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MAIN UNDERCARRIAGE DOOR JACK DOWTY AEROSPACE HYDRAULICS Part No C7554YMKA, C7554YMKB, 07554PA03 and 07554SA03

GENERAL AND TECHNICAL INFORMATION (-1) PARTS CATALOGUE AND RELATED INFORMATION (-3)

OBSOLETE

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Ministry of Defence

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Prepared by Dowty Aerospace Hydraulics,
Arle Court, Cheltenham, GL51 0TP, England

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GENERAL

CONTENTS

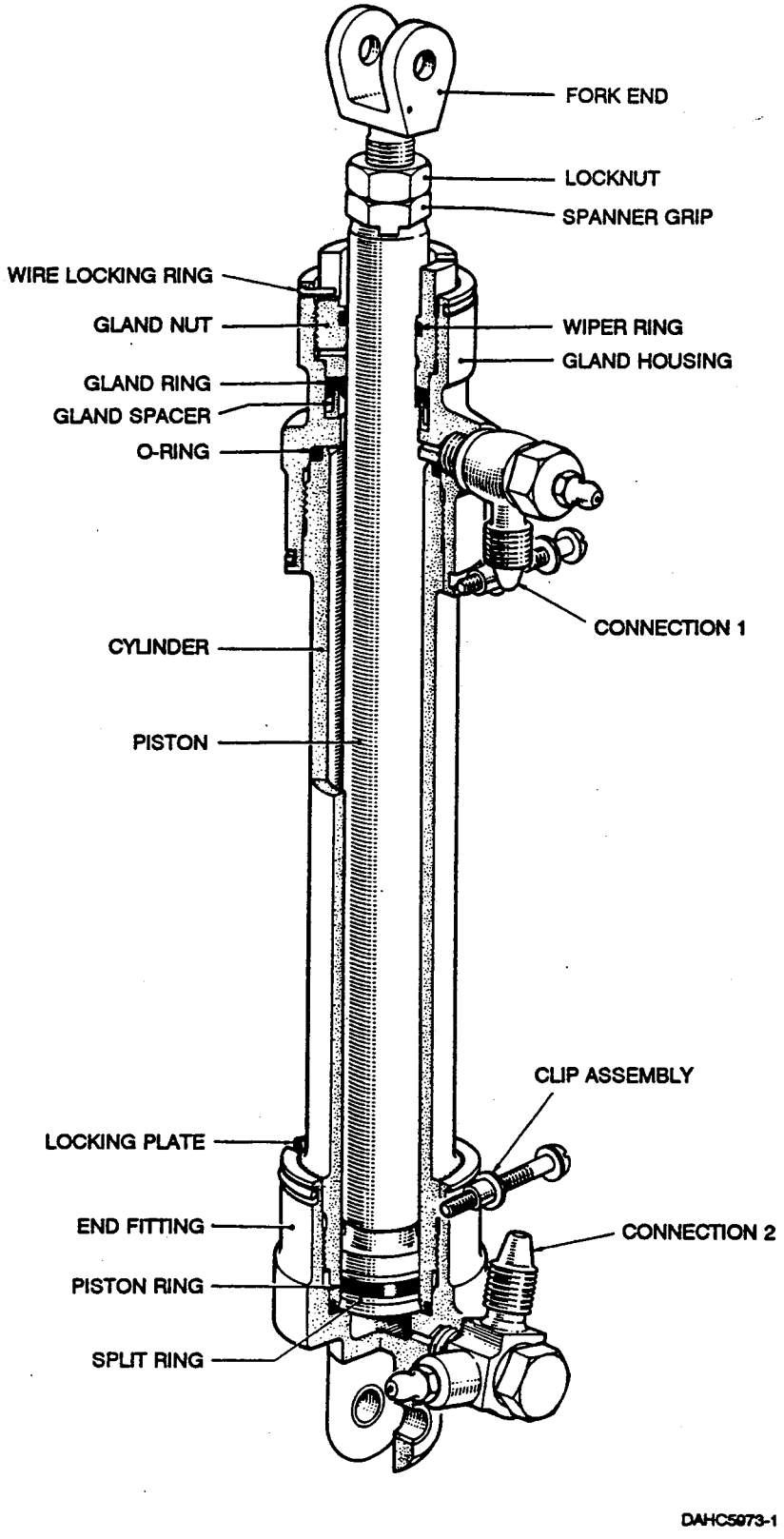

Fig 1 Main undercarriage door jack

Leading particulars

1 Refer to the appropriate annex for the leading particulars.

Modification state

2 Refer to the appropriate annex for the relevant modification state.

Introduction

3 The main undercarriage door jack consists of a piston operating within a cylinder, closed at one end by an end fitting and, at the other, by a gland housing in which a gland nut supports the projecting portion of the piston. A basic unit is described and illustrated and variants are given in the annexes.

Constructional description (Fig 1)

4 The gland nut retains a gland ring and spacer in the gland housing, and is secured by a wire locking ring. A bleed screw is incorporated in the banjo bolt which secures the banjo body, with two bonded seals, to the gland housing.

5 The connection on the end fitting is similar to that on the gland housing and both the end fitting and the gland housing are screwed onto the cylinder, each is secured by a right-angled locking plate which is retained by a clip assembly. The locking plate engages serrations on the cylinder.

6 The head of the piston is grooved for a piston ring supported by two split rings. At the outer end of the piston, a fork end is secured by a locknut which bears against a spanner grip.

Functional description (Fig 1)

7 Application of hydraulic pressure at connection 2 extends the piston and, displaced fluid is expelled through connection 1. Reversal of the supply and return lines causes the piston to retract.

MAINTENANCE

Special tools and equipment

8 The following special tools, equipment and materials are required to carry out the maintenance procedures detailed.

Part No	Description	Application
ST1021	C-key spanner	Dismantling/Assembling
ST1045	C-key spanner	Dismantling/Assembling
ST1935	Assembly tool	Assembling
-	Trichloroethane (TS367D)	Cleaning
-	White spirit (BS245)	Cleaning
-	Oil OM15 (DTD585)	Assembling
-	Corrosion preventative PX1	Preservation
-	Locking wire (DTD189A)	Locking parts

Safety and maintenance notes

9 Safety and maintenance notes or other general safety/maintenance requirements appropriate to the equipment, or to the main equipment, must be complied with where relevant throughout the work detailed in this publication.

BAY MAINTENANCE

Dismantling (Fig 1)

10 Discard all forms of sealing rings, the wiper ring and gland ring on removal from the unit.

10.1 Remove the bleed screw at connection 2 and remove the banjo bolt, bonded seals and special banjo.

10.2 Remove the bleed screw at connection 1 and remove the banjo bolt, bonded seals and banjo body.

10.3 Slacken the locknut and remove the fork end and the spanner grip. Remove the locknut.

10.4 Remove the wire locking ring and, using C-key spanner ST1021, remove the gland nut. Extract the wiper ring from the gland nut and the gland ring and spacer from the gland housing.

10.5 Release the clip assemblies and remove the locking plates. Separate the stiff nut, screw, washers, eyelets and clip.

10.6 Remove the gland housing and end fitting using C-key spanner ST1045 and remove the O-rings.

10.7 Withdraw the piston rod from the cylinder and remove the piston ring and the split rings.

Cleaning

WARNING

CLEANING AGENT SHOULD BE USED IN A WELL VENTILATED AREA, AWAY FROM NAKED FLAMES. CARE SHOULD BE TAKEN NOT TO BREATHE THE FUMES OR ALLOW UNDUE CONTACT WITH THE SKIN.

CAUTION

Chlorinated solvents can combine with minute amounts of water found in operating hydraulic systems to form hydrochloric acid which will corrode internal metallic surfaces. It is imperative that all internal surfaces are dry and free from any traces of residual solvent prior to assembly and installation. For those applications where it is difficult to remove all traces of solvent, clean unused white spirit is recommended.

11 To enable all items to be visually examined for damage and wear, each part must be thoroughly cleaned using the appropriate cleaning agents and methods. When cleaning is completed, parts must be dried using compressed air; clean, lint-free cloth or tissues and all subsequent handling must be with clean PVC or polythene gloves. If delays occur before assembly, parts must be suitably protected against corrosion using temporary corrosion preventative PX1.

Examination and checking

12 Visually examine all parts for damage and corrosion. Check parts for permissible wear in accordance with fits and clearances paragraph 14.

Superficial damage

13 Superficial damage in the form of external isolated scores, smooth dents and abrasions free from cracks are to be regarded as negligible provided that internal dimensions are not affected and the damage is within the following limits:

13.1 Not exceeding 0.500 in long.

13.2 Not exceeding 0.010 in deep.

13.3 Not less than 0.250 in from any hole or bearing surface.

NOTE

Burrs must be removed and sharp edges blended out. Minor scores and abrasions in non-sealing bores may be ignored provided that proud portions of the abrasion are removed.

Fits and clearances

14 Check that the dimensions are within the specified limits.

TABLE 1 FITS, CLEARANCES AND REPAIR TOLERANCES

Ref No on Fig 2	Parts and Description	Dimension New	Permissible Worn Dimension		Permissible Clearance		Remarks
			Interchangeable Assembly	Selective Assembly	New	Worn	
1	CYLINDER						
	Cylinder i/d	$\frac{1.0030}{0.9995}$	1.0060	1.0060	-	-	
2	PISTON ROD IN GLAND NUT						
	Gland nut i/d	$\frac{0.7525}{0.7495}$	0.7545	0.7545	$\frac{0.0055}{0.0005}$	0.0075	
	Piston rod o/d	$\frac{0.7490}{0.7470}$	0.7470	0.7470			

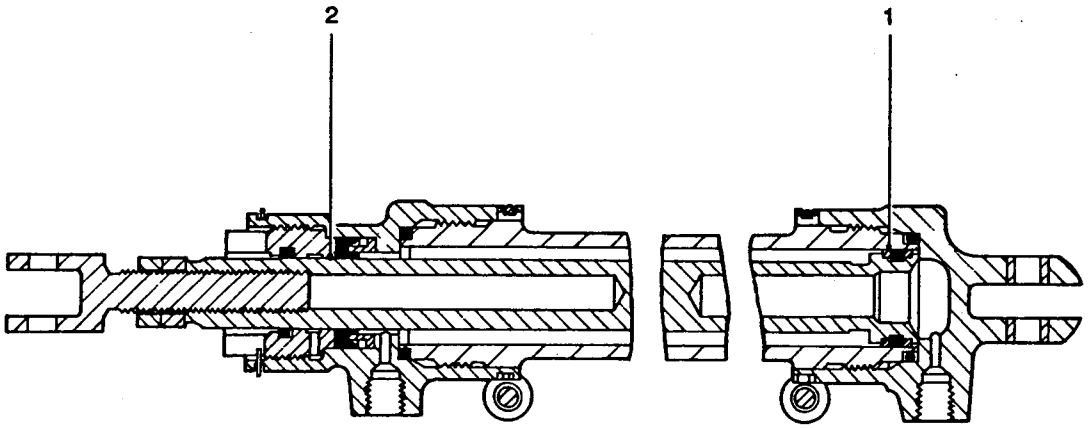

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Fig 2 Fits and clearances

Assembling (Fig 1)

15 Lightly lubricate all forms of sealing rings, the wiper ring, gland ring and threaded parts with clean oil OM15 prior to assembly.

15.1 Assemble two eyelets to a clip, place a washer on a screw and insert the screw through the eyelets. Locate a washer over the end of the screw followed by a nut. Assemble the second clip assembly as described.

15.2 Place both clip assemblies on the cylinder.

15.3 Assemble the O-rings to the ends of the cylinder and tightly screw the end fitting over one end using C-key spanner ST1045. Fit the locking plate and secure it with a clip assembly.

15.4 Assemble the piston ring and the split rings to the piston head. The split ring fitted gap on assembly must be 0.009 to 0.012 in. After gapping, remove sharp edges at gap on flat surfaces only up to 0.015 in maximum radius. Insert the piston in the cylinder.

15.5 Slide the gland housing over the piston rod and screw it tightly over the cylinder using C-key spanner ST1045. Screw the gland housing back to the nearest position to align the connection boss with the boss of the end fitting. Fit the locking plate and secure it with the clip assembly.

15.6 Position the gland spacer in the counterbore of the gland housing and assemble the gland ring to the assembly tool ST1935. Slide the tool over the piston rod in the gland housing and eject the gland ring into the housing by pressing in the inner sleeve of the tool. Remove the assembly tool.

15.7 Assemble the wiper ring to the gland nut. Slide the gland nut over the piston rod and screw it tightly into the gland housing using C-key spanners ST1045 and ST1021. Slacken the gland nut back to the nearest locking position and fit the wire locking ring.

15.8 Fit the locknut and spanner grip to the fork end. Screw the fork end into the end of the piston. The fork end will be finally adjusted and locked on installation.

15.9 Screw a bleed screw into the banjo bolt of connection 1. Put a bonded seal each side of the banjo body, insert the banjo bolt and screw it into the gland housing. The banjo body pipe connection must be aligned with the cylinder axis and point towards connection 2. Adjust the clip assembly so that the gap between the eyelets is centred on the pipe connection.

15.10 Screw a bleed screw into the special banjo of connection 2. Put a bonded seal each side of the special banjo, insert the banjo bolt and screw it into the end fitting. The special banjo pipe connection must point towards connection 1 but offset from the cylinder axis by 10 degrees (refer to Figure 1). Adjust the clip assembly so that the gap between the eyelets is centred on the pipe connection centre-line.

15.11 After satisfactory testing, wirelock the connections to the end fitting and gland housing.

TESTING

Special tools and test equipment

16 The following special tools and test equipment are required to carry out the test procedures detailed.

Part No	Description	Application
-	Static hydraulic test rig (with power pump capable of delivering 3.45 gall/min)	Apply hydraulic pressure

Testing the unit (Fig 1)

17 Ensure the unit is hydraulically full and bled free of air. All pipes between the test rig and the unit must be 3/8 in outside diameter for metal pipes and 3/8 in nominal for flexible hose. Using the equipment specified in paragraph 16, carry out the following test procedure:

17.1 Connect the supply line of the static hydraulic test rig to connection 1 and apply pressure to close the jack.

17.2 Increase the pressure to 4950 lbf/in^2. Leakage must not occur.

17.3 Release the pressure and disconnect the supply line.

17.4 Connect the supply line to connection 2 and apply pressure to extend the jack.

17.5 Increase the pressure to 4950 lbf/in^2. Leakage must not occur.

17.6 Release the pressure and disconnect the supply line.

17.7 Connect the supply line of the power rig to connection 1 and apply pressure to fully close the jack. The pressure required to close it must not exceed 240 lbf/in^2 and the time to close must not exceed 4 seconds.

17.8 Release the pressure. Disconnect the supply line.

17.9 Connect the supply line to connection 2 and apply pressure to fully extend the jack. The pressure required to extend it must not exceed 120 lbf/in^2 and the time to extend must not exceed 4 seconds.

17.10 Release the pressure. Disconnect the supply line.

Annex A

MAIN UNDERCARRIAGE DOOR JACK

DOWTY AEROSPACE HYDRAULICS - CHELTENHAM

Part No C7554YMKA

Leading particulars

1 Leading particulars of this unit are as follows:

1.1	System fluid	Oil OM15 (DTD585)
1.2	Length (between closed centres)	13.900 to 14.300 in
1.3	Stroke	8.720 to 8.820 in
1.4	Connections (1 and 2)	0.250 in BSP

Modification state

2 The information in this annex includes all appropriate modifications up to and including issue 18.

Introduction

3 This unit is similar to that described and illustrated in the general text except that the cylinder, end fitting and gland housing have not been subjected to an improved heat treatment.

Annex B

MAIN UNDERCARRIAGE DOOR JACK

DOWTY AEROSPACE HYDRAULICS - CHELTENHAM

Part No C7554YMKB

Leading particulars

1 Leading particulars of this unit are as follows:

1.1	System fluid	Oil OM15 (DTD585)
1.2	Length (between closed centres)	13.900 to 14.300 in
1.3	Stroke	8.720 to 8.820 in
1.4	Connections (1 and 2)	0.250 in BSP

Modification state

2 The information in this annex includes all appropriate modifications up to and including issue 18.

Introduction

3 This unit is similar to that described and illustrated in the general text except that it is opposite handed and the cylinder, end fitting and gland housing have not been subjected to an improved heat treatment. The handing is achieved by reversing the special banjo, deflecting the pipe connection 10 degrees to the left and with the bleed screw to the right, opposite to that shown in Figure 1 of the general text.

Annex C

MAIN UNDERCARRIAGE DOOR JACK

DOWTY AEROSPACE HYDRAULICS - CHELTENHAM

Part No 07554PA03

Leading particulars

1 Leading particulars of this unit are as follows:

1.1	System fluid	Oil OM15 (DTD585)
1.2	Length (between closed centres)	13.900 to 14.300 in
1.3	Stroke	8.720 to 8.820 in
1.4	Connections (1 and 2)	0.250 in BSP

Modification state

2 The information in this annex includes all appropriate modifications up to and including issue 19.

Introduction

3 This unit is identical to that described and illustrated in the general text.

Annex D

MAIN UNDERCARRIAGE DOOR JACK

DOWTY AEROSPACE HYDRAULICS - CHELTENHAM

Part No 07554SA03

Leading particulars

1 Leading particulars of this unit are as follows:

1.1	System fluid	Oil OM15 (DTD585)
1.2	Length (between closed centres)	13.900 to 14.300 in
1.3	Stroke	8.720 to 8.820 in
1.4	Connections (1 and 2)	0.250 in BSP

Modification state

2 The information in this annex includes all appropriate modifications up to and including issue 19.

Introduction

3 This unit is similar to that described and illustrated in the general text except that it is opposite handed. This is achieved by reversing the special banjo, deflecting the pipe connection 10 degrees to the left and with the bleed screw to the right, opposite to that shown in Figure 1 of the general text.

PARTS CATALOGUE AND RELATED INFORMATION

FOR

MAIN UNDERCARRIAGE DOOR JACK

DOWTY AEROSPACE HYDRAULICS - CHELTENHAM

Part No C7554YMKA, C7554YMKB, 07554PA03 and 07554SA03,

MODIFICATION RECORD

Mod No	AL No	Mod No	AL No	Mod No	AL No	Mod No	AL No	Mod No	AL No	Mod No	AL No
AC3847	*										
AC3862	*										
AC3960	*										

* Incorporated in initial issue of Catalogue
NA Mod not applicable to this Catalogue
C Mod cancelled
AS Amendment Sheet

PARTS CATALOGUE AND RELATED INFORMATION (TOPIC 3)

MEMORANDUM OF INSTRUCTIONS

Demands

1 Requirements for demands are:

1.1 The demand must quote the appropriate Reference Number for each item. Unreferenced parts are not normally provisioned as spares and demands for such items must quote the maker's Part Number and the name and type of the equipment. The location of each part within the equipment should be clearly indicated.

1.2 Demands are to be prepared in accordance with the procedure laid down in AP 830 Volume 1 or BR4.

Local manufacture

2 Parts annotated 'LM' are to be manufactured from local resources. If the manufacture of such items is beyond the capacity of the Unit, the demand is to be endorsed 'Unable to manufacture locally'.

Major repair

3 'MR' indicates that an item is required for major repair purposes only and will not normally be held in store by Units other than those authorised to undertake major repair of the equipment.

Units per assembly

4 The number quoted is the quantity required per next higher assembly in the position shown except 'attaching parts' which quote the quantity required to attach one item. The letters 'AR' in the 'Units per Assy' column indicate that the quantity is 'as required'. Where applicable the quantity normally fitted is shown as a nominal figure, eg (Nom 3). Where an item is listed only for reference purposes the letters 'RF' are quoted.

Classification of equipment

5 The Class of Store is indicated by a single letter as laid down in AP 830 Volume 1 or BR4.

Fitting code (FC)

6 The FC is indicated by one of the following letters and is only quoted against parts which are not directly interchangeable:

V Open up holes on assembly
W Partially assembled
X Ream or machine on assembly
Y Drill or drill and tap on assembly
Z Trim on assembly

Obsolescent stock

7 An asterisk in the 'Part No' column indicates that no further purchases of the item will be made but the part is to be used until stocks are exhausted.

Modifications

8 When items are affected by a modification the 'Mod No' is quoted in the description. Modifications incorporated in the catalogue are listed in the Modification Record.

Manufacturers NATO code

9 The NATO supply code for manufacturers is an alpha-numeric code for non-US based approved manufacturers and a numeric code for US based approved manufacturers. Manufacturers details related to a specific code are contained in the following publications available from DCA, Kentigern House, 65 Brown Street, Glasgow G2 8EX.

99-H4-1 Name to Code
99-H4-2 Code to Name

Usage code

10 The usage code column is normally left blank indicating full applicability of all items. Where a code letter is shown, it indicates that all items with that letter form part of the same assembly or sub-assembly.

INDEX OF PART NUMBERS

Part Number	DMC	Reference Number	Fig/Index	C of S or LM	FC
AGS1173A	28F	4730-99-4051838	1-5		
AGS1174	28F	4730-99-9128952	1-1		
AGS1186A	28F	5330-99-9428452	1-3		
AGS154-5		5365-99-8284495	1-12A		
AGS1582B		5310-99-1009147	1-20		
AGS165G			1-12		
AGS2002C1	28M	5310-99-9433473	1-18		
AGS596B	28N	5340-99-9128965	1-33		
AS1246-10E	28D	5305-99-1215399	1-19A		
C4486Y4			1-24		
C7422Y3		4320-99-4118263	1-31		
C7554YMKA		4320-99-4118276	1		
C7554YMKB		4320-99-4118277	1		
C7554Y1MKA			1-8		
C7554Y1MKB			1-8A		
C7554Y3	27Q	4320-99-4118255	1-26		
C7582Y2			1-32		
D7422Y2			1-29		
SP584-95	27Q	5330-99-4118229	1-27		
SP818-5	27QA	4320-99-4118195	1-14		
SP880B		5310-99-9452626	1-34		
SP900-21	27QA	5330-99-1011353	1-25		
07554PA03		4320-99-4118272	1		
07554P004			1-8B		
07554SA03		4320-99-4118275	1		
07554S004			1-8C		
07554Y005	27Q	4320-99-4118245	1-32A		
07554Y006			1-31A		
07554Y007	27Q	4320-99-4118251	1-24A		
07554Y008		4320-99-4118246	1-29A		
1065Y1		4730-99-4118242	1-6		
183Y14	27Q	5310-99-4670217	1-11		
2000Y135		4820-99-4118102	1-7		
2791Y13	27Q	1650-99-4140199	1-23		
3834Y7	27Q	5365-99-4118257	1-16		
4243Y	27Q	3120-99-9016319	1-21		
4486Y10		4320-99-4118267	1-30		
4486Y13	27Q	5340-99-4118243	1-17		
4486Y14	27Q	5340-99-4118244	1-22		
4486Y6	27Q	4320-99-4118252	1-13		

INDEX OF PART NUMBERS

Part Number	DMC	Reference Number	Fig/Index	C of S or LM	FC
4486Y7	27Q	5310-99-4118250	1-10		
4486Y8	27Q	5340-99-4118249	1-9		
4544Y9	27Q	4320-99-4118230	1-28		
5400209	27Q	5330-99-4118254	1-15		
57K1508	27Q	5305-99-1287045	1-19		
7554Y2	27Q	4730-99-1233898	1-2		
7773Y2	27Q	4730-99-4118273	1-4		

DETAILED PARTS LIST

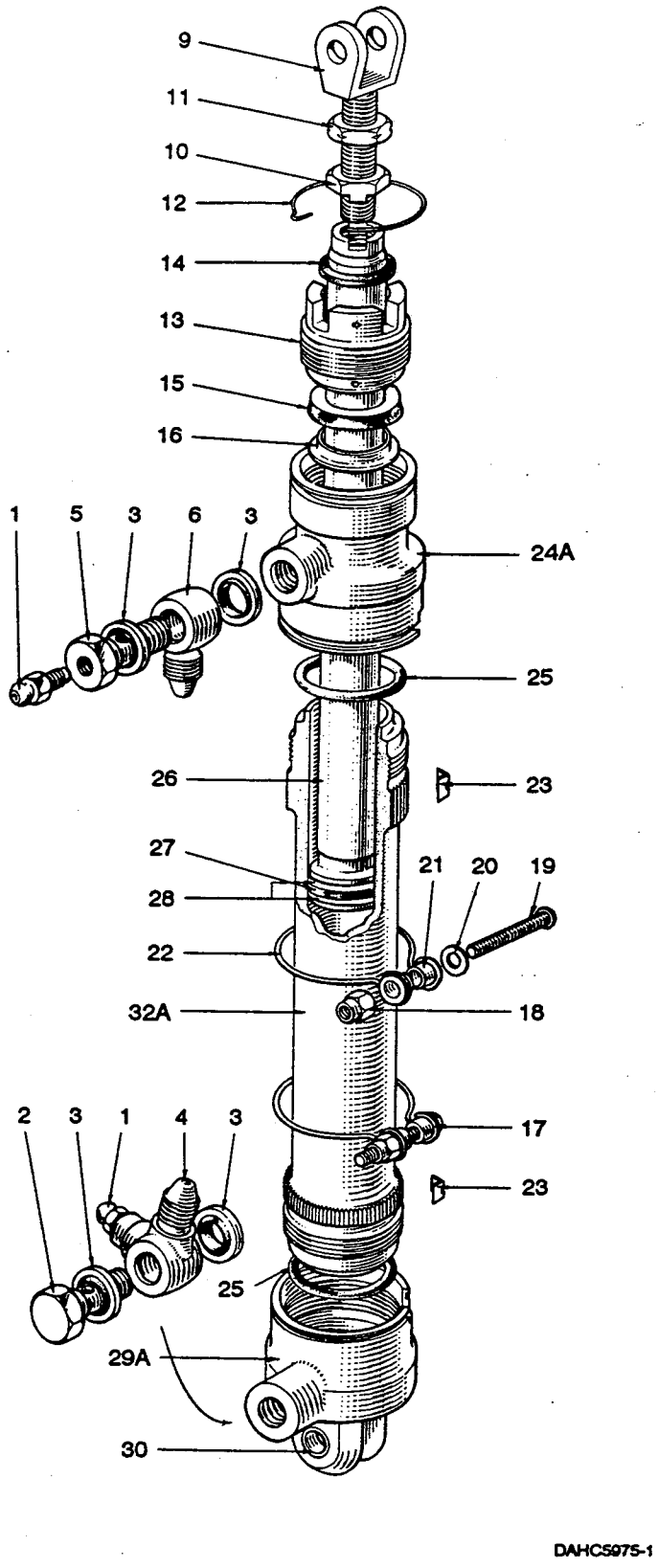

Fig 1 Main undercarriage door jack

MAIN UNDERCARRIAGE DOOR JACK

Fig/ Index No	Part No	1 2 3 4 5 6 Nomenclature	Mnfrs NATO Code	Usage Code	Units per Assy
1+	C7554YMKA	Jack, main undercarriage door, port (Pre Mod AC3960)		A	RF
1+	C7554YMKB	Jack, main undercarriage door, starboard (Pre Mod AC3960)		B	RF
1	07554PA03	Jack, main undercarriage door, port (Mod AC3960)		C	RF
1+	07554SA03	Jack, main undercarriage door, starboard (Mod AC3960)		D	RF
-1	AGS1174	. Screw, bleed			2
-2	7554Y2	. Bolt, banjo (Mod AC3847)			1
-3	AGS1186A	. Seal, bonded			4
-4	7773Y2	. Banjo, special			1
-5	AGS1173A	. Bolt, banjo			1
-6	1065Y1	. Body, banjo			1
-7+	2000Y135	. Transfer			1
-8+	C7554Y1MKA	. Main undercarriage door jack assembly		A	1
-8A+	C7554Y1MKB	. Main undercarriage door jack assembly		B	1
-8B+	07554P004	. Main undercarriage door jack assembly		C	1
-8C+	07554S004	. Main undercarriage door jack assembly		D	1
-9	4486Y8	. . Fork end			1
-10	4486Y7	. . Grip, spanner			1
-11	183Y14	. . Locknut			1

+ Item not illustrated

MAIN UNDERCARRIAGE DOOR JACK

Fig/ Index No	Part No	1 2 3 4 5 6 Nomenclature	Mnfrs NATO Code	Usage Code	Units per Assy
1-12	AGS165G or	. . Ring, wire locking (Alternative)			1
-12A+	AGS154-5	. . Ring, wire locking			1
-13	4486Y6	. . Nut, gland			1
-14	SP818-5	. . Ring, wiper			1
-15	5400209	. . Ring, gland			1
-16	3834Y7	. . Spacer, gland			1
-17	4486Y13	. . Clip assembly			2
-18	AGS2002C1	. . . Nut, stiff			1
-19	57K1508 or	. . . Screw (Alternative)			1
-19A+	AS1246-10E	. . . Screw			1
-20	AGS1528B	. . . Washer			2
-21	4243Y	. . . Eyelet			2
-22	4486Y14	. . . Clip			1
-23	2791Y13	. . Plate, locking			2
-24+	C4486Y4	. . Housing, gland		AB	1
-24A	07554Y007	. . Housing, gland		CD	1
-25	SP900-21	. . O-ring			2
-26	C7554Y3	. . Rod, piston (Mod AC3862)			1
-27	SP584-95	. . Ring, piston			1
-28	4544Y9	. . Ring, split			2
-29+	D7422Y2	. . End fitting sub-assembly		AB	1
-29A	07554Y008	. . End fitting sub-assembly		CD	1

+ Item not illustrated

MAIN UNDERCARRIAGE DOOR JACK

Fig/ Index No	Part No	1 2 3 4 5 6 Nomenclature	Mnfrs NATO Code	Usage Code	Units per Assy
1-30	4486Y10	. . . Bush			2
-31+	C7422Y3	. . . Fitting, end		AB	1
-31A+	07554Y006	. . . Fitting, end		CD	1
-32+	C7582Y2	. . Cylinder		AB	1
-32A	07554Y005	. . Cylinder		CD	1
-33+	AGS596B	. Cap, dust (Storage and transit)			2
-34+	SP880B	. Washer, sealing (Storage and transit)			2

+ Item not illustrated