

## Parts Section

600/605 • 625 •  
700/705 • Series  
Suction Sweeper

Part No 01001-1

Revision Level 16

EPA Engines with  
Variable Throttle Control

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## Foreword

The Johnston 600/605, 625, 700/705 Series Suction Sweepers represent the highest grade of craftsmanship and reliability that have made Johnston a world leader. (605 and 705 are model numbers used by the Johnston Sweeper Company of America).

A parts manual is a reference tool to assist you in ordering parts and serves as an assembly/disassembly reference when used in conjunction with the Maintenance Manual procedures. You want to be able to find information fast. This manual is designed with that in mind.



### Safety Notice



The universal safety symbol is used throughout this manual to indicate information which is essential for health and safety for all operating personnel.

#### About this manual

Chapters are divided into major areas of the sweeper. A thumb tabbed quick reference guide is located on the title page of the manual to assist you in locating the desired section.

Refer to sectional table of contents for exact pages to locate specific illustration or parts list required. A detailed complete table of contents at the beginning of manual is designed in outline form. In addition, figure titles and chapters are positioned in margins for easy reference whilst flipping through the manual.

On pages that have more than one part number column the symbol '<' indicates that the number in that column is the same as that in the column on the left.

Part numbers followed by J.S.C. in parenthesis refer to components fitted on Johnston Sweeper Company assembled machines in America. These items are not available globally.

The symbol '>' in front of an item number indicates that item has changed from the one shown on the previous issue of that page.

Some of the more popular options have been covered in this manual such as the Supawash hi-pressure water system, Powasave Channel Brush control and Littasnatch wanderhoses. Other more specialised options are available if required in Chapter 18.

It is important that only GENUINE JOHNSTON SPARE PARTS are used when servicing and maintaining the sweeper. This is especially important for consumables, filters etc, as the use of non-genuine parts may cause premature failure and invalidation of warranty.

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Every endeavour has been made to ensure that the information contained in this Parts Section is correct, but due to continuous product development, the Company reserve the right to alter its contents without notice. This document should not be interpreted as being part of a formal contract.

## Ordering Parts

Upon delivery, fill out the information below and use as a reference when ordering parts.

### General Instructions:

1. Provide name and address of where to deliver parts.
2. Provide complete serial number.
3. Provide part number, description, and quantity for each part required.  
If not sure of part number, provide a detailed description of part and where it is used.

**VEHICLE TYPE:** **SINGLE SWEEP / DUAL SWEEP**  
**LEFT HAND / RIGHT HAND DRIVE**

**JOHNSTON SERIAL NO.** .....

**CHASSIS NUMBER:** .....

**DATE DELIVERED:** .....

**HOURS ON DELIVERY:** .....

**EXTRAS FITTED:** .....

.....

Serial number comprises:-

	Model No.	Build No.	Year of Manufacture	Manufacture Sequence No.
Example.....	600	12345	03	0001



L. 0012

When ordering spare parts the Johnston Serial number should be quoted. The number will be found stamped on a plate similar to that shown above, attached to the rearmost crossmember of the subframe, below the rear door.

Johnston Sweepers Limited.,  
Curtis Road,  
Dorking,  
Surrey. U.K. RH4 1XF.  
Tel: 01306 884722  
Fax: 01306 884151 Sales & Works  
01306 740369 Parts & Service  
E-mail: enquiries@johnstonsweepers.co.uk

Johnston Sweeper Company,  
4651 Schaefer Avenue,  
Chino,  
California 91710, U.S.A.  
Tel: 1909 613 5600  
Fax: 1909 613 5736 Sales & Marketing  
Fax: 1909 613 5631 Parts & Service

Macdonald Johnston Engineering Co. Pty. Ltd.,  
P.O. Box 107,  
Glen Iris,  
Victoria 3146, Australia.  
Tel : 613 9885 8981  
Fax : 613 9885 2218  
Telex : 071 33784



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# CHAPTER

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# P

## Page Issue Levels

**Description**

This chapter lists each page in the Parts section, it's issue level and whether it has changed since the previous revision level. Changed pages are indicated by the letter 'C' in the changed column and new pages by the letter 'N'.

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12 : 5	04	C	12 : 6	02	
12 : 7	02		12 : 8	06	C
12 : 9	01		12 : 10	02	
12 : 11	03		12 : 12	01	
12 : 13	01		12 : 14	02	
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# CHAPTER

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# 1

## Body & Subframe

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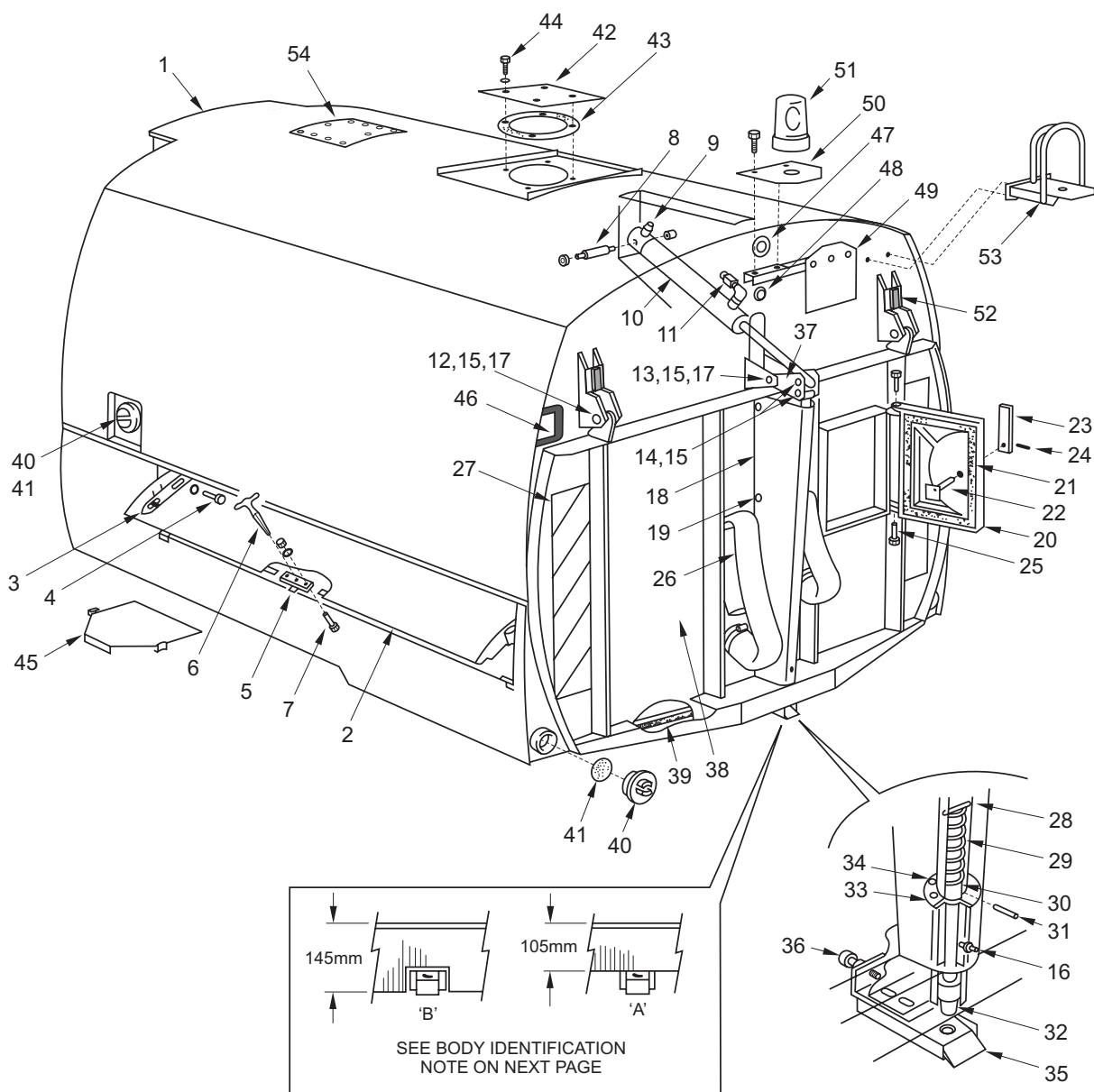
## Doors and External Fittings Figure 1 - 1



### Safety Precautions



Ensure there are no obstructions behind the rear door before opening it



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**Door and External Fittings**  
**Figure 1 - 1**

**600/605 Body Identification**

Current body 93264-1 has rear door latch plate item 35 recessed into rear panel (B). Panel height approximately 145mm.

Superseded body 42100-1 has rear door latch plate item 35 mounted below rear panel (A). Panel height approximately 105mm.

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Item No.	Part No.	Description	Quantity
1	93264-2	Body - Standard 600/605 Series Current	
	42100-1	Body - Standard 600/605 Series Superseded	
	63700-1	Body - 600/605 LoTop	
	95000-4	Body - Standard 625 Series	
	95000-6	Body - 625 Series - No Wanderhose	
	42890-1	Body - Standard 700/705 Series	
	Items 2 - 7 only apply to 600/605 Series		
2	40139-1	Door - Locker	2
3	40153-1	Bolt - Locker Door	4
4	135-7	Setscrew M12c x 25mm	2
	455-12	Washer - Plain M12	2
5	6817-1	Budget Lock	2
6	6816	Key For Budget Lock	1
7	124-102	Setscrew M6c x 16mm	4
	460-8	Washer - Spring M6	4
	420-13	Nut M6c	4
	40553-1	Pin - Cylinder Pivot	1
8	425-18	Nut - M16c Nyloc	2
	265-2	Adaptor 1/4" x 3/8" BSP	1
9	451-18	Washer - Sealing 3/8" BSP	2
	29170-1	Rear Door Cylinder - See Chapter 10	1
11	3733-1	Check Valve Assembly comprising:-	1
	5194	Check Valve	1
	265-2	Adaptor 1/4" x 3/8" BSP	1
	263-2	Adaptor 1/4" BSP	1
	451-17	Washer - Sealing 1/4" BSP	2
	40578-1	Pin - Pivot	2
12	40578-1	Pin - Pivot	2
13	40573-1	Pin - Pivot	1
14	40572-1	Pin - Pivot	2
15	124-132	Setscrew M8c x 12mm	5
	460-10	Washer - Spring M8	5
16	38-1	Grease - Nipple 1/8" BSP Straight	1
17	29128-3	Bush - Non Lube	6
18	40462-2	Cover	1
19	124-135	Setscrew M8c x 20mm	10
	460-10	Washer - Spring M8	10
	435-12	Retaining Nut M8c	10

## Doors and External Fittings Figure 1 - 1

Item No.	Part No.	Description	Quantity
20	63379-2	Access Door	1
21	9699-1	Sealing Ring	1
22	40628-1	Catch - Access Door	1
23	63065-2	Handle - Access Door	1
24	59-1	Cotter Pin	2
25	123-149	Bolt M12c x 55mm	2
	425-16	Nut M12c Nyloc	2
26	9983	Drain Hose	2.4
	501-7	Hose Clip	2
27	20674-1	Reflective Marker Plate ) U.K.	1
	20674-2	Reflective Marker Plate ) Machines	1
	194-9	Pan Head Screw ) Only	12
28	40466-1	Shaft - Pin Actuation	1
29	5010-1	Spring	1
30	40471-1	Nut Locking Pin	1
31	59-1	Cotter Pin	1
32	40463	Pin Locking	1
33	40465-2	Flange	1
34	124-176	Setscrew M10c x 45mm	6
	425-15	Nut M10c Nyloc	6
35	40091-1	Latch Plate	1
	124-275	Setscrew - M16c x 60mm	2
	460-14	Washer - Spring M16	2
	6439-1	Packer Plate	1
36	124-212	Setscrew M12c x 65mm	1
	420-16	Nut M12c	1
37	40897-1	Relay	1
38	63500-1	Door - Standard 600/625/700 (less Bushes Item 17)	1
	63500-23	Door - LoTop (less Bushes Item 17)	1
39	40901-1	Rubber Seal	1
	6849	Titanfast x 6m Long	6m
40	40650-1	Cap - 'Jobro'	4
	41776-2	Cap - 'Johnston'	
41	40643-1	Washer - Seal	4
42	40492-1	Cover)	1
43	5955	Gasket ) Not Req'd on	1
44	124-199	Setscrew M12c 20mm ) Flat Top Bodies	4
	460-12	Washer - Spring M12 )	4
45	40711-1	Blanking Plate	1
46	217-1	Grommet Strip x 20cm Long	1
47	217-1	Grommet Strip x 26cm Long	1
48	287-22	Grommet	1
49	46415-1	Plate - Rear Number Plate	1
	46414-1	Mounting Angle	1
	124-100	Setscrew M6c x 12mm	3
	425-13	Nut M6c Nyloc	

<b>Doors and External Fittings</b> <b>Figure 1 - 1</b>
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Item No.	Part No.	Description	Quantity
50	40078-1	Beacon Bracket	1
	287-22	Grommet	1
	124-135	Setscrew M8c x 20mm	2
	425-14	Nut M8c Nyloc	2
51	46-15-12	Beacon - 12v	1
	46-15-24	Beacon - 24v	1
	193-26	Screw Self Tapping	2
	455-7	Washer - Plain M5	2
52	46-93	Rear Lamps - 24v	2
53	46660-1	Beacon Bracket for Littasnatch	1/2
54	63664-1	Access Plate	1
	124-137	Setscrew M8c x 25mm	10
	460-10	Washer - Spring M8	10

**Notes**

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## Internal Components Figure 1 - 2

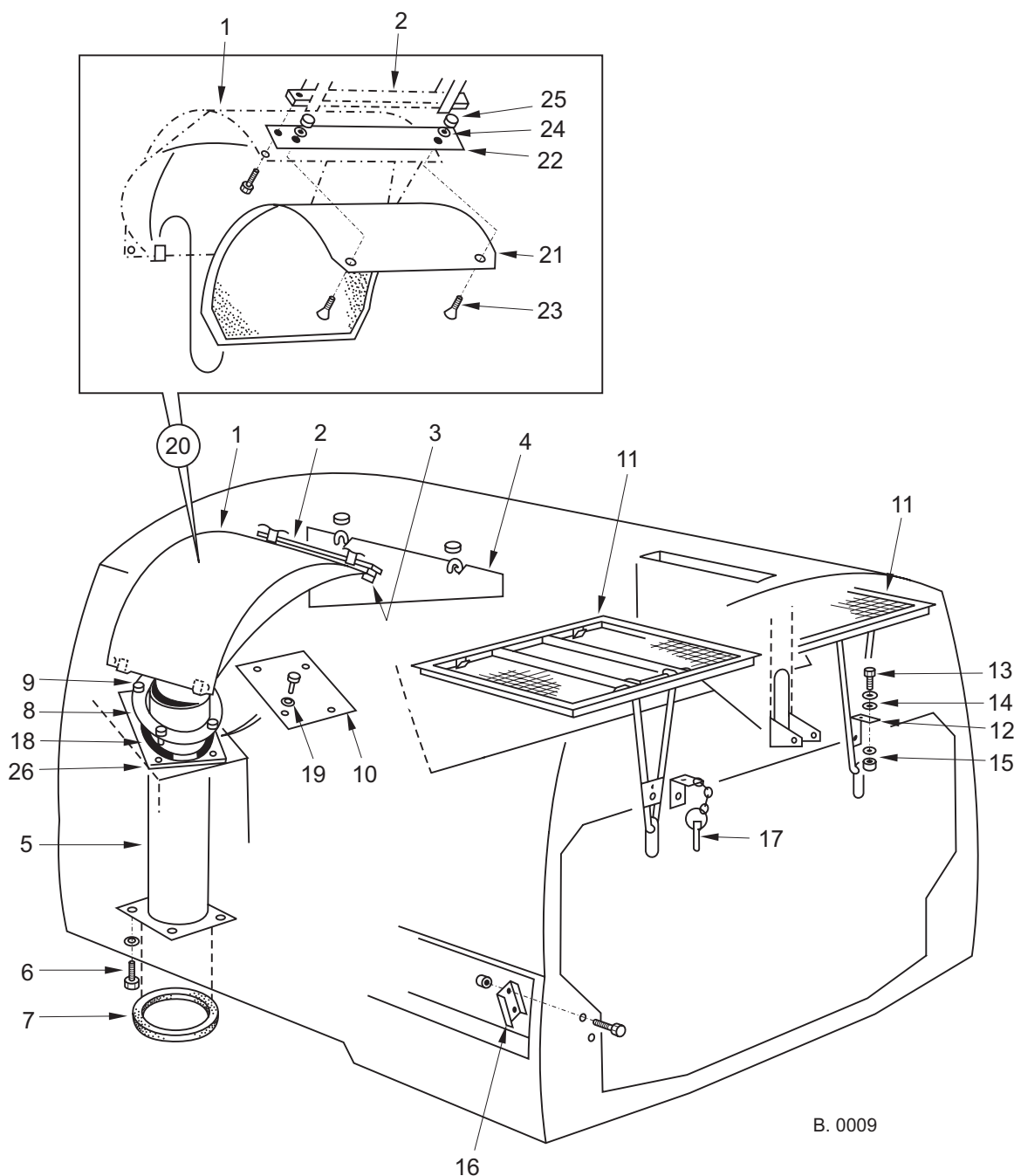


### Safety Precautions



Before carrying out work on the inside of the body, it should be cleaned thoroughly using the Washdown or Supawash hoses.

When removing or refitting the Wear Plate (1) support it on a suitable prop whilst removing the securing screws (3). Help may be required handling the plate as it weights approximately 38kg (84lbs).





**Internal Components  
Figure 1 - 2**

Item No.	Part No.		Description	Quantity	
	600/605	625/700/705		Single	Dual
1	40249-1	-	Wear Plate 600 Current		1/2
	63720-1	-	LH Wear Plate 600 LoTop		1/1
	63720-2	-	RH Wear Plate 600 Lo Top		1/1
	-	61102-1	Wear Plate 625/700		1/2
	-	40249-1	Wear Plate used with 625 Ø250mm Intake Duct		1/2
2	40223-1	<	Clamp Bar		1/2
3	124-167	<	Setscrew M10c x 20mm		2/4
	460-11	<	Washer - Spring M10		2/4
4	40243-1	-	Baffle Standard 600		-/1
	63745-1	-	Baffle LoTop 600		-/1
	-	61091-1	Baffle 625/700		-/1
	41234-1	<	Ring - Locker		-/2
5	40072-2	-	Intake Duct Ø236 x 912 Lg Current		1/2
	40072-3	<	Intake Duct Ø236 x 912 Lg Nirosa		1/2
	40072-51	-	Intake Duct Ø236 x 912 Lg Rubber Lined Current		1/2
	40072-1	-	Intake Duct Ø236 x 872 Lg Superseded Body		-
	40072-50	-	Intake Duct Ø236 x 872 Lg Rubber Lined Superseded Body		-
	-	42892-1	Intake Duct Ø236 x 1147 Lg		1/2
	-	42892/50	Intake Duct Ø236 x 1147 Lg Rubber Lined		1/2
	-	63084-1	Intake Duct Ø250 x 1052 Lg		1/2
	-	63084-1	Intake Duct Ø250 x 1052 Lg Rubber Lined		1/2
6	135-1	<	Setscrew M12c x 25mm		4/8
	460-12	<	Washer - Spring M12		4/8
7	5028-1	<	Seal - Rubber		1/2
8	40214-1	41984-1	Clamp		1/2
	-	63086-1	Clamp - used with 625 Series Optional Ø250 Intake Duct		1/2
9	135-11	<	Setscrew - Brass M12c x 35mm		4/8
10	40222-1	41979-2	Cover		1/-
11	50555-1	50554-1	Rear Mesh Std Body		2
	-	-	Rear Mesh - 600/Littasnatch - See Chapter 8		
	50554-3	-	Rear Mesh - 600 Lo Top		2
12	42111-1	<	Eye		2
	63761-1	-	Eye - 600 Lo Top		2
13	124-144	<	Setscrew M8c x 45mm		4
14	455-10	<	Washer Plain M8	As Req'd	
15	460-10	<	Washer - Spring M8		4
	420-14	<	Nut M8c		4
16	42581-1	N/A	Cover		2
	124-109	N/A	Setscrew M6c x 35mm		4
	425-13	N/A	Nut M6c Nyloc		4
17	60-1	<	Lynch Pin With Ring		2
18	40213-1	<	Seal		1/2

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## Internal Components Figure 1 - 2

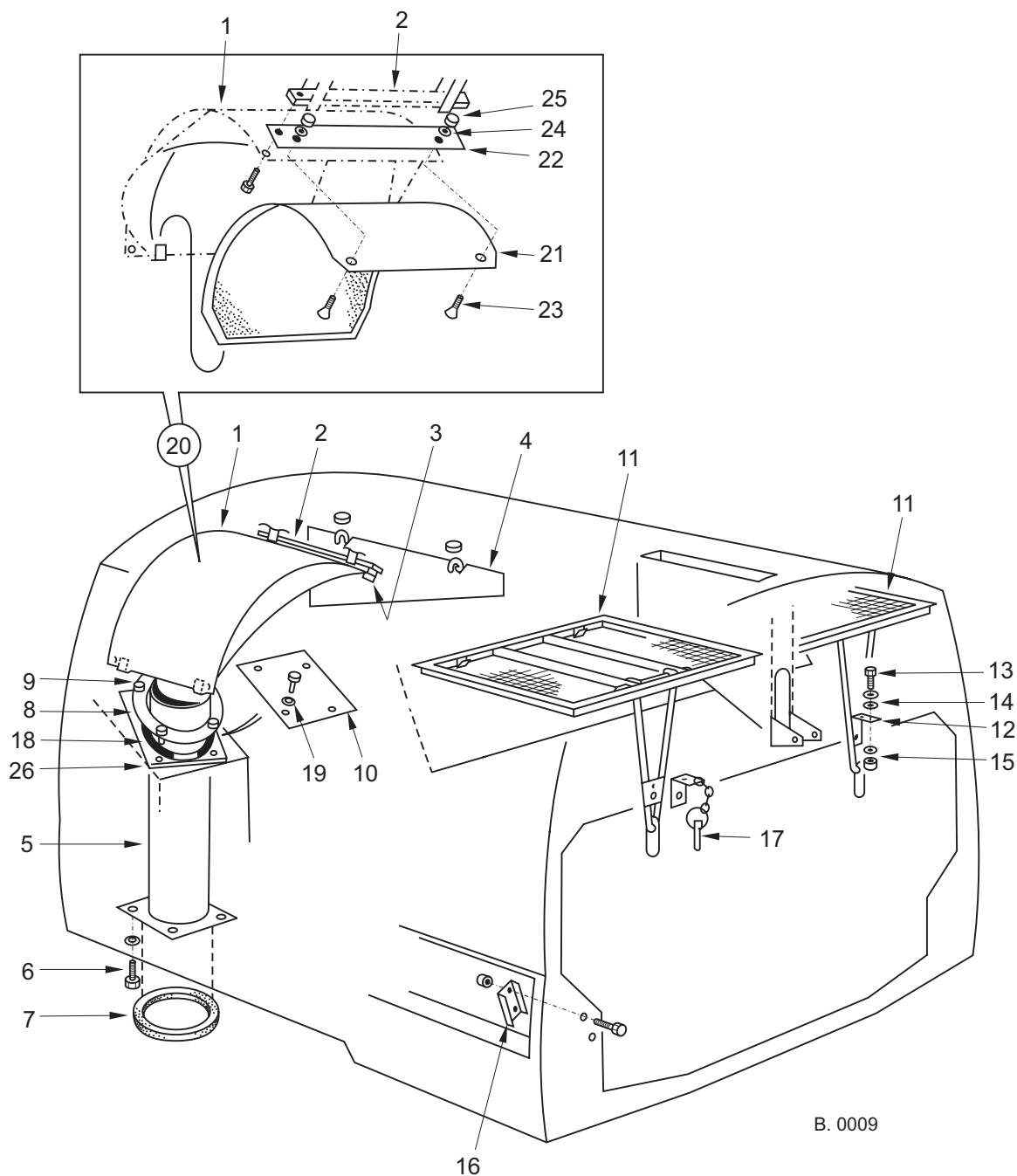


### Safety Precautions



Before carrying out work on the inside of the body, it should be cleaned thoroughly using the Washdown or Supawash hoses.

When removing or refitting the Wear Plate (1) support it on a suitable prop whilst removing the securing screws (3). Help may be required handling the plate as it weights approximately 38kg (84lbs).



<b>Internal Components</b> <b>Figure 1 - 2</b>
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Item No.	Part No.		Description	Quantity	
	600/605	625/700/705		Single	Dual
19	135-1	<	Setscrew M12c x 25mm		4/-
	460-12	<	Washer - Spring M12		4/-
20	41251-1	<	Wear Liner Kit Comprising:-		
21	41249-1	<	Liner		1
22	41235-1	<	Cleat Plate		1
23	131-125	<	Screw C'sk Hd. M8c x 25mm		2
24	460-10	<	Washer - Spring M8		2
25	420-14	<	Nut M8c		2
26	-	41979-1	Seal Plate - Fits Under Item 18		1/2
	-	63085-1	Seal Plate - used with 625 Series Optional Ø250 Intake Duct		1/2

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**Notes**

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## Body Tip Components Figure 1 - 3

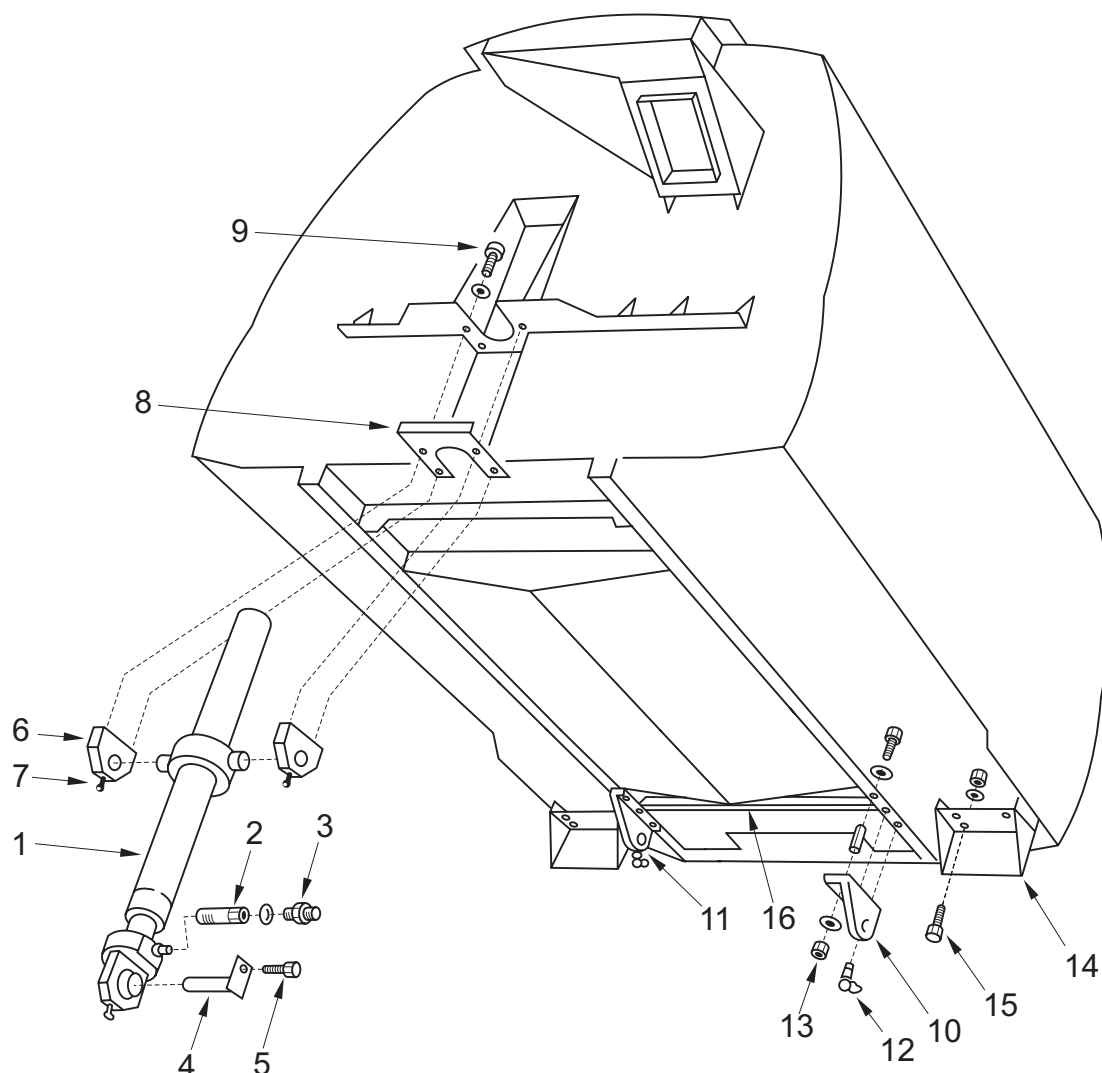


### Safety Precautions



Before raising the body, ensure the machine is standing on firm level ground and there are no obstructions above or to the rear of the body.

Always use the body prop when working under the auxiliary engine cowl



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**Body Tip Components  
Figure 1 - 3**

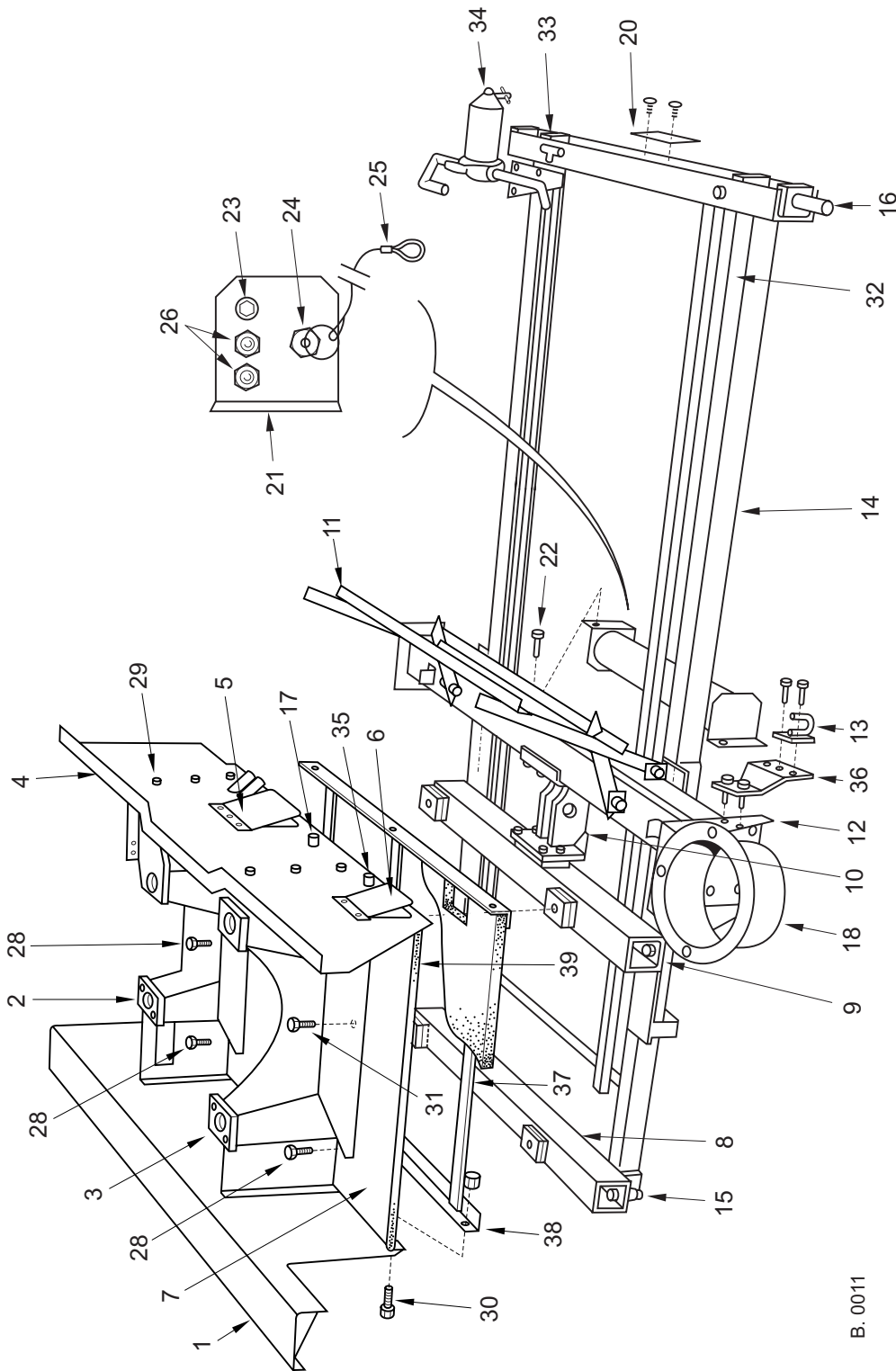
Item No.	Part No.			Description	Quantity
	600/605	625	700/705		
1	28940-1	28940-3	28940-2	Body Tip Cylinder - See Chapter 10	
2	N/A	71283-1	<	P.C. Flow Valve	1
3	N/A	263-2	<	Adaptor 3/8" BSP	1
	N/A	451-18	<	Washer - Sealing 3/8" BSP	1
4	42432-1	<	<	Pivot Pin	1
5	124-134	<	<	Setscrew M8c x 16mm	1
	460-10	<	<	Washer - Spring M8	1
6	42072-1	<	<	Block - Trunnion	2
7	38-1	<	<	Grease Nipple 1/8" BSP Straight	2
8	41817-1	<	<	Sealing Plate	1
9	124-203	<	<	Setscrew M12c x 30mm	4
	460-12	<	<	Washer - Spring M12	4
10	28350-1	<	63245-1	Bearing LH	1
11	28350-2	<	63245-1	Bearing RH	1
12	38-8	<	<	Grease Nipple 1/8" BSP x 90°	2
13	123-148	<	<	Bolt M12c x 50mm	6
	59-4	<	<	Roll pin Ø16 x 20mm	6
	455-12	<	<	Washer - Plain	6
	425-16	<	<	Nut - Nyloc M12c	6
14	62875-1	<	<	Rear Light Bracket	2
15	124-135	<	<	Setscrew M8c x 20mm	8
	460-10	<	<	Washer - Spring M8	8
	420-14	<	<	Nut M8c	8
16	N/A	63251-1	<	Reaction Beam	1

**Notes**

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v

Subframe, Engine Tub & Reservoir  
Figure 1 - 4



B. 0011

**Subframe, Engine Tub & Air Reservoir  
Figure 1 - 4**

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 v  
v

Item No.	Part No.			Description	Quantity Single/Dual
	600/605	625	700/705		
1	42250-1	<	<	Front Valance	1
2	42170-1	<	<	Cradle - Front	1
3	42180-1	<	<	Cradle - Rear	1
4	42252-1	<	<	Rear Valance	1
5	42588-1	<	<	Flap Valance	1
	42596-2	<	<	Strip - Hinge	1
	42591-2	<	<	Latch - Flap	2
	42590-1	<	<	Spring - Compression	2
	134-42	<	<	Pozidrive Screw M4c x 12mm	2
	460-5	<	<	Washer M4	2
	420-11	<	<	Nut M4c	2
6	42589-2	<	<	Flap Valance	1
	42596-1	<	<	Hinge	1
	42591-1	<	<	Strip - Hinge	1
	134-42	<	<	Pozidrive Screw M4c x 12mm	2
	460-5	<	<	Washer M4	2
	420-11	<	<	Nut M4c	2
7	42189-1	<	<	Floor Deck	1
8	93669-1	-	-	Engine Beam, 600 Front, Current Body	1
	42399-1	-	-	Engine Beam, 600 Front, Superseded Body	1
	-	61021-1	<	Engine Beam, 625/700 Front, Current Body	1
9	93700-1	-	<	Engine Beam, 600 Rear, Current Body	1
	42398-1	-	<	Engine Beam, 600 Rear, Superseded Body	1
	-	61020-1	<	Engine Beam, 625/700 Rear, Current Body	1
10	93665-1	62900-1	<	Mount - Body Tip Cylinder	1
	124-203	<	<	Setscrew M12c x 30mm	7
	425-16	<	<	Nut - Nyloc M12c	7
11	-	-	-	Body Prop - See page 1:16	
12	40224-1	<	<	Bracket - Intake Seat	1/2
	124-171	N/A	N/A	Setscrew M10c x 30mm	4/8
	460-11	N/A	N/A	Washer - Spring M10	4/8
	420-15	N/A	N/A	Nut M10c	4/8
	-	124-177	<	Setscrew M10c x 50mm	4/8
	-	460-11	<	Spring Washer M10	4/8
	-	420-15	<	Nut M10	4/8
	-	61052-1	<	Spacer (Not Shown)	2/4
13	40269-1	<	<	Lifting Hook	1/2
	124-173	<	<	Setscrew M10c x 35mm	2/4
	425-15	<	<	Nut - Nyloc M10c	2/4
14	42290-1	41998-27	41998-1	Subframe	1
	-	95211-1	N/A	Subframe - Mercedes 1417K1	
15	124-269		N/A	Setscrew M16c x 35mm	4
	425-18		N/A	Nut - Nyloc M16c	4
	123-150	<	<	Bolt M12c x 60mm	8

## Subframe, Engine Tub & Reservoir Figure 1 - 4

Item No.	Part No. All Series	Description	Quantity Single/Dual
16	40205-1	Shaft	2
	123-153	Bolt M12c x 75mm	2
	425-16	Nut - M12c Nyloc	2
17	62903-1	Drain - Engine Oil )	1
	124-167	Setscrew M10c x 20mm ) See Fig. 3 - 1	1
	460-11	Washer - Spring M10 ) and Fig. 3 - 5	1
	420-15	Nut M10c ) Items 22	1
	7684	Collar Plug 1/2" BSP )	1
	451-19	Washer Sealing 1/2" BSP )	2
18	40225-1	Intake Seat 120mm Long	1/2
	40225-51	Intake Seat 120mm Long Rubber Lined	1/2
	40225-2	Intake Seat 180mm Long	1/2
	40225-52	Intake Seat 180mm Long Rubber Lined	1/2
	40225-3	Intake Seat 240mm Long	1/2
	40225-53	Intake Seat 240mm Long Rubber Lined	1/2
	40225-4	Intake Seat 300mm Long	1/2
	40225-54	Intake Seat 300mm Long Rubber Line	1/2
	10080 (JSC)	Intake Seat 300mm Long	1/2
	127-139	Setscrew C/sk M8c x 30mm	3/6
	460-10	Washer - Spring M8	3/6
420-14	Nut M8c	3/6	
19	-		
20	47144-1	Service Information Plate	1
	193-22	Screw Pan Hd. Self Tapping	2
21	40268-2	Air Reservoir	1
22	124-169	Setscrew M10c x 25mm	2
	455-11	Washer - Plain M10	2
	460-11	Washer - Spring M10	2
	420-15	Nut M10c	2
23	5259	Grub Screw	1
24	40958-1	Drain Plug	1
25	48108-1	Cable	1
26	516-6	Adaptor 1/8" M/F	2
27	-		
28	124-269	Setscrew M16c x 35mm	4
	460-14	Washer - Spring M16	4
29	124-169	Setscrew M10c x 25mm	12
	425-15	Nut - M10c Nyloc	12
30	124-135	Setscrew M8c x 20mm	6
	425-14	Nut - M8c Nyloc	6
31	124-137	Setscrew M8c x 25mm	2
	425-14	Nut - M8c Nyloc	2

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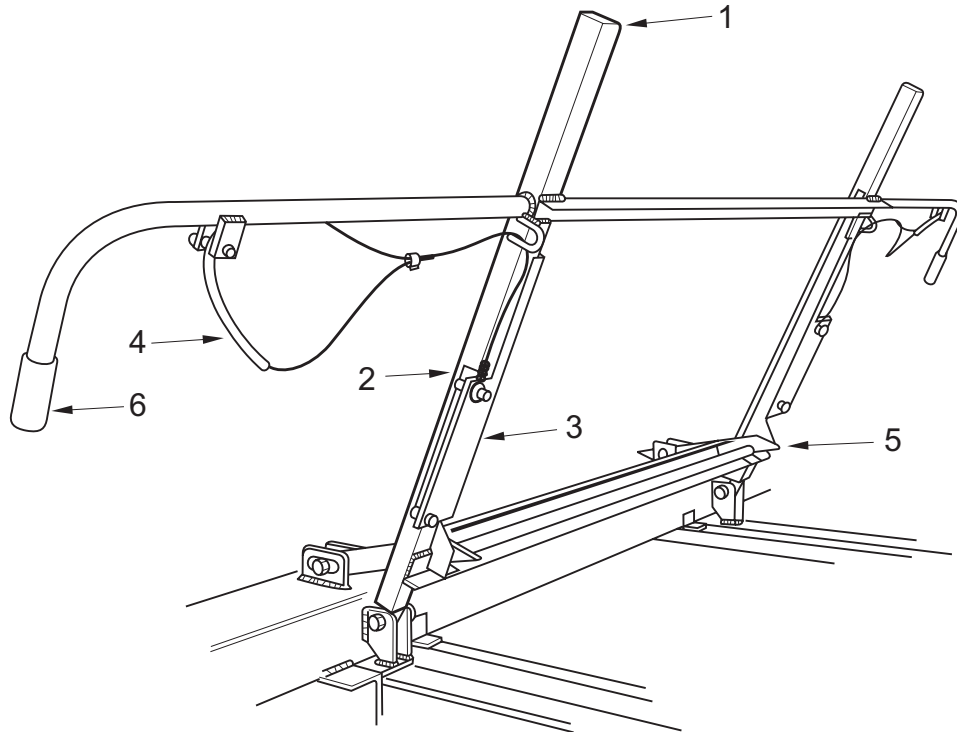
**Subframe, Engine Tub & Air Reservoir  
Figure 1 - 4**

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	Item No.	Part No.		Description	Quantity	
		600	625/700		Single	Dual
	32	264-2	<	Adaptor 1/4" BSP Bulkhead		2
>	33	527-3	<	Tee - 6mm O/D Tube (Now Fitted on Hose)		
		124-109	<	Setscrew M6c x 35mm		1
		420-13	<	Nut M6c Nyloc		1
		510-3	<	Tubing Nut 6mm		1/5
		511-3	<	Tubing Sleeve 6mm		1/5
		520-3	<	Plug		1/-
		531-2	<	Stem Elbow		-/1
	34	-	<	Water Filter Assembly. - See Chapter 12		
>	35	40525-1	<	Drain - Gearbox Oil )		1
		124-167	<	Setscrew M10c x 20mm )		1
		460-11	<	Washer - Spring M10 ) See Fig. 4 - 2		1
		420-15	<	Nut M10c ) Item 36		1
		3823	<	Collar Plug 3/8" BSP )		1
		451-18	<	Washer - Sealing 3/8" BSP )		1
	36	50603-1	<	Nozzle Anti-Swing Plate		1/2
		124-169	<	Setscrew M10c x 25mm		2/4
		425-15	<	Nut - Nyloc M10c		2/4
>	37	50634-1	N/A	Antiphon Retention Strip (Not Fitted on 700 Series)		3
	38	94084-1	N/A	Antiphon Retaining Angle		2
	39	217-2	<	Rubber Seal		1-1M

**Notes**

**Body Prop  
Figure 1 - 5**



B. 0025

Item No.	Part No.	Description	Quantity
	93547-1	Prop Assembly comprising:-	
1	93548-1	Prop	1
2	93553-1	Plate	2
3	93553-2	Plate	2
4	93551-1	Cable	2
5	40238-1	Latch	1
6	41145-1	Sleeve - Plastic	2

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**CHAPTER**

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**2****Cowl/Flaps**

Only current components are covered in this chapter. See Parts Section Revision Level 07, available on request, for superseded information.

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## Cowl Assembly - Nat Asp Engines Figure 2 - 1

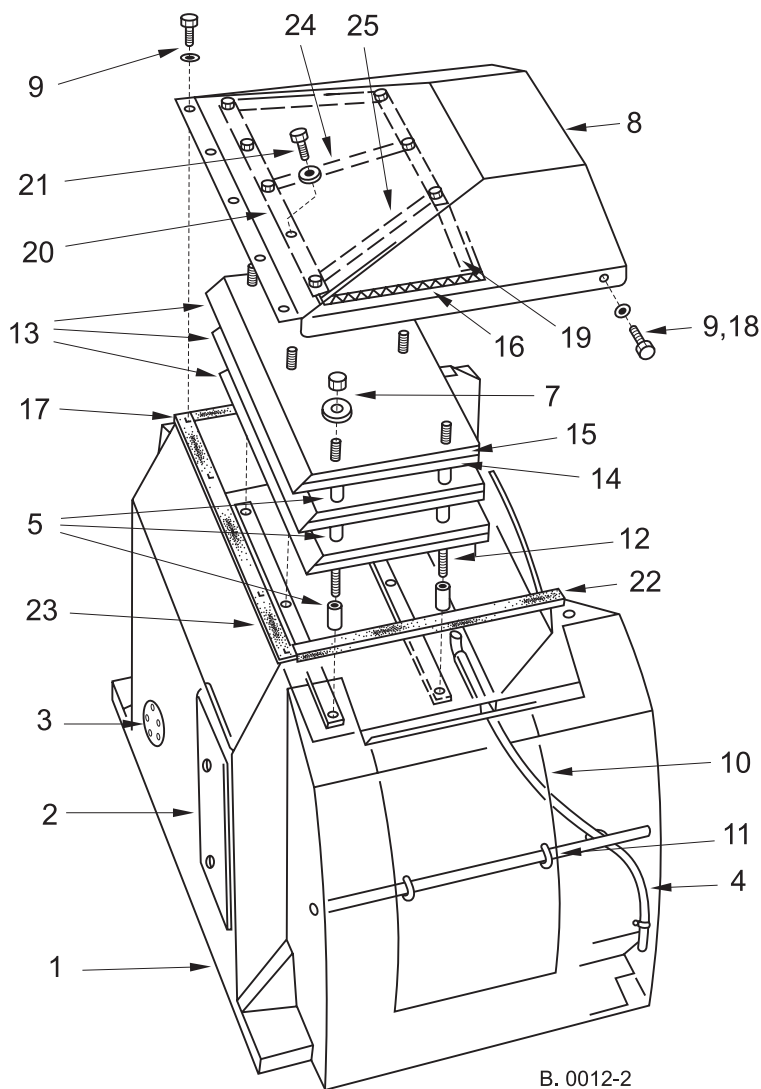


### Safety Precautions



Extreme care should be taken when working on the top of the body.

Removal and installation of the Silencer Assembly should only be undertaken by two people if lifting equipment is not available, due to the weight of the assembly.



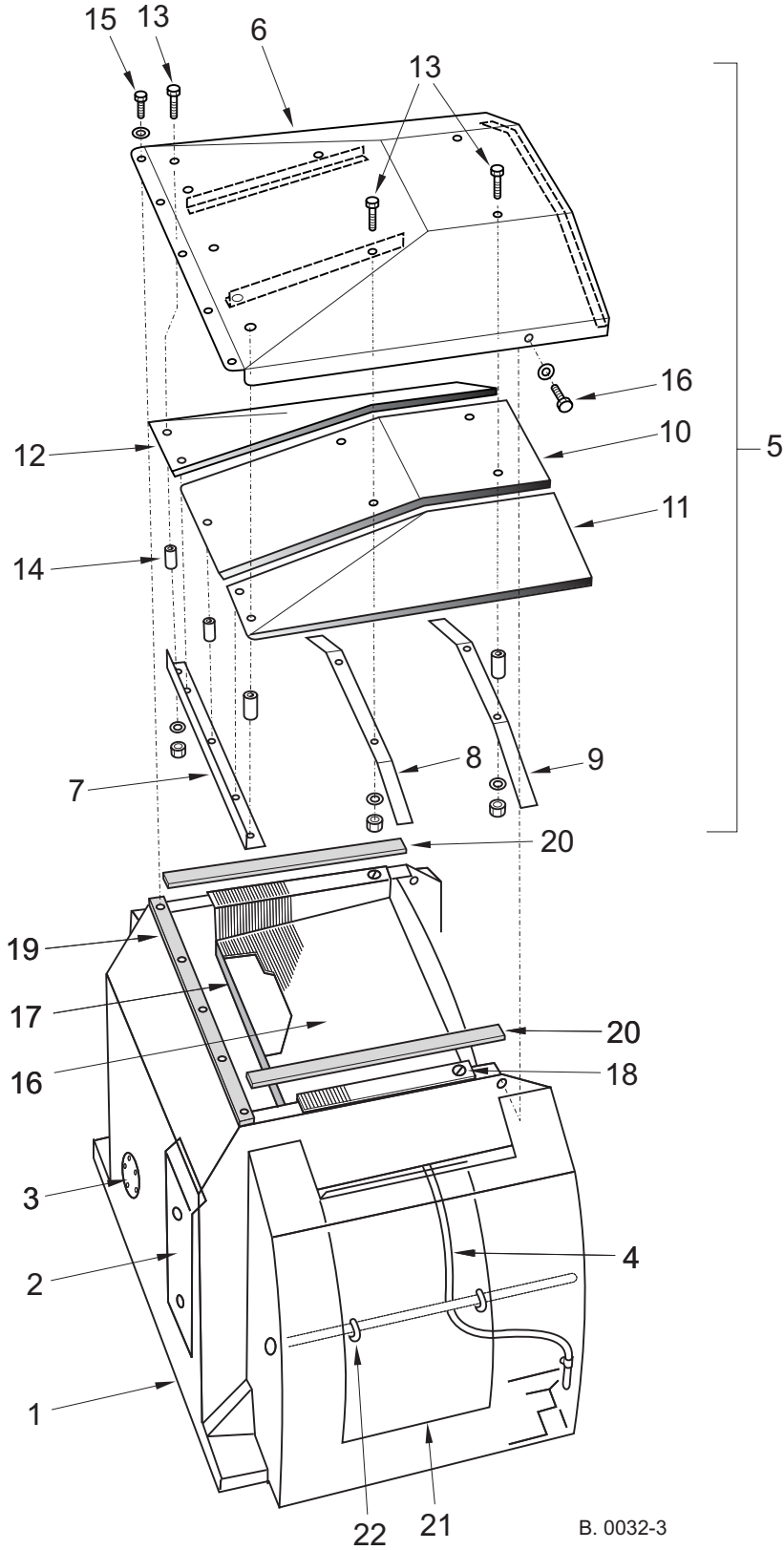
**Cowl Assembly - Nat Asp Engines  
Figure 2 - 1**

Item No.	Part No.	Description	Quantity
	600/605    625/700/705		
1	42200-35    42895-1	Cowl Standard	
	42200-350    N/A	Cowl with Sound Attenuation Kit	
2	42663-1    61005-1	Wear plate	1
	135-60    <	Setscrew M10c x 20mm	2
	420-15    <	Nut M10c	2
	460-11    <	Washer - Spring M10	2
3	42739-1    <	Cover	1
	135-56    <	Setscrew M6c x 12mm	5
	18872    <	Strip - Sealing	1
4	15656-1    <	Hose x 1500mm Long	1
	501-3    <	Clip	2
	62016-1    <	Silencer Assembly comprising items:- 5, 7, 12, 13, 14, 15	
5	42378-1    <	Spacer	18
6	-		
7	426-5    <	Nut - M10c Philidas	6
	457-5    <	Washer - Extra Large M10	6
	62177-1    <	Hood Assembly comprising items:- 8, 16, 19, 20, 21, 25.	
8	62109-1    <	Hood	1
9	124-134    <	Setscrew M8c x 16mm	5
	460-10    <	Washer - Spring M8c	5
	434-8    <	Nut - Retainer	5
10	92230-1    802176-1	Shield	1
11	6645-8    <	'U' Bolt	2
12	42377-2    <	Stud	6
13	42633-1    <	Wafer Plate	3
14	41832-3    <	Insulation - Lower Panel	3
15	41832-4    <	Insulation - Upper Panel	3
16	41832-39    <	Insulation - Hood	1
17	434-8    <	Nut - Retainer	5
18	455-10    <	Washer - Plain M8	4
	423-14    <	Nut M8c	2
19	62357-1    <	Strip	1
20	63063-1    <	Angle	1
21	124-113    <	Setscrew M6c x 50mm	8
	455-8    <	Washer - Plain M6	8
	62873-1    <	Spacer	8
	425-13    <	Nut M6c Nyloc	8
22	217-7    <	Sealing Strip x 950mm Long	2
23	217-7    <	Sealing Strip x 1120mm Long	1
24	63064-1    <	Strip	1
25	63064-2    <	Strip	2

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## Cowl Assembly - Turbo Engines Figure 2 - 2



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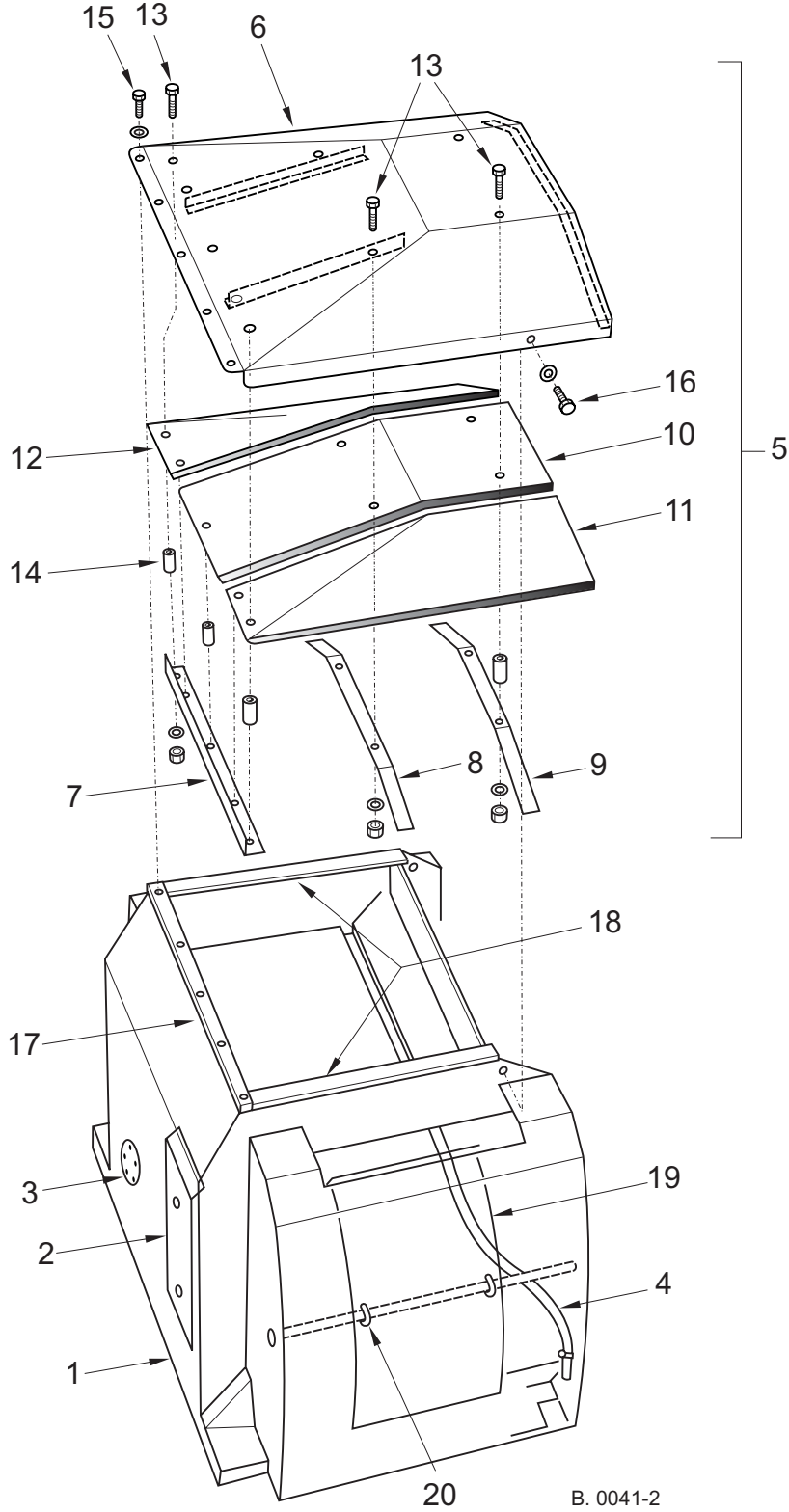
<b>Cowl Assembly - Turbo Engines Figure 2 - 2</b>
---

Item No.	Part No.	Description	Quantity
1	-	)	
2	-	) See Fig. 2 - 1	
3	-	)	
4	-	)	
5	63648-1 63648-2 62648-3	Standard Hood Assembly comprising items marked ) Chromweld Hood Assembly comprising items marked ) Stainless Steel Hood Assembly comprising items marked )	Comprises Items 6 - 14
6	63643-1 63643-3 63643-5	Cover Top/Hood - Standard Cover Top/Hood - Chromweld Cover Top/Hood - Stainless Steel	1 1 1
7	63063-1	Angle Clamp	1
8	63646-1	Clamp Strip	1
9	200869-1	Clamp Strip	1
10	63647-1	Insulation Panel	1
11	63647-2	Insulation Panel	1
12	63647-3	Insulation Panel	1
13	124-112 455-8 425-13	Setscrew M6c x 45mm long Washer - Plain M6 Nut - Nyloc M6c	9 9 9
14	62873-1	Spacer	5
15	124-134 460-10 455-10 423-14	Setscrew M8c x 16mm Washer - Spring M8 Washer - Plain M8 Nut M8c	2 2 2 2
16	63642-1 63642-2 63642-3	Plenum Plate - Standard Plenum Plate - Chromweld Plenum Plate - Stainless Steel	1 1 1
17	63647-4	Insulation Panel	1
18	135-57	Screw Button Hd. M8c x 20mm	2
19	217-7	Sealing Strip x 1120mm long	1
20	217-7	Sealing Strip x 950mm long	2
21	802278-1	Cowl Shield - Exhaust	1
22	6645-8	'U' Bolt	2

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'Lo-Top' Cowl Assembly - 600 Series  
Figure 2 - 3



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**'Lo-Top' Cowl Assembly - 600 Series  
Figure 2 - 3**

Item No.	Part No.	Description	Quantity
1	63701-1	Cowl	1
2	42663-1	Wearplate	1
	135-60	Setscrew M10c x 20mm	2
	420-15	Nut M10c	2
	460-11	Washer - Spring M10	2
3	42739-1	Cover	1
	135-56	Setscrew M6c c 12mm	5
	18872	Strip - Sealing	1
4	15656-1	Hose x 1500mm long	1
	501-3	Clip	2
5	63648-1	Standard Hood Assembly comprising items 6 to 14	
	63648-2	Chromweld Hood Assembly comprising items 6 to 14	
	63648-3	Stainless Steel Hood Assembly comprising items 6 to 14	
6	63643-1	Cover Top/Hood - Standard	1
	63643-3	Cover Top/Hood - Chromweld	1
	63643-5	Cover Top/Hood - Stainless Steel	1
7	63063-1	Angle Clamp	1
8	63646-1	Clamp Strip	1
9	200869-1	Clamp Strip	1
10	63647-1	Insulation Panel	1
11	63647-2	Insulation Panel	1
12	63647-3	Insulation Panel	1
13	124-112	Setscrew M6c x 45mm long	9
	455-8	Washer - Plain M6	9
	425-13	Nut - Nyloc M6c	9
14	62873-1	Spacer	5
15	124-134	Setscrew M8c x 16mm	5
	460-10	Washer - Spring M8	5
	434-8	Nut - Retainer	5
16	124-134	Setscrew M8c x 16mm	2
	460-10	Washer - Spring M8	2
	455-10	Washer - Plain M8	2
	423-14	Nut M8c	2
17	217-7	Sealing Strip x 1120mm long	1
18	217-7	Sealing Strip x 950mm long	2
19	802278-1	Cowl Shield - Exhaust	1
20	6645-8	'U' Bolt	2

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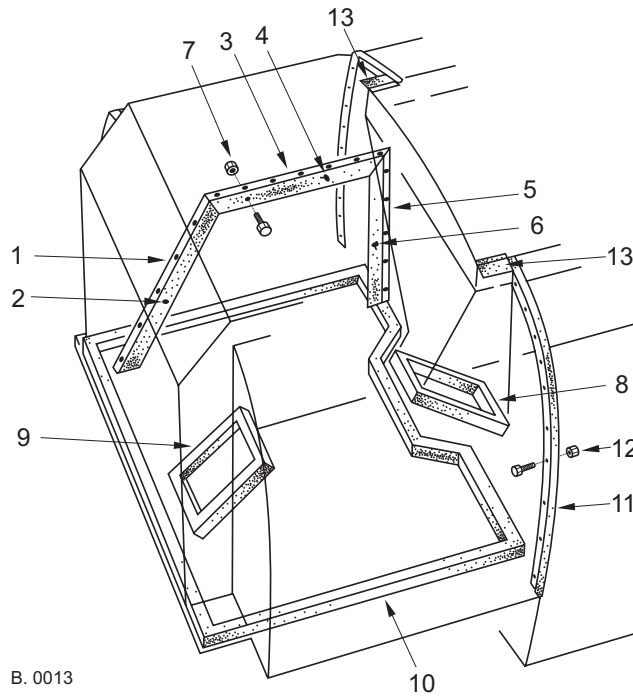
**Seals**  
**Figure 2 - 4**



**Safety Precautions**



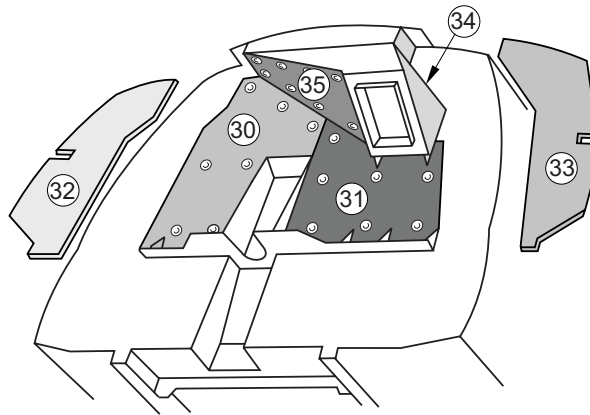
Always use the body prop when working under the auxiliary engine cowl or body.



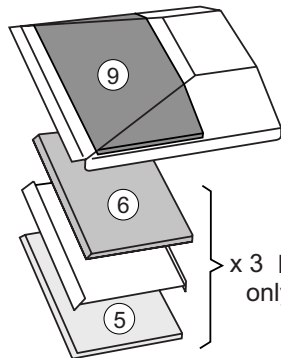
Item No.	Part No.	Description	Quantity
1	42610-1	Camp - Radiator Seal	1
2	42613-1	Rubber - Radiator Seal	1
3	42611-1	Clamp - Radiator Seal	1
4	42612-1	Rubber - Radiator Seal	1
5	42610-1	Clamp - Radiator Seal	1
6	42607-1	Rubber Radiator Seal	1
7	124-135	Setscrew M8c x 20mm	17
	420-14	Nut M8c	17
	460-10	Washer - Spring M8	17
> 8	282396-1	Seal - Body Make/Brake	1
9	42411-1	Seal - Cowl Make/Brake	1
10	42409-2	Seal - Cowling	1
11	12964-1	'T' Section	1
12	124-205	Setscrew M12c x 35mm	10
	420-16	Nut M12c	6
	460-12	Washer - Spring M12c	10
13	217-2 10270 (JSC)	Rubber Seal x 200mm Long Adhesive	2

Refer to Drawing No. W41832 for 600 Series  
Refer to Drawing No. W61057 for 625, 700 Series  
(Panel reference numbers shown are for 625, 700 Series)

**Sound Attenuation Kits  
Figure 2 - 5**

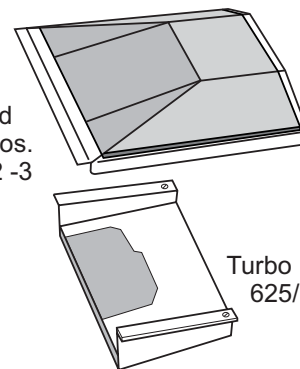


BODY KIT 675-7



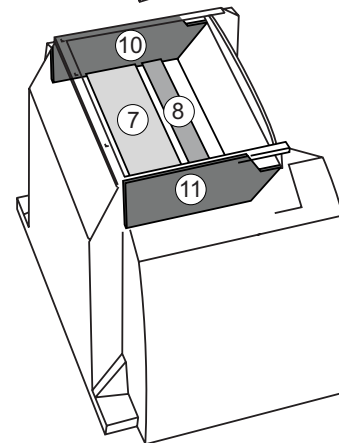
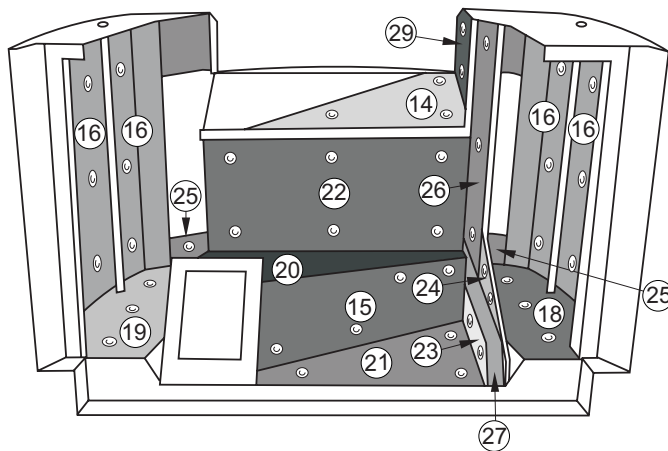
For Nat. Asp., Turbo and  
Lo-Top Hood panel part nos.  
see figures 2-1, 2-2 and 2-3

x 3 Nat. Asp. Engines  
only - 600/605 Series



Turbo Engines only  
625/700 Series

COWL KIT 675-9



B. 0040-4

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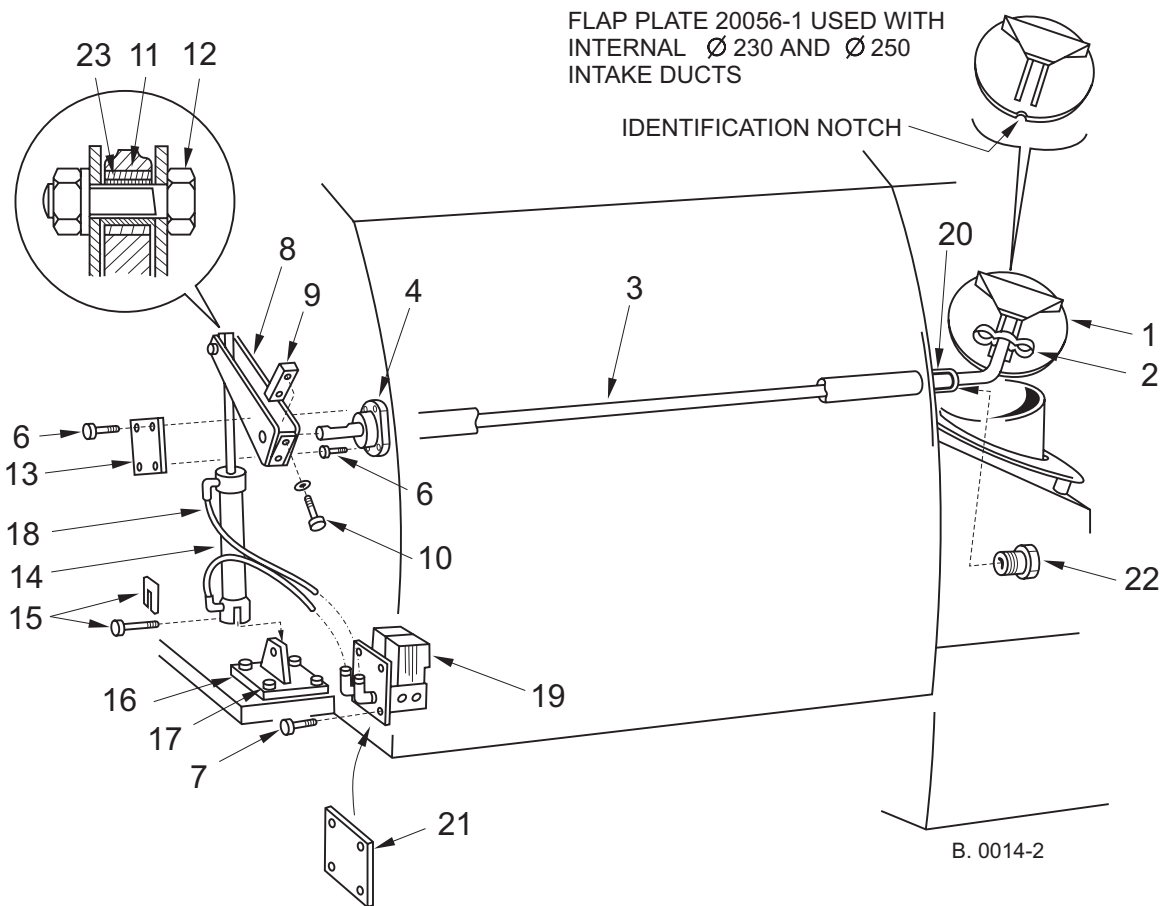
## Intake Duct Flap Mechanism Figure 2 - 6



### Safety Precautions



Always depressurise the pneumatic system using the shut off/drain valve on the vitaliser unit in the systems locker (Fig 11-5) before working on the flap mechanism.



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<b>Intake Duct Flap Mechanism Figure 2 - 6</b>
--

Item No.	Part No.	Description	Quantity
1	40458-1	Flap	1
2	40516-1	Clip	2
3	40442-6	Shaft	1
4	63523-1	Bearing - Plastic	1
5	-		
6	124-139	Setscrew M8c x 30mm	4
	460-10	Washer - Spring M8	4
7	135-56	Screw Button Hd. M6c x 12mm	10
	460-8	Washer - Spring M6	10
8	40196-1	Lever	1
9	40456-2	Bar - Lever Mounting	1
10	124-179	Setscrew M10c x 60mm	2
	460-11	Washer - Spring M10	2
11	29128-1	Bush - Bearing	1
12	124-208	Setscrew M12c x 45mm	1
	420-16	Nut M12c	1
	460-12	Washer - Spring M12	1
13	40250-1	Plate Blanking - Single Sweep Machines	1
14	28901-1	Cylinder - See Chapter 11	1
15	29149-1	Pin	1
	39624	Spring Retaining Cup	2
16	42216-1	Bracket - Cylinder Mounting 600/605 Series	1
	61100-1	Bracket - Cylinder Mounting 625/700/705 Series	1
17	124-135	Setscrew M8c x 20mm	4
	420-14	Nut M8c	4
	460-10	Washer - Spring M8	4
18	12869	Tube Ø6mm Black	5m
	510-3	Nut - Tubing 6mm	5
	511-3	Sleeve - Tubing 6mm	5
19	-	Control Valve Assemblies - See Fig. 2 - 7	1
20	29128-2	Bush	1
21	42940-1	Plate - Blanking) Single Sweep	1
22	42956-1	Plug - Blanking) Machines	1
23	42733-1	Bush Bearing	1

**Notes**

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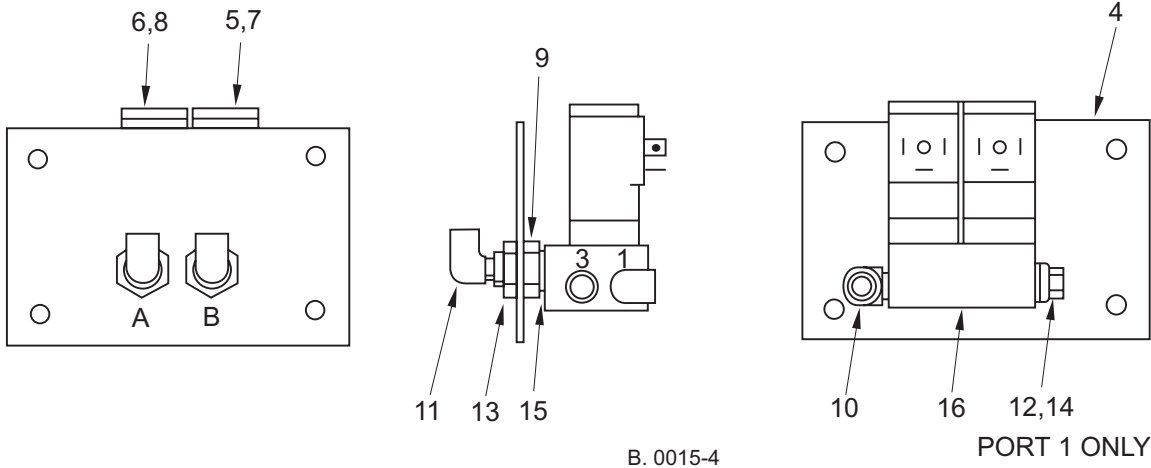
## Flap Valve Assembly Figure 2 - 7



### Safety Precautions



Always depressurise the pneumatic system using the shut off/drain valve on the vitaliser unit in the systems locker (Fig 11-5) before working on the flap mechanism.



Item No.	Part No.	Description	Quantity	
			12v	24v
	42937-1	Assembly 12v	✓	-
	42937-2	Assembly 24v	-	✓
4	42940-2	Mounting Plate - 4 Hole	1	1
5	42300-1	Valve - Pneumatic NO 12v	1	-
6	42300-2	Valve - Pneumatic NC 12v	1	-
7	42300-3	Valve - Pneumatic NO 24v	1	1
8	42300-4	Valve - Pneumatic NC 24v	1	1
9	40594-1	Adaptor - Bulkhead	2	2
10	552-8	Elbow - 1/4" BSP	1	1
11	552-3	Elbow - 1/8" BSP	2	2
12	3162	Plug - Collar	1	1
13	410-3	Back Nut 3/8" BSP	2	2
14	451-17	Washer - Sealing 1/4" BSP	1	1
15	451-4	Washer - Sealing 1/8" BSP	2	2
16	40602-2	Valve - Block	1	1

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**CHAPTER**


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**3**

# Auxiliary Engine/Ancillaries/ Fuel Tank

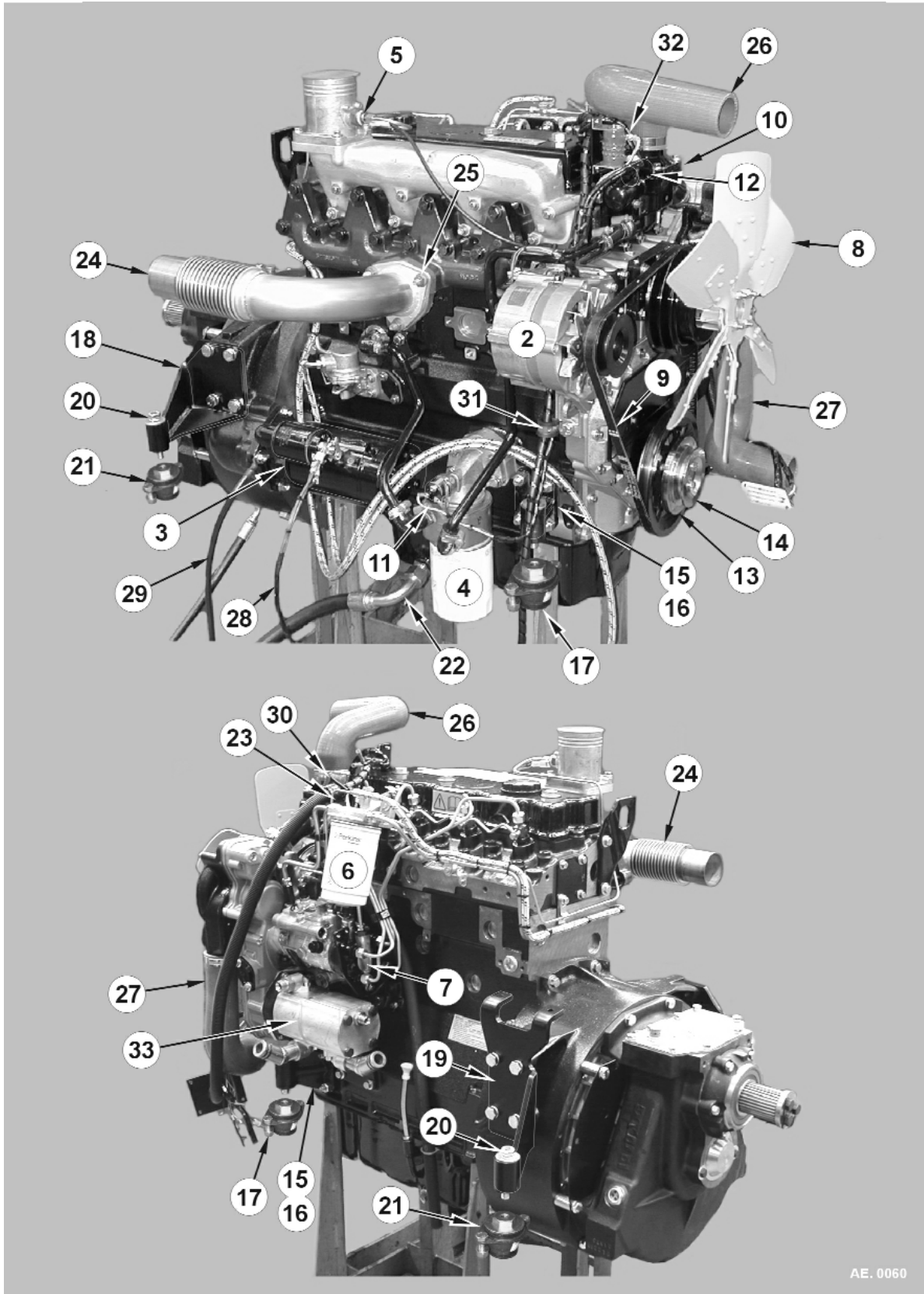
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Fig. 3 - 12 Throttle and Actuator Cable - Type 'B'	3 : 20
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<b>Exhaust System</b>	
Fig. 3 - 14 Exhaust Pipe Installation	3 : 22
<b>Fuel Tank</b>	
Fig. 3 - 15 Fuel Tank	3 : 24

**Note**

Current engines covered in this Chapter are for engine build number AJ50824U..... onwards. If spares are required for earlier engines, i.e. up to engine build AR506673U....., contact the Johnston Parts Department.

Perkins 1004.40 Naturally Aspirated Engine  
(Standard on 600/605 Series)  
Figure 3 - 1



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**Perkins 1004.40 Naturally Aspirated Engine  
Figure 3 - 1**

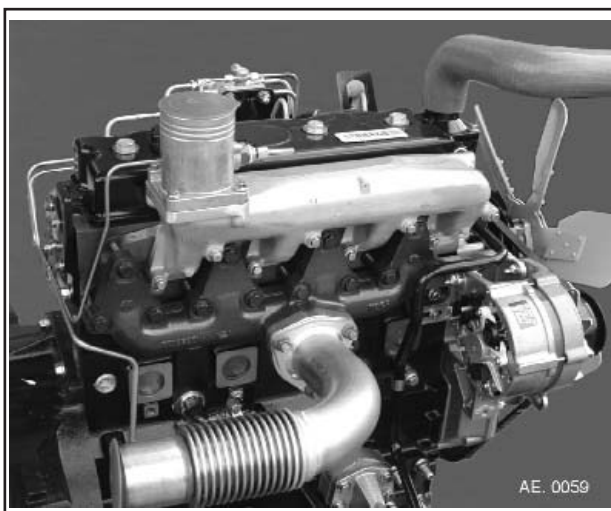


**Safety Precautions**



Always use the body prop when working under the auxiliary engine cowl. Ensure the engine, cooling and exhaust systems are sufficiently cool to avoid scalding or burning. Never remove radiator hoses whilst the engine coolant is hot.

**ENGINE IDENTIFICATION IS BY INLET MANIFOLD DESIGN**



CURRENT PERKINS 1004.40  
(EPA & NRMM COMPLIANT)



SUPERSEDED PERKINS 1004.42  
(Covered in Parts Section  
Revision Level 10)

Item No.	Part No.	Description	Quantity
1	280080-1	Engine - To Build List AJ50824 - 24v	1
	280080-2	Engine - To Build List AJ50823 - 12v	
	837-61	Rocker Box Gasket - Rubber	
2	653-14	Alternator - 24v	1
	653-208	Alternator - 12v	1
3	653-10	Starter Motor - 24v	1
	653-207	Starter Motor - 12v	1
	124-175	Setscrew M10c x 40mm	3
	460-11	Washer - Spring M10	3
4	837-11	Oil Filter Element	1
5	14825	Thermostart	1
	12017	Thermostart Resistor - 24v - See Item 32	1
6	838-7	Fuel Filter Element	1

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v

## Perkins 1004.40 Naturally Aspirated Engine Figure 3 - 1

Item No.	Part No.	Description	Quantity
7	280211-1	ESOS Valve (Amp Junior Timer Type Plug Connector	1
	-	ESOS Valve Resistor - 24v - See Item 23	
8	-	Cooling Fan - Perkins Part	4
	-	Cooling Fan Spacer - Perkins Part	4
	123-110	Bolt M8c x 50mm	4
	460-10	Washer - Spring M8	4
9	280-5	Vee Belt - Cooling Fan	1
10	837-63	Thermostat	1
	837-64	'O' Ring	1
	837-65	'O' Ring	1
11	40619-1	Oil Pressure Switch	1
12	42797-1	Water Temperature Switch	1
	41120-1	Boot - PVC	1
13	42291-1	Adaptor	1
	170-35	Socket Head Csk. Screw	4
14	42187-1	PTO Pulley	1
	124-135	Setscrew M8c x 20mm	3
	460-10	Washer - Spring M8	3
15	42181-2	Engine Mounting Bracket - Front	1 Per Side
	21173-1	Stud	4 Per Side
	426-6	Nut M12c	4 Per Side
	460-12	Washer - Spring M12	4 Per Side
16	123-154	Bolt M12c x 80mm - Front	1 Per Side
	457-6	Washer - Plain M12	2 Per Side
	460-12	Washer - Spring M12	2 Per Side
17	6953	Metacone Mount - Front	1 Per Side
	124-171	Setscrew M10c x 30mm	2 Per Side
	455-11	Washer - Plain M10	2 Per Side
	425-15	Nut - Nyloc M10c	2 Per Side
18	42645-2	Engine Mount (RH Rear)	1
19	63536-1	Engine Mount (LH Rear)	1
	124-201	Setscrew M12c x 25mm	4 Per Side
20	123-153	Bolt (Rear Mount) M12c x 75mm	1 Per Side
	457-6	Washer - Plain M12	1 Per Side
	460-12	Washer - Spring M12	1 Per Side
21	22826-1	Metacone Mount (Rear)	1 Per Side
	124-171	Setscrew M10 x 30mm	2 Per Side
	455-11	Washer - Plain M10	2 Per Side
	425-15	Nut - Nyloc M10c	2 Per Side
22	62908	Remote Oil Drain Kit comprising:	
	62906-1	Adaptor 3/4" BSP x 3/4" UNF	1
	HE12003-50	Hydraulic Hose 3/4" BSP	1
	-	See Fig. 1 - 4, Item 17, for Drain Fittings	
	15656 (JSC)	Hose - Remote Oil Drain	1
	10887-1 (JSC)	Valve	123

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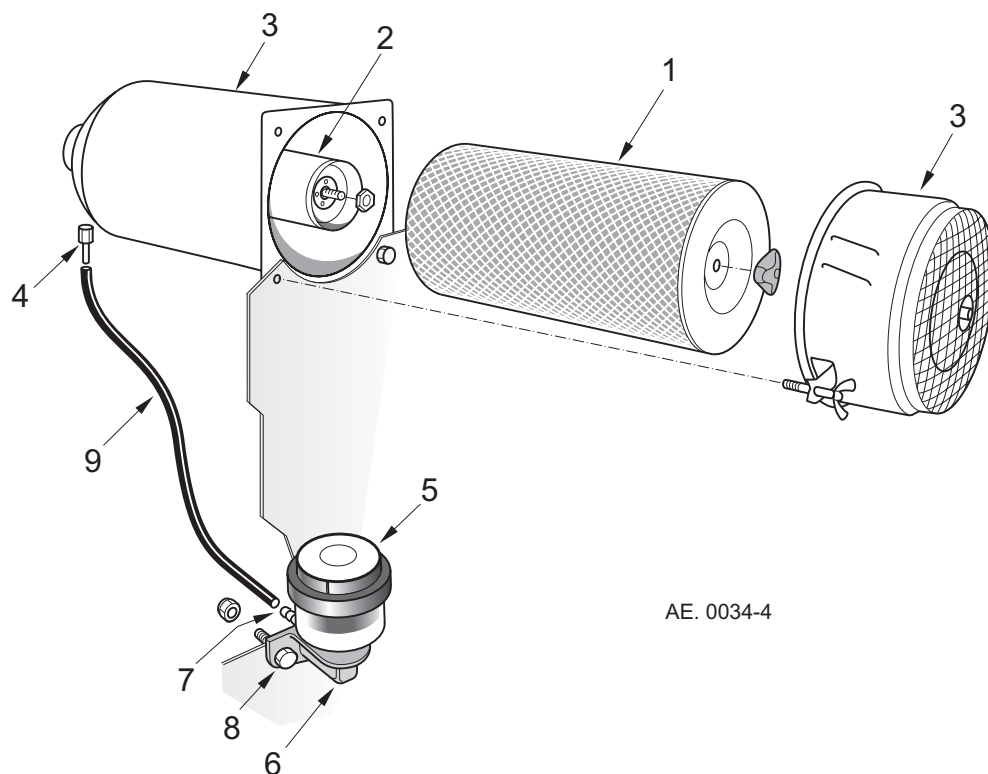
**Perkins 1004.40 Naturally Aspirated Engine  
Figure 3 - 1**

Item No.	Part No.	Description	Quantity
23	22778-1	ESOS Valve Resistor - 24v	1
24	94952-1	Pipe - Inlet	1
25	837-28	Gasket	1
	-	Stud - Perkins Part	3
	-	Nut - Perkins Part	3
26	42657-1	Top Hose - Radiator	1
	501-6	Hose Clip	2
27	42656-1	Bottom Hose - Radiator	1
	501-6	Hose Clip	2
28	92105-60	Starter Cable	1
29	17936-61	Starter Earth Cable	1
30	48495-1	Loom Support Bracket	1
31	508-4	'P' Clip - Loom Support	1
	124-167	Setscrew M10c x 20mm	1
	460-11	Washer - Spring M10	1
32	12017	Thermostart Resistor - 24v only	1
	280849-1	Resistor Mounting Bracket	1
33	-	Hydraulic Pump - See Chapter 10	1

**Notes**

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## Type 'B' Air Cleaner Assembly - Nat Asp 1004.40 Engines Figure 3 - 2

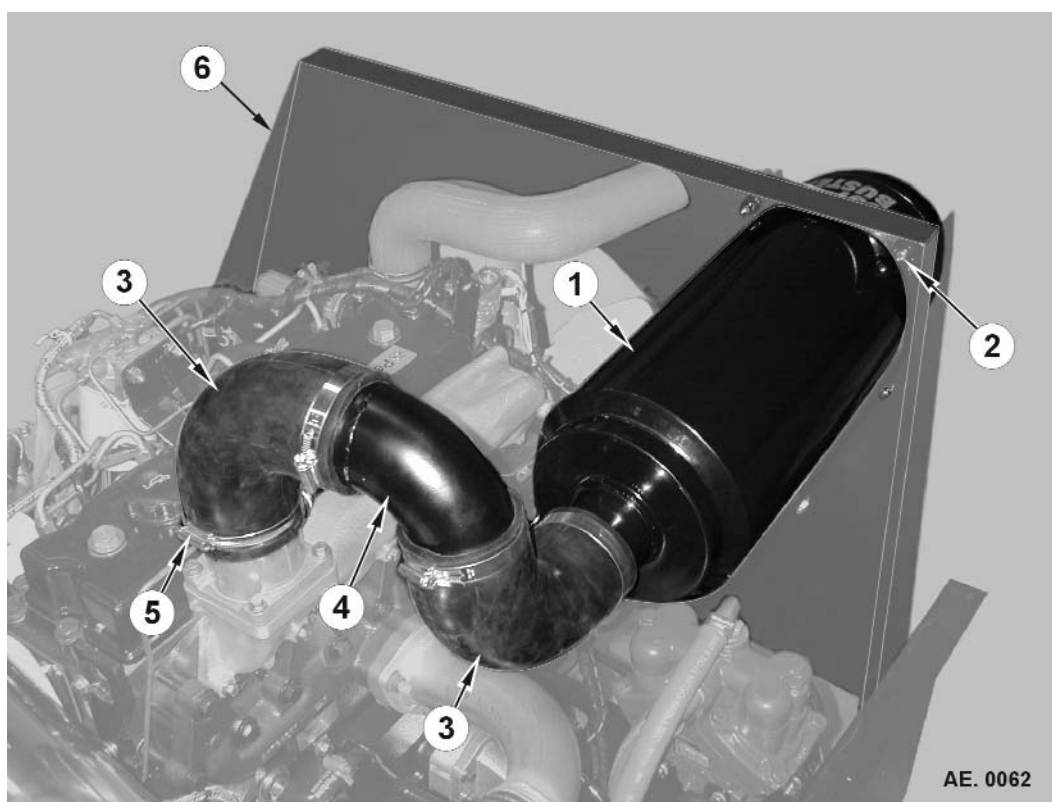


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Item No.	Part No.	Description	Quantity
	280850-1	Filter Assembly comprising items 1 to 3	
1	280850-2	Main Element	1
2	280850-3	Safety Element	1
3	280850-4	Housing	1
4	904-58	Adaptor	1
5	12188	Filter State Indicator (5.5kPa)	1
6	12190	Mounting	1
7	904-56	Hose End Connector	1
8	124-103	Setscrew M6c x 20mm	2
	457-2	Washer - Plain M6	2
	425-13	Nut - Nyloc M6c	2
9	12870	Plastic Tubing	1

### Notes

**Type 'B' Air Cleaner Installation - Nat Asp 1004.40 Engines  
Figure 3 - 3**

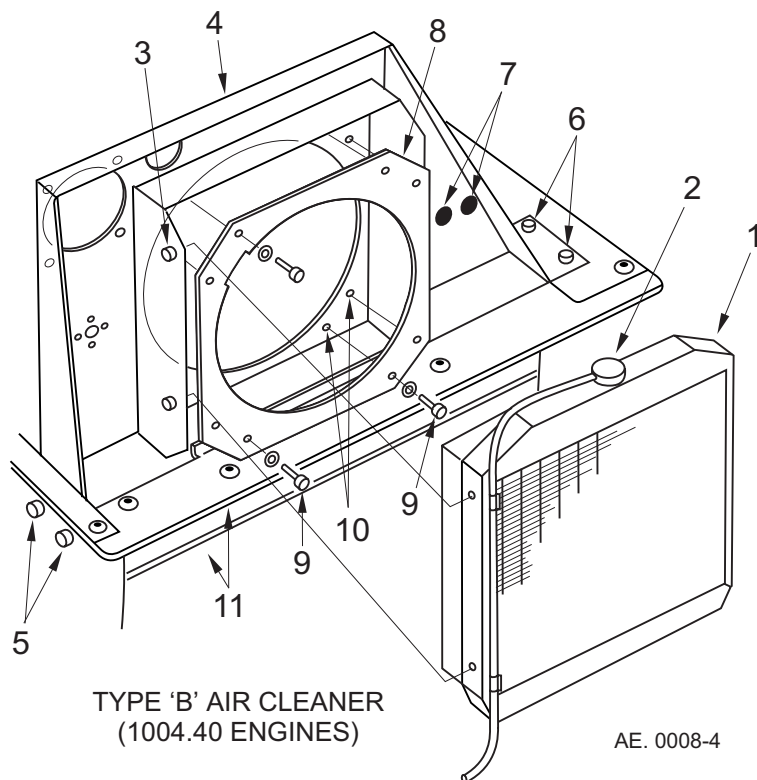


Item No.	Part No.	Description	Quantity
1	-	Air Cleaner - See previous page	
2	124-167	Setscrew M10c x 20mm	2
	460-11	Washer - Spring M10	2
3	904-8	Elbow - Rubber	2
4	280848-1	Elbow - Steel	1
5	501-7	Hose Clip	4
6	-	Shroud - See Fig. 3 - 4	

**Notes**

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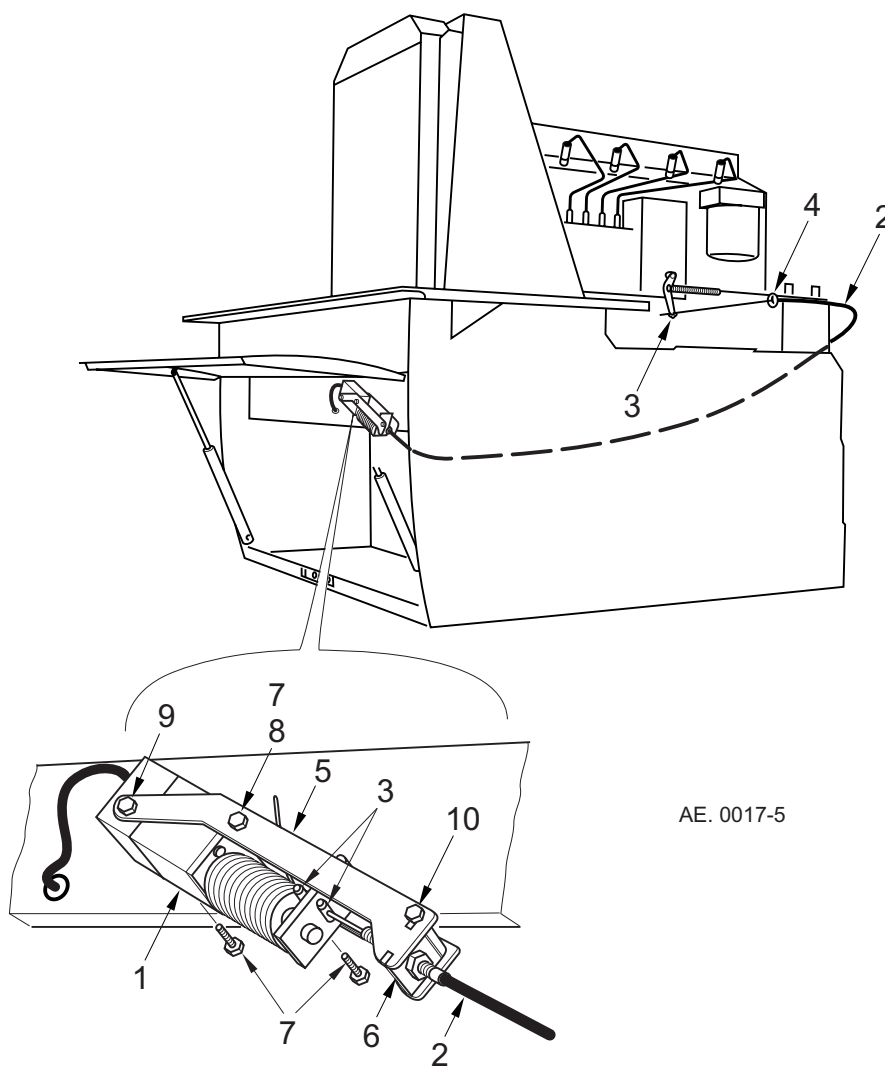
## Nat Asp 1004.40 Engine Radiator/Shroud Installation Figure 3 - 4



Item No.	Part No.	Description	Quantity
1	61028-1	Radiator	1
2	69-21	Filler Cap lbf/in <sup>2</sup>	1
3	124-66	Setscrew M10c x 16mm	4
	460-11	Washer - Spring M10	4
4	280845-1	Shroud	1
5	124-167	Setscrew M10c x 20mm	2
	460-11	Washer - Spring M10	2
6	124-167	Setscrew M10c x 20mm	2
	425-15	Nut - Nyloc M10c	2
7	288-25	Blind Grommet	2
8	280184-1	Cooling Fan Adaptor	1
9	124-103	Setscrew M6c x 20mm	8
	460-8	Washer - Spring M6	8
10	433-7	Rivet Nut M6c	8
11	-	Walkway and Locker - See Chapter 9	

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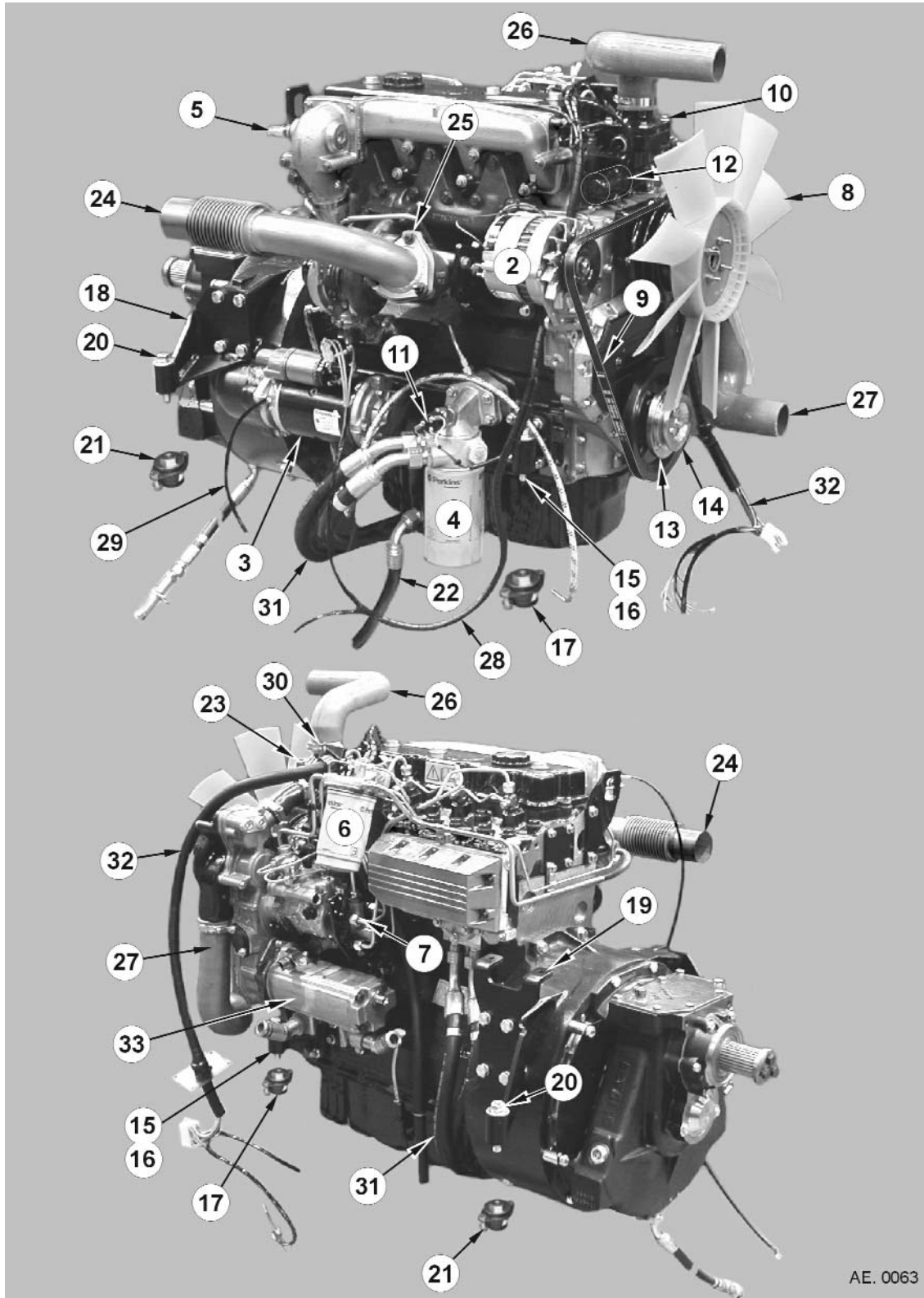
**Nat Asp 1004.40 Engine Throttle Actuator and Cable Installation  
Figure 3 - 5**



Item No.	Part No.	Description	Quantity
1	94110-1	Actuator Motor - 24v	1
2	94190-1	Throttle Cable	1
3	38-32	Nipple - Solderless	3
4	802403-1	Throttle Cable Bracket	1
5	280046-1	Mounting Plate	2
6	280047-1	Cable Support	1
7	124-102	Setscrew M6c x 16mm	3
8	42774-1	Spacer	1
9	124-99	Setscrew M6c x 10mm	1
10	124-114	Setscrew M6c x 15mm	1
	425-13	Nut - Nyloc M6c	1

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**Perkins 1004.40T Turbocharged Engine**  
 (Standard on 625/700/705 Series - Optional on 600/605 Series)  
 Figure 3 - 5



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**Perkins 1004.40T Turbocharged Engine  
(Standard on 625/700/705 Series - Optional on 600/605 Series)  
Figure 3 - 5**



**Safety Precautions**



**Always use the body prop when working under the auxiliary engine cowl.  
Ensure the engine, cooling and exhaust systems are sufficiently cool to avoid scalding  
or burning. Never remove radiator hoses whilst the engine coolant is hot.**

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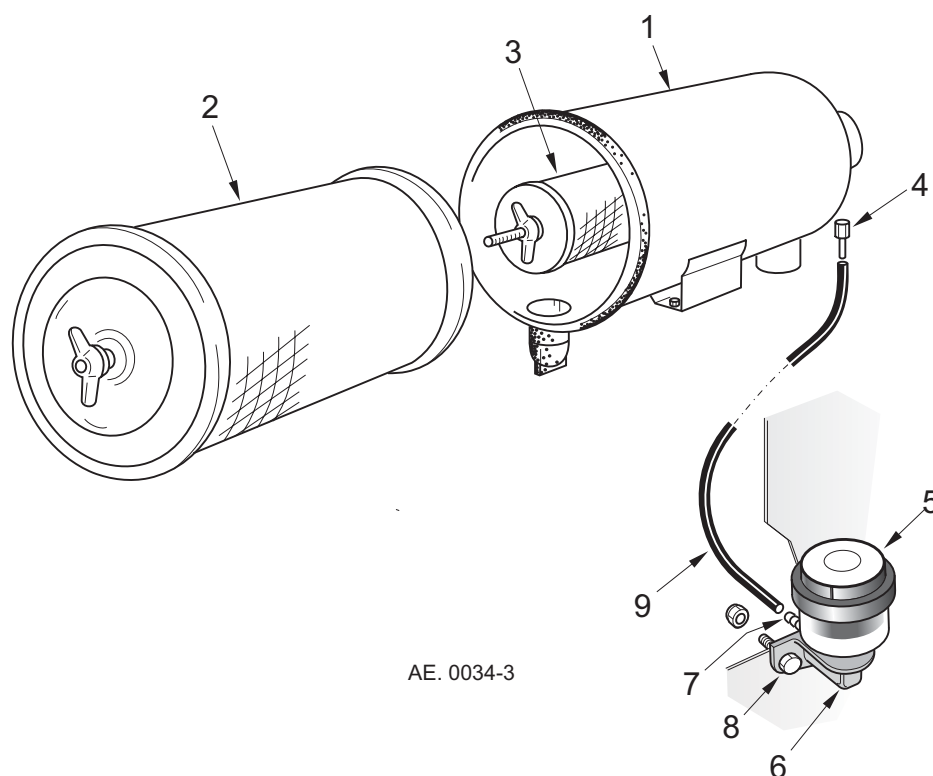
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Item No.	Part No.	Description	Quantity
1	94581-1	Engine - To Build List AK50603 - 24v	1
	94581-2	Engine - To Build List AK50723 - 12v	
	837-61	Rocker Box Gasket - Rubber	
2	653-14	Alternator - 24v	1
3	653-23	Starter Motor - 24v	1
4	837-29	Oil Filter Element	1
5	14825	Thermostart	1
		Thermostart Resistor - See Fig. 3 - 7	
6	838-7	Fuel Filter Element	1
7	837-67	ESOS Valve (Spade Connector)	1
8	-	Cooling Fan	4
	-	Cooling Fan Spacer	4
	123-110	Bolt M8c x 50mm	4
	460-10	Washer - Spring M8	4
9	280-5	Vee Belt - Cooling Fan	1
10	837-63	Thermostat	1
	837-64	'O' Ring	1
	837-65	'O' Ring	1
	40619-1	Oil Pressure Switch	1
12	42797-1	Water Temperature Switch	1
	41120-1	Boot - PVC	1
13	42291-1	Adaptor	1
	170-35	Socket Head Csk. Screw	4
14	42187-1	PTO Pulley	1
	124-135	Setscrew M8c x 20mm	3
	460-10	Washer - Spring M8	3
15	42181-2	Engine Mounting Bracket - Front	1 Per Side
	21173-1	Stud	4 Per Side
	426-6	Nut M12c	4 Per Side
	460-12	Washer - Spring M12	4 Per Side
16	123-154	Bolt M12c x 80mm - Front	1 Per Side
	457-6	Washer - Plain M12	4 Per Side
	460-12	Washer - Spring M12	4 Per Side
17	6953	Metacone Mount - Front	1 Per Side
	124-171	Setscrew M10c x 30mm	2 Per Side
	455-11	Washer - Plain M10	2 Per Side
	425-15	Nut - Nyloc M10c	2 Per Side

**Perkins 1004.40T Turbocharged Engine  
(Standard on 625/700/705 Series - Optional on 600/605 Series)  
Figure 3 - 5**

Item No.	Part No.	Description	Quantity
18	42645-2	Engine Mount (RH Rear)	1
19	63536-1	Engine Mount (LH Rear)	1
	124-201	Setscrew M12c x 25mm	4 Per Side
20	123-153	Bolt (Rear Mount) M12c x 75mm	1 Per Side
	457-6	Washer - Plain M12	1 Per Side
	460-12	Washer - Spring M12	1 Per Side
21	22826-1	Metacone Mount (Rear)	1 Per Side
	124-171	Setscrew M10 x 30mm	4 Per Side
	455-11	Washer - Plain M10	4 Per Side
	425-15	Nut - Nyloc M10c	4 Per Side
22	62908	Remote Oil Drain Kit comprising:	
	62906-1	Adaptor 3/4" BSP x 3/4" UNF	1
	HE12003-50	Hydraulic Hose 3/4" BSP	1
	-	See Fig. 1 - 4, Item 17, for Drain Fittings	
	15656 (JSC)	Hose - Remote Oil Drain	1
	10887-1 (JSC)	Valve	1
23	22778-1	ESOS Valve Resistor - 24v	1
24	61025-1	Pipe - Inlet	1
25	837-28	Gasket	1
		Stud	3
		Nut	3
		Washer - Spring	3
26	42657-1	Top Hose - Radiator	1
	501-6	Hose Clip	2
27	42656-1	Bottom Hose - Radiator	1
	501-6	Hose Clip	2
28	92105-60	Starter Cable	1
29	17936-61	Starter Earth Cable	1
30	48495-1	Loom Support Bracket	1
31	-	Oil Cooler Hoses - See Fig. 3 - 10	
32	-	Engine Loom - See Chapter 13	
33	-	Hydraulic Pump - See Chapter 10	

**Superseded Type 'A' Air Cleaner Assembly - Turbocharged 1004.40T Engines  
Figure 3 - 6**

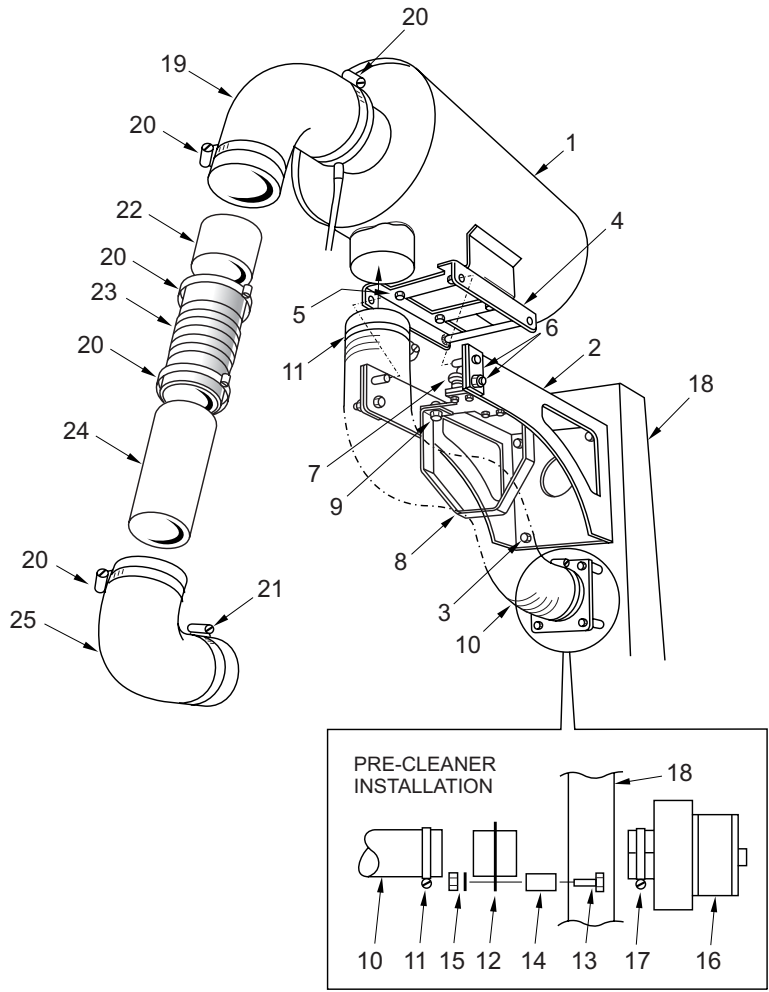


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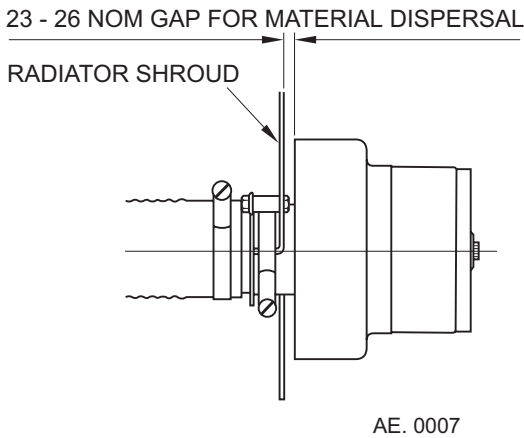
Item No.	Part No.	Description	Quantity
1	94954-1	Air Cleaner Assembly - Comprising Items 2 and 3	
2	94954-2	Main Element	1
3	94954-3	Safety Element	1
4	904-58	Adaptor	1
5	904-55	Filter State Indicator (7.5 kPa)	1
6	12190	Mounting	1
7	904-56	Hose End Connector	1
8	124-103	Setscrew M6c x 20mm	2
	457-2	Washer - Plain M6	2
	425-13	Nut - Nyloc M6c	2
9	12870	Plastic Tubing x 900mm Long	1

**Superseded Type 'A' Air Cleaner Installation Turbocharged 1004.40T Engines  
Figure 3 - 7**



AE. 0048-3

**Pre-Cleaner Installation Details**



ENLARGED VIEW OF PRE-CLEANER FITMENT

**IMPORTANT:**

It is essential that a nominal gap between the pre-cleaner and the radiator be maintained for particle dispersal. However, the pre-cleaner connection must protrude through the radiator shroud giving the maximum possible clearance between the cowl valance and cleaner to allow for possible chassis twist when tipping on uneven ground.

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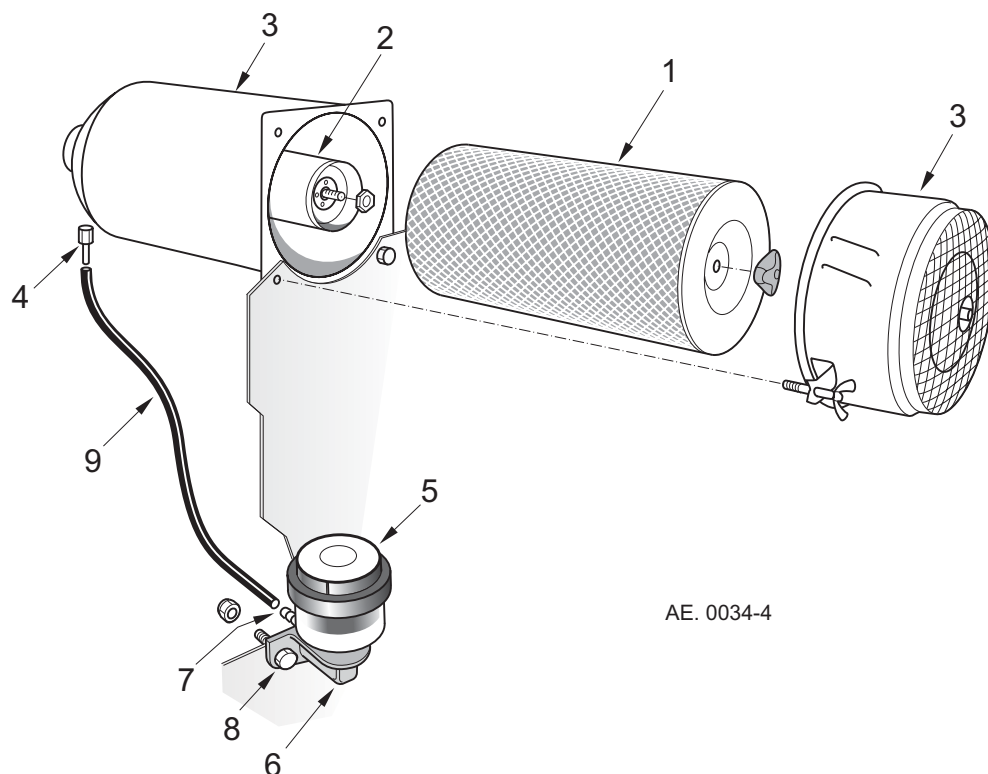
**Superseded Type 'A' Air Cleaner Installation Turbocharged 1004.40T Engines  
Figure 3 - 7**

Item No.	Part No.	Description	Quantity
1	94954-1	Air Cleaner Assembly - See this chapter	1
2	97962-1	Mounting Bracket	1
3	124-169	Setscrew M10 x 25mm	4
	460-11	Washer - Spring M10	4
	420-15	Nut M10c	4
4	97965-1	Pivot Bracket	1
5	124-135	Setscrew M8c x 20mm	4
	460-10	Washer - Spring M8	4
	420-14	Nut M8c	4
6	97966-1	Pivot	2
	123-126	Bolt M10c x 35mm	2
7	436-1	Retaining Catch	1
8	95359-1	Duct Support	1
9	124-103	Setscrew M6c x 20mm	2
	460-8	Washer - Spring M6	2
	420-13	Nut M6	2
10	276-10	Flexible Ducting	1
11	501-7	Clip	2
12	62328-1	Mount	1
13	124-143	Setscrew M8c x 40mm	4
14	17008-1	Spacer	4
15	460-10	Washer - Spring M8	4
	420-14	Nut M8c	4
16	904-20	Pre-Cleaner	1
17	-	Clip - Supplied with Pre-Cleaner	1
18	63201-1	Shroud - See this chapter	1
19	904-8	Rubber Elbow	1
20	501-7	Clip Ø90	5
21	501-6	Clip	1
22	46578-7	Tube	1
23	271-24	Convolute Hose	1
24	46578-3	Tube	1
25	271-25	Reducing Elbow	1

**Notes**

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## Type 'B' Air Cleaner Assembly - Current Turbocharged 1004.40T Engines Figure 3 - 8

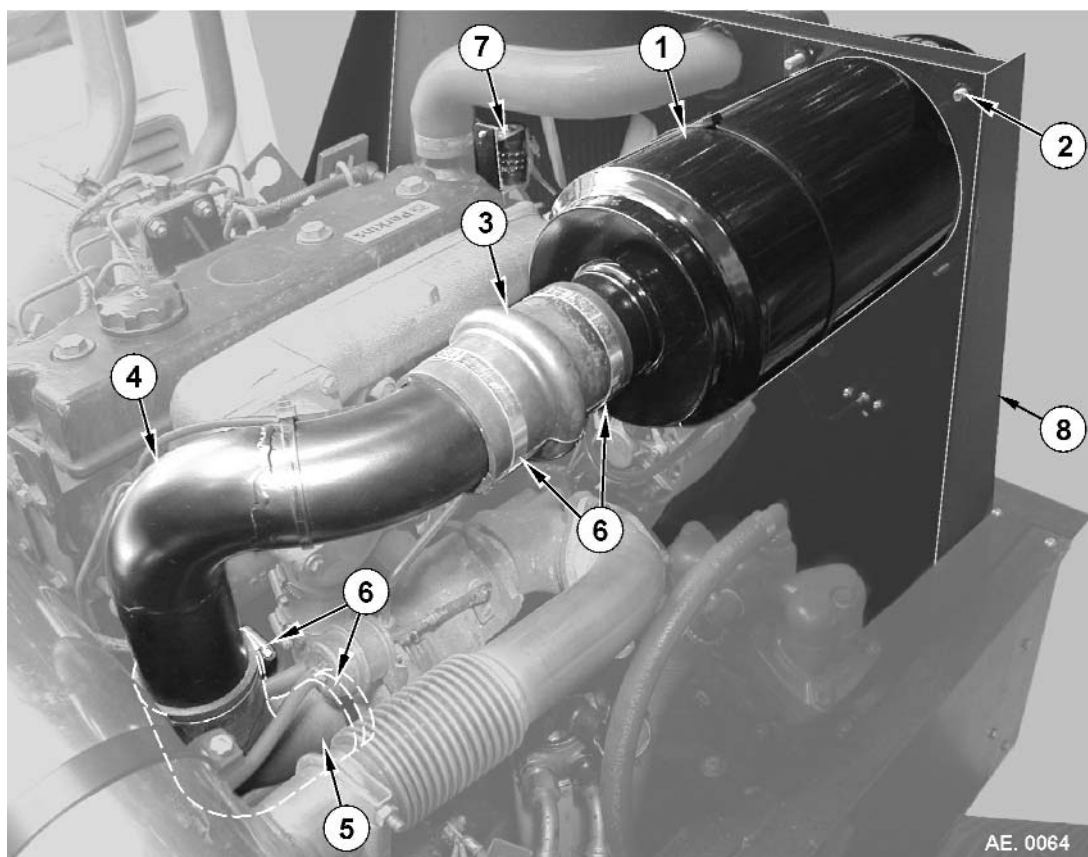


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Item No.	Part No.	Description	Quantity
	280850-1	Filter Assembly comprising items 1 to 3	
1	280850-2	Main Element	1
2	280850-3	Safety Element	1
3	280850-4	Housing	1
4	904-58	Adaptor	1
5	904-55	Filter State Indicator (7.5 kPa)	1
6	12190	Mounting	1
7	904-56	Hose End Connector	1
8	124-103	Setscrew M6c x 20mm	2
	457-2	Washer - Plain M6	2
	425-13	Nut - Nyloc M6c	2
9	12870	Plastic Tubing	1

### Notes

**Current Type 'B' Air Cleaner Installation - Turbocharged 1004.40T Engines  
Figure 3 - 9**

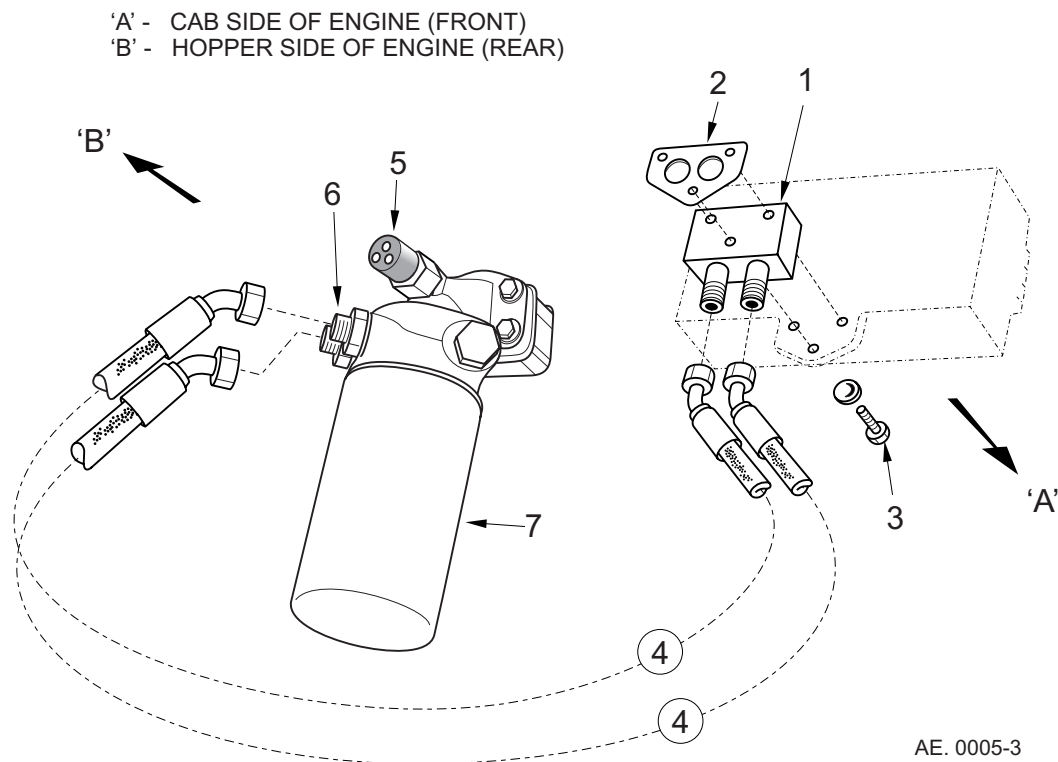


Item No.	Part No.	Description	Quantity
1	-	Air Cleaner - See previous page	
2	124-167	Setscrew M10c x 20mm	2
	460-11	Washer - Spring M10	2
3	904-9	Hump Hose	1
4	281025-1	Induction Pipe	1
5	271-25	Reduction Elbow	1
6	501-7	Hose Clip	4
7	12017	Thermostart Resistor 24v only	1
	280849-1	Resistor Mounting Bracket	1
8	-	Shroud - See Fig. 3 - 11	

**Notes**

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**Oil Cooler Installation - Perkins 1004.40T  
Turbocharged Engines with Tandem PTO Pump  
Figure 3 - 10**



Item No.	Part No.	Description	Quantity
1	62478-1	Oil Cooler Adaptor Manifold	1
2	837-36	Gasket	1
3	124-143	Setscrew ) Perkins	3
	455-10	Washer Spring ) Parts	3
4	HF12022-116-225	Hydraulic Hose	2
5	40619-1	Oil Pressure Switch	1
6	499-3	Adaptor G3/4" x SAE Ø7/8"	2
	451-20	Washer - Sealing Ø7/8"	2
7	837-11	Filter Element	1

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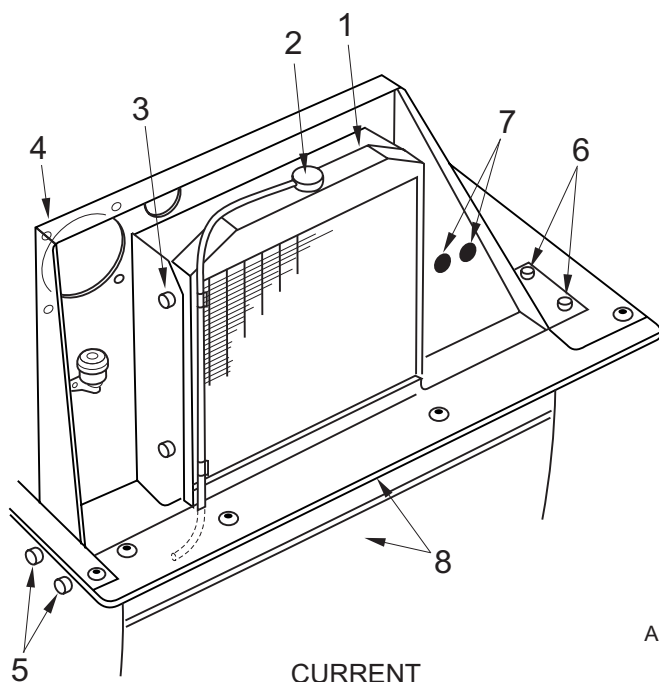
**Turbocharged Engine Radiator/Shroud Installations  
Figure 3 - 11**



**Safety Precautions**

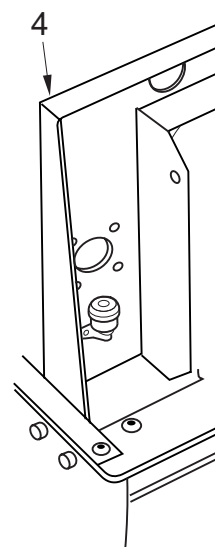


**Do not remove the radiator cap when the engine is hot without first covering the cap with a cloth and releasing it slowly to avoid scalding by escaping coolant.**



**CURRENT  
SHROUD**

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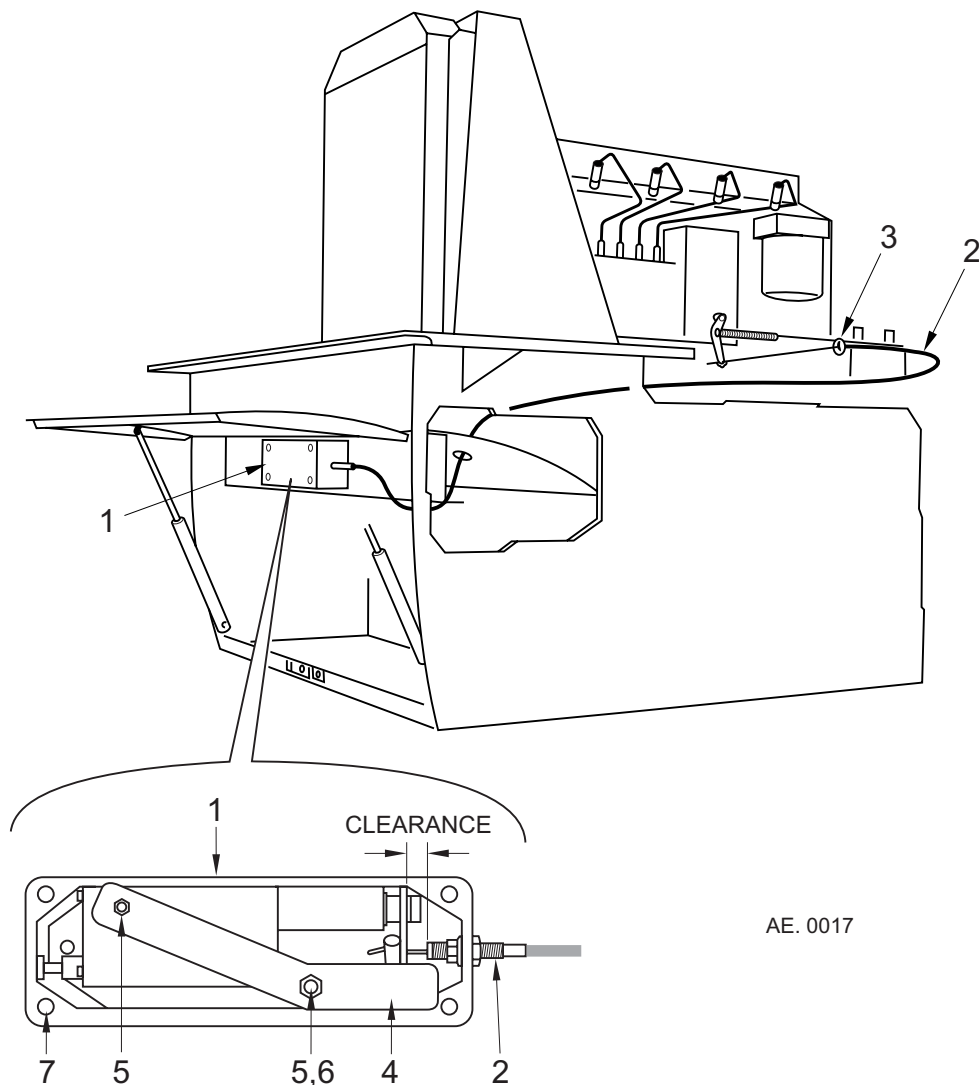


**SUPERSEDED  
SHROUD**

Item No.	Part No.		Description	Quantity
	Type 'A' Air Cleaner	Type 'B' Air Cleaner		
1	61028-1	<	Radiator	1
2	69-21	<	Filler Cap 10lbf/in <sup>2</sup>	
3	124-166	<	Setscrew M10c x 16mm	4
	460-11	<	Washer - Spring M10	4
4	280310-1	280845-1	Shroud	1
5	124-167	<	Setscrew M10c x 20mm	2
	460-11	<	Washer - Spring M10	2
6	124-167	<	Setscrew M10c x 20mm	2
	425-15	<	Nut - Nyloc M10c	2
7	288-25	<	Blind Grommet	2
8	-	-	Walkway and Locker - See Chapter 9	

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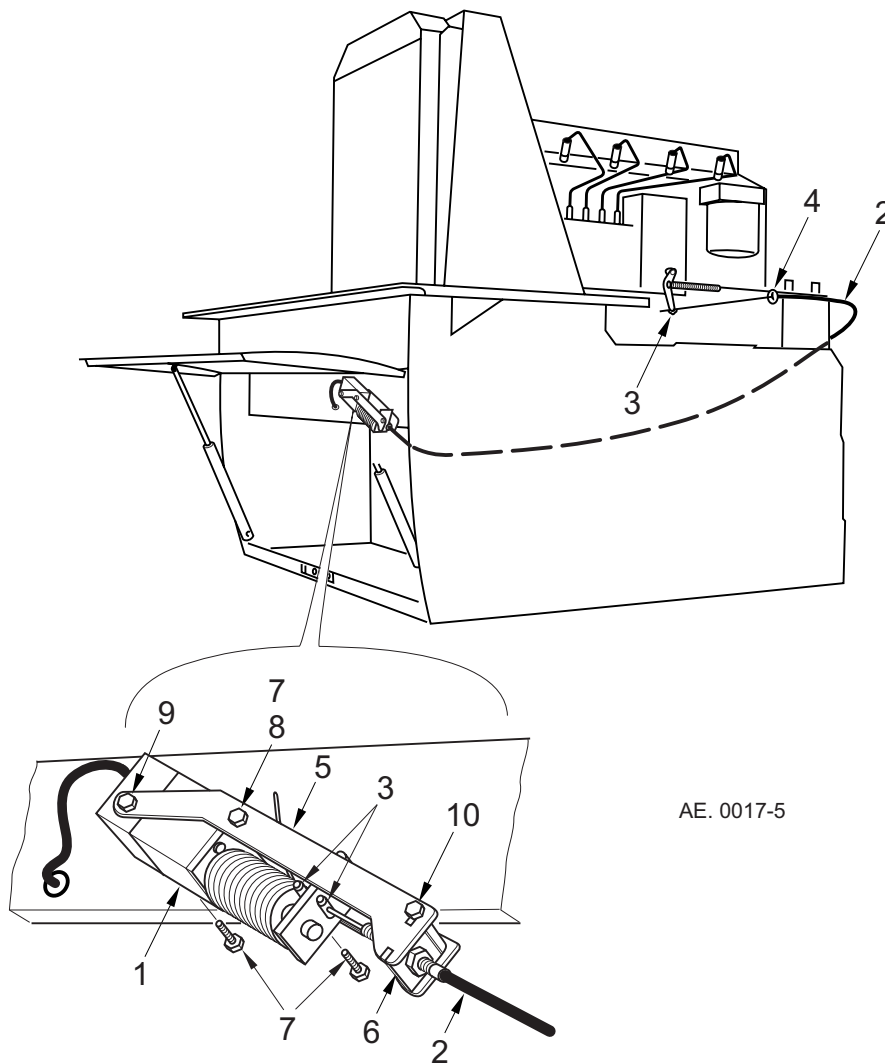
**Turbo 1004.40T Engine Throttle Actuator  
and Cable Installation - Superseded Type A  
Figure 3 - 12**



Item No.	Part No.	Description	Quantity
1	94797-1	Actuator Box	1
	94110-1	Electrical Actuator Motor 24v	
	94110-2	Electrical Actuator Motor 12v	
2	94190-1	Throttle Cable	1
3	200414-1	Throttle Cable Bracket	1
4	201203-1	Top Plate	1
5	124-99	Setscrew M6c x 10mm	3
6	42774-1	Spacer	1
7	129-38	Socket Hd. Cap Screw M4c x 25mm	4
	425-11	Nut - Nyloc M4c	

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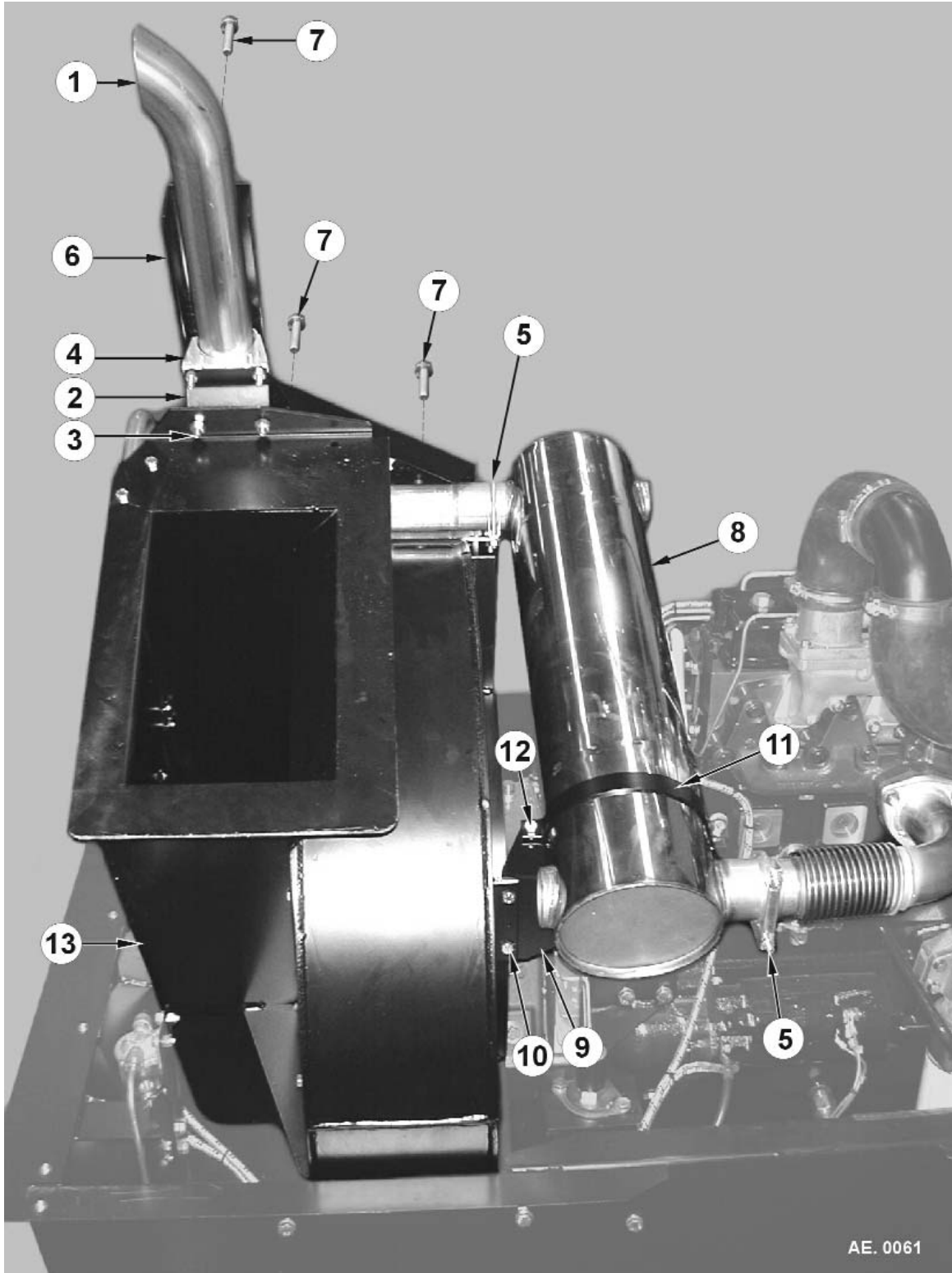
**Turbo 1004.40T Engine Throttle Actuator  
and Cable Installation - Current Type B  
Figure 3 - 13**



Item No.	Part No.	Description	Quantity
1	94110-1	Actuator Motor - 24v	1
	94110-2	Actuator Motor - 12v	1
2	94190-1	Throttle Cable	1
3	38-32	Nipple - Solderless	3
4	200414-1	Throttle Cable Bracket	1
5	280046-1	Mounting Plate	2
6	280047-1	Cable Support	1
7	124-102	Setscrew M6c x 16mm	3
8	42774-1	Spacer	1
9	124-99	Setscrew M6c x 10mm	1
10	124-114	Setscrew M6c x 15mm	1
	425-13	Nut - Nyloc M6c	1

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Exhaust Pipe Installation  
Figure 3 - 14



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**Exhaust Pipe Installation  
Figure 3 - 14**

Item No.	Part No.	Description	Quantity
v	1	42649-1 Tailpipe - 600 Series	1
		63154-1 Tailpipe - 625, 700 Series	1
	2	63169-1 Support - Tailpipe - 625, 700 Series Only	1
	3	124-167 Setscrew M10c x 20mm )	2
		460-11 Washer - Spring M10 ) 625, 700 Series Only	2
		420-15 Nut - Nyloc M10c )	
		455-88 Washer - Plain M6 ) 600 Series Only	2
		460-8 Washer - Spring M6 )	2
	4	6645-13 Pipe Clamp Ø66mm	1
	5	6645-14 Pipe Clamp Ø69mm	1
	6	42647-1 Heat Shield	1
	7	124-100 Setscrew M6c x 12mm	3
		460-8 Washer - Spring M6	3
8	61024-1 Silencer	1	
9	61022-1 Exhaust Bracket	1	
10	124-135 Setscrew M8c x 20mm	2	
	460-10 Washer - Spring M8	2	
	420-14 Nut M8c	2	
11	61017-2 Clamp	1	
12	124-135 Setscrew M8c x 20mm	2	
	426-4 Nut - Philidas M8c	2	
13	- Fan Case - See Chapter 4		

**Notes**

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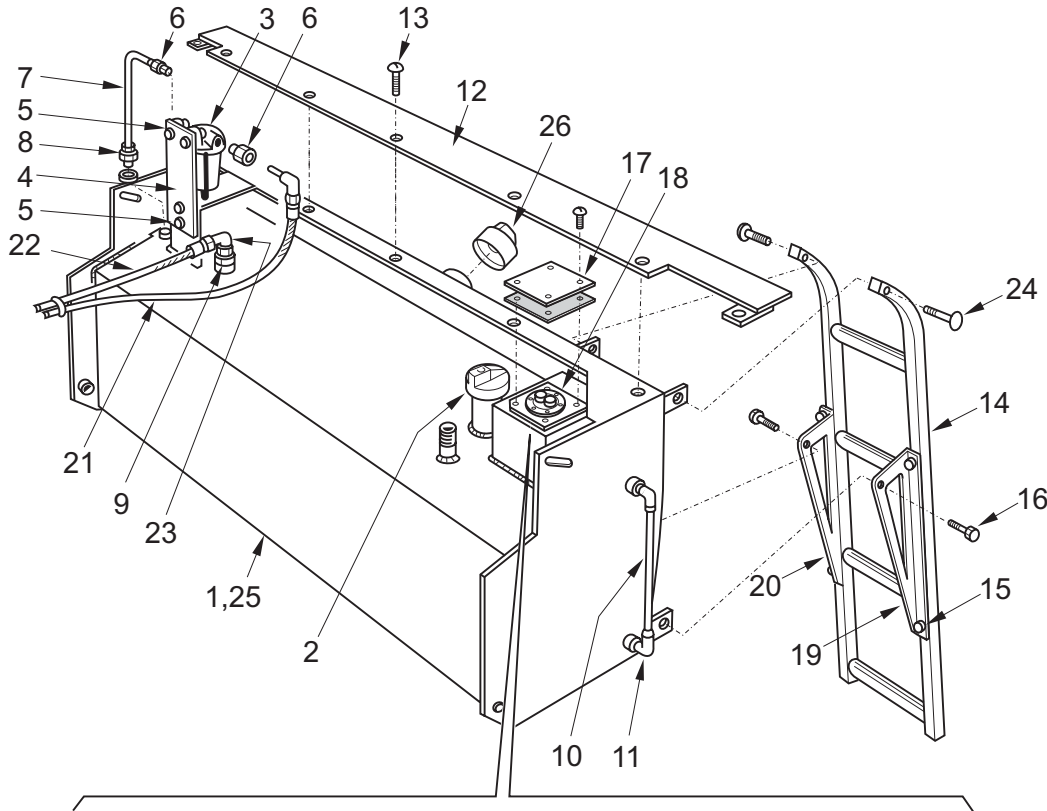
**Fuel Tank  
Figure 3 - 15**



**Safety Precautions**



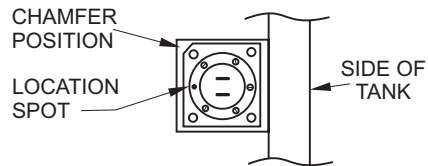
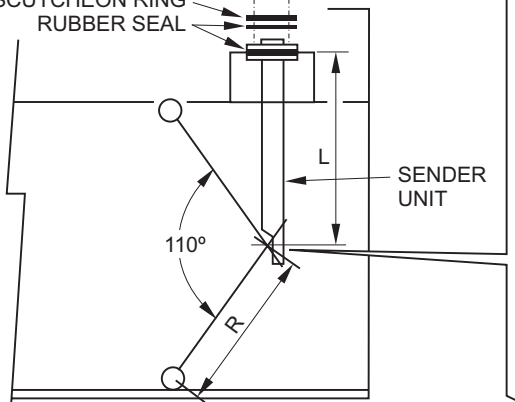
Avoid getting fuel oil on the skin as it can cause dermatitis.  
Wear protective gloves where practical.



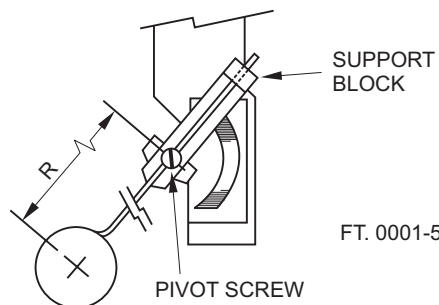
**OPTIONAL FUEL SENDER ASSEMBLY NOTES**

FLANGE KIT B87-24  
COMPRISING:-

- SETSCREWS
- ESCUTCHEON RING
- RUBBER SEAL



THE FLOAT ARM MUST BE PASSED THROUGH THE PIVOT SCREW FIRST THEN SLID UP TO THE SUPPORT BLOCK, AS SHOWN, TO ACHIEVE CORRECT GAUGE READINGS.



FT. 0001-5

	600 SERIES	625,700 SERIES
L =	232	265
R =	165	245

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<b>Fuel Tank Figure 3 - 15</b>
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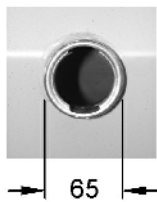
	Item No.	Part No. 600/605	Part No. 625/700/705	Description	Quantity
>	1	42201-25	41920-23	Fuel Tank - Standard	1
		62682-1	62683-1	Fuel Tank - High Capacity	1
>	2	12367	<	Fuel Cap - Up to 04-00	1
>		69-6	<	Lockable Fuel Cap - From 04-00	1
	3	15314-1	<	Pre-Filter Assembly.	1
		15314-2	<	Filter Bowl	
		15314-3	<	Gasket	
		15314-4	<	Gauze	
	4	42295-1	<	Mounting Plate	1
	5	124-135	<	Setscrew M8c x 20mm	4
		460-10	<	Washer - Spring M8	4
		420-14	<	Nut M8c	4
	6	25977-1	<	Nut - Tubing 8mm	2
		511-4	<	Sleeve - Tubing 8mm	2
	7	42683-1	42683-2	Fuel Pipe	1
	8	40448-1	<	Adaptor	1
		451-17	<	Washer - Sealing 1/4" BSP	1
		510-4	<	Nut - Tubing 8mm	1
		511-4	<	Sleeve - Tubing 8mm	1
	9	518-7	<	Adaptor 6mm	1
		451-17	<	Washer - Sealing 1/2" BSP	1
	10	39024	<	Tubing - Nylon 8mm	1
	11	521-8	<	Adaptor Elbow	2
		510-4	<	Nut - Tubing 8mm	2
		511-4	<	Sleeve - Tubing 8mm	2
	12	42608-1	<	Walkway	1
	13	135-57	<	Screw Button Hd. M8c x 20mm	5
		460-10	<	Washer - Spring M8	5
		420-14	<	Nut M8c	5
	14	50618-1	N/A	Ladder - Standard (Aluminium)	1
		50618-2	<	Ladder - Long (Aluminium)	1
	15	136-22	<	Coach Bolt M8c x 40mm	4
		460-10	<	Washer - Spring M8	4
		420-14	<	Nut M8c	4
	16	124-137	<	Setscrew M8c x 25mm	4
		420-14	<	Nut M8c	4
		460-10	<	Washer - Spring M8	4
	17	99925-4	<	Blanking Plate	1
		66136-1	<	Gasket	1
		124-103	<	Setscrew M6c x 20mm	5
		460-8	<	Washer - Spring M6	5

## Fuel Tank Figure 3 - 15

Item No.	Part No.	Description	Quantity
	600/605	625/700/705	
18	48-33	< Fuel Level Sender - VDO (5 Hole Fixing)	1
	99925-1	< Adaptor Plate	1
	66136-1	< Gasket	1
	124-103	< Setscrew M6c x 20mm	4
	460-8	< Washer - Spring M6	4
19	92647-1	< Support LH	1
20	92647-2	< Support RH	1
21	533-54	< Braided Hose - To Lift Pump	1
22	533-53	< Braided Hose - To Fuel Filter	1
23	531-2	< Stem Elbow	1
	510-3	- Tubing Nut	2
	511-3	- Tubing Sleeve	2
24	136-23	< Coach Bolt M8c x 45mm	2
	425-14	< Nut - Nyloc M8c	2
25	42201-37	N/A Fuel Tank - with External Filler Port	
26	69-27	N/A Fuel Cap - Current, for Ø80mm Filler Neck	) See Notes
	69-6	N/A Fuel Cap - Superseded, for Ø65mm Filler Neck	) Below

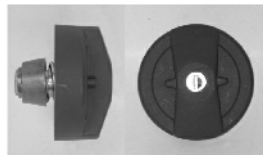
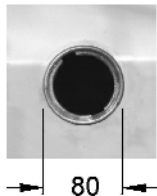
### Notes

\*



Cap and keys 69-6 available as spare part for superseded tank with 65mm dia. filler port.

NB..These caps are NOT interchangeable



Cap and keys 69-27 available as spare part for current tank with 80mm dia. filler port.

FT. 0011



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**CHAPTER**

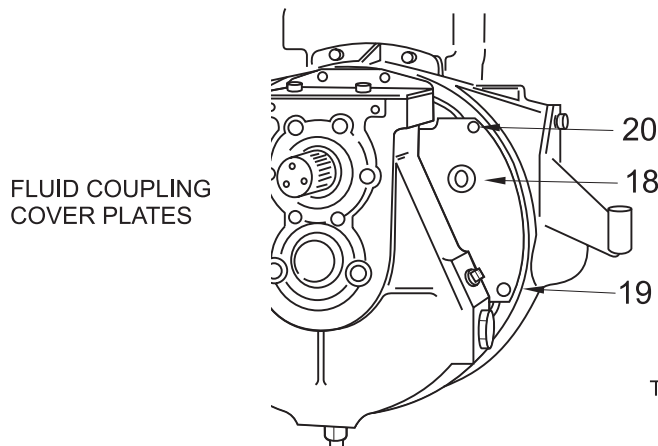
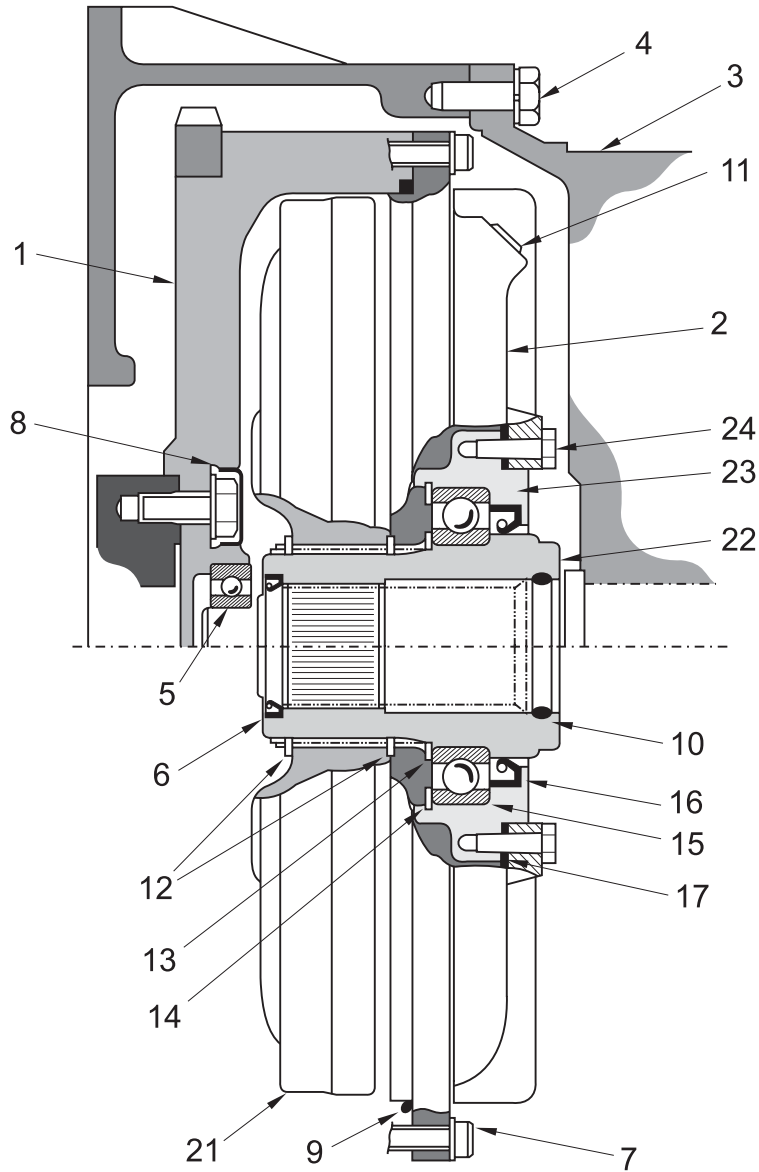
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<b>Subject</b>	<b>Page</b>
<b>Transmission</b>	
Fig. 4 - 1 Fluid Coupling	4 : 2
Fig. 4 - 2 Fan Drive Gearbox	4 : 4
<b>Suction Fan</b>	
Fig. 4 - 3 Suction Fan and Fan Case	4 : 6
Fig. 4 - 4 Fan Case Outlet Flap	4 : 8

**Fluid Coupling  
Figure 4 - 1**



T.0001

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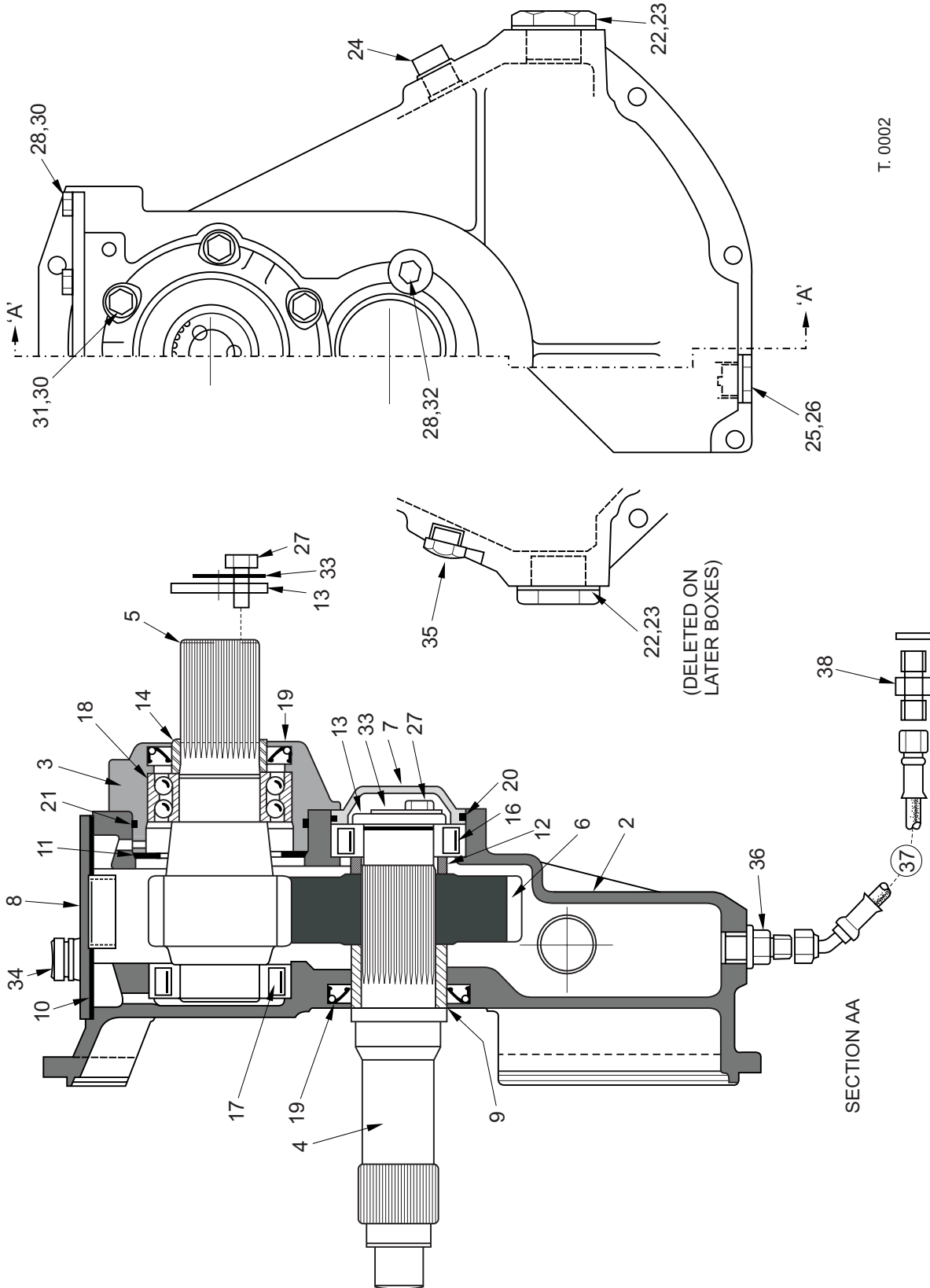
<b>Fluid Coupling Figure 4 - 1</b>
--

Item No.	Part No.	Description	Quantity
1	837-19	Flywheel	1
2	42501-3	Fluid Coupling	1
3	42270-1	Gearbox See Fig. 4 - 2	1
4	[ 104-54	Screw 3/8" UNC x 1 <sup>1</sup> / <sub>4</sub> "	6
	[ 460-11	Washer - Spring M10	6
	[ Fitted To Engines With Build Code Nos. Prefixed With AA50241U		
	[ 124-171	Setscrew M10c x 30mm	6
	[ 460-11	Washer - Spring M10	6
	[ Fitted To Engines With Build Code Nos. Prefixed With AA50271U		
5	14-7	Pilot Bearing	1
6	77-39	Rotary Seal	1
7	129-127	Setscrew - Soc. Hd.M8c x 30mm	20
	455-10	Washer - Plain M8	20
8	221-3	End Cover	6
9	656-1	'O' Ring	1
10	656-2	'O' Ring	1
11	656-3	Fusible Plug	1
12	656-4	Circlip - External	2
13	656-5	Circlip - External	1
14	656-6	Circlip - Internal	1
15	656-7	Bearing	1
16	656-8	Oil Seal	1
17	656-9	Gasket	1
18	42299-1	Cover	2
19	40377-1	Spacer	4
20	124-177	Setscrew M10c x 50mm	4
	460-11	Washer - Spring M10	4
21	656-10	Impeller Inner	1
22	656-12	Centre Hub	1
23	656-13	Bearing Carrier	1
24	656-14	Screw	12
	*42501-500	Overhaul kit Comprising items : 5, 6, 8, 9, 10, 11, 12, 13, 14, 15, 16 and 17	1

**Notes**

On assembly coat internal spline of Item 22 with Kluber paste 46MR410, JEL Part No. 94-24

Fan Drive Gearbox  
Figure 4 - 2

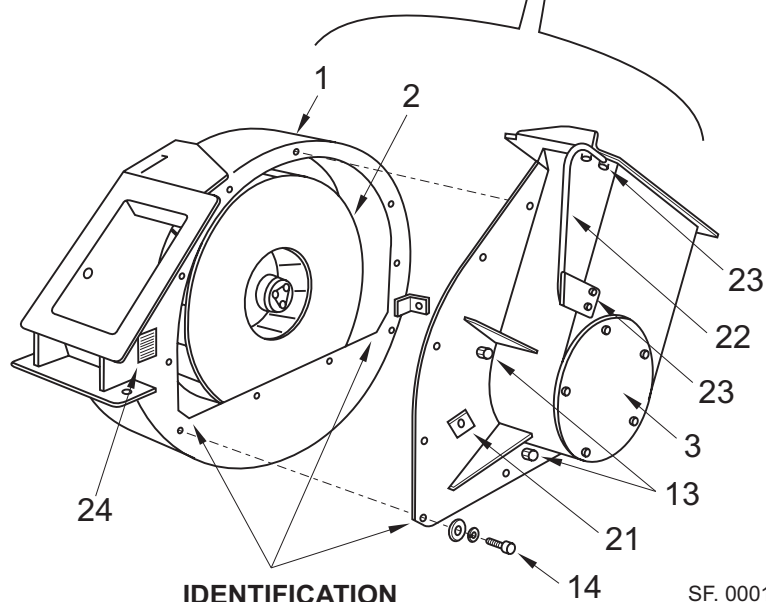
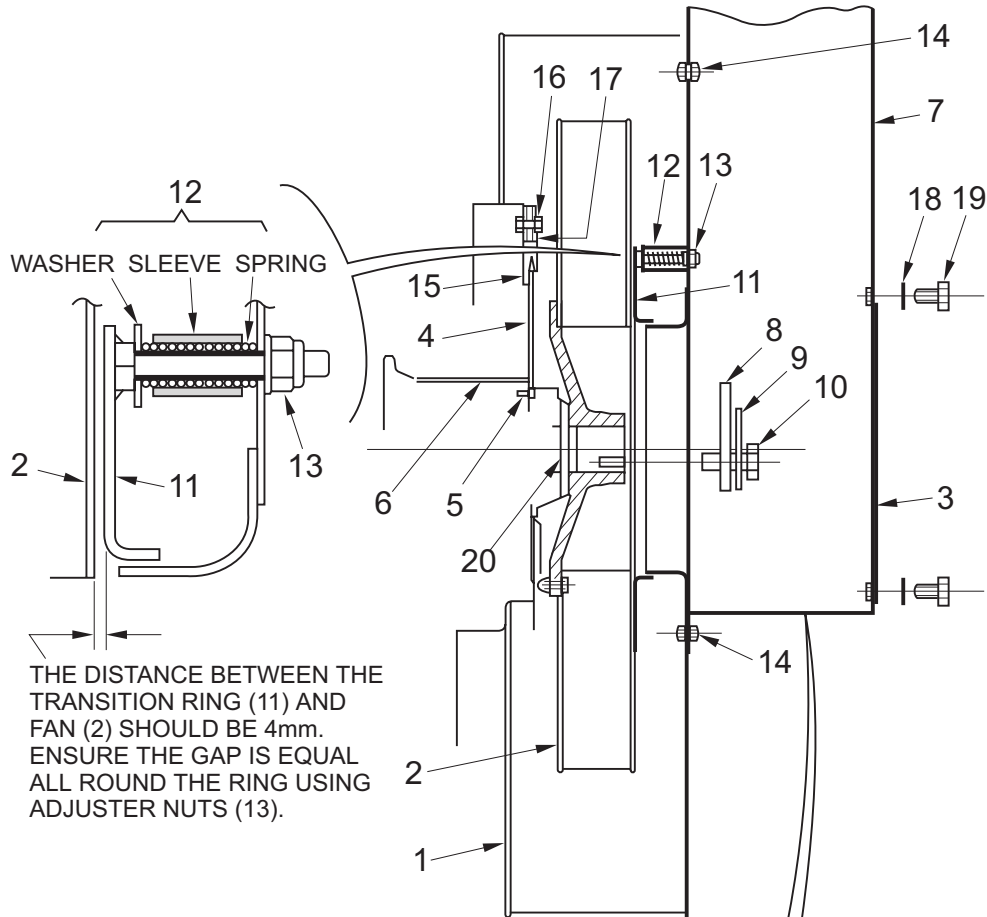


<b>Fan Drive Gearbox Figure 4 - 2</b>
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Item No.	Part No.	Description	Quantity	
	42270-1	Gearbox Comprising:-	1	
2	42271-2	Casing - Gearbox	1	
3	42272-2	Housing - Bearing	1	
4	42466-1	Shaft - Input	1	
5	42274-19	Shaft - Output	1	
6	42275-34	Gear	1	
7	42255-1	Cap - Bearing	1	
8	42277-1	Plate - Cover	1	
9	42278-1	Spacer	1	
10	42279-1	Gasket	1	
11	42280-1	Washer	1	
12	42281-1	Spacer	1	
13	42282-2	Plate - Clamp	2	
14	42283-1	Spacer	1	
15	-			
16	10-21	Bearing	1	
17	10-22	Bearing	1	
18	14-46	Bearing	1	
19	77-21	Seal - Rotary	2	
20	80-95	Seal - 'O' Ring	1	
21	80-100	Seal - 'O' Ring	1	
22	451-22	Washer - Seal 1" BSP	2	
23	19084-1	Plug - Special	2	
24	6611	Plug - Collar	3	
25	13109	Plug - Magnetic	1	
26	451-126	Washer - Copper	1	
27	121-41	Setscrew M10F x 25mm	6	
28	124-137	Setscrew M8c x 25mm	10	
29	-			
30	460-10	Washer - Spring M8	16	
31	124-143	Setscrew M8c x 40mm	6	
32	457-4	Washer - Extra Large M8	2	
33	42659-1	Tab Washer	2	
34	16978-1	Breather	1	
35	87-7	Oil Level Indicator	1	
36	263-4	Adaptor 1/2" BSP	2	
	451-19	Washer - Sealing 1/2" BSP	2	
>	37	HC08001-48	1/2" BSP Female Straight/45°	1
	38	65-4	Adaptor 1/2" x 3/8" BSP	1
		451-18	Washer - Sealing 3/8" BSP	1

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**Suction Fan and Fan Case  
Figure 4 - 3**



**IDENTIFICATION**

SF. 0001-4

Fan case and covers for 760mm and 800mm diameter impellers have chamfered corners as shown.

<b>Suction Fan and Fan Case Figure 4 - 3</b>
--

Item No.	Part No.	Description	Quantity
1	93870-1	Fan Case - 1004-40 and 1004-40T Engine	1
2	93880-1	Fan Impeller 800mm Diameter - 1004-40T Engine	1
	280730-1	Fan Impeller 760mm Diameter - 1004-40 Engine	1
3	42238-1	Cover - Access	1
4	42284-1	Mask - Fan Case	1
5	837-37	Screw - Special M8c x 20mm	4
6	42270-1	Gearbox Assembly	1
7	93875-1	Cover - 1004-40 and 1004-40T Engine	1
8	42282-2	Plate - Clamp	1
9	42659-1	Tab Washer	2
10	121-41	Setscrew M10c x 25mm	3
11	42401-1	Ring - Transition	1
12	285-2	Spring - Compression - Inner	3
	62770-1	Sleeve	3
	457-5	Washer	3
13	425-15	Nut - Nyloc M10c	3
	455-11	Washer - Plain M10	3
14	124-135	Setscrew M8c x 20mm	10
	460-10	Washer - Spring M8	10
	457-4	Washer - Extra Large M8	10
15	42382-1	Diaphragm	1
16	124-137	Setscrew M8c x 25mm	12
	425-14	Nut - Nyloc M8c	12
17	42239-1	Flange	1
18	460-10	Washer - Spring M8	5
19	124-134	Setscrew M8c x 16mm	5
20	62025-1	Spinner	1
21	42587-1	Cover Plate	1
	124-134	Setscrew M8c x 16mm	1
	460-10	Washer - Spring M8	1
22	62407-1	Grab Handle	1
23	124-135	Setscrew M8c x 20mm	4
	460-10	Washer - Spring M8	4
	423-14	Nut M8c	2
24	94246-1	Label	1

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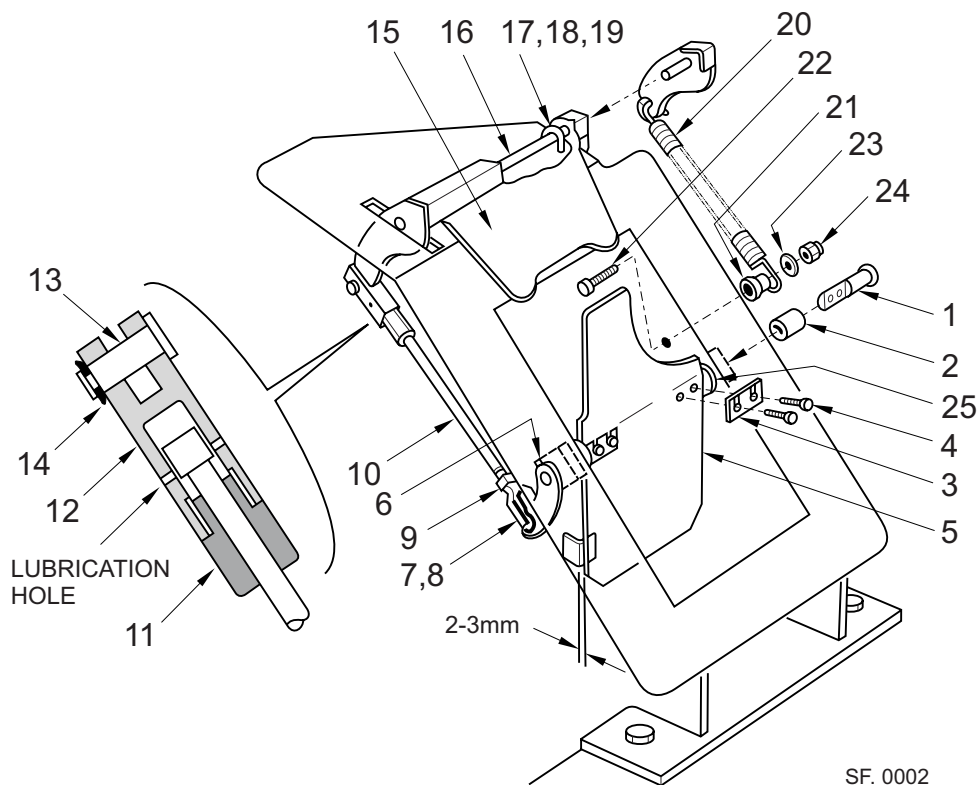
## Fan Case Outlet Flap Figure 4 - 4



### Safety Precautions



Ensure the outlet flap is correctly set, see below.



### Setting Procedures

There should be 2 - 3mm of free play between the flap (5) and the angle stop inside the fan outlet, as shown, when the flap actuator (15) is fully depressed against the fan case seal face. Adjustment is made by releasing the yoke end lock nut (9) and rotating the actuation rod (10) to move the yoke end up or down the rod as required. Having achieved the correct setting retighten the lock nut.



**Fan Case Outlet Flap  
Figure 4 - 4**

Item No.	Part No.	Description	Quantity
1	42729-1	Pivot Rod	1
2	29128-1	Bush	2
3	42723-1	Tab Washer	2
4	124-134	Setscrew M8c x 16mm	4
5	42582-1	Flap	1
6	42952-1	Flap Actuator	1
7	289-4	Yoke End	1
8	289-21	Spring Bolt	1
9	421-15	Lock Nut M10c	1
10	42990-5	Rod Actuation	1
11	42986-1	Sleeve	1
12	42988-1	Clevis	1
13	29145-2	Clevis Pin	1
14	39624	Spring Retaining Clip	1
15	42947-1	Flap Actuator	1
16	42993-1	Rod	1
17	42992-1	U-Bolt	2
18	460-8	Washer-Spring M6	4
19	420-13	Nut M6c	4
20	80766-1	Spring	1
21	42586-1	Boss	1
22	123-108	Bolt M8c x 40mm	1
23	457-4	Washer - Plain M8	1
24	425-14	Nut - Nyloc M8c	1
25	42728-1	Spacer	2

**Notes**

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**CHAPTER**

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**5****Nozzle**

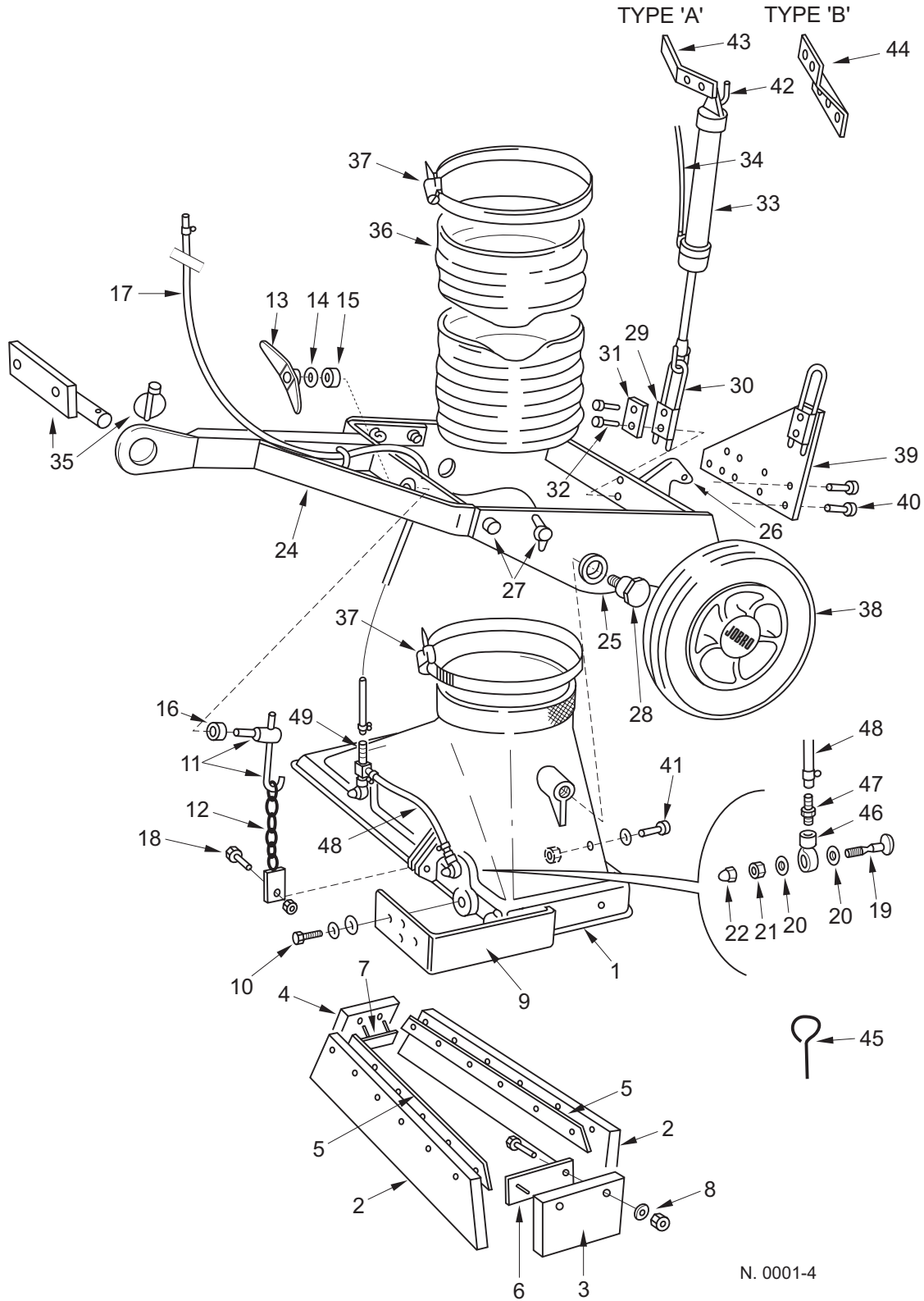
Only current nozzle and wheel assemblies are covered in this chapter.  
See Parts Section Revision Level 07, available on request, for superseded parts.

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<b>Nozzle</b>	
Fig. 5 - 1 Nozzle Assembly	5 : 2
Fig. 5 - 2 Nozzle Wheel	5 : 5
Fig. 5 - 3 Maxigap Cylinder Installation	5 : 6

## Nozzle Assembly Figure 5 - 1

**Identification:** Superseded handed nozzle does not have the Johnston name on the casting.



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**Nozzle Assembly  
Figure 5 - 1**

Item No.	Part No.	Description	Quantity
	62000-8	LH Assembly	
	62000-9	RH Assembly	
1	41999-3	Nozzle - Non-Handed	1
	62260-2	Nozzle Rubber Set - Comprising Items 2-4	
2	62005-1	Front/Back Rubbers	2
3	62005-2	End Rubber - Long (Outer End)	1
4	62005-3	End Rubber - Short (Inner End)	1
	62260-3	Retaining Strip Set Comprising Items 5-7	
5	63665-1	Front/Back Retaining Strip	2
6	63666-1	End Retaining Strip - Long (Outer End)	1
7	63667-1	End Retaining Strip - Short (Inner End)	1
8	136-24	Carriage Bolt M8c x 50mm	16
	455-10	Washer - Plain M8	16
	410-30	Nut - Brass M8c	16
9	40364-1	Bumper	1
10	104-100	Setscrew 1/2" UNC x 1 1/4"	2
	450-31	Washer - Spring 1/2"	2
11	40406-1	Bolt - Nozzle Adjuster	1
	63338-1	Hook - Nozzle Adjuster	1
	425-15	Nut - Nyloc M10	1
12	62353-3	Link - Nozzle Adjuster	1
13	281305-1	Handle	1
14	450-11	Washer - Plain	1
15	45014-8	Spacer	1
16	62331-1	Spacer	1
17	39444	Hose 3/8" Bore x 1350mm	1
	501-1	Hose Clip	6
18	180-13	Bolt 1/2" UNC x 2 1/2"	1
	455-12	Washer - Plain	1
	460-12	Washer - Spring	1
	400-21	Nut 1/2" UNC	1
19	5894-1	Water Jet 1.6mm Bore - Standard	2
	5894-2	Water Jet 3mm Bore - Optional	2
	5894-3	Water Jet 2mm Bore - Optional	2
20	453-1	Washer - Fibre 20mm	4
21	407-47	Locknut 1/2" BSW - Brass	2

Continued &gt;

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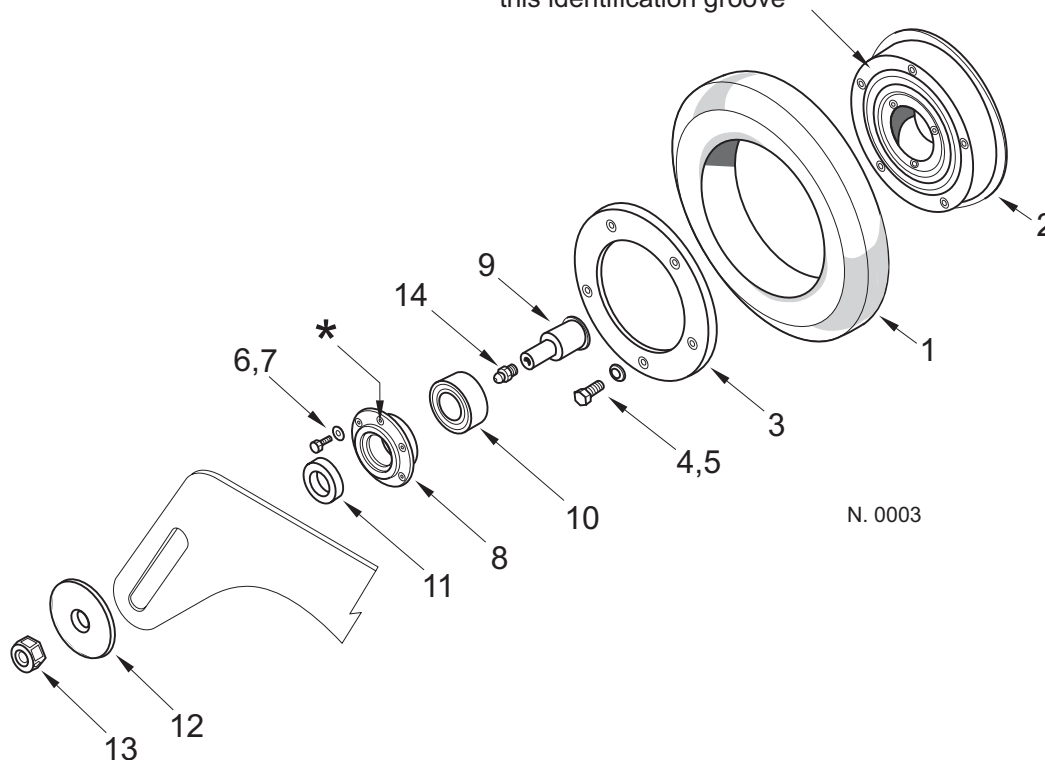
&gt;

## Nozzle Assembly Figure 5 - 1

Item No.	Part No.	Description	Quantity
22	408-47	Nut - Domed 1/2" BSW	2
23	-		
24	63530-1	Drawbar	1
25	62248-1	Cradle	1
26	62246-1	Heel	1
27	124-173	Setscrew M10c x 35mm	4
	457-5	Washer - Plain Extra Large M10	8
	425-15	Nut - Nyloc M10c	4
28	40414-1	Pivot	2
29	40404-1	Clamp Washer	1
30	40405-1	Lifting Eye	1
31	63345-1	Clamp Block	1
32	124-178	Setscrew M10c x 55mm	2
	425-15	Nut - Nyloc M10c	2
33	28903	Lift Cylinder - See Chapter 11	1
34	12869	Tubing - Nylon Ø6mm	As Req'd
35	60-1	Linch Pin Assembly	1
	40295-1	Tow Pin	1
36	63001-1	Nozzle Trunking	1
37	504-54	Hose Clip	2
	10883-1(JSC)	Over Centre Buckle Clamp	2
38	-	Wheel Assembly - See Fig. 5 - 2	2
39	40798-1	Adaptor Plate	1
40	124-171	Setscrew M10c x 30mm	4
	455-11	Washer M10	4
	425-15	Nut - Nyloc M10c	4
41	124-203	Setscrew M12c x 30mm	2
	455-12	Washer - Plain M12	2
	425-16	Nut - Nyloc M12c	2
42	40269-1	Lifting Hook	1
	124-173	Setscrew M10c x 35mm	2
	425-15	Nut - Nyloc M10c	2
43	N/A	Cylinder Lift Bracket - Type 'A'	
44	50603-1	Cylinder Lift Bracket - Type 'B'	
45	6148-1	Pricker for Jets	1
	281412-1	Branch Assembly comprising items 46 to 49	
46	26997-1	Banjo	2
47	46382-3	Pipe - Hose Adaptor	2
48	38444	Hose 3/8" Bore x 335mm	1
	501-1	Hose Clip	5
49	90696-1	'T' Piece	1

**Nozzle Wheel  
Figure 5 - 2**

Superseded wheel does not have  
this identification groove



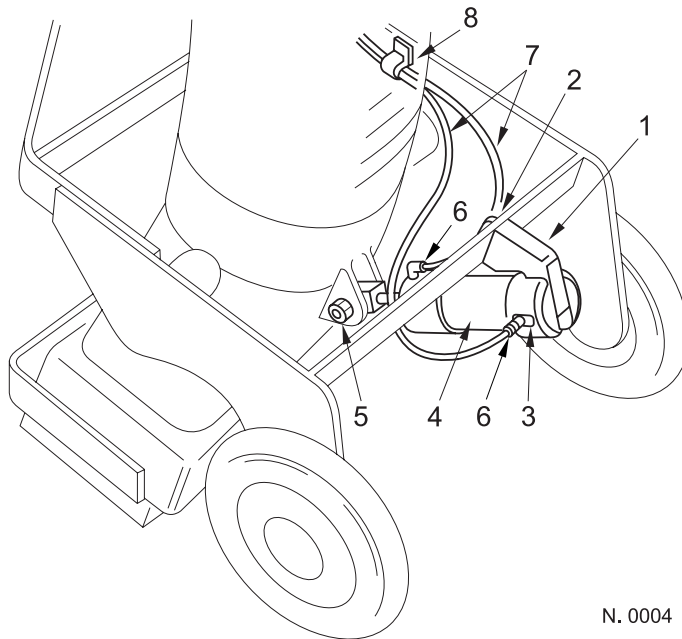
N. 0003

Item No.	Part No.	Description	Quantity
	63491-1	Nozzle Wheel comprising:	
1	16752	Tyre	1
2	63493-1	Hub	1
3	16750-1	Backplate - Tyre	1
4	124-134	Setscrew M8c x 16mm	5
5	460-10	Washer - Spring M8	5
6	124-102	Setscrew M6c x 16mm	3
7	460-8	Washer - Spring M6	3
8	63495-1	Retainer Plate	1
9	63492-1	Spindle	1
10	14-52	Bearing	1
11	63494-1	Collar	1
12	9114-2	Washer - Special	2
13	425-18	Nut - Nyloc M16c	2
14	38-1	Grease Nipple 1/8" BSP Straight	1

**Notes**

\* To withdraw bearing remove wheel assembly from carriage and refit washer and nut, items 12 and 13, insert M6c x 50mm setscrews (124-113) in the three unused retainer plate holes. Tighten each bolt half a turn at a time to extract bearing.

## Maxigap Cylinder Installation Figure 5 - 3



N. 0004

Item No.	Part No.	Description	Quantity
1	62246-1	Heel - Cylinder Mounting	1
2	124-171	Setscrew M10c x 30mm	2
	460-11	Washer - Spring M10	2
3	29149-1	Clevis Pin	
	39624	Spring Retaining Clip	
4	28904	Pneumatic Cylinder See Chapter 11	1
5	180-13	Bolt 1/2" UNC x 2 1/2"	1
	400-21	Nut 1/2" UNC	1
6	510-3	Nut - Tubing 6mm	2
	511-3	Sleeve - Tubing 6mm	2
	41041-1	Sleeve - Tube Support	2
7	12869	Tubing Ø6mm Black	As Req'd
8	12353	Support	1
	12354	Bushing	1

### Notes



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**CHAPTER**

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# 6

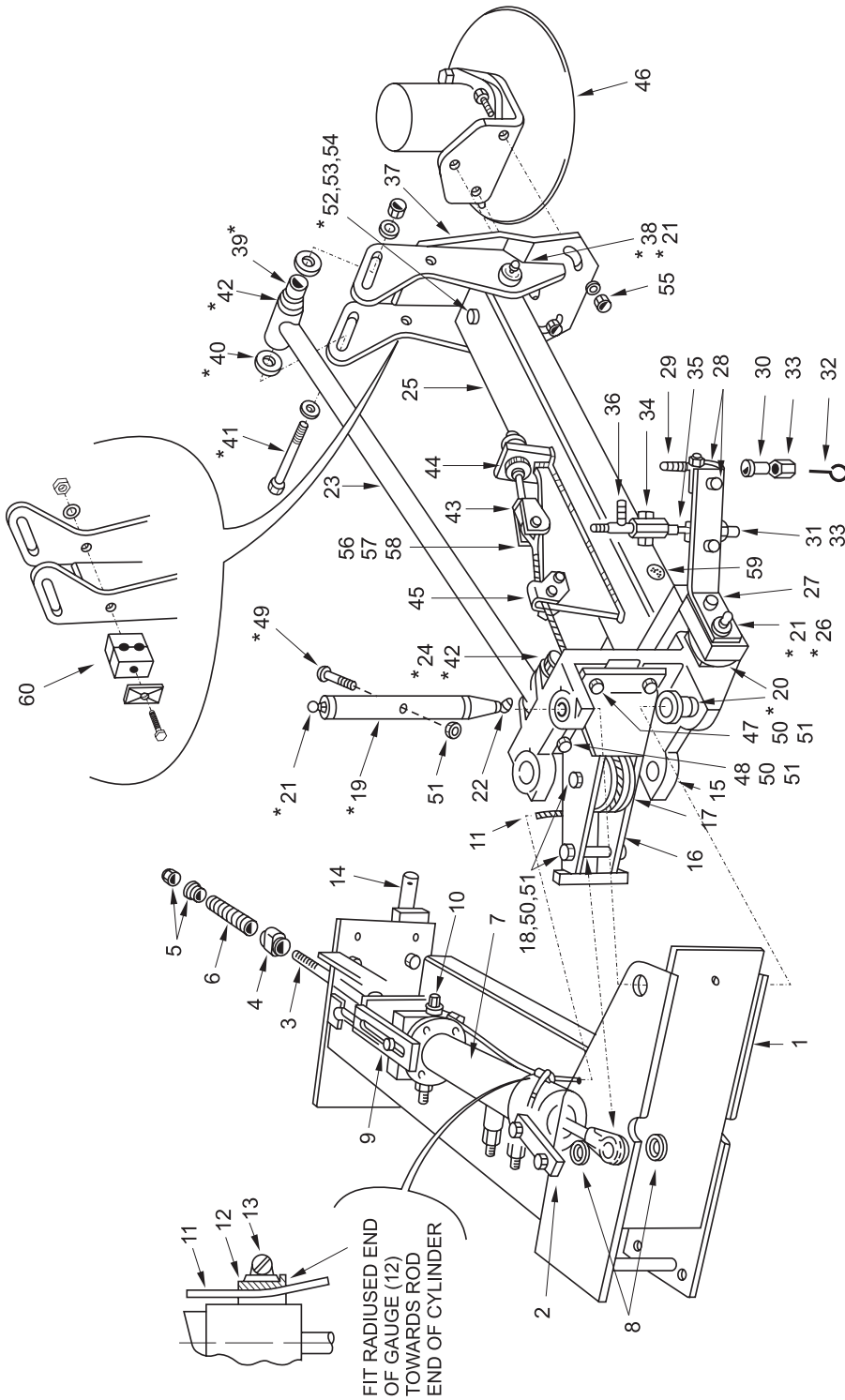
## Channel Brush

Only the current Type 2 channel brush is covered in this Chapter. See Parts Section Revision Level 07, available on request, for superseded Type 1 information. Type identification is shown on Fig. 6 - 3.

### Table of Contents

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## Pivot Frame & Brush Arm Assembly - Type 2 Figure 6 - 1



CB.0001



### Safety Precautions

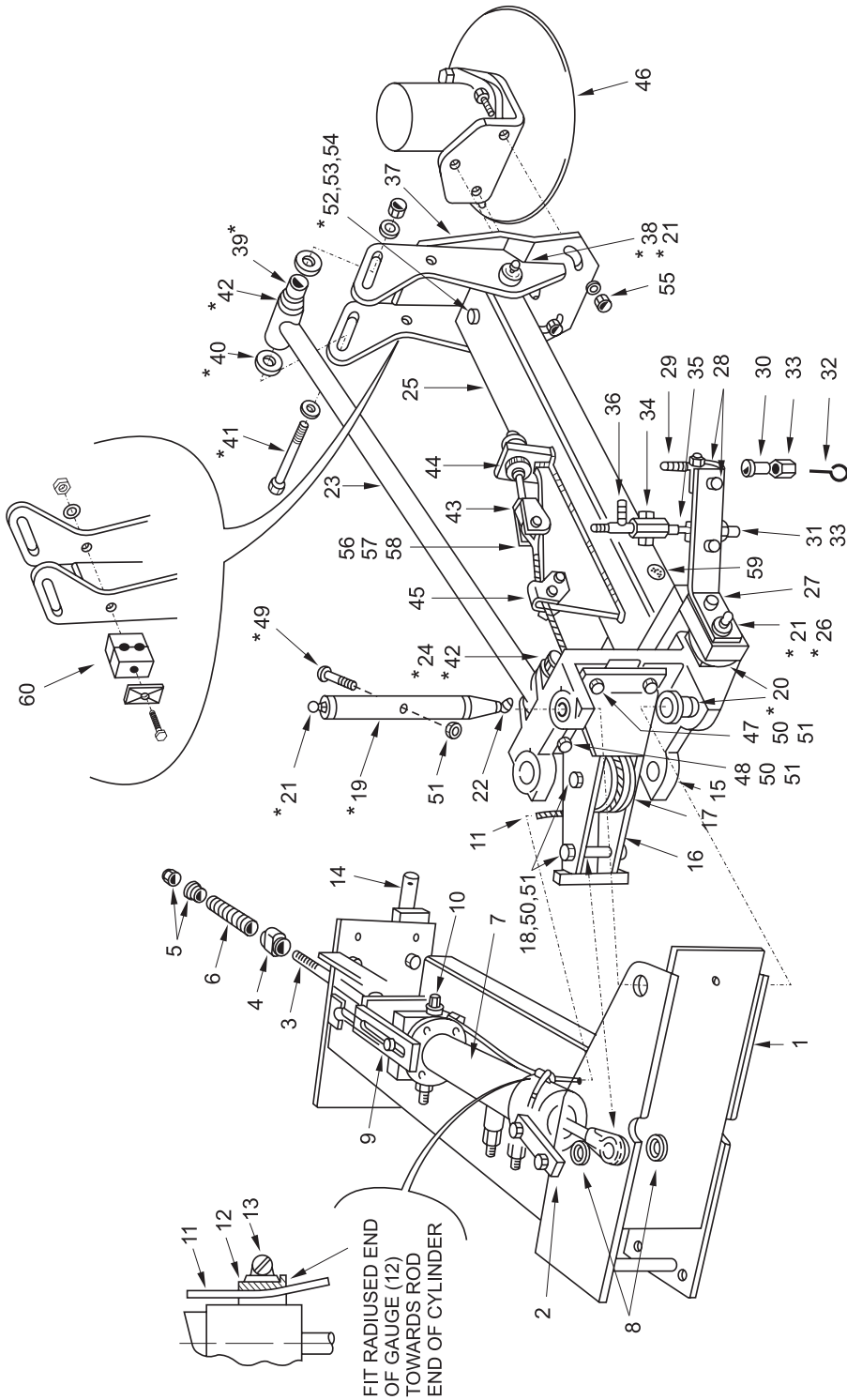
Before working on the Channel Brush Assembly, set the brush in the work position then switch off the auxiliary engine to render the hydraulic system inactive.

**Pivot Frame & Brush Arm Assembly - Type 2  
Figure 6 - 1**

Item No.	Part No.	Description	Quantity
1	40275-16	Pivot Frame	1
2	63524-1	Stop - Fitted to lower face of pivot frame only	1
	127-171	Setscrew M10c x 35mm	2
	460-11	Washer - Spring M10	2
3	63518-1	Fork (Gives soft kickback)	1
4	41873-1	Spacer - Spring Location	1
5	41911-1	Nut - Spring Retaining	1
	425-18	Nut - Nyloc M16	1
6	41895-2	Spring - Compression	1
7	29463-30	Lift Cylinder - Ø54 OD	1
8	90624-1	Spacer	2
9	40420-1	Pin	1
	40421-1	Spacer	2
10	63377-1	Button	1
	123-112	Bolt M8c x 60mm	1
11	93238-1	Lift Cable	1
12	62420-1	Guide - Lift Cable	1
13	501-6	Clip	1
14	40295-1	Nozzle Tow Pin	1
	124-209	Setscrew M12c x 50mm	2
	425-16	Nut - Nyloc M12	2
15	40272-1	Head - Pivot	1
16	40296-1	Lever - Pivot Head	1
17	40380-2	Pulley	1
18	40377-1	Bush	2
	124-178	Setscrew M10c x 55mm	2
19 *	40360-1	Pin - Pivot	1
20 *	40292-1	Bush	2
21 *	38-1	Nipple - Grease 1/8" BSP Straight	4
22	38-8	Nipple - Grease 1/8" BSP x 90°	1
23	62805-1	Arm - Brush Upper (Including Item 42)	1
24 *	40361-1	Pin - Pivot	1
25	63370-1	Arm - Channel Brush	1
26 *	40910-1	Pin - Pivot	1
27	124-135	Setscrew M8c x 20mm	1
28	26726-1	Angle	2
	460-8	Washer - Spring M6	4
	420-13	Nut M6	4
29	42545-1	Connector	1
30	60690-1	Water Jet - Fan Spray	1
31	60688-1	Water Jet - Fan Spray	1
32	6148-1	Pricker for Spray Jets	1
33	60689-1	Nut - Nipple	2

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## Pivot Frame & Brush Arm Assembly - Type 2 Figure 6 - 1



CB.0001



### Safety Precautions

Before working on the Channel Brush Assembly, set the brush in the work position then switch off the auxiliary engine to render the hydraulic system inactive.

**Pivot Frame & Brush Arm Assembly - Type 2  
Figure 6 - 1**

Item No.	Part No.	Description	Quantity
34	88-4	Ball Valve 1/4" BSP	1
35	48682-1	Connector	1
36	90696-1	Tee Adaptor	1
37	40286-1	Mounting - Brush Motor	1
38 *	40389-1	Pin - Pivot	1
39 *	40362-1	Bush	1
40 *	40363-1	Spacer	2
41 *	123-159	Bolt M12c x 110mm	1
	9331-1	Washer	1
	425-16	Nut - Nyloc M12	1
42 *	29128-4	Bush - Non Lube	4
43	60138-1	Cable Adjuster	1
44	13566	Anti-vibration Mounting	1
	41914-1	Washer - Extra Large	2
	420-15	Nut M10	2
45	40963-1	Retainer - Cable	1
	124-103	Setscrew M6c x 25mm	2
	460-8	Washer - Spring M6	2
	420-13	Nut M8	2
46	-	Brush and Motor Assembly - See Fig. 6 - 2	
47	124-171	Setscrew M10c x 30mm	2
48	124-173	Setscrew M10c x 35mm	2
49 *	124-178	Setscrew M10c x 55mm	1
50	460-11	Washer - Spring M10	6
51	420-15	Nut M10	7
52 *	124-146	Setscrew M8c x 55mm	1
53	460-10	Washer - Spring M8	1
54	420-14	Nut M8	1
55	124-207	Setscrew M12c x 40mm	3
	9331-1	Washer	3
	425-16	Nut - Nyloc M12	3
56	124-205	Setscrew M12c x 35mm	1
57	460-12	Washer - Spring M12	1
58	420-16	Nut M12	1
59	288-12	Grommet	2
60	51-42	Hose Clamp	1
	51-43	Top Plate	1
	124-148	Setscrew M8 x 65mm	1
	425-1	Nut - Nyloc	1
*	63072-1	Overhaul Kit comprising items 19-21, 24, 26, 38-42 49, 52 + 1 Off M8, M10 and M12 Nyloc Nuts	

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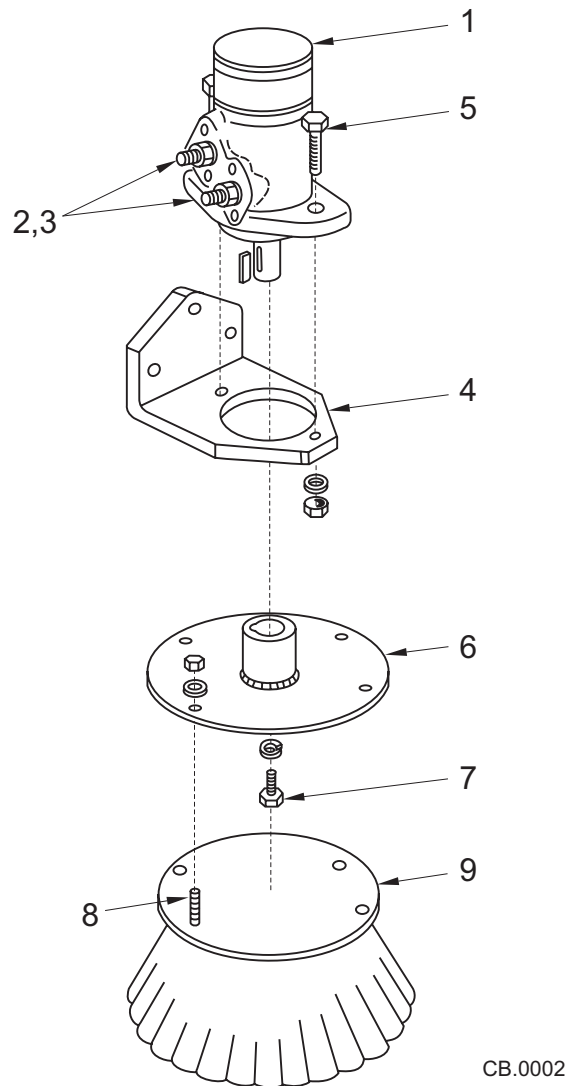
## Brush and Motor Assemblies Figure 6 - 2



### Safety Precautions



Before working on the Channel Brush Assembly, set the brush in the work position then switch off the auxiliary engine to render the hydraulic system inactive.



### IDENTIFICATION

600/605 SERIES ASSEMBLIES HAVE Ø500MM BRUSHES AS STANDARD  
625/700/705 SERIES ASSEMBLIES HAVE Ø710MM BRUSHES AS STANDARD

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**Brush and Motor Assemblies  
Figure 6 - 2**

Item No.	Part No.		Description	Quantity
	Ø500 Assy	Ø710 Assy		
	42534-1	61109-1	Motor Assembly LH ] Comprising	
	42534-2	61109-2	Motor Assembly RH ] Items 1-7	
1	40550-1	61108-1	Motor - Hydraulic	1
	11880	<	Motor Seal Kit	
2	263-4	<	Adaptor 1/2" BSP	2
3	451-126	<	Washer	2
4	42533-1	<	Mounting	1
5	124-208	<	Setscrew M12c x 45mm	2
	460-12	<	Washer - Spring M12	2
	420-16	<	Nut M12c	2
6	93969-1	93970-1	Drive Adaptor Plate	1
7	135-58	<	Setscrew M8c x 25mm 'Eslok'	1
8	136-24	<	Coach Bolt M8c x 50mm	4
	460-10	<	Washer - Spring M8	4
	420-14	<	Nut M8c	4
9	40585-1	-	Brush - Normal Duty Ø500 Black Top	
	40585-1(JSC)	-	Brush - Normal Duty Ø12"	
	40585-2	-	Brush - Heavy Duty Ø500 Green Top	
	40585-2(JSC)	-	Brush - Heavy Duty Ø12"	
>	-	62518-2	Brush - Heavy Duty Ø710 Black Top	
	835-20	-	Weedrip Ø560	
Heavy Duty Brushes are standard with 'Powasave' Option				

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**Notes**

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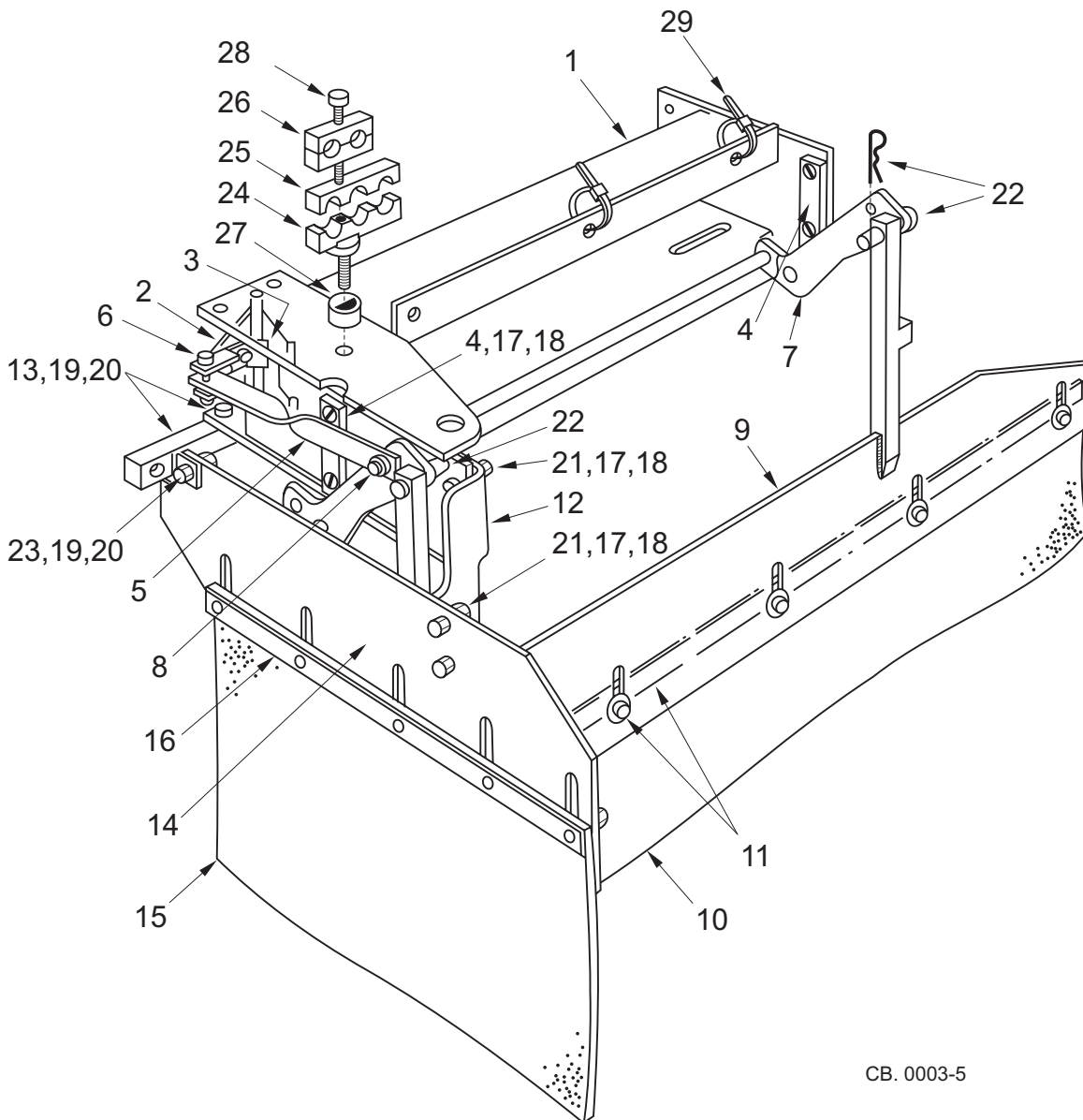
**Curtain Assembly - Type 2**  
**Figure 6 - 3**



**Safety Precautions**



Before working on the Channel Brush Assembly, set the brush in the work position then switch off the auxiliary engine to render the hydraulic system inactive.



CB. 0003-5



**Curtain Assembly - Type 2  
Figure 6 - 3**

Item No.	Part No.	Description	Quantity
1	40275-14	Pivot Frame	1
2	40302-1	Lever - Brush Curtain	1
3	40384-1	Catch	1
	124-102	Setscrew M6c x 16mm	1
	460-8	Washer - Spring M6	1
	420-13	Nut M6	1
4	40304-1	Hinge Plate	2
	127-139	Setscrew - Csk M8c x 30mm	4
5	40382-1	Link	1
6	40383-1	Bush	1
	124-143	Setscrew M8c x 40mm	1
7	62831-1	Jib - Brush Curtain	1
8	40385-1	Pin - Retaining	1
	124-141	Setscrew M8c x 35mm	1
	460-10	Washer - Spring M8	1
	420-14	Nut M8c	1
9	62823-1	Brush Curtain	1
10	63334-1	Rubber Curtain	1
11	62454-1	Clamp Strip	1
	124-167	Setscrew M10c x 20mm	5
	57-5	Washer - Plain Large M10	5
12	62822-1	Bracket - Mudflap Mounting	1
13	62819-1	Mounting	1
	50594-1	Mounting (JSC)	1
	124-212	Setscrew M12c x 65mm	2
∨	14	63178-1 Plate - Mudflap - 600 Series	1
	62821-1	Plate - Mudflap - 625, 700 Series	1
∨	15	40435-2 Rubber - Mudflap - 600 Series	1
	62817-1	Rubber - Mudflap - 625, 700 Series (570mm long)	1
∨	16	63178-1 Plate - Mudflap - 600 Series (460mm long)	1
	62816-1	Clamp - Mudflap - 625, 700 Series	1
	457-4	Washer - Plain Large M8	5
	425-14	Nut - Nyloc M8	5
17	460-10	Washer - Spring M8	8
18	420-14	Nut M8	8
19	460-12	Washer - Spring M12	3
20	420-16	Nut M12	3
21	124-169	Setscrew M8c x 25mm	4
22	63582-1	Pin	2
	289-27	Spring - Cotter	2
23	124-201	Setscrew M12c x 25mm	1
24	48843-1	Hose Guide )	1
	425-16	Nut - Nyloc M12 )	1
25	42515-1	Hose Clamp )	1
26	40545-1	Hose Clamp ) If Fitted	2
27	45014-9	Spacer )	1
28	124-147	Setscrew M8c x 60mm )	1
29	24-1	Cable Tie )	2

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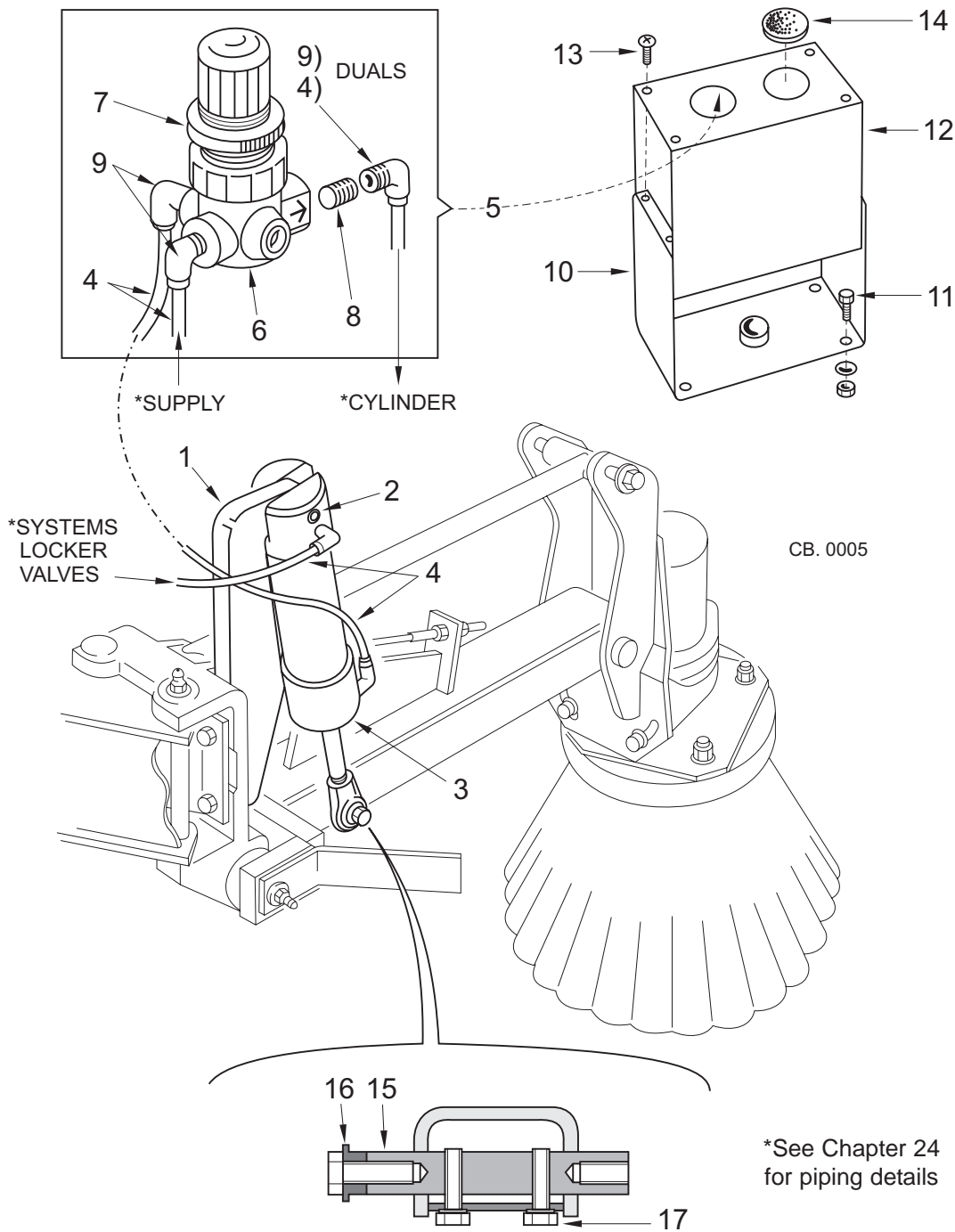
**Powasave Option  
Figure 6 - 4**



**Safety Precautions**



Always depressurise the pneumatic system using the shut off/drain valve on the vitaliser unit in the systems locker (Fig 11-5) before working on the Powasave equipment.



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<b>Powasave Option Figure 6 - 4</b>
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Item No.	Part No.	Description	Quantity	
			Single	Dual
1	40970-1	Mast	1	2
2	59-3	Pin - Tension	1	2
3	28905-1	Pneumatic Cylinder See Chapter 11	1	2
4	12869	Tubing Ø6mm Black	As Req'd	
5	63088-6	Air Regulator Assembly. Comprising Items 6-9	1	1
	72-14	Air Regulator (Seal Kit 72-16)	1	1
6	5259	Pipe Plug	1	1
7	72-15	Mounting Ring	1	1
8	5259	Plug 1/8" BSPT Male	1	-
9	552-3	Elbow 1/8" BSPT Male	2	3
10	48016-1	Pod Base	1	1
11	124-109	Setscrew M6c x 35mm	4	4
	460-8	Washer - Spring M6	4	4
	420-16	Nut M6c	4	4
12	48014-1	Shroud	1	1
13	181-1	Screw Pan Hd. M5c x 10mm	4	4
14	288-10	Grommet	1	1
15	63423-1	Pin	1	2
16	455-16	Washer Ø20	1	2
† 17	124-139	Setscrew M8c x 30mm	2	4
	460-10	Washer - Spring M8	2	4

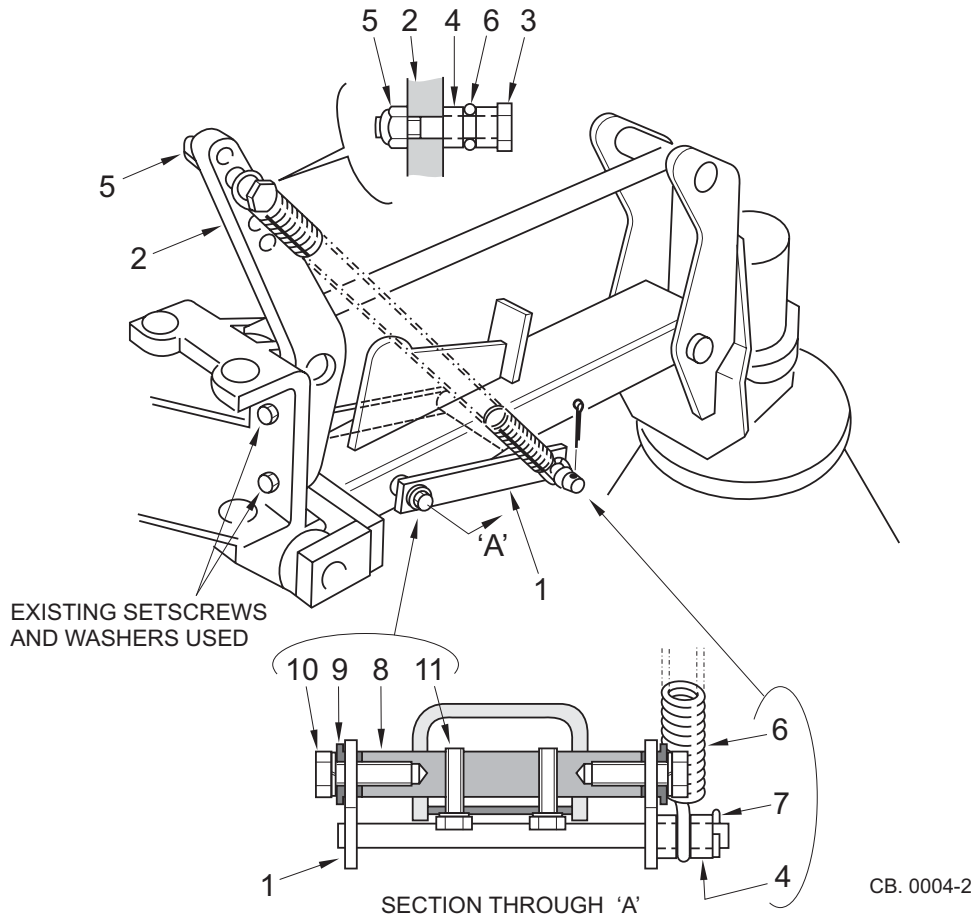
† Secure setscrew with locking adhesive

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**Notes**

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**'Save Wear' Compensator Option  
Figure 6 - 5**



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Item No.	Part No.	Description	Quantity	
			Single	Dual
	41267-3	'Save Wear' Compensator Kit - Single	✓	
	41267-4	'Save Wear' Compensator Kit - Dual		✓
1	41270-1	Compensator	1	2
2	41271-1	Mast	1	2
3	41272-1	Boss	1	2
4	41273-1	Spacer	3	6
5	425-16	Nut - Nyloc M12	1	2
6	3637-1	Spring	1	2
7	500-166	Split Cotter Pin	1	2
8	63424-1	Pin	1	2
9	41241-2	Bush	2	4
10	124-171	Setscrew M10c x 30mm	2	4
	460-11	Washer - Spring M10	2	4
11 *	124-139	Setscrew M8c x 30mm	2	4
	460-10	Washer - Spring M8		

\* Secure Setscrew with Locking Adhesive

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**CHAPTER**

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**7**

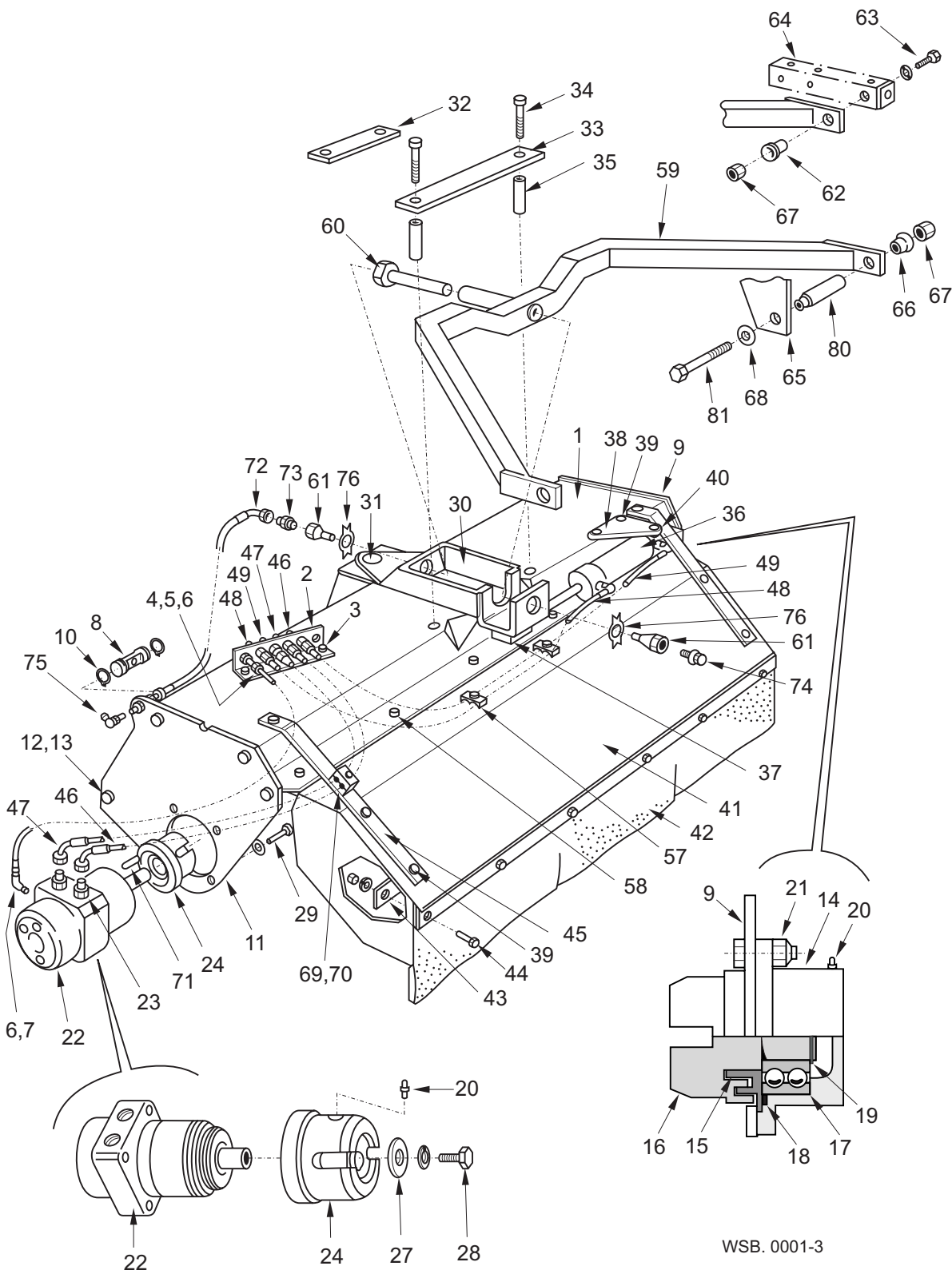
## Wide Sweep Brush

Only current components are covered in this chapter. See Parts Section Revision Level 07, available on request, for superseded information.

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'Lo-Pro' Wide Sweep Brush  
Figure 7 - 1



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**'Lo Pro' Wide Sweep Brush  
Figure 7 - 1**

Item No.	Part No.	Description	Quantity	
			Single	Dual
	62100-1	Single Sweep Assembly - Ø380	✓	-
	62100-2	Dual Sweep Assembly - Ø380	-	✓
	62100-23	Dual Sweep Assembly - Ø400 (As Ø380 except where marked with an *)		
1	94897-1	Carriage	1	1
2	801406-1	Bracket	1	1
3	124-135	Setscrew M8c x 20mm	2	2
	425-14	Nut - Nyloc M8c	2	2
4	532-4	Adaptor	1	1
5	510-4	Tubing Nut Ø8mm	2	2
	511-4	Tubing Sleeve Ø8mm X 650mm	2	2
6	-	See Chapter 10		
7	521-8	Elbow 1/4" BSP x Ø8mm	1	1
8	62097-1	Pin - Anchor	2	2
9	62101-1	End Plate - Bearing Ø380	1	1
	93370-1	End Plate - Bearing Ø400	-	1
10	27-2	Circlip	4	4
11	62102-1	End Plate - Motor Ø380	1	1
	93369-1	End Plate - Motor Ø400	-	1
12	124-167	Setscrew M10c x 20mm	8	8
13	460-11	Washer - Spring M10	6	6
14	62054-1	Bearing Housing	1	1
15	62053-1	Labyrinth - Bearing	1	1
16	62051-1	Adaptor - Bearing	1	1
17	14-47	Bearing	1	1
18	80-94	'O' Ring	1	1
19	27-15	Circlip	1	1
20	38-30	Grease Nipple	2	2
21	124-139	Setscrew M8c x 30mm	4	4
	425-14	Nut M8c Nyloc	4	4
22	72250-2	Hydraulic Motor (Incorporates Labyrinth)	1	1
	244-500	Motor Seal Kit	1	1
23	263-4	Adaptor 1/2" BSP	2	2
	451-126	Washer - Sealing 1/2" BSP	2	2
24	62050-1	Drive Adaptor	1	1
25	-			
26	-			
27	62064-1	Washer - Special	1	1
28	124-136	Setscrew M8c x 22mm	1	1
	460-10	Washer - Spring M8	1	1
29	124-171	Setscrew M10c x 30mm	4	4
	460-11	Washer - Spring M10	4	4
30	62080-1	Compensator	1	1
31	62095-1	Keeper Plate	1	1
	124 -135	Setscrew M8c x 20mm	1	1
	460-10	Washer - Spring M8	1	1
	29395-2	Bearing	1	1
32	62065-1	Retaining Strip	1	-
33	62075-1	Retaining Strip	-	1

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**'Lo-Pro' Wide Sweep Brush  
Figure 7 - 1**

Item No.	Part No.	Description	Quantity	
			Single	Dual
34	123-213	Setscrew M12c x 70mm	2	2
	425-16	Nut - Nyloc M12c	2	2
35	62074-1	Spacer	-	2
36	29160-1	Hydraulic Cylinder - See Chapter 10	-	1
37	124-199	Setscrew M12c x 20mm	-	1
	457-6	Washer - Plain M12	-	1
38	62076-1	Plate Cylinder Mount	-	1
39	124-169	Setscrew M10c x 25mm	6	8
	425-15	Nut - Nyloc M10c	6	8
40	62078-1	Boss - Cylinder Mount	-	1
	124-185	Setscrew M10c x 90mm	-	1
	425-15	Nut - Nyloc M10c	-	1
41	92820-1	Curtain	1	1
42	42486-1	Curtain Rubber	1	1
43	42487-1	Retaining Strip	1	1
44	124-137	Setscrew M8c x 25mm	6	6
	455-10	Washer - Plain M8	6	6
	425-14	Nut - Nyloc M8c	6	6
45	62103-1	Mount	2	2
46	-	Hose - See Chapter 10		
47	-	Hose - See Chapter 10		
48	-	Hose - See Chapter 10		
49	-	Hose - See Chapter 10		
50-56	-			
57	40075-2	Clamp	-	2
	124-121	Setscrew M8c x 35mm	-	4
58	124-167	Setscrew M10c x 20mm	6	6
	425-15	Nut - Nyloc M10c	6	6
59	62070-1	Tow Bar	1	1
60	62073-1	Shaft	1	1
61	62077-1	Bolt Special	2	2
62	62099-2	Mounting Bush	1	2
63	124-215	Setscrew M12c x 80mm	1	2
	457-6	Washer M12 Plain	1	2
64	-	Mounting - See Fig. 6 - 3, Item 13	1	2
65	-	Tow Plate - See Chapter 15	1	-
66	62099-1	Bush	1	-
67	425-16	Nut - Nyloc M12c	2	2
68	457-6	Washer - Large M12	1	-

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**'Lo-Pro' Wide Sweep Brush  
Figure 7 - 1**

Item No.	Part No.	Description	Quantity	
69	51-43	Top Plate	1	1
	51-44	Hose Clamp	2	2
70	124-148	Setscrew M8c x 65mm	1	1
	425-13	Nut - Nyloc M8c	1	1
71	11879	Drive Key	1	1
72	H704-75	Hydraulic Hose	1	1
73	265-1	Adaptor	1	1
	451-4	Washer Sealing	1	1
74	5104	Collar Plug	1	1
75	38-11	Grease Nipple 90°	1	1
76 *	200449-1	Tab Washer	2	2

**Ford Cargo, Daf. Fa 1700, Renault Midliner**

80	45013-3	Spacer - Shouldered	1	-
	45014-15	Spacer - Plain	1	-
81	123-159	Bolt M12c x 110mm	1	-

**Leyland Daf Freighter**

80	45013-2	Spacer - Shouldered	1	-
81	123-154	Bolt M12c x 80mm	1	-

**Merc 1314, Volvo FI614, Ley. Daf Comet**

80	45013-1	Spacer - Shouldered	1	-
81	123-155	Bolt M12c x 85mm	1	-

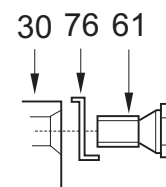
**Iveco Eurocargo**

80	45013/4	Spacer - Shouldered	1	-
81	123-158	Bolt M12c x 100mm	1	-

**Assembly Notes**

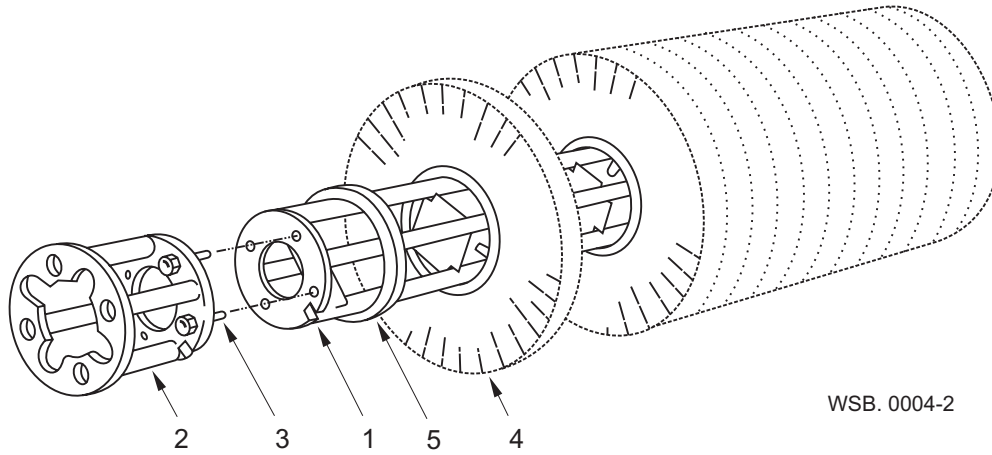
- ⊠ Fit compensator (30) and shaft (60) to towbar (59) and fit tab washer (76) under special bolt (61). Tighten bolt fully using Johnston torque wrench extension spanner Part No TN 7964. Ensure free movement of compensator (30) on shaft (60).

Bend tab washer (76) over compensator frame (30) and flat on special bolt (61).



WSB. 0025

**Brush Stock  
Figure 7 - 2**



Item No.	Part No.	Description	Quantity		
	42546-3	Core Assembly with Poly Segments Ø380	✓	-	-
	42546-5	Core Assembly with Poly Segments Ø400	-	-	✓
	10269-6 JSC	Core Assembly with Poly Segments Ø380	✓	-	-
	10269-7 JSC	Core Assembly with Wire Segments Ø380	-	✓	-
	42546-4	Core Assembly with Poly and Wire Segments	-	✓	✓
	0269-10 JSC	Core Assembly with Poly and Wire Segments	-	✓	✓
1	62061-1	Stock	1	1	1
2	62055-1	Drive Plate	1	1	1
3	129-154	Cap Screw M10c x 25mm	4	4	4
	460-11	Washer - Spring	4	4	4
4	13514	Brush Segment - Polypropylene Ø380	43	-	22
	39040	Brush Segment - Wire Ø380	-	43	21
	834-1	Brush Segment - Polypropylene Ø406	-	-	42
5	13515	Spacer	42	42	42

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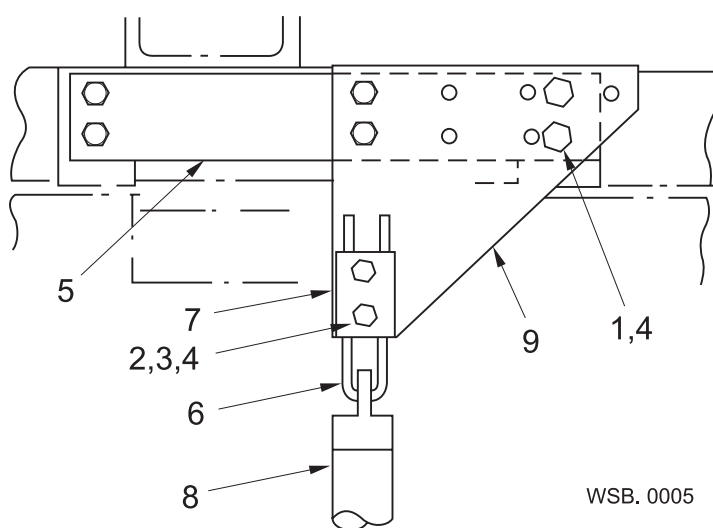
**Lift Cylinder Fixings - Dual Sweep  
Figure 7 - 3**



**Safety Precautions**



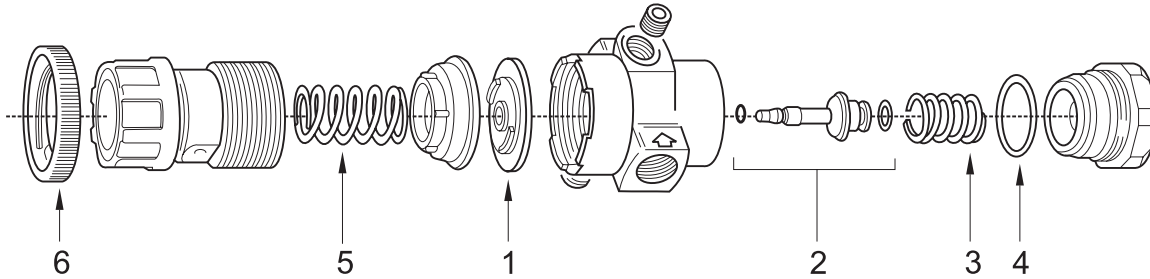
Always depressurise the pneumatic system using the shut off/drain valve on the vitaliser unit in the systems locker (Fig 11-5) before working on the flap mechanism.



Item No.	Part No.	Description	Quantity
1	124-171	Setscrew M10c x 30mm	8
2	124-175	Setscrew M10c x 40mm	4
3	455-11	Washer - Plain M10	4
4	425-15	Nut - Nyloc M10c	12
5	42541-1	Plate	2
6	40405-1	Lifting Eye	2
7	40404-1	Clamp Plate	2
8	-	Lift Cylinder - See page	2
9	40798-1	Adaptor Plate - If required *	2

\* Used on some higher chassis

**Brush Balance Regulator  
Figure 7 - 4**



WSB. 0007

Item No.	Part No.	Description	Quantity
	72-45	Regulator	
1	N.S.S.	Diaphragm Assembly	1
2	N.S.S.	Valve Assembly	1
3	N.S.S.	Valve Spring	1
4	N.S.S.	'O' Ring	1
5	25890-4	Spring	1
6	41240-1	Locking Nut	1
	72-36	Repair Kit Comprising:- Item No's 1, 2, 3 & 4	

**Notes**

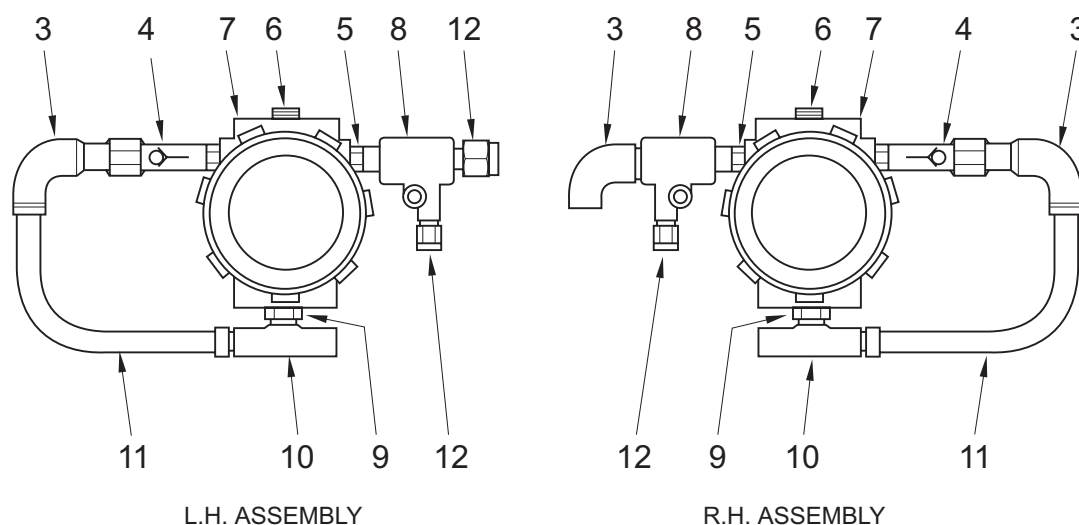
**Brush Balance Air Regulator Installation  
Figure 7 - 5**



**Safety Precautions**



Always depressurise the pneumatic system using the shut off/drain valve on the vitaliser unit in the systems locker (Fig 11-5) before working on the flap mechanism.



WSB. 0006

Item No.	Part No.	Description	Quantity	
	41966-2	LH Air Regulator Assembly	LH	-
	41966-1	RH Air Regulator Assembly	-	RH
1	-			
2	-			
3	552-3	Elbow 1/8" BSP x 6mm Tube	1	2
4	72-4	Non Return Valve	1	1
5	532-7	Adaptor	2	2
6	9756	Plug	1	1
7	72-45	Regulator See Fig. 7 - 4	1	1
8	72-1	Shuttle Valve	1	1
9	42652-1	Adaptor	1	1
10	544-3	Tee 1/8" BSP x 6mm Tube	1	1
11	12869	Nylon Tube	As Req'd	
12	537-3	Straight Adaptor 1/8" BSP	2	1



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# CHAPTER

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# 8

## Wanderhose/Littasnatch Options

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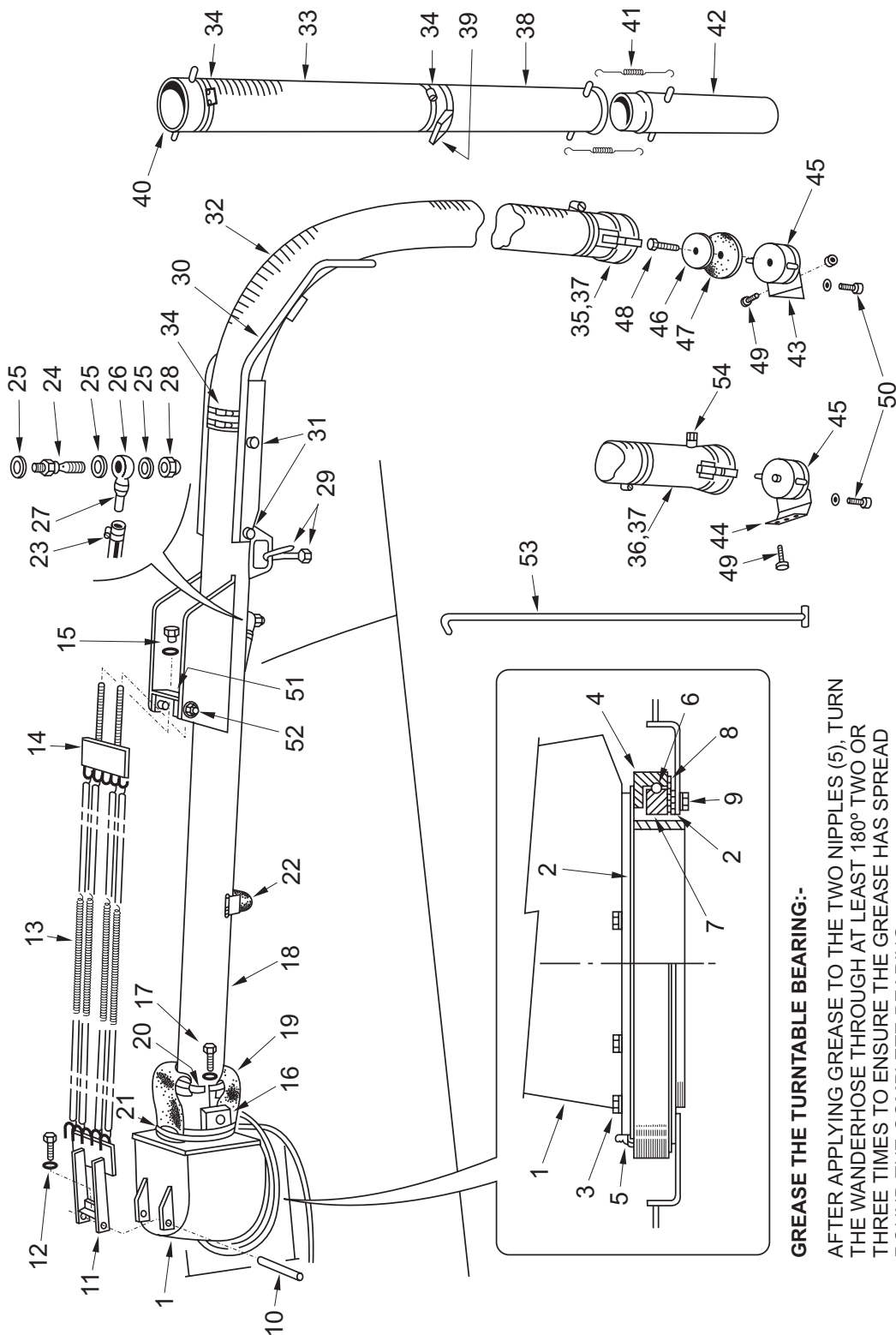
## Wanderhose Assembly Figure 8 - 1



### Safety Precautions



Extreme care should be taken when working on top of the body.



#### GREASE THE TURNTABLE BEARING:-

AFTER APPLYING GREASE TO THE TWO NIPPLES (5), TURN THE WANDERHOSE THROUGH AT LEAST 180° TWO OR THREE TIMES TO ENSURE THE GREASE HAS SPREAD ROUND THE COMPLETE BEARING

625/700 SERIES 600/605 SERIES

WH0001



<b>Wanderhose Assembly Figure 8 - 1</b>
---

Item No.	Part No.		Description	Quantity
	Ø6" (150)	Ø8" (200)		
	53043-1	53043-9	Wanderhose Assembly - 600/605 Series	
	53043-22	53043-31	Wanderhose Assembly - 625 Series	
	53043-11	53043-10	Wanderhose Assembly - 700/705 Series	
1	41803-1	<	Turret	1
2	5955-1	<	Seal	2
3	124-167	<	Setscrew M10c x 20mm	6
	460-11	<	Washer - Spring M10	6
	40912-2	<	Turn Table Assembly Comprising: Items 4 - 7	
4	40722-1	<	Outer Race	1
5	38-3	<	Grease Nipple 1/4" BSP Straight	2
6	22-8	<	Steel Ball	105
7	40721-1	<	Inner Race	1
8	40723-1	<	Seal Plate	1
9	124-169	<	Setscrew M10c x 25mm	8
	460-11	<	Washer - Spring M10	8
10	40420-1	<	Pin	1
11	40746-1	41814-1	Claw	1
12	124-137	<	Setscrew M8c x 25mm	1
	460-10	<	Washer - Spring M8	1
13	40691-1	N/A	Spring - 600/605/625 Series	4
	40691-1	N/A	Spring - 700/705 Series	5
	-	40691-1	Spring - All Series	6
14	40746-2	41814-2	Claw	1
15	41836-1	<	Nut - Special M16c	2
	455-16	<	Washer - Plain M20	2
16	41833-1	40728-1	Pivot Block	2
17	123-131	<	Bolt M10c x 55mm	4
	460-11	<	Washer - Spring M10	4
18	62978-1	41801-1	Boom - 600/605 Series	1
	95031-1	96215-1	Boom - 625 Series	1
	62980-1	41850-1	Boom - 700/705 Series	1
19	40780-1	<	Flexible Joint	1
20	503-8	503-11	Hose Clip	1
21	504-55	<	Hose Clip	1
22	39382	<	Rubber Stop	1
	129-65	<	Cap Screw M5c x 20mm	2
	455-7	<	Washer - Plain M5	2
	425-12	<	Nut - Nyloc M5c	2
23	39444	<	Hose	6m
	501-1	<	Hose Clip	2
24	40755-1	<	Water Jet	1
25	453-1	<	Washer - Fibre	3
26	26997-1	<	Banjo	1

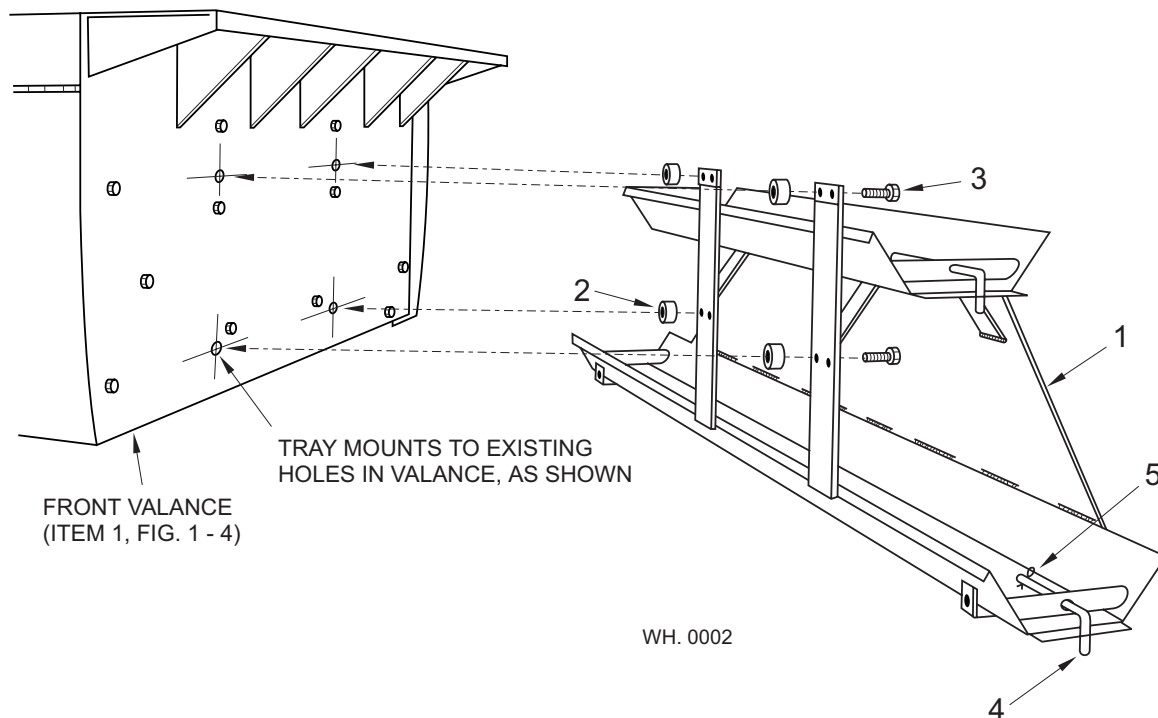
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>

## Wanderhose Assembly Figure 8 - 1

Item No.	Part No.		Description	Quantity
	Ø6" (150)	Ø8" (200)		
27	46382-3	<	Hose Adaptor	1
28	410-32	<	Nut - Domed M12c	1
29	40207-1	<	Hook	1
	420-18	<	Nut M16c	2
30	40741-1	41802-1	Jib	1
31	124-199	<	Setscrew M12c x 20mm	4
	460-12	<	Washer - Spring M12	4
32	6004-1	15916-1	Hose	1
33	6005-1	15917-1	Hose	1
34	504-51	503-11	Hose Clip	5
35	6003-1	6003-8	Coupling - Female - 600/605 Series	1
36	61045-2	61045-1	Coupling - Female - 625/700/705 Series	1
37	5992-1	15895-1	Sleeve - 600/605 Series	1
	61063-1	61046-1	Sleeve - 625/700/705 Series	1
	193-8	<	Screw Rd. Hd. Self Tapping	6
	6002-1	<	Spring	2
	58-6	<	Pin - Spring Tension	2
	5999-1	<	Catch	2
38	6027-1	15899-1	Hose End Fitting	1
39	6212-1	15920-1	Handle	1
40	5996-1	5996-4	Coupling - Male	1
41	6216-1	<	Spring Clip	2
42	40784-1	16319-1	Extension Assembly - Includes Item 41	1
43	42463-1	<	Anchorage Bracket - 600/605 Series	1
44	61044-1	<	Anchorage Bracket - 625/700/705 Series	1
45	42462-1	42738-1	Anchorage	1
46	6043-1	<	Plate - Rubber Retaining	1
47	5688-1	5688-2	Rubber Disc	1
48	124-103	<	Setscrew M6c x 20mm	1
	460-8	<	Washer - Spring M6	1
	420-13	<	Nut M6c	1
49	135-57	<	Socket Button Hd. Screw M8c x 20mm	2
	460-10	<	Washer - Spring M8	2
	420-14	<	Nut M8c	2
50	124-169	<	Setscrew M10c x 25mm	2
	460-11	<	Washer - Spring M10	2
51	62952-1	49051-1	Pivot	1
52	49053-1	49052-1	Pivot Pin	2
	455-14	<	Washer - Plain M16	2
	425-18	<	Nut M16c Nyloc	2
53	40781-1	<	Grab	1
54	N/A	135-1	Setscrew - Brass M12c x 25mm	1
	N/A	453-1	Washer - Fibre	1
	27303-1	27303-2	Hose Extension Assembly Items 38, 39 and 40	

**Wanderhose Extension Tray - 625, 700, 705 Series  
Figure 8 - 2**



Item No.	Part No.	Description	Quantity
1	61065-1	Extension Tray	1
2	46518-3	Spacer	4
3	123-129	Bolt M10c x 45mm	4
	425-15	Nut M10c Nyloc	4
4	61067-1	Handle	4
5	59-26	Cotter Pin	4

**Notes**

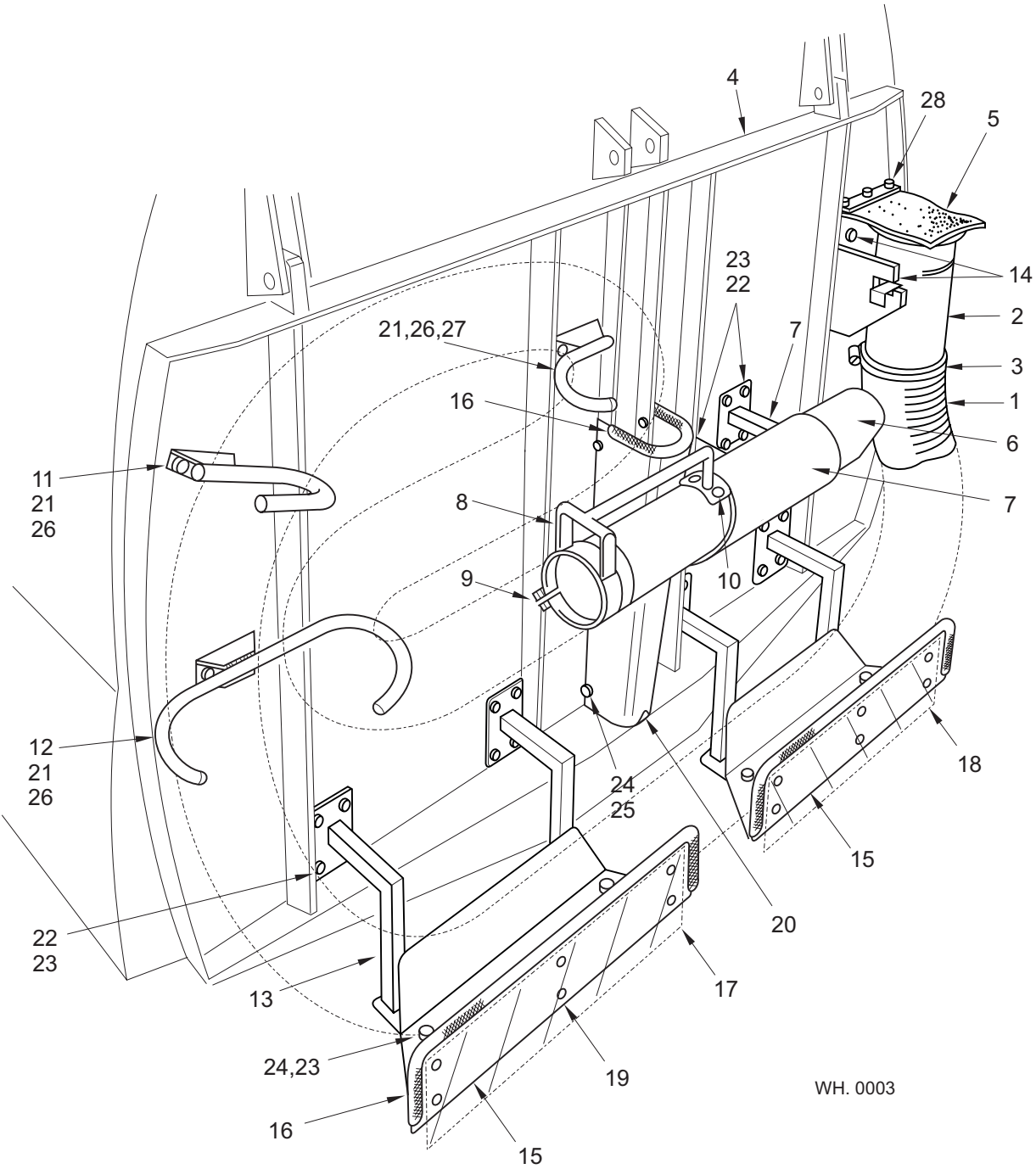
'Littasnatch' - Removable Type  
Figure 8 - 3



## Safety Precautions



Ensure the Littasnatch ducting is securely stowed after use.



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**'Littasnatch' - Removable Type  
Figure 8 - 3**

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Item No.	Part No.		Description	Quantity
	Ø6" (150)	Ø8" (200)		
1	60744-2	>	Plastic Duct	6m
2	63039-1	57074-1	Coupling	1
3	504-51	>	Hose Clip	2
4	63500-11	>	Door (less Bushes 29128-3)	1
> 5	63047-1	57076-1	Rubber Flap	1
6	60739-1	>	Suction Tube - Plastic	1
	50236-1	>	Suction Tube - Steel (Alternative)	1
7	63349-1	>	Holster	1
8	60716-1	>	Handle And Clamp	1
9	123-86	>	Bolt M6c x 40mm	1
	425-13	>	Nut M6c Nyloc	1
10	181-3	>	Screw - Pozidriv M5c x 16mm	2
	455-7	>	Washer - Plain M5	2
	460-7	>	Washer - Spring M5	2
	420-12	>	Nut M5c	2
11	60718-1	>	Hook - Hose	1
12	63051-1	>	Double Hook - Hose	1
13	63350-1	>	Bracket	4
14	63045-1	>	Lug - Hose Stowage Bracket	1
	124-102	>	Setscrew M6c x 16mm	4
	455-8	>	Washer - Plain M6	4
	460-8	>	Washer - Spring M6	4
	420-13	>	Nut M6c	4
15	60709-1	>	Trough	2
16	6849	>	Titanfast	As Req'd
> 17 & 18	20674-3	>	Reflective Plate (Pair)	1
19	194-9	>	Screw - Pan Hd. No. 6 x 16mm	12
20	62984-1	>	Cover	1
21	124-167	>	Setscrew M10c x 20mm	6
22	124-135	>	Setscrew M8c x 20mm	24
23	460-10	>	Washer - Spring M8	32
	420-14	>	Nut M8c	32
24	124-135	>	Setscrew M8c x 65mm	14
25	460-10	>	Washer - Spring M8	6
	435-12	>	Retaining Nut M8c	6
26	455-11	>	Washer - Plain M10	6
	460-11	>	Washer - Spring M10	6
	420-15	>	Nut M10c	6
27	63043-1	>	Hook - Short	1
28	63048-1	>	Plate - Retainer	1
>	124-111	>	Bolt M8c x 55mm	3
	425-14	>	Nut - Nyloc M8c	3
>	57077-1	>	Spacer	1

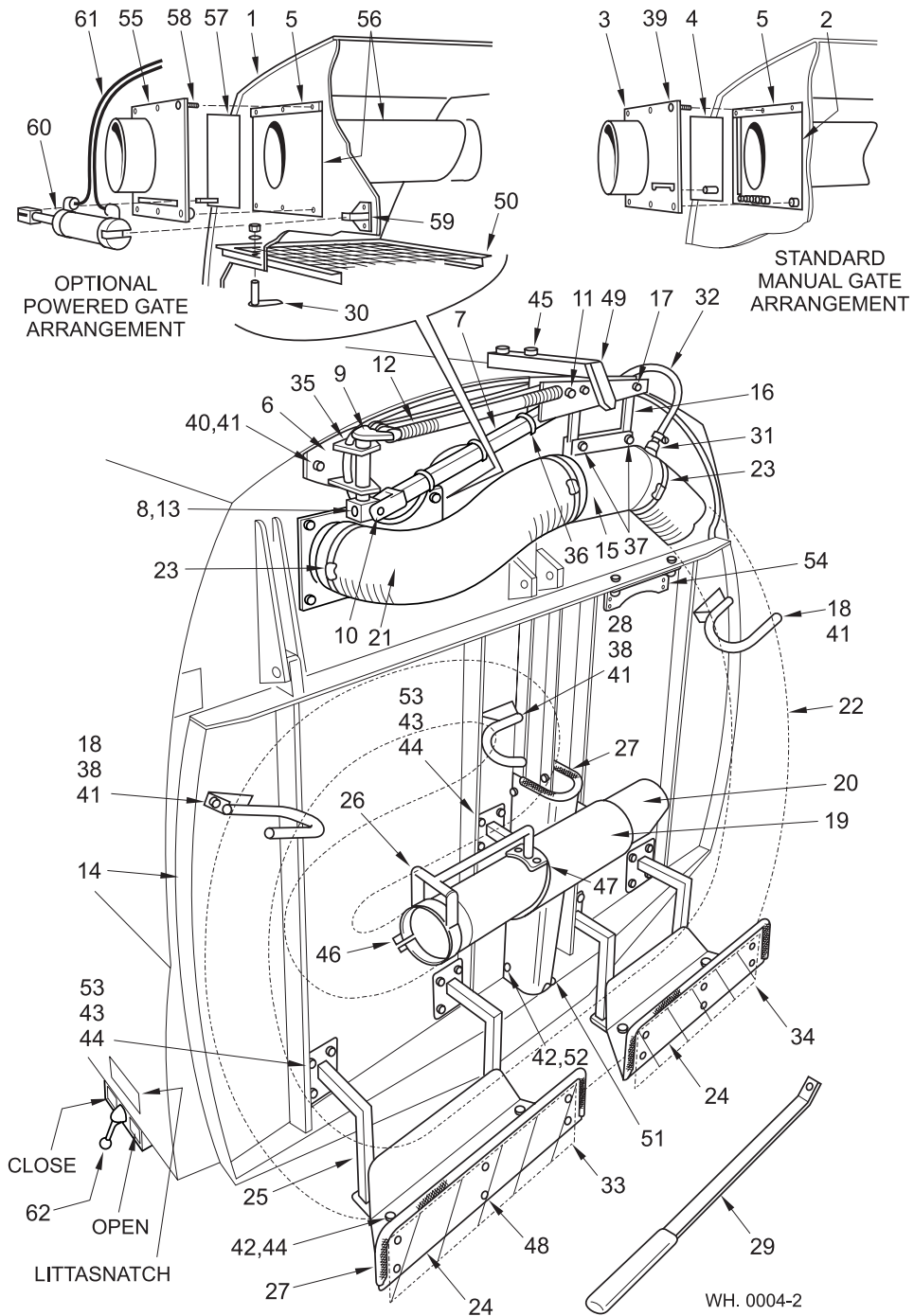
**'Littasnatch' - Fixed Type**  
**Figure 8 - 4**



**Safety Precautions**



Ensure the Littasnatch ducting is securely stowed after use.



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**'Littasnatch' - Fixed Type  
Figure 8 - 4**

Item No.	Part No.	Description	Quantity
1	62990-1	Body - 600/605 Series	1
2	60708-4	Side Plate - 600/605 Series	1
3	60707-1	Face Plate	1
4	60706-1	Gate	1
5	60704-1	Packing	2
6	60302-1	Davit Mounting	1
	29128-1	Non Lube Bush (2 per end)	4
7	60721-1	Davit	
8	60309-1	Joint - Universal	1
9	60303-1	Pin - Pivot	1
10	60317-1	Pin - Pivot	1
11	60326-1	Pin - Spring Location	1
> 12	3637-1	Spring - Tension	3
13	59-8	Pin - Tension	2
14	63500-3	Door - Less Non-Lube Bushes 29128-3	
15	60697-1	Tube - Connection	1
16	60724-1	Link - Tube Suspension	2
17	123-131	Bolt M10c x 55mm	2
	60734-1	Spacer	2
	425-15	Nut - Nyloc M10c	2
18	60718-1	Hook - Hose	2
19	63349-1	Holster	1
20	60739-1	Suction Tube - Plastic	1
	50236-1	Suction Tube - Steel (Alternative)	1
21	60744-1	Plastic Duct	0.75m
22	60744-2	Plastic Duct	6m
23	504-51	Hose Clip	3
24	60709-1	Trough	2
25	63350-1	Bracket	4
26	60716-1	Handle And Clamp	1
27	6849	Titanfast	As Req'd
28	63043-1	Hook - Short	1
29	60736-1	Handle - Manual Gate	1
30	60357-1	Bracket	4
	455-14	Washer - Spring M16	4
	425-18	Nut - Nyloc M16c	4
31	60725-1	Adaptor	1
32	39444	Hose - Water 3/8" Bore	1
	501-1	Clip - Hose	2
33	20674-1	Reflective Plate	1
34	20674-2	Reflective Plate	1
35	287-20	Grommet	2
36	24-1	Cable Tie	5
37	123-131	Bolt M10c x 55mm	2
	60734-1	Spacer	2
	425-15	Nut - Nyloc M10c	2

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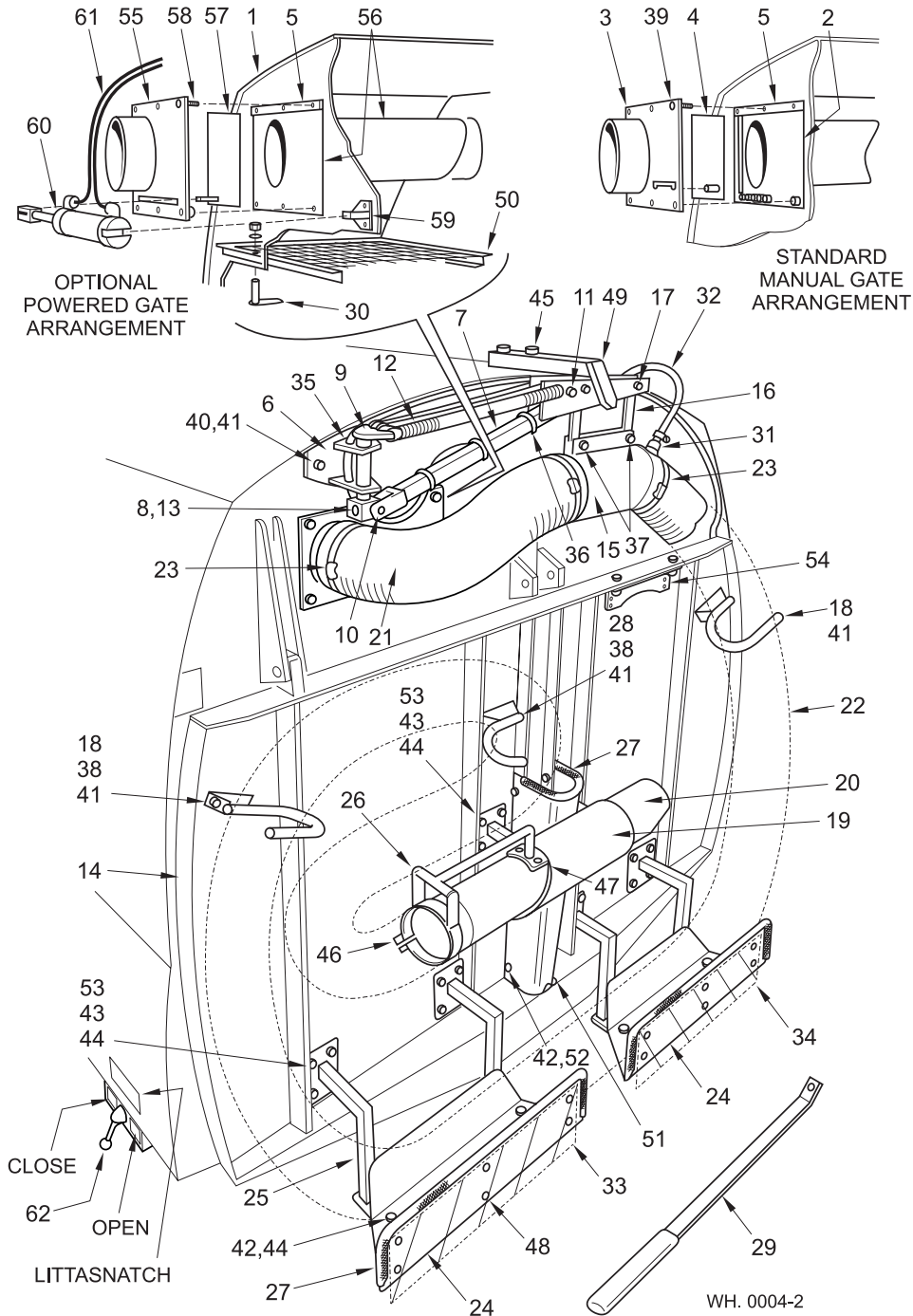
**'Littasnatch' - Fixed Type  
Figure 8 - 4**



**Safety Precautions**



Ensure the Littasnatch ducting is securely stowed after use.



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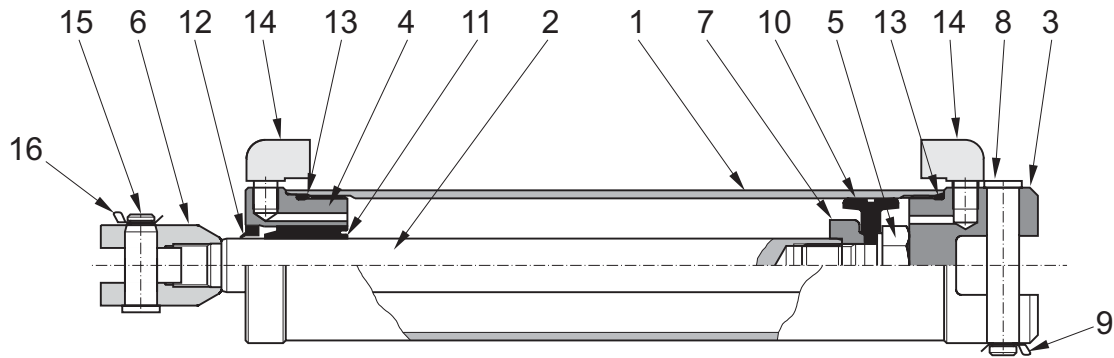


**'Littasnatch' - Fixed Type  
Figure 8 - 4**

Item No.	Part No.	Description	Quantity	
38	124-167	Setscrew M10c x 20mm	6	
39	124-171	Setscrew M10c x 30mm	6	
	425-2	Nut - Nyloc M10c	6	
40	124-169	Setscrew M10c x 25mm	3	
41	455-11	Washer - Plain M10	15	
	460-11	Washer - Spring M10	15	
	420-15	Nut M10c	15	
42	124-135	Setscrew M8c x 20mm	14	
43	455-10	Washer - Plain M8	24	
44	460-10	Washer - Spring M8	32	
	420-14	Nut M8c	32	
45	124-177	Setscrew M10c x 50mm	2	
	425-15	Nut - Nyloc M10c	2	
46	123-86	Bolt M6c x 40mm	1	
	425-13	Nut - Nyloc M6c	1	
47	181-3	Screw - Pozidriv M5c x 16mm	2	
	455-7	Washer - Plain M5	2	
	460-7	Washer - Spring M5	2	
	420-12	Nut - Nyloc M5c	2	
48	194-9	Screw - Pan Hd. No 6 x 16mm	12	
49	60380-1	Hook	1	
50	803151-1	Rear Mesh LH (Current)	1	
	803152-2	Rear Mesh RH (Current)	1	
	90329-1	Rear Mesh - One Piece (Superseded)	1	
51	62984-1	Cover	1	
52	460-10	Washer - Spring M8	6	
	435-12	Retaining Nut M8c	6	
53	124-135	Setscrew M8c x 20mm	24	
54	60717-1	Bracket - Number Plate	1	
	124-102	Setscrew M6c x 16mm	2	
	460-8	Washer - Spring M6	2	
	420-13	Nut M6c	2	
		Optional Powered Gate		
55	63439-1	Face Plate	1	
56	60708-8	Slide Plate - 600/605 Series	1	
	60708-10	Slide Plate - 625, 700 Series	1	
57	63440-1	Gate	1	
>	58	123-128	Bolt M10c x 40mm	6
	425-2	Nut - Nyloc M10c	6	
59	63436-1	Bracket	1	
	124-135	Setscrew M8c x 20mm	2	
	425-1	Nut - Nyloc M8c	2	
60	63449-1	Cylinder - Pneumatic - See next page	1	
61	12869	Tubing Ø6mm Black	As Req'd	
62	6746	Rotary Valve	1	

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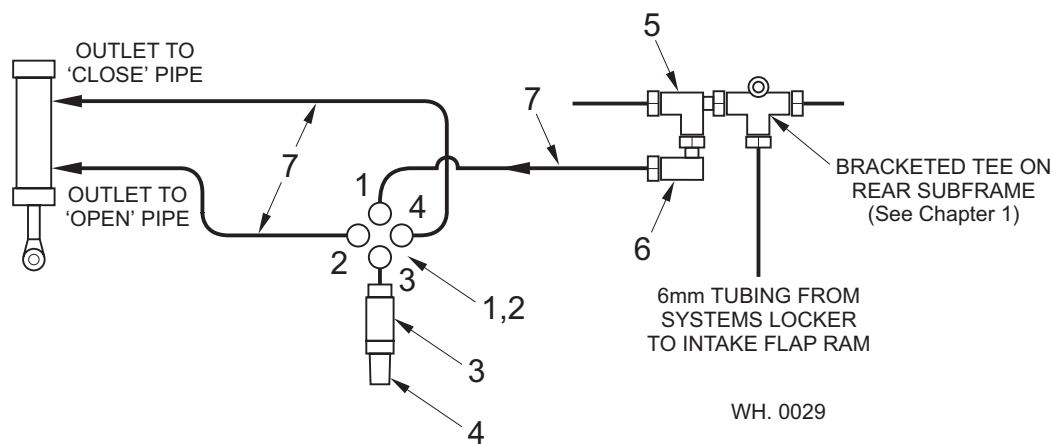
## Littasnatch Cylinder - Powered Gate Option Figure 8 - 5



WH. 0028

Item No.	Part No.	Description	Quantity
	63449-1	Cylinder Assembly comprising:	
1	28921-245	Barrel	1
2	28923-246	Rod	1
3	28924-1	Head	1
4	28925-1	Gland	1
5	28927-1	Bolt - Piston Retaining	1
6	28929-1	Eye - Fork	1
7	28926-1	Spacer - Piston	1
8	29149-1	Clevis Pin	1
9	39624	Spring Retaining Clip	1
10 *	N.S.S.	Piston Seal	1
11 *	N.S.S.	Rod Seal	1
12 *	N.S.S.	Wiper Seal	1
13 *	N.S.S.	'O' Ring	2
14	552-3	Elbow Adaptor	2
15	801732-1	Clevis Pin	1
16	283-26	Spring Retaining Clip	1
	* 63449-18	Seal Kit comprising items 10, 11, 12, 13	

**Pneumatic Circuit - Powered Gate Option  
Figure 8 - 6**



Item No.	Part No.	Description	Quantity
1	-	Rotary Valve - See Fig. 8-4	1
2	537-3	Male Stud Adaptor 1/8" BSP x Ø6mm	4
3	541-3	Adaptor 1/8" BSP x Ø6mm	1
4	72-17	Exhaust Silencer	1
5	540-3	Swivel Side Tee Adaptor 1/8" BSP x Ø6mm	1
6	551-1	Stem Elbow Connector x Ø6mm	1
7	12869	Tubing Ø6mm Black	As Req'd

**Notes**

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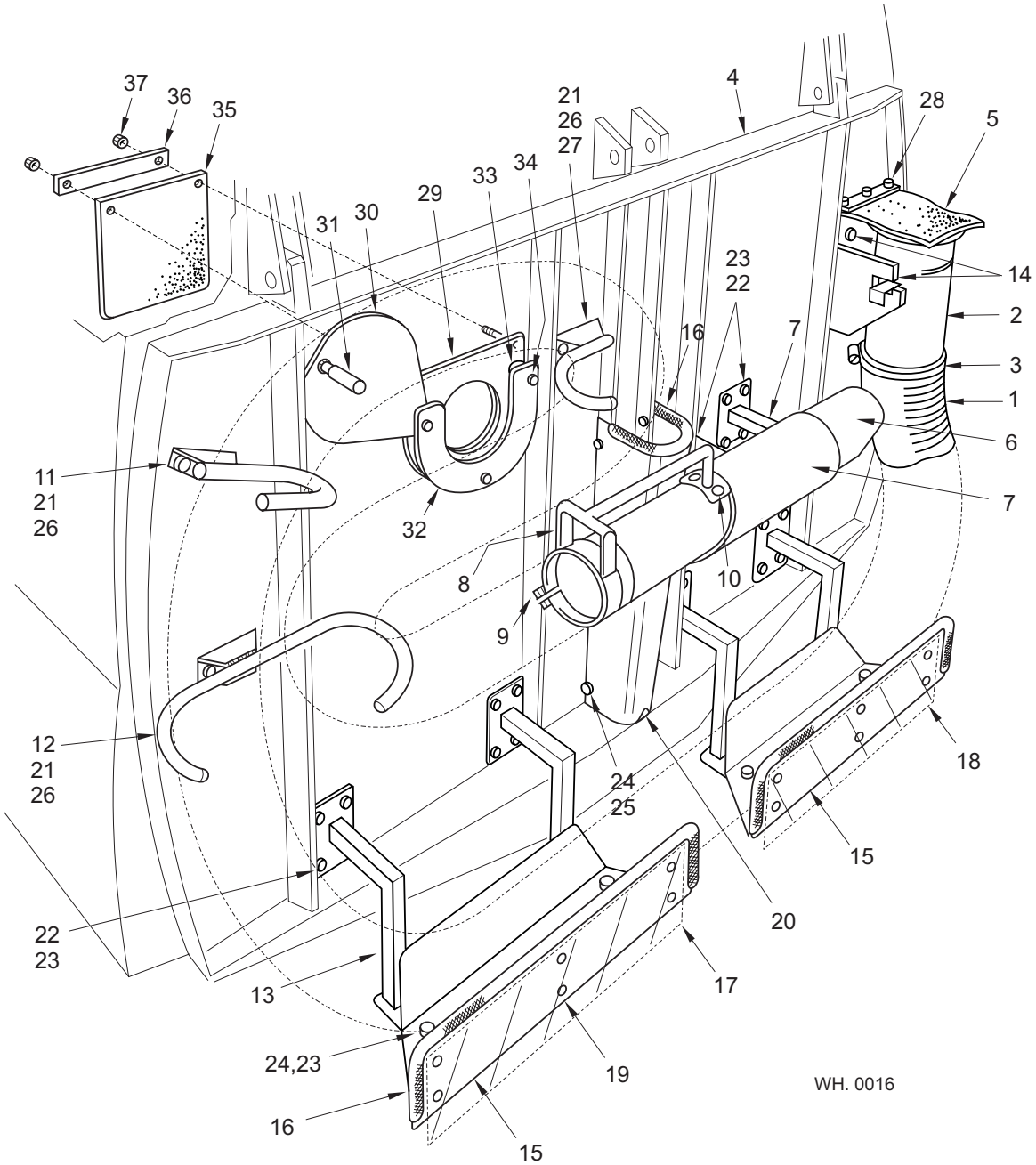
'Littasnatch' - 600 Series Lo-Top Body  
Figure 8 - 7



## Safety Precautions



Ensure the Littasnatch ducting is securely stowed after use.



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**'Littasnatch' - 600 Series Lo-Top Body  
Figure 8 - 7**

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>

Item No.	Part No.	Description	Quantity
1	60744-2	Plastic Duct	6m
2	63743-1	Coupling	1
3	504-51	Hose Clip	2
4	63500-23	Door (less Bushes 29128-3)	1
5	63047-1	Rubber Flap	1
6	60739-1	Suction Tube - Plastic	1
	50236-1	Suction Tube - Steel (Alternative)	1
7	63349-1	Holster	1
8	60716-1	Handle And Clamp	1
9	123-86	Bolt M6c x 40mm	1
	425-13	Nut M6c Nyloc	1
10	181-3	Screw - Pozidriv M5c x 16mm	2
	455-7	Washer - Plain M5	2
	460-7	Washer - Spring M5	2
	420-12	Nut M5c	2
11	60718-1	Hook - Hose	1
12	63051-1	Double Hook - Hose	1
13	63350-1	Bracket	4
14	63045-1	Lug - Hose Stowage Bracket	1
	124-102	Setscrew M6c x 16mm	4
	455-8	Washer - Plain M6	4
	460-8	Washer - Spring M6	4
	420-13	Nut M6c	4
15	60709-1	Trough	2
16	6849	Titanfast	As Req'd
17	20674-1	Reflective Plate	1
18	20674-2	Reflective Plate	1
19	194-9	Screw - Pan Hd. No. 6 x 16mm	12
20	62984-1	Cover	1
21	124-167	Setscrew M10c x 20mm	6
22	124-135	Setscrew M8c x 20mm	24
23	460-10	Washer - Spring M8	32
	420-14	Nut M8c	32
24	124-135	Setscrew M8c x 65mm	14
25	460-10	Washer - Spring M8	6
	435-12	Retaining Nut M8c	6
26	455-11	Washer - Plain M10	6
	460-11	Washer - Spring M10	6
	420-15	Nut M10c	6
27	63043-1	Hook - Short	1
28	63048-1	Plate - Retainer	1
	124-139	Setscrew M8c x 30mm	3
	425-14	Nut - Nyloc M8c	3

<b>'Littasnatch' - 600 Series Lo-Top Body Figure 8 - 7</b>
--

Item No.	Part No.	Description	Quantity
29	63740-1	Back Plate	1
30	63738-1	Shutter	1
31	41145-1	Handle Cover	1
32	63737-1	Carrier	1
33	63739-1	Spacer	3
34	124-169	Screw	3
	455-1	Plain Washer	3
	426-5	Nut	3
35	63741-1	Rubber Flap	1
36	63742-1	Strip	1
37	420-14	Nut	2
	455-10	Plain Washer	2

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### Notes

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**CHAPTER**

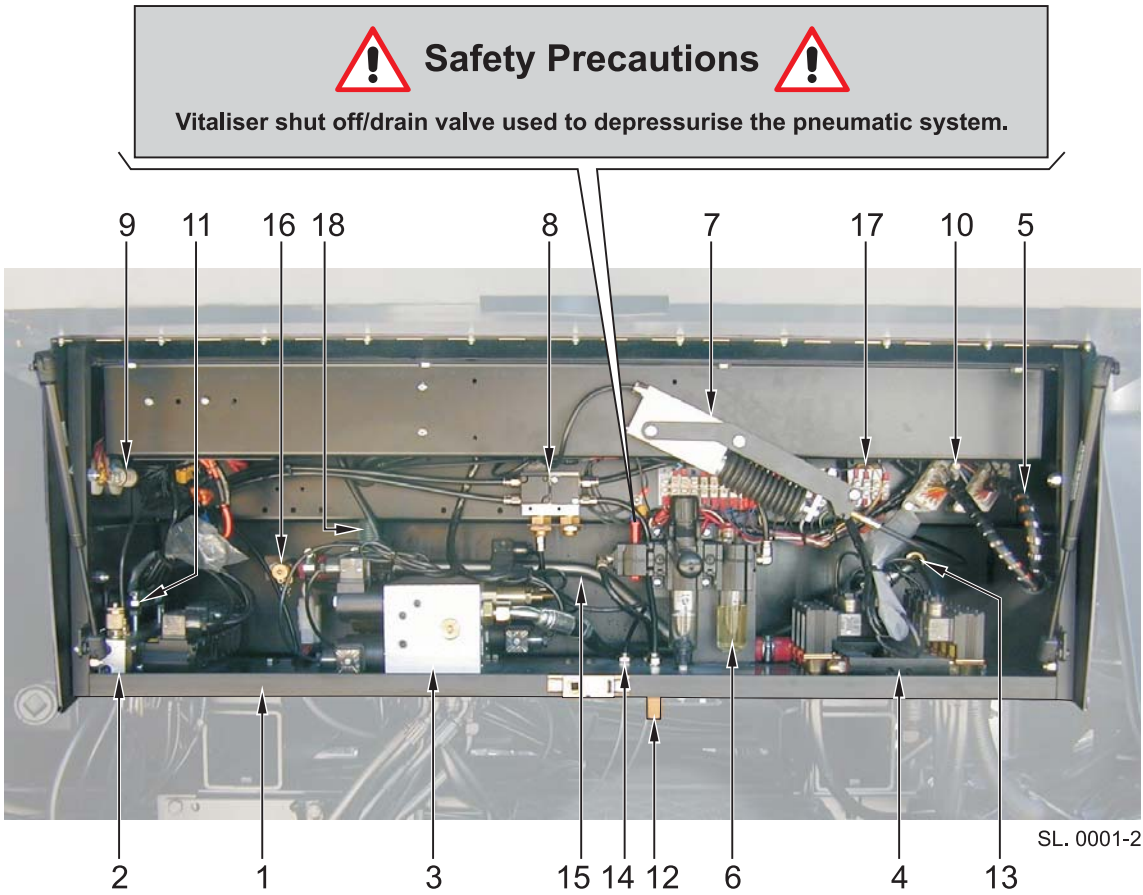
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**Wafer Assembly  
Figure 9 - 1**



Item No.	Part No.	Description	Figure
1	-	Wafer Tray	9 - 2
2	-	Sweep Gear Pneumatic Valve Block Assembly	11 - 1
3	-	Sweep Gear Hydraulic Valve Bank Assembly	10 - 5
4	-	Water Spray Valve Manifold	12 - 4
5	-	Wiring Looms	13 - 1
6	-	Pneumatic System Vitaliser Unit	11 - 8
7	-	Throttle Actuator - 600 Series shown - See Chapter 3	
8	-	PTO Valve Group - See Chapter 11	
9	-	Fused Link - See Chapter 13	



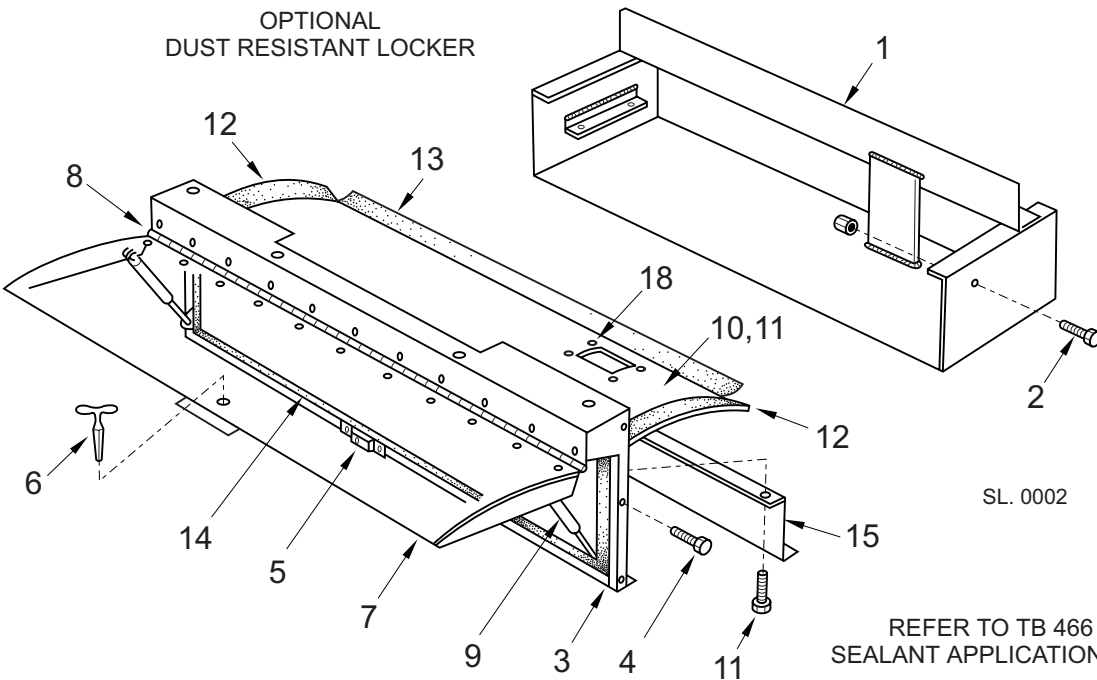
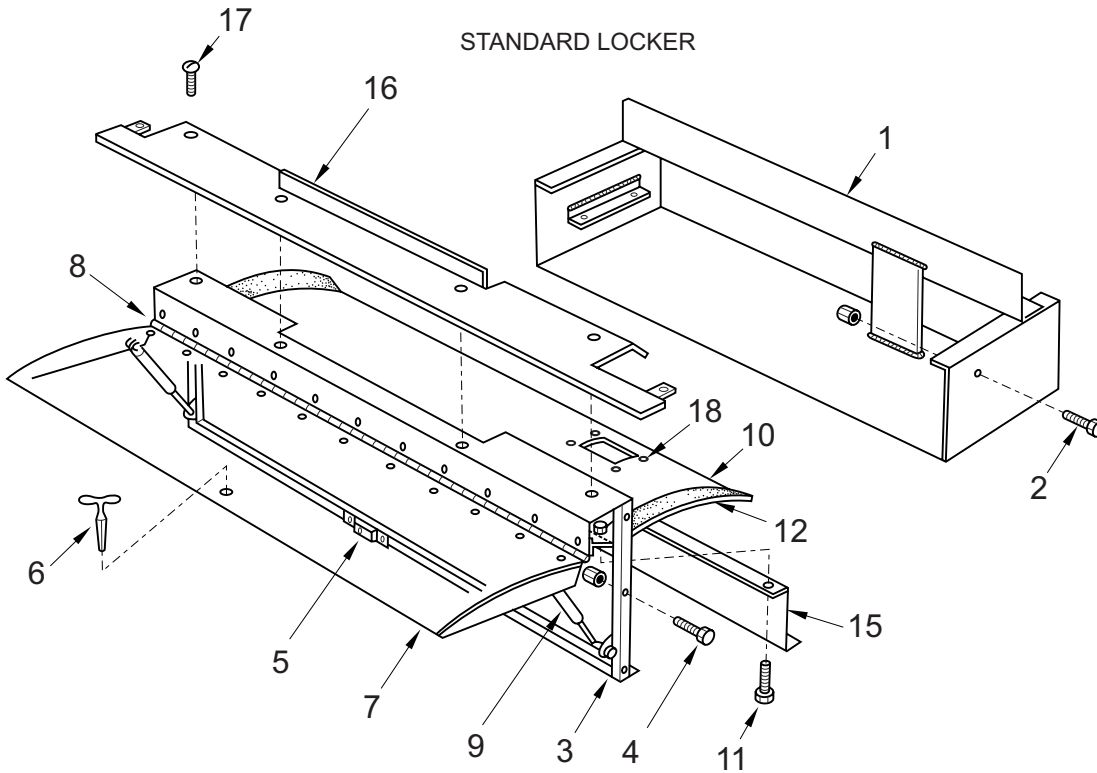
<b>Wafer Assembly Figure 9 - 1</b>
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Item No.	Part No.	Description	Quantity
10	42702-1	Spacer	4
	124-113	Setscrew M6c x 50mm	4
11	124-143	Setscrew M8c x 40mm	2
	420-14	Nut M8c	4
12	72-2	Air Silencer	1
	42407-1	Block - Air Exhaust	1
	546-12	Straight Adaptor	1
	12870	Tubing Ø8mm x 150mm long	1
	288-12	Grommet	2
13	264-4	Bulkhead Adaptor and Locknut 1/2" BSP	1
14	555-4	Bulkhead Connector	2
	12870	Tubing Ø8mm	As Req'd
15	92502-1	Pipe	1
	497/H12	Hose (Water) x 100mm long	2
	501-3	Hose Clip	4
16	42726-1	Water Manifold	1
	124-134	Setscrew M8c x 16mm	1
	460-10	Washer - Spring M8	1
	665-18	Test Point Valve	1
17	30-50	Terminal Block	1
	29668-1	Terminal Number Plate	1
	90641-2	Insulation Pad	1
	134-14	Screw Pan Hd. M3c x 16mm	2
	460-3	Washer - Spring M3	2
	420-10	Nut M3c	2
18	29-1	Conduit x 270mm long	1

**Notes**

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**Locker Enclosure and Walkway  
Figure 9 - 2**



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**Locker Enclosure and Walkway  
Figure 9 - 2**

Item No.	Part No.		Description	Quantity
	Standard	Optional		
1	42358-1	<	Wafer Tray	1
2	124-135	<	Setscrew M8c x 20mm	2
	425-14	<	Nut - Nyloc M8c	2
3	42350-1	49088-1	Frame	1
4	124-141	<	Setscrew M8c x 35mm	6
	425-14	<	Nut - Nyloc M8c	4
5	6817-1	<	Budget Lock	1
	-	49040-1	Plate - Lock Mount	1
	-	49041-1	Plate - Sealing	1
	124-102	<	Setscrew M6c x 16mm	2
	460-8	<	Washer - Spring M6	2
	420-13	<	Nut M6c	2
6	6816	<	Key	As Req'd
7	42359-1	50125-1	Door	1
	42597-1	<	Hinge	1
8	134-41	<	Setscrew Poz.Hd. M4c x 10mm	22
	425-11	<	Nut M4c Nyloc	22
9	39435	<	Gas Spring	2
	460-7	<	Washer - Spring M5	4
	420-12	<	Nut M5c	4
10	42363-1	<	Top Panel	1
11	124-134	<	Setscrew M8c x 16mm	4
	460-10	<	Washer - Spring M8	4
	420-14	<	Nut M8c	4
12	217-2	<	Rubber Seal x 350mm	2
13	-	217-2	Rubber Seal x 1020mm	1
14	-	217-5	Rubber Lipped Seal x 2800mm	1
15	67091-1	<	Ancillary Valance	1
16	42615-1	<	Seal Plate - Walkway	1
17	135-57	<	Screw-Button Hd. M8c x 20mm long	4
18	433-2	<	Clufix Fitting M6	4

**Notes**

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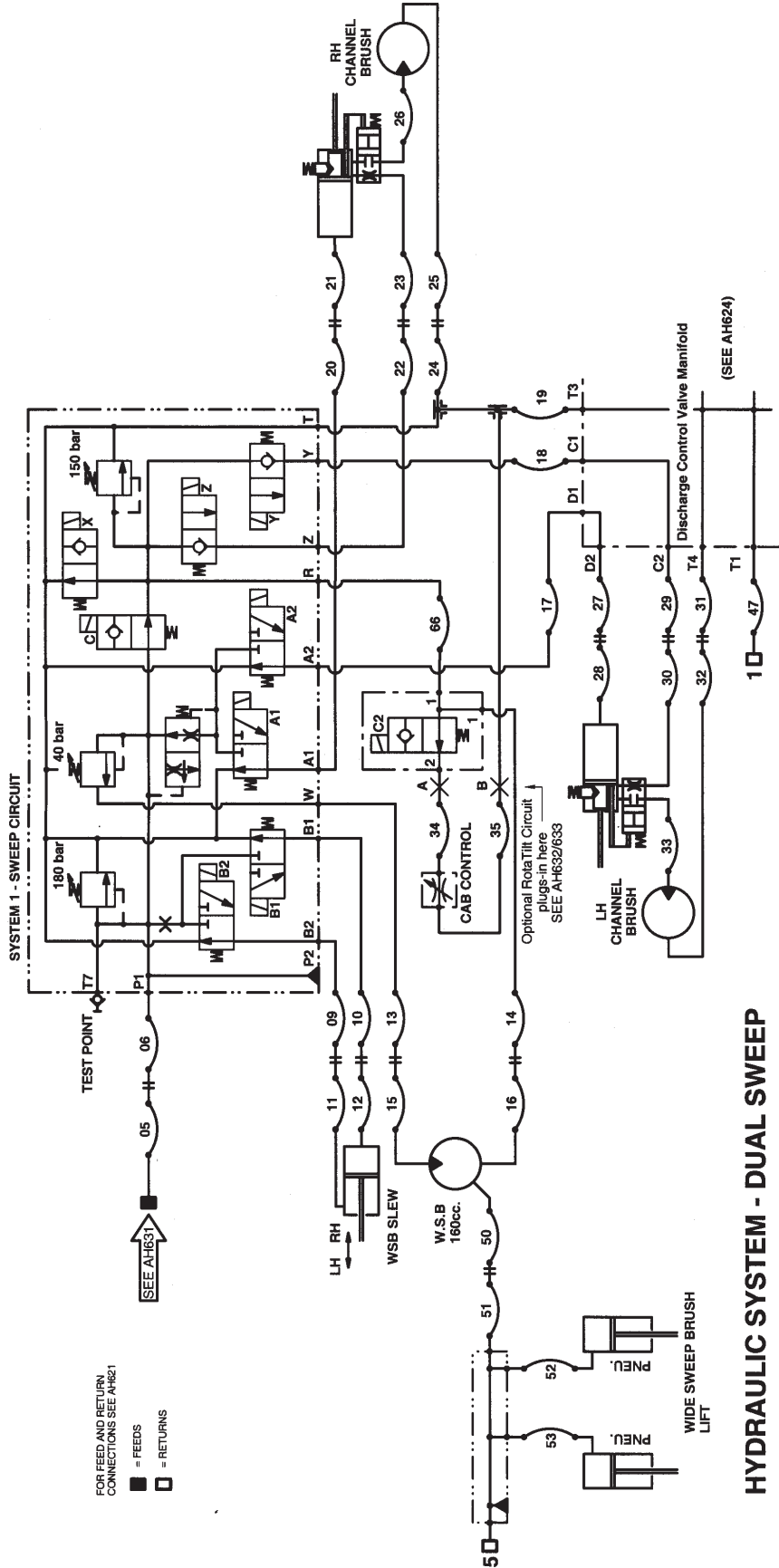
**CHAPTER**
**10**
**Hydraulics**

For information prior to that shown here, see **Parts Section Revision Level 07**, available on request.

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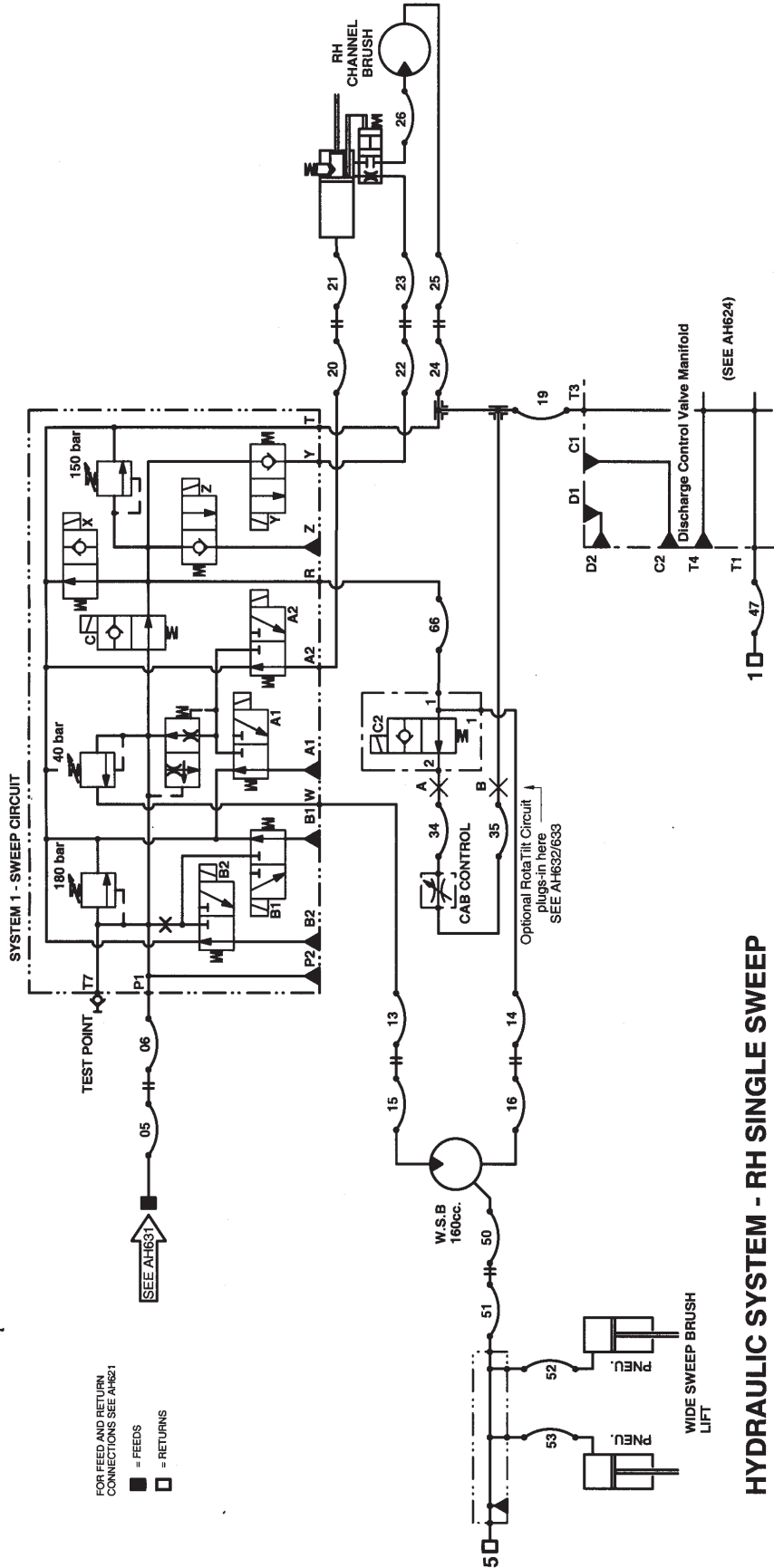
## Hoses - Current Cartridge Valve Block Circuit - Dual Sweep Diagram AH622b01



JOHNSTON 500 Series  600 Series  625 Series  700 Series  MC-001030 AH622b01

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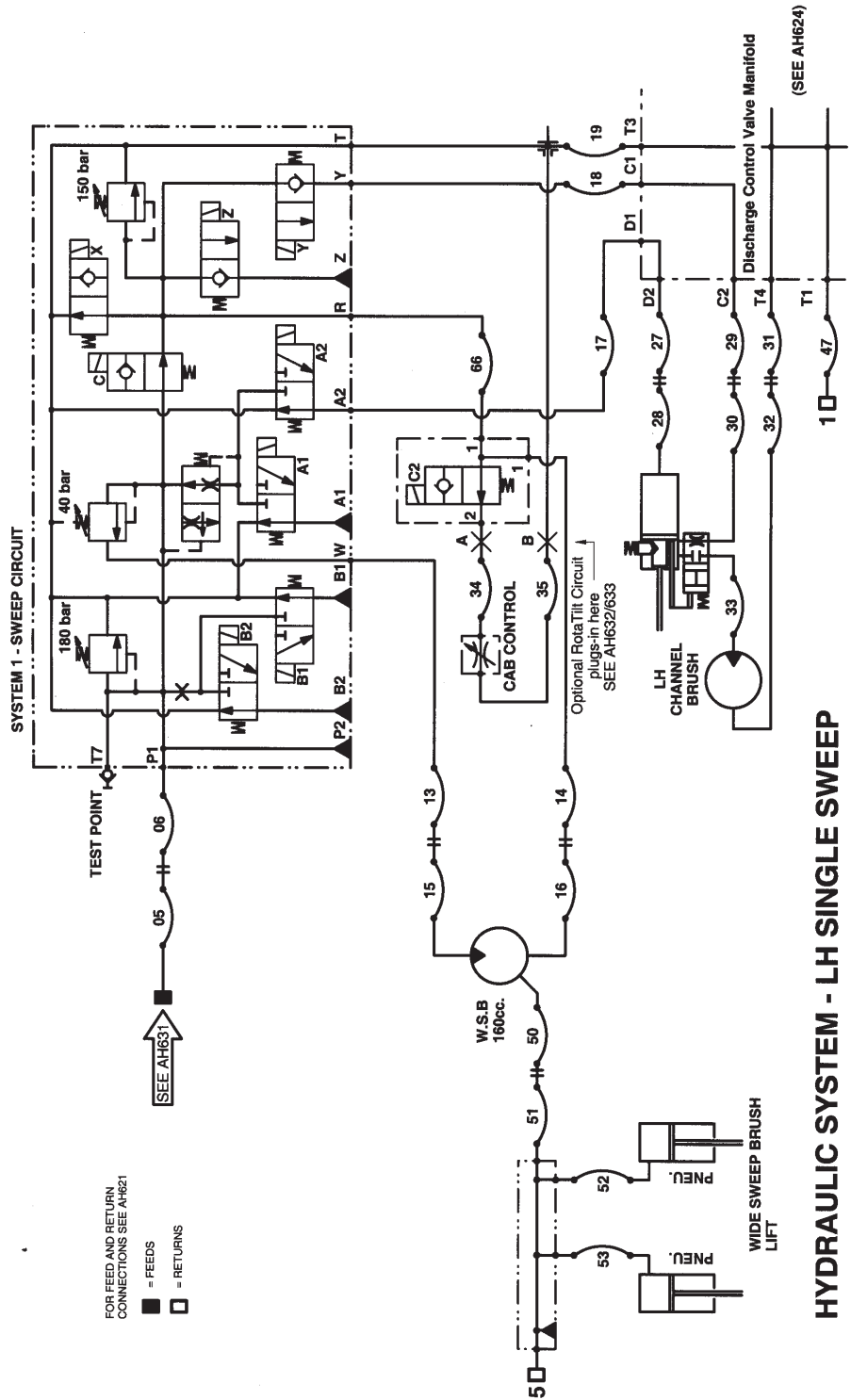
Hoses - Current Cartridge Valve Block Circuit - RH Single Diagram AH623b01



HYDRAULIC SYSTEM - RH SINGLE SWEEP

JOHNSTON 500 Series  600 Series  625 Series  700 Series  MC-001030 AH623b01

## Hoses - Current Cartridge Valve Block Circuit - LH Sweep Diagram AH623b02

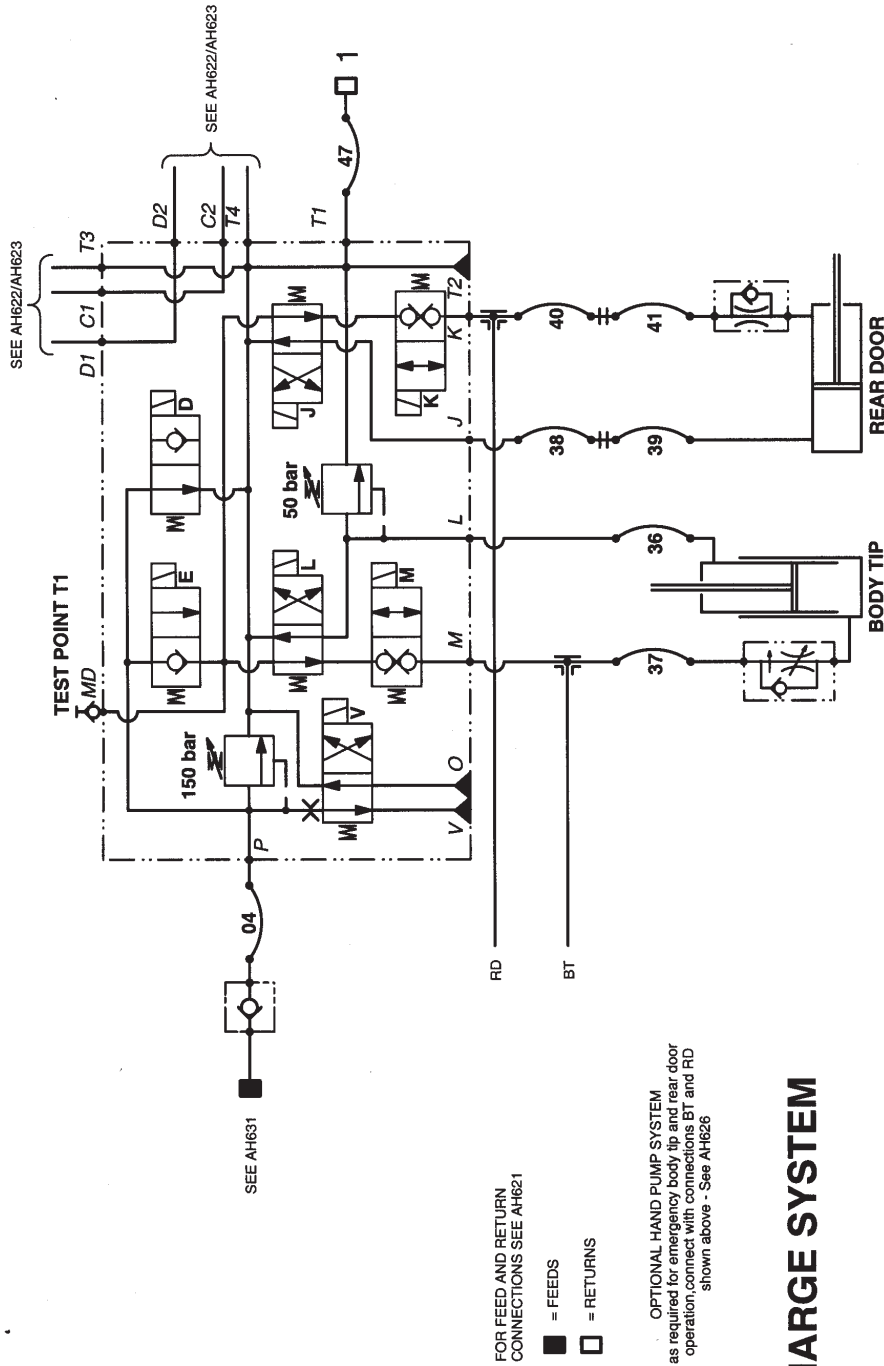


JOHNSTON 500 Series  600 Series  625 Series  700 Series  MC-001030 AH623b02

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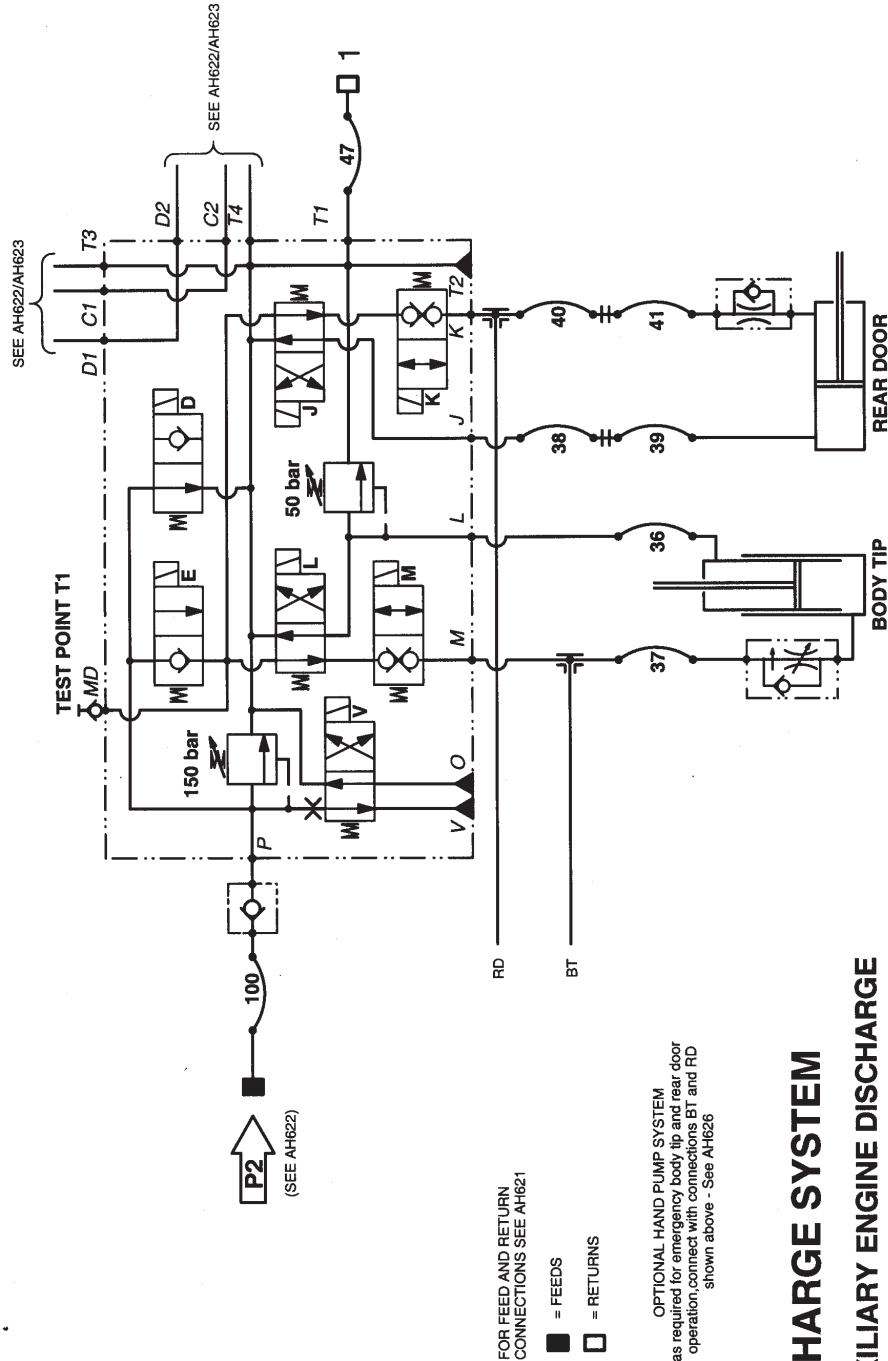
**Hoses - Current Cartridge Valve Block - Body Discharge Chassis PTO  
Diagram AH624b01**



**DISCHARGE SYSTEM**

**JOHNSTON** 500 Series  600 Series  625 Series  700 Series  MC-001030 **AH624b01**

## Hoses - Current Cartridge Valve Block - Body Discharge Auxiliary Engine Diagram AH624d01

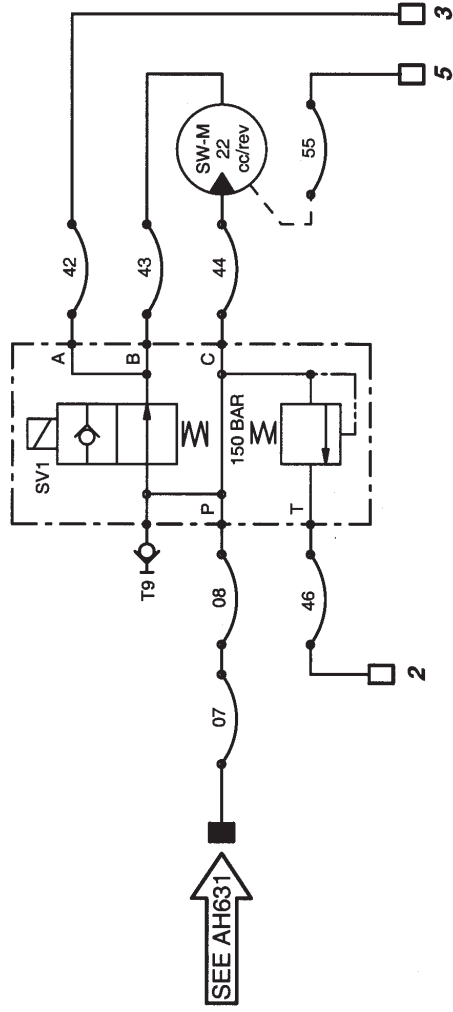


### DISCHARGE SYSTEM AUXILIARY ENGINE DISCHARGE

JOHNSTON 500 Series  600 Series  625 Series  700 Series  MC-001030 AH624d01

**Hoses - Current System Options Pump  
Diagram AH628a01**

FUNCTION	SV1
SUPAWASH	✓

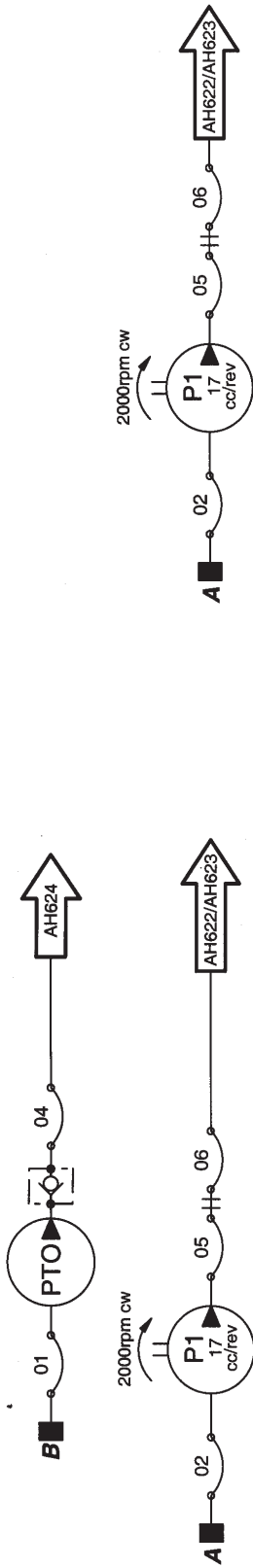


FOR RETURN CONNECTIONS  
SEE AH621

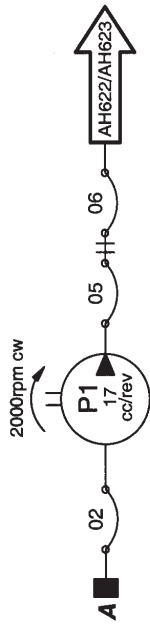
**HYDRAULIC SYSTEM**  
SECONDARY PUMP OPTION SYSTEMS  
SUPAWASH

**JOHNSTON** 500 Series  600 Series  625 Series  700 Series  MC-001030 **AH628a01**

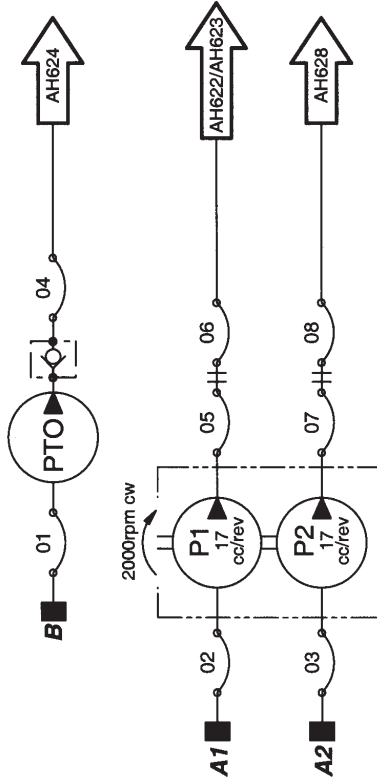
## Hoses - Current - Pump Services Diagram AH631z01



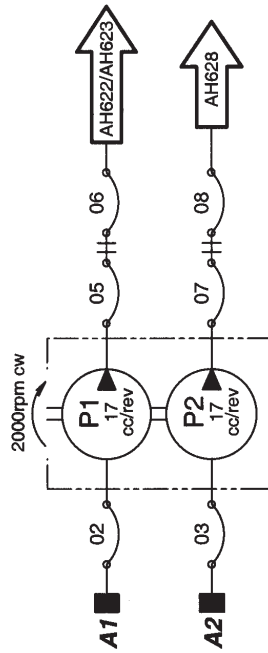
Single Pump System with Additional PTO Hopper Discharge Pump



Single Pump System Including Hopper Discharge



Tandem Pump System with Additional PTO Hopper Discharge Pump



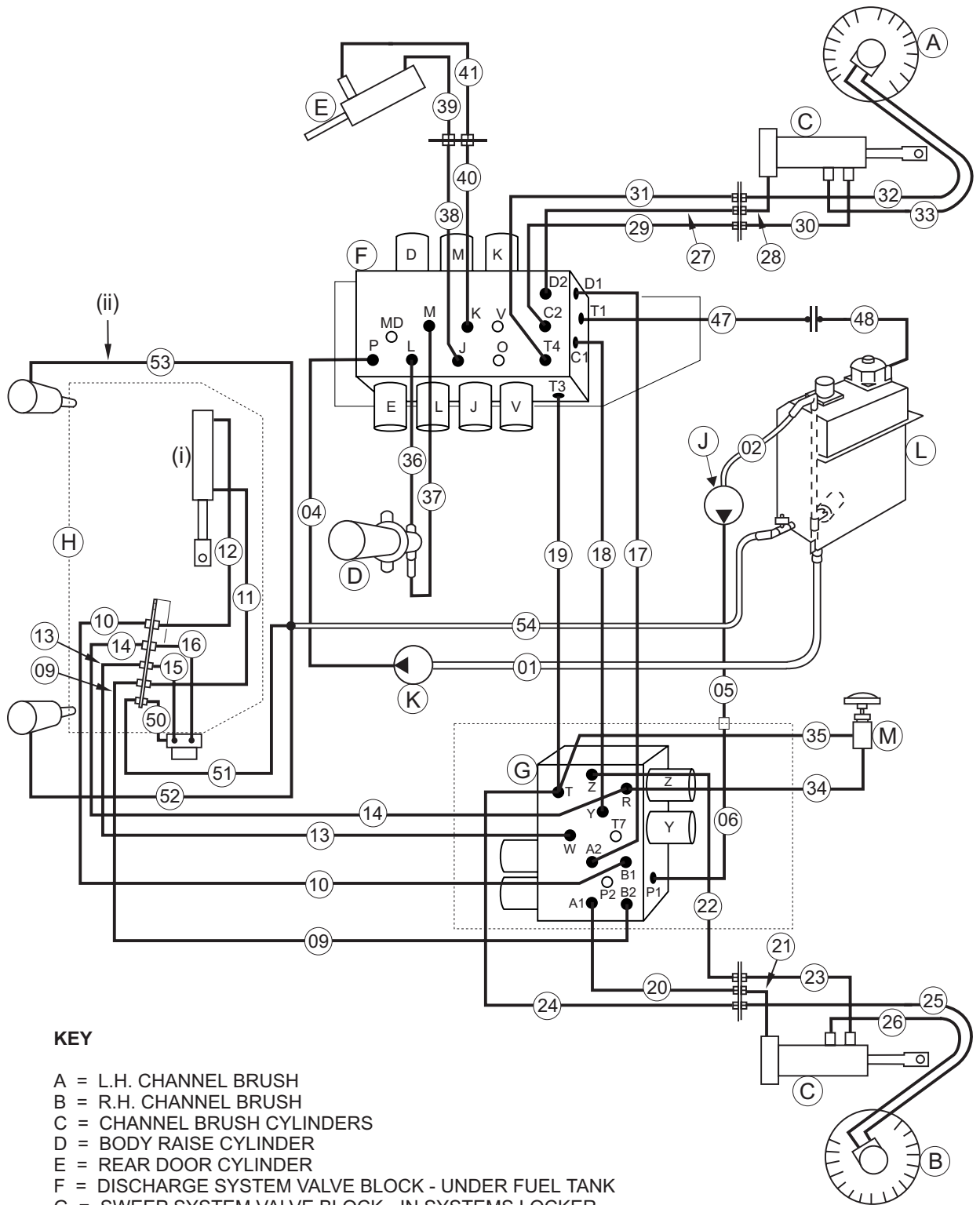
Tandem Pump System Including Hopper Discharge

## HYDRAULIC SYSTEM Sweeper Systems - Pump Services

■ = Feed from hydraulic reservoir - See AH621

JOHNSTON	500 Series <input checked="" type="checkbox"/>	600 Series <input checked="" type="checkbox"/>	625 Series <input checked="" type="checkbox"/>	700 Series <input checked="" type="checkbox"/>	MC-001030	AH631z01
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**Hoses - Port Location Diagram - Current Basic Dual Sweep Circuit**



**KEY**

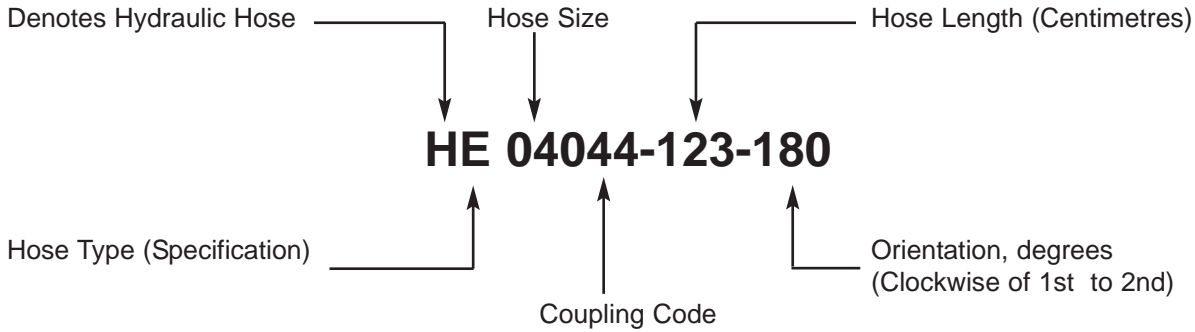
- A = L.H. CHANNEL BRUSH
- B = R.H. CHANNEL BRUSH
- C = CHANNEL BRUSH CYLINDERS
- D = BODY RAISE CYLINDER
- E = REAR DOOR CYLINDER
- F = DISCHARGE SYSTEM VALVE BLOCK - UNDER FUEL TANK
- G = SWEEP SYSTEM VALVE BLOCK - IN SYSTEMS LOCKER
- H = WIDE SWEEP BRUSH (i) SLEW CYLINDER (ii) PNEUMATIC CYLINDER VENT LINES
- J = P.T.O. PUMP ON AUXILIARY ENGINE
- K = P.T.O. PUMP ON CHASSIS ENGINE
- L = HYDRAULIC OIL TANK
- M = CHANNEL BRUSH SPEED CONTROL

HH. 0035

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## Hoses - Current Cartridge Valve Block Circuit Diagrams AH622b01, AH623a01 and AH623b01

### Example of Part Number System



#### Denoted by

B  
C  
E  
F  
K

#### JEL hose type\*\*

Type B  
Type C  
Type E  
Type F  
Type K

#### Gates

MegaSpiral Plus (6 Braid)  
Megaflex (M1T)  
Sng. Braid (BE7)  
Twinflex (CM2T)  
MegaSpiral (4 Braid)

\*\*B497 :- For full specification of hose.

#### Hose Diameter (Bore Size)

03 :- Denotes 3/16" Hose.  
04 :- Denotes 1/4" Hose.  
05 :- Denotes 5/16" Hose.  
06 :- Denotes 3/8" Hose.  
08 :- Denotes 1/2" Hose.

12 :- Denotes 3/4" Hose.  
16 :- Denotes 1" Hose.  
20 :- Denotes 1 1/4" Hose.  
24 :- Denotes 1 1/2" Hose.  
32 :- Denotes 2" Hose.

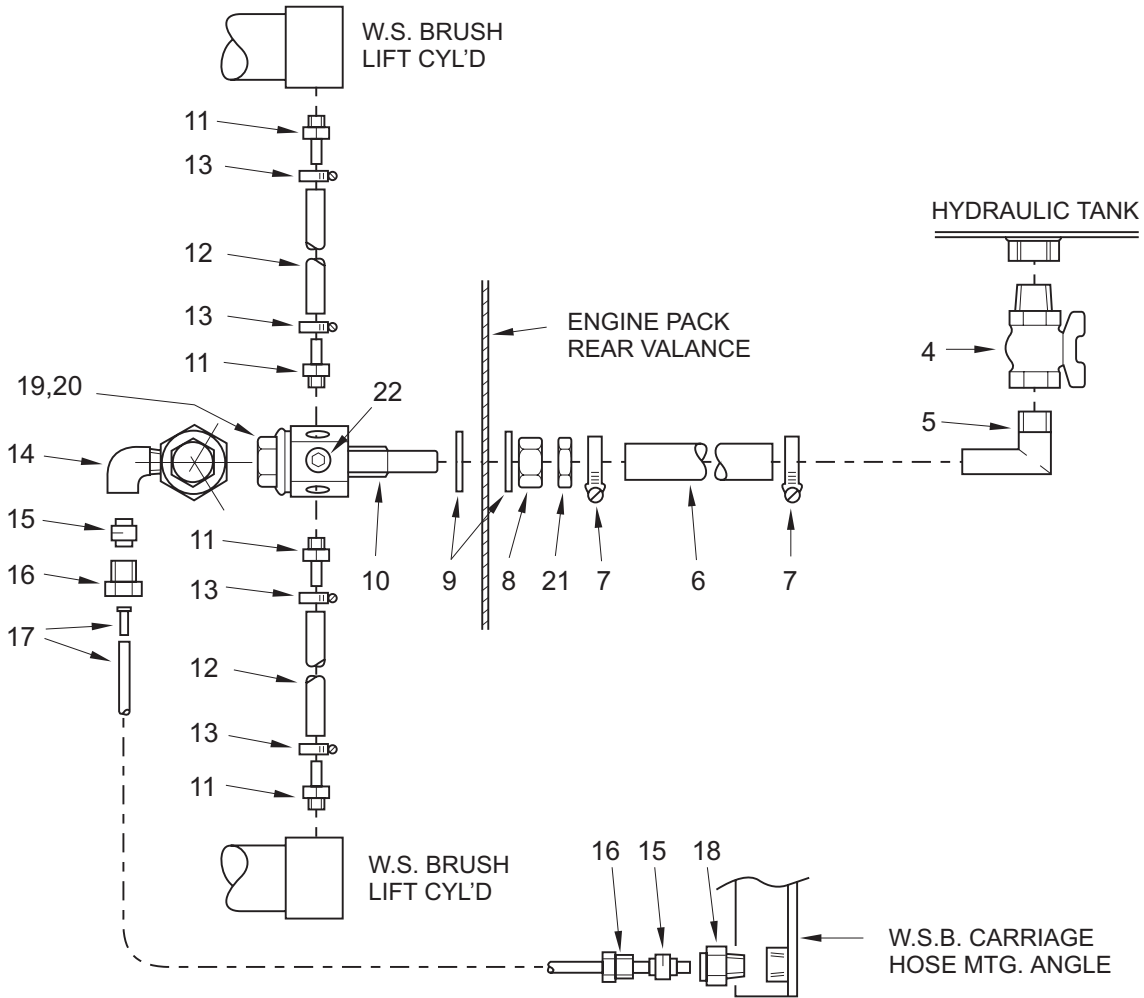
Item No.	Part No. Standard Chassis	Part No. High Chassis	Description	
			Hose Bore	End Fittings
01	273-15	<	Low Pressure Hose 1 1/4" )	
02	273-15	<	Low Pressure Hose 1 1/4" ) As Required	
03	273-15	<	Low Pressure Hose 1 1/4" )	
04	HC08063-180-90	<	1/2"	90°c x 90°c
05	HC08002-74	<	1/2"	Straight x 45°s
06	HC08023-63-350	<	1/2"	45°s x 90°s
07	HC06045-75	<	3/8"	90°s x Straight/B/head
08	HC06044-340	<	3/8"	90°s x 90°c
09	HC04001-114	<	1/4"	Straight x 45°s
10	HC04001-114	<	1/4"	Straight x 45°s
11	HC04003-105	<	1/4"	Straight x 90°c
12	HC04003-119	<	1/4"	Straight x 90°c
13	HC08001-110	<	1/2"	Straight x 45°s
14	HC08001-110	<	1/2"	Straight x 45°s

**Hoses - Current Cartridge Valve Block Circuit  
Diagrams AH622b01, AH623a01 and AH623b01**

Item No.	Part No. Standard Chassis	Part No. High Chassis	Description Hose Bore	End Fittings
15	HC08001-73	<	1/2"	Straight x 45°s
16	HC08001-76	<	1/2"	Straight x 45°s
17	HC04023-160-90	<	1/4"	45°s x 90°s
18	HC08003-148	<	1/2"	Straight x 90°c
19	HC08001-131	<	1/2"	Straight x 45°s
20	HC04022-80-180		1/4"	45°s x 45°s
21	HC04045-65	<	1/4"	90°s x Straight B/Head
22	HC08022-80-180		1/2"	45°s x 45°s
23	HC08004-62	<	1/2"	Straight x Straight B/Head
24	HC08022-80-180		1/2"	45°s x 45°s
25	HC08045-181	<	1/2"	90°s x Straight B/Head
26	HC08002-170	<	1/2"	Straight x 90°s
27	HC04022-80-180		1/4"	45°s x 45°s
28	HC04045-65	<	1/4"	90°s x Straight B/Head
29	HC08022-80-180		1/2"	45°s x 45°s
30	HC08004-62	<	1/2"	Straight x Straight B/Head
31	HC08022-80-180		1/2"	45°s x 45°s
32	HC08045-181	<	1/2"	90°s x Straight B/Head
33	HC08002-170	<	1/2"	90°s x Straight B/Head
34	HC06023-480-180	<	Flow Valve 3/8"	45°s x 90°s
35	HC06023-480-180	<	Flow Valve 3/8"	45°s x 90°s
36	HC04002-160		Body Tip 1/4"	Straight x 90°s
37	HC06002-110		Body Tip 3/8"	Straight x 90°s
38	HC04025-265		Rear Door 1/4"	45°s x Straight B/Head
39	HC04002-378		Rear Door 1/4"	Straight x 90°s
40	HC04002-265		Rear Door 1/4"	Straight x 90°s
41	HC04025-378		Rear Door 1/4"	45°s x Straight B/Head
42				
43	HC08063-44-180		1/2"	90°c x 90°c
44	HC06063-38-180		3/8"	90°c x 90°c
45	HC08024-325		1/2"	45°s x 90°c
46	HC08063-320		1/2"	90°c x 90°c
47	HE12003-36		Return to Tank 3/4"	Straight x 90°c
48	HE12063-110-270		Return to Tank 3/4"	90°c x 90°c
49	HE12063-53-40		3/4"	90°c x 90°c
50	533-51		8mm Braided Hose	
51	12870		8mm Nylon Tube (3000mm long)	
52	39444		10mm Water Hose (800mm long)	
53	39444		10mm Water Hose (800mm long)	
54	497-H12		3/4" Red Water Hose (870mm long)	
55	12870		Ø8 Nylon	
56	HC06063-82-315		Hand Pump 3/8"	90°c x 90°c
57	HC04024-90-90		Hand Pump 1/4"	45°s x 90°c
58	HC04003-183		Hand Pump 1/4"	Straight x 90°c
59	HC04003-183		Hand Pump 1/4"	Straight x 90°c
60	HC04002-31		Variabrush 1/4"	Straight x 90°s
61	HC04002-40		Variabrush 1/4"	Straight x 90°s

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**Wide Sweep Brush Lift Cylinder Damping  
and Wide Sweep Brush Motor Drain Line  
Figure 10 - 1**



HC. 0002-2



**Wide Sweep Brush Lift Cylinder Damping  
and Wide Sweep Brush Motor Drain Line  
Figure 10 - 1**

Item No.	Part No.	Description	Quantity
1-3	-		
4	42982-1	Valve	1
5	40656-1	Elbow	1
6	260-14	Hose 3/4" Bore	2m
7	501-3	Hose Clip	2
8	420-9	Nut M24F	1
9	455-18	Washer - Plain M24	2
10	62317-1	Bulkhead Adaptor	1
11	29148-1	Adaptor	4
12	39444	Hose 3/8" Bore	As Req'd
13	501-1	Hose Clip	4
14	521-8	Elbow	1
15	511-4	Tubing Sleeve 8mm	2
16	510-4	Tubing Nut 8mm	2
17	12870	Tubing Black Ø8mm	4m
	41038-1	Tubing Support Sleeve	2
18	515-7	Adaptor	1
19	7684-1	Collar Plug	1
20	451-19	Seal - Dowty 1/2" BSP	1
21	421-9	Locknut M24F	1
22	5259	Taper Plug 1/8" BSP	1

**Notes**

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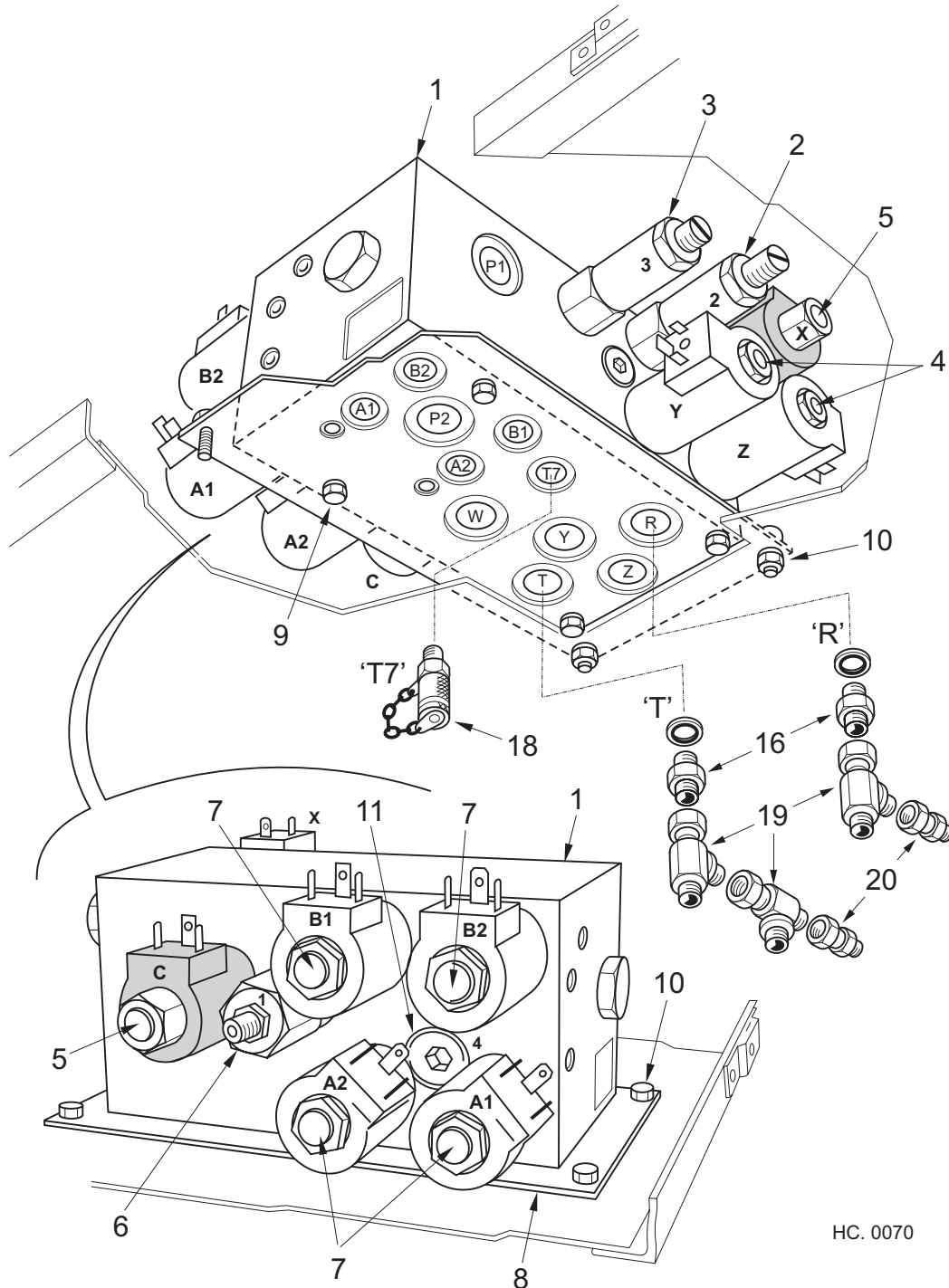
## Sweep Gear Cartridge Valve Block Figure 10 - 2



### Safety Precautions



Ensure the hydraulic system has cooled sufficiently to prevent scalding and burning by hot oil and metal components



**Sweep Gear Cartridge Valve Block  
Figure 10 - 2**

Item No.	Part No.	Description	Quantity
1	200102-1	Valve Bank Assembly with 12v Solenoids	
	200102-2	Valve Bank Assembly with 24v Solenoids	
	200102-3	Valve Bank Less Solenoids	
		Valve Bank Seal Kit	
2	241-152	Relief Valve (110 Bar ) Seal Kit 241-164	1
3	241-152	Relief Valve (180 Bar )	1
4	241-154	Valve - Cartridge (NC - S2A00) Seal Kit 241-164	2
	241-01	Coil 12v	As Req'd
	241-02	Coil 24v	As Req'd
5	241-153	Valve - Cartridge (NO - S2600) Seal Kit 241-164	2
	241-161	Coil 12v	As Req'd
	241-162	Coil 24v	As Req'd
6	241-151	Relief Sequence Valve - Seal Kit 241-163	1
7	241-155	Valve Cartridge (3/2 Spool - S3A00) Seal Kit 241-163	4
	241-01	Coil 12v	
	241-02	Coil 24v	
8	800587-1	Mounting Plate	1
9	124-134	Setscrew M8c x 16mm	3
	460-10	Washer - Spring M8	3
10	124-134	Setscrew M8c x 16mm	4
	460-10	Washer - Spring M8	4
	420-14	Nut M8	
11	241-160	Valve Flow Control	1

v

Port	Fittings Required			Port	Fittings Required		
	LHS	RHS	Dual		LHS	RHS	Dual
A1	15,21	15,21	15	R	16,19,20	16,19,20	16,19,20
A2	15	15	15	T	16,19,20	16,19,19,20	16,19,19,20
B1	15,21	15,21	15	W	16	16	16
B2	15,21	15,21	15	Y	16	16	16
P1	16	16	16	Z	17,22	17,22	17
P2	16,22	16,22	16,22	T7	18	18	18

15	263-2	Adaptor 1/4" BSP
	451-17	Washer - Sealing 1/4" BSP
16	263-4	Adaptor 1/2" BSP
	451-19	Washer - Sealing 1/2" BSP
17	264-4	Bulkhead Adaptor 1/2" BSP
	451-19	Washer - Sealing 1/2" BSP
18	665-18	Test Point 1/4" BSP (T7)
19	255-13	Tee 1/2" BSP
20	252-2	Swivel Nut Adaptor 1/2" x 3/8" BSP
21	68-19	Blanking Cap 1/4" BSP
22	68-17	Blanking Cap 1/2" BSP

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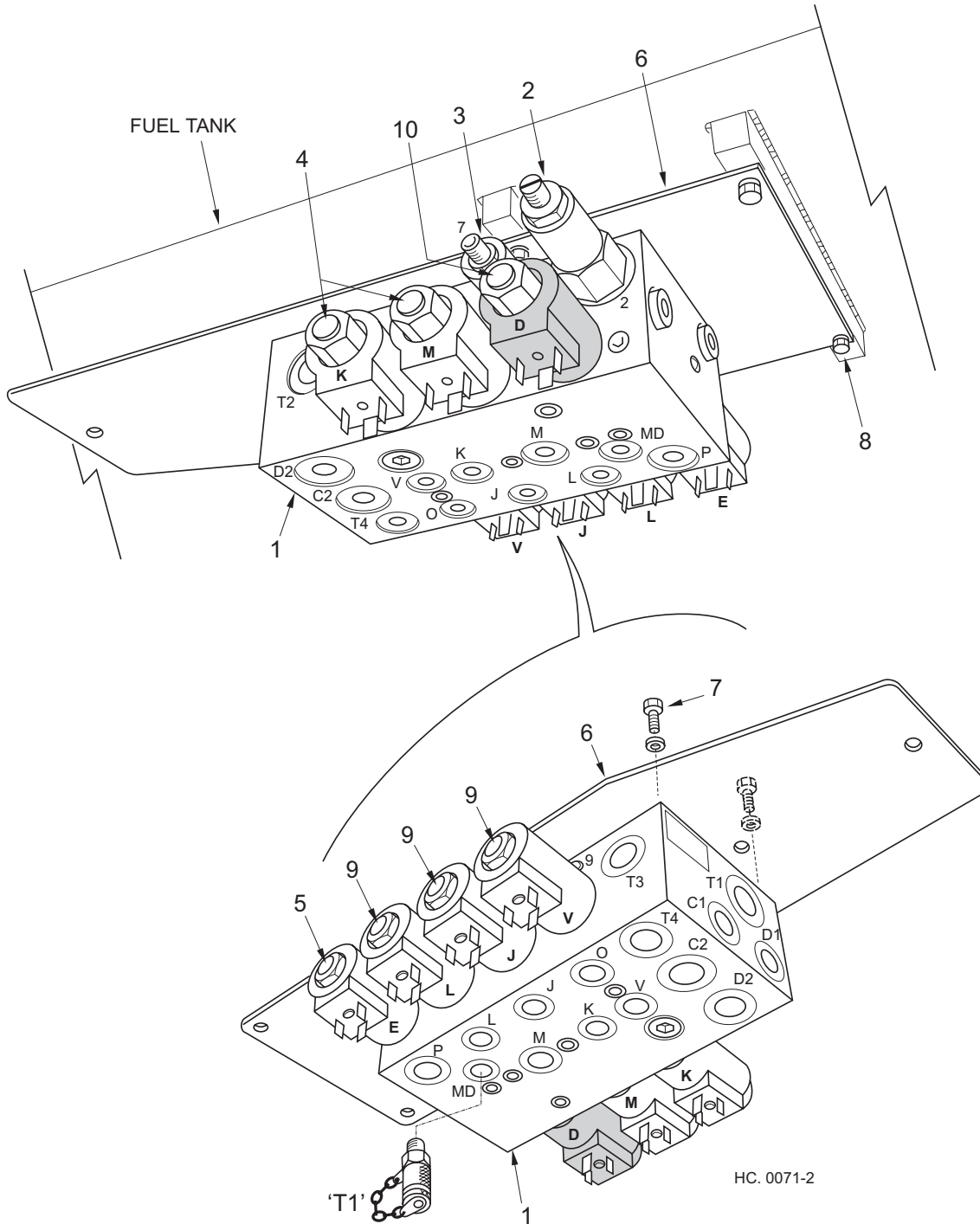
## Body Discharge Cartridge Valve Block Figure 10 - 3



### Safety Precautions



Ensure the hydraulic system has cooled sufficiently to prevent scalding and burning by hot oil and metal components.



**Body Discharge Cartridge Valve Block  
Figure 10 - 3**

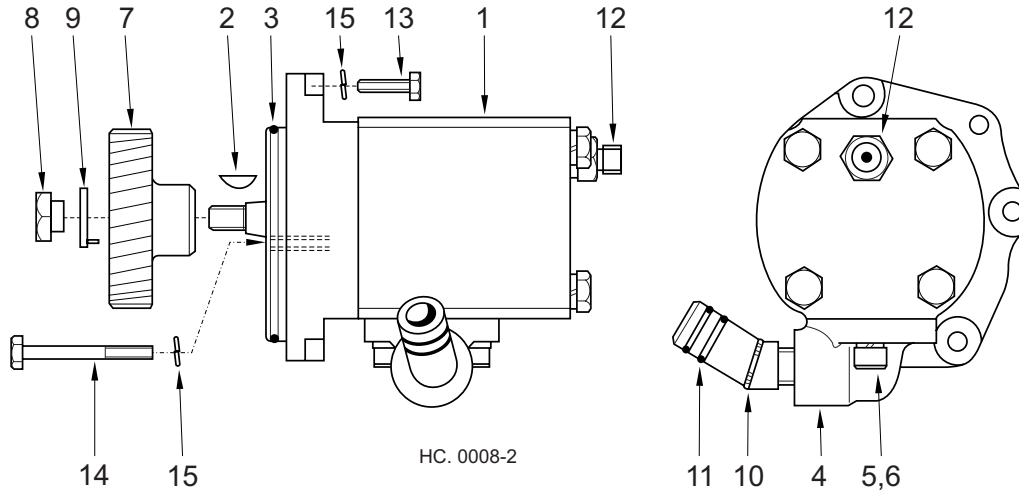
Item No.	Part No.	Description	Quantity
1	200103-1	Valve Bank Assembly with 12v Solenoids	
	200103-2	Valve Bank Assembly with 24v Solenoids	
	200103-3	Valve Bank Less Coils	
		Valve Bank Seal Kit	
2	241-165	Relief Valve (150 Bar) Seal Kit 241-164	1
	241-236	Relief Valve (80 Bar) Seal Kit 241-168	1
4	241-158	Valve - Cartridge (NC/Lock - S2100)	2
	241-01	Coil 12v	As Req'd
	241-02	Coil 24v	As Req'd
5	241-154	Valve - Cartridge (NC - S4D00) Seal Kit 241-164	1
	241-01	Coil 12v	As Req'd
	241-02	Coil 24v	As Req'd
6	800560-1	Mounting Plate	1
7	124-132	Setscrew M8c x 12mm	3
	460-10	Washer - Spring M8	3
8	124-134	Setscrew M8c x 16mm	4
	460-10	Washer - Spring M8	4
	420-14	Nut M8C	4
9	241-166	Valve Cartridge (4/2 Spool - S4A00) Seal Kit 241-167	3
	241-01	Coil 12v	As Req'd
	241-02	Coil 24v	As Req'd
10	241-153	Valve Cartridge (NO - S2C00) Seal Kit 241-164	1
	241-161	Coil 12v	As Req'd
	241-162	Coil 24v	As Req'd

Port	Port Fittings Items Required - See List 15 to 27 below
J,K,L	15, 24
M	16, 25
C1,C2,T3	17, 26
T2	17, 23, 26
T1	18, 27
D1,D2	19, 26
P,T4	20, 25
MD	21
O,V	22

15	263-2	Adaptor 1/4" BSP
16	263-3	Adaptor 3/8" BSP
17	263-4	Adaptor 1/2" BSP
18	263-6	Adaptor 3/4" BSP
19	265-3	Adaptor 1/2" x 1/4" BSP
20	265-4	Adaptor 3/8" x 1/2" BSP
21	665-18	Test Point 1/4" BSP (T1)
22	3162	Blanking Plug
23	68-17	Cap 1/2" BSP
24	451-17	Washer - Sealing 1/4" BSP
25	451-18	Washer - Sealing 3/8" BSP
26	451-19	Washer - Sealing 1/2" BSP
27	451-19	Washer - Sealing 3/4" BSP

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## Engine PTO Single Gear Pump Figure 10 - 4

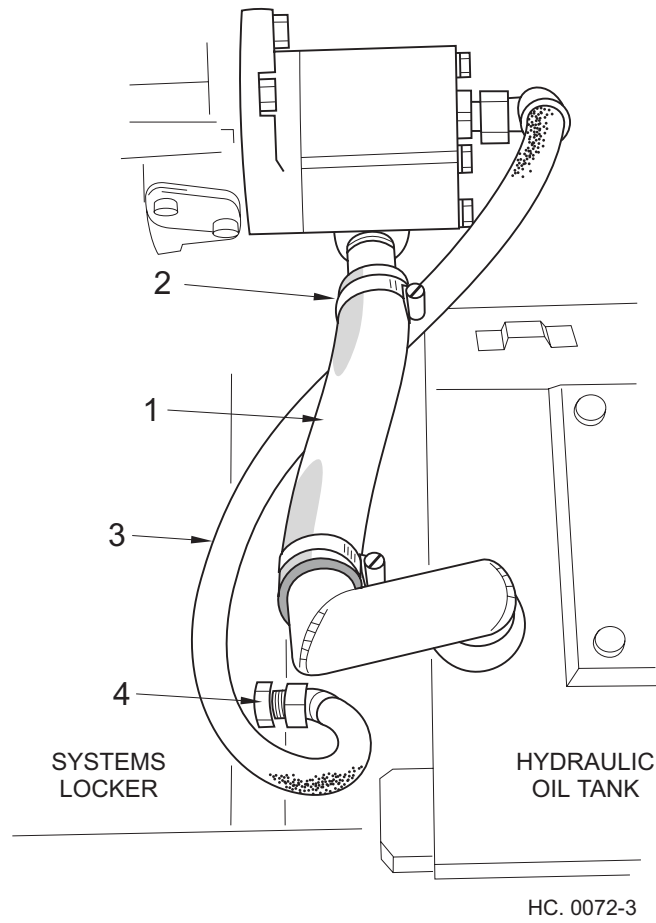


Item No.	Part No.	Description	Quantity
	239-2	Cassapa Pump Assembly comprising items 1 - 9	
1	239-25	Pump	1
2	53-8	Key	1
3	N.S.S.	'O' Ring in Seal Kit	1
4	239-600	Elbow	1
	79-34	'O' Ring	1
5	129-123	Soc. Hd. Cap Screw M8c x 45mm	See Note Below
6	460-10	Washer - Spring M8	See Note Below
7	12785-1	Gear	1
8	239-601	Nut	1
9	239-602	Tab Washer	1
10	40764-1	Elbow - Special	1
11	80-76	'O' Ring	2
12	265-4	Adaptor 3/8" x 1/2"	-
	451-18	Washer - Sealing 3/8" BSP	1
13	123-104	Bolt M8c x 30mm	5
14	123-114	Bolt M8c x 70mm	1
15	460-10	Washer - Spring M8	6
	239-501	Seal Kit - (Comprising Items 3 + Pump Internal Seals)	

### Note

Cassapa Pumps have three screws on suction elbow, Item 4

**PTO Pump Installation  
Figure 10 - 5**



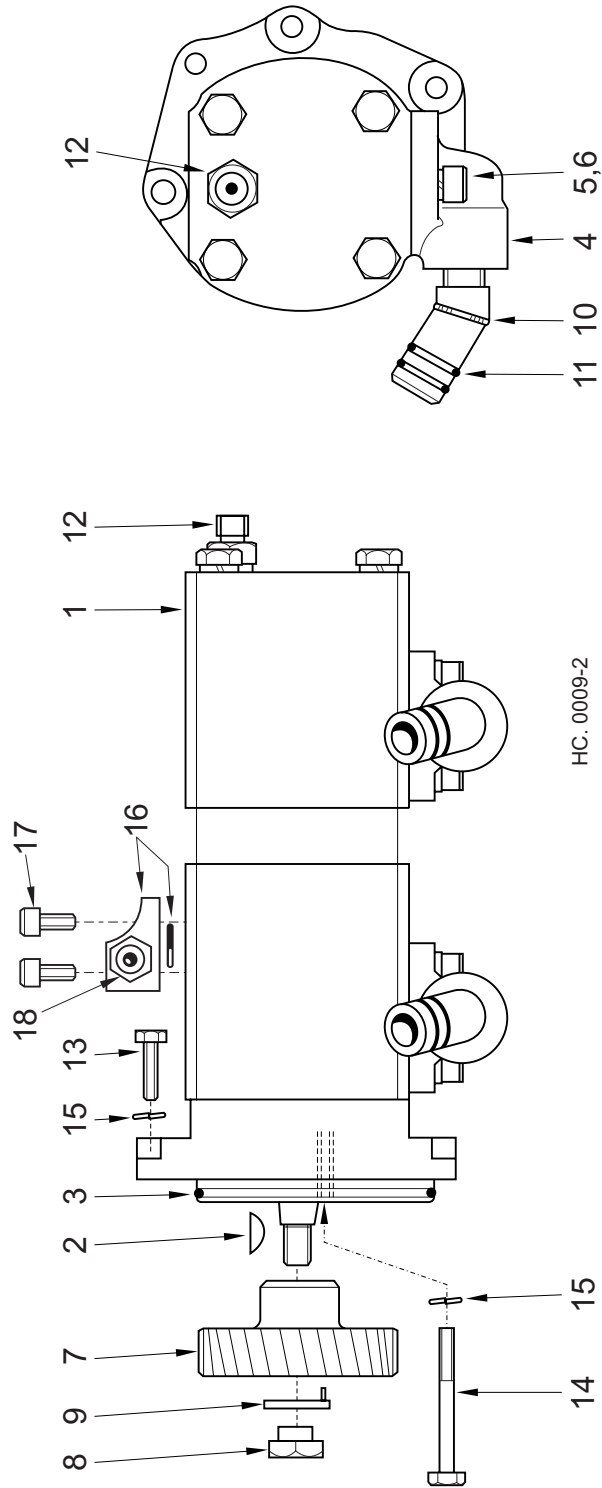
v

Item No.	Part No.	Description	Quantity
1	273-17	Hose 1 <sup>1</sup> / <sub>4</sub> " Bore Oil resistant	270mm
2	501-5	Hose Clip	2
3		Hydraulic Hose (Item 5, Fig. 10 - 1)	
4	264-4	Bulkhead Adaptor and Locknut 1/2" BSP	1

**Notes**

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## Engine PTO Tandem Gear Pump Figure 10 - 6





<b>Engine PTO Tandem Gear Pump Figure 10 - 6</b>
--

Item No.	Part No.	Description	Quantity
	239-1	Cassapa Pump Assembly comprising items 1 - 9	
1	239-1	Pump	1
2	53-8	Key	1
3	N.S.S.	'O' Ring	1
4	239-600	Elbow	1
5	129-123	Capscrew M8c x 45mm	See Note Below
6	460-10	Washer - Spring M8	See Note Below
7	12785-1	Gear	1
8	239-601	Nut	1
9	239-602	Tab Washer	1
10	40764-1	Elbow - Special	1
1	80-76	'O' Ring	2
12	265-4	Adaptor 3/8" x 1/2" BSP	-
	451-19	Washer - Sealing 1/2" BSP	1
13	123-104	Bolt M8c x 30mm	5
14	123-111	Bolt M8c x 70mm	1
15	455-10	Washer - Plain M8	6
16	239-601	Elbow	1
	79-34	'O' Ring	1
17	129-123	Capscrew M8c x 20mm	See Note Below
	460-10	Washer - Spring M8	See Note Below
18	265-4	Adaptor 3/8" x 1/2" BSP	1
	451-18	Washer - Sealing 3/8" BSP	1
	239-501	Seal Kit - Comprising Items 3 + Pump Internal Seals)	

**Note**

**Cassapa Pumps have three screws on suction elbows, Item 4.**

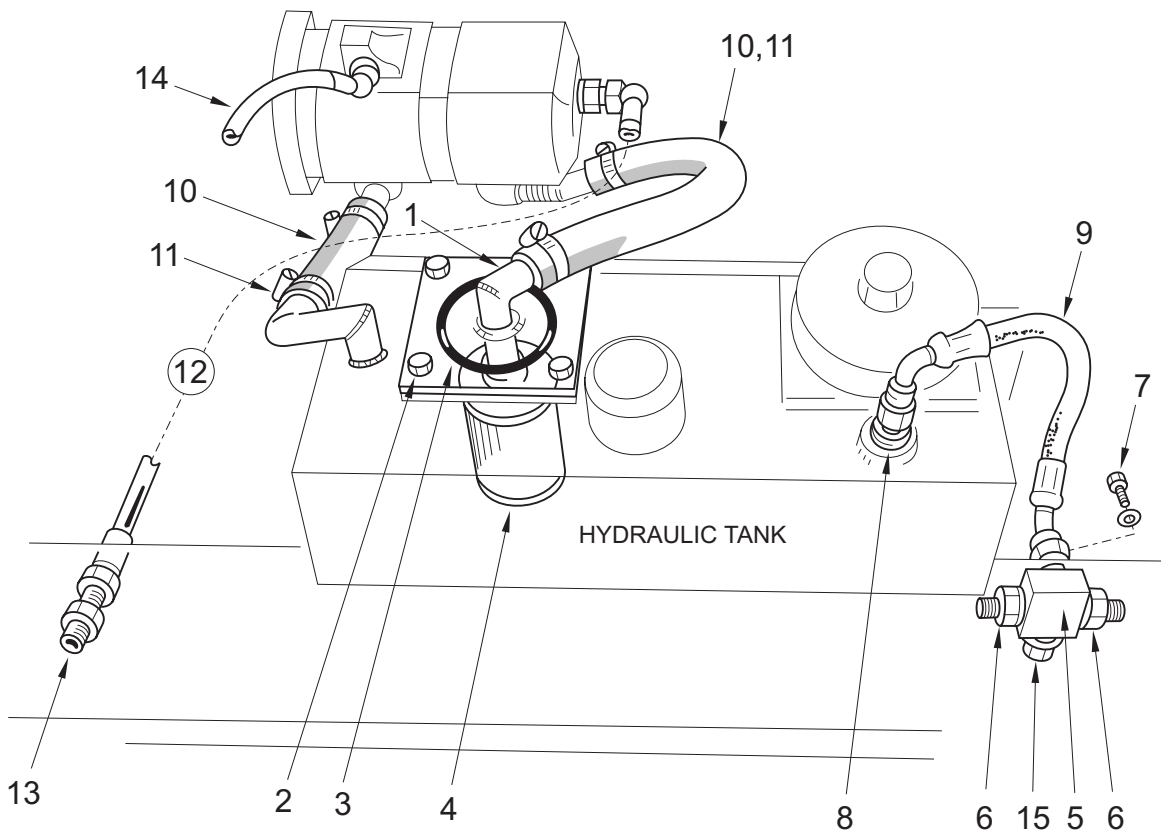
## Tandem Gear Pump Installation Figure 10 - 7



### Safety Precautions



Ensure the hydraulic system has cooled sufficiently to prevent scalding and burning by hot oil and metal components



HC. 0010

<b>Tandem Gear Pump Installation Figure 10 - 7</b>
--

Item No.	Part No.	Description	Quantity
1	62269-1	Suction Pipe	1
2	124-132	Setscrew M8c x 12mm	4
	460-10	Washer - Spring	4
3	80-143	'O' Ring	1
4	15411	Suction Element	1
5	62836-1	Block - Return Manifold	1
6	263-4	Adaptor 3/8" x 1/2" BSP	2
	451-19	Seal - Dowty	2
7	124-134	Setscrew M8c x 16mm	2
	460-10	Washer - Spring	2
8	62835-1	Return Pipe	1
9	H362-53-320S	Hose	1
10	273-17	Hose - 1 <sup>1</sup> / <sub>4</sub> " Bore Oil Resistant	0.8m
11	501-5	Hose Clip	4
12	H678-75	3/8" BSP Hydraulic Hose	1
13	410-3	Back Nut	1
14	HM354-75S	1/2" BSP Hydraulic Hose	1
15	7684	Collar Plug 1/2" BSP	1
	451-19	Washer - Sealing 1/2" BSP	1

**Notes**

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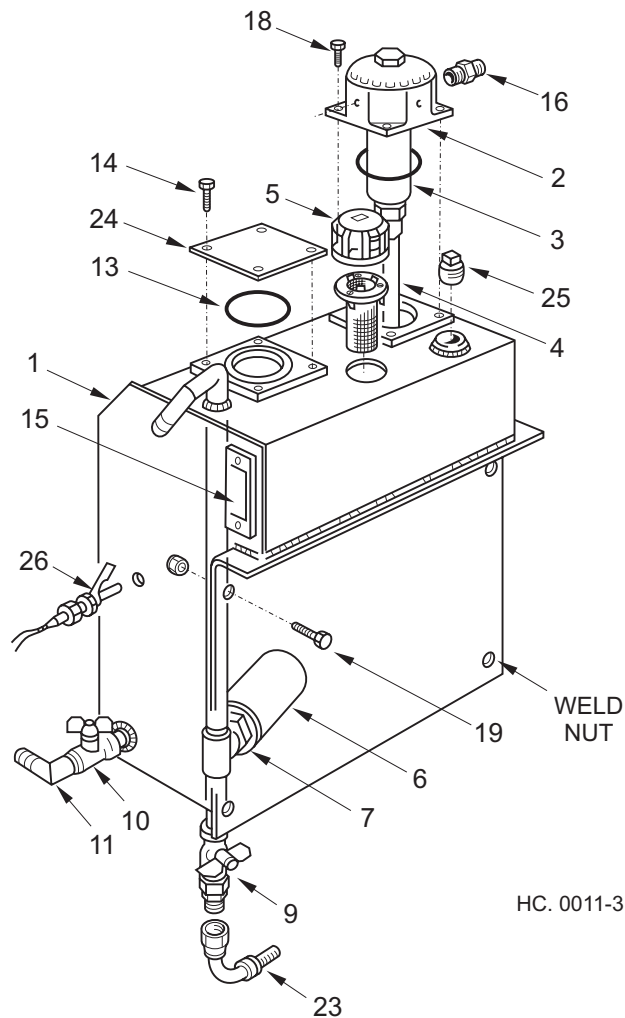
## Hydraulic Oil Reservoir Figure 10 - 8



### Safety Precautions



Ensure the hydraulic system has cooled sufficiently to prevent scalding and burning by hot oil and metal components



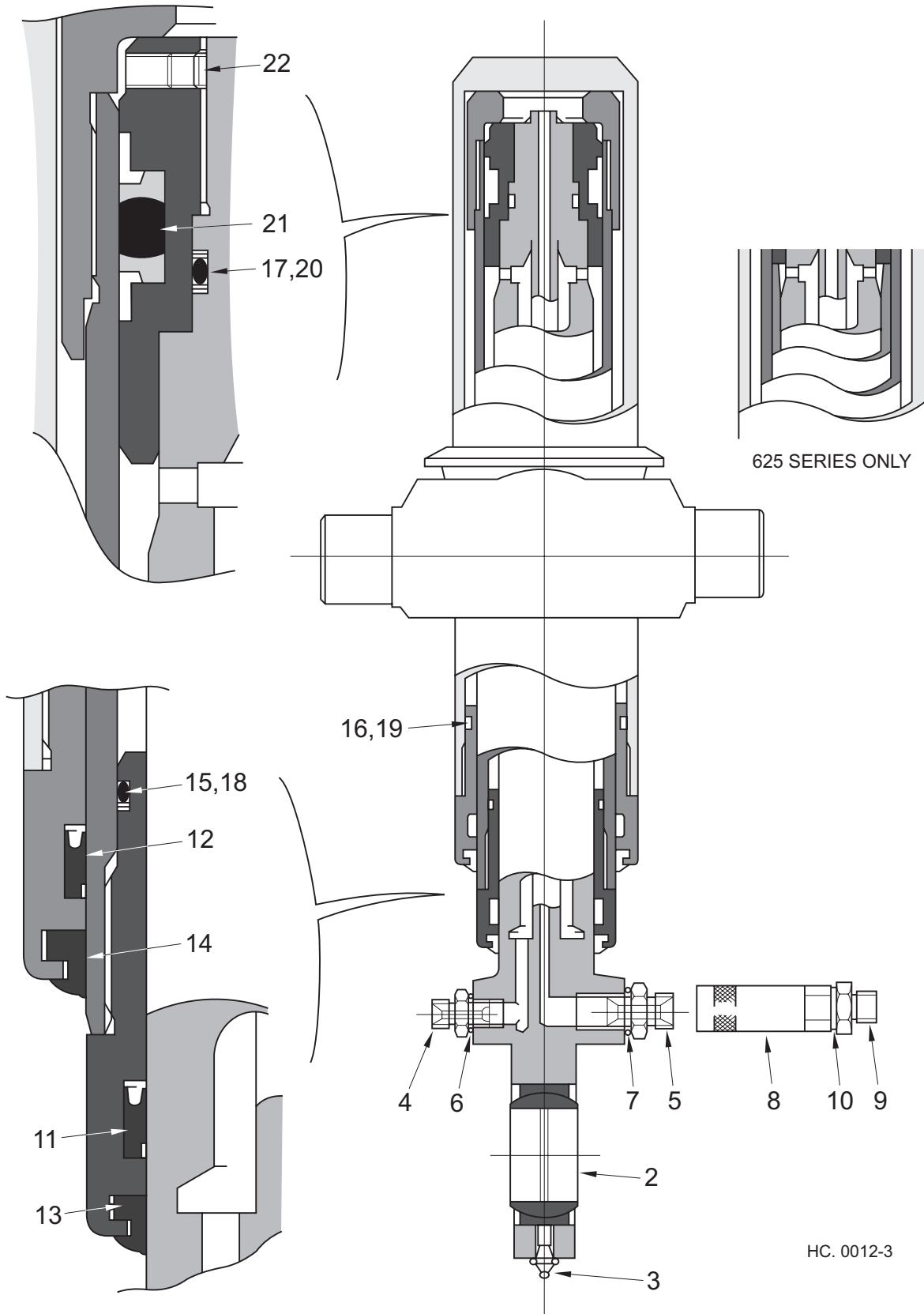
<b>Hydraulic Oil Reservoir</b> <b>Figure 10 - 8</b>
--

Item No.	Part No.	Description	Quantity
1	42317-1	Hydraulic Tank - Standard	1
	42317-30	Hydraulic Tank - Optional (Accepts level switch item 26)	
2	39398	Multiflow Filter Assembly	1
3	224-1	Filter Element	1
4	42206-1	Pipe	1
5	69-1	Filler/Breather Assembly	1
6	15411	Suction Element	1
7	12866	Nipple - Hex.	1
8	-		
9	89-15	Valve	1
10	42982-1	Valve	1
11	40656-1	Elbow	1
12	-		
13	80-143	'O' Ring	1
14	124-132	Setscrew M8c x 12mm	4
	460-10	Washer - Spring M8	4
15	87-1	Level Gauge	1
16	266-6	Adaptor 3/4" BSP x 3/4" BSPT	1
17	-		
18	124-100	Setscrew M6c x 12mm	4
	460-8	Washer - Spring M6	4
19	124-169	Setscrew M10c x 25mm	4
	425-15	Nut - Nyloc M10c	3
20	-		
21	-		
22	-		
23	277-80	Elbow 90° 1/2" BSP With Tail	1
24	62273-2	Blanking Plate	1
25	18736	Taper Plug	1
26	48-117	Level Switch - used with tank 42317-30.	

**Notes**

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Body Tip Cylinder  
Figure 10 - 9



HC. 0012-3

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<b>Body Tip Cylinder Figure 10 - 9</b>
--

Item No.	600/605	Part No.	625	700/705	Description	Quantity
1	28940-1	28940-3	28940-2		Body Tip Cylinder Assembly	1
2	29100-7	<	<		Spherical Bearing	1
3	38-1	<	<		Grease Nipple 1/8" BSP Straight	1
4	263-2	<	<		Adaptor 1/4" BSP	1
5	263-3	<	<		Adaptor 3/8" BSP	1
6	451-17	<	<		Washer - Sealing	1
7	451-18	<	<		Washer - Sealing	1
8 *	N/A	263-3	263-3		Adaptor 3/8" BSP	1
9 *	N/A	451-18	451-18		Seal - Dowty	1
10 *	N/A	29424-1	N/A		Washer - Sealing	1

**Seal Kit 28940-500 comprising:**

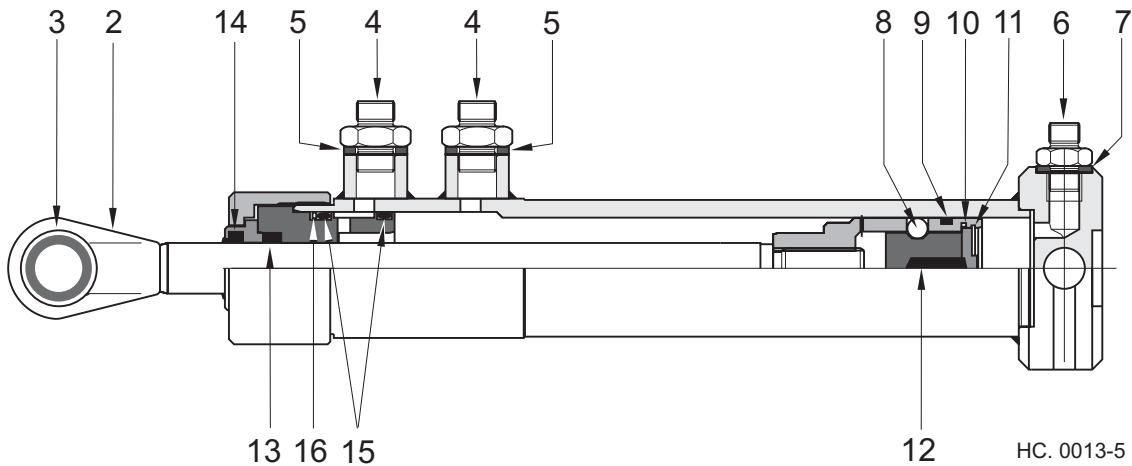
Item No.	Description	Quantity
11	Seal - 2nd Stage Rod	1
12	Seal - 1st Stage Rod	1
13	Wiper Seal - 2nd Stage Rod	1
14	Wiper Seal - 1st Stage Rod	1
15	'O' Ring	1
16	'O' Ring	1
17	'O' Ring	1
18	Spirol Back-up Ring	1
19	Spirol Back-up Ring	1
20	Spirol Back-up Ring	2
21	Seal - 2nd Stage Piston	1
22	Grub Screw	1

**Notes**

\*Items 8, 9, 10 are required on 600/605 Series machines fitted with optional Remote Electrical Body Discharge Control, see Fig. 10-6

## Channel Brush Cylinder - Type 4 Figure 10 - 10

Identification : Current Type 4 has Ø54 OD barrels with integral welded end cap.



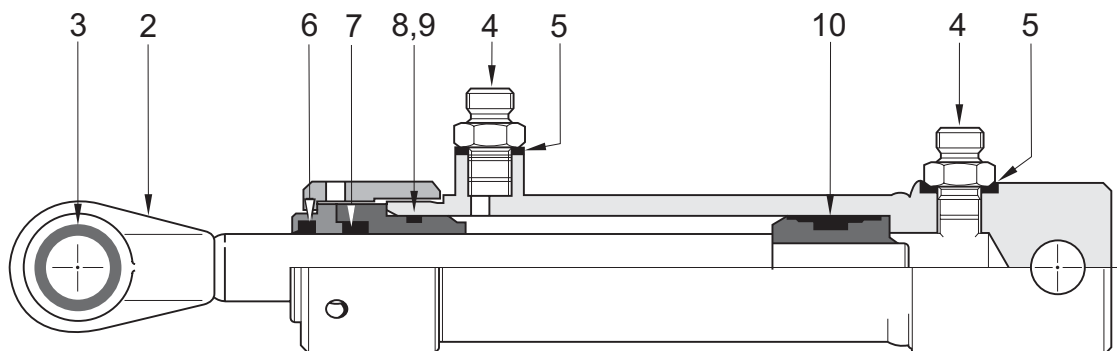
Item No.	Part No.	Description	Quantity
1	29463-30	Cylinder Assembly	1
2	28928-1	Eye	1
3	29128-1	Bush	1
4	265-4	Adaptor 3/8"	1
5	451-18	Washer - Sealing 3/8" BSP	2
6	263-2	Adaptor - Sealing 1/4" BSP	1
7	451-17	Washer - Sealing 1/4" BSP	1

### Seal Kit 29340-500 comprising:

Item No.	Description	Quantity
8	Ball	8
9	'O' Ring - High Pressure	1
10	'O' Ring	1
11	Circlip	1
12	Spring - Compression	1
13	Rod Seal	1
14	Wiper Seal	1
15	'O' Ring	1
16	Back-up Ring	1



**Wide Sweep Brush Slew Cylinder  
Figure 10 - 11**



HC. 0014-2

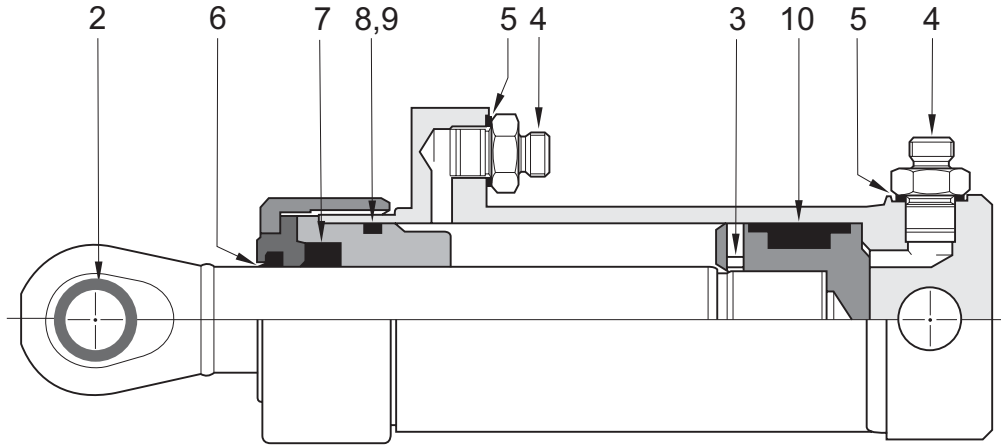
Item No.	Part No.	Description	Quantity
1	29160-1	Wide Sweep Brush Slew Cylinder	
2	28928-1	Eye	1
3	29128-1	Bush	1
4	263-2	Adaptor 1/4" BSP	2
5	451-17	Washer - Sealing 1/4" BSP	2

**Seal Kit 29160-500 comprising:**

Item No.	Description	Quantity
6	Wiper Seal - Rod	1
7	Seal - Rod	1
8	Spirol Back-up Ring	1
9	'O' Ring	1
10	Seal - Piston	1

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**Rear Door Cylinder  
Figure 10 - 12**



HC. 0015-2

Item No.	Part No.	Description	Quantity
1	29170-1	Rear Door Cylinder	2
2	29128-1	Bush	2
3	135-2	Grubscrew M6c x 6mm	1
4	265-2	Adaptor 1/4" x 3/8" BSP	2
5	451-18	Seal - Sealing 3/8" BSP	2

**Seal Kit 29170-500 comprising:**

Item No.	Description	Quantity
6	Wiper Seal - Rod	1
7	Seal Rod	1
8	'O' Ring	1
9	Spirol Back-up Ring	1
10	Seal Piston	1

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**CHAPTER**
**11**

# Pneumatics

Only current components are covered in this chapter. See Parts Section Revision Level 07, available on request, for superseded information

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Fig. 11 - 3 Solenoid Valve Assembly	11 : 5
<b>Vitaliser Unit</b>	
Fig. 11 - 4 Vitaliser Unit Assembly	11 : 6
<b>Cylinders</b>	
Fig. 11 - 5 Nozzle Varagap Cylinder - Superseded	11 : 7
Fig. 11 - 6 Cylinders - Various, Superseded	11 : 8
Fig. 11 - 7 Cylinder - Current - Seal Kits	11 : 10

## Sweep Gear Valve Group Figure 11 - 1

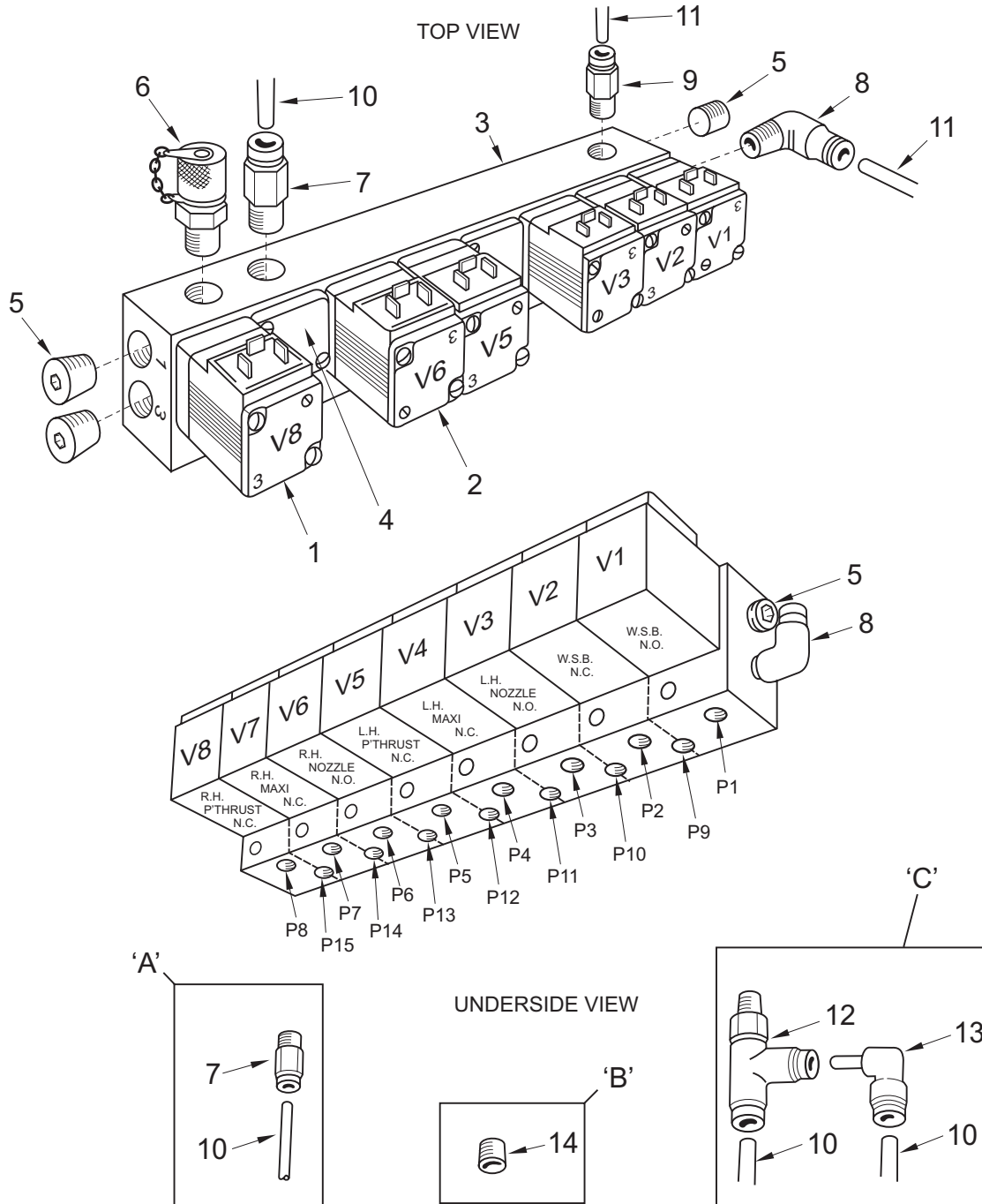
Note:  
Single sweep valves groups are  
built to R.H. Single configuration.



### Safety Precautions



Always depressurise the pneumatic system using the shut off/drain valve on the vitaliser unit in the systems locker (Fig 11-5) before working on the system.



**Sweep Gear Valve Group  
Figure 11 - 1**

Item No.	Part No.	Description	Quantity
1	42300-2	Pneumatic Valve 12v NC ]	
	42300-4	Pneumatic Valve 24v NC ]	
2	42300-1	Pneumatic Valve 12v NO ]	
	42300-3	Pneumatic Valve 24v NO ]	See
3	42412-1	Pneumatic Valve Block ]	Valve
4	42300-5	Blanking Plate Assembly. Comp. ]	] Table Below
	42300-523	Bolt ]	
	42300-524	Blanking Plate ]	
	42300-525	Gasket ]	
5	9756	Taper Plug	3
6	665-18	Test Point Valve	1
7	537-8	Adaptor 1/4" BSP x Ø6mm	1
8	562-9	Elbow 1/4" BSP x Ø8mm	1
9	537-9	Adaptor 1/4" BSP x Ø8mm	1
10	12869	Tubing Ø6mm Black	As Req'd
11	12870	Tubing Ø8mm Black	As Req'd
	41038-1	Tubing Support Sleeve	2
12	540-7	Swivel Side Stem	-
13	551-1	Stem Elbow	-
14	5259	Taper Plug 1/8" BSP	-

\*Quantities listed above are for common LHS, RHS and Dual fittings as shown in the top view illustration. See Port Table below for variable quantities for standard machines with no options.

**Port Table**

Port No.	Fittings Group		
	L.H.S.	R.H.S.	DUAL
P1	C	C	C
P2	C	C	C
P3	B	B	A
P4	B	B	A
P5	B	B	A
P6	A	A	A
P7	A	A	A
P8	B	B	B
P9	B	B	B
P10	B	B	A
P11	B	B	A
P12	B	B	B
P13	A	A	A
P14	A	A	A
P15	B	B	B

**Valve Table - Less Powathrust**

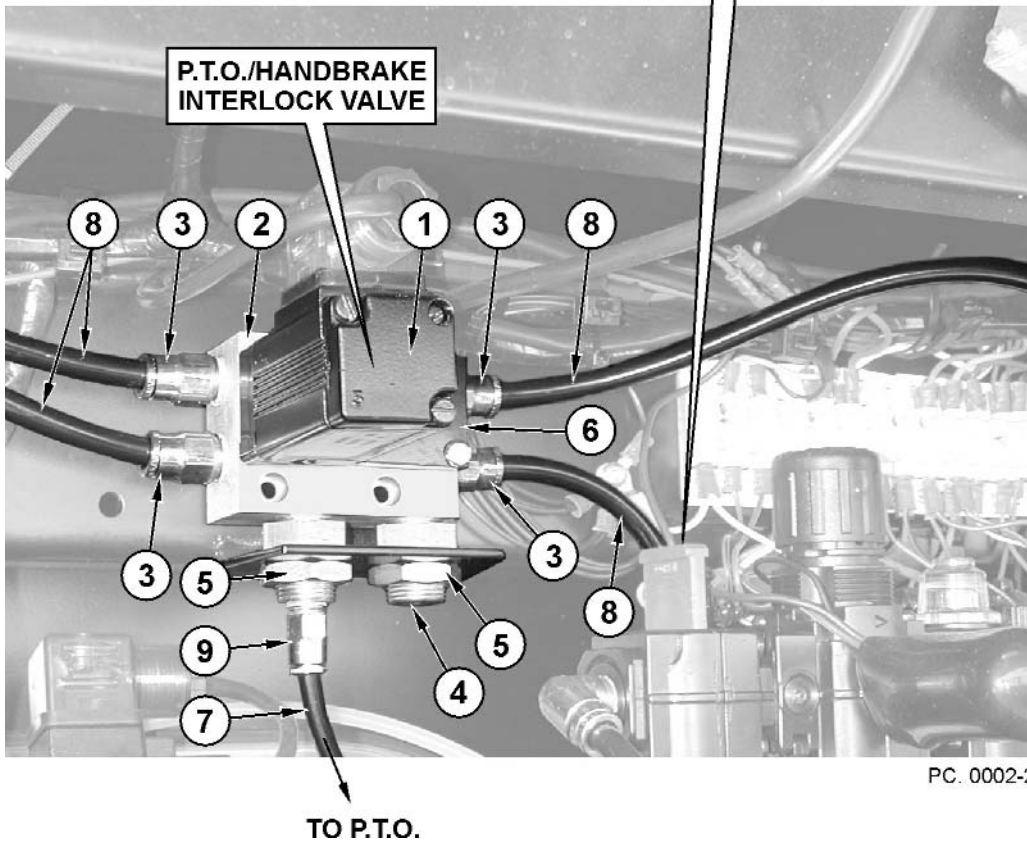
Valve No.	Valve Item No.		
	L.H.S.	R.H.S.	DUAL
V1	2	2	2
V2	1	1	1
V3	4	4	2
V4	4	4	1
V5	4	4	4
V6	2	2	2
V7	1	1	1
V8	4	4	4

**PTO Valve Group  
Figure 11 - 2**



**Safety Precautions**

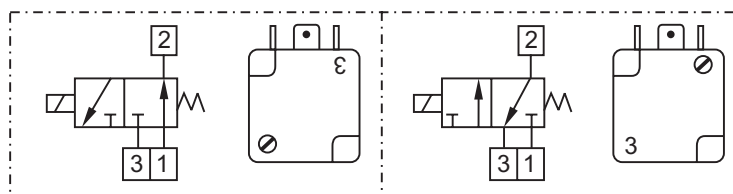
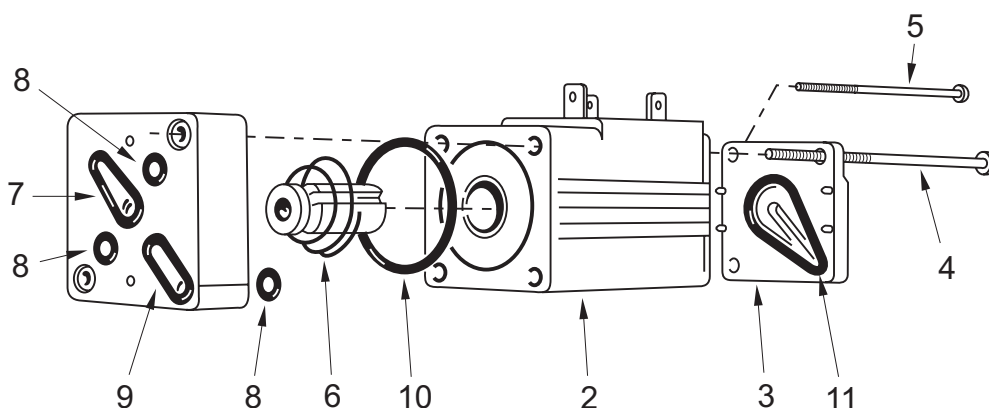
Always depressurise the pneumatic system using the shut off/drain valve on the vitaliser unit in the systems locker before working on the system.



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Item No.	Part No.	Description	Quantity
1	42300-2	Pneumatic Valve 12v NC	1
	42300-4	Pneumatic Valve 24v NC	1
2	40602-2	Valve Block	1
3	537-9	Adaptor 1/4" BSP x Ø8mm	4
4	40594-1	Adaptor - Bulkhead	2
5	410-3	Backnut 3/8" BSP	2
	451-4	Washer - Sealing 1/8" BSP	2
	42300-5	Blanking Plate Assembly comprising:	
6	42300-523	Bolt	2
	42300-524	Blanking Plate	1
	42300-525	Gasket	1
7	12869	Tubing Ø6mm Black	As Req'd
8	12870	Tubing Ø8mm Black	As Req'd
9	537-3	Adaptor 1/8" BSP x Ø6mm	1

**Solenoid Valve Assembly  
Figure 11 - 3**



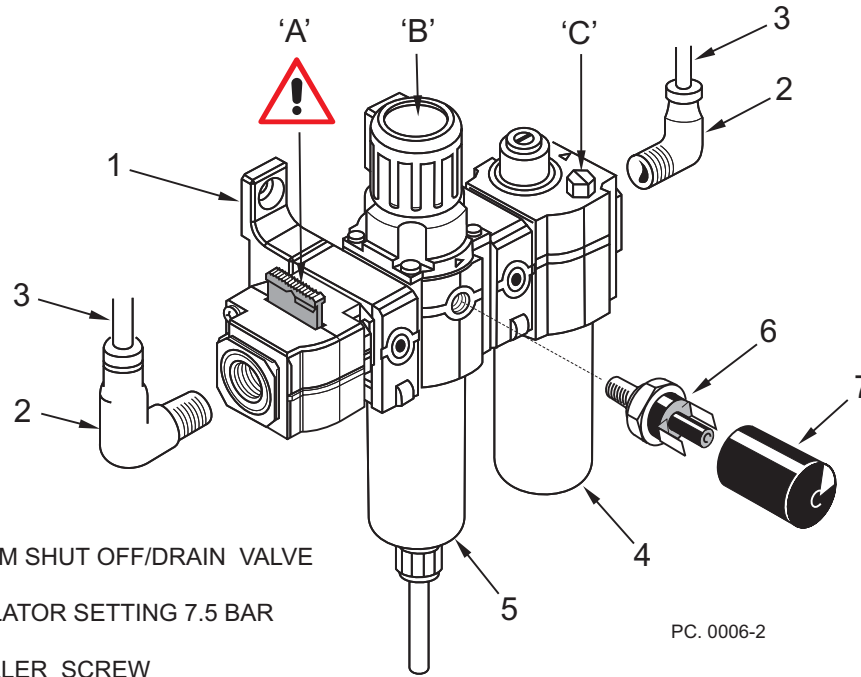
VALVE FUNCTION/ORIENTATION  
(N.O.)

VALVE FUNCTION/ORIENTATION  
(N.C.)

PC. 0003

Item No.	Part No.	Description	Quantity
	42300-1	Valve Assembly 12v Normally Open (NO)	
	42300-2	Valve Assembly 12v Normally Closed (NC)	
	42300-3	Valve Assembly 24v Normally Open (NO)	
	42300-4	Valve Assembly 24v Normally Closed (NC)	
1	N.S.S.	Base	1
2	42300-112	Solenoid 12v	1
	42300-212	Solenoid 24v	1
3	N.S.S.	Top Cap	1
4	135-8	Screw Ch. Hd. M4c x 70mm	2
5	135-30	Screw Ch. Hd. M3c x 53mm	1
6	N.S.S.	Armature	1
7	79-13	'O' Ring	1
8	79-58	'O' Ring	3
9	79-52	'O' Ring	1
10	79-59	'O' Ring	1
11	79-53	'O' Ring	1
	42300-127	Spare Parts Kit (NO)	
	42300-227	Spare Parts Kit (NC)	
		(Kits Comprise Items 6 - 11 Inclusive)	

**Vitaliser Unit  
Figure 11 - 4**



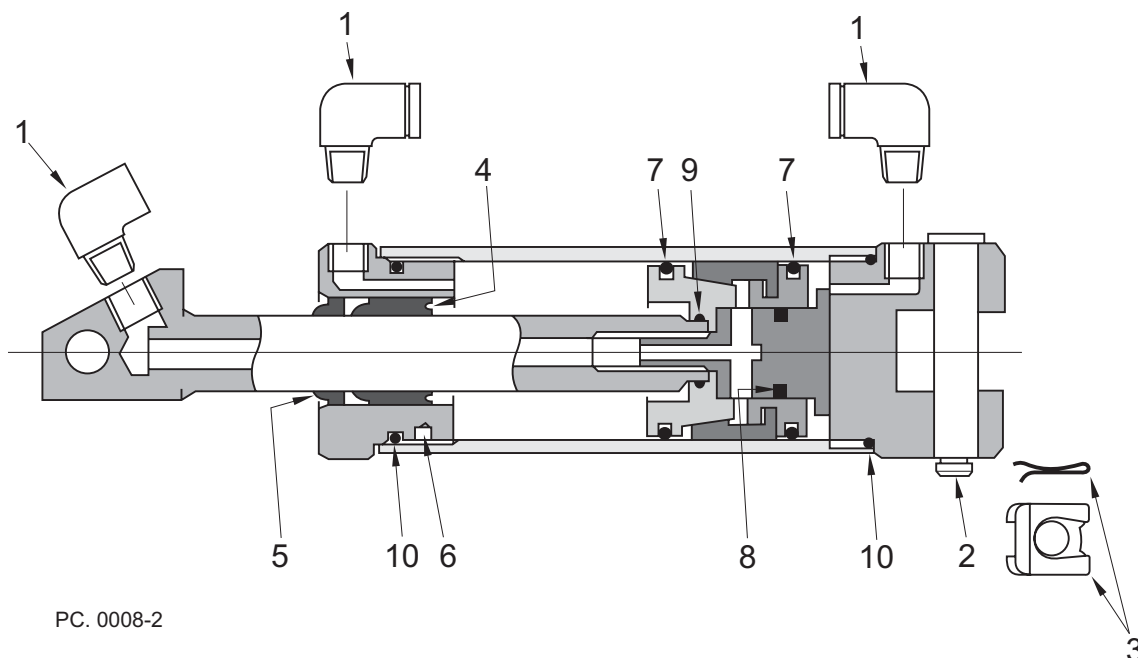
- 'A' = SYSTEM SHUT OFF/DRAIN VALVE
- 'B' = REGULATOR SETTING 7.5 BAR
- 'C' = OIL FILLER SCREW

PC. 0006-2

Item No.	Part No.	Description	Quantity
	72-24	Vitaliser Unit	1
1	72-32	Mounting Bracket	2
2	552-9	Elbow 1/4" BSP x Ø8mm	2
3	12870	Tubing Ø8mm Black	2
4	72-27 72-33	Gasket Kit ] Lubricator Replacement Bowl ] Section	As Req'd
5	72-29 72-30	Gasket Kit ] Air Filter Replacement Bowl ] Section	As Req'd
6	201029-1	Switch - Pressure	1
7	41247-1	Boot PVC	1



**Nozzle Varagap Cylinder - Superseded  
Figure 11 - 5**



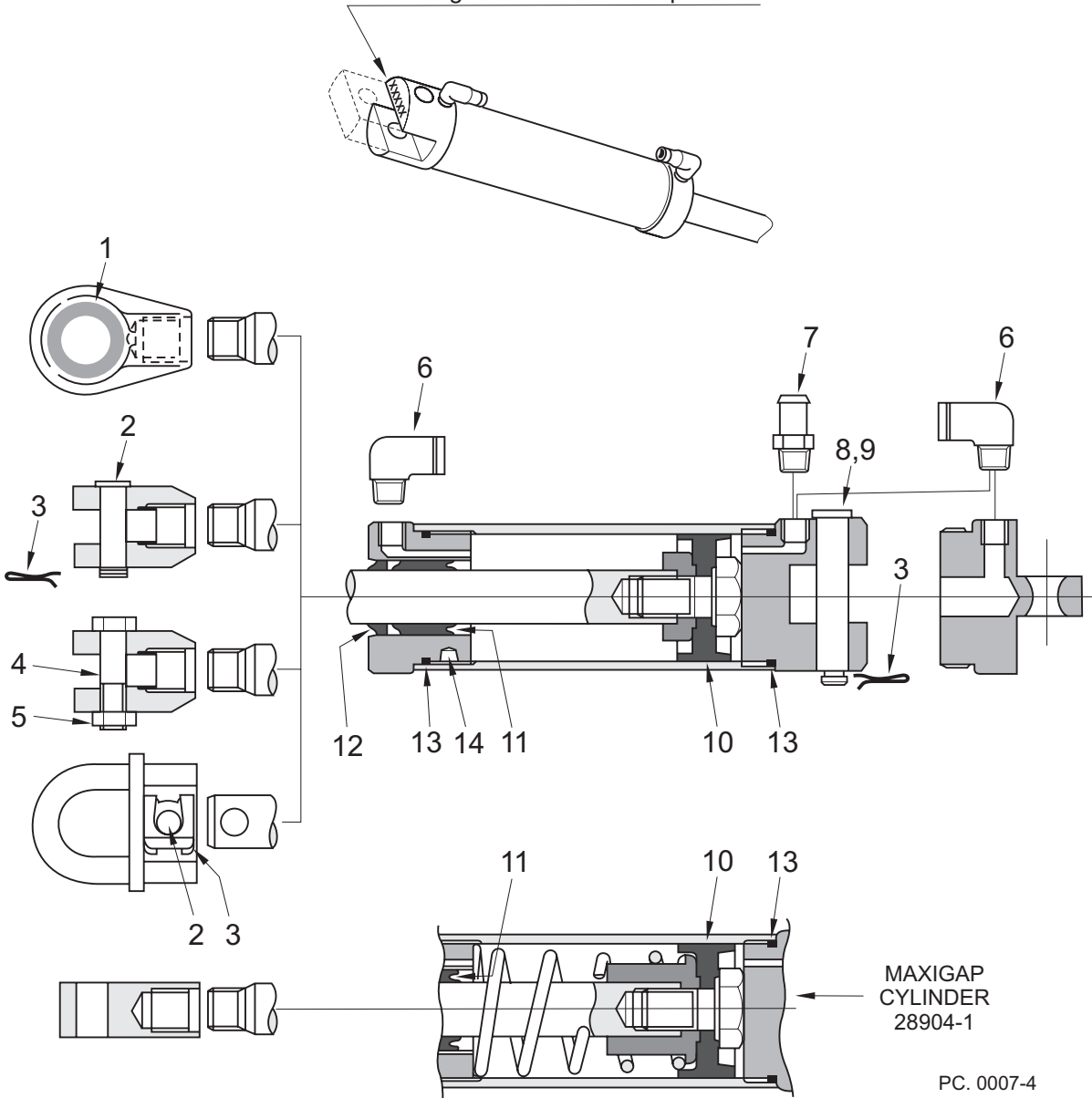
PC. 0008-2

Item No.	Part No.	Description	Quantity
	28906-1	Cylinder Assembly	
1	552-3	Adaptor - Elbow	3
2	29149-1	Clevis Pin	1
3	39624	Spring Retaining Clip	1
	28906-501	Seal Kit comprising items 4 - 10	
4	N.S.S.	Seal - Rod	1
5	N.S.S.	Seal - Wiper	1
6	N.S.S.	Nylon Locking Slug	2
7	N.S.S.	Seal - Piston	2
8	N.S.S.	Seal - Piston	1
9	N.S.S.	'O' Ring	1
10	N.S.S.	'O' Ring	2

## Cylinders - Various, Superseded Figure 11 - 6

### Identification

These superseded cylinders have the Code Number eg. P901B/1202 stamped here



**Cylinders - Various, Superseded  
Figure 11 - 6**

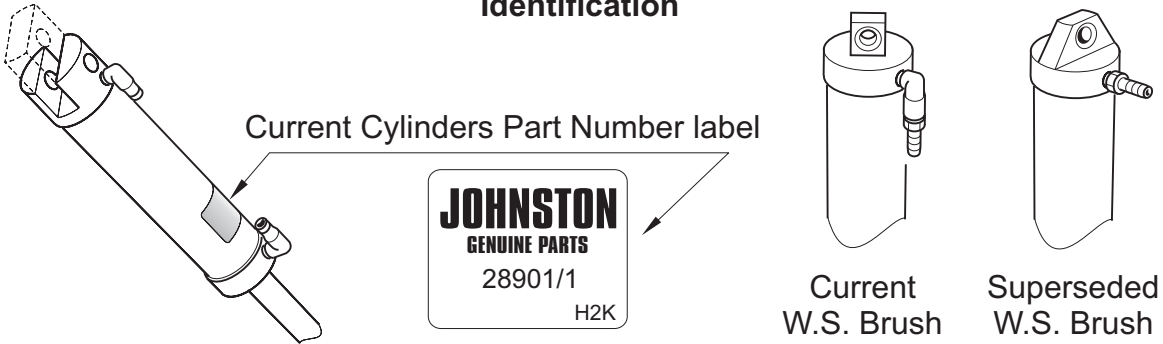
Item No.	Cylinder Part No.	Description						
	28901-1	Intake Flap	*					
	28902-1	Wide Sweep Brush Lift, pre 'Lo Pro'		*				
	28903-1	Nozzle Lift			*			
	28904-1	Nozzle Maxigap				*		
	28905-1	Channel Brush Powathrust/Powasave					*	
	29284-1	'Lo Pro' Wide Sweep Brush Lift						*
	29362-1	Combivac Nozzle						*
	29283-1	Combivac Nozzle Lift						*

Item No.	Part No.	Description	Quantity							
1	29128-1	Bush	1	-	-	-	1	-	1	-
2	29145-1	Clevis Pin	-	1	1	-	-	-	-	-
3	39624	Spring Retaining Clip	1	-	-	1	1	-	1	-
4	29113-1	Bolt - Special	-	-	-	-	-	1	-	-
5	421-16	Locknut	-	-	-	-	-	1	-	-
6	552-3	Adaptor - Elbow	2	1	2	2	2	1	2	2
7	29148-1	Adaptor	-	1	-	-	-	1	-	-
8	29149-1	Clevis Pin	1	1	1	1	1	-	-	-
9	29149-2	Clevis Pin	-	-	-	-	-	-	1	-
	28901-501	Seal Kit comprising items 10 - 14								
10	N.S.S.	Seal - Piston	1	1	1	1	1	1	1	1
11	N.S.S.	Seal - Rod	1	1	1	1	1	1	1	1
12	N.S.S.	Seal - Wiper	1	1	1	1	1	1	1	1
13	N.S.S.	'O' Ring	2	2	2	2	2	2	2	2
14	N.S.S.	Nylon Locking Slug	2	2	2	2	2	2	2	2

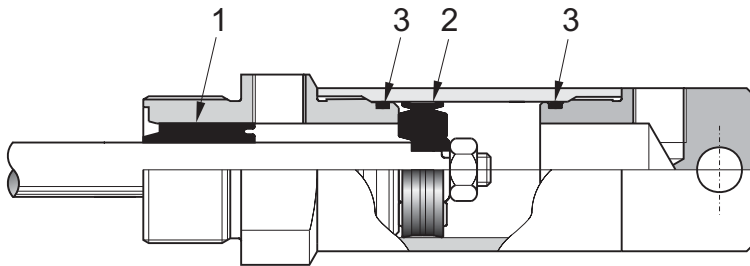
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**Current Cylinders - Seal Kits**  
**Figure 11 - 7**

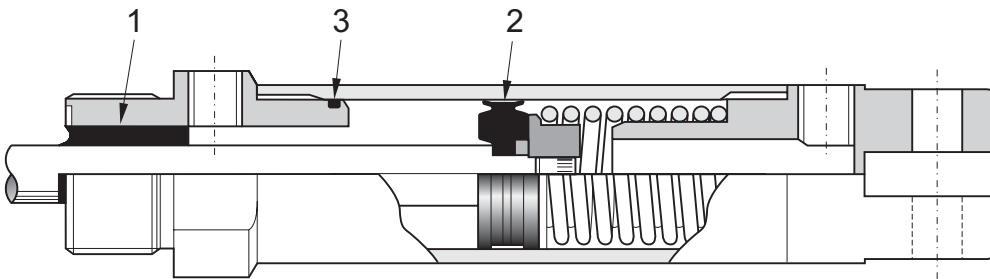
**Identification**



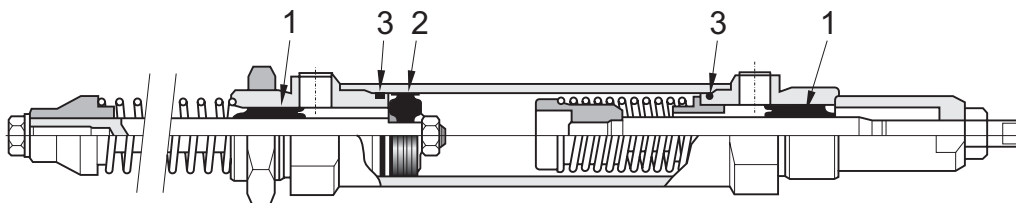
**Ø 25mm Bore Cylinders**



Cylinders 25:1, 2, 3



Cylinders 25:4



Cylinders 25:6

PC. 0049

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**Current Cylinders - Seal Kits**  
**Figure 11 - 7**

Cylinder No.	Cylinder Part No.	Cylinder Description	Universal Seal Kit Superseded and Current Designs	Seal Kit Current Design Only	Used On:-
<b>Ø25mm Bore Cylinders</b>					<b>Series</b>
25:1	29280-1	CB Variabrush Latch	29327-501		610, 660
25:2	29280-2	Mercedes Throttle	29327-501		600
25:3	29280-3	CB Latch	29327-501		610, 660
25:4	29327-1	Front Brush Latch Cylinder	29327-501	Not Repairable	600,610,660
25:5	29475-1	Nozzle, WSB, Autolock Latch	Not Repairable		610, 660
25:6	29482-1	Engine Throttle	29583-1		500
25:7	94292-1	Autoprop Release	Not Repairable		550
25:8	281614-1	CB Latch	-	Not Repairable	6XX

**Seals included in Kit 29327-501**

Item No.	Description	Quantity	Item No.	Description	Quantity
1	Rod Seal	1	3	'O' Ring	2
2	Piston Seal	1			

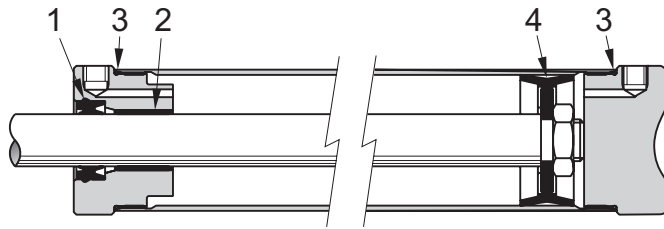
**Seals included in Kit 29583-1**

Item No.	Description	Quantity	Item No.	Description	Quantity
1	Rod Seal	2	3	'O' Ring	2
2	Piston Seal	1			

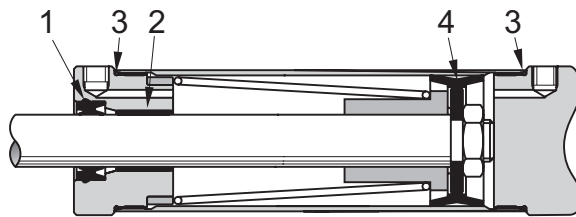
**Notes**

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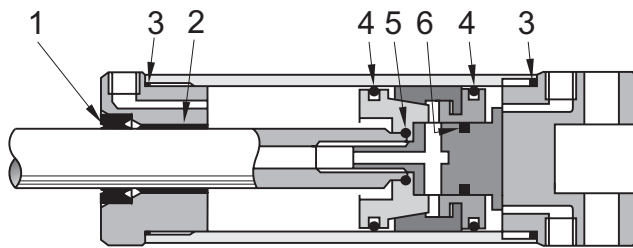
## Current Cylinders - Seal Kits Figure 11 - 7



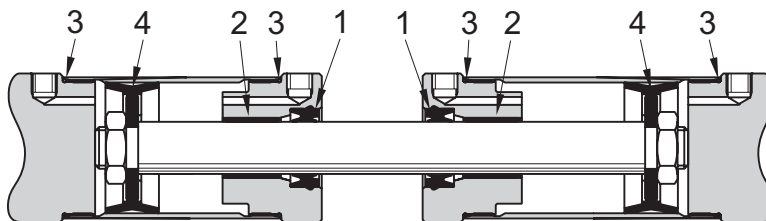
$\varnothing$  50mm Bore Cylinders 50:1, 2, 3, 4, 6, 9, 10, 11, 15, 16, 17  
 $\varnothing$  63mm Bore Cylinders 63:1, 2, 3, 4, 5, 7, 8  
 $\varnothing$  70mm Bore Cylinders 70:1, 2



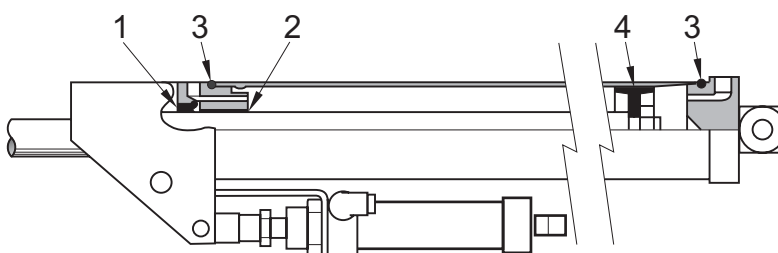
$\varnothing$  50mm Bore Cylinders 50:5, 8, 18  
 $\varnothing$  63mm Bore Cylinders 63:6



$\varnothing$  50mm Bore Cylinders 50:7 and 19



$\varnothing$  50mm Bore Cylinders 50:14



$\varnothing$  50mm Bore Cylinders 50:12 and 13

PC. 0050

<b>Current Cylinders - Seal Kits Figure 11 - 7</b>
--

Cylinder No.	Cylinder Part No.	Cylinder Description	Universal Seal Kit Superseded and Current Designs	Seal Kit Current Design Only	Used On:- 600 Series 625 Series
<b>Ø50mm Bore Cylinders</b>					
50:1	28901-1	Intake Flap Cylinder	28901-501	290001-500	✓
50:2	28901-2	Intake Flap Cylinder	28901-501	290001-500	
50:3	28902-1	WSB Brush Lift Cylinder	28901-501	290001-500	✓
50:4	28903-1	Nozzle Lift Cylinder	28901-501	290001-500	✓
50:5	28904-1	Nozzle Maxigap Cylinder	28901-501	290001-500	✓
50:6	28905-1	CB Powathrust Cylinder	28901-501	290001-500	✓
50:7	28906-1	Nozzle Varagap Cylinder	28906-501	290002-500	✓
50:8	28907-1	Nozzle Maxigap Cylinder	28901-501	290001-500	
50:9	29283-1	Combivac Nozzle Lift Cylinder	28901-501	290001-500	✓ *
50:10	29284-1	WSB Brush Lift Cylinder	28901-501	290001-500	✓
50:11	29284-2	WSB Brush Lift Cylinder	28901-501	290001-500	
50:12	29485-1	WSB Brush Lift Cylinder (A/L)	28901-501	290001-500	✓
50:13	29486-1	Nozzle Lift Cylinder (A/L)	28901-501	290001-500	✓
50:14	280585-1	VEG Variable Cylinder	28901-501	290001-500	
50:15	280840-1	Intake Flap Cylinder 6XX/7XX	-	290001-500	
50:16	63449-1	6" Littasnatch Cylinder	28901-501	290001-500	✓ *
50:17	63449-19	8" Littasnatch Cylinder	28901-501	290001-500	
50:18	290001-1	Nozzle Maxigap Cyl. 6XX/7XX	-	290001-500	
50:19	290002-1	Nozzle Varagap Cyl. 6XX/7XX	-	290002-500	

**Ø63mm Bore Cylinders**

63:1	280955-1	Assistor Broom Cylinder	29361-501		
63:2	29361-1	Front Brush Lift Cylinder	29361-501		✓ *
63:3	29361-2	Full Width Nozzle Tilt Cylinder	29361-501		
63:4	29361-3	Variabrush Lift Cylinder	29361-501		
63:5	29361-40	Flap Cylinder	29361-501		
63:6	29361-50	Rear Door Latch Cylinder	29361-501		
63:7	29361-60	Rear Panel Lift Cylinder	29361-501		
63:8	29362-1	Combivac Nozzle Cylinder	29361-501		

\* Optional Equipment

**Ø70mm Bore Cylinders**

70:1	200355-1	Variabrush Cylinder	200355-500	
70:2	201025-1	Channel Brush Lift Cylinder	200355-500	

**Seals included in Kits 28901-501, 290001-500, 29361-501 and 200355-500**

Item No.	Description	Quantity	Item No.	Description	Quantity
1	Rod Seal	1	3	'O' Ring	2
2	Bearing	1	4	Piston Seal	1

**Seals included in Kits 28906 and 290002-500**

Item No.	Description	Quantity	Item No.	Description	Quantity
1	Rod Seal	2	4	Piston Seal Ø50	2
2	Bearing	1	5	'O' Ring	1
3	'O' Ring	2	6	Piston Seal Ø25	1





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**CHAPTER**

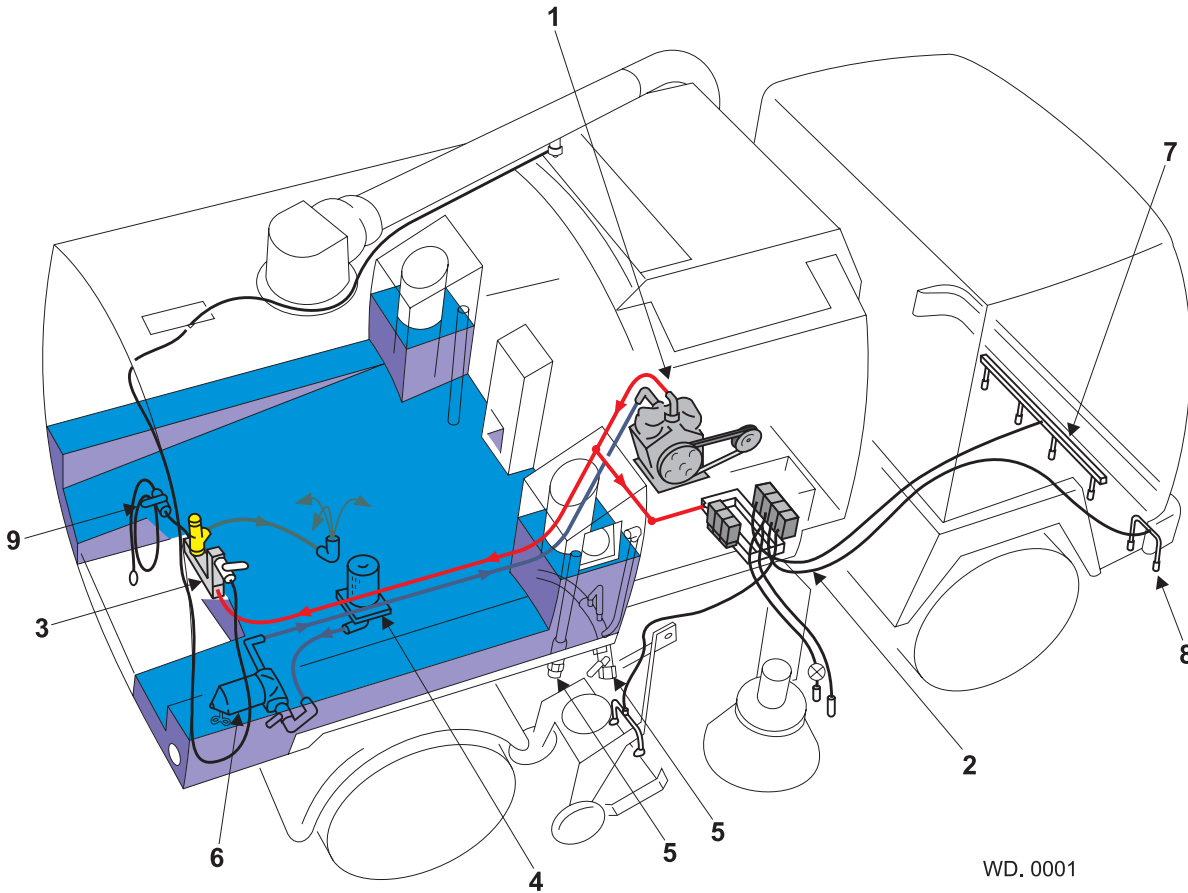
# 12

## Water System

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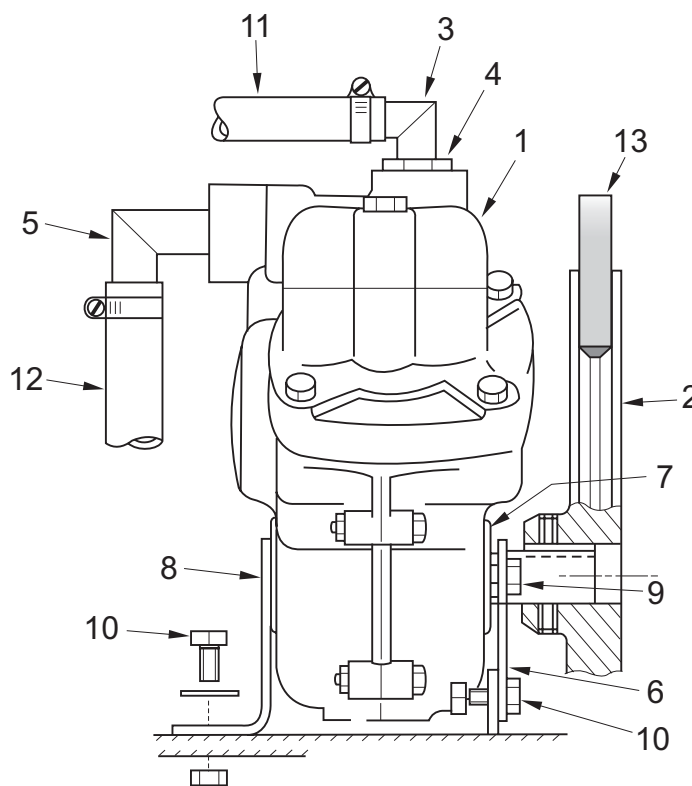
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**Circuit Diagram  
Figure 12 - 1**



Item No.	Description	Figure
1	Water Pump	12 - 2
2	Water Manifold	12 - 4
3	Relief Valve Manifold	12 - 6
4	Tank Suction Filter	12 - 8
5	Tank Drain and Hydrant Filler	12 - 8
6	Secondary Suction Filter	12 - 9
7	Wide Sweep Brush Spraybar	12 - 10
8	Gutter Spraybar	12 - 11
9	Washdown Hose	12 - 12

**Pump Installation  
Figure 12 - 2**

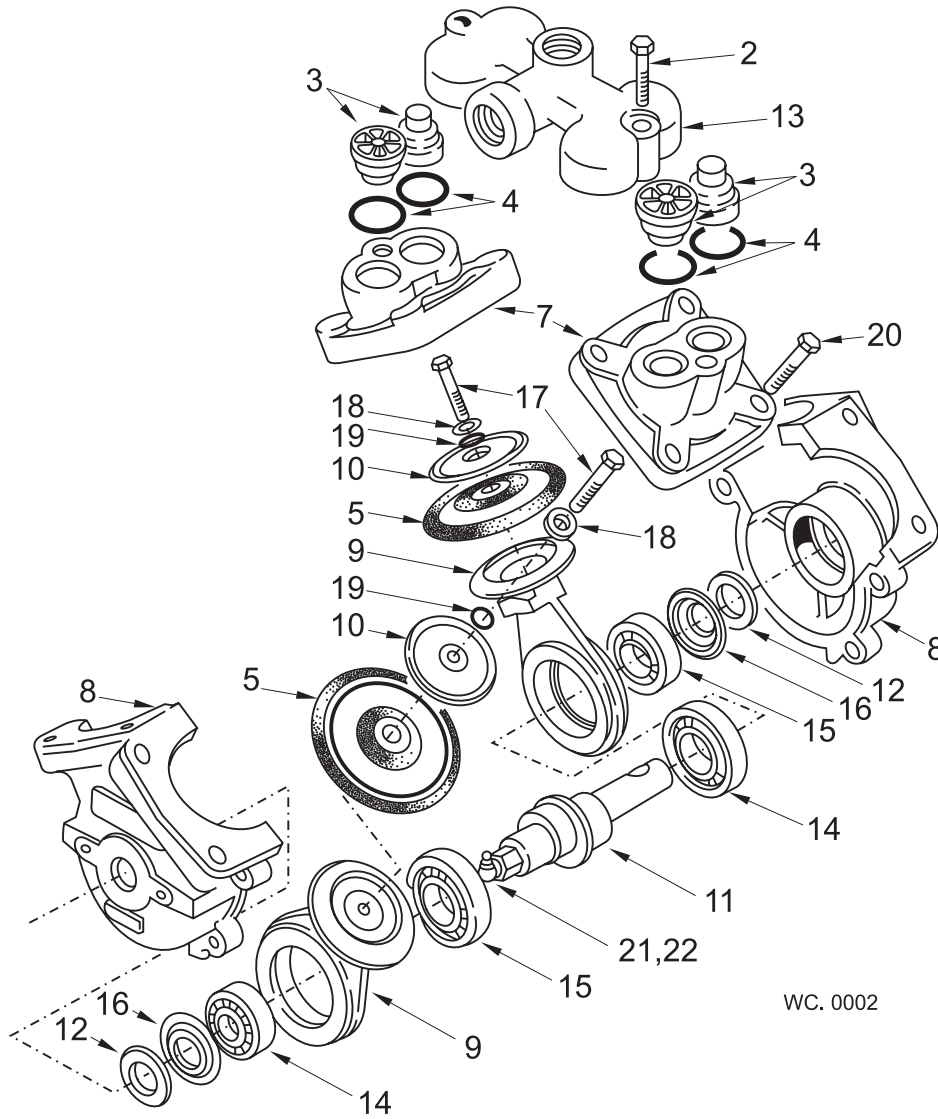


WC. 0001-3

Item No.	Part No.	Description	Quantity
1	22599-1	Water Pump	1
2	42227-1	Pulley	1
	22651-1	Key	1
	135-52	Grub Screw M8c x 10mm	2
3	40656-1	Elbow	1
4	13164	Bush	1
5	40600	Elbow	1
6	42527-1	Plate	1
7	42525-1	Spacer	2
8	42526-1	Plate	1
9	110-52	Setscrew 3/8" BSW x 1"	4
	450-29	Spring Washer 3/8"	4
10	124-171	Setscrew M10c x 30mm	3
	457-5	Washer - Large M10	3
	425-15	Nut - Nyloc M10c	3
11	497-H12	Hose 3/4" Bore x 750mm Long	1
	501-3	Clip	2
12	6117	Hose 1" Bore x 750mm Long	1
	501-4	Clip	2
13	280-3	Belt	1

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Pump Assembly  
Figure 12 - 3



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<b>Pump Assembly Figure 12 - 3</b>
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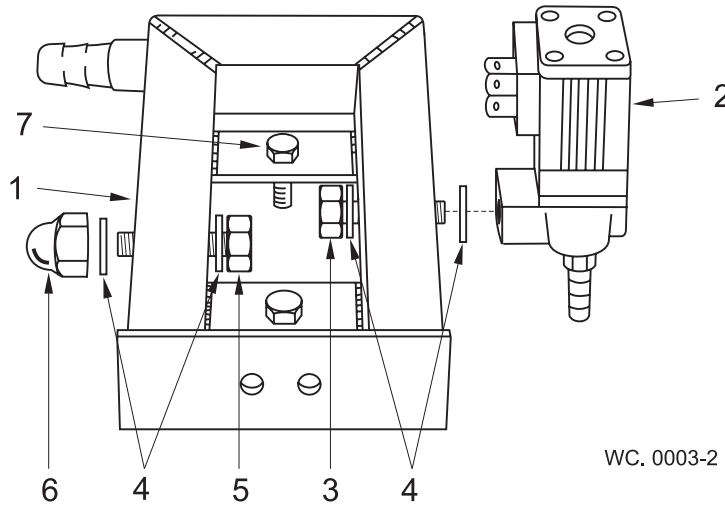
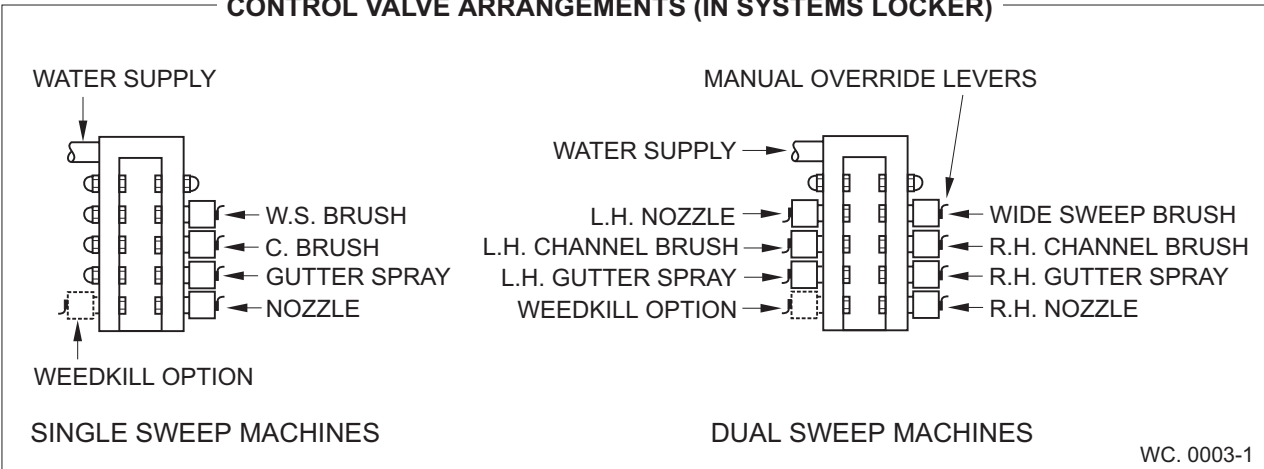
Item No.	Part No.	Description	Quantity
1	22599-1	Water Pump Assembly.Comp:-	1
2	15824-2	Bolt	4
3	15824-3	Valve Assembly.	4
4	15824-4	'O' Ring	4
5	15824-5	Diaphragm	2
6	-		
7	15824-7	Cylinder Head	2
8	15824-8	Crankcase	1 Pair
9	15824-9	Connecting Rod	2
10	15824-10	Tension Pad	2
11	22599-2	Crankshaft	1
12	15824-12	Felt Ring	2
13	15824-13	Manifold	1
14	14-18	Bearing - Connecting Rod	2
15	14-32	Bearing - Crankshaft	2
16	15824-16	Dust Cover	2
17	15824-17	Bolt - Tension Pad	2
18	15824-18	Washer	2
19	15824-19	'O' Ring	2
20	15824-20	Bolt	8
21	N/R	Adaptor	1
>	22	38-9 Grease Nipple 1/4" BSP x 90°	1
	15824-6	Repair Kit Comprising Items:- 3, 4, & 5	

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**Water Manifold**  
**Figure 12 - 4**

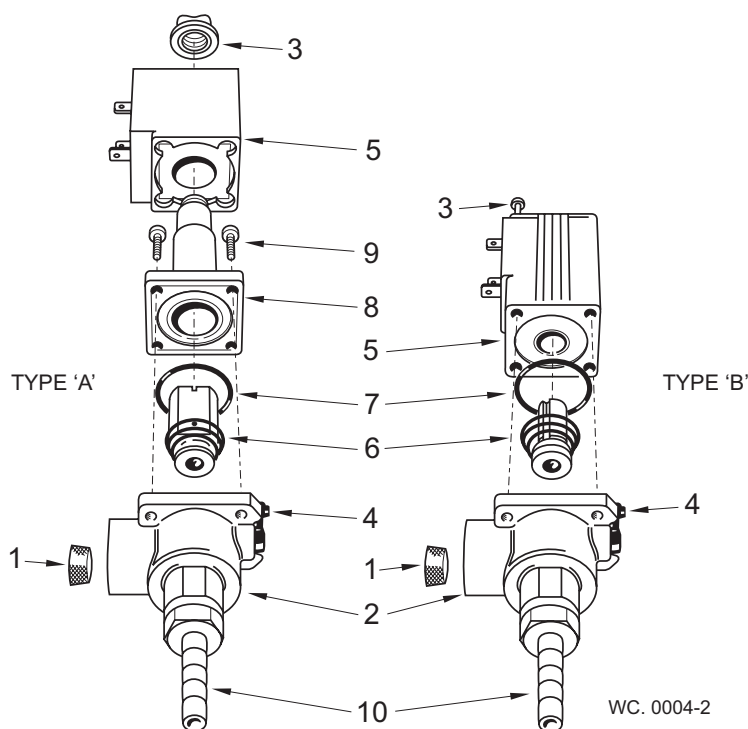
**CONTROL VALVE ARRANGEMENTS (IN SYSTEMS LOCKER)**



Item No.	Part No.	Description	Quantity
1	42400-1	Manifold - Water	1
2	-	Water Valve See Fig. 12 - 5 ]	See Above
3	40256-2	Banjo Bolt ]	
4	453-1	Fibre Washer ]	
5	135-11	Screw M12c x 35mm ]	
6	410-32	Domed Nut M12 ]	
7	124-134	Screw M8c x 16mm	2
	460-10	Spring - Washer M8	2
	420-14	Nut M8c	2

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**Solenoid Valve Assembly  
Figure 12 - 5**

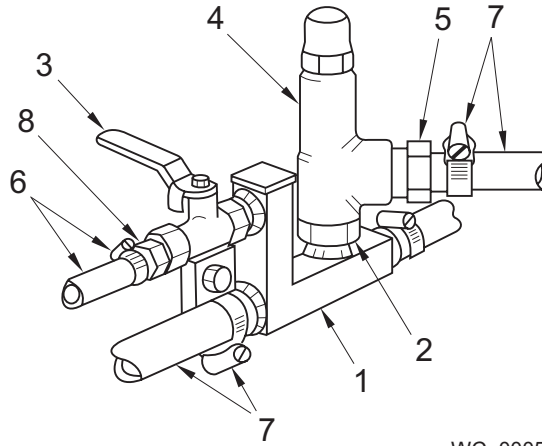


WC. 0004-2

Item No.	Part No.		Description	Quantity
	Type 'A'	Type 'B'		
	281372-1	42429-1	Water Valve Assembly 12v	
	281372-2	42429-2	Water Valve Assembly 24v	
	Each comprising:			
1	13170	<	Filter	1
2	N.S.S.	<	Base	1
3	281372-5	-	Lock Nut	1
4	-	135-10	Setscrew M4c x 55mm	4
4	40664-13	<	Lever Kit comprising: Lever, 'O' Ring and Circlip	
5	281372-12	12910	Coil 12v	1
	281372-24	42429-217	Coil 24v	1
6	N.S.S.	<	Armature	1
7	N.S.S.	<	'O' Ring	1
8	N.S.S.	-	Armature Housing	
9	N.S.S.	-	Setscrews	
10	46382-3	<	Adaptor	1
	281372-3	-	Type 'A' Overhaul Kit comprising: Items, 2, 3, 6, 7, 8 and 9	
	281372-4	42429-125	Seal Kit comprising: Items 6, 7	

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**Relief Valve Manifold  
Figure 12 - 6**



WC. 0005

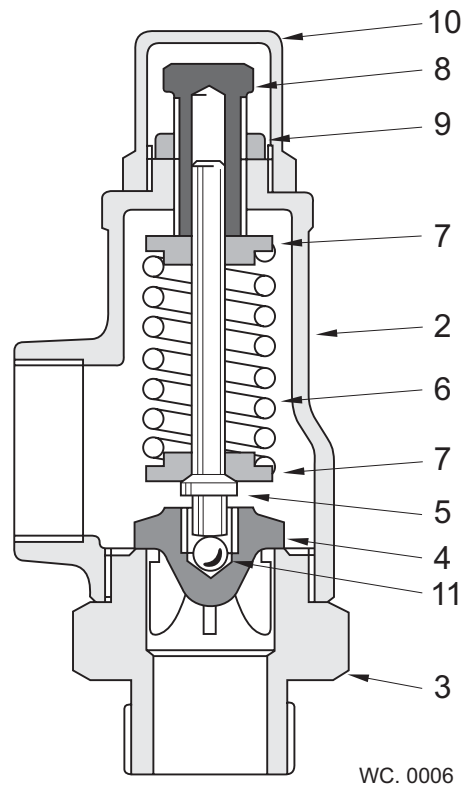
Item No.	Part No.	Description	Quantity
1	42584-1	Manifold - Relief Valve	1
2	6127	Nipple	1
3	89-1	Ball Valve	1
> 4	3698-11	Valve - Relief	1
5	231-19	Adaptor	As Req'd
6	39444	Hose - 3/8" Bore	As Req'd
	501-2	Clip	1
7	497-H12	Hose - 3/4" Bore	As Req'd
	501-3	Clip	2
8	41006-3	Adaptor	1

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**Relief Valve Assembly  
Figure 12 - 7**



WC. 0006

Item No.	Part No.	Description	Quantity
1	3698-11	Relief Valve Assembly. Comp:-	1
2	3698-2	Body	1
3	3698-12	Seat	1
4	3698-4	Valve	1
5	3698-5	Spindle	1
6	3698-6	Spring	1
7	3698-7	Spring End Plate	2
8	3698-8	Adjusting Screw	1
9	3698-9	Locknut	1
10	3698-10	Dome	1
11	22-1	Ball	1

**Notes**

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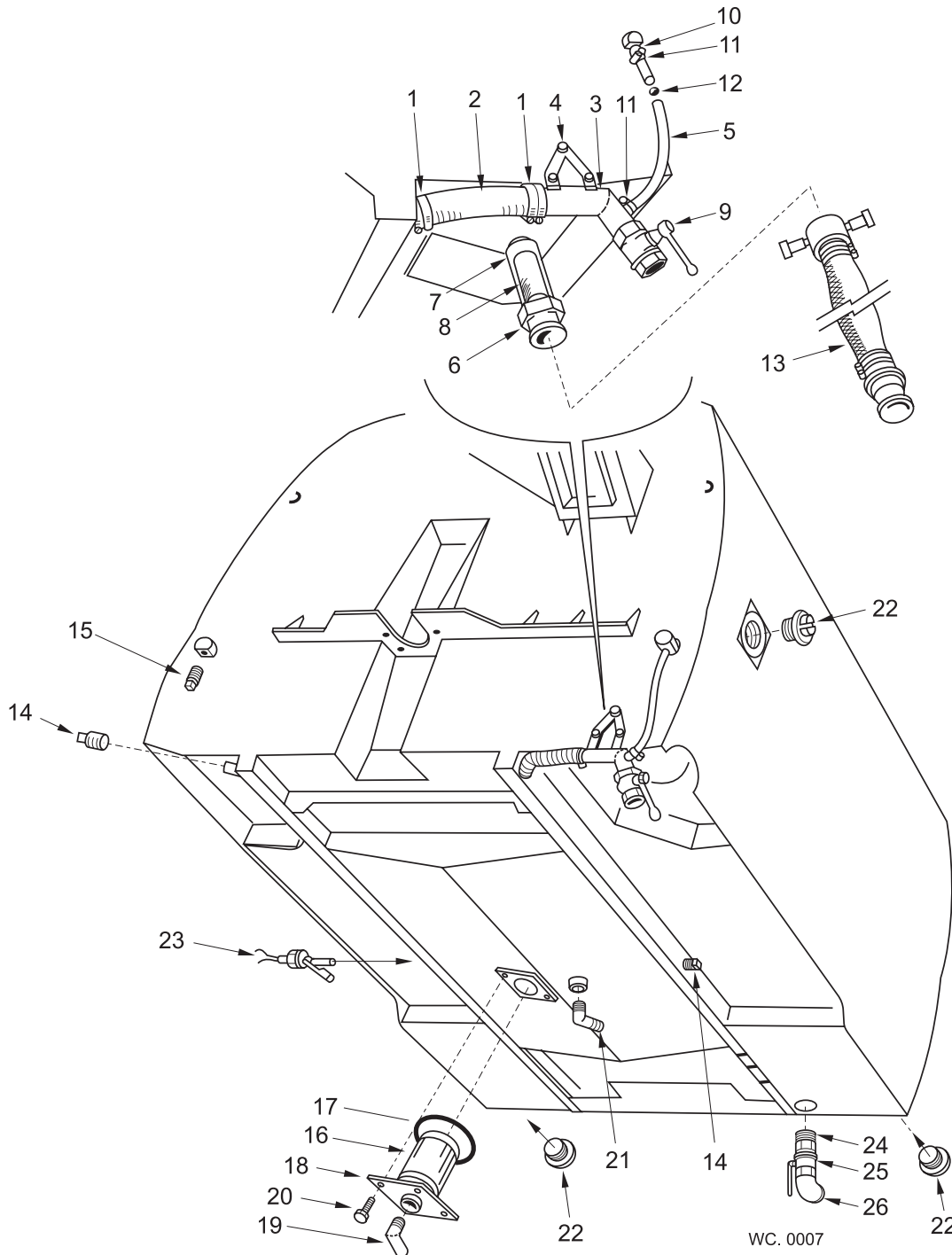
## Water Tank Assembly Figure 12 - 8



### Safety Precautions



Before raising the body, ensure the machine is standing on firm level ground and there are no obstructions above or to the rear of the body.  
Always use the body prop when working under the auxiliary engine cowl or body.



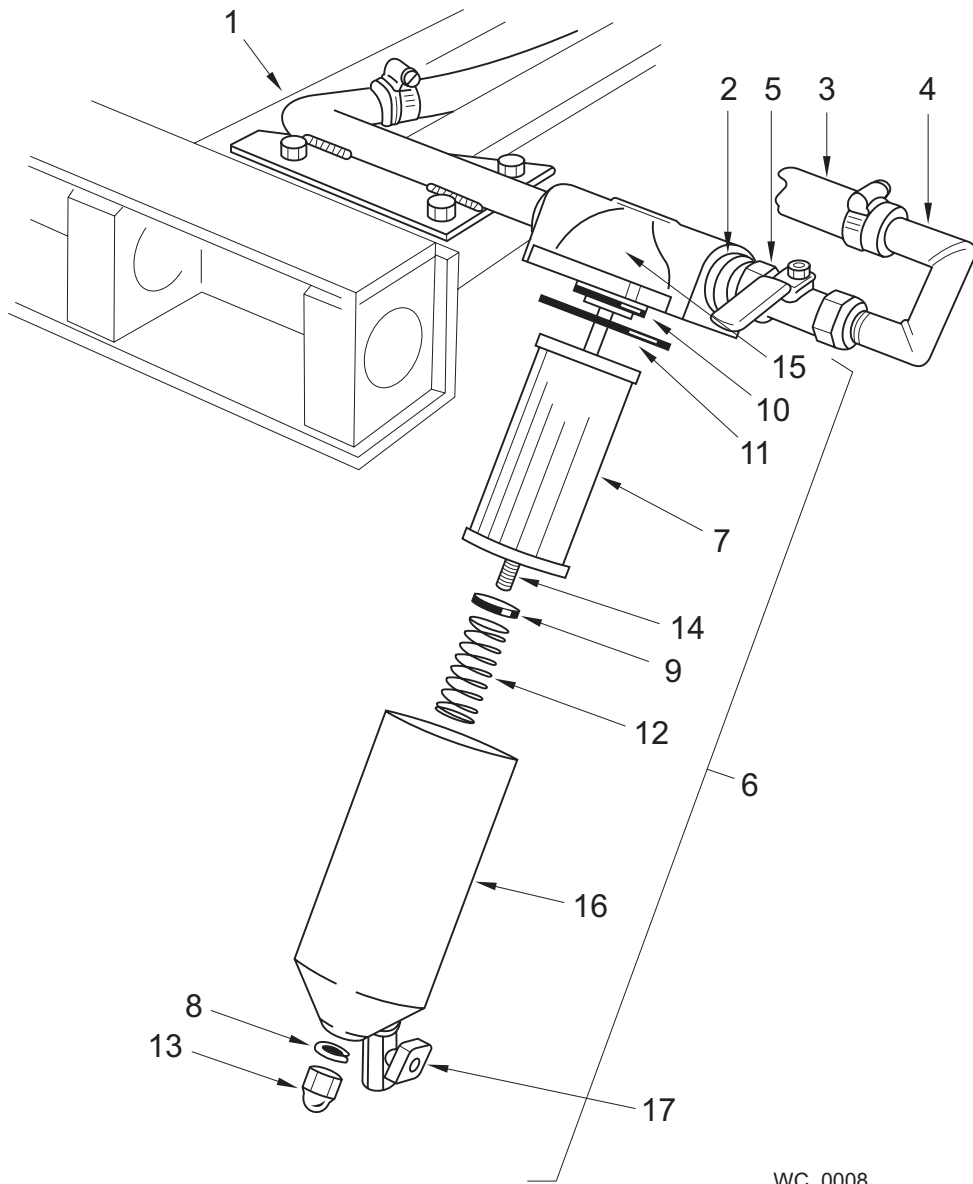
**Water Tank Assembly  
Figure 12 - 8**

Item No.	Part No.	Description	Quantity
1	501-6	Clip	4
2	42213-1	Hose - Flushing Valve	1
3	42088-1	Tube - Flushing Valve	1
4	22773-1	Spacer ] 600/605	3
	124-139	Setscrew M8c x 30mm ] Series	3
	22773-1	Spacer ] 625/700/705	6
	124-141	Setscrew M8c x 35mm ] Series	3
	420-14	Nut M8c	3
	460-10	Washer - Spring M8	3
5	15656-1	Sight Glass Tube	1
6	18684-1	Adaptor	1
7	42119-1	Body - Hydrant Filler	1
8	39402	Filter Element	1
9	39253	Valve - Ball	1
10	40242-1	Adaptor	1
11	501-2	Hose Clip	2
12	22-7	Ball	1
13	18459-1	Hydrant Hose Assembly	1
14	6975	Plug 1¼" BSPT	4
15	3836	Plug 3/8" BSPT	1
16	6974-1	Filter Element	1
17	80-143	'O' Ring	1
18	40098-1	Flange - Suction Filter	1
19	40600-1	Elbow	1
20	124-135	Setscrew M8c x 20mm	4
	460-10	Washer - Spring M8	4
21	40656-1	Elbow	1
22	41776-2	Cap - 'Johnston'	4
	40650-1	Cap - 'Jobro'	4
	40643-1	Washer - Seal	4
23	280874-1	Water Level Switch with Deutsch Connector - Current	1
	48-120	Water Level Switch with no Plug - Superseded	1
	49946-1	Adaptor	1
<b>Alternative Drain Option</b>			
24	802255-1	Drain Nozzle	1
25	13432	Ball Valve 2" BSP	1
26	18650	Elbow 2" BSP	1

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## Secondary Filter Assembly Figure 12 - 9



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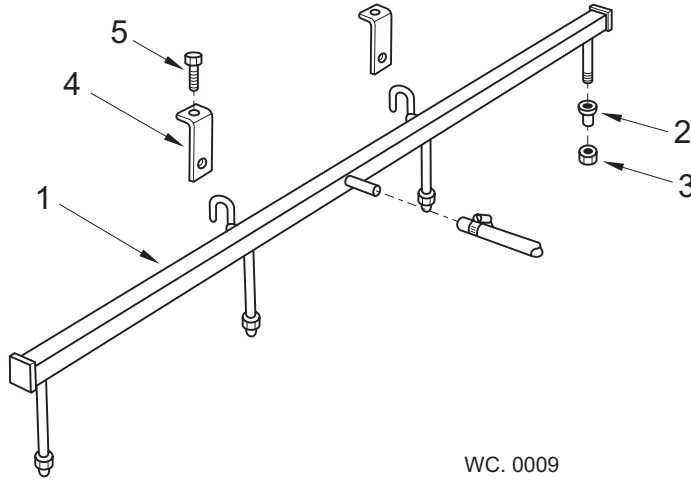
**Secondary Filter Assembly  
Figure 12 - 9**

Item No.	Part No.	Description	Quantity
1	61008-1	Mount - Filter, 625/700/705 Series	1
	42368-1	Mount - Filter, 600/605 Series	1
2	41017-1	Nipple	1
3	6117	1" Bore Hose	1m
4	41261-1	'U' Bend	1
5	13095-1	Valve - Ball 3/4"	1
6	15960-1	Filter Unit Comprising Items 7 - 16	1
7	15960-2	Filter Element	1
8	15960-3	Seal - Nut To Bowl	1
9	15960-4	Seal - Element To Spring	1
10	15960-5	Seal - Element To Head	1
11	15960-6	Gasket - Bowl To Head	1
12	15960-7	Spring	1
13	408-19	Nut - Domed	1
14	15960-9	Stem	1
15	N.S.S.	Head	N.S.S.
16	15960-12	Bowl	1
17	88-11	Ball Valve 1/4" BSP	1

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**Wide Sweep Brush, Front Bumper Spraybar  
Figure 12 - 10**

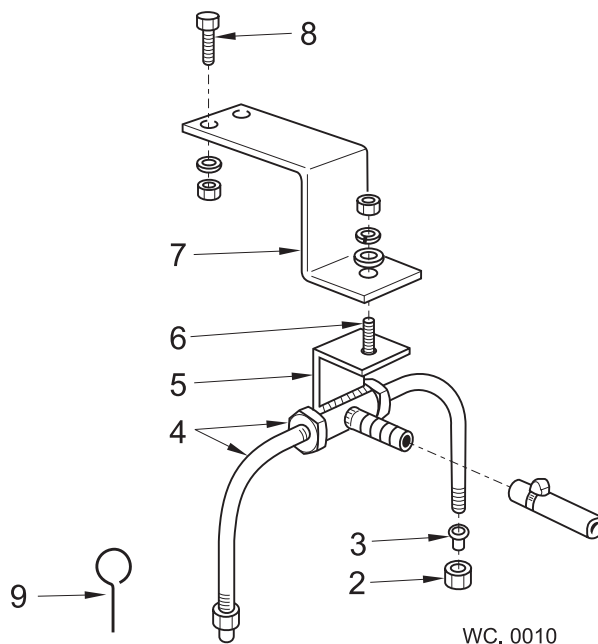


Item No.	Part No.	Description	Quantity
1	40629-7	Spraybar	1
2	60688-1	Spraybar Nozzle No.3	4
3	60689-1	Union Nut	4
4	45573-1	Hanger	2
5	124-135	Setscrew M8c x 20mm	2
	460-10	Washer - Spring	2
	420-14	Nut M8c	2

**Notes**

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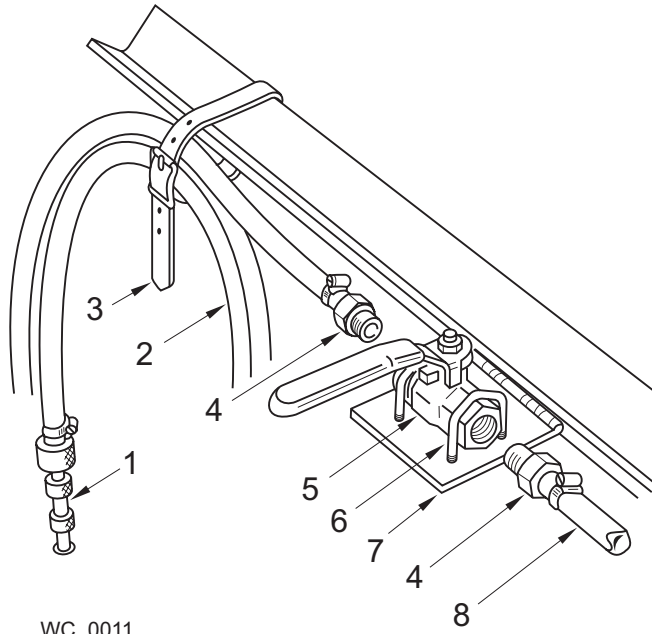
**Gutter Spraybar  
Figure 12 - 11**



Item No.	Part No.	Description	Quantity
1	26728-14	Assembly (Items 2 - 6)	
	26728-15	Assembly (With 146mm Deep Support Bracket) Comprising Items 2 - 7	
2	60689-1	Union Nut 1/4" BSP	2
3	60688-1	Spray Nozzle No.3	1
	60690-1	Spray Nozzle No.10	1
4	41011-1	Bend	2
	410-11	Locknut 1/4" BSP	2
5	41010-7	Tee Connector	1
6	124-103	Setscrew M6c x 20mm	1
	455-8	Washer - Plain M6	1
	460-8	Washer - Spring M6	1
	420-13	Nut M6c	1
7	50710-1	Support Bracket - Iveco Eurocargo	1
	15614-1	Support Bracket 70mm Deep	1
	15614-2	Support Bracket 146mm Deep	1
8	124-103	Setscrew M6c x 20mm	2
	460-8	Washer - Spring M6	2
	420-13	Nut M6c	2
9	6148-1	Pricker For Spray Jet	

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**Washdown Hose  
(Not available with Supawash Option)  
Figure 12 - 12**



WC. 0011

Item No.	Part No.	Description	Quantity
1	6137	Spray Nozzle	1
2	6111	Hose 1/2" Bore	6m
	501-2	Hose Clip - Worm Drive	2
3	3786	Strap And Buckle	1
4	41006-1	Hose Adaptor	2
5	89-1	Valve 3/8" BSP	1
6	6105-1	'U' Bolt	2
	460-8	Washer - Spring M6	4
	420-13	Nut M6c	4
7	6104-1	Support Plate	1
8	6111	Hose 1/2" Bore	As Req'd
	501-2	Hose Clip - Worm Drive	2

**Notes**

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# Water System- Supawash Option

Only the current cartridge valve block hydraulic system is covered in this chapter.

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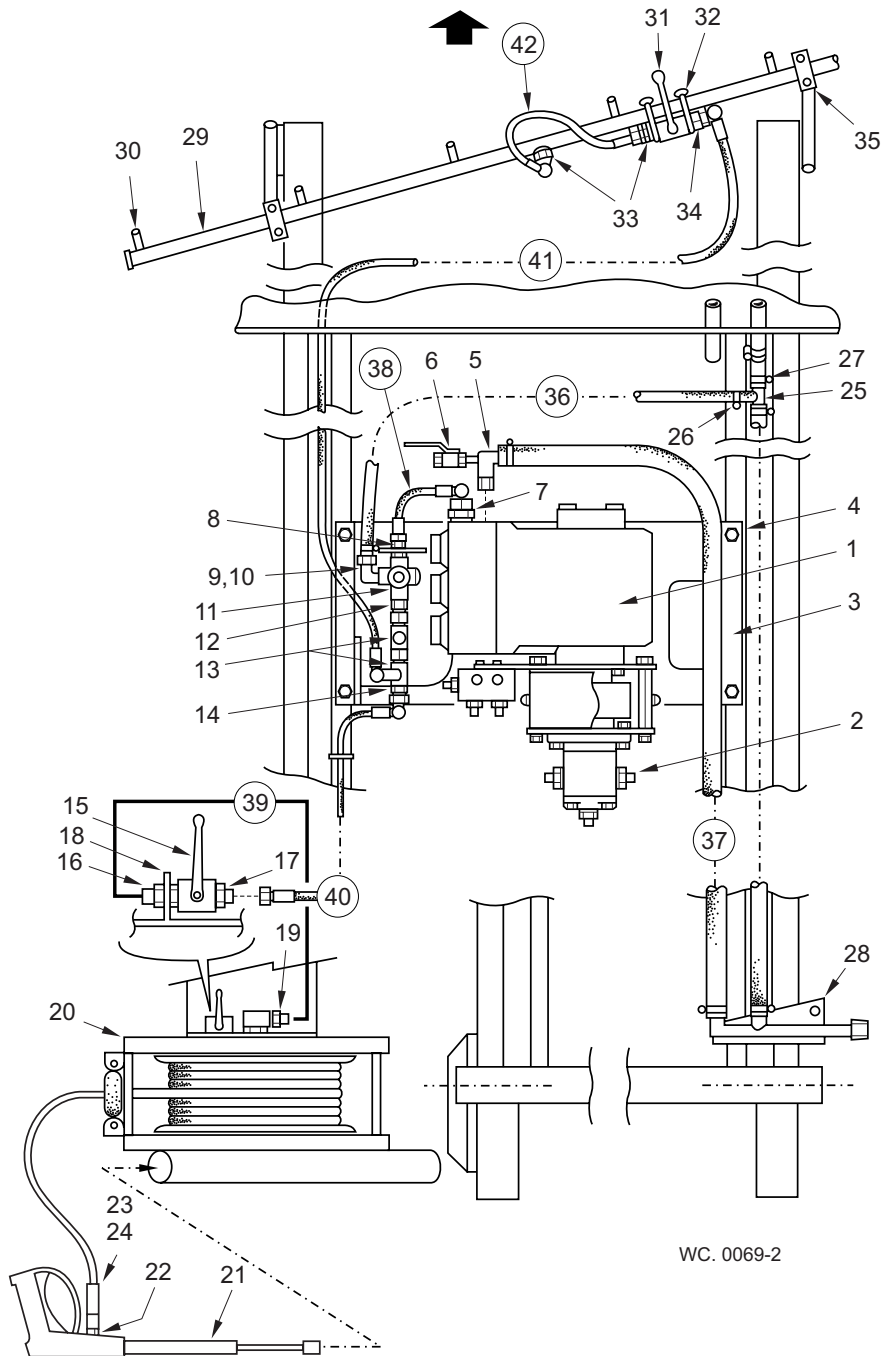
## Supawash - Water System Figure 12 - 14



### Safety Precautions



Ensure high pressure water hoses are in good condition and connections are tight as they handle pressures up to 100 bar (1450 psi).  
Water under pressure can penetrate skin and cause severe injury.



**Supawash - Water System  
Figure 12 - 14**

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Item No.	Part No.	Description	Quantity
1	223-7	Water Pump	1
2	-	Hydraulic Motor and Drive - See Fig. 12 - 15 Current, Fig. 12 - 21 Superseded	
3	49884-2	Mounting Cradle - 600/605	1
	95406-1	Mounting Cradle - 625/700/705	1
4	137-37	Screw Button Hd. M8c x 20mm	4
	425-14	Nut - Nyloc M8c	4
5	49874-1	Elbow	1
6	89-1	Ball Valve	1
7	263-3	Adaptor 3/8" BSP	1
8	264-3	Adaptor - Bulkhead 3/8" BSP	1
	451-18	Washer - Sealing 3/8" BSP	1
	410-3	Locknut	1
9	3701	Elbow 3/4" BSP	1
10	231-19	Adaptor 3/4" Hose x 3/4" BSPT	1
11	50516-1	Regulator (including test point)	1
12	252-2	Adaptor - Swivel 1/2" x 3/8" BSP	1
13	255-12	Tee	] Quantities Vary ] with
14	263-3	Adaptor	
	451-18	Washer - Sealing 3/8" BSP	] Spray Bar Options
15	6756-1	Ball Valve	1
16	49933-1	Bulkhead Adaptor 3/8" x 1/2" BSP	1
	451-19	Washer - Sealing 1/2" BSP	1
	410-3	Locknut 3/8" BSP	1
17	265-4	Adaptor 3/8" x 1/2" BSP	1
	451-19	Washer - Sealing 1/2" BSP	1
18	93220-1	Valve Plate	1
19	252-2	Adaptor 3/8" BSP	1
	451-18	Washer - Sealing 3/8" BSP	1
20	667-49	Hose Reel Assembly	1
21	21-306	Hand Lance Assembly comprising:	
	21-304	Spray Gun (with swivel)	1
	21-305	Lance	1
	71362-2	Holder - Twin Nozzle	1
	21-26	Jet - Round	1
	21-27	Jet - Fan	1
22	262-3	Elbow - Swivel 3/8" BSP	1
	451-18	Washer - Sealing 3/8" BSP	1
23	486-8	Probe	1
24	486-18	Carrier	1
25	49942-1	Tee	1

Continued...

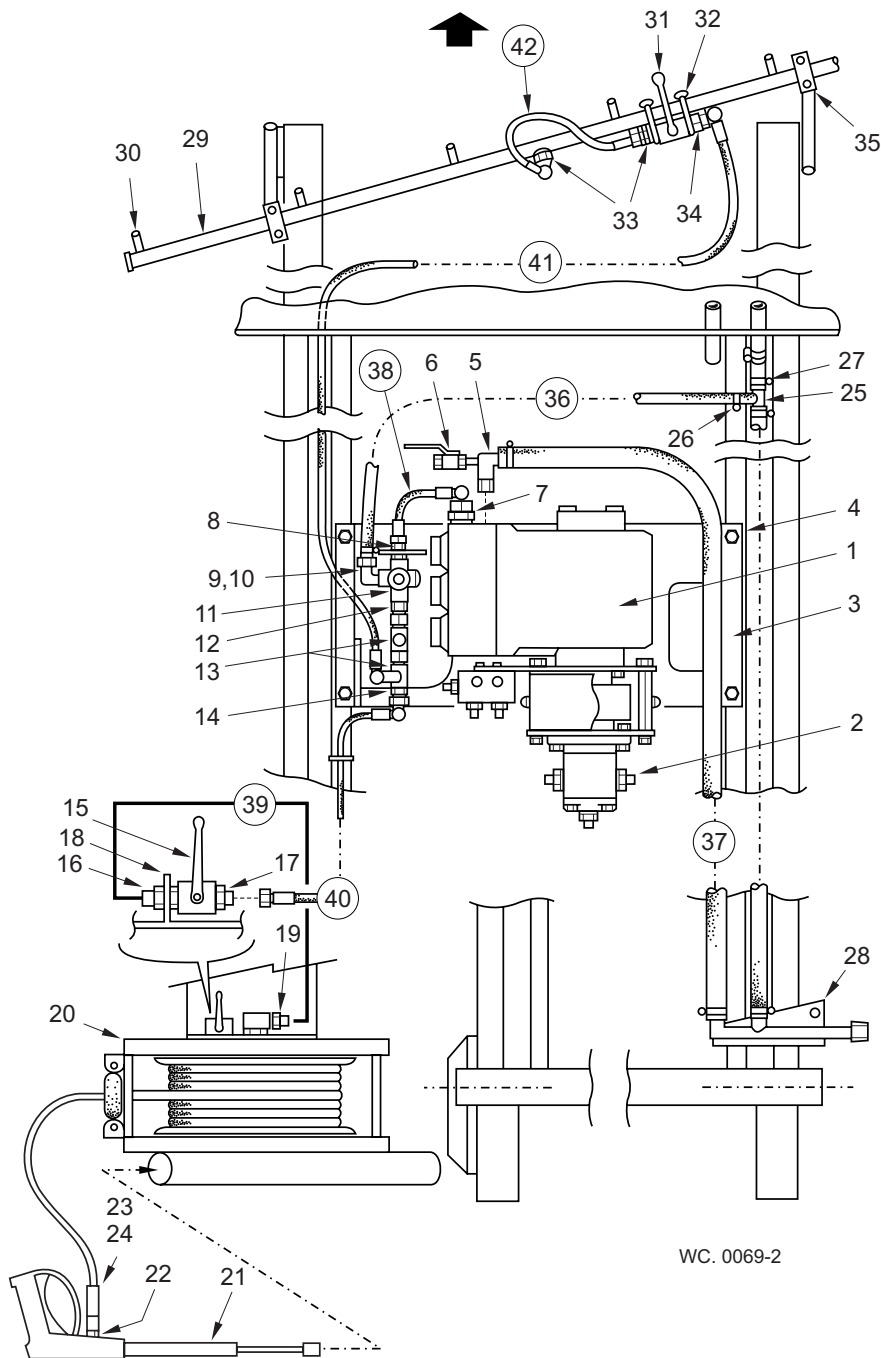
## Supawash - Water System Figure 12 - 14



### Safety Precautions



Ensure high pressure water hoses are in good condition and connections are tight as they handle pressures up to 100 bar (1450 psi).  
Water under pressure can penetrate skin and cause severe injury.



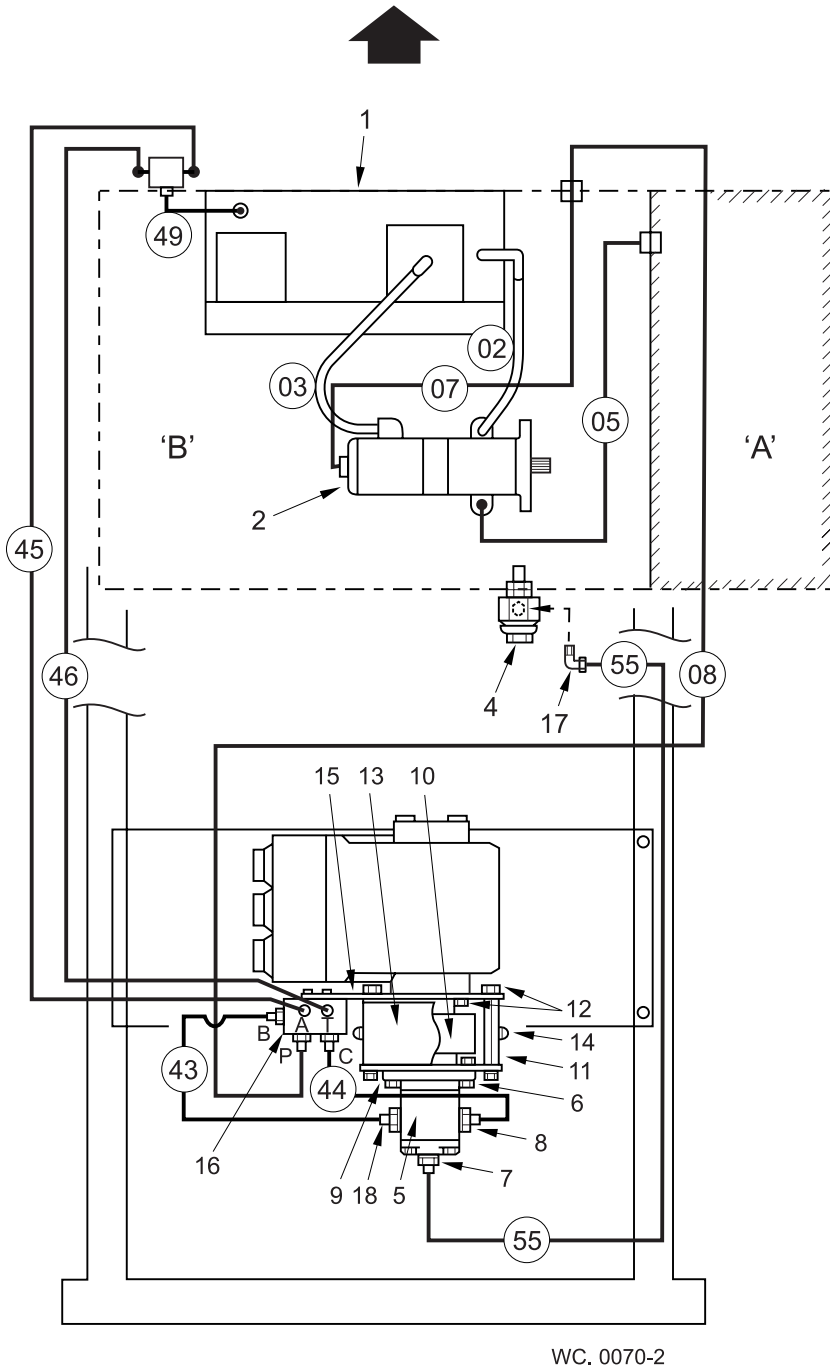
<b>Supawash - Water System Figure 12 - 14</b>
---

Item No.	Part No.	Description	Quantity
26	501--3	Clip	2
27	501-4	Clip	2
28	49871-1	Filter Mount - 600 Series	1
	67158-1	Filter Mount - 625/700 Series	1
29	48399-1	Spraybar	1
30	21-31	Water Jets	6
31	6756-1	Ball Valve	1
32	49998-1	'U' Clamp	2
	48362-1	Clamp	2
	425-14	Nut - M8c Nyloc	4
33	263-4	Adaptor 1/2" BSP	1
	451-19	Washer - Sealing 1/2" BSP	1
34	265-4	Adaptor 3/8"x 1/2" BSP	1
35	48362-1	Clamp	2
	124-143	Setscrew M8c x 40mm	4
	460-10	Washer - Spring M8	4
36	497-H12	Hose 3/4" Bore x 240cm	1
37	6117	Hose 1" Bore x 245cm	1
	501-4	Hose Clip	2
38	HC06000-38	3/8" BSP Hydraulic Hose	1
39	-	3/8" BSP Hydraulic Hose - Varies with chassis	1
40	HC06063-340-180	3/8" BSP Hydraulic Hose	1
41	HC06063-560	3/8" BSP Hydraulic Hose	1
	HC06063-560-180	Hose (When extra water tank fitted)	1
42	HC08003-45	1/2" BSP Hydraulic Hose	1

**Notes**

The Hose Reel (20), Lance (21) and Valve (15) are shown fitted in a typical position at the rear of the machine. Their location can vary depending upon chassis and customer requirement affecting Hose (40)

**Supawash - Hydraulic System  
Figure 12 - 15**



'A' = SYSTEMS LOCKER  
'B' = ENGINE BAY

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**Supawash - Hydraulic System  
Figure 12 - 15**

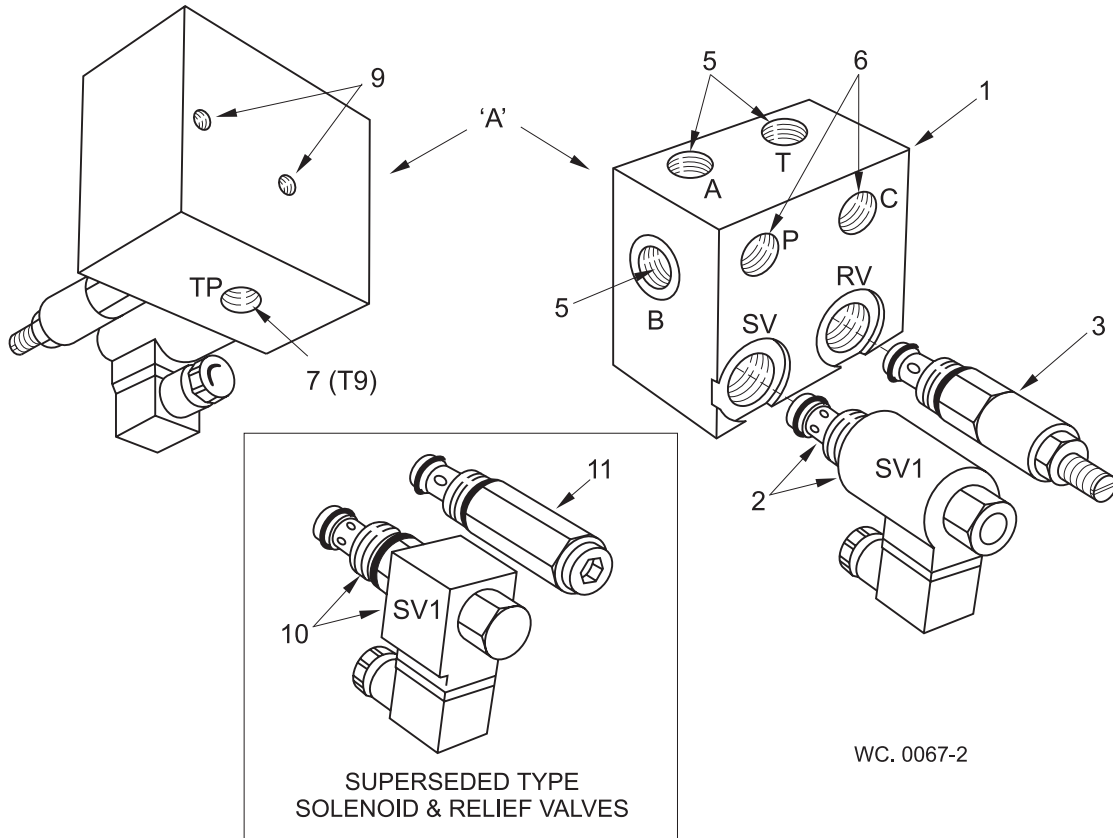
Item No.	Part No.	Description	Quantity	
1	-	Hydraulic Tank - See Chapter 10		
2	-	Tandem PTO Pump - See Chapter 10		
3	-	See Tandem Pump Installation See Chapter 10		
4	-	Return Adaptor - See Chapter 10		
5	239-6	Hydraulic Motor - Cassapa	1	
	239-506	Motor Seal Kit - Cassapa		
6	124-173	Setscrew M10c x 35mm	2	
	425-15	Nut - Nyloc M10c	2	
7	265-2	Adaptor 1/4" x 3/8" BSP	1	
	451-17	Washer - Sealing 1/4" BSP	1	
v	8	265-4	Adaptor 1/2" BSP x 3/8" BSP ) Motor	1
		451-19	Seal 1/2" BSP ) Feed	1
v	9	50256-1	Plate - Motor Mounting	1
	10	62847-1	Drive Coupling Assembly	1
		41910-1	Tab Washer ) Used with	1
		42816-1	Nut - Special ) Coupling	1
	11	90749-1	Spacer	4
	12	124-167	Setscrew M10c x 20mm	12
		460-11	Washer - Spring M10	12
	13	50257-1	Guard	1
	14	134-54	Screw Round Hd. M5c x 6mm	4
		460-7	Washer - Spring M5	4
	15	90748-1	Plate - Pump Mounting	1
	16	-	Valve Block Assembly - See next page	
v	17	521-8	Elbow	1
		12870	Tubing	1
		510-4	Tubing Nut	1
		511-4	Olive	1
	18	265-7	Adaptor 3/4" BSP x 1/2" BSP ) Motor	1
	451-21	Washer - Sealing 13/4" BSP ) Return	1	

For Hose Part Numbers See Chapter 10

**Notes**

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**Supawash - Valve Block Assembly  
Figure 12 - 16**





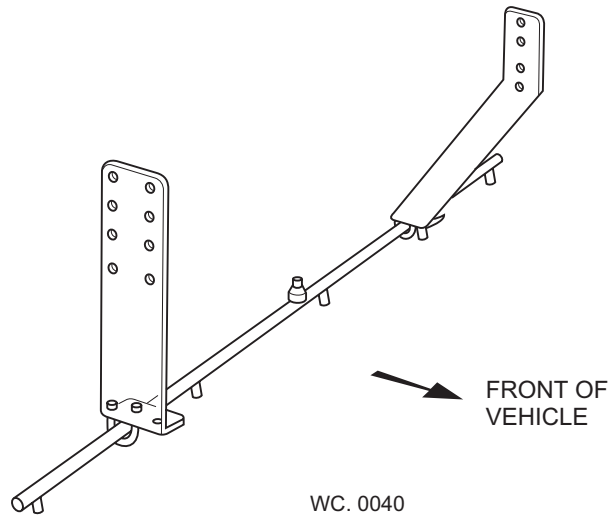
**Supawash - Valve Block Assembly  
Figure 12 - 16**

Item No.	Part No.	Description	Quantity
	90874-1	Valve Block Assembly 24v comprising 1 to 3	
	90874-2	Valve Block Assembly 12v comprising 1 to 3	
1	66099-1	Block N.S.S.	1
2	241-153	Valve - Cartridge (NO-S2600) (Seal Kit 241-164)	1
	241-01	Coil 12v	As Req'd
	241-02	Coil 24v	As Req'd
3	241-152	Relief Valve Cartridge (Seal Kit 241-164)	1
4	-		
5	263-4	Adaptor 1/2" x 1/2" BSP	3
	451-17	Washer - Sealing 1/2" BSP	3
6	265-4	Adaptor 1/2" x 3/8" BSP	2
	451-19	Washer - Sealing 1/2" BSP	2
7	665-18	Test Point Valve 1/4" BSP (T9)	1
	451-17	Washer - Sealing 1/4"	1
8	-		
9	124-132	Setscrew M8c x 16mm	2
	460-10	Washer - Spring M8	2
10	90262-1	Solenoid Valve NO - 24v	1
	254-3	Coil - 24v	
	90262-2	Solenoid Valve NO - 12v	1
	254-4	Coil - 12v	
11	90264-1	Relief Valve Cartridge	

**Notes**

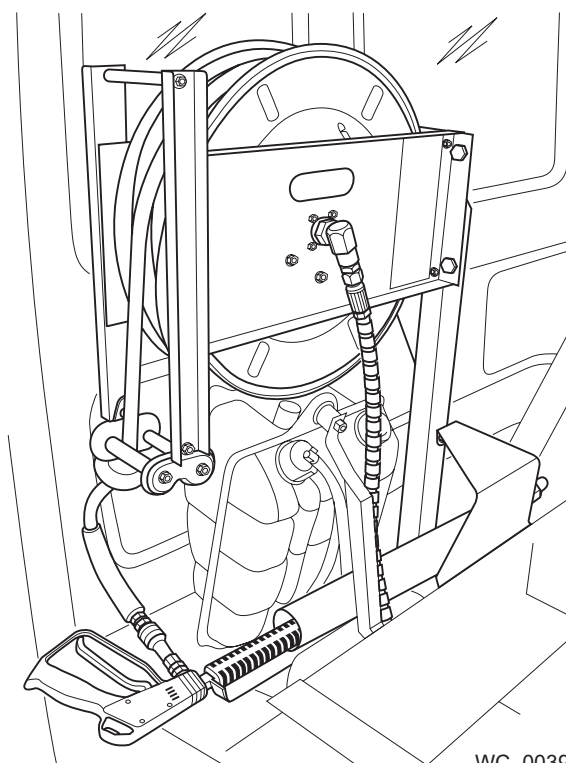
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## Supawash - Front Spraybar Installation Figure 12 - 17



Series	Chassis Type	JE Chassis Specification no.	Installation Drawing
600	L/Daf FA55		Y92959
600	M.A.N.14E		Y92429

**Supawash - Hose Reel and Pump Installation  
Figure 12 - 18**



WC. 0039-3

Series	Chassis Type	JE Chassis Specification. no.	Hose Reel Installation Drawing	Pump Installation Drawing
600	Iveco 13E18		Z94097	Y56991
600	L/Daf FA55		Y92968	Y56991
600	Volvo FL614		Y801778	
600	Volvo FL618		Y94364	Y56991
600	Volvo FL618		802716	

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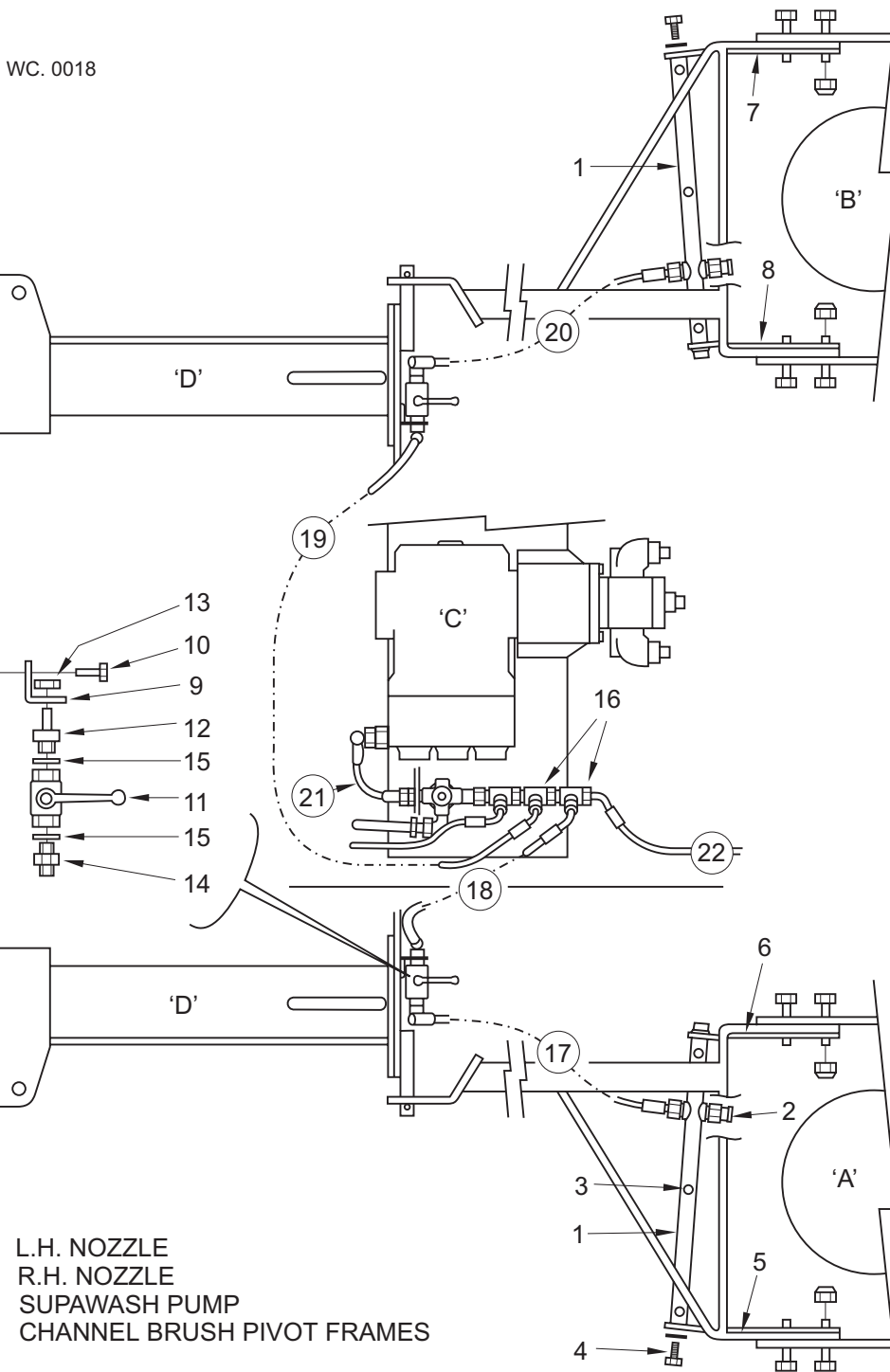
**Nozzle Spraybar Option  
Figure 12 - 19**



**Safety Precautions**



Ensure high pressure water hoses are in good condition and connections are tight as they handle pressures up to 100 bar (1450 psi). Water under pressure can penetrate skin and cause severe injury.

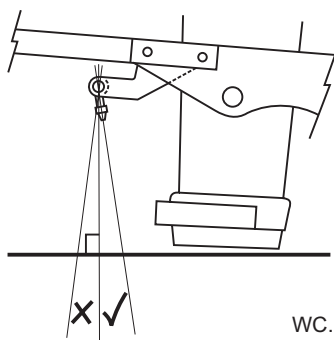


**Nozzle Spraybar Option  
Figure 12 - 19**

Item No.	Part No.	Description	Quantity	
			Single	Dual
1	63584-1	Spraybar	1	2
2	68-18	Blanking Cap	1	2
3	21-29	Water Jets	3	6
4	124-167	Bolt M10c x 20mm	2	4
	460-11	Washer - Spring M10	2	4
5	63585-1	Plate - Outer ) L.H.	1	
6	63586-1	Plate - Inner ) Nozzle	1	
7	63585-2	Plate - Outer ) R.H.	1	
8	63586-2	Plate - Inner ) Nozzle	1	
9	50044-1	Mount	1	2
10	124-103	Setscrew M6c x 20mm	2	4
	425-13	Nut - Nyloc M6c	2	4
11	6756-1	Ball Valve	1	2
12	49933-1	Adaptor 1/2" x 3/8" BSP	1	2
13	410-3	Locknut	1	2
14	265-4	Adaptor 1/2" x 3/8" BSP	1	2
15	451-19	Washer - Sealing 1/2" BSP	2	2
16	255-12	Tee	As Req'd	
17	HC06063-55-270	Hydraulic Hose 3/8" BSP - L.H. Nozzle	1	2
18	HC06044-195-180	Hydraulic Hose 3/8" BSP - L.H. Nozzle	1	1
19	HC06044-240-270	Hydraulic Hose 3/8" BSP - R.H. Nozzle	1	1
20	HC06063-55-90	Hydraulic Hose 3/8" BSP - R.H. Nozzle		
21	HC06044-34-30	Hydraulic Hose 3/8" BSP	1	
22	-	Hydraulic Hose - See Fig. 12 - 14		

**Notes**

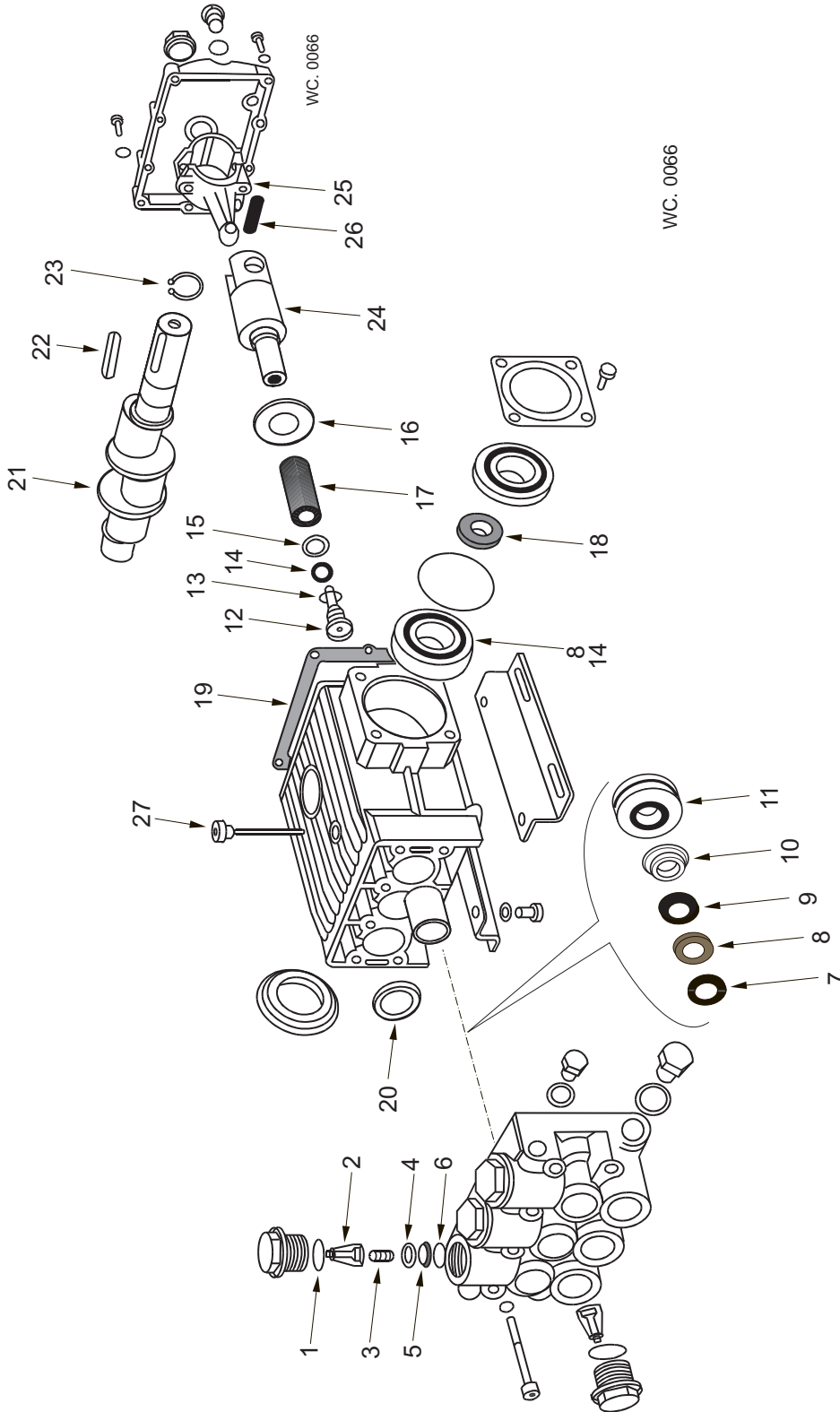
**Spraybar Setting**



For best performance the spraybar should be adjusted so the jets are directed towards the nozzle.

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## Supawash Pump Repair Kits Figure 12 - 20



**Supawash Pump Repair Kits**  
**Figure 12 - 20**

Item No.	Part No.	Description	Quantity Per Kit / Per Pump	
	223-402	<b>Valve Kit</b>		
1	NSS	'O' Ring	6	6
2	NSS	Valve Guide	6	6
3	NSS	Spring	6	6
4	NSS	Seal	6	6
5	NSS	Valve Seal	6	6
6	NSS	'O' Ring	6	6
	223-411	<b>Water Seal Kit</b>		
7	NSS	Head Ring	3	3
8	NSS	Packing Seal	3	3
9	NSS	Restop	3	3
10	NSS	Intermediate Ring	3	3
11	NSS	Packing Retainer	3	3
	223-410	<b>Piston Repair Kit</b>		
12	NSS	Piston Bolt	3	3
13	NSS	Seal	3	3
14	NSS	Anti Extrusion Ring	3	3
15	NSS	Washer	3	3
16	NSS	Washer	3	3
17	223-406	Piston	1	3
18	223-409	Crankshaft Oil Seal Kit	1	1
19	223-408	Sump Gasket	1	1
20	223-407	Oil Seal	3	3
21	223-412	Crankshaft	1	1
22	223-415	Crankshaft Key	1	1
23	223-417	Crankshaft Circlip	1	1
24	223-413	Piston Guide	1	3
25	223-414	Connecting Rod	1	3
26	223-416	Piston Pin	1	3
27	223-418	Dip Stick	1	1

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Fig. 13 - 2    Fusible Link Installation	13 : 4

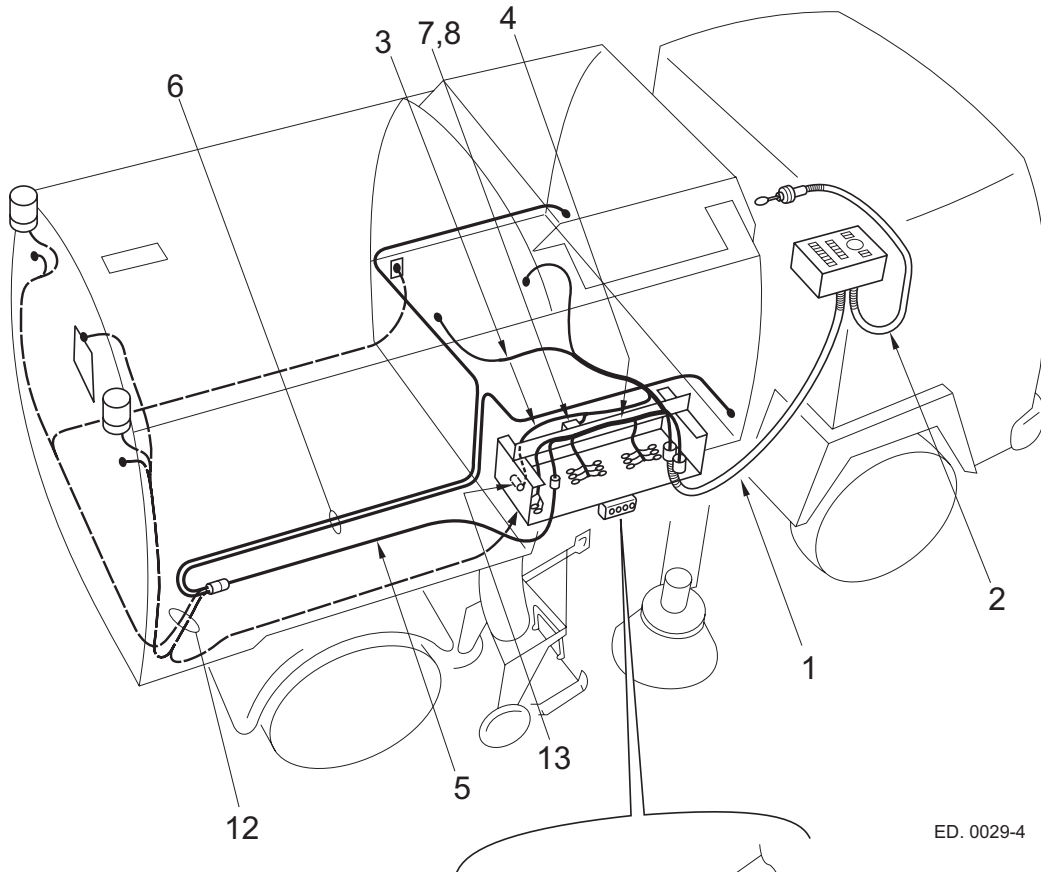
## Wiring Looms Figure 13 - 1



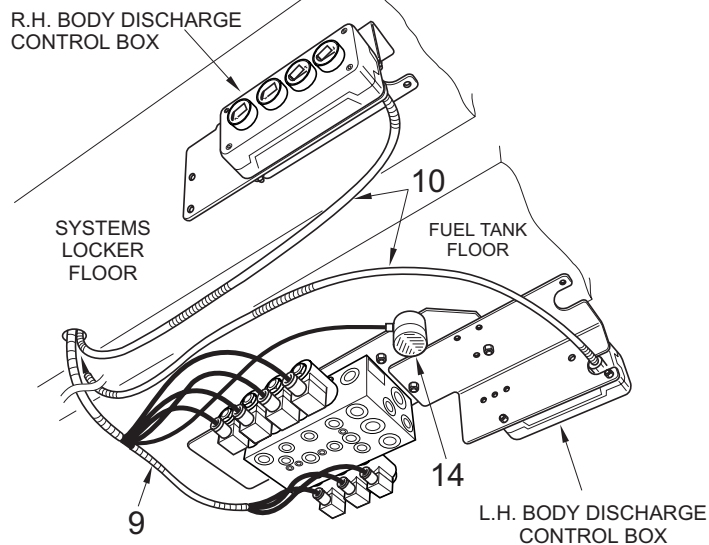
### Safety Precautions



Ensure looms are in good condition, are routed to avoid chaffing and are clear of hot surfaces.  
Disconnect the vehicle battery when working on the electrical system.



ED. 0029-4



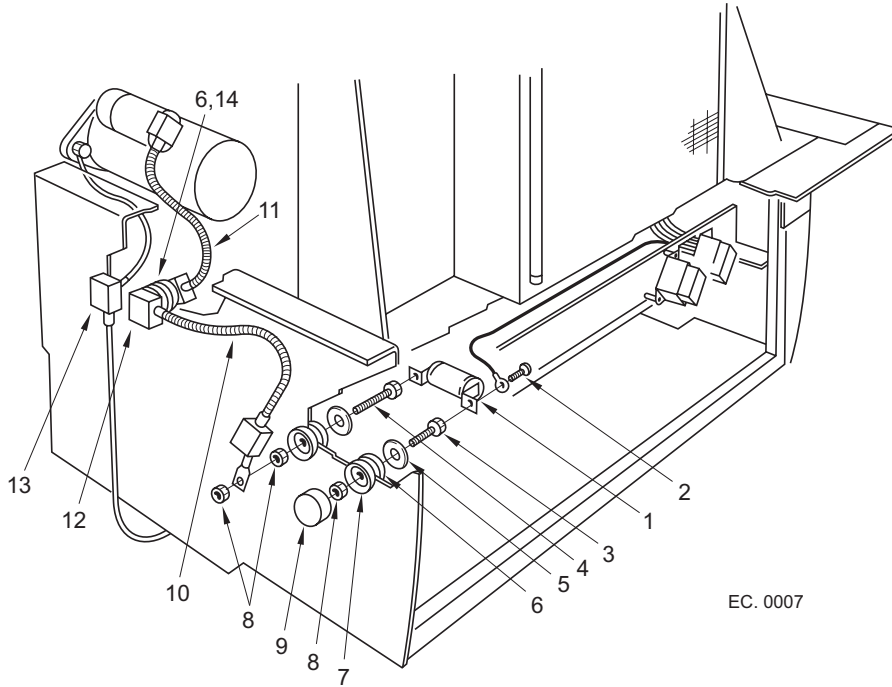
<b>Wiring Looms Figure 13 - 1</b>
---------------------------------------

Item No.	Part No.	Description	Quantity
1	800909-1	Main Loom	1
2	42708-1	Auxiliary Loom - Dual Sweep [ Connects	1
	42708-2	Auxiliary Loom - Single Sweep [ to	1
		Ergo Control, plus optional cab mounted Beacons, Work Lamps, Swept Distance and Time Elapsed Monitors	
3	200840-1	Engine Loom 12v Perkins 1004.40 and 40T	As Fitted
	800580-1	Engine Loom 24v Perkins 1004.40 and 40T	As Fitted
4	280663-1	Systems Locker Loom	1
5	280664-1	Subframe Loom	1
6	280665-1	Intake Duct Flap Control Loom - Dual Sweep	1
	280665-2	Intake Duct Flap Control Loom - LH Single	1
	280665-3	Intake Duct Flap Control Loom - RH Single	1
7	48-34	Starter Relay 12v (Green)	1
	48-36	Starter Relay 24v (Blue)	1
8	181-3	Screw - Pan Hd M5c x 16mm	2
	455-7	Washer - Plain M5	2
	425-12	Nut - Nyloc M5c	2
9	800908-2	Discharge Valve Loom	1
10	801012-1	Discharge Loom	1
	200830-1	Body Discharge (In Cab Option)	
11	201362-1	Supawash Option	
12		Rear Subframe Loom - Single	1
		Rear Subframe Loom - Dual	1
13	-	Fuseable Link - See over page	
14	30-184	Reverse Alarm	1
	281096-1	Spacer	1
	425-14	Nut - Nyloc M8c	1

**Notes**

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## Fusible Link Installation Figure 13 - 2



Item No.	Part No.	Description	Quantity	
			12v	24v
	94149-1	Fusible Link Assembly 12v		
	94149-2	Fusible Link Assembly 24v		
1	651-12	Fuse - 32 Amp for 24v Systems		1
	651-13	Fuse - 50 Amp for 12v Systems	1	<
2	135-89	Setscrew - Brass M5c x 10mm	2	<
3	93529-2	Adaptor	1	<
4	93529-1	Adaptor	1	<
5	457-5	Washer - Large	3	<
6	42661-1	Washer - Special	3	<
7	94150-1	Spacer	2	<
8	135-88	Locknut M10c	3	<
9	222-43	Cap	1	<
10	92105-40	Cable - Link	1	<
11	92105-60	Cable - Starter	1	<
12	-	Live Terminal - Part of Item 10		<
13	-	Earth Terminal		<
14	42660-1	Spacer	1	<

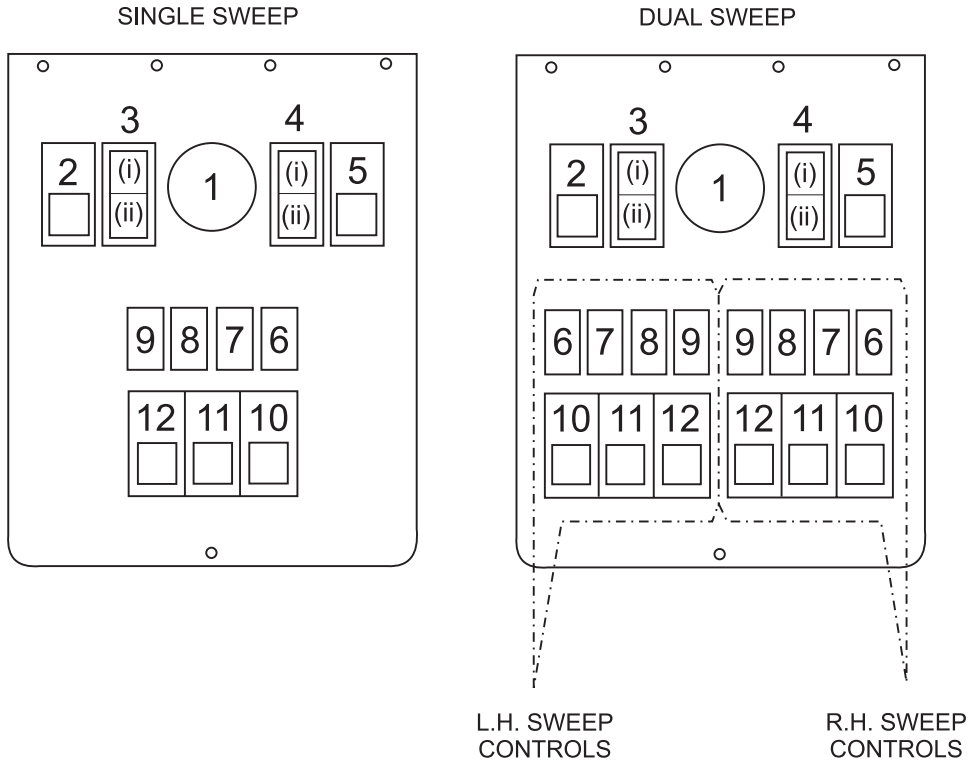
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Fig. 14 - 5 Body Discharge Control Box Installation	14 : 9
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Control Panel Switches  
Figure 14 - 1



C. 0001

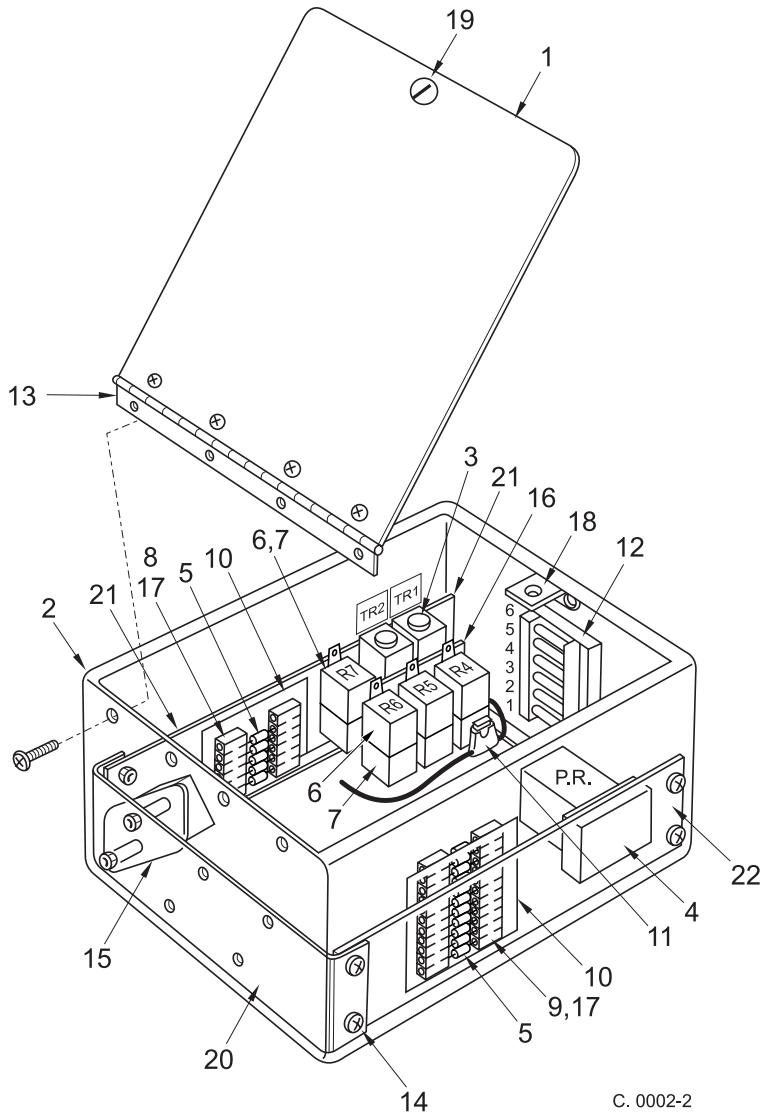
**Control Panel Switches  
Figure 14 - 1**

Item No.	Part No.		Description	Quantity	
	12v	24v		Single	Dual
1	16569	<	Heat Start Switch	1	1
	17047	<	Index Plate	1	1
	453-3	N/A	Washer - Red	1	1
	-	453-4	Washer - Yellow	1	
	16569-2	<	Key	1	1
*2	44-88	48-126	Switch - Spring Centred	1	1
	48-22	<	Insert - Incr. Speed	1	1
*3	48-28	48-10	Pilot Lamp Assembly	1	1
	48-23	<	(i) Insert - Lub. Oil	1	1
	48-26	<	(i) Insert - W.L.I.	1	1
*4	48-28	48-10	Pilot Lamp Assembly	1	1
	48-27	<	Insert - Water Temp.	1	1
	48-20	<	Insert - Battery	1	1
*5	48-3	48-9	Switch - 2 Position	1	1
	48-21	<	Insert - Beacon	1	1
6	48-1	<	Switch - Inlet Flap	1	2
7	48-1	<	Switch - Powathrust	1	2
8	48-1	<	Switch - Gutter Spray	1	2
9	48-1	<	Switch - Worklight	1	2
*10	48-2	48-8	Switch - 3 Position	1	1
	48-25	<	Insert - Nozzle	1	1
*11	48-2	48-8	Switch - 3 Position	1	2
	48-24	<	Insert - Channel Brush	1	2
*12	48-2	48-8	Switch - 3 Position	1	2
	48-214	<	Insert - W.S.B.	1	2
13	-	-	Cover See Fig. 14 - 2	-	-
*	47-14	47-13	Replacement Bulbs for items 2, 3, 4, 5, 10, 11 & 12		

**Notes**

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## Control Box Assembly Figure 14 - 2



Complete Control Box	- Single Sweep	12v, 53074-104	24v, 53074-102	
Complete Control Box	- Dual Sweep	12v, 53074-103	24v, 53074-101	<

- TR1 - Timer Relay - Wide Sweep Brush
- TR2 - Timer Relay - Channel Brush
- PR - Programme Relay
- R4 - Beacon Relay
- R5 - Anticrank Relay
- R6 - Channel Brush Lift Relay
- R7 - Heat Start Isolation Relay



**Current Cartridge Valve Block Hydraulics  
Figure 14 - 2**

Item No.	Part No.	Description	Quantity	
			Single	Dual
1	42435-2	Cover Panel - Single	1	-
	2435-1	Cover Panel - Dual	-	1
2	42434-1	Box	1	1
3	13981	Timer Relay 12V	2	2
	13982	Timer Relay 24V	2	2
	13983	Relay Base	2	2
4	12904	Relay 11 Pin 12V	1	1
	13867	Relay 11 Pin 24V	1	1
	39353	Relay Base	1	1
5	13984	Diode	10	16
6	13193	Relay 12V	1	4
	13194	Relay 24V	1	4
7	39353	Relay Base	4	4
8	40669-6	Terminal Block	2	1
9	40669-11	Terminal Block	-	1
10	48726-1	Insulation Sheet	2	2
11	30-94	In Line Fuse 7.5 amp	1	1
	30-72	Holder	1	1
			<b>Quantity</b>	
12	13545	Fuse Box		1
	181-3	Screw - Pan Hd M5c x 16mm		2
	460-7	Washer - Spring M5		2
	420-12	Nut M5c		2
	30-23	Fuse 1 - 16 Amp	1	
	30-11	Fuses 2 to 6 - 8 Amp		5
13	42450	Hinge		1
	134-41	Screw - Pan Hd M4c x 10mm		8
	460-5	Washer - Spring M4		8
	420-11	Nut M4c		8
14	181-4	Screw - Pan Hd M5c x 12mm		8
	460-7	Washer - Spring		8
	420-12	Nut M5c		8
15	13557	Terminal		3
	42774-1	Spacer		6
	124-100	Setscrew M6c x 12mm		12
	460-8	Washer - Spacer M6		12
16	41647-1	Relay Bracket		1
	181-1	Screw - Pan Hd M5c x 10mm		2
	460-7	Washer - Spring M5		2
	420-12	Nut M5c		2
17	134-13	Screw - Pan Hd M3c x 12mm		4
	460-3	Washer - Spring M3		4
	420-10	Nut M3c		4

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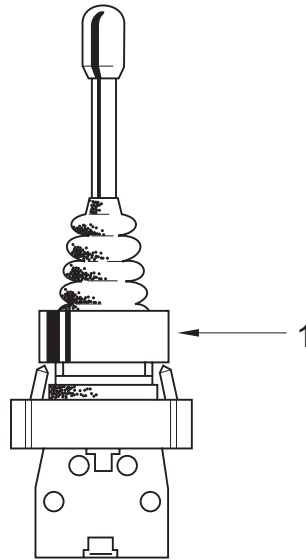
<b>Control Box Assembly Figure 14 - 2</b>
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Item No.	Part No.	Description	Quantity
18	42795-1	Angle Fastener	1
	181-1	Screw - Pan Hd M5c x 10mm	2
	460-7	Washer - Spring M5	2
	420-12	Nut - M5c	2
	42389-1	Fastener Screw	1
19	42389-1	Fastener Screw	1
20	42942-1	Plug Mounting Bracket	1
21	42775-1	L.H. Mounting Plate	1
22	42776-1	R.H. Mounting Plate	1

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**Notes**

**'Ergo' Control  
Figure 14 - 3**



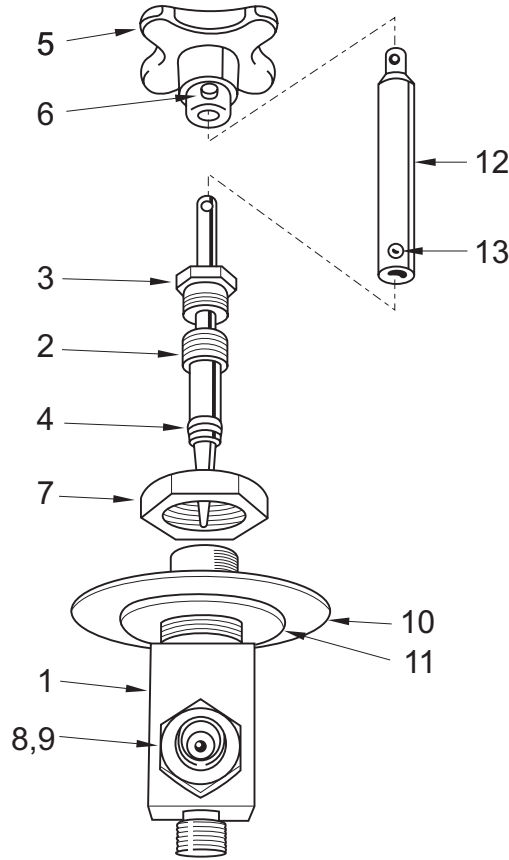
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Item No.	Part No.	Description	Quantity	
			Single	Dual
1	56-31	'Ergo' Control	1	2

**Notes**

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**Channel Brush Speed Control  
Figure 14 - 4**

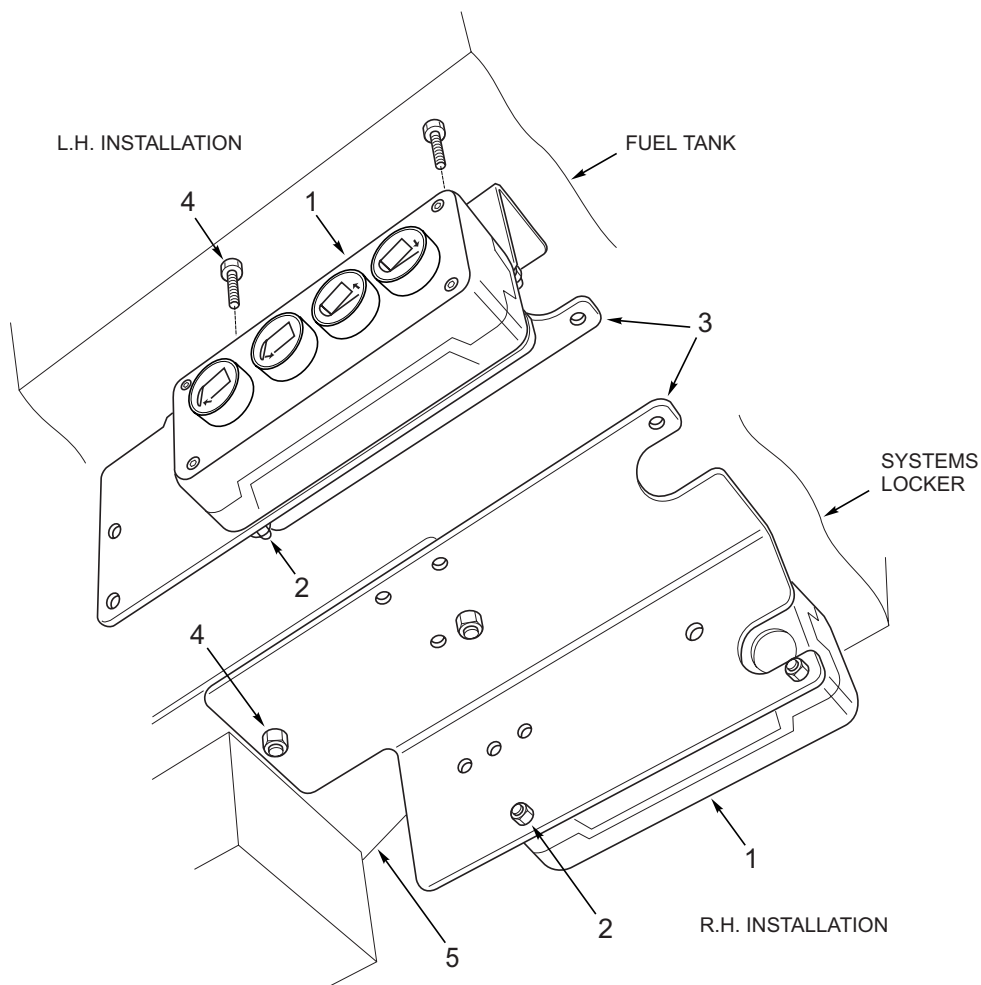


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Item No.	Part No.	Description	Quantity
	3730-1	Flow Control Valve Comprising:-	1
1	26106-1	Body	1
2	26107-1	Spindle	1
3	26108-1	Gland	1
4	79-52	'O' Ring	2
5	41045-2	Handwheel	1
6	135-9	Grub Screw M6c x 8mm	1
7	410-18	Nut - Mounting 3/4" BSP	1
8	265-2	Adaptor - Reducing 3/8" x 1/4" BSP	1
9	451-17	Washer - Sealing 1/4" BSP	1
10	40685-1	Label	1
11	450-16	Washer - Plain, for Mounting Valve	2
12	56739-1	Extension Spindle ] Eurocargo	1
13	135-9	Grubscrew M6c x 8mm ] Only	1

**Body Discharge Control Box Installation  
Figure 14 - 5**

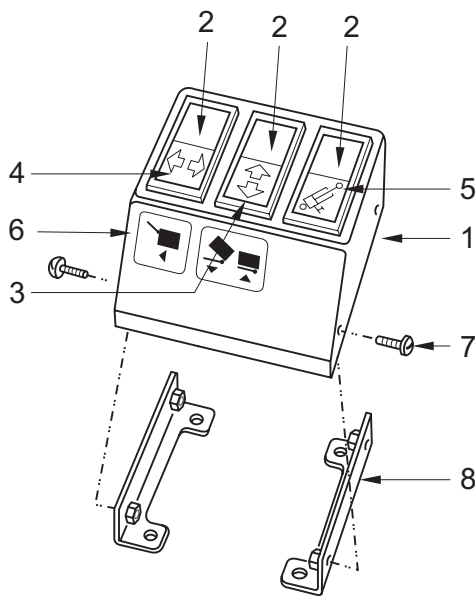


C. 0043

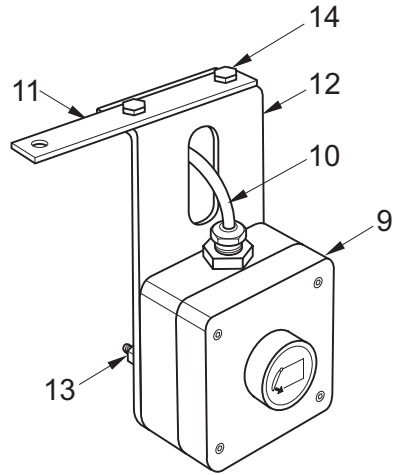
Item No.	Part No.	Description	Quantity Per Side
1	200314-1	Control Box Assembly	1
2	134-44	Setscrew Pan Head M4c x 20mm	2
	425-11	Nut - Nyloc M4c	2
3	801245-1	Bracket	1
4	124-135	Setscrew M8c x 20mm	2
	460-10	Washer - Spring M8c	2
	420-14	Nut M8c	2
5	-	Plate - See Chapter 10	
<b>Control Box Switch Spares</b>			
	48-293	Switch - Push Button	
	48-338	Switch - Contact	

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## Body Discharge Controls - In Cab Option Figure 14 - 6



IN CAB CONTROLS



EXTERNAL REAR DOOR  
CLOSE CONTROL

C. 0021-2

Item No.	Part No.	Description	Quantity
1	91028-1	Pod - Body Discharge without Autoprop	-
	91258-1	Pod - Body Discharge with Autoprop	1
2	48-88	Switch - Self Centring	3
	47-13	Bulb 24v	As Req'd
	47-14	Bulb 12v	As Req'd
3	48-81	Insert - Body Discharge	1
4	48-49	Insert - Rear Door	1
5	48-154	Insert - Body Prop	1
6	29609-1	Labels	1
7	134-44	Setscrew M4c x 20mm	4
8	91031-1	Mount	2
9	201202-1	External Control Box and Loom - Rear Door Close	1
10	13528	Cable - 3 Core	As Req'd
11	50977-1	Mounting Strip	1
12	95228-1	Bracket	1
13	127-38	Setscrew Csk M4c x 16mm	2
	425-11	Nut M4c	2
14	124-102	Setscrew M6c x 16mm	2
	425-13	Nut M6c	2

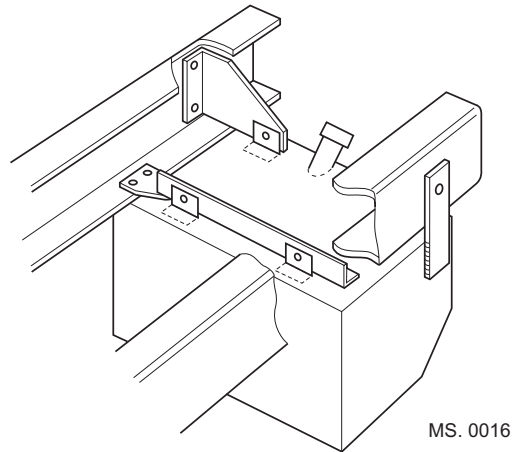
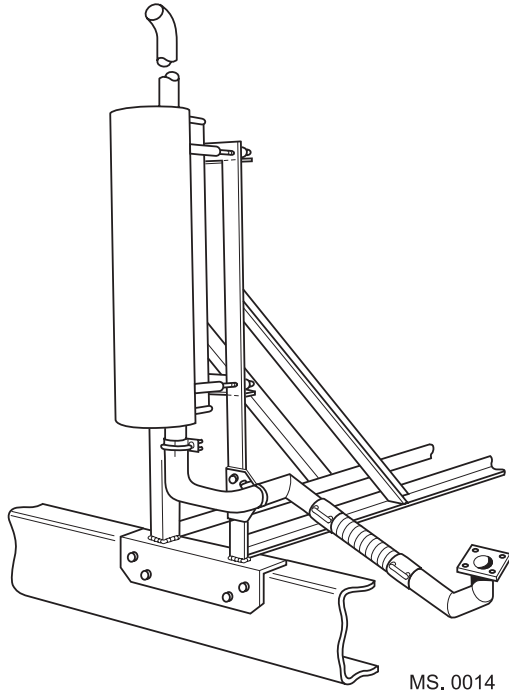
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Components****Table of Contents**

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## Exhaust and Fuel Tank Installations Figure 15 - 1



Series	Chassis Type	JE Chassis Specification No.	Drawing	Description	
600	ERF ES6.22		802856	Exhaust Installation	<
600	MAN 14T		801820	Fuel Tank Installation	
600	MAN 14.224		802163	Exhaust Installation	<
600	Renault			Exhaust Installation Heat Shield Installation	
600	Volvo FL614		800026	Exhaust Installation	
	Volvo FL614		802530	Fuel Tank Installation	<
600	Volvo FL618		801341	Silencer Repositioning	<

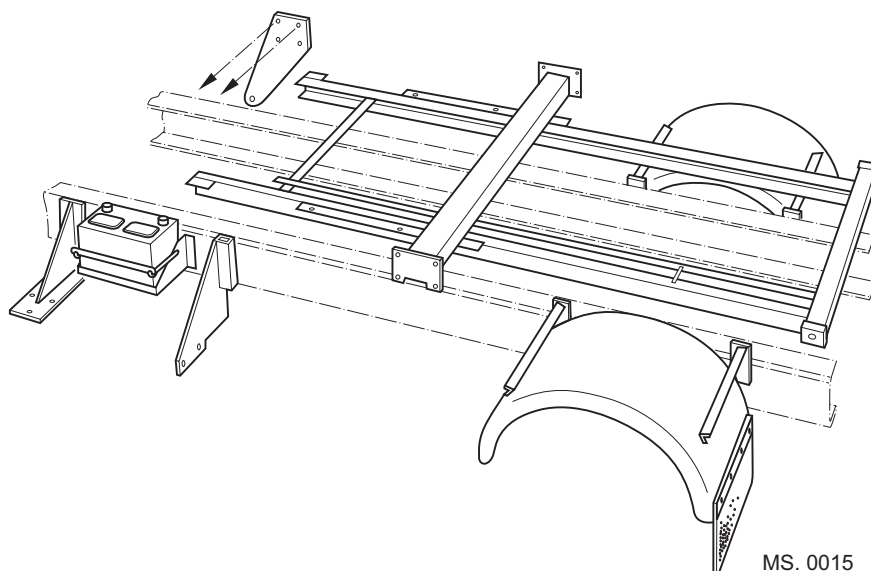
### Notes

The majority of chassis now have the exhaust and fuel tanks fitted by the chassis manufacturers.

If in doubt when ordering parts, contact the Parts and Service Department quoting the machine serial number. See 'Ordering Parts' in the Foreword of this section.



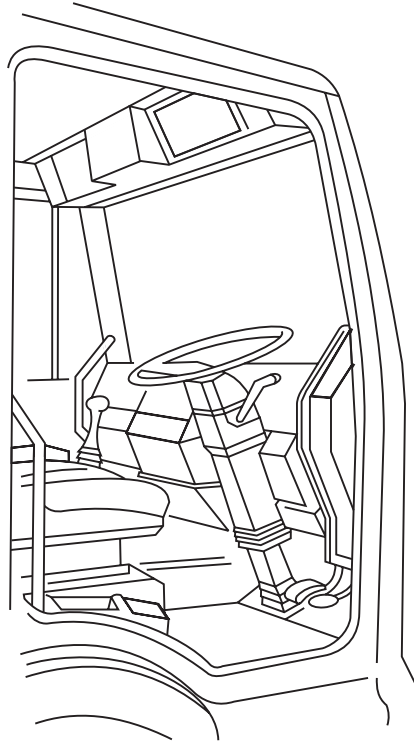
**Subframe, Rear Mudguard, Battery  
and Sweep Gear Installations  
Figure 15 - 2**



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Series	Chassis Type	JE Chassis Specification No.	Drawing	Description
	600	ERF ES6	X80314	
>	600	ERF ES6.22	X802854	
	600	Iveco120E18	X63095	
	600	Iveco 130E15	X63095	
>	600	Iveco 150E18	X92315	
>	600	Iveco 170E18	X801523	
	600	Leyland/Daf FA65	X50700	
>	600	DAF 55-150	X802463	
	600	MAN 15.224	W94938	
	600	Mercedes 13.17	W50982	
	600	Renault M150	X800576	
	600	Volvo FL614	X50408	
	600	Volvo FL618	X801352	
>	625	DAF 55-210	X802968	
	625	Mercedes 1820	X800281 X800343	Chassis Prep Underrun Installation
>	625	Iveco 170E23	W802592	
>	700	MAN 18.224	X801799	
	700	Volvo FL618	X802510	

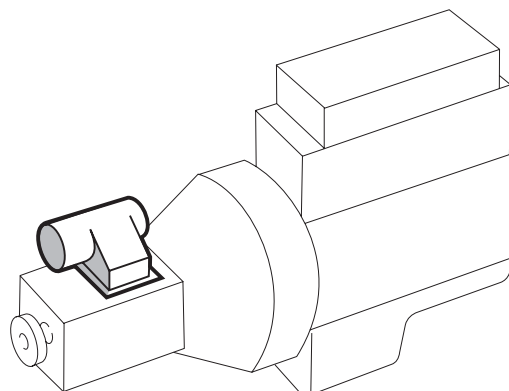
**Cab Preparation  
Figure 15 - 3**



CA. 0009

Series	Chassis Type	JE Chassis Specification no.	Drawing	
600	MAN 12-163		Y802713	<
600	Renault Midlum 210		803299-1	<

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CA. 0006

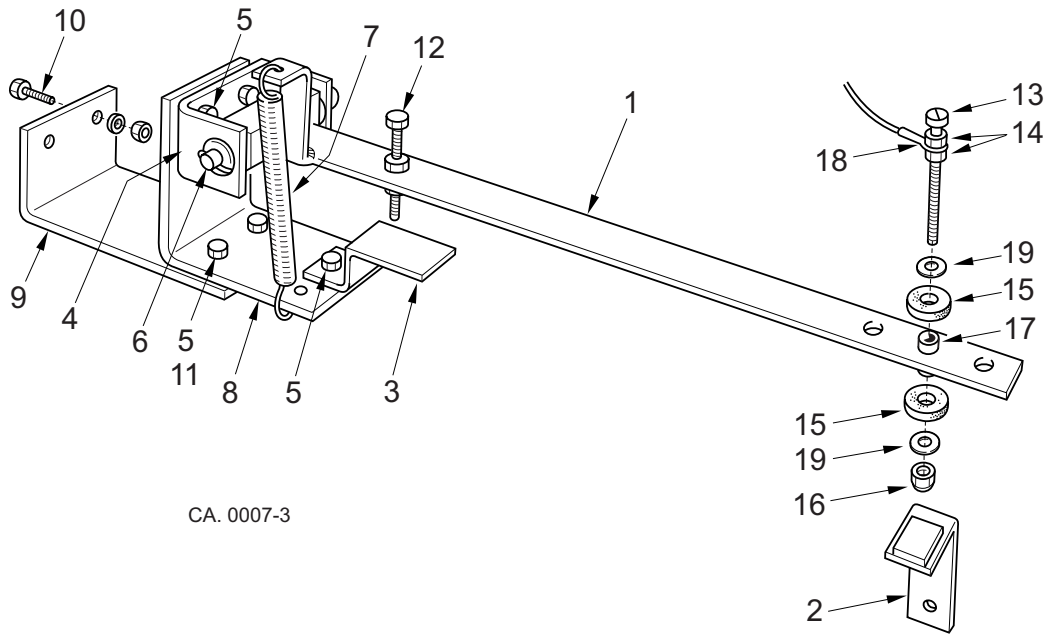
#### **Note**

Because of the increasing number of chassis engine and gearbox combinations, it is not possible to list accurately the various PTO/pump options.

If information is required, contact the Parts and Service Department quoting the machine serial number. See 'Ordering Parts' in the Foreword of this section.

- > Please note that when a PTO pump is fitted, Check Valve 71457-1 should be fitted in the supply to the valve bank.

## Weight Load Indicator Figure 15 - 5



CA. 0007-3

Item No.	Part No.	Description	Quantity
	20724	Weight Load Indicator Assembly	
1	281745-1	Arm	1
2	281731-1	Contact Bracket	1
3	281739-1	Stop Plate	1
4	281738-1	Support Bracket	1
5	124-103	Setscrew M6c x 20mm	5
	460-8	Washer - Spring M6	5
	420-13	Nut M6c	5
6	281742-1	Pin	1
	455-10	Washer - Plain M8	4
	500-70	Split Pin	2
7	6275-1	Spring	1
8	20723-1	Support Link	1
9	20722-1	Support Bracket	1
10	124-105	Setscrew M6c x 25mm	2
	460-8	Washer - Spring M6	2
	420-13	Nut M6c	2
11	455-8	Washer - Plain M6	2
12	124-113	Setscrew M6c x 50mm	1
	420-13	Nut M6c	2
13	124-113	Setscrew - M6c x 50mm	1
14	410-27	Nut - Brass M6c	3
15	6272-10	Washer - Fibre	2
16	425-13	Nut - Nyloc M6c	1
17	17369	Insulator - Nylon Tube x 10mm	1
18	50-43	Ring Terminal	1
19	457-2	Washer - Large M6	2

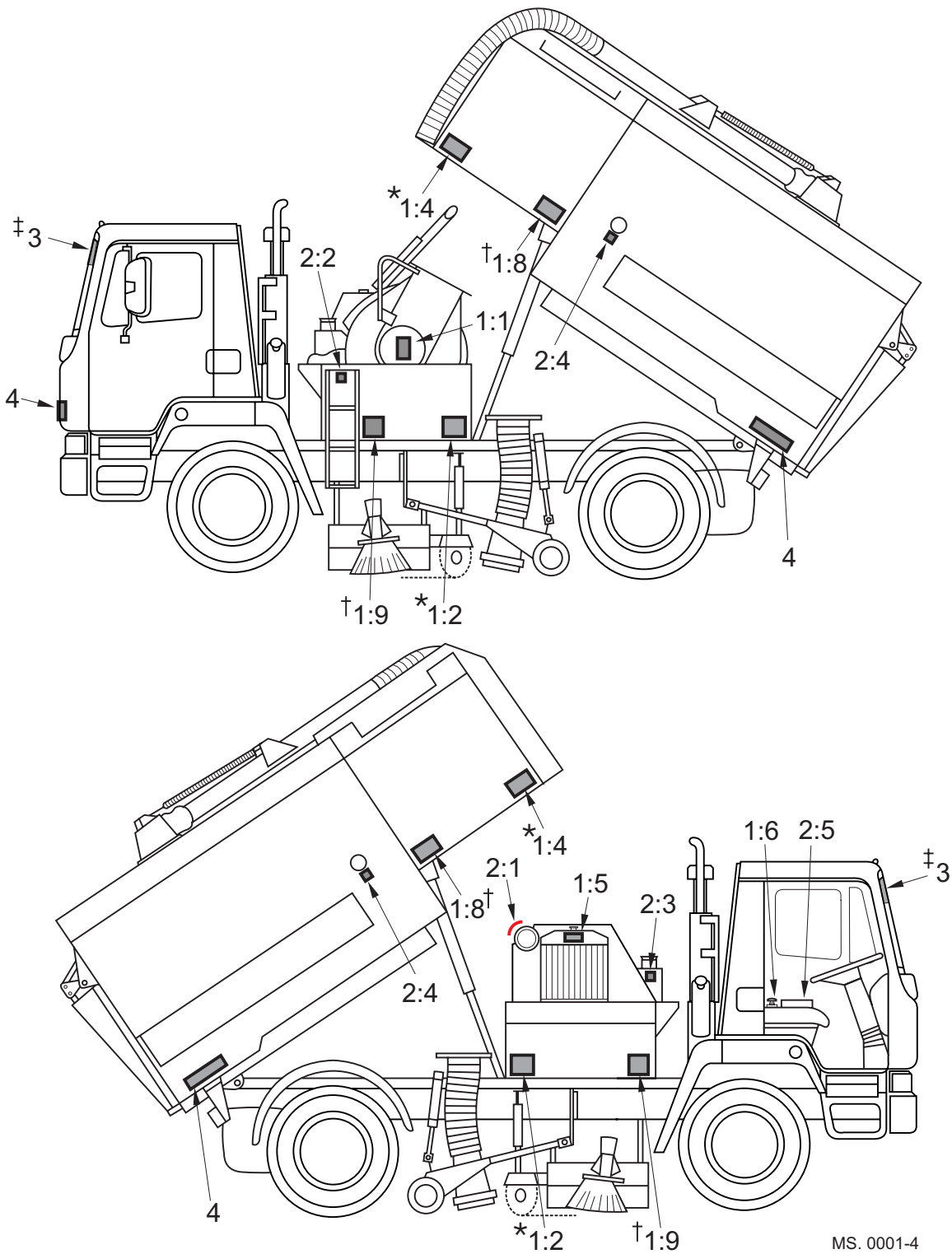
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**Decals**  
**Figure 16 - 1**



MS. 0001-4

\* 1:2 & 1:4 Fit to 'main' side of machine, i.e. L.H. dual sweep machine L.H. side.

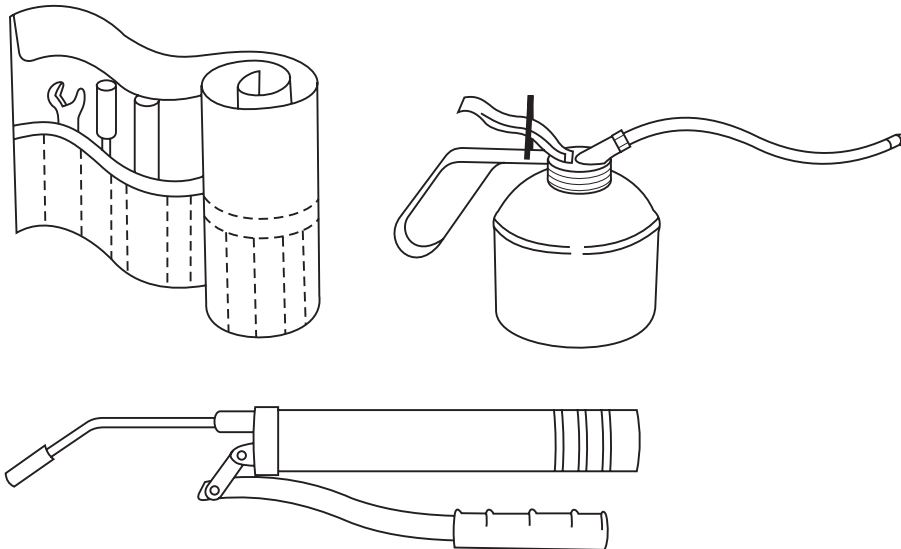
† 1:8 & 1:9 Fit to both sides of machine, single & dual sweep machines.

‡ 3. Fit label appropriate to vehicle height + 50mm.



## Lubricants and Tool Kit Figure 16 - 2

Part No.	Description	Quantity
39671	Vitaliser Fluid	Top Up Bottle
39672-5	Hydraulic Oil	5 Litre Can
39673-5	Fluid Flywheel oil	5 Litre Can
39675-5	Automatic Transmission & Power Steering Fluid	5 Litre Can
39676-5	Engine Oil	5 Litre Can
39677-5	Gearbox Oil	5 Litre Can
39678-5	Anti-Freeze	5 Litre Can



MS. 0003

Part No.	Description
45969-1	Tool Kit



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**CHAPTER****17**

# Health & Safety Precautions

## Introduction

The information presented in this chapter does not infer that there are hazards associated with the Johnston sweepers, it is given as a guide to general precautions that should be exercised in the course of their maintenance work.

Whilst every effort has been made to ensure completeness of this document, owners and operators of Johnston sweepers are reminded of their responsibilities to comply with all relevant legislation including Risk/COSHH Assessments and Approved Codes of Practice.

Many of the procedures associated with the repair and maintenance of the Johnston machines may involve physical hazards or other risks to health. This section lists some of these hazards and the precautions necessary to avoid them.

This list is only general but all operations, procedures and the handling of materials should be carried out with health and safety in mind.



## IMPORTANT NOTICE

---

Always remove the key from the ignition switch to prevent the engine and sweep equipment being operated by a third party while working on or under the machine.



## ANTIFREEZE

---

Antifreeze may be absorbed through the skin in toxic or harmful quantities.

If swallowed seek medical attention immediately.

Some types i.e. isoproparnol, ethlene glycol and methanol are flammable.



## BATTERIES

---

Gases released during charging are explosive. Never use naked flames or allow sparks near charging or recently charged batteries.

Disconnect:-

Disconnect the negative battery lead from the battery first. The positive cable must always be disconnected last.

Reconnection:-

Always reconnect the positive battery cable first and the negative cable second.

Jump starting and use of auxiliary (booster) batteries:-

Do not jump start maintenance free batteries if in a deeply discharged state as internal short circuits may occur.

If a maintenance free battery is found to be in a deeply discharged state it is essential it is recharged off the vehicle, since simply jump starting will not enable the vehicles own charging system to initiate the charging process.

Jump starting procedure:-

The following must always be used when connecting a booster battery and care must be taken not to cause sparking which could ignite any hydrogen gas being given off by the batteries.

1. Apply the parking brake, turn off ignition, lights , and other electrical loads.
2. If the slave battery is mounted on another vehicle ensure that the vehicles are not touching.
3. Ensure that the slave battery voltage is compatible with the vehicle battery.
4. Ensure that adequate ventilation is available to the vehicle and slave batteries.



## CHEMICAL MATERIALS

---

Chemical materials such as solvents, sealers, adhesives, paints, resin foams, battery acids, antifreezes, brake fluids, oils and grease should always be used with caution and stored and handled with care. They may be toxic, harmful, corrosive, irritant or highly flammable and give rise to hazardous fumes and dusts.

### DO'S

- DO - remove chemical materials from the skin and clothing as soon as practical after soiling. Change heavily soiled clothing and have it cleaned.
- DO - carefully read and observe hazard and precaution warnings given on material containers and in any accompanying leaflets, posters or other instructions. Material health and safety data can be obtained from manufacturers.
- DO - organise work practices and protective clothing to avoid soiling of the skin and eyes; breathing vapours/aerosols/dusts/fumes; inadequate container labelling; fire and explosive hazards.
- DO - wash before job breaks, before eating, smoking, drinking or using toilet facilities when handling chemical materials.
- DO - keep work areas clean, uncluttered and free of spills.

### DO NOT'S

- DO NOT - Mix chemical materials except in accordance with the manufacturers instructions: some chemicals can form other toxic or harmful chemicals, give off toxic or harmful fumes; be explosive when mixed together.
- DO NOT - Spray chemical materials, particularly those based on solvents, in confined spaces: for example when people are inside a vehicle.
- DO NOT - Apply heat or flame to chemical materials except under the manufacturers instructions. Some are highly flammable and some may release toxic or harmful fumes.
- DO NOT - Leave containers open. Fumes given off can build up to toxic, harmful or explosive concentrations. Some fumes are heavier than air and will accumulate in confined areas, pits etc.
- DO NOT - Transfer chemical materials to unlabelled containers.
- DO NOT - Clean hands or clothing with chemical materials. Chemicals, particularly solvents and fuels will dry the skin and may cause irritation with dermatitis. Some can be absorbed through the skin in toxic or harmful quantities.



## DUSTS

---

Powder, dusts or clouds may be irritant, harmful or toxic. Avoid breathing dusts from powdery chemical materials or those arising from dry abrasion operations. Wear respiratory protection if ventilation is inadequate.



## ELECTRIC SHOCK

---

Electric shocks can result from the use of faulty electrical equipment or from the misuse of equipment even in good condition.

Ensure that electrical equipment is maintained in good condition and frequently tested.

Ensure that flexes, cables, plugs and sockets are not frayed, kinked, cut, cracked or otherwise damaged.

Ensure that electrical equipment is protected by the correct rated fuse and if used outside an earth leakage circuit breaker is used.

Never misuse electrical equipment and never use equipment which is in any way faulty. The results could be fatal.

Use reduced voltage equipment for inspection and working lights where possible, ie 110v, 50v or 12v.

Ensure that the cables of mobile electrical equipment cannot get trapped and damaged such as in a vehicle hoists, trolley jacks etc.

Use air operated mobile equipment where possible in preference to electrical equipment.



## EXHAUST FUMES

---

These may contain asphyxiating, harmful and toxic chemicals and particles such as carbon oxides, nitrogen oxides, aldehydes, lead and aromatic hydrocarbons. Engines should only be run under conditions of adequate extraction or general ventilation and not in confined spaces.



## EXHAUST SILENCERS/SYSTEMS

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With the advent of new generation exhaust systems such as CRT or full exhaust catalyst, care should be taken as these systems run at extremely high temperatures.



## FIRE AND WELDING

---

Observe strict fire safety when storing and handling flammable materials or solvents, particularly near electrical equipment or welding processes.

Disconnect battery and unplug the E-Tec before commencing any welding work - failure to observe this will cause premature failure of the E-Tec.

Ensure before using electrical or welding equipment that there is no fire hazard present.

Have a suitable fire extinguisher available when using welding or heating equipment.

Special precautions must be taken before any welding or cutting takes place on vessels which have contained combustible materials, e.g. fuel tanks.

The sound insulation foam used on the auxiliary engine cowl and body front panel must be removed from areas where any welding or cutting is to take place as harmful fumes could be given off if burnt.



## FIRST AID

---

It is desirable for someone in the workshop to be trained in first aid procedures. Splashes or particles in the eye should be flushed with clean water for at least ten minutes, and medical attention sought.

Soiled skin should be washed with soap and water.

Inhalation affected individuals should be removed to fresh air immediately.

If swallowed or if effects persist consult a doctor with information (label) on material used.

Do not induce vomiting (unless indicated by manufacturer).



## HIGH PRESSURE OIL, WATER, AIR OR LUBRICATION EQUIPMENT

---

Always keep high pressure equipment in good condition, and regularly maintained, particularly at joints and unions.

The use of goggles is always recommended when handling high pressure water spray lances.

Never direct a high (or low) pressure nozzle at the skin as the fluid may penetrate to the underlying tissue, etc. and cause serious injury.



## OILS AND GREASES

---

Prolonged and repeated contact with mineral oil may result in the removal of natural fats from the skin, leading to dryness, irritation and dermatitis. Gross and prolonged contact especially with used engine oil which contains potentially harmful contaminants, may cause skin cancer.

Where there is a risk of eye contact, e.g. by splashing, eye protection should be worn, for example, chemical goggles or face shields; in addition an eyewash facility should be provided.

Adequate means of skin protection and washing facilities should be provided.

Repeated or prolonged skin contact should be avoided by wearing protective clothing, including impervious gloves where practical. Particular care should be taken with used oils and greases containing lead.

First Aid treatment should be obtained immediately for open cuts and wounds.

Use barrier creams, applying before each work period, to help the removal of oil from the skin.

Only use proprietary hand cleaners if they can be removed from the skin using water.

Overalls must be cleaned regularly. Discard unwashable clothing and all impregnated footwear.

In the event of a skin condition occurring consult a doctor and tell him that your work involves used oil.



## SOLVENTS

---

Solvents such as acetone, white spirit, toluene, xylene and trichloroethane are flammable.

Avoid splashes to the skin, eyes and clothing. Wear protective gloves, goggles and clothing if necessary.

Ensure good ventilation when in use, avoid breathing fumes, vapours and spray mists and keep containers tightly sealed. Do not use in confined spaces. When spraying materials containing solvents, for example paints, adhesives, coating, use extraction ventilation or personal respiratory protection in the absence of adequate general ventilation.

Do not apply heat or flame except under specific and detailed manufacturers instructions.



## SUSPENDED LOADS

---

Never work under an unsupported, suspended or raised load. For example; jacked up vehicle, raised body, suspended engine etc.

Always ensure that lifting equipment such as jacks, hoists, axle stands, slings, etc, are adequate and suitable for the job, in good condition and regularly maintained.

Never improvise lifting tackle - always ensure body props are utilised when working under raised bodies.



## WORKSHOP TOOLS AND EQUIPMENT

---

Never use tools or equipment for any purpose other than that which they were designed.

Never overload equipment such as hoists, jacks, axle stands or lifting slings. Damage caused by overloading is not always immediately apparent and may result in a fatal failure the next time the equipment is used.

Never use damaged or defective tools or equipment.

Always wear suitable eye protection when using grinding, chiselling or sand blasting equipment.

Always wear a suitable breathing mask when using sand blasting equipment, working with asbestos based materials (such as brake linings), or using spraying equipment.

Always use recommended barrier cream on the hands when handling oils, greases or fuels.

