MAIN LANDING GEAR POP-UP UPPER SURFACE DOOR ASSEMBLY

PART NUMBERS 113T1645-17 THRU -24

COMPONENT MAINTENANCE MANUAL
WITH
ILLUSTRATED PARTS LIST

M21523

REVISION RECORD

- Retain this record in front of manual. On receipt of revision, insert revised pages in the manual, and enter revision number, date inserted and initial.

REVISION NUMBER	REVISION DATE	DATE FILED	BY	REVISION NUMBER	REVISION DATE	DATE FILED	BY

TEMPORARY REVISION AND SERVICE BULLETIN RECORD

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

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1001	NOV 01/01	01
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1003	NOV 01/01	01
1004	NOV 01/01	01
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1007	NOV 01/01	01
1008	NOV 01/01	01

* = REVISED, ADDED OR DELETED

TABLE OF CONTENTS

INTRODUCTION

The instructions in this manual provide the information necessary to perform maintenance functions ranging from simple checks and replacement to complete shop-type repair.

This manual is divided into separate sections:

1. Title Page
2. Record of Revisions
3. Temporary Revision & Service Bulletin Record
4. List of Effective Pages
5. Table of Contents
6. Introduction
7. Procedures & IPL Sections

Refer to the Table of Contents for the page location of applicable sections.

The beginning of the REPAIR section includes a list of the separate repairs, a list of applicable standard Boeing practices, and an explanation of the True Position Dimensioning symbols used.

An explanation of the use of the Illustrated Parts List is provided in the Introduction to that section.

All weights and measurements used in the manual are in English units, unless otherwise stated. When metric equivalents are given they will be in parentheses following the English units.

Design changes, optional parts, configuration differences and Service Bulletin modifications create alternate part numbers. These are identified in the Illustrated Parts List (IPL) by adding an alphabetical character to the basic item number. The resulting item number is called an alpha-variant. Throughout the manual, IPL basic item number references also apply to alpha-variants unless otherwise indicated.

MAIN LANDING GEAR POP-UP UPPER SURFACE DOOR ASSEMBLY

DESCRIPTION AND OPERATION

1. Description

   A. The main landing gear pop-up door assembly has a bonded aluminum panel with a rub strip, pivot and actuator arms and a seal depresssor.

2. Operation

   A. The main landing gear pop-up door is attached by hinges to the upper wing trailing edge surface. The pop-up door lets the main gear trunnion actuator arm go outside the wing upper surface as the gear extends and retracts. The actuator arm pushes against a rub strip on the door to open the door. A spring-loaded torque tube moves the pop-up door back to the usual, closed position.

3. Leading Particulars (Approximate)

   A. Length -- 25 inches

   B. Width -- 10 inches

   C. Height -- 3 inches

   D. Weight -- 10 pounds

DISASSEMBLY

1. General

   A. This procedure has the data necessary to disassembly the main landing gear pop-up door.

   B. Disassemble this component sufficiently to isolate the defects, do the necessary repairs, and put the component back to a serviceable condition.

   C. Refer to IPL Fig. 1 for item numbers.

2. Disassembly

   A. Use standard industry practices.

   B. Make a note of the thickness and location of shims (40, 45, 50) to help during assembly.

CLEANING

1. General

   A. This procedure has the data necessary to clean the parts of the main landing gear pop-up door.

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

   C. Refer to IPL Fig. 1 for item numbers.

2. Cleaning

   A. References

      (1) SOPM 20-30-03, General Cleaning Procedures

   B. Procedure

      (1) Clean all parts by standard industry practices and the instructions in SOPM 20-30-03.

CHECK

1. General

   A. The procedure has the data necessary to find defects in the parts of the main landing gear pop-up door.

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

   C. Refer to IPL Fig. 1 for item numbers.

2. Check

   A. References

      (1) SOPM 20-20-02, Penetrant Methods of Inspection

   B. Procedure

      (1) Examin all parts for defects by standard industry practices. Do the penetrant checks only if the visual check finds possible defects.

      (2) Penetrant check (SOPM 20-20-02): arms (50).

REPAIR - GENERAL

1. General

   A. Instructions for repair, refinish, and replacement of the specified subassembly parts are included in each REPAIR with applicable:

PART NUMBER	NAME	REPAIR
---	REFINISH OF OTHER PARTS	1-1
113T1904	PANEL	2-1
113T1927	ARM, PIVOT	3-1, 3-2
113T1929	ARM	4-1, 4-2

2. Dimensioning Symobls

   A. Standard True Position Dimensioning Symbols used in the applicable repair procedures are shown in SOPM 20-00-00.

REFINISH OF OTHER PARTS - REPAIR 1-1

1. General

   A. This procedure had the data necessary to refinish the parts which are not given in the specified repairs.

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

   C. Refer to IPL Fig. 1 for item numbers.

2. Refinish of Other Parts

   A. General

      (1) Instructions for the repair of the parts listed in Table 601 are for repair of the initial finish.

   B. Consumable Materials

      NOTE: Equivalent substitutes can be used.

      (1) C00259 Primer -- BMS 10-11, type 1 (SOPM 20-60-02)

   C. References

      (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 20-60-02, Finishing Materials

D. Procedure

IPL FIG. & ITEM	MATERIAL	FINISH
IPL Fig. 1 Seal depressor (15)	Al alloy	Chemical treat and apply BMS 10-11, type 1 primer (F-18.06)

Refinish Details
Table 601

PANEL ASSEMBLY - REPAIR 2-1

113T1904-35, -36, -39, -40

1. General

   A. This repair has instructions for the replacement of parts of the panel assembly.

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

   C. Refer to IPL Fig. 1 for item numbers.

2. Rub Strip Replacement (Fig. 601)

   A. Consumable Materials

      NOTE: Equivalent substitutes can be used.

      (1) A00028 Adhesive -- Type 70 (SOPM 20-50-12)

      (2) A50004 Adhesive -- Type 117 (SOPM 20-50-12)

   B. References

      (1) SOPM 20-50-12, Application of Adhesives

   C. Procedure

      (1) Remove the old rubstrip.

      (2) Abrasive clean the mating surface of the panel with 180 grit or finer aluminum oxide.

      (3) Drill drain holes in the replacement rubstrip to agree with the holes in the panel, as shown.

      (4) Install the rubstrip with Type 70 or 117 adhesive.

PIVOT ARM ASSEMBLY - REPAIR 3-1

113T1927-1, -2

1. General

   A. This procedure has the data necessary to replace the bushings in the pivot arm assembly (200).

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

   C. Refer to IPL Fig. 1 for item numbers.

2. Bushing Replacement

   A. References

      (1) SOPM 20-50-03, Bearing and Bushing Replacement

      (2) SOPM 20-50-19, General Sealing

   B. Procedure (Fig. 601)

      (1) Remove the old bushings from the pivot arm assembly.

      (2) If you find defects on the arm, refer to REPAIR 3-2 for repair instructions.

      (3) Install replacement bushings by the shrink-fit procedure (SOPM 20-50-03).

      (4) Seal the bushings (SOPM 20-50-19).

ARM - REPAIR 3-2

113T1927-3, -4

1. General

A. This procedure has the data necessary to repair and refinish the steering plate (203).

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

C. Refer to IPL Fig. 1 for item numbers.

D. General repair details:

(1) Material: Aluminum alloy

(2) Shot peen: Shot size 0.023-0.055
Intensity 0.006A2
Coverage 2.0

2. Arm Repair

A. Consumable Materials

NOTE: Equivalent material can be used.

(1) C00259 Primer -- BMS 10-11 (SOPM 20-60-02)

B. References

(1) SOPM 20-10-03, Shot Peening

(2) SOPM 20-30-02, Stripping of Protective Finishes

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

(4) SOPM 20-60-02, Finishing Materials

C. Procedure

(1) Chromic acid anodize and apply BMS 10-11, type 1 primer (F-18.13), but no primer in the hole.

ACTUATOR ARM - REPAIR 4-1

113t1929-5, -6, -11, -12

1. General

   A. This procedure has the data necessary to replace the filler block on the actuator arm assembly (200).

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

   C. Refer to IPL Fig. 1 for item numbers.

2. Filler Block Replacement

   A. Consumable Materials

      NOTE: Equivalent materials can be used.

      (1) C00259 Primer -- BMS 10-1, Type 1 (SOPM 20-60-02)

   B. References

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

      (2) SOPM 20-60-02, Finishing Materials

   C. Procedure (Fig. 601)

      (1) Remove the rivets and the old block from the arm assembly.

      (2) If you find defects on the arm, refer to REPAIR 4-2 for repair instructions.

      (3) Install a replacement block with new rivets.

      (4) If necessary, touch up bare surfaces (F-21.12).

ARM - REPAIR 4-2

113T1929-1 thru -4, -9, -10

1. General

A. This procedure has the data necessary to repair and refinish the arm (203).

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

C. Refer to IPL Fig. 1 for item numbers.

D. General repair details:

(1) Material: Aluminum alloy

(2) Shot peen: Shot size 0.023-0.055
Intensity 0.006A2
Coverage 2.0

2. Arm

A. Consumable Materials

NOTE: Equivalent material can be used.

(1) C00259 Primer -- BMS 10-11 (SOPM 20-60-02)

B. References

(1) SOPM 20-10-03, Shot Peening

(2) SOPM 20-30-02, Stripping of Protective Finishes

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

(4) SOPM 20-60-02, Finishing Materials

C. Procedure

(1) Chromic acid anodize and apply BMS 10-11, Type 1 primer (F-18.13), but no primer in the hole.

ASSEMBLY

1. General

   A. This procedure has the data necessary to assemble the main landing gear pop-up door.

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

   C. Refer to IPL Fig. 1 for item numbers.

2. Assemble

   A. Consumable Materials

      NOTE: Equivalent materials can be used.

      (1) C00259 Primer -- BMS 10-11, Type 1 (SOPM 20-60-02)

   B. References

      (1) SOPM 20-60-02, Finishing Materials

   C. Procedure

      (1) Use standard industry practices and these steps.

      (2) When you install shims (40, 45, 50), use the notes you made during disassembly. If you use replacement shims, adjust their thickness as necessary to get a maximum gap of 0.003 inch. Apply BMS 10-11, Type 1 primer to the shims after you remove laminations.

ILLUSTRATED PARTS LIST

1. This section lists and illustrates replaceable or repairable component parts. The Illustrated Parts Catalog contains a complete explanation of the Boeing part numbering system.

2. Indentures show parts relationships as follows:

    Assembly
      Detail Parts for Assembly
      Subassembly
      Attaching Parts for Subassembly
        Detail Parts for Subassembly

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

3. One use code letter (A, B, C, etc.) is assigned in the EFF CODE column for each variation of top assembly. All listed parts are used on all top assemblies except when limitations are shown by use code letter opposite individual part entries.

4. Letter suffixes (alpha-variants) are added to item numbers for optional parts, Service Bulletin modification parts, configuration differences (Except left- and right-hand parts), product improvement parts, and parts added between two sequential item numbers. The alpha-variant is not shown on illustrations when appearance and location of all variants of the part is the same.

5. Service Bulletin modifications are shown by the notations PRE SB XXXX and POST SB XXXX.

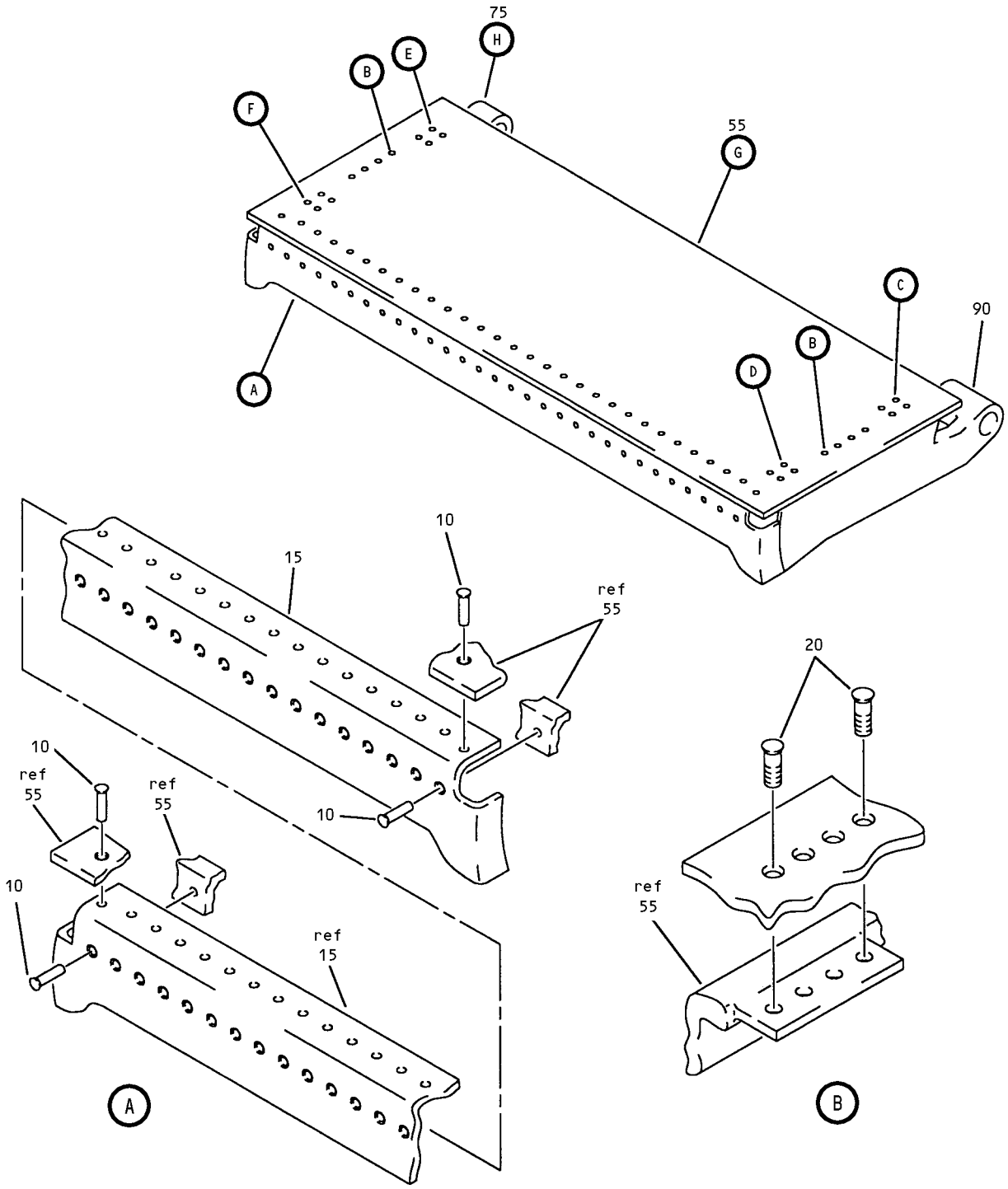
    A. When a new top assembly part number is assigned by Service Bulletin, the notations appear at the top assembly level only. The configuration differences at detail part level are then shown by use code letter.

    B. When the top assembly part number is not changed by the Service Bulletin, the notations appear at the detail part level.

6. Parts Interchangeability

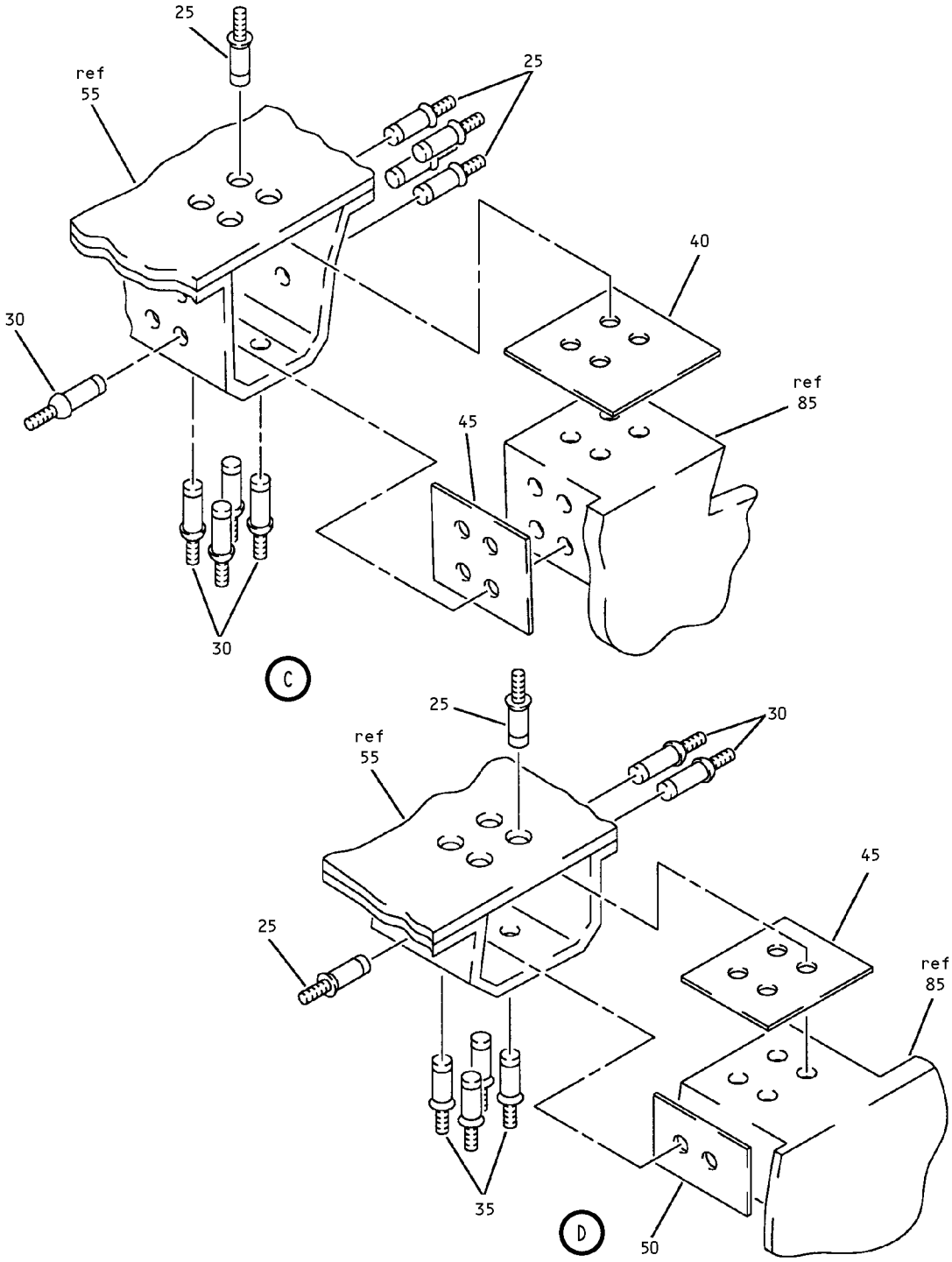
Optional (OPT)	The parts are optional to and interchangeable with other parts having the same item number.
Supersedes, Superseded By (SUPSDS, SUPSD BY)	The part supersedes and is not interchangeable with the original part.
Replaces, Replaced By (REPLS, REPLD BY)	The part replaces and is interchangeable with, or is an alternate to, the original part.

PART NUMBER	AIRLINE PART NO.	FIG.	ITEM	TTL REQ
BACB30NW5K		1	20	8
BACR15BA5DD		1	10	52
BACS40RO6C11F		1	50	1
BACS40RO9C11F		1	40	1
BACS40R10C11F		1	45	2
NAS1398MW5		1	30	20
NAS1399D5A2		1	65	52
NAS1399MW5		1	25	32
NAS1399MW6		1	35	8
113T1645-17		1	1A	RF
113T1645-18		1	5	RF
113T1645-19		1	1B	RF
113T1645-20		1	5A	RF
113T1645-21		1	1C	RF
113T1645-22		1	5B	RF
113T1645-23		1	1D	RF
113T1645-24		1	5C	RF
113T1904-31		1	70	1
113T1904-35		1	55	1
113T1904-36		1	60	1
113T1904-37		1	15	1
113T1927-1		1	75	1
113T1927-10		1	90B	1
113T1927-11		1	85C	1
113T1927-12		1	90C	1
113T1927-2		1	80	1
113T1927-3		1	85	1
113T1927-4		1	90	1
113T1927-5		1	85A	1
113T1927-6		1	90A	1
113T1927-9		1	85B	1



Main Landing Gear Pop-Up Upper Surface Door Assembly
Figure 1 (Sheet 1)

M21568



Main Landing Gear Pop-Up Upper Surface Door Assembly
Figure 1 (Sheet 2)

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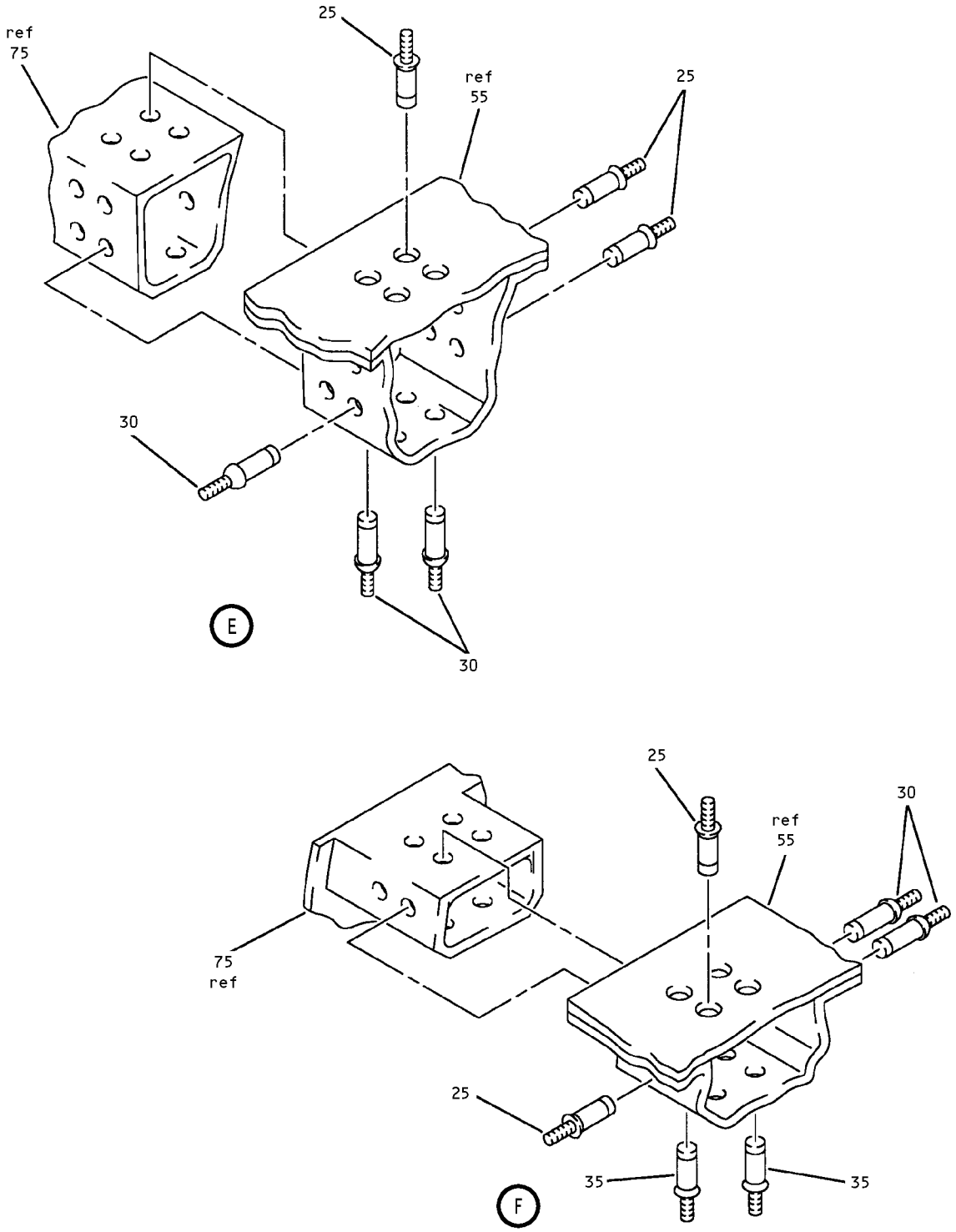
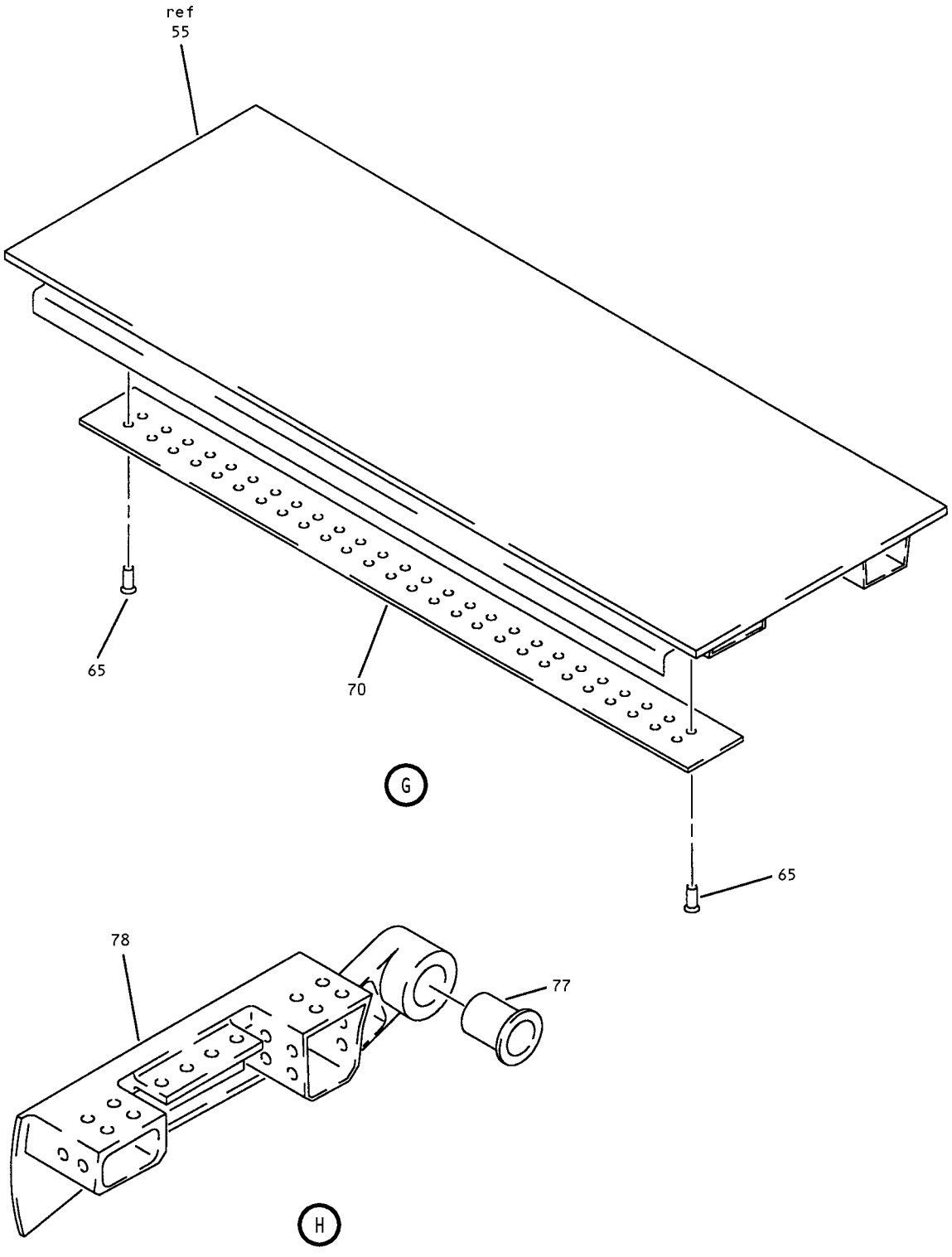


Main Landing Gear Pop-Up Upper Surface Door Assembly
Figure 1 (Sheet 3)

M21664



Main Landing Gear Pop-Up Upper Surface Door Assembly
Figure 1 (Sheet 4)

M21668

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-					
-1A	113T1645-17		DOOR ASSY-MLG POP UP UPR SURFACE FIXED TRAILING EDGE	A	RF
-1B	113T1645-19		DOOR ASSY-MLG POP UP UPR SURFACE FIXED TRAILING EDGE	C	RF
-1C	113T1645-21		DOOR ASSY-MLG POP UP UPR SURFACE FIXED TRAILING EDGE	E	RF
-1D	113T1645-23		DOOR ASSY-MLG POP UP UPR SURFACE FIXED TRAILING EDGE	G	RF
-5	113T1645-18		DOOR ASSY-MLG POP UP UPR SURFACE FIXED TRAILING EDGE	B	RF
-5A	113T1645-20		DOOR ASSY-MLG POP UP UPR SURFACE FIXED TRAILING EDGE	D	RF
-5B	113T1645-22		DOOR ASSY-MLG POP UP UPR SURFACE FIXED TRAILING EDGE	F	RF
-5C	113T1645-24		DOOR ASSY-MLG POP UP UPR SURFACE FIXED TRAILING EDGE	H	RF
10	BACR15BA5DD		.RIVET- (SIZE DETERMINE ON INST)		52
15	113T1904-37		.DEPRESSOR-SEAL		1
20	BACB30NW5K		.BOLT- (SIZE DETERMINE ON INST)		8
25	NAS1399MW5		.RIVET- (SIZE DETERMINE ON INST)		32
30	NAS1398MW5		.RIVET- (SIZE DETERMINE ON INST)		20
35	NAS1399MW6		.RIVET- (SIZE DETERMINE ON INST)		8
40	BACS40R09C11F		.SHIM		1
45	BACS40R10C11F		.SHIM		2
50	BACS40R06C11F		.SHIM		1
55	113T1904-35		.PANEL ASSY	A	1
-60	113T1904-36		.PANEL ASSY	B	1

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-					
65	NAS1399D5A2		..RIVET		52
70	113T1904-31		..STRIP-RUBBER (MFD FROM SH NYLON 6/6 PER L-P-410 0.050 IN 2.40 IN 24.00 IN)		1
75	113T1927-1		.ARM-PIVOT	A,C,E,G	1
-80	113T1927-2		.ARM-PIVOT	B,D,F,H	1
85	113T1927-3		.ARM-ACTUATOR (OPT ITEM 85A)	A,E	1
-85A	113T1927-5		.ARM-ACTUATOR (OPT ITEM 85)	A,E	1
-85B	113T1927-9		.ARM-ACTUATOR (OPT ITEM 85C)	C,G	1
-85C	113T1927-11		.ARM-ACTUATOR (OPT ITEM 85B)	C,G	1
-90	113T1927-4		.ARM-ACTUATOR (OPT ITEM 90A)	B,F	1
-90A	113T1927-6		.ARM-ACTUATOR (OPT ITEM 90)	B,F	1
-90B	113T1927-10		.ARM-ACTUATOR (OPT ITEM 90C)	D,H	1
-90C	113T1927-12		.ARM-ACTUATOR (OPT ITEM 90B)	D,H	1

- Item Not Illustrated