TO: ALL HOLDERS OF ELEVATOR TAB CONTROL MECHANISM ASSEMBLY OVERHAUL MANUAL, 27-34-01

REVISION NO. 2, DATED JUN 1/94

HIGHLIGHTS

DESCRIPTION OF CHANGE	TOPICS AFFECTED												
	D&O	D/Assy	Cleaning	Insp/Chk	Repair	Assy	F/C	Test	T/Shooting	S/Tools	Storage	IPL	L/Overhaul
Interchanged items 38 and 39 shown in Fig. 4												X	

ELEVATOR TAB CONTROL MECHANISM ASSEMBLY

27-34-01

BOEING P/N 65-45190-3, -5

AIRLINE P/N

THE FOLLOWING DIRECTIVES APPLY TO THIS SUBJECT:

BOEING SERVICE BULLETIN	BOEING TEMPORARY REVISION	OTHER DIRECTIVES	DATE DIRECTIVE INCORPORATED INTO TEXT
		PRR 30917	Aug 15/68
27-1019			Sep 10/71
27-1052			Dec 10/71

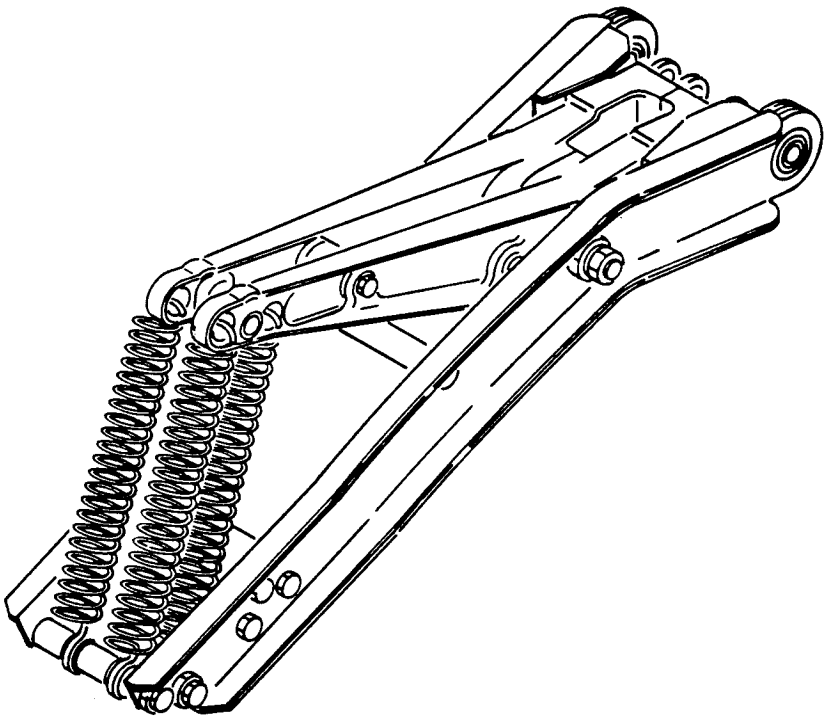
LIST OF EFFECTIVE PAGES

* Indicates pages revised, added or deleted in latest revision
F Indicates foldout pages - print one side only

	PAGE	DATE	PAGE	DATE	PAGE	DATE
	27-34-01					
	T-1	Dec 10/71				
	T-2	BLANK				
*	LEP-1	Jun 1/94				
	LEP-2	BLANK				
	T/C-1	Dec 25/75				
	T/C-2	BLANK				
	1	Aug 15/68				
	2	Aug 15/68				
	3	Aug 15/68				
	4	Dec 25/75				
	5	Dec 25/75				
	6	Dec 25/75				
	7	Dec 25/75				
	8	Aug 15/68				
	9	BLANK				
*	10	Jun 1/94				
	11	Dec 25/75				
	12	Dec 25/75				

TABLE OF CONTENTS

ELEVATOR TAB CONTROL MECHANISM ASSEMBLY
Boeing Part Numbers: 65-45190-3 and -5



Elevator Tab Control Mechanism Assembly
Figure 1

1. DESCRIPTION AND OPERATION

A. Description

(1) The elevator tab control mechanism assembly is composed of a bellcrank assembly, fitting assembly, bolt assembly and frame assembly.

B. Operation

(1) Hydraulic power input to a tab lock actuator causes the bellcrank assembly to rotate about the bolt assembly. Rotary movement of the bellcrank assembly transmits fore and aft movement of the tab pushrod which in turn positions the elevator tab.

C. Leading Particulars

Length -- 18.5 inches (approximately)
Width -- 4.5 inches (approximately)
Height -- 8.0 inches (approximately)
Weight -- 7.39 pounds

2. DISASSEMBLY

A. Procedures (See figure 4.)

(1) Unhook springs (1) from forward ends of bellcrank assemblies (25) and (26), if not previously disconnected during removal from the airplane.

CAUTION: DO NOT ATTEMPT TO UNHOOK SPRING ENDS FROM FORWARD END OF FRAME ASSEMBLIES (38) AND (39) AT THIS POINT TO PREVENT POSSIBLE DEFORMATION OF SPRING HOOKS.

(2) Remove items (2) through (5), bolt assembly (6) and spacers (9).

NOTE: Do not disassemble bolt assembly (6).

(3) Remove springs (1) from spacers (9) by slipping spring hook ends from spacers (9).

(4) Remove nuts (10), washers (11), and bolts (12); withdraw fitting assembly (13).

NOTE: Do not remove bushing (15) from fitting (14) unless replacement is necessary.

(5) Remove items (16) through (19) and bolt assembly (20) to free bellcrank assemblies (25) and (26).

NOTE: Do not disassemble bolt assembly (20).

Do not remove rivets (23) and (24) joining bellcrank assemblies (25) and (26) unless repair or replacement is necessary.

Do not remove bearings (27) and (33), spacer (32), and bushings (28) and (29) from bellcranks (30) and (31) unless repair or replacement is necessary.

(6) Remove nut (34), washer (35), bolt (36) and spacer (37) to separate frame assemblies (38) and (39).

NOTE: Do not remove sleeve (40) and bearings (41) from frame assemblies (42) and (43) unless replacement is necessary.

CAUTION: DISASSEMBLY OF FRAME ASSEMBLIES (42) AND (43) SHOULD NOT BE ATTEMPTED.

3. CLEANING

A. General

(1) Clean all metal parts except bearings with clean solvent, Specification P-D-680.

(2) Remove stubborn accumulations of dirt or foreign matter using a stiff-bristle brush.

(3) Dry parts with clean, lint-free cloth or clean, moisture-free air.

(4) For more information refer to "General Cleaning Procedures," Subject 20-30-03.

B. Bearings

(1) Clean all bearings per "Cleaning and Relubricating Antifriction Bearings," Subject 20-30-01.

4. INSPECTION/CHECK

A. Visual Check

(1) Check all parts for cracks, burrs and corrosion, using strong light and 10-power magnification.

(2) Examine all plated or painted surfaces for blisters and flaking.

(3) Check all threads for cross-threading, stripping and excessive wear.

(4) Check bearings (27), (33) and (41) for roughness, pitting, corrosion and excessive radial or axial play.

(5) Check bearings (27 and 33) and bolt assembly (20) for wear beyond allowable limits shown in figure 3.

B. Special Check (See figure 4.)

(1) If visual examination reveals questionable areas, perform a dye penetrant check on spacer (9), fitting (14), bellcrank assemblies (30 and 31); and a magnetic particle examination on return springs (1).

(2) Check return springs (1) per figure 2.

Index No. Figure 3	Free Length (Inches)	Test Length (Inches)	Allowable Load Limits (Pounds)
(1)	5.5 (approximate, measured to inside of hooks)	8.14	73 to 83

5. REPAIR

A. Materials

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

(2) Adhesive -- BMS 5-29, type II (20-60-04)

(3) Methyl Ethyl Ketone -- TT-M-261 (20-60-01)

B. Repair

(1) Repair minor defects in accordance with standard industry practices.

(2) Ref 20-10-01 for applicable instructions for repair of high strength steel parts (180 ksi and above)

C. Refinish (Fig. 4)

NOTE: Refer to 20-30-02 for striping of protective finishes and to 20-41-01 for explanation of F and SRF finish codes.

(1) Fitting (14), bellcrank (30, 31) -- Alodize and apply one coat primer BMS 10-11, type 1 (SRF-2.30). Material: Al Alloy.

(2) Spring (1) -- Cadmium plate and apply one coat primer BMS 10-11, type 1 (SRF-1.92). Material: Spring steel per QQ-W-470.

(3) Spacer (9) -- Cadmium plate (Fl.1926). Material: Aluminum bronze rod, QQ-B-679 Cond 1.

D. Replacement

(1) and (2) Deleted.

(3) Bolt assemblies (6, 20) -- Bond components together per 20-50-12 using BMS 5-29, type II adhesive.

(4) Bushing (15) -- Remove old bushing. Install new bushing with BMS 10-11, type 1 primer on faying surfaces of bushing and housing and assemble while primer is wet.

(5) Bearings (27, 33), spacer (32), bushings (28, 29):

(a) Drill out rivets (23, 24) to separate bell crank assemblies (25, 26) and remove spacer (32). Use care to avoid enlarging rivet holes.

(b) Press out old bearing (27 or 33). Apply primer to faying surfaces of new bearing and housing. Install new bearing and roller swage per 20-50-03.

(c) Press out old bushing (28 or 29). Apply primer to faying surfaces of new bushing and housing. Install new bushing while primer is wet and stake per 20-50-03.

(d) Clean and check condition of rivet holes in bellcranks (30, 31). Insert spacer (32) in place between bellcrank assemblies (30, 31). Position bellcranks and install new rivets (23, 24) with wet primer.

(6) Bearing (41) -- Cut out swaged portion of sleeve (40) and press out old bearing. Apply primer to faying surfaces of new sleeve, bearing and housing. Install new bearing and secure by roller swaging sleeve per 20-50-03.

6. ASSEMBLY (Fig. 4)

A. Position frame assemblies (38, 39) and spacer (37), and install bolt (36), washer (35) and nut (34).

B. Install bellcrank assemblies (25, 26) bolt assembly (20), and nuts and washers (16 thru 19). Tighten nut (18) to 450-500 lb-in. Tighten nut (16) to 350-400 lb-in.

CAUTION: DO NOT ATTEMPT TO RESET TORQUE VALUE OF NUT (18) AFTER APPLICATION OF TIGHTENING TORQUE TO NUT (16).

C. Install fitting assembly (13), bolts (12), washers (11) and nuts (10).

D. Attach closed-loop end of springs (1) to spacers (9).

E. Install spacers (9), bolt assemblies (6) and nuts and washers (2 thru 5). Tighten nut (4) to 110-150 lb-in. Tighten nut (2) to 75-105 lb-in.

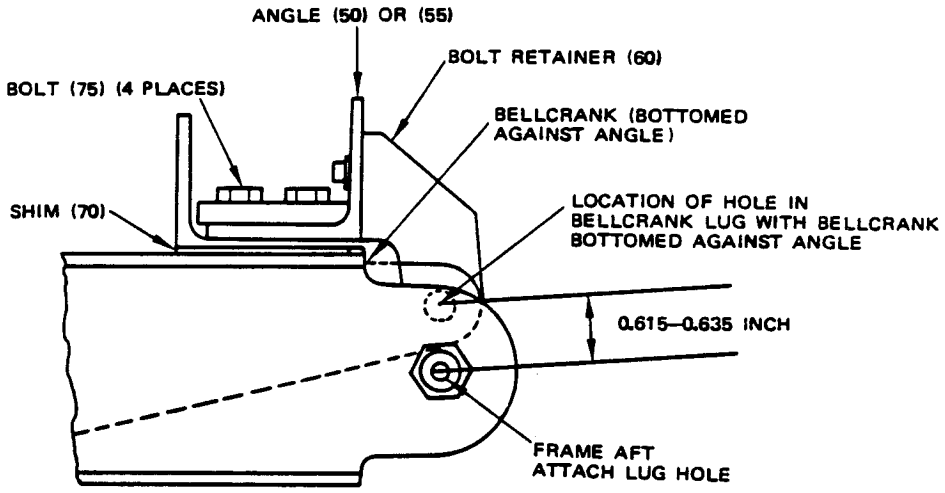
CAUTION: DO NOT ATTEMPT TO RESET TORQUE VALUE OF NUTS (4) AFTER APPLICATION OF TIGHTENING TORQUE TO NUTS (2).

NOTE: Do not hook open-loop end of return springs (1) to bellcrank assemblies (25) and (26). This step will be done on airplane installation.

F. Install parts (50 thru 85).

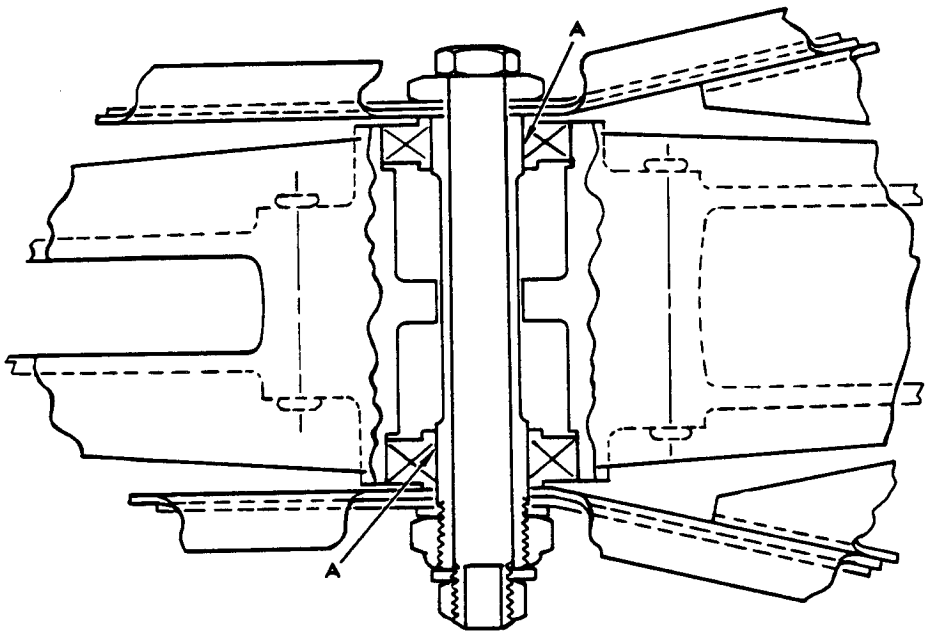
G. Position end of bellcrank assemblies (25, 26) against angle (50) or (55) and measure distance between centerline of holes in bellcrank lugs and centerline of holes in frames (42, 43) (Fig. 2A).

H. Adjust shims on both frames to obtain dimension of 0.615-0.635 inch. Apply one coat of primer, BMS 10-11, type 1, to shims after delaminating.



Bellcrank Stop Adjustment
Figure 2A

7. FITS AND CLEARANCES



		Design Limits				Service Wear Limits		
Ref. Letter Fig. 3	Mating Index No. Fig. 4	Dimension (inches)		Assembly Clearance (inches)		Dimension Limits (inches)		Maximum Allowable Clearance (inch)
		Min.	Max.	Min.	Max.	Min.	Max.	
A	ID 27,33	0.7495	0.7500	0.0005	0.0020	0.7476	0.7530	0.0040
	OD 20	0.7480	0.7490					

Fits and Clearances
Figure 3

8. TESTING

A. Functional Test (See figure 4.)

(1) Manually operate bellcrank assemblies several times to determine freedom of movement. No binding must exist at any time.

9. TROUBLE SHOOTING

A. Trouble after overhaul (See figure 4.)

Trouble	Possible Cause	Correction
Binding	Rough bellcrank bearings	Replace bearings

10. STORAGE INSTRUCTIONS

A. Procedures

(1) Wrap assembly entirely in vapor barrier paper and seal securely.

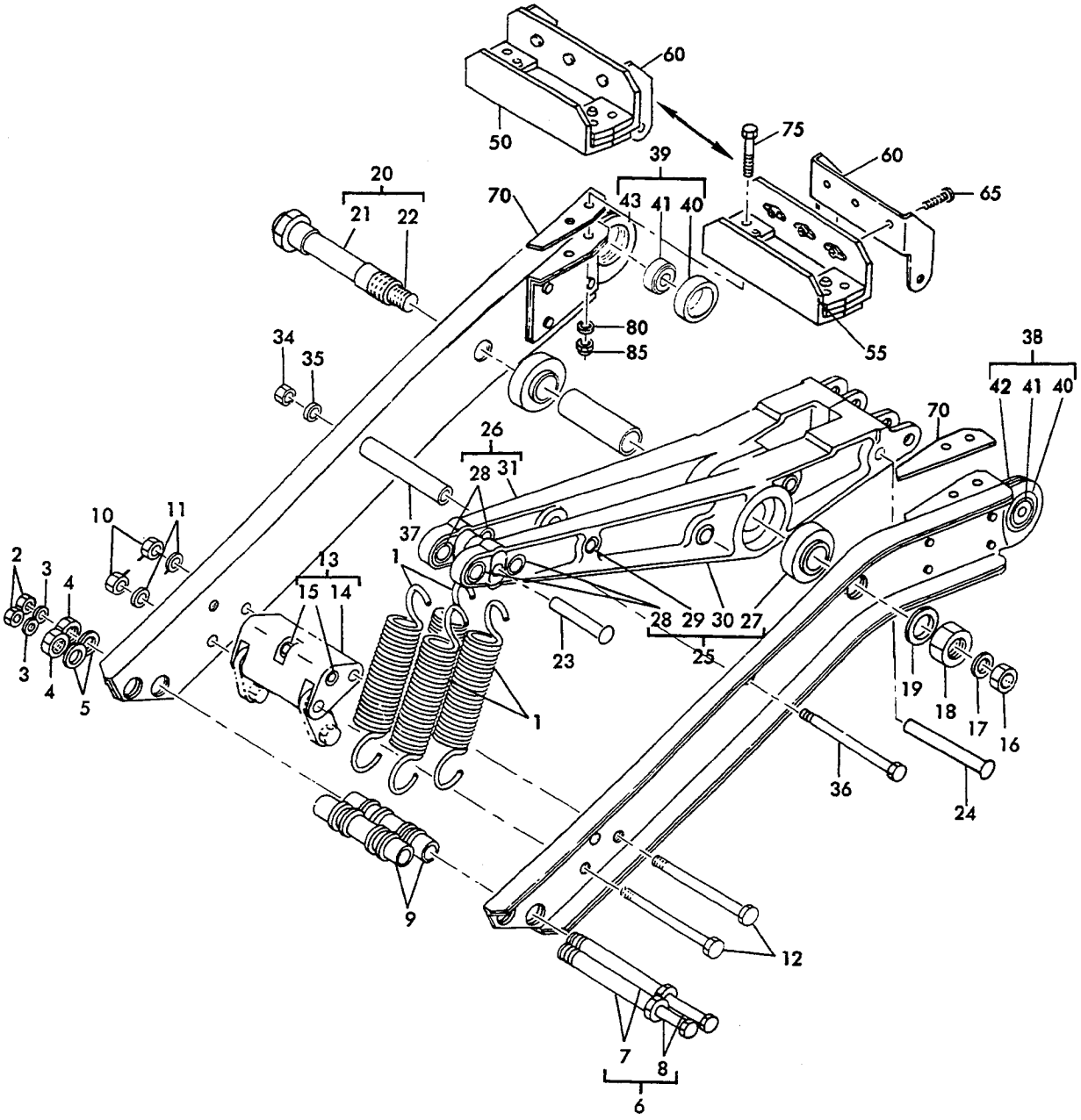
(2) Tag assembly for identity, overhaul and test date.

(3) For further information, refer to "Temporary Protective Coatings," Subject 20-44-02.

11. SPECIAL TOOLS, FIXTURES, AND EQUIPMENT

A. None

12. ILLUSTRATED PARTS LIST



Elevator Tab Control Mechanism Assembly
Figure 4

FIG. & ITEM NO.	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USE CODE	QTY PER ASSY
4-					
	65-45190-3		MECHANISM ASSY, ELEVATOR TAB CONTROL	A	
	65-45190-5		MECHANISM ASSY, ELEVATOR TAB CONTROL (SB 27-1019)	B	
1	69-50936-1		. SPRING		4
2	BACN10JC5		. NUT (REPLS NAS679A5)		2
3	AN960-516L		. WASHER		2
4	BACN10JC7		. NUT (REPLS NAS679A7)		2
5	AN960-716		. WASHER		2
6	69-43401-1		. BOLT ASSY		2
7	69-38918-2		. . BOLT		2
8	BACB30NE5-62		. . BOLT (REPLS NAS1105-62)		2
9	69-43403-2		. SPACER		2
10	BACN10JC4		. NUT (REPLS NAS679A4W)		2
11	AN960-416		. WASHER		2
12	BACB30NE4-52		. BOLT (REPLS NAS1104-52)		2
13	69-38792-3		. FITTING ASSY		1
13	69-38792-1		. FITTING ASSY (OPT)		1
14	69-38792-2		. . FITTING (USED ON 69-38792-1)		1
15	NAS76-4-110A		. . BUSHING (USED ON 69-38792-1)		2
16	BACN10JC7		. NUT (REPLS NAS679A7)		1
17	AN960-716		. WASHER		1
18	BACN10JC12		. NUT (REPLS BACN10BY512)		1
19	AN960-1216		. WASHER		1
20	69-41234-2		. BOLT ASSY		1
21	69-41608-2		. . BOLT, HOLLOW		1
22	BACB30NE7-68		. . BOLT (REPLS NAS1107-68)		1
23	MS20470D8		. RIVET		3
24	MS20426D8		. RIVET		1
25	65-51676-7		. BELLCRANK ASSY	B	1
25	65-51676-1		. BELLCRANK ASSY	A	1
26	65-51676-8		. BELLCRANK ASSY (OPPOSITE 65-51676-7)	B	1
26	65-51676-2		. BELLCRANK ASSY (OPPOSITE 65-51676-1)	A	
27	BACB10BX12		. . BEARING (USED ON 65-51676-1, -7) (REPLS BACB10A685)		1

FIG. & ITEM NO.	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USE CODE	QTY PER ASSY
4-					
28	BACB288-4-415P		. . BUSHING		2
29	NAS538B5P45		. . BUSHING (USED ON 65-51676-1, -7)		1
30	65-51676-9		. . BELLCRANK (USED ON 65-51676-7)		1
30	65-51676-3		. . BELLCRANK (USED ON 65-51676-1)		1
31	65-51676-10		. . BELLCRANK (USED ON 65-51676-8)		1
31	65-51676-4		. . BELLCRANK (USED ON 65-51676-2)		1
32	NAS43HT12-136		. SPACER		1
33	BACB10A685		. BEARING		1
34	BACN10JC4		. NUT (REPLS NAS679A4W)		1
35	AN960-416		. WASHER		1
36	BACB30NE4-52		. BOLT (REPLS NAS1104-52)		1
37	NAS43DD4-192		. SPACER		1
38	65-45175-5		. FRAME ASSY		1
39	65-45175-6		. FRAME ASSY (OPP 65-45175-5)		1
40	69-38919-17		. . SLEEVE (DELETED BY SB 27-1052)		1
40	69-38919-31		. . SLEEVE (ADDED BY SB 27-1052)		
41	BACB10AC5A		. . BEARING		1
42	65-45175-7		. . FRAME ASSY (USED ON 65-45175-5)		1
43	65-45175-8		. . FRAME ASSY (USED ON 65-45175-6)		1
			INSTALLATION PARTS		
50	69-38791-1		ANGLE		
55	69-38791-2		ANGLE		
60	69-43267-2		RETAINER		
65	NAS623-3-2		SCREW		
70	69-53244-1		SHIM		
75	NAS1104-12		BOLT		
80	AN960-416		WASHER		
85	NAS679A4W		NUT		