

NOTICE

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MANUALS ARE MODEL AND SERIAL NUMBER SPECIFIC.

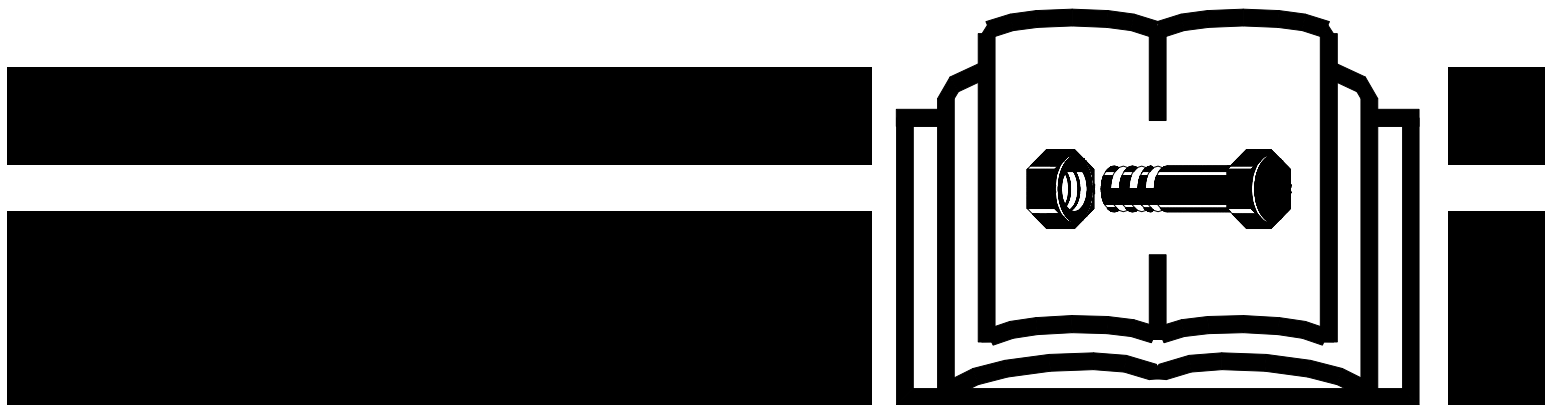
If additional printed manuals are required for your shop/office location, order by part number through the factory's Parts Center.

If a retail customer needs replacement manual(s) for a specific unit, contact the factory's Customer Data Center at: 800-829-0051 or
customerdata@vermeermfg.com

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Vermeer®

D80X100/Navtec Navigator Horizontal Directional Drill



Parts Manual

P1.01
SERIAL NO. 101 -
ORDER NO. 105400Q73

HOW TO USE THE MANUAL

This manual contains illustrations and parts lists of components and assemblies which make up the machine. Each page consists of the name of the assembly or component, a figure number, reference numbers, part numbers, part names, and the quantities of the parts used.

Assembly or component name helps identify the illustration and parts list for each figure. This name also helps locate the general area of the machine where the assembly or component can be located.

Figure numbers are used to identify each assembly or component and to group these assemblies or components into major categories.

Reference numbers shown in a column refer to the numbered parts in the illustration. This ties the part in the illustration to the part number and description in the parts list.

An asterisk indicates information about the item has changed since the previous release of the parts manual. A note in the Remarks column often explains the change.

Part numbers are used to identify individual parts or part assemblies.

Part descriptions provide the name of the part, plus additional information such as dimensional specifications and what parts are grouped together to form part assemblies, which helps you identify the part(s).

Quantities listed for each figure are only for that assembly or component and not the total used per machine.

This parts manual is not intended to be a complete guide for machine service or repairs. Contact your Vermeer dealer for any of your service or technical requirements.

ORDERING PARTS

Parts for repair or replacement are available through our network of authorized dealers located throughout the world.

Use only authorized Vermeer parts for repair or replacement. Always give the serial number and

model number of the machine for which parts are being ordered. When ordering parts for component(s), which are not manufactured by Vermeer Manufacturing, also give the serial number of that component(s). Order all parts by part number, part name, and quantity needed.

UPDATING AND REORDERING MANUALS

The parts lists, illustrations, and specifications in this manual are based on the latest information available at time of publication. Your machine may have product improvements and options not yet contained in this manual.

Vermeer Manufacturing Company reserves the right to make changes at any time without notice or obligation to you.

Your dealer will receive notice of these changes and can assist you with accurate parts identification when ordering.

A copy of this manual is supplied with each machine. Additional copies are available through your dealer. When ordering additional manuals, use the reorder number listed on the front cover and the quantity needed.

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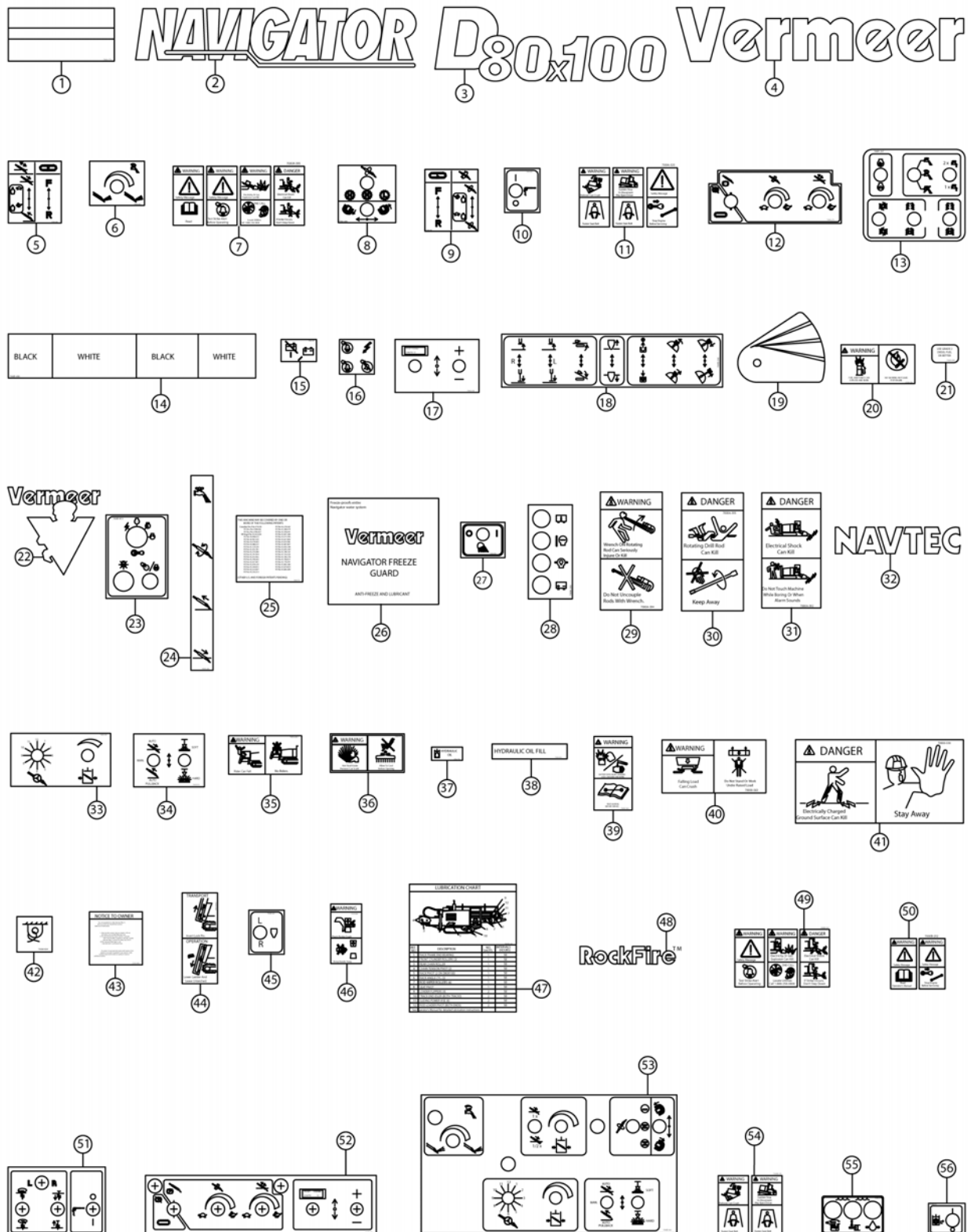
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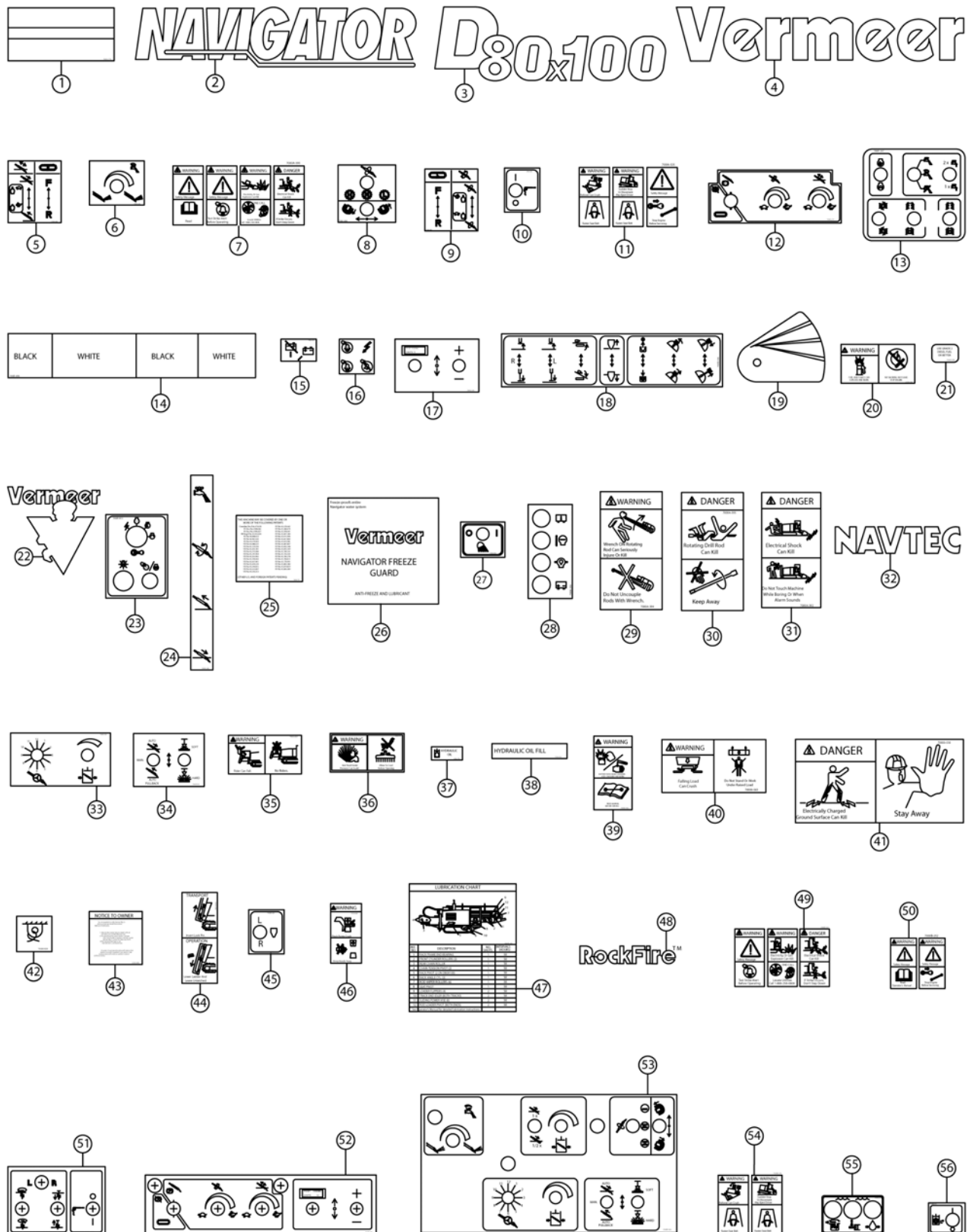
Decal Assembly - Domestic Fig 1-1r05



Decal Assembly - Domestic Fig 1-1r05

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
		Revision Date	January, 2005		Update In Illustration & Parts List.
1		70000775	DECAL 3"VERMEER STRIPE	21	
2		70000614	DECAL - NAVIGATOR 3 5/8 X 17	2	
		70000615	DECAL-NAVIGATOR 1 3/4 X 8 1/2	1	
3		7000A992	DECAL-MODEL D80 X 100	2	
4		2326619	DECAL-VERMEER 3 X 15	2	
		2326595	DECAL-VERMEER-4 1/2 X 24	1	
5		700IA268	DECAL-DRILL FORCE RT	1	UND
6		700IA262	DECAL-FLUID PRES.	1	SN101-195
7		7000A395	DECAL-WARNING	1	SN101-195
8		700IA808	DECAL-SEAT/DRILL COMBO	1	SN101-195
9		700IA269	DECAL-DRILL ROTATION LT	1	UND
10		700IA807	DECAL-WASHWAND	1	SN101-195
11		7000A325	DECAL-WARNING	1	SN101-195
12		700IA270	DECAL-SPEED VARTN	1	UND, SN101-195
13		700IA267	DECAL-ROD VISES	1	UG
14		700IA490	DECAL-INDICATOR 2 7/8-3 1/2 ROD	1	
15		700IA477	DECAL-BATTERY SWITCH	1	UG
16		700IA260	DECAL-TEST	1	UND
17		7000A508	DECAL-DISPLAY	1	SN101-195
18		700IB044	DECAL-CONTROL BANK	1	
19		700IA624	DECAL-LOADER POSITION	1	
20		2326324	DECAL-WARNIN/REFUEL	1	
21		70000098	DECAL-DIESEL	1	AT/UND
22		70000939	DECAL-15" VERMEER LOGO	1	
23		700IA813	DECAL-IGNITION	1	
24		700IA265	DECAL-INSTRUMENTS	1	UG
25		7000B119	DECAL-PATENT	1	
26		7000A027	DECAL-NAVIGATOR FREEZE GRD	1	
27		700IA804	DECAL-WORK LIGHT	1	
28		700IA266	DECAL-CONTROL PANEL	1	UG
29		7000A394	DECAL-WARNING	1	
30		7000A393	DECAL-DANGER	1	
31		7000A392	DECAL-DANGER	5	
32		7000A745	DECAL-NAVTEC	2	
33		700IA509	DECAL-STEER	1	SN101-195
34		7000A510	DECAL-AUTO/MAN SWITCH	1	SN101-195
35		700IA863	DECAL-WARNING	1	
36		2326315	DECAL-WARNING	1	
37		2326756	DECAL-HYDRAULIC OIL	1	
			Continued on next page		

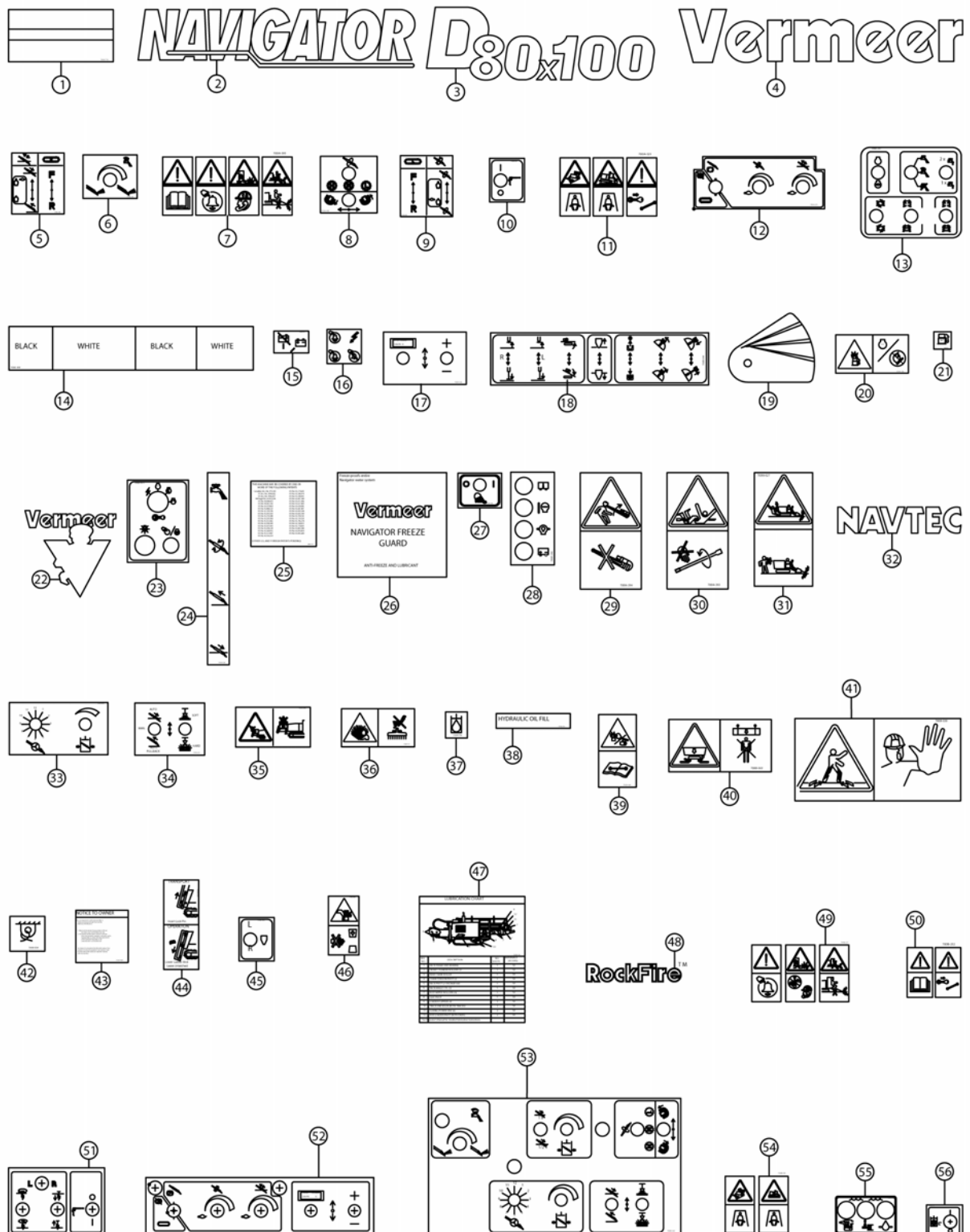
Decal Assembly - Domestic Continued Fig 1-1r05



Decal Assembly - Domestic Continued Fig 1-1r05

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
38		7000A814	DECAL-HYDRAULIC OIL FILLER	1	
39		70000044	DECAL-WARNING	1	AT/UND
40		70000563	DECAL-WARNING	2	UND
41		70000530	DECAL-DANGER	4	
42		70000834	DECAL-TIE DOWN POINT	6	
43		2326940	DECAL-NOTICE TO OWNERS	1	
44		7000A858	DECAL-TRANSPORT LOCK	1	
45		700IB045	DECAL-STAKE LEFT-RIGHT	1	
46		7000A864	DECAL-WARNING DOMESTIC	2	
47		7000B182	DECAL-LUBE CHART	1	
48		7000B202	DECAL-ROCKFIRE	1	SN195-
49		7000B257	DECAL-WARNING	1	SN196-
50		7000B252	DECAL-WARNING	1	SN196-
51		700IB261	DECAL-CONTROL PANEL	1	SN196-
52		7000B259	DECAL-CONTROL	1	SN195-
53		7000B260	DECAL-CONTROLS	1	SN196-
54		7000B258	DECAL-WARNING	1	SN196-
55		700IB342	*DECAL-WARNING LIGHT	1	SN208-
56	*	700IB375	DECAL-OIL BYPASS	1	PN Added SN267-
		901228102	DECAL ASSY-D80 X 100		DOMESTIC

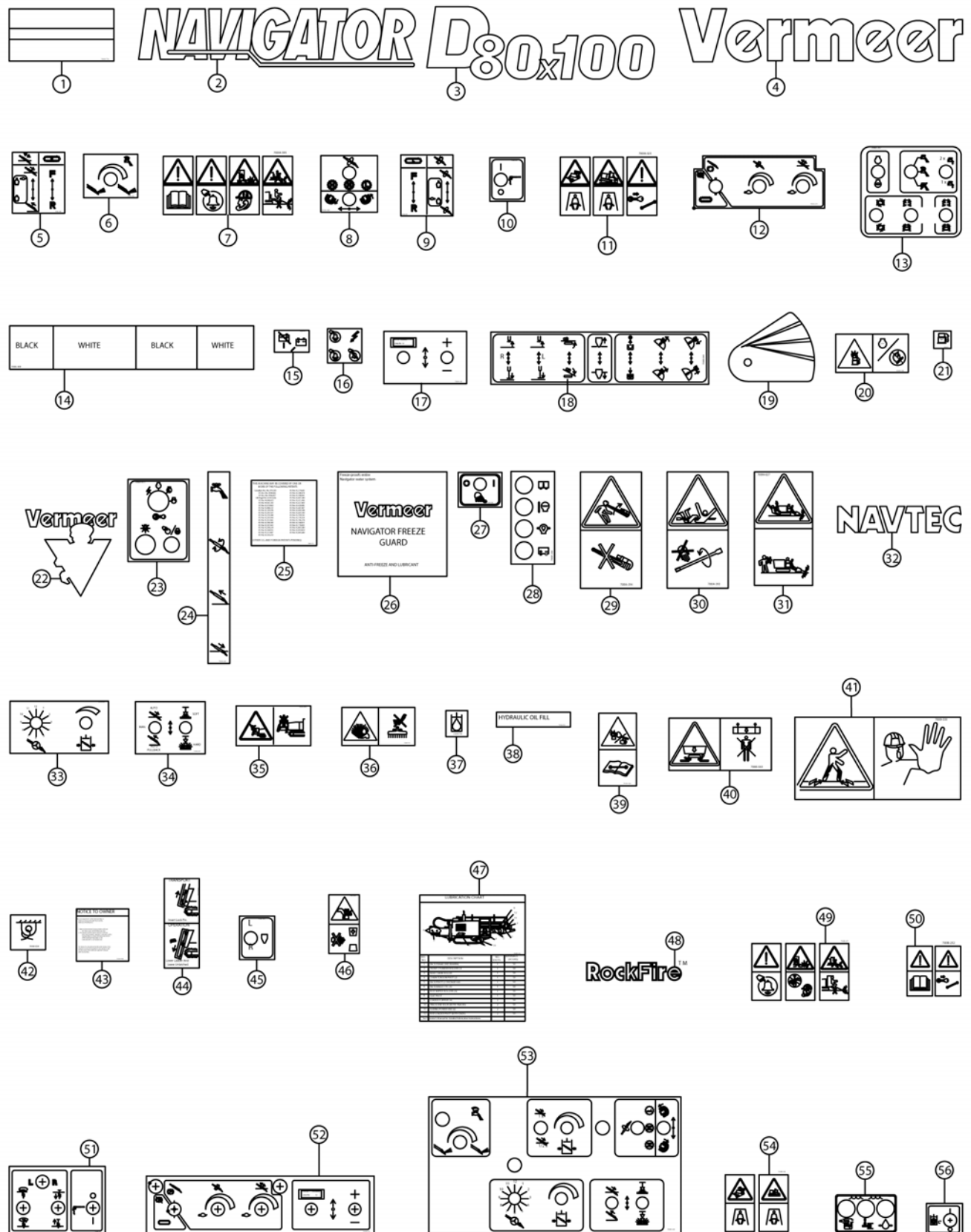
Decal Assembly - International Fig 1-2r05



Decal Assembly - International Fig 1-2r05

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
		Revision Date	January, 2005		Update In Illustration & Parts List.
1		70000775	DECAL 3" VERMEER STRIPE	21	
2		70000615	DECAL-NAVIGATOR 3 5/8 X 17	2	
		70000615	DECAL-NAVIGATOR 1 3/4 X 8 1/2	1	
3		7000A992	DECAL-MODEL 30 X 100	2	
4		2326619	DECAL-VERMEER 3 X 15	2	
		2326595	DECAL VERMEER 4 1/2 X 24	1	
5		700IA268	DECAL-DRILL FORCE RT	1	UND
6		700IA262	DECAL-FLUID PRES	1	UG, SN101-195
7		700IA395	DECAL-WARNING	1	SN101-195
8		700IA808	DECAL-SEAT/DRILL COMBO	1	SN101-195
9		700IA269	DECAL-DRILL ROTATION LT	1	UND
10		700IA807	DECAL-WASHWAND	1	SN101-195
11		700IA325	DECAL-WARNING INTL	1	SN101-195
12		700IA270	DECAL-SPEED VARTN	1	UND, SN101-195
13		700IA267	DECAL - ROD VISES	1	UG
14		700IA490	DECAL-INDICATOR 2 7/8-3 1/2 ROD	1	
15		700IA477	DECAL-BATTERY SWITCH	1	UG
16		700IA260	DECAL-TEST	1	UND
17		7000A508	DECAL-DISPLAY	1	SN101-195
18		700IB044	DECAL-CONTROLLBANK	1	
19		700IA624	DECAL-LOADER POSITION	1	
20		23261324	DECAL-WARNING	1	
21		70001098	DECAL-DIESEL FUEL	1	
22		7000939	DECAL-15" VERMEER LOGO	1	
23		700IA813	DECAL-IGNITION	1	
24		700IA265	DECAL-INSTRUMENT	1	UG
25		7000B119	DECAL-PATENT	1	
26		7000A027	DECAL-NAVIGATOR FREEZE GRD	1	
27		700IA804	DECAL-WORK LIGHT	1	
28		700IA266	DECAL-CONTROL PANEL	1	UG
29		700IA394	DECAL-WARNING	1	
30		700IA393	DECAL-DANGER	1	
31		700IA392	DECAL-DANGER	5	
32		7000A745	DECAL-NAVTEC	2	
33		700IA509	DECAL-STEER	1	SN101-195
34		7000A510	DECAL-AUTO/MAN SWITCH	1	SN101-195
35		700IA863	DECAL-WARNING	1	
36		23261315	DECAL-WARNING	1	
37		23261756	DECAL-HYDRAULIC FLUID	1	

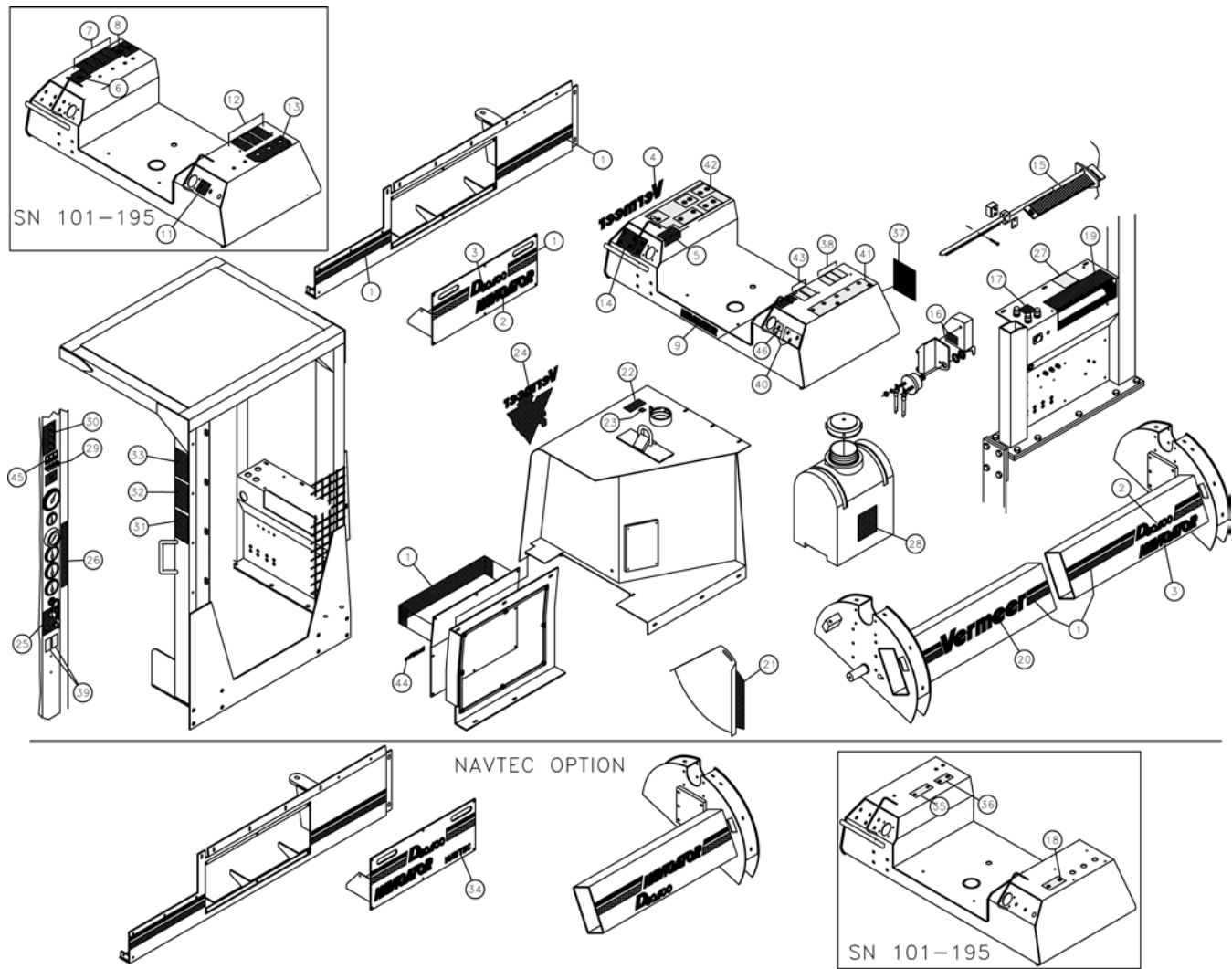
Decal Assembly - International Continued Fig 1-2r05



Decal Assembly - International Continued Fig 1-2r05

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
38		7000A814	DECAL-HYDRAULIC FILLER	1	
39		7000I044	DECAL-WARNING	1	
40		7000I563	DECAL-WARNING	2	UND
41		7000I530	DECAL-DANGER	4	
42		70000834	DECAL-TIE DOWN POINT	6	
43		2326940	DECAL-NOTICE TO OWNERS	1	
44		7000A858	DECAL-TRANSPORT LOCK	1	
45		700IB045	DECAL-STAKE LEFT-RIGHT	1	
46		700IA864	DECAL-WARNING INTERNATIONAL	2	
47		7000B182	DECAL-LUBE CHART	1	
48		7000B202	DECAL-ROCK FIRE	1	SN196-
49		700IB257	DECAL-WARNING	1	SN196-
50		700IB252	DECAL-WARNING	1	SN196-
51		700IB261	DECAL-CONTROL	1	SN196-
52		7000B259	DECAL-CONTROL	1	SN196-
53		700IB260	DECAL-CONTROLS	1	SN196-
54		700IB258	DECAL-WARNING	1	SN196-
55		700IB342	DECAL-WARNING LIGHT	1	SN208-
56	*	700IB375	DECAL-OIL BYPASS	1	PN Added SN267-
		901228103	DECAL ASSY-D80 X 100		INT'L

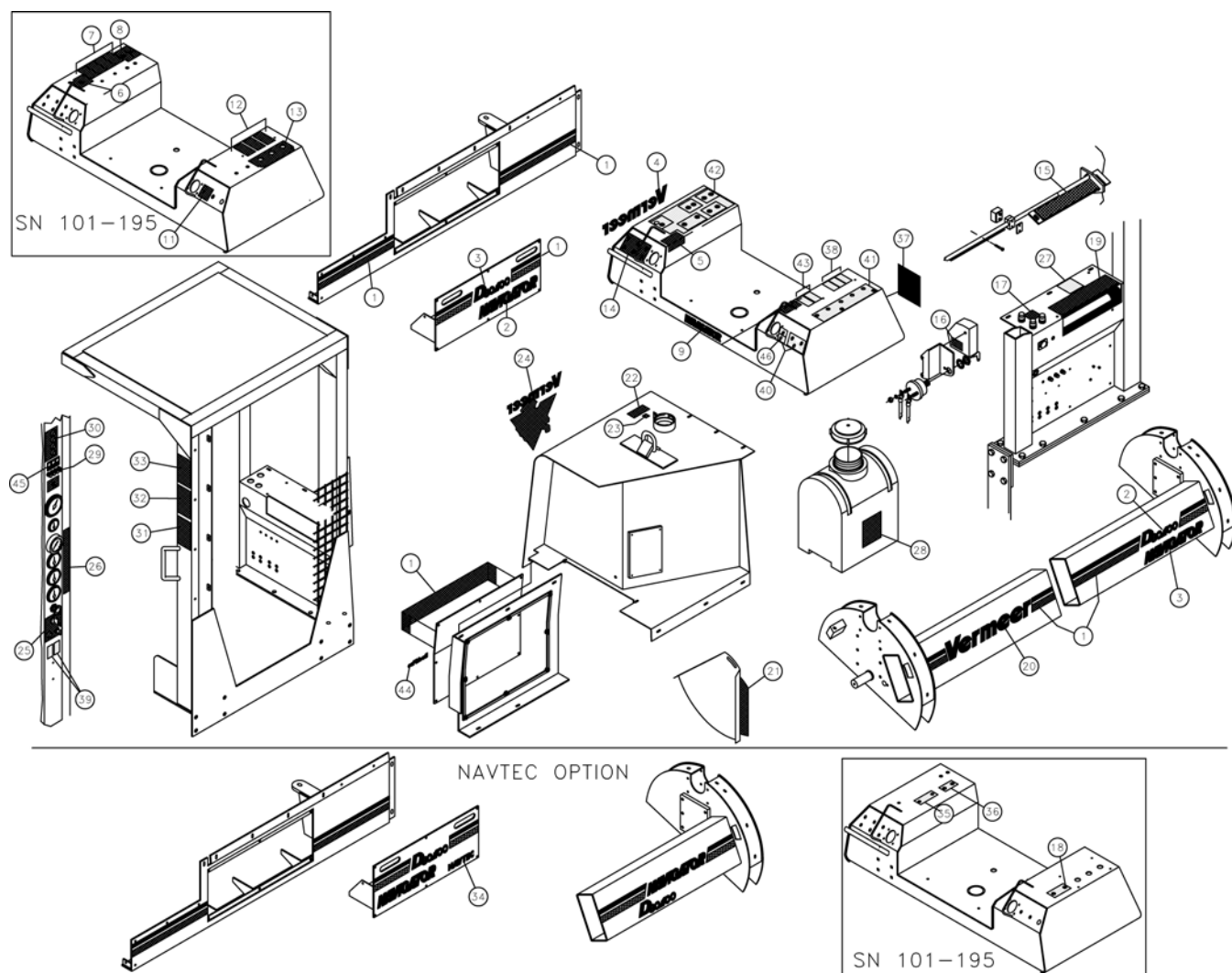
Decal Location Assembly Fig 1-3r05



Decal Location Assembly Fig 1-3r05

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
		Revision Date	January, 2005		Update In Illustration & Parts List.
1		70000775	DECAL 3" VERMEER STRIPE	21	
2		70000614	DECAL-NAVIGATOR 3 5/8 X 17	2	
3		7000A992	DECAL-MODEL D80 X 100	2	
4		2326619	DECAL-VERMEER 3 X 15	1	
5		700IA268	DECAL-DRILL FORCE RT	1	UND
6		700IA262	DECAL-FLUID PRES	1	UG, SN101-195
7		7000A395	DECAL-WARNING	1	DOM, SN101-195
		700IA395	DECAL-WARNING	1	INT, SN101-195
8		700IA808	DECAL-SEAT/DRILL COMBO	1	SN101-195
9		70000615	DECAL-NAVIGATOR 1 3/4 X 8 1/2	1	
10		700IA269	DECAL-DRILL ROTATION LT	1	UND
11		700IA807	DECAL-WASHWAND	1	SN101-195
12		7000A325	DECAL-WARNING	1	DOM, SN101-195
		700IA325	DECAL-WARNING INT	1	SN101-195
13		700IA270	DECAL-SPEED VARTN	1	UND, SN101-195
14		700IA267	DECAL-ROD VISE	1	
15		700IA490	DECAL-INDICATOR 2 7/8-3 1/2 ROD	1	
16		700IA477	DECAL-BATTERY SWITCH	1	UG
17		700IA260	DECAL-TEST	1	UND
18		7000A508	DECAL-DISPLAY	1	SN101-195
19		700IA401	DECAL-CONTROL BANK	1	
20		2326595	DECAL VERMEER - 4 1/2 X 24	1	
21		700IA624	DECAL-LOADER POSITION	1	
22		2326324	DECAL-WARNING/REFUEL	1	DOM
		2326I324	DECAL-WARNING	1	INT
23		70000098	DECAL-DIESEL	1	AT/UND

Decal Location Assembly Continued Fig 1-3r05

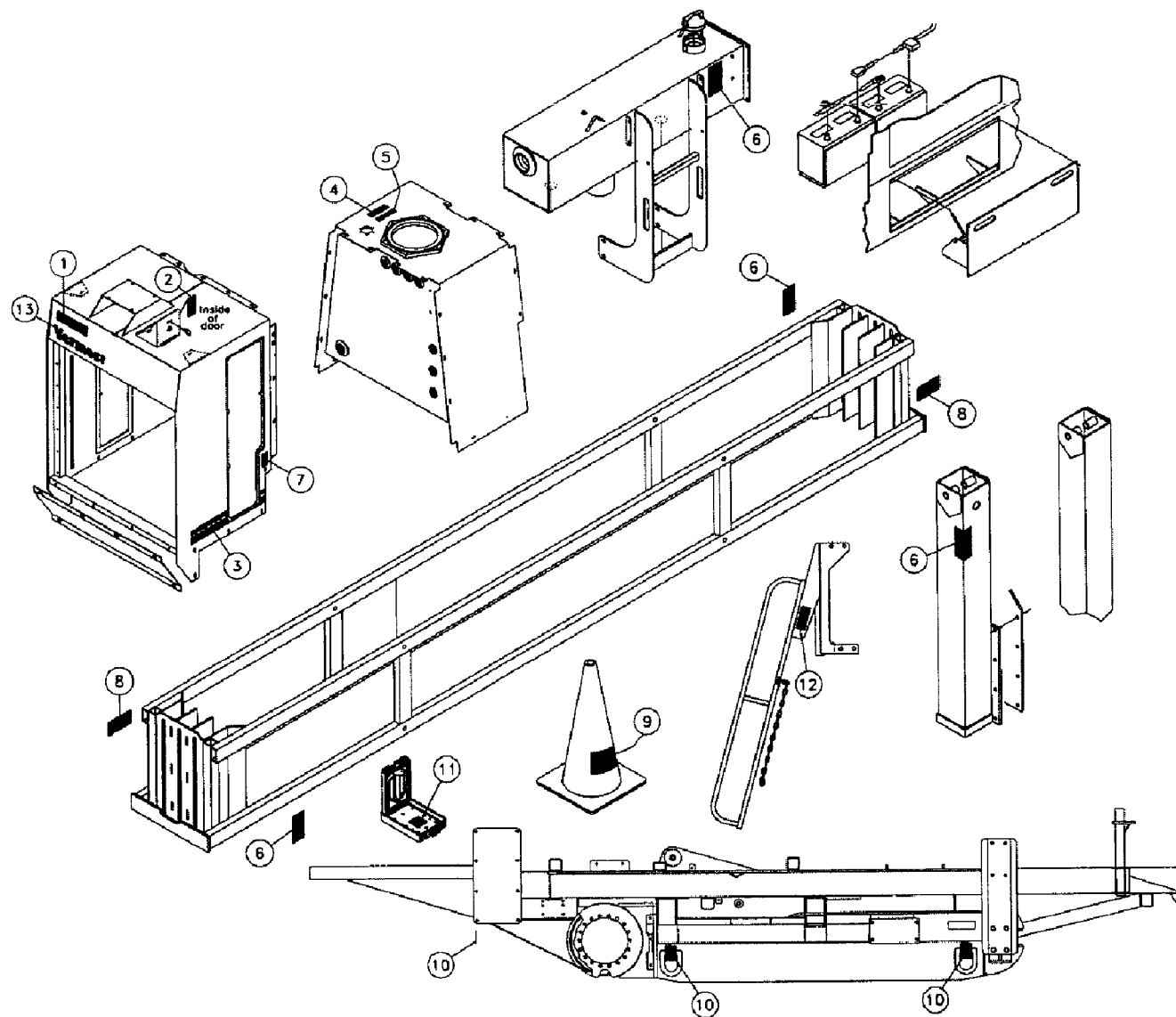


Decal Location Assembly Continued Fig 1-3r05

REF NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
24		70000939	DECAL-15" VERMEER LOGO	1	
25		700IA813	DECAL-IGNITION	1	
26		700IA265	DECAL-INSTRUMENTS	1	UG
27		7000B119	DECAL-PATENT	1	
28		7000A027	DECAL-NAVIGATOR FREEZE GRD	1	
29		700IA804	DECAL-WORK LIGHT	1	
30		700IA266	DECAL-CONTROL PANEL	1	UG
31		7000A394	DECAL-WARNING	1	DOM
		700IA394	DECAL-WARNING	1	INT
32		7000A393	DECAL-DANGER	1	DOM
		700IA393	DECAL-DANGER	1	INT
33		7000A392	DECAL-DANGER	1	DOM
		700IA392	DECAL-DANGER	1	INT
34		7000A745	DECAL-NAVTEC	2	
35		700IA509	DECAL-STEER	1	SN101-195
36		7000A510	DECAL-AUTO/MAN SWITCH	1	SN101-195
37		7000B182	DECAL-LUBE CHART	1	
38		7000B257	DECAL-WARNING	1	DOM, SN196-
		7000B257	DECAL-WARNING	1	INT, SN196-
39		7000B252	DECAL-WARNING	1	DOM, SN196-
		700IB252	DECAL-WARNING	1	INT, SN196-
40		700IB261	DECAL-CONTROL PANEL	1	SN196-
41		7000B259	DECAL-CONTROL	1	SN196-
42		7000B260	DECAL-CONTROLS	1	DOM, SN196-
		700IB260	DECAL-CONTROLS	1	INT, SN196-
43		7000B258	DECAL-WARNING	1	DOM, SN196-
		700IB258	DECAL-WARNING	1	INT, SN196-
44		7000B202	DECAL-ROCKFIRE	1	SN196-
45		700IB342	DECAL-WARNING LIGHT	1	SN208-
46	*	700IB375	DECAL-OIL BYPASS	1	PN Added SN267-

Decal Location Assembly Fig 1-4r01

Revised June 1999 due to update
in illustration & parts list. Added
part marked with *.

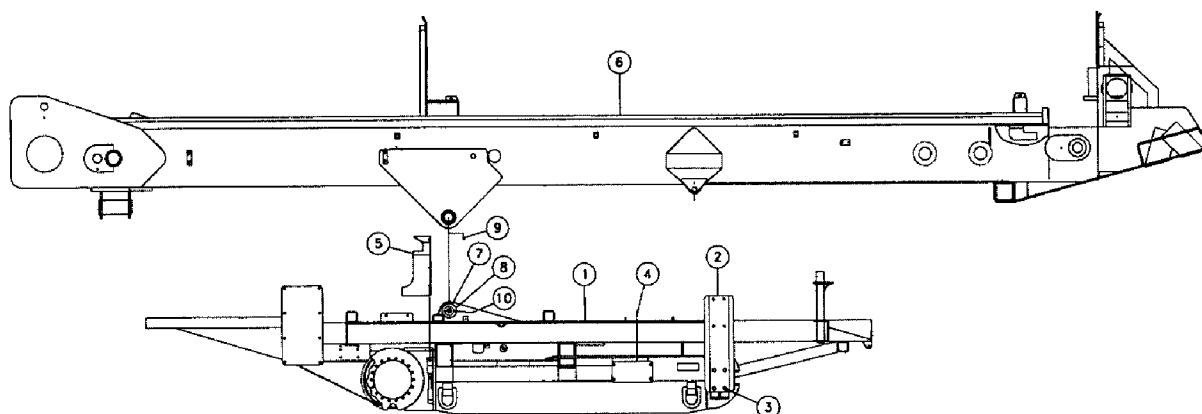


Decal Location Assembly Fig 1-4r01

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		700IA863	DECAL - WARNING	1	
		700IA863	DECAL - WARNING	1	
2		2326315	DECAL-WARNING	1	
		2326I315	DECAL-WARNING (INT.)	1	
3		70000775	DECAL 3"VERMEER STRIPE	21	
4		2326756	DECAL-HYDRAULIC OIL	1	
		2326I756	DECAL-HYDRAULIC FLUID (INT.)	1	
5		7000A814	DECAL-HYDRAULIC OIL FILLER	1	
6		7000A392	DECAL - DANGER	4	
		700IA392	DECAL - DANGER (INT.)	4	
7		70000044	DECAL-WARNING(AT/UND)	1	
		7000I044	DECAL-WARNING (INT.)	1	
8		70000563	DECAL-WARNING (UND)	2	
		7000I563	DECAL-WARNING (UND) (INT.)	2	
9		70000530	DECAL-DANGER	4	
		7000I530	DECAL-DANGER (INT.)	4	
10		70000834	DECAL-TIE DOWN POINT	6	
11		2326940	DECAL-NOTICE TO OWNERS	1	
12		7000A858	DECAL-TRANSPORT LOCK	2	
13		2326619	* DECAL-VERMEER 3X15	1	
			Revised June 1999 due to update in illustration & parts list. Added part marked with *.		

Main Frame/Rack Frame Assembly Fig 1-5r01

Revised June 1999 due to
update in illustration.

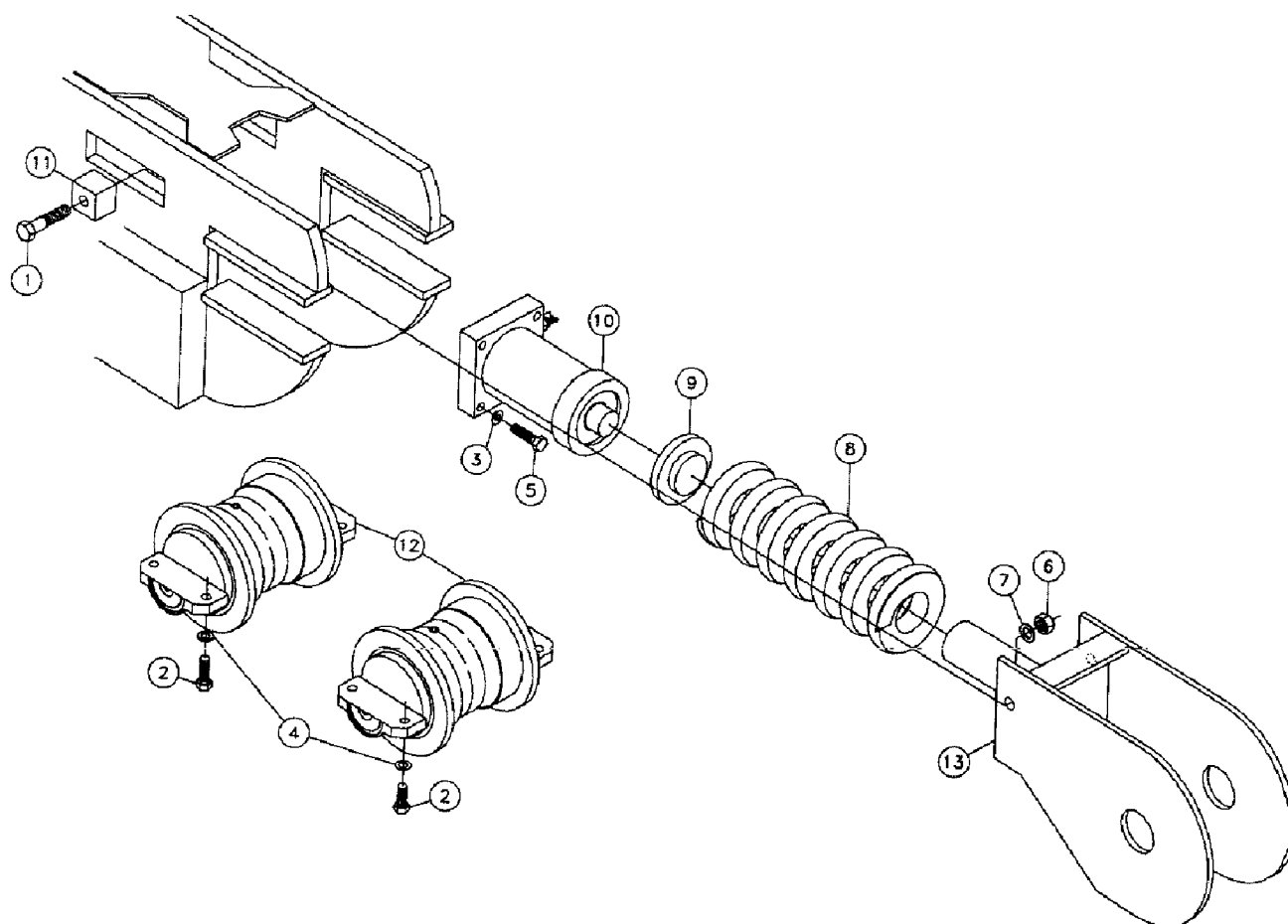


Main Frame/Rack Frame Assembly Fig 1-5r01

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		275303001	MAINFRAME D80X100	1	
2		275439001	PLATE - ROPS BRACE	1	
3		250607001	BOLT-5/8-11X2 GR8 HEX Y/ZINC	8	
		235715001	WASHER-5/8 SAE HARD ZINC PLTD	16	
4		902157001	TRACK TIGHTENER SHIELD	2	
		235727001	BOLT-3/8-16X1 GR8 HEX ZINC PLT	8	
		235713001	WASHER-3/8 SAE HARD ZINC PLTD	8	
5		902162001	SPROCKET SHIELD	1	
		902162002	SPROCKET SHIELD	1	
		235737001	BOLT-1/2-13X1 1/4 GR8 ZINC PLT	6	
		485025	WASHER-1/2 FLAT-HARDENED-ZNC	6	
6		275338001	RACK-D80X100 PNEUMATIC	1	
		1835099	BSHG-STL.3 X 2 1/2-2 1/2	2	
7		38884001	PIVOT ROD SLUG	2	
8		235737001	BOLT-1/2-13X1 1/4 GR8 ZINC PLT	2	
		485025	WASHER-1/2 FLAT-HARDENED-ZNC	2	
9		590001	ZERK-1/8" NPT 90 DEG GREASE	1	
10		249842001	PIN - RACK PIVOT	1	
			Revised June 1999 due to update in illustration.		

Track Tightener, Roller & Chain Assembly Fig 1-6r01

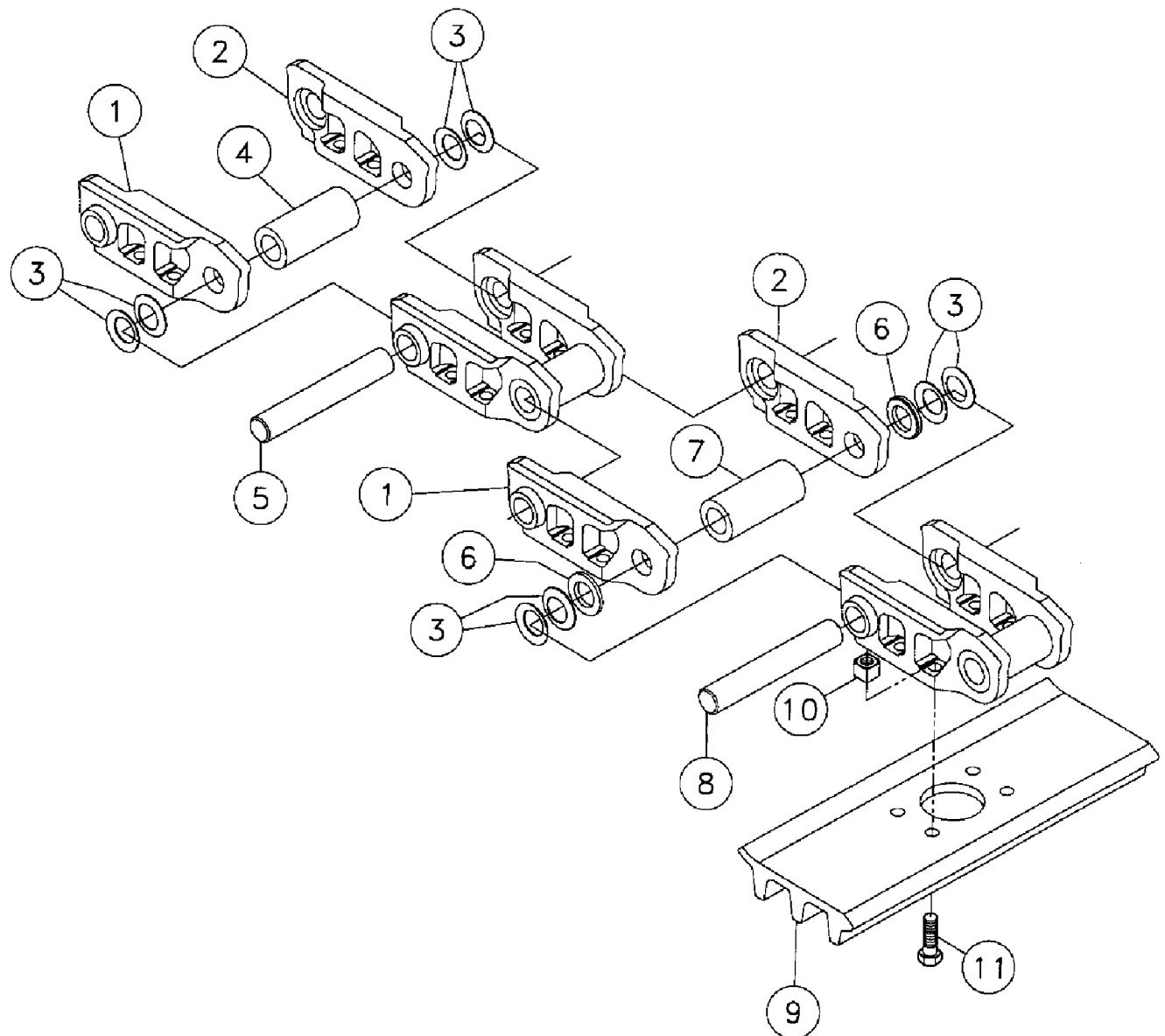
Revised June 1999 due to update
in parts list. Changed parts marked with *.



Track Tightener, Roller & Chain Assembly Fig 1-6r01

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		250532001	BOLT-5/8-18 X 2 3/4 GR8 HEXY/	4	
2		235737001	BOLT-1/2-13 X 1 1/4 GR8 ZINC PLT	56	
3		235713001	WASHER-3/8 SAE HARD ZINC PLTD.	8	
4		485025	WASHER-1/2 FLAT-HARDENED-ZINC	56	
5		235720001	BOLT-3/16 X 1 3/4 GR8 ZINC PLT	8	
6		250526001	NUT-5/8-18 NF HEX Y/ZINC	4	
7		235715001	WASHER-5/8 SAE HARD ZINC PLTD	4	
8		1803051	SPRING-COMP, 1"W X 4 1/20D X 12"	2	
9		69908001	PLATE-TRACK SPRING SUPPORT	2	
10		231104001	CYLINDER-3 1/2" X 4 3/4"	2	Breakdown FIG. 1-23
11		285769001	*SPACER-TRACK ADJ BOLT	4	Replaces 6716-001
12		902013001	ROLLER-TRACK 3T4352	14	
13		901995001	BOX-TRACK END ROLLER	2	

Track Chain Assembly Fig 1-7

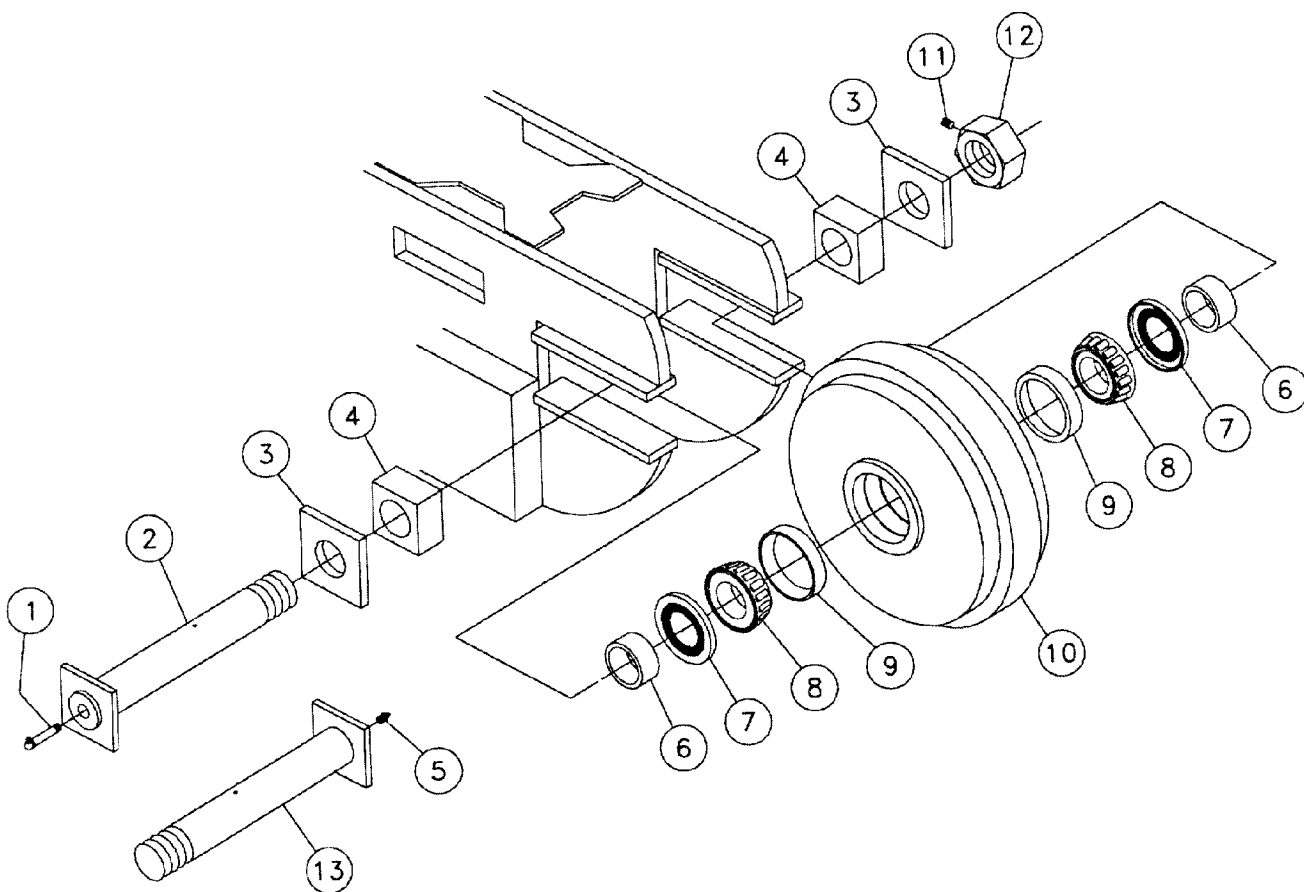


Track Chain Assembly Fig 1-7

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		901767005	LINK-R.H.	39	
2		901767007	LINK-L.H.	39	
3		901766015	WASHER 6S3146	156	
4		901767009	BUSHING	38	
5		901767011	PIN	38	
6		901766011	SPACER 6S3145	2	
7		901766017	BUSHING 6S3179	1	
8		901766013	PIN-MASTER 8L5560	1	
9		901767003	GROUSER-18" TRIPLE 6ZXXXX	39	
10		26384001	NUT-IN 1319A 9/16-18 SQ.HD.	156	
11		12698001	BOLT-9/16-18X2 TRACK PAD	156	
		901767001	CHAIN-TRACK		INC. ALL ITEMS IN THIS FIGURE

Track End Roller Assembly Fig 1-8r03

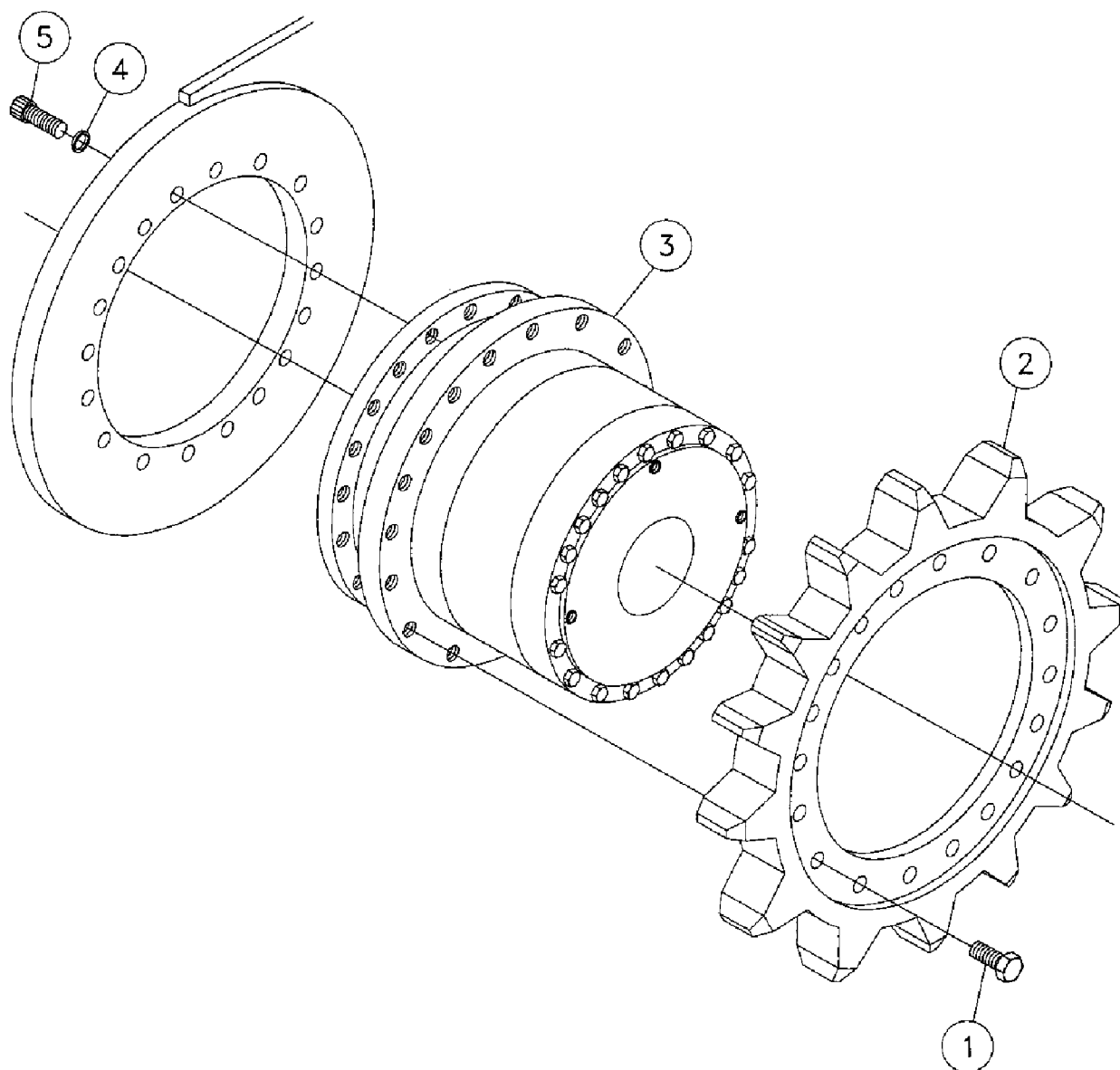
Revised February 2000 due to update
in parts list. Changed part marked with *.



Track End Roller Assembly Fig 1-8r03

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		593001	ZERK-1/8" 90 DEG GRSE 1 13/16	1	
2		902770005	BOLT ASSY.-END IDLER ROLLER	1	Inc. Ref. 1
3		903257001	SPACER-IDLER ROLLER BOLT	4	
4		285770001	*BLOCK-IDLER ROLLER BOLT	4	Replaces 903256-001
5		586001	ZERK-1/8" ST NPT GREASE	1	
6		280532001	SPACER-IDLER ROLLER	4	Replaces 6706-001
7		3967001	SAEAL-#25091 C/R	4	
8		1716001	TIMKEN CONE-2 1/4" #387	4	
9		1715011	TIMKEN CUP 2" #3730	4	
10		217479003	ROLLER-TRACK END IDLER	2	Inc. Two Of Ref. 9
11		530001	SSS-3/8-16 X 1/2	2	
12		6702003	NUT ASSY-END IDLER ROLLER	2	
13		902770003	BOLT ASSY-END IDLER ROLLER	1	Inc. Ref. 5

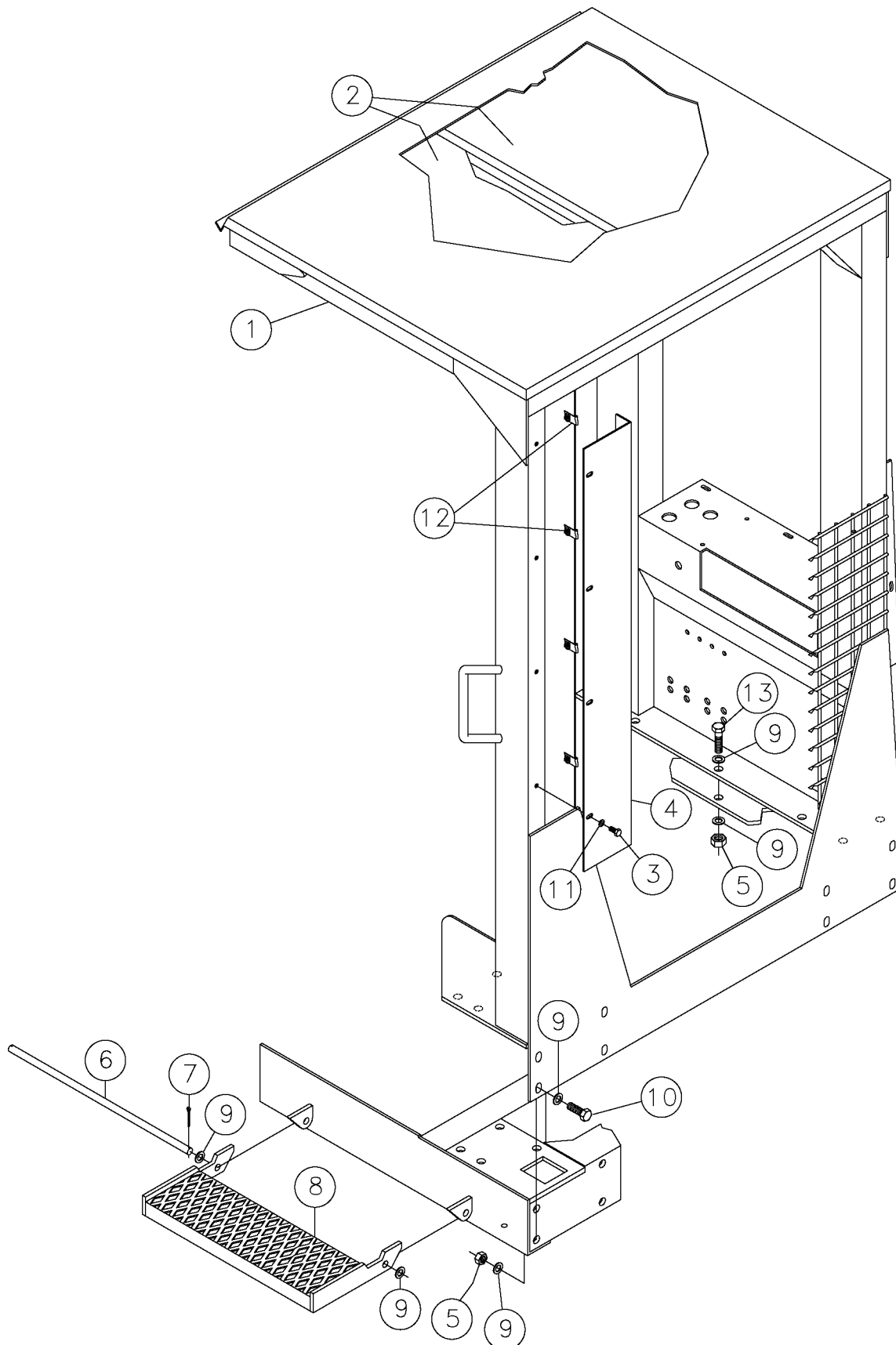
Track Planetary Assembly Fig 1-9r01



Track Planetary Assembly Fig 1-9r01

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		249884001	BOLT-M16X40 HHCS 10.9DIN933 ZN	36	
2		285757001	*SPROCKET-19T TRACK	2	Replaces 910997-001
3		214045001	PLANETARY-CT18 FAIRFIELD	2	
4		64109001	WASHER-M16 LOCK	36	
5		249885001	BOLT-M16X45 12.9 SOCHD C/S ZNC	36	

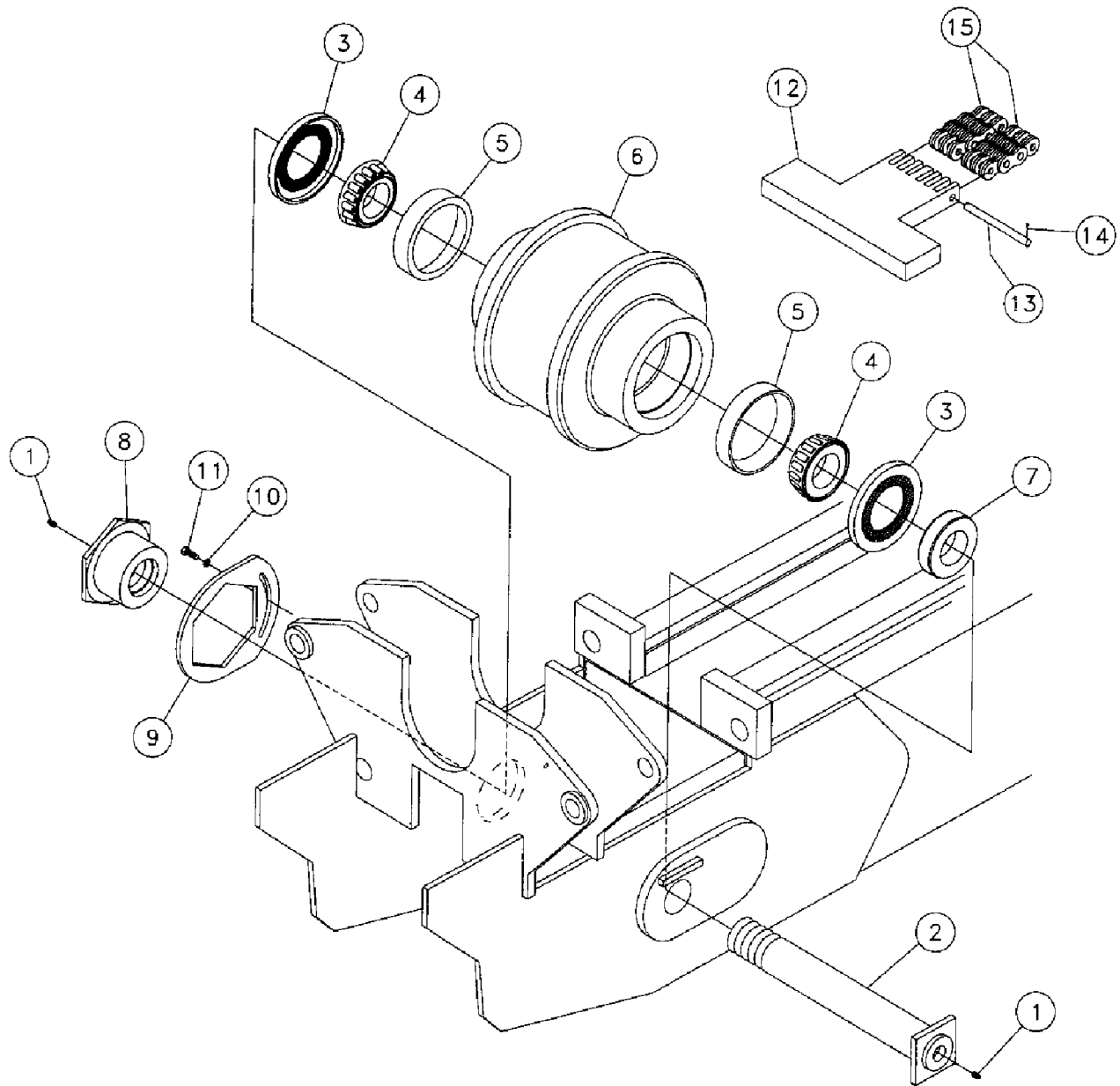
R.O.P.S. Assembly Fig 1-10r03



R.O.P.S. Assembly Fig 1-10r03

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
		Revision Date	January, 2005		Update In Illustration & Parts List.
1	*	283631001	CAGE-ROPS	1	PN Change
2		227871001	FOAM-ROPS LINER	2	
3		235726001	BOLT-3/8-16 X 3/4 GR8 HEX ZNCPLT	8	
4		224369001	PLATE-GAUGE COVER	1	
5		241065001	NUT-5/8 UNC GR8 HEX ZINC	24	
6		234318001	ROD-STEP PIN	1	
7		510011	COTTER PIN-1/8" X 1 1/2"	2	
8		234316001	STEP	1	
9		235715001	WASHER-5/8 SAE HARD ZINC PLTD	49	
10		238220001	BOLT-5/8-11 X 1 3/4 GR8 HEX ZYC	13	
11		235713001	WASHER-3/8 SAE HARD ZINC PLTD	8	
12		415001	NUT-3/8 NC HEX NUT CLIP	4	
13		238245001	BOLT-5/8-11 X 2 1/4 GR 8 HEX Z	12	

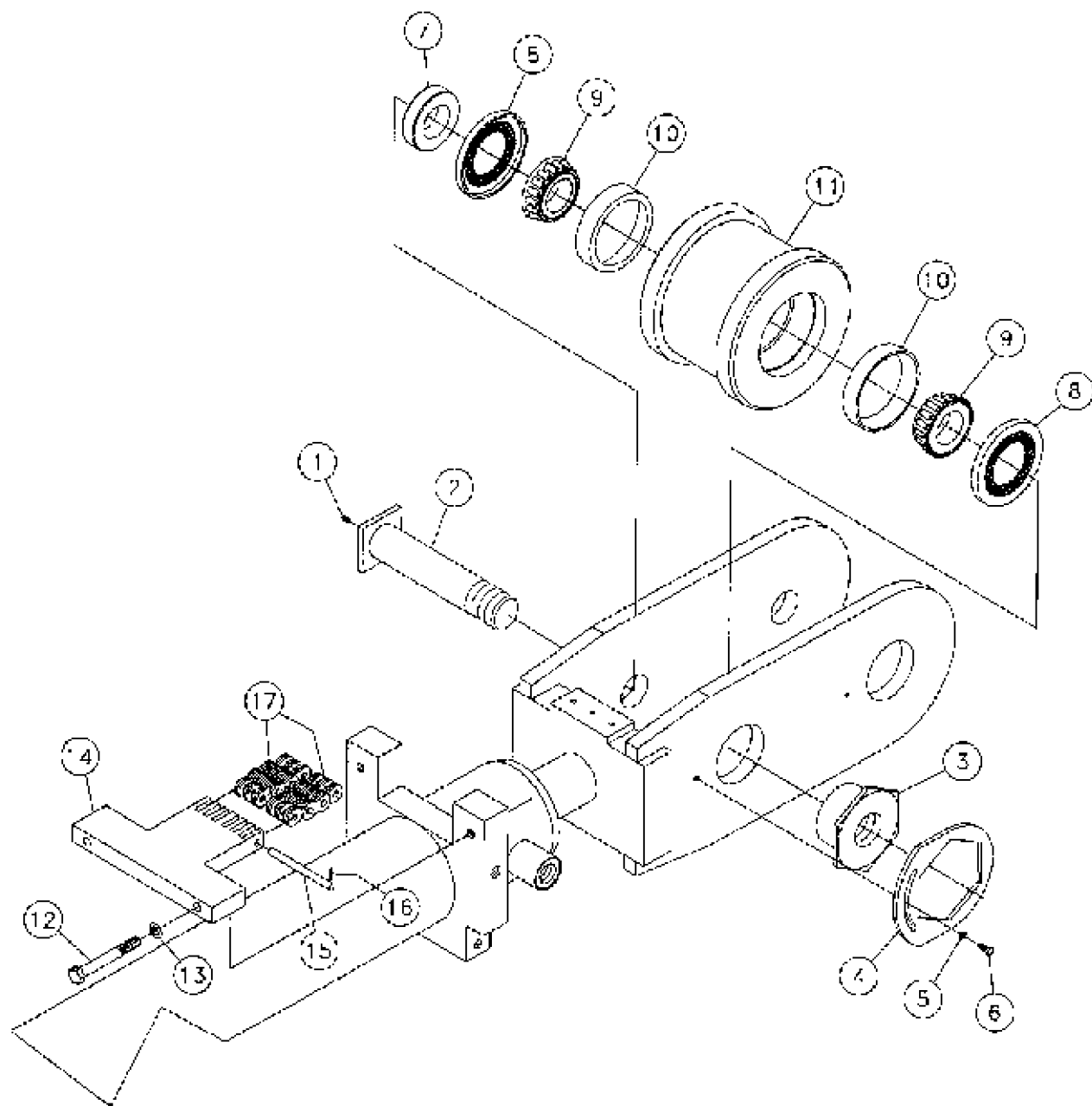
Front Roller Assembly Fig 1-11r01



Front Roller Assembly Fig 1-11r01

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		586001	ZERK-1/8" ST NPT GREASE	2	
2		251382001	PIN-SHEAVE	1	
3		244732001	SEAL-6.875 OD X 4.875 ID X .750	2	
4		244705001	CONE-BEARING	2	
5		244704001	CUP-BEARING	2	
6		244731001	SHEAVE-D80 X 100 FRONT	1	
7		251343001	SPACER	1	
8		251323001	NUT-BEARING	1	
9		251322001	PLATE-NUT RETAINER	1	
10		235713001	WASHER-3/8 SAE HARD ZINC PLTD	1	
11		235727001	BOLT-3/8-16 X 1 GR8 HEX ZINC PLT	1	
12		251318001	ANCHOR-THRUST CHAIN	1	
13		275270001	PIN-HL1266 LEAF CHAIN (X2)	1	
14		510049	PIN-3/32 X 1 COTTER	2	
15		283589001	*CHAIN-LEAF 2-185 PITCHES MTCHD	1	

Thrust Roller Cylinder Assembly Fig 1-12r01

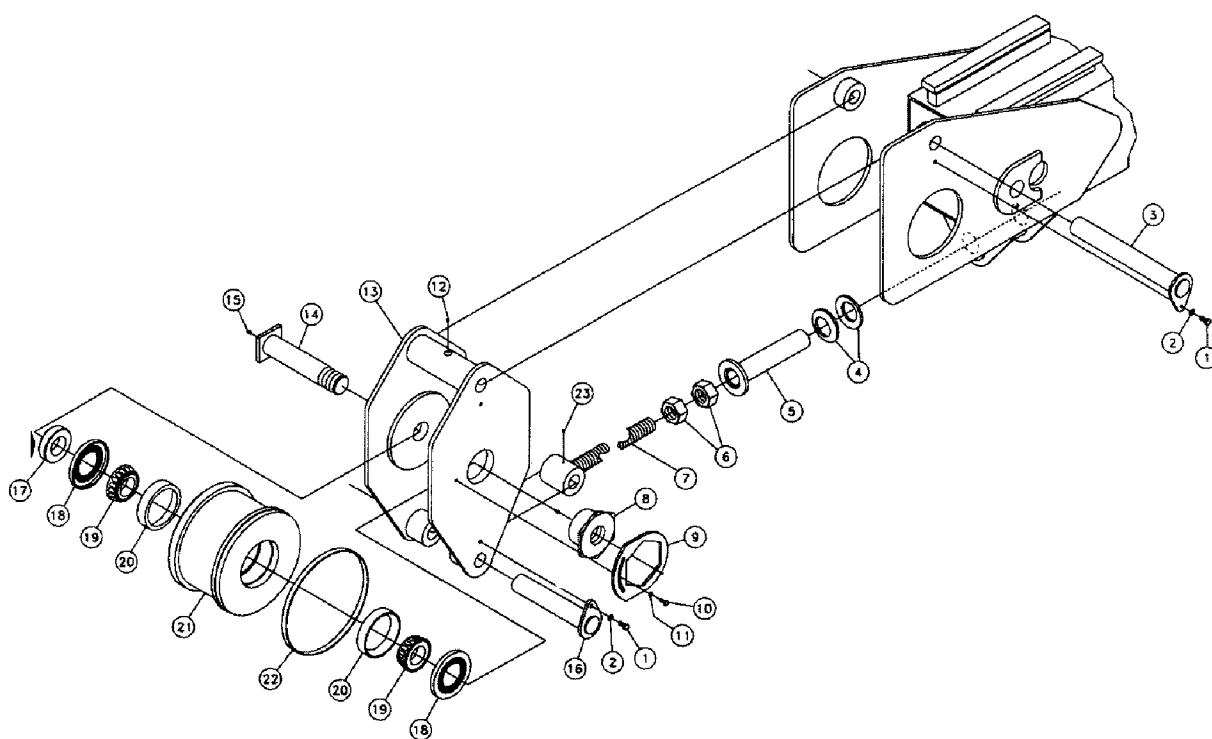


Thrust Roller Cylinder Assembly Fig 1-12r01

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		586001	ZERK-1/8" ST NPT GREASE	2	
2		251381001	PIN-SHEAVE	2	
3		251323001	NUT-BEARING	2	
4		251322001	PLATE-NUT RETAINER	2	
5		235713001	WASHER-3/8 SAE HARD ZINC PLTD	2	
6		235727001	BOLT-3/8-16 X 1 GR 8 HEX ZINC PLT	2	
7		251343001	SPACER	2	
8		244732001	SEAL-6.875 OD X 4.875 ID X .750	4	
9		244705001	CONE-BEARING	4	
10		244704001	CUP-BEARING	4	
11		244730001	SHEAVE-D80 X 100 THRUST CYLND	2	
12		240340001	BOLT-3/4-10 X 5 GR8 ZINC PLTD	2	
13		235717001	WASHER-3/4 SAE HARD ZINC PLTD	2	
14		251317001	ANCHOR-PULLBACK CHAIN	1	
15		275270001	PIN-HL 1266 LEAF CHAIN (X2)	1	
16		510049	PIN-3/32 X 1 COTTER	2	
17		283590001	*CHAIN-LEAF 2-301 PITCHES MTCHD	1	

Rear Chain Tightener Assembly Fig 1-13r02

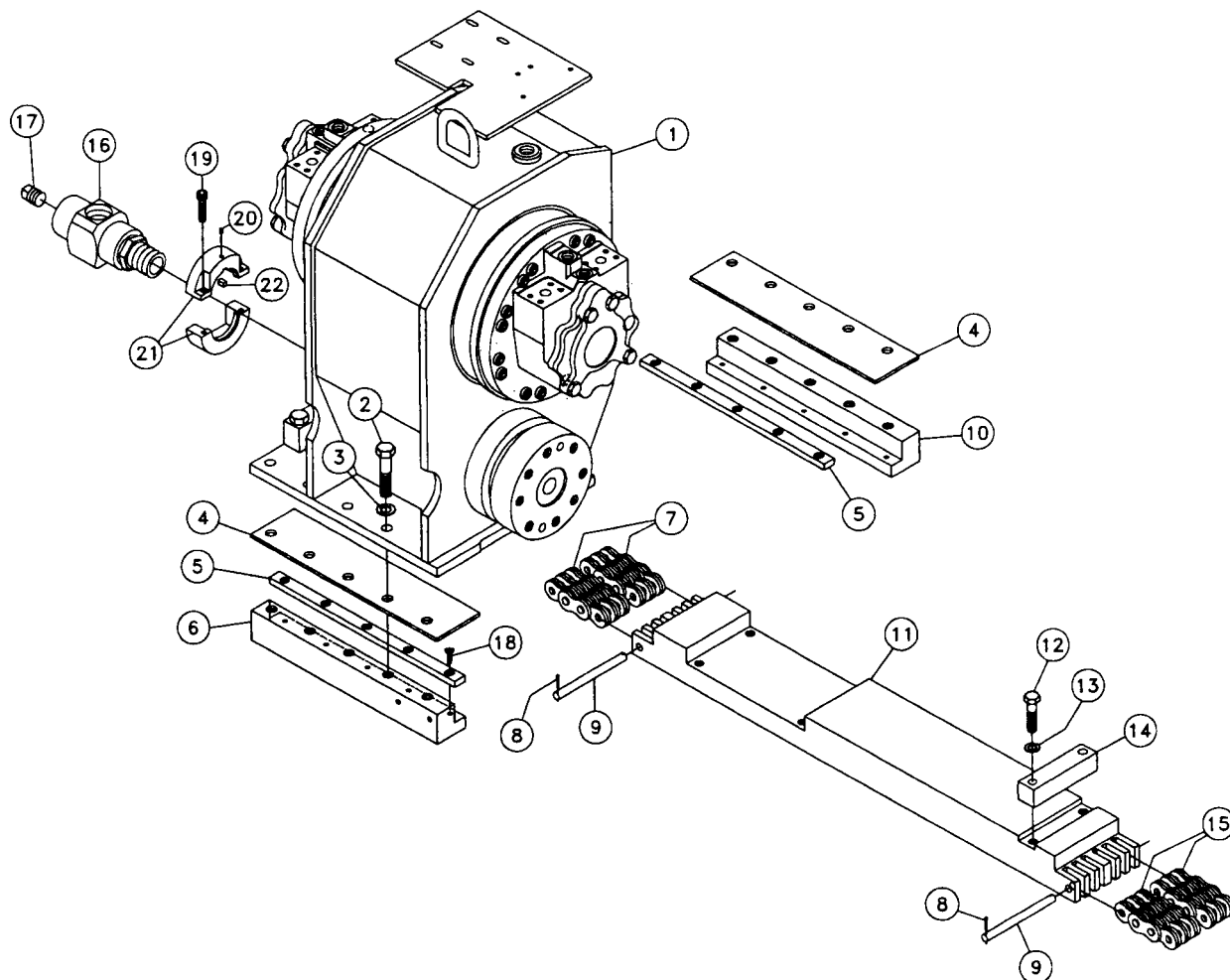
Revised June 1999 due to update
in illustration & parts list. Added
part marked with *.



Rear Chain Tightener Assembly Fig 1-13r02

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		235729001	BOLT-1/2-13 X 1 GR8 HEX ZINC PLT	2	
2		485025	WASHER-1/2 FLAT-HARDENED-ZNC	2	
3		251378001	PIN-SHEAVE PIVOT	1	TOP
4		275292001	WASHER-4.92 X 2.8 X .24T BELLEVILL	12	
5		275294001	SLIP TUBE-BELLEVELLE WASHER	1	
6		275280001	NUT-2-4 ACME - 2G	2	
7		251342001	PIN-PIVOT ADJUSTMENT	1	
8		251323001	NUT-BEARING	1	
9		251322001	PLATE-NUT RETAINER	1	
10		235727001	BOLT-3/8-16 X 1 GR8 HEX ZINC PLT	1	
11		235713001	WASHER-3/8 SAE HARD ZINC PLTD	1	
12		598001	ZERK-1/4" NF ST GREASE	2	
13		251295001	PIVOT-SHEAVE	1	
14		251381001	PIN-SHEAVE	1	
15		586001	ZERK-1/8" ST NPT GREASE	1	
16		251379001	PIN-SHEAVE PIVOT	1	BOTTOM
17		251343001	SPACER	1	
18		244732001	SEAL-6.875 OD X 4.875 ID X .750	2	
19		244705001	CONE-BEARING	2	
20		244704001	CUP-BEARING	2	
21		244729001	SHEAVE-D80 X 100 REAR	1	
22		275279001	RING-PULSE PICK-UP	1	REAR
23		598001	ZERK-1/4" NP ST GREASE	1	

Rotation Gearbox Assembly Fig 1-14r04

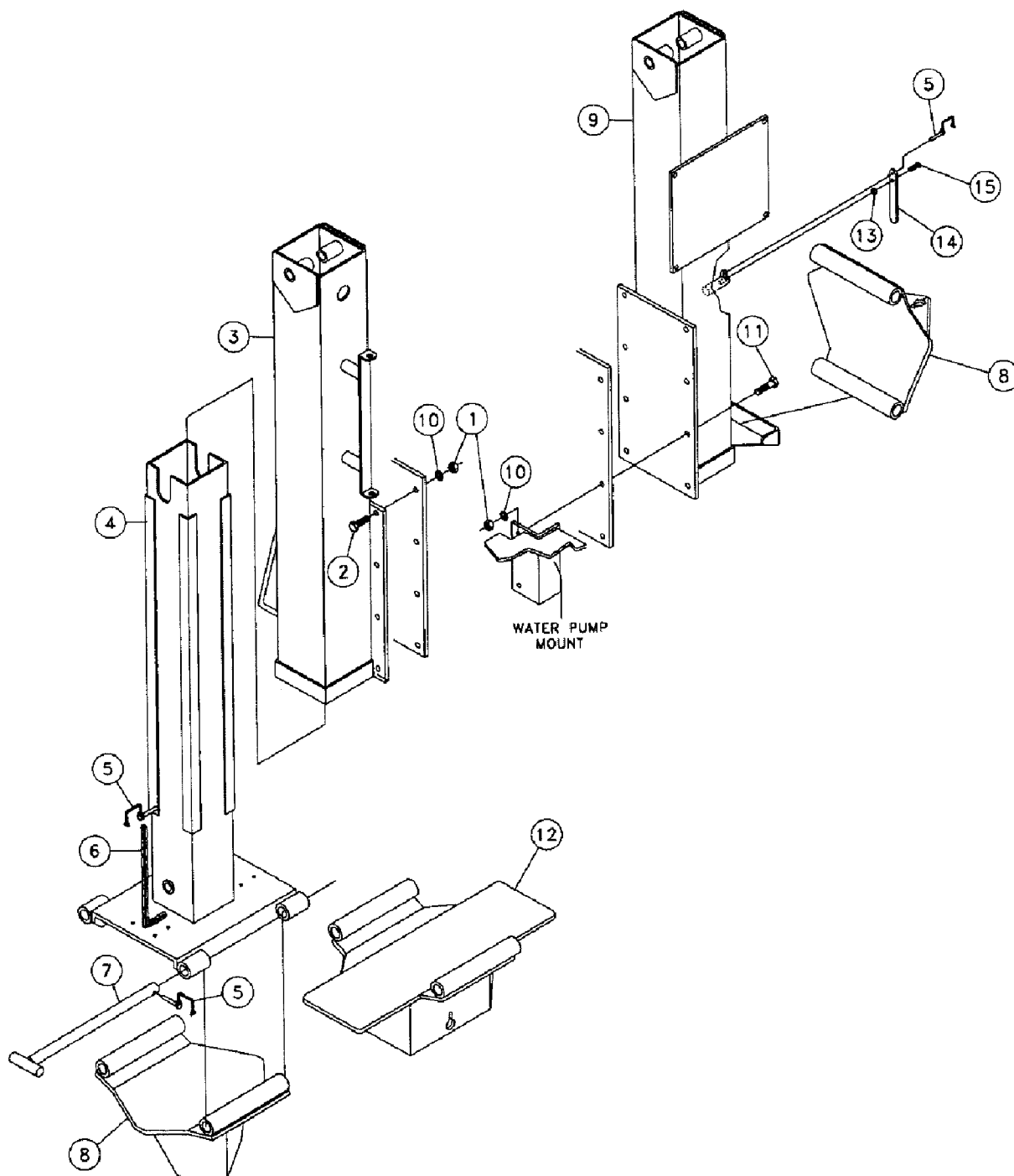


Rotation Gearbox Assembly Fig 1-14r04

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		275361001	ROTATION GEARBOX ASSEMBLY	1	Breakdown Fig 1-19
2		238880001	BOLT-3/4-10 X 2 1/2 HHCS GR8 ZY	10	
3		235717001	WASHER-3/4 SAE HARD ZINC PLTD	10	
4		251346001	WEARSTRIP	2	
5		251347001	WEARSTRIP-PLASTIC	2	
6		251344001	BAR-SLIDE	1	
7		283590001	*CHAIN-LEAF 2-301 PITCHES MTCHD	1	
8		510049	PIN-3/32 X 1 COTTER	4	
9		275270001	PIN-HL 1266 LEAF CHAIN (X2)	2	
10		251345001	BAR-SLIDE	1	
11		251313001	DOGBONE-CYLINDER STYLE	1	
12		121818024	BOLT-5/8-18 X 2 1/2 GR8 HEX Y/	2	
13		235715001	WASHER-5/8 SAE HARD ZINC PLTD	2	
14		275357001	BLOCK-GEARBOX STOP	1	
15		283589001	*CHAIN-LEAF 2-185 PITCHES MTCHD	1	
16		277834001	SWIVEL 200 GPM WATER W/BRG	1	Breakdown Fig. 1-24
17		732009	PLUG-3/4" PIPE BLACK STEEL	1	
18		14005010	BOLT-5/16-18 X 1 FLAT SOCKET HD	10	
19		242906001	CAPSCREW-5/16-18 X 1 1/2 SKID ZNC	2	SN196-
20		283836001	SET SCREW=SSS 1/4-20 X 1/2 W/ Cup Point ZP	2	SN196-
21		284349001	BUSHING-SWIVEL LOCK-2 HALVES	1	SN196-
22		283841001	KEY-5/15 X 5/16 X 1/2 HRD SQ	1	SN196-
23		216740001	*SHIM-GEARBOX SLIDE	2	

Outrigger Assembly (SN101-224) Fig 1-15r02

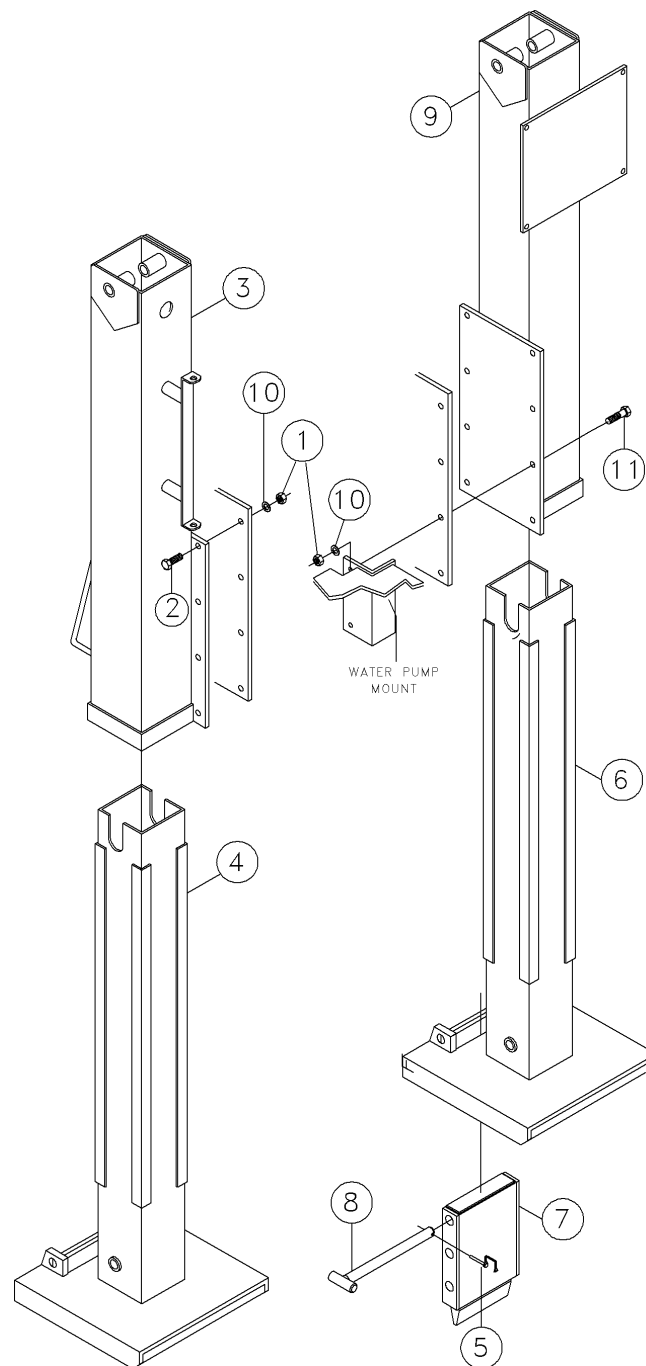
Revised June 1999 due to update in
outrigger. Starting w/ Serial No. 119.
Changed/added parts marked with *.



Outrigger Assembly (SN101-224) Fig 1-15r02

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
		Revision Date	January, 2005		Update In Illustration & Parts List.
1		238221001	NUT-5/8-11 GR8 NC Y/ZINC	16	
2		250607001	BOLT-5/8-11 X 2 GR8 HEX Y/ZINC	14	
3		239469001	OUTRIGGER TUBE-OUTSIDE LEFT	1	
4		224331001	OUTRIGGER TUBE-INSIDE	2	
5		2108001	LYNCH PIN-1/4 X 2	7	
6		239284001	CHAIN-1/4" PC 15 LINKS	2	
7		227791001	PIN-OUTRIGGER SHOVEL	4	
8		224340001	STAKE-REAR	2	
9		278059001	OUTRIGGER TUBE-OUTSIDE RIGHT	1	SN119-224
10		235715001	WASHER-5/8 SAE HARD ZINC PLTD	16	
11		238245001	BOLT 5/8"-11 X 2 1/4" GR8 HEX	2	
12		239257001	STAKE-LARGE OUTRIGGER	2	
13		235725001	NUT-3/8-16 GR8 ZINC PLTD	1	
14		278077001	PLATE-RETAINER	1	
15		235736001	BOLT-3/8-16 X 1 1/4 ZINC PLTD	1	
16		239458001	*OUTRIGGER TUBE-OUTSIDE RIGHT	1	

Outrigger Assembly (SN225-) Fig 1-15x01

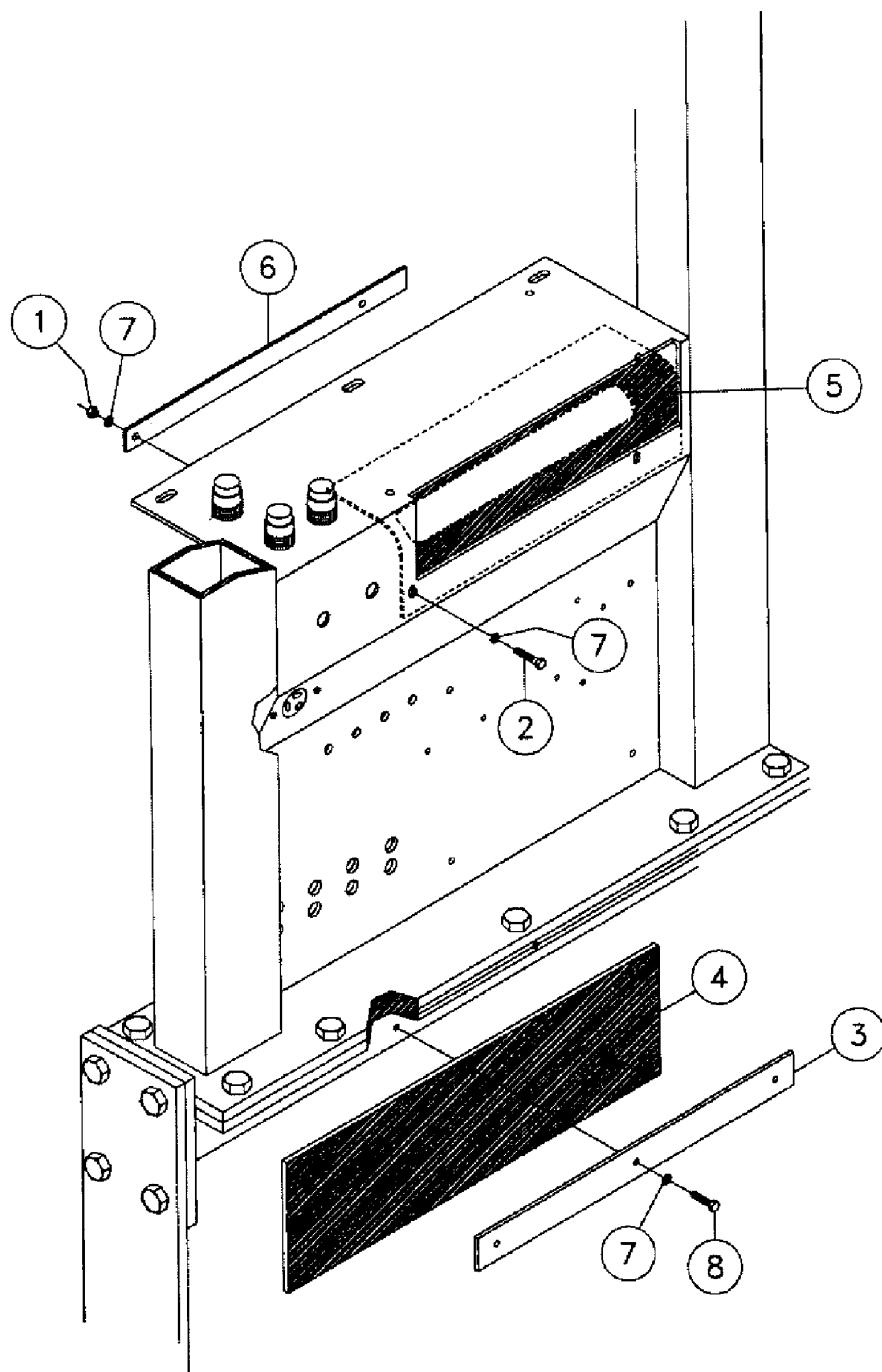


Outrigger Assembly (SN225-) Fig 1-15x01

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		238221001	NUT-5/8-11 GR 8 NC Y/ZINC	16	
2		250607001	BOLT-5/8-11 X 2GR 8 HEX Y/ZINC	14	
3		239469001	OUTRIGGER TUBE-OUTSIDE LEFT	1	
4		283568001	OUTRIGGER TUBE-INSIDE LEFT	1	
5		2108001	LYNCH PIN-1/4 X 2	2	
6		283569001	OUTRIGGER-TUBE - INSIDE RIGHT	1	
7		283549001	KNIFE-OUTRIGGER	2	
8		283558001	PIN-OUTRIGGER KNIFE	2	
9		287007001	OUTRIGGER TUBE-OUTSIDE RIGHT	1	
10		235715001	WASHER-5/8 SAE HARD ZINC PLTD	16	
11		238245001	BOLT-5/8-11 X 2 1/4" GR 8 HEX	2	

Heat Shield Assembly Fig 1-16r01

Revised June 1999 due to
update in illustration.

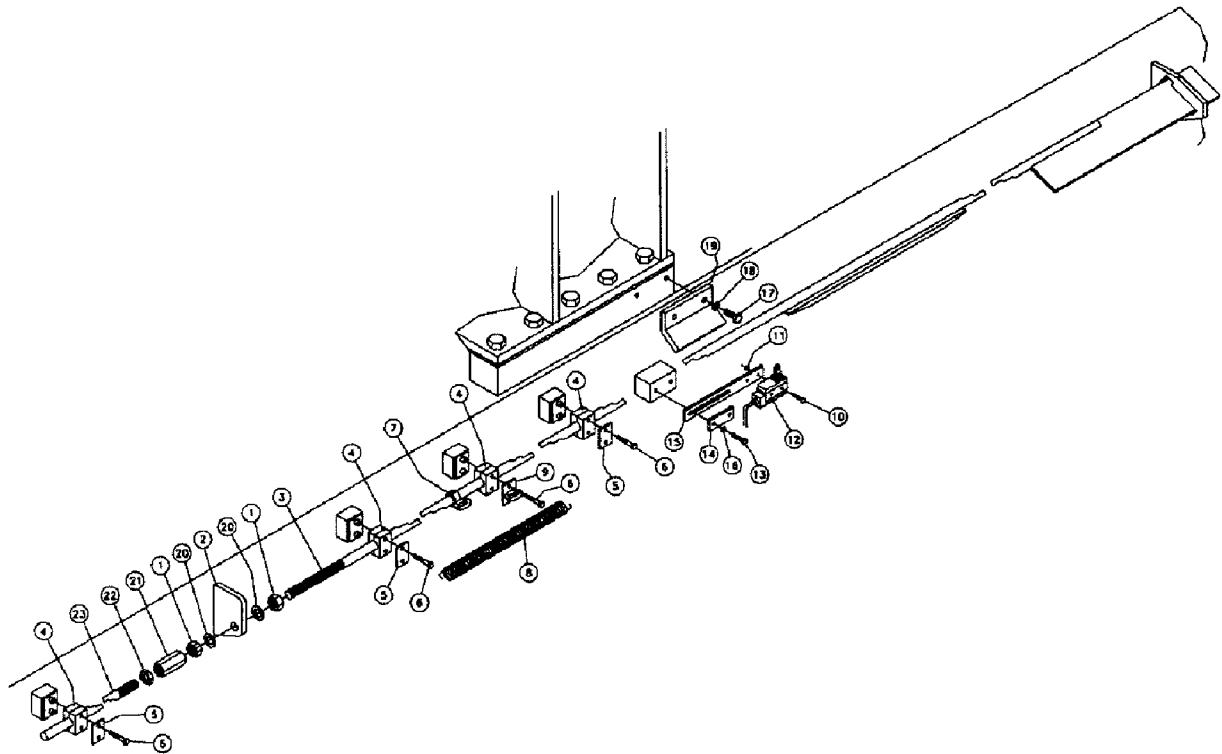


Heat Shield Assembly Fig 1-16r01

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		235732001	NUT-1/4-20 GR8 ZINC PLTD	2	
2		250008001	BOLT 1/4-20 X 1 1/4 ZINC PL	5	
3		234277001	PLATE- FLAP MOUNT	1	
4		234278001	MUD FLAP - TRACK	1	
5		234279001	COVER - RUBBER VALVE	1	
6		234280001	MOUNT-HEAT COVER	1	
7		235716001	WASHER-1/4 SAE HARD ZINC PLTD	7	
8		235735001	BOLT-1/4-20X1 GR8 HEX ZNC PLTD	3	
			Revised June 1999 due to update in illustration.		

Drill Rod Position Indicator Assembly Fig 1-17r02

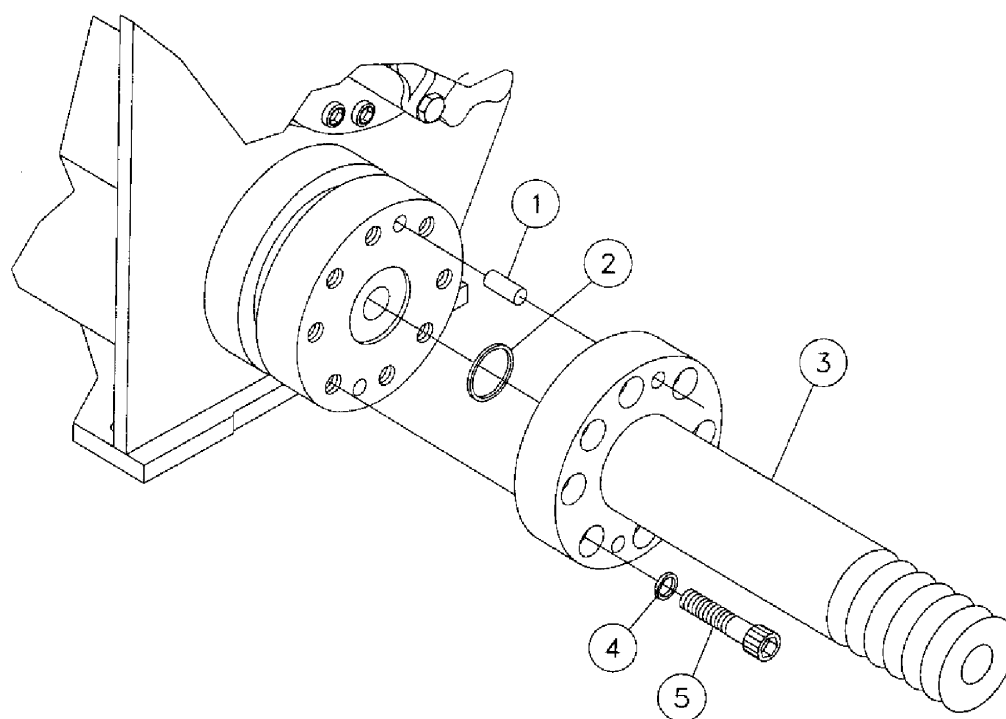
Revised June 1999 due to update
in illustration & parts list. Changed
parts marked with *.



Drill Rod Position Indicator Assembly Fig 1-17r02

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		250513001	NUT-5/8-NC GR8 TOP LOCK Y/ZINC	2	
2		275290001	PLATE - MARKER STOP	1	
3		275287001	MARKER - ROD POSTION	1	
4		279817001	*CLAMP-HOSE 2180 PP	4	
5		903135005	PLATE-COVER COP-2	3	
6		238210001	BOLT-1/4-20X1 1/2"GR8 HEX ZINC	8	
7		227979001	MOUNT-ROD INDICATOR SPRING	1	
8		1789001	SPRING-1 1/8ODX15/16ID X15 EXT	1	
9		227978001	MOUNT-ROD INDICATOR SPRING	1	
10		10530012	SCREW-8-32X1 1/4 RDHDSLOT MCH	2	SN101-246
11		399001	NUT-8-32 HEX	2	
12		223967001	SWITCH-OMRON ENCLOSED LIMIT	1	SN101-246
13		235734001	BOLT-1/4-20X3/4 GR8 ZNC HD	2	
14		234420001	COVER-SWITCH MOUNT	1	
15		234418001	MOUNT-SWITCH	1	SN101-246
16		235716001	WASHER-1/4 SAE HARD ZINC PLTD	2	
17		235727001	BOLT-3/8-16X1 GR8 HEX ZINC PLT	2	
18		235713001	WASHER-3/8 SAE HARD ZINC PLTD	2	
19		275291001	PLATE-MARKER STRIKER	1	
20		235715001	WASHER-5/8 SAE HARD ZINC PLTD	2	
21		277776001	NUT - 5/8-11UNC COUPLING ZINC	1	
22		250514001	NUT-5/8-NC JAM Y/ZINC	1	
23		277775001	ROD - GAUGE EXTENSION	1	
24		144654001	*SCREW-8-32X1 1/2 STOVE	2	SN247-
25		283555001	*MOUNT-SWITCH	1	SN247-
26		276467001	*SWITCH-NO/NC LEVER/ROLLER	1	SN247-

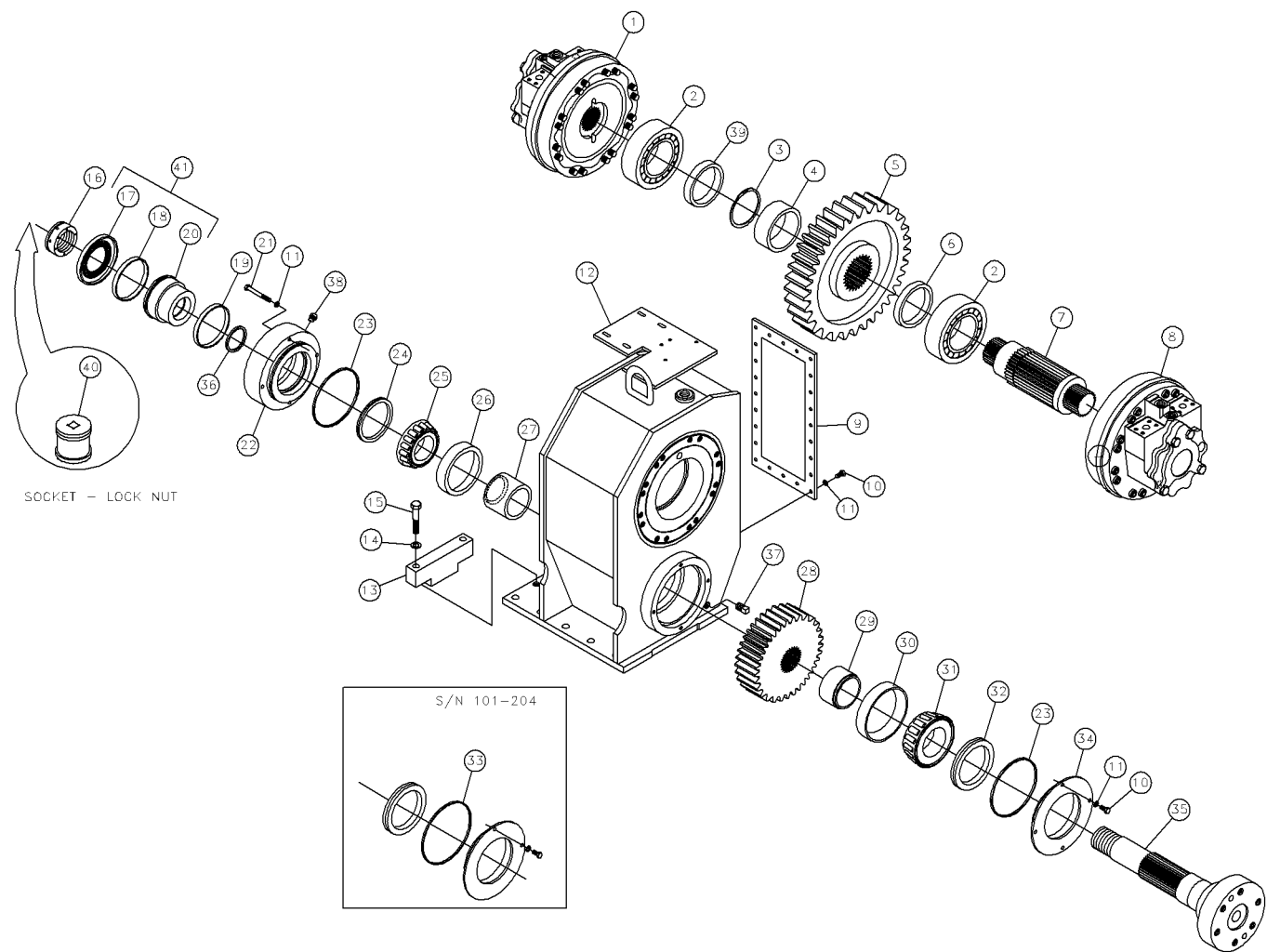
Drive Chuck Assembly Fig 1-18



Drive Chuck Assembly Fig 1-18

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		70096001	PIN-DOWEL 5/8DIA.-1 1/2	2	
2		72897001	O RING-SQ. #24 FLANGE	1	
3		222431001	DRIVE CHUCK -3 5/8" OD	1	
3		222447001	DRIVE CHUCK-3 1/4" OD	1	
4		480017	WASHER-3/4 S/T LOCK	8	
5		239364001	BOLT-3/4-16X3 1/4 SKTHD GR8 ZN	8	

Rotation Gearbox Components Fig 1-19r06

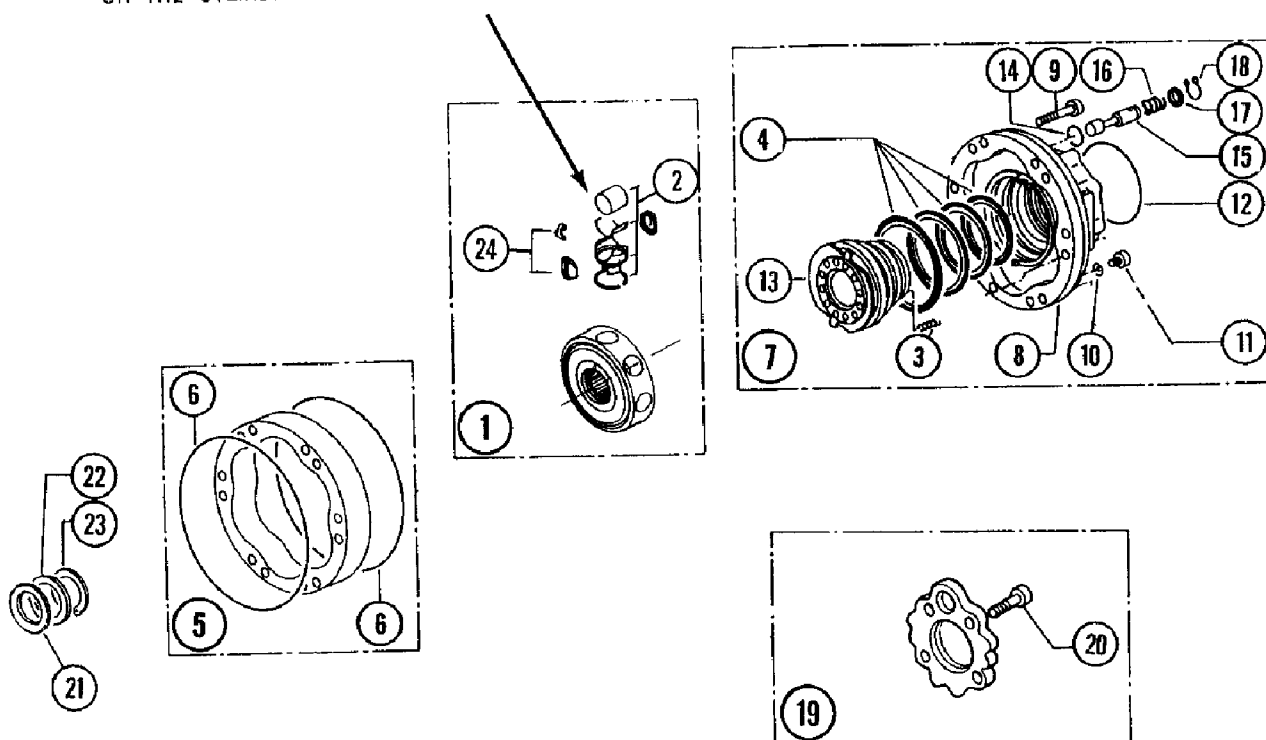


Rotation Gearbox Components Fig 1-19r06

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
		Revision Date	January, 2005		Update In Illustration & Parts List.
1		216674001	MOTOR-2 SPEED HYD. MS18	1	Breakdown Fig. 1-20
2		283609001	*BEARING-3.94 SPHERICAL ROLLER	2	Replaces 227584-00
3		224915425	SNAP RING-4 1/4" EXTERNAL	1	
4		227505001	TUBE-SPACER	1	
5		227514001	GEAR-45 TOOTH	1	
6		227591001	TUBE-TOP GEAR SPACER	1	
7		227513001	SHAFT-UPPER DRIVE	1	
8		216675001	MOTOR-2 SPEED HYD. MS18	1	Beakdown Fig 1-21
9		227583001	PLATE-GEAR COVER	1	
10		235726001	BOLT-3/8-16X3/4 GR8 HEX ZINC PLT	28	
11		235713001	WASHER-3/8 SAE HARD ZINC PLTD	32	
12		275320001	BOX-D80 ROTATION	1	
13		251390001	BAR-GEARBOX STOP	1	
14		235715001	WASHER-5/8 SAE HARD ZINC PLTD	2	
15		235747001	BOLT-5/8-11X3 GR8 HEX ZNC	2	
16		244713001	NUT-M65X1.5 MSW 8000# ADJ COCK	1	
17		244727001	SEAL-5.631X4.330-.472	1	
18		234815001	2 PULSE RING	1	
19		234814001	60 PULSE RING	1	
20	*	283617001	COLLAR-PULSE RING	1	PN Added
21		235743001	BOLT-3/8-16X3 GR8 ZINC PLT	4	
22		244720001	COLLAR-HEADSHAFT SEAL REAR	1	
23		275322001	O-RING (SN101-204 QTY WAS 1)	2	
24		244723001	SEAL-5.00 OD X4.25 ID X.375 HP	1	
25		244709001	CONE - BEARING	1	
26		244708001	CUP - BEARING	1	
27		244717001	SPACER-HEADSHAFT REAR	1	
28		227515001	GEAR-28 TOOTH	1	
29		244716001	SPACER-HEADSHAFT FRONT	1	
30		244706001	CUP - BEARING	1	
31		244707001	CONE - BEARING	1	
32		244721001	SEAL-5.57 OD X4.50 ID X.663 HP	1	
33		275323001	O-RING (SN101-204)	1	
34		244719001	COLLAR-HEADSHAFT SEAL FRONT	1	
35	*	283616001	HEADSHAFT-ROTATION GEARBOX	1	PN Change
36		275353001	O-RING	1	
37		734001	PLUG-1/2" MAGNETIC	1	
38		5553001	PLUG-#6M	2	
39		279761001	TUBE SPACER (SN171 & UP)	1	
40		283601001	SOCKET-GEARBOX LOCKNUT	1	
41	*	283617003	COLLAR ASSEMBLY,PULSE RING	1	PN Added
		275361001	ROTATION GEARBOX ASSEMBLY		Inc. All Items In This

Hydraulic Motor Components Fig 1-20

THERE IS THE POSSIBILITY OF HAVING TWO SIZES OF PISTONS IN A MOTOR. NORMALLY CL "0" IS USED. THERE IS NO MARKING ON THE PISTON OR CYLINDER BLOCK. THERE IS THE POSSIBILITY OF HAVING CL "1" WHICH IS 1mm OVER SIZE. THERE WILL BE A "1" STAMPED ON THE PISTON AND A CORRESPONDING "1" STAMPED ON THE CYLINDER BLOCK IN THE AREA OF THE EFFECTED CYLINDER BORE.

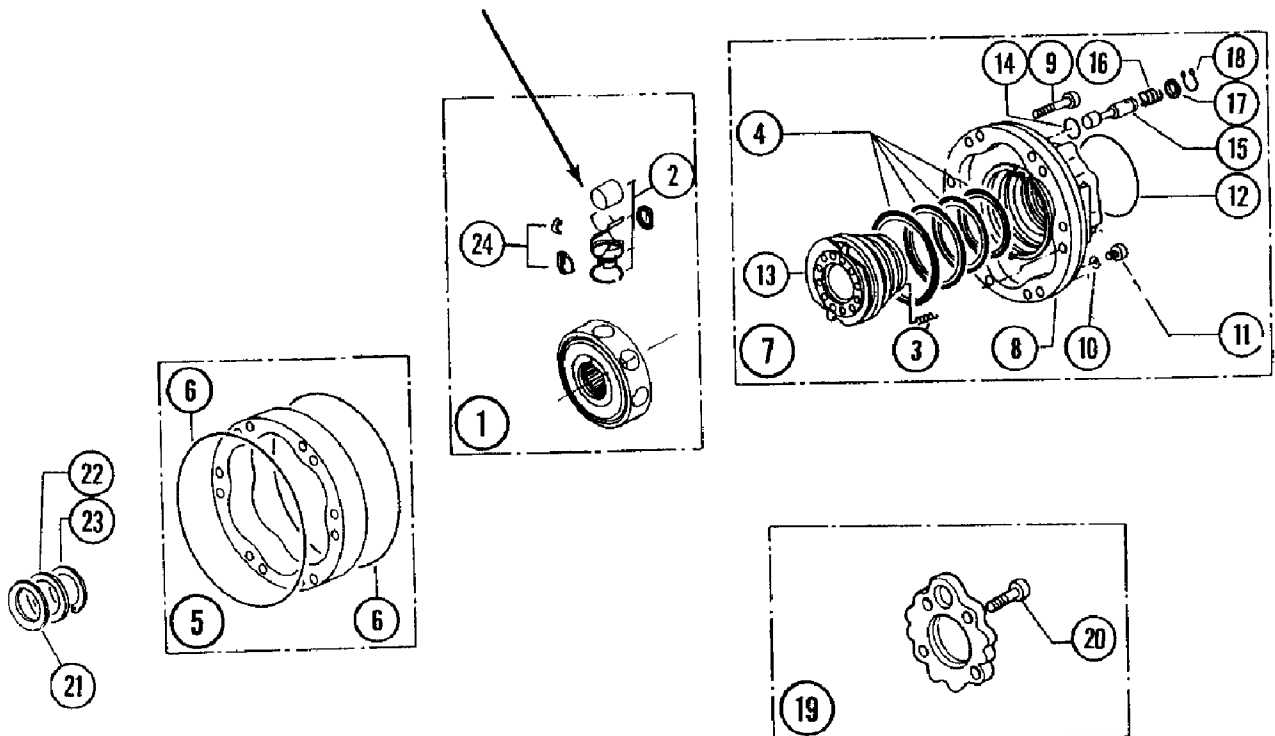


Hydraulic Motor Components Fig 1-20

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		99098005	CYLINDER BLOCK	1	
2		119885003	PISTON CL"O XCX	AR	NORMAL SIZE
		84550009	PISTON CL "1"	AR	1 MIL. OVER SIZE
3		84550029	SPRING	12	
4		84550025	VALVE SEAL SET	1	
5		216674003	CAM ASSEMBLY	1	
6		99098013	O-RING-3.50 X 314	2	
7		216675003	VALVING COVER ASSEMBLY	1	
8		216674007	VALVING COVER	1	
9		216674009	BOLT-M16X100 CL 10.9	16	
10		64078025	WASHER	2	
11		64078027	SCREW-BLEEDING	2	
12		83651025	O-RING-2.62X145.72	1	
13		216674011	VALVING	1	
14		216675005	O-RING	1	
15		216675007	VALVE SPOOL	1	
16		216675009	SPRING	1	
17		216675011	WASHER	1	
18		216675013	SNAP RING	1	
19		85635027	PLATE-REAR COVER	1	
20		85635029	BOLT-M16X35	4	
21		84550069	SHIM SET	1	
22		84550071	WASHER	1	
23		84550073	SNAP RING	1	
24		119885005	REPAIR KIT-PISTON	1	For 10 Pistons
		216674001	MOTOR-2 SPD HYD. MS18		COMPLETE, REF. 1-24

Hydraulic Motor Components Fig 1-21

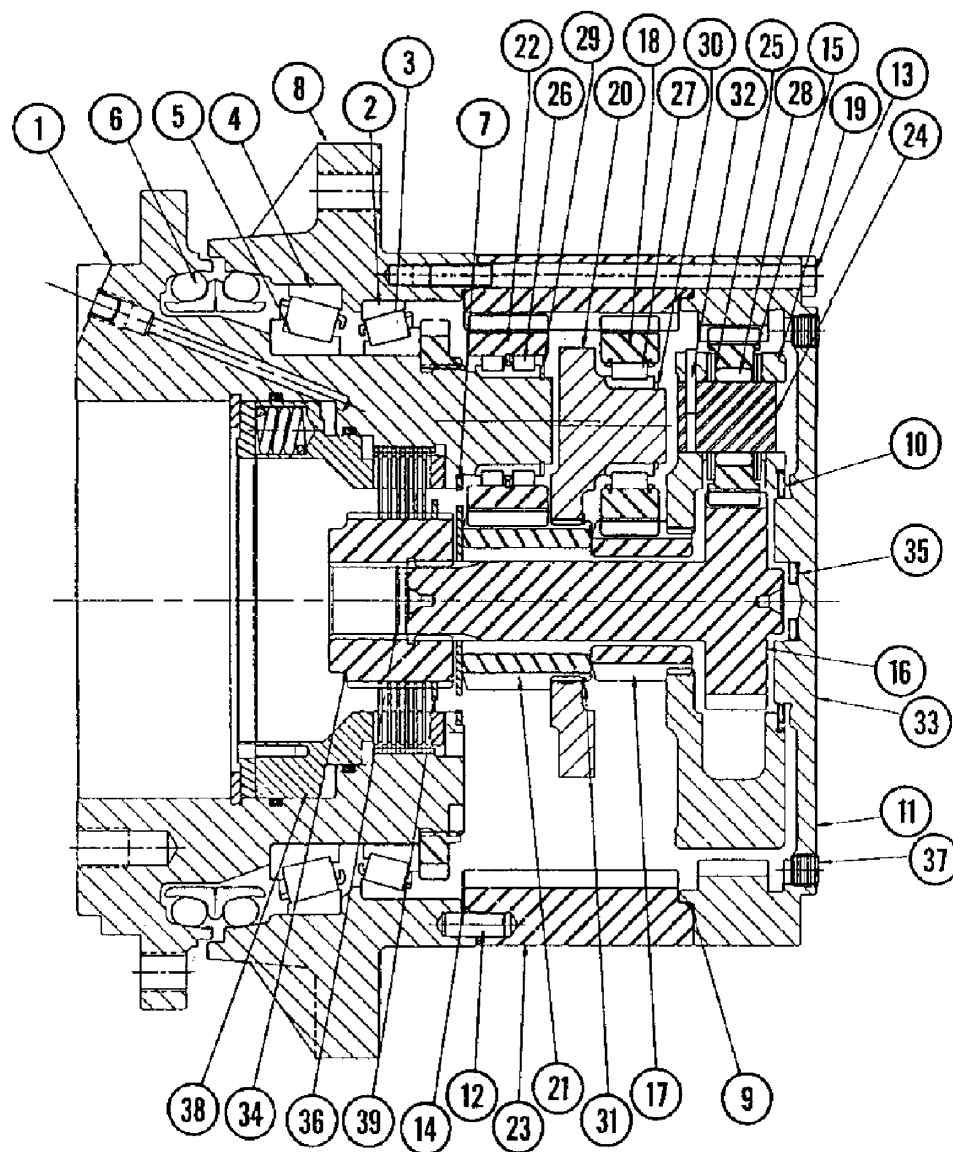
THERE IS THE POSSIBILITY OF HAVING TWO SIZES OF PISTONS IN A MOTOR. NORMALLY CL "0" IS USED. THERE IS NO MARKING ON THE PISTON OR CYLINDER BLOCK. THERE IS THE POSSIBILITY OF HAVING CL "1" WHICH IS 1mm OVER SIZE. THERE WILL BE A "1" STAMPED ON THE PISTON AND A CORRESPONDING "1" STAMPED ON THE CYLINDER BLOCK IN THE AREA OF THE EFFECTED CYLINDER BORE.



Hydraulic Motor Components Fig 1-21

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		99098005	CYLINDER BLOCK	1	
2		119885003	PISTON CL'O XCX	AR	NORMAL SIZE
		84550009	PISTON CL "1"	AR	1 MIL. OVER SIZE
3		84550029	SPRING	12	
4		84550025	VALVE SEAL SET	1	
5		216674003	CAM ASSEMBLY	1	
6		99098013	O-RING-3.50 X 314	2	
7		216675003	VALVING COVER ASSEMBLY	1	
8		216674007	VALVING COVER	1	
9		216674009	BOLT-M16X100 CL 10.9	16	
10		64078025	WASHER	2	
11		64078027	SCREW-BLEEDING	2	
12		83651025	O-RING-2.62X145.72	1	
13		216674011	VALVING	1	
14		216675005	O-RING	1	
15		216675007	VALVE SPOOL	1	
16		216675009	SPRING	1	
17		216675011	WASHER	1	
18		216675013	SNAP RING	1	
19		85635027	PLATE-REAR COVER	1	
20		85635029	BOLT-M16X35	4	
21		84550069	SHIM SET	1	
22		84550071	WASHER	1	
23		84550073	SNAP RING	1	
24		119885005	REPAIR KIT-PISTON	1	For 10 Pistons
		216675001	MOTOR-2 SPEED HYD. MS18		COMPLETE, INC. REF. 1-24

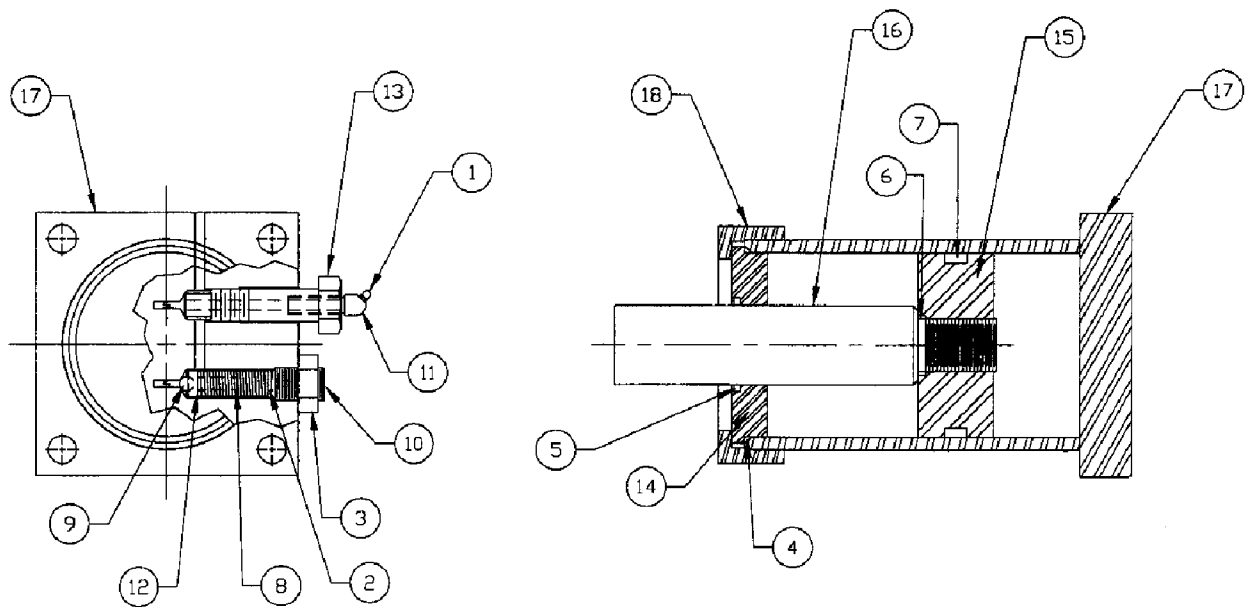
Planetary Gearbox Components Fig 1-22



Planetary Gearbox Components Fig 1-22

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		214045003	SPINDLE	1	
2		214045005	CUT-TAPERED BEARING	1	
3		214045007	CONE-TAPERED BEARING	1	
4		214045009	CUP-TAPERED BEARING	1	
5		214045011	CONE-TAPERED BEARING	1	
6		214045013	SEAL-FACE	1	
7		214045015	SPACER-THRUST	1	
8		214045017	HOUSING	1	
9		214045019	O-RING	1	
10		214045021	WASHER-THRUST	1	
11		901555055	PLATE-ID	1	
12		214045023	PIN-DOWEL	2	
13		214045025	BOLT-HEX.375-16X6.0 GR8	20	
14		214045027	O-RING	1	
15		214045029	GEAR-PLANET	3	
16		214045031	GEAR-SUN	1	
17		214045033	GEAR-SUN	1	
18		214045035	GEAR-PLANET	3	
19		214045037	CARRIER	1	
20		214045039	CARRIER	1	
21		214045041	GEAR-SUN	1	
22		214045043	SET	1	
23		214045045	GEAR-RING	1	
24		214045047	SHAFT-PLANET	3	
25		114280043	WASHER-THRUST	12	
26		214045049	BEARING-CYLINDER ROLLER	5	
27		214045051	BEARING-CYLINDER ROLLER	3	
28		214045053	BEARING-NEEDLE	57	
29		114280035	RET.RING-EXT.	5	
30		214045055	RETAIN RING-EXTERNAL	3	
31		214045057	RETAINING RING-EXTERNAL	1	
32		114280037	PIN-ROLL	3	
33		214045059	PLATE-COVER	1	
34		214045061	COUPLING	1	
35		214045063	WASHER-THRUST	1	
36		214045065	RETAINING RING-INTERNAL	1	
37		118586033	PLUG-PIPE (.250-18)	3	
38		214045067	BRAKE-INPUT	1	
39		214045069	RETAINING RING-EXTERNAL	1	
		214045001	PLANETARY-GEARBOX		COMPLETE, INC. REF.1-39

Cylinder Components - 3 1/2 x 4 3/4 Grease Fig 1-23

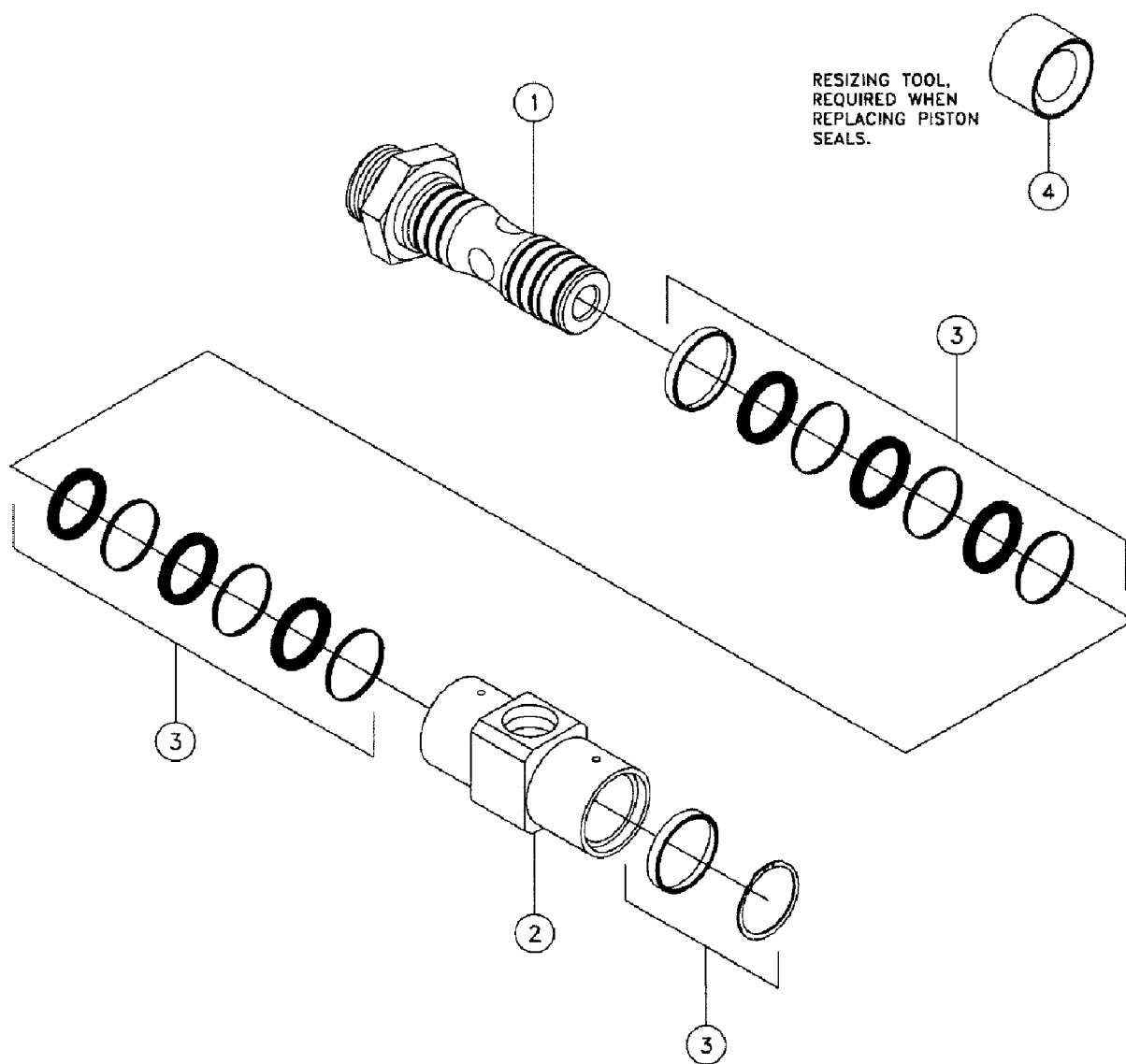


Cylinder Components - 3 1/2 x 4 3/4 Grease Fig 1-23

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		88978001	ZERK-1/8 NPT STR. LEAK PROOF	1	
2		15694001	WASHER-#6M FLAT	1	
3		429001	NUT-5/8 NC HEX JAM	1	
4		4350001	O-RING 042 NAT.	1	
5		57300001	WIPER	1	
6		3211043	O-RING	1	
7		58138001	UNI-RING	1	
8		3115027	SPRING	1	
9		3113009	BALL-STEEL 5/16	1	
10		15164001	SSS-5/8-11X1 DOGPOINT/LOCKPATC	1	
11		88979001	STREET ELBOW-1/8 NPT	1	
12		68581001	SUPPORT-BALL BEARING	1	
13		68580003	BOLT ASSY-GREASE	1	
14		68579001	GLAND	1	
15		68578001	PISTON	1	
16		68577001	ROD	1	
17		68574001	BODY	1	
18		68573001	CAP	1	
		231104001	CYLINDER-TRACK RELIEF		INC. ALL ITEMS IN THIS FIGURE
		68582001	REPAIR KIT		INC. REF. 4-7

Water Swivel Components Fig 1-24

Revised June 1999 due to
addition of figure to manual.

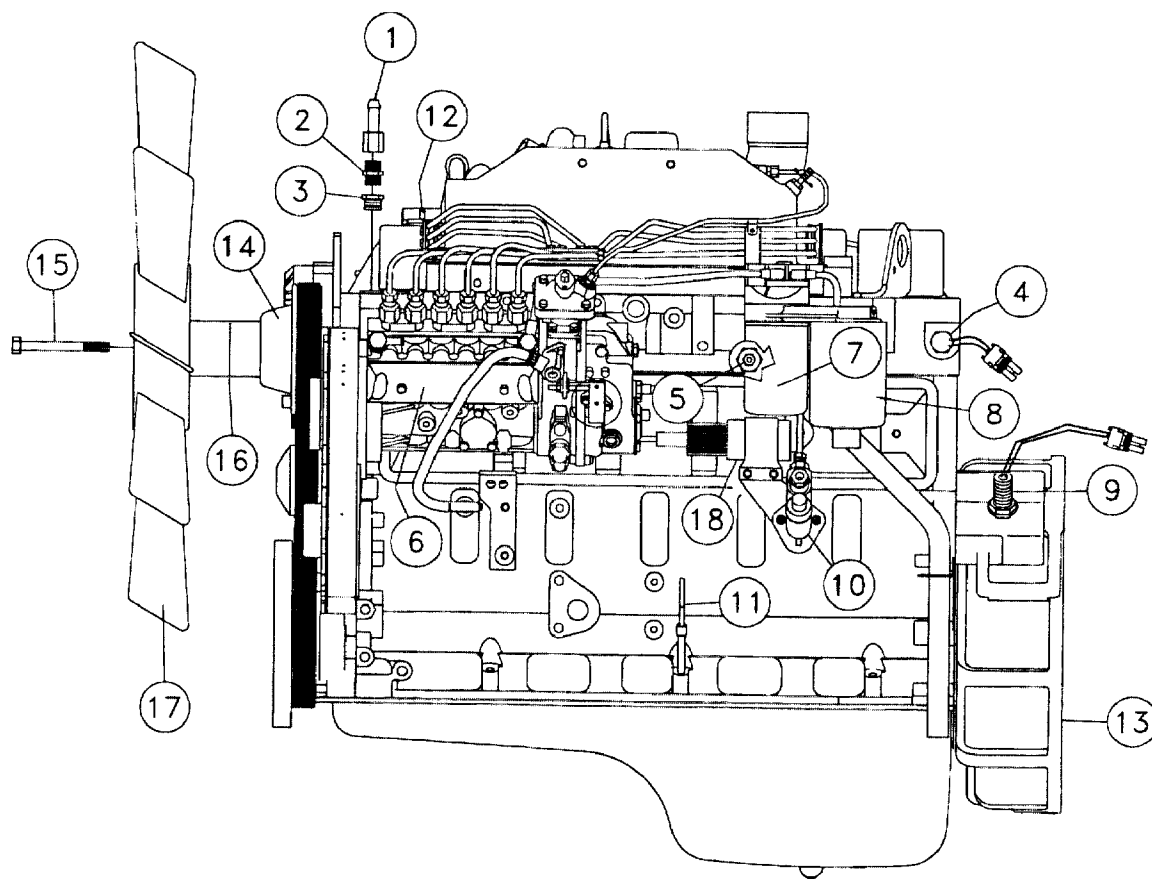


Water Swivel Components Fig 1-24

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		NSS	STEM	1	
2		NSS	BODY	1	
3		277834003	SEAL KIT	1	SEAL & SNAP RING
		277834005	SEAL KIT	1	SEAL,SNP RNG & BRG
4		277834007	RESIZING TOOL		
		277834001	SWIVEL-200 GPM WATER W/BRG		INC. ITEMS 1 THROUGH 3
			Revised June 1999 due to addition of figure to manual.		

Engine Components Fig 2-1r02

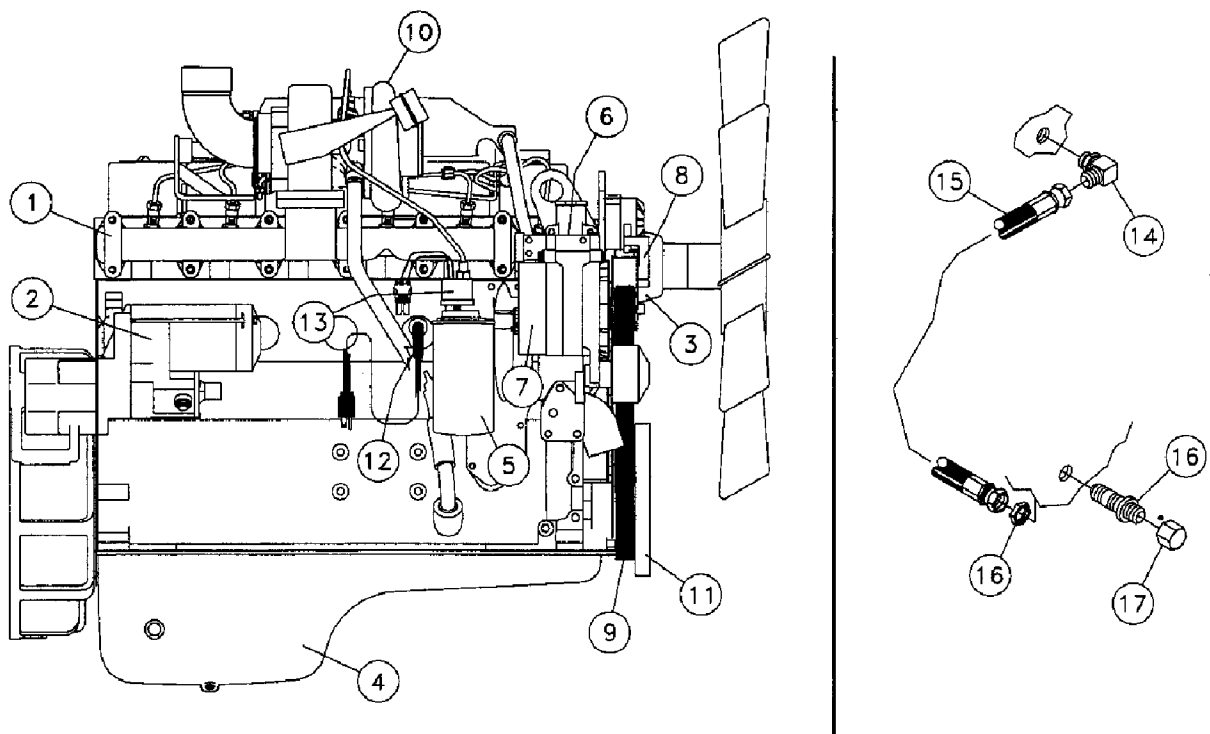
Revised February 2000 due to update
in parts list. Added part marked with *.



Engine Components Fig 2-1r02

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		103007001	.VALVE-CHECK	1	
2		103006001	.COUPLING	1	
3		103005001	.BUSHING	1	
4		227965001	SWITCH-TEMPERATURE (220F)	1	
4		730009	*3/4X3/8 HEX BUSHING STEEL	1	
5		11981001	SENDER-8992016 WATER TEMP	1	
6		147209001	.INJECTION PUMP	1	
6		234218015	.GASKET-INJECTION PUMP	1	
6		234217005	.INJECTOR-FUEL	6	
7		147208001	.SECONDARY FUEL FILTER	1	
8		147207001	.PRIMARY FUEL FILTER	1	
9		251891001	PICKUP-MAGNETIC ASSY.	1	SN101-189
10		605115001	.LIFT PUMP	1	
10		605116001	.GASKET-LIFT PUMP	1	
11		220162041	.DIPSTICK	1	
11		224559015	.DIPSTICK TUBE-TOP	1	
12		102996001	.CAP-OIL FILL	1	
12		102997001	.GASKET-OIL FILL CAP	1	
13		104063001	.FLYWHEEL	1	
13		103027001	.BOLT-FLYWHEEL	8	
13		103028001	.WASHER-FLYWHEEL BOLT	8	
14		103019001	.PULLEY-FAN	1	
15		249887001	BOLT-M10X140 10.9 HHCS D933 ZN	4	
16		234218027	.FAN SPACER - 1 1/2	3	
17		238749001	FAN-30" 12 BLADE PUSHER	1	
18		278014002	*.SOLENOID-FUEL PUMP	1	SN190-
			.ITEMS WARRANTED BY AUTHORIZED CUMMINS DEALER		

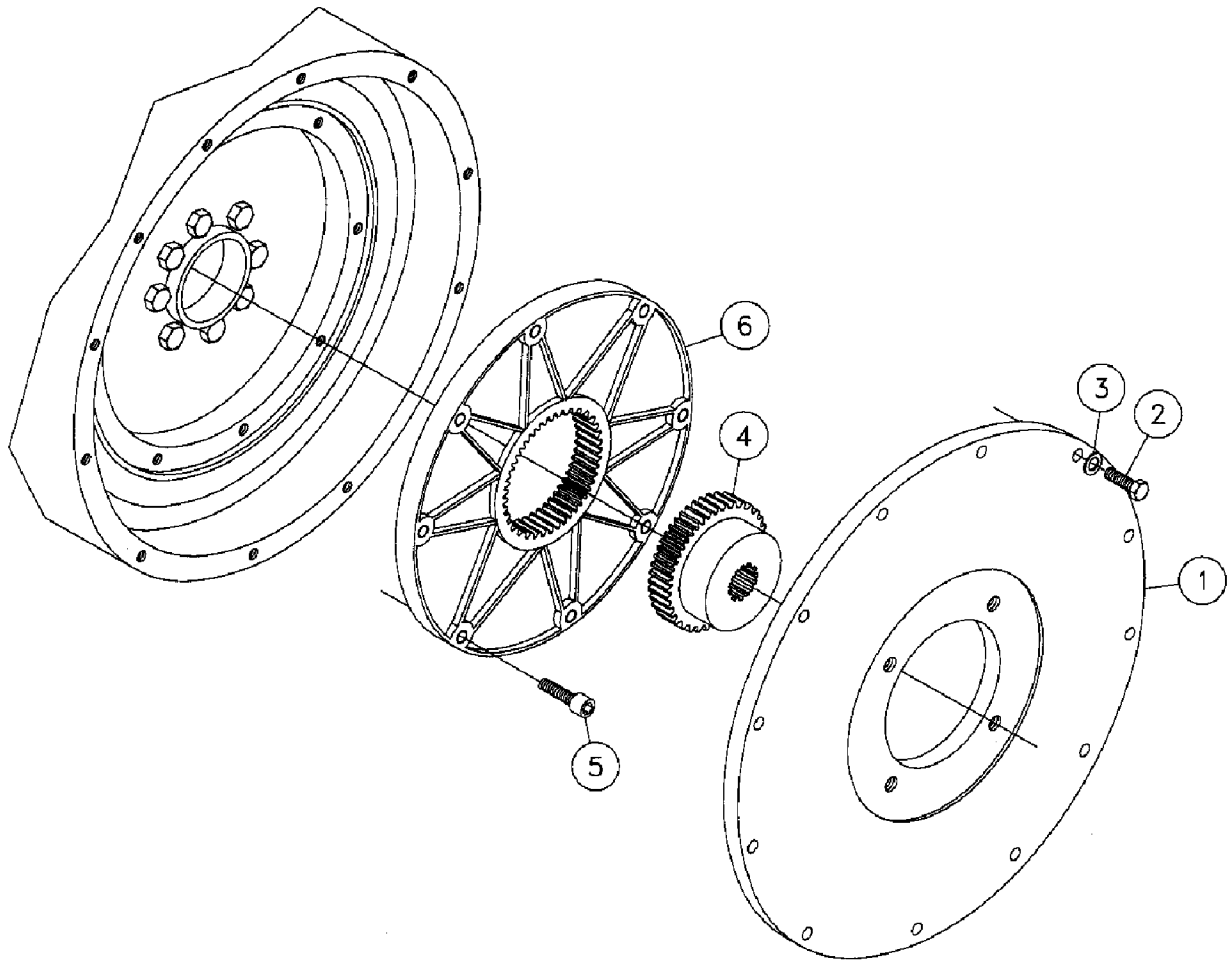
Engine Components Fig 2-2r01



Engine Components Fig 2-2r01

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		244699003	.EXHAUST MANIFOLD	1	
1		220681027	.BOLT	12	
1		234218003	.GASKET-EXHAUST MANIFOLD	6	
2		234217009	.STARTER MOTOR	1	
2		220681025	.STARTER MOUNTING BOLT	2	
3		238553003	.WATER PUMP	1	
3		220681031	.SEAL-RECTANGULAR RING	1	
4		244699009	.OIL PUMP	1	
5		605118001	.OIL FILTER	1	
6		147203001	.THERMOSTAT	1	
6		244699007	.GASKET-THERMOSTAT	1	
7		220171001	ALTERNATOR-MODIFIED 42 AMP	1	
7		5902001	ALTERNATOR FAN	1	
7		220162039	.SHEAVE-ALTERNATOR	1	
7		220681019	.ALTERNATOR BRACKET-LOWER	1	
7		220681017	.ALTERNATOR BRACKET-UPPER	1	
7		220681021	.ALTERNATOR MNTNG BOLT-UPPR	1	
8		244699005	.BELT TENSIONER	1	
8		220681023	.ALTERNATOR MNTNG BOLT-LWR	2	
9		224559017	.DRIVE BELT-V RIBBED	1	
10		234217015	.TURBO	1	
10		220162037	.GASKET	1	
11		234217007	.PULLEY-CRANKSHAFT	1	
11		103011001	.BOLT-CRANKSHAFT PULLEY	4	
12		279804001	*.HEATER-ENGINE	1	SN215, Replaces 104067-001
12		279805001	*.CABLE-ENGINE HEATER	1	SN215, Replaces 104068-001
13		98678001	SWITCH-PRESSURE SIN POLE 9 PSI	1	
14		100351001	ELBOW-10M JIC X 18-1.5M X 90MTRC	1	
15		53842063	HOSE-5/8 X 32 10FS JIC (100R2)	1	
16		77734001	FITTING-10M JIC BULKHEAD STR.	1	
17		78062001	FITTING-10F JIC CAP NUT	1	
			.ITEMS WARRANTED BY AUTHORIZED CUMMINS DEALER		

Pump Drive Assembly Fig 2-3

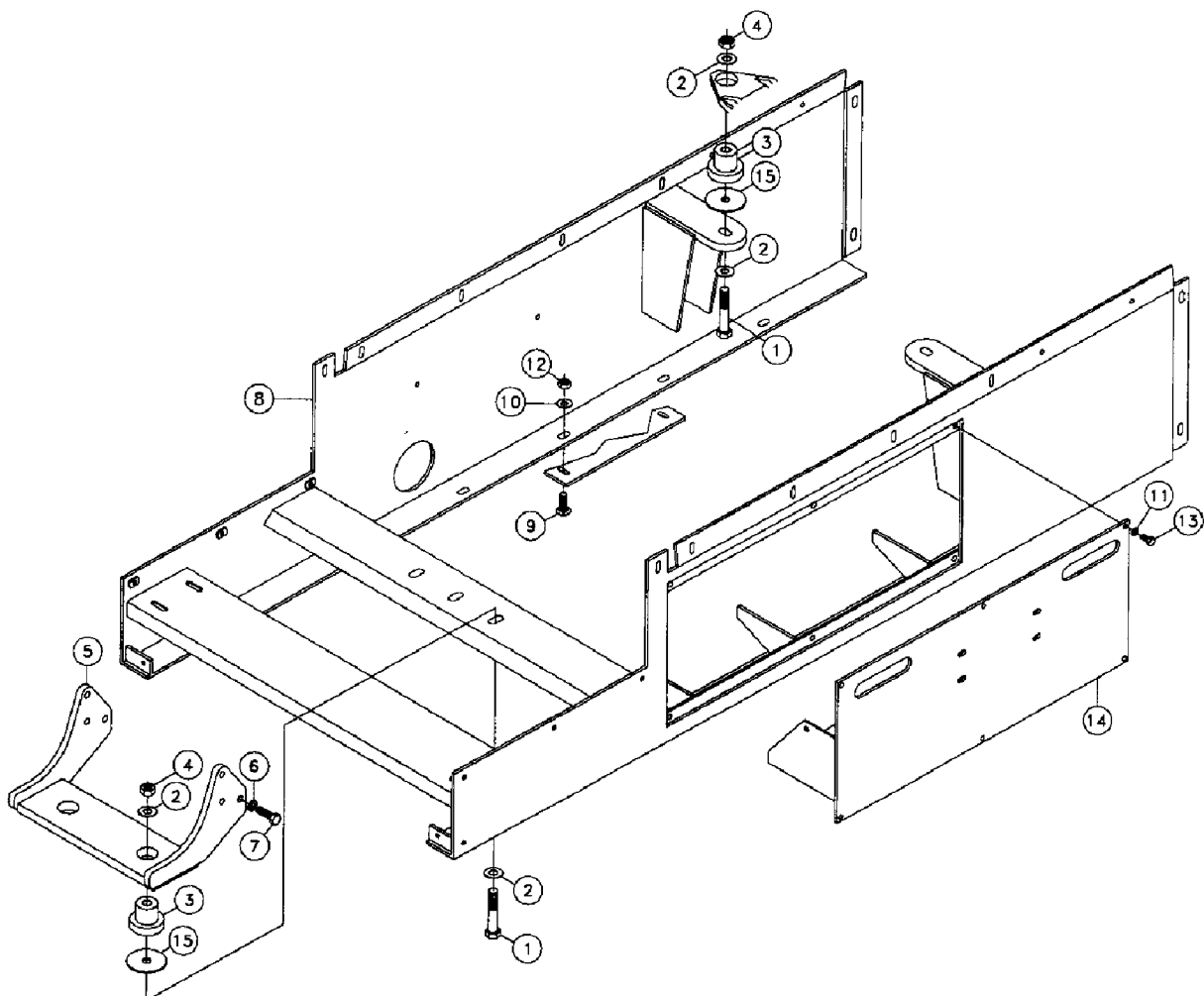


Pump Drive Assembly Fig 2-3

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		220021001	PLATE-PUMP MOUNT	1	
2		249891001	BOLT-M10X35 10.9 HHCS D933 ZNC	12	
3		240061001	WASHER-10MM HARDND FLAT ZNC	12	
4		244703001	HUB-FLE 65T 23T-16/32 SPLINE	1	
5		4478014	CAPSCREW-3/8-16X1 1/2 SOCHD G8	8	
6		220075001	FLANGE-65 FLE-PA 10"FLYWHEEL	1	

Engine Base Assembly Fig 2-4r01

Revised June 1999 due to update
in parts list. Changed parts marked with *.

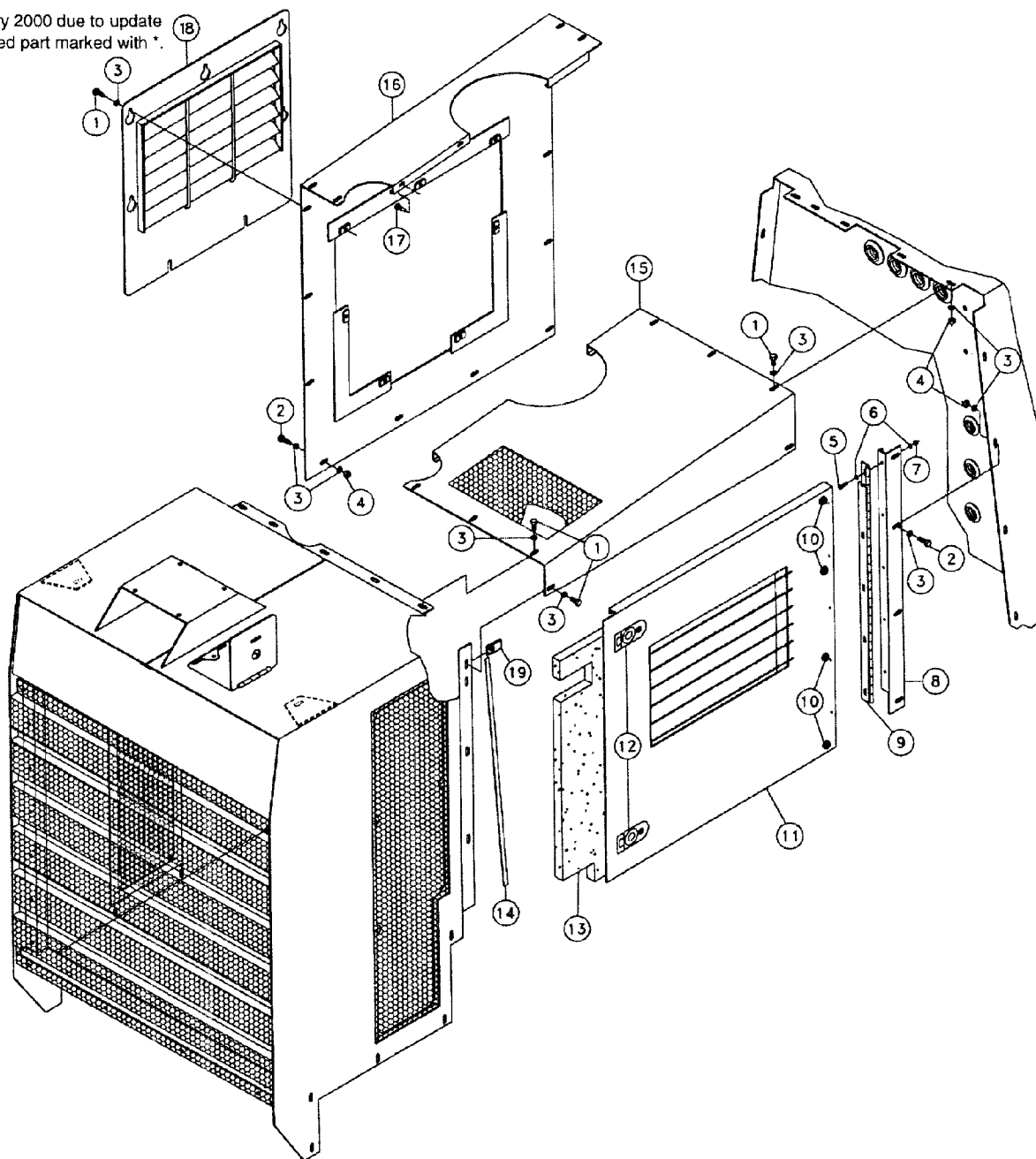


Engine Base Assembly Fig 2-4r01

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		238208001	BOLT-5/8-11X3 1/2 GR8 HEX ZYC	4	
2		235715001	WASHER-5/8 SAE HARD ZINC PLTD	8	
3		220165001	MOUNT-M500-50-NR RUBBER	4	
4		250513001	NUT-5/8-NC GR8 TOP LOCK Y/ZINC	4	
5		234238001	MOUNT-FRONT ENGINE	1	
6		238249001	* WASHER-12MM HARD Y/ZINC	6	
7		100478001	* BOLT-M12X1.75 X 30 DIN 933 GR 8.8	6	
8		275332001	BASE - ENGINE	1	
9		275366001	BOLT-1/2-13UNCX1 1/4 CAR GR8 Z	14	
10		485025	WASHER-1/2 FLAT-HARDENED-ZNC	14	
11		235713001	WASHER-3/8 SAE HARD ZINC PLTD	6	
12		235731001	NUT-1/2-13 GR8 ZINC PLTD	14	
13		235726001	BOLT-3/8-16X3/4 GR8 HEX ZNCPLT	6	
14		238592001	DOOR-BATTERY ACCESS	1	
15		220203001	SLUG-ENGINE MOUNT	4	
			Revised June 1999 due to update in parts list. Changed parts marked with *.		

Engine Shields Assembly Fig 2-5r02

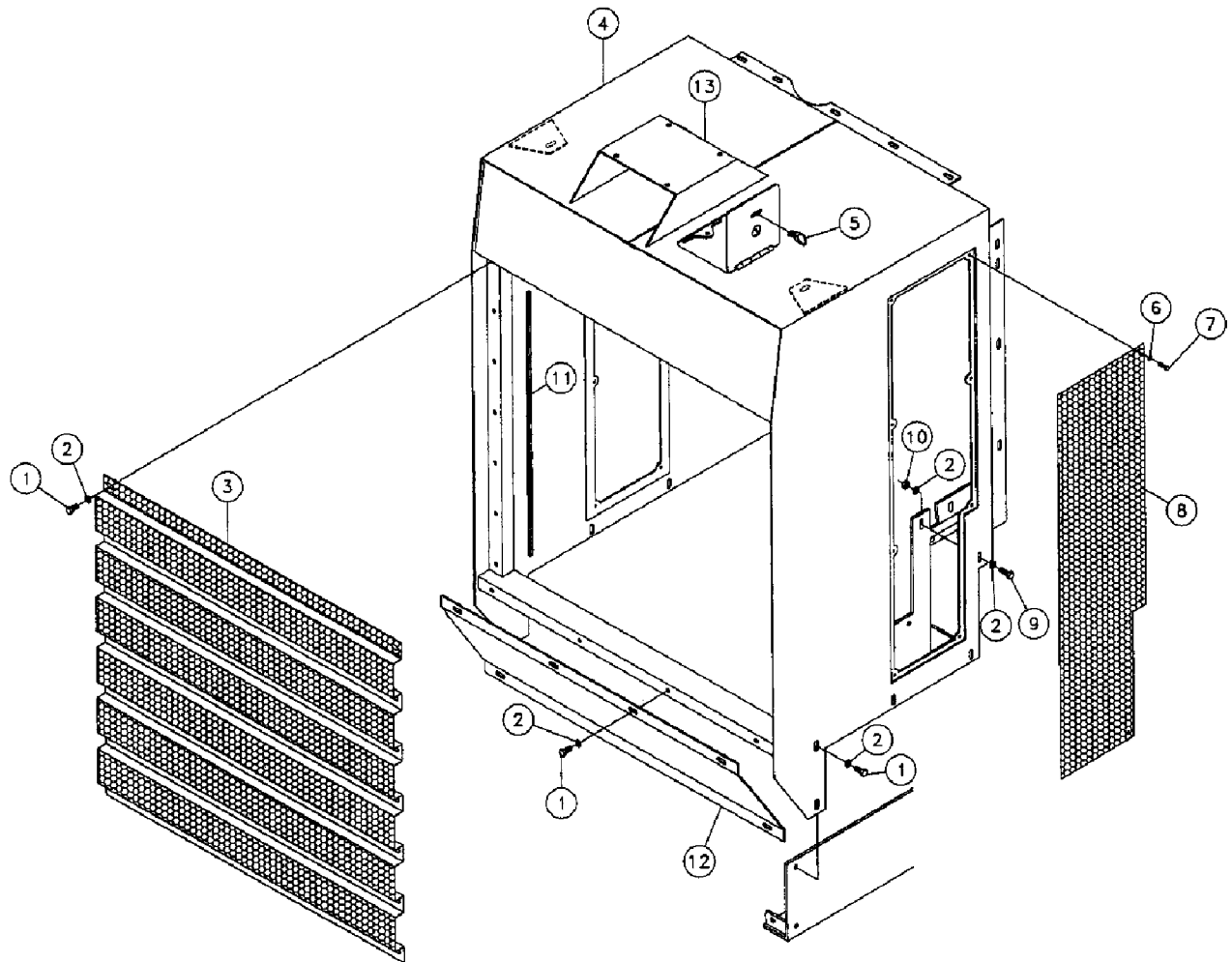
Revised February 2000 due to update
in parts list. Added part marked with *.



Engine Shields Assembly Fig 2-5r02

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		235726001	BOLT-3/8-16X3/4 GR8 HEX ZNCPLT	21	
2		235727001	BOLT-3/8-16X1 GR8 HEX ZINC PLT	12	
3		235713001	WASHER-3/8 SAE HARD ZINC PLTD	38	
4		235725001	NUT-3/8-16 GR8 ZINC PLTD	15	
5		235734001	BOLT-1/4-20X3/4 GR8 ZINC PLTD	10	
6		235716001	WASHER-1/4 SAE HARD ZINC PLTD	20	
7		235732001	NUT-1/4-20 GR8 ZINC PLTD	10	
8		238674001	BRACKET-ENGINE DOOR HINGE	1	
9		279388001	HINGE-ENGINE BAY DOOR	1	
10		101522001	BUMPER-RBBR SELF ADHES. 3/4OD	4	
11		238666001	SHIELD-RIGHT SIDE ENGINE	1	SN101-189
		287019001	*SHIELD-RIGHT SIDEENGINE	1	SN190-
12		110479001	LATCH-SEALED LEVER	2	
13		238672001	FOAM-DOOR	1	
14		98436001	SEAL-SELF ADHESIVE 1/16X1/2	A/R	Specify Length
15		238679001	SHIELD-TOP RIGHT ENGINE	1	
16		238682001	SHIELD LEFT SIDE ENGINE	1	
17		244907001	BOLT-SHIELD ALIGNMENT	2	
18		238686001	DOOR-ACCESS	1	
19		13323001	*U-CLIP 3/8-16	18	

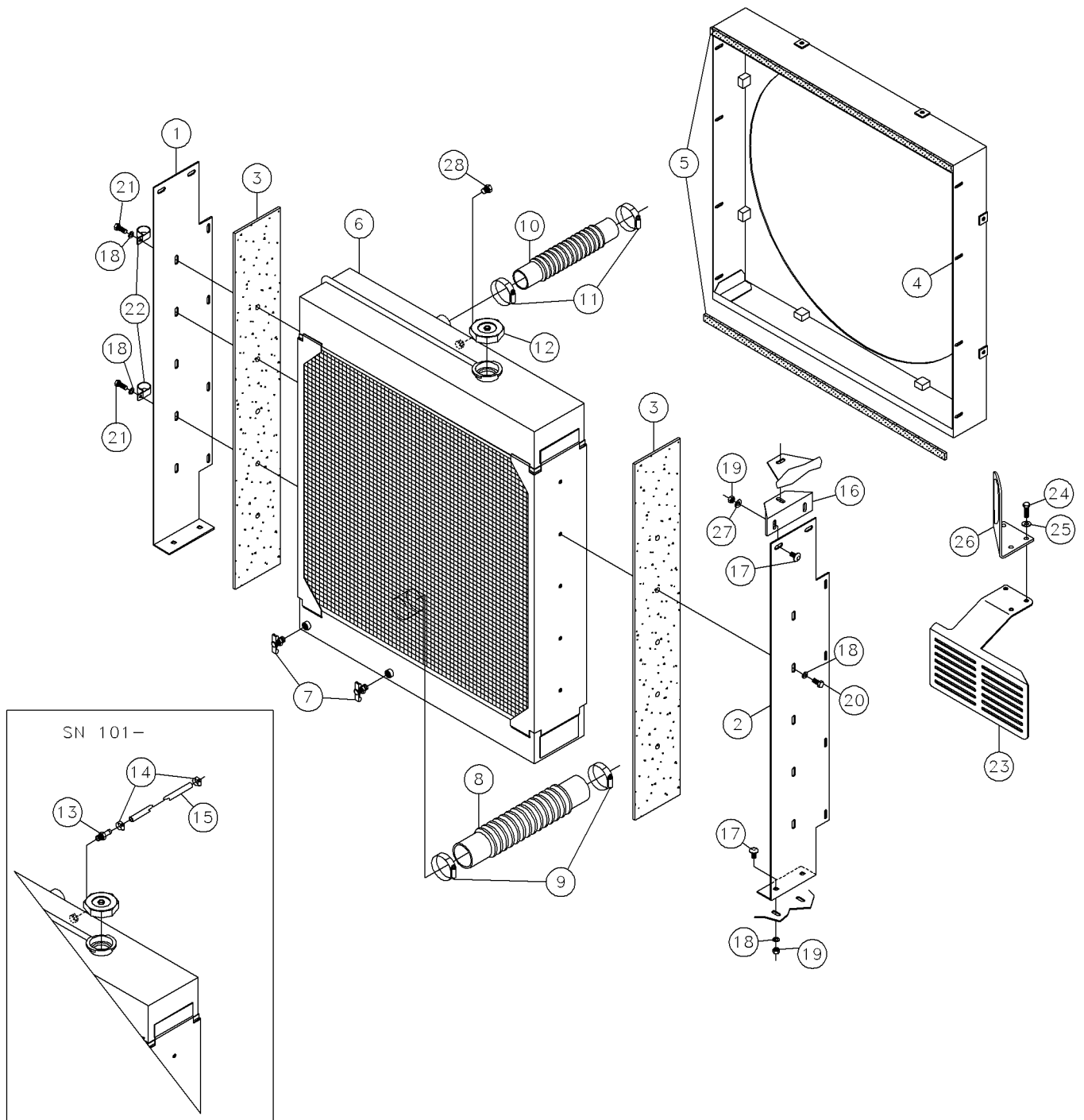
Radiator Shield Assembly Fig 2-6



Radiator Shield Assembly Fig 2-6

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		235726001	BOLT-3/8-16X3/4 GR8 HEX ZNCPLT	28	
2		235713001	WASHER-3/8 SAE HARD ZINC PLTD	32	
3		238502001	SCREEN-RADIATOR	1	
4		275317001	WRAPPER - RADIATOR	1	
5		86113001	FASTENER-1/4 TURN	1	
6		235716001	WASHER-1/4 SAE HARD ZINC PLTD	16	
7		235734001	BOLT-1/4-20X3/4 GR8 ZINC PLTD	16	
8		238677001	SCREEN-AIR INLET	2	
9		235727001	BOLT-3/8-16X1 GR8 HEX ZINC PLT	2	
10		235725001	NUT-3/8-16 GR8 ZINC PLTD	2	
11		97456001	SEAL-BULB EDGE 1/8" STYLE	AR	SPECIFY LENGTH
12		275331001	PLATE - RADIATOR DRAIN ACCESS	1	
13		275333001	PLATE - AIR CLEANER MOUNT	1	

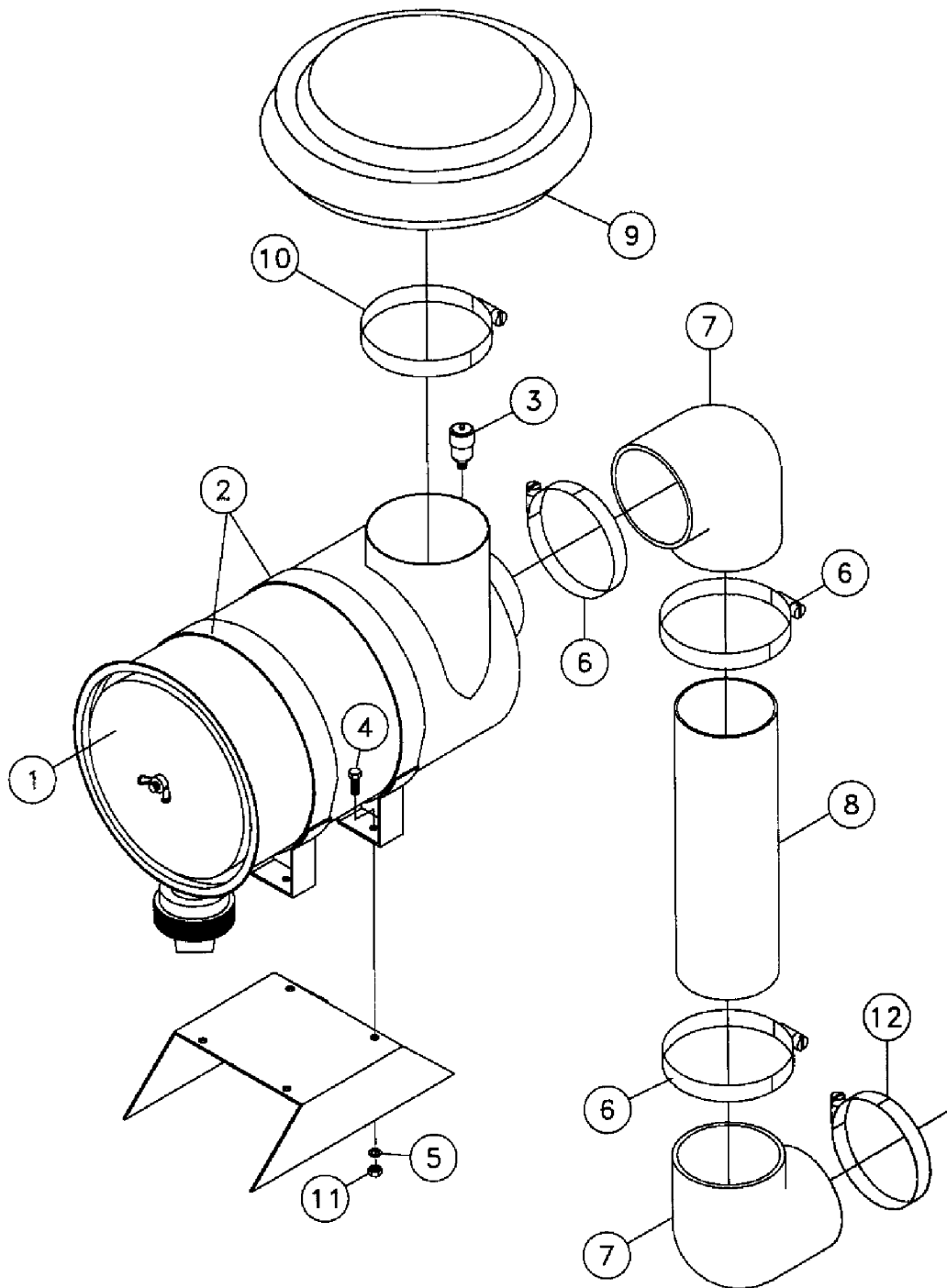
Radiator/Flashing Assembly Fig 2-7r04



Radiator/Flashing Assembly Fig 2-7r04

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
		Revision Date	January, 2005		Update In Illustration & Parts List.
1		275326001	MOUNT-OIL COOLER/RADIATOR	1	Left
2		275327001	MOUNT-OIL COLLER/RADIATOR	1	Right
3		238510001	FOAM-RADIATOR	2	
4		275829001	SHROUD-OIL COOLER FAN	1	
5		18991001	WEATHERSTRIP-5/16 X 3/4 SELFSTK	A/R	
6		238657001	RADIATOR ASSEMBLY	1	
7		225532005	DRAIN COCK-1/4"	2	
8		280616001	HOSE-RADIATOR	1	Replaces 246430-001
9		1580013	HOSE CLAMP - 2 1/2"	2	
10		244769001	HOSE-1 3/4 X 23 1/2 RADIATOR	1	
11		1580009	HOSE CLAMP - 1 3/4"	2	
12		68125001	CAP-RADIATOR TR102 (7 PSI)	1	
13		102118001	FITTING-1/4NPT X 3/8 HOSE BARB	1	
14		1580001	HOSE CLAMP - 3/8"	2	
15		57706001	HOSE-3/8" 200PSI 1 PLY BLACK	A/R	Specify Length
16		238665001	RUBBER-UPPER RADIATOR SPPRT	2	
17		375006	BOLT-3/8-16 X 3/4 CARRIAGE GR. 5	10	
18		235713001	WASHER-3/8 SAE HARD ZINC PLTD	14	
19		15289001	NUT-3/8-16NC SLTL GRADE 8	10	
20		235726001	BOLT-3/8-16 X 3/4 GR8 HEX ZNCPLT	8	
21		235727001	BOLT-3/8-16 X 1 GR8 HEX ZINC PLT	2	
22		2595001	HOSE CLAMP - TS7FR 1/2"	2	
23		275450001	GUARD - FAN	1	
24		570001	10M X 30 DIN933 GR. 10.9 METRIC	3	
25		240061001	*WASHER-10MM HRDND FLAT ZINC	3	
26		275451001	PLATE - ENGINE LIFT RING	1	
27		485007	WASHER-3/8 FLAT	6	
28	*	78202001	PLUG	1	PN Added

Air Cleaner Assembly Fig 2-8

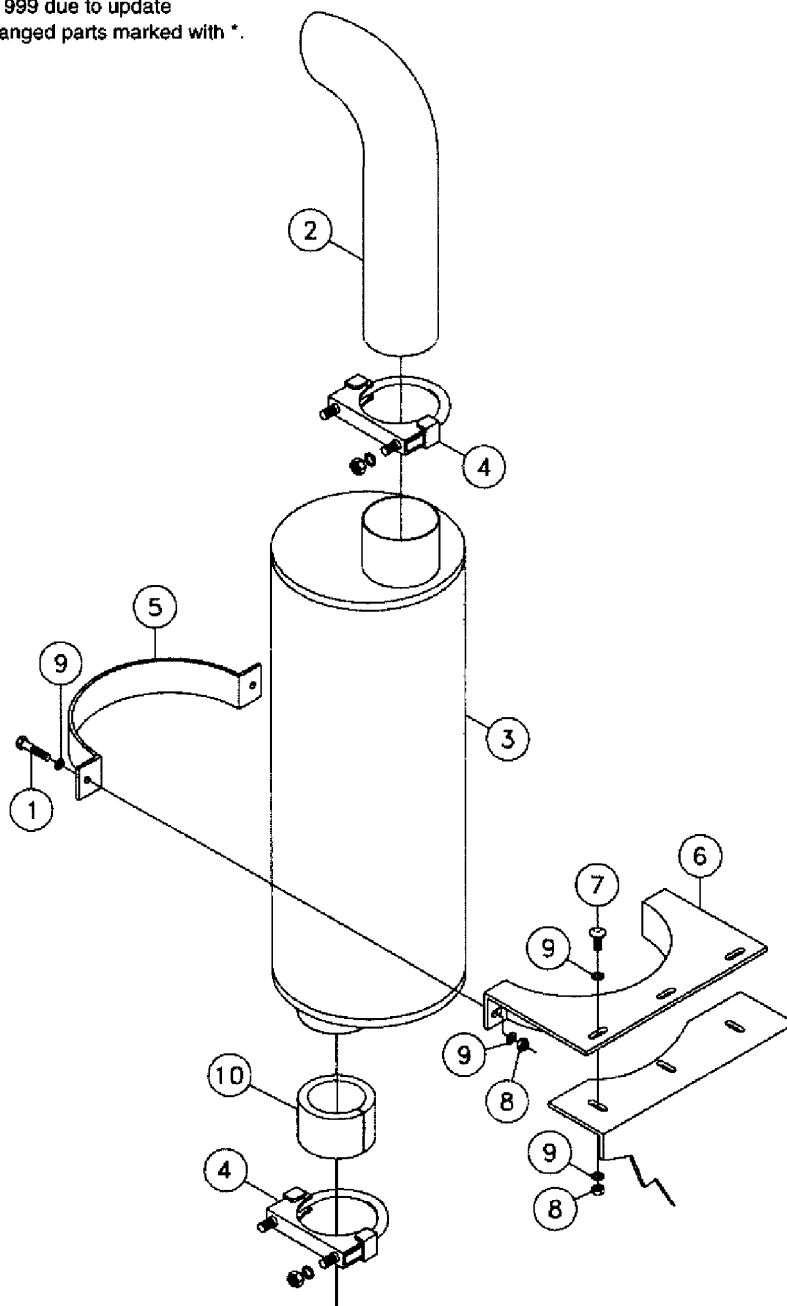


Air Cleaner Assembly Fig 2-8

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		601644001	AIR CLEANER-12" NELSON	1	BREAKDOWN FIG.2-11
2		2157001	BAND - AAH00-0349	2	
3		113557001	INDICATOR-AIR FLOW - 30"	1	
4		235727001	BOLT-3/8-16X1 GR8 HEX ZINC PLT	4	
5		235713001	WASHER-3/8 SAE HARD ZINC PLTD	4	
6		123618001	CLAMP-SPRING LOADED HOSE 5.25	3	
7		244764001	ELBOW-5" 90 DEG RUBBER	2	
8		275372001	TUBE - AIR INTAKE	1	
9		140176001	CAP-AIR CLEANER	1	
10		140176003	CLAMP	1	
11		235725001	NUT-3/8-16 GR8 ZINC PLTD	4	
12		123617001	CLAMP-SPRING LOADED HOSE	1	

Muffler Assembly Fig 2-9r01

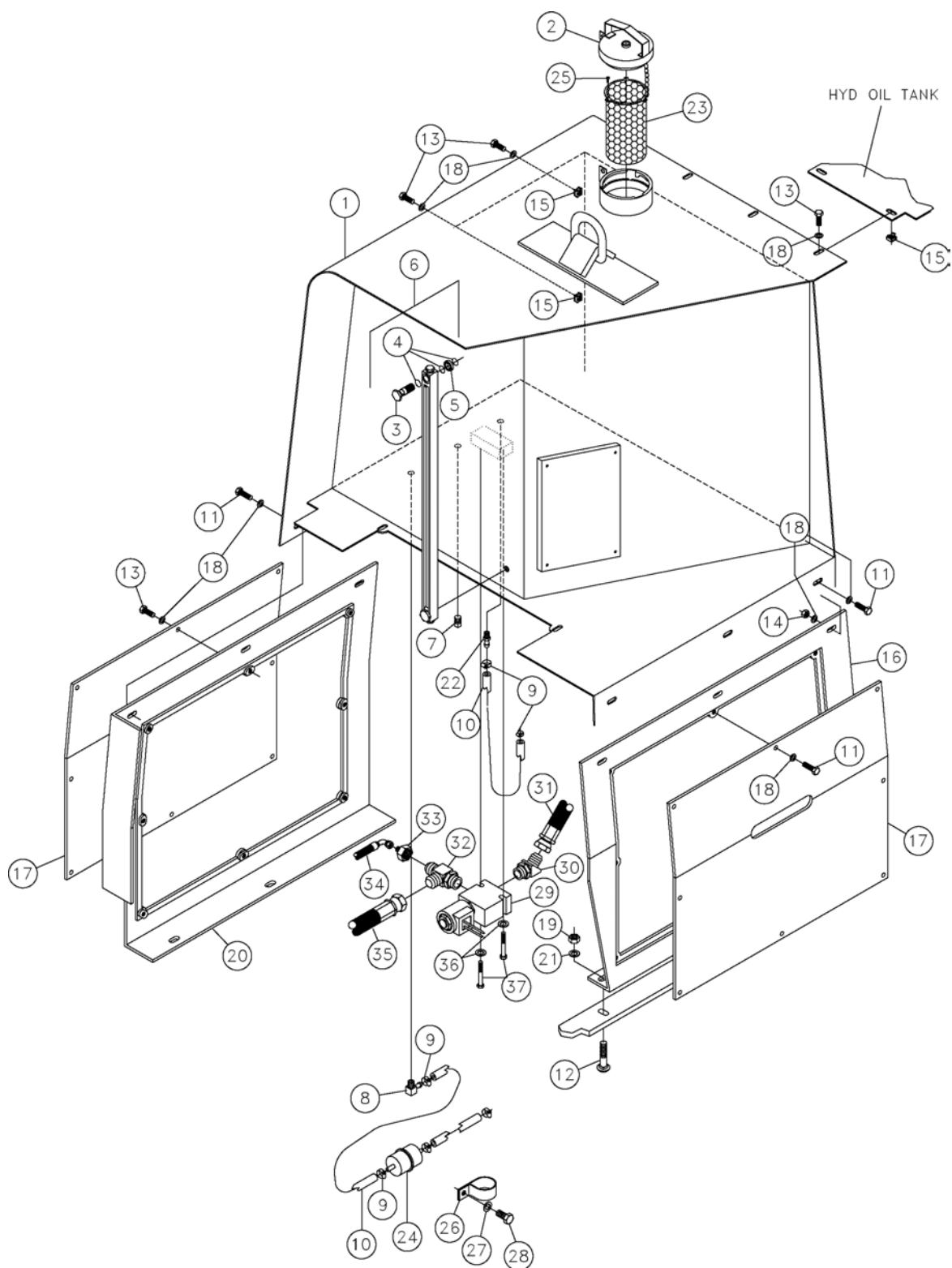
Revised June 1999 due to update
in parts list. Changed parts marked with *.



Muffler Assembly Fig 2-9r01

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		235720001	* BOLT-3/8-16X1 3/4 GR#8 ZINC PLTD	2	
2		244768001	STACK-EXHAUST	1	
3		238744001	MUFFLER-VERTICAL EXHAUST	1	
4		2609017	CLAMP-MUFFLER 4"	2	
5		238533001	STRAP-MUFFLER SUPPORT	1	
6		238530001	BRACKET-MUFFLER SUPPORT	1	
7		375010	* BOLT-3/8-16X1 GR5 CARRIAGE	3	
8		235725001	NUT-3/8-16 GR8 ZINC PLTD	5	
9		235713001	* WASHER-3/8 SAE HARD ZINC PLTD	7	
10		238523001	SPACER-MUFFLER	1	
			Revised June 1999 due to update in parts list. Changed parts marked with *.		

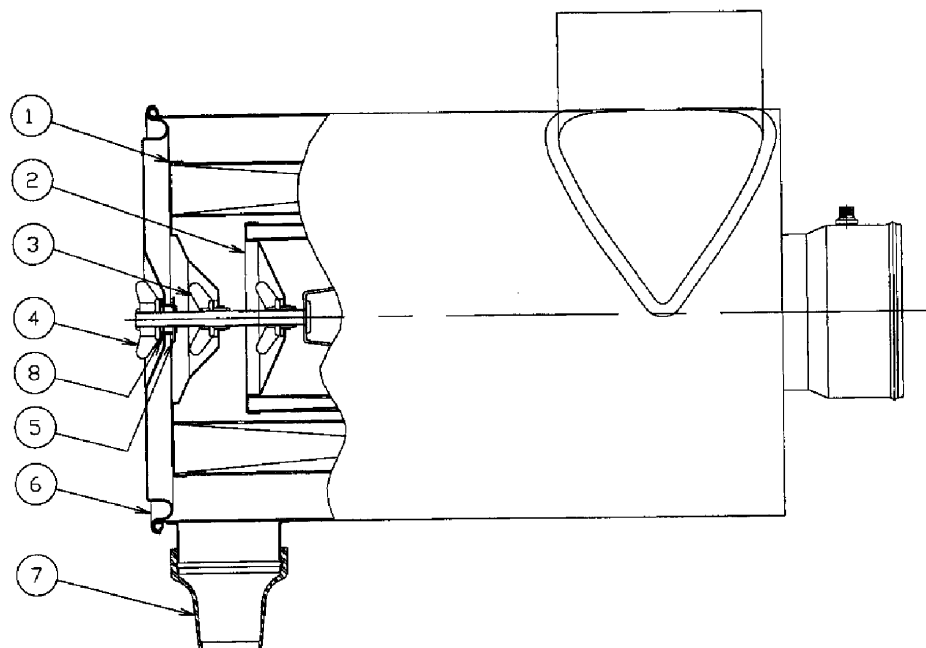
Fuel Tank Assembly Fig 2-10r03



Fuel Tank Assembly Fig 2-10r03

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
		Revision Date	January, 2005		Update In Illustration & Parts List.
1		227841003	TANK-FUEL	1	
2		224985001	CAP-VENTED FUEL TANK	1	
3		234349003	BOLT-12MM	2	SIGHT GUAGE
4		227757003	O-RING	6	
5		227757005	SPACER	2	
6		234349001	GAUGE-23" SIGHT	1	Breakdown Fig. 2-12
7		732007	1/2" PIPE PLUG BLACK STEEL	1	
8		11384001	FITTING-1557 WTHR-HD	1	
9		1578001	HOSE CLAMP - 1/4"	4	
10		620105	HOSE-5/16 FUEL LINE-62"	2	
11		235727001	BOLT-3/8-16 X 1 GR8 HEX ZINC PLT	22	
12		275366001	BOLT-1/2-13UNC X 1 1/4 CAR GR8 Z	4	
13		235726001	BOLT-3/8-16 X 3/4 GR8 HEX ZNCPLT	6	
14		235725001	NUT-3/8-16 GR8 ZINC PLTD	6	
15		415001	NUT-3/8 NC HEX NUT CLIP	6	
16		227859001	MOUNT-ENGINE BAY DOOR	1	
17		227759001	LID-ENGINE BAY	2	
18		235713001	WASHER-3/8 SAE HARD ZINC PLTD	34	
19		235731001	NUT-1/2-13 GR8 ZINC PLTD	4	
20		227861001	EXTENSION-ENGINE BOX	1	
21		485025	WASHER-1/2 FLAT-HARDENED-ZNC	4	
22		78171001	FITTING-1/8MNPT X 5/16BARS STR.	1	
23		99998001	STRAINER-6" .030 STEEL	1	
24		102995001	STRAINER	1	
25		66695001	SCREW-MACH. 6-32 X 3/8" MACHINE	3	
26		230985001	CLAMP-1 3/4" W/17/32 HOLE	1	
27		238249001	12 MM HARD WASHER Y/ZINC	1	
28		249898001	BOLT 12 X 25 10.9 HHCS D933 ZNC	1	
29	*	279818001	VALVE-POPPET-2 WAY NC	1	SN267- PN Added
30	*	60718001	FITTING-12MM JIC X 12M ADJ 45 DEG	1	SN267- PN Added
31	*	279815001	HOSE-3/4 X 46 12FS ST/ST 300 PSI	1	SN267- PN Added
32	*	59420001	FITTING-12 JIC X 12M ADJ STR THRT	1	SN267- PN Added
33	*	81345001	FITTING-12FS JICX4M JIC STR	1	SN267- PN Added
34	*	53843583	HOSE-1/4 X 112 4FS JIC 4FS 90 DEG	1	SN267- PN Added
35	*	279832001	HOSE-3/4 X 54 12 FS ST/ 40 3000 PSI	1	SN267- PN Added
36	*	235714001	WASHER-5/16 SAE HARD ZINC PLT	2	SN267- PN Added
37	*	248029001	BOLT-5/16- 18 X 2 1/2 GR8 ZINC PLT	2	SN267- PN Added

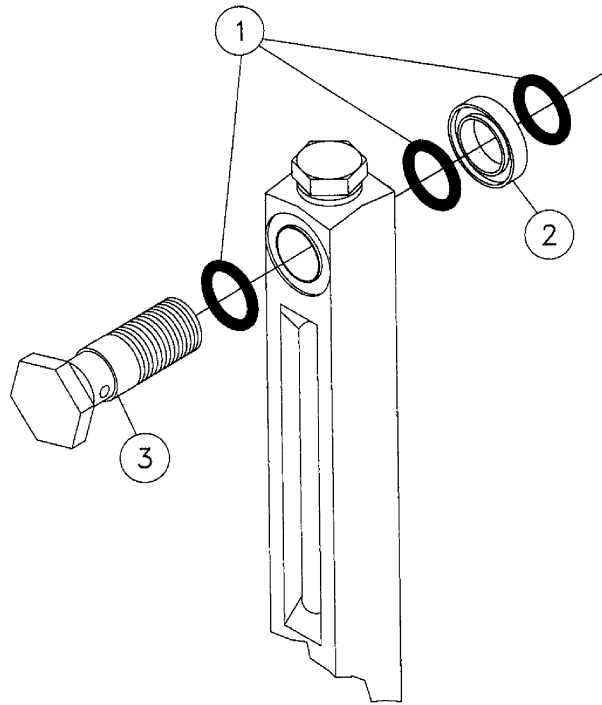
Air Cleaner Components Fig 2-11



Air Cleaner Components Fig 2-11

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		601644003	PRIMARY ELEMENT	1	
2		601644005	SAFETY ELEMENT	1	
3		601644007	WING NUT	2	
4		601644009	WING NUT	1	
5		601644011	"E" RING	1	
6		601644013	COVER ASSMBLY	1	INC. REF. 4, 5 & 8
7		601644015	DUST EJECTOR	1	
8		601644017	WASHER	1	
		601644001	AIR CLEANER-12" NELSON		INC. REF. 1-8

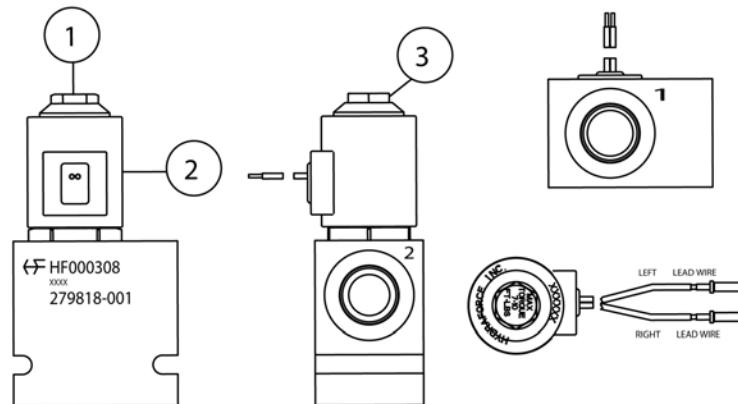
Sight Gauge Components Fig 2-12



Sight Gauge Components Fig 2-12

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		227757003	O-RING	6	
2		227757005	SPACER	2	
3		234349003	BOLT-12M	2	
		234349001	GAUGE-23" SIGHT		INC. GAUG & 1-3

Two Way Valve Assembly Fig 2-13

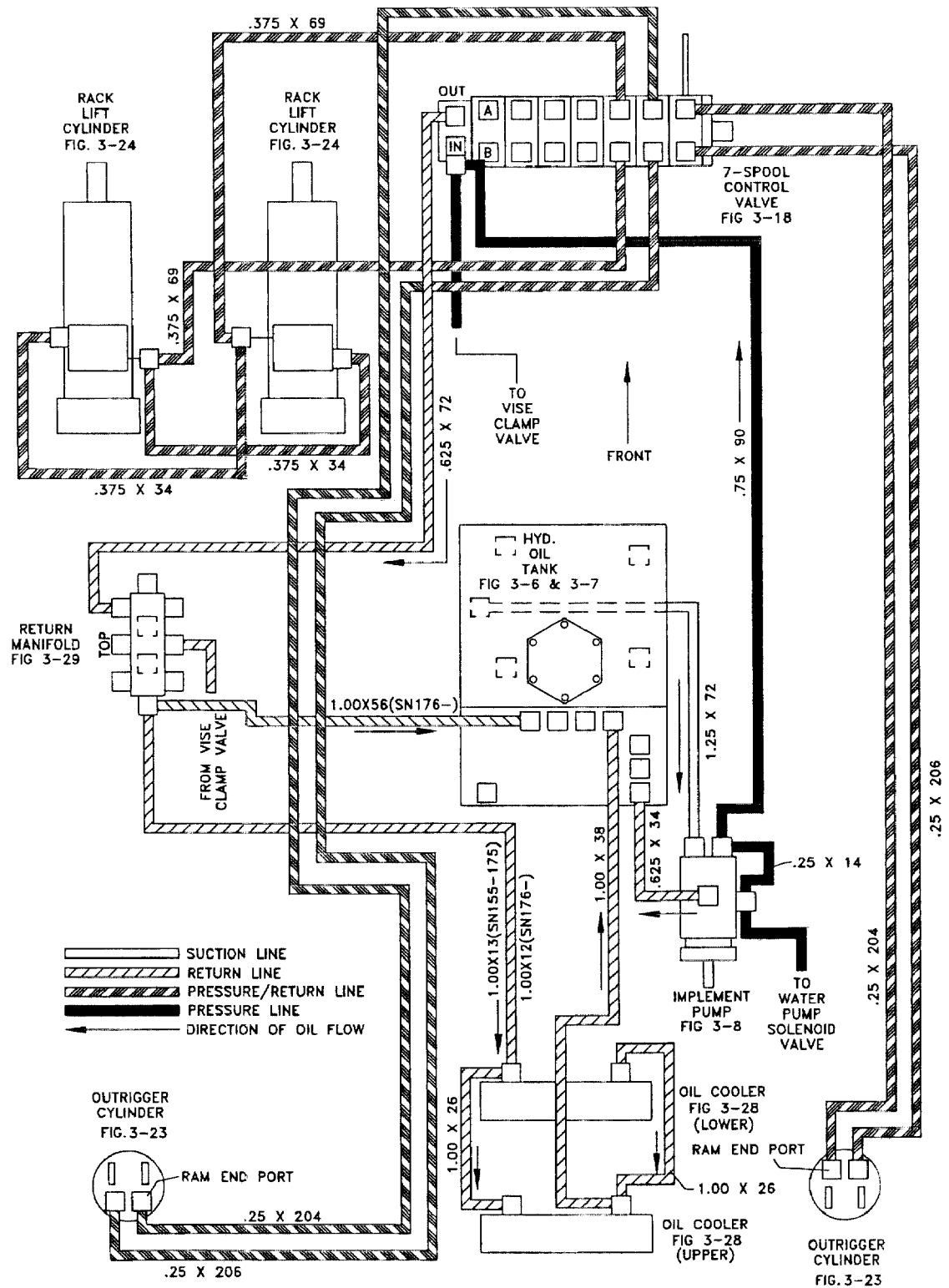


Two Way Valve Assembly Fig 2-13

REF NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
		Revision Date	January, 2005		Illustration & Parts List Added.
1		296251269	SOLENOID-CARTRIDGE	1	
		250008009	SEAL KIT	1	
2		251112005	COIL - 10 DL 12V/SPL	1	
3		280624001	NUT - RAIN PROOF COIL	1	
		279818001	VALVE-POPPET 2 WAY NC		ALL ITEMS IN FIGURE

Hydraulic Components Location Diagram - Implement System Fig 3-1r02

Revised February 2000 due to
update in illustration.

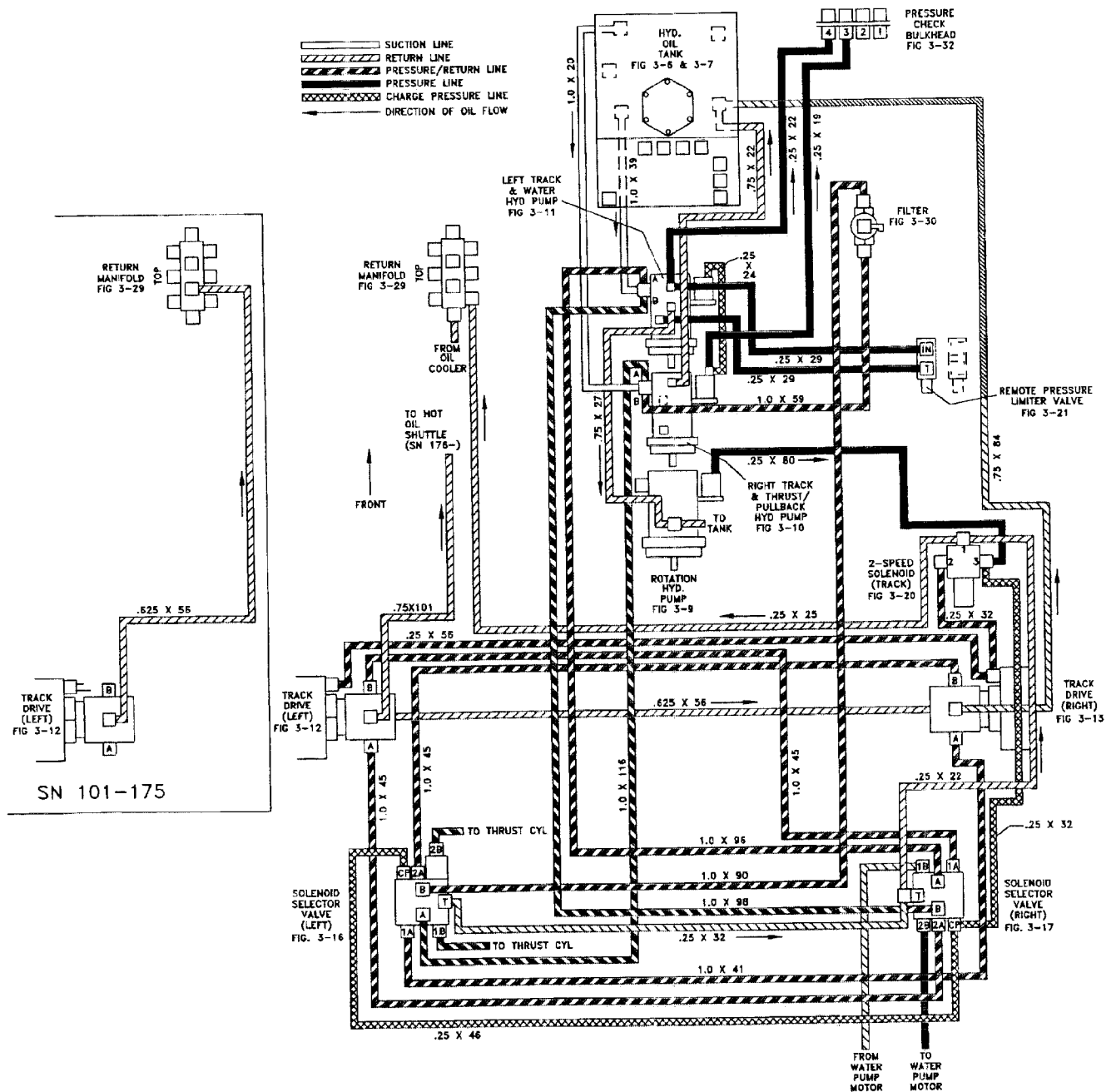


Hydraulic Components Location Diagram - Implement System Fig 3-1r02

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
			Revised June 1999 due to changed & added hoses. Starting w/ Ser No. 151.		

Hydraulic Components Location Diagram - Ground Drive System Fig 3-2r01

Revised February 2000 due to
update in illustration.

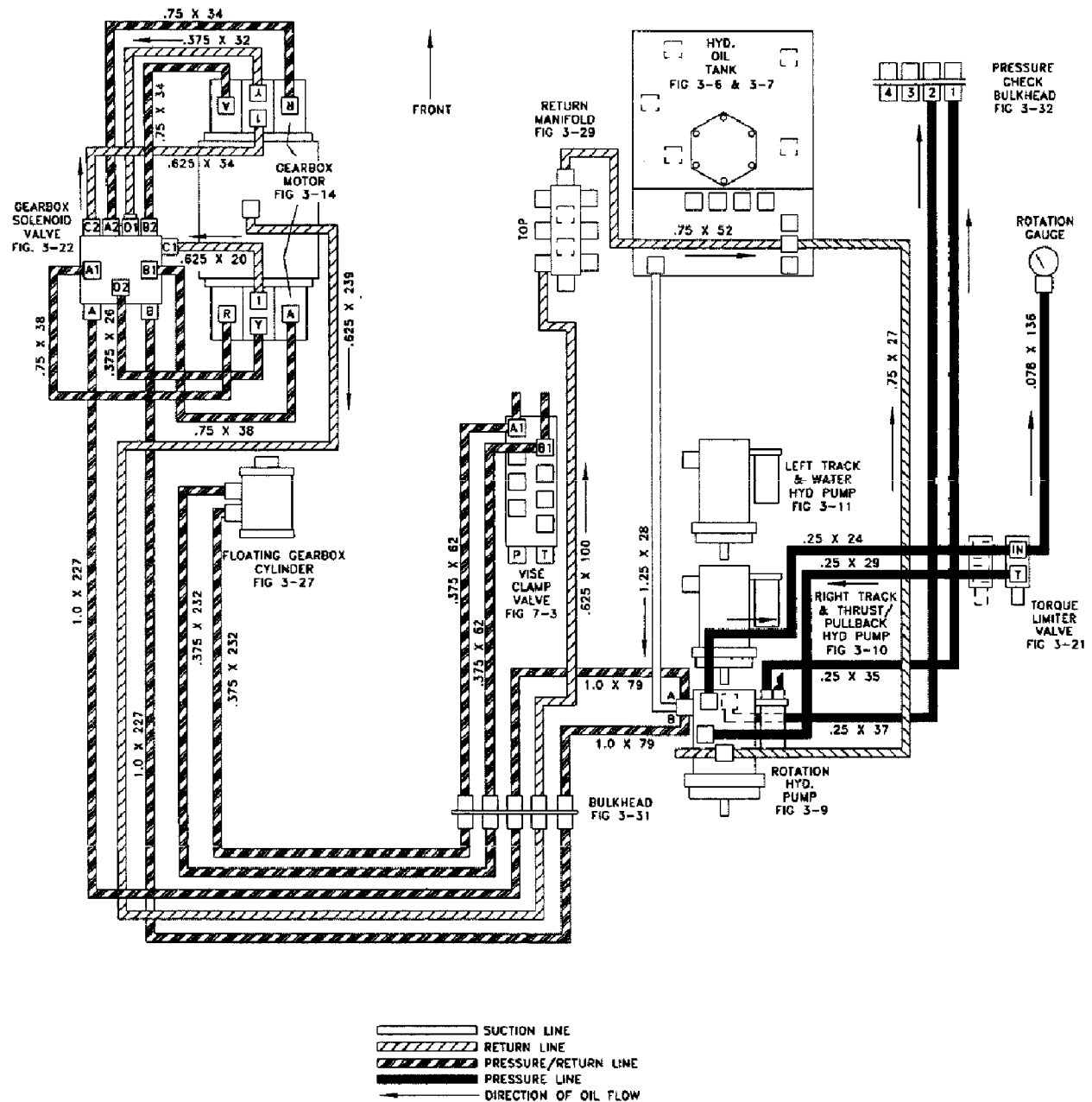


Hydraulic Components Location Diagram - Ground Drive System Fig 3-2r01

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS

Hydraulic Components Location Diagram - Rotation System Fig 3-3r01

Revised June 1999 due to
change in hose lengths.

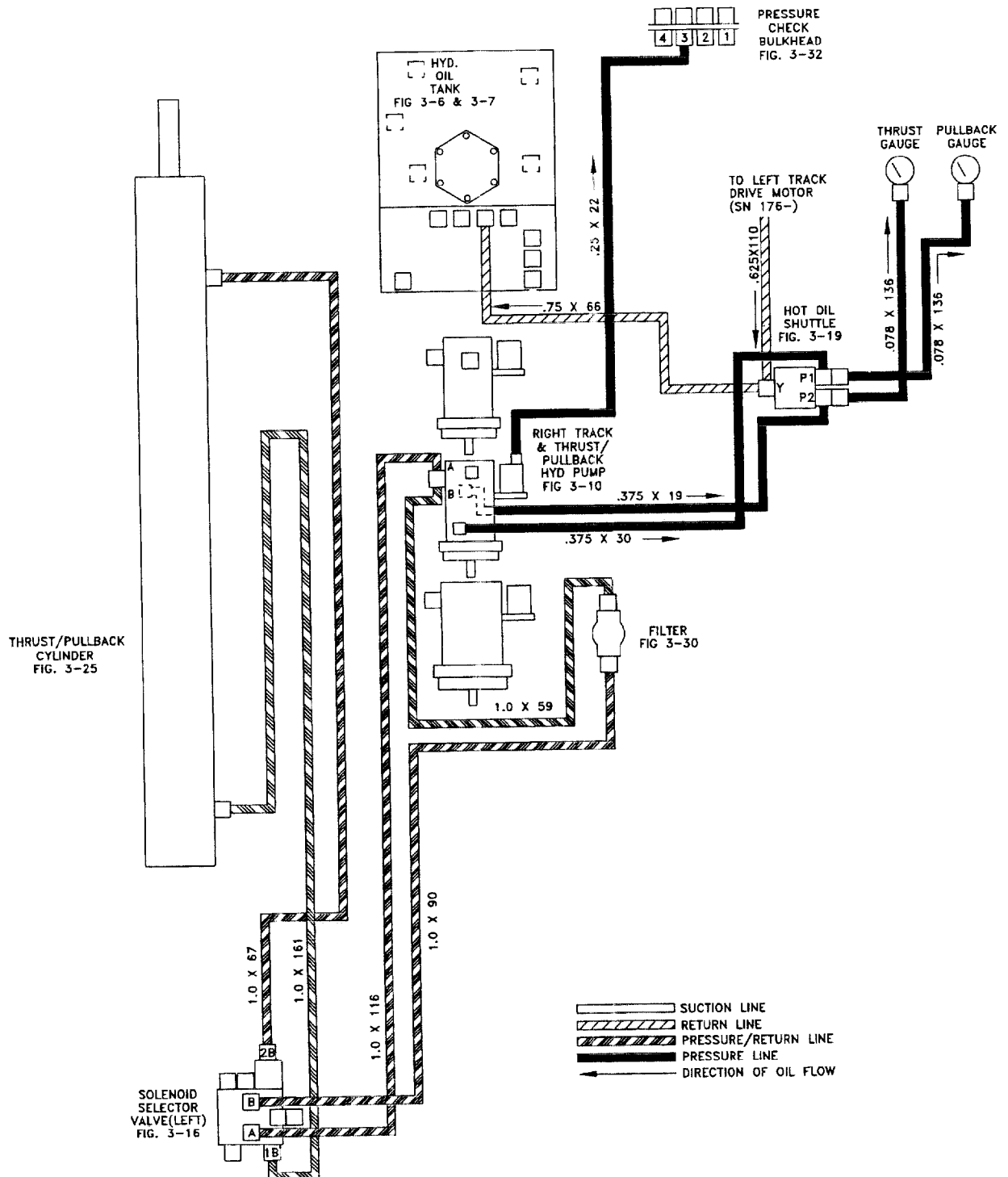


Hydraulic Components Location Diagram - Rotation System Fig 3-3r01

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
			Revised June 1999 due to change in hose lengths.		

Hydraulic Components Location Diagram - Thrust/Pullback System Fig 3-4r02

Revised February 2000 due to
update in illustration.

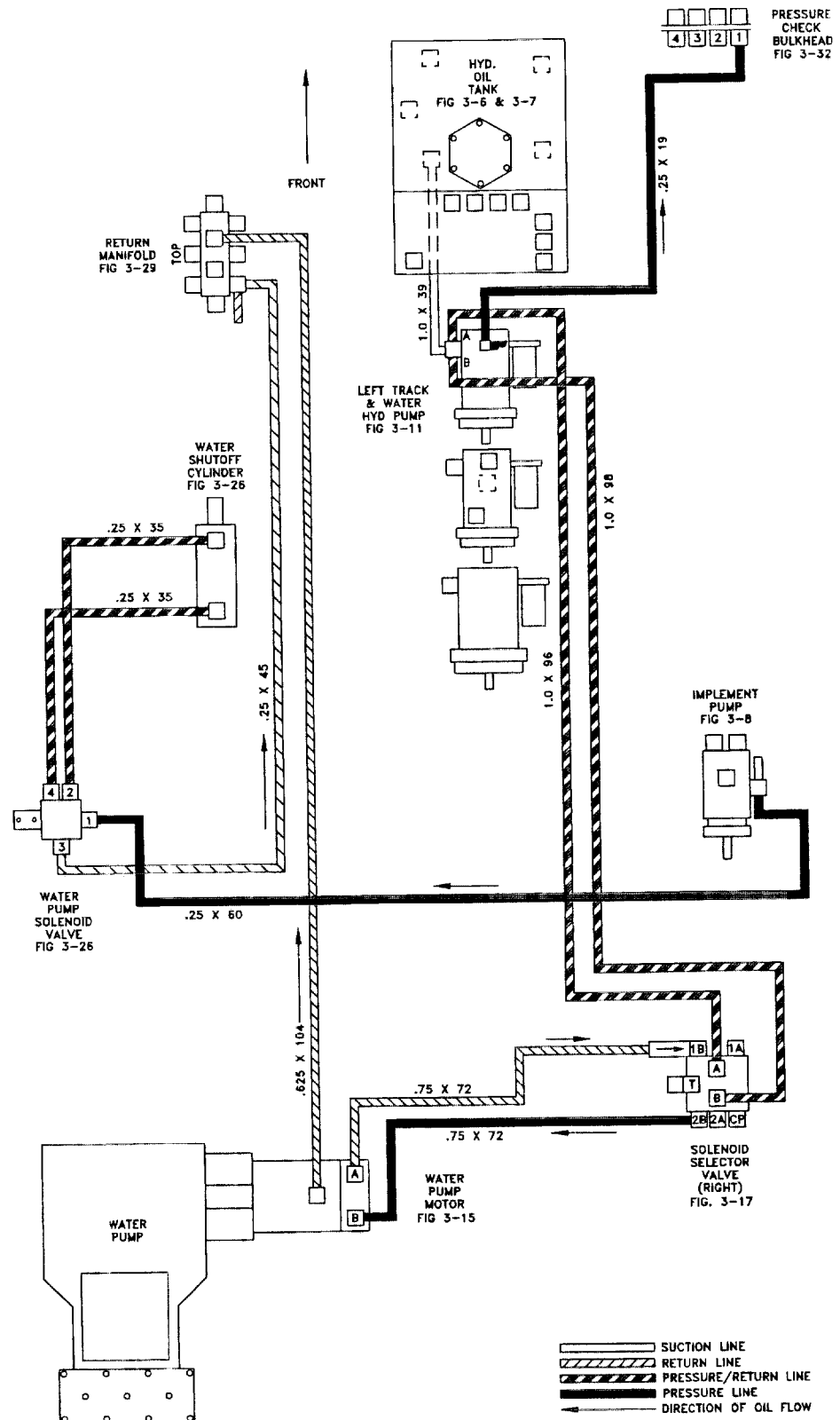


Hydraulic Components Location Diagram - Thrust/Pullback System Fig 3-4r02

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
			Revised June 1999 due to change in hose routing. Starting w/ Serial No. 151.		

Hydraulic Components Location Diagram - Water System Fig 3-5r02

Revised February 2000 due to
update in illustration.

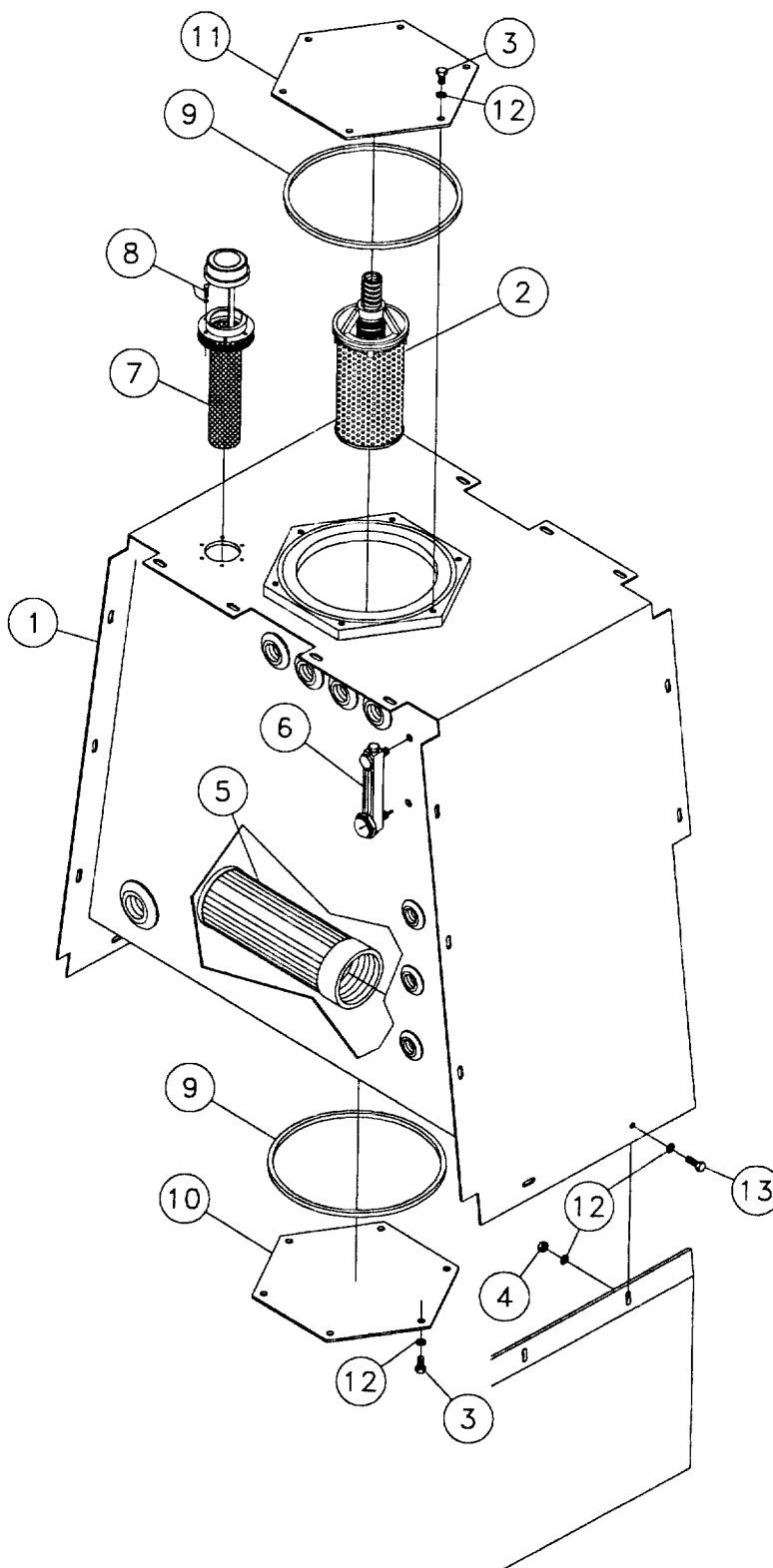


Hydraulic Components Location Diagram - Water System Fig 3-5r02

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
			Revised June 1999 due to change in water pump motor hose lengths. Starting w/ Serial No. 119.		

Oil Tank Assembly Fig 3-6r03

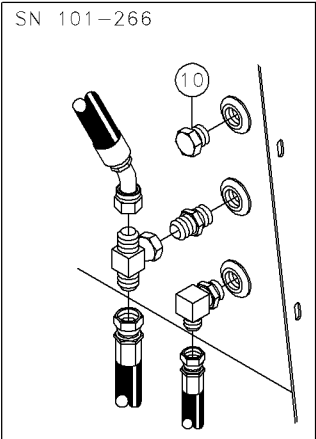
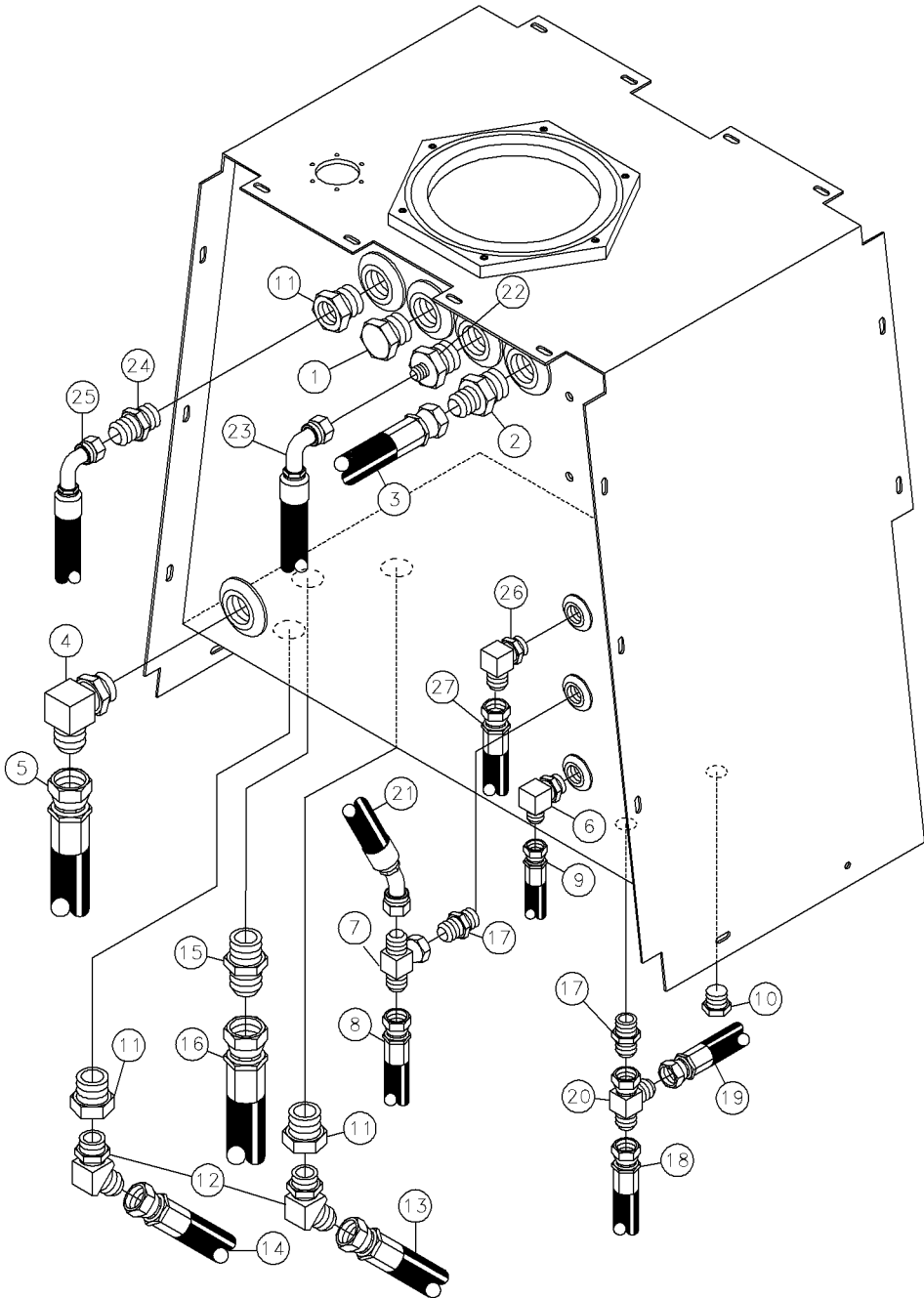
Revised February 2000 due to update
in parts list. Added part marked with *.



Oil Tank Assembly Fig 3-6r03

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		238534003	TANK-OIL	1	
2		609133001	ASSEMBLY-HYDRAULIC FILTER	1	Breakdown Fig 3-56
2		244486001	FILTER-HYDRAULIC RETURN	1	SN176-, Breakdown Fig. 3
3		235726001	BOLT-3/8-16X3/4 GR8 HEX ZNCPLT	12	
4		235725001	NUT-3/8-16 GR8 ZINC PLTD	4	
5		98681001	FILTER-TANK 3 NPT OUTLET PORT	1	
6		81590001	GAUGE-SIGHT	1	
7		235808001	CAP-FILLER/BREATHING W/O RELIEF	1	
8		1802006	BOLT-10-24 X 3/4 RND HD STOVE	6	
8		480001	WASHER-3/16 S/T LOCK	6	
9		78544001	O-RING AS-378 B46	2	
10		96291001	*PLATE-CLEANOUT PORT	2	
11		225358001	LID-FILTER	1	
12		235713001	WASHER-3/8 SAE HARD ZINC PLTD	20	
13		235727001	BOLT-3/8-16X1 GR8 HEX ZINC PLT	4	

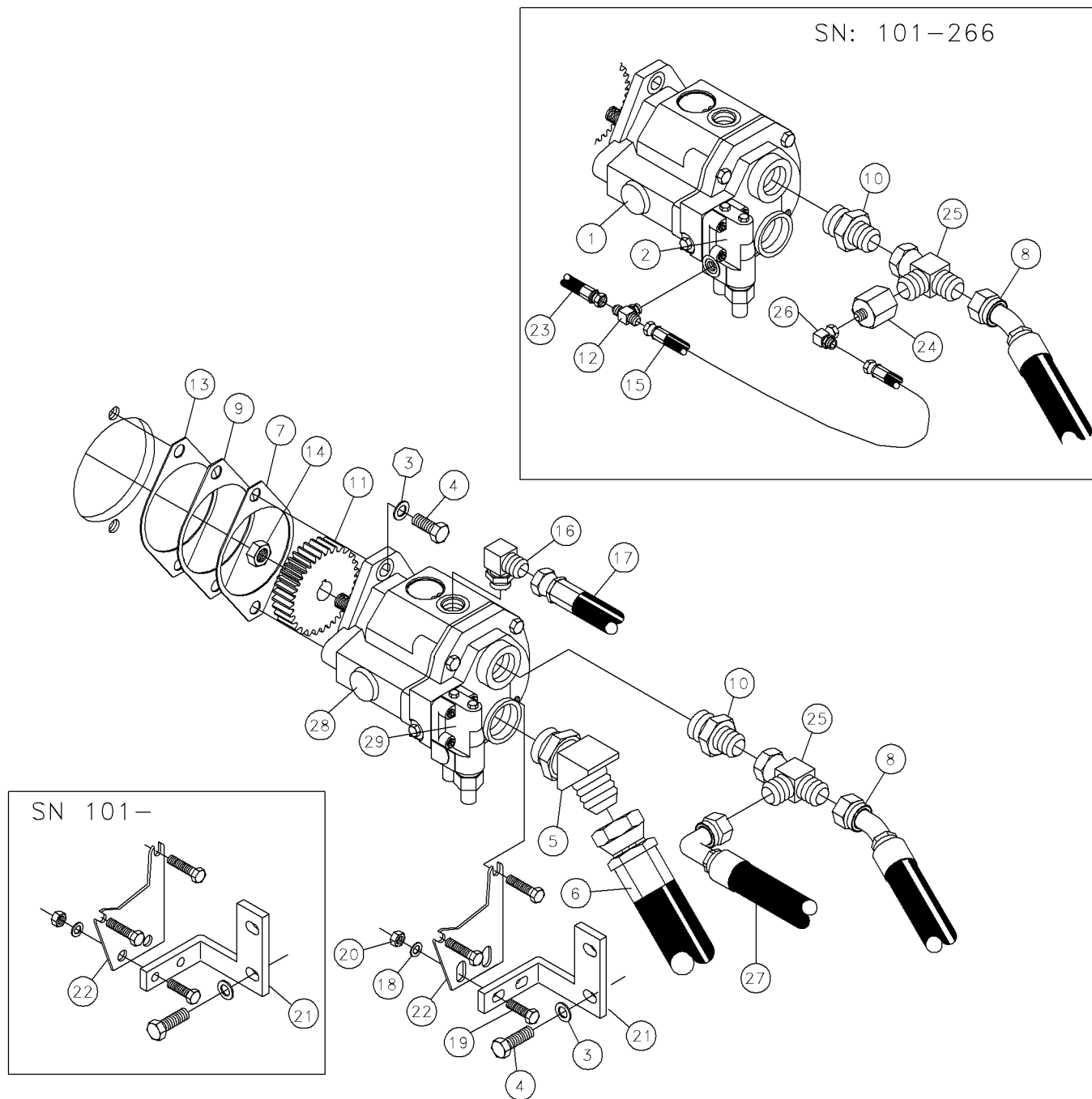
Oil Tank Plumbing Assembly Fig 3-7r03



Oil Tank Plumbing Assembly Fig 3-7r03

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
		Revision Date	January, 2005		Update In Illustration & Parts List.
1		81704001	FITTING-20M PLUG	1	QTY. CHANGE
2		85657001	FITTING-20M X 16M JIC STR.	1	
3		278187001	HOSE-1X38 16FS JIC ST/90 300 PSI	1	
4		77137001	FITTING-20MX20M JIC 90 DEG.	1	
5		65560085	HOSE-1 1/4X28 20FS JIC 200 PSI	1	
6		59409001	10M JICX12M ADJ. 90 DEG. ELBOW	1	
7		61456001	12JIC BCH SW NUT TEE	1	
8		53845677	HOSE-3/4X27 12FSJIC-12FSJIC 45	1	
9		53842123	HOSE-5/8X34 10FS JIC 1500 PSI	1	
10	*	67570001	PLUG- 12 M	1	QTY. CHANGE
11		79498001	FITTING-20MX16F ST. REDUCER	3	
12		53835001	#16M O-RING-#16M JIC 45 DEG.	2	
13		53846001	HOSE-1X20 16FS JIC	1	100R4
14		53846209	HOSE-1X39 16FSJIC/16FSJIC-90	1	
15		70006001	FITTING-20M X 20 M JIC STR.	1	
16		65560023	HOSE-1 1/4X72 20FS JIC	1	100R4
17		244464001	VALVE-CHECK	2	30 PSI CRACK
18		53845007	HOSE-3/4X84 12FS JIC	1	100R4
19		53845001	HOSE-3/4X22 12FS JIC	1	100R4
20		59417001	12 JIC SW RUN TEE	1	
21		53845683	HOSE-3/4X52 12FSJIC-12FSJIC 45	1	
22		85658001	FITTING-20M X 12M STL ST.	1	
23		53845781	HOSE-3/4X66 12FS JIC ST/90 3000#	1	
24		246431001	VALVE-CHECK 30 PSI	1	SN176-
25		53846249	HOSE-1X56 16FS JIC/16FS JIC 90	1	SN176-
26	*	59410001	FITTING-12M JIC X 12M ADJ 90D EL	1	SN267- PN Added
27	*	279815001	HOSE-3/4 X 46 12FS JIC ST/ST 300PSI	1	SN267- PN Added

Implement Pump Assembly Fig 3-8r02

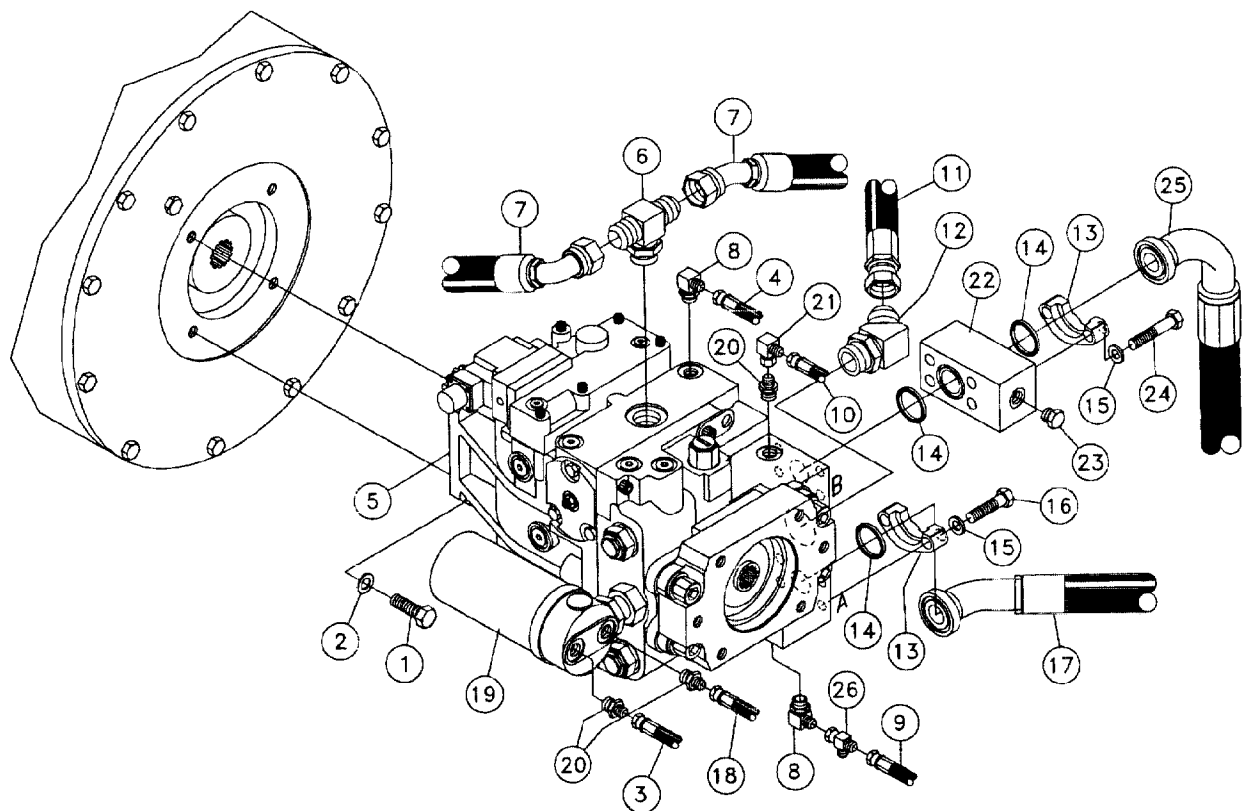


Implement Pump Assembly Fig 3-8r02

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
		Revision Date	January, 2005		Update In Illustration & Parts List.
1		244596001	PUMP-2.32 PFC C.I.D.	1	SN101-266
		113253003	SEAL KIT-PUMP/COMPENSATOR	1	SN101-266
2		98687005	COMPENSATOR ASSEMBLY	1	SN101-266
3		238249001	12 MM HARD WASHER Y/ZINC	4	
4		100478001	BOLT-12M X 1.75 X 30 DIN 933 GR 8.8	4	
5		81703001	FITTING-20MX20M JIC 45 DEG.EL.	1	
6		65560023	HOSE-1 1/4X72 20FS JIC	1	100R4
7		103032001	GASKET	1	
8		53845687	HOSE-3/4X90 12FSJIC-12FSJIC 45	1	
9		103029001	SPACER-.060	1	
10		70008001	FITTING-16M X 12M JIC STR.	1	
11		103031001	GEAR	1	
12		81343001	4M (BCH)X4M JICX4M JIC TEE	1	SN101-266
13		103032001	GASKET	2	
14		103030001	NUT	1	
15		53843197	HOSE-1/4X14 4FS JIC 3000 PSI	1	SN101-266
16		53829001	#10M O-RING-#10M JIC 90 DEG.	1	
17		53842123	HOSE-5/8X34 10FS JIC 1500 PSI	1	
18		235713001	WASHER-3/8 SAE HARD ZINC PLTD	2	
19		235727001	BOLT-3/8-16X1 GR8 HEX ZINC PLT	2	
20		235725001	NUT-3/8-16 GR8 ZINC PLTD	2	
21		238514001	BRACKET-PUMP SUPPORT	1	
22		235805001	PLATE-PUMP BRACKET	1	
23		53843481	HOSE-1/4X60 4FS JIC 3000 PSI	1	SN101-266
24		81345001	FITTING-12F JICX4M JIC STR.	1	SN101-266
25		59417001	12 JIC SW RUN TEE	1	
26		53658001	FITTING-4M JID X 4FS JIC 90 DEG.	1	SN101-266
27	*	279832001	HOSE-3/4 X54 12FS JIC ST/90 3000PSI	1	SN267- PN Added
28	*	279808001	PUMP-PC 2.32 C.I.D.	1	SN267- PN Added
29	*	77958-097	SEAL KIT-PUMP & COMPENSATOR	1	SN267- PN Added

Hydraulic Pump Assembly Fig 3-9r02

Revised February 2000 due to update
in parts list. Added part marked with *.

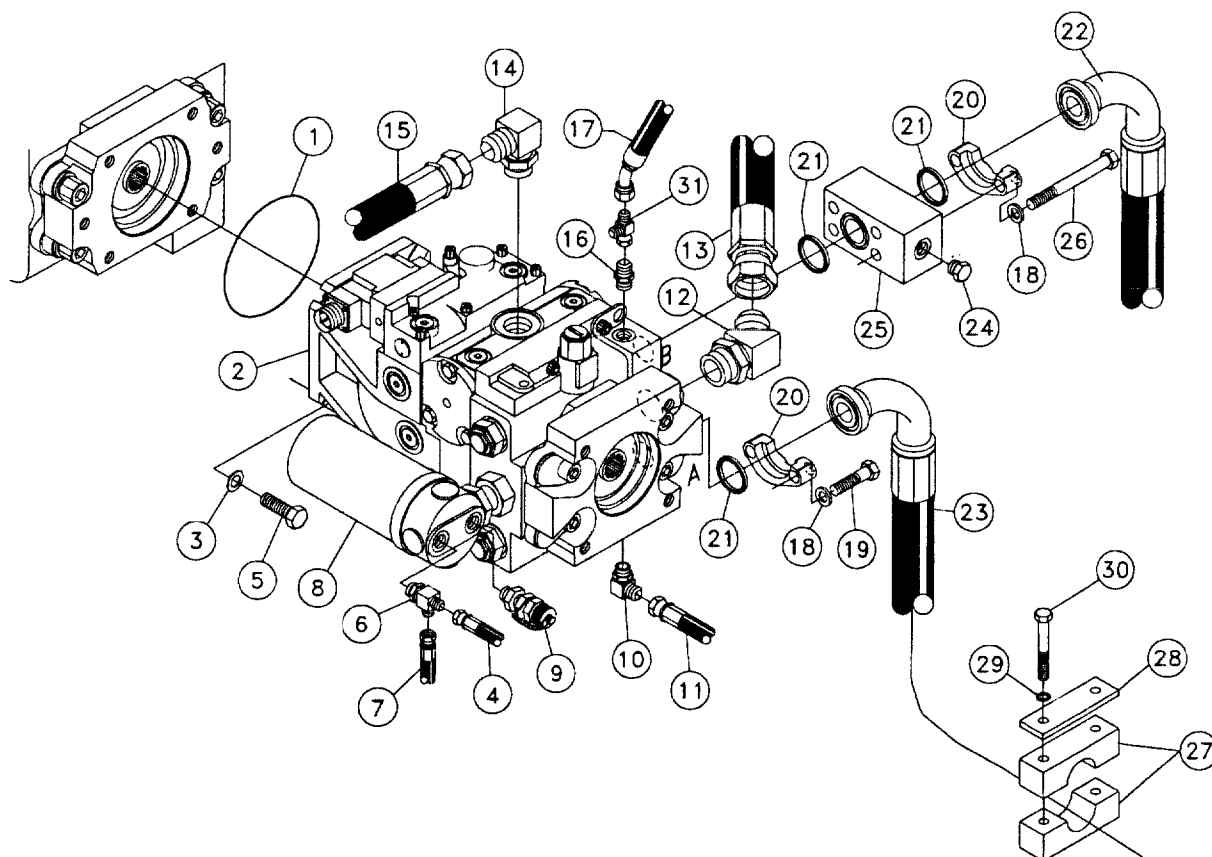


Hydraulic Pump Assembly Fig 3-9r02

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		235721001	BOLT-1/2-13X1 1/2 GR8 ZINC PLT	4	
2		485025	WASHER-1/2 FLAT-HARDENED-ZNC	4	
3		53843237	HOSE-1/4X80 4FS JIC 3000 PSI	1	
4		275395001	HOSE-1/4X29 4FS JIC St/ST 5800	1	
5		224411001	PUMP-90 SERIES 100CC 23T EDC	1	Breakdown Fig. 3-33
6		70032001	12M BCH X 12M JICX12M JIC TEE	1	
7		53845677	HOSE-3/4X27 12FSJIC-12FSJIC 45	2	
8		57950001	FITTING-6 MORINGX4MJIC90	2	
9		275394001	HOSE-1/4X37 4FSJIC ST/ST5800	1	
10		68210001	HOSE-1/4X24 4FS JIC (M2T)	2	
11		65560085	HOSE -1 1/4X28 20FS JIC 200 PSI	1	
12		81703001	FITTING-20MX20M JIC 45 DEG.EL.	1	
13		67745001	SPLIT FLANGE HALF CODE 62/16	4	
14		72895001	O RING-SQ. #16 FLANGE	3	
15		250540001	WASHER-7/16 HARDENED FLAT Y/	8	
16		250507001	BOLT 7/16-14 X 1 3/4"GR8 HEX Y	4	
17		53846431	HOSE 1X79 16FSJIC16/62/60-D6000	1	
18		275396001	HOSE-1/4X35 4FSJIC ST/ST 5800	1	
19		81902001	FILTER-OIL	1	
20		57968001	6M O-RING 4M JIC STRAIGHT	3	
21		53658001	FITTING-4M JICX4 FS JIC 90 DEG	1	
22		234780001	BLOCK-CODE 62	1	
23		83635001	PLUG-#6 JIC MALE	1	
24		246438001	BOLT-7/16-14X4 GR8 Y/ZINC	4	
25		53846487	HOSE-1X79 16FSST 16/62/90 6000	1	
26		60248001	*TEE-4M JIC X 4M JIC X 4FS JIC	1	SN196-

Hydraulic Pump Assembly (Right Tank, Thrust/Pullback) Fig 3-10r02

Revised February 2000 due to update
in parts list. Added part marked with *.

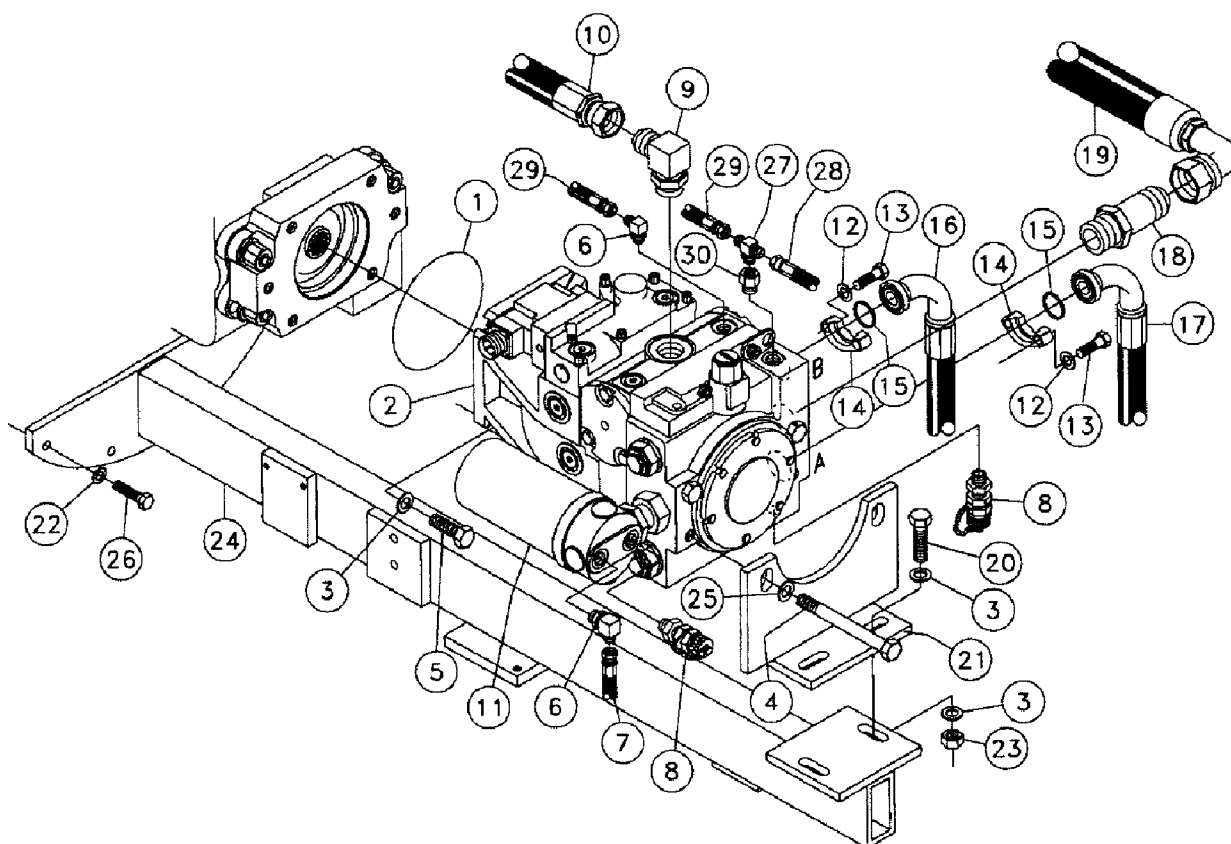


Hydraulic Pump Assembly (Right Tank, Thrust/Pullback) Fig 3-10r02

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		85642163	O-RING	1	
2		244741001	PUMP (BREAKDOWN FIG. 3-34)	1	
3		485025	WASHER-1/2 FLAT-HARDENED-ZNC	4	
4		68210005	HOSE-1/4X22 4FS JIC (M2T)	1	
5		235721001	BOLT-1/2-13X1 1/2 GR8 ZINC PLT	4	
6		82930001	FIT-6MX4M JICX4M JIC RUN TEE	1	
7		68210001	HOSE-1/4X24 4FSJIC M2T	1	
8		81902001	FILTER-OIL	1	
9		72056001	COUPLER-DIAG. TCM-20 9/16NF	1	
10		59426001	FITTING-6M JICX6M ADJ 90 ELBOW	1	
11		275401001	HOSE-3/8X19 6FSJIC ST/ST 4800	1	
12		53835001	#16M O-RING-#16M JIC 45 DEG	1	
13		53846001	HOSE-1X20 16FS JIC (100R4)	1	
14		59410001	12M JICX12M ADJ. 90 DEG. ELBOW	1	
15		53845001	HOSE-3/4X22 12FS JIC (100R4)	1	
16		65565001	FITTING-6M X 6M JIC ST.	1	
17		275400001	HOSE-3/8X30 6FSJIC ST/45 4800	1	
18		250540001	WASHER-7/16 HARDENED FLAT Y/	8	
19		250507001	BOLT 7/16-14 X 1 3/4"GR8 HEX Y	8	
20		67745001	SPLIT FLANGE HALF CODE 62/16	4	
21		72895001	O RING-SQ. #16 FLANGE	3	
22		275399001	HOSE-1X59 6Z/16/90-16FSJIC ST	1	
23		275398001	HOSE-1X116 6Z/16/90-16FSJIC ST	1	
24		83635001	PLUG-#6 JIC MALE	1	
25		234780001	BLOCK-CODE 62	1	
26		246438001	BOLT-7/16X14 X3 3/4 GR8 Y/ZINC	4	
27		71220005	CLAMP PLASTIC INSIDE (PAIR)	1	
28		71220007	PLATE-HOSE CLAMP TOP	1	
29		235713001	WASHER-3/8 SAE HARD ZINC PLTD	2	
30		235743001	BOLT-3/8-16X3 GR 8 HEX ZINC PLTD	2	
31		59427001	*TEE-6M JIC BHC 6FS JIC X 6M JIC	1	SN196-

Hydraulic Pump Assembly (Left Tank, Water) Fig 3-11r02

Revised June 1999 due to update
in parts list. Changed parts marked with *.

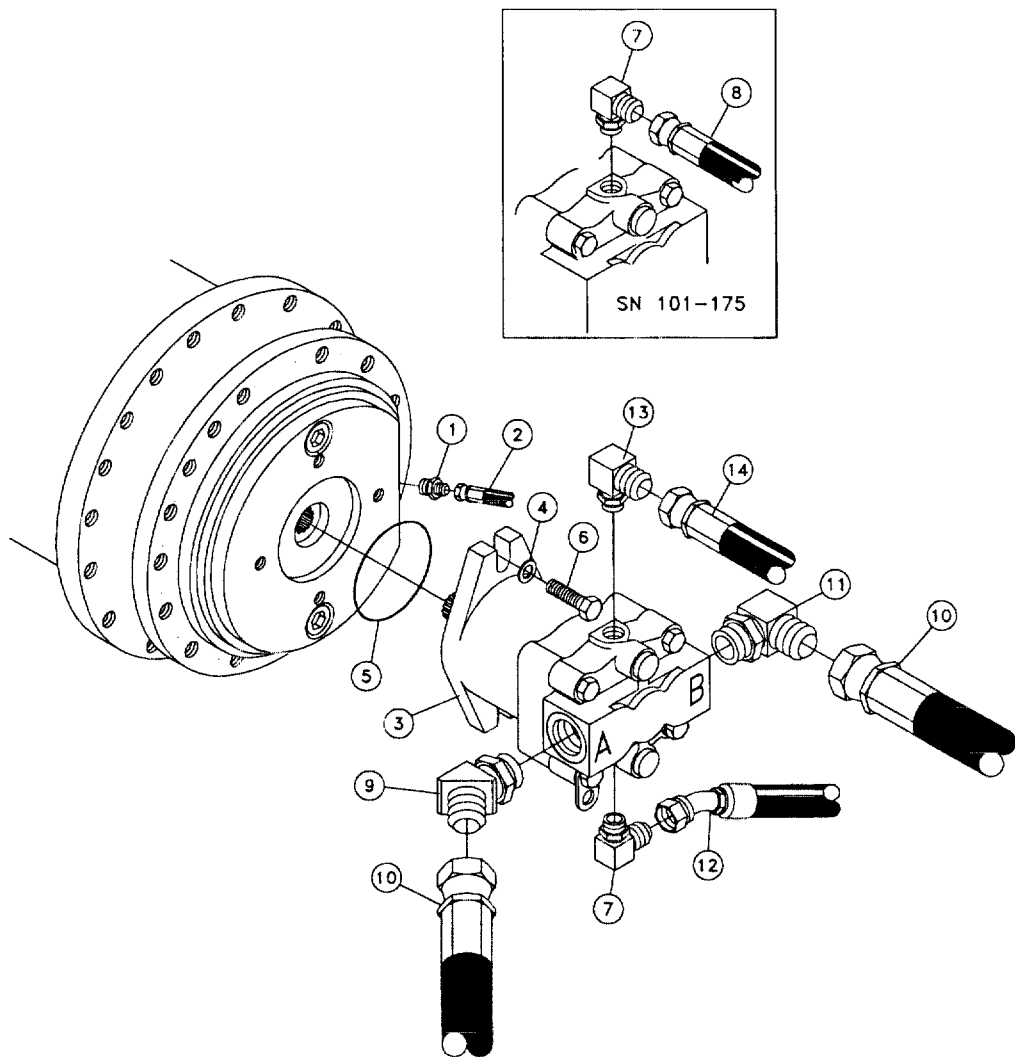


Hydraulic Pump Assembly (Left Tank, Water) Fig 3-11r02

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		85642163	O-RING	1	
2		244742001	PUMP	1	BREAKDOWN FIG. 3-35
3		485025	WASHER-1/2 FLAT-HARDENED-ZNC	10	
4		603928001	BOLT, M16X120 GRD 10 9	2	
5		235721001	BOLT-1/2-13X1 1/2 GR8 ZINC PLT	4	
6		57950001	FITTING-6MORINGX4MJIC90	2	
7		68210001	HOSE-1/4X24 4FSJIC (M2T)	1	
8		72056001	COUPLER-DIAG. TCM-20 9/16NF	3	
9		59410001	12M JICX12M ADJ. 90 DEG.ELBOW	1	
10		53845677	HOSE-3/4X27 12FSJIC-12FSJIC 45	1	
11		81902001	FILTER-OIL	1	
12		250540001	WASHER-7/16 HARDENED FLAT Y/	8	
13		250507001	BOLT 7/16-14 X 1 3/4"GR8 HEX Y	8	
14		67745001	SPLIT FLANGE HALF CODE 62/16	4	
15		72895001	O RING-SQ. #16 FLANGE	2	
16		53846457	HOSE-1X98 16FS/16/61/90D6000	1	
17		53846455	HOSE-1X96 16FSJICST90D6000#	1	
18		99385001	FITTING-16M X 16M JIC LONG STR	1	
19		53846209	HOSE-1X39 16FSJIC/16FSJIC-90	1	
20		240334001	BOLT-1/2-13X1 3/4 GR8 ZINC PLT	2	
21		275284001	BRACKET - PUMP SUPPORT	1	
22		240061001	WASHER-10MM HRDND FLAT ZNC	4	
23		235731001	NUT-1/2-13 GR8 ZINC PLTD	2	
24		224430001	SUPPORT-PUMP	1	
25		250533001	WASHER-16 M FLAT HARDENED ZI	2	
26		250574001	BOLT-10M X 50M 10.9 HEX Y/ZINC	4	
27		81343001	4M (BCH)X4M JICX4M JIC TEE	1	
28		275397001	HOSE-1/4X19 4FSJIC ST/ST 5800	1	
29		275395001	HOSE-1/4X29 4FSJIC ST/ST 5800	2	
30		67291001	6MX4F SOLID REDUCER	1	

Track Drive Motor Assembly (Left) Fig 3-12r01

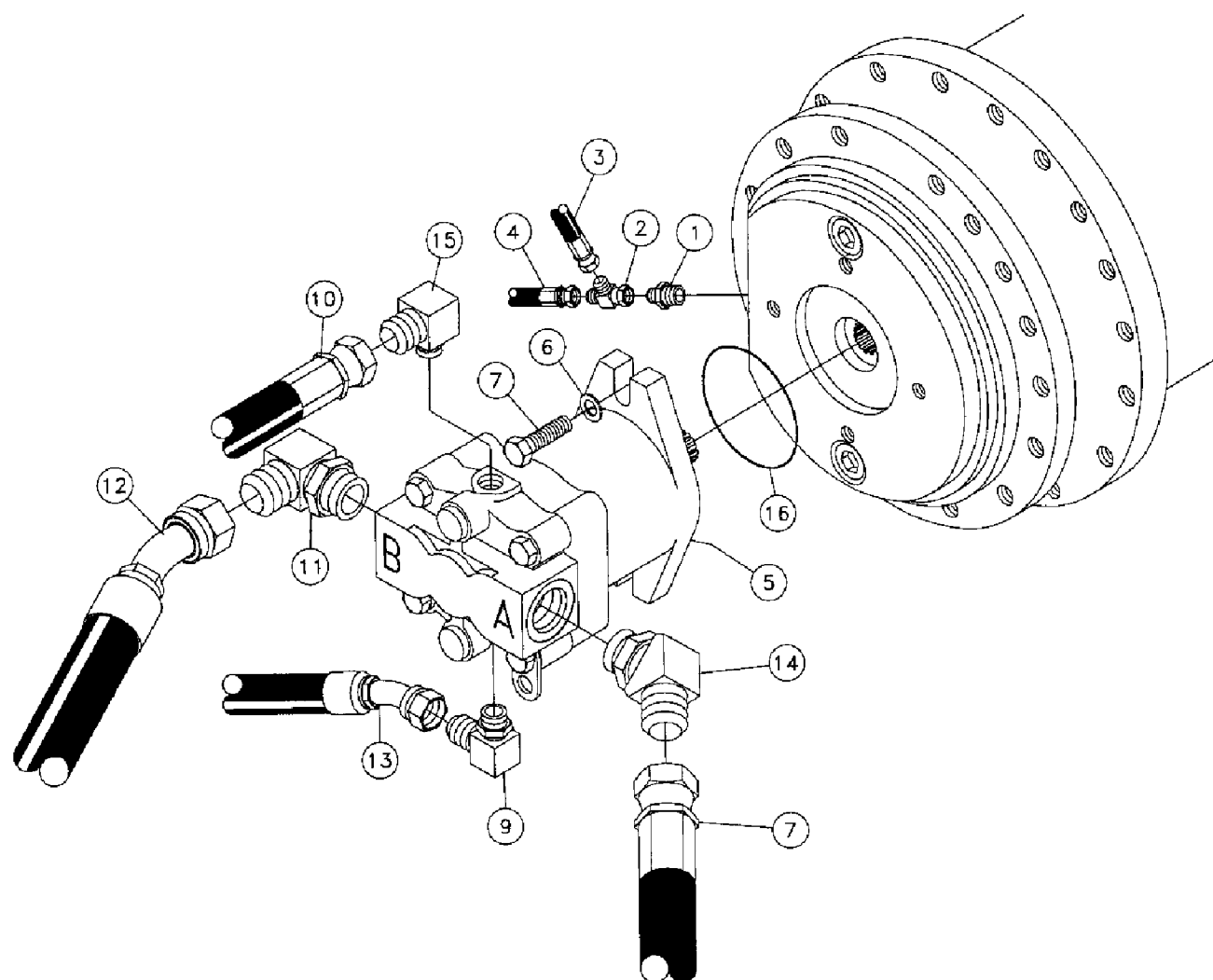
Revised February 2000 due to update
in illustration & parts list. Changed/
added parts marked with *.



Track Drive Motor Assembly (Left) Fig 3-12r01

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		103058001	FITTING-M12X1.5X4M JIC STR.	1	
2		53843209	HOSE-1/4X56 4FS JIC 3000PSI	1	
3		200873001	MOTOR-MDT46	1	
4		485025	WASHER-1/2 FLAT-HARDENED-ZINC	2	
5		903382001	O-RING AS-155	1	
6		235721001	BOLT-1/2-13X1 1/2 GR8 ZINC PLT	2	
7		53823001	*#8M O-RING-#10M JIC 90 DEG.	1	SN101-175 Qty Is Two
8		53842235	HOSE-5/8X56 10FS JIC SAE-100R1	1	SN101-175
9		53835001	#16M O-RING-#16M JIC 45 DEG.	1	
10		275406001	HOSE-1X45 16FSJIC ST/45 6000	2	
11		61703001	16M X 16M JIC90	1	
12		275460001	HOSE-5/8X56 10FSJIC 45/45 1500	1	
13		59411001	*12M JIC X8M ADJ90 DEG	1	SN 176-
14		53845803	*HOSE-3/4X101 12FS JIC ST/90D 3000	1	SN176-

Track Drive Motor Assembly (Right) Fig 3-13

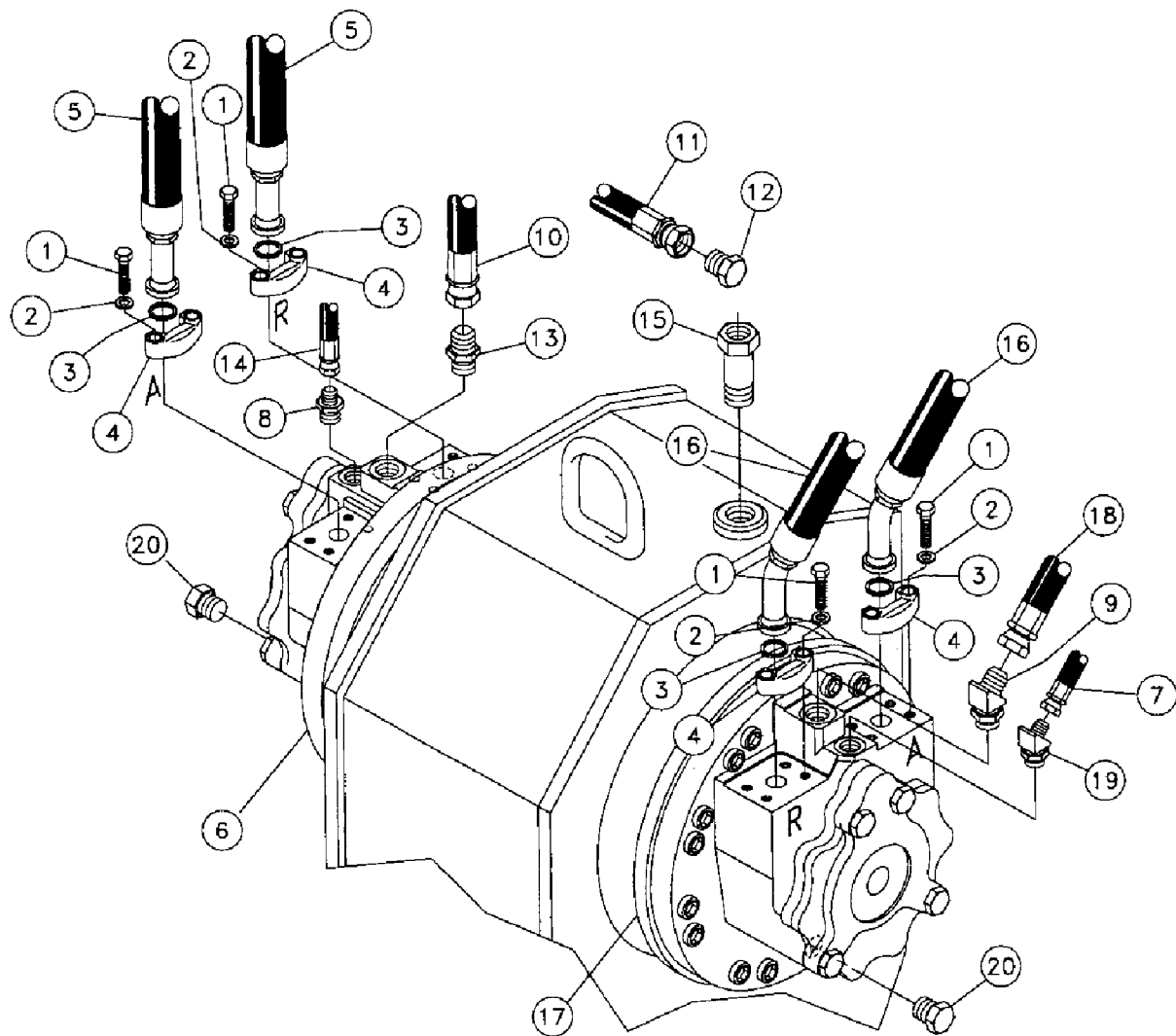


Track Drive Motor Assembly (Right) Fig 3-13

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		103058001	FITTING-M12X1.5X4M JIC STR.	1	
2		60248001	TEE-4M JICX4M JICX4FS JIC	1	
3		53843253	HOSE-1/4X32 4FS JIC 2750 PSI	1	
4		53843209	HOSE-1/4X56 4FS JIC 3000PSI	1	
5		200873001	MOTOR-MDT46	1	
6		485025	WASHER-1/2 FLAT-HARDENED-ZINC	2	
7		53846407	HOSE-1X41 16FS JIC 6000 PSI	1	
8		235721001	BOLT-1/2-13X1 1/2 GR8 ZINC PLT	2	
9		53823001	#8M O-RING-#10M JIC 90 DEG.	1	
10		53845007	HOSE-3/4X84 12FS JIC (100R4)	1	
11		61703001	16M X 16M JIC 90	1	
12		275406001	HOSE-1X45 16FSJIC ST/45 6000	1	
13		275460001	HOSE-5/8X56 10FSJIC 45/45 1500	1	
14		53835001	#16M O-RING-#16M JIC 45 DEG.	1	
15		59411001	12M JICX8M ADJ. 90 DEG.ELBOW	1	
16		903382001	O-RING	1	

Gearbox Drive Motor Assembly Fig 3-14r01

Revised June 1999 due to update
in parts list. Changed parts marked with *.

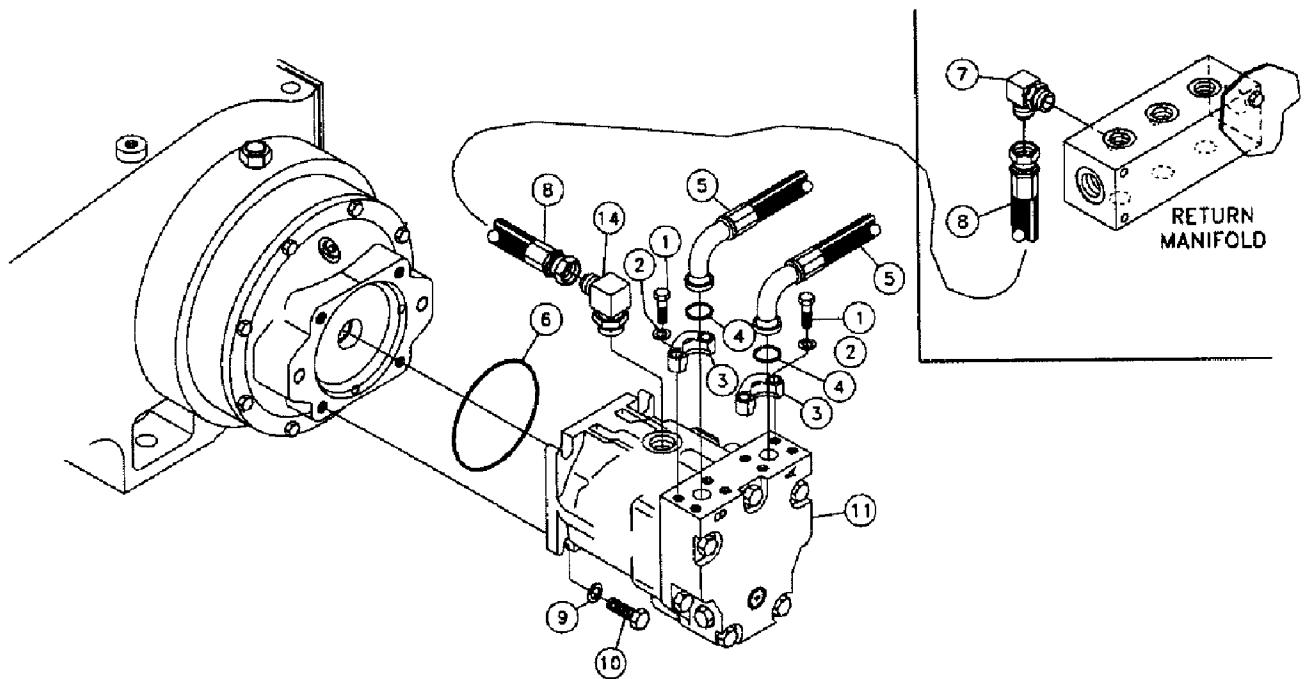


Gearbox Drive Motor Assembly Fig 3-14r01

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		249891001	* BOLT-M10X35 10.9 HHCS D933 ZNC	16	
2		141350001	* WASHER-M10 HARDEN PLTD FLAT	16	
3		72894001	O RING-SQ. #12 FLANGE	4	
4		67746001	* SPLIT FLANGE HALF CODE 62/12	4	
5		53845771	HOSE-3/4X38 12FS/12FLH 6000PSI	2	
6		216674001	MOTOR-2 SPEED HYD. MS18	1	BREAKDOWN FIG. 1-20
7		57940029	HOSE-3/8X26 6FS JIC (100R1)	1	
8		60247001	FITTING-8M X 6M JIC ST.	1	
9		56725001	FITTING-10MX10M JIC 45 DEG.	1	
10		53842303	HOSE-5/8X20 10FSJICST/10FSJC90	1	
11		53842515	HOSE-5/8X239 10FSJICST 3000PSI	1	
12		53829001	#10M O-RING-#10M JIC 90 DEG.	1	
13		53827001	FITT.-#10M O-RING-#10M JIC ST.	1	
14		57940407	HOSE-3/8X32 6FS JIC 4000 PSI	1	
15		682001	12 M X 10 F SOLID ADAPT.	1	
16		53845769	HOSE-3/4X34 12FS/12FLH60 6000#	2	
17		216675001	MOTOR-2 SPEED HYD. MS18	1	BREAKDOWN FIG. 1-21
18		53842123	HOSE-5/8X34 10FS JIC 1500 PSI	1	
19		59425001	FITTING-6M JICX8M ADJ.45 ELBOW	1	
20		4235001	10 M PLUG	2	
			Revised June 1999 due to update in parts list. Changed parts marked with *.		

Water Pump Drive Motor Assembly Fig 3-15r01

Revised June 1999 due to update
in hoses & illustration. Starting w/
Serial No. 119. Changed parts
marked with *.

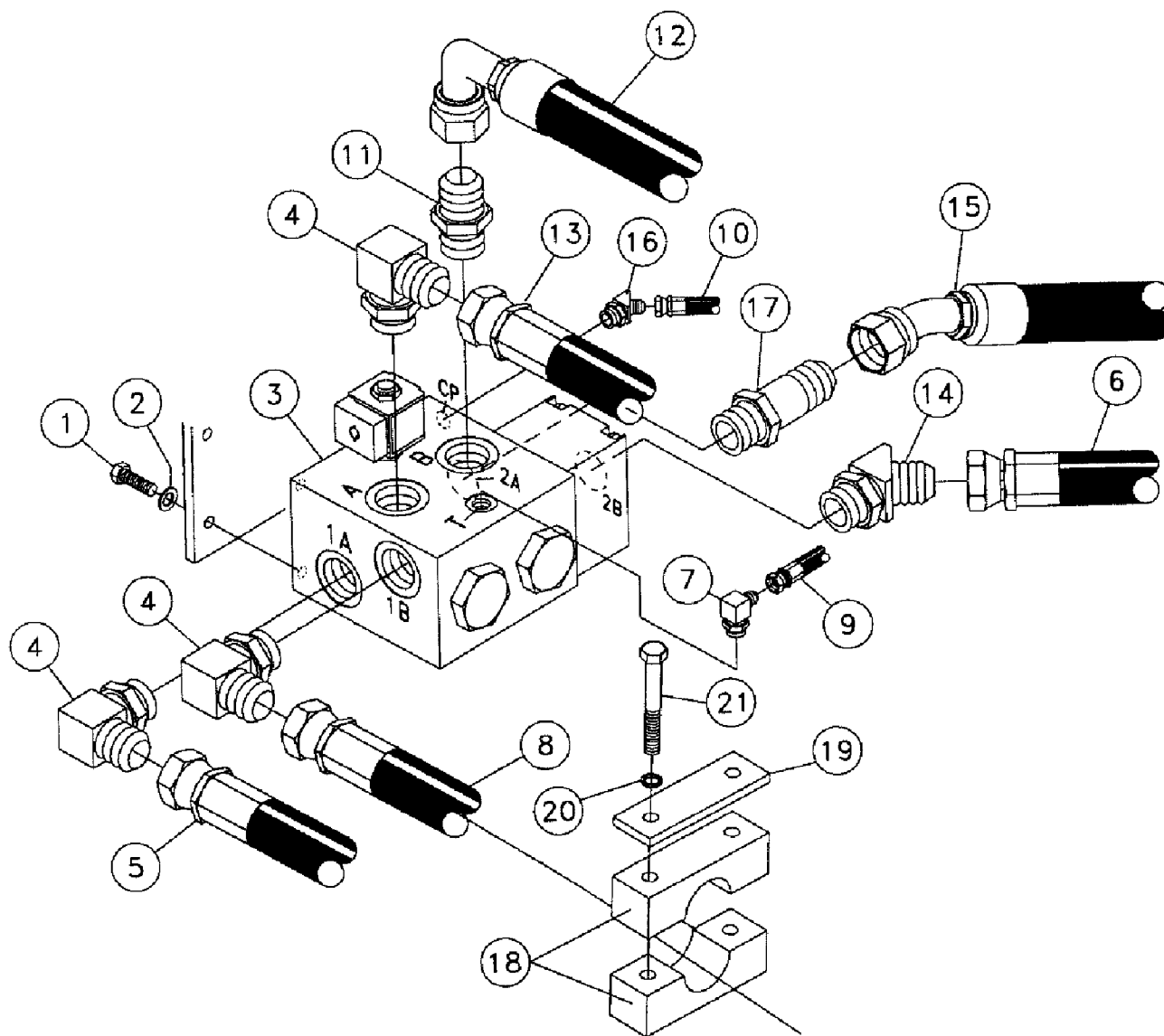


Water Pump Drive Motor Assembly Fig 3-15r01

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		250507001	BOLT 7/16-14 X 1 3/4"GR8 HEX Y	8	
2		250540001	WASHER-7/16 HARDENED FLAT Y/	8	
3		67745001	SPLIT FLANGE HALF CODE 62/16	2	
4		72895001	O RING-SQ. #16 FLANGE	2	
5		278064001	* HOSE-3/4X72 12FS JIC -62/16/90 DEG	2	
6		234319001	O-RING #159N70	1	
7		53829001	#10M O-RING-#10M JIC 90 DEG.	1	
8		53842199	* HOSE-5/8X104 10FS JIC 2750 PSI	1	
9		485025	WASHER-1/2 FLAT-HARDENED-ZINC	4	
10		235721001	BOLT-1/2-13X1 1/2 GR8 ZINC PLT	4	
11		204731001	MOTOR-HYD 90 SERIES	1	BREAKDOWN FIG. 3-36
			Revised June 1999 due to update in hoses & illustration. Starting w/ Serial No. 119. Changed parts marked with *.		

Selector Valve Assembly (Left) Fig 3-16r01

Revised June 1999 due to update
in illustration & parts list. Changed/
added parts marked with *.

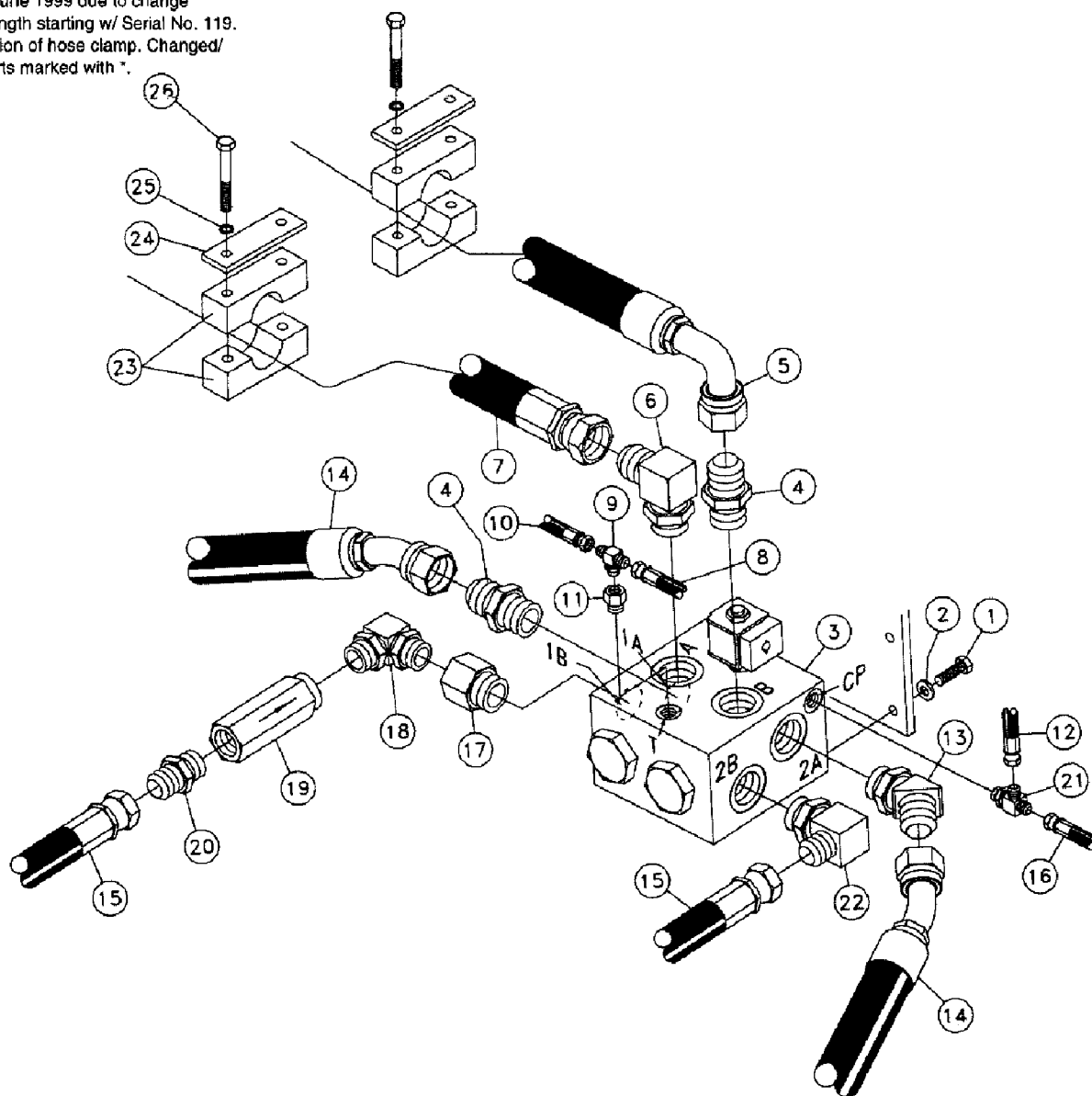


Selector Valve Assembly (Left) Fig 3-16r01

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		250539001	BOLT-7/16-14 X 1 GR8 HEX Y/ZI	4	
2		250540001	WASHER-7/16 HARDENED FLAT Y/	4	
3		251061001	VALVE-SOLENOID SELECT W/ CHCK	1	BREAKDOWN FIG. 3-37
4		61703001	16M X 16M JIC 90	3	
5		53846407	HOSE-1X41 16FS JIC 6000 PSI	1	
6		275408001	HOSE-1X67 16FSJIC ST/90 6000	1	
7		57950001	* FITTING-6MORINGX4MJIC90	1	
8		275407001	HOSE-1X169 16FSJIC ST/90 6000	1	
9		53843253	HOSE-1/4X32 4FS JIC 2750 PSI	1	
10		53843567	HOSE-1/4X46 4FS JIC 3000 PSI	1	
11		60907001	FITTING-16M JICX16M STR ADAPT	1	
12		275405001	HOSE-1X90 16FSJIC ST/90 6000	1	
13		275398001	HOSE-1X116 6Z/16/90-16FSJIC ST	1	
14		53835001	#16M O-RING-#16M JIC 45 DEG.	1	
15		275406001	HOSE-1X45 16FSJIC ST/45 6000	1	
16		82931001	FITTING-6MX4M JIC 45DEG.ELBOW	1	
17		94161001	FITTING-16MJICX16MORING LONG	1	
18		71220005	* CLAMP-PLASTIC INSIDE (PAIR)	1	
19		71220007	* PLATE-HOSE CLAMP TOP	1	
20		235713001	* WASHER-3/8 SAE HARD ZINC PLTD	2	
21		235743001	* BOLT-3/8-16X3 GR8 HEX ZNC PLTD	2	
			Revised June 1999 due to update in illustration & parts list. Changed/added parts marked with *.		

Selector Valve Assembly (Right) Fig 3-17r01

Revised June 1999 due to change
in hose length starting w/ Serial No. 119.
Also addition of hose clamp. Changed/
added parts marked with *.

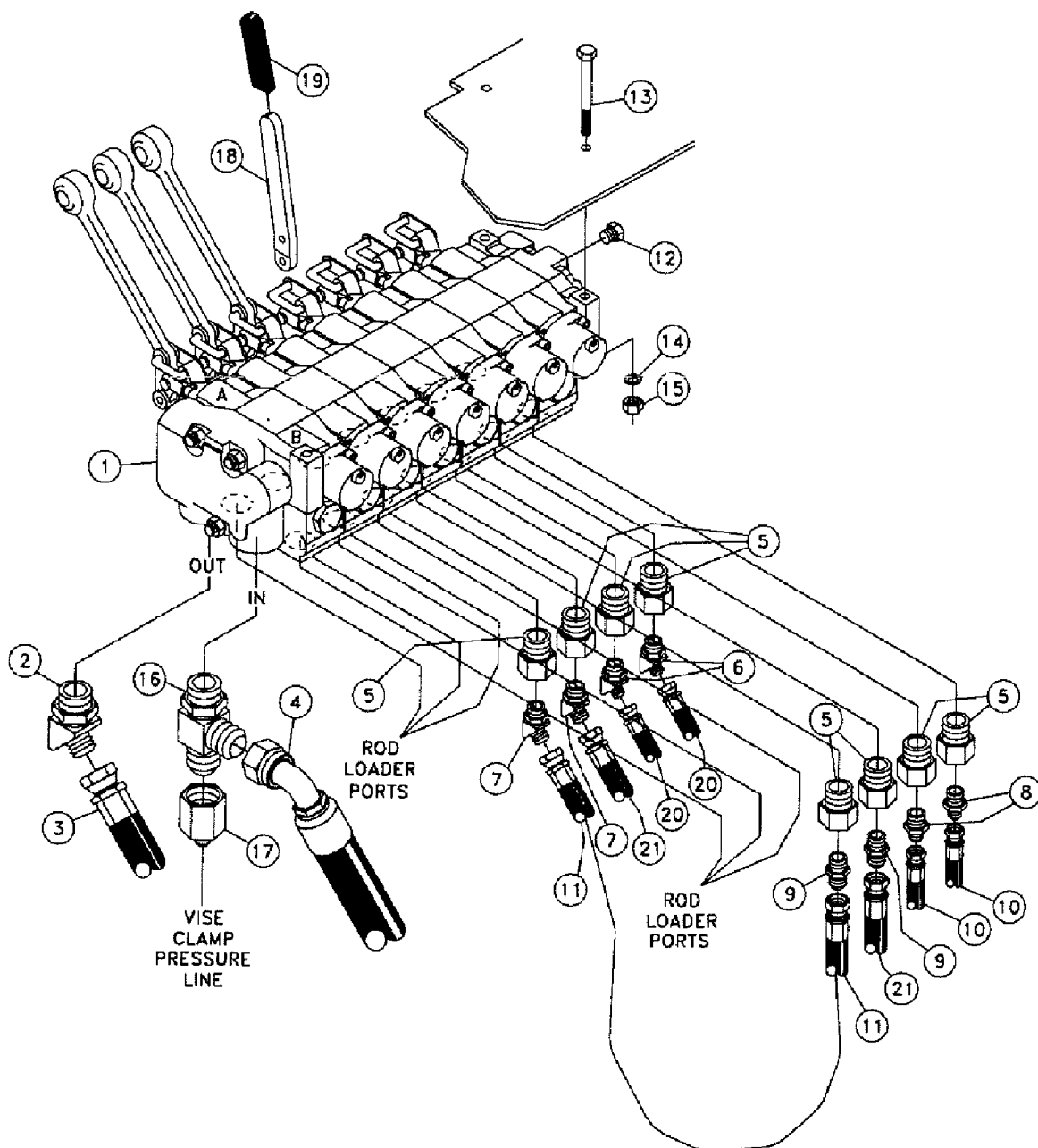


Selector Valve Assembly (Right) Fig 3-17r01

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		250539001	BOLT-7/16-14 X 1 GR8 HEX Y/ZI	4	
2		250540001	WASHER-7/16 HARDENED FLAT Y/	4	
3		251062001	VALVE - SOLENOID SELECTOR	1	BREAKDOWN FIG. 3-38
4		60907001	FITTING-16M JICX16M STR ADAPT	2	
5		53846457	HOSE-1X98 16FS/16/61/90D6000	1	
6		61703001	16M X 16M JIC 90	2	
7		53846455	HOSE-1X96 16FSJICST90D6000#	1	
8		53843253	HOSE-1/4X32 4FS JIC 2750 PSI	1	
9		81343001	4M (BCH)X4M JICX4M JIC TEE	1	
10		53843057	HOSE-1/4X22 4FS JIC (100R1)	1	
11		67291001	6MX4F SOLID REDUCER	1	
12		53843253	HOSE-1/4X32 4FS JIC 2750 PSI	2	
13		53835001	#16M O-RING-#16M JIC 45 DEG.	1	
14		275406001	HOSE-1X45 16FSJIC ST/45 6000	2	
15		278064001	* HOSE-3/4X72 1FS JIC -62/16/90 DEG	2	
16		53843567	* HOSE-1/4X46 4FS JIC 3000 PSI	1	
17		71252001	FITTING-12FX16M ADAPTER	1	
18		238219001	FITTING 12MX12M O-RING 90	1	
19		238223001	OIL-CHECK VALVE	1	
20		53828001	#12M O-RING-#12M JIC ST.	1	
21		82930001	FIT-6MX4M JICX4M JIC RUN TEE	1	
22		78057001	* FITTING-16MX12M JIC 90 DEG	1	
23		71220005	* CLAMP-PLASTIC INSIDE (PAIR)	2	
24		71220007	* PLATE-HOSE CLAMP TOP	2	
25		235713001	* WASHER-3/8 SAE HARD ZINC PLTD	4	
26		235743001	* BOLT-3/8-16X3 GR8 HEX ZNC PLTD	4	
			Revised June 1999 due to change in hose length starting w/ Serial No. 119. Also addition of hose clamp. Changed/added parts marked with *.		

Control Valve Assembly - 7 Spool Fig 3-18r01

Revised June 1999 due to
update in parts list. Changed
parts marked with *.

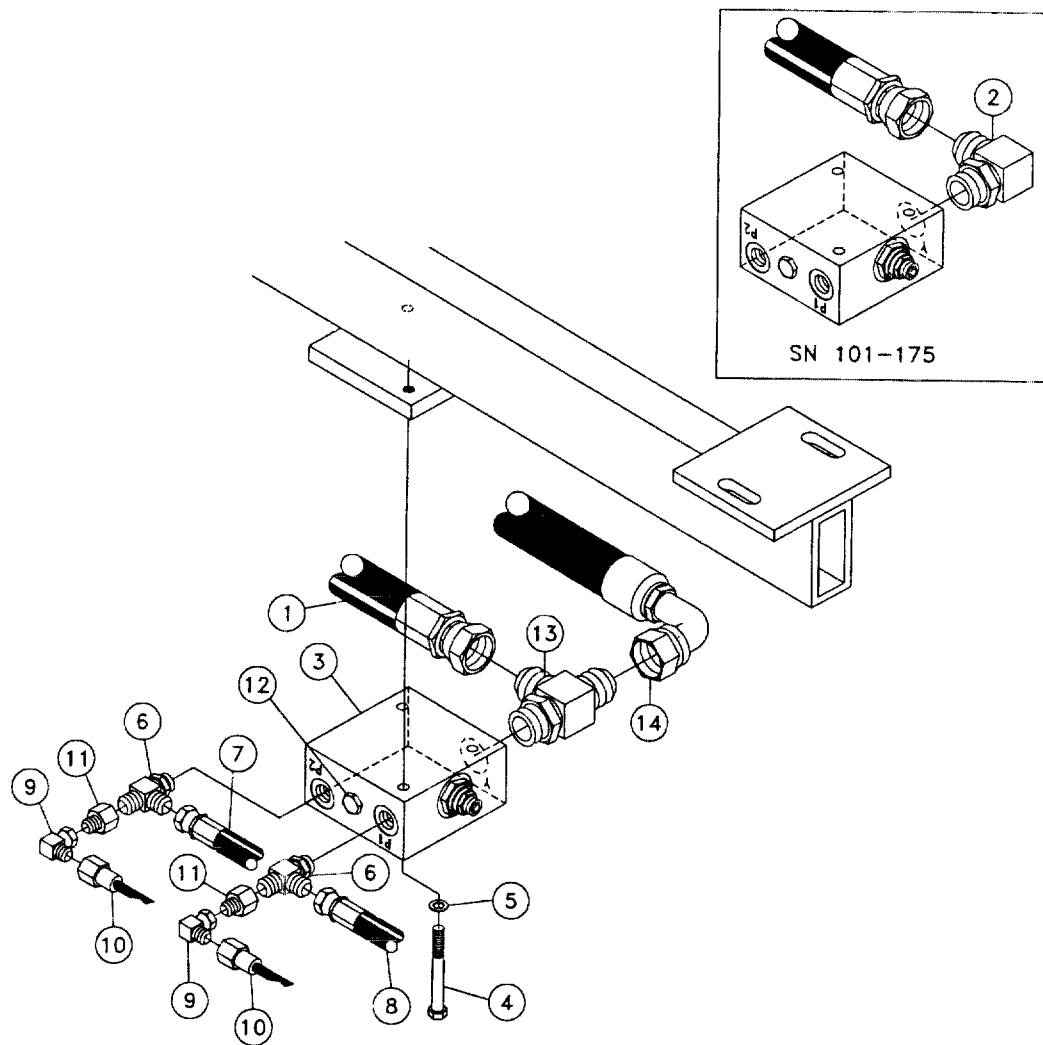


Control Valve Assembly - 7 Spool Fig 3-18r01

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		244728001	VALVE-7 SECT L.S.	1	Breakdown Fig 3-39
2		88659001	FITTING-12M ORINGX10MJIC 45DEG	1	
3		53842027	HOSE-5/8X72 10FS JIC (M2T)	1	
4		53845687	HOSE-3/4X90 12FSJIC-12FSJIC 45	1	
5		57967001	10M-6F O-RING BUSHING	8	
6		82931001	* FITTING-6MX4M JIC 45DEG.ELBOW	2	
7		65563001	* 6M X 6M JIC 45 DEGREE	2	
8		57968001	* 6M O-RING 4M JIC STRAIGHT	2	
9		65565001	* FITTING-6M X 6M JIC ST.	2	
10		53843721	HOSE-1/4X206 4FSJICST 3000PSI	2	
11		57940659	* HOSE-3/8X19 6FS JIC ST 4000 PSI	1	
12		67263001	PLUG-4M	1	
13		238212001	BOLT-5/16-18 X 3" GR8 HEX YZI	3	
14		235714001	WASHER-5/16 SAE HARD ZINC PLTD	3	
15		235741001	NUT-5/16-18 GR8 ZINC PLTD	3	
16		59420001	12 JICX12M ADJ. STR THRD TEE	1	
17		60909001	6M JICX12F JIC ST.ADAPTER	1	
18		234364001	PLATE-VALVE HANDLE	4	
19		201482001	HANDLE-BLACK PLASTIC 2 1/2"	4	
20		53843539	HOSE-1/4X204 4FS JIC 2750 PSI	2	
21		57940665	HOSE-3/8X69 6FSJICST/90 3000#	2	
			Revised June 1999 due to update in parts list. Changed parts marked with *.		

Hot Oil Shuttle Valve Assembly Fig 3-19r02

Revised February 2000 due to update
in parts list. Added parts marked with *.

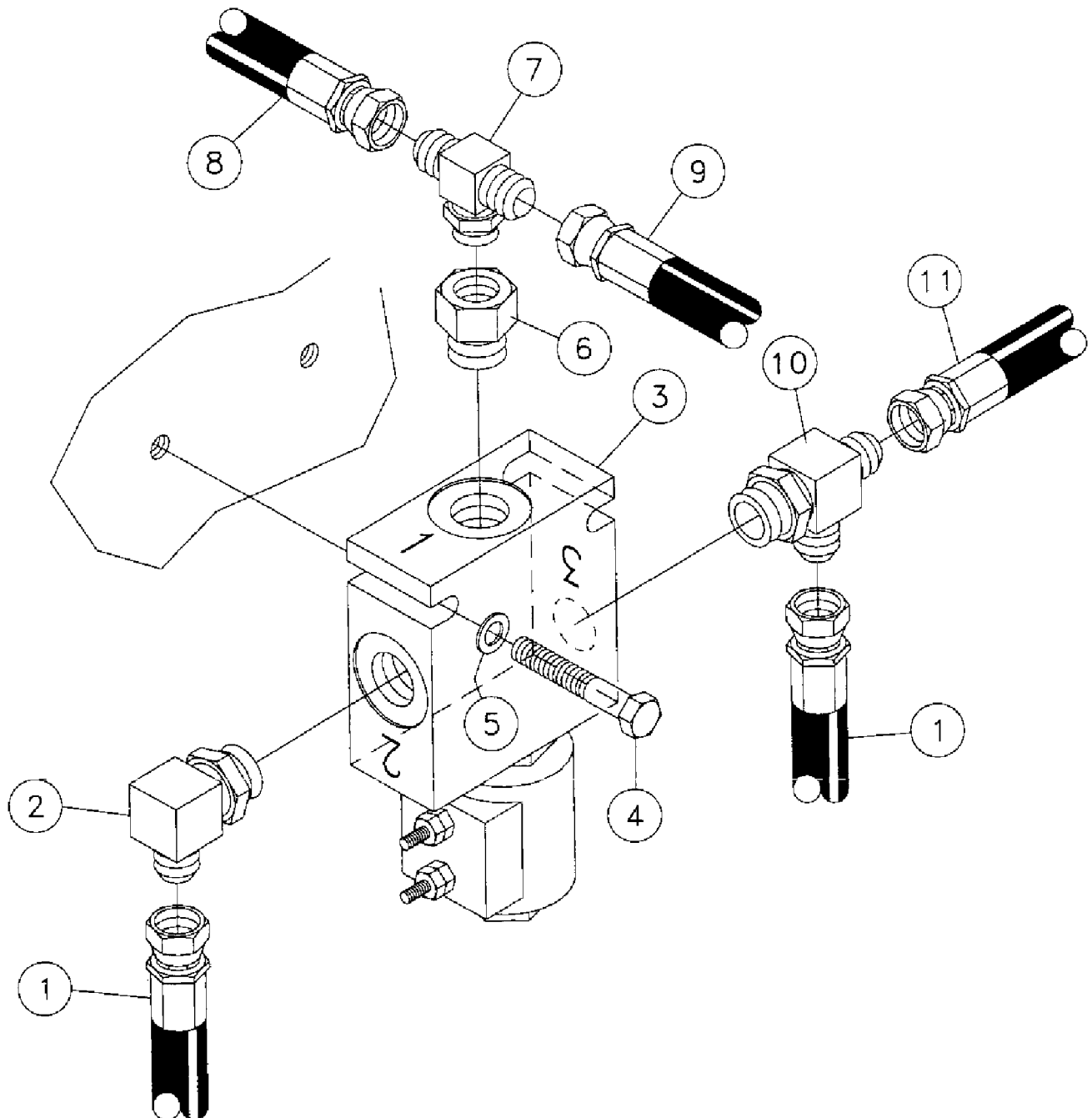


Hot Oil Shuttle Valve Assembly Fig 3-19r02

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		53845781	HOSE-3/4X66 12FS JIC ST/90 3000#	1	
2		59410001	12M JICX12M ADJ. 90 DEG. ELBOW	1	SN101-175
3		902012001	VALVE-SHUTTLE	1	Breakdown Fig. 3-45
4		250502001	BOLT 5/16-18 X 2 3/4" GR8 HEX Y	2	
5		235714001	WASHER-5/16 SAE HARD ZINC PLTD	2	
6		68774001	FITTING-6MX6M JIC (RUN) X 6M JIC	2	
7		275401001	HOSE-3/8X19 6FSJIC ST/ST 4800	1	
8		275400001	HOSE-3/8X30 6FSJIC ST/45 4800	1	
9		53658001	FITTING-4M JICX4 FS JIC 90 DEG	2	
10		244520001	HOSE-.078X136 4FS JIC ST	2	
11		59928001	6F JICX4M JIC ST REDUCER	2	
12		83635001	PLUG--#6 JIC MALE	1	
13		59420001	*12JIC X 12M ADJ STR THRD TEE	1	SN176-
14		53845803	*HOSE-3/4X101 12FS JIC ST/90D 3000	1	SN176-

Solenoid Valve Assembly (Track) Fig 3-20r01

Revised June 1999 due to update
in parts list. Changed part marked with *.

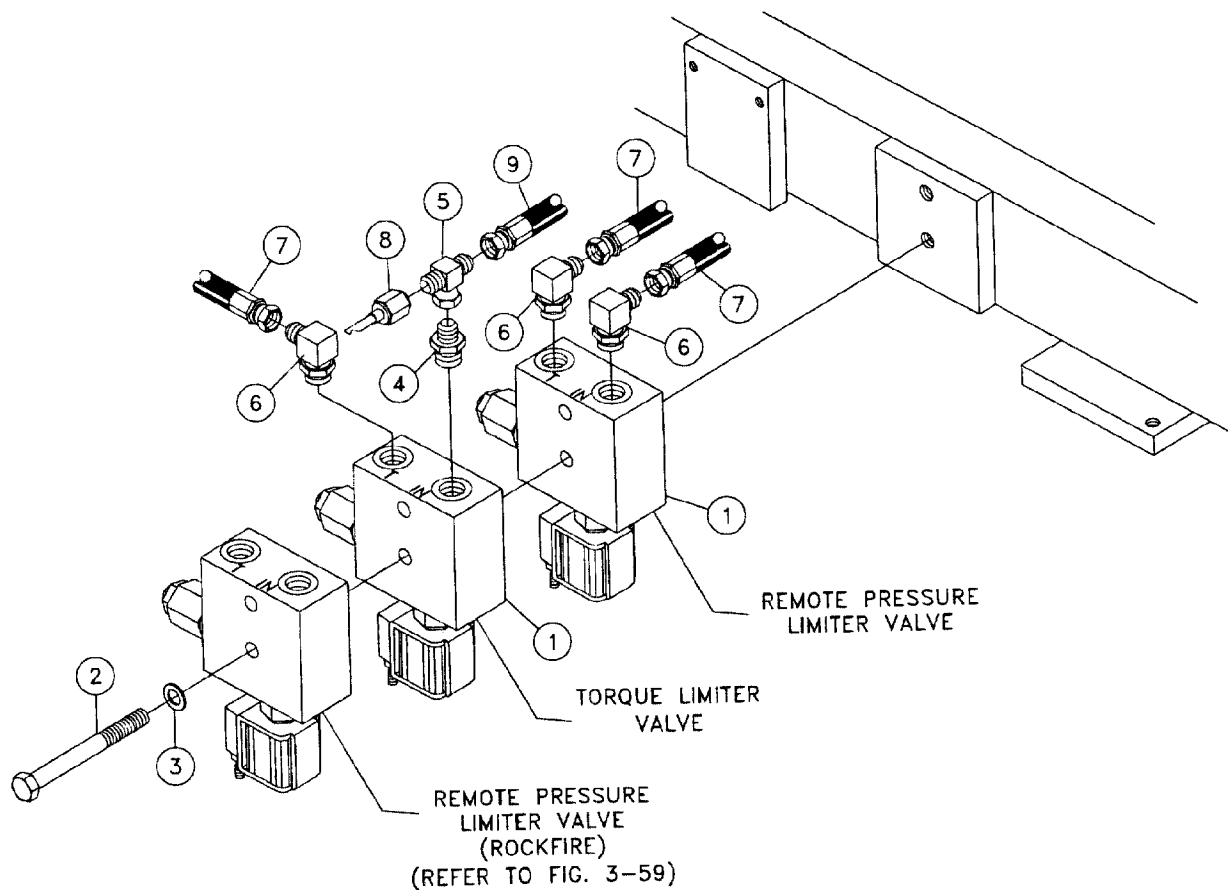


Solenoid Valve Assembly (Track) Fig 3-20r01

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		53843253	HOSE-1/4X32 4FS JIC 2750 PSI	2	
2		57950001	* FITTING-6MORINGX4MJIC90	1	
3		244491001	VALVE-2 POS. 3 WAY	1	Breakdown Fig. 3-48
4		238210001	BOLT-1/4-20X1 1/2 GR8 HEX ZYC	2	
5		235716001	WASHER-1/4 SAE HARD ZINC PLTD	2	
6		67291001	6MX4F SOLID REDUCER	1	
7		81343001	4M (BCH)X4M JICX4M JIC TEE	1	
8		53843325	HOSE-1/4X25 4FS JIC 3000 PSI	1	
9		53843057	HOSE-1/4X22 4FS JIC (100R1)	1	
10		82930001	FIT-6MX4M JICX4M JIC RUN TEE	1	
11		53843237	HOSE-1/4X80 4FS JIC 3000 PSI	1	
			Revised June 1999 due to update in parts list. Changed part marked with *.		

Torque Limiter/Remote Pressure Limiter Valve Assembly Fig 3-21r03

Revised February 2000 due to update
in parts list. Added part marked with *.

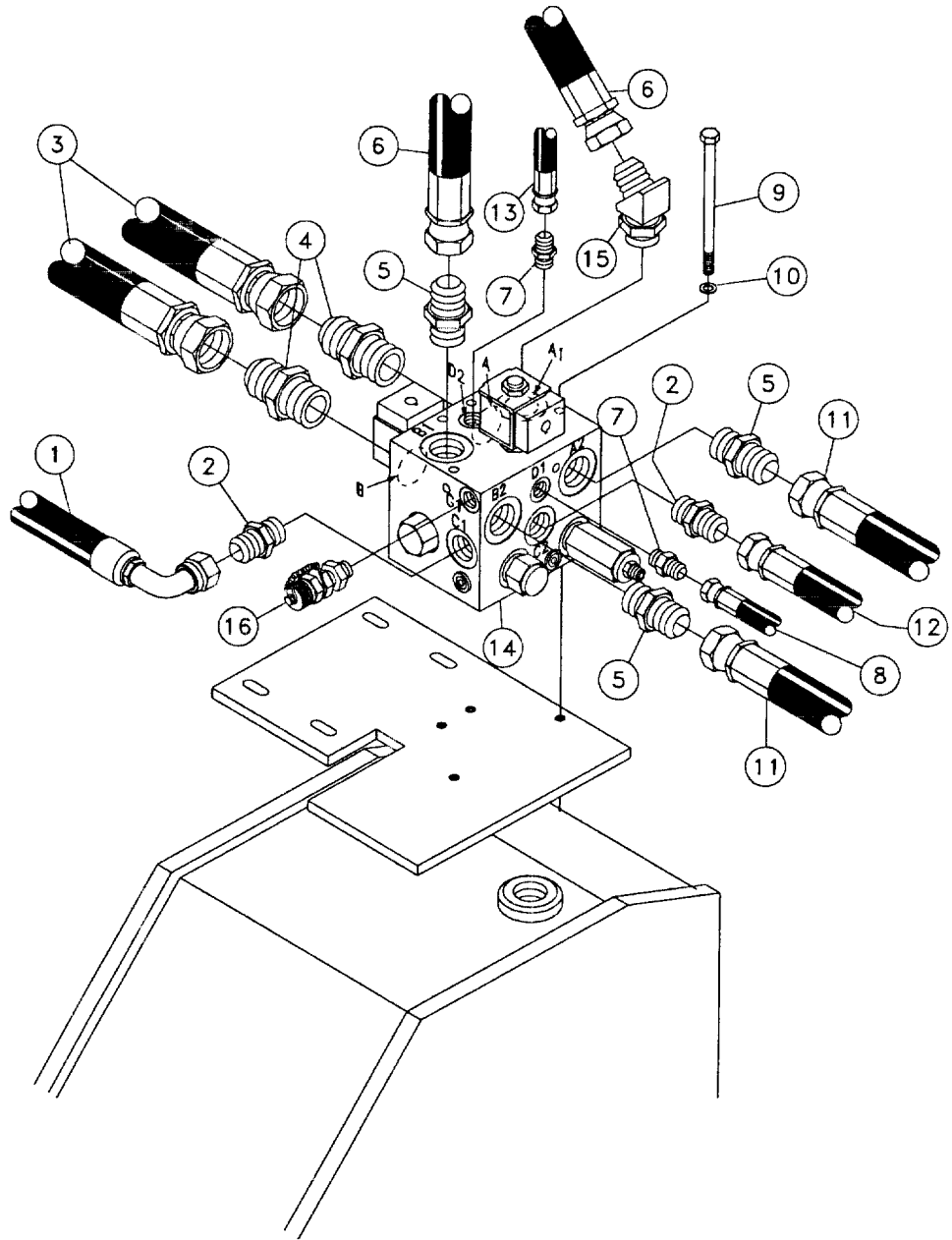


Torque Limiter/Remote Pressure Limiter Valve Assembly Fig 3-21r03

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		251063001	VALVE-REMOTE PRESS LIMITER	2	Breakdown Fig. 3-47
2		16114034	BOLT-3/8-16X3 1/2 HEX HD. GR8	2	SN101-195
		275231001	BOLT-3/8-16 X 5 GR 8 HEX ZINC PLTD	2	
3		235713001	WASHER-3/8 SAE HARD ZINC PLTD	2	
4		67291001	*6M X 4F SOLID REDUCER	1	
5		81343001	*4M (BCH) X 4M JIC X 4M JIC TEE	1	
6		57950001	FITTING-6MORING X 4MJIC90	3	
7		275395001	HOSE-1/4 X 29 4FSJIC ST/ST 5800	3	
8		244520001	HOSE-.078 X 136 4FS JIC ST	1	
9		68210001	HOSE-1/4X24 4FS JIC (M2T)	1	

Gearbox Valve Assembly Fig 3-22r02

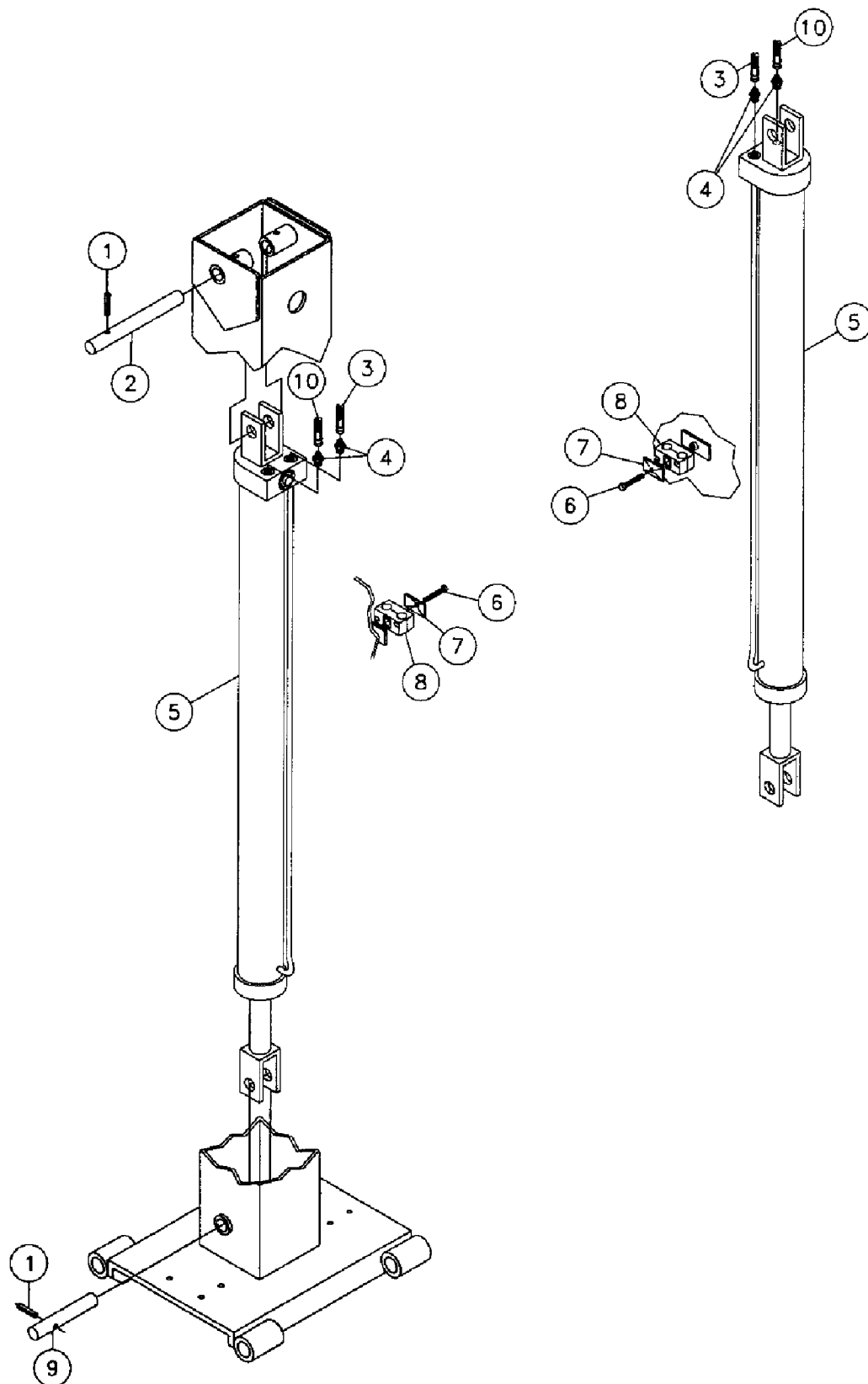
Revised February 2000 due to update
in illustration & parts list. Added parts
marked with *.



Gearbox Valve Assembly Fig 3-22r02

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		53842303	HSE-5/8 X 20 10 FS JIC ST/10FS JC 90	1	
2		53827001	FITT.-#10M O-RING-#10M JIC ST.	2	
3		53846469	HOSE-1 X 227 16 FS JIC ST/ST 6000 #	2	
4		60907001	FITTING-16M JIC X 16M STR ADAPT	2	
5		53828001	#12M O-RING-#12M JIC ST.	3	
6		53845771	HOSE-3/4X38 12FS / 12FLH 6000 PSI	2	
7		65565001	FITTING-6M X 6M JIC ST.	2	
8		57940029	HOS-3/8 X 26 6FS JIC (100R1)	1	
9		248069001	BOLT-5/16-18 X 5" GR8 ZINC PLTD	4	
10		235714001	WASHER-5/16 SAE HARD ZINC PLTD	4	
11		53845769	HOSE-3/4X34 12FS / 12FLH 60 6000#	2	
12		53842123	HOSE-5/8X34 10FS JIC 1500 PSI	1	
13		57940407	HOSE-3/8X32 6FS JIC 4000 PSI	1	
14		277838001	VALVE - 3 SPEED SHUTTLE	1	Breakdown Fig. 3-49, SN191-
		279780001	*VALVE-3 SPEED SHUTTLE	1	Replaces 277838-0, SN191-
15		60718001	12M JIC X 12M ADJ. 45 DEG. EL	1	
16		72056001	*COUPLER-DIAG. TCM-20 9/16 NF	1	SN191-

Outrigger Cylinder Assembly Fig 3-23

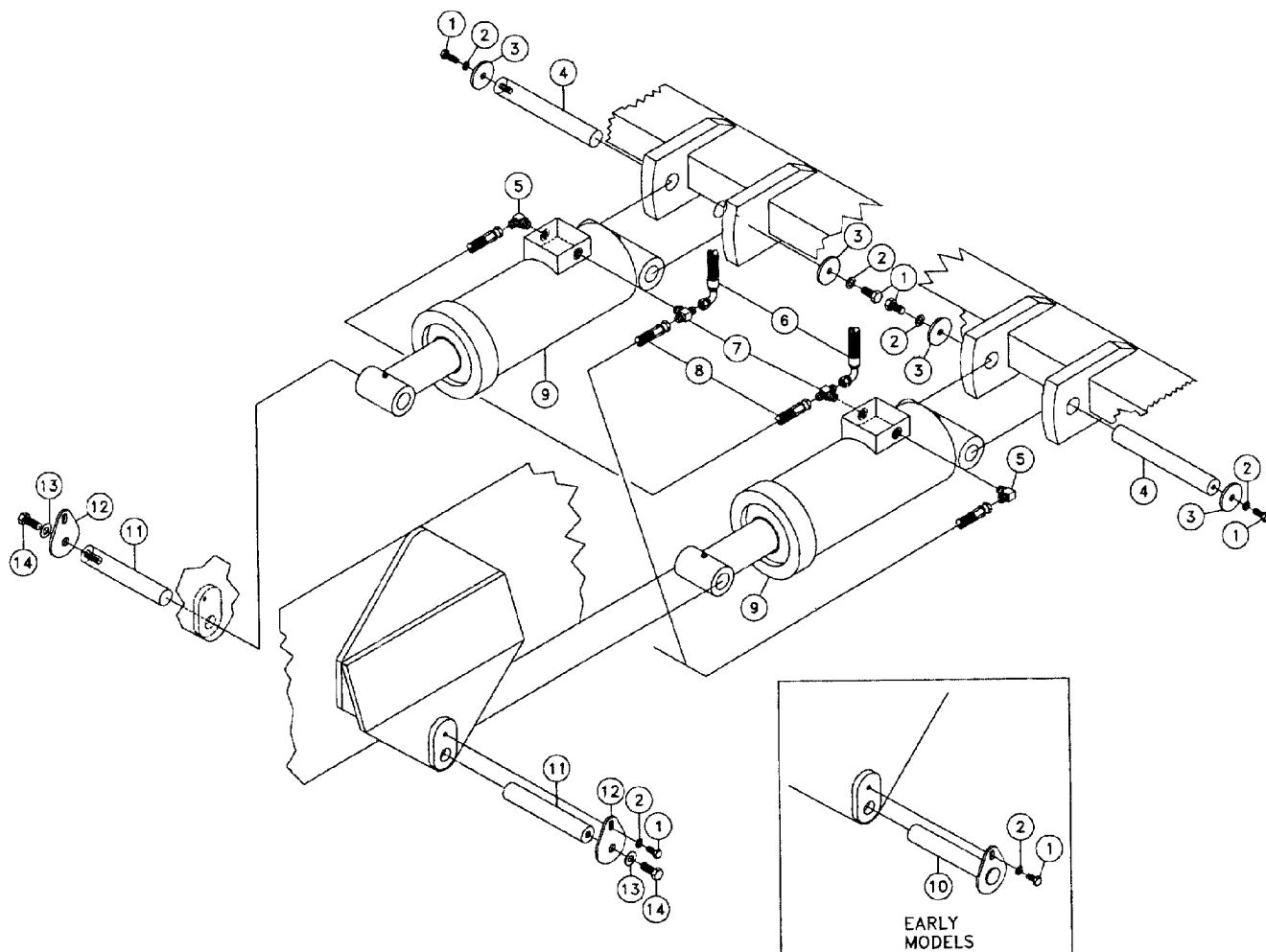


Outrigger Cylinder Assembly Fig 3-23

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		1788033	PIN-EXP.3/8X2 1/4	4	
2		216681001	PIN-OUTRIGGER CYLINDER	2	
3		53843539	HOSE-1/4X204 4FS JIC 2750 PSI	2	
4		57968001	6M O-RING 4M JIC STRAIGHT	4	
5		224278001	CYL 3"X40 XCX W/ CB VALVE	2	BREAKDOWN FIG. 3-50
6		248031001	BOLT-5/16-18X1 1/4 GR8 ZINC PL	4	
7		67846003	PLATE-TWIN COVER	4	
8		900035005	CLAMP-3/8"DOUBLE HOSE	4	
9		216682001	PIN-OUTRIGGER CYLINDER	2	
10		53843721	HOSE-1/4X206 4FSJICST 3000PSI	2	

Rack Lift Cylinder Assembly Fig 3-24r01

Revised February 2000 due to update
in parts list. Changed parts marked with *.

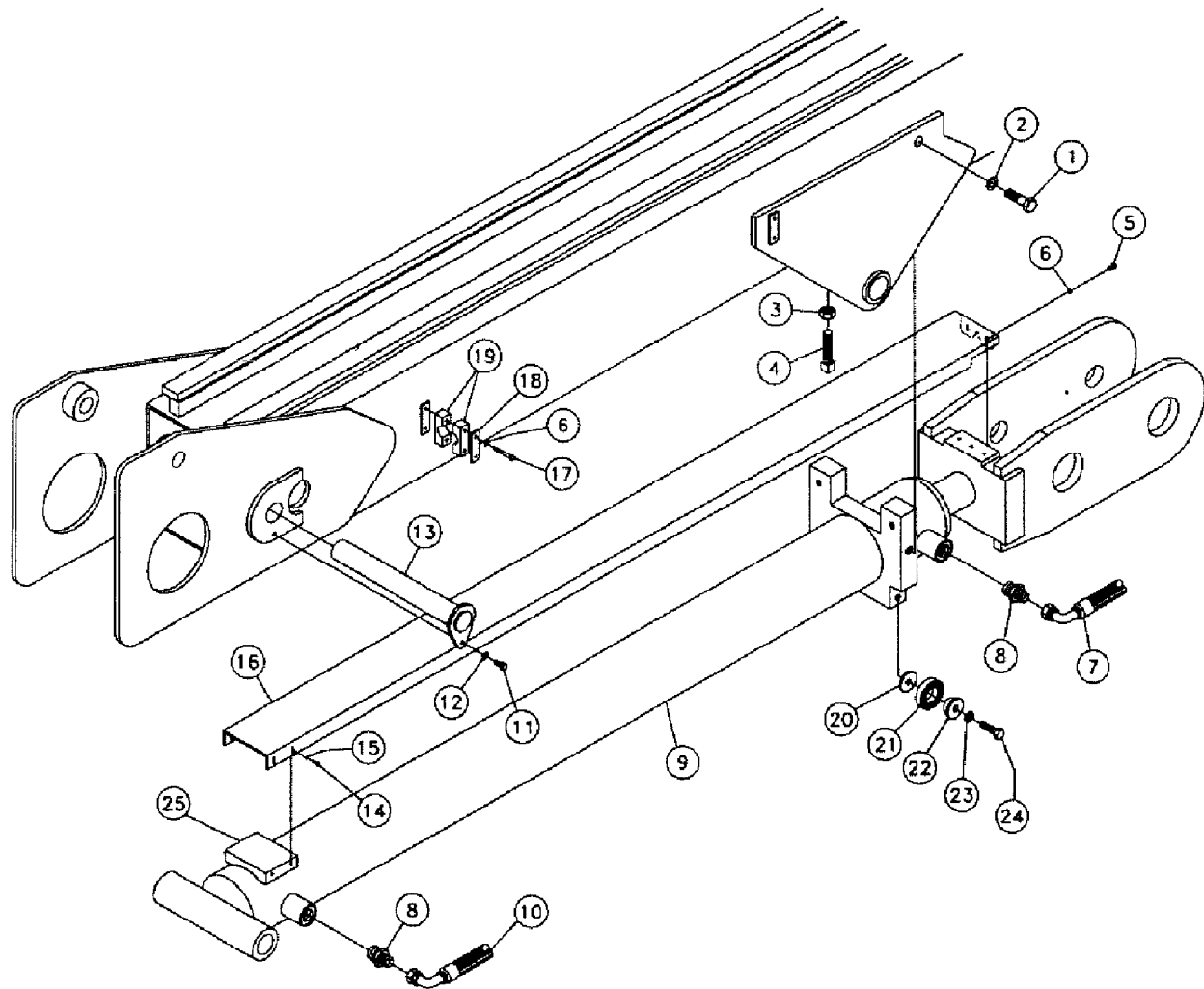


Rack Lift Cylinder Assembly Fig 3-24r01

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		235727001	BOLT-3/8-16X1 GR8 HEX ZINC PLT	4	
2		235713001	WASHER-3/8 SAE HARD ZINC PLTD	4	
3		18150001	WASHER-2 OD X 17/321ID-1/4	4	
4		275343001	PIN - RACK CYLINDER BASE	2	
5		59426001	FITTING-6M JIC X 6M ADJ 90 ELBOW	2	
6		57940665	HOSE-3/8X69 6FS JIC ST / 90 3000#	2	
7		68787001	FITTING-6M (BCH) X 6M JIC X 6M JIC	2	
8		57940233	HOSE-3/8X34 6FS JIC 3000 PSI	2	
9		275273001	CYLINDER 05X11 2 1/2" ROD	2	Breakdown Fig. 3-52
10		249831001	PIN - RACK CYLINDER PIVOT	1	RO
11		275456001	*PIN - RACK CYL	2	RIGHT, REAR
12		275457001	*RETAINER - CYLINDER PIN	2	
13		485025	*WASHER-1/2 FLAT-HRDND-ZNC	2	
14		235737001	*BOLT-1/2-13X1 1/4 GR8 ZINC PLT	2	

Thrust/Pullback Cylinder Assembly Fig 3-25r03

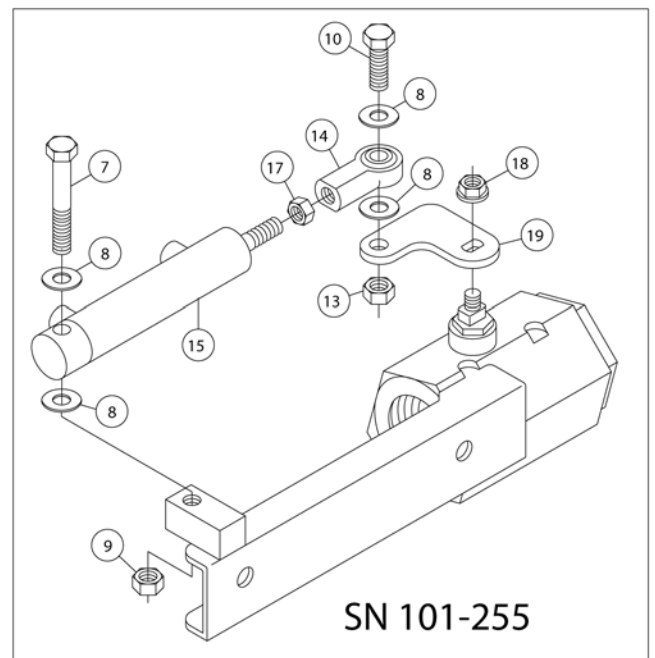
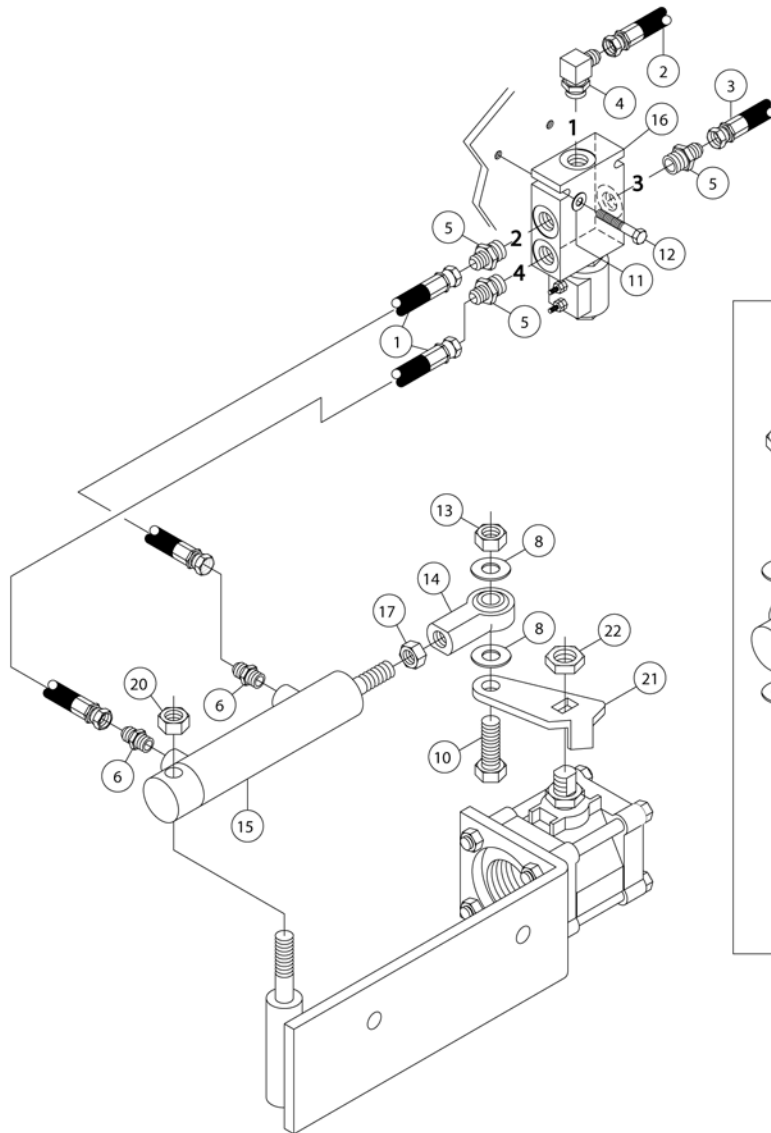
Revised June 1999 due to update
in illustration & parts list. Changed/
added parts marked with *.



Thrust/Pullback Cylinder Assembly Fig 3-25r03

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		275414001	BOLT-1-8X2 GR 8 ZNC PLT	2	
2		238892001	WASHER-1" HARDENED FLAT ZY	2	
3		238215001	NUT 1-8 GR8 ZINC YC	2	
4		275364001	SQ HSS-1-8X4 CUP POINT GR8 ZNC	2	
5		235726001	BOLT-3/8-16X3/4 GR8 HEX ZNCPLT	2	
6		235713001	WASHER-3/8 SAE HARD ZINC PLTD	8	
7		275408001	HOSE-1X67 16FSJIC ST/90 6000	1	
8		85657001	FITTING-20M X 16M JIC STR.	2	
9		244691001	CYLINDER - 7" X 100" W/ 4" ROD	1	Breakdown Fig. 3-5
10		275407001	HOSE-1X169 16FSJIC ST/90 6000	1	
11		235729001	BOLT-1/2-13X1 GR8 HEX ZINC PLT	1	
12		485025	WASHER-1/2 FLAT-HARDENED-ZINC	1	
13		251380001	PIN - THRUST/PULLBACK CYLINDER	1	
14		235734001	BOLT-1/4-20X3/4 GR8 ZINC PLTD	4	
15		235716001	WASHER-1/4 SAE HARD ZINC PLTD	4	
16		275281001	SHIELD - CYLINDER ROD	1	
17		250640001	BOLT-3/4-16X2 3/4 GR 8 Y/ZINC	6	
18		71220007	PLATE-HOSE CLAMP TOP	3	
19		217034003	CLAMP HALF PAIR-PLAST 1 1/4ID	3	
20		275300001	SPACER - BEARING SLEEVE	2	
21		94653001	*BALL BEARING	2	Replaces 83312-001
22		275299001	SLEEVE - BEARING	2	
23		235717001	WASHER-3/4 SAE HARD ZINC PLTD	2	
24		238880001	BOLT-3/4-10X2 1/2 HHCS GR8 ZY	2	
25		275282001	WEARSTRIP-CYLINDER SHIELD	1	

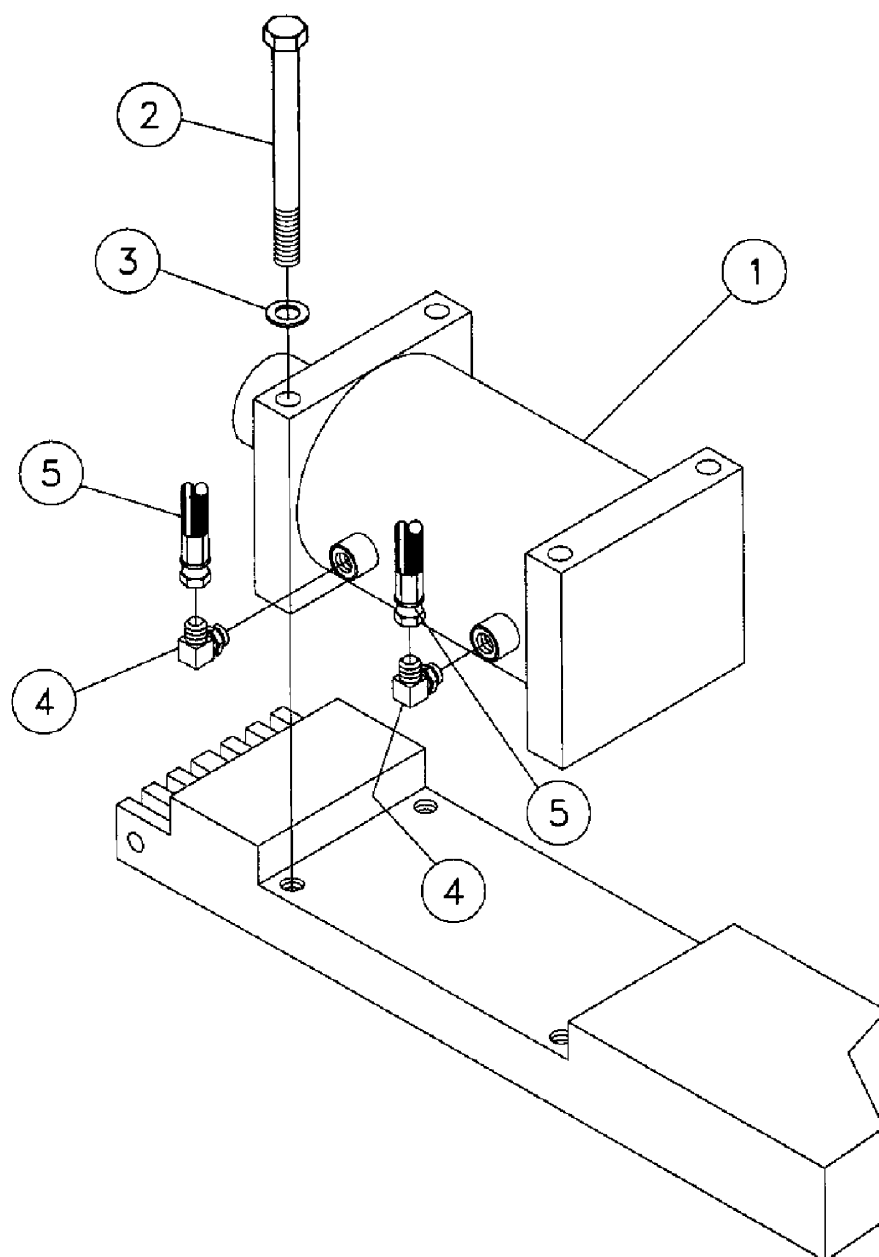
Water Pump On/Off Cylinder Assembly Fig 3-26r03



Water Pump On/Off Cylinder Assembly Fig 3-26r03

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
		Revision Date	January, 2005		Update In Illustration & Parts List.
1		53843659	HOSE-1/4X35 4FS JIC 3000 PSI	2	
2	*	53843583	HOSE-1/4X112 4FS JIC 90D	1	PN Changed
3		53843395	HOSE-1/4X45 4FSJICST-4FSJIC 90	1	
4		57950001	FITTING-6MORINGX4MJIC90	1	
5		57968001	6M O-RING 4M JIC STRAIGHT	3	
6		60908001	FITTING-4MX4M JIC STR ADAPTER	2	
7		240336001	BOLT-1/2-13X3 1/4 GR8 ZINC PLT	2	SN101-255
8		485025	WASHER-1/2 FLAT-HARDENED-ZINC	4	
9		235722001	NUT-1/2-13 GR8 JAM ZINC PLTD	1	SN101-255
10		235721001	BOLT-1/2-13X1 1/2 GR8 ZINC PLT	1	
11		235716001	WASHER-1/4 SAE HARD ZINC PLTD	2	
12		248107001	*BOLT-1/4-20X1 3/4 GR 8 HEX ZINC PL	2	Replaces 2506
13		423001	NUT-1/2 NC SLTL UTB	1	
14		224291001	BALL JOINT-1/2-20 FEMALE THDS.	1	
15		234359001	CYLINDER-1X3 1/2	1	VRM-0596-05, Beakdown Fig 3-54
16		244725001	VALVE-2 POS 4 WAY	1	Beakdown Fig. 3-46
17		250525001	NUT 1/2-20 NF HEX Y/ZINC	1	SN101-255
18		234421003	NUT-7/16-20NF FLANGE WHIZ	1	SN101-255
19		244692001	LINKAGE - BALL VALVE	1	SN101-255
20		3888001	NUT-1/2 NF HEX JAM	1	SN256-
21		278224001	LEVER-BALL VALVE	1	SN256-
22		250514001	NUT-5/8 NC JAM Y/ZINC	1	SN256-

Floating Gearbox Cylinder Assembly Fig 3-27

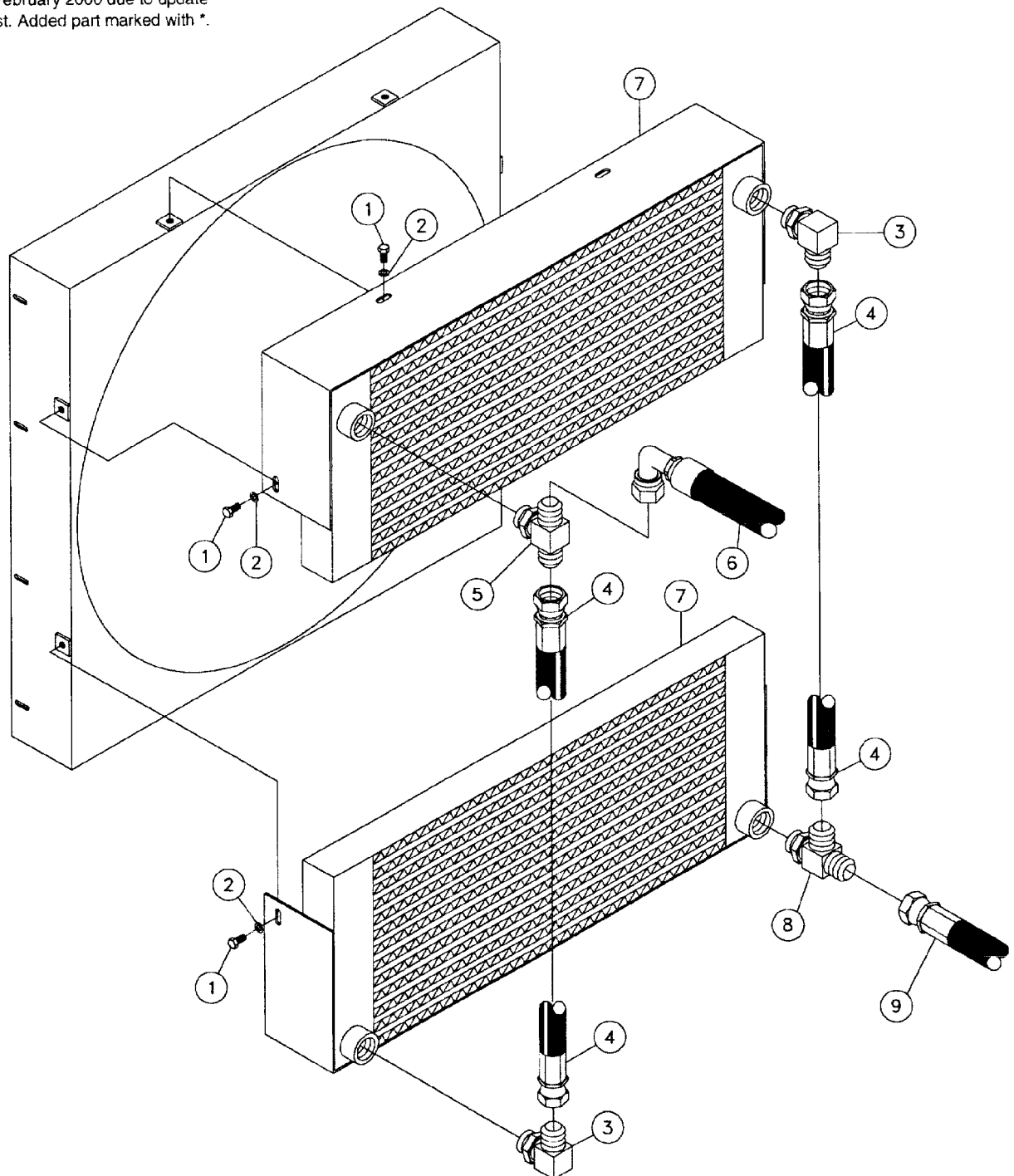


Floating Gearbox Cylinder Assembly Fig 3-27

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		244722001	CYLINDER - 5" X 2 1/2"	1	BREAKDOWN FIG. 3-51
2		275360001	BOLT-5/8-18 UNF X 7 GR 8 ZINC	4	
3		235715001	WASHER-5/8 SAE HARD ZINC PLTD	4	
4		59426001	FITTING-6M JICX6M ADJ 90 ELBOW	2	
5		275404001	HOSE-3/8X232 6FSJIC ST/ST M3K	2	

Oil Cooler Assembly Fig 3-28r02

Revised February 2000 due to update
in parts list. Added part marked with *.

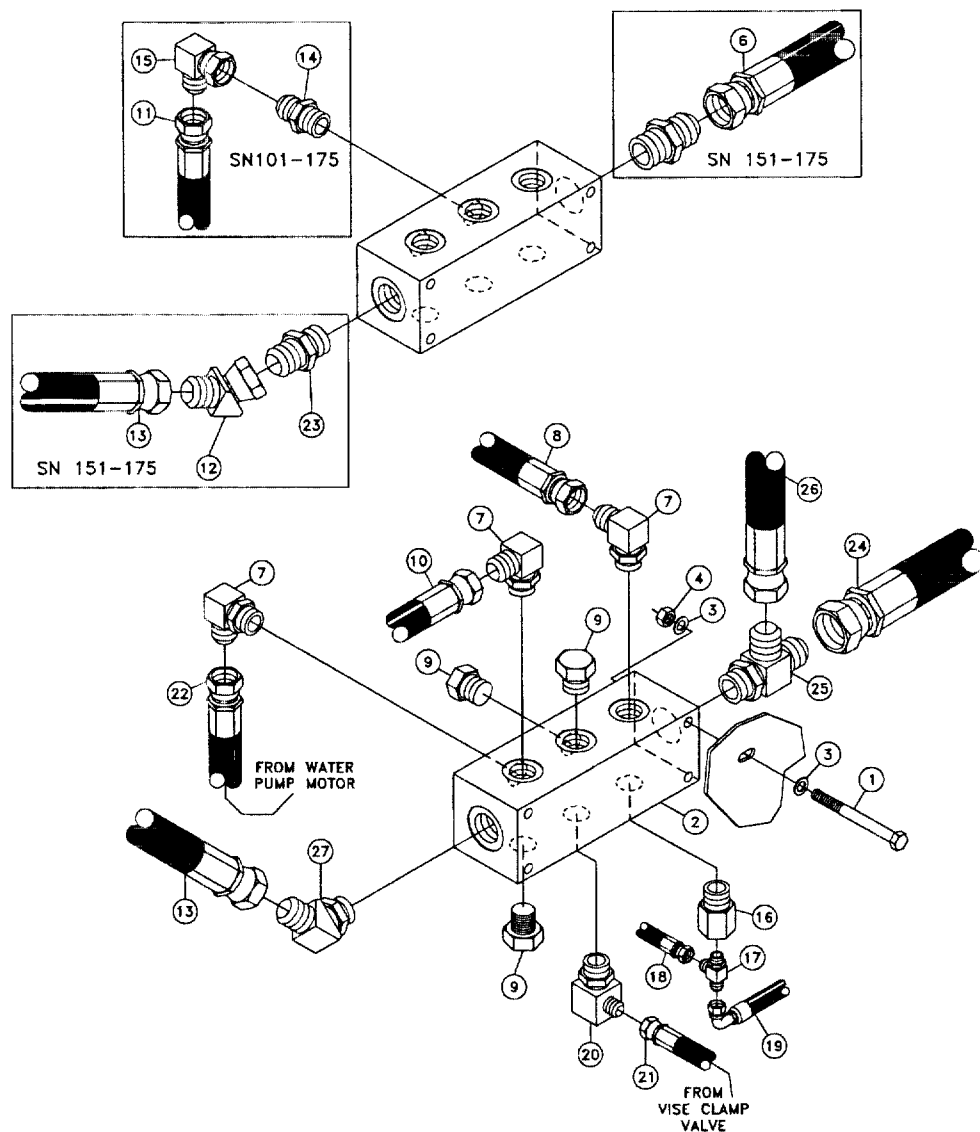


Oil Cooler Assembly Fig 3-28r02

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		235726001	BOLT-3/8-16X3/4 GR8 HEX ZNC PLT	8	
2		235713001	WASHER-3/8 SAE HARD ZINC PLTD	8	
3		61703001	16M X 16M JIC 90	2	
4		53846031	HOSE -1X26 16FS JIC (100R4)	2	
5		96077001	16M (BCH) X 16M JIC X 16M JIC TEE	1	
6		278187001	HOSE-1/38 16FS JIC ST/90 300 PSI	1	
7		238658001	COOLER-HYDRAULIC OIL	2	
8		94565001	TEE-16M JIC X 16M OR RUN X 16M JIC	1	
9		53846001	HOSE-1X13 16FS JIC 250 PSI	1	SN151-175
		53846057	*HOSE-1X12 16 FS JIC (100R4)	1	SN176-

Return Manifold Assembly Fig 3-29r02

Revised February 2000 due to update
in illustration & parts list. Changed/
added parts marked with *.

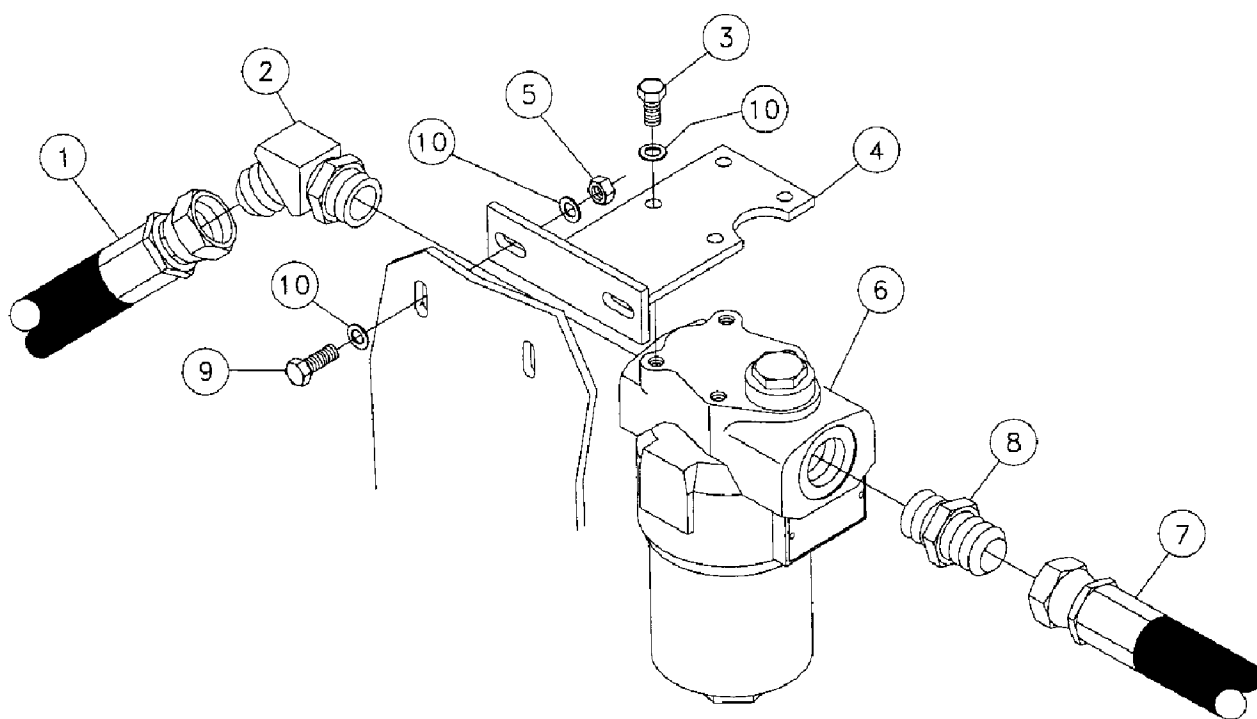


Return Manifold Assembly Fig 3-29r02

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		250541001	BOLT-3/8-16 X 4" GR8 HEX Y/ZI	4	
2		239445001	MANIFOLD-RETURN	1	
3		235713001	WASHER-3/8 SAE HARD ZINC PLTD	8	
4		235725001	NUT-3/8-16 GR8 ZINC PLTD	4	
5		60907001	FITTING-16M JIC X 16M STR ADAPT	1	
6		53846401	HOSE-1X13 16FS JIC 250 PSI	1	SN151-175
7		53829001	#10M O-RING-#10M JIC 90 DEG.	3	
8		53842021	HOSE-5/8X100 10FS JIC (100R2)	1	
9		4235001	*10 M PLUG	3	QTY. CHANGE
10		53842027	HOSE-5/8X72 10FS JIC (M2T)	1	
11		53842235	HOSE-5/8X56 10 FS SAE-100R1	1	SN101-175
12		58017001	12FS JIC X 12M JIC 45 DEG	1	
13		53845683	HOSE-3/4X52 12FS JIC-12FS JIC 45	1	
14		279776001	VALVE-10M OR X 10M JIC 5PSI CHCK	1	SN151-175
15		61694001	10M JIC X 10FS JIC 90	1	SN101-175
16		108484001	FITTING-4FS 10 M STR. ADAPTER	1	
17		81342001	4M X 4M JIC (BCH) X4M JIC TEE	1	
18		53843325	HOSE-1/4X5 4FS JIC 3000 PSI	1	
19		53843395	HOSE-1/4X45 45 FS JIC ST-4 FS JIC 90	1	
20		59401001	6M JIC X 10M ADJ. 90 DEG. ELBOW	1	
21		57940167	MOSE-3/8X112 6FS JIC (100R1)	1	
22		53842199	HOSE-5/8X104 10 FS JIC 2750 PSI	1	
23		279777001	VLV-12M OR X 12M JIC 5 JIC 5 PSI CHK	1	SN151-
24		53846057	*HOSE-1" X 12" 16FS JIC (100R4)	1	SN176-
25		94565001	*TEE-16M JIC X 16M OR RUN 16M JIC	1	SN176-
26		53846249	*HOSE-1X56" 16FS JIC / 16FS JIC 90	1	SN176-
27		60718001	*12M JID X 12M ADJ 45 DEG EL	1	SN176-

Oil Filter Assembly Fig 3-30r01

Revised June 1999 due to update
in parts list. Changed part marked with *.

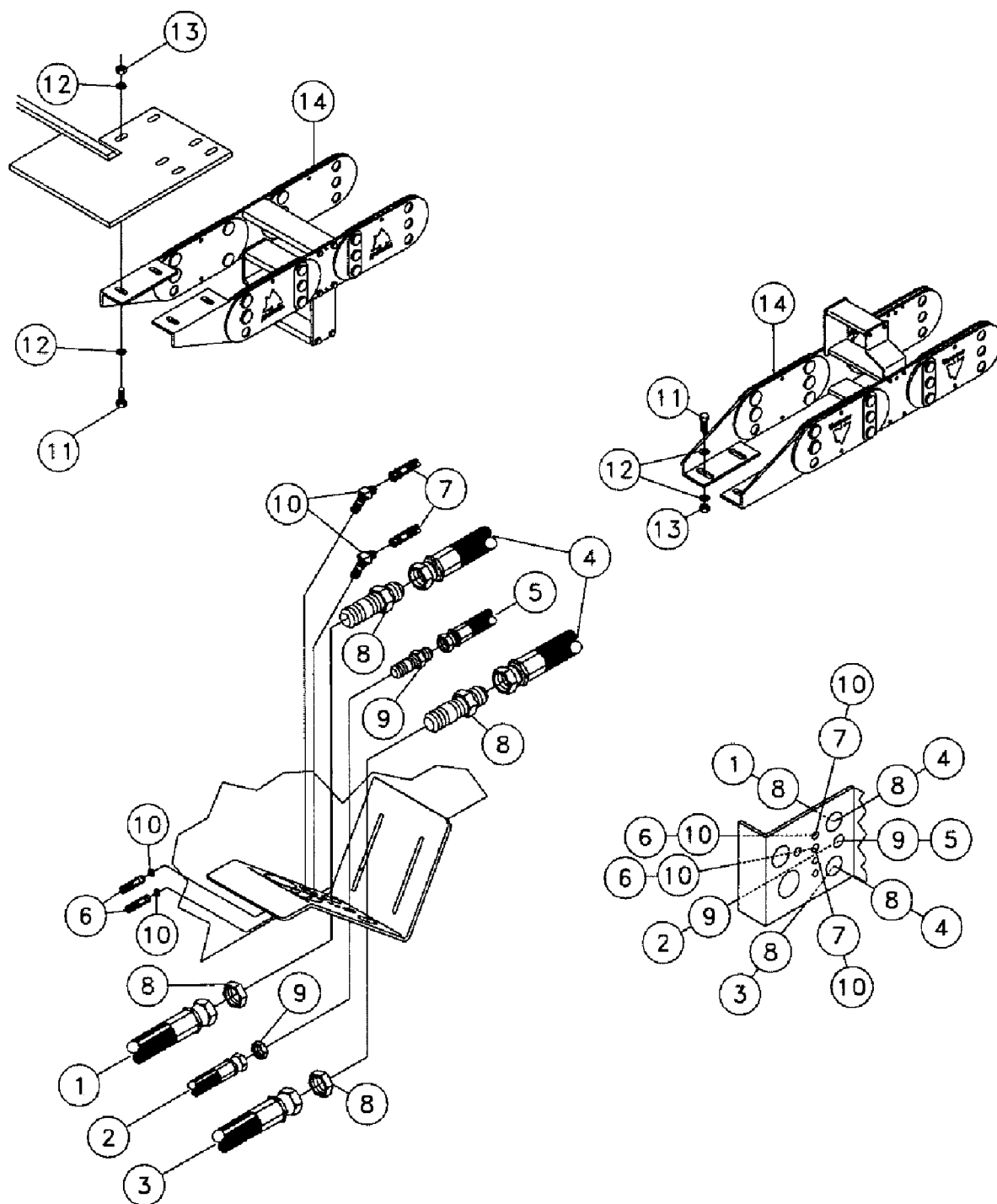


Oil Filter Assembly Fig 3-30r01

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		275405001	HOSE-1X90 16FSJIC ST/90 6000	1	
2		53835001	#16M O-RING-#16M JIC 45 DEG.	1	
3		235726001	BOLT-3/8-16X3/4 GR8 HEX ZNCPLT	4	
4		224404001	MOUNT-FILTER	1	
5		235725001	NUT-3/8-16 GR8 ZINC PLTD	2	
6		244560001	FILTER-HIGH PRESSURE-SAE 16	1	(BREAKDOWN FIG. 3-55)
7		275399001	HOSE-1X59 6Z/16/90-16FSJIC ST	1	
8		60907001	FITTING-16M JICX16M STR ADAPT	1	
9		235736001	* BOLT-3/8-16X1 1/4 ZINC PLT	2	
10		235713001	WASHER-3/8 SAE HARD ZINC PLTD	8	
			Revised June 1999 due to update in parts list. Changed part marked with *.		

Hose Carrier/Bulkhead Assembly Fig 3-31r01

Revised June 1999 due to update
in illustration & parts list. Changed
parts marked with *.

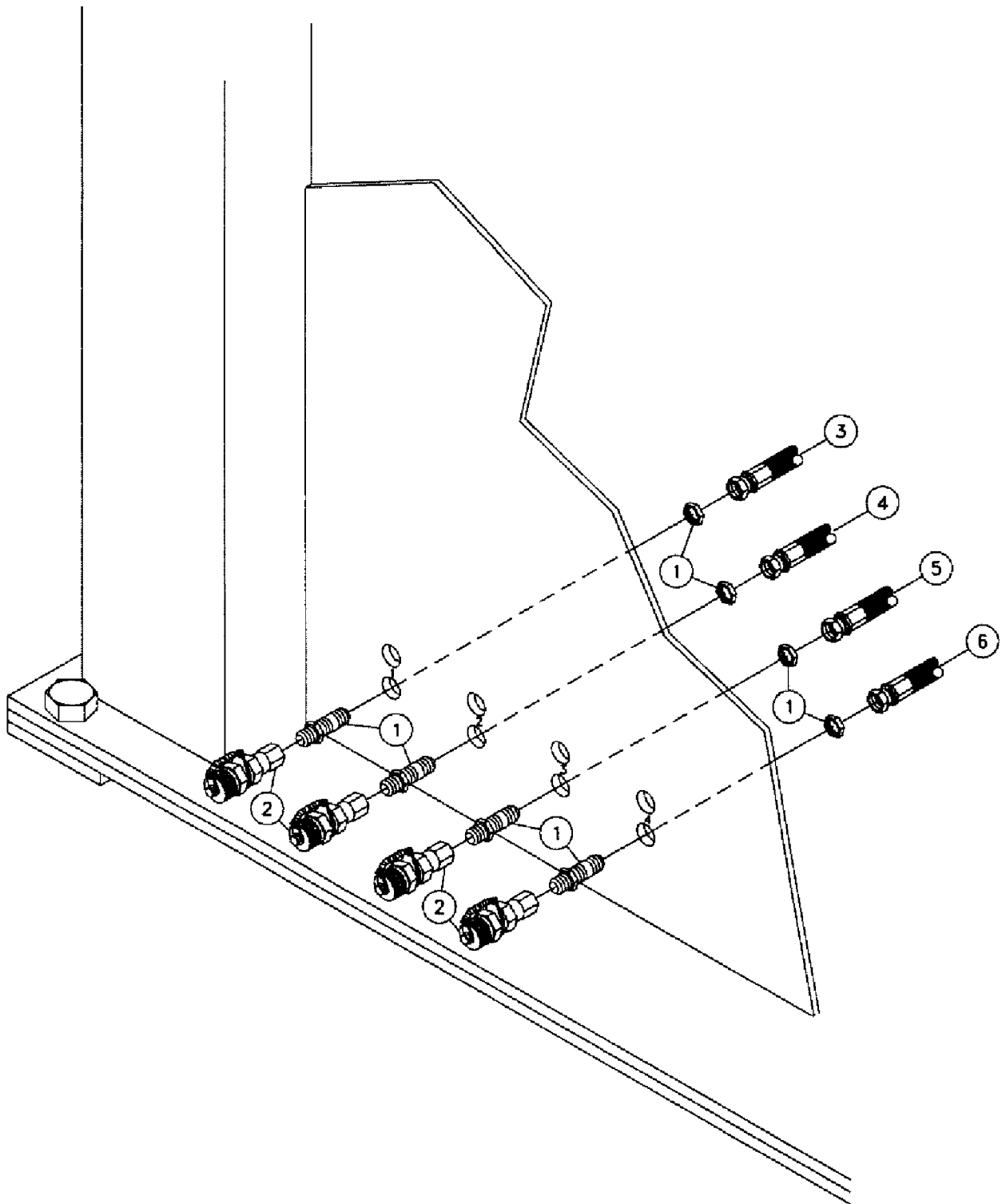


Hose Carrier/Bulkhead Assembly Fig 3-31r01

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		53846487	HOSE-1X79 16FSST 16/62/90 6000	1	
2		53842021	* HOSE-5/8X100 10FS JIC 100R2	1	
3		53846431	HOSE 1X79 16FSJIC16/62/60D6000	1	
4		53846469	HOSE-1X227 16FSJICST/ST 6000#	2	
5		53842515	HOSE-5/8X239 10FSJICST 3000PSI	1	
6		57940663	HOSE-3/8X62 6FSJICST/90 3000#	2	
7		275404001	HOSE-3/8X232 6FSJIC ST/ST M3K	2	
8		81698001	FITTING-16MJIC BULKHEAD STR.	2	
9		77734001	FITTING-10M JIC BULKHEAD STR.	1	
10		60728001	* FITTING-6M JIC 45 DEG. BLKHD ELB	2	
11		235727001	BOLT-3/8-16X1 GR8 HEX ZINC PLT	8	
12		235713001	WASHER-3/8 SAE HARD ZINC PLTD	16	
13		235725001	NUT-3/8-16 GR8 ZINC PLTD	8	
14		275260001	HOSE CARRIER - D80X100	1	BREAKDOWN FIG. 3-57
			Revised June 1999 due to update in illustration & parts list. Changed parts marked with *.		

Pressure Check Bulkhead Assembly Fig 3-32r01

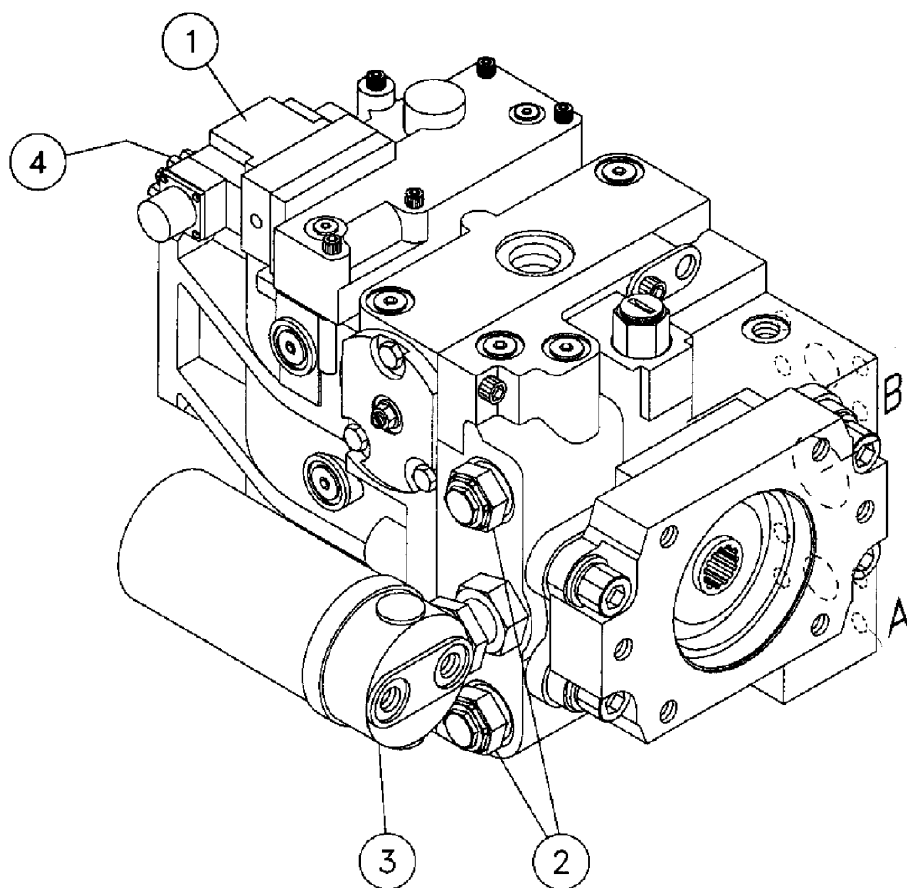
Revised June 1999 due to
update in illustration.



Pressure Check Bulkhead Assembly Fig 3-32r01

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		86230001	FITTING-MALE BLKHD CPLG7/16JIC	4	
2		83015001	FITTING-4F JIC DIAGNOSTIC	4	
3		275396001	HOSE-1/4X35 4FSJIC ST/ST 5800	1	
4		275394001	HOSE-1/4X37 4FSJIC ST/ST 5800	1	
5		68210005	HOSE-1/4X22 4FS JIC (M2T)	1	
6		275397001	HOSE-1/4X19 4FSJIC ST/ST 5800	1	
			Revised June 1999 due to update in illustration.		

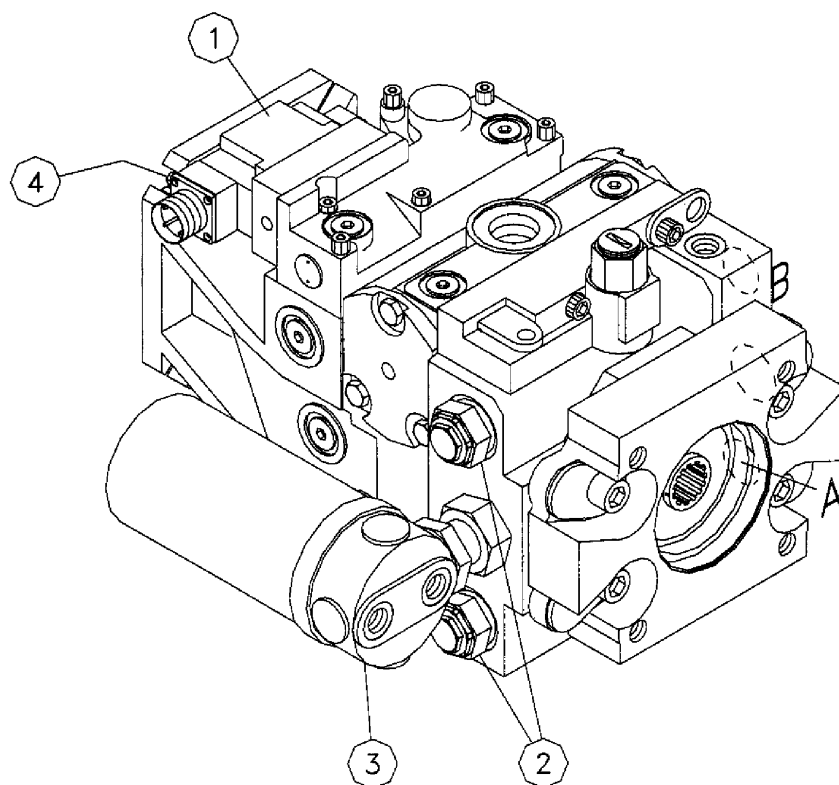
Hydraulic Pump Components Fig 3-33



Hydraulic Pump Components Fig 3-33

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		224411003	EDC KIT W/MS CONNECTOR	1	INC. GASKET & HARDWARE
		224411005	GASKET-CONTROL	1	
2		85642007	+ VALVE-MULTI-FUNCTION	2	
		85642009	O-RING	1	OUTER, per valve
		85642011	O-RING	1	INNER, per valve
3		85642051	FILTRATION-INTEGRAL SHT FILTER	1	
		81902001	FILTER-OIL	1	
4		98688009	LIP SEAL	1	
		98688011	SEAL-CARRIER	1	
		98688013	O-RING	1	
		224411001	PUMP-HYD.		COMPLETE
			+ SPECIFY PRESSURE SETTING (PRESSURE SETTING IS 50570 PSI)		

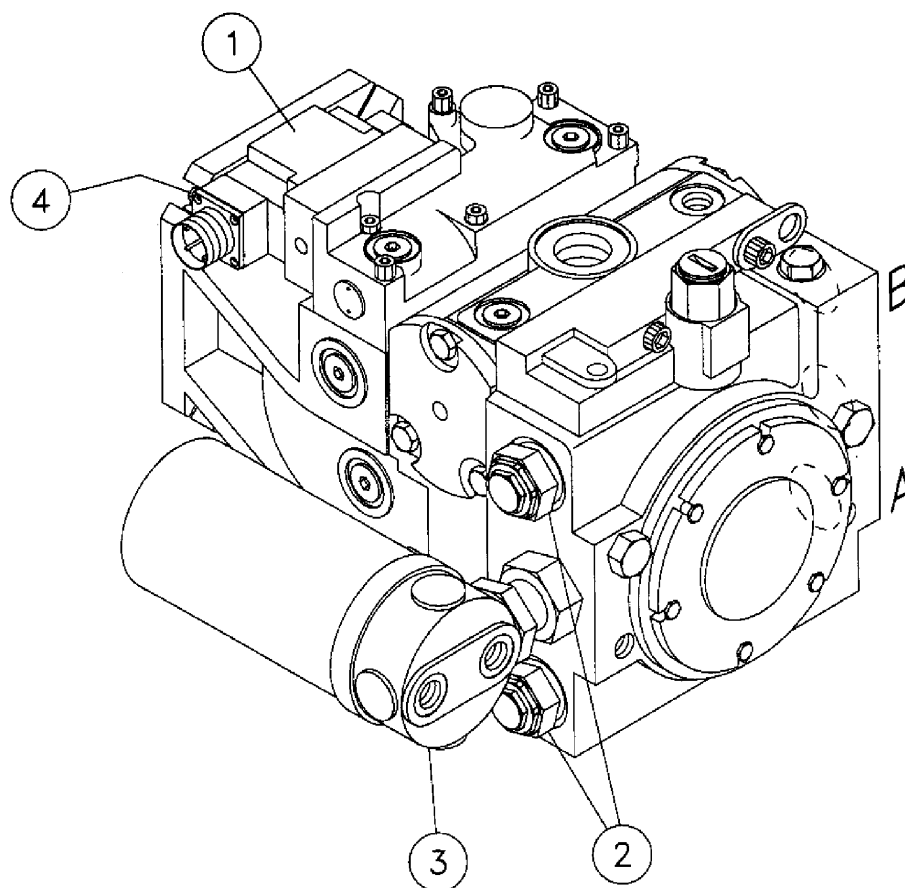
Hydraulic Pump Components Fig 3-34



Hydraulic Pump Components Fig 3-34

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		224295003	EDC KIT W/MS CONNECTOR	1	INC. GASKET & HARDWARE
		98688017	GASKET-CONTROL	1	
		224295005	PRESSURE CONTROL PILOT VALVE	1	
2		85642007	VALVE-MULTI-FUNCTION	2	
		85642009	O-RING	1	OUTER, per valve
		85642011	O-RING	1	INNER, per valve
3		91019003	FILTRATION MANIFOLD KIT	1	
		81902001	FILTER-OIL	1	
4		114282005	LIP SEAL	1	
		223803005	CARRIER SEAL	1	
		114282007	O-RING	1	
		244741001	PUMP- HYD.		COMPLETE
			+ SPECIFY PRESSURE SETTING (PRESSURE SETTING IS 4640 PSI)		

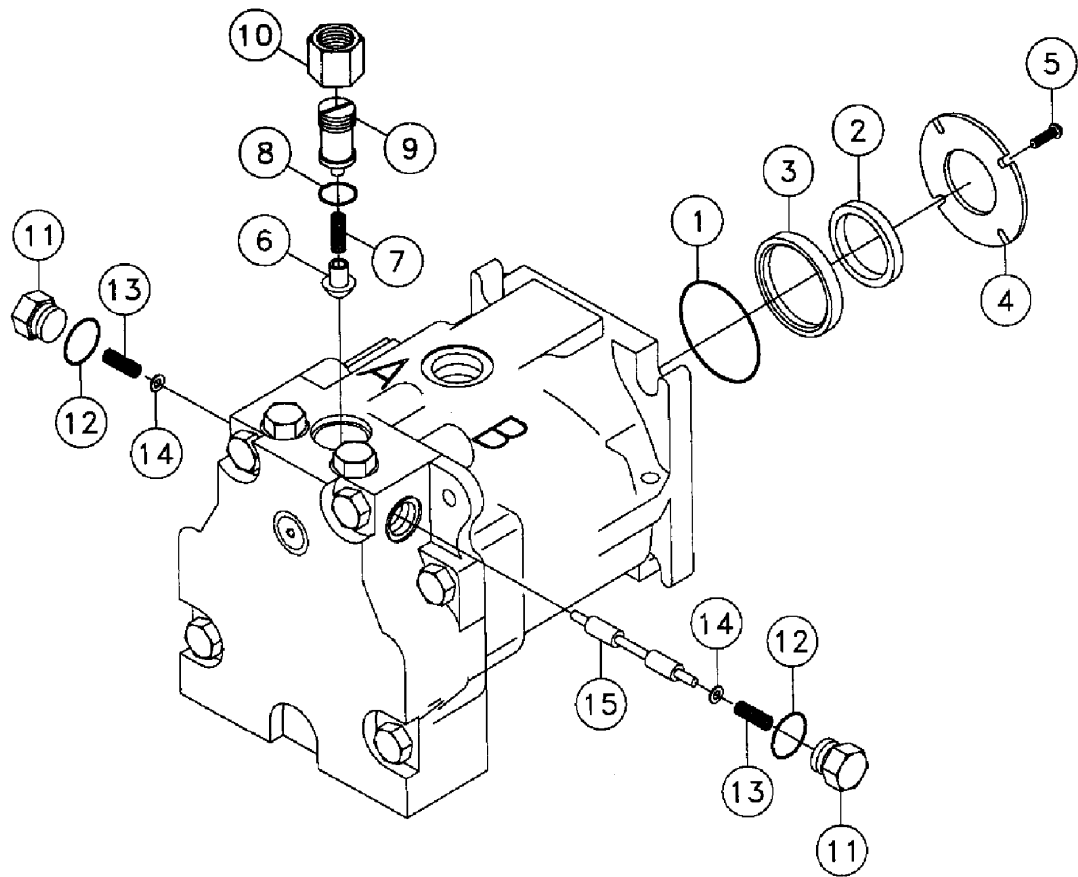
Hydraulic Pump Components Fig 3-35



Hydraulic Pump Components Fig 3-35

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		224295003	EDC KIT W/MS CONNECTOR	1	
		98688017	GASKET-CONTROL	1	
		224295005	PRESSURE CONTROL PILOT VALVE	1	
2		85642007	+ VALVE-MULTI-FUNCTION	2	
		85642009	O-RING	1	
		85642011	O-RING	1	
3		91019003	FILTRATION MANIFOLD KIT	1	
		81902001	FILTER-OIL	1	
4		114282005	LIP SEAL	1	
		223803005	CARRIER SEAL	1	
		114282007	O-RING	1	
		244742001	PUMP-HYD.		COMPLETE
			+ SPECIFY PRESSURE SETTING - PRESSURE SETTING FOR MULTI- FUNCTION VALVE (PORT A) IS 4640 PSI, PRESSURE SETTING FOR MULTI- FUNCTION VALVE (PORT B) IS 6000 PSI		

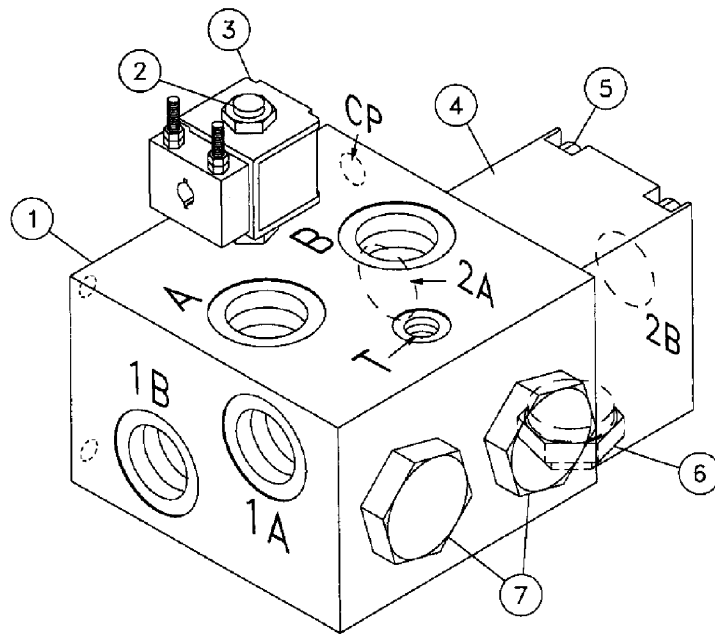
Hydraulic Motor Components Fig 3-36



Hydraulic Motor Components Fig 3-36

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		114282007	O-RING	1	
2		114282005	LIP SEAL	1	
3		114282003	SEAL CARRIER	1	
4		131494019	RETAINER PLATE	1	
5		85642087	SCREW-INT.HEX	3	
6		131494023	CHARGE RELIEF POPPET	1	
7		131494025	SPRING	1	
8		68859011	O-RING	1	
9		131494027	CHARGE RELIEF PLUG	1	
10		234266003	NUT	1	
11		131494017	SPECIAL PLUG	2	
12		57941093	O-RING	2	
13		131494015	SPRING	2	
14		131494013	SPECIAL WASHER	2	
15		131494011	SHUTTLE VALVE SPOOL	1	
		204731001	MOTOR-HYD 90 SERIES 95-3123		

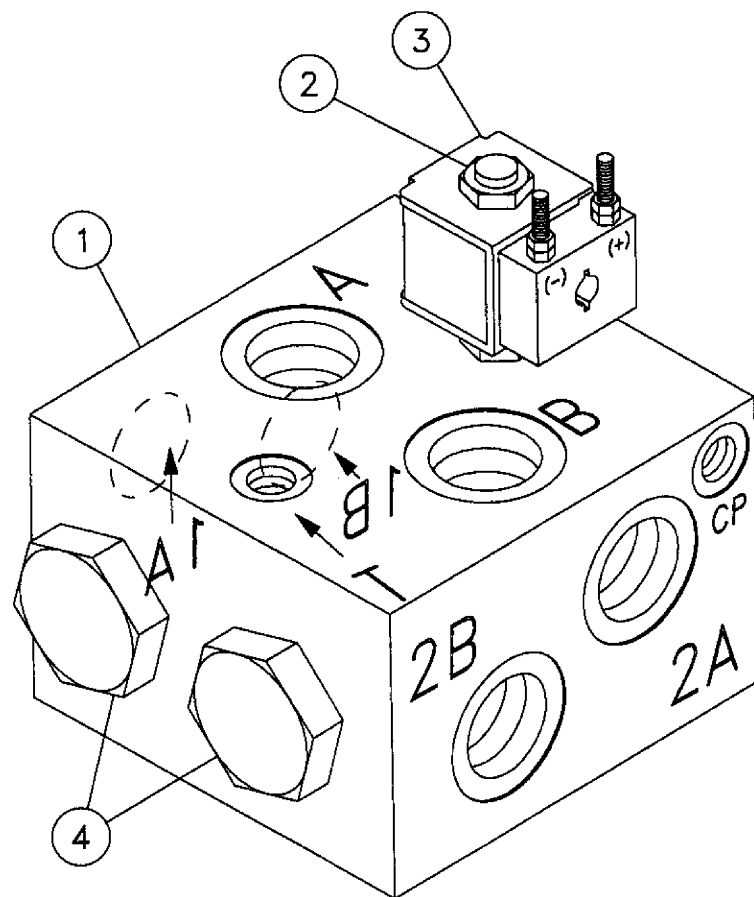
Solenoid Selector Valve Components Fig 3-37



Solenoid Selector Valve Components Fig 3-37

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		224292003	BODY	1	
2		207418007	SOLENOID VALVE	1	
		207418009	REPAIR KIT-SOLENOID VALVE	1	
3		251061003	SOLENOID VALVE COIL - 2 POST	1	
		251061003	SOLENOID VALVE COIL - 2 POST	1	
4		224292005	BODY	1	
5		4478024	3/8-16X2 1/2 SOCK HD.	1	
6		224292007	CHECK VALVE	4	
		231770001	SEAL KIT		
7		224292009	DIVERter VALVE	2	
		231771001	SEAL KIT		
		251061001	VALVE-SOLENOID SELECT W/ CHECK		INC. REF. 1-7

Solenoid Selector Valve Components Fig 3-38

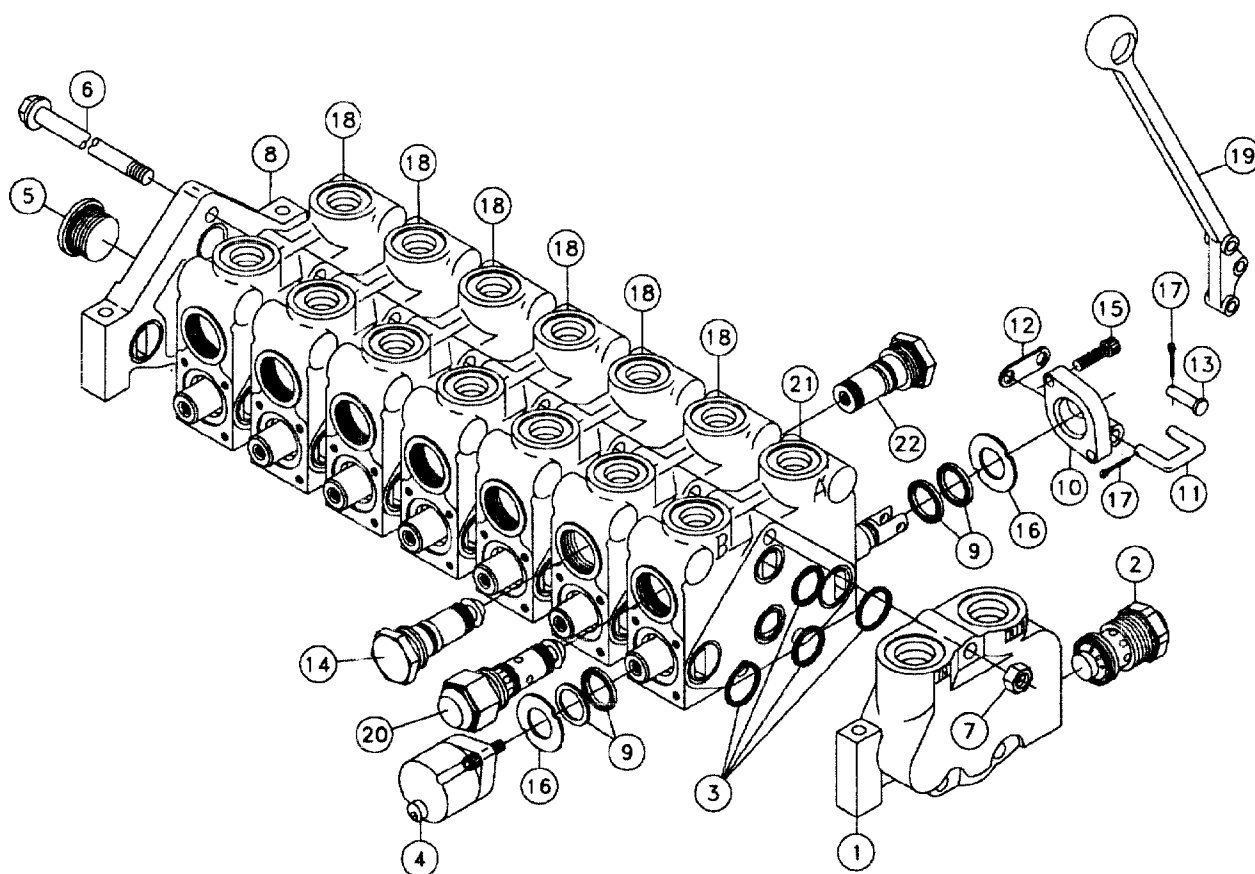


Solenoid Selector Valve Components Fig 3-38

REF NO	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		224292003	BODY	1	
2		207418007	SOLENOID VALVE	1	
		207418009	REPAIR KIT-SOLENOID VALVE		
3		251061003	SOLENOID VALVE COIL - 2 POST	1	
4		224292009	DIVERter VALVE	2	
		231771001	SEAL KIT		
		251062001	VALVE - SOLENOID SELECTOR		INC. REF. 1-4

Control Valve Components Fig 3-39r02

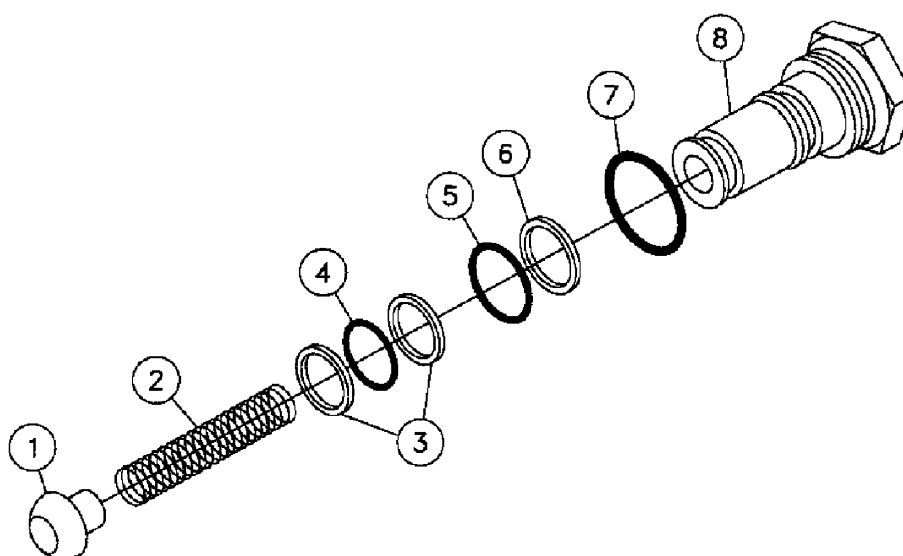
Revised October 1999 due to update
in parts list. Changed part marked with *.



Control Valve Components Fig 3-39r02

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		228113003	LEFT COVER PLATE COMP.	1	Inc. Ref.2
2		228113005	WH MAIN RELIEF	1	3500 PSI, Beakdown Fig. 3-44
3		3147079	REPAIR KIT - CP VALVE	8	
4		6149005	POSITIONER-STD.	7	Breakdown Fig. 3-41
5		98108011	PLUG-1 15/16-12 UNF SOCK HD	1	
		3152013	SEAL-O-RING	1	
6		68386001	STUD KIT-7 SPOOL	1	INC. REF. 7
7		446001	NUT-3/8 NF HEX	3	
8		219120011	RIGHT COVER PLATE	1	Inc. One Of Ref. 3 & 5
9		3147077	REPAIR KIT	7	
10		3147029	BRACKET	7	
11		4333003	LINK-	7	
12		4333005	PLATE-LINK	7	
13		2110003	PIN-CLEVIS 1/4 X 7/8 - 47/64 UL	7	
14		3147035	PLUG-LOAD CHECK STEEL	6	Breakdown Fig. 3-40
15		79704001	SCREW-1/4-20 X 7/8 SOC HD SELF LK	14	
16		3147081	RETAIN-PLT WASH	14	
17		510035	PIN-3/32 X 1/2 COTTER	21	
18		244519003	BODY ASSY-CENTER SECTION	6	Inc. One Of Ref. 3, 4, 9
19		280625001	*HNDL W/ ZNC PLT & BLCK PLSTC CT	3	
20		89275007	RC PORT RELIEF	1	Breakdown Fig. 3-43
21		244519005	BODY ASSY-CENTER SECTION	1	Inc. One Of Ref. 3, 4, 9
22		238196001	CARTRIDGE-ANTI-DRIFT	7	Breakdown Fig. 3-42
		244728001	VALVE-7 SECT L.S.		V20-8239A, Inc. All Items In Figure

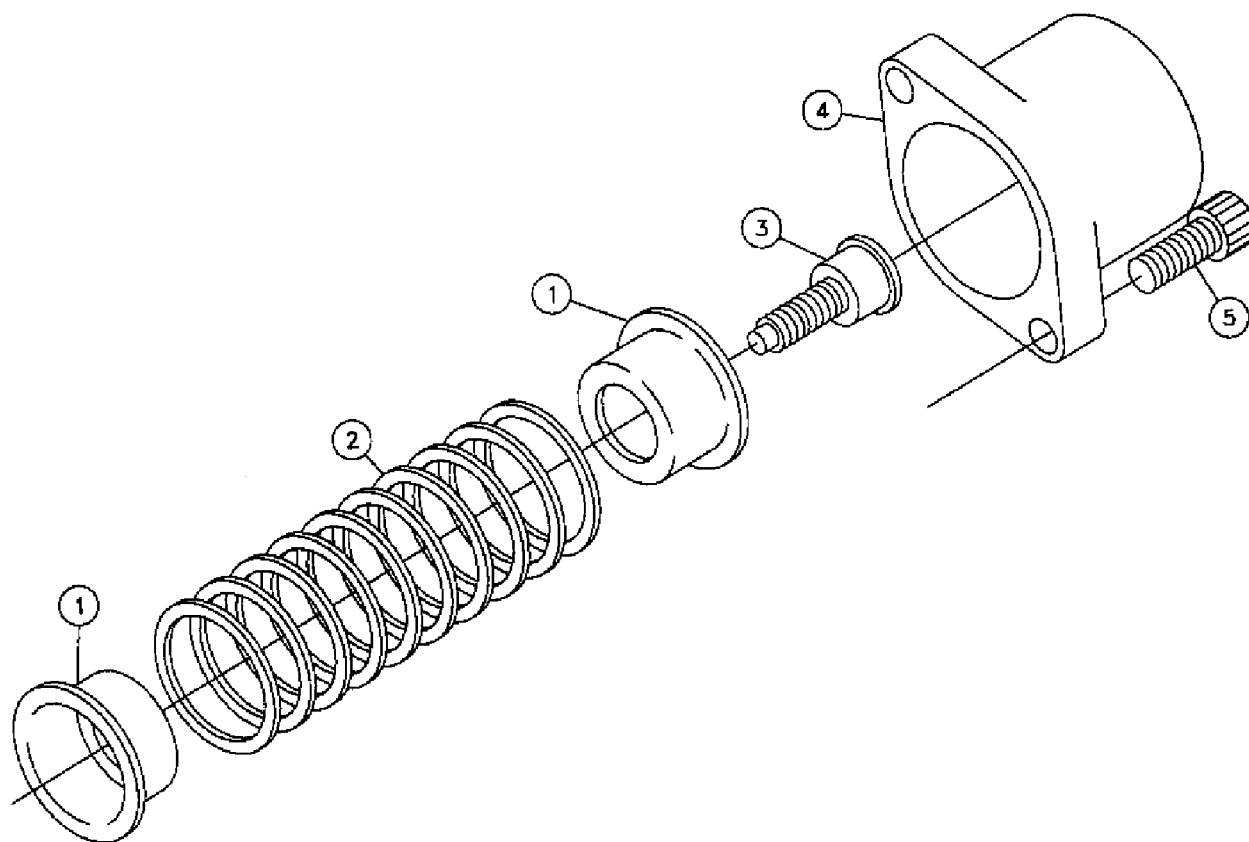
Load Check Plug Components Fig 3-40



Load Check Plug Components Fig 3-40

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		3128009	POPPET-CHECK	1	
2		3147041	SPRING-CHECK	1	
3		NSS	WASHER-BACKUP	2	INNER
4		NSS	O-RING	1	
5		NSS	O-RING	1	OUTER
6		NSS	WASHER-BACKUP	1	OUTER
7		NSS	O-RING	1	
8		3147043	PLUG-LIFT CHECK	1	
		3147035	PLUG-LOAD CHECK STEEL		INC. REF. 1-8
		3147037	REPAIR KIT		INC. REF. 3-7

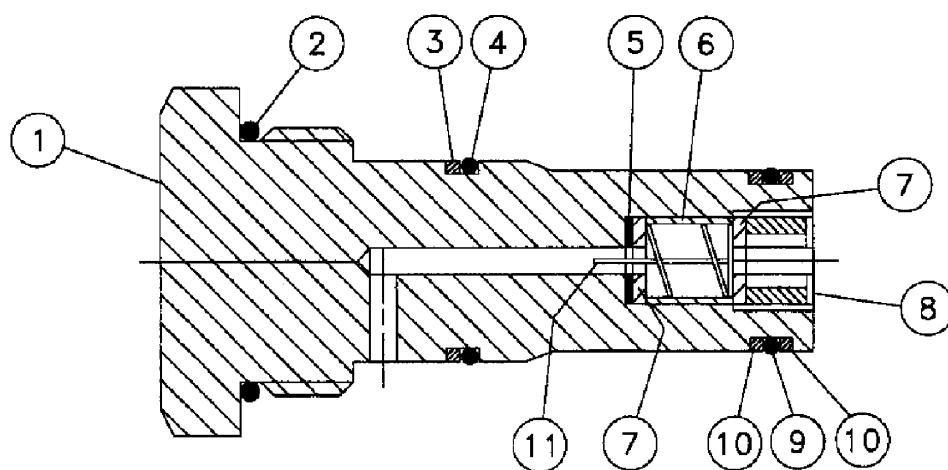
Standard Spool Positioner Components Fig 3-41



Standard Spool Positioner Components Fig 3-41

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		3149005	COLLAR-SPRING	2	
2		6149057	SPRING-RETURN	1	
3		3149013	COLLAR-SPOOL	1	
4		6149043	BONNET	1	
5		79704001	SCREW-1/4-20X7/8 SOC HD SELFLK	2	
		6149005	POSITIONER-STD.		INC. REF. 1-7

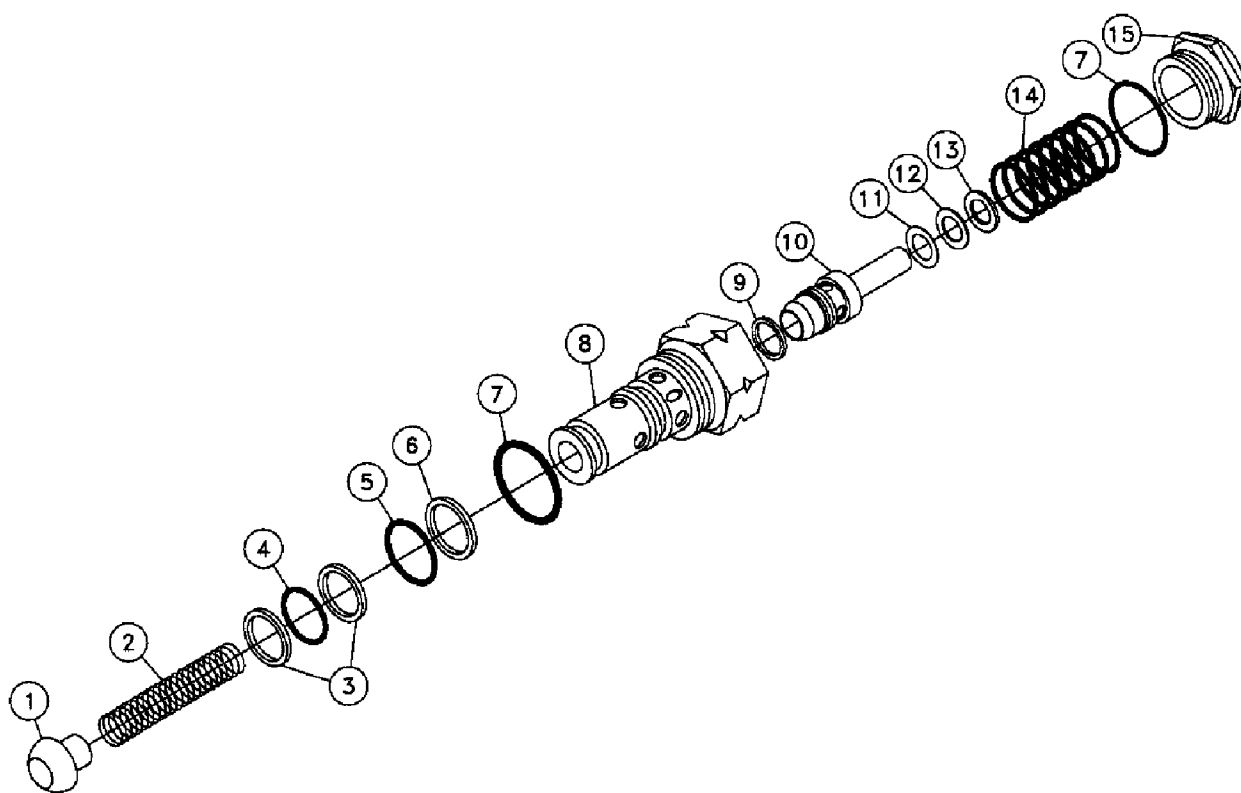
Anti-Drift Cartridge Components Fig 3-42



Anti-Drift Cartridge Components Fig 3-42

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		238196003	PLUG-BLEED OFF	1	
2		NSS	SEAL-O-RING	1	
3		NSS	RING-BACKUP	1	
4		NSS	SEAL-O-RING	1	
5		238196005	WASHER-BLEED OFF	1	
6		238196007	SPACER	1	
7		238196009	WASHER-BACK UP	2	
8		238196011	SCREW-LOCKING	1	
9		NSS	SEAL-O-RING	1	
10		NSS	RING-BACKUP-CUT	2	
11		238196013	SPRING	1	
		238196001	CARTRIDGE-ANTI-DRIFT		INC. ALL ITEMS IN FIGURE
		3147037	REPAIR KIT		INC. REF. 2-4, 9 & 10

RC Port Relief Components Fig 3-43

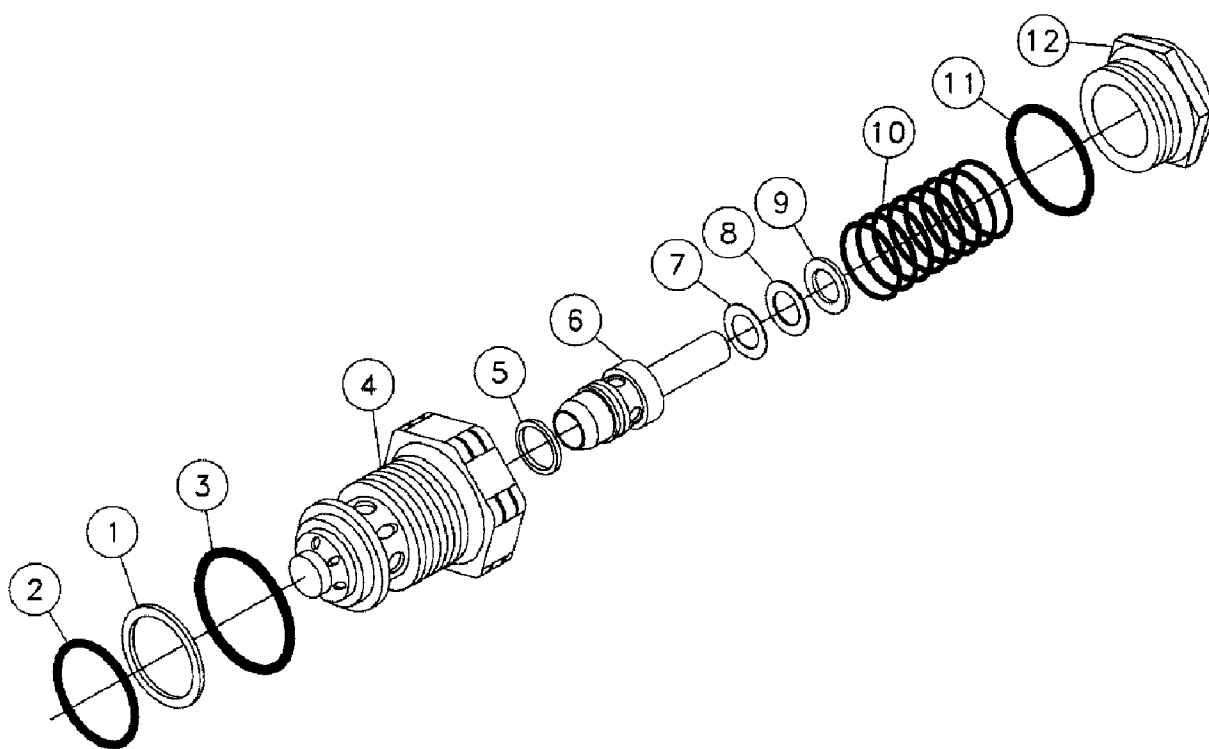


RC Port Relief Components Fig 3-43

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		3128009	POPPET-CHECK	1	
2		3147041	SPRING-CHECK	1	
3		NSS	WASHER-BACKUP	2	
4		NSS	O-RING	1	
5		NSS	O-RING	1	
6		NSS	WASHER-BACKUP	1	
7		NSS	O-RING	2	
8		3159007	BODY-RELIEF	1	
9		NSS	RING-PISTON	1	
10		NSS	POPPET-RELIEF	1	
11		208019	SHIM - .010	AR	
12		208017	SHIM - .020	AR	
13		208015	SHIM - .040	AR	
14		3147023	SPRING-YELLOW	1	
		86323005	SPRING-SS	1	2000-3000 PSI
15		3147027	CAP	1	
		89275007	RC PORT RELIEF		INC. ALL ITEMS IN THIS FIGURE
		3159005	REPAIR KIT		INC. REF. 3-7
		3147011	SERVICE KIT		INC. REF. 9 & 10
		NSS	NOT SOLD SEPARATELY		

WH Main Relief Components Fig 3-44r01

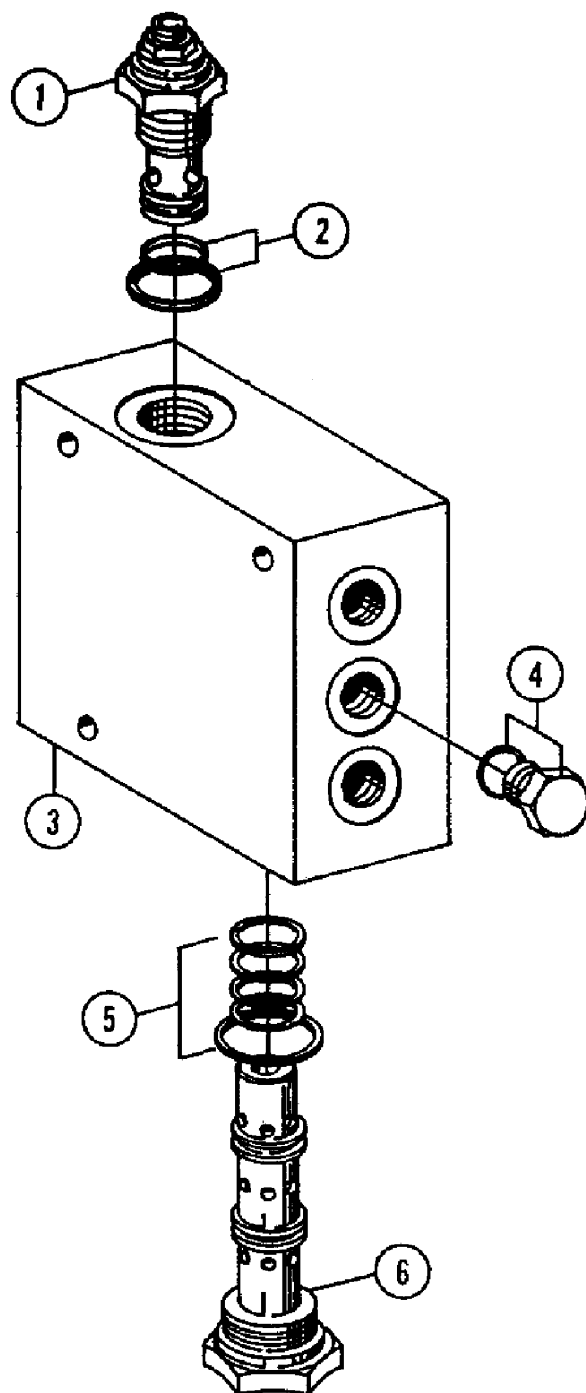
Revised June 1999 due to addition
of pressure relief. Figure is new.



WH Main Relief Components Fig 3-44r01

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		NSS	RING-BACKUP	1	
2		NSS	SEAL-O-RING	1	
3		NSS	SEAL-O-RING	1	
4		15844009	BODY-WH RELIEF	1	
5		NSS	RING-PISTON	1	
6		NSS	POPPET	1	
7		208019	SHIM - .010	AR	
8		208017	SHIM - .020	AR	
9		208015	SHIM - .040	AR	
10		228113007	SPRING	1	3000-3500 PSI
11		NSS	SEAL-O-RING	1	
12		3147027	CAP	1	
		3147011	SERVICE KIT		INC. REF. 5 & 6
		15844007	REPAIR KIT		INC. REF. 1, 3 & 11
		228113005	WH MAIN RELIEF		3500 PSI, INC. REF. 1-12
			Revised June 1999 due to addition of pressure relief. Figure is new.		

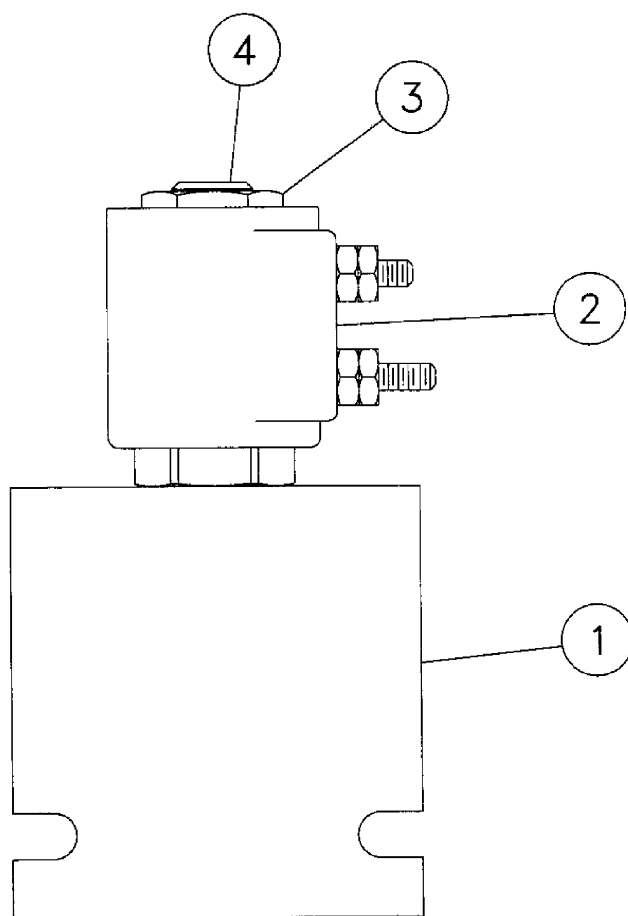
Shuttle Valve Components Fig 3-45



Shuttle Valve Components Fig 3-45

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		902012003	VALVE-RELIEF	1	
2		202731001	REPAIR KIT-RELIEF VALVE	1	
3		902012005	BODY-VALVE	1	
4		901562015	PLUG-9/16"-18 UNF	1	
5		204954001	REPAIR KIT-SHUTTLE VALVE	1	
6		901562011	VALVE-SHUTTLE	1	
		902012001	VALVE-SHUTTLE		INC. ALL ITEMS IN THIS FIGURE

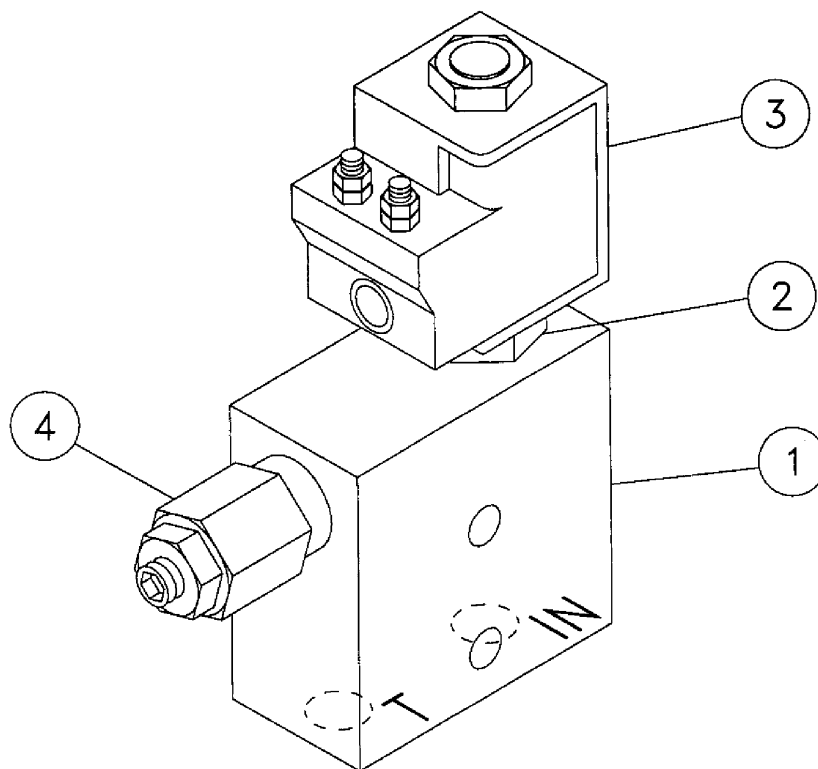
Solenoid Valve Components Fig 3-46



Solenoid Valve Components Fig 3-46

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		244725003	BODY - VALVE	1	
2		244725005	COIL	1	
3		244725007	NUT - COIL	1	
4		244725009	CARTRIDGE - SOLENOID	1	
		244725011	SEAL KIT	1	
		244725001	VALVE-2 POS 4 WAY		INC. ALL ITEMS IN THIS FIGURE

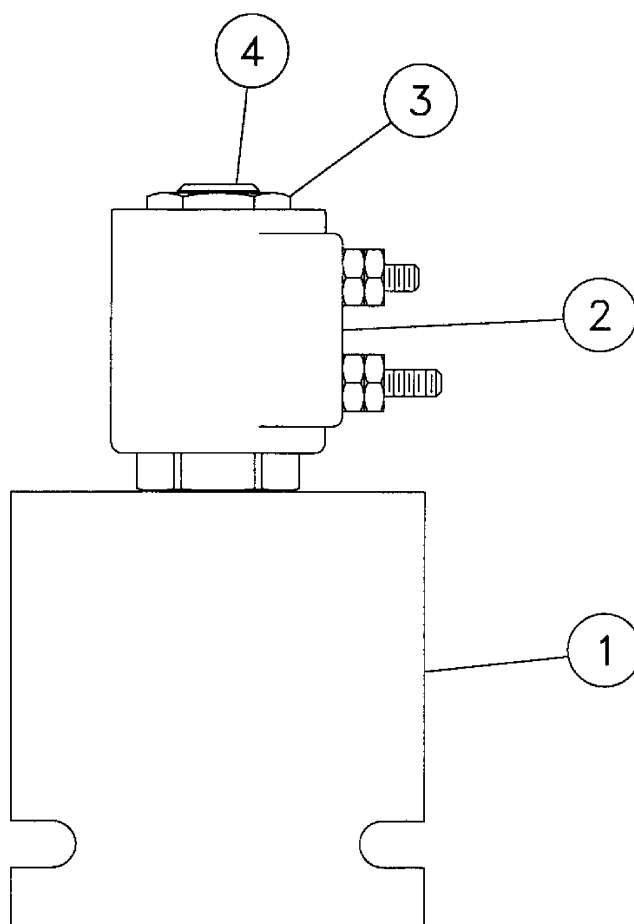
Pressure Limiter Valve Components Fig 3-47



Pressure Limiter Valve Components Fig 3-47

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		228114003	BODY-MANIFOLD	1	
2		228114005	CARTRIDGE	1	
		228114007	SEAL KIT		
3		251063003	COIL	1	
4		228114011	VALVE RELIEF	1	
		85647025	REPAIR KIT		
		251063001	VALVE-REMOTE PRESS LIMITER		INC. ALL ITEMS IN THIS FIGURE

Solenoid Valve Components Fig 3-48

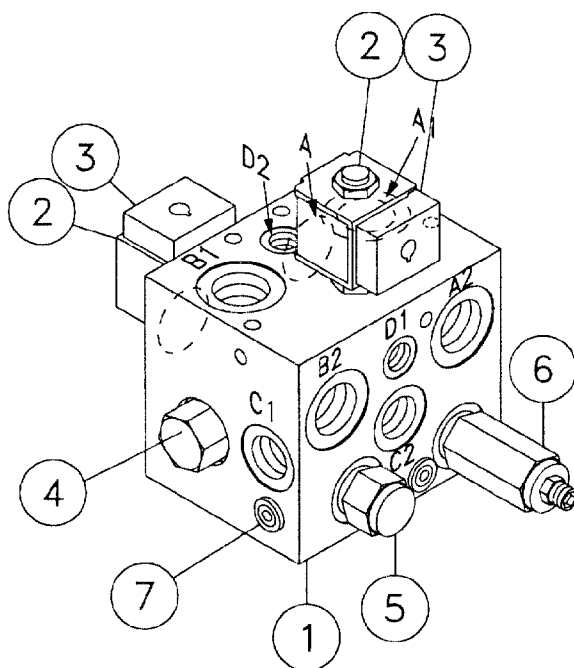


Solenoid Valve Components Fig 3-48

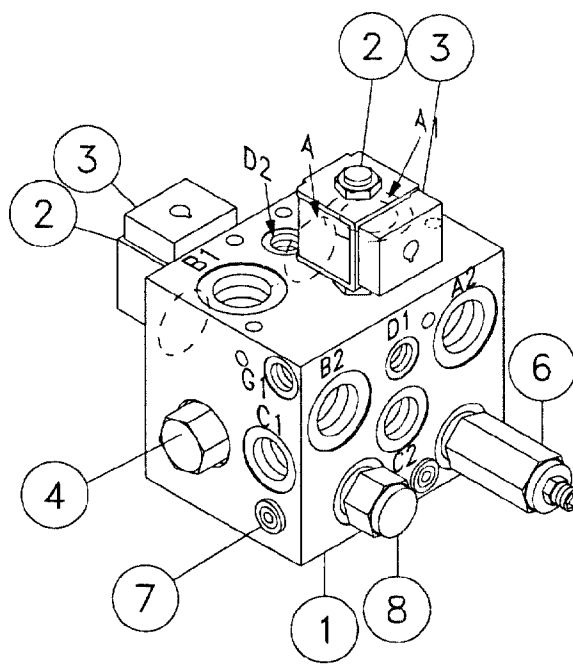
REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		239443003	BODY-VALVE	1	
2		244725005	COIL	1	
3		244725007	NUT - COIL	1	
4		228124017	CARTRIDGE-SOLENOID	1	
		110467003	SEAL KIT	1	
		244491001	VALVE-2 POS. 3 WAY		INC. ALL ITEMS IN THIS FIGURE

Shuttle Valve Components - 3 Speed Fig 3-49r02

Revised February 2000 due to update
in illustration & parts list. Added parts
marked with *.



SN 150-190

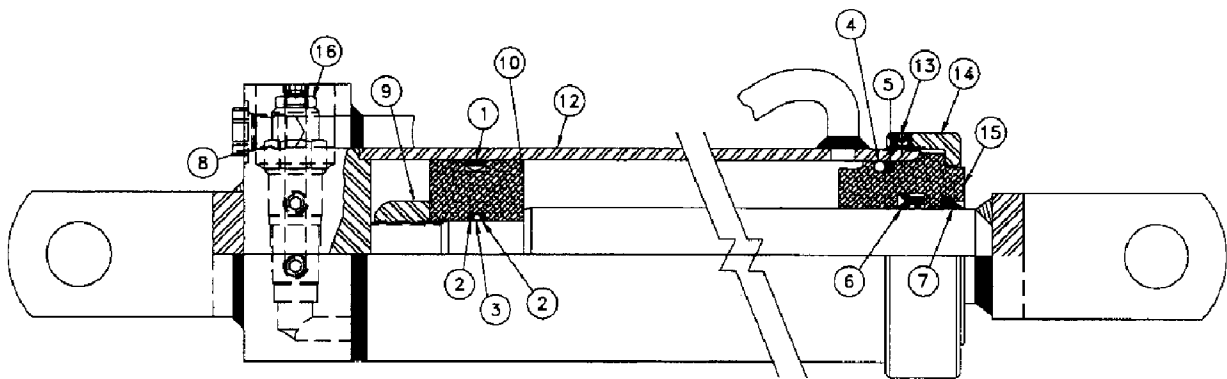


SN 191-

Shuttle Valve Components - 3 Speed Fig 3-49r02

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		NSS	VALVE BODY	1	
2		224476005	CARTRIDGE-VALVE	2	
3		251061003	SOLENOID VALVE COIL - 2 POST	2	
3		207418009	REPAIR KIT-SOLENOID VALVE		
4		277838003	SHUTTLE VALVE	1	
4		277838005	REPAIR KIT-SHUTTLE VALVE		
5		277838007	PRESSURE FLOW CONTROL VALVE	1	
5		277838009	REPAIR KIT-PRESS FLOW CNTRL	1	
6		277838011	RELIEF VALVE	1	
6		277838013	REPAIR KIT-RELIEF VALVE		
7		277838015	#2 EPCO PLUG	6	
8		279780002	*PRESSURE FLOW CNTRL VALVE	1	
8		277838009	*REPAIR KIT-PR FLOW CNTRL VLV	1	
		277838001	VALVE-3 SPEED SHUTTLE		SN150-190, Inc. Ref.1-7
		279780001	*VALVE-3 SPEED SHUTTLE		SN191-, Inc. Ref. 1-4 & 6

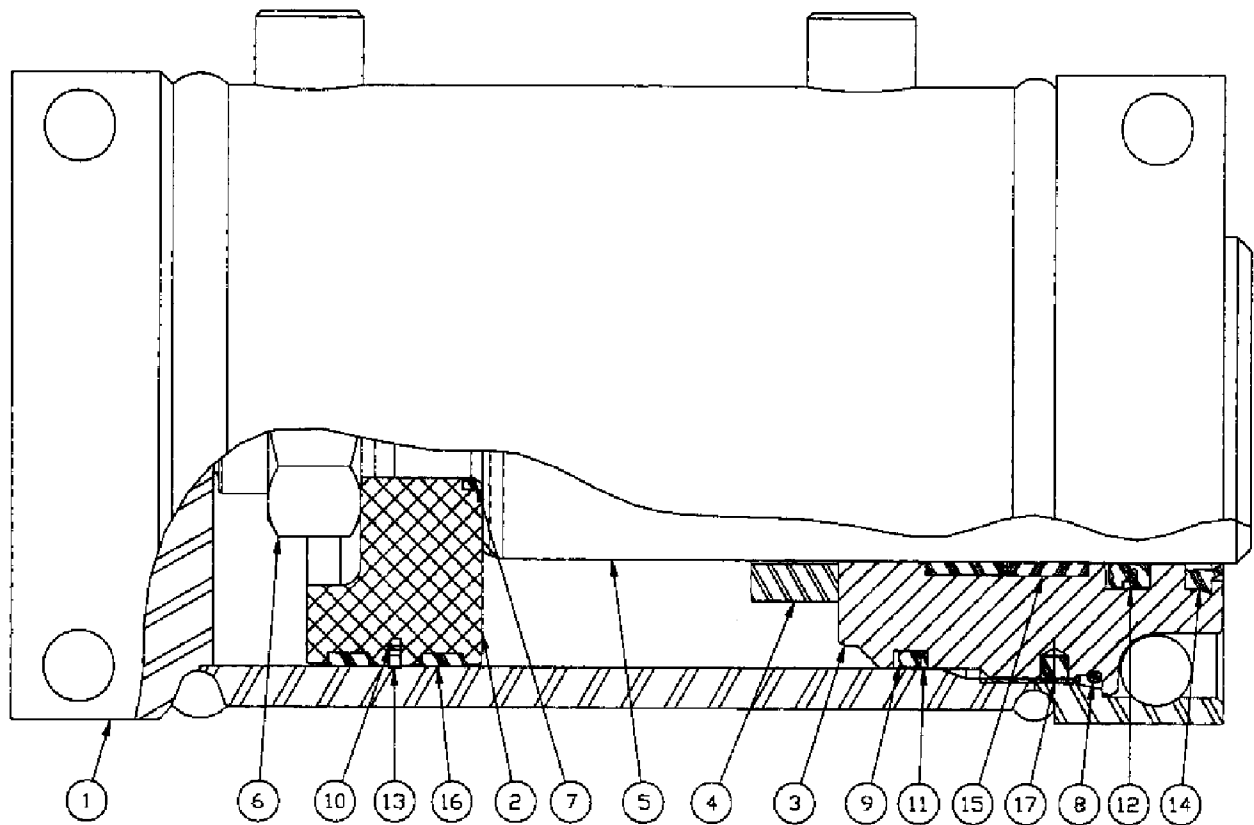
Hydraulic Cylinder Components - 3 x 40 Fig 3-50



Hydraulic Cylinder Components - 3 x 40 Fig 3-50

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		200780001	UNI-RING	1	
2		208331001	RING-BACK UP	2	
3		208332001	O-RING	1	
4		218021011	O-RING	1	
5		209057001	WASHER-BACK UP	1	
6		209058001	U CUP-DOUBLE LIP	1	
7		200808001	WIPER 52-1500	1	
8		223998003	O-RING	2	
9		218496007	LOCK NUT	1	
10		209060001	PISTON	1	
11		224278003	BARREL ASSEMBLY	1	
12		224278005	ROD ASSEMBLY	1	
13		219125011	NT SH SET SCREW	1	
14		218496013	THREADED CAP	1	
15		207403005	CAP HEAD-THREAD	1	
16		202529001	VALVE CART. - CNTR BALANCE	1	
		58035007	REPAIR KIT	1	
		224278001	CYL 3"X40 XCX W/ CB VALVE		INC. REF. 1-16
		207403009	SEAL KIT		INC. REF. 1-7

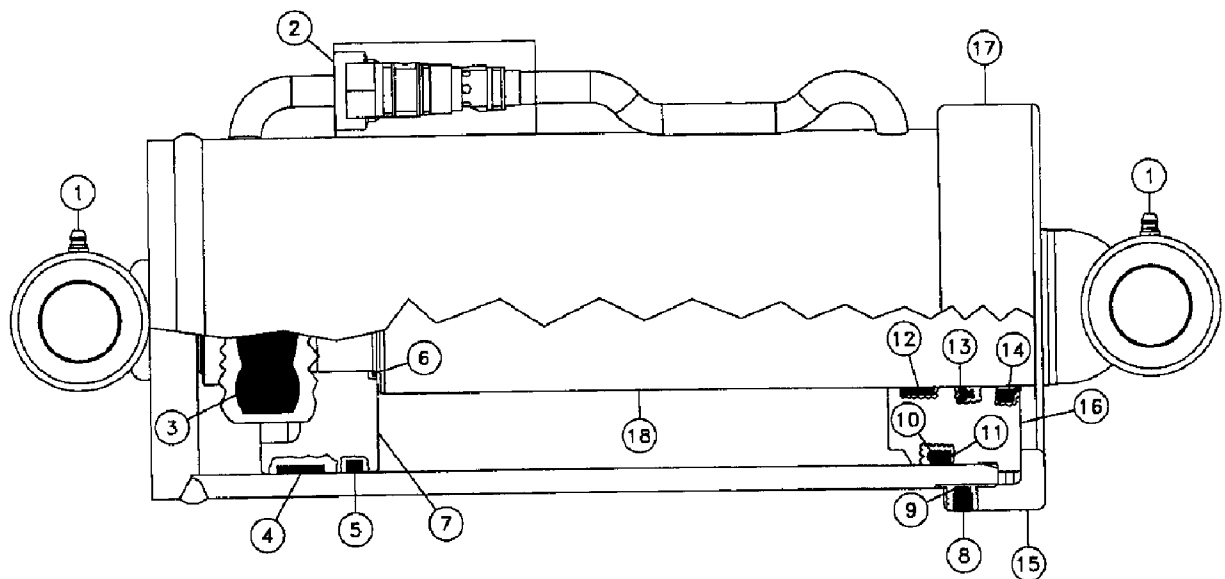
Hydraulic Cylinder Components - 5 x 2 1/2 Fig 3-51



Hydraulic Cylinder Components - 5 x 2 1/2 Fig 3-51

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		244722003	TUBE WELDMENT	1	
2		605973001	PISTON	1	
3		244722013	HEAD GLAND	1	
4		244722005	ROD - SPACER	1	
5		244722007	CYLINDER ROD	1	
6		85777031	NUT-1 1/2" 12 LOCK	1	
7		244722009	O-RING	1	
8		608418001	O-RING	1	
9		605982001	O-RING	1	
10		605983001	SQUARE RING	1	
11		605984001	BACKUP RING	1	
12		244722011	DEEP Z-SEAL W/ ROD BACKUP	1	
13		605986001	SQR SECTION TEE PISTON SEAL	1	
14		117029027	ROD WIPER	1	
15		224478001	CYLINDER-5X96	2	
16		605988001	WEARBAND	2	
17		104012005	LOCKING INSERT	2	
		244722001	CYLINDER - 5" X 2 1/2"		INC. ALL ITEMS IN THIS FIGURE
		244722015	SEAL KIT		INC. REF. 7-17

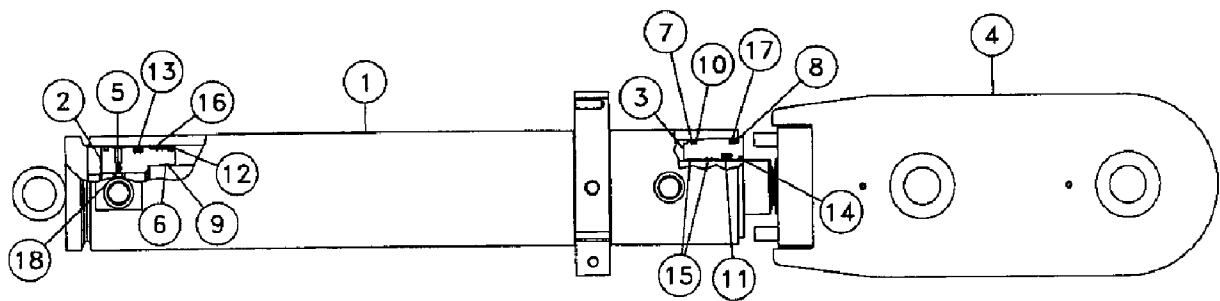
Hydraulic Cylinder Components - 5 x 11 Fig 3-52



Hydraulic Cylinder Components - 5 x 11 Fig 3-52

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		224445007	GREASE FITTING	2	
2		106145011	CHECK VALVE-P.O. CKCB XCN	2	
3		81884005	NUT-1 3/4-12 UTC LOCKNUT	1	
4		85777029	WEARBAND	1	
5		224478021	PSP SEAL	1	
6		610816001	O-RING	1	
7		275273013	PISTON	1	
8		275273007	SET SCREW-5/16-18 UNC X .31	1	
9		112580023	LOCKING INSERT	1	
10		85777019	O-RING	1	
11		89540011	WASHER-BACKUP	1	
12		275273003	WEARBAND	1	
13		275273005	POLYPAK	1	
14		89540007	WIPER-ROD	1	
15		275273015	HEAD GLAND CAP	1	
16		275273011	HEAD GLAND	1	
17		275273017	TUBE WELDMENT	1	
18		275273009	ROD WELDMENT	1	
		275273001	CYLINDER-5"X11 XCX		INC. ALL ITEMS IN THIS FIGURE
		275273019	SEAL KIT		INC. REF. 4-6, 9-13 & 15

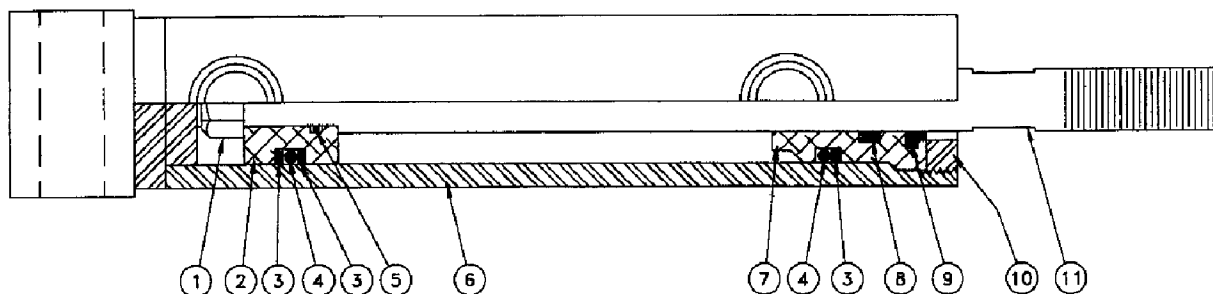
Hydraulic Cylinder Components - 7 x 100 Fig 3-53



Hydraulic Cylinder Components - 7 x 100 Fig 3-53

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
		244691023	SEAL KIT		INC. REF. 6-18
1		244691019	TUBE WELDMENT	1	
2		244691017	PISTON	1	
3		244691015	HEAD GLAND	1	
4		244691013	ROD WELDMENT	1	
5		244691011	SET SCREW-3/8-16 UNC X .75	3	
6		608429001	O-RING	1	
7		117029021	O-RING	1	
8		244691009	O-RING	1	
9		244691007	BACKUP RING	2	
10		117029023	BACKUP RING	1	
11		608549001	DEEP Z-SEAL W/ROD BACKUP	1	
12		244691005	PISTON RING - CAST IRON	2	
13		244691021	CAPPED T-SEAL	1	
14		112580025	ROD WIPER	1	
15		244691003	WEAR BAND	2	
16		117029007	WEARBAND	2	
17		104012005	LOCKING INSERT	2	
18		112580023	LOCKING INSERT	3	
		244691001	CYLINDER - 7" X 100" W/ 4" ROD		INC. REF. 1-18

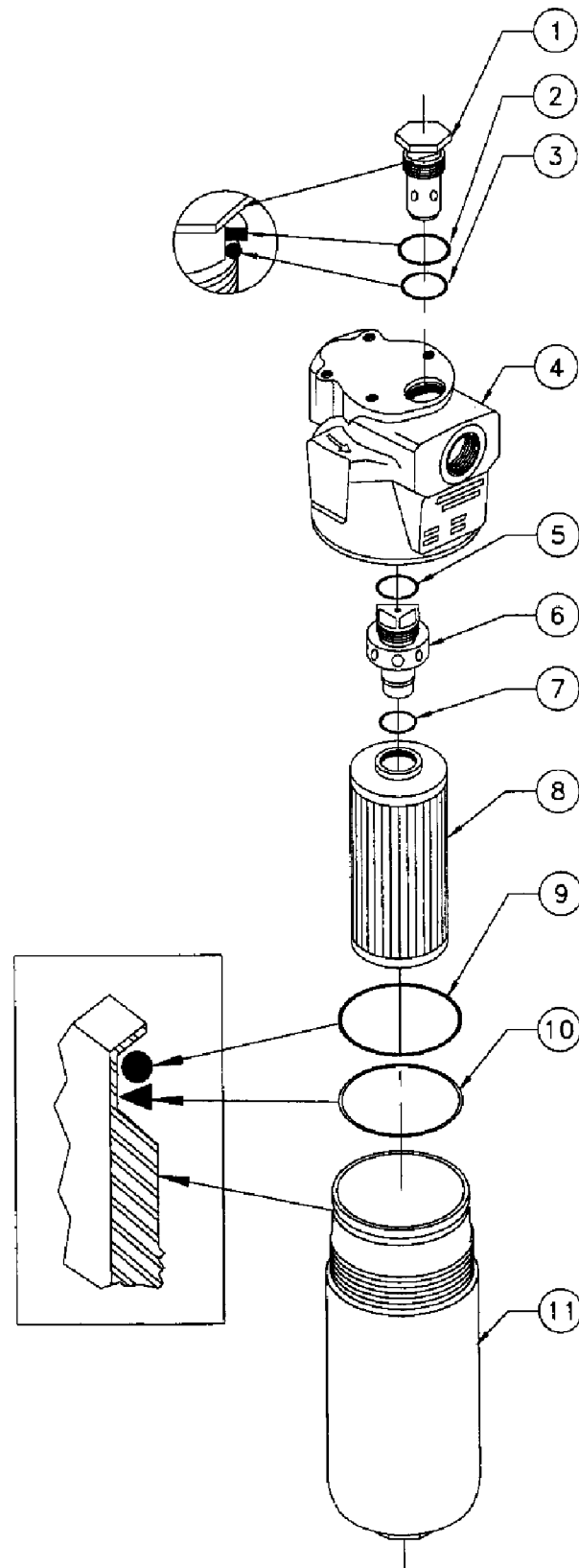
Hydraulic Cylinder Components - 1 x 3 1/2 Fig 3-54



Hydraulic Cylinder Components - 1 x 3 1/2 Fig 3-54

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		234359003	NUT	1	
2		234359005	PISTON	1	
3		68094057	WASHER-BACK-UP	3	
4		68094055	O-RING	1	
5		1749025	SEAL-O RING 15007 (90D)	1	
6		234359017	BARREL	1	W/CLEVIS AND PORTS
7		234359007	HEAD	1	
8		234359009	SEAL-ROD	1	
9		234359011	SEAL-DUST	1	
10		234359013	COLLAR	1	
11		234359015	SHAFT	1	
		234359001	CYLINDER-1X3 1/2		INC. REF. 1-11
		234359019	REPAIR KIT		INC. REF. 3, 4, 5, 8 & 9

Oil Filter Components Fig 3-55



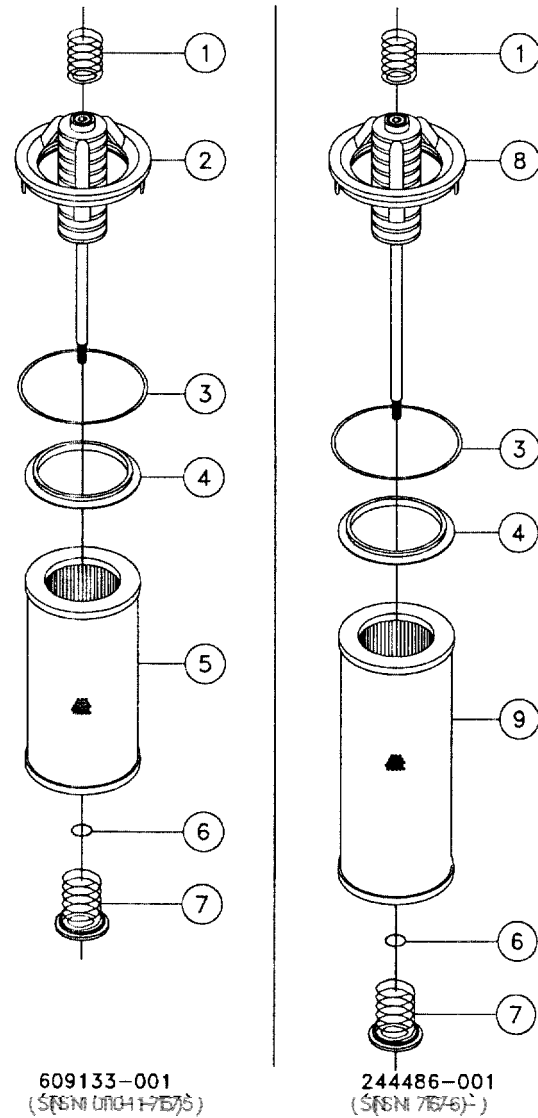
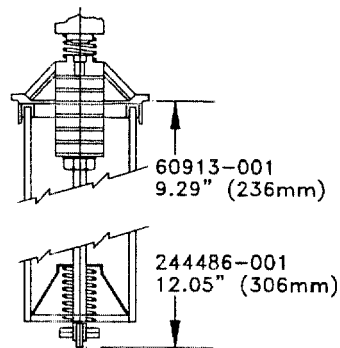
Oil Filter Components Fig 3-55

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		244560003	VALVE - BY-PASS	1	
2		244560005	RING - BY-PASS BACKUP	1	
3		75353003	SEAL-HEAD/BY-PASS HOUSING	1	
4		244560007	HEAD	1	
5		75353013	SEAL-HEAD/MANIFOLD	1	
6		244560009	VALVE - REVERSE FLOW	1	
7		244560011	SEAL - ELEMENT TO ADAPTER	1	
8		244560013	ELEMENT - FILTER	1	
9		244560015	SEAL - HEAD/BOWL	1	
10		244400005	RING-HEAD TO BOWL	1	
11		244560017	BOWL	1	
		244560001	FILTER-HIGH PRESSURE		INC. ALL ITEMS IN THIS FIGURE)

Hydraulic Filter Components Fig 3-56r01

Revised February 2000 due to update
in illustration & parts list. Added parts
marked with *.

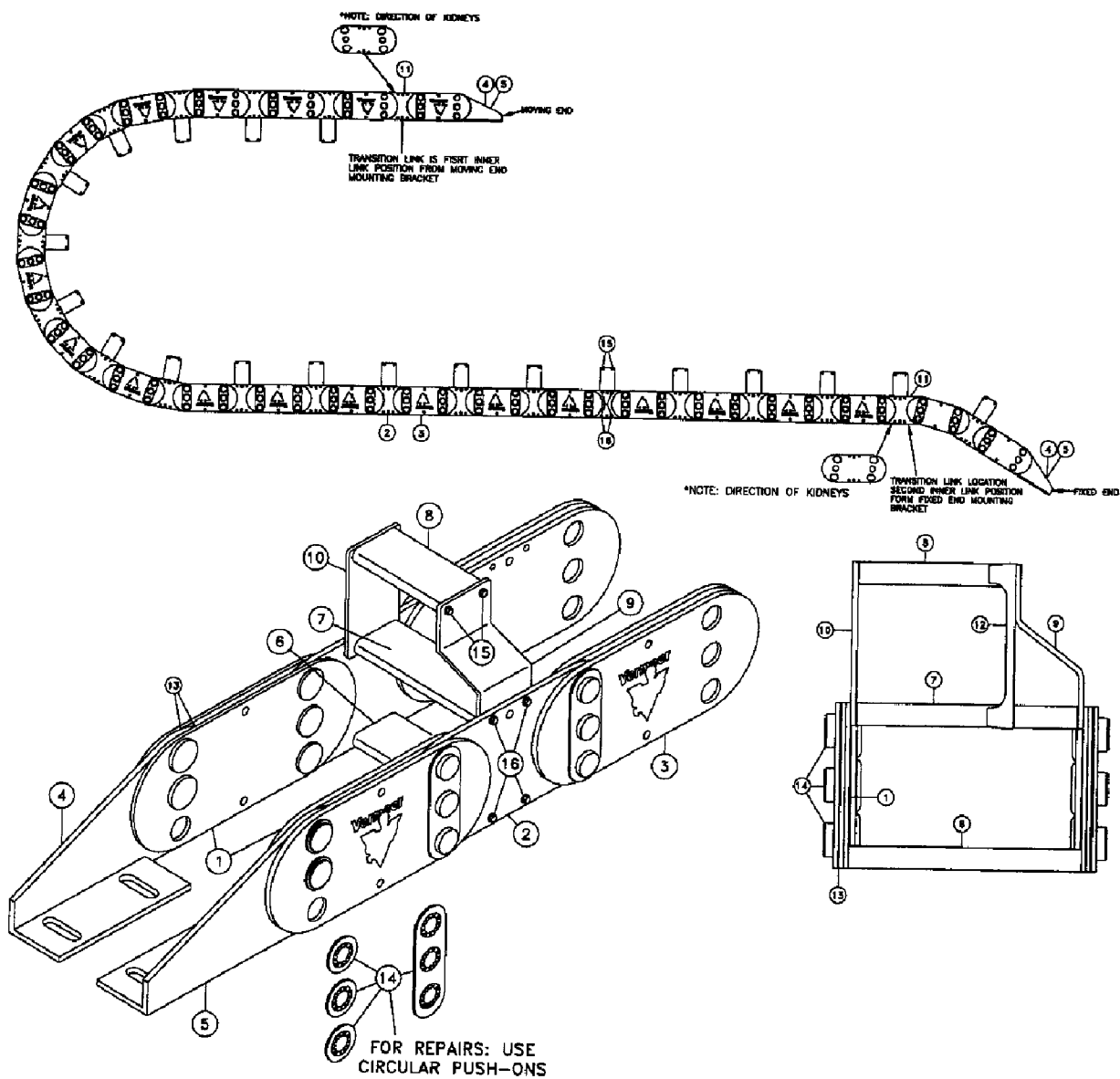
NOTE: WHEN IK850 WAS
INSTALLED, 244486-001
WAS PART OF THE IK,
SO OLDER UNITS MAY
HAVE 244486-001
INSTALLED. REFER TO
ILLUSTRATION BELOW
FOR A QUICK REFERENCE.



Hydraulic Filter Components Fig 3-56r01

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		89671005	SPRING	1	
2		89671009	INSERT ASSEMBLY	1	
3		89671007	SEAL	1	
4		89671011	BYPASS GASKET	1	
5		609133003	FILTER ELEMENT	1	
6		89671013	ELEMENT-O-RING	1	
7		89671015	BYPASS ASSEMBLY	1	
8		244486005	*INSERT ASSEMBLY	1	
9		244486003	*FILTER ELEMENT	1	
		609133001	ASSEMBLY-HYDRAULIC FILTER		Inc. Ref . 1-7
		244486001	*FILTER-HYDRAULIC RETURN		Inc. Ref. 1, 3, 4 & 6-9

Hose Carrier Components Fig 3-57



Hose Carrier Components Fig 3-57

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		234256009	PT45E OUTER LINK	44	
2		275260003	PT45E INNER LINK R18.30	76	
3		234256007	PT45E OUTER LNK W/VRMERLOGO	44	
4		234256003	PT45E MOUNTING BRACKET ASSY	2	(L)
5		234256005	PT45E MOUNTING BRACKET ASSY	2	(R)
6		275260005	PT45E/48E ALUMINUM CHNL 5.258	21	
7		275260007	PT45E/48E ALUMINUM CHNL 5.008	21	
8		275260009	PT45E/48E ALUMINUM CHNL 3.548	21	
9		275260011	BRACKET-ANGLE HOSE CARRIER	21	
10		275260013	BRACKET-STRAIGHT HOSE CARRIER	21	
11		275260015	LINK - TRANSITION PT45E	8	
12		275260017	RETAINER - MODEL PT45G	21	
13		234256011	PT45E ANTI-FRICTION DISC	176	
14		234256017	PT45E HINGE PIN-PUSH ON FASTNR	252	
15		215252017	SCREW-WHIZ LOCK	84	
16		275260019	BOLT - WHIZ LOCK	168	
		275260001	HOSE CARRIER - D80X100		INC. ALL ITEMS IN THIS FIGURE

Miscellaneous Supplies Fig 3-58

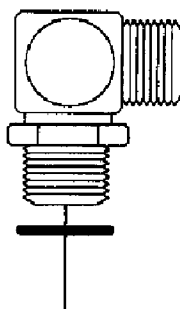
CORDURA SLEEVES

INSIDE DIAMETER	PART NUMBER
.71	83726-001
1.22	66094-001
1.42	67264-001
1.59	69129-001
1.81	53840-001
2.37	53841-001

NOTE: SPECIFY LENGTH WHEN ORDERING

TIE STRAPS

LENGTH	PART NUMBER
4 IN.	78657-001
8 IN.	59634-001
15 IN.	58151-001

O-RINGS

SAE FITTING SIZE	REPLACEMENT O-RING PART NO.
4M	78185-027
5M	53649-081
6M	59088-057
8M	59088-053
10M	792-029
12M	78518-037
14M	64082-019
16M	81580-001
20M	93316-001

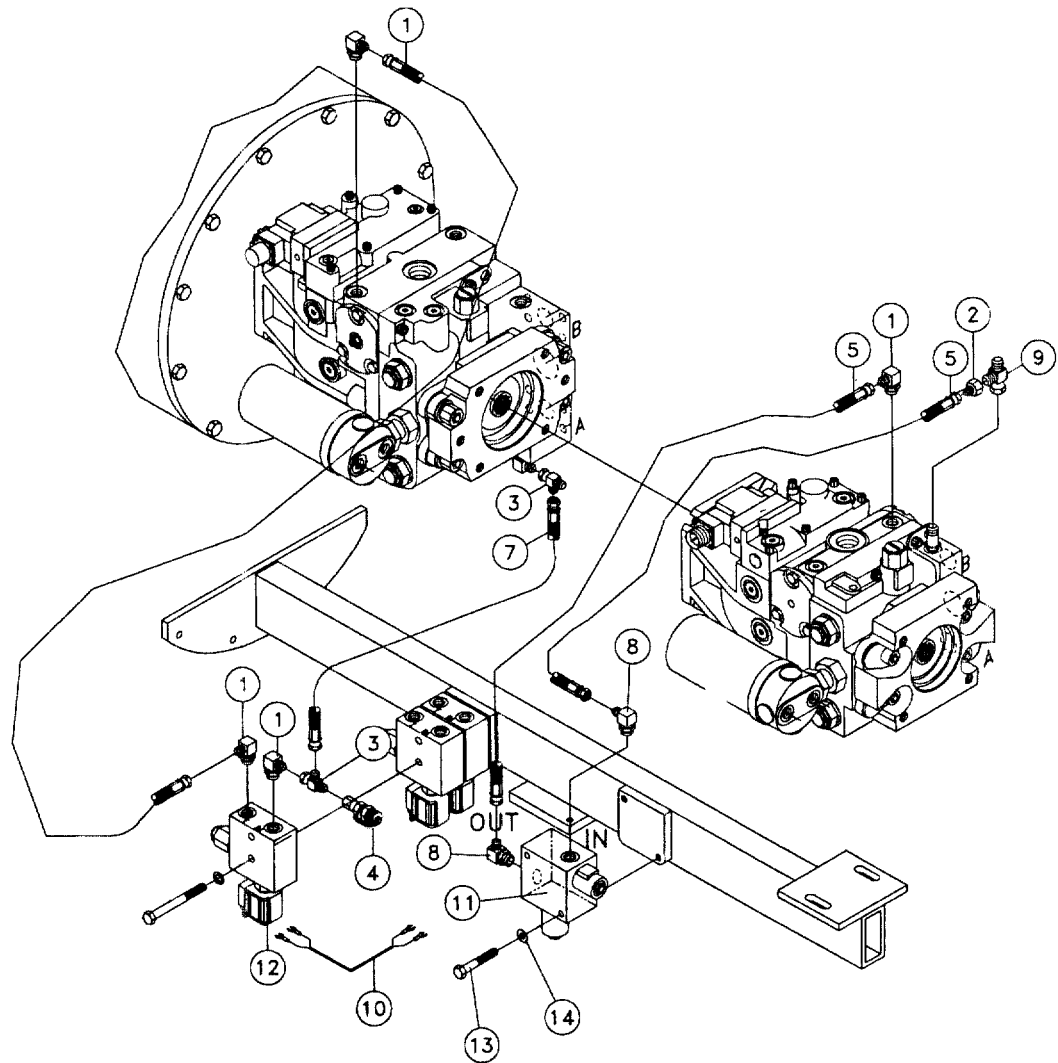
NOTE: O-RINGS LISTED ARE 90 DUROMETER

Miscellaneous Supplies Fig 3-58

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
			CORDURA SLEEVES		
		83726001	INSIDE DIAMETER .71		
		66094001	INSIDE DIAMETER 1.22		
		67264001	INSIDE DIAMETER 1.42		
		69129001	INSIDE DIAMETER 1.59		
		53840001	INSIDE DIAMETER 1.81		
		53841001	INSIDE DIAMETER 2.37		
			NOTE: SPECIFY LENGTH WHEN ORDERING		
			TIE STRAPS		
		78657001	STRAP-CABLE TIE 4 IN.		
		59634001	STRAP-CABLE TIE 8 IN.		
		58151001	STRAP-CABLE TIE 15 IN.		
			O-RINGS		
			REPLACEMENT O-RINGS		
		78185027	SAE FITTING SIZE 4M		
		53649081	SAE FITTING SIZE 5M		
		59088057	SAE FITTING SIZE 6M		
		59088053	SAE FITTING SIZE 8M		
		792029	SAE FITTING SIZE 10M		
		78518037	SAE FITTING SIZE 12M		
		64082019	SAE FITTING SIZE 14M		
		81580001	SAE FITTING SIZE 16M		
		93316001	SAE FITTING SIZE 20M		
			NOTE: O-RINGS LISTED ARE 90 DUROMETER		

Rockfire Valve Assembly Fig 3-59

Revised February 2000 due to
addition of figure to manual.

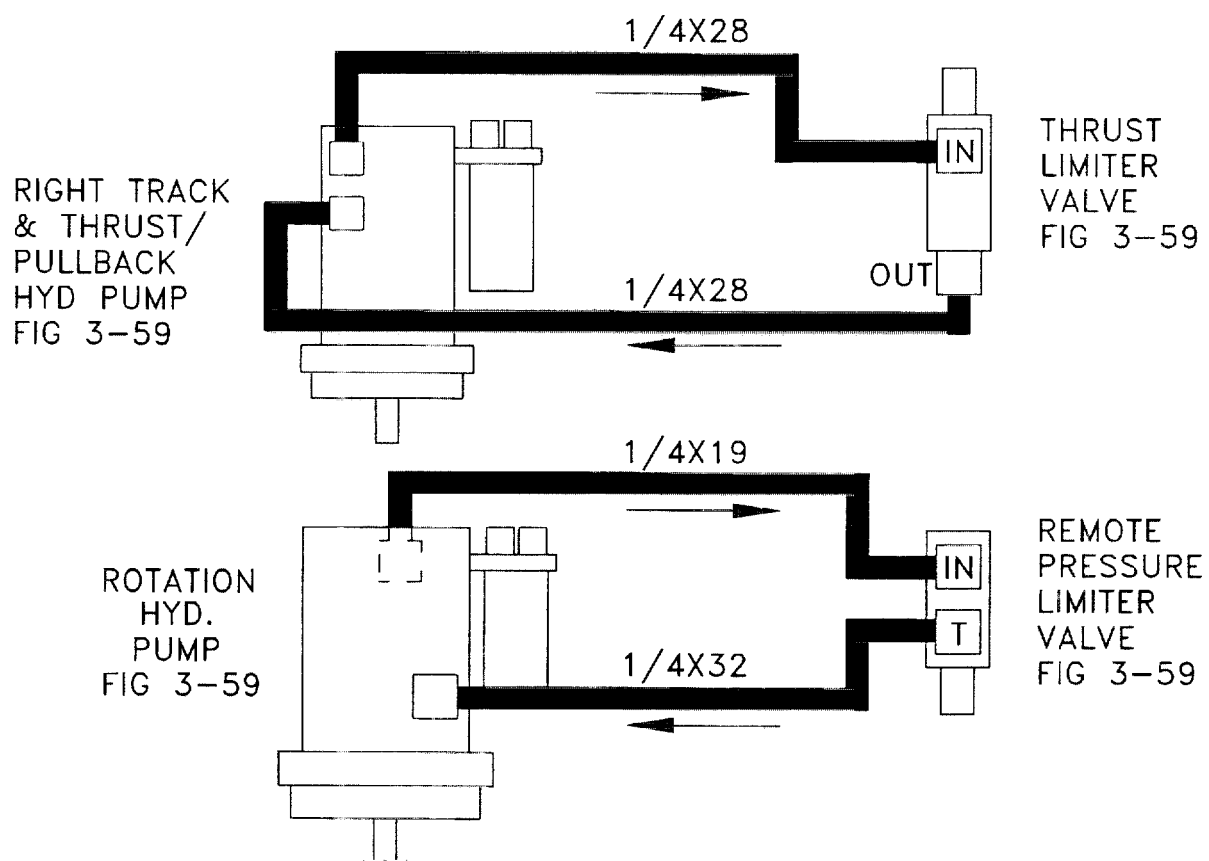


Rockfire Valve Assembly Fig 3-59

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		57950001	FITTING-6M X 4 JIC 90 DEG.	4	
2		59928001	6F JIC X 4M JIC ST REDUCER	1	
3		60248001	TEE-4M JIC X 4M JIC X 4 FS JIC	1	
4		83015001	FITTING-4F JIC DIAGNOSTIC	1	
5		53843181	HOSE-1/4X28 4FS JIC 3000 PSI	2	
6		53843559	HOSE-1/4X32 4FS JIC 3000 PSI	1	
7		275397001	HOSE-1/4X19 4FS JIC ST/ST	1	
8		59423001	FIT-4M JIC X 4M ADJ 90 DEG ELBOW	2	
9		59427001	TEE-6m JIC BCH 6FS JIC X 6M JIC	1	
10		249979001	HARNESS-THRUST LIMITER	1	
11		250131001	VALVE-THRUST LIMITER	1	Breakdown Fig. 3-62
12		250120001	VALVE-REMOTE PRESS LIMITER	1	Breakdown Fig. 3-61
13		244147001	BOLT-5/16-18X2 1/4 GR 8 ZINC PL	1	
14		235714001	WASHER-5/16 SAE HARD ZINC PLTD	2	

Hydraulic Components Location Diagram - Rockfire Fig 3-60

Revised February 2000 due to
addition of figure to manual.

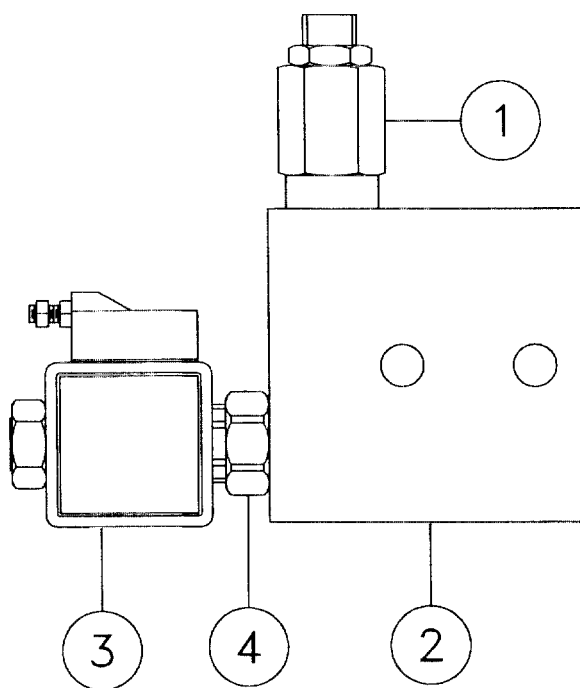


Hydraulic Components Location Diagram - Rockfire Fig 3-60

REF NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS

Pressure Limiter Valve Components - Rockfire Fig 3-61

Revised February 2000 due to
addition of figure to manual.

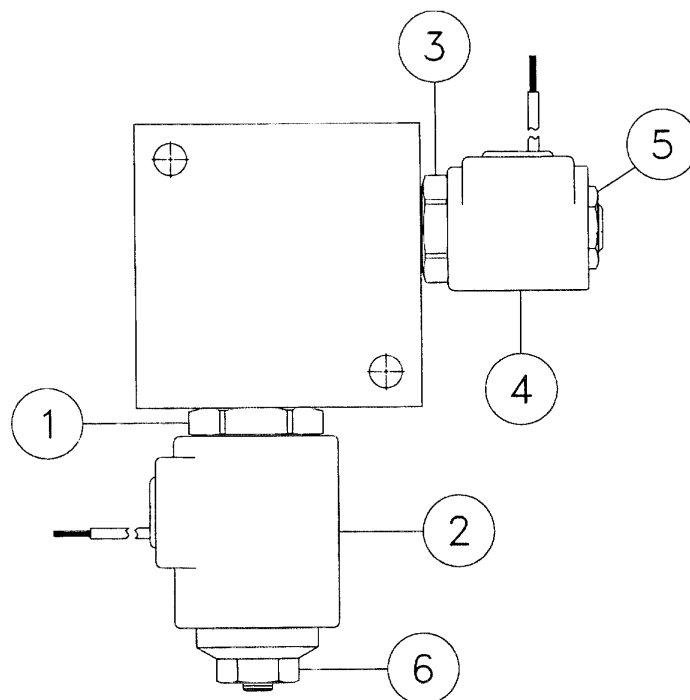


Pressure Limiter Valve Components - Rockfire Fig 3-61

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		250120003	VALVE-RELIEF	1	
1		122618001	SEAL-KIT SOLENOID VALVE	1	
2		NSS	BODY-VALVE	1	
3		251063003	COIL	1	
4		250120005	VALVE-SOLENOID	1	
4		228114007	SEAL KIT	1	
		250120001	VALVE-PRESSURE LIMITER		Includes All Items In Figure

Thrust Limiter Valve Components - Rockfire Fig 3-62

Revised February 2000 due to
addition of figure to manual.

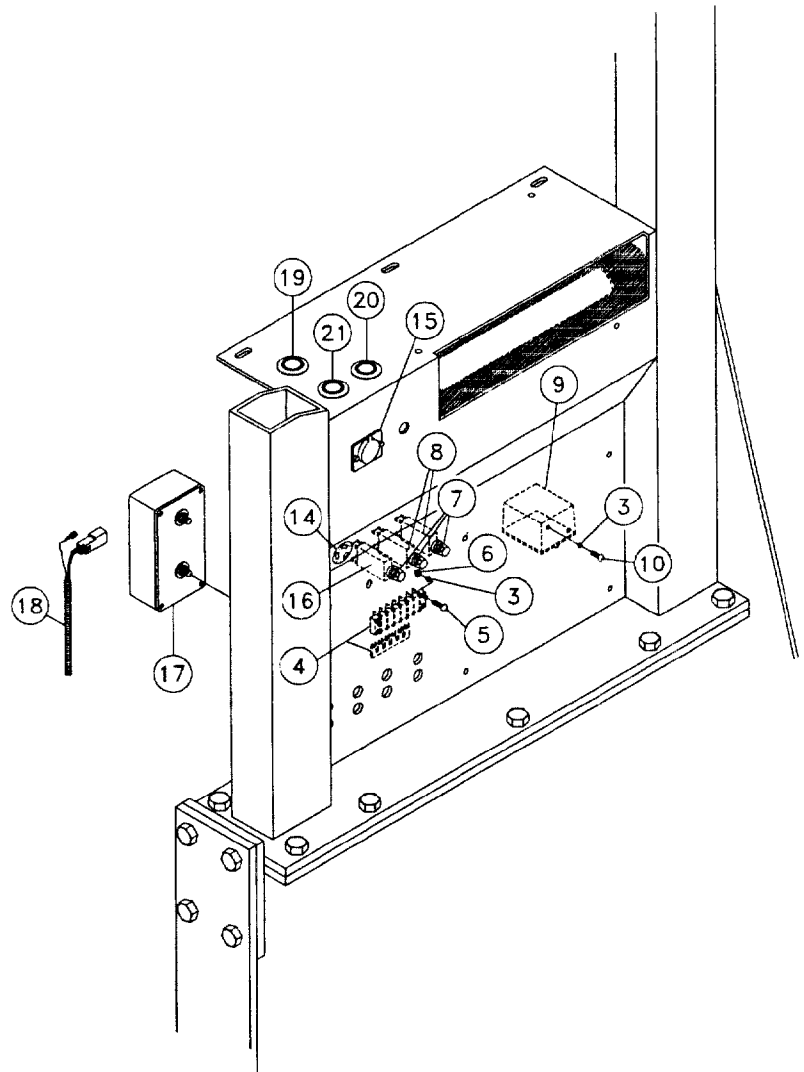
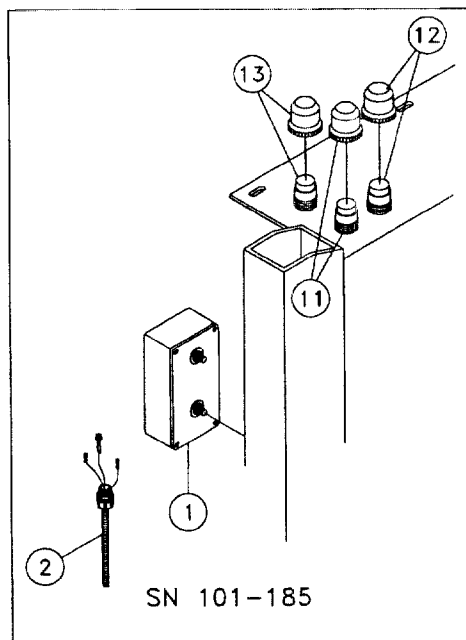


Thrust Limiter Valve Components - Rockfire Fig 3-62

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		250131003	CARTRIDGE-RELIEF W/ PILTD SPL	1	
1		151954001	SEAL KIT	1	
2		251112005	COIL-10DL 12V / SPL	1	
3		250131005	CARTRIDGE-2-WAY NC HP	1	
3		278950003	SEAL KIT	1	
4		251117009	COIL-#8	1	
5		244725007	NUT-COIL	1	
6		250131007	NUT-COIL	1	
		250131001	VALVE-THRUST LIMITER		Inc. All Items In Figure

ROPS Control Panel Assembly Fig 4-1r02

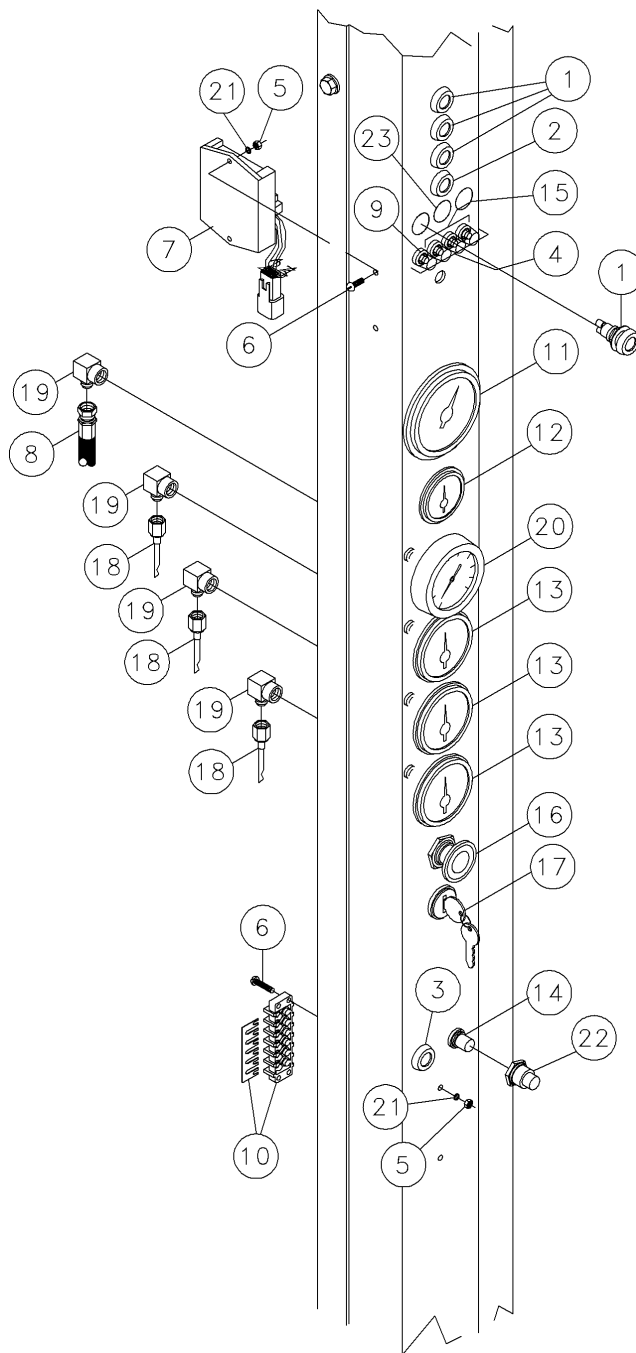
Revised February 2000 due to update
in illustration & parts list. Added parts
marked with *.



ROPS Control Panel Assembly Fig 4-1r02

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		217231001	ZAP ALERT-CURRENT SENSE	1	SN101-195
2		224922001	COIL-CURRENT	1	W/17' COAX CABLE, SN101-195
3		480001	WASHER-3/16 S/T LOCK	4	
4		25199001	TERMINAL-6 POLE W/ JUMPER	1	
5		1802010	BOLT - 3/16" X 1" NC STOVE	2	
6		400001	NUT-3/16 NC HEX	2	
7		89597001	COVER-BREAKER SWITCH	3	
8		78107001	BREAKER-10 AMP	2	
9		98937001	SWITCH-MURPHY 12V/30 SEALED	1	
10		79525001	SCREW-#10-24X1/2 FLHD MACHINE	2	
11		215991001	STRIKE ALERT TEST BUTTON ASSY	1	SN101-195
		215993001	BOOT-GREEN RUBBER	1	
		215994001	BLOCK-N.O. CONTACT	1	
		215992001	BUTTON-GREEN FLUSH CONTACT	1	
12		215995001	STRIKE ALRT RESET BTTN ASSY	1	SN101-195
		215996001	BUTTON-BLACK EXTNDDED CONTCT	1	
		215997001	BOOT-BLACK RUBBER	1	
		215998001	BLOCK-N.C. CONTACT	1	
13		226209001	BUTTON ASSY-CURRENT TEST	1	SN101-195
		215993001	BOOT-GREEN RUBBER	1	
		904423001	CONTACT BLOCK	1	
		215992001	BUTTON-GREEN FLUSH CONTACT	1	
14		904346001	BUZZER	1	
		905001001	BOLT-8-32 X 2 STOVE	2	
		904995001	WASHER-8 INTERNAL STAR	2	
		399001	NUT-8-32 HEX	2	
15		236473001	OUTLET-12 V STAINLESS	1	
		57200001	SCREW-#8-32X1/2 RND. HD. MACH.	2	
		69759001	LOCK NUT-#8-32 NYLON INSERT PL	2	
16		72082001	BREAKER 45-700-514-DD 22 AMP	1	
17		281523001	*ZAP ALERT-CURRENT SENSE	1	SN196-
18		276856001	*COIL-CURRENT W/ 17' COAX CABLE	1	SN196-
19		277697001	*SWITCH-PUSH BTTN ZAP ALERT	1	Current Test, SN196-
20		277695001	*SWTCH-PUSH BTTN ZAP ALRT RST	1	SN196-
21		277696001	*SWTCH-PSH BTN ZAP AL VOLT TST	1	SN196-

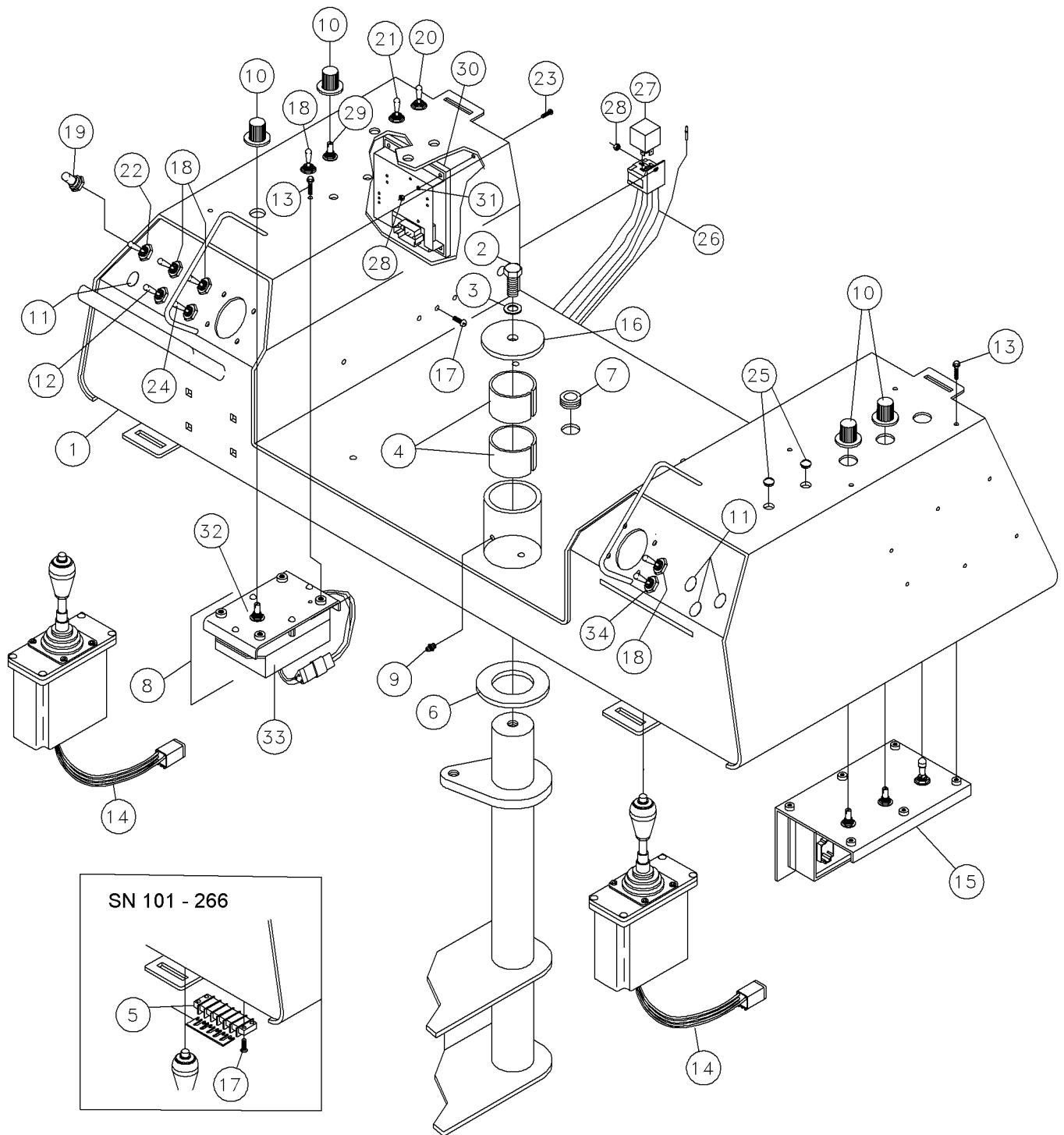
ROPS Control Panel (Continued) Fig 4-2r04



ROPS Control Panel (Continued) Fig 4-2r04

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
		Revision Date	January, 2005		Update In Illustration & Parts List.
1		27148001	LIGHT-RED WARNING	A/R	
		70889001	BULB.#112-1418	A/R	
2		81374001	LIGHT-GREEN WARNING	1	
3		86581001	LIGHT-WARNING	1	AMBER
4		89597001	COVER-BREAKER SWITCH	4	
5		400001	NUT-3/16 NC HEX	4	
6		1802010	BOLT -3/16" X 1" NC STOVE	4	
7		231248001	RELAY-LOW VOLTAGE SENSING	1	SN101-195
		251672001	ELECTRONIC MODULE-DSR CNTRL	1	SN196
8		53843607	HOSE-1/4 X 258 4FS JIC 3000 PSI	1	
9		78107001	BREAKER 10 AMP	4	
10		251991001	TERMINAL-6 POLE W/ JUMPER	1	
11		98933001	GAUGE-TACHOMETER O-3000 RPM	1	
12		201793001	GAUGE-WTR TEMP DATCON 826EM	1	
13		77964001	GAUGE-2 1/2"DIA. -7500 PSI	3	
14		66816001	SWITCH ASSY-#13389	1	
15		72079001	BREAKER-5 AMP	3	
16		277756001	E-STOP SWITCH ASS'Y	1	
		86575001	OPERATOR-PUSH/PULL W/O BTTN	1	
		904563001	E-STOP LENS	1	
		904423001	CONTACT BLOCK	1	
17	*	229801001	SWITCH-IGNITION	1	4 TERMINAL, PN Change
		66462001	KEY-NG- 100/1219 GENERAL	1	
18		244520001	HOSE-.078X 136 4FS JIC ST	3	
19		81665001	FITTING-1/4F X 4M JIC 90 DEG.	4	
20		234343001	GAUGE-PRESS 0-2000 PSI W/GASKT	1	
21		480001	WASHER-3/16 ST LOCK	4	
22		90622001	COVER-PUSH BTTN SWTCH 5/8 X 32	1	
23		97389009	PLUG-3/4" BLACK DOME	A/R	

Control Panel Assembly Fig 4-3r03

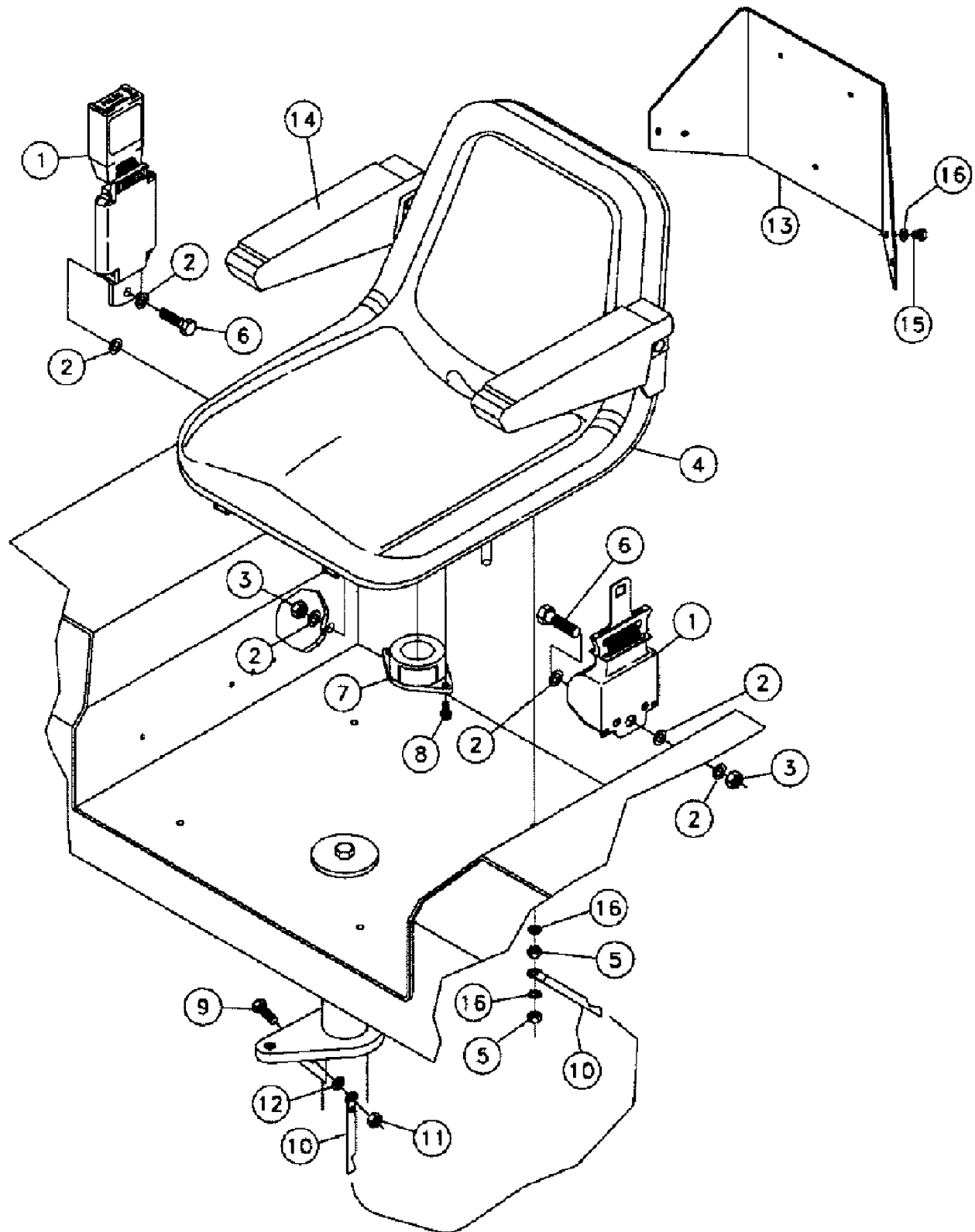


Control Panel Assembly Fig 4-3r03

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
		Revision Date	January, 2005		Update In Illustration & Parts List.
1		216741003	OPERATORS STATION ASSY	1	
2		235729001	BOLT-1/2-13X1 GR8 HEX ZINC PLT	1	
3		485025	WASHER-1/2 FLAT-HARDENED-ZINC	1	
4		85790003	BUSHING-SPRING 2 1/4X2 X 1 1/2	2	
5		251991001	TERMINAL-6 POLE W/ JUMPER	1	SN101-266
6		215200001	WASHER-THRUST	1	
7		1865015	GROMMET-BLACK/5/8ID-3/16 GR.	1	
8		279321001	MODULE-WATER CONTROL	1	Inc. Ref. 32 & 33
9		598001	ZERK-1/4" NF ST GREASE	1	
10		78114001	CONTROL KNOB #409D2K1	4	
11		97389007	PLUG-9/16"BLACK DOME	A/R	
12		210082001	SWITCH-3 POSITION TOGGLE	1	
13		103202001	SCREW-1/4-20X1/2 STH MACHINE	6	
14		234876001	HANDLE-CONTROL	2	
15		277806001	BOX-DRILL/TRANSPORT	1	
16		53276001	WASHER-3 OD X 17/32ID-1/4	1	
17		1802006	BOLT-10-24 X 3/4 RND HD STOVE	3	
18		67292001	SWITCH-TOGGLE 8500K9 SEALED	3	SN101-195
19		5537001	COVER-TOGGLE SWITCH	9	
20		78104001	SWITCH-DPDT MOMENTARY	1	
21		86579001	SWITCH-4 POLE ON-ON-ON	1	
22		86580001	SWITCH-DPST ON-ON	1	
23		1802010	BOLT-3/16X1 NC STOVE	3	
24		57938001	SWITCH-8510K2	1	SN101-189
		78104001	SWITCH-DPDT MOMENTARY	1	SN190-
25		79942001	PLUG-15/32 BUTTON #D2724	2	
26		277830001	HARNESS - WATER CONTROL	1	SN101-195, SN196- Water
27		219137001	RELAY-BOSCH NO/NC 20/30 AMP	1	
28		400001	NUT-3/16 NC HEX	1	
29		244485001	POTENTIOMETER-10K W/ PLUG	1	SN196-
30		251043001	CONTLLER-PWM VALVE DRIVER	1	SN196-
31		480001	WASHER-3/16 ST LOCK	4	SN196-
32		277826001	SWITCH-POTENTIOMETER	1	
33		277836001	MODULE-WATER CONTROL	1	M2904
34		214000001	SWITCH-TOGGLE SP ST MOM	1	SN267-

Seat Assembly Fig 4-4r01

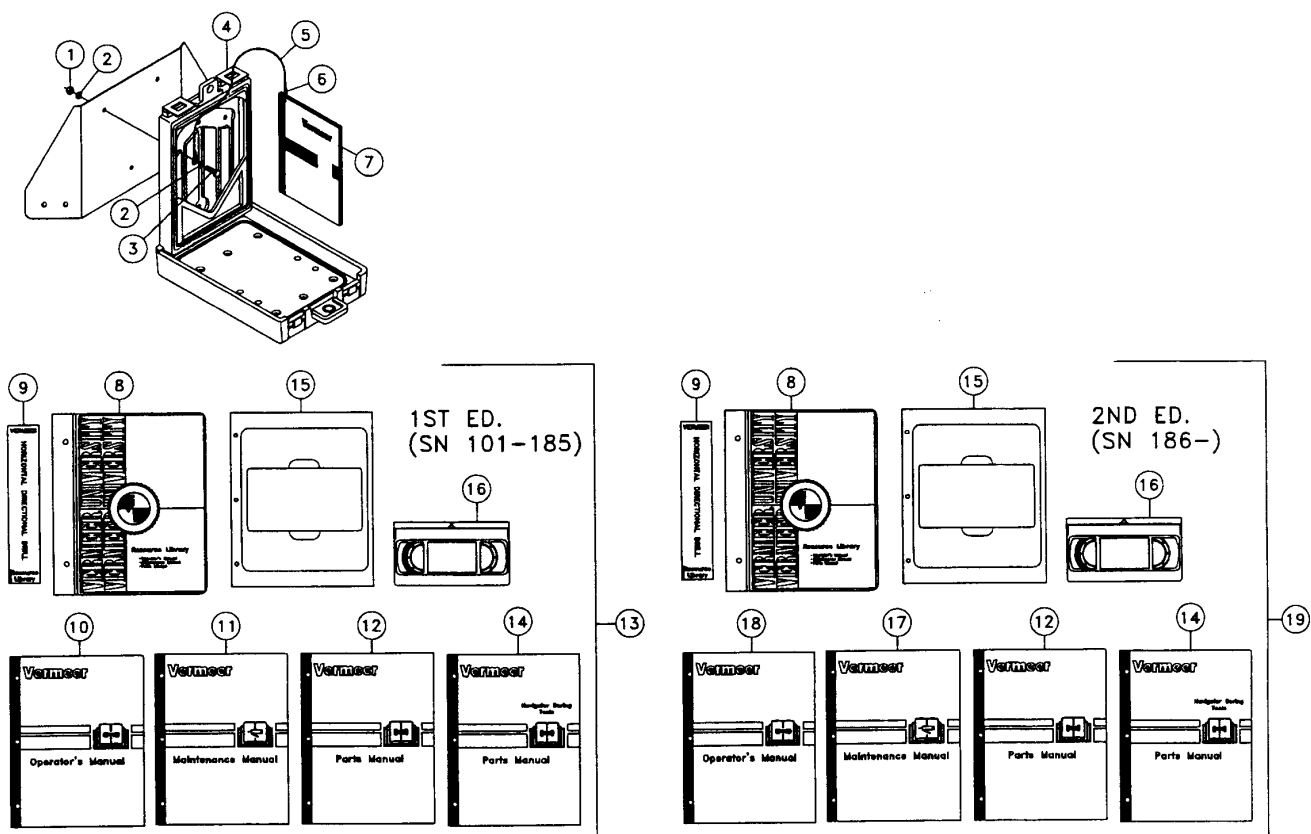
Revised June 1999 due to
update in illustration.



Seat Assembly Fig 4-4r01

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		203254001	2"SEAT BELT F08015	1	
2		250540001	WASHER-7/16 HARDENED FLAT Y/	6	
3		250509001	NUT-7/16-NC GR8 TOP LOCK Y/ZI	2	
4		219186001	SEAT	1	DOES NOT INC. ARM REST KIT
5		235741001	NUT-5/16-18 GR8 ZINC PLTD	5	
6		250584001	7/16-14X1 1/4 GR5 HEX BOLT PL	2	
7		219186003	SWITCH-SAFETY	1	
8		4474004	5/16-18X1/2 FLG WHIZ BOLT	2	
9		235727001	BOLT-3/8-16X1 GR8 HEX ZINC PLT	1	
10		219380001	STRAP-GROUND 4 GA.X12" E-E	1	
11		235725001	NUT-3/8-16 GR8 ZINC PLTD	1	
12		235713001	WASHER-3/8 SAE HARD ZINC PLTD	1	
13		235683001	MOUNT-MANUAL BOX	1	
14		220238001	KIT-ARM REST	1	OPTIONAL, INC. MOUNTING HARDWARE
15		235740001	BOLT-5/16-18X1/2 GR8 ZINC PLT	4	
16		235714001	WASHER-5/16 SAE HARD ZINC PLTD	9	
			Revised June 1999 due to update in illustration.		

Literature Box Assembly Fig 4-5r02

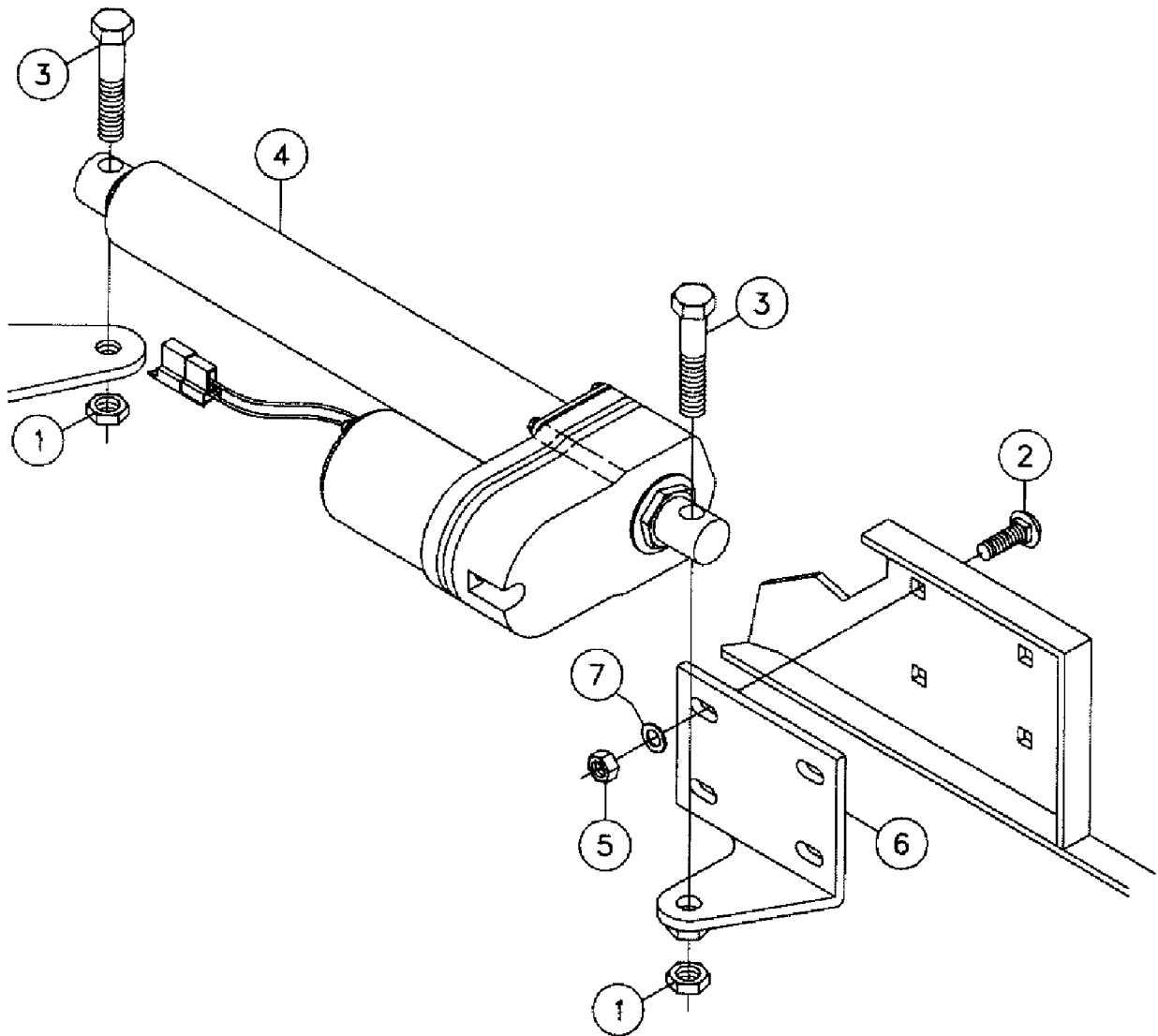


Literature Box Assembly Fig 4-5r02

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		235732001	NUT-1/4-20 GR8 ZINC PLTD	3	
2		235716001	WASHER-1/4 SAE HARD ZINC PLTD	6	
3		235734001	BOLT-1/4-20X3/4 GR8 ZINC PLTD	3	
4		142410001	CASE-6"X9 XCX X1" OPERATOR MANUAL	1	
5		142954001	CABLE-068DIA.NYLON CT.-36.00	1	
6		142423001	CRIMP-CABLE	2	FOR.068DIA.CABLE
7		277790001	OM - D80X100 MINI (EN) 1ST	1	Inc. Ref. 5 & 6, SN10
		284501001	*ASSY-OM MINI D80X100 (EN) 2ND		SN186-
8		144144001	NOTE BOOK BINDER 2"-3 XCX	1	
9		7000B222	DECAL-RESRCE LIB HOR DIR DRILL	1	
10		105400Q70	OM-D80X100 (EN) 1ST	1	SN101-185
11		105400Q72	D80X100 NAVIGATOR MM 1ST ED	1	SN101-185
12		105400Q73	PM-D80X100 1ST	1	
13		280545001	D80X100 RESOURCE LIBRARY ASSY.	1	Inc. Ref. 8-12 & 1
14		105400M37	*NAVIGATOR BORING TOOLS PM	1	
15		144145001	*VHS HOLDER	1	
16		251803001	*VIDEO-FIRESTICK DRILL STEM	1	
17		105400R65	*MM-D80X100 (EN) 2ND	1	SN186-
18		105400R63	*OM-D80X100 (EN) 2ND	1	SN186-
19		284510001	*D80X100A RESOURCE LIBR ASSY		SN186-

Seat Actuator Assembly Fig 4-6r01

Revised June 1999 due to
update in illustration.

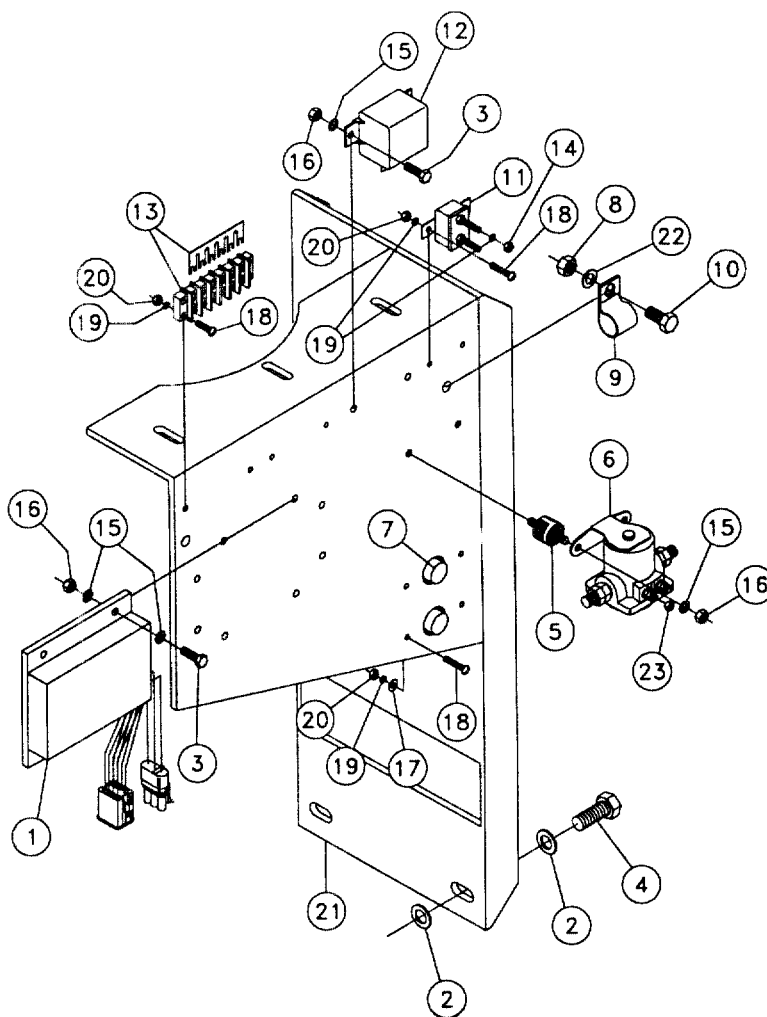


Seat Actuator Assembly Fig 4-6r01

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		235722001	NUT-1/2-13 GR8 JAM ZINC PLTD	2	
2		375010	BOLT-3/8"-16X1"GD#5 CARRIAGE	4	
3		250573001	BOLT-1/2-13 X 2 1/2 GR8 HX Y/Z	2	
4		52864001	ACTUATOR-D12-10A5-06	1	
		52864003	MOTOR-12V DC	1	
		52864005	SEALING KIT	1	
		52864007	INTERMEDIATE GEAR-10:1	1	
		52864009	CLUTCH	1	
5		235725001	NUT-3/8-16 GR8 ZINC PLTD	4	
6		235256001	MOUNT-SWING CYLINDER	1	
7		235713001	WASHER-3/8 SAE HARD ZINC PLTD	4	
			Revised June 1999 due to update in illustration.		

Electrical Panel - Engine Fig 4-7r03

Revised October 1999 due to update
in illustration.

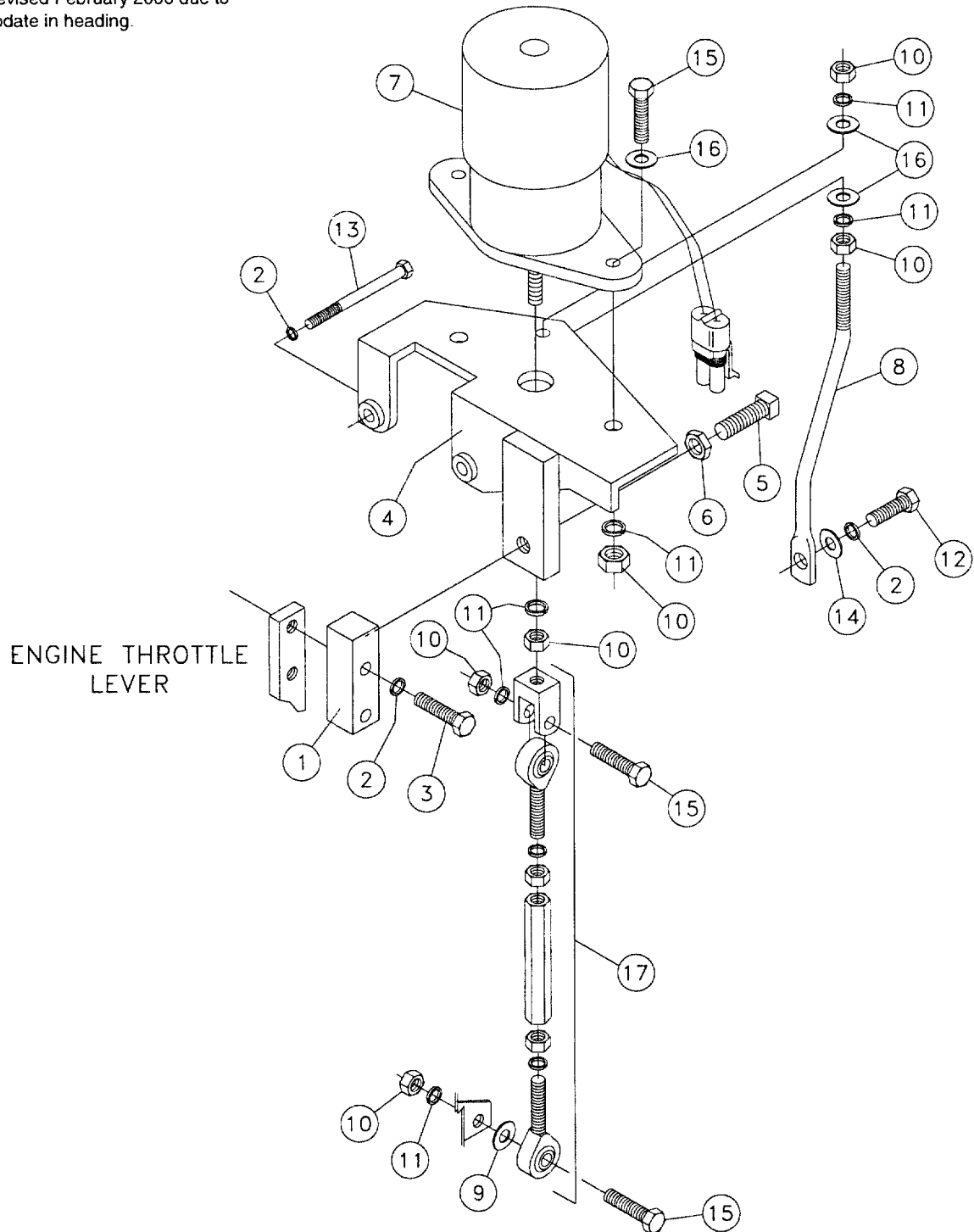


Electrical Panel - Engine Fig 4-7r03

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		277761001	"PROGRAMMED" APECS CONTRLLR	1	
2		238249001	12 MM HARD WASHER Y/ZINC	4	
3		235734001	*BOLT-1/4-20X3/4 GR8 ZINC PLTD	4	
4		100478001	BOLT-M12X1.75X30 DIN933 GR.8.8	2	
5		91306001	MOUNT-SANDWICH DOUBLE STUD	2	
6		81947001	RELAY-STARTER D20F-11450-AA	1	
7		244767001	BREAKER-105 AMP CIRCUIT	2	
8		235725001	NUT-3/8-16 GR8 ZINC PLTD	2	
9		2595007	HOSE CLAMP - TS7J 3/4"	2	
10		235726001	BOLT-3/8-16X3/4 GR8 HEX ZNC PLT	2	
11		86582001	BREAKER-40A TYPE 1 W/MTL CASE	1	
12		86217001	*RELAY-BOSCH SPST 75 AMP SEALD	2	SN101-189
13		251991001	TERMINAL-6 POLE W/JUMPER	1	
14		26692001	*NUT-10-32 NF HEX	4	
15		235716001	WASHER-1/4 SAE HARD ZINC PLTD	12	
16		235732001	*NUT-1/4-20 GR8 ZINC PLTD	6	
17		485001	WASHER-3/16 FLAT	4	
18		1802010	BOLT-3/16" X 1" NC STOVE	8	
19		480001	*WASHER-3/16 S/T LOCK	12	
20		400001	NUT-3/16 NC HEX	8	
21		238527001	BRACKET-MUFFLER SUPPORT	1	
22		235713001	WASHER-3/8 SAE HARD ZINC PLTD	2	

Throttle Solenoid Assembly - SN101-189 Fig 4-8r02

Revised February 2000 due to
update in heading.

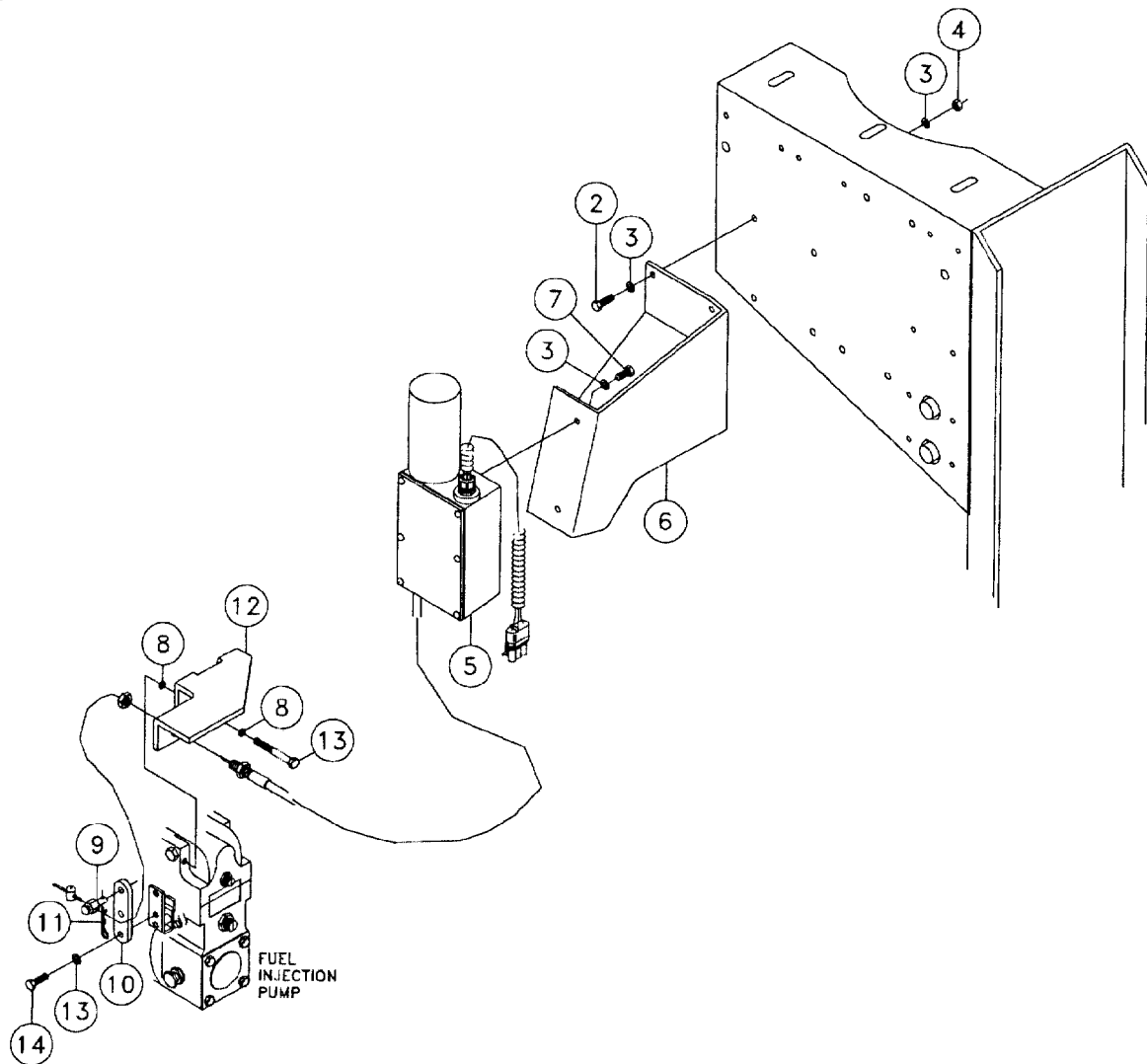


Throttle Solenoid Assembly - SN101-189 Fig 4-8r02

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		244750001	BAR-THROTTLE LINKAGE	1	
2		15693001	WASHER-#6M LOCK	3	
3		208244001	BOLT-6M X 25M HEX METRIC	2	
4		244751001	MOUNT-THROTTLE SOLENOID	1	
5		548012	SQ HSS-5/16-18X1 1/4	1	
6		407001	NUT05/16 NC HEX JAM	1	
7		244756001	ACTUATOR-APECS 2000	1	
8		NSS	SUPPORT ROD	1	
9		NSS	WASHER-FLAT	1	.090"THICK
10		4734001	NUT-1/4-28 NF HEX	6	
11		480003	WASHER-1/4 S/T LOCK	10	
12		17391001	BOLT-6MX15M HEX METRIC	1	
13		NSS	BOLT-M6X55 MM HEX METRIC	2	
14		15694001	WASHER-#6M FLAT	1	
15		13395010	BOLT-1/4-28X1 HEX	4	
16		485003	WASHER-1/4 FLAT	4	
17		244757005	LINKAGE KIT	1	

Throttle Solenoid Assembly - SN190- Fig 4-8x01r02

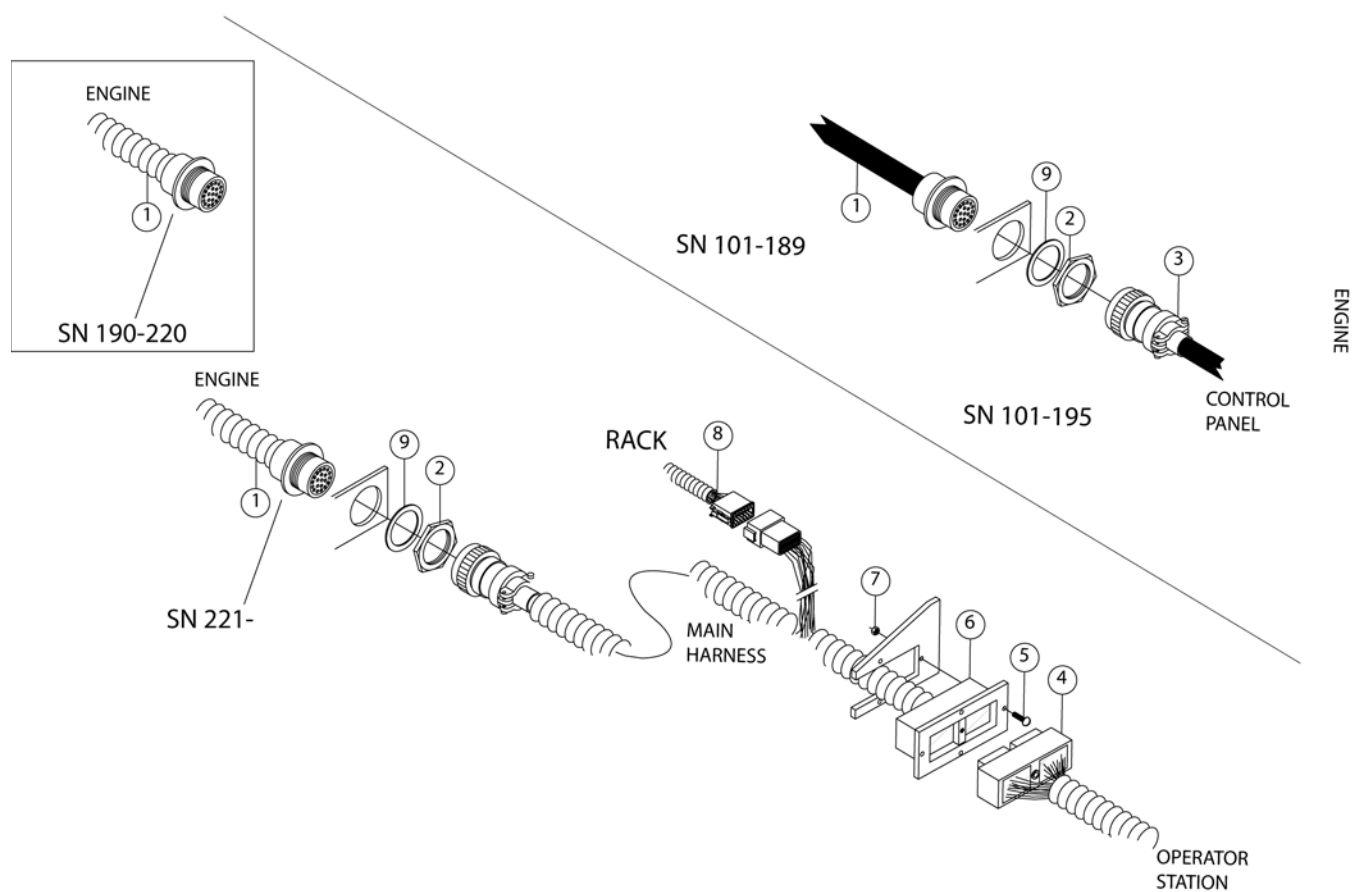
Revised February 2000 due to
addition of figure to manual.



Throttle Solenoid Assembly - SN190- Fig 4-8x01r02

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		86217001	RELAY-BOSCH PST 75 AMP SEALED	1	
2		235734001	BOLT-1/4-20X3/4 GR 8 ZINC PLTD	4	
3		235716001	WASHER-1/4 SAE HARD ZIN PLTD	10	
4		235732001	NUT-1/4-20 GR 8 ZINC PLTD	2	
5		278758001	SOLENOID-THROTTLE	1	
6		287023001	MOUNT-THROTTLE	1	
7		235733001	BOLT-1/4-20X1/2 GR 8 ZINC PLTD	2	
8		15693001	WASHER-#6M LOCK	6	
9		2809001	PIVOT	1	
10		251205001	BAR-THROTTLE ARM	1	
11		1794007	HARI PIN COTTER-.080 WIRE	1	
12		287022001	PLATE-THROTTLE CABLE	1	
13		287017001	BOLT-6M X 55 MM HEX ZINC PLTD	2	
14		208244001	BOLT-6M X 25M HEX METRIC	2	

Wire Harness Assembly Fig 4-9r03

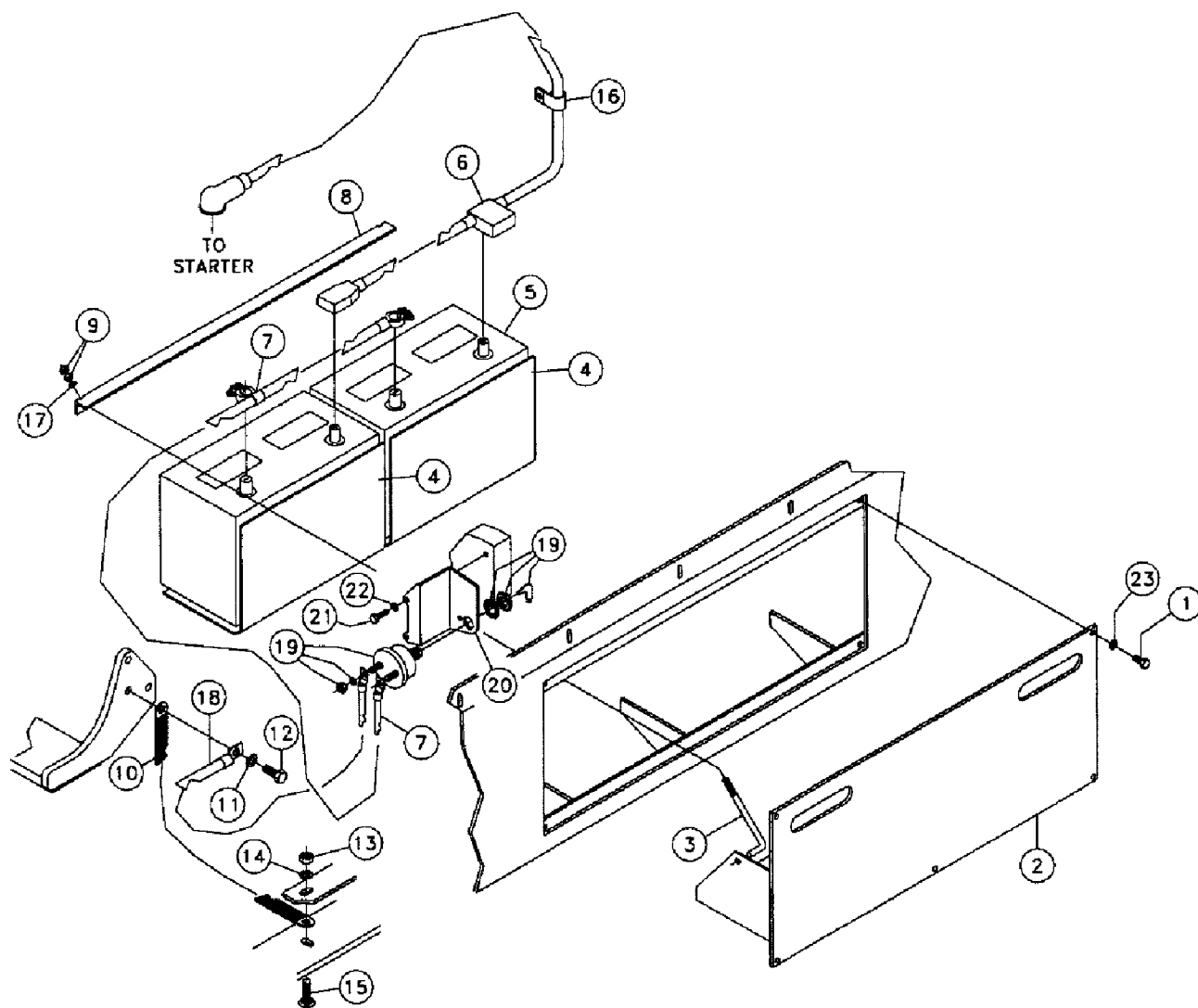


Wire Harness Assembly Fig 4-9r03

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
		Revision Date	January, 2005		Update In Illustration & Parts List.
1		277758001	HARNESS-D80X100 ENGINE WIRE	1	SN101-189
		278203001	HARNESS-ENGINE WIRE	1	SN190-220
	*	279807001	HARNESS-ENGINE WIRE	1	SN221-, PN Added
2		87697003	NUT-PANEL	1	SN101-195
3		238582001	HARNESS-D50X100A WIRE	1	
4		244975001	HARNESS-D50/80 OPER STATION	1	SN196-266
	*	279812001	HARNESS-D50/D80 MAIN WIRE	1	SN267-, PN Added
5		10530012	SCREW-8-32X1 1/4 RD HD SLT MACH	3	SN196-
6		244974001	HARNESS-D50/80 MAIN WIRE	1	SN196-266
	*	279813001	HARNESS D50/D80 OPER STATION	1	SN267-, PN Added
7		69759001	LOCK NUT-#8-32 NYLON INSERT PL	3	SN196-
8		276848001	HARNESS-D50/80 RACK WIRE	1	SN196-
9		87697005	WASHER-LOCK	1	

Battery Assembly Fig 4-10r01

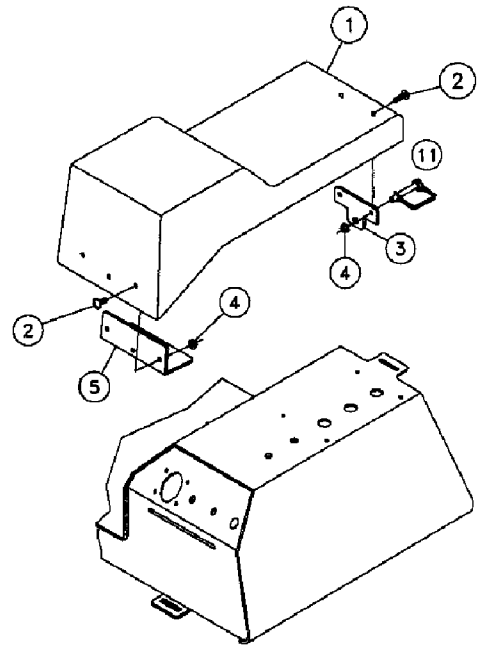
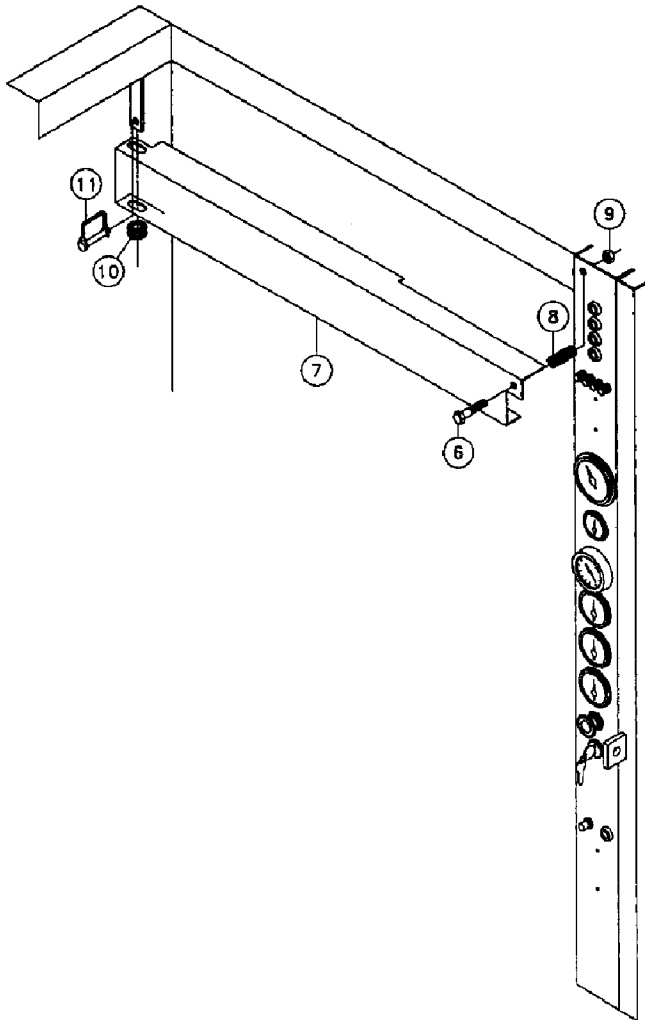
Revised June 1999 due to update
in illustration & parts list. Changed
parts marked with *.



Battery Assembly Fig 4-10r01

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		235726001	BOLT-3/8-16X3/4 GR8 HEX ZNCPLT	6	
2		238592001	DOOR-BATTERY ACCESS	1	
3		240880001	BOLT-BATTERY ANCHOR	2	
4		903884001	PAD-BATTERY	2	
5		N/A	BATTERY	2	
6		226058001	CABLE-BATTERY 2/0 GA.X58"P-P-E	1	
7		280531001	* CABLE-BTTRY 2/0 GA.28 N-NE BLK	1	
8		225353001	HOLDDOWN-BATTERY	1	
9		235741001	NUT-5/16-18 GR8 ZINC PLTD	4	
10		218260001	STRAP-4GA.X18"E-E BRAIDED GRND	1	
11		238249001	12 MM HARD WASHER Y/ZINC	1	
12		100478001	* BOLT-12M X 1.75X30 GR.8 DIN 933	1	
13		235731001	NUT-1/2-13 GR8 ZINC PLTD	1	
14		485025	WASHER-1/2 FLAT-HARDENED-ZINC	1	
15		275366001	BOLT-1/2-13UNCX1 1/4 CAR GR8 Z	1	
16		2595007	HOSE CLAMP - TS7J 3/4"	2	
17		235714001	WASHER-5/16 SAE HARD ZINC PLTD	2	
18		228400001	CABLE-BATT. 2/0 GA.X15"E-E BLK	1	
19		904365001	DISCONNECT SWITCH	1	
		87356001	SWITCH-1754 SPST W/ KEY	1	
20		251404001	MOUNT-SWITCH	1	
21		119512001	BOLT-M8 X 1.25-25MM HEX HEAD	2	
22		250517001	8MM HARD WASHER Y/ZINC	2	
23		235713001	WASHER-3/8 SAE HARD ZINC	6	
			Revised June 1999 due to update in illustration & parts list. Changed parts marked with *.		

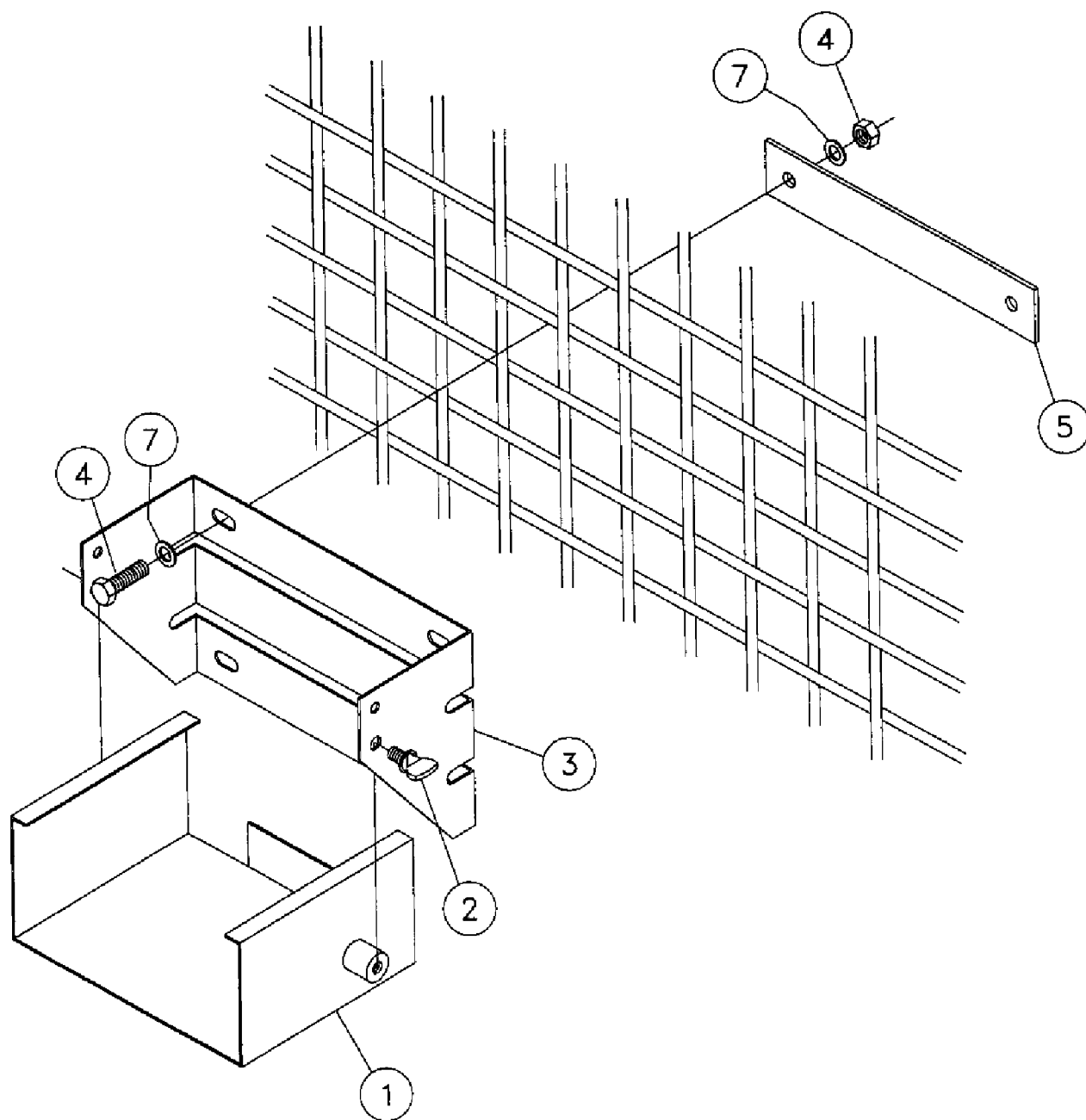
Vandal Shield Assembly Fig 4-11r01



Vandal Shield Assembly Fig 4-11r01

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		234393001	VANDAL SHIELD-OPERATOR SEAT	2	
2		20666001	BOLT-5/16-18X3/4 GR5 TRUSS HD	10	
3		234394001	PLATE-SHIELD CLIP	2	
4		408001	NUT-5/16 NC FLG WHIZ LOCK	10	
5		234395001	PLATE-SHIELD CLIP	2	
6		235744001	BOLT-1/2-13X2 3/4 GR8 ZNC PLTD	1	
7		234408001	VANDAL SHIELD-ROPS POST	1	
8		1803019	SPRING - COMP. #48 2 1/2" OA	1	
9		75382001	NUT-1/2-UNC GRADE 8 SLTL	1	
10		1865009	GROMMET - 2875	1	
11		2108001	LYNCH PIN - 1/4 X 2	2	

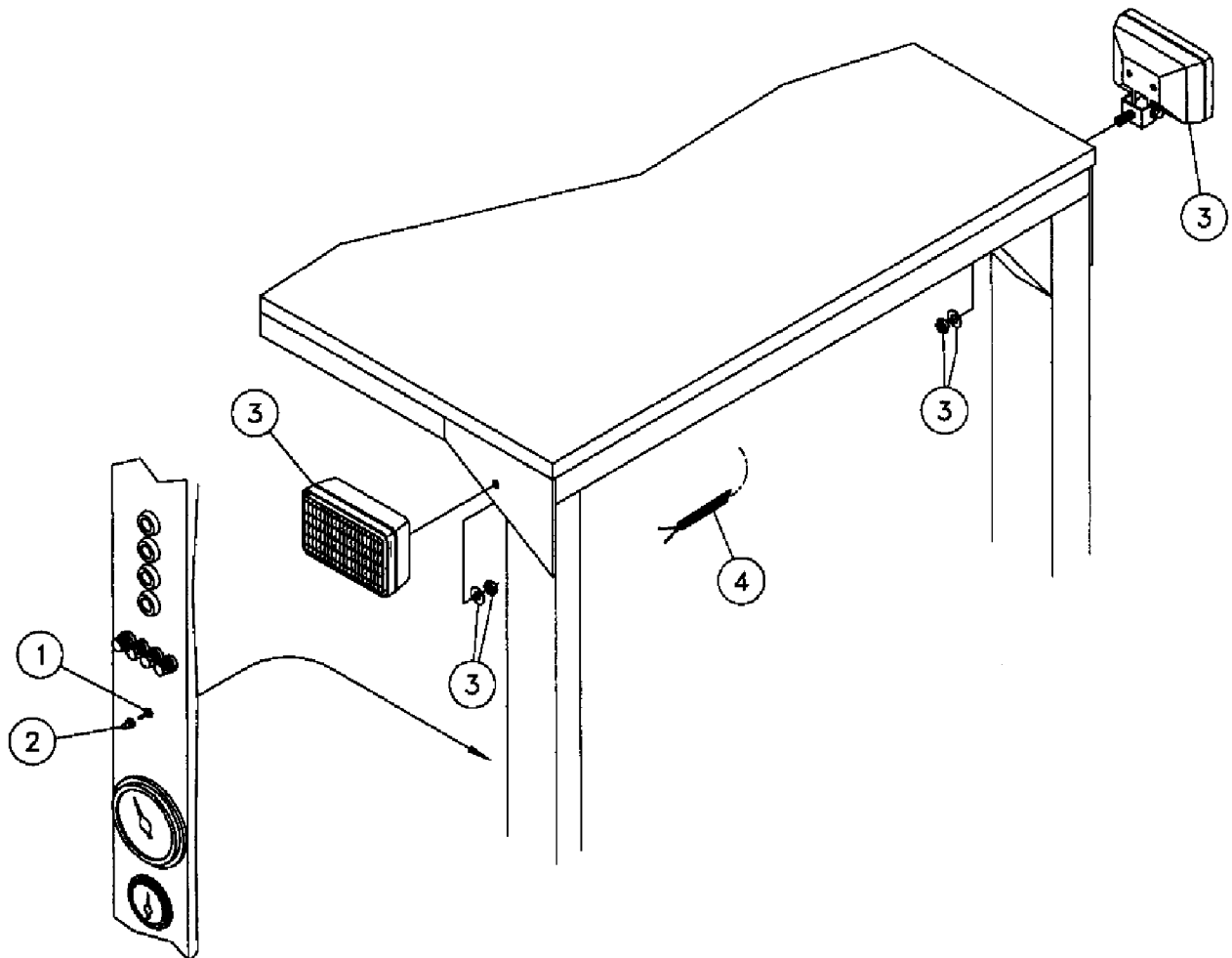
Remote Locator Holder Assembly Fig 4-12



Remote Locator Holder Assembly Fig 4-12

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		234369001	HOLDER-REMOTE LOCATOR RCVR	1	
2		234475001	BOLT-5/16-18 X 1/2 THUMB SCREW	2	
3		234368001	PLATE-REMOTE BRACKET	1	
4		235736001	BOLT-3/8"-16X1 1/4"GD8 ZINC	4	
5		234377001	PLATE-REMOTE HOLDER BACK	2	
6		235725001	NUT-3/8-16 GR 8 ZINC	4	
7		235713001	WASHER-3/8" SAE HARD ZINC	8	

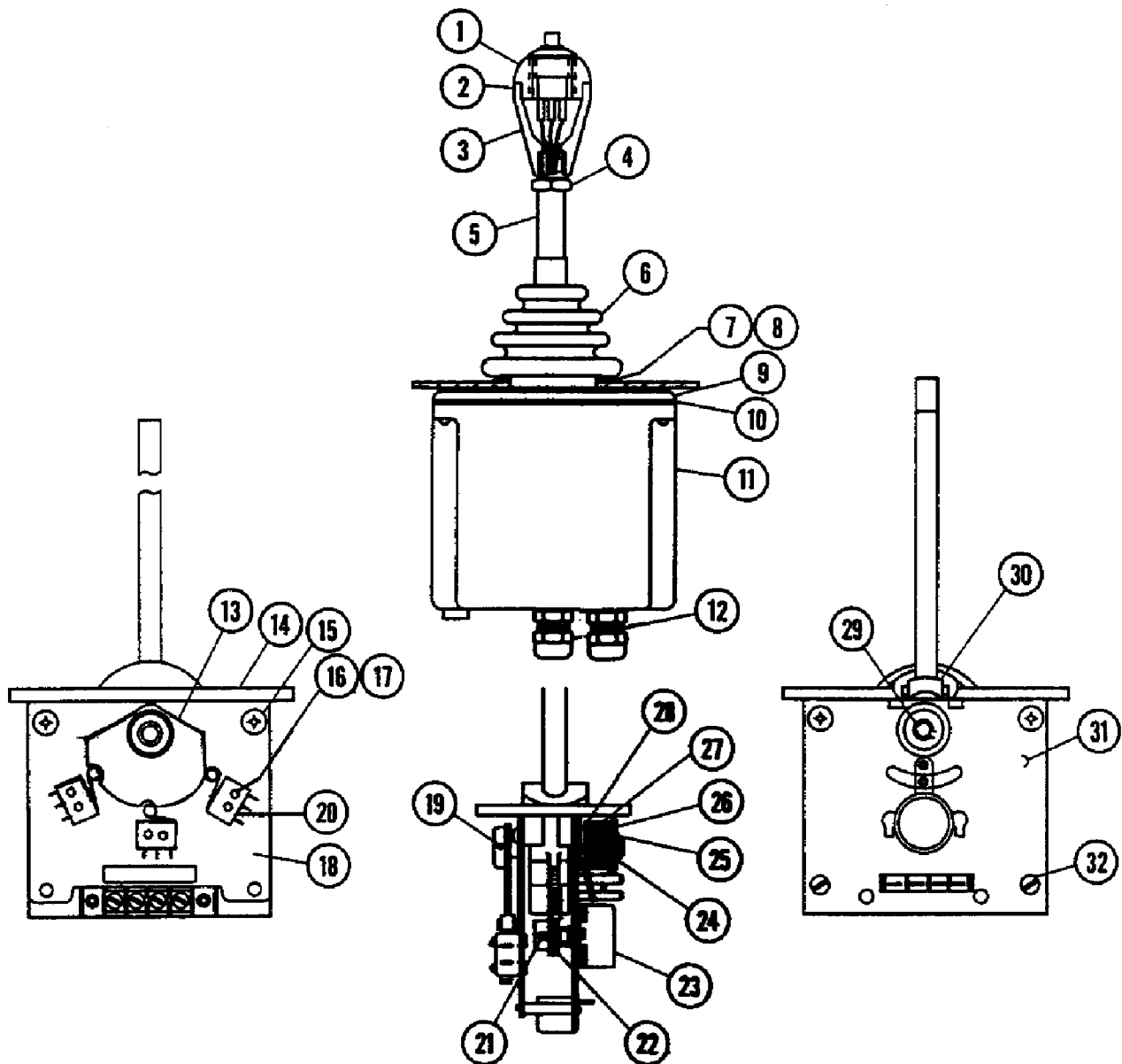
Work Light Assembly Fig 4-13r01



Work Light Assembly Fig 4-13r01

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		67292001	SWITCH-TOGGLE 8500K9 SEALED	1	
2		5537001	COVER-TOGGLE SWITCH	1	
3		215861001	LIGHT-3 X 5 FLOOD	2	
4		244772001	HARNESS-LIGHT	1	

Control Handle Components Fig 4-14

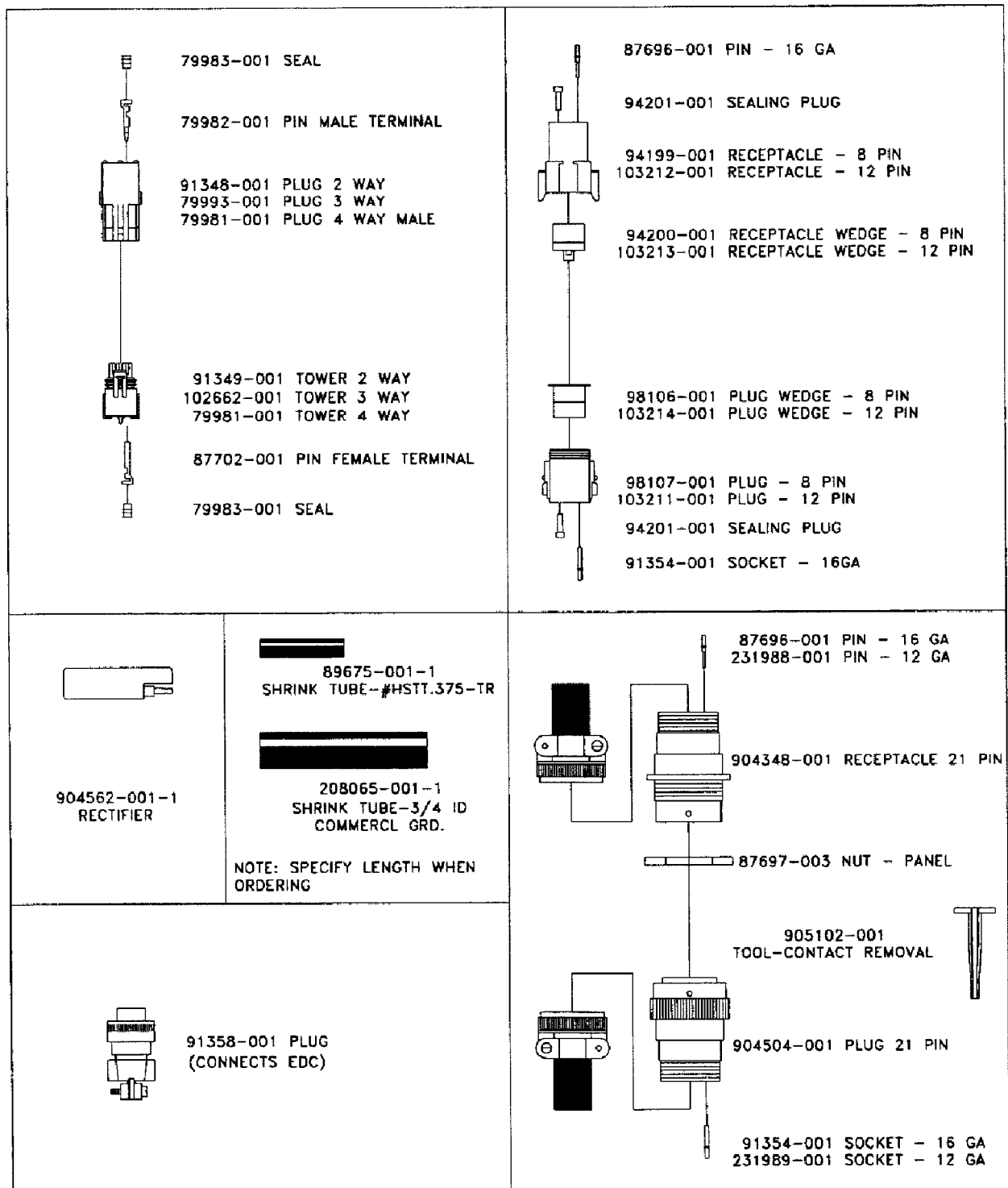


Control Handle Components Fig 4-14

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		224294003	SWITCH& TOP KNOB ASSEMBLY	1	
2		224294005	SET SCREW	2	
3		224294007	KNOB	1	
4		413001	NUT-3/8 NC HEX JAM	1	
5		224294031	LEVER	1	
6		119701009	BOOT	1	
7		67708001	SCREW	4	
8		67707001	BUSHING	4	
9		67712001	BUTTON	4	
10		67723001	GASKET	1	
11		67724001	CASE	1	
12		69892005	CONNECTOR	2	
13		224294009	CAM ASSEMBLY	1	
14		119701007	COVER	1	
15		103733005	SCREW	2	
16		234876003	SCREW-2-56X9/16	6	
17		89807005	PLATE-SPACER	3	
		89807007	PLATE-MOUNTING	3	THREADED
18		234876005	SWITCH PLATE ASSY	1	
19		204734011	SET SCREW	1	
20		234876007	SWITCH-MICRO SUB MIN.	3	
21		103733003	SET SCREW	1	
22		96070011	GEAR-SPUR	1	
23		234876009	POTENTIOMETER	1	
24		224294015	WASHER-FLAT	1	
25		224294017	WASHER-FLAT	1	NYLON
26		224294019	BUSHING-OUTER	1	PLASTIC
27		96070005	SPRING	1	
28		224294021	BUSHING-INNER	1	PLASTIC
29		224294023	RETAINER RING	1	
30		224294025	GEAR SEGMENT ASSEMBLY	1	
31		224294027	POTENTIOMETER PLATE ASSY	1	
32		224294029	SCREW-PAN HEAD	2	
		234876001	HANDLE-CONTROL		COMPLETE, INC. ALL ITEMS IN THIS FIGURE

Harness Plug Components Fig 4-15r01

Revised June 1999 due to update
& addition of shrink tube & rectifier.

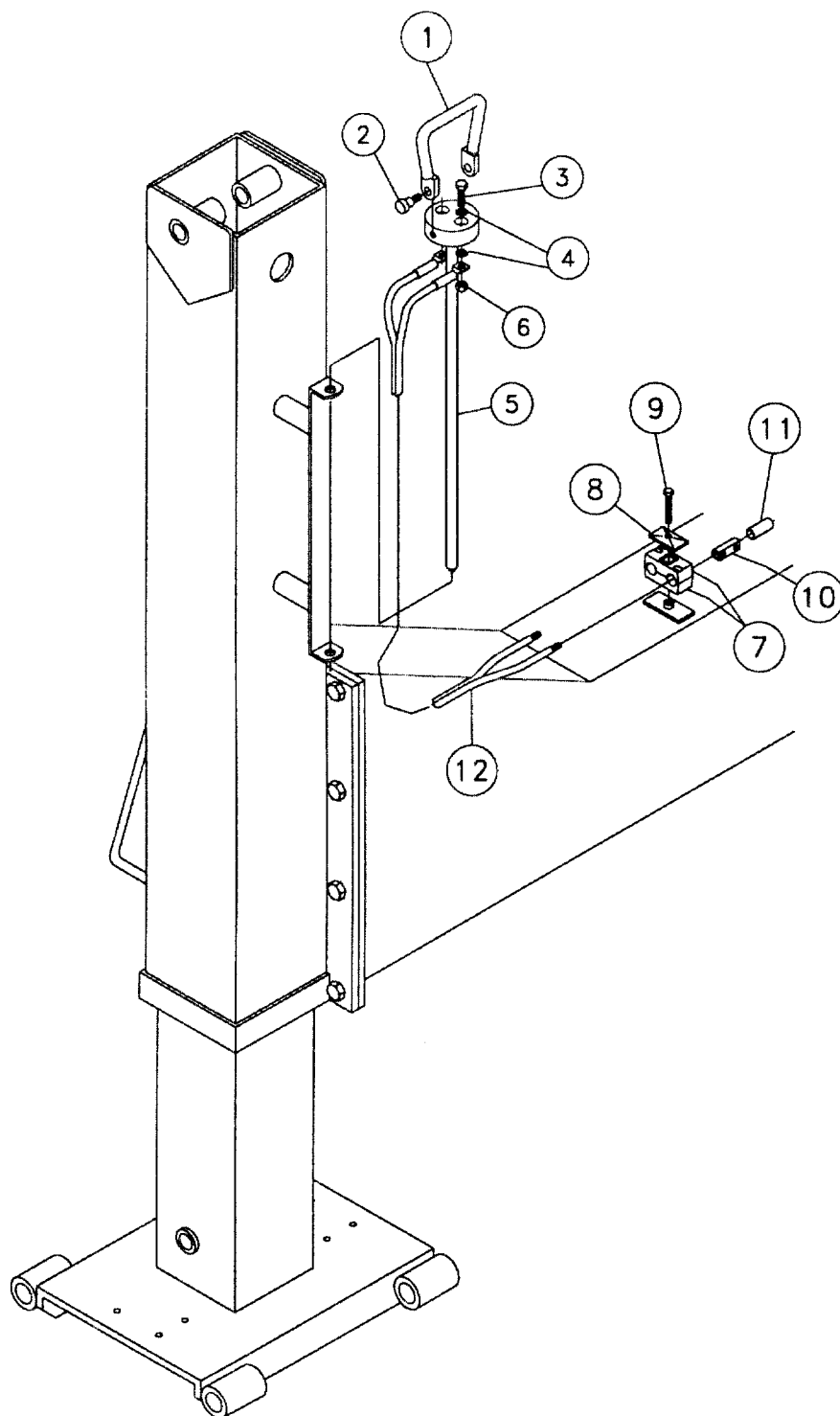


Harness Plug Components Fig 4-15r01

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
		79983001	SEAL		
		79982001	PIN MALE TERMINAL		
		91348001	PLUG 2 WAY		
		79993001	PLUG 3 WAY		
		79981001	PLUG 4 WAY MALE		
		91349001	TOWER 2 WAY		
		102662001	TOWER 3 WAY		
		79981001	TOWER 4 WAY		
		87702001	PIN FEMALE TERMINAL		
		79983001	SEAL		
		904562-001-1	RECTIFIER		
		89675-001-1	SHRINK TUBE-#HSTT.375-TR		
		208065-001-1	SHRINK TUBE-3/4 ID COMM GRD.		SPECIFY LENGTH
		91358001	PLUG		CONNECTS EDC
		87696001	PIN - 16 GA		
		94201001	SEALING PLUG		
		94199001	RECEPTACLE - 8 PIN		
		103212001	RECEPTACLE - 12 PIN		
		94200001	RECEPTACLE WEDGE - 8 PIN		
		103213001	RECEPTACLE WEDGE - 12 PIN		
		98106001	PLUG WEDGE - 8 PIN		
		103214001	PLUG WEDGE - 12 PIN		
		98107001	PLUG - 8 PIN		
		103211001	PLUG - 12 PIN		
		94201001	SEALING PIN		
		91354001	SOCKET - 16GA		
		87696001	PIN - 16 GA		
		231988001	PIN - 12 GA		
		904348001	RECEPTACLE 21 PIN		
		87697003	NUT - PANEL		
		905102001	TOOL-CONTACT REMOVAL		
		904504001	PLUG 21 PIN		
		91354001	SOCKET - 16 GA		
		231989001	SOCKET - 12 GA		
			Revised June 1999 due to update & addition of shrink tube & rectifier.		

Voltage Stake Assembly Fig 5-1r02

Revised October 1999 due to update
in heading.

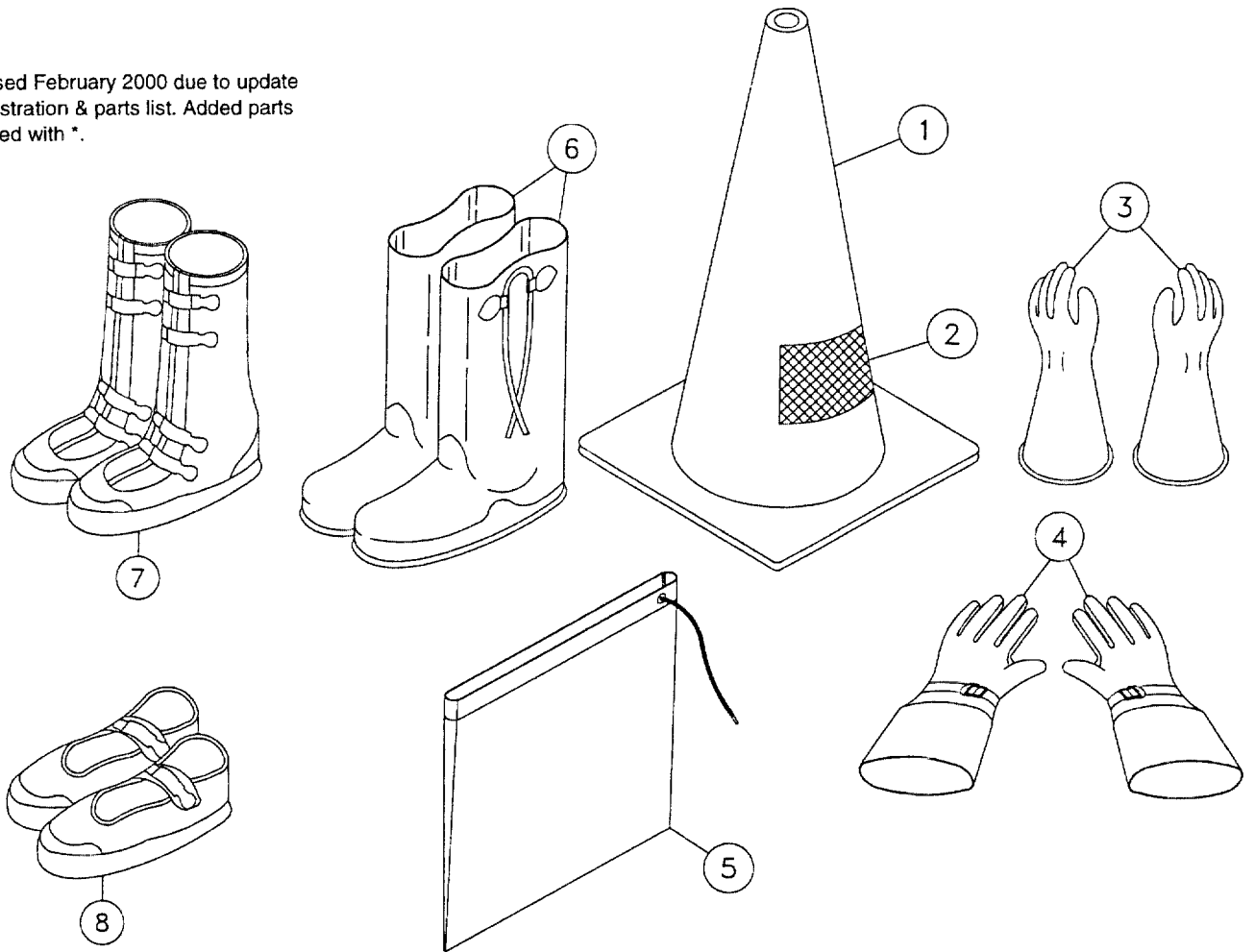


Voltage Stake Assembly Fig 5-1r02

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		234164001	HANDLE-VOLTAGE STAKE	1	
2		240056001	SCREW-1/2-13X1/2 NCSOC HD ZNC	2	
3		235736001	BOLT-3/8-16X1 1/4 ZINC PLTD	2	
4		235713001	WASHER-3/8 SAE HARD ZINC PLTD	4	
5		234167001	STAKE-VOLTAGE	1	
6		235725001	NUT-3/8-16 GR8 ZINC PLTD	2	
7		900035003	DOUBLE-HOSE CLAMP PLATE 3/8	2	
8		67846003	PLATE-TWIN COVER	1	
9		248031001	BOLT-5/16-18X1 1/4 GR8 ZINC PL	1	
10		904355001	CONNECTOR	2	
11		208065001	SHRINK TUBE-3/4ID COMM GRD	2	Specify Length
12		217967001	CORD ASSY.-VOLTAGE STAKE	1	Inc. Ref. 1, 2, 3,, 4, 5

Safety Features - Gloves, Boots, Cones Fig 5-2r01

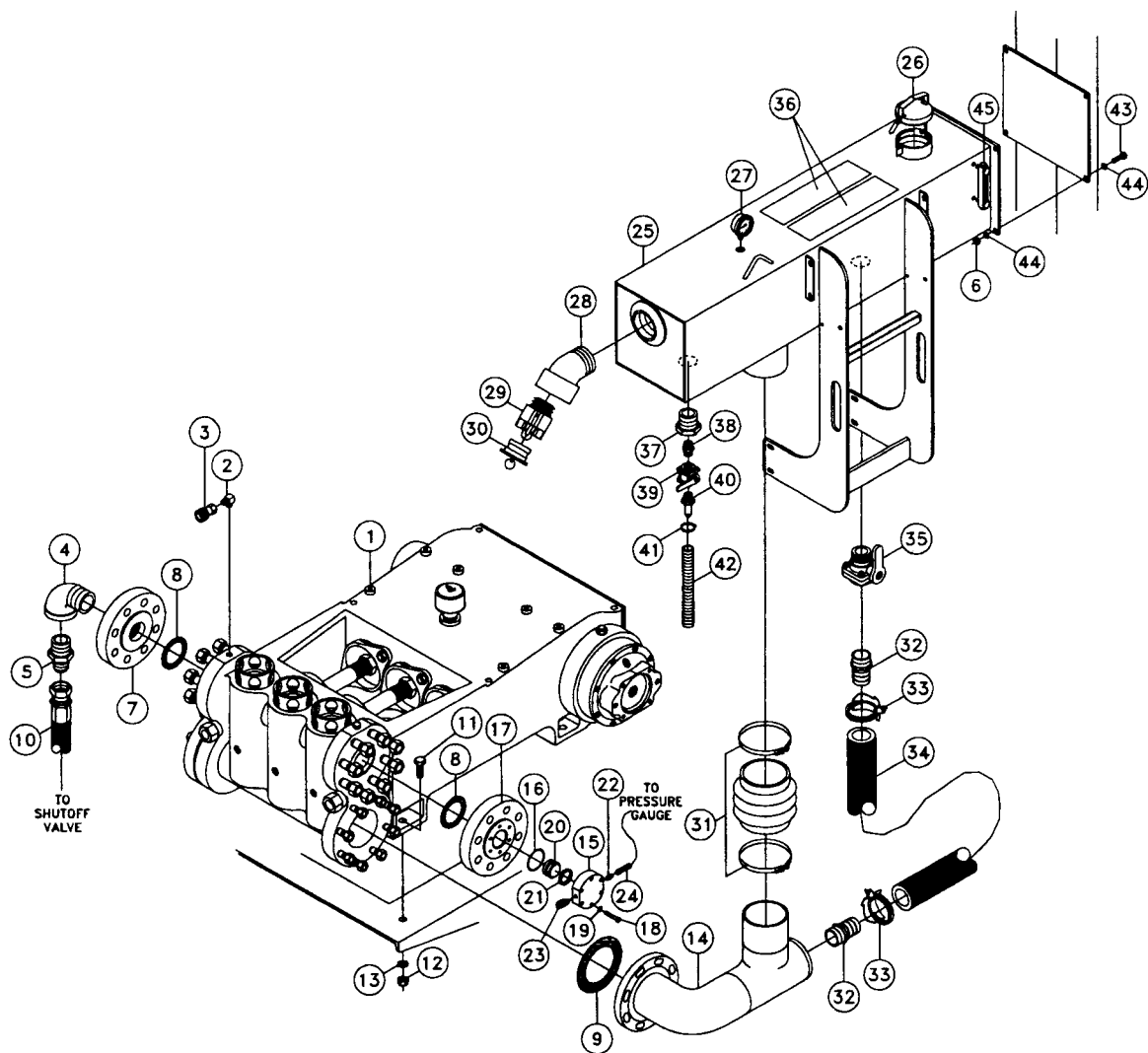
Revised February 2000 due to update
in illustration & parts list. Added parts
marked with *.



Safety Features - Gloves, Boots, Cones Fig 5-2r01

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		904541001	CONES-ORANGE PVC	4	
2		7000530	DECAL-DANGER	4	
		7000I530	DECAL-DANGER	4	INT.
3		210782001	GLOVES-SIZE 9 RUBBER INSULATE	1 PR.	
		210782005	GLOVES-SIZE 9 1/2 RUBBER INSUL	1 PR.	
		210782003	GLOVES-SIZE 10 RUBBER INSULATE	1 PR.	
		210782007	GLOVE-SIZE 11 RUBBER INSULATED	1 PR.	
		210782009	GLOVE-SIZE 12 RUBBER INSULATED	1 PR.	
4		210783001	GLOVES-SIZE 9 LEATHER PROTECT	1 PR.	
		210783005	GLOVES SIZE 9 1/2 LEATHER PROT	1 PR.	
		210783003	GLOVES-SIZE 10 LEATHER PROT	1 PR.	
		210783007	GLOVE-SIZE 11 LEATHER PROTECT	1 PR.	
		210783009	GLOVE-SIZE 12 LEATHER PROTECT	1 PR.	
		210781001	GLOVE KIT-SIZE 9	1	Inc. 1 Pair Of Rubber Gloves
		224979001	GLOVE KIT-SIZE 9 1/2	1	Inc. 1 Pair Of Rubber Gloves
		210785001	GLOVE KIT-SIZE 10	1	Inc. 1 Pair Of Rubber Gloves
		224990001	GLOVE KIT-SIZE 11	1	Inc. 1 Pair Of Rubber Gloves
		224991001	GLOVE KIT-SIZE 12	1	Inc. 1 Pair Of Rubber Gloves
5		210784001	BAG-GLOVE	1	
6		210780009	BOOTS-SIZE 9 OVER-THE-SHOE	1 PR.	
		210780001	BOOTS-SIZE 10 OVER-THE-SHOE	1 PR.	
		210780003	BOOTS-SIZE 11 OVER-THE-SHOE	1 PR.	
		210780005	BOOTS-SIZE 12 OVER-THE-SHOE	1 PR.	
		210780007	BOOTS-SIZE 13 OVER-THE-SHOE	1 PR.	
		210780011	BOOTS-SIZE 14 OVER-THE-SHOE	1 PR.	
		210780013	BOOTS-SIZE 15 OVER-THE-SHOE	1 PR.	
		210780015	*BOOTS-SIZE 16 OVER-THE-SHOE	1 PR.	
7		279118001	*BOOT-4 BUCKLE SIZE 9	1 PR.	
		279118002	*BOOT-4 BUCKLE SIZE 10	1 PR.	
		279118003	*BOOT-4 BUCKLE SIZE 11	1 PR.	
		279118004	*BOOT-4 BUCKLE SIZE 12	1 PR.	
		279118005	*BOOT-4 BUCKLE SIZE 13	1 PR.	
		279118006	*BOOT-4 BUCKLE SIZE 14	1 PR.	
		279118007	*BOOT-4 BUCKLE SIZE 15	1 PR.	
		279118008	BOOT-4 BUCKLE SIZE 16	1 PR.	
8		279119001	*BOOT-ANKLE RUBBER SIZE 9	1 PR.	
		279119002	*BOOT-ANKLE RUBBER SIZE 10	1 PR.	
		279119003	*BOOT-ANKLE RUBBER SIZE 11	1 PR.	
		279119004	*BOOT-ANKLE RUBBER SIZE 12	1 PR.	
		279119005	*BOOT-ANKLE RUBBER SIZE 13	1 PR.	
		279119006	*BOOT-ANKLE RUBBER SIZE 14	1 PR.	
		279119007	*BOOT-ANKLE RUBBER SIZE 15	1 PR.	
		279119008	*BOOT-ANKLE RUBBER SIZE 16	1 PR.	

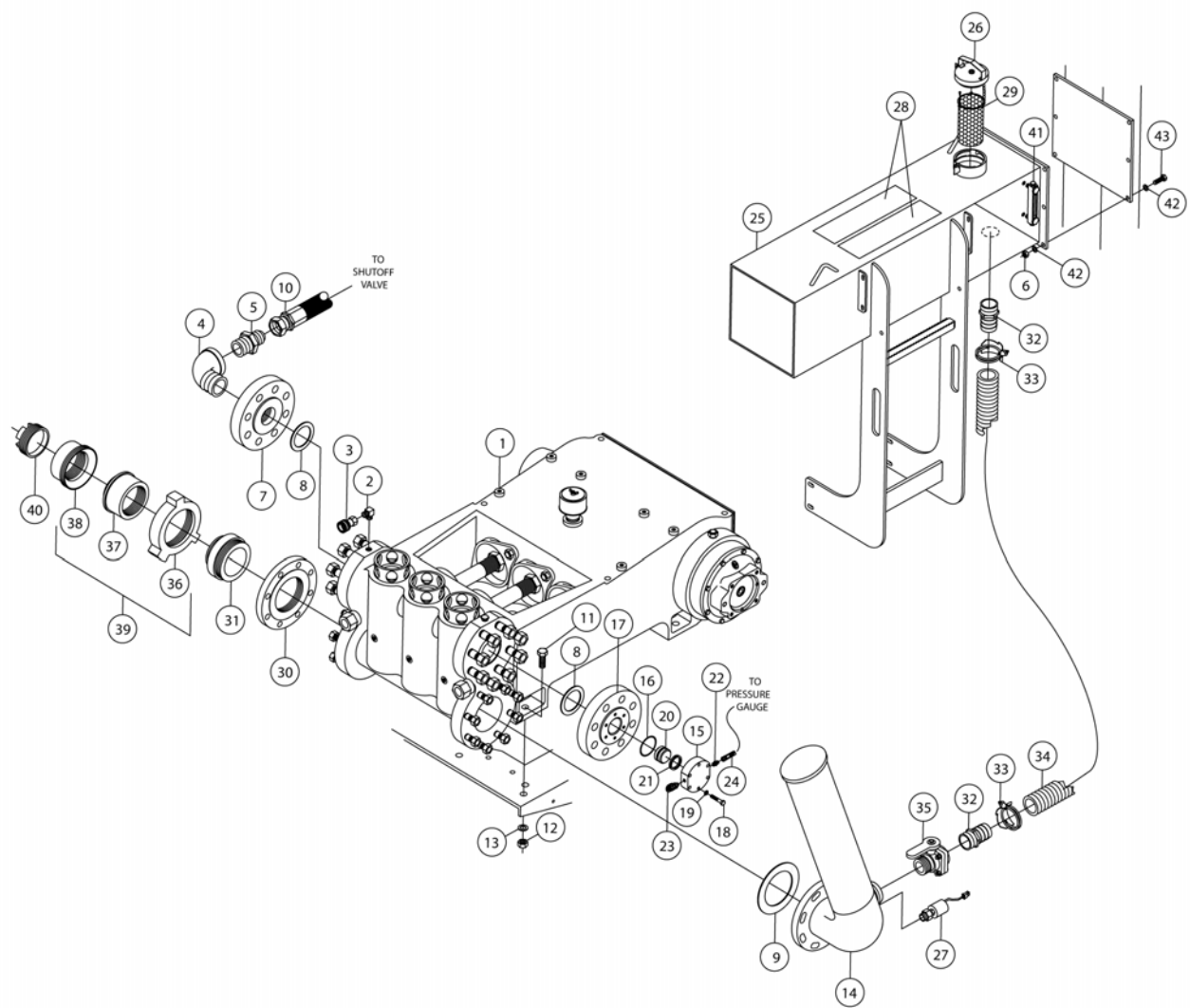
Water Pump Assembly - 200 Gal. (SC115L) - SN119-224 Fig 6-1r04



Water Pump Assembly - 200 Gal. (SC115L) - SN119-224 Fig 6-1r04

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		277780001	PUMP-SC170 4"-07 GR TRIPLEX	1	Inc Ref. 8 & 9
2		904831001	FITTING 1/2MNPT X 1/2MNPT 90	1	
3		227235001	COUPLER-1/2"NPT QUICK	1	FEMALE
4		278063001	FITTING-2" X 90 DEG BLK STRT EL	1	
5		278061001	FITTING-24 MJIC X 2 MNPT CONNCT	1	
6		75382001	NUT-1/2-UNC GRADE 8 SLTL	4	
7		278062001	FITTING-SC170 OUTLET	1	DRL FLD
8		277780002	GASKET-DISCHARGE	2	4.125 OD
9		277780003	GASKET-SUCTION	2	7.75 OD
10		278060001	HOSE-1 1/2X67 24JICST/ST2500	1	
11		235746001	BOLT-3/4-10 X 2 GR8 HEX ZNC PLTD	4	
12		235739001	NUT-3/4-10 GR8 ZINC PLTD	4	
13		235717001	WASHER-3/4 SAE HARD ZINC PLTD	4	
14		278054001	TUBE-WELDED INLET	1	
15		277824001	COVER-SC170 OUTLET FITTING	1	
16		227589001	O-RING #AS-231	1	
17		277821001	FITTING - SC170 OUTLET	1	
18		235720001	BOLT-3/8-16 X 1 3/4 GR8 ZINC PLT	6	
19		235713001	WASHER-3/8 SAE HARD ZINC PLTD	6	
20		239252001	PISTON-SC65 OUTLET FITTING	1	
21		51181001	O-RING #326	1	
22		60908001	FITTING-4M X 4M JIC STR ADAPTER	1	
23		75493001	COUPLER-MALE TCM20-7/16" UNF-V	1	
24		53843607	HOSE-1/4 X 258 4FS JIC 3000 PSI	1	
25		277810001	TANK-LRG WP SURGE/ANTI-FREEZ	1	
26		224985001	CAP-VENTED FUEL TANK	1	
27		234473001	GAUGE-30 HG-0-100 PSI	1	
28		238079001	ELBOW-3" 45DEGREE STREET	1	POLY
29		238080001	*COUPLER 3" FEMALE MNPT	1	POLY
30		234480001	PLUG 3" CAM LOCK	1	POLY
31		239453001	5" EXPANSION JOINT	1	
32		215426001	HOSE BARB-2 X 2 MPT	2	POLY
33		238064001	CLAMP-2" POWERLOCK HOSE	2	
34		275385001	HOSE-2" X 30" SUCTION	1	
35		236045001	VALVE-2" FPT X 2" MPT POLY BALL	1	Breakdown Fig. 6-
36		5776001	TAPE-SAFETY WALK 4" WIDE	A/R	Specify Length
37		225838001	BUSHING-2 X 3/4 NPT REDCR	1	POLY
38		231049001	NIPPLE-3/4" NPT SHORT	1	POLY
39		225847001	VALVE-3/4"FPT BALL	1	POLY, Breakdown Fig. 6-7
40		905437001	FITTING-3/4 X 1 BARB ST. NYLON	1	
41		1580007	HOSE CLAMP -1 1/2"	1	
42		905429015	HOSE 1" PVC SUCTION - 45"	1	
43		235721001	BOLT-1/2-13 X 1 1/2 GR8 ZINC PLT	4	
44		485025	WASHER-1/2 FLAT-HARDENED-ZINC	8	
45		81590001	GAUGE-SIGHT	1	

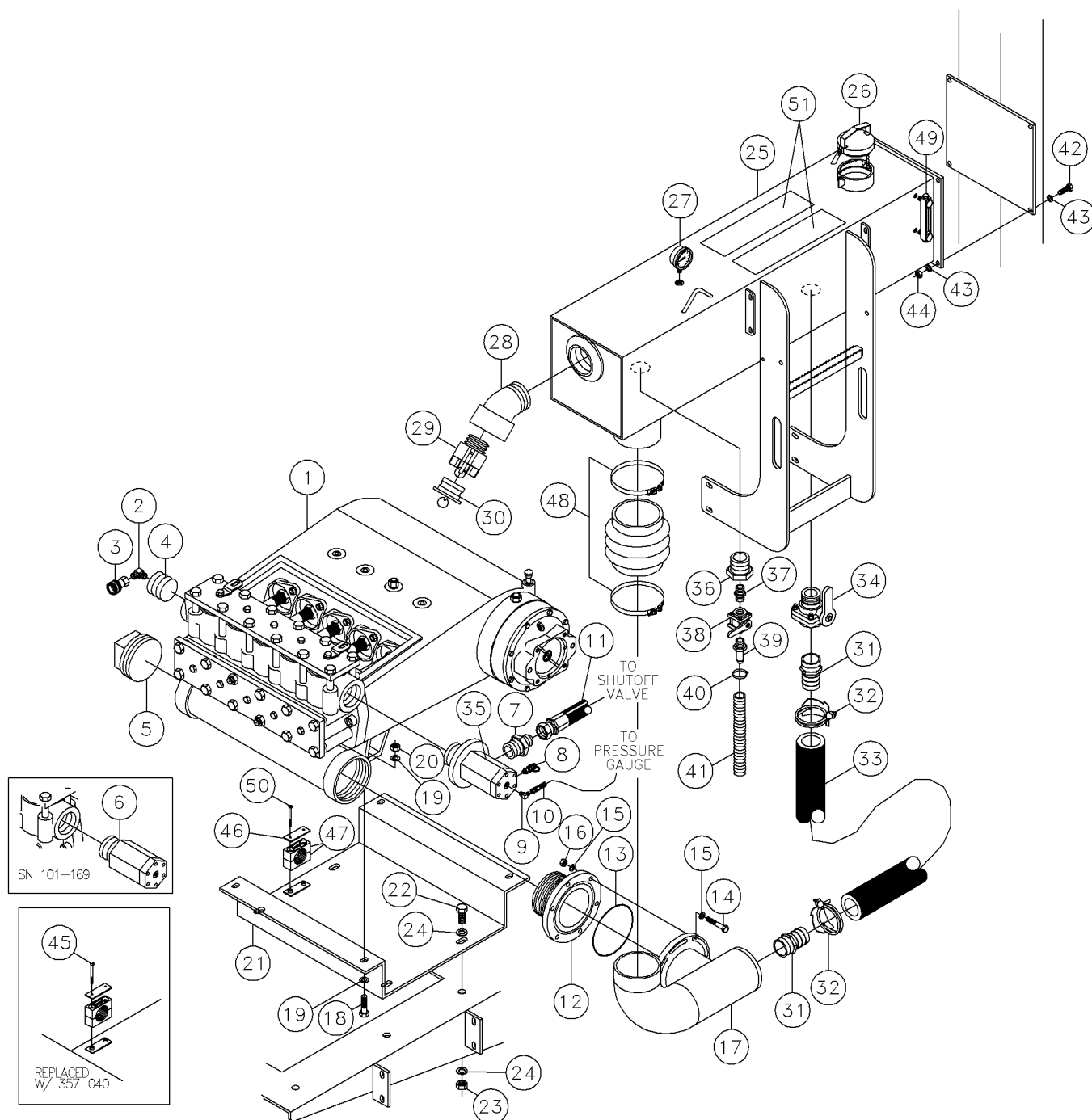
Water Pump Assembly - 200 Gal. (SC115L) - SN225- Fig 6-1x01



Water Pump Assembly - 200 Gal. (SC115L) - SN225- Fig 6-1x01

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		277780001	PUMP-SC170 4"-07 GR TRIPLEX	1	Inc Ref. 8 & 9
2		904831001	FITTING 1/2MNPT X 1/2MNPT 90	1	
3		227235001	COUPLER-1/2"NPT QUICK	1	FEMALE
4		278063001	FITTING-2" X 90 DEG BLK STRT EL	1	
5		278061001	FITTING-24 MJIC X 2 MNPT CONNCT	1	
6		75382001	NUT-1/2-UNC GRADE 8 SLTL	6	
7		278062001	FITTING-SC170 OUTLET	1	DRL FLD
8		277780002	GASKET-DISCHARGE	2	4.125 OD
9		277780003	GASKET-SUCTION	2	7.75 OD
10		278060001	HOSE-1 1/2X67 24JICST/ST2500	1	
11		235746001	BOLT-3/4-10 X 2 GR8 HEX ZNC PLTD	4	
12		235739001	NUT-3/4-10 GR8 ZINC PLTD	4	
13		235717001	WASHER-3/4 SAE HARD ZINC PLTD	4	
14		287052001	TUBE-SUCTION STABILIZER	1	SC170
15		277824001	COVER-SC170 OUTLET FITTING	1	
16		227589001	O-RING #AS-231	1	
17		277821001	FITTING - SC170 OUTLET	1	
18		235720001	BOLT-3/8-16 X 1 3/4 GR8 ZINC PLT	6	
19		235713001	WASHER-3/8 SAE HARD ZINC PLTD	6	
20		239252001	PISTON-SC65 OUTLET FITTING	1	
21		51181001	O-RING #326	1	
22		60908001	FITTING-4M X 4M JIC STR ADAPTER	1	
23		75493001	COUPLER-MALE TCM20-7/16" UNF-V	1	
24		53843607	HOSE-1/4 X 258 4FS JIC 3000 PSI	1	
25		287003001	TANK-LRG WP ANTI-FREEZE	1	
26		224985001	CAP-VENTED FUEL TANK	1	
27		287069001	SWITCH-SEALED 6-15 PRESSURE	1	
28		5776001	TAPE-SAFETY WALK 4" WIDE	2.5	
29		99998001	STRAINER-6" .030 STEEL	1	
30		237035001	FLANGE-INLET	1	
31		287034001	FITTING-5" MPT X 4" MPT REDUCER	1	
32		215426001	HOSE BARB-2 X 2 MPT	2	POLY
33		238064001	CLAMP-2" POWERLOCK HOSE	2	
34		278116001	HOSE-2" HD SUCTION 45"	1	
35		236045001	VALVE-2" FPT X 2" MPT POLY BALL	1	
36		287056007	NUT-4" HAMMER UNION WING	1	1000 PSI
37		287056003	SUB-4" MALE HAMMER UNION	1	1000 PSI
38		287056005	SUB-4" FEMALE HAMMER UNION	1	1000 PSI
39		287056001	UNION-4" HAMMER	1	1000 PSI
40		287057001	PLUG-4" NPT	1	
41		81590001	GAUGE-SIGHT	1	
42		485025	WASHER-1/2 FLAT HARDENED-ZINC	12	
43		235721001	BOLT-1/2-13 X 1 1/2 GR8 ZINC PLT	6	

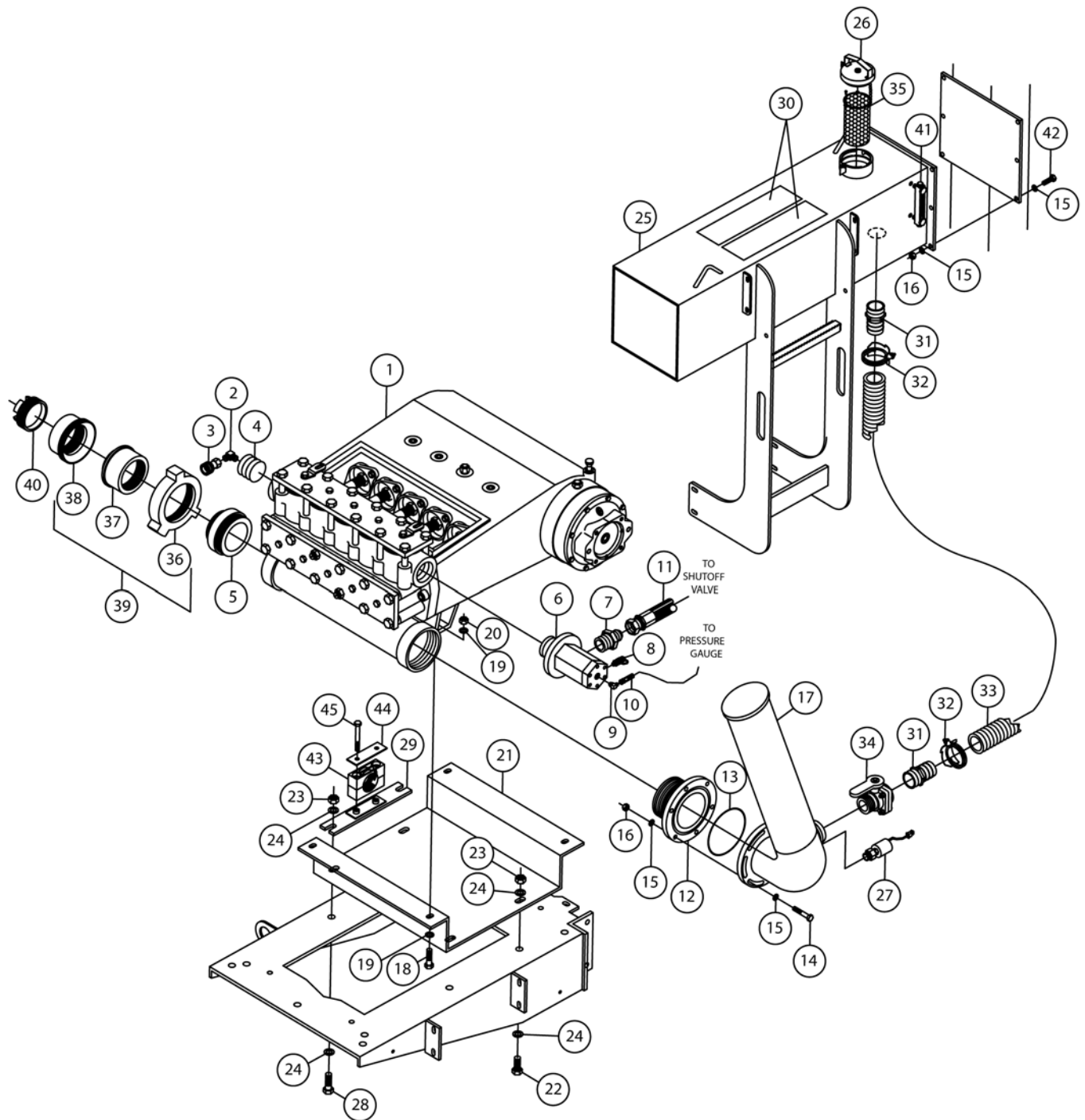
Water Pump Assembly - 150 Gal. (SC115L) - SN119-224 Fig 6-2r06



Water Pump Assembly - 150 Gal. (SC115L) - SN119-224 Fig 6-2r06

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
		Revision Date	January, 2005		Update In Illustration & Parts List.
1		277781001	PUMP - APLEX SC115 3"-5.50 GR	1	Breakdown Fig 6-11
2		904831001	FITTING 1/2MNPT X 1/2MNPT 90	1	
3		227235001	COUPLER-1/2"NPT QUICK	1	FEMALE
4		244516001	FIT-40MNPT/8FNPT HEX REDCR	1	
5		278074001	PLUG - 5" SQUARE HEAD	1	
6		239471001	WATER PMP OUTL ASSY -SC115L	1	Breakdown Fig. 6-8
7		94569001	FITTING1 1/2MNPTX24MJIC STR.	1	
8	*	72056001	COUPLER-DIAG. TCM-20 9/16NF	1	PN Change
9	*	600118001	FITTING-6MORINGX4MJIC90PARKER	1	PN Change
10		53843607	HOSE-1/4X258 4FS JIC 3000 PSI	1	
11		239496001	HOSE-1 1/2X92 24FSJIC ST/ST	1	
12		275312001	FLANGE-WATER PUMP INLET	1	
13		275321001	O-RING - SS #165	1	
14		250530001	BOLT-1/2-13X2 1/4 GR8 ZNC PLTD	6	
15		485025	WASHER-1/2 FLAT-HARDENED-ZNC	12	
16		75382001	NUT-1/2-UNC GRADE 8 SLTL	6	
17		278069001	TUBE - INLET WELDMENT	1	
18		238245001	BOLT 5/8"-11 X 2 1/4" GR8 HEX	4	
19		235715001	WASHER-5/8 SAE HARD ZINC PLTD	8	
20		238221001	NUT-5/8-11 GR8 NC Y/ZINC	4	
21		278080001	BASE - SC115L PUMP	1	
22		243905001	BOLT - 3/4-10X1 3/4 GR8 HEX ZP	4	
23		235739001	NUT-3/4-10 GR8 ZINC PLTD	4	
24		235717001	WASHER-3/4 SAE HARD ZINC PLTD	8	
25		278046001	TANK-SMALL WP SURGE/ANTI-FRZ	1	
26		224985001	CAP-VENTED FUEL TANK	1	
27		234473001	GAUGE-30 HG-0-100 PSI	1	
28		238079001	ELBOW-3" 45DEGREE STREET	1	POLY
29		239281001	COUPLER-3" FEMALE MNPT	1	POLY
30		234480001	PLUG-3" CAM LOCK	1	POLY
31		215426001	HOSE BARB-2X2 MPT	2	POLY
32		238064001	CLAMP-2" POWERLOCK HOSE	2	
33		275385001	HOSE - 2" X 30" SUCTION	1	
34		236045001	VALVE-2" FPT X 2" MPT POLY BALL	1	Breakdown Fig. 6-
35	*	283641001	OUTLET ASSY. - KT-3350 FLANGE	1	Breakdown Fig. 6-26, PN Change
36		225838001	BUSHING-2X3/4 NPT REDUCR	1	POLY
37		231049001	NIPPLE-3/4" NPT SHORT	1	POLY
38		225847001	VALVE-3/4"FPT BALL	1	POLY, Breakdown Fig. 6-7
39		905437001	FITTING-3/4X1 BARB ST.NYLON	1	
40		1580007	HOSE CLAMP -1 1/2"	1	
41		905429015	HOSE 1" PVC SUCTION - 45"	1	
42		235721001	BOLT-1/2-13X1 1/2 GR8 ZINC PLT	4	
43		485025	WASHER-1/2 FLAT-HARDENED-ZNC	8	
44		75382001	NUT-1/2-UNC GRADE 8 SLTL	4	
45		250541001	BOLT-3/8-16 X 4" GR8 HEX Y/ZI	2	
46		278186005	PLATE - 2.11 HOSE CLAMP COVER	1	
47		278186003	CLAMP - 2.11" ID HOSE - PAIR	1	
48		239453001	5" EXPANSION JOINT	1	
49		81590001	GAUGE-SIGHT	1	
50		357040	BOLT-7/16-14X4 PLATED	2	Replaces 250541-001
51		5776001	TAPE-SAFETY WALK 4 WIDE	2.5	Specify Length

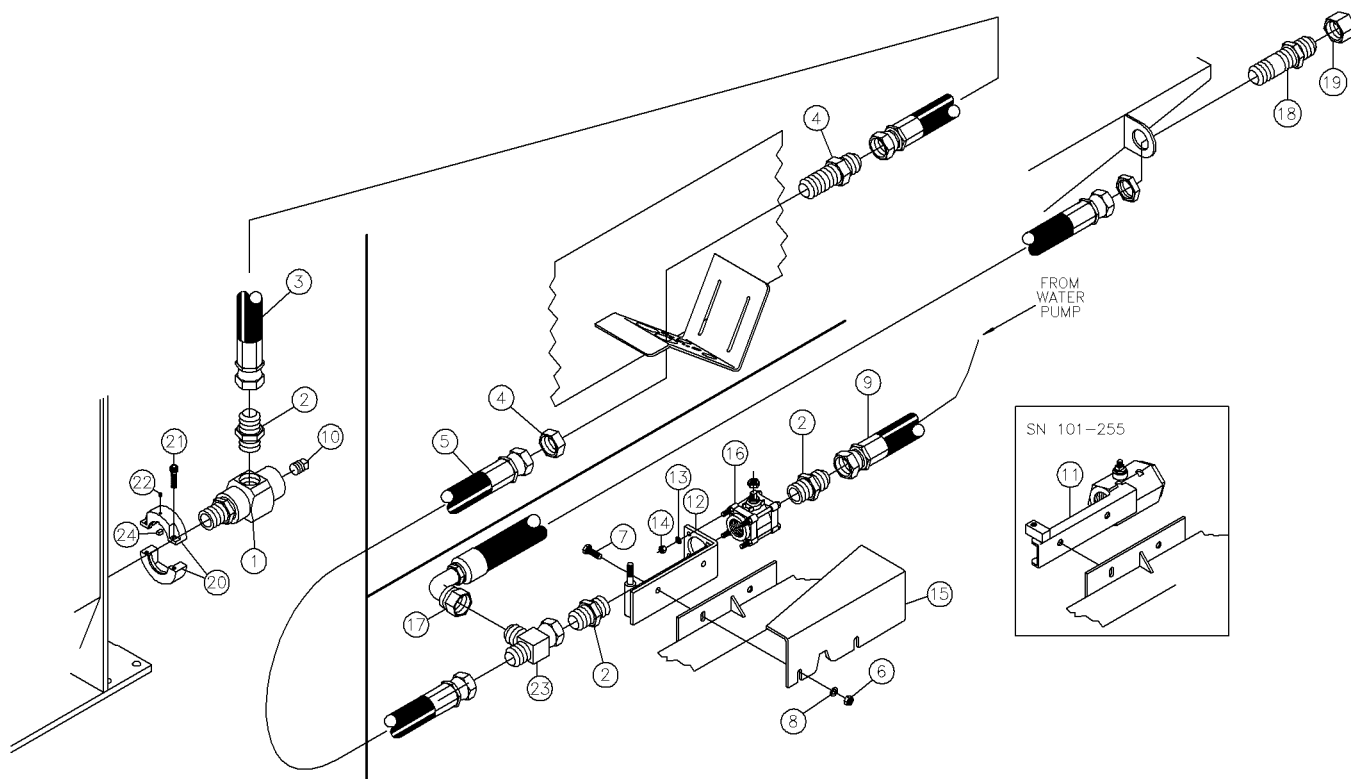
Water Pump Assembly - 150 Gal. (SC115L) - SN225- Fig 6-2x01



Water Pump Assembly - 150 Gal. (SC115L) - SN225- Fig 6-2x01

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		277781001	PUMP - APLEX SC115 3"-5.50 GR	1	Breakdown Fig 6-11 thru 6-17
2		904831001	FITTING 1/2MNPT X 1/2MNPT 90	1	
3		227235001	COUPLER-1/2"NPT QUICK	1	FEMALE
4		244516001	FIT-40MNPT/8FNPT HEX REDCR	1	
5		278074001	PLUG - 5" SQUARE HEAD	1	
6		277645001	OUTLET ASSY.-SC115L FLANGE	1	Breakdown Fig. 6-26
7		94569001	FITTING1 1/2MNPTX24MJIC STR.	1	
8		75493001	COUPLER-MALE TCM20-7/16"UNF-V	1	
9		69423001	FIT-4M JICX4M ADJ.90 DEG.ELBOW	1	
10		53843607	HOSE-1/4X258 4FS JIC 3000 PSI	1	
11		239496001	HOSE-1 1/2X92 24FSJIC ST/ST	1	
12		275312001	FLANGE-WATER PUMP INLET	1	
13		275321001	O-RING - SS #165	1	
14		235744001	BOLT-1/2-13X2 3/4 GR8 ZNC PLTD	6	
15		485025	WASHER-1/2 FLAT-HARDENED ZNC	24	
16		75382001	NUT-1/2-UNC GRADE 8 SLTL	12	
17		287046001	TUBE - SUCTION STABILIZER	1	
18		238245001	BOLT 5/8"-11 X 2 1/4" GR8 HEX	4	
19		235715001	WASHER-5/8 SAE HARD ZINC PLTD	8	
20		238221001	NUT-5/8-11 GR8 NC Y/ZINC	4	
21		277822001	BASE - SC115L PUMP	1	
22		243905001	BOLT - 3/4-10X1 3/4 GR8 HEX ZP	2	
23		235739001	NUT-3/4-10 GR8 ZINC PLTD	4	
24		235717001	WASHER-3/4 SAE HARD ZINC PLTD	8	
25		287003001	TANK-WP-ANTI-FRZ	1	
26		224985001	CAP-VENTED FUEL TANK	1	
27		287069001	SWITCH-SEALED DIAPHRAM	1	6-15 PSI
28		243921001	BOLT-3/4 -10 X 2 1/4 GR 8 ZINC PLATE	1	
29		287058001	BRACKET-HOSE CLAMP	1	
30		5776001	TAPE-SAFETY WALK 4 WIDE	2.5	
31		215426001	HOSE BARB-2X2 MPT	2	POLY
32		238064001	CLAMP-2" POWERLOCK HOSE	2	
33		278116001	HOSE - 2" HD SUCTION 45"	1	
34		236045001	VALVE-2" FPT X 2" MPT POLY BALL	1	Breakdown Fig. 6-6
35		99998001	STRAINER-6" .030 STEEL	1	
36		287056007	NUT-4" HAMMER UNION WING	1	1000 PSI
37		287056003	SUB-4" MALE HAMMER UNION WING	1	1000 PSI
38		287056005	SUB-4" FEMALE HAM. UNION WING	1	1000 PSI
39		287056001	UNION-4" HAMMER	1	1000 PSI
40		287057001	PLUG - 4" NPT	1	
41		81590001	GAUGE-SIGHT	1	
42		235721001	BOLT-1/2-13X1 1/2 GR 8 ZINC PLT	6	
43		278186003	CLAMP - 2.11" ID HOSE - PAIR	1	
44		278186005	PLATE - 2.11 HOSE CLAMP COVER	1	
45		357040	BOLT-7/16-14X4 PLATED	2	

Water Line Assembly Fig 6-3r04

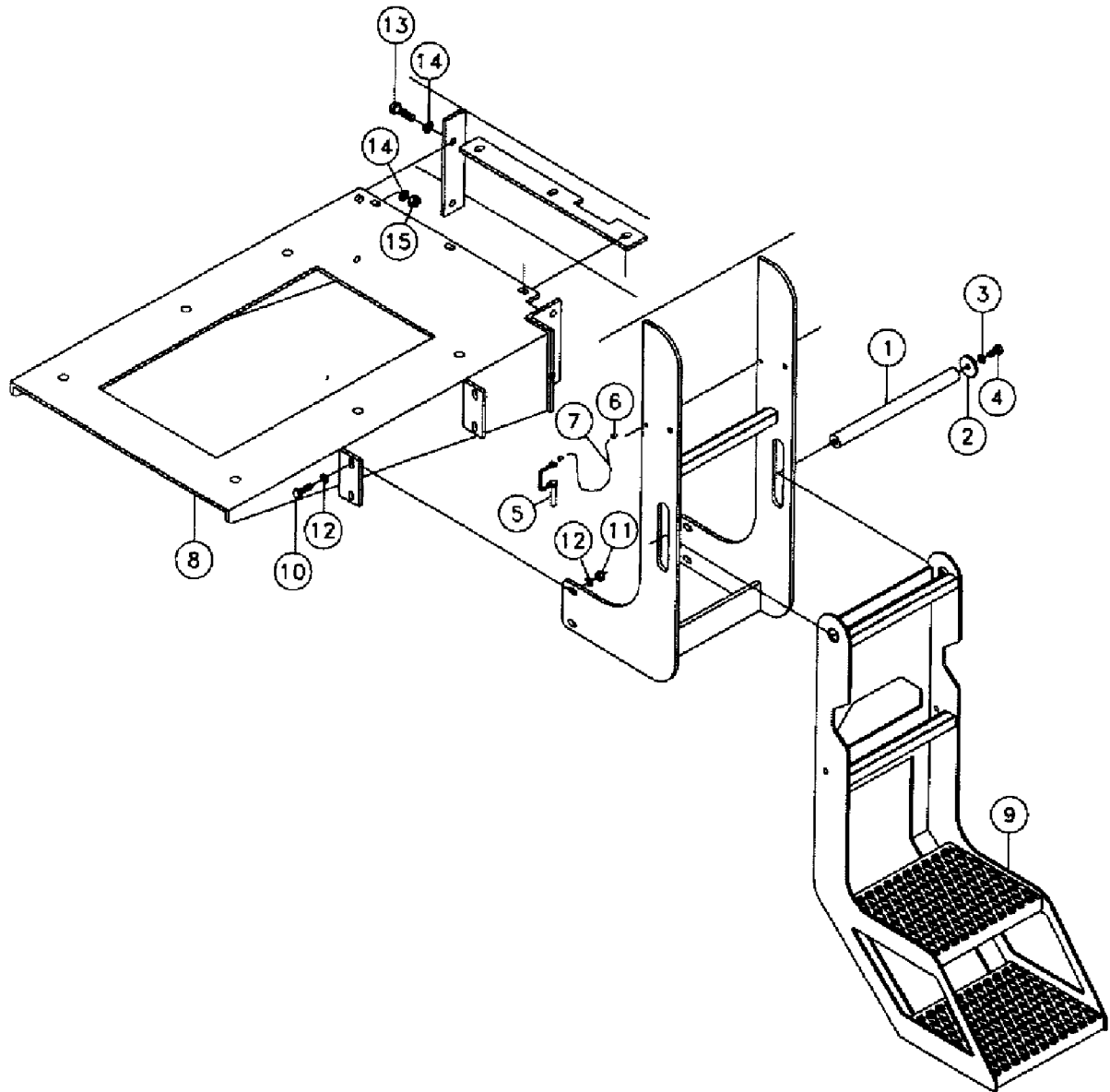


Water Line Assembly Fig 6-3r04

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		277834001	SWIVEL 200 GPM WATER W/BRG.	1	
		234978003	SEAL KIT		
		234978005	RESIZING RING		
2		94569001	FITTING1 1/2MNPTX24MJIC STR.	3	
3		239497001	HOSE-1 1/2X224 24FSJIC ST/ST	1	
4		244517001	FITTING-24M JIC BULKHEAD ST	1	
5		239495001	HOSE-1 1/2X65 24FSJIC ST/ST	1	
6		235731001	NUT-1/2-13 GR8 ZINC PLTD	2	
7		235721001	BOLT-1/2-13X1 1/2 GR8 ZINC PLT	2	
8		485025	WASHER-1/2 FLAT-HARDENED-ZINC	2	
9		239496001	HOSE-1 1/2X92 24FSJIC ST/ST	1	Use w/ 200 Gal, SC-17
		278078001	HSE-1 1/2X69 24FS JIC ST/ST 2500PSI	1	Use w/ 150 Gal
10		732009	PLUG-3/4" PIPE BLACK STEEL	1	
11		244693001	VALVE - DRILL FLUID SHUTOFF	1	SN101-255
12		278225001	SUPPORT-BALL VALVE		SN256-
13		235713001	WASHER-3/8 SAE HARD ZINC PLT	4	SN256-
14		250508001	NUT-3/8-16 GR8 TOP LOCK Y/ZINC	4	SN256-
15		278118001	COVER - BALL VALVE	1	SN195-
16		287053001	VALVE-1 1/2 STEEL BALL 2200 PSI	1	SN256-
17		284500001	HSE-1 1/4X65 24FS JIC ST/90 3000PSI	1	SN196-
18		244517001	FITTING-24M JIC BULKHEAD ST	1	SN196-
19		86315001	FITTING-CAP NUT-24F JIC	1	SN196-
20		284349001	BUSHING-SWIVEL LOCK-2 HALVES	1	SN196-
21		242906001	CAPSCREW-5/16-18 SKID ZNC	2	SN196-
22		283836001	ST SCRW-SSS 1/4-20X1/2	1	w/ Cup Pnt ZP, SN196-
23		141856001	FITTING-24FS JIC TEE	1	SN196-
24		283839001	KEY-5/16X5/16X1/2 HRDND SQ KEY	1	SN196-

Platform Assembly - SN119-224 Fig 6-4r02

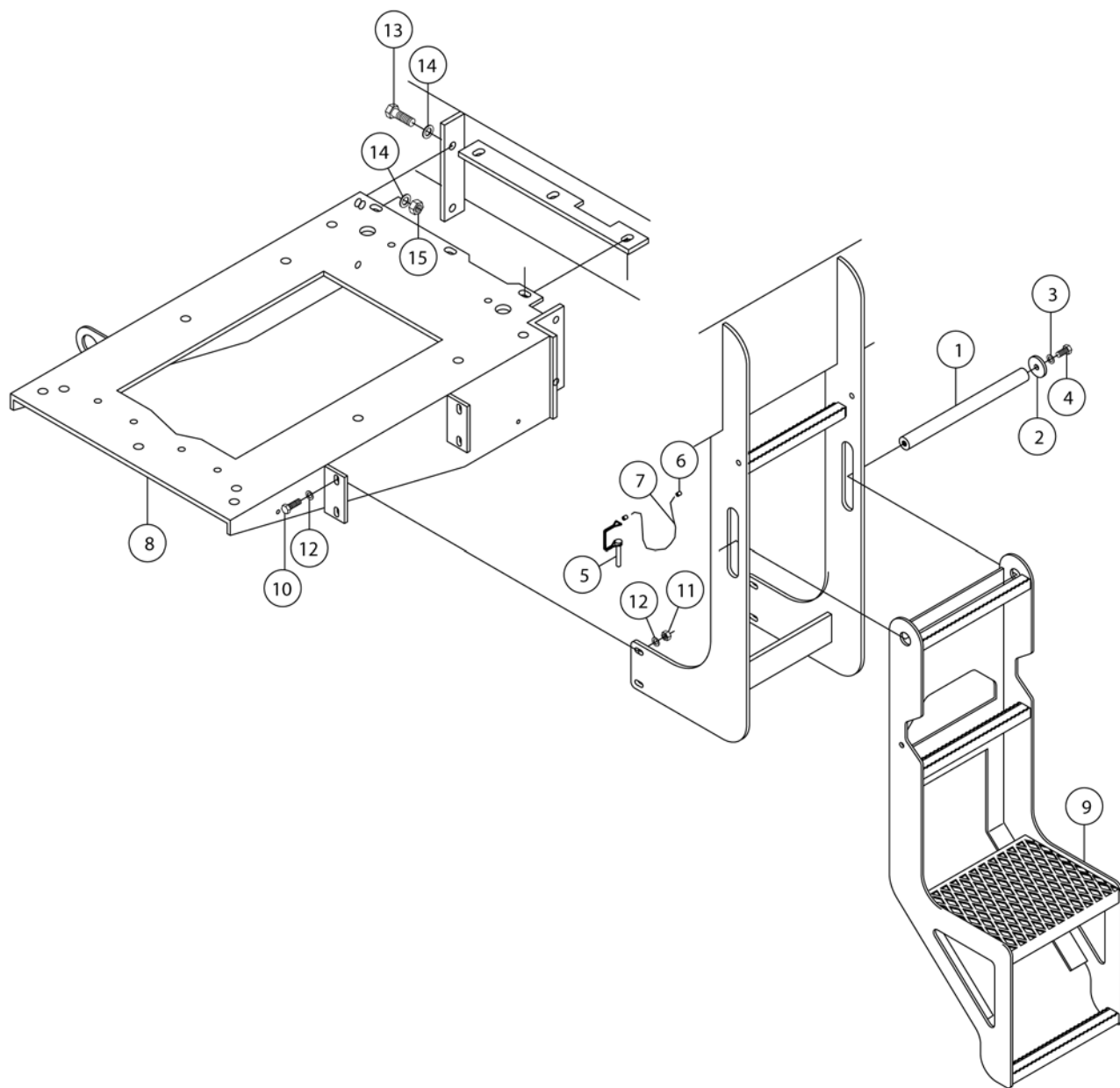
Revised June 1999 due to change
in water pump starting w/ Serial
No. 119. Figure is new.



Platform Assembly - SN119-224 Fig 6-4r02

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		277816001	BAR-STEP PIVOT	1	
2		18150001	WASHER-2 OD X 13/32ID-1/4	2	
3		235713001	WASHER-3/8 SAE HARD ZINC PLTD	2	
4		235727001	BOLT-3/8-16 X 1 GR8 HEX ZINC PLT	2	
5		2109003	PIN LOCKING-3/8 X 2 1/4	2	
6		1838001	CONNECTOR-WIRE (ETC)	4	
7		1830059	NYLON COATED CABLE-3/32-10.00	1	
8		277825001	PLATFORM-WATER PUMP	1	
9		277809001	LADDER - TANK	1	
10		235721001	BOLT-1/2-13 X 1 1/2 GR8 ZINC PLT	4	
11		235731001	NUT-1/2-13 GR8 ZINC PLTD	4	
12		485025	WASHER-1/2 FLAT-HARDENED ZINC	8	
13		250607001	BOLT-5/8-11 X 2 GR8 HEX Y/ZINC	5	
14		235715001	WASHER-5/8 SAE HARD ZINC PLTD	10	
15		238221001	NUT-5/8-11 GR8 NC Y/ZINC	5	

Platform Assembly - SN225 Fig 6-4x01r01

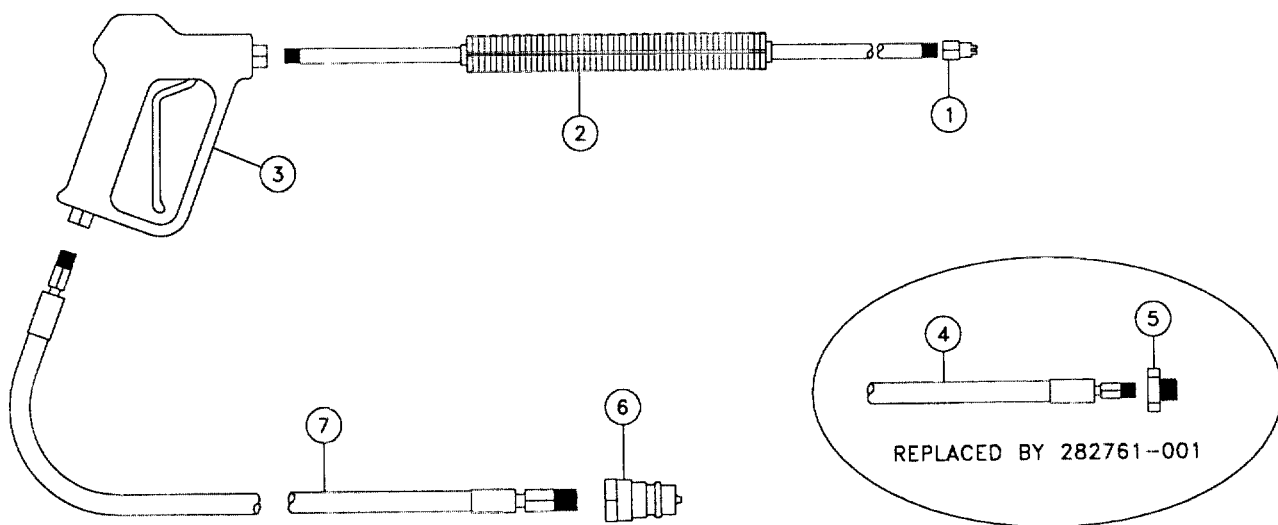


Platform Assembly - SN225 Fig 6-4x01r01

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		277816001	BAR -STEP PIVOT	1	
2		18150001	WASHER-2 OD X 13/32ID-1/4	2	
3		235713001	WASHER-3/8 SAE HARD ZINC PLTD	2	
4		235727001	BOLT-3/8-16X1 GR8 HEX ZINC PLT	2	
5		2109003	PIN LOCKING - 3/8 X 2 1/4	2	
6		1838001	CONNECTOR-WIRE (ETC)	4	
7		1830059	NYLON COATED CABLE-3/32-10.00	2	
8		278249001	PLATFORM-WATER PUMP	1	
9		287038001	LADDER-TANK	1	
10		235721001	BOLT-1/2-13X1 1/2 GR 8 ZINC PLT	4	
11		235731001	NUT-1/2-13 GR 8 ZIN CPLT	4	
12		485025	WASHER-1/2 FLAT HARDENED ZINC	8	
13		243921001	BOLT-3/4-10X2 1/4 GR 8 ZP	5	
14		235717001	WASHER-3/4 FLAT HRDND Y/ZNC	10	
15		235739001	NUT-3/4-10 GR 8 ZINC PLTD	5	

Wand Assembly Fig 6-5r03

Revised October 1999 due to update
in illustration & parts list. Changed/
added parts marked with *.

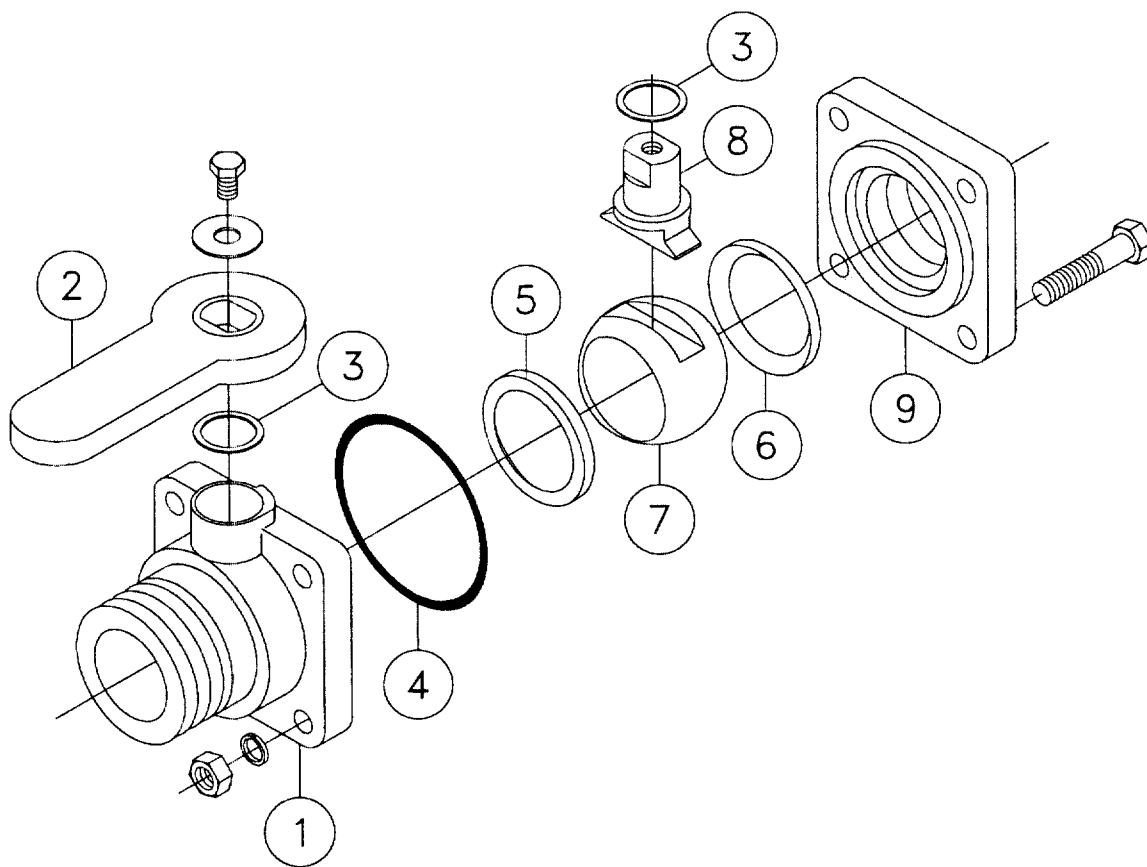


Wand Assembly Fig 6-5r03

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		904576001	SPRAY NOZZLE	1	
2		904577001	MOLDED LANCE	1	
3		904578001	GUN HANDLE	1	
4		129692001	HOSE-3/8X 300 1/4M/3/BMS NPTF	1	Replaced By 282761-
5		730003	1/2" X 1/4" HEX BUSHING STEEL	1	
6		227236001	COUPLER-1/2" NPT QUICK	1	MALE
7		282761001	*HOSE-3/8X50D 3/8 MSNPT/1/2 MNPT	1	
		240264001	*WASH WAND ASSY		Replaces 227891001

Ball Valve Components - 2" Fig 6-6r03

Revised February 2000 due to update
in figure. Figure is new.

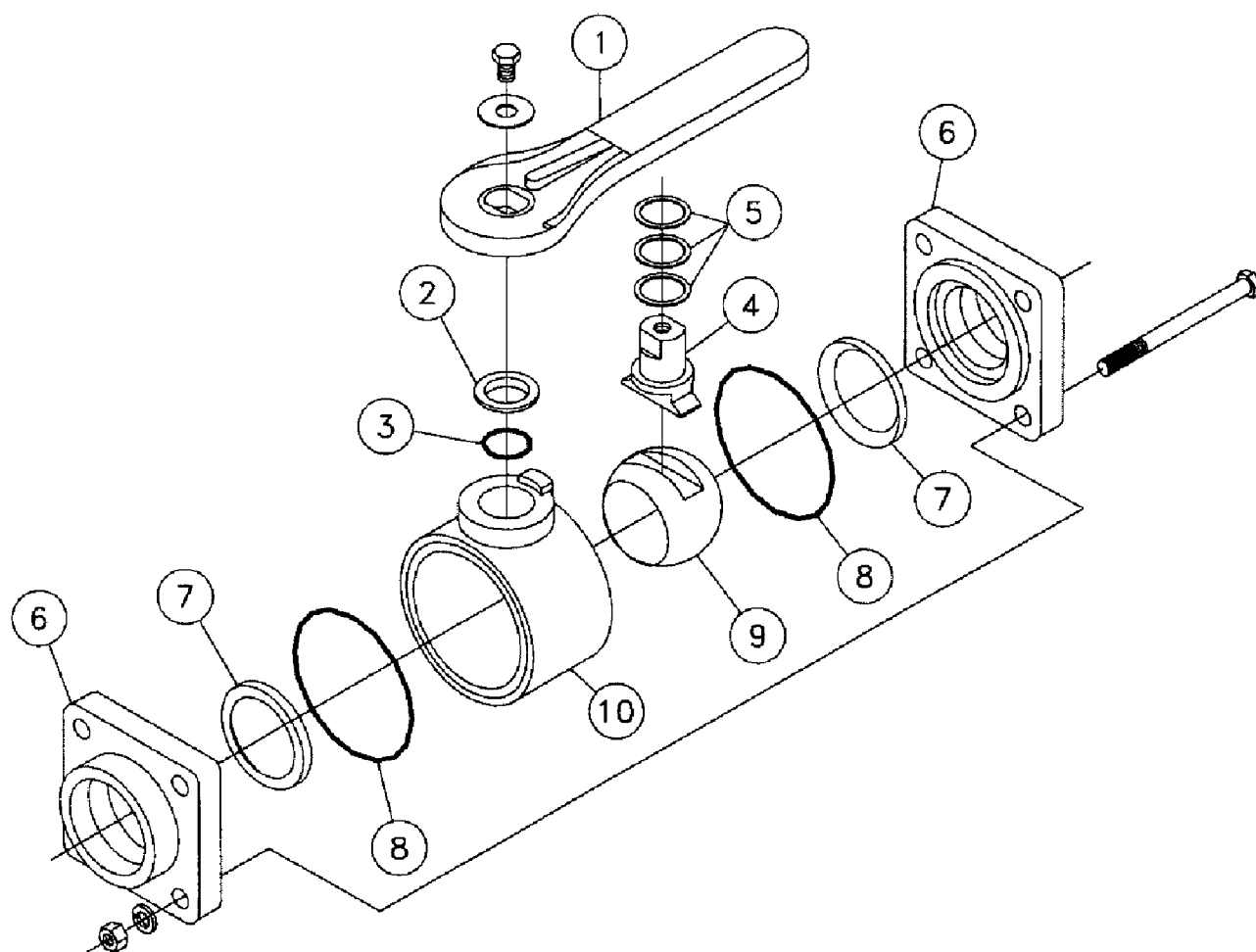


Ball Valve Components - 2" Fig 6-6r03

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		236045003	BODY-2" MNPT	1	
2		236045005	HANDLE-SHORT	1	
3		22494201	THRUST WASHER	2	
4		236045007	GASKET-BODY	1	
5		236045009	SEAT	1	
6		236045011	SEAT	1	
7		236045013	BALL	1	
8		236045015	STEM	1	
9		224942013	END PLATE	1	

Ball Valve Components - 3/4" Fig 6-7r01

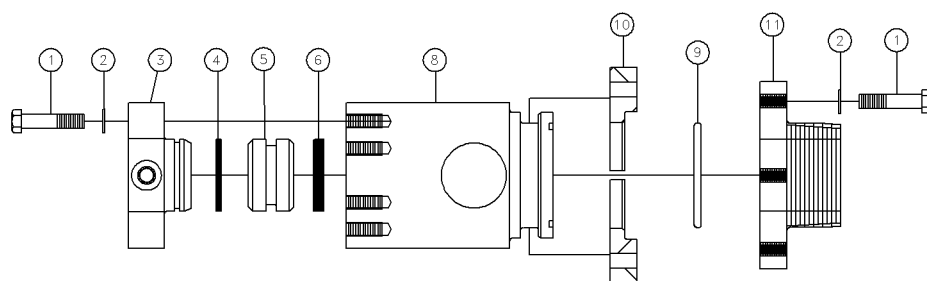
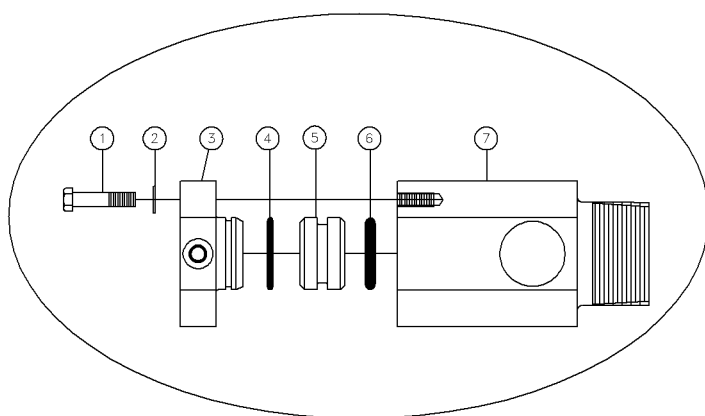
Revised June 1999 due to change
in water pump starting w/ Serial
No. 119. Figure is new.



Ball Valve Components - 3/4" Fig 6-7r01

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		225847003	HANDLE	1	
2		225847005	UPPER STEM BUSHING	1	
3		225847007	STEM O-RING VITON	1	
4		225847009	STEM	1	
5		225847011	THRUST WASHER	3	
6		225847013	END PLATE	2	
7		225847015	BALL SEATS	2	
8		225847017	VALVE BODY O-RING	2	
9		225847019	VALVE BALL	1	
10		225847021	VALVE BODY	1	
		225847023	REPAIR KIT		INC. REF. 2, 3, 5, 7 & 8
		225847001	VALVE-3/4"FPT BALL		POLY, INC. ALL ITEMS IN FIGURE
			Revised June 1999 due to change in water pump starting w/ Serial No. 119. Figure is new.		

Water Pump Outlet Components - SN101-169 Fig 6-8r04

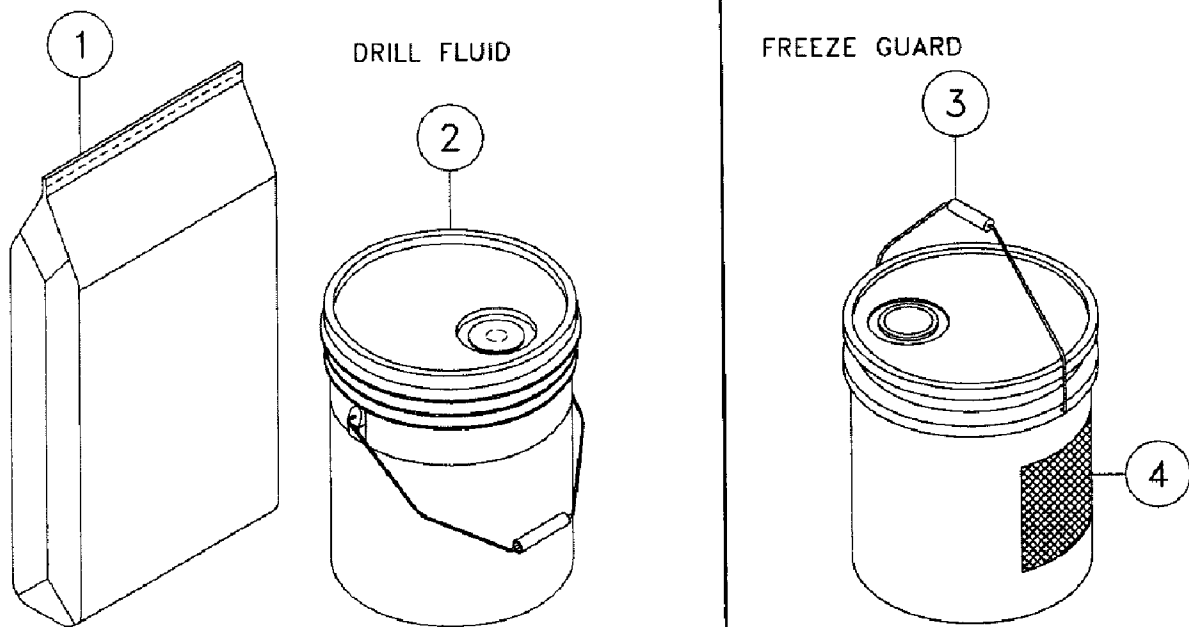


Water Pump Outlet Components - SN101-169 Fig 6-8r04

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
		Revision Date	January, 2005		Update In Illustration & Parts List.
1		235720001	BOLT-3/8-16X1 3/4 GR8 ZINC PLT	12	
2		235713001	WASHER-3/8 SAE HARD ZINC PLTD	12	
3	*	283638001	ENDCAP-SC115L OUTLET FITTING	1	PN Change
4		51163001	O-RING	1	
5		239251001	PISTON-SC65 OUTLET FITTING	1	
6		51181001	O-RING	1	
7		239467001	FITTING-APLEX SC115L OUTLET	1	
8		277842001	FITTING-APLEX SC115L OUTLET	1	
9		227589001	O-RING	1	
10		277843001	FANGE-SPLIT SC115L OUTLET	1	
11		277841001	FLANGE-SC115L OUTLET	1	
	*	283640001	OUTLET ASSY - SC115L FLANGE		PN Change

Drill Fluid/Freeze Guard Assembly Fig 6-9r01

Revised June 1999 due to change
in water pump starting w/ Serial
no. 119. Figure is new.

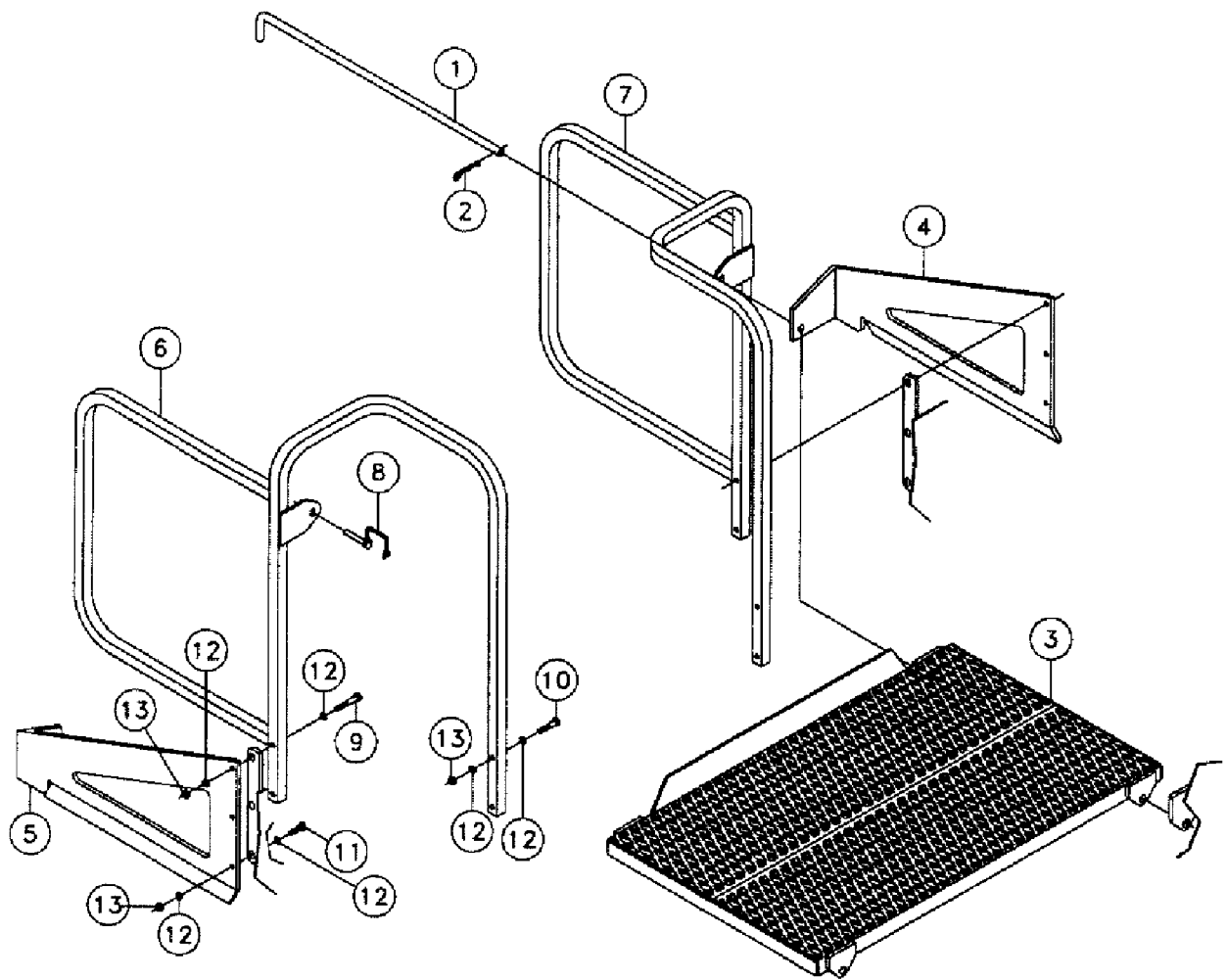


Drill Fluid/Freeze Guard Assembly Fig 6-9r01

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		123596001	BORE-GEL	1	50 LB BAG
		904882001	50LBS BAG QUICK GELL BENTONITE	1	
2		905216001	POLYMER	1	
		123595001	EZ-MUD - 5 GALLON	1	
3		210779001	5 GAL NAVIGATOR FREEZE GUARD	1	
		210779005	55 GAL NAVIGATOR FREEZE GUARD	1	
4		70000675	DECAL NAVIGATOR FREEZE GUARD	1	5 Gal
		7000A027	DECAL NAVIGATOR FREEZE GUARD	1	55 Gal
			Revised June 1999 due to change in water pump starting w/ Serial No. 119. Figure is new.		

Platform Assembly - SN119-224 Fig 6-10r02

Revised June 1999 due to change
in water pump starting w/ Serial
No. 119. Figure is new.

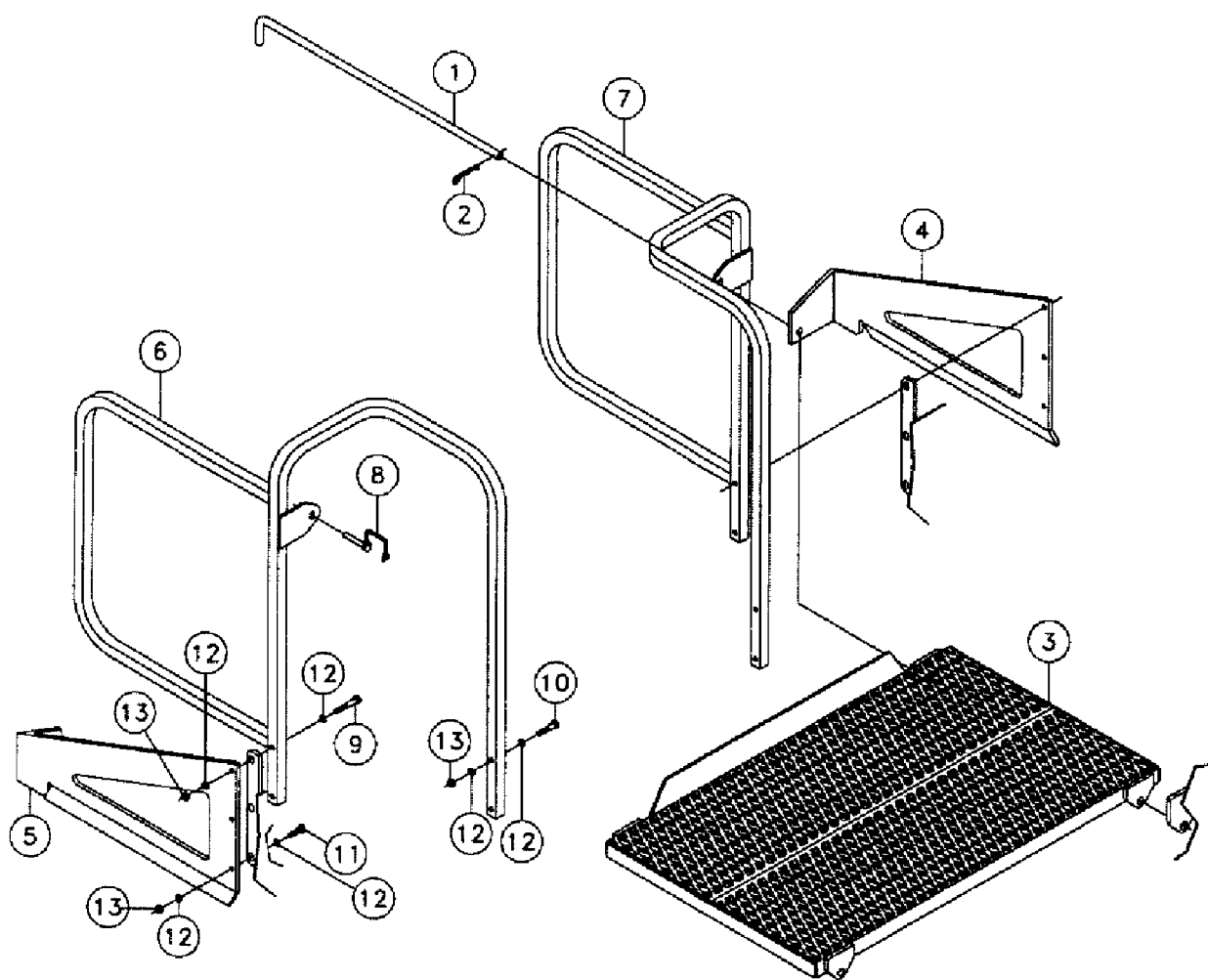


Platform Assembly - SN119-224 Fig 6-10r02

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		278132001	PIN-PLATFORM PIVOT	2	
2		1794003	HAIR PIN COTTER - .148 WIRE	2	
3		278097001	PLATFORM	1	
4		278127001	PLATE-PLATFORM SUPPORT	1	Right
5		278126001	PLATE-PLATFORM SUPPORT	1	Rear
6		278103001	HANDRAIL - LEFT PLATFORM	1	
7		278104001	HANDRAIL - RIGHT PLATFORM	1	
8		2109001	PIN-38-20 LP 3/8 X 2 1/4	1	
9		250504001	BOLT 3/8-16 X 2 1/4" GR8 HEX	4	
10		235720001	BOLT-3/8-16 X 1 3/4 GR8 ZINC PLT	4	
11		235736001	BOLT-3/8-16 X 1 1/4 ZINC PLTD	2	
12		235713001	WASHER-3/8 SAE HARD ZINC PLTD	20	
13		235725001	NUT-3/8-16 GR8 ZINC PLTD	10	

Platform Assembly - SN225- Fig 6-10x01

Revised June 1999 due to change
in water pump starting w/ Serial
No. 119. Figure is new.

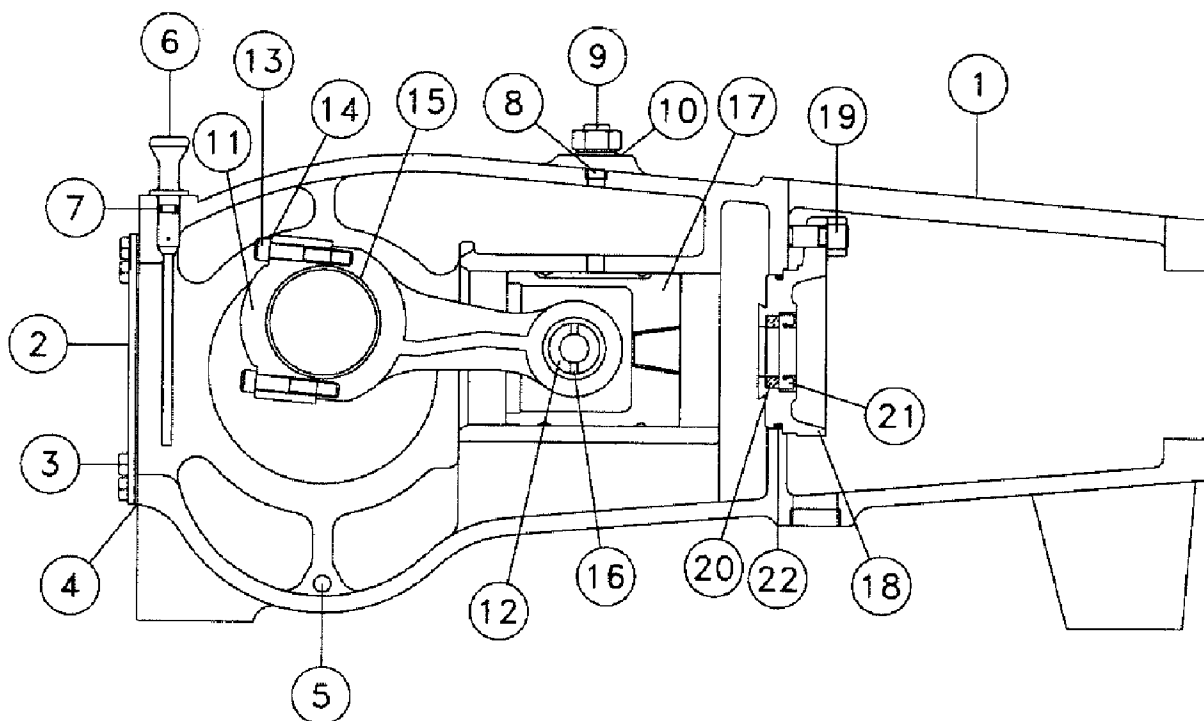


Platform Assembly - SN225- Fig 6-10x01

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		287068001	PIN-PLATFORM PIVOT	2	
2		1794003	HAIR PIN COTTER - .148 WIRE	2	
3		287065001	PLATFORM	1	
4		287066001	PLATE-PLATFORM SUPPORT	1	Right
5		287067001	PLATE-PLATFORM SUPPORT	1	Rear
6		278103001	HANDRAIL - LEFT PLATFORM	1	
7		278104001	HANDRAIL - RIGHT PLATFORM	1	
8		2109001	PIN-38-20 LP 3/8 X 2 1/4	1	
9		250504001	BOLT 3/8-16 X 2 1/4" GR8 HEX	4	
10		235720001	BOLT-3/8-16 X 1 3/4 GR8 ZINC PLT	4	
11		235736001	BOLT-3/8-16 X 1 1/4 ZINC PLTD	2	
12		235713001	WASHER-3/8 SAE HARD ZINC PLTD	20	
13		235725001	NUT-3/8-16 GR8 ZINC PLTD	10	

Water Pump Components - 150 Gal. (SC115L) - Power Frame Fig 6-11r01

Revised June 1999 due to change
in water pump starting w/ Serial
No. 119. Figure is new.

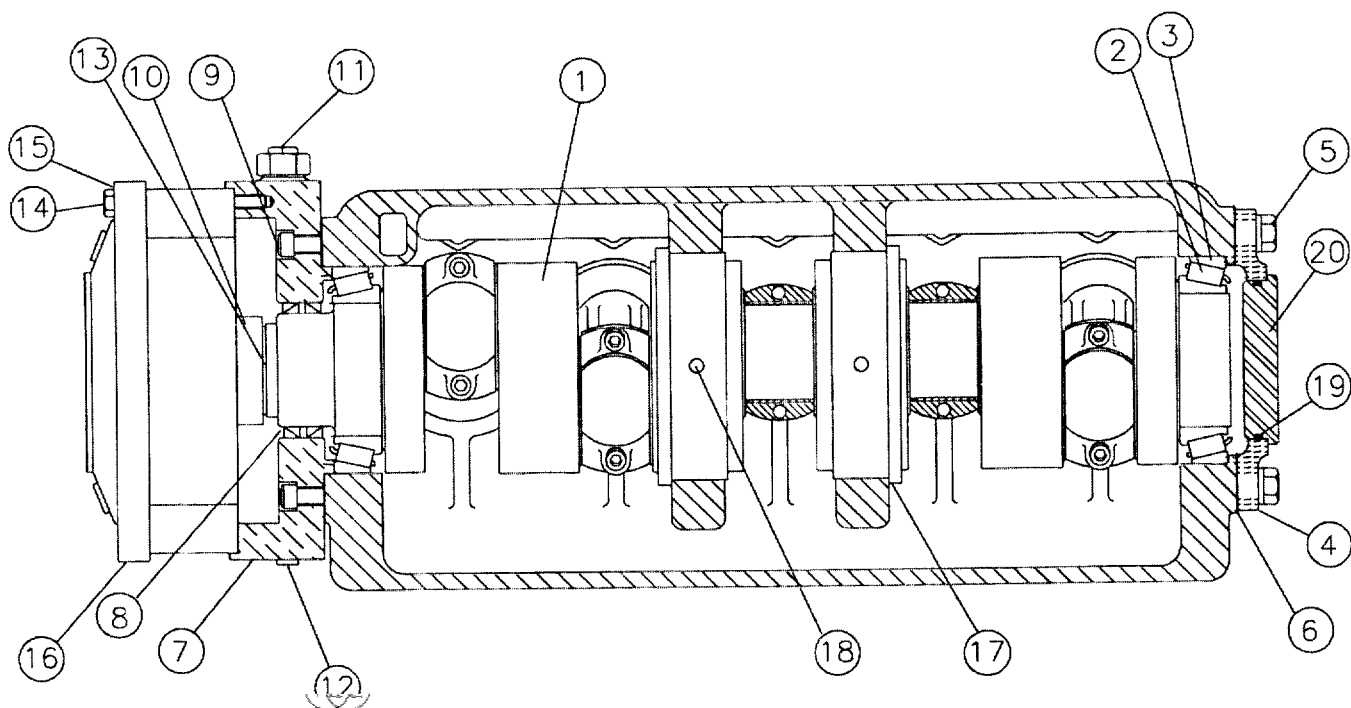


Water Pump Components - 150 Gal. (SC115L) - Power Frame Fig 6-11r01

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		277781003	POWER FRAME	1	
2		239383007	CRANKCASE COVER	1	
3		220741009	3/8-16X5/8 HHCS	12	
4		239383011	GASKET-CRANKCASE COVER	1	
5		239383013	PLUG-1/2 NPT SQ HEAD	2	
6		224408081	OIL LEVEL DIPSTICK	1	
7		220741023	O-RING 2-023	1	
8		239383009	PLUG-1/4 NPT SOCKET HEAD PLUG	5	
9		244643003	BREATHER-CRANKCASE 3/4M NPT	1	
10		220741017	1/2" NPT PLUG-SOCKET HEAD	3	
11		277781005	CONNECTING ROD ASSY.	5	INC. REF. 11-14
12		224408087	WRIST PIN BUSHING	5	
13		4478024	3/8-16X2 1/2 SOCK HD.	10	
14		480007	WASHER-3/8 S/T LOCK	10	
15		224408089	CRANK PIN BEARING HALF	10	
16		224408091	WRIST PIN	5	
17		224408093	CROSSHEAD	5	
18		224408095	WIPER BOX	5	
19		224408097	HEX HEAD CAP SCREW 1/2 X 1 1/2	10	
20		224408099	POLYPAK RING	5	
21		224408101	OIL SEAL-WIPER BOX	5	
22		224408103	O-RING-WIPER BOX	5	

Water Pump Components - 150 Gal. (SC115L) - Crankshaft Fig 6-12r02

Revised February 2000 due to update
in parts list. Changed part marked with *.

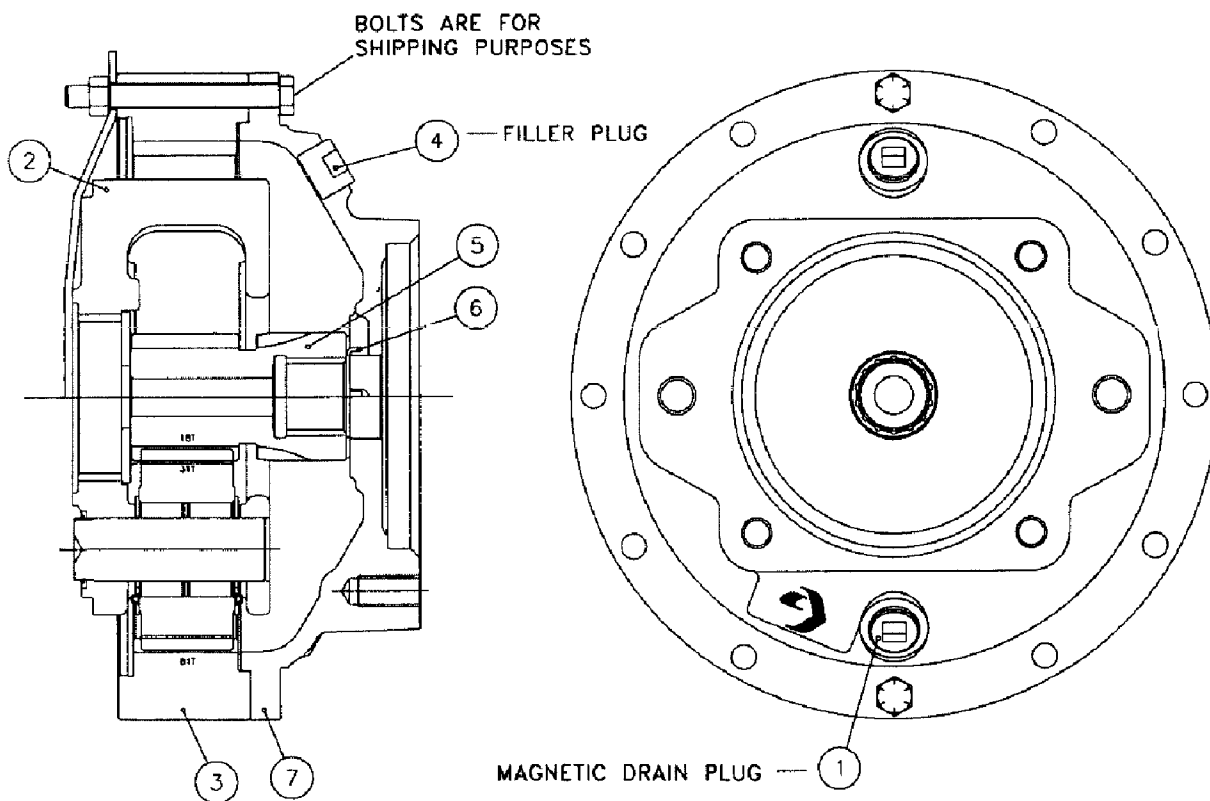


Water Pump Components - 150 Gal. (SC115L) - Crankshaft Fig 6-12r02

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		277781007	CRANKSHAFT	1	
2		234309005	*BEARING-CONE	2	
3		234309007	BEARING CUP	2	
4		277781011	RETAINER-BEARING	1	
5		224408097	HEX HEAD CAP SCREW 1/2 X 1 1/2	6	
6		277781013	SHIM SET	1	
7		277781015	BEARING RETAINR-GEARBX ADAPT	1	
8		244643007	SEAL-OIL	2	
9		244643009	SCREW-1/2-13 X 1 3/4 SOCK HD C	6	
10		277781017	SHAFT-PLANETARY OUTPUT	1	
11		277781019	FILTER-BREATHER	1	
12		234309019	1/4 NPT PIPE PLUG	2	
13		244643013	RING-SNAP	1	
14		244643015	SCREW-3/8-16 X 3 1/4 HEX HD CA	12	
15		244643017	WASHER-STAT O SEAL-3/8	12	
16		277781021	GEARBX-#8 KIT 5.5:1 RATIO AUBURN	1	Breakdown Fig.
17		277781023	BEARING-CENTER	2	
18		239383089	SET SCREW-3/8 NC X 1 1/2 SOC HD	2	
19		239383087	O-RING	1	
20		277781025	PLUG-CRANKSHAFT	1	

Water Pump Components - 150 Gal. (SC115L) - Gearbox Fig 6-13

Revised June 1999 due to change
in water pump starting w/ Serial
No. 119. Figure added to manual.

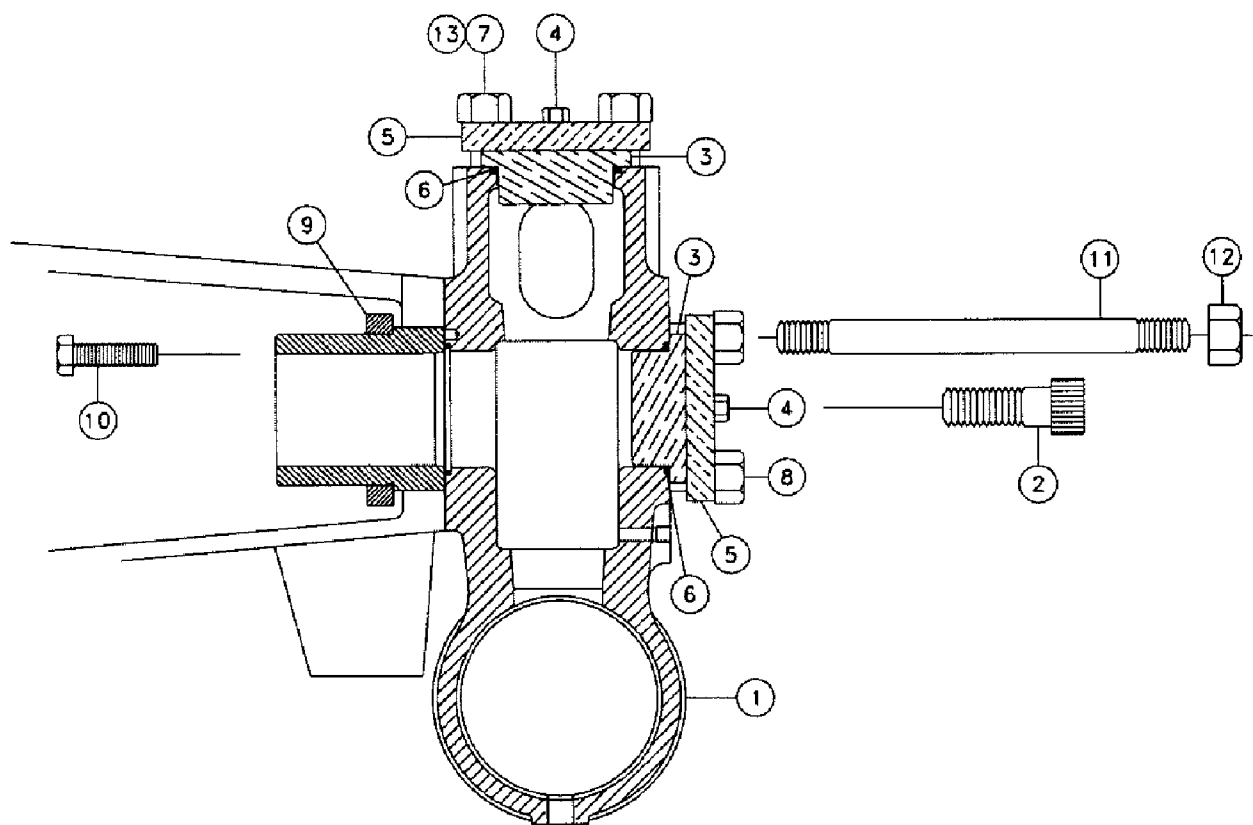


Water Pump Components - 150 Gal. (SC115L) - Gearbox Fig 6-13

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		221652035	MAGNETIC PLUG	1	
2		277781027	SEC. CARRIER ASSY.	1	
3		277781029	GEAR-RING	1	
4		221652039	PIPE PLUG	1	
5		277781031	GEAR-SUN	1	
6		131488021	THRUST WASHER	1	
7		277781033	COVER	1	
		277781021	GEARBOX-#8 5.5:1 RATIO AUBURN		INC. ALL ITEMS IN FIGURE
			Revised June 1999 due to change in water pump starting w/ Serial No. 119. Figure added to manual.		

Water Pump Components - 150 Gal. (SC115L) - Fluid End Fig 6-14

Revised June 1999 due to change
in water pump starting w/ Serial
No. 119. Figure added to manual.

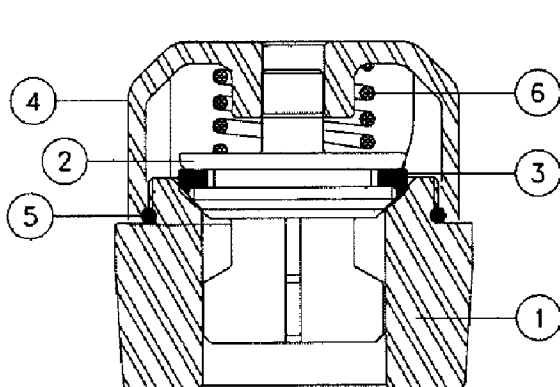


Water Pump Components - 150 Gal. (SC115L) - Fluid End Fig 6-14

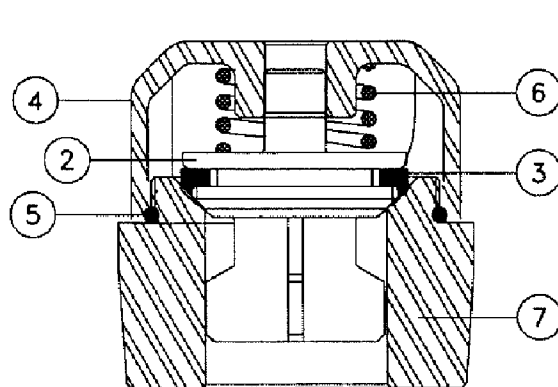
REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		244643019	FLUID END-DUCTILE IRON	1	
2		224408107	SOCKET HD CAPSCREW 7/8X2 3/4	2	
3		244643012	VALVE COVER & CYL. HEAD PLUG	10	
4		239383023	CAP SCREW-1/2 NC-1 1/4 HEX HD	10	
5		239383019	VALVE COVER RETAINER PLATE	2	
6		239383021	O-RING	10	
7		244643023	SCREW-3/4-10 X 2 1/2 HEX HD C	4	
8		244643025	SCREW-3/4-10 X 9 1/2 HEX HD C	10	
9		239383075	RETAINER PLATE	1	
10		277781035	HEX HD CAP SCREW 5/8X2 1/4"	2	
11		277781037	STUD-POWER FRME TO FLUID END	2	
12		277781039	NUT-3/4" HEAVY HEX	4	
13		277781041	HEX HD CAP SCREW 3/4X4	8	
			Revised June 1999 due to change in water pump starting w/ Serial No. 119. Figure added to manual.		

Water Pump Components - 150 Gal. (SC115L) - Suction/Discharge Valve Fig 6-15

Revised June 1999 due to change
in water pump starting w/ Serial
No. 119. Figure is added to manual.



SUCTION
VALVE



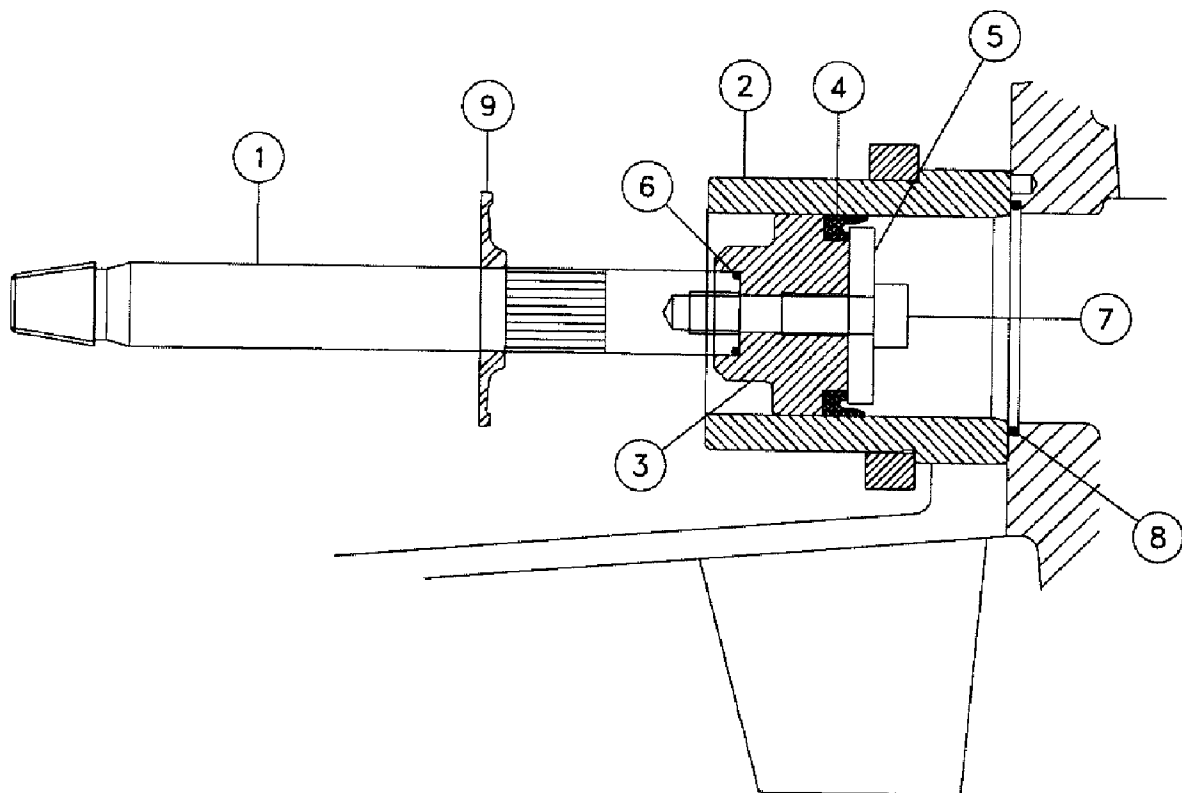
DISCHARGE
VALVE

Water Pump Components - 150 Gal. (SC115L) - Suction/Discharge Valve Fig 6-15

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		277781043	VALVE SEAT-SUCTION	5	
2		277781045	VALVE BODY	10	
3		277781047	POLYURETHANE INSERT	10	
4		277781049	GUIDE CAGE	10	
5		277781051	O-RING	10	
6		277781053	VALVE SPRING	10	
7		277781055	VALVE SEAT-DISCHARGE	5	
		277781057	VALVE ASSY.-SUCTION		Inc. Ref. 1-6
		277781059	VALVE ASSY.-DISCHARGE		Inc. Ref. 2-7
			Revised June 1999 due to change in water pump starting w/ Serial No. 119. Figure is added to manual.		

Water Pump Components - 150 Gal. (SC115L) - Piston 3" Fig 6-16

Revised June 1999 due to change
in water pump starting w/ Serial
No. 119. Figure is added to manual.

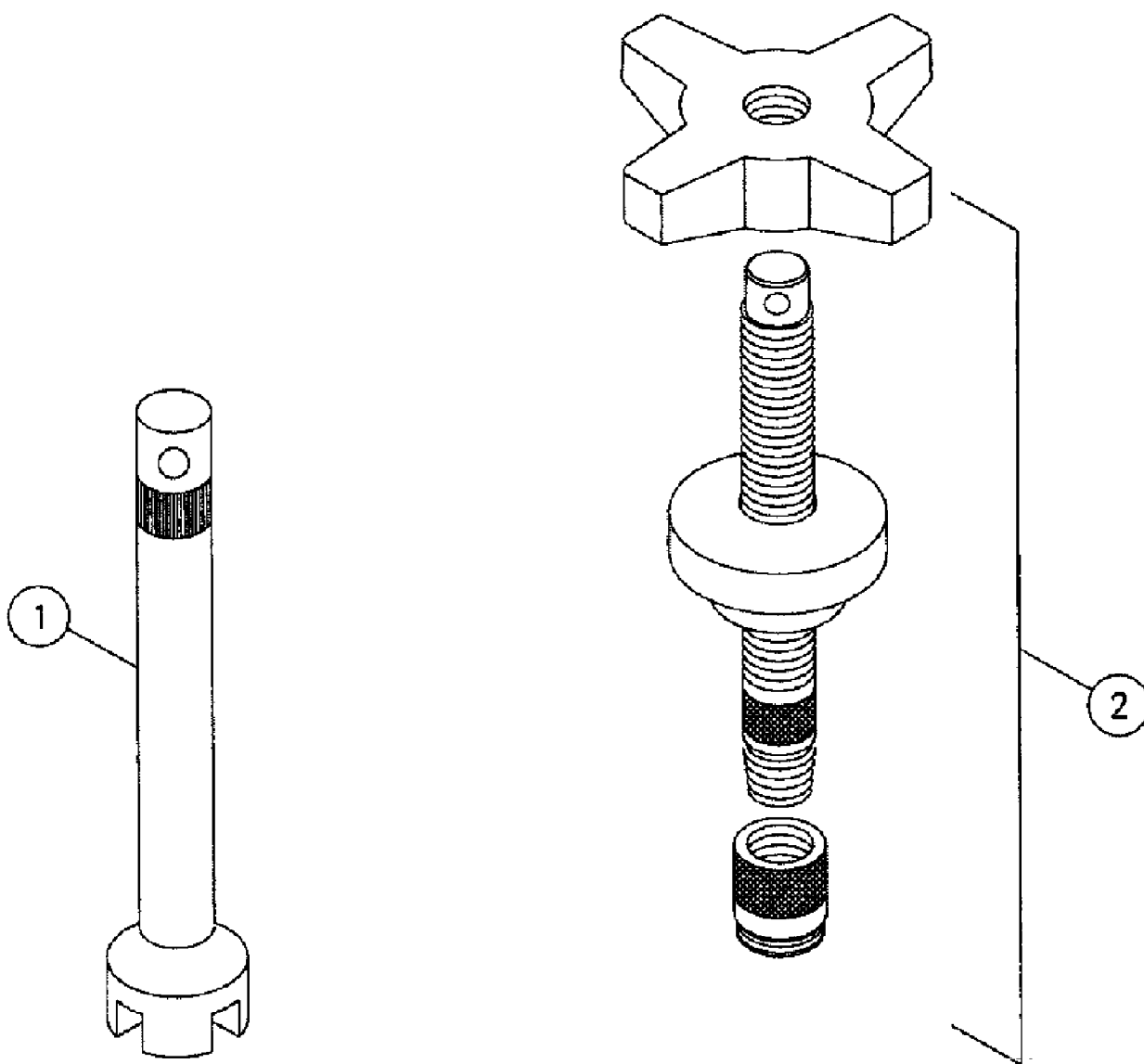


Water Pump Components - 150 Gal. (SC115L) - Piston 3" Fig 6-16

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		279254001	PISTON - ROD	5	
2		279257001	PISTON LINER - TECH23 - 3.00"	5	
3		279259001	PISTON HUB - 3.00 DIA	5	
4		279261001	PISTON CUP - 3.00" DIA	5	
5		279263001	PISTON KEEPER - 3.00" DIA	5	
6		220741075	O-RING-POLYURETHANE SIZE 024	5	
7		279264001	PISTON - FASTENER END	5	
8		239383021	O-RING	5	
9		277781061	BAFFLE PLATE	5	
			Revised June 1999 due to change in water pump starting w/ Serial No. 119. Figure is added to manual.		

Water Pump Components - 150 Gal. (SC115L) - Special Tools Fig 6-17

Revised June 1999 due to change
in water pump starting w/ Serial
No. 119. Figure is added to manual.

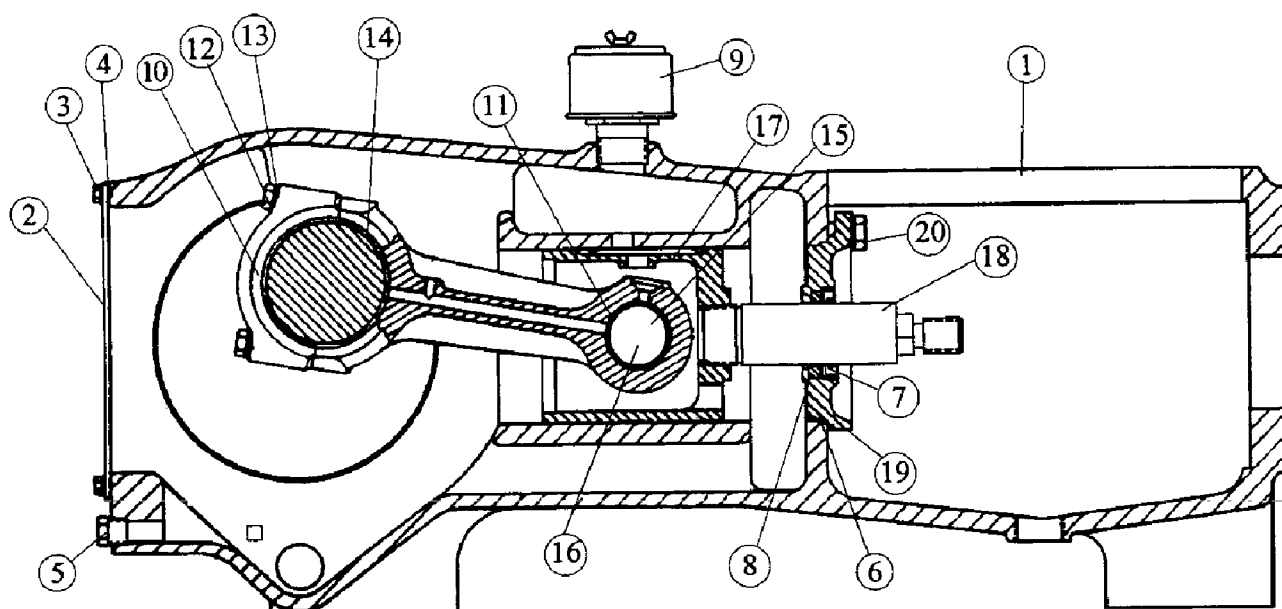


Water Pump Components - 150 Gal. (SC115L) - Special Tools Fig 6-17

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		277781065	WRENCH-CAGE	1	
2		277781063	VALVE PULLER ASSY.	1	
			Revised June 1999 due to change in water pump starting w/ Serial No. 119. Figure is added to manual.		

Water Pump Components - 200 Gal. (SC170) - Power Frame Fig 6-18r01

Revised June 1999 due to change
in water pump starting w/ Serial
No. 119. Figure is added to manual.

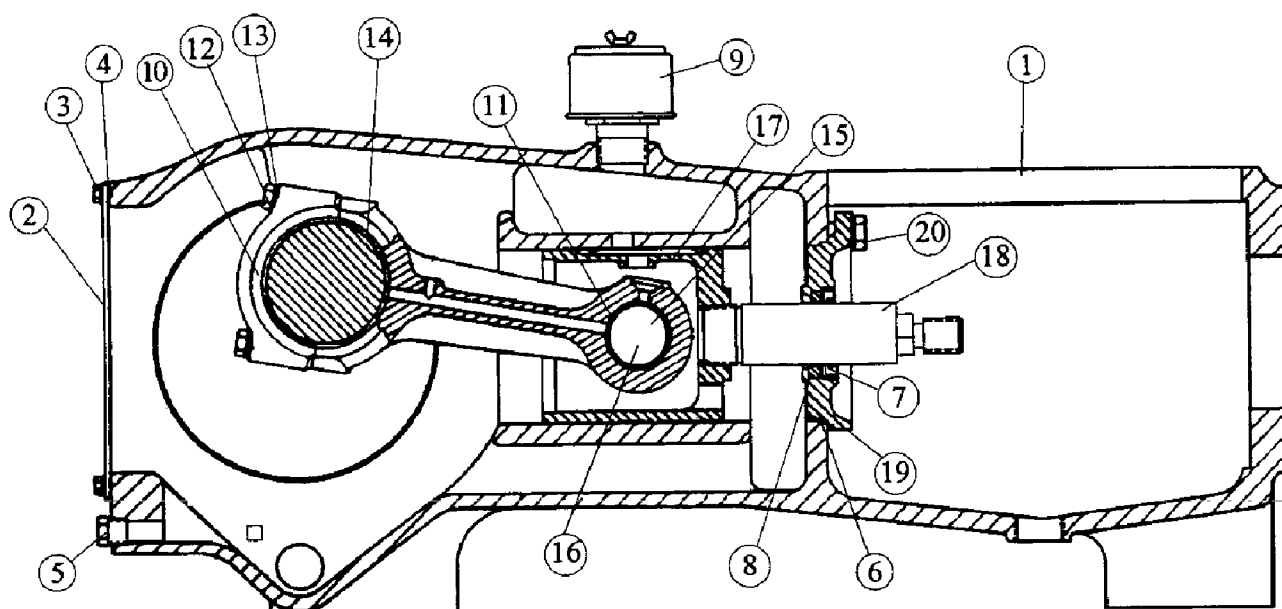


Water Pump Components - 200 Gal. (SC170) - Power Frame Fig 6-18r01

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
		Revision Date	March, 2005		Corrected length of callout 16
1		277780004	FRAME-POWER	1	
2		277780005	COVER-CRANKCASE	1	
3		277780006	HEX HD CAP SCREW-3/8X3/4	14	
4		277780007	GASKET-CRANKCASE COVER	1	
5		277780008	PLUG-1/2' HEX HD	1	
6		277780009	O-RING-NITRILE RUBBER	3	
7		277780010	SEAL-OIL	3	
8		277780011	POLYPAK RING-2" ID X 2 3/4" OD	3	
9		277780015	BREATHER-CRANKCASE	1	
10		277780013	CONNECTING ROD ASSY.	3	Inc. Ref. 10-13
11		277780014	BUSHING-WRIST PIN	3	
12		277780012	BOLT-CONNECTING ROD	6	
13		277780016	WASHER-1/2' MEDIUM SPRING LOCK	6	
14		277780017	BEARING HALF-CRANKPIN	6	w/ Oil GRV
15		277780018	PIN-WRIST	3	
16	*	277780019	SET SCR-3/8 NC X 3/4 NYLCK SOC HD	3	NOT SHOWN
17		277780020	CROSSHEAD	3	
18		277780021	ROD-EXTENSION	3	
19		277780022	WIPERBOX	1	
20		277780023	HEX HD CAP SCREW-5/8 X 1 1/2"	6	
			Revised June 1999 due to change in water pump starting w/ Serial No. 119. Figure is added to manual.		

Water Pump Components - 200 Gal. (SC170) - Power Frame Fig 6-18

Revised June 1999 due to change
in water pump starting w/ Serial
No. 119. Figure is added to manual.

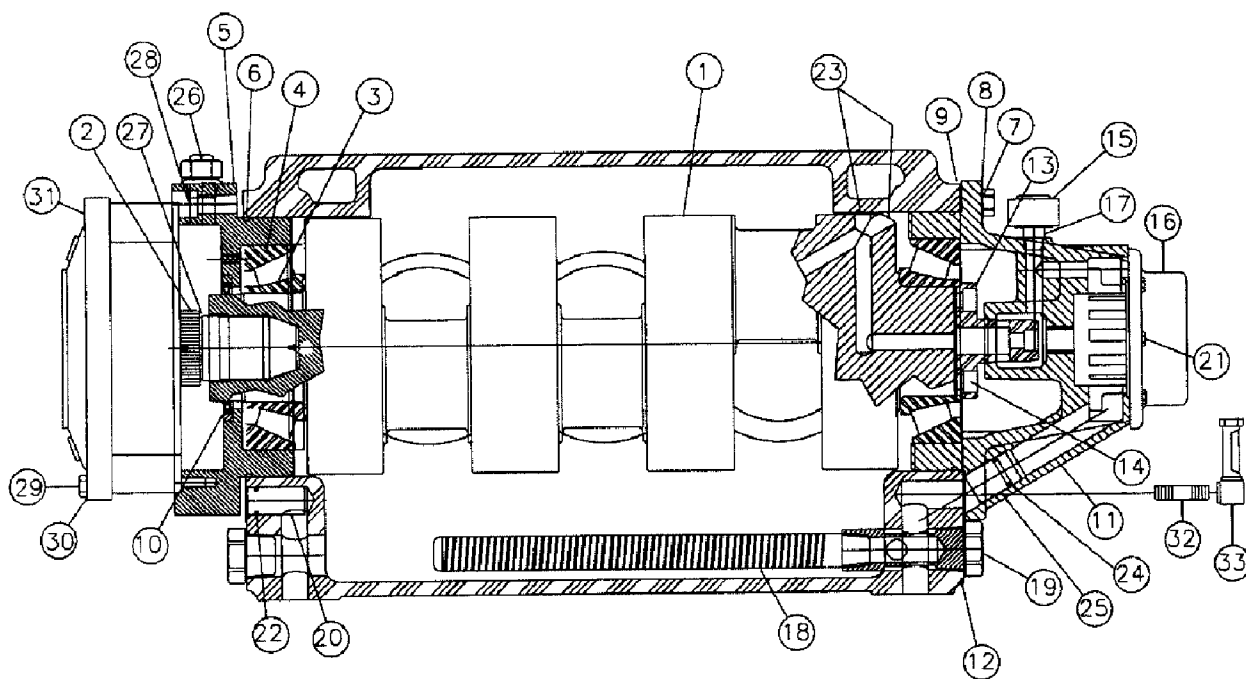


Water Pump Components - 200 Gal. (SC170) - Power Frame Fig 6-18

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		277780004	FRAME-POWER	1	
2		277780005	COVER-CRANKCASE	1	
3		277780006	HEX HD CAP SCREW-3/8X3/4	14	
4		277780007	GASKET-CRANKCASE COVER	1	
5		277780008	PLUG-1/2' HEX HD	1	
6		277780009	O-RING-NITRILE RUBBER	3	
7		277780010	SEAL-OIL	3	
8		277780011	POLYPAK RING-2" ID X 2 3/4" OD	3	
9		277780015	BREATHER-CRANKCASE	1	
10		277780013	CONNECTING ROD ASSY.	3	Inc. Ref. 10-13
11		277780014	BUSHING-WRIST PIN	3	
12		277780012	BOLT-CONNECTING ROD	6	
13		277780016	WASHER-1/2' MEDIUM SPRING LOCK	6	
14		277780017	BEARING HALF-CRANKPIN	6	w/ Oil GRV
15		277780018	PIN-WRIST	3	
16		277780019	SET SCR-3/8 NC X 1/2 NYLCK SOC HD	3	NOT SHOWN
17		277780020	CROSSHEAD	3	
18		277780021	ROD-EXTENSION	3	
19		277780022	WIPERBOX	1	
20		277780023	HEX HD CAP SCREW-5/8 X 1 1/2"	6	
			Revised June 1999 due to change in water pump starting w/ Serial No. 119. Figure is added to manual.		

Water Pump Components - 200 Gal. (SC170) - Crankshaft Fig 6-19

Revised June 1999 due to change
in water pump starting w/ Serial
No. 119. Figure is added to manual.

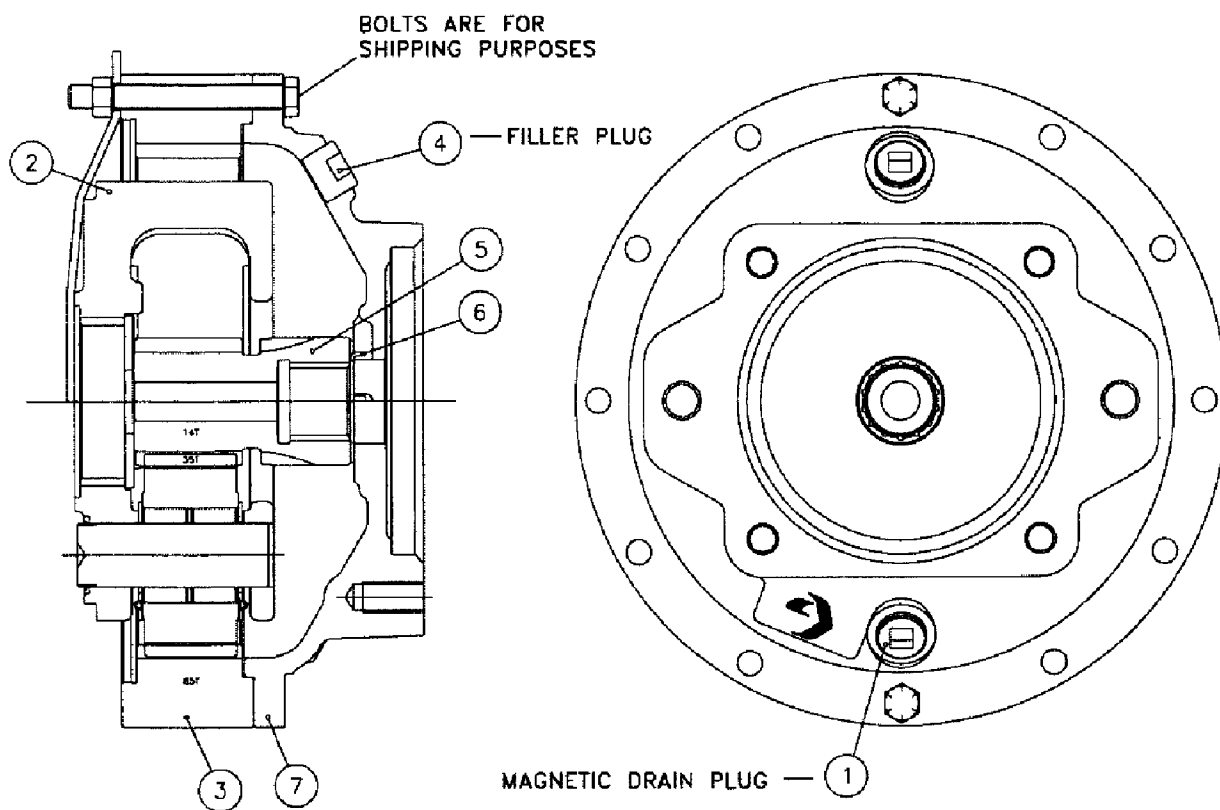


Water Pump Components - 200 Gal. (SC170) - Crankshaft Fig 6-19

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		277780024	CRANKSHAFT	1	
2		277780025	ADAPTOR-SPLINED	1	
3		277780026	CONE-BEARING	2	
4		277780027	CUP-BEARING	2	
5		277780028	BEARING CARRIER/GEAR ADAPTOR	1	
6		277780029	O-RING-NITRILE RUBBER	2	
7		277780030	HEX HD CAP SCREW-5/8 NC X 1 3/4	6	
8		277780031	WASHER-5/8" MEDIUM SPRING LOCK	6	
9		277780032	SHIM SET	1	
10		277780033	SEAL-OIL	1	DRIVE SIDE
11		277780043	CARRIER-BEARING	1	
12		277780034	GASKET	1	
13		277780035	RETAINER-BEARING	1	
14		277780036	SCREW-1/2"X1" SOC HD CAP,NYLOK	4	
15		277780037	SWITCH-MURPHY	1	
16		277780038	LUBE-OIL PUMP	1	
17		277780039	BUSHING-3/8X1/8 HEX	1	
18		277780040	FILTER-OIL 1X15	1	
19		277780041	PLUG-1 1/4" OIL FILTER	1	
20		277780042	PLUG-DRIVE	1	
21		277780044	HEX HEAD CAP SCR-5/16 NC X 5/8"	8	
22		277780045	O-RING-NITRILE RUBBER	1	
23		3213017	PLUG-RELIEF 3/8"	2	
24		277780046	O-RING-NITRILE RUBBER	1	
25		277780047	CHECK VALVE-BRASS	1	
26		220741019	BREATHER-CRANKCASE 3/4M NPT	1	
27		244643013	RING-SNAP	1	
28		277780048	SCREW-5/8X2 1/2" SOC HD CAP	6	
29		277780049	SCREW-3/8X3 1/4 HEX HD CAP	12	
30		244643017	WASHER-STAT O SEAL-3/8	12	
31		277780050	GEARBOX-#8 KIT 7.07 RATIO AUBRN	1	BREAKDOWN FIG. 6-20
32		277780051	NIPPLE-1/4X2 PIPE STD WT.	1	
33		220741127	OIL LEVEL SIGHT GAUGE	1	
			Revised June 1999 due to change in water pump starting w/ Serial No. 119. Figure is added to manual.		

Water Pump Components - 200 Gal. (SC170) - Gearbox Fig 6-20

Revised June 1999 due to change
in water pump starting w/ Serial
No. 119. Figure is added to manual.

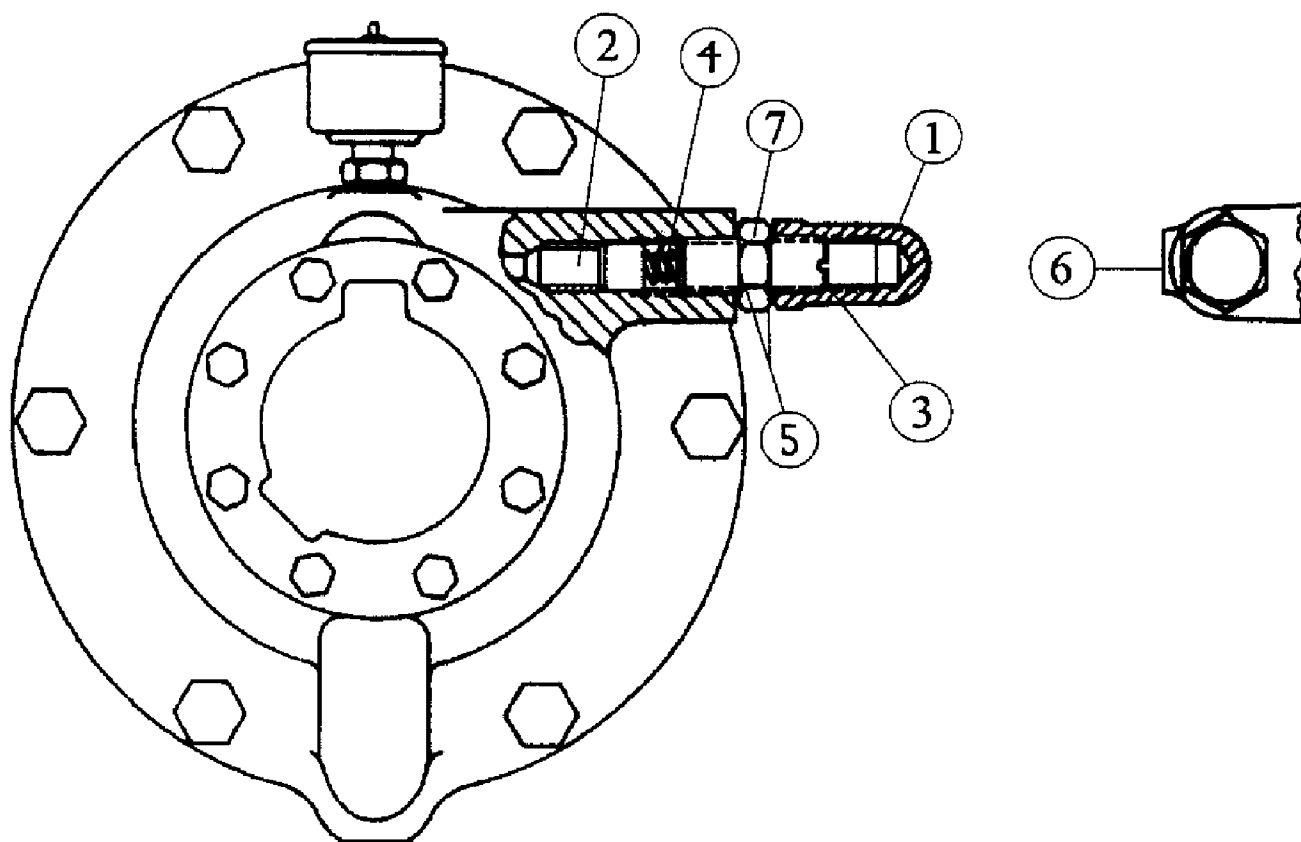


Water Pump Components - 200 Gal. (SC170) - Gearbox Fig 6-20

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		221652035	MAGNETIC PLUG	1	
2		277780052	SEC. CARR. ASSY.	1	
3		277780053	GEAR-RING	1	
4		221652039	PIPE PLUG	1	
5		277780054	GEAR-SUN	1	
6		131488021	THRUST WASHER	1	
7		277781033	COVER	1	
		277780050	GEARBOX-#8 KIT 7.07 RATIO AUBRN		INC. ALL ITEMS IN FIGURE
			Revised June 1999 due to change in water pump starting w/ Serial No. 119. Figure is added to manual.		

Water Pump Components - 200 Gal. (SC170) - Lube Assembly Fig 6-21

Revised June 1999 due to change
in water pump starting w/ Serial
No. 119. Figure is added to manual.

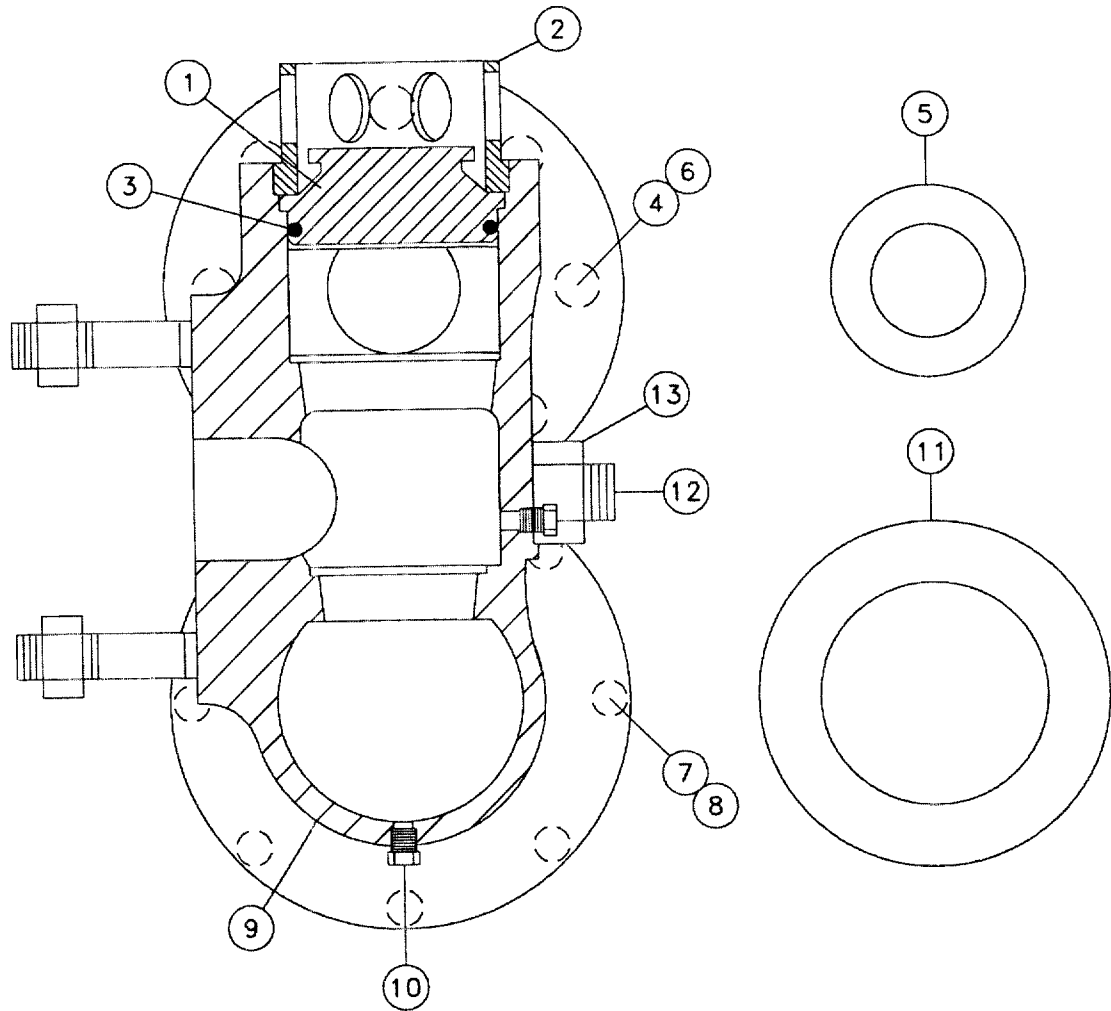


Water Pump Components - 200 Gal. (SC170) - Lube Assembly Fig 6-21

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		277780055	CAP-RELIEF VALVE	1	
2		277780056	PISTON-RELIEF VALVE	1	
3		277780057	ADJUSTING SCREW-RELIEF VALVE	1	
4		277780058	SPRING-RELIEF VALVE	1	
5		277780059	WASHER	1	
6		115222001	FITTING-1/8 NPT HEX SOCKET	1	
7		277780060	NUT-7/8-14 JAM	1	

Water Pump Components - 200 Gal. (SC170) - Fluid End Fig 6-22r01

Revised February 2000 due to update
in parts list. Changed part marked with *.

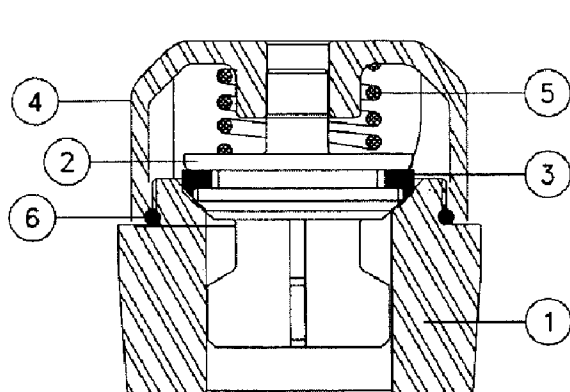


Water Pump Components - 200 Gal. (SC170) - Fluid End Fig 6-22r01

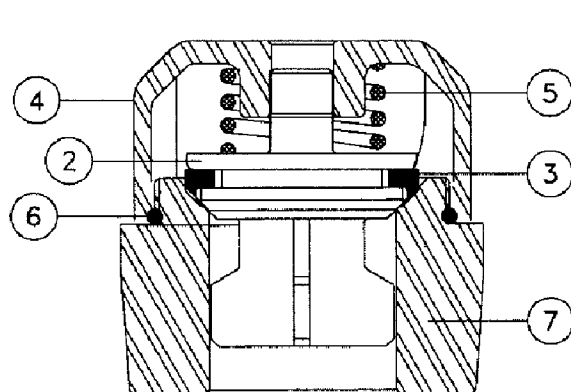
REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		277780061	COVER-VALVE	3	
2		277780062	SCREW-VALVE COVER	3	
3		277780063	O-RING	3	
4		277780064	NUT-1"-8 HVY HEX	16	
5		277780002	GASKET-DISCHARGE (4.125 OD)	2	
6		277780065	STUD-1" X 4 1/8"	16	
7		277781039	*NUT-3/4-10 HVY HEX	16	
8		277780067	STUD-3/4X3"	16	
9		277780068	LIQUID END	1	
10		27780069	PLUG-1/4 HEX SS	4	
11		277780003	GASKET-SUCTION (7.75 OD)	2	
12		277780070	STUD-PWR FRAME TO LIQUID END	2	
13		277780071	NUT-1 1/4-7 HVY HEX	2	

Water Pump Components - 200 Gal. (SC170) - Suction Fig 6-23

Revised June 1999 due to change
in water pump starting w/ Serial
No. 119. Figure is added to manual.



SUCTION
VALVE



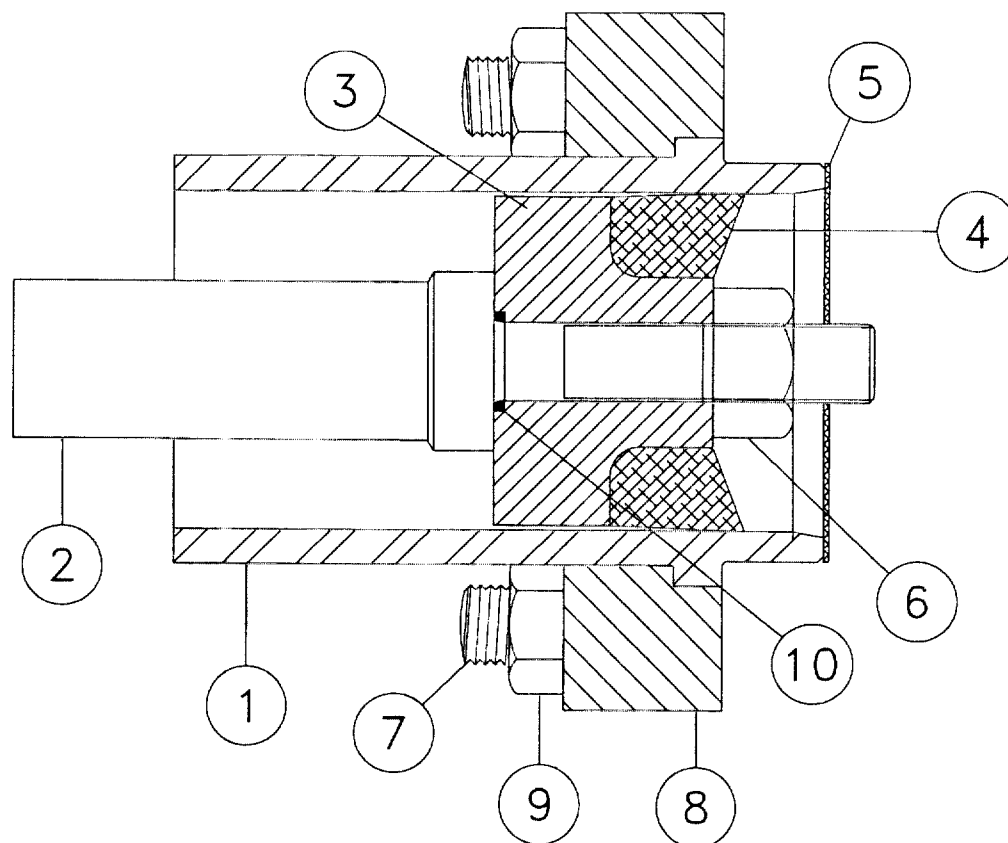
DISCHARGE
VALVE

Water Pump Components - 200 Gal. (SC170) - Suction Fig 6-23

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		277780072	VALVE SEAT-SUCTION	3	
2		277780073	VALVE BODY	6	
3		277780074	POLYURETHANE INSERT	6	
4		277780075	GUIDE CAGE	6	
5		277780076	VALVE SPRING	6	
6		277780077	O-RING-NITRILE RUBBER	6	
7		277780078	VALVE SEAT-DISCHARGE	3	
		277780079	VALVE ASSY.-SUCTION		Inc. Ref. 1-6
		277780080	VALVE ASSY.-DISCHARGE		Inc. Ref. 2-7
			Revised June 1999 due to change in water pump starting w/ Serial No. 119. Figure is added to manual.		

Water Pump Components - 200 Gal. (SC170) - Piston - 4" Fig 6-24r01

Revised February 2000 due to update
in illustration & parts list. Changed/
added parts marked with *.

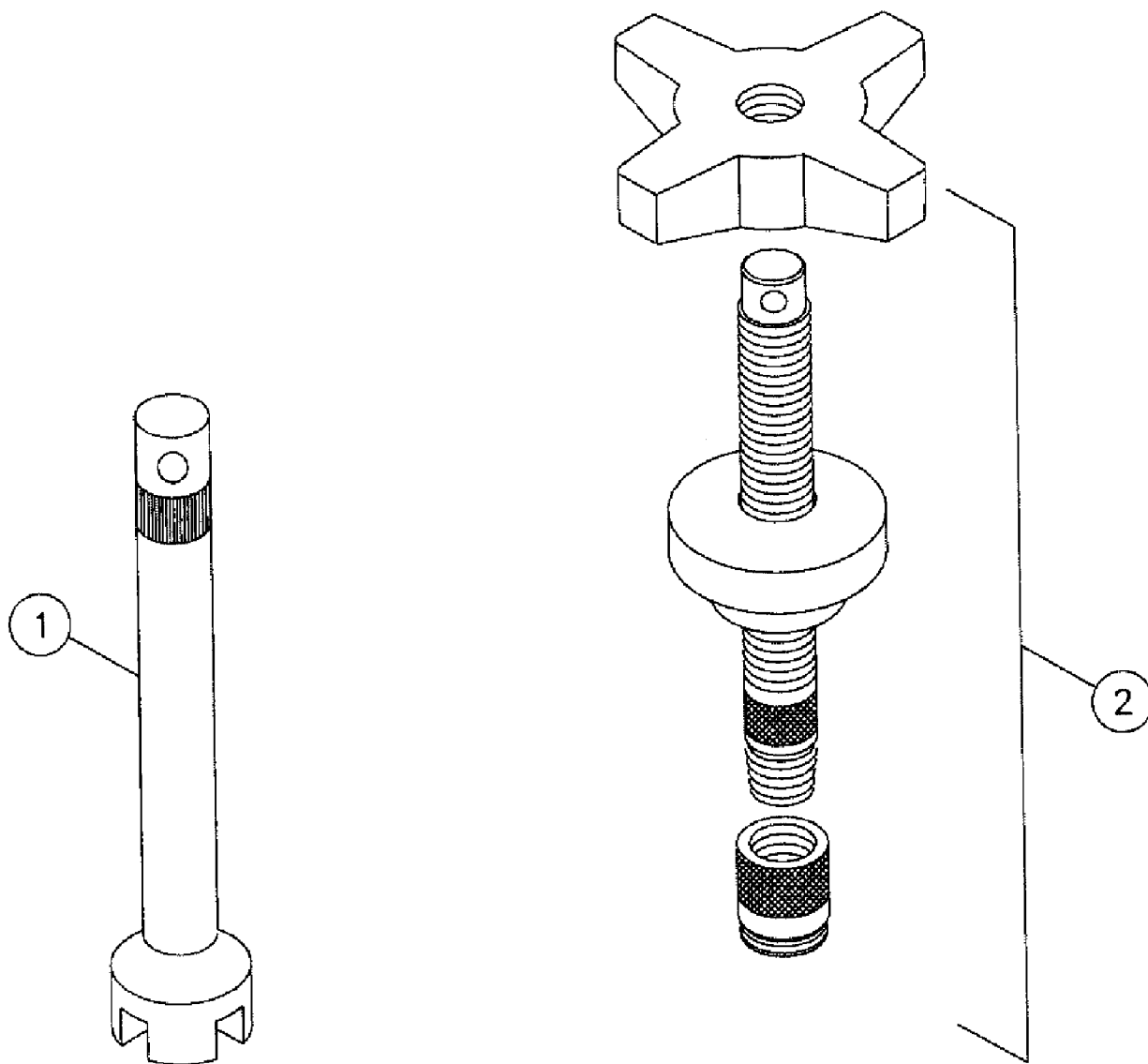


Water Pump Components - 200 Gal. (SC170) - Piston - 4" Fig 6-24r01

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		277780081	LINER-4" CHROME OXIDE PISTON	3	
2		277780082	ROD-PISTON	3	
3		277780083	*PISTON ASSY. (BLACK)	3	Inc. Ref. 4 & 6
4		NSS	PISTON RUBBER	3	
5		277780084	GASKET LINER	3	
6		277780085	NUT-SL PISTON ROD	3	
7		277780086	STUD	16	
8		277780088	LINER-PISTON FLANGE	4	
9		27780087	NUT-1* NC	16	
10		NSS	*O-RING	3	

Water Pump Components - 200 Gal. (SC170) - Special Tools Fig 6-25r01

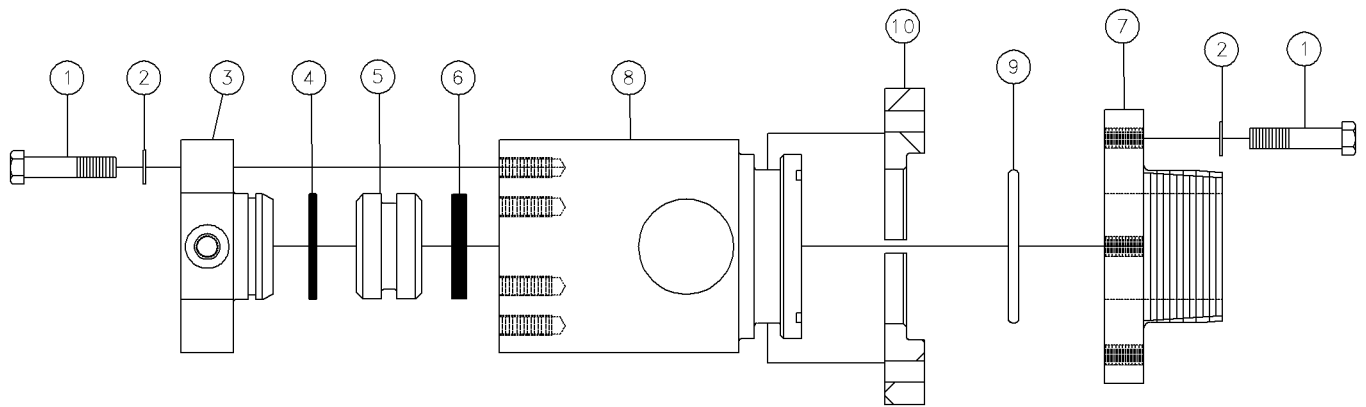
Revised June 1999 due to change
in water pump starting w/ Serial
No. 119. Figure is added to manual.



Water Pump Components - 200 Gal. (SC170) - Special Tools Fig 6-25r01

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		296251254	CAGE-WRENCH	1	
2		277780101	WING NUT	1	
3		277780095	VALVE SYSTEM	1	
4		277780097	BRIDGE	1	
5		277780093	PULLER HEAD	1	
6		277780099	BALL-1"	2	
7		277780091	O-RING	1	
8		277780089	VALVE PULLER ASSY.	1	INC. REF. 1-7
9		296251276	SC170 VALVE SEAT PULLER TOOL	1	INC. REF. 2-7

Water Pump Outlet Components - SN170- Fig 6-26r01

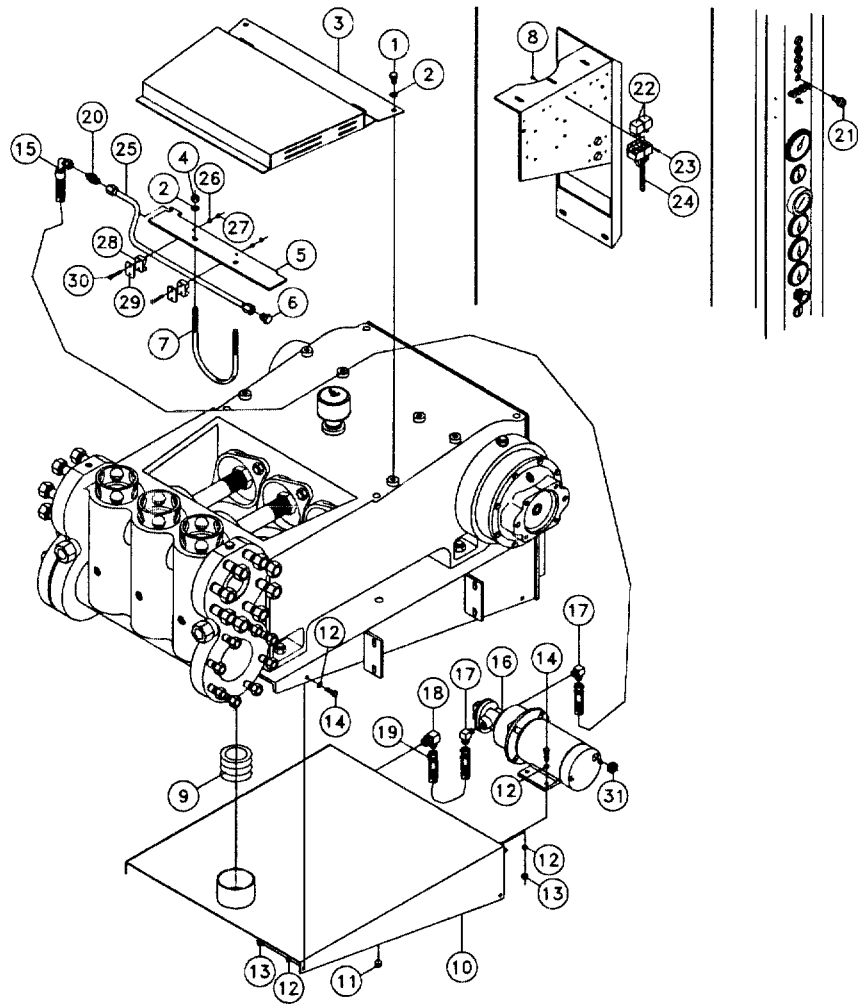


Water Pump Outlet Components - SN170- Fig 6-26r01

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
		Revision Date	January, 2005		Update In Illustration & Parts List.
1		354-016	BOLT-3/8-16X1 3/4" GR 5 HEX	12	
2		480-07	WASHER-3/8 S/T LOCK	12	
3	*	283638001	ENDCAP - SC115L OUTLET FITTING	1	PN Change
4		51163001	O-RING	1	
5		239252001	PISTON-SC65 OUTLET FITTING	1	
6		51181001	O-RING	1	
7		277841001	FLANGE-SC115L OUTLET	1	
8		277842001	FITTING-APLEX SC15L OUTLET	1	
9		227589001	O-RING	1	
10		277843001	FLANGE-SPLIT SC115L OUTLET	1	
	*	283641001	OUTLET ASSY-KT-3350 FLANGE		PN Change

Piston Wash Assembly (SC170) Fig 6-27

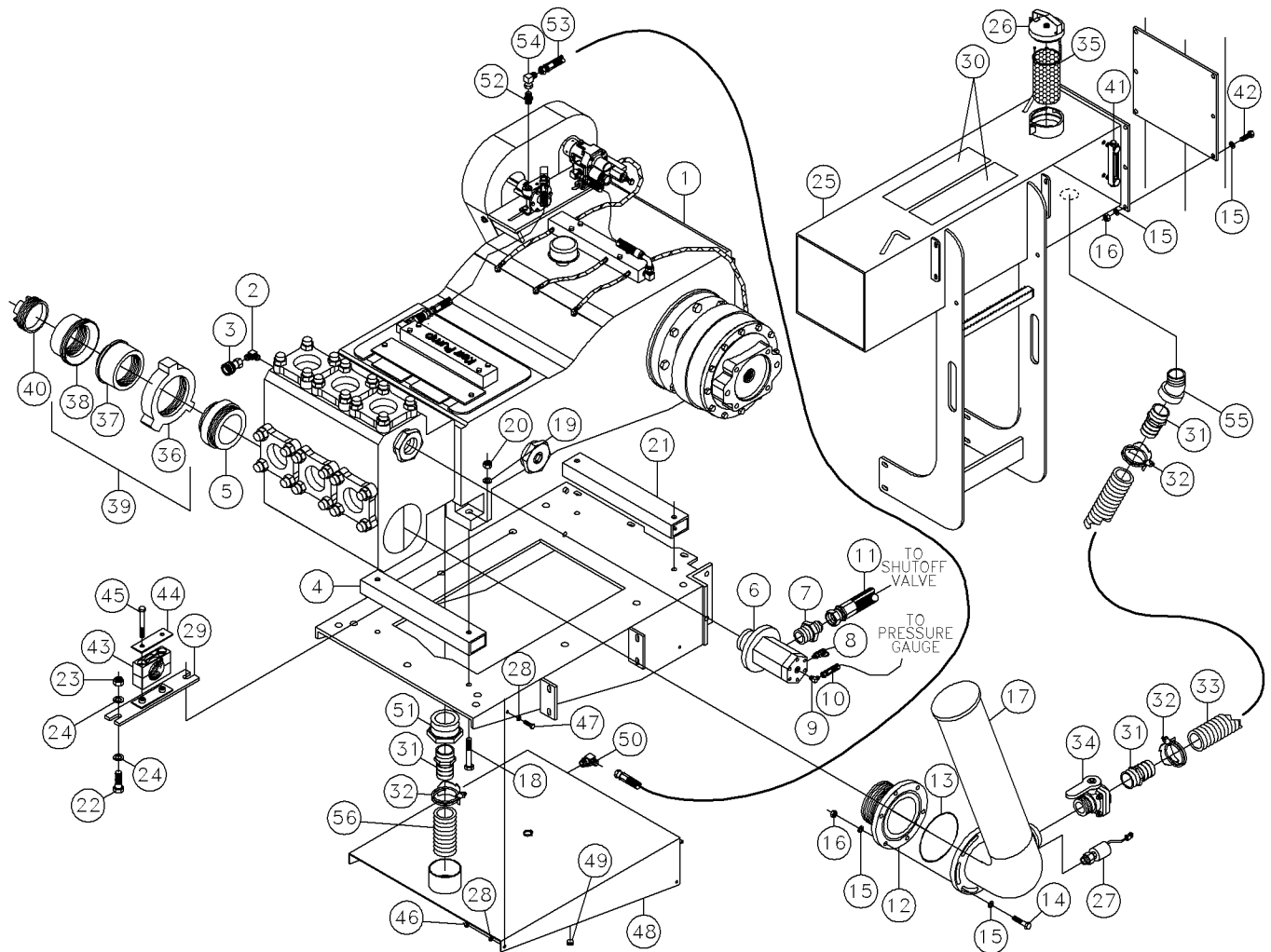
Revised February 2000 due to
addition of figure to manual.



Piston Wash Assembly (SC170) Fig 6-27

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		235728001	BOLT-1/2-13X3/4 GR 8 ZINC PLTD	2	
2		485025	WASHER-1/2 SAE HARD ZINC PLTD	4	
3		285058001	COVER-PISTON WASH	1	
4		235731001	NUT-1/2-13 GR 8 ZINC PLTD	2	
5		285096001	PLATE-PISTON WASH	1	
		285096001	PLATE-PISTON WASH	1	
6		83637001	PLUG-#8 JIC MALE	1	
7		285069001	U-BOLT-1/2"X5" ZINC PLTD	1	
8		98413001	NUT-#10-24 ZINC PLATED LOCK	1	
9		215803001	CLOSE NIPPLE-3"X3" MPT	1	POLY
10		285057001	TANK, PISTON WASH	1	
11		735003	1/2 COUNTERSUNK PIPE PLUG	1	
12		235713001	WASHER-3/8 SAE HARD ZINC PLTD	16	
13		235725001	NUT-3/8-16 GR8 ZINC PLTD	8	
14		235736001	BOLT-3/8-16X1 1/4 ZINC PLTD	8	
15		68208047	HOSE-1/2X52 8FS JIC/8FS JIC 90	1	
16		285077001	PUMP & MOTOR ASSY.	1	
		285075001	GEAR PUMP-3 GPM	1	
		285076001	MOTOR-RVD.C	1	
17		60931001	3/8M X 8M JIC 90 DEG. ELBOW	2	
18		59648001	FITTING-8M JIC X 10M ADJ. 90 DEG	1	
19		53844651	HOSE-1/2X11 8FS JIC ST 3000 PSI	1	
20		67215001	8M JIC 8M JIC STR.	1	
21		27148001	LIGHT-RED WARNING	1	
22		219137001	RELAY-BOSCH NO/NC 20/30 AMP	2	
23		533006	SCREW-10-24X3/4 RD HD SLT	1	
24		285073001	HARNESS-TRIPLEX PISTON WASH	1	SN192-201
		285078001	HARNESS-TRIPLEX PISTON WASH	1	SN202-
25		285068001	TUBE-PISTON WASH	1	
26		235716001	WASHER-1/4 SAE HARD ZINC PLTD	4	
27		248198001	NUT-1/4-20 GR8 TOP LOCK ZINC	4	
28		903135003	CLAMP-HOSE	2	
29		903135005	PLATE-COVER	2	
30		238210001	BOLT-1/4-20X1 1/2" GR 8 HEX ZYC	4	
31		1865019	GROMMET-3/8 ID - 1/16X5/8 GROOVE	1	

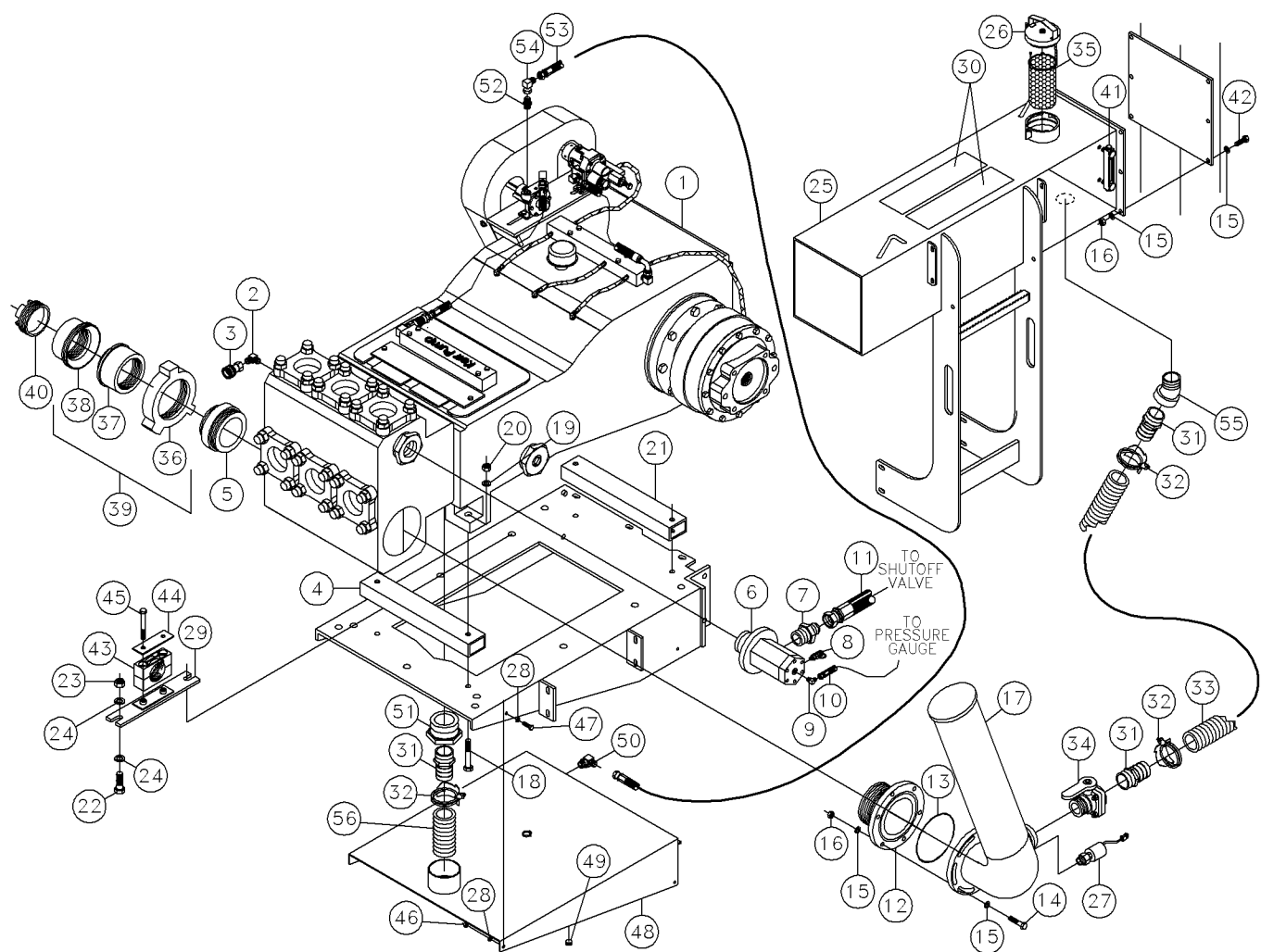
Water Pump Assembly - 200 Gal. (KA-5500PT) Fig 6-28r05



Water Pump Assembly - 200 Gal. (KA-5500PT) Fig 6-28r05

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
		Revision Date	January, 2005		Update In Illustration & Parts List.
1		287030001	PUMP-KERR KA-5500PT MUD	1	Breakdown Fig. 6-29-
2		904831001	FITTING-1/2M NPT X 1/2M NPT 90	1	
3		227235001	COUPLER-1/2"NPT QUICK	1	FEMALE
4		287031001	TUBE-FLUID END PUMP SUPPORT	1	
5		287034001	FITTING-5" MNPT X 4" MPT REDUCR	1	
6	*	283641001	OUTLET ASSY. - KT-3350 FLANGE	1	Breakdown Fig. 6-26, PN Change
7		94569001	FITTING-1 1/2M NPT X 24M JIC STR	1	
8	*	72056001	COUPLER-DIAG. TCM-20 9/16NF	1	PN Change
9	*	600118001	FITTING-6MORINGX4MJIC90PARKER	1	PN Change
10		53843607	HOSE-1/4X258 4FS JIC 3000 PSI	1	
11		239496001	HOSE-1 1/2X92 24FS JIC ST/ST	1	
12		275312001	FLANGE-WATER PUMP INLET	1	
13		275321001	O-RING-SS165	1	
14		250530001	BOLT-1/2-13X2 1/4" GR 8 HEX Y/Z	6	
15		485025	WASHER-1/2 FLAT HARDENED ZINC	24	
16		75382001	NUT-1/2 UNC GR 8 SLTL	12	
17		287046001	TUBE-SUCTION STABILIZER	1	
18		287009001	BOLT-5/8-11X4 1/2 GR HEX YZN PLTD	4	
19		235715001	WASHER-5/8 SAE HARD ZINC PLTD	4	
20		238221001	NUT-5/8-11 GR 8 NC Y/ZINC	4	
21		287041001	TUBE-DRIVE END PUMP SUPPORT	1	
22		243921001	BOLT-3/4-10X2 1/4 GR 8 ZP	2	
23		235739001	NUT-3/4-10 GR 8 ZINC PLTD	4	
24		235717001	WASHER-3/4 SAE HARD ZINC PLTD	4	
25		287003001	TANK-WP ANTI-FREEZE	1	
26		224985001	CAP-VENTED FUEL TANK	1	
27		287069001	SWITCH-SEALED DIAPHRAM 10 PSI	1	

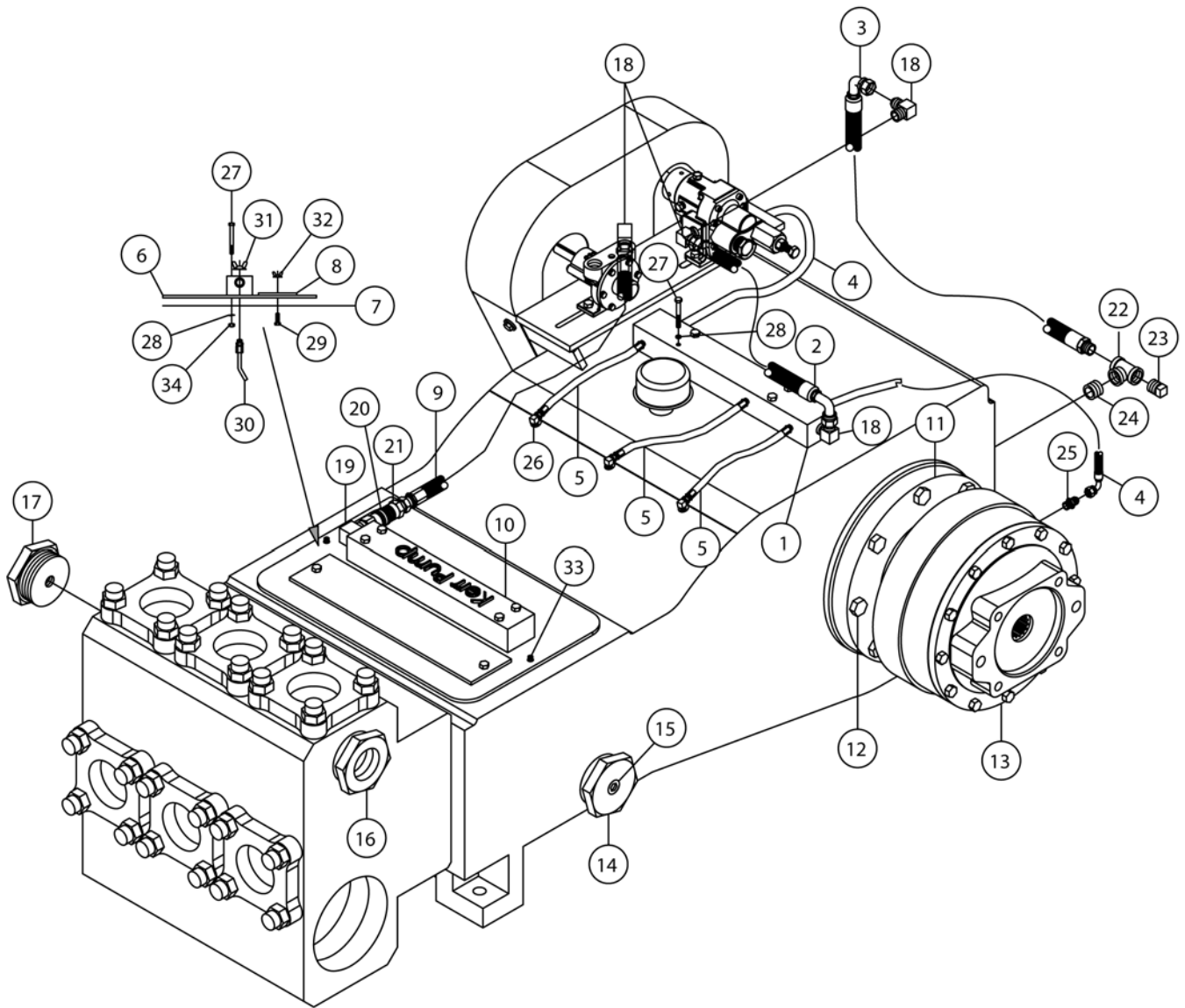
Water Pump Assembly - 200 Gal. (KA-5500PT) Continued Fig 6-28r05



Water Pump Assembly - 200 Gal. (KA-5500PT) Continued Fig 6-28r05

REF NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
28		235713001	WASHER-3/8 SAE HARD ZINC PLTD	4	
29		287058001	BRACKET-HOSE CLAMP	1	
30		5776001	TAPE-SAFETY WALK 4 WIDE	2 5	
31		215426001	HOSE-BARB 2X2 MPT	3	POLY
32		238064001	CLAMP-2" POWERLOCK HOSE	3	
33		278116001	HOSE-2" HD SUCTION 45"	1	
34		236045001	VALVE-2" FPT X 2" MPT POLY BALL	1	Breakdown Fig. 6-
35		99998001	STRAINER-6" .030 STEEL	1	
36		287056007	NUT-4" HAMMER UNION WING	1	1000 PSI
37		287056003	SUB-4" MALE HAMMER UNION	1	1000 PSI
38		287056005	SUB-4" FEMALE HAM. UNION	1	1000 PSI
39		287056001	UNION-4" HAMMER	1	1000 PSI
40		287057001	PLUG-4" NPT	1	
41		81590001	GAUGE-SIGHT	1	
42		235721001	BOLT-1/2-13X1 1/2 GR 8 ZINC PLT	6	
43		278186003	CLAMP-PAIR	1	2.11" ID
44		278186005	PLATE-COVER	1	
45		357040	BOLT-7/16-14X4 GR 5 HHCS PLATED	2	
46		235725001	NUT-3/8-16 GR 8 ZINC PLTD	4	
47		235736001	BOLT-3/8-16X1 1/4 ZINC PLTD	4	
48		285057001	TANK-PISTON WASH	1	
49		735003	1/2 COUNTERSUNK PIPE PLUG	1	
50		59407001	8M JIC X 10M ADJ. 90 DEG. ELBOW	1	
51		215428001	BUSHING-3X2 REDUCER	1	POLY
52		60922001	1/2M X 8M JIC ST ADAPTER	1	
53		68208047	HOSE-1/2X52 8FS JIC /8FS JIC 90	1	
54		53660001	8M JIC X 8FS 90 DEG TUBE	1	
55		224939001	ELBOW-2" 45 DEG STREET	1	POLY
56		287090001	HOSE-2" ID HD DRAIN 5" LG	1	

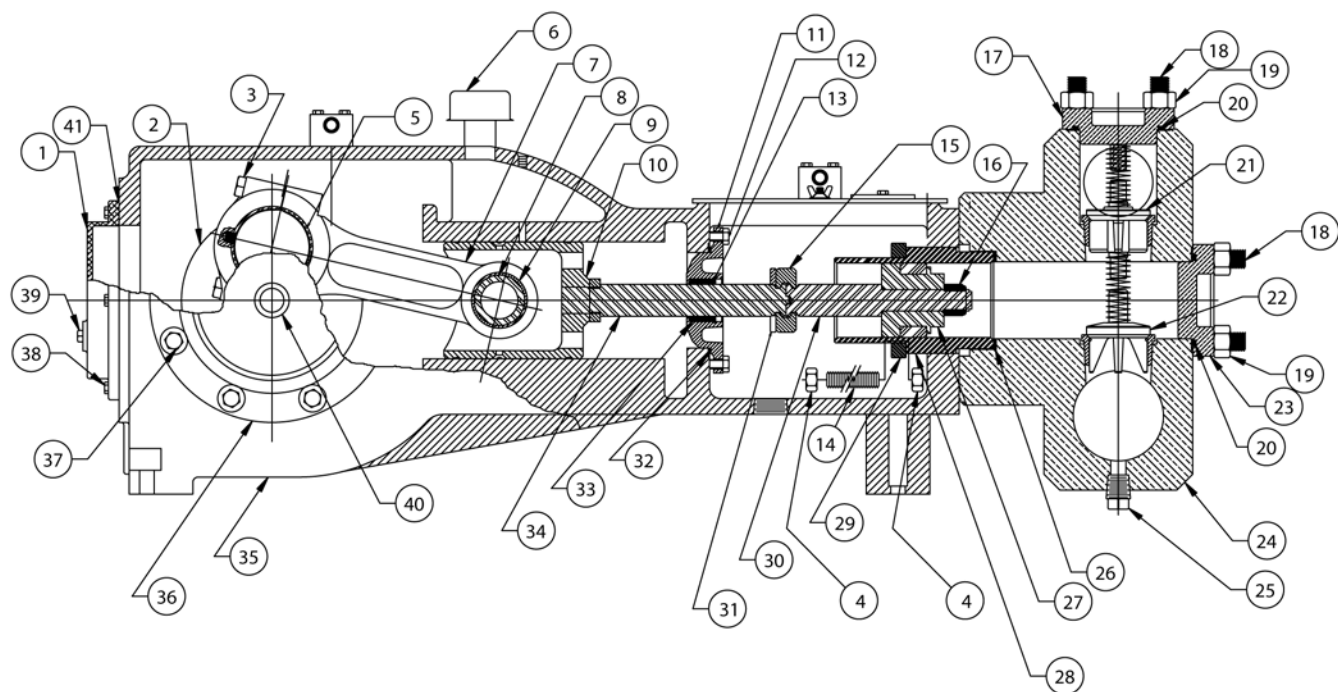
Water Pump Components - 200 Gal. (KA-5500PT) - Outer Fig 6-29r01



Water Pump Components - 200 Gal. (KA-5500PT) - Outer Fig 6-29r01

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		287030054	MANIFOLD-OIL	1	
		287030055	GASKET-OIL MANIFOLD	1	
2		287030056	HOSE-8FS JIC/8FS JIC90	1	
3		287030057	HOSE-8FS JIC 90 X 1/2M ST	1	
4		287030058	HOSE-4FS JIC 90 X 1/8M ST	2	
5		287030059	HOSE-4FS JIC ST X 1/8M ST	3	
6		287030060	COVER-PISTON CHAMBER	1	
7		287030061	GASKET-PISTON CHAMBER COVER	1	
8		287030062	COVER-GLASS INSPECTION	1	
9		287030063	HOSE-8FS JIC STX1/2M ST	1	
10		287030005	MANIFOLD-WATER	1	
11		287030075	HOUSING-BRG. HYD DRIVE #8	1	
12		235721001	BOLT-1/2-13X1 1/2 GR 8 ZINC PLT	8	
13		277780050	GEARBOX-#8 KIT 7.07 RATIO AUBRN	1	Breakdown Fig. 6
14		225838001	BUSHING-2X3/4 NPT REDUCR POLY	2	
15		735001	3/4" COUNTERSUNK PIPE PLUG	2	
16		287030064	BUSHING-3X2 HEX	1	
17		287030065	BUSHING-3X1/2 HEX	1	
18		53832001	1/2M PIPE-#8M JIC 90 DEG	4	
19		904831001	FITTING-1/2M NPT X 1/2M NPT 90	1	
20		287030069	COUPLING-3/8" QUICK	1	
21		287030076	QUICK CONNECT-3/8"	1	
22		725003	1/2" PIPE TEE BLACK	1	
23		732007	1/2" PIPE PLUG BLACK STEEL	1	
24		707003	1/2" NPT HEX NIPPLE	1	
25		97491001	FITTING-1/8M X 4M JIC STR. CONN	2	
26		287030070	FITTING-INJECTOR	3	
27		250531001	BOLT-1/4-20X2 GR 8 HEX Y/ZINC	8	
28		480003	WASHER-1/4 S/T LOCK	8	
29		235734001	BOLT-1/4-20X3/4 GR 8 ZINC PLTD	2	
30		287030066	FITTING-WATER JET	3	
31		287030067	WING NUT-5/16-18	2	
32		287030068	*WING NUT-1/4-20 UNC	2	
33		524005	SSS 5/16-18X1	2	
34		235732001	*NUT-1/4-20 GR 8 ZIN PLTD	4	
		287030074	GASKET KIT-KA-5500PT REBUILD	1	

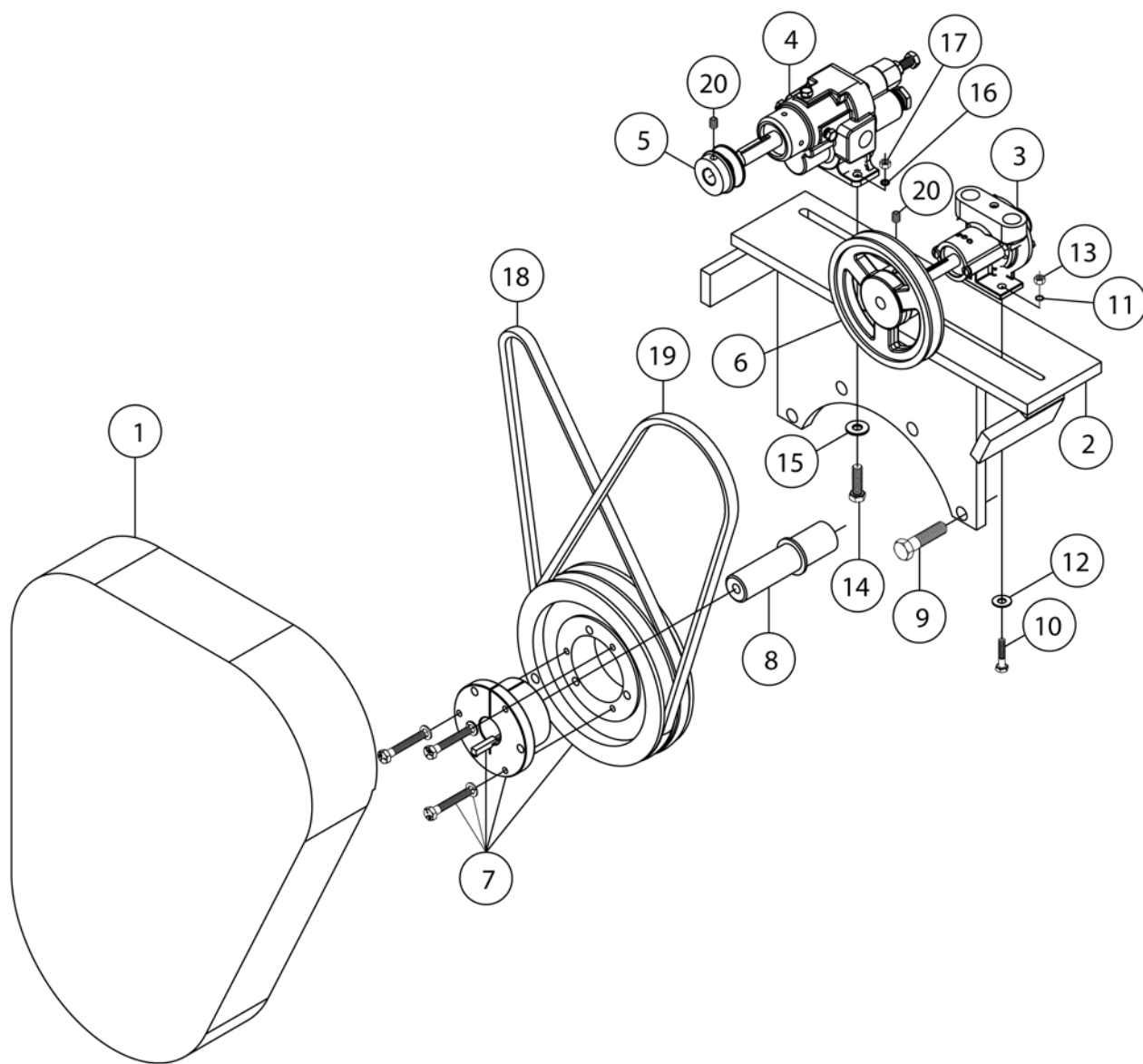
Water Pump Components - 200 Gal. (KA-5500PT) - Power/Fluid Ends Fig 6-30r01



Water Pump Components - 200 Gal. (KA-5500PT) - Power/Fluid Ends Fig 6-30r01

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		287030002	PAN COVER	1	
2		287030003	CRANKSHAFT-21T SPLINE	1	
		287030038	BEARING-MAIN	2	
		287030051	SEAL-OIL	1	
		287030039	GASKSET	1	
		287030052	SHIM KIT	1	VARIOUS THICKNESS
3		287030004	BOLT	6	
4		287030079	NUT-5/8-11 SS	24	
5		287030006	BUSHING-CONN. ROD	3	STD
6		287030007	CAP-OIL FILL/BREATHER	1	
7		287030008	ROD-CONNECTING	3	INSERTED
8		287030009	PIN-WRIST	3	
9		287030010	BUSHING-WRIST PIN	3	
10		287030011	CROSSHEAD	3	
11		287030012	GLAND-PONY ROD SEAL	3	
12		287030013	BOLT-7/16-14 X 1 1/4 SS	6	
13		287030014	SNAP RING	3	
14		287030077	STUD-FLUID END/LINER	10	
		287030078	STUD-FLUID END/LINER	2	LINE UP
15		287030016	CLAMP	3	
16		287030017	LOCK NUT	3	
17		287030018	CAP-TOP COVER	3	
18		287030019	STUD	24	
19		287030020	NUT	24	
20		287030021	O-RING	6	
21		287030022	VALVE-DISCHARGE	3	COMPLETE
22		287030023	VALVE-SUCTION	3	COMPLETE
23		287030024	COVER-END CAP	3	
24		287030025	VESSEL-FLUID END	1	
25		287030025	PLUG-BRASS DRAIN	1	
26		287030027	GASKET-LINER	3	
27		287030028	PISTON 3 1/2"	3	
28		287030029	LINER 3 1/2" CERAMIC	3	
29		287030030	RETAINER-LINER	3	
30		287030031	ROD-PISTON EXTENSION	3	
31		287030032	SPLASH GUARD-PONY ROD	3	
32		287030083	GASKET-PONY ROD GLAND	3	
33		287030034	SEAL SET	3	INC. FOUR SEALS
34		287030035	ROD-PONY PISTON	3	
35		287030036	CASE-PUMP	1	
36		287030037	HOUSING-BEARING	1	
37		235721001	BOLT-1/2-13 X 1 1/2 GR 8 ZINC PLT	8	
38		238209001	BOLT-5/16-18 X 1 GR 8 NEX ZINC YC	19	
39		287030040	PLUG-BRASS OIL LEVEL	1	
40		287030053	SEAL-OIL	1	
41		287030015	GASKET-PAN COVER	1	

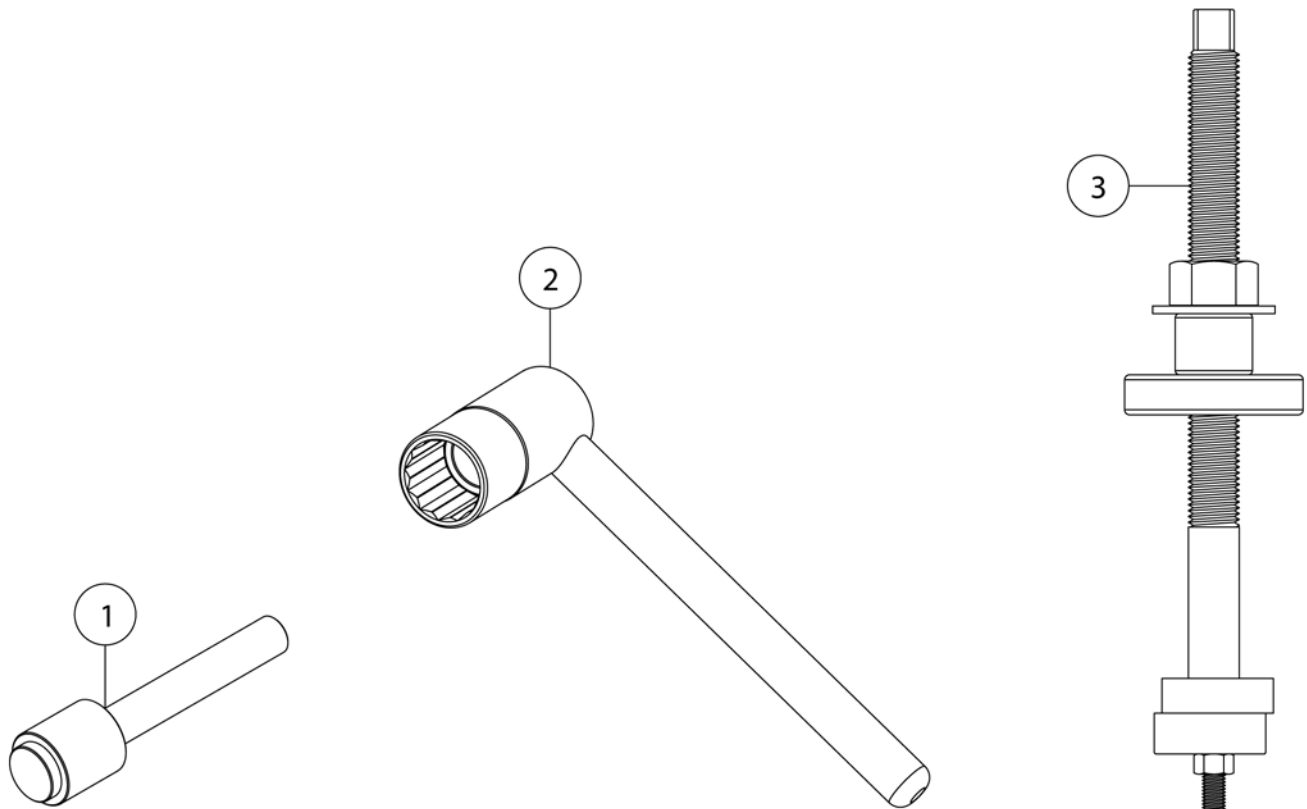
Water Pump Components - 200 Gal. (KA-5500PT) - Piston Wash Pump Drive Fig 6-31r01



Water Pump Components - 200 Gal. (KA-5500PT) - Piston Wash Pump Drive Fig 6-31r01

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		287030041	BELT GUARD-PUMP DRIVE	1	
2		287030042	BRACKET-OIL/WATER PUMP	1	
3		287030043	PUMP-BRONZE WATER	1	
		287030048	REPAIR KIT	1	INC. IMPELLER
4		287030044	PUMP-HYD. CAST IRON	1	
		NONE	REPAIR KIT	1	
5		287030045	SHEAVE-OIL PUMP	1	
6		287030046	SHEAVE-WATER PUMP	1	
7		287030047	SHEAVE-CRANKSHAFT	1	
8		NSS	SHAFT-AUXILIARY	1	COMES W/ CRANKSHAFT
9		235718001	BOLT-1/2-13 X 2 GR 8 HEX ZINC PLT	4	
10		250008001	BOLT-1/4-20 X 1 1/4 ZINC PL	2	
11		480003	WASHER-1/4 S/T LOCK	2	
12		485003	WASHER-1/4 FLAT	2	
13		235732001	NUT-1/4-20 GR 8 ZINC PLTD	2	
14		235736001	BOLT-3/8-16 X 1 1/4 ZINC PLTD	2	
15		485007	WASHER-3/8 FLAT	2	
16		480007	WASHER-3/8 S/T LOCK	2	
17		235725001	NUT-3/8-16 GR 8 ZINC PLTD	2	
18		287030049	BELT-HYD. PUMP	1	
19		287030050	BELT-WATER PUMP	1	
20		528001	SS-38-16 X 3/8 BRASS TIP	2	

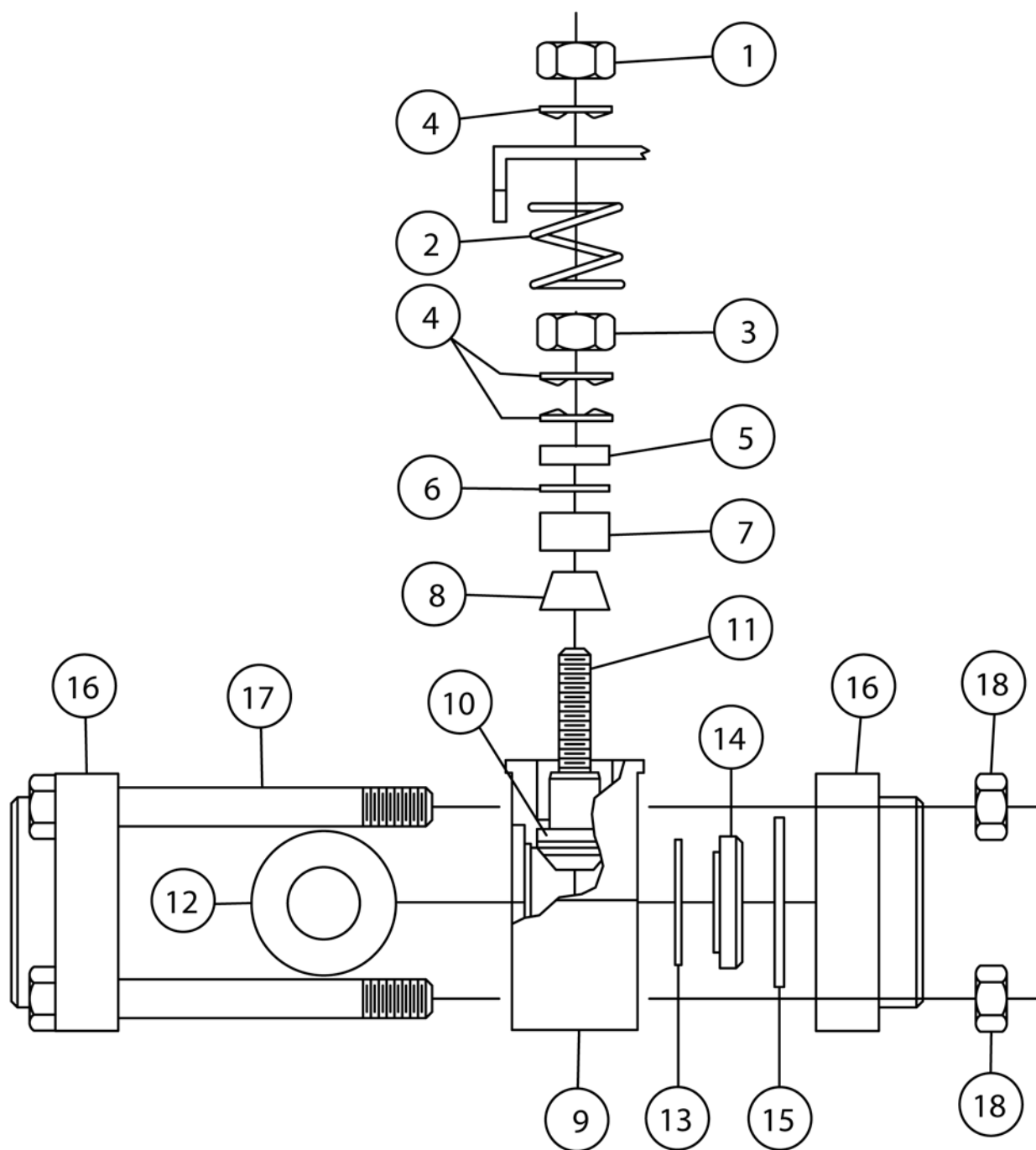
Water Pump Components - 200 Gal. (KA-5500PT) - Special Tools Fig 6-32r01



Water Pump Components - 200 Gal. (KA-5500PT) - Special Tools Fig 6-32r01

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		287030071	INSTALL TOOL-PONY ROD SEAL	1	
2		287030072	INSTALL WRENCH-PONY ROD	1	
3		287030073	VALVE PULLER-WING TYPE	1	

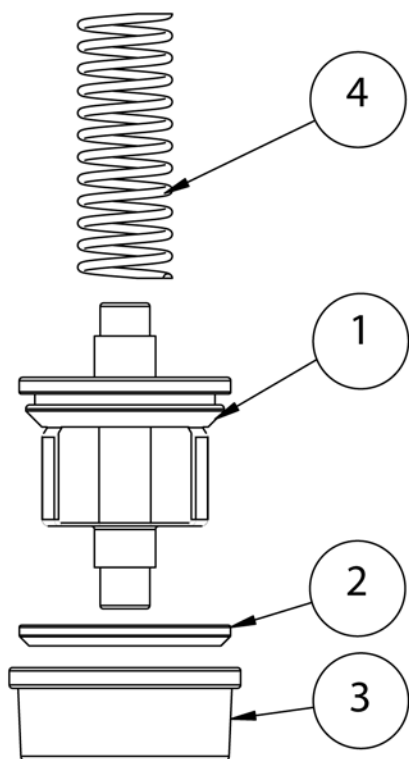
Water Shut-off Valve Components - SN256- Fig 6-33



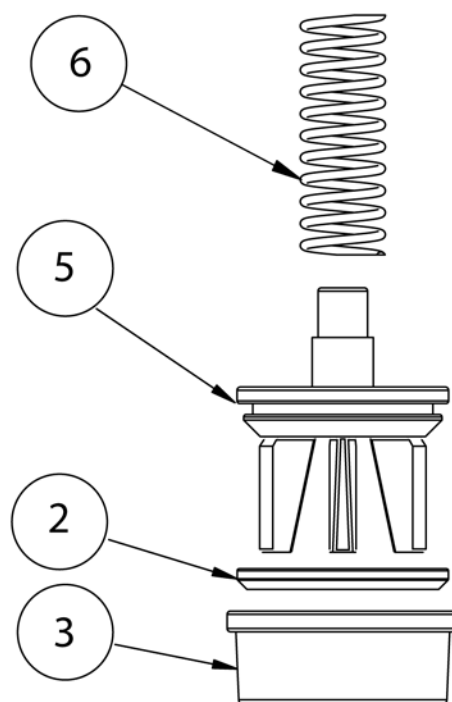
Water Shut-off Valve Components - SN256- Fig 6-33

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		287053002	STEM NUT	1	
2		287053003	GROUNDING SPRING	1	
3		287053004	NUT-STEM	1	
4		287053005	STEM SPRING	3	
5		287053006	GLAND	1	
6		287053007	PACKING SUPPORT	1	
7		287053008	TOP PACKING	1	
8		287053009	BOTTOM PACKING	1	
9		287053010	BODY CENTER	1	
10		287053011	BEARING-STEM	2	
11		287053012	STEM	1	
12		287053013	BALL	1	
13		287053014	SUPPORT RING	2	
14		287053015	SEAT/SEAT SPRING	2	
15		287053016	O-RING	2	
16		287053017	FLANGE	2	
17		287053018	BODY STUD	4	
18		287053019	BODY NUT	8	
		287053001	VALVE-1 1/2" BALL		2200 PSI, Inc. All Items In Figure
		287053020	KIT-MAINTENANCE		Inc. Ref. 4-8, 10 & 14-15

Discharge/Suction Valve Assemblies Fig 6-34



DISCHARGE
VALVE



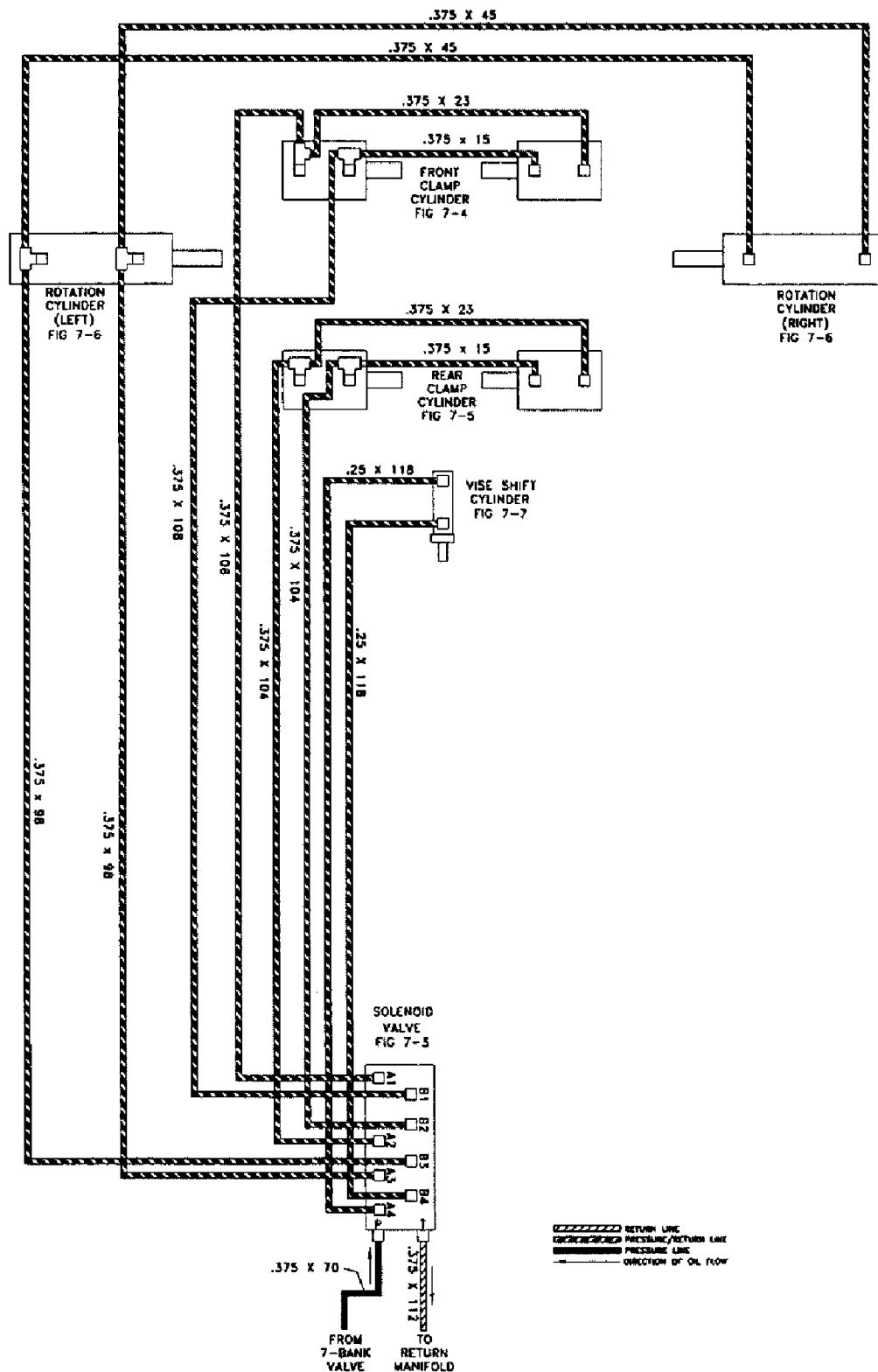
SUCTION
VALVE

Discharge/Suction Valve Assemblies Fig 6-34

REF NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
		Revision Date	January, 2005		Illustration & Parts List Added.
1		287030080	DISCHARGE VALVE	1	A/R WITH INSERT
2		296251942	VALVE INSERT	2	A/R
3		287078028	VALVE SEAT	2	A/R
4		287030081	DISCHARGE VALVE SPRING	1	
5		287030082	SUCTION VALVE	1	A/R WITH INSERT
6		287030083	SUCTION VALVE SPRING	1	

Hydraulic Components Location Diagram - Pipe Vise Fig 7-1r01

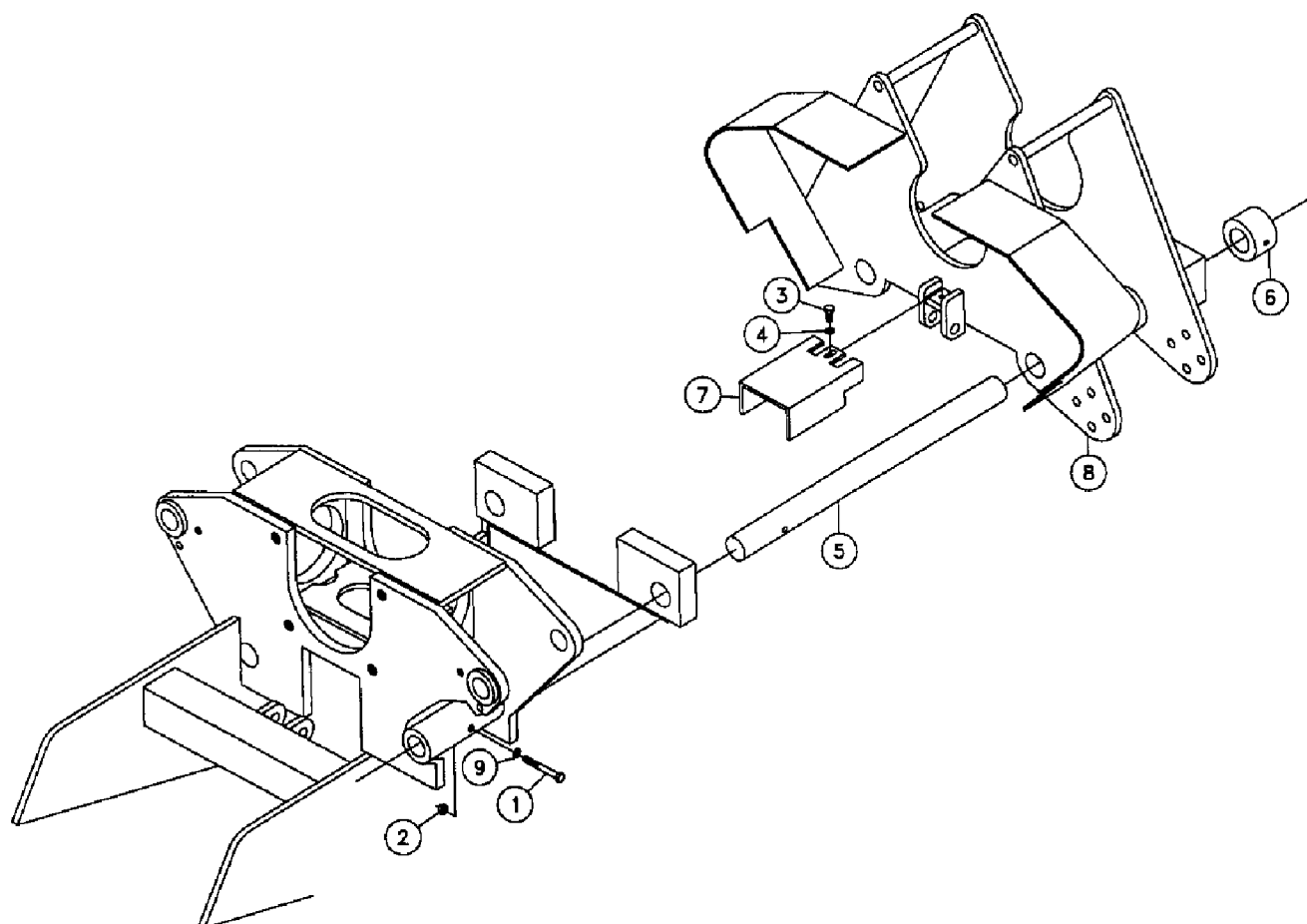
Revised June 1999 due to
change in hose lengths.



Hydraulic Components Location Diagram - Pipe Vise Fig 7-1r01

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
			Revised June 1999 due to change in hose lengths.		

Carriage Assembly - Rear Vise Fig 7-2

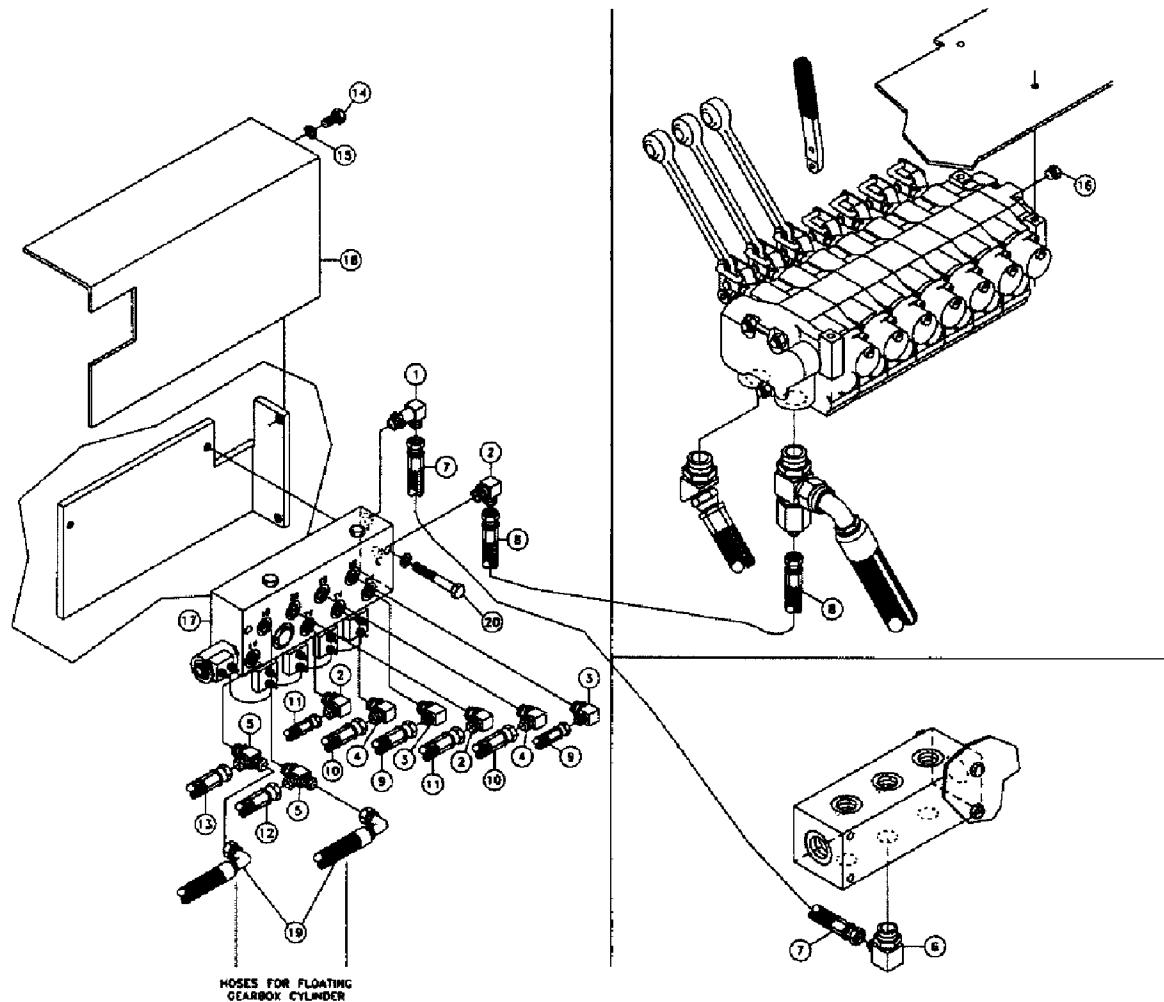


Carriage Assembly - Rear Vise Fig 7-2

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		238212001	BOLT-5/16-18 X 3" GR8 HEX YZI	2	
2		240333001	NUT-5/16-18 GR8 TL ZINC PLTD	2	
3		235726001	BOLT-3/8-16X3/4 GR8 HEX ZNCPLT	2	
4		235713001	WASHER-3/8 SAE HARD ZINC PLTD		
5		234299001	PIN-VISE SLIDE	2	
6		530001	SSS-3/8-16X1/2	2	
7		234412001	SHIELD-CYLINDER	1	
8		234294001	CARRIAGE-REAR VISE	1	
9		235714001	WASHER-5/16 SAE HARD ZINC PLTD	2	

Solenoid Valve Assembly - Pipe Vise Fig 7-3r02

Revised June 1999 due to update
in illustration & parts list. Changed/
added parts marked with *.

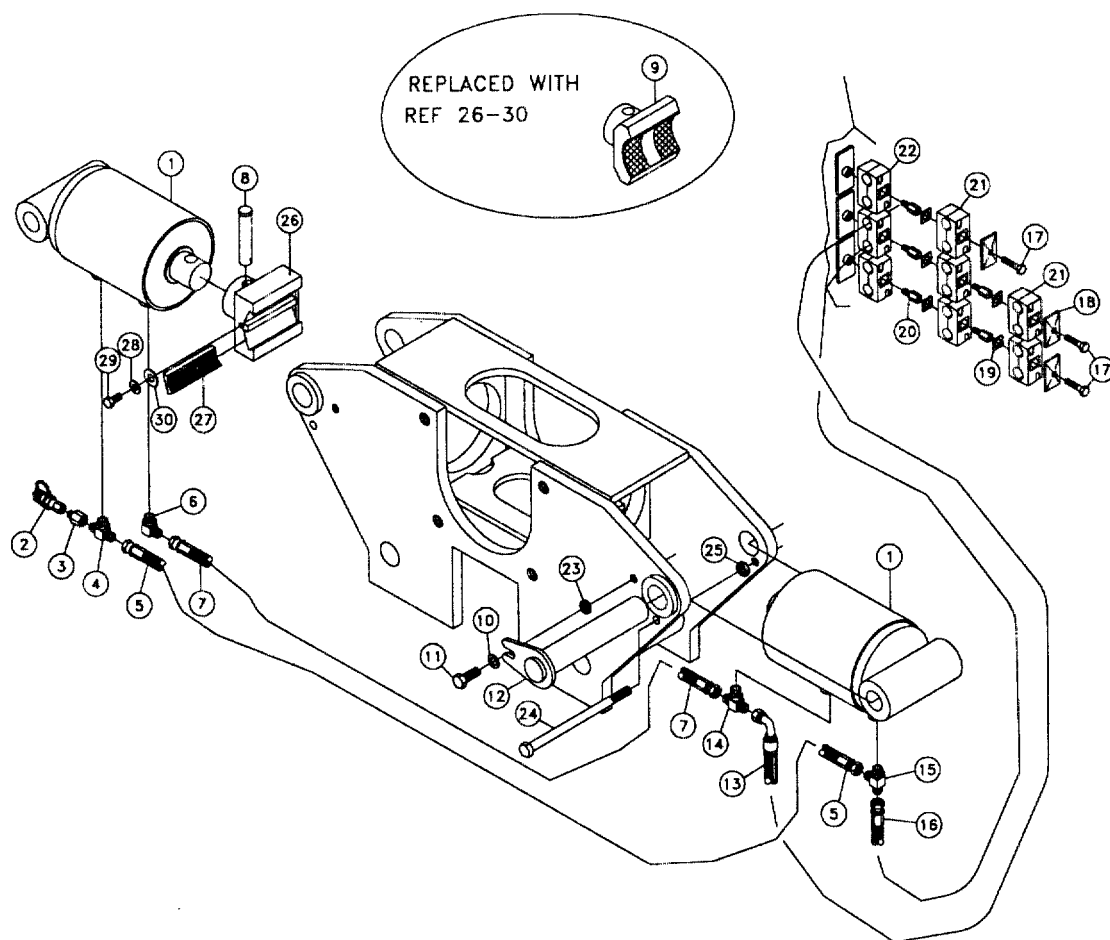


Solenoid Valve Assembly - Pipe Vise Fig 7-3r02

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		65570001	6M X 6M JIC 90 DEGREE LONG	1	
2		59426001	FITTING-6M JICX6M ADJ 90 ELBOW	3	
3		57950001	FITTING-6MORINGX4MJIC90	2	
4		122606001	FITTING-6MX6M JIC90 DEG W/ RSTS	2	
5		68774001	FITTING-6MX6M JIC (RUN)X6M JIC	2	
6		59401001	6M JICX10M ADJ. 90 DEG.ELBOW	1	
7		57940167	HOSE-3/8X106 6FS JIC 2250 PSI	1	
8		57940169	HOSE-3/8X70 6FS JIC (100R2)	1	
9		53843199	HOSE-1/4X1 18 4FS JIC 3000 PSI	1	
10		57940279	HOSE-3/8X98 6FS JIC 3000 PSI	2	
11		57940545	HOSE-3/8X104 6FS 3000 PSI	2	
12		57940417	HOSE-3/8X108 6FSJICST/6FSJIC90	1	
13		57940277	HOSE-3/8X108 6FS JIC 3000 PSI	1	
14		235727001	BOLT-3/8-16X1 GR8 HEX ZINC PLT	2	
15		235713001	WASHER-3/8 SAE HARD ZINC PLTD	2	
16		83635001	PLUG-#6 JIC MALE	1	
17		244462001	VALVE-4 BANK	1	BREAKDWN FIG. 7-9, SN101-266
18		244599001	SHIELD-VISE VALVE	1	
19		57940663	HOSE-3/8X62 6FSJICST/90 3000#	2	
20		235743001	BOLT-3/8-16X3 GR8 HEX ZNC PLTD	2	
21		280935001	*VALVE-4 BANK VISE	1	Breakdown Fig. 7-13, SN267-

Vise Cylinder Assembly (Lower) Fig 7-4r03

Revised October 1999 due to update
in illustration & parts list. Changed/
added parts marked with *.

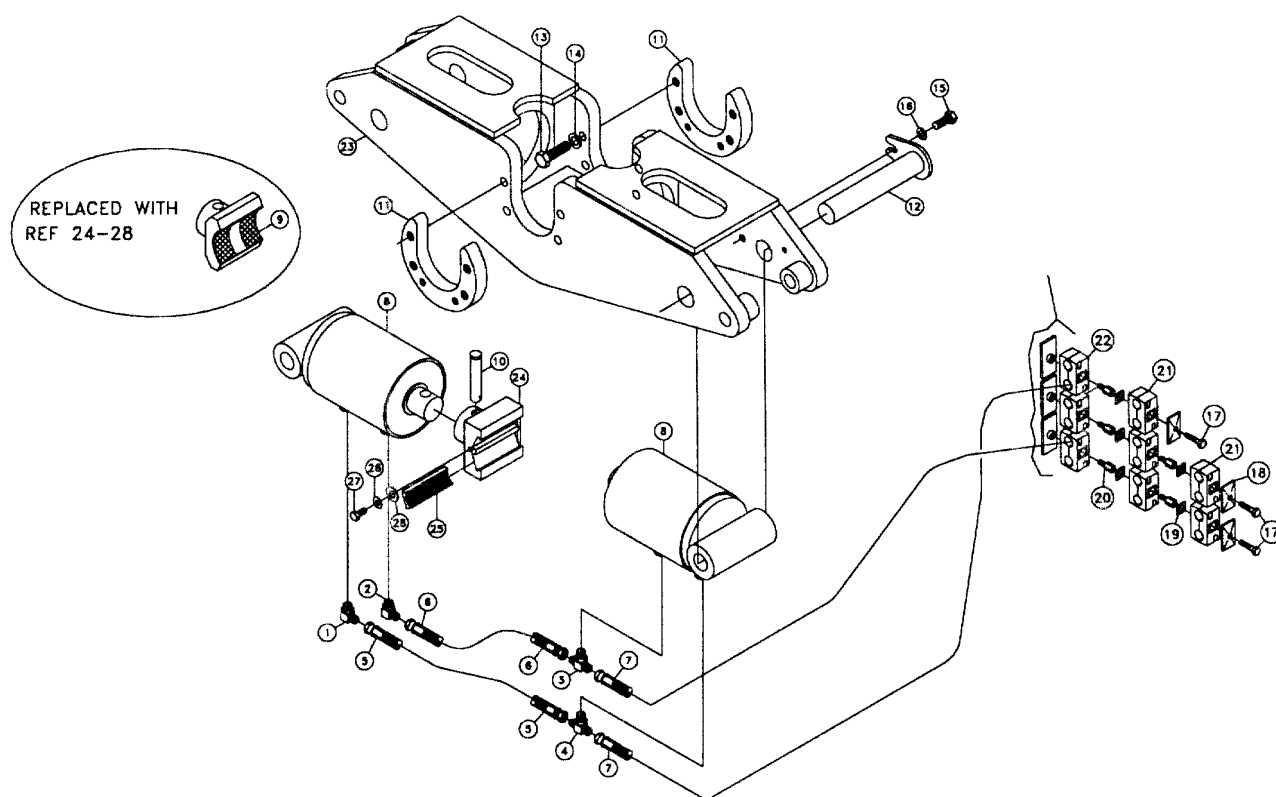


Vise Cylinder Assembly (Lower) Fig 7-4r03

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		287030002	*CYL-HYD .5 BORE X 2.25 ROD X 2: ST	2	Breakdown
2		83015001	FITTING-4F JIC DIAGNOSTIC	1	
3		59928001	6F JIC X 4M JIC ST REDUCER	1	
4		68787001	FITTING-6M (BCH) X 6M JIC X 6M JIC	1	
5		57940553	HOSE-3/8 X 23 6FS JIC 3000 PSI	1	
6		122606001	FITTING-6M X 6M JIC 90 DEG W/RSTS	1	
7		57940817	HOSE-3/8 X 15 6FS JIC M2T 4000 PSI	1	
8		275478001	PIN-1/2 X 3 1/4 BALL LOCK CLEVIS	2	
9		249879001	GRIP - JAW 3 1/4 CURVED	2	Replaced w/ 285753-001
		249880001	GRI -3 5/8 OD	2	Inc. Ref, REPL W/ 285754-001
10		485025	WASHER-1/2 FLAT-HARDENED-ZINC	2	
11		235721001	BOLT-1/2-13 X 1 1/2 GR8 ZINC PLT	2	
12		234402001	PIN-VISE CYLINDER	2	
13		57940417	HOSE-3/8 X 108 6FS JIC ST/6FS JIC 90	1	
14		122605001	FITTING 6M JIC BCH TEE W/ RSTS	1	
15		68774001	FITTING 6M X 6M JIC (RUN) X 6M JIC	1	
16		57940277	HOSE-38 X 108 6FS JIC 3000 PSI	1	
17		248031001	BOLT-5/16-18 X 1 1/4 GR8 ZINC PL	6	
18		67846003	PLATE-TWIN COVER	6	
19		231758001	WASHER-SAFETY (1/2" HEX ID)	10	
20		231757001	BOLT-CLAMP STACKING 5/16 THRD	10	
21		67846005	CLAMP-TWIN	10	
22		900035005	CLAMP-3/8" DOUBLE HOSE	6	
23		280535001	TUBE-SPACER		REPLACES 1081-001
24		249812001	BOLT-1/2-13 X 7 1/2 HHCS GR8 ZNC	2	
25		235722001	NUT-1/2-13 GR8 JAM ZINC PLTD	2	
26		278120001	HOLDER-2 1/4 RAM, GRIP	2	3 5/8
		278119001	HOLDER - 2" RAM, GRIP	2	3 5/8
		278081001	HOLDER - 2 1/4 RAM, GRIP	2	3 1/4
		278083001	HOLDER - 2" RAM, GRIP	2	3 1/4
27		278121001	GRIP - VISE	4	3 5/8 UPSET
		222488001	GRIP-VISE	4	31/4-31/2 UPSET
28		235713001	WASHER 3/8 SAE HARD ZINC PLTD	4	
29		235726001	BOLT-3/8-16 X 3/4 GR8 HEX ZNCPLT	4	
30		485025	WASHER-1/2" FLAT HRDND ZINC	4	

Vise Cylinder Assembly (Upper) Fig 7-5r03

Revised October 1999 due to update
in illustration & parts list. Added part
marked with *.

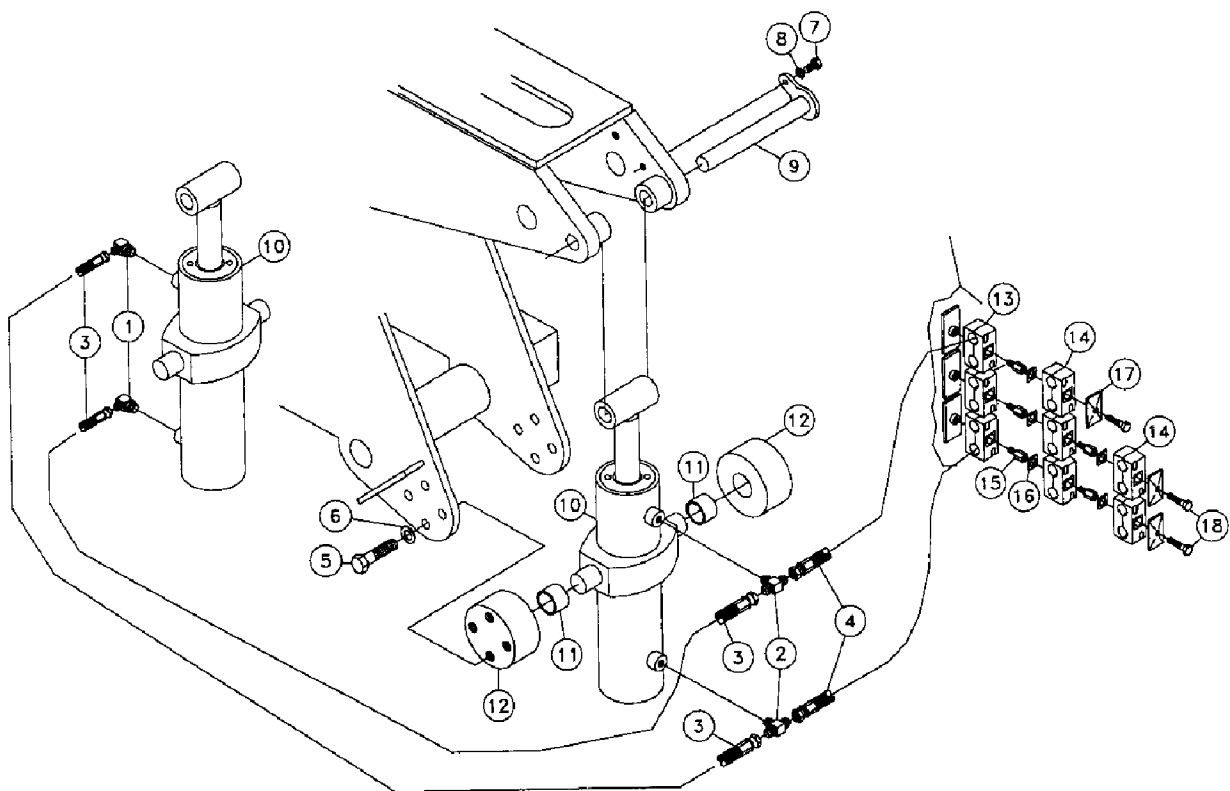


Vise Cylinder Assembly (Upper) Fig 7-5r03

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		59426001	FITTING-6M JIC X 6M ADJ 90 ELBOW	1	
2		122606001	FITTING-6M X 6M JIC 90 DEG W/ RSTS	1	
3		122605001	FITTING-6M JIC BCH TEE W/ RSTS	1	
4		68787001	FITTING-6M (BCH) X 6M JIC X 6M JIC	1	
5		57940553	HOSE-3/8 X 23 6FS JIC 3000 PSI	1	
6		57940617	HOSE-3/8 X 15 6FS JIC M2T 4000 PSI	1	
7		57940545	HOSE-3/8 X 104 6FS 3000 PSI	2	
8		283581001	*CYL-HYD 5" BORE X 2.25 ROD X 2"ST	2	Breakdown
9		249879001	GRIP - JAW 3 1/4 CURVED	2	Replaced w/ Ref. 24-28
		249880001	GRIP - 3 5/8 OD	2	
10		275478001	PIN-1/2 X 3 1/4 BALL LOCK CLEVIS	2	
11		276524001	PLATE-VISE INSERT	2	
12		234407001	PIN-VISE CYLINDER	2	
13		238245001	BOLT 5/8"-11 X 2 1/4" GR8 HEX	8	
14		235715001	WASHER-5/8 SAE HARD ZINC PLTD	8	
15		235721001	BOLT-1/2-13 X 1 1/2 GR 8 ZINC	2	
16		485025	WASHER-1/2 FLAT-HARDENED-ZINC	2	
17		248031001	BOLT-5/16-18 X 1 1/4 GR8 ZINC PL	6	
18		57846003	PLATE-TWIN COVER	6	
19		231758001	WASHER-SAFETY	10	1/2" HEX ID
20		231757001	BOLT-CLAMP STACKNG 5/16 THRD	10	
21		67846005	CLAMP-TWIN	10	PAIR
22		900035005	CLAMP-3/8" DOUBLE HOSE	6	
23		234295001	CRADLE-VISE	1	
24		278120001	HOLDER-2 1/4 RAM, GRIP	2	3 5/8
		278119001	HOLDER - 2" RAM, GRIP	2	3 5/8
		278081001	HOLDER - 2 1/4 RAM, GRIP	2	3 1/4
		278083001	HOLDER - 2" RAM, GRIP	2	3 1/4
25		278121001	GRIP-VISE	4	3 5/8 UPSET
		222488001	GRIP-VISE	4	3 1/4-31/2 UPSET
26		235713001	WASHER-3/8 SAE HARD ZINC PLTD	4	
27		235726001	BOLT-3/8-16 X 3/4 GR8 HEX ZNCPLT	4	
28		485025	WASHER 1/2" FLAT HARDENED ZINC	4	

Rotation Carriage Cylinder Assembly Fig 7-6r01

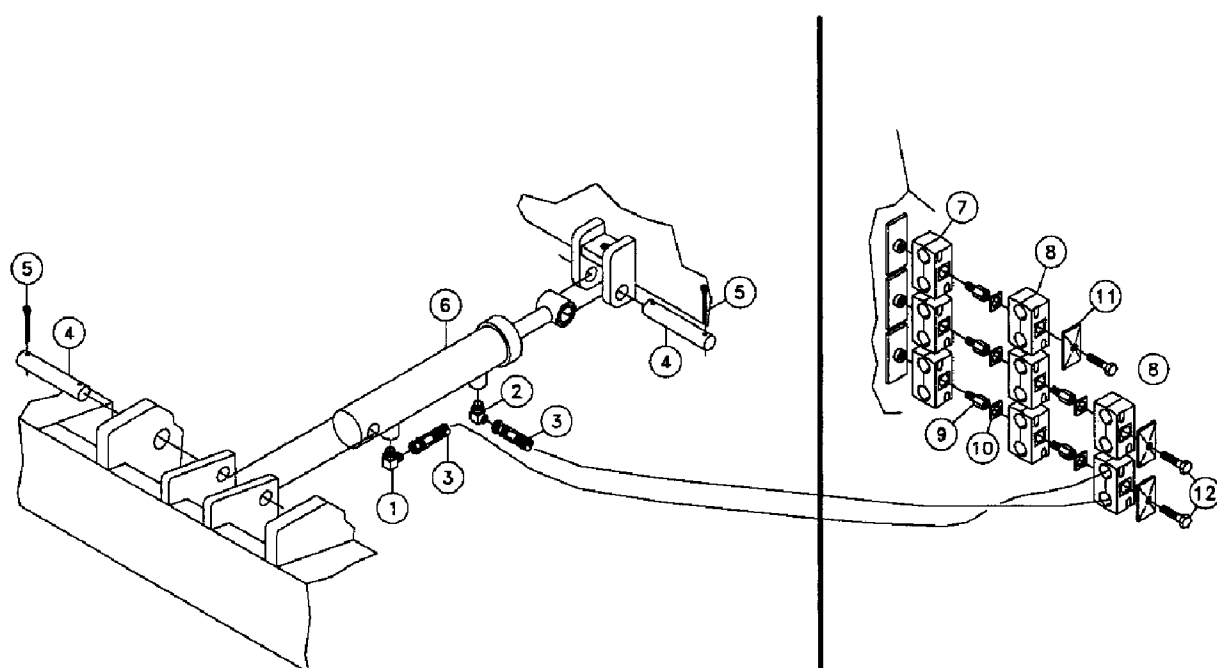
Revised June 1999 due to
update in parts list. Changed
part marked with *.



Rotation Carriage Cylinder Assembly Fig 7-6r01

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		59426001	FITTING-6M JICX6M ADJ 90 ELBOW	2	
2		68787001	FITTING-6M (BCH)X6M JICX6M JIC	2	
3		57940589	HOSE-3/8X45 6FS JIC 3000PSI	2	
4		57940279	HOSE-3/8X98 6FS JIC 3000 PSI	2	
5		235730001	* BOLT-5/8-11X1 1/4 GR8 ZINC	16	
6		235715001	WASHER-5/8 SAE HARD ZINC PLTD	16	
7		235727001	BOLT-3/8-16X1 GR8 HEX ZINC PLT	2	
8		235713001	WASHER-3/8 SAE HARD ZINC PLTD	2	
9		230761001	ROTATION PIN	2	
10		239275001	CYLINDER-2 1/2 X 5 TRN MNT	2	BREAKDOWN FIG. 7-11
11		70070003	BEARING-COMPOSITE 1 LONG	2	
12		222433001	MOUNT- TRUNION	4	
13		900035005	CLAMP-3/8"DOUBLE HOSE	6	
14		67846005	CLAMP-TWIN	10	PAIR
15		231757001	BOLT-CLAMP STACKING 5/16THRD	10	
16		231758001	WASHER-SAFETY	10	1/2" HEX ID
17		67846003	PLATE-TWIN COVER	6	
18		248031001	BOLT-5/16-18X1 1/4 GR8 ZINC PL	6	
			Revised June 1999 due to update in parts list. Changed part marked with *.		

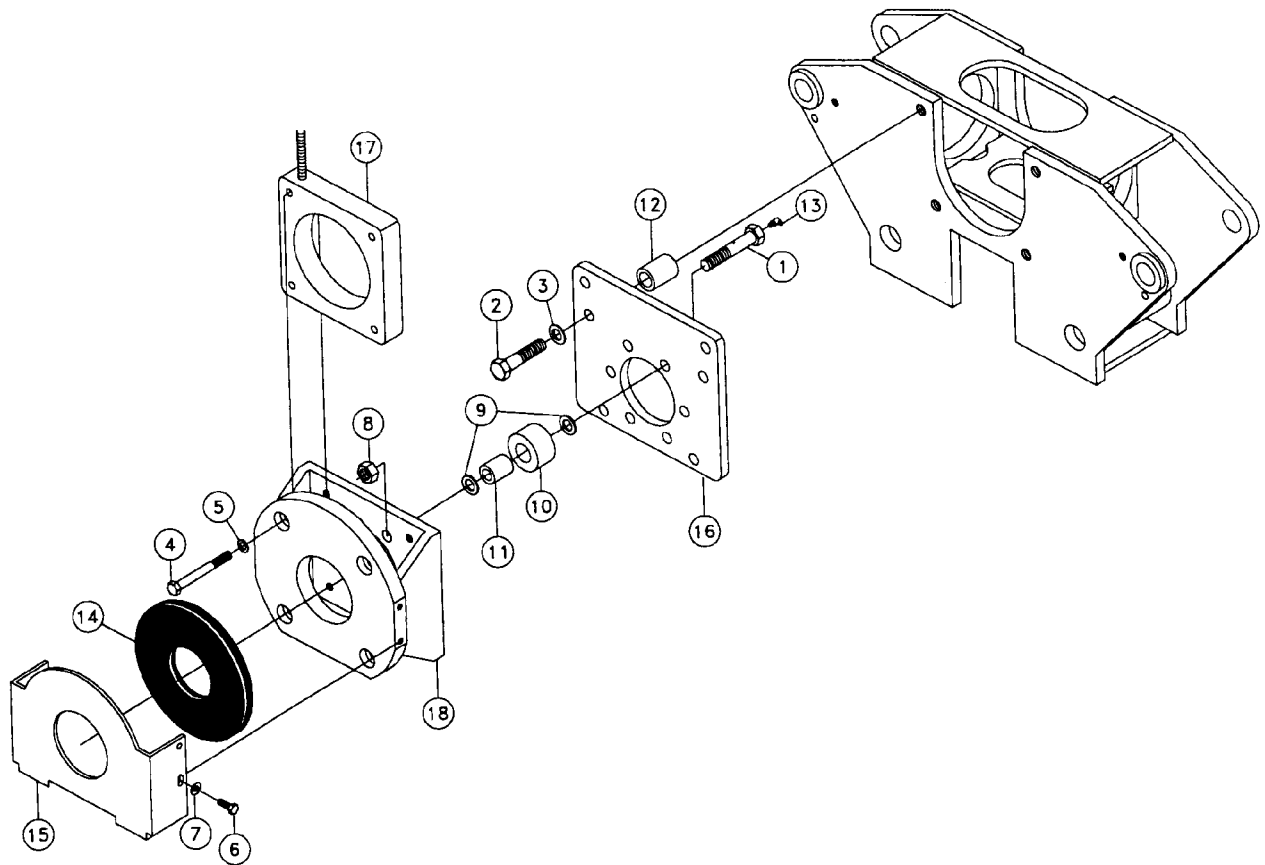
Vise Shift Cylinder Assembly Fig 7-7



Vise Shift Cylinder Assembly Fig 7-7

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		68821001	FITTING-4MX4M JIC 90 W/RESTRIC	1	
2		58295001	FITTING-4M OR X 4M JIC 45 DEG.	1	
3		53843199	HOSE-1/4X118 4FS JIC 3000 PSI	2	
4		239313001	PIN-CYLINDER	2	
5		510017	COTTER PIN-5/32" X 1 1/2"	4	
6		223998001	CYLINDER- 1 1/2 X 6	1	BREAKDOWN FIG. 7-12
7		900035005	CLAMP-3/8"DOUBLE HOSE	6	
8		67846005	CLAMP-TWIN	10	PAIR
9		231757001	BOLT-CLAMP STACKING 5/16THRD	10	
10		231758001	WASHER-SAFETY	10	1/2" HEX ID
11		67846003	PLATE-TWIN COVER	6	
12		248031001	BOLT-5/16-18X1 1/4 GR8 ZINC PL	6	

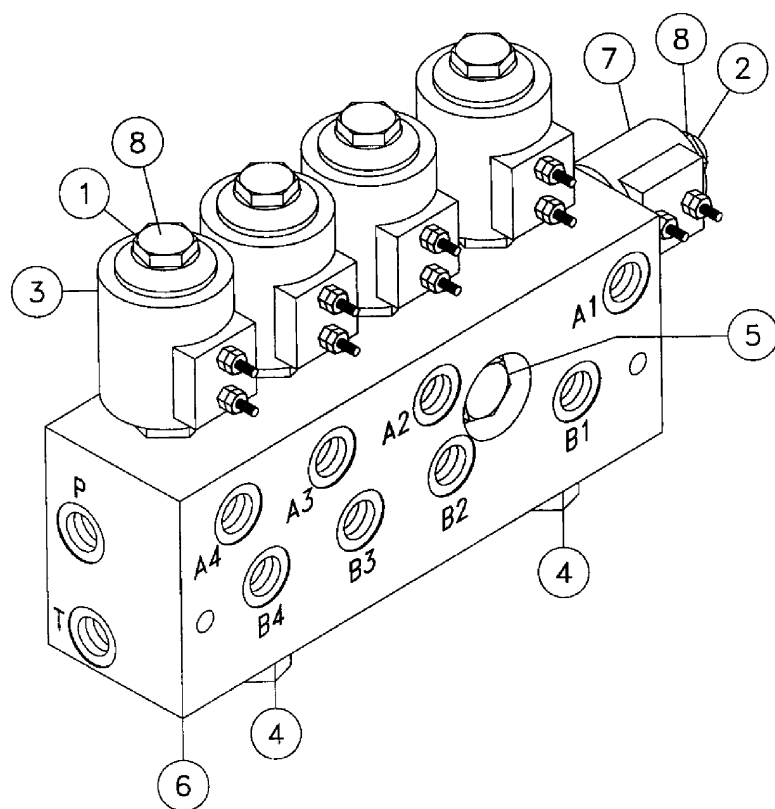
Zap Alert Assembly Fig 7-8r03



Zap Alert Assembly Fig 7-8r03

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		234426003	BOLT ASSEMBLY - ROLELR MOUNT	6	Inc. Ref. 6
2		124620034	BOLT - 3/4-10X3 1/2 GR8 HEX ZINC	4	
3		23571001	WASHER - 3/4 SAE HARD ZINC PLTD	4	
4		238244001	BOLT - 1/2-13 X 4 GR8 HEX Y/ZINC	4	
5		485025	WASHER - 1/2 FLAT - HRDND - ZINC	4	
6		235727001	BOLT - 3/8-16X1 GR8 HEX ZINC PLT	4	
7		235713001	WASHER - 3/8 SAE HARD ZINC PLDT	4	
8		397001	NUT - 3/4-10 GR 8 SLTL	6	
9		485017	WASHER - 3/4 FLAT	12	
10		244679001	ROLLER - GUIDE	6	
11		244678001	BUSHING GUIDE ROLLER	6	
12		280536001	TUBE - LINKAGE-SHAFT CLAMP	4	Replaces 1096-005
13		597001	ZERK - 1/4" NF 90 DEG GREASE	6	
14		235925001	WIPER - 2 7/8 OD ROD	1	
		235926001	WIPER - 3 1/2 OD ROD	1	
15		23446001	STOP - WIPER	1	
16		234486001	MOUNT - WIPER HOLDER	1	
17		224922001	COIL - CURRENT	1	W/17" COAX CBL, SN101-195
		276856001	*COIL - CURRENT	1	W/17" COAX CBL, SN196-
18		234461001	HOLDER - ROD WIPER	1	

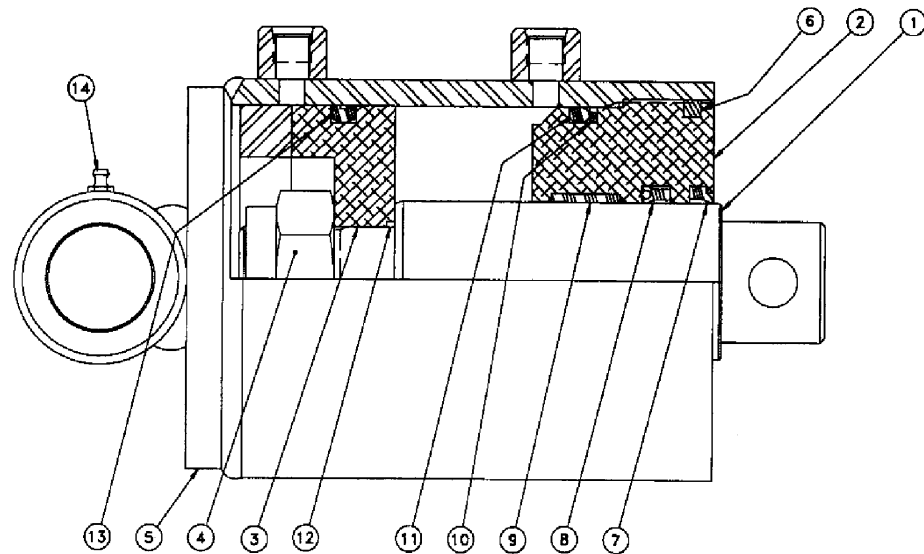
Solenoid Valve Components Fig 7-9r01



Solenoid Valve Components Fig 7-9r01

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		228128003	CARTRIDGE-SOLENOID	3	Inc Seal Kit & Nut Ref. 8
		206271007	REPAIR KIT	3	
2		228128005	CARTRIDGE-SOLENOID	1	Inc. Seal Kit & Nut Ref. 8
		228128009	SEAL KIT	1	
3		206271005	COIL-12V DUAL POST	3	
4		228128013	SENSE CHECK	2	
		228128015	SEAL KIT	2	
5		228128017	CHECK VALVE	1	
		228128009	SEAL KIT	1	
6		NSS	BODY-VALVE	1	
7		228128007	COIL	1	
8		224886007	NUT	4	
		244462001	VALVE-4 BANK		Inc. All Items In This Figure
		NSS	NOT SOLD SEPARATELY		

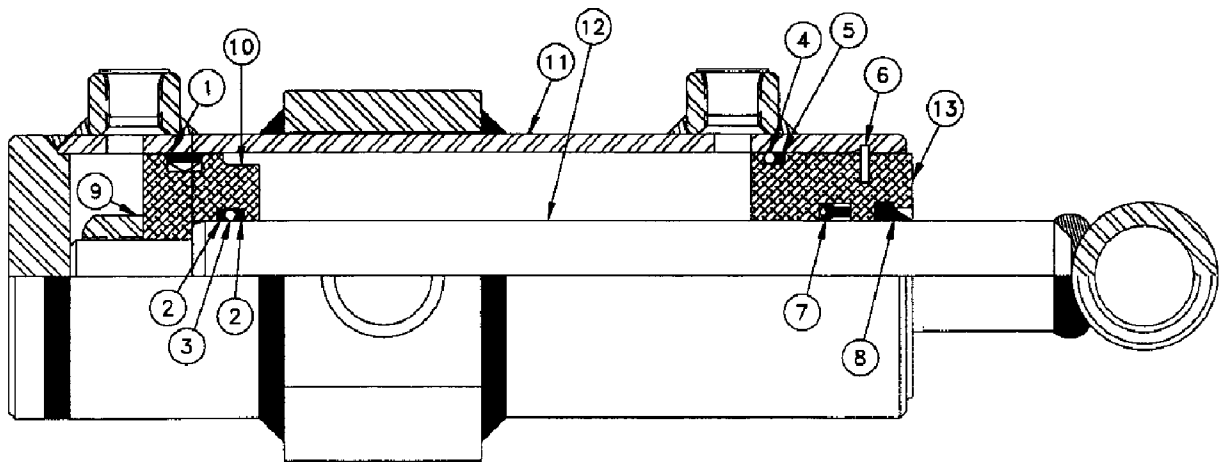
Hydraulic Cylinder Components - 5" x 2" Fig 7-10r01



Hydraulic Cylinder Components - 5" x 2" Fig 7-10r01

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		275458005	CYLINDER ROD	1	
2		221731007	HEAD GLAND	1	
3		221731009	PISTON	1	
4		85777031	NUT 1 1/2" 12 LOCK	1	
5		283581002	*TUBE-WELDMENT	1	Replaces 275458003
6		104012005	LOCKING INSERT	2	
7		215799015	ROD WIPER	1	
8		215799013	POLYPAK	1	
9		221731011	WEAR BAND	1	
10		89540011	WASHER-BACKUP	1	
11		85777019	O-RING	1	
12		221731013	O-RING	1	
13		85777025	UNI-RING	1	
14		224445007	GREASE FITTING	1	
		234292005	SEAL KIT		
		283581001	CYL-HYD. 5" BOR X 2.25 ROD X 2" ST.		

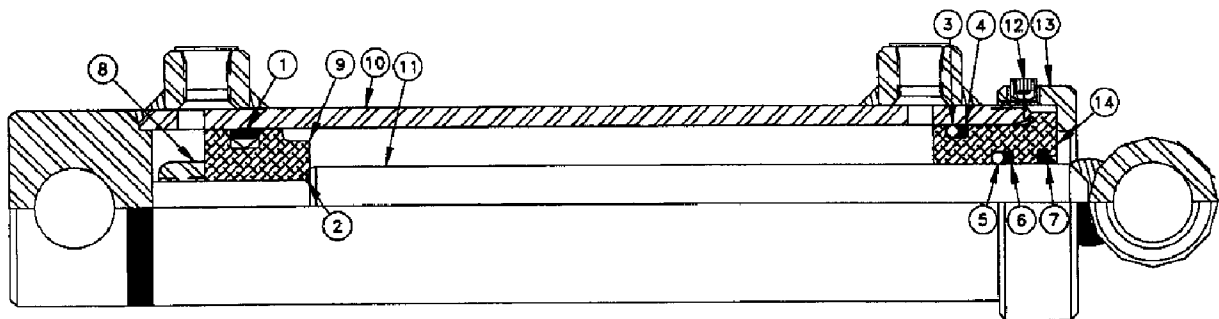
Hydraulic Cylinder Components - 2 1/2" x 5" Fig 7-11



Hydraulic Cylinder Components - 2 1/2" x 5" Fig 7-11

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		200769001	UNI-RING	1	
2		222440007	BACK-UP RING	2	
3		221256013	O-RING	1	
4		221766017	O-RING	1	
5		200841001	BACKUP WASHER	1	
6		222440009	INTERNAL SNAP RING	1	
7		205002001	1 1/8" LOADED U-CUP	1	
8		221256015	ROD WIPER	1	
9		95631011	LOCK NUT	1	
10		104628009	PISTON	1	
11		222440003	BARREL ASSY	1	
12		239275003	ROD ASSEMBLY	1	
13		200777001	GLAND	1	
		239275001	CYLINDER-2 1/2 X 5 TRN MNT		INC. REF. 1-13
		222440011	SEAL KIT		

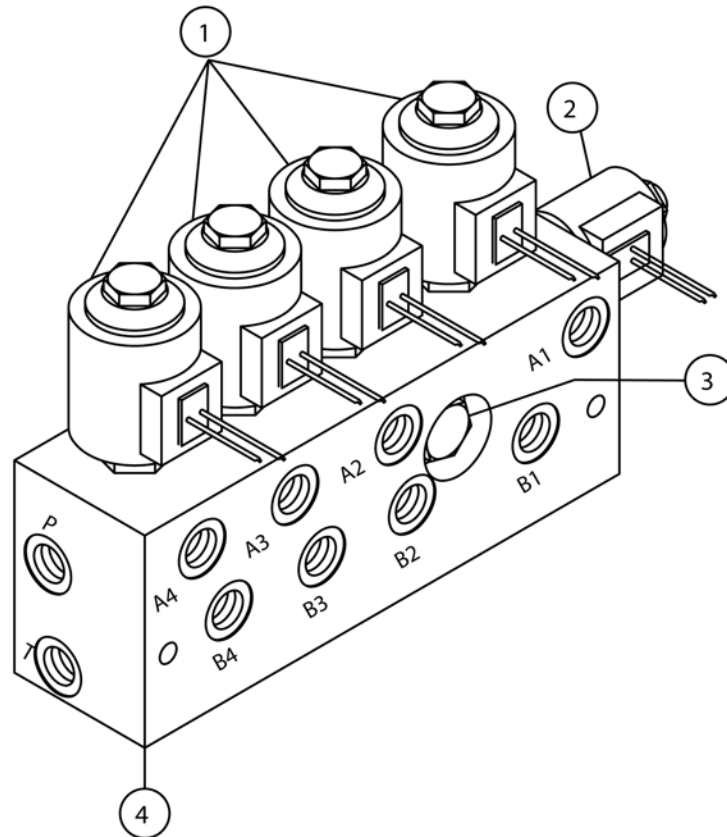
Hydraulic Cylinder Components - 1 1/2" x 6" Fig 7-12



Hydraulic Cylinder Components - 1 1/2" x 6" Fig 7-12

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		202721001	UNI-RING	1	
2		223998003	O-RING	1	
3		202727001	O-RING	1	
4		202726001	WASHER-BACK-UP	1	
5		223998005	O-RING	1	
6		223998007	BACK-UP RING	1	
7		202724001	WIPER-ROD	1	
8		202722001	LOCKNUT	1	
9		202720001	PISTON	1	
10		223998009	BARREL ASSEMBLY	1	
11		223998011	ROD ASSEMBLY	1	
12		223998013	SET SCREW	1	
13		223998015	THREAD CAP	1	
14		223998017	THREAD CAP HEAD	1	
		223998019	SEAL KIT		INC. REF. 1-7
		223998001	CYLINDER- 1 1/2 X 6		INC. REF. 1-14

Vise Valve Components SN267- Fig 7-13

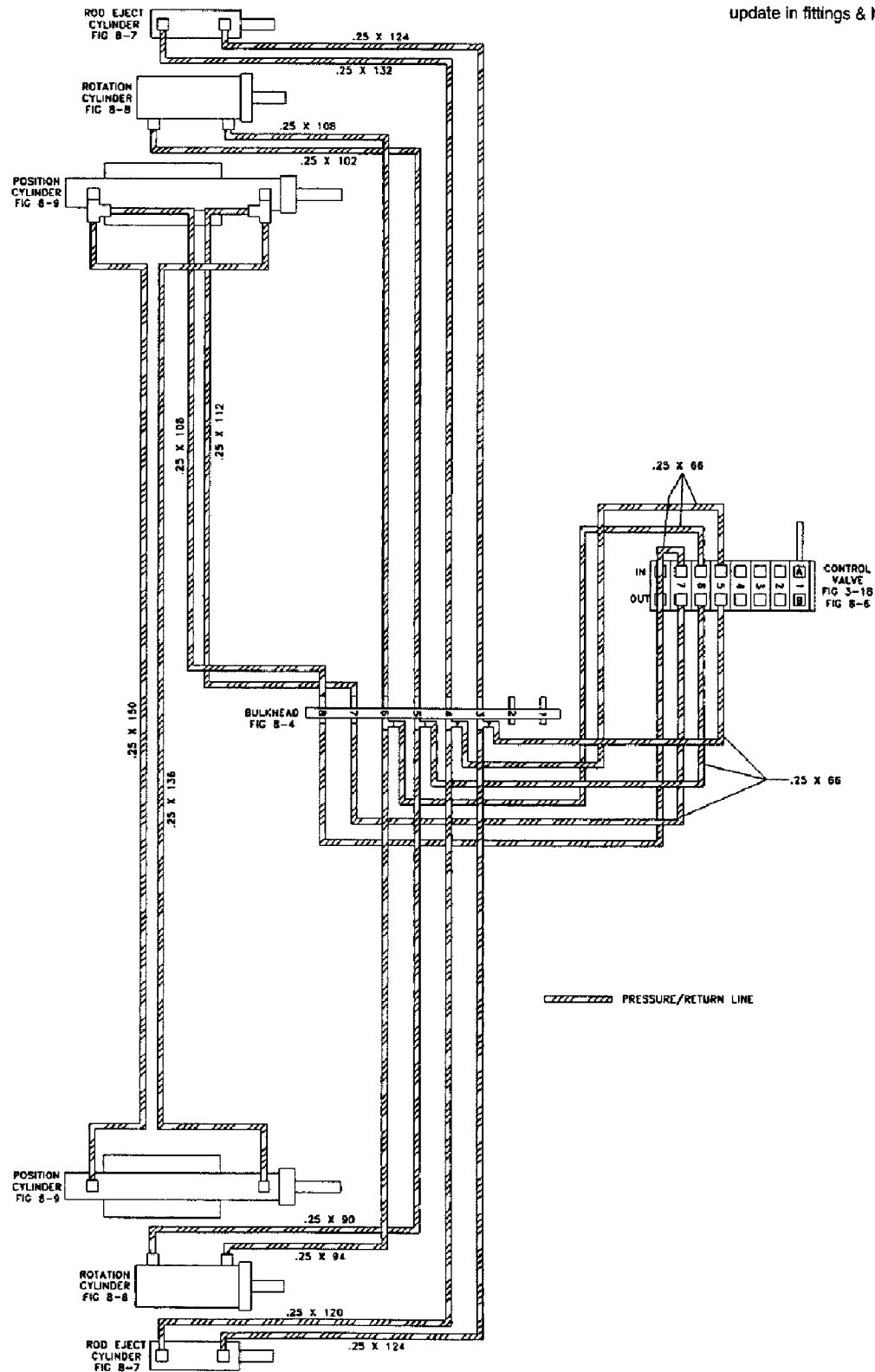


Vise Valve Components SN267- Fig 7-13

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		228128003	CARTRIDGE-SOLENOID	4	
		260271007	REPAIR KIT	4	
		251112005	COIL-10 DL 12V/SP	4	
		251113007	NUT-RAIN PROOF COIL	4	
2		251113005	CARTRIDGE-SOLENOID	1	
		212821009	SEAL KIT	1	
		251117009	COIL-#8	1	
		251113007	NUT-RAIN PROOF COIL	1	
3		228128017	CHECK VALVE	1	
		228128009	SEAL KIT	1	
4		NSS	BODY-VALVE	1	
		280935001	VALVE-4 BANK VISE		Inc. All Items In This Figure
		NSS	NOT SOLD SEPARATELY		

Hydraulic Components Location Diagram - Rod Loader Fig 8-1r01

Revised June 1999 due to
update in fittings & hose lengths.

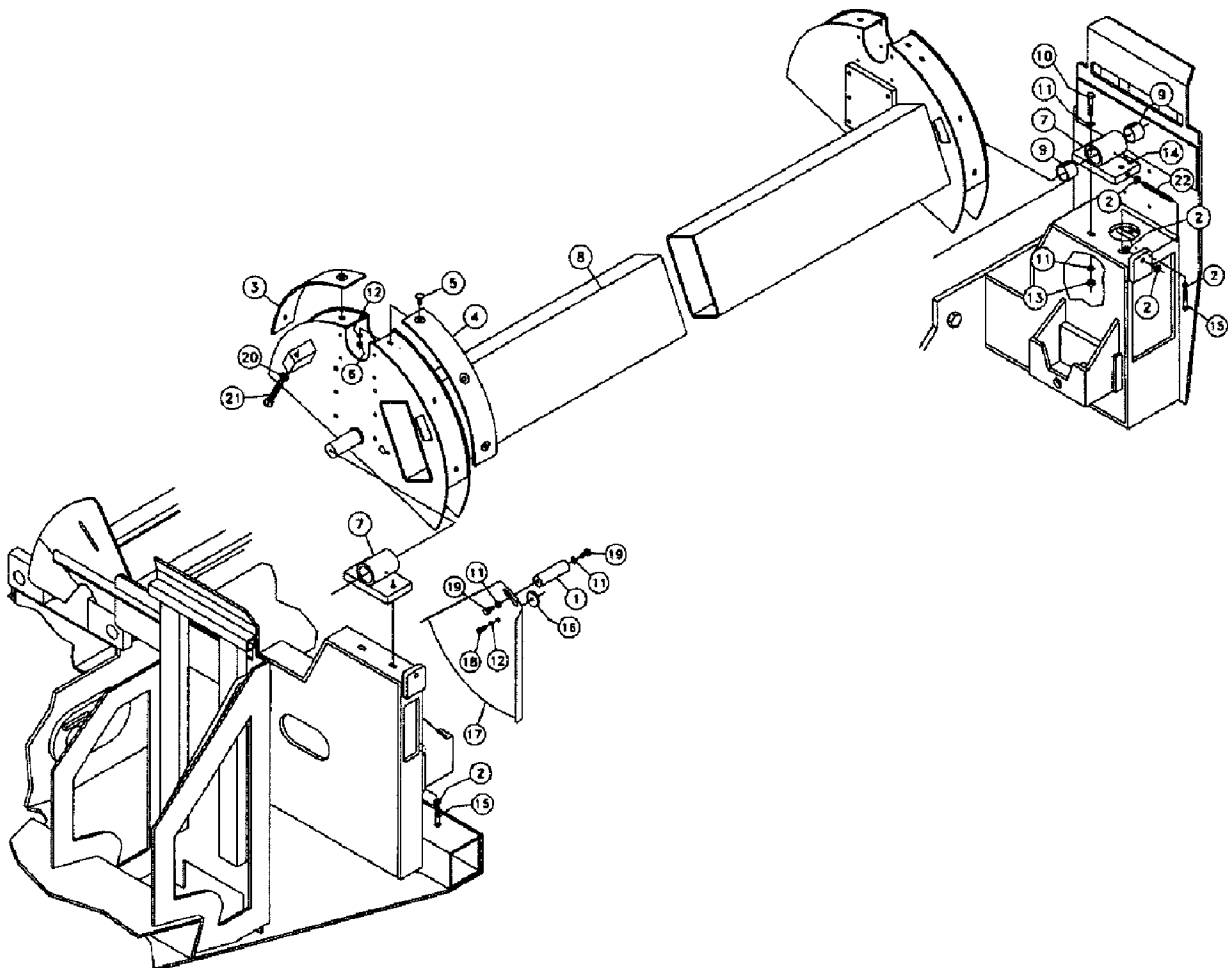


Hydraulic Components Location Diagram - Rod Loader Fig 8-1r01

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
			Revised June 1999 due to update in fittings & hose lengths.		

Rod Loader Frame Assembly Fig 8-2r01

Revised June 1999 due to
update in illustration.

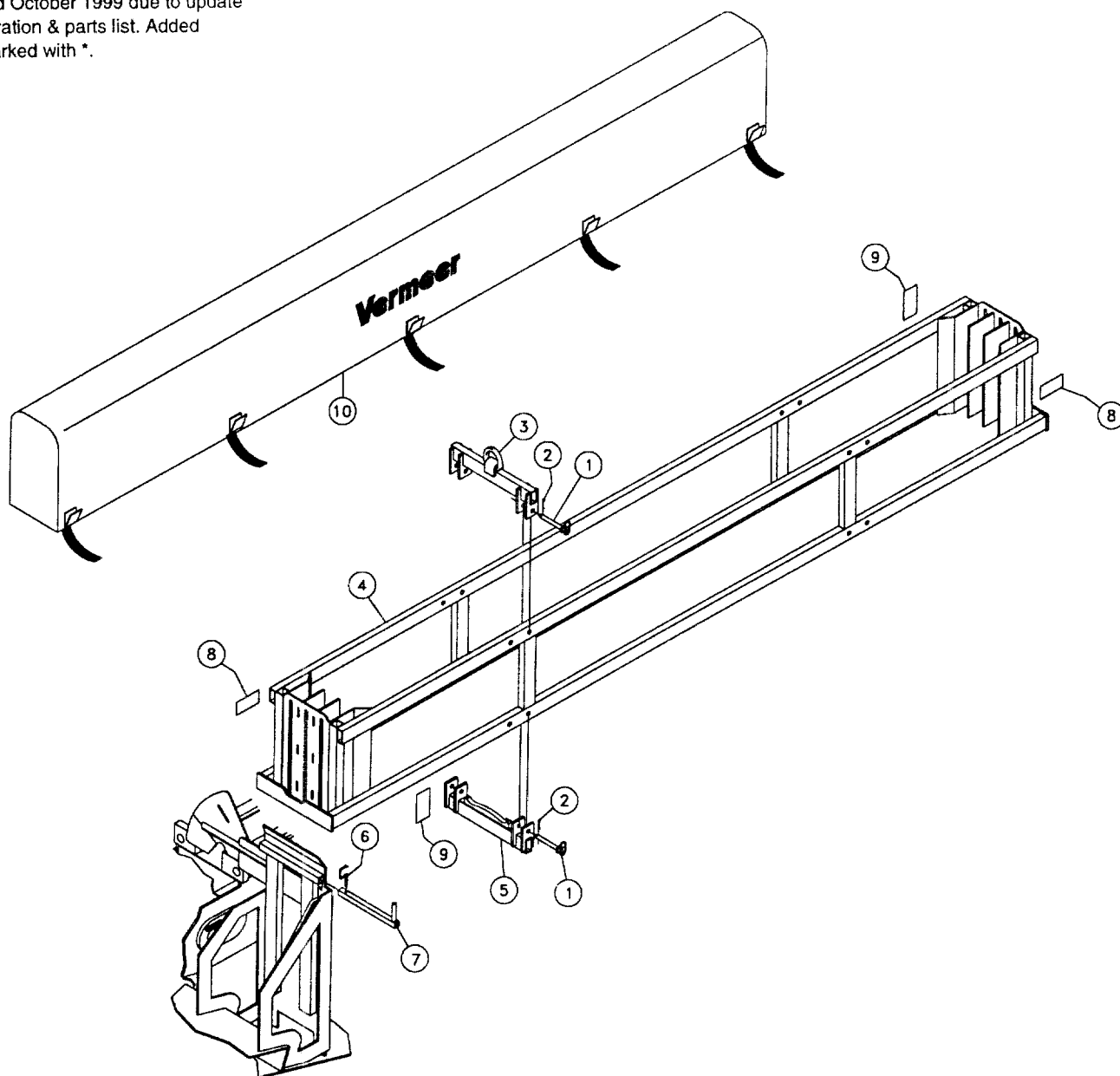


Rod Loader Frame Assembly Fig 8-2r01

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		234252001	SPACER-LOADER INDICATOR	1	
2		235722001	NUT-1/2-13 GR8 JAM ZINC PLTD	10	
3		227901001	WEAR BAR - ROD LOADER	2	
4		227900001	WEAR BAR-ROD LOADER	2	
5		601699012	3/8-16X1 1/4 ELEVATOR BOLT ZNC	10	
6		235725001	NUT-3/8-16 GR8 ZINC PLTD	10	
7		251327001	PIVOT - LOADER	2	
8		227899001	LOADER-ROD	1	
9		1835033	BSHG.-STL.-2 X 1 3/4 X 1 1/2	4	
10		250573001	BOLT-1/2-13 X 2 1/2 GR8 HX Y/Z	4	
11		485025	WASHER-1/2 FLAT-HARDENED-ZINC	10	
12		235713001	WASHER-3/8 SAE HARD ZINC PLTD	11	
13		235731001	NUT-1/2-13 GR8 ZINC PLTD	4	
14		598001	ZERK-1/4" NF ST GREASE	2	
15		601698024	SQ HSS 1/2-13X2 1/2 ZNC PLT	6	
16		18150001	WASHER-2 OD X 17/32ID-1/4	1	
17		227995001	INDICATOR-ROD LOADER	1	
18		235727001	BOLT-3/8-16X1 GR8 HEX ZINC PLT	1	
19		235729001	BOLT-1/2-13X1 GR8 HEX ZINC PLT	2	
20		250514001	NUT-5/8-NC JAM Y/ZINC	2	
21		601697030	SQ HSS-5/8-11X3 ZINC PLT	2	
			Revised June 1999 due to update in illustration.		

Rod Box Assembly Fig 8-3r02

Revised October 1999 due to update
in illustration & parts list. Added
part marked with *.

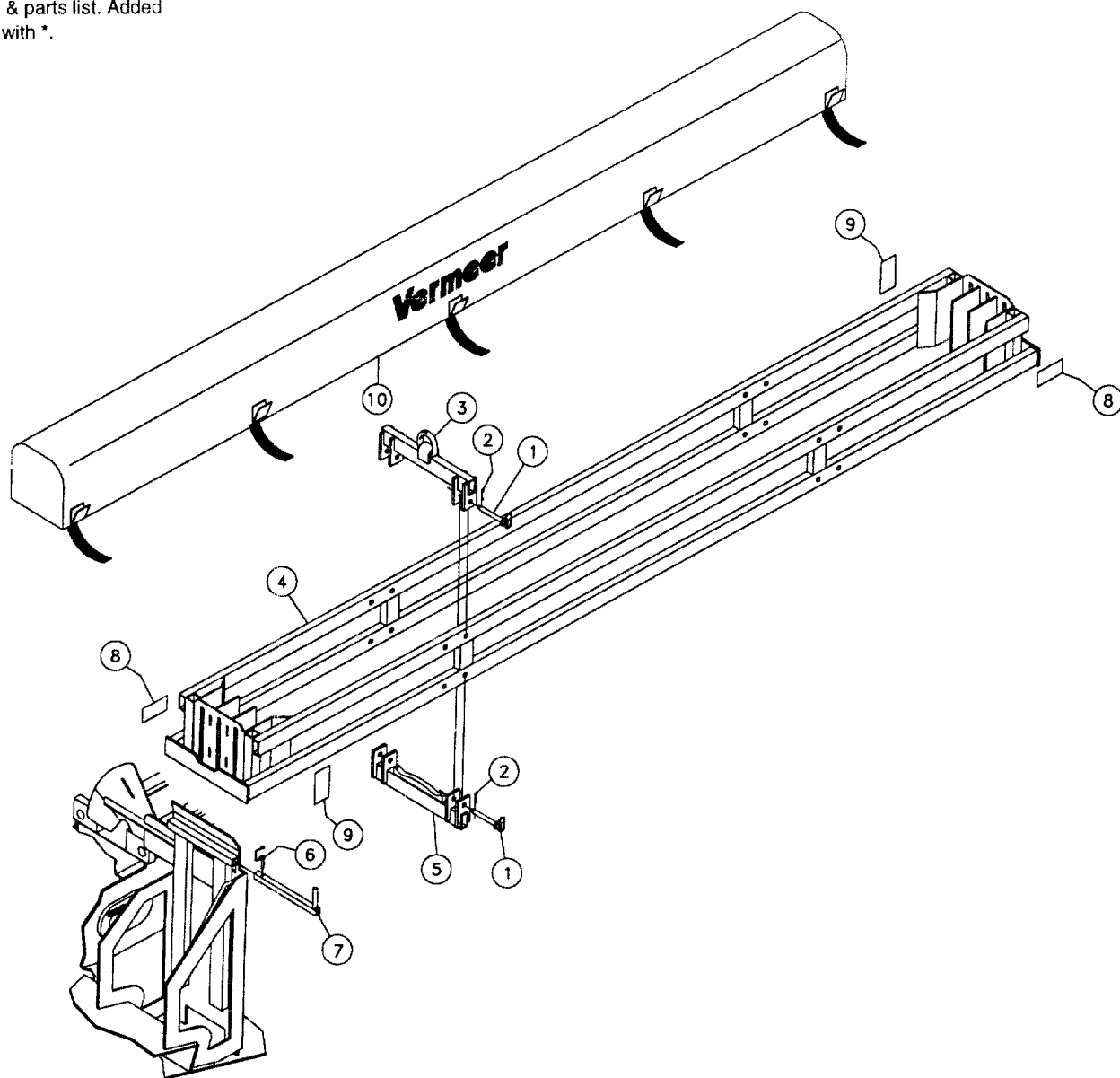


Rod Box Assembly Fig 8-3r02

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		275482001	PIN-HITCH 3/4 X 3 1/2	8	
2		1794003	HAIR PIN COTTER - .148 WIRE	1	
3		251356001	BAR - ROD BOX LIFT	2	
4		275341003	ROD BOX ASSY D80	1	DOMESTIC
		275341005	ROD BOX ASSY D80	1	INTERNATIONAL
5		251355001	BAR - ROD BOX LIFT	2	
6		2108001	LYNCH PIN - 1/4 X 2	2	
7		227906001	PIN ROD BOX	2	
8		7000563	DECAL-WARNING	2	UND, DOM
		70001563	DECAL-WARNING	2	UND, INT
9		7000A392	DECAL - DANGER	2	DOM
		7001A392	DECAL - DANGER	2	INT
10		280649001	*D50&D80 TALL ROD BOX COVER	1	

Rod Box Assembly (9 Rod) Fig 8-4r03

Revised October 1999 due to update
in illustration & parts list. Added
part marked with *.

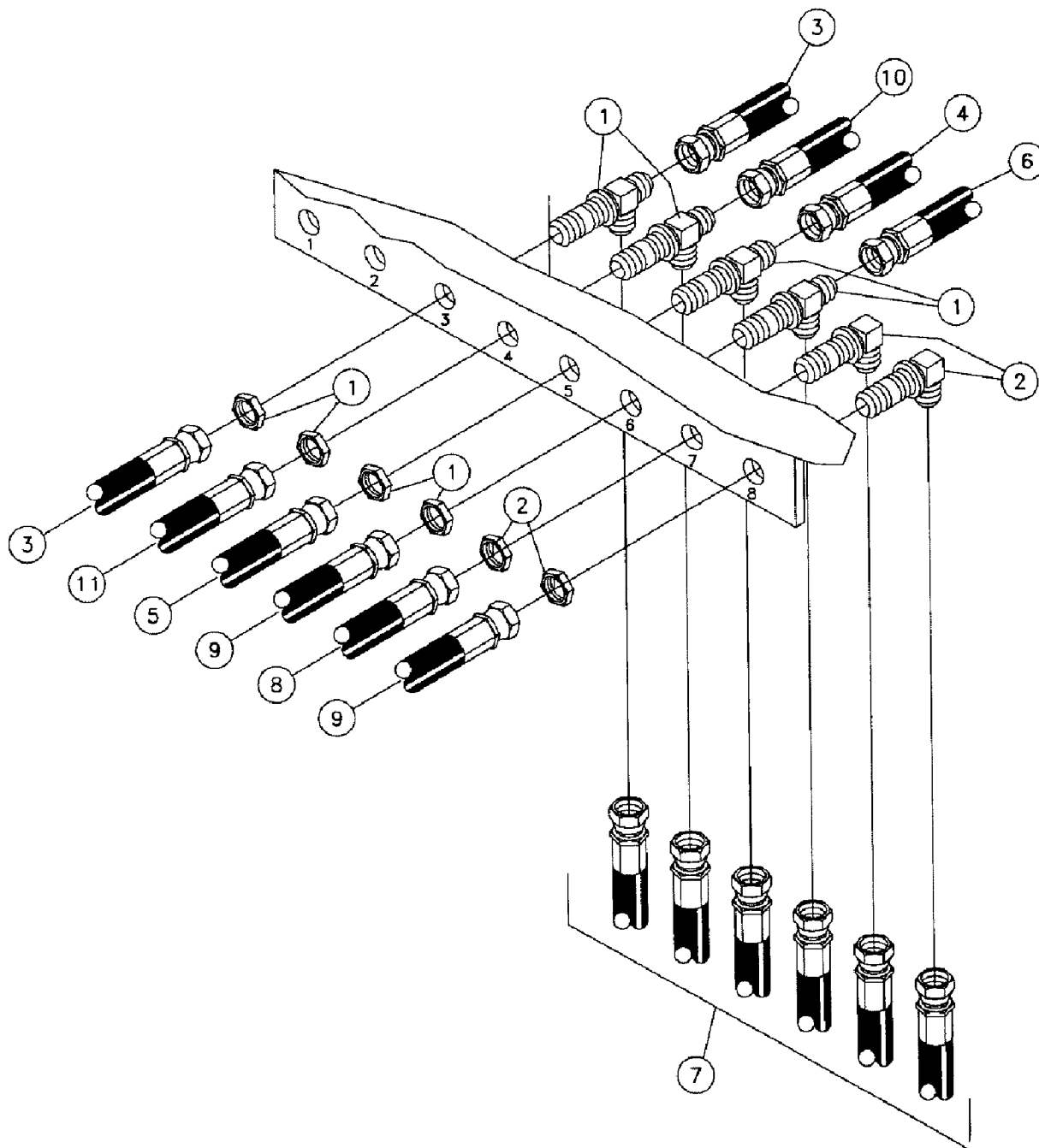


Rod Box Assembly (9 Rod) Fig 8-4r03

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		275482001	PIN-HITCH 3/4 X 3 1/2	8	
2		1794003	HAIR PIN COTTER - .148 WIRE	1	
3		251356001	BAR - ROD BOX LIFT	2	
4		277800003	BOX ASSY.-ROD	1	9 ROD, DOM
		277800005	BOX ASSY.-ROD	1	9 ROD, INT
5		251355001	BAR - ROD BOX LIFT	2	
6		2108001	LYNCH PIN - 1/4 X 2	2	
7		227906001	PIN ROD BOX	2	
8		70000563	DECAL-WARNING	2	UND, DOM
		7000I563	DECAL-WARNING	2	UND, INT
9		7000A392	DECAL - DANGER	2	DOM
		700IA392	DECAL - DANGER	2	INT
10		280648001	D50&D80 SHORT ROD BOX COVER	1	
11		275927982	*THREAD CMPND-PLUSCO 135-10 PK	1	
		275928982	*THRD CMPND-PLUSCO 135-4/10 PK	1	

Bulkhead Assembly Fig 8-5r01

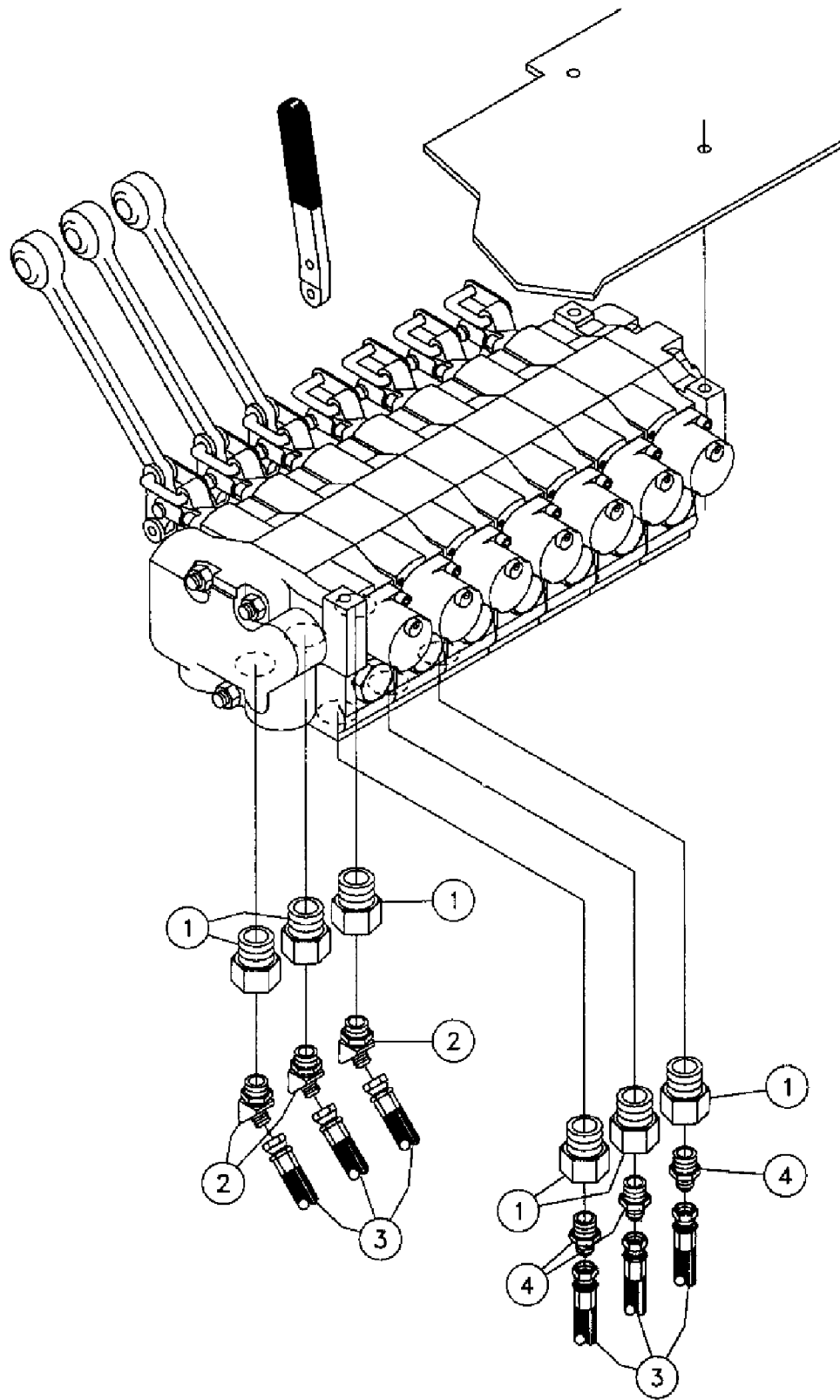
Revised June 1999 due to update
in illustration & parts list. Changed
parts marked with *.



Bulkhead Assembly Fig 8-5r01

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		88545001	FITTING-4M JIC BLKHD RUN TEE	4	
2		61497001	* FITTING-4M JIC BULKHEAD 90DEG.	2	
3		53843061	* HOSE-1/4X124 4FS JIC	2	100R1
4		53843009	* HOSE-1/4X90 4FS JIC	1	100R1
5		53843039	HOSE-1/4X102 4FS JIC	1	100R1
6		53843163	* HOSE-1/4X94 4FS JIC	1	100R1
7		53843231	* HOSE-1/4X66 4FS JIC 3000 PSI	6	
8		53843573	HOSE-1/4 X 112 4FS JIC 3000 PSI	1	
9		53843233	HOSE-1/4X108 4FS JIC 3000 PSI	2	
10		53843049	* HOSE-1/4X120 4FS JIC	1	100R1
11		53843201	HOSE-1/4X132 4FS JIC 3000 PSI	1	
			Revised June 1999 due to update in illustration & parts list. Changed parts marked with *.		

Control Valve Assembly - Rod Loader Plumbing Fig 8-6

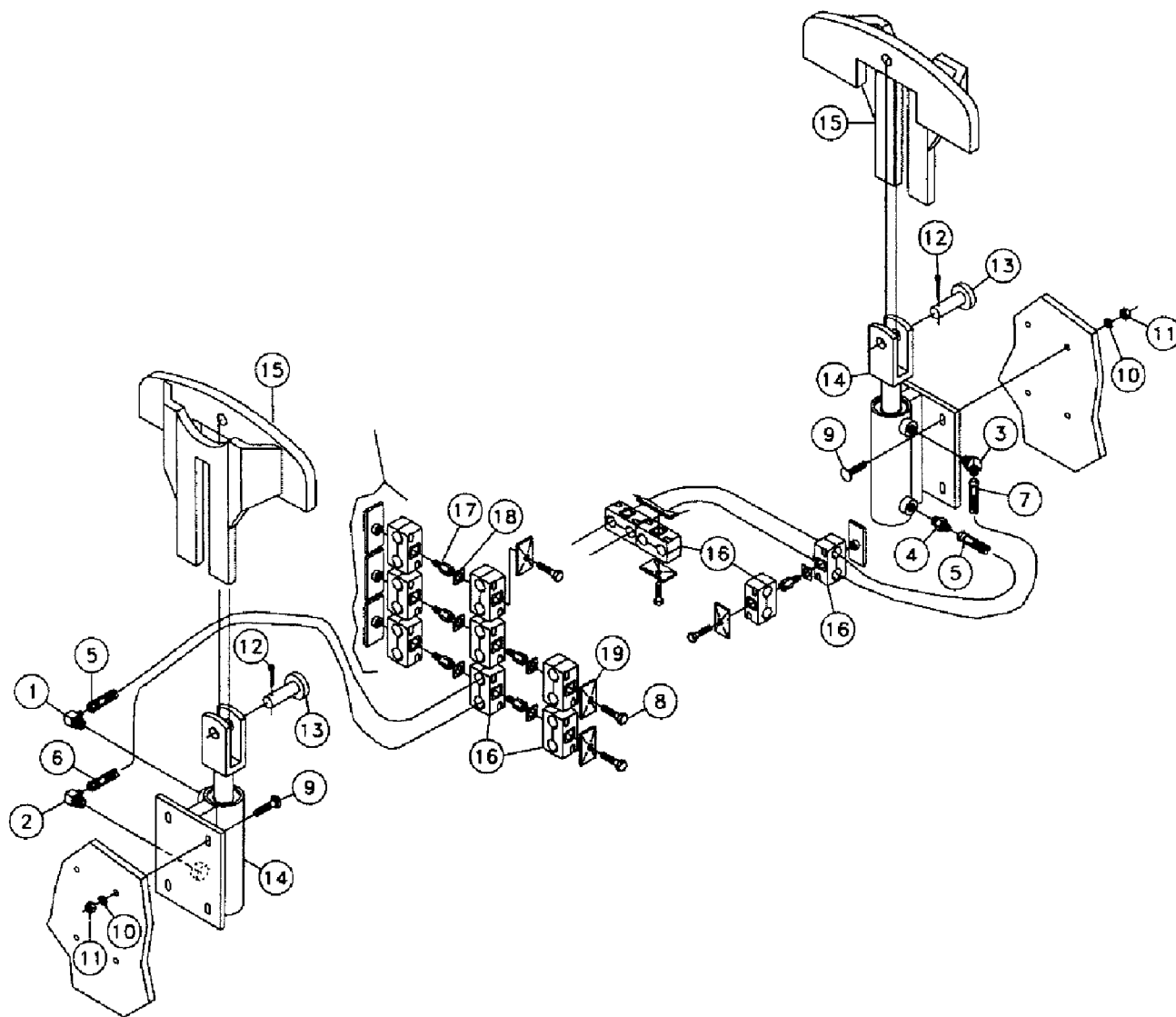


Control Valve Assembly - Rod Loader Plumbing Fig 8-6

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		57967001	10M-6F O-RING BUSHING	6	
2		82931001	FITTING-6MX4M JIC 45DEG.ELBOW	3	
3		53843231	HOSE-1/4X66 4FS JIC 3000 PSI	6	
4		57968001	6M O-RING 4M JIC STRAIGHT	3	

Rod Pusher Cylinder Assembly Fig 8-7r01

Revised June 1999 due to update
in parts list. Changed parts marked with *.

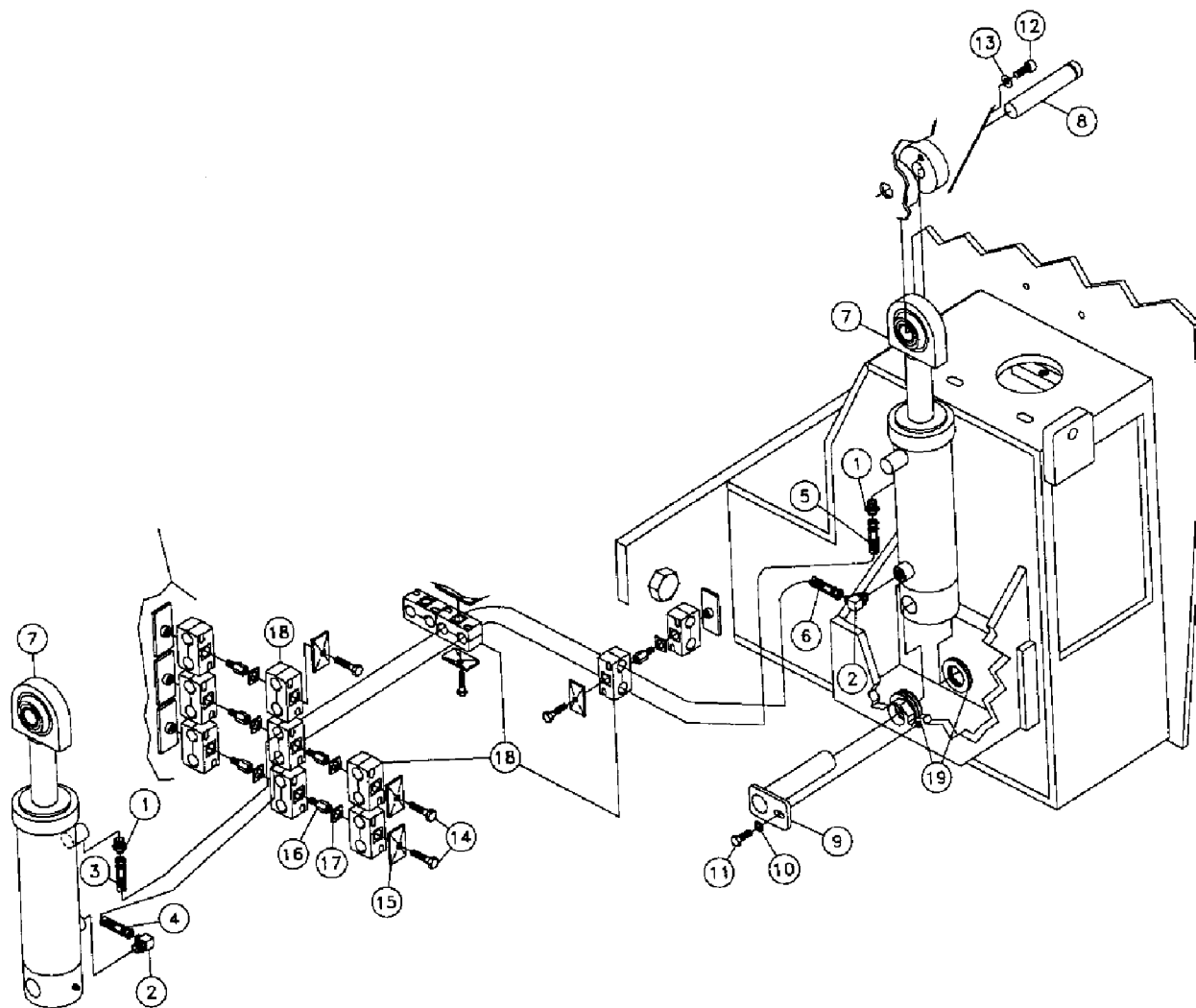


Rod Pusher Cylinder Assembly Fig 8-7r01

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		57950001	* FITTING-6MORINGX4MJIC90	1	
2		131008001	FITTING-4MJICX6MORING 90D.062R	1	
3		82931001	FITTING-6MX4M JIC 45DEG.ELBOW	1	
4		57968001	6M O-RING 4M JIC STRAIGHT	1	
5		53843061	* HOSE-1/4X124 4FS JIC	2	100R1
6		53843201	HOSE-1/4X132 4FS JIC 3000 PSI	1	
7		53843049	* HOSE-1/4X120 4FS JIC	1	100R1
8		248031001	* BOLT-5/16-18X1 1/4 GR 8 ZINCPL	9	
9		375012	* BOLT-3/8-16X1 1/4"GD#5CARRIAGE	8	
10		235713001	WASHER-3/8 SAE HARD ZINC PLTD	8	
11		235725001	NUT-3/8-16 GR8 ZINC PLTD	8	
12		510047	PIN - 3/16 X 1 1/4 COTTER	2	
13		222815001	PIN-STEER CYLINDER	2	
14		224394001	CYLINDER-2X5	2	Breakdown Fig. 8-10
15		239442001	LIFTER-ROD	2	
16		67846005	CLAMP-TWIN	14	
17		231757001	BOLT-CLAMP STACKING 5/16THRD	10	
18		231758001	WASHER-SAFETY	11	1/2" HEX ID
19		67846003	PLATE-TWIN COVER	9	
			Revised June 1999 due to update in parts list. Changed parts marked with *.		

Rod Rotation Cylinder Assembly Fig 8-8r01

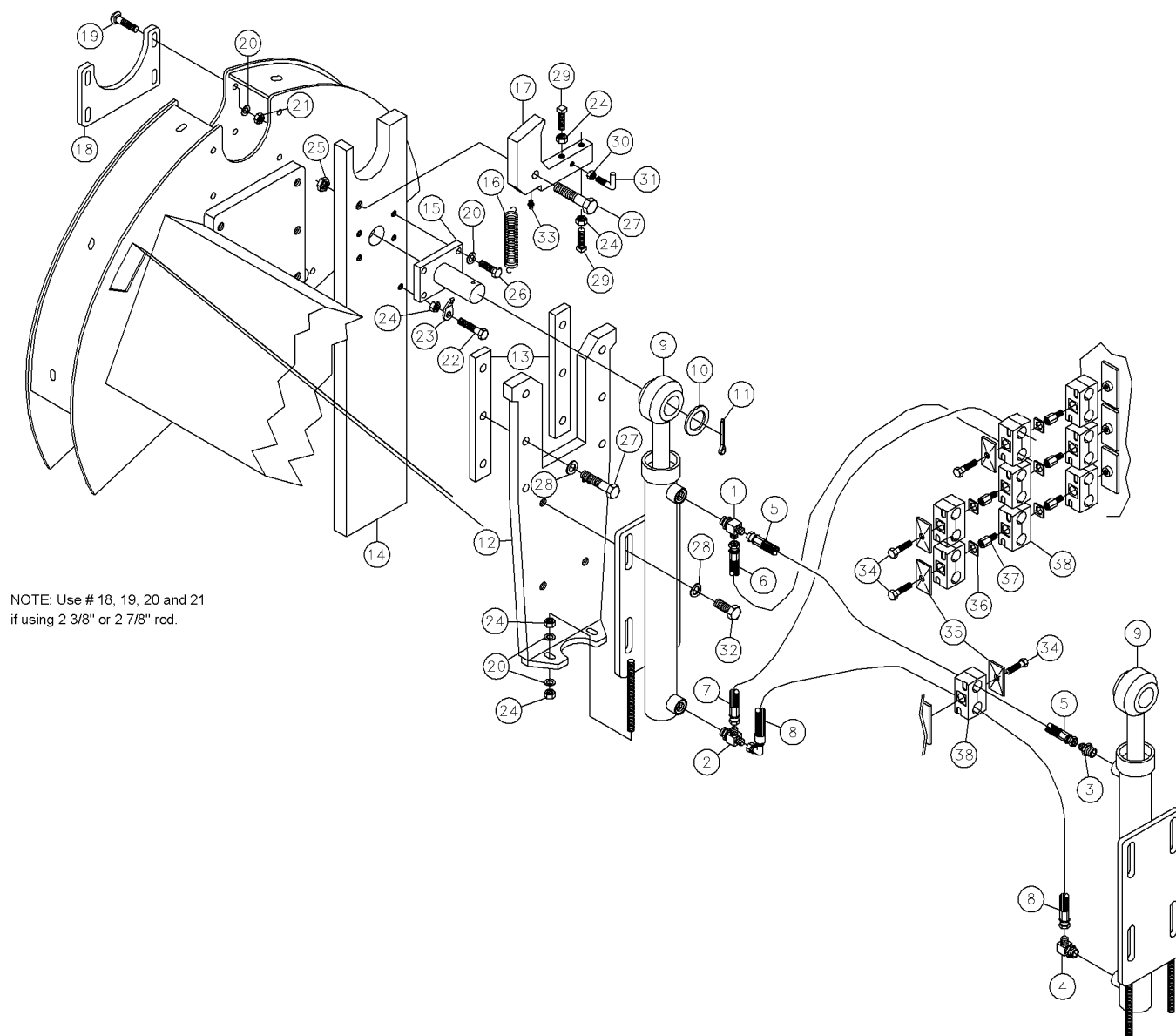
Revised June 1999 due to update
in parts list. Changed parts marked with *.



Rod Rotation Cylinder Assembly Fig 8-8r01

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		57968001	6M O-RING 4M JIC STRAIGHT	2	
2		57950001	* FITTING-6M O-RING X 4M JIC 90	2	
3		53843233	HOSE-1/4X108 4FS JIC 3000 PSI	1	
4		53843039	HOSE-1/4X102 4FS JIC	1	100R1
5		53843163	* HOSE-1/4X94 4FS JIC	1	100R1
6		53843009	* HOSE-1/4X90 4FS JIC	1	100R1
7		227814001	CYLINDER-3 X 7 1/2	2	Breakdown Fig. 8-11
8		227902001	PIN-ROTATE CYLINDER	2	
9		227880001	PIN-ROTATION CYLINDER	2	
10		235713001	WASHER-3/8 SAE HARD ZINC PLTD	2	
11		235727001	BOLT-3/8-16X1 GR8 HEX ZINC PLT	2	
12		601696010	SOCKET HD CAP SCREW 3/8-16X1 Z	2	
13		485007	WASHER-3/8 FLAT	2	
14		248031001	BOLT-5/16-18X1 1/4 GR8 ZINC PL	9	
15		67846003	PLATE-TWIN COVER	10	
16		231757001	BOLT-CLAMP STACKING 5/16THRD	11	
17		231758001	WASHER-SAFETY	11	1/2" HEX ID
18		67846005	CLAMP-TWIN	14	PAIR
19		249878001	* WASHER-1 7/8 OD X 1 1/4 ID 14M	10	
			Revised June 1999 due to update in parts list. Changed parts marked with *.		

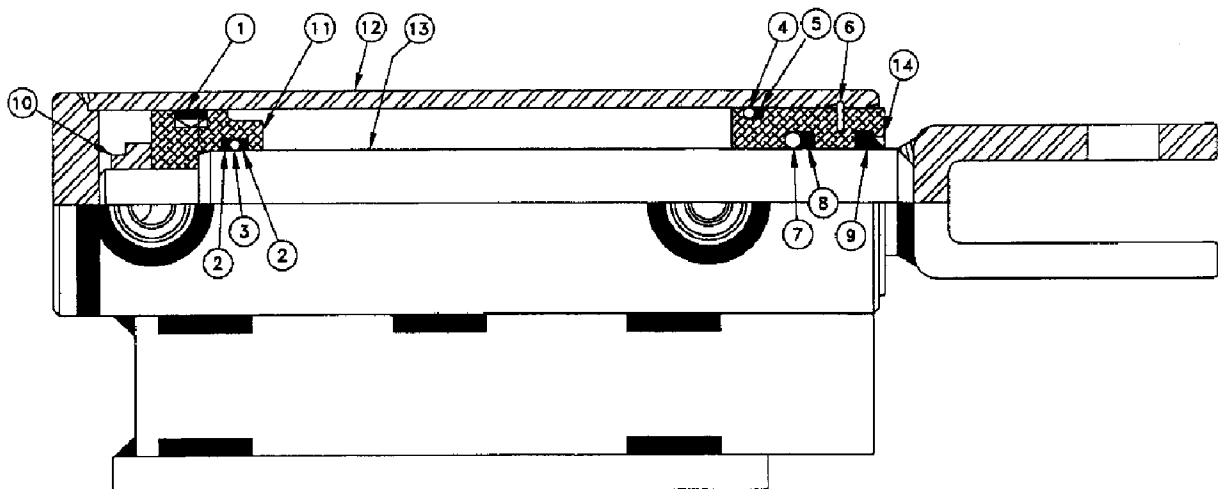
Rod Position Cylinder Assembly Fig 8-9r03



Rod Position Cylinder Assembly Fig 8-9r03

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
		Revision Date	January, 2005		Update In Illustration & Parts List.
1		82930001	FIT-6MX4M JICX4M JIC RUN TEE	1	
2		131007001	FIT-4MJICX6MORX4MJIC TEE R 062	1	
3		57968001	6M O-RING 4M JIC STRAIGHT	1	
4		57950001	FITTING-6MORINGX4MJIC90	1	
5		53843717	HOSE-1/4X136 4FS JIC ST 5000#	1	
6		53843573	HOSE-1/4 X 112 4FS IC 3000 PSI	1	
7		53843233	HOSE-1/4X108 4FS JIC 3000 PSI	1	
8		53843729	HOSE-1/4X150 4FSJICST/90D 3000	1	
9		227815001	CYLINDER 1 1/2 X 14 1/2	2	
10		483007	WASHER-1 7/8X1 1/4X14 GA M.B.	2	
11		510025	COTTER PIN-3/16" X 2"	2	
12		227863001	MOUNT-POSITION CYLINDER	2	
13	*	292712001	SPACER - ROD ARM	4	PN Change
14		224326001	ARM-2 7/8" ROD	2	
		216635001	ARM-3 1/2" ROD	2	
15		227752001	MOUNT-LOADER CYLINDER	2	
16		1789013	SPRING -EXT. #76 4" OA	2	
17		224333003	PLATE ASSY-2 7/8 ROD FLIPPER	2	
18		224335001	PLATE-LOADER INSERT	2	
19		375014	BOLT-3/8-16X1 1/2"GD#5CARRIAGE	8	
20		235713001	WASHER-3/8 SAE HARD ZINC PLTD	24	
21		235725001	NUT-3/8-16 GR8 ZINC PLTD	8	
22		235720001	BOLT-3/8-16X1 3/4 6R8 ZINC PLT	2	
23		239421001	PLATE-SPRING HOOK	2	
24		250625001	NUT-3/8 NC HEX JAM Y/ZINC	14	
25		235722001	NUT-1/2-13 GR8 JAM ZINC PLTD	2	
26		235727001	BOLT-3/8-16X1 GR8 HEX ZINC PLT	8	
27		124631026	*BOLT-1/4-20X2 3/4 GR 8 HEX ZINC	12	
28		485025	WASHER-1/2 FLAT-HARDENED-ZINC	12	
29		549020	SQ HSS-3/8-16X2	4	
30		250514001	NUT-5/8-NC JAM Y/ZINC	2	
31		227847001	HOOK-FLIPPER SPRING	2	
32		235737001	BOLT-1/2-13X1 1/4 GR8 ZINC PLT	8	
33		598001	ZERK-1/4" NF ST GREASE	2	
34		248031001	BOLT-5/16-18X1 1/4 GR8 ZINC PL	11	
35		67846003	PLATE-TWIN COVER	12	
36		231758001	WASHER-SAFETY	11	1/2" HEX ID
37		231757001	BOLT-CLAMP STACKING 5/16THRD	11	
38		67846005	CLAMP-TWIN	17	PAIR

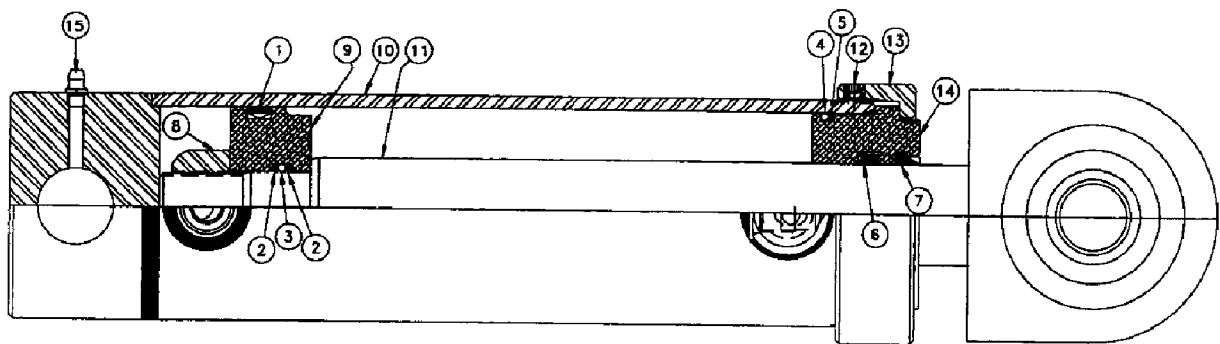
Hydraulic Cylinder Components - 2" x 5" Fig 8-10



Hydraulic Cylinder Components - 2" x 5" Fig 8-10

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		200833001	UNIRING	1	
2		222440007	BACK-UP RING	2	
3		221256013	O-RING	1	
4		51172001	O-RING	1	
5		200834001	BACKUP WASHER	1	
6		224394007	SNAP RING	1	
7		200771001	O-RING	1	
8		224394009	BACK-UP RING	1	
9		221256015	ROD WIPER	1	
10		224394011	THIN LOCKNUT	1	
11		218008009	PISTON	1	
12		224394003	BARREL ASSY	1	
13		224394005	ROD ASSY	1	
14		200831001	GLAND	1	
		224394001	CYLINDER-2X5		INC. REF. 1-14
		224394013	SEAL KIT-2 X 5 CYLINDER		INC. REF. 1-9

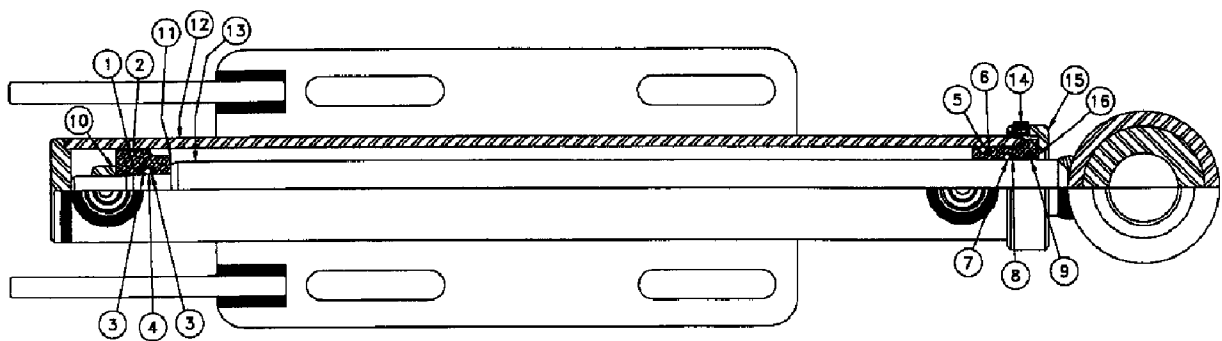
Hydraulic Cylinder Components - 3" x 7 1/2" Fig 8-11



Hydraulic Cylinder Components - 3" x 7 1/2" Fig 8-11

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		200780001	UNI-RING 12G-300220-312	1	
2		208331001	RING-BACK UP	2	
3		208332001	O-RING	1	
4		200809001	O-RING #232	1	
5		200778001	WASHER-BACKUP	1	
6		204315001	1 1/2" LOADED U-CUP	1	
7		200808001	WIPER 52-1500	1	
8		218496007	LOCK NUT	1	
9		227814007	PISTON	1	
10		227814003	BARREL ASSY	1	
11		227814005	ROD ASSY	1	
12		219125011	NT SH SET SCREW	1	
13		218496013	THREADED CAP	1	
14		89315007	GLAND-CYLINDER	1	
15		598001	ZERK-1/4" NF ST GREASE	1	
		227814001	CYLINDER-3 X 7 1/2		INC. REF. 1-15
		227814009	SEAL KIT-3X7 1/2 CYLINDER		INC. REF. 1-7

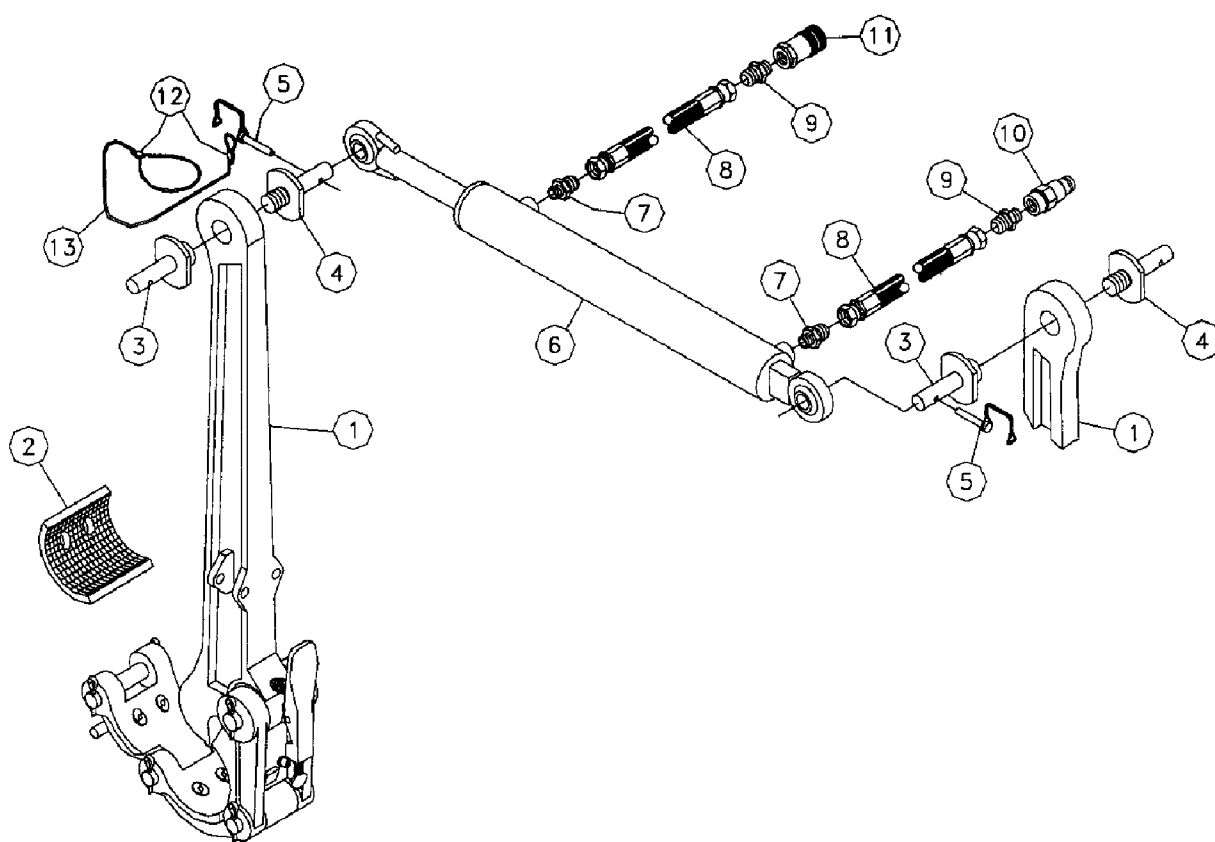
Hydraulic Cylinder Components - 1 1/2" x 14 1/2" Fig 8-12



Hydraulic Cylinder Components - 1 1/2" x 14 1/2" Fig 8-12

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		227815007	TEFLON PISTON RING	1	
2		227815009	O-RING	1	
3		227815011	BACK-UP RING	2	
4		227815013	O-RING	1	
5		202727001	O-RING	1	
6		119510005	BACK-UP RING	1	
7		208178001	O-RING	1	
8		208177001	WASHER-BACKUP	1	
9		227815021	ROD WIPER	1	
10		202722001	LOCKNUT	1	
11		227815015	PISTON	1	
12		227815003	BARREL ASSY	1	
13		227815005	ROD ASSY	1	
14		219125011	NT SH SET SCREW	1	
15		215170019	CAP-THREADED	1	
16		215170017	ROD ASSEMBLY	1	
		227815001	CYLINDER 1 1/2 X 14 1/2		INC. REF. 1-16
		227815019	SEAL KIT-1 1/2X14 1/2 CYLINDER		INC. REF. 1-9

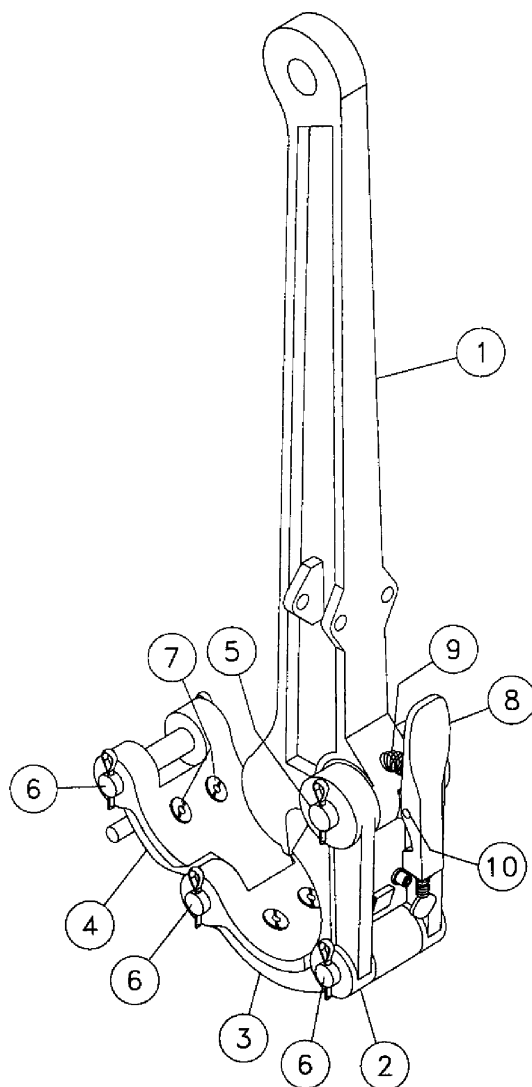
Tubing Tong Assembly Fig 9-1



Tubing Tong Assembly Fig 9-1

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
			[A] 2 3/8"		
			[B] 2 7/8"		
			[C] 3 1/2"		
1		230970001	TONG-K30 LIGHT WEIGHT TUBING	2	BREAKDOWN FIG. 9-2 [A] [B] [C]
2		235870001	K-30 2 5/8 DIES (	1	3/SET [A]
		230972001	DIES-3 1/4" TUBING TONG(	1	3/SET [B]
		230974001	DIES-3 5/8" TUBING TONG(	1	3/SET [C]
3		234967001	PIN-FEMALE CYLINDER	2	[A] [B] [C]
4		234966001	PIN-MALE CYLINDER	2	[A] [B] [C]
5		2108001	LYNCH PIN - 1/4 X 2	2	[A] [B] [C]
6		230977001	CYLINDER-2"X15"	1	BREAKDOWN FIG. 9-3 [A] [B] [C]
7		86235001	6M ORING X 8M JIC STR.	2	[A] [B] [C]
8		53844167	HOSE-1/2X240 8FS JIC 3000 PSI	2	[A] [B] [C]
9		68634001	FITTING-3/8MX8M JIC	2	STR, [A] [B] [C]
10		221503001	CPLR-3/8 NPT QK	1	MALE, [A] [B] [C]
11		221504001	COUPLER-3/8 NPT QUICK	1	FEMALE, [A] [B] [C]
12		1838001	CONNECTOR-WIRE	4	ETC, [A] [B] [C]
13		240546001	CABLE-3/32 NYLON-18.00	2	[A] [B] [C]

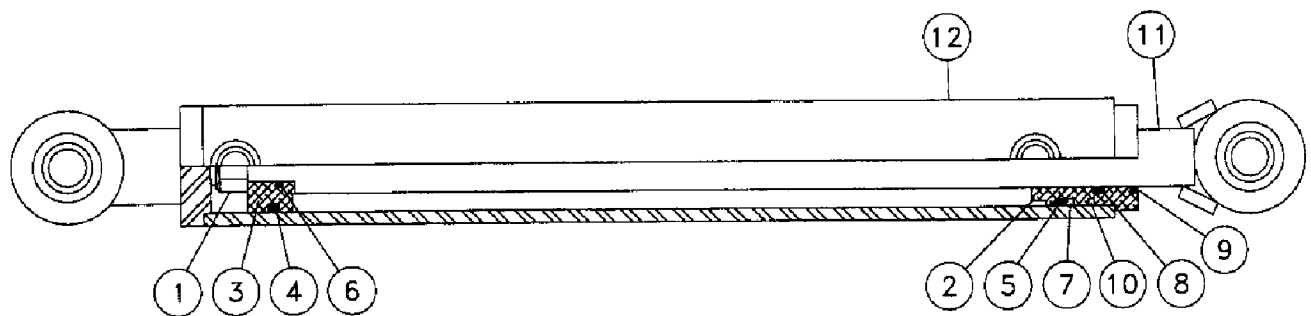
Tubing Tong Components Fig 9-2



Tubing Tong Components Fig 9-2

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		230970003	TONG HANDLE	1	
2		230970005	HANDLE JAW	1	
3		230970007	CENTER JAW	1	
4		230970009	LATCH JAW	1	
5		230970011	HANDLE PIN	1	
6		230970013	JAW PIN	3	
7		230970015	BUSHING AND SCREW	6	
8		230970017	ADJUSTABLE TONG LATCH	1	
9		230970019	LATCH SPRING	1	
10		230970021	LATCH RIVET	1	
		230970001	TONG-K30 LIGHT WEIGHT TUBING		COMPLETE, INC. REF. 1-10

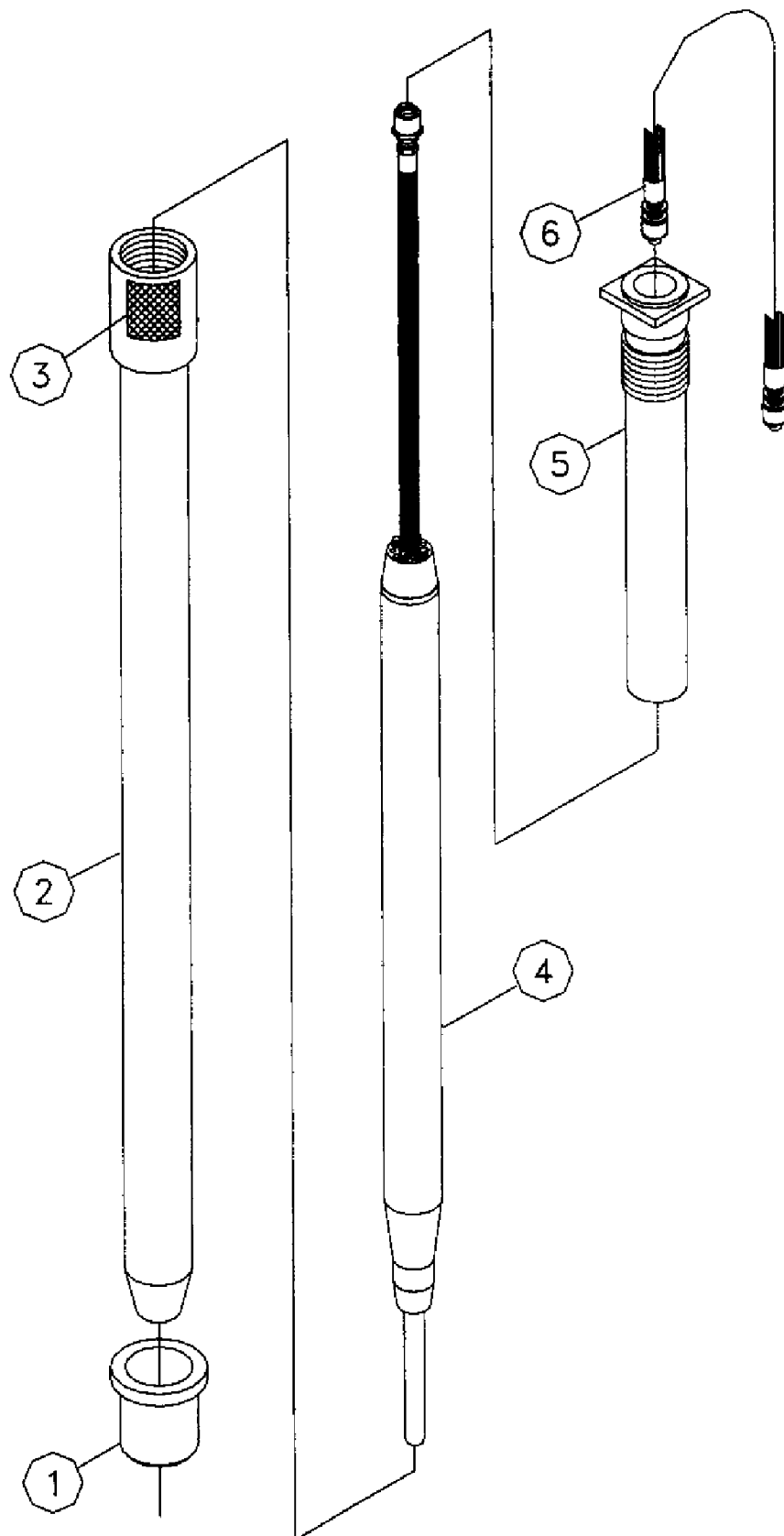
Hydraulic Cylinder Components - 2" x 15" Fig 9-3



Hydraulic Cylinder Components - 2" x 15" Fig 9-3

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		230977003	NUT	1	
2		230977005	HEAD	1	
3		230977007	PISTON	1	
4		230977009	PSP-SEAL	1	
5		51181001	O-RING #326	1	
6		792029	O-RING	1	
7		230977011	BACK-UP	1	
8		230977013	ROD SEAL	1	
9		230977015	DUST SEAL	1	
10		230977017	RETAINING RING	1	
11		230977019	SHAFT	1	W/CLEVIS
12		230977021	BARREL	1	W/CLEVIS AND PORTS
		230977023	REPAIR KIT		INC. REF. 4-10
		230977001	CYLINDER-2"X15"		INC. REF. 1-12

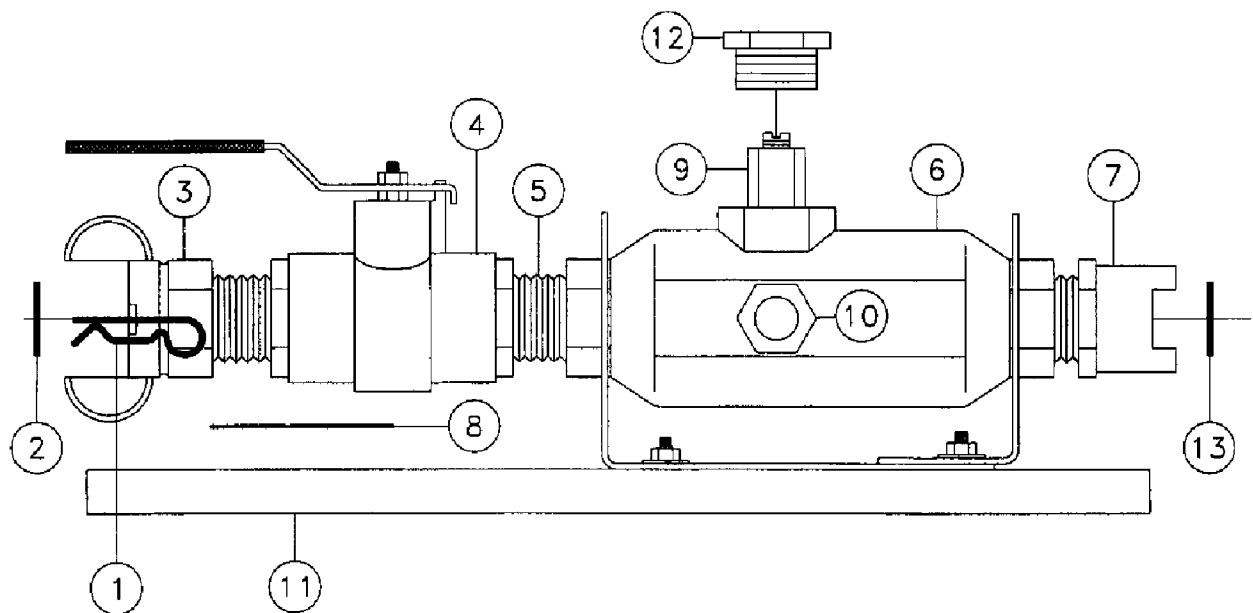
Stake/Driver Assembly Fig 10-1



Stake/Driver Assembly Fig 10-1

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		231898001	STAKE SLEEVE	4	
2		231897001	STAKE	4	
3		7000A549	DECAL-WARNING	4	
4		231900001	STAKE DRIVING MOLE	1	Beakdown Fig. 10-3
5		231899001	EXTRACTION SLEEVE	1	
6		208267001	50'HOSE W/COUPLINGS	AR	

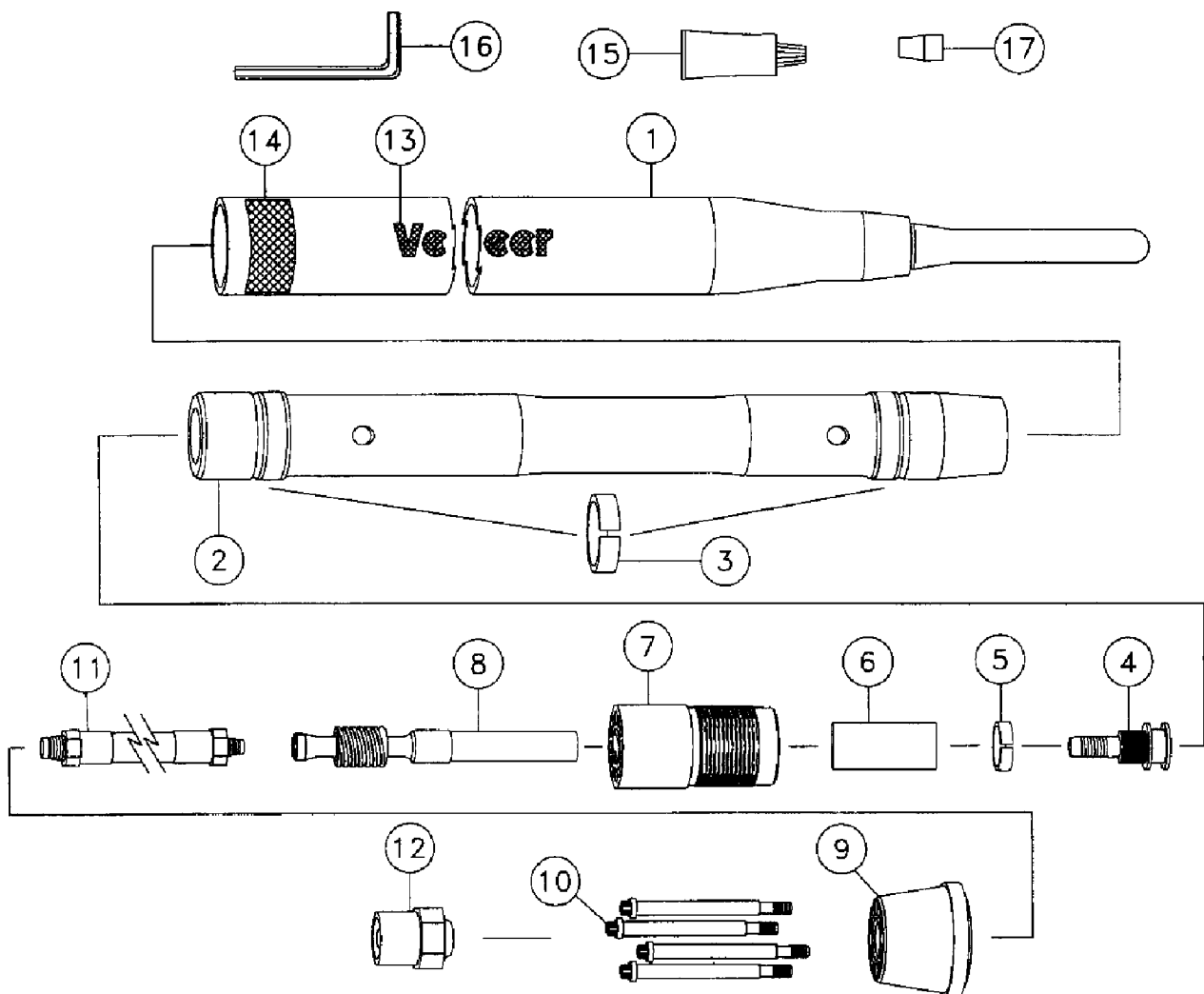
Mist Oiler Assembly Fig 10-2



Mist Oiler Assembly Fig 10-2

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		205154007	SAFETY CLIP	1	
2		205154005	FITTING GASKET	1	
3		205154003	CLAW FITTING-MALE	1	
4		3379001	VALVE - 3/4" BALL - #101R NPT	1	
5		736007	3/4" CLOSE NIPPLE BLACK STEEL	1	
6		208566001	MIST OILER W/PRESSURE RELIEF	1	INC. REF. 1-13
		211713001	OILER ASSY-EUROPEAN STNDRD	1	
7		205154011	PNEUMATIC FITTING	1	
8		70000685	DECAL-WARNING	1	
10		208569001	SIGHT WINDOW W/O-RING	1	
12		208599001	MANUAL RELIEVING SFTY CAP AY	1	
13		208566003	RUBBER GASKET	1	

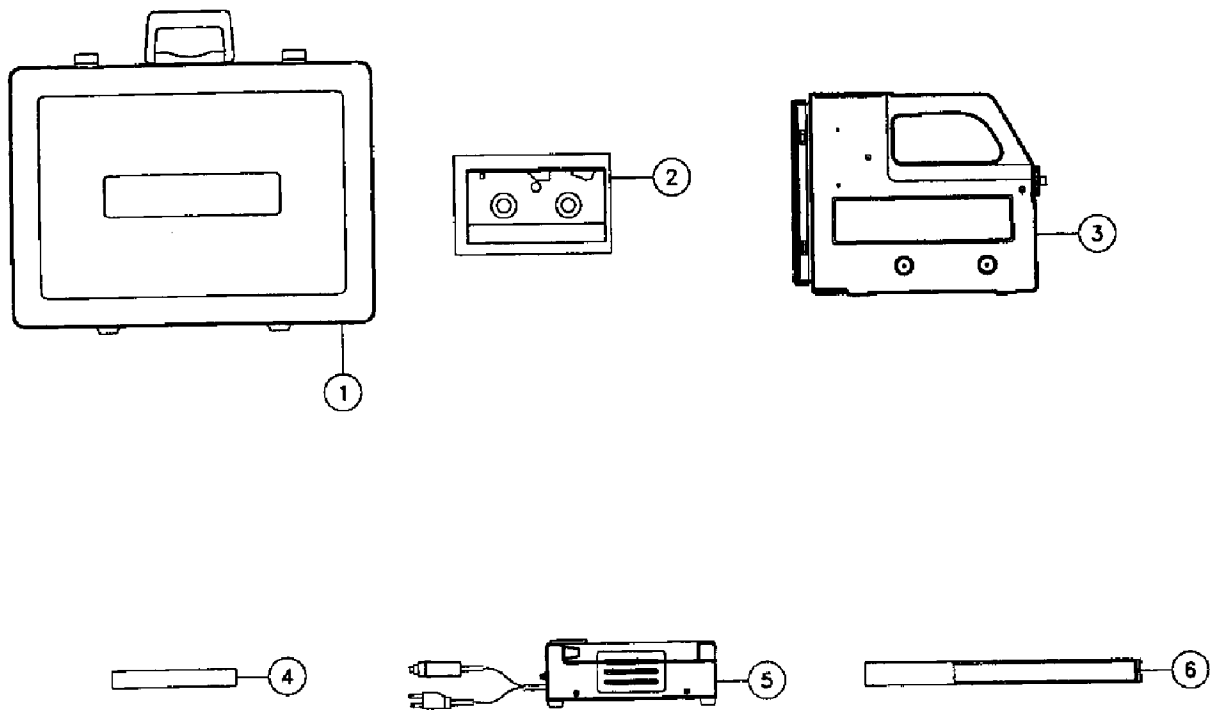
Stake Driving Mole Components Fig 10-3



Stake Driving Mole Components Fig 10-3

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		231902001	BODY W/LONG FRONT ANVIL	1	
		215399001	WEAR FACE ASSEMBLY	1	
2		204933005	STRIKER ET30204	1	
3		204933007	STRIKER RING ET30210	2	
4		221594001	VALVE RETAINER	1	
5		204933011	VALVE RING ET30211	1	
6		221593001	VALVE	1	
7		204933015	REAR ANVIL ET30205	1	
8		207042001	VALVE END SERVICEABLE WHIP	1	
9		231901001	TAILCONE-MODIFIED	1	
10		204933021	TAIL BOLT ET30221	4	
11		231903001	EXTRA LONG SERVICE WHIP HOSE	1	
12		204933023	PNEUMATIC FITTING ET30214	1	
13		70000340	DECAL-RED VERMEER	2	
14		70000944	DECAL-WARNING UND MOLES	1	
15		209225001	NEVERSEEZ 1 OZ.	1	
16		207368001	7/16"LONG ARM HEX KEY	1	
17		207369001	SOCKET-3/8 12 POINT	1	
		231900001	STAKE DRIVING MOLE		Inc. Ref. 1-17

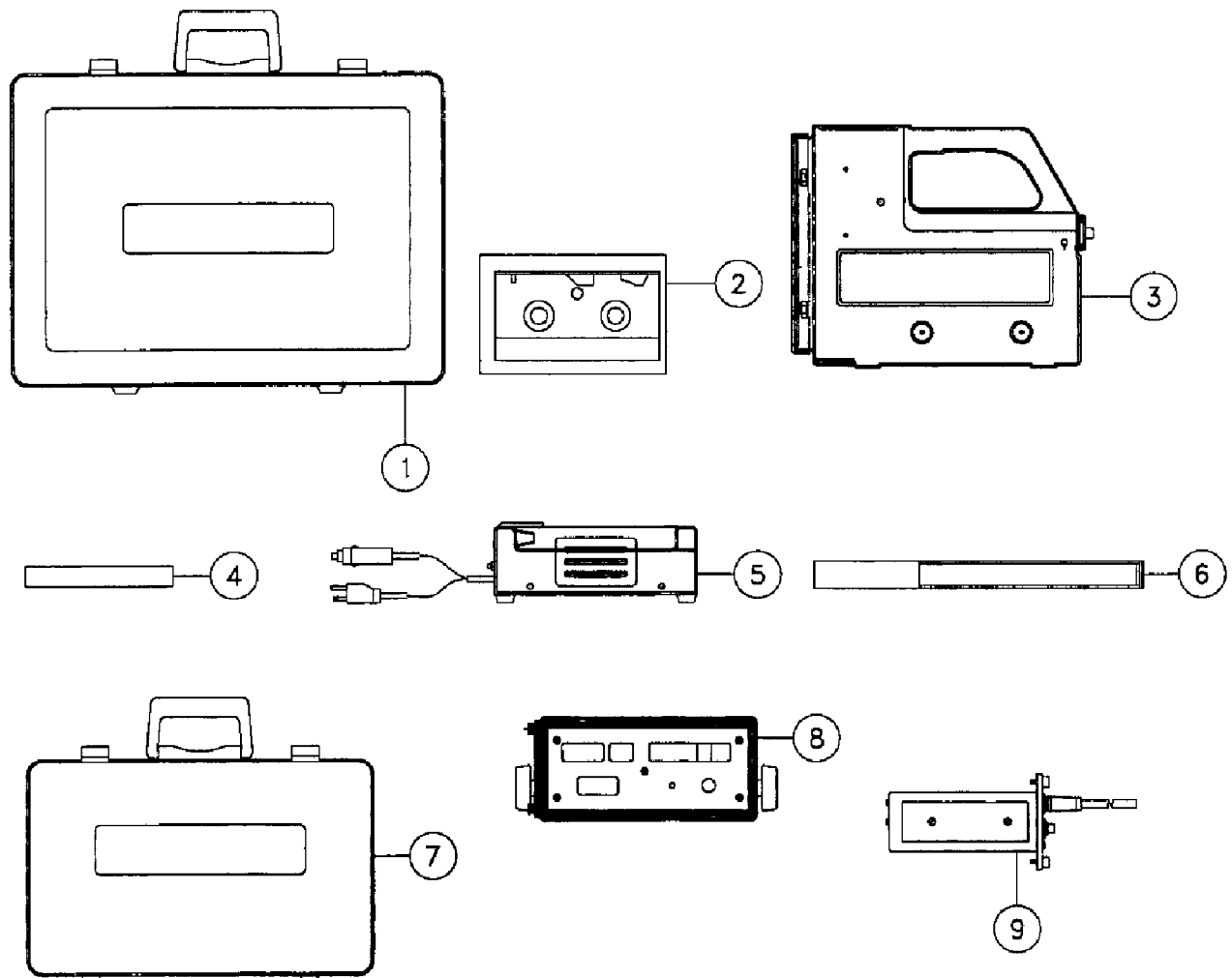
Location Package, Mark III - Digitrak - Domestic & International Fig 11-1



Location Package, Mark III - Digitrak - Domestic & International Fig 11-1

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		213389011	DIGITRAK CARRYING CASE	1	
2		231990001	DIGITRAK OP. MAN. TRAIN VIDEO	1	
3		231991001	DIGITRAK RECEIVER-ENGL/METR	1	
4		213389009	DIGITRAK BATTERY PACK	2	
5		213389007	DIGITRAK SMART CHRGR115/230V	1	
6		221806001	SONDE-15' BLUE	1	
		213389005	SONDE - 30' YELLOW	1	
		226196001	SONDE -50' RED	1	4 BATT
		221643001	SONDE-50' RED	1	
		213086001	O-RING	3	
		231212001	DIGITRAK STD.LOCATOR		US/CAN, INC. REF. 1-5

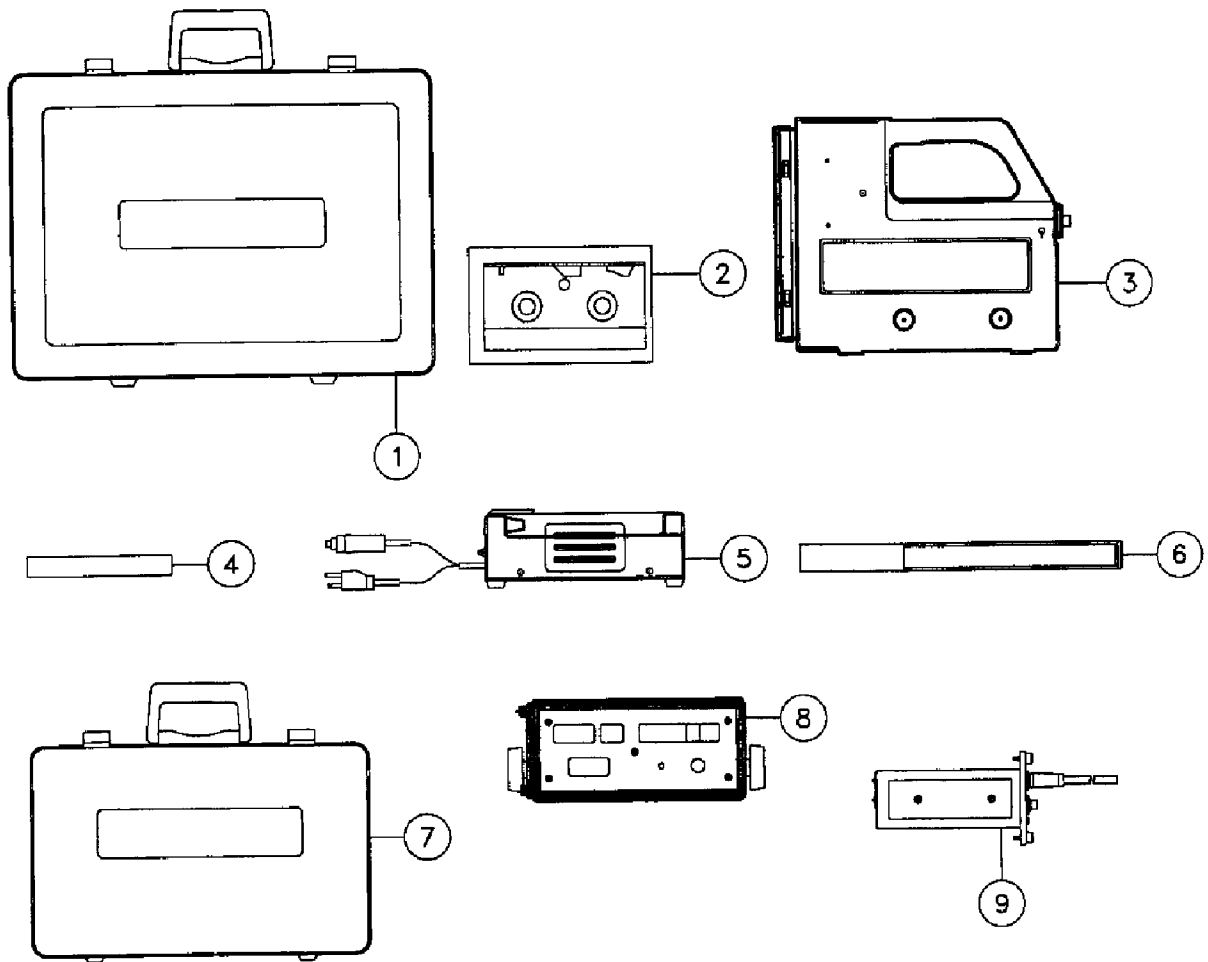
Location Package, Mark III - Digitrak (W/Remote Display) Domestic Fig 11-2



Location Package, Mark III - Digitrak (W/Remote Display) Domestic Fig 11-2

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
			[A] QTY. STD.		
			[B] CABLE SONDE		
1		213389011	DIGITRAK CARRYING CASE	1	[A] [B]
2		231990001	DIGITRAK OP. MAN. TRAIN VIDEO	1	[A] [B]
3		231992001	RECEIVER W/REMOTE ENGLISH/METR	1	[A] [B]
4		213389009	DIGITRAK BATTERY PACK	2	[A]
5		213389007	DIGITRAK SMART CHARGER115/230V	1	[A]
6		221806001	SONDE-15' BLUE	1	[A]
		213389005	SONDE - 30' YELLOW	1	[A]
		221643001	SONDE-50' RED	1	[A]
		226196001	SONDE -50' RED	1	4 BATT, [A]
		226197001	SONDE -50' .1P MAGENTA	1	[A]
		226198001	SONDE-50' .1P MAGENTA	1	4 BATT, [A]
		226199001	SONDE-100' CABLE GREEN	1	[B]
		226200001	SONDE-100' CABLE .1P GREEN	1	[B]
		213086001	O-RING #122	3	[A] [B]
7		221658001	REMOTE CARRYING CASE	1	[A] [B]
8		231993001	DIGITRAK REMOTE DISPLAY	1	[A] [B]
		231994001	REMOTE DISPLY FOR CABLE SONDE	1	[B]
9		226195001	CABLE SONDE POWER SUPPLY	1	[B]
		231218001	DCI REMOTE LOCATOR SYS		US/CAN, INC. REF. 1-5, 7 & 8
		231221001	DCI REM CABLE SONDE SYS		US/CAN, INC. REF. 1-3 & 7-9

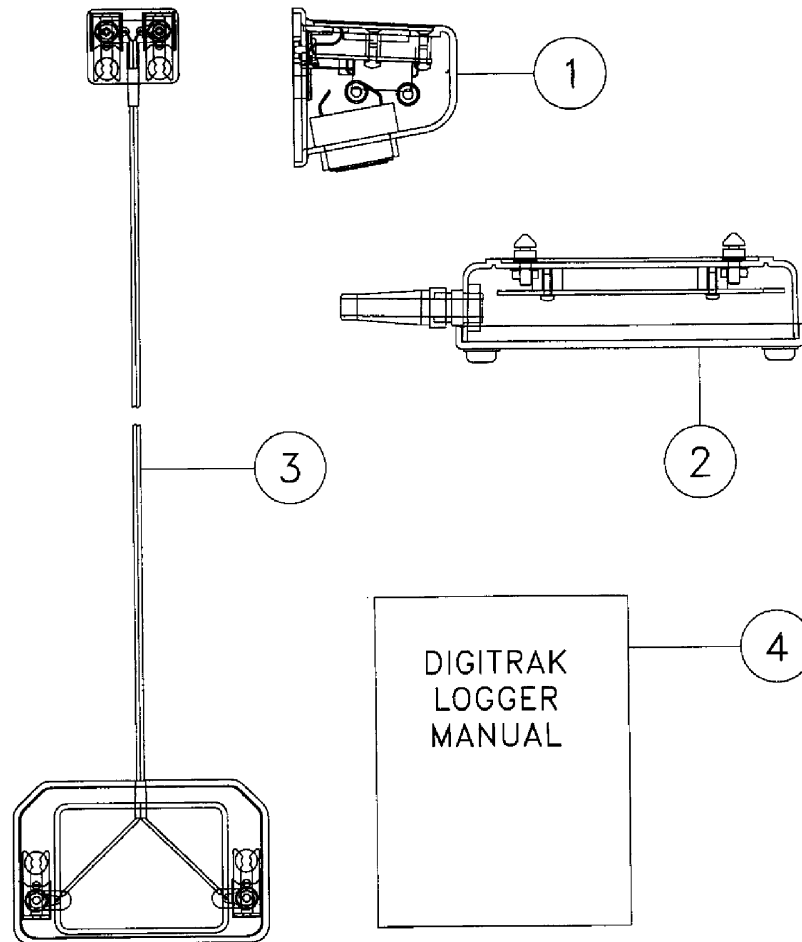
Location Package, Mark III - Digitrak (W/Remote Display) International Fig 11-3



Location Package, Mark III - Digitrak (W/Remote Display) International Fig 11-3

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
			[A] QTY. STD.		
			[B] CABLE SONDE		
1		213389011	DIGITRAK CARRYING CASE	1	[A] [B]
2		231990001	DIGITRAK OP. MAN. TRAIN VID	1	[A] [B]
3		231995001	RECEIVER W/REM FNCTN AU	1	[A] [B]
		231996001	RECEIVER W/REM FNCTN UK	1	[A] [B]
4		213389009	DIGITRAK BATTERY PACK	2	[A]
5		213389007	DIGITRAK SMRT CHRGR115/230V	1	[A]
6		221806001	SONDE-15' BLUE	1	[A]
		213389005	SONDE - 30' YELLOW	1	[A]
		221643001	SONDE-50' RED	1	[A]
		226196001	SONDE -50' RED	1	4 BATT, [A]
		226197001	SONDE -50' .1P MAGENTA	1	[A]
		226198001	SONDE-50' .1P MAGNTA	1	4 BATT, [A]
		226199001	SONDE-100' CABLE GREEN	1	[B]
		226200001	SONDE-100' CABLE .1P GREEN	1	[B]
		213086001	O-RING #122	3	[A] [B]
7		221658001	REMOTE CARRYING CASE	1	[A] [B]
8		231997001	REMOTE DISPLAY AU	1	[A] [B]
		231998001	REM DISP FOR CBLE SOND AU	1	[B]
		231999001	REMOTE DISPLAY UK	1	[A]
		238750001	REM DISP FOR CBL SOND UK	1	[A] [B]
9		226195001	CABLE SONDE POWER SUPPLY	1	[A]
		231219001	DCI REMOTE LOCATOR SYS		AU, INC. REF. 1-5, 7 & 8
		231222001	DCI REM CABLE SONDE SYS		AU, INC. REF. 1-3 & 7-9
		231220001	DCI REMOTE LOCATOR SYS		UK, INC. REF. 1-5, 7 & 8
		231223001	DCI REM CABLE SONDE SYS		UK, INC. REF. 1-3 & 7-9

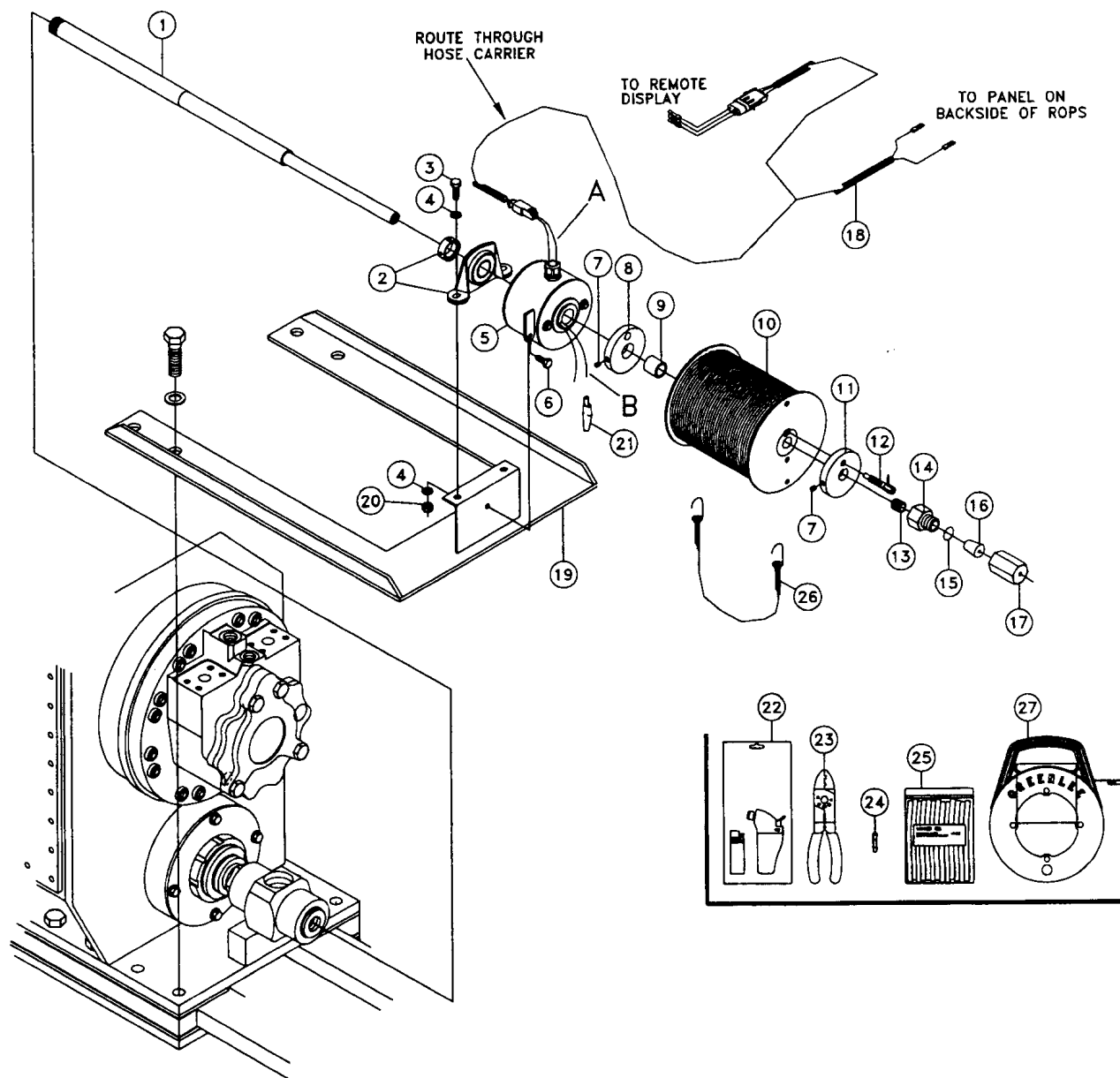
Data Logger, Mark III - Digitrak Fig 11-4



Data Logger, Mark III - Digitrak Fig 11-4

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		231224001	DATA LOGGER MODULE	1	
2		231228001	DATA-LOG/PC INTERFACE	1	
3		238751001	DATA LOG REAL TIME CABLE	1	
4		238752001	DIGITRAK LOGGER MANUAL	1	

Cable Sonde Accessory Assembly Fig 11-5r02

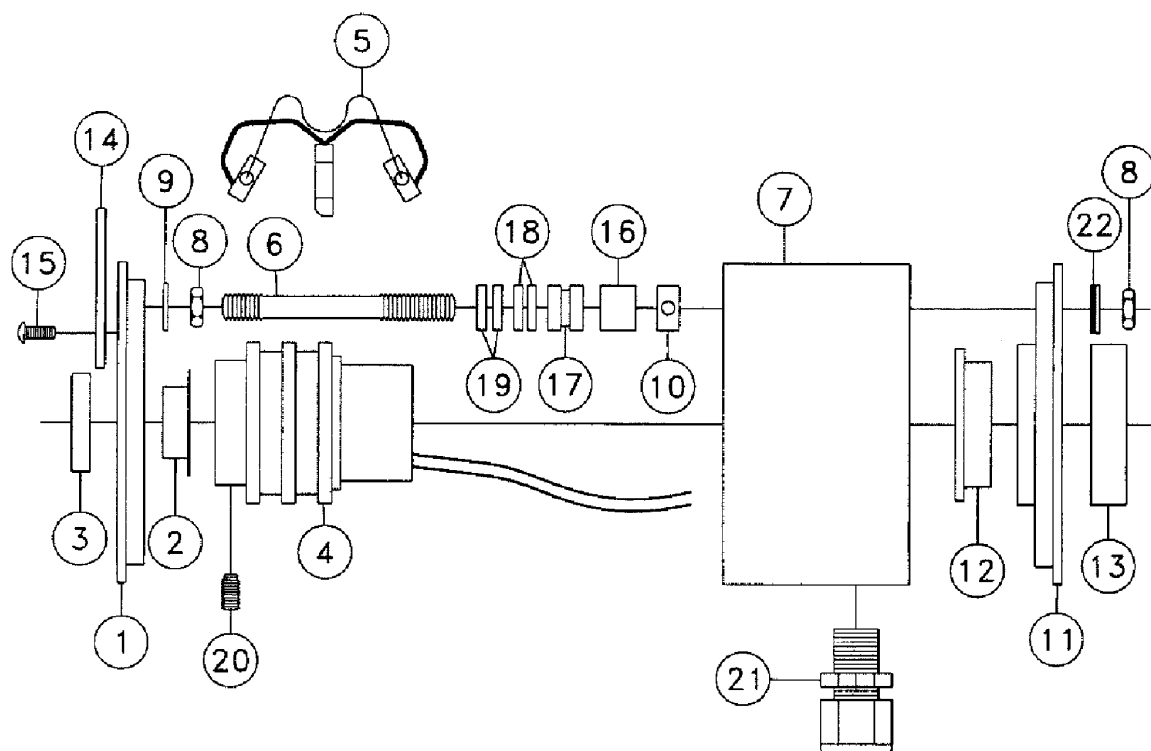


Cable Sonde Accessory Assembly Fig 11-5r02

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		279270001	SHAFT-SPOOL MOUNT	1	
2		279275001	BRG-PILLOW BLOCK 1" DIA	1	
3		235727001	BOLT-3/8-16 X 1 GR8 HEX ZINC PLT	2	
4		235713001	WASHER-3/8 SAE HARD ZINC PLTD	4	
5		234929001	SLIP RING - 2 CIRCUIT	1	Breakdown Fig. 11-6
6		235742001	BOLT-5/16-18 X 3/4 GR8 ZINC PLTD	1	
7		523001	SSS-1/4-20 X 3/8	4	
8		279287001	SPACER-WIRE PROTECTOR	1	
9		250052001	SPACER-WIRE LINE	1	
10		240529001	WIRE-10 GA, RED 500" (THHN)	1	
11		234990001	MOUNT-ANTI-ROTATION SPOOL	1	
12		250021001	PLUNGER-HAND RETRACTABLE	1	
13		736003	3/8 CLOSE NIPPLE BLACK STEEL	1	
14		234887001	BASE-COMPRESSION FITTING	1	
15		792029	O-RING	1	
16		234957001	STOPPER-COMP. FITTING 12GA	3	
17		234888001	COVER-COMPRESSION FITTING	1	
18		234989001	WIRE HARNSS-D50 X 100 WIRE LINE	1	
19		279273001	SPOOL PLATFORM	1	
20		250508001	NUT-3/8-NC GR8 TOP LOCK Y/ZINC	2	
21		250022001	CLIP-ALLIGATOR/RED	3	
22		234856001	MICRO-TORCH	1	
23		234857001	CRIMPER	1	
24		279378001	*BUTT CONN-10 X 12GA W/O HT SHR	100	
25		279380001	*HEAT SHRINK 3/8 X 6" QTY 20	5	Replaces 279339-001
26		279340001	ELASTIC CORD - 12" W/ HOOKS	1	
27		279379001	*FISH TPE-1/8" DIA X 50' W/ WNDR CS	1	

Slip Ring Components Fig 11-6

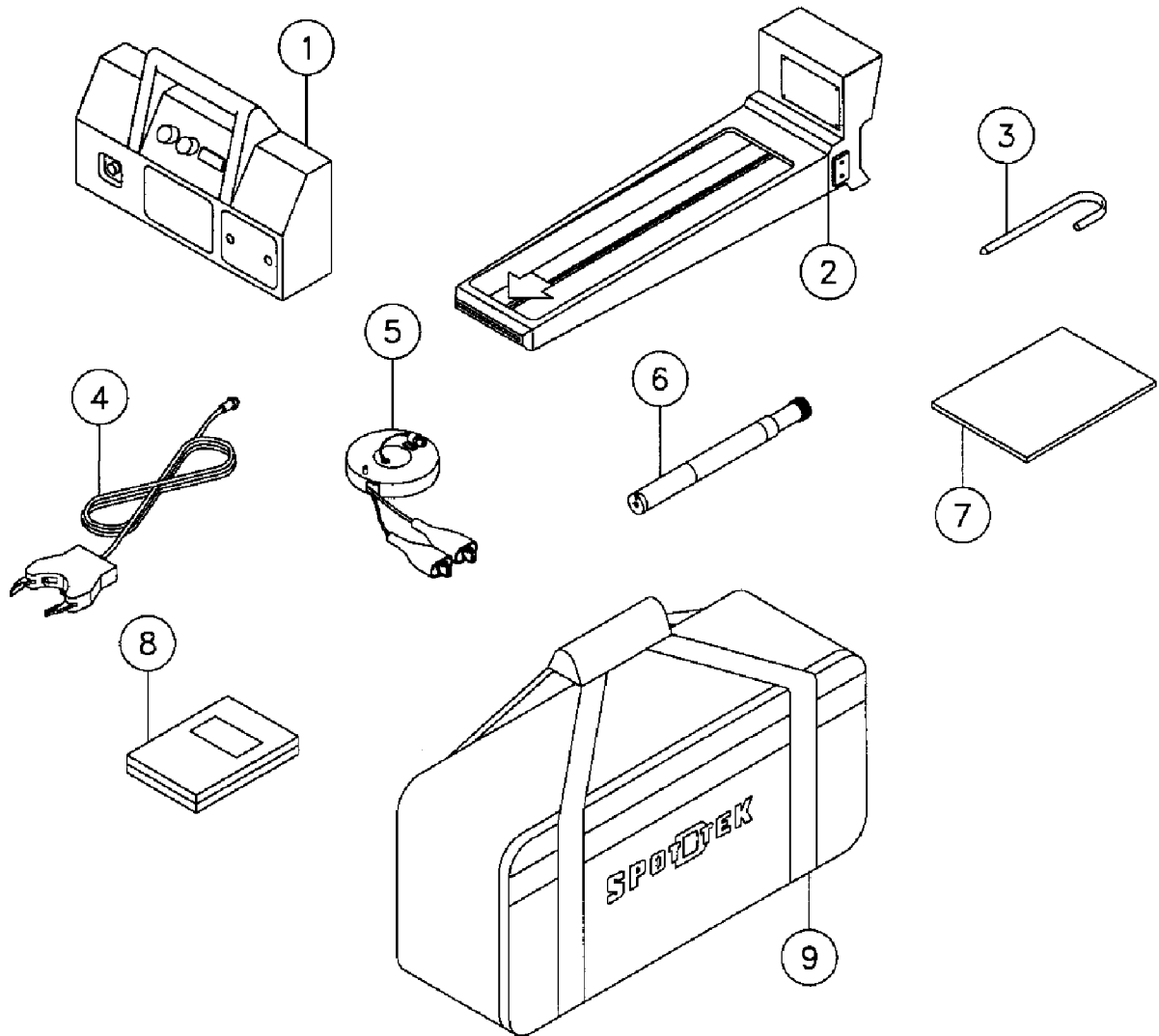
Revised June 1999 due to addition of figure to manual.



Slip Ring Components Fig 11-6

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		234929003	BASE-SLIP RING	1	
2		234929005	BEARING-NYLON	1	
3		234929007	SEAL-GREASE	1	
4		234929009	CORE ASSEMBLY	1	INC. REF. 20
5		234929011	BRUSH ASSEMBLY	2	
6		234929013	STUD-5/16-18 X 3 1/4	2	
7		234929015	COVER-PVC	1	
8		407001	NUT-5/16 NC HEX JAM	4	
9		485005	WASHER-5/16 FLAT	2	
10		234929017	COLLAR-5/16" SET	2	
11		234929019	PLATE-END	1	
12		234929021	BEARING-.05" IGUS	1	
13		234929023	SEAL-SHAFT	1	
14		234929025	BRACKET-TORQUE	1	
15		57200001	SCREW-#8-32X1/2 RND.HD.MACH.	2	
16		234929027	SPACER - .5 WIDE	2	
18		234929031	SPACER - .082 WIDE	4	
19		234929033	SPACER - .125 WIDE	4	
20		234929035	SSS-1/4-20X 1/2 KNURLED	2	
21		234929037	CONNECTOR-PLASTIC	1	
22		234929039	WASHER-SEALING	2	
		234929001	SLIP RING - 2 CIRCUIT		INC. ALL ITEMS IN FIGURE
			Revised June 1999 due to addition of figure to manual.		

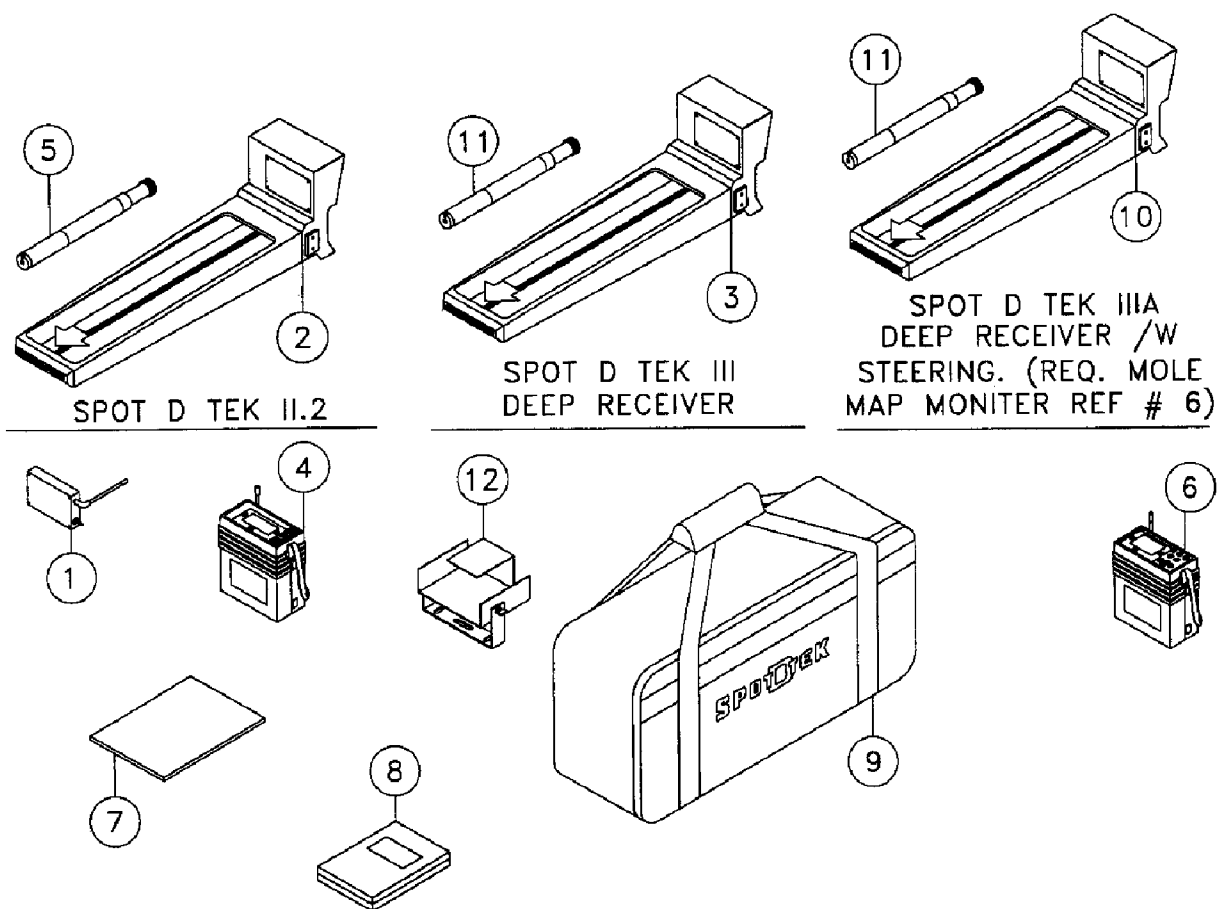
Location Package, Spot D Tek II.2 Utility Fig 12-1



Location Package, Spot D Tek II.2 Utility Fig 12-1

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		213900003	TRANSMITTER FOR SPOT D TEK II	1	
		213900019	SUNSCREEN FOR TRANSMITTER	1	
2		215941001	RECEIVER II.2	1	
3		213900013	GROUND STAKE - SPOT D TEK II	1	
4		213900007	EXTERNAL COIL - SPOT D TEK II	1	
5		213900015	DIRECT CONNECTION CABLE	1	
6		215942001	DIR.PROBE II.2	1	
7		215938003	OPERATIONAL MANUAL	1	
8		213900021	VIDEO TAPE	1	
9		213900009	CASE FOR SPOT D TEK II	1	
		215938001	SPOTDTEK II.2 UTILITY LOC. PKG		INC. REF. 1-9
			ACCESSORIES		
		213900023	SUNSCREEN-RECEIVER II.2 MONIT		
		213900025	RAINCOVER-RECEIVER		

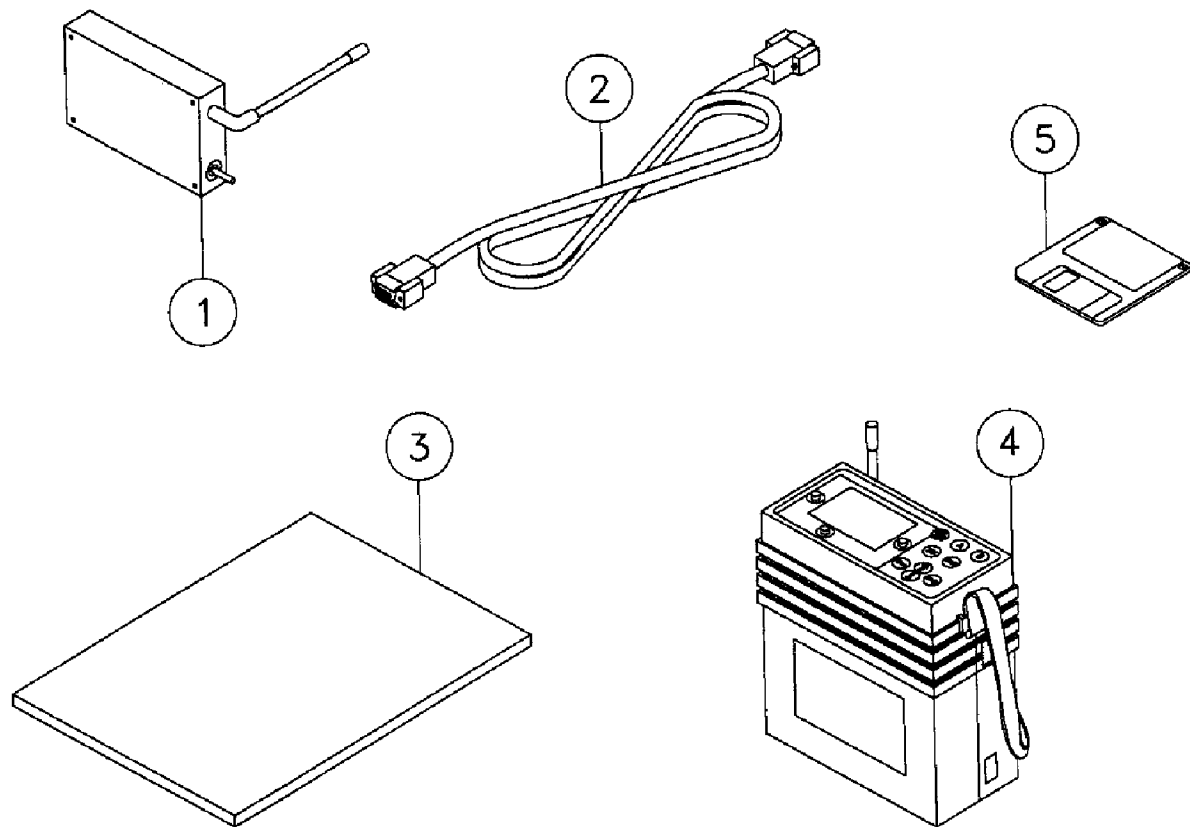
Location Package, Spot D Tek II.2, III & IIIA Fig 12-2



Location Package, Spot D Tek II.2, III & IIIA Fig 12-2

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		213902005	WIRELESS TRANSMITTER	1	
2		215941001	RECEIVER II.2	1	
3		231197003	RECEIVER-III	1	
4		215943001	WIRELESS MONITOR II.2	1	
5		215942001	DIR.PROBE II.2	1	
6		231109001	MONITOR - MOLE MAP	1	
7		215938003	OPERATIONAL MANUAL	1	
8		215940003	VIDEO TAPE-INSTRUCTIONAL	1	LOCATING W/ PROBES
9		213900009	CASE FOR SPOT D TEK II	1	
10		231111003	RECEIVER-IIIA	1	
11		231110001	SPOT-D-TEK DEEP SONDE	1	
12		44935001	* HOLDER ASSY.- REM MONITOR	1	
		215940001	SPOTDTEK II.2 REMOTE MON. PKG.		INC. REF. 1 & 4
		215939001	SPOTDTEK II.2 DIRECT.BORE PKG.		INC. REF. 2, 5 & 7-9
		231197001	SPOT-D-TEK III DEEP RECEIVER		INC. REF. 3 & 7-9
		231111001	SPOT-D-TEK IIIA DEEP REC W/REM STEER FNCTION		INC. REF. 7-9 & 10
			ACCESSORIES		
		216871001	ANTENNA-TRANSMITTER/MONIT		
		213900023	SUNSCREEN-RECEIVER II.2 MONIT		
		213900025	RAINCOVER-RECEIVER		
		213902011	RAINCOVER-II.2 MONITOR		
		238762001	SUNSCREEN-MOLE MAP MONITOR		
		238763001	RAIN COVER-MOLE MAP MONITOR		

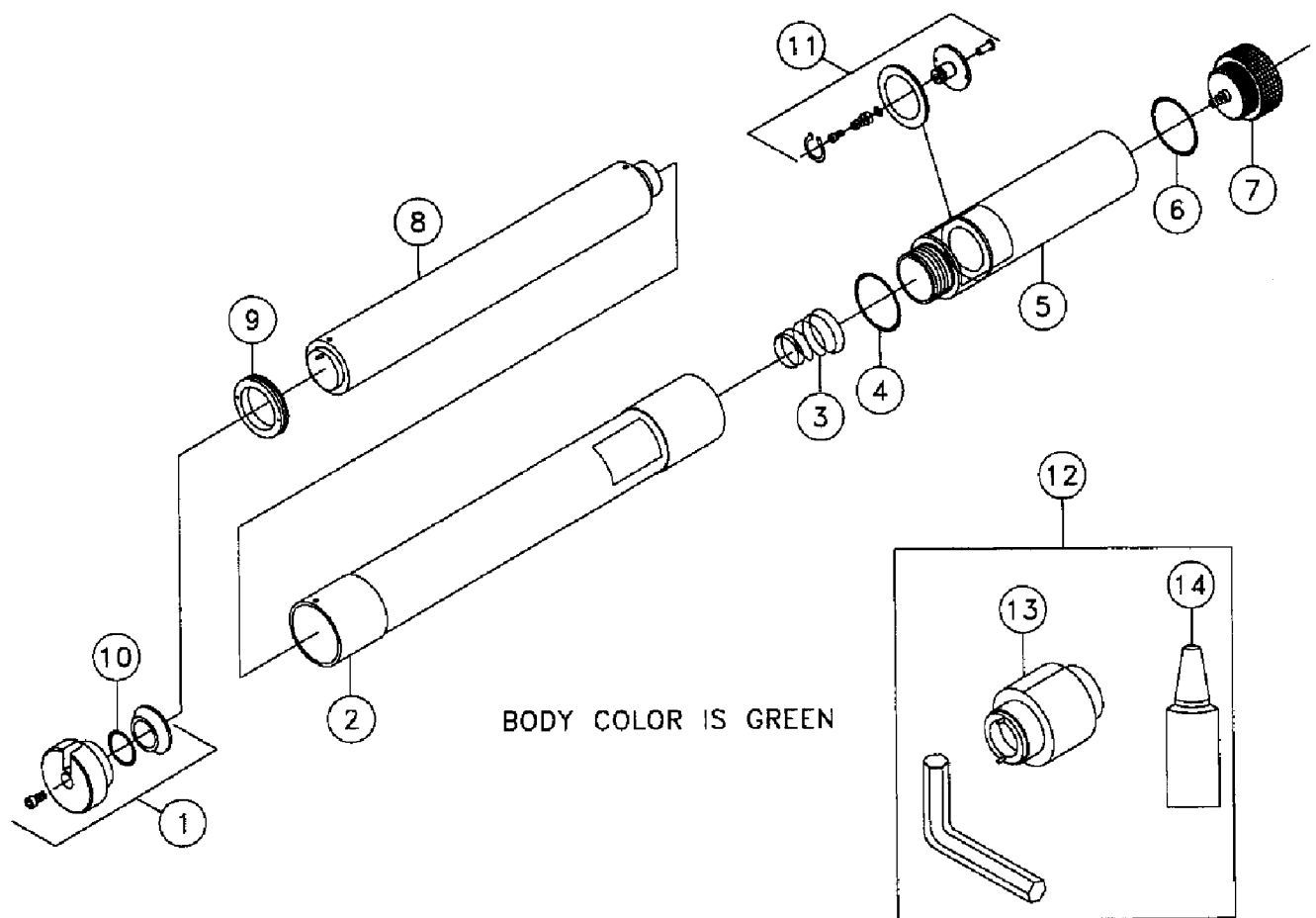
Location Package, Spot D Tek Mole Mapping System Fig 12-3



Location Package, Spot D Tek Mole Mapping System Fig 12-3

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		213902005	WIRELESS TRANSMITTER	1	Inc. Ref. 3
2		231109005	COMPUTER CORD	1	
3		231109007	OPERATIONAL MANUAL	1	
4		231109001	MONITOR-MOLE MAP	1	
5		231109003	MAPPING SOFTWARE REPL DISK	1	
		231113001	MAPPING SYSTEM COMPLETE		Inc. Ref. 1-5
			ACCESSORIES		
		238763001	RAIN COVER-MOLE MAP MONITOR		
		238762001	SUNSCREEN-MOLE MAP MONITOR		
		216871001	ANTENNA-TRANSMITTER/MONIT		

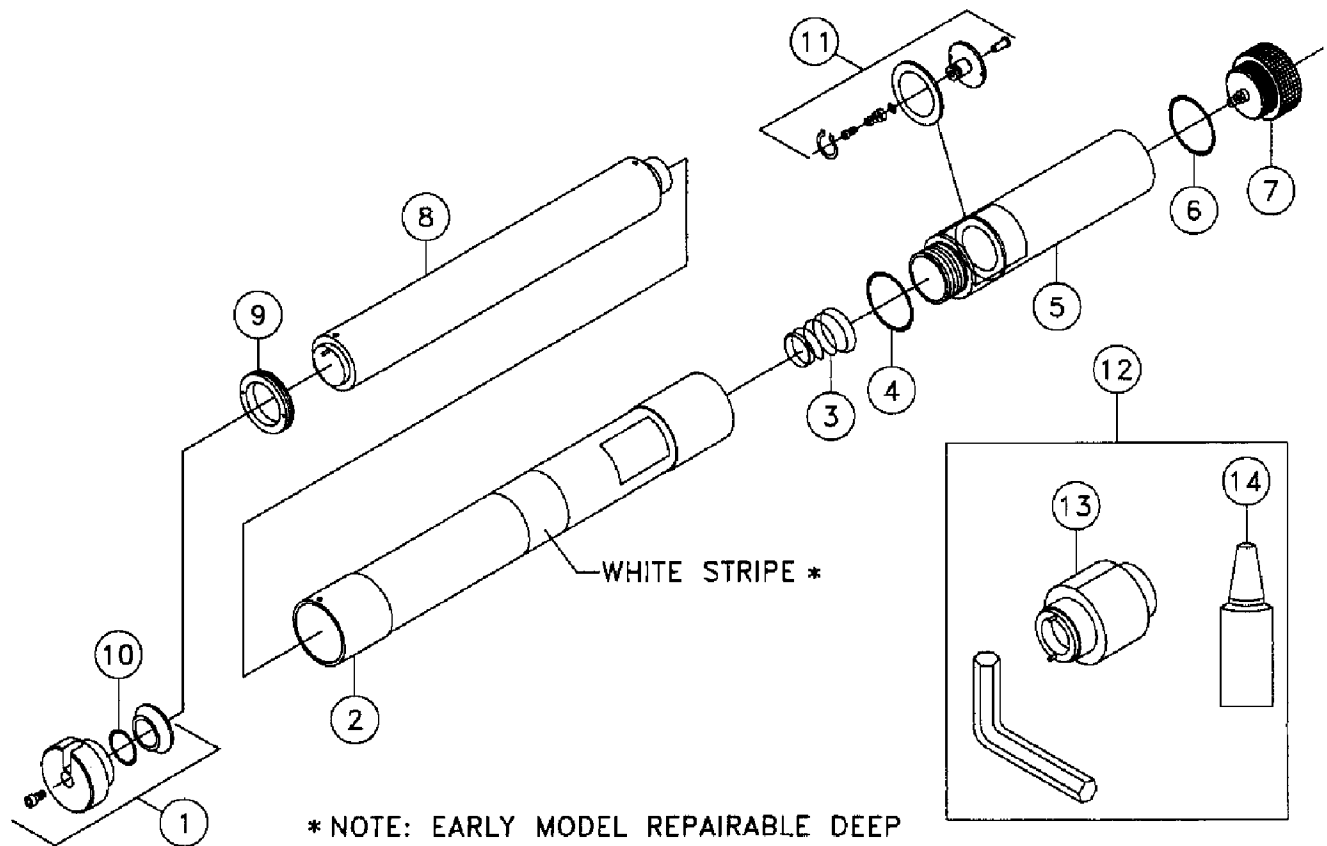
Spot D Tek II.2 Directional Probe (Repairable) Components Fig 12-4



Spot D Tek II.2 Directional Probe (Repairable) Components Fig 12-4

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		215942003	SLOTTED HEAD ASSEMBLY	1	
2		215942005	FIBER PROBE BODY 11.2	1	
3		215942007	SPRING - SUSPENSION	1	
4		215942009	O-RING	1	
5		215942011	BATTERY COMPARTMNT ASSMBLY	1	
6		215942013	O-RING	1	
7		215942015	BATTERY CAP ASSEMBLY	1	
8		215942017	SOLID STATE ELEC. CAPSULE 11.2	1	
9		215942019	ROUND SET NUT	1	
10		215942021	O-RING	1	
11		215942023	BATTERY CONTACT ASSEMBLY	1	
12		215942025	MAINTENANCE TOOL KIT	1	
13		215942027	TOOL-CAPSULE LINE-UP	1	
14		215942029	SEALANT-SILICONE	1	
		215942001	DIR.PROBE II.2		REPAIRABLE, INC. ALL ITEMS IN THIS FIGURE

Spot D Tek II.2 Deep Sonde (Repairable) Components Fig 12-5



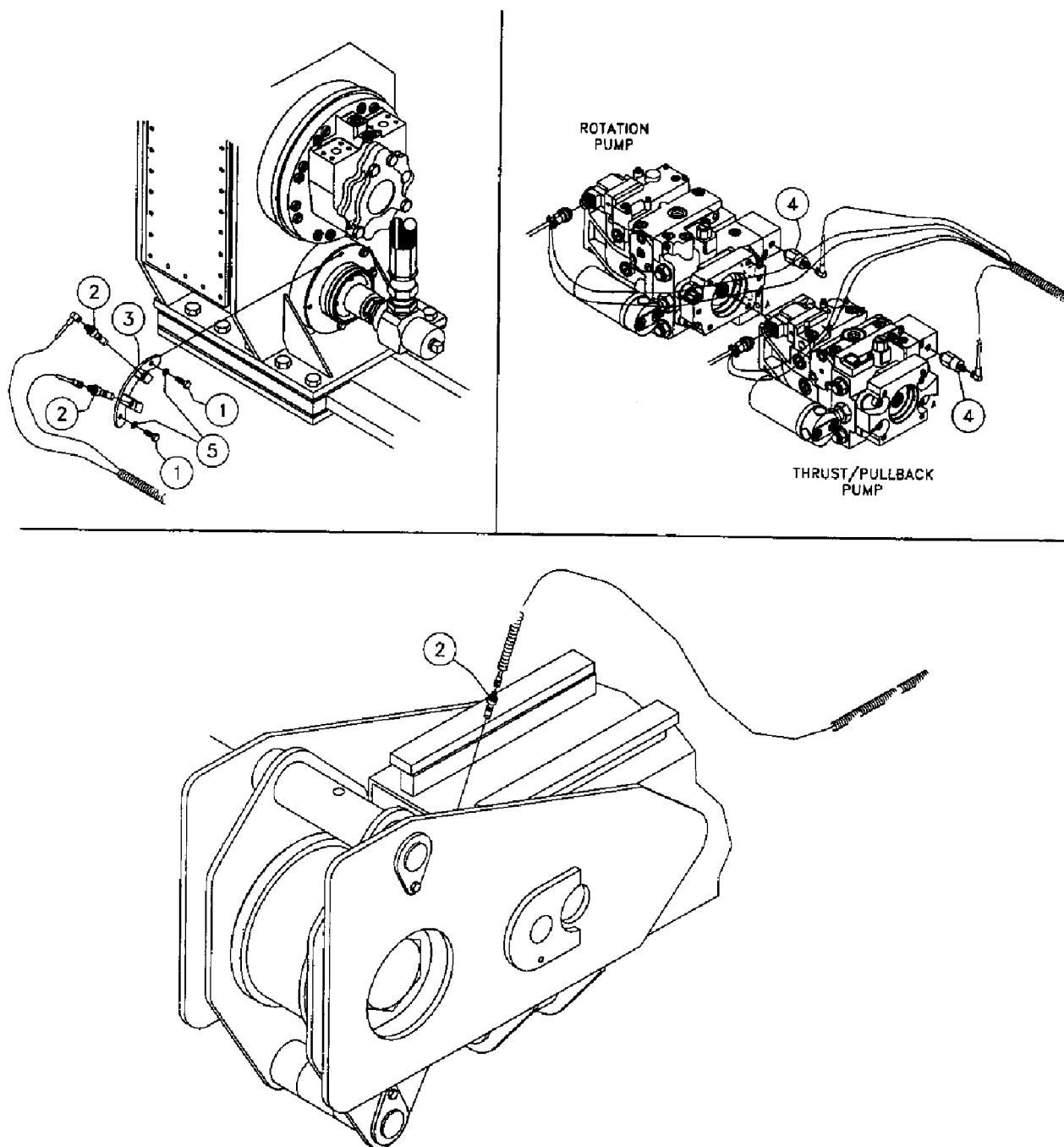
* NOTE: EARLY MODEL REPAIRABLE DEEP PROBES WERE COLORED GREEN W/ A WHITE STRIPE

LATER MODEL REPAIRABLE DEEP PROBES ARE COLORED PURPLE W/ NO STRIPE

Spot D Tek II.2 Deep Sonde (Repairable) Components Fig 12-5

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		215942003	SLOTTED HEAD ASSEMBLY	1	
2		231110003	FIBER PROBE BODY 11.2	1	DEEP
3		215942007	SPRING - SUSPENSION	1	
4		215942009	O-RING	1	
5		215942011	BATTERY COMPARTMNT ASSMBLY	1	
6		215942013	O-RING	1	
7		215942015	BATTERY CAP ASSEMBLY	1	
8		231110005	SOLID STATE ELECT CAPSULE 11.2	1	
9		215942019	ROUND SET NUT	1	
10		215942021	O-RING	1	
11		215942023	BATTERY CONTACT ASSEMBLY	1	
12		215942025	MAINTENANCE TOOL KIT	1	
13		215942027	TOOL-CAPSULE LINE-UP	1	
14		215942029	SEALANT-SILICONE	1	
		231110001	SPOT-D-TEK DEEP SOND		REPAIRABLE, INC. ALL ITEMS IN THIS FIGURE

Transducer/Speed Sensor Assembly Fig 13-1

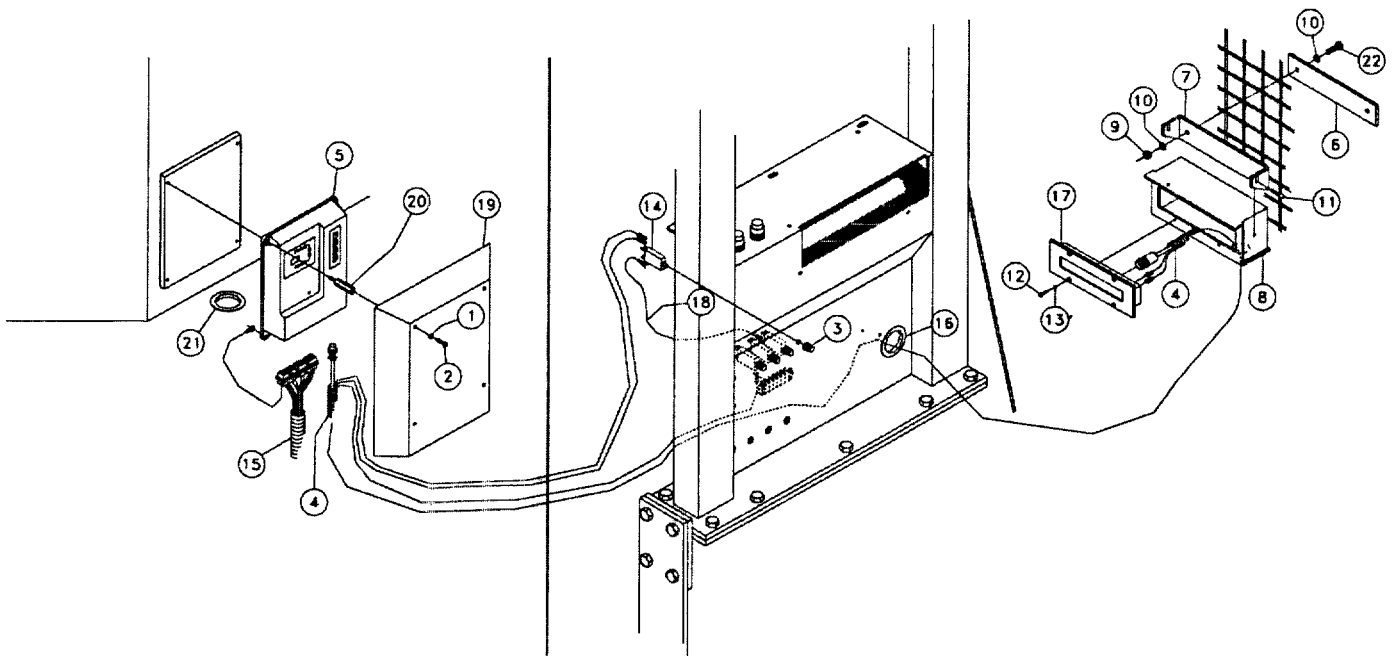


Transducer/Speed Sensor Assembly Fig 13-1

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		235727001	BOLT-3/8-16X1 GR8 HEX ZINC PLT	2	
2		114282009	SPEED SENSOR	3	
3		234812001	MOUNT-PPU	1	
4		234969001	TRANSDUCER-PRESSURE	2	0-6000
5		235713001	WASHER-3/8 SAE HARD ZINC PLTD	2	

Microprocessor Assembly Fig 13-2r02

Revised February 2000 due to update
in parts list. Changed part marked with *.

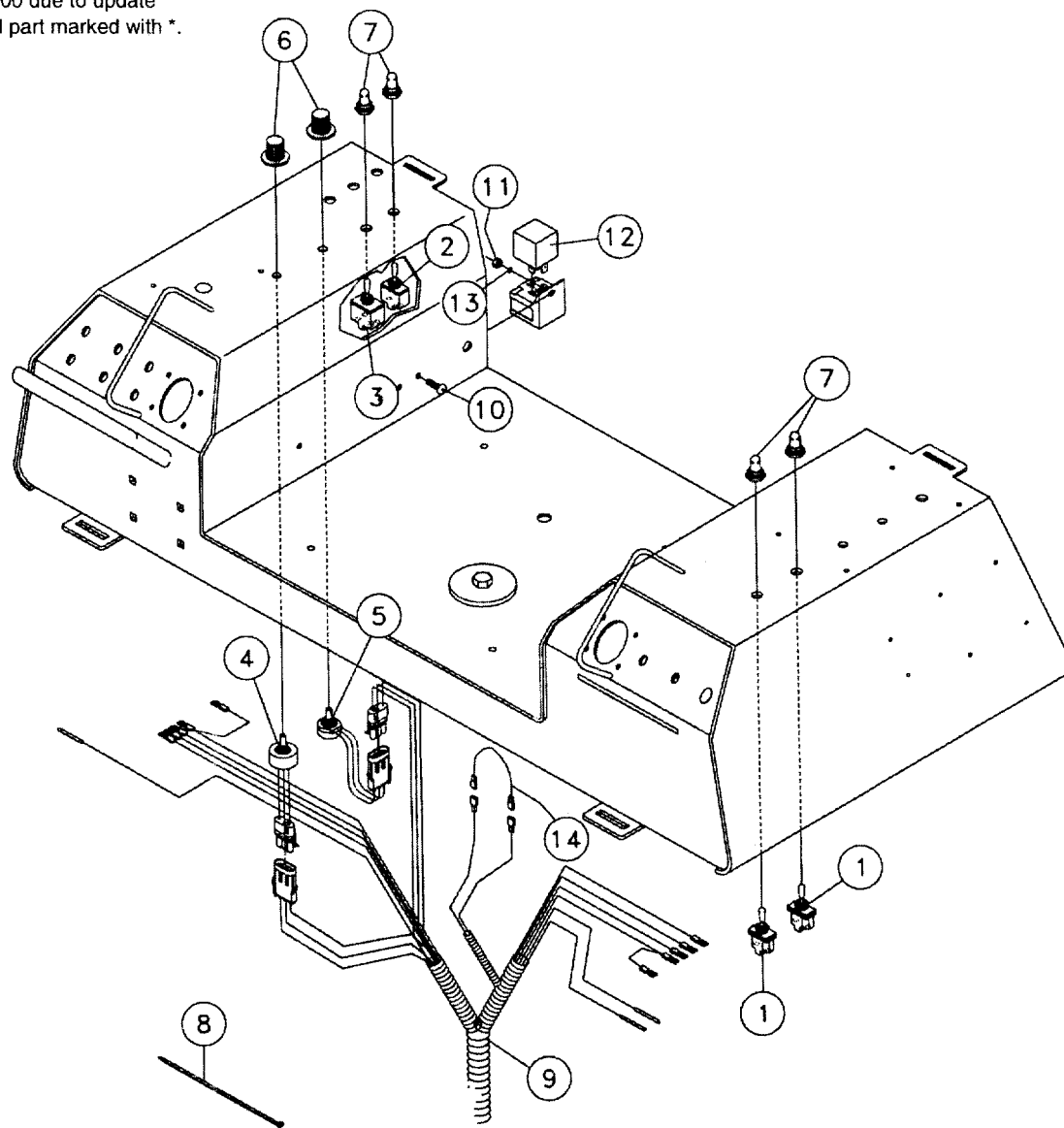


Microprocessor Assembly Fig 13-2r02

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		235716001	WASHER-1/4 SAE HARD ZINC PLTD	4	
2		235735001	BOLT-1/4-20X1 GR8 HEX ZNC PLTD	4	
3		89597001	COVER-BREAKER SWITCH	1	
4		234869001	DISPLAY HARNESS ASSY	1	
5		234872001	MICROPROCESSOR ASSEMBLY	1	
6		234799001	CLAMP	1	
7		234756001	BRACKET-DISPLAY	1	
8		234811001	MOUNT-DISPLAY	1	
9		235725001	NUT-3/8-16 GR8 ZINC PLTD	2	
10		235713001	WASHER-3/8 SAE HARD ZINC PLTD	4	
11		120021001	BOLT-1/4-20 X 3/4 THUMB SCREW	2	
12		19525001	SCREW-#10-24X1/2 FL HD MACH	5	
13		480001	WASHER-3/16 S/T LOCK	4	
14		72079001	BREAKER-5 AMP	1	
15		244535001	HARNESS-D50X100A NAVTEC	1	SN101-195, SN196-
16		1865005	GROMMET 1 1/2ID X 3/4OD 14 G	1	
17		601422001	DISPLAY - 2 X 24 LCD	1	
18		234868001	JUMPER ASSY-12V SUPPLY	1	
19		244965001	SHIELD - DC2	1	
20		244964001	BOLT- STAND OFF	4	
21		1863001	REIN BOTTOM CENTER	1	
22		235723001	BOLT -3/8-16X1 1/2 GR 8 ZINC PLTD	2	

Control Panel Assembly - Navtec Fig 13-3r04

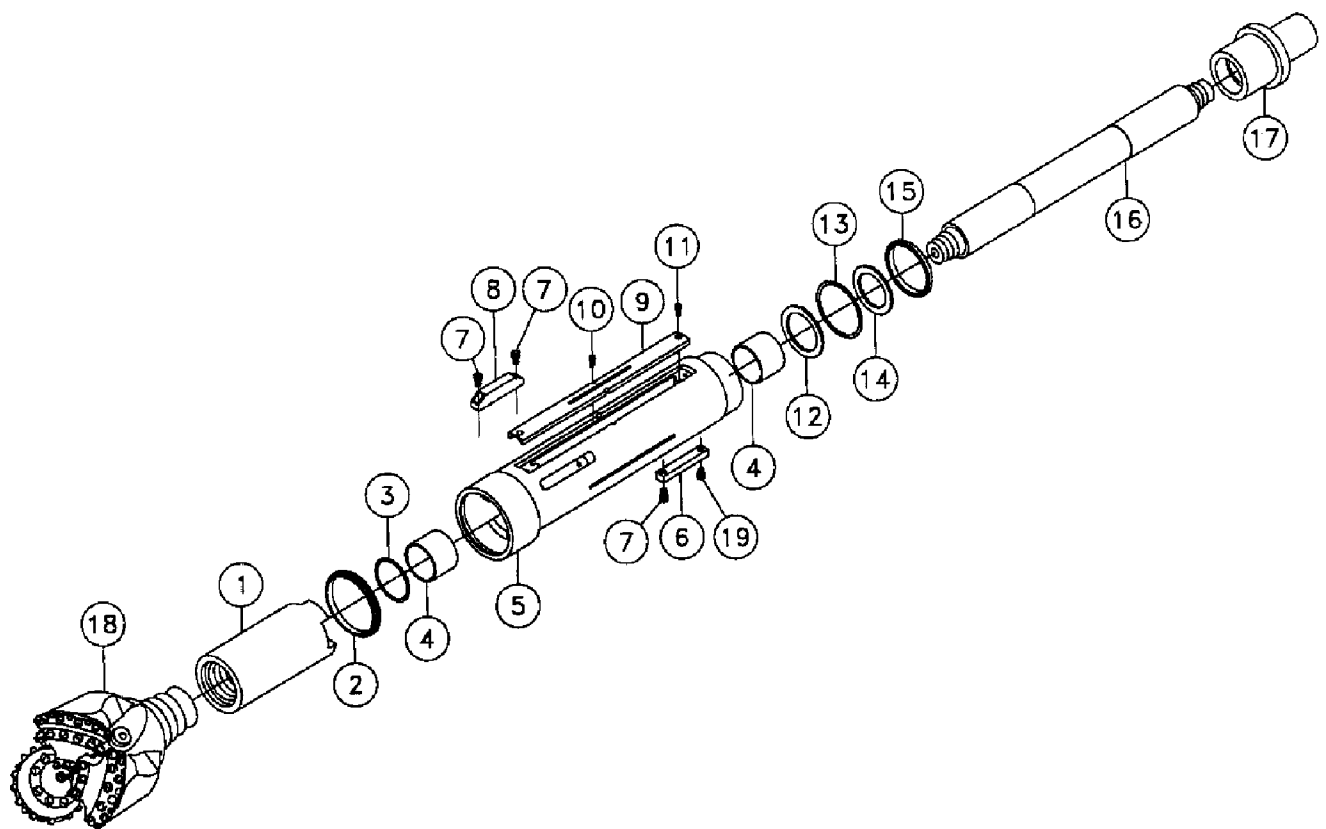
Revised February 2000 due to update
in parts list. Changed part marked with *.



Control Panel Assembly - Navtec Fig 13-3r04

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		57938001	SWITCH-8510K2	2	
2		67292001	SWITCH-TOGGLE 8500K9 SEALED	1	
3		67293001	SWITCH-TOGGLE 8511K14 SEALED	1	
4		234865001	STEERING POT ASSEMBLY	1	
5		234866001	PRESSURE SET POT ASSEMBLY	1	
6		78114001	CONTROL KNOB #409D2K1	2	
7		5537001	COVER-TOGGLE SWITCH	4	
8		59634001	NYLON TIE 8"	A/R	
		58151001	STRAP-CABLE TIE-T120R-0 15"	A/R	
9		244535001	HARNESS-D50X100A NAVTEC	1	SN101-195, SN196-
10		1802006	BOLT-10-24 X 3/4 RND HD STOVE	1	
11		400001	NUT-3/16 NC HEX	1	
12		219137001	RELAY-BOSCH NO/NC 20/30 AMP	1	
13		480001	WASHER-3/16 S/T LOCK	1	
14		234867001	JUMPER ASSEMBLY/SEAT	1	

Rock Drilling Head Assembly Fig 14-1



Rock Drilling Head Assembly Fig 14-1

REF. NO.	*	PART NO.	DESCRIPTION	QTY.	REMARKS
1		234996001	DRIVE SUB-LOWER	1	
2		240555001	ROD WIPER-6.00 PARKER	1	
3		240552001	SNAP RING-3.125 EXT. SPIRAL	1	
4		240509001	BUSHING-D50X100 ROCK HEAD	2	
5		240580001	DRILL HEAD ASSY ROTARY	1	INC. TWO OF REF. 4
6		234999001	SLIDER-REAR	2	
7		4480001	1/2-13X3/4 SOCKET HD CAPSCREW	6	
8		234998001	SLIDER-FRONT	2	
9		240589001	LID ASSEMBLY	1	
10		240560001	BOLT-5/16-18 X 3/8 SOC HD CAP	2	
11		512006	3/8-16X3/4" SOCKET HEAD BOLT	2	
12		234997001	THRUST PLATE-D50X100	1	
13		240553001	SNAP RING-5.625 EXT. SPIRAL	1	
14		240551001	BEARING-THRUST	1	
15		240554001	ROD WIPER-5.00 PARKER	1	
16		234994001	DRIVE SHAFT-3 5/8"	1	
17		240592001	DRIVE SUB-UPPER 2 7/8	1	
		234995001	DRIVE SUB-UPPER 3 1/2	1	
18		240558001	TRICONE BIT-8 1/2 #3 CARBIDE	1	
19		240591001	CAPSCREW-1/2-13X1/2 SOCKET HD	2	

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Revision History

Revision	Date	Page(s)	Description
P1.01	January, 2005	TOC, 1-1, 1-2, 1-3, 1-10, 1-15, 1-19, 2-7, 2-10, 3-7, 3-8, 3-26, 4-2, 4-3, 4-9, 6-2, 6-8, 6-18, 6-26, 6-28, and 8-9 Revised. Figure 2-13 and 6-34 Added.	1st Edition, 1st Revision Revised including conversion to 2 page format.

