MWS

AP 105B-07284-13

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(Superseding AP 105B-07284-1
and Superseding Relevant Pages
of AP 4515B Vol 3 Pt 1 Chap 5, 9 and 23)

PRESSURE RELIEF VALVE DOWTY AEROSPACE GLOUCESTER Part Nos C484YMKE, 00484YA20, 00484YA15 and 100084005

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

BY COMMAND OF THE DEFENCE COUNCIL

Ministry of Defence

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Service users should send their comments through the channel prescribed for the purpose in:

AP100B-01, Order 0504 (RAF)

CONTENTS

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) 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

CONTENTS

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 fitted in hydraulic systems to permit excess pressure in the supply fluid lines to pass to the return line. A basic unit is described and illustrated in the general text and variations are covered in annexes.

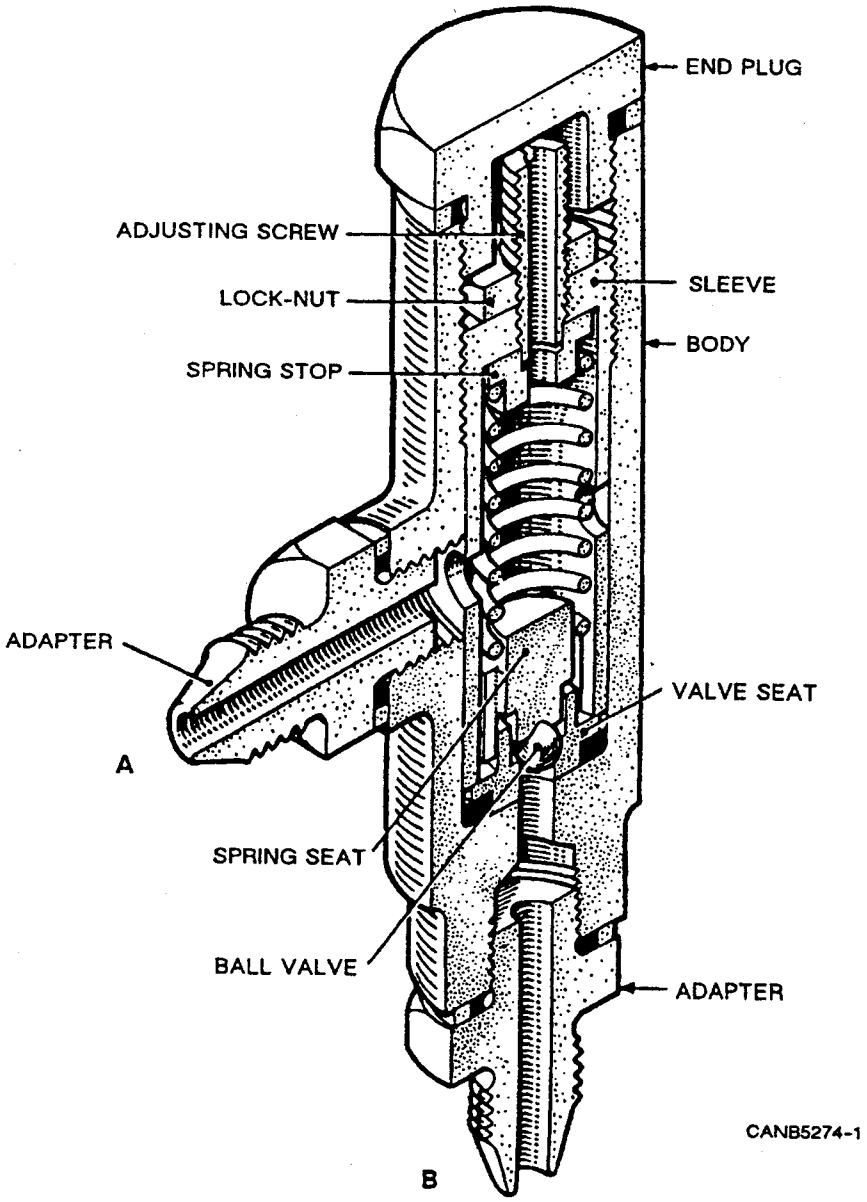

Fig 1 Pressure relief valve

Constructional description (Fig 1)

4 The valve body is internally threaded at each end, and has a tapped side boss. A sleeve with fluid ports is screwed into one end of the body and retains a valve seat and a sealing washer. A ball valve and a spring seat are held against the valve seat by a spring and a drilled spring stop housed in the sleeve. An adjusting screw fitted with a locknut is screwed into the end of the sleeve to engage with the spring stop and this end of the body is fitted with an end plug sealed by a bonded sealing washer. Adapters are fitted with bonded sealing washers.

Functional description (Fig 1)

5 When the pressure at B exceeds a pre-determined value, the ball valve is lifted off its seat against spring resistance allowing fluid past the spring seat, through ports in the sleeve to A. When the system pressure drops to a value not less than half of the operating pressure, the ball valve is reseated.

MAINTENANCE

Special tools and equipment

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

Part No	Description	Application
▶ –	Lotoxane (MIL-T-81533A)	Cleaning ◀
–	White spirit (BS245)	Cleaning
–	Oil OM15 (DTD585)	Assembling
–	Corrosion preventative PX-1	Preservation
–	Locking wire (DTD189A)	Locking parts
03110TA01	Key spanner	Remove and assemble sleeve

Safety and servicing notes

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

ROUTINE BAY SERVICING

Dismantling (Fig 1)

WARNING ...

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

8 Discard all sealing rings and sealing washers on removal from the unit.

8.1 Unscrew and remove the end plug.

8.2 Release the locknut, unscrew and remove the adjusting screw.

8.3 Using the key spanner 03110TA01, unscrew and remove the sleeve.

8.4 Withdraw the spring stop, spring, spring seat and ball valve from the body.

8.5 Remove the valve seat from the body. Remove the sealing washer from the valve seat.

8.6 Remove the adapters and sealing washers from the body.

Cleaning

▶ WARNING ...

(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.

9 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 PX-1. ◀

Examination and checking

10 Visually examine all parts for damage and corrosion.

Superficial damage

11 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:

11.1 Not exceeding 0.500 in long.

11.2 Not exceeding 0.010 in deep.

11.3 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

12 Spring SP489204

12.1 Free length: 1.78 in

12.2 Check length: 1.28 in

12.3 Load at check length: 98 lbf

Assembling (Fig 1)

13 Lightly lubricate the sealing washer and sealing rings with clean oil OM15 before assembling into the unit.

13.1 Fit the sealing washer to the valve seat. Insert the valve seat into the body.

13.2 Locate the ball valve and spring seat onto the valve seat.

13.3 Fit the spring and spring stop into the body, locating the spring correctly over the spring seat.

13.4 Using the key spanner 03110TA01, fit the sleeve tightly into the body ensuring that the fluid port of the sleeve is aligned with connection A.

13.5 Fit the adjusting screw and locknut to the sleeve. Tighten the adjusting screw until spring resistance is felt and tighten the locknut until ready for testing.

13.6 Fit sealing washers to the end plug and adapters and fit them to the body.

13.7 After final assembly and test, wirelock the end plug and adapters together.

TESTING

Special tools and test equipment

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

Part No	Description	Application
-	Static hydraulic test rig	Testing
-	Blanking cap (0.250 in BSP)	Testing

Testing the unit (Fig 1)

15 Ensure the unit is hydraulically full and bled free of air. Using the equipment specified in paragraph 14, carry out the following test procedure:

15.1 Connect a hand pump supply with a pressure gauge to connection B.

15.2 Apply pressure gradually until it is released through connection A. The valve should operate between 2800 and 2900 lbf/in^2.

15.3 Remove the end plug and slacken the locknut. To increase the operating pressure, turn the adjusting screw clockwise; to decrease the operating pressure turn the adjusting screw anti-clockwise.

15.4 When the operating pressure is correctly adjusted repeat paragraph 15.2 several times.

15.5 Check that the reseating pressure is not less than 1400 lbf/in^2.

15.6 Tighten the locknut and fit the end plug.

15.7 Fit the blanking cap to A and apply a pressure of 4500 lbf/in^2 to B. Leakage must not occur.

15.8 Release the pressure and remove the unit from the test rig.

Annex A

PRESSURE RELIEF VALVE

DOWTY AEROSPACE GLOUCESTER

Part No C484YMKE

Leading particulars

1 Leading particulars of this unit are as follows:

1.1	Operating pressure	2800 to 2900 lbf/in^2
1.2	Connections	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 B

PRESSURE RELIEF VALVE

DOWTY AEROSPACE GLOUCESTER

Part No 00484YA20

Leading particulars

1 Leading particulars of this unit are as follows:

1.1	Operating pressure	3050 to 3150 lbf/in^2
1.2	Connections	0.250 in BSP

Modification state

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

Introduction

3 This unit is similar to that described and illustrated in the general text with the exception of the reseating pressure, which must not be less than 1525 lbf/in^2.

Annex C

PRESSURE RELIEF VALVE

DOWTY AEROSPACE GLOUCESTER

Part No 00484YA15

Leading particulars

1 Leading particulars of this unit are as follows:

1.1	Operating pressure	1400 to 1500 lbf/in^2
1.2	Connections	0.250 in BSP

Modification state

2 The information in this annex includes all appropriate modifications up to and including issue 24.

Introduction

3 This unit is similar to that described and illustrated in the general text with the exception of the reseating pressure, which must not be less than 700 lbf/in^2.

Annex D

PRESSURE RELIEF VALVE

DOWTY AEROSPACE GLOUCESTER

Part No 100084005

Leading particulars

1 Leading particulars of this unit are as follows:

1.1	Operating pressure	1250 to 1350 lbf/in^2
1.2	Connections	0.250 in BSP

Modification state

2 The information in this annex includes all appropriate modifications up to and including issue 25.

Introduction

3 This unit is similar to that described and illustrated in the general text with the exception of the test procedure, connections and reseating pressure, which must not be less than 625 lbf/in^2.

Constructional description

4 The adapters at connections A and B (Fig 1 in the general text) are replaced by a single ended banjo and banjo bolt with connection and double ended banjo respectively.

Dismantling (Fig 1)

5 Dismantle in accordance with the general text substituting the following sub-paragraphs for sub-paragraph 8.6:

5.1 Unscrew and remove the banjo bolt, single ended banjo and sealing washers from the body.

5.2 Unscrew and remove the banjo bolt, double ended banjo and sealing washers from the body.

Checking data

6 Substitute this paragraph in place of paragraph 12:

6.1 Spring 310242

6.1.1 Wire size: 0.104 in (12 SWG)

6.1.2 Free length: 1.59 in

6.1.3 Check length: 1.09 in

6.1.4 Load at check length: 80 lbf

Assembling (Fig 1)

7 Assemble in accordance with the general text substituting the following sub-paragraphs for sub-paragraphs 13.6 and 13.7:

7.1 Fit a sealing washer to the end plug and fit it to the body.

7.2 Fit a sealing washer, the single ended banjo and a second sealing washer onto the banjo bolt with connection. Fit the banjo bolt and single ended banjo to the body, align the banjo connection to face the end plug and tighten.

7.3 Fit a sealing washer, the double ended banjo and a second sealing washer onto the banjo bolt. Fit the banjo bolt and double ended banjo to the body, align the banjo connections parallel to the other banjo bolt connection and tighten.

7.4 After final assembly and test, wirelock the end plug and banjo bolts together.

Testing

8 During testing, ensure that free flow is possible between the two banjo unions of connection B and between the banjo union and banjo bolt connection of connection A. During testing it will be necessary to blank off one of the connections at A and B. To test the unit substitute the following sub-paragraphs in place of sub-paragraphs 15.4 to 15.6 in the general text:

8.1 When the operating pressure is correctly adjusted, operate the hand pump 20 times, passing a flow of fluid through the unit at each stroke.

8.2 Check that the reseating pressure is not less than 625 lbf/in^2.

8.3 Tighten the locknut and fit the end plug. Operate the hand pump and check that fluid flows through the unit.

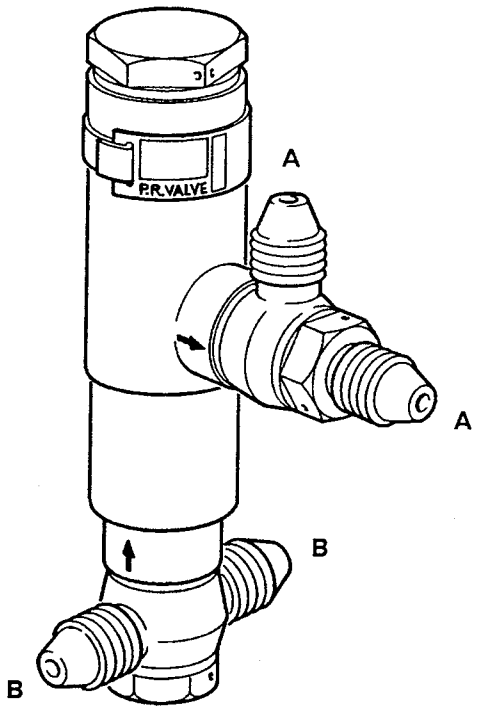

Fig 1 Pressure relief valve

PARTS CATALOGUES AND RELATED INFORMATION

FOR

PRESSURE RELIEF VALVE

DOWTY AEROSPACE GLOUCESTER

Part Nos C484YMKE, 00484YA20,
00484YA15 and 100084005

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
AC3811	*										
AC3812	*										
AC5364	*										
AC5532	*										

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

PARTS CATALOGUES AND RELATED INFORMATION (TOPIC 3)

PREFACE

Demands

1 Requirements for demands are:

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 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 to 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, e.g. (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 AP830 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 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 Nomenclature. Modifications incorporated in the catalogue are listed in the Modification Record.

Usage code

9 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.

DETAILED PARTS LIST

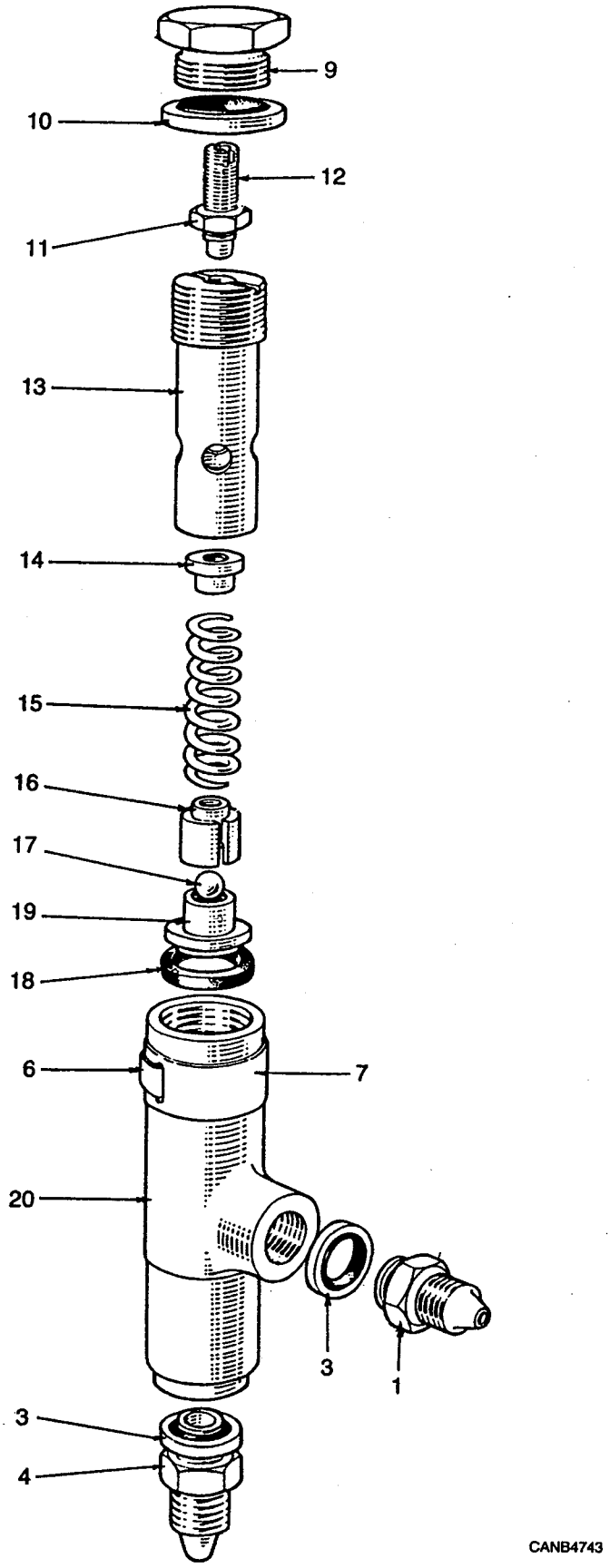

Fig 1 Pressure relief valve

INDEX OF PART NUMBERS

Part Number	Vocab Sect	NATO Stock No Ref No or LM	Fig/ Index No
AGS1104B			1-1
			1-4
AGS1129B	28F	4730-99-9439533	1-2
AGS1130B	28F	4730-99-1057448	1-5
AGS1186B	28F	5330-99-9428453	1-3
			1-3A
AGS1186D			1-10
AGS1213B			1-4A
AGS1214B			1-1A
AGS566D	28D	5365-99-7146648	1-9
AGS596B	28N	5340-99-9128965	1-21
A16YGT			1-11
A27GT	28M	5310-99-1011470	1-11A
C484YMKE			1
C485Y1	27Q	4820-99-4117545	1-20
C485Y2			1-20A
DC485Y4			1-16A
DS509-32			1-23
DS509-42			1-22A
D485Y			1-8
D485YMKB			1-8B
SP310-242			1-15
SP489-204	27Q	5360-99-4117553	1-15A
SP880B			1-22
00484YA15	27QM	1650-99-4170105	1
00484YA20			1
00484Y020			1-8A
100002046	27Q	9905-99-4140029	1-7A
100084005	27QM	4820-99-4153961	1
100084105			1-8C
100084600	27Q	4820-99-4153956	1-19A
2000Y15		5340-99-4170071	1-6
2000Y46			1-7
485Y3	27Q	5330-99-4117554	1-18
			1-18B
485Y6			1-18A
			1-18C
590310			1-12
590311	27Q	4820-99-4117550	1-14
590320	27Q	4820-99-4117547	1-16
59038	27Q	4820-99-4117551	1-19
59039	27Q	4820-99-4117552	1-13

PRESSURE RELIEF VALVE

Fig/ Index No	Part No	1 2 3 4 5 6 Nomenclature	Usage Code	Units per Assy
1	C484YMKE	Valve, relief, pressure	A	RF
1+	00484YA20	Valve, relief, pressure (Mod AC5364)	B	RF
1+	00484YA15	Valve, relief, pressure	C	RF
1+	100084005	Valve, relief, pressure (Mod AC5532)	D	RF
-1	AGS1104B	. Adapter	ABC	1
-1A+	AGS1214B	. Bolt, banjo	D	1
-2+	AGS1129B	. Banjo	D	1
-3	AGS1186B	. Seal, bonded	ABC	2
-3A+	AGS1186B	. Seal, bonded	D	4
-4	AGS1104B	. Adapter	ABC	1
-4A+	AGS1213B	. Bolt, banjo	D	1
-5+	AGS1130B	. Banjo	D	1
-6	2000Y15	. Strap, nameplate		1
-7	2000Y46	. Nameplate	AC	1
-7A+	100002046	. Nameplate	BD	1
-8+	D485Y	. Valve sub-assembly, relief, pressure	A	1
-8A+	00484Y020	. Valve sub-assembly, relief, pressure	B	1
-8B+	D485YMKB	. Valve sub-assembly, relief, pressure	C	1
-8C+	100084105	. Valve sub-assembly, relief, pressure	D	1
-9	AGS566D	. . Plug		1
-10	AGS1186D	. . Seal, bonded		1
-11	A16YGT	. . Nut	AC	1

+ Item not illustrated

PRESSURE RELIEF VALVE

Fig/ Index No	Part No	1 2 3 4 5 6 Nomenclature	Usage Code	Units per Assy
1-11A+	A27GT	. . Nut	BD	1
-12	590310	. . Screw, adjusting		1
-13	59039	. . Sleeve		1
-14	590311	. . Seat, spring		1
-15	SP310-242	. . Spring	ACD	1
-15A+	SP489-204	. . Spring	B	1
-16	590320	. . Guide, valve		1
	or			
-16A+	DC485Y4	. . Guide, valve		1
-17	ND	. . Ball, ¼ in dia		1
-18	485Y3	. . Washer, sealing (Pre Mod AC3812)	A	1
-18A+	485Y6	. . Washer, sealing (Mod AC3812)	AC	1
-18B+	485Y3	. . Washer, sealing (Pre Mod AC3811)	B	1
-18C+	485Y6	. . Washer, sealing (Mod AC3811)	BD	1
-19	59038	. . Seat, valve	AC	1
-19A+	100084600	. . Seat, valve	BD	1
-20	C485Y1	. . Body		1
	or			
-20A+	C485Y2	. . Body		1
-21+	AGS596B	. Cap, dust (Storage and transit)	ABC	2
-22+	SP880B	. Washer (Storage and transit)	B	2
-22A+	DS509-42	. Washer (Storage and transit)	D	4
-23+	DS509-32	. Cap, dust (Storage and transit)	D	4

+ Item not illustrated