

DESCRIPTION AND OPERATION

This section fulfils the requirements of Instructions for Continued Airworthiness CS25 Appendix H25.3(a)

1. General

- A. This manual contains supplementary maintenance instructions for the S20209-001 and S20304-001 series double and triple seat assemblies post modifications MOD-12327-00001 and MOD-12327-00002. The variants for B747-400 layouts are:
- (1) S20209-001-013 - Double LH, Zone A
S20209-001-014 - Double RH, Zone A/B
S20209-001-015 - Double LH Special Legrest, Zone A
S20209-001-016 - Double RH Special Legrest, Zone A
S20209-001-017 - Double LH Front Row, Zone A
S20209-001-018 - Double RH Front Row, Zone A
S20209-001-019 - Double LH Electrical Bay, Zone A
S20209-001-022 - Double RH Front Row, Zone B
S20209-001-024 - Double RH Rear Row, Zone B
S20209-001-028 - Double RH Rear Row, Zone A
S20209-001-035 - Double LH Front Row, Zone B
S20209-001-037 - Double LH Rear Row, Zone B
S20209-001-039 - Double LH, Zone B
S20209-001-007 - Triple
S20209-001-009 - Triple Front Row
S20209-001-011 - Triple Rear Row
 - (2) Figure 1 shows the standard double seat assemblies.
 - (3) Figure 2 shows the front row double seat assemblies.

2. Description

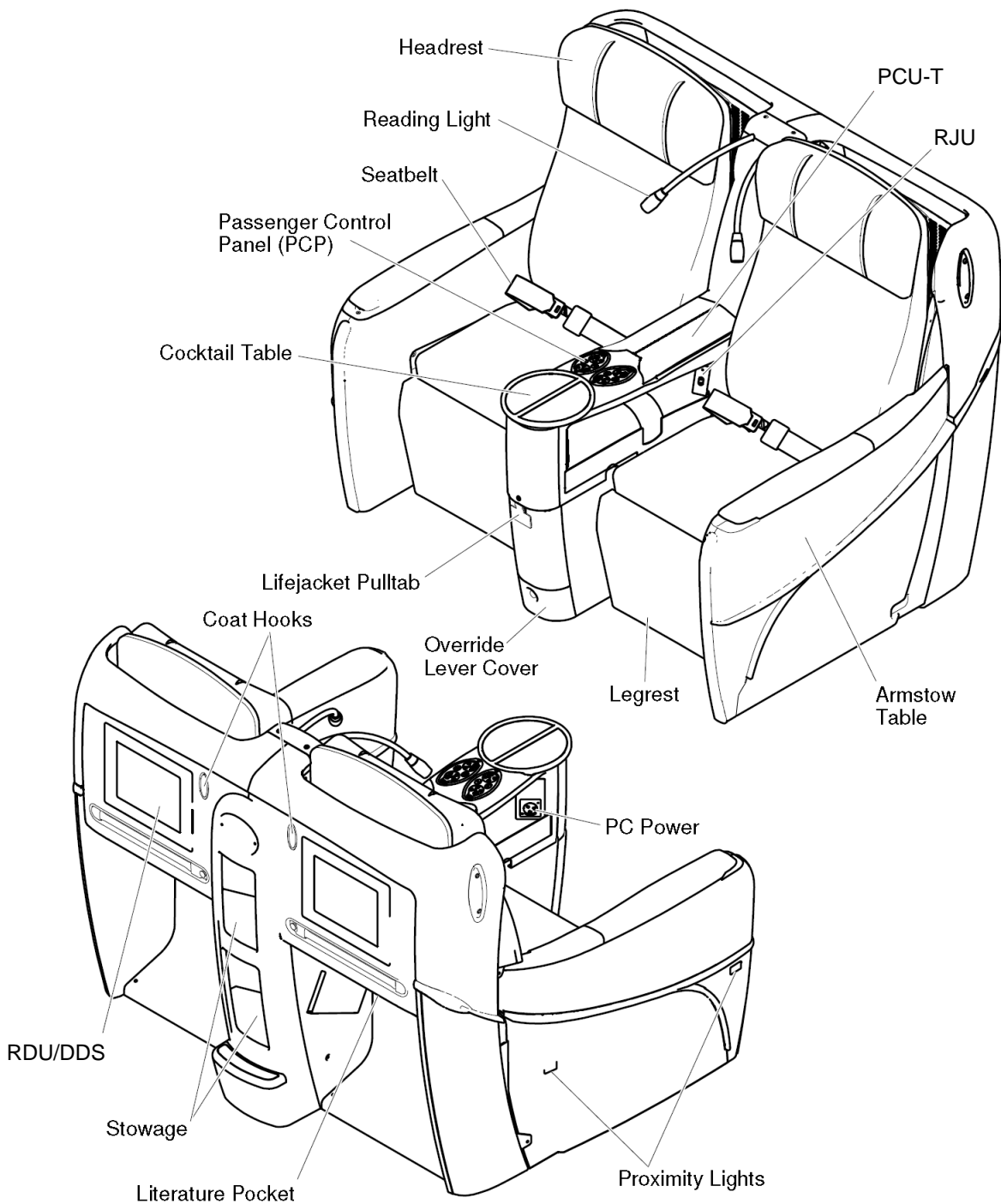
- A. Each double/triple seat has a center console assembly, which is equipped with a Passenger Control Panel (PCP), Passenger Control Unit (PCU-T), Remote Jack Unit (RJU), PC power jack, adjustable reading lamp, and cocktail table for each passenger. The lifejacket stowage receptacle, containing two lifejackets, is situated at the front of the center console assembly, indicated by the "Pull" tab.
- B. The front row double/triple seats are equipped with an extended centre console assembly, furnished with an 8.9 inch Removable Display Unit (RDU) and Display Docking Station (DDS) mounted on a gas strut and pivot for each passenger. The life jacket stowage receptacle is incorporated in the side fairing on either side of the centre console, together with a side pocket stowage.
- C. Each standard backshell is equipped with a 12 inch Removable Display Unit (RDU) and Display Docking Station (DDS), literature pocket, coat hook and rail. Stowage apertures are available at the rear of the centre console. These are for the sole use of the passenger immediately behind that seat. Two coloured indicators (green and blue) are located on the aisle side backshells. The green LED illuminates when the seat is in the taxi, take off or landing position (TTL) and blue LED when the PC power is in use.
- D. In-seat IFE equipment is powered by a Seat Power Unit (SPU) located at each seat. The SPU converts 115VAC from the aircraft power supply into 28VDC and also provides Ethernet data links from seat to seat as part of the IFE system (refer to Schematics page 2001).

3. Operation

INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

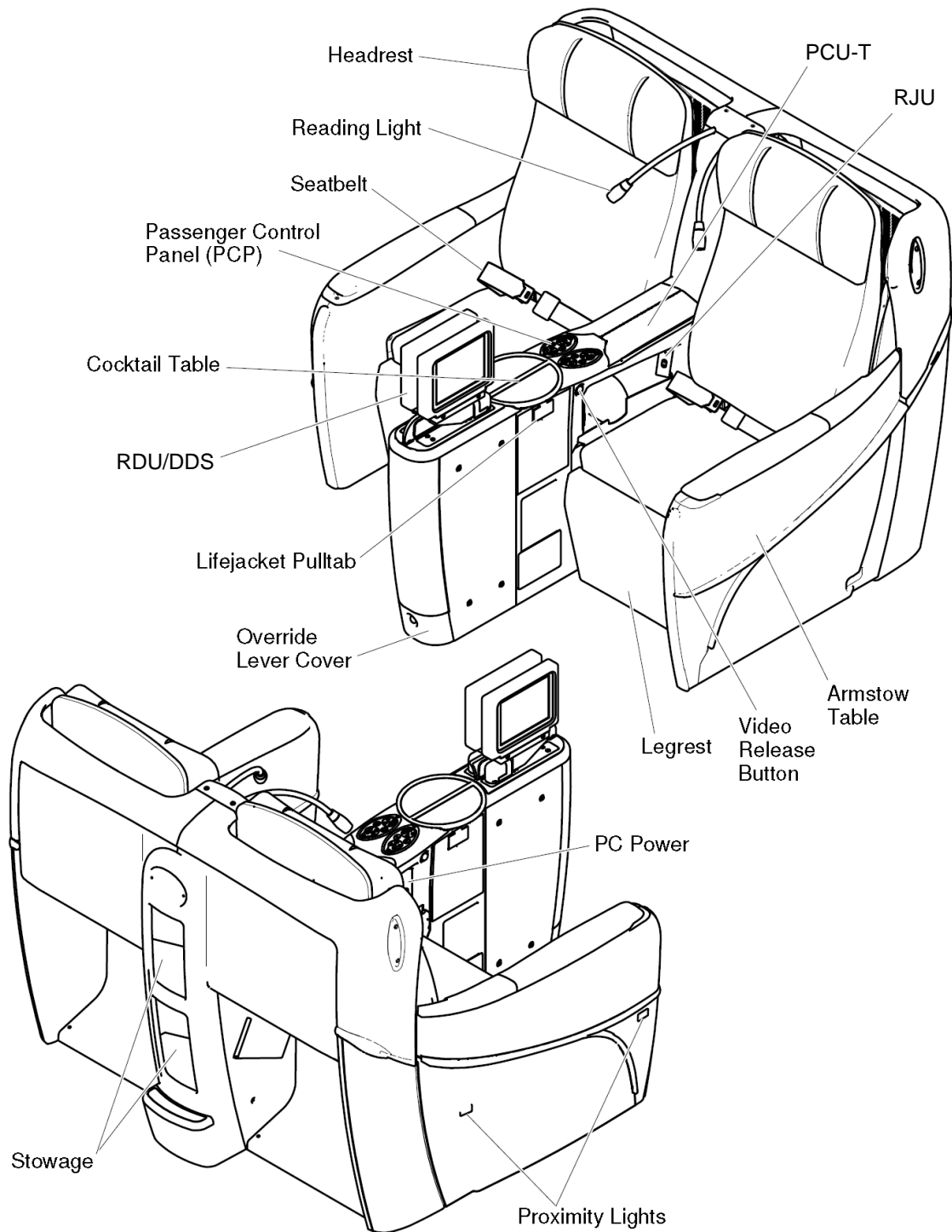
- A. Removable Display Unit (RDU) and Display Docking Station (DDS)
- (1) For standard double seats the RDU and DDS are mounted into the back of the facing backshell. On front row double/triple seats the RDU and DDS are positioned on the extended centre consoles. Mounted on a gas strut and pivot, the display can be deployed by pressing the video latch release button located on either side of the centre console to the right hand side of the lifejacket stowage. The display can then be positioned to face the passenger and tilted back at an angle of 15°.
 - (2) Lift the hinged armcap on the centre console to locate the Passenger Control Unit (PCU-T) for operation of the display controls.

INSTRUCTIONS FOR CONTINUED AIRWORTHINESS



Standard Double Seat Assembly and Passenger Control Panel (PCP)
Figure 1

INSTRUCTIONS FOR CONTINUED AIRWORTHINESS



Front Row Double Seat Assembly and Passenger Control Panel (PCP)
Figure 2

INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

TESTING AND FAULT ISOLATION

This section fulfils the requirements of Instructions for Continued Airworthiness CS25 Appendix H25.3(b)(2)

1. General

- A. If faults are observed during any of the testing described below refer to Table 1002 for fault isolation and corrective action.
- B. Refer to the history report for possible troubles experienced during service.
- C. Defective or damaged items must be repaired or exchanged for serviceable items.

2. Equipment

- A. List of equipment

NOTE: Equivalent substitutes may be used for listed items.

ITEM	IDENTIFICATION	SOURCE
Electrical supply for seats	115 VAC, 400Hz, three phase	General
Electrics testing	Multimeter (Amp, Volt, Ohm)	General

Equipment
Table 1001

3. Electrical operation tests

- A. Connect Power

(1) Connect a 115 Volt, 400 Hz, three-phase power supply, (refer to wiring diagrams/electrics).

- B. IFE Equipment

(1) Power ON the Removable Display Unit (RDU) and ensure the display turns ON.

(2) Using the Passenger Control Unit (PCU-T) located under the hinged armcap on the centre console, test the on-screen functions and ensure the RDU responds.

(3) Power OFF the RDU and ensure the display turns OFF.

INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

4. Fault Isolation

	TROUBLE	PROBABLE CAUSE	ACTION
1	No Video	Broken wire, loose connection	Check connections
		No power	Check connections
			Check aircraft power
		Faulty RDU	Replace
		Faulty DDS	Replace
Faulty SPU	Replace		
2	No Audio	Broken wire, loose connection	Check connections
		Faulty headphones	Replace
		Faulty RJU	Replace
3	PCU-T not working	Broken wire, loose connection	Check connections
		Faulty PCU-T	Replace
		Faulty RJU	Replace
4	USB not connecting	Broken wire, loose connection	Check connections
		Faulty RJU	Replace

Fault isolation and corrective action
Table 1002

INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

DISASSEMBLY

This section fulfils the requirements of Instructions for Continued Airworthiness CS25 Appendix H25.3(b)(3)

1. General

WARNING: ISOLATE FROM ELECTRICAL SUPPLIES BEFOR DISASSEMBLY.

CAUTION: DO NOT SLIDE SEAT ASSEMBLIES ACROSS FLOOR SURFACE AS THIS WILL DAMAGE THE TRACK FITTINGS OR MOUNTED SURFACES.

CAUTION: DO NOT USE POWER TOOLS IN THE DISSASSEMBLY OF THESE PRODUCTS THE USE OF POWER TOOLS WILL DAMAGE THE PANELS.

- A. Do not disassemble the components more than is required to replace damaged parts.
- B. For adjustment procedures and the identification of damage or functional failure refer to the TESTING AND FAULT ISOLATION section of this manual.
- C. Observe and record the location of parts, routing of cables, etc, to help assembly.
- D. Discard all nuts, screws and washers, etc, after a component has been removed and use new fixings for assembly.
- E. No special tools are required for disassembly.
- F. To avoid errors during assembly, parts may be marked during disassembly provided that the decorative surfaces are not damaged. Where possible, the decorative surface should be protected while work is in progress. The numbers in brackets, e.g. (125) refer to an item number in the IPL. The figure of the IPL is given at the start of each section.

2. Procedure

A. Disassemble the Double/Triple Seat Assembly (Ref Fig 1a IPL).

(1) Remove a dress cover kit (5) from each seat:

- (a) Separate the velcro and remove the cushion cover (10) from each seat cushion filler (35).
- (b) Remove the headrest assembly (6-5) from the backrest assembly (6-1) by releasing one pin (6-15, 6-30) from each mounting bracket (6-10, 6-25).
- (c) Separate the velcro and remove the backrest cover (15) from each backrest assembly
- (d) Separate the velcro and remove the headrest cover (20) from each headrest assembly (6-5).
- (e) Separate the velcro and remove the legrest cover (25) from each legrest assembly (555).
- (f) Separate the velcro and remove the leg support cover (30) from each sliding legrest assembly (7-115).

(2) Remove the rear row double/triple seat assemblies from the aircraft seat tracks:

- (a) Separate the velcro and remove a seat cushion filler (35) from each seat.

CAUTION: MAKE SURE THAT THE WASHERS (500) ARE RECOVERED WHEN REMOVING THE RETAINING PINS (495).

INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

- (b) Remove two retaining pins (495) from each backrest assembly (485) and collect two washers (500) and two headed pins (505).
 - (c) Tilt the backrest assembly (485) forward to gain access to the rear seat track fittings (9-20, 9-90).
 - (d) Remove one screw (9-45), one bolt (9-120), one washer (9-125) and collect two shear locks (9-55, 9-135) and two springs (9-50, 9-130).
 - (e) Press the override lever cover (8-5) and move the override lever cover away from the lifejacket stowage assembly (835).
 - (f) Operate the legrest lever and fully extend each legrest. Then operate the latches and recline levers together and move the seatpan forward to gain access to the two front stud assemblies (9-140).
 - (g) Undo one special nut (9-170) on each front stud assemblies (9-140).
 - (h) Disconnect the input and output connections from the controller box (1020).
 - (i) Disconnect the input and output connections from the Seat Power Unit (SPU).
 - (j) Move the seat assembly 12.7 mm (0.5 in.), forward or aft to disengage the seat track fittings and lift the seat out of the aircraft seat tracks.
- (3) Standard and front row seats only - release two ¼ turn studs (45), two retaining rings (50), and collect the footwell panels (40) from the rear of each seat.
- (4) Rear row seats only - remove six screws (60, 65, 80, 85), collect six washers (70, 90), and collect the footwell closeout panels (55, 75) from the rear of each seat.
- (5) Rear row Zone A seats only - release six screws (100, 110, 116, 118), and collect six cup washers (105, 115, 117, 119), and collect the footwell closeout vented panels (95, 96) from the rear of each seat.
- (6) Remove two backshell assemblies (120, 155, 190) from each seat:
- (a) Remove one screw (125, 160) from each sidearm assembly (305, 320) and collect one washer (130, 165).
 - (b) Remove three screws (135, 170) from each side of the centre console assembly (380, 396) and collect three washers (145, 180).
 - (c) Remove three screws (140, 175, 185) from each sidearm screen (235, 238) and collect three washers (145, 180).
 - (d) Triple seats only - remove six screws (195) from the centre console assembly (400) and collect six washers (200).
 - (e) Remove two screws (203) and two washers (204) from each backshell clamp plate (202).
 - (f) Lift the backshell assemblies (120, 155, 190) away from each seat.
 - (g) Separate the velcro and remove the backshell foam (240, 242, 245, 250, 255).
 - (h) Centre seats only - remove four ¼ turn studs (266, 275, 286) and four retaining rings (267, 280, 287) and collect the centre fairing (265, 270, 285).

INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

INSPECTION / CHECK

This section fulfils the requirements of Instructions for Continued Airworthiness CS25 Appendix H25.3(b)(4)

1. General

A. This section gives inspection and check procedures for the in-seat IFE equipment.

2. Inspection

A. Inspect IFE equipment after cleaning and before assembly. Refer to Contour CMM 25-24-15 Cleaning (page 4001) and Assembly (page 7001) for instructions.

B. IFE equipment inspection procedures are detailed in Table 5001.

NOTE: Use bright light and magnification to aid visual inspections.

COMPONENT	METHOD OF INSPECTION	CHECK FOR	ACTION
Electrical Connectors	Visual	Bent, broken, or loose pins; cracked or broken insulators; broken, loose, or deformed housings; broken pin connectors; dirt and corrosion.	Replace SCU
Housing Assemblies	Visual	Deformation or cracks; pay special attention to the areas around the mounting holes.	Replace SCU
Labels	Visual	Unreadable; cut or chipped edges; loose adhesive bond.	Replace
Metal Parts	Visual	Distortion; cracks; dents; evidence of wear; deterioration of protective treatment; ovalness of holes and cracking around holes.	Replace SCU

IFE equipment inspection
Table 5001

INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

ASSEMBLY

This section fulfils the requirements of Instructions for Continued Airworthiness CS25 Appendix H25.3(b)(3)

1. General

CAUTION: ALL UNRESTRAINED HARNESES SHOULD BE SLEEVED AS REQUIRED.

CAUTION: HARNESS SEPARATION OF 1 IN. (2.5 CM) MINIMUM SHOULD BE MAINTAINED. WHERE HARNESES CROSS, THEY SHOULD DO SO AT 90°.

CAUTION: DISTRIBUTE HARNESS SLACK EVENLY DURING ASSEMBLY AND ALLOW SUFFICIENT SLACK AT DISCONNECTS FOR MAINTAINABILITY.

CAUTION: CABLES TIES SHOULD BE INSTALLED WITHIN 1 IN. (2.5 CM) BEFORE AND AFTER WIRE BREAK-OUTS FROM THE MAIN LOOM. GENERALLY, TIES SHOULD BE INSTALLED AT SPACINGS OF NO MORE THAN 8 IN.(20.5 CM).

CAUTION: BLANK OFF REDUNDANT CONNECTORS AS DETAILED ON THE INSTALLATION ELECTRICS DRAWINGS, S20209/S20304-011S.

A. Before assembly make sure that the CLEANING, CHECK and REPAIR of all component parts has been carried out (refer to Contour CMM 25-24-15).

B. No special tools required.

C. Apply Loctite 222 to all non self locking threaded fasteners.

2. List of Materials

A. List of disposable materials required during assembly.

NOTE: Equivalent substitutes may be used for listed items.

ITEM	SUPPLIER
Grease MIL-G-23827B	Commercially available
Loctite Screwlok 222	Loctite Limited, Watchmead, Blackfan Road, Welwyn Garden City, Herts AL7 1JB, England
RTV 732 Silastic Adhesive	Dow Corning Limited Allesley Coventry CV5 9RG England
Adhesive 1099	3M Company, 2501 Hudson Road, Saint Paul, Minnesota 55101, USA
Adhesive S708	Alpha Adhesives & Sealants Ltd, Llewellyn Close, Sandy Lane Ind Est, Stourport-on-Severn, Worcestershire, UK, DY13 9RH
P.T.F.E. Spray, Pt. No. K5012-12x400	Gramos Applied Ltd, Spring Road, Smethwick, West Midlands, B66 1PT, England

List of Materials
Table 7001

3. Procedure

INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

- A. Assemble the Front Leg Assembly (Ref Fig 10 IPL).
 - (1) For assembly of the Front Leg Assembly, refer to Contour CMM 25-24-15 page 7002.
- B. Assemble the Mainframe Assembly (Ref Fig 9 IPL).
 - (1) For assembly of the Mainframe Assembly, refer to Contour CMM 25-24-15 page 7002.
- C. Assemble the Lifejacket Stowage Assembly (Ref Fig 8 IPL).
 - (1) For assembly of the Lifejacket Stowage Assembly, refer to Contour CMM 25-24-15 page 7005.
- D. Assemble the Legrest Assembly (Ref Fig 7 IPL).
 - (1) For assembly of the Legrest Assembly, refer to Contour CMM 25-24-15 page 7005.
- E. Assemble the Backrest Assembly (Ref Fig 6 IPL).
 - (1) For assembly of the Backrest Assembly, refer to Contour CMM 25-24-15 page 7006.
- F. Assemble the standard and rear row double seat Centre Console Assembly (Ref Fig 5a IPL).
 - (1) Attach both fairing rear support brackets (415, 430) to the structure (375) with two screws (420, 435) and double-sided tape (440, 425).
 - (2) Attach both fairing front support brackets (400) to the structure (375) with two screws (405) and double-sided tape (410).
 - (3) Attach both footwell upper brackets (390) to the structure (375) with three screws (395).
 - (4) Attach the reading light bracket (380) to the structure (375) with four screws (385).
 - (5) Assemble one earth stud (340):
 - (a) Install one screw (370), one spring washer (365), one thin nut (355), three washers (350, 360), and one nut (345) on the structure (375).
 - (6) Install the harnesses (250, 270, 275, 295, 310, 325, 326, 337, 338, 339) on the structure (375):
 - (a) Attach the control box - PC power - reading light harnesses (250) with one P-clip (260), each with one screw (265).
 - (b) Attach the control box - TTL Lt disc con harness (270) and control box - LLCU harness (275) with two P-clips (280), each with one stiff nut (290), and one distance tube (285).
 - (c) Attach the harnesses with four P-clips (300), each with one stiff nut (305).
 - (d) Standard row only - Install the video seatback harness (310) with two P-clips (315) and one stiff nut (320).
 - (e) Attach the LLCU - PCU & Bite Display harnesses (325, 326) with two P-clips (330), each with one screw (335).
 - (7) If necessary, install rubber nails (255) in each P-clip (260, 280, 300, 315, 330).

INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

- (8) Attach the reading lights (245) to the structure (375) with two screws (247).
- (9) Attach both rear audio clamps (230) with one anti-vibration washer (235) and one screw (240) to the structure (375).
- (10) Attach the side fairings (210, 220) to the structure (375) with double-sided tape (215, 225).
- (11) Attach both Remote Jack Units (RJU) to the side fairings (210, 220) with screws.
- (12) Attach the Centre Console Local LED Control Unit (LLCU) sub-plate (150) and the LLCU sub-plate (155) to the structure (380) with two grommets (165) and two plungers (160).
- (13) Attach the LLCU (170) to the Centre Console LLCU sub-plate (150) with two washers (180, 190), one thin nut (185), and three stiff nuts (175).
- (14) Attach both BITE displays (130, 140) to the structure (375) with four screws (135, 145).
- (15) Attach the upper front fairing (115) to the structure (375) with two screws (120).
- (16) Attach the top fairing (100) to the structure (375) with two studs (105) and two retaining rings (110).
- (17) Attach the cocktail table (90) to the structure (375) with four screws (95).
- (18) Attach the front fairing (75) to the structure (375) with one screw (80) and one washer (85).
- (19) Attach the PCUs (70) to the LLCU - PCU & Bite Display harnesses (325).
- (20) Attach the cradle fairing (50) to the structure (375) with two screws (55) to the bezels' recesses and four screws (60) to the hinge block (65).
- (21) Attach the bezels (30, 40) on the PCUs (70) with one screw (35, 45).

WARNING: USE ALL ADHESIVES IN A WELL-VENTILATED AREA. AVOID BREATHING FUMES AND CONTACT WITH SKIN. OBSERVE ALL INSTRUCTIONS, INCLUDING HEALTH AND SAFETY WARNINGS SUPPLIED BY THE MANUFACTURER. OBSERVE ALL APPLICABLE FIRE PRECAUTIONS.

- (22) If necessary, use S708 adhesive to bond bezel (11, 21) to armcap (5, 15).
 - (23) Attach each armcap (5, 15) to the hinge block (65) with five screws (10, 20) and install the handsets (25).
- G. Assemble the standard and rear row triple seat Centre Console Assembly (Ref Fig 5b IPL).
- (1) Attach the fairing rear support bracket (625) to the structure (585) with two screws (630).
 - (2) Attach the fairing front support bracket (610) to the structure (585) with two screws (615).
 - (3) Attach both the footwell upper brackets (600) to the structure (585) with three screws (605).
 - (4) Attach the reading light bracket (590) to the structure (585) with four screws (595).
 - (5) Assemble one earth stud (550):
 - (a) Install one bolt (580), one spring washer (575), one thin nut (565), three washers (560, 570), and one nut (555) on the structure (585).

INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

INSTALLATION

This section fulfils the requirements of Instructions for Continued Airworthiness CS25 Appendix H25.3(b)(3)

1. General

- A. No special tools required.
- B. Apply Loctite 222 to all non self-locking threaded fasteners.

CAUTION: ALL UNRESTRAINED HARNESSSES SHOULD BE SLEEVED AS REQUIRED.

CAUTION: HARNESS SEPARATION OF 1 IN. (2.5 CM) MINIMUM SHOULD BE MAINTAINED. WHERE HARNESSSES CROSS, THEY SHOULD DO SO AT 90°.

CAUTION: DISTRIBUTE HARNESS SLACK EVENLY DURING ASSEMBLY AND ALLOW SUFFICIENT SLACK AT DISCONNECTS FOR MAINTAINABILITY.

CAUTION: CABLES TIES SHOULD BE INSTALLED WITHIN 1 IN. (2.5 CM) BEFORE AND AFTER WIRE BREAK-OUTS FROM THE MAIN LOOM. GENERALLY, TIES SHOULD BE INSTALLED AT SPACINGS OF NO MORE THAN 8 IN. (20.5 CM).

CAUTION: BLANK OFF REDUNDANT CONNECTORS AS DETAILED ON THE INSTALLATION ELECTRICS DRAWINGS, S20209/S20304-011S.

- C. The numbers in brackets refer to a figure and item number in the IPL, e.g. (2-125) refers to Fig 2, item 125.

2. List of Materials

NOTE: Equivalent substitutes may be used for listed items.

ITEM	SUPPLIER
Grease MIL-G-23827B	Commercially available
Loctite Screwlok 222	Loctite Limited, Watchmead, Blackfan Road, Welwyn Garden City, Herts AL7 1JB, England

Materials
Table 13001

3. Procedure

A. Sequence of installation

- (1) Install the seats working from forward to aft.

NOTE: The seat assemblies cannot be installed in the aircraft when fully assembled. If the seat assemblies are not already disassembled, refer to REMOVAL section.

NOTE: Refer to drawings S20209/S20304-005's for the correct positions of the seats.

- B. Install the front and standard row seat assemblies.

INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

- (1) With the backrest pushed forward, lift the seat into the aircraft. Turn the seat onto its back so that it will fit between the bulkheads.
- (2) Front row seats only - press and release the override lever cover (1-150, 5c-15, 5d-15).
- (3) Operate the legrest lever and pull the legrest out. Then operate the latches lever and recline lever together and move the seatpan forward to gain access to the front stud assemblies (9-140).
- (4) Put the seat track fittings and front studs into the aircraft seat tracks and move the seat assembly 12.7 mm (0.5 in.), forward or aft to engage the seat track fittings.
- (5) Double and triple seats only - tighten one special nut (9-170) on the front stud assemblies (9-140) until the bottom face of the special nuts are in contact with the seat track, then tighten a further quarter of a turn.
- (6) Install one spring (9-50, 9-130), one shearlock (9-55, 9-135), one screw (9-45), one bolt (9-120), one washer (9-125) on the seat track fitting (9-20) and rear foot clamp (9-90). Torque the screw and bolt to 35 lb in. (3.95 Nm).
- (7) Connect the seat to seat cables.
- (8) Operate the recline lever and move the seatpan back into the mainframe. Then operate the legrest lever and move the legrest to its stowed position.
- (9) Front row seats only - install the override lever cover (1-150, 5c-15, 5d-15).
- (10) Attach four rear arm supports (1-490, 1a-515) to the mainframe (1-1055, 1a-1175) with one headed pin (1-500, 1a-525), three washers (1-505, 1-510, 1a-530, 1-535), and one retaining pin (1-495, 1a-520).
- (11) Install the centre console assembly (1-350, 1a-380, 1a-396, 1a-400):
 - (a) Front row seats only - attach the centre console assembly (1a-380, 1a-396, 1a-400) to the mainframe (1a-1175) with eight screws (1a-385, 1a-390, 1a-397, 1a-405, 1a-410) and eight washers (1a-395, 1a-399, 1a-415).
 - (b) Front row seats only - attach the release cable clamp (1a-340) to the centre console assembly (1a-380, 1a-396, 1a-400) with six screws (1a-345) and six washers (1a-350).
 - (c) Front Row seats only - attach the override lever (1-355, 1a-355) to the centre console assembly (1-350, 1a-380, 1a-396, 1a-400) with two screws (1-340, 1a-360, 1a-370) and two washers (1a-365, 1a-375).
 - (d) Pull the tab and move the lifejacket stowage door (8-5) out of the lifejacket stowage assembly (1a-835).
 - (e) Attach the centre console assembly (1a-380, 1a-396, 1a-400) to the lifejacket stowage assembly (1a-835) with four screws (1a-840, 1a-845) and four washers (1a-850).
 - (f) Install the lifejacket stowage door (8-5) on the lifejacket stowage assembly (1a-835).
 - (g) Connect the control box - PC power - reading light harness (5c-390, 5d-530).
 - (h) Connect the control box - TTL light harness (5c-430, 5d-595).
 - (i) Connect the control box - LLCU harness (5c-445, 5c-446, 5d-535, 5d-536).