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MAIN LANDING GEAR LEG

PARTS NUMBERS

18785-200-01	**,**	**18786-200-01**
18785-200B	**,**	**18786-200B**
18785-200C	**,**	**18786-200C**
18785-200D	**,**	**18786-200D**

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 3

1. Permanent revisions

   A. Check that Initial issue/revision No 2 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. Parts numbers added.
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 to 4	Indication of new chapter and/or chapter deleted.
Table of contents	1 to 4	Indication of new chapter and/or chapter deleted.
	5	New page as a result of new chapter added.
List of Special Materials	1 to 4	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. METHANOL AIR 3651 is deleted.
	5	New page as a result of text transferred. RESIN PERMAFIL 3255 added as a result of introduction of temporary revision No 1.
Introduction	2	Text added and paragraph 3 deleted.
Description and operation	4	Special notice are changed to CMM ERAM is changed to Messier-Dowty or Messier-Bugatti.

SUBJECT REFERENCE	REMOVE/INSERT NEW/REVISED PAGES	REASON OF CHANGE
Testing and fault Isolation	102	Paragraph numbered.
	103	Text modified as a result of introduction of temporary revision No 3.
	104	Figure 101 modified.
	105	Figure 102 modified as a result of introduction of temporary revision No 3.
	106	Isotherm is changed to polytropic.
Disassembly	308	Figure 304 modified.
Cleaning	401	ORTHONETOIL P is changed to PAINTEX CH
Repair	602 to 635	Microinches is changed to inches. Figure numbers added. text added, modified and deleted.
	603	Figure 601 modified.
	610 and 611	Paragraph 7 reworked.
	615	Item 420 AND 430: Resin PERMAFIL 3255 added and item 470: Resin PERMAFIL 3255 as a result of introduction of temporary revision No 1 and 2.
	618 and 621	In IMPORTANT note text deleted.
	622 and 631	Figure 606 and 613 modified.
	630	Text modified and added as a result of introduction of temporary revision No 1.
	632	New figure added as a result of introduction of temporary revision No 1.
	633	Figure 614 is changed to Figure 615
	634	New page as a result of text transferred. Text deleted.
	635	New page as a result of introduction of temporary revision No 1 and 2.
Assembly	701	PR1826A2 is deleted and replaced by PR1826B2.
	704 to 714	Text added, modified and deleted.
	705	Figure 701 modified.
	712	Paragraph numbered.

SUBJECT REFERENCE	REMOVE/INSERT NEW/REVISED PAGES	REASON OF CHANGE
Fits and clearances	801	Item number modified.
Special tools, Fixtures and Equipment	901	Modification of Messier Services address. Tool 50403 is changed to GS47036. Tool 50392 added.
	902	Figure 901 modified.
Illustrated Parts List	1006 and 1007	Vendor's code list modified.
	1008	New page as a result of Messier-Dowty and Messier Services Contacts added.
	1010 to 1017	Numerical Index: item numbers modified and transferred.
	1019 to 1041	Item numbers modified and transferred.
	1042	Page blank inserted.

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 Organisation, 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	May 1995				
2	January 2001				
3	Jan 31/08				

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RECORD OF TEMPORARY REVISIONS

Revisions embodied in this manual and certified by an appropriate Approved Organisation, 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	October 2002	3	Jan 31/08	
2	Oct 31/06	3	Jan 31/08	
3	Jul 30/07	3	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
None			January 2001	Suppression of chattering during compression of the main landing gear leg (FEE 89) 18785-200-01 becomes 18785-200 Amdt.B 18786-200-01 becomes 18786-200 Amdt.B
None			January 2001	New paint (FEE 90) Without evolution
024-32-036		2	Jan 31/08	Improvement of the scrapper behaviour (FEE 92). 18785-200 Amdt.B becomes 18785-200 Amdt.C 18786-200 Amdt.B becomes 18786-200 Amdt.C
None			Jan 31/08	Improvement of materials (FEE 94). 18785-200 Amdt.C becomes 18785-200 Amdt.D 18786-200 Amdt.C becomes 18786-200 Amdt.D
	024-32-037		Jan 31/08	Replacement of key P/N 50403 by a special tool P/N GS47036. Without evolution.

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Service Bulletin 024-32-040

TITLE : MAIN LANDING GEAR - REPLACEMENT OF FLEXIBLE HOSE

1. Planning Information

A. Effectivity

Component affected

Flexible Hose P/N 19828-100 of "TECALEMIT" manufactured between april 2007 and march 2008.

B. Concurrent requirements

Not applicable

C. Reason

Replacement of flexible hoses which present a malfunction defect.

D. Description

These flexible hoses containt non conformity material due to manufacturing and could lead to a folding or bulge under pressure (possibility of blursting).

NOTE: The date of manufacturing is indicated on identification plate (see Figure 1, example 04-07 = april 2007, 01-08 = january 2008)

Because of no manufacturing on april 2008, the batch on may 2008 would comply with conformity.

E. Compliance

Application of this service bulletin is recommended

In case of availability of flexible hoses manufactured prior to april 2007, It is recommended to replace all incriminated flexible hoses by parts that are out of batches mentioned above.

F. Approval

The technical information contained in this manufacturer's Service Bulletin was approved by EUROCOPTER under the prerogatives awarded by the EASA design organisation appoval N° 21J.056 only for the EUROCOPTER helicopter range concerned.

G. Manpover

1 mechanic

H. Weight and Balance

Not applicable

I. Electrical load data

Not applicable

J. Software accomplishment summery

Not applicable

K. References

CMM 32-12-96

CMM 32-12-98

CMM 32-19-05

L. Other publications affected

Not applicable

M. Interchangeability or mixability of parts

Not applicable

2. Material Information

A. Material, - Price and Availability

- Part required : Flexible Hose P/N 19828-100.

The supply of flexible Hose is free of charge.

All operator having flexible hoses being parts of incriminated batches is invited to contact:

Mr. Fabrice BERTRAND (MESSIER-DOWTY)

Tel : (33) 1-46-29-18-09

Fax : (33) 1-46-29-18-49.

fabrice.bertrand@messier-dowty.com

B. Industrie Support Information

Not applicable

C. Material Necessary for Each Unit

- Part required : Flexible Hose P/N 19828-100.

D. Re-identified parts

Not applicable

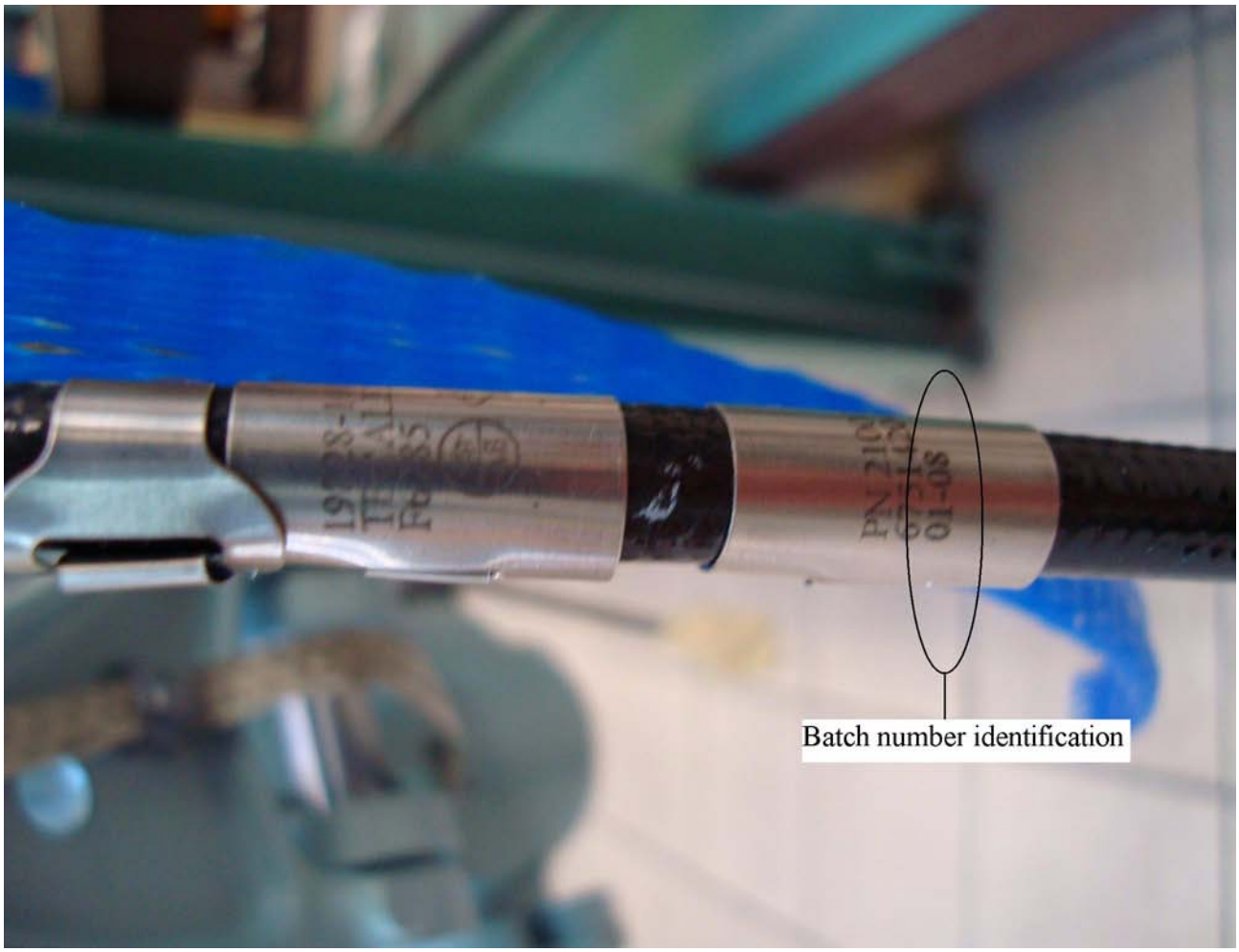
E. Tooling - Price and Availability

Not applicable

3. Accomplishment Instructions

Not applicable

Service Bulletin 024-32-040



Flexible Hose - Identification plate
Figure 1

LIST OF EFFECTIVE PAGES

SUBJECT	PAGE	DATE
Illustrated Parts List (cond't)	1021	Jan 31/08
	1022	OCTOBER 1994
	1023	Jan 31/08
	1024	Jan 31/08
	1025	BLANK
	1026	OCTOBER 1994
	1027	Jan 31/08
	1028	Jan 31/08
	1029	Jan 31/08
	1030	Jan 31/08
	1031	BLANK
	1032	OCTOBER 1994
	1033	Jan 31/08
	1034	Jan 31/08
	1035	Jan 31/08
	1036	Jan 31/08
	1037	BLANK
	1038	OCTOBER 1994
	1039	Jan 31/08
	1040	OCTOBER 1994
	1041	Jan 31/08
	1042	BLANK

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TABLE OF CONTENTS

SUBJECT OR PARAGRAPH TITLE — Page

SUBJECT OR PARAGRAPH TITLE — Page

TABLE OF FIGURES

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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
Mineral Protection Compound MOLYKOTE DX	DOW CORNING CORP.	2200 W SALZBURG Bd P.O. BOX 997 MIDLAND MI U.S.A.					X
Cement LOCTITE 259	LOCTITE CORP.	705, N-MOUNTAIN Road NEWINGTON CT06111 U.S.A.				X	X
Cement ARALDITE AW106 + Hardener HV953U or Cement MMA134 Type 1	CIBA SPECIALTY CHEMICALS APPROVED VENDOR	BASEL SWITZERLAND				X	
Grease G354 or Grease AIR 4210B or Grease MIL-G-23827C	COMMERCIALLY AVAILABLE						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						

PRODUCT NAME	VENDOR'S TRADE NAME	VENDOR'S ADDRESS	WHERE USED				
			TEST	CLEAN	CHECK	REPAIR	ASSEM. ST
Paint stripper PAINTEX CH	S.P.C.A.	9, Voie de Seine 94290 VILLENEUVE LE ROI FRANCE		X			
SPACOXYD Corrosion remover (MIL-T-10758 Type 3)	S.P.C.A.	9, Voie de Seine 94290 VILLENEUVE LE ROI FRANCE				X	
Rinsing agent NEUTROX 700	S.P.C.A.	9, Voie de Seine 94290 VILLENEUVE LE ROI FRANCE				X	
Protective coating PROTEX WR	S.P.C.A.	9, Voie de Seine 94290 VILLENEUVE LE ROI FRANCE				X	
Waxy product PROTEX CS39	S.P.C.A.	9, Voie de Seine 94290 VILLENEUVE LE ROI FRANCE				X	
or DINITROL AV100	BONNOT	183,rue Raymond Poincaré 88290 SAULXURES SUR MOSELOTTE FRANCE					
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	

PRODUCT NAME	VENDOR'S TRADE NAME	VENDOR'S ADDRESS	WHERE USED				
			TEST	CLEAN	CHECK	REPAIR	ASSEM. ST
Paint (See Chapter REPAIR)	COURTAULDS AEROSPACE	75, Bld WINSTON CHURCHILL 76052 LE HAVRE CEDEX FRANCE				X	
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
Hydraulic fluid FHS or Hydraulic fluid MIL-H-5606 or Hydraulic fluid AIR 3520B or Hydraulic fluid MIL-H-83282A	APPROVED VENDOR 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
METHANOL AIR 3651 (O-M-232 GRADE A)	MERCK EUROLAB DELETED	201, Rue Carnot 94120 FONTENAY S/BOIS 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
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
Greaseproof cloth AIR 8140 CATEGORY 22 (MIL-B-121C)	INDUTEX	51, Promenade des Ponts 92300 LEVALLOIS-PERRET FRANCE					X
Shuttle case type ATA 300 CATEGORY 1	MESSIER-BUGATTI	BP 40 78141 VELIZY CEDEX FRANCE					X

PRODUCT NAME	VENDOR'S TRADE NAME	VENDOR'S ADDRESS	WHERE USED				
			TEST	CLEAN	CHECK	REPAIR	ASSEM. ST
Desiccant AIR 8060 (MIL-D-3464)	D.Y.D.R.A.	12, rue du PORT DE LA CELLE 77670 ST MAMMES FRANCE					X
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
Cleaning product WHITE SPIRIT or Cleaning product PD 680	COMMERCIALLY AVAILABLE COMMERCIALLY AVAILABLE			X			X
Resin PERMAFILE 3255	Von Roll Isola USA	1 West Campbell Road Schenectady NY 12345				X	

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DESCRIPTION AND OPERATION

1. Description

A. General

(see Figure 1)

The DAUPHIN 365N helicopter is fitted with two retractable main landing gears. They are located aft of the center of gravity and each is attached to the edge of the fuselage at two points:

– Main leg mounting point

– Actuating jack mounting point

Each main landing gear consists of:

– an main leg consisting of a barrel containing an oleo-pneumatic shock absorber of the double chamber type,

– an actuating jack,

– a wheel with tyre and tube,

– a hydraulically operated brake unit.

NOTE: Each main leg is fitted with a contact or preventing the landing gear from being retracted when the aircraft is on the ground.

B. Operating characteristics

(1) Environment

– Storage temperature . . . . . -55°C + 70°C (-67°F + 158°F)

– Normal operating temperature . . . -40°C + 70°C (-40°F + 158°F)

– Limiting service temperature . . . . -55°C + 90°C (-67°F + 194°F)

– Relative humidity 95%

(2) Service

– Fluid used . . . . . (MIL-H-83282A) or
(MIL-H-5606B) AIR 3520

– Shock absorber travel . . . . . 280 mm (11.0236 in)

– Shock absorber pressures:

Low pressure chamber . . . . . 4 bar (58 psi)
High pressure chamber. . . . . 49 bar (711 psi)

(3) Weight (without wheel and brake)

– Landing gear
(without actuating jack) . . . . . 25,120 kg (46.57 lb)

C. Description

(1) Main leg (see Figure 2)

Comprises the following components:

– an oleo-pneumatic shock absorber, double chamber type,

– guide arm-torque for the shock absorber piston tube.

(a) Shock absorber

Consists essentially of a barrel (1) in which is fixed a cylinder (2) and in which slides a piston tube (3) carrying the wheel axle.

– The barrel

In light alloy and carries:

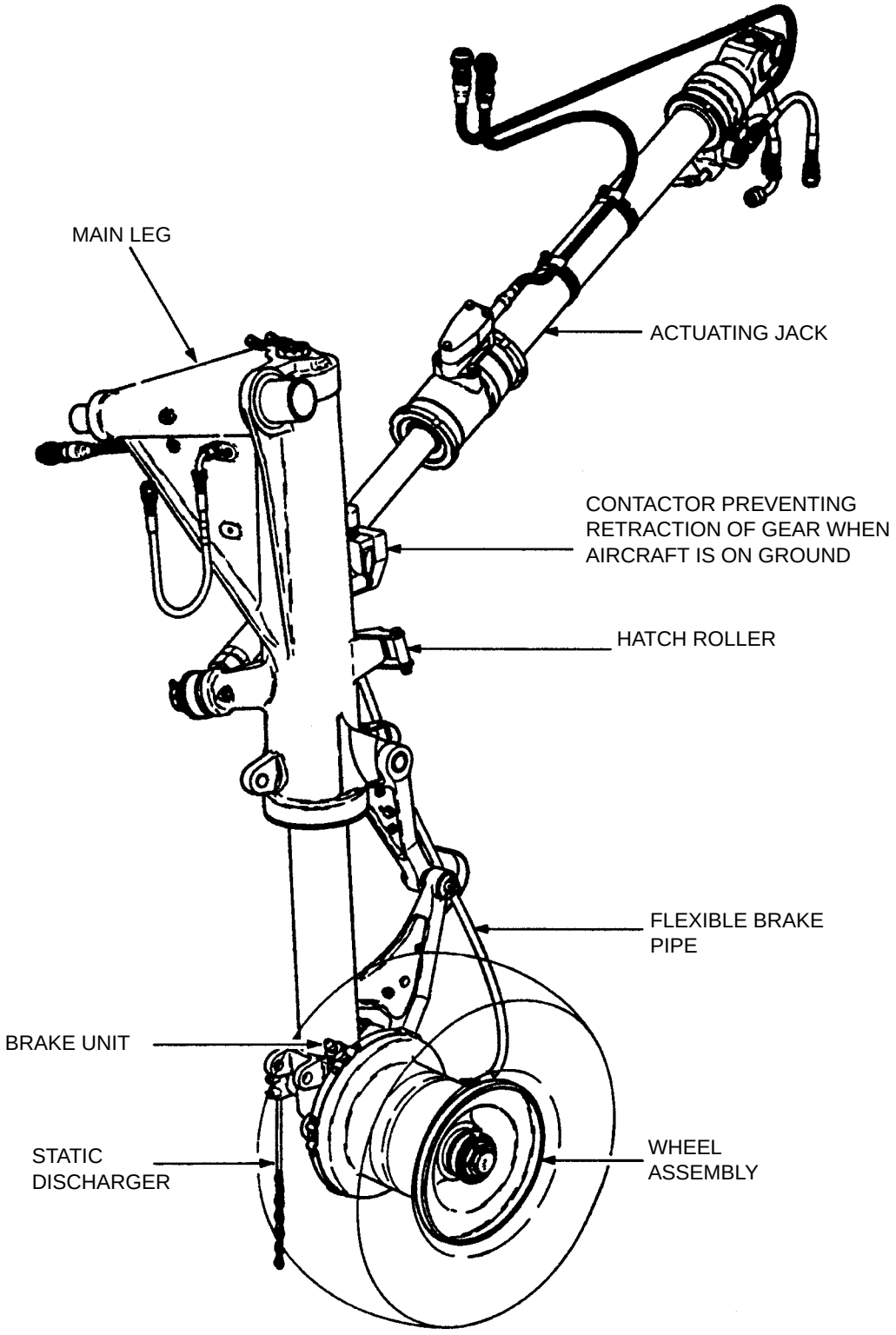
– the leg swivel (top),

– the lower swivel of the actuating jack (fuselage end),

– the upper mounting point for the arm-torque (bottom),

– the mounting for the hatch roller (rear bottom),

– the actuator for the warning contactor (4) (rear center).



Overall view
Figure 1

Inside the barrel is fitted with a sleeve (5) carrying the upper and lower bearings which guide the piston tube (3). The upper bearing is fitted with seals. The lower bearing is fitted with a scraper ring to protect the piston tube.

The two valves (6), (7) for the high pressure and low pressure chambers are fixed to the top of the barrel.

– The cylinder

In steel, contains the "expansion-compression" separating piston (9).

– Piston tube

Hardened steel, chromium plated on the outside; at its lower end carries the wheel axle on which is machined the lower mounting of the arm-torque and the ring to which the brake unit is fixed.

A bush (10) is screwed to the top end of the piston tube; this bush serves to activate the push rod (11) operating the contactores (4) when the shock absorber is completely extended.

(b) Arm-torque

Made up of two light alloy half arm-torque (12), (13). These are identical and are connected by means of a pin (14) provided with a swivel system with an adjusting shim.

The arm-torque are linked to the barrel and to the piston tube by means of two pins (15), held in place by pinned nuts.

(2) Actuating jack

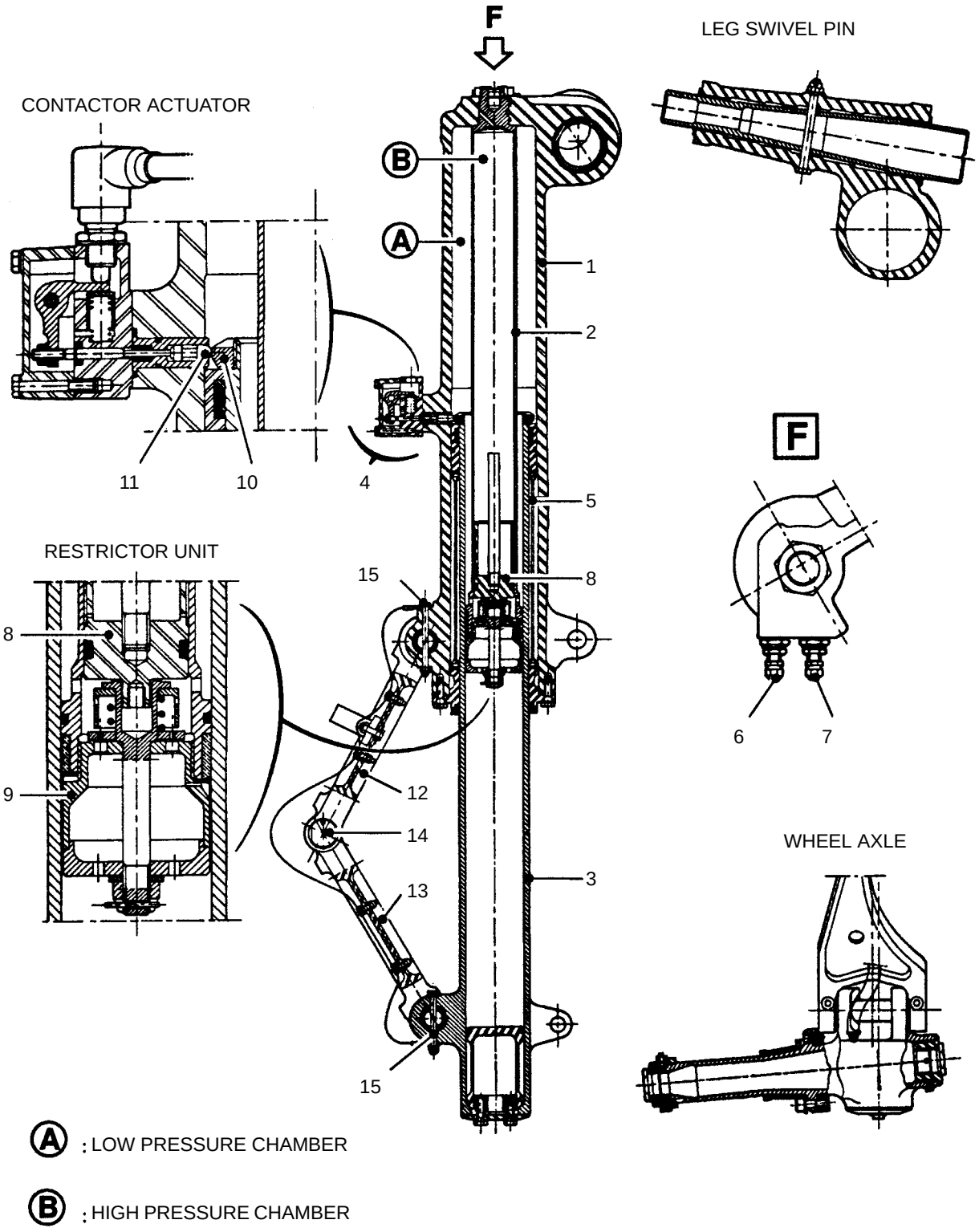
See CMM (Messier-Dowty 32-39-98)

(3) Wheel

See CMM (Messier-Bugatti 32-49-99)

(4) Brake

See CMM (Messier-Bugatti 32-49-96)



Main leg
Figure 2

2. Operation of the shock absorber
(see Figure 3)

– The nitrogen is in contact with the hydraulic fluid in chambers (A) and (B).

– Under pressure nitrogen reacts like a spring, storing energy during compression, and releasing it during extension.

A. Compression of the shock absorber

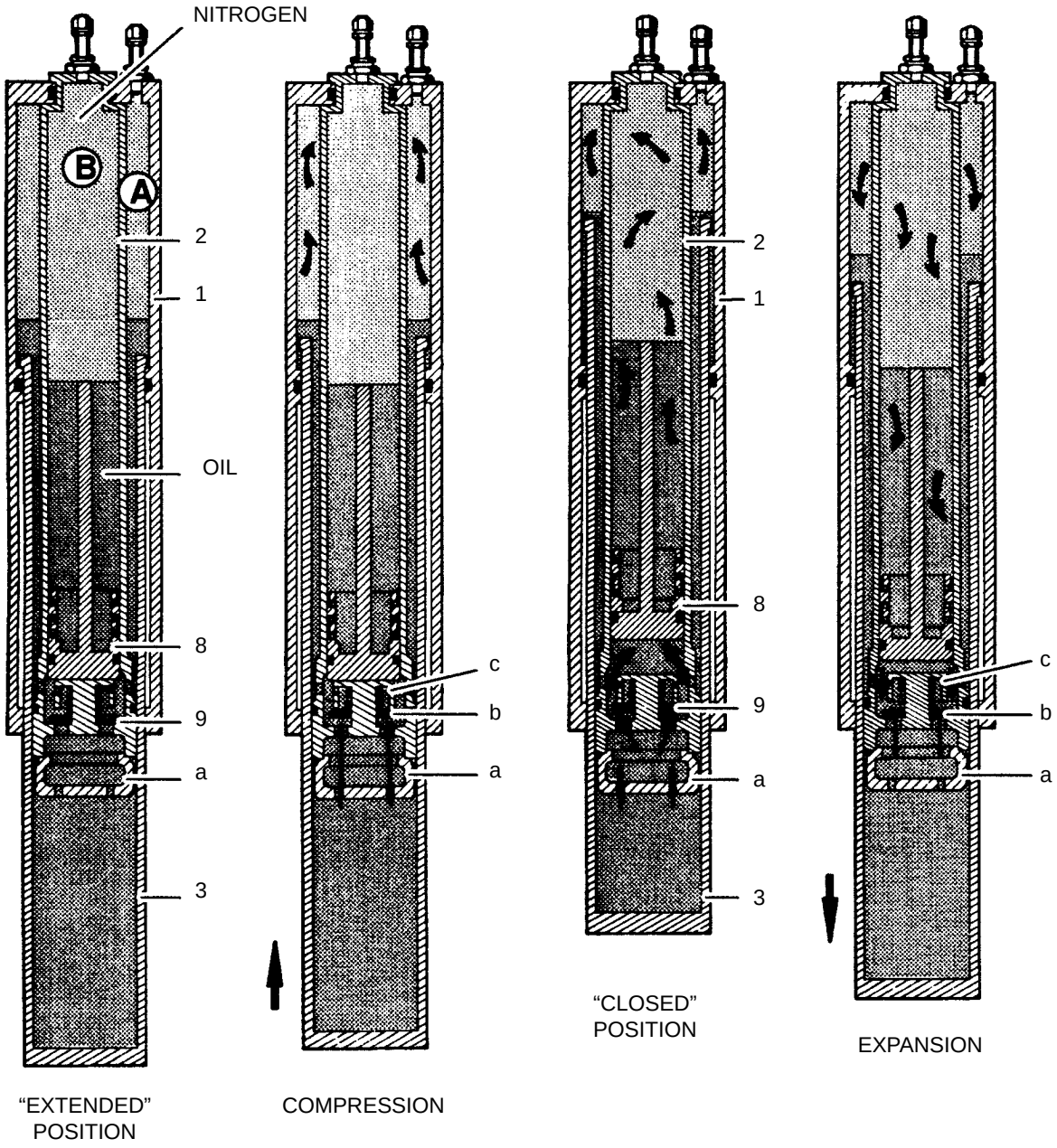
– Under the action of the wheel, the piston tube (3) starts to sink. The fluid regulated by the laminating ports of cup (a), is moved towards chamber (A). Nitrogen pressure increases in chamber (A). Diaphragm (b), removed from its seat, has no effect.

– Piston tube (3) continuing to sink, when pressure in chamber (A) becomes superior to pressure in chamber (B), piston (8) is pushed back by the fluid and compresses the nitrogen in chamber (B).

– Compression stops when nitrogen pressure balances the load of the aircraft on the wheel.

B. Extension of the shock absorber

– When the wheel load decreases, the shock absorber extends under the action of the energy stored by the nitrogen during compression. Diaphragm (b) is trought back in contact with its valve seat by spring (c). Fluid is then laminated trought diaphragm (b) ports, which slows down the extension of the shock absorber.



Operation of the shock absorber
Figure 3

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TESTING AND FAULT ISOLATION

1. Testing

A. Tools and materials

(1) Tools

– "Expansion - compression " machine type AMSLER with a recorder 3000 daN (6750 lbf) minimum or equivalent.

– Positioning jig for main leg (see Figure 101).

– Leveling shim 50392.

– Hydraulic accessories kit type standard (NATO)

– Universal controller.

– Hand pump with thank.

– Adaptator 50689.

– 27 Volt dc power pack with two indicator lights.

(2) Materials

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

– Nitrogen bottle (MIL-P-27401 Ind. C).

B. Operational test on shock absorber

– Ambient temperature +20°C ± 5°C (68° ± 9°F)

(1) Filling and inflation of the shock absorber (see Figure 103)

NOTE: The HP chamber is equipped with one valve with conical plug and clapper. The LP chamber is equipped with one valve without clapper and with conical plug.

(a) Remove the plugs and open the clapper on the HP valve.

(b) Fill the HP chamber (build up the pressure to 10 bar (145.037 psi)) and close the valve clapper.

(c) Install a drain pipe on the HP valve.

(d) Fill the LP chamber (build up the pressure to 10 bar (145 psi)).

NOTE: Install adaptor 50689.

(e) Gradually open the clapper of the HP valve so as to drop the pressure (the pressure in the LP chamber forces the piston in the HP chamber onto its high stop thus establishing its level).

(f) Inflate the HP chamber to 49 bar (711 psi). Close the clapper and install the plug on the valve. Clapper torque 5 N.m (3.7 lbf.ft).

(g) Drain the LP chamber: force the piston tube down onto its stop; fill the LP chamber (build up the pressure to 10 bar (145 psi)). Recommence these operations several times until all air bubbles have disappeared in the drain pipe.

(h) Bring the LP chamber up to its level:

– Position the leveling shim 50392 (see Figure 104).

– Fill the LP chamber.

– Force down the piston tube until it abuts on the leveling shim.

(j) Install the plug on the valve. Inflate the LP chamber to 4 bar (58 psi).

– Torque: valve clapper = 5 N.m (3.7 lbf.ft).

(k) Install the caps on the valves.

(2) Setting of the contactor (see Figure 702).

(a) Make sure the shock absorber is fully extended.

(b) Remove the cover (6-10).

(c) Connect the universal controller on the lead-harness connector (terminals A, B).

(d) Release nut (6-40).

(e) Using a screwdriver turn screw (6-60) until electrical triggerings.

(f) Screw in screw (6-60) by one to one and a half turns to obtain the clearance.

(g) Hold screw (6-60) in position and tighten nut (6-40).
Torque = 1 N.m (0.74 lbf.ft).

(h) Apply seal PR1826B2 on the seal between contactor box and barrel and on surface between cover (6-10) with body (6-140).

(j) Install cover (6-10) and its three fastening screws. Torque = 1N.m (0.74lbf.ft) and apply seal PR1826B2 on the head of screws.

(k) Safety the three screws on the cover and the wire harness nut with stainless steel lockwire (Ø = 0,8 mm (0.0315in)).

(l) Disconnect the universal controller from the connector.

(3) Position the main leg on the "expansion-compression" machine (see Figure101).

(4) Check the shock absorber polytropic curve by compressing and extending at a speed of 100 mm/minute ± 5 mm/minute (3.94 in/minute ± 0.197 in/minute).

Check that the forces are within the tolerances given on the curve (see Figure 102).

Specified forces:

Initial movement . . . . . 132,7daN ± 5% (298.3lbf) ± 5% .

at stroke of 231 mm (9.101 in) . . . . 1735,7daN ± 5% (3902lbf) ± 5% .

Maximum stroke:

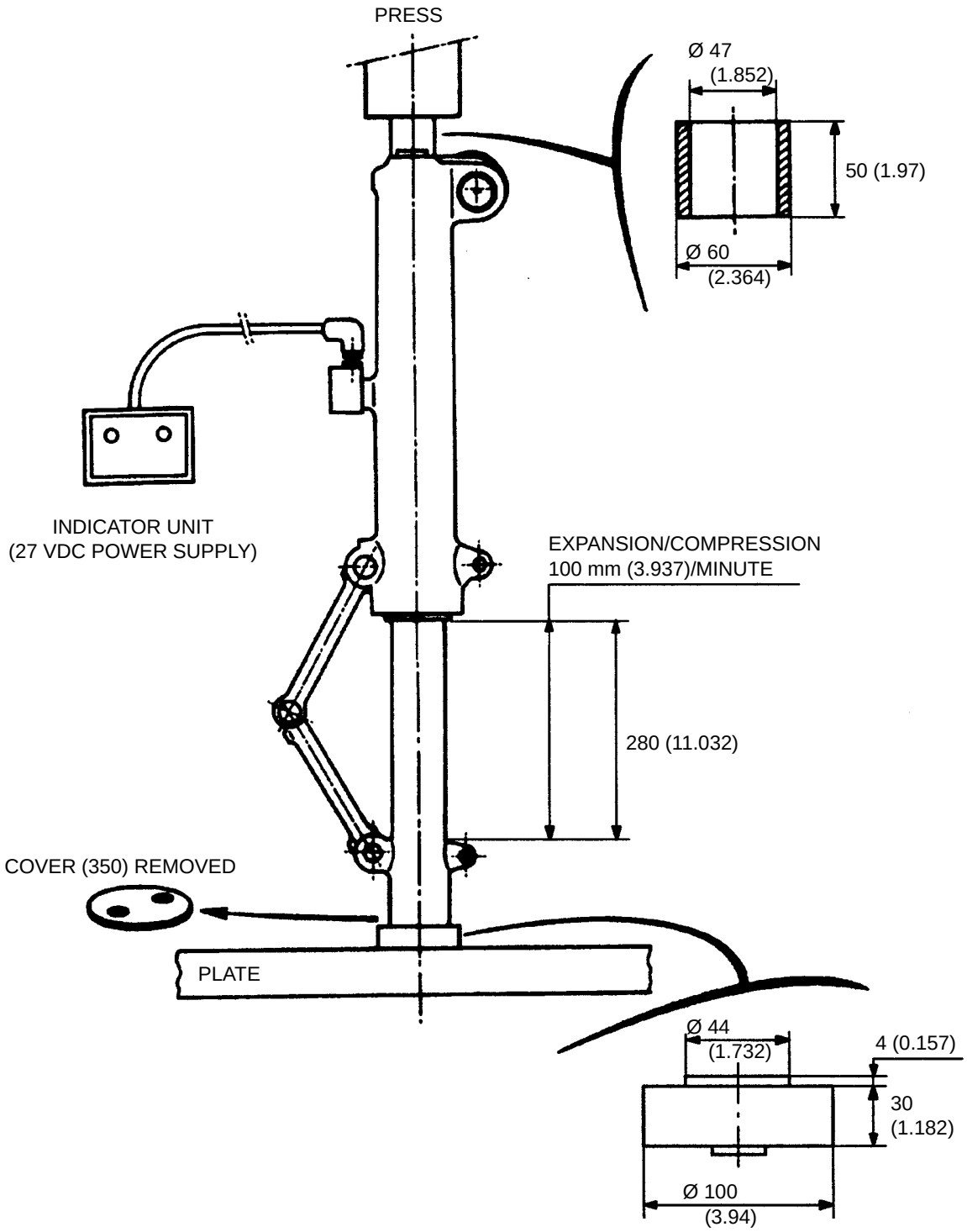
i.e 270 mm (10.63 in) . . . . . 2495,7daN ± 5% (5610.5 lbf) ± 5% .

(5) The values given above must be respected.

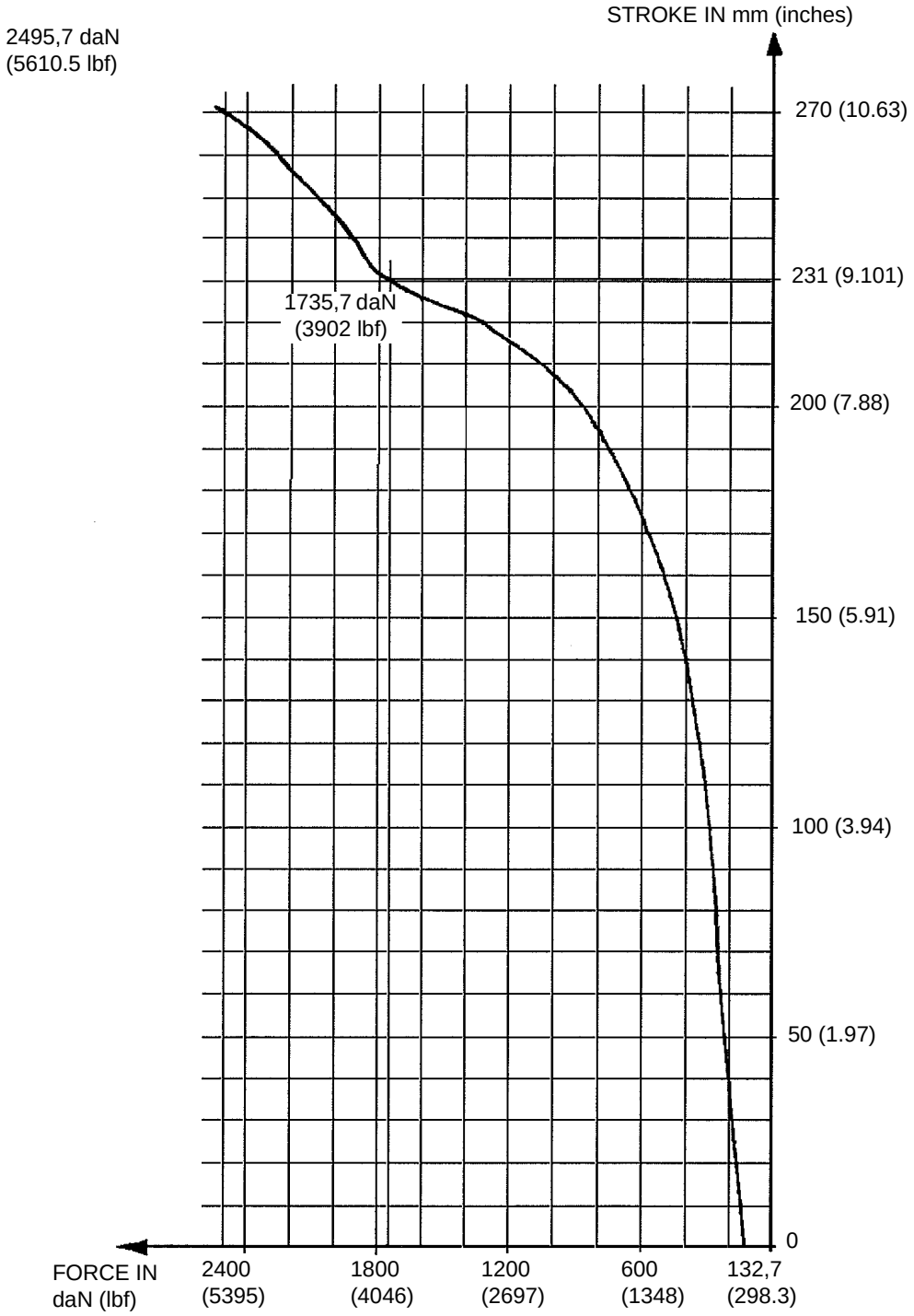
(6) Check that the shock absorber has travelled to the end of its stroke (extension and compression).

(7) No leakage must be noted along the piston tube. A slightly lubricated rod is considered to be correct. A small ring of fluid without runs at the scraper is acceptable.

(8) Using the power pack with indicator lights. Check that the contactor operates at the end of the "expansion" stroke of the shock absorber and that it disengages during the first few millimeters (decimal inch) of the compression stroke (stroke < 10mm (0.3937in)). Make any necessary adjustments.



Positioning the main leg of the
“Expansion compression” machine
Figure 101



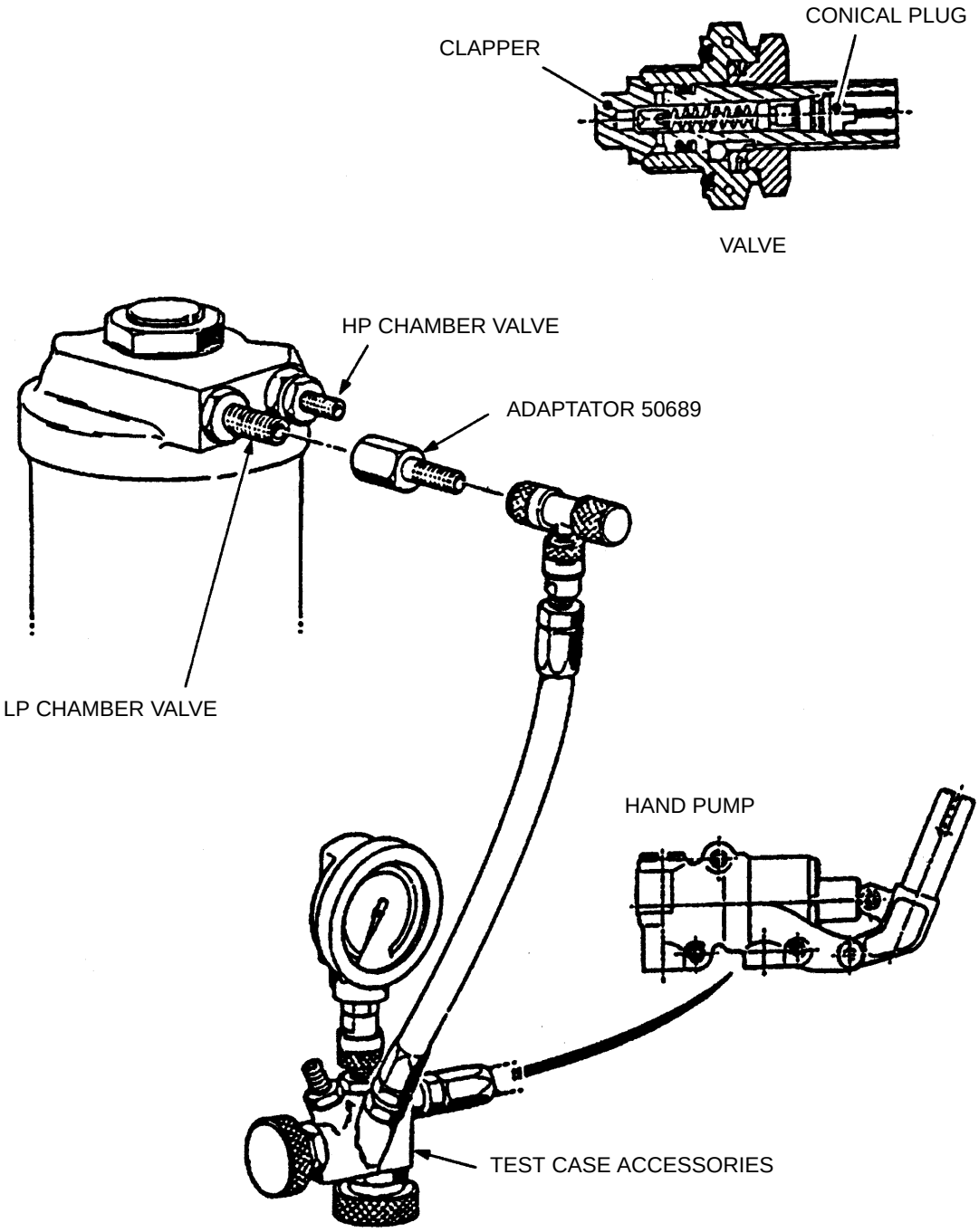
Polytropic curve
Figure 102

2. Fault Isolation

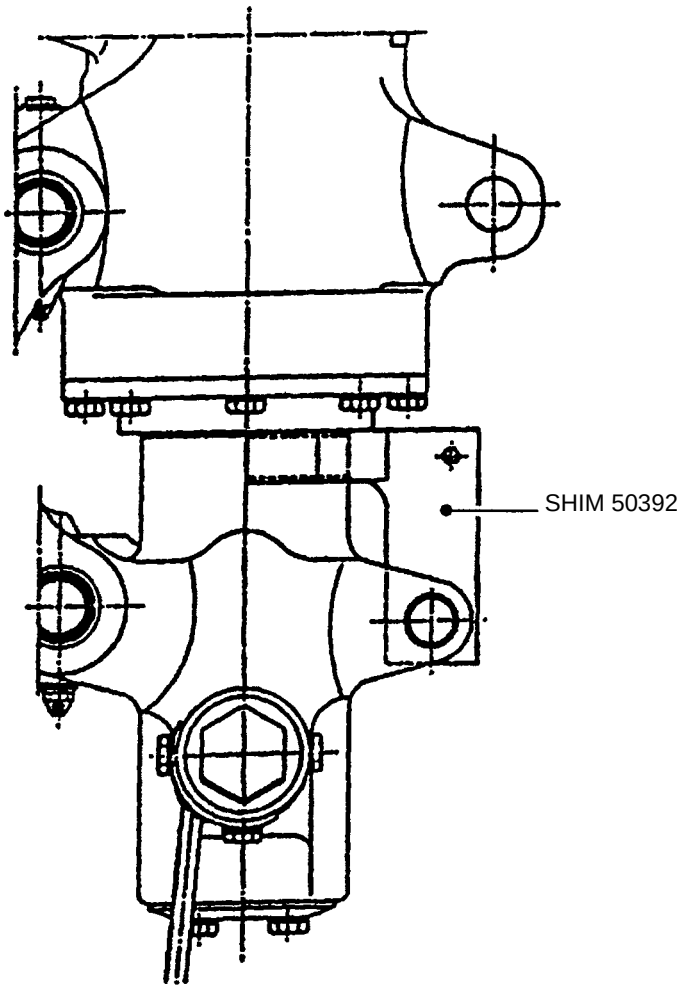
NOTE: The reference numbers are those given in the illustrated part list.

Test No	FAULT	POSSIBLE CAUSE	CORRECTION
	Oil leak along the piston tube (420) Remark: A slightly lubricated rod is considered to be correct. A small ring of fluid without runs at the scraper is acceptable Figure 4	- Seal (50) of bearing (90) damaged or improperly fitted - Seal (70) and segments (60) of bearing (90) damaged	- Replace the seal - Replace the seal and the two segments
	Leak at the bottom of piston tube Leak at the contactor actuator Figure 3 and Figure 4	- Seal (320) of bottom (310) damaged - Seals (270) and (290) of the gland housing (280) damaged	- Replace the seal - Replace the seal
	No singularity in polytropic at 231 mm (9.101 in) stroke with undue force Figure 4	- Communication between high pressure and low pressure chamber - Seals (570) and segments (580) on separator piston (540) improperly fitted or damaged	- Replace the seal and the two segments
	Too high forces noted on the polytropic Figure 3 and Figure 4	- Bearing segments (110) jammed - Pins (520) and (530) and half ball joint (180) of the torque link (460) jammed	- Replace the bearing segments - Replace the defective parts

Test No	FAULT	POSSIBLE CAUSE	CORRECTION
	Contactor actuator not functioning correctly Figure 3 and Figure 6	- Contactor defective - Piston (90) seizing - Return spring (100) damaged - Pushrod (110) or (310) of the operating rod (320) seizing	- Replace the harness - Replace the defective parts
	Loss of pressure Figure 3 and Figure 4	- Leak at high pressure and low pressure valves (10) and (20) - Seals (500) damaged	- Replace the defective parts - Replace the seals (500) of the barrel (810)



Filling and inflation of the shock absorber
Figure 103



Leveling of the LP chamber
Figure 104

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DISASSEMBLY

1. Tools needed

   – Oven with thermostat (temperatures between 90 and 130°C).

   – Hydraulic accessories kit type standard (NATO)

   – Threaded rod M6x1 length 500 mm

   – Mechanic's tool kit

   – Special tools (see page 901)

2. Disassembly

   CAUTION: BEFORE DISASSEMBLY, DEPRESSURIZE THE SHOCK ABSORBER, REMOVE THE VALVES (3-10) AND (3-20) AND DRAIN.

   A. Removal

      (1) Remove the flexible pipes (2-20) and (2-30).

      (2) Remove the rigid pipe (3-100)

      (3) Slacken the nut (3-80) and remove the elbow union (3-90)

      (4) Slacken the nut (3-150), remove the union (3-140)

      (5) Removal of the pipe bracket (3-110)

         – Slacken the 4 screws (3-120), retain the 4 washers (3-130), the pipe bracket (3-110) and the roller support (3-160).

      (6) On the roller support (3-160):

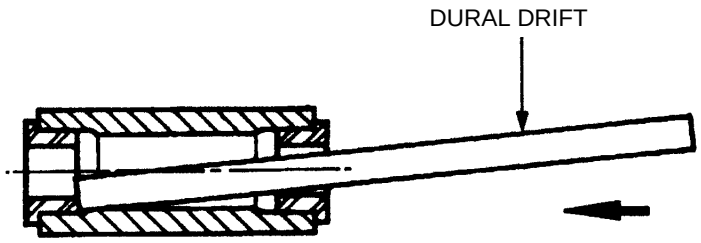
         – Remove the split pin (3-200)

         – Slacken the nut (3-210), retain the washer (3-220), the pin (3-230) and the equipped roller (3-170).

      (7) Remove the 2 bushes (3-190)

         NOTE: The bushes should be disassembled hot at a temperature of 100°C (232°F) (maximum).

         Using a dural drift and a mallet, drive out the bushes (3-190) (see Figure 301). During this operation, avoid any impact which might damage the bores.



Removal of bushes (3-190)
Figure 301

B. Removal of static discharger (3-590)

– Remove the screws (3-600), retain the washers (3-6i0) and remove the static discharger (3-590).

C. Removal of arm torque (3-460)

(1) Removal of the bonding strip (3-400)

– Remove the 6 nuts (3-480) and (3-410), retain the 6 washers (3-490) and (3-420).

– Remove the 4 collars (3-440), retain the 6 screws (3-500), (3-510) and (3-450), the 4 flanges (3-430) and the bonding strip (3-400).

– Use the extractor type 50381 to remove the two pins (3-520) and (3-530) while holding the arm torque.

D. Disassembly the arm torque

(1) Remove the split pin (5-100), unlock and remove the nut (5-110), retain the locking washer (5-120) and the adjusting washer (5-130).

(2) Use a dural drift and a mallet to drive out the pin (5-140), separate the two halves of the arm torque (5-10) and (5-50), retain the ball joint cage (5-160) and the two half ball joint (5-180).

(3) On the top arm torque leg, remove the nut (3-550), retain the two washers (3-560) and (3-570) and the screws (3-580). Free the type guide (3-540).

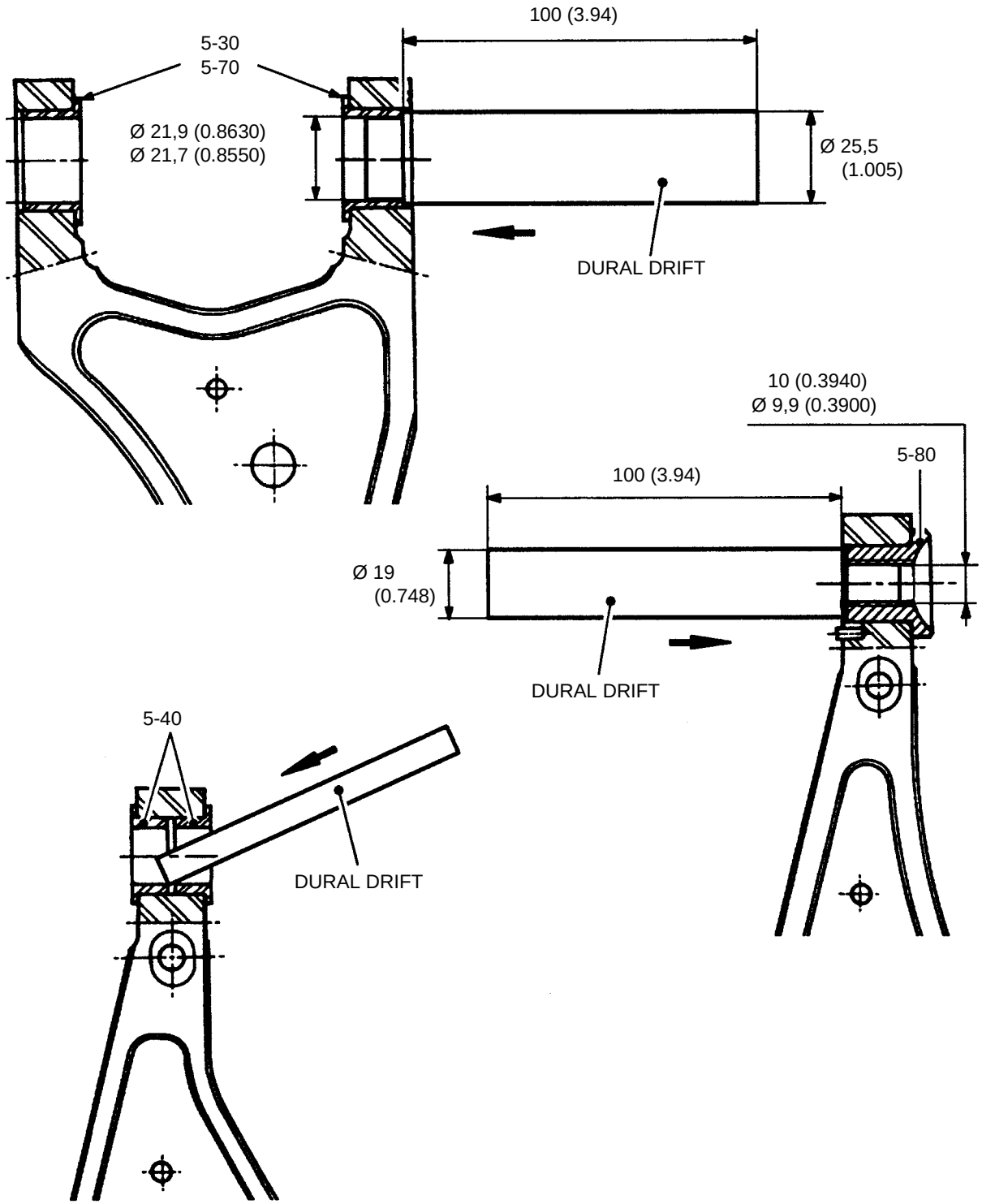
(4) Removal of the 6 bushes (5-30), (5-40), (5-70) and the ball joint cage (5-80) (see Figure 302).

NOTE: The bushes and the ball joint cage should be disassembled at a temperature of l00°C (232°F) (maxi).

– The two bushes (5-40) will be driven out with a dural drift.

– The 4 bushes (5-30) and (5-70) and the ball joint cage (5-80) will be driven out using a dural tapered drift.

– In these operations, avoid any impact which might damage the bores.



Removal of bushes (5-30), (5-40), (5-70)
and half ball joint cage (5-80)
Figure 302

E. Removal of main leg

(1) Removal of the contactor and harness

(a) Remove the nut (2-80), retain the washer (2-70) and the screw (2-60).

(b) Remove the two screws (3-250), retain the two washers (3-260).

(c) Remove the gland body (3-280), retain the two seals (3-270) and (3-290).

(d) Use a pin drift to drive out the split pin (3-300), retain the push rod (3-310), the operating arm (3-320), the spacer (3-330), the two bushes (3-340) and the seal (3-350).

(e) Removal of the harness (2-40).

– Slacken the nut on the harness

– Unscrew the contactor box

(2) Disassembly the contactor box

(a) Remove the three screws (6-30), retain the three washers (6-20) and the cap (6-10).

CAUTION: CHECK CONDITION OF SEAL ON CAP (6-10). IF SEAL IS DAMAGED DISCARD CAP.

(b) Remove the nut (6-40), retain the washer (6-50), the screw (6-60).

(c) Use a pin drift to drive out the pin (6-80), retain the lever (6-70), the piston (6-90), the spring (6-100), and the pushrod (6-110) and the stop ring (6-120).

(3) Removal of piston tube

(a) At the bottom of the piston tube (4-420)

– Remove the 2 screws (4-330), retain the 2 washers (4-340) and the cover (4-350).

(b) At the bottom of the barrel (4-810)

Remove the 8 screws (4-10) and retain the 8 washers (4-20).

Withdraw the assembly of piston/tube and bearing (4-90).

(c) Remove the nut (4-30) using the spanner type 50407.

(d) Separate the piston tube (4-420) on the bearing (4-90).

(e) Remove the O-ring (4-50) and the anti-extrusion bushing (4-40).

(f) Remove the scraper (4-100), the two segments (4-60), the seal (4-70), the anti-extrusion washer (4-80) and the two bearing segments (4-110).

(g) Removal of the end fitting (4-310)

– Remove the end piece (4-310) from the piston tube (4-420).

– Extract the locking ring (4-360), retain the return bush (4-290) and the O-ring seal (4-320).

(4) Removal of high pressure cylinder (4-470)

(a) Unscrew the plug (4-460).

(b) Screw on the rod 50401, fit the handle to the rod (see Figure 303).

(c) Unlock and remove the nut (4-480), retain the locking washer (4-490).

– During this operation, avoid rotating the high pressure cylinder (4-470) in the recess at the end of the barrel (4-810).

(d) Remove the high pressure cylinder (4-470) and retain the two seals (4-500).

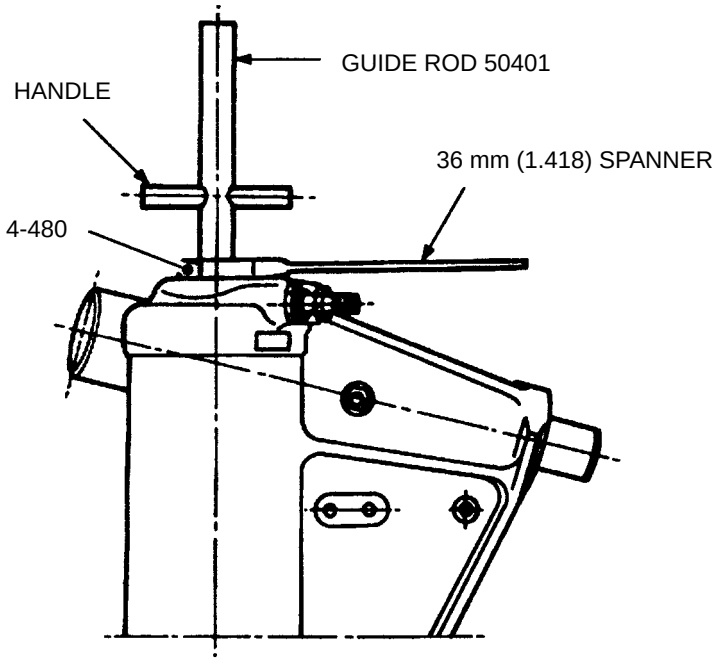
(5) Removal of the diaphragm support (4-630)

(a) Unlock and remove the diaphragm support (4-630), retain the locking washer (4-510), the ring (4-530) and the segment (4-520). (see Figure 304)

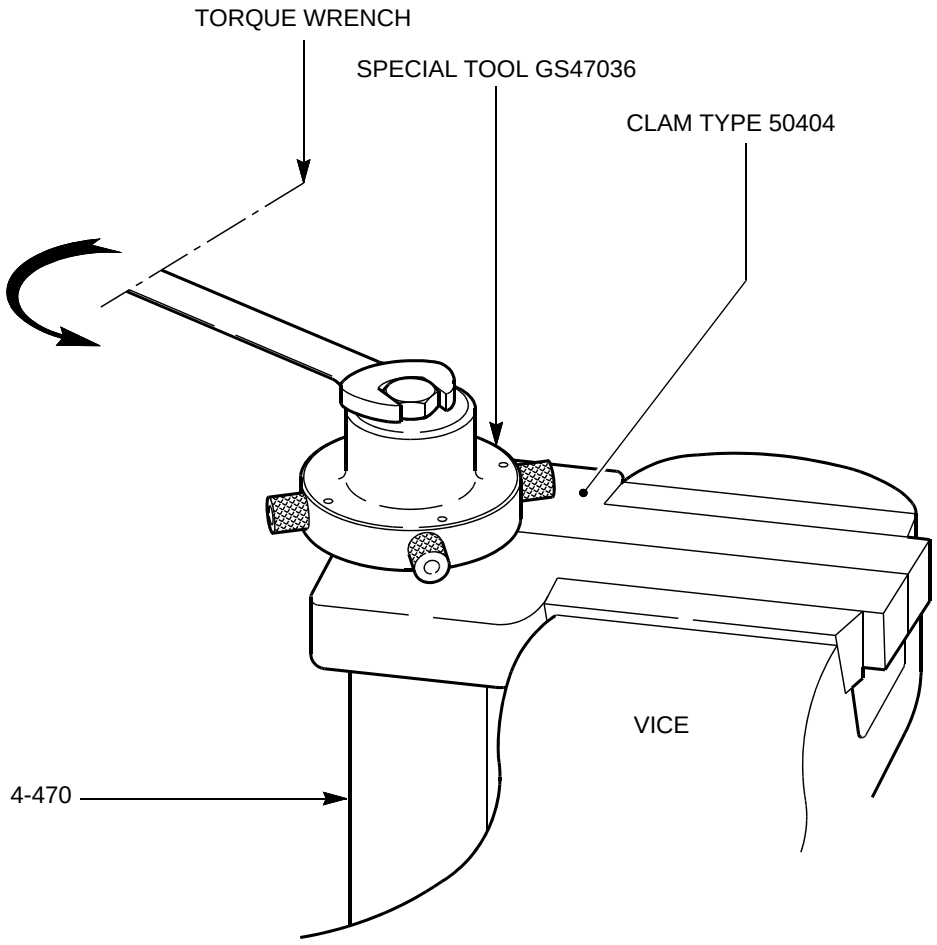
(6) Removal of high pressure piston (4-550)

(a) Using a threaded rod M 6 x 1 length = 500 mm, extract the HP piston (4-550).

(b) Remove the two segments (4-580) and the O-ring seal (4-570).



Removal of high pressure cylinder (4-470)
Figure 303



Removal of diaphragm support (4-630)
Figure 304

(c) Removal of the stop (4-560):

– Heat the piston (4-550) to 100°C (232°F) (maxi)

– Unscrew the stop (4-560).

(d) Removal of the guide (4-670):

– Remove the split pin (4-600)

– Remove the nut (4-610), retain the washer (4-620), the diaphragm (4-590), the diaphragm support (4-630), the diaphragm (4-640), the spring (4-650) and the stop (4-660).

(7) Removal of the components of the piston tube assembly (4-420)

(a) Unscrew the two plugs (4-130) retain the two O-rings seals (4-140).

NOTE: The bushes should be removed hot. The piston tube assembly should therefore be placed in an oven adjusted to a temperature of 120°C (248°F).

(b) Removal of the two bushes (4-450) from the arm torque support (see Figure 305).

The bushes should be driven from their housing using a dural drift.

During this operation, avoid any impact which might damage the bores.

(8) Removing the different components from the barrel (4-680)

(a) Removal of the 2 retaining screws for the pins (3-30) and (4-700)

– Remove the 2 split pins (3-40) and (4-710)

– Remove the 2 nuts (3-50) and (4-720) retain the 2 washers (3-60) and (4-730) and the 2 screws (3-70) and (4-740).

(b) Use a dural drift and a mallet to drive out the pin (3-30).

NOTE: The bushes and the actuating jack shaft should be disasembled hot at a temperature of 1OO°C (232°F) (maxi). For removing the shaft (4-700), we recommend that you position the tool type 50398 before heating the barrel (see Figure 306).

(c) Extract the shaft (4-700) using tool type 50398.

(d) Removal of the bushes (4-770), (4-780), (4-790), (4-800) (see Figure 306).

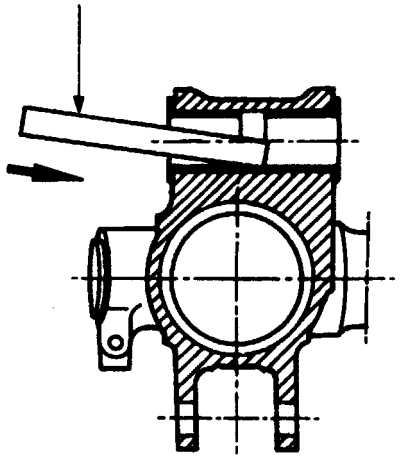
– The bushes should be driven from their housing using dural drifts.

– During this operation, avoid any impact which might damage the bores.

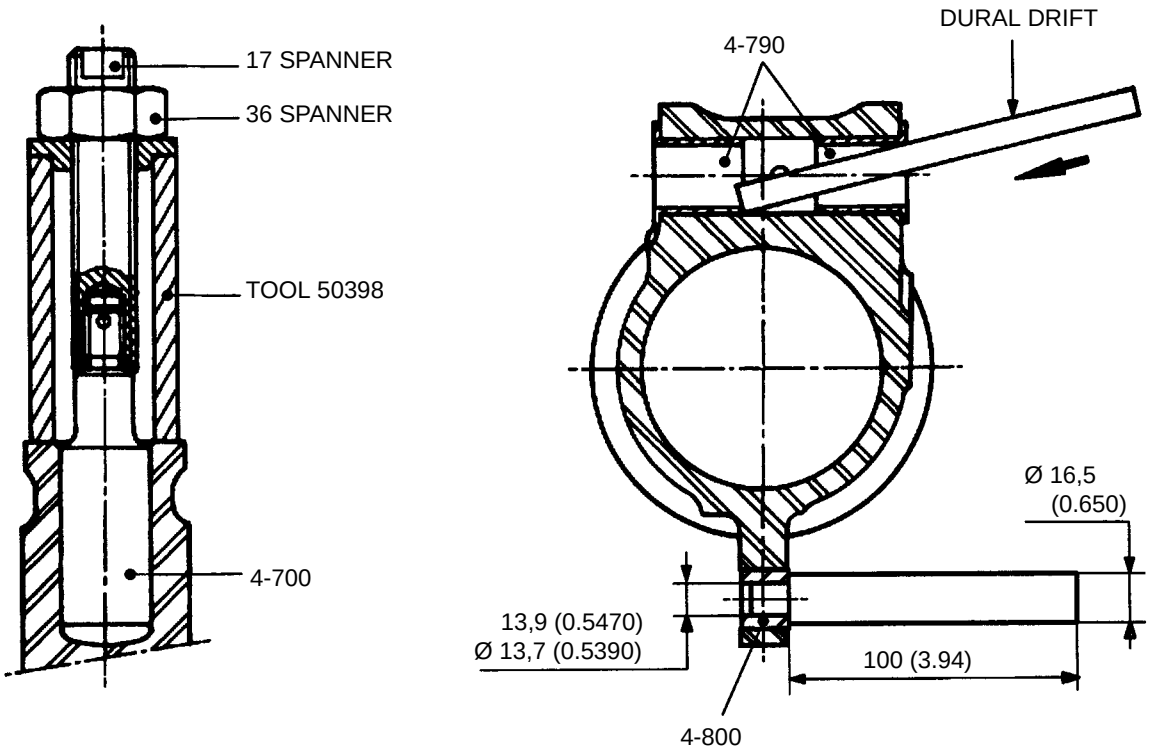
F. Parts to be systematically replaced

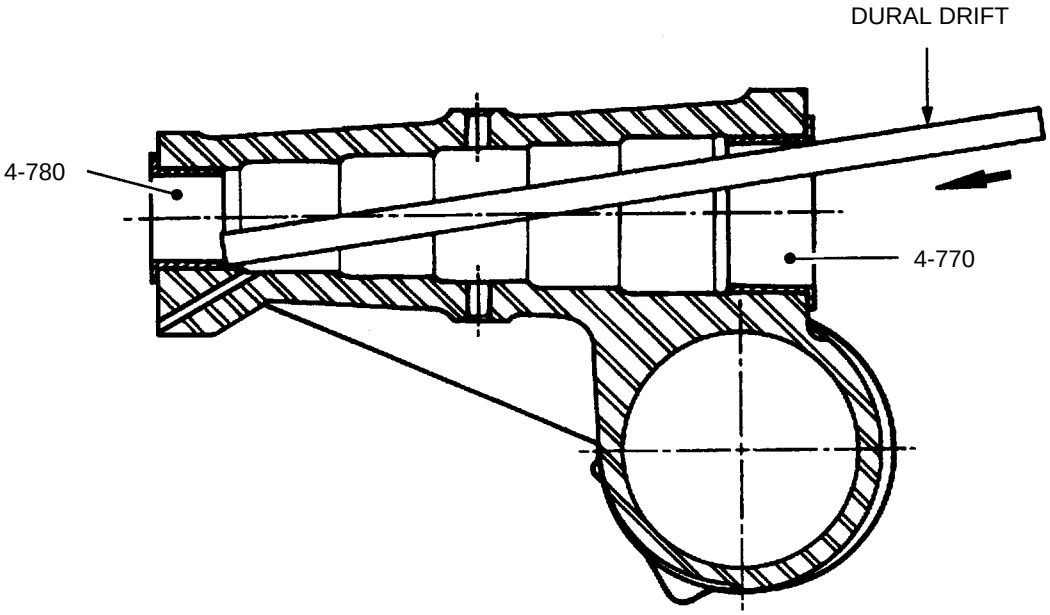
All seals, washers, scraper rings, segments and self-locking nuts must be replaced. Replacement of other parts is a matter for the user's judgment.

DURAL DRIFT



Removal of bushes (4-450)
Figure 305





Removal of bushes (4-770), (4-780), (4-790), (4-800)
and jack shaft (4-700)
Figure 306

CLEANING

1. General

   All parts must be cleaned with white spirit and then dried with dry compressed air.

   Painted parts must be stripped if they are to undergo metallurgical inspection (fluorescent dye penetrant test, magnetic particle inspection, etc.).

2. Stripping paint

   A. General

   We recommend the use of PAINTEX CH (see list of special materials).

   This product conforms with American standard US MIL-C-25107.A. It removes, by immersion, stubborn paint and scale. It can be used hot (60 to 70°C) on all metals.

   CAUTION: THIS PRODUCT SHOULD BE USED IN A WELL VENTILATED AREA. GLOVES AND GOCCLES SHOULD BE WORN. AVOID CONSACT WITH PLASTIC AND RUBBER.

   B. Instructions

   – Immerse the part to be stripped. Average immersion time is 5 minutes, but may vary according to the thickness of the paint.
   – Remove the part from the bath and rinse with running water, brushing lightly if required.
   – Rinse a second time to eliminate any traces of residue.
   – Dry part using dry compressed air.

   C. Mechanical stripping

   Painting may also be removed using plastic media blasting machines that are commercially available.

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CHECK

1. General

The checks to be carried out on the main leg after disassembly cover the following points:

– Visual inspection,

– Dimensional check,

– Check of geometry,

– Metallurgical check.

A. Visual inspection

This involves looking for any traces of marking, seizing, peening, etc. caused in service, as well as any defects in surface protection, oxidation, contact corrosion, etc. This inspection is carried out using a lens magnifying about 5 times.

B. Dimensional check

This involves measuring dimensions using:

– calipers for shafts.

– the comparator for bores.

The purpose is to compare these measured dimensions with those permitted (see FITS AND CLEARANCES, page 801).

C. Check of geometry

The purpose here is to assess any deformation. It is carried out on the surface table using comparator and V blocks.

D. Metallurgical check

– All steel parts must be examined using the magnetoscope or by a dye penetrant such as ARDROX or MAGNAFLUX to detect cracks.

– Light alloy parts may be examined with the fluoroscope or using the same dye penetrant as for steel.

NOTE: All these checks are carried out only after removal of paint (see CLEANING, page 401).

CAUTION: NO CRACKS IS PERMITTED.

2. Description

A. Examination of brake pipe and its mountings
(see Figure 2 of illustrated parts list)

(1) Check for corrosion on fastening, collars and pipe ends.

(2) Check the condition of the pipe reinforcement (no crikling is allowed).

(3) Check the strenght of the pipe under an oil pressure of 120 bar (1740 psi). maintained for 3 minutes (no weeping is permitted).

B. Inspection of wirfing harness
(see Figure 2 of illustrated parts list)

(1) Check for corrosion on connector and contactor.

(2) Check the condition of the sheathing (no cuts are allowed).

(3) Test the wiring assembly with the contactor.

C. Inspection of the components of the elastic leg
(see Figure 3, Figure 4, Figure 5 and Figure 6 of illustrated parts list)

(1) Main (810). (see Figure 4 of illustrated parts list)

(a) Check for corrosion

(b) Check the condition of each threaded insert (no thread tearing allowed).

(c) Check the condition of the surface of each bore. Shallow scratches are permissible, but must be locally rubbed down to eliminage any sharp edges (emery cloth 600 used wet). Reapply the protective finish to the area rubbed down (see REPAIR, page 601).

(d) Check the part using the fluoroscope. In particular inspect all the fastenings on the barrel. Also inspect the inside of each bore.

(2) Arm torque (20 and 60). (see Figure 5 of illustrated parts list)

(a) Check each part for corrosion.

(b) Check the condition of each bore. Shallow scratches are permissible but must be locally rubbed down in order to eliminate any sharp edges (emery cloth 600 used wet). Reapply the protective finish to the area rubbed down (see REPAIR, page 601).

(c) Use the surface table to ensure that neither arm torque is deformed.

(d) Check each part using the fluoroscope.

(3) Arm torque mountings (80), (140), (160), (180), (520) and (530). (see Figure 5 and Figure 3 of illustrated parts list)

(a) Check each part for corrosion.

(b) Check for seizing, peening, tearing on each part (no surface defects are allowed). If necessary, carry out repairs (see REPAIR, page 601).

(c) Check the dimensions of each pin and shaft (see FITS AND CLEARANCES, page 801).

(d) Check each part using the magnetoscope

(4) Cylinder (470) with the separator piston (550). (see Figure 4 of illustrated parts list)

(a) Check each part for corrosion.

(b) Check for seizing, tearing in the bore of the cylinder and on the piston wearing surfaces (no surface defect is permissible). If necessary. carry out repairs (see REPAIR, page 601).

(c) Check the condition of all threads (no thread tearing is permissible).

(d) Carry out a dimensional check on the piston and cylinder wearing surfaces (see FITS AND CLEARANCES, page 801).

(e) Use the magnetoscope to inspect the cylinder; use the fluoroscope to inspect the piston.

(5) Valves (10) and (20). (see Figure 3 of illustrated parts list)

(a) Check each part for corrosion.

(b) Check the condition of threads (no thread tearing is permissible).

(c) Check the condition of the steel flap and its seat (no surface defects are permissible).

(d) After removing the valve mechanism, carry out the following tightness tests:

– High pressure tightness test: connect the lower orifice of the valve to a hand pump connected in turn to a tank full of hydraulic fluid (MIL-H-83282A). With the flap closed, apply a pressure 250 bar (3627 psi) for 3 minutes. No leakage from the top orifice should be observed during this time.

– Low pressure tightness tests: carry out the tests described in the preceding paragraph with a pressure of 0,3 bar (4.4 psi). No leakage should be observed.

(6) Components of the flow restrictor (530), 590), (630), (640) and (650). (see Figure 4 of illustrated parts list)

(a) Check each part for corrosion.

(b) Check the condition of the threads (no thread tearing is permissible).

(c) Check for seizing, tearing, etc. (no surface defect is permissible).

(d) Check each part using the magnetoscope.

(e) Check the calibration of the spring which should have a length of 13 mm (0.5118 in) under a load of 8,5 daN (19 lbf) ± 10%.

(7) Bearing (90). (see Figure 4 of illustrated parts list)

(a) Check bearing for corrosion.

(b) Inspect the grooves (no scratche are permissible).

(c) Inspect part using the fluoroscope.

(8) Components of contactor actuator. (see Figure 6 of illustrated parts list)

(a) Check each part for corrosion.

(b) Check each part for seizing.

(c) Check the calibration of the spring (100) which should be 19 mm (0.7480 in) long under a load of 17 daN (38 lbf) ± 5%.

(9) Piston tube (420) or (430). (see Figure 4 of illustrated parts list).

(a) Check for corrosion.

(b) Check the condition of the chrome. as follows:

– Apply a thin coat of copper sulphate over the entire chromium plated surface.

– When this product has had time to act, any flaw in the chromium plating will show up in red.

CAUTION: IF ANY DEFECT IS FOUND IN THE CHROMIUM PLATING, THIS MUST BE STRIPPED OFF AND REPAIRED ACCORDING TO THE INSTRUCTIONS GIVEN UNDER "REPAIR" PAGE 601.

(c) Check the condition of all threads (no thread tearing is permissible).

(d) Check the condition of the bottom arm torque attachment of the axle. Scratches in the bore are permissible but any sharp edges should be eliminated by rubbing down.

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REPAIR

1. General

The repair operations described in this section will provide, for this item of equipment, a new duty cycle identical to that which was performed after the first setting into operation, or after the latest major overhaul. Some of these repair operations will require the use of machine-tools (lathe, lapping machine) and facilities for application of surface treatments (cadmium plating, chromium plating). These repairs can be carried out only in the manufacturer's workshop or in approved repair shops.

The general repair procedures listed below are described at the beginning of this section:

– Removal of corrosion from steel parts.
– Protection of steel parts by cadmium plating application.
– Protection of light alloy parts by application of ALODINE 1200.
– Chromium plating procedure, nickel plating procedure.
– Painting
– Procedure for sealing of joints with ARALDITE.

After the above procedures, will appear the repair operations themselves, developed to suit the characteristics of each part.

2. Removal of corrosion from steel parts

A. General

The steel parts on which signs of corrosion appear, must be treated in accordance with the procedure given below.

Products required: SPACOXYD - NEUTROX 700 - PROTEX WR (SPCA) (Refer to the list of materials given at the beginning of this manual).

WARNING: The SPACOXYD product corresponds to the US Specification US-MIL-10758 Type 3. It is highly acidic and must therefore be kept in a container made of wood, sandstone or acid-resisting plastic material. Moreover, the operator using this product must wear gloves and goggles.

B. Instructions for use

(1) Strip and degrease the part (refer to the CLEANING section, Page 401).

(2) Remove corrosion from the part, using the anti-rust product SPACOXYD diluted with 50% of water.

(a) Use the cold immersion method for complete removal of corrosion.

(b) Use a rag or a brush for removal of localized corrosion.

The time required for this operation varies with the thickness of the oxide coating. Following the action of this product, the surfaces appear less glossy and slightly greyish as a result of a light passivation.

(3) Rinse in water to which 2% of NEUTROX 700 is added for neutralization purposes.

(4) Immerse the part in PROTEX WR if it cannot be processed within the following two hours (cadmium plating, painting).

Immersion time: approximately 5 seconds.

3. Electrolytic cadmium plating (Applicable to ferrous metals)

A. General

The cadmium plating is an electrolytic coating, usually white, which must be followed by a coloured (yellow) chromate conversion coating which will enhance the properties of resistance to corrosion.

B. Application

The plating thickness is 7 to 10 microns (0.00028 to 0.00039 inches)

CAUTION: DE-EMBRITTLEMENT IS MANDATORY AFTER CADMIUM PLATING (approximately 4 to 5 hours in an oven, at a temperature of 190° ± 10°C).

4. Protection of light alloy parts after remachining or polishing

A. General

The aluminium alloy parts are initially protected by a sulphuric acid anodizing treatment, in accordance with the AIR 9055 A regulation.

On repair, we recommend the use of the liquid product ALODINE 1200 (refer to the list of materials at the beginning of this manual) when carrying out localized reworking operations, such as reboring or trimming. The ALODINE product corresponds to the US Specification MIL-C-5541.

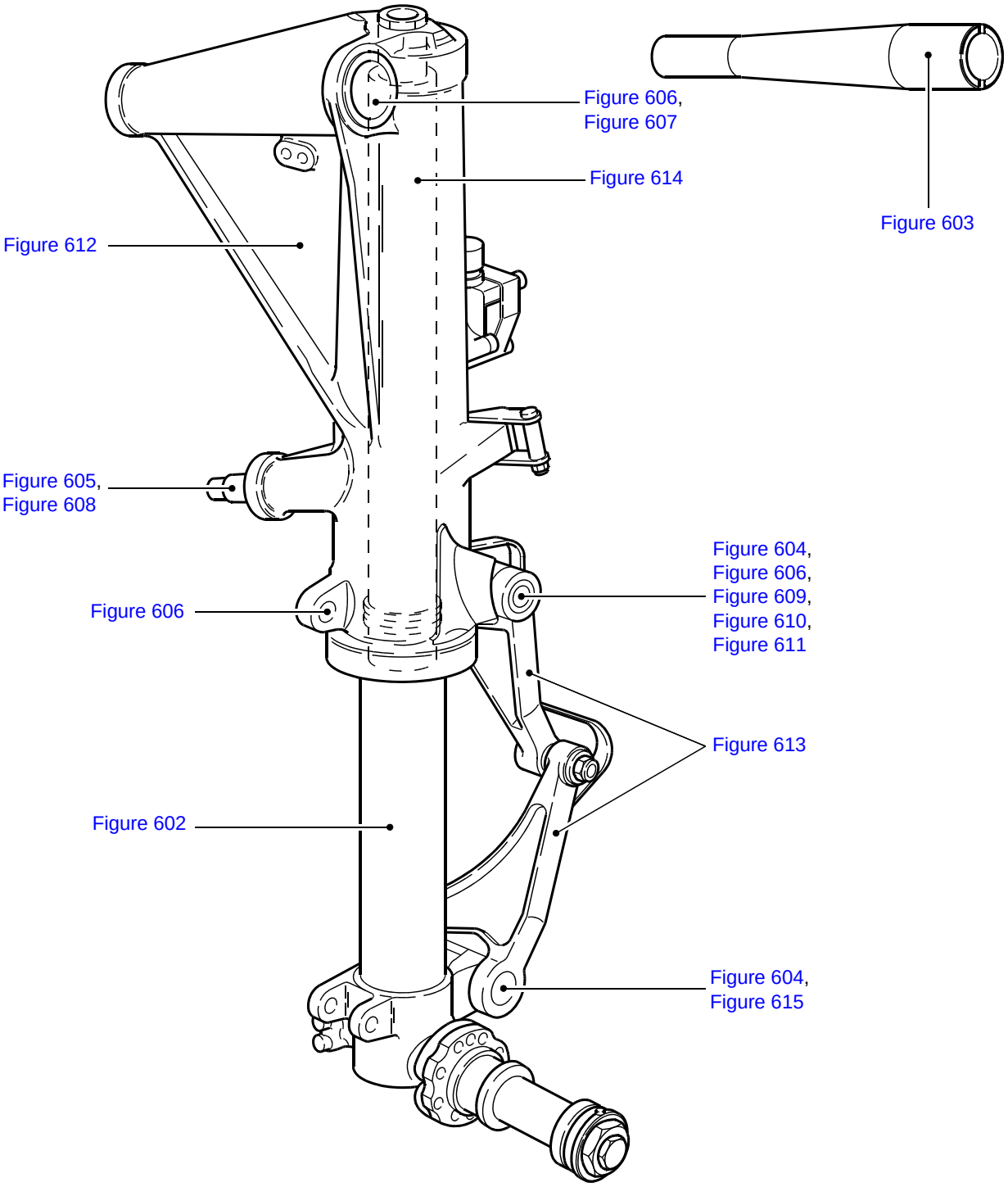
B. Instructions for use

(1) Carefully strip the remachined surfaces with DEOXYDINE powder, obtained from the same supplier, then rinse in running water and blow dry with dry compressed air.

(2) Heat the ALODINE 1200 to a temperature ranging from 40 to 50°C.

(3) Using a brush or a swab, apply the ALODINE 1200 to the surfaces thus prepared.

(4) Allow a period of approximately 10 minutes for drying, then rinse again in running water and then dry the surface.



Location of repair figures
Figure 601

5. Chromium plating

A. General

Hard chromium plating

Hard chromium plating is a direct electrolytic deposit, without any preliminary substrate of other metal, of a molecular adhesion chromium coating whose thickness ranges from a few microns to a few tenths of a millimeter, with a Vickers hardness number higher than 800.

Hard chromium plating is used in series production and on repair. The process sheet must be submitted to the Aeronautical Engineering Department for authorization.

B. Application to the piston tube (4-420) or (4-430)
(refer to Figure 602 - View 1)

(1) Chromium stripping

(2) Honing, if necessary, to remove slight defects, or reworking on a machine-tool, followed by a grinding operation to obtain a surface finish of 100 microns (0.0039 inches) in the blending radius.

Acceptable diameter dimension: 64,460 mm (2.5377 in) MINIMUM

(3) Stress relief in an oven after grinding: 4 hours at a temperature of 190° ± 10°C.

(4) Examination of the parts for detection of surface defects.

(5) Chromium plating of the part in accordance with the instructions given on Figure 602.

(6) After completion of the chromium plating procedure, a grinding operation is to be carried out, followed by a stress relief in an oven for 4 hours at a temperature of 190° ± 10°C.

Minimum thickness of chrome after grinding = 90 microns (0.0035 inches)

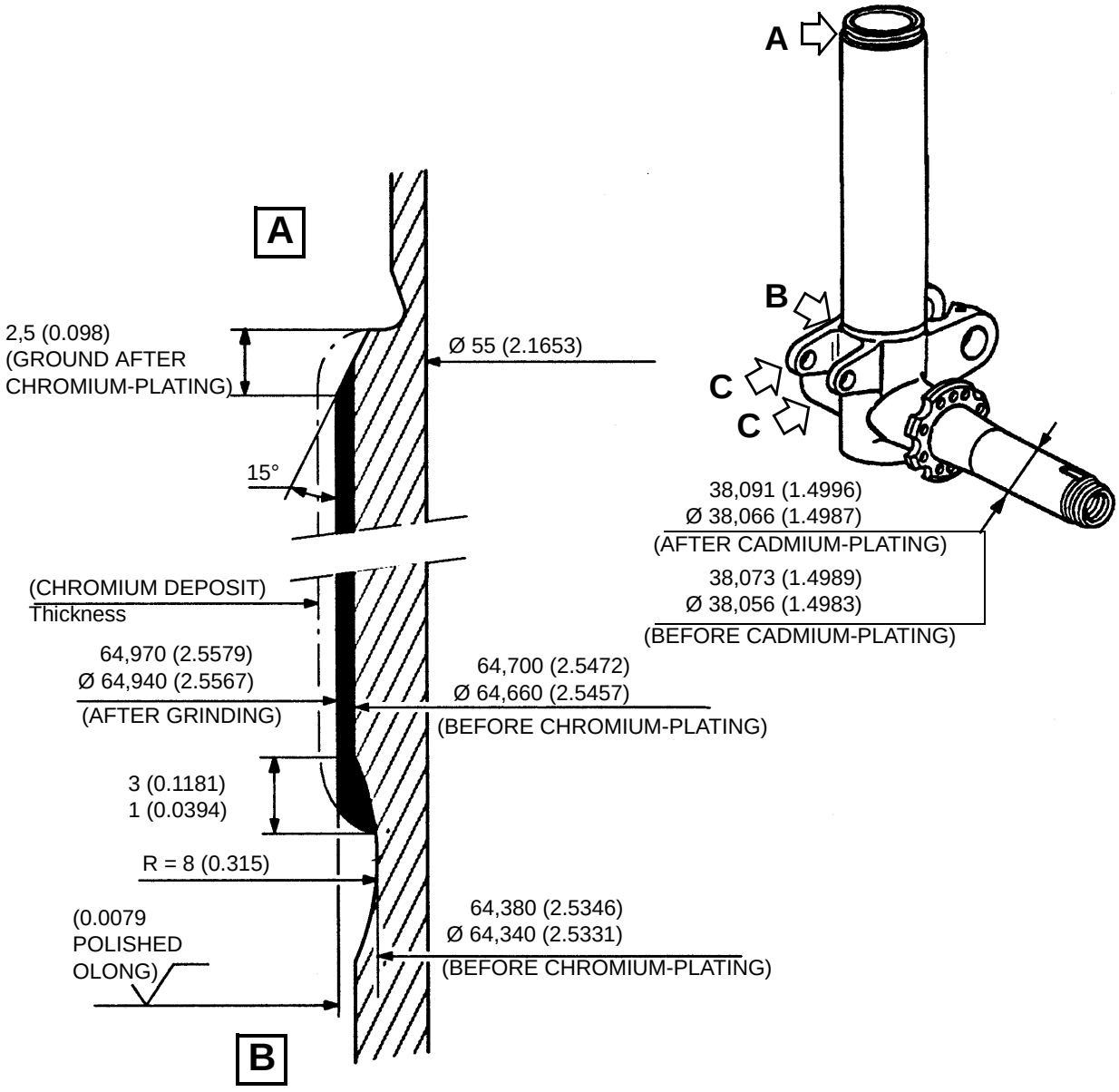
CAUTION: WHATEVER THE METHOD USED FOR REPAIR, IT IS MANDATORY THAT THE PART SHALL BE DE-EMBRITTLED IMMEDIATELY AFTER CHROMIUM PLATING.

(7) Carry out the following checks on the part:

– check for appearance (fine and smooth grain),

– check for hardness (Vickers hardness number: 800 to 950),

– dimensional check.



HARD CHROMIUM PLATING: Thickness = 0,090 mm (0.0035 in) (mini)

CADMIUM PLATING: Thickness = 0,007 mm (0.00028 in) EXCEPT IN CHROMIUM PLATED AREA AND IN THE 55 mm (2.1654 in) DIA.BORE

MATERIAL: STEEL 35NCD16.

TREATMENT: T1230.

Chromium plating of the axle-piston tube (4-420) or (4-430)
Figure 602 (View 1/2)

C. Application to pin (3-30), shafts (3-520), (3-530) and (4-700)
(refer to Figure 603, Figure 604 and Figure 605)

(1) Chromium stripping.

(2) Honing, if necessary, to remove light defects.

(3) Examination of the part for detection of surface defects.

(4) Chromium plating of the part in accordance with the instructions given on Figure 603, Figure 604 and Figure 605.

CAUTION: IT IS MANDATORY THAT THE PART SHALL BE DE-EMBRITTLED IMMEDIATELY AFTER CHROMIUM PLATING.

(5) After completion of the chromium plating procedure, a grinding operation is to be carried out, followed by a stress relief in an oven for 4 hours at a temperature of 190° ± 10°C.

Minimum thickness of chrome after grinding = 50 microns (0.0020 inches)

(6) Carry out the following checks on the parts:

– check for appearance (fine and smooth grain),

– check for hardness (Vickers hardness number: 800 to 950),

– dimensional check in accordance with the figure requirements.

6. Nickel plating

A. General

For this repair, we recommend to perform the nickel plating according to the Standard Repair Practices 32-09-01 Section 5.

B. Application to the axle-piston tube (4-420) or (4-430)
(Refer to Figure 602 - View 2)

(1) Nickel stripping.

(2) Honing, if necessary, to remove slight defects, or reworking on a machine-tool followed by a grinding operation to obtain a surface finish of 400 microns (0.0157 inches) in the blending radius.

(3) Stress relief in an oven after grinding: 4 hours at a temperature of 190° ± 10°C.

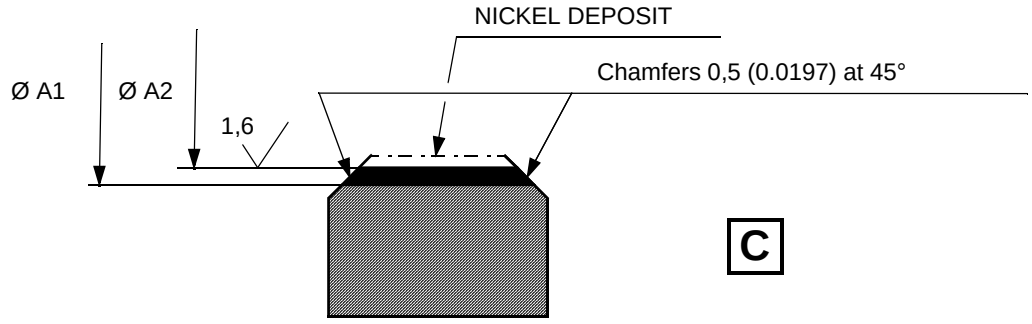
(4) Examination of the parts for detection of surface defects.

(5) Nickel plating of the part.

(6) After completion of the nickel plating procedure, a grinding operation is to be carried out, followed by a stress relief in an oven for 4 hours at a temperature of 190° ± 10°C.

(7) Carry out the following checks on the part:

– Check for appearance (fine and smooth grain),
– Check for hardness (Vickers hardness number: 200 to 450)
– Dimensional check.



ØA1 (BEFORE NICKEL PLATING)		ØA2 (AFTER GRINDING)	
MIN	MAX	MIN	MAX
MILLIMETERS (INCHES)	MILLIMETERS (INCHES)	MILLIMETERS (INCHES)	MILLIMETERS (INCHES)
	14,800 (0.5827)	14,000 (0.5512)	14,027 (0.5522)

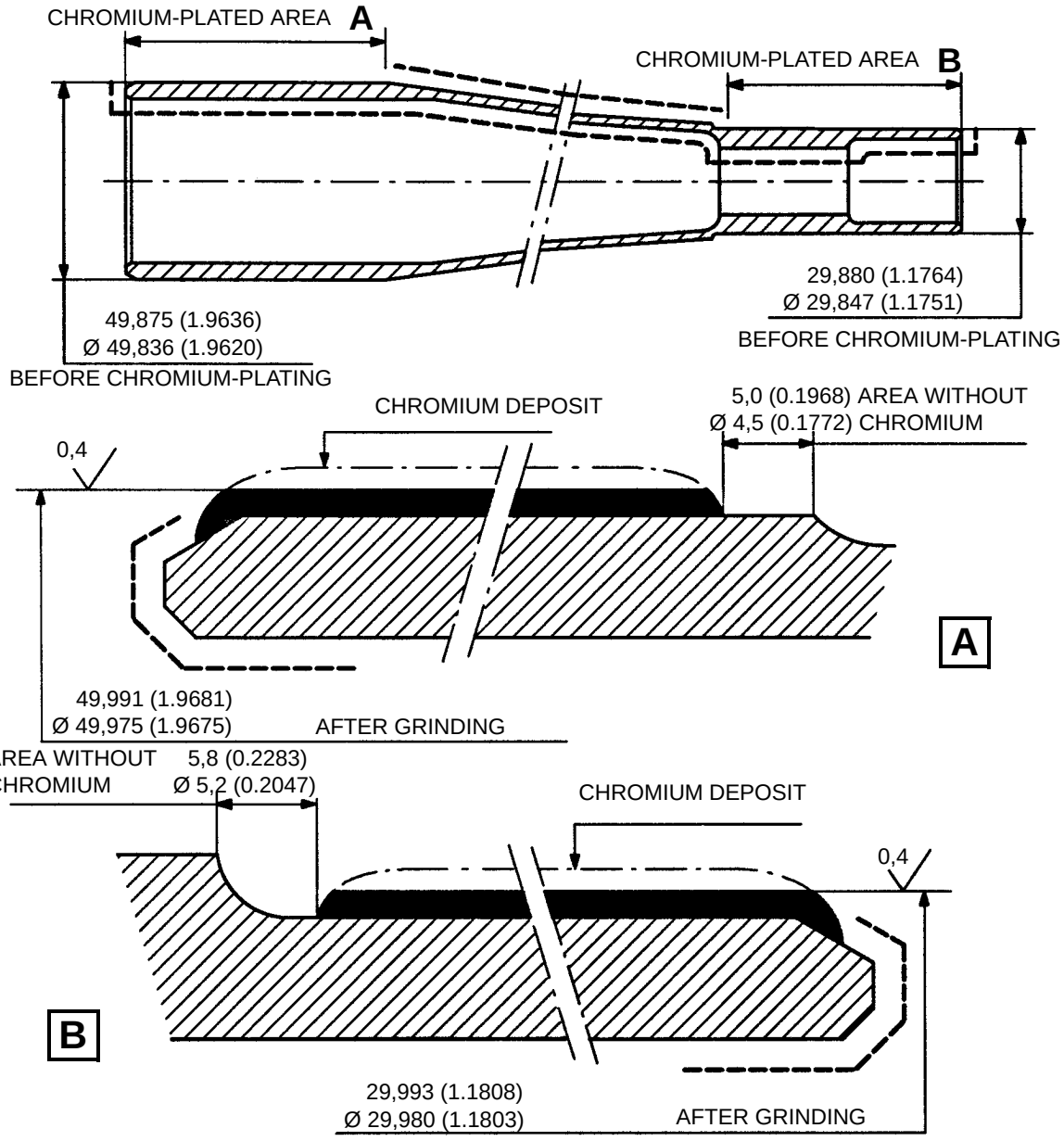
MATERIAL: STEEL 35NCD16

TREATMENT: T1230

NICKEL-PLATING: Thickness: 0,400 mm (0.0157 in) (maxi), 0,015 mm (0.0006 in) (mini)

CADMIUM-PLATING: Thickness: 0,007 mm (0.00028 in) (except nickel-plated area)

Nickel-plating of the axle-piston tube (4-420) or (4-430)
Figure 602 (View 2/2)



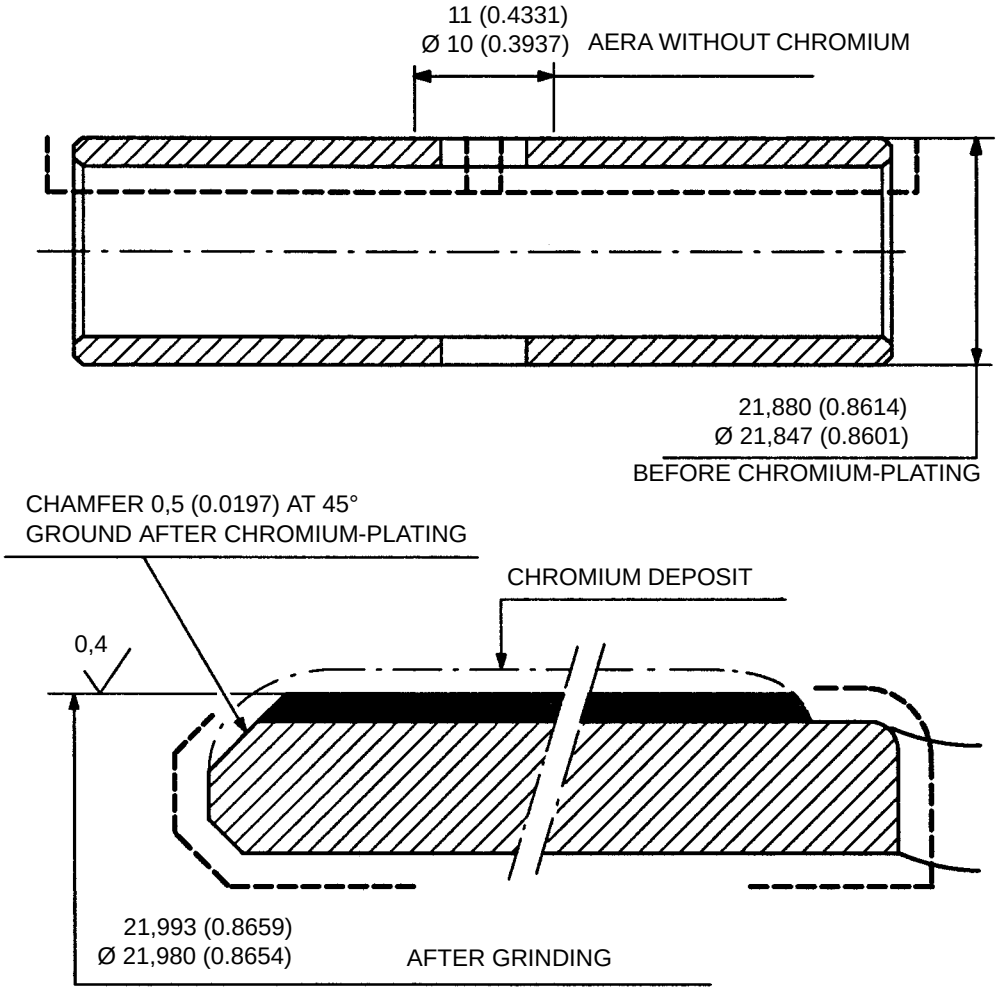
HARD CHROMIUM PLATING: Thickness = 0,050 mm (mini)

PROTECTIVE TREATMENT ON THE SURFACE MARKED: - - - -

CADMIUM PLATING: Thickness = 0,007 mm
+ PAINT PRIMER
+ PAINT POST-PRIMER
+ PAINT TOP COAT
} EXCEPT IN THE HOLE PROVIDED FOR THE SCREW

MATERIAL: STEEL 35NCD16
TREATMENT: T1230

Chromium plating of pin (3-30)
Figure 603



HARD CHROMIUM PLATING: Thickness = 0,050 mm (mini)

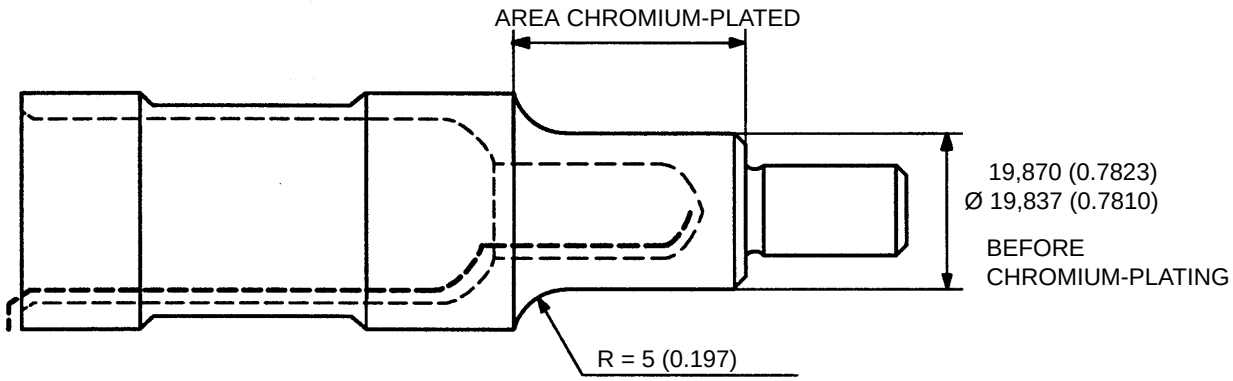
PROTECTIVE TREATMENT ON THE SURFACE MARKED: - - - -

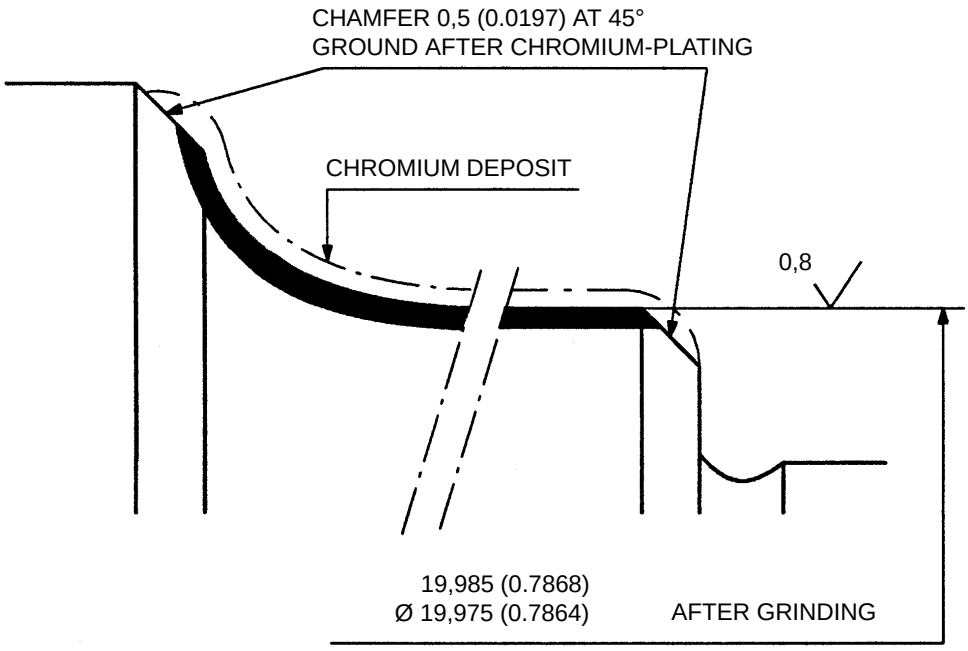
CADMIUM PLATING: Thickness = 0,007 mm (0.00028 in)
+ PAINT PRIMER
+ PAINT POST-PRIMER
+ PAINT TOP COAT

} EXCEPT IN THE HOLE PROVIDED FOR THE SCREW

MATERIAL: STEEL 35NCD16
TREATMENT: T1230

Chromium plating of shaft (3-520) or (3-530)
Figure 604





HARD CHROMIUM PLATING: Thickness = 0,050 mm (0.00196 in) (mini)

CADMIUM PLATING: Thickness = 0,007 mm (0.00028 in) (EXCEPT IN THE CHROMIUM-PLATED AREA)

PAINT (PRIMER + POST-PRIMER) ON THE SURFACE MARKED: - – – -

MATERIAL: STEEL 35NCD16

TREATMENT: T1230

Chromium plating of shaft (4-700)
Figure 605

7. 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

8. Sealing of joints with ARALDITE

A. Characteristics

Manufacturer:

CIBA-GEIGY, SUISSE

distributed by:

SODIEMA
13, rue Paul Dautier
78140 VELIZY VILLACOUBLAY

or any other distributor approved by CIBA

ARALDITE RESIN AW106

Type: Epoxy
Colour: Colourless

HARDENER HV953U

Type: Triethylenetetramine base

Conditioning

Containers of 1 kg
Containers of 200 g
Tubes of 200 g

Assembly requirements

Recommended radial play: 0,04 mm (0.0016 in)
Surface finish: 1,2 to 2,4

B. Carrying-out process sheet

(1) Preparation of the surfaces

Degrease the parts to be assembled, using solvent:

Acetone
Methylethylcetone

(2) Preparation of the adhesive

Mix thoroughly the ARALDITE AW106 and HARDENER HV953U in the proportions given below:

– 100 parts of Araldite by weight

– 80 parts of hardener by weight

or

– 100 parts of Araldite by volume

– 100 parts of hardener by volume

The mixture must be used within 1 hour after completion of the preparation.

(3) Bonding and assembly

– Apply a thin coat of adhesive to the two faces to be bonded together and assemble them immediately, imparting a gentle rotary motion to the male part so as to make the sealed joint uniform.

– Hold the parts in position with an appropriate tool.

(4) Curing

Procedure 1: Allow to dry for 12 hours, at the ambient temperature (15 to 25°C).

Procedure 2: Allow to dry for 1 hour, in an oven at a temperature of 80°C.

C. Disassembly of the parts bonded with ARALDITE

If, after hardening of the sealed joint, some items must be disassembled, the best procedure to be used, provided that the parts are not etched, consists in:

– heating the Araldite joint to the temperature (*) given below and to tear away the adhesive.

The adhesive residues remaining on both faces of the joint can be removed by the use of a mechanical process.

(*)	MATERIAL
100°C 212°F	ALUMINIUM ALLOY
150°C 302°F	STEEL

9. Table of protective treatments

Item number	Figure	Description	Protective treatment
90	2	Union	Cd7 cadmium plating (7 microns (0.00028))
30	3	Swivel pin	Cd10 cadmium plating + paint application after masking of the chromium-plated seating surfaces - Hard chromium plating on the 50 mm (1.9685) dia. and 30 mm (1.1811) dia. seating surfaces
80	3	Nut	Cd7 cadmium plating (7 microns (0.00028))
90	3	Union	Passivation treatment
110	3	Hose support	Sulphuric acid anodizing or Alodine 1200 paint application after masking of the 12,5 mm (0.4921) dia.hole
140	3	Straight union	Cd7 cadmium plating (7 microns (0.00028))
150	3	Nut	Cd7 cadmium plating (7 microns (0.00028))
160	3	Roller support	Sulphuric acid anodizing or Alodine 1200 paint application after masking of the holes
180	3	Roller	Cd7 cadmium plating (7 microns (0.00028))
230	3	Shaft	Cd7 cadmium plating (7 microns (0.00028))
280	3	Gland body	Cd7 cadmium plating (7 microns (0.00028))
330	3	Spacer	Sulphuric acid anodizing or Alodine 1200
380	3	Washer	Hard anodizing: Thickness = 0,05 (0.0004)
390	3	Washer	Hard anodizing: Thickness = 0,05 (0.0004)
520	3	Shaft	Cd7 cadmium plating + paint application to the bore and the ends + chromium plating on the seating surface
530	3	Shaft	Cd7 cadmium plating + paint application to the bore and the ends + chromium plating on the seating surface
590	3	Static discharger	Cd10 cadmium plating (10 microns(0.00040))
90	4	Lower bearing	Sulphuric acid anodizing or Alodine 1200 + paint application to the external surfaces after masking of the holes
130	4	Screw plug	Sulphuric acid anodizing or Alodine 1200 + paint application after masking of the threads
170	4	Pin	Cd10 cadmium plating (10 microns(0.00040))

Item number	Figure	Description	Protective treatment
180	4	Nut	Cd7 cadmium plating (7 microns (0.00028)) + paint application after masking of the bore, the holes and the face
190	4	Spacer	Sulphuric acid anodizing + paint application after masking of the bores, the holes and the face
200	4	Spacer	Sulphuric acid anodizing + paint application after masking of the bore and the faces
210	4	Screw	Cd7 cadmium plating (7 microns (0.00028))
230	4	Half flange	Sulphuric acid anodizing + paint application after masking of the holes and the seating face
290	4	Return bush	Sulphuric acid anodizing
310	4	End fitting	Sulphuric acid anodizing
350	4	Cover	Sulphuric acid anodizing + paint application after masking of the holes and the seating face
360	4	Bush	Cd10 cadmium plating (10 microns(0.00040))
370 and 380	4	Complete axle-piston tube	Paint application after masking of the axle tube and the faces on which the bushes are seated
420 and 430	4	Axle-piston tube	Resin impregnation (PERMAFIL) after Chromium Plating on the Ø65 (See paragraph 11)
440	4	Threaded bush	Sulphuric acid anodizing or Alodine 1200
450	4	Bush	Cd7 cadmium plating (7 microns (0.00028)) after masking of the bore and seating faces
460	4	Plug	Sulphuric acid anodizing or Alodine 1200
470	4	HP cylinder	Phosphating treatment after masking of the Ø38 and Ø28 + PERMAFIL (See paragraph 11) Chromium plating on the Ø28 (thickness = 0,005 to 0,010)
480	4	Nut	Cd7 cadmium plating (7 microns (0.00028))
490	4	Locking washer	Cd10 cadmium plating (10 microns(0.00040))
550	4	Piston	Sulphuric acid anodizing or Alodine 1200
560	4	Stop	Sulphuric acid anodizing or Alodine 1200
650	4	Spring	Pentrate

Item number	Figure	Description	Protective treatment
680 and 690	4	Complete housing	Application of paint top coat with masking of the bosses, holes, actuating jack pin and the faces on which the bushes and the lower bearing will be seated
700	4	Shaft	Cd7 cadmium plating (7 microns (0.00028)) + application of paint to the 24,5 mm (0.9646) dia. bore. Hard chromium plating on the 20 mm (0.7874) dia.seating face
770 and 780 and 790	4	Bush	Cd7 cadmium plating (7 microns (0.00028)) after masking of the bore and the seating face
800	4	Bush	Cd7 cadmium plating (7 microns (0.00028))
810 and 820	4	Barrel	Alodine 1200 + application of paint (primer + post-primer)
10 and 50	5	Complete torque arm	Paint application after masking of the bores and the faces on which the bushes will be seated
20 and 60	5	Torque arm	Alodine 1200
30 and 40 and 70	5	Airflon bush	Alodine 1200 on the external diameter
80	5	Semi-swivel cage	Cd7 cadmium plating (7 microns (0.00028))
120 and 130	5	Washer	Cd10 cadmium plating (10 microns(0.00040))
140	5	Shaft	Cd7 cadmium plating (7 microns (0.00028))
150	5	Semi-swivel cage	Cd10 cadmium plating (10 microns(0.00040))
10	6	Cap	Chromic acid anodizing + paint application
60	6	Screw	Cd7 cadmium plating (7 microns (0.00028))
70	6	Lever	Cd7 cadmium plating (7 microns (0.00028))
80	6	Shaft	Cd7 cadmium plating (7 microns (0.00028))
90	6	Piston	Cd7 cadmium plating (7 microns (0.00028))
110	6	Pushrod	Cd7 cadmium plating (7 microns (0.00028))
140	6	Body	Chromic acid anodizing + paint application

10. Approved repairs

A. Complete barrel (4-680) or (4-690)

(1) General

In order to provide a better protection against corrosion, the bores taking the bushes and the actuating jack saft shall be subjected to a shot peening operation (if they have been remachined previously).

In any case, before building up the barrel, apply the following:

– ALODINE 1200, all over the barrel,

– paint primer + post-primer, all over the barrel except:

– to the bores in contact with the hydraulic fluid, the threads, the bores in which sealing rings are fitted, and the seating faces.

(2) Replacement of helicoil screw-locks (4-750) and (4-760)

Refer to Technical Sheet OTALU 163-A2 - 8th issue - August 1968 (Editions techniques Paul HUET - 85, rue du Vieux Pont de Sèvres - 92000 BOULOGNE BILLANCOURT - FRANCE).

(3) Remachining of the bores taking the bushes (4-770), (4-780), (4-790), (4-800) and the actuating jack shaft (4-700) - (refer to Figure 606, Figure 607 and Figure 608)

(a) If cracks or signs of corrosion appear, remachine the surface until these defects are removed, subject to the condition that the maximum dimensions given in the table below shall not be exceeded.

NOTE: The bore of the swivel pin on the barrel can be remachined to the dimensions shown on Figure 607.

Table of "Repair" sizes

BARREL	Bore A	Bore B	Bore C	Bore D	Bore E	Surface finish
MAX DIA mm (in)	56,030 (2.2059)	36,025 (1.4183)	26,033 (1.0249)	18,027 (0.7097)	31,021 (1.2213)	3 to 1,2

Carry out the shot peening operation in accordance with the process sheet MIF142153 raised by METAL IMPROVEMENT COMPANY (FRANCE), or an equivalent process sheet:

ALMEN intensity:	9-11A
Steel shot:	M1230R
Coverage:	150% (refer to NOTE)
Swelling:	0,005 to 0,010 mm (0.0002 to 0.0004 in)

NOTE: Inspection of the coverage

- Prior to shot peening, apply ALODINE 1200 to the surfaces to be shot peened.
- After shot peening, carry out a visual inspection and make sure that the coverage is satisfactory.

IMPORTANT: Within 12 hours after completion of the shot peening operation, it is mandatory that a decontamination of the barrel shall be carried out as follows:

- Vapour phase degreasing with chlorinated solvents (trichlorethylene, perchlorethylene).
- Alkaline degreasing (Progal D45TM from CFPI or Turco 4090 or Diversey D700).
- Rinsing in water.

- Nitric stripping (nitric acid).
- Rinsing in water.
- Rinsing in deionized water.

(b) Protect the surface with ALODINE 1200 (refer to procedure given on page 602).

(c) Apply the primer paint and the post-primer paint (refer to the paint scheme given on page 610).

- Total thickness of the paint coat: 0,025 to 0,035 mm (0.0010 to 0.0014 in)

(4) Fitment of bushes (4-770), (4-780), (4-790), (4-800) (refer to Figure 606)

NOTE: If the barrel bores have not been remachined, fit the original dimension bushes.

If the barrel bores have been remachined, fit the repair size bushes.

(a) Measure the dimensions of the barrel bores.

(b) Remachine the repair size bushes (R5) so as to obtain an assembly clearance (bore/bush) which, after cadmium plating of bushes will be within the dimensions given in the table below.

(c) Cadmium plate the surfaces of the bushes in contact with the barrel (refer to the procedure given on page 602).

– Thickness of the cadmium plating: 0,005 to 0,009 mm (0.00020 to 0.00035 in).

Assembly clearance mm (in)	(*) Bore A Bush (775) or (776)	(*) Bore B Bush (785) or (786)	Bore C Bush (795)	Bore D Bush (805)	Surface finish
Maximum	0,140 (0.0055)	0,118 (0.0046)	0,113 (0.0044)	0,095 (0.0037)	2,4 to
Minimum	0,050 (0.00020)	0,038 (0.0015)	0,029 (0.0011)	0,020 (0.0008)	1,2

(*): Bush (775) - Max. diameter = 55 mm (2.1654 in)
Bush (776) - Max. diameter = 56 mm (2.2047 in)
Bush (785) - Max. diameter = 35 mm (1.3780 in)
Bush (786) - Max. diameter = 36 mm (1.4173 in)

(d) Bond the bushes in position with Araldite (refer to the process sheet, page 612).

– Provide a tool to keep the bushes in alignment for the complete time allowed for the curing of the Araldite.

(e) After completion of curing, check the dimensions shown on Figure 606.

(f) Apply a bead of PR compound between the barrel and the bushes.

(5) Fitment of the actuating jack shaft (4-700) (refer to Figure 606)

(a) Measure the dimension of the bore (E) in the barrel (refer to Figure 608).

(b) Remachine the shaft (4-705) so as to obtain an interference fit (bore/shaft) which, after cadmium plating of the shaft, will be within the values given below:

– Minimum interference fit: 0,011 mm (0.00043 in)

– Maximum interference fit: 0,075 mm (0.0030 in)

(c) Cadmium plate the shaft surface in contact with the barrel (refer to the procedure given on page 602).

– Thickness of the cadmium plating: 0,005 to 0,009 mm (0.00020 to 0.00035 in).

(d) Fit the shaft into the barrel by the differential temperature method.

– Protect the 25 mm (0.9843 in) dia.bore of the shaft by application of Protex CS39 (MIL-C-16173 grade 2).

– Apply MOLYKOTE DX to the 30 mm (1.1811 in) diameter.

(e) Fit the screw (4-740) in position.

– Apply MOLYKOTE DX to the screw.

(f) Fit the washer (4-730) and nut (4-720).

– Torque loading: 15 to 23 N.m.

(g) Lock the nut by means of the split pin (4-710).

(h) Apply a bead of PR compound to the screw and the nut, and between the shaft and the barrel.

(6) Repair of the bores taking the screws, pins and shaft (hinge, torque arm and actuating jack) (refer to Figure 607, Figure 608 and Figure 609)

NOTE: It is not necessary, after remachining, to apply a shot peening treatment to these bores.

(a) If cracks or signs of corrosion appear, remachine the bores to the dimensions shown in the table below:

BARREL mm (in)	Bore F	Bore G	Bore H	Surface finish
MIN.DIA	11,120 (0.4378)	8,110 (0.3193)	10,120 (0.3984)	3 to 1,2
MAX.DIA	11,137 (0.4385)	8,122 (0.3198)	10,137 (0.3991)	

(b) Protect the surface by the use of ALODINE 1200 (refer to the procedure given on page 602).

(c) Apply the primer paint and the post-primer paint (refer to the paint scheme, page 610).

– Total thickness of the paint coat: 0,025 to 0,035 mm (0.0010 to 0.0014 in).

(d) Bond the bushes in position with Araldite (refer to the process sheet, page 612).

– Provide a tool to keep the bushes in alignment for the complete time allowed for the curing of the Araldite.

(7) Repair of the clevis provided for fitment of the torque arm swivel pin

(a) If signs of corrosion appear on the clevis, the latter can be remachined to the dimensions shown on Figure 610.

Carry out the shot peening operation in accordance with the process sheet MIF142153 raised by METAL IMPROVEMENT COMPANY (FRANCE), or an equivalent process sheet:

ALMEN intensity:	9-11A
Steel shot:	M1230R
Coverage:	150% (refer to NOTE)
Swelling:	0,005 to 0,010 mm (0.0002 to 0.0004 in)

NOTE: Inspection of the coverage

– Prior to shot peening, apply ALODINE 1200 to the surfaces to be shot peened.

– After shot peening, carry out a visual inspection and make sure that the coverage is satisfactory.

IMPORTANT: Within 12 hours after completion of the shot peening operation, it is mandatory that a decontamination of the barrel shall be carried out as follows:

– Vapour phase degreasing with chlorinated solvents (trichlorethylene, perchlorethylene).

– Alkaline degreasing (Progal D45TM from CFPI or Turco 4090 or Diversey D700).

– Rinsing in water.

– Nitric stripping (nitric acid).

– Rinsing in water.

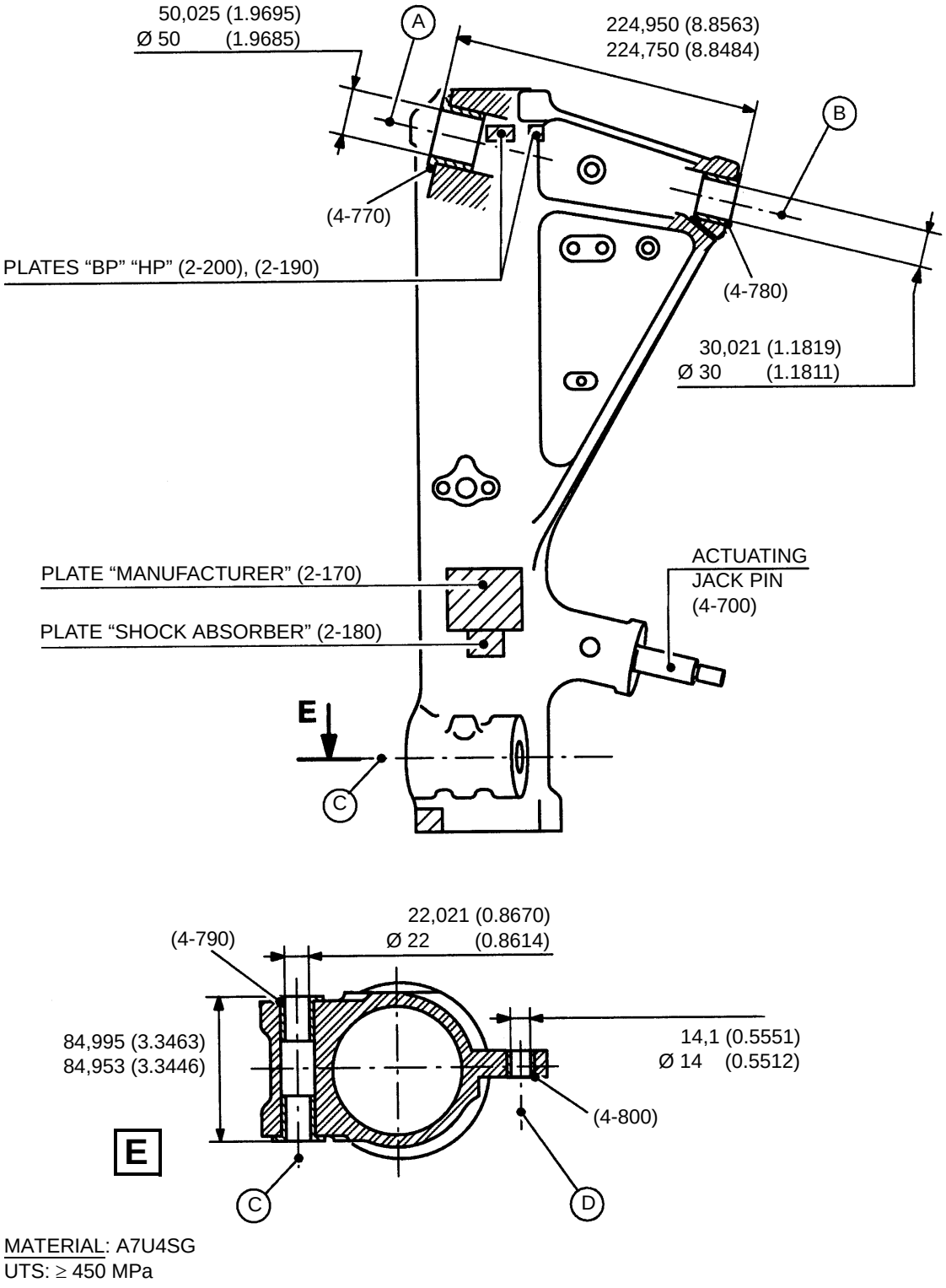
– Rinsing in deionized water.

(b) Protect the surface with ALODINE 1200 (refer to the procedure given on page 602).

(c) Apply the primer paint and post-primer paint (refer to the paint scheme, page 610).

(d) Fit in position the insert (4-870) as shown on Figure 611.

– Apply MOLYKOTE DX to the faces.



MATERIAL: A7U4SG
UTS: ≥ 450 MPa

Fitment of bushes in the barrel (4-680) or (4-690)
Figure 606

(8) Repair of the seating surfaces in contact with the bearing (4-90) (refer to Figure 612)

(a) Remachine the seating surfaces A and B in the barrel, until the defects are removed, so as to suit the repair stage R1, R2 or R3 shown in the table below.

IMPORTANT: DO NOT MIX THE REPAIR STAGES.

Dimensions in millimeters

IDENTIFICATION LETTER	R1	R2	R3	CLEARANCES	SURFACE FINISH
A	81,2 (3.1969)	81,4 (3.2047)	81,6 (3.2126)	+ 0,054 (0.0021) + 0 (0)	1,6
B	84,2 (3.3150)	84,4 (3.3228)	84,6 (3.3307)	+ 0,054 (0.0021) + 0 (0)	1,6
C	33 (1.2992)	33 (1.2992)	33 (1.2992)	- 0 (0) - 1 (0.0394)	
r	10 (0.3937)	10 (0.3937)	10 (0.3937)	± 0,1 (0.0039)	1,6

(b) Apply ALODINE 1200 to the remachined surfaces (refer to the procedure given on page 602).

(c) Fit in position the new bearing (4-95) “R1, R2 or R3" which suits the stage of the repair carried out.

NOTE: If the barrel is fitted with a bearing (4-95) machined to a repair size “R3", it is mandatory that the anti-extrusion bush (4-45) also machined to a repair size “R3", shall be fitted.

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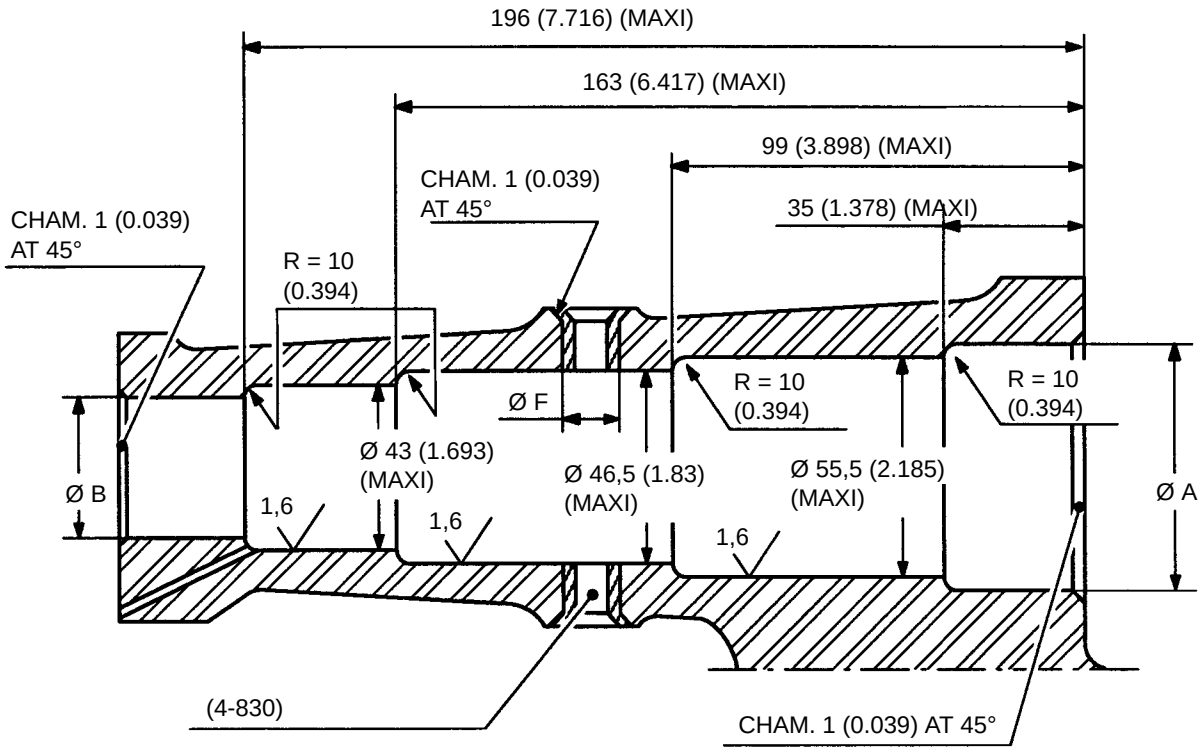
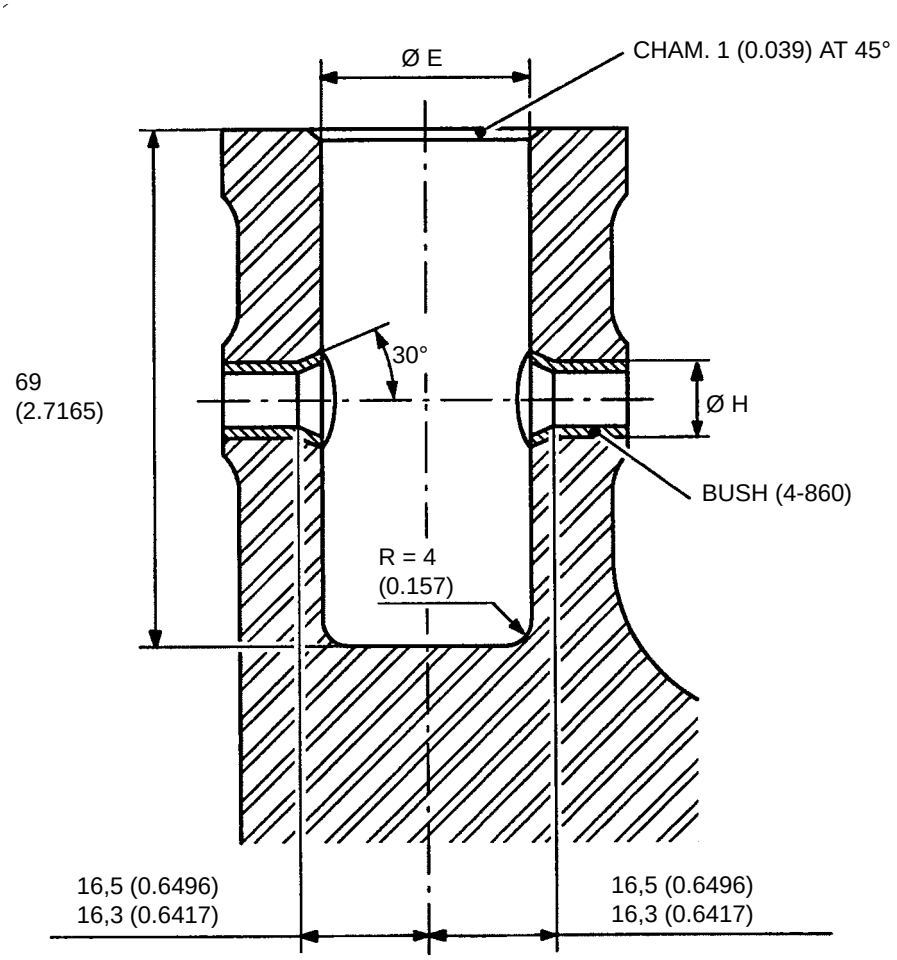
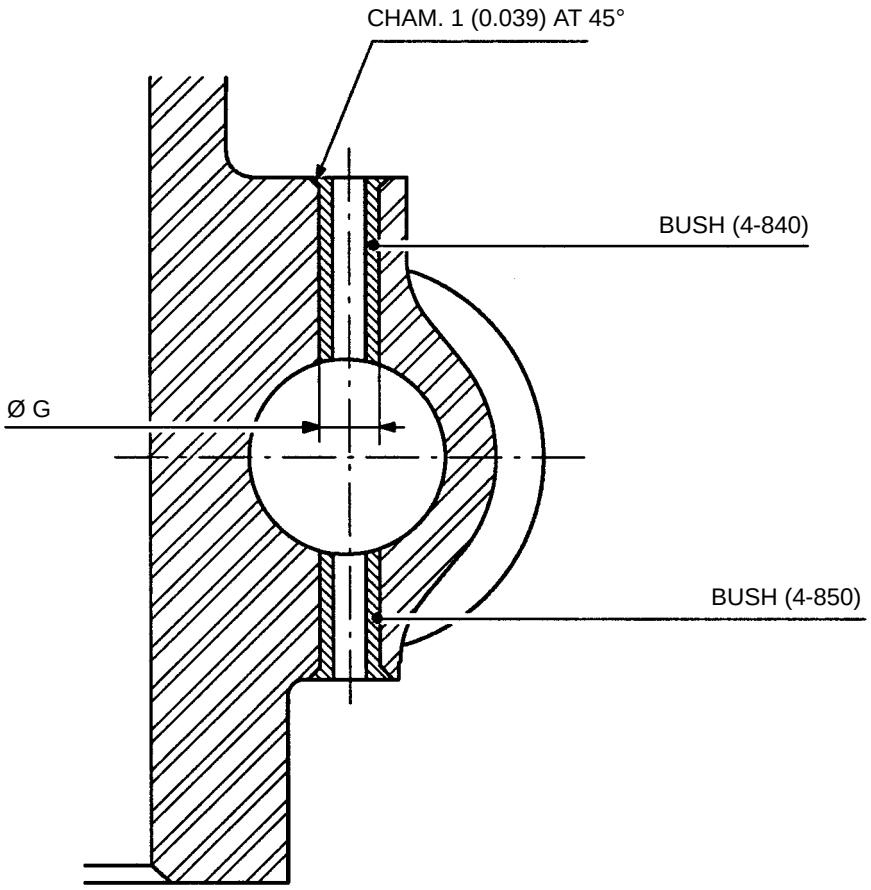


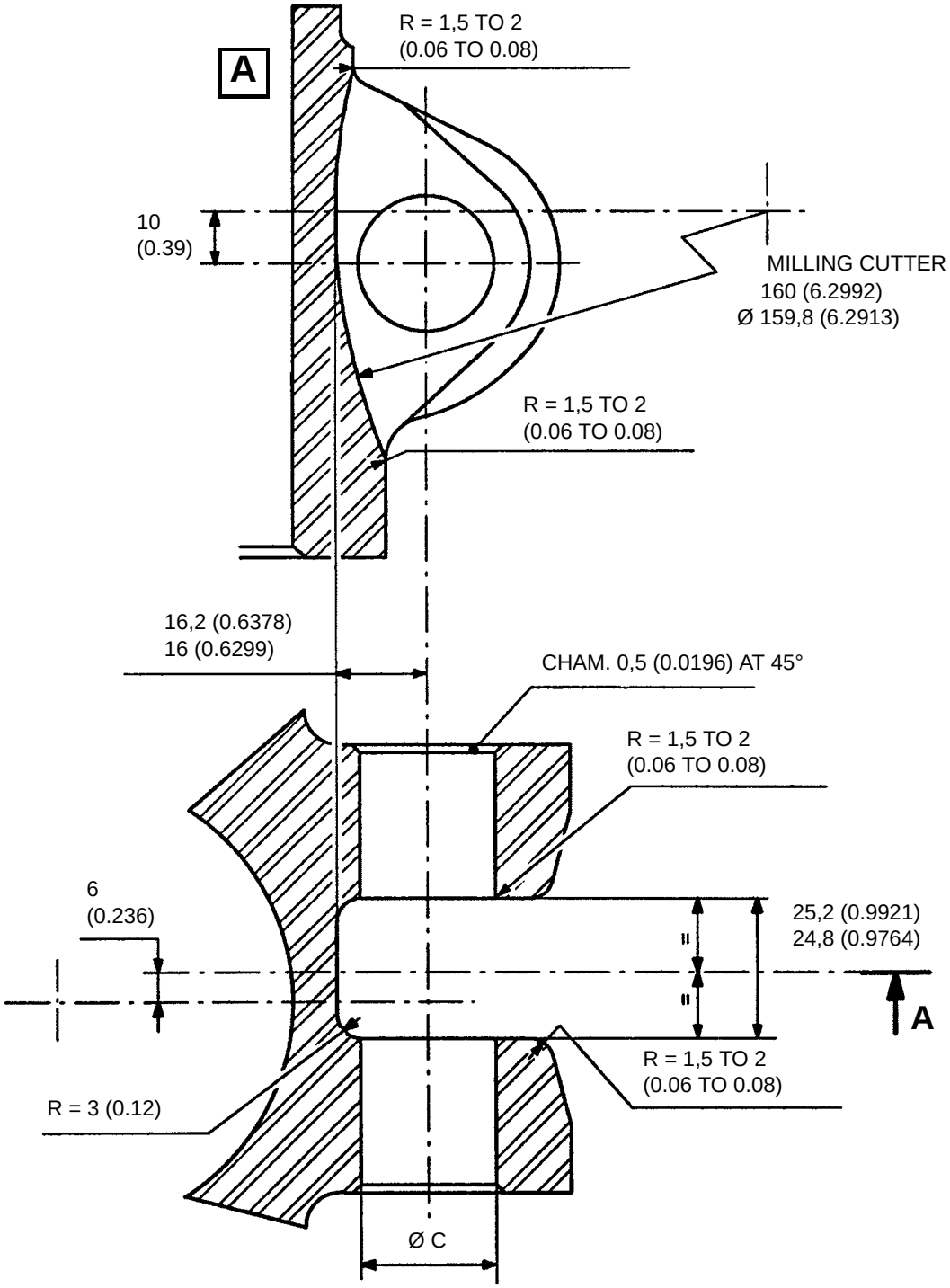
Remachining of the barrel (4-680) or (4-690)
Figure 607



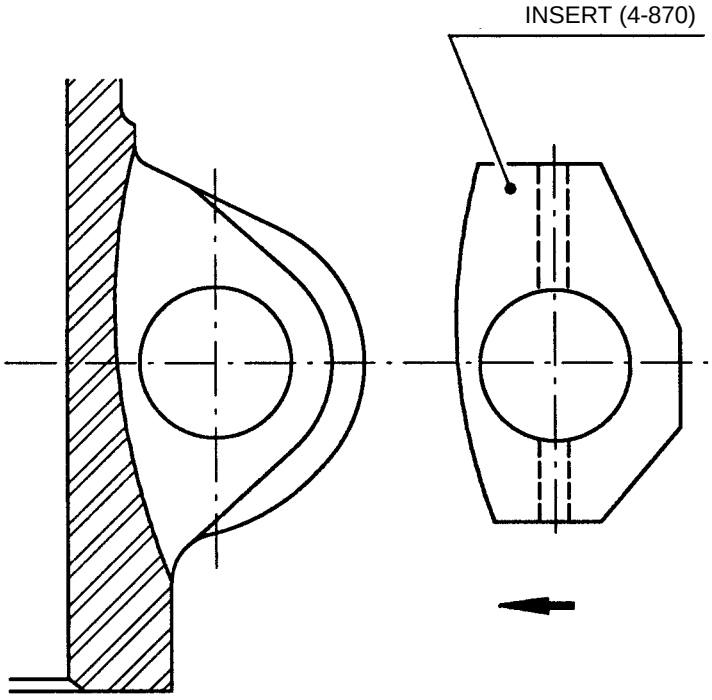
Remachining of the barrel (4-680) or (4-690) (cont'd)
Figure 608



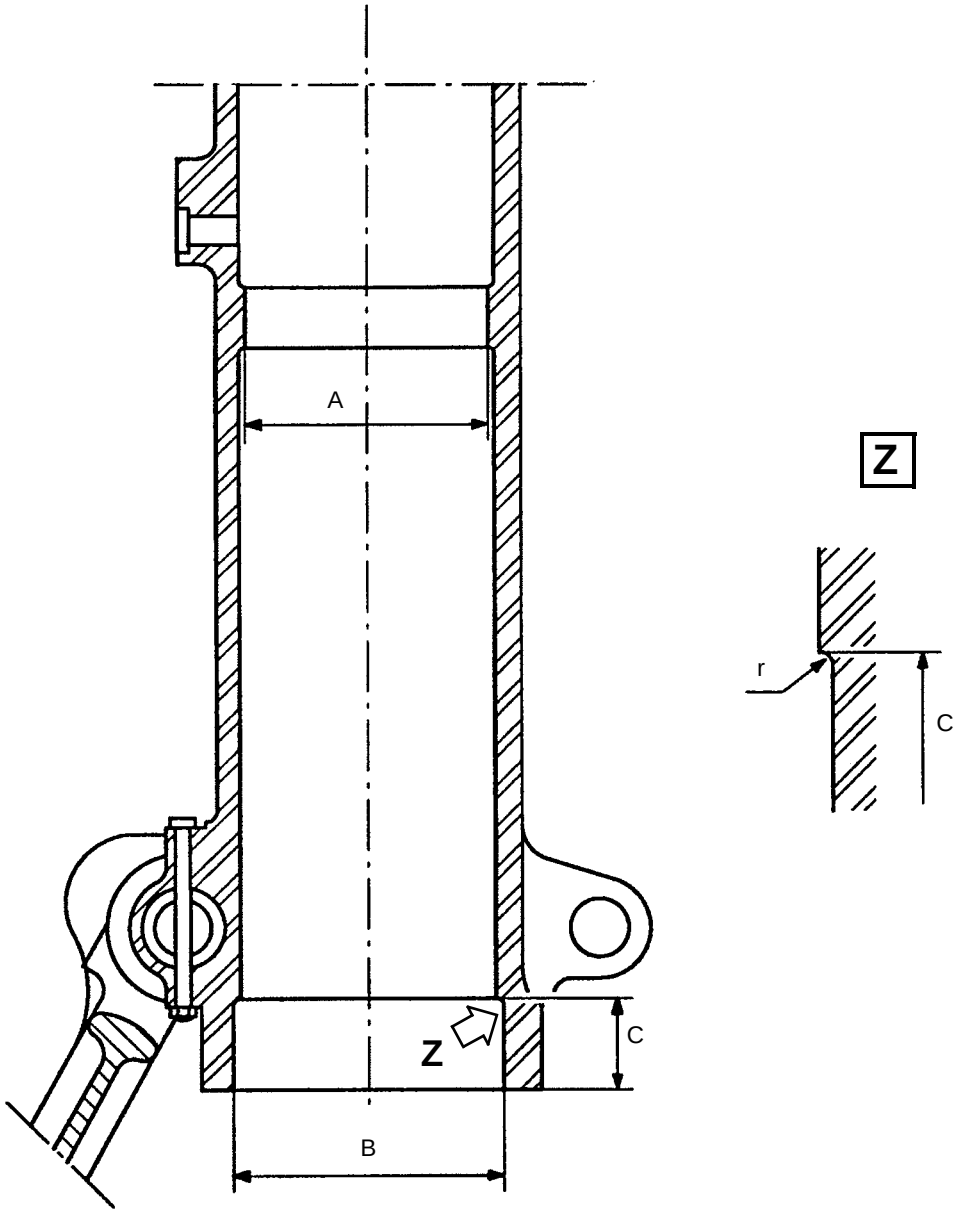
Remachining of the barrel (4-680) or (4-690) (cont'd)
Figure 609



Remachining of the barrel (4-680) or (4-690) (cont'd)
Figure 610



Remachining of the barrel (4-680) or (4-690) (cont'd)
Figure 611



Remachining of the barrel (4-680) or (4-690) (end)
Figure 612

(9) Final steps

(a) Mask all the bores and the bush seating surfaces, then apply the paint top coat (refer to the paint scheme, page 610).

(b) Fill in, then bond the self-adhesive plates in position, in accordance with the instructions given on Figure 606.

B. Torque arm (5-10) and (5-50)

(1) Fitment of bushes (5-30), (5-40), (5-70) and semi-swivel cages (5-80) (refer to Figure 613)

– If the bores provided for these bushes or cages are in satisfactory condition or slightly scored, fit new bushes or cages and seal them in position with Araldite (refer to the process sheet, page 612). Provide tools to keep in position and align the parts for the complete time allowed for the curing.

– If the bores are too seriously damaged, they must be remachined to the dimensions given in the table below.

– Protect the remachined surfaces with ALODINE 1200 (refer to the procedure given on page 602).

– It would be advisable afterwards, to match, by machining, the external diameter of each bush or the semi-swivel cage with appropriate bore.

– Fit in position each bush and semi-swivel cage, then seal them with Araldite.

– After completion of the curing, check the dimensions shown on Figure 613.

Table of "Repair" sizes (dimensions given in millimeters)

TORQUE ARM MAXI DIA.	Bore A	Bore B	Bore C	Surface finish
After remachining	26,641 (1.0489)	20,641 (0.8126)	20,641 (0.8126)	1,6 to 0,8

Assembly clearance	Bore A Bushes (5-30) and (5-70)	Bore B Semi-swivel (5-80)	Bore C Bush (5-40)
Maximum	0,062 (0.0024)	0,066 (0.0030)	0,054 (0.0021)
Minimum	0,020 (0.0008)	0,030 (0.0012)	0,020 (0.0008)

(2) final steps

– Replacement, if necessary, of the grooved pin (5-90) of the lower torque arm (5-60).

– Paint each torque arm after masking of all bores and seating faces (refer to the paint scheme, page 610).

C. High pressure cylinder (4-470)

(1) If scores or scratches are found in the cylinder bore, it is MANDATORY that they shall be removed by lapping.

– The original dimension is:

38 H7 (1.4961) (+ 0,025 (0.0010); + 0) mm Surface finish: 0,4

– The maximum acceptable dimension, after lapping, is:

38,125 mm (1.5010 in) - Surface finish: 0,4

(2) Repair on the Ø28 f8 of the cylinder (refer to Figure 614)

Remachining to a maximum of 0,050 mm on the radius. Perform a chromium plating (the actual chromium thickness is 5 to 10 microns).

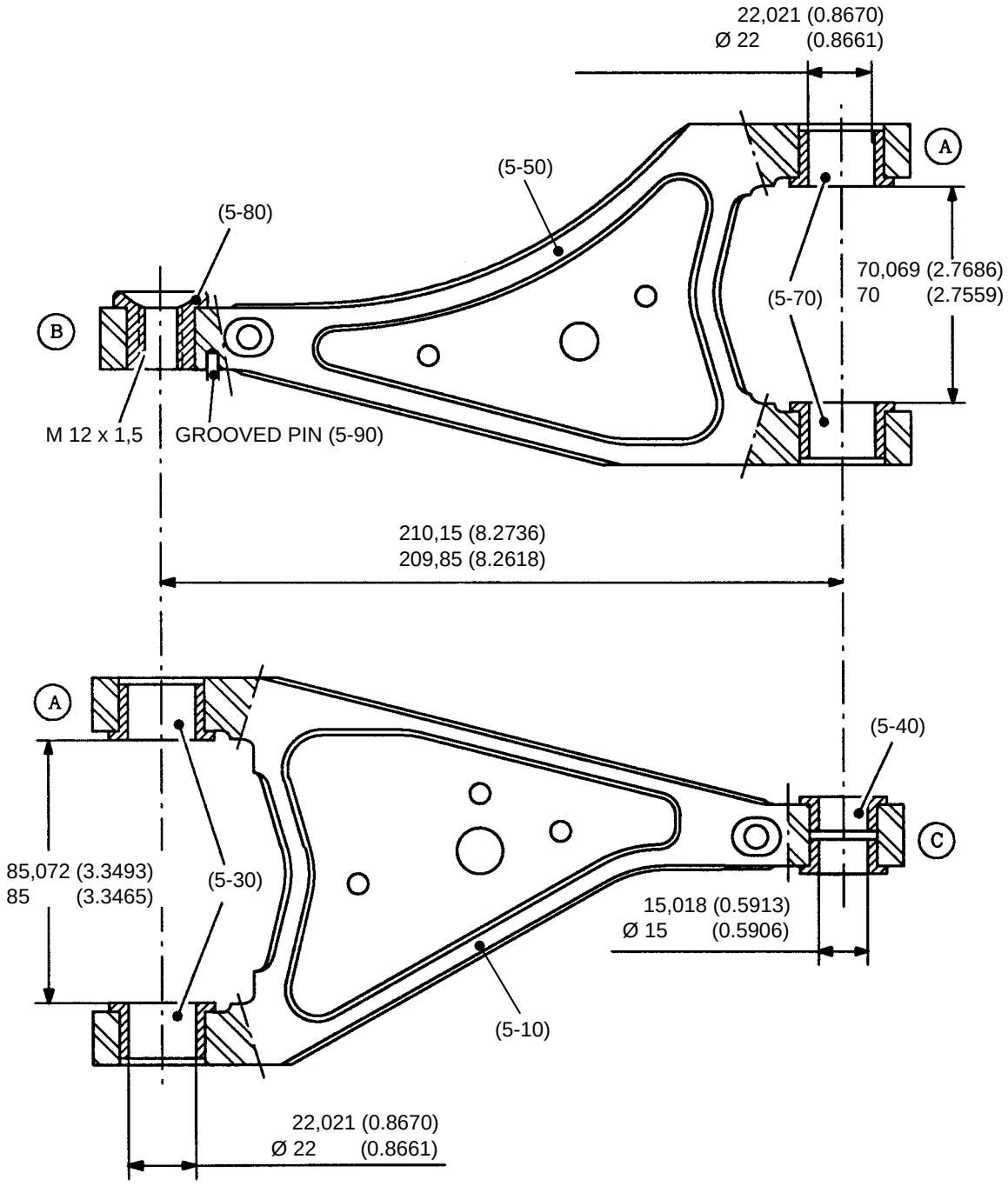
REMARK: AFTER CHROMIUM STRIPPING, CHROMIUM PLATING, PERFORM A STRESS RELIEF IN AN OVEN AT A TEMPERATURE RANGING FROM 180 to 200°C FOR 4 HOURS.

After grinding, perform a stress relief in an oven at a temperature ranging from 180 to 200°C for 4 hours.

(3) Repair on the Ø55 d8 (refer to Figure 614)

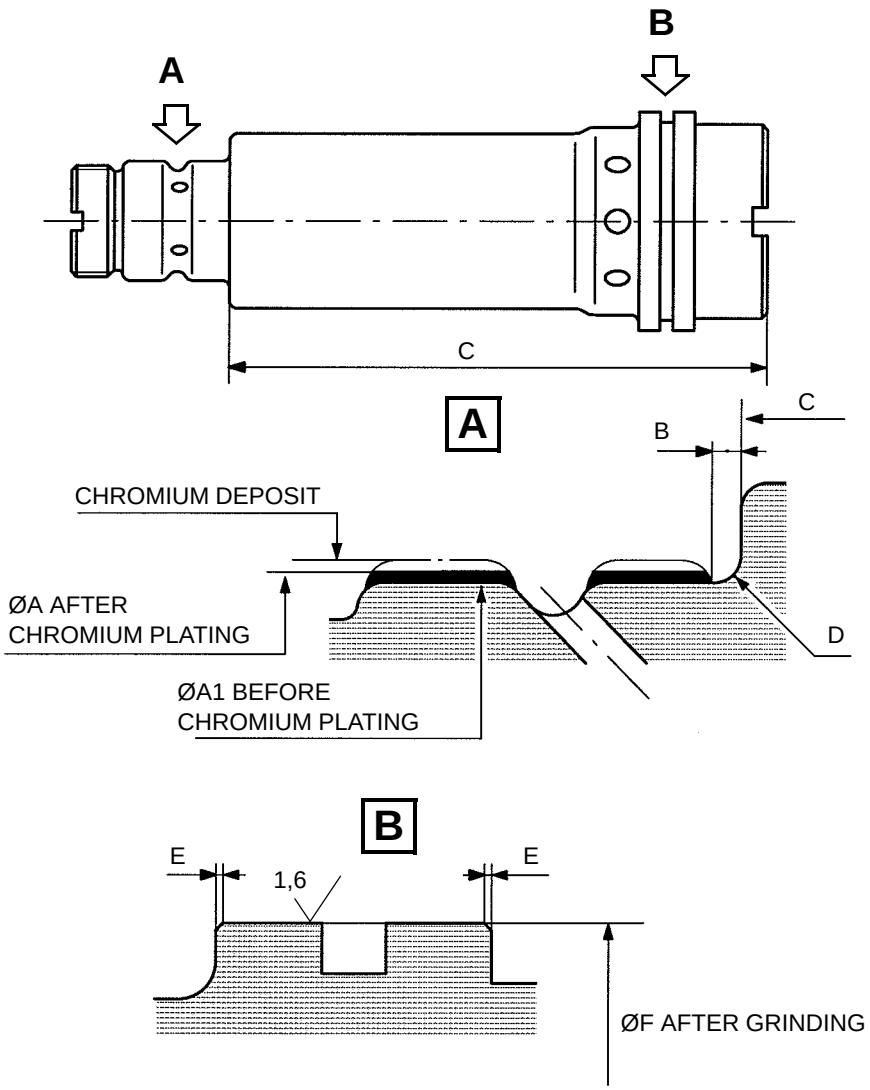
A remachining of 0,1 mm on the radius.

Protect the remachined surface with SPACOXYD.



MATERIAL: A7U4SG
UTS: ≥ 450 MPa

Fitment of bushes and semi-swivel cages to the torque arms (5-10) and (5-50)
Figure 613

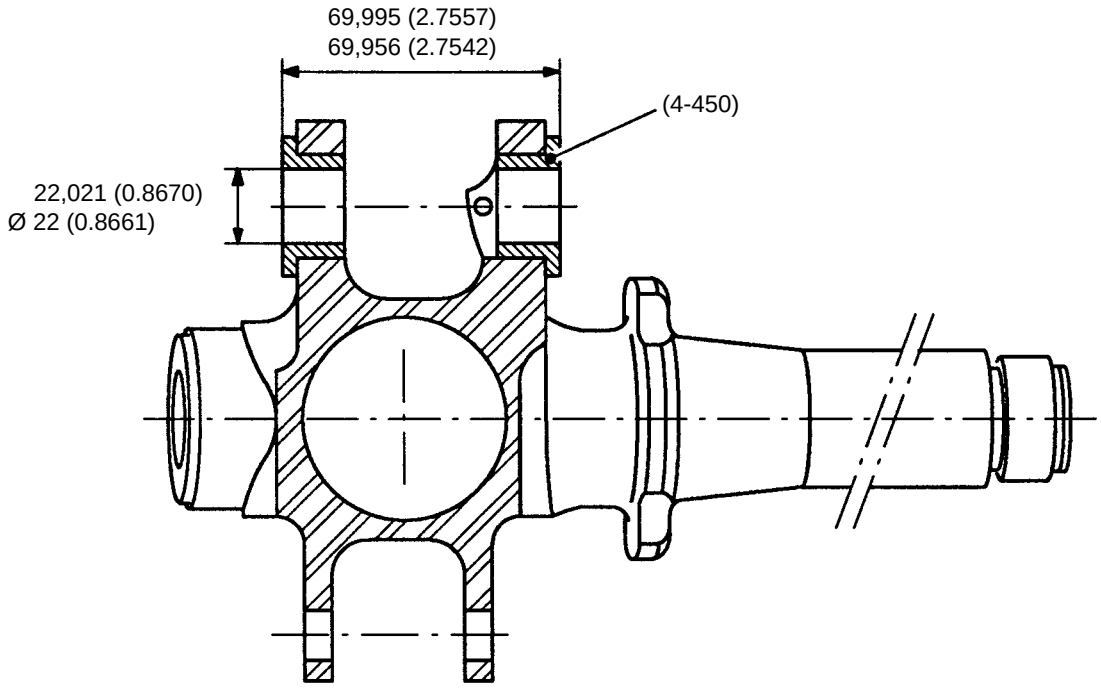


MATERIAL: SAE 4340

UTS ≥ 1080 MPa

DIM	MIN	MAX	DIM	MIN	MAX	DIM	MIN	MAX
	MILLIMETERS (INCHES)	MILLIMETERS (INCHES)		MILLIMETERS (INCHES)	MILLIMETERS (INCHES)		MILLIMETERS (INCHES)	MILLIMETERS (INCHES)
A1	27,827 (1.0955)		A	27,947 (1.1002)	27,980 (1.1015)	B	1,800 (0.0708)	2,000 (0.0787)
C	507,000 (19.9606)	507,200 (19.9685)	D	R = 1,000 (0.0394)		E	CHAMFER 0,200 (0.0078) AT 45°	
F	54,650 (2.1515)							

Repair of high pressure cylinder (4-470)
Figure 614



Fitment of bushes to the torque arm attaching part on (4-370) or (4-380)
Figure 615

D. Piston-axle tube (4-370) or (4-380)

(1) Fitment of the bushes (4-450) to the torque arm attaching part (refer to Figure 615)

- If the bores provided for the two bushes are in satisfactory condition or slightly scored, fit new bushes and seal them in position with Araldite (refer to the process sheet, page 612). Provide a tool to keep in position and align the parts for the complete time allowed for the curing.
- If the bores are too seriously damaged, they must be remachined to the following dimension:
  Maximum diameter after remachining: 25,611 mm (1.0083 in).
- Cadmium plate the piston tube (refer to Figure 602).
- Match, by machining, the external diameter of the "repair" size bushes (4-455), with the bore diameter:
- Assembly clearance:
  - Maximum: 0,082 mm (0.0032 in)
  - Minimum: 0,032 mm (0.0013 in)
- Cadmium plate (Cd7) the remachined surfaces (refer to the procedure given on page 602).
- Fit each bush, then seal it in position with Araldite.
- After completion of the curing, check the dimensions shown on Figure 615.

(2) Fitment of the threaded bush (4-440) to the axle end

- Fit the threaded bush, then seal it in position with LOCTITE 259.
- Tighten with a torque loading of 20 N.m (14.75 lbf.ft).
- Coat the threads of the two plugs (4-130) with MOLYKOTE DX.
- Fit the two O-ring seals (4-140), then screw in the two plugs (torque loading: 5 N.m (3.7 lbf.ft)).

(3) Final steps

- Apply PR compound between the bushes and the piston-axle tube.
- Mask the wheel hub and bores, then paint the axle.

11. Resin impregnation (PERMAFIL)

A. Application to the Ø28 of the cylinder (4-470) and Ø65 of the piston tube (4-420) or (4-430).

NOTE: Operation to be performed only in case of chromium plating repair.

(1) Degrease part with vapour phase chlorinated solvent.

(2) Air cooling of the part.

(3) Degrease the chromium areas with Methyl-Ethyl-Ketone (MEK), use for that purpose a clean cloth. Repeat the operation till there is no marks left on the cloth.

(4) Put the part in an oven at a temperature ranging from 106 to 134°C for at least 30 minutes.

(5) Let cool down the part to a temperature ranging from 55 to 75°C.

(6) Apply an uniform thin coat of resin with a brush. Wait for 30 minutes.

(7) Repeat the operation above twice more.

(8) Remove resin excess from chromium plating surface with a free cloth and any resin overflowed onto surrounding surfaces with moist cloth with MEK (Methyl-Ethyl-Ketone).

(9) Heat the part in an oven at a temperature ranging from 136 to 164°c for at least two hours.

NOTE: In order to confirm that the resin has fully cured after this period of time, it is advisable to place a small sample of resin in a disposable dish in the oven at the same time.

(10) Remove the part from the oven and allow it to cool.

(11) Check that the resin has fully cured by rubbing the chromium plated surface with clean moist cloth with MEK (Methyl-Ethyl-Ketone) for 30 seconds. The resin must not be soft or sticky. If the test is negative, perform a new cure at a temperature ranging from 136 to 164°C for a minimum of one hour.

NOTE: If the resin which is not resistant to the contact with a solvent after a further one hour cure would indicate an incorrect resin mix.

(12) Check the resin impregnation according to NT No 32-024-039 with following criteria:

– After a holding of pressure of 95 - 105 bars during 8 - 12 minutes, a maximum of two streams of small bubbles are acceptable.

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ASSEMBLY (INCLUDING STORAGE)

1. Assembly

A. Tools and materials necessary

(1) Tools

- Threaded rod M6 x 1 length 500 mm (19.7 in)
- Torque wrench 0 to 100 N.m (0 to 75 foot-pounds)
- Mechanic's tool
- Kit special tools (see page 901)

(2) Materials (see list of special material at the beginning of the manual)

- Hydraulic fluid MIL-H-5606
- Grease AIR 4210B
- MOLYKOTE DX
- PR1826B2
- LOCTITE 259

B. Assembly

CAUTION: SEALS SHOULD BE FITTED USING THE SPATULAS PROVIDED FOR THE PURPOSE, TAKING CARE NOT TO DAMAGE THEM BY PINCHING OR CUTTING. AVOID SCRATCHING NEAR BY SEALING SURFACES.

CLEAN THE PARTS TO BE FITTED BY BLOWING DRY COMPRESSED AIR ON THEM. THE SEALS AND THE PARTS TO BE FITTED WILL BE SOAKED IN HYDRAULIC FLUID TO FACILITATE ASSEMBLY. THE SEALS, THE PARTS AND THE BENCH WHERE PARTS TO BE ASSEMBLED ARE PLACED, MUST BE CLEAN.

TABLE OF TIGHTENING TORQUES

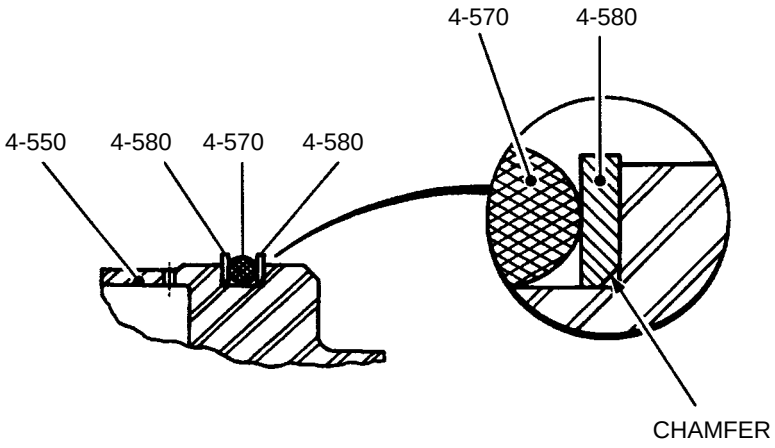
IPL Figure. and Item No	Name	TORQUE	
		N.m	(lbt.ft or lbf.in)
2-80	NUT	4,5	3
3-10 and 20	VALVE	15	11
3-50	NYLSTOP NUT	15 to 23	11 to 17
3-80	NUT	5	4
3-120	SCREW	7	5
3-150	NUT	6	5
3-250	SCREW	5,6	4
3-370	NYLSTOP NUT	10 to 25	7 to 18
3-410	NUT	3 to 5	2 to 4
3-480	NYLSTOP NUT	3 to 5	2 to 4
3-550	NUT	3 to 5	2 to 4
3-600	SCREW	1,5	1
4-10	SCREW	10	7
4-30	NUT	20	14
4-130	PLUG	5	4
4-210	SCREW	12,5	9
4-240	SCREW	2,5	2
4-330	SCREW	4	3
4-440	THREADED RING	20	14
4-460	PLUG	2	1,5
4-480	NUT	20	14
4-610	NUT	10 to 15	7 to 11
4-630	DIAPHRAGM SUPPORT	50	37
4-720	NYLSTOP NUT	15 to 23	11 to 17
5-110	NUT	15 to 30	11 to 22
6-30	SCREW	1	1
6-40	NUT	1	1

(1) Assembling the main leg

(a) Subassembly of high pressure cylinder and flow restrictor unit

– Screw and seal with LOCTITE 259 the stop (4-560) in the piston (4-550) and tighten by hand.

– Fit the piston (4-550) with the O-ring seal (4-570) and its two segments (4-580) (see sketch below).



– Fit the high pressure cylinder (4-470) with segment (4-520) and the barrel (4-810) with the two O-ring seals (4-500).

– Using the threaded rod M 6x1, insert the complete piston (4-540) into the cylinder.

– Assemble the flow restrictor: the guide (4-670), the stop (4-660), the spring (4-650), the diaphragm (4-640), the diaphragm support (4-590) and the washer (4-620). Smear the threads of the guide (4-670) with hydraulic oil. Tighten the nut (4-610) (tightening torque: 10 to 15 N.m (7 to 11 lbf.ft)). Fit the pin (4-600) and lock the nut (4-610).

– Position the bush (4-530) and the locking washer (4-510) on the high pressure cylinder (4-470).

– Smear hydraulic oil on the threads of the diaphragm support (4-630).

– Position the high pressure cylinder (4-470) in the rig 50404 (see Figure 701).

– Screw in the flow restrictor tightening torque: 50 N.m (37 lbf.ft).

– Lock the flow restrictor by bending the tabs of the locking washer (4-510) into one of the notches.

CAUTION: DO NOT BEND ONE OF THE TABS INTO THE SLOT PROVIDED WITH A LEAKAGE HOLE.

(b) Assembly of the bearing (4-90)

– Install the both bearing segments (4-110).

– After application of the SB 024-32-036

  – Install the seal (4-70B) with the both segments (4-60) and the back-up ring (4-80).

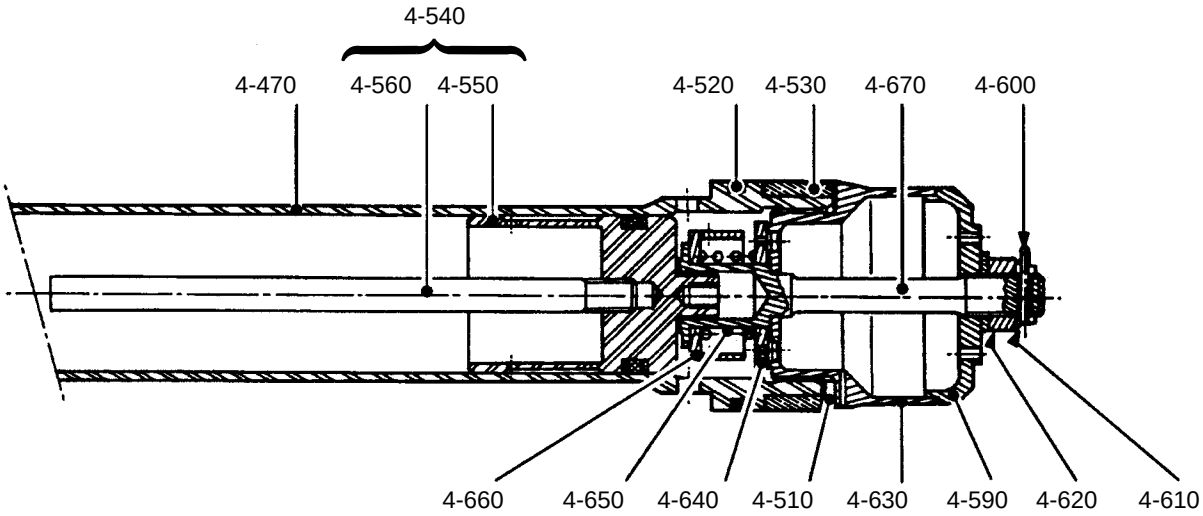
  – Install the scraper (4-100B).

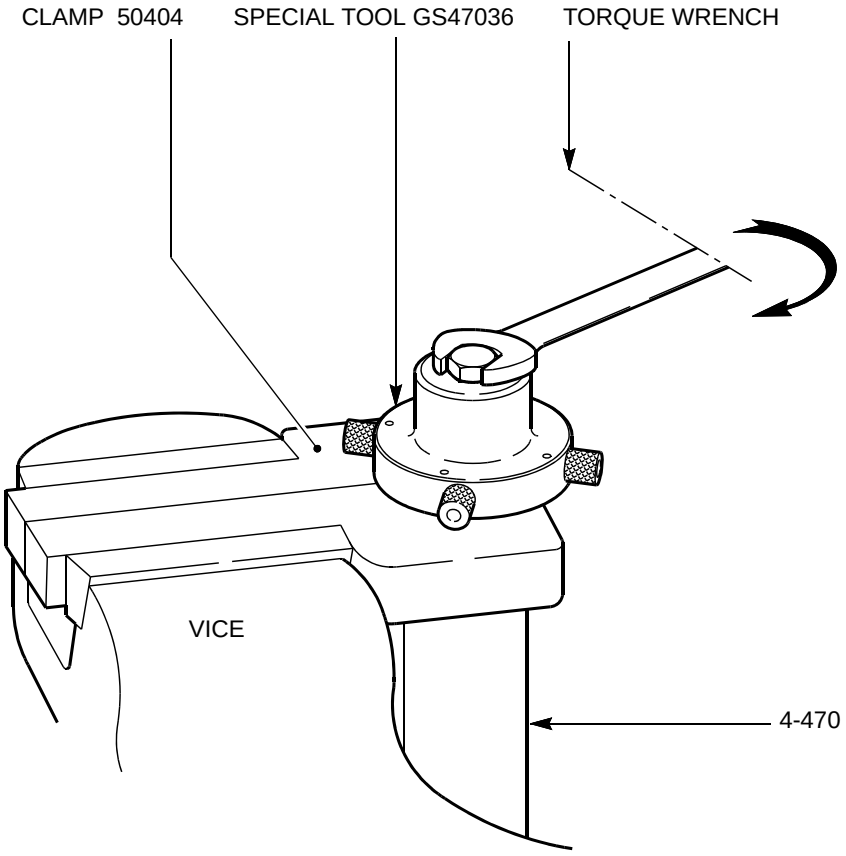
– Install the O-ring (4-50) and the back-up ring (4-40).

(c) Insert the piston tube axle (4-420) into the hearing (4-90).

(d) Seal the nut (4-30) with LOCTITE 259.

Using the spanner 50407, tighten the nut (4-30) (tightening torque: 20 N.m (14 lbf.ft)).





Tightening the flow restrictor unit
Figure 701

(e) Fitting the high pressure cylinder (4-470) into the barrel (4-810).

– Assembly of end fitting (4-310)

  – Fit the O-ring seal (4-320).

  – Position the return ring (4-290) in the end fitting (4-310).

  – Fit the ring (4-360).

  – Insert the end fitting (4-310) in the piston tube axle (4-420).

  – Smear MOLYKOTE DX on the two screws (4-330).

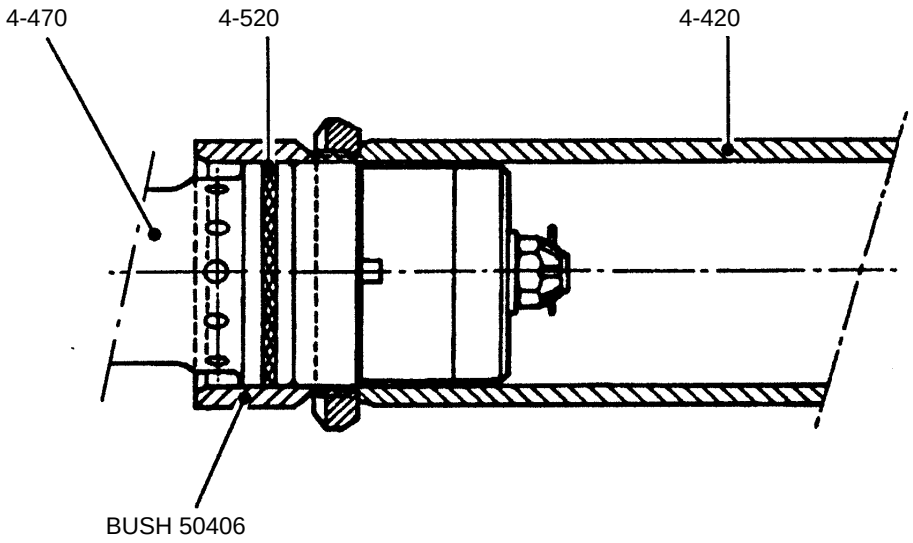
  – Fit the cover (4-350), attach it to the end fitting with two screws (4-330) and washers (4-340). (tightening torque 4 N.m (3 lbf.ft)).

  – Lock the screws using stainless steel wire.

  – Smear PR on the screw heads on the seal faces of the cover and the piston tube axle.

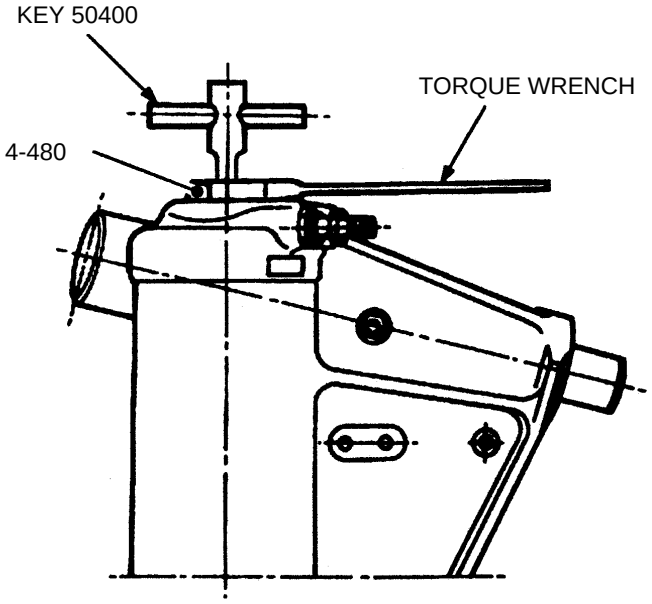
– Using the ring 50406, fit the segment (4-520).

– Insert the high pressure cylinder (4-470) into the piston tube axle (4-420). (see diagram below).



– Screw the rod 50401 to the end of the high pressure cylinder (4-470).
– Insert the assembly of the rod and the high pressure cylinder into the barrel.
– Fit the locking washer (4-490) to the end of the high pressure cylinder.
– Smear MOLYKOTE DX on the nut (4-480) and tighten lightly.
– On the lower bearing (4-90), smear MOLYKOTE DX on the surfaces that are in contact with the barrel.
– Smear MOLYKOTE DX on the 8 screws (4-10).
– Fit the 8 washers (4-20) and the 8 screws (4-10) on the bearing (4-90).
– Tighten the 8 screws (4-10) (tightening torque: 10 N.m (7 lbf.ft)). Lock the 8 screws using stainless steel wire.
– Smear PR on the heads of the 8 screws and on the plane of the seal between the barrel and the bearing.
– Using the high pressure cylinder turning key 50400, tighten the nut (4-480) (tightening torque: 20 N.m (14 lbf.ft)) (see diagram below).

NOTE: During this operation, avoid rotating the high pressure cylinder in the recess at the end of the barrel.



Fitting the high pressure cylinder

– Lock the nut (4-480) with the locking washer (4-490).

– Smear MOLYKOTE DX on the plug (4-460) and tighten it tightening torque: 2 N.m (1.5 lbf.ft)).

– Smear PR on the seal faces between the nut (4-480) end the high pressure cylinder (4-470) and the housing (4-810).

(f) Fitting the arm torque

– Fit the two half swivels (5-180) on the upper arm torque (5-10).

– Apply MOLYKOTE DX on the spherical bearing surfaces of the half swivels.

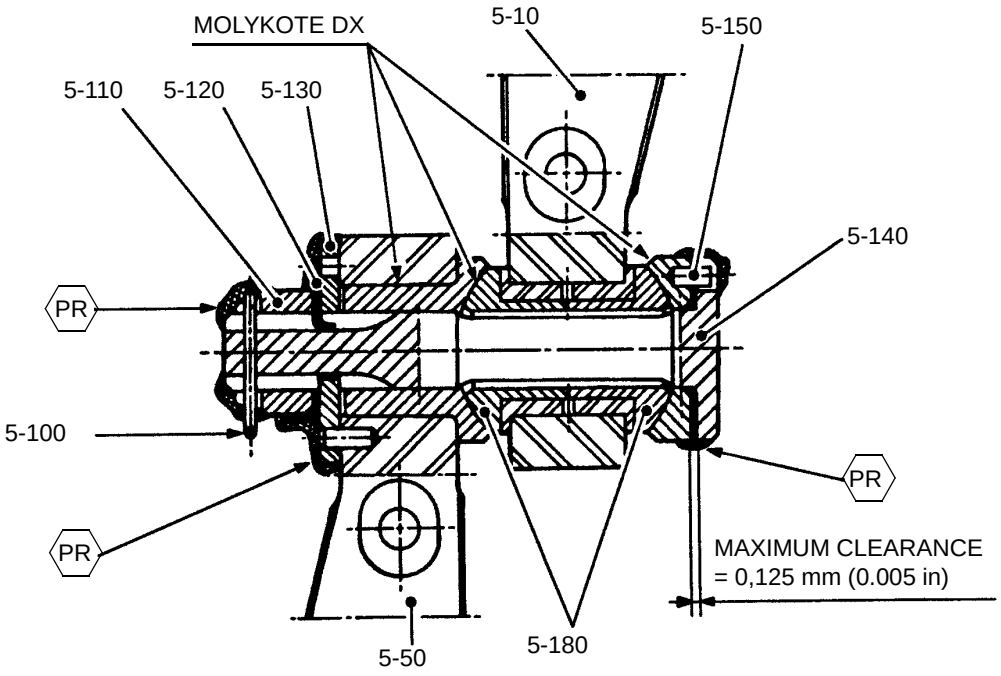
– Fit the half swivel cage (5-150) on a half swivel.

– Smear MOLYKOTE DX on the threads of the shaft (5-140).

– Assemble the two arm torque (5-10) and (5-50) with the shaft (5-140).

– Position the adjusting washer (5-130), and the locking washer (5-120).

– Tighten the nut (5-110) (Tightening torque: 15 to 30 N.m (11 to 22 lbf.ft)).



- Lock with the pin (5-100) and the washer (5-120).
- Smear with PR (see diagram above).
- On the upper arm torque (5-10) position the hose guide (3-540), the washer (3-570), the screw (3-580) and the washer (3-560).
- Tighten the nut (3-550) (tightening torque: 3 to 5 N.m (2 to 4 lbf.ft)).
- On the arm torque (5-10) and (5-50), position the 4 end fittings (3-430), the 4 screws (3-450) and the 4 washers (3-420).
- Tightening the 4 nuts (3-410) (tightening torque: 3 N.m (2 lbf.ft)).
- Couple up the arm torque to the barrel and to the piston tube axle with the two shafts (3-520) and (3-530).
- Smear MOLYKOTE DX on the two screws (3-500) and (3-510).
- On the arm torque bracket, position the metallization strip (3-400), the two screws (3-500) and (3-510) and the two washers (3-490).
- Tighten the two nuts (3-480) (tightening torque: 3 to 5 N.m (2 to 4 lbf.ft)).
- Lock with the two pins (3-470).
- Clamp the strip (3-400) with the 4 collars (3-440).

(g) Fitting the contactor box (3-240)

- On the gland housing (3-280), fit the O-ring seal (3-290), ring (3-340), seal (3-350), and the spacer (3-330).
- Insert the actuating rod (3-320) and the pushrod (3-310)
- Clamp the pushrod with the pin (3-300).
- Fit the O-ring seal (3-270) on the barrel; position the gland body (3-280).
- On the contactor box (6-130), fit the pushrod (6-110) with its stop ring (6-120); smear lightly with grease type AIR4210B and position the spring (6-100) and the piston (6-90). Position the lever (6-70); smear grease type AIR4210B and fit the shaft (6-80).
- On the lever (6-70), fit the screw (6-60), the serrated washer (6-50) and the nut (6-40).

– Screw the contactor box (6-130) into the cable end until the pushrod is in contact with the lever (6-70) and the distance A = 5,5 mm (0.2161 in).
– Orientate the cable with respect to the barrel (4-810) and lock the cable nut.
– Apply MOLYKOTE DX on the bearing surface of the barrel.
– Position the contactor box (6-130) on the barrel.
– Smear MOLYKOTE DX on the two screws (3-250); position the two washers (3-260) and tighten the two screws (3-250) (tightening torque: 15 N.m (11 lbf.ft)).
– Lock the two screws using stainless steel wire.

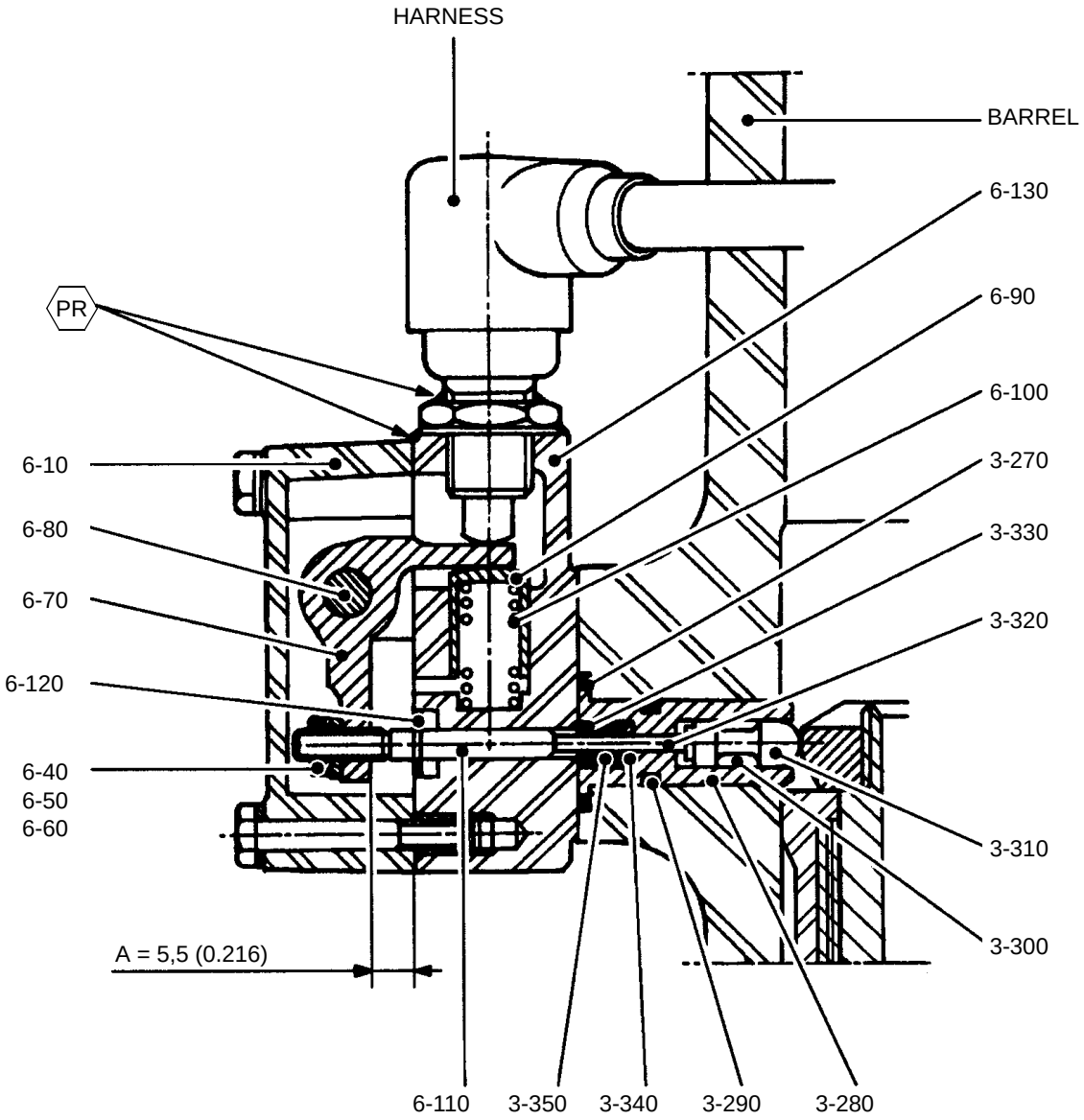
NOTE: The final adjustment of the contactor unit will be carried out after filling and pressurizing the shock absorbers (See TESTING AND FAULT ISOLATION, page 101)

Do not forget to smear MOLYKOTE DX on the nut (6-40) and the three screws of the cap (6-10), nor to lock these screws and the cable nut with stainless steel wire, and to apply PR on the cable nut (see Figure 702).

– Fit the collar (2-50) on the cable.
– Position the collar (2-50) the screws (2-60) and the washer (2-70) on the housing.
– Fit the nut (2-80) (tightening torque: 4 N.m (3 lbf.ft)).

(h) Fitting the roller support (3-160)

– On the hose support (3-110), position the union (3-140).
– Smear the threads of the union with LOCTITE 259.
– Tighten the nut (3-150) (tightening torque 6 N.m (5 lbf.ft)).
– On the roller support (3-160), position the roller (3-170), insert the pin (3-230) and position the washer (3-220).
– Tighten the nut (3-210) until it comes into contact with the support so as to rotate the roller.
– Lock the nut with the pin (3-200).
– Position the roller support (3-160) and the hose support (3-110) on the barrel.



Setting of the contactor unit
Figure 702

– Coat the 4 screws (3-120) with MOLYKOTE DX and tighten the 4 screws (3-120). (tightening torque: 7 N.m (5 lbf.ft)).
– Lock the 4 screws with stainless steel wire.
– Apply PR to the screws head (3-120).

(j) Fitting the brake hose

– On the barrel, position the union (3-90). Smear the threads with LOCTITE 259.
– Tighten the nut (3-80) (tightening torque: 5 N.m (4 lbf.ft)).
– Fit the hoses (2-20), (2-30) and (3-100).
– Lock the hose nuts with stainless steel wire.

(k) Fitting the static discharger (3-590) (see Figure 703)

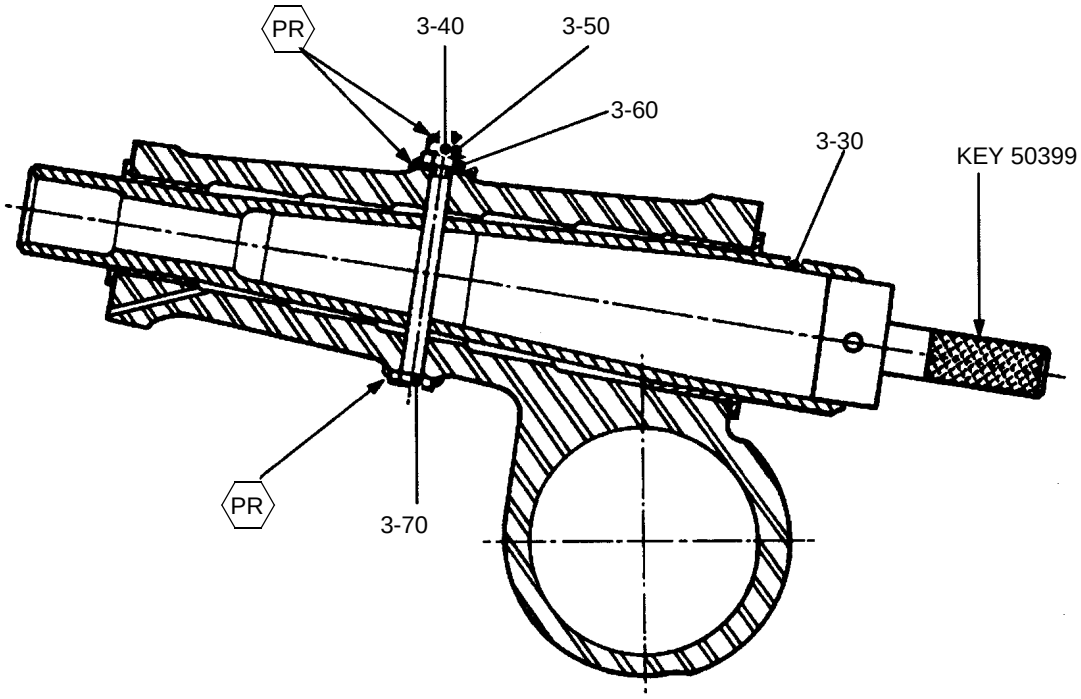
– Position the static discharger (3-590) on the piston tube axle (3-420).
– Fit 2 washers (3-610) and 2 screws (3-600). Smear with MOLYKOTE DX the two screws.
– Tighten the 2 screws (3-600) (tightening torque: 1 N.m (1 lbf.ft)).
– Lock the screw heads with stainless steel wire.
– Apply PR to the seal face between the static discharger and the axle and on the screw heads.

(l) Tighten the valves (3-10) or (3-20). (tightening torque: 15 N.m (11 lbf.ft)).

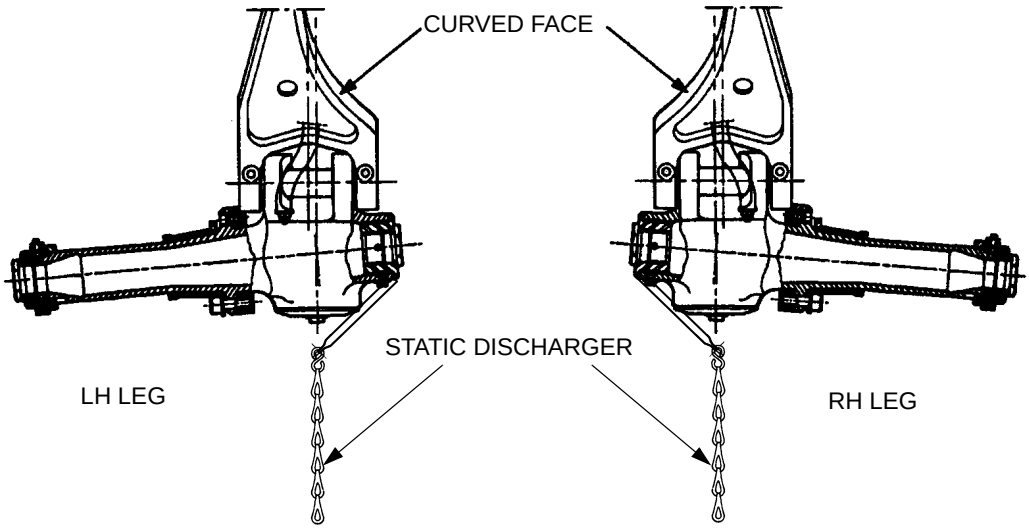
(m) Fitting the shaft (3-30) (see Figure 703)

NOTE: Operation to be carried out when the main leg is fitted to the aircraft.

– Fit the shaft (3-30) into the barrel (4-810).
– Using the spanner 50399, orientate the shaft (3-30) to allow screw (3-70) to pass through it.
– Tighten the nut (3-50) (tightening torque: 15 to 23 N.m (11 to 17 lbf.ft)).
– Lock with the pin (3-40).
– Apply PR to the screw head of the nut.



AFT VIEW



Fitting the hinging Pin and the static discharger
Figure 703

2. Storage after assembly

A. Purpose

This paragraph specifies the measures to be taken to protect the main landing gear leg, in order to obtain satisfactory operation after storage, in temperate continental, tropical or maritime climates.

The measures take into account the mode of transportation used.

B. General

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

The leg should be stored with the shock absorber valve at the top.

C. Preservation and packaging in temperate continental climates

(1) Transport by road, rail or air

(a) Preservation

– When the shock absorber has been filled to the correct level and inflated, deflate the gas chamber to a residual pressure of 5 bars (72.5 psi).
– The shock absorber should be in the extended condition.
– Remove the harness.
– Fit the protective plug to the switch.
– Seal the harness in cover of heat-sealable cloth and attach it to the leg with adhesive tape.
– Attach to the leg:
  – a label, close to the shock absorber inflation valve, stating that the shock absorber is internally protected, and that it is inflated with nitrogen to a pressure of 5 bars (72.5 psi).
  – a label "TOP" indicating that it must be stored in that attitude (rod at the top).
– Coat the unprotected surfaces with anti-rust grease and cover them with greaseproof cloth.
– Attach to the unit a label indicating that it is charged with MIL-H-83282A fluid.

(b) Packaging

- Place the unit, in the preserved condition, in a painted layte okoumé shuttle case.
- Place a heat-sealable cloth sheet at the bottom of the case.
- Place the blocks in position.
- Make sure that the points where the attachment rods for the blocks pass through the cloth are sealed.
- Distribute desiccant at several points on the unit, with greaseproof paper placed between it and the unit.
- Place a bag of desiccant and its humidity indicator card against the window cut in the cover.
- Fold the heat-sealable cloth to form a cover which fits the general shape as closely as possible. Remove the air, then heat-seal, leaving a strip of cloth wide enough to allow the cover to be re-used three times before it needs to be replaced.
- Affix to the cover:
  - an identification label,
  - a label stating that the sealed package contains a desiccant and that it should be opened only when the unit is put into service,
  - a label indicating the position in which the unit must be stored.
  - a label describing how to open the re-usable cover without damaging it.
- Apply the markings to the case by means of white paint and stencils.

(c) Storage

– Store the leg in its case.

– Maintain the correct storage position: shock absorber valve at the top.

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

The duration of this new storage period will depend on the results of the above inspection.

(2) Transport by sea

The requirements stated in paragraph (1) are applicable.

D. Preservation and packaging in tropical or maritime climates.

(1) Transport by road, rail or air.

(a) Preservation

The requirements stated in paragraph (1)(a) are applicable.

(b) Packaging

The requirements stated in paragraph (b) are applicable.

(2) Transport by sea

The requirements stated in paragraph C(1) are applicable.

E. Removal from store

New or overhauled equipment must not be removed from store until it is required for use, and on a first-in, first-out basis.

Before fitment to an aircraft, or during a regular inspection in the course of storage, carry out a visual inspection of the leg, to ensure that the condition of the unit remains satisfactory.

- In the case of a regular inspection, renew the preservation of the equipment as described in the paragraph "Preservation and packaging".
- In the case of fitment to an aircraft:
  - Remove the protective plug from the proximity switch.
  - Fit the harness to the leg.
  - Remove the anti-rust grease with a dry rag or with WHITE SPIRIT.

CAUTION: THE USE OF CHLORINE PRODUCTS IS PROHIBITED.

3. Testing after removal from store

   Carry out the operations defined in paragraph 2 of the Section "TESTING AND FAULT ISOLATION".

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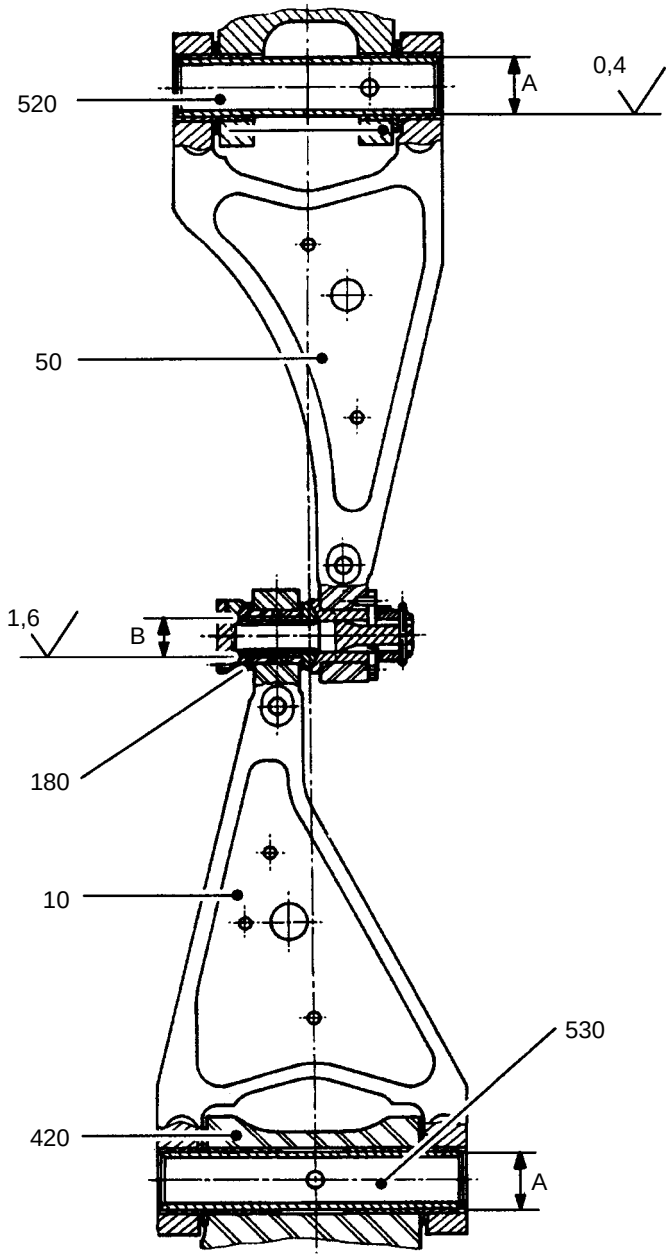
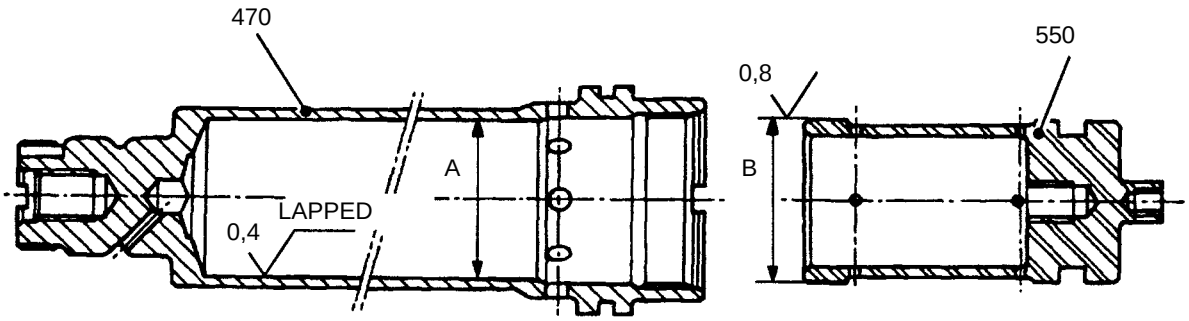
FITS AND CLEARANCES

NOTE: The item numbers are those of the Illustrated parts list.

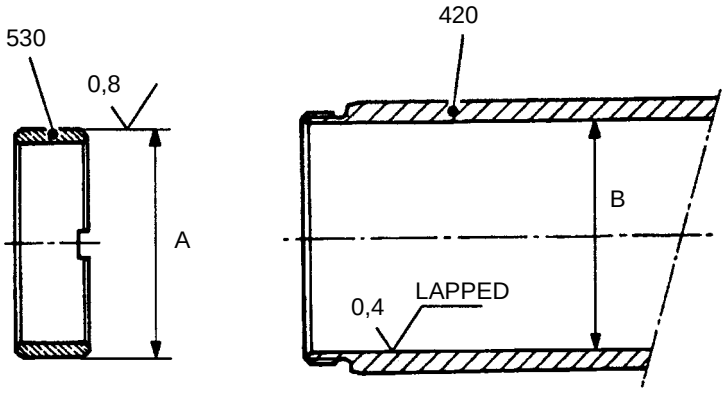
Item	Fig.	Designation	Nominal Clearance in millimeters (in inches)	Maximum clearance after service
10/A	801	UPPER ARM TORQUE	22H7 + 0,021 (+0.0008) (0.867) + 0 (+0)	22,040 (0.6383)
10/B	801	UPPER ARM TORQUE	15H7 + 0,018 (+0.0007) (0.591) + 0 (+0)	15,040 (0.5925)
50/A	801	LOWER ARM TORQUE	22H7 + 0,021 (+0.0008) (0.867) + 0 (+0)	22,040 (0.8683)
180/B	801	SEMI-SWIVEL	15f8 - 0,016 (-0.0006) (0.591) -0,043 (-0.0017)	14,915 (0.5878)
420/A	801	PISTON TUBE AXLE	22H7 + 0,021 (+0.0008) (0.867) + 0 (+0)	22,040 (0.8683)
520/A	801	SHAFT	22 - 0,007 (-0.0003) (0.867) -0,020 (-0.0008)	21,960 (0.8652)
530/A	801	SHAFT	22 - 0,007 (-0.0003) (0.867) -0,020 (-0.0008)	21,960 (0.8652)
810/A	801	HOUSING	22H7 + 0,021 (+0.0008) (0.867) + 0 (+0)	22,040 (0.8683)
470/A	802	HIGH PRESSURE CYLINDER	38H7 + 0,025 (+0.00098) (1.496) + 0 (+0)	38,050 (1.498)
550/B	802	PISTON	38f7 - 0,025 (-0.00098) (1.496) -0,050 (-0.00196)	37,900 (1.492)
420/B	803	PISTON TUBE	55H8 + 0,046 (0.00181) (2.165) + 0 (+0)	55,090 (2.169)
530/B	803	RING	55g6 - 0,010 (-0.00039) (2.165) -0,029 (-0.00114)	54,940 (2.163)



Arm torques and its attachments
Figure 801



Cylinder and piston
Figure 802



Piston tube and ring
Figure 803

SPECIAL TOOLS, FIXTURES AND EQUIPMENT

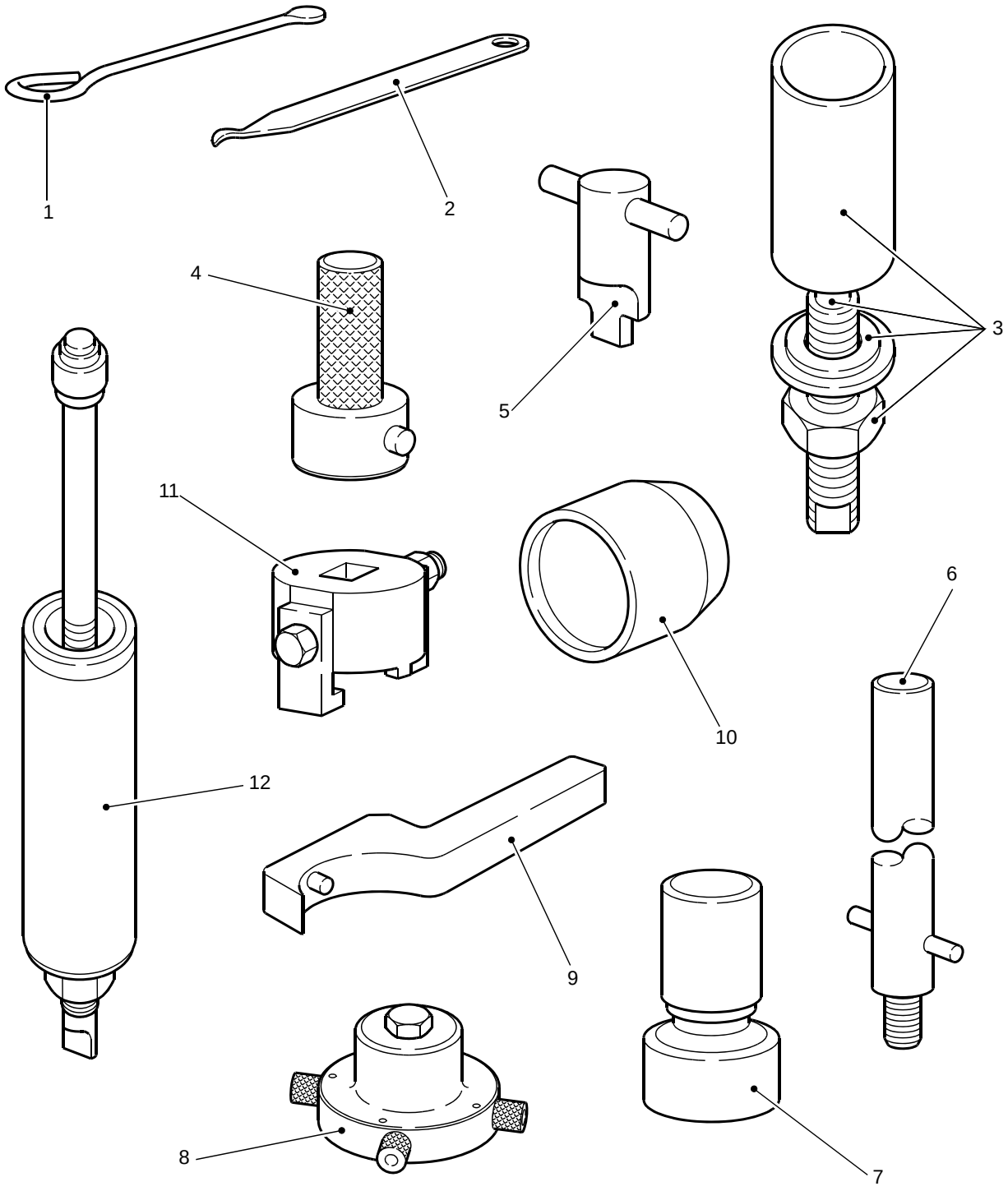
1. General

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

ITEM	PART NUMBERS	DESIGNATION	Qty	NECESSARY FOR OPERATION	
				DISASSEMBLY	ASSEMBLY
1	50011	Spatula	1	X	X
2	50071	Spatula	1	X	X
3	50398	Extractor for pin (700)	1	X	X
4	50399	Positioning key for pin (30)	1		X
5	50400	Retaining key for cylinder (470)	1		X
6	50401	Guide rod for cylinder (470)	1	X	X
7	50402	Tools for disassembling piston tube (410)	1	X	
8	GS47036	Special tool for supporting diaphragm (630)	1	X	
9	50404	Clamp for cylinder (470)	1	X	X
10	50406	Ring for segment (520)	1		X
11	50407	Spanner for nut (30)		X	X
12	50381	Extractor for pins (520) and (530)	1	X	
-	50392	Leveling shim for the LP chamber.	1	Testing	



Tools
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	
VF0189	MESSIER-DOWTY SA ZONE MILITAIRE 78140-VELIZY VILLACOUBLAY	FRANCE
VF0224	SIMMONDS 9 R DES CRESSONNIERES 72110-ST COSME EN VAIRAIS	FRANCE
VF0225	SOURIAU 9 R DE LA PORTE DE BUC 78000-VERSAILLES	FRANCE
VF0344	L.G.C. LA BEURRIERE 49240-AVRILLE	FRANCE
VF0379	ETABLISSEMENTS FOIN ZI PARIS NORD II 33 R DES VANESSES 93420-VILLEPINTE	FRANCE
VF0582	SUPERFLEXIT SA (SUPSD BY VF6101)	
VF0826	SCHRADER SA 48 R DE SALINS 25300-PONTARLIER	FRANCE
VF1699	BOLLHOFF OTALU SA RTE D'APREMONT 73490-LA RAVOIRE	FRANCE
VF2693	LEGRAND 128 AV DE LATTRE DE TASSIGNY 87000-LIMOGES	FRANCE
VF6101	AERAZUR 2 R MAURICE MALLET 92130-ISSY LES MOULINEAUX	FRANCE
V5F573	GREEN TWEED & CO 2075 DETWILER ROAD 19443-0305-KULPSVILLE	PA-U.S.A.

Vendor Code	Vendor
V72902	PALMETTO INC (SUPSD BY V5F573)

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	
AN6287-1				
SUPSD BY 34926-52				
D66000		02 180B	1	
SUPSDS 24126-000-00				
D66273		04 110B	2	
D67799				R
SEE 18047				
D67918				R
SEE 17983				
D67966		04 070B	1	R
D92705-5		02 170B	1	
SUPSDS 22793-000-00				
G05-3X6A2		05 170A	1	
G05-3X7A2		05 090A	1	
JHAG050ULE		03 570A	1	
JZAJ040TL		06 050A	1	R
MS28775-011				
SUPSD BY M83461-1-011				
MS28775-015				
SUPSD BY M83461-1-015				
MS28775-018				
SUPSD BY M83461-1-018				
MS28775-122				
SUPSD BY M83461-1-122				
MS28775-218				
SUPSD BY M83461-1-218				
MS28775-234				
SUPSD BY M83461-1-234				
MS28778-018				
DELETED				
MS28778-4		02 100A	1	
M83461-1-011		03 290B	1	
SUPSDS MS28775-011				
M83461-1-015		03 270B	1	
SUPSDS MS28775-015				
M83461-1-018		04 140C	2	
SUPSDS MS28775-018				
M83461-1-122		04 500B	2	
SUPSDS MS28775-122				
M83461-1-218		04 570B	1	
SUPSDS MS28775-218				
M83461-1-234		04 050B	1	
SUPSDS MS28775-234				

- Item not illustrated

NUMERICAL INDEX

PART NUMBER	AIRLINE PART NUMBER	FIGURE ITEM		TTL REQ
01320010008		06	150A	3
01320010009		04	300A	2
		04	760A	6
01320050010		04	260A	2
01320060015		04	750A	8
01320080010		04	270A	8
11322		04	650A	1
11957-002		03	350A	1
11958		03	340A	2
14PCR106		03	370A	1
16688		02	190A	1
16689		02	200A	1
16717		04	130A	2
16725		04	170A	1
16734		04	190A	1
17057		04	460A	1
17329		05	040A	2
17329R3		05	-045A	AR
17369		03	540A	1
17888		04	080A	1
17920		06	-130A	1
17946		03	190A	2
17973		05	030A	2
		05	070A	2
17973R3		05	-035A	AR
		05	-075A	AR
17975		03	240A	1
		06	-001A	RF
17983		06	140A	1
17984		06	110A	1
17989		06	100A	1
17991		06	070A	1
17992		06	080A	1
18002-000-01		04	770A	1
18002-000-01R5		04	-775A	AR
18003-000-01		04	780A	1
18003-000-01R5		04	-785A	AR
18004-000-01		04	790A	2
18004-000-01R5		04	-795A	AR
18007-000-01		04	800A	1
18007-000-01R5		04	-805A	AR
18014		05	080A	1
18014R3		05	-085A	AR

- Item not illustrated

NUMERICAL INDEX

PART NUMBER	AIRLINE PART NUMBER	FIGURE ITEM		TTL REQ	
18024		05	180A	2	
18025		05	160A	1	
18026		05	130A	1	
18027		05	120A	1	
18034		04	480A	1	
18037		04	490A	1	
18039		04	530A	1	
18043		04	510A	1	
18047		03	310A	1	
18048		03	320A	1	
18049		03	280A	1	
18050		03	300A	1	
18051		03	330A	1	
18053		03	100A	1	
18063		04	070A	1	
18064		04	060A	2	
18130		03	-170A	1	
18135		03	230A	1	
18138		04	030A	1	
18139		04	580A	2	
18146		03	160A	1	
18147		03	180A	1	
18156		04	520A	1	
18159		06	090A	1	
18161		06	060A	1	
18204		06	010B	1	R
SUPSDS 18204-001					
18204-001					
SUPSD BY 18204					
18207		05	-150A	1	
18209		03	400A	1	
18301		02	-160A	1	
18306		03	-630A	2	
18312		03	110A	1	
18777-000-02		04	420A	1	
18778-000-03		04	-430A	1	
18785-001		02	010B	1	
		02	220B	1	
		03	-001B	RF	
		04	-001B	RF	

- Item not illustrated

NUMERICAL INDEX

PART NUMBER	AIRLINE PART NUMBER	FIGURE ITEM		TTL REQ
18785-001-03		02	-010A	1
		02	220A	1
		03	-001A	RF
		04	-001A	RF
18785-200		01	010B	1
		02	-001B	RF
18785-200-01		01	-010A	1
		02	-001A	RF
18786-001		02	-015B	1
		02	230B	1
		03	-005B	RF
		04	-005B	RF
18786-001-03		02	-015A	1
		02	230A	1
		03	-005A	RF
		04	-005A	RF
18786-200		01	-015B	1
		02	-005B	RF
18786-200-01		01	-015A	1
		02	-005A	RF
18798		03	090A	1
18801		02	090A	1
18802		03	140A	1
18803		03	080A	1
		03	150A	1
18895-001		01	-001A	RF
18896-001		01	-005A	RF
18965-000-01		04	-680A	1
18966-000-01		04	-690A	1
18967-000-01		04	810A	1
18968-000-01		04	-820A	1
18969		04	670A	1
18970		03	460A	1
		05	-001A	RF
18971		04	660A	1
18972		04	640A	1
18973		04	630A	1
18974		04	590A	1
18975		04	-540A	1
18976-000-01		04	470A	1
18977		04	550A	1
18978		04	560A	1
18979		03	520A	1
18980		03	530A	1

- Item not illustrated

NUMERICAL INDEX

PART NUMBER	AIRLINE PART NUMBER	FIGURE ITEM		TTL REQ
18981		03	030A	1
18982		03	390A	1
18983		03	380A	1
18984		04	250A	4
18985		04	230A	2
18986		04	210A	8
18987		04	200A	1
18988		04	180A	1
18989-000-01		04	700A	1
18989-000-01R5		04	-705A	AR
18990-000-03		04	-380A	1
18991-000-02		04	-370A	1
18992		04	440A	1
18993-000-01		04	450A	2
18993-000-01R3		04	-455A	AR
18994		05	140A	1
19075		04	-280A	1
19076		04	290A	1
19137		04	310A	1
19138		04	360B	1
19139		04	350A	1
19217		02	040A	1
19239		02	210A	1
19247		05	020A	1
19248		05	060A	1
19250		05	-010A	1
19251		05	-050A	1
19483		02	110A	1
		02	-150A	1
19517		03	-620A	2
19556		02	120A	1
19557		02	130A	1
19570-100-03		01	020A	1
19828-100		02	030A	1
2006-6-62		03	-614A	AR
20195		03	-612A	1
20200		03	590A	1
20475-000-00		01	030A	1
20529-100		02	020A	1
20580-000-01		01	040A	1
20748		03	070A	1
21834-000-00R1		04	-860A	AR
22125BC050020L		03	580A	1
22125BC050022L		02	060A	1

- Item not illustrated

NUMERICAL INDEX

PART NUMBER	AIRLINE PART NUMBER	FIGURE ITEM		TTL REQ
22126BC060014L		03	250A	2
22126BC060018L		03	120A	4
22126BC060022L		04	010A	8
		04	330A	2
22205BC050054L		03	510A	1
22205BC050068L		03	500A	1
22205BC080068L		04	740A	1
22207BC040028L		06	030A	3
22209BC050006L		03	600A	3
22224BC050014L		04	240A	2
22259BC040016L		03	450A	4
22431BC040L		06	040A	1
22451BC100L		04	610A	1
22451BC120L		05	110A	1
22542K040		03	410A	4
22542K050		02	080A	1
		03	550A	1
22793-000-00				
SUPSD BY D92705-5				
23112AG040LE		03	420A	4
		06	020A	3
23112AG050LE		02	070A	1
		03	490A	2
		03	560A	1
		03	610A	3
23112AG060LE		03	130A	4
23112AG060LE		03	220A	1
		03	260A	2
		04	020A	8
		04	340A	2
23112AG080LE		03	060A	1
		04	220A	8
		04	730A	1
23112AG100LE		04	620A	1
23203AM0032T		06	120A	1
23310AA010012L				
SUPSD BY 23310AA010012LE				
23310AA010012LE		03	470B	2
SUPSDS 23310AA010012L				
23310AA015012L				
DELETED				
23310AA015020L				
SUPSD BY 23310AA015020LE				

- Item not illustrated

NUMERICAL INDEX

PART NUMBER	AIRLINE PART NUMBER	FIGURE ITEM	TTL REQ	
23310AA015020LE		03 040B	1	
SUPSDS 23310AA015020L		03 200C	1	
		04 710B	1	
23310AA020030L				
SUPSD BY 23310AA020030LE				
23310AA020030LE		04 600B	1	
SUPSDS 23310AA020030L		05 100B	1	
23310AA030035L				
SUPSD BY 23310AA030035LE				
23310AA030035LE		03 360B	1	
SUPSDS 23310AA030035L				
24075-000-00		04 320A	1	
24079-000-00		04 090A	1	
24079-000-00R3		04 -095A	AR	
24086-000-00		04 040A	1	
24086-000-00R3		04 -045A	AR	
24087-000-00		04 -110A	2	
24126-000-00				
SUPSD BY D66000				
24296-000-00		04 -870A	AR	
24297-000-00		04 -830A	AR	
24298-000-00		04 -840A	AR	
24299-000-00		04 -850A	AR	
24301-000-00R5		04 -776A	AR	
24302-000-00R5		04 -786A	AR	
3030-13-32		03 -616A	1	
32042		03 440A	4	
32070		03 430A	4	
32216-52		03 020B	1	
SUPSDS 5935				
34926-52		03 010B	1	
SUPSDS AN6287-1				
5PCR106		03 480A	2	
50011-1-6		02 050A	1	
5460S33301C357		04 100B	1	R
5935				
SUPSD BY 32216-52				
6PCR106		03 210A	1	
783-24200-364A		04 100A	1	
8PCR106		04 720A	1	
8TCR106		03 050A	1	
8500-5595		02 140A	1	

- Item not illustrated

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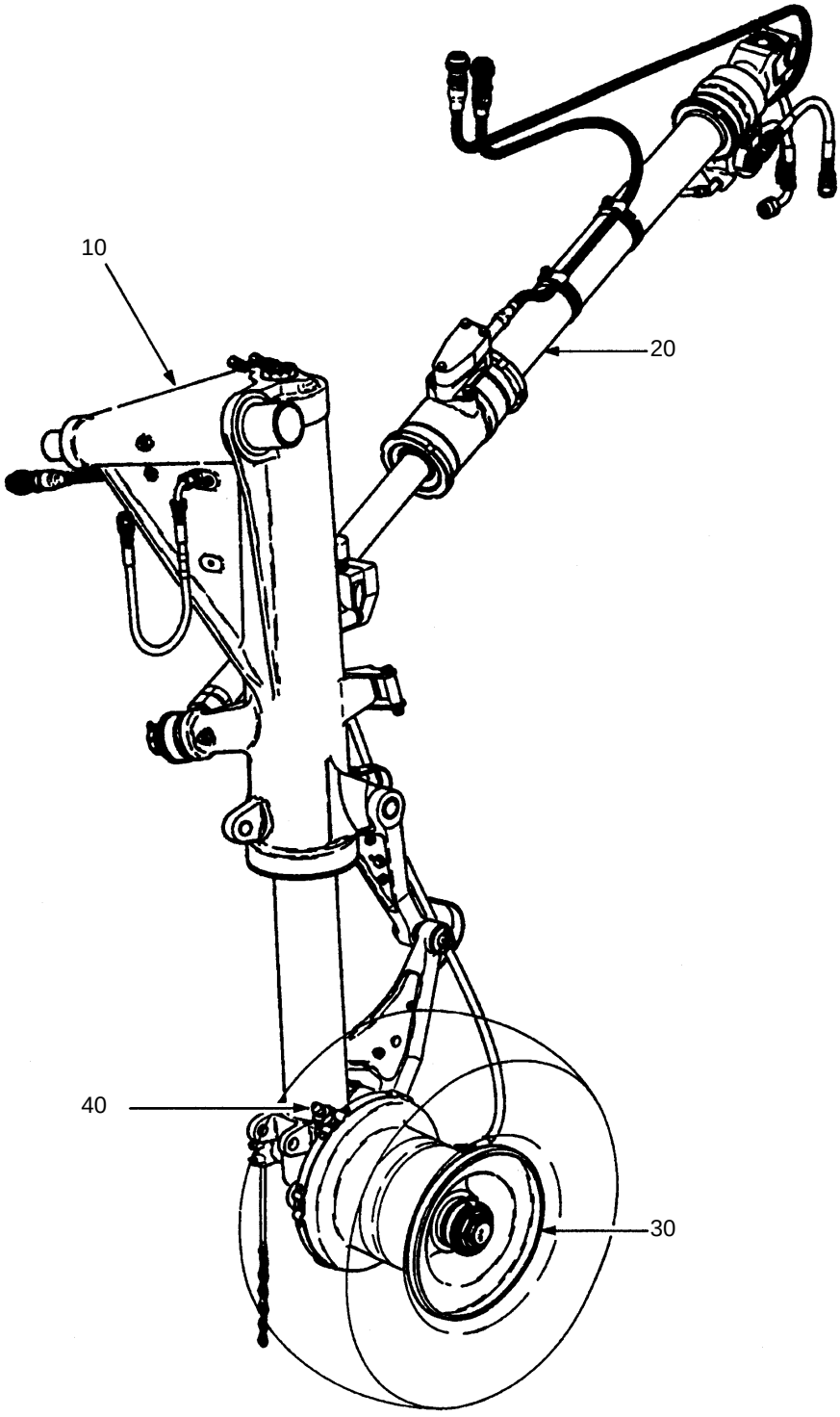
DETAILED PARTS LIST

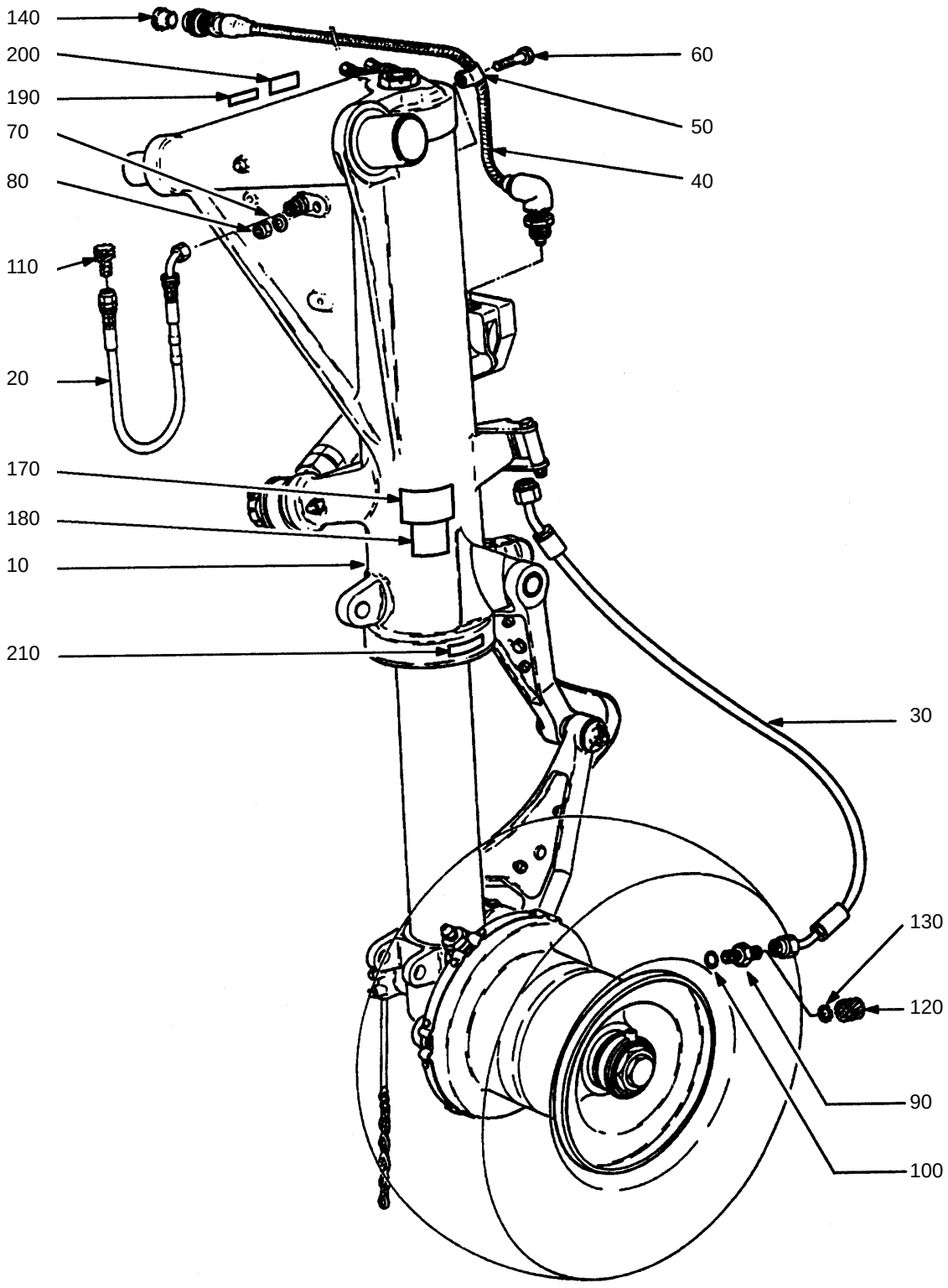


Main landing gear
Figure 1

PARTS LIST

FIG. ITEM	PART NUMBER	AIRLINE PART No	NOMENCLATURE 1234567	EFF. CODE	UNITS PER ASSY	
01						
-001A	18895-001		MAIN LANDING GEAR LH.....		RF	
-005A	18896-001		MAIN LANDING GEAR RH.....		RF	
-010A	18785-200-01		.MAIN LANDING GEAR LEG LH..... SEE 321296-02 -001A FOR DET	1A	1	
010B	18785-200		.MAIN LANDING GEAR LEG LH..... P/N AMDT B P/N AMDT C POST SB 024-32-036 P/N AMDT D POST MODIFICATION SEE 321296-02 -001B FOR DET	1A	1	R
-015A	18786-200-01		.MAIN LANDING GEAR LEG RH..... SEE 321296-02 -005A FOR DET	5A	1	
-015B	18786-200		.MAIN LANDING GEAR LEG RH..... P/N AMDT B P/N AMDT C POST SB 024-32-036 P/N AMDT D POST MODIFICATION SEE 321296-02 -005B FOR DET	5A	1	R
020A	19570-100-03		.ACTUATING JACK LH-RH..... SEE IPL 32-39-98 FOR DET		1	
030A	20475-000-00		.WHEEL..... SEE IPL 32-49-99 FOR DET		1	
040A	20580-000-01		.BRAKE..... SEE IPL 32-49-96 FOR DET		1	

- Item not illustrated



Main landing gear leg
Figure 2

PARTS LIST

FIG. ITEM	PART NUMBER	AIRLINE PART No	NOMENCLATURE 1234567	EFF. CODE	UNITS PER ASSY	
02						
-001A	18785-200-01		MAIN LANDING GEAR LEG LH..... SEE 321296-01 -010A FOR NHA		RF	
-001B	18785-200		MAIN LANDING GEAR LEG LH..... P/N AMDT B P/N AMDT C POST SB 024-32-036 P/N AMDT D POST MOD IFICATION SEE 321296-01 -010B FOR NHA		RF	R
-005A	18786-200-01		MAIN LANDING GEAR LEG RH..... SEE 321296-01 -015A FOR NHA		RF	
-005B	18786-200		MAIN LANDING GEAR LEG RH..... P/N AMDT B P/N AMDT C POST SB 024-32-036 P/N AMDT D POST MOD IFICATION SEE 321296-01 -015B FOR NHA		RF	R
-010A	18785-001-03		.ELASTIC LEG LH..... SEE 321296-03 -001A FOR DET	1A	1	
010B	18785-001		.ELASTIC LEG LH..... P/N AMDT D P/N AMDT E POST SB 024-32-036 P/N AMDT F POST MOD IFICATION SEE 321296-03 -001B FOR DET	1B	1	R
-015A	18786-001-03		.ELASTIC LEG RH..... SEE 321296-03 -005A FOR DET	5A	1	
-015B	18786-001		.ELASTIC LEG RH..... P/N AMDT D P/N AMDT E POST SB 024-32-036 P/N AMDT F POST MOD IFICATION SEE 321296-03 -005B FOR DET	5B	1	R
020A	20529-100		.FLEXIBLE HOSE.....		1	
030A	19828-100		.FLEXIBLE HOSE.....		1	
040A	19217		.HARNESS..... ATTACHING PARTS		1	
050A	50011-1-6		.COLLAR.....VF0582		1	
060A	22125BC050022L		.SCREW.....		1	

- Item not illustrated

PARTS LIST

FIG. ITEM	PART NUMBER	AIRLINE PART No	NOMENCLATURE 1234567	EFF. CODE	UNITS PER ASSY	
02						
070A	23112AG050LE		.WASHER.....		1	
080A	22542K050		.NUT.....		1	
			* * *			
090A	18801		.UNION.....		1	
100A	MS28778-4		.O-RING SEAL.....		1	
			STORAGE PARTS			
110A	19483		.PLUG.....		1	
120A	19556		.PLUG.....		1	
130A	19557		.SEAL.....		1	
140A	8500-5595		.PLASTIC PLUG.....VF0225		1	
-150A	19483		.PLUG.....	20A	1	
-160A	18301		.SEAL.....	20A	1	
			* * *			
-170A	22793-000-00		.PLATE, MANUFACTURER..... SUPSD BY D92705-5		1	
170B	D92705-5		.PLATE, MANUFACTURER..... SUPSDS 22793-000-00		1	
-180A	24126-000-00		.PLATE, SHOCK ABSORBER..... SUPSD BY D66000		1	
180B	D66000		.PLATE, SHOCK ABSORBER..... SUPSDS 24126-000-00		1	
190A	16688		.PLATE, HIGH PRESSURE.....		1	
200A	16689		.PLATE, LOW PRESSURE.....		1	
210A	19239		.PLATE, PRESSURE TIRE.....		1	
220A	18785-001-03		.ELASTIC LEG LH..... SEE 321296-04 -001A FOR DET	1A	1	R
220B	18785-001		.ELASTIC LEG LH..... SEE 321296-04 -001B FOR DET	1B	1	R
230A	18786-001-03		.ELASTIC LEG RH..... SEE 321296-04 -005A FOR DET	5A	1	R
230B	18786-001		.ELASTIC LEG RH..... SEE 321296-04 -005B FOR DET	5B	1	R

- Item not illustrated

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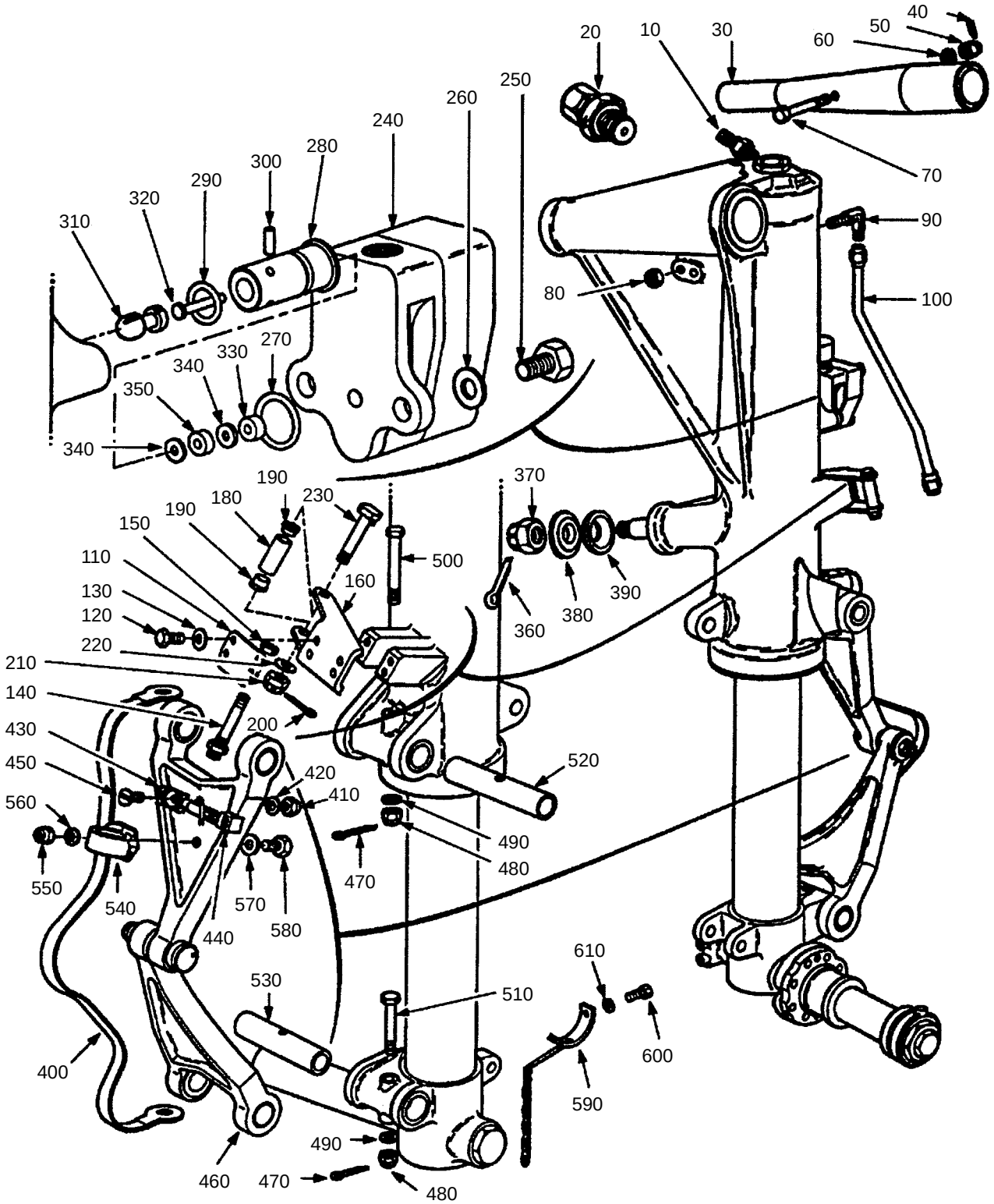

Main landing gear leg
Figure 3

PARTS LIST

FIG. ITEM	PART NUMBER	AIRLINE PART No	NOMENCLATURE 1234567	EFF. CODE	UNITS PER ASSY	
03						
-001A	18785-001-03		ELASTIC LEG LH..... SEE 321296-02 -010A FOR NHA		RF	
-001B	18785-001		ELASTIC LEG LH..... P/N AMDT D P/N AMDT E POST SB 024-32-036 P/N AMDT F POST MOD IFICATION SEE 321296-02 -010B FOR NHA		RF	R
-005A	18786-001-03		ELASTIC LEG RH..... SEE 321296-02 -015A FOR NHA		RF	
-005B	18786-001		ELASTIC LEG RH..... P/N AMDT D P/N AMDT E POST SB 024-32-036 P/N AMDT F POST MOD IFICATION SEE 321296-02 -015B FOR NHA		RF	R
-010A	AN6287-1		.VALVE..... SUPSD BY 34926-52		1	
010B	34926-52		.VALVE.....VF0826 SUPSDS AN6287-1		1	
-020A	5935		.VALVE.....VF0826 SUPSD BY 32216-52		1	
020B	32216-52		.VALVE.....VF0826 SUPSDS 5935 RESULT OF NEW IDENTIFICATION		1	
030A	18981		.HINGING PIN..... ATTACHING PARTS		1	
-040A	23310AA015020L		.COTTER PIN..... SUPSD BY 23310AA015020LE		1	
040B	23310AA015020LE		.COTTER PIN..... SUPSDS 23310AA015020L		1	
050A	8TCR106		.NYLSTOP NUT.....VF0224		1	
060A	23112AG080LE		.WASHER.....		1	
070A	20748		.SCREW..... * * *		1	
080A	18803		.NUT.....		1	
090A	18798		.UNION.....		1	
100A	18053		.COMPLETE HOSE.....		1	

- Item not illustrated

PARTS LIST

FIG. ITEM	PART NUMBER	AIRLINE PART No	NOMENCLATURE 1234567	EFF. CODE	UNITS PER ASSY	
03						
110A	18312		.HOSE SUPPORT..... ATTACHING PARTS		1	
120A	22126BC060018L		.SCREW.....		4	
130A	23112AG060LE		.WASHER..... * * *		4	
140A	18802		.STRAIGHT UNION.....		1	
150A	18803		.NUT.....		1	
160A	18146		.ROLLER SUPPORT.....		1	
-170A	18130		.COMPLETE ROLLER.....		1	
180A	18147		..ROLLER.....		1	
190A	17946		..BUSH.....		2	
-200B	23310AA015020L		.COTTER PIN..... SUPSD BY 23310AA015020LE		1	
200C	23310AA015020LE		.COTTER PIN..... SUPSDS 23310AA015020L		1	
210A	6PCR106		.NYLSTOP NUT.....VF0224		1	
220A	23112AG060LE		.WASHER.....		1	
230A	18135		.COMPLETE PIN.....		1	
240A	17975		.COMPLETE CONTACTOR BOX..... SEE 321296-06 -001A FOR DET ATTACHING PARTS		1	
250A	22126BC060014L		.SCREW.....		2	
260A	23112AG060LE		.WASHER..... * * *		2	
-270A	MS28775-015		.O-RING SEAL..... SUPSD BY M83461-1-015		1	
270B	M83461-1-015		.O-RING SEAL..... SUPSDS MS28775-015		1	
280A	18049		.GLAND BODY.....		1	
-290A	MS28775-011		.O-RING SEAL..... SUPSD BY M83461-1-011		1	
290B	M83461-1-011		.O-RING SEAL..... SUPSDS MS28775-011		1	
300A	18050		.CYLINDRICAL PIN.....		1	
310A	18047		.PUSHER..... OPT TO D67799		1	R
320A	18048		.ROD.....		1	
330A	18051		.SPACER.....		1	
340A	11958		.BUSH.....		2	
350A	11957-002		.SEAL.....		1	
-360A	23310AA030035L		.COTTER PIN..... SUPSD BY 23310AA030035LE		1	

- Item not illustrated

PARTS LIST

FIG. ITEM	PART NUMBER	AIRLINE PART No	NOMENCLATURE 1234567	EFF. CODE	UNITS PER ASSY
03					
360B	23310AA030035LE		.COTTER PIN..... SUPSDS 23310AA030035L		1
370A	14PCR106		.NYLSTOP NUT.....VF0224		1
380A	18983		.WASHER.....		1
390A	18982		.THRUST WASHER.....		1
400A	18209		.BONDING STRIP.....		1
410A	22542K040		.NUT.....		4
420A	23112AG040LE		.WASHER.....		4
430A	32070		.SOCKET.....VF2693		4
440A	32042		.CLAMP.....VF2693		4
450A	22259BC040016L		.SCREW.....		4
460A	18970		.COMPLETE TORQUE LINK..... SEE 321296-05 -001A FOR DET ATTACHING PARTS		1
-470A	23310AA010012L		.COTTER PIN..... SUPSD BY 23310AA010012LE		2
470B	23310AA010012LE		.COTTER PIN..... SUPSDS 23310AA010012L		2
480A	5PCR106		.NYLSTOP NUT.....VF0224		2
490A	23112AG050LE		.WASHER.....		2
500A	22205BC050068L		.SCREW.....		1
510A	22205BC050054L		.SCREW.....		1
520A	18979		.PIN.....		1
530A	18980		.PIN..... * * *		1
540A	17369		.HOSE GUIDE..... ATTACHING PARTS		1
550A	22542K050		.NUT.....		1
560A	23112AG050LE		.WASHER.....		1
570A	JHAG050ULE		.WASHER.....		1
580A	22125BC050020L		.SCREW..... * * *		1
590A	20200		.COMPLETE STATIC DISCHARGER... ATTACHING PARTS		1
600A	22209BC050006L		.SCREW.....		3
610A	23112AG050LE		.WASHER..... * * *		3
-612A	20195		..SOLDER STATIC DISCHARGER....		1
-614A	2006-6-62		..CHAIN, SECTIONED.....VF0379 LENGTH 140MM		AR
-616A	3030-13-32		..S-LINK CLOSED.....VF0379 STORAGE PARTS		1

- Item not illustrated

PARTS LIST

FIG. ITEM	PART NUMBER	AIRLINE PART No	NOMENCLATURE 1234567	EFF. CODE	UNITS PER ASSY
03					
-620A	19517		.PLUG.....	100A	2
-630A	18306		.SEAL.....	100A	2
			* * *		

- Item not illustrated

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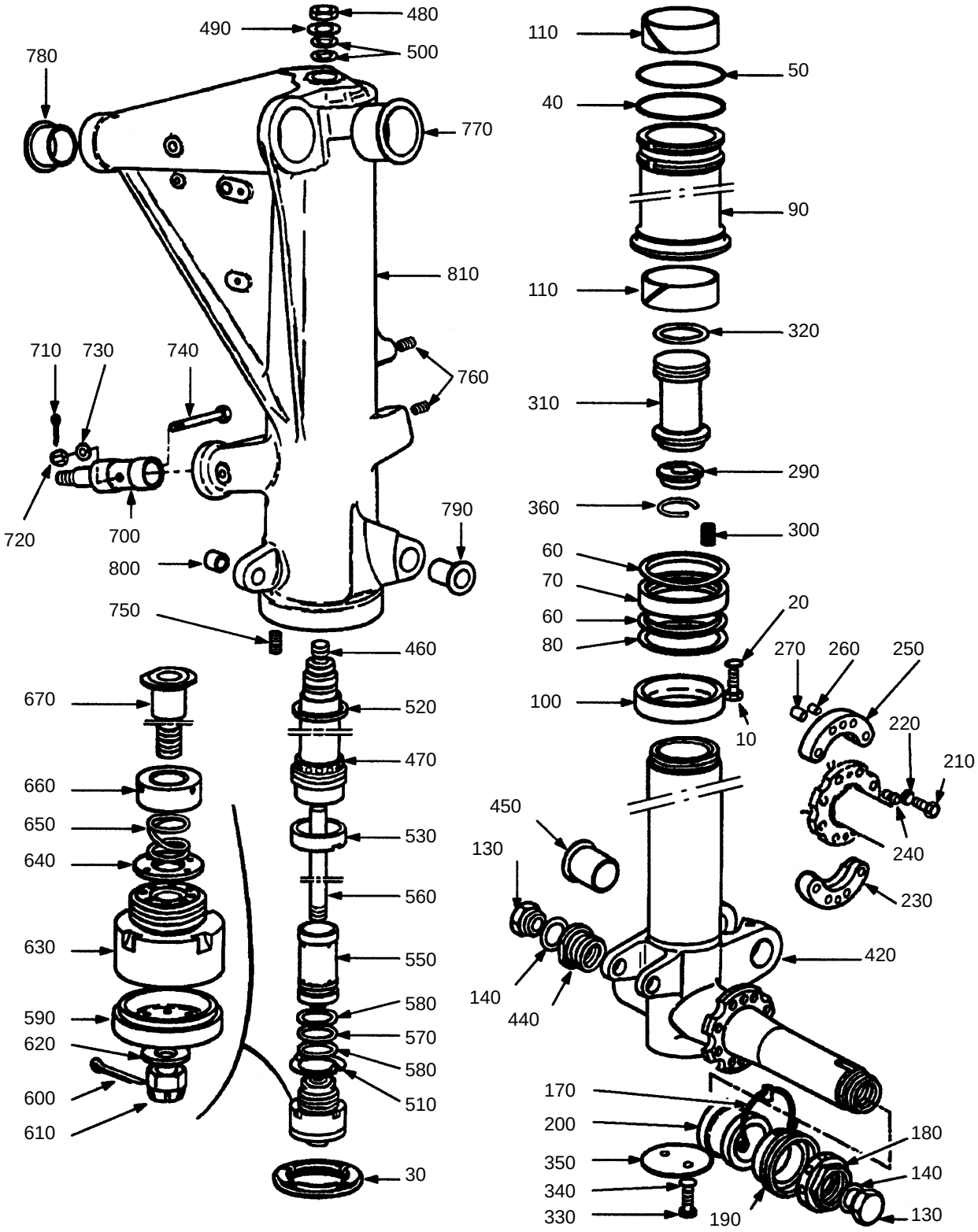

Main landing gear leg
Figure 4

PARTS LIST

FIG. ITEM	PART NUMBER	AIRLINE PART No	NOMENCLATURE 1234567	EFF. CODE	UNITS PER ASSY	
04						
-001A	18785-001-03		ELASTIC LEG LH..... SEE 321296-02 -220A FOR NHA		RF	
-001B	18785-001		ELASTIC LEG LH..... P/N AMDT D P/N AMDT E POST SB 024-32-036 P/N AMDT F POST MOD IFICATION SEE 321296-02 -220B FOR NHA		RF	R
-005A	18786-001-03		ELASTIC LEG RH..... SEE 321296-02 -230A FOR NHA		RF	
-005B	18786-001		ELASTIC LEG RH..... P/N AMDT D P/N AMDT E POST SB 024-32-036 P/N AMDT F POST MOD IFICATION SEE 321296-02 -230B FOR NHA		RF	R
010A	22126BC060022L		.SCREW.....		8	
020A	23112AG060LE		.WASHER.....		8	
030A	18138		.NUT.....		1	
040A	24086-000-00		.BACK UP RING.....		1	
-045A	24086-000-00R3		.BACK UP RING DIA 84,6 MM..... OVERSIZE		AR	
-050A	MS28775-234		.O-RING SEAL..... SUPSD BY M83461-1-234		1	
050B	M83461-1-234		.O-RING SEAL..... SUPSDS MS28775-234		1	
060A	18064		.SEGMENT.....		2	
070A	18063		.SEAL.....		1	
070B	D67966		.SEAL..... POST SB 024-32-036		1	R
080A	17888		.BACK UP RING.....		1	
090A	24079-000-00		.BEARING.....		1	
-095A	24079-000-00R3		.BEARING DIA 84,6 MM..... OVERSIZE		AR	
100A	783-24200-364A		.SCRAPER SEAL.....V72902		1	
100B	5460S33301C357		.SCRAPER SEAL..... POST SB 024-32-036		1	R
-110A	24087-000-00		.BEARING SEGMENT.....	1A 5A	2	

- Item not illustrated

PARTS LIST

FIG. ITEM	PART NUMBER	AIRLINE PART No	NOMENCLATURE 1234567	EFF. CODE	UNITS PER ASSY
04					
110B	D66273		.BEARING SEGMENT.....	1B 5B	2
130A	16717		.SCREW PLUG.....		2
-140B	MS28775-018		.O-RING SEAL..... SUPSD BY M83461-1-018		2
140C	M83461-1-018		.O-RING SEAL..... SUPSDS MS28775-018		2
170A	16725		.COMPLETE SAFETY PIN.....		1
180A	18988		.EXAGONAL NUT.....		1
190A	16734		.COMPLETE SPACER.....		1
200A	18987		.SPACER.....		1
210A	18986		.SCREW.....		8
220A	23112AG080LE		.WASHER.....		8
230A	18985		.COMPLETE HALF FLANGE..... ATTACHING PARTS		2
240A	22224BC050014L		.SCREW..... * * *		2
250A	18984		..HALF FLANGE.....		2
260A	01320050010		..HELICOIL INSERT.....VF1699		1
270A	01320080010		..HELICOIL INSERT.....VF1699		4
-280A	19075		.COMPLETE END FITTING.....		1
290A	19076		..END FITTING.....		1
300A	01320010009		..HELICOIL INSERT.....VF1699		2
310A	19137		.BASE.....		1
320A	24075-000-00		.O-RING SEAL.....		1
330A	22126BC060022L		.SCREW.....		2
340A	23112AG060LE		.WASHER.....		2
350A	19139		.COVER.....		1
360B	19138		.RING.....		1
-370A	18991-000-02		.COMPLETE PISTON TUBE LH.....		1
-380A	18990-000-03		.COMPLETE PISTON TUBE RH.....		1
420A	18777-000-02		..PISTON TUBE LH.....	370A	1
-430A	18778-000-03		..PISTON TUBE RH.....	380A	1
440A	18992		..THREADED BUSH.....		1
450A	18993-000-01		..BUSH.....		2
-455A	18993-000-01R3		..BUSH 25,6 MM.....		AR
460A	17057		.PLUG.....		1
470A	18976-000-01		.CYLINDER..... ATTACHING PARTS		1
480A	18034		.NUT.....		1
490A	18037		.LOCKWASHER.....		1

- Item not illustrated

PARTS LIST

FIG. ITEM	PART NUMBER	AIRLINE PART No	NOMENCLATURE 1234567	EFF. CODE	UNITS PER ASSY
04					
-500A	MS28775-122		.O-RING SEAL..... SUPSD BY M83461-1-122		2
500B	M83461-1-122		.O-RING SEAL..... SUPSDS MS28775-122		2
			* * *		
510A	18043		.LOCKWASHER.....		1
520A	18156		.SEGMENT.....		1
530A	18039		.BUSH.....		1
-540A	18975		.COMPLETE PISTON.....		1
550A	18977		..PISTON.....		1
560A	18978		..STOP.....		1
-570A	MS28775-218		.O-RING SEAL..... SUPSD BY M83461-1-218		1
570B	M83461-1-218		.O-RING SEAL..... SUPSDS MS28775-218		1
580A	18139		.SEGMENT.....		2
590A	18974		.RESTRICTOR..... ATTACHING PARTS		1
-600A	23310AA020030L		.COTTER PIN..... SUPSD BY 23310AA020030LE		1
600B	23310AA020030LE		.COTTER PIN..... SUPSDS 23310AA020030L		1
610A	22451BC100L		.NUT.....		1
620A	23112AG100LE		.WASHER..... * * *		1
630A	18973		.RESTRICTOR SUPPORT.....		1
640A	18972		.RESTRICTOR.....		1
650A	11322		.SPRING.....		1
660A	18971		.STOP.....		1
670A	18969		.GUIDE.....		1
-680A	18965-000-01		.COMPLETE BARREL LH.....		1
-690A	18966-000-01		.COMPLETE BARREL RH.....		1
700A	18989-000-01		..PIN..... ATTACHING PARTS		1
-705A	18989-000-01R5		..PIN DIA 31 MM..... OVERSIZE		AR
-710A	23310AA015020L		..COTTER PIN..... SUPSD BY 23310AA015020LE		1
710B	23310AA015020LE		..COTTER PIN..... SUPSDS 23310AA015020L		1
720A	8PCR106		..NYLSTOP NUT.....VF0224		1
730A	23112AG080LE		..WASHER.....		1

- Item not illustrated

PARTS LIST

FIG. ITEM	PART NUMBER	AIRLINE PART No	NOMENCLATURE 1234567	EFF. CODE	UNITS PER ASSY
04					
740A	22205BC080068L		..SCREW..... * * *		1
750A	01320060015		..HELICOIL INSERT.....VF1699		8
760A	01320010009		..HELICOIL INSERT.....VF1699		6
770A	18002-000-01		..BUSH.....		1
-775A	18002-000-01R5		..BUSH DIA 55 MM..... OVERSIZE		AR
-776A	24301-000-00R5		..BUSH DIA 56 MM..... OVERSIZE		AR
780A	18003-000-01		..BUSH.....		1
-785A	18003-000-01R5		..BUSH DIA 35 MM..... OVERSIZE		AR
-786A	24302-000-00R5		..BUSH DIA 36 MM..... OVERSIZE		AR
790A	18004-000-01		..BUSH.....		2
-795A	18004-000-01R5		..BUSH DIA 26 MM..... OVERSIZE		AR
800A	18007-000-01		..BUSH.....		1
-805A	18007-000-01R5		..BUSH DIA 18 MM..... OVERSIZE		AR
810A	18967-000-01		..BARREL LH.....(NP)	680A	1
-820A	18968-000-01		..BARREL RH.....(NP)	690A	1
-830A	24297-000-00		..BUSH DIA 11 MM REPAIR..... OVERSIZE		AR
-840A	24298-000-00		..BUSH DIA 8 MM REPAIR..... OVERSIZE		AR
-850A	24299-000-00		..BUSH DIA 8 MM REPAIR..... OVERSIZE		AR
-860A	21834-000-00R1		..BUSH DIA 11 MM REPAIR..... OVERSIZE		AR
-870A	24296-000-00		..INSERT REPAIR.....		AR

- Item not illustrated

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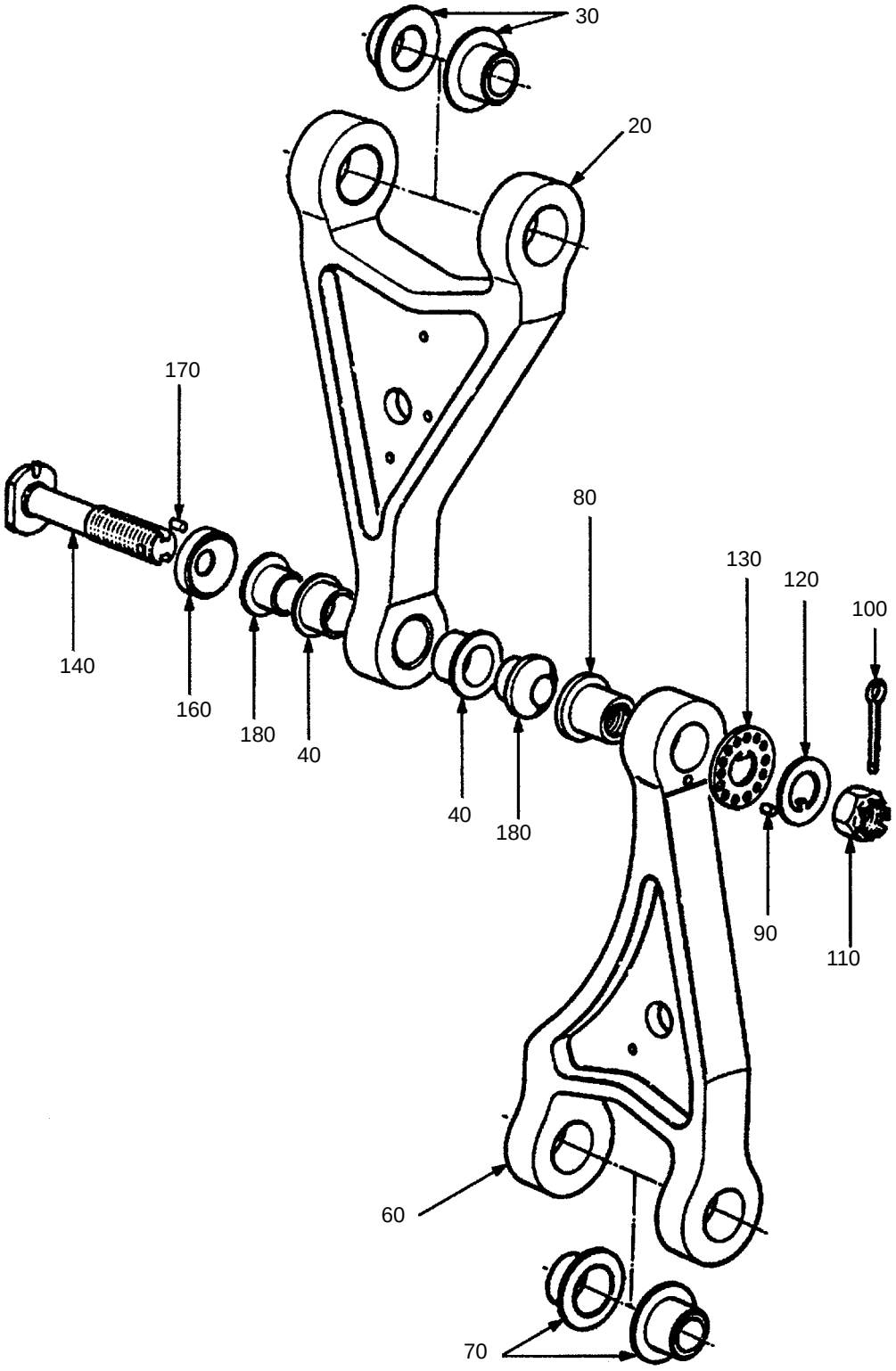
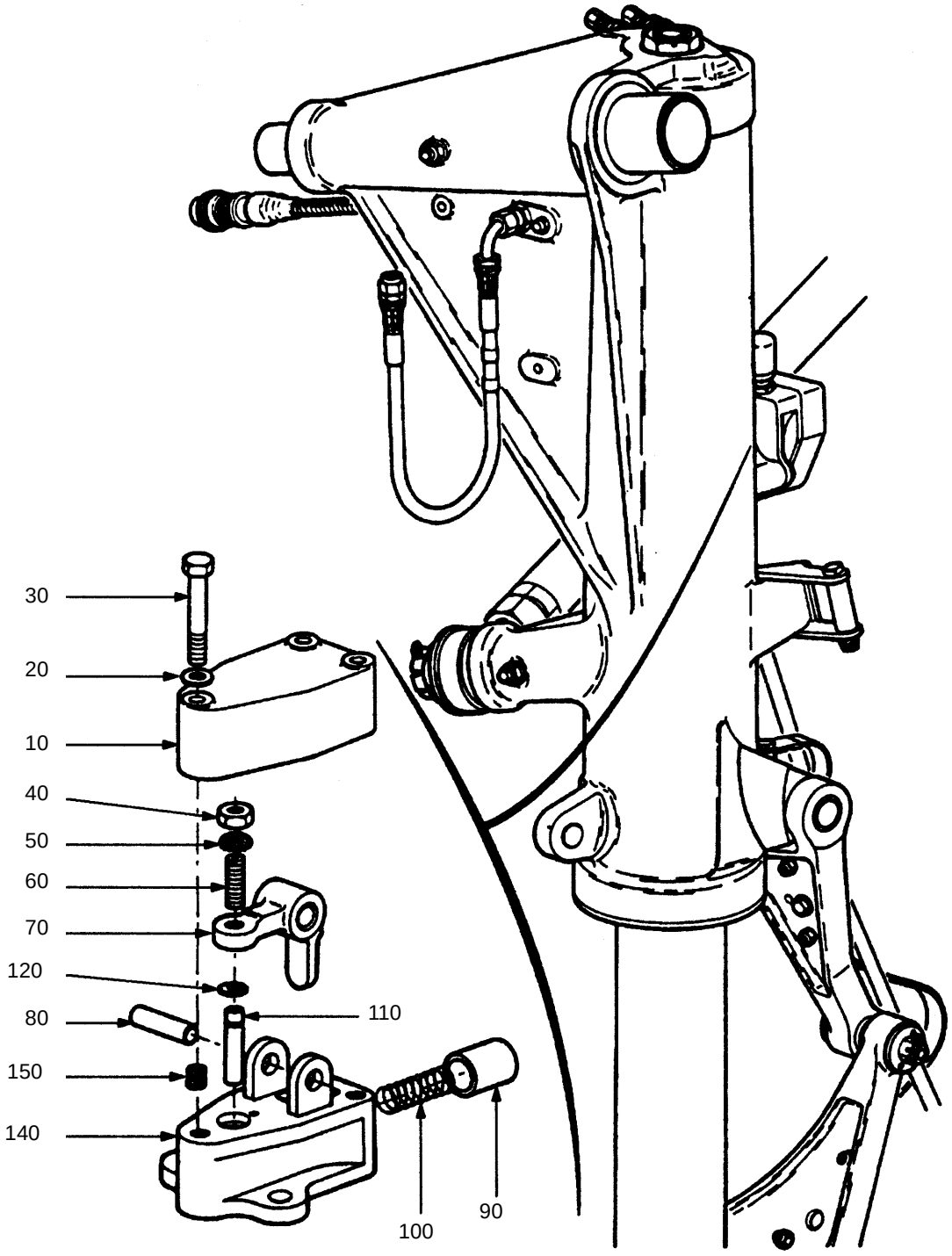


Complete torque link
Figure 5

PARTS LIST

FIG. ITEM	PART NUMBER	AIRLINE PART No	NOMENCLATURE 1234567	EFF. CODE	UNITS PER ASSY
05					
-001A	18970		COMPLETE TORQUE LINK..... SEE 321296-03 -460A FOR NHA		RF
-010A	19250		.COMPLETE TORQUE LINK UPPER...		1
020A	19247		..TORQUE LINK UPPER.....		1
030A	17973		..BUSH AIRFLON.....		2
-035A	17973R3		..BUSH AIRFLON..... OVERSIZE		AR
040A	17329		..BUSH AIRFLON.....		2
-045A	17329R3		..BUSH AIRFLON..... OVERSIZE		AR
-050A	19251		.COMPLETE TORQUE LINK LOWER...		1
060A	19248		..TORQUE LINK LOWER.....		1
070A	17973		..BUSH AIRFLON.....		2
-075A	17973R3		..BUSH AIRFLON.....		AR
080A	18014		..HALF BALL JOINT CAGE.....		1
-085A	18014R3		..HALF BALL JOINT CAGE.....		AR
090A	G05-3X7A2		..GROOVED PIN.....VF0344		1
-100A	23310AA020030L		.COTTER PIN..... SUPSD BY 23310AA020030LE		1
100B	23310AA020030LE		.COTTER PIN..... SUPSDS 23310AA020030L		1
110A	22451BC120L		.NUT.....		1
120A	18027		.LOCKWASHER.....		1
130A	18026		.ADJUSTING WASHER.....		1
140A	18994		.THREADED PIN.....		1
-150A	18207		.COMPLETE HALF BALL JOINT CAGE		1
160A	18025		..HALF BALL JOINT CAGE.....		1
170A	G05-3X6A2		..GROOVED PIN.....VF0344		1
180A	18024		.HALF BALL CAGE.....		2

- Item not illustrated



Complete contactor box
Figure 6

PARTS LIST

FIG. ITEM	PART NUMBER	AIRLINE PART No	NOMENCLATURE 1234567	EFF. CODE	UNITS PER ASSY	
06						
-001A	17975		COMPLETE CONTACTOR BOX..... SEE 321296-03 -240A FOR NHA		RF	
010A	18204-001		.COVER..... SUPSD BY 18204		1	R
010B	18204		.COVER..... SUPSDS 18204-001		1	R
			ATTACHING PARTS			
020A	23112AG040LE		.WASHER.....		3	
030A	22207BC040028L		.SCREW..... * * *		3	R
040A	22431BC040L		.NUT.....		1	
050A	JZAJ040TL		.WASHER.....		1	R
060A	18161		.ADJUSTING SCREW.....		1	
070A	17991		.LEVER.....		1	
080A	17992		.PIN.....		1	
090A	18159		.PISTON.....		1	
100A	17989		.SPRING.....		1	
110A	17984		.PUSHER.....		1	
120A	23203AM0032T		.STOP RING.....		1	
-130A	17920		.COMPLETE BODY.....		1	
140A	17983		..BODY..... OPT TO D67918		1	R
150A	01320010008		..HELICOIL INSERT.....VF1699		3	

- Item not illustrated

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