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SA 68

## ANTI-G VALVE HYMATIC TYPE AG 2

**GENERAL AND TECHNICAL INFORMATION  
GENERAL ORDERS AND MODIFICATIONS  
PARTS CATALOGUE AND RELATED INFORMATION**

BY COMMAND OF THE DEFENCE COUNCIL

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Ministry of Defence

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## AMENDMENT RECORD

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## RECORD OF ADVANCE INFORMATION LEAFLETS (AIL)

## RECORD OF SERVICE TEMPORARY AMENDMENT LEAFLETS (STAL)

\*Insert specific identity of STAL

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### USE OF AMENDMENT INDICATORS

Changes of technical import are identified within this publication by triangle indicators, positioned outside the type area thus > ..... < .

# WARNINGS

## CONTROL OF SUBSTANCES HAZARDOUS TO HEALTH

MAKE SURE YOU KNOW THE SAFETY PRECAUTIONS AND FIRST AID INSTRUCTIONS  
BEFORE YOU USE A HAZARDOUS SUBSTANCE

READ THE LABEL ON THE CONTAINER IN WHICH THE SUBSTANCE IS SUPPLIED

READ THE DATA SHEET APPLICABLE TO THE SUBSTANCE

OBEY THE LOCAL ORDERS AND REGULATIONS

## WARNINGS

- (1) HAZARD STORES. THE SOURCE REFERENCE FOR HAZARDOUS STORES IS JSP (F)395, AP 100B-10 SUBSTANCES HAZARDOUS TO HEALTH IS A SUPPLEMENTARY BOOK FOR USE IN THE RAF.
- (2) HIGH PRESSURE AIR. HIGH PRESSURE AIR IS DANGEROUS. NEGLECT OF SAFETY PRECAUTIONS MAY LEAD TO INJURY OR FATALITY. DO NOT CONNECT, DISCONNECT OR ADJUST COUPLINGS WHILE SYSTEM IS PRESSURISED.
- (3) WHEN CLEANING WITH COMPRESSED AIR, SAFETY GOGGLES ARE TO BE WORN, AND CLEAN DRY AIR IS TO BE USED AT A PRESSURE NOT MORE THAN 1.7 BAR (25 LBF/IN<sup>2</sup>).
- (4) TRICHLOROETHYLENE. TRICHLOROETHYLENE IS TOXIC IF INGESTED AND IS AN IRRITANT TO EYES, SKIN AND RESPIRATORY SYSTEM. ALTHOUGH NON-FLAMMABLE, IT WILL GIVE OFF ACIDIC PRODUCTS IF EXPOSED TO NAKED FLAME OR INTENSE HEAT. USE ONLY IN A WELL VENTILATED AREA. DO NOT SMOKE. WEAR PROTECTIVE GOGGLES AND PVC GLOVES AND APRON. IN THE EVENT OF CONTACT WITH THE SKIN, WASH OFF WITH SOAP AND WATER AND APPLY LANOLIN CREAM. IN THE EVENT OF EYE CONTACT, IRRIGATE THOROUGHLY WITH WATER FOR 15 MINUTES AND OBTAIN MEDICAL ATTENTION. TRICHLOROETHYLENE IS USED IN THE MAINTENANCE OF THIS EQUIPMENT. REFER TO JSP(F)395.

## MODIFICATION RECORD

The following record confirms that the Topic 1 of this publication incorporates all technical changes necessitated by the modifications listed below. Further information on modification titles, classification categories and Mark applicabilities may be found in Topic 2.

Mod No	Brief details	Class
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ANTI-G VALVE HYMATIC TYPE AG2

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## LEADING PARTICULARS

Valve type	...	...	...	...	...	...	...	...	...	...	...	AG2
Part Number	...	...	...	...	...	...	...	...	...	...	...	B30029
NATO Number	...	...	...	...	...	...	...	...	...	...	...	1650-99-449-5776
Inlet pressure	...	...	...	...	...	...	...	...	...	...	...	20 lbf/in. <sup>2</sup>
Suit pressure at 3 to 8g	...	...	...	...	...	...	...	...	...	...	...	(Total g-1) 1bf/in. <sup>2</sup>
Cut-in (suit inflation)	...	...	...	...	...	...	...	...	...	...	...	1.75 to 2.25 g
Cut-out (suit deflation)	...	...	...	...	...	...	...	...	...	...	...	2.25 to 1.5g
Dimensions	...	...	...	7.25 in.	x 2.5 in.	x 3.25 in.	over connections	...	...	...	...	1.25 lb
Weight	...	...	...	...	...	...	...	...	...	...	...	Issue 17
Modification state	...	...	...	...	...	...	...	...	...	...	...	

INTRODUCTION

1 Anti-g valve AG2 controls the inflation pressure of an anti-g suit during manoeuvres in excess of 1g. A test push button is incorporated to permit pre-flight suit inflation and deflation.

DESCRIPTION (Fig 1)

2 The AG2 anti-g valve consists of a body, a main piston and poppet valve assembly, an exhaust valve and valve stem assembly, a bottom cover and regulator nut, an auxiliary piston assembly, a top cover assembly, a control weight assembly, and inlet and outlet connections.

2.1 Main piston and poppet valve assembly. The two parts of the poppet valve are mounted on the main piston, and are separated by a buffer seal housing and buffer seal. The buffer seal, which fits in the buffer seal housing, provides a seal between the buffer seal housing and the top part of the poppet valve. A rubber sleeve fits over the bottom part of the poppet valve and the lower part of the buffer seal housing. A valve adjustment nut, which is locked by a lockring, holds the poppet valve in position on the main piston.

2.2 Exhaust valve and valve stem assembly. The upper valve spring is fitted around the valve stem. The Valve stem fits through the centre of the exhaust valve assembly and is locked by a nut and washer. The lower part of the valve stem fits through the centre of the poppet valve and into the lower valve spring sleeve, where it abuts the lower valve spring.

2.3 Bottom cover and regulator nut. The bottom cover is secured to the valve by four screws and washers, and the joint is sealed by a joint washer. A regulator nut is screwed onto the bottom cover and is locked by the regulator locknut.

2.4 Auxiliary piston assembly. The auxiliary piston, auxiliary piston spring, spring carrier and breather filter are contained in the bottom cover and regulator nut.

2.5 Top cover assembly. The top cover is screwed onto the top of the valve body. A test push button fits through the centre of the cover and spring carrier, and is locked in position by a circlip. A push button spring fits around the outside of the push button hollow shaft, and a buffer spring fits inside the shaft.

2.6 Control weight assembly. The control weight assembly rests on top of the exhaust valve in the upper valve body, below the top cover assembly.

2.7 Inlet and outlet connections. The inlet and outlet connections are secured to the valve body by four screws and washers each. Both connections are sealed by a joint gasket, and both connections have integral filters.

2.8 The upper part of the valve body has two sets of exhaust vents, positioned above the inlet and outlet connections. Both exhausts have four vents, and these are covered by a filter gauge and plate. The plates are attached to the body by four drive screws each.

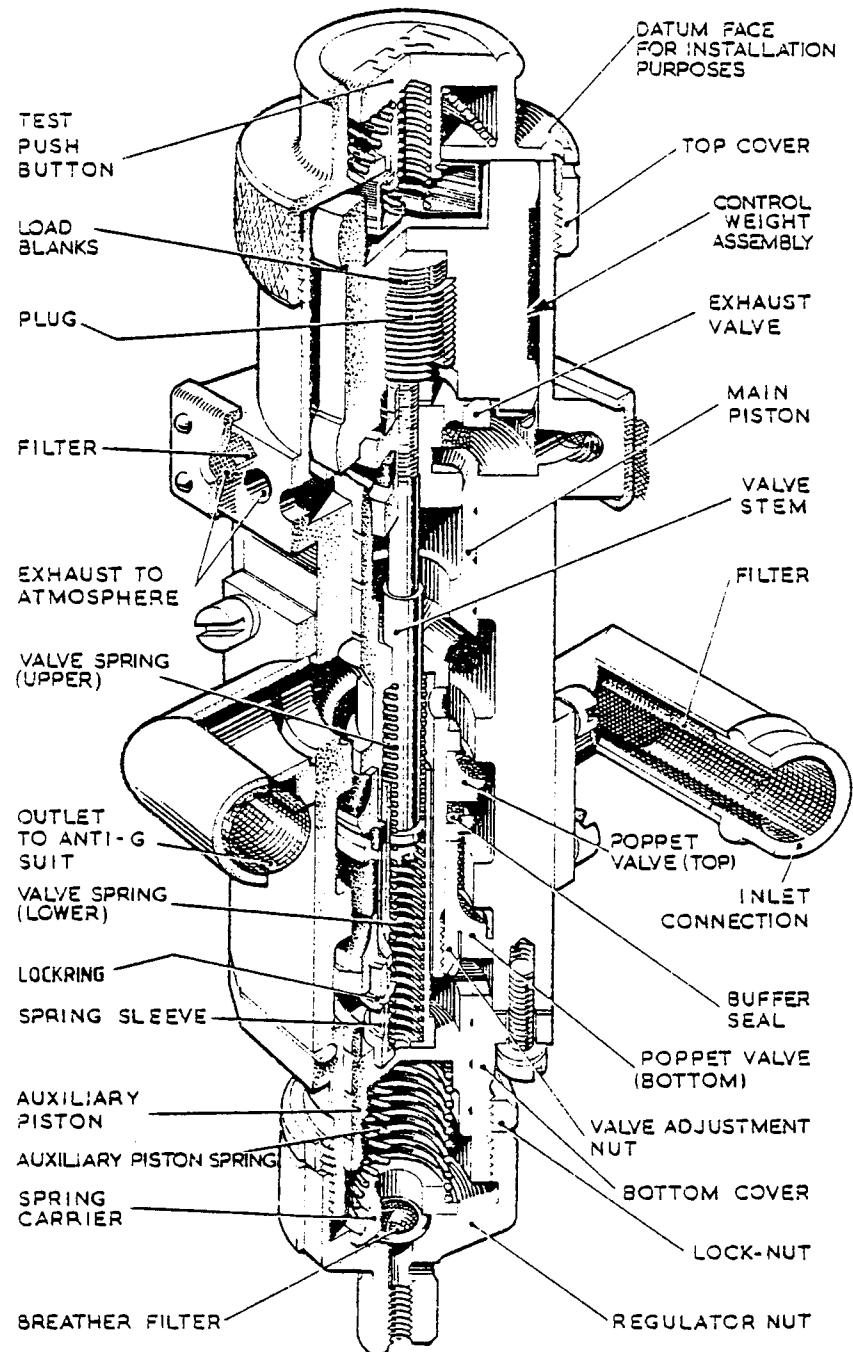


Fig 1 Anti-g valve AG2

OPERATION (Fig 2)

3 The air pressure delivered to the suit by the valve depends on the movements of the control weight under g loading.

3.1 When the valve is in the normal position at 1g, the force of the control weight and moving parts of the valve is equivalent to 1g; the exhaust valve is open and the poppet valve is closed.

3.2 As g increases the force of the control weight and moving parts increases until at approximately 1.5g the exhaust valve seats on the main piston and the valve is ready to cut in.

3.3 Cut-in occurs when on further increase of g the control weight causes the main piston to move and open the poppet valve to admit air pressure to the g suit.

3.4 When air pressure in the g suit increases sufficiently to overcome the auxiliary piston spring it depresses the auxiliary piston, so allowing the lower valve spring to extend and thereby reduce the upwards load on the main piston which, under the force of the g load, positively opens the poppet.

3.5 When the air pressure in the g suit, acting on the area of the main piston, has built up and balances the force of the g load it causes the main piston to move upwards and close the poppet to limit the air supply to the suit. The suit pressure is thus proportional to the g load acting in the moving parts of the valve and is so arranged that suit pressure is equivalent to (total g - 1) lbf/in.<sup>2</sup> (i.e. at 5g the suit pressure is 4 lbf/in.<sup>2</sup>).

3.6 Further increase in g load opens the poppet to admit more pressure to the suit until suit pressure again balances g load and the poppet closes.

3.7 When g load decreases the reduced force of the mass of the weight/piston assembly is overcome by the pressure in the suit, causing the piston to move upwards to close the poppet and open the exhaust and vent suit pressure to atmosphere. The pressure above the auxiliary piston escapes to atmosphere through the centre of the main piston so allowing the auxiliary piston to return slowly to normal position under the action of its spring.

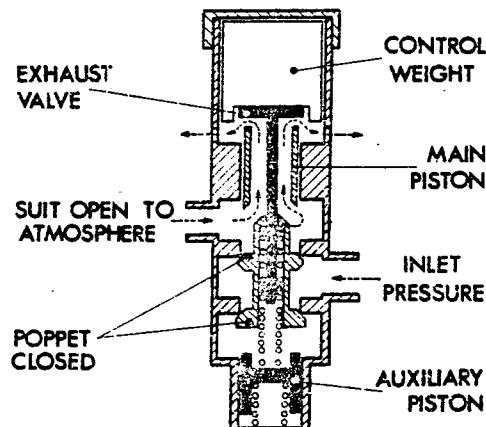
Test button operation

4 Operation of the test button simulates g effect in the valve. If the test button is held down, or becomes jammed in the test position, excess suit pressure will lift the control weight against the loading of the buffer spring, and open the exhaust valve to allow excess suit pressure to vent to atmosphere.

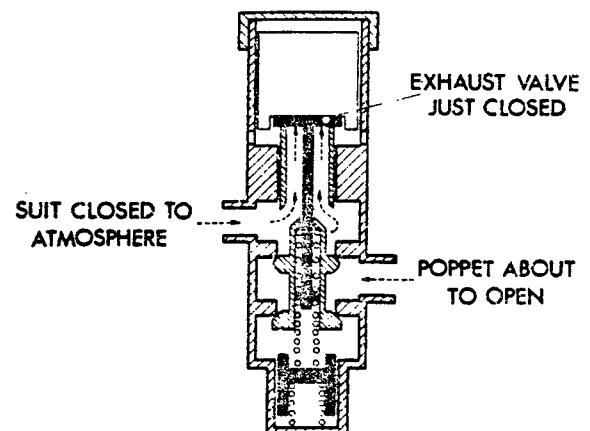
INSTALLATION

5 The valve must be mounted with the datum face (Fig 1) within  $\pm$  2 degrees of the average plane of level flight of the aircraft.

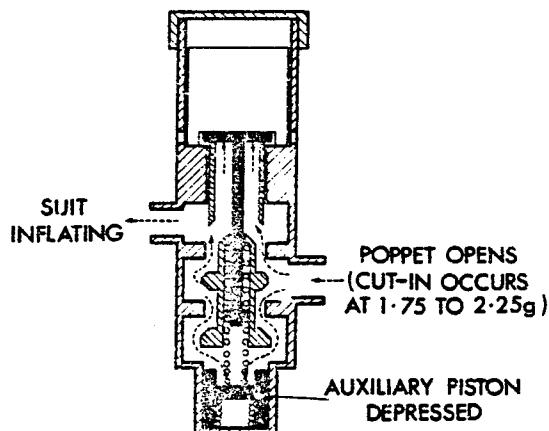
6 The valve body adjacent to the gauze covered exhaust vents and the regulator nut are drilled and tapped 4BA for installation purposes.



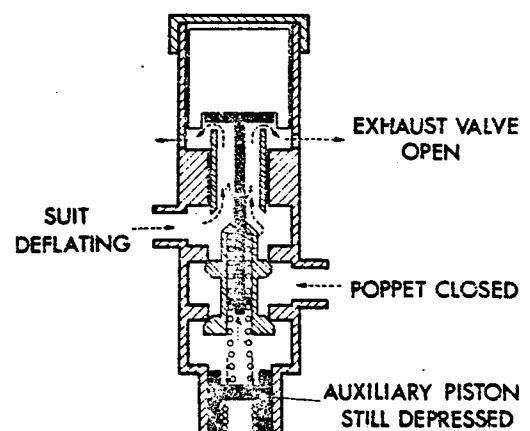
NORMAL POSITION (1g)



VALVE ABOUT TO CUT-IN (APPROX. 1.5g)



AFTER CUT-IN (3 TO 8g)



AFTER CUT-OUT (2.25 TO 1.5g)

Fig 2 Function diagram

SERVICING

TABLE 1 SPECIAL TOOLS, TEST EQUIPMENT AND MATERIALS

REF. NO.	PART NO.	DESCRIPTION	QTY
4920-99-452-5814	D/MT890	Set of calibrating weights in box, comprising:	1
	D/MT890/1	Weight 0.25g	1
	D/MT890/2	Carrier 0.5g	1
	D/MT890/3	Carrier 1g	1
	D/MT890/4	Weight 1g	6
	D/MT890/7	Wooden box	1
4920-99-452-5816	A/MT836	Fixture for holding anti-g valves	1
5120-99-452-5821	D/MT901	C-spanner for regulator nut	1
	B/MT863	Checking jig	1
	B/MT832	Torque spanner	1
	D/MT1068	Torque spanner setting weight	1
4G/4671420		Test rig, pneumatic	1
> 6810-00-678-4418		Solvent, Trichloroethylene	A/R

DISMANTLING (Fig 1)

7

- 7.1 Remove the screws and washers from the inlet and outlet elbow connections, remove the connections and discard the joint washers.
- 7.2 Remove the screws from the filter plates, remove the plates and filter gauzes.
- 7.3 Release the locking wire and unscrew the top cover complete with the push button assembly.
- 7.4 Remove the circlip from the push button and dismantle the spring carrier, buffer spring, push button and conical spring from the top cover.
- 7.5 Lift out the control weight assembly. Do not remove the plug and the load blanks.
- 7.6 Slacken the regulator locknut, unscrew and remove the regulator nut, remove the auxiliary piston spring, spring carrier and breather filter from the regulator nut.
- 7.7 Remove the auxiliary piston, spring sleeve and the lower valve spring from the bottom cover.
- 7.8 Remove the screws and washers securing the bottom cover to the body and remove the bottom cover. Discard the joint washer.
- 7.9 Remove the lockring securing the adjustment nut, and then remove the adjustment nut using torque spanner B/MT832.

7.10 Remove the bottom valve and buffer seal which are held together by a rubber sleeve.

7.11 Remove the main piston assembly through the top of the body and the top valve through the slot in the side of the body.

7.12 Remove the nut and shakeproof washer which lock the exhaust valve on the pull rod.

7.13 Unscrew the exhaust valve from the stem, withdraw the valve stem from the main piston and remove the upper valve spring.

### EXAMINING

8

8.1 Clean all parts except rubber items, in the solvent and thoroughly dry in a stream of clean dry air. Examine all parts for damage, wear, corrosion and deterioration of surface treatment. Renew all parts failing to pass examination.

8.2 Check the springs against the detail in the spring data in Table 2.

TABLE 2 SPRING DATA

Identification	Check
Push button spring	Load at compressed length of 0.3 in. to be 1 lb approx.
Buffer spring	Load at compressed length of 0.58 in. to be 3.62 lb ( $\pm$ 0.18 lb)
Valve spring upper	Free length to be not less than 1.25 in.
Valve spring lower	Free length to be not less than 1.8 in.
Auxiliary piston spring	Free length to be not less than 1.6 in.

### ASSEMBLING (Fig 1)

9 If a new buffer seal is being fitted, a new buffer seal housing must be fitted, and the distance between the valve seats adjusted by machining the length of the buffer seal housing. A checking jig B/MT863, torque spanner B/MT832, and torque spanner setting weight D/MT1068 are required for this purpose. Proceed as follows:

9.1 Hold the main piston vertical with the large diameter lowermost.

9.2 Slide the top valve, rubber valve lowermost, onto the main piston.

9.3 Place the checking jig distance piece over the bottom valve as shown in Fig 3, so that the largest diameter of the distance piece is towards the bottom valve.

9.4 Secure the buffer seal housing and bottom valve together with the rubber sleeve.

9.5 Place the buffer seal in its housing and slide the complete assembly, buffer seal first, onto the main piston.

9.6 Screw the adjustment nut onto the main piston and torque load to 7.5 lbf in.

9.7 Mount the assembly in the jig, as shown in Fig 3, and place the weight in position.

9.8 Set the indicator to zero and then press the outer sleeve downwards to the full extent of its travel. Note the indicator reading.

9.9 Remove the assembly from the jig and dismantle.

9.10 Machine the amount recorded in Para 9.8 from the face of the small diameter end of the buffer seal housing. Accuracy of machining is to be  $\pm 0.001$  in.

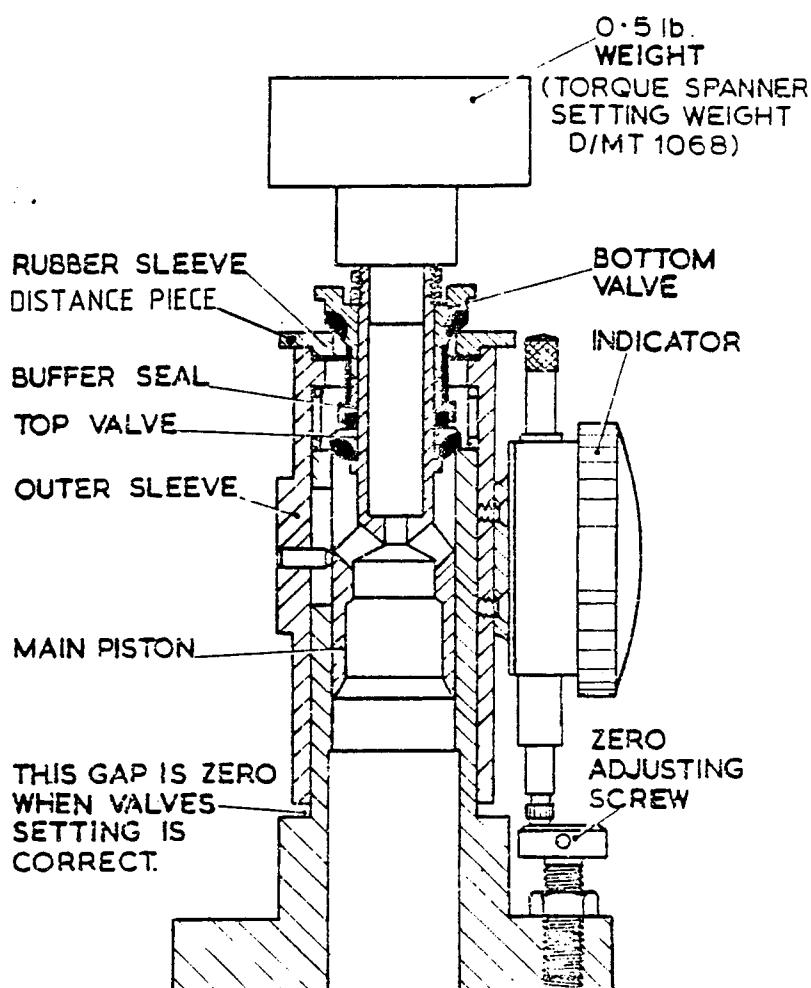


Fig 3 Checking rig for poppet valve

10 When the distance between the valve seats is correct, proceed as follows:

10.1 Slide the upper valve spring onto the valve stem.

10.2 Insert the valve stem, threaded end first, into the threaded end of the main piston.

10.3 Screw the exhaust valve onto the valve stem and secure with a shakproof washer and nut. Adjust the nut until its top face is flush with the top of the pull rod.

Note ...

The exhaust valve position will be set during testing to give correct cut-in and cut-out.

10.4 Hold the body vertical with the external threaded portion lowermost.

10.5 Place the top valve, with its rubber valve lowermost, through the side of the body.

10.6 Insert the main piston and exhaust valve assembly, threaded end of the main piston first, up into the body and through the top valve.

10.7 Secure the buffer seal housing and bottom valve together with the rubber sleeve.

10.8 Place the buffer seal in its housing and slide the complete assembly onto the main piston.

10.9 Screw the adjustment nut onto the main piston and tighten, using the torque spanner set to 7.5 lbf in.

10.10 Fit the inlet and outlet connections, complete with jointing washers, and secure them with shakproof washers and cheesehead screws.

10.11 Connect the inlet connection to the test rig (Fig 4) and ensure that the valve is mounted vertical by placing a spirit level across the top of the body.

10.12 Place the torque spanner setting weight (0.5 lb weight) on the locking nut.

10.13 Close the shut-off valve and open the shut-off cock. Charge the inlet bottle to a pressure of between 150 and 200 lbf/in.<sup>2</sup>.

10.14 Close the shut-off cock and allow the air to cool until the bottle pressure is stable.

10.15 Open the shut-off valve and ensure that the inlet pressure to the anti-g valve is between 18 and 20 lbf/in.<sup>2</sup>. Note the pressure indication.

10.16 Note the time taken for the pressure to drop by 5 lbf/in.<sup>2</sup>. The time taken should not be less than that detailed in Table 3 against the capacity of the inlet bottle.

Note ...

If the leak rate exceeds 0.02 ft<sup>3</sup>/min, the tightening torque of the adjusting nut may be adjusted within the limits of 6 to 9 lbf in. Reduce the torque loading for a leak past the top valve, and increase the torque loading for a leak past the bottom valve.

TABLE 3 INLET BOTTLE CAPACITY/TIME - 1G

INLET BOTTLE CAPACITY (in. <sup>3</sup> )	TIME (MIN)	TIME (SEC)
400	3	56
500	4	55
600	5	54

10.17 Secure the adjustment nut with the circlip.

10.18 Close the shut-off valve and disconnect the assembly from the test rig.

10.19 Remove the cheesehead screws and shakeproof washers from the inlet connection and remove the inlet connection and jointing washer.

10.20 Measure the gap between the buffer seal housing and top valve; this should be between 0.003 and 0.018 in.

10.21 Refit the inlet connection, complete with jointing washer, and secure with cheesehead screws and shakeproof washers.

10.22 Assemble the lower valve spring and spring sleeve in the main piston.

10.23 Secure the bottom cover to the body by shakeproof washers and cheesehead screws.

10.24 Fit the auxiliary piston, shallow end first, in the bottom cover.

10.25 Place the breather filter, spring carrier and spring in the regulator nut and then screw the regulator locknut and regulator nut on the bottom cover.

Note ...

The regulator nut will be set in its correct position during testing.

10.26 Fit the two filter gauzes and plates to the body and secure with drive screws.

10.27 Hold the valve with the body vertical and the external threaded portion uppermost.

10.28 Connect the anti-g valve in the test rig (Fig 4) with the shut-off valve and the manometer stop cock closed. Ensure that the anti-g valve is vertical by placing a spirit level across the top of the valve body.

10.29 Insert the control weight, complete with plug and load blanks, in the top of the body.

10.30 Press down the control weight to the limit of its travel and measure the amount of movement, using a depth micrometer.

10.31 Allow control weight to return under spring action.

10.32 Open the shut-off valve and ensure that the inlet pressure to the anti-g valve is between 18 and 20 lbf/in.<sup>2</sup>.

10.33 Press down the control weight until the outlet (suit) pressure starts to rise, i.e. exhaust valve has seated. Note the amount of movement; this should be between 0.075 and 0.110 in.

10.34 Subtract the exhaust valve lift recorded in Para 10.33 from the total movement recorded in Para 10.30. This figure is the poppet lift and should be between 0.110 and 0.150 in.

10.35 Place the conical spring, large diameter first, into the top cover and then insert the push button.

10.36 Insert the buffer spring into the push button, fit the spring carrier and secure the assembly with the circlip.

10.37 Screw the top cover, complete with push button assembly, on to the body.

10.38 Press down the push button to the limit of its travel and release. On release the push button must return freely and allow the outlet (suit) pressure to exhaust to atmosphere.

10.39 Press down the push button to the limit of its travel and hold. Excess outlet (suit) pressure is to overcome the spring load of the buffer spring and vent to atmosphere. Release push button.

### TESTING

11 Paras 12 to 17 detail the tests required following dismantling, examination and assembling of the anti-g valve. A standard serviceability test consists of: Leakage test at 1g, calibration test, leakage test at 8g, cut-in and cut-out tests, inflation and deflation tests and test button check. A dynamic check is not required. During the following tests, connect the anti-g valve to the test rig (Fig 4) unless otherwise detailed and ensure that it is vertical by placing a spirit level across the top cover.

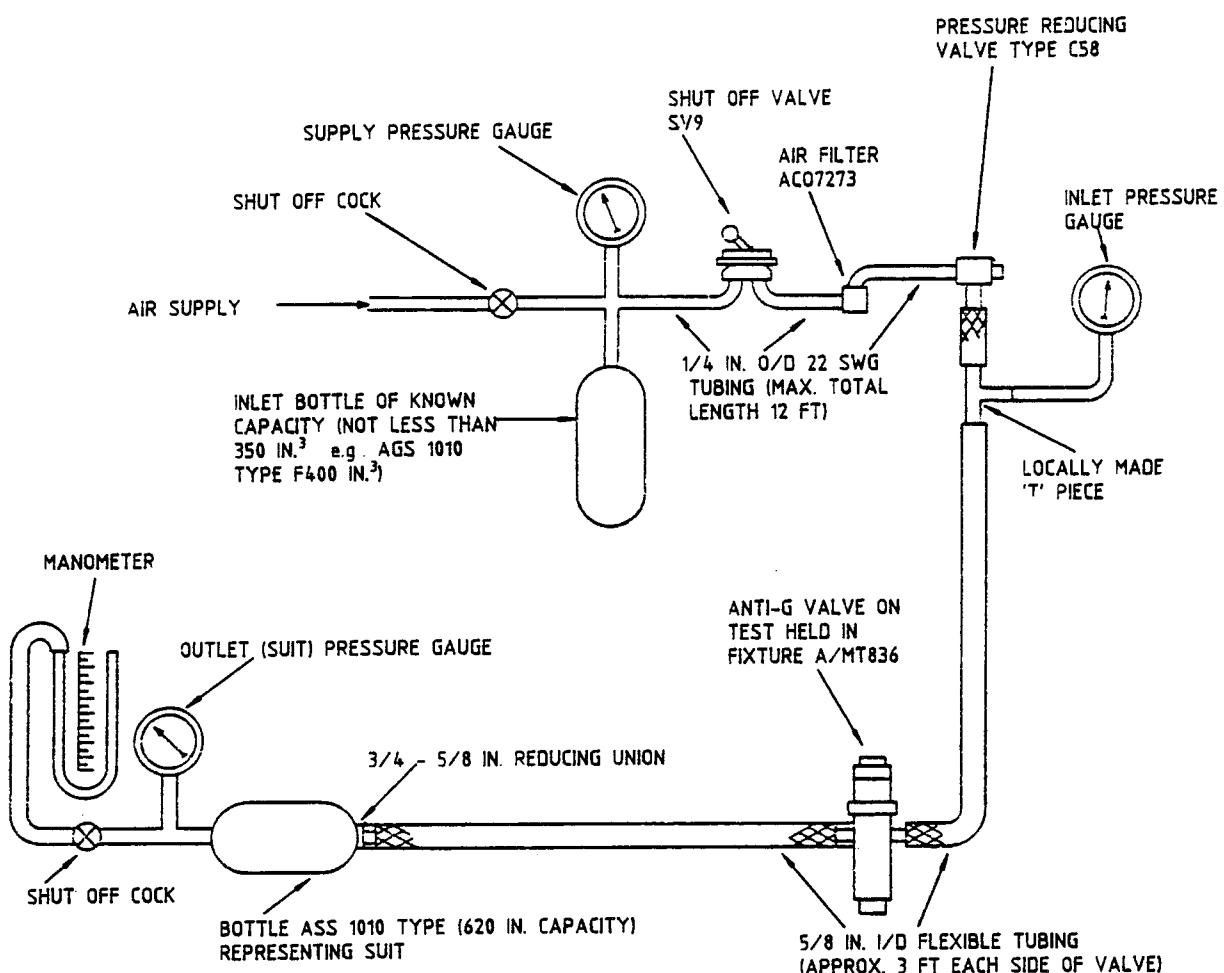


Fig 4 Test circuit

Leakage test at 1g

12 Carry out the following test to check that the leakage rate at 1g does not exceed 0.02 ft<sup>3</sup>/min. This test is to be carried out at both 10 and 20 lbf/in.<sup>2</sup> anti-g valve inlet pressures.

12.1 Close the shut-off valve and open the shut-off cock. Charge the inlet air bottle to a pressure of between 150 and 200 lbf/in.<sup>2</sup>.

12.2 Close the shut-off cock and allow the air to cool until the bottle pressure is stable.

12.3 Open the shut-off valve and adjust the pressure reducing valve to give the required inlet pressure at the anti-g valve. Note the pressure indication.

12.4 Note the time taken for the pressure to drop by 5 lbf/in.<sup>2</sup>. The time taken should not be less than that detailed in Table 3 against the capacity of the inlet bottle.

12.5 Leakage from external joint washers is not permissible.

Calibration test

13

13.1 Unscrew the top cover and fit the 1g carrier to the control weight.

Note ...

The carrier must fit snugly, must not foul the body and must be vertical.

13.2 Place a 1g weight on the carrier, i.e. 3g total. The outlet (suit) pressure should be  $2 \pm 0.25 \text{ lbf/in.}^2$ . Adjust the position of the regulator nut until the correct pressure is obtained.

Note ...

To increase the pressure, the regulator nut must be unscrewed. Ensure that after adjustment the distance between the flange of the bottom cover and the regulator nut does not exceed 0.6875 in.

13.3 Fit a second 1g weight on the carrier, i.e. 4g total. The outlet (suit) pressure should be  $3 \pm 0.25 \text{ lbf/in.}^2$ .

13.4 Fit the remaining 1g weights one by one and check that the outlet (suit) pressure increases by  $1 \pm 0.25 \text{ lbf/in.}^2$  as each weight has been added. When the last weight has been added, i.e. 8g total the outlet (suit) pressure should be  $7 \pm 0.25 \text{ lbf/in.}^2$ .

13.5 Remove all g weights and carrier.

13.6 Repeat the test as per Paras 13.1 to 13.4 but between each increase in g, the valve is to be subject to tapping with a small wooden block, e.g. the handle of a small screwdriver, tapping the valve front adjacent to the gauge exhaust filters between the two screws (A31/B8). Any fluctuations to the outlet pressure produced by this tapping should not exceed  $\pm 1 \text{ lbf/in.}^2$  from the required mean pressures indicated in Paras 13.1 to 13.4.

13.7 Check the pressure drop in the suit from 8g to 5g by applying an 8g load, then quickly remove three 1g weights. The exhaust valve should stabilize immediately at a suit pressure of  $4 \pm 0.25 \text{ lbf/in.}^2$ .

Leakage test at 8g

14 The following test is to check that the leakage rate at 8g is between 0.15 and 0.3 ft<sup>3</sup>/min with anti-g valve inlet pressures at 10 and at 20 lbf/in.<sup>2</sup>.

14.1 With the top cover removed, fit the 1g carrier and the six 1g weights to the control weight. Ensure that the inlet pressure to the anti-g valve is between 10 and 20 lbf/in.<sup>2</sup> and note the pressure indication.

14.2 Note the time taken for the pressure indication to drop by 5 lbf/in.<sup>2</sup>. The time taken should be within the time detailed in Table 4 against the capacity of the inlet bottle.

14.3 No leakage is permitted from external joint washers.

TABLE 4 INLET BOTTLE CAPACITY/TIME - 8g

INLET BOTTLE CAPACITY (in. <sup>3</sup> )	TIME (SECONDS)
400	16 - 31
500	20 - 39
600	24 - 47

Cut-in and cut-out tests

15 The following test is to ascertain that cut-in occurs between 1.75g and 2.25g during increasing g and that cut-out occurs between 2.25g and 1.5g during decreasing g.

15.1 With the top cover removed, fit the 0.5g carrier to the control weight i.e. 1.5g total and open the manometer shut-off cock. No outlet (suit) pressure should be indicated.

15.2 Add the 0.25g weight to the carrier, i.e 1.75g total. If an outlet (suit) pressure of 0.05 lbf/in.<sup>2</sup> (1.4 in. water gauge) is indicated, the anti-g valve is cutting-in at the lower limit.

15.3 If no outlet (suit) pressure is indicated, remove the 0.25g weight and 0.5g carrier and fit the 1g carrier and 0.25g weight, i.e. 2.25g total. An outlet (suit) pressure of at least 0.05 lbf/in.<sup>2</sup> (1.4 in. water gauge) should be indicated.

Note ...

Cut-in may be adjusted by repositioning the exhaust valve on the pull rod. It is desirable that the cut-in should be at the highest g possible within the tolerance of 1.75 to 2.25g.

15.4 Fit the 0.5g carrier and two 1g weights, i.e. 3.5g total.

15.5 Remove the upper 1g weight quickly, i.e. total g reduced to 2.5g, and the anti-g valve should not cut out.

15.6 Remove the 1g weight and the 0.5g carrier and fit the 1g carrier, the 0.25g weight and the 1g weight, i.e. 3.25g total.

15.7 Remove the upper 1g weight quickly, i.e. total g reduced to 2.25g. If the outlet (suit) pressure drops to approximately 0.05 lbf/in.<sup>2</sup> (1.4 in. water gauge), the anti-g valve is cutting-out at the upper limit.

15.8 If the anti-g valve does not cut-out remove the 0.25g weight and the 1g carrier and fit the 0.5g carrier and a 1g weight, i.e. 2.5g total.

15.9 Remove the upper 0.5g weight quickly, i.e. total g reduced to 1.5g and the anti-g valve should cut out.

15.10 Close the manometer stop cock.

Note ...

Cut-out may be adjusted by repositioning the exhaust valve on the pull-rod. If the adjustment is carried out then the complete cut-in and cut-out tests must be repeated.

#### Inflation and deflation tests

16

16.1 With the valve vertical and installed in the test circuit (Fig 4) ensure that the supply pressure in the test circuit is 140 to 200 lbf/in.<sup>2</sup>. Rapidly apply, but without shock, the 1g carrier and four 1g weights (giving a total of 6g) and measure the time for the outlet (suit pressure) to reach 4.5 lbf/in.<sup>2</sup>. The maximum time permitted is 3 seconds from the application of the load until the required pressure is reached with the supply pressure falling to 140 lbf/in.<sup>2</sup>.

16.2 Allow the system to stabilize with 5 lbf/in.<sup>2</sup> suit pressure. Rapidly remove the added load and measure the time required for the suit pressure to reduce to 0.5 lbf/in.<sup>2</sup>. The maximum time permitted is 2 seconds from the removal of the load.

#### Test button check

17 With the valve in the test rig (Fig 4), and the pressure reducing valve controlling at 20 lbf/in.<sup>2</sup>, depress the test button to its limit. Repeat three times, and on each release the button must return freely and allow suit pressure to exhaust.

#### Locking

18 After satisfactory test, wirelock the top cover using 22 swg wire to DTD 189, and ensure that the 4BA screws A31/B8 and shakeproof washers AGS 2035/B are fitted in the four holes in the valve body and to the hole in the regulator nut.

19 Fit protective caps to the inlet and outlet connections, enclose the valve in a heat sealed plastic bag, attach a label giving identification details and date of test.

GENERAL ORDERS AND MODIFICATIONS

## PREFACE

1 Material issued for inclusion in this Topic 2 should be filed in the following order:

1.1 Preface (this page).

1.2 General orders. These leaflets are identified by the prefix 'GO' to the leaflet numbers and should be filed in numerical order.

1.3 Equipment modification list. This list shows all approved MOD modifications affecting the subject of this Topic 2, including those for which leaflets will not be issued. The list will be reissued periodically. As modification leaflets are inserted, suitable entries should be recorded in the applicable columns of this list.

1.4 Modification leaflets. Leaflets bear numbers allotted in sequence as the leaflets are sent to press and should be filed in numerical order.

2 When a complete leaflet or individual leaf is reissued in amended form the alterations are indicated by triangles thus ►-----◀ to show where text has been changed.

## EQUIPMENT MODIFICATION LIST

MOD Mod. No.	Contractor Mod. No.	Mod. plate strike No.	Modification title	Class	Leaflet No.

PARTS CATALOGUE AND RELATED INFORMATION

## MODIFICATION RECORD

MOD No.	AL No.								

\* INCORPORATED IN INITIAL ISSUE OF CATALOGUE  
NA MOD NOT APPLICABLE TO THIS CATALOGUE  
C MOD CANCELLED  
AS AMENDMENT SHEET

3318K  
Feb 88

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## PARTS CATALOGUE AND RELATED INFORMATION

## PREFACE

## DEMANDS

1 (1) The demand must quote the appropriate Vocabulary Section and Reference/Stock Number for each item. Unreferenced parts are not normally provisioned as spares and demands for such items must quote the Vocabulary Section, Maker's Part Number, and the name and type of aircraft or equipment. The location of each part within the equipment should be clearly indicated.

(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.

## CONDITION OF SUPPLY (Interchangeability Code)

6 Condition of Supply 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 purchase of the item will be made but the part is to be used until stocks are exhausted.

## MODIFICATION

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

## INDEX OF NATO STOCK NUMBERS

Vocab Sect.	NATO Stock No.	Part Number	Chap. No.	Fig/ Index	ICY MR	C of S
29C	5310-99-120-6041	AGS 2035/B		1- 3		C
27VB	1650-99-449-5776	B30029		1-		P
27VB	6685-99-449-5782	D12181		-13		C
27VB	1650-99-449-5788	D9475		- 4		C
27VB	4820-99-449-5791	D8311		-32		C
27VB	5330-99-449-5793	D5665		- 5		C
27VB	1650-99-449-7589	D5661		- 8		C
27VB	1650-99-452-5813	D5647		-15		C
28S	5305-99-941-9435	A31/B12		-24		C
28S	5305-99-943-5712	A31/B8		- 2		C
28S	5305-99-948-6055	D75120/B2		- 6		C

## INDEX OF PART NUMBERS

Part Number	Vocab Sect.	NATO Stock No., Ref. No. or LM	Chap. No.	Fig. Index No.
A-AC-010303-01				1-20
A-FB-000300-02				-10
AGS 2035/B	29C	5310-99-120-6041		- 3
A16/BT				-35
A31/B8	28S	5305-99-943-5712		- 2
A31/B12	28S	5305-99-941-9435		-24
B30029	27VB	1650-99-449-5776	1-	
B30532				- 1
D12181	27VB	6685-99-449-5782		-13
D12182				-11
D12183				-12
D5636				-18
D5638				-23
D5641				-14
D5642				-22
D5643				-37
D5647	27VB	1650-99-452-5813		-15
D5648				-19
D5652				-38
D5653				- 9
D5656				-25
D5659				-17
D5660				-16
D5661	27VB	1650-99-449-7589		- 8
D5665	27VB	5330-99-449-5793		- 5
D5666				-26
D75120/B2	28S	5305-99-948-6055		- 6
D8291				- 7
D8296				-36
D8297				-33
D8298				-21
D8308				-28
D8309				-27
D8311	27VB	4820-99-449-5791		-32
D8312				-30
D8313				-31
D8335				-39
D8336				-34
D8337				-29
D9475	27VB	1650-99-449-5788		- 4

DETAILED PARTS LIST

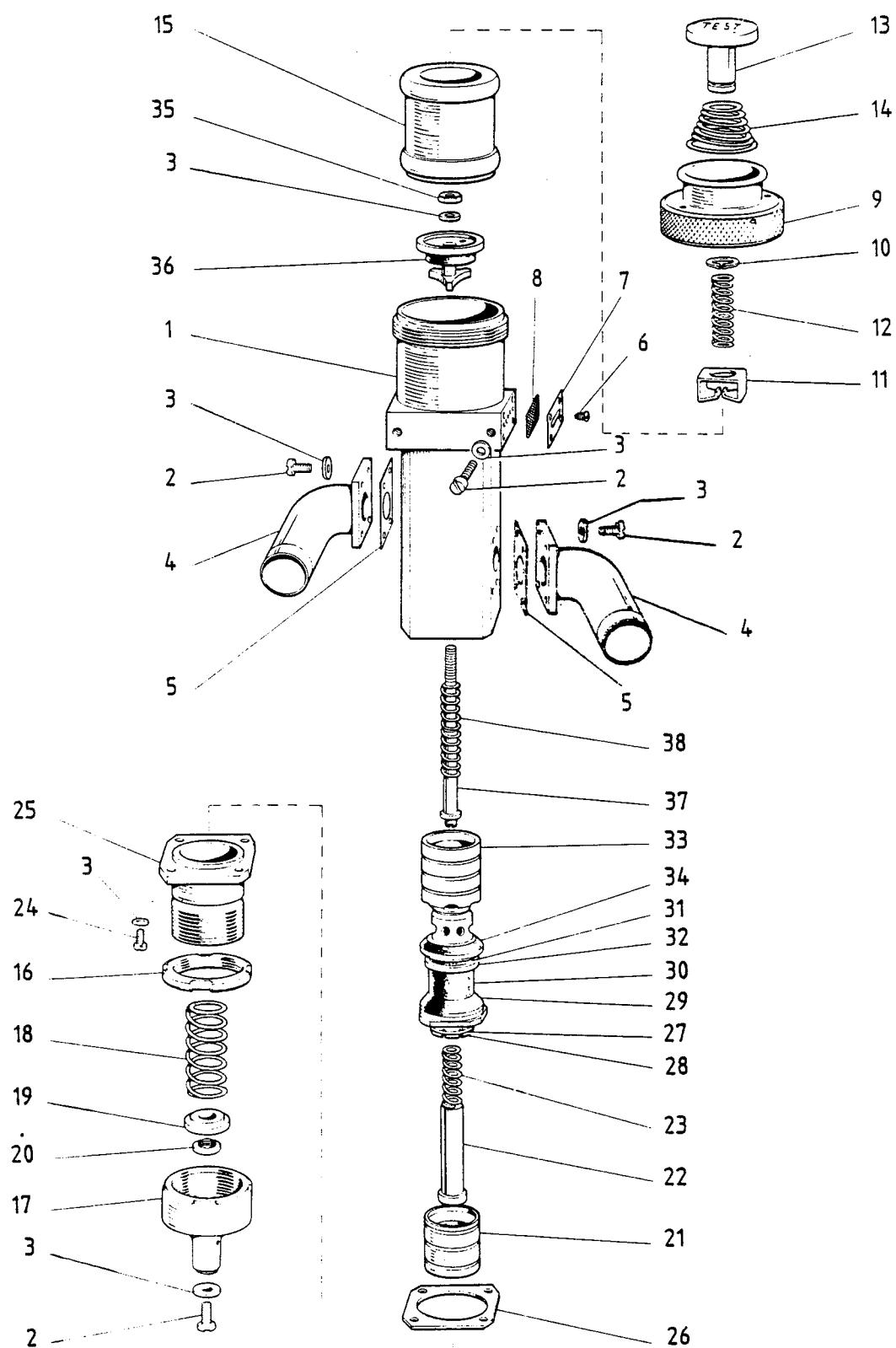


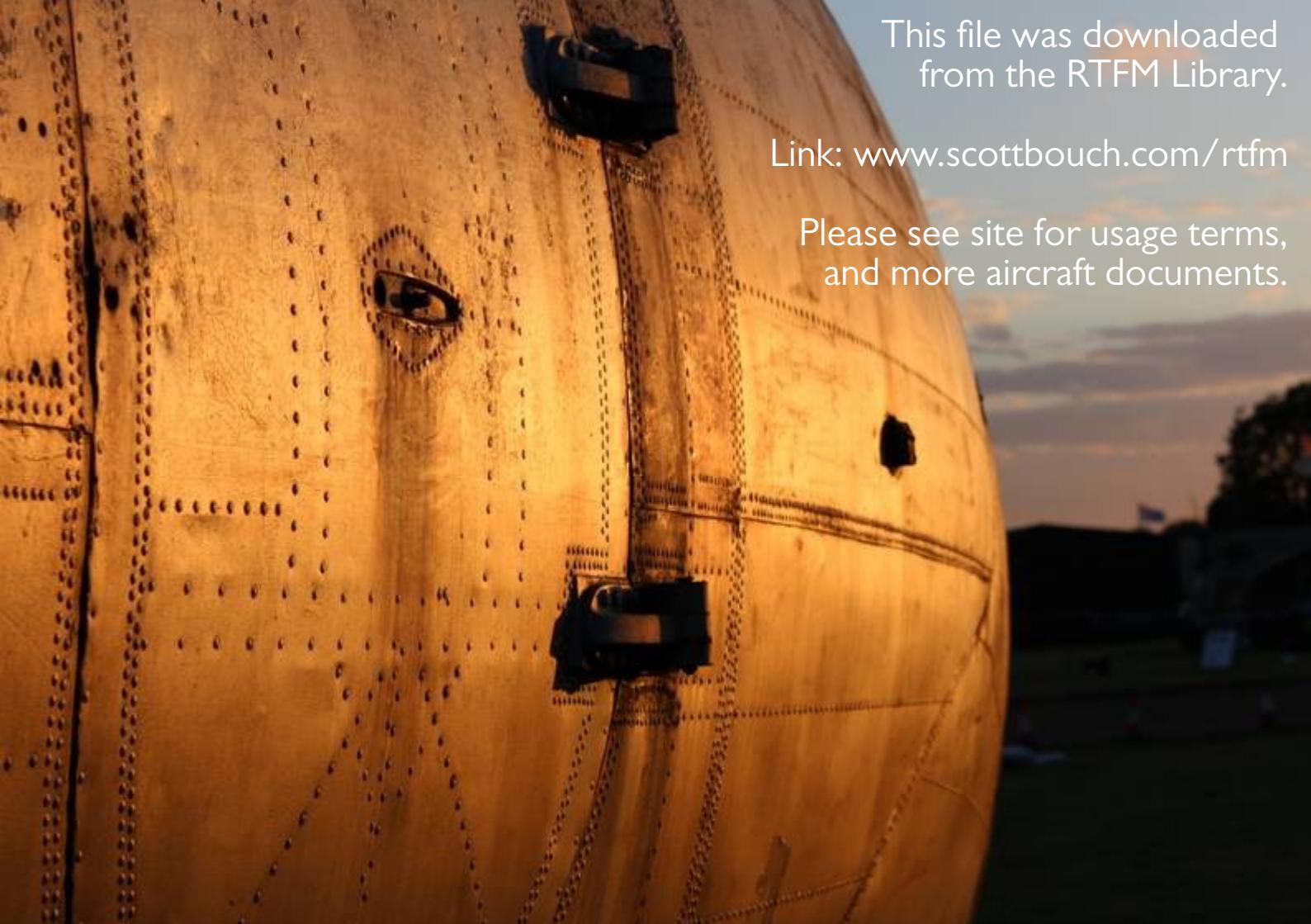
Fig 1 Anti-g valve, Hymatic Type AG2

## DETAILED PARTS LIST

## VALVE, ANTI-G

Fig/ Index No.	Part No.	Nomenclature							Usage Code	Units per Assy
			1	2	3	4	5	6		
			.	.	.	.	.	.		
1-	B30029	Valve, anti-'g' Type AG2							RF	
- 1	B30532	. Body							1	
- 2	A31/B8	. Screw, cheese head							13	
- 3	AGS 2035/B	. Washer, shakeproof							18	
- 4	D9475	. Elbow assembly							2	
- 5	D5665	. Joint, elbow							2	
- 6	D75120/B2	. Screw, drive							16	
- 7	D8291	. Plate, filter							2	
- 8	D5661	. Gauze, filter							2	
- 9	D5653	. Cover, top							1	
-10	A-FB-000300-02	. Circlip							1	
-11	D12182	. Carrier, spring							1	
-12	D12183	. Spring, buffer							1	
-13	D12181	. Button, push							1	
-14	D5641	. Spring, push button							1	
-15	D5647	. 'G' Weight assembly							1	
-16	D5660	. Locknut, regulator							1	
-17	D5659	. Nut, regulator							1	
-18	D5636	. Spring, auxiliary							1	
-19	D5648	. Carrier, spring auxiliary							1	
-20	A-AC-010303-01	. Breather, filter							1	
-21	D8298	. Piston, auxiliary							1	
-22	D5642	. Sleeve, spring							1	
-23	D5638	. Spring, lower, valve							1	
-24	A31/B12	. Screw, cheese head							4	
-25	D5656	. Cover, bottom							1	
-26	D5666	. Joint, body							1	
-27	D8309	. Lockring							1	
-28	D8308	. Locknut							1	
-29	D8337	. Valve assembly, bottom							1	
-30	D8312	. Sleeve, seal							1	
-31	D8313	. Seal, buffer							1	
-32	D8311	. Housing, buffer seal							1	
-33	D8297	. Piston, main							1	
-34	D8336	. Valve assembly, top							1	
-35	A16/BT	. Locknut							1	
-36	D8296	. Valve assembly, exhaust							1	
-37	D5643	. Rod, pull							1	
-38	D5652	. Spring, upper, valve							1	
-39+	D8335	. Nameplate							2	

+ Item not illustrated

A close-up photograph of a light-colored aircraft fuselage panel. The panel is covered in a grid of dark rivets. Two dark, rectangular latches are attached to the panel, one near the top center and one near the bottom center. A small, irregular hole is visible on the right side of the panel. The background shows a blurred landscape and sky.

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