

TO: ALL HOLDERS OF LARGE CARGO DOOR COMPONENTS COMPONENT MAINTENANCE MANUAL 52-34-25

REVISION NO. 2 DATED JUL 01/03

HIGHLIGHTS

Pages which have been added or revised are outlined below together with the highlights of the revision. Remove and insert the affected pages as listed and enter Revision No. and date on the Record of Revision Sheet.

CHAPTER/SECTION

AND PAGE NO. DESCRIPTION OF CHANGE

Changed the header block to identify that this CMM is ALL PAGES

for the Large Cargo Door instead of the Forward Cargo

Door.

TITLE PAGE

Changed the title and part number nomenclature from

"Forward Cargo Door" to "Large Cargo Door."

1004,1008-1011



LARGE CARGO DOOR COMPONENTS

PART NUMBER SEE CONTENTS, PAGE 1

COMPONENT MAINTENANCE MANUAL WITH ILLUSTRATED PARTS LIST



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	ВҮ	REVISION NUMBER	REVISION DATE	DATE FILED	вү

TEMPORARY REVISION AND SERVICE BULLETIN RECORD

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



PAGE	DATE	CODE	PAGE	DATE	CODE
			REPAIR 3-1		
52-34-25				JUL 01/03	01.1
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TITLE PAGE					
		01.1	ILLUSTRATED		
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CONTENTS					
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INTRODUCTION					
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REPAIR 1-1			1		
*601		01.1			
*602	JUL 01/03	01.1			
*603	JUL 01/03	01.1			
*604	JUL 01/03	01.1			
REPAIR 2-1					
*601	JUL 01/03	01.1			
*602	JUL 01/03	01.1			
*603	JUL 01/03	01.1			
*604	JUL 01/03	01.1			

^{* =} REVISED, ADDED OR DELETED



TABLE OF CONTENTS

NOTE: This manual contains overhaul data for various components of the Large Cargo Door Drive System. Functions which cannot be performed by the use of standard industry practices are included in repair instructions for each component.

LARGE CARGO DOOR COMPONENTS

PART NUMBER	NOMENCLATURE	<u>PAGE</u>
	REPAIR GENERAL	601, REPAIR-GEN
258T5004	SHAFT, DRIVE	601, REPAIR 1-1
258Т5005	SHAFT, DRIVE	601, REPAIR 2-1
258Т5021	LINK, SUPPORT	601, REPAIR 3-1
	ILLUSTRATED PART LIST	1001



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
- 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. An asterisked flagnote *[] in place of the page number indicates that no special instructions are provided since the function can be performed using standard industry practices.

The beginning of the REPAIR section includes a list of the separate repairs, and a list of applicable standard Boeing practices.

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.

Jul 01/03



REPAIR - GENERAL

1. Content

A. Each separate repair includes, as applicable, check, repair and refinish instructions.

2. Standard Practices

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

20-10-03	Shot Peening
20-10-04	Grinding of Chrome Plated Parts
20-20-01	Magnetic Particle Inspection
20-20-02	Penetrant Methods of Inspection
20-30-02	Stripping of Protective Finishes
20-41-01	Decoding Table for Boeing Finish Codes
20-41-02	Application of Chemical and Solvent Resistant Finishes
20-42-03	Hard Chrome Plating
20-42-05	Bright Cadmium Plating
20-43-01	Chromic Acid Anodizing
20-50-03	Bearing Installation and Retention
20-43-01	Chromic Acid Anodizing

3. Materials

NOTE: Equivalent substitutes may be used.

- A. Grease -- MIL-G-23827 (Ref 20-60-03)
- B. Sealant -- BMS 5-95 (Ref 20-60-04)
- C. Primer -- BMS 10-11, type 1 (Ref 20-60-02)
- D. Enamel -- BMS 10-11, type 2, color white gloss (BAC 702) (Ref 20-60-02)
- E. Corrosion Preventive Compound -- MIL-C-11796, class 1 (Ref 20-60-02)
- F. Grease -- BMS 3-24 (Ref 20-60-03)



DRIVE SHAFT ASSEMBLY - REPAIR 1-1

258T5004-3

NOTE: Refer to REPAIR-GEN for list of applicable standard practices. Item numbers refer to IPL Fig. 1.

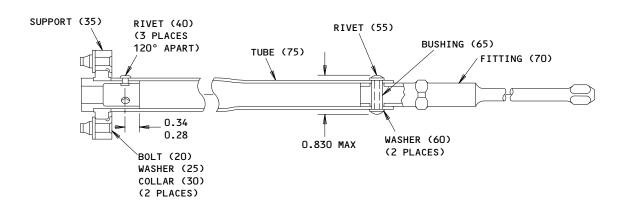
1. Check

- A. Magnetic particle check fittings (45, 70) per 20-20-01.
- Penetrant check fitting (35), tube (75) per 20-20-02.

2. Repair

- A. Parts Replacement (Fig. 601)
 - Remove rivets (40), fitting (35, 45) from tube (75).
 - Remove collars (30), washers (23), bolts (20) and bearing (50) from (2) fitting (35).
 - Remove rivet (55), washers (60), bushing (65) and separate fitting (70) from tube (75).
 - Position fitting (70) on tube (75). Coat bushing (65) with grease, MIL-G-23827, and install bushing, washers (60) and rivet (55) to secure fitting.
 - Install bearing (50) in fitting and install bolts (20), washers (25) and collars (30). Install fitting (35) on fitting (45).
 - Coat faying surfaces of fitting (45) with sealant and install on tube (75). Secure fitting (45) with rivets (40). Install rivets with wet sealant.





ITEM NUMBERS REFER TO IPL FIG. 1
ALL DIMENSIONS ARE IN INCHES

Parts Replacement Figure 601

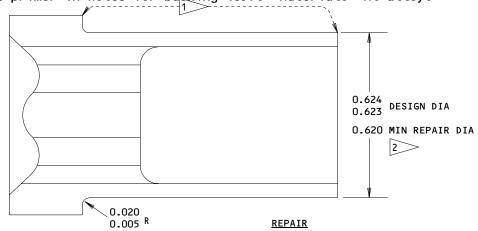
- B. Fitting (45) Bearing Seat Repair (Fig. 602)
 - (1) Machine bearing seat as required, within repair limits shown, to remove defects.
 - (2) Shot peen as indicated.
 - (3) Build up repair surface with chrome plate and grind to design dimension and finish shown.

C. Refinish

- (1) Fitting (35) Chromic acid anodize and apply 1 coat of primer (F-18.13) except omit primer in bore for bearing. Material: Al alloy.
- (2) Fitting (45) -- Fig. 602
- (3) Fitting (70) -- Passivate (F-17.09) all over. Material: 15-5PH CRES, 150-170 ksi.

(4) Tube (75) -- Chemical treat and apply 1 coat of primer (F-18.07) all over and coat interior with corrosion preventive compound (F-19.03).

Omit primer in holes for bushing (65). Material: Al alloy.



REFINISH

PASSIVATE (F-17.09) ALL OVER AND CADMIUM PLATE (F-15.06) AREA INDICATED BY

1 CADMIUM PLATE (F-15.06) THIS SURFACE

BUILD UP WITH CHROME PLATE (F-15.03) AND GRIND TO DESIGN DIMENSION SHOWN. CHROME PLATE RUNOUT 0.00-0.08. NO PLATING ALLOWED IN FILLET RADIUS OR EDGE. CHROME PLATE BEARING INTERFACE AREA ONLY

REF 2

SHOT PEEN: (REF 20-10-03)

0.017-0.046 SHOT SIZE 0.003-0.005A2 INTENSITY

ALL MACHINED SURFACES 125 OR GREATER

BREAK SHARP EDGES 0.008R

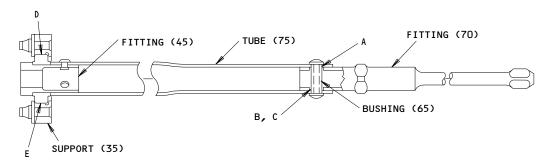
MATERIAL: 15-5PH CRES, 150-170 KSI

ALL DIMENSIONS ARE IN INCHES

Fitting Repair Figure 602

59434

3. <u>Fits and Clearances</u>



		Design Dimension				Service Wear Limit			
Ref Mating Letter Item No.		Dimension		Assembly *[1] Clearance		Dimension		Maximum	
Fig.603	IPL Fig.1	Min	Max	Min	Max	Min	Max	Clearance	
	ID 75	0.2500	0.2520	-0.0010	0.0020		0.2550	0.0040	
A	OD 65	0.2500	0.2510	-0.0010	0.0020	0.2460		0.0040	
В	70 *[2]	0.280	0.300	0.020	0.050		0.259	0.040	
В	OD 65	0.2500	0.2510	0.029	0.030	0.243		0.060	
	70 *[3]	0.251	0.254	0, 0000	0.007		0.259	0.000	
С	OD 65	0.2500	0.2510	0.0000	0.004	0.243		0.008	
	ID 50	0.6245	0.6250	0.0005	0.0020		0.6280	0.0070	
D	OD 45	0.6230	0.6240	0.0005	0.0020	0.6205		0.0040	
_	ID 35	1.1250	1.1265	0.0000	0.0020		1.1290	0.0040	
E	OD 45	1.1245	1.1250	0.0000	0.0020	1.1210		0.0040	

^{*[1]} NEGATIVE VALUES DENOTE INTERFERENCE FIT

Fits and Clearances Figure 603

^{*[2]} SLOT LENGTH

^{*}E33 SLOT WIDTH

ALL DIMENSIONS ARE IN INCHES



DRIVE SHAFT ASSEMBLY - REPAIR 2-1

258T5005-3, -5

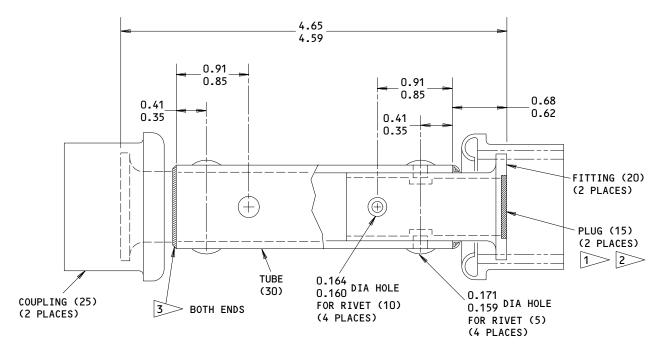
NOTE: Refer to REPAIR-GEN for list of applicable standard practices. Item numbers refer to IPL Fig. 2.

1. Check

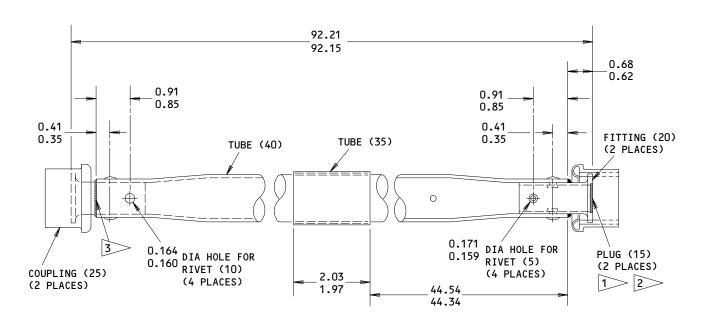
- A. Magnetic particle check fittings (20), couplings (25) per 20-20-01.
- B. Penetrant check tube (30, 40) per 20-20-02.

2. Repair

- A. Parts replacement (Fig. 601)
 - (1) Remove and discard plugs (15).
 - (2) Remove rivets (5, 10) and fittings (20) from tube (30 or 40). Separate couplings (25) from fittings (20).
 - (3) Assemble couplings (25) on fittings (20).
 - Position fittings on tube (30 or 40) at dimensions shown and secure with rivets (5, 10). Install fittings with sealant on faying surfaces and install rivets with sealant.
 - Install plugs (15) into fittings (20). (5)
 - Fillet seal joints between fittings (20) and tube (30 or 40) with (6) sealant.



258T5005-3



DEFORM PLUG UNTIL FLAT UPON INSTALLATION

INSTALL PLUG AFTER FITTINGS ARE INSTALLED

ITEM NUMBERS REFER TO IPL FIG. 2
ALL DIMENSIONS ARE IN INCHES

3 FILLET SEAL WITH SEALANT, BMS 5-95

258T5005-5 Parts Replacement Figure 601

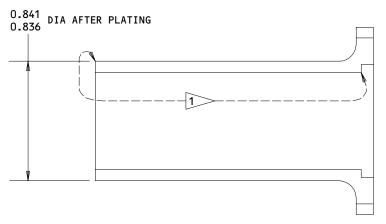
52-34-25
REPAIR 2-1



B. Refinish

- (1) Fitting (20) -- Fig. 602.
- (2) Coupling (25) -- Fig. 603.
- (3) Tube (30, 40) -- Chemical treat and apply 1 coat of primer (F-18.07) all over and apply corrosion preventive compound (F-19.03) to interior surfaces. Omit primer and corrosion preventive compound to 0.842-0.846 inch I.D.. Material: Al alloy.
- Drive shaft assembly (1, 1A) -- Apply 1 coat of enamel (SRF-14.905-702) except omit enamel on splines. On item 1A, apply enamel prior to installation of tube (35).

0.8402 DIA BEFORE PLATING



REFINISH

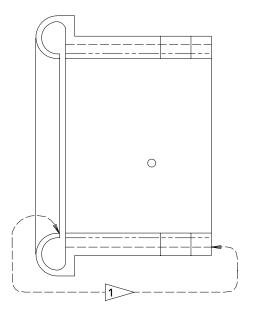
CADMIUM PLATE (F-15.02) ALL OVER AND APPLY PRIMER AS NOTED

1>> APPLY ONE COAT OF PRIMER (F-20.02)

MATERIAL: 4340 STEEL, 150-170 KSI ALL DIMENSIONS ARE IN INCHES

Fitting Refinish Figure 602

LARGE CARGO DOOR COMPONENTS (SEE CONTENTS FOR P/N'S)



REFINISH

CADMIUM PLATE (F-15.02) ALL OVER AND APPLY PRIMER AS NOTED

1 APPLY ONE COAT OF PRIMER (F-20.02) THIS SURFACE ONLY

MATERIAL: 4140 STEEL, 150-170 KSI

Coupling Refinish Figure 603



SUPPORT LINK ASSEMBLY - REPAIR 3-1

258T5021-1

<u>NOTE</u>: Refer to REPAIR-GEN for list of applicable standard practices. For repair of surfaces which may only require stripping and restoration of original finish, refer to REFINISH instruction, Fig. 601. Item numbers refer to IPL Fig. 3.

1. Penetrant check link (10) per 20-20-02.

2. Repair

- A. Bearing (5) Replacement
 - (1) Remove bearing.
 - (2) Install replacement bearing with grease, BMS 3-24 and roller swage per 20-50-03.
- B. Link (10) refinish Chromic acid anodize and apply 1 coat of primer (F-18.13) all over, then apply 1 coat of enamel (SRF-14.905-702). Omit primer and enamel in holes. Material: Al alloy.



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)

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

6. Parts Interchangeability

The parts are optional to and interchangeable Optional (OPT)

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.

LARGE CARGO DOOR COMPONENTS (SEE CONTENTS FOR P/N'S)

VENDORS

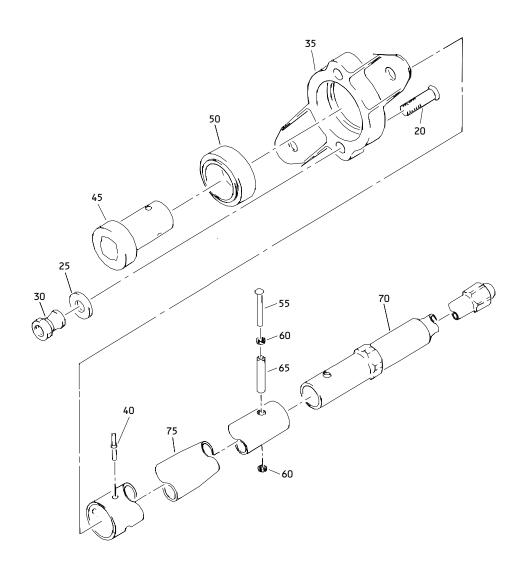
09192	ALUMINUM COMPANY OF AMERICA VERNON WORKS 5151 ALCOA AVENUE VERNON, CALIFORNIA 90058
10630	ANILLO INDUSTRIES, INCORPORATED 2090 NORTH GLASSELL ORANGE, CALIFORNIA 92667
42838	NATIONAL RIVET AND MANUFACTURING COMPANY 1-21 EAST JEFFERSON STREET WAUPUN, WISCONSIN 53963
50294	NMB INC 9730 INDEPENDENCE AVENUE CHATSWORTH, CALIFORNIA 91311
53551	ALLFAST FASTENING SYSTEMS INC 15252 DON JULIAN ROAD PO BOX 3166 CITY OF INDUSTRY, CALIFORNIA 91744
55580	BRILES RIVET CORP 2640 VISTA PACIFIC DRIVE OCEANSIDE, CALIFORNIA 92056
56878	SPS TECHNOLOGIES INC HIGHLAND AVENUE JENKINTOWN, PENNSYLVANIA 19046
73197	HI-SHEAR CORPORATION 2600 SKYPARK DRIVE TORRANCE, CALIFORNIA 90509
73287	HUBBARD, M.D. SPRING CO INC 595 SOUTH LAPEER PO BOX 425 OXFORD, MICHIGAN 48051
77896	REXNORD INC BEARING OPERATION 2400 CURTIS STREET DOWNERS GROVE, ILLINOIS 60515
83086	NEW HAMPSHIRE BALL BEARINGS, INCORPORATED ROUTE 202 PETERBOROUGH, NEW HAMPSHIRE 03458

LARGE CARGO DOOR COMPONENTS (SEE CONTENTS FOR P/N'S)



VENDORS

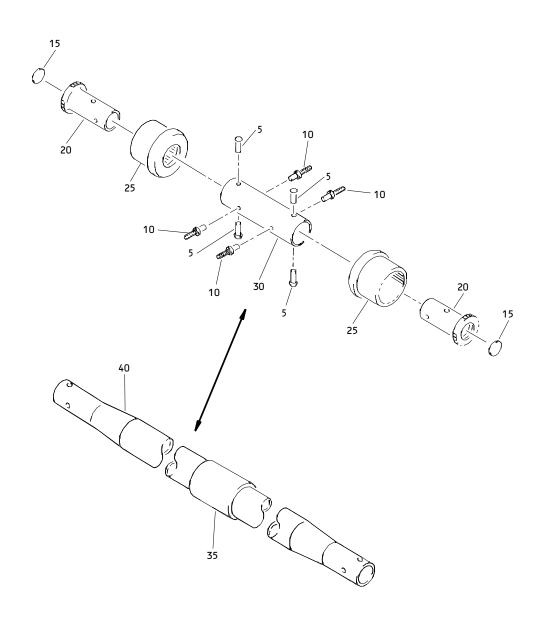
92215 VOI-SHAN DIV OF VSI CORP SUB OF FAIRCHILD INDUSTRIAL INC 8463 HIGUERA STREET CULVER CITY, CALIFORNIA 90230



Manual Drive Large Cargo Door Components Shaft Assembly Figure 1

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-					
_	25975007.7		LARGE CARGO DOOR COMPONENTS		D.F.
−5 −10	258T5004-3 258T5005-3		SHAFT ASSY-MANUAL DRIVE SHAFT ASSY-PWR DRIVE	A B	RF RF
'0	25015005 5		(FOR DETAILS SEE FIG. 2)	5	KI
-10A	258T5005-5		SHAFT ASSY-PWR DRIVE	С	RF
İ			(FOR DETAILS SEE FIG. 2)		
- 15	258T5021-1		LINK ASSY-PWR UNIT SPRT	D	RF
20	 HL505-6-7		(FOR DETAILS SEE FIG. 3)	,	2
20	NE		(V73197)	Α	2
1			(SPEC BACB30HA6R7)		
1			(OPT HL505-6-7		
I			(V92215))		
25	BACW10P136AL		-WASHER-	Α	2
ļ			(V10630) (SPEC BACW10P136AL)		
30	 HL77-6		COLLAR-	Α	2
			(V56878)	,,	_
İ			(SPEC BACC30P6)		
İ			(OPT HL77-6		
I			(V73197))		
ļ			(OPT HL77-6		
ļ			(V92215)) (OPT 66015-6		
ł			(V56878))		
35	258T5022-1		.FITTING-SPRT	Α	1
40	NAS1738E4-2		RIVET	Α	3
45	258T5018-2		.FITTING	Α	1
50	SA10-18B4		-BEARING-	Α	1
1			(V77896)		
55	BACR15BB4AD13		(SPEC BACB10CK10)	,	1
) >>	BACKIOBB4ADIO		RIVET- (V09192)	Α	ı
1			(SPEC BACR15BB4AD13)		
1			(OPT BACR15BB4AD13		
1			(V42838))		
			(OPT_BACR15BB4AD13		
			(V53551))		
1			(OPT BACR15BB4AD13 (V55580))		
			[(1)000011		

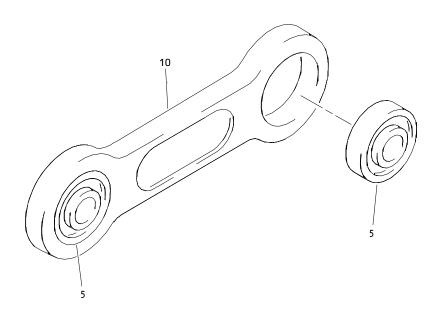
FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01- 60	BACW10P211AL		.WASHER- (V10630) (SPEC BACW10P211AL)	А	2
65	257T3105-19		.BUSHING	Α	1
	258T5017-3		.FITTING	Α	1
75	258T5004-2		TUBE	Α	1



Large Cargo Door Power Drive Shaft Assembly Figure 2

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
02-					
-1	258T5005-3		SHAFT ASSY-LARGE CARGO DOOT PWR DRIVE	Α	RF
-1 A	258T5005-5		SHAFT ASSY-LARGE CARGO DOOR PWR DRIVE	В	RF
5	BACR15BB5AD		_RIVET		4
10	MS90354-0502		_RIVET		4
15	HP750A32		.PLUG-		2
			(V73287)		
20	256T2806-1		.FITTING		2
25	256T2801-1		.COUPLING		2
30	258T5005-4		.TUBE	Α	1
35	258T5005-6		.TUBE-HEAT SHRINK	В	1
40	258T5005-2		.TUBE	В	1

LARGE CARGO DOOR COMPONENTS (SEE CONTENTS FOR P/N'S)



Large Cargo Door Power Unit Support Link Assembly Figure ${\bf 3}$

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
03-					
-1	258T5021-1		LINK ASSY-LARGE CARGO		RF
_			DOOR PWR UNIT SPRT		
5	ADB4V313		BEARING-		2
			(V83086) (OPT ITEM 5A)		
 -5A	нтс4V		.BEARING-		2
			(V50294)		
			(OPT ITEM 5)		
10	258T5021-2		-LINK		1