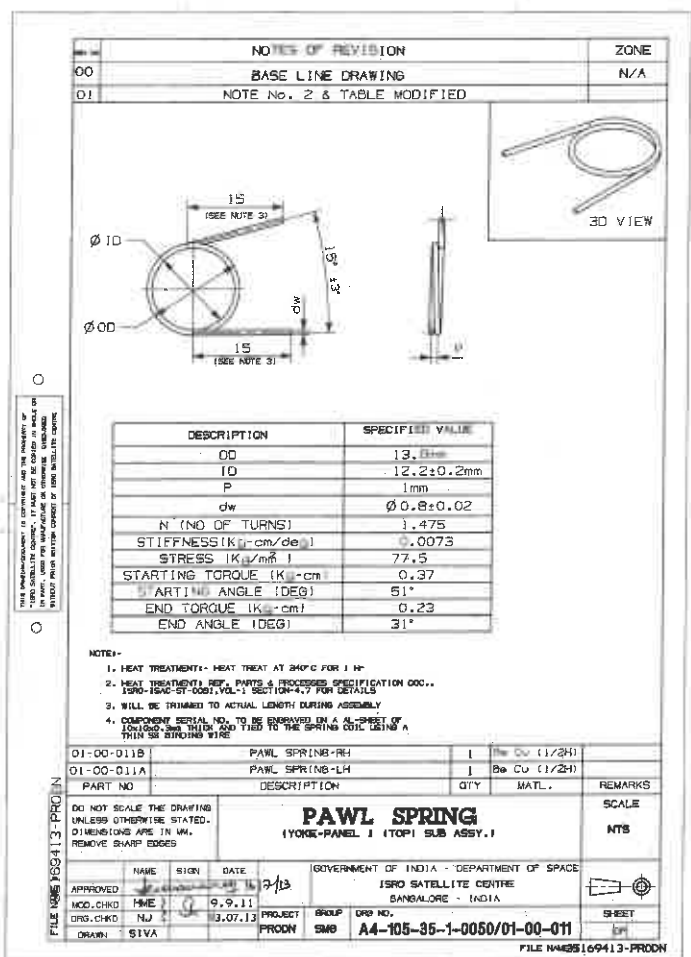
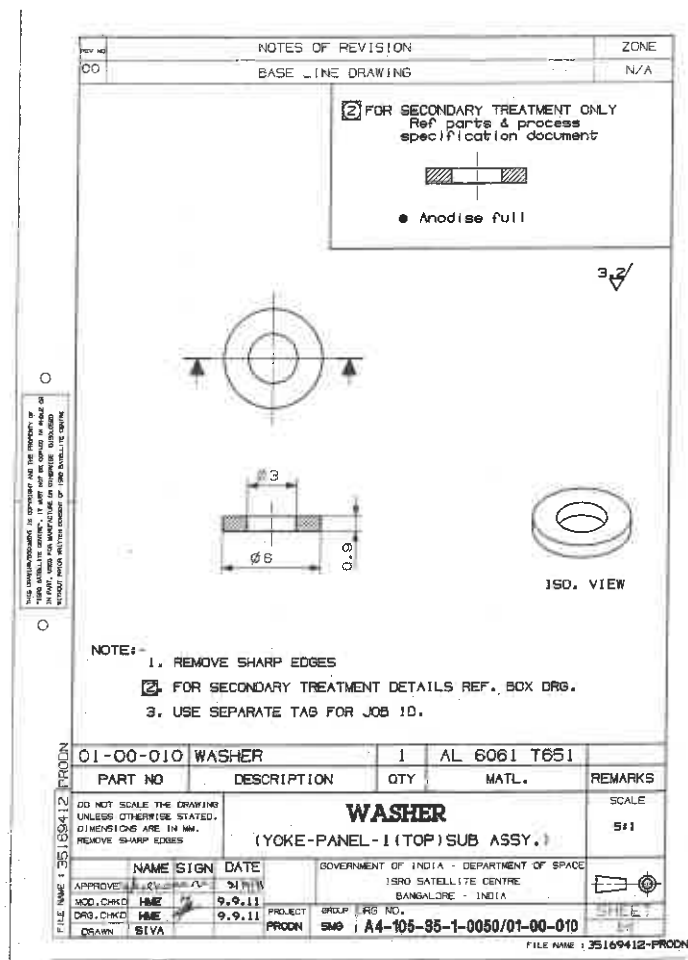
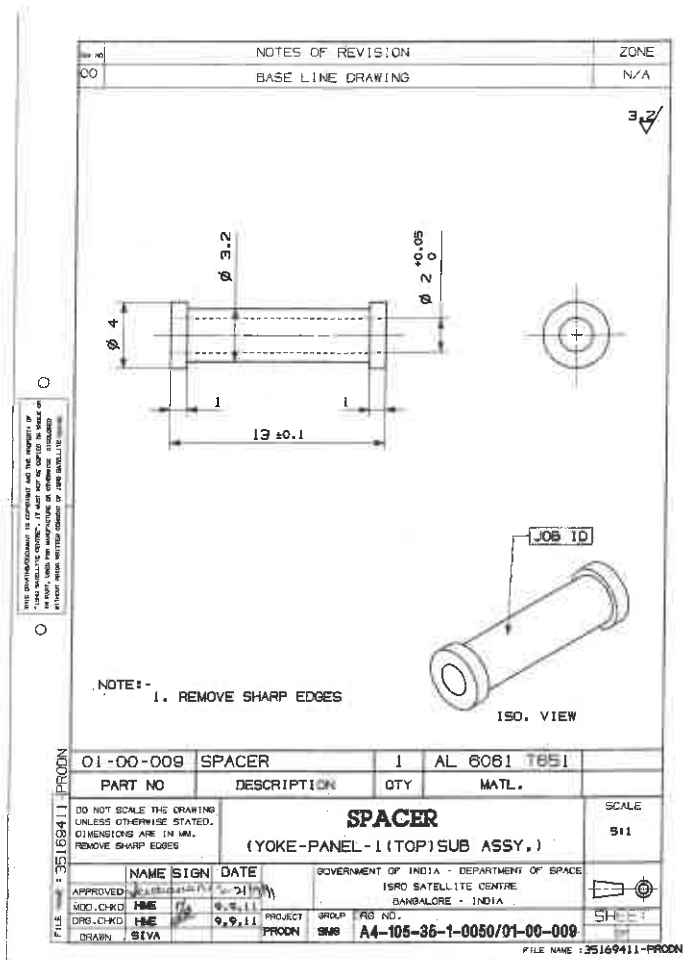
1. REMOVE SHARP EDGES
2. FOR SECONDARY TREATMENT DETAILS REF. BOX DRG.
3. USE SEPARATE TAG FOR JOB ID.

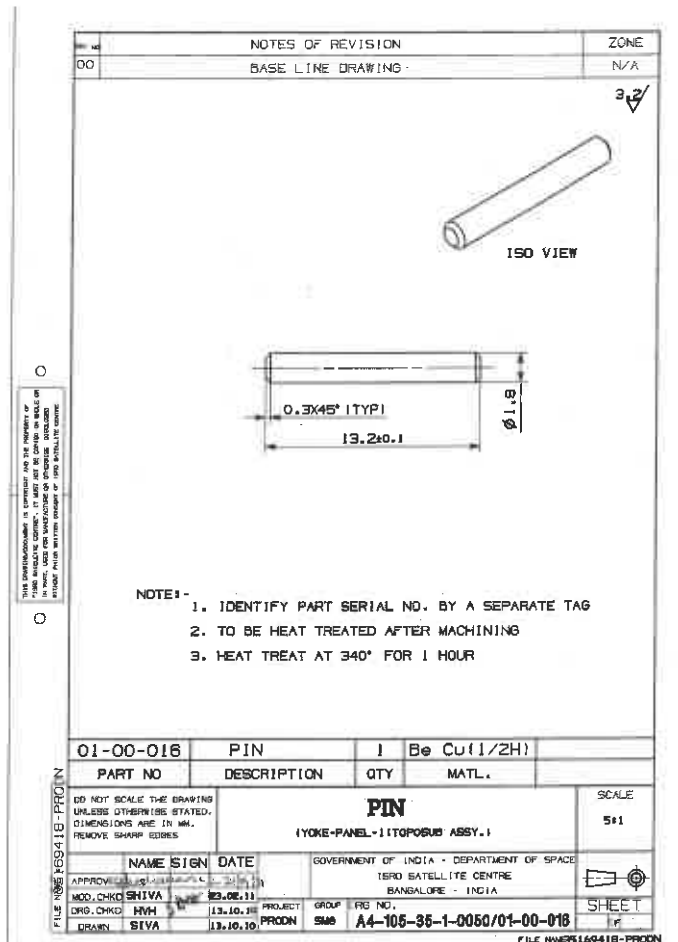
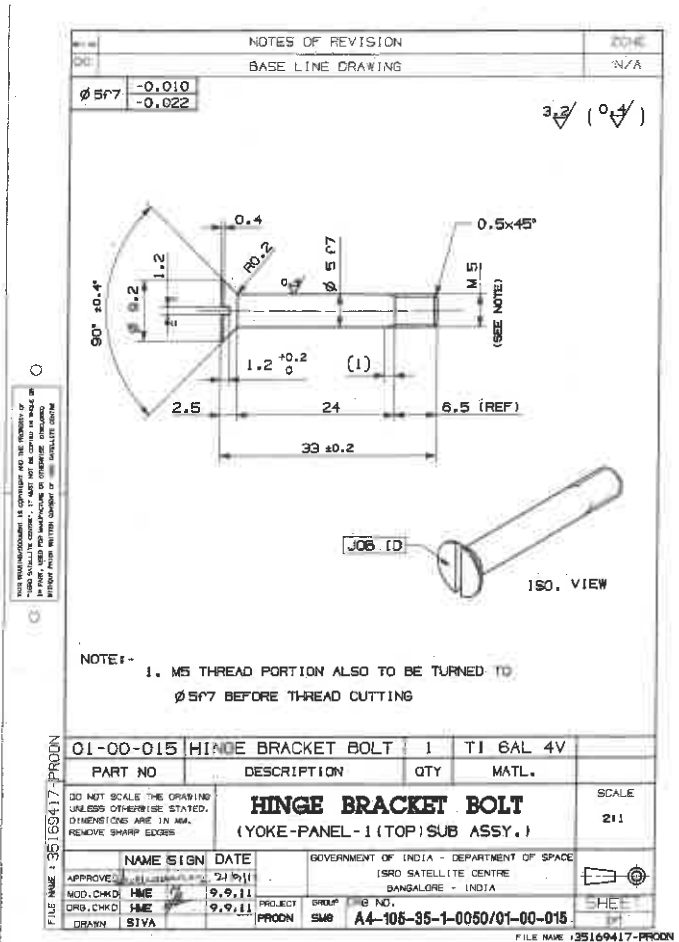
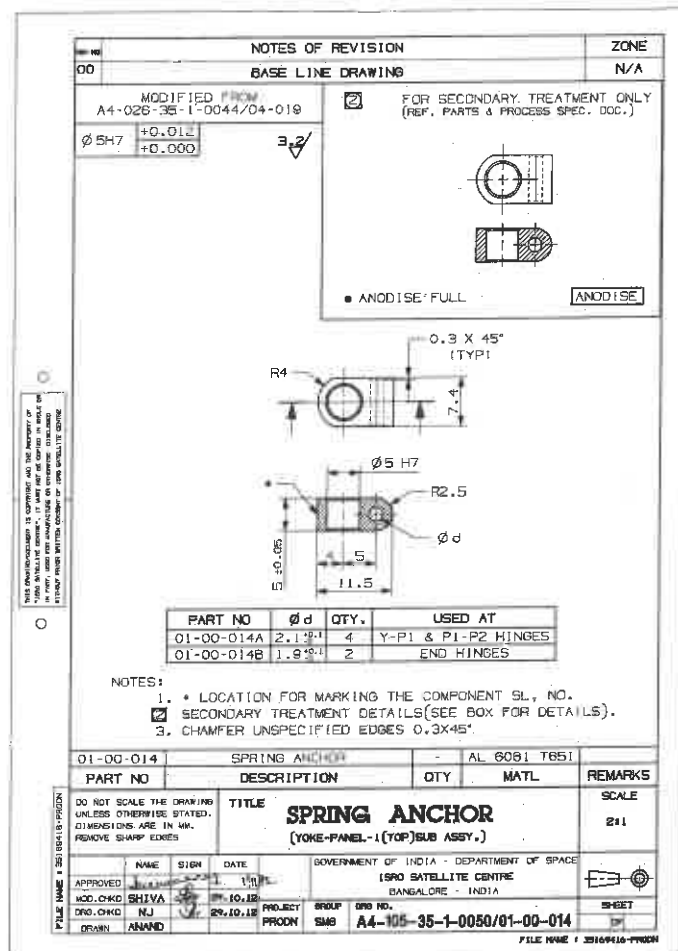
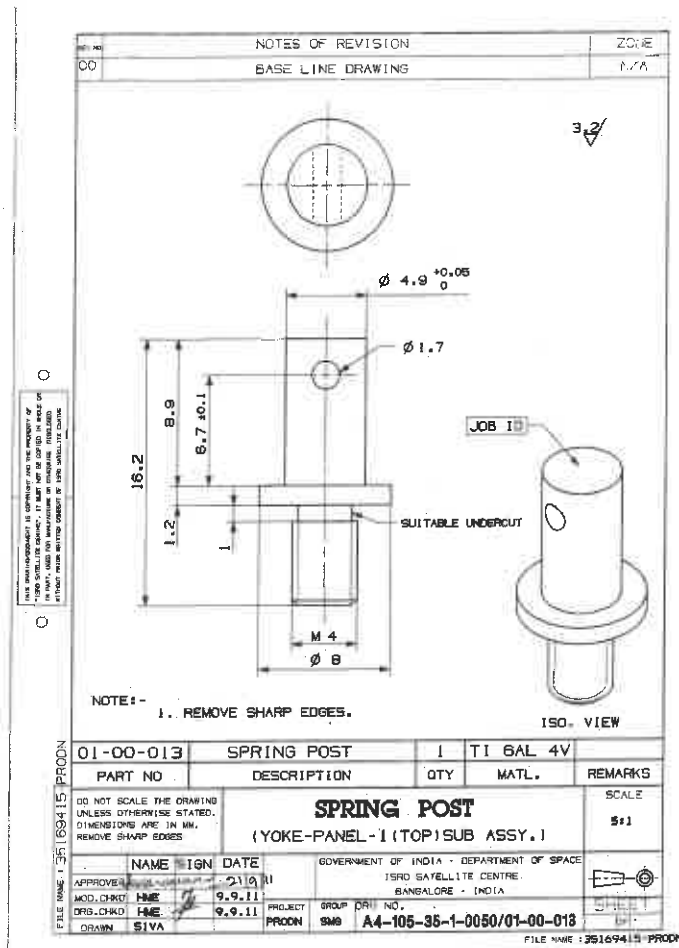
01-00-008	PIN	1	AL 6061 T651	
PART NO	DESCRIPTION	QTY	MATL.	REMARKS
DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES PIN (YOKE-PANEL-1(TOP)SUB ASSY.)				SCALE 2:1
APPROVED: [Signature] WDO, CMV: HME DRA, CMV: HME DRWN: SIVA	NAME SIGN DATE 31.9.11 9.9.11 9.9.11	GOVERNMENT OF INDIA - DEPARTMENT OF SPACE ISRO SATELLITE CENTRE BANGALORE - INDIA GROUP DRS NO. PROJN SMO A4-105-35-1-0050/01-00-008		

FILE NAME : 35169410-PRODIN

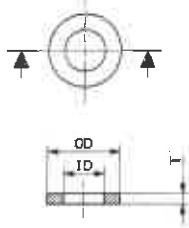
HEET

FILE NAME : 35169410-PRODIN





REV NO	NOTES OF REVISION	ZONE
00	BASE LINE DRAWING	N/A

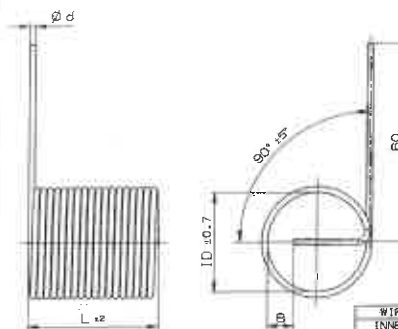


PART NO.	QTY	OD ± 0.05	ID ± 0.05	L ± 1	REMARKS
A	12	11	6.2	1.6	USED AT MANDREL
B	12	11	6.2	2.0	
C	12	11	6.2	1.5	
D	12	11	6.2	1.2	
E	12	11	6.2	1.0	
F	12	11	6.2	2.5	
G	12	11	6.2	2.2	TO BE USED AT BEARING TO FILL THE GAP/PROVIDE NECESSARY FLOAT
H	12	11	6.2	1.9	
I	12	11	6.2	1.6	

- NOTE:-
1. REMOVE SHARP EDGES
 2. USE SEPARATE TAG FOR JOB ID.

01-00-017	SPACER	AS PER TABLE	DELIN 500AF	
PART NO	DESCRIPTION	QTY	MATL.	REMARKS
SPACER (YOKE-PANEL-1(TOP) SUB ASSY.)				
DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES				SCALE 2:1
APPROVED	NAME SIGN DATE	GOVERNMENT OF INDIA - DEPARTMENT OF SPACE ISRO SATELLITE CENTRE BANGALORE - INDIA		
MOD. CHKD	HME 9.9.11	PROJECT	GROUP DRG NO.	
DRG. CHKD	HME 9.9.11	PRODN	SMG A4-105-35-1-0050/01-00-017	
DRWN	SIVA			

REV NO	NOTES OF REVISION	ZONE
00	BASE LINE DRAWING	N/A
01	REF:-CCMB/1 DATED 17.04.05	18.07.05
02	MODEL IS CHANGED AS PER THE TABLE	

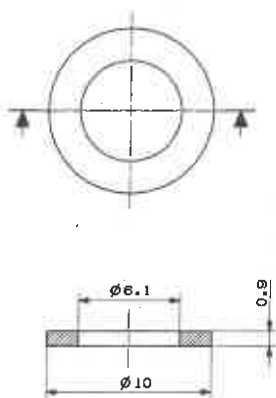


WIRE DIA (d)	1.8 ± 0.02
INNER DIA (ID)	30mm
FREE LENGTH	35mm
NUMBER OF TURNS (N)	18
STIFFNESS (K)	0.00674
STRESS $K \cdot F / mm^2$	70.3
STARTING TORQUE $K \cdot Gm (IT)$	3.84
ROTATION ANGLE (START) (G1)	540°
END TORQUE (IT2)	2.4
ROTATION ANGLE (END) (G2)	360°

- NOTE:-
1. COMPONENT SERIAL NO. IS TO BE ENGRAVED ON A SMALL ALUMINUM SHEET OF 10mm (Diam) $\times 20$ mm THICK AND TIED TO THE SPRING COIL USING A THIN SS BINDING WIRE.
 2. HEAT TREATMENT: REF PARTS & PROCESS SPECIFICATION DOC. ISRO-15AC-ST-0081 SECTION-4.7 FOR DETAILS
 3. SPRING ARM LENGTH TO BE TRIMMED DURING ASSY. HEAT TREATMENT: HEAT TREAT AT 340°C FOR 1hr.
 4. THIS SPRING IS USED AT END HINGES.

11-00-001	DEPLOYMENT SPRING(LH)	1	Be-Cu(1/2H)	
PART NO	DESCRIPTION	QTY	MATL.	REMARKS
DEPLOYMENT SPRING (LH) (END HINGE (TOP) SUB ASSY)				
DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES				SCALE 1:1
APPROVED	NAME SIGN DATE	GOVERNMENT OF INDIA - DEPARTMENT OF SPACE ISRO SATELLITE CENTRE BANGALORE - INDIA		
MOD. CHKD	HME 9.9.11	PROJECT	GROUP DRG NO.	
DRG. CHKD	HME 9.9.11	PRODN	SMG A4-105-35-1-0050/11-00-001	
DRWN	SIVA			

REV NO	NOTES OF REVISION	ZONE
00	BASE LINE DRAWING	N/A



ISO. VIEW

- NOTE:-
1. REMOVE SHARP EDGES.
 2. USE SEPARATE TAG FOR JOB ID.

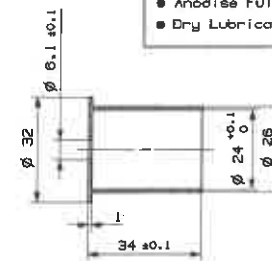
01-00-019	WASHER	1	SS 304	
PART NO	DESCRIPTION	QTY	MATL.	REMARKS
WASHER (YOKE-PANEL-1(TOP) SUB ASSY.)				
DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES				SCALE 5:1
APPROVED	NAME SIGN DATE	GOVERNMENT OF INDIA - DEPARTMENT OF SPACE ISRO SATELLITE CENTRE BANGALORE - INDIA		
MOD. CHKD	HME 9.9.11	PROJECT	GROUP DRG NO.	
DRG. CHKD	HME 9.9.11	PRODN	SMG A4-105-35-1-0050/01-00-019	
DRWN	SIVA			

REV NO	NOTES OF REVISION	ZONE
00	BASE LINE DRAWING	N/A

2 FOR SECONDARY TREATMENT ONLY
Ref parts & process specification document

- Sand blast *****
- Anodise Full *****
- Dry Lubricate *****

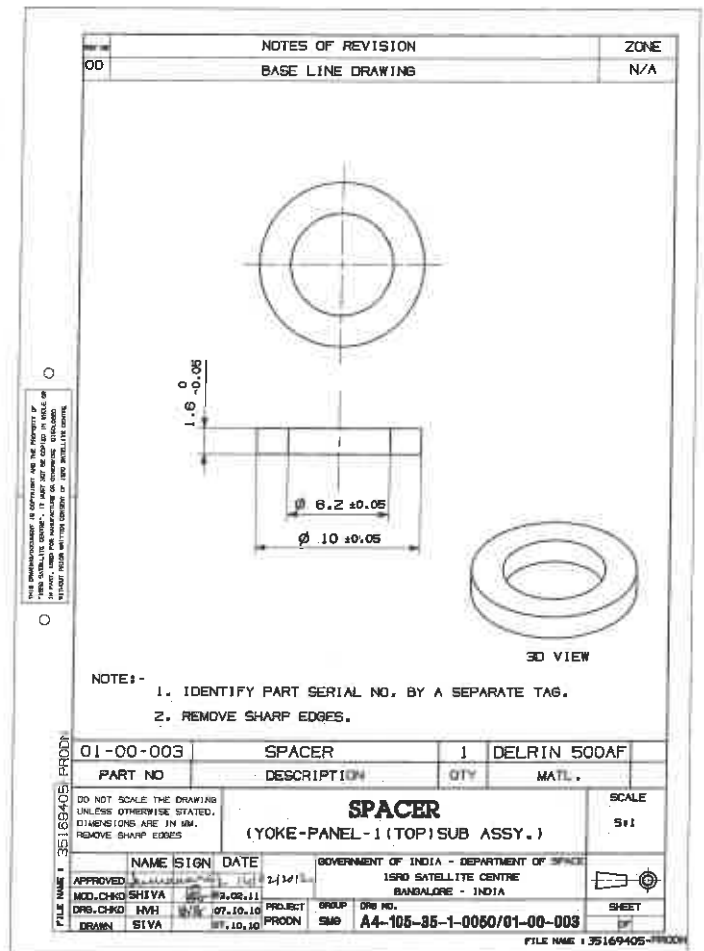
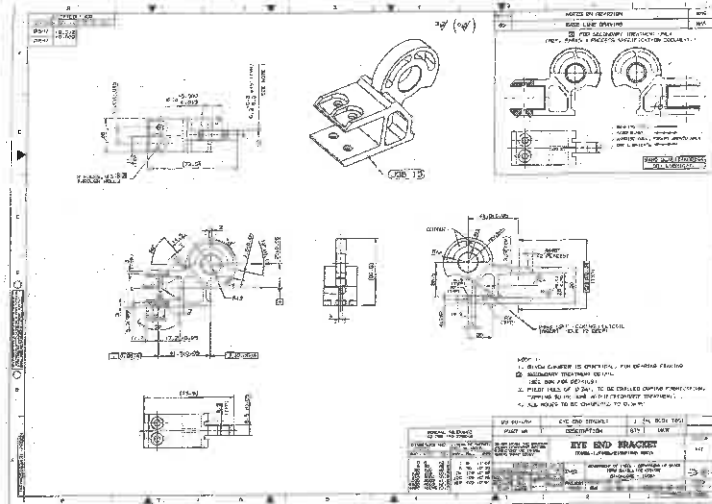
SAND BLAST/ANODISE DRY LUBRICATE



ISO. VIEW

- NOTE:-
1. REMOVE SHARP EDGES.
 - 2 FOR SECONDARY TREATMENT DETAILS REF .BOX DRG.

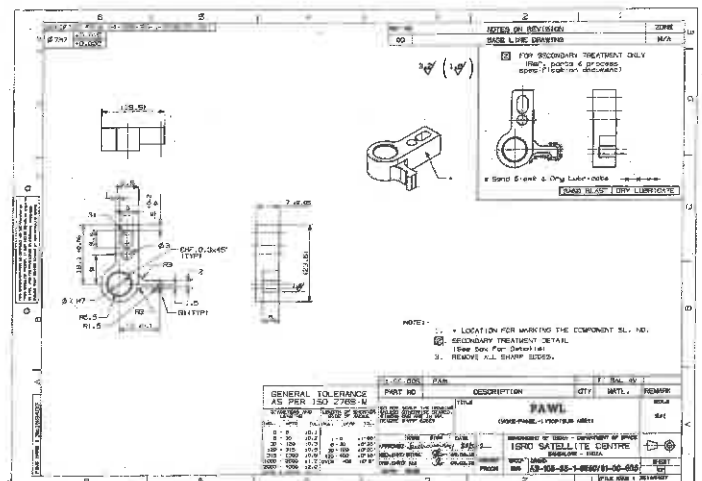
01-0-022	MANDREL	1	AL 6061 T651	
PART NO	DESCRIPTION	QTY	MATL.	REMARKS
MANDREL (YOKE-PANEL-1(TOP) SUB ASSY.)				
DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES				SCALE 1:1
APPROVED	NAME SIGN DATE	GOVERNMENT OF INDIA - DEPARTMENT OF SPACE ISRO SATELLITE CENTRE BANGALORE - INDIA		
MOD. CHKD	HME 9.9.11	PROJECT	GROUP DRG NO.	
DRG. CHKD	HME 9.9.11	PRODN	SMG A4-105-35-1-0050/01-00-022	
DRWN	SIVA			



- NOTE:-
1. IDENTIFY PART SERIAL NO. BY A SEPARATE TAG.
 2. REMOVE SHARP EDGES.

PART NO	DESCRIPTION	QTY	MATL.
01-00-003	SPACER	1	DELRIN 500AF
DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES.			
SPACER (YOKE-PANEL-1(TOP) SUB ASSY.)			
NAME SIGN DATE APPROVED: MOD. CHKD: DRG. CHKD: DRWN: SIVA DATE: 20/9/11 PROJECT: PRODN: SMG GOVERNMENT OF INDIA - DEPARTMENT OF SPACE ISRO SATELLITE CENTRE BANGALORE - INDIA FILE NO. A4-105-35-1-0050/01-00-003 SCALE: 5:1 SHEET: 1 OF 1			

FILE NAME: 35169406-PRODN



- NOTE:-
1. $\phi 5e8$ & $\phi 8h7$ ON ONE AXIS AND $\phi 7e8$ AXIS IS OFFSET BY 0.4mm.
 2. SEE BOX FOR SECONDARY TREATMENT DETAIL

PART NO	DESCRIPTION	QTY	MATL.
01-00-004	PAWL SHAFT	1	TI 6AL 4V

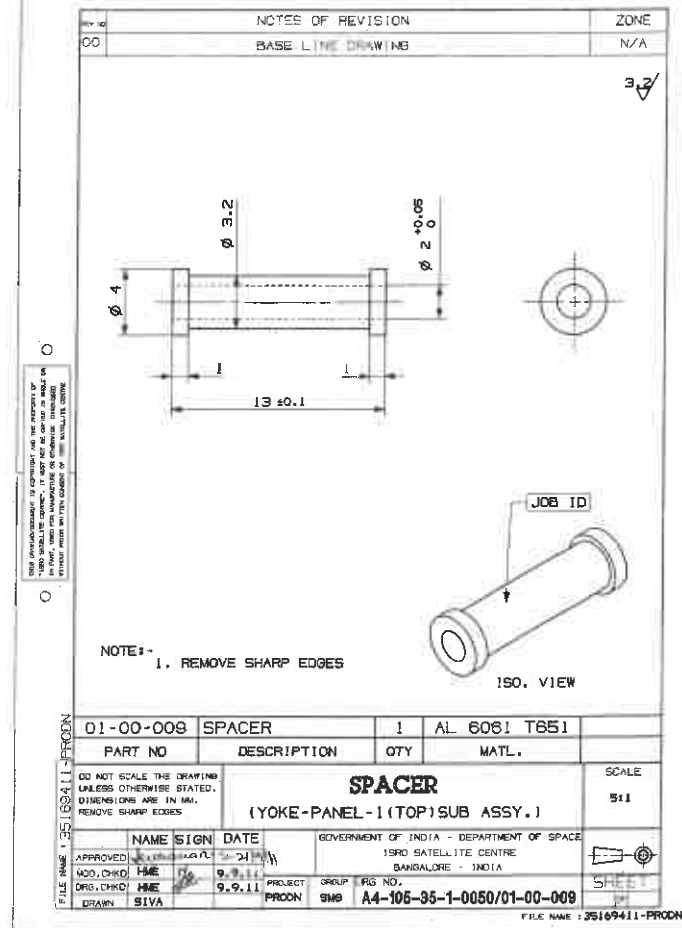
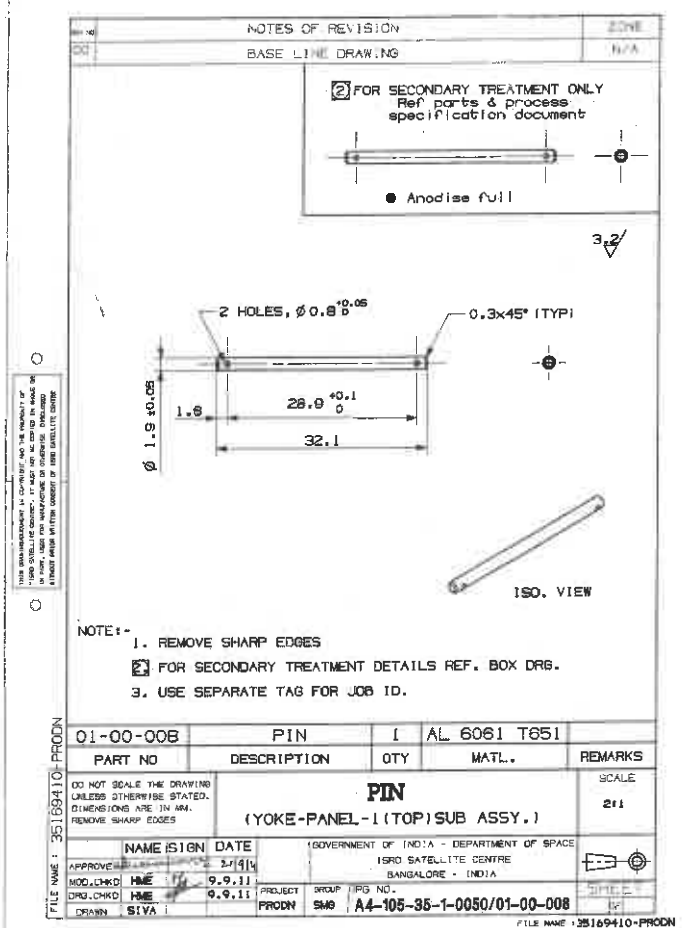
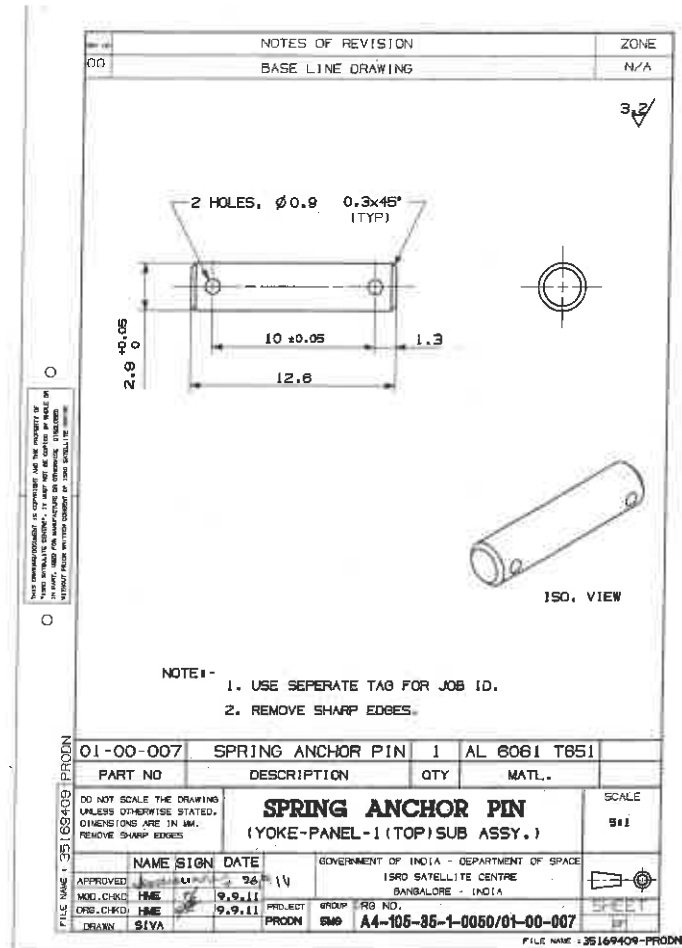
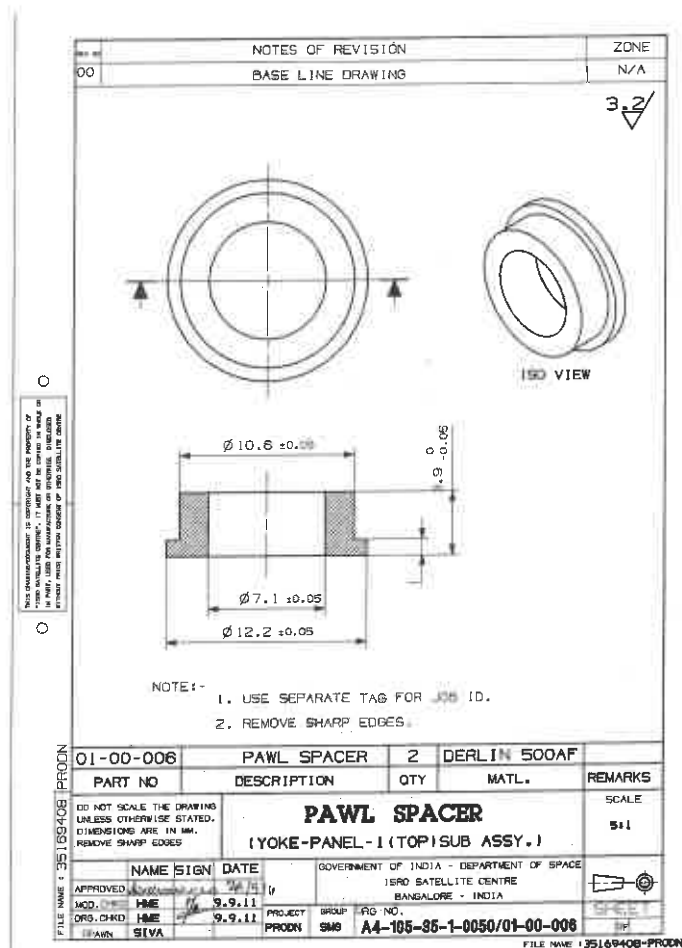
DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES.

PAWL SHAFT
(YOKE-PANEL-1(TOP) SUB ASSY.)

SCALE: 2:1

NAME SIGN DATE	GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
APPROVED: MOD. CHKD: DRG. CHKD: DRWN: SIVA	ISRO SATELLITE CENTRE BANGALORE - INDIA
DATE: 20/9/11	PROJECT: PRODN: SMG
	FILE NO. A4-105-35-1-0050/01-00-004

FILE NAME: 35169406-PRODN



REV	NOTES OF REVISION	ZONE
00	BASE LINE DRAWING	N/A

2 FOR SECONDARY TREATMENT ONLY
Ref parts & process specification document

• Anodise full

ISO. VIEW

NOTE:-
1. REMOVE SHARP EDGES
2. FOR SECONDARY TREATMENT DETAILS REF. BOX DRG.
3. USE SEPARATE TAG FOR JOB ID.

PART NO	DESCRIPTION	QTY	MATL.	REMARKS
01-00-010	WASHER	1	AL 6061 T651	

DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES

WASHER
(YOKE-PANEL-1 (TOP) SUB ASSY.)

NAME	SIGN	DATE	GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
APPROVED		21/11/11	ISRO SATELLITE CENTRE BANGALORE - INDIA
MOD. CHKD	HME	9.9.11	
DRG. CHKD	HME	9.9.11	
DRAWN	SIVA		

PROJECT: PRODN GROUP: SMG REG NO. A4-105-35-1-0050/01-00-010

FILE NAME: 35169412-PRODN

REV	NOTES OF REVISION	ZONE
00	BASE LINE DRAWING	N/A
01	NOTE No. 2 & TABLE MODIFIED	

3D VIEW

DESCRIPTION	SPECIFIED VALUE
OD	13.8mm
ID	12.2±0.2mm
P	1mm
dw	0.8±0.02
N (NO OF TURNS)	1.475
STIFFNESS (K _s -cm/dw)	0.0073
STRESS (K _u /mm ²)	77.5
STARTING TORQUE (K _u -cm)	0.37
STARTING ANGLE (DEG)	51°
END TORQUE (K _u -cm)	0.23
END ANGLE (DEG)	31°

NOTE:-
1. HEAT TREATMENT:- HEAT TREAT AT 340°C FOR 1 H.
2. HEAT TREATMENT:- REF. PARTS & PROCESS SPECIFICATION DOC..
3. WILL BE TRIMMED TO ACTUAL LENGTH DURING ASSEMBLY
4. COMPONENT SERIAL NO. TO BE ENGRAVED ON A PLATE OF 10MM THICK AND TIED TO THE SPRING COIL USING A 10MM Ø STANDING PIN

PART NO	DESCRIPTION	QTY	MATL.	REMARKS
01-00-011B	PAWL SPRING-RH	1	De Cu 11/2H	
01-00-011A	PAWL SPRING-LH	1	De Cu 11/2H	

DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES

PAWL SPRING
(YOKE-PANEL-1 (TOP) SUB ASSY.)

NAME	SIGN	DATE	GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
APPROVED		21/11/11	ISRO SATELLITE CENTRE BANGALORE - INDIA
MOD. CHKD	HME	9.9.11	
DRG. CHKD	HME	03.07.13	
DRAWN	SIVA		

PROJECT: PRODN GROUP: SMG REG NO. A4-105-35-1-0050/01-00-011

FILE NAME: 35169413-PRODN

REV	NOTES OF REVISION	ZONE
00	BASE LINE DRAWING	N/A

6H7 +0.012
+0.000

ISO. VIEW

NOTE:- 1. REMOVE SHARP EDGES.

PART NO.	φ d	QTY.	LENGTH	USED AT	PROJECT
12A	2.1	4	15	Y-P1 & P1-P2 HINGES	6-SAT & IRS
12B	1.9	2	13.5	END HINGES	6-SAT & IRS
12C	2.1	4	18	Y-P1 & P1-P2 HINGES	INSAT
12D	1.9	2	15	END HINGES	INSAT

PART NO	DESCRIPTION	QTY	MATL.	REMARKS
01-00-012	SPRING ADAPTOR	AS PER TABLE	AL 6061 T651	

DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES

SPRING ADAPTOR
(YOKE-PANEL-1 (TOP) SUB ASSY.)

NAME	SIGN	DATE	GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
APPROVED		21/11/11	ISRO SATELLITE CENTRE BANGALORE - INDIA
MOD. CHKD	HME	9.9.11	
DRG. CHKD	HME	9.9.11	
DRAWN	SIVA		

PROJECT: PRODN GROUP: SMG REG NO. A4-105-35-1-0050/01-00-012

FILE NAME: 35169414-PRODN

REV	NOTES OF REVISION	ZONE
00	BASE LINE DRAWING	N/A

ISO. VIEW

NOTE:- 1. REMOVE SHARP EDGES.

PART NO	DESCRIPTION	QTY	MATL.	REMARKS
01-00-013	SPRING POST	1	TI 6AL 4V	

DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES

SPRING POST
(YOKE-PANEL-1 (TOP) SUB ASSY.)

NAME	SIGN	DATE	GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
APPROVED		21/11/11	ISRO SATELLITE CENTRE BANGALORE - INDIA
MOD. CHKD	HME	9.9.11	
DRG. CHKD	HME	9.9.11	
DRAWN	SIVA		

PROJECT: PRODN GROUP: SMG REG NO. A4-105-35-1-0050/01-00-013

FILE NAME: 35169415-PRODN

NOTES OF REVISION		ZONE
00	BASE LINE DRAWING	N/A

MODIFIED FROM A4-026-35-1-0044/04-018

FOR SECONDARY TREATMENT ONLY (REF. PARTS & PROCESS SPEC. DOC.)

Ø 5H7 +0.012
+0.000

3/2

ANODISE FULL

ANODISE

0.3 X 45° (TYP)

7.4

Ø 5 H7

5 ±0.05

11.5

PART NO	Ø d	QTY.	USED AT
01-00-014A	2.1 ±0.1	4	Y-PL & P1-P2 HINGES
01-00-014B	1.9 ±0.1	2	END HINGES

NOTES:

- * LOCATION FOR MARKING THE COMPONENT SL. NO.
- SECONDARY TREATMENT DETAILS (SEE BOX FOR DETAILS).
- CHAMFER UNSPECIFIED EDGES 0.3X45°

PART NO	DESCRIPTION	QTY	MATL	REMARKS
01-00-014	SPRING ANCHOR	1	AL 6061 T651	

DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES

TITLE: **SPRING ANCHOR**
(YOKE-PANEL-1(TOP) SUB ASSY.)

SCALE: 2:1

APPROVED: SHIVA NJ 27.10.18

GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
ISRO SATELLITE CENTRE
BANGALORE - INDIA

PROJECT: A4-105-35-1-0050/01-00-014

FILE NAME: 35169416-PRODN

NOTES OF REVISION		ZONE
00	BASE LINE DRAWING	N/A

Ø 5f7 -0.010
-0.022

3/2 (0.4)

ISO VIEW

NOTE: 1. M5 THREAD PORTION ALSO TO BE TURNED TO Ø 5f7 BEFORE THREAD CUTTING

PART NO	DESCRIPTION	QTY	MATL.	REMARKS
01-00-015	HINGE BRACKET BOLT	1	TI 6AL 4V	

DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES

TITLE: **HINGE BRACKET BOLT**
(YOKE-PANEL-1(TOP) SUB ASSY.)

SCALE: 2:1

APPROVED: SHIVA NJ 27.10.18

GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
ISRO SATELLITE CENTRE
BANGALORE - INDIA

PROJECT: A4-105-35-1-0050/01-00-015

FILE NAME: 35169417-PRODN

NOTES OF REVISION		ZONE
00	BASE LINE DRAWING	N/A

3/2

ISO VIEW

0.3X45° (TYP)

13.2 ±0.1

Ø 1.8

NOTE: 1. IDENTIFY PART SERIAL NO. BY A SEPARATE TAG
2. TO BE HEAT TREATED AFTER MACHINING
3. HEAT TREAT AT 340° FOR 1 HOUR

PART NO	DESCRIPTION	QTY	MATL.	REMARKS
01-00-016	PIN	1	Be Cu (1/2H)	

DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES

TITLE: **PIN**
(YOKE-PANEL-1(TOP) SUB ASSY.)

SCALE: 5:1

APPROVED: SHIVA NJ 27.10.18

GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
ISRO SATELLITE CENTRE
BANGALORE - INDIA

PROJECT: A4-105-35-1-0050/01-00-016

FILE NAME: 35169418-PRODN

NOTES OF REVISION		ZONE
00	BASE LINE DRAWING	N/A

ISO VIEW

PART NO.	QTY	ØD ±0.05	ID ±0.05	TS ±0.2	REMARKS
A	12	11	8.2	1.6	USED AT MANDREL
B	12	11	8.2	2.0	
C	12	11	8.2	1.5	
D	12	11	8.2	1.2	
E	12	11	8.2	1.0	
F	12	11	8.2	2.5	
G	12	11	8.2	2.2	
H	12	11	8.2	1.8	
I	12	11	8.2	1.6	

TO BE USED AT BEARING TO FILL THE GAP/PROVIDE NECESSARY FLOAT

NOTE: 1. REMOVE SHARP EDGES
2. USE SEPARATE TAG FOR JOB ID.

PART NO	DESCRIPTION	QTY	MATL.	REMARKS
01-00-017	SPACER	AS PER TABLE	DELFIN 500AF	

DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES

TITLE: **SPACER**
(YOKE-PANEL-1(TOP) SUB ASSY.)

SCALE: 5:1

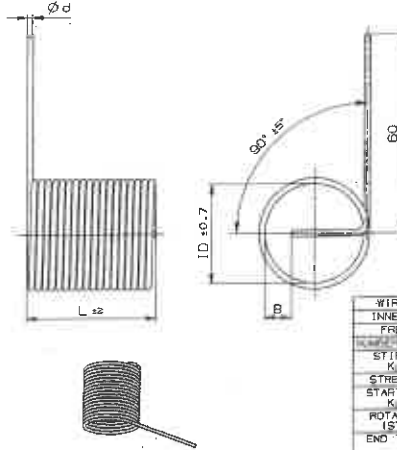
APPROVED: SHIVA NJ 27.10.18

GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
ISRO SATELLITE CENTRE
BANGALORE - INDIA

PROJECT: A4-105-35-1-0050/01-00-017

FILE NAME: 35169419-PRODN

REV NO	NOTES OF REVISION	ZONE
00	BASE LINE DRAWING	N/A
01	REF:-CCMB/I DATED 17.04.05	18.07.05
02	MODEL IS CHANGED AS PER THE TABL	



WIRE DIA (d)	1.8±0.02
INNER DIA (ID)	30mm
FREE LENGTH	36mm
NO OF TURNS(N)	19
STIFFNESS (K)	0.00874
K = Cm/dm	
STRESS Kgf/mm2	70.3
STARTING TORQUE	3.84
K = Qe/IT1	
ROTATION ANGLE (START) (α1)	540°
END TORQUE (T2)	2.4
K = T/α	
ROTATION ANGLE (END) (α2)	360°

NOTES:-

- COMPONENT SERIAL NO. IS TO BE ENGRAVED ON A SMALL ALUMINIUM SHEET OF (10mmx10mm), THICK AND TIED TO THE SPRING COIL USING A THIN SS BINDING WIRE.
- HEAT TREATMENT: REF PARTS & PROCESSES SPECIFICATION DOC. ISRO-1540-ST-0081 SECTION-4.7 FOR DETAILS
- SPRING ARM LENGTH TO BE TRIMMED DURING ASSEMBLY
- HEAT TREATMENT: HEAT TREAT AT 340°C FOR 1hr
- THIS SPRING IS USED AT END HINGES.

11-00-001	DEPLOYMENT SPRING (LH)	QTY	Matl	SCALE
			Ba-Cu11/2H	1:1

DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES

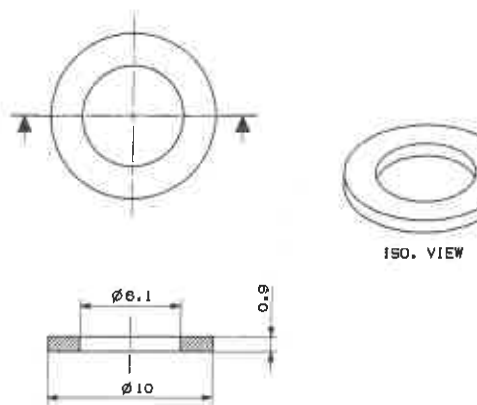
NAME: SIGN: DATE: 6/5/11 GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
ISRO SATELLITE CENTRE
BANGALORE - INDIA

MOD. CHKD: BASANT 06.05.12
DRG. CHKD: NJ 06.05.12
DRAWN: [Signature]

PROJECT: PRODN: SMO A4-105-35-1-0050/11-00-001

FILE NAME: 35645408

REV NO	NOTES OF REVISION	ZONE
00	BASE LINE DRAWING	N/A



NOTE:-

- REMOVE SHARP EDGES.
- USE SEPARATE TAG FOR JOB ID.

01-00-019	WASHER	QTY	Matl	REMARKS
			SS 304	

DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES

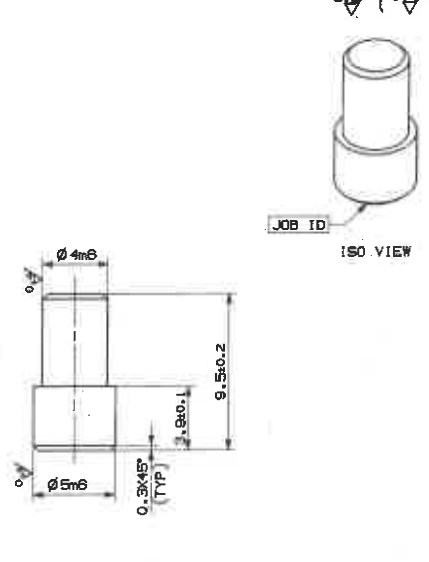
NAME: SIGN: DATE: 9.9.11 GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
ISRO SATELLITE CENTRE
BANGALORE - INDIA

MOD. CHKD: HME 9.9.11
DRG. CHKD: HME 9.9.11
DRAWN: SIVA

PROJECT: PRODN: SMO A4-105-35-1-0050/01-00-019

FILE NAME: 35169421-PRODN

REV NO	NOTES OF REVISION	ZONE
00	BASE LINE DRAWING	N/A



NOTE:-

- REMOVE SHARP EDGES.

01-00-020	PIN	QTY	Matl	SCALE
			TI 6AL 4V	5:1

DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES

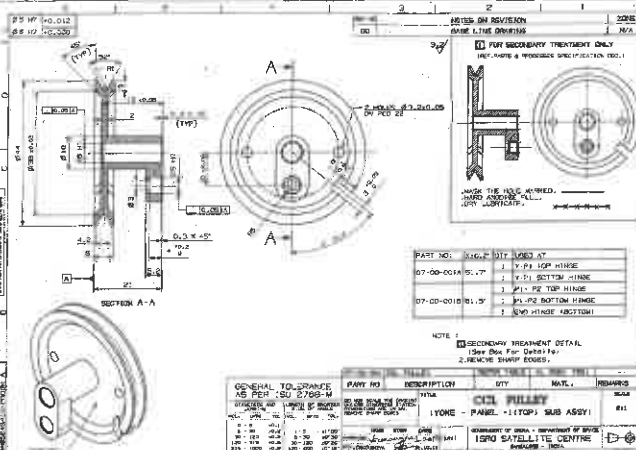
NAME: SIGN: DATE: 13.10.10 GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
ISRO SATELLITE CENTRE
BANGALORE - INDIA

MOD. CHKD: SHIVA 13.10.10
DRG. CHKD: HHV 13.10.10
DRAWN: SIVA

PROJECT: PRODN: SMO A4-105-35-1-0050/01-00-020

FILE NAME: 35169422-PRODN

REV NO	NOTES OF REVISION	ZONE
00	BASE LINE DRAWING	N/A



NOTE:-

- REMOVE SHARP EDGES.

01-00-020	PIN	QTY	Matl	SCALE
			TI 6AL 4V	5:1

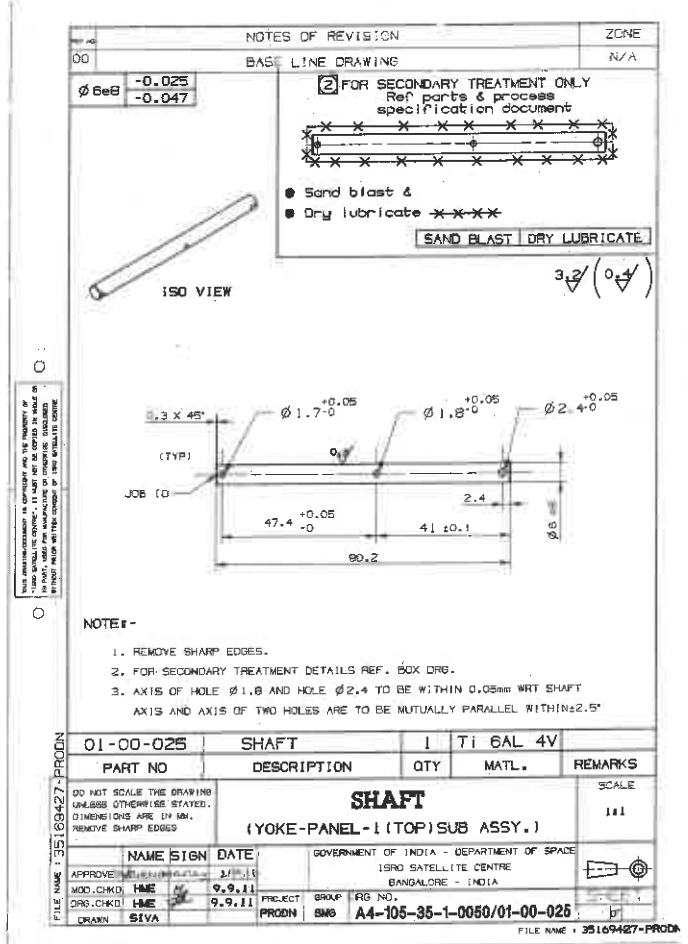
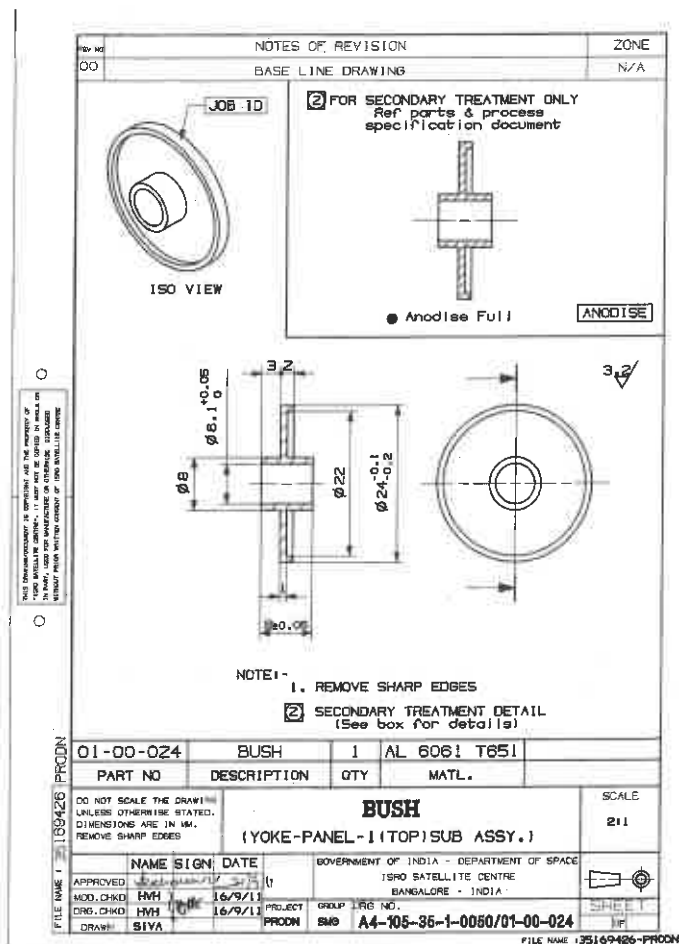
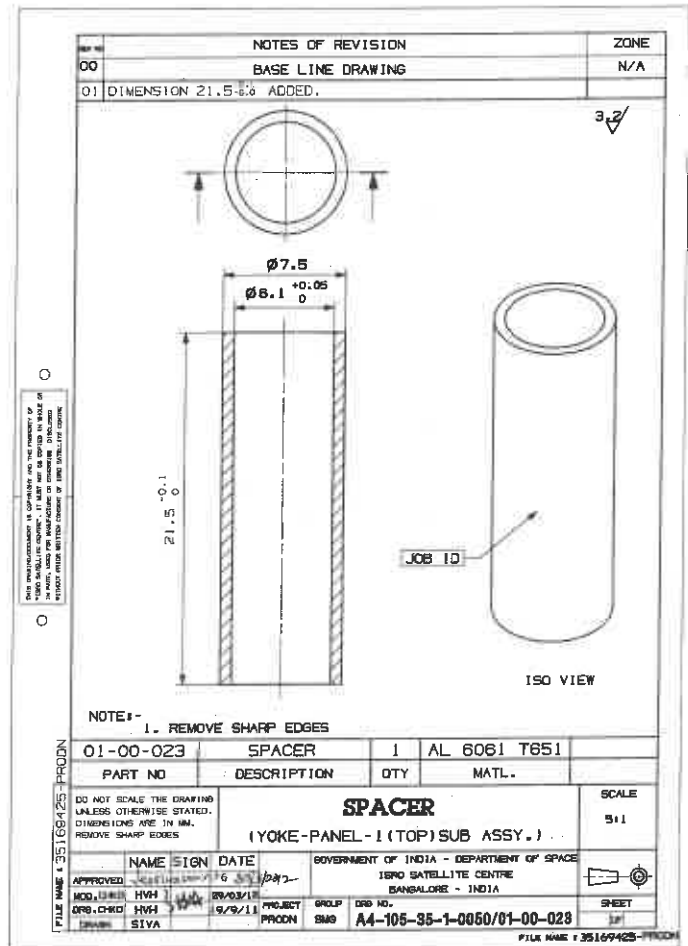
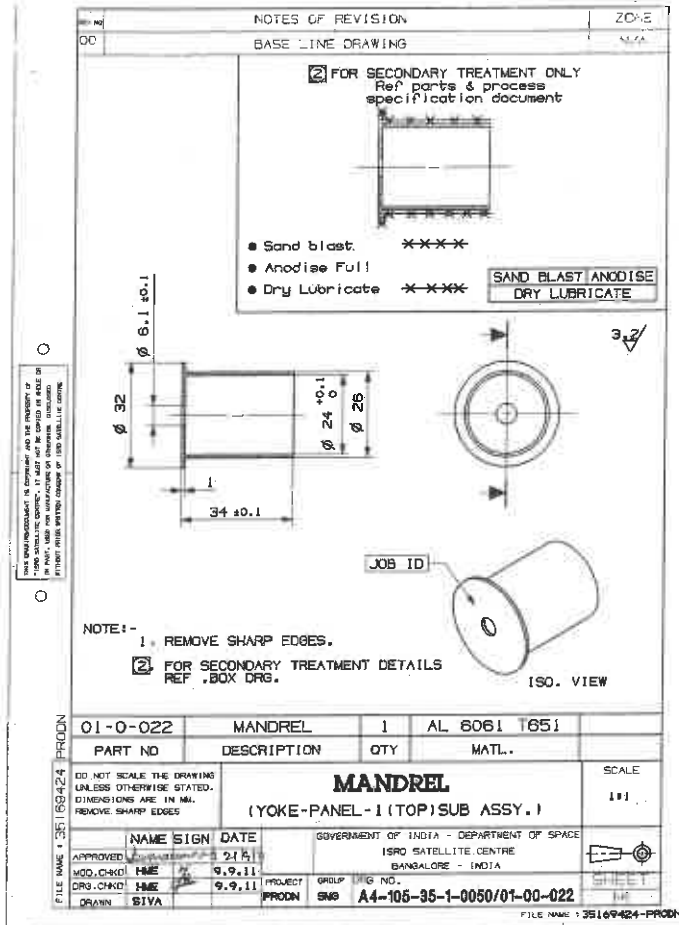
DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES

NAME: SIGN: DATE: 13.10.10 GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
ISRO SATELLITE CENTRE
BANGALORE - INDIA

MOD. CHKD: SHIVA 13.10.10
DRG. CHKD: HHV 13.10.10
DRAWN: SIVA

PROJECT: PRODN: SMO A4-105-35-1-0050/01-00-020

FILE NAME: 35169422-PRODN

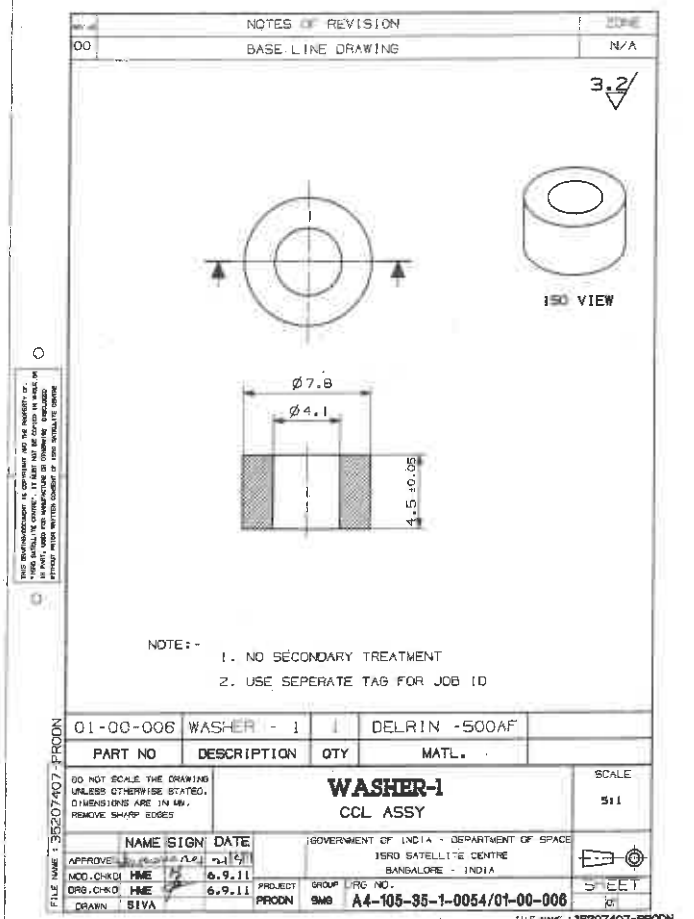
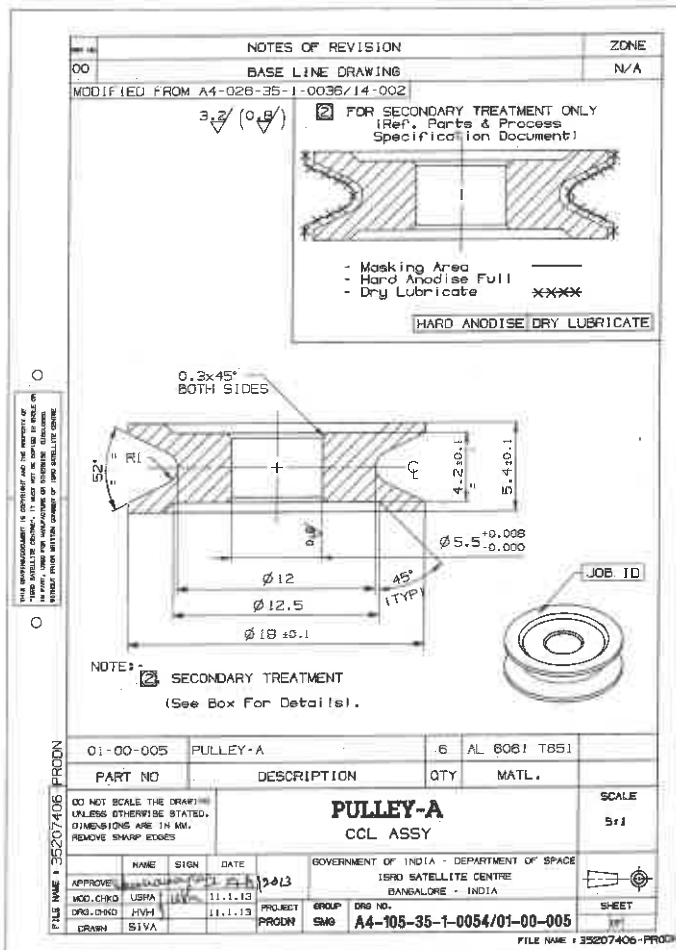
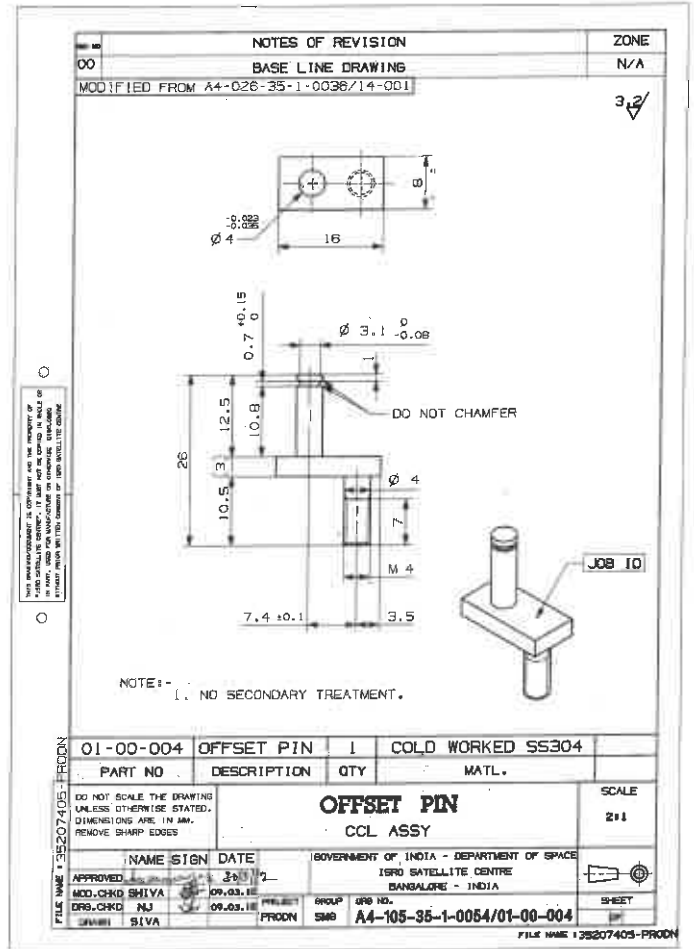
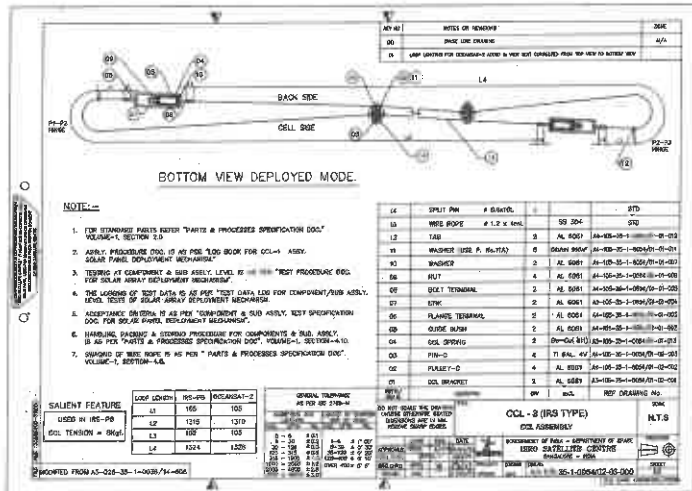


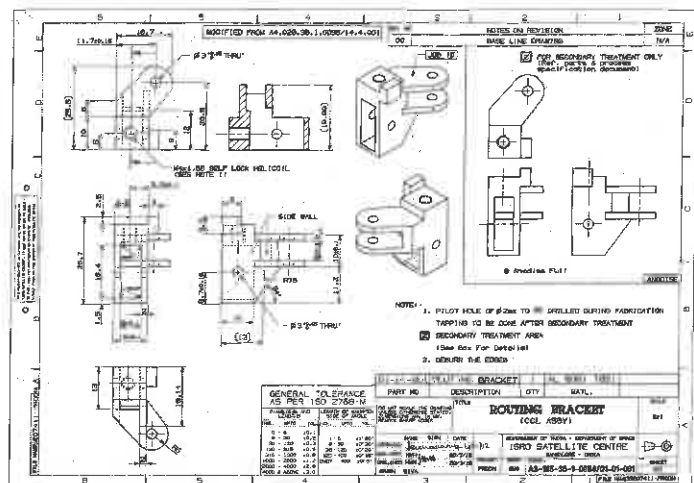
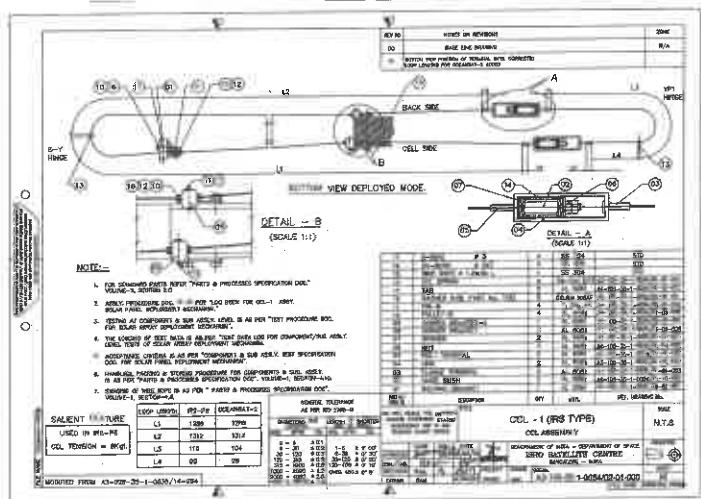
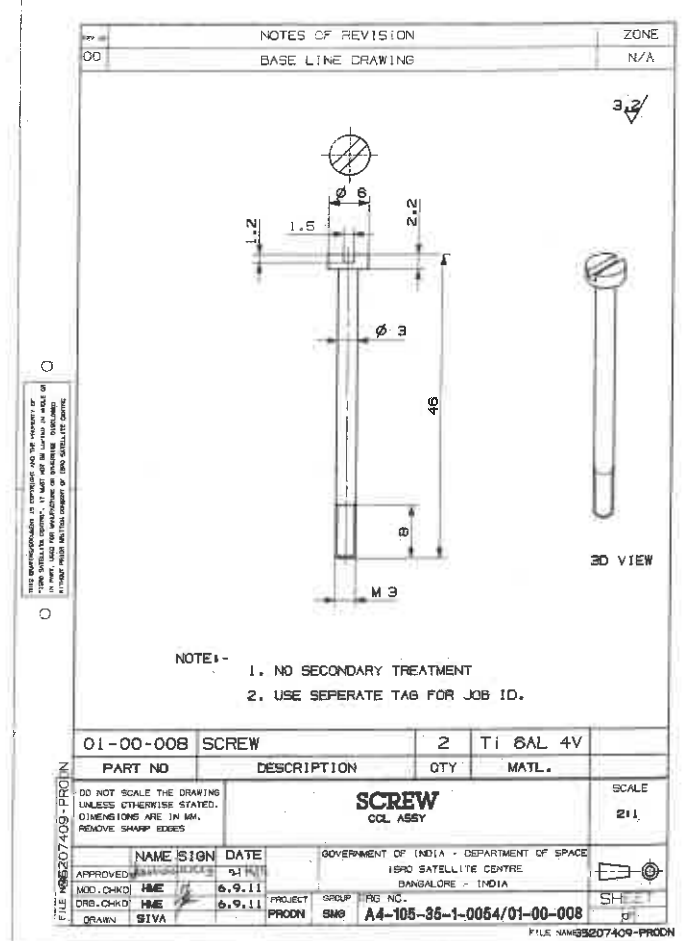
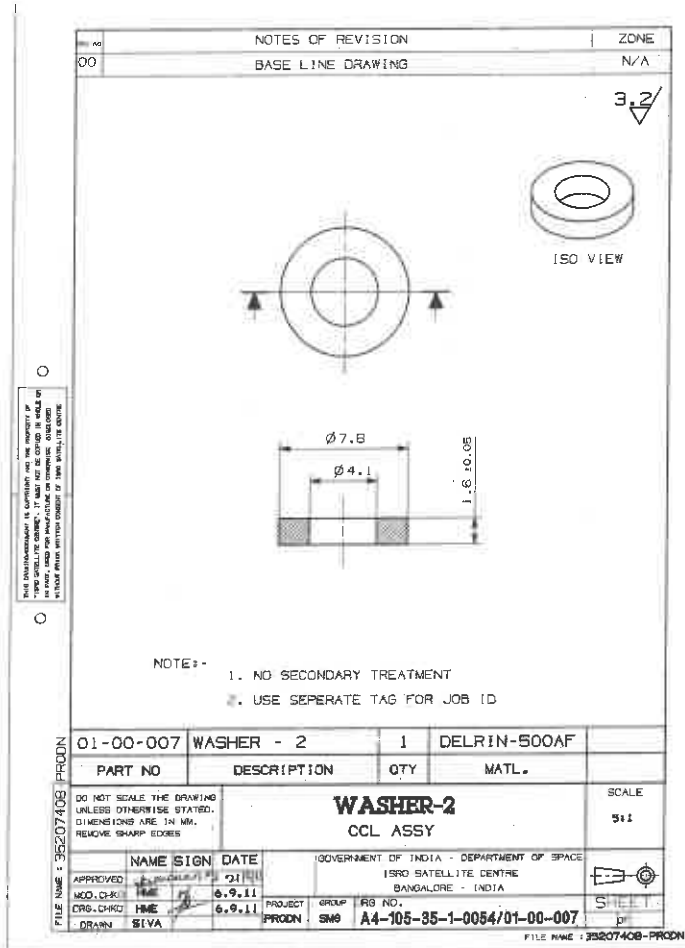
Technical drawing of a mechanical assembly, likely a pump or engine component. The drawing includes multiple views: a front view (top), a side view (middle), a top view (bottom), and detail views (left and right). The assembly consists of a main body with various internal components, including a piston, connecting rod, and crankshaft. The drawing is labeled with various dimensions and part numbers.

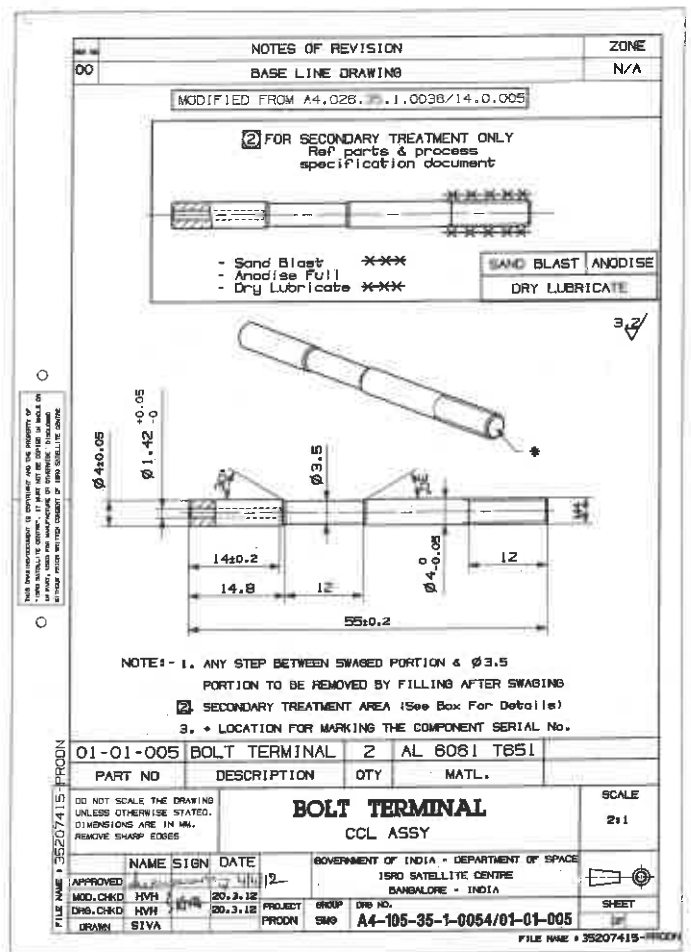
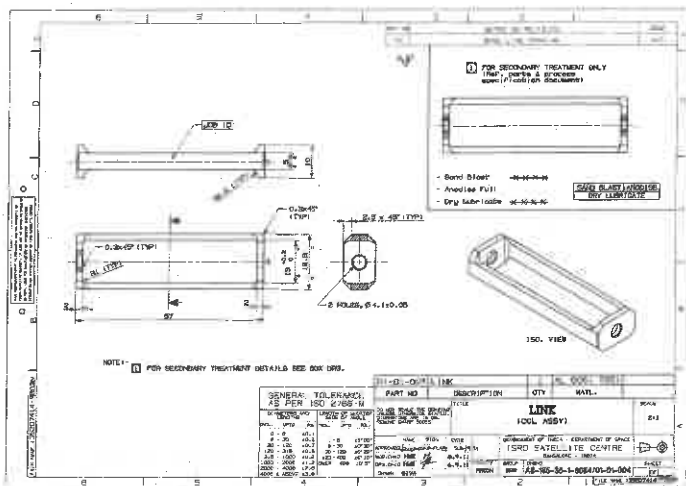
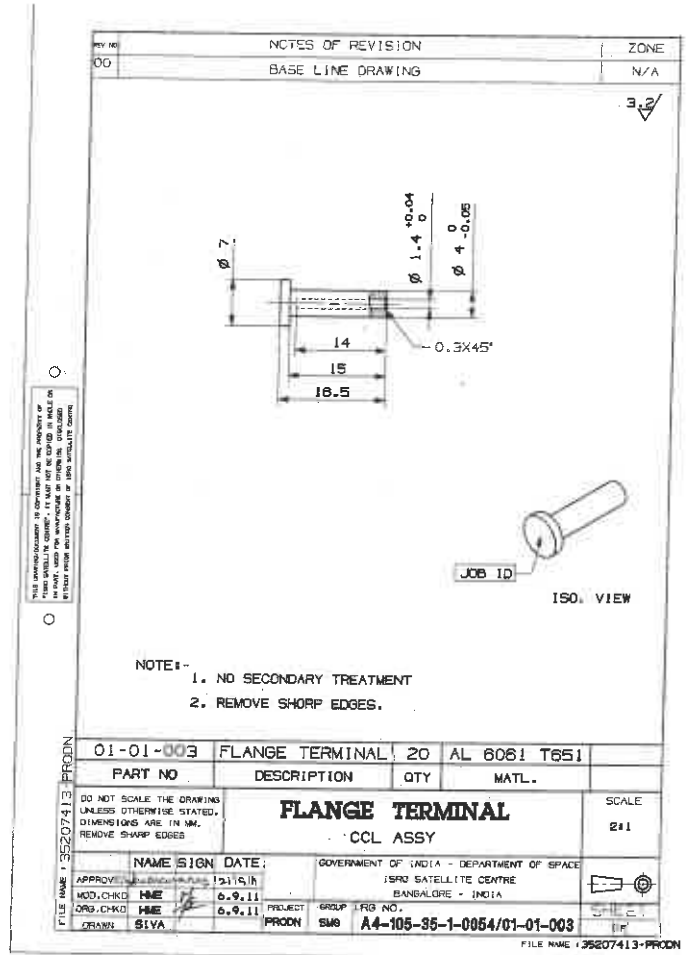
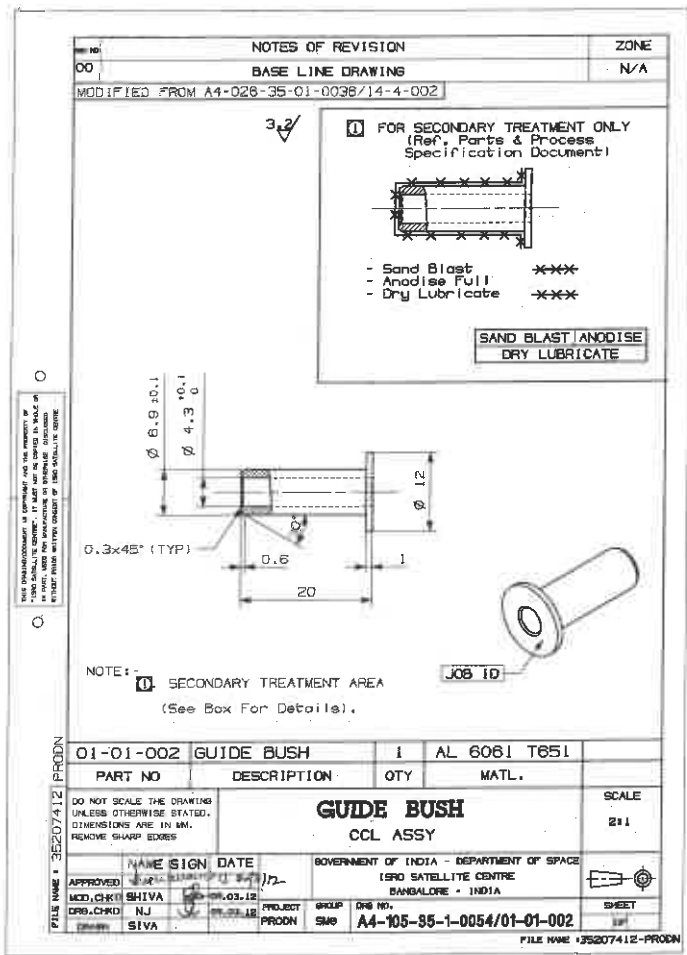
LIST OF PARTS:

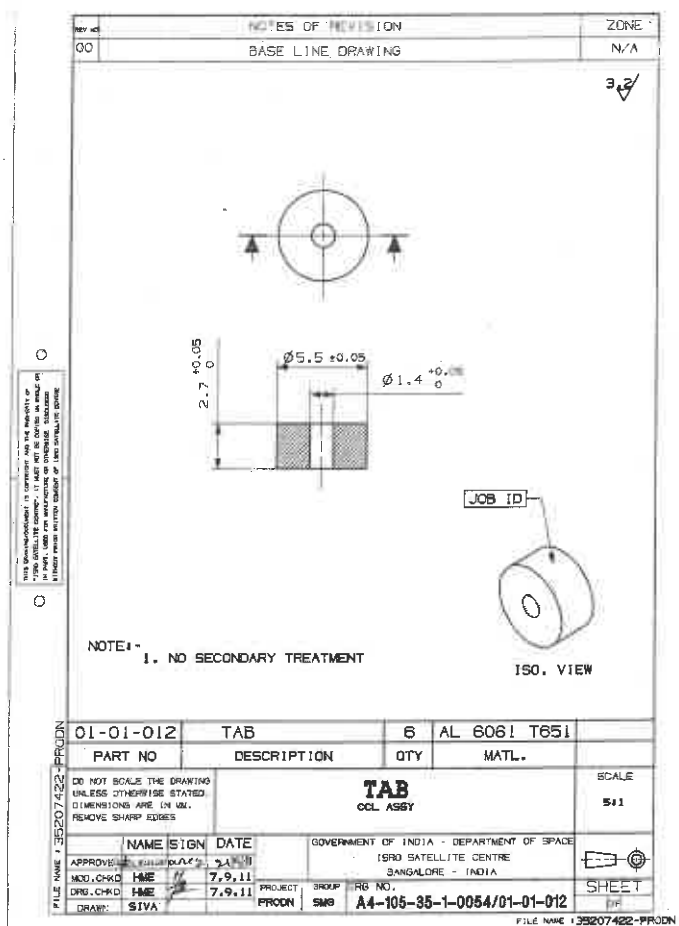
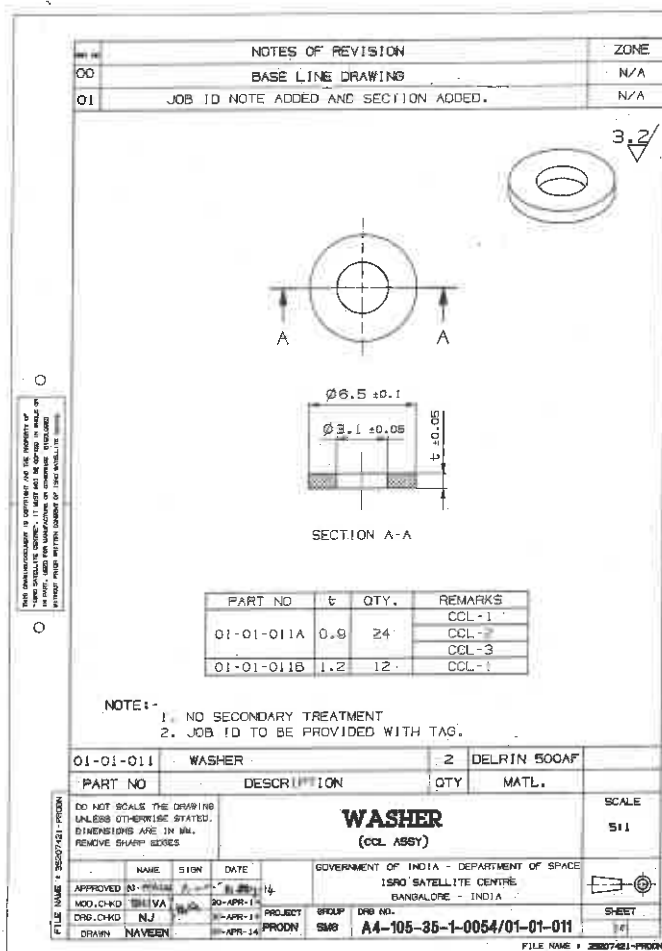
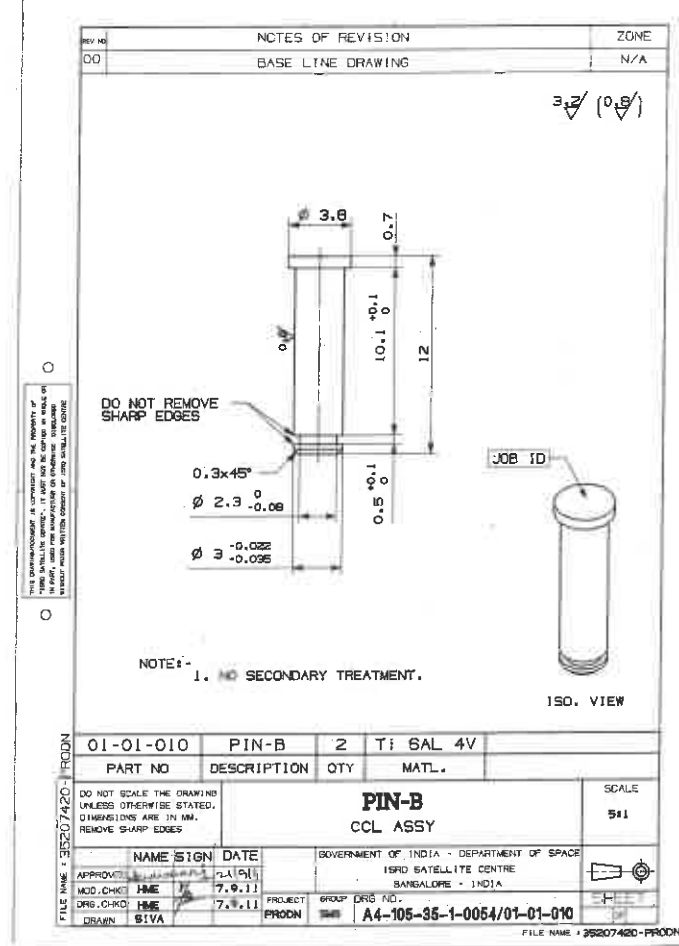
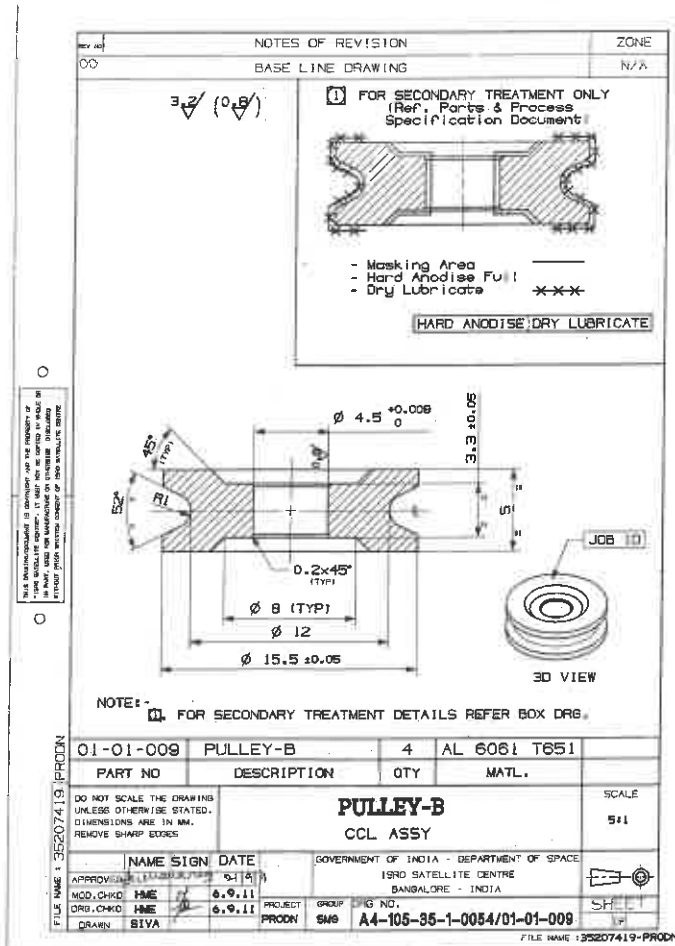
Part Number	Description
1	CRANK SHAFT
2	CONNECTING ROD
3	PISTON
4	VALVE
5	VALVE SPRING
6	VALVE SEAT
7	VALVE LIFT
8	VALVE LIFT
9	VALVE LIFT
10	VALVE LIFT
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100	VALVE LIFT

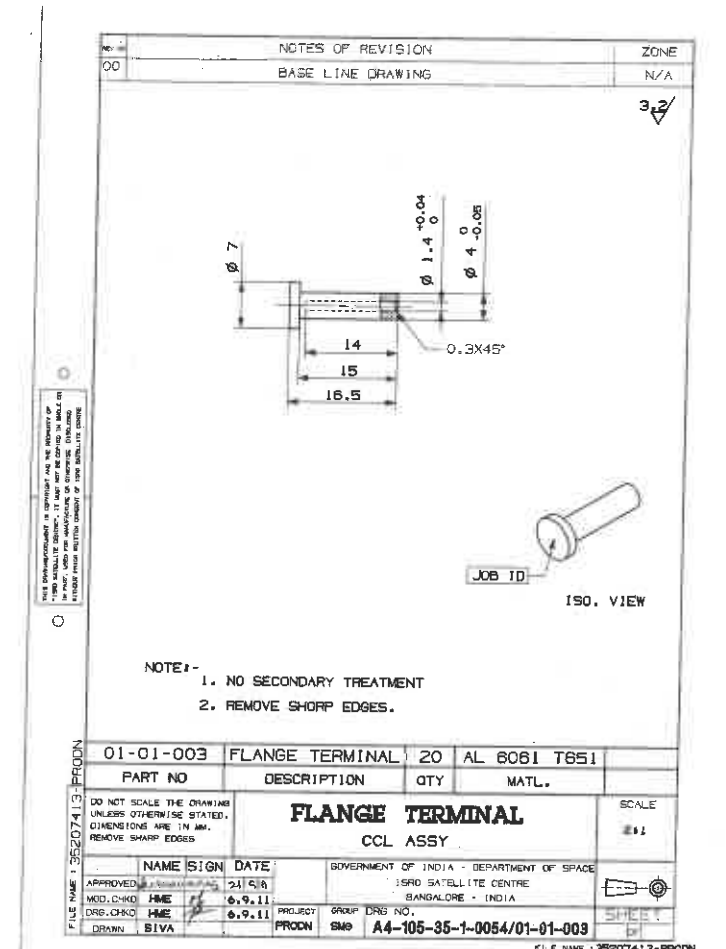
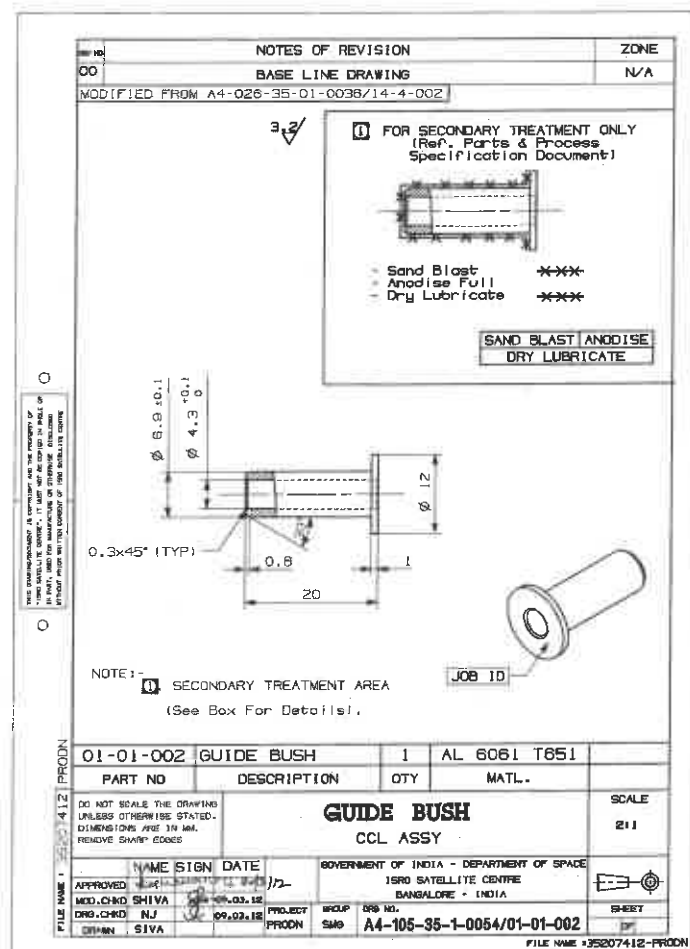
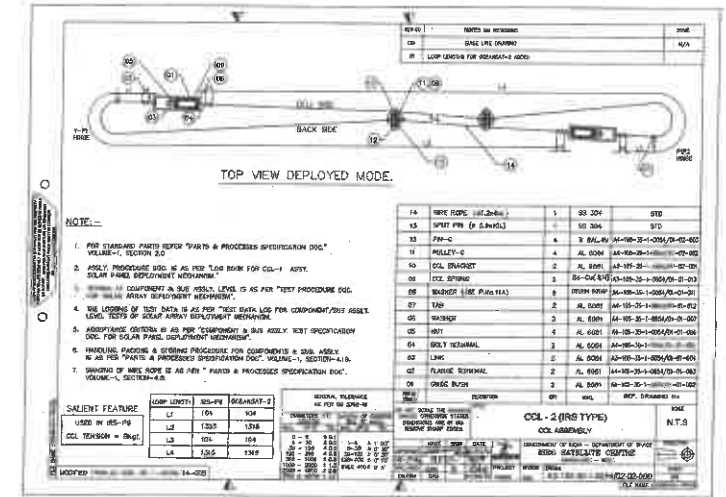
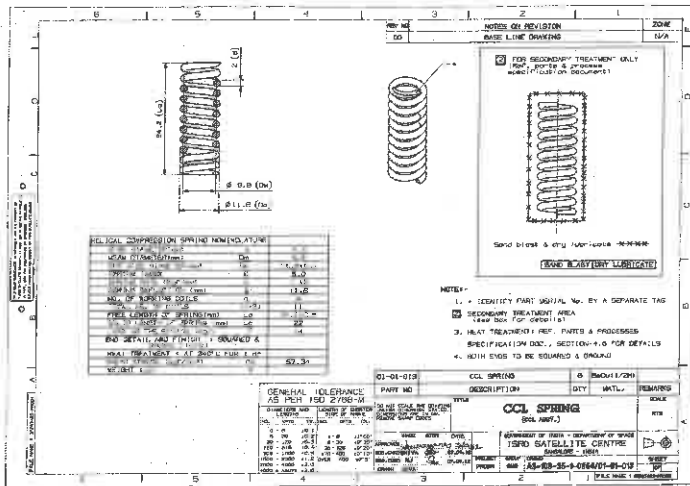
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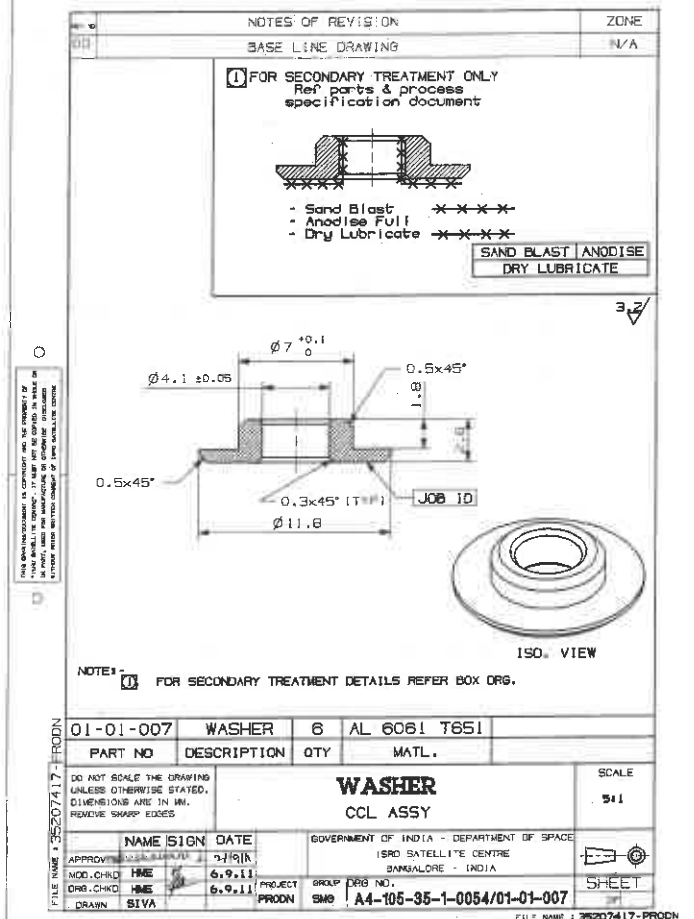
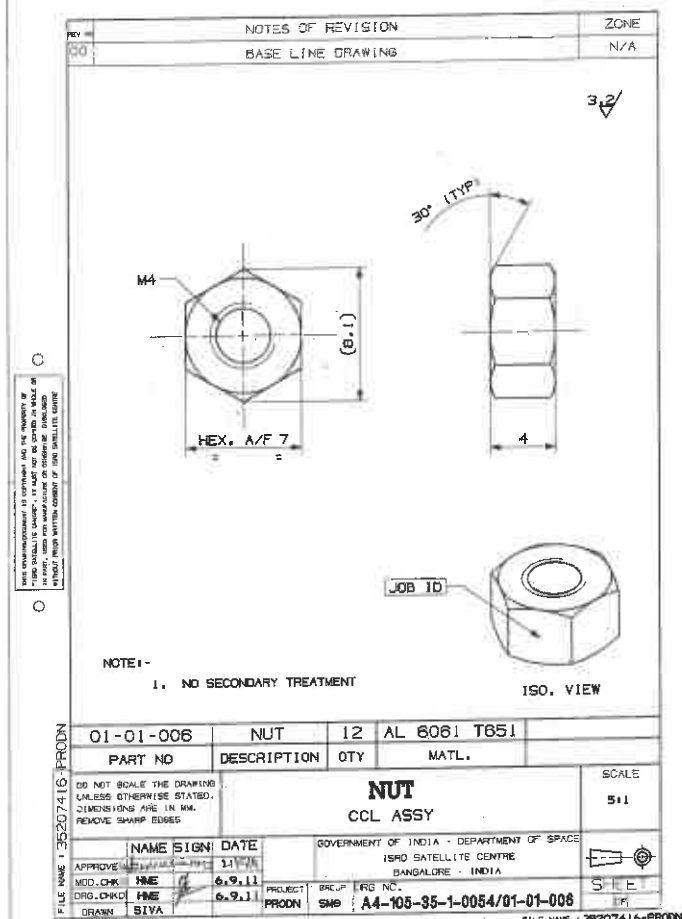
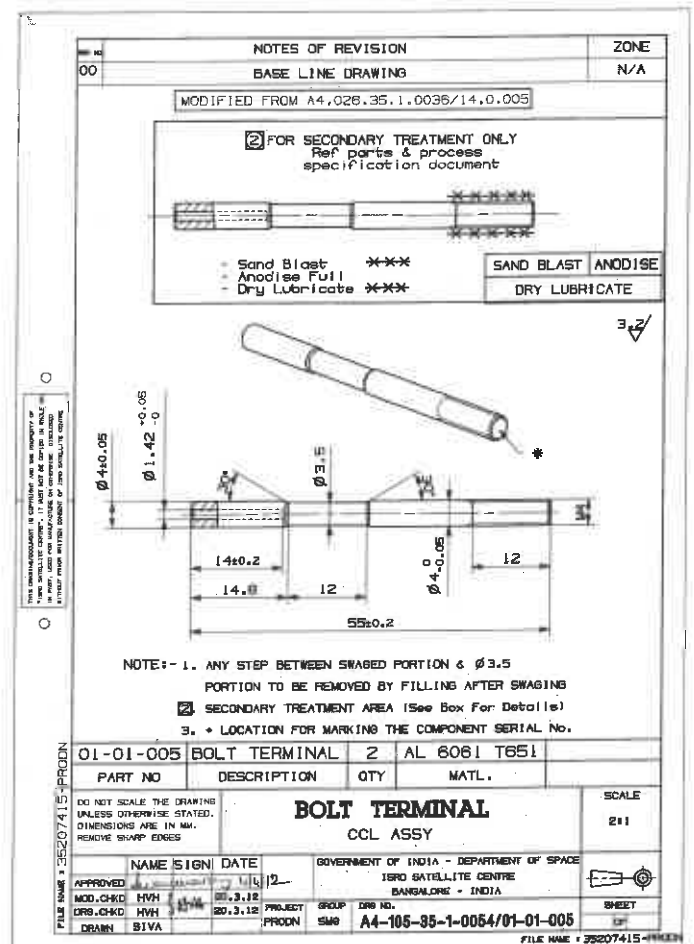
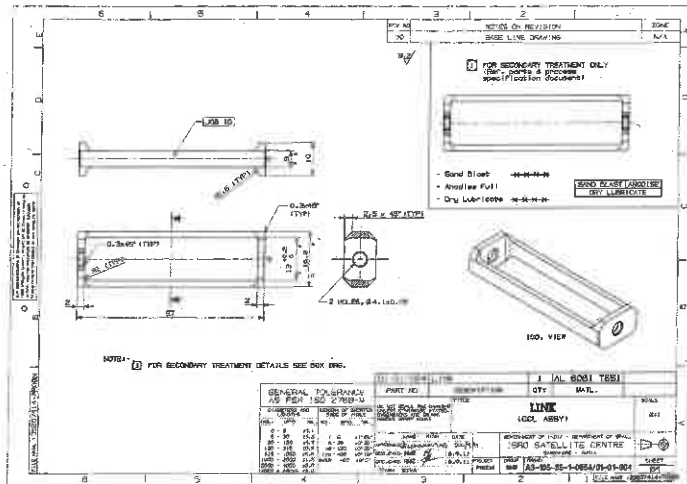












NOTES OF REVISION		ZONE
00	BASE LINE DRAWING	N/A
01	JOB ID NOTE ADDED AND SECTION ADDED.	N/A

SECTION A-A

PART NO	t	QTY.	REMARKS
01-01-011A	0.9	24	CCL-1
			CCL-2
01-01-011B	1.2	12	CCL-3
			CCL-1

NOTE:-
1. NO SECONDARY TREATMENT
2. JOB ID TO BE PROVIDED WITH TAG.

PART NO	DESCRIPTION	QTY	MATL.	SCALE
01-01-011	WASHER	2	DELFIN 500AF	5:1

DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES

WASHER
(CCL ASSY)

GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
ISRO SATELLITE CENTRE
BANGALORE - INDIA

APPROVED: N-PR
MOD. CHKD: SHIVA
DRS. CHKD: NJ
DRAWN: HAVEN

DATE: 30-APR-11
DATE: 30-APR-11
DATE: 30-APR-11

PROJECT: PRODN
GROUP: SMO
DRG NO.: A4-105-35-1-0054/01-01-011

FILE NAME: 35207422-PRODN

NOTES OF REVISION		ZONE
00	BASE LINE DRAWING	N/A

SECTION A-A

JOB ID

NOTE:-
1. NO SECONDARY TREATMENT

ISO VIEW

PART NO	DESCRIPTION	QTY	MATL.	SCALE
01-01-012	TAB	6	AL 6061 T851	5:1

DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES

TAB
(CCL ASSY)

GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
ISRO SATELLITE CENTRE
BANGALORE - INDIA

APPROVED: N-PR
MOD. CHKD: HME
DRS. CHKD: HME
DRAWN: SIVA

DATE: 30-APR-11
DATE: 30-APR-11
DATE: 30-APR-11

PROJECT: PRODN
GROUP: SMO
DRG NO.: A4-105-35-1-0054/01-01-012

FILE NAME: 35207422-PRODN

NOTES OF REVISION		ZONE
00	BASE LINE DRAWING	N/A

COIL SPRING

NOTE:-
1. NO SECONDARY TREATMENT ONLY (Ref. parts & processes specification document)
2. SECONDARY TREATMENT AREA (Ref. parts & processes specification document)
3. HEAT TREATMENT: REF. PARTS & PROCESSES SPECIFICATION DOC., SECTION 4.5 FOR
4. BOTH ENDS TO BE SQUARED & GROUNDED

PART NO	DESCRIPTION	QTY	MATL.	REMARKS
01-01-013	COIL SPRING	6	6061 T851	

GENERAL TOLERANCE AS PER ISO 2768-M

APPROVED: N-PR
MOD. CHKD: SHIVA
DRS. CHKD: NJ
DRAWN: HAVEN

DATE: 30-APR-11
DATE: 30-APR-11
DATE: 30-APR-11

PROJECT: PRODN
GROUP: SMO
DRG NO.: A4-105-35-1-0054/01-01-013

FILE NAME: 35207422-PRODN

NOTES OF REVISION		ZONE
00	BASE LINE DRAWING	N/A

CCL BRACKET

NOTE:-
1. NO SECONDARY TREATMENT ONLY (Ref. parts & processes specification document)
2. SECONDARY TREATMENT AREA (Ref. parts & processes specification document)
3. HEAT TREATMENT: REF. PARTS & PROCESSES SPECIFICATION DOC., SECTION 4.5 FOR
4. BOTH ENDS TO BE SQUARED & GROUNDED

PART NO	DESCRIPTION	QTY	MATL.	REMARKS
01-02-001	CCL BRACKET	4	6061 T851	

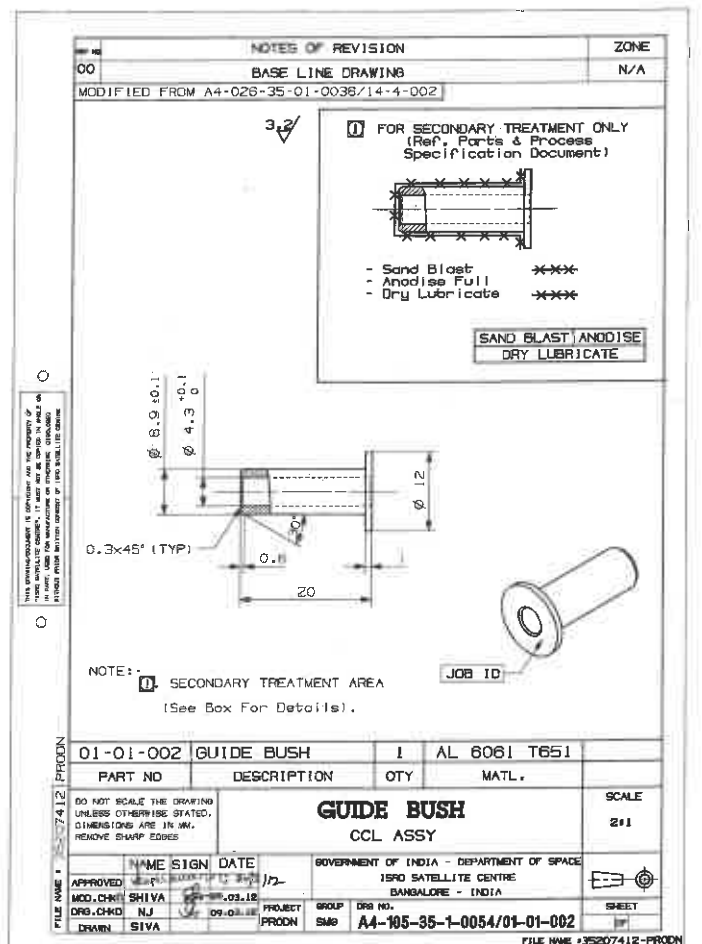
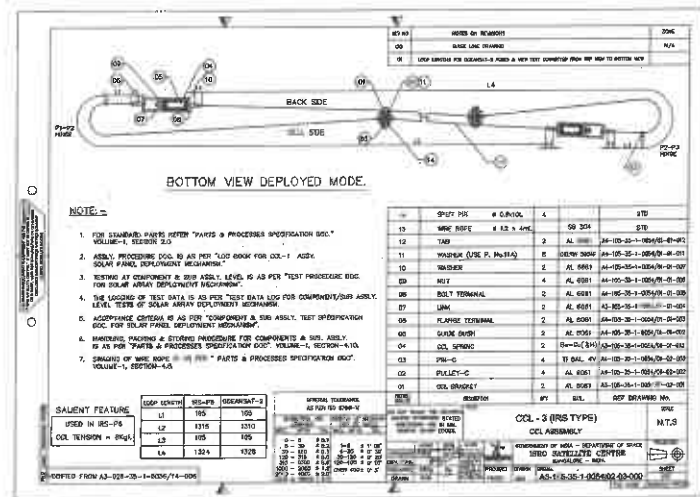
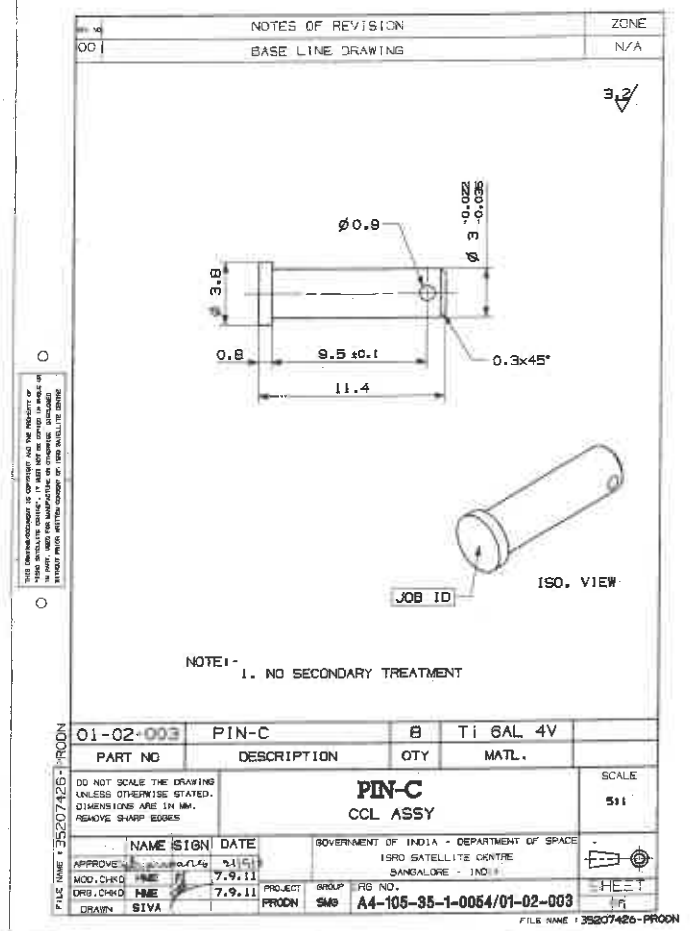
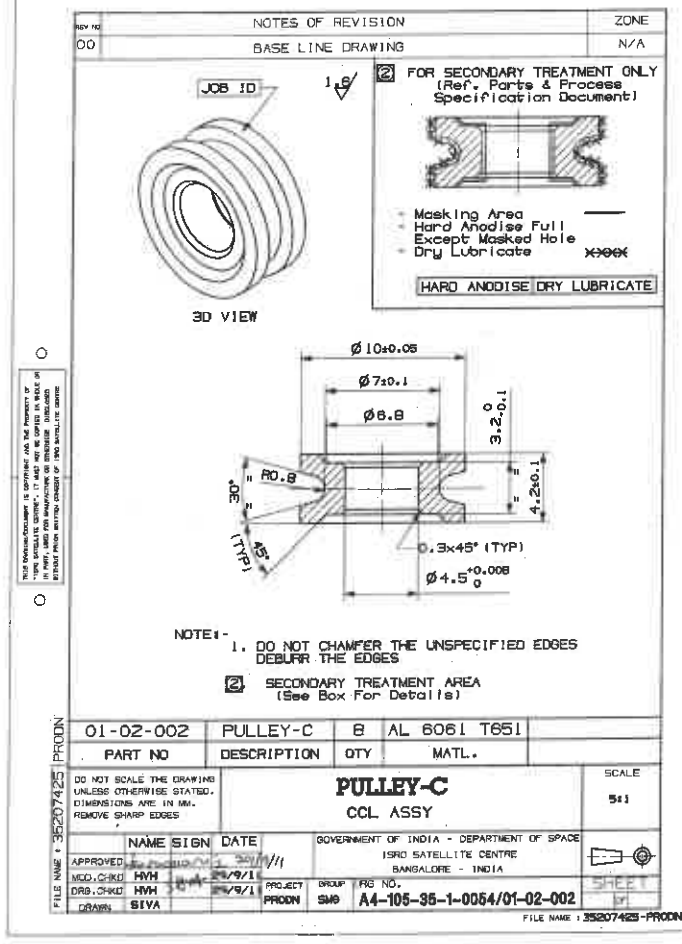
GENERAL TOLERANCE AS PER ISO 2768-M

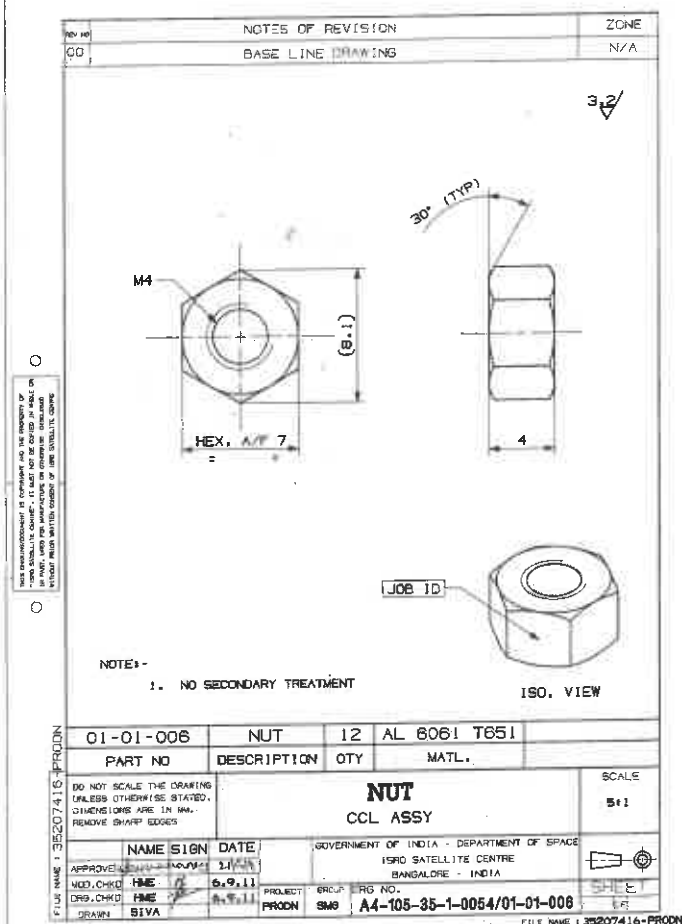
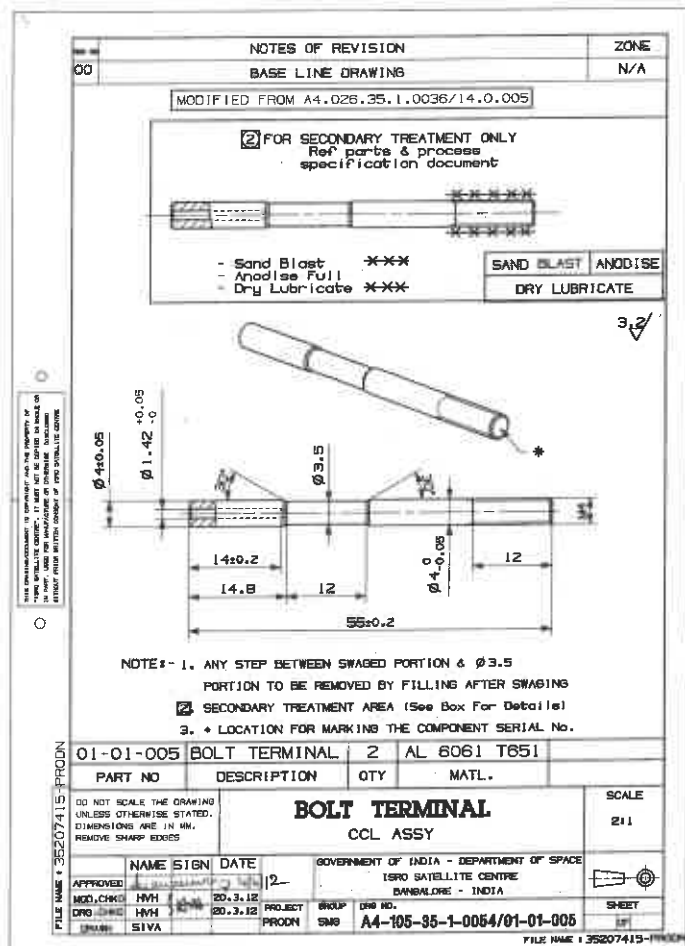
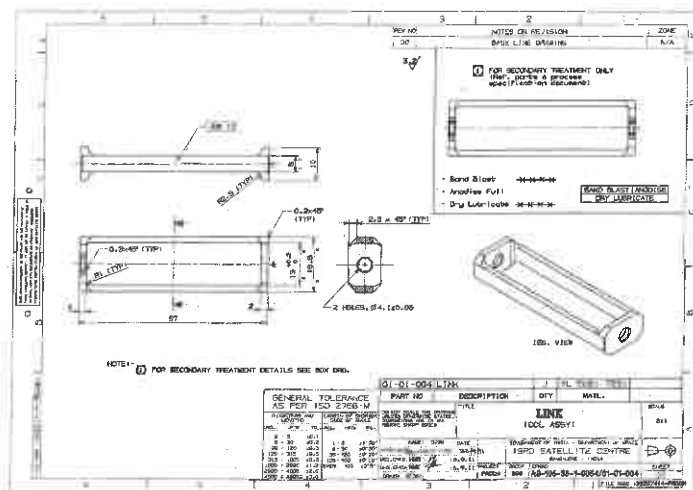
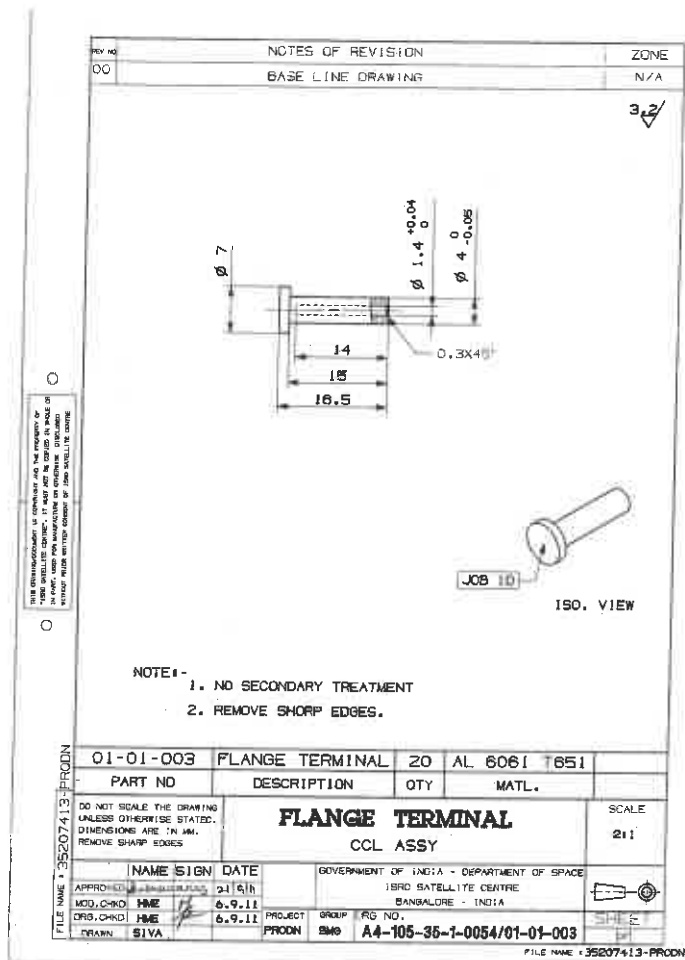
APPROVED: N-PR
MOD. CHKD: SHIVA
DRS. CHKD: NJ
DRAWN: HAVEN

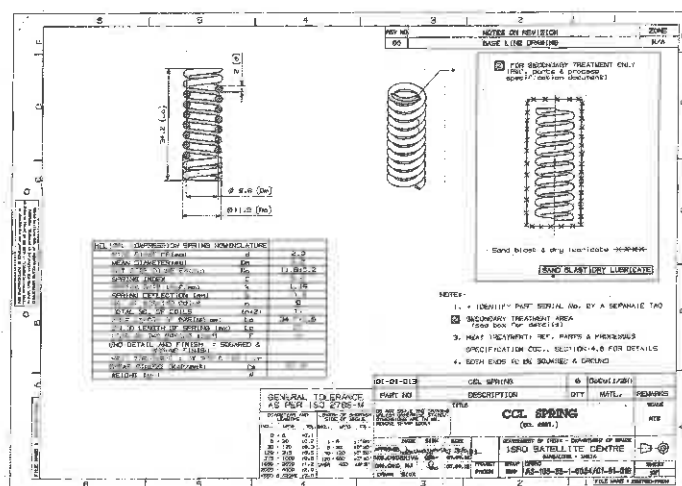
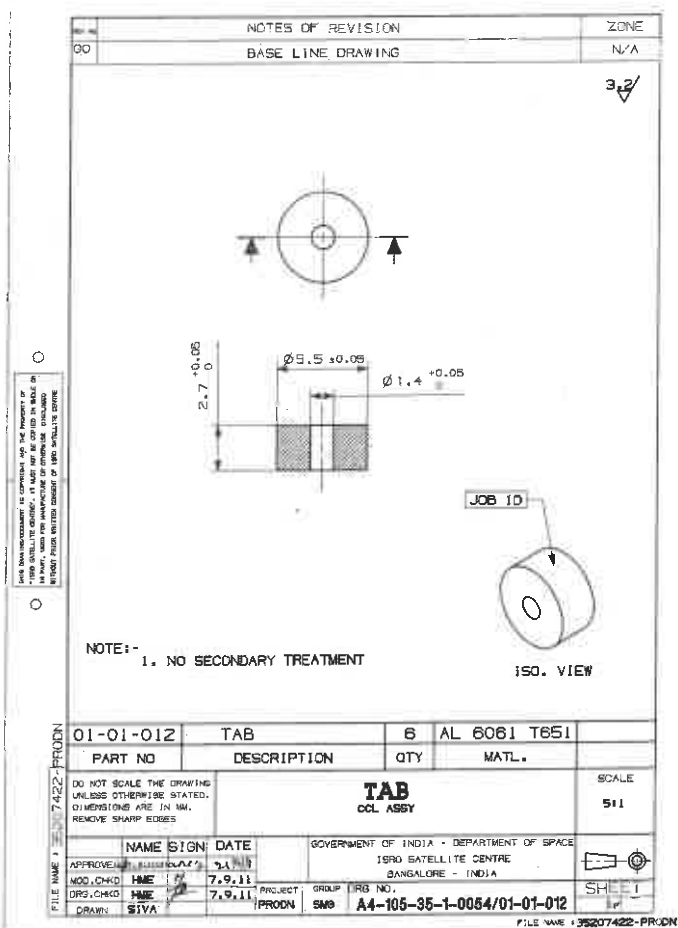
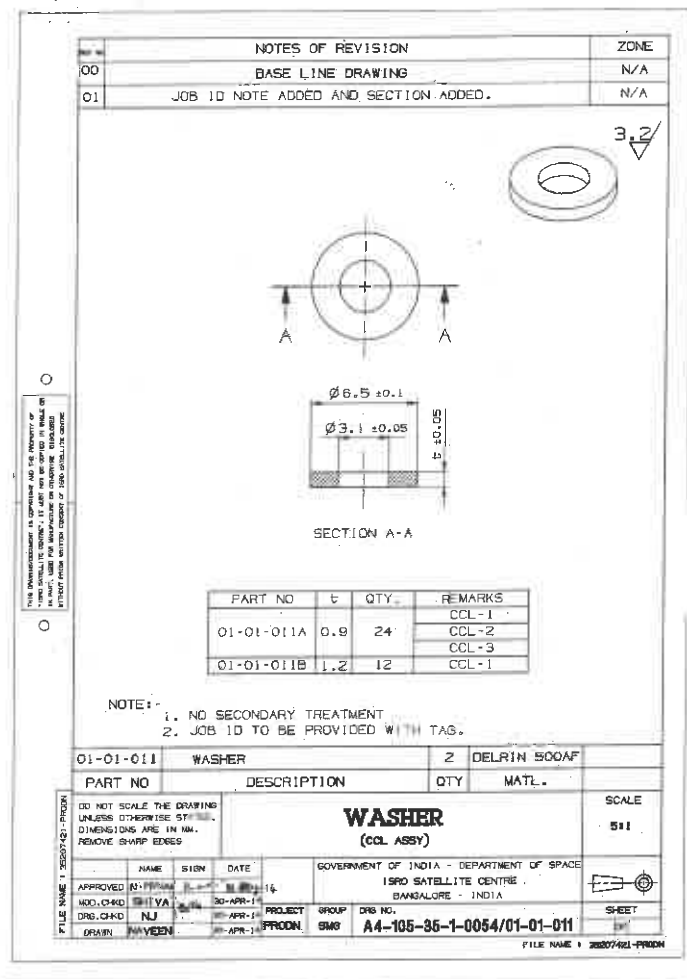
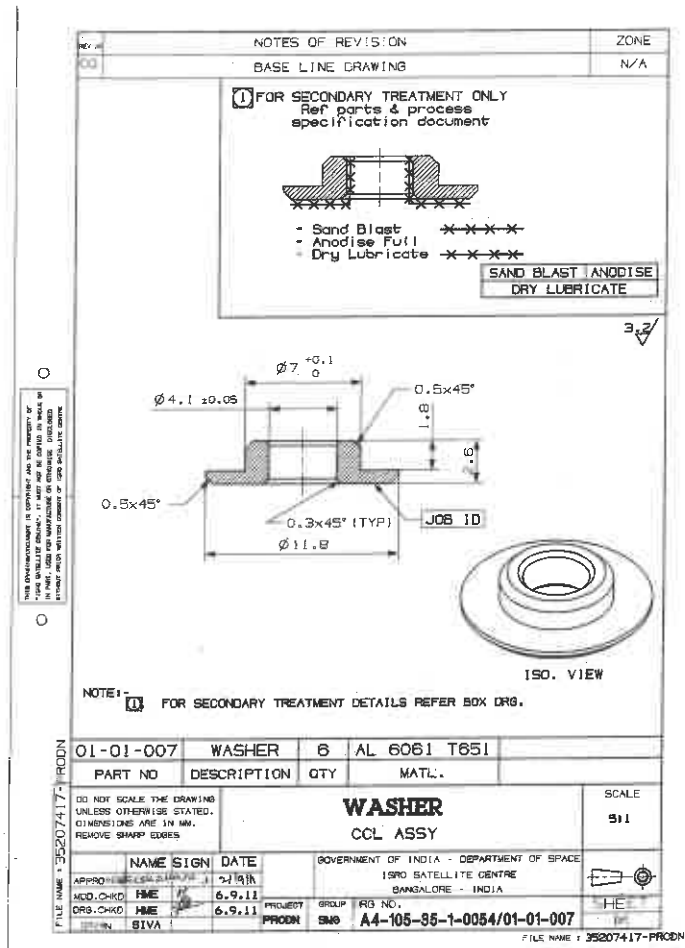
DATE: 30-APR-11
DATE: 30-APR-11
DATE: 30-APR-11

PROJECT: PRODN
GROUP: SMO
DRG NO.: A4-105-35-1-0054/01-01-001

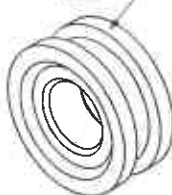
FILE NAME: 35207422-PRODN





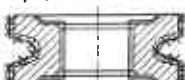


NO.	NOTES OF REVISION	ZONE
00	BASE LINE DRAWING	N/A



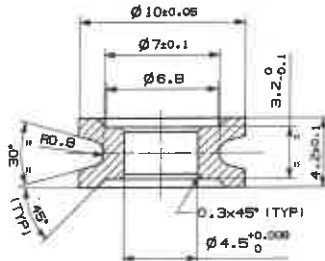
3D VIEW

2 FOR SECONDARY TREATMENT ONLY
(Ref. Parts & Process Specification Document)



- Masking Area
- Hard Anodise Full Except Masked Hole
- Dry Lubricate

HARD ANODISE DRY LUBRICATE



NOTE:-

1. DO NOT CHAMFER THE UNSPECIFIED EDGES
DEBURR THE EDGES
2. SECONDARY TREATMENT AREA
(See Box For Details)

01-02-002	PULLEY-C	8	AL 6061 T651
PART NO	DESCRIPTION	QTY	MATL.

PULLEY-C

CCL ASSY

SCALE
5:1

APPROVED MOD. CHKD DRG. CHKD DRAWN	NAME SIGN DATE HVM HVM SIVA	DATE 2/9/1 2/9/1	GOVERNMENT OF INDIA - DEPARTMENT OF SPACE ISRO SATELLITE CENTRE BANGALORE - INDIA PROJECT PRODN SNO	NO. NO. A4-105-35-1-0054/01-02-002
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FILE NAME : 35207425 (PROD)

FILE NAME : 35207425-PROD

35207426-PROJON	NOTES OF REVISION <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 5%;">NO.</td> <td style="width: 40%;">REVISION</td> </tr> <tr> <td>00</td> <td>BASE LINE DRAWING</td> </tr> </table> ZONE N/A 35207426-PROJON NOTE:- 1. NO SECONDARY TREATMENT	NO.	REVISION	00	BASE LINE DRAWING	35207426-PROJON				
NO.	REVISION									
00	BASE LINE DRAWING									
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">01-02-003</td> <td style="width: 30%;">PIN-C</td> <td style="width: 10%;">S</td> <td style="width: 30%;">Ti 6AL 4V</td> </tr> <tr> <td>PART NO</td> <td>DESCRIPTION</td> <td>QTY</td> <td>MATL.</td> </tr> </table>			01-02-003	PIN-C	S	Ti 6AL 4V	PART NO	DESCRIPTION	QTY	MATL.
01-02-003	PIN-C	S	Ti 6AL 4V							
PART NO	DESCRIPTION	QTY	MATL.							
DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES PIN-C CCL ASSY			SCALE 5:1							
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;"> APPROVED: MOD. CHKD: HME DRS. CHKD: HME DRAWN: SIVA </td> <td style="width: 30%;"> NAME SIGN DATE 7.9.11 7.9.11 </td> <td style="width: 40%;"> GOVERNMENT OF INDIA - DEPARTMENT OF SPACE ISRO SATELLITE CENTRE BANGALORE - INDIA </td> </tr> <tr> <td> PROJECT: PROJON GROUP: SMS </td> <td> ORG NO.: A4-105-95-1-0054/01-02-003 </td> <td> </td> </tr> </table>			APPROVED: MOD. CHKD: HME DRS. CHKD: HME DRAWN: SIVA	NAME SIGN DATE 7.9.11 7.9.11	GOVERNMENT OF INDIA - DEPARTMENT OF SPACE ISRO SATELLITE CENTRE BANGALORE - INDIA	PROJECT: PROJON GROUP: SMS	ORG NO.: A4-105-95-1-0054/01-02-003		35207426-PROJON	
APPROVED: MOD. CHKD: HME DRS. CHKD: HME DRAWN: SIVA	NAME SIGN DATE 7.9.11 7.9.11	GOVERNMENT OF INDIA - DEPARTMENT OF SPACE ISRO SATELLITE CENTRE BANGALORE - INDIA								
PROJECT: PROJON GROUP: SMS	ORG NO.: A4-105-95-1-0054/01-02-003									

REV NO	NOTES ON REVISIONS	ZONE
00	BASE LINE DRAWING	N/A
01	25±0.1 TOLERANCE ADDED	N/A

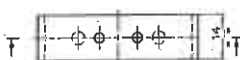
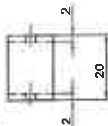
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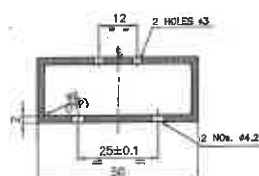
3.2/

□ SECONDARY TREATMENT DETAILS



ANODISE COMPLETELY



NOTE: 1. * LOCATION TO ENGRAVE COMP. SL. NO.

2. **□** SECONDARY TREATMENT AREA (SEE BOX FOR DETAILS)

3. CHAMFER ALL THE EDGES BY 0.3x45°

02-00-001	SUPPORT BRACKET	1	N 8051
Part No./SOM No.	DESCRIPTION	QTY	MATL.

FILE NAME : 35724510

SUPPORT BRACKET
YOKE SNUBBER ASSEMBLY

SCALE

1:1

DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED DIMENSIONS ARE IN MM. REMOVE SHARP EDGES.	GOVERNMENT OF INDIA - DEPARTMENT OF SPACE ISRO SATELLITE CENTRE BANGALORE - INDIA	PROJECTION 																		
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>APPROVED</th> <th>NAME</th> <th>SIGN</th> <th>DATE</th> </tr> <tr> <td>DRG.CHK</td> <td>...</td> <td>...</td> <td>13/11/85</td> </tr> <tr> <td>DRAWN</td> <td>RACHU</td> <td>...</td> <td>15/08/80</td> </tr> </table>	APPROVED	NAME	SIGN	DATE	DRG.CHK	...	...	13/11/85	DRAWN	RACHU	...	15/08/80	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>PROJECT</th> <th>DIVISION</th> <th>DRG.No.</th> </tr> <tr> <td>PROJ. 5</td> <td>SMG</td> <td>A4-105-35-1-0057/02-00-001</td> </tr> </table>	PROJECT	DIVISION	DRG.No.	PROJ. 5	SMG	A4-105-35-1-0057/02-00-001	SHEET 1/1
APPROVED	NAME	SIGN	DATE																	
DRG.CHK	...	...	13/11/85																	
DRAWN	RACHU	...	15/08/80																	
PROJECT	DIVISION	DRG.No.																		
PROJ. 5	SMG	A4-105-35-1-0057/02-00-001																		

REV NO	NOTES ON REVISIONS	ZONE
00	BASE LINE DRAWING	N/A
01	DIMN. CHANGED FROM 14 TO 5.3	

FILE NAME : 35724/12

NOTE: 1. * LOCATION TO ENGRAVE COMP. SL. NO.
2. SECONDARY TREATMENT ANODISE COMPLETELY.
3. CHAMFER THE EDGES BY 0.3x45°

QTY	MATL.	SCALE
1	Al 6061	2:1

DO NOT SCALE THE DRAWING UNLESS OTHERWISE STATED. DIMENSIONS ARE IN MM. REMOVE SHARP EDGES.

TITLE: SPACER
YOKE SNUBBER ASSEMBLY

GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
ISRO SATELLITE CENTRE
BANGALORE - INDIA

APPROVED: [Signature]
DESIGNER: [Signature]
DRO: [Signature]
DRA: [Signature]

PROJECT: CHN2
GROUP: SMG
DRO NO.: A4-105-35-1-0057/02-00-002

SHEET: 1 OF 1

REV NO	NOTES OF REVISION	ZONE
00	BASE LINE DRAWING	N/A

NOTE: JOB ID BY TAG.

QTY	MATL.	SCALE
1	AA6061-T651	0.5 gm

TITLE: PLATE
(YOKE SNUBBER ASSY.1)

GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
ISRO SATELLITE CENTRE
BANGALORE - INDIA

APPROVED: [Signature]
DESIGNER: [Signature]
DRO: [Signature]
DRA: [Signature]

PROJECT: CHN2
GROUP: SMG
DRO NO.: ISAC-SCMG-NV62-SA-31003/000

SHEET: 1 OF 1

REV NO	NOTES OF REVISION	ZONE
00	BASE LINE DRAWING	N/A
01	Ø 3.2 HOLE ADDED.	

FILE NAME : 35724/12

NOTE: CHAMFER UNSPECIFIED EDGE 0.5x45°

QTY	MATL.	SCALE
4	Al 6061-T651	1:1

TITLE: YOKE SUPPORT BRACKET

GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
ISRO SATELLITE CENTRE
BANGALORE - INDIA

APPROVED: [Signature]
DESIGNER: [Signature]
DRO: [Signature]
DRA: [Signature]

PROJECT: CHN2
GROUP: SMG
DRO NO.: ISAC-SCMG-CHN2-X1-00034/001

SHEET: 1 OF 1

REV NO	NOTES OF REVISION	ZONE
00	BASE LINE DRAWING	N/A

FILE NAME : 35724/12

NOTE: 1. USED IN SCRUBBER-2 (CELL SIDE) FABRICATION.
2. SECONDARY TREATMENT DETAILS (SEE BOX)
3. USE SEPARATE TAG FOR JOB ID.

QTY	MATL.	SCALE
1	AL 6061	5:1

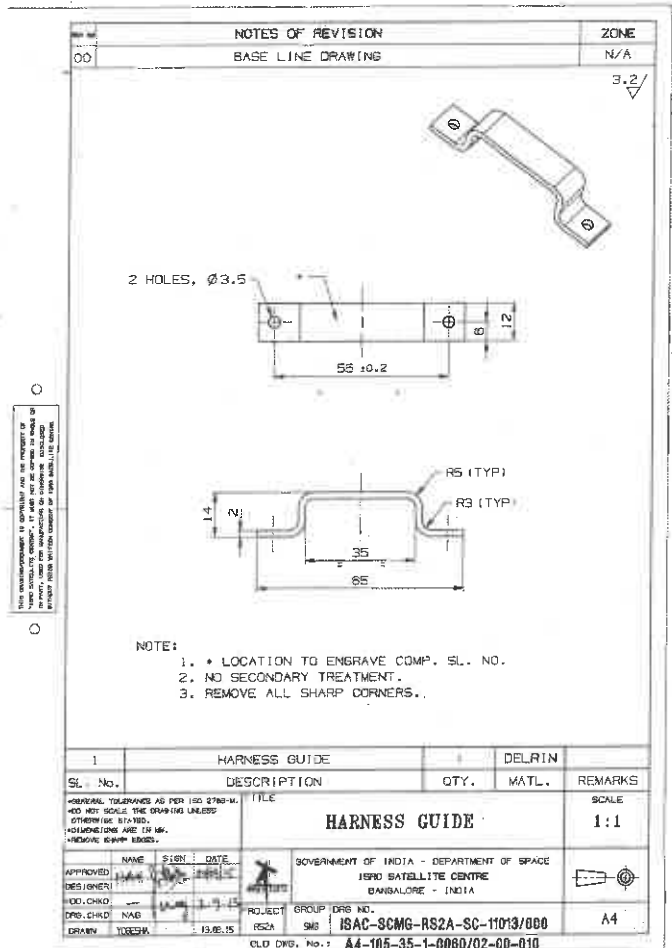
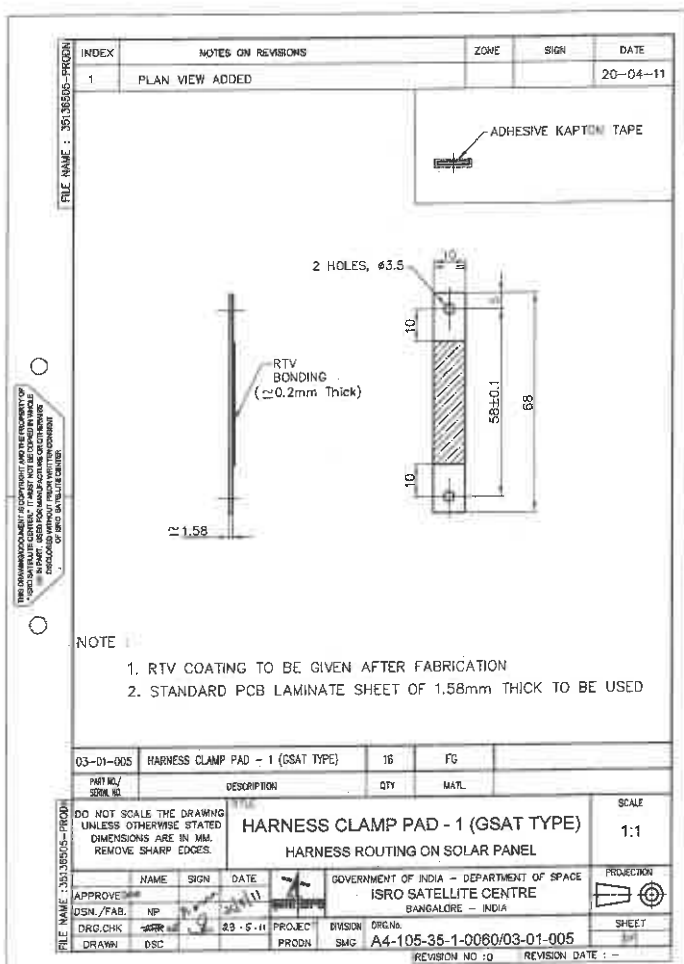
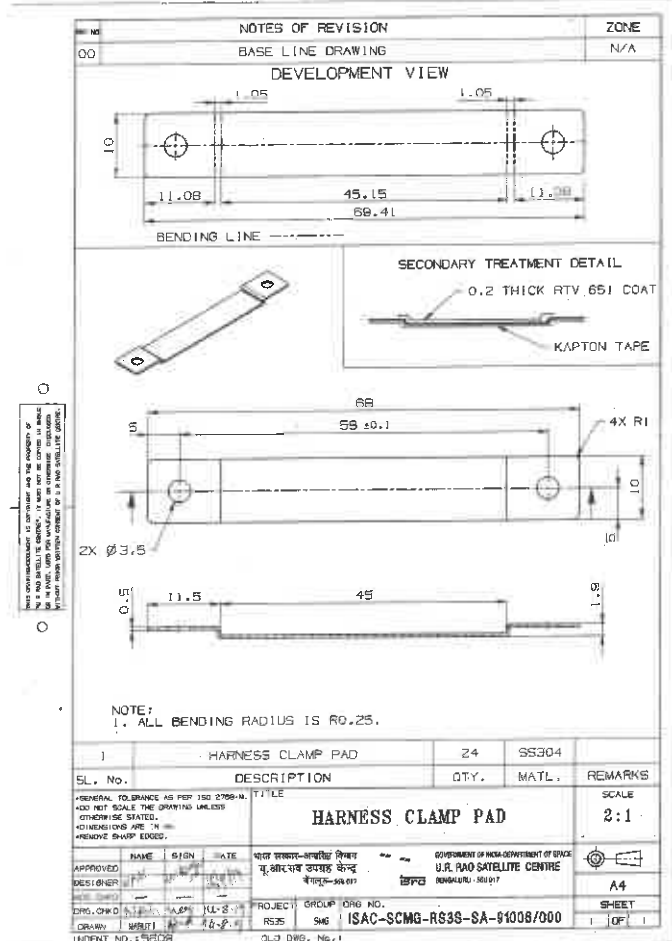
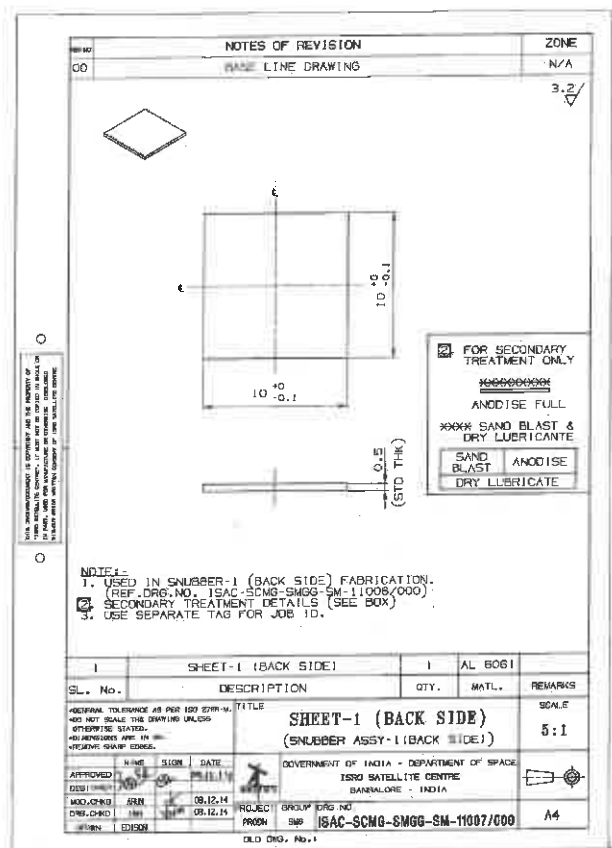
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(SNUBBER ASSY-2(CELL SIDE))

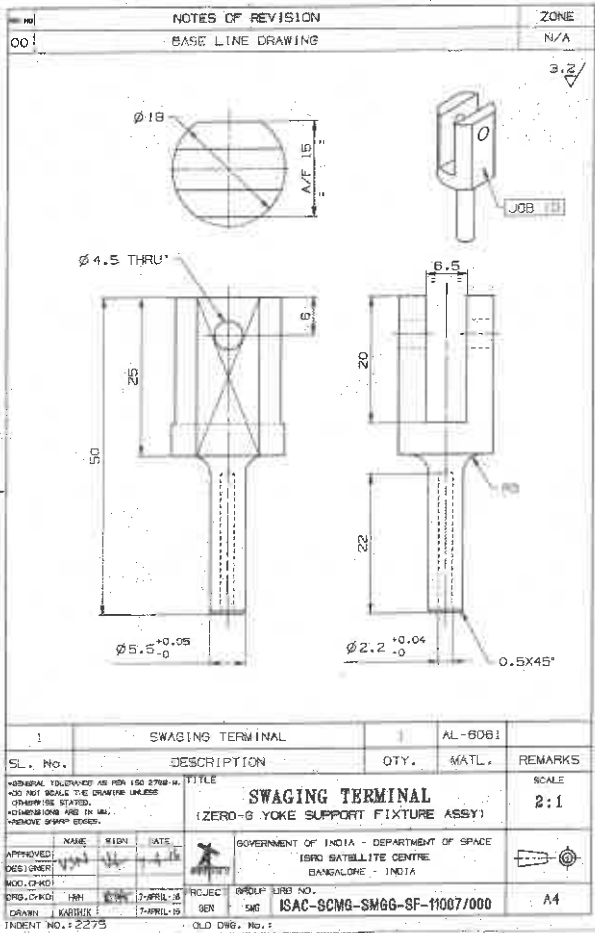
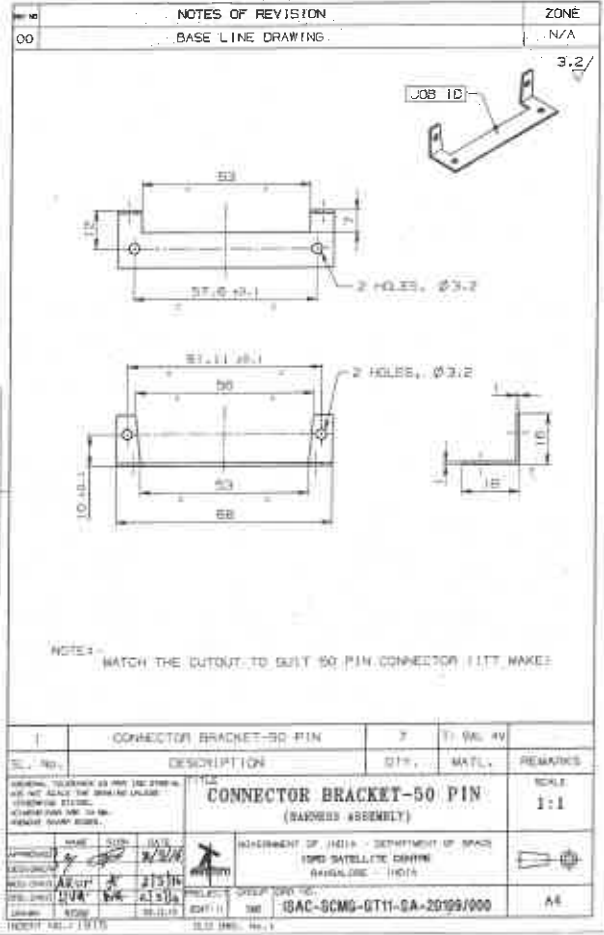
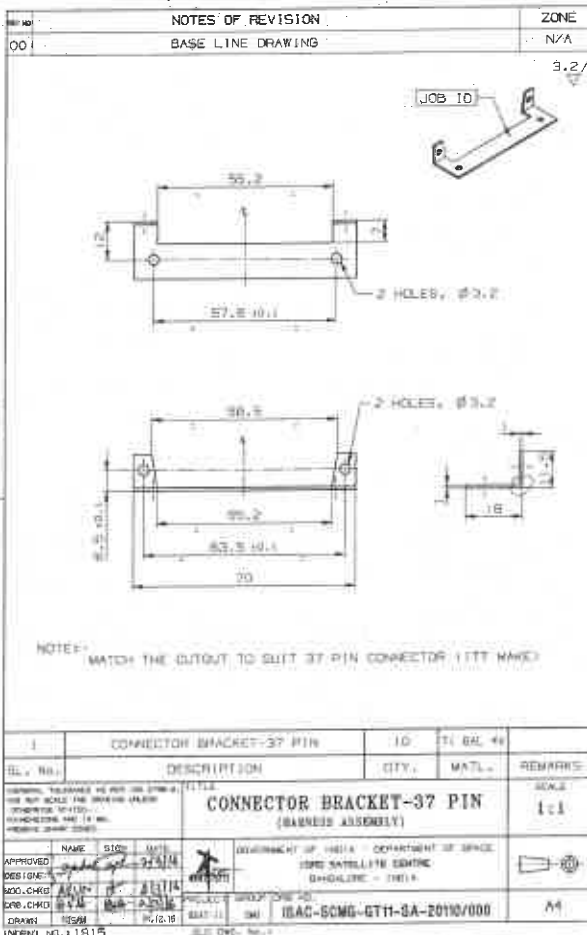
GOVERNMENT OF INDIA - DEPARTMENT OF SPACE
ISRO SATELLITE CENTRE
BANGALORE - INDIA

APPROVED: [Signature]
DESIGNER: [Signature]
DRO: [Signature]
DRA: [Signature]

PROJECT: CHN2
GROUP: SMG
DRO NO.: ISAC-SCMG-SM66-SM-11012/000

SHEET: 1 OF 1





**General Terms and Conditions forming part of URSC Tenders inviting Bids
for Procurement from Indigenous Sources
(Public Tender)**

Sl. No.	TERMS & CONDITIONS
A	Definitions
1	U.R RAO SATELLITE CENTRE [URSC] OR RECIPIENT OR PURCHASER OR BUYER is a constituent Centre under the Indian Space Research Organization (ISRO) of the Department of Space (DOS) which is the lead Centre for realization of Spacecrafts for ISRO and other user agencies. URSC shall mean and include its Units/Entities/Groups/Divisions and the facilities all over Karnataka State under the administrative control of URSC and the Offices located at HAL Airport Road, Vimanapura Post, Bengaluru 560 017 & ISRO Satellite Integration and Test Establishment (SITE), Marathahalli, Bengaluru 560 037.
2	The term BIDDER OR VENDOR OR SUPPLIER OR CONTRACTOR OR SELLER OR TENDERER shall mean any registered Establishment which will be deemed responsible and held accountable for executing the Contract upon its award.
3	PURCHASE ORDER (PO) OR CONTRACT shall mean the agreement reached between the Seller and Buyer through the tendering process including post tender negotiations whereby the Seller agrees to Supply or make available the contracted goods & services to the Buyer at designated places as is defined in the detailed scope of work for an agreed price or consideration and shall be legally enforceable.
4	The term FOCAL POINT shall mean the designated officials of URSC, from the technical/administrative Entities/Divisions of the Centre, who will be coordinating with the Seller. The details of Focal Point of URSC shall be specified in the PO.
5	The term CONTRACT AMENDMENT OR PURCHASE ORDER (PO) AMENDMENT mentioned in the succeeding paragraphs refer to the periodical revisions to the CONTRACT OR PURCHASE ORDER (PO) issued by Purchase Division of URSC comprising of the revised/corrected/updated terms which were mutually agreed upon by the Seller and the Buyer post the tendering process; which will be legally enforceable.
6	Definitions: In the Purchase Order or Contract, the following expressions shall, unless the context otherwise requires, have the meanings, hereby respectively assigned to them: a. Purchase Order or Contract shall include Supply Order, Work Order, Consultancy Contract, Contract for Services, Rate Contract, Framework Agreement, Letter of Award, Agreement, Repeat Order or a Formal Agreement and it shall mean a formal legal agreement in writing relating to the subject matter of procurement entered into between the Buyer and Seller on mutually accepted terms and conditions and the performance thereof shall be legally enforceable. The Purchase Order shall be issued by the Buyer incorporating the mutually agreed terms and conditions of the tender, product/service specifications, prices etc. and all these documents taken together shall be deemed to form one Contract and shall be complementary to one another b. Contractor or Supplier or Service Provider or Seller shall mean and include the individual, firm, Limited Liability Partnership (LLP) or company on whom the Purchase Order is issued for undertaking the supply/service/works and shall include the legal representatives, nominees, affiliates, successors in interest, permitted assignees, heirs, executors and administrators of such individual, LLP, firm or company. c. Contract Value or Purchase Order Value as per the delivery terms shall be reckoned for the purpose of computation of SD/PBG/LD etc. d. Date of commencement of work': The date of start of Contract shall in all cases be reckoned from the date of issue of Purchase Order unless otherwise specified in the special T & C.

Sl. No.	TERMS & CONDITIONS
	e. Drawings shall mean the drawings referred to in the Contract document including modifications from time to time furnished or approved by the Buyer. f. Month means English calendar month and 'Day' means a calendar day of 24 hours each. g. Purchaser shall mean the President of India who is represented by Director or Sr. Head/Head, Purchase and Stores/Sr. Purchase & Stores Officer/Purchase & Stores Officer, U R Rao Satellite Centre (URSC), Bengaluru or his successors or assignees. h. Purchase Order Amendment shall mean the periodical communication of revisions/addendum/modifications effected on the Purchase Order formally signed by the Buyer and addressed to the Seller. These shall be legally enforceable for the performance i. Stores shall include Goods, Materials, Spare parts, Hardware, Software, Equipment, Plant, Consumables, Test Reports, Data Pack, Licenses, Patents, Services etc. and shall mean what the Contractor agrees to supply under the Contract/Tender as specified in the Purchase Order. j. Words indicating the singular only also includes the plural and vice versa, where the context so requires. k. Words indicating male gender shall also include the female or neuter gender, and vice versa, where the context so requires.
B	Scope of Contract, Duration, Extension of Contract, Instruction to Sellers etc.
7	The subject tender is for procuring goods/goods & services confirming to the Specification as is mentioned in the Detailed specification document.
8	Guaranteed Time of Delivery: Delivery period shall be specified in Tender. In case the tender calls for installation, then the Tenderers shall mention the schedule for supply and installation separately. Time required for installation post supply shall be clearly defined to avoid any lag period between supply and installation/commissioning.
9	The Tenderers are advised to read the technical specifications, terms and conditions & other details relating to the Supply/Service/Work contemplated in the Bid document carefully and fully acquaint themselves as to all the conditions and matters which may in anyway affect the Supply/Service/Work or cost thereof. By virtue of bid submission, the Tenderer shall be deemed to have known the nature, scope and magnitude of the Supply/Service/Work. Tenderer should bid only if they consider themselves eligible and if they are in possession of all documents required as per the tender.
10	If the Tenderer is found ineligible after opening of tenders, the said tender shall become invalid <i>ipso facto</i>, and costs of the tender document and processing fees, if any, shall not be refunded. URSC shall, at its option, reject those Offers which are not in compliance with the tender conditions, without assigning any reasons thereof. Failure to furnish all requisite information or and/or documents shall result in repudiation of the Offer. Notwithstanding the foregoing provision, even if the tenderer claims to satisfy all the other tender conditions, URSC reserves the right to assess the capability of the Tenderer to perform the contract keeping in view the overall interests of URSC. If it is reasonably satisfied that the Tenderer lacks the capability and capacity to perform or execute the contract satisfactorily, URSC reserves the right to reject the bid, by assigning applicable reasons thereof. The decisions of URSC in this regard will be final.

Sl. No.	TERMS & CONDITIONS
10.1	Measures to counter Predatory Pricing / Abnormally Low Bids (ALB): If the Buyer observes that the Bid price, in combination with other elements of the Bid, is so low that the capability of the Seller to perform the contract at the offered price is doubtful, the bid will be liable for rejection invoking the provisions of Predatory Pricing/Abnormally Low Bid. The following shall be the measures to be adopted for the re-evaluation of the Bid and to declare the same as Predatory/Abnormally Low Bid: (i) Buyer shall obtain written clarifications from the Bidder on the Product/Services including detailed price analyses of its Bid price (elements of cost) in relation to scope, schedule, allocation of risks and responsibilities, and any other requirements of the tender document. The Bidder shall ensure that such details are furnished within a reasonable time not later than 7 days of the request. (ii) The Buyer shall analyze the prices through its internal mechanism comprising of Techno commercial committees/procurement committees. (iii) If the Buyer, after due analysis of the prices, determines that the Bidder has substantially failed to demonstrate its capability to deliver the contract at the offered price, the Buyer may reject the Bid/ Proposal and evaluate the next higher bidder (and so on), at his/ their own quoted rate (if considered reasonable, and not by counter offering the rate of ALB), for the award of contract. The decision of the Buyer in this regard shall be final and binding on the bidders.
11	Any negligence or omission or failure on the part of the Tenderer in obtaining necessary information from URSC on the matters stated above or in any other matter affecting the tender or performance of the contract shall not relieve him from any of the risks or liabilities or the responsibilities for completion of the contract in accordance with the bid documents.
12	All the requirements stated in the succeeding paragraphs are the minimum information required by the Buyer. The Buyer reserves the right to request for any additional information and also reserves the right to reject any of the tenderer, if in its opinion, the qualification criteria or the data furnished is incomplete or if the tenderer is found not qualified to perform the contract satisfactorily. The Tenderer shall bear all costs and expenses associated with preparation and submission of bid including post bid discussions, technical and other presentations and URSC will in no case be responsible or liable for honoring/reimbursing such costs, regardless of the outcome of the bidding process. The Tenderer shall also not be entitled to claim any costs, charges and expenses incidental to or incurred by him through or in connection with the submission of the Bid or its consideration by URSC, even though URSC may elect to modify or withdraw the invitation to Bid or not to accept the Bid at any point of time for valid internal reasons.
13	At any time prior to the deadline for submission of bids, URSC may for any reason on its own initiative modify the bidding document by amendment. The amendment will be notified in writing or by e mail to the prospective Tenderers or uploaded online on the website. URSC shall bear no responsibility or liability arising out of non-receipt of the same on time or otherwise. Notwithstanding the above, URSC may at its discretion extend the deadline for submission of bids in order to accord reasonable time to prospective Tenderers to take into account the amendment in preparing the bids.

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14	All the bids in prescribed form enclosed with tender documents must be submitted before the time and date fixed for the receipt of offers as set forth in the tender document. URSC will not be responsible for non-receipt of tender(s)/offer(s) due to any loss of tender documents and it shall be the sole responsibility of the Tenderer to ensure submission within the time fixed and URSC will not be responsible for non-submission of tender(s)/offer(s) within the stipulated date and time due to any issues/Holidays. Tenderer(s) shall submit their bid(s) well in advance to overcome last minute rush.
15	Offers received after stipulated time and date will be rejected.
16	Public Tender documents will also be uploaded on the ISRO website i.e., www.isro.gov.in . Interested Tenderers may download the tender documents from the website and submit their offers as per details mentioned in the Tender Notification.
17	If the tender opening date happens to be on an unidentified Holiday due to any reason, including Force Majeure, tender(s) shall be opened on the next working day.
18	Tenderers shall submit the quotations through Offline Only. The Tender shall be complete in respect of all technical specifications, instructions, drawings, pamphlets and catalogues, as prescribed in the tender document. Failure to furnish all information as per the requirements of the tender document and submission of bid not substantially responsive to the tender document shall render the tender liable for rejection. Any/All Bids by way of Fax/E mail shall not be accepted.
19	Tenderers shall quote Prices in Indian Rupees Only for Stores offered by them in the Price Template. As this is a Local Tender, any bid for which payment is expressed in foreign currency shall be liable for rejection.
20	All available technical literature, catalogues, Valid / Tender Specific Original Equipment Manufacturer Authorization Certificate (OEM) and other data in support of the specifications and details of the items should be furnished along with the offer wherever necessary. Unsolicited documents received after Tender due date & time shall not be entertained.
21	Samples, if called for, should be submitted free of charges by the Tenderers and URSC shall not be responsible for any loss or damages thereof, due to any reason whatsoever. All incidental expenses towards submission of samples including Freight charges, Taxes & Duties etc. shall be borne by the Tenderer. Delivery of samples to URSC Stores shall be the responsibility of Tenderer. In the event of non- acceptance of tender, the Tenderer will have to remove/take away the samples at their own expenses within a reasonable period of three months. Items not removed/taken back despite sufficient notices will be disposed of by URSC and the net proceeds thereof will be remitted to Government.
22	Approximate Net and Gross weight of the items offered shall be indicated in the offer. If dimensional details are available, the same should also be indicated in the offer.
23	Specifications: The description of the system in the documents supplied by the Tenderer along with the Bid shall be such as to ensure a clear understanding of the same and to permit its comparative evaluation. Stores offered should strictly confirm to URSC Specifications. Deviations, if any, should be clearly indicated by the Tenderer in their quotation. The tender should also indicate the Make/Type, number of the Stores offered and provide catalogues, technical literature, and samples, wherever necessary along with the quotations. Test Certificate wherever necessary should be forwarded along with Supplies. Whenever options are called for in our Specifications, the Tenderer should address all such options. Wherever specifically mentioned by us, the Tenderer could suggest changes to specifications with appropriate justification for the same.

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24	All amounts shall be indicated both in words as well as in figures. Whenever there is a difference between the amount quoted in words and that which is expressed in figures, the amount which is expressed in words shall prevail over the amount quoted in figures.
25	The Bid and the Prices quoted shall remain valid for 90 days for Single Part Tender. In case of Two Part Tender, bid validity shall remain valid for 120 days from the date of opening Part 1 and 90 days from the date of opening of Part 2 bid. A bid valid for a shorter period shall be rejected by Buyer as non-responsive.
26	Repeat Orders: URSC or any other ISRO Centres/Units reserves the right to place repeat orders on the successful Tenderers who have performed the Contract for any additional quantity requirements and such requirement shall not exceed the original quantity ordered. Such Repeat Orders shall be concluded within a period of 18 months from the date of release of original PO based on mutual consent of the parties and shall be at the same rates and Terms & Conditions as that of the Original PO.
27	Earnest Money Deposit [EMD]: a. The Tender should be accompanied with an Earnest Money Deposit [EMD] for a prescribed amount wherever called for in the covering sheet of Notice Inviting Tender [NIT]. b. Registered Tenderers and those Tenderers who have applied for renewal of registration, Central PSUs/PSEs /Autonomous Bodies, Micro and Small Enterprises, KVIC, etc., are exempted from payment of EMD. Tenderers seeking exemption from payment of EMD shall submit necessary valid proof before opening of Tender. c. Any Tender not accompanied with EMD or without any valid Certificate for exemption shall be treated as invalid tender and shall be rejected. d. The said Earnest Money Deposit shall be in the form of Demand Draft/Bankers Cheque/Fixed Deposit Receipts payable at place as mentioned in NIT in favour of Accounts Officer, URSC payable at Bengaluru from any Nationalized/Scheduled bank or Bank Guarantee from any Nationalized/Scheduled banks in the enclosed format. The Bank Guarantee shall be valid for 45 days beyond the Tender validity date. No interest will be payable by URSC on the said amount covered under EMD/any other Security Deposit e. The EMD of the unsuccessful Tenderers will be returned to them within 30 days from the date of the award of the Contract to the successful Tenderer. f. The EMD will be forfeited if the Tenderer withdraws or amends or impairs or derogates from the Tender in any respect within the validity period of the Tender.
28	Micro and Small Enterprises [MSEs] In case, a bidder is an MSE, registered under National Small Industries Corporation (NSIC) or any other Government Agencies and would like to avail exemptions/preferential treatments prescribed by Gol, the bid should be accompanied with necessary registration certificate and a declaration to consider their offer for preferential treatment. Quotation received without a valid registration certificate and specific declaration will not be considered for exemptions/preferential treatment envisaged by Gol under Public Procurement. Purchase preference will be given to MSEs as defined in Public Procurement Policy for Micro and Small Enterprises (MSEs) Order, 2012 dated 23/03/2012 or as amended from time to time, issued by Ministry of Micro, Small and Medium Enterprises and subsequent Orders/Notifications issued by the concerned Ministries/Departments in this regard.

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	If the bidder wants to avail the Purchase preference, the bidder shall be the manufacturer of the offered product in case of bid for supply of goods. In respect of bid for Services, the bidder shall be the Seller of the offered Product/Service. Relevant documentary evidence in this regard shall be uploaded along with the bid in respect of the offered product or service. If L1 is not an MSE and MSE seller(s) has/have quoted the price within L1+15% margin which is the existing purchase preference/price band defined in the above policy, such Seller will be given an opportunity to match the L1 price and shall be allowed to supply up to 25% of the total tendered value. If there are more than one eligible MSE within such price band who agree to match the L1 price, the 25% quantity earmarked for MSEs will be distributed proportionately between such MSE bidders. In case, tendered item cannot be split/divided, the full/complete supply of tendered value will be awarded to the MSE quoting price within the band L1plus15%. The sub target of annual procurement from MSEs owned by SC/ST entrepreneurs is 4% and the sub target of annual procurement from MSEs owned by Women entrepreneurs is 3% and are with respect to annual procurement from MSEs as a whole and not specific to this tender. Eligible MSE bidders who satisfy the quality and other technical specifications are also exempted from the pre eligibility criteria with regard to furnishing of EMD, Prior experience and Turnover mentioned in the Tender, if any. However, MSEs are not eligible for any exemptions with respect to furnishing of SD/PBG. Note: The above policy is meant only for the procurement of goods and services from MSEs and does not apply for Works contracts. The policy also does not apply to traders, distributors, sole agents for Goods/Service contracts even if they fall under MSE category.
29	As per Rule 144(x) of General Financial Rules 2017 as amended from time to time, the bidders from countries which share land border with India shall be registered with Department for Promotion of Industry and Internal Trade (DPIIT) and the Registration shall be valid on the date of bid submission/placement of Order. The above provision applies to procurement of Goods, Services including Consultancy/Non consultancy contracts & Works Contracts. The Bidder shall ensure compliance to the above Clause by furnishing a Certificate in the prescribed format.
30	In case of Tenders which are called for vide Manual Mode, the Tender Document bearing signature & seal of the Seller on each page shall be attached to the Bid.
31	Bid Securing Declaration: The Tenderers/Bidder have to sign a Bid Securing Declaration accepting that if the Tenderer[s] withdraw or modify their Bids during the period of validity, or if they are awarded the Contract and they fail to sign the Contract, or fail to submit a Security Deposit & Performance Bank Guarantee before the deadline stipulated in the request for Bid Documents, they will be suspended for the period of 2 years and such Tenderer[s] will not be eligible to submit Bids for future tenders.
32	Quote should be submitted in Single Part/Two Parts as specified in the Tender Document.
33	The Tender Document comprises of technical requirements, specification and Commercial Terms. The detailed technical specification along with Commercial Terms and Conditions of your offer should be covered in Technical Bid i.e., Part 1 [Technical and Commercial] and Price should be covered only in Part 2 [Price Bid].
34	In the case of Two-Part Tender, Price details should NOT be disclosed in the Part 1 [Technical and Commercial Bid] and in any of the other attachments enclosed as part of the Technical Bid. In case, Price details are mentioned by will/oversight, the same will be treated as a breach and the bid shall be rejected summarily. This applies to both full price disclosure as well as partial price disclosure. The Technical documents need to be without any price information.

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35	The Buyer at its option may schedule a Pre bid meeting in order to create better clarity among the prospective bidders. The date, time and venue/mode of any such pre bid meeting will be announced separately. However, participation in such pre bid meetings is not compulsory to determine the eligibility for bidding/award of PO.
C	Documents to be possessed/furnished by Seller & Compliance to Government Guidelines on Procurement
36	In case of Two Part Tender, Commercial Terms to be covered in the Part 1 [Technical Bid] are Delivery Terms, Delivery Period, Payment Terms (without mentioning the price or amount), Security Deposit for performance of Contract and Performance Bank Guarantee for fulfillment of Warranty obligation, Validity of the Offer, Warranty/Guarantee, Liquidated Damages [for delayed supplies] and all available technical literature, catalogues and other data in support of the specifications and details of the items, etc.
D	Prices, Payment Terms & Other Commercial Terms governing the Contract
37	Price: The Prices mentioned in the PO/Contract shall be Firm and Fixed during the tenure of the Contract unless specified in the price variation clause. <i>The tender documents are to specify the currency (currencies) in which the tenders are to be priced. For domestic bidding, regardless of whether the bidder is foreign or Indian, the currency of the bid and payment should be entirely in Indian Rupees. Domestic bidders are to quote and accept their payment only in Indian currency.</i> Any bid expressed in foreign currency shall be rejected unless the bidder is located in a Free Trade Warehousing Zone (FTWZ). If the Bidder is an Indian Entity or the Indian agent of a Foreign Bidder, Prices for the Services rendered within India shall be quoted strictly in Indian Rupee/INR. If the services are rendered outside India, the same portion alone may be quoted in the respective Foreign Currency.
38	GST/or Other Duties/Levies wherever leviable and intended to be claimed should be distinctly shown separately in the Tender.
39	For the Procurement/providing of Services, the Tenderer[s] are requested to quote the correct percentage of GST.
40	If the Taxes/Duties/Statutory levies are increased/decreased by Government of India/State Government/Local Authorities during the period of Contract, corresponding changes will be applicable to the Prices mentioned in the Contract, only for the supplies made within the original delivery period as well as the extended delivery period which is attributable to the Buyer. In case, new Taxes/Duties/Statutory levies are introduced by Government of India/State Government/Local Authorities, the same shall be borne by the Buyer and paid Extra, only for the supplies made within the original delivery period as well as the extended delivery period if the reasons for such extensions are not attributable to the Seller.
41	All documents solicited from Tenderer[s] should be submitted.
42	In case of Two Part Public/Open Tender, the exact date and time of opening of Price Bid of successful Tenderers will be intimated later.

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43	The Tenderers are advised to submit the Bids at least two days prior to the prescribed closing date in order to avoid any last minute problems. In any such cases, requests for extension of the due date will not be considered.
44	Once the offer is submitted by the Tenderer, he/she will not be able to provide/submit a revised offer or make any alteration or change to the offer or any of terms contained therein beyond the bid submission date. No requests for change/modification will be entertained.
45	The Part 1 [Technical Bid and Commercial Bid] opening date and time indicated is tentative. There may be changes/delay due to Network/ Computer Server related problems and the tender opening may get delayed by one or two days under such circumstances, the exact date and time of opening will be intimated later in case of Public or Open Tender.
46	All the Tenderers should regularly browse/check the e mail/s being sent to them for initiating appropriate action or for any updates on the Tender.
47	The Tenderer should submit along with his tender the Name of his Bankers, Account Number etc., mandatorily to U R Rao Satellite Centre [URSC].
E	Price Bid Evaluation Criteria
48	The Price bid will be evaluated by Buyer on the basis of lowest quote on FOR, URSC basis. In case of Tenders involving multiple line items, the line-item-wise lowest cost will be considered for ascertaining the L1 bidder, unless otherwise specified under special conditions.
49	The Buyer reserves the right to consider and allow minor deviations (to the extent permitted under DOS Purchase Manual/MoF Procurement Guidelines) during the Techno Commercial evaluation of bids without compromising its rights in the capacity of Buyer & without relaxing the obligations of Seller in the capacity of Seller. Minor deviations in this context refer to those deviations, reservations or omissions which do not affect the scope, quality or performance of the goods and services specified in the Tender. While doing so, Buyer shall ensure that the competitive position of the Seller is not unfairly affected. In order to bring parity into the Price bids, Buyer may suitably load the appropriate Taxes, Freight, Packing expenses, Interest on Advances etc. wherever applicable during Bid evaluation. The percentage of such expenses to be loaded will be governed by DOS Purchase Manual/Gol instructions in this regard.
50	It may be noted that furnishing supporting documents alone without quoting all the information which is requested in the tender in the prescribed format/annexure will be treated as incomplete offer and may lead to rejection of the bid at the option of Buyer.
51	Government of India Orders, Circulars and Guidelines: All relevant Orders, guidelines issued by Government of India from time to time shall be applicable for this tender. The relative hierarchy of Rules/documents is mentioned towards the end of the document.
52	Transparency: Tenderers are free to ask Buyer for clarifications on the Bidding/tender terms and conditions, process, etc., during the procurement process. All such queries and clarifications shall be sought for in writing /via e mail and sent to the Buyer to enable clarifications. No verbal request for information/clarification will be entertained/binding.

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53	Prices: Tenders offering Firm & Fixed Prices will be considered. The Seller shall be bound to carry out and complete the stipulated work irrespective of the variation in individual items as specified hereinabove. The Tenderer shall quote prices separately furnishing break up of prices towards Basic Cost of Items, testing, reports, inspection, packing, forwarding, freight, material handling, insurance, installation, training if any, and GST, wherever specifically needed.
54	Price Variation for Long Term Contracts: If it is specified in the Special Terms & Conditions that the price variation is applicable, the illustrative formula for Price Variation Clause [PVC] specified in General Financial Rules (GFR), 2017 (viz. Rule 225 (viii) (b) & Appendix 11) shall apply. The said formula for Price Variation is worked out as under: The formula for Price Variation includes a fixed element, a material element and a labour element. The figures representing the material element and the labour element should reflect the corresponding proportion of input costs, while the fixed element will not be subject to variation. The portions of the price represented by the material element and labour element alone will attract Price variation. The formula for Price variation will thus be: $P1 \text{ equal to } P0 \times [F \text{ plus } a (M1 / M0) \text{ plus } b (L1 / L0)] - P0$ Here, P1 is the adjustment amount payable to the Seller (a minus figure will indicate a reduction in the Contract Price). P0 is the Contract Price at the base level. F is the Fixed element not subject to Price variation. a is the assigned percentage to the material element in the Contract price. b is the assigned percentage to the labour element in the Contract Price. L0 and L1 are the wage indices at the base month and year and at the month and year of calculation respectively. M0 and M1 are the material indices at the base month and year and at the month and year of calculation respectively. If more than one major item of material is involved, the material element can be broken up into two or three components such as Mx, My & Mz. Where price variation clause has to be provided for services (with insignificant inputs of materials), the price variation formula should have only two elements viz. a fixed element and a labour element.
55	Goods and Service Tax: Government of India has implemented Goods and Services Tax [GST] w.e.f. 01.07.2017. The Tenderer[s] should possess a valid GSTIN along with the GST Registration Certificate wherever applicable. Please submit certificate of GST Registration along with offer[s].
56	6.2 HSN Code and applicable rate of GST: U R Rao Satellite Centre [URSC], Bengaluru is eligible for Concessional GST under the following notifications: 6.2 (a) CGST and SGST : Government of India, Ministry of Finance (Department of Revenue) vide its Notification No. 6/2018 Central Tax(Rate), dated the 25th January, 2018 (SI No.243A), read with Notification No.24/2018 Central Tax (Rate) dated the 31st December, 2018 (SI No.243B) and Notification

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	No.9/2025 Central Tax (Rate) dated 17.09.2025, have inserted the Serial Number 462 under Chapter 88 or Any other chapter wherein it is specified that the CGST @ the rate of 2.5% and SGST @2.5% shall be applicable for Scientific and technical instruments, apparatus, equipment, accessories, parts, components, spares, tools, mock ups and modules, raw material and consumables required for launch vehicles and satellites and payloads. {Note 1: The corresponding latest notification issued by Finance Secretariat, Government of Karnataka is applicable to this tender. Notification No. [6/2018] No. FD 48 CSL 2017, Bengaluru Dated 25.01.2018, as amended as Notification No.[24/2018] No. FD 48 CSL 2017, Bengaluru Dated 31st December 2018.} 6.2 (b) IGST Government of India, Ministry of Finance (Department of Revenue) vide its Notification No. 7/2018 Integrated Tax (Rate),dated the 25th January, 2018, read with Notification No.25/2018 Integrated Tax (Rate) dated the 31st December, 2018 and Notification No.9/2025 Central Tax (Rate) dated 17.09.2025 have inserted the serial number 462 under Chapter 88 or Any other chapter wherein it is specified that the IGST @ the rate of 5% shall be applicable for Scientific and technical instruments, apparatus, equipment, accessories, parts, components, spares, tools, mock ups and modules, raw material and consumables required for launch vehicles and satellites and payloads. {Note 2: In case of Services, which do not form part of composite supply, the applicable GST rate shall be 18% or as amended from time to time.)
57	The declaration as to whether the proposed procurement is for Satellite or for its payload will be mentioned specifically in the Notice inviting Tender/Purchase Order to facilitate bidding/invoicing. A certificate in this regard will be issued to the Successful Tenderer for availing concessional GST. On all other procurements, applicable GST will be paid. Tenderers shall mention applicable GST rate along with the HSN code in their commercial Terms.
58	Customs Duty: U R Rao Satellite Centre [URSC], Bengaluru is eligible for “Nil” Customs Duty vide Notification No.45/2025 dated 24/10/2025 Sl. No. 340 and as amended vide Custom Notification No.02/2026 dated 01.02.2026. However, IGST @5% shall be applicable on the Import Value or as amended from time to time.
59	The necessary Customs Duty Exemption Certificate (CDEC) shall be provided by URSC only to those bidders who claim Purchase Preference under Make in India Policy and they shall fulfill all requirements of tender document applicable for Indigenous Manufacturer i.e., Class I/Class 2 local supplier. Such Class I/Class 2 local suppliers are requested to take note of this aspect and submit their Offer clearly mentioning the quoted price arrived by considering the Nil Custom duty as per above Notification. While requesting for issue of CDEC for the imported contents, the tenderer[s] should mention the item description, quantity and value for which CDEC is to be provided for the bought out imported items. The necessary documentary proofs like P.O., on their Supplier, Invoice, AWB shall be produced while requesting for issue of CDEC from URSC. However, CDEC will be issued only to those successful Class-1/Class-2 local suppliers, not exceeding the limit of foreign content declared in their quote. Also, a declaration of the Supplier in their letter head that imported items in the Invoice are used for realization of ordered items. Suppliers may note that URSC is not responsible for any incidental charges incurred towards late/non-submission of CDEC.
60	Evaluation of Tenders: Payment Terms (including advance payment, interest on advance payment), Security Deposit, Bank Guarantee towards free issue of materials [FIM], Delivery Term etc., which have a financial implication on ascertaining the L 1 status will be weighed in and suitably considered by URSC so as to arrive at the L 1 position.

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61	The standard Delivery Term shall be FOR URSC/ISITE including unloading charges, if any, unless specified in the Special Terms and conditions.
62	Clarification regarding contents of the Bids: During evaluation and comparison of bids, the Buyer may, at its discretion, ask the Tenderer for clarification of his bid, including costing details, if required. The request for clarification will be given in writing/e mail and no revision in prices will be sought, offered or permitted. The response time for providing the clarifications shall be 48 Hours (2 working days), failing which the bid will be treated as non responsive.
63	All responsive bids shall be evaluated with a view to select the lowest (L1) Tenderer who meets the qualification criteria, techno commercial aspects and shall be compared on a common platform on the basis of total evaluated cost of each offer; which will be arrived at by adding the basic price as well as other charges, and all statutory levies/taxes/duties. Maintenance charges shall be taken into account if such charges form part of the tender for facilitating cost comparison. The financial implication shall be considered as the all inclusive cost to the Buyer. Evaluation of the bids shall be done on the basis of landed cost to the Buyer.
64	Buyer discourages advance payment terms in general. The Standard Payment Term preferred is Payment within 30 Days of Receipt & Acceptance of the Item at URSC Stores. Advance payment where applicable, will be for a maximum of 30% of Basic value (excluding taxes) for private firms/entities secured by equivalent Bank Guarantee. For the Government / Public Sector Enterprises, a maximum of 40% of Basic value will be advanced upon furnishing an Indemnity Bond in lieu of Bank Guarantee. In case of bids expressing advance payment/ Milestone Payments, for the purpose of evaluation, interest shall be loaded on the amount so paid as advance/upfront for the delivery period quoted. Towards this, the interest rate prescribed by Ministry of Finance (MoF) on General Provident Fund (GPF) prevailing on the date of price bid opening plus additional interest of 2%; compounded on a quarterly basis will be used. Any outstanding advance from the Seller, whether interest free or interest bearing, at the time of termination of the Contract for reasons attributable to the Seller will be deemed as an interest bearing advance. The interest recoverable by Buyer on such advances will be the interest rate prescribed by MoF on General Provident Fund (GPF) prevailing on the date of release of the advance payment plus additional interest of 2%; compounded on a quarterly basis; besides other remedies available for breach of the contract. Also, price variation clause, if applicable, shall not be applied on the amounts advanced to the Seller.
65	If a Tenderer quotes NIL charges/consideration in case of Service contracts, the bid shall be treated as non-responsive and will not be considered.
66	Evaluation of the bids shall not be done on the basis of conditional discounts. Hence, discounts, if any, shall be expressed unambiguously.
67	Buyer reserves the right to give preference for procurement of goods in terms of product reservation and preferential / mandatory purchase policy as notified by Government of India from time to time. Tenderers claiming any preference shall submit relevant and valid registration certificate along with the tender. No certificate claiming any concession shall be considered after Tender due date.
68	Buyer reserves the right to accept or reject any quotation in full or part thereof by recording the relevant reasons. The Buyer shall be under no obligation to accept the lowest or any tender and reserves the right to accept whole or any part of the tender or part of the quantity offered and the Tenderers shall supply the same at the rates quoted.

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69	Buyer also reserves the right to reject any offer in the event of non-compliance to tender terms and conditions.
70	Tenderers are advised to refrain from contacting by any means, either URSC and/or their employees/representatives on matters related to the tender which are under consideration. Adherence to this Clause is compulsory or otherwise the Tender of such Tenderer will be rejected.
F	Post PO Management, Legal Aspects, Rights & Obligations etc.
71	Payment Terms: All payments are subject to permissible legal deductions from the contract price as per the Contract. All payments shall be released only after successful and satisfactory completion of quantum and type of work, specified for respective activity. All payments shall be directly made by the Buyer to the Seller.
72	All interim payments made shall be regarded as payments by way of advance against the final payment only, and not as payment for work actually completed and shall not preclude defective/imperfect/incomplete work to be removed. It will not be considered as an admission on the part of the Buyer of the due performance of Contract or any part thereof nor shall it preclude, determine or affect in any way the powers of the Buyer to determine the quality and quantity of work and issue such directions, as may be necessary to the Seller.
73	Terms of Payment: The Seller[s] Bill will be processed for payment only after the Stores have been received, inspected and accepted by the Buyer. Normally payment will be made for the accepted Stores within 30 days from the date of Receipt and Acceptance of the Material at U R Rao Satellite Centre [URSC].
74	For any Services, payment will be made after satisfactory completion of the services and certification to that effect from the Buyer.
75	Bank Guarantee for Security Deposit cum Performance Security [PS]: For every contract exceeding a landed cost of Rs.5 Lakh (or as amended by the Buyer from time to time), within 20 days from the date of issue of the Purchase Order or within such extended time as may be granted by the Buyer in writing, the Seller shall execute an irrevocable interest free Security Deposit cum Performance Security for 3% of the Contract value to ensure due Performance of the Contract including the fulfilment of the Warranty obligation. The proceeds of the performance security shall be payable to the Buyer as compensation for any loss resulting from the Seller's failure to complete his obligations under the contract. The Buyer shall discharge the performance security bond after completion of Seller's performance obligations including the warranty and post warranty obligations under the contract. In case any increased percentage of performance security is mentioned in special terms and conditions, the same will prevail over general terms and conditions.
76	The Security Deposit cum Performance Security may either be furnished in the form of electronic bank guarantee (e BG) through National e Governance Services Limited (NeSL). Securities can also be furnished by way of Insurance Surety Bond, Account Payee Demand Draft, Fixed Deposit Receipt from a Nationalized or Scheduled Bank, Bank Guarantee from a Nationalized or Scheduled Bank or Online Payment in favour of Accounts Officer, U R Rao Satellite Centre [URSC], Bengaluru. The Security Deposit cum Performance Security must be valid till its contractual obligation plus an additional period of 60 days beyond the date of completion of all contractual obligations.
77	In the event the work is not completed within the stipulated period for any reasons, the Seller shall get the SD cum Performance Security extended for the delayed/amended period.
78	The Bank Guarantee shall be executed on a Non Judicial Stamp Paper of appropriate value as per the Stamp Act prevailing in the States where the BG is to be submitted (Karnataka) or is to be acted upon or the rate prevailing in the State where the BG is executed, whichever is higher. The Stamp paper shall be purchased in the name of guarantee issuing bank or the party on whose behalf BG is being issued. As the Stamp Duty on BG for different States changes from time to time, the Sellers are advised to cross verify the applicable stamp duty at the time

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	of creation of BG/Bid submission who shall be solely responsible for any deficit in stamp duty. In case of e BGs, e Stamping will apply.
79	The SD cum Performance Security will not carry any interest and shall be returned after completion of all the obligations of the Contract with due certifications. A specimen of NO CLAIM CERTIFICATE to be issued by Seller is as under: No Claim Certificate [on Company Letterhead] Sub: Contract Agreement No. _____ dated _____ for supply of _____ We have received the sum of Rs. _____ [Rupees _____ Only] in full and final settlement of all the payments due to us for providing the services of _____ under the above mentioned contract agreement, between us and Government of India. We hereby unconditionally and without any reservation whatsoever, certify that with this payment, we shall have no claim whatsoever, on any account, against procuring entity, against aforesaid contract agreement executed by us. We further declare unequivocally, that with this payment, we have received all the amounts payable to us, and have no dispute of any description whatsoever, regarding the amounts worked out as payable to us and received by us, and that we shall continue to be bound the terms and conditions of the contract agreement, as regards performance of the contract. Yours faithfully, Signatures of Seller or Officer authorized to sign the contract documents on behalf of the contactor [Company stamp]
80	Adherence to SD cum Performance Security clause is compulsory or otherwise, the Tender will be rejected.
81	In the event the Seller fails to furnish the SD cum Performance Security within 20 Days as stipulated herein above (i.e., after the receipt of Purchase Order or on signing of the Contract or any extended period thereof), the Purchase Order/ Contract shall be cancelled and terminated at the Seller's risk, cost and liability at the option of Buyer. Appropriate penal and legal action shall also be initiated.
82	Central Public Sector Undertakings [PSUs]/Public Sector Enterprises [PSEs]/Autonomous Bodies are exempted from payment of SD cum Performance Security, and instead, an Indemnity Bond shall be executed by them in lieu of SD cum Performance Security.
83	Bank Guarantee towards Free Issue Materials (FIM): a. The successful Tenderers shall furnish Bank Guarantee (BG) towards the cost of Free Issue Materials issued by Buyer (if any) towards adequate Security for the FIM for the execution of the Contract and the said Tenderer will be duly authorized by BUYER to collect the free issue materials from URSC's site subject to the furnishing of the aforesaid Bank Guarantee. The BG is to be kept valid till supply and acceptance of the final product. Adherence to this Clause is compulsory or otherwise the Tender will be rejected at the option of the Buyer. b. In the case of Public Sector Undertaking, Public Sector Enterprises and Government Organization, Indemnity Bond [IB] shall be considered in place of BG. c. For fabrication orders wherever FIM is issued by URSC, the Seller shall quote the rates considering that the transportation responsibility for FIM Issue from URSC premises to vendor premises & return of left over FIM/Scrap Materials generated pursuant to fabrication from vendor premises to URSC premises are part of the scope of Seller.

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	Whenever FIM is issued to the Seller, a Certificate will be issued by the URSC Stores Division being the consigned stating that FIM shall be the property of URSC and the transaction shall not tantamount to Sale for any purpose including taxation. Scrap generated out of the FIM & any unfinished stock of FIM shall be the property of URSC. The same shall be duly returned to URSC Stores Division upon completion of fabrication along with the material consumption statement. The maximum percentage of wastage of FIM will be as per the standards prescribed by User Division, URSC.
84	In lieu of e BG issued through National e Governance Services Limited (NeSL), the conventional Bank guarantee issued by the Issuing Bank on behalf of Seller in favour of U R RAO SATELLITE CENTRE are also accepted in exceptional cases. Such BGs shall be in paper form as well as issued under Structured Financial Messaging System. The details of beneficiary for issue of BG under SFMS platform is furnished below: Name of the Beneficiary: U R RAO SATELLITE CENTRE Beneficiary Bank Name: STATE BANK OF INDIA Beneficiary Branch IFSC: SBIN0009048 Beneficiary Branch Name: ISRO VIMANAPURA BRANCH Bank Address: STATE BANK OF INDIA, ISRO VIMANAPURA BRANCH, URSC CAMPUS, HAL AIRPORT ROAD, BENGALURU 560017. The above particulars are to be incorporated by the issuing bank properly while issuing BG under SFMS mode to avoid any problem in future.
85	Packaging: The Seller will be held responsible for the stores being sufficiently and properly packed for transport by rail, road, sea or air to withstand transit hazards and ensure safe arrival at the destination. The packing and marking of packages shall be done by and at the expense of the Seller. The Buyer will not pay separately for transit insurance, all risks in transit being exclusively of the Seller and the Buyer shall pay only for such stores as are actually received in good condition in accordance with the Contract.
86	High Sea Sale: Bidders submitting offer[s] against High Sea Sale Trade basis shall not be considered and such bids shall be out rightly rejected.
87	The date of delivery of the stores stipulated in the Purchase Order/Contract shall be deemed to be the essence of the Purchase Order/Contract and delivery must be completed on or before the specified dates (original/extended). Request for extension of time by the seller will be dealt by the Buyer in accordance with provisions of DOS Purchase Manual, with/without invoking Liquidated Damages depending on the merit of the case. In case of failure, Buyer reserves the right to terminate/cancel the Order/Contract at his discretion.
88	Where erection or assembly or commissioning is a part of the Contract, it should be done immediately on notification. The Seller shall be responsible for any loss/damage sustained due to the delay in fulfilling this responsibility.
89	For items having shelf life, those with maximum shelf life should be supplied if order is placed.

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90	Name & Address of Consignee: Purchase & Stores Officer (Stores), Stores Division, UR Rao Satellite Centre, E mail @ pso_stores_a@urisc.gov.in (a) U R Rao Satellite Centre, P.B.No.1795, HAL Airport Road, Vimanapura Post, Bengaluru 560 017, India. (b) ISRO Satellite Integration and Test Establishment (ISITE), Outer Ring Road, Marathahalli, Bengaluru 560 037, India.
91	Insurance of the Stores. Unless otherwise specified separately, no separate insurance will be required at Buyer's cost. The Seller shall be responsible for insuring the Stores covering transit loss/damages wherever considered necessary.
92	Inspection and Acceptance Tests: The Buyer's representatives shall be entitled at all reasonable times during the manufacturing phase to inspect, examine and test the material and workmanship of all the Stores to be supplied under this Contract at the Seller's premises. If part of the said Stores is being manufactured at any other premises, the Seller shall obtain all the necessary permission from the owners of such premises and facilitate the Buyer's representative to inspect, examine and test. The inspection and acceptance tests conducted by the Buyer does not absolve the Seller from his/her obligations under this Contract.
93	For tests conducted at the premises of the Seller or any of his sub-contractors, the Seller shall provide assistance, labour, materials, electricity, water, fuel and instruments as may be required or as may be reasonably needed without any extra cost, by the Buyer's representative to carry out the tests efficiently.
94	When the Stores have passed the specified test, the Buyer's representative shall furnish a certificate to this effect in writing to the Seller. The Seller shall provide copies of Test Certificate to the Buyer as may be required.
95	Inspection/Tests & Certificate thereof should be provided for the goods after testing it thoroughly at the Seller's works. If any inspection by Third Party Agency is considered necessary, it shall be arranged by the Seller on the instructions of the Buyer.
96	Pre Delivery Inspection: Pre Delivery Inspection if required, shall be carried out by Buyer at the Seller's Factory Premises at buyer s cost. The Seller need not extend any Travel/Accommodation to Buyer s representatives.
97	Acceptance of Stores: The Stores shall be tendered by the Seller for Inspection at such places as may be specified by the Buyer at the Seller's own risk, expenses and cost.
98	It is expressly agreed that the acceptance of the Stores contracted, is subject to final approval by the Buyer, whose decision shall be final.
99	If, in the opinion of the Buyer, all or any of the Stores that do not meet the performance or quality requirements specified in the Buyer Order, they will be rejected and the decision as to the rejection by the Buyer shall be final and binding on the Seller.

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100	Instruction/Operation Manual containing all assembly details including wiring diagrams should be sent wherever necessary in duplicate. All documents/ correspondence should be in English language only.
101	Seller[s] Default Liability: The Buyer upon a written notice of default to the Seller, shall be entitled to terminate the Contract by giving 30 days prior notice, in whole or in part, at the sole risk and cost of the Seller, in circumstances detailed here under: a. If in the judgment of the Buyer, the Seller fails to make delivery of Stores within time specified in the Contract/Agreement or within the period for which extension has been granted by the Buyer to Seller. b. If in the judgment of the Buyer, the Seller fails to comply with any of the other provisions of this Contract.
102	In the event of Buyer terminating the Contract in whole or in part thereof, as provided hereinabove, the Buyer reserves the right to purchase, upon such terms and in a manner as he may deem appropriate, stores similar to that terminated and the Seller shall be liable to make good any additional cost for such similar Stores to the Buyer, and/or for Liquidated Damages for delays until such reasonable time as may be required for the final supply of Stores. This will be governed by the Risk Purchase Clause forming part of the Tender.
103	If Contract is terminated as per Seller's Default Liability Clause, then the Buyer in addition to any other rights provided in this Article, may require the Seller to transfer title and deliver any completed Stores to the Buyer mentioned hereunder in the manner and as directed by the Buyer. The Buyer shall pay to the Seller, the Contract price for completed Stores delivered to and accepted by the Buyer and for manufacturing materials delivered and accepted.
104	In the event, the Buyer does not exercise its right to terminate the Contract as provided in Seller's Default Liability Clause, the Seller shall continue the performance of the Contract, in which case he shall be liable to the Buyer for Liquidated Damages for delay as set out in the appropriate Liquidated Damages Clause until the Stores are accepted.
105	Replacement. If the Stores or any portion thereof, is damaged or lost during the transit, the Buyer shall give notice to the Seller setting forth particulars of such Stores damaged or lost during transit. The replacement of such Stores shall be effected by the Seller within a period of three months to avoid unnecessary delay in the intended usage of the Stores.
106	Rejection. If the Stores supplied by the Seller are found to be defective in material or workmanship or otherwise not in conformity with the requirements of the Contract specification, the Buyer shall either reject the Stores or request the Seller in writing to repair, rectify, replace the same. The Seller, on receipt of such notification shall either rectify or replace the defective Stores free of cost to the Buyer. If the Seller fails to do so, the Buyer may either: a. Repair, Replace or rectify such defective Stores and recover extra cost so involved from the Seller; or b. Terminate the Contract for default as provided under Seller's Default Liability Clause. The right to terminate and the right to replace the Stores shall not be derogatory to one another and shall mutually complement one another. In other words, the Buyer shall be entitled to take either decision, or both. In case the price of the rejected item has already been paid by the Buyer to the Seller, then the Seller shall repay the price so received on immediate basis. In case the Seller is arranging repair/refurbishment of the item at his/her expense, an e Bank Guarantee for the equivalent value shall be furnished to the Buyer as a Security valid until the receipt and acceptance of replacement item at URSC Stores. If the Buyer so agrees, as a stop gap arrangement to sustain the operations, an equivalent equipment/stores may be accepted in lieu of the contracted item until the final replacement/repaired equipment/stores is delivered by the Seller to the Buyer.

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107	Force Majeure (FM) means extraordinary events or circumstances beyond human control, such as an event described as an act of God (like a natural calamity) or events such as a war, strike, acts of the public enemy, epidemics, sabotage, fires, floods, explosion, quarantine restrictions, riots, crimes (but not including negligence or wrong doing, predictable/seasonal rain and any other events which are specifically excluded in the Clause). An FM clause in the contract frees both the parties from contractual liabilities and obligations when prevented by such events from fulfilling their respective obligations under the contract. An FM clause does not entirely excuse a party's non-performance but only suspends it for the duration of the FM. The party whose performance is affected by an FM event must notify the other party about the occurrence of the FM within 10 days from the date of occurrence of FM thereof. If the performance in whole or in part or any obligation under this contract is prevented or delayed by any reason of FM for a period exceeding 90 (ninety) days, either party may, at its option, seek to terminate the contract without any financial repercussion on either side. A prior written notice of minimum 30 days to the other party shall be given informing of the intention to terminate the contract without any liability so that the other party can do the needful to ensure continuity of services. Notwithstanding the punitive provisions contained in the contract for delay or breach of contract, the Seller would not be liable for imposition of any such punitive provisions so long as the delay and/or failure of the Seller in fulfilling its obligations under the contract is the result of an event covered in the FM clause. However, if the performance of either party was already delayed on the date of commencement of FM, then such delay which has already caused may not be condoned by invoking FM Clause.
108	Delay in Completion/Liquidated Damages: The time and date stipulated in the contract for completion of the work shall be deemed to be the essence of the contract. If the Seller fails to deliver the Stores within the time specified in the Contract or any extension thereof or if the Seller fails to maintain the required progress or comply with the relevant provisions of the general conditions of contract or special conditions of contract, if any, the Buyer shall, without prejudice to any other right or remedy available under the law to Buyer on account of such breach, recover from the Seller as Liquidated Damages a sum one half of one percent [0.5 percent] of the Contract value of the undelivered Stores for each calendar week of delay or part thereof. The maximum deduction, in any case including the above, shall be regulated as under: (i) Normal Delays (Sum total of Days delayed is up to & including 25% of the Contract Period) 5% of the total Contract Value including Taxes & Duties; (ii) Inordinate Delays (Sum total of Days delayed is more than 25% of the Contract Period) 10% of the total Contract Value including Taxes & Duties. The expression Part thereof means that any delays ranging between 17 days will be considered as a full week and LD will be calculated accordingly. Adherence and acceptance to this Clause is Compulsory or otherwise the Tender will be rejected.
109	In case of delay in delivery of the Stores beyond the delivery date stipulated in the Purchase Order/Contract or any extension thereof, such Stores shall be received without prejudice to the right of the Buyer to claim Liquidated Damages and without prejudice to any other terms and conditions of the Purchase Order/Contract. In such cases, the seller shall make an express request by letter or e mail to Buyer requesting for time extension. Such requests for time extension would be considered by Buyer based on the merit of circumstances leading to the time extension proposal and it shall be within the right of Buyer to either Accept/Reject such requests for Time extensions. Such requests, if accepted, may be with or without invoking the LD Clauses specified in the PO; for which the decision of Buyer shall be final. Purchase Order amendments (provisional / final) will be issued in this regard.

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110	Erection of Plant, Machinery and Installation of Software: Wherever Erection of Plant or Machinery and Installation of Software is the responsibility of the Seller as per the terms of the Contract and in case the Seller fails to carry out the Erection and Installation of the Software as and when called upon to do so within the period specified by the Buyer, the Buyer shall have the right to get the Erection and Installation of the Software etc., done through any source/agency of his choice. In such an event, the Seller shall be liable to bear any additional expenditure that the Buyer is liable to incur towards erection. The Seller, shall, however, not be entitled to any gain/payment due to such an action by the Buyer.
111	If any work is found to be executed with unsound, imperfect or unskillful workmanship or with materials of any inferior quality or description, or that any materials or articles procured by the Seller for the execution of the work are of unsound quality or of a quality inferior to that contracted for or otherwise not in accordance with the contract, the Buyer shall demand in writing within 03 Months of the completion of the work from the Seller forthwith to rectify, or remove and reconstruct the work so specified in whole or in part as the case may require removal of the materials or articles so specified and provide other proper and suitable materials or articles at its own cost. This shall apply notwithstanding that the defective workmanship / stores have been passed, certified and paid for. In the event Seller fails to rectify or remove and re execute the work or remove and replace the material or articles complained of, as the case may be, it shall be at the risk and expense of the Seller, including the right to refund the payment received or the cost of rectification.
112	Standard Warranty/Guarantee: All products/stores supplied against the bid shall be of high reliability and shall carry comprehensive free of cost warranty. The Seller shall guarantee and certify that the Stores supplied shall comply fully with the specifications laid down, for material, workmanship and performance. The Buyer expects the stores to be highly reliable which would result in lower maintenance and repair cost. The Seller shall indicate the cost of extended warranty that is applicable, if any.
113	Guarantee for the period as indicated in the tender documents shall start after acceptance of the Stores. If any defects are discovered therein or any defects are found to have developed despite proper use arising from faulty materials, design or workmanship, seller shall remedy such defects at his own cost provided he is called upon to do so by the Buyer within a period of 12 months from the date of Acceptance thereof. The Buyer in such case shall state in writing as to what respect the Stores or any part thereof are faulty.
114	If in the opinion of the Buyer, it becomes necessary to repair, replace or renew any defective Stores, such repair, replacement or renewal shall be made by the Seller free of all cost to the Buyer provided the notice to the seller informing of the defect is given by the Buyer within the warranty period.
115	If the seller fails to rectify the defects, the Buyer shall have right to reject or repair or replace the whole or any portion of the defective Stores at the cost of the seller. The warranty for such replaced/repared items/stores shall be as per the original warranty from the date of handing over of such replaced/repared stores in complete and satisfactory condition to the Buyer.
116	The decision of the Buyer, notwithstanding any prior approval or acceptance or inspection thereof, as to whether or not the Stores supplied by the Seller are defective or any defect has developed within the said warranty period or as to whether the nature of the defects requires renewal or replacement shall be final, conclusive and binding on the seller.
117	The Warranty/Guarantee certificate shall accompany the shipment and shall be addressed to Purchase & Stores Officer, Stores Division, URSC, Bengaluru.

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118	Termination and short closing of Contract: Under the normal circumstances, termination/ short closing of contract is not foreseen. However, URSC reserves the right to Terminate the Contract in whole or in part by giving 30 Days prior notice in the following circumstances: i. Due to repeated non-performance in the execution of P.O/Contract even after giving a minimum of one notice by URSC. ii. If the Seller fails to deliver/render the services within the stipulated time schedule or any extension thereof, granted by the Buyer. iii. If the Seller is not in a position to either rectify the defects or offer the Stores conforming to the contracted Quality Standards. iv. If the Seller is unable to rectify the defects or offer replacements in lieu of defective items. v. If the Seller fails to perform any other statutory/non statutory obligations under this P.O/Contract. vi. If the Seller becomes bankrupt or otherwise insolvent. vii. Owing to deficiency of service, breach of Contract. viii. Owing to inefficiency, indiscipline, irregularity, insincerity, indifference in work, disobedience, doubtful credentials/integrity, etc., at any point of time during the Contract period. ix. If the Seller fails to Honor the whole or any part of PO/Contract including failure to deliver the Contracted Stores/Render services within the time stipulated in the PO/Contract. x. If the Seller is found to have made any false or fraudulent declaration or statement to obtain the Contract or he is found to be indulging in unethical or unfair trade practices. xi. When both the parties agree mutually. xii. Any special circumstances, which must be recorded to justify the cancellation or termination of PO/Contract. Without assigning any reasons, wherein the Seller will not be entitled to claim any compensation against such termination. However, while terminating the contract, if any payment is due to the Seller for supplies already completed/obligations performed in terms of the contract, such amounts would be paid to the Seller as per the contract terms. Outstanding advance, if any, will be recovered from the Seller along with interest as per the advance payment conditions.
119	URSC/ISRO being the Buyer reserves the right to appropriate any sum/sums owed by the Seller to URSC/ISRO or any other Govt. establishment under any other contracts. Such sum/sums will be appropriated from the payments due by URSC/ISRO to the Seller under this Contract/any other contracts maintained by URSC/ISRO with the same Seller.

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120	Parallel Contract: Buyer reserves the right to enter into Parallel Contract with one or more Sellers simultaneously or at any time during the currency of the Contract. Buyer is also authorized to place ad hoc Contract[s] simultaneously or at any time during the period of Contract with one or more Sellers.
121	Sub-Contracting/Subletting/Assignment of Contract: The Contract shall not be Sublet, Transferred or assigned to any other Firm, Person, Agencies, etc., without the prior written approval of Buyer. In case of violation of this Clause, the Seller/Seller shall be solely responsible for any Legal action besides Termination of the Contract.
122	Secrecy: The technical information, drawings, specifications and other related documents provided by the Buyer and forming part of the Contract are the property of Buyer and shall not be used or disclosed for any other purpose, except for execution of the Contract. All rights, including rights in the event of grant of patent and registration of designs are reserved in favour of the Buyer. The technical information, drawings, specifications, records and other documents provided by the Buyer shall not be copied, transcribed, traced or reproduced in any other form or otherwise in whole and/ or duplicated, modified, divulged and/or disclosed to a third party nor misused in any other form whatsoever without Buyer's consent in writing except to the extent required for the execution of this Contract. These technical information, drawings, specifications and other related documents which were originally provided by the Buyer shall be returned to the Buyer with all approved copies and duplicates, if any, immediately after they have been used for the agreed purpose, and shall be accompanied with a certificate of the Seller signed by an authorized signatory that such technical information, drawings, etc. have been returned to the Buyer and that the Seller has not retained any copy/copies thereof with him.
123	Dispute Resolution Mechanism: (a) Conciliation: Notwithstanding anything contained in this contract, any disputes or differences whatsoever, which are to be settled amicably between the parties, shall be resolved through Conciliation. (b) Mediation: Any disputes or differences, which are not settled amicably through Conciliation, then either of the parties, may approach for mediation to settle under Mediation Act, 2023. The procedure is to be followed as prescribed in the Mediation Act, 2023 as amended from time to time. (c) Arbitration: In the event of any dispute/s, difference/s or claim/s arising out of or relating to the interpretation and application of the Contract, such dispute/s or difference/s or claim/s shall be settled amicably by mutual consultations of the good Offices of the respective Parties and recognizing their mutual interests attempt to reach a solution satisfactory to both the parties. If such a resolution is not possible, within 30 days from the date of receipt of written notice of the existence of such dispute/s, then the unresolved dispute/s or difference/s or claim/s shall be referred to the Sole Arbitrator appointed by the Parties by mutual consent in accordance with the rules and procedures of Arbitration and Conciliation Act 1996 as amended from time to time. The arbitration shall be conducted in Bengaluru in the Arbitration and Conciliation Centre Bengaluru (Domestic) as per its rules and regulations. The expenses for the Arbitration shall be shared equally or as may be determined by the Arbitrator. The considered and written decision of the Arbitrator shall be final and binding between the Parties. The applicable language for Arbitration shall be English only. Work under the Contract shall be continued by the CONTRACTOR during the pendency of arbitration proceedings, without prejudice to a final adjustment in accordance with the decision of the Arbitrator unless otherwise directed in writing by the Department of Space or unless the matter is such that the works cannot be possibly continued until the decision (whether final or interim) of the Arbitrator is obtained.

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	Arbitration will be a method of dispute resolution in contracts where the dispute value is lesser than Rs.10 Crore (Rupees Ten Crore) only.
124	Arbitration with Public Sector Undertakings: In the event of any dispute or difference relating to the interpretation and application of the Contract, such dispute or difference shall be taken up by either party for resolution through AMRCD as mentioned in DPE OM No. 4 (1)/2013 DPE (GM) /FTS 1835 dated 22.05.2018 as amended from time to time.
125	Language and Measures: All documents pertaining to the Contract including specification, schedule notices, correspondences, operating and maintenance instruction, drawings or any other writing shall be written in English language only. The metric system of measurement shall be used exclusively in the Contract. Any document which is originally in a language other than English shall be accompanied with a certified English translation and the same shall be considered for evaluation/dispute redressal.
126	Applicable Law and Jurisdiction: The Contract shall be interpreted, construed and governed by the Laws of India and the Courts in Bengaluru Urban alone shall have exclusive jurisdiction in this regard, to the extent permissible under any of the Acts or the Arbitration and Conciliation Act, 1996 and subsequent amendments, if any. Adherence and acceptance to this Clause is Compulsory or otherwise the Tender will be rejected.
127	Indemnity: The Seller shall warrant and deemed to have warranted that all Stores supplied against this Contract are free and clean of infringement of any third party Patent, Copy Right or Trademark and shall at all times indemnify the Buyer against all claims which may be made in respect of the Stores for infringement of any third party right protected by Patent, Registration of the design or Trade mark and shall take all risk of accidents or damage which may cause a failure of the supply from whatever cause arising and the entire responsibility for the sufficiency of all the means used by him for the fulfillment of the Contract. The seller shall indemnify and keep indemnified the Buyer against payments to be made under and for the observance of the applicable laws without prejudice to his right to claim indemnity from his sub-contractors, if any.
128	Counter Terms & Conditions: Where counter terms and conditions have been offered by the Seller as part of its bid in printed or in any other format, the same shall not be deemed to have been accepted by the Buyer unless a specific written acceptance thereof, is obtained and incorporated into the contract/PO.
129	Security Interests of the Buyer: On each item to be delivered under this Contract, including an item of work in progress in respect of which payment have been made in accordance with the Terms of the Contract, the Buyer shall have a Security Interest in such items which shall be deemed to be released only at the time when the applicable deliverable items is finally accepted and delivered to the Buyer in accordance with the terms of Contract. Such Security Interest of the Buyer shall constitute a prior charge as against any other charge or interest created in respect of such items by any other entity.
130	Training: The seller, if required by the Buyer, shall provide the Practical Training to Buyer's Engineering or Technical Personnel from India for their active association on the manufacturing/operational process throughout the period of the Contract. The number of such personnel to be trained to be mutually agreed upon.
131	Purchase/Price Preference applicable to any local supplier as per the orders of Government of India shall be applicable for this tender. Wherever Purchase/Price Preference is applicable for any Public Sector Undertaking [PSUs], the same will be governed by the extant orders of Department of Space or Ministry/Departments of Government of India as amended from time to time.

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132	Risk Purchase: In the event of failure of the seller to deliver or dispatch the stores within the stipulated date/period of the Purchase order or in the event of breach of any of the terms and conditions mentioned in the purchase order/ contract, the Buyer shall have the right to purchase the stores from elsewhere after giving due notice of minimum 7 days to the defaulting Seller at the risk and cost of the defaulting Seller. In the event of failure of the Seller as detailed in the notice mentioned above, the cost thereof may be recovered from the Security Deposit/ Performance Security of the Seller and/or bills submitted by the Seller against the same contract or any other contract by exercising the provisions of risk purchase prescribed by DOS/MoF. GST & incidentals will be charged/levied on the cost as per Risk Purchase provisions. If the whole or any parts of the Stores supplied are rejected, the Buyer shall be at liberty, with or without notice to the Seller to purchase the same in the open market. The extra cost on such purchases/agreement to Purchase, shall be at the expense of the Seller.
133	Risk purchase action may be initiated under any of the following conditions: a. When the Seller fails to deliver the materials even after extending the delivery period. b. When the Seller fails to respond to Buyer's request for supply of the materials and fails to provide any genuine and bona fide reason for the delay in supply. c. When the Seller breaches any of the terms and conditions of the supply order/contract and as a result fails to execute the order satisfactorily.
134	Fall Clause: The Price[s] charged for the Stores/Services supplied under the Contract by the Seller shall in no event exceed the lowest price at which the Seller sells the Stores/Services or offer to sell the Stores/Services of identical description to any Person[s], Firm, Party, Organization[s] including the Buyer or any Department of Central Government or any Department of State Government or any statutory undertaking of the Central/State Government during the original/extended contract period till the performance of all supply orders placed during the currency of the Contract is completed. If the Seller reduces its prices for contracted items or renders similar services to other Buyers/Organizations during the validity of the Purchase Order at a rate lower than the contracted rate, then the Prices agreed in the PO shall stand automatically reduced to the extent of such lower rate.
135	Denial Clause: Wherever delay in rendering of service is attributable to the Seller, the extra expenditure, if any, incurred during such extended period towards increase in statutory dues including taxes/duties or any other cost element shall be borne by the Seller and the benefits of any reduction in cost towards these elements shall be passed on to the Buyer.
136	Quantity Tolerance: Wherever minor shortfall/ excess deliveries in the last/ final consignment becomes unavoidable due to the manufacturing and supply chain vagaries, the Buyer, at its option, would be authorized to treat the Contract as completed in consultation with the User Division, provided the deliveries are short/excess up to 5 per cent of the total value of the Contract or Rs. 5 Lakhs, whichever is less without a separate order amendment. This provision shall not be applicable for indivisible items or machinery and plant or cases wherein short/excess supply exceeds the ceilings prescribed above wherein an Order Amendment from the Buyer will be necessary.

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137	Variation of Quantities before the Award of Purchase Order: The Buyer reserves the right to re assess the quantity requirements during the course of Bid evaluation duly taking into account the current programmatic needs and increase the tendered quantity by up to 25% at any time before the award of Purchase Order.
138	Option Clause: The Buyer is entitled to increase/decrease the quantity of goods/services or both agreed in the Purchase Order by up to 25% at any point of time, till the scheduled/extended delivery date of contract by giving a notice of 14 days even though the ordered quantity of goods/service have been supplied/rendered in full before the last date prescribed for such delivery/service.
139	Limitation of Liability: The remedies stated in the Contract are exclusive and in no event shall the Seller be liable for any, special, incidental, consequential or punitive damages of any nature. Notwithstanding, any other provision of the contract, the Seller's total liability to the Buyer, whether in Contract shall not exceed the total amount which is paid to the Seller under the Contract.
140	The Buyer shall be under no obligations to accept the lowest or any of the tenders and reserves the right of acceptance of the whole or any part of the tender or portion of the quantity offered by the bidders and the Tenderer[s] shall supply the same at the rates quoted.
141	The Buyer shall not be liable to the Seller for any loss or damages suffered by it during the term of the Contract or subsequently, and in no event shall the Seller be liable for any, special, incidental, consequential or punitive damages of any nature. Notwithstanding any other provision of the Contract, the Contract having been satisfactorily completed, the Buyer's total liability to the Seller, shall not exceed the total amount to be paid to the Seller under the Contract.
142	Buy Back Offer. Wherever it is considered necessary, the Quotation shall be given separately with Buy Back Offer and also without Buy Back Offer so as to enable Buyer either to Trade or not to Trade the item while purchasing the new one.
143	Rejection of Bids: Canvassing by the Tenderer in any form, unsolicited letter and post tender correction may invoke summary rejection of Bids. Conditional Tenders will be rejected. The Tenderer shall not impose any conditions on the bid i.e., the bid must be unconditional.
144	Conditional Discount/Offers: Conditional Discounts Offers will not be considered.
145	Splitting of Order[s]: If the Volume/Quantity for certain specialized nature of jobs is considerably large and it is necessary that the orders are split with more than one party in order to ensure timely delivery/services, the Buyer reserves the right to split the Purchase Orders to more than one party at pre-defined proportion. However, every effort will be made to bring the Commercial aspects including the price offered by the parties to a common platform. This is aimed at providing equal opportunity for the parties while taking the decision.
146	In the event of Change in Name and Address of Seller, documentary proof issued by the appropriate authorities (viz., Certificate of Incorporation, Partnership deed, PAN, GST etc.) shall be produced for incorporating such changes in the Contract through an amendment.
147	Tenderers are requested to quote prices separately towards Annual Comprehensive Maintenance Service/Extended Warranty and Non-Comprehensive Maintenance besides rates for attending to unlimited Break Down calls wherever the tendered specification calls for services after the expiry of Standard Warranty.

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148	The prices of Stores comprise of Standard Warranty. For the warranty extended pursuant to the expiry of Standard Warranty, payments shall be released on half yearly basis after successful completion of service (or monthly/quarterly/yearly basis as is specified in the bid specification).
149	The payment towards Annual Maintenance Contract shall be released on half yearly basis after successful completion of service (or monthly/quarterly/yearly basis as is specified in the bid specification). Applicable Security Deposit will be 3% of the total value of Annual Maintenance Contract.
150	In case of Non-Comprehensive AMC, Tenderers shall provide essential spare list with its price. In case of TWO PART Tender, the same shall be provided along with the PRICE BID without revealing the prices in any other documents. Disclosure of Price; either partial or full, in the Techno commercial bid would amount to rejection of bids.
151	Government Policies & Guidelines for promoting specific categories of Sellers: The Seller, who falls under Start-ups, shall be relaxed from the criteria of prior turnover and prior experience subject to meeting of quality and other technical specification as per OM No. F.20/2/2014 PPD(pt.) dated 20th September, 2016 or as amended thereafter.
152	Public Procurement [Preference to Make in India] : This tender is open for all class of Sellers as is defined in Department for Promotion of Industry and Internal Trade (DPIIT), MoF order on Make in India (MII) initiative dated 16/09/2020 or as amended thereafter. Purchase preference as per the extant guidelines will be applicable for Class I local Sellers. Class II local supplier & Non local Supplier will not get purchase preference in any procurement, undertaken by procuring entities. Bidders shall indicate the extent of Minimum Local Content in offered product/service and location of such value additions. The Class I & II local supplier should also provide a Self-Certification along with your offer in PDF format indicating that the item offered meets the minimum local content as called for in the tender as mentioned above and provide the % of local content along with details of the location(s) at which the local value addition is made. In case of two part tenders, it is mandatory to indicate compliance to MLC (minimum local content) in technical bid itself. If the item(s) offered exceed Rs. 10 Crore, the Class I/Class II Local Suppliers shall provide a Certificate from the statutory auditor or cost auditor of the company (in case of companies) or from a practicing cost accountant or practicing chartered accountant (in respect of suppliers other than companies) giving the percentage of local content. False Declarations will be in breach of the Code of Integrity under Rule 175 (1) (i) (h) of the General Financial Rules for which a bidder or its successors can be debarred for up to two years as per Rule 151 (iii) of the General Financial Rules along with such other actions as may be permissible under law. Local content means the amount of value added in India (i.e. indigenous items/services added in the offered products/services/works) be the total value of the item offered (excluding net domestic indirect taxes) minus the value of imported content in the item (including all customs duties/IGST) as a proportion of the total value (excluding net domestic indirect taxes), in percent.

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153	Definitions of Supplier for MII: A supplier or service provider, whose goods, services or works offered for procurement, has local content: a) Equal to or more than 50%: Class I local supplier. b) Minimum 20% but less than 50%: Class II local supplier. c) Less than 20%: Non local supplier. <i>Note: The items notified as having sufficient local capacity and competition, shall mandatory be sourced from Class I local suppliers. This provision will be applicable only for those items which have been notified by the Nodal Ministry as Class I i.e., having sufficient local capacity and competition, with specific HSN codes. In such cases, the nodal Ministry may specify a higher percentage over and above 50% & 20% respectively for determining the Class I & Class II status.</i>
154	L1 means the lowest tender or lowest bid or the lowest quotation received in a tender, bidding process or other procurement solicitation as adjudged in the evaluation process as per the tender or other procurement solicitation.
155	Purchase Preference Policy for Goods/Works (vide Gol Public Procurement (Preference to Make in India) Order, 2017 as amended from time to time) which are divisible in nature (required quantity is greater than 1 or not a package basis): - If L1 is 'Class I local supplier', the order/contract for full quantity shall be awarded to L1 bidder. - If L1 bid is not from a 'Class I local supplier', 50% of the order quantity shall be awarded to L1. Thereafter, the lowest bidder among the 'Class I local supplier' will be invited to match the L1 price for the remaining 50% quantity subject to the Class I local supplier's quoted price falling within the margin of purchase preference (i.e., 20%) and contract for that quantity shall be awarded to such Class I local supplier subject to matching the L1 price (inclusive of duties, taxes and freight & insurance). - In case such lowest eligible 'Class I local supplier' fails to match the L1 price or accepts less than the offered quantity, the next higher 'Class I local supplier' within the margin of purchase preference shall be invited to match the L1 price for remaining quantity and so on, and contract shall be awarded accordingly. In cases where none of the 'Class I local supplier' within the margin of purchase agree to match L1 price, in such cases 100% quantity shall be ordered on original L1 bidder. - In case no offers are received from 'Class I local supplier' or none of the 'Class I local supplier' falls within the margin of purchase preference of 20%, the order shall be processed entirely on L1 vendor. Purchase Preference Policy for Goods/Works which are not divisible in nature (required quantity is 1 or on a package basis): - If L1 is 'Class I local supplier', the order/contract for full quantity shall be awarded to L1 bidder. - If L1 bid is not from a 'Class I local supplier', then, the lowest bidder among the 'Class I local supplier' will be invited to match the L1 price subject to the Class I local supplier's quoted price falling within the margin of purchase preference (i.e. 20%) and contract for that quantity shall be awarded to such Class I local supplier subject to matching the L1 price (inclusive of duties, taxes and freight & insurance).

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	iii. In case such lowest eligible 'Class I local supplier' fails to match the L1 price, the next higher 'Class I local supplier' within the margin of purchase 'preference shall be invited to match the L1 price and so on, and contract shall be awarded accordingly. In cases where none of the 'Class I local supplier' within the margin of purchase agree to match L1 price, in such cases the entire contract shall be placed on original L1 bidder. In case no offers are received from 'Class I local supplier' or none of the 'Class I local supplier' falls within the margin of purchase preference of 20%, the order shall be processed on L1 vendor. Guidelines for evaluation of concurrent application: MSE and MII policies guidelines issued by Department of Expenditure vide OM No.F.1/4/2021 PPD dtd. 18.05.2023 or as amended, will be applicable and any other notification issued by Gol from time to time will be applicable.
156	Nodal Ministry means the Ministry or Department identified pursuant to this order in respect of a particular item of goods or services or works.
157	Procuring entity means a Ministry or department or attached or subordinate office of, or autonomous body controlled by, the Government of India and includes Government companies as defined in the Companies Act.
158	Works means all works as per Rule 130 of GFR 2017 and will also include turnkey works.
159	Eligibility of Class I local supplier/ Class II local supplier/ non local suppliers for different types of procurement a. In procurement of all goods, services or works in respect of which the Nodal Ministry / Department has communicated that there is sufficient local capacity and local competition, only Class I local supplier, as defined under the Order, shall be eligible to bid irrespective of purchase value. b. Only Class I local supplier and Class II local supplier, as defined under the Order, shall be eligible to bid in procurements undertaken by procuring entities except when Global tender enquiry has been issued. In global tender enquiries, non local suppliers shall also be eligible to bid along with 'Class I local suppliers and Class II local suppliers. In procurement of all goods, services or works, not covered by sub para 3(a) above, and with estimated value of purchases less than Rs. 200 Crore, in accordance with Rule 161 (iv) of GFR, 2017, Global tender enquiry shall not be issued except with the approval of competent authority as designated by Department of Expenditure. c. For the purpose of this Order, works includes Engineering, Procurement and Construction (EPC) contracts and services include System Integrator (SI) contracts.
160	Minimum local content: The 'local content' requirement to categorize a supplier as 'Class I local supplier' is minimum 50%. For 'Class II local supplier', the local content' requirement is minimum 20% at present. However, the Nodal Ministry/Department for the item is entitled to prescribe a higher percentage of minimum local content requirement to categorize a supplier as 'Class I local supplier'/ 'Class II local supplier'. For those items, such higher percentage of local content would be the ceiling determining Class 1 status of the Supplier.

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161	Verification of local content. a. The 'Class I local supplier'/ 'Class II local supplier' at the time of bidding shall be required to indicate percentage of local content and provide a self-certification that the item offered meets the local content requirement for Class I local supplier/ 'Class II local supplier', as the case may be. They shall also give details of the location(s) at which the local value addition is made. b. In cases of bid value is in excess of Rs. 10 Crore, the 'Class I local supplier'/ 'Class II local supplier' shall provide a local content certificate vetted/attested by the statutory auditor or cost auditor of the company (in the case of companies) or from a practicing cost accountant or practicing chartered accountant (in respect of suppliers other than companies) indicating the percentage of local content. c. Decisions on complaints relating to implementation of this Order shall be taken by the competent authority in URSC which is empowered to look into procurement related complaints relating to the procuring entity. d. Nodal Ministries may constitute committees with internal and external experts for independent verification of self-declarations and auditor's/ accountant's certificates on random basis and in the case of complaints. e. Nodal Ministries and procuring entities may prescribe and levy fees for such complaints. f. False declarations will be in breach of the Code of Integrity under Rule 175(1)(i)(h) of the General Financial Rules 2017 for which a bidder or its successors can be debarred for up to two years as per Rule 151 (iii) of the General Financial Rules 2017 along with such other actions as may be permissible under law. g. A supplier who has been debarred by any procuring entity for violation of this Order shall not be eligible for preference under MII Order for procurement by any other procuring entity for the duration of the debarment. The debarment for such other procuring entities shall take effect prospectively from the date on which it comes to the notice of other procurement entities.
162	Self-Certificate for Local Content: shall be as under: We, [name of manufacturer], hereby confirm that the Local Content in respect of quoted item(s) is equal to or more than 50% and that we come under Class I Local Supplier Category. Being a Class I Local Supplier, we are eligible for Preference to Make in India) order 2017 revision issued by Government of India, Department of Promotion of Industry and Internal Trade [DPIIT] Public Procurement [preference to Make in India]. The details of the location(s) at which the local value addition made is/are as under. 1. 2. 3. Seal & Signature of the Bidder & Date OR We, [name of manufacturer], hereby confirm that the Local Content in respect of quoted item(s) is more than or equal to 20% but less than 50% and that we come under Class II Local Supplier Category. The details of the location(s) at which the local value addition made is/are as under. 1. 2. 3. Seal & Signature of the Bidder & Date (Note: Strike out whichever is not applicable)

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163	Restrictions under Rule 144 (xi) of the General Financial Rules (GFR), 2017: As per Rule 144(xi) of General Financial Rules 2017, Bidders from countries which share land border with India shall be registered with Department for Promotion of Industry and Internal Trade (DPIIT) and the Registration shall be valid on the date of bid submission/placement of Order. The above provision applies to procurement of Goods, Services including Consultancy/Non consultancy contracts & Works Contracts. The Bidder shall ensure compliance to the above Clause by furnishing a Certificate in the prescribed format. For the purpose of above, Bidder (including the term Tenderer, Consultant or Service provider in certain contexts) means any person or firm or company, including any member of a consortium or joint venture (that is an association of several persons, or firms or companies). I.e., Bidder means and include every artificial juridical person not falling in any of the descriptions of bidders stated herein before, including any agency branch or office controlled by such person, participating in the procurement process. <i>Note: This proviso shall not be applicable on procurement of spare parts and other essential service support like Annual Maintenance Contract (AMC)/Comprehensive Maintenance Contract (CMC), including consumables for closed systems, from the Original Equipment Manufacturers (OEMs) or their Authorized Agents who shall be exempted from the requirement of registration as mandated under Rule 144(xi) of GFR, 2017 and Public Procurement orders.</i> <i>Similarly, bidders are also permitted to procure their raw materials, components, sub-assemblies, etc. from vendors from countries that share a land border with India. In such cases, vendors will not be required to be registered. However, if a bidder proposes to supply finished goods procured directly/indirectly from vendors from countries sharing a land border with India (i.e., supplies involving no local content), such vendors will be required to be registered with the Competent Authority.</i>
164	Bidder from a country which shares a land border with India for the purpose of this order means: i. An entity incorporated, established or registered in such a country; or ii. A subsidiary of an entity incorporated, established or registered in such a country; or iii. An entity substantially controlled through entities incorporated, established or registered in such a country; or iv. An entity whose beneficial owner is situated in such a country; or v. An Indian (or other) agent of such an entity; or vi. A natural person who is a citizen of such a country; or vii. A consortium or joint venture where any member of the consortium or joint venture falls under any of the above.
165	The beneficial owner for the purpose of clause above will be as under: i. In case of a company or Limited Liability Partnership, the beneficial owner is the natural person(s), who, whether acting alone or together or through one or more juridical person, has a controlling ownership interest or who exercises control through other means. Explanation Controlling Ownership Interest means ownership of or entitlement to more than twenty-five per cent of shares or capital or profits of the company; Control shall include the right to appoint majority of the Directors or to control management or policy decisions including by virtue of their shareholding or management rights or shareholders agreements or voting agreements;

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	ii. In case of a partnership firm, the beneficial owner is the natural person(s) who, whether acting alone or together, or through one or more juridical person, has ownership of entitlement to more than fifteen per cent of capital or profits of the partnership; iii. In case of an unincorporated association or body of individuals, the beneficial owner is the natural person(s), who, whether acting alone or together, or through one or more juridical person, has ownership of or entitlement to more than fifteen per cent of the property or capital or profits of such association or body of individuals; iv. Where no natural person is identified under i) or ii) or iii) above, the beneficial owner is the relevant natural person who holds the position of senior managing official; v. In case of a trust, the identification of beneficial owner(s) shall include identification of the author of the trust, the trustee, the beneficiaries with fifteen per cent or more interest in the trust and any other natural person exercising ultimate effective control over the trust through a chain of control or ownership. vi. An agent is a person employed to do any act for another, or to represent another in dealings with third person. vii. The successful bidder shall not be allowed to sub contract works to any Seller from a country which shares a land border with India unless such Seller is registered with a Competent Authority.
166	Model Certificate for Border Sharing Status of Bidders I have read the clause regarding restriction on procurement from a bidder of a country which shares a land border with India; I certify that this bidder is not from such a country or, if from such a country, has been registered with the Competent Authority. I hereby certify that this bidder fulfils all requirements in this regard and is eligible to be considered. [Where applicable, evidence of valid registration by the Competent Authority shall be attached.
167	Model Certificate for Tenders for Works involving possibility of sub-contracting I have read the clause regarding restrictions on procurement from a bidder of a country which shares a land border with India or sub contracting to Sellers from such countries. I certify that this bidder is not from such a country or, if from such a country, has been registered with the Competent Authority and will not sub contract for any work to a Seller from such countries unless such Seller is registered with the Competent Authority. I hereby certify that this bidder fulfils all requirements in this regard and is eligible to be considered. [Where applicable, evidence of valid registration by the Competent Authority shall be attached].
168	As per Office Memorandum No 6/9/2020 PPD dated 24/08/2020 of Department of Expenditure, MoF, sellers providing Goods and Services to Central Government Organizations shall be registered on GeM and shall necessarily obtain a Unique GeM Seller ID at the time of Placement of Order. Bidders shall ensure compliance to the same.
169	Code of Integrity in Public Procurement; Misdemeanors and Penalties: Procuring authorities as well as bidders, suppliers, Sellers, and consultants shall observe the highest standard of ethics and shall not indulge in prohibited practices, either directly or indirectly, at any stage during the Tender Process or during the execution of resultant contracts. The prohibited practices include:

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	1) Corrupt practice of making offers, solicitation or acceptance of a bribe, reward or gift or any material benefit etc. in exchange for an unfair advantage in the Tender Process or to otherwise influence the Tender Process; 2) Fraudulent practice of any omission or misrepresentation that may mislead or attempt to mislead buyers so that financial or other benefits may be obtained or an obligation can be avoided. Such practices include a false declaration or false information for participation in a tender process or to secure a contract or in the execution of the contract 3) Anti competitive practice of any collusion, bid rigging or anti competitive arrangement, or any other practice coming under the purview of the Competition Act, 2002. If two or more bidders, impair the transparency, fairness, and the progress of the Tender Process or to establish bid prices at artificial, non competitive levels, with or without the knowledge of the Procuring Entity, they may be regarded as Anti competitive practice; 4) Coercive practice of harming or threatening to harm persons or their property to influence their participation in the Tender Process or affect the execution of a contract; 5) Conflict of interest of participation by a bidding firm or any of its affiliates who are either involved in the Consultancy Contract to which this procurement is linked or if they are part of more than one bid in the procurement; or if their personnel have a relationship or financial or business transactions with any official of procuring entity who are directly or indirectly related to tender or execution process of contract; or improper use of information obtained by the (prospective) bidder from the Procuring Entity with an intent to gain unfair advantage in the Tender Process or for personal gain; 6) Obstructive practice that materially impede procuring entity's investigation into allegations of one or more of the above mentioned prohibited practices either by deliberately destroying, falsifying, altering; or by concealing of evidence material to the investigation; or by making false statements to investigators and/ or by coercive practices mentioned above, to prevent it from disclosing its knowledge of matters relevant to the investigation or from pursuing the investigation; or by impeding the Procuring Entity's rights of audit or access to information.
170	Obligations for Proactive Disclosures 1) Procuring authorities, bidders, suppliers, Sellers, and consultants are obliged under this Code of Integrity to suo moto or proactively declare any conflict of interest (coming under the definition mentioned above pre existing or as soon as these arise at any stage) in any Tender Process or execution of the contract. Failure to do so shall amount to a violation of this code of integrity. 2) Any bidder must declare, whether asked or not in a bid document, any previous transgressions of such code of integrity during the last three years or of being under any category of debarment by the Central Government or by the Ministry/ Department of the Procuring Organization from participation in Tender Processes. Failure to do so shall amount to a violation of this code of integrity.
171	Misdemeanors and Penalties: The following shall be considered misdemeanors if a bidder/ Seller either directly or indirectly, at any stage during the Tender Process or during the execution of resultant contracts: 1) commits any of the following misdemeanors (a) violates the code of Integrity or the Integrity Pact if included in the Tender/ Contract;

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	(b) any other misdemeanor, e.g., supply of sub standard quality of material/ services/ work or non performance or abandonment of contract or failure to abide by Bid Securing Declaration. 2) commits any of the following misdemeanors: (a) has been convicted of an offence: (i) under the Prevention of Corruption Act, 1988; or (ii) Bharathiya Nyaya Samhitha or The Indian Penal Code or any other law for the time being in force for causing any loss of life or property or causing a threat to public health as part of the execution of a public procurement contract. (b) is determined by the Government of India to have doubtful loyalty to the country or national security consideration. (c) Employs a Government servant, who has been dismissed or removed on account of corruption or employs a non official convicted for an offence involving corruption or abetment of such an offence, in a position where he could corrupt Government servants or employs a Government officer within one year of his retirement, who has had business dealings with him in an official capacity before retirement.
172	Penalties for Misdemeanors. Without prejudice to and in addition to the rights of the Procuring Entity to other remedies as per the Tender documents or the contract, If the Procuring Entity concludes that a (prospective) bidder/ Seller directly or through an agent has committed a misdemeanor in competing for the tender or in executing a contract, the Procuring Entity shall be entitled, and it shall be lawful on his part to take appropriate measures, including the following: If the bids are under consideration in any procurement: 1) Enforcement of Bid Securing Declaration in lieu of forfeiture or encashment of Bid Security. 2) calling off of any pre contract negotiations, and; 3) rejection and exclusion of Bidder from the Tender Process if a contract has already been awarded If the Contract or Purchase Order is already placed in any procurement: 1) Termination of Contract for Default and availing all remedies prescribed there under; 2) Encashment and/ or Forfeiture of any contractual security or bond relating to the procurement; 3) Recovery of payments including advance payments, if any, made by the Procuring Entity along with interest thereon at the prevailing rate; Remedies in addition to the above: In addition to the above penalties, the Procuring Entity shall be entitled, and it shall be lawful on his part to: 1) File information against Bidder or any of its successors, with the Competition Commission of India for further processing, in case of anti competitive practices; 2) Initiate proceedings in a court of law against Bidder or any of its successors, under the Prevention of Corruption Act, 1988 or the Indian Penal Code or any other law for transgression not addressable by other remedies listed in this sub clause. 3) Remove Bidder or any of its successors from the list of registered Sellers for a period not exceeding two years. Sellers removed from the list of registered vendors or their related entities may be allowed to apply afresh for registration after the expiry of the period of removal.

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	4) Initiation of suitable disciplinary or criminal proceedings against any individual or staff found responsible. 5) Debar, a bidder/ Seller from participation in future procurements without prejudice to Procuring Entity's legal rights and remedies. Debarment shall automatically extend to all the allied firms of the debarred firm. In the case of Joint Venture/ consortium, all its members shall also stand similarly debarred: (a) URSC may debar a bidder or any of its successors from participating in any Tender Process undertaken by all its procuring entities for a period not exceeding two years commencing from the date of debarment for misdemeanors listed above. (b) Central Government (Department of Expenditure (DoE), Ministry of Finance) may debar a bidder or any of its successors from participating in any Tender Process undertaken by all its procuring entities for a period not exceeding three years commencing from the date of debarment for misdemeanors listed above.
173	Hierarchy of Documents in this Procurement: The relationship between Seller and Buyer in this procurement will be solely governed by the law of the land and the Purchase Order documents. In case of a conflict between this document and the Special Terms & Conditions attached to the Notice inviting tender, the Special Terms & Conditions shall prevail. The fundamental principles followed in finalizing this procurement in the relative hierarchy (superior to subordinate/ higher to lower) of laws and rules as amended from time to time are listed as under: (i) The Constitution of India; (ii) Mercantile Laws: Indian Contract Act, 1872; Sale of Goods Act 1930; Arbitration and Conciliation Act, 1996; Competition Act, 2002; Information Technology Act, 2000; (iii) Laws specific to Public Procurement viz. Right to Information Act, 2005; MSME Development Act, 2006; CVC Act 2003 etc; (iv) GFR 2017; (v) MoF Manual for Procurement of Goods/Services 2024 & DOS Purchase Manual 2015; (vi) OMs/Circulars/Guidelines issued by DOS & URSC from time to time governing Procurement of Goods/Services

Specific Commercial Terms and Conditions

Sl. No.	Terms & Conditions	Compliance (Yes/No)	Remarks
1.	Provide compliance for General terms and conditions which is attached as a separate sheet in a document folder.		
2.	Taxes: Government of India has implemented Goods and Services Tax [GST] w.e.f. 01.07.2017. The Tenderer[s] should mandatorily possess a valid GSTIN along with the GST Registration Certificate.		
3.	Indicate the applicable Rate of GST for the quoted item/s.		
4.	Indicate the applicable HSN code/s for the quoted item/s		
5.	Have you noted the applicability of GST in clause 56.0 of our General Terms and conditions attached to this Tender.		
6.	Customs Duty: U R Rao Satellite Centre [URSC], Bengaluru is exempted from payment of Customs Duty & Social Welfare Surcharge on CD vide Customs Notification No.45/2025 Customs dated 24.10.2025 (SI No.340) and as amended vide Notification No. 02/2026 - Customs dated 01.02.2026 However, IGST @5% shall be applicable on the Import Value or as amended from time to time. The necessary Customs Duty Exemption Certificate (CDEC) shall be provided by URSC only to those bidders who claim Purchase Preference under Make in India Policy and fulfil all requirements of tender document applicable for Indigenous Manufacturer i.e., Class-I/Class-2 local supplier. Such Class-I/Class-2 local suppliers have to take note of this aspect and submit their Offer clearly mentioning that the quoted Price for Imported contents includes concessional Customs Duty as per above Notification. While requesting for issue of CDEC for the imported contents, the Tenderer[s] should mention the Item Description, Quantity and Value for which CDEC is to be provided for the bought out Imported Items. The necessary documentary proofs like P.O., on their Supplier, Invoice, AWB shall be produced while requesting for issue of CDEC from URSC. However, CDEC will be issued only to those successful Class-I/Class-2 local supplier, not exceeding the limit of foreign content declared in their		

	quote. Also, a declaration of the Supplier in their letter head that imported items in the Invoice are used for realization of ordered items. Also, Suppliers may note that no reimbursement towards concessional Custom Duty or any other incidental shall be made by URSC.		
7.	Delivery Terms: [Indigenous Supply]: Tenderer[s] shall quote the Price[s] on FOR, URSC Stores, Bengaluru.		
8.	Delivery Date/Completion Date: Delivery is the essence of the Contract. Tenderer[s] is/are hereby requested to confirm Delivery Period [Clause 7.1 of Annexure-A]: Detailed delivery schedule is mentioned at Table 1,2 of Clause 7.1 and Table 3 of Clause 7.1.9.a of RFP.		
9.	Mode of Despatch (Rail/Road)		
10.	Payment Terms: (a) Advance payment of up to 30% of the P.O. value (excluding taxes) shall be released by Purchaser to Contractor as Advance payment against submission of Proforma Invoice duly signed by Authorized Signatory and equivalent amount of Bank Guarantee issued by Nationalized or Scheduled Bank, valid beyond 60 days till Delivery and final Acceptance of all the Stores. (b) And balance 70% of P.O. value will be released within 30 days after receipt and acceptance of items at URSC/ISITE, Bengaluru on pro-rata basis)		
11.	The following Para from Clause No:64 of General Terms & Conditions stands deleted: 1) Buyer discourages advance payment terms in general. The Standard Payment Term preferred is Payment within 30 Days of Receipt & Acceptance of the Item at URSC Stores. 2) In case of bids expressing advance payment/ Milestone Payments, for the purpose of evaluation, interest shall be loaded on the amount so paid as advance/upfront for the delivery period quoted. Towards this, the interest rate prescribed by Ministry of Finance (MoF) on General Provident Fund (GPF) prevailing on the date of price bid opening plus additional interest of 2%; compounded on a quarterly basis will be used.		

12.	Name of suppliers Banker & Account Number with IFSC code.		
13.	<u>Performance Security:</u> The Supplier shall execute Performance Security for 3% (THREE PERCENT) of the value of the Purchase Order towards satisfactory execution of the Purchase Order and satisfactory performance of the supplied material, having validity of 60 days beyond the of completion of Warranty Period. The Performance Security shall be executed within 20 days after receipt of Purchase Order or any extension thereof. The Performance Security is to be furnished in the form of electronic bank guarantee (e-BG) through National e-Governance Services Limited (NeSL) or Insurance Surety Bond or Account Payee Demand Draft or Fixed Deposit Receipt or Bank Guarantee from Nationalized Bank/Scheduled Bank approved by RBI. The Bank Guarantee shall be executed on a Non-Judicial Stamp Paper of appropriate value as per the Stamp Act prevailing in the States where the BG is to be submitted (Karnataka) or is to be acted upon or the rate prevailing in the State where the BG is executed, whichever is higher. The Stamp paper shall be purchased in the name of guarantee issuing bank or the party on whose behalf BG is being issued. As the Stamp Duty on BG for different States changes from time to time, the Sellers are advised to cross verify the applicable stamp duty at the time of creation of BG/Bid submission who shall be solely responsible for any deficit in stamp duty. In case of e-BGs, e-Stamping will apply. The BG shall be valid for a period of 60 days beyond the date of completion of the P.O. In case the Supplier fails to furnish the Performance Security within 20 days or any extension thereof the Purchase Order shall be cancelled or terminated and appropriate penal action shall be initiated. Any breach of the Terms and Conditions of the PO including Delivery Period, Performance Security shall be forfeited and PO shall be terminated and cancelled at the Suppliers risk, cost and liability. The Performance Security will not carry any		

	interest and shall be returned after completely executing the order. In lieu of e-BG issued through National e-Governance Services Limited (NeSL), the conventional Bank guarantee issued by the Issuing Bank on behalf of Seller in favour of U R RAO SATELLITE CENTRE are also accepted in exceptional cases. Such BGs shall be in paper form as well as issued under Structured Financial Messaging System. The details of beneficiary for issue of BG under SFMS platform is furnished below: Name of the Beneficiary: U R RAO SATELLITE CENTRE Beneficiary Bank Name: STATE BANK OF INDIA Beneficiary Branch IFSC: SBIN0009048 Beneficiary Branch Name: ISRO VIMANAPURA BRANCH Bank Address: STATE BANK OF INDIA, ISRO VIMANAPURA BRANCH, URSC CAMPUS, HAL AIRPORT ROAD, BENGALURU 560017. "UIN of URSC: AAAGI0182G E-Mail ID to be used: saop@ursc.gov.in/ saoc@ursc.gov.in All suppliers shall instruct the e-BG issuing bank to mandatorily mention 'PO Number' under 'Contract Reference Number' field in the API. Similarly, the issuing bank shall also mention the 'Type of BG' viz. Security Deposit, PBG, Performance Security, Advance BG, Material BG etc. in the 'Remarks' column of API as this information is essential to map the e-BGs in URSC's internal database."		
14.	Warranty/Guarantee: Applicable warranty period is 12 months. Warranty period shall commence from the date of acceptance of the goods by the purchaser. All the replacements during the Warranty period shall be carried out by the successful Tenderer[s] Free of all Cost including To & fro Freight Charges, taxes and duties, if any. Return of replaced parts/equipment shall be the responsibility of the Supplier, at their cost.		

15.	<u>Delay in Completion/Liquidated Damages:</u> The time and date stipulated in the contract for completion of the work shall be deemed to be the essence of the contract. If the Seller fails to deliver the Stores within the time specified in the Contract or any extension thereof or if the Seller fails to maintain the required progress or comply with the relevant provisions of the general conditions of contract or special conditions of contract, if any, the Buyer shall, without prejudice to any other right or remedy available under the law to Buyer on account of such breach, recover from the Seller as Liquidated Damages a sum one half of one percent [0.5 percent] of the Contract value of the undelivered Stores for each calendar week of delay or part thereof. The maximum deduction, in any case including the above, shall be regulated as under: (i) Normal Delays (Sum total of Days delayed is up to & including 25% of the Contract Period) 5% of the total Contract Value including Taxes & Duties; (ii) Inordinate Delays (Sum total of Days delayed is more than 25% of the Contract Period) 10% of the total Contract Value including Taxes & Duties. The expression Part thereof means that any delays ranging between 1 to 7 days will be considered as a full week and LD will be calculated accordingly. Adherence and acceptance to this Clause is Compulsory or otherwise the Tender will be rejected.		
16.	Validity of Offer: The Bid and the prices quoted shall remain valid for 90 days for Single Part Tender. In case of Two-Part Tender, bid validity shall remain valid for 120 days from the date of opening Part-1 and 90 days from the date of opening of Part-2 bid. Adherence and acceptance to this Clause is Compulsory or otherwise the Tender will be rejected.		

17.	<u>Dispute resolution between the buyer and the seller / service provider</u> i. In the event of any conflict or dispute arising out of or in connection with the Contract placed through EGPS, the Parties shall endeavour to settle such disputes amicably. If a dispute is not resolved within 30 (thirty) days after a written notice of any dispute by one Party to the other, the same shall then be resolved through the mechanism of a Dispute Resolution Committee. This Dispute Resolution Committee shall comprise of representatives of both the Buyer and the Seller / Service Provider and shall be chaired by the Procuring entity or any other person as authorized by the Procuring entity. ii. If the Dispute Resolution Committee is not able to resolve the matter within 30(thirty) days of its formation, the dispute shall be dealt with in accordance to "Guidelines for Arbitration and Mediation in Contracts of Domestic Public Procurement" issued by Department of Expenditure via OM No. F.1/2/2024-PPD dated 03.06.2024, as amended from time to time. iii. The Contract shall be interpreted and governed in all respects in accordance with the laws of India. All disputes in connection with or arising out of the Contract, shall be subject to the exclusive jurisdiction of the Court within the local limits of whose jurisdiction principal place of business of the Buyer department / organization is located.		
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18.	Arbitration with Public Sector Undertakings: In the event of any dispute or difference relating to the interpretation and application of the Contract, such dispute or difference shall be taken up by either party for resolution through AMRCD as mentioned in DPE OM No. 4 (1)/2013 - DPE (GM) /FTS-1835 dated 22.05.2018. And/or amended thereafter.		
19.	Applicable Law and Jurisdiction: Contract shall be interpreted, construed and governed by the Laws of India and the Courts in Bengaluru City alone shall have exclusive jurisdiction in this regard, to the extent permissible under the Arbitration and Conciliation Act, 1996. Non-acceptance to this Clause will amount to rejection of the Tender.		
20.	Company postal address along with Email ID and Ph No. on which order to be placed.		
21.	Pre-Delivery Inspection [PDI] [if Required]: The successful Tenderer[s] has to arrange for the necessary PDI of the Stores at the Contractor Factory Premises to enable URSC Engineers to carry out PDI. The PDI is applicable wherever the RFP document/Scope of Work calls for such an inspection.		
22.	Factory Acceptance Testing [FAT] [if Required]: The successful Tenderer[s] has to arrange for the necessary FAT of the Stores at the Contractor Factory Premises to enable URSC Engineers to carry out FAT. The FAT is applicable wherever the RFP document/Scope of Work calls for such as FAT.		
23.	Tenderer[s] are requested to mention whether Installation, Testing, Commissioning, Demonstration, Acceptance and imparting Training is necessary for the Tendered Stores. Do not mention any price under this column in case of Two-Part Tender.		
24.	Based on the GOI order dated 16.09.2020 provide declaration in Company Letter head indicating the following: a) Percentage of Local Content in the quoted items along with its break-up (in percentage only). It may be noted that Local Content shall not include services such as Transportation, Insurance, Installation, Commissioning, Training and after sales service support like AMC/CMC		

	etc. Adherence and acceptance to this Clause is Compulsory or otherwise the Tender will be rejected.		
25.	b) Details of the location(s) at which the local value addition is made - Adherence and acceptance to this Clause is Compulsory or otherwise the Tender will be rejected. (c) Confirm whether you are a reseller or distributor. If not, mention the nature of business with a copy of valid registration certificate to substantiate the same. (d) Details of break up of Local Content shall be provided in terms of percentage. Please Note that the Value should not be Mentioned.		
26.	In case a bidder is an MSE, registered under NSIC or any other Government Agencies and would like to avail exemptions, offer should be accompanied with necessary registration certificate with declaration to consider their offer. Quotation received without such declaration and valid registration certificate will not be considered for exemptions under the Public Procurement Policy.		
27.	Do you have Unique GeM Seller ID? If YES, provide details. If NO, As per Office Memorandum No 6/9/2020-PPD dated 24/08/2020 of Department of Expenditure, it shall be mandatory for sellers providing Goods and Services to Central Government Organizations to be registered on GeM and obtain a Unique GeM Seller ID, at the time of Placement of Order/acceptance of contract. Tenderers shall ensure the same.		
28.	Please refer the following OMs/orders issued by Govt. of India while submitting the bid: (i) No. P-45021/2/2017-PP (BE-II) dated 16.09.2020 (ii) F.No.6/18/2019-PPD (Public Procurement No.1) dated 23.07.2020 (iii) F.No.6/18/2019-PPD (Public Procurement No.2) dated 23.07.2020 and (iv) F.No.6/18/2019-PPD (Public Procurement No.3) dated 24.07.2020. All the provisions mentioned in the above OMs/orders shall be complied. If any deviation from the above OMs/order, your offer will be liable for rejection. All Bidders fulfilling the above orders, shall submit a valid registration		

	certificate made with DPIIT, without which the offer shall not be considered.		
29.	Country of Origin of quoted items. Adherence and acceptance to this Clause is Compulsory or otherwise the Tender will be rejected.		
30.	Option Clause i): The Buyer reserves the right to re-assess the quantity requirements during the course of Bid evaluation duly taking into account the current programmatic needs and increase the tendered quantity by up to 25% at any time before the award of Purchase Order. ii) The Buyer is entitled to increase/decrease the quantity of goods/services or both agreed in the Purchase Order by up to 25% at any point of time, till the scheduled/extended delivery date of contract by giving a notice of 14 days even though the ordered quantity of goods/service have been supplied/ rendered in full before the last date prescribed for such delivery/service.		
31.	Currency of the Quote		

Please Note:

1. Fax/e-mail quotations shall not be considered.
2. For any query regarding this Tender, Vendor may contact to:
Purchase and Stores Officer, Group-A, U R Rao Satellite Centre (URSC), Bengaluru- 560017
Ph. No.+91 80 6108 4015, E-mail ID: pso_a@ursc.gov.in