COMPONENT MAINTENANCE MANUAL WITH ILLUSTRATED PARTS LIST

GROUND SERVICE SWING CHECK VALVE ASSEMBLY

PART NUMBER 69-2914–0, –13, –15, –20, –24, –25

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COMPONENT MAINTENANCE MANUAL

Revision No. 7
Jul 01/2009

To: All holders of GROUND SERVICE SWING CHECK VALVE ASSEMBLY 21-23-20.

Attached is the current revision to this COMPONENT MAINTENANCE MANUAL

The COMPONENT MAINTENANCE MANUAL is furnished either as a printed manual, on microfilm, or digital products, or any combination of the three. This revision replaces all previous microfilm cartridges or digital products. All microfilm and digital products are reissued with all obsolete data deleted and all updated pages added.

For printed manuals, changes are indicated on 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, i.e. changes to the document structure and/or page layout), or D (Deleted). Each page in the LEP is identified by Chapter-Section-Subject number, page number and page date.

Pages replaced or made obsolete by this revision should be removed and destroyed.

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Location of Change	Description of Change
21-23-20	
REPAIR-GENERAL	Changed consumable from ''lubricant, D50081'' to ''solid film lubricant, D50081''
REPAIR 1-1	Changed consumable from ''lubricant, D50081'' to ''solid film lubricant, D50081''

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A = Added, R = Revised, D = Deleted, O = Overflow

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COMPONENT MAINTENANCE MANUAL

TEMPORARY REVISION AND SERVICE BULLETIN RECORD

BOEING SERVICE BULLETIN	BOEING TEMPORARY REVISION	OTHER DIRECTIVE	DATE OF INCORPORATION INTO MANUAL

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

Revision		Filed	
Number	Date	Date	Initials

Revision		Filed	
Number	Date	Date	Initials

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Temporary Revision		Inserted		Removed	
Number	Date	Date	Initials	Date	Initials

Temporary Revision		Inserted		Removed	
Date	Initials	Number	Date	Date	Initials

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INTRODUCTION

1. General

A. The instructions in this manual supply the data necessary to do the maintenance functions together with the test, fault isolation, repair, and replacement of the defective parts.

B. This manual is divided into different parts:

(1) Title Page

(2) Transmittal Letter

(3) Highlights

(4) List of Effective Pages

(5) Table of Contents

(6) Temporary Revision & Service Bulletin Record

(7) Record of Revisions

(8) Record of Temporary Revisions

(9) Introduction

(10) Procedures & IPL Sections

C. Components that can be repaired have a different repair number for each specified repair. To find the repair number location of a component, look in the Repair-General procedure at the beginning of the REPAIR section. The Repair-General procedure also has an explanation of the True Position Dimension symbols used.

D. All dimensions, measures, quantities and weights included are in English units. When metric equivalents are given they will be in the parentheses that follow the English units.

E. The introduction to the Illustrated Parts List (IPL) shows how the IPL data is used.

F. Design changes, optional parts, configuration differences and Service Bulletin modifications may cause different part numbers. These part numbers are identified in the IPL with an alphabetical letter which is added to the end of the basic item number. This new item number is referred to as an alpha-variant. Throughout the manual, IPL basic item number references also apply to alpha-variants unless shown differently.

G. The tool reference numbers found in the individual procedures and in the Special Tools, Fixtures, and Equipment section are used to identify if a tool is a standard tool (STD-XXXX), a commercial tool (COM-XXXX), or a Special Tool (SPL-XXXX). This reference number is also used to distinguish between tools with similar names in the same procedure. These reference numbers are for use in the documentation only. They are not to be used for ordering tools.

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GROUND SERVICE SWING CHECK VALVE ASSEMBLY - DESCRIPTION AND OPERATION

1. Description

A. The ground service swing check valve assembly is a circular, dome-shaped unit which is installed in the main conditioned air inlet duct. The valve assembly has a flapper, hinges and a spring. The flapper is a riveted assembly of a pressure-retaining dish, a flange to make it rigid, and a ring.

2. Operation

A. Air from the ground service cart pushes the swing check valve open, to let conditioned air into the airplane while the airplane is parked.

3. Leading Particulars (Approximate)

A. Diameter – 9 inches

B. Thickness – 1.5 inches

C. Weight – 1 pound

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DISASSEMBLY

1. **General**
   A. This procedure has the data to disassemble the ground service swing check valve assembly.
   B. Disassemble this component only as necessary to complete fault isolation, determine the serviceability of parts, perform required repairs, and restore the unit to serviceable condition.
2. **Disassembly**
   A. Procedure
      (1) Standard industry practices are sufficient to disassemble this component.

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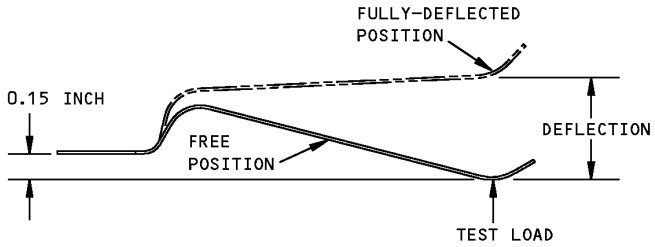
CHECK

1. **General**
   A. This procedure has the data necessary to find defects in the material of the specified parts.
   B. Refer to IPL Figure 1 for item numbers.
2. **Check**
   A. Procedure
      (1) Examine all parts for obvious defects in accordance with standard industry practices.
      (2) Do a check of the strength of spring (25, 25A) as shown in CHECK, Figure 501.
      (3) Do a check of the strength of the spring (25B) as shown in CHECK, Figure 502.



PART NUMBER	TEST LOAD (POUNDS)	DEFLECTION (INCHES)
66-3157	0.54	0.090-0.110
	3.25	0.590-0.610
66-3157-1	0.54	0.078-0.098
	3.25	0.590-0.610

Spring Check Details
Figure 501

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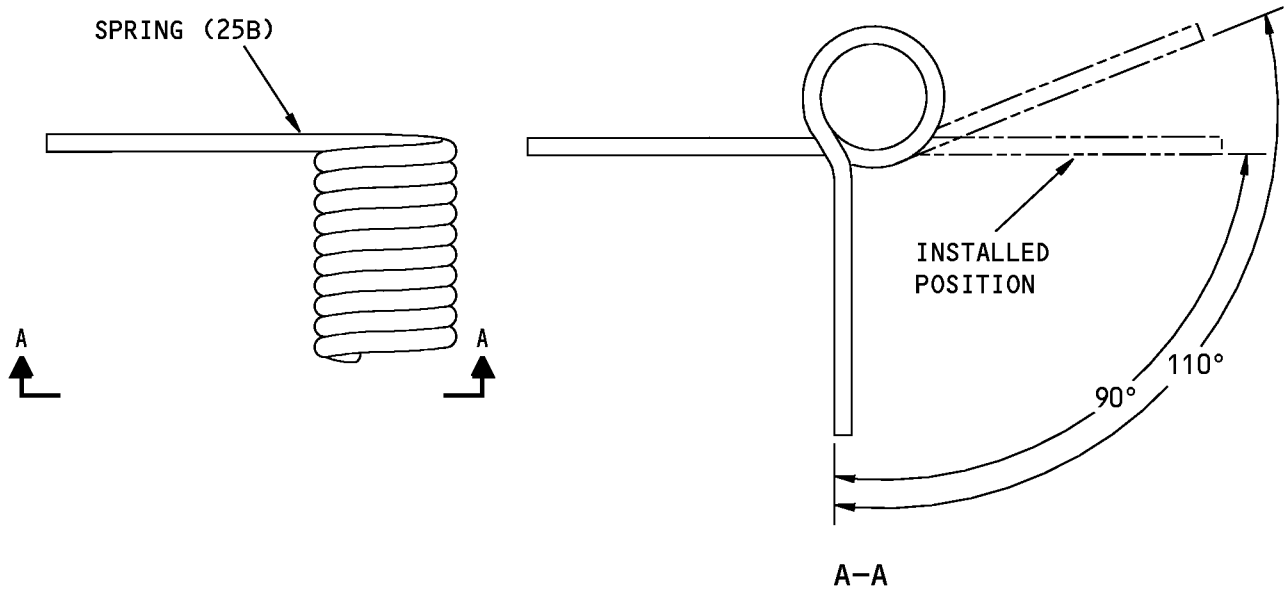

TEST DEFLECTION (DEGREES) (FROM FREE POSITION)	ROTATIONAL MOMENT LIMITS (POUND-INCHES)
90.0°	0.62–0.76
110.0°	0.77–0.94
270°	1

1 MAXIMUM ANGULAR ROTATION WITHOUT A PERMANENT SET

ITEM NUMBERS REFER TO IPL FIG. 1

ALL DIMENSIONS ARE IN INCHES

66-3157-2 Spring Check
Figure 502

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REPAIR

1. Content

A. Repair, refinish and replacement procedures are included in separate sections as follows:

Table 601:

P/N	NAME	REPAIR
—	MISCELLANEOUS PARTS REFINISH	1-1

2. Standard Practices

A. Refer to the following standard practices, as applicable, for details of procedures in individual repairs.

(1) SOPM 20-30-02 Stripping of Protective Finishes

(2) SOPM 20-30-03 General Cleaning Procedures

(3) SOPM 20-41-01 Decoding Table for Boeing Finish Codes

(4) SOPM 20-43-01 Chromic Acid Anodizing

(5) SOPM 20-43-03 Alodizing

(6) SOPM 20-50-08 Application of Bonded Solid Film Lubricant

(7) SOPM 20-60-02 Finishing Materials

(8) SOPM 20-60-03 Lubricants

3. Materials

NOTE: Equivalent substitutes may be used.

A. Primer – BMS 10-11, type 1 primer, C00259 (SOPM 20-60-02)

B. Lubricant – BMS 3-8 (Replaces BMS 3-3) solid film lubricant, D50081 (SOPM 20-60-03)

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MISCELLANEOUS PARTS REFINISH - REPAIR 1-1

1. General

A. This repair has the data that is necessary to refinish the parts which are not given in the specific repairs.

B. Refer to REPAIR-GENERAL, Paragraph 2. for the Standard Overhaul Practices Manual (SOPM) subjects identified in this procedure.

C. Refer to REPAIR-GENERAL, Paragraph 3. for the description of the Material codes identified in this procedure.

D. Refer to IPL Figure 1 for item numbers.

2. Refinish

A. Repair of parts listed in REPAIR 1-1, Table 601 consists of restoration of the original finish.

Table 601: Refinish Details

IPL FIG. & ITEM	MATERIAL	FINISH
Fig. 1 Hinge pin (5)	AN250-4-200	Passivate (F-17.09). Apply solid film lubricant, D50081 (F-19.10).
Hinge pin (30)	AN250-3-200	Passivate (F-17.09). Apply solid film lubricant, D50081 (F-19.10).
Hinge half (10,10A, 10C,20,20B)	MS20257YC5-300	Cadmium plate (F-16.01) per QQ-P-416,I type 2, class 2 and apply primer, C00259 per SOPM 20-41-02.
Hinge half (35,35A, 35B,38,39,45,45A,45B)	MS20257XC4-300	Cadmium plate (F-16.01) per QQ-P-416,I type 2, class 2 and apply primer, C00259 per SOPM 20-41-02.
Hinge half (20A)	MS20257XC5-300	Passivate (F-17.09) and apply primer, C00259 (F-20.02).
Spring (25,25A,25B)	AISI 301 CRES	No finish.
Ring (55)	CLAD 2024-T3 QQ-A-362 T3-Temper	Chemical treat or chromic acid anodize and apply primer, C00259 (SRF-2.115).
Dish (60)	CLAD 2024-T3 QQ-A-250/5 T3-Temper OPT: CLAD 2024-0 QQ-A-250/5 HT TR-T42	Chemical treat or chromic acid anodize and apply primer, C00259 (F-18.06).
Flange (65)	CLAD 2024-O QQ-A-362 O Temper HT TR 42	Chemical treat and apply primer, C00259 (F-18.06) per SOPM 20-41-02.

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ASSEMBLY

1. General

A. This procedure contains the data necessary to assemble the ground service swing check valve assembly.

B. Refer to the Standard Overhaul Practices Manual (SOPM) for the SOPM subjects identified in this procedure.

C. Refer to IPL Figure 1 for item numbers.

2. Assembly (IPL Figure 1)

A. References

Reference	Title
SOPM 20-60-04	MISCELLANEOUS MATERIALS

B. Procedure

(1) Use standard industry practices for assembly of this component, and also the special instructions in ASSEMBLY, Paragraph 2.B.(2) and ASSEMBLY, Paragraph 2.B.(3).

(2) Crimp the ends of the hinges (10, 20, 35, 45) to hold the pin (5, 30) in position.

(3) Apply a continuous pressure layer of sealant BMS 5-95 (SOPM 20-60-04) on the mating surfaces of pressure retaining ring (55) and pressure retaining dish (60) before you install rivets (50).

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ILLUSTRATED PARTS LIST

1. Introduction

A. The Illustrated Parts List (IPL) contains an illustration and a list of component parts you can repair or replace. The Illustrated Parts Catalog (IPC) shows how to use the Boeing part number system.

B. This shows how parts are related: The relation of each item to its next higher assembly (NHA) is shown in the NOMENCLATURE column. Use the indenture system that follows:

1 2 3 4 5 6 7

. Assembly

. Attaching parts for assembly

. . Detail parts for assembly

. . Subassembly

. . Attaching parts for subassembly

. . . Detail parts for subassembly

. . . Sub-subassembly

. . . Attaching parts for subassembly

. . . . . Details parts for sub-subassembly

Detail Installation Parts (Included only if installation parts may be sent to the shop as part of assembly)

C. Each top assembly is given one use code letter (A, B, C, etc.) in the USAGE CODE column. All subsequent component parts in the list can have one or more of the use code letters to show effectivity to top assemblies. A component part without a use code applies to all top assemblies.

D. An alphabetical letter is added after the item number for optional parts, parts changed by a Service Bulletin, configuration differences (except left-handed and right-handed parts), last engineering releases, and parts added between item numbers in a sequence. The alphabetical letter will not be shown on the illustration for equivalent parts of the same part number.

E. Color-coded parts are identified with a single digit alpha following the dash number or with ''SP'' suffix. If the ''SP'' suffix is used, it represents consolidation of all color codes applicable for a given usage which are not separately listed. Orders for color-coded parts should include the registry number of the airplane for which the parts are ordered.

F. If a part number is 15 characters long but will not fit in the part number column, the part number will be displayed with a ''~'' at the end of the line and will be continued on the next line. The ''~'' denotes that the part number continues on the next line.

G. Parts changed by a Service Bulletin are shown by PRE SB XXXX and POST SB XXXX added to the NOMENCLATURE column.

(1) When a new top assembly is added by a Service Bulletin, PRE SB XXXX and POST SB XXXX will be added at the top assembly level only. The configuration differences at the detail part level are shown by use code letters.

(2) When the top assembly part number is not changed by the Service Bulletin, PRE SB XXXX and POST SB XXXX will be added at the detail level.

H. Interchangeable Parts

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Optional (OPT)	The part is optional to and interchangeable with other parts that have the same item number.
Replaces, Replaced by and not interchangeable with (REPLACES, REPLACED BY AND NOT INTCHG/W)	The part replaces and is not interchangeable with the initial part.
Replaces, Replaced by (REPLACES, REPLACED BY)	The part replaces and is interchangeable with, or is an alternative to, the initial part.

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NUMERICAL INDEX

PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
66-3157		1	25	1
66-3157-1		1	25A	1
66-3157-2		1	25B	1
69-2914-0		1	1	RF
69-2914-1		1	65	1
69-2914-13		1	1B	RF
69-2914-14		1	20A	1
69-2914-15		1	1C	RF
69-2914-16		1	20B	1
		1	38	1
69-2914-17		1	10A	1
69-2914-18		1	45A	1
69-2914-19		1	35A	1
69-2914-2		1	60	1
69-2914-20		1	1D	RF
69-2914-22		1	35B	1
69-2914-23		1	45B	1
69-2914-24		1	1E	RF
69-2914-25		1	1F	RF
69-2914-26		1	39	1
69-2914-27		1	36	1
69-2914-28		1	10C	1
69-2914-3		1	55	1
69-2914-4		1	20	1
69-2914-5		1	10	2
69-2914-6		1	45	1
69-2914-7		1	35	1
69-2914-8		1	5	1
69-2914-9		1	30	1
BACR15BA4ADC		1	50B	26
		1	52	4
MS20426D4		1	50	26
		1	52A	4
MS20426D5		1	40C	3

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PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
MS20427M4		1	37	3
		1	40D	3
MS20470D4		1	15B	3
MS206154MP		1	15C	3
NAS1399D4		1	52B	4

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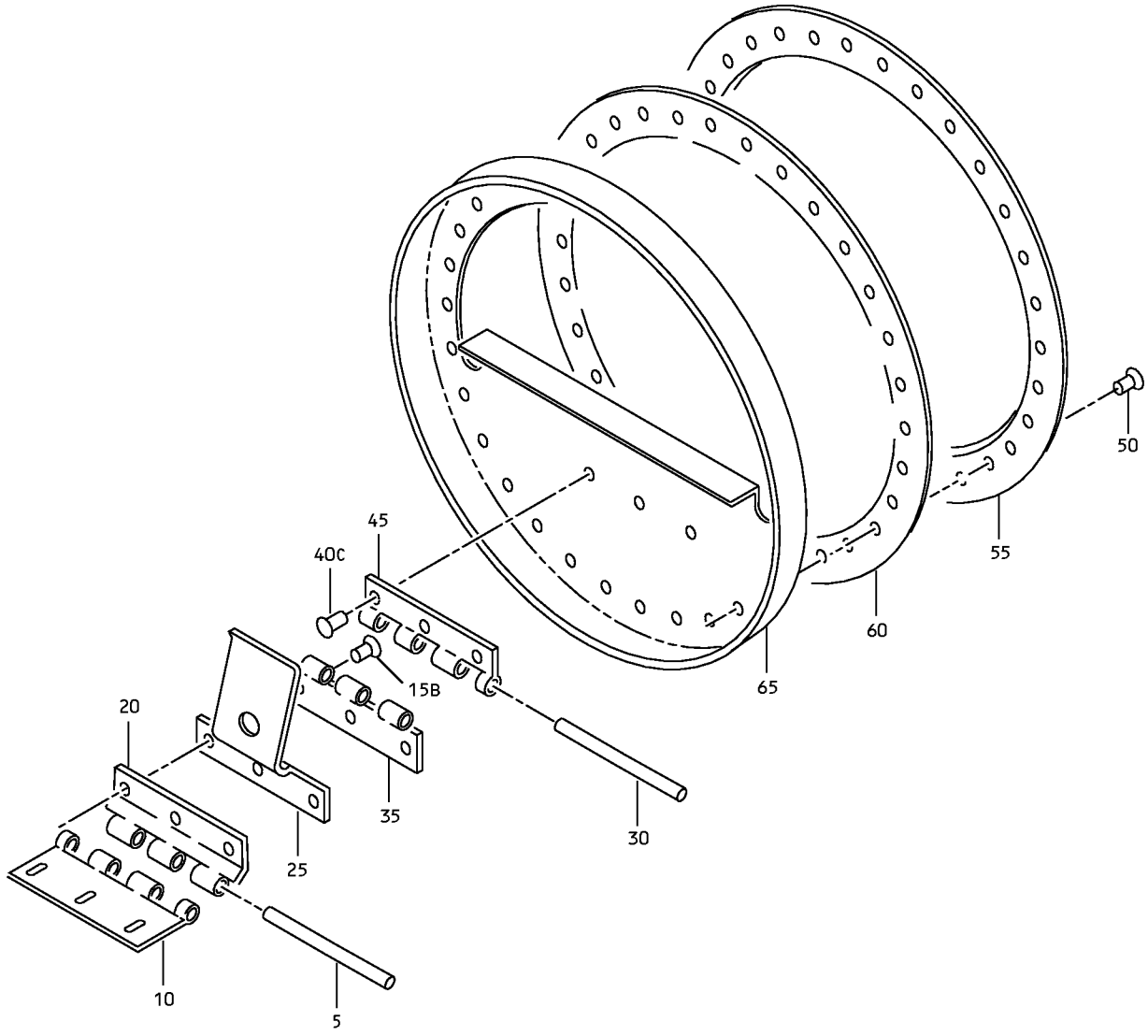

Ground Service Swing Check Valve Assembly
IPL Figure 1

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FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
1–					
1	69-2914-0		VALVE ASSY-GROUND SERVICE SWING CHECK	A	RF
–1A	69-2914		DELETED	A	RF
–1B	69-2914-13		VALVE ASSY-GROUND SERVICE SWING CHECK	B	RF
–1C	69-2914-15		VALVE ASSY-GROUND SERVICE SWING CHECK	C	RF
–1D	69-2914-20		VALVE ASSY-GROUND SERVICE SWING CHECK	D	RF
–1E	69-2914-24		VALVE ASSY-GROUND SERVICE SWING CHECK	E	RF
–1F	69-2914-25		VALVE ASSY-GROUND SERVICE SWING CHECK	F	RF
5	69-2914-8		. PIN-HINGE		1
10	69-2914-5		. HINGE HALF	A, B	2
–10A	69-2914-17		. HINGE HALF	C, D	1
–10B	69-2914-21		DELETED	E, F	1
–10C	69-2914-28		. HINGE HALF	E, F	1
–15	MS20426D5		DELETED	A	3
–15A	MS20427M4		DELETED	B, C	3
15B	MS20470D4		. RIVET	A, B	3
–15C	MS206154MP		. RIVET	C-F	3
20	69-2914-4		. HINGE HALF	A	1
–20A	69-2914-14		. HINGE HALF	B	1
–20B	69-2914-16		. HINGE HALF	C, D	1
25	66-3157		. SPRING	A	1
–25A	66-3157-1		. SPRING	B, C, D	1
–25B	66-3157-2		. SPRING	E, F	1
30	69-2914-9		. PIN-HINGE		1
35	69-2914-7		. HINGE HALF	A, B	1
–35A	69-2914-19		. HINGE HALF	C, D	1
–35B	69-2914-22		. HINGE (OPT ITEM 36)	E, F	1

–Item not Illustrated

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FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
1–					
–36	69-2914-27		. HINGE ASSEMBLY (OPT ITEM 35B)	E, F	1
–37	MS20427M4		. . RIVET	E, F	3
–38	69-2914-16		. . HINGE HALF	E, F	1
–39	69-2914-26		. . HINGE HALF	E, F	1
–40	MS20470D4		DELETED	A, B	3
–40A	MS20470D4		DELETED	C, D	3
–40B	MS206154MP		DELETED	C, D	3
40C	MS20426D5		. RIVET	A	3
–40D	MS20427M4		. RIVET	B-D	3
45	69-2914-6		. HINGE HALF	A, B	1
–45A	69-2914-18		. HINGE HALF	C, D	1
–45B	69-2914-23		. HINGE HALF	E, F	1
50	MS20426D4		. RIVET	A-D	26
–50A	BACR15BA4AD		DELETED	E, F	30
–50B	BACR15BA4ADC		. RIVET	E, F	26
–52	BACR15BA4ADC		. RIVET	E, F	4
–52A	MS20426D4		. RIVET	A-D	4
–52B	NAS1399D4		. RIVET	A-D	4
55	69-2914-3		. RING-PRESSURE RETAINING		1
60	69-2914-2		. DISH-PRESSURE RETAINING		1
65	69-2914-1		. FLANGE-VALVE STIFFENING		1

–Item not Illustrated

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