TO: ALL HOLDERS OF DEPLOYMENT CABLE RETRACTOR ASSEMBLY COMPONENT MAINTENANCE MANUAL 25-66-31.

REVISION NO. 5 DATED JUL 01/02

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. 4 dated Apr 10/84 on the Record of Revision Sheet.

CHAPTER/SECTION AND PAGE NO.	DESCRIPTION OF CHANGE
TITLE PAGE	Added the 416T2185-4 deployment cable retractor assy that uses a new housing assembly with improved corner relief.
1	
REPAIR 1-1	
601	
REPAIR 3-1	
601	
1002-1003,1007-1008	

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DEPLOYMENT CABLE RETRACTOR ASSEMBLY

PART NUMBERS 416T2185-3,-4

COMPONENT MAINTENANCE MANUAL
WITH
ILLUSTRATED PARTS LIST

7562

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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

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TEMPORARY REVISION AND SERVICE BULLETIN RECORD

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

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PAGE	DATE	CODE
25-66-31		
TITLE PAGE		
*1	JUL 01/02	01.1
2	BLANK	
REVISION RECORD		
1	JUL 10/83	01
2	BLANK	
TR & SB RECORD		
1	JUL 10/83	01
2	BLANK	
LIST OF EFFECTIVE PAGES		
*1	JUL 01/02	01
THRU LAST PAGE		
CONTENTS		
1	JUL 10/83	01
2	BLANK	
INTRODUCTION		
1	APR 10/84	01.1
2	BLANK	
DESCRIPTION & OPERATION		
1	JUL 10/83	01
2	BLANK	
DISASSEMBLY		
301	APR 10/84	01.1
302	BLANK	
CHECK		
501	JUL 10/83	01
502	BLANK	
REPAIR-GENERAL		
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602	BLANK	

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REPAIR 1-1		
*601	JUL 01/02	01.1
602	BLANK	
REPAIR 2-1		
601	JUL 10/83	01
602	BLANK	
REPAIR 3-1		
*601	JUL 01/02	01.1
602	BLANK	
REPAIR 4-1		
601	APR 10/84	01.1
602	APR 10/84	01.1
ASSEMBLY		
701	APR 10/84	01.1
702	APR 10/84	01.1
703	APR 10/84	01.1
704	BLANK	
ILLUSTRATED PARTS LIST		
1001	JUL 10/83	01
*1002	JUL 01/02	01.1
*1003	JUL 01/02	01.1
1004	BLANK	
*1005	JUL 01/02	01.1
*1006	JUL 01/02	01.1
*1007	JUL 01/02	01.1
*1008	JUL 01/02	01.1

* = REVISED, ADDED OR DELETED

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Assembly	701
Fits and Clearances (not applicable)	
Special Tools (not applicable)	
Illustrated Parts List	1001

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

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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. 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, 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.

Verification:

Disassembly	Feb 17/82
Assembly	Feb 17/82

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DEPLOYMENT CABLE RETRACTOR ASSEMBLY

DESCRIPTION AND OPERATION

1. Description and Operation

   A. The deployment cable retractor assembly consists of a spring loaded drum attached to a cable assembly which acts as a retraction device used in emergency evacuation.

2. Leading Particulars (approximate)

   Length -- 8 inches
   Width -- 2 inches
   Height -- 1-1/2 inches
   Weight -- 0.5 pound

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DISASSEMBLY

NOTE: 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.

WARNING: SPRING (90, IPL FIG. 1) IS ENERGIZED. SUDDEN RELEASE OF SPRING COULD CAUSE INJURY TO PERSONNEL.

1. Back out bolt (15) to disengage threads but do not remove at this time.

2. Remove screws (10).

3. Hold down on shaft of drum assy (80) to prevent lifting drum from housing (60) while removing frame assy (40A).

4. While restraining drum assy (80) from lifting out of housing, disengage cable and fairlead from housing and carefully allow spring (85) to rewind onto take-up drum (95) (approx 1-1/2 to 2-1/2 turns).

5. Remove spring guide (55) and washers (20).

6. Remove drum assy (80) and spring assy (85A) from housing (60).

7. Remove screw (75) to separate spring (90) from drum assy (80).

8. Remove bushing (25), spring guide (55), washer (20) and screw (15).

   NOTE: Unless repair or replacement is necessary, do not remove pins (5A), bushings (30, 35), inserts (45, 65), screws (140), or radius blocks (145) from the respective assemblies. Also do not disassemble cable assembly (100) unless the assembly is to be repaired or refinished.

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CHECK

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

2. Magnetic particle check per 20-20-01 -- drum (150, IPL Fig. 1).

3. Penetrant check per 20-20-02 -- frame (50A) and housing (70).

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REPAIR - GENERAL

1. Content

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

P/N	NAME	REPAIR
416T2185	DEPLOYMENT CABLE RETRACTOR ASSY	1-1
416T2225	FRAME ASSEMBLY	2-1
416T2227	HOUSING ASSEMBLY	3-1
416T2217	CABLE ASSEMBLY	4-1

2. Standard Practices

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

20-30-02 Stripping of Protective Finishes
20-30-03 General Cleaning Procedures
20-41-01 Decoding Table for Boeing Finish Codes
20-43-01 Chromic Acid Anodizing
20-44-01 Application of Abrasion Resistant Finishes
20-50-03 Bearing Installation and Retention
20-50-08 Application of Dry Lubricant

3. Materials

NOTE: Equivalent substitutes may be used.

A. Enamel -- BMS 10-86, type 1, white (Ref 20-60-02)

B. Lubricant -- BMS 3-8 (Ref 20-50-08)
MIL-L-8937, type VI, class 1 (Ref 20-50-08)

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

D. Sealant -- BMS 5-95 (Ref 20-60-04)

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DEPLOYMENT CABLE RETRACTOR ASSEMBLY - REPAIR 1-1

416T2185-3, -4

NOTE: Refer to REPAIR-GEN for list of applicable standard practices.

1. Bushing Replacement (IPL Fig. 1)

   A. Remove bushings (30, 35).

   B. Install bushings (30, 35) per 20-50-03.

   C. Fillet seal around flanges of bushings using BMS 5-95 sealant.

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FRAME ASSEMBLY - REPAIR 2-1

416T2225-5

NOTE: Refer to REPAIR-GEN for list of applicable standard practices.

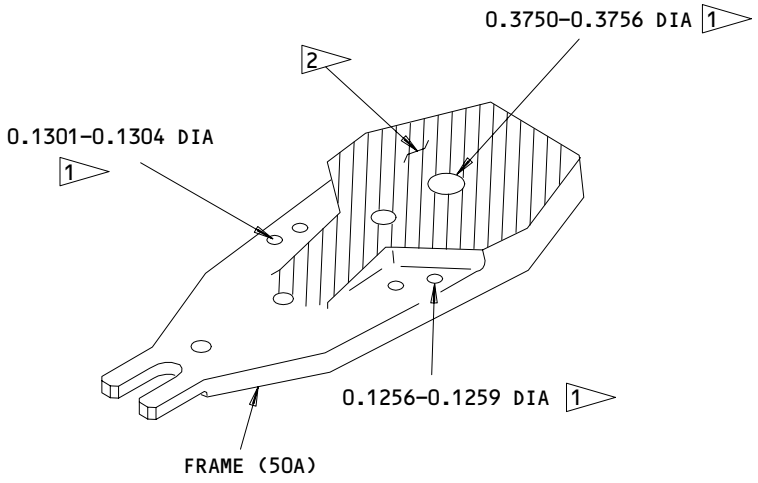
1. Insert Replacement (IPL Fig. 1)

   A. Remove insert (45).

   B. Install insert (45) 3/4 to 1-1/2 turns below surface of frame (50A) and remove tang.

2. Refinish

   A. Frame (50A) -- Chromic acid anodize and apply one coat BMS 10-11, type 1 primer (F-18.13) all over except omit primer from holes indicated in Fig. 601. Apply BMS 10-86, type 1 white enamel (SRF-14.9624) per 20-44-01, type 27 on surface shown (Fig. 601). Material: Aluminum alloy.



1 OMIT PRIMER FROM HOLE

2 APPLY BMS 10-86, TYPE 1, WHITE ENAMEL TO THIS SURFACE

ALL DIMENSIONS ARE IN INCHES

Frame Refinish
Figure 601

7566

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HOUSING ASSEMBLY - REPAIR 3-1

416T2227-3, -5

NOTE: Refer to REPAIR-GEN for list of applicable standard practices.

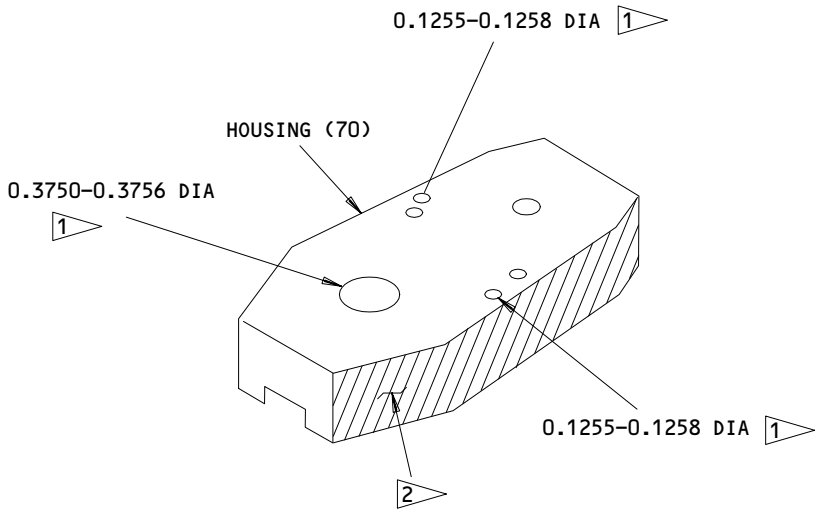
1. Insert Replacement (IPL Fig. 1)

   A. Remove insert (65).

   B. Install insert (65) 3/4 to 1 1/2 turns below surface of housing (70) and remove tang.

2. Refinish

   A. Housing (70) -- Chromic acid anodize and apply one coat BMS 10-11, type 1 primer (F-18.13) all over except omit primer from holes indicated in Fig. 601. Apply BMS 10-86, type 1, white enamel (SRF 14.9624) per 20-44-01, type 27 on surface shown (Fig. 601). Material: Aluminum alloy.



1 OMIT PRIMER FROM HOLE

2 APPLY BMS 10-86, TYPE 1, WHITE ENAMEL TO THIS SURFACE (BOTH SIDES)

ALL DIMENSIONS ARE IN INCHES

Housing Refinish
Figure 601

7567

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CABLE ASSEMBLY - REPAIR 4-1

NOTE: When refinishing is required on drum (150), cable (155), terminal assembly (105) and terminal (130) must be replaced.

1. Remove Cable

   A. Cut cable (155) and remove from drum (105).

   B. Reuse snubber (120) and fairlead (125) if they are in usable condition.

      NOTE: Repair of drum consists of restoration of original finish.

2. Refinish

   A. Drum (150) -- Passivate (F-17.09) all over. Apply dry lubricant BMS 3-8 or MIL-L-8937, type VI, class 1 per 20-50-08 to surfaces indicated (Fig. 602). Material: 15-5 PH CRES, 140-160 ksi.

3. Install Cable

   CAUTION: CHECK DIMENSION BETWEEN TERMINALS (105, 130) PRIOR TO SWAGING PER FIG. 603.

   A. Assemble cable (155), terminal assembly (105), snubber (120) and fairlead (125) (Fig. 603).

   B. Insert cable (155) thru drum (150) and swage terminal (130) and terminal assembly (105) to cable (155) using standard industry practices.

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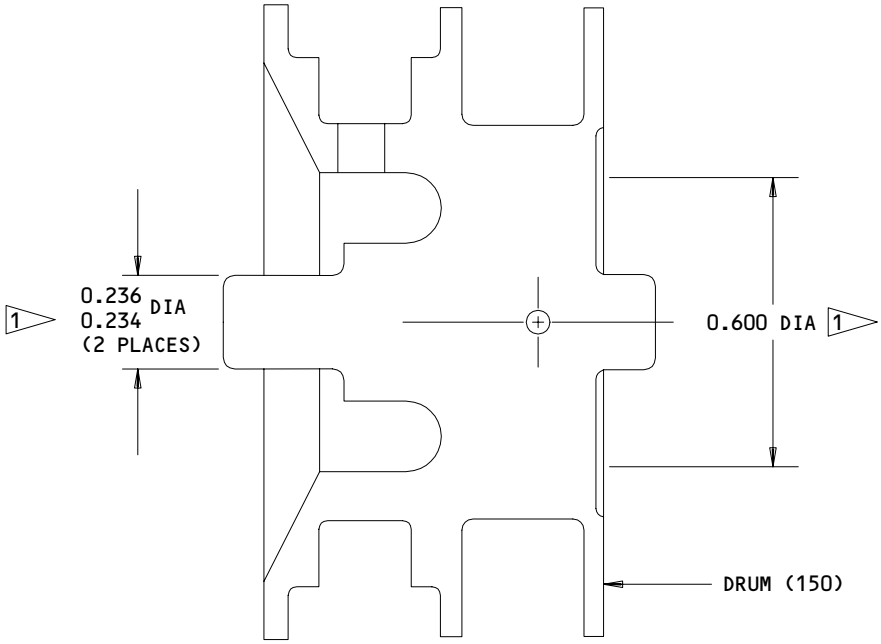
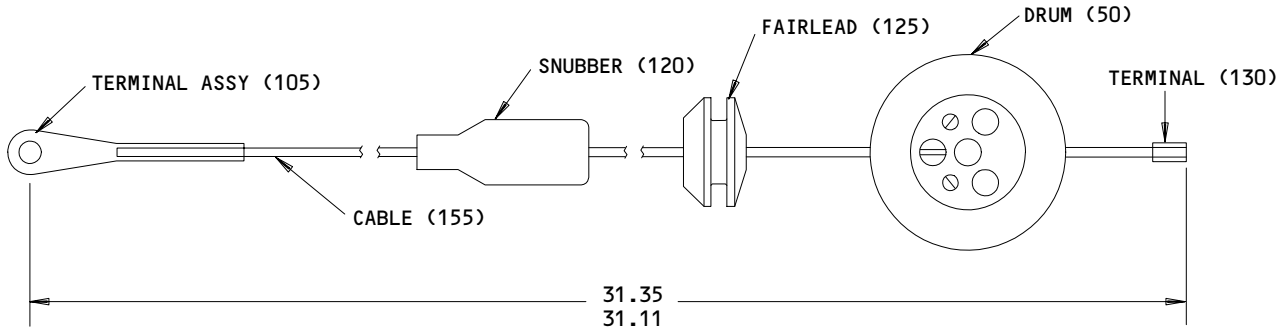


1 APPLY DRY LUBRICANT TO THIS SURFACE

ALL DIMENSIONS
ARE IN INCHES

Drum Refinish
Figure 602

7568



CABLE: 1/16 DIAM. 7 X 19 CONSTRUCTION,
CRES CABLE - TYPE I COMPOSITION B
PER MIL-L-83420

ALL DIMENSIONS ARE IN INCHES

Cable Assembly
Figure 603

119610

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ASSEMBLY

1. Materials

NOTE: Equivalent substitutes may be used.

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

2. Assembly

A. Delaminate radius block (145) as required to fill gap in cable drum (150) within 0.003 inch prior to fastener (140) installation. Install block (145) with BMS 10-11, type 1 primer wet or dry (20-41-02).

B. Rotate drum (150) in indicated direction to wrap cable (155) around drum as shown in Fig. 701.

NOTE: This step unnecessary unless cable is replaced or drum is repaired or replaced.

C. Install bolt (15), washer (20), bushing (25) and spring guide (55) into housing (60).

NOTE: Make sure bushing (25) passes through washer (20) and rests on housing throughout assy procedure. Whenever bushing is inadvertently lifted clear of washer it is possible for washer to shift off center and become trapped between housing and bushing making proper assembly difficult.

D. Preassemble cable & drum assy (80) and spring assy (85) with screw (75).

WARNING: USE CAUTION WHEN HANDLING SHARP EDGES OF SPRING BAND.

(1) Re-roll spring (90) onto take-up drum (95) so that tongue end of spring (90) is the outer wrap on the drum (Fig. 702).

(2) If new spring (90) is being installed, unroll tongue end of spring (90) off take up drum (95) and secure tongue to groove in drum assembly (135) with screw (75).

WARNING: USE CAUTION WHILE WRAPPING SPRING (90) AROUND DRUM (150) SINCE THIS ACTION WILL TEND TO ROTATE DRUM (150) WITH UNPREDICTABLE, POSSIBLY VIOLENT MOTION IF INADVERTENTLY RELEASED.

E. Install preassembled cable and spring assys into housing assy (60) and slip spring guide (55) on bushing (25) and press firmly against spring assy (85A).

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F. Install one or two washers (20) onto bushing (25), as it protrudes through guide bushing (55) as required to maintain 0.01-0.03 inch clearance between upper surface of housing assy (60) and top washer (20).

G. Keep cable and drum assy (80) firmly restrained in housing (60) and rotate cable and drum assy clockwise to wind 1-1/2 to 2-1/2 wraps of spring (90) onto drum assy (135) when cable (155) is in fully retracted position.

H. Install fairlead (125) into slot on housing (60) and assemble frame assy (40A) with housing assy (60) with screws (10) and bolt (15).

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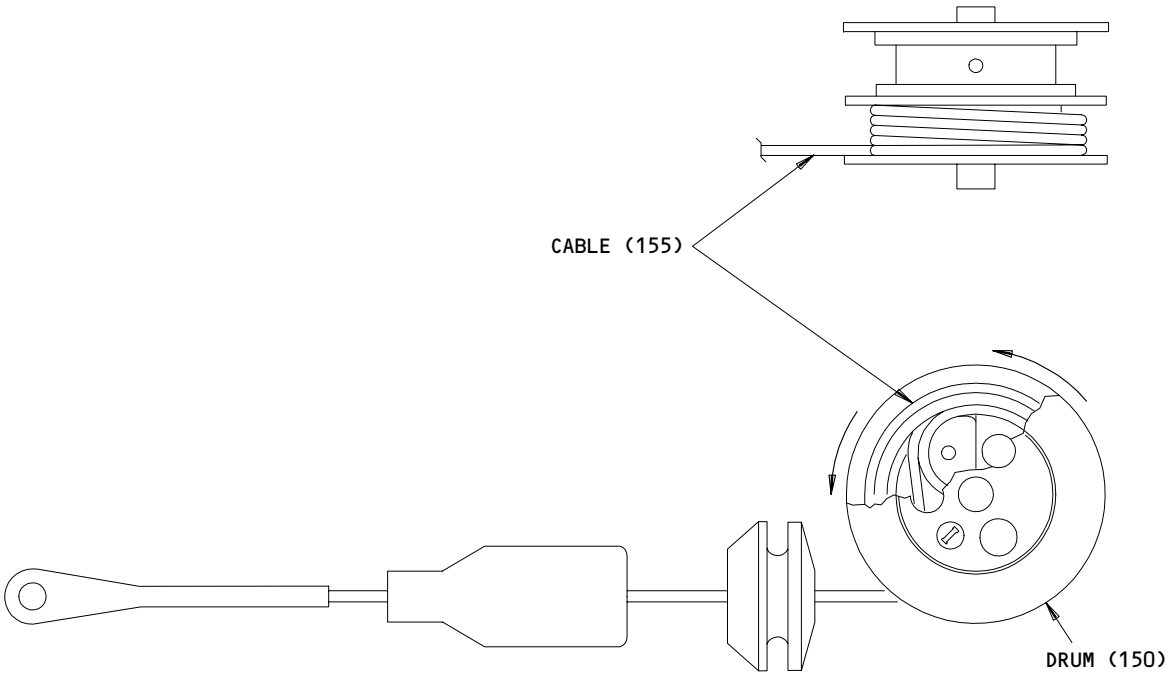
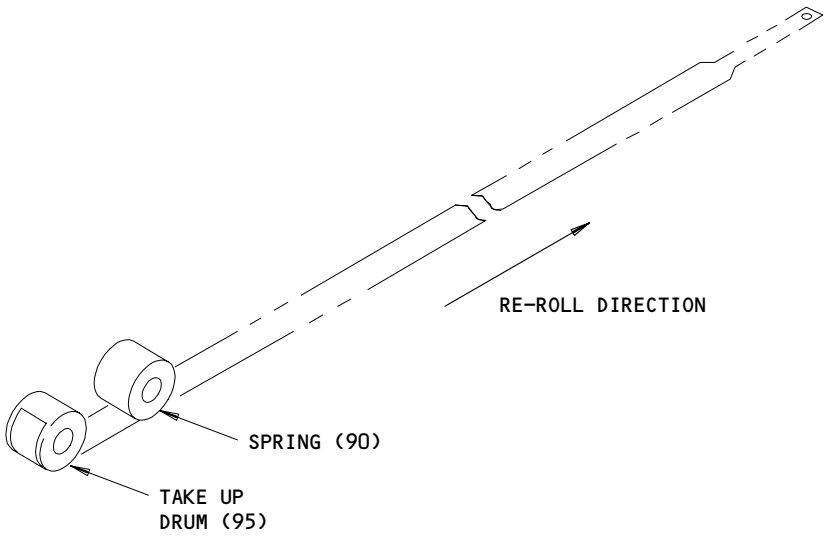


Cable Wrap
Figure 701



Spring Assembly
Figure 702

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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.

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VENDORS

11328 AEROQUIP SEE EATON AEROQUIP V00624

22277 BELL-MEMPHIS INC
1650 CHANNEL AVENUE PO BOX 13187
MEMPHIS, TENNESSEE 38113-1524
FORMERLY BELL,R.E. MFG CO V11097

26590 HOOD INDUSTRIES
4615 SHEPARD STREET
BAKERSFIELD, CALIFORNIA 93309
FORMERLY IN PARAMOUNT, CALIFORNIA

65196 CABLEWARE TECHNOLOGY INC
900 INDUSTRIAL BLVD. PO BOX 7515
NAPLES, FLORIDA 33941

80523 BABCOCK ACCO INC ACCO CONTROLS GROUP SUB OF BABCOCK INTL
1014 ERIE STREET PO BOX 608
ADRIAN, MICHIGAN 49221-0608
FORMERLY CABLE CONTROLS DIV OF AMERICAN CHAIN AND CABLE
FORMERLY ACCO IND INC CABLE CONTROLS DIV

80545 AMETEK/HUNTER SPRING
HATFIELD, PENNSYLVANIA 19440
FACILITIES DISCONTINUED

83014 HARTWELL CORPORATION
900 SOUTH RICHFIELD ROAD
PLACENTIA, CALIFORNIA 92670-6732
FORMERLY V0532B IN LOS ANGELES, CALIFORNIA

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PART NUMBER	AIRLINE PART NO.	FIG.	ITEM	TTL REQ
BACB28X4M010		1	35	1
BACB28X4M025		1	30	1
BACB28Y3D063		1	25	1
BACB30LL3-9		1	15	1
BACS12BP04AP5		1	140	2
BACT14A2		1	130	1
BM2488A2		1	130	1
HI2097		1	130	1
HT100-2		1	130	1
MS21209F0610P		1	65	2
MS21209F1-10P		1	45	1
NAS1351C06-6		1	10	2
NAS1352C04LB4		1	82	1
NAS1515M5L		1	20	3
NAS607-2-3P		1	5A	2
P12698		1	90	1
ST2097		1	130	1
ST24-2		1	130	1
416T2164-20		1	115	1
416T2164-21		1	110	1
416T2164-24		1	145	2
416T2185-2		1	80	1
416T2185-3		1	1A	RF
416T2185-4		1	1B	RF
416T2212-1		1	120	1
416T2216-1		1	105	1
416T2217-1		1	100	1
416T2217-2		1	155	1
416T2219-1		1	150	1
416T2220-1		1	135	1
416T2222-1		1	95	1
416T2222-2		1	125	1
416T2222-3		1	55	2
416T2224-1		1	85	1
416T2225-5		1	40A	1
416T2225-6		1	50A	1
416T2227-3		1	60	1
416T2227-4		1	70	1
416T2227-5		1	60A	1
416T2227-6		1	70A	1
8-04057-2		1	130	1

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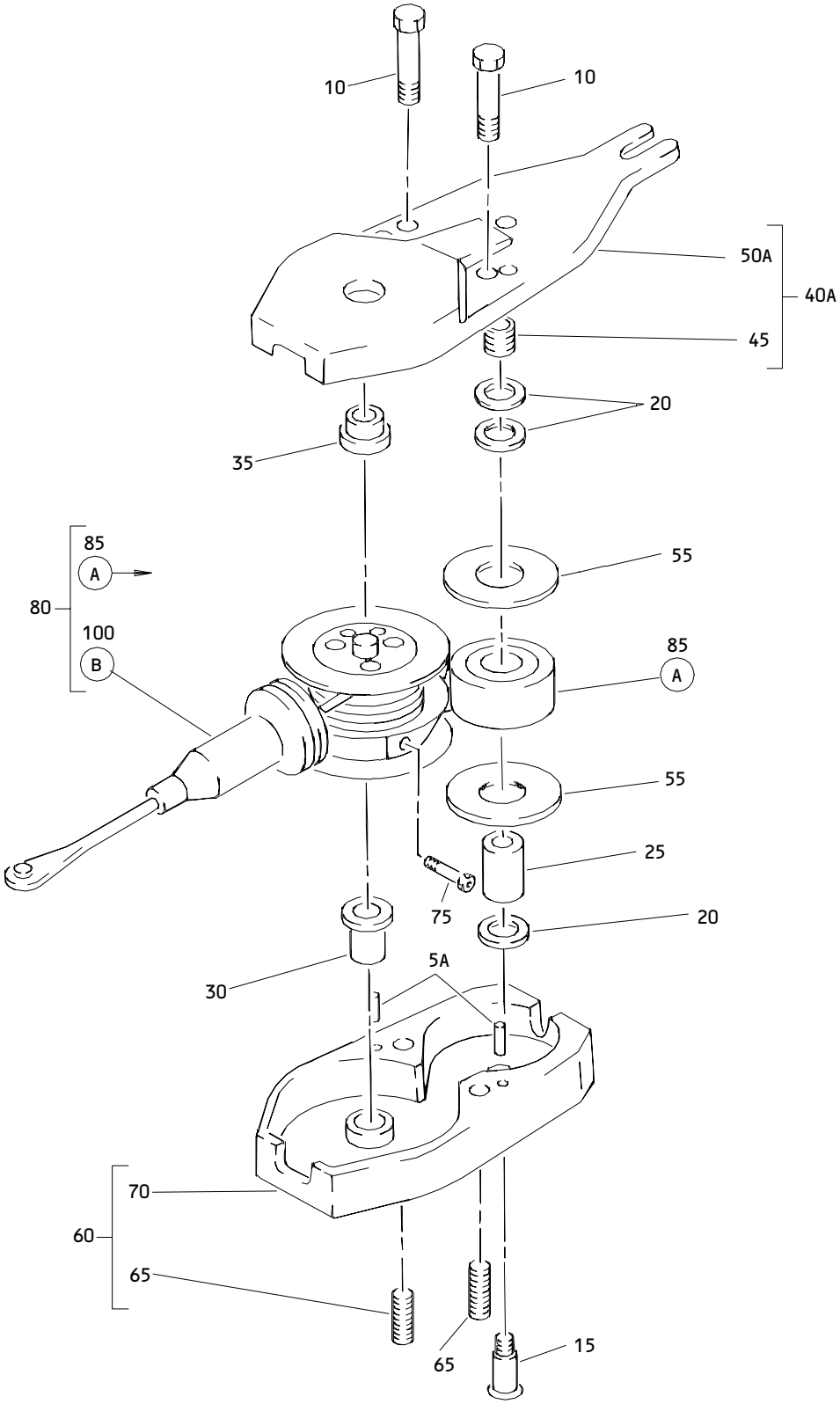

Deployment Cable Retractor Assembly
Figure 1 (Sheet 1)

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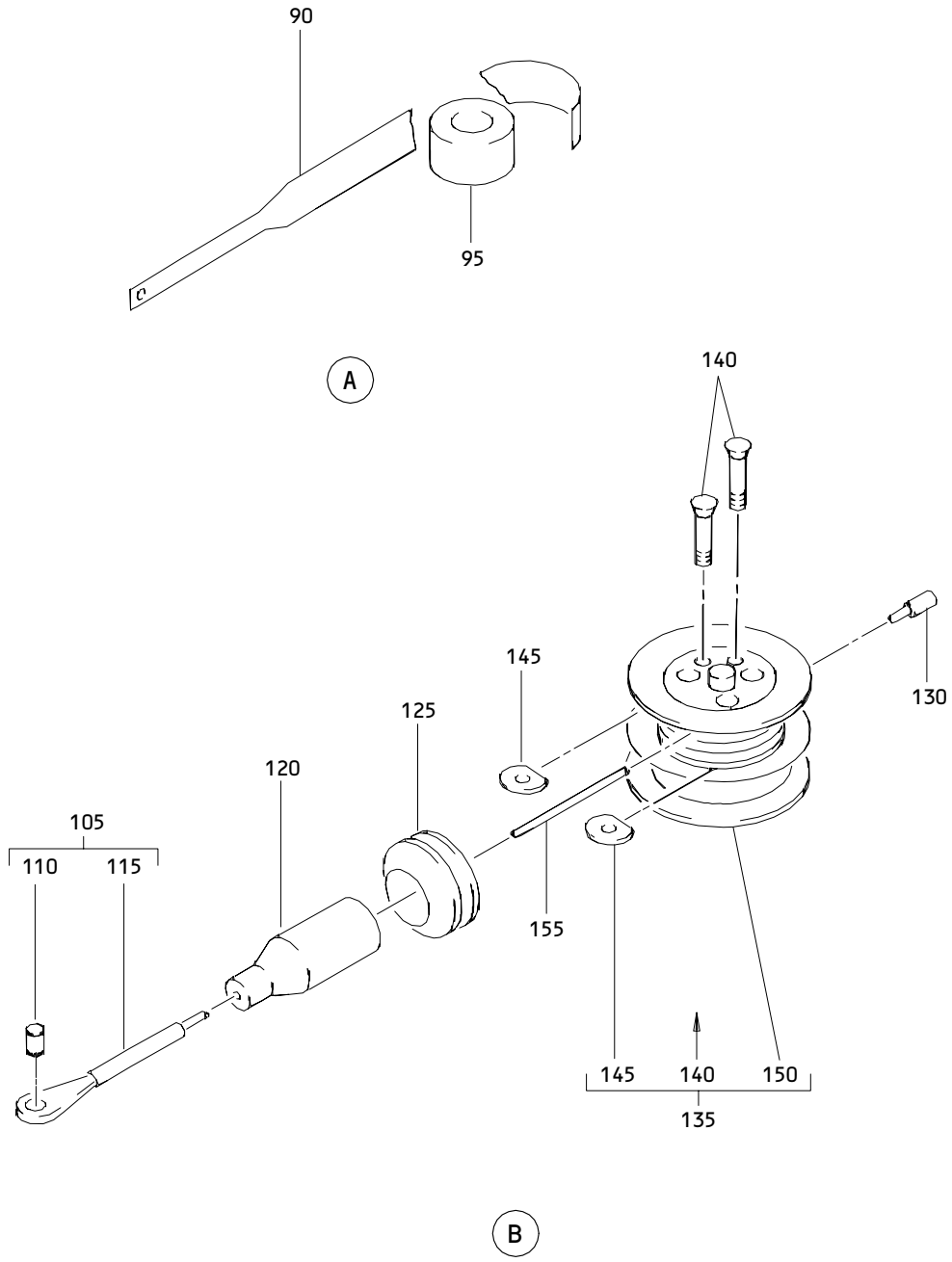

Deployment Cable Retractor Assembly
Figure 1 (Sheet 2)

T56043

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	FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
	01-					
	-1	416T2185-1		DELETED		
R	-1A	416T2185-3		RETRACTOR ASSY-DEPLOYMENT CABLE	A	RF
R	-1B	416T2185-4		RETRACTOR ASSY-DEPLOYMENT CABLE	B	RF
	5	NAS607-2-3		DELETED		
R	5A	NAS607-2-3P		.PIN		2
R	10	NAS1351C06-6		.SCREW		2
R	15	BACB30LL3-9		.BOLT		1
R	20	NAS1515M5L		.WASHER		AR
R	25	BACB28Y3D063		.BUSHING		1
R	30	BACB28X4M025		.BUSHING		1
R	35	BACB28X4M010		.BUSHING		1
	40	416T2225-3		DELETED		
R	40A	416T2225-5		.FRAME ASSY		1
R	45	MS21209F1-10P		..INSERT		1
	50	416T2225-4		DELETED		
R	50A	416T2225-6		..FRAME		1
R	55	416T2222-3		.GUIDE-SPR		2
R	60	416T2227-3		.HOUSING ASSY	A	1
R	-60A	416T2227-5		.HOUSING ASSY	B	1
R	65	MS21209F0610P		..INSERT		2
R	70	416T2227-4		..HOUSING	A	1
R	-70A	416T2227-6		..HOUSING	B	1
	75	NAS1352C04LB4		DELETED		
R	80	416T2185-2		.DRUM ASSY		1
R	82	NAS1352C04LB4		..SCREW		1
R	85	416T2224-1		..SPRING ASSY		1
R	90	P12698		...SPRING- (V80545)		1
R	95	416T2222-1		...DRUM-TAKE UP		1
R	100	416T2217-1		..CABLE ASSY		1
R	105	416T2216-1		...TERMINAL ASSY		1
R	110	416T2164-21		....PIN		1
R	115	416T2164-20		....TERMINAL		1
R	120	416T2212-1		...SNUBBER		1
R	125	416T2222-2		...FAIRLEAD		1

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	FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
	01-					
R	130	HI2097		...TERMINAL- (V26590) (SPEC BACT14A2) (OPT HT100-2 (V83014)) (OPT ST2097 (V80523)) (OPT BM2488A2 (V22277)) (OPT 8-04057-2 (V11328)) (OPT ST24-2 (V65196))		1
R	135	416T2220-1		...DRUM ASSY		1
R	140	BACS12BP04AP5		....SCREW		2
R	145	416T2164-24		....BLOCK-RAD		2
R	150	416T2219-1		....DRUM-CABLE		1
R	155	416T2217-2		...CABLE		1
R				BOEING LETTER HISTORY		

- Item Not Illustrated

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