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BRACE STRUT ACTUATOR

PARTS NUMBERS

19570-100 , 19570-101
19570-100-03

COMPONENT MAINTENANCE MANUAL
WITH
ILLUSTRATED PARTS LIST

STATEMENT OF INITIAL CERTIFICATION

The technical content of this document has been accepted under the authority of the Technical Publications Manager of Messier Dowty SA.

NOTE: The front page will always keep this initial certification. But this certification does not apply to revisions of the CMM. Revisions are certified and recorded on the 'Record of Revisions' page.

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LETTER OF TRANSMITTAL FOR REVISION No 6

1. Permanent revisions

   A. Check that Initial issue/revision No 5 has been recorded as having been inserted in the manual.

2. New/revised pages

SUBJECT REFERENCE	REMOVE/INSERT NEW/REVISED PAGES	REASON OF CHANGE
Title Page	1	Statement of initial certification and copyright modified.
Record of revisions	1	Paragraph and table modified.
Record of temporary revisions	1	Paragraph and table modified.
List of effective Temporary revisions	1	Text added.
List of service bulletins	1	SB added.
List of effective pages	1 and 2	Indication of new chapter and/or chapter deleted.
Table of contents	1 to 4	Indication of new chapter and/or chapter deleted.
Introduction	2	Text added and paragraph 3 deleted.
List of Special Materials	1 to 5	Addresse(s) and/or designation(s) added and/or amended and transferred. ORTHONETOIL P is deleted and replaced by PAINTEX CH PR1826A2 is deleted and replaced by PR1826B2.
	6	New page as a result of text transferred.
Description and operation	1 and 3	Text modified.

SUBJECT REFERENCE	REMOVE/INSERT NEW/REVISED PAGES	REASON OF CHANGE
Testing and fault isolation	101 to 107	Trouble shooting is changed to Fault isolation Text added, deleted and modified.
	102	Paragraph deleted and text modified.
	104	Page transferred and text modified.
	105	Page transferred.
	106 and 107	Pages transferred and paragraphs numbered.
	108	Page blank as a result of page transferred.
Disassembly	303	Text modified as a result of introduction of temporary revision No 3.
	305 and 306	Text modified.
Cleaning	401	ORTHONETOIL P is changed to PAINTEX CH. Manual 32-09-01 is changed to Standard Repair Practices 32-09-01. paragraph modified and transferred.
	402	Page blank as a result of text transferred.
Check	501	Title modified and text transferred.
	502 to 504	Text transferred.
	503	Manual 32-09-01 is changed to Standard Repair Practices 32-09-01.
	505	Page deleted as a result of text transferred.
Repair	601, 602 and 604	Manual 32-09-01 is changed to Standard Repair Practices 32-09-01.
	603	Text figure modified.
	608	PR1826A2 is changed to PR1826B2.
	609 and 610	Paragraph 3 modified.
Assembly	705	Text added and item numbers modified.
	708 and 712	Trouble shooting is changed to Fault isolation
	709	PR1826A2 is changed to PR1826B2. Manual 32-09-01 is changed to Standard Repair Practices 32-09-01.

SUBJECT REFERENCE	REMOVE/INSERT NEW/REVISED PAGES	REASON OF CHANGE
Fits and clearances	802 to 804	Item numbers deleted, added and modified.
	806 and 807	Text figures modified.
Special tools, Fixtures and Equipment	901	paragraph of Messier Services address added.
Illustrated Parts List	1006 and 1007	Vendor's code added, modified and deleted.
	1007	New pages as a result of Vendor's code transferred.
	1008	New pages as a result of Messier-Dowty and Messier Services Contacts added.
	1009 to 1015,	Numerical index: Item numbers inserted, modified and transferred.
	1017 to 1034	Item numbers added, modified and transferred.
	1022	Figure 2 modified as a result of introduction of temporary revision No 3.
	1026	Text figure modified.
	1028	Figure 3A modified.

3. Revision record

A. Record the issue date and insertion date of this revision in the Record of Revisions and retain this Letter of Transmittal.

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RECORD OF REVISIONS

Revisions embodied in this manual and certified by an appropriate Approved Organization, other than that applicable to the initial certification, must be recorded on separate record sheets.

REV No	ISSUE DATE	CERTIFIED BY TECH-PUB MANAGER	REV No	ISSUE DATE	CERTIFIED BY TECH-PUB MANAGER
1	AUG 30/85				
2	MAR 10/86				
3	FEB 18/87				
4	DEC 23/92				
5	Mar 30/01				
6	Jan 31/08				

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RECORD OF TEMPORARY REVISIONS

Keep this record in front of the manual. When you get a temporary revision, put the yellow revision pages into the manual opposite the pages to be changed. Write the revision number, the date at which the revision is put into the manual and your initials. Do not remove the yellow pages until a permanent revision which contains this information is released..

TEMPORARY REVISION NUMBER	PAGE NUMBER	DATE INSERTED	BY	DATE REMOVED	BY
5	1/1				

REASON FOR ISSUE: To inform the operators and the repair stations that subject CMM is changed as follows:

SUBJECT: Correction of the measured heights of springs under load.

Page 1/1	Chapter 3. B. modified

RECORD OF TEMPORARY REVISIONS

Revisions embodied in this manual and certified by an appropriate Approved Organization, other than that applicable to the initial certification, must be recorded on separate record sheets.

REVISION NUMBER	ISSUE DATE	DATE INSERTED	PAGE NUMBER	DATE REMOVED	BY

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LIST OF EFFECTIVE TEMPORARY REVISIONS

No	ISSUE DATE	CANCELLED BY REVISION		REMARKS
		No	DATE	
1	JUL 10/89	4	DEC 23/92	
2	Jul 15/95	5	Mar 30/01	
3	Oct 01/99	5	Mar 30/01	
4	Apr 19/02	6	Jan 31/08	

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LIST OF SERVICE BULLETINS

NOTE: The Service Letters (SL) are usually released to give general information. But some Service Letters can contain more data on procedures or modifications which were given to the equipment user. These Service Letters are thus shown in the SERVICE LETTER Column.

SERVICE BULLETIN NUMBER	SERVICE LETTER NUMBER	REV NUMBER	DATE OF INCORPORATION INTO MANUAL	DESCRIPTION
024-32-004			MAR 10/86	Modification at the locking device P/N 19570-100 and 19570-101 are changed to P/N 19570-100 Amdt. A and 19570-101 Amdt. A
None			FEB 18/87	Replacement of packing preformed of the locking piston P/N 19570-100 Amdt A and 19570-101 Amdt A are changed to P/N 19570-100 Amdt.B and 19570-101 Amdt.B
024-32-017			DEC 23/92	Installation of a priority valve optimized to be operated with hydraulic fluid P/N 19570-100 Amdt B is changed to P/N 19570-100-03 (B)
None			Mar 30/01	New paint (FEE 90) Without evolution
None			Jan 31/08	Replacement of die forging parts with material changed (FEE 94). P/N 19570-100-03B becomes P/N 19570-100 Amdt D P/N 19570-101 Amdt B becomes P/N 19570-101 Amdt C.

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LIST OF EFFECTIVE PAGES

SUBJECT	PAGE	DATE
Title Page	1	Jan 31/08
	2	BLANK
Letter of Transmittal	1	Jan 31/08
	2	Jan 31/08
	3	Jan 31/08
	4	BLANK
Record of Revisions	1	Jan 31/08
	2	BLANK
Record of Temporary Revisions	1	Jan 31/08
	2	BLANK
List of Effective of Temporary Revisions	1	Jan 31/08
	2	BLANK
List of Service Bulletins	1	Jan 31/08
	2	BLANK
List of Effective Pages	1	Jan 31/08
	2	Jan 31/08
Table of Contents	1	Jan 31/08
	2	Jan 31/08
	3	Jan 31/08
	4	Jan 31/08
Introduction	1	Mar 30/01
	2	Jan 31/08
List of Materials	1	Jan 31/08
	2	Jan 31/08
	3	Jan 31/08
	4	Jan 31/08
	5	Jan 31/08
	6	Jan 31/08
Description and Operation	1	Jan 31/08
	2	NOV 30/84
	3	Jan 31/08
	4	NOV 30/84
	5	Mar 30/01
	6	NOV 30/84
Testing and Fault Isolation	101	Jan 31/08
	102	AUG 30/85
	103	Jan 31/08
	104	Jan 31/08
	105	Jan 31/08
	106	Jan 31/08
	107	Jan 31/08
	108	BLANK
Disassembly	301	AUG 30/85
	302	AUG 30/85
	303	Mar 30/01
	304	AUG 30/85
	305	Jan 31/08
	306	Jan 31/08
Cleaning	401	Jan 31/08
	402	BLANK
Check	501	Jan 31/08
	502	Jan 31/08
	503	Jan 31/08
	504	Jan 31/08
Repair	601	Jan 31/08
	602	Jan 31/08
	603	Jan 31/08
	604	Jan 31/08
	605	FEB 18/87
	606	Mar 30/01
	607	Mar 30/01
	608	Jan 31/08
	609	Jan 31/08
	610	Jan 31/08

TABLE OF CONTENTS

SUBJECT OR PARAGRAPH TITLE — Page

SUBJECT OR PARAGRAPH TITLE — Page

TABLE OF FIGURES

INTRODUCTION

1. General - Layout

A. This manual which includes the ILLUSTRATED PARTS LIST, is made to ATA Specification No 100.

B. This manual gives the function of the component and all the instructions for its repair in a specialized workshop to put it in a serviceable condition.

C. The procedures included in this manual are given for your guidance but you can use equivalents (or better procedures) if the facilities of the repair shop permit.

D. This manual does not include instructions on the standard techniques, the widely used suppliers' materials and calendar limits of any type (frequencies, life, storage, etc.) applicable to the component.

E. The procedures used for surface treatments, protections, inspections, etc. are given in the special manual 32-09-01 entitled "STANDARD REPAIR PRACTICES".

F. The instructions contained in this manual can not include all the details of the components because they are based on a normal performance in operation of the unit and of its components which can be damaged with the time.

G. Use at all times, in the repair shop, safety precautions to prevent injury to persons and damage to the component.

H. The manual has been verified by simulation and will be revised as necessary to give current information.

I. The values are given in units of the International System (S.I. units) with the U.S. standard units in parentheses after the S.I. units.

The conversions and abbreviations used are listed, for reference, in the following table:

S.I. UNITS	Abbreviations	U.S. STANDARD UNITS	Abbreviations
Degree Celsius (or centigrade)	°C	Degree Fahrenheit	°F
Millimeter	mm	Inch	in
Newton-meter	N.m	Pound force per foot or Pound force per inch	lbf.ft or lbf.in
Newton	N	Pound force	lbf
Kilogram	kg	Pound (mass)	lb
Gram	g	Ounce	oz
Mega Pascal	MPa	Kilo pound square inch	ksi
Bar	bar	Pound square inch	psi
Square centimeter	cm^2	Square inch	in^2
Cubic centimeter	cm^3	Cubic inch	in^3
Liter	l	Gallon	US Gal
Volt	V	Volt Direct Current	VDC
MilliVolt	mV	Root Mean Square	RMS

2. General - Change in instructions

You must inform Messier-Dowty SA of any problem not shown in this manual, to find a solution that you will use in the shortest possible time.

If the solution found can come into general and repetitive use, a subsequent revision to the manual will be made to introduce this solution.

LIST OF MATERIALS

NOTE: Alternative equivalents are permitted.

PRODUCT NAME	VENDOR'S TRADE NAME	VENDOR'S ADDRESS	WHERE USED				
			TEST	CLEAN	CHECK	REPAIR	ASSEM. ST
Acetone	COMMERCIALLY AVAILABLE			X			
Cleaning product WHITE SPIRIT or Cleaning product PD 680	COMMERCIALLY AVAILABLE			X			X
Stripper ORTHONETOIL P or Stripper MIL-C-25107 MIL-R-25134	S.P.C.A. APPROVED VENDOR	9, Voie de Seine 94290 VILLENEUVE LE ROI FRANCE		X			
	DELETED AND REPLACED BY PAINTEX CH						
Paint stripper PAINTEX CH	S.P.C.A.	9, Voie de Seine 94290 VILLENEUVE LE ROI FRANCE		X			
Corrosion remover DEOXIDINE 624 or DEOXIDINE 670	Société HENKEL Surface Technologies or APPROVED VENDOR	3, Allée Emile Reynaud 77200 TORCY FRANCE				X	

PRODUCT NAME	VENDOR'S TRADE NAME	VENDOR'S ADDRESS	WHERE USED				
			TEST	CLEAN	CHECK	REPAIR	ASSEM. ST
Rubber sealant VITON PR1710	PRODUCT RESEARCH CO	5430,SAN FERNANDO ROAD GLENDALE CA.91203 U.S.A.		X			
Protective product ALODINE 1200 or Protective product (MIL-C-5541 Class 1A)	C.F.P.I. APPROVED VENDOR	28, Bd CAMELINAT 92233 GENNEVILLIERS FRANCE				X	
Paint (See Chapter REPAIR)	COURTAULDS AEROSPACE	75, Bld WINSTON CHURCHILL 76052 LE HAVRE CEDEX FRANCE				X	
Hydraulic fluid FHS or Hydraulic fluid MIL-H-5606 or Hydraulic fluid AIR 3520B	APPROVED VENDOR APPROVED VENDOR APPROVED VENDOR		X				X

PRODUCT NAME	VENDOR'S TRADE NAME	VENDOR'S ADDRESS	WHERE USED				
			TEST	CLEAN	CHECK	REPAIR	ASSEM. ST
Liquid rubber sealant (aluminium color) PR1826A2 ALU LO	LE JOINT FRANCAIS	B.P. 16 84-116 rue Salvador ALLENDE 95871 BEZONS FRANCE				X	X
	DELETED AND REPLACED BY PR1826B2						
Thick rubber sealant (aluminium color) PR1826B2 ALU LO	LE JOINT FRANCAIS	B.P. 16 84-116 rue Salvador ALLENDE 95871 BEZONS FRANCE				X	X
Corrosion remover JENOLITE RRN1 or Corrosion remover MIL-P-16232 Type M Classes 1-2-3 or Corrosion remover GARDOBOND R2912	Ets LIBERON APPROVED VENDOR Société CHEMETALL Traitement de surface	B.P. 18 39210 DOMBLANS FRANCE 51, rue Pierre 92588 CLICHY Cedex				X	

PRODUCT NAME	VENDOR'S TRADE NAME	VENDOR'S ADDRESS	WHERE USED				
			TEST	CLEAN	CHECK	REPAIR	ASSEM. ST
Grease MOLYKOTE 33 MEDIUM	DOW CORNING CORP.	2200 W SALZBURG Bd P.O. BOX 997 MIDLAND MI U.S.A.					X
METHANOL AIR 3651 (O-M-232 GRADE A)	TOUZART ET MATIGNON	8, rue E. Hénaff 94400 VITRY/SEINE FRANCE					X
Cement ARALDITE AW106 + Hardener HV953U or Cement MMA134 Type 1	CIBA SPECIALTY CHEMICALS APPROVED VENDOR	BASEL SWITZERLAND					X
Mineral Protection Compound MOLYKOTE DX	DOW CORNING CORP.	2200 W SALZBURG Bd P.O. BOX 997 MIDLAND MI U.S.A.		X			X
Anti-corrosion product AIR 8136 (PROTEX G6) (MIL-C-11796 CLASS 3)	S.P.C.A.	9, Voie de Seine 94290 VILLENEUVE LE ROI FRANCE					X

PRODUCT NAME	VENDOR'S TRADE NAME	VENDOR'S ADDRESS	WHERE USED				
			TEST	CLEAN	CHECK	REPAIR	ASSEM. ST
Greaseproof paper AIR 8140 CATEGORY 1122 (MIL-B-121B GRADE A CLASS 1 TYPE 2)	S.E.E.T.	117, rue de ROME 75017 PARIS FRANCE					X
Greaseproof cloth AIR 8140 CATEGORY 22 (MIL-B-121C)	INDUTEX	51, Promenade des Ponts 92300 LEVALLOIS-PERRET FRANCE					X
Polyethylene 0,22 mm (0.008 in) thick	PLASTIQUES DU VELAY	LE PEYCHIER 43600 STE SIGOLENE FRANCE					X
Wooden case or cardboard box	MESSIER-BUGATTI	BP 40 78141 VELIZY CEDEX FRANCE					X
Micro-crystalline wax (JAN-P-115)	COMMERCIALLY AVAILABLE						X
KRAFT Paper NFQ 12007	CIE GENERALE DES PAPIERS	42, rue des 7 ARPENTS 93500 PANTIN FRANCE					X

PRODUCT NAME	VENDOR'S TRADE NAME	VENDOR'S ADDRESS	WHERE USED				
			TEST	CLEAN	CHECK	REPAIR	ASSEM. ST
Transparent varnish (to protect labels before dipping them in wax)	COURTAULDS AEROSPACE	75, bd WINSTON CHURCHILL 76052 LE HAVRE CEDEX FRANCE					X
Desiccant AIR 8060 (MIL-D-3464)	D.Y.D.R.A.	12, rue du PORT DE LA CELLE 77670 ST MAMMES FRANCE					X
Heat-sealable cloth AIR 8140 CAT. 1121 (MIL-B-131 CLASS 1)	S.E.E.T.	117, rue de ROME 75017 PARIS FRANCE					X
Adhesive tape (to attach greaseproof paper and cloth, as well as desiccant)	USINES REUNIES	57, bd ORNANO 75018 PARIS FRANCE					X
Cement LOCTITE 307 with Activator LOCQUIC T	LOCTITE CORP.	705, N-MOUNTAIN Road NEWINGTON CT06111 U.S.A.				X	

DESCRIPTION AND OPERATION

1. General

The double-acting brace strut actuator converts hydraulic energy into mechanical energy. It can be mechanically locked in both the retracted position and the extended position.

2. Characteristics

Weight without fluid . . . . . 8.230 kg (18.14 lb)

Overall dimensions:

– height . . . . . 163 mm (6.417 in)

– width. . . . . 75 mm (2.952 in)

– compressed length. . . . . 911 ± 5 mm (35.866 ± 0.197 in)

Length (centre-to-centre)

– compressed . . . . . 862 ± 5 mm (33.937 ± 0.197 in)

– extended . . . . . 1252 ± 5 mm (49.291 ± 0.197 in)

– maximum travel . . . . . 430 ± 1 mm (16.928 ± 0.039 in)

Force provided by the actuator for a pressure of 140 bar (2030.50 psi)

– Rod extending . . . . . 22260 N (5004.25 lbf)

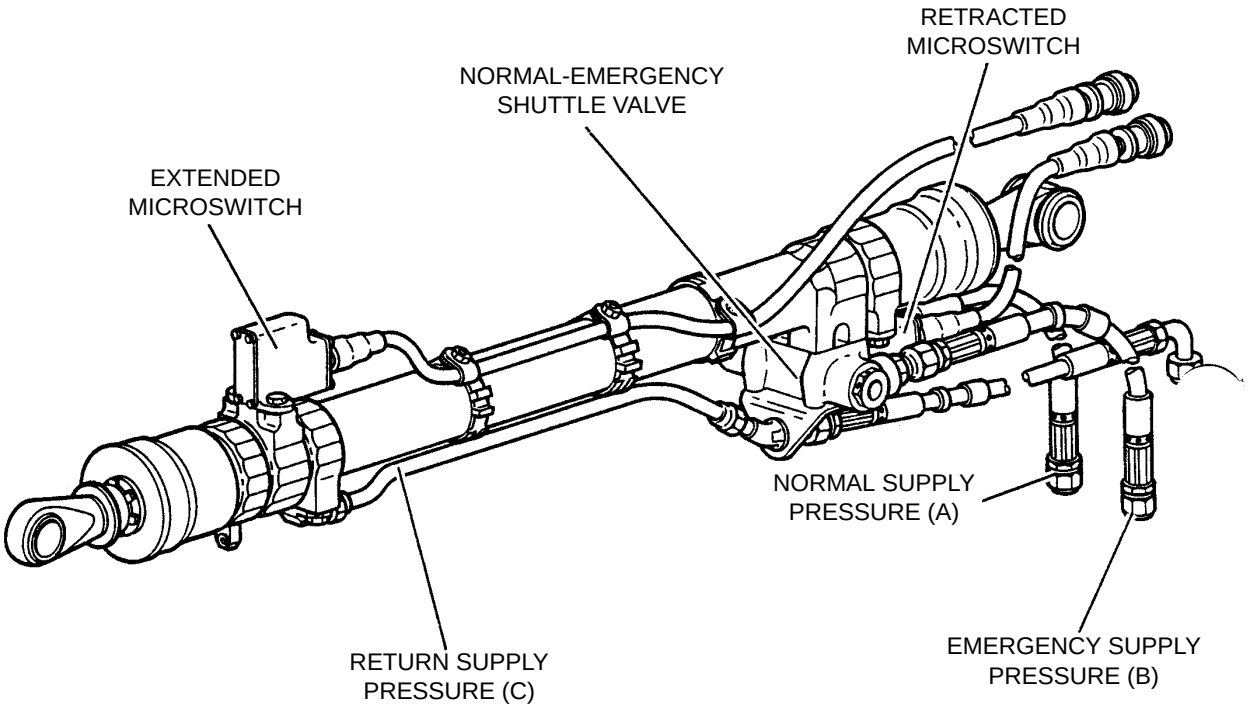
– section . . . . . 15,9 cm^2 (2.46 sq.in)

– rod retracting . . . . . 12360 N (2778.64 lbf)

– section . . . . . 8,84 cm^2 (1.37 sq.in)

Unlocking pressure between 50 bar ≥ and ≥ 25 bar (between 725.17 ≥ and ≥ 362.59 psi)

It is possible to lock the actuator for a return pressure ≤ 15 bar (217.55 psi).



GENERAL VIEW

Connecting ports:

– A Rod extension supply (normal)

– B Rod extension supply (emergency)

– C Rod retraction supply

Operating fluid . . . . . AIR 3520 (MIL-H-5606B) or (MIL-H-83282)

Operating temperature. . . . . -15°C to +50°C (+5°F to +122°F)

3. Description
(see Figure 1)

A. The strut actuator is mainly provided with:

– a shuttle valve, which is used to extend the actuator rod by means of two independent hydraulic systems (normal and emergency),

– two sensor units, which electrically transmit an "actuator locked" or "unlocked" signal,

– a rigid pipe between the retraction supply port and the elbowed union secured to a cylinder support. Three flexible pipes provide connection to the hydraulic power source,

– a cable harness connecting each sensor unit to the electrical power supply system.

B. The unequipped actuator consists of:
(see Figure 1)

– a cylinder assembly provided with a locking claw and a locking piston at either end. Each locking piston drives, through a plunger, a lever housed in a unit on the cylinder. This lever actuates a microswitch indicating the actuator rod position (locked up or locked down).

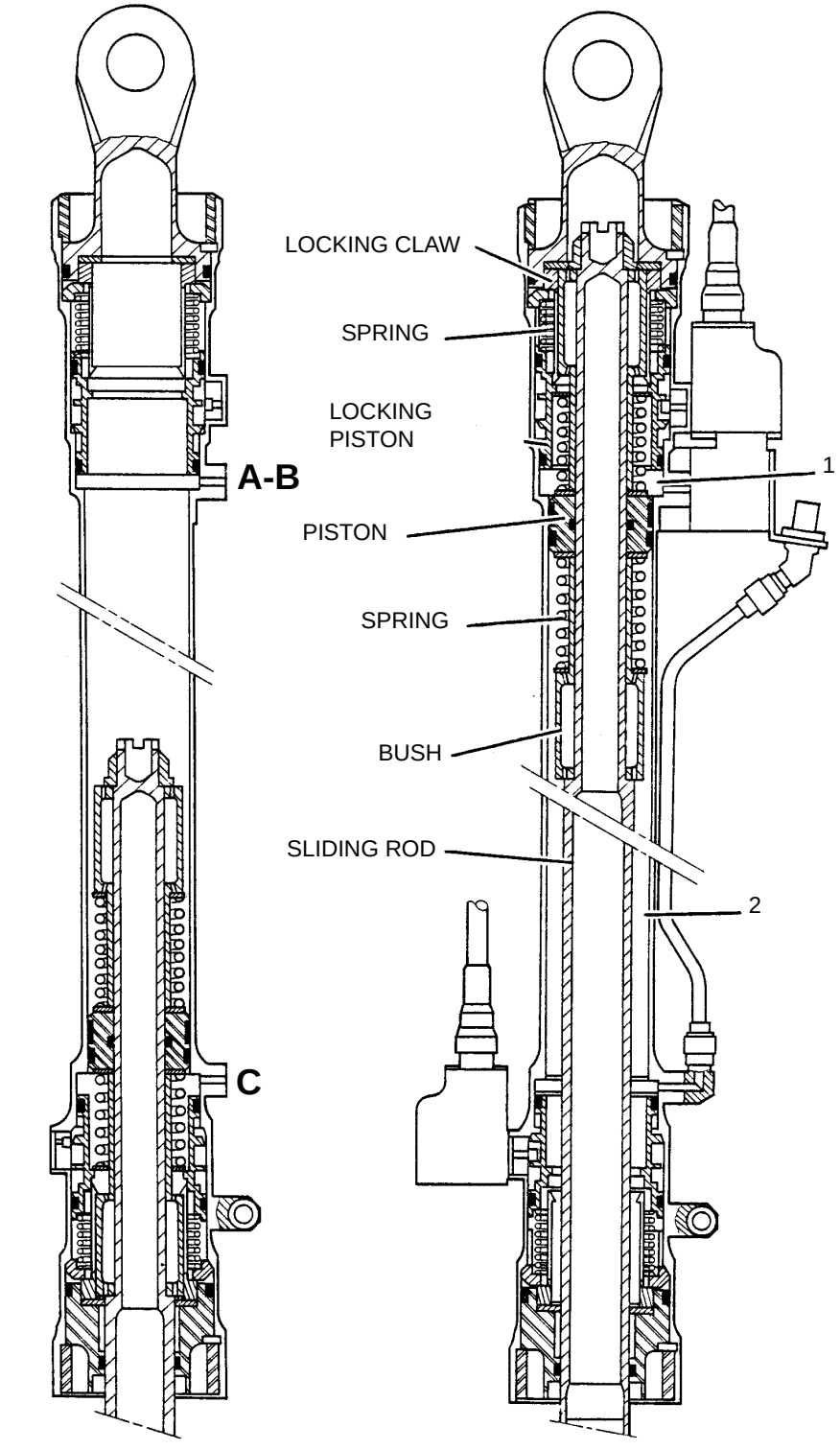

LOCKING CLAW
SPRING
LOCKING PISTON
A-B
1
PISTON
SPRING
BUSH
SLIDING ROD
2
C
EXTRACTED POSITION
RETRACTED POSITION

Figure 1

– a sliding rod fitted with a piston loaded by two springs held by washers.
The spring assemblies are centred by two bushes. A pinned nut holds this stacked assembly in place on the rod.
An adjustable ball fitting is secured to the end of the rod. Rod travel is limited by two bearings, attached to the actuator cylinder by two threaded bushes, themselves fitted with locking pins.

4. Operation

A. Rod extension
(see Figure 1)

The rod is in the "retracted and locked" position and fluid flows between port C and the return system.

The hydraulic fluid admitted through one of the ports of the shuttle valve (normal or emergency) fills chamber 1 and exerts pressure on the rod piston and on the upper locking piston.

The pressure acting on the piston cannot move the rod as it is locked by the claw.

The locking piston moves under the force applied by the pressure and compresses the spring. The claw tongues, freed by the locking piston and driven by the rod movement, are disengaged from the bush shoulder.

The movement of the locking piston actuates the plunger of the sensor unit which transmits an "actuator unlocked" signal.

During the extension of the rod, the hydraulic fluid in chamber 2 is expelled through port C to the reservoir return.

When the rod reaches the end-of-travel position, the locking bush comes in contact with the lower locking claws which are moved apart and engage on the bush.

At the same time, the lower locking piston actuates the plunger of the lower sensor unit which transmits an "actuator locked" signal.

B. Rod retraction

The rod is considered in the "extended and locked" position and fluid flows between shuttle valve ports A and B and the return system.

The hydraulic fluid is then admitted through port C and exerts pressure on the rod piston and on the lower locking piston. Hydraulic fluid flows into chamber 2.

"Rod extended" unlocking, rod retraction and, at end of travel, "rod retracted" locking takes place in the reverse sequence to that indicated in paragraph A.

The hydraulic fluid in chamber 1 is then expelled through the shuttle valve to the return system.

TESTING AND FAULT ISOLATION

1. Testing

A. Test equipment and products

(1) Test equipment

– a tension/compression bench capable of 5000 daN (11240 lbf) with a programmer,

– a hand pump fitted with a tank and a 4-way distributor with a pressure gage,

– a hydraulic power unit capable of 140 bar (2000 psi),

– a switching monitoring unit.

(2) Products

– Hydraulic fluid: AIR 3520 (MIL-H-5606B)
or: MIL-H-83282A

B. Leakage test at nominal pressure

(1) Preliminary steps

Check the actuator for signs of corrosion and impact damage and check that the protective coating is in good condition.

Place the actuator on the bench, connect the hydraulic lines and set the hydraulic power unit into operation.

Operate the actuator to fill and bleed it. Place the actuator rod in the retracted and locked position.

(2) Testing

– Disconnect ports (A and B) and connect port (C) to the hydraulic unit. Apply a pressure of 140 bar (2000 psi) for 3 min. There should not be any leak at free ports (A and B). Release the pressure.

– Disconnect the line from port (C) and connect port (A) to the hydraulic unit.

– Connect port (C) to the reservoir return. Supply through (A); the actuator rod performs its travel and locks in the extended position. Hold the pressure at 140 bar (2000 psi) for 3 min. There should be no leak from the joint lines and at the rod end. A 30 drop/min. leakage is permissible at free port (B). Release the pressure.

– Disconnect the line from port (A) and connect port (B) to a hand pump. Supply and hold the pressure at 140 bar (2000 psi) for 3 min. There should be no leak or seepage at the joint lines and at the rod end. A 15 drop/min. leakage is permissible at free port (A).

C. Operation check

(1) Preliminary steps

– Check that the actuator rodslides smoothly along its entire travel.

– Couple the actuator to the tension/compression bench and connect ports (A and C) to the hydraulic power unit.

(2) No-load test of the actuator

– Through the 4-way distributor, cycle the actuator several times through full stokes, at a pressure of 140 bar (2000 psi).

– Using the indicator light box, check that the contactors cut in as soon as locking has taken place (rod retracted or extended) and that they trip out at unlocking (the rod begins to retract or extend).

(a) Rod extension check

– With the rod retracted, supply the actuator through port (A) and check that the unlocking pressure is equal to or greater than 25 bar (362 psi).

(b) Rod retraction check

– With the rod extended and locked, supply the actuator through port (C).

Progressively increase the pressure and check that unlocking is obtained for a pressure equal to or greater than 24 bar (348 psi).

Continue retracting the rod until the locking bushing is in contact with the claw. Release the pressure. Progressively supply the actuator through port (C) and check that the locking has been obtained at a pressure less than 18 bar (261 psi).

(c) Locking check - "Emergency" supply

– Set the distributor to the neutral position (actuator rod extended, locking bushing resting against the claw). Supply the "emergency" port (B) of the actuator using the hand pump and check that the pressure required to lock the rod is not greater than 15 bar (218 psi) or 29 bar (420 psi) (POST SB 024-32-017).

(3) Check of actuator under load

– Lock the actuator in the rod retracted position and connect ports (A and C) to the hydraulic power unit.

– Using the tension compression bench, apply a tension load of 235 daN (529 lbf) to the actuator.

Supply through port (A) and check that unlocking and complete extension of the rod are obtained for a pressure less than or equal to 50 bar (725 psi).

– Perform 25 complete cycles, checking that the load remains constant.

Inspect the actuator rod.

The fluid leakage should not exceed 1 drop after 25 cycles.

CAUTION: AFTER THESE TESTS, THE ACTUATOR ASSEMBLY SHOULD SHOW NO SIGNS OF DISTORTION.

– With the actuator rod extended and locked, exert a compression load of 3536 daN (7949 lbf) for 3 min. to check the locking efficiency. Remove the compression load.

– With the actuator rod extended and locked, exert a tensile load of 2272 daN (5107 lbf) for 3 min. to check for correct locking of the rod.

CAUTION: AFTER THESE TESTS, THE ACTUATOR ASSEMBLY SHOULD SHOW NO SIGNS OF PERMANENT DISTORTION.

NOTE: In case of defects, refer to the section "Fault isolation".

(4) Check of the clearances between bush (2-140) and stop (1-140) and between bush (2-20) and stop (2-250).

NOTE: Before each check, position the measuring tool SK30410 on the rod, so that the dial gage is in contact with a point on the bearing (2-310).

(a) Rod extended

– Connect port C to the reservoir.

– Apply a pressure of 30 bar (435 psi) to port A.

– Set the dial gage to 0.

– Release the pressure at port A.

– Apply a pressure of 10 bar (145 psi) to port C and check that the movement of the claws is between 0,04 and 0,15 mm (0.0016 and 0.0059 in).

(b) Rod retracted

– Apply a pressure of 30 bar (435 psi) to port C.

– Set the dial gage to 0.

– Release the pressure at port C.

– Apply a pressure of 10 bar (145 psi) to port A and check that the movement of the claws is between 0,04 and 0,15 mm (0.0016 and 0.0059 in).

2. Fault isolation

FAULT	POSSIBLE CAUSE	CORRECTION
A. External leaks		
(1) Leak at the shuttle valve body (3-20)	- Preformed packing (1-40) defective	- Replace the preformed packing
(2) Leak at plug (3-80) of shuttle valve.	- Preformed packing (3-90) defective	- Replace the preformed packing
(3) Leak at straight coupling (4-110)	- Preformed packing (4-100) defective	- Replace the preformed packing
(4) Leak at straight coupling (4-180)	- Preformed packing (4-170) defective	- Replace the preformed packing
(5) Seepage at the joint line of between body (1-20) and nut (2-340)	- Preformed packing (2-260) defective	- Replace the preformed packing - Perform leakage tests
(6) Fluid seepage along rod (2-10)	(a) Preformed packing (2-290) and/or segment (2-280) damaged	- Replace the preformed packing and segment - Leakage and operation tests

FAULT	POSSIBLE CAUSE	CORRECTION
	(b) Deterioration of the chromium-plated part of the rod.	- Remove the rod - Re-chromium plate the rod (see section REPAIR) - Check the preformed packing of the removed parts and replace them if necessary. - Install the rod - Perform the leakage and operation tests.
(7) Seepage at the joint line between body (1-20), nut (1-210) and ball-fitting assembly (1-180)	Preformed packing (1-150) defective	- Replace the preformed packing - Perform the leakage tests.
B. Internal leaks		
(1) Increased operating times	(a) Bore of body (1-20) damaged	- Partially disassemble the actuator. - See section "REPAIR" - Check the preformed packings of the disassembled parts. - Run complete tests.

FAULT	POSSIBLE CAUSE	CORRECTION
	(b) Segment (2-90) and preformed packing (2-80) defective	- Remove the rod assembly - Replace the segment and preformed packing - Checking the preformed packings of the removed parts - Perform the leakage and operation tests.
C. Mechanical failures		
(1) Does not lock with the rod retracted or extended position.	- Spring (2-120 or 2-40) defective	- Remove the rod assembly - Replace the defective spring(s) - Check the preformed packing of the removed parts. - Perform all tests
D. Electrical failures		
(1) Incorrect indication with the rod locked in retracted or extended position.	- Switches (3-410) or (3-530) mal-adjusted or defective.	- Adjust the switching or replace the switch(es).

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DISASSEMBLY

NOTE: The component parts of the brace strut actuator are shown in Figure 1 to Figure 4 of the Illustrated Parts List.

Two situations are to be taken into consideration: partial disassembly, or complete disassembly depending on the reasons for the return to works.

1. Preliminary steps
   - Place the actuator on a suitable stand fixture to facilitate the disassembly operations.
   - Use a spatula to remove external coatings or beads of rubber sealant covering the bolts, screws and nuts, taking care not to damage surface protective treatments.
   - Note down all inscriptions shown on plates (2-430, 2-440 and 2-450).
   - Place the brace strut actuator in the "rod retracted and unlocked" position.
   - Perform disassembly operations over a fluid scavenge pan.
2. Removal of attached components

   A. Removal of electrical harnesses (3-360 and 3-480)
      - Remove screws (3-380 and 3-500), then washers (3-370 and 3-490).
      - Remove the switches units (3-410 and 3-530).

B. Removal of supply circuit components

(1) Hoses (4-120, 4-190, 4-240).

– Unscrew the nuts and remove hoses (4-120, 4-190 and 4-240).

– Fit storage plugs (4-130, 4-200 and 4-250).

(2) Tube assembly (3-300)

– Unscrew the nuts and remove tube assembly (3-300).

(3) Coupling (3-250)

– Remove screws (3-270), washers (3-260) and coupling (3-250).

(4) Shuttle valve (3-10)

– Remove nut (3-350) and elbowed coupling (3-340).

– Remove screws (3-220), washers (3-210) and support (3-200).

– Remove shuttle valve (3-10) and install storage plugs (3-120 and 3-140) fitted with their seals (3-130 and 3-150), on the hydraulic ports.

3. Removal of basic components

A. Removal of ball-fitting assembly (2-380)

– Unsafety nut (2-400).

– Hold the ball-fitting and unscrew nut (2-400).

– Remove ball-fitting (2-380), discard lockwasher (2-390) and remove nut (2-400).

B. Removal of the rod assembly

- Grip the actuator in a vice fitted with soft jaws.
- Loosen nut (2-340) using tool OU50637.
- Remove pin (2-530) and extract bearing (2-310).
- Remove segment (2-300). Remove and discard segment (2-280), preformed packing (2-290A) and scraper ring (2-320). Remove segment (2-270) and retaining ring (2-330).

  Or:
  Remove and discard segment (2-280) packing assembly (2-290B) and spacer ring (2-320). Remove segment (2-270) and retaining ring (2-330).
- Extract stop (2-250) and remove claw (2-240).
- Extract stop (2-230) and remove spring (2-210).
- Extract the rod assembly from the body to disengage locking piston (2-200).
- Remove segments (2-170) and (2-180) from piston (2-200) and discard preformed packings (2-160) and (2-190).

C. Disassembly of the body assembly

- Remove and discard preformed packings (1-40).
- Using tool OU50636, remove nut (1-210), then remove pin (1-220).
- Successively remove ball-fitting (1-180), claw (1-130), stop (1-140), stop (1-120), spring (1-100) and ring (1-110).
- Extract locking piston (1-90).
- Remove segments (1-60), (1-70) and (1-160), then remove and discard preformed packings (1-50), (1-80) and (1-150).

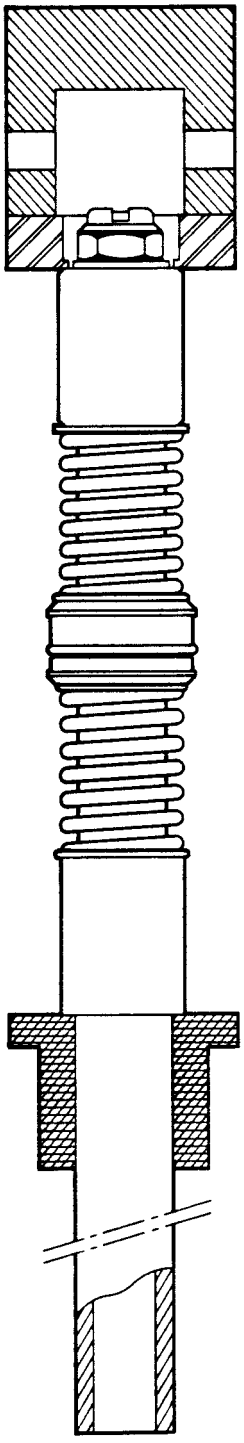

Figure 301

– Using a duraluminum drift, remove bushes (1-200).

– Remove ball (1-190).

– Remove bushes (1-30).

D. Removal of ball (2-420)

– Machine away one swaging lip of the ball cage.

CAUTION: DO NOT DAMAGE THE CHAMFER OR END FITTING (2-410) DURING MACHINING.

– Using a duraluminum drift, remove ball (2-420).

E. Disassembly of rod (2-10)
(see Figure 301)

– Place the rod assembly on the press and position the compression tools OU50706 as well as support wrench OU50638.

– Unlock nut (2-150).

– Apply a load greater than 165 daN (371.25 lbf) to bush (2-140) and remove nut (2-150).

– Slowly release the pressure so as to prevent ejection of the parts.

– Successevely remove bush (2-140), washer (2-130), spring (2-120), thrust washer (2-110), piston (2-100), washer (2-50), spring (2-40), washer (2-30) and bush (2-20).

CAUTION: MARK THE SPRINGS (2-40) AND (2-120) TO AVOID INSTALLING ONE IN THE PLACE OF THE OTHER ON ASSEMBLY.

– Remove two segments (2-70) then remove and discard preformed packing (2-80) and segment (2-90).

F. Removal of plates (2-430), (2-440) and (2-450)

Immerse the relevant areas of the part in a bath of acetone, and clean.

G. Disassembly of priority valve (3-10B)

- Unsafety and remove plugs (3-80B), then remove spring (3-50B).
- Remove and discard preformed packings (3-90), (3-70) and (3-65).
- Drive out shuttle valve (3-40B) and extract liner (3-30B).

H. Disassembly of priority valve assy (3-10C)
(see IPL Figure 3A)

- Remove plug (3-80C) on port B side.
- Withdraw seat (3-60B). Remove valve (3-40C) and spring (3-50C).
- Remove the second plug (3-80C).
- Withdraw the second seat (3-60B) and the liner (3-30C).
- Remove and discard preformed packings (3-70) and (3-90).

CLEANING

NOTE: The suppliers of recommended products and materials are listed in the preliminary pages of this manual.

1. Standard procedure

   Standard Repair Practices 32-09-01 contains all the instructions required to clean and strip the parts.

   The processes applicable to this section are:

   – Paint stripping: Section 28 or 29.

   – Sealing of mating parts with VITON - based sealed: Section 25.

2. Cleaning

   Before cleaning the parts, remove and discard all seals and preformed packings using the curved end of spatulas OU50011 and OU50071 to extract them from their grooves.

   – Use solvent DI PYROLAC 1591 to clean those sections of the parts which are coated with MOLYKOTE DX.

   – Then clean all the parts with WHITE SPIRIT and dry them with a dry jet of air.

3. Stripping

   A. Preliminary steps

      (1) Before starting to strip the painted parts, seal off shrink-fitted or force-fitted items with a bead of VITON sealant, so as to prevent the stripper from penetrating between the mating surfaces.

      (2) Use a suitable masking technique to protect the balls and Airflon bushes.

4. Operation

   Strip the paint by:

   – applying SCALPEX

   – or by immersing in PAINTEX CH.

   CAUTION: DO NOT ALLOW THE STRIPPER TO COME INTO CONTACT WITH THE EYES OR THE SKIN, OR WITH ANY RUBBER OR PLASTIC MATERIALS;

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CHECK

NOTE: The component parts of the main brace strut actuator are shown in Figure 1 to Figure 4 of the Illustrated Parts List.

The suppliers of recommended products and materials are listed in the preliminary pages of this manual.

1. Visual inspection

   A. General inspection

      (1) Examine each part for signs of corrosion, assess their extent (area and depth) and location (fatigue area). In case of localized corrosion, which does not justify rejection of the part, remove the corrosion as indicated in "REPAIR".

      (2) Check moving or fixed sealing parts for signs of impact damage or circular or longitudinal scores.

      (3) Carefully inspect the grooves (sides and bottom) of the parts receiving back-up rings or sealing rings.

      (4) Check that the threads do not show any signs of impact damage, crushing or stripping.

      (5) Check each part for cracks, especially in the fatigue areas.

   B. Detailed inspection

      (1) Inspection of hoses and tubes.

         (a) Check the nuts and coupling bushes for cracks.

         (b) Check that the crimped bushes do not turn on the pipes.

         (c) Check for cuts and metal pick-up.

         (d) Check the threads for condition.

         NOTE: Systematically discard any pipe showing any of the defects indicated above.

(2) Inspection of rod (2-10)

– Check the chromium-plated surface of rod (2-10) for condition. In case of scores or flaking, the surface can be restored in accordance with the instructions given in the section REPAIR.

(3) Inspection of body (1-20)

– Using an endoscope, thoroughly check the bores in body (1-20) for condition. If the bearing surfaces in contact with the locking pistons are scored, remove the scores in accordance with the Section REPAIR.

(4) Inspection of rilsan-coated parts

– Check for scores; check the Rilsan coating for correct adhesion (no incipient lifting-off) on ball (2-420) and bushes (1-200).

(5) Inspection of claws (1-130), (2-240) and locking pistons (1-90), (2-200)

(a) Check the tangs of the claws for signs of peening.

If the tang profile is distorted, discard the defective claw.

(b) Check the chamfer of each locking piston bearing surface for signs of peening. If the profile is defective, discard the relevant piston.

(6) Inspection of springs (1-100), (2-40), (2-120), (2-210) and (3-50)

Check springs (1-100), (2-40), (2-120), (2-210), and (3-50) for distortion or breaks. Check their dimensions as indicated in paragraph 3.

(7) Inspection of the priority valve

Check the liner (3-30) and shuttle valve (3-40) for scores. Systematically discard the part in case of surface defects.

2. Metallurgical inspection

A. Inspection of non-ferrous alloy parts

Check these parts for cracks by applying one of the penetrant inspection processes described in Standard Repair Practices 32-09-01, paying particular attention to the following parts:

- piston (2-100),
- bearing (2-310),
- nuts (2-340) and (1-210),
- ball (1-190),
- bushes (1-200),
- valve body (3-20),
- support (3-200),
- coupling (3-250),
- coupling (3-340)

B. Checking steel parts

Check these parts for cracks by applying the magnetic particle inspection process described in Standard Repair Practices 32-09-01, paying particular attention to the following parts:

- body (1-20),
- locking pistons (1-90, 2-200),
- stops (1-120, 2-230),
- claws (1-130, 2-240),
- stops (1-140, 2-250),
- ball-fitting (1-180),
- rod (2-10),
- locking bushes (2-20, 2-140),
- washers (2-30, 2-130, 2-50, 2-110),
- nuts (2-150, 2-400, 3-350),
- end-fitting(2-410),
- liner (3-30),
- shuttle valve (3-40),
- plugs (3-80),
- couplings (4-110, 4-180).

TEMPORARY REVISION: No 5
FILING INSTRUCTIONS: insert opposite page 504
of the issue Jan 31/08

(1) Measure the dimensions of the parts listed in "FITS AND CLEARANCES" and incorporated in moving assemblies.

(2) Compare the values recorded to the dimensions indicated in the table and determine whether the part can be re-used or must be reworked to meet the required standard.

(3) Check that the value of the play between locking bush (2-20) and stop (2-250), and between locking bush (2-140) and stop (1-140) is between 0,04 mm (0.0016 in) and 0,15 mm (0.0059 in).

A. Check of detail parts

(1) Spring (1-100) and (2-210)

Check the calibration of the spring which should be 28 mm (1.1023 in) long under a load between 180 to 220 N (40.465 to 49.457 lbf).

(2) Spring (2-40)

Check the calibration of the spring which should be 40,5 mm (1.5945 in) long under a load between 950 to 1045 N (213.568 to 234.925 lbf).

(3) Spring (2-120B)

Check the calibration of the spring which should be 40,5 mm (1.5945 in) long under a load between 700 to 770 N (157.366 to 173.102 lbf).

Spring (2-120C)

Check the calibration of the spring which should be 40,5 mm (1.5945 in) long under a load between 800 to 880 N (179.847 to 197.831 lbf).

(4) Spring (3-50B)

Check the calibration of the spring which should be 30 mm (1.1811 in) long under a load between 4,5 to 5,5 N (1.011 to 1.236 lbf).

Spring (3-50C)

Check the calibration of the spring which should be 20,5 mm (0.8070 in) long under a load between 20 to 22 N (4.496 to 4.945 lbf).

3. Dimensional check

NOTE: If the surface condition on the parts to be measured is locally damaged, recondition the damaged surface if necessary, in accordance with the section REPAIR.

A. Check of the mating parts

(1) Measure the dimensions of the parts listed in "FITS AND CLEARANCES" and incorporated in moving assemblies.

(2) Compare the values recorded to the dimensions indicated in the table and determine whether the part can be re-used or must be reworked to meet the required standard.

(3) Check that the value of the play between locking bush (2-20) and stop (2-250), and between locking bush (2-140) and stop (1-140) is between 0,04 mm (0.0016 in) and 0,15 mm (0.0059 in).

B. Check of detail parts

– Check the elastic characteristics of springs (1-100), (2-210), (2-40), (2-120B), (2-120C), (3-50B) and (3-50C) by measuring the heights before and after applying load P1.

(1) Spring (1-100) and (2-210)

After applying load P1 = 180 to 220 N (40.465 to 49.457 lbf), check that the length of the spring is still H1 ~ 142 mm (5.5905 in).

(2) Spring (2-40)

After applying load P1 = 950 to 1045 N (213.568 to 234.925 lbf), check that the length of the spring is still H1 ~ 67,5 mm (2.6574 in).

(3) Spring (2-120B)

After applying load P1 = 700 to 770 N (157.366 to 173.102 lbf), check that the length of the spring is still H1 ~ 89,5 mm (3.5236 in).

Spring (2-120C)

After applying load P1 = 800 to 880 N (179.847 to 197.831 lbf), check that the length of the spring is still H1 ~ 64,5 mm (2.5393 in).

(4) Spring (3-50B)

After maximum compression, check that the length of the spring is still H1 ~ 43 mm (1.6929 in).

Spring (3-50C)

After maximum compression, check that the lenght of the spring is still H1 ~ 23,7 mm (0.9330 in).

REPAIR

NOTE: The component parts of the main brace strut actuator are shown in Figure 1 to Figure 4 of the Illustrated Parts List.

The suppliers of recommended products and materials are listed in the preliminary pages of this manual.

1. General instructions

   A. Standard repair procedures

   Standard Repair Practices 32-09-01 contains all special treatments (cleaning, stripping, procedure, protection, inspection).

   B. Corrosion removal

      (1) Remove deep traces of corrosion by abrasion of the areas concerned, using an oilstone or a fiberglass brush, provided that the minimum or maximum dimensions (O.D. or I.D.) are not affected where hinged or mating parts are concerned.

      (2) Remove light traces of corrosion by a chemical process, using an appropriate product, provided that the extent of the corrosion does not alter the mechanical strength of the part.

      Recommended products:

      (a) For steel parts, use JENOLITE RRN1.

NOTE: Do not use a chemical process to remove corrosion on springs (1-100), (2-40), (2-210) and (3-50) and locking claws (1-130) and (2-240) because of the embrittlement effect brought about when such a process is used on steels.

(b) For aluminum alloy parts, use DEOXIDINE 624.

For the use of these products, refer to sections 20 and 22 of Standard Repair Practices 32-09-01.

C. Positioning of parts to be rebored on the machine tool

(1) Center the part on the machine tool with respect to the bores to be machined, if their condition allows.

(2) Center the part in relation to the axes and the positioning dimensions indicated in the corresponding figure.

D. Temporary protective treatment

An anti-corrosion protective treatment is to be applied to the parts pending restoration of their protective treatment, or remachining, or reassembly.

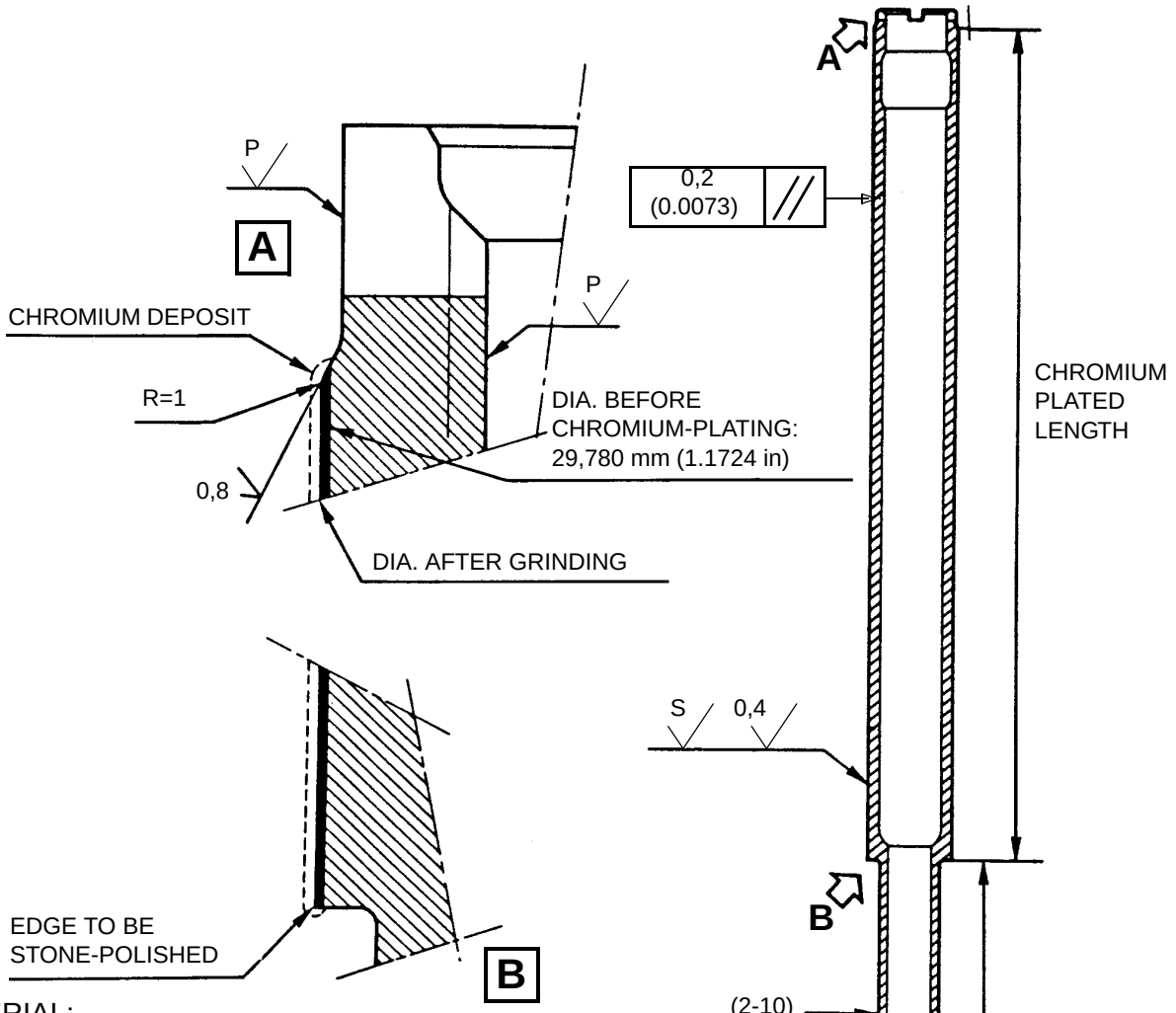
– Recommended product: ROCKET WD40 (MIL-C-23411).

NOTE: This protective treatment may be easily removed with WHITE SPIRIT.

2. Detailed instructions

A. Minor repair

Whenever possible, remove superficial defects from each part within the limits indicated in the section "FITS AND CLEARANCES"



MATERIAL:
ROD (2-10) STEEL 35 NCD16-UTS:
1080 TO 1270 MPa (156.6 TO 184 ksi)

KEY:

0,4 : 0,4 MICRON (16 MICRO-INCHES)

0,8 : 0,8 MICRON (32 MICRO-INCHES)

// : PARALLELISM

MINI.DIA. BEFORE CHROMIUM-PLATING: 29,700 mm (1.1693 in) ALLOWED FOR REPAIR.

P : PAINT SCHEME EXCEPT IN AREAS MARKED S

S : AREAS NOT TO BE PAINTED

Repair
Figure 601

B. Major repair

(1) Repair of rod (2-10) (See Figure 601)

(a) Remove the chromium-plating and apply a Type II oversize chromium-plating in accordance with Section 2 of Standard Repair Practices 32-09-01.

(b) Grind and polish the chromium-plated surface so as to obtain a dia. A between 29,959 and 29,980 mm (1.1795 and 1.1803 in).

(c) Remachine the chamfers as shown on the figure, then further out the chromium-plating run-outs.

NOTE: The minimum thickness of chrome after grinding should not be less than 0,09 mm (0.0035 in).

(d) Paint in accordance with paragraph.

(2) Repair of body (1-20) (See Figure 602).

(a) Repair of dia. A and dia. B bores

– Rebore diameters A and B until the defects are removed, complying with the indications given on the figure and not exceeding the maximum dimensions laid down for these diameters

– Lap to obtain the required surface condition.

(b) Repair of dia. C bore

– Lap to remove the scores or scratches in the body bore.

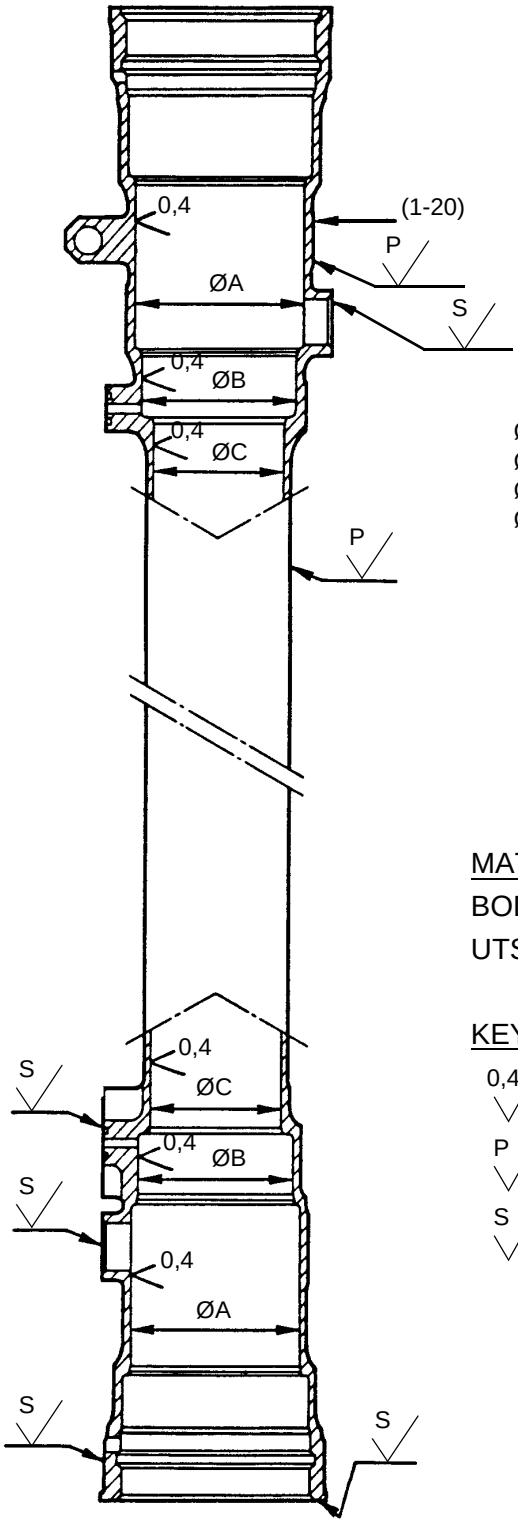
– The original dimension is

45H8 $^{+\,0.039}_{+\,0}$ mm 1.7716 $^{+\,0.0015}_{+\,0}$ in)

Surface condition: 0,4 $\sqrt{}$

– The maximum dimension after lapping is
45,116 mm (1.7762 in).

Surface condition: 0,4 $\sqrt{}$



Ø = DIA
ØA maxi = 58,138 mm (2.2888 in)
ØB maxi = 53,138 mm (2.0920 in)
ØC maxi = 45,116 mm (1.7762 in)

MATERIAL:
BODY (1-20): STEEL 35 NCD16 -
UTS: 1080 TO 1270 MPa (156.6 TO 184 ksi)

KEY:
0,4 : 0,4 MICRON (16 MICRO-INCHES)
P : PAINT EXCEPT IN AREAS MARKED S
S : AREAS NOT TO BE PAINTED

Repair
Figure 602

(3) Replacement of bushes (1-200) (See Figure 603)

(a) Remove the bushes.

(b) Repair of ball (1-190).

– Re-machine dia. A.

CAUTION: THE MAXIMUM VALUE AFTER REMACHINING IS: 30,014 mm (1.1816 in).

– Remove sharp edges.

(c) Installation of the bushes

– Apply LOCTITE 307, then fit bushes (1-200) into ball (1-190).

– Check dimension “B” as per figure.

(4) Replacement of bushes (1-30) (see Figure 604)

(a) Remove bushes (1-30)

(b) Repair of the bore of body (1-20)

– Remachine dia. A bore until the defects are totally removed, making sure not to exceed the maximum remachining dimension.
10,528 mm (0.4145 in).

– Record the exact value of dia. A bore.

– After machining the cylinder, apply cadmium plating (10-micron thick) to the bore.

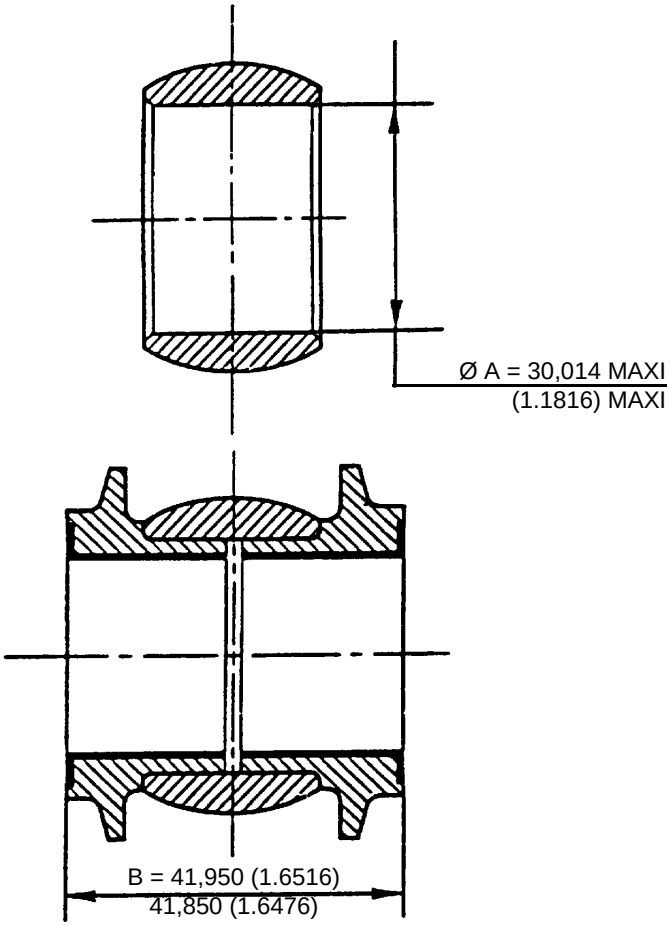
(c) Installation of the bushes

– Remachine the bushes (1-31) to suit the values recorded for A dia bore.

– Remachine the blending radius and remove sharp edges.

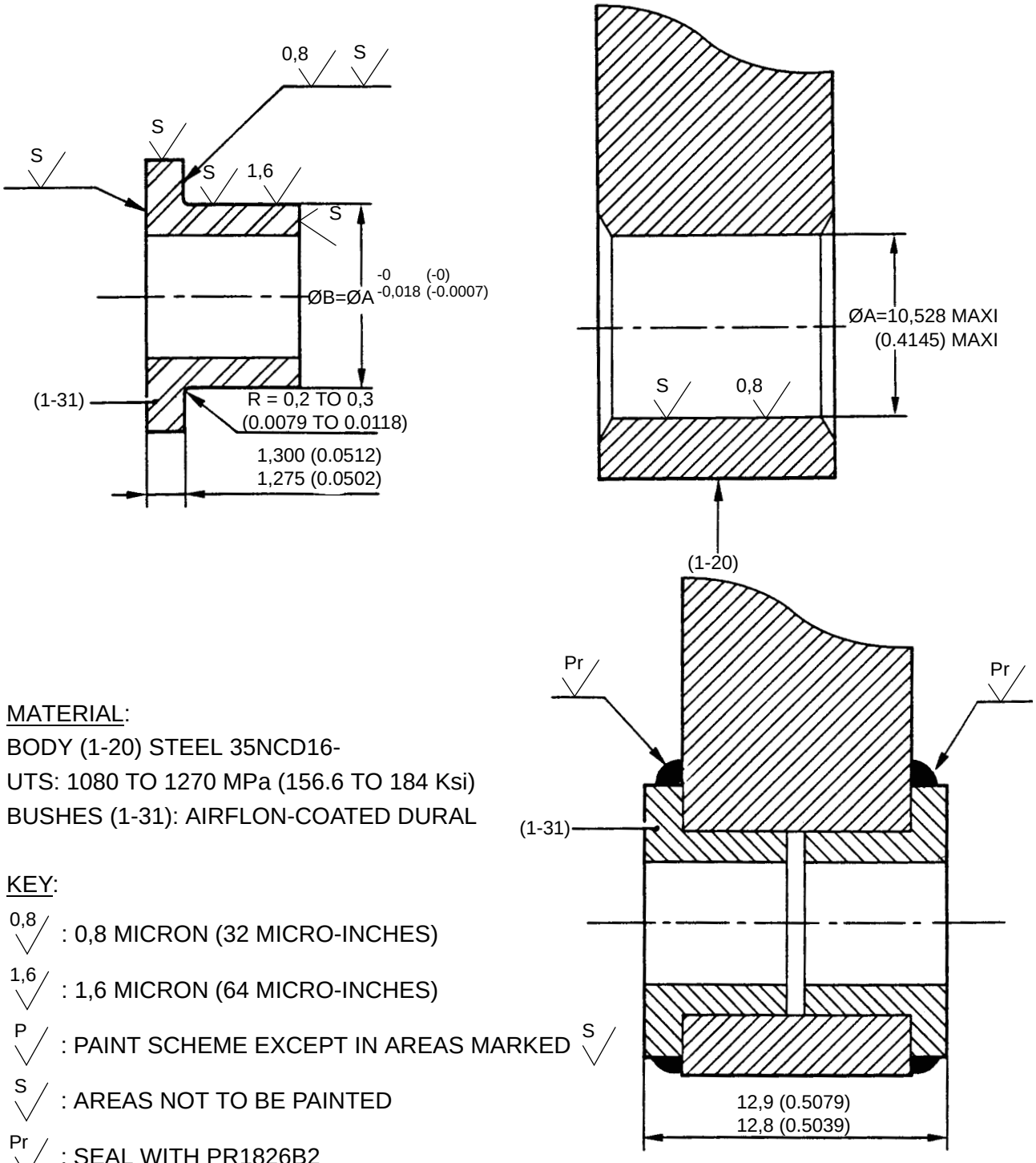
– Apply ALODINE 1200 to the reworked surfaces.

– Fit the bushes (1-31) on the cylinder (1-20) after application of LOCTITE 307 in between.



MATERIAL:
BALL (1-190): STAINLESS STEEL Z 100 CD17

Repair
Figure 603



MATERIAL:
BODY (1-20) STEEL 35NCD16-
UTS: 1080 TO 1270 MPa (156.6 TO 184 Ksi)
BUSHES (1-31): AIRFLON-COATED DURAL

KEY:

0,8 : 0,8 MICRON (32 MICRO-INCHES)

1,6 : 1,6 MICRON (64 MICRO-INCHES)

P : PAINT SCHEME EXCEPT IN AREAS MARKED S

S : AREAS NOT TO BE PAINTED

Pr : SEAL WITH PR1826B2

Repair
Figure 604

3. Painting

CAUTION: SUBSEQUENT TO THE HALT IN MANUFACTURE BY COURTAULDS OF THE PRIMER COAT 6813B, CAUSING DEFECTIVE ADHERENCE OF ERAM STD20046 PAINT SCHEME ON CADMIUM PLATED STEEL, THIS SCHEME IS REPLACED BY COURTAULDS AEROSPACE SCHEME PU66. REFER TO SECTION 37A OF STANDARD REPAIR PRACTICES 32-09-01.

CONSEQUENCE: THICKNESS OF ADHESIVE INCREASED FROM 7 TO 10 MICRONS (276 TO 394 MICROINCHES) FOR BONDING OF BUSHES DUE TO THE ALTERATION IN THICKNESS OF THE PAINT WORK (PRIMER AND POST-PRIMER).

The paint scheme described below is applicable to all metals and alloys coated with cadmium, phosphate, sealed anodizing or ALODINE 1200.

A. Preliminary steps

Each part must be perfectly clean and degreased. The unpainted surfaces must be protected with adhesive paper.

B. Products required

(1) Preparation of surfaces

- Solvetane (grease removal)
- Reactive thinner, Ref.: 0841/9000 (pickling)

(2) Primer

	Qty
– Primer, Ref.: 7641/3600	1 part by volume
– Hardener, Ref.: 0841/9000	1 part by volume
– Thinner, Ref.: 0434/9000	0,15 to 0,35 part by volume

(3) Post-primer

– Post-primer, Ref.: 4355/3600	5 parts by volume
– Hardener, Ref.: 0701/9000	1 part by volume
– Thinner, Ref.: 0433/9000	4 to 5 parts by volume

(4) Top coat

– Polyurethane top coat (dull-glazed light grey), Ref.: 5461/2260 — 1 part by volume

– Polyurethane top coat (brilliant white), (Federal Standard 595A-17875), Ref.: 5440/0001 — 1 part by volume

– Hardener Ref.: 0730/9000 — 1 part by volume

– Thinner Ref.: 0491/9000 — if required

NOTE: Before use, all products must be kept in the ambient temperature of the workshop for 24 hours maximum.

C. Paint application mode

Operation to be carried out	1 Primer	2 Post-primer	3 Top coat
Products to be used	Base hardener Thinner	Base hardener Thinner	Base hardener Thinner
Mixture	Base: 1 part by volume Hardener: 1 part by volume Thinner: 0,15 to 0,35 part by volume	Base: 5 parts by volume Hardener: 1 part by volume Thinner: 4 to 5 parts by volume	Base: 1 part by volume Hardener: 1 part by volume Thinner: if required
Stability	Ageing: 30 min Pot life of the mixture: 8 hours at 20°C	Ageing: 30 min Pot life of the mixture: 8 hours at 20°C	Ageing: 30 min Pot life of the mixture: 8 hours at 20°C
Means used	Air spray gun	Air spray gun	Air spray gun
Coat thickness:	7 to 10 microns (276 to 394 microinches)	10 to 18 microns (393 to 708 microinches)	25 to 35 microns (984 to 1377 microinches)
Relative humidity	60 to 70%	60 to 70%	60 to 70%
Application temperature	15° to 25°C	15° to 25°C	15° to 25°C
Drying time	Tack-free at 20°C: 2 hours Before following coat: 12 hours maxi	Tack-free at 20°C: 2 hours mini - 48 hours maxi	Tack-free at 20°C: 2 hours Before handling: 5 hours Final hardening: 7 days
Pot life	8 hours maxi if mixed Base: 2 years Hardener: 1 year Thinner: none	8 hours maxi if mixed Base: 2 years Hardener: 1 year Thinner: none	8 hours maxi if mixed Base: 2 years Hardener: 1 year Thinner: none

ASSEMBLY (INCLUDING STORAGE)

NOTE: The component parts of the main brace strut actuator are shown on Figure 1 to Figure 4 of the Illustrated Parts List.

The suppliers of recommended products and materials are listed in the preliminary pages of this manual.

1. Assembly

   A. General instructions

      (1) The parts should be perfectly clean and free from any temporary anti-corrosion protective coatings applied during repair operations.

      (2) The walls of parts in contact with dynamic or static seals of preformed packings should be lightly lubricated with service fluid.

      (3) Fit seals or preformed packings to the parts as required, using spatulas OU50011 and OU50071.

      (4) Before assembly, use MOLYKOTE DX to coat the threads of all the bolts, screws and nuts which are not immersed in service fluid.

   B. Assembly of basic components.

      (1) Assembly of ball fitting (1-180).

– Fit preformed packing (1-150) and segment (1-160) to ball fitting (1-180).
– Position ball (1-190) in its housing after coating the latter with varnish VIMOS-70 (MIL-L-8937C).
– Install bushes (1-200) using LOCTITE 307.

(2) Installation of ball (2-420)

– Coat with MOLYKOTE DX and position ball (2-420) in end fitting (2-410) then circularly crimp the ball in its housing, using tool OU50298.

(3) Assembly of the rod (see Figure 301)

– Fit preformed packings (2-60) and (2-80) to piston (2-100) and position segments (2-70) and (2-90)
– Fit the components listed below to the rod in the following sequence:
– bush (2-20),
– washer (2-30),
– spring (2-40).

CAUTION: DO NOT MISTAKE SPRING (2-40) FOR SPRING (2-120).

– washer (2-50),
– piston (2-100),
– washer (2-110),
– spring (2-120),
– washer (2-130),
– bush (2-140).

– Position the compression tools OU50706 and support wrench OU50638 on the rod fitted with its components.

– Using a press, apply a force greater than 165 daN (371.25 lbf) to bush (2-140). Then secure the assembly using nut (2-150) tightened to a torque of 100 Nm (73.75 lbf.ft). Lock the nut.

(4) Installation of ball fitting (1-180)

– Position body (1-20) in a supporting device and secure it with soft jaws.

– Fit preformed packings (1-50), (1-80) and segments (1-60), (1-70) to locking piston (1-90).

– Smear the annular recesses on piston (1-90) with grease MOLYKOTE DOWN CORNING 33 MEDIUM.

– Insert piston (1-90) in cylinder (1-20) and position ring (1-110).

– Insert spring (1-100) and stop (1-120).

– Fit stop (1-140), locking claw (1-130) and pin (1-220) to ball fitting (1-180).

– Position the ball fitting assembly on the body and secure using nut (1-210). Then tighten to a torque of 110 Nm (81.125 lbf.ft) using tool OU50637.

(5) Installation of rod assembly

– For preformed packings (2-160), (2-190) and segments (2-170), (2-180) to locking piston (2-200).

– Smear the annular recesses of piston (2-200) with grease MOLYKOTE DOWN CORNING 33 MEDIUM.

– Insert rod assembly (2-10) to half-travel in body (1-20).

– Hold the rod and insert locking piston (2-200), protection ring (2-220), spring (2-210) and stop (2-230) in body (1-20).

– Fit segment (2-280), preformed packings (2-260), (2-290A) and segments (2-270), (2-300) to bearing (2-310).

Or:
Fit segment (2-280), preformed packing (2-260), packing assembly (2-290B) and segment (2-270) to bearing (2-310).

– Position stop (2-250) and claw (2-240) on bearing (2-310) and engage this assembly on rod (2-10) until it abuts against stop (2-230). Check that bearing (2-310) is correctly positioned. Exert enough force on bearing (2-310) to position pin (2-350).

– Position and tighten nut (2-340) to a torque of 110 Nm (81.125 lbf.ft) using tool OU50637.

– Position scraper ring (2-320) on bearing (2-310) and secure it with retaining ring (2-330).

(6) Installation of end fitting (2-410).

– Fit nut (2-400) and lock washer (2-390) on end fitting (2-410).

– Lock the actuator rod in retracted position.

– Screw the end fitting assembly on rod (2-10) and secure it with nut (2-400). Tighten nut (2-400) using tool A97001.

NOTE: Do not safety nut (2-400). The center-to-center dimension will be adjusted upon installation in the aircraft.

(7) Install bushes (1-30) using LOCTITE 307.

C. Installation of attached components

Fit the actuator with preformed packings (1-40)

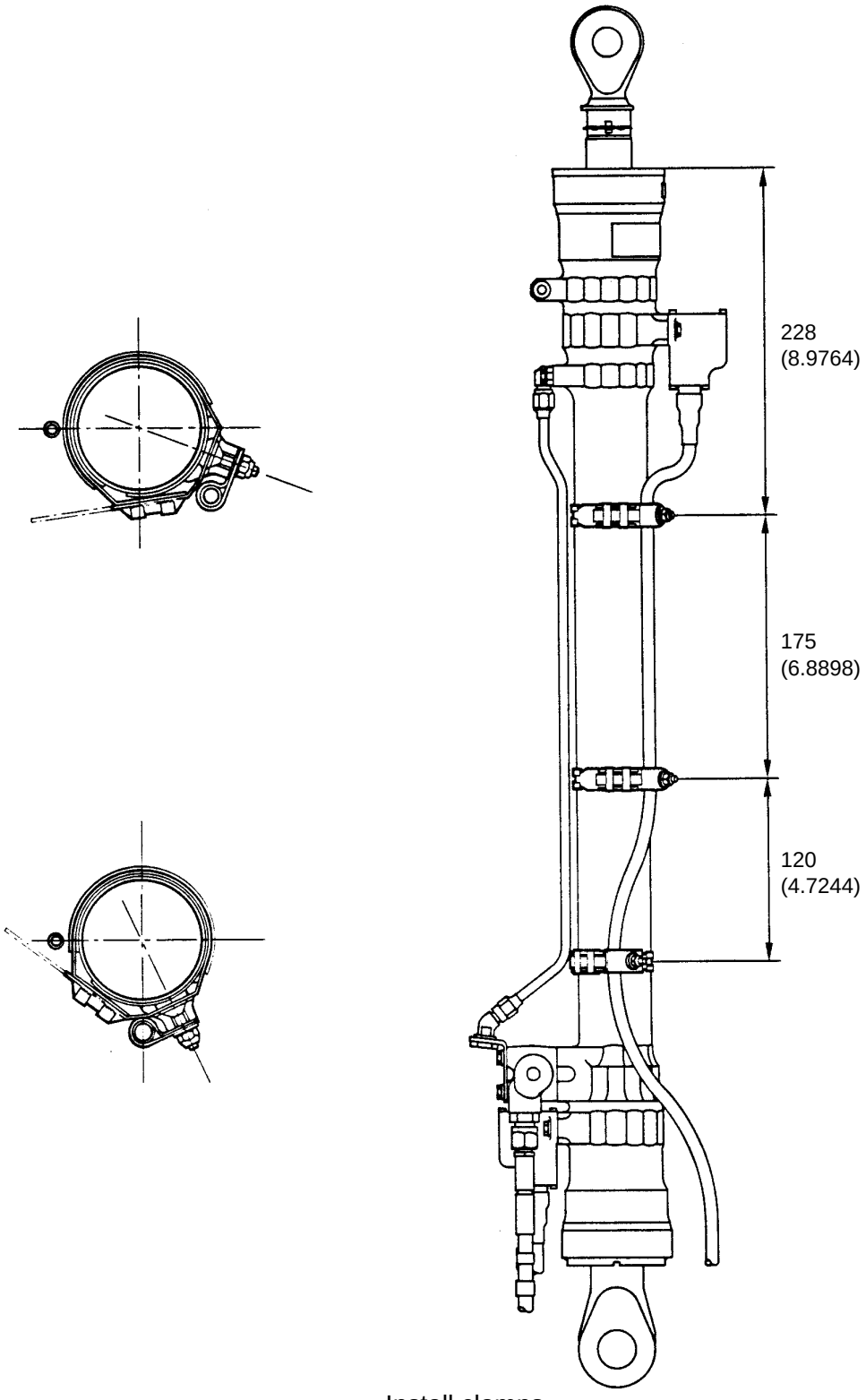
(1) Assembly and installation of priority valves (3-10B) and (3-10C)

(a) Valve (3-10B)

– Fit preformed packings (3-70), (3-65) and (3-90) to plugs (3-80B).
– Insert liner (3-30B) in body (3-20).
– Insert shuttle valve (3-40B) taking care to install it in the correct direction.
– Position the plug (3-80B) on the EMERGENCY supply side.
– Insert spring (3-50B), then position plug (3-80B).
– Tighten plugs (3-80B) to a torque of 15 Nm (11.0625 lbf.ft) and safety with lockwire (3-280).

(b) Valve (3-10C)
(See IPL Figure 3A)

– Fits seats (3-60B) with their preformed packings (3-70) and plugs (3-80C) with their preformed packings (3-90).
– Insert liner (3-30C) in body (3-20).
– Install seat (3-60B) and plug (3-80C) on port B side.
– Insert valve (3-40C) and spring (3-50C) on port A side. Install the second seat (3-60B) and blank off port A with the second plug (3-80C).
– Torque load the plugs (3-80C) to 15 N (3.37 lbf) and wirelock them.



Install clamps
Figure 701

– Position couplings (4-110 and 4-180) fitted with preformed packings (4-100) and (4-170).

– Place the support (3-200) in position and secure the shuttle valve to the actuator with screws (3-220) and washers (3-210). Safety the screws.

(2) Installation of tube and hose assemblies

– Position coupling (3-340) on support (3-200) and secure it with nut (3-350).

– Position coupling (3-250) and secure it with screws (3-270) and washers (3-260); safety the screws.

– Install clamps (4-20) fitted with receptacles (4-30), packings (4-40), screws (4-50). Check that the clamps are installed the correct way round (see Figure 701).

– Position tube assembly (3-300) and fit it with sleeves (4-70). Secure clip (4-60) with nut (4-90) and washer (4-80).

– Secure the hoses (4-120), (4-190) and (4-240).

(3) Installation of harnesses (3-360) and (3-480).

NOTE 1: Harness (3-480) should be positioned with the actuator rod in the retracted and locked position only, so as to prevent any damage to the switch if the plate is not located in the correct control chamber.

NOTE 2: Harness (3-360) should be positioned with the actuator rod in the extended and locked position only, so as to prevent any damage to the switch if the plate is not located in the correct control chamber.

– Position harness (3-480) and secure it using screws (3-500) and washers (3-490).

– Position harness (3-360) and secure it using screws (3-380) and washers (3-370).

– Safety screws (3-500) and (3-380).

D. Final steps

NOTE: Test the brace strut actuator in compliance with the instructions in TESTING AND FAULT ISOLATION.

(1) Installation of plates (2-430), (2-440 and (2-450)

(a) All markings shown on old plates should be transferred to the new ones.

NOTE: Update amendment plate (2-430) and modification plate (2-450) if applicable, to include the effect of any modifications incorporated in the unit during reconditioning operations.

(b) Prepare the surfaces to be bonded.

(c) Scour the bonding surface of each plate to obtain a rough surface.

(d) Clean the bonding surfaces to be bonded with a chlorinated solvent. The adhesive to be used, in accordance with the manufacturer's instructions, is ARALDITE AW106 with hardener HV953U.

(e) Position and bond in position. Leave a thin strip of adhesive around each plate, about 5 mm (0.1968 in) wide, and extending inwards over the plate by 1 mm (0.0393 in) (but without covering the identification markings). This border will be covered with paint, so as to avoid any gap in the protective covering.

(2) Painting

(a) Protect the surfaces not to be painted with a light film of grease or with adhesive cloth.

– the balls,

– the chromium-plated surface of the rod,

– the plates

(b) See REPAIR section.

(c) Remove the protective grease and the adhesive cloth.

(3) Sealing protection (refer to section 24 of Standard Repair Practices 32-09-01)

Apply a bead of liquid rubberized sealant PR1826B2 to the joint lines for the parts coated with MOLYKOTE DX (See Figure 702).

2. Storage after assembly

A. Purpose

The instructions below specify the operations to be carried out to protect the brace strut actuator so as to ensure its correct operation after storage in a temperate continental, tropical or maritime climate.

These instructions take into account the mode of transportation used.

B. General

Finger marks should be removed with METHANOL or an equivalent product.

C. Preservation and packaging for temperate continental climate.

(1) Transportation by road, rail or air.

(a) Preservation

– Preserve the brace strut actuator with the rod in the retracted unlocked position.

– Remove a few cubic centimeters of service fluid from the actuator.

– The remaining volume should be equal to 3/4 the total capacity.

– Blank off the hydraulic pipes and the harness connector using the protective plugs listed in the IPL.

– Use the protector to secure the pipes and the harness to the body.

– Smear unprotected surfaces with anti-rust grease and protect them with greaseproof cloth.

– Affix a label to the unit, specifying that the latter contains fluid AIR 3520 and that it should be drained before being filled with fluid MIL-H-83282 for operation.

– Place the unit in a polyethylene envelope. Heat-seal the envelope, leaving a sufficient length of cloth so that be re-used at least three times before it needs to be replaced.

(b) Packaging

– Place the preserved unit in an individual compressed cardboard box.

– Wedge the unit with cellophane shavings.

– Staple the box flaps and seal the open edges with adhesive tape.

– Affix to the box an identification label specifying, in particular, the storage date.

– Dip the box in a bath of microcrystalline wax.

– Wrap the box in a sheet of Kraft paper and secure the latter with adhesive tape.

– Affix the same label to the Kraft paper as that on the box.

– Protect the label with a coat of transparent varnish.

(c) Storage

Store the unit in its packaging. The storage position is immaterial.

For units whose guaranteed storage life has been exceeded, the latter may be extended subject to the satisfactory preservation of a sample taken from the equipment in store.

The duration of this new storage period will depend on the results of the checks carried out.

(2) Transportation by sea

All the instructions in paragraph C.(1) are also applicable to transportation by sea.

D. Preservation and packaging for tropical or maritime climate

(1) Transportation by road, rail or air

(a) Preservation

Carry out the operations described in paragraph C (1) (a) except as concerns the polyethylene envelope; in addition, further instructions are to be followed.

– Attach a suitable quantity of desiccant bags to the unit with greaseproof paper placed between the unit and the desiccant

- Place the unit in heat-sealable cloth envelope.
- Place a desiccant bag and its humidity indicator card in front of the window previously cut-out in the heat-sealing cloth envelope.
- Apply the heat-sealable cloth, ensuring that it fits the shape of the unit as closely as possible.
- Use a vacuum pump to remove the air from the envelope and heat seal. Leave a sufficient length of cloth so that the envelope can be re-used at least three times before it needs to be replaced.
- Affix to the envelope:
  - an identification label,
  - a label stating that the sealed package contains dessicant and that it should not be opened only when the unit is put into service.

(b) Packaging

- Place the preserved unit in an individual compressed cardboard box. Wedge the unit with cellophane shavings.
- Staple the box flaps and seal the open edges with adhesive tape.
- Affix to the box the same labels as those affixed to the envelope.
- Wrap the box in heat-sealable cloth and hermetically heat-seal after removing the air.
- Affix to the cloth the same labels as those affixed to the box.
- Protect the labels with a coat of clear varnish.

(c) Storage

- All the instructions indicated for storage in temperate continental climate are applicable.

(2) Transporation by sea

All the instructions indicated in paragraph (1) are applicable.

E. Removal from store and subsequent tests

(1) Removal from store

New or overhauled units should not be removed from store until they are required for use, and on a first-in, first-out basis.

Before installation on the aircraft or in case of a check with a view to extending the storage period, perform the operations and tests indicated below:

– Remove the anti-rust grease using dry cloth or white spirit.

CAUTION: THE USE OF CHLORINATED PRODUCTS IS PROHIBITED.

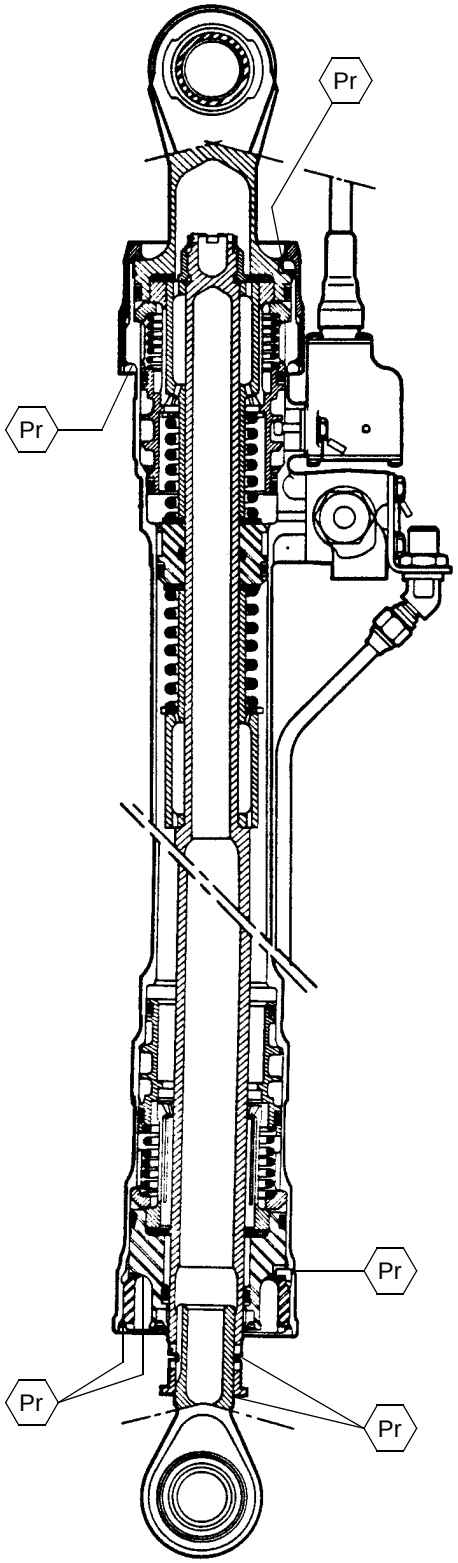
– Remove the protective caps.

– Remove the pipe and harness protector.

(2) Testing

– Cycle the rod slowly, several times without locking, then lock the rod in the retracted position.

– Perform the tests in accordance with the instructions given in Section TESTING AND FAULT ISOLATION.



Protection of zones with seal PR
Figure 702

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FITS AND CLEARANCES - TORQUE VALUES

1. Fits and clearances

   A. General

      (1) For all parts of a selective assembly or parts to which time can cause damage, the table of fits and clearances gives:

      – the machining tolerances for parts which are new,

      – the maximum wear and the limits to put the component back into operation, for parts which are not new.

      (2) But it is highly recommended to give the parts their initial condition (as new) during the major overhauls. To do that, repair the parts as told in the Repair Section or replace them as necessary.

      (3) We can change the worn dimensions or the fits if the experience got during the ageing analysis or the performance of the components permits it.

   B. Layout

(1)	First column:	it gives the location on the figure(s) of the clearance, fit, or dimension that you must measure.
(2)	Second column:	it gives the figure and item numbers shown in the Illustrated Parts List. ID: INSIDE DIA. OD: OUTSIDE DIA.
(3)	Third and fourth columns:	they give the manufacturing dimensions with tolerances.
(4)	Fifth and sixth columns:	they give the clearance (letter J) or interference fit (letter S), which is the result of the manufacturing tolerances.
(5)	Seventh and eighth columns:	they give the permitted dimension limits to put the component back into operation as it is.
(6)	Ninth column:	it gives the permitted wear limit to put the component back into operation as it is.

   C. Table of fits and clearances

      see table.

2. Torque values

   see table.

SCHEDULE OF DIMENSIONS, FITS AND WEAR LIMITS

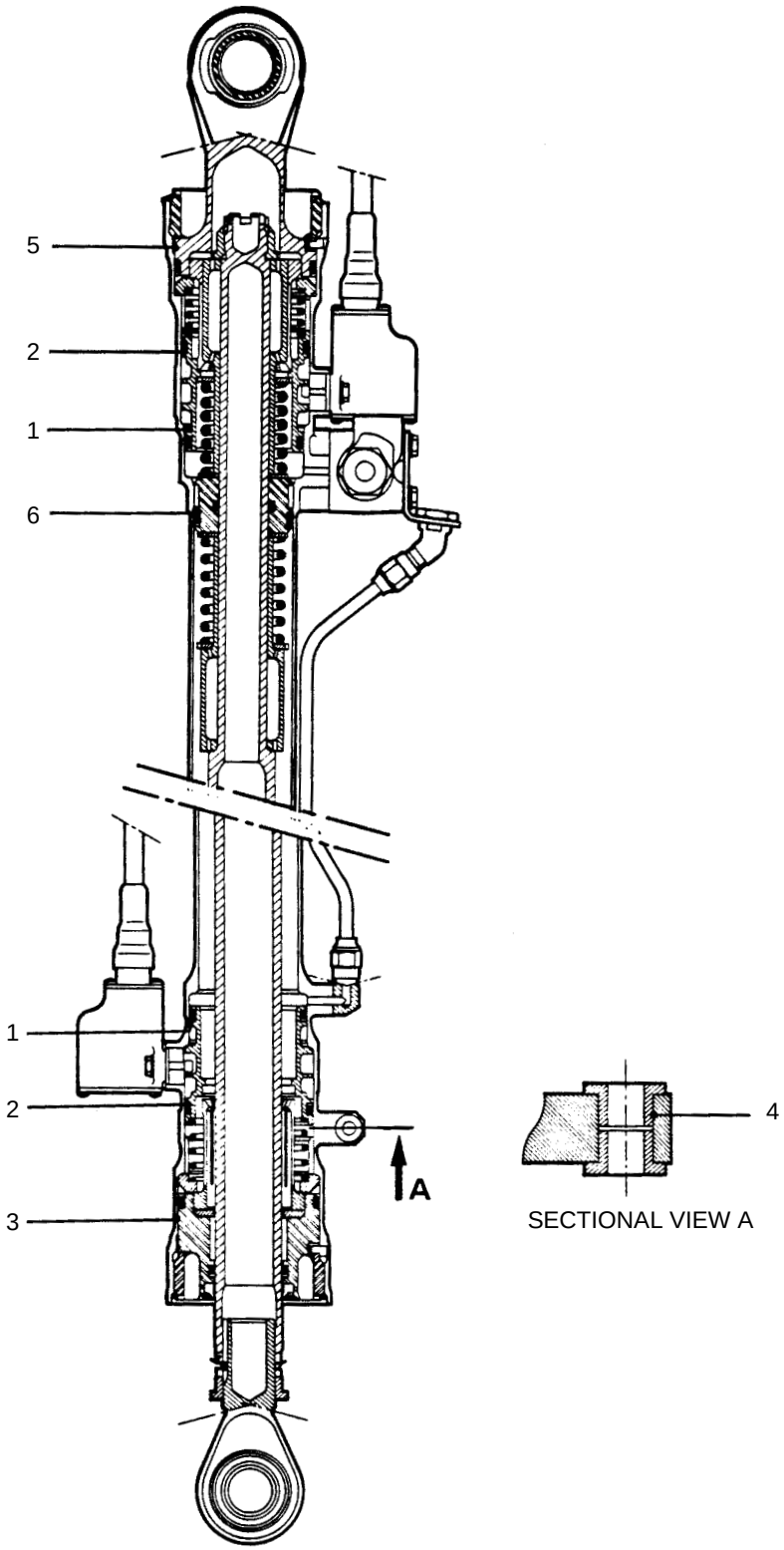
Fig. 801 Ref. Ltr/ No.	Mating IPL Figure and Item No.	Initial Manufacturing Limits				In-service Wear Limits		
		Dimensions mm (in)		Assembly Clearance mm (in)		Dimensions Limits mm (in)		Allowable Clearance mm (in)
		Min.	Max.	Min.	Max.	Min.	Max.	Max.
1 801	1 20A	53,000 (2.0866)	53,046 (2.0884)	D 0,030 (0.0012)	D 0,122 (0.0048)			
	1 90A 2 200A	52,924 (2.0836)	52,970 (2.0854)					
2 801	1 20A	58,000 (2.2835)	58,046 (2.2853)	D 0,030 (0.0012)	D 0,122 (0.0048)			
	1 90A 2 200A	57,924 (2.2805)	57,970 (2.2823)					
3 801	1 20A	64,000 (2.5197)	64,046 (2.5215)	D 0,030 (0.0012)	D 0,106 (0.0042)			
	2 310A	63,940 (2.5173)	63,970 (2.5185)					
4 801	1 20A	10,005 (0.3939)	10,014 (0.3943)	D 0,018 (0.0007)	D 0,042 (0.0017)			
	1 30A	9,972 (0.3926)	9,987 (0.3932)					
5 801	1 20A	64,000 (2.5197)	64,046 (2.5215)	D 0,030 (0.0012)	D 0,106 (0.0042)			
	1 180A	63,940 (2.5173)	63,970 (2.5185)					

SCHEDULE OF DIMENSIONS, FITS AND WEAR LIMITS

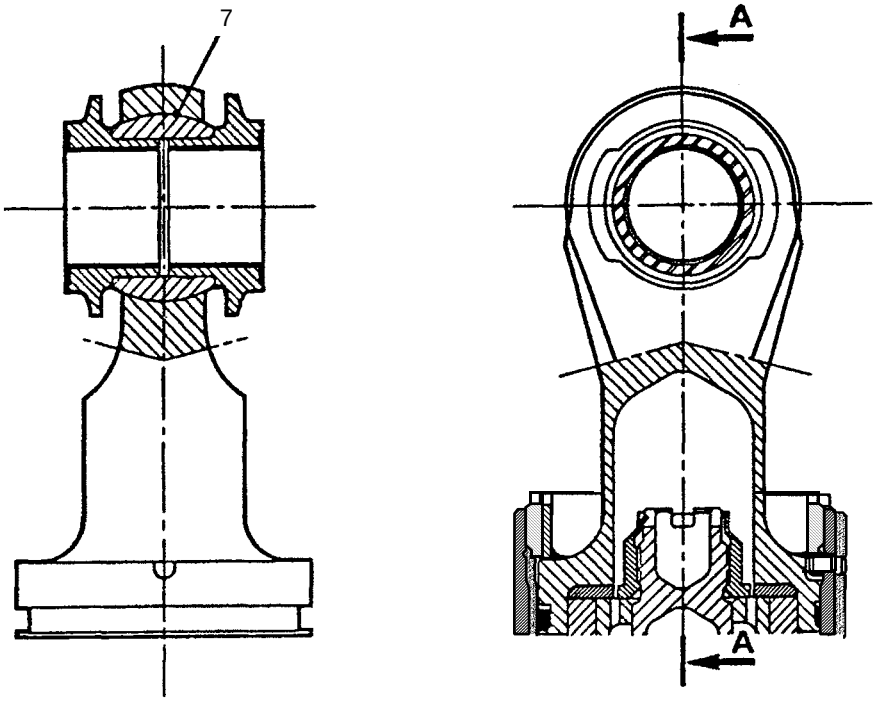
Fig. 802 Ref. Ltr/ No.	Mating IPL Figure and Item No.	Initial Manufacturing Limits				In-service Wear Limits		
		Dimensions mm (in)		Assembly Clearance mm (in)		Dimensions Limits mm (in)		Allowable Clearance mm (in)
		Min.	Max.	Min.	Max.	Min.	Max.	Max.
6 801	1 20A	45,000 (1.7716)	45,039 (1.7732)	D 0,100 (0.0039)	D 0,239 (0.0094)			
	2 100A	44,800 (1.7638)	44,900 (1.7677)					
7 802	1 180A			A 0,010 (0.0004)	A 0,040 (0.0016)			A 0,075 (0.003)
	1 190A				R 0,020 (0.0008)			R 0,040 (0.0016)
8 802	2 410A	35,000 (1.3780)	35,016 (1.3786)	D 0 (0)	D 0,025 (0.0010)			
	2 420	34,991 (1.3776)	35,000 (1.3780)					

SCHEDULE OF DIMENSIONS, FITS AND WEAR LIMITS

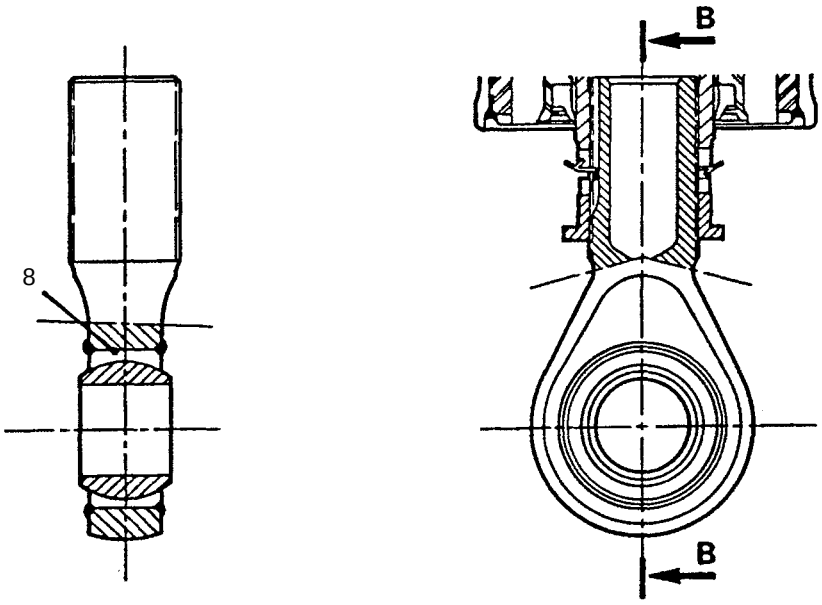
Fig. 803 Ref. Ltr/ No.	Mating IPL Figure and Item No.	Initial Manufacturing Limits				In-service Wear Limits		
		Dimensions mm (in)		Assembly Clearance mm (in)		Dimensions Limits mm (in)		Allowable Clearance mm (in)
		Min.	Max.	Min.	Max.	Min.	Max.	Max.
9 803	3 20A	12,000 (0.4724)	12,018 (1.4731)	D 0,006 (0.0002)	0,035 (0.0014)			
	3 30	11,983 (0.4718)	11,994 (0.4722)					
10 803	3 30	10,000 (0.3937)	10,015 (1.3943)	D 0,005 (0.0002)	0,029 (0.0011)			
	3 40	9,986 (0.3932)	9,995 (0.3935)					



Location of clearances
Figure 801

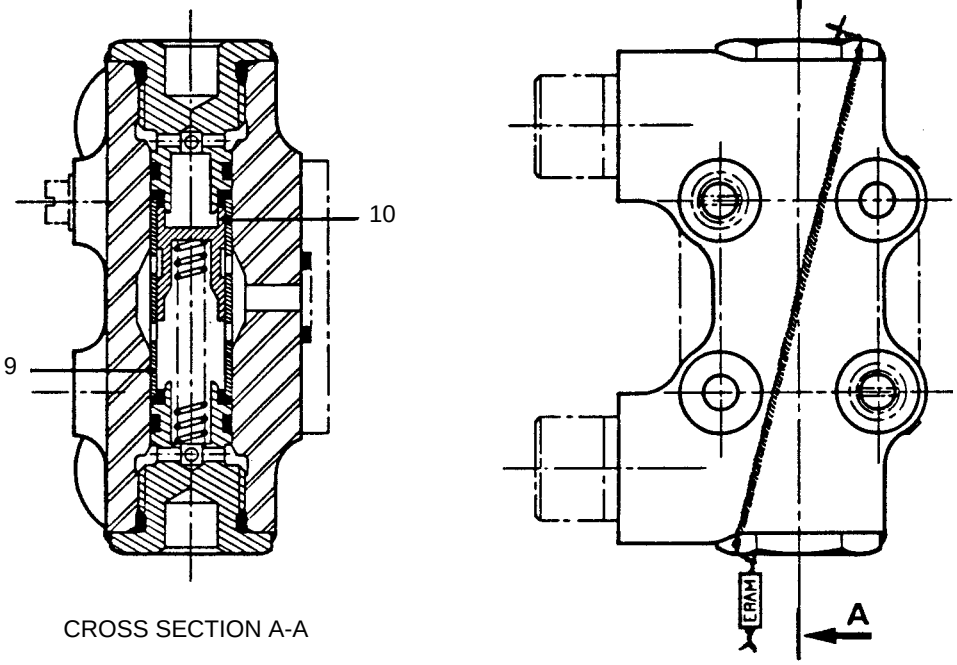


SECTIONAL VIEW A-A



SECTIONAL VIEW B-B

Location of clearances
Figure 802



CROSS SECTION A-A

Location of clearances
Figure 803

TABLE OF TORQUE VALUES

IPL Figure. and Item No	Name	TORQUE	
		N.m	(lbt.ft or lbf.in)
1-210A	Nut	110 Nm	(81.125 lbf.ft)
2-150A	Nut	100 Nm	(73.75 lbf.ft)
2-340A	Nut	110 Nm	(81.125 lbf.ft)
2-400A	Nut	80 to 100 Nm	(59 to 73.75 lbf.ft)
3- 80A	Plug	15 Nm	(11.062 lbf.ft)
3-190A	Screw	1,5 Nm	(1.106 lbf.ft)
3-220A	Screw	3 Nm	(2.212 lbf.ft)
3-270A	Screw	3 Nm	(2.212 lbf.ft)
3-350A	Nut	10 Nm	(7.375 lbf.ft)
3-380A	Screw	3 Nm	(2.212 lbf.ft)
3-500A	Screw	3 Nm	(2.212 lbf.ft)
4-110A	Straight coupling	8 Nm	(5.9 lbf.ft)
4-180A	Straight coupling	8 Nm	(5.9 lbf.ft)

SPECIAL TOOLS, FIXTURES AND EQUIPMENT

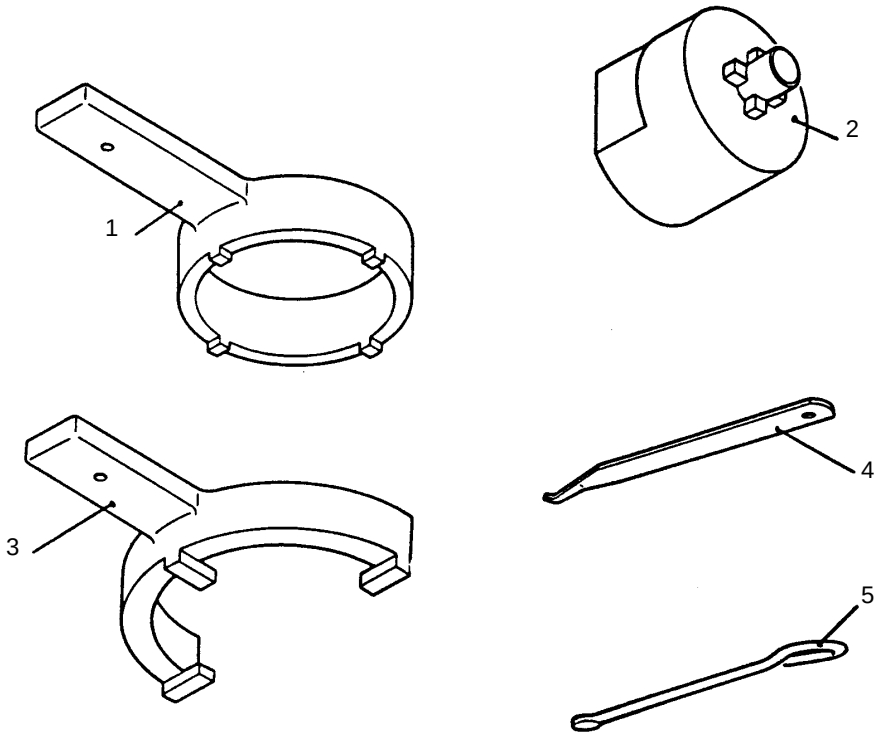
1. General

A. These special tools are necessary and are available from Messier Services. Inquire at the address that follows for the current price and delivery time.

Messier Services
Attn: Turnkey Services
12, rue Paul Dautier
78147 VELIZY CEDEX
FRANCE

TELEPHONE: 33 (0) 1 30.67.45.28
FAX: 33 (0) 1 30.67.45.95
www.messierservices.com
SITA: PARMBCR
CAGE: FAJX6

– Type U21900100		Hydraulic power supply
– Type U21902100		Hydraulic test press
– Type U21903100		Control panel
– GA47307-106, GA47307-108		Unions
– OU50637	1	Wrench for nut (2-340)
– OU50638	2	Wrench for rod support (2-10)
– OU50706		Compression tool
– OU50636	3	Wrench for nut (1-210)
– OU50011	4	Spatula for removal/installation of seals
– OU50071	5	Spatula for removal/installation of seals
– OU50298		Crimping tool for ball (2-420)
– A97001	6	Pin wrench for nut (2-400).



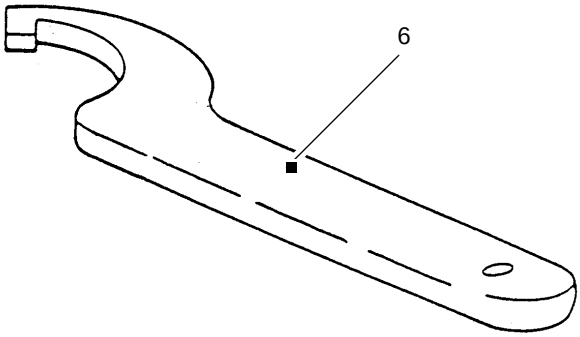


Figure 901

ILLUSTRATED PARTS LIST (IPL)

INTRODUCTION

1. Policy

   The section is the list of all the components of the unit(s) which are given in this manual, and permits the identification of these components. It contains, in the form of indexes, detailed parts list etc., any necessary data for the procurement of any components.

2. How to use the Illustrated Parts List

   Each component is identified as follows:

   A. By the manufacturer's Part Number.

      The alphanumerical index of the manufacturers' Part Numbers gives, for each component, on the same line as the Part Number:

      – the figure on which the component is shown,

      – the item number,

      – the total quantity necessary for each Catalogue Sequence Number (CSN),

      – the equivalent Part Number, if applicable, given by the airlines.

   B. By the function of the component.

      The Illustrated Parts List makes it possible to find the location of each component on the figures and in the different groups of parts into which the equipment is broken down.

   C. By the illustration of the component.

      To identify a component by its illustration, use the figure on which this component is shown. This figure gives the item number which will permit to refer to the Parts List and get any data about this component.

      The Item Numbers have a numerical base. For each figure, the Item Numbers begin at "1" and are given in numerical sequence with regular increments of tens.

      They do not change during the total life of the item. A variant letter is added to the Item Number as a result of any modification included.

      Letter "A" identifies the items of the original version. Usually, variant letters are not shown on the figures.

Remarks: when the Illustrated Parts List includes handed assemblies, the Item Number with numerical base 2 refers to a RH assembly and its variant. The Item Number with numerical base 1 refers to the LH assembly and its variant.

The numerical order 1, 2, 3, ... 9 is used for the identification of several assemblies included in a common Illustrated Parts List. Because there is no direct relationship between these assemblies, these are not variants; but they include a high percentage of common parts.

For "SELECT FROM" and "OVERSIZE, UNDERSIZE" parts, the "ten" increments are changed to "five" increments.

The EFFECTIVITY CODE column shows the Item Number of the next higher assembly or sub-assembly. For items used on the full range of the primary equipment, the EFFECTIVITY CODE column is kept blank. This column is also kept blank for assemblies located on a line which is not indented (line 1).

The "UNITS PER ASSY" column shows the quantity per assembly which is necessary for a next higher assembly. In the indexes, the quantity shown refers to the quantity broken down for a given CSN.

3. Revision

A. When a line is modified, new or deleted, there is a letter "R" at the end of the line (the date of issue is changed).

B. After each modification of a given item, the numerical Item Number itself does not change. But the variant letter changes from "A" to "B", then to "C" thru "Z" (do not use letters "I" and "O").

C. When it is necessary to add a new part, its name must be on the line which agrees with the correct position of this part in the breakdown of the assembly.

Select its Item Number from open sequences.

D. Addition of new figures (figure variants):

When the layout of the basic figure does not make it possible to show new parts or the modified parts in their new form, a new figure (called "figure variant") is then issued.

This figure variant will have the same number as that of the basic figure, suffixed by a letter given in alphabetical sequence (do not use "I" and "O").

E. Deletion of items:

Before deletion of items from the Illustrated Parts List:

– make sure, first, that the modification is applied to all the applicable assemblies.

– make sure, for items kept in store, that they are modified or removed from store.

If these two conditions are satisfied, identify the deleted items, in the nomenclature column, by the word: "DELETED".

The Part Number of the deleted part is then kept in the indexes with the word "DELETED".

4. Assembly breakdown

The assemblies are broken down and each of their components is shown in the assembly sequence.

The vertical lines of the indention are shown as dotted lines as follows:

Example: 1 2 3 4 5 6 7

Assembly

. Component of the assembly

. Sub-assembly

. . Component of the sub-assembly

. . . Detail part

This sequence is, in fact, modified by the nomenclature of the attaching parts and storage parts. The attaching parts are shown immediately below the assembly or sub-assembly they attach, and above the detail parts.

The storage parts are shown immediately below the parts on which they are installed for protection.

The attaching parts and storage parts are:

A. indented in line with the assembly, sub-assembly or part to which they belong,

B. identified by the words "ATTACHING PARTS" or "STORAGE PARTS" shown on the line above,

C. followed by three stars shown on the line below.

5. Words and abbreviations used

The most used words and abbreviations are:

– RF	- For reference
– SB	- Service Bulletin
– SEL FROM	- "Select from" parts
– OVERSIZE – UNDERSIZE	- "Oversize/undersize" parts
– OPT	- Optional
– ALT	- Alternate
– SUPSD BY	- Superseded by
– SUPSDS	- Supersedes
– NHA	- Next Higher Assembly
– DET	- Detail
– LH and RH	- Left Hand and Right Hand
– AR	- As required
– NP	- Non procurable
– ORDER OVERLGTH MPN	- Full P/N of the manufacturer

6. Vendor Codes, Names and Addresses

Vendor Code	Vendor	
VD2480	FREUDENBERG SIMRIT KG 100363 69443-WEINHEIM	DEUTSCHLAND
VFA0X2	CROUZET AUTOMATISMES 2 R DOCTEUR ABEL 26000-VALENCE	FRANCE
VF0189	MESSIER-DOWTY SA ZONE MILITAIRE 78140-VELIZY VILLACOUBLAY	FRANCE
VF0215	ESPA 2 R BALZAC 75008-PARIS	FRANCE
VF0225	SOURIAU 9 R DE LA PORTE DE BUC 78000-VERSAILLES	FRANCE
VF0234	ADR (APPLICATIONS DU ROULEMENT) SA CHE DES PRES 77810-THOMERY	FRANCE
VF0271	SENIOR AEROSPACE ERMETO ZA EURO VAL DE LOIRE 8 R CLOS THOMAS 41330-FOSSE	FRANCE
VF0282	CROUZET SA (SEE VF9111, VFA0X2)	
VF0286	TYCO ELECTRONICS FRANCE SAS 29 CHS JULES CESAR 95300-CERGY PONTOISE	FRANCE
VF2693	LEGRAND 128 AV DE LATTRE DE TASSIGNY 87000-LIMOGES	FRANCE
VF6220	RAYCHEM SA (SEE VF0286)	

Vendor Code	Vendor
VF9111	THALES AVIONICS SA 45 R DE VILLIERS 92200-NEUILLY SUR SEINE FRANCE

7. Messier-Dowty and Messier Services Contacts

Refer to the Messier-Dowty website (messier-dowty.com) for the latest list of contact names, addresses and numbers.

Original Equipment Manufacturers		
Messier-Dowty Inc. 574 Monarch Avenue Ajax, Ontario L1S 2G8 CANADA Tel: 905-683-3100 Fax: 905-683-6936	Messier-Dowty Limited Cheltenham Road Gloucester GL2 9QH ENGLAND Tel: +44(0)1452 712424 Fax: +44(0)1452 713821	Messier-Dowty SA Zone Aeronautique L. Breguet BP 10 78142 Velizy Cedex FRANCE Tel: +33 146 29 18 00 Fax: +33 146 29 87 70
Customer Support Centers		
Messier Services CSC Americas 620 Herndon Parkway Suite 200 Herndon Virginia USA 20170 Tel: 703-450-8200 Fax: 703-430-1621	Messier- Dowty (Singapore) Pte. Ltd Tampines South Post Office 21 Loyang Crescent, SINGAPORE 508985 Tel: (65) 6543 0626 Fax: (65) 6542 2718	Messier-Dowty CSC EAME Zone Aeronautique L. Breguet BP 10 78142 Velizy Cedex FRANCE Tel: +33 146 29 18 00 Fax: +33 146 29 18 18
Repair and Overhaul Facilities		
Messier Services R&O Facility 574 Monarch Avenue Ajax, Ontario L1S 2G8 CANADA Tel: 905-683-3100 Fax: 905-683-0378	Messier Services R&O Facility Meteor Business Park Cheltenham Road Gloucester GL2 9QL ENGLAND Tel: +44(0)1452 713111 Fax: +44(0)1452 716500	Messier Services R&O Facility 3, rue Antoine de St Exupery, BP 110 67124 Molsheim Cedex France Tel: (33) 38838 9200 Fax: (33) 38838 9399
Messier Services (Asia) Pte. Ltd., R&O Facility 21, Loyang Crescent, Loyang Industrial Estate SINGAPORE 508985 Tel: (65) 6545 9455 Fax: (65) 6542 3936	Messier Services R&O Facility - Americas Av. La Noria Parque Industrial Querétaro Carretera QRO-SLP, Km.28.5 Querétaro, QRO 76220 MEXICO Tel: +52 (442) 19 25 800 Fax: +52 (442) 19 25 801	HYDREP Aéroport de Dinard-Pleurtuit-Saint-Malo Bâtiment 20 BP 90154 35801 DINARD Cedex FRANCE Tel: (33) 2 99 82 79 79 Fax: (33) 2 99 82 79 97
S-PRO 51, Loyang Drive, Loyang Industrial Estate SINGAPORE 508985 Tel: (65) 6545 3088 Fax: (65) 6549 0833 AOG Repair Tel: (65) 9680 4697		

NUMERICAL INDEX

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NUMERICAL INDEX

PART NUMBER	AIRLINE PART NUMBER	FIGURE ITEM	TTL REQ	
ADGA0240NLE				
SUPSD BY 19737				
AS3040-58		02 320B	1	
SUPSDS AS3040-58-83358				
AS3040-58-83358				
SUPSD BY AS3040-58				
CONVOLEX9-32		03 420A	1	
		03 540A	1	
C58000-296		04 070B	6	
SUPSDS 58000926				
C58000297		03 -430A	2	
		03 -550A	2	
D67873				R
SEE 19733				
D67874				R
SEE 19736				
D67875				R
SEE 19724				
D92705-6		02 440B	1	
SUPSDS 19207				
HB11N13				
SUPSD BY 11N13				
MS28775-010				
SUPSD BY M83461-1-010				
MS28775-012				
SUPSD BY M83461-1-012				
MS28775-212				
SUPSD BY M83461-1-212				
MS28775-222				
SUPSD BY M83461-1-222				
MS28775-225				
SUPSD BY M83461-1-225				
MS28775-226				
SUPSD BY M83461-1-226				
MS28775-228				
SUPSD BY M83461-1-228				
M83461-1-010		01 040B	2	
SUPSDS MS28775-010				
M83461-1-012		03 070B	RF	
SUPSDS MS28775-012		03 -160B	RF	
M83461-1-212		02 060B	1	
SUPSDS MS28775-212				
M83461-1-217		02 -290A	1	

- Item not illustrated

NUMERICAL INDEX

PART NUMBER	AIRLINE PART NUMBER	FIGURE ITEM	TTL REQ
M83461-1-222	02	080B	1
SUPSDS MS28775-222			
M83461-1-225	01	050B	1
SUPSDS MS28775-225	02	160B	1
M83461-1-226	01	080B	1
SUPSDS MS28775-226	02	190B	1
M83461-1-228	01	150B	1
SUPSDS MS28775-228	02	260B	1
RL20R			
SUPSD BY XRL20R			
R5106	03	320A	2
R5306	03	330A	2
XRL20R	02	420B	1
SUPSDS RL20R			
11N13	04	060B	3
SUPSDS HB11N13			
11072	02	450A	1
11585-001	04	150A	2
11585-002	04	270A	2
11585-006	04	220A	2
12288	02	430A	1
16137	04	-160A	1
	04	230A	1
	04	-280A	1
16152-045	03	-470A	1
16152-047	03	-590A	1
17946	01	030A	2
17946R	01	031A	AR
17990	03A	-010C	1
17990			
DELETED			
17990-004	03	010B	1
17994	03	020A	RF
17996	03A	060B	RF
17996			
DELETED			
17997	03A	080C	RF
17997			
DELETED			
18166	03A	030C	RF
18166			
DELETED			

- Item not illustrated

NUMERICAL INDEX

PART NUMBER	AIRLINE PART NUMBER	FIGURE ITEM	TTL REQ	
18167		03A 040C	RF	
18167				
DELETED				
18168		03A 050C	RF	
18168				
DELETED				
18292		03 120A	RF	
18293		03 140A	RF	
18299		03 150A	RF	
18301		03 130A	RF	
18450		02 -370A	1	
		03 -110A	RF	
		03 -240A	1	
		03 -290A	1	
		03 -400A	1	
		03 -520A	1	
18771		04 040A	3	
18787		04 140A	1	
18787-100		04 120A	1	
18788		04 210A	1	
18788-100		04 190A	1	
18789		04 260A	1	
18789-100		04 240A	1	
18797		03 340A	1	
18799		04 180A	1	
18800		04 110A	1	
18803		03 350A	1	
18804		03 200A	1	
19207				
SUPSD BY D92705-6				
19482		04 130A	1	
19483		04 200A	1	
		04 250A	1	
19570		04 010A	1	R
19570-000		04 010B	1	R
19570-000-03		04 010C	1	
19570-001		04 -011A	1	
19570-100		01 -001A	RF	
19570-100-03		01 -001B	RF	
19570-100-03AAA		01 -230B	1	
		02 -001B	RF	
19570-100-03BAA		01 -250B	1	
		03 -001B	RF	

- Item not illustrated

NUMERICAL INDEX

PART NUMBER	AIRLINE PART NUMBER	FIGURE ITEM	TTL REQ
19570-100-03CAA	01	-270B	1
	04	-001B	RF
19570-100AAA	01	-230A	1
	02	-001A	RF
19570-100BAA	01	-250A	1
	03	-001A	RF
19570-100CAA	01	-270A	1
	04	-001A	RF
19570-101	01	-002A	RF
19570-101AAA	01	-240A	1
	02	-002A	RF
19570-101BAA	01	-260A	1
	03	-002A	RF
19570-101CAA	01	-280A	1
	04	-002A	RF
19640	01	-170A	1
19645	01	-010A	1
19655	02	-380A	1
19660	03	300A	1
19711	01	180A	1
19712	01	190A	1
19713	01	200A	2
19713R			
DELETED			
19714	01	020A	1
19717	02	010A	1
19719	02	020A	1
	02	140A	1
19721	02	030A	1
	02	130A	1
19722			
DELETED			
19723	02	050A	1
	02	110A	1
19724	02	100A	1
19726	02	150A	1
19727	01	090A	1
	02	200A	1
19728	01	100A	1
	02	210A	1
19729	01	120A	1
	02	230A	1
19731	01	130A	1
	02	240A	1

- Item not illustrated

NUMERICAL INDEX

PART NUMBER	AIRLINE PART NUMBER	FIGURE ITEM	TTL REQ	
19732		01 140A	1	
		02 250A	1	
19733		02 310A	1	
19734		01 220A	1	
		02 350A	1	
19736		01 210A	1	
		02 340A	1	
19737		02 390B	1	
SUPSDS ADGA0240NLE				
19738		02 400A	1	
19739		02 410A	1	
19741		03 250A	1	
19742		03 310A	1	
19759		02 090A	1	
19761		02 280A	1	
19765		01 110A	1	
		02 220A	1	
19814		02 330A	1	
19837		01 160A	1	
		02 270A	1	
19838		02 070A	2	R
19839		01 060A	1	
		02 170A	1	
19841		01 070A	1	
		02 180A	1	
19842				
DELETED				
19870		03 480A	1	
19875		03 360A	1	
202K121-3		03 440A	2	
		03 -560A	2	
20202		03 030B	RF	
20203		03 040B	RF	
20204		03 080B	RF	
20206		03 065A	RF	
20207		03 050B	RF	
20219		03 -170A	RF	
20484		03 090A	RF	
20504		02 120B	1	
20506		02 040B	1	
20771		02 120C	1	
20963		04 030B	3	
SUPSDS 31950				

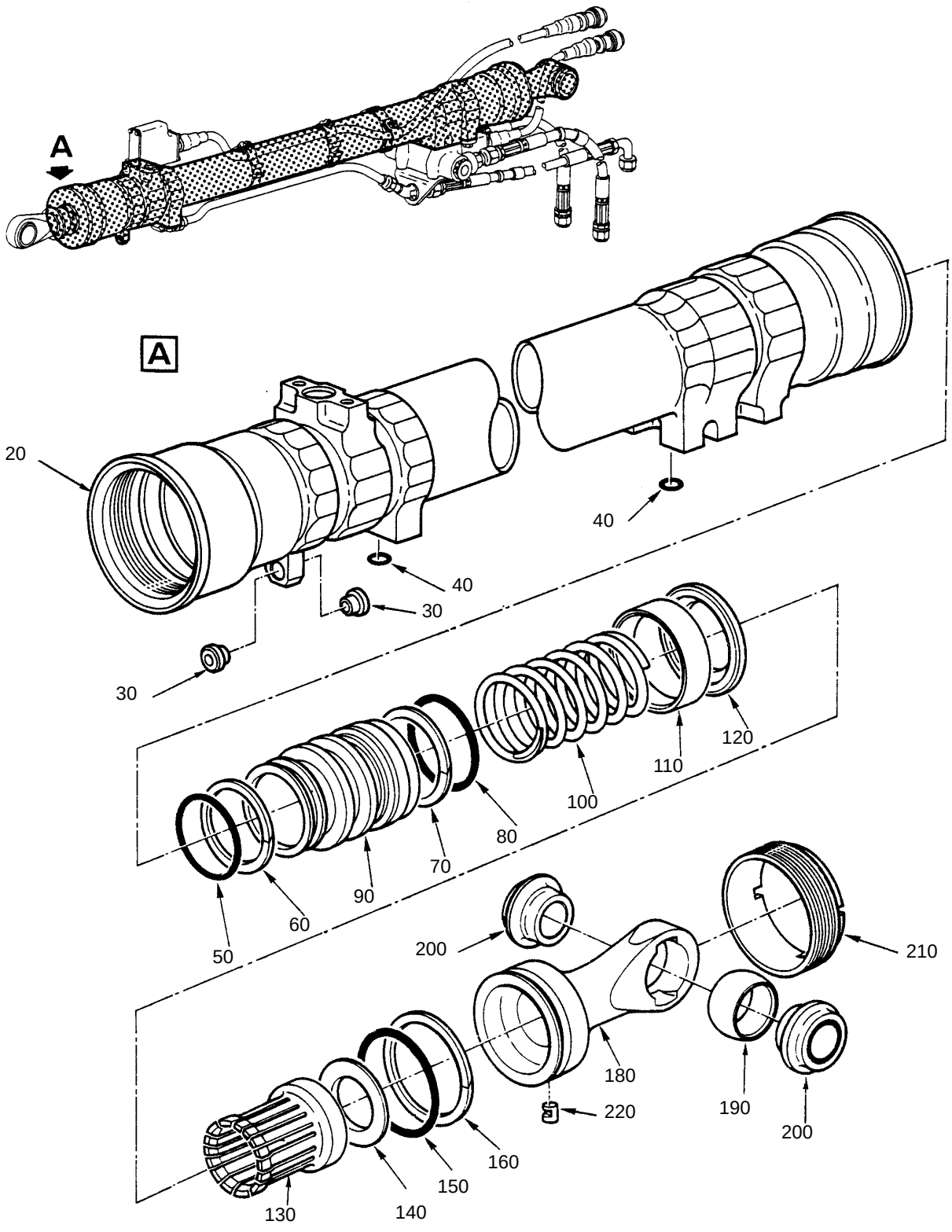
- Item not illustrated

NUMERICAL INDEX

PART NUMBER	AIRLINE PART NUMBER	FIGURE ITEM	TTL REQ
21106-000-00	02	290B	1
22126BC050012L	03	270A	2
	03	380A	2
	03	500A	2
22126BC050044L	03	220A	4
22259BC050018L	04	050A	3
22296AGO40038U	03	-190A	RF
22542K050	04	090A	3
23112AGO40LE	03	-180A	RF
23112AGO50LE	03	210A	4
	03	260A	2
	03	370A	2
	03	490A	2
23112AG050LE	04	080A	3
23320CA080	02	-360A	AR
	03	-100A	AR
	03	-230A	AR
	03	-280A	AR
	03	-390A	AR
	03	-510A	AR
31916	04	020A	3
31950			
SUPSD BY 20963			
31950			
SEE 20963			
32312-523	04	170A	1
32326-523	04	100A	1
58000926			
SUPSD BY C58000-296			
83-990-035	03	410A	1
	03	530A	1
852-17R10	03	450A	1
	03	570A	1
8525-16R10B6SWB	03	460A	1
	03	580A	1

- Item not illustrated

DETAILED PARTS LIST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210
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200
160
150
140
130

Figure 1

PARTS LIST

FIG. ITEM	PART NUMBER	AIRLINE PART No	NOMENCLATURE 1234567	EFF. CODE	UNITS PER ASSY	
01						
-001A	19570-100		ACTUATOR, BRACE STRUT, MAIN... P/N AMDT D POST MODIFICATION		RF	R
-001B	19570-100-03		ACTUATOR, BRACE STRUT, MAIN... POST SB 024-32-017		RF	
-002A	19570-101		ACTUATOR, BRACE STRUT, MAIN... P/N AMDT C POST MODIFICATION		RF	R
-010A	19645		.BODY ASSY.....		1	
020A	19714		..BODY.....		1	
030A	17946		..BUSH.....		2	
031A	17946R		..BUSH, DIA 10,5MM..... OVERSIZE		AR	
-040A	MS28775-010		.PACKING, PREFORMED..... SUPSD BY M83461-1-010		2	
040B	M83461-1-010		.PACKING, PREFORMED..... SUPSDS MS28775-010		2	
-050A	MS28775-225		.PACKING, PREFORMED..... SUPSD BY M83461-1-225		1	
050B	M83461-1-225		.PACKING, PREFORMED..... SUPSDS MS28775-225		1	
060A	19839		.SEGMENT, ANTI-EXTRUSION.....		1	
070A	19841		.SEGMENT, ANTI-EXTRUSION.....		1	
-080A	MS28775-226		.PACKING, PREFORMED..... SUPSD BY M83461-1-226		1	
080B	M83461-1-226		.PACKING, PREFORMED..... SUPSDS MS28775-226		1	
090A	19727		.PISTON, LOCKING.....		1	
100A	19728		.SPRING.....		1	
110A	19765		.RING, PROTECTION.....		1	
120A	19729		.STOP.....		1	
130A	19731		.CLAW.....		1	
140A	19732		.STOP.....		1	
-150A	MS28775-228		.PACKING, PREFORMED..... SUPSD BY M83461-1-228		1	
150B	M83461-1-228		.PACKING, PREFORMED..... SUPSDS MS28775-228		1	
160A	19837		.SEGMENT, ANTI-EXTRUSION.....		1	
-170A	19640		.BALL FITTING ASSY.....		1	
180A	19711		..BALL FITTING ASSY ORDER NHA. MATCHED PARTS		1	

- Item not illustrated

PARTS LIST

FIG. ITEM	PART NUMBER	AIRLINE PART No	NOMENCLATURE 1234567	EFF. CODE	UNITS PER ASSY	
01						
190A	19712		..BALL ORDER NHA..... MATCHED PARTS		1	
200A	19713		..BUSH.....		2	
210A	19736		.PISTON.....		1	R
220A	19734		.PIN.....		1	
-230A	19570-100AAA		.ACTUATOR, BRACE STRUT,...(NP) MAIN (CONT'D) SEE 323998-02 -001A FOR DET	1A	1	
-230B	19570-100-03AAA		.ACTUATOR, BRACE STRUT,...(NP) MAIN (CONT'D) POST SB 024-32-017 SEE 323998-02 -001B FOR DET	1B	1	
-240A	19570-101AAA		.ACTUATOR, BRACE STRUT,...(NP) MAIN (CONT'D) SEE 323998-02 -002A FOR DET	2A	1	
-250A	19570-100BAA		.ACTUATOR, BRACE STRUT,...(NP) MAIN (CONT'D) SEE 323998-03 -001A FOR DET	1A	1	
-250B	19570-100-03BAA		.ACTUATOR, BRACE STRUT,...(NP) MAIN (CONT'D) POST SB 024-32-017 SEE 323998-03 -001B FOR DET	1B	1	
-260A	19570-101BAA		.ACTUATOR, BRACE STRUT,...(NP) MAIN (CONT'D) SEE 323998-03 -002A FOR DET	2A	1	
-270A	19570-100CAA		.ACTUATOR, BRACE STRUT,...(NP) MAIN (CONT'D) SEE 323998-04 -001A FOR DET	1A	1	
-270B	19570-100-03CAA		.ACTUATOR, BRACE STRUT,...(NP) MAIN (CONT'D) POST SB 024-32-017 SEE 323998-04 -001B FOR DET	1B	1	
-280A	19570-101CAA		.ACTUATOR, BRACE STRUT,...(NP) MAIN (CONT'D) SEE 323998-04 -002A FOR DET	2A	1	

- Item not illustrated

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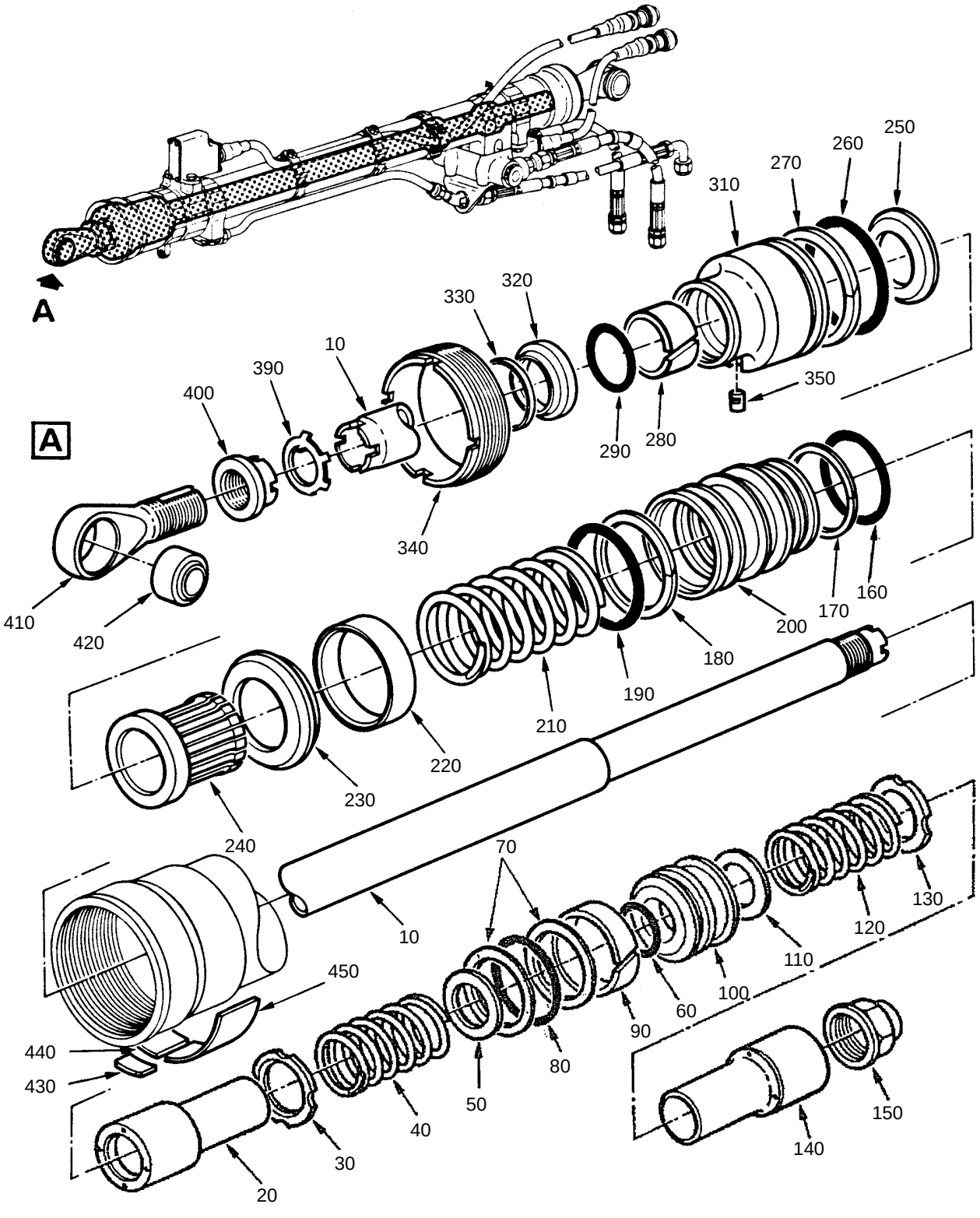
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Figure 2

PARTS LIST

FIG. ITEM	PART NUMBER	AIRLINE PART No	NOMENCLATURE 1234567	EFF. CODE	UNITS PER ASSY	
02						
-001A	19570-100AAA		ACTUATOR, BRACE STRUT,....(NP) MAIN (CONT'D) SEE 323998-01 -230A FOR NHA		RF	
-001B	19570-100-03AAA		ACTUATOR, BRACE STRUT,....(NP) MAIN (CONT'D) POST SB 024-32-017 SEE 323998-01 -230B FOR NHA		RF	
-002A	19570-101AAA		ACTUATOR, BRACE STRUT,....(NP) MAIN (CONT'D) SEE 323998-01 -240A FOR NHA		RF	
010A	19717		.ROD, ACTUATOR.....		1	
020A	19719		.BUSH.....		1	
030A	19721		.WASHER.....		1	
040B	20506		.SPRING.....		1	
050A	19723		.WASHER.....		1	
-060A	MS28775-212		.PACKING, PREFORMED..... SUPSD BY M83461-1-212		1	
060B	M83461-1-212		.PACKING, PREFORMED..... SUPSDS MS28775-212		1	
070A	19838		.SEGMENT, ANTI-EXTRUSION.....		2	R
-080A	MS28775-222		.PACKING, PREFORMED..... SUPSD BY M83461-1-222		1	
080B	M83461-1-222		.PACKING, PREFORMED..... SUPSDS MS28775-222		1	
090A	19759		.SEGMENT, CARRIER.....		1	
100A	19724		.PISTON..... OPT TO D67875		1	R
110A	19723		.WASHER.....		1	
120B	20504		.SPRING.....		1	
120C	20771		.SPRING..... POST SB 024-32-004		1	
130A	19721		.WASHER.....		1	
140A	19719		.BUSH.....		1	
150A	19726		.NUT.....		1	
-160A	MS28775-225		.PACKING, PREFORMED..... SUPSD BY M83461-1-225		1	
160B	M83461-1-225		.PACKING, PREFORMED..... SUPSDS MS28775-225		1	
170A	19839		.SEGMENT, ANTI-EXTRUSION.....		1	
180A	19841		.SEGMENT, ANTI-EXTRUSION.....		1	
-190A	MS28775-226		.PACKING, PREFORMED..... SUPSD BY M83461-1-226		1	

- Item not illustrated

PARTS LIST

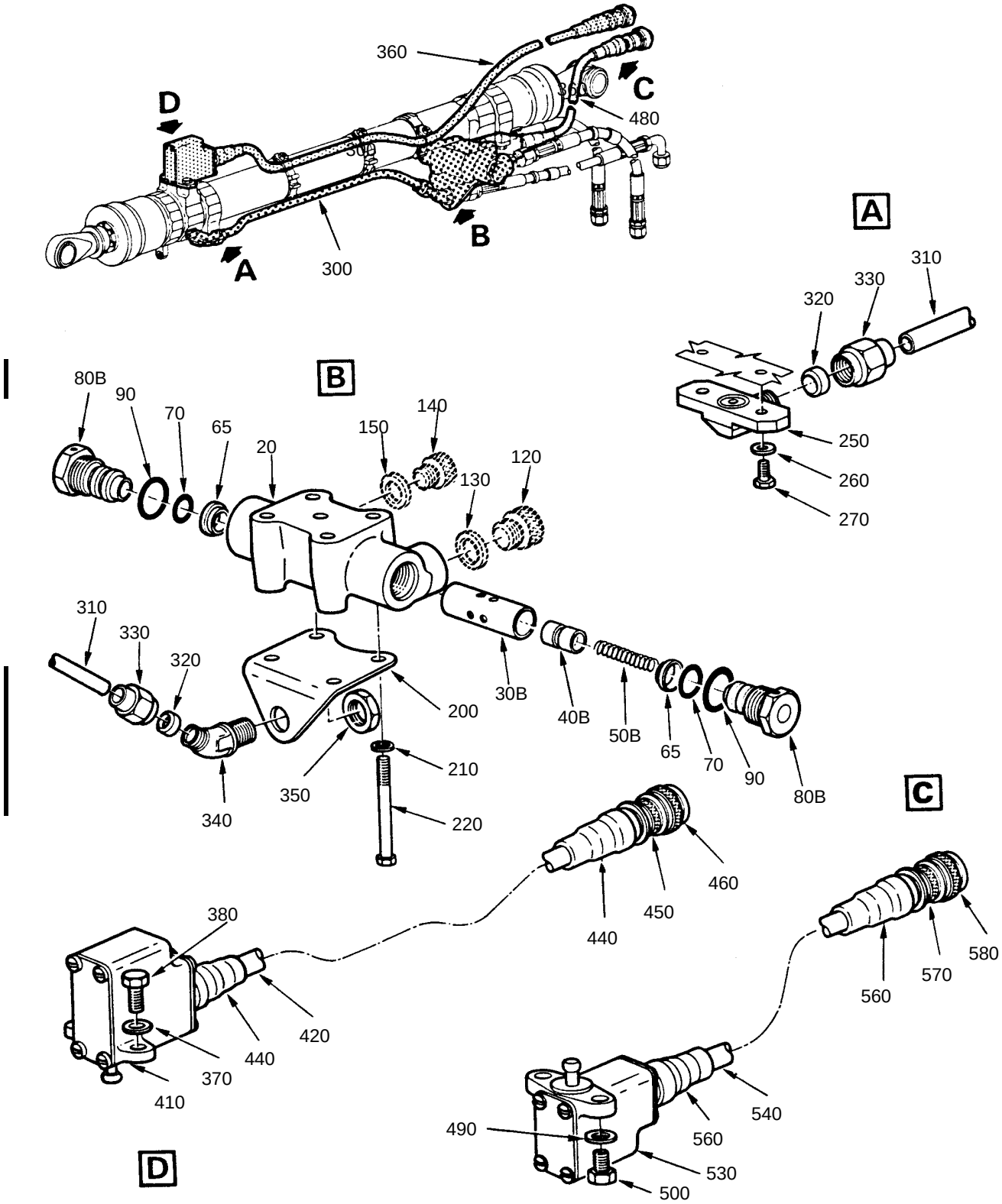
FIG. ITEM	PART NUMBER	AIRLINE PART No	NOMENCLATURE 1234567	EFF. CODE	UNITS PER ASSY	
02						
190B	M83461-1-226		.PACKING, PREFORMED..... SUPSDS MS28775-226		1	
200A	19727		.PISTON, LOCKING.....		1	
210A	19728		.SPRING.....		1	
220A	19765		.RING, PROTECTION.....		1	
230A	19729		.STOP.....		1	
240A	19731		.CLAW.....		1	
250A	19732		.STOP.....		1	
-260A	MS28775-228		.PACKING, PREFORMED..... SUPSD BY M83461-1-228		1	
260B	M83461-1-228		.PACKING, PREFORMED..... SUPSDS MS28775-228		1	
270A	19837		.SEGMENT, ANTI-EXTRUSION.....		1	
280A	19761		.SEGMENT, CARRIER.....		1	
-290A	M83461-1-217		.PACKING, PREFORMED.....		1	
290B	21106-000-00		.PACKING, ASSEMBLY.....		1	
310A	19733		.BEARING..... OPT TO D67873		1	R
-320A	AS3040-58-83358		.RING, SCRAPER.....VD2480 SUPSD BY AS3040-58		1	
320B	AS3040-58		.RING, SCRAPER.....VD2480 SUPSDS AS3040-58-83358		1	
330A	19814		.RING, RETAINING.....		1	
340A	19736		.PISTON..... OPT TO D67874		1	R
350A	19734		.PIN.....		1	
-360A	23320CA080		.LOCKWIRE.....		AR	
-370A	18450		.SEAL, LEAD.....		1	
-380A	19655		.BALL FITTING ASSY.....		1	
-390A	ADGA0240NLE		.WASHER, LOCK..... SUPSD BY 19737		1	
390B	19737		.WASHER, LOCK..... SUPSDS ADGA0240NLE		1	
400A	19738		.NUT.....		1	
410A	19739		..END-FITTING.....		1	
-420A	RL20R		..BALL.....VF0234 SUPSD BY XRL20R		1	
420B	XRL20R		..BALL.....VF0234 SUPSDS RL20R		1	
430A	12288		.PLATE, AMENDMENT.....		1	
-440A	19207		.PLATE, MANUFACTURER..... SUPSD BY D92705-6		1	

- Item not illustrated

PARTS LIST

FIG. ITEM	PART NUMBER	AIRLINE PART No	NOMENCLATURE 1234567	EFF. CODE	UNITS PER ASSY
02					
440B	D92705-6		.PLATE, MANUFACTURER..... SUPSDS 19207		1
450A	11072		.PLATE, MODIFICATION.....		1

- Item not illustrated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C
480
D
B
A
300
A
310
330
320
250
260
270
B
80B
90
70
65
20
150
140
130
120
310
330
320
200
30B
40B
50B
65
70
90
80B
340
350
210
220
C
460
450
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570
560
540
560
530
490
500
D

Figure 3

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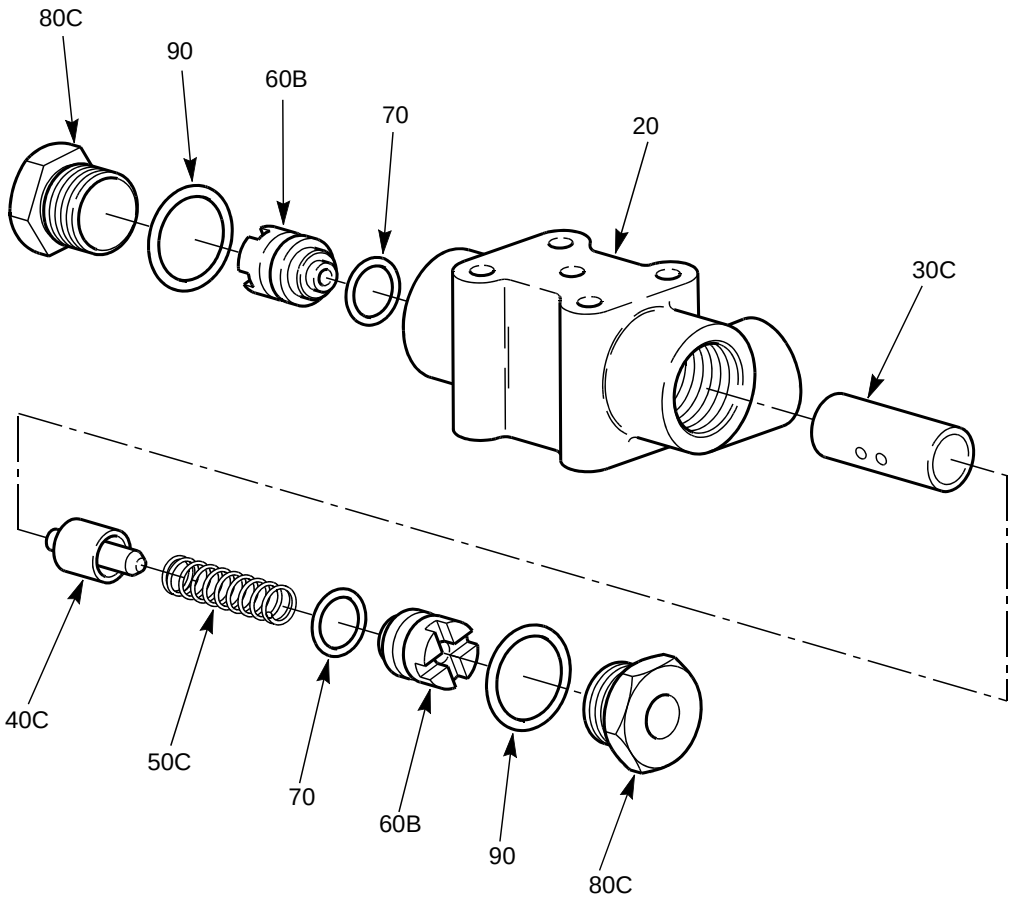


Figure 3A

PARTS LIST

FIG. ITEM	PART NUMBER	AIRLINE PART No	NOMENCLATURE 1234567	EFF. CODE	UNITS PER ASSY
03					
-001A	19570-100BAA		ACTUATOR, BRACE STRUT,....(NP) MAIN (CONT'D) SEE 323998-01 -250A FOR NHA		RF
-001B	19570-100-03BAA		ACTUATOR, BRACE STRUT,....(NP) MAIN (CONT'D) SEE 323998-01 -250B FOR NHA		RF
-002A	19570-101BAA		ACTUATOR, BRACE STRUT,....(NP) MAIN (CONT'D) SEE 323998-01 -260A FOR NHA		RF
010B	17990-004		.VALVE, PRIORITY ASSY.....	1A 2A	1
A-010C	17990		.VALVE, PRIORITY ASSY..... POST SB 024-32-017	1B	1
020A	17994		..BODY, VALVE.....		1
030B	20202		..LINER.....	10B	1
A 030C	18166		..LINER..... POST SB 024-32-017	10C	1
040B	20203		..VALVE.....	10B	1
A 040C	18167		..VALVE..... POST SB 024-32-017	10C	1
050B	20207		..SPRING.....	10B	1
A 050C	18168		..SPRING..... POST SB 024-32-017	10C	1
A 060B	17996		..SEAT..... POST SB 024 -32-017	10C	2
065A	20206		..PACKING, PREFORMED.....	10B	2
-070A	MS28775-012		..PACKING, PREFORMED..... SUPSD BY M83461-1-012		2
070B	M83461-1-012		..PACKING, PREFORMED..... SUPSDS MS28775-012		2
080B	20204		..PLUG.....	10B	2
A 080C	17997		..PLUG..... POST SB 024-32-017	10C	2
090A	20484		..PACKING, PREFORMED.....		2
-100A	23320CA080		..LOCKWIRE.....		AR
-110A	18450		..SEAL, LEAD..... STORAGE PARTS		1
120A	18292		..PLUG, STORAGE.....		1
130A	18301		..SEAL, STORAGE.....		1
140A	18293		..PLUG, STORAGE.....		1
150A	18299		..SEAL, STORAGE.....		1

- Item not illustrated

PARTS LIST

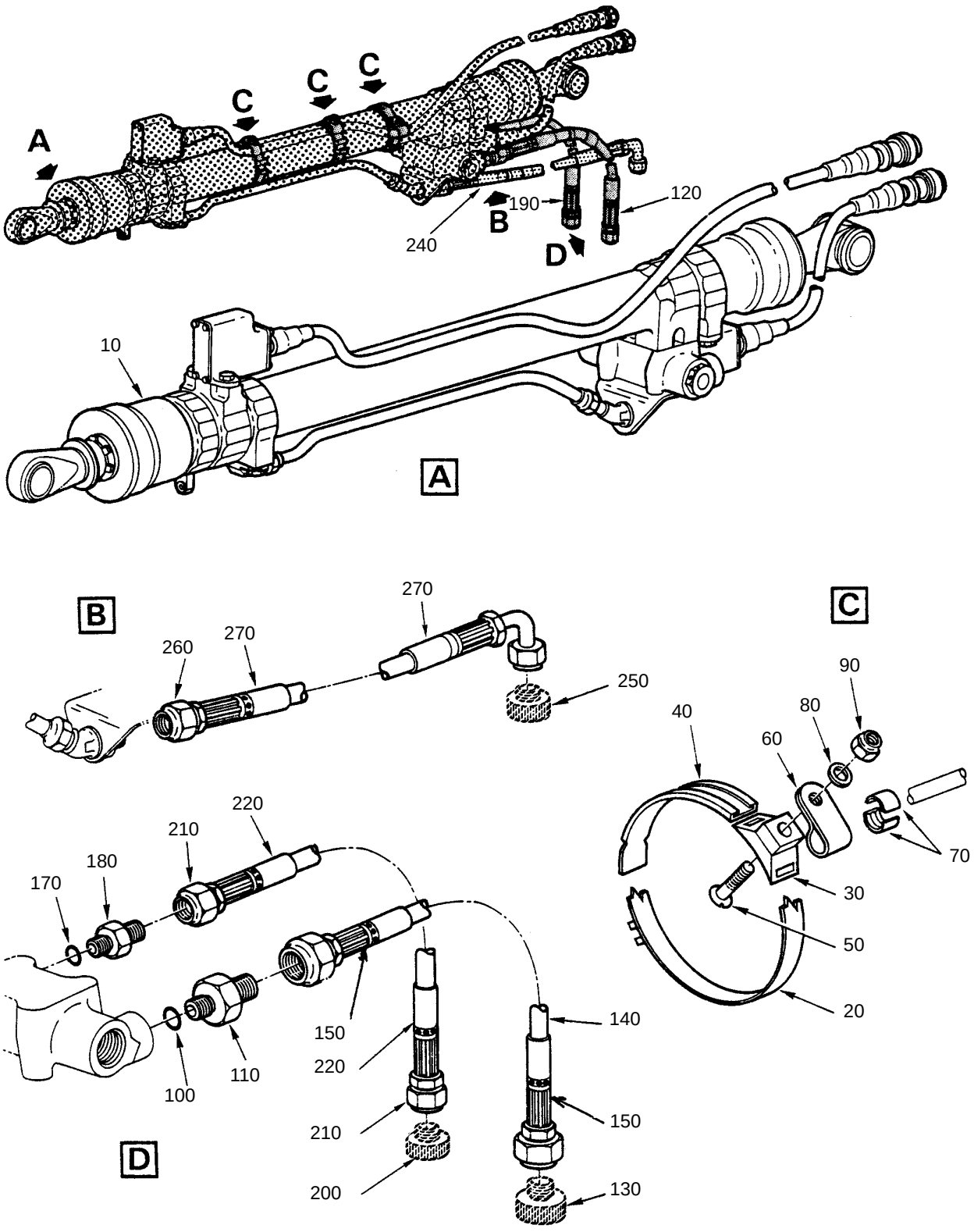
FIG. ITEM	PART NUMBER	AIRLINE PART No	NOMENCLATURE 1234567	EFF. CODE	UNITS PER ASSY
03					
-160A	MS28775-012		..PACKING, PREFORMED..... SUPSD BY M83461-1-012		1
-160B	M83461-1-012		..PACKING, PREFORMED..... SUPSDS MS28775-012		1
-170A	20219		..PLATE, STORAGE.....		1
-180A	23112AGO40LE		..WASHER.....		2
-190A	22296AGO40038U		..SCREW..... * * *		2
200A	18804		.SUPPORT, TUBE..... ATTACHING PARTS		1
210A	23112AGO50LE		.WASHER.....		4
220A	22126BC050044L		.SCREW.....		4
-230A	23320CA080		.LOCKWIRE.....		AR
-240A	18450		.SEAL, LEAD..... * * *		1
250A	19741		.COUPLING..... ATTACHING PARTS		1
260A	23112AGO50LE		.WASHER.....		2
270A	22126BC050012L		.SCREW.....		2
-280A	23320CA080		.LOCKWIRE.....		AR
-290A	18450		.SEAL, LEAD..... * * *		1
300A	19660		.TUBE ASSY.....		1
310A	19742		..TUBE.....		1
320A	R5106		..RING.....VF0271		2
330A	R5306		..NUT.....VF0271		2
340A	18797		.COUPLING, ELBOWED.....		1
350A	18803		.NUT.....		1
360A	19875		.HARNESS, CABLE..... ATTACHING PARTS		1
370A	23112AGO50LE		.WASHER.....		2
380A	22126BC050012L		.SCREW.....		2
-390A	23320CA080		.LOCKWIRE.....		AR
-400A	18450		.SEAL, LEAD..... * * *		1
410A	83-990-035		..SWITCH, UNIT.....VF0282		1
420A	CONVOLEX9-32		..TUBING.....VF6220		1
-430A	C58000297		..END FITTING.....		2
440A	202K121-3		..FITTING, RIGHT ANGLE..VF6220		2
450A	852-17R10		..ADAPTER.....VF0225		1
460A	8525-16R10B6SWB		..CONNECTOR.....VF0225		1
-470A	16152-045		..SLEEVE, IDENTIFICATION.....		1

- Item not illustrated

PARTS LIST

FIG. ITEM	PART NUMBER	AIRLINE PART No	NOMENCLATURE 1234567	EFF. CODE	UNITS PER ASSY
03					
480A	19870		.HARNESS, CABLE..... ATTACHING PARTS		1
490A	23112AG050LE		.WASHER.....		2
500A	22126BC050012L		.SCREW.....		2
-510A	23320CA080		.LOCKWIRE.....		AR
-520A	18450		.SEAL, LEAD..... * * *		1
530A	83-990-035		..SWITCH, UNIT.....VF0282		1
540A	CONVOLEX9-32		..TUBING.....VF6220		1
-550A	C58000297		..END FITTING.....		2
-560A	202K121-3		..FITTING, RIGHT ANGLE..VF6220		2
570A	852-17R10		..ADAPTER.....VF0225		1
580A	8525-16R10B6SWB		..CONNECTOR.....VF0225		1
-590A	16152-047		..SLEEVE, IDENTIFICATION.....		1

- Item not illustrated


A
C
C
C
B
D
120
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10
A
B
270
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C
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60
70
30
50
20
D
220
210
180
170
150
220
140
150
210
200
130
100
110

Figure 4

PARTS LIST

FIG. ITEM	PART NUMBER	AIRLINE PART No	NOMENCLATURE 1234567	EFF. CODE	UNITS PER ASSY	
04						
-001A	19570-100CAA		ACTUATOR, BRACE STRUT,....(NP) MAIN (CONT'D) SEE 323998-01 -270A FOR NHA		RF	
-001B	19570-100-03CAA		ACTUATOR, BRACE STRUT,....(NP) MAIN (CONT'D) SEE 323998-01 -270B FOR NHA		RF	
-002A	19570-101CAA		ACTUATOR, BRACE STRUT,....(NP) MAIN (CONT'D) SEE 323998-01 -280A FOR NHA		RF	
010A	19570		.ACTUATOR.....	1A	1	R
010B	19570-000		.ACTUATOR.....	1A	1	R
010C	19570-000-03		.ACTUATOR.....	1B	1	R
-011A	19570-001		.ACTUATOR.....	2A	1	
020A	31916		.CLAMP.....VF2693		3	
-030A	31950		.RECEPTACLE.....VF2693 SUPSD BY 20963		3	
030B	20963		.RECEPTACLE MADE BY VF2693.... SUPSDS 31950 MODIFIED FROM 31950		3	
040A	18771		.PACKING.....		3	
050A	22259BC050018L		.SCREW.....		3	
-060A	HB11N13		.CLIP, CABLE.....VF0215 SUPSD BY 11N13		3	
060B	11N13		.CLIP, CABLE.....VF0215 SUPSDS HB11N13		3	
-070A	58000926		.SLEEVE..... SUPSD BY C58000-296		6	
070B	C58000-296		.SLEEVE..... SUPSDS 58000926		6	
080A	23112AG050LE		.WASHER.....		3	
090A	22542K050		.NUT.....		3	
100A	32326-523		.PACKING, PREFORMED.....		1	
110A	18800		.COUPLING, STRAIGHT.....		1	
120A	18787-100		.HOSE, FLEXIBLE ASSY..... STORAGE PARTS		1	
130A	19482		.PLUG, STORAGE..... * * *		1	
140A	18787		..HOSE, FLEXIBLE.....		1	
150A	11585-001		..RING, IDENTIFICATION.....		2	
-160A	16137		..CLAMP.....		1	
170A	32312-523		.PACKING, PREFORMED.....		1	
180A	18799		.COUPLING, STRAIGHT.....		1	

- Item not illustrated

PARTS LIST

FIG. ITEM	PART NUMBER	AIRLINE PART No	NOMENCLATURE 1234567	EFF. CODE	UNITS PER ASSY
04					
190A	18788-100		.HOSE, FLEXIBLE ASSY..... STORAGE PARTS		1
200A	19483		.PLUG, STORAGE..... * * *		1
210A	18788		..HOSE, FLEXIBLE.....		1
220A	11585-006		..RING, IDENTIFICATION.....		2
230A	16137		..CLAMP.....		1
240A	18789-100		.HOSE, FLEXIBLE ASSY..... STORAGE PARTS		1
250A	19483		.PLUG, STORAGE..... * * *		1
260A	18789		..HOSE, FLEXIBLE.....		1
270A	11585-002		..RING, IDENTIFICATION.....		2
-280A	16137		..CLAMP.....		1

- Item not illustrated