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Abbreviated Component Maintenance Manual

A350 SDU and SCM

| Part Number | CAGE |
|-------------|-------|
| 1458-A-1101 | 38473 |
| 1458-A-1300 | 38473 |

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TRANSMITTAL INFORMATION

THIS IS AN INITIAL RELEASE OF A350 SDU AND SCM ACMM ATA NO. 23-15-30 AND IS ISSUED FOR USE IN SUPPORT OF THE FOLLOWING:

Table 1 shows the applicable components.

Table 1. Applicable Components

| Component PN | Nomenclature |
|--------------|--------------|
| 1458-A-1101 | A350 SDU |
| 1458-A-1300 | A350 SCM |

Revision History

Table 2 shows the revision history of this ACMM.

Table 2. Revision History

| Revision Number | Revision Date |
|-----------------|---------------|
| 0 | 5 Oct 2012 |

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INTRODUCTION

1. How to Use This Manual (TASK 23-15-30-99F-801-A01)

A. **General** (Subtask 23-15-30-99F-001-A01)

- (1) This publication gives maintenance instructions for the equipment shown on the Title page.
- (2) Standard maintenance procedures that technicians must know are not given in this manual.
- (3) This publication is written in agreement with the ATA Specification.
- (4) Refer to the Special Tools, Fixtures, and Equipment and Consumables tables in each section before the start of maintenance procedures.
- (5) Honeywell recommends that you do the tests in TESTING AND FAULT ISOLATION (PGBLK 23-15-30-1000) to test the operational status of the unit. These tests can show the condition of the unit or most possible cause of a malfunction. If a malfunction occurs, the unit must be returned to the manufacturer for fault isolation and repair, refer to APPENDIX A (RMA) (PGBLK 23-15-30-1700).
- (6) Maintenance for the A350 SDU and SCM system is limited to replacement on verified failure. After consultation with a Honeywell product support specialist and if replacement of the unit is deemed necessary, refer to APPENDIX A (RMA) (PGBLK 23-15-30-1700) for equipment return procedures.
- (7) All repairs must be performed at Honeywell or a Honeywell approved repair facility.
- (8) Warnings, cautions, and notes in this manual give the data that follows:
 - A WARNING gives a condition or tells personnel what part of an operation or maintenance procedure, which if not obeyed, can cause injury or death
 - A CAUTION gives a condition or tells personnel what part of an operation or maintenance procedure, which if not obeyed, can cause damage to the equipment
 - A NOTE gives data, not commands. The NOTE helps personnel when they do the related instruction.
- (9) Warnings and cautions go before the applicable paragraph or step. Notes follow the applicable paragraph or step.

B. **Observance of Manual Instructions** (Subtask 23-15-30-99F-002-A01)

- (1) Make sure that you carefully obey all safety, quality, operation, and shop procedures for the unit.
- (2) All personnel who operate equipment and do maintenance specified in this manual must know and obey the safety precautions.

C. **Symbols** (Subtask 23-15-30-99F-003-A01)

- (1) The symbols and special characters are in agreement with IEEE Publication 260 and IEC Publication 27. Special characters in text are spelled out.
- (2) The signal mnemonics, unit control designators, and test designators are shown in capital letters.
- (3) The signal names followed by an "*" show an active low signal.
- (4) The symbols in Figure 1 (GRAPHIC 23-15-30-99B-801-A01) show ESDS and moisture sensitive devices.

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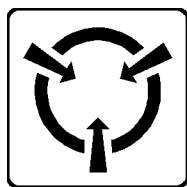
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ESDS



MOISTURE SENSITIVE

ID-112405

Figure 1. (Sheet 1 of 1) Symbols (GRAPHIC 23-15-30-99B-801-A01)

D. Units of Measure (Subtask 23-15-30-99F-004-A01)

- (1) Measurements, weights, temperatures, dimensions, and other values are expressed in the USMS followed by the appropriate SI metric units in parentheses. Some standard tools or parts such as drills, taps, bolts, nuts, etc. do not have an equivalent.

E. Illustration (Subtask 23-15-30-99F-005-A01)

- (1) Supplemental illustrations use a suffix number to the basic figure number. For example, if Figure 501-5 is used, it signifies that it is an illustration of the item identified by index number 5 in Figure 501.
- (2) Illustrations with no specific designation are applicable to all units.

F. Application of Maintenance Task Oriented Support System (MTOSS) (Subtask 23-15-30-99F-006-A01)

- (1) In accordance with the ATA Specification 2200, this publication uses a Maintenance Task Numbering System which make the maintenance procedures in this manual compatible with an automated shop environment.
- (2) The system uses standard and unique number combinations to identify maintenance tasks and subtasks.
- (3) The MTOSS structure is the logical approach to organizing maintenance tasks and subtasks. The MTOSS numbering system includes the ATA Chapter-Section-Subject number as well as a function code and unique identifiers. The purpose of incorporating the MTOSS numbering system is to provide a means for the automated sorting, retrieval, and management of digitized data.
- (4) Section and Sub-section Numbering System
 - (a) All procedures in this publication have TASK and SUBTASK numbers at key data retrieval points. The numbers provide the following:
 - Identification of the hardware (part or parts) primary to the TASK
 - Identification of the maintenance function applied to the part or parts
 - A unique identifier for a set of instructions (known as TASK or SUBTASK)
 - Identification of alternate methods and configuration differences that change the procedure applied to the TASK
 - Identification of airline changes to a TASK or SUBTASK.
- (5) Components of Task and Subtask Number
 - (a) The numbering system is an expansion of the ATA three-element numbering system. The number has seven elements. The first five elements are necessary for each TASK or SUBTASK. The sixth and seventh elements are applied only when necessary. Refer to Figure 2 (GRAPHIC 23-15-30-99B-802-A01).

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- (b) Elements 1, 2, and 3 identify the ATA Chapter-Section-Subject number of the page block.
- (c) Element 4 defines the maintenance function being performed. This element is a three position element. The third position is zero filled when further definition is not required. If required, the manufacturer will use the numbers 1 thru 9 or letters A thru Z, excluding the letters I and O. Refer to Table 3.
- (d) Element 5 provides a unique identification for each TASK or SUBTASK number which is similarly numbered through the first four elements.
 - TASKS are numbered from 801 thru 999
 - SUBTASKS are numbered from 001 thru 800.
- (e) Element 6 is a three position alphanumeric element used for identification of differences in configurations, methods or techniques, variations of standard practice applications, etc.
- (f) Element 7 provides coding of those tasks or subtasks that have been changed by the customer (e.g., those tasks or subtasks accomplished by an outside repair source).

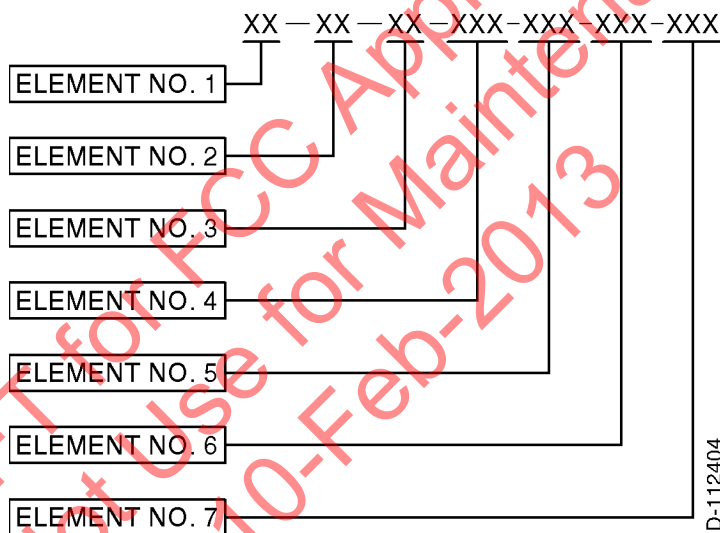


Figure 2. (Sheet 1 of 1) MTOSS Code Positions (GRAPHIC 23-15-30-99B-802-A01)

Table 3. MTOSS Function Code Definitions

| Code | Function | Definition |
|------|-------------------------|---|
| 000 | REMOVAL AND DISASSEMBLY | |
| 010 | Removal | Removal of the engine/component from a workstand, transport dolly, test stand, etc., or aircraft. |
| 020 | Remove Modular Sections | This is the first echelon of disassembly which consists of sectionalization of the unit/engine into primary modular sections. Modular sections are identified by the third element of the ATA number when removed from the unit/engine. |

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| Code | Function | Definition |
|------|---|---|
| 030 | Disassemble Modular Sections | This is the second echelon of disassembly which consists of disassembly of the modular sections into subassemblies after removal from the unit/engine. Modular section designations appear in the second element of the ATA number for this echelon of disassembly. |
| 040 | Disassemble Subassemblies | This is the third echelon of engine disassembly which consists of disassembly of subassemblies to the piece part level. The subassemblies are identified by the third element of the ATA number. |
| 050 | Remove Accessory/Power Plant Components | This consists of removing individual accessory/power plant components from either installed or uninstalled engines. |
| 060 | Disassemble Accessory | This involves disassembly of accessories /components into subassemblies. |
| 070 | Disassemble Accessory Subassembly | This involves disassembly of accessories /components subassemblies into piece parts. |
| 080 | Remove Test Equipment | This consists of removing equipment and instrumentation after accessory/component test. |
| 090 | Disassemble Support Equipment | This consists of disassembly of support equipment required to maintain said support equipment. |
| | | |
| 100 | CLEANING | |
| 110 | Chemical | Removal of surface deposits from a part by use of a chemical cleaning agent. After being dissolved, the deposit is washed or rinsed away after a soaking period. Also includes chemical power flushing. |
| 120 | Abrasive | Removal of surface deposits from a part by wet or dry particle impingement. |
| 130 | Ultrasonic | Removal of surface deposits and entrapped material by use of high frequency sound waves to produce cavitation at the surface of the part. Cleaning is performed in a liquid bath that transmits the sound energy and keeps the removed material in suspension. |
| 140 | Mechanical | Removal of surface deposits from a part by use of a brush, felt bob, sandpaper, or other hand or mechanical action. |

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| Code | Function | Definition |
|------|----------------------|--|
| 150 | Unassigned | |
| 160 | Miscellaneous | Removal of deposits from parts with compressed air, miscellaneous hand cleaning, and various combinations of cleaning procedures. |
| 170 | Foam/Water Wash | Removal or post emulsified fluorescent penetrant via an agitated water wash, automatic spray rinse, or an aqueous remover aerated to produce a foam. |
| 180 | Testing of Solutions | Test used to assist in identifying certain materials by electro-mechanically determining the presence or absence of known constituents. |
| 190 | Unassigned | |
| 200 | INSPECTION | |
| 210 | Check | A thorough visual examination of components, accessories, subsystems, and piece parts to detect structural failure, deterioration or damage, and to determine the need for corrective action. For example: exterior surfaces, electronic circuit cards, gears, control systems, linkages, accessories, components, tubing, wiring and connections, safety wiring, fasteners, clamps, etc., are inspected to verify proper condition and acceptability for continued service. |
| 220 | Visual/Dimensional | A comparison of the dimensions and material conditions of parts, subassemblies, and assemblies with the specifications contained in technical manuals and/or blueprints, to detect deviations from established standard and limits and determine the acceptability for continued service, repair, or need to discard the item. A visual/dimensional function code is also required to verify that proper corrective maintenance has been accomplished. Although some of these tasks may not require measurements, a complete spectrum of tasks/sub tasks requires a variety of measuring equipment to determine runout, concentricity, flatness, parallelism, hardness, thickness, clarity, dimensions, etc. |
| 230 | Penetrant | Fluorescent penetrant inspection to detect surface cracks. |

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| Code | Function | Definition |
|------|---------------------------|--|
| 240 | Magnetic | Magnetic particle inspection to detect surface cracks in magnetic materials. |
| 250 | Eddy Current | Inspection for subsurface cracks, porosity, inclusions, or other nonhomogeneous material structure by use of high frequency electromagnetic wave equipment. Parts are scanned and compared to similar parts or test specimens having known material defects. |
| 260 | X-Ray | Inspection for subsurface cracks, porosity, inclusions, or other nonhomogeneous material structure by use of x-ray techniques. |
| 270 | Ultrasonic | Inspection for subsurface cracks, porosity, inclusions, or other nonhomogeneous material structure by use of contact pulse echo ultrasonic techniques. |
| 280 | Special | Any special inspection to determine the integrity of a part for continued operation In-Service or qualitative analysis. |
| 290 | Unassigned | |
| 300 | REPAIR | |
| 310 | Welding and Brazing | The joining of pieces by welding (fusion, resistance, spot, electron beam, plasma arc), brazing (furnace, torch, induction), or soldering. This category includes hard facing. |
| 320 | Machining | The process of obtaining a desired shape or finish by grinding, turning, boring, reaming, broaching, milling, drilling, lapping, honing, sizing, polishing, buffing, cutting, forming, stamping, blanking, etc. |
| 330 | Stripping and Plating | Removing or applying a metallic coating on a surface by mechanical, chemical, or electrical means. Plating of chromium, cadmium, tin, etc., to build up the size of a part or provide surface protection. Includes masking or waxing prior to the process. |
| 340 | Plasma and Flame Spraying | The application of a protective coating to a part by feeding a powder into an ionized gas stream. Flame spraying uses a fuel oxygen flame to melt and propel metal onto parts to build up the size or provide surface protection. |

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| Code | Function | Definition |
|------|---|---|
| 350 | Miscellaneous Repairs | Repairing parts by hand (cutting, drilling, polishing, grinding, lapping, riveting, blending, routing, fitting, burring, planishing, sanding, sawing, recambering, drilling, tapping, heating, chilling) and including miscellaneous disassembly and assembly required. |
| 360 | Bonding and Molding/Sealing | Joining and curing of parts with an adhesive or fusible material (including silicone, fiberglass, glues). |
| 370 | Heat Treating | Controlled heating and cooling of a material to obtain the desired physical property (includes annealing, tempering, quenching, stress relieving, solution heat treat, etc.). |
| 380 | Surface Treating | Treating the surface of a part by painting, varnishing, aluminizing, Teflon coating, zinc chromate priming, tumble finishing, shot peening, etc. Baking and masking processes are included. |
| 390 | Machine Riveting and Flaring | Joining of parts by riveting and flaring the rivet. |
| 400 | INSTALLATION AND ASSEMBLY | |
| 410 | Install | Installation of the unit/engine onto a workstand, transport dolly, test stand, or aircraft. |
| 420 | Install Modular Sections | The third echelon of assembly consisting of assembly of the modular assemblies into a complete unit/engine assembly. The modular sections are identified by the third element of the ATA number. |
| 430 | Assemble Modular Sections | The second echelon of assembly consisting of assembling subassemblies into modular sections. The modular section is identified by the second element of the ATA number. |
| 440 | Assemble Subassemblies | The first echelon of assembly consisting of assembling piece parts into subassemblies. The subassemblies are identified by the third element of the ATA number. |
| 450 | Install/Close Items Removed/Opened for Access | Installation or closing of access plates, closing of ports, installation of components, tubing or any item which was removed or opened in order to provide access to perform the task. |

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| Code | Function | Definition |
|------|----------------------------------|---|
| 460 | Assemble Accessory | Assemble accessory components. |
| 470 | Assemble Accessory Subassembly | Assembly of accessory subassembly components. |
| 480 | Install Test Equipment | Install equipment and instrumentation required for accessory component test. |
| 490 | Assemble Support Equipment | Any assembly required to maintain support equipment. |
| | | |
| 500 | MATERIAL HANDLING | |
| 510 | Shipping | The movement of any part, subassembly, assembly, or component from the time it is packaged until it reaches its destination. |
| 520 | Receiving | The receipt activity for any incoming part, subassembly, assembly, or component. |
| 530 | Packing | Installing parts, subassemblies, assemblies, or components into shipping containers. |
| 540 | Unpacking | Removing parts, subassemblies, assemblies, or components from shipping containers. |
| 550 | Storage | Safekeeping of parts, subassemblies, assemblies, or components until required for use. |
| 560 | Marshaling/Positioning | Marshaling is collection of parts, subassemblies, and accessories prior to release for assembly. Positioning is movement from one fixed state to another. |
| 570 | Engine Ferry/Pod Maintenance | Necessary preparations before and after transporting an engine by aircraft ferry method. |
| 580 | Unassigned | |
| 590 | Unassigned | |
| | | |
| 600 | SERVICING/PRESERVING/LUBRICATING | |
| 610 | Servicing | Action required to sustain a unit or system in proper operating status including priming with applicable fluids prior to use. |

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| Code | Function | Definition |
|------|------------------------------|---|
| 620 | Preserving | Preparation of a unit, part, assembly, etc., for safekeeping from decomposition or deterioration. Includes preparation for storage (applying a preservative layer, desiccants, etc.). |
| 630 | Depreserving | Removing preservatives, desiccants, etc., from a unit, part, assembly, etc., prior to installation or operation. |
| 640 | Lubricating | Applying oil, grease, dry film, or silicon lubricants on moving parts to reduce friction or cool the item. |
| 650 | Unassigned | |
| 660 | Unassigned | |
| 670 | Unassigned | |
| 680 | Unassigned | |
| 690 | Unassigned | |
| | | |
| 700 | TESTING/CHECKING | |
| 710 | Oil Flow | Measuring the flow of oil through components or compartments under specific conditions. |
| 720 | Air Flow | Measuring the flow of air through components or compartments under specific conditions. |
| 730 | Fuel Flow | Function checks and flow measurements through the part or system being tested. |
| 740 | Water Flow | Function checks and flow measurements through the part or system being tested. |
| 750 | Electrical/Return to Service | Functional tests (manual or ATE) of the system or component as well as measurement of electrical or electronic parameters designed to determine whether the item can be returned to service. May include fault isolation procedures for components that require close correlation between test results and fault indications. |
| 760 | Engine | Operation of an engine to establish systems function or operation under specific conditions to measure performance. |
| 770 | Accessory/Bite | Testing of an accessory to ensure proper operation or function. |
| 780 | Pressure Check | Testing to establish the ability of a normally pressurized component or system to operate properly. |

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| Code | Function | Definition |
|------|--|---|
| 790 | Leak Check | Determine the ability of a component or system to operate without leaking. |
| 800 | MISCELLANEOUS | |
| 810 | Fault Isolation | Operation of an engine at constant thrust level or identical Engine Pressure Ratio (EPR) to locate the prime suspect deficient system: operating an improperly functioning system or component to locate the cause; or performing a series of checks to isolate a failed part or component. |
| 820 | Adjusting/Aligning/Calibrating | Making a physical correction to ensure proper placement or operation of a system or component. |
| 830 | Rigging | Hooking-up, arranging, or adjusting a component or accessory linkage for proper operation. |
| 840 | Service Bulletin Incorporation | Performing the work specified in the service bulletin. Provides for identification of modification tasks at the task level with subtasks recognizing any functional changes (chemical, visual/dimensional, cleaning, machining, etc.) necessary to incorporate the service bulletin. |
| 850 | PN Change/Re-identification | Change of PN, application of PN by transfer, engrave repair number, etc. |
| 860 | Unassigned | |
| 870 | Description and Operation | Electrical and mechanical description of the unit or component. Includes leading particulars, descriptions, limitations, specifications, and theory of operation. |
| 880 | Approved Vendor Processes | Includes processes that may be proprietary and controlled by a particular manufacturer, or by nonproprietary and approved for application by conforming vendors. |
| 890 | Airline Maintenance Program (Customer Use) | |
| 900 | Unassigned | |
| 910 | Special Equipment Maintenance | Identification of tasks to maintain special support equipment. |
| 920 | Standard Equipment Maintenance | Identification of tasks to maintain standard support equipment. |

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| Code | Function | Definition |
|------|--|--|
| 930 | Tool Fabrication | Includes fabricating any tool for which procedures to use are included in the manual. |
| 940 | Special Tools, Equip, and Consumables Listing | Listing of all special tools, standard equipment, special equipment, and consumables required to perform maintenance on the unit or component. |
| 94A | Consumables | |
| 94B | Special Tools/Non Std Tools | |
| 94C | Fixtures/Test Equipment | |
| 94D | Standard Tools | |
| 950 | Illustrated Parts List (Detailed Parts List) | Section of IPL/IPC that contains parts description and identification in top-down break down sequence. |
| 960 | Illustrated Parts List (Equipment Designation Index) | Section of IPL/IPC that contains equipment designators cross-referenced to detailed parts list. |
| 970 | Illustrated Parts List (Numerical Index) | Section of IPL/IPC that contains an alphanumeric listing of all parts in the unit cross-referenced to the detailed parts list. |
| 980 | Illustrated Parts List (Alternate Vendor Index) | Optional section of IPL/IPC that contains an alphanumeric listing of all parts in the unit that have more than one vendor source. |
| 990 | Illustrations, Tables, Front Matter, Etc. | |
| 99A | Tables | |
| 99B | Illustrations | |
| 99C | Front Matter Pageblock (TASK Level MTOSS) Front Matter Task (Collection of Subtask MTOSS) | |
| 99D | Access | |
| 99E | References | |
| 99F | General/Introduction | |

2. **Customer Support** (TASK 23-15-30-99F-802-A01)

A. **Honeywell Aerospace Online Technical Publications Website** (Subtask 23-15-30-99F-007-A01)

- (1) Go to the Honeywell Online Technical Publications Website at <http://www.myaerospace.com>
 - To download or see publications online
 - To order a publication
 - To tell Honeywell of a possible data error in a publication.

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B. Global Customer Care Center (Subtask 23-15-30-99F-008-A01)

- (1) If you do not have access to the Honeywell Technical Publications Website, or if you need to speak to personnel about non-Technical Publication matters, the Honeywell Aerospace Global Customer Care Center gives 24/7 customer service to Air Transport & Regional, Business & General Aviation, and Defense & Space customers around the globe.
 - Telephone: 800-601-3099 (Toll Free U.S.A./Canada)
 - Telephone: 602-365-3099 (International)
 - Telephone: 00-800-601-30999 (EMEA Toll Free)
 - Telephone: 420-234-625-500 (EMEA Direct).

3. References (TASK 23-15-30-99F-803-A01)

A. Honeywell/Vendor Publications (Subtask 23-15-30-99F-009-A01)

- (1) Not applicable.

B. Other Publications (Subtask 23-15-30-99F-010-A01)

- (1) These publications are standard references:
 - The United States GPO Style Manual 2000 (available at <http://www.gpoaccess.gov/stylemanual/browse.html>)
 - IEEE Std 260, Standard Letter Symbols for Units of Measurement (available from the American National Standards Institute, New York, NY)
 - ASME Y14.38, Abbreviations for Use on Drawings and in Text (available from the American National Standards Institute, New York, NY)
 - H4/H8 CAGE Codes (available at <http://www.logisticsinformationservice.dla.mil>)
 - IEEE 315/ANSI Y32.2, Graphic Symbols for Electrical and Electronics Diagrams (available from the American National Standards Institute, New York, NY)
 - TSO-C132 Geosynchronous Aeronautical Mobile Satellite Services Earth Station Equipment
 - ARINC 781 Mark 3 Aviation Satellite Communications System
 - ARINC 758 Communications Management Unit Mark 2
 - DO-160E Environmental Conditions and Test Procedures for Airborne Equipment
 - DO-178B Software Considerations in Airborne Systems and Equipment Certification
 - DO-254 Design Assurance Guidance for Airborne Electronic Hardware.

C. Certification and Approvals (Subtask 23-15-30-99F-011-A01)

- (1) Installation of the A350 SDU and SCM system on an aircraft typically requires the approval of the appropriate government air/radio authority (such as Transport Canada, the FAA, the JAA, etc.). Honeywell highly recommends contacting the appropriate authorities early in the system-planning phase to minimize approval/certification issues that could delay release of the aircraft.
- (2) The conditions and tests for TSO approval of this article are minimum performance standards. Those installing this article, on or within a specific type or class of aircraft, must determine that the aircraft installation conditions are within the TSO standards. TSO articles must have different approval for installation in an aircraft. The article can be installed only according to 14 CFR part 43, or the applicable airworthiness requirements.
- (3) Contact Honeywell for more information on certification and approval issues.

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4. Acronyms and Abbreviations (TASK 23-15-30-99F-804-A01)

A. **General** (Subtask 23-15-30-99F-012-A01)

- (1) The abbreviations are used in agreement with ASME Y14.38.
- (2) Acronyms and non-standard abbreviations used in this publication are as follows:

List of Acronyms and Abbreviations

| Term | Full Term |
|-------|--|
| AC | alternating current |
| ACMM | abbreviated component maintenance manual |
| ADIRU | air data inertial reference unit |
| AFDX | avionics full duplex switched ethernet |
| AMM | aircraft maintenance manual |
| AMSS | aeronautical mobile satellite services |
| AMU | audio management unit |
| ANSI | American National Standards Institute |
| AORE | Atlantic Ocean Region-East |
| AORW | Atlantic Ocean Region-West |
| ARINC | Aeronautical Radio, Incorporated |
| ASME | American Society of Mechanical Engineers |
| ATA | Air Transport Association |
| ATE | automated test equipment |
| BITE | built-in test equipment |
| BP | bottom plug |
| bps | bits per second |
| C | Celsius |
| CAGE | commercial and government entity |
| CFR | code of federal regulation |
| CMS | central maintenance system |
| CRES | corrosion resistant steel |
| DC | direct current |
| DLCS | data loading and configuration system |
| DLNA | diplexer/low noise amplifier |
| EMEA | Europe, the Middle East, and Africa |
| ESDS | electrostatic discharge sensitive |
| EST | Eastern Standard Time |
| F | Fahrenheit |
| FAA | Federal Aviation Administration |

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| | |
|-------|---|
| FWS | flight warning system |
| GES | ground earth station |
| GPO | Government Printing Office |
| HGA | high gain antenna |
| HMI | human machine interface |
| HPA | high power amplifier |
| hr | hour |
| Hz | Hertz |
| I/O | input/output |
| ICA | Instructions for Continued Airworthiness |
| ICAO | International Civil Aviation Organization |
| IEC | International Electrotechnical Commission |
| IEEE | Institute of Electrical and Electronics Engineers |
| IM | interactive mode |
| in-lb | inch-pound |
| IOR | Indian Ocean Region |
| IPC | illustrated parts catalog |
| IPL | illustrated parts list |
| ISDN | integrated services digital network |
| JAA | Joint Aviation Authority |
| kbps | kilobits per second |
| kg | kilogram |
| LED | light emitting diode |
| LES | land earth station |
| LGERS | landing gear extension/retraction system |
| mA | milliampere |
| MAX | maximum |
| MCU | modular concept unit |
| MEL | minimum equipment list |
| MES | mobile earth station |
| MHz | megahertz |
| mm | millimeter |
| MP | middle plug |
| MPDS | mobile packet data service |
| MTOSS | maintenance task oriented support system |
| Nm | newton meter |
| No. | number |

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| | |
|--------|--|
| ORT | owner requirements table |
| PA | power amplifier |
| PN | part number |
| POR | Pacific Ocean Region |
| RF | radio frequency |
| RMA | return material authorization |
| RMP | radio management panel |
| RMU | radio management unit |
| RTCA | Radio Technical Commission for Aeronautics |
| SATCOM | satellite communications |
| SBB | swift broadband |
| SCM | satellite data unit configuration module |
| SDIMM | system description, installation, and maintenance manual |
| SDU | satellite data unit |
| SI | International System of Units |
| SIS | standalone identification system |
| SRU | shop replaceable unit |
| STC | supplemental type certificate |
| TP | top plug |
| TSO | technical standing order |
| U.S.A. | United States of America |
| USIM | universal subscriber identity module |
| USMS | United States Measurement System |
| VAC | volt, alternating current |
| VDC | volt, direct current |

5. Process Verification (TASK 23-15-30-99F-805-A01)

A. Verification Data (Subtask 23-15-30-99F-013-A01)

- (1) Honeywell does a verification of these technical instructions by demonstration or by simulation of the necessary procedures. Demonstration shows that the procedures were checked by the use of the manual. Simulation shows that the applicable personnel looked at the procedure in the manual and that the procedure is technically correct. The dates of verification for this manual are given in Table 4.

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Table 4. Verification Data

| Section | Method | Date |
|--|---------------|-------------|
| Testing and Fault Isolation ¹ | Demonstration | 14 Nov 2012 |

NOTE:

- 1 Only the TESTING portion of the TESTING AND FAULT ISOLATION section was done by demonstration.

DESCRIPTION AND OPERATION

1. Description (TASK 23-15-30-870-801-A01)

A. **General** (Subtask 23-15-30-870-001-A01)

- (1) This section contains a description of the A350 SDU and SCM.
- (2) The A350 SATCOM avionics products developed under this program complement Honeywell SATCOMs existing range of SATCOM products. The Honeywell furnished A350 SATCOM avionics, in concert with the amplifier and antenna subsystem, achieves all of the requirements for providing AMSS by facilitating airborne satellite communications. These services comprise Classic Aero-H+, Swift64 and SBB as described above provided by Inmarsat and its designated service provider agencies.
- (3) The A350 SATCOM avionics is an integral part of the complete L-band Inmarsat SATCOM system and comprises of the following components:
 - SDU PN 1458-A-1100
 - SCM PN 1458-A-1300.
- (4) Refer to Table 5 for the SDU leading particulars.
- (5) Refer to Table 6 for the SCM leading particulars.

Table 5. SDU Leading Particulars

| Characteristic | Specification |
|---------------------------|--|
| Length | 14.58 inches (370.3 mm) |
| Width | 7.52 inches (191.0 mm) |
| Height | 7.85 inches (199.4 mm) |
| Weight | 18.08 pounds (8.2 kg) |
| Heating and cooling: | |
| • Cooling air | ARINC 600 |
| • Flow rate | 110.2 lb/hr (50 kg/hr), 104°F (40°C) (MAX) air |
| • Pressure drop | 0.2 ±0.12 inH ₂ O (5 ±3 mmH ₂ O) |
| Mounting information | 6 MCU tray as per ARINC 600 |
| Electrical interfaces: | |
| • Power/Control interface | ARINC 781 |
| Power requirements: | |

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| Characteristic | Specification |
|--|--|
| <ul style="list-style-type: none"> Input voltage (AC) Input voltage (DC) | 96 to 122 VAC, 300 to 900 Hz 18 to 32.3 VDC |
| Power consumption | 300 mA if operated with an external EMPA 400 mA if operated as standalone |

Table 6. SCM Leading Particulars

| Characteristic | Specification |
|--|--|
| Length | 4.75 inches (120.7 mm) |
| Width | 4.00 inches (101.6 mm) |
| Height | 1.00 inch (25.4 mm) |
| Weight | 0.66 pound (0.30 kg) |
| Mounting information | 4 x 0.125 inch (3.18 mm) holes on 3.3 x 3.50 inches (88.9 mm) spacing, per attachment 1-6 of ARINC 781 |
| Electrical interfaces: <ul style="list-style-type: none"> Power/Control interface | ARINC 781 |
| Power requirements | +12 volts \pm 5% (derived from SDU) |

- (6) Refer to Figure 3 (GRAPHIC 23-15-30-99B-803-A01) for the SDU and Figure 4 (GRAPHIC 23-15-30-99B-804-A01) for detailed information on the physical characteristics of the SDU.

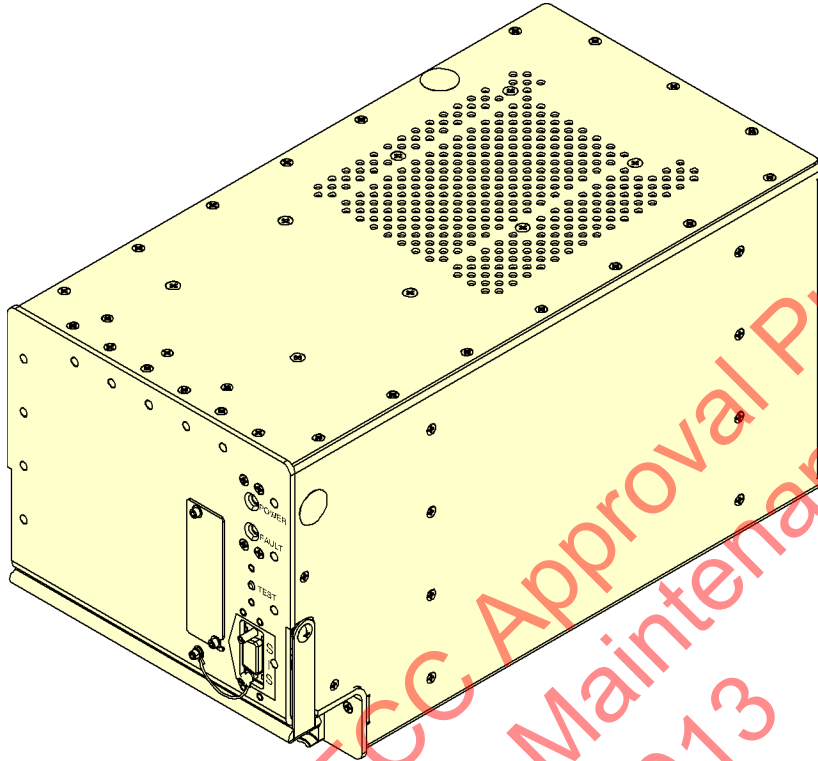
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ID-408892 E1458-E-1100-1-B

Figure 3. (Sheet 1 of 1) SDU (GRAPHIC 23-15-30-99B-803-A01)

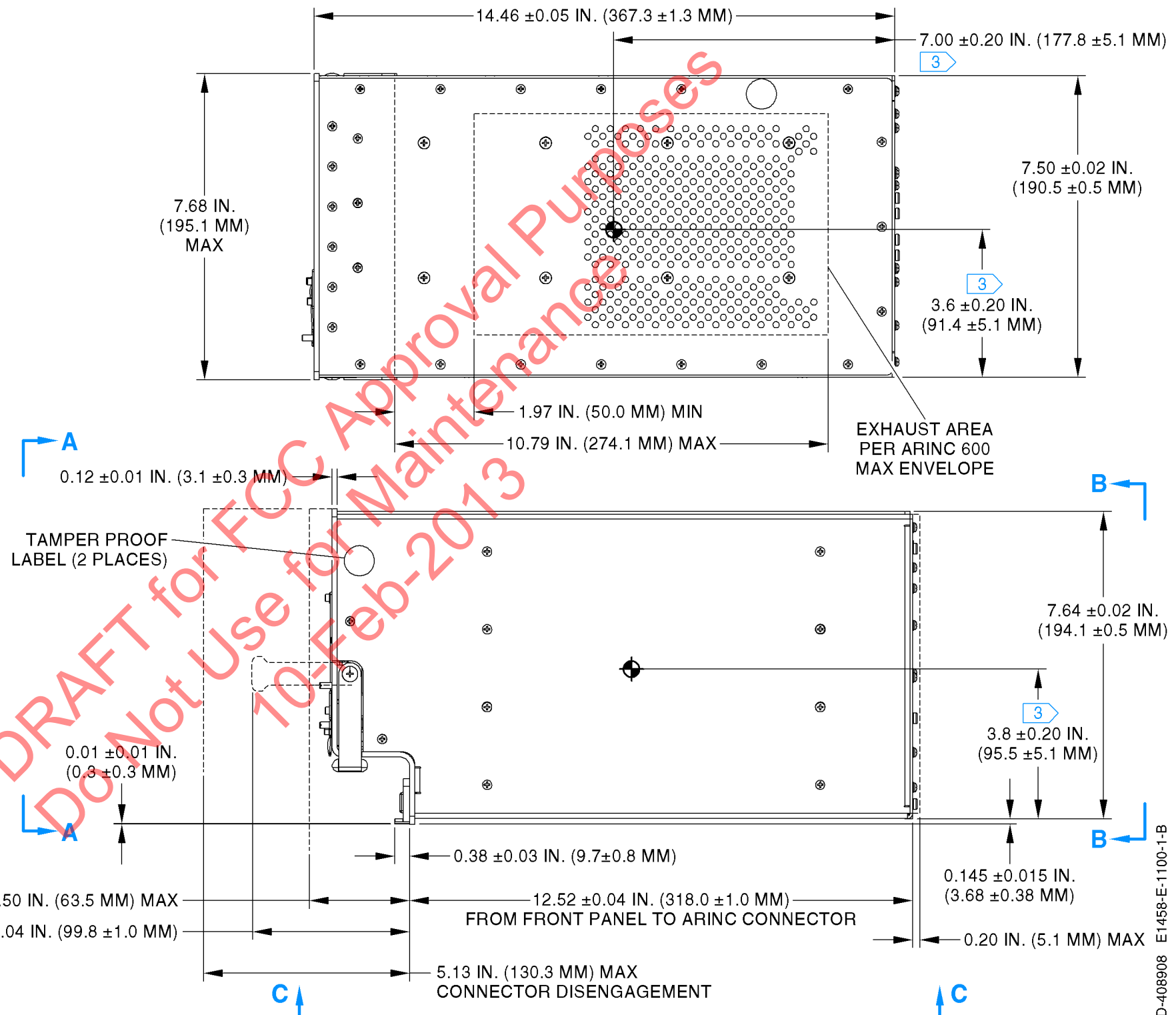
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NOTES:

1. This unit meets the dimensional requirements of ARINC 600 specification.
2. Maximum weight is 18.08 lb (8.2 kg).
3. Approximate center of gravity is indicated by \oplus .
4. This unit must be installed in a 6-MCU tray per ARINC 600 specification.
5. Power distribution is 110 watts maximum.
6. Cooling requirements per ARINC 600:
Flow Rate: 52.9 lb/hr (24 kg/hr) maximum.
Pressure Drop: 0.04 +0/-0.007 PSI (300 +0/-50 Pa).
7. Finish:
Metal Treatment: Chemical film per MIL-DTL-5541, Type II, Class 3.
Exterior Finish: Prism powder coat PB134LT (polyester powder, satin santex black).

Figure 4. (Sheet 1 of 2) SDU Outline and Installation Drawing (GRAPHIC 23-15-30-99B-804-A01)

ID-408908 E1458-E-1100-1-B

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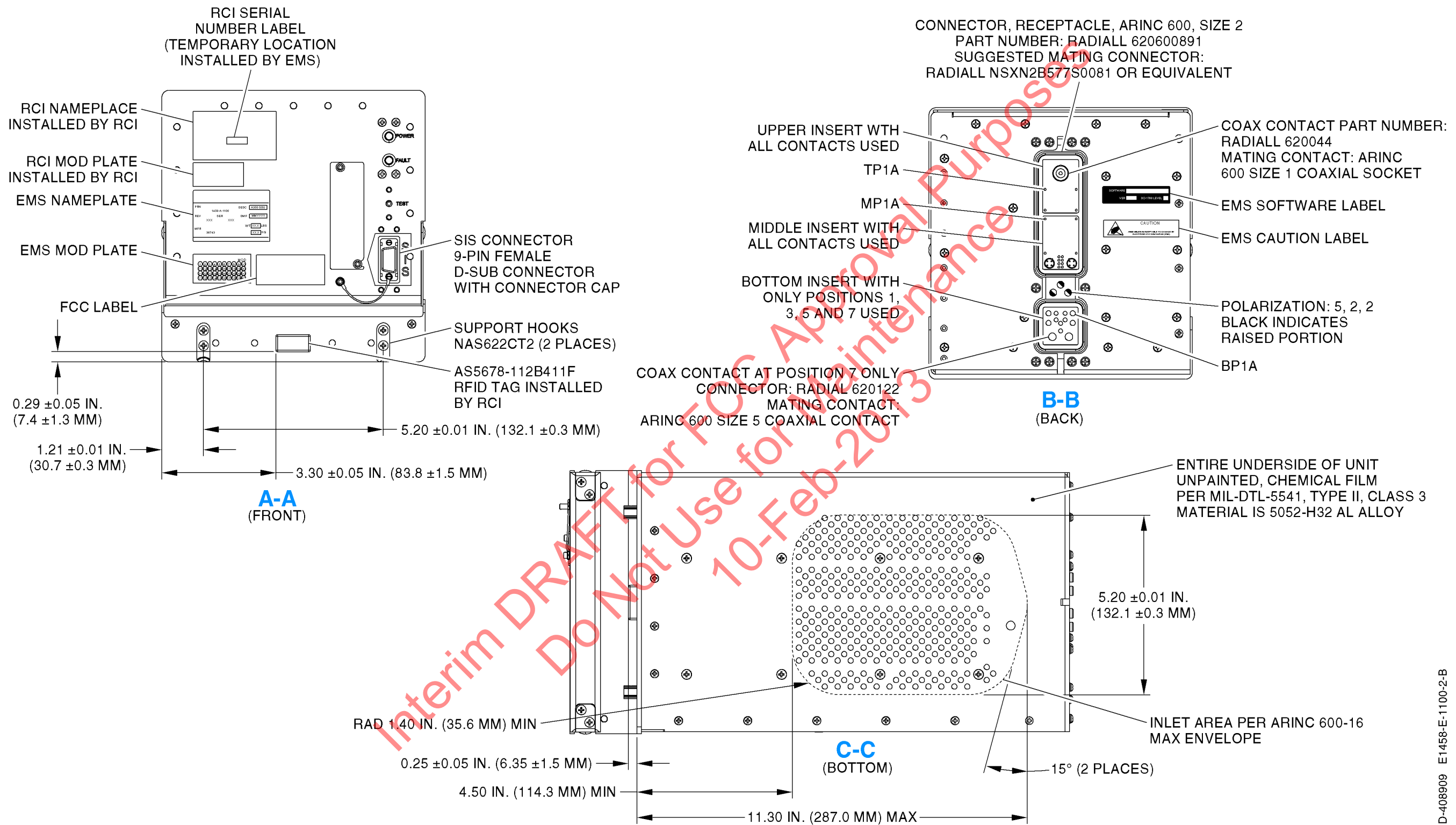


Figure 4. (Sheet 2 of 2) SDU Outline and Installation Drawing (GRAPHIC 23-15-30-99B-804-A01)

ID-408909 E1458-E-1100-2-B

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- (7) Refer to Figure 5 (GRAPHIC 23-15-30-99B-805-A01) for the SCM and Figure 6 (GRAPHIC 23-15-30-99B-806-A01) for a detailed information on the physical characteristics of the SCM.

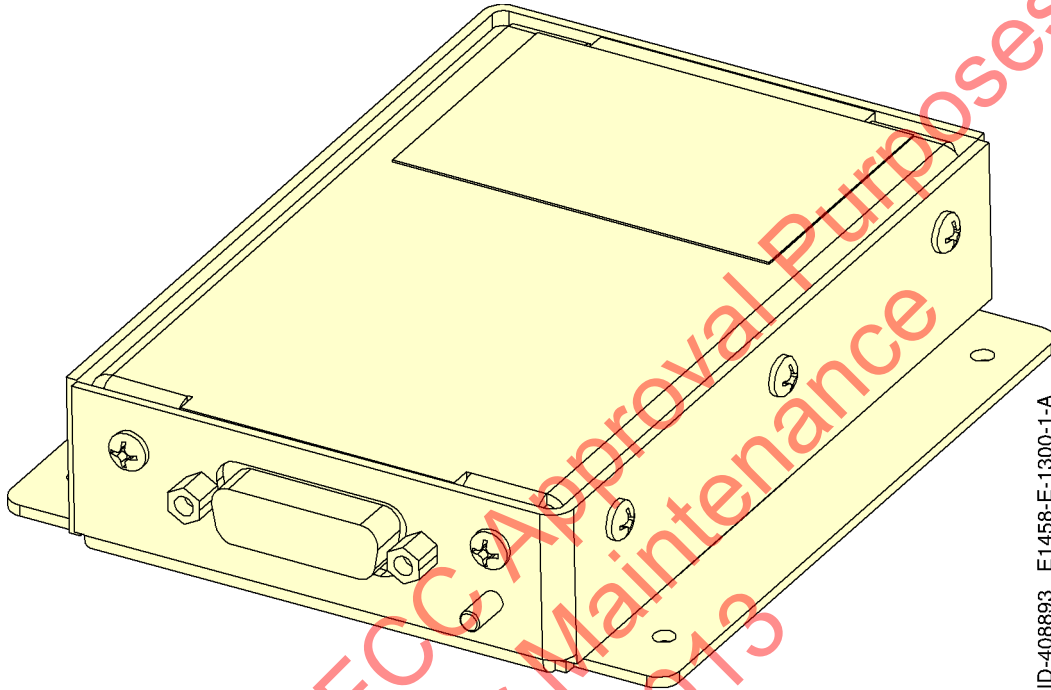


Figure 5. (Sheet 1 of 1) SCM (GRAPHIC 23-15-30-99B-805-A01)

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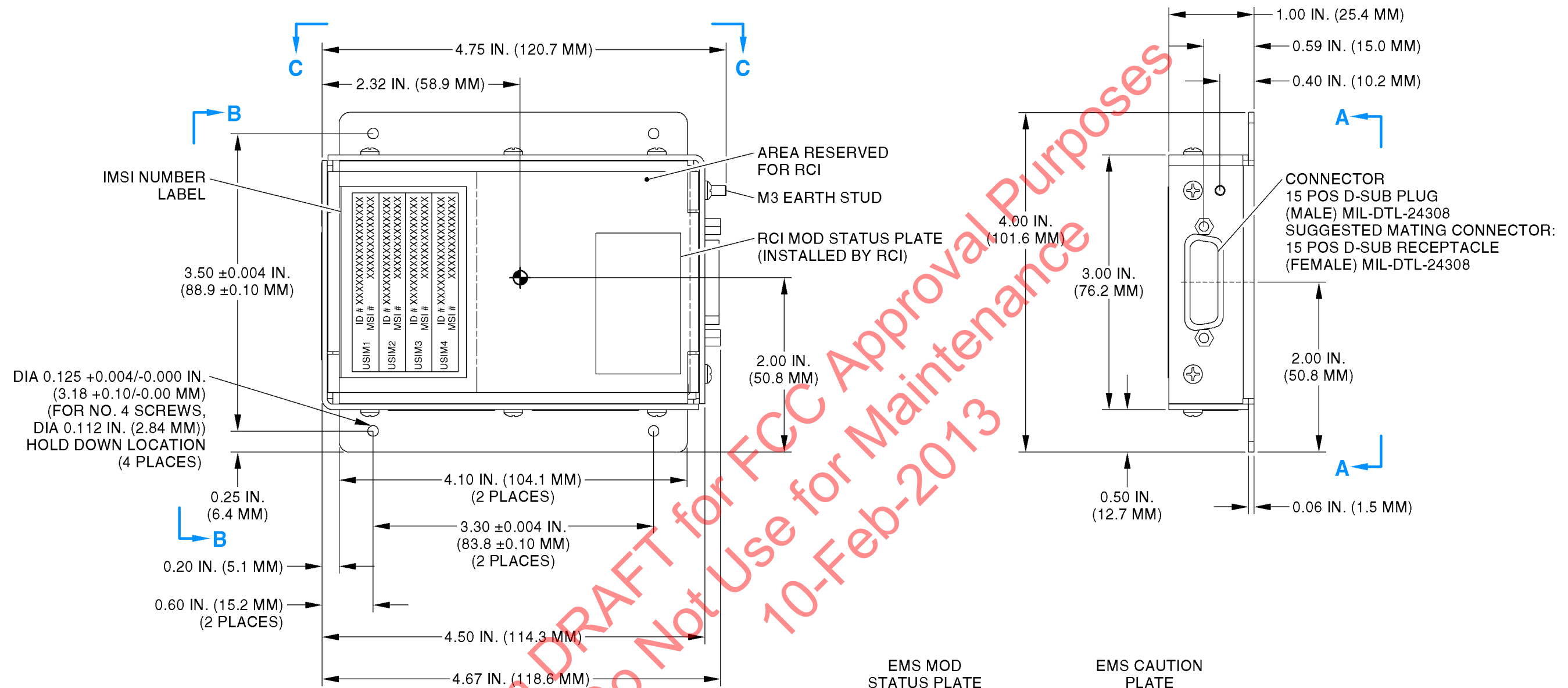
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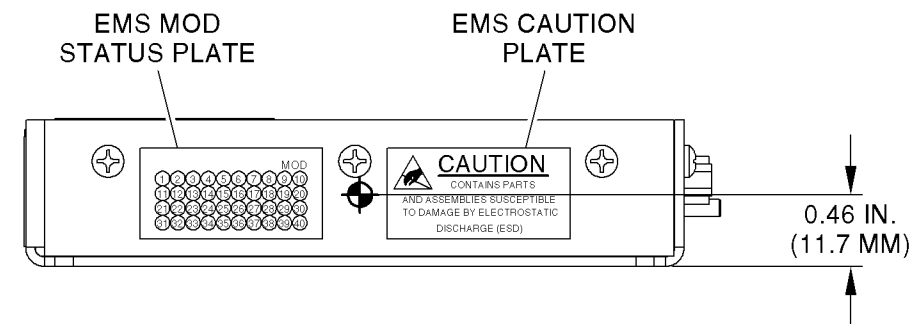
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NOTES:

1. This unit meets the dimensional requirements of ARINC 781 specification.
2. Maximum weight is 0.66 lb (0.30 kg).
3. Indicates approximate center of gravity.
4. Torque requirement for mounting screws are 4.5 to 6.5 in-lb (0.51 to 0.73 Nm).
5. Power dissipation is 12 watts (maximum), 2.4 watts (normal).
6. Finish:
Metal Treatment: Chemical film per MIL-DTL-5541, Type II, Class 3.
Exterior Finish: Prism powder coat PB134LT (polyester powder, satin santex black).

Figure 6. (Sheet 1 of 2) SCM Outline and Installation Drawing (GRAPHIC 23-15-30-99B-806-A01)



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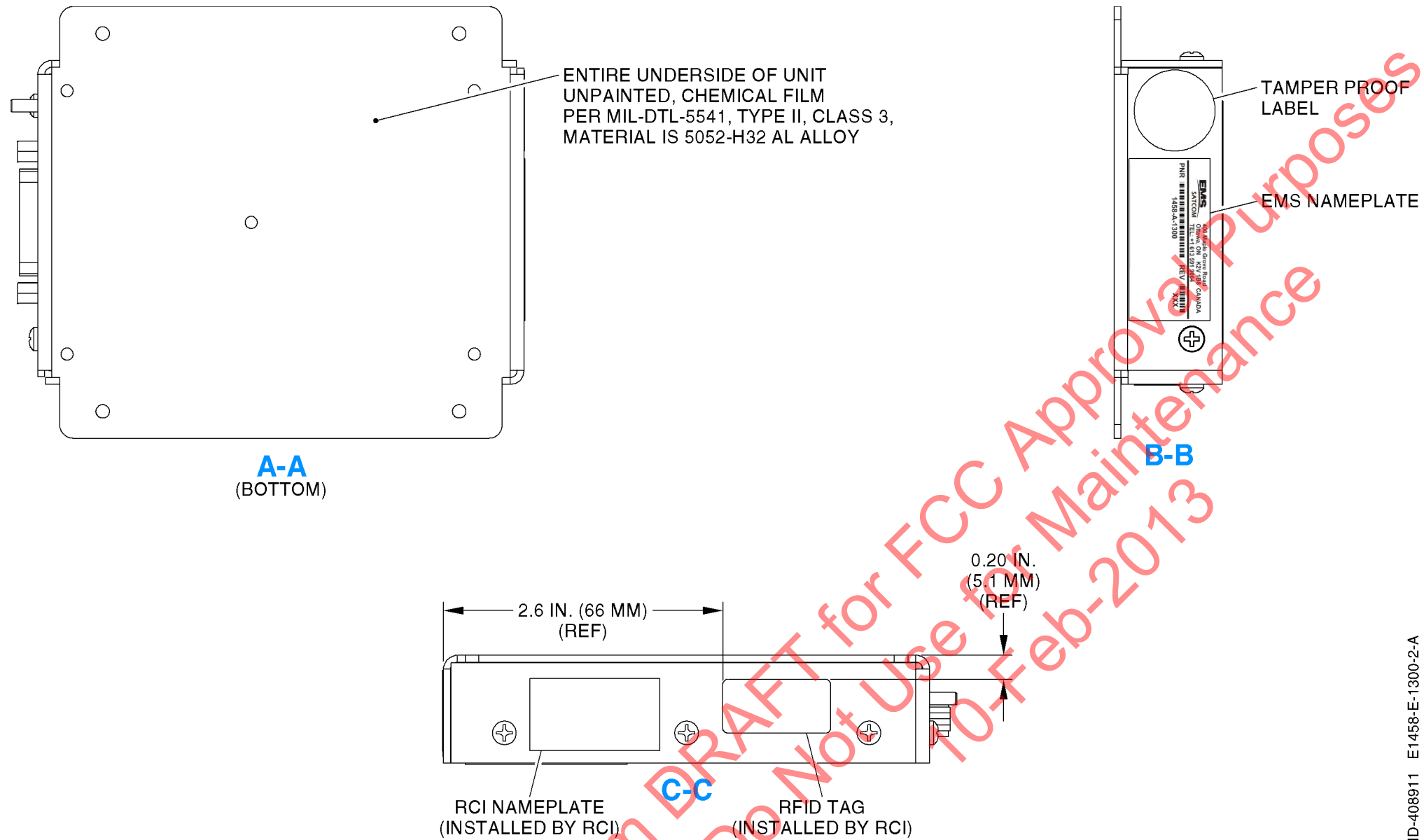


Figure 6. (Sheet 2 of 2) SCM Outline and Installation Drawing (GRAPHIC 23-15-30-99B-806-A01)

ID-408911 E1458-E-1300-2-A

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(8) Table 7 lists the equipment covered by this manual.

Table 7. Equipment Description

| Equipment | PN | Description/Notes |
|-----------|-------------|---|
| SDU | 1458-A-1101 | The central communications processing and control unit. |
| SCM | 1458-A-1300 | Stores installation configuration, ORT, ICAO, and USIM information. |

B. Job Setup Data (Subtask 23-15-30-99C-001-A01)

(1) The list that follows identifies Honeywell publications that are related to this section:

- Not applicable.

C. A350 SDU and SCM (Subtask 23-15-30-870-002-A01)

(1) SDU

(a) The SDU is the central communications processing and control unit, largely determining the functionality of the complete SATCOM system. The signal-in-space parameters are determined by the SDU in relation to modulation/demodulation, error correction, coding, interleaving and data rates associated with the communication channel(s). The SDU contains circuits for conversion of digital and/or analog inputs/outputs to/from RF, and typically contains a PA module. The SDU interfaces at L-band with the HPA and DLNA and also controls the antenna.

(b) The SDU is capable of sending and receiving various data rates. The rate is dynamically selected by the individual applications and by pragmatic assessment of current operating conditions.

(2) SCM

(a) The SCM is an external peripheral of the SDU and provides a dedicated interface to the SDU. It stores aircraft specific installation configuration, ORT configuration, and ICAO identities. The SCM also contains four USIM that store subscriber information for the SBB network.

(b) By storing configuration information independent of the SDU, the SCM facilitates efficient SDU replacement. A new SDU that replaces a faulty SDU does not require any configuration. All configuration information is obtained from the SCM.

(3) Refer to Figure 7 (GRAPHIC 23-15-30-99B-807-A01) for the A350 SATCOM Avionics System.

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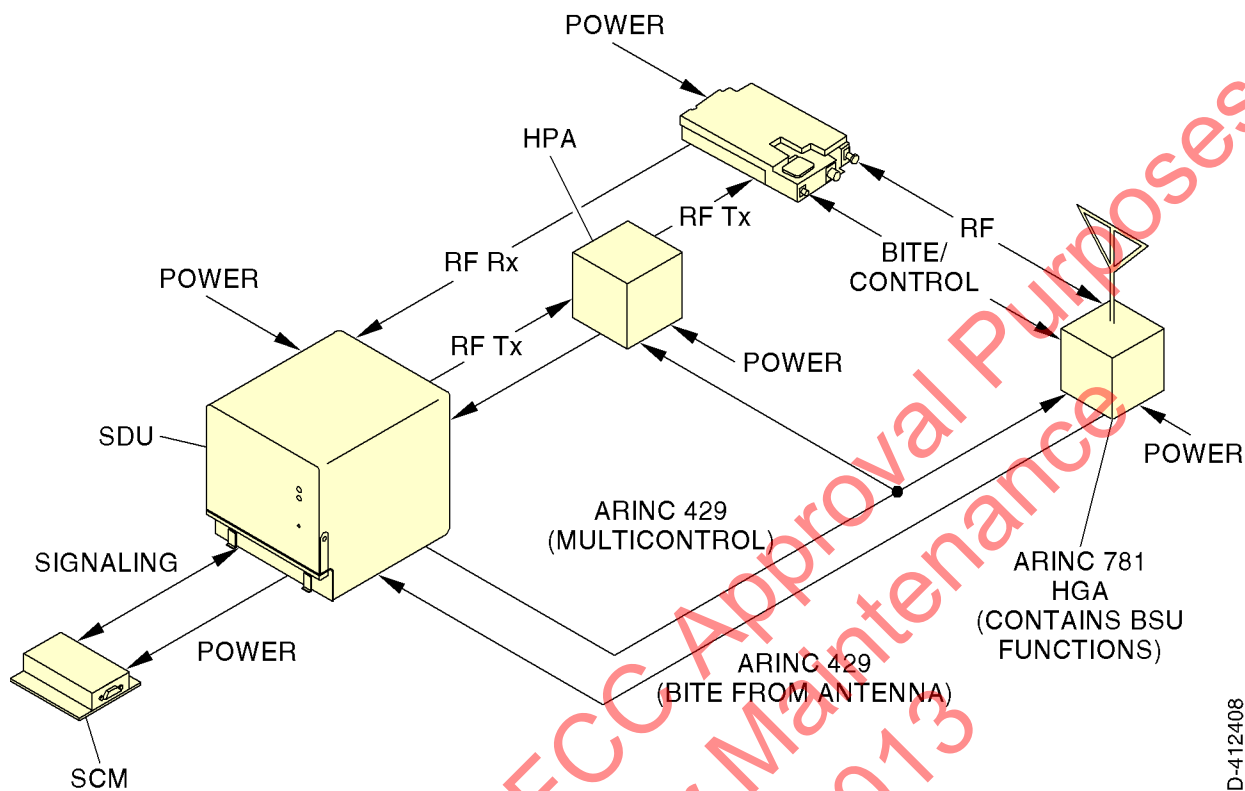


Figure 7. (Sheet 1 of 1) A350 SATCOM Avionics System (GRAPHIC 23-15-30-99B-807-A01)

D. Purpose of the Equipment (Subtask 23-15-30-870-003-A01)

- (1) The A350 SATCOM Avionics System enables airborne satellite communications, including the following services:
 - AERO or "Classic" AERO - This service provides packet data services at 600, 1200, or 10500 bps over the PRT channel combination and half-rate circuit switched voice or data service over the C channel.
 - Swift64 - This service provides circuit switched 64 kbps, and 56 kbps mobile ISDN. In addition, it provides packet switched MPDS up to 64 kbps.
 - SBB - This service will give broadband circuit and packet switched services with data rates of 128 kbps and higher per channel.
- (2) The following interfaces are provided for the above defined services:
 - (a) AMU (x2) - Provides voice and voice control discrettes:
 - 4 wire port (x2) - 4 wire voice communication system used for AERO voice service from the cockpit
 - Call and Mic ON discrettes.
 - (b) Ethernet Port (x2) - one used at any one time (under ORT control) for packet data services access
 - (c) RMP (x3) - The RMP is installed in the cockpit and interfaces directly to the A350 SDU over a standard ARINC 429 interface. The RMP implements the HMI necessary to control radio and satellite communication equipment. The RMP enables user to:

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- Place calls manually or from a directory
 - Accept, reject, preempt incoming calls
 - View and change SATCOM settings and options
 - Select auto login or control logon with manual logon and logoff options
 - Control cabin communications (cabin calls enable/disable).
- (3) Refer to Figure 8 (GRAPHIC 23-15-30-99B-808-A01) for the A350 SATCOM Avionics System block diagram.

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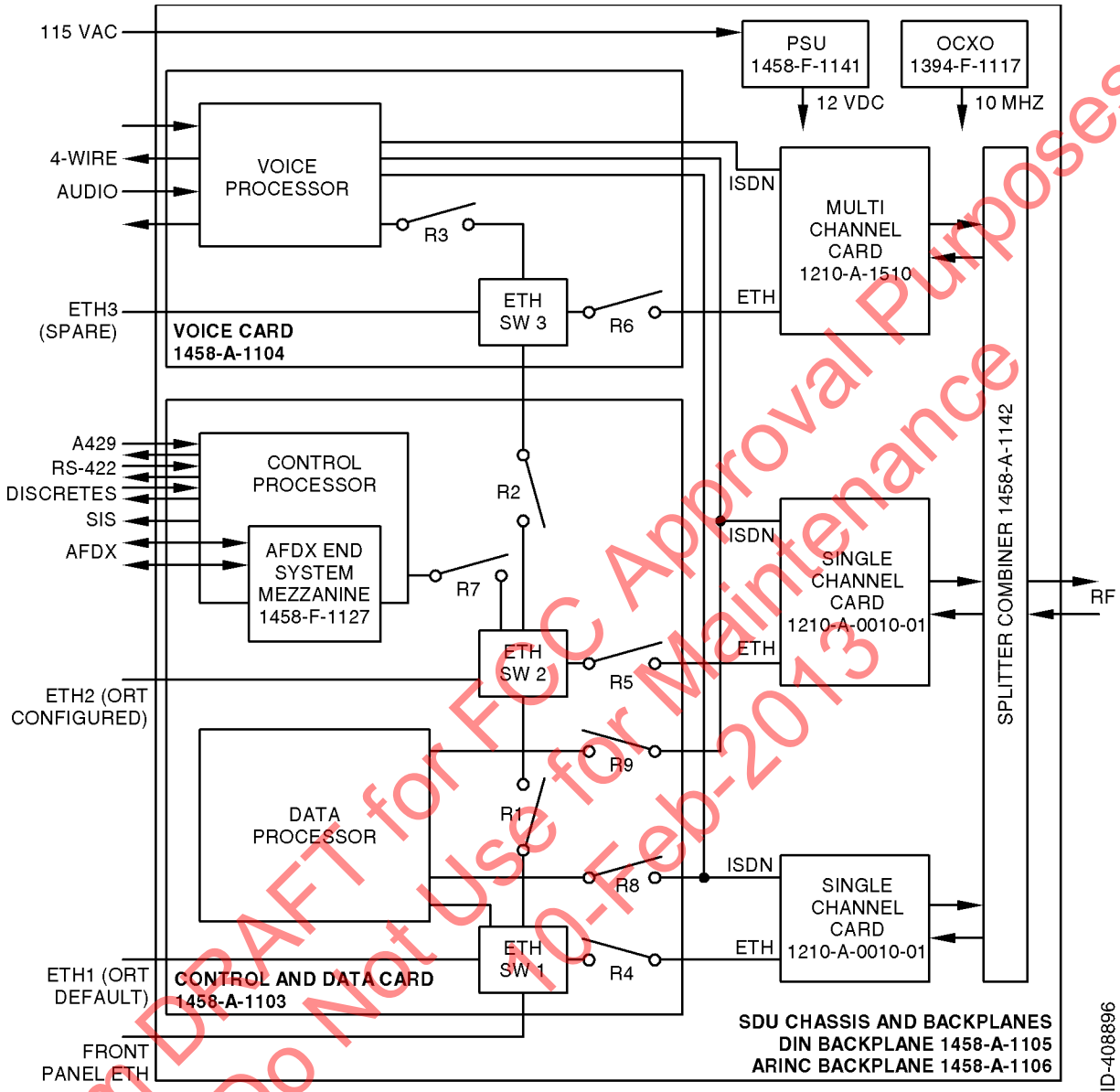


Figure 8. (Sheet 1 of 1) A350 SATCOM Avionics System Block Diagram (GRAPHIC 23-15-30-99B-808-A01)

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2. Operation (TASK 23-15-30-870-802-A01)

A. **General** (Subtask 23-15-30-870-004-A01)

- (1) The SDU is an integral component in an AES. Together with the SCM, DLNA, and HGA subsystem, it achieves all of the requirements for providing AMSS by facilitating airborne satellite communication services over the Inmarsat network. These services comprise Classic Aero-H+, Swift64, and SBB.
- (2) The SCM is a dedicated peripheral of the SDU and stores aircraft specific installation configuration critical to the operation of the AES.

B. **Satellite Network Overview** (Subtask 23-15-30-870-005-A01)

- (1) This section provides a brief overview of the Inmarsat I-3/I-4 satellite communication system. Satellite communication systems include global satellite networks, GES/LES, and AES/MES.
- (2) GES and AES are the terms associated with Aero-H+ services.
- (3) Satellite communication systems give users with long-range voice and data communication by accessing global satellite and ground communications networks.
- (4) Inmarsat is an international organization that operates and maintains the satellites and satellite networks. Inmarsat operates multiple geostationary satellites. Each satellite is
 - AORE
 - AORW
 - IOR
 - POR.
- (5) All I-3 satellites give worldwide telecommunication services for aviation, shipping, and land-mobile terminal users. The satellites connect to ground telecommunication systems through a network of GESs.
- (6) In addition to the services offered by I-3 satellites, the I-4 satellites also give worldwide broadband service, SBB. Each I-4 satellite has 19 wide spot beams, 228 narrow spot beams, and is capable of accommodating many different, simultaneous SBB sessions. The SBB service and I-4 satellites support broadband applications such as videoconferencing and video-streaming.
- (7) At the time of publishing, three I-4 satellites are operational:
 - Americas
 - EMEA
 - Asia-Pacific.
- (8) The satellite communication avionics (ARINC 781 systems), typically in conjunction with an antenna subsystem, act as an AES/MES. The combined system provides users with a data and voice communications link to the satellite network and global telecommunications system.
- (9) A simplified satellite communications system is shown in Figure 9 (GRAPHIC 23-15-30-99B-809-A01).

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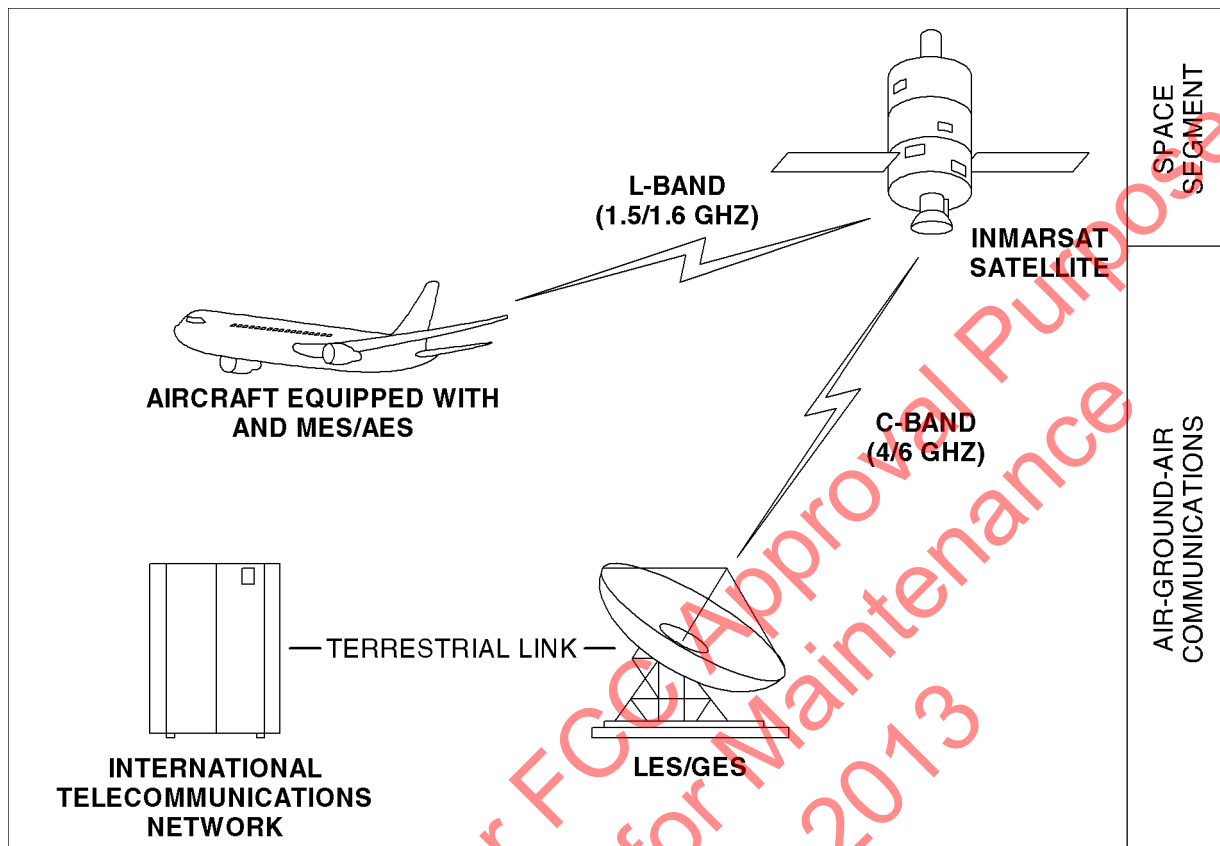


Figure 9. (Sheet 1 of 1) Simplified Aeronautical Satellite Communications System
(GRAPHIC 23-15-30-99B-809-A01)

C. Software Specifications (Subtask 23-15-30-870-006-A01)

- (1) The A350 SDU and SCM operating software meets RTCA/DO-178B Level D requirements.

D. Hardware Specifications (Subtask 23-15-30-870-007-A01)

- (1) The A350 SDU and SCM hardware meets RTCA/DO-254 Level D requirements.

E. Equipment Description (Subtask 23-15-30-870-008-A01)

- (1) Mechanical

- (a) The A350 SATCOM Avionics System consists of the following LRUs:

- SDU
- SCM
- FMPA (optional).

- (b) The SDU is divided into several SRUs that are electrically connected through the backplane. Various SRUs are also connected with the RF cables.

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- (c) The SCM is a dedicated peripheral of the SDU. The SCM package envelope and mounting arrangement conform to ARINC 781-2. The interconnecting cable between the SDU and the SCM must not be longer than 393.7 inches (10 meters).
- 1 Weight
 - a The combined maximum weight of the A350 SDU and SCM is 18.72 pounds (8.5 kg), exclusive of mounting trays, fans, and interconnecting cable.
 - 2 Form Factor
 - a The A350 SDU and SCM form factors are compliant with ARINC 781.
 - 3 Connectors
 - a The SDU uses two external interface connectors:
 - Rear Connector - accommodates coaxial and signal interconnections in the TP insert, quadrax and signal interconnections in the MP insert, and coaxial, and power interconnections in the BP insert. The top insert pin assignment are in accordance with ARINC 781 with the following deviations as shown in the Table 8.
 - Front Connector - an RJ45 and 9S DSUB connector providing 10bT Ethernet and an RS-232 maintenance interface to the control processor.

Table 8. SDU Rear Connector Pin Deviations

| Description | Pin | Deviation |
|--|-------|------------|
| CP maintenance TXD | TP01A | ATE pin 1 |
| CP maintenance RXD | TP01B | ATE pin 2 |
| CP/DP maintenance GND | TP01C | ATE pin 3 |
| Data I/O processor maintenance TXD | TP01D | ATE pin 4 |
| Data I/O processor maintenance RXD | TP01E | ATE pin 5 |
| CC1 processors #1 and #2 maintenance GND | TP01F | ATE pin 6 |
| CC1 processor #1 maintenance TXD | TP01G | ATE pin 7 |
| CC1 processor #1 maintenance RXD | TP01H | ATE pin 8 |
| CC1 processor #2 maintenance TXD | TP01J | ATE pin 9 |
| CC1 processor #2 maintenance RXD | TP01K | ATE pin 10 |
| Download security | TP02A | ATE pin 11 |
| No connect | TP02B | ATE pin 12 |
| Voice processor maintenance GND | TP02C | ATE pin 13 |
| Voice processor maintenance TXD | TP02D | ATE pin 14 |
| Voice processor maintenance RXD | TP02E | ATE pin 15 |
| CC2 and CC3 maintenance GND | TP02F | ATE pin 16 |
| CC2 processor maintenance TXD | TP02G | ATE pin 17 |
| CC2 processor maintenance RXD | TP02H | ATE pin 18 |

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| Description | Pin | Deviation |
|-------------------------------|-------|------------|
| CC3 processor maintenance TXD | TP02J | ATE pin 19 |
| CC3 processor maintenance RXD | TP02K | ATE pin 20 |

- (d) The SCM uses a 15 pin D-type male connector and locking screws. Pin assignments are consistent with ARINC 781 as shown in Table 9.

Table 9. SCM D-Type Connector Pin Assignment

| Pin Number | Description |
|------------|--|
| 1 | Data to SDU A (RS422) |
| 2 | Data to SDU B (RS422) |
| 3 | Data from SDU A (RS422) |
| 4 | Data from SDU B (RS422) |
| 5 | Reserved - RS232 GND (used for shop loading) |
| 6 | Spare |
| 7 | Chassis GND |
| 8 | Power input (+8 to +15 volts) |
| 9 | Reserved - Enable RS232 (used for shop loading) |
| 10 | Reserved - 0 volt strap output (used for shop loading) |
| 11 | Spare |
| 12 | Reserved - RS232 Tx (used for shop loading) |
| 13 | Reserved - RS232 Rx (used for shop loading) |
| 14 | Spare |
| 15 | Power return (0 volt) |

(2) Electrical

- (a) The SDU is divided into the following SRUs:

- Channel card (2)
- Multi-channel card
- SDU control processor and data I/O processor
- AFDX mezzanine card
- SDU voice processor
- Combiner and splitter
- Backplane
- Oven controlled crystal oscillator
- Power supply
- SCM.

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(b) The major interfaces of the SDU are shown in Table 10.

Table 10. SDU Functional Interfaces

| Interface | Description | Type |
|---------------|--|------------|
| HGA (x1) | HGA/DLNA | A429 bus |
| HPA (x1) | HPA | A429 bus |
| RMP (x3) | RMU (for Control and Display) | A429 bus |
| AFDX (x2) | AFDX | AFDX bus |
| | ADIRU virtual links | AFDX VL |
| | LGERS virtual links | AFDX VL |
| | CMS virtual links | AFDX VL |
| | DLCS virtual links | AFDX VL |
| | FWS virtual links | AFDX VL |
| | DFDRS virtual links | AFDX VL |
| | SPP virtual links | AFDX VL |
| SCM (x1) | SCM | RS422 |
| SCM 12V power | SCM power | Power |
| SIS (x1) | SIS | I2C |
| Servicing | Front panel accessible service port for data log retrieval | Ethernet |
| Miscellaneous | ARINC discrete input, outputs and configuration straps | Discrettes |

(c) The frequency of operation is as follows:

- Receive band - 1525.0 to 1559.0 MHz
- Transmit band - 1626.5 to 1660.5 MHz.

(3) Refer to Figure 10 (GRAPHIC 23-15-30-99B-810-A01) for the System Interconnection Drawing.

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NOTES:

- 1 Cable loss HPA to D/LNA (RFTX): 2.5 dB maximum to antenna.
- 2 Cable loss D/LNA to SDU (RFRX): 6 to 25 dB.
- 3 Cable loss SDU to HPA (RFTX): 8 to 11 dB.
- 4 Cable between SDU and SCM to be less than 393.70 inches (10.0 m). Wire used to route SCM power (SCM PWR) must be 22 AWG minimum.
- 5 If the number of other configuration pins is even, then strap configuration Pin 3 (TP3F) to service availability Discrete 1 (MP11E).
6. P↓ denotes twisted pair.

Figure 10. (Sheet 1 of 3) System Interconnection Drawing (GRAPHIC 23-15-30-99B-810-A01)

ID-408912 E1458-E-1100-1-B

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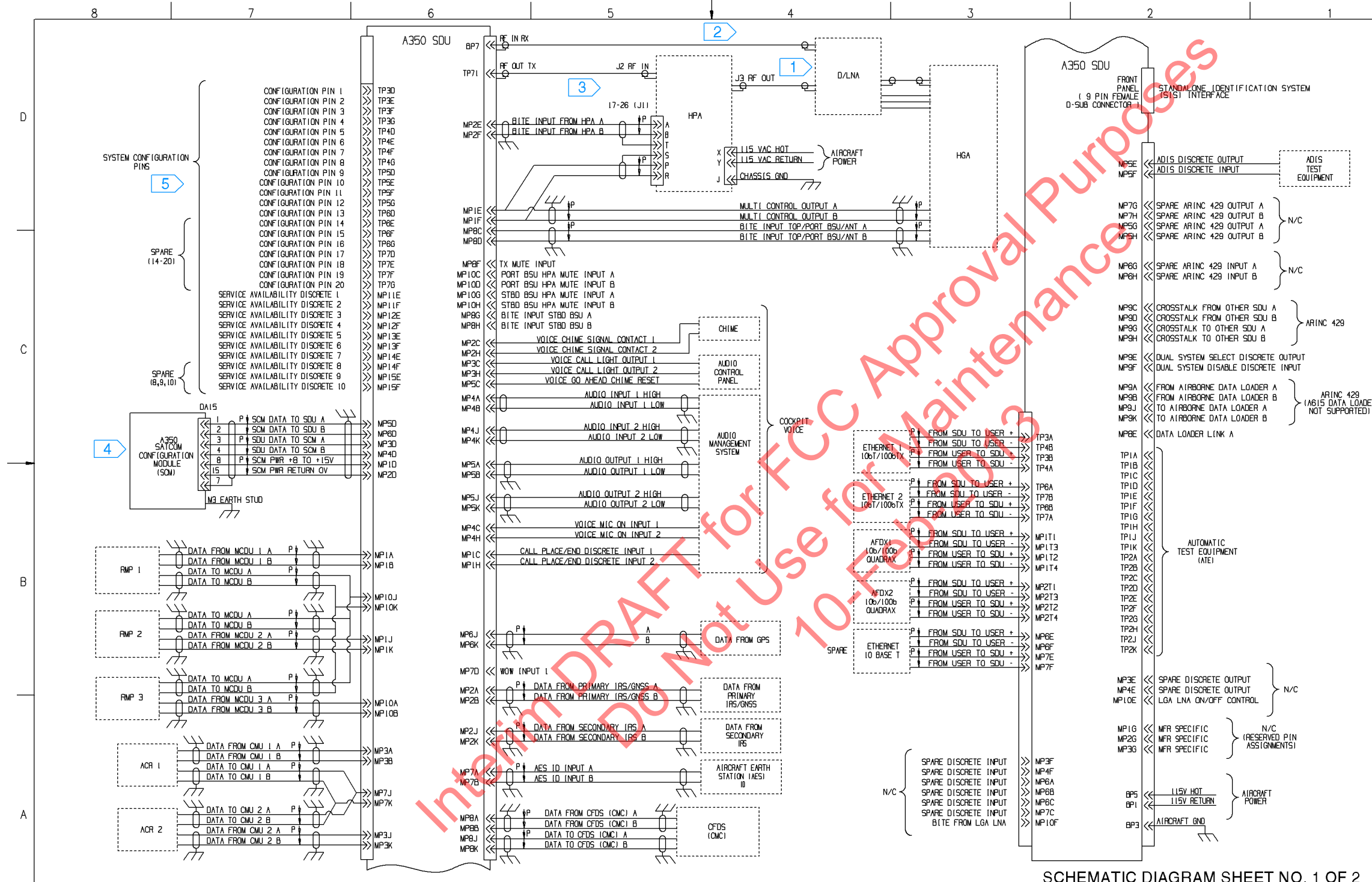
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Figure 10. (Sheet 2 of 3) System Interconnection Drawing (GRAPHIC 23-15-30-99B-810-A01)

ID-408913 E1458-E-1100-3-B

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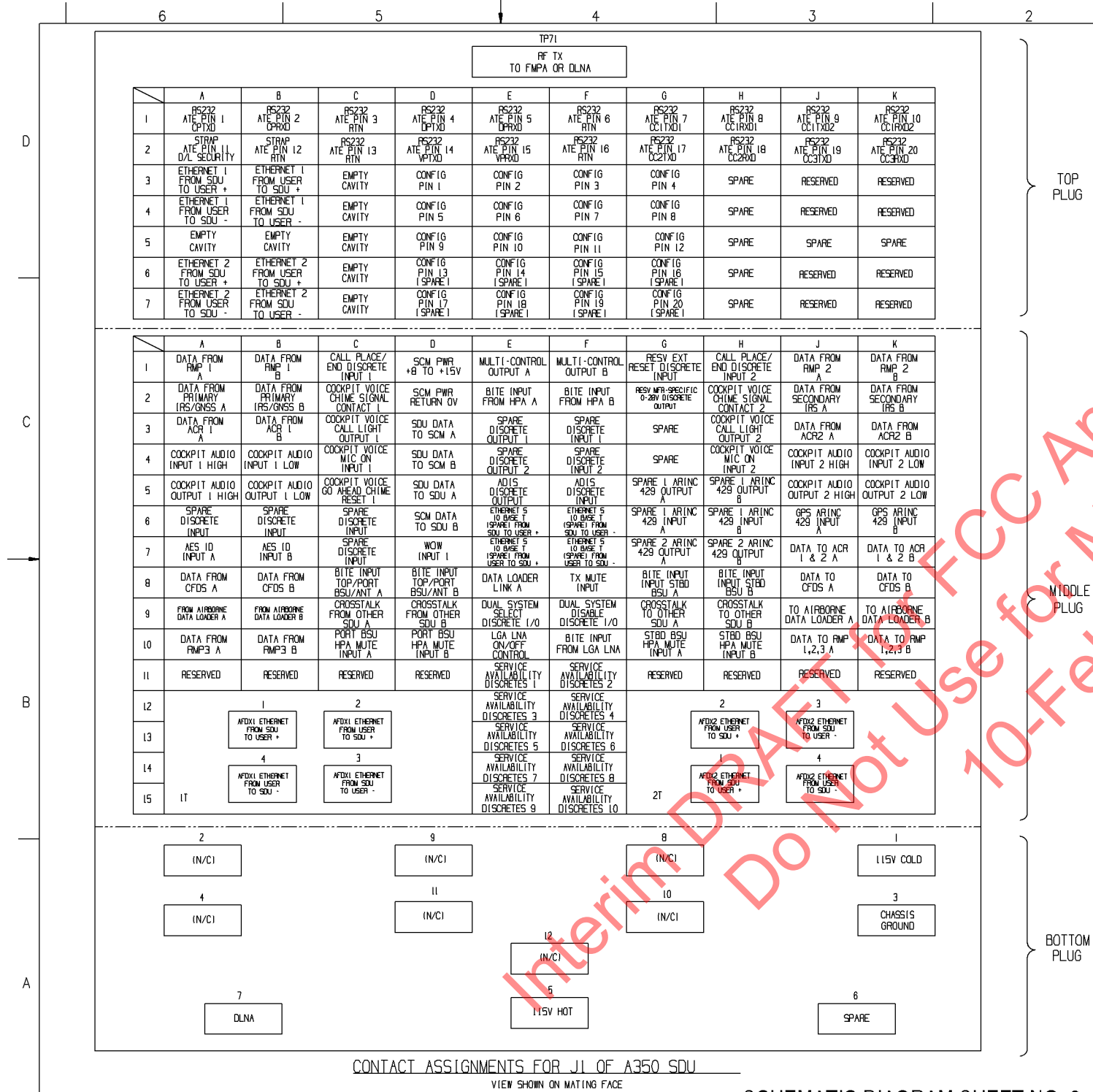


Figure 10. (Sheet 3 of 3) System Interconnection Drawing (GRAPHIC 23-15-30-99B-810-A01)

ID-408914 E1458-E-1100-4-B

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TESTING AND FAULT ISOLATION

1. Planning Data (TASK 23-15-30-99C-801-A01)

A. Reason for the Job (Subtask 23-15-30-99C-002-A01)

- (1) Use the test procedures in this section to test and isolate faults.
- (2) The function of the test procedures is to find if there is a failure in the operation of the SDU.

B. Job Setup Data (Subtask 23-15-30-99C-003-A01)

- (1) You can use equivalent alternatives for the special tools, fixtures, equipment, and consumable materials. The user must find equivalent alternatives.
- (2) Refer to Table 11 for the specified special tools, fixtures, and equipment in this section.
- (3) Refer to H4/H8 CAGE Codes (available at <http://www.logisticsinformationservice.dla.mil>) for manufacturer's address.

Table 11. Special Tools, Fixtures, and Equipment

| Number | Description | Source |
|----------------|----------------|----------------|
| Not applicable | Not applicable | Not applicable |

WARNING: BEFORE YOU USE A MATERIAL, REFER TO THE MANUFACTURERS' MATERIAL SAFETY DATA SHEETS. SOME MATERIALS CAN BE DANGEROUS.

CAUTION: DO NOT USE MATERIALS THAT ARE NOT EQUIVALENT TO HONEYWELL SPECIFIED MATERIALS. MATERIALS THAT ARE NOT EQUIVALENT CAN CAUSE DAMAGE TO THE EQUIPMENT AND CAN MAKE THE WARRANTY NOT APPLICABLE.

- (4) Refer to Table 12 for the specified consumable materials in this section.

Table 12. Consumables

| Number | Description | Source |
|----------------|----------------|----------------|
| Not applicable | Not applicable | Not applicable |

- (5) The list that follows identifies Honeywell publications that are related to this section:
 - Not applicable.

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2. **Procedure** (TASK 23-15-30-700-801-A01)

A. **Job Setup** (Subtask 23-15-30-810-001-A01)

WARNING: BEFORE YOU USE A MATERIAL, REFER TO THE MANUFACTURERS' MATERIAL SAFETY DATA SHEETS. SOME MATERIALS CAN BE DANGEROUS.

CAUTION: DO NOT USE MATERIALS THAT ARE NOT EQUIVALENT TO HONEYWELL SPECIFIED MATERIALS. MATERIALS THAT ARE NOT EQUIVALENT CAN CAUSE DAMAGE TO THE EQUIPMENT AND CAN MAKE THE WARRANTY NOT APPLICABLE.

CAUTION: DO NOT DROP OR HIT THE SDU DURING THESE PROCEDURES. THE SDU CONTAINS AN ASSEMBLY THAT CAN BE DAMAGED FROM INCORRECT USE.

CAUTION: DO THESE PROCEDURES IN A CLEAN ENVIRONMENT TO PREVENT DAMAGE TO MECHANICAL COMPONENTS.

(1) Obey the precautions.

B. **BITE** (Subtask 23-15-30-810-002-A01)

- (1) On power up, the SDU performs a number of invasive BITE tests that are not possible during normal SDU system operation.
- (2) The failure of some of these tests will cause the equipment to go into fail safe mode and prevent RF transmission. Once entered, safe mode cannot be exited except by fixing the underlying condition and rebooting.
- (3) The SDU implements security segregation whereby the control domain (responsible for classic aero cockpit functionality) is separated from the data domain (responsible for Ethernet and swift cabin functionality).
- (4) The SDU will respond to a segregation failure by closing-down the user data (Ethernet and swift RF) interfaces and reporting the condition to both the CMS and security event log interfaces. If the SDU cannot verify that the user data (Ethernet and swift RF) interfaces are closed then it will enter a safe mode whereby all interfaces are terminated.

C. **LEDs** (Subtask 23-15-30-810-003-A01)

- (1) The front panel of the SDU has two LEDs to indicate unit status:
 - One green LED labelled "Power"
 - One red LED labelled "Fault".

D. **Self-Test** (Subtask 23-15-30-810-004-A01)

- (1) The front panel of the SDU has a recessed button labelled "Test":
 - To reset the unit, press and hold the test button for 5 seconds.
 - To initiate self-test (when no LEDs are flashing), momentarily press the test button.

E. **Unit Software Load Procedure** (Subtask 23-15-30-810-005-A01)

- (1) Field-loading of SDU software is not supported. All software upgrades must be accomplished by the manufacturer.
- (2) Field-loading of ORT software is supported through 615A-2 through Ethernet 3.

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F. Fault Isolation (Subtask 23-15-30-810-006-A01)

(1) Testing

(a) Power-Up Test

- 1 The power-up test verifies basic SDU functions and uses the front-panel LEDs to communicate the results.
- 2 The fault LED indicates several possible internal SDU system problems, not specific problems, refer to Table 13.

Table 13. LED Status Indicators Table

| Power LED State | Fault LED State | Indicates | Action |
|--|-----------------|---|---|
| ON for 60 seconds during boot-up, then OFF | ON | Normal operation during boot-up | - |
| OFF | OFF | Normal operation | - |
| OFF | ON | LRU fault | Use Interactive Mode BITE via CMS to confirm fault, remove the LRU and return it to the factory |
| OFF | Flashing | System fault, not necessarily with the A350 LRU | Use Interactive Mode BITE via CMS to isolate fault, use confirmation method of suspect LRU to confirm fault |
| Flashing | Flashing | Self-test | - |

- 3 Some of the possible LRU faults indicated by the lit fault LED include:

- Software image incorrect or corrupted
- Internal busses non-operational
- Internal processors non-functional.

- 4 To find the equipment or connection that failed, check the interactive mode BITE pages. Some examples of possible SDU system faults indicated by the flashing fault LED includes:

- Strapped configuration does not match the capabilities of the A350 SDU system or the configuration in the ORT - check the wiring and strapping
- Code images in the SDU do not match the expected configuration - check the software version and your configuration
- RF path from the SDU to D/LNA failed - check wiring and cable loss settings
- USIM not detected.

(b) Troubleshooting Guidelines

- 1 If the front-panel LEDs signal that the SDU is operating normally and some services are still not available:
 - Verify your SATCOM system - view to satellite, SCM installed

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- Verify your account information - proper login, Inmarsat registration
 - Check the SATCOM system using CMS interactive mode maintenance commands.
- (c) Aero-H+ Voice or Data Calls
- 1 Before you can make any Aero-H+ voice or data calls, make sure:
 - The Inmarsat registration paperwork is filled out and submitted to the service provider of choice
 - The aircraft has a clear view to the satellite
 - Proper power is applied to the SATCOM system
 - The INS is aligned - check via IM BITE through the CMS interface
 - AIC positional data is provided on the ADIRU interface - check via IM BITE through the CMS interface
 - A valid ICAO address is present on the SPP interface - check via IM BITE through the CMS interface
 - All ARINC 429 interfaces configured as present are present - check via IM BITE through the CMS interface. If any are not present, spurious faults are raised.
- (d) Swift 64 or SBB Calls
- 1 Before you can make any Swift 64 or SBB calls make sure:
 - All prerequisites for Aero-H+ calls are followed
 - The Aero-H+ service must be logged-on – check via RMP status in the cockpit
 - The LES access codes are programmed (Swift 64)
 - The forward IDs are present on the SPP bus – check via IM BITE through the CMS interface
 - The USIM modules are installed and activated with the service provider (for SBB service).
- (e) You can download fault logs from the SDU using the IM BITE.
- (2) Maintenance Aid Diagrams
- (a) No maintenance aid diagrams are required. Return any SDU or SCM units that fail the operational test procedure provided in this document to the manufacturer for fault isolation and repair. Refer to APPENDIX A (RMA) (PGBLK 23-15-30-1700) for the return procedure.
- (3) Schematic Change Pages
- (a) No schematic change pages are required. Return any SDU or SCM units that fail the operational test procedure provided in this document to the manufacturer for fault isolation and repair. Refer to APPENDIX A (RMA) (PGBLK 23-15-30-1700) for the return procedure.
- (4) Modification History
- (a) There are currently no service bulletins for the SDU or SCM.
- G. Job Close-up** (Subtask 23-15-30-810-007-A01)
- (1) Not applicable.

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1. Not Applicable

DISASSEMBLY

1. Not Applicable

CLEANING

1. **Planning Data** (TASK 23-15-30-99C-802-A01)

A. **Reason for the Job** (Subtask 23-15-30-99C-004-A01)

- (1) Use these procedures to remove dust, dirt, and unwanted oil and grease. Be careful not to cause damage to the parts when you do these procedures.

B. **Job Setup Data** (Subtask 23-15-30-99C-005-A01)

- (1) You can use equivalent alternatives for the special tools, fixtures, equipment, and consumable materials. The user must find equivalent alternatives.
- (2) Refer to Table 14 for the specified special tools, fixtures, and equipment in this section.
- (3) Refer to H4/H8 CAGE Codes (available at <http://www.logisticsinformationservice.dla.mil>) for manufacturer's address.

Table 14. Special Tools, Fixtures, and Equipment

| Number | Description | Source |
|----------------|----------------|----------------|
| Not applicable | Not applicable | Not applicable |

WARNING: BEFORE YOU USE A MATERIAL, REFER TO THE MANUFACTURERS' MATERIAL SAFETY DATA SHEETS. SOME MATERIALS CAN BE DANGEROUS.

CAUTION: DO NOT USE MATERIALS THAT ARE NOT EQUIVALENT TO HONEYWELL SPECIFIED MATERIALS. MATERIALS THAT ARE NOT EQUIVALENT CAN CAUSE DAMAGE TO THE EQUIPMENT AND CAN MAKE THE WARRANTY NOT APPLICABLE.

- (4) Refer to Table 15 for the specified consumable materials in this section.

Table 15. Consumables

| Number | Description | Source |
|----------------|----------------|----------------|
| Not applicable | Not applicable | Not applicable |

- (5) The list that follows identifies Honeywell publications that are related to this section:

- Not applicable.

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2. **Procedure** (TASK 23-15-30-100-801-A01)

A. **Job Setup** (Subtask 23-15-30-100-001-A01)

WARNING: BEFORE YOU USE A MATERIAL, REFER TO THE MANUFACTURERS' MATERIAL SAFETY DATA SHEETS. SOME MATERIALS CAN BE DANGEROUS.

CAUTION: DO NOT USE MATERIALS THAT ARE NOT EQUIVALENT TO HONEYWELL SPECIFIED MATERIALS. MATERIALS THAT ARE NOT EQUIVALENT CAN CAUSE DAMAGE TO THE EQUIPMENT AND CAN MAKE THE WARRANTY NOT APPLICABLE.

CAUTION: DO NOT DROP OR HIT THE A350 SDU AND SCM DURING THESE PROCEDURES. THE A350 SDU AND SCM CONTAINS AN ASSEMBLY THAT CAN BE DAMAGED FROM INCORRECT USE.

CAUTION: DO THESE PROCEDURES IN A CLEAN ENVIRONMENT TO PREVENT DAMAGE TO MECHANICAL COMPONENTS.

- (1) Obey the precautions.
- (2) Do the procedures in a clean location.
- (3) When you use pressurized air to clean assemblies and parts, do not use more air pressure than is necessary.
- (4) After you clean the assemblies and parts, supply protection from moisture, dust, and other contamination until you do a visual check and assemble the component.

B. **Job Close-up** (Subtask 23-15-30-100-002-A01)

- (1) Not applicable.

INSPECTION/CHECK

1. **Planning Data** (TASK 23-15-30-99C-803-A01)

A. **Reason for the Job** (Subtask 23-15-30-99C-006-A01)

- (1) Use these procedures to find damage or worn parts and parts that show signs of near failure.

B. **Job Setup Data** (Subtask 23-15-30-99C-007-A01)

- (1) You can use equivalent alternatives for the special tools, fixtures, equipment, and consumable materials. The user must find equivalent alternatives.
- (2) Refer to Table 16 for the specified special tools, fixtures, and equipment in this section.
- (3) Refer to H4/H8 CAGE Codes (available at <http://www.logisticsinformationservice.dla.mil>) for manufacturer's address.

Table 16. Special Tools, Fixtures, and Equipment

| Number | Description | Source |
|----------------|----------------|----------------|
| Not applicable | Not applicable | Not applicable |

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WARNING: BEFORE YOU USE A MATERIAL, REFER TO THE MANUFACTURERS' MATERIAL SAFETY DATA SHEETS. SOME MATERIALS CAN BE DANGEROUS.

CAUTION: DO NOT USE MATERIALS THAT ARE NOT EQUIVALENT TO HONEYWELL SPECIFIED MATERIALS. MATERIALS THAT ARE NOT EQUIVALENT CAN CAUSE DAMAGE TO THE EQUIPMENT AND CAN MAKE THE WARRANTY NOT APPLICABLE.

- (4) Refer to Table 17 for the specified consumable materials in this section.

Table 17. Consumables

| Number | Description | Source |
|----------------|----------------|----------------|
| Not applicable | Not applicable | Not applicable |

- (5) The list that follows identifies Honeywell publications that are related to this section:

- (a) Not applicable.

2. **Procedure** (TASK 23-15-30-210-801-A01)

A. **Job Setup** (Subtask 23-15-30-210-001-A01)

WARNING: BEFORE YOU USE A MATERIAL, REFER TO THE MANUFACTURERS' MATERIAL SAFETY DATA SHEETS. SOME MATERIALS CAN BE DANGEROUS.

CAUTION: DO NOT USE MATERIALS THAT ARE NOT EQUIVALENT TO HONEYWELL SPECIFIED MATERIALS. MATERIALS THAT ARE NOT EQUIVALENT CAN CAUSE DAMAGE TO THE EQUIPMENT AND CAN MAKE THE WARRANTY NOT APPLICABLE.

CAUTION: DO NOT DROP OR HIT THE A350 SDU AND SCM DURING THESE PROCEDURES. THE A350 SDU AND SCM CONTAINS AN ASSEMBLY THAT CAN BE DAMAGED FROM INCORRECT USE.

CAUTION: DO THESE PROCEDURES IN A CLEAN ENVIRONMENT TO PREVENT DAMAGE TO MECHANICAL COMPONENTS.

- (1) Obey the precautions.

B. **General Inspection/Check Procedure of the A350 SDU and SCM** (Subtask 23-15-30-210-002-A01)

- (1) Periodic inspections of the mechanical and electrical interfaces of the SDU and SCM components to the aircraft must be completed as defined by the governing airworthiness body's ICA for the installation (Transport Canada, the FAA, the JAA). Refer to Paragraph 2.D. (Subtask 23-15-30-210-004-A01) for general guidelines.

- (2) Installation of the A350 SATCOM avionics system on an aircraft by STC obligates the aircraft operator to include the maintenance information supplied by this manual in the operator's aircraft maintenance manual and the operator's aircraft scheduled maintenance program.

C. **Instructions for Continued Airworthiness, FAR 25.1529** (Subtask 23-15-30-210-003-A01)

- (1) Periodic inspections of the mechanical and electrical interfaces of the A350 SDU system components to the aircraft should be completed as defined by the governing airworthiness body's ICA for the installation (Transport Canada, FAA, and EASA).
- (2) Installation of the A350 SATCOM avionics system on an aircraft by STC obligates the aircraft operator to include the maintenance information supplied by the A350 SATCOM avionics SDIMM in the operator's AMM and the operator's aircraft scheduled maintenance program.

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D. Inspection/Check Schedule (Subtask 23-15-30-210-004-A01)

- (1) The SDU and SCM system does not require routine maintenance for continued airworthiness.
- (2) Follow the standard practices chapter of the AMM and do all required inspections at a minimum each year or for every aircraft maintenance requirements and schedule.

E. Unscheduled Maintenance (Subtask 23-15-30-210-005-A01)

- (1) Follow the standard practices chapter of the AMM and do all required inspections and repairs.

F. Repair Requirements (Subtask 23-15-30-210-006-A01)

- (1) If functional problems occur, the SDU BITE identifies the faulty LRU.
- (2) For each continued airworthiness instructions, if an SDU or SCM is inoperative, use the standard practices chapter of the AMM to:
 - Remove the unit.
 - Attach cables and wiring.
 - Collar applicable switches and circuit breakers, and placard them as “inoperative”.
- (3) Before flight, revise the equipment list and weight and balance data as applicable, and record the removal of the unit in the log book, refer to section 91.213 of the FAR or the aircraft MEL.
- (4) All repairs must be performed at Honeywell or a Honeywell approved repair facility.

G. Job Close-up (Subtask 23-15-30-210-007-A01)

- (1) Not applicable.

REPAIR

1. Planning Data (TASK 23-15-30-99C-804-A01)

A. Reason for the Job (Subtask 23-15-30-99C-008-A01)

- (1) Use these procedures for the A350 SDU and SCM to replace defective parts and replace or repair defective subassemblies.

B. Job Setup Data (Subtask 23-15-30-99C-009-A01)

- (1) You can use equivalent alternatives for the special tools, fixtures, equipment, and consumable materials. The user must find equivalent alternatives.
- (2) Refer to Table 18 for the specified special tools, fixtures, and equipment in this section.
- (3) Refer to H4/H8 CAGE Codes (available at <http://www.logisticsinformationservice.dla.mil>) for manufacturer’s address.

Table 18. Special Tools, Fixtures, and Equipment

| Number | Description | Source |
|----------------|----------------|----------------|
| Not applicable | Not applicable | Not applicable |

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WARNING: BEFORE YOU USE A MATERIAL, REFER TO THE MANUFACTURERS' MATERIAL SAFETY DATA SHEETS. SOME MATERIALS CAN BE DANGEROUS.

CAUTION: DO NOT USE MATERIALS THAT ARE NOT EQUIVALENT TO HONEYWELL SPECIFIED MATERIALS. MATERIALS THAT ARE NOT EQUIVALENT CAN CAUSE DAMAGE TO THE EQUIPMENT AND CAN MAKE THE WARRANTY NOT APPLICABLE.

- (4) Refer to Table 19 for the specified consumable materials in this section.

Table 19. Consumables

| Number | Description | Source |
|----------------|----------------|----------------|
| Not applicable | Not applicable | Not applicable |

- (5) The list that follows identifies Honeywell publications that are related to this section:

- (a) Not applicable.

2. **Procedure** (TASK 23-15-30-300-801-A01)

A. **Job Setup** (Subtask 23-15-30-300-001-A01)

WARNING: BEFORE YOU USE A MATERIAL, REFER TO THE MANUFACTURERS' MATERIAL SAFETY DATA SHEETS. SOME MATERIALS CAN BE DANGEROUS.

CAUTION: DO NOT USE MATERIALS THAT ARE NOT EQUIVALENT TO HONEYWELL SPECIFIED MATERIALS. MATERIALS THAT ARE NOT EQUIVALENT CAN CAUSE DAMAGE TO THE EQUIPMENT AND CAN MAKE THE WARRANTY NOT APPLICABLE.

CAUTION: DO NOT DROP OR HIT THE A350 SDU AND SCM DURING THESE PROCEDURES. THE A350 SDU AND SCM CONTAINS AN ASSEMBLY THAT CAN BE DAMAGED FROM INCORRECT USE.

CAUTION: DO THESE PROCEDURES IN A CLEAN ENVIRONMENT TO PREVENT DAMAGE TO MECHANICAL COMPONENTS.

- (1) Obey the precautions.

B. **General Repair Instructions** (Subtask 23-15-30-300-002-A01)

- (1) If functional problems occur, the SDU BITE identifies the faulty LRU - check via IM Bite through the CMS interface.
- (2) As per continued airworthiness instructions, if an SDU or SCM is inoperative, use the standard practices chapter of the AMM to remove the unit, secure cables and wiring, collar applicable switches and circuit breakers, and placard them as "inoperative".
- (3) Before flight, revise the equipment list and weight and balance data as applicable, and record the removal of the unit in the log book. Refer to Section 91.213 of the FAR or the aircraft's MEL.
- (4) All repairs must be performed at the Honeywell factory.

C. **Job Close-up** (Subtask 23-15-30-300-003-A01)

- (1) Not applicable.

ASSEMBLY

1. Not Applicable

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FITS AND CLEARANCES

1. **Planning Data** (TASK 23-15-30-99C-805-A01)

A. **Reason for the Job** (Subtask 23-15-30-99C-010-A01)

- (1) This section gives the fits and clearances used when the A350 SDU and SCM was made.
- (2) This section gives the torque data required for repair and assembly of the A350 SDU and SCM.

B. **Job Setup Data** (Subtask 23-15-30-99C-011-A01)

- (1) Not applicable.

2. **Procedure** (TASK 23-15-30-220-801-A01)

A. **Job Setup** (Subtask 23-15-30-220-001-A01)

- (1) Not applicable.

B. **Fits and Clearances of the A350 SDU and SCM** (Subtask 23-15-30-220-002-A01)

- (1) Refer to Table 20 when you do the procedures in INSTALLATION (PGBLK 23-15-30-13000).

Table 20. Fits and Clearances

| Nomenclature/Description Figure - Item | Requirement/Dimension |
|--|-----------------------|
| Minimum clearance between the SDU and any other equipment installed above it | 0.50 inch (12.7 mm) |

C. **Torque Values** (Subtask 23-15-30-220-003-A01)

- (1) Tighten nuts, bolts, screws, and tube fittings to the standard torque unless specified differently. Refer to FAA Manual FAA-H-8083-30, Aviation Maintenance Technician Handbook, for standard torque.
- (2) Tighten nuts, bolts, screws, and tube fittings to the standard torque unless specified differently.
- (3) Tighten fasteners installed through non-elastic boundaries to remove visible clearance between the parts. Monitor the rundown torque necessary just before the fastener becomes tight. Then tighten to the final torque (refer to Table 21 for the correct thread size) and add the rundown torque. This procedure is sufficient for all fasteners not shown under torque values below. Refer to Table 22 for final torque data after rundown torque.
- (4) Tighten fasteners installed through elastic boundaries (sealed by means of a diaphragm or similar elastomeric gasket) equally to get a pressure tight seal.

Table 21. Thread Size and Torque Data

| Thread Size | Torque in-lb (Nm) | |
|-------------|-------------------|---------------|
| | Aluminum Fastener | CRES Fastener |
| 6-32 | 5 (0.565) | 10 (1.13) |
| 8-32 | 10 (1.13) | 20 (2.26) |
| 10-24 | 15 (1.695) | 35 (3.955) |
| 1/4-20 | 45 (5.085) | 75 (8.475) |

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| Thread Size | Torque in-lb (Nm) | |
|-------------|-------------------|---------------|
| | Aluminum Fastener | CRES Fastener |
| 5/16-18 | 80 (9.04) | 160 (18.08) |
| 3/8-24 | 140 (15.82) | 275 (31.075) |

Table 22. Final Torque Data

| Thread Size | Approximate Turn After Run-Down |
|-------------|---------------------------------|
| 6-32 | 45 degrees |
| 8-32 | 60 degrees |
| 10-24 | 40 degrees |
| 1/4-20 | 40 degrees |
| 5/16-18 | 40 degrees |
| 3/8-24 | 60 degrees |

D. Specified Torque Values (Subtask 23-15-30-220-004-A01)

(1) Not applicable.

E. Job Close-up (Subtask 23-15-30-220-005-A01)

(1) Not applicable.

SPECIAL TOOLS, FIXTURES, EQUIPMENT, AND CONSUMABLES

1. Planning Data (TASK 23-15-30-99C-806-A01)

A. General (Subtask 23-15-30-99C-012-A01)

(1) No special tools, fixtures, or equipment is required. Standard avionics shop tools are the only equipment required.

SPECIAL PROCEDURES

1. Not Applicable

REMOVAL

1. Planning Data (TASK 23-15-30-99C-807-A01)

A. Reason for the Job (Subtask 23-15-30-99C-013-A01)

(1) Use these procedures to remove the A350 SDU and SCM.

B. Job Setup Data (Subtask 23-15-30-99C-014-A01)

(1) You can use equivalent alternatives for the special tools, fixtures, equipment, and consumable materials. The user must find equivalent alternatives.

(2) Refer to Table 23 for the specified special tools, fixtures, and equipment in this section.

(3) Refer to H4/H8 CAGE Codes (available at <http://www.logisticsinformationservice.dla.mil>) for manufacturer's address.

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Table 23. Special Tools, Fixtures, and Equipment

| Number | Description | Source |
|----------------|----------------|----------------|
| Not applicable | Not applicable | Not applicable |

WARNING: BEFORE YOU USE A MATERIAL, REFER TO THE MANUFACTURERS' MATERIAL SAFETY DATA SHEETS. SOME MATERIALS CAN BE DANGEROUS.

CAUTION: DO NOT USE MATERIALS THAT ARE NOT EQUIVALENT TO HONEYWELL SPECIFIED MATERIALS. MATERIALS THAT ARE NOT EQUIVALENT CAN CAUSE DAMAGE TO THE EQUIPMENT AND CAN MAKE THE WARRANTY NOT APPLICABLE.

(4) Refer to Table 24 for the specified consumable materials in this section.

Table 24. Consumable Materials

| Number | Description | Source |
|----------------|----------------|----------------|
| Not applicable | Not applicable | Not applicable |

(5) The list that follows identifies Honeywell publications that are related to this section:

- Not applicable.

2. **Procedure** (TASK 23-15-30-000-801-A01)

A. **Job Setup** (Subtask 23-15-30-000-001-A01)

WARNING: BEFORE YOU USE A MATERIAL, REFER TO THE MANUFACTURERS' MATERIAL SAFETY DATA SHEETS. SOME MATERIALS CAN BE DANGEROUS.

CAUTION: DO NOT USE MATERIALS THAT ARE NOT EQUIVALENT TO HONEYWELL SPECIFIED MATERIALS. MATERIALS THAT ARE NOT EQUIVALENT CAN CAUSE DAMAGE TO THE EQUIPMENT AND CAN MAKE THE WARRANTY NOT APPLICABLE.

CAUTION: DO NOT DROP OR HIT THE A350 SDU AND SCM DURING THESE PROCEDURES. THE A350 SDU AND SCM CONTAINS AN ASSEMBLY THAT CAN BE DAMAGED FROM INCORRECT USE.

CAUTION: DO THESE PROCEDURES IN A CLEAN ENVIRONMENT TO PREVENT DAMAGE TO MECHANICAL COMPONENTS.

(1) Obey the precautions.

B. **General** (Subtask 23-15-30-000-002-A01)

(1) Only authorized technical personnel, trained in general aviation workmanship, that have a basic understanding of SATCOM systems must proceed with the following procedure.

C. **Removal** (Subtask 23-15-30-000-003-A01)

(1) If an SDU must be removed from service for repair, with power removed, disconnect all equipment from the SDU and then remove it from the ARINC tray.

(2) If a SCM must be removed from service for repair, with power removed, disconnect all equipment from the SCM and then remove the four mounting screws.

D. **Job Close-up** (Subtask 23-15-30-000-004-A01)

(1) Not applicable.

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INSTALLATION

1. Planning Data (TASK 23-15-30-99C-808-A01)

A. Reason for the Job (Subtask 23-15-30-99C-015-A01)

- (1) Use these procedures to install the A350 SDU and SCM.

B. Job Setup Data (Subtask 23-15-30-99C-016-A01)

- (1) You can use equivalent alternatives for the special tools, fixtures, equipment, and consumable materials. The user must find equivalent alternatives.
- (2) Refer to Table 25 for the specified special tools, fixtures, and equipment in this section.
- (3) Refer to H4/H8 CAGE Codes (available at <http://www.logisticsinformationservice.dla.mil>) for manufacturer's address.

Table 25. Special Tools, Fixtures, and Equipment

| Number | Description | Source |
|----------------|----------------|----------------|
| Not applicable | Not applicable | Not applicable |

WARNING: BEFORE YOU USE A MATERIAL, REFER TO THE MANUFACTURERS' MATERIAL SAFETY DATA SHEETS. SOME MATERIALS CAN BE DANGEROUS.

CAUTION: DO NOT USE MATERIALS THAT ARE NOT EQUIVALENT TO HONEYWELL SPECIFIED MATERIALS. MATERIALS THAT ARE NOT EQUIVALENT CAN CAUSE DAMAGE TO THE EQUIPMENT AND CAN MAKE THE WARRANTY NOT APPLICABLE.

- (4) Refer to Table 26 for the specified consumable materials in this section.

Table 26. Consumable Materials

| Number | Description | Source |
|----------------|----------------|----------------|
| Not applicable | Not applicable | Not applicable |

- (5) The list that follows identifies Honeywell publications that are related to this section:
 - Not applicable.

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2. **Procedure** (TASK 23-15-30-400-801-A01)

A. **Job Setup** (Subtask 23-15-30-400-001-A01)

WARNING: BEFORE YOU USE A MATERIAL, REFER TO THE MANUFACTURERS' MATERIAL SAFETY DATA SHEETS. SOME MATERIALS CAN BE DANGEROUS.

CAUTION: DO NOT USE MATERIALS THAT ARE NOT EQUIVALENT TO HONEYWELL SPECIFIED MATERIALS. MATERIALS THAT ARE NOT EQUIVALENT CAN CAUSE DAMAGE TO THE EQUIPMENT AND CAN MAKE THE WARRANTY NOT APPLICABLE.

CAUTION: DO NOT DROP OR HIT THE A350 SDU AND SCM DURING THESE PROCEDURES. THE A350 SDU AND SCM CONTAINS AN ASSEMBLY THAT CAN BE DAMAGED FROM INCORRECT USE.

CAUTION: DO THESE PROCEDURES IN A CLEAN ENVIRONMENT TO PREVENT DAMAGE TO MECHANICAL COMPONENTS.

(1) Obey the precautions.

B. **Installation Data** (Subtask 23-15-30-400-002-A01)

(1) Installation requirements are based on ARINC 781 specifications.

C. **Unpacking and Inspecting Equipment** (Subtask 23-15-30-400-003-A01)

(1) Unpack the equipment components from the shipping container. Visually inspect the units for any shipping damage. Make sure that both the SDU and SCM are available.

- SDU PN 1394-A-1100
- SCM PN 1394-A-1300.

(2) If optional parts have been ordered, these items must be removed from the packaging and visually inspected for any shipping damage.

D. **Customer Acceptance Procedure** (Subtask 23-15-30-400-004-A01)

- (1) Make sure that the part number on the equipment received is correct as ordered.
- (2) Check for physical damage that can occurred during shipping.
- (3) Check the operational status of the SDU and SCM before installation on an aircraft by performing the test procedures described in TESTING AND FAULT ISOLATION (PGBLK 23-15-30-1000).

E. **Installation Procedure** (Subtask 23-15-30-400-005-A01)

(1) General

- (a) Only authorized technical personnel, trained in general aviation workmanship, that have a basic understanding of SATCOM systems must proceed with the following procedure. Before performing any installation procedures, read the safety advisories.

(2) SDU Installation

- (a) Refer to Figure 11 (GRAPHIC 23-15-30-99B-811-A01).
- (b) The A350 SDU uses ARINC 600 size 2 shell receptacles located at the rear of the unit and requires an ARINC 600 6 MCU tray for installation.
- (c) Refer to the interconnection diagrams to install the correct wiring for the services you require. The interconnection and pinout drawings are also provided for information purposes.

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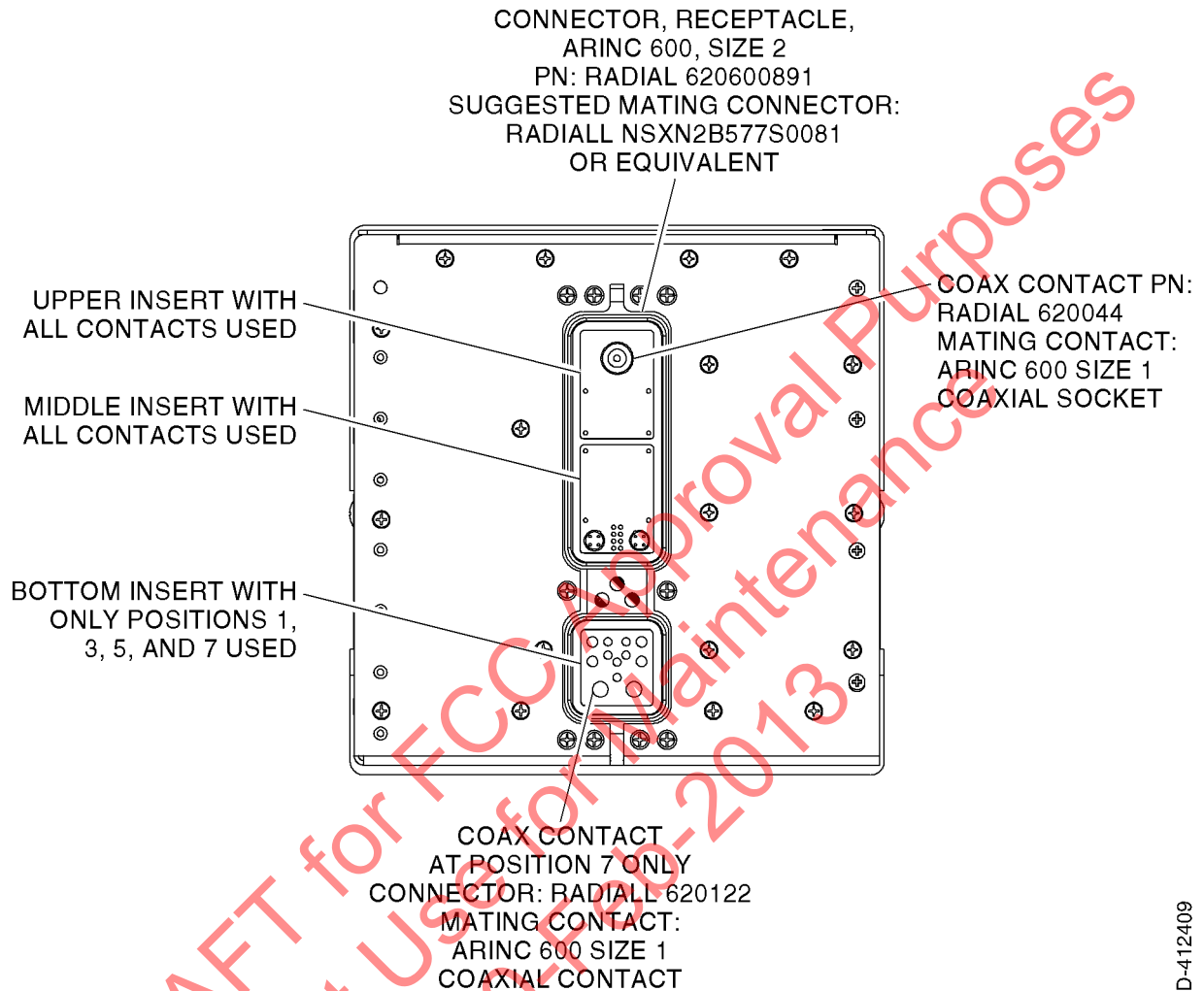
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ID-412409

Figure 11. (Sheet 1 of 1) SDU Back View (GRAPHIC 23-15-30-99B-811-A01)

(3) SCM Installation

- (a) Refer to Figure 12 (GRAPHIC 23-15-30-99B-812-A01).
- (b) The A350 SCM can be installed in any orientation, but must be mounted on a flat surface.
- (c) The A350 SCM must be provided with a low impedance bonding path (less than 2.5 milliohms to airframe ground) to a point on its base.
- (d) After the SCM is mounted, connect it to the SDU using a connector cable as per the SCM and SDU interconnection diagrams.

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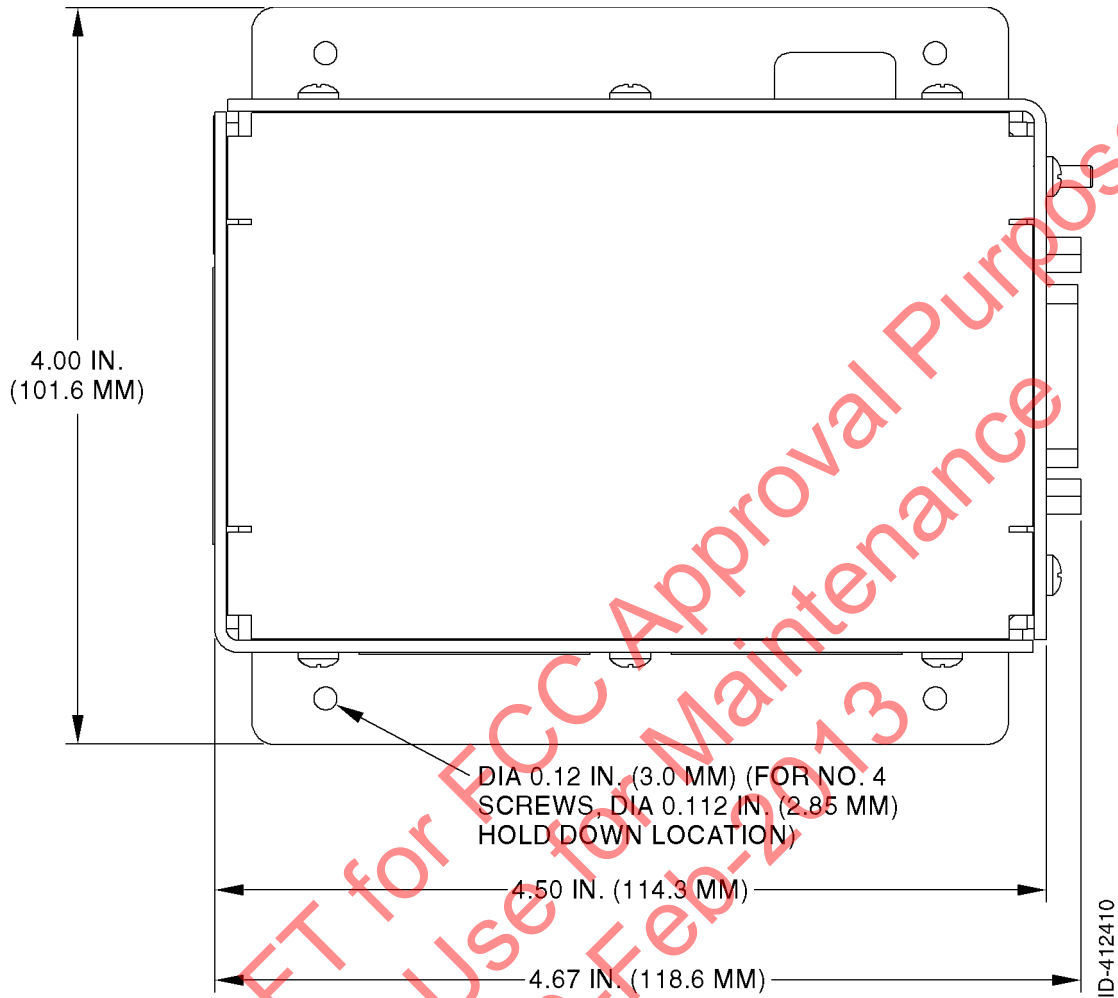


Figure 12. (Sheet 1 of 1) SCM Top View (GRAPHIC 23-15-30-99B-812-A01)

F. Test (Subtask 23-15-30-400-006-A01)

- (1) Do the operational test procedures described in TESTING AND FAULT ISOLATION (PGBLK 23-15-30-1000).

G. Job Close-up (Subtask 23-15-30-400-007-A01)

- (1) Not applicable.

SERVICING

1. Not Applicable

STORAGE (INCLUDING TRANSPORTATION)

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1. **Planning Data** (TASK 23-15-30-99C-809-A01)

A. **Reason for the Job** (Subtask 23-15-30-99C-017-A01)

- (1) Use these procedures to prepare the A350 SDU and SCM for storage or transportation. The function of these procedures is to make sure that the A350 SDU and SCM has protection from dust, moisture, and other contamination.

B. **Job Setup Data** (Subtask 23-15-30-99C-018-A01)

- (1) You can use equivalent alternatives for the special tools, fixtures, equipment, and consumable materials. The user must find equivalent alternatives.
- (2) Refer to Table 27 for the specified special tools, fixtures, and equipment in this section.
- (3) Refer to H4/H8 CAGE Codes (available at <http://www.logisticsinformationservice.dla.mil>) for manufacturer's address.

Table 27. Special Tools, Fixtures, and Equipment

| Number | Description | Source |
|----------------|----------------|----------------|
| Not applicable | Not applicable | Not applicable |

WARNING: BEFORE YOU USE A MATERIAL, REFER TO THE MANUFACTURERS' MATERIAL SAFETY DATA SHEETS. SOME MATERIALS CAN BE DANGEROUS.

CAUTION: DO NOT USE MATERIALS THAT ARE NOT EQUIVALENT TO HONEYWELL SPECIFIED MATERIALS. MATERIALS THAT ARE NOT EQUIVALENT CAN CAUSE DAMAGE TO THE EQUIPMENT AND CAN MAKE THE WARRANTY NOT APPLICABLE.

- (4) Refer to Table 28 for the specified consumable materials in this section.

Table 28. Consumables

| Number | Description | Source |
|----------------|----------------|----------------|
| Not applicable | Not applicable | Not applicable |

- (5) The list that follows identifies Honeywell publications that are related to this section:
 - Not applicable.

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2. Procedure (TASK 23-15-30-550-801-A01)

A. Job Setup (Subtask 23-15-30-550-001-A01)

WARNING: BEFORE YOU USE A MATERIAL, REFER TO THE MANUFACTURERS' MATERIAL SAFETY DATA SHEETS. SOME MATERIALS CAN BE DANGEROUS.

CAUTION: DO NOT USE MATERIALS THAT ARE NOT EQUIVALENT TO HONEYWELL SPECIFIED MATERIALS. MATERIALS THAT ARE NOT EQUIVALENT CAN CAUSE DAMAGE TO THE EQUIPMENT AND CAN MAKE THE WARRANTY NOT APPLICABLE.

CAUTION: DO NOT DROP OR HIT THE A350 SDU AND SCM DURING THESE PROCEDURES. THE A350 SDU AND SCM CONTAINS AN ASSEMBLY THAT CAN BE DAMAGED FROM INCORRECT USE.

CAUTION: DO THESE PROCEDURES IN A CLEAN ENVIRONMENT TO PREVENT DAMAGE TO MECHANICAL COMPONENTS.

(1) Obey the precautions.

B. Preservation (Subtask 23-15-30-550-002-A01)

(1) Not applicable.

C. Packing (Subtask 23-15-30-550-003-A01)

(1) Not applicable.

D. Storage (Subtask 23-15-30-550-004-A01)

(1) Store the A350 SDU and SCM equipment in a cool, dry place [ground survival temperature range is -67 to 185°F (-55 to $+85^{\circ}\text{C}$)] in its original shipping container.

E. Transportation (Subtask 23-15-30-550-005-A01)

(1) Not applicable.

F. Job Close-up (Subtask 23-15-30-550-006-A01)

(1) Not applicable.

REWORK

1. Planning Data (TASK 23-15-30-99F-806-A01)

A. General (Subtask 23-15-30-99F-014-A01)

(1) Rework is not supported in the field. Return any SDU or SCM units that fail the test procedures provided in this document to the manufacturer for fault isolation and repair. Refer to APPENDIX A (RMA) (PGBLK 23-15-30-1700) for the return procedure.

APPENDIX A (RMA)

1. Planning Data (TASK 23-15-30-99F-807-A01)

A. General (Subtask 23-15-30-99C-019-A01)

(1) To return the equipment to Honeywell for repair, this RMA procedure must be followed. Failure to comply with this procedure can result in shipping delays and additional charges.

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B. **Warranty Returns** (Subtask 23-15-30-99C-020-A01)

- (1) Equipment that qualifies for warranty repair can be returned to Honeywell for repair or replacement at our discretion. The customer must pay the shipping costs to Honeywell and Honeywell will pay the shipping costs to return the repaired/replaced unit to the customer.

C. **Non-Warranty Returns** (Subtask 23-15-30-99C-021-A01)

- (1) Equipment that fails to work properly because of improper or negligent use, abuse, shipping damage, or any other condition can still be returned to Honeywell for repair or replacement at our discretion. The customer will be notified of the cost to repair or replace the unit before invoicing for the repair or replacement. The customer must pay for the shipping costs to and from Honeywell.

D. **Repackaging Requirements** (Subtask 23-15-30-99C-022-A01)

- (1) A350 SDU and SCM components must be returned to Honeywell in approved shipping containers. Failure to do so can invalidate the warranty.
- (2) If SDU or SCM shipping containers are unavailable, they can be ordered from Honeywell customer service when requesting the RMA number.

2. **Procedure** (TASK 23-15-30-600-801-A01)

A. **RMA** (Subtask 23-15-30-600-001-A01)

- (1) If it is determined that a unit must be returned to Honeywell for repair or overhaul, please follow the RMA procedure below.
- (2) Have the following information ready before calling Honeywell customer support:
 - Model (e.g., A350 SDU or SCM)
 - Unit part number (e.g., 1458-A-1101 or 1458-A-1300)
 - Serial number
 - Description of failure
 - Aircraft tail number, serial number, and aircraft model number.
- (3) Call Honeywell customer support, refer to Paragraph 2 (TASK 23-15-30-99F-802-A01).
- (4) A Honeywell product support specialist will attempt to resolve the problem by telephone. If equipment must be returned to Honeywell, the product support specialist will authorize the Repair & Overhaul coordinator to issue an RMA number.
- (5) Pack the equipment in the original shipping container or a container approved by Honeywell.
- (6) Write the RMA number on the outside of the shipping container and on all shipping documents, enclose a copy in the box, and send your prepaid shipment to:

Honeywell International Inc.

400 Maple Grove Road

Ottawa, Ontario,

CANADA K2V 1B8

RMA #: _____

ATTN: Repair & Overhaul

Tel: 613 591-6040 extension 1214

Fax: 613 591-8951

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Email: rmareturns@emsaviation.com

- (7) Fax or email the details of the shipment to the Repair & Overhaul coordinator, including the following information: Shipment date, carrier name, and the waybill number.
- (8) The processing of LRU returns is limited to standard business hours from 8:30 am to 5:00 pm EST. For general inquires and status requests, please contact the Repair & Overhaul department directly:

Phone: 613-591-9064, extension 1214 (Repair & Overhaul group)

Fax: 613-591-8951

Email: rmareturns@emsaviation.com

ILLUSTRATED PARTS LIST

1. Not Applicable

Interim DRAFT for FCC Approval Purposes
Do Not Use for Maintenance
10-Feb-2013

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