PALLETIZED CARGO SYSTEM BRAKE ASSEMBLY

25-35-10

BOEING P/N 65-37289-3, -6

AIRLINE P/N

THE FOLLOWING DIRECTIVES APPLY TO THIS SUBJECT:

BOEING SERVICE BULLETIN	BOEING TEMPORARY REVISION	OTHER DIRECTIVES	DATE DIRECTIVE INCORPORATED INTO TEXT
		PRR 15460-4	Jun 1/64
2372 (707)			Dec 1/66
		PRR 15749	Jun 25/73
2429 (707)			May 10/74
2133 (707)		PRR 15749-1R	May 10/74

LIST OF EFFECTIVE PAGES

* Indicates pages revised, added or deleted in latest revision

F Indicates foldout pages - print one side only

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T-2	BLANK				
* LEP-1	May 10/74				
LEP-2	BLANK				
* T/C-1	May 10/74				
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BOEING COMMERCIAL JET

OVERHAUL MANUAL

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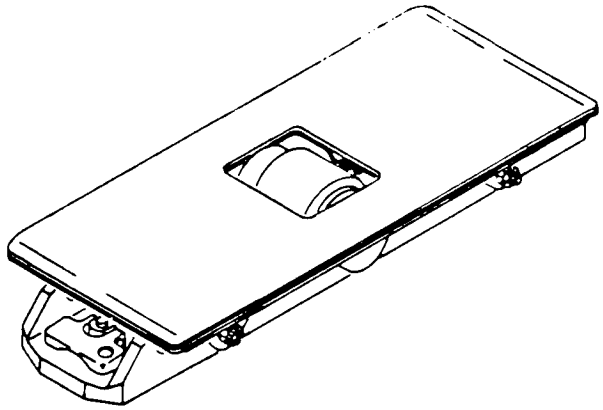
*[1] Special instructions not required. Use standard industry practices.

PALLETIZED CARGO SYSTEM BRAKE ASSEMBLY



Palletized Cargo System Brake Assembly
Figure 1

1. DESCRIPTION AND OPERATION

A. The palletized cargo system brake assembly consists of a rubber-surfaced roller with a centrifugal actuator device, a frame assembly, and associated parts. The palletized cargo system brake assembly is installed to the main deck floor seat tracks. The roller is designed to lock when safe pallet rolling speed is exceeded.

B. Leading Particulars

Width -- 5 inches
Length -- 12 inches
Height -- 2 inches
Weight -- (approx) 5 lbs

2. DISASSEMBLY (Fig. 5)

A. Use standard industry practices for disassembly of this component, and additional procedures in step B.

NOTE: Do not remove pins (6 and 6A) unless pins are damaged and need to be replaced.

Do not remove bushings (8A) and braking surface (8) from shoe assembly (7) unless bushings or braking surface are damaged and need to be replaced.

Disassembly of shaft assembly (20) is not required if dimension of shaft (20) is within 3.03 to 3.08 inches.

CAUTION: PAWL ASSEMBLY (31) CONSISTS OF PAWL ASSEMBLY (31A AND 31B) AND COMPRISE A MATCHED SET AND MUST BE KEPT TOGETHER TO ENSURE PROPER OPERATION AFTER ASSEMBLY.

B. Disassembly pawl assembly (31).

NOTE: Do not remove tire (36) from body assembly (35) unless tire is worn and needs to be replaced.

Do not remove stud (41) and fitting (49) from frame assembly (38) unless stud (41) and fitting (49) are damaged and need to be replaced.

Do not remove bearings (80) unless repair or replacement is required.

3. INSPECTION/CHECK (Fig. 5)

A. Check all parts for obvious defects in accordance with standard industry practices.

B. Magnetic/Penetrant Check

(1) Perform magnetic particle examination per 20-20-01 on shoe assembly (7), pawl (33), and gear (34).

(2) Perform penetrant examination per 20-20-02 on body assembly (37).

C. Spring Check

(1) Check spring (28) for load limits per Fig. 2. Maximum extended length of spring (28) without permanent set shall be 1.28 inches.

Item No. Fig. 5	Free Length * (inches)	Test Length * (inches)	Allowable Load Limit (pounds)
28 (69-29688-1, -2)	0.82 (Max)	0.92	0.049 to 0.071 (22.2 to 32.2 grams)
		1.02	0.089 to 0.110 (40.4 to 50.4 grams)
28 (69-29688-3)	0.82 (Max)	0.92	0.051 to 0.073 (23.0 to 33.0 grams)
		1.02	0.112 to 0.135 (51.0 to 61.0 grams)

* NOTE: Length inside hooks or loops.

Spring Check Data
Figure 2

4. REPAIR (Fig. 5)

A. Materials

NOTE: Use listed materials or equivalent substitutes.

(1) Adhesive -- Thixon UM-1

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

B. Refinish

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

(1) Bolts (3) -- Apply BMS 3-8, class A, method 3 dry lubricant (F-19.10) all over.

(2) Plate (10) and bodies (37, 65-37267-1) -- Apply chromic acid anodize (F-2.20) all over except omit finish on base.

(3) Rollers (5), slides (13, 66-21159-1), nuts (21), dog (24), shafts (20 and 25), and pawl assemblies (31A and 31B, 69-29686-1 and -2) -- Passivate (F-8.07) all over. Material: Shafts (20 and 25) and pawl assemblies (31A and 31B), steel, heat-treated 180-200 ksi.

(4) Slides (13, 69-33176-1) -- Apply BMS 3-8, class A, method 3 dry lubricant (F-19.10) all over except interior of slot optional.

(5) End plates (19), lever (30), bodies (37, 65-37267-3), fitting (49), and frame (50) -- Apply chromic acid anodize (F-2.20) all over.

(6) Washers (23), springs (28, 69-29688-2 and -3), pins (32), pawls (33), and gears (34) -- Apply no finish.

(7) Spring (28, 69-29688-1) -- Apply cadmium plate plus one coat BMS 10-11, type 1 primer (SRF-1.92) all over.

(8) Pawl assemblies (31A and 31B, 69-29686-4 and -5) -- Passivate (F-8.07) all over plus BMS 3-8, class A, method 3 dry lubricant (F-19.10) all over.

(9) Handles (40) -- Apply chromic acid anodize (F-2.20) all over plus apply BMS 10-11, type 2, unthinned enamel, color BAC702, gloss white in depressed letters and arrow.

(10) Studs (41) -- Apply cadmium plate (F-1.1913) all over.

(11) Washers (42) and nut assemblies (43) -- Apply cadmium plate (F-1.191) all over. Material: Washers (42), steel, heat-treated 180-220 ksi.

(12) Frame (50, 65-42639-1) -- Apply chromic acid anodize (F-2.20) all over plus apply BMS 10-11, type 2, unthinned enamel, color BAC701 black, thickness of paint equivalent to minimum of two average coats of paint.

C. Replacement

(1) Replace braking surface (8) by performing the following steps to vulcanize a new rubber coating per Fig. 3.

(a) Apply Thixon UM-1 and let dry 45 to 60 minutes at room temperature.

(b) Vulcanize the rubber (65 to 75 durometer) at 277 to 297°F for 1 hour.

(c) After vulcanizing, remove rubber flash from perimeter of assembly. Trim ends and actuator and spring attachment hole cutouts as indicated in Fig. 3. Check actuator slide tracks for correct alignment after vulcanizing.

(d) If bare aluminum has been exposed, apply brush Alodine 1200 on exposed areas.

(2) Replace bushings (8A) by installing bushings with wet BMS 10-11, type 1 primer, to flushness of 0.00 to -0.01 inch and ball staking per 20-50-03.

(3) Replace tire (36) by performing the following steps to vulcanize a new tire to body (37) per Fig. 3.

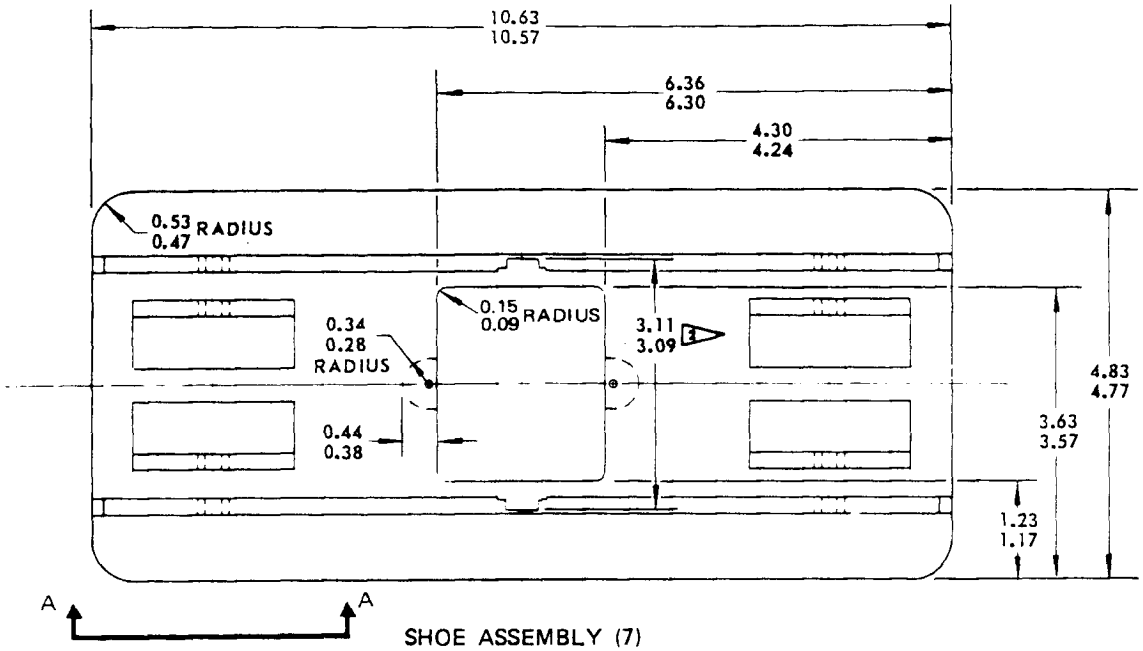
(a) Apply Thixon UM-1 and let dry 45 to 60 minutes at room temperature.

(b) Position new tire as shown in Fig. 3.

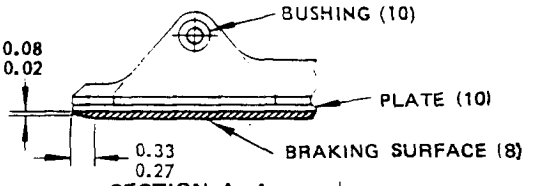
(c) Vulcanize the rubber at 277 to 297°F for 1 hour.

(d) After vulcanizing, the rubber should be 40 to 50 durometer.

(4) If bearings (80) require replacement, apply BMS 10-11, type 1 primer to bearing OD and roller (85) bore; press bearings into roller bores, and sleeve stake bearings at locations as shown in Fig. 3 per 20-50-03.

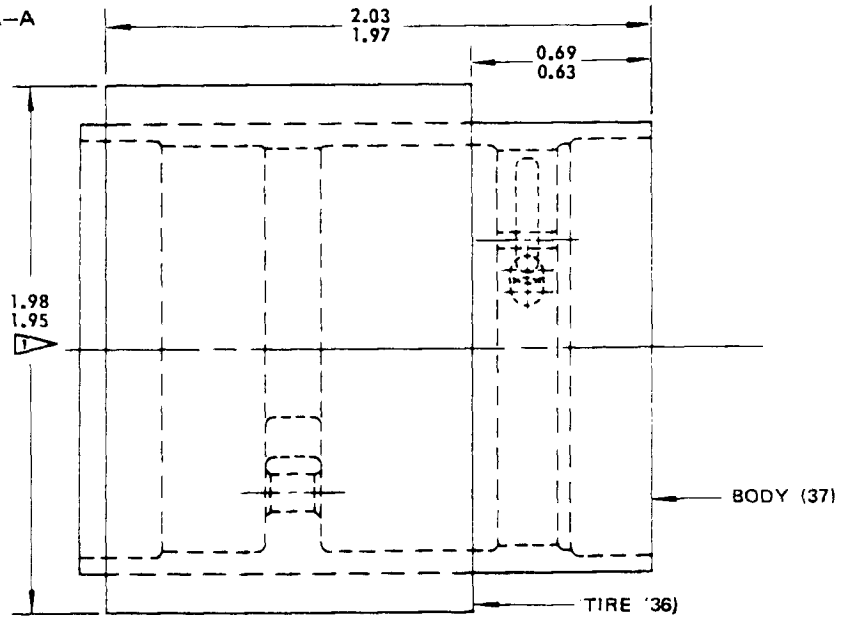


SHOE ASSEMBLY (7)
(LOWER SIDE VIEW)
(DIMENSIONS ARE FOR BRAKING SURFACE (8))



SECTION A–A

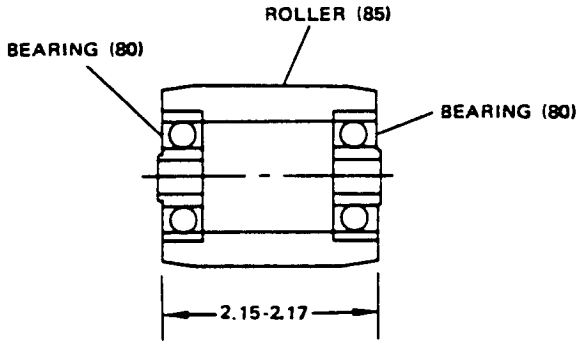
1. CONCENTRIC TO BODY (37) OD WITHIN 0.02 TIR
2. CHECK THIS DIMENSION AFTER VULCANIZING TO ASSURE CORRECT ACTUATOR SLIDE TRACK ALIGNMENT



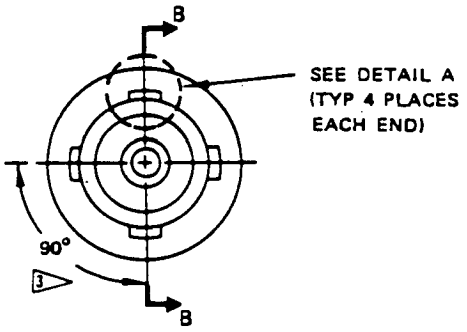
ALL DIMENSIONS ARE IN INCHES

BODY ASSEMBLY (35)

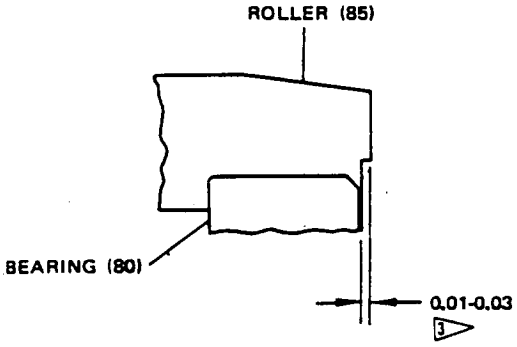
Replacement Diagram
Figure 3 (Sheet 1)



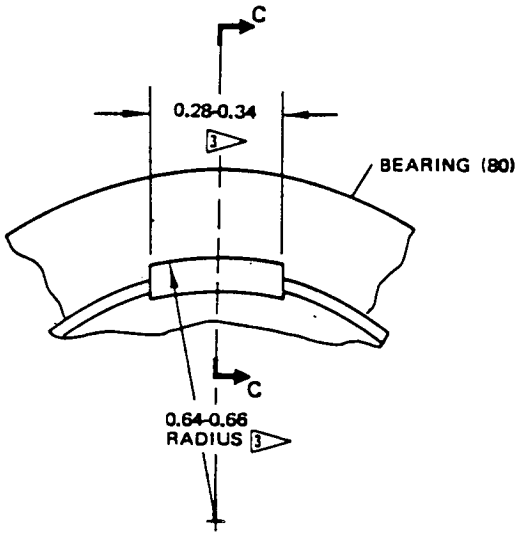
SECTION B–B



ROLLER ASSEMBLY (75)



SECTION C–C



DETAIL A

3 STAKING DIMENSION ONLY

5. ASSEMBLY (Fig. 5)

A. Materials

NOTE: Use listed materials or equivalent substitutes.

(1) Lubrication Oil -- MIL-L-6085A (Ref 20-60-03)

B. Use standard industry practices for assembly of this component, and additional procedures in steps C thru N.

C. Before assembly, lubricate moving parts lightly with MIL-L-6085A, instrument oil.

D. Install washer (45), if and as required, to compress washer (44) 0.01 to -0.03 inch of flattened position.

CAUTION: DO NOT LUBRICATE BEARING (18) TO PREVENT BEARING DAMAGE.

E. Press bearing (18) into end plate (19) and install packing (17) per 20-50-06.

F. Assemble shaft assembly (20) by installing washers (22 and 23) on shaft (25), dog (24), and nut (21). Use washer (23) if and as required to meet dimension of 3.03 to 3.08 inches. Flats on shaft (25) and nut (21) must be parallel within ± 1 degree. Tighten nut (21) on shaft (25) to 65 to 90 pound-inches.

G. Check parallelism of ends of shaft assembly (20) by installing slide (13) one on each end of shaft assembly (20) and check it for free sliding fit in shoe assembly (7).

NOTE: Above check to be done before installing shaft assembly (20) in actuator assembly (12).

H. Hook spring (28) to lever (30). Carefully close spring loop.

NOTE: The spring free length must be 0.75 to 0.85 inch to get correct actuator action.

CAUTION: PAWL ASSEMBLY (31) IS A MARKED SET OF PAWL ASSEMBLIES (31A AND 31B).

I. Install pawl assembly (31A) with gear (34) in body assembly (35). Install end plate (19) at this end only to trap pawl (31A) in place. Point on end plate (19) must be aligned with notch in body assembly (35) prior to encountering packing (17) friction. When end of pawl (31A) has found hole in end plate (19), press end plate (19) in until point goes into body notch. Secure pawl (31A) with pivot pin (32).

J. Turn body assembly (35) upside down and slide lever (30) with spring (28) into body clevis and carefully install pin (29) so that pin protrudes 0.02 to 0.04 inch on near side.

K. Install pawl assembly (31B) with gear (34) as follows:

(1) Hook end of spring (28) into hole and carefully close loop of spring (28).

NOTE: When pawl carrying spring (28) is installed in body assembly (35), spring (28) must not be twisted.

(2) Install pawl (31B) with no twist in spring (28) and mesh gear (34) teeth so arms contact inside diameter of body assembly (35) at very nearly same instant they mutually rotate outward against spring-load. Secure pawl (31B) with pivot pin (32).

(3) Install adjustable set screw (27).

NOTE: Lever (30) and pawl assembly (31A and 31B) arms must rotate freely without binding on body assembly (35).

CAUTION: DO NOT LUBRICATE BEARING (14) TO PREVENT BEARING DAMAGE.

L. Install shaft assembly (20) from one end with plate assembly (16) washer (15) and bearing (14).

M. After assembly adjust actuator assembly (12) as follows using shop fixture setup shown in Fig. 4.

(1) Manually check actuator (12) on flat surface to check clockwise and counterclockwise rotation, and to determine locking action. When actuator (12) locks, opposite rotation must unlock it.

(2) Set screw (27) initially to four complete turns in from flush with actuator assembly (12).

(3) Install actuator assembly (12) in test fixture slots, as shown in Fig. 4.

(4) Move actuator (12) vertically to see if it binds in fixture.

(5) Pivot driving wheel down against actuator tire.

(6) Gradually increase RPM of driving wheel and check for following results:

(a) Actuator assembly (12) must rotate freely on shaft (20) up to locking range indicated in step (b).

(b) Actuator assembly should lock (stop rotating) at 240 to 340 RPM (120 to 170 feet per minute) for 65-37290-5, -8, and -9 and 360 to 420 RPM (80 to 210 feet per minute) for 65-37290-11.

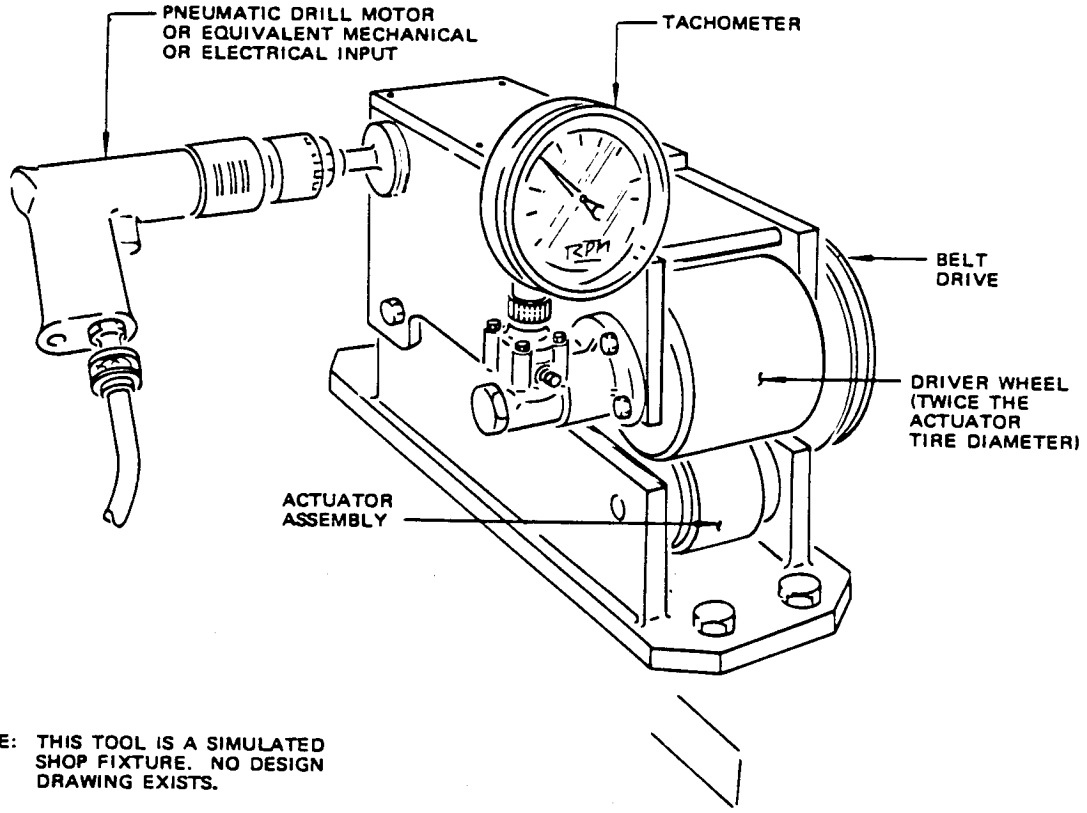
NOTE: To obtain lower locking speed, turn set screw (27) counterclockwise. To increase speed at which locking will occur, turn set screw (27) clockwise.

(7) After establishing correct set screw setting for one direction of rotation, remove actuator assembly and turn it around (end for end) in test fixture. Repeat step (6) for rotation in opposite direction.

(8) Check for actuation on a rate change of speed by motoring unit at low RPM (60 to 200 RPM). Then accelerate actuator rapidly to 240 to 340 RPM (for 65-37290-5, -8, and -9 and 360 to 420 RPM for 65-37290-11). The actuator shall lock within the 240 to 340 RPM range for 65-37290-5, -8, and -9 and 360 to 420 RPM range for 65-37290-11.

(9) Repeat step (7) for rotation in opposite direction.

N. Install pins (6A) and connect springs (1) to shoe assembly (7) and frame assembly (38). Bend end of spring (1) to clear actuator assembly (12).



NOTE: THIS TOOL IS A SIMULATED SHOP FIXTURE. NO DESIGN DRAWING EXISTS.

6. FITS AND CLEARANCES (Fig. 5)

A. Tighten nut (21) on shaft (25) to torque range of 65 to 90 pound-inches.

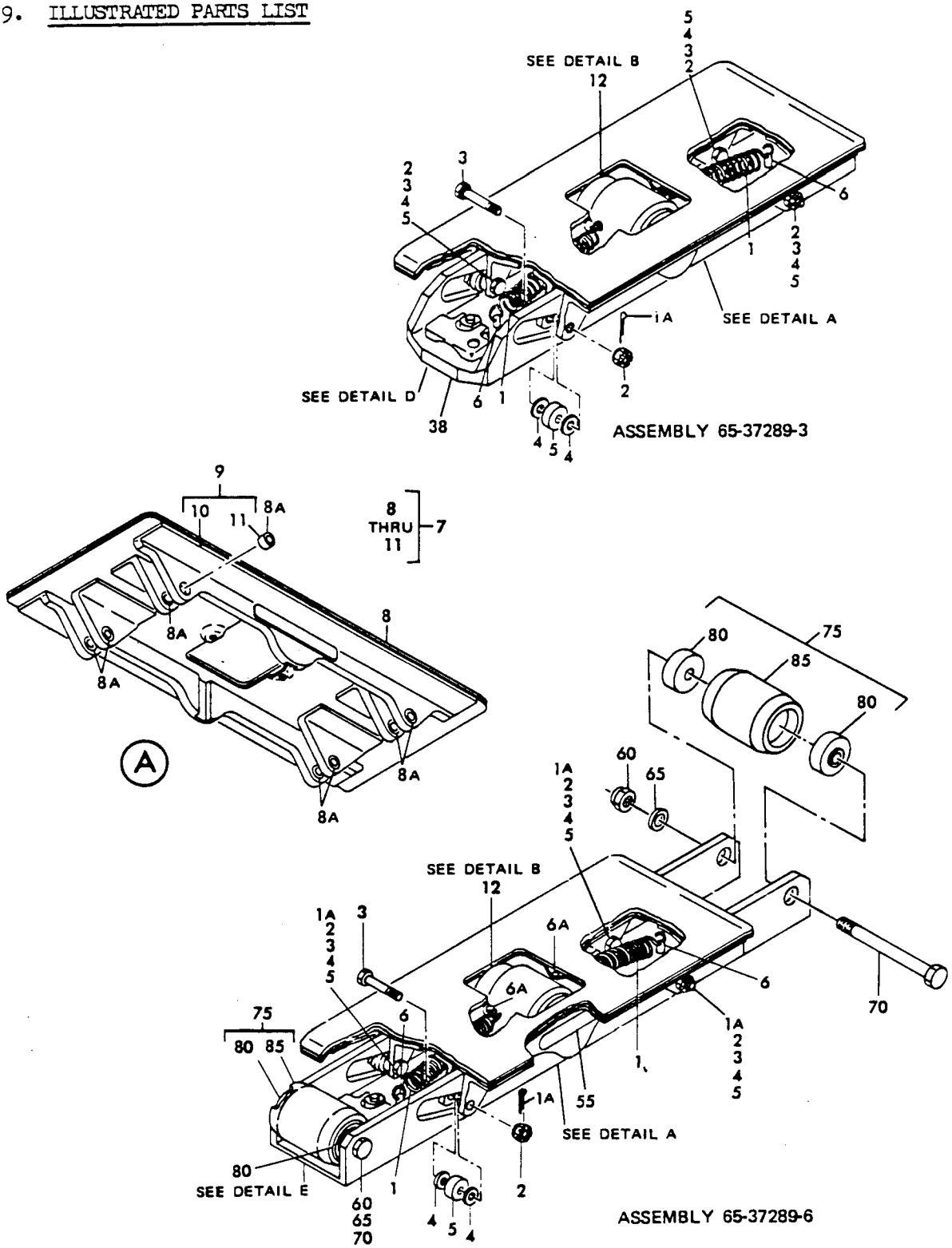
7. TESTING (Fig. 5)

A. Turn brake assembly upside down on flat surface and check by rolling to see if actuator assembly (12) depresses after locking with simultaneous rise of shoe assembly (7). Actuator assembly and shoe assembly should return to neutral without binding.

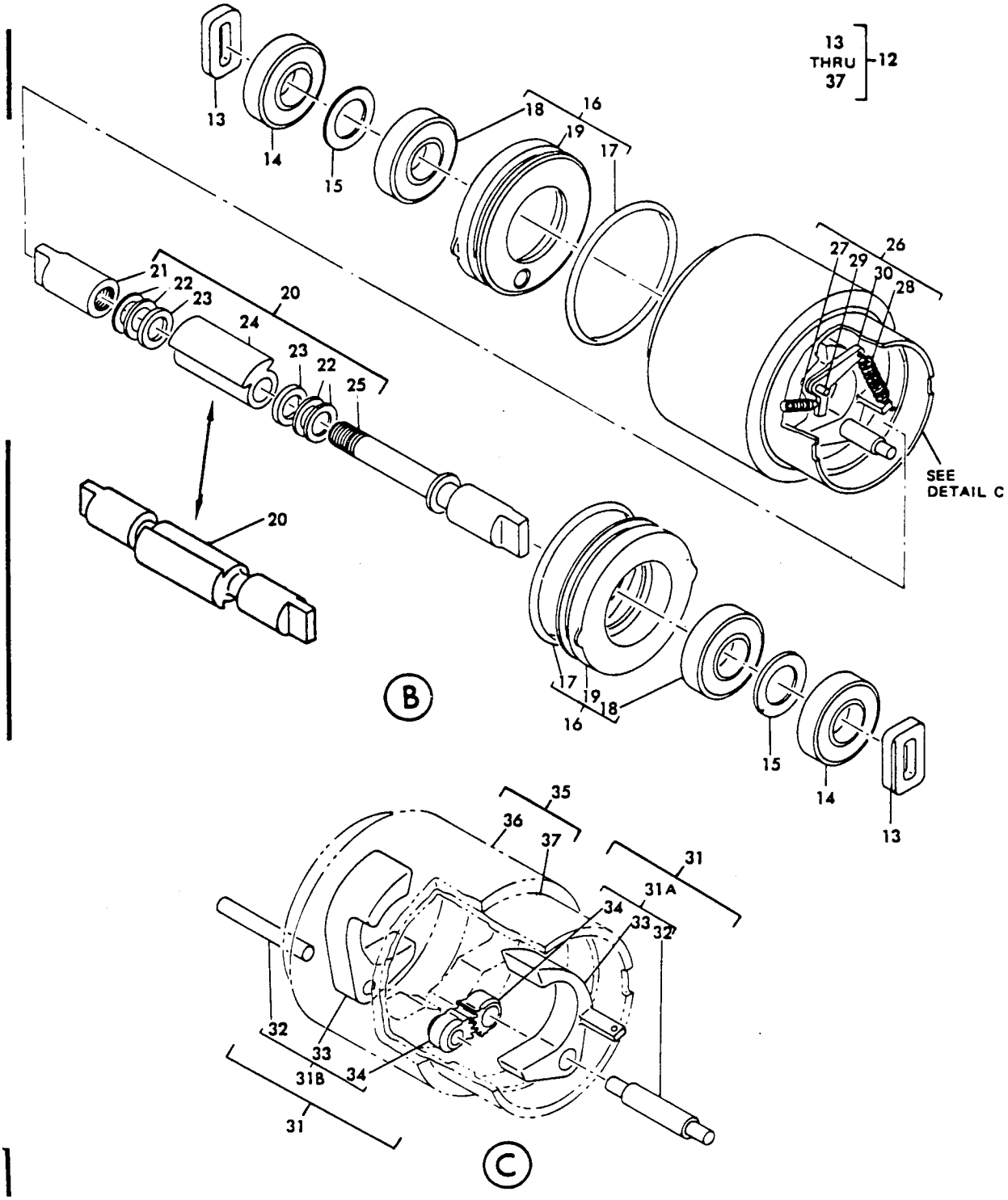
8. STORAGE INSTRUCTION (Fig. 5)

A. After completion of test, tape slides (13) to actuator body with masking tape or equivalent. Wrap unit and tag with part number, test date, and store.

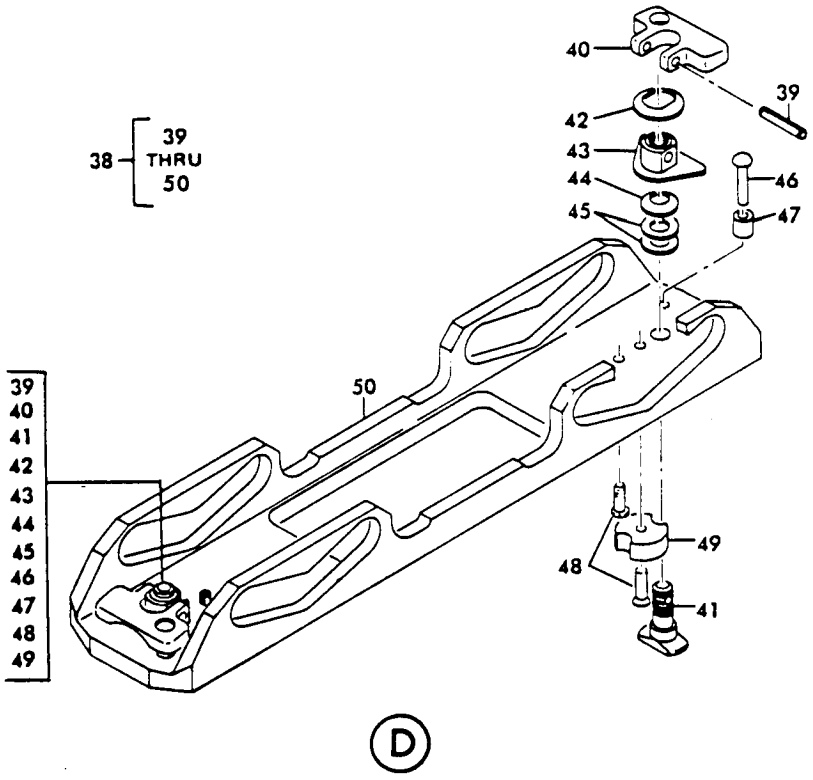
9. ILLUSTRATED PARTS LIST

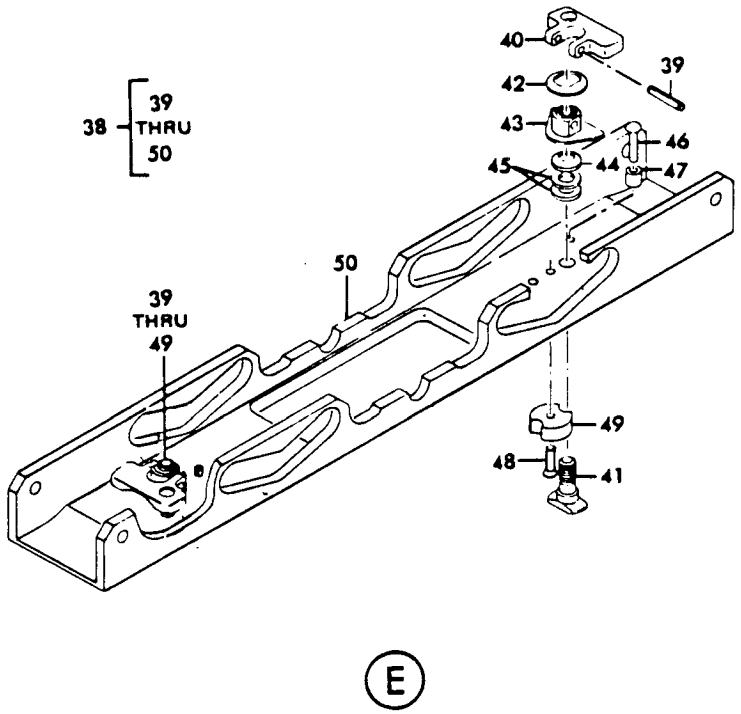


Palletized Cargo System Brake Assembly
Figure 5 (Sheet 1)



Palletized Cargo System Brake Assembly
Figure 5 (Sheet 2)





Palletized Cargo System Brake Assembly
Figure 5 (Sheet 3)

FIG. & ITEM NO.	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USE CODE	QTY PER ASSY
5-					
	65-37289-3		BRAKE ASSY, PALLETIZED CARGO SYSTEM (SB 2133)	A	RF
	65-37289-6		BRAKE ASSY, PALLETIZED CARGO SYSTEM (SB 2133)	B	RF
1	MS24586-178		. SPRING		2
1A	MS24665-153		. PIN, COTTER		4
2	AN320C3		. NUT		4
3	66-21170-1		. BOLT		4
4	AN960PD10L		. WASHER		8
5	66-21171-1		. ROLLER		4
6	MS20392-1C7		. PIN		2
6A	MS20392-2C7		. PIN		2
7	69-29675-1		. SHOE ASSY, VULCANIZED	A	1
7	69-29675-3		. SHOE ASSY, VULCANIZED	B	1
8	69-29675-2		. . SURFACE, BRAKING (ADIPRENE "C"), V18873	A	1
8	69-29675-4		. . SURFACE, BRAKING (ADIPRENE "C"), V18873	B	1
8A	66-21161-2		. . BUSHING		8
9	65-37264-1		. . SHOE ASSY, PALLET BRAKE	A	1
9	65-37264-3		. . SHOE ASSY, PALLET BRAKE	B	1
10	65-37264-2		. . . PLATE	A	1
10	65-37264-4		. . . PLATE	B	1
11	66-21161-2		. . . DELETED (SEE ITEM 8A)		
12	65-37290-5		. ACTUATOR ASSY, PALLET BRAKE *[1]	A	1
12	65-37290-8		. ACTUATOR ASSY, PALLET BRAKE *[1]	A	1
12	65-37290-11		. ACTUATOR ASSY, PALLET BRAKE (PREF) (PROCURABLE OR REWORKED FROM 65-37290-5 OR -8, SB 2372) (SB 2429)		1
12	65-37290-9		. ACTUATOR ASSY *[1]	B	1
13	66-21159-1		. . SLIDE (USED ON 65-37290-5)		2
13	69-33176-1		. . SLIDE (USED ON 65-37290-8,-9,-11)		2
14	AN201KP6A		. . BEARING		2
15	AN960C616L		. . WASHER		2
16	65-37290-3		. . PLATE ASSY (USED ON 65-37290-5, -8,-9)		2
16	65-37290-13		. . PLATE ASSY (USED ON 65-37290-11) (SB 2429)		2
17	MS28775-126		. . . PACKING		1
18	AN201KP6A		. . . BEARING		1
19	69-29677-1		. . . PLATE, END (USED ON 65-37290-3)		1
19	69-29677-2		. . . PLATE, END (USED ON 65-37290-13) (SB 2429)		1

FIG. & ITEM NO.	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USE CODE	QTY PER ASSY
5-					
20	69-33552-1		. . SHAFT (USED ON 65-37290-9,-11)		1
20	65-37290-6		. . SHAFT ASSY (USED ON 65-37290-5, -8)		1
21	66-20989-1		. . . NUT		1
22			DELETED		
23	66-21174-4		. . . WASHER, CRES		4
23	66-21174-5		. . . WASHER, CRES		4
24	66-20988-1		. . . DOG		1
25	69-29661-1		. . . SHAFT		1
26	65-37290-4		. . BODY ASSY (USED ON 65-37290-5)		1
26	65-37290-7		. . BODY ASSY (USED ON 65-37290-8)		1
26	65-37290-10		. . BODY ASSY (USED ON 65-37290-9)		1
26	65-37290-12		. . BODY ASSY (USED ON 65-37290-11)		1
27	NAS1081-04A4		. . . SCREW, SET		1
28	69-29688-1		. . . SPRING (USED ON 65-37290-5)		1
28	69-29688-2		. . . SPRING (USED ON 65-37290-8,-9)		1
28	69-29688-3		. . . SPRING (USED ON 65-37290-12)		1
29	MS16562-3		. . . PIN		1
30	66-21160-1		. . . LEVER		1
31	69-29686-3		. . . PAWL ASSY (USED ON 65-37290-5)		1
31	69-29686-6		. . . PAWL ASSY (USED ON 65-37290-8, -9,-11)		1
31A	69-29686-1		. . . . PAWL ASSY (MATCHED ASSY) (USED ON 69-29686-3)		1
31A	69-29686-4		. . . . PAWL ASSY (MATCHED ASSY) (USED ON 69-29686-6)		1
31B	69-29686-2		. . . . PAWL ASSY (MATCHED ASSY) (USED ON 69-29686-3)		1
31B	69-29686-5		. . . . PAWL ASSY (MATCHED ASSY) (USED ON 69-29686-6)		1
32	66-21158-1		. . . . . PIN, PIVOT (USED ON 65-29686-1,-5)		1
32	66-21158-2		. . . . . PIN, PIVOT (USED ON 65-29686-2,-4)		1
33	69-29685-1		. . . . . PAWL (USED ON 69-29686-1)		1
33	69-29685-2		. . . . . PAWL (USED ON 69-29686-2)		1
33	65-41405-1		. . . . . PAWL (USED ON 69-29686-4)		1
33	65-41405-2		. . . . . PAWL (USED ON 69-29686-5)		1
34	69-29668-1		. . . . . GEAR (USED ON 69-29686-2, -4)		1
34	69-29668-2		. . . . . GEAR (USED ON 69-29685-1, 69-29686-5)		1

FIG. & ITEM NO.	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USE CODE	QTY PER ASSY
5-					
35	69-29607-1		. . . BODY ASSY (USED ON 65-37290-4, -7,-10)		2
35	69-29607-3		. . . BODY ASSY (USED ON 65-37290-12) (SB 2429)		1
36	69-29607-2		. . . . TIRE (ADIPRENE "C"), V18873		1
37	65-37267-1		. . . . BODY (USED ON 69-29607-1)		1
37	65-37267-3		. . . . BODY (USED ON 69-29607-3) (SB 2429)		1
38	65-37289-4		. FRAME ASSY	A	1
38	65-37289-5		. FRAME ASSY	B	1
39	MS16562-28		. . PIN, SPRING		2
40	69-29616-1		. . HANDLE		2
41	69-29622-4		. . STUD		2
42	66-20718-1		. . WASHER		2
43	69-29626-1		. . NUT		2
44	BACW10AZ4		. . WASHER, SPRING		2
45	BACW10P61S		. . WASHER, PLAIN		4
46	MS20470D4		. . RIVET		2
47	NAS42DD4-20		. . SPACER		2
48	MS20426D6		. . RIVET		2
49	66-20717-2		. . FITTING		2
50	69-29676-2		. . FRAME	A	1
50	65-42639-1		. . FRAME	B	1
55	BACM10N2EHD		. MARKER, FOIL	B	1
60	NAS679A5		. NUT	B	2
65	AN960PD516		. WASHER	B	2
70	NAS1105-44		. BOLT	B	2
75	69-34562-1		. ROLLER ASSY	B	2
80	22075-78		. . BEARING, V09721		2
85	69-34561-1		. . ROLLER		1

*[1] LIMITED USE

VENDORS

V09721 GENERAL BEARING CO., HIGH STREET WEST, NYACK, NEW YORK 10994

V18873 DU PONT E.I. DE NEMOURS AND COMPANY, INC., 1007 MARKET STREET, WILMINGTON, DELAWARE 19898