767

Aircraft Maintenance Manual

Scandinavian Airlines System

DOCUMENT D633T133

ORIGINAL ISSUE DATE: NOVEMBER 10, 1988

PUBLISHED BY BOEING COMMERCIAL AIRPLANES GROUP, SEATTLE, WASHINGTON, USA
• A DIVISION OF THE BOEING COMPANY •
DECEMBER 22, 2006

590115

Scandinavian Airlines System
SAS
REVISION NO. 71
AUG 22, 2009

To: All Holders of Boeing Document D633T133.

Attached is the current revision to Document D633T133, Boeing 767 Maintenance Manual for Scandinavian Airlines System.

FILING INSTRUCTIONS

This revision of the aircraft maintenance manual (AMM) replaces all previous microfilm cartridges and magnetic tapes.

This revision includes only the changed pages for printed pages (paper). File the pages according to the LEP for each chapter.

ATTENTION

IF YOU RECEIVE PRINTED REVISIONS, PLEASE VERIFY THAT YOU HAVE RECEIVED AND FILED THE PREVIOUS REVISION.

NOTE: BOEING MUST BE NOTIFIED WITHIN 30 DAYS IF YOU HAVE NOT RECEIVED THE PREVIOUS REVISION. REQUESTS FOR REVISIONS OTHER THAN THE PREVIOUS REVISION WILL REQUIRE A COMPLETE MANUAL REPRINT SUBJECT TO REPRINT CHARGES SHOWN IN THE DSM CATALOG.

For printed manuals this revision should be incorporated into the manual in the order indicated by the List of Effective Pages (LEP). The pages which are revised will be identified on the LEP by an R (Revised), A (Added), or D (Deleted).

For printed manuals this revision should be incorporated into the manual in the order indicated by the List of Effective Pages (LEP). The pages which are revised will be identified on the LEP by an R (Revised), A (Added), O (overflow) or D (Deleted).

Each page in the LEP is identified by Chapter-Section-Subject number, page number, page date, and page code. Pages replaced or obsoleted by this revision should be removed.

NOTE: Pages may be dated earlier, the same as, or later than the replaced page. Therefore, it is important that both the page date and page code in the LEP be used when filing pages. Agreement of the first two digits (left of decimal), between LEP code and page code, assures that the page is correct for the manual. Only revised pages will have the decimal and following number(s) appear on both the page and the LEP. The decimal and following numbers are for Boeing internal use and may be on an old page but not appear on the LEP.

TEMPORARY REVISIONS

Remove any Temporary Revisions that have a date earlier than the date of this revision.

Do not remove any Temporary Revisions (TRs) that have a date later than the date of this revision. TRs with a later date will be incorporated in the next revision of the manual (unless they are superseded by a subsequent TR).

A TR Status Report is sent with each TR. The TR Status Report has a list of all TRs that were sent for this manual during the last two scheduled revisions. At the top of the list are the date and time that the list was created.

When you have more than one TR, the TR Status Report with the latest date and time gives you the most current information.

Scandinavian Airlines System
HIGHLIGHTS

CHAPTER 00 - INTRODUCTION

INTRODUCTION 1-44	Added Consumable Material and Tools equivalence data.

CHAPTER 05 - TIME LIMITS/MAINTENANCE CHECKS

05-41-01 201-208	Add a scheduled maintenance task.
05-41-02 201-204	Add a scheduled maintenance task.
05-41-03 201-206	Added a scheduled maintenance task.
05-41-04 201-206	Add a scheduled maintenance task.
05-41-05 201-208	Add a scheduled maintenance task.
05-41-06 201-208	Add new amtoss procedure for eMOD taskcard conversion
05-41-07 201-202	Add new amtoss procedure for eMOD taskcard conversion
05-41-08 201-204	Add new amtoss procedure for eMOD taskcard conversion
05-51-01 202	Removed the data for the hard landing indication.
05-51-01 204	Changed metric value from 0.127 mm to 12.7 mm.
05-51-04 203	Changed the metric value.
05-51-04 204-205	Changed the spelling.
05-51-08 204	Added references to clarify which bolts should be inspected.
05-51-10 202	Changed the metric value.
05-51-24 202	Added the requirement to lower the "rate of change" of the pressure if personnel in the airplane experience pain during pressurization.
05-51-24 203-204	Removed reference to obsolete equipment.
05-51-24 203	Changed the step to clarify that the pitot-static system needs to be operational.
05-51-42 202	Changed the spelling.

CHAPTER 06 - DIMENSIONS AND AREAS

06-24-00 202 — Removed the door mounted reference from the boost pump location.

CHAPTER 07 - LIFTING AND SHORING

07-11-01 206 — Changed the Gross Weight graphs to align with scales.

07-11-01 213 — Added the references for AMM 29-11-00-2 and 32-32-00-5.

07-11-01 214 — Removed the unecessary reference.

CHAPTER 09 - TOWING AND TAXIING

09-11-00 201 — Added data for operation of weather radar.

CHAPTER 10 - PARKING AND MOORING

10-11-02 202,205 — Removed the reference to "Leeder 306N" and added option to use Spraylat ZR-5852 as a protective coating.

10-11-02 202 — Changed the spelling.

10-11-03 207-208 — Changed the number from a decimal to a whole number for %MAC.

CHAPTER 11 - PLACARDS AND MARKINGS

11-00-00 1-2 — Changed the format of the title.

CHAPTER 12 - SERVICING

12-11-01 308 — Removed the decimal error.

12-21-05 304 — Re-issued the page.

12-21-06 307 — Re-issued the page.

12-21-09 304 — Added a step to reactivate the thrust reversers in the procedure.

12-21-12 311 — Removed flagnote six from the left side steering trunnion call out.

12-21-18 301-302 — Changed the title to Entry Doors for all airplanes (the task titles specify the specific door for each lubrication task).

CHAPTER 20 - STANDARD PRACTICES - AIRFRAME

20-00-00 201-202	Added "Equivalent Tools, Fixtures, Test Equipment and Consumable Materials" statement.
20-10-03 401	Changed a reference in Table 401 in the procedure.
20-10-03 404	Changed the tool part number from ATK520JK to AT520JK.
20-10-09 832	Removed duplicate consumable callout.
20-10-09 849,853	Changed part number BACSBBX to BACS13BX and RTS8-02-006 to RTSK8-02-006.
20-15-11 216	Added optional loading method for the PDL.
20-30-00 201-202	Added Consumable Material equivalence data.
20-55-54 601-638	Changed data for the FQIS Wiring and Bonding - Fault Isolation procedure.
20-60-07 201	Re-issued the page.

CHAPTER 21 - AIR CONDITIONING

21-00-00 207,210	Added a description for hot weather condition and changed the flight deck temperature selection.
21-21-02 404-405	Added alternate consumable materials for the fluorolube lubricant (grease) and its usage optional.
21-21-02 406	Changed the torque range to 40-50 pound-inches.
21-26-01 401,404 406-407	Changed the circuit breaker panel nomenclature. Changed the step to remove electrical power before fan removal. Added step to supply electrical power before fan installation test. Changed the fan post-installation steps.
21-32-01 503-506	Added information for the digital vacuum pressure gage display for A21010-70 test equipment and subsequent models.
21-33-05 401-404	Added torque requirement for the nut to prevent case leakage. Added post-installation test. Changed the nomenclature from bolt to screw. Changed the format of some steps.
21-43-00 101-108	Added Forward Cargo Compartment Heating System - Fault Isolation which replaces the data originally in FIM 21-40-00/101.
21-44-00 101-104	Added Aft/Bulk Cargo Compartment Heating System - Fault Isolation which replaces the data originally in FIM 21-40-00/101.
21-51-01 405	Changed the data in the AMM/AIPC parts table.
21-51-10 401-405	Changed the format of some steps. Changed the data to clarify installation of the sleeve to the condenser outlet and the pack outlet conditioned air supply duct.

21-51-10 404-405	Added alternate consumable materials for the fluorolube lubricant (grease) and its usage optional.
21-51-15 401,406	Added figure reference to task titles.
21-51-15 406,408	Added alternate consumable materials for the fluorolube lubricant (grease) and its usage optional.
21-51-15 408	Changed the torque range to 40-50 pound-inches.
21-51-23 405-407	Added alternate consumable materials for the fluorolube lubricant and its usage optional.
21-51-23 406-407	Changed the torque range to 40-50 pound-inches.
21-52-01 403	Added data for installation of packing p/n BACP11K6 (AS9385-06) in lieu of the copper gasket p/n AN900-10 (AS35769-11) that comes with a new temperature bulb.
21-52-02 403	Added data for installation of packing p/n BACP11K6 (AS9385-06) in lieu of the copper gasket p/n AN900-10 (AS35769-11) that comes with a new temperature bulb.
21-52-03 401-406	Changed the page effectivity to remove PRE-SB 21-0129 statement. Changed the data to show that pack flow sensor stays installed in the duct boss but is deactivated/inoperative for airplanes POST-SB 21-0129.
21-52-05 403	Added data for installation of packing p/n BACP11K6 (AS9385-06) in lieu of the copper gasket p/n AN900-10 (AS35769-11) that comes with a new temperature bulb.
21-52-06 403-404	Added data for installation of packing p/n BACP11K6 (AS9385-06) in lieu of the copper gasket p/n AN900-10 (AS35769-11) that comes with a new temperature bulb.
21-52-07 403	Added data for installation of packing p/n BACP11K6 (AS9385-06) in lieu of the copper gasket p/n AN900-10 (AS35769-11) that comes with a new temperature bulb.
21-52-08 403-404	Added data for installation of packing p/n BACP11K6 (AS9385-06) in lieu of the copper gasket p/n AN900-10 (AS35769-11) that comes with a new temperature bulb.
21-61-00 501-572	Removed the detail BITE test instructions for the zone temperature controller and added reference to existing AMM procedure which has the BITE test in order to prevent duplication of data. Changed the format of steps in the System Test task. Added new tasks for scheduled maintenance requirements for testing zone duct overheat switches. Changed task titles. Moved a task to new paragraph number.

CHAPTER 23 - COMMUNICATIONS

23-31-00 CONFIG 2 1-12	Removed the Passenger Address and Pre-Recorded Announcements system schematics and added references to wire diagrams and functional schematics at the end of thedocument.
23-61-01 210-211	Changed the discharger base resistance values in Method 2.

23-71-00 5 — Removed the Voice Recorder System schematic and added references to wiring diagrams and functional schematics.

23-71-03 203-205 — Changed the battery replacement data to agree with the Dukane supplier manual.

23-71-03 206-209 — Changed the battery replacement data to agree with the Teledyne Benthos supplier manual.

CHAPTER 24 - ELECTRICAL POWER

24-11-01 617 — Changed the data to the Specific Gravity Oil Check.

CHAPTER 25 - EQUIPMENT/FURNISHINGS

25-11-00 3-4 — Removed schematics that are covered in the SSM.

25-14-02 418,427 429 — Changed the closet reference in the flight compartment dripshield removal and installation procedures.

25-21-10 201-202 — Changed the section in the location zone for the overwing escape hatch window shade maintenance practices.

25-27-01 401,403 — Added consumable double back tape.

25-29-00 1 — Removed schematics from the D & O.

25-31-00 601-602 — Changed text and illustrations to make compatibility between the AMM and Task Cards.

25-33-01 405-406 408 — Added an inspection and replacement for wire bundles near the chiller.

25-33-01 406 — Added WARNING and CAUTION about chiller weight.

25-52-10 811-812 — Changed an obsolete consumable material to show current usage.

25-52-11 801-808 — Added coverage for the Akro Fireguard repair kit and updated consumable materials to show current usage.

25-53-01 401 — Removed a duplicate block.

25-53-01 408 — Added resistance check data for PDU installation.

25-65-00 CONFIG 1 1 — Removed the Off-Wing Escape Slide system schematic and added references to wiring diagrams and functional schematics.

25-65-00 CONFIG 2 1-10 — Removed the Escape Slide system schematic and added references to wiring diagrams and functional schematics.

25-65-00 CONFIG 1 564-565 — Changed the data to show the lever orientation.

25-65-00 CONFIG 1 601	Reissued the page to remove a note that was added at this location.
25-65-00 CONFIG 1 613	Changed the spelling.
25-65-00 CONFIG 1 622-623	Changed the data to show lever orientation.
25-65-10 409	Changed the data to show lever orientation.

CHAPTER 26 - FIRE PROTECTION

26-21-01 623	Added statements to Engine Fire switch operational test to restore L and R GEN FIELD MAN RESET.
26-22-02 CONFIG 1 401	Changed data to references.
26-23-00 524,529	Added the data for the torque range and instruction to torque the jam nut.
26-23-01 613,615 619,621	Changed the data for the bottle discharge light on the squib test box from OFF to ON and removed the unapplicable steps.
26-23-01 629-630	Added NOTE for Bulk Cargo Heat and Bulk Cargo Vent Fan Aft Armed switch activation.

CHAPTER 27 - FLIGHT CONTROLS

27-02-00 616	Re-issued the page.
27-05-03 201-202	Add new amtoss procedure for eMOD taskcard conversion
27-11-01 403	Added the data to show A27024-2 tool is optional to use.
27-11-26 405	Added a NOTE to define the requirement above the self-locking torque.
27-21-01 412	Removed the dimension A from the illustration.
27-28-05 403	Changed the steps that check for the rudder trim indicator null.
27-31-00 580D	Added the step to verify the elevator position measurement after moving elevators.
27-31-01 405 411-412	Changed the steps and figure references to the elevator interconnect links.
27-31-02 403	Changed the figure reference to show bolt head direction change.

27-31-02 603	Changed the figure reference to show bolt head direction changes.
27-31-05 413	Changed the step to pressurize the auxiliary pitot system.
27-31-06 401 403-405 407	Changed the steps to clarify the procedure.
27-32-00 516	Added a note to show a pause in control columns moving forward after stick shaker being activated.
27-32-05 402	Changed the illustration breakout length of the wire bundles to the stick shakers.
27-41-00 501-580P	Re-issued the page.
27-41-11 403	Added type of grease to consumable materials for lubricating the splined shaft.
27-51-00 501-580J	Added the table 501.
27-51-02 401	Added the new tool partnumber.
27-51-03 407	Removed the view.
27-51-22 412-413	Added the data to include the spacer-splined.
27-61-02 417	Changed two circuit breakers on table 401.
27-81-02 601 605-607	Added metric conversion.
27-81-02 601 605-607	Changed the format of the title.
27-81-04 201,235 238	Changed the step from drive shaft to drive shaft spline.
27-81-19 403 409-411	Added steps to remove plate assembly to allow actuator removal.
27-81-20 201-270	Re-issued the page.

CHAPTER 28 - FUEL

28-00-00 207-209	Changed the access panel data.
28-11-00 606-607 618,636	Added data for B28005-41 pressure plug equipment.

28-11-00 Changed the data of vendor and address for the Helitest Wing Kit.
626
28-11-00 Changed the fuel tank nomenclature.
636
28-11-00 Changed the column title in the figure from MINIMUM to MAXIMUM.
815
28-11-01 Removed the dimension measurements from the figure
405
28-11-01 Added airworthiness limitation references.
409-410
413-416
28-11-02 Added a step and a figure for the impact resistance access door.
405,411
28-11-02 Added airworthiness limitation references.
407
409-411
28-11-03 Added airworthiness limitation references.
407-410
28-21-02 Added airworthiness limitation references.
407-409
28-21-11 Added airworthiness limitation references.
401,404
28-21-13 Removed steps to check the automatic shutoff.
501,512
28-22-00 Added airworthiness limitation references.
530,539
28-22-01 Added airworthiness limitation references.
417-419
28-22-02 Added airworthiness limitation references.
418-421
28-22-03 Added airworthiness limitation references.
414-415
423
28-22-03 Changed the consumable material data.
434-435
28-22-05 Added airworthiness limitation references.
CONFIG 1
411,413
422
28-22-05 Changed the consumable material data.
CONFIG 1
432-433
28-22-05 Added airworthiness limitation references.
CONFIG 2
414,421
28-22-05 Changed the consumable material data.
CONFIG 2
433

28-22-07 Changed the wording of the task title.
420-421
435

28-22-07 Added steps to leak check the strut quick disconnect.
606

28-22-08 Changed to correct the nomenclature for the access doors.
701

28-22-11 Changed the installation torque for the bonding jumper.
410-413

28-22-11 Changed the installation torque for the bonding jumper.
605-606

28-22-12 Changed the installation torque for the bonding jumper.
414-416

28-22-12 Changed the installation torque for the bonding jumper.
607-608

28-25-02 Changed the installation torque for the bonding jumper.
408-411

28-25-02 Changed the installation torque for the bonding jumper.
604

28-25-04 Changed the installation torque for the bonding jumper.
408-410

28-25-04 Changed the installation torque for the bonding jumper.
605

28-26-01 Added airworthiness limitation references.
415-418

28-26-11 Changed the access zones and panels.
401,407

28-26-11 Changed the installation torque for the bonding jumper.
409-411

28-26-11 Changed the access panel.
601

28-26-11 Changed the installation torque for the bonding jumper.
605-606

28-31-00 Changed the sequence of the test of the left override/jettison
CONFIG 2 pump to agree with the test of the right override/jettison pump.
522

28-31-01 Added airworthiness limitation references.
412

28-31-03 Added airworthiness limitation references.
416-419

28-31-04 Changed the installation torque for the bonding jumper and added
407-409 airworthiness limitation references.

28-31-04 Changed the installation torque for the bonding jumper.
604-605

28-31-05 Changed the installation torque for the bonding jumper.
408-410

28-31-05 Changed the installation torque of the bonding jumper.
605

28-31-06 Added airworthiness limitation references.
417-420
28-41-00 Added the data for the fuel configuration warning system
CONFIG 1 operational test.
501-542
28-41-00 Added the data for the fuel configuration warning system
CONFIG 2 operational test.
501-534
28-41-08 Added steps to check the flight deck indication.
405
28-41-09 Added airworthiness limitation references.
CONFIG 1
401
410-413
28-41-09 Added airworthiness limitation references.
CONFIG 2
401
414-415
417-419
28-41-09 Changed the access panel data.
601,607
28-41-24 Added airworthiness limitation references.
403-404

CHAPTER 29 - HYDRAULIC POWER

29-11-00 Re-issued the page.
217
29-11-27 Added airworthiness limitation references to CDCCLs.
404-405
29-11-27 Added the airworthiness limitation references.
601
604-605
29-11-40 Changed the description of circuit breaker 11P3 from GLARESHIELD
401,404 INSTR & PNL LTS to OVHD INSTR & PNL LTS.
29-22-00 Added steps stating to replace or repair the PTU Return
506,516 Compensator Module if it does not meet test criteria.
518

CHAPTER 30 - ICE AND RAIN PROTECTION

30-11-04 Changed the title of the test.
401
30-21-00 Added steps to remove the pressure gage and fittings.
506
30-21-01 Re-Issued the page.
401
30-42-03 Changed the windshield wiper arm installation procedure.
410

30-71-03 401	Added data for BCF and Freighter models.

CHAPTER 31 - INDICATING/RECORDING SYSTEMS

31-31-00 510	Added an optional HT717-1 Data Bus Analyzer.
31-31-02 201 204-206	Changed the battery replacement data to agree with the Dukane supplier manual.
31-31-02 207-210	Changed the battery replacement data to agree with the Teledyne Benthos supplier manual.
31-31-03 204-205	Added steps to cycle CB.
31-31-05 404	Added an optional HT717-1 Data Bus Analyzer.
31-31-07 404	Added an optional HT717-1 Data Bus Analyzer.
31-31-08 404	Added an optional HT717-1 Data Bus Analyzer.
31-31-09 404-405	Added an optional HT717-1 Data Bus Analyzer.
31-31-10 404	Added an optional HT717-1 Data Bus Analyzer.
31-31-12 403	Added an optional HT717-1 Data Bus Analyzer.
31-31-13 404	Added an optional HT717-1 Data Bus Analyzer.
31-31-15 404	Added an optional HT717-1 Data Bus Analyzer.
31-31-18 403-404	Added an optional HT717-1 Data Bus Analyzer.

CHAPTER 32 - LANDING GEAR

32-05-03 201-204	Add new amtoss procedure for eMOD taskcard conversion
32-11-20 CONFIG 2 601-604	Changed the page block effectivity to clarify it.
32-21-09 401,403	Changed the spring extender part number.
32-21-26 401,408	Added a step to remove and install the metering pin.
32-31-01 404,407	Added steps to verify the correct operation of the various systems installed on the landing gear control module.
32-32-01 406	Changed the consumable for the sealant to update the status.

32-32-05 401,404	Added an optional spring extender tool dash number, -78.
32-34-02 406	Changed installation step text to tag drawing change for thinner washers use when replacing lock actuator upper joint.
32-35-00 513-515	Changed the allowable gap dimension between the uplock hook and the uplock release hook.
32-41-00 506	Added steps to bleed hydraulic pressure.
32-41-08 CONFIG 3 602,608	Revised Figure 601, flagnote 1 to add clarification on when brake unit is worn and requires replacement.
32-42-00 32	Revised Figure 15 sheet 2 to match schematic from System Schematic Manual.
32-42-00 531	Changed the number of pressure gages needed to perform the autobrake application test.
32-42-03 407-408 414,417	Added conditional use of lockwire.
32-42-03 411	Changed the cross reference data between the AMM and IPC to clarify the procedure.
32-44-00 505-506 511-512	Added instructions for brake pressure gage installation and removal.
32-44-00 510	Changed the word for the brake pressure test step from "any" to "one".

CHAPTER 34 - NAVIGATION

34-00-00 1	Changed the data to clarify units displayed in the flight compartment.
34-11-00 502-503 507,512 515 526-531 533,536 538-546	Changed the data to improve the Adjustment Test.
34-11-00 504 526-529 531-533	Re-issued the page.
34-12-00 508	Re-issued the page.
34-12-03 407	Change the data to correct the burndy blocks.
34-12-03 407-408	Removed the typo.
34-21-00 28	Re-issued the page.

34-21-00 501	Changed the degree in the inertial reference system test.
34-22-00 501-564	Added an example.
34-53-00 CONFIG 4 501-546	Added the data for an ATC System Test procedure for the IFR-6000 Test Set.

CHAPTER 35 - OXYGEN

35-11-00 1-4	Removed the Oxygen system schmatics and added references to wiring diagrams and functional schematics.
35-11-00 501 508-509 511	Removed the step to make sure the circuit breakers are closed and its list of circuit breakers in the Prepare for the Test.
35-21-00 1-6	Removed the Passenger Oxygen system schmatic and added references to wiring diagrams and functional schematics.

CHAPTER 36 - PNEUMATIC

36-11-00 506 508-509	Changed the words to standardize the nomenclature of the L and R ENG BLEED AIR switch-light, and the BLEED and VALVE light.
36-11-00 507	Added steps to test the R ENG OFF switch-light.
36-11-00 508-509	Changed the words in the step to start with "Make sure"
36-11-01 803-804	Changed the silicone sheet material.
36-11-04 402 405-406	Changed the directional arrow in Figure 401 and changed the detail C to detail B in Figure 402.
36-11-04 407	Added references to the Reference section of the installation task.
36-23-01 403-404	Changed the air supply BITE module post-installation BITE test.

CHAPTER 38 - WATER AND WASTE

38-10-00 1-16	Removed the Potable Water system schematic and added references to wiring diagrams and functional schematics.
38-10-00 507	Removed the step to make sure the circuit breakers are closed and its list of circuit breakers in the Prepare for the Test.
38-11-06 CONFIG 1 401	Reissued the page.

38-11-06 Changed the AMM/AIPC cross-reference data.
CONFIG 1
405
38-14-01 Removed the step to make sure the circuit breakers are closed and
504 its list of circuit breakers in the Prepare for the Test.
38-15-02 Changed the AMM/AIPC cross-reference data.
401-414
38-15-03 Changed the AMM/AIPC cross-reference data.
401-406
38-31-01 Added the steps to accomplish aluminum to composite
401-418 interchangeability modifications.
38-32-00 Changed the document title.
201
38-32-00 Changed the document title.
501
38-32-00 Removed the step to make sure the circuit breakers are closed and
514 its list of circuit breakers in the Prepare for the Test.
38-32-00 Changed the document title.
701
38-32-17 Changed the spelling.
501
38-33-00 Removed the step to make sure the circuit breakers are closed and
506,508 its list of circuit breakers in the Prepare for the Test.

CHAPTER 49 - AIRBORNE AUXILIARY POWER

49-11-01 Changed a typographical error.
417-418
49-11-02 Removed an extra word from the sentence.
206,214
49-15-09 Changed the word sealant to adhesive.
401
49-27-00 Changed a typographical error.
1

CHAPTER 51 - STRUCTURES

51-10-00 Changed the format of the procedure.
601
51-21-02 Added the pitot probe and port covers to the consumables list.
701-702
51-21-10 Added data that says not to paint pitot probes or ports in the
701 procedure.
51-24-07 Changed the data for the bake temperature.
705
51-41-00 Changed the consumable from MIL-C-87936 to MIL-PRF-87937.
201-202
51-41-00 Changed the illustration to include the locator and the stack-up
208 of the drain valve assembly.

CHAPTER 52 - DOORS

52-05-03 201-204	Add new amtoss procedure for eMOD taskcard conversion
52-09-00 801-811	Changed the data for the door seal repair procedures.
52-09-01 401	Changed the document title.
52-11-00 1-20	Removed the Entry/Service Door system schematic and added references to wiring diagrams and functional schematics.
52-11-01 405,409	Changed the AMM/AIPC cross-reference data.
52-11-02 405-406	Changed the AMM/AIPC cross-reference data.
52-11-08 404-405	Changed the AMM/AIPC cross-reference data.
52-11-25 202-203 205	Changed the AMM/AIPC cross-reference data.
52-11-25 208	Added the interior handle clearance check.
52-21-01 201,206 212	Changed the reference title.
52-33-00 553,557	Added the minimum torqu for the manual drive port.
52-35-00 1-16	Removed the Standard Aft Cargo Door Control system schematic and added references to wiring diagrams and functional schematics.
52-35-00 501 561-562	Removed the step to make sure the circuit breakers are closed and its list of circuit breakers in the Prepare for the Test.
52-35-01 405	Changed the AMM/AIPC cross-reference data.
52-35-02 403	
52-35-02 403	Changed the AMM/AIPC cross-reference data.
52-35-03 403	Changed the AMM/AIPC cross-reference data.
52-35-03 408	Changed the AMM/AIPC cross-reference data.
52-35-10 402	Changed the AMM/AIPC cross-reference data.
52-36-03 402	Changed the AMM/AIPC cross-reference data.
52-36-07 205	Changed the spelling.

52-51-00 CONFIG 1 1-4 — Removed the Flight Compartment Door system schematic and added references to wiring diagrams and functional schematics.

52-51-00 CONFIG 2 1-8 — Removed the Flight Compartment Door system schematic and added references to wiring diagrams and functional schematics.

52-51-00 CONFIG 4 1-8 — Added or re-issued data for SB 25-332 that added the enhanced security flight compartment door.

52-51-00 CONFIG 1 205 — Changed the AMM/AIPC cross-reference data.

52-51-00 CONFIG 1 504,509 511,513 — Removed the step to make sure the circuit breakers are closed and its list of circuit breakers in the Prepare for the Test.

52-51-00 CONFIG 1 513 — Changed the data for the operation test of the flight compartment access system.

52-51-00 CONFIG 3 505,510 512,514 — Removed the step to make sure the circuit breakers are closed and its list of circuit breakers in the Prepare for the Test.

52-51-10 CONFIG 1 403 — Added the step to program the chime module after installation.

52-51-14 CONFIG 1 601 — Changed the document title.

52-71-00 1-6 — Removed the Door Warning system schematic and added references to wiring diagrams and functional schematics.

CHAPTER 53 - FUSELAGE

53-00-00 201-202 — Added airworthiness limitation precaution task.

53-01-01 405-407 — Added airworthiness limitation references to CDCCLs.

53-01-01 405-407 — Changed the references.

53-05-03 201-220 — Add a scheduled maintenance task.

53-05-04 201-216 — Add new amtoss procedure for eMOD taskcard conversion.

53-05-05 201-210 — Add new amtoss procedure for eMOD taskcard conversion.

CHAPTER 54 - NACELLES/PYLONS

54-05-03 201-212	Add new amtoss procedure for eMOD taskcard conversion
54-31-01 403	Changed the data for the tool called out for the installation of the bearing assembly.
54-51-02 603	Added data for the latest revision of the midspar fuse pin inspection.
54-53-01 502-503	Changed the illustration and added the torque adapter tool.
54-53-01 504	Changed the format of the data.

CHAPTER 55 - STABILIZERS

55-05-03 201-216	Add new amtoss procedure for eMOD taskcard conversion

CHAPTER 56 - WINDOWS

56-11-00 609 611-613 615-618	Added the grid location callouts for the ice/rain window heat circuit breakers for the flight compartment windows
56-11-00 801 805-806 810-821	Added the callouts for the ice/rain window heat circuit breakers for the flight compartment windows.
56-11-00 805-806 810-821	Added the locations for the ice/rain window heat circuit breakers for the flight compartment windows.
56-11-01 401,403 411-412	Added the grid location callouts for the ice/rain window heat circuit breakers for the flight compartment windows
56-11-01 402	Re-issued the page.
56-11-01 411-412	Added the callouts for the ice/rain window heat circuit breakers for the flight compartment windows.
56-11-02 401,403 408-409	Added the callouts for the ice/rain window heat circuit breakers for the flight compartment windows.
56-11-02 401,403 408-409	Added the locations for the ice/rain window heat circuit breakers for the flight compartment windows.
56-11-02 502,510 512,515	Added the callouts for the ice/rain window heat circuit breakers for the flight compartment windows.

56-11-02 602	Added the callouts for the ice/rain window heat circuit breakers for the flight compartment windows.
56-11-10 401,411	Added the callouts for the ice/rain window heat circuit breakers for the flight compartment windows.
56-21-01 405	Changed the document title.
56-31-01 601	Changed the document title.
56-31-01 801	Changed the document title.

CHAPTER 57 - WINGS

57-05-03 201-216	Add new amtoss procedure for eMOD taskcard conversion
57-05-04 201-212	Add new amtoss procedure for eMOD taskcard conversion
57-05-05 201-212	Added new doc eMod taskcard conversion document.
57-05-06 201-214	Added new doc eMod taskcard conversion document.
57-05-07 201-204	Added new doc eMod taskcard conversion document.
57-51-03 803	Added the data for the preparation of the conductive strip and the repair area using the BOEGEL method.

CHAPTER 70 - STANDARD PRACTICES (PW4000)

70-11-03 201-204	Changed the procedure to use epoxy primer, aluminized epoxy enamel, solvent reducer, and a hot air gun instead of an oven.
70-11-10 201-211	Changed Figure 201 to two sheets and extensively revised SPOP 425 Procedures.
70-11-12 201-202 205	Added consumables to the scrub pad references.
70-11-12 202	Moved the WARNING.
70-24-03 201-202	Changed a typographical error.
70-30-00 204-205 226,231 243 253-256 268,280A 280C-280F 280H-280I 280N,280P 280V,280Y	Added new consumables to match the latest specifications.

70-30-00 211 280N,281	Added flagnotes which were not released.

CHAPTER 71 - POWER PLANT (PW4000)

71-00-00 560,562 566,580 580M	Added a paragraph describing the two different configurations of N1 speed probe.
71-00-00 611	Changed the steps to examine the stainless steel metal braid under the silicone fire sleeve.
71-05-03 201-202	Added a scheduled maintenance task for engines.

CHAPTER 72 - ENGINE (PW4000)

72-00-00 661 676A-676B	Added circuit breakers to prevent inadvertent starting during borescope inspections.
72-00-00 665 669,670U 672F,674P 674U	Moved the CAUTION out of the General section.
72-00-00 674,680M	Changed the inspection requirements when performing borescope inspection and changed figure 620, sheet 1.
72-00-00 801-802	Added the procedure for the approved repairs of the 5th through 15th stage blades.
72-33-02 801	Changed the data of the consumable material.
72-61-01 604-605	Changed the order of the steps to replace packings on the drain plugs when oil leaks are found.

Scandinavian Airlines System

PAGE	DATE	CODE
TITLE PAGE		
1	DEC 22/06	25
2	BLANK	
EFFECTIVE PAGES		
SEE LAST PAGE OF LIST		
FOR NUMBER OF PAGES		
REVISION RECORD		
1	AUG 22/99	01
2	BLANK	
RECORD OF TEMPORARY REVISION		
1	AUG 22/99	01
2	BLANK	
INTRO CONTENTS		
1	MAY 10/94	01
2	BLANK	
INTRODUCTION		
1	AUG 22/00	01
2	DEC 22/05	02
3	DEC 22/05	02
4	AUG 22/99	01
5	DEC 22/05	02
6	DEC 22/05	03
7	DEC 22/05	02
8	APR 22/01	06
9	APR 22/02	06
10	APR 22/02	03
11	DEC 22/06	02
12	DEC 22/06	02
13	DEC 22/05	02
14	APR 22/03	03
15	APR 22/04	03
16	DEC 22/05	02
17	DEC 22/05	02
18	DEC 22/05	02
19	DEC 22/05	02
20	DEC 22/05	02
21	DEC 22/05	02
22	DEC 22/05	02
23	DEC 22/05	02
24	DEC 22/05	02
25	DEC 22/05	02
26	DEC 22/05	02
27	DEC 22/05	02
28	DEC 22/05	03
29	DEC 22/05	03
R 30	AUG 22/09	02.1
R 31	AUG 22/09	02.1
R 32	AUG 22/09	02.101
R 33	AUG 22/09	02.101
R 34	AUG 22/09	02.101

PAGE	DATE	CODE
INTRODUCTION		CONT.
R 35	AUG 22/09	02.101
R 36	APR 22/04	03.101
R 37	APR 22/04	03.101
R 38	APR 22/04	03.101
R 39	APR 22/04	03.101
R 40	AUG 22/09	02.101
R 41	AUG 22/09	01.101
R 42	AUG 22/09	SAS.101
43	APR 22/04	01
44	BLANK	
LIST OF AIRPLANES		
1	AUG 22/08	25
2	BLANK	
LIST OF SERVICE BULLETINS		
R 1	AUG 22/09	26.1
R 2	AUG 22/09	25.1
R 3	AUG 22/09	25.1
R 4	AUG 22/09	25.1
R 5	AUG 22/09	25.1
R 6	AUG 22/09	25.1
R 7	AUG 22/09	25.1
R 8	AUG 22/09	25.1
R 9	AUG 22/09	24.1
R 10	AUG 22/09	23.1
R 11	AUG 22/09	23.1
R 12	AUG 22/09	23.1
R 13	AUG 22/09	23.1
R 14	AUG 22/09	23.1
R 15	AUG 22/09	22.1
R 16	AUG 22/09	22.1
R 17	AUG 22/09	22.1
R 18	AUG 22/09	22.1
R 19	AUG 22/09	22.1
R 20	AUG 22/09	22.1
R 21	AUG 22/09	22.1
R 22	AUG 22/09	22.1
R 23	AUG 22/09	22.1
R 24	AUG 22/09	22.1
R 25	AUG 22/09	22.1
R 26	AUG 22/09	22.1
R 27	AUG 22/09	22.1
R 28	AUG 22/09	21.1
R 29	AUG 22/09	21.1
R 30	AUG 22/09	21.1
R 31	AUG 22/09	21.1
R 32	AUG 22/09	20.1
R 33	AUG 22/09	20.1
R 34	AUG 22/09	20.1
R 35	AUG 22/09	20.1
R 36	AUG 22/09	19.1
R 37	AUG 22/09	17.1
R 38	AUG 22/09	17.1

PAGE	DATE	CODE
LIST OF CHAPTERS		
1	AUG 22/01	SAS
2	FEB 01/83	01

R = REVISED, A = ADDED OR D = DELETED
F = FOLDOUT PAGE
33
AUG 22/09

D633T133

CHAPTER 00
EFFECTIVE PAGES
PAGE 1
LAST PAGE

REVISION RECORD

All revisions to this manual will be accompanied by a transmittal sheet bearing the revision number. Enter the revision number in numerical order, together with the date filed and the initials of the person filing, in the form below:

REVISION NO.	DATE FILED	BY	REVISION NO.	DATE FILED	BY	REVISION NO.	DATE FILED	BY

Revision Record
Figure 1

RECORD OF TEMPORARY REVISIONS

REVISION		INSERTED		REMOVED		REVISION		INSERTED		REMOVED	
TR NO.	DATED	BY	DATE	BY	DATE	TR NO.	DATED	BY	DATE	BY	DATE

Record of Temporary Revisions
Figure 1

INTRODUCTION

TABLE OF CONTENTS

INTRODUCTION

1. General

A. This publication was prepared by Maintenance Engineering Technical Services (METS) of the Boeing Commercial Airplane Group in accordance with Air Transport Association of America Specification No. 100, Specification for Manufacturers' Technical Data. It contains the data necessary to service, troubleshoot, check, and repair systems and equipment installed in the 767 airplane for maintenance done on the line or in the maintenance hangar. The data for maintenance that is done away from the airplane (because of the need for special equipment) is contained in the Boeing 767 Component Maintenance Manual or suppliers' component maintenance manuals. The Airplane Maintenance Manual (AMM) also contains information on inspection and maintenance of airplane structure. But information on repair of airplane structure is contained in the 767 Structural Repair Manual.

NOTE: THIS MANUAL IS PREPARED SPECIFICALLY TO COVER THE BOEING AIRPLANES LISTED IN THE "LIST OF EFFECTIVE AIRPLANES" SECTION, FOR THE OPERATOR NAMED ON THE TITLE PAGE.

IT CONTAINS INSTRUCTIONS AND INFORMATION APPLICABLE TO THOSE SPECIFIC AIRPLANES, IN THEIR AS-DELIVERED CONFIGURATION, PLUS ANY APPLICABLE BOEING SERVICE BULLETINS OR OTHER OPERATOR CHANGES, THE INCORPORATION OF WHICH THE NAMED OPERATOR HAS NOTIFIED BOEING.

THE NAMED OPERATOR IS SOLELY RESPONSIBLE FOR THE ACCURACY AND VALIDITY OF ALL INFORMATION FURNISHED BY THAT NAMED OPERATOR OR ANY OTHER PARTY BESIDES BOEING AND, IF IN RECEIPT OF ACTIVE REVISION SERVICE, THAT ANY MODIFICATIONS TO THE AIRPLANE ARE PROPERLY REFLECTED IN THE MAINTENANCE INSTRUCTIONS CONTAINED IN THIS MANUAL.

OPERATORS ARE RESPONSIBLE FOR ENSURING THAT THE MAINTENANCE DOCUMENTATION THEY ARE USING IS COMPLETE AND MATCHES THE CURRENT CONFIGURATION OF THE AIRPLANE.

THE BOEING COMPANY ASSUMES NO RESPONSIBILITY IN THIS REGARD.

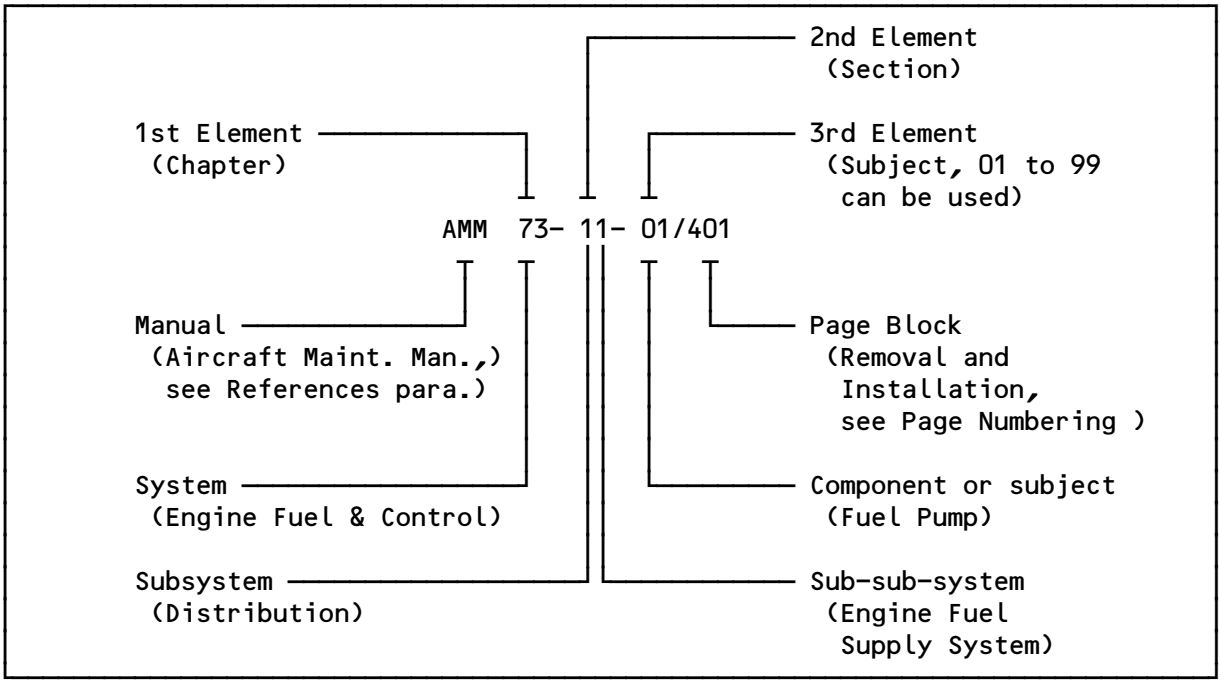
CUSTOMIZATION DOES NOT TRACK THE CONFIGURATION OF AIRCRAFT LISTED ON THE LIST OF EFFECTIVE AIRPLANES PAGE THAT HAVE BEEN CONVEYED TO ANOTHER OPERATOR.

THIS MANUAL IS NOT SUITABLE FOR USE, INCLUDING WITHOUT LIMITATION, GENERAL INSTRUCTIONS OR TRAINING, FOR ANY AIRPLANES NOT LISTED HEREIN, NOR DOES IT NECESSARILY APPLY TO LISTED AIRPLANES THAT HAVE BEEN CONVEYED TO OTHER OPERATORS.

B. Send communications about this publication to Boeing Commercial Airplane Services. Write "Attention: Manager, Maintenance Engineering Technical Services."
   (1) For a quicker response, use the Publications Change Request form.
      (a) This form is available through your publications organization or on MyBoeingFleet at: https://www.myboeingfleet.com:443/boldweb/pcr_select.bhtml (user ID and password required).
      (b) To get a MyBoeingFleet account, contact the account administrator at your company, or contact Boeing Digital Data Customer Support.
   (2) You can also e-mail requests directly into the Boeing Communication system at this address: http://bcsweb.web.boeing.com/.
      (a) Please provide this information:
         1) airline name
         2) your name
         3) phone number
         4) e-mail address
         5) airplane model-type
         6) title of manual, or document number
         7) chapter-section-subject
         8) a description of the change

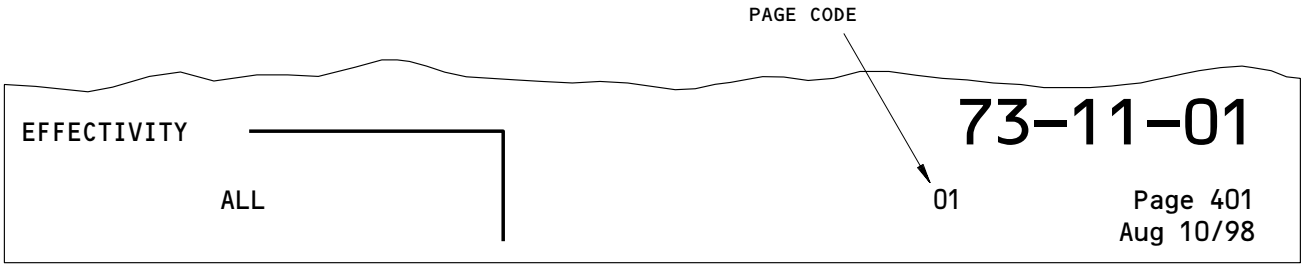
2. Manual Arrangement and Numbering System
   A. The Maintenance Manual is divided into chapters and groups of chapters. Each group and every chapter has a tab provided for ease of location. The chapterization separates the manual into the primary functions and systems of the airplane. The chapters are further divided into sections and subjects to provide for subsystem and individual unit breakout. Each chapter, section and subject is identified by an assigned number. Each page carries the assigned subject number, page number, page code and the revision date.
      (1) In addition, the Power Plant chapters are issued in a self-contained set or sets (as applicable, if you have more than one engine type in your model fleet). These pages are further identified by an engine sub-logo, for example CF6-80A SERIES ENGINES, CF6-80C SERIES ENGINES, JT9D SERIES ENGINES, PW4000 SERIES ENGINES, RB211-524 SERIES ENGINES, etc., placed to the right of the Maintenance Manual logo at the top of the page. The numbering system is described in detail in the paragraphs that follow.
   B. Chapter Numbering
      (1) The chapters, sections, and subjects in the maintenance manual provide a functional breakdown of the airplane.
      (2) To keep the chapters, sections, and subjects in order, a three-element number (XX-XX-XX) is used.

(3) Each of the numbers has two digits. For example:

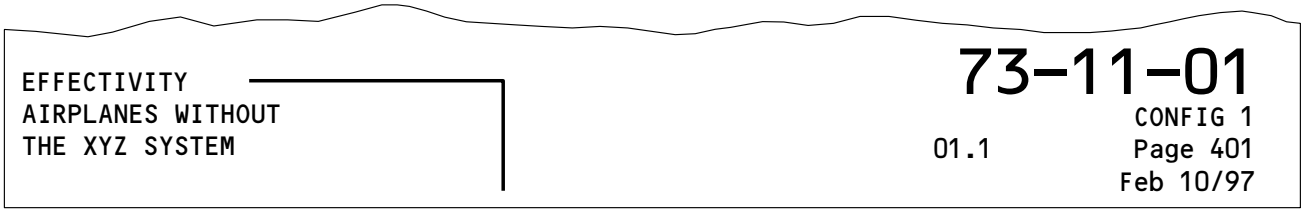


(4) The ATA specification is always the source for the chapter name that is assigned for each the chapter number (1st element). Material which is applicable to a system as a whole has zeros in the 2nd and 3rd elements of the numbers. That is, the chapter number followed by "-00-00".
For example:
(a) AMM 73-00-00/001 (Engine Fuel Supply and Control System) is used for general description information which provides an outline breakdown of the sections in the chapter.

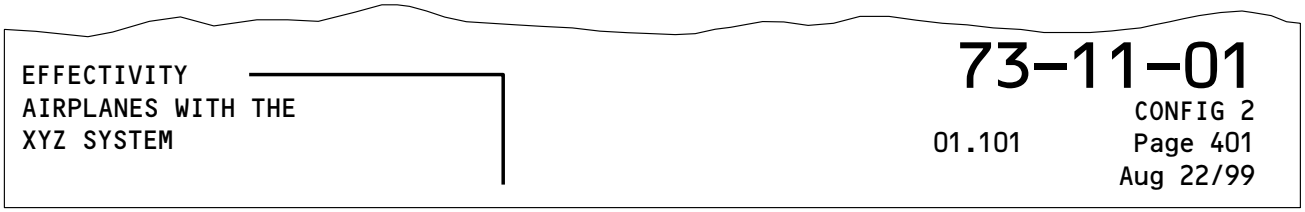
C. Effectivity
(1) On each page, there is effectivity data in the lower, left footer (Fig. 1).
(2) When a page applies to all airplanes, the word ALL is in the effectivity area.



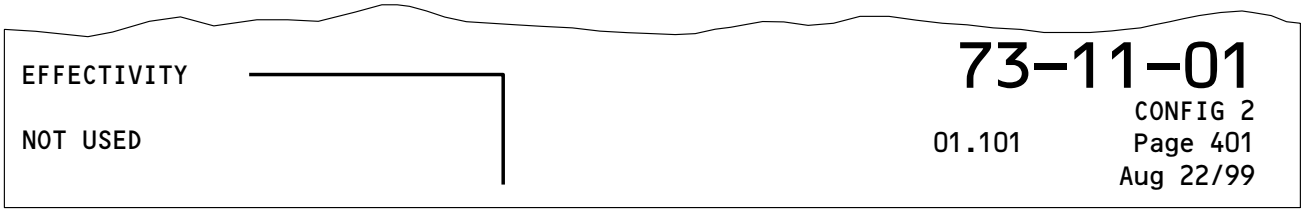
NON-CONFIG PROCEDURE EXAMPLE



CONFIG 1 PROCEDURE EXAMPLE



CONFIG 2 PROCEDURE EXAMPLE



CONFIG - NOT USED EXAMPLE

Effectivity, Page Code and Configuration Procedure Examples
Figure 1

K27626

(3) If the data does not apply to all airplanes or engines, then the effectivity will be one of these types:

(a) Physical description - A description of the differences that you can see.

1) When a physical description is used, a reference to the applicable service bulletin, and PRR (production change) are provided when that is possible. This is done primarily for the benefit of airline engineering, and maintenance planning groups.
For example:

ENGINES WITH THRUST REVERSER SYNC LOCKS (POST-SB 78-62 OR PRRB12488) ENGINES WITHOUT THRUST REVERSER SYNC LOCKS (PRE-SB 78-62)

(b) Component dash number - The last digits of the identification number that are on an electrical unit.

(c) Airplane effectivity numbers - The airline three-letter code, and the numbers or letters that Boeing and each airline agreed on to identify each airplane. If the effectivity is applicable to all subsequent airplanes, the last digits will be 999.
For example:
205-999 indicates airplane 205 and all subsequent airplanes.

(4) Immediately after this introduction, there is a cross-reference table of effectivity numbers, customer numbers, manufacturing serial numbers, and registration numbers.

(5) Each paragraph can have an effectivity. Each effectivity is in upper-case letters, on the first line of the paragraph.

D. Configuration Numbering

(1) When effectivity differences are extensive and the preceding method becomes cumbersome, thus distracting from the continuity of subject matter, new page blocks are created. These added page blocks are identified by the addition of a configuration code (CONFIG) immediately above the page number. A previously issued page block is re-issued to incorporate the configuration code as shown in Fig. 1. Configuration codes are issued at page block level only. They are usually used when a change to the airplane results in a major change to the manual.

(2) Configuration codes are typically used when there are multiple configurations of a page block that are applicable to a the airplanes in a maintenance manual.
  (a) The CONFIG number only indicates that a pageblock is not applicable to all of the airplanes unless the effectivity for the pageblock shows ALL.
    1) There is no relationship between the CONFIG number and a specific physical configuration.
    2) Use the effectivity to determine what airplanes, or systems the pageblock appliesto.
  (b) The effectivity for a CONFIG number can be different for pageblocks even in the same chapter-section-subject.
    1) For example, the removal/installation could have an effectivity of ALL while there is a CONFIG 1 and CONFIG 2 for the adjustment/test.
  (c) In some instances, you can have CONFIGs that are provided as place holders. These procedures will be indicated as "NOT USED" in the effectivity block in the lower left corner of the page (Fig. 1).

E. Engine Configurations
(1) For the effectivity information in the power plant (70 series) chapters of the manual, two situations can exist: the word ALL placed in the effectivity block on a page means that the page pertains to either all airplanes or all engines, whichever the case may be. When the effectivity is limited to a system or component that remains with the airplane during the power plant replacement, the effectivity is expressed in a manner described in the preceding paragraphs. When a manual section, page, step or illustration is limited to an engine type or component, the effectivity is given using the engine model, physical difference, or part number.
  (a) The word "ALL" in the effectivity block on a page means that the page pertains to all airplanes (if you have only one engine type in your model fleet) or
  (b) All engines (if you have multiple engine types in your model fleet), whichever the case may be.
(2) When the effectivity is limited to a system or component that remains with the airplane during the power plant replacement, the effectivity is expressed in a manner described in the preceding paragraphs. When a manual section, page, step or illustration is limited to an engine type or component, the effectivity is given using the engine model, physical difference, or part number.

F. Page Numbering
(1) Each page block has its own page numbers. The page numbers are in the lower right corner of each page.

(2) The page blocks categorize the tasks that they contain. The page blocks are defined by ATA Specification 100:

Nomenclature	Page Block
Description and Operation (D&O)	1 to 99
Fault Isolation (FI)	101 to 199
Maintenance Practices (MP)	201 to 299
Servicing (SRV)	301 to 399
Removal/Installation (R/I)	401 to 499
Adjustment/Test (A/T)	501 to 599
Inspection/Check (I/C)	601 to 699
Cleaning/Painting (C/P)	701 to 799
Approved Repairs (AR)	801 to 899

(3) When it is convenient for the user to have different types of tasks in one page block, MAINTENANCE PRACTICES, the 201-to-299 page block, is used.

3. How to Use the Maintenance Manual

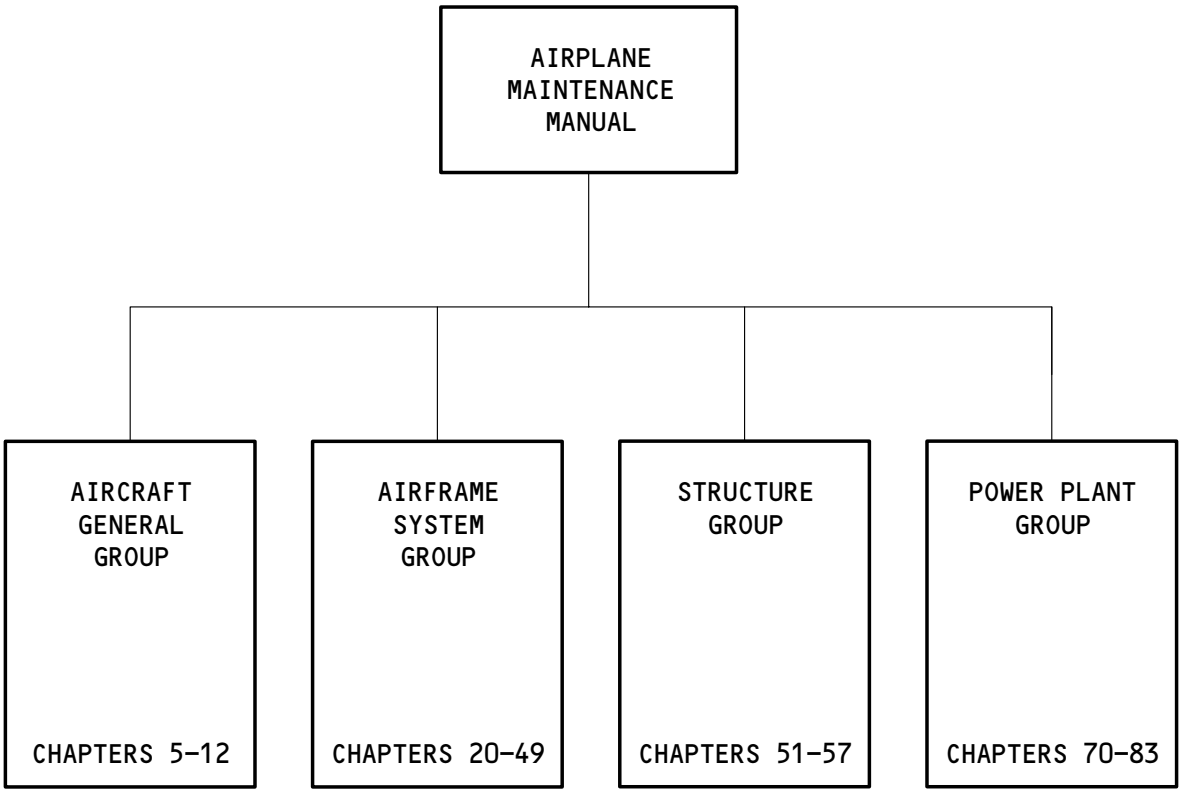
A. The organizational breakdown of the Maintenance Manual is shown on Fig. 2. All chapters of the manual are grouped under four major headings. To locate information, start with a major heading to identify the group of chapters related to the desired information, then identify the chapter within the group. With the chapter number identified, proceed to the chapter table of contents located at the beginning of each chapter. A tab has been provided for each chapter for ease of location.

B. The Chapter Table of Contents lists all subsystems numerically. It also lists the Maintenance Practices, such as Fault Isolation, Adjustment/Test, etc. These units are listed in alphabetical order using the key noun as the title of the unit. The page number and effectivity are listed for each section or subject for which data is provided. The maintenance topics have assigned page blocks, such as all 501 to 599 numbers are adjustment/test pages. For a description of the complete page numbering system see the previous section and the paragraph on "Page Numbering". After the section or subject has been identified, the information can be located within the chapter numerically per section/subject number.

4. Maintenance Manual Features

A. Description and Operation (page block 001)

(1) The description and operation portion of each chapter provides an explanation of system by function, operation, configuration and control. Sufficient information is provided for the maintenance personnel to understand the system construction and function.



Organizational Breakdown of Airplane Maintenance Manual
Figure 2

B. Component Location (page block 101)

(1) A formal presentation of component location information is included in the pages numbered 101 to 199 in the Maintenance Manual. Component location information includes an alphabetical Component Index and Component Location illustrations. The following information is included:

(a) The Component Index is a table which alphabetically lists the components assigned to the system or subsystem (subject) and a reference to the figure and sheet showing the locations of the components. Components which are not assigned to the subject, but are operationally related, are also listed. However, cross reference is provided to the system or subsystem where the components are assigned and their location shown.

1) The quantity of each item, access and area, and a reference is provided. The access number identifies the access panel or door that must be opened to get to the component. The reference identifies the maintenance manual assigned subject number for the item (normally the removal/installation procedure), or the section where additional information relative to it may be found. Circuit breakers and other electrical components are referenced to the Wiring Manual Equipment List when a maintenance manual procedure is not provided.

a) The access number identifies the access panel or door that must be opened to get to the component.

b) The reference identifies the maintenance manual assigned subject number for the item (normally the removal/installation procedure), or the section where additional information relative to it can be found.

c) Circuit breakers and other electrical components are referenced to the Wiring Manual Equipment List when a maintenance manual procedure is not provided.

(b) The Component Location figure illustrates the access and location of components listed in the Component Index. Their physical location relative to known structural or system features is shown. Circuit breaker and panels location are shown. However, the circuit breaker position is found using the alphanumeric grid location provided in the index access/area column.

(2) Use of Component Location Information

(a) Components are listed in the Component Index in alphabetical sequence. All circuit breakers are listed under the "CIRCUIT BREAKER" designation. Locate the components name in the left column of the Component Index. Determine the number of components installed on the airplane by referring to the "QTY" column. The access door to be opened, or the area of the airplane where the component is located, is determined by referring to the "ACCESS/AREA" column. This information is pictorially provided in the Component Locations figures.

(b) If detailed information is needed, such as removal/installation, refer to the Maintenance Manual section noted in the "REFERENCE" column. Additional information on circuit breakers and other electrical components is found in the wiring manual equipment list.

(c) When the area or access noted in the Component Index has been located, use the Component Location figure to recognize and identify the component under investigation.

C. Fault Isolation (page block 101)

(1) Fault isolation information can be provided as an integral part of the maintenance manual, as a separate Fault Isolation Manual (FIM), or both, at the airline's option.

(a) Fault isolation provides the information used to identify, locate and correct any fault that is predicted to occur on the airplane from time to time. It also includes a duplication of the data used by flight crews, cabin crews and others to analyze and assign codes to airplane faults.

(2) Refer to the FIM Introduction for detailed information about the content and use of the Fault Islation Manual.

(a) For airlines with the FIM included with the maintenance manual, this introduction will follow the AMM introduction.

(b) For airlines with the FIM as a separate manual, this introduction will be at the beginning of the FIM.

D. Servicing (page block 301)

(1) Chapter 12 of the manual is titled SERVICING. This chapter contains instructions for the replenishment of items such as fuel, oil, hydraulic fluid, water, tire pressure, etc. The tanks and reservoir capacities are indicated, and also, the ANA (Air Force - Navy Aeronautical) or other standard specification and grade of material to be used. The chapter contains scheduled and unscheduled servicing applicable to the whole airplane.

(2) Servicing information is also located within the other chapters of the manual. The information is provided as a result of accomplishment of maintenance actions. It includes items such as the inflation or refilling of shock struts, the lubrication of control cables, the sterilizing of potable water system, etc.

E. Testing - Three Levels

NOTE: After a unit or units are changed or after work has been done on a portion of a system, it is not intended that the entire adjustment/test procedure for the complete system should be accomplished. Only the portion or portions of the adjustment/test procedure that are applicable need be accomplished.

(1) Testing information for the airplane is divided into three categories: Operational Test, Functional Test and System Test. Following are definitions of the three categories:
   (a) Operational Test: That procedure required to ascertain only that a system or unit is operable. These tests usually require no special equipment or facilities other than that installed on the aircraft and should be comparable to the tests performed by the flight crews. It is not intended that the operational test of the unit shall meet the specifications and tolerances ordinarily established for overhaul, or major maintenance periods.
   (b) Functional Test: That procedure required to ascertain that a system or unit is functioning in all aspects in accordance with minimum acceptable system or unit design specifications. These tests may require supplemental ground support equipment and should be more specific and detailed than an operational test. It should contain all necessary information to perform proficiency tests to maintain system or unit reliability at an acceptable level, without reference to additional documents. A functional test usually occurs at minor maintenance periods.
   (c) System Test: That procedure containing all adjustment specifications and tolerances required to maintain system and/or unit performance at maximum efficiency and design specifications. It shall be self-contained and may duplicate other tests. It is normally used at major maintenance periods.
(2) If you cannot complete a test successfully, record the indication or problem then refer to the Fault Isolation Manual.
(3) The Operational Test, Functional Test, and System Test may include steps to make sure that a system is operational or adjusted. These steps include references to procedures that maintenance personnel may need to do only if they have indications that the system is not serviceable or adjusted.
(4) The operational and system tests are normally accomplished at the system level. The general paragraph at the beginning of each adjustment/test block of pages (page 501 through 599) outlines the test sequence. The functional test relates to component performance after installation and is normally contained with the component maintenance practices. The recommendation to test or not test after a maintenance action is provided at the end of the appropriate maintenance practices subtopic.

F. AMTOSS (Airplane Maintenance Task-Oriented Support System)

(1) AMTOSS structure makes automated data retrieval easier. Procedures have the structure that is shown below:

```
1.  General
2.  (TASK)
    A.  General
    B.  Equipment
    C.  Consumable Materials
    D.  Parts (TOD Items only)
    E.  References
    F.  Access
    G.  (TOPIC)
        (1)  (SUB-TASK)
             (a)  Sub-step
             (b)  Sub-step
             (c)  Sub-step
        (2)  (SUB-TASK)
        (3)  (SUB-TASK)
             (a)  Sub-step
```

CAUTION: MAKE SURE THAT YOU DO ALL OF THE STEPS TO THE END OF THE TASK. LARGE BLANK SPACES CAN OCCUR AT THE BOTTOM OF PAGES WHICH DO NOT ALWAYS INDICATE THAT YOU ARE AT THE END OF THE TASK. IF YOU DO NOT MAKE SURE THAT YOU COMPLETED THE TASK, DAMAGE TO EQUIPMENT OR SYSTEM MALFUNCTION COULD OCCUR.

(2) Tasks are complete procedures for specific maintenance requirements. For example:

(a) R/I page blocks usually contain two tasks:
1) Removal of the LRU
2) Installation of the LRU

(b) A/T page blocks usually have a minimum of three tasks:
1) Operational Test of the System
2) Functional Test of the System
3) System Test of the System

(3) Topics are headings used in tasks to group sub-tasks. There are one or more topics in each task. Example topic headings:

```
Prepare for the Removal
Put the Airplane Back to its Usual Condition
```

(a) Less complicated procedures use the topic "Procedure."

(4) Sub-tasks are the specifiction steps in tasks.

(a) A sub-task refers to specific equipment. For example, "Disconnect hydraulic lines" is a sub-task.

(b) Separate skill requirements are put in separate sub-tasks. For example, a step involving hydraulic tubing is never combined with an action involving electrical wiring.

(5) AMTOSS Codes

(a) All tasks and sub-tasks have an AMTOSS identification code.

1) The AMTOSS identification codes will print in the maintenance manual with the first step of its task or subtask.

(b) Examples of AMTOSS identification codes:

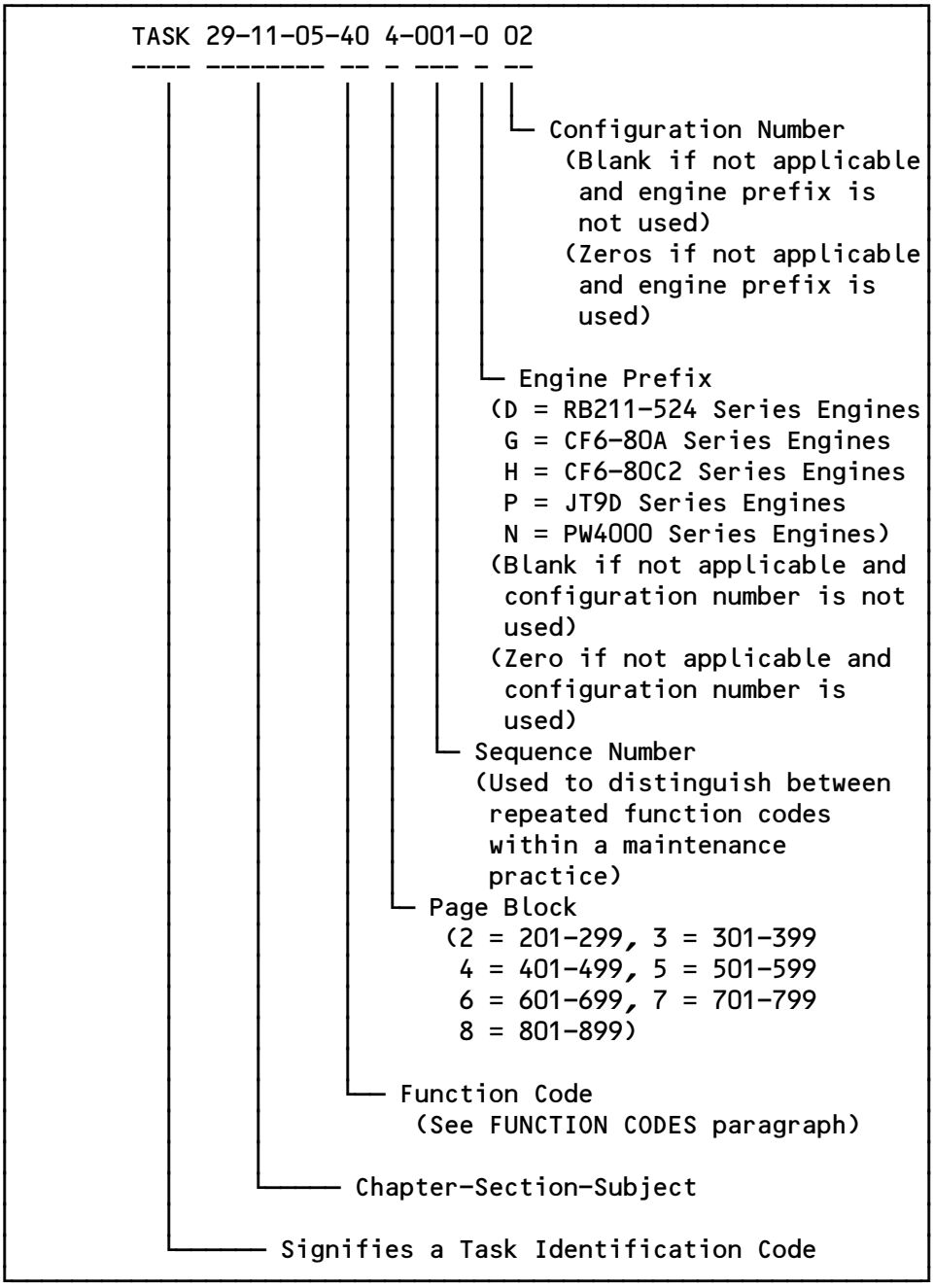
1) Task:

TASK 29-11-05-404-001-002 3. Install Engine Driven Pump (Fig. 401)

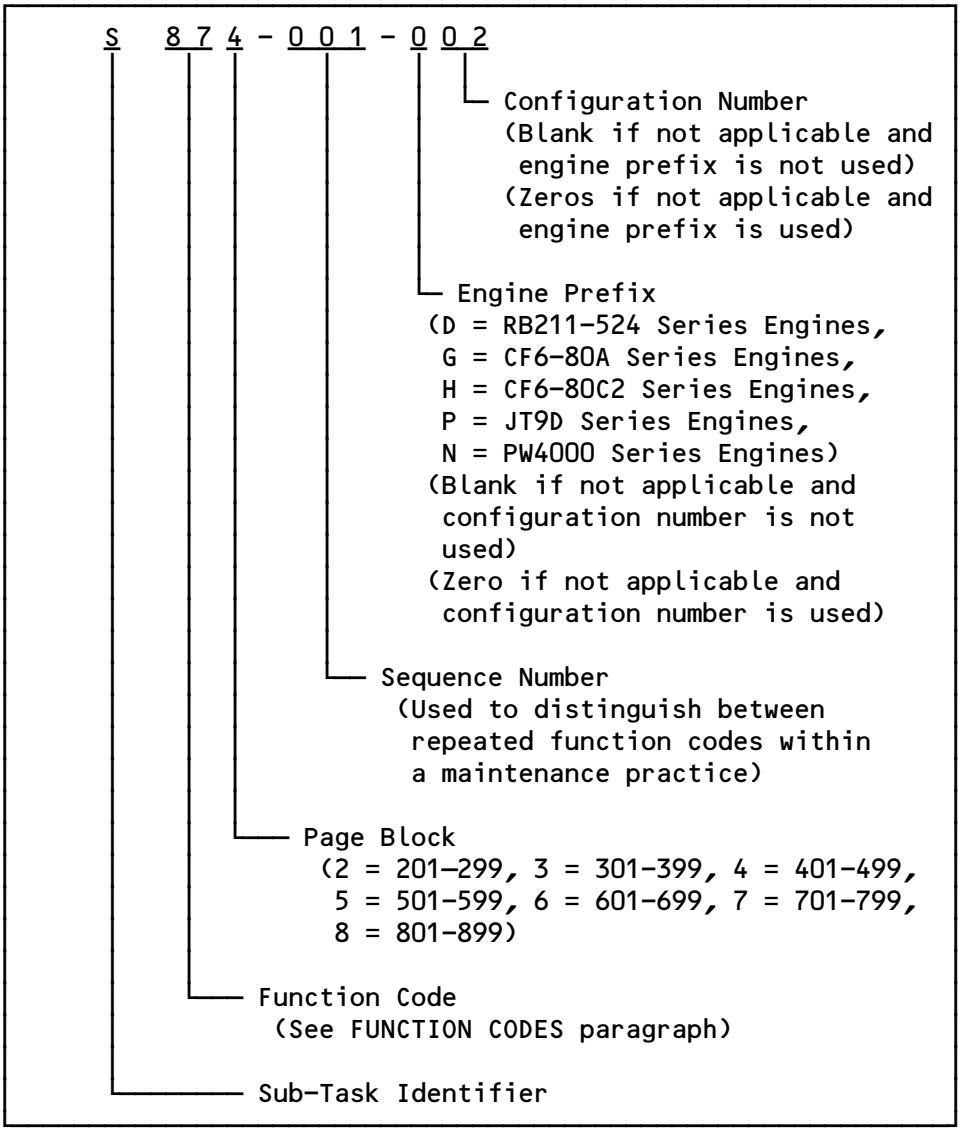
2) Subtask:

S874-001-002 (9) Bleed air from system

(c) Task codes have these elements:



(d) Sub-task codes have these elements:



(6) Function Codes
  (a) All tasks and sub-tasks have a function code.
  (b) Each function code has two digits.
    1) The first digit puts types of jobs in groups at a high level (For example, 70 is testing, and checking).
      a) The second digit of the high-level function codes is a zero.
    2) When the second digit is not a zero, it defines a specific type of job (For example, 76 is electrical checks).
      a) Function codes 71 through 79 are subordinate to 70.
      b) Function codes 71 through 79 are specific checks and tests.

(7) Function Code List

AMTOSS Code / Description	Definition
00 REMOVAL	
01 Remove/open for access	Removal or opening of access plates; opening of doors. Removal or disconnection of components, structural members, tubing, or items required to provide access for performing the task.
02 Remove unit/ component	The removal of the unit/component identified as the task, and attaching parts.
03 Remove unit/ component, disconnect, loosen, remove item	Disconnecting/loosening/removal of lines, nuts, clamps, brackets, etc., attached to the component being removed required to accomplish the task. Removal of sub-task items such as light bulbs, sockets, lenses, caps, seals, bearings, screens, screws, etc. This can also include capping of lines, electrical connectors, etc.
04 Deactivate	Action taken to render a system inoperable for maintenance purposes or for operation under dispatch deviation procedures.
05 (Unassigned) 06 (Unassigned) 07 Remove/delete software data	

AMTOSS Code / Description		Definition
08	Remove Test/ Support Equipment	Removal of any item of test equipment (pitot static tester, flight control rigging quadrant, etc.) attached to the aircraft/system/unit to indicate condition or position of systems/components.
09	(Unassigned)	
10	CLEANING	
11	Chemical cleaning	Chemical cleaning is defined as the removal of surface deposits by use of a chemical cleaning agent. Includes any combination of cleaning actions involving chemicals. Also includes preparation of materials.
12	Abrasive cleaning	Abrasive cleaning consists of the removal of surface deposits from a part by wet or dry particle impingement.
13	Ultrasonic cleaning	Ultrasonic cleaning refers to the 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.
14	Mechanical cleaning	Mechanical cleaning involves the use of a brush, felt bob, or other hand (or machine) action to remove surface deposits from a part.
15	Stripping	Stripping consists of removal of paint or coatings.
16	Miscellaneous cleaning	Miscellaneous cleaning consists of the removal of deposits from small passages with a compressed air blast, miscellaneous hand cleaning, etc.

AMTOSS Code / Description	Definition
17 Flushing	Flushing of a fluid system consists of dirt or debris removal by passage of fluid through the component or system.
18 (Unassigned)	
19 (Unassigned)	
20 INSPECTION/ CHECK	Includes checks for wear, physical deterioration, or damage.
21 General Visual	A visual inspection/check is a thorough visual examination of a zone, system, subsystem, component and/or part, to a level defined by the manufacturer, to detect structural failure, deterioration, or damage; and to determine the need for corrective maintenance. NOTE: Periodic zonal (area) inspections /checks are numbered using ATA Chapter 05 as the first element.
22 Detailed dimensional	A detailed/dimensional inspection/check is a comparison of the dimensions and material condition of parts, subassemblies, or assemblies with the specifications contained in technical manuals and/or blueprints, to detect deviations from established standards and limits, for the purpose of determining the need to discard or repair and/or to verify that proper corrective maintenance has been accomplished. Although some detailed/dimensional inspection/check tasks/sub-tasks may not require measurements, the complete spectrum of detailed dimensional tasks/sub-tasks requires a variety of precision measuring equipment to determine items such as runout, concentricity, flatness, parallelism, hardness, squareness, thickness, clearness, angularity, diameters, radii, depth, etc.

AMTOSS Code / Description	Definition
23 Penetrant	This type of inspection refers to the fluorescent penetrant inspection of parts to detect surface cracks.
24 Magnetic	Magnetic inspection is defined as the magnetic particle inspection of parts to detect surface cracks in magnetic materials.
25 Eddy Current	Eddy current inspection consists of inspecting for 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.
26 X-Ray/Holographic	X-ray/holographic inspection involves inspecting for subsurface cracks, porosity, inclusions, or other nonhomogeneous material structure by passing x-ray through a part and recording an image on photographic film.
27 Ultrasonic	Ultrasonic inspection involves inspecting for subsurface cracks, porosity, or other nonhomogeneous material structure by use of use of contact pulse echo ultrasonic techniques.
28 Specific/Special	Special inspection/checks involving processes not included in codes 21 thru 27 and 29.
29 Borescope	Boroscope inspection refers to any inspection requiring the use of boroscope equipment.

AMTOSS Code / Description	Definition
30 CORRECTION/ REPAIR	
31 Welding/Brazing	Welding/brazing refers to the joining by fusion welding, resistance welding, spot welding, furnace brazing, torch brazing, induction brazing, soldering, electron beam welding, plasma arc welding, etc. This category includes hard facing.
32 Machining/ Reaming/Blending	These consist of processing to obtain a desired shape or finish by grinding, lathe turning, boring, reaming, broaching, milling, machine drilling, machine lapping, honing, sizing, machine polishing, machine buffing, machine cutting, electrochemical machining (ECM), electrodischarge machining (EDM), roll forming, stamping, machine punching, blanking, etc.
33 Composite	Composite repair consists of repairing composite material parts by hand cutting, hand drilling, hand polishing, hand grinding, hand lapping, hand riveting, blending, cutting or routing out materials by hand, cutting and fitting patches, burring, planishing, hand sanding, hand sawing, scraping, stop drilling, hand tapping, installing helical coil inserts, heating and chilling of parts, etc.

AMTOSS Code / Description	Definition
34 Fiberglass/ Plastic/ Honeycomb/Epoxy	Consists of repairing fiberglass/plastic/honeycomb/epoxy material parts by hand cutting, hand drilling, hand polishing, hand grinding, hand lapping, hand riveting, blending, cutting or routing out materials by hand, cutting and fitting patches, burring, planishing, hand sanding, hand sawing, scraping, stop drilling, hand tapping, installing helical coil inserts, heating and chilling of parts, etc. This function code is also used to identify the joining of parts with an adhesive, cementing material or fusible material. Included are silicone rubber bonding and molding, adhesive bonding, fiberglassing, rubber molding, and curing of bonding and molding materials.
35 Miscellaneous Repair	Miscellaneous repair consists of repairing any parts not otherwise covered herein by hand cutting, hand drilling, hand polishing, hand grinding, hand lapping, hand riveting, blending, cutting or routing out materials by hand, cutting and fitting patches, burring, planishing, hand sanding, hand sawing, scraping, stop drilling, hand tapping, installing helical coil inserts, etc.
36 Leakage repair	Leakage repairs consist of those activities required to eliminate a detected leakage.
37 Painting	Painting consists of the application of primer and/or finish coats for protection or appearance. Includes mixing and preparation of materials.
38 Plating	Plating consists of the application of chemical plating, chromium, cadmium, etc. to build up worn surfaces or for protection or appearance.

AMTOSS Code / Description		Definition
39	Sealing	Application of sealants, fairing compounds, etc., to prevent fluid leakage, control corrosion, fill gaps, provide locking, aerodynamic smoothing, etc. Includes preparation of materials.
40	INSTALLATION	
41	Install/Close items removed opened for access	Installation or closing of access plates, closing of doors, installation of components, structural members, tubing, or any item that was removed or opened in order to provide access for performing the task.
42	Install reconnect unit, tighten safety component, item	The installation of the unit, component identified as the task (may include attaching hardware). Reconnect, tighten, safety any lines, nuts, clamps, brackets, etc., required to be loosened, disconnected in order to perform the task. This can also include uncapping of lines, electrical connectors, etc.
43	(Unassigned)	
44	Reactivate	Actions taken to restore a system to normal operation which has been previously deactivated.
45	(Unassigned)	
46	(Unassigned)	
47	Install/load Software/Data	Action taken to install data or software into a computing system.

AMTOSS Code / Description		Definition
48	Install test/support equipment	Installation of any item of test equipment (i.e. pitot static tester, flight control rigging quadrant, etc.) used on the aircraft, system, unit to determine system, component condition or position. Installation of any item of support equipment (i.e., fish pole hoist, hydraulic jeep, safety locks, special tools, etc.) used on the aircraft, system, unit to assist in performing the task or subtask, excluding test equipment.
49	(Unassigned)	
50	MATERIAL AND AIRCRAFT HANDLING	
51	Shipping	Shipping is defined as the movement of any item, subassembly, or assembly from the time it is packaged until it reaches its intended destination.
52	Receiving	Receiving is defined as the receipt activity for any incoming item, subassembly, or assembly.
53	Packing	Packing consists of installing parts, subassemblies, components, or units in shipping containers. This includes all capping of lines, installation of plugs, etc.
54	Unpacking	Unpacking is defined as the removal of items, subassemblies, or assemblies from shipping containers. This includes all removal of all protection material.

AMTOSS Code / Description		Definition
55	Storage/Return to service	Storage is defined as the safekeeping of any item, subassembly, or assembly until required for use. May require unit servicing and special handing. Return to service is defined as the instructions necessary to prepare any item, subassembly, assembly for operation after a period of storage or to prepare the aircraft for operation following mooring, parking, or a period of storage.
56	Marshalling/ Positioning	Marshaling refers to the collecting of individual parts, subassemblies, or assemblies prior to release for assembly. Positioning refers to movement from one fixed state to another.
57	Engine Ferry/ Pod maintenance	Engine ferry, pod maintenance pertains to performing necessary preparations before and after transporting an engine by aircraft ferry method.
58	Engine Ferry/ Pod maintenance	Procedures covering aircraft lifting, jacking, shoring, towing, taxiing and lowering.
59	(Unassigned)	
60	SERVICING, PRESERVING, LUBRICATING	
61	Servicing	Servicing is defined as that maintenance action required to sustain a unit or system in proper operating status (Replenish fluids, gas charging, etc.). Includes servicing functions not specifically delineated by further 60 series breakdown.

AMTOSS Code / Description	Definition
62 Preserving	Preserving pertains to preparing, an item or aircraft for safekeeping from decomposition or deterioration. This includes repairing for storage by applying a preservative layer to, and desiccants in, hardware It also includes the prevention of microbial growth in fuel tanks, application of corrosion inhibitors and surface protection such as painting, etc.
63 De-preserving	De-preserving pertains to removing the preservative layer and, or desiccants from the item or aircraft in preparation for installation or operation.
64 Lubricating	Lubricating is defined as applying oil, grease, or dry film type lubricant on moving parts in order to reduce friction or wear, or to cool the item.
65 Fueling, defueling	The adjustment of the aircraft fuel level as required to perform the task.
66 Deicing/ Anti-icing	Ice and snow removal from parked aircraft and applications to prevent the accumulation of ice and snow.
67 Disinfect/ Sanitize	Procedures provided for health reasons (i.e., purification of potable water, etc.)
68 Drain Fluid	Drain fluid is used when fluid must be removed during servicing or other maintenance operations.
69 (Unassigned)	

AMTOSS Code / Description	Definition
70 TESTING, CHECKING	Includes tests and checks which determine proper functioning of systems and components.
71 Operational	That procedure required to ascertain only that a system or unit is operable. These tests should require no special equipment or facilities other than that installed on the aircraft and should be comparable to the tests performed by the night crews. It is not intended that the operational lest of the unit shall meet the specifications and tolerances ordinarily established for overhaul, or major maintenance periods.
72 Functional	That procedure required to ascertain that a system or unit is functioning in all aspects in accordance with minimum acceptable system or unit design specifications. These tests may require supplemental ground support equipment and should be more specific and detailed than an operational test. It should contain all necessary information to perform proficiency tests to maintain system or unit reliability at an acceptable level without reference to additional documents.
73 System	That procedure containing all adjustment specifications and tolerances required to maintain system and or unit performance at maximum efficiency and design specifications. It shall be self-contained and may duplicate other tests. It is normally used at major maintenance periods.
74 BITE	Those checks conducted using built-in-test equipment.
75 Special	Special checks such as smoke check, sniff check, audible checks, etc.

AMTOSS Code / Description		Definition
76	Electrical	Electrical checks to determine continuity, voltage, resistance, etc.
77	(Unassigned)	
78	Pressure	Pressure check involves the measurement of pressure or the effect of pressure, or establishing the ability of a normally pressurized component or system to operate properly.
79	Leak	Leak check determines the ability of a component or system to operate without leaking or leaking within permissible limits. Includes specific steps such as application of leak check solution.
80	MISCELLANEOUS	
81	Fault isolation	Fault isolation is the systematic process of identifying a malfunctioning element in a system and determining the actions necessary to restore the system to its normal condition.
82	Adjusting, aligning, calibrating, rigging	Adjusting, aligning, calibrating consists of making a physical correction to ensure proper placement, operation, or testing of a system or component. Rigging pertains to hooking up, arranging or adjusting cables or linkage for proper system, operation.
84	Prepare for... Restore... to normal	Used when separate tasks are provided for preparing for maintenance or restoring to normal after maintenance when these procedures are lengthy and identical for several applications. NOTE: System, hardware identification must be included in task or sub-task title.

AMTOSS Code / Description	Definition
85 Operator Modification Incorporation	Operator modification incorporation pertains to performing the work specified in the operators modification. This provides for identification of modification tasks at the task level with sub-tasks recognizing any functional changes (e.g., chemical, detailed, dimensional, cleaning, etc.) necessary to incorporate the modification order.
86 Aircraft/System configuration	Actions required to bring aircraft system, unit, or test equipment to a prescribed condition or position using normal functions and operations (e.g., opening or closing circuit breakers or switches, positioning controls or control surfaces, calibration or operation of test equipment, pressurizing or depressurizing, raising or lowering landing gear, energizing electrical system). Includes packing flexible parts into normal pre-operation configuration (e.g., oxygen masks, escape slides).
87 Bleeding	Drain fluid from the system or unit, operate system, etc., to remove air bubbles.
88 Heating/Cooling	Application of heating and cooling required for removal installation adjustment or testing.
89 Airline Maintenance	Customer use

AMTOSS Code / Description		Definition
90	CHANGE = REMOVE + INSTALL	For control purposes, this function will be used to combine the 02 (Remove unit, component) and 42 (Install unit, component) codes.
91	Standard Practices	Simple procedures encountered repeatedly during maintenance which are located in a standard practices section and referenced in other procedures to avoid repetition.
92	(Unassigned)	
93	Marking	Temporary or permanent markings required for part location, alignment, or identification during maintenance.
94	Job Set-up/ Close-up	Positioning and removal of access platforms, steps, warning notices, fire extinguishers, or other items of ground support equipment; picking up foreign objects prior to engine operation
95	Masking	Masking or unmasking required for painting, clearing, surface protection, etc.
96	Replace	Used when removal and installation of small items must be combined in a single task such as relamping, seal replacement, etc. Restricted to items of a minor nature and details replaced as part of a repair task (bushings, bolts, O-rings, seals, filters, etc.).
97	Data Recording/ Calculating	Recording of data required for monitoring, testing, adjusting, checking, etc.; and subsequent calculations.
98	Manual operation, or positioning	Positioning or operating a system, component, or unit manually which is normally powered, such as turning engine rotor, manually translating thrust reverser, etc.
99	Illustrations, tables, etc.	This provides a unique number for data retrieval, which cannot be obtained by a task or subtask number.

G. General
   (1) This paragraph explains the uses, and limitations of the task.
H. Equipment
   (1) This paragraph lists the Boeing, vendor, and engine manufacturer tools and test equipment.
   (2) The tools and equipment that are not usually in a mechanic's tool box are listed in the Equipment paragraph. Examples are:
      (a) Bonding meter
      (b) Clean, lint-free cloth
      (c) Container, 1 Gallon, suitable for collecting fuel
      (d) Plywood Sheet, 48 x 24 x 1/2 in. approximately
   (3) Equivalent Tools, Fixtures and Test Equipment
      (a) Some of the procedures in this manual identify tools or equipment. You can use equivalent alternatives. If you use alternative tools or equipment, make sure that they give the same results and are as safe to the parts and personnel as the tools or equipment specified in the procedure.
      (b) Tools in this manual identified with an ST prefix are designed by the Boeing Commercial Company. Detail drawings of these tools are available upon request.
I. Consumable Materials
   (1) This paragraph lists the consumable materials that are used in the task.
   (2) Each material has a six-character code. The first character identifies the type of material:

A - Adhesives, Cements, Sealants B - Cleaners, Polishes C - Finishing Materials D - Lubricants (Oils, Greases, Dry Lubes) E - Strippers F - Welding Materials G - Miscellaneous Materials Example: D00196 Fluid - Hydraulic, Fire-Resistant, BMS 3-11

   (3) Boeing Spares Engineering supplies the Raw and Bulk Material List. The list shows the consumable materials that are used in the AMM.

(4) Equivalent Consumable Materials

(a) When the procedures in this manual identify a consumable material other than a solvent, you can use an equivalent alternative material that meets the same specification as the original material. For solvents, you must use the information provided by the solvent series tables. If you use alternative materials, make sure that they give the same results and are as safe to the parts and personnel as the consumable material specified in the procedure.

(5) Solvents

(a) To make it easy to find a solvent, there are tables of alternative solvents in the Airplane Maintenance Manual (AMM) and the Standard Overhaul Practices Manual (SOPM). The tables show the solvents, the material bulk code, and related specifications (AMM 20-30-80). For instructions about the tables, refer to AMM 20-30-02/201.

J. Parts Data (Task-Oriented Data (TOD))

(1) Task-oriented data (TOD) procedures include a cross-reference table to the Illustrated Parts Catalog (AIPC). This table shows the IPC subject, figure, and item numbers for the major components.

(2) The table also shows expendable parts. Expendable parts are always replaced by a new part when the the expendable part is removed during the task.

K. References

(1) This paragraph shows the applicable references. The list tells you the other procedures that are referenced in each task.

(2) The references can refer to a different manual. The page block is included when it is applicable (e.g., /301, or /501).
Examples:

(a) AMM 12-12-01/301, Hydraulic System

(b) AMM 29-11-05/401, Engine-Driven Pump

(c) AIPC 29-11-60 Fig. 1

(d) SSM 29-11-01

(e) OHM 29-11-60

(f) CMM 29-11-11

(g) WDM 29-11-17

(3) Abbreviations for major manuals:

AMM = Airplane Maintenance Manual CMM = Component Maintenance Manual FIM = Fault Isolation Manual AIPC = Airplane Illustrated Parts Catalog OHM = Overhaul Manual SRM = Structural Repair Manual SSM = System Schematics Manual SWPM = Standard Wiring Practices Manual WDM = Wiring Diagram Manual

L. Access

(1) This paragraph lists the locations and access panels.

(2) There are two sub-paragraphs:
(a) Location Zone
(b) Access Panel
(3) Each location zone, and access panel has a three-digit code. The access panel code can also have three other characters.
(4) Non-powerplant example:

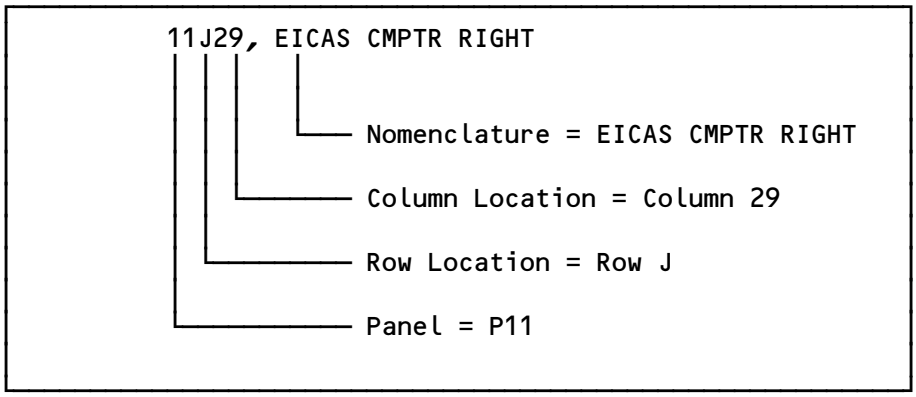
```
(1) Location Zone
      335    Left Hand Inboard Elevator
(2) Access Panel
      335EBL    Left Structure Access Door
```

(5) Powerplant example:

```
(1) Location Zone
      412    Engine 1 - Fan Case 4 o'clock
(2) Access Panel
      414    Right Fan Cowl Panel - Engine 1
```

(6) Engine position is identified in clock positions standing behind the engine and looking forward.

M. Circuit Breakers
(1) Circuit breaker panels P6 and P11 in the flight compartment, and P31, P32, P34, P36, and P37 in the main equipment center, and P49 in the aft equipment center have grid codes printed on the face of the panels. Circuit breaker rows are identified with alphabetical letters from bottom to top beginning with A. (Rows I, O, and Q are not used.) Columns are identified from left to right with numbers beginning with 1.
(2) Circuit breakers on these panels are identified with a grid location followed by the circuit breaker nomenclature. For example:



(a) In some cases, the same circuit breaker is at a different grid location on different airplanes. For circuit breakers that can have multiple grid locations, both grid locations are shown. For example:
1) 11A16 or 11T1O, ANTI-ICE ENG L

(b) The same circuit breaker can also have different nomenclature on different airplanes. For circuit breakers that have multiple nomenclatures, both are shown. For example:
1) 11J32, EICAS DSPL SELECT or EICAS PILOTS DSP

N. Torque Values
(1) Standard torque values for airframe maintenance tasks are included in Chapter 20 of Airplane Maintenance Manual (AMM).
(2) Standard torque values for electrical terminations are included in Chapter 20 - Standard Wiring Practices Manual (SWPM).
(3) Standard torque values for engine maintenance tasks are included in Chapter 70 of Airplane Maintenance Manual (AMM).
(4) Non-standard torque values for maintenance tasks are included in the applicable installation step within the task.

5. Crew Station Nomenclature
A. The following crew station designations have been established as standard and have been used throughout the Maintenance Manual to identify crew stations and related panels and controls.
(1) Captain
(2) First Officer
(3) First Observer
(4) Second Observer
(5) Cabin Attendants

6. List of Effective Pages
A. There is a list of effective pages for each chapter at the beginning of the chapter for printed manuals. These pages are identified with the words "Effective Pages" in the lower right corner of the page.

7. Table of Contents
A. Each chapter begins with a Table of Contents.
B. All sub-sub-systems are listed with the supporting items indentured below these systems. The components are listed alphabetically by the main noun. The major entries show the chapter-section-subject number, the beginning page number, and the effectivity.

C. The table of contents has this structure:

System	Numeric Arrangement
Sub-system	Numeric Arrangement
Sub-sub-system	Numeric Arrangement
Component/Subject	Alphabetical Arrangement
Pageblock	Numeric Arrangement

NOTE: Pageblocks can occur at all levels.

D. Example:

LANDING GEAR	32-00-00	System
Description/Operation		Pageblock
WHEELS AND BRAKES	32-40-00	Sub-system
Description/Operation		Pageblock
ANTISKID/AUTOBRAKE SYSTEM	32-42-00	Sub-sub-system
Maintenance Practices		Pageblock
CARD - ANTISKID/AUTOBRAKE	32-42-01	Component/Subject
Removal/Installation		Pageblock
COMPONENTS - ANTISKID	32-42-03	Component/Subject
Removal/Installation		Pageblock
DRIVE - TRANSDUCER	32-42-04	Component/Subject
Removal/Installation		Pageblock
MODULE - ANTISKID	32-42-02	Component/Subject
Maintenance Practices		Pageblock

8. Chapter Responsibilities

A. Boeing Commercial Airplanes is responsible for all chapters of this manual except chapters 1 through 4, which are reserved for individual airline use. The engine manufacturer's data has been combined with Boeing information and released on a page carrying the Boeing masthead. In all chapters, supplier components and units are covered to the extent that information is available from the suppliers.

9. Use of Logic Diagrams

A. Definition of Logic as Used in the Maintenance Manual

(1) The airplane has a large number of solid-state logic circuits, employed in many and varied systems. Logic circuits are two-stage devices, referred to as binary (base 2) elements, which are used to perform computing or general purpose data processing.

(a) As a simple example of a binary element, consider a light switch, which may turn a light on or off. Electronic elements such as transistors or microelectronic circuits are also two-state devices, and may be used as switches. These two-state devices are either on or off, open or closed, engaged or disengaged, active or inactive, true or false.

(b) A two-state device is described by binary logic, which uses the base 2 numbering system. In the base 2 or binary systems, only the digits 0 and 1 are used, compared to the decimal system which uses digits 0 through 9. The binary system is used with electronic devices since electronic devices may operate in two simple states, such as a transistor conducting or at cutoff. Binary numbers processed in the airplane systems are converted to decimal readouts as required by simple conversion: i.e., the number 10101 in base 2 is the same as 21 in base 10.

(c) In logic circuits, the digit 1 represents an active, significant, or true state while the digit 0 represents the inactive or false state. The representation of 1 or 0 does not imply power consumption, polarity of voltage, or energy difference, but only the active state.

(d) Logic circuits follow the rules of Boolean Algebra, which defines algebraic rules while using the binary numbering system in logic applications. In the Boolean algebra system, subtraction and division is not used, and all logic is presented in terms of AND or OR. The symbols explained in Fig. 3 are accompanied by these equations.

B. Logic Presentation

(1) Logic presentation in this maintenance manual reflects the logic operation of the equipment, and is required by the technician for maintenance. The logic may be positive, negative, or hybrid.

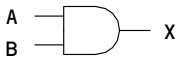
(a) When the more positive potential is consistently selected as the logic 1 state, the system or device is considered to be in positive logic.

(b) When the more negative (or less positive) potential is consistently selected as the logic 1 state, the system or device is considered to be in negative logic.

(2) The presentation of logic requires the use of "bar" terms, which is a bar placed over the mnemonic term to show the inverse logic. That is, if a logic equation stated that output of a function is logic 1 or active when the autopilot is not engaged, the term is then AUTOPILOT ENGAGED (read as autopilot engaged not, autopilot not engaged, or autopilot engaged-bar). This bar term is typical of logic used in monitor, alarm, disengage and warning circuits.

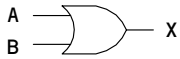
LOGIC SYMBOLS

1. A (•) DESIGNATED THE BOOLEAN AND FUNCTION AND  SYMBOL DESIGNATES A LOGIC AND GATE. TO GET A LOGIC 1 STATE OUTPUT FROM AN AND GATE, ALL INPUTS MUST BE AT THE LOGIC 1 STATE.



THE LOGIC EQUATION FOR AN AND GATE IS A • B = X, WHICH STATES THAT BOTH A AND B MUST BE IN THE LOGIC 1 STATE IN ORDER TO GET A LOGIC 1 STATE OUTPUT AT X.

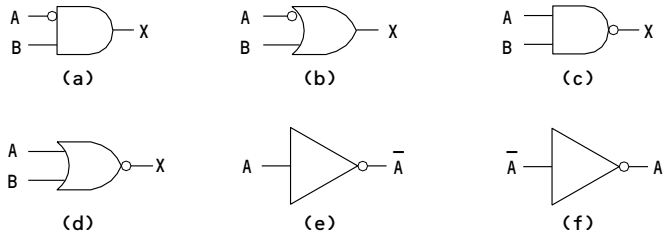
2. A (+) SYMBOL DESIGNATES THE BOOLEAN OR FUNCTION AND A  SYMBOL DESIGNATES A LOGIC OR GATE. A LOGIC 1 STATE OUTPUT WILL BE PRESENT FROM AN OR GATE IF ANY INPUT IS AT THE LOGIC 1 STATE.



THE LOGIC EQUATION FOR AN OR GATE IS A + B = X, WHICH STATES THAT IF EITHER A OR B IS IN THE LOGIC 1 STATE, THE OR LOGIC OUTPUT AT X WILL BE A LOGIC 1 STATE.

Logic Symbols
Figure 3 (Sheet 1)

3. A CIRCLE ON AN INPUT OR OUTPUT (–○–) DENOTES AN INVERTING FUNCTION, IN WHICH THE LOGIC LEVEL IS INVERTED. THE INVERSION INTRODUCES THE BAR TERM AT THE INPUT OR OUTPUT OF THE LOGIC ELEMENT IT IS ASSOCIATED WITH. EXAMPLES ARE SHOWN BELOW:



THE LOGIC EQUATION FOR FIGURE (a) IS $\bar{A} \bullet B = X$, WHICH STATES THAT A MUST BE AT A LOGIC 0 STATE (OR $\bar{A}$ AT A LOGIC 1 STATE) AND B MUST BE AT A LOGIC 1 STATE IN ORDER FOR X TO BE AT A LOGIC 1 STATE. THE BAR TERM IN FIGURE (a) IS $\bar{A}$ (READ AS NOT –A OR A–BAR).

THE LOGIC EQUATION FOR FIGURE (b) IS $\bar{A} + B = X$, WHICH STATES THAT A IS THE LOGIC 0 STATE (OR $\bar{A}$ AT A LOGIC 1 STATE) OR B IN THE LOGIC 1 STATE WILL GIVE A LOGIC 1 STATE OUTPUT AT X.

THE LOGIC EQUATION FOR FIGURE (c) IS $\overline{A \bullet B} = X$, WHICH STATES THAT A LOGIC 1 OUTPUT WILL BE AVAILABLE AT X EXCEPT WHEN A AND B ARE BOTH AT THE LOGIC 1 STATE. CONVERSELY, X IS LOGIC 0 IF BOTH A AND B ARE LOGIC 1. THE EXACT SAME LOGIC HOLDS TRUE IF THE EQUATION $\bar{A} + \bar{B} = X$ WERE USED, FOR IF EITHER A OR B ARE AT THE 0 STATE ($\bar{A}$ OR $\bar{B}$ AT A 1 STATE) A 1 STATE OUTPUT WILL BE PRESENT AT X, THEREFORE

$$\overline{A \bullet B} = \bar{A} + \bar{B} = X$$

THE LOGIC EQUATION FOR FIGURE (d) IS $\overline{A + B} = X$, WHICH STATES THAT X WILL BE AT A 1 STATE WHEN BOTH A AND B ARE AT A 0 STATE. THE EXACT SAME LOGIC HOLDS TRUE IF THE EQUATION $\bar{A} \bullet \bar{B} = X$ WERE USED, FOR IF $\bar{A}$ AND $\bar{B}$ ARE BOTH AT A 1 STATE, (A AND B AT A 0 STATE) A 1 STATE OUTPUT WILL BE PRESENT AT X, THEREFORE

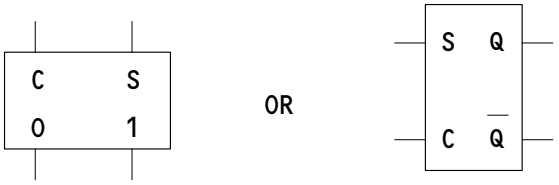
$$\overline{A + B} = \bar{A} \bullet \bar{B} = X$$

FIGURES (e) AND (f) FUNCTION AS LOGIC INVERTERS AND AMPLIFIERS. THE OUTPUT IS THE OPPOSITE OF THE INPUT. SOME EXAMPLES OF INPUT–OUTPUTS ARE SHOWN BELOW.

Logic Symbols
Figure 3 (Sheet 2)

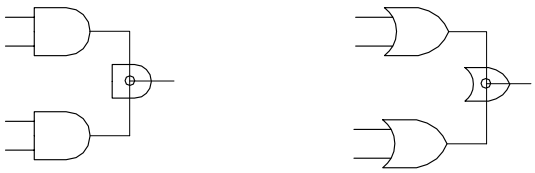
	INPUT	OUTPUT
1.	A	$\overline{A}$
2.	$\overline{A}$	$\overline{\overline{A}}$ OR A
3.	$A \bullet B$	$\overline{A \bullet B}$ OR $\overline{A} + \overline{B}$
4.	$A + B$	$\overline{A + B}$ OR $\overline{A} \bullet \overline{B}$
5.	$\overline{A} + \overline{B}$	$\overline{\overline{A} + \overline{B}}$ OR $A \bullet B$

4. FLIP-FLOPS ARE TWO-STATE DEVICES WHICH STORE OR PROCESS A SINGLE BIT (OR FUNCTION) OF LOGIC. MANY VARIATIONS ARE POSSIBLE, BUT THE BASIC FLIP-FLOP HAS A SET INPUT (S), A CLEAR OR RESET (C), AND A 1 OR Q OUTPUT AND A 0 OR $\overline{Q}$ OUTPUT. THE FUNCTION IS SUCH THAT APPLYING AN ACTIVE INPUT TO THE SET INPUT (LOGIC 1) SETS THE FLIP-FLOP AND CAUSES THE 1 OUTPUT (OR Q OUTPUT) TO BE IN THE ACTIVE LOGIC 1 STATE AND THE 0 OR $\overline{Q}$ OUTPUT AT LOGIC 0. WHEN RESET (LOGIC 1 TO CLEAR INPUT) THE 1 OR Q OUTPUT ASSUMES THE LOGIC 0 STATE AND THE 0 OR $\overline{Q}$ OUTPUT ASSUMES THE LOGIC 1 STATE. THE SYMBOL USED IS SHOWN BELOW.



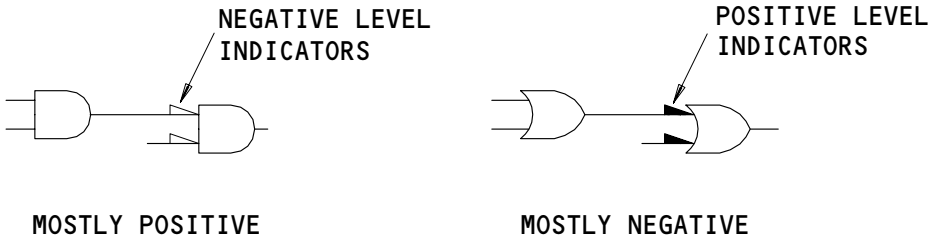
5. MULTIPLE INPUTS TO A LOGIC ELEMENT ARE ACCOMMODATED IN LOGIC DIAGRAMS AS SHOWN BELOW IN TYPICAL FORM.

6. CIRCUITS OF SAME DESIGN MAY BE COMBINED BY SIMPLY CONNECTING THE OUTPUTS TOGETHER. THESE COMBINING CONNECTIONS ARE REFERRED TO AS DOT-AND GATES, OR AS DOT-OR GATES. THE SYMBOLS ARE AS SHOWN.

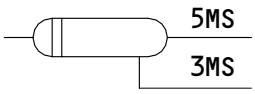


Logic Symbols
Figure 3 (Sheet 3)

7. THE USE OF POSITIVE OR NEGATIVE LOGIC IS DEFINED BY NOTES AT THE BOTTOM OF EACH DIAGRAM, STATING THE APPROXIMATE VOLTAGE LEVEL OF LOGIC 1 AND LOGIC 0. IF HYBRID LOGIC IS USED, THE NOTE AT THE BOTTOM OF THE DIAGRAM STATES THE PREVALENT LOGIC LEVEL, AND LEVEL INDICATORS ARE PLACED ON THE OPPOSITE LEVEL AT THE SPECIFIC ELEMENTS. THE TYPICAL USE OF THIS IS:



8. TIME DELAY ELEMENTS ARE DEPICTED AS SHOWN BELOW. SEVERAL TAPS MAY BE INCLUDED, AND THE DELAY TIME OF EACH IS DENOTED ON THE ASSOCIATED LINE.



Logic Symbols
Figure 3 (Sheet 4)

10. Revision Service
    A. General
        (1) The AMM is kept current by revision service.
        (2) There are two types of revisions:
            (a) Regular revisions
            (b) Temporary revisions
    B. Regular Revisions
        (1) Schedule
            (a) Airplane operators who have contracted continuing normal revision service for this manual receive revisions three times each year dated April 22, August 22, or December 22.
        (2) Revision Bars
            (a) On each page, the changed area has a revision bar on the left margin.
            (b) Those pages that were not technically revised, but were printed again for data that moved to a new page when other pages were added or removed, have a revision bar on the lower left margin opposite the page number and date.
        (3) List of Effective Pages (LEP)
            (a) The changes to the sections or pages are identified on the LEP by a R (Revised), A (Added), or D (Deleted).
            (b) The LEP is the authority for the correct pages for the manual.
                1) A date and a page code identify the pages in the LEP, and on the page.
                    a) The chapter-, section-, subject-, and page-number along with the page code, and the date are unique for each page in the AMM.
                    b) If the date, and the page code are the same on the page and in the LEP, then the page is correct for the manual.

                        NOTE: Read the description of the date and the page code carefully. The configuration of the page code, and the date can cause confusion when you file the pages.

                    c) The date of a revised page can be earlier, the same as, or later than the date of the replaced page.
            (c) Page Code
                1) The date and the page code are in the lower right corner of the page.
                2) The page code is the two or three characters (letters, or numbers) that are to the left of decimal (there is not always a decimal after the page code).
                3) There can be a decimal and up to three numbers after the page code.
                4) Ignore the numbers that are after the decimal when you file pages.
                    a) The decimal and the numbers that follow it are for Boeing internal use.

b) If the page is not changed during a revsion then the decimal, and the numbers that follow it will not show in the LEP at the next revision.
c) The paper page is not sent again, and it will still have the decimal and numbers.

(4) Temporary Revisions (TR)
(a) Boeing sends a TR when it is necessary to alert you of configuration differences, or other changes to the AMM that cannot wait until the scheduled revision.
(b) Each TR has a list of all the recent TRs, and their status.
1) Each TR is incorporated into the AMM at the regular revision.
(c) A TR is applicable to only one page block.
1) TRs are not revised.
a) If changes are necessary, the TR is superseded by a new TR.
2) For paper pages, file the TR adjacent to the affected pages.

11. Delivery of Data in Digital Format

A. The data in this manual is available in digital format on magnetic tape. These tapes are formatted in one of two formats, depending on the content of the tape. The first tape format, which is used to transmit textual information, including LEPs and Highlights is known as the Print File Format. The second format, which is used to transmit graphic data, is known as the Computer Graphic Metafile (CGM) format. A brief description of each of these two formats is presented below.

(1) The Print Format tape contains a standard tape header label and an EBCDIC encoded file of printer ready information. The print file contains fixed length (135 characters) records with a coded hierarchy that explains the content of each record. The major hierarchy is represented by the first character of each record:

1=Manual Record 2=Document Record 3=Page Record 4=Line Record

Sub-record and other information, such as revision page dates, are identified within the major record scheme.

(2) The Computer Graphic Metafile (CGM) tape contains a standard tape header label followed by a file containing the merged representations of all of the graphics. These graphics are presented in accordance with ISO standard 8632-1987 (ANSI standard X3.122-1986). The graphic file requires that a splitter program be used which will allow individual graphics to be used.

12. Customer Originated Material

XXX A. Customer originated material, incorporated into the manual at customer
XXX request to reflect data or procedures originated by and peculiar to that
XXX specific customer, will be permanently identified by the customer's
XXX three-letter designator in the space reserved for the revision bar. (See
XXX example to the left of this paragraph, where "XXX" represents the
XXX customer designator). In addition, these pages are identified on the
XXX List of Effective Pages (LEP), with a page code which is the customer's
XXX three-letter designator. The Boeing Company does not assume
XXX responsibility for the validity and/or the technical accuracy of material
XXX so identified. The Boeing Company will not undertake to test or evaluate
XXX in any form the validity or the technical accuracy of the
XXX customer-originated material, and the customer shall have the sole and
XXX exclusive responsibility for the validity and accuracy of material
XXX submitted for incorporation into the manual.
XXX
XXX THE BOEING COMPANY HEREBY EXPRESSLY DISCLAIMS ANY AND ALL WARRANTIES,
XXX EXPRESS OR IMPLIED, ORAL OR WRITTEN, ARISING BY LAW, COURSE OF DEALING,
XXX OR OTHERWISE, AND WITHOUT LIMITATION ALL WARRANTIES AS TO QUALITY,
XXX OPERATION, MERCHANTABILITY, FITNESS FOR ANY INTENDED PURPOSE, AND ALL
XXX OTHER CHARACTERISTICS WHATSOEVER, OF CUSTOMER-ORIGINATED MATERIAL
XXX INCORPORATED INTO THE MANUAL. THE FOREGOING DISCLAIMER SHALL ALSO APPLY
XXX TO ANY OTHER PORTION OF THE MANUAL WHICH MAY BE AFFECTED OR COMPROMISED
XXX BY SUCH CUSTOMER-ORIGINATED CHANGES.
XXX

13. List of Service Bulletins

A. A list of service bulletins which the customer has indicated they have incorporated, or will incorporate, on their airplanes is provided following the Introduction. The listing provides service bulletin number, ATA chapter(s) affected, status (S/C), incorporation date and customer engineering order number. If the SB does not affect the AMM, "NO EFFECT" will appear in place of an incorporation date. The SB number will be repeated when more than one ATA chapter is affected. The change configuration is shown on the S/C column; S indicating "Start" (dual) configuration and C indicating "Complete" or single configuration.

14. Model and Airplane Identification

A. A list of effective airplanes which provides a cross-reference tabulation of customer effectivity codes, line numbers, variable numbers, manufacturing serial numbers, and registration numbers follows the introduction. A customer effectivity code has been assigned to each airplane and is used in this manual to specify differences between airplane configurations. The code will always be preceded by the airlines three-letter designator. The variable number is assigned to each airplane during design and manufacturing and is used on the engineering drawings and the final airplane assemblies. The manufacturing serial number is the permanent identification number for the airplane and is on the identification plate on the airplane and on the airplane registration and airworthiness certificates. The registration number is the number on the tail of the airplane as required by government regulations.

B. Certain information contained in this manual may be limited to specified airplanes or airplane models. These differences will be reflected by the use of airplane effectivity numbers or type of equipment.

LIST OF EFFECTIVE AIRPLANES

1. General
   A. The list that follows provides a cross reference table of the airplanes that are applicable to the information contained in this manual.

Scandinavian Airlines System

MODEL 767-283ER/383ER

Customer Effectivity Code	Line No.	Variable Number	Manufacturing Serial Number	Registration Number
SAS 050	301	VF071	24727	XA-TOJ
SAS 051	305	VF072	24728	N728CG
SAS 150	257	VN151	24318	CS-TLO
SAS 151	262	VN152	24357	N984AN
SAS 152	263	VN153	24358	G-VKNI
SAS 153	273	VN154	24475	UR-VVO
SAS 154	274	VN155	24476	UR-VVF
SAS 155	337	VN156	24477	PH-AHQ
SAS 156	358	VN157	24729	UR-VVG
SAS 157	395	VN158	25365	TF-FIB
SAS 162	309	VN163	24846	TF-FIC
SAS 163	315	VN164	24847	PH-AHX
SAS 164	325	VN165	24848	PH-AHY
SAS 165	330	VN166	24849	CC-CCZ
SAS 166	359	VN167	25088	5R-MFG
SAS 167	412	VN168	26544	CC-CGN

Martinair Holland N.V.

MODEL 767-31AER

Customer Effectivity Code	Line No.	Variable Number	Manufacturing Serial Number	Registration Number
SAS 275	279	VN221	24428	PH-MCG
SAS 276	294	VN222	24429	PH-MCH
SAS 277	400	VN223	25312	PH-MCI
SAS 278	416	VN224	26470	PH-MCM
SAS 280	415	VN672	26469	PH-MCL

LIST OF SERVICE BULLETINS

This list tells you which service bulletins (SB) were evaluated for applicability to this manual. The list has this data: The SB number The chapter affected The configuration of the change in the manual S tells you that two configurations, pre- and post-SB, are in the manual. C tells you that the complete configuration, post-SB, is the only configuration that is shown in the manual . The revision date that the SB was, or will be, incorporated (NO EFFECT tells you that no change was necessary for that SB. INCORP tells you that the change for the SB was previously incorporated, and no more changes are necessary.) The the airline-specific change order when it is applicable (Customer Engineering Order Number)

SERVICE BULLETIN	ATA	S/C	INCORPORATION DATE	CUSTOMER ENGINEERING ORDER NUMBER
11-23	11	C	02/10/94	
11-23R1	11	S	08/10/93	
11-24	11	S	02/10/95	
11-24R1	11	C	05/10/95	
11A26	11	C	04/22/99	
11A31R1	11	S	12/22/99	
11-37	11	C	04/22/02	
11-38	11		NO EFFECT	
11-45	11	S	04/22/04	
11-45R1	11	S	08/22/04	
21-70	21	C	08/10/90	
21-70	31	C	11/10/90	
21-76R1	21	S	04/22/10	
21-76R1	31	S	04/22/08	
21-77	21	C	05/10/92	
21-78	21	C	08/10/92	
21-78	31	C	08/10/92	
21-79	21		NO EFFECT	
21-81	21		NO EFFECT	
21-82R2	21	S	04/10/98	

SERVICE BULLETIN	ATA	S/C	INCORPORATION DATE	CUSTOMER ENGINEERING ORDER NUMBER
21-83	21		NO EFFECT	
21-83R1	21		NO EFFECT	
21-85	21		NO EFFECT	
21-86	21	C	08/10/92	
21-91	21		NO EFFECT	
21A92	21		NO EFFECT	
21A92R1	21		NO EFFECT	
21A98	21	C	08/10/93	
21A98R1	21	S	08/10/92	
21A98R2	21	S	08/10/92	
21-100	21		NO EFFECT	
21-105	21	C	08/10/94	
21-105	21	C	02/10/94	
21-105R1	21	C	04/22/93	
21-106	21		NO EFFECT	
21-106	31		NO EFFECT	
21-106R1	21		NO EFFECT	
21-106R1	31		NO EFFECT	
21-106R2	21		NO EFFECT	
21-106R2	31		NO EFFECT	
21-106R3	21	S	08/10/94	
21-107	21		NO EFFECT	
21-108	21		NO EFFECT	
21-108R1	21		NO EFFECT	
21-111	21	S	08/10/94	
21-111R1	21	C	11/10/97	
21-111R2	21	S	12/22/98	
21-112R1	21		NO EFFECT	
21-112R2	21		NO EFFECT	
21-113	21		NO EFFECT	
21-127	21		NO EFFECT	
21A127	21		NO EFFECT	
21A127R1	21		NO EFFECT	
21-128	21		NO EFFECT	
21-128R1	21		NO EFFECT	
21-129	21	S	12/10/98	
21-129	21	S	04/22/99	
21-129	21	S	12/10/98	
21-129	31	S	08/10/98	
21-129	31	S	04/22/99	
21-129R1	21	S	12/10/98	
21-129R1	31	S	04/22/99	
21-135	21		NO EFFECT	
21-138	21	C	04/22/02	
21-139	21	C	08/22/03	
21-139R1	21	C	08/22/03	
21-145	21		NO EFFECT	
21A147	21	S	08/22/99	

SERVICE BULLETIN	ATA	S/C	INCORPORATION DATE	CUSTOMER ENGINEERING ORDER NUMBER
21A147R1	21	S	08/22/99	
21-148	21		NO EFFECT	
21-150	21		NO EFFECT	
21A158	21	C	04/22/02	
21-166	21		NO EFFECT	
21-171	21		NO EFFECT	
21-171R1	21	S	04/22/10	
21-171R1	52	S	08/22/06	
21-204	21		NO EFFECT	
21-213	21		NO EFFECT	
21-215	21	S	12/22/07	
21-215R1	21	S	08/22/07	
22-38	22	C	02/10/94	
22-38R1	22	S	11/10/91	
22A39	22	C	02/10/92	
22-44	22		NO EFFECT	
22-46	22	S	08/10/92	
22-62	22	C	08/10/98	
22-81	22	S	11/10/93	
22A92	22	S	05/10/97	
22A97	22	S	05/10/97	
22A97R1	22	S	05/10/97	
22-126	22		NO EFFECT	
23-30	23		NO EFFECT	
23-30R1	23		NO EFFECT	
23-32R1	23	C	05/10/91	
23-41	23		NO EFFECT	
23-52	23		NO EFFECT	
23-53	23		NO EFFECT	
23-57	11	C	08/10/93	
23-57	23		NO EFFECT	
23-57R1	11	C	08/10/93	
23-57R1	23		NO EFFECT	
23-58	23		NO EFFECT	
23-63	23		NO EFFECT	
23-72	23		NO EFFECT	
23-72	31	S	08/10/92	
23-76	23	S	08/10/93	
23-77	23		NO EFFECT	
23-77R1	23		NO EFFECT	
23-78	23	S	11/10/94	
23-78R1	23	S	11/10/94	
23-142	23		NO EFFECT	
23-152	23	S	08/22/02	
23-152R1	23	S	04/22/03	
23-152R2	23	S	04/22/03	
24-59	22	C	02/10/94	
24-59	24	C	11/10/93	

SERVICE BULLETIN	ATA	S/C	INCORPORATION DATE	CUSTOMER ENGINEERING ORDER NUMBER
24-59	31	C	11/10/93	
24-59R1	24	S	INCORP	
24-59R1	31	S	INCORP	
24-59R2	24	S	INCORP	
24-59R2	31	S	INCORP	
24-59R3	24	C	08/10/97	
24-59R3	31	C	08/10/97	
24A60	24		NO EFFECT	
24A60R1	24		NO EFFECT	
24-64	22	C	08/10/93	
24-64	24	C	02/10/94	
24-64	31	C	08/10/93	
24-64R1	22	S	05/10/92	
24-64R1	24	S	05/10/92	
24-64R1	31	S	05/10/92	
24-67	24		NO EFFECT	
24-68	24		NO EFFECT	
24-69	24		NO EFFECT	
24-69	34	S	08/10/91	
24-69R1	24		NO EFFECT	
24-69R1	34	C	08/10/92	
24-69R2	24		NO EFFECT	
24-69R2	34	S	08/10/91	
24-69R3	24		NO EFFECT	
24-69R3	34	C	INCORP	
24-69R4	34	S	04/22/02	
24-73	24		NO EFFECT	
24-75	24		NO EFFECT	
24-75R1	24		NO EFFECT	
24-76	24		NO EFFECT	
24-76	71		NO EFFECT	
24-79	24		NO EFFECT	
24-80	24	S	11/10/95	
24-80	31	S	02/10/96	
24-80R1	24	S	08/22/02	
24-80R1	31	S	08/22/02	
24-81	24		NO EFFECT	
24-84	24		NO EFFECT	
24A85	24		NO EFFECT	
24-86	24		NO EFFECT	
24-87	24		NO EFFECT	
24-87R1	24		NO EFFECT	
24-93	24		NO EFFECT	
24-94	24		NO EFFECT	
24-94R1	24		NO EFFECT	
24-95	24		NO EFFECT	
24-100	24		NO EFFECT	
24-100	49	S	08/10/96	

SERVICE BULLETIN	ATA	S/C	INCORPORATION DATE	CUSTOMER ENGINEERING ORDER NUMBER
24-100R1	24	S	NO EFFECT	
24-100R1	49	C	12/10/98	
24-100R2	49	S	08/10/96	
24-103	24	C	04/22/99	
24A104	24		NO EFFECT	
24-107	24		NO EFFECT	
24-107R1	24		NO EFFECT	
24-108	24		NO EFFECT	
24-108	71		NO EFFECT	
24-108R1	24		NO EFFECT	
24-108R1	71		NO EFFECT	
24-108R2	24		NO EFFECT	
24-108R2	71		NO EFFECT	
24-109	24	S	12/22/00	
24-109R1	24		NO EFFECT	
24A111	24	C	04/22/99	
24A111R1	24	C	04/22/99	
24A112	24	S	08/10/97	
24A112R1	24	C	08/10/97	
24A112R2	24	C	04/10/98	
24A113	20	C	04/10/98	
24A113	24		NO EFFECT	
24A113R1	20	S	04/10/98	
24A113R2	20	C	04/10/98	
24-116	24	S	04/10/98	
24-116R1	24	S	04/10/98	
24-119	24		NO EFFECT	
24-119R1	24	C	04/22/02	
24A119R2	24		NO EFFECT	
24A120	24		NO EFFECT	
24A120	25	C	08/22/98	
24A126	24		NO EFFECT	
24A128	24		NO EFFECT	
24A128R1	24		NO EFFECT	
24A128R2	24		NO EFFECT	
24A128R3	24		NO EFFECT	
24-130	24		NO EFFECT	
24A134	24		NO EFFECT	
24A134R1	24		NO EFFECT	
24A139	24		NO EFFECT	
24A139R1	24		NO EFFECT	
24-142	24		NO EFFECT	
24A144	24		NO EFFECT	
24A144R1	24		NO EFFECT	
24-152	23	S	04/22/07	
24-153	23	S	04/22/07	
24-153	24	S	04/22/07	
24-156	24		NO EFFECT	

SERVICE BULLETIN	ATA	S/C	INCORPORATION DATE	CUSTOMER ENGINEERING ORDER NUMBER
24-160	24		NO EFFECT	
24A162	24	S	12/22/06	
25-80	25	C	08/10/92	
25-113	21	S	02/10/95	
25-113	25		NO EFFECT	
25-113	32	C	11/10/93	
25-113	52	C	11/10/93	
25-113R1	21	S	02/10/95	
25-113R1	25		NO EFFECT	
25-113R1	32	S	08/10/90	
25-113R1	52	S	08/10/90	
25-113R2	21	S	02/10/95	
25-113R2	25		NO EFFECT	
25-113R2	32	S	08/10/90	
25-113R2	52	S	08/10/90	
25-113R3	21	S	02/10/95	
25-113R3	25		NO EFFECT	
25-113R3	32	S	INCORP	
25-113R3	52	S	INCORP	
25-113R4	21	C	08/10/95	
25-113R4	25		NO EFFECT	
25-113R4	32	C	08/10/95	
25-113R4	52	S	INCORP	
25-113R5	21	C	08/10/97	
25-113R5	25		NO EFFECT	
25-113R5	32	C	05/10/97	
25-113R5	52	C	05/10/97	
25-113R6	21	S	08/22/06	
25-113R6	32	S	08/22/06	
25-113R6	52	S	08/22/06	
25-120R1	25		NO EFFECT	
25-120R1	52	C	05/10/91	
25-120R2	25		NO EFFECT	
25-120R2	52	C	INCORP	
25-120R3	25		NO EFFECT	
25-120R3	52	S	05/10/90	
25-121	11	S	02/10/90	
25-125	25		NO EFFECT	
25-125R1	25		NO EFFECT	
25-125R2	25		NO EFFECT	
25A133	25		NO EFFECT	
25A133R1	25		NO EFFECT	
25-134	25		NO EFFECT	
25-137	25		NO EFFECT	
25-137R1	25		NO EFFECT	
25-137R2	25		NO EFFECT	
25-137R3	25		NO EFFECT	
25-139	25		NO EFFECT	

SERVICE BULLETIN	ATA	S/C	INCORPORATION DATE	CUSTOMER ENGINEERING ORDER NUMBER
25-139R1	25		NO EFFECT	
25-140	25		NO EFFECT	
25-142	11	C	08/10/91	
25-142	25		NO EFFECT	
25-146	25		NO EFFECT	
25-148	25		NO EFFECT	
25-149	11	C	08/10/93	
25-149	25	C	08/10/93	
25-151	25		NO EFFECT	
25-156	25		NO EFFECT	
25-160	25		NO EFFECT	
25-160R1	25		NO EFFECT	
25-161	25		NO EFFECT	
25-168	25	C	02/10/94	
25-168R1	11	S	INCORP	
25-168R1	25	S	INCORP	
25-169	25		NO EFFECT	
25A173	25		NO EFFECT	
25A174	25	S	08/10/98	
25A174R1	25	S	08/10/98	
25-180	25		NO EFFECT	
25-180	26	C	04/22/03	
25-180R1	25		NO EFFECT	
25-180R1	26	S	05/10/94	
25-180R2	25		NO EFFECT	
25-180R2	26	S	05/10/94	
25-180R3	25		NO EFFECT	
25-180R3	26	C	11/10/94	
25-180R4	25		NO EFFECT	
25-180R4	26	C	12/22/03	
25-180R5	25	C	08/22/03	
25-180R5	26	C	08/22/03	
25-185	25		NO EFFECT	
25-189	25		NO EFFECT	
25-190	25		NO EFFECT	
25-192	25		NO EFFECT	
25-198	25		NO EFFECT	
25-198R1	25		NO EFFECT	
25-198R2	25		NO EFFECT	
25-198R3	25		NO EFFECT	
25-206	25		NO EFFECT	
25-206R1	25		NO EFFECT	
25-206R2	25		NO EFFECT	
25-209	25		NO EFFECT	
25-211	25	C	INCORP	
25-211R1	25	S	02/10/94	
25-212	25		NO EFFECT	
25-212R1	25		NO EFFECT	

SERVICE BULLETIN	ATA	S/C	INCORPORATION DATE	CUSTOMER ENGINEERING ORDER NUMBER
25-212R2	25		NO EFFECT	
25-212R3	25		NO EFFECT	
25-212R4	25		NO EFFECT	
25-212R5	25		NO EFFECT	
25-212R6	25		NO EFFECT	
25-216	25	S	08/22/94	
25-216R1	25	S	INCORP	
25-218	25		NO EFFECT	
25-223	25	S	INCORP	
25-223R1	25	S	12/22/97	
25-224	25		NO EFFECT	
25-224R1	25		NO EFFECT	
25-225	25		NO EFFECT	
25-228	11	S	08/10/95	
25-228	25		NO EFFECT	
25-235	25		NO EFFECT	
25-250	25		NO EFFECT	
25-252	25		NO EFFECT	
25A260	25		NO EFFECT	
25A260R1	25		NO EFFECT	
25A260R2	25		NO EFFECT	
25A260R3	25		NO EFFECT	
25A260R4	25		NO EFFECT	
25A260R5	25		NO EFFECT	
25A265	25	C	12/22/03	
25A265R1	25	S	08/22/02	
25-266	25	S	12/22/00	
25A266R1	25	S	04/22/07	
25A266R2	25	S	04/22/07	
25A266R3	25	S	04/22/07	
25-270	25		NO EFFECT	
25A275	25		NO EFFECT	
25A275R1	25		NO EFFECT	
25A275R2	25		NO EFFECT	
25A275R3	25		NO EFFECT	
25A275R4	25		NO EFFECT	
25A285	21	C	04/22/02	
25A285R1	21	S	04/22/04	
25A285R2	21	S	12/22/06	
25A285R3	21	S	08/22/09	
25A285R3	25	S	04/22/07	
25-288	25		NO EFFECT	
25-288R1	25		NO EFFECT	
25-288R2	25		NO EFFECT	
25-288R3	25		NO EFFECT	
25-290	25		NO EFFECT	
25-290R1	25		NO EFFECT	
25-290R2	25	S	12/22/02	

SERVICE BULLETIN	ATA	S/C	INCORPORATION DATE	CUSTOMER ENGINEERING ORDER NUMBER
25-290R3	25		NO EFFECT	
25-290R4	25		NO EFFECT	
25-290R5	25		NO EFFECT	
25A300	25		NO EFFECT	
25A300R1	25		NO EFFECT	
25A300R2	25		NO EFFECT	
25A300R3	25		NO EFFECT	
25-316	25	S	04/22/06	
25-317	25	S	04/22/04	
25-317R1	25	S	04/22/04	
25A317R2	25	S	08/22/07	
25A317R3	25	S	08/22/09	
25-320	25		NO EFFECT	
25-320R1	25		NO EFFECT	
25-320R2	25		NO EFFECT	
25-320R3	25		NO EFFECT	
25A322	25		NO EFFECT	
25A322R1	25		NO EFFECT	
25-325	11	C	08/22/04	
25-325	20	C	08/22/04	
25-325	25	C	08/22/04	
25-325	52	C	08/22/04	
25-325R1	11	S	08/22/05	
25-325R1	20	S	08/22/05	
25-325R1	52	S	08/22/05	
25-325R2	11	S	08/22/04	
25-325R2	20	S	08/22/04	
25-325R2	52	S	08/22/04	
25-325R3	11	S	08/22/04	
25-325R3	20	S	08/22/04	
25-325R3	52	S	08/22/04	
25-325R4	11	S	12/22/03	
25-325R4	20	S	12/22/03	
25-325R4	52	S	12/22/03	
25-325R5	11	S	08/22/04	
25-325R5	20	S	08/22/04	
25-325R5	52	S	08/22/04	
25-325R6	11	S	12/22/03	
25-325R6	20	S	12/22/03	
25-325R6	52	S	12/22/03	
25-325R7	11	S	08/22/04	
25-325R7	20	S	08/22/04	
25-325R7	52	S	08/22/04	
25-325R8	11	S	08/22/04	
25-325R8	20	S	08/22/04	
25-325R8	52	S	08/22/04	
25-325R9	11	S	08/22/04	
25-325R9	20	S	08/22/04	

SERVICE BULLETIN	ATA	S/C	INCORPORATION DATE	CUSTOMER ENGINEERING ORDER NUMBER
25-325R9	52	S	08/22/04	
25-325R10	11	S	08/22/04	
25-325R10	20	S	08/22/04	
25-325R10	52	S	08/22/04	
25-325R11	11	S	08/22/04	
25-325R11	20	S	08/22/04	
25-325R11	52	S	08/22/04	
25-325R12	11	S	08/22/04	
25-325R12	20	S	08/22/04	
25-325R12	52	S	08/22/04	
25-325R13	11	S	08/22/04	
25-325R13	20	S	08/22/04	
25-325R13	52	S	08/22/04	
25-325R14	11	S	12/22/04	
25-325R14	20	S	12/22/04	
25-325R14	52	S	12/22/04	
25-325R15	11	S	12/22/04	
25-325R15	20	S	12/22/04	
25-325R15	52	S	12/22/04	
25-325R16	11	S	12/22/04	
25-325R16	20	S	12/22/04	
25-325R16	52	S	12/22/04	
25-332	52	C	08/22/04	
25-332R1	11	S	08/22/04	
25-332R1	20	S	08/22/04	
25-332R1	52	S	08/22/04	
25-332R2	11	S	08/22/04	
25-332R2	20	S	08/22/04	
25-332R2	52	S	08/22/04	
25-332R3	11	S	08/22/04	
25-332R3	20	S	08/22/04	
25-332R3	52	S	08/22/04	
25-332R4	11	S	08/22/04	
25-332R4	20	S	08/22/04	
25-332R4	52	S	08/22/04	
25-332R5	11	S	08/22/04	
25-332R5	20	S	08/22/04	
25-332R5	52	S	08/22/04	
25-332R6	11	S	08/22/04	
25-332R6	20	S	08/22/04	
25-332R6	52	S	08/22/04	
25-332R7	11	S	12/22/04	
25-332R7	20	S	12/22/04	
25-332R7	52	S	12/22/04	
25-332R8	11	S	12/22/04	
25-332R8	20	S	12/22/04	
25-332R8	52	S	12/22/04	
25-332R9	11	S	12/22/04	

SERVICE BULLETIN	ATA	S/C	INCORPORATION DATE	CUSTOMER ENGINEERING ORDER NUMBER
25-332R9	20	S	12/22/04	
25-332R9	52	S	12/22/04	
25-336	25		NO EFFECT	
25-336R1	25		NO EFFECT	
25-336R2	11	S	12/22/05	
25-336R3	11	S	12/22/05	
25-336R4	11	S	12/22/05	
25-342	25		NO EFFECT	
25-358	25		NO EFFECT	
25-358R1	25		NO EFFECT	
25-358R2	25		NO EFFECT	
25-362	25		NO EFFECT	
25-362R1	25		NO EFFECT	
25-368	25		NO EFFECT	
25-368R1	25		NO EFFECT	
25-368R2	25		NO EFFECT	
25-376	25		NO EFFECT	
25-376R1	25		NO EFFECT	
25-376R2	25		NO EFFECT	
25A390	25		NO EFFECT	
25-391	25		NO EFFECT	
25-394	25		NO EFFECT	
25-394R1	25		NO EFFECT	
25A395	25		NO EFFECT	
25A395R1	25		NO EFFECT	
25-398	25		NO EFFECT	
25-428	25		NO EFFECT	
25-428R1	25		NO EFFECT	
26-47	11	C	08/10/93	
26-47	26	C	11/10/93	
26-57	26	C	08/10/92	
26-57R1	26	S	05/10/91	
26-57R2	26	S	INCORP	
26-57R3	26	S	INCORP	
26-63	26		NO EFFECT	
26-64	26	C	11/10/93	
26-64	31	C	11/10/93	
26-65	26	C	08/10/92	
26-65R1	26	S	11/10/91	
26-66	26		NO EFFECT	
26-66R1	26		NO EFFECT	
26A68	26		NO EFFECT	
26A68R1	26		NO EFFECT	
26A68R2	26		NO EFFECT	
26A68R3	26		NO EFFECT	
26A68R4	26		NO EFFECT	
26A74	26		NO EFFECT	
26A75	26		NO EFFECT	

SERVICE BULLETIN	ATA	S/C	INCORPORATION DATE	CUSTOMER ENGINEERING ORDER NUMBER
26A75R1	26		NO EFFECT	
26-77	26		NO EFFECT	
26-79	26	C	11/10/97	
26-80	26		NO EFFECT	
26-80	71		NO EFFECT	
26-80R1	26		NO EFFECT	
26-80R1	71		NO EFFECT	
26-80R2	26		NO EFFECT	
26-80R2	71		NO EFFECT	
26-80R3	26	S	12/22/00	
26A81	26		NO EFFECT	
26-84	26		NO EFFECT	
26-84R1	26	S	12/22/99	
26-86	26		NO EFFECT	
26-87	26		NO EFFECT	
26A89	26		NO EFFECT	
26-90	26		NO EFFECT	
26-90	31	C	08/10/93	
26-109	26	S	12/22/01	
26-111	26	S	08/22/01	
26A112	21	C	08/22/03	
26A112	26	C	08/22/03	
26-113	26		NO EFFECT	
26-113	N71		NO EFFECT	
26-118	26		NO EFFECT	
26-118R1	26		NO EFFECT	
26-118R2	26		NO EFFECT	
26-118R3	26		NO EFFECT	
26-118R4	26		NO EFFECT	
26A119	26		NO EFFECT	
26A119R1	26		NO EFFECT	
26A123	26		NO EFFECT	
26A130	26		NO EFFECT	
26A130R1	26		NO EFFECT	
26A130R2	26		NO EFFECT	
26A130R3	20	S	08/22/08	
26A130R3	36	S	08/22/08	
26-131	26		NO EFFECT	
26A260R1	25		NO EFFECT	
27-85R1	27		NO EFFECT	
27-90	27	C	02/10/93	
27-92R2	27		NO EFFECT	
27-92R3	27		NO EFFECT	
27-93	27		NO EFFECT	
27-93	34	C	02/10/93	
27-93R1	27		NO EFFECT	
27-93R1	34	S	INCORP	
27A94R1	27		NO EFFECT	

SERVICE BULLETIN	ATA	S/C	INCORPORATION DATE	CUSTOMER ENGINEERING ORDER NUMBER
27A94R2	27		NO EFFECT	
27A94R3	27		NO EFFECT	
27A94R4	27		NO EFFECT	
27A94R5	27		NO EFFECT	
27A95R1	27		NO EFFECT	
27A95R2	27		NO EFFECT	
27A95R3	27		NO EFFECT	
27A95R4	27		NO EFFECT	
27A95R5	27		NO EFFECT	
27-96	27		NO EFFECT	
27-96R1	27		NO EFFECT	
27-96R2	27		NO EFFECT	
27-96R3	27		NO EFFECT	
27-97	27		NO EFFECT	
27-98	27		NO EFFECT	
27-98R1	27		NO EFFECT	
27A99	27	C	05/10/91	
27-100	27		NO EFFECT	
27-100R1	27		NO EFFECT	
27-101	27		NO EFFECT	
27-101R1	27		NO EFFECT	
27-102	27	S	08/10/92	
27-103	27		NO EFFECT	
27-103R1	27		NO EFFECT	
27-104	27		NO EFFECT	
27-104R1	27		NO EFFECT	
27-104R2	27		NO EFFECT	
27-106	27		NO EFFECT	
27-108	27	C	05/10/94	
27-108R1	27	S	05/10/93	
27-108R2	27	C	02/10/95	
27-108R3	27	C	04/10/98	
27-108R3	27	C	05/10/97	
27A110	27		NO EFFECT	
27A110R1	27		NO EFFECT	
27-111	27		NO EFFECT	
27-111R1	27		NO EFFECT	
27-113	27		NO EFFECT	
27-115R1	27		NO EFFECT	
27-115R2	27		NO EFFECT	
27-115R3	27		NO EFFECT	
27-117	27		NO EFFECT	
27-118	27		NO EFFECT	
27A118R1	27		NO EFFECT	
27-119	27		NO EFFECT	
27A122	27		NO EFFECT	
27A122R1	27		NO EFFECT	
27-123	27		NO EFFECT	

SERVICE BULLETIN	ATA	S/C	INCORPORATION DATE	CUSTOMER ENGINEERING ORDER NUMBER
27-125	27	C	05/10/93	
27-126	27	S	11/10/93	
27-126R1	27	S	11/10/93	
27-127	27	S	05/10/94	
27-128	27		NO EFFECT	
27-128R1	27		NO EFFECT	
27-128R2	27		NO EFFECT	
27-131	27		NO EFFECT	
27A132	27		NO EFFECT	
27A132R1	27		NO EFFECT	
27-133	27		NO EFFECT	
27-134	27	S	08/10/95	
27-135	27		NO EFFECT	
27A136	27		NO EFFECT	
27A136R1	27		NO EFFECT	
27A137	27		NO EFFECT	
27A137R1	27		NO EFFECT	
27A137R2	27		NO EFFECT	
27A137R3	27		NO EFFECT	
27A140	32	C	08/22/01	
27A140R1	27	S	INCORP	
27A140R2	27	C	08/22/01	
27A140R2	32	C	08/22/01	
27A140R3	06	S	12/22/04	
27A140R3	27	S	12/22/04	
27-142	27	C	04/22/01	
27-143	27	S	08/22/96	
27-145	27	S	02/10/97	
27-145R1	27	S	08/22/02	
27-146	27	C	04/22/01	
27-147	11	S	04/22/99	
27-147	27		NO EFFECT	
27A151	27		NO EFFECT	
27A151R1	27		NO EFFECT	
27A151R2	27		NO EFFECT	
27A151R3	27		NO EFFECT	
27-154	27	S	12/10/98	
27-154R1	27	C	04/22/01	
27A155	27	C	04/22/02	
27A155R1	27	S	INCORP	
27A155R2	27	C	12/12/03	
27A155R3	27	S	12/22/04	
27A156	27		NO EFFECT	
27A159	27	C	08/22/01	
27A159R1	27	C	12/22/04	
27A160	27	C	12/22/03	
27A160	30	C	08/22/02	
27A160	32	C	08/22/02	

SERVICE BULLETIN	ATA	S/C	INCORPORATION DATE	CUSTOMER ENGINEERING ORDER NUMBER
27A160R1	30	C	08/22/04	
27A160R1	32	C	08/22/04	
27-162	27		NO EFFECT	
27-165	12	C	04/22/03	
27-165	27	C	04/22/03	
27A166	27		NO EFFECT	
27A166R1	27		NO EFFECT	
27A167	27		NO EFFECT	
27A167R1	27		NO EFFECT	
27A167R2	27		NO EFFECT	
27A167R3	27		NO EFFECT	
27A168	27		NO EFFECT	
27-170	27		NO EFFECT	
27-171	27		NO EFFECT	
27A175	27		NO EFFECT	
27A175R1	27		NO EFFECT	
27A175R2	27		NO EFFECT	
27A176	27	C	08/22/03	
27A176R1	27	C	04/22/03	
27A176R2	27	C	04/22/03	
27A183	27		NO EFFECT	
27A183	57		NO EFFECT	
27-184	27		NO EFFECT	
27-184	57		NO EFFECT	
27-184R1	27		NO EFFECT	
27-186	27		NO EFFECT	
27-190	27		NO EFFECT	
27-190R1	27		NO EFFECT	
27-190R2	27		NO EFFECT	
27A192	27		NO EFFECT	
27A192R1	27		NO EFFECT	
27A194	27	S	12/22/04	
27A194R1	27	S	12/22/05	
27A194R2	27	S	12/22/06	
27A194R3	27	S	12/22/06	
27A195	27	S	12/22/04	
27-196	27		NO EFFECT	
27-197	27	S	12/22/07	
27-197R1	27	S	12/22/07	
27-200	27		NO EFFECT	
27-202	27		NO EFFECT	
27-202R1	27		NO EFFECT	
27-204	27		NO EFFECT	
27-204R1	27		NO EFFECT	
27A219	06	S	08/22/09	
27A219	20	S	08/22/09	
27A219	27	S	08/22/09	
27A219	29	S	08/22/09	

SERVICE BULLETIN	ATA	S/C	INCORPORATION DATE	CUSTOMER ENGINEERING ORDER NUMBER
27A219R1	06	S	08/22/09	
27A219R1	20	S	08/22/09	
27A219R1	27	S	08/22/09	
27A219R1	29	S	08/22/09	
28-25	11	S	11/10/93	
28-25	28	S	11/10/93	
28-25	28	S	02/10/94	
28-25	31	S	11/10/93	
28-25R1	11	S	11/10/93	
28-25R1	28	S	11/10/93	
28-25R1	28	S	02/10/94	
28-25R1	31	S	11/10/93	
28-27	28	S	08/10/97	
28-27	28	S	05/10/97	
28-27R1	28	S	08/10/97	
28-27R1	28	S	05/10/97	
28A29	28	C	04/22/08	
28-30	28	C	11/10/92	
28-31	28	S	05/10/92	
28-33	28	S	08/22/92	
28-34	28	S	11/10/93	
28-34	31	S	05/10/94	
28-34	31	S	02/10/94	
28-34R1	28	S	11/10/93	
28-34R1	31	S	05/10/94	
28-34R1	31	S	02/10/94	
28-34R2	28	S	11/10/93	
28-34R2	31	S	05/10/94	
28-34R2	31	S	11/10/95	
28-34R3	28	S	11/10/93	
28-34R3	31	S	05/10/94	
28-34R3	31	S	11/10/95	
28A36	28		NO EFFECT	
28A36R1	28		NO EFFECT	
28A36R2	28		NO EFFECT	
28A36R3	28		NO EFFECT	
28-38	28	S	08/10/93	
28-38	31	S	08/10/93	
28-38R1	28	S	02/10/94	
28-38R1	31	S	INCORP	
28-38R2	28	S	02/10/94	
28-38R2	31	S	02/10/94	
28-40	28		NO EFFECT	
28-44	28		NO EFFECT	
28-44R1	28	S	08/10/94	
28A45	28	S	08/10/94	
28A45R1	28	S	11/10/94	
28A45R2	28	S	11/10/94	

SERVICE BULLETIN	ATA	S/C	INCORPORATION DATE	CUSTOMER ENGINEERING ORDER NUMBER
28-46	28	C	08/22/01	
28A50	28		NO EFFECT	
28A50R1	28		NO EFFECT	
28-51	28	C	04/22/01	
28-51R1	28	C	04/22/01	
28-51R2	28	S	08/22/01	
28-52	28	S	04/22/00	
28A53	28		NO EFFECT	
28A53R1	28		NO EFFECT	
28-62	12	S	04/22/01	
28-62	28	S	04/22/01	
28-62R1	12	S	08/22/04	
28-62R1	28	S	08/22/04	
28-63	11	S	12/22/02	
28-63R1	11	S	12/22/01	
28A64	28		NO EFFECT	
28A64R1	28		NO EFFECT	
28A64R2	28		NO EFFECT	
28-66	28	S	04/22/04	
28-66R1	28	S	04/22/05	
28A71	28	S	08/22/06	
28A71R1	28		NO EFFECT	
28A71R2	28		NO EFFECT	
28A75	28	S	04/22/04	
28A75R1	28		NO EFFECT	
28A76	28		NO EFFECT	
28A77	28		NO EFFECT	
28A77R1	28		NO EFFECT	
28A81	28		NO EFFECT	
28A83	28	S	08/22/06	
28A83R1	28	S	08/22/06	
28A83R2	28	S	08/22/06	
28A85	28	S	04/22/08	
28A85R1	28	S	12/22/09	
28A88	28	S	08/22/05	
28A90	28	S	12/22/08	
28A95	28		NO EFFECT	
28-103	28		NO EFFECT	
29-43	29		NO EFFECT	
29-43R1	29		NO EFFECT	
29-47	29		NO EFFECT	
29-47R1	29		NO EFFECT	
29-49R1	29		NO EFFECT	
29-49R2	29		NO EFFECT	
29-51	29		NO EFFECT	
29-51R1	29		NO EFFECT	
29-52	29		NO EFFECT	
29A54R1	29		NO EFFECT	

SERVICE BULLETIN	ATA	S/C	INCORPORATION DATE	CUSTOMER ENGINEERING ORDER NUMBER
29A54R2	29		NO EFFECT	
29-57	29		NO EFFECT	
29-57R1	29		NO EFFECT	
29-59	29		NO EFFECT	
29-59R1	29		NO EFFECT	
29-61	29		NO EFFECT	
29A64	29		NO EFFECT	
29A64R1	29		NO EFFECT	
29-66	29		NO EFFECT	
29-66R1	29		NO EFFECT	
29-67	29		NO EFFECT	
29-67R1	29		NO EFFECT	
29-71	29	S	08/10/95	
29-71	71	S	08/10/95	
29-72R1	29		NO EFFECT	
29-74	29		NO EFFECT	
29-74R1	29		NO EFFECT	
29-74R2	29		NO EFFECT	
29-76	29		NO EFFECT	
29-76R1	29		NO EFFECT	
29A77	29	C	12/22/03	
29A77R1	29	S	11/10/95	
29A78	29		NO EFFECT	
29-79	29	S	12/10/98	
29A80	29		NO EFFECT	
29A80R1	29		NO EFFECT	
29A80R2	29		NO EFFECT	
29-82	29	S	11/10/97	
29-82R1	29	C	04/22/01	
29A83	29		NO EFFECT	
29A83R1	29		NO EFFECT	
29A83R2	29		NO EFFECT	
29A83R4	29		NO EFFECT	
29-85	29		NO EFFECT	
29A88	29		NO EFFECT	
29A88R1	29		NO EFFECT	
29A90	29		NO EFFECT	
29-91	29		NO EFFECT	
29A94	29		NO EFFECT	
29-96	29		NO EFFECT	
29-103	29		NO EFFECT	
29A110	29		NO EFFECT	
29-111	29	S	04/22/08	
30A11R3	30	S	11/10/89	
30A11R3	31	S	05/10/90	
30A11R4	30	S	11/10/89	
30A11R4	31	S	05/10/90	
30A11R5	30	C	02/10/93	

SERVICE BULLETIN	ATA	S/C	INCORPORATION DATE	CUSTOMER ENGINEERING ORDER NUMBER
30A11R5	31	C	02/10/93	
30A11R6	30	C	02/10/94	
30A11R6	31	C	02/10/94	
30-15	30	S	08/10/92	
30-15R1	30	S	11/10/93	
30-17	30	S	11/10/92	
30-17	30	S	02/10/93	
30A18	30		NO EFFECT	
30A18R1	30		NO EFFECT	
30A18R2	30		NO EFFECT	
30-21	30		NO EFFECT	
30-24	30	S	11/10/93	
30-24R1	30	S	11/10/93	
30-24R2	30	S	11/10/93	
30-28	12	C	12/10/98	
30-28	30	C	12/10/98	
30-28R1	12	S	11/10/97	
30-28R1	30	S	11/10/97	
30A37	30		NO EFFECT	
30A37R1	30		NO EFFECT	
30A37R2	30		NO EFFECT	
30-39	30	S	04/22/08	
31-31	31	C	02/10/93	
31-31	34	C	02/10/93	
31-33R1	21	C	08/10/91	
31-33R1	31	C	08/10/91	
31-33R1	71	C	08/10/91	
31-37	31	S	INCORP	
31-40	27	C	05/10/92	
31-40	31	C	05/10/92	
31-40R1	27	C	05/10/92	
31-40R1	31	C	05/10/92	
31-40R2	27	C	05/10/92	
31-40R2	31	C	05/10/92	
31-40R3	31	S	08/22/04	
31-43	31	C	05/10/92	
31-43R1	31	S	12/22/92	
31-47	31		NO EFFECT	
31-61	31		NO EFFECT	
31-73	31	S	08/10/97	
31-76	31	S	11/10/95	
31-76R1	31	S	11/10/95	
31-86	31	S	04/22/99	
31-86	71	S	05/10/97	
31-100	23	C	04/22/99	
31-100	31	C	04/22/99	
31-100	32	C	04/22/99	
31-100R1	23	C	04/22/99	

SERVICE BULLETIN	ATA	S/C	INCORPORATION DATE	CUSTOMER ENGINEERING ORDER NUMBER
31-100R1	31	C	04/22/99	
31-100R1	32	C	04/22/99	
31-100R2	23	C	04/22/99	
31-100R2	31	C	04/22/99	
31-100R2	32	C	04/22/99	
31-106R2	20	S	04/22/00	
31-106R2	27	S	04/22/00	
31-106R2	31	S	04/22/00	
31-106R2	31	S	08/22/00	
31-106R2	32	S	04/22/00	
31-106R2	34	S	04/22/00	
31-114	27	C	04/22/02	
31-114	31	C	04/22/02	
31-114	34	C	04/22/02	
31-114	71	C	04/22/02	
31-114R1	31	S	12/22/00	
31-114R1	32	S	12/22/00	
31-126	31	C	12/22/01	
31-149	31	S	04/22/01	
31-149R1	31	S	04/22/03	
31-149R2	31	S	04/22/03	
31-157	31	S	04/22/01	
31-166	31	C	03/22/03	
31-168	31	C	08/22/04	
31A174	31		NO EFFECT	
31-180	31	C	12/22/04	
31A181	31		NO EFFECT	
31-182	31		NO EFFECT	
31-208	28	S	12/22/04	
31-208	31	S	12/22/04	
31-215	31	S	08/22/05	
31-226	31	S	12/22/05	
31-233	31	S	04/22/06	
31-236	31	S	12/22/07	
32A51	32	S	04/22/03	
32A51R3	32	C	04/22/03	
32-73R1	32		NO EFFECT	
32-83	32		NO EFFECT	
32-83R1	32		NO EFFECT	
32-83R2	32		NO EFFECT	
32-83R3	32		NO EFFECT	
32-83R4	32		NO EFFECT	
32-84	32		NO EFFECT	
32-85	31	C	02/10/93	
32-85	32	C	02/10/93	
32-85R1	31	S	02/10/91	
32-85R1	32	S	11/10/90	
32-88R1	32		NO EFFECT	

SERVICE BULLETIN	ATA	S/C	INCORPORATION DATE	CUSTOMER ENGINEERING ORDER NUMBER
32-91	32		NO EFFECT	
32-93R1	32		NO EFFECT	
32-96	32	C	05/10/92	
32-101	32	C	04/22/00	
32-101R1	32	C	04/22/00	
32-101R2	32	S	04/22/04	
32-102	32	C	08/10/93	
32-102R1	32	S	11/10/91	
32-103	32		NO EFFECT	
32-106	32	C	02/10/93	
32-110	32	C	04/22/01	
32-114	32		NO EFFECT	
32-114R1	32		NO EFFECT	
32A116	32		NO EFFECT	
32A116R1	32		NO EFFECT	
32A116R2	12	S	08/22/01	
32A116R2	32	S	08/22/01	
32-117	32		NO EFFECT	
32-118	32		NO EFFECT	
32-118R1	32		NO EFFECT	
32-119	32		NO EFFECT	
32A125	32	C	02/10/95	
32A126	32	S	02/10/94	
32A126R1	32	C	02/10/95	
32A127	32		NO EFFECT	
32-128	32		NO EFFECT	
32-128R1	32		NO EFFECT	
32-128R2	32		NO EFFECT	
32-128R3	12	S	04/22/01	
32-128R3	32	S	04/22/01	
32-129	32		NO EFFECT	
32-129R1	32		NO EFFECT	
32-129R2	32		NO EFFECT	
32-130	32	S	02/10/95	
32-130	32	S	11/10/94	
32-130R1	12	S	08/10/97	
32-130R1	32	S	08/10/97	
32-130R1	32	S	11/10/96	
32-131	32		NO EFFECT	
32-132	32	C	04/22/00	
32-134	32		NO EFFECT	
32-137	32	S	08/10/97	
32-142	32		NO EFFECT	
32-145	32		NO EFFECT	
32-145R1	32		NO EFFECT	
32-146	32	S	08/10/98	
32-146R1	32	S	04/22/04	
32A148	12	C	04/22/01	

SERVICE BULLETIN	ATA	S/C	INCORPORATION DATE	CUSTOMER ENGINEERING ORDER NUMBER
32A148	32	C	04/22/01	
32A148R1	32	S	08/10/97	
32A148R2	32		NO EFFECT	
32A151	32		NO EFFECT	
32A151R1	32		NO EFFECT	
32A151R2	32		NO EFFECT	
32A151R3	32		NO EFFECT	
32-152R1	32	C	12/22/01	
32-152R2	32	S	02/10/97	
32-153	12	S	08/10/97	
32-153	32	S	08/10/97	
32-153	32	S	11/10/96	
32A157	32	C	04/10/98	
32-162	32	S	12/22/00	
32-162R1	32	S	12/22/03	
32A163	32		NO EFFECT	
32A163R1	32		NO EFFECT	
32-166	12	S	08/22/99	
32-166	32		NO EFFECT	
32-166R1	12	S	04/22/00	
32-166R1	32		NO EFFECT	
32-166R2	32	S	04/22/00	
32-166R3	32	S	12/22/02	
32-168	32	C	12/22/01	
32A171	32		NO EFFECT	
32A171R1	32		NO EFFECT	
32A176R2	32		NO EFFECT	
32A176R3	32		NO EFFECT	
32-179	32		NO EFFECT	
32-179R1	32		NO EFFECT	
32-180	32		NO EFFECT	
32-180R1	32	S	12/22/03	
32-181	12	S	12/22/99	
32-181	32	S	12/22/99	
32-181R1	12	S	04/22/00	
32-181R1	32	S	04/22/00	
32A182	32		NO EFFECT	
32-183	32	S	12/22/99	
32-183R1	32	S	04/22/05	
32-184	32		NO EFFECT	
32-184R1	32		NO EFFECT	
32A185	32		NO EFFECT	
32A192	32		NO EFFECT	
32A192R1	32		NO EFFECT	
32-194	32	S	04/22/03	
32-194R1	32	S	04/22/03	
32-194R2	32	S	04/22/04	
32A196	32	S	04/22/03	

SERVICE BULLETIN	ATA	S/C	INCORPORATION DATE	CUSTOMER ENGINEERING ORDER NUMBER
32A196R1	32	C	12/22/03	
32A196R2	32	C	12/22/04	
32A196R3	32	C	12/22/04	
32A199	32		NO EFFECT	
32A199R1	32		NO EFFECT	
32A199R2	32		NO EFFECT	
32A202	32		NO EFFECT	
32A202R1	32		NO EFFECT	
32-204	12	S	12/22/04	
32-204	32	S	12/22/04	
32-204R1	12	S	04/22/05	
32-204R1	32	S	04/22/05	
32-209	32	S	12/22/05	
32-217	32	S	04/22/08	
33-18	33	S	12/22/02	
33-30	33	C	08/10/91	
33-37	33	C	INCORP	
33-38	33		NO EFFECT	
33-41	33	C	12/22/91	
33-42	11	S	08/10/91	
33-42	33	S	05/10/91	
33-46	24	C	12/22/91	
33-46	33		NO EFFECT	
33-48	33		NO EFFECT	
33-52	33		NO EFFECT	
33-52R1	33		NO EFFECT	
33-52R2	33		NO EFFECT	
33-52R3	33		NO EFFECT	
33-54	33		NO EFFECT	
33-56	33		NO EFFECT	
33-56R1	33		NO EFFECT	
33-58	33		NO EFFECT	
33-64	33	C	08/22/01	
33A75	33	C	04/22/01	
33A75R1	33	C	08/22/01	
33-81R1	33	S	12/22/02	
33-81R2	33	S	04/22/03	
33A87	33		NO EFFECT	
33A87R1	33		NO EFFECT	
34-82	31	C	08/10/93	
34-82	34	C	08/10/93	
34-82R1	31	S	05/10/91	
34-82R1	34	S	05/10/91	
34-86	34	C	05/10/92	
34-87	34		NO EFFECT	
34-87R1	34		NO EFFECT	
34-87R2	34		NO EFFECT	
34-87R3	34		NO EFFECT	

SERVICE BULLETIN	ATA	S/C	INCORPORATION DATE	CUSTOMER ENGINEERING ORDER NUMBER
34-87R4	34		NO EFFECT	
34-90	34	S	INCORP	
34-91	23	C	02/10/94	
34-91	34	C	08/10/93	
34-91R1	23	S	INCORP	
34-91R1	34	S	INCORP	
34-91R2	11	S	INCORP	
34-91R2	23	S	INCORP	
34-91R2	34	S	INCORP	
34-92	34	C	05/10/91	
34-100	34	C	12/22/90	
34-106	34	C	08/10/92	
34-108	34		NO EFFECT	
34-108R1	34		NO EFFECT	
34-131	31	C	05/10/96	
34-131	34	C	05/10/95	
34-133	23	S	02/10/94	
34-133	34		NO EFFECT	
34-137	31	C	05/10/95	
34-137	34	C	05/10/95	
34-149	34	S	02/10/93	
34-149R1	34	C	05/22/93	
34-158	34		NO EFFECT	
34-167	34	C	05/10/95	
34-168	34	C	05/10/95	
34-176	34	S	02/10/94	
34-186	34	S	11/10/94	
34-202R1	34		NO EFFECT	
34-202R2	34		NO EFFECT	
34-202R3	31	S	08/10/98	
34-202R3	34	S	04/10/98	
34-205	34	C	08/10/95	
34-206	34	S	02/10/95	
34-206R1	34	C	11/10/95	
34-206R2	34	C	11/10/95	
34-212	34		NO EFFECT	
34-212R1	34		NO EFFECT	
34-212R2	34		NO EFFECT	
34-234	34	S	INCORP	
34-234R1	34	S	INCORP	
34-234R2	34	S	05/20/00	
34-237	34	S	11/10/96	
34-237R1	34	S	11/10/96	
34-237R2	34	S	11/10/96	
34-241	34	C	04/22/99	
34-242	34	C	04/22/99	
34-243	34	C	04/10/98	
34-253	34		NO EFFECT	

SERVICE BULLETIN	ATA	S/C	INCORPORATION DATE	CUSTOMER ENGINEERING ORDER NUMBER
34-253R1	34		NO EFFECT	
34-254	34	S	08/10/98	
34-267	34		NO EFFECT	
34-303	34		NO EFFECT	
34-303R1	34		NO EFFECT	
34-303R2	34		NO EFFECT	
34-304	34		NO EFFECT	
34-304R1	34	C	04/22/03	
34-304R2	34	S	12/22/01	
34-306	34	S	12/22/00	
34-306R1	34	S	12/22/00	
34-319	34	C	08/22/03	
34-319R1	34	S	08/22/01	
34-319R2	34	C	04/22/02	
34-319R3	34	C	08/22/03	
34A332	34	S	08/22/03	
34A332R1	34	S	12/22/03	
34A332R2	34	S	04/22/06	
34A332R3	34	S	04/22/07	
34A332R4	34	S	04/22/07	
34A332R5	34	S	04/22/09	
34-348	34	S	08/22/04	
34-411	34	S	08/22/05	
34-440	34	S	12/22/05	
34-440R1	34	S	12/22/05	
34-493	34	S	12/22/05	
34-566	34		NO EFFECT	
35A15R2	35	C	INCORP	
35-23	35	S	11/10/94	
35A26	35		NO EFFECT	
35A26R1	35		NO EFFECT	
35-27	35	C	08/22/01	
35A28	35		NO EFFECT	
35A29	33	C	04/22/01	
35A29	35		NO EFFECT	
35A29R1	33	C	04/22/01	
35A29R1	35		NO EFFECT	
35-32	35		NO EFFECT	
35-33	35		NO EFFECT	
35A34	35		NO EFFECT	
35A34R1	35		NO EFFECT	
35-42	35		NO EFFECT	
35-43	35	S	08/22/01	
35-53	35	S	08/22/06	
35-54	35	S	12/22/06	
36-26	36	S	02/10/92	
36-26R1	36	S	02/10/95	
36-26R2	36	C	12/22/97	

SERVICE BULLETIN	ATA	S/C	INCORPORATION DATE	CUSTOMER ENGINEERING ORDER NUMBER
36-27	36	C	05/10/92	
36-27R1	36	S	05/10/91	
36-27R2	36	S	05/10/90	
36-28	36	C	05/10/92	
36-29R1	11	S	02/10/92	
36-29R1	36	S	02/10/92	
36-29R2	11	S	02/10/92	
36-29R2	36	S	02/10/92	
36-29R3	11	C	04/22/00	
36-29R3	36	C	04/22/00	
36-29R3	36	S	02/10/93	
36-29R4	11	C	INCORP	
36-29R4	36	C	INCORP	
36-29R4	36	C	04/22/00	
36-29R5	11	C	04/22/00	
36-29R5	36	C	04/22/00	
36-33	36		NO EFFECT	
36-33R1	36		NO EFFECT	
36-33R2	36		NO EFFECT	
36-37	36	C	02/10/94	
36-37R1	36	S	05/22/92	
36-39	36		NO EFFECT	
36A41	36		NO EFFECT	
36A41R1	36		NO EFFECT	
36A41R2	36		NO EFFECT	
36A41R3	36		NO EFFECT	
36A41R4	36		NO EFFECT	
36-44	36		NO EFFECT	
36-44R1	36		NO EFFECT	
36-45	36		NO EFFECT	
36-45R1	36		NO EFFECT	
36-46	36		NO EFFECT	
36-51	36		NO EFFECT	
36-53	36	S	04/22/00	
36-53	71	S	04/22/00	
36-56	36		NO EFFECT	
38-14R1	38	C	08/10/91	
38-18	38	C	08/10/91	
38-26	11	C	02/10/94	
38-26	12	C	02/10/94	
38-26	38	C	02/10/94	
38-29	38		NO EFFECT	
38-30	38	C	08/10/96	
38-30R1	38	S	05/10/92	
38-30R2	38	S	12/22/05	
38-30R2	38	S	05/10/92	
38-31	38	C	02/10/94	
38-33	38		NO EFFECT	

SERVICE BULLETIN	ATA	S/C	INCORPORATION DATE	CUSTOMER ENGINEERING ORDER NUMBER
38-35	11	S	11/10/91	
38-35	38	S	11/10/91	
38-37	31	S	05/10/92	
38-37	38	S	05/10/92	
38-38	38	S	11/10/92	
38-45	38	S	02/10/95	
38-45R1	38	S	02/10/95	
38-49	38	S	12/22/99	
38A51	38	S	01/22/95	
38-54	38	C	04/22/01	
38-54R1	38	S	08/10/97	
38-54R1	38	S	05/10/97	
38-54R2	38	S	12/22/00	
38A57	38		NO EFFECT	
38-59	38		NO EFFECT	
38-59R1	38		NO EFFECT	
38-59R2	38		NO EFFECT	
38-71	38		NO EFFECT	
49-18	49		NO EFFECT	
49-18R1	49		NO EFFECT	
49-19	49		NO EFFECT	
49-19R1	49		NO EFFECT	
49-24	49		NO EFFECT	
49-24	52	C	02/10/96	
49-25	49	S	08/10/95	
49A35	49	S	12/22/03	
49A35R1	49	S	04/22/04	
49A35R2	49	S	04/22/04	
49-36	49	S	12/22/05	
49-36R1	49	S	04/22/07	
49-36R2	49	S	08/22/07	
49-38	49		NO EFFECT	
51-5	51	C	08/10/92	
51-5R3	51	S	INCORP	
51-13	51	C	08/10/92	
51-14	51		NO EFFECT	
51-16	51	S	08/10/93	
51-19	51	S	04/10/98	
51-19R1	51	S	04/10/98	
51-19R2	51	S	04/10/98	
51-19R3	51	S	04/10/98	
51-19R4	51	S	04/10/98	
51A20	51	S	04/22/06	
51A20R1	51		NO EFFECT	
51A20R2	51		NO EFFECT	
51A20R3	51		NO EFFECT	
51A23	51	C	08/22/03	
51A24	51	S	12/22/01	

SERVICE BULLETIN	ATA	S/C	INCORPORATION DATE	CUSTOMER ENGINEERING ORDER NUMBER
51A27	51		NO EFFECT	
51A27R1	51		NO EFFECT	
51-31	51		NO EFFECT	
52-45	52		NO EFFECT	
52-45R1	52		NO EFFECT	
52-45R2	52		NO EFFECT	
52A53	52		NO EFFECT	
52A53R2	52		NO EFFECT	
52-56	52		NO EFFECT	
52-56R1	52		NO EFFECT	
52A57	52	C	05/10/91	
52-58	52	S	02/10/93	
52-59	52	S	08/10/91	
52-59R1	52	S	05/22/92	
52A61	25	C	INCORP	
52A61	52		NO EFFECT	
52A61R1	25	C	12/22/91	
52A61R1	52		NO EFFECT	
52-64	52	S	02/10/94	
52-65	52		NO EFFECT	
52-65R1	52		NO EFFECT	
52A67	52	C	08/10/96	
52A67R1	52	C	08/10/96	
52A69	52		NO EFFECT	
52-70	52	C	04/22/99	
52-71	52	S	INCORP	
52-71R1	52	S	08/22/96	
52A73	52	C	04/22/99	
52-74	52	S	11/10/97	
52-75	52	S	04/22/00	
52-75R1	52	S	04/22/00	
52-87	52		NO EFFECT	
52-87R1	52		NO EFFECT	
52-88	52		NO EFFECT	
53-32	53		NO EFFECT	
53-32R1	53		NO EFFECT	
53A40	53		NO EFFECT	
53-46	53		NO EFFECT	
53-47	53		NO EFFECT	
53-47R1	53		NO EFFECT	
53-52	53		NO EFFECT	
53-59	53		NO EFFECT	
53-59R1	53		NO EFFECT	
53-60	53		NO EFFECT	
53-67	53		NO EFFECT	
53-67R1	53		NO EFFECT	
53-67R2	53		NO EFFECT	
53-67R3	53		NO EFFECT	

SERVICE BULLETIN	ATA	S/C	INCORPORATION DATE	CUSTOMER ENGINEERING ORDER NUMBER
53-68	51	S	02/10/96	
53-68	53		NO EFFECT	
53-68R1	51	C	INCORP	
53-68R1	53		NO EFFECT	
53-68R2	51	S	08/10/96	
53-68R2	53		NO EFFECT	
53-69	53		NO EFFECT	
53-69R1	53		NO EFFECT	
53-69R2	53		NO EFFECT	
53-69R3	53		NO EFFECT	
53-69R4	53		NO EFFECT	
53-69R5	53		NO EFFECT	
53-69R5	53-		NO EFFECT	
53-78	53		NO EFFECT	
53-78R1	53		NO EFFECT	
53-78R2	53		NO EFFECT	
53A78R3	53		NO EFFECT	
53A78R4	53		NO EFFECT	
53A78R5	53		NO EFFECT	
53-79	55		NO EFFECT	
53-79R1	55		NO EFFECT	
53-79R2	55		NO EFFECT	
53-79R3	55		NO EFFECT	
53-81	53		NO EFFECT	
53-83	53		NO EFFECT	
53-85	53		NO EFFECT	
53-85	55		NO EFFECT	
53A85R1	53		NO EFFECT	
53A85R2	53		NO EFFECT	
53A85R2	55		NO EFFECT	
53A85R3	53		NO EFFECT	
53A85R3	55		NO EFFECT	
53A85R4	53		NO EFFECT	
53A85R4	55		NO EFFECT	
53A87	53		NO EFFECT	
53A87R1	53		NO EFFECT	
53-88	53		NO EFFECT	
53-93	53		NO EFFECT	
53-93R1	53		NO EFFECT	
53-93R2	53		NO EFFECT	
53-94	53		NO EFFECT	
53-94R1	53		NO EFFECT	
53-94R2	53		NO EFFECT	
53A100	53		NO EFFECT	
53A100R1	53		NO EFFECT	
53A105	53		NO EFFECT	
53A106	54		NO EFFECT	
53A113	53		NO EFFECT	

SERVICE BULLETIN	ATA	S/C	INCORPORATION DATE	CUSTOMER ENGINEERING ORDER NUMBER
53-114	53		NO EFFECT	
53-118	53		NO EFFECT	
53A131	53		NO EFFECT	
53A131R1	53		NO EFFECT	
53A147	53		NO EFFECT	
53A193	53		NO EFFECT	
54-15R1	54	S	INCORP	
54-15R2	54	S	INCORP	
54-15R3	54	S	11/10/93	
54-15R4	54	S	11/10/93	
54-50R1	54	S	04/10/98	
54-52	54		NO EFFECT	
54-59	54		NO EFFECT	
54-60	54		NO EFFECT	
54-60R1	54		NO EFFECT	
54-60R2	54		NO EFFECT	
54-61	54		NO EFFECT	
54-61R1	54		NO EFFECT	
54-61R2	54		NO EFFECT	
54A62	54		NO EFFECT	
54A62R1	54		NO EFFECT	
54A62R2	54	S	05/10/95	
54A62R3	54	S	05/10/95	
54A62R4	54	C	08/22/01	
54A62R5	54	C	04/22/03	
54-64	54		NO EFFECT	
54-68	54	S	12/22/95	
54-68R1	54	S	INCORP	
54-69	54	S	04/10/98	
54-69R1	54	C	08/22/01	
54-69R2	54	S	04/22/03	
54-70	54		NO EFFECT	
54-70R1	54		NO EFFECT	
54-71	52	S	04/10/98	
54-71	54	S	08/10/97	
54-72	54	C	04/22/03	
54-74	54		NO EFFECT	
54A74R1	54		NO EFFECT	
54-77	54		NO EFFECT	
54-79	54	C	04/22/01	
54-79R1	54	S	04/22/02	
54-79R2	54	S	04/22/02	
54-80	12	C	08/22/01	
54-80	54	C	08/22/01	
54-80R1	54	S	12/22/02	
54-80R1	57	S	12/22/02	
54-83	54		NO EFFECT	
54-88	54	S	08/22/99	

SERVICE BULLETIN	ATA	S/C	INCORPORATION DATE	CUSTOMER ENGINEERING ORDER NUMBER
54-88R1	54	C	04/22/02	
54-89	54	C	04/22/03	
54-89R1	54		NO EFFECT	
54-89R2	54		NO EFFECT	
54-91	54		NO EFFECT	
54-91R1	54		NO EFFECT	
54-92	54		NO EFFECT	
54-92R1	54		NO EFFECT	
54-95	54		NO EFFECT	
54-98	54	C	08/22/01	
54A101	54		NO EFFECT	
54A101R1	54		NO EFFECT	
54A101R2	12	C	12/22/03	
54A101R2	54	C	12/22/03	
54A101R3	12	C	12/22/03	
54A101R3	54	C	12/22/03	
54A101R4	12	C	12/22/03	
54A101R4	54	C	12/22/03	
54-107	54		NO EFFECT	
54-107R1	54		NO EFFECT	
54-107R2	54		NO EFFECT	
54-108	54		NO EFFECT	
54-109	11	S	04/22/07	
54-109	54	S	04/22/07	
55A7	55		NO EFFECT	
55A7R1	55		NO EFFECT	
55-8	55		NO EFFECT	
55-8R1	55	S	04/10/98	
56-4	56	S	05/10/93	
56A10	56	S	12/22/06	
56A10R1	56	S	04/22/08	
56A10R2	56	S	12/22/09	
57-21R2	57		NO EFFECT	
57-21R3	57		NO EFFECT	
57-21R4	57		NO EFFECT	
57-21R5	57		NO EFFECT	
57-23R2	57		NO EFFECT	
57-29	57		NO EFFECT	
57-29R1	57		NO EFFECT	
57-29R2	57		NO EFFECT	
57-30	57		NO EFFECT	
57-31	57		NO EFFECT	
57-31R1	12	S	02/10/93	
57-31R1	57		NO EFFECT	
57-32	57		NO EFFECT	
57-34	57		NO EFFECT	
57-35	57		NO EFFECT	
57-35R1	57		NO EFFECT	

SERVICE BULLETIN	ATA	S/C	INCORPORATION DATE	CUSTOMER ENGINEERING ORDER NUMBER
57-36	57		NO EFFECT	
57-37	57		NO EFFECT	
57A38	57		NO EFFECT	
57A38R1	57		NO EFFECT	
57A38R2	57		NO EFFECT	
57A39	57		NO EFFECT	
57A39R1	57		NO EFFECT	
57-39R2	57		NO EFFECT	
57A39R3	57		NO EFFECT	
57-40	57		NO EFFECT	
57-41	57		NO EFFECT	
57-41R1	57		NO EFFECT	
57-43	57		NO EFFECT	
57-43R1	57		NO EFFECT	
57-43R2	57		NO EFFECT	
57-43R3	57		NO EFFECT	
57A47	57		NO EFFECT	
57A47R1	57		NO EFFECT	
57-52	57		NO EFFECT	
57-52R1	57		NO EFFECT	
57-53R1	54	S	08/10/98	
57-53R1	57		NO EFFECT	
57-53R2	57		NO EFFECT	
57A54	57		NO EFFECT	
57A54R1	57		NO EFFECT	
57A54R2	57		NO EFFECT	
57A54R3	57		NO EFFECT	
57A57	57		NO EFFECT	
57A57R1	57		NO EFFECT	
57A57R2	57		NO EFFECT	
57A58	57		NO EFFECT	
57A58R1	57		NO EFFECT	
57A58R2	57		NO EFFECT	
57A60	28	C	08/22/03	
57A60R1	12	C	03/22/03	
57A60R1	28	C	03/22/03	
57A60R2	27	C	04/22/03	
57A60R2	28	C	04/22/03	
57A60R2	57	C	04/22/03	
57-61	57		NO EFFECT	
57-62	57		NO EFFECT	
57-62R1	57		NO EFFECT	
57-63	54	C	08/22/01	
57-63R1	54	S	08/22/01	
57A66	57	C	12/22/01	
57A66R1	57		NO EFFECT	
57A66R2	57		NO EFFECT	
57A66R3	57	C	12/22/03	

SERVICE BULLETIN	ATA	S/C	INCORPORATION DATE	CUSTOMER ENGINEERING ORDER NUMBER
57-68R1	12	S	12/22/02	
57-68R1	28	S	12/22/02	
57-69	27	S	04/22/00	
57-69	57		NO EFFECT	
57-69R1	27	C	12/22/03	
57-69R1	57	C	12/22/03	
57A76	57		NO EFFECT	
57A76R1	57		NO EFFECT	
57A76R2	57		NO EFFECT	
57-77	57	C	08/22/04	
57-88	27	S	04/22/05	
57-89	27	S	04/22/05	
57-92	57		NO EFFECT	
57-92R1	57		NO EFFECT	
57A94	57		NO EFFECT	
57A94R1	57		NO EFFECT	
57A97	57		NO EFFECT	
57A97R1	57		NO EFFECT	
57A100	57		NO EFFECT	
57A100R1	57		NO EFFECT	
57A101	57		NO EFFECT	
57A102	57		NO EFFECT	
57A102R1	28		NO EFFECT	
57A102R1	57		NO EFFECT	
57-104	57	S	08/22/07	
71-40	71	C	11/10/93	
71-40R1	71	S	08/22/92	
71-48	71	S	04/22/08	
71A49R1	71		NO EFFECT	
71A49R2	71	S	04/22/05	
71-55R1	71		NO EFFECT	
71-58	71		NO EFFECT	
71-60	71		NO EFFECT	
71-65	71		NO EFFECT	
71-65R1	71		NO EFFECT	
71-66	71		NO EFFECT	
71-68	71		NO EFFECT	
71-68R1	71		NO EFFECT	
71-70	26	S	11/10/93	
71-70	71		NO EFFECT	
71-70	79	S	11/10/93	
71-71	71		NO EFFECT	
71-71R1	71		NO EFFECT	
71-74	71	C	04/22/99	
71-74R1	71	S	04/10/98	
71-75	71	S	02/10/95	
71-76	71		NO EFFECT	
71-77	71		NO EFFECT	

SERVICE BULLETIN	ATA	S/C	INCORPORATION DATE	CUSTOMER ENGINEERING ORDER NUMBER
71-80R2	79	S	05/10/97	
71-80R3	79	S	05/10/97	
71-80R4	79	S	04/22/99	
71-83	71		NO EFFECT	
71A87	71		NO EFFECT	
71-92	71		NO EFFECT	
71-92R1	71		NO EFFECT	
71-94	71		NO EFFECT	
71-95	71		NO EFFECT	
71-102	71		NO EFFECT	
71-104	71		NO EFFECT	
71-108	71		NO EFFECT	
71-109	71	S	12/22/03	
71-109	73	S	12/22/03	
71-117	22	S	08/22/04	
71-118	22	S	12/22/04	
71-118	31	S	12/22/04	
71-118	34	S	12/22/04	
71-118R1	22	S	12/22/05	
71-118R1	31	S	12/22/05	
71-118R1	34	S	12/22/05	
72-11	72		NO EFFECT	
72A34	72		NO EFFECT	
72A34R1	72		NO EFFECT	
72-37	22	S	12/22/99	
72-37	71	S	12/22/99	
72-37R1	22	S	12/22/99	
72-37R1	71	S	12/22/99	
72-38	71	S	12/22/99	
72-38R1	71	S	04/22/00	
72A50	72		NO EFFECT	
72A50R1	72		NO EFFECT	
72A50R2	72		NO EFFECT	
72-54	72		NO EFFECT	
73-32	73	S	02/10/92	
73-32R1	73	S	02/10/93	
73-32R2	73	S	INCORP	
73A33R1	73		NO EFFECT	
73-35	73		NO EFFECT	
73-36	73		NO EFFECT	
73-37	71		NO EFFECT	
73-37	73		NO EFFECT	
73-41R1	73	C	12/10/98	
73-44	73	S	05/10/95	
73-44	74	S	05/10/95	
73-44R1	73	C	12/10/98	
73-44R1	74	C	12/10/98	
73-44R2	73	C	04/22/01	

SERVICE BULLETIN	ATA	S/C	INCORPORATION DATE	CUSTOMER ENGINEERING ORDER NUMBER
73-44R2	74	C	04/22/01	
73A49	73		NO EFFECT	
73A49R1	73		NO EFFECT	
73A49R2	73		NO EFFECT	
73A49R3	73		NO EFFECT	
73A49R4	73		NO EFFECT	
73A49R5	73		NO EFFECT	
73-51	73		NO EFFECT	
73-51R1	73		NO EFFECT	
73-51R2	73		NO EFFECT	
75-9R2	73	S	11/10/91	
75-9R2	75	S	11/10/91	
75-9R2	77	S	08/10/90	
75-11	71		NO EFFECT	
75-11	75		NO EFFECT	
76-24	71	C	02/10/93	
76-24	73	C	02/10/93	
76-24	76	C	02/10/93	
76-26	31	C	05/10/96	
76-26	73	C	05/10/96	
76-26	76		NO EFFECT	
76-26R1	31	S	INCORP	
76-26R1	73	S	INCORP	
76-26R1	76		NO EFFECT	
76-30	71	S	INCORP	
76-30	73	S	INCORP	
76-30	76		NO EFFECT	
76-30	77	S	02/10/94	
76-30R1	71	S	INCORP	
76-30R1	73	S	INCORP	
76-30R1	76		NO EFFECT	
76-30R1	77	S	02/10/94	
76-30R2	71	C	02/10/93	
76-30R2	73	C	02/10/93	
76-30R2	76		NO EFFECT	
76-30R2	77	C	02/10/94	
76-31	76		NO EFFECT	
76-31	78	C	02/10/94	
76-31R1	76		NO EFFECT	
76-31R1	78	C	02/10/94	
76-31R2	76		NO EFFECT	
76-31R2	78	C	02/10/94	
76A40	73		NO EFFECT	
77-7	77		NO EFFECT	
77-13	71	C	08/10/92	
77-13	77	C	11/10/93	
77-13R1	71	S	INCORP	
77-13R1	72	S	05/10/92	

SERVICE BULLETIN	ATA	S/C	INCORPORATION DATE	CUSTOMER ENGINEERING ORDER NUMBER
77-13R1	77	S	05/10/92	
77-16	77	S	08/10/91	
77-17	77		NO EFFECT	
77-25	77	S	04/22/02	
78-46	78	C	INCORP	
78-46R1	78	S	11/10/92	
78-46R2	78	S	INCORP	
78-51	32	C	INCORP	
78-51	78	C	INCORP	
78-51R1	32	S	12/22/92	
78-51R1	78	S	12/22/92	
78-62	11	C	08/22/02	
78-62	22	C	08/22/02	
78-62	27	C	08/22/02	
78-62	30	C	08/22/02	
78-62	32	C	08/22/02	
78-62	78	C	08/22/02	
78-62R1	11	S	05/10/93	
78-62R1	22	S	08/10/93	
78-62R1	22	S	05/10/93	
78-62R1	27	S	INCORP	
78-62R1	30	S	INCORP	
78-62R1	32	S	INCORP	
78-62R1	34	S	08/10/93	
78-62R1	78	S	INCORP	
78-62R2	11	S	05/10/93	
78-62R2	22	S	08/10/93	
78-62R2	22	S	05/10/93	
78-62R2	27	S	INCORP	
78-62R2	30	S	INCORP	
78-62R2	32	S	INCORP	
78-62R2	34	S	08/10/93	
78-62R2	78	S	INCORP	
78-62R3	11	S	05/10/93	
78-62R3	22	S	08/10/93	
78-62R3	22	S	05/10/93	
78-62R3	27	S	INCORP	
78-62R3	30	S	INCORP	
78-62R3	32	S	INCORP	
78-62R3	34	S	08/10/93	
78-62R3	78	S	INCORP	
78-62R3	78	S	08/10/94	
78-62R4	11	C	11/10/95	
78-62R4	12	C	11/10/95	
78-62R4	22	C	11/10/95	
78-62R4	22	C	02/10/96	
78-62R4	27	C	11/10/95	
78-62R4	30	C	05/10/96	

SERVICE BULLETIN	ATA	S/C	INCORPORATION DATE	CUSTOMER ENGINEERING ORDER NUMBER
78-62R4	32	C	11/10/95	
78-62R4	32	C	05/10/96	
78-62R4	34	C	11/10/95	
78-62R4	78	C	05/10/96	
78-62R5	12	C	11/10/95	
78-62R5	22	C	11/10/95	
78-62R5	22	C	02/10/96	
78-62R5	27	C	11/10/95	
78-62R5	30	C	05/10/96	
78-62R5	32	C	11/10/95	
78-62R5	32	C	05/10/96	
78-62R5	34	C	11/10/95	
78-62R5	78	C	05/10/96	
78-69	78		NO EFFECT	
78-69R1	78		NO EFFECT	
78A72R1	78		NO EFFECT	
78A79	78	C	12/22/97	
78A79R1	78	S	08/10/97	
78A79R2	78	C	04/22/03	
78A79R3	78	S	04/22/05	
78A80	78		NO EFFECT	
78A80R1	78		NO EFFECT	
78A80R2	78		NO EFFECT	
78A80R3	71	C	08/22/03	
78A80R3	78	C	08/22/03	
78-83R1	78		NO EFFECT	
78-83R2	78		NO EFFECT	
78A90	78		NO EFFECT	
78A90R1	78		NO EFFECT	
78A90R2	78		NO EFFECT	
78A90R3	78		NO EFFECT	
78A90R4	H71	S	08/22/06	
78A90R4	H78	S	08/22/06	
78A91	78		NO EFFECT	
78A91R1	78		NO EFFECT	
78A91R2	H71	S	08/22/06	
78A91R2	H78	S	08/22/06	
78-98	H78		NO EFFECT	
78-98	N78		NO EFFECT	
78-98	P78		NO EFFECT	
79-11	11	C	08/10/91	
79-11	79		NO EFFECT	
79-14	79	S	INCORP	
79-14R1	79	C	11/10/92	
79-15	12	C	04/22/91	
79-15	79	C	04/22/91	
79-18	79	S	05/10/94	
79-19	79	S	11/10/94	

SERVICE BULLETIN	ATA	S/C	INCORPORATION DATE	CUSTOMER ENGINEERING ORDER NUMBER
79-19R1	79	S	11/10/95	
79-19R2	79	S	11/10/95	
80-3	80		NO EFFECT	
80-7	71		NO EFFECT	
80-7	80		NO EFFECT	
80-7R1	71		NO EFFECT	
80-7R1	80		NO EFFECT	
80-7R2	71		NO EFFECT	
80-7R2	80		NO EFFECT	
80-7R3	71		NO EFFECT	
80-7R3	80		NO EFFECT	

LIST OF CHAPTERS

LIST OF CHAPTERS