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HUNTER.

SELECTOR VALVE
DOWTY AEROSPACE HYDRAULICS
Part No 08817YA05 and 08817YA06

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

BY COMMAND OF THE DEFENCE COUNCIL

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READ THE DATA SHEET APPLICABLE TO THE SUBSTANCE

OBEY THE LOCAL ORDERS AND REGULATIONS

WARNINGS

(1) WHITE SPIRIT. THIS PUBLICATION CONTAINS PROCEDURES WHICH USE WHITE SPIRIT. REFER TO AP100B-10, DATA SHEET S2803.

(2) LOTOXANE. THIS PUBLICATION CONTAINS PROCEDURES WHICH USE LOTOXANE. REFER TO AP100B-10, DATA SHEET S2802.

(3) PREVENTATIVE PX1. THIS PUBLICATION CONTAINS PROCEDURES WHICH USE PREVENTATIVE PX1. REFER TO AP100B-10, DATA SHEET S3301.

GENERAL

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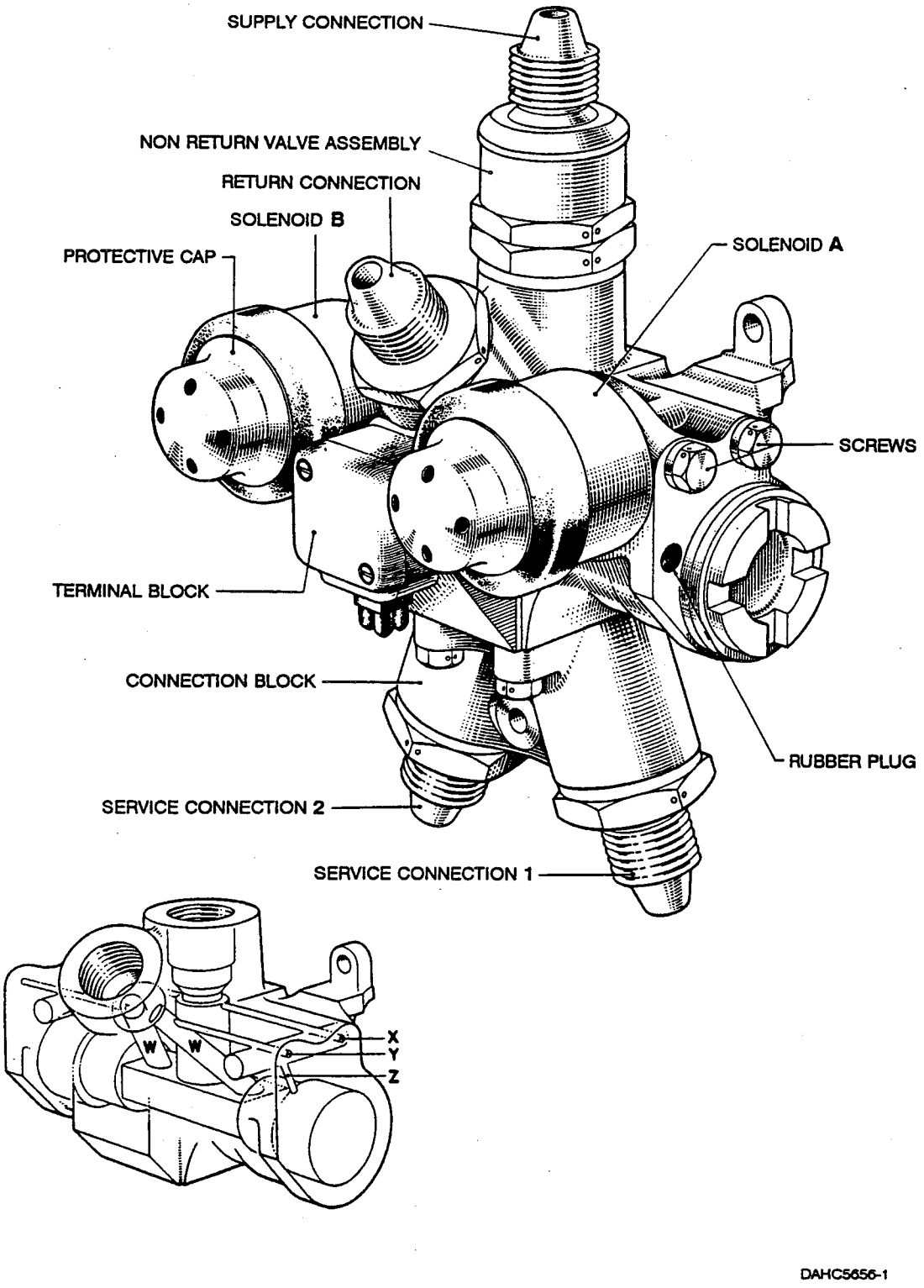


Fig 1 Selector valve

Leading particulars

1 Refer to the relevant annex for the leading particulars.

Modification state

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

Introduction

3 The unit is electrically operated to direct the flow of fluid to one of two services and simultaneously opens the return line for the other service. The main flow of fluid is controlled by a slide, which is operated by the fluid pressure, diverted, as required, by two pilot valves each actuated by a solenoid. The selector valve is a four-way blind-neutral unit which means that with both of the solenoids de-energised, the slide is in its neutral or mid-position and there is no flow through the unit. A basic unit is described and illustrated and variants are covered in the annexes.

Constructional description (Fig 1 and 2)

4 The valve body is drilled to form fluid ducts and houses a slide and two solenoid-operated pilot valve assemblies. The return connection and the supply connection with a non-return valve assembly are screwed into bosses. The service connections 1 and 2 are assembled in a connection block, and a sealing ring is fitted to the connection block which is secured by four bolts. The two solenoids and a terminal block are fitted to adjacent bosses. A secondary bore from the supply connection boss to the connection block intersects the main bore and, oblique drillings W are made from the return connection to each end of the slide bore.

5 The connections are standard adapters. The non-return valve assembly consists of a valve body, which is also the supply connection, and an adapter screwed together to house a spring-loaded valve and a sealing washer. The connections and the non-return valve assembly are sealed by bonded seals.

6 The rectangular slide, which has a central slot, is forked at each end and positioned in the centre portion of the main bore. The slide is supported at each end by an actuating piston and a centralising piston. The actuating piston contacts the slide between the fork and operates in the centralising piston, which is in contact with the ends of the fork arms. Both pistons are grooved for O-rings and anti-extrusion rings are fitted to the actuating pistons. The complete assembly is located between two sealed end plugs screwed into the ends of the bore.

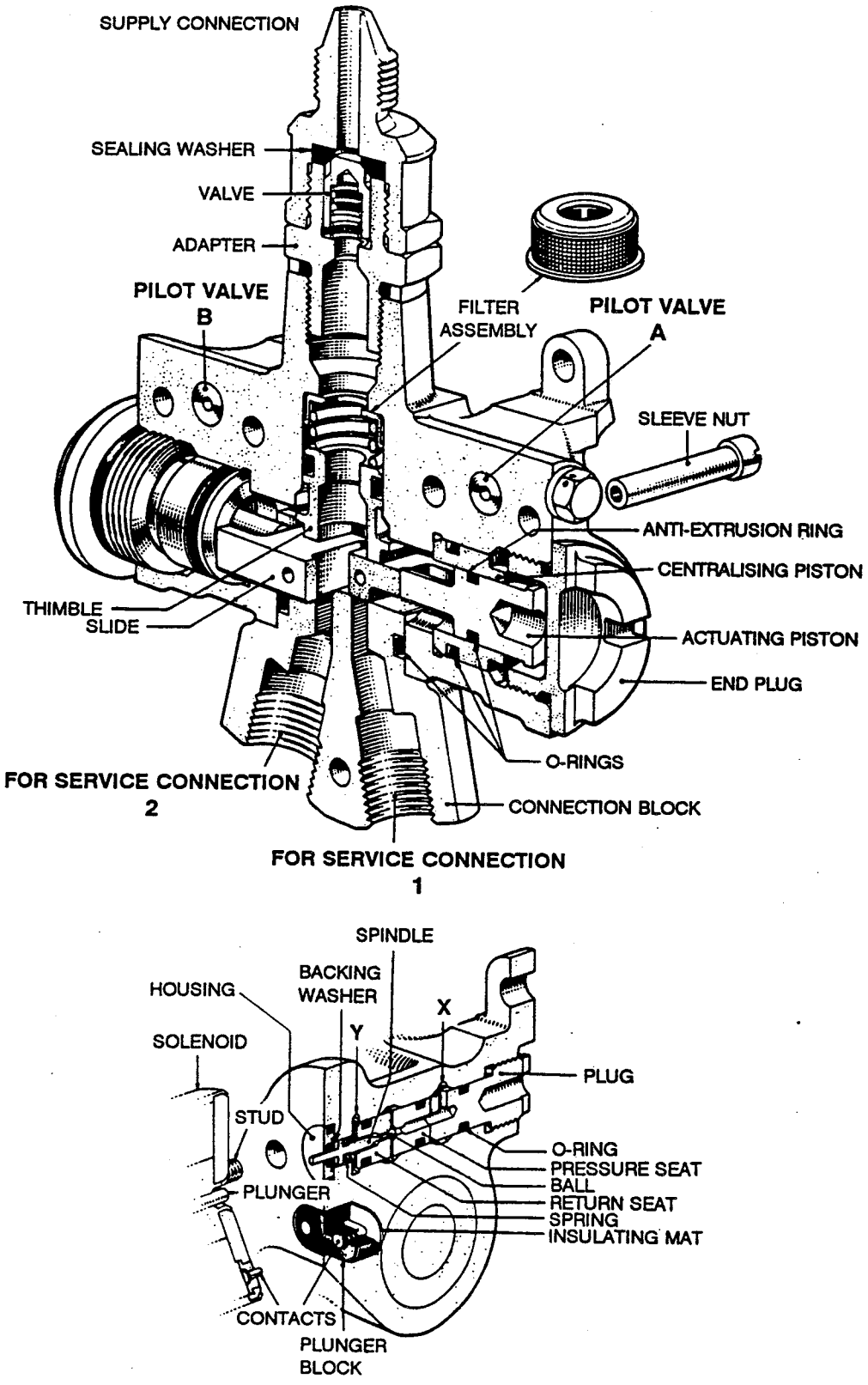


Fig 2 Selector valve assembly

7 A filter assembly in a secondary bore is held against a shoulder in the supply connection, by a spring, to prevent dirt passing into the fluid ducts leading to the pilot valves. The spring also loads a thimble, fitted with an O-ring, against the upper face of the slide. The connection block has individual slots to align with each service connection and is polished to match the underside of the slide. Offset movement of the slide will align the slot of the slide with either of the slots in the connection block.

8 The two pilot valve assemblies are housed in parallel bores, at right angles to, and above, the main bore. Three annular grooves are machined in each bore for fluid ducts, which individually connect through drillings X, Y and Z to the bores for the supply and return connections and the bore of the actuating piston respectively. The ends of the drillings X and Y are sealed by a screw and a bonded seal. Each pilot valve assembly consists of a return seat and an adjacent pressure seat, which are grooved for an O-ring and centrally drilled and countersunk on their contact faces to provide alternative seats for a ball valve, located in the gap between. The gap aligns with the fluid duct to the drilling Z. A groove at the innermost end of the return seat aligns with the fluid duct to the drilling Y. The seats are held in the body by a plug fitted with a sealing ring and the plug is centrally blind drilled from the inner end to line up with the drillings of the two seats. A radial drilling joins the blind drilling of the plug and coincides with the fluid duct to the drilling X.

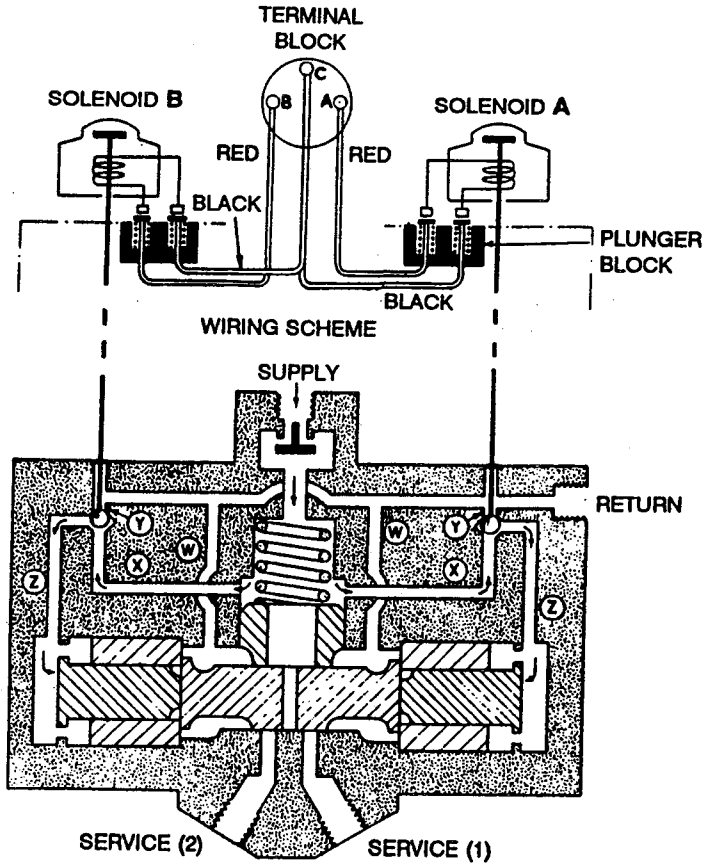
9 The central drilling of the return seat receives a flanged spindle, the inner end of which opposes the ball valve. The spindle is held away from the ball by a spring fitted between the flange and the seat and passes from the body through a backing washer, an O-ring and a housing with an O-ring, to contact the plunger of the solenoid.

10 The two solenoids are located over the pilot valves and each is secured to the body by two studs and sleeve nuts. A metal protective cap is fitted over the rubber shroud of each solenoid to prevent inadvertent manual operation. A terminal block assembly, fitted between the solenoids and attached to the body by screws, is wired to two plunger blocks. Each plunger block is backed by an insulating mat and housed in a slot below the pilot valve. The leads of the terminal block pass to each plunger block through an insulating tube installed in a drilling of the valve body, which is sealed at the ends by rubber plugs.

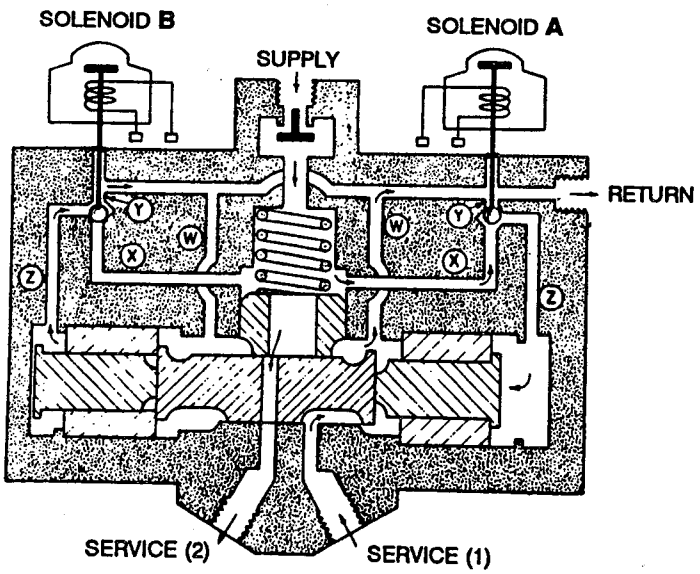
11 The plunger block is recessed for a spring through which the relevant lead of the terminal block passes. The spring acts against a ferrule which is attached to the end of the lead to provide a flexible contact with the contact of the solenoid.

Functional description (Fig 3)

12 When both solenoids are de-energised, the spindle in each pilot valve is held away from the ball. Pressurised fluid at the supply connection passes along the drilling X to the annular grooves around the pilot valve retaining plugs, and through the radial and central drillings of the plug and the drillings of the pressure seat to the ball. The ball is forced against the return seat and the fluid flows through the gap and the drilling Z to the bore of the centralising and actuating pistons. The pressure, acting equally on both centralising and actuating piston assemblies, maintains the slide in the central position. Fluid cannot flow through the unit as the slot of the slide is midway between the two slots in the connection block.



(a) BOTH SOLENOIDS DE-ENERGISED



(b) SOLENOID B ENERGISED. SOLENOID A DE-ENERGISED

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Fig 3 Principle of operation

13 When a solenoid is energised, its plunger pushes the spindle of the pilot valve to hold the ball onto the pressure seat. Pressurised fluid from the supply connection is cut off from the relevant actuating piston; pressure on this piston being relieved through the open return seat. The pressure acting on the opposite actuating piston moves the slide along the main bore, and the idle actuating and centralising pistons are moved to contact the end plug. Fluid at this end flows through the drilling Z, the return seat and the drilling Y to the return connection. The slot in the slide is now aligned with one of the slots in the connection block and fluid from the supply connection flows to the relevant service connection. With the movement of the slide, return fluid from the other service connection flows through one of the oblique drillings W to the return connection.

14 When the solenoid is de-energised, the spring of the pilot valve assembly withdraws the spindle from the ball valve. Fluid in the pressure line forces the ball onto the return seat and the pressure is applied at one end to the combined areas of the actuating and centralising pistons, both of which are in contact with the slide. On the opposite side, the actuating piston only is in contact with the slide and therefore the pressure is only effective on this piston area. The differential loading moves the slide towards the central position. When the moving centralising piston has reached the limit of its travel, the pressure becomes effective only on the actuating piston and thus becomes equal at each end. The slide which is then centralized, ceases to move, and in this position, the slot in the slide is midway between the slots in the connection block. Fluid is therefore trapped in the pipe lines from the service connections until a new selection is made.

MAINTENANCE

Special tools and equipment

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

Part No	Description	Application
ST1923	Assembly post	Assembling
ST1952	Assembly post	Assembling
ST1964	Assembly post	Assembling
ST1966	Spring compressor	Assembling
ST2081	Assembly post	Assembling
ST2758	Adapter	Assembling
▶ –	Lotoxane (MIL-T-81533A)	Cleaning ◀
–	White spirit (BS245)	Cleaning

Part No	Description	Application
-	Oil OM15 (DTD585)	Assembling
-	Grease XG315 (DEF STAN 91-56)	Assembling
-	Corrosion preventative PX1	Preservation
-	Locking wire (DTD189A)	Locking parts

Safety and maintenance notes

16 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 and 2)

WARNING

SPECIFIC INTERNAL DETAILS OF THIS UNIT ARE SUBJECT TO SPRING PRESSURE AND CARE MUST BE EXERCISED WHEN DISMANTLING.

17 Discard all forms of sealing rings after removal from the unit.

17.1 Remove the adapters from the return and service connections 1 and 2 and the non-return valve assembly from the supply connection together with the bonded seals.

NOTE

The solenoids should not be dismantled further.

17.2 Dismantle the non-return valve by removing the valve body from the adapter and withdraw the sealing washer, the valve and the spring from the adapter.

17.3 Remove the sleeve nuts and withdraw the solenoids from the body.

17.4 Remove the bolts and the connection block from the body and remove the O-ring from the connection block.

17.5 Remove the end plugs together with the O-rings and withdraw the actuating pistons and the centralising pistons from the ends of the body. Remove the O-rings and the anti-extrusion rings from the actuating pistons. Remove the O-rings from centralising pistons.

17.6 Withdraw the slide.

17.7 Withdraw the thimble, the spring and the filter assembly and remove the O-ring from the thimble.

17.8 Remove the housing, the O-rings, the backing washer, the spindle and the spring from each pilot valve assembly.

17.9 Remove the plug, the pressure seat, the ball and the return seat of each pilot valve assembly. Remove the O-rings from the plugs and the seats.

NOTE

Do not disturb the plunger block, the terminal block, the rubber plugs and the blanking screws unnecessarily.

CLEANING

▶ WARNINGS

(1) LOTOXANE. LOTOXANE IS USED IN THE MAINTENANCE OF THIS EQUIPMENT. REFER TO THE WARNING IN THE PRELIMINARY PAGES OF THIS PUBLICATION.

(2) PREVENTATIVE PX-1. PREVENTATIVE PX-1 IS USED IN THE MAINTENANCE OF THIS EQUIPMENT. REFER TO THE WARNING IN THE PRELIMINARY PAGES OF THIS PUBLICATION.

(3) WHITE SPIRIT. WHITE SPIRIT IS USED IN THE MAINTENANCE OF THIS EQUIPMENT. REFER TO THE WARNING IN THE PRELIMINARY PAGES OF THIS PUBLICATION. ◀

18 To enable all items to be visually examined for damage and wear, each part must be thoroughly cleaned ▶ using lotoxane or white spirit. 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

19 Visually examine all parts for damage and corrosion. Check parts for permissible wear in accordance with fits and clearances, paragraph 24.

Superficial damage

20 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:

20.1 Not exceeding 0.500 in long.

20.2 Not exceeding 0.010 in deep.

20.3 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.

Checking data

21 Spring 500Y371

21.1 Number of working coils: 2.500

21.2 Wire size: 0.0156 in

21.3 Free length: 0.105 to 0.125 in

21.4 Check length: 0.070 in

21.5 Load at check length: 0.600 to 1.000 lbf.

22 Spring 500Y374

22.1 Number of working coils: 7

22.2 Wire size: 0.022 in

22.3 Free length: 0.780 to 0.810 in

22.4 Check length: 0.600 to 0.620 in

22.5 Load at check length: 0.110 to 0.170 lbf.

23 Spring 500Y585

23.1 Number of working coils: 3

23.2 Wire size: 0.064 (16 SWG)

23.3 Free length: 0.460 to 0.480 in

23.4 Check length: 0.330 in

23.5 Load at check length: 9 to 11 lbf.

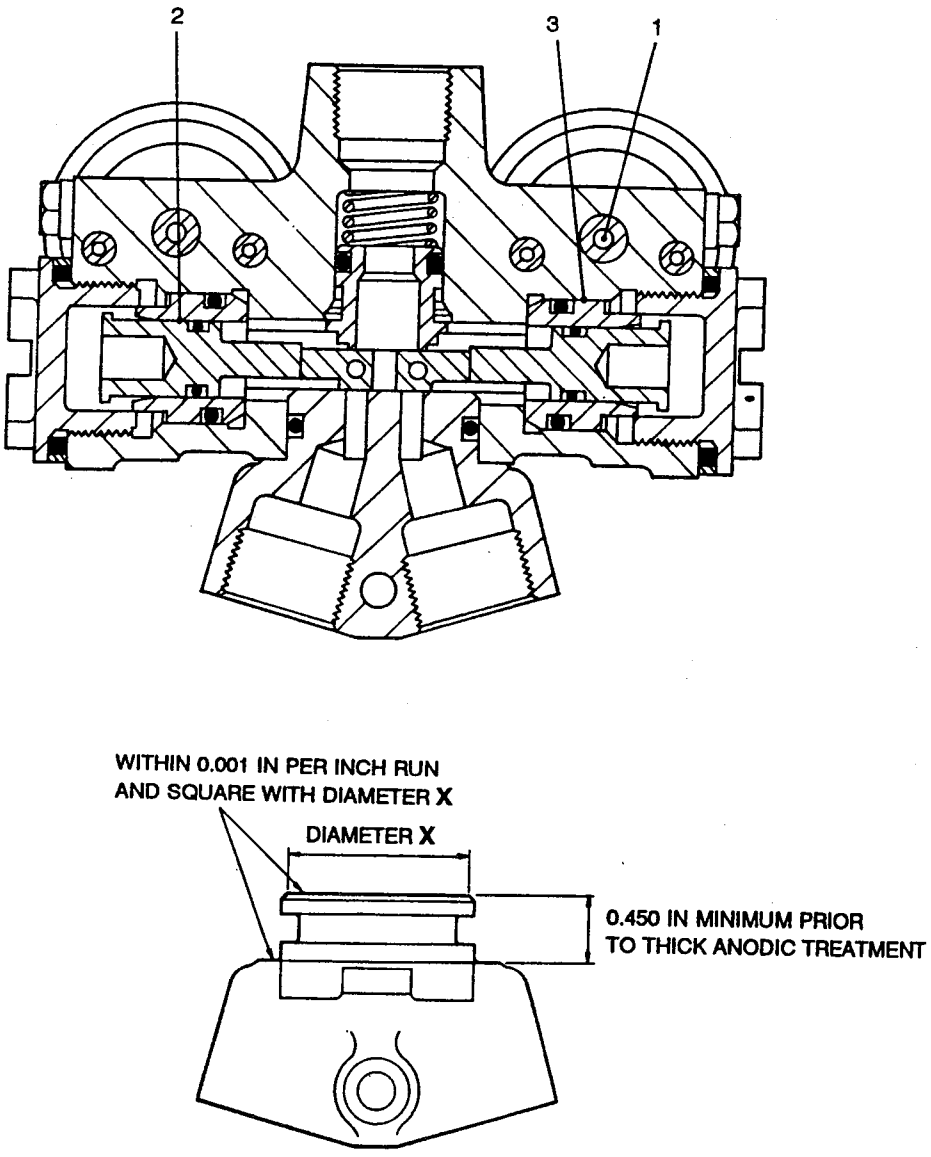

Fig 4 Fits and clearances

Fits and clearances

24 Check that the dimensions are within the specified limits.

FITS, CLEARANCES AND REPAIR TOLERANCES

Ref No on Fig 4	Parts and Description	Dimension New	Permissible Worn Dimension		Permissible Clearance		Remarks
			Interchangeable Assembly	Selective Assembly	New	Worn	
1	SPINDLE IN RETURN SEAT						
	Return seat i/d	0.09425 / 0.09325	0.09500	0.09575	0.00250 / 0.00050	0.00400	
	Spindle o/d	0.09275 / 0.09175	0.09100	0.09025			
2	ACTUATING PISTON IN CENTRALISING PISTON						
	Centralising piston i/d	0.5005 / 0.4995	0.5010	0.5015	0.0025 / 0.0005	0.0035	
	Actuating piston o/d	0.4990 / 0.4980	0.4975	0.4970			
3	CENTRALISING PISTON IN VALVE BODY						
	Valve body i/d	0.87575 / 0.87450	0.87630	0.87670	0.00350 / 0.00075	0.00450	
	Centralising piston o/d	0.87375 / 0.87225	0.87180	0.87130			

Assembling

25 Lubricate all parts with clean oil OM15 before assembling the unit.

25.1 Using assembly post ST1952, assemble an O-ring to the pilot valve return seats.

25.2 Using assembly post ST1923, assemble an O-ring to the plug and to the pressure seats.

25.3 Insert the return seats, balls and pressure seats into the bores of the pilot valves. Secure by fitting the plugs.

25.4 Assemble a spring over each pilot valve spindle and insert the spindles in the bores and through the return seats to oppose the balls. Assemble the O-rings and the backing washer to the housing. Locate the housing to the body and over the spindle, O-rings leading.

25.5 Assemble the O-ring to the thimble and insert the filter assembly, the spring and the thimble in the body.

25.5.1 Hold the thimble in place through the connection block aperture.

25.5.2 Position the spring compressor ST1966 through the supply connection tapping and allow the prongs of the centre piece to engage with the shoulder in the thimble.

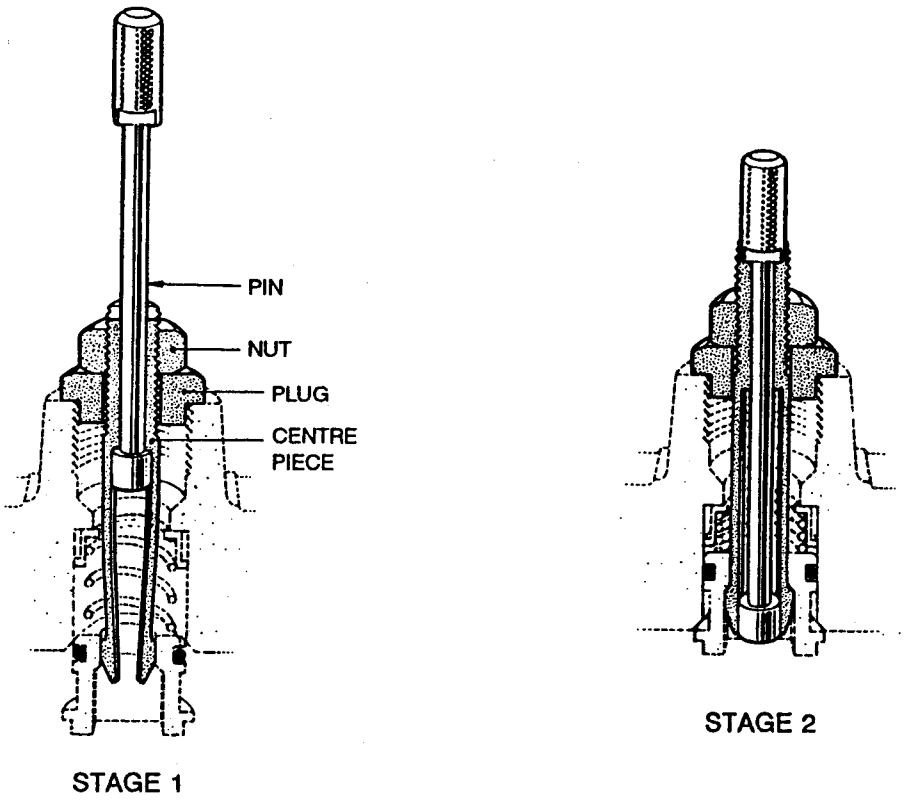

Fig 5 Use of spring compressor ST1966

25.5.3 Push the pin into the centre piece to ensure that prongs are held in contact with the shoulder.

25.5.4 Turn the nut to draw the thimble against the spring, to allow the insertion of the slide.

25.5.5 Locate the slide centrally under the thimble, withdraw the pin to its fullest extent and remove the complete tool assembly by giving it a sharp pull.

25.6 Fit the O-rings and the anti-extrusion rings to the actuating piston. If a new anti-extrusion ring is fitted, the "feeder" on the side of the ring is to be cut off flush with the surface before assembly. The ring is then to be assembled with that surface uppermost when the piston is assembled in the valve. A new extrusion ring for the actuating piston must be radially cut through to facilitate assembly to the piston.

25.7 Use the assembly post ST1964 to assemble the O-rings to the centralising piston. Position the actuating pistons in the centralising pistons and insert the assemblies in the ends of the body with the actuating pistons engaged with the slide.

25.8 Assemble the O-rings to the end plugs using assembly post ST2081 and screw them into the body. Torque tighten the end plugs, using the adapter ST2758, to between 50 and 55 lbf.ft.

25.9 Assemble the O-ring to the connection block and secure the connection block in the body with the four bolts to abut the underside of the slide.

25.10 Insert the sealing washer into the non-return valve body. Insert the spring and the valve in the adapter and screw the valve body and adapter tightly together.

25.11 Check that the valve has a minimum lift of 0.080 in. This may be checked by inserting a depth gauge or a bar of suitable diameter in the bore of the valve body. Test the non-return valve assembly as described in paragraph 27.

25.12 Assemble the bonded seals to the adapters for the return and service connections 1 and 2 and screw them into their respective bosses.

25.13 Ensure that a protective cap is fitted to the rubber shroud of each solenoid.

25.14 Before attaching the solenoids:

25.14.1 Ensure that the contact faces of each are clean.

25.14.2 Check for true engagement between the solenoids and the valve body in order that correct transfer of heat is made from the solenoid to the valve.

25.14.3 Check by electrical test that the leads between the plug and the plunger block have been wired correctly.

25.14.4 Refer to Figure 6 and coat each solenoid contact face with grease XG315.

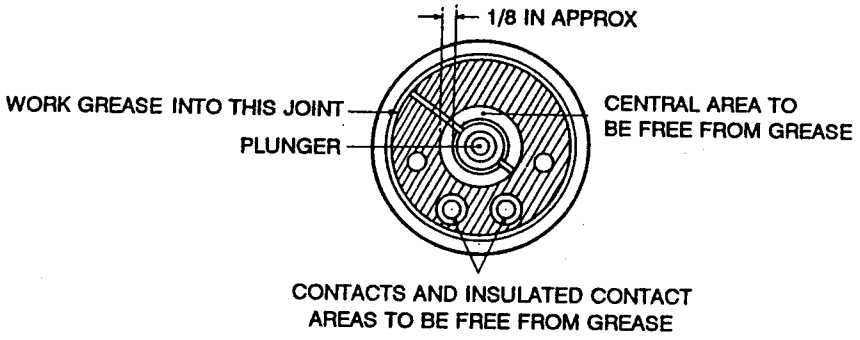

Fig 6 Solenoid greasing details

25.15 Position the solenoids so that the contacts will meet those in the plunger block and insert the solenoid studs in the body. Screw in the sleeve nuts from the opposite side to secure the solenoids tightly against the body.

25.16 After satisfactory testing, fit the adapter ST2758 to each end plug and with a torque wrench, apply a torque load of 50 to 55 lbf.ft. The connection block bolts and blanking screws are to be wirelocked.

25.17 Assemble a bonded seal to the non-return valve and screw it tightly into the valve body.

TESTING

Special tools and test equipment

26 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 two hand pumps and a power pump (power pump must deliver 4000 to 4300 lbf/in^2 peak pressure and 2 gal/min at 3700 lbf/in^2)	Apply hydraulic pressure
-	Electrical power supply 16 to 28 Vdc	Testing
-	500 Vdc insulation resistance test set	Insulation test
-	Blanking adapters (Qty 2) with bleed plugs	Testing

Part No	Description	Application
-	Slave jack	Testing
SP758D	Adapter	Replace NRV for unit test
AGS1186D	Bonded washer	

Non-return valve test

27

27.1 Connect the supply line of the static test rig to the inlet connection and apply a gradually increasing pressure. Fluid should flow freely from the adapter (outlet) connection at a maximum pressure of 5 lbf/in^2. Release the pressure.

27.2 Blank off the adapter connection and gradually apply a pressure of 6600 lbf/in^2. Leakage must not occur. Release the pressure, disconnect the supply line and remove the blanking cap from the adapter.

27.3 Connect the supply line to the adapter connection and gradually apply a pressure of 25 lbf/in^2. Slight leakage is permissible below this pressure but it must not exceed 0.37 cm^3/min at a pressure of 10 lbf/in^2.

27.4 Increase the pressure slowly to 6600 lbf/in^2. Leakage must not occur. Release the pressure and disconnect the supply line.

Testing the unit

28 The unit must be tested, without the non-return valve being assembled, using the equipment specified in paragraph 26.

Electrical insulation test

WARNING

VOLTAGES IN EXCESS OF 30 VOLTS (RMS) AC OR 50 VOLTS DC CAN, IN CERTAIN CIRCUMSTANCES, BE LETHAL. WHEN WORKING ON SUCH SYSTEMS REQUIRING EXPOSURE TO LIVE UNPROTECTED CONDUCTORS, A SECOND PERSON MUST ALWAYS BE IN ATTENDANCE.

29 Before and at the conclusion of the following tests, connect the electrical insulation resistance test set across one solenoid connection terminal and the valve body. The insulation resistance should not be less than 20 megohms.

Adjustments and pressure tests (Fig 1, 2 and 3)

30 Ensure the selector valve is hydraulically full and bled free of air. All tests must be carried out using clean oil OM15.

30.1 Screw the adapter SP758D with bonded washer AGS1186D into the selector valve boss normally used for the non-return valve.

30.2 Connect the supply line of the static hydraulic test rig to the supply connection, blank off service connections 1 and 2 and close the bleed plugs of the blanking adapters.

30.3 Remove the rubber shrouds from the solenoids and slacken both plunger adjusting nuts.

30.4 Connect the electrical supply to the terminal block and adjust the supply to 16 volts.

30.5 Energise solenoid A and operate the test rig to apply a pressure of 1000 lbf/in^2. Screw down the adjusting nut until the ball of the pilot valve leaves its seat, indicated by a drop in pressure.

30.6 Continue to screw down the adjusting nut until a pressure of 5200 lbf/in^2 can be held without leakage. Ensure that the locking spring is engaged in a serration of the nut and then screw down the nut by a further three clicks of the locking spring.

30.7 De-energise the solenoid and apply a pressure of 5200 lbf/in^2. Energise the solenoid and the pilot valve should operate, indicated by a drop in pressure and a spurt of fluid from the return connection. Again raise the pressure to 5200 lbf/in^2. Further leakage from the return connection should not occur. De-energise the solenoid and release the pressure.

30.8 Repeat the tests detailed sub-paragraph 30.5 to 30.7 for solenoid B and its associated pilot valve. If the pressure has fallen below 500 lbf/in^2 at the conclusion of the test, it must be raised to this figure, with both solenoids de-energised, to centralise the slide.

30.9 With both solenoids de-energised, open the bleed plugs at service connections 1 and 2, slowly operate the test rig to a pressure of 300 lbf/in^2 and then gradually increase it to 6600 lbf/in^2. Leakage must not occur. Release the pressure.

30.10 Close the bleed plug at service connection 1, energise solenoid A and operate the rig to a pressure of 200 lbf/in^2. Open the bleed plug at service connection 1 and the pressure should be released. Close the bleed plug at service connection 1 and de-energise solenoid A.

30.11 Close the bleed plug at service connection 2, energise solenoid B and operate the rig to a pressure of 200 lbf/in^2. Open the bleed plug at service connection 2 and the pressure should be released.

30.12 Close the bleed plug at service connection 2, de-energise solenoid B and operate the rig to a pressure of 150 to 300 lbf/in^2 to centralise the slide. Release the pressure and remove the blanking adapters from the service connections 1 and 2.

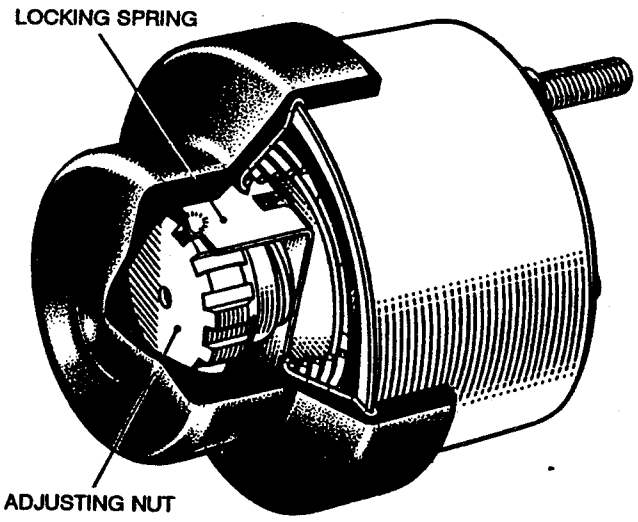

Fig 7 Location of solenoid plunger adjusting nut

30.13 Connect a branch supply line of the rig to service connection 1. Slowly apply pressure up to 300 lbf/in^2 simultaneously at the supply connection and service connection 1 and then gradually increase the pressure to 6600 lbf/in^2. Leakage must not occur. Release the pressure and disconnect the branch supply line.

NOTE

For sub-paragraphs 30.13 and 30.14, a separate hand pump may be used in lieu of a branch supply line for applying pressure at the service connections. If this method is used, the pressure must be released at the service connections before it is released at the supply connection.

30.14 Connect the branch supply line of the rig to service connection 2. Slowly apply pressure up to 300 lbf/in^2 simultaneously at the supply connection and service connection 2, and then gradually increase the pressure to 6600 lbf/in^2. Release the pressure and disconnect the branch supply line.

30.15 Connect the supply line of the separate hand pump to the return connection. Operate the test rig to a pressure of 1750 to 2000 lbf/in^2 and the hand pump to a pressure of 100 lbf/in^2, then gradually increase it to 1500 lbf/in^2. Leakage must not occur. Release the pressure at the return connection, then at the supply connection and disconnect the supply lines.

Power rig tests

31 During the following tests, the fluid temperature must not rise above 45°C.

31.1 Connect the electrical supply to the terminal block and adjust the voltage to between 24 and 28 volts.

31.2 Connect the selector valve supply and return connections to the power test rig and the service connections to the slave jack.

31.3 Operate the power rig and the selector valve for 500 jack cycles. One cycle consists of extending and closing the jack with the pump generating peak pressure at the end of each stroke.

31.4 On the conclusion of the 500 cycles, apply the following check for satisfactory operation of the pilot valves.

31.5 Energise solenoid A and allow the pump to build up to peak pressure. De-energise solenoid A and disconnect the line from the return connection. Energise solenoid A and, after an initial spurt of fluid, leakage from the return connection should not exceed 0.37 cm^3/min. De-energise solenoid A and, after an initial spurt of fluid, leakage from the return connection should not exceed 0.37 cm^3/min. Reconnect the line to the return connection.

31.6 Repeat test 31.5 for solenoid B and its associated pilot valve.

31.7 Adjust the electrical supply to 16 volts and check that the selector valve operates satisfactorily at the lower voltage.

Static rig checks

32 These checks are to be carried out at the conclusion of the power rig tests.

32.1 Connect the supply line of the static hydraulic test rig to the supply connection, blank off service connections 1 and 2 and close the bleed plugs of the blanking adapters.

32.2 Screw back each solenoid adjusting nut sufficiently to drop the pressure below 5200 lbf/in^2 with the appropriate solenoid energised.

32.3 Repeat the operations detailed in sub-paragraph 30.5 to 30.8.

32.4 Repeat the test detailed in sub-paragraph 30.9.

32.5 Close the bleed plug at service connection 1, energise solenoid A and raise the pressure to 200 lbf/in^2. Open the bleed plug and the pressure should be released. Close the bleed plug, raise the pressure slowly to 300 lbf/in^2 and then increase it gradually to 5200 lbf/in^2. Leakage from the return connection or service connection 2 must not occur. Release the pressure and de-energise the solenoid.

32.6 Close the bleed plug at service connection 2, energise solenoid B and raise the pressure to 200 lbf/in^2. Open the bleed plug and the pressure should be released. Close the bleed plug at service connection 2, open the bleed plug at service connection 1, raise the pressure slowly to 300 lbf/in^2 and then increase it gradually to 5200 lbf/in^2. Leakage from the return connection or service connection 1 must not occur. Release the pressure and de-energise the solenoid.

32.7 Repeat tests detailed in sub-paragraph 30.13 and 30.14 but do not apply a pressure in excess of 5200 lbf/in^2.

32.8 Repeat the test detailed in sub-paragraph 30.15.

32.9 Remove the adapter SP758D and bonded washer AGS1186D from the supply connection.

32.10 Complete the assembly procedure, recommencing at paragraph 25.16.

Annex A

SELECTOR VALVE

DOWTY AEROSPACE HYDRAULICS - CHELTENHAM

PART NUMBER 08817YA05

Leading particulars

1 Leading particulars of this unit are as follows:

1.1	System fluid	Oil OM15 (DTD585)
1.2	Operating pressure	5200 lbf/in^2
1.3	Connections	0.375 in BSP
1.4	Solenoids:	
	Rating	24 Vdc continuous
	Consumption	0.4 Amp max

Modification state

2 The information in this annex includes all appropriate modifications up to and including issue 20.

Introduction

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

Annex B

SELECTOR VALVE

DOWTY AEROSPACE HYDRAULICS - CHELTENHAM

PART NUMBER 08817YA06

Leading particulars

1 Leading particulars of this unit are as follows:

1.1	System fluid	Oil OM15 (DTD585)
1.2	Operating pressure	5200 lbf/in^2
1.3	Connections: Supply and Service	0.375 in BSP
	Return	0.500 in BSP
1.4	Solenoids:	
	Rating	24 Vdc continuous
	Consumption	0.4 Amp max

Modification state

2 The information in this annex includes all appropriate modifications up to and including issue 23.

Introduction

3 This unit is similar to the type described and illustrated in the general text but differs in the fitment of a larger return connection.

PARTS CATALOGUE AND RELATED INFORMATION

FOR

SELECTOR VALVE

DOWTY AEROSPACE HYDRAULICS - CHELTENHAM

Part No 08817YA05 and 0881YA06

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
AC4090	*										
AC5592	*										

* 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
BALL, 1/16 IN DIA			1-40		
SCREW, PARKER KALON 0 x 1/8 IN DIA			1-46		
AGS1104D	28F	4730-99-8011808	1-1B		
AGS1186D	28F	5330-99-2077439	1-2		
AGS1186-3		5330-99-8274247	1-43		
AGS1754-1A	5K	5305-99-1361876	1-56		
AGS596C	28N	5340-99-9143884	1-58		
			1-58A		
AGS596D	28N	5340-99-8011909	1-58B		
A43A24	28S	5305-99-9446553	1-57		
A5151YMK130			1-14		
C4600Y24			1-17		
C5156YA			1-50		
DN1334Z	10AP	5945-99-1955435	1-15		
D4673Y	27Q	4820-99-4117763	1-3		
D5149Y2	27Q	5940-99-5802915	1-54		
D5149Y3	27Q	5940-99-4117773	1-52		
GD1309B1-2		5330-99-8814554	1-33		
GD1309B5	6TN	5330-99-8021606	1-32		
SP758D	27Q	4730-99-4117814	1-1		
			1-1A		
SP826-1C	27Q	5305-99-1031567	1-16		
SP880C	27QA	5310-99-1029283	1-59		
			1-59A		
SP880D	27QA	5310-99-9508683	1-59B		
SP885C46	27Q	5305-99-5805348	1-42		
SP900-10	27QA	5330-99-5802282	1-28		
SP900-13	27QA	5330-99-1013063	1-25		
SP900-20	27QA	5330-99-9143527	1-18		
SP900-3	27QA	5330-99-9440406	1-38		
SP900-7	27QA	5330-99-9431638	1-22		
07471Y008		4730-99-5808695	1-19		
07471Y023	27Q	4820-99-4117777	1-49		
08817YA01			1-12		
08817YA05	27QM	4820-99-4117762	1		
08817YA06	27QM	4820-99-4117803	1		
08817Y002		1650-99-4173647	1-45		
1220Y34	27QM	5325-99-5802912	1-55		

INDEX OF PART NUMBERS

Part Number	DMC	Reference Number	Fig/Index	C of S or LM	FC
2000Y107		9905-99-4140003	1-5		
2000Y117		9905-99-4143343	1-47		
2000Y15		5340-99-4170071	1-4		
20000Y244		9905-99-5802913	1-48		
3300Y808A	78BA	1440-99-9016745	1-30		
4600Y12	27Q	4820-99-4117796	1-26		
4600Y13		1650-99-5805433	1-27		
4600Y25		5330-99-5805351	1-44		
4600Y32	78BA	1650-99-5805437	1-39		
4600Y38	78BA	5330-99-5805328	1-23		
4600Y4	27Q	1650-99-4143322	1-24		
4600Y5	27Q	4820-99-4154087	1-21		
4600Y6	27Q	4730-99-4143336	1-37		
4600Y8	78BA	1440-99-9016744	1-41		
4673Y1			1-6		
4673Y2	27Q	4730-99-4117764	1-11		
500Y371	27Q	5340-99-5808404	1-36		
500Y374			1-10		
500Y585		5360-99-5805352	1-29		
5149Y		4810-99-8021567	1-51		
5149Y14		5330-99-4117775	1-53A		
5149Y7		5330-99-4117774	1-53		
5230Y3	27Q	1620-99-4175739	1-7		
5230Y6	27Q	5330-99-4117460	1-8		
5230Y7			1-9		
5230Y8	27Q	4820-99-4117459	1-9A		
7439Y4	27Q	1650-99-5808685	1-31		
7439Y5	27Q	5310-99-5805336	1-34		
7439Y6		1650-99-4143338	1-35		
7439Y7	27Q	5310-99-5805337	1-13		
7471Y4	27Q	5330-99-5802896	1-20		
750060103	27QA	5330-99-9440406	1-38A		
750060107			1-22A		
750060110			1-28A		
750060113			1-25A		
750060120			1-18A		
750150105			1-32A		
751150606			1-33A		

DETAILED PARTS LIST

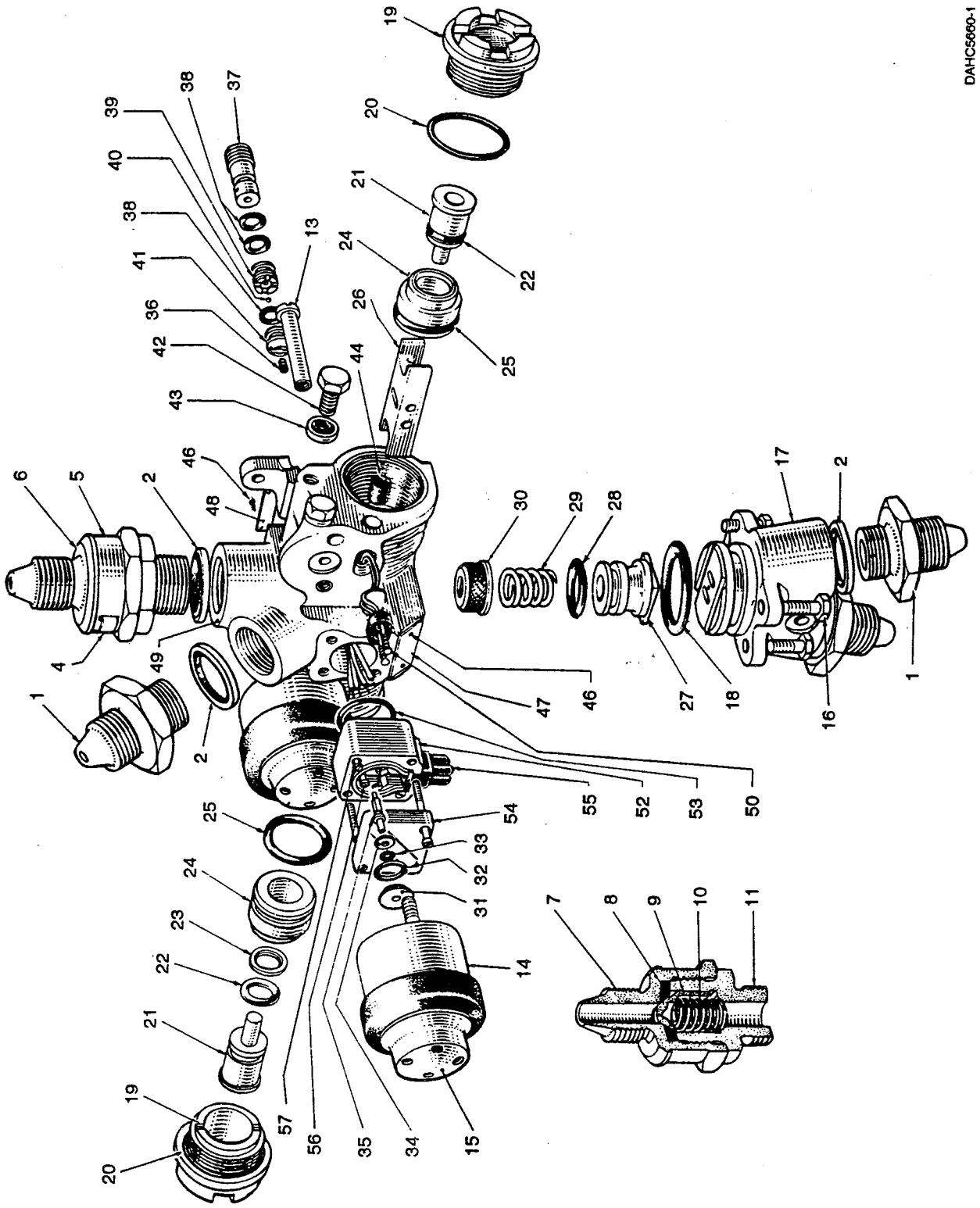

Fig 1 Selector valve

SELECTOR VALVE

Fig/ Index No	Part No	1 2 3 4 5 6 Nomenclature	Mnfrs NATO Code	Usage Code	Units per Assy
1	08817YA05	Valve, selector (Mod AC4090)		A	RF
1+	08817YA06	Valve, selector (Mod AC4090)		B	RF
-1	SP758D	. Adapter		A	3
-1A+	SP758D	. Adapter		B	2
-1B+	AGS1104D	. Adapter		B	1
-2	AGS1186D	. Seal, bonded			4
-3+	D4673Y	. Valve assembly, non-return			1
-4	2000Y15	. . Strap			1
-5	2000Y107	. . Nameplate			1
-6	4673Y1	. . Valve, non-return			1
-7	5230Y3	. . . Body, valve			1
-8	5230Y6	. . . Washer, sealing			1
-9	5230Y7	. . . Valve			1
	or	(Alternative)			
-9A+	5230Y8	. . . Valve			1
-10	500Y374	. . . Spring			1
-11	4673Y2	. . . Adapter			1
-12+	08817YA01	. Valve assembly, selector			1
-13	7439Y7	. . Nut, sleeve			4
-14	A5151YMK130	. . Solenoid assembly (Mod AC5592)			2
		Spares for:			
-15	DN1334Z	. . . Shroud			2
-16	SP826-1C	. . Bolt			4

+ Item not illustrated

SELECTOR VALVE

Fig/ Index No	Part No	1 2 3 4 5 6 Nomenclature	Mnfrs NATO Code	Usage Code	Units per Assy
1-17	C4600Y24	. . Block, connection			1
-18	SP900-20 or	. . O-ring (Alternative)			1
-18A+	750060120	. . O-ring			1
-19	07471Y008	. . Plug, end			2
-20	7471Y4	. . O-ring			2
-21	4600Y5	. . Piston, actuating			2
-22	SP900-7 or	. . O-ring (Alternative)			2
-22A+	750060107	. . O-ring			2
-23	4600Y38	. . Ring, anti-extrusion			2
-24	4600Y4	. . Piston, centralising			2
-25	SP900-13 or	. . O-ring (Alternative)			2
-25A+	750060113	. . O-ring			2
-26	4600Y12	. . Slide			1
-27	4600Y13	. . Thimble			1
-28	SP900-10 or	. . O-ring (Alternative)			1
-28A+	750060110	. . O-ring			1
-29	500Y585	. . Spring			1
-30	3300Y808A	. . Filter assembly			1
-31	7439Y4	. . Housing			2
-32	GD1309B5 or	. . O-ring (Alternative)			2
-32A+	750150105	. . O-ring			2
-33	GD1309B1-2 or	. . O-ring (Alternative)			2
-33A+	751150606	. . O-ring			2

+ Item not illustrated

SELECTOR VALVE

Fig/ Index No	Part No	1 2 3 4 5 6 Nomenclature	Mnfrs NATO Code	Usage Code	Units per Assy
1-34	7439Y5	. . Washer, backing			2
-35	7439Y6	. . Spindle			2
-36	500Y371	. . Spring			2
-37	4600Y6	. . Plug			2
-38	SP900-3	. . O-ring			6
	or	(Alternative)			
-38A+	750060103	. . O-ring			6
-39	4600Y32	. . Seat, pressure			2
-40	ND	. . Ball, 1/16 in dia			2
-41	4600Y8	. . Seat, return			2
-42	SP885C46	. . Screw			4
-43	AGS1186-3	. . Seal, bonded			4
-44	4600Y25	. . Plug, rubber			2
-45+	08817Y002	. . Body sub-assembly			1
-46	ND	. . . Screw, Parker Kalon 0 x 1/8 in dia			4
-47	2000Y117	. . . Nameplate			1
-48	20000Y244	. . . Plate, identification			1
-49	07471Y023	. . . Body, valve			1
-50	C5156YA	. . Wiring sub-assembly			2
-51+	5149Y	. . Block assembly, terminal			1
-52	D5149Y3	. . . Block, terminal			1
-53	5149Y7	. . . O-ring			1
	or	(for use with terminal block marked T or without identification)			

+ Item not illustrated

SELECTOR VALVE

Fig/ Index No	Part No	1 2 3 4 5 6 Nomenclature	Mnfrs NATO Code	Usage Code	Units per Assy
1-53A+	5149Y14	. . . O-ring (for use with terminal block marked TX)			1
-54	D5149Y2	. . . Cover assembly			1
-55	1220Y34	. . . Grommet			1
-56	AGS1754-1A	. . . Washer and screw, combined			3
-57	A43A24	. . . Screw, cheesehead			2
-58+	AGS596C	. Cap, dust (Storage and transit)		A	4
-58A+	AGS596C	. Cap, dust (Storage and transit)		B	3
-58B+	AGS596D	. Cap, dust (Storage and transit)		B	1
-59+	SP880C	. Washer, sealing (Storage and transit)		A	4
-59A+	SP880C	. Washer, sealing (Storage and transit)		B	3
-59B+	SP880D	. Washer, sealing (Storage and transit)		B	1

+ Item not illustrated