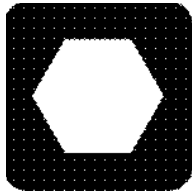


JT1720 Mach 1

Parts Manual



Ditch Witch®

JT1720 Mach 1

ISSUE NO. 05PL-05/12

For Replacement Copy Order **P/N 053-079**

This manual contains information concerning the following models:
JT1720 Mach 1 Directional Drilling System

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Ditch Witch, Ditch Witch, CMW, AutoCrowd, Modularmatic, Jet Trac, Roto Witch, Subsite, Fluid Miser, Perma-Soil, Power Pipe, Super Witch, Super Witch II, Pierce Arrow, The Underground, and The Underground Authority Worldwide are registered trademarks of The Charles Machine Works, Inc.

FOREWORD

This manual contains illustrated parts lists to help you select quality Ditch Witch® replacement parts for your Ditch Witch equipment. Using other replacement parts will lessen the productivity of your equipment.

- Descriptions and specifications in this book were current at publication. However, the Charles Machine Works, Inc. reserves the right to improve equipment, so this manual might not reflect the most current improvements.
- Part numbers enclosed in a box or marked as “obsolete” in the remarks column are no longer available from The Charles Machine Works, Inc. Your local Ditch Witch dealer may be able to locate the part for you.
- Footnotes provide more information to help you identify parts shown in the manual.
- Assembly instructions referenced in footnotes are available through your local Ditch Witch dealer.
- Instructions on recommended equipment use and maintenance are in the Operator’s Manual that was shipped with your equipment.

Keep the following in mind when ordering Ditch Witch replacement parts:

- ◆ Specify parts you need by part number and description, not by illustration reference numbers.
- ◆ Have equipment model and serial number on hand to help ensure you get the right parts for your machine whether it’s old or new.

Thank you for buying and using Ditch Witch equipment and replacement parts.

WARRANTY

DW WARRANTY Policy
July, 2005

POLICY 1: DITCH WITCH® EQUIPMENT AND REPLACEMENT PARTS LIMITED WARRANTY POLICY

Subject to the limitation and exclusions herein, free replacement parts will be provided at any authorized Ditch Witch dealership for any Ditch Witch equipment or parts manufactured by The Charles Machine Works, Inc. (CMW) that fail due to a defect in material or workmanship within one (1) year of first commercial use (Exception: 2 years for all SK500 Attachments). Free labor will be provided at any authorized Ditch Witch dealership for installation of parts under this warranty during the first year following "initial commercial" use of the serial numbered Ditch Witch equipment on which it is installed. The customer is responsible for transporting their equipment to an authorized Ditch Witch dealership for all warranty work.

EXCLUSIONS FROM PRODUCT WARRANTY

- All incidental or consequential damages.
- All defects, damages, or injuries caused by misuse, abuse, improper installation, alteration, neglect, or uses other than those for which products were intended.
- All defects, damages, or injuries caused by improper training, operation, or servicing of products in a manner inconsistent with manufacturer's recommendations.
- All engines and engine accessories (these are covered by original manufacturer's warranty).
- Tires, belts, and other parts which are subject to another manufacturer's warranty. (Such warranty will be available to purchaser.)
- ALL IMPLIED WARRANTIES NOT EXPRESSLY STATED HEREIN, INCLUDING ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE AND MERCHANTABILITY.

IF THE PRODUCTS ARE PURCHASED FOR COMMERCIAL PURPOSES, AS DEFINED BY THE UNIFORM COMMERCIAL CODE, THEN THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE FACE HEREOF AND THERE ARE NO IMPLIED WARRANTIES OF ANY KIND WHICH EXTEND TO A COMMERCIAL BUYER. ALL OTHER PROVISIONS OF THIS LIMITED WARRANTY APPLY INCLUDING THE DUTIES IMPOSED.

Ditch Witch products have been tested to deliver acceptable performance in most conditions. This does not imply they will deliver acceptable performance in all conditions. Therefore, to assure suitability, products should be operated under anticipated working conditions prior to purchase.

Defects will be determined by an inspection within thirty (30) days of the date of failure of the product or part by CMW or its authorized dealer. CMW will provide the location of its inspection facilities or its nearest authorized dealer upon inquiry. CMW reserves the right to supply remanufactured replacement parts under this warranty as it deems appropriate.

Extended warranties are available upon request from your local Ditch Witch dealer or CMW.

Some states do not allow exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply. Further, some states do not allow exclusion of or limitation of how long an implied warranty lasts, so the above limitation may not apply. This limited warranty gives product owner specific legal rights and the product owner may also have other rights which vary from state to state.

For information regarding this limited warranty, contact CMW's Product Support Department, P.O. Box 66, Perry, OK 73077-0066, or contact your local Ditch Witch dealer.

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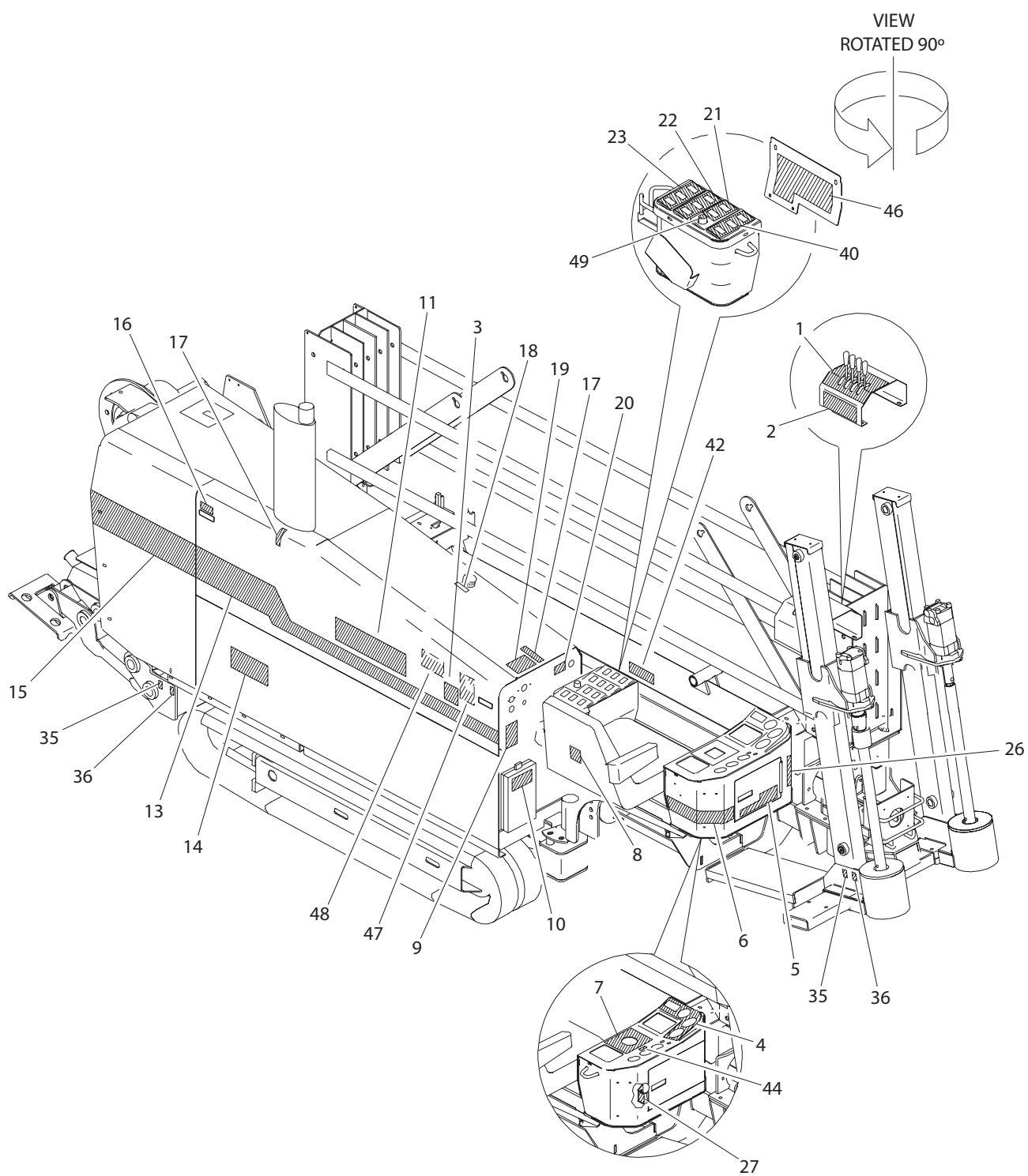
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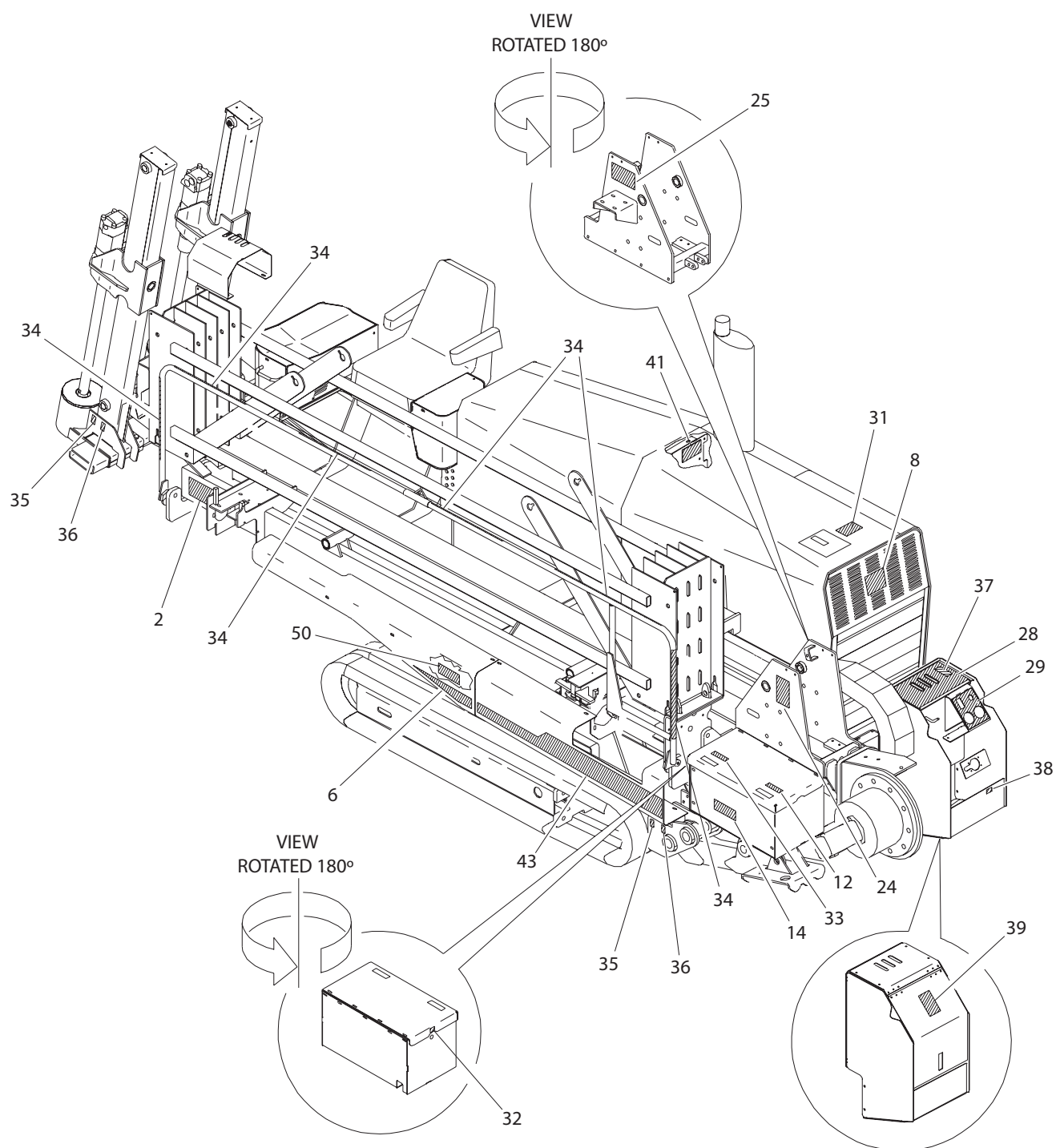
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DECALS

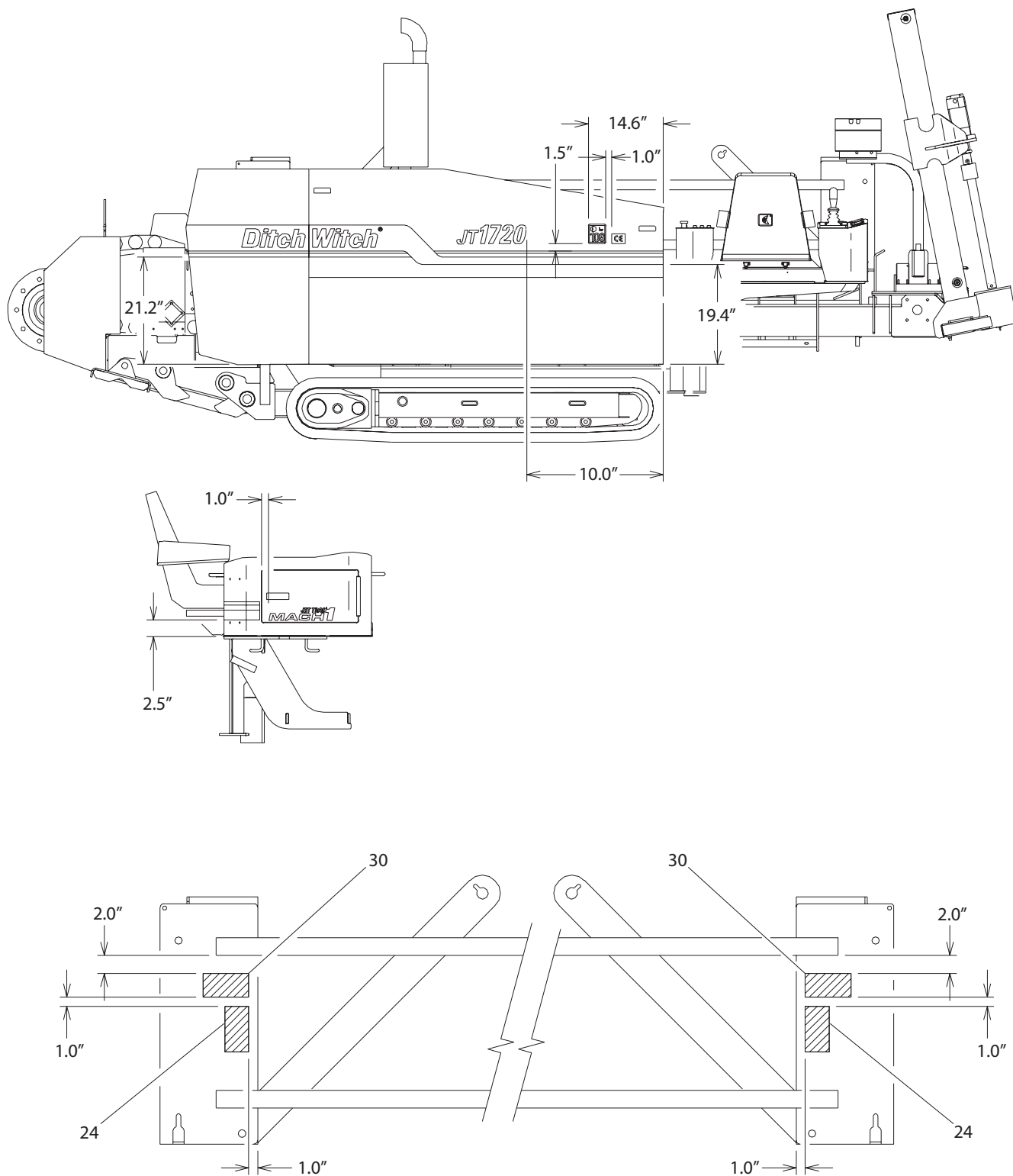
DECAL LOCATION JT1720 MACH 1



DECAL LOCATION JT1720 MACH 1



DECAL LOCATION JT1720 MACH 1



DECAL LOCATION

JT1720 MACH 1

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	275-874		DECAL KIT - JT17MI	
1	273-224	1	ANCHOR ROTATION-THRUST	
2	275-197	2	DANGER ROTATING SHAFT	
3	274-291	1	SOUND POWER IO	SEE FOOTNOTE 2
4	273-189	1	THRUST-ROTATION-FLUID	
5	273-186	1	MACH 1 IDENTIFIER	
6	274-877	AR	GRAPHIC STRIPE (SOLD PER INCH)	USE 1 @ 50"
7	273-190	1	JOYSTICK-INDICATOR LIGHTS	
8	275-449	2	DITCH WITCH LOGO PLACARD	
9	274-480	1	JET TRAC PATENT (S)	
10	275-048	1	IMPORTANT SAFETY RULES	
11	274-886	1	JT1720 MODEL-ID	
12	275-033	1	NOTICE ELECTRICAL SYSTEM	
13	274-431	1	WITCH GRAPHIC STRIPE	
14	274-049	2	DANGER ELECTRUCUTION	
15	274-883	1	DITCH GRAPHIC STRIPE	
16	275-400	1	NOTICE OIL LEVEL	
17	275-355	2	CAUTION HOT PARTS	
18	275-120	1	RESERVOIR (THF)	
	274-672	1	ENVIRO HYDRAULIC RESERVOIR	SEE FOOTNOTE 1
19	274-050	1	WARNING JOBSITE HAZARD	
20	274-198	1	NOTICE OIL LEVEL	
21	273-183	1	FLOW-LUBE-GRIPPER	
22	273-184	1	PIPE-LIFT-SHUTTLE	
23	273-223	1	PIPE WRENCHES	
24	275-184	9	WARNING MOVING PARTS	4 PER BOX
25	275-341	1	WARNING SLIDING PARTS	
26	273-278	1	DANGER WRENCH	
27	273-198	1	TRACKER CONTROL	
28	274-849	1	SETUP CONTROL PANEL	
29	273-222	1	COLD START-IGNITION-GAUGES	
30	275-326	8	WARNING CRUSHING WEIGHT	4 PER BOX
31	273-138	1	NOTICE COOLANT	
32	274-375	1	MASTER DISCONNECT SWITCH	
33	275-203	1	BATTERY	
34	275-230	6	DANGER STRIPE 1.75" X 18"	
35	274-318	5	TIE DOWN LOCATION	I NOT SHOWN; PLACE BY D-RING ON FRONT OF MAIN FRAME
36	274-442	5	LIFT LOCATION	I NOT SHOWN; PLACE BY D-RING ON FRONT OF MAIN FRAME
37	274-724	1	ONE CALL NOTIFICATION	
38	275-148	1	FUEL TANK (DIESEL)	
39	275-383	1	NOTICE SLOPE PARKING	
40	273-182	1	BORE-PIPE-THROTTLE	
41	273-146	1	NOTICE ADD COOLANT	
42	273-225	1	SHUTTLE STOP INDICATOR	
43	274-876	1	DITCH WITCH GRAPHIC STRIPE	
44	273-230	1	ENGINE-STOP	
45	273-267	2	DITCH WITCH BATTERY	SEE FOOTNOTE 3
46	273-235	1	CONSOLE ELECTRICAL CENTER	
47	273-312	1	JT1720MI RELAY PANEL	DECAL LOCATED ON INSIDE OF PANEL
48	273-315	1	JT1720MI TEST PORTS	DECAL LOCATED ON INSIDE OF PANEL
49	274-940	1	INDICATOR	
50	273-313	1	JT1720MI PIPELOADER	

FOOTNOTES

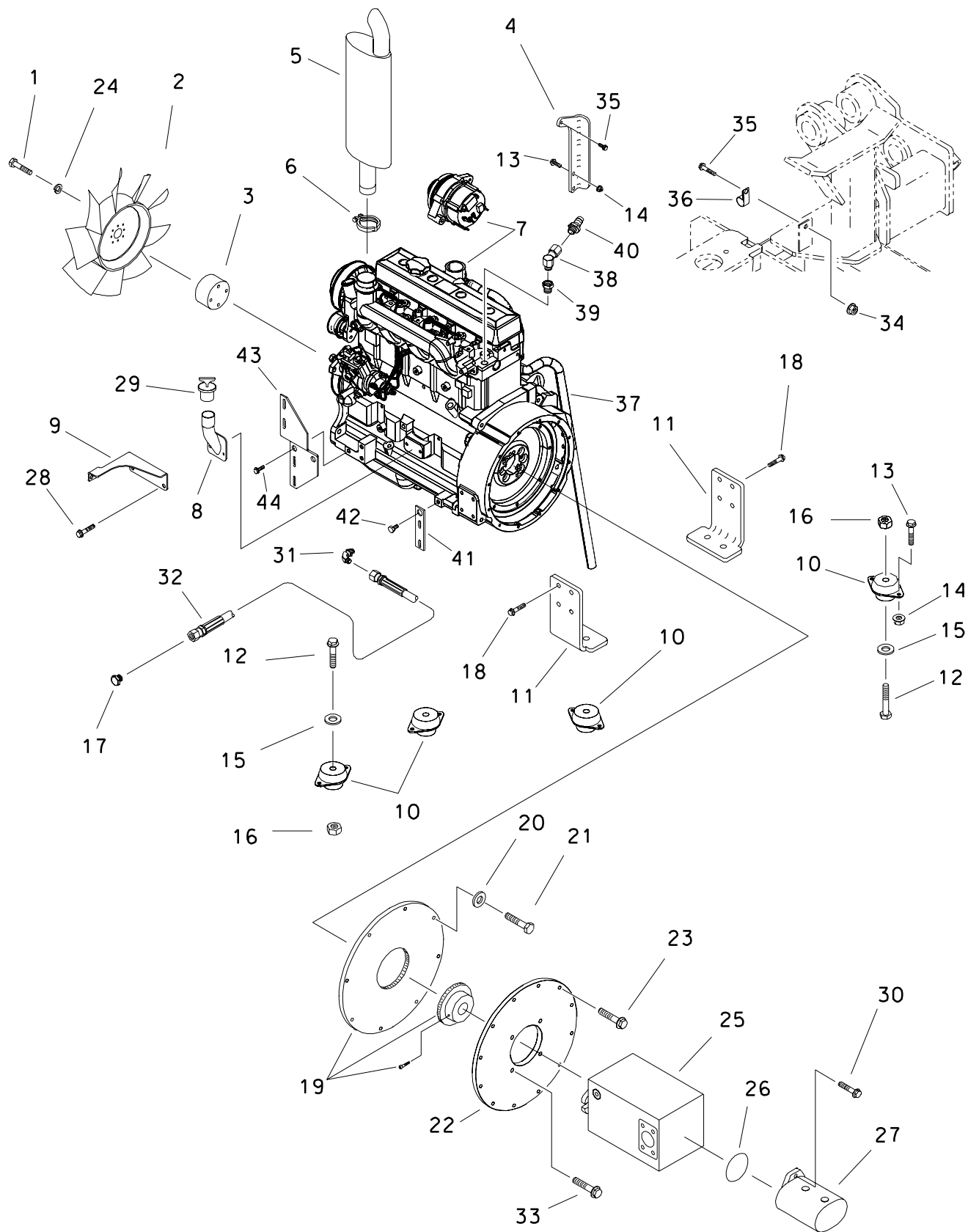
1. NOT PART OF KIT. SEE 256-030 ENVIRONMENTAL HYDRAULIC OIL.
2. NOT PART OF KIT. FOR EUROPEAN UNITS ONLY.
3. LOCATE DECAL ON BATTERY SO THAT DECAL IS VISIBLE WHEN VIEWING BATTERY.

NOTES:

[illegible]

ENGINE COMPONENTS

ENGINE



ENGINE

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	106-602	4	SCREW (M8-1.25 X 80mm)	
2.	194-232	1	FAN	BACK SIDE OF BLADE CUP TOWARD ENGINE
3.	184-404	1	COOLING FAN SPACER	
4.	348-724	1	ALTERNATOR BRACKET	
5.	196-362	1	MUFFLER	
6.	196-195	1	LOWER CLAMP (HEADER PIPE)	
7.	194-123	1	ENGINE - DEERE DIESEL	
	194-815	-	OIL FILTER ELEMENT	
	194-816	-	FUEL FILTER ELEMENT	
	194-493	-	PRIMARY FILTER SEDIMENT BOWL	BEGINS WITH S/N
	195-897	-	STARTER	
	217-450	-	ALTERNATOR 65 AMP (REMAN)	
	194-823	-	THERMOSTAT	
	165-883	-	GASKET, THERMOSTAT	
	171-013	-	BELT (JT1720 ENGINE)	
	171-113	-	ALTERNATOR SHEAVE	
	506-035	-	VOLTAGE REGULATOR	
	194-831	-	DIPSTICK, ENGINE OIL	
	194-832	-	WATER PUMP	
	194-432	-	WATER PUMP (CAST IRON)	
	194-433	-	WATER PUMP INSERT PLATE KIT	
	168-617	-	GASKET, WATER PUMP	
8.	348-825	1	OIL FILLER	
9.	348-899	1	THROTTLE BRACKET	
10.	116-488	4	ISOLATION MOUNT	
11.	348-502	2	SUPPORT PLATE	
12.	106-342	4	SCREW (M16-2.00 X 90mm)	
13.	106-383	10	FLG LK SCREW (M10-1.5 X 30mm)	
14.	106-387	10	FLG LOCKNUT (M10-1.50)	
15.	106-398	4	WASHER (M16, HARDENED)	
16.	106-545	4	LOCKNUT (M16-2.00, PRV TRQ, 10.9)	
17.	154-093	1	PLUG (08J)	
18.	107-010	8	FLG LK SCREW (M12-1.75 X 30mm)	TORQUE TO 90 FT-LB
19.	194-731	1	FLYWHEEL COUPLING	
	105-918	1	BOLT (7/16-NC X 1-1/2")	
20.	106-396	8	WASHER (M10, HARDENED)	
21.	107-242	8	LK BOLT (3/8-NC X 1-1/2", NLK)	TORQUE TO 30 FT-LB
22.	160-901	1	PUMP PLATE	
23.	106-993	12	FLG LK SCREW (M10-1.50 X 35mm)	
24.	105-091	4	LOCK WASHER (5/16")	
25.	158-493	1	HYDRAULIC PUMP	
26.	157-041	1	O-RING (152 D70)	
27.	158-478	1	HYDRAULIC PUMP	
	153-383	1	HYDRAULIC PUMP	

FOOTNOTES

ENGINE

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
28.	106-382	2	FLG LK SCREW (M10-1.50 X 20mm)	
29.	194-800	1	CAP (1.5", OIL FILLER)	
30.	105-826	2	FLG LOCK BOLT (3/8-NC X 1")	
31.	154-467	1	CONNECTOR (M18-1.50-08J90)	
32.	154-576	1	HOSE (08JFX-22.5"-2000)	
33.	106-632	4	FLG LK SCREW (M12-1.75 X 35mm, SER)	
34.	106-386	1	FLG LOCKNUT (M8-1.25)	
35.	106-381	2	FLG LK SCREW (M8-1.25 X 25mm)	
36.	110-333	1	BOLT-ON CLAMP (1")	
37.	117-378	AR	BULK HOSE, LOW PRESSURE (-12)	1 @ 65" LONG
38.	155-002	-	UNION (1/4NPTX1/4NPTX45)	
39.	115-286	-	REDUCER (08N-1/4-NF)	
40.	155-162	-	S/O COUPLER (04N-05H)	
41.	348-817	-	HOSE SUPPORT CLAMP	
42.	106-596	-	LK SCREW (M14-2.00X30mm, EPXY)	
43.	348-815	-	HOSE SUPPORT CLAMP	
44.	107-010	-	FLG LK SCREW (M12-1.75 X 30mm)	

NOT SHOWN:

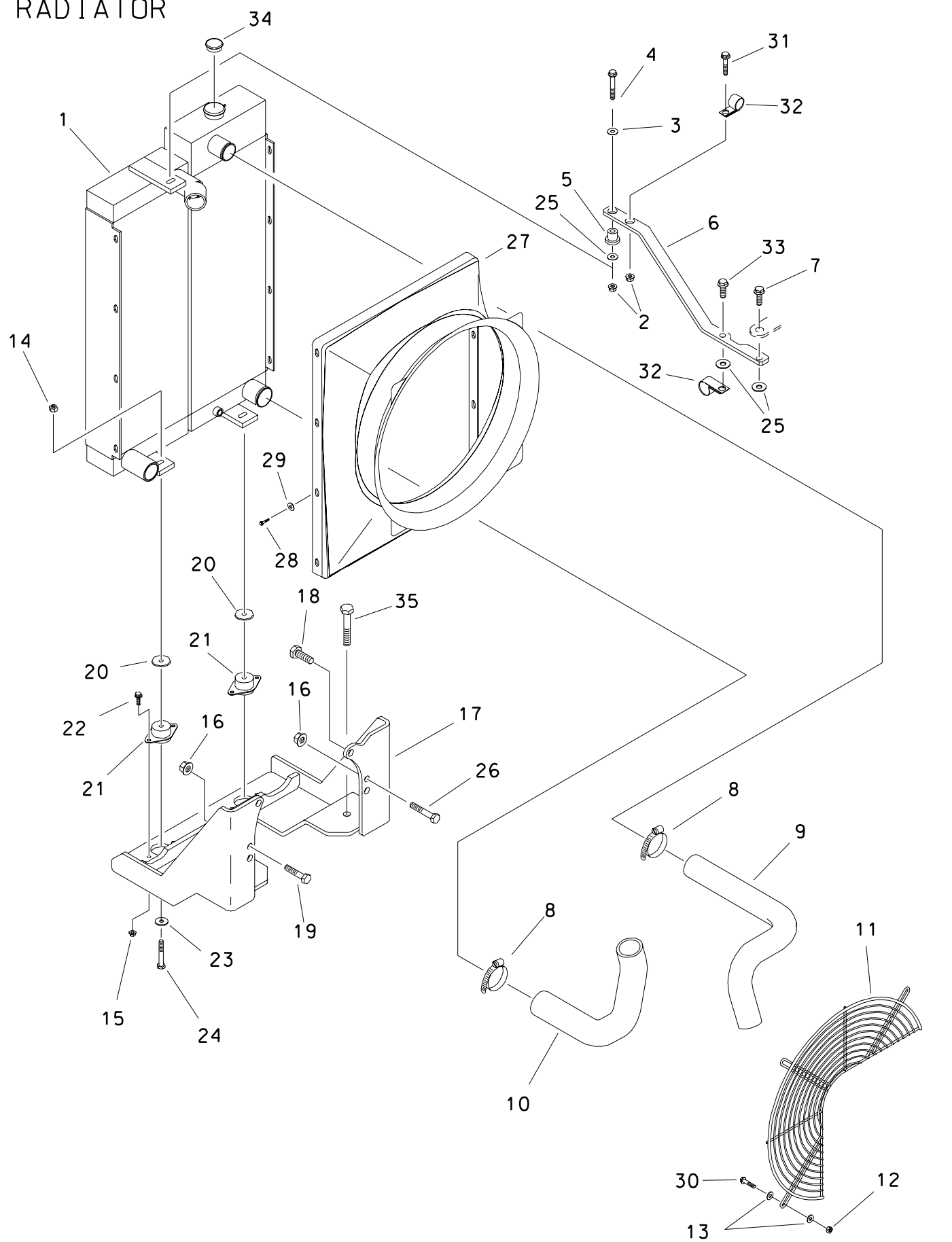
-	217-736	1	OIL PRESSURE SWITCH	
-	215-183	1	SENDER, OIL PRESSURE HD	
-	217-550	1	WATER TEMPERATURE SENDER	
-	217-575	1	HIGH TEMPERATURE SWITCH	

FOOTNOTES

NOTES:

1. REFER TO O-RING CHART (800-301) IN BACK OF THE BOOK FOR REPLACEMENT OF O-RINGS.
2. REFERENCES 34, 35, AND 36 ARE SERVICE PARTS ONLY

RADIATOR

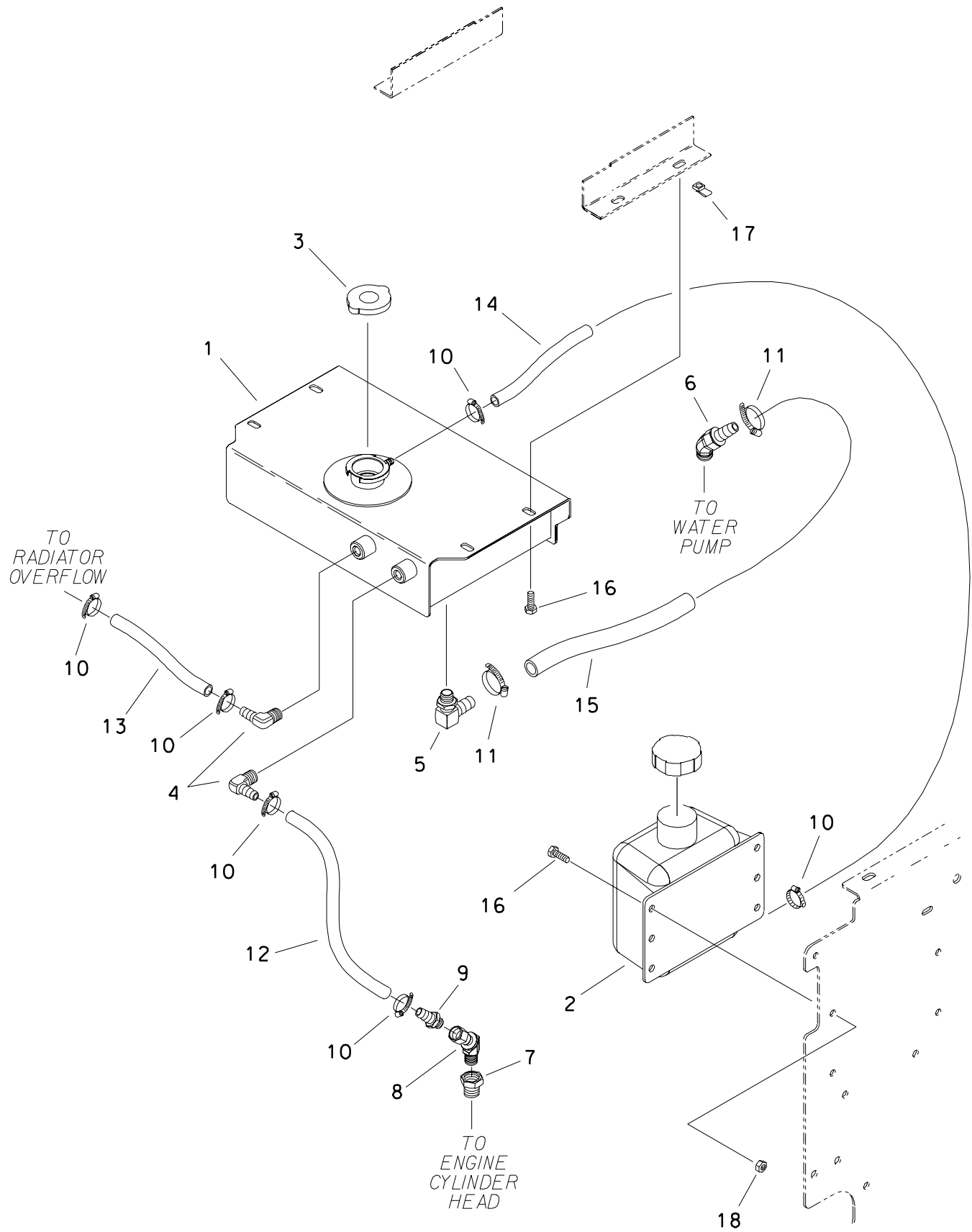


RADIATOR

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	306-834	1	RADIATOR/OIL COOLER	
2.	106-387	2	FLG LOCKNUT (M10-1.50)	
3.	105-059	1	WASHER (7/16")	
4.	106-142	1	SCREW (M10-1.50 X 65MM)	
5.	116-727	1	SHOCK MOUNT	
6.	348-748	1	RADIATOR BRACKET	
7.	107-004	1	FLG LK SCREW (M12-1.75 X 45MM)	
8.	110-134	4	WORM CLAMP (2.062" TO 2.750")	
9.	116-792	1	UPPER COOLANT HOSE	
10.	116-771	1	LOWER COOLANT HOSE	
11.	310-613	1	FAN GUARD	
12.	107-096	4	LOCKNUT (M8-1.25 , NYLOK)	
13.	106-389	6	WASHER (M8)	
14.	105-894	2	LOCKNUT (M10-1.50, PRV TRQ, 10.9)	
15.	106-386	4	FLG LOCKNUT (M8-1.25)	
16.	105-994	2	FLG LOCKNUT (5/8-NC)	
17.	348-503	1	FRONT ENGINE MOUNT	
18.	105-998	4	SCREW (M16-2.00 X 40MM)	
19.	105-462	1	BOLT (5/8-NC X 2-1/4")	
20.	105-071	2	WASHER (1/2")	
21.	116-539	2	ISOLATOR	
22.	106-992	4	FLG LK SCREW (M8-1.25 X 25MM)	
23.	106-396	2	WASHER (M10, HARDENED)	
24.	106-642	2	SCREW (M10-1.5 X 65MM)	
25.	106-397	3	WASHER (M12, HARDENED)	
26.	105-943	1	BOLT (5/8-NC X 2-3/4")	
27.	362-967	1	FAN SHROUD	
28.	106-010	8	FLG SCREW (5/16-NC X 3/4")	
29.	105-118	8	WASHER (3/8")	
30.	106-381	3	FLG LK SCREW (M8-1.25 X 25MM)	
31.	107-002	1	FLG LK SCREW (M10-1.50 X 30MM)	
32.	110-126	1	BOLT-ON CLAMP (1/2")	
33.	107-010	1	FLG LK SCREW (M12-1.75 X 30MM)	
34.	111-091	1	RADIATOR CAP	
35.	106-342	-	SCREW (M16-2.00 X 90MM)	

FOOTNOTES

COOLANT SYSTEM

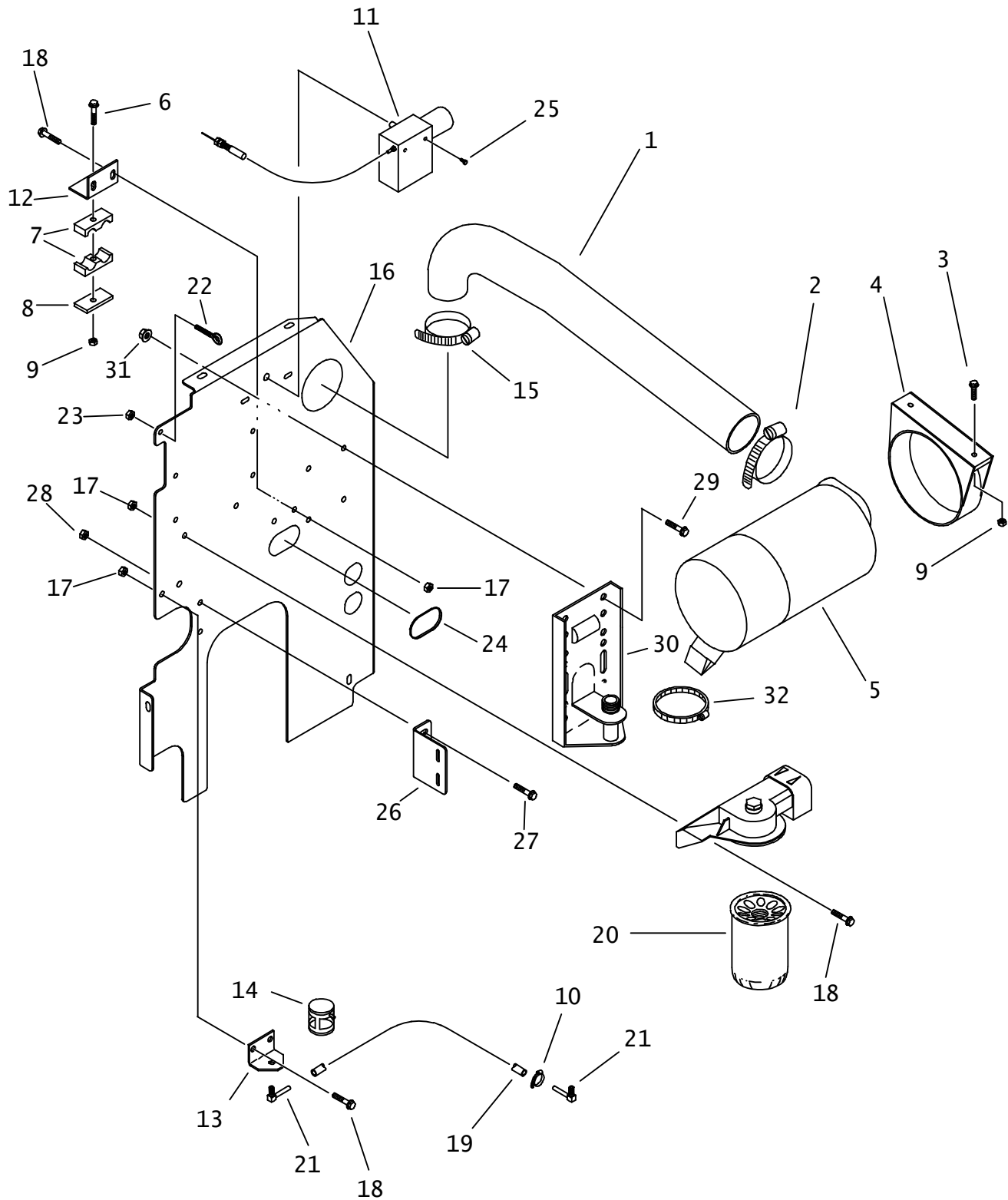


COOLANT SYSTEM

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	364-551	1	EXPANSION TANK	
2.	364-531	-	OVERFLOW TANK (3 QT)	
3.	111-084	1	RADIATOR CAP (16PSI)	
4.	155-164	2	S/O COUPLER (04N-05H90)	
5.	514-285	1	S/O COUPLER 08N-10H90)	
6.	153-160	1	S/O COUPLER (18M-10H45)	
7.	115-286	1	REDUCER (08N-1/4NF)	
8.	155-002	1	UNION (1/4NPTX1/4NPTX45)	
9.	155-162	1	S/O COUPLER (04N-05H)	
10.	110-249	6	WORM CLAMP (1/4" TO 5/8")	
11.	110-217	2	WORM CLAMP (7/16" TO 1")	
12.	116-108	AR	BULK HOSE (5/16", SOLD PER 1')	USE 1 @ 7"
13.	116-108	AR	BULK HOSE (5/16", SOLD PER 1')	USE 1 @ 50"
14.	116-108	AR	BULK HOSE (5/16", SOLD PER 1')	USE 1 @ 30"
15.	116-750	AR	BULK HOSE (5/8", SOLD PER 1')	USE 1 @ 52"
16.	106-083	8	SCREW (M8-1.25 X 20MM)	
17.	106-551	4	CLIP NUT (M8-1.25)	
18.	106-386	4	FLG LOCKNUT (M8-1.25)	

FOOTNOTES

AIR FILTER SYSTEM



AIR FILTER SYSTEM

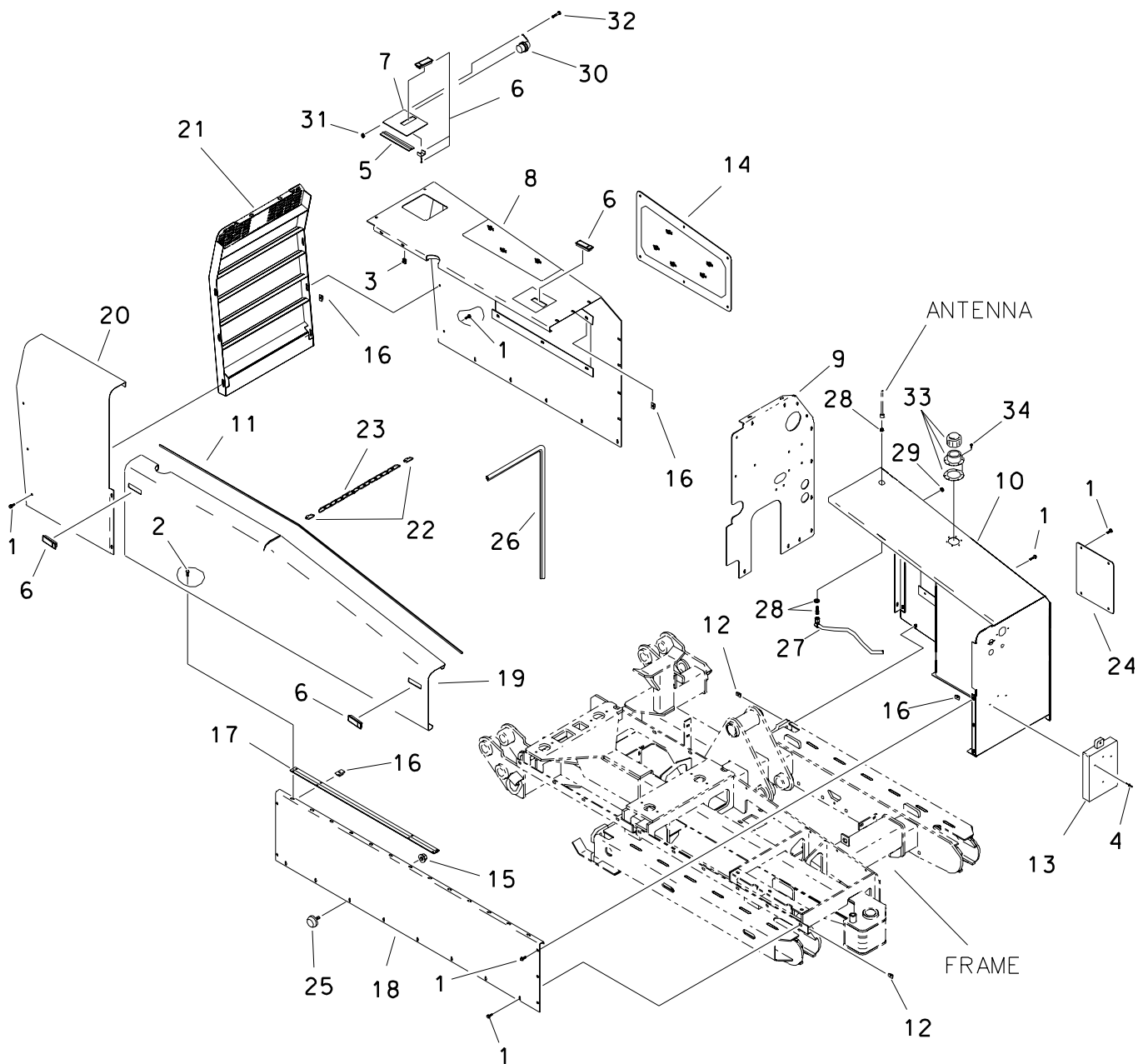
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	149-631	1	AIR INTAKE HOSE	
2.	110-169	1	WORM CLAMP (2.812" TO 3.750")	
3.	106-163	2	FLG SCREW (M8-1.25 X 30MM)	
4.	362-926	1	MOUNTING CLAMP (7.170")	
5.	197-762	1	AIR FILTER	
	197-763	-	PRIMARY ELEMENT	
	197-764	-	SAFETY ELEMENT	
6.	107-194	1	FLG SCREW (M8-1.25 X 50MM)	
7.	110-195	2	BOLT-ON CLAMP (3/4", PER HALF)	
8.	305-256	1	BACKUP SPACER	
9.	107-096	2	LOCKNUT (M8-1.25, NLK)	
10.	110-249	2	WORM CLAMP (1/4" TO 5/8")	
11.	215-231	1	LINEAR ACTUATOR	
	105-603	1	CABLE PIVOT	
	105-530	1	COTTER PIN (1/16" X 3/4")	
	196-331	1	CABLE (LINEAR ACTUATOR)	
12.	348-830	1	HOSE SUPPORT PLATE	
13.	348-846	1	RESTRICTION INDICATOR SUPPORT	
14.	194-788	1	RESTRICTION INDICATOR (25"H20)	
15.	110-134	1	WORM CLAMP (2.062" TO 2.750")	
16.	348-637	1	FIREWALL	
17.	105-894	6	LOCKNUT (M10-1.50, PRV TRQ, 10.9)	
18.	106-382	6	FLG LK SCREW (M10-1.50 X 20MM)	
19.	116-108	AR	BULK HOSE (5/16", SOLD PER 1")	USE 1 @ 24"
20.	194-815	-	OIL FILTER ELEMENT	
21.	155-241	2	S/O COUPLER (02N-05H90)	
22.	105-204	1	EYE BOLT (1/4-NC X 1-1/2")	
23.	105-078	1	NUT (1/4-NC)	
24.	115-686	1	BULK EDGE (5/32", SOLD PER 1")	USE 1 @ 9"
25.	105-836	2	FLG LOCK BOLT (1/4-NC X 1/2")	
26.	309-913	-	CLAMP BRACKET	
27.	106-162	-	FLG SCREW(M8-1.25 X 20MM, GD8)	
28.	106-386	-	FLG LOCKNUT (M8-1.25)	
29.	106-380	-	FLG LK SCREW (M8-1.25 X 16MM)	
30.	195-841	-	VALVE/CANISTER BRACKET	
31.	106-386	-	FLG LOCKNUT (M8-1.25)	
32.	110-367	-	WORM CLAMP (3-1/4" TO 4-1/8")	

NOT SHOWN:

FOOTNOTES:

NOTE:

ENGINE HOOD & COVERS



ENGINE HOOD & COVERS

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	106-992	36	FLG LK SCREW (M8-1.25 X 25mm)	
2.	106-083	14	SCREW (M8-1.25 X 20MM)	
3.	106-551	31	CLIP NUT (M8-1.25)	
4.	110-560	4	POP RIVET (3/16" X 1/2", ALUM)	
5.	110-580	-	HINGE (6")	WELD-ON
6.	117-558	4	ADJUST LEVER LATCH (LOCKING)	BEGINS WITH S/N: 2X0106
	214-961	-	KEY, PAIR (BASE CODE)	
	217-309	-	LOCK PLUG 4/LATCH (BASE CODE)	
	110-757	4	LEVER LATCH (ADJUST, LOCKING)	
7.	344-629	-	DOOR PANEL	WELD-ON
8.	305-760	1	HOOD	
9.	348-637	-	FIREWALL	
10.	149-391	-	RESERVOIR	
11.	116-724	AR	BULK SEAL (3/32", SOLD PER 1')	USE 1 @ 68"
12.	107-287	9	CLIP NUT (M10-1.50)	
13.	250-622	1	MANUAL COMPARTMENT	
14.	310-744	1	ACCESS PANEL	
15.	105-003	2	FLG LOCKNUT (5/16-NC)	
16.	107-135	15	CLIP NUT (M8-1.25)	
17.	111-014	1	HINGE	
18.	348-632	1	LOWER RIGHT PANEL	
19.	348-673	1	DOOR	
20.	348-643	1	RIGHT HOOD SUPPORT	
21.	310-561	1	GRILLE	
22.	111-032	2	REPAIR LINK (1/8" X 1-1/8")	
23.	111-024	AR	BULK CHAIN (#2)	USE 1 @ 25"
24.	348-660	1	ACCESS PANEL	
25.	116-525	2	BUMPER	
26.	116-421	AR	BULK EDGE (1/8", SOLD PER 1')	USE 1 @ 48"
27.	211-072	1	CABLE	
28.	211-055	1	ANTENNA BULKHEAD CONNECTOR	
29.	153-366	6	BUTTON PLUG (BPF-1/4)	
30.	214-812	1	PROTECTIVE CAP	
31.	106-277	1	NUT (#4-40, BRASS)	
32.	106-155	1	SCREW (#4-40 X 5/8", PAN PLPS)	
33.	110-996	1	FILLER BREATHER CAP	
34.	105-214	6	FLG SCREW (#10-24 X .5")	

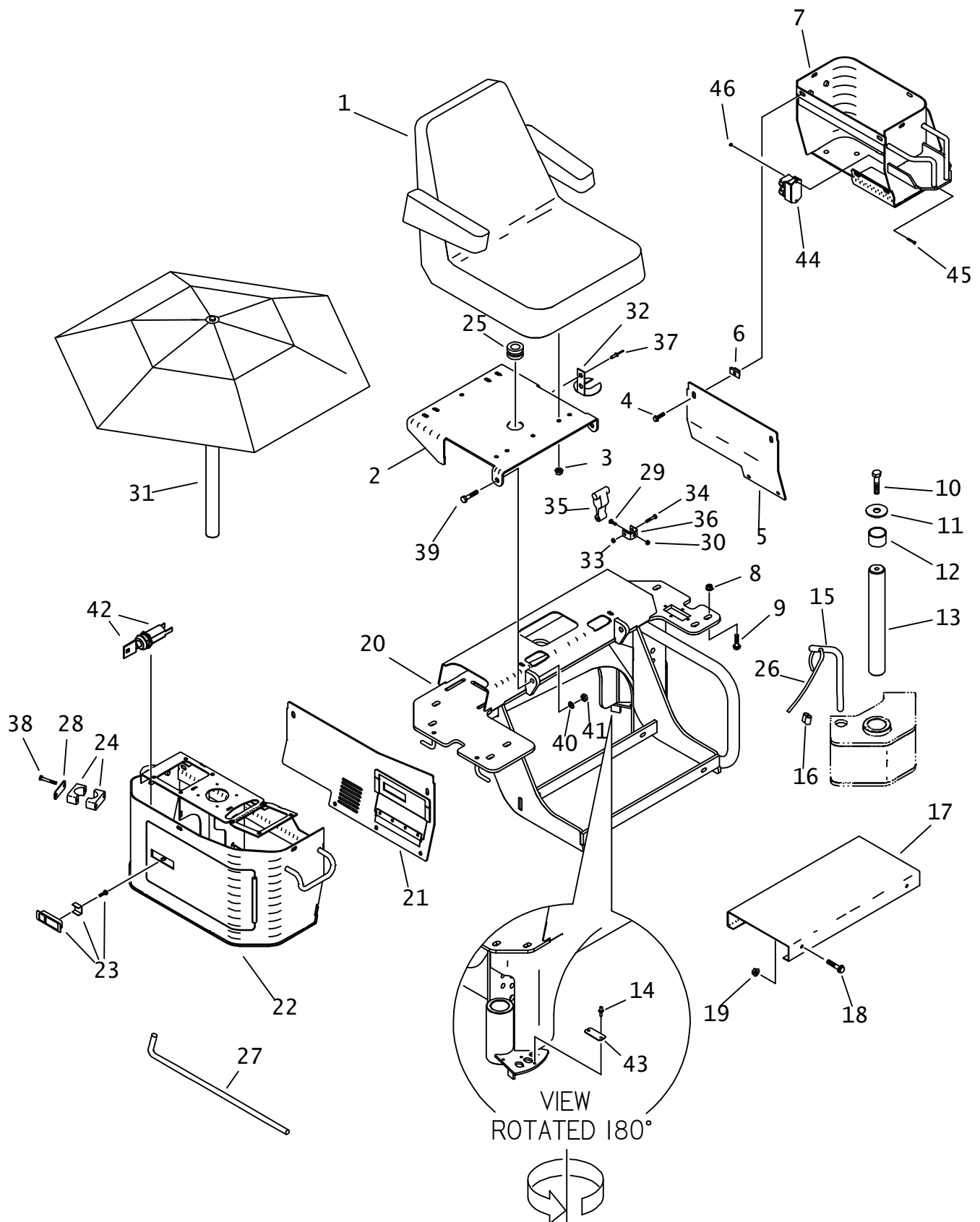
FOOTNOTES

NOTES:

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OPERATOR'S STATION

SEAT MOUNT



SEAT MOUNT

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	117-439	1	SEAT ASS'Y W/ ARM REST	OBSOLETE
	117-572		SEAT CUSHION W/SWITCH	OBSOLETE
	117-914	1	SEAT ASS'Y W/ ARM REST	
	117-912		SEAT CUSHION ASSM'Y W/SWITCH	
	214-964		SEAT SWITCH W/ BOOT	
	214-965		SEAT SWITCH HARNESS	
	117-573		BACK CUSHION	
	191-170		L. ARMREST KIT	
	191-171		R. ARMREST KIT	
	191-172		SEAT SLIDE KIT	
2.	310-634	1	SEAT PLATE	
3.	105-003	4	FLG LOCKNUT (5/16-NC)	
4.	107-095	9	FLG SCREW (M8-1.25 X 16MM)	
5.	348-694	1	LEFT COVER	
6.	106-551	9	CLIP NUT (M8-1.25)	
7.	211-004	1	LEFT CONSOLE	
8.	105-833	8	FLG LOCKNUT (1/2-NC)	
9.	106-413	8	CARRIAGE BOLT (1/2-NC X 1")	
10.	107-206	2	SCREW (M12-1.75 X 35MM)	LOCTITE 277
11.	105-057	2	WASHER (9/16")	
12.	125-739	4	COMPOSITION BUSHING (1.756")	
13.	179-240	1	PIN	
14.	110-348	2	POP RIVET (3/16" X .664")	USE ON JT1720 ONLY
15.	179-244	1	PIN	
16.	350-275	2	ALUMINUM SLEEVE (1/16")	
17.	348-695	1	FLOOR TREAD	
18.	106-992	4	FLG LK SCREW (M8-1.25 X 25MM)	
19.	106-386	4	FLG LOCKNUT (M8-1.25)	
20.	348-711	1	SEAT MOUNT	
21.	309-234	1	RIGHT COVER	
22.	303-956	1	RIGHT CONSOLE	
	314-591	-	RIGHT CONSOLE ACCESS DOOR	
23.	117-558	2	ADJUST LEVER LATCH (LOCKING)	BEGINS WITH S/N: 2X0106
	214-961		KEY, PAIR (BASE CODE)	
	217-309		LOCK PLUG 4/LATCH (BASE CODE)	
	110-757	2	LEVER LATCH (ADJUST, LOCKING)	OBSOLETE, INCL KEYS
	110-596	-	KEY (PAIR)	
24.	111-026	2	BOLT-ON CLAMP (1-1/4", PAIR)	
25.	115-320	1	GROMMET (1-1/2")	
26.	110-981	AR	BULK CABLE (1/16",SOLD PER 1')	USE 1 @ 12"
27.	215-799	1	VOLTAGE STAKE	
28.	322-362	2	BACKUP SPACER	
29.	105-806	1	SCREW (M8-1.25 X 25MM)	
30.	107-096	1	LOCKNUT (M8-1.25, NLK)	

NOT SHOWN

FOOTNOTES:

SEAT MOUNT

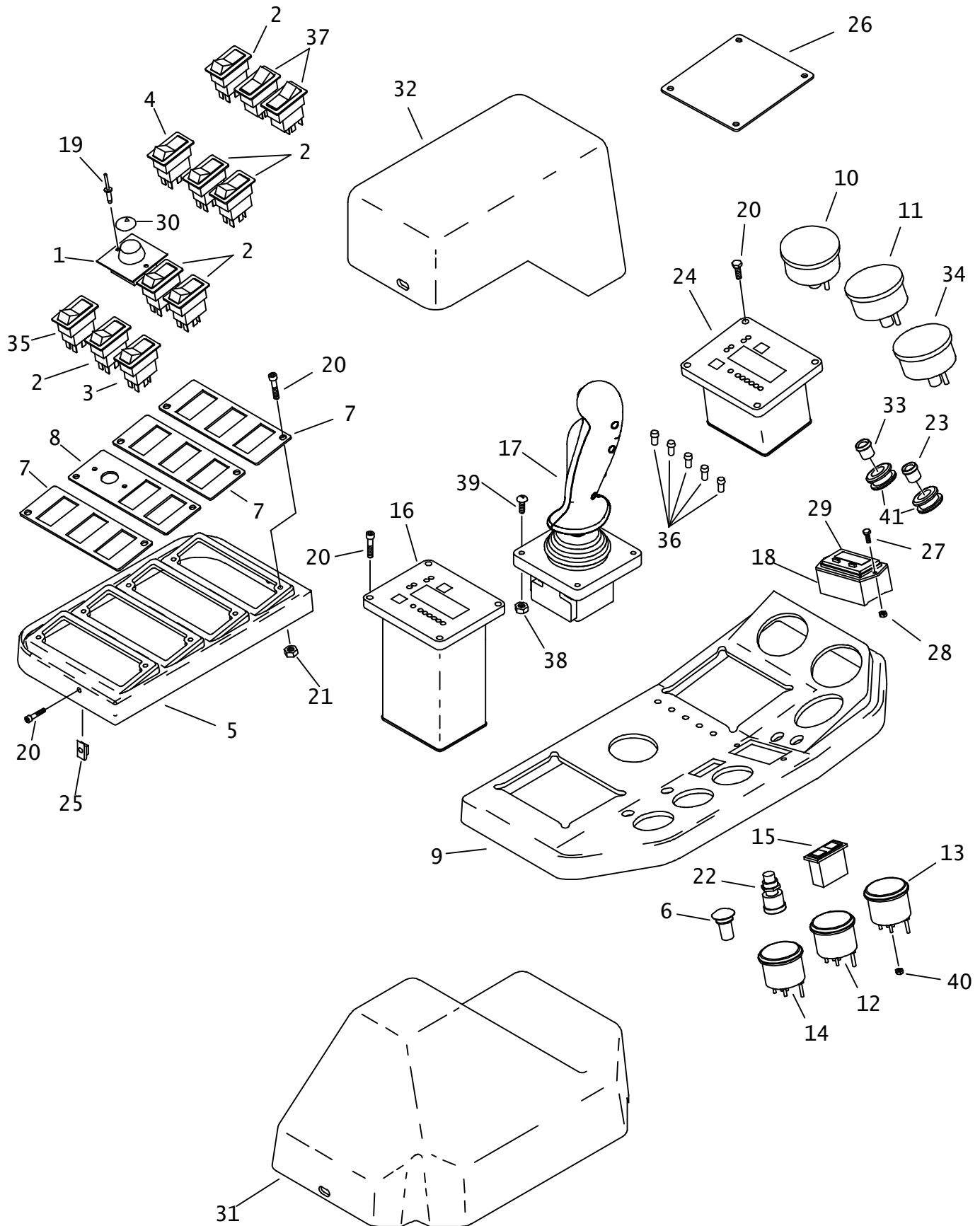
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
31.	344-0001	1	UMBRELLA (6.5')	
	500-1962	-	UMBRELLA POLE (16")	
32.	110-223	1	LATCH BRACKET	
33.	106-237	1	LOCKNUT (M6-1.00,PRV TRQ,NLK)	
34.	106-093	1	SCREW (M6-1.00 X 45MM)	
35.	110-222	1	HOOD LATCH	
36.	110-224	1	ANCHOR BRACKET	
37.	110-253	2	POP RIVET (3/16" X 1/2")	
38.	105-297	4	BOLT (1/4-NC X 3-1/4")	
39.	106-739	2	SHLD BLT (M12 X 20MM,M10-1.50)	
40.	106-391	2	WASHER (M12)	
41.	106-758	2	LOCKNUT (M10-1.50)	
42.	214-908	1	OFF-ON KEY SWITCH	SEE NOT SHOWN FOR REPLACEMENT KEYS.
43.	310-612	1	PIVOT PLATE COVER	USE ON JT1720 ONLY
44.	211-026	1	DIODE PACK (DEUTSCH)	
45.	106-049	1	BOLT (#10-24 xf", PLPS)	
46.	106-048	1	LOCKNUT (#10-24)	

NOT SHOWN

215-1818	KEY, TRACKER CONTROL SWITCH, SINGLE
215-1819	KEY, TRACKER CONTROL SWITCH, DOUBLE

FOOTNOTES:

OPERATORS STATION GAUGES



OPERATORS STATION GAUGES

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	214-566	1	POTENTIOMETER	
2.	214-489	6	ROCKER SW (DPDT) (ON)-OFF-(ON)	
3.	217-916	1	ROCKER SWITCH (DPDT) ON-OFF-ON	
4.	217-911	1	ROCKER SWITCH (SPDT) ON-OFF-ON	
5.	211-009	1	LEFT CONSOLE COVER	
6.	217-724	1	BUTTON SWITCH (SPST)	
	217-206	1	BUTTON SWITCH (SPST)	
	214-943	1	BUTTON SWITCH (SPST)	
	215-754	1	MC INSULATOR (2-TERMINAL)	
7.	362-929	3	SWITCH PANEL	
8.	362-931	1	SWITCH PANEL	
9.	211-014	1	RIGHT CONSOLE COVER	
10.	258-045	1	GAUGE (4000 PSI)	
11.	258-036	1	HYD PRESSURE GAUGE (6000 PSI)	
12.	215-131	1	OIL PRESSURE GAUGE	
	215-415	1	NITE-LIGHT KIT (12V DC)	OPTION
13.	258-037	1	WATER TEMPERATURE GAUGE	
14.	215-133	1	FUEL GAUGE	
	215-415	1	NITE-LIGHT KIT (12V DC)	OPTION
15.	217-020	1	PILOT LIGHT	
	217-027	1	INSERT (RED) HYD OIL HI TEMP	
	217-036	1	INSERT (YELLOW) HYD OIL PSI	
	217-074	2	LENS REFLECTOR	
	217-046		BULB (12V DC)	
16.	217-241	1	ESID MODULE	
17.	215-1224	1	DUAL AXIS JOYSTICK	OBSOLETE, REPLACE WITH 190-1740
	190-1740	1	JOYSTICK REPLACEMENT KIT	SEE FOOTNOTE I
	197-104		REMANUFACTURED 214-565 JYSTK	OBSOLETE
18.	217-221	1	FLOW METER DISPLAY	
19.	110-560	2	POP RIVET (3/16" X 1/2", ALUM)	
20.	106-640	19	BOLT (M6-1.00 X 20MM, BUT SOC)	
21.	106-237	8	LOCKNUT (M6-1.00, PRV TRQ, NLK)	
22.	306-607	1	HORN BUTTON	
	306-608	1	BUTTON COVER	
23.	214-840	1	GREEN LED (12V DC)	
24.	N/A	1	REMOTE DISPLAY	
25.	106-574	3	CLIP NUT (M6-1.00)	
26.	348-896	1	COVER PLATE	FOR UNITS WITHOUT REMOTE DISPLAY
27.	501-343	2	BOLT (#10-24 X 1/2", SOC)	
28.	106-048	2	LOCKNUT (#10-24)	
29.	319-412	1	FLOW METER WEATHER COVER	

NOT SHOWN:

319-412	1	FLOW METER WEATHER COVER	
215-1787	1	JOYSTICK JUMPER	SEE FOOTNOTE I

FOOTNOTES:

I. JOYSTICK JUMPER 215-1787 IS NEEDED TO CONNECT OLDER HARNESS TO 215-1714 JOYSTICK.

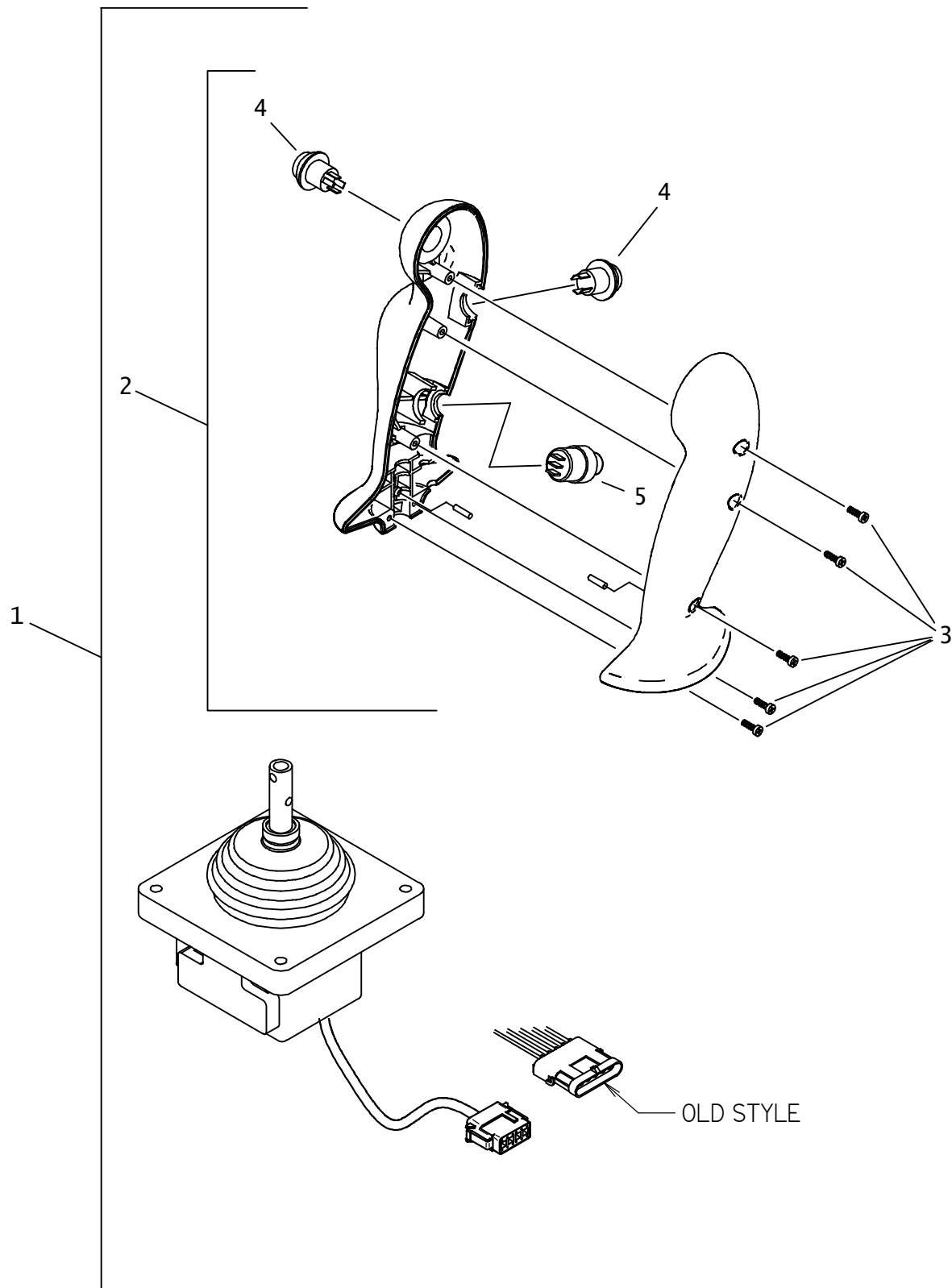
OPERATORS STATION GAUGES

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
30.	274-940	1	INDICATOR	
31.	348-960	1	RIGHT CONSOLE COVER	
32.	310-184	1	LEFT CONSOLE COVER	
33.	214-563	1	RED LED 12V	
34.	150-1444	1	PRESSURE GAUGE (2000PSI)	
35.	217-912	1	ROCKER SWITCH (DPDT) ON-ON-ON	
36.	214-701	5	STATUS LIGHT	
37.	217-908	2	ROCKER SWITCH DPDT ON-ON-(ON)	JT27M1 & AT27M1
	214-489	2	ROCKER SW (DPDT) (ON)-OFF-(ON)	JT17M1
38.	105-186	4	NUT (#10-24)	
39.	105-815	4	BOLT (#10-24 X 1", PAN SLT)	
40.	105-215	6	NUT (#6-32)	
41.	116-203	AR	GROMMET (9/16")	

NOT SHOWN:

FOOTNOTES:

DUAL AXIS JOYSTICK



DUAL AXIS JOYSTICK

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	215-1224	-	DUAL AXIS JOYSTICK	OBSOLETE, ENDS WITH S/N _____, SEE FOOTNOTE I
	215-1714	-	DUAL AXIS JOYSTICK	BEGINS WITH S/N _____, SEE FOOTNOTE I
2.	500-1433	-	JOYSTICK HANDLE ASSEMBLY	INCLUDES REF NO'S 3, 4 & 5
3.	107-410	-	SCREW (#2.5 X 8", PAN, PLASTIC)	
4.	214-614	-	PUSHBUTTON SW (SPST) OFF-(ON)	
5.	214-616	-	PUSHBUTTON SW (SPDT) ON-ON	

NOT SHOWN:

215-1787 1 JOYSTICK JUMPER

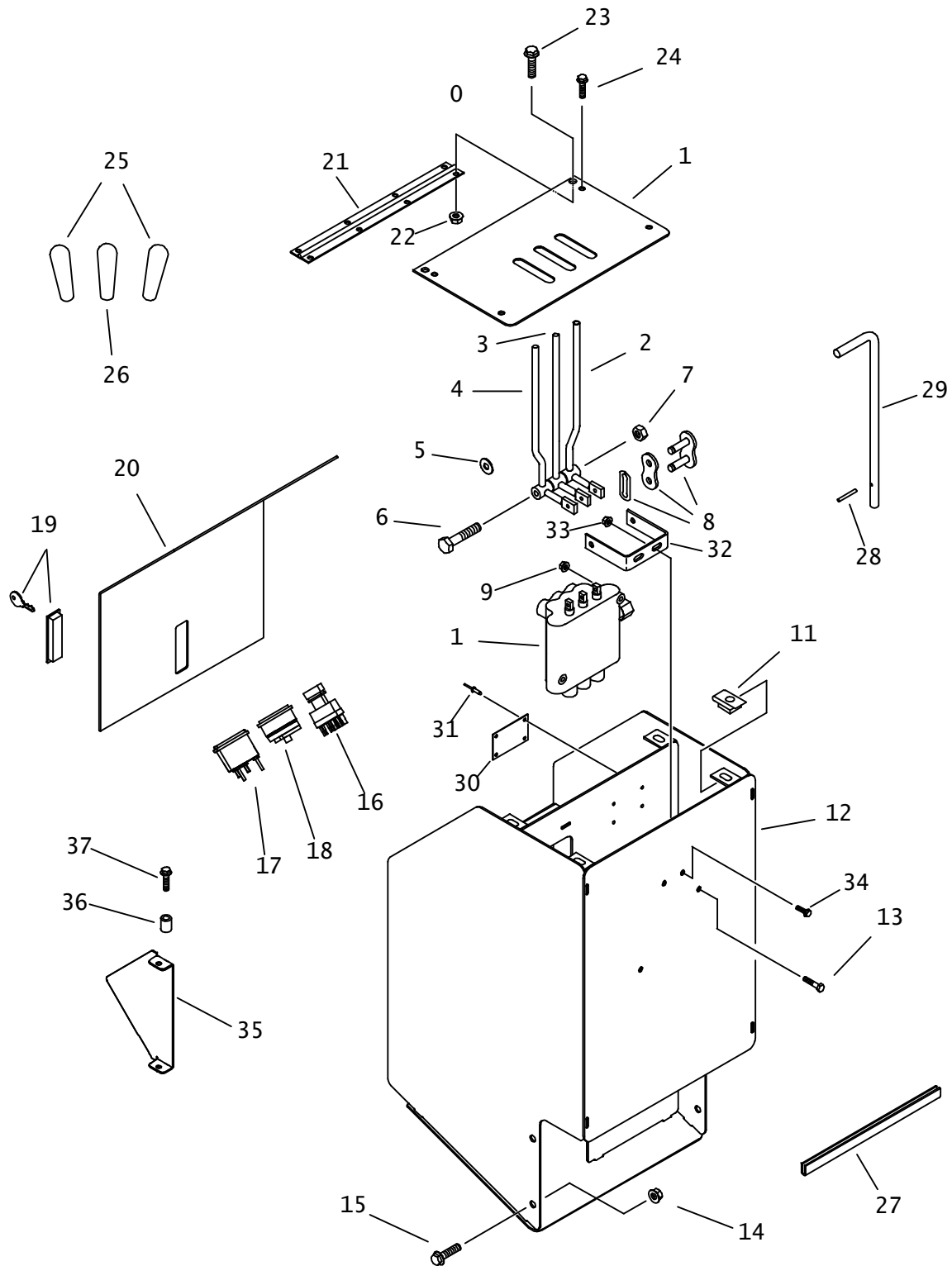
SEE FOOTNOTE I

FOOTNOTES:

I. EARLIER MACHINES BEFORE S/N BREAK WILL NEED TO USE JOYSTICK JUMPER 215-1787 TO CONNECT OLDER HARNESS TO 215-1714 JOYSTICK.

NOTE:

REAR CONSOLE JT17M1



REAR CONSOLE

JT17M1

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	348-582	1	LEVER PANEL	
2.	348-821	1	LEFT CONTROL LEVER	
3.	348-822	1	CONTROL LEVER	
4.	348-823	1	RIGHT CONTROL LEVER	
5.	106-395	4	WASHER (M8, HARDENED)	
6.	106-128	1	BOLT (M8-1.25 X 110MM)	
7.	106-561	1	LOCKNUT (M8-1.25, PRV TRQ, 10.9)	
8.	130-101	3	CONNECTOR LINK (#50)	
9.	106-385	2	FLG LOCKNUT (M6-1.00)	
10.	516-093	1	HYD CONTROL VALVE	
	153-589	1	HYD CONTROL VALVE	
11.	106-551	4	CLIP NUT (M8-1.25)	
12.	306-426	1	REAR CONSOLE	
13.	106-093	2	SCREW (M6-1.00 X 45MM)	
14.	106-387	4	FLG LOCKNUT (M10-1.50)	
15.	106-383	4	FLG LK SCREW (M10-1.50 X 30MM)	
16.	214-852	1	IGNITION SWITCH	
	214-961		KEY, PAIR	
	214-962		SWITCH MOUNTING NUT	
17.	215-128	1	HOUR METER	
18.	215-129	1	VOLT METER	
	215-415	-	NITE-LIGHT KIT (12V DC)	
19.	117-558	1	ADJUST LEVER LATCH (LOCKING)	BEGINS WITH S/N: 2X0106
	214-961		KEY, PAIR	
	217-309		LOCK PLUG 4/LATCH	
	110-757	1	LEVER LATCH (ADJUST, LOCKING)	
	110-596	-	KEYS (PAIR)	
20.	348-583	1	CONSOLE DOOR	
21.	110-218	1	STEP HINGE (12.59")	
22.	105-832	4	FLG LOCKNUT (1/4-NC)	
23.	105-836	4	FLG LK BOLT (1/4-NC X 1/2")	
24.	106-380	4	FLG LK SCREW (M8-1.25 X 16MM)	
25.	110-442	2	HANDLE (3/8-NC, GREEN)	
26.	110-439	1	HANDLE (3/8-NC, BLACK)	
27.	115-671	AR	BULK EDGE (1/16", SOLD PER 1")	USE 1 @ 13"
28.	105-524	1	ROLL PIN (1/8" X 3/4")	
29.	348-928	1	PROP ROD	
30.	250-603	1	S/N TAG - MACHINE ATTACHMENT	
31.	106-282	4	DRIVE RIVET (1/8" X 1/2")	
32.	348-824	1	LEVER BRACKET	
33.	105-832	2	FLG LOCKNUT (1/4-NC)	
34.	105-836	2	FLG LOCK BOLT (1/4-NC X 1/2")	
35.	306-425	1	COVER	
36.	106-670	2	NUTSERT (M6-1.00)	
37.	106-378	2	FLG LK SCREW (M6-1.00 X 12MM)	

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FOOTNOTES:

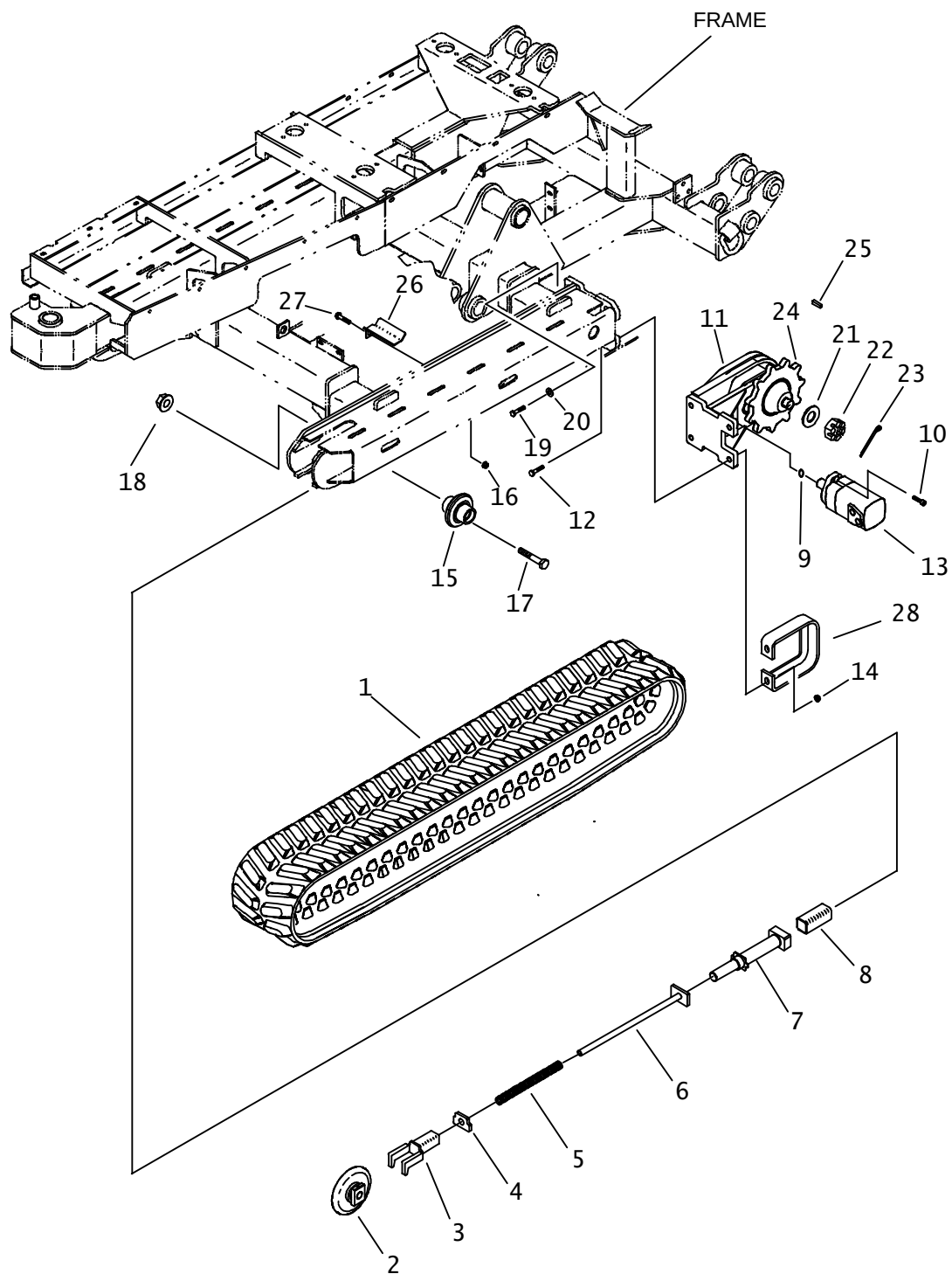
NOTE:

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TRACK FRAME

TRACK GROUP



TRACK GROUP

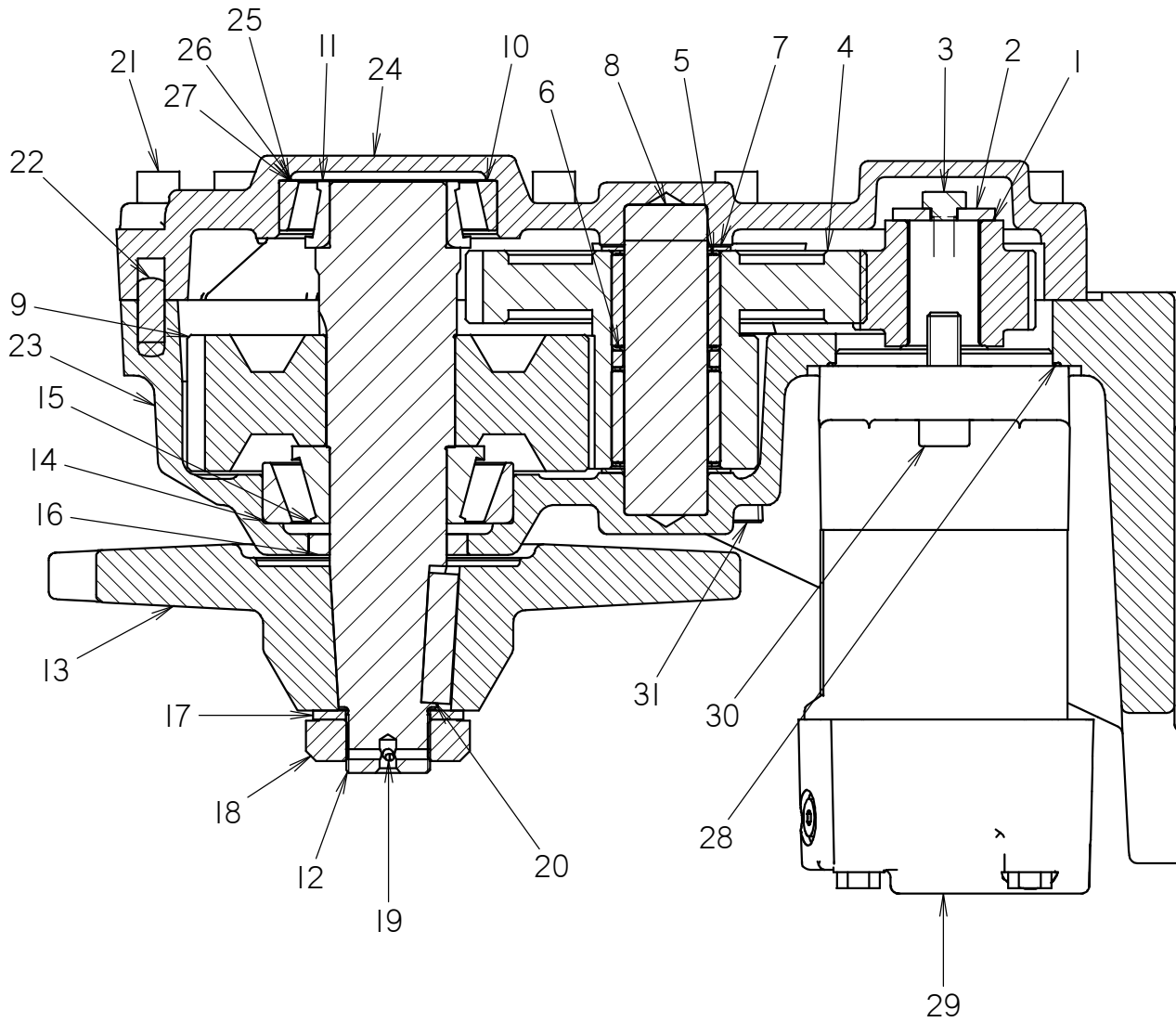
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	348-512	2	RUBBER TRACK	OBSOLETE
	315-175	2	GROUND DRIVE TRACK	
2.	170-336	2	FRONT IDLER ROLLER	
3.	353-403	2	YOKE	
4.	353-482	2	SPRING PLATE	
5.	117-122	2	COMPRESSION SPRING	
6.	353-402	2	SPACER TUBE	
7.	151-161	2	GREASE CYLINDER	
8.	353-473	2	STOP TUBE	
9.	157-099	2	O-RING (042 D70)	
10.	106-204	4	BOLT (1/2-NC X 1-1/2", SOC)	TORQUE TO 100 FT-LB
11.	166-172	2	GEARBOX (5.44:1)	GROUND DRIVE
12.	106-341	4	SCREW (M16-2.00 X 70MM)	TORQUE TO 159 FT-LB
13.	155-581	2	HYD MOTOR	
	500-347		SEAL REPAIR KIT	
14.	106-355	4	FLG NUT (M16-2.00, 10.9)	
15.	170-335	14	IDLER ROLLER	
16.	106-387	2	FLG LOCKNUT (M10-1.50)	
17.	107-118	14	SCREW (M16-2.00 X 160MM)	
18.	106-442	14	FLG LOCKNUT (M16-2.00, PRV TRQ)	
19.	106-340	4	SCREW (M16-2.00 x 50MM)	
20.	106-392	4	WASHER (M16)	
21.	105-1352	2	WASHER (1.265)	
22.	105-917	2	CASTLE NUT (1-1/4-NF)	TORQUE TO 525-675 FT-LB
23.	105-501	2	COTTER PIN (1/8" X 2")	
24.	174-008	2	SPROCKET (11T)	ENDS WITH S/N
	140-1084	2	SPROCKET (11T)	BEGINS WITH S/N
25.	166-857	2	KEY (.437" X 1.950")	
26.	348-962	2	HOSE PROTECTOR	
27.	106-383	2	FLG LK SCREW (M10-1.50 X 30MM)	
28.	324-456	2	TRACK SUPPORT	

NOT SHOWN:

FOOTNOTES:

NOTE:

GEARBOX GROUND DRIVE



GEARBOX GROUND DRIVE

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	166-172		GEARBOX (5.44:1)	INCLUDES REF. NO'S 1-12, 14-16, 21-31
1	168-052	1	INPUT PINION	
2	105-069	1	WASHER (1.406")	
3	105-024	1	LK BOLT (3/8-NC X 3/4", NLK)	TORQUE TO 45 FT-LBS
4	168-051	1	CLUSTER GEAR	
5	126-185	2	BEARING CAGE (1.50 WD)	
6	182-220	1	SPACER	
7	126-017	2	BEARING RACE (1.25")	
8	179-235	1	PIN	
9	168-053	1	OUTPUT GEAR	
10	125-270	1	TAPERED RACE (3.265")	
11	125-269	1	TAPERED BEARING (1.75")	
12	160-449	1	SHAFT	
13	140-1084	1	11 TOOTH SPROCKET	SUPERSEDES 174-008
14	125-326	1	TAPERED RACE (3.75")	
15	125-327	1	TAPERED BEARING (1.750")	
16	155-881	1	INTERNAL SEAL (1.750")	
17	105-1352	1	WASHER (1.265)	
18	105-917	1	CASTLE NUT (1-1/4-NF)	TORQUE TO 525-675 FT-LBS
19	105-501	1	COTTER PIN (1.25" X 2.0")	
20	166-857	1	KEY (.437" X 1.95")	
21	106-857	14	SCREW (M10-1.50 X 55MM, SOC)	TORQUE TO 45 FT-LBS
22	106-866	1	DOWEL PIN (M10 X 30MM)	
23	348-749	1	HOUSING (MACHINED)	
24	348-254	1	CAST COVER, MACHINED	
25	165-800	1	SHIM (.002")	AS REQUIRED
26	165-801	1	SHIM (.003")	AS REQUIRED
27	165-802	1	SHIM (.007")	AS REQUIRED
28	157-099	1	O-RING (O42 D70)	
29	155-581	1	HYD MOTOR	
30	106-204	2	BOLT (1/2 - NC X 1.50", SOC)	USE LOCTITE 271 OR EQUIVALENT, TORQUE TO 100 FT-LBS
31	115-025	4	PLUG (O8N, SQ FM, MAG)	

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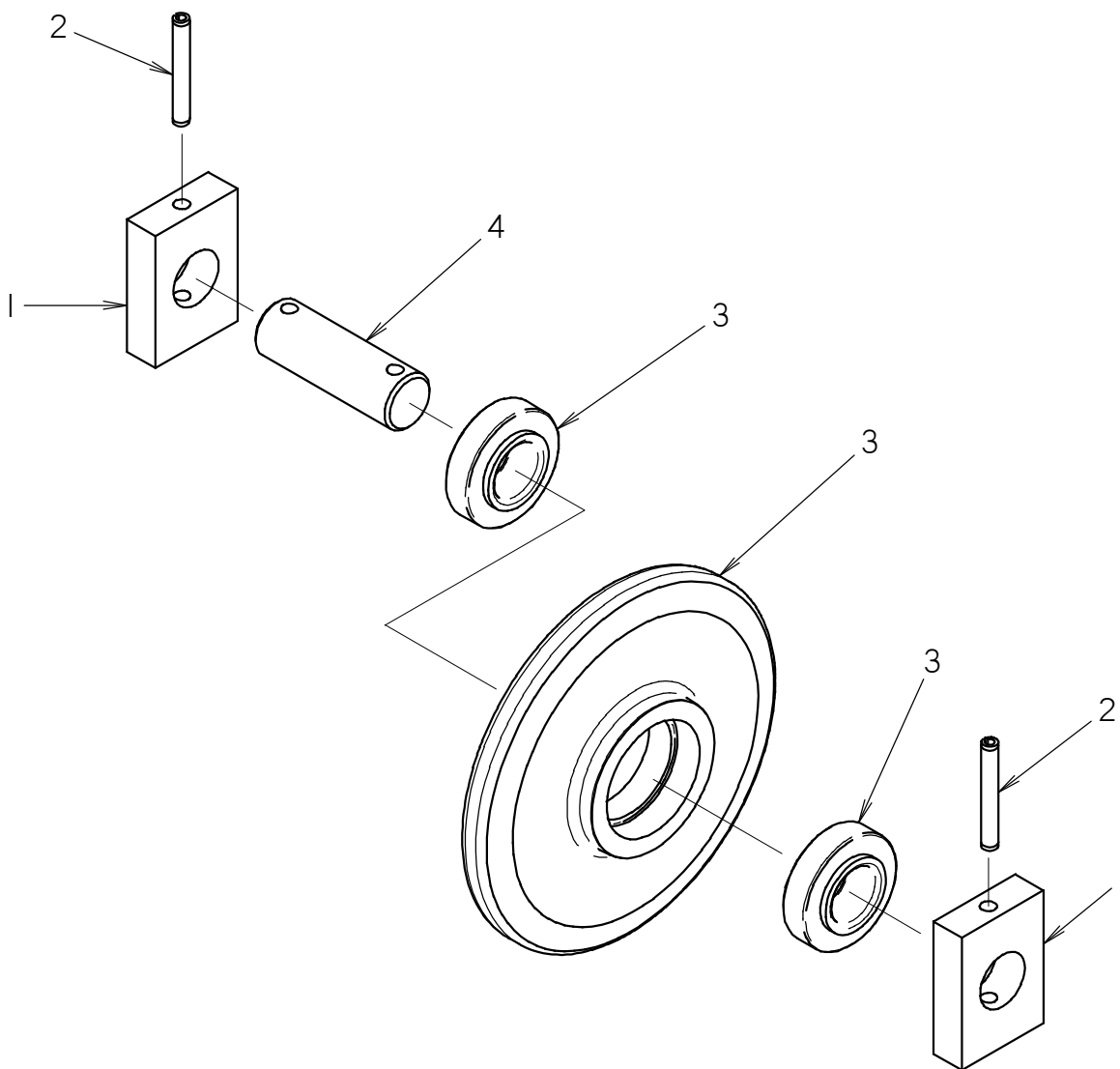
FOOTNOTES:

NOTE:

FRONT IDLER

ENDS WITH S/N: CMWSK350P60000600
ENDS WITH S/N: CMWSK650A60000427

ENDS WITH S/N: CMWSK500H60000254
ENDS WITH S/N: CMWXT850C60000125



FRONT IDLER

ENDS WITH S/N: CMWSK350P60000600

ENDS WITH S/N: CMWSK650A60000427

ENDS WITH S/N: CMWSK500H60000254

ENDS WITH S/N: CMWXT850C60000125

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	170-336	-	FRONT IDLER ROLLER	INCLUDES REF NO.'S 1-4
1	353-477	2	BLOCK, PUSH	OBSOLETE, SEE FOOTNOTE 2
2	105-561	2	ROLL PIN (3/8" X 2-3/4")	
3	170-342	1	IDLER ROLLER SUB	SEE FOOTNOTE 1
4	167-307	1	SHAFT, IDLER	

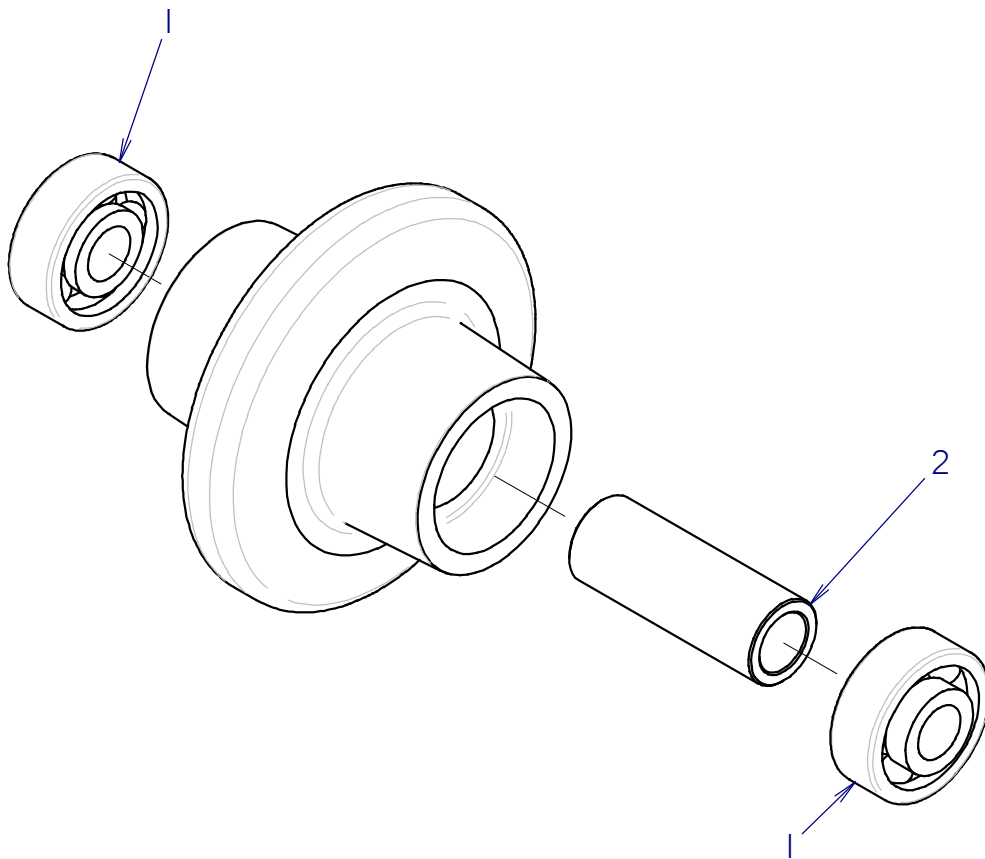
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FOOTNOTES:

1. FOR REPLACEMENT BEARINGS, USE PART NUMBER 125-005.
2. SEE PARTS PAGE FRONT IDLER" ID0253424 FOR CURRENT PRODUCTION COMPONENTS.

NOTE:

IDLER ROLLER



IDLER ROLLER

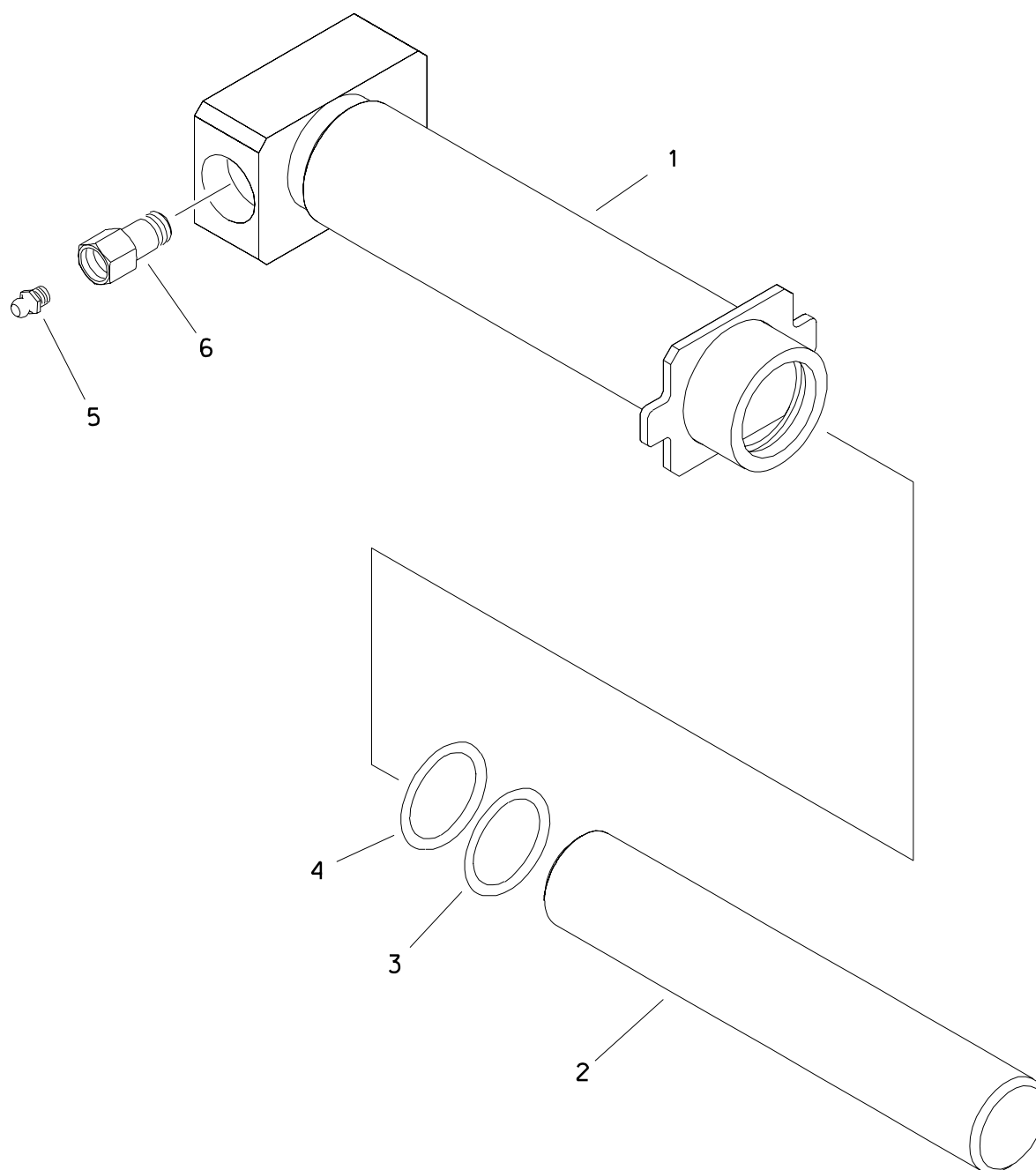
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	170-335	-	IDLER ROLLER	INCLUDES REF NO:S 1, 2
1	125-124	2	BALL BEARING (6311)	
2	353-487	1	SPACER TUBE	

NOT SHOWN:

FOOTNOTES:

NOTE:

GREASE CYLINDER

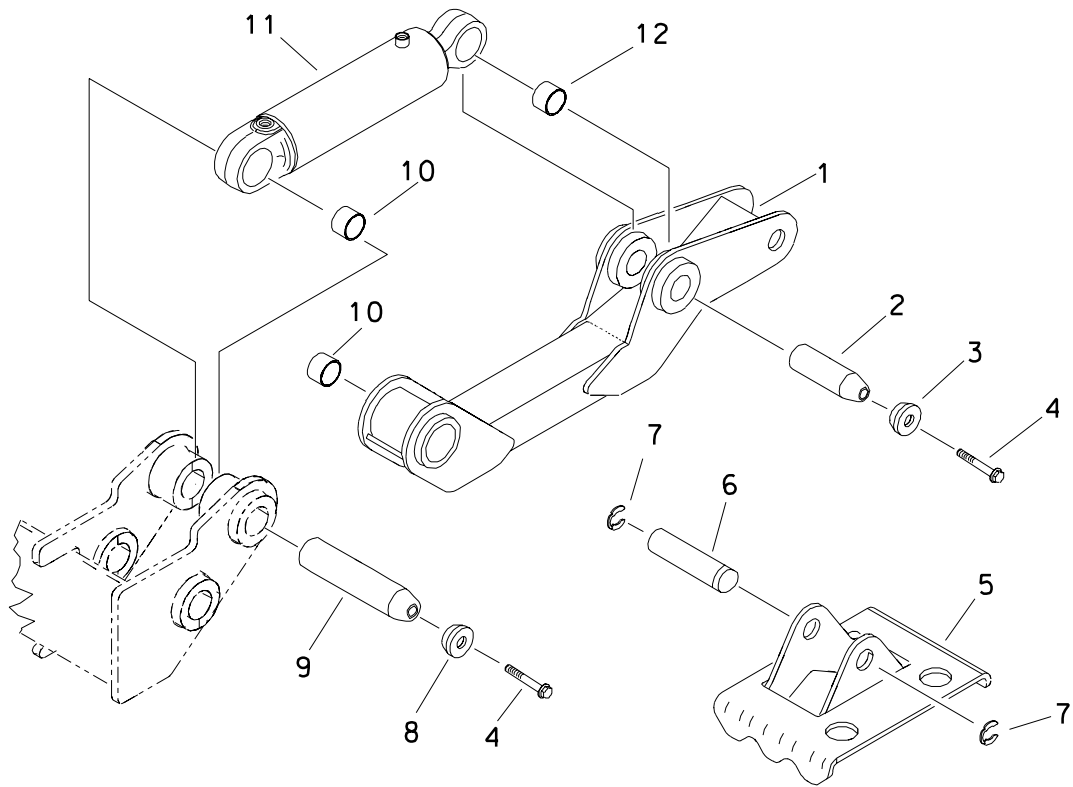


GREASE CYLINDER

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	151-161		GREASE CYLINDER	INCL REF NO.'S 1 - 4
1.	353-404	1	GREASE CYLINDER	
2.	153-501	1	CYLINDER ROD	
3.	155-732	1	BACKUP RING (224 D90)	
4.	155-704	1	O-RING (224 D70)	
5.	115-019	1	ZERK (Q2N)	
6.	159-093	1	RELIEF VALVE (5/8-NF, Q2N)	

FOOTNOTES

STABILIZER

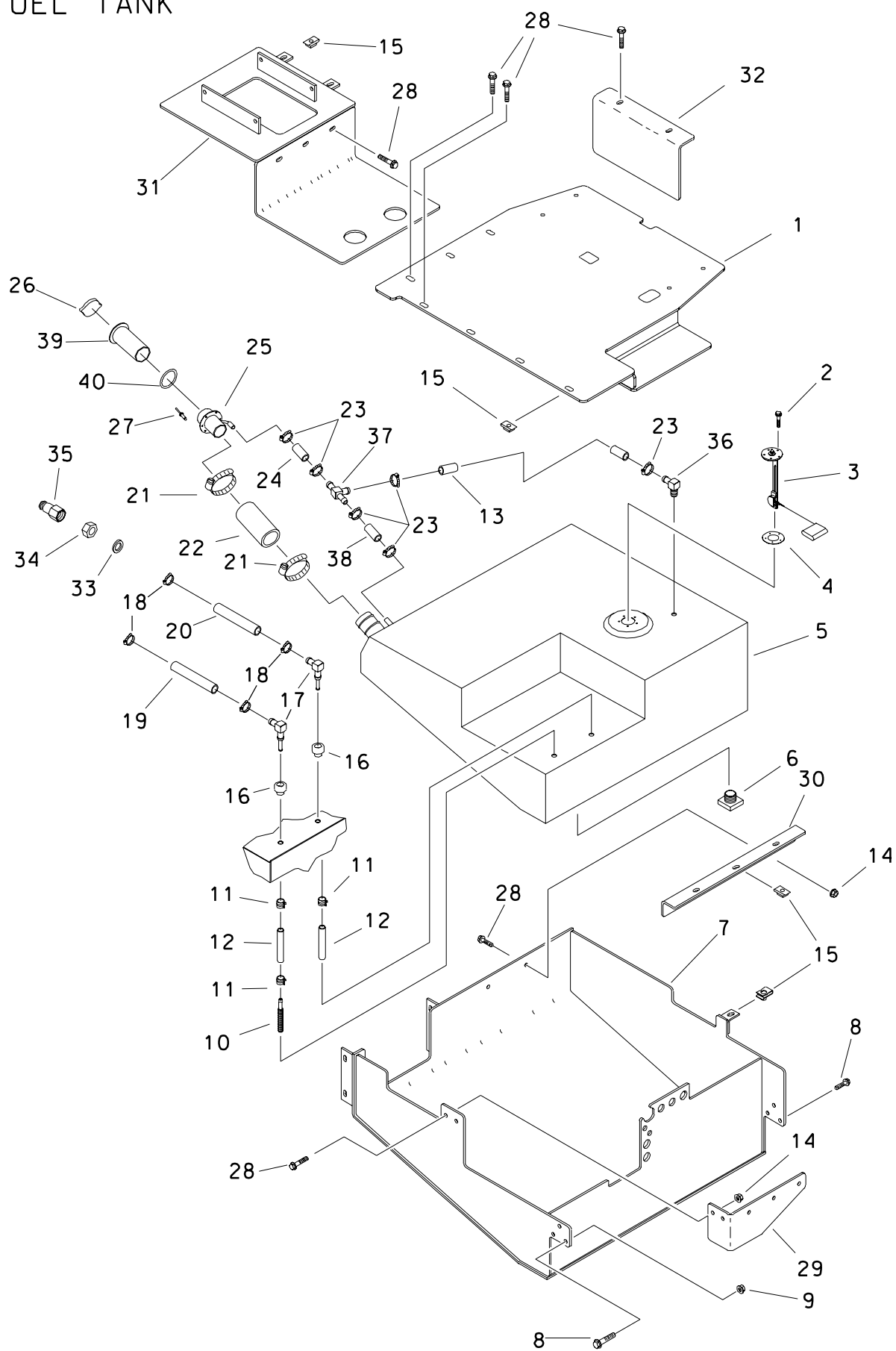


STABILIZER

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	348-540	2	STABILIZER ARM	
2.	356-710	2	TAPERED PIN (38.1MM X 124MM)	
3.	181-974	2	TAPERED INSERT (1.5")	
4.	106-470	6	FLG SCREW (M16-2.00 X 40MM)	
5.	357-019	2	STABILIZER PAD	
6.	183-862	2	PAD PIN	
7.	115-483	4	KLIP RING (1-1/4")	
8.	181-975	4	TAPERED INSERT (1.75")	
9.	179-242	4	TAPERED PIN (44.45MM X 196MM)	
10.	125-773	6	COMPOSITION BUSHING (1.75")	
11.	151-179	2	CYL (3" X 1.5" X 5")	
12.	125-772	2	COMPOSITION BUSHING (1.5")	

FOOTNOTES

FUEL TANK



FUEL TANK

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	309-701	1	LEFT FUEL TANK COVER	
2.	105-214	5	FLG SCREW (#10-24 X1/2")	
3.	217-568	1	FUEL SENDER	
4.	165-704	1	GASKET	
5.	348-827	1	FUEL TANK	
6.	115-153	1	PLUG (04N, SQ)	
7.	348-547	1	FUEL TANK HOLDER	
8.	106-632	6	FLG LK SCR (M12-1.75 X 35mm,SER)	
9.	106-709	6	FLG LOCKNUT (M12-1.75)	
10.	156-268	1	FUEL STRAINER (04H)	
	194-505	1	FUEL PICKUP (04H)	BEGINS WITH S/N
11.	110-563	3	SPRING CLAMP (3/8")	
12.	118-096	AR	BULK FUEL TUBING (1/4", PER FT)	USE 2 @ 2.5"
13.	116-322	AR	BULK HOSE (1/2", SOLD PER 1")	USE 1 @ 36"
14.	106-387	7	FLG LOCKNUT (M10-1.50)	
15.	106-558	8	CLIP NUT (M10-1.50)	
16.	116-325	2	GROMMET (.362")	SEE FOOTNOTE 1
17.	156-269	2	S/O COUPLER (04H-05H90)	SEE FOOTNOTE 1
18.	110-528	4	SNAP-ON CLAMP (.531" TO .593")	
19.	116-108	AR	BULK HOSE (5/16", SOLD PER 1")	USE 1 @ 60"
20.	116-108	AR	BULK HOSE (5/16", SOLD PER 1")	USE 1 @ 73"
21.	110-134	2	WORM CLAMP (2.06" TO 2.75")	
22.	116-818	1	FUEL HOSE (2" X 12.9")	
23.	110-217	6	WORM CLAMP (7/16" TO 1")	
24.	116-322	AR	BULK HOSE (1/2",SOLD PER 1")	USE 1 @ 9"
25.	364-080	1	FILLER NECK	
	364-659	1	FILLER NECK	BEGINS WITH S/N
26.	110-010	1	FUEL CAP (1-1/2")	
27.	110-253	6	PDP RIVET (3/16" X1/2")	
28.	106-383	15	FLG LK SCREW (M10-1.5 X 30mm)	
29.	348-599	1	SIDE MOUNT BRACKET	
30.	348-598	1	REAR MOUNT BRACKET	
31.	348-850	1	RIGHT FUEL TANK COVER	
32.	348-596	1	SIDE PLATE	
33.	156-276	1	FERRULE (05T)	
34.	156-277	1	COMPRESSION NUT (05T)	
35.	156-275	1	TUBE CONNECTOR (04H-05T)	
36.	156-108	1	S/O COUPLER (08N-08H90)	
37.	156-729	1	S/O TEE (08H-08H-08H)	
38.	116-322	AR	BULK HOSE (1/2",SOLD PER 1")	USE 1 @ 3"
39.	364-663	1	FILLER NECK SCREEN	BEGINS WITH S/N
40.	155-708	1	O-RING (218 D70)	BEGINS WITH S/N

FOOTNOTES

1. APPLY RED RTV SILICONE AROUND OUTSIDE CIRCUMFERENCE OF REF. 16 & 17 PRIOR TO INSTALLATION.

NOTES:

[illegible]

ANCHOR SYSTEMS



AUTO ANCHOR SYSTEM

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	348-315	2	ANCHOR PLATE	
2.	105-833	4	FLG LOCKNUT (1/2-NC)	
3.	105-256	4	CARRIAGE BOLT (1/2-NC X 3-1/2")	
4.	154-256	4	UNION (080-080FX90)	
5.	310-119	2	150MM AUGER	
-	310-120	2	100MM AUGER	
-	310-118	2	ANCHOR SHAFT BIT	
6.	105-828	4	FLG LK BOLT (1/2-NC X 3/4")	
7.	105-884	8	WASHER (.531")	
8.	179-228	2	CYL PIN (1")	
9.	305-643	2	CENTERING CAP	
10.	348-965	2	STOP TUBE	
11.	107-331	2	ROLL PIN	
12.	178-598	2	BAR, ANCHOR SHAFT	
13.	154-369	4	CONNECTOR (060-10S)	
14.	179-227	2	CYL PIN (1.25")	
15.	154-255	2	UNION (040-040FX90)	
16.	107-308	4	SCREW (M12-1.75 X 75MM)	
17.	105-052	2	BOLT (3/8-NC X 1-1/4")	SEE FOOTNOTE #1
18.	350-289	2	ANCHOR DRIVER	
19.	165-909	2	KEY (5/16" X 1-1/8")	
20.	106-574	4	CLIP NUT (M6-1.00)	
21.	106-379	4	FLG LK SCREW (M6-1.00 X 20MM)	
22.	350-375	2	COVER	
23.	158-700	2	HYD MOTOR	
	500-347	-	SEAL REPAIR KIT	
24.	106-707	4	SCREW (M12-1.75 X 45MM, SDC)	
25.	106-685	8	LOCKNUT (M12-1.75, PRV TRQ, 10.9)	
26.	350-282	2	ANCHOR MOTOR MOUNT	
27.	347-888	2	SPRING LOADED PIN	
28.	125-770	2	COMPOSITION BUSHING (1")	
29.	151-096	2	CYL (2" X 1" X 24")	
30.	125-771	2	COMPOSITION BUSHING (1.25")	
31.	154-252	4	CONNECTOR (04S-04090)	
32.	515-011	2	HOSE (040FX90-32"-3000)	
33.	515-085	2	HOSE (040FX90-8.5"-3000)	
34.	154-355	4	BK CONNECTOR (040-04090BK)	
35.	154-275	4	BK CONNECTOR (040-040BK)	
36.	106-796	4	SCREW (M4-.70 X 30MM)	
37.	350-301	2	CYL SLIDE TUBE	
38.	348-333	4	BUSHING	
39.	348-331	2	LEVER	
40.	115-601	2	EXTENSION SPRING (4.062")	
41.	105-831	4	FLG LK BOLT (1/2-NC X 1-1/2")	

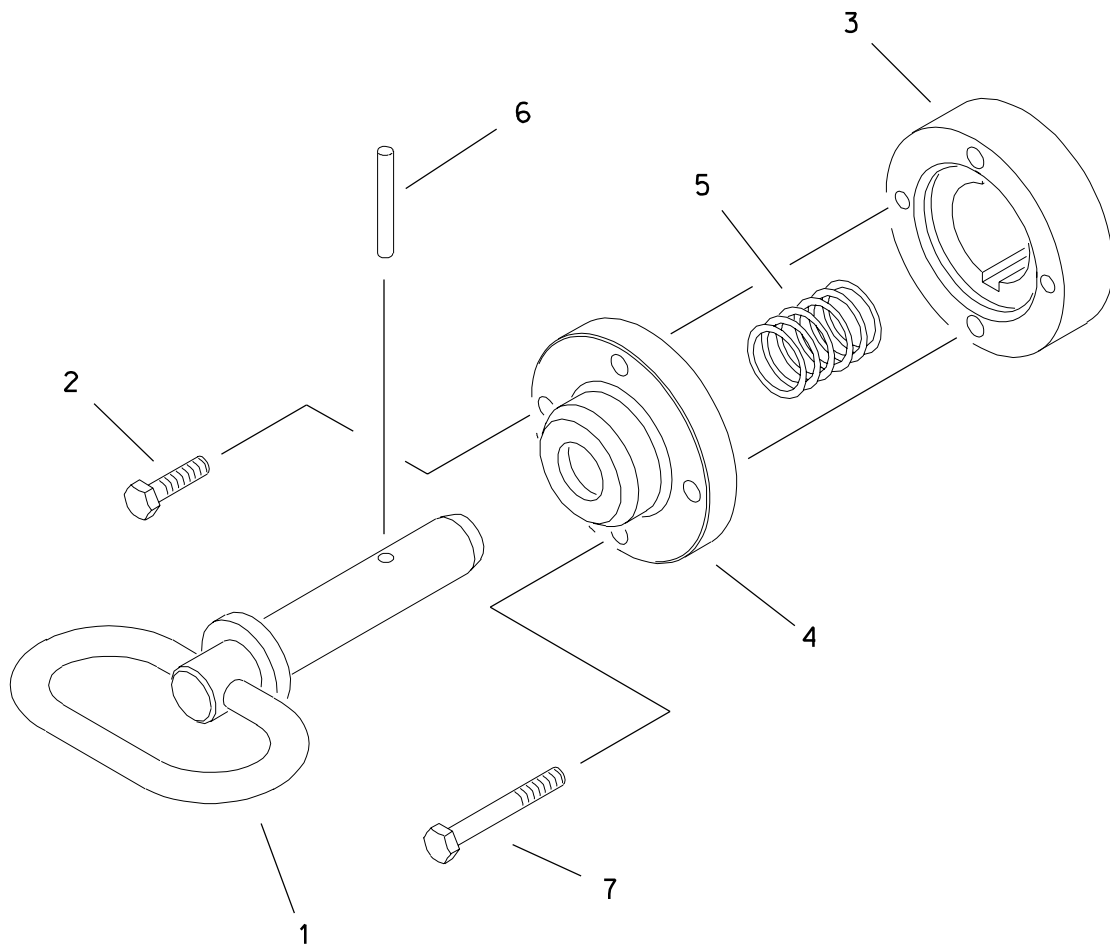
FOOTNOTES

1. 105-762 AND 106-685 MOUNTING HARDWARE OPTIONAL IN PLACE OF ROLL PIN

NOTE

1. REFER TO O-RING CHART (800-301) IN BACK OF THE BOOK FOR REPLACEMENT OF O-RINGS.

SPRING LOADED PIN



SPRING LOADED PIN

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	347-888		SPRING LOADED PIN	INCL REF NO'S 1 - 6. SEE FOOTNOTE 1.
1.	110-827	1	PULL PIN (1/2" X 1-1/2")	
2.	106-888	2	SCREW (M4-.70 X 16mm)	
3.	347-103	1	BODY	
4.	347-104	1	COVER	
5.	117-003	1	COMPRESSION SPRING	
6.	105-572	1	ROLL PIN (1/8" X 1")	
7.	106-796	2	SCREW (M4-.70 X 30mm)	

NOT SHOWN:
259-383 1 PIN PRY TOOL FOR PRYING LOOSE WEDGED PINS

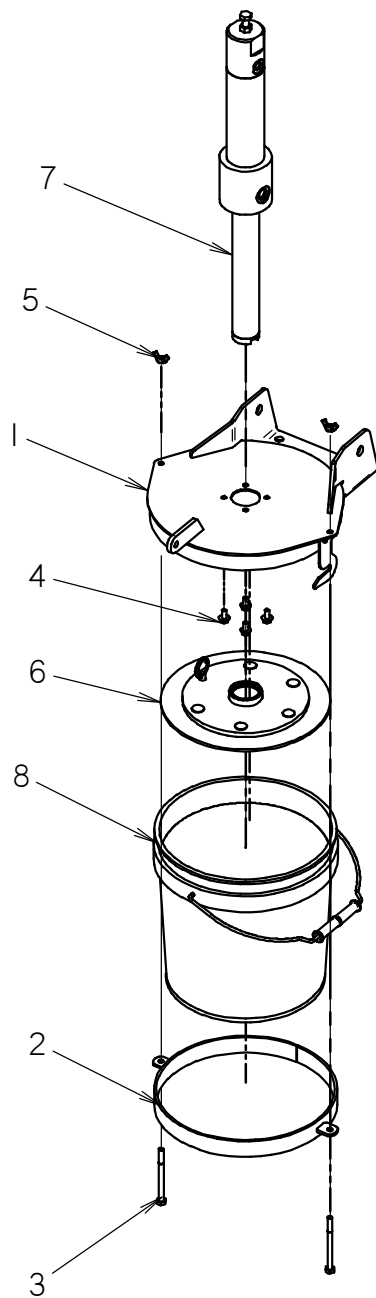
FOOTNOTES
1. A322/A522 ENDS WITH S/N

NOTES:

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LUBRICATOR

AUTO-LUBER ASSEMBLY



AUTO-LUBER ASSEMBLY

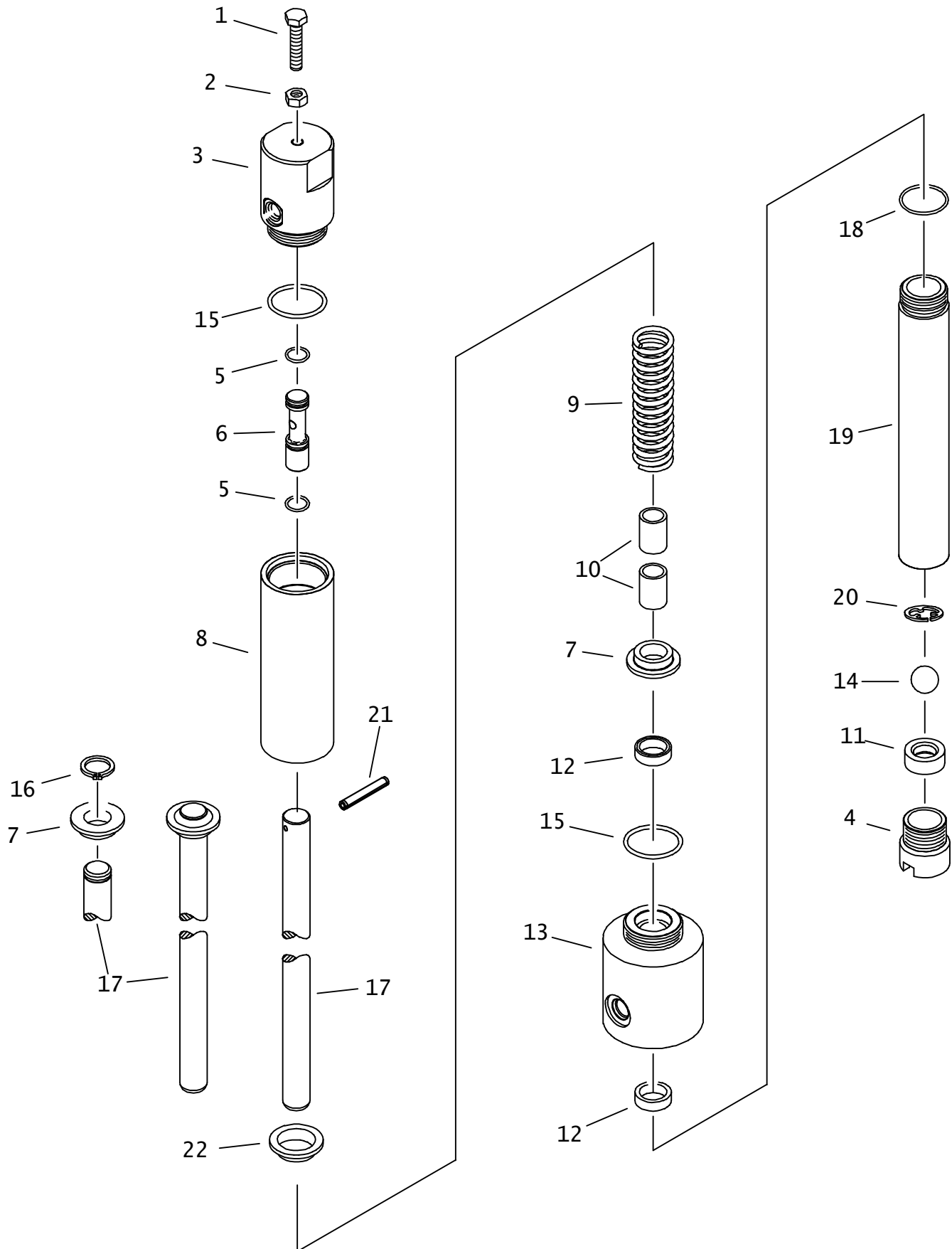
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1	350-400	1	COVER WELDMENT	
2	350-399	1	BASE	
3	105-297	2	BOLT (1/4-NC X 3-1/4")	
4	106-378	4	FLG LK SCREW (M6-1.00 X 12MM)	
5	195-339	2	WING NUT (1/4-NC)	
6	350-1932	1	TOOL JOINT LUBE FOLLOWER	
7	350-398	1	GREASE PUMP PARTS	
8	259-858	1	TOOL JNT LUBE, STD SPRY 2 GAL	
	256-031	-	TOOL JNT LUBE, SUMR SPRY 2 GAL	

NOT SHOWN:

FOOTNOTES:

NOTE:

GREASE PUMP



GREASE PUMP

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	350-398		GREASE PUMP PARTS	INCL REF NO'S 1-20
1.	107-492	1	SCREW (M8-1.25 X 35MM, ALL THD)	
2.	106-078	1	NUT (M8-1.25)	
3.	350-686	1	CYLINDER CAP	
4.	350-692	1	INLET TUBE	
5.	157-049	2	O-RING (113 D70)	
6.	350-421	1	ADJUSTING SPOOL	
7.	350-671	1	ROD GUIDE	SEE FOOTNOTE 2
8.	350-682	1	BARREL	
9.	117-228	1	COMPRESSION SPRING	
10.	125-424	2	BRONZE BUSHING (.750")	
11.	350-691	1	VALVE SEAT	SEE FOOTNOTE 1
12.	117-227	2	SEAL (POLY PAK)	
13.	350-687	1	PUMP BODY	
14.	125-125	1	DETENT BALL (.750")	
15.	155-702	2	O-RING (920 D90)	
16.	117-226	-	EXTERNAL SNAP RING (.750")	SEE FOOTNOTE 2
	115-545	-	EXTERNAL SNAP RING (.75")	
17.	350-689	-	PLUNGER	SEE FOOTNOTE 2
	308-603	-	PLUNGER	SEE FOOTNOTE 3
	166-280	1	PLUNGER	
18.	155-748	1	O-RING (916 D90)	
19.	350-693	1	PUMP BARREL	
20.	301-0196	1	RETAINER CLIP	SEE FOOTNOTE 4
21.	105-525	1	ROLL PIN (3/16" X 1/4")	SEE FOOTNOTE 3
22.	178-467	1	ROD CAP	SEE FOOTNOTE 3

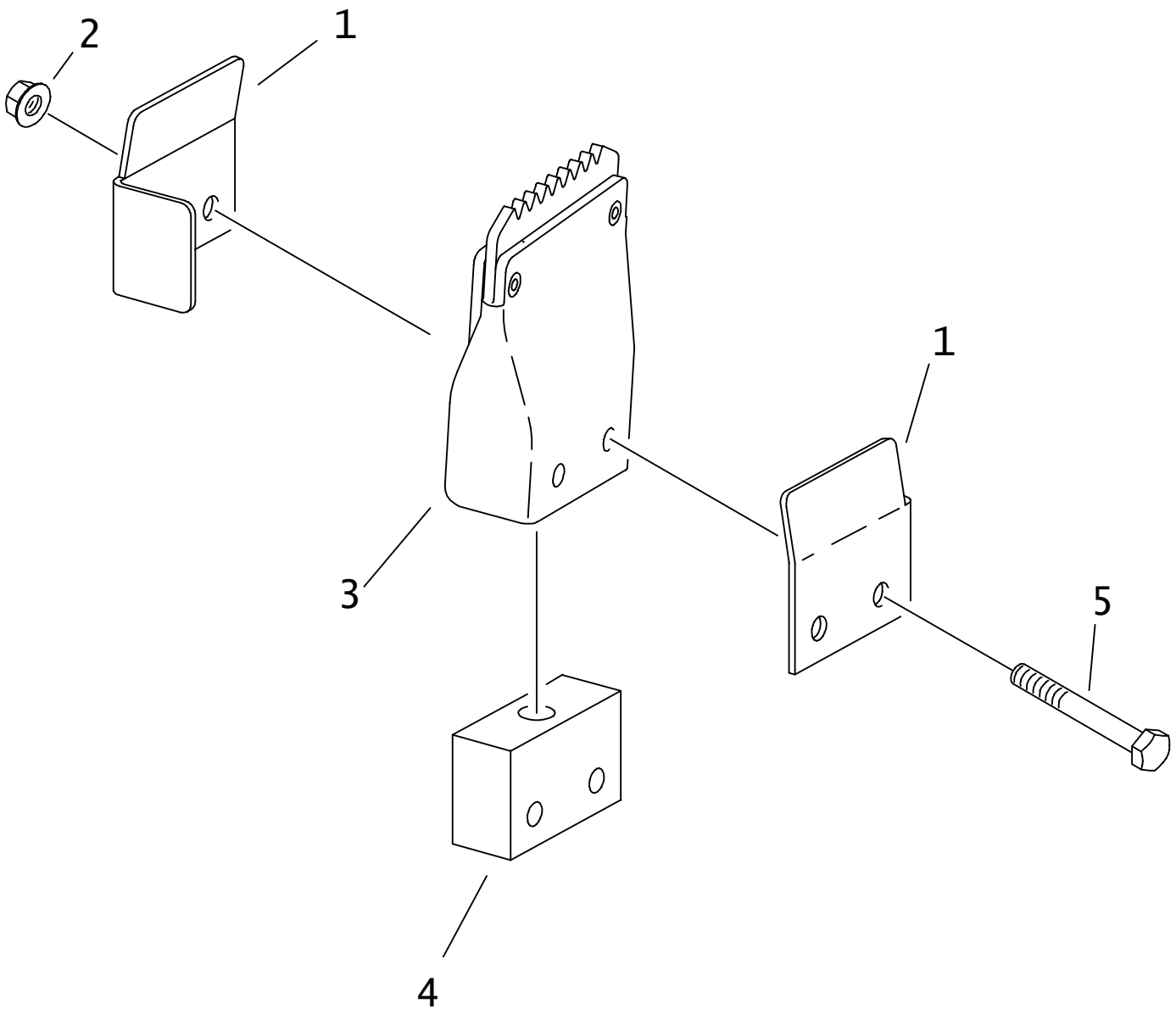
NOT SHOWN:

FOOTNOTES:

1. INSTALL WITH SMALLER BEVEL TOWARD INSIDE OF PUMP
2. 308-603 PLUNGER IS A DIRECT REPLACEMENT OF 350-689 PLUNGER, 117-226 RETAINER RING, AND AN ADDITIONAL 350-671 ROD GUIDE.
3. USE 166-280, 178-467 & 105-525 TO SUPERSEDE 308-603
4. RETAINER CLIP 301-0196 SUPERSEDES CLIP 105-653

NOTE:

APPLICATOR



APPLICATOR

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	305-911	2	BRACKET, APPLICATOR	
2.	106-385	2	FLG LOCKNUT (M6-1.00)	
3.	306-423	1	WIPER PARTS ASS'Y	
	116-937	1	APPLICATOR	
	107-394	4	WASHER (.375", ALUMINUM)	
	107-395	2	RIVET (.156 X .500) SEMI-TUBUL	
4.	305-912	1	BASE, APPLICATOR	
5.	106-093	2	SCREW (M6-1.00 X 45MM)	

NOT SHOWN:

FOOTNOTES:

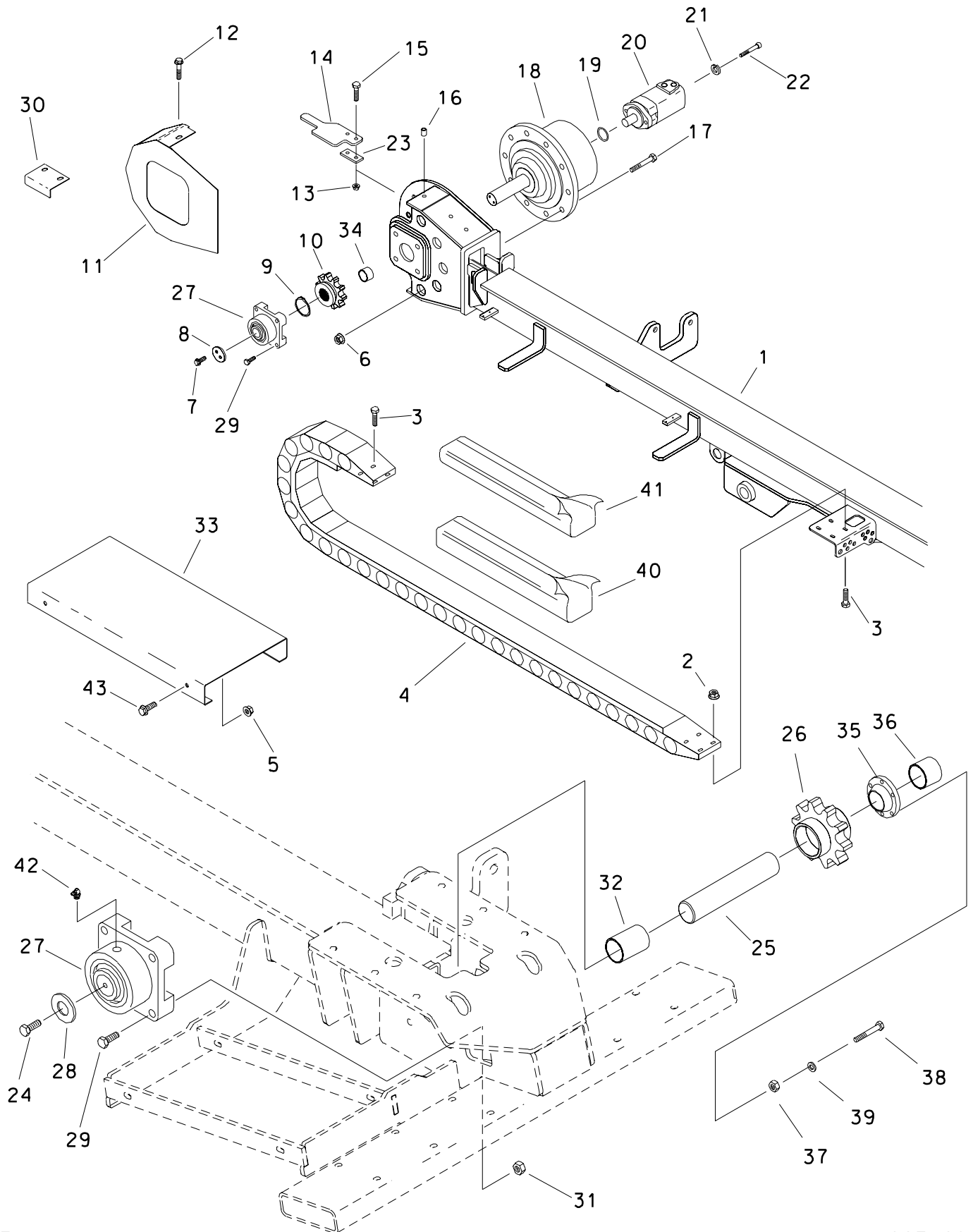
NOTE:

NOTES:

[illegible]

DRILL FRAME

DRILL FRAME

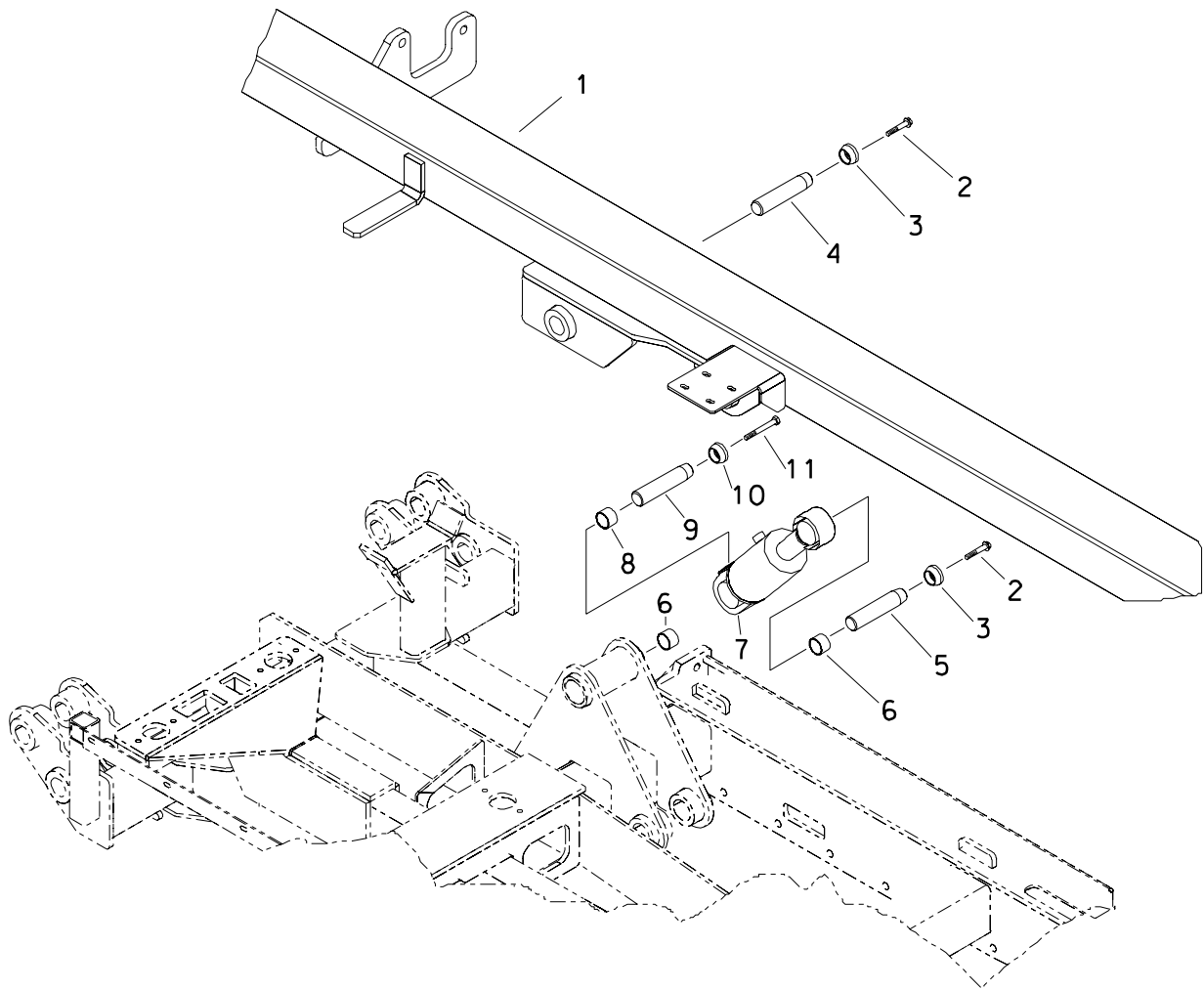


DRILL FRAME

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	303-957	1	DRILL FRAME	
2.	106-387	8	FLG LOCKNUT (M10-1.50)	
3.	105-245	8	SCREW (M10-1.50 X 25MM)	
4.	309-159	1	HOSE TRACK	
	117-450	-	HOSE TRACK REPAIR SECTION	
	305-589	-	MOUNTING BRACKET (LH)	
	305-590	-	MOUNTING BRACKET (RH)	
	305-591	-	ALUMINUM BAR (1/2" X 3.63")	
	348-974	-	EASY-OUT BAR (3-5/8")	
5.	106-386	4	FLG LOCKNUT (M8-1.25)	
6.	106-356	10	FLG NUT (M20-2.50, 10.9)	TORQUE TO 400 FT-LBS
7.	105-825	2	FLG LK BOLT (3/8-NC X 3/4")	USE LOCTITE 242
8.	358-315	1	WASHER (1/2")	
9.	115-457	1	EXTERNAL SNAP RING (2.500")	
10.	141-535	1	SPROCKET	
11.	310-124	1	PLANETARY COVER	
12.	106-382	6	FLG LK SCREW (M10-1.50 X 20MM)	
13.	106-709	2	FLG LOCKNUT (M12-1.75)	
14.	348-513	1	CHAIN GUIDE	
15.	106-333	2	SCREW (M12-1.75 X 40MM, 8.8)	
16.	106-550	6	NUTSERT (M10-1.50)	
17.	106-075	10	SCREW (M20-2.50 X 60MM, 10.9)	USE LOCTITE 242
18.	166-324	-	PLANETARY GEARBOX	
19.	157-099	1	O-RING (O42 D70)	
20.	155-598	1	HYD MOTOR (THRUST)	
21.	105-070	2	LOCK WASHER (1/2")	
22.	106-204	2	BOLT (1/2-NC X 1-1/2", SOC)	TORQUE TO 130 FT-LBS
23.	348-931	1	SPACER	
24.	106-338	2	SCREW (M16-2.00 X 30MM)	
25.	166-321	1	IDLER SHAFT	
26.	175-700	1	SPROCKET (140A11)	
27.	125-154	3	FLANGE BEARING (2.187")	
28.	105-964	2	WASHER (.5/8")	
29.	106-340	12	SCREW (M16-2.00 X 50MM)	
30.	348-839	2	COVER BRACKET	
31.	106-545	12	LOCKNUT (M16-2.0, PRV TRQ, 10.9)	
32.	178-575	1	LONG SPACER	
33.	348-695	1	FLOOR TREAD	
34.	178-576	1	SPROCKET SPACER	
35.	178-082	1	SPROCKET BUSHING (2.187", QT)	
36.	178-574	1	SHORT SPACER	
37.	105-047	3	LOCKNUT (3/8-NC)	
38.	105-667	3	SCREW (3/8-NC X 2-1/2", GD8)	
39.	105-072	3	LOCK WASHER (3/8")	
40.	117-440	1	LARGE HOSE BAG	
41.	117-628	1	HOSE BAG	
42.	115-002	3	ZERK (O2N90)	
43.	106-381	4	FLG LK SCREW (M8-1.25 X 25MM)	

FOOTNOTES

DRILL FRAME PIVOT

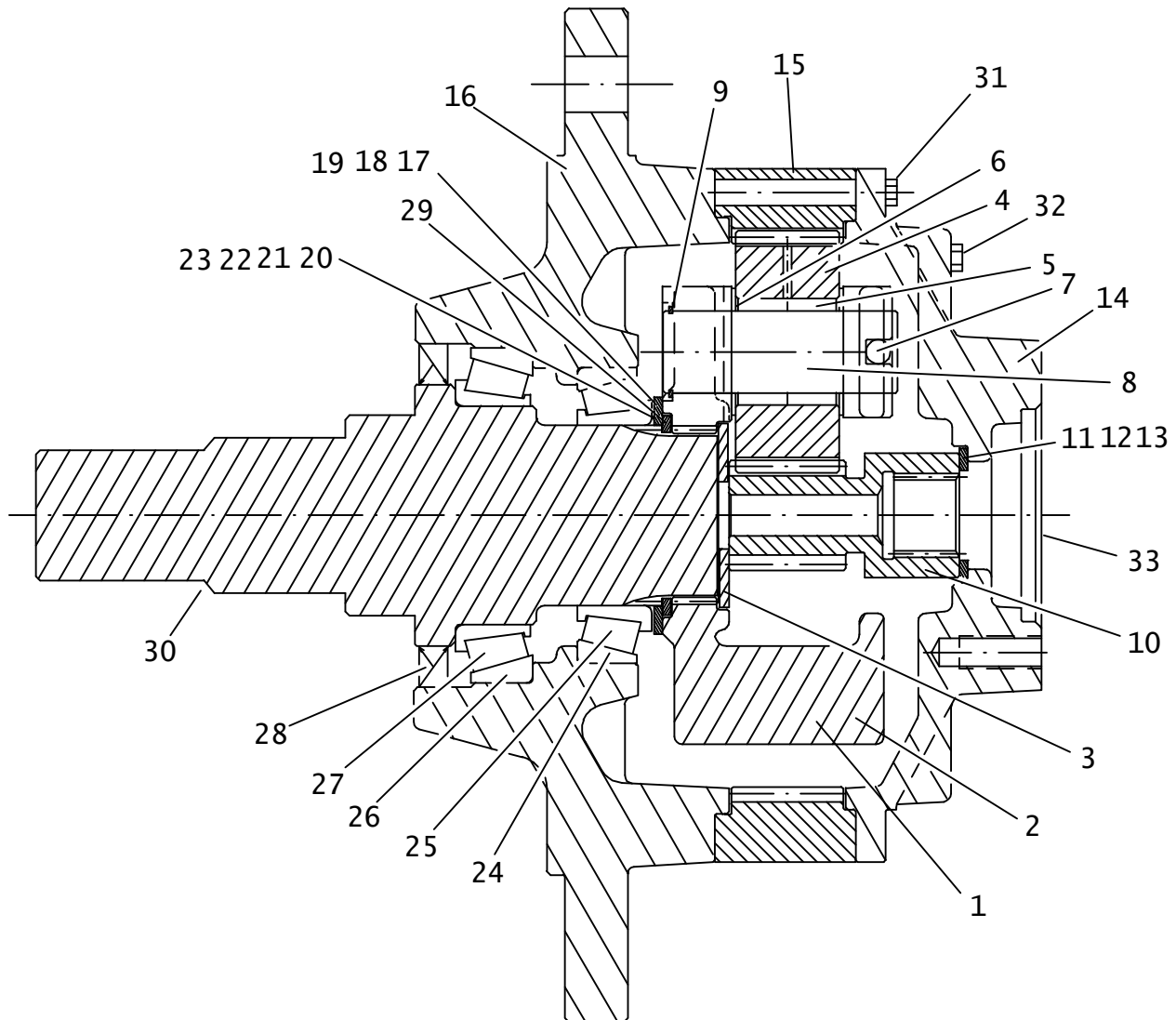


DRILL FRAME PIVOT

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	303-957	-	DRILL FRAME	
2.	106-470	2	FLG SCREW (M16-2.00 X 40MM)	
3.	181-975	2	TAPERED INSERT (1.75")	
4.	179-239	1	TAPERED PIN (44.4MM X 288MM)	
5.	183-917	1	TAPERED PIN (44.4MM X 152MM)	
6.	125-773	3	COMPOSITION BUSHING (1.75")	
7.	151-089	1	CYL (3.5" X 1.75" X 3")	
8.	125-754	1	COMPOSITION BUSHING (2")	
9.	183-919	1	TAPERED PIN (50.8MM X 190MM)	
10.	184-064	1	TAPERED INSERT (2")	
11.	106-344	1	SCREW (M20-2.50 X 40MM)	

FOOTNOTES

PLANETARY GEARBOX



PLANETARY GEARBOX

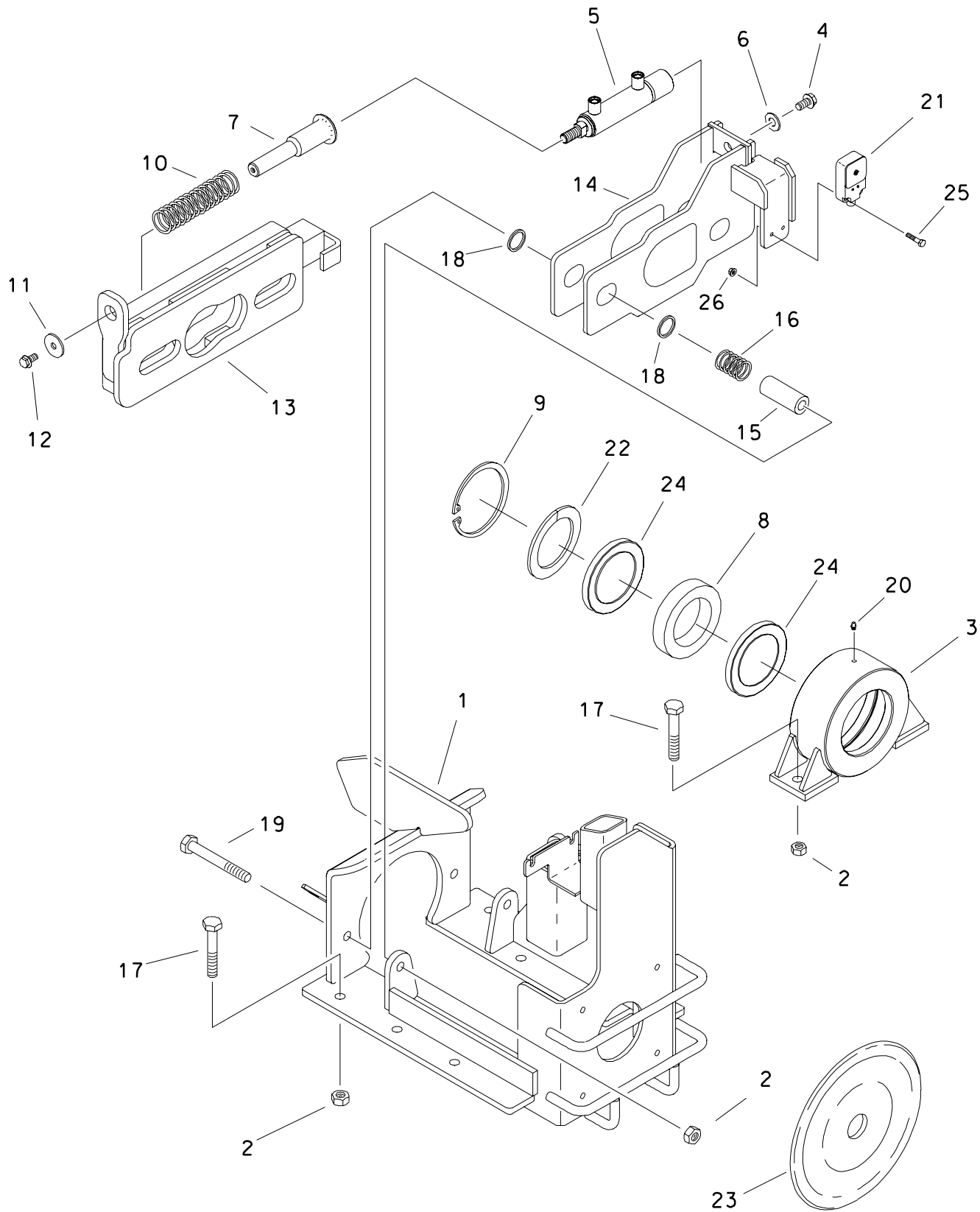
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	166-324	-	PLANETARY GEARBOX	INCL REF NO'S 1, 10 - 33
1.	309-717	1	CARRIER ASSEMBLY	INCL REF NO'S 2 - 9
2.	164-016	1	PLANETARY CARRIER	
3.	105-644	1	THRUST WASHER (1")	
4.	166-326	3	PLANET GEAR	
5.	126-030	6	NEEDLE BEARING (1.250")	
6.	126-017	3	BEARING RACE (1.250")	
7.	501-599	3	DETENT BALL (.375")	
8.	178-581	3	PLANET PIN	
9.	118-057	3	EXT SNAP RING (1.250")	
10.	166-325	1	SUN GEAR	
11.	125-384	1	BEARING RACE (1.375")	
12.	126-059	1	BEARING RACE (1.375")	
13.	126-010	1	BEARING RACE (1.375")	
14.	165-551	1	BACK COVER	
15.	166-323	1	RING GEAR	
16.	164-015	1	OUTPUT HOUSING	
17.	105-645	1	THRUST WASHER (2.750")	
18.	105-646	1	THRUST WASHER (2.750")	
19.	107-508	1	THRUST RACE (2.750")	
20.	166-190	1	SHIM (.002")	
21.	166-188	1	SHIM (.003")	
22.	166-186	1	SHIM (.007")	
23.	166-189	1	SHIM (.020")	
24.	125-156	1	BEARING CUP	
25.	125-155	1	BEARING (TAPERED ROLLER)	
26.	126-076	1	TAPERED RACE (5.118")	
27.	126-075	1	TAPERED BEARING (3.346")	
28.	116-859	1	INT SEAL (4.000")	
29.	118-056	1	EXTERNAL SNAP RING (2.756")	
30.	166-322	1	SHAFT	
31.	107-225	12	BOLT (3/8-NC X 3-3/4", GD8)	
32.	115-211	2	PLUG (08N, SQ, MAG)	
33.	115-153	1	PLUG (04N, SQ)	

NOT SHOWN:

FOOTNOTES:

NOTE:

FRONT WRENCH

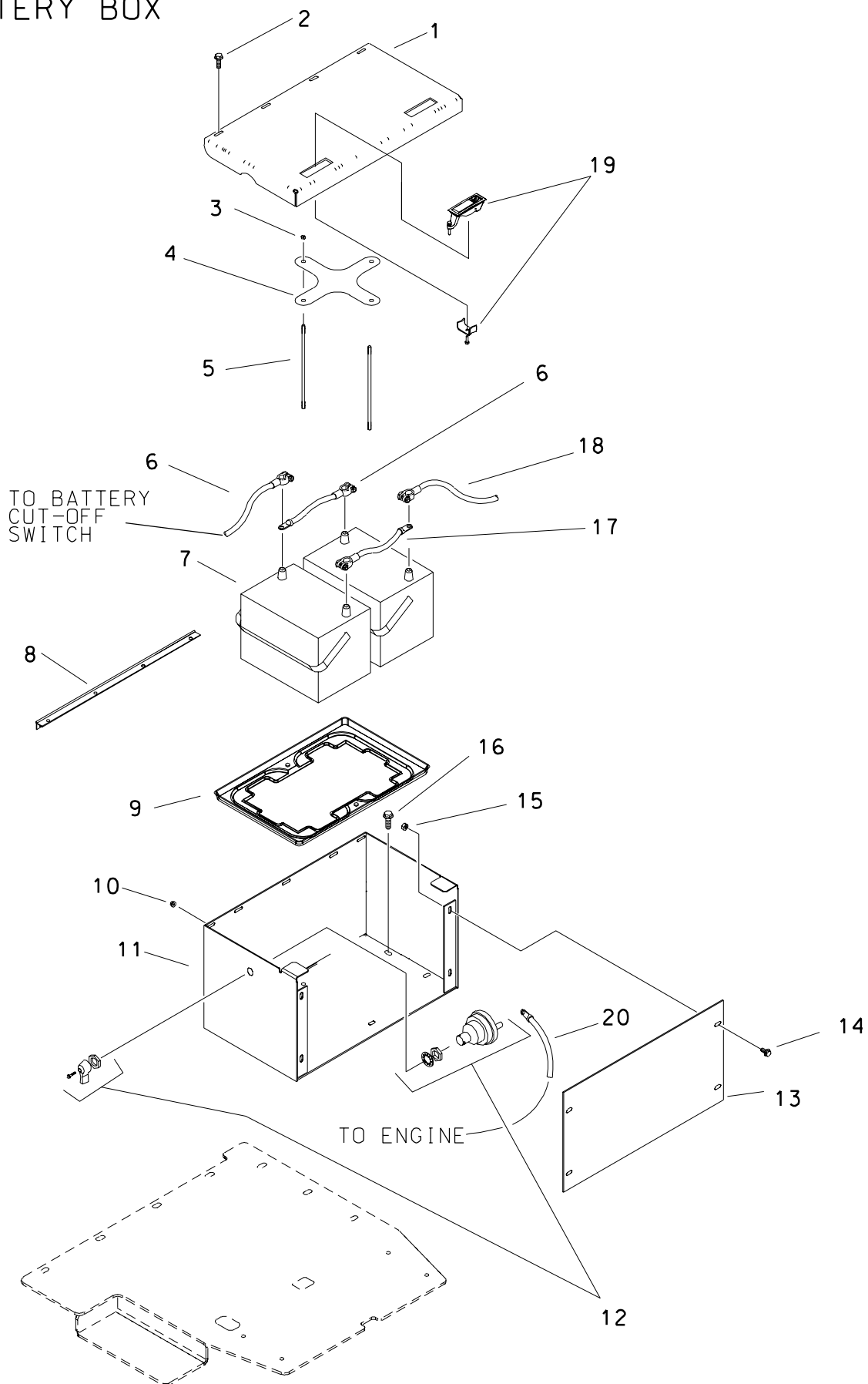


FRONT WRENCH

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	305-835	1	WRENCH MOUNT	
2.	106-685	10	LOCKNUT (M12-1.75, PRV TRQ, 10.9)	
3.	307-665	1	PIPE GUIDE	
4.	106-806	1	FLG LK SCREW (M12-1.75 X 25MM)	
5.	150-725	1	CYL (1" X 2.5")	
6.	106-397	1	WASHER (M12, HARDENED)	
7.	184-945	1	SPRING GUIDE	
8.	307-884	1	PIPE GUIDE BEARING	
9.	115-505	1	INTERNAL SNAP RING (5.118")	
10.	117-052	1	COMPRESSION SPRING	
11.	106-260	1	WASHER (3/8")	
12.	107-095	1	FLG SCREW (M8-1.25 X 16MM)	
13.	306-577	1	WRENCH PLATE	
14.	306-578	1	SLIDE PLATE	
15.	183-966	2	BUSHING (.53" X 1" X 3.6")	
16.	117-591	2	COMPRESSION SPRING	
17.	105-247	8	SCREW (M12-1.75 X 35MM)	
18.	110-078	4	MACHINERY BUSHING (1", 14GA)	
19.	106-618	2	SCREW (M12-1.75 X 130MM)	
20.	115-001	1	ZERK (O2N)	
21.	214-692	1	PROXIMITY SWITCH	
22.	107-453	1	RETAINER RING	
23.	116-485	1	ROD WIPER (1.750")	
24.	305-866	2	GUIDE BEARING	
25.	106-426	2	SCREW (M5-0.80 X 25MM, SOC)	
26.	106-850	2	LOCKNUT (M5-0.80)	

FOOTNOTES

BATTERY BOX



BATTERY BOX

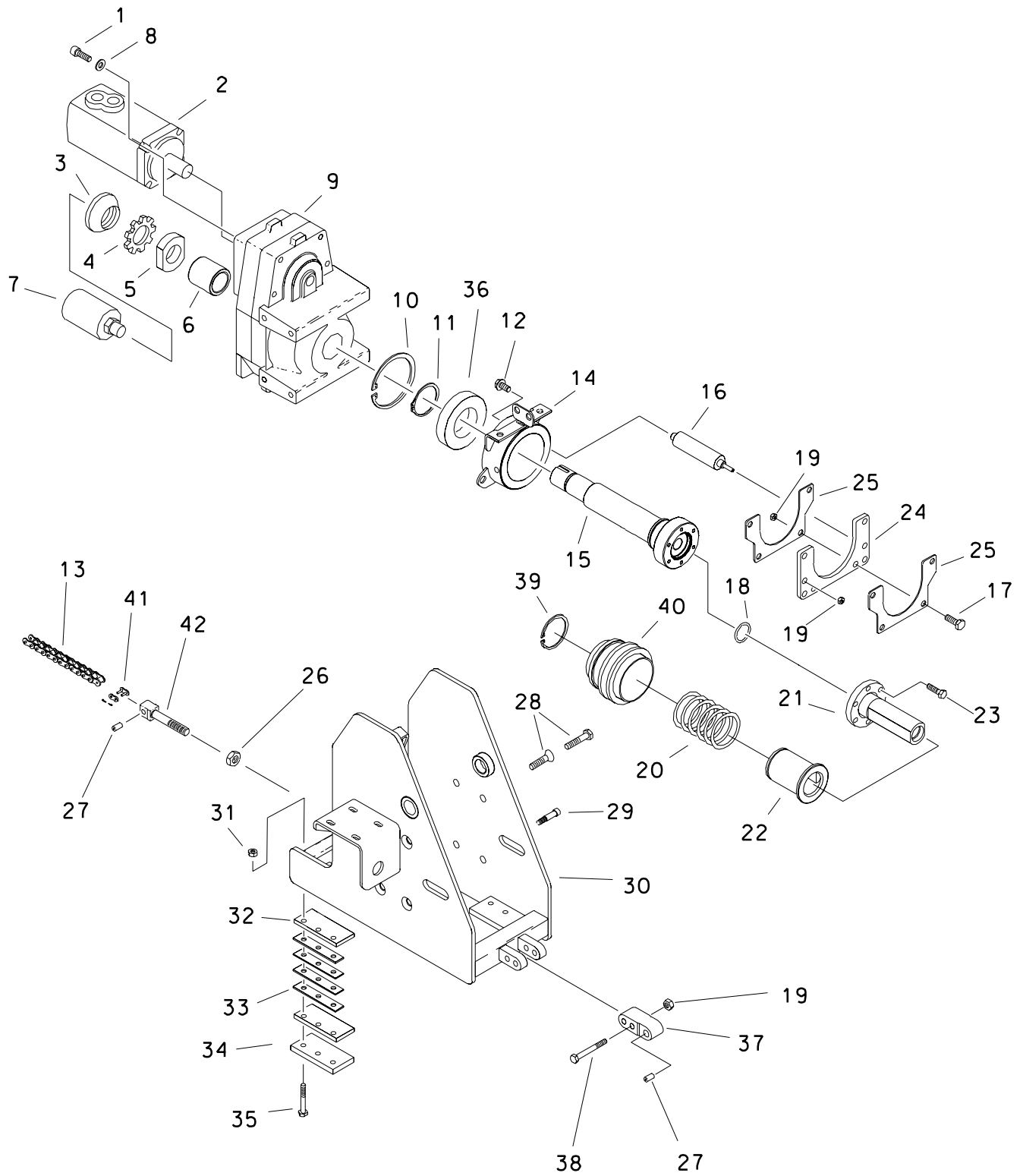
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	107-593	1	DOOR, BATTERY BOX	
2.	106-987	9	FLG LK SCREW (M6-1.00 X 16MM)	
3.	105-078	5	NUT (1/4" NC)	
4.	356-490	1	BATTERY PLATE	
5.	356-491	2	TIE-DOWN ROD (1/4-NC X 9.3")	
6.	215-350	2	BATTERY CABLE (2GA X 8" BLK)	
7.	215-244	2	BATTERY	
8.	110-582	1	HINGE (20.5")	
9.	362-784	1	BATTERY TRAY	
10.	106-385	9	FLG LK NUT (M6-1.00)	
11.	309-646	1	BATTERY BOX	
12.	217-819	1	BATTERY DISCONNECT SWITCH	
13.	310-206	1	PANEL	
14.	106-380	4	FLG LK SCREW (M8-1.25 X 16MM)	
15.	106-561	4	LOCKNUT (M8-1.25, PRV. TRQ., 10.9)	
16.	106-991	4	FLG LK SCREW (M8-1.25 X 20MM)	
17.	215-349	1	BATTERY CABLE (2GA X 8" RED)	
18.	214-774	1	POSITIVE BATTERY CABLE	
19.	117-558	2	ADJUST LEVER LATCH (LOCKING)	BEGINS WITH S/N: 2X0106
	214-961		KEY, PAIR (BASE CODE)	
	217-309		LOCK PLUG 4/LATCH (BASE CODE)	
	110-757	2	LEVER LATCH (ADJUST, LOCKING)	
20.	214-775	1	BATTERY CABLE (2GA X 95" BLK)	

FOOTNOTES

NOTE:

REFER TO O-RING CHART (800-301) IN BACK OF THE BOOK FOR REPLACEMENT OF O-RINGS.

CARRIAGE



CARRIAGE

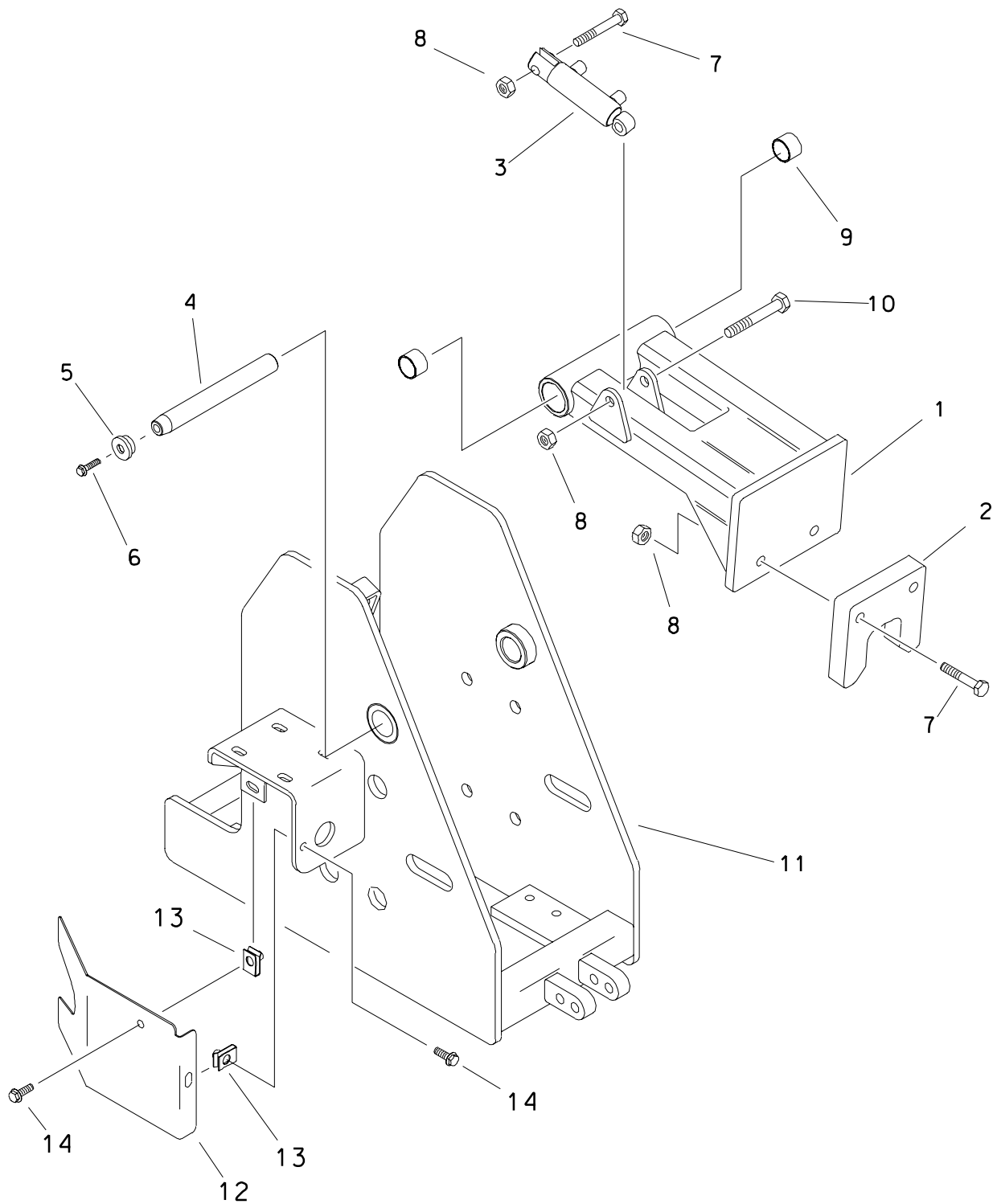
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	106-707	4	SCREW (M12-1.75 X 45MM, SOC)	
2.	158-945	1	HYD MOTOR	
3.	185-067	1	THRUST LOCKNUT (1.767-NF-18)	
4.	185-074	1	TANG LOCK WASHER (1.792")	
5.	106-865	1	NUT (3.25")	
6.	184-749	1	SPACER	
7.	153-242	1	WATER SWIVEL (12NF-12NF)	
8.	106-397	4	WASHER (M12, HARDENED)	
9.	166-116	1	GEAR BOX (1.78:1, ROTATION)	
10.	115-534	1	INTERNAL SNAP RING (5.485")	
11.	118-033	1	EXTERNAL SNAP RING (2.5")	
12.	106-806	2	FLG LK SCREW (M12-1.75 X 25MM)	
13.	129-008	1	ROLLER CHAIN (#140, 193 PITCH)	
14.	343-192	1	BEARING HOUSING	
15.	347-605	1	SLIDING SPINDLE SHAFT	
16.	150-724	2	CYL, (1" X 2")	
17.	105-273	4	SCREW (M12-1.75 X 30MM)	
18.	157-019	1	O-RING (139 D90)	
19.	106-031	8	LOCKNUT (M12-1.75, NLK)	
20.	117-246	1	COMPRESSION SPRING	
21.	301-892	1	SAVER SUB (1.81-6 FM_DS)	
22.	149-274	1	WRENCH COLLAR	
23.	106-081	6	SCREW (M10-1.5 X 35MM, 12.9)	USE 242 LOCTITE TORQUE TO 55 FT. LBS
24.	303-806	1	PUSH PLATE	
25.	303-802	2	WEAR PAD	
26.	106-825	2	JAM NUT (M24-3.0)	
27.	130-601	2	ROLLER BUSHING (#140)	
28.	107-045	8	SCREW (M16-2.00 X 35MM, 10.9)	S/N 2Z1023 AND LATER
	105-998	8	SCREW (M16-2.00 X 40MM)	ENDS S/N 2Z1022
29.	107-043	2	SHLD BOLT (M12 X 35MM, M10-1.50)	
30.	309-442	1	CARRIAGE	
31.	105-894	12	LOCKNUT (M10-1.5, PRV TRQ, 10.9)	
32.	343-046	8	SLIDE	
33.	343-047	16	SPACER	
34.	343-038	4	CLAMP PLATE	
35.	106-332	12	SCREW (M10-1.5 X 70MM)	
36.	125-117	1	BALL BEARING	
37.	309-678	1	THRUST CHAIN CONNECTOR	
38.	106-336	2	SCREW (M12-1.75 X 90MM)	
39.	115-529	1	EXTERNAL SNAP RING (3.543")	
40.	303-805	1	SLEEVE	
41.	130-602	2	CONNECTOR LINK (#140)	
42.	309-575	1	CHAIN ADJUSTER	

FOOTNOTES

NOTE

REFER TO O-RING CHART (800-301) IN BACK OF THE BOOK FOR REPLACEMENT OF O-RINGS.

BACKUP WRENCH

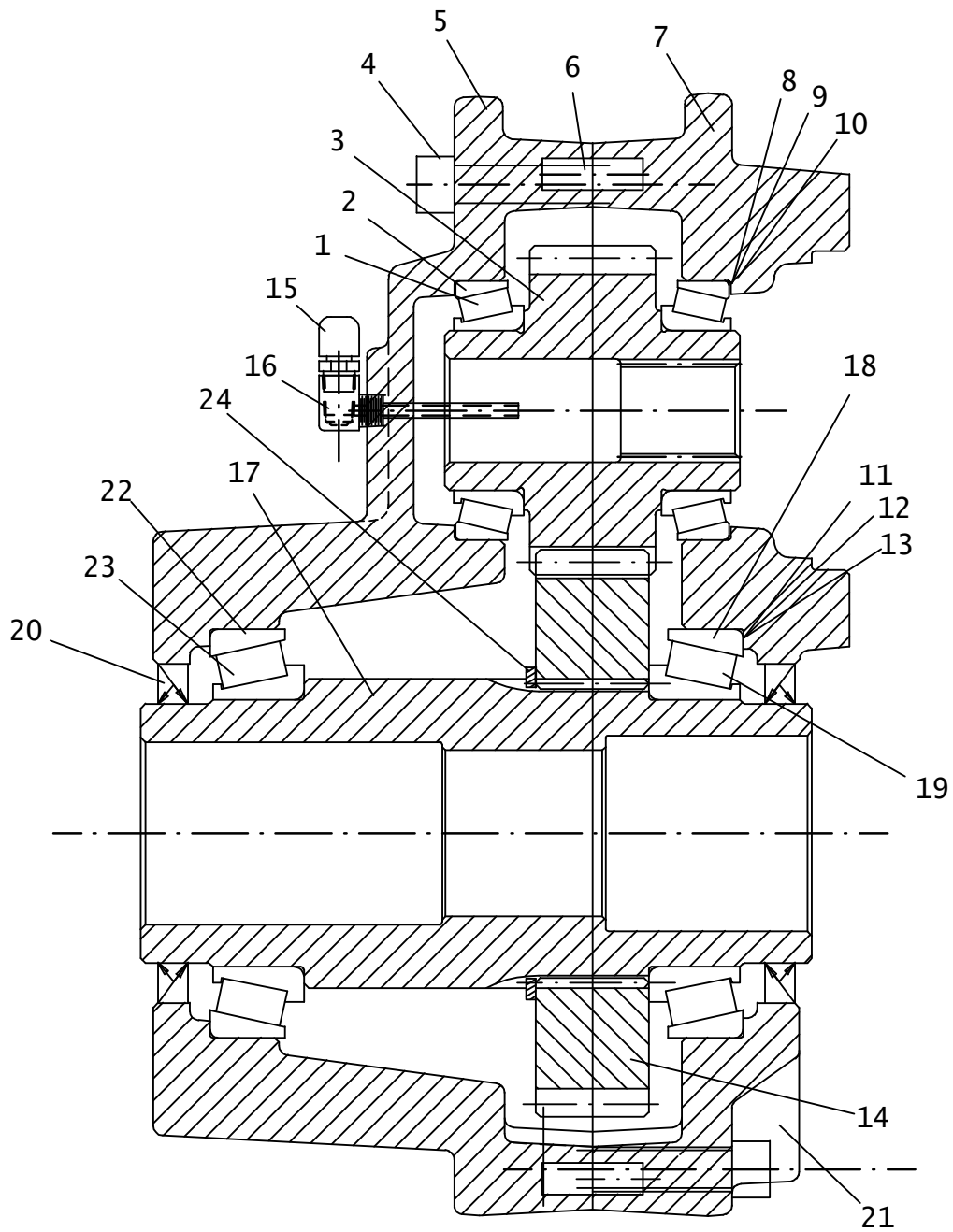


BACKUP WRENCH

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	348-700	1	BACKUP WRENCH	
2.	348-701	1	BACKUP WRENCH	
3.	150-723	1	CYL (1" X 2") W/EYE	
4.	178-075	1	TAPERED PIN (31.7MM X 240MM)	
5.	181-982	1	TAPERED INSERT (1.25")	
6.	106-806	1	FLG LK SCREW (M12-1.75 X 25MM)	
7.	106-659	3	SCREW (M12-1.75 X 55MM)	
8.	106-685	4	LOCKNUT (M12-1.75, PRV TRQ, 10.9)	
9.	125-771	2	COMPOSITION BUSHING (1.25")	
10.	106-700	1	SCREW (M12-1.75 X 80MM)	
11.	309-442	-	CARRIAGE	
12.	314-588	1	COVER	
13.	106-551	2	CLIP NUT (M8-1.25)	
14.	106-162	2	FLG SCREW (M8-1.25 X 20MM)	

FOOTNOTES

ROTATION GEARBOX



ROTATION GEARBOX

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	166-116		GEARBOX (1.78:1 ROTATION)	INCL REF NO.'S 1 - 24
1.	126-100	2	TAPERED BEARING (2")	
2.	126-099	2	TAPERED RACE (3.25")	
3.	168-046	1	INPUT PINION	
4.	106-771	10	SCREW (M12-1.75 X 60MM, SOC)	
5.	162-027	1	GEARBOX HOUSING	
6.	106-866	2	DOWEL PIN (M10 X 30MM)	
7.	162-004	1	GEARBOX COVER	
8.	165-800	5	SHIM (.002")	
9.	165-801	5	SHIM (.003")	
10.	165-802	5	SHIM (.007")	
11.	165-829	5	SHIM (.002")	
12.	165-830	5	SHIM (.003")	
13.	165-828	5	SHIM (.007")	
14.	160-1102	1	OUTPUT GEAR	
15.	159-003	1	AIR VENT (02N)	
16.	514-123	1	PICKUP TUBE (02N-02NF90-2")	
17.	162-026	1	OUTPUT SHAFT	
18.	126-076	1	TAPERED RACE (5.118")	
19.	126-075	1	TAPERED BEARING (3.346")	
20.	155-869	2	INTERNAL SEAL (3.250")	
21.	115-211	2	PLUG (08N,SQ, MAG)	
22.	126-157	1	TAPERED RACE (130MM)	
23.	126-156	1	TAPERED BEARING (80MM)	
24.	115-896	1	EXTERNAL SNAP RING (3.875")	

NOT SHOWN:

FOOTNOTES:

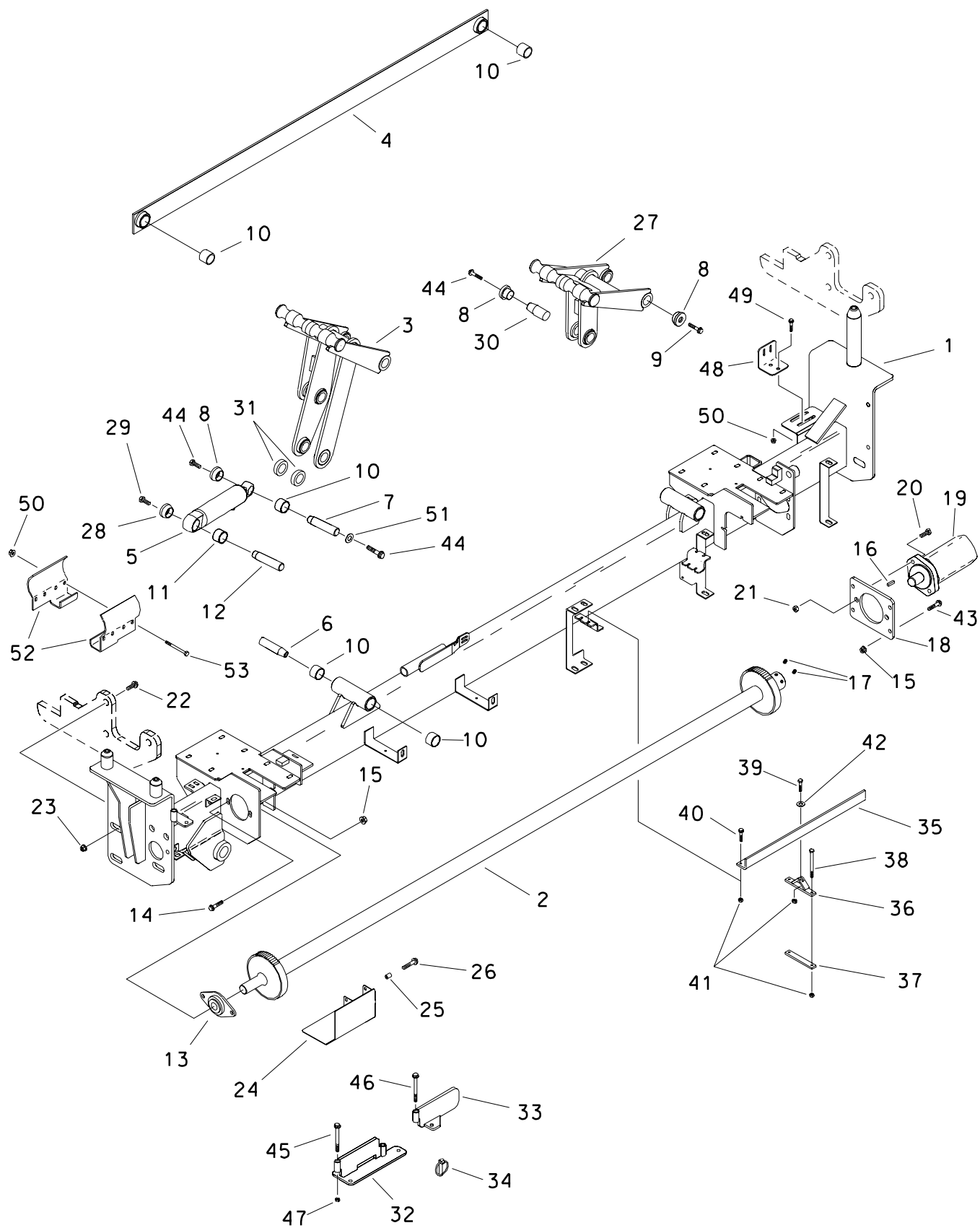
NOTE:

NOTES:

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PIPE LOADER SYSTEMS

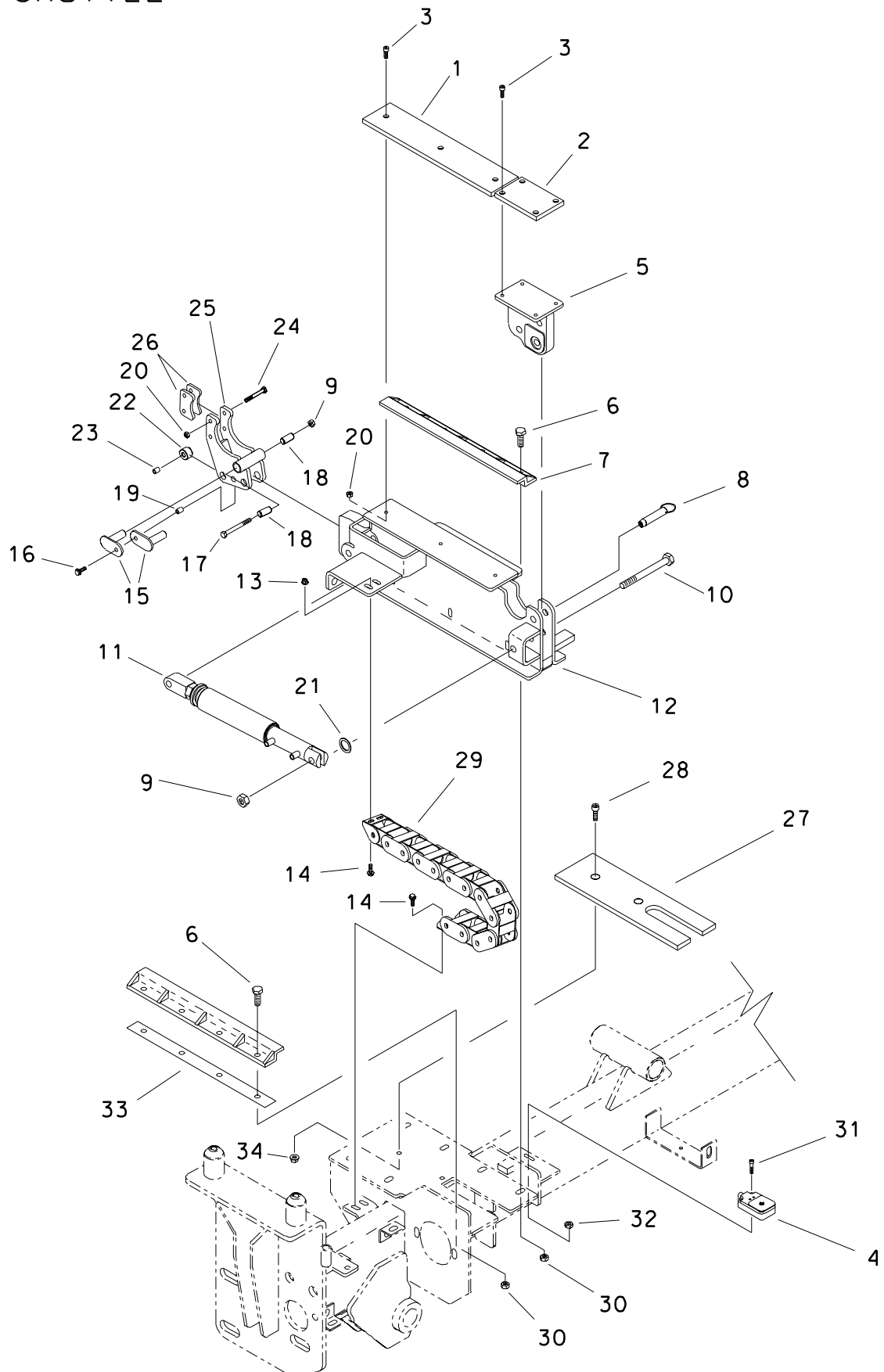
PIPE LOADER MOUNT



PIPE LOADER MOUNT

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	305-600	1	PIPE LOADER FRAME	
2.	167-335	1	PINION SHAFT	
3.	305-778	1	FRONT LIFT ARM	
4.	305-779	1	LINKAGE BAR	
5.	151-045	1	CYL (2.5" X 1.25" X 8")	
6.	179-147	2	TAPERED PIN (31.7MM X 200MM)	
7.	178-394	1	TAPERED PIN (1.250" X 4.250")	
8.	181-982	5	TAPERED INSERT (1.250")	
9.	106-632	2	FLG LK SCREW (M12-1.75 X 35MM, SER)	
10.	125-771	7	COMPOSITION BUSHING (1.25")	
11.	125-772	1	COMPOSITION BUSHING (1.5")	
12.	356-710	1	TAPERED PIN (38.1 X 124MM)	
13.	125-605	1	FLANGE BEARING (1.25", 2-BLT)	
14.	106-383	2	FLG LK SCREW (M10-1.50 X 30MM)	
15.	106-387	6	FLG LOCKNUT (M10-1.50)	
16.	165-916	1	KEY (5/16" X 1-3/4")	USE LOCTITE 277
17.	106-638	2	SET SCREW (M10-1.50 X 12MM)	
18.	348-787	1	MOTOR MOUNT	
19.	158-733	1	HYDRAULIC MOTOR	
	500-347		SEAL REPAIR KIT	
20.	106-333	2	SCREW (M12-1.75 X 40MM, 8.8)	
21.	106-685	2	LOCKNUT (M12-1.75, PRV TRQ, 10.9)	
22.	106-831	6	FLG SCREW (M20-2.50 X 60MM, 10.9)	
23.	106-356	6	FLG NUT (M20-2.50, 10.9)	
24.	348-923	2	GEAR COVER	
25.	106-670	4	NUTSERT (M6-1.00)	
26.	106-378	4	FLG LK SCREW (M6-1.00 X 12MM)	
27.	305-777	1	BACK LIFT ARM	
28.	181-974	1	TAPERED INSERT (1.5")	
29.	106-470	1	FLG SCREW (M16-2.00 X 40MM)	
30.	183-587	2	TAPERED PIN (1.250" X 3.000")	
31.	178-342	2	SPACER	
32.	366-004	1	GUIDE	
33.	366-003	1	GUIDE EXTENSION	
34.	110-228	2	LYNCH PIN (7/16" X 2")	
35.	178-691	1	HANGER SUPPORT	
36.	310-559	1	HANGER	
37.	178-693	1	SUPPORT BAR	
38.	106-511	2	SCREW (M6-1.00 X 120MM)	
39.	502-651	1	SCREW (M6-1.00 X 35MM)	
40.	106-988	2	FLG LK SCREW (M6-1.00 X 20MM)	
41.	106-237	5	LOCKNUT (M6-1.00, PRV TRQ, NLK)	
42.	106-388	1	WASHER (M6)	
43.	107-002	4	FLG LK SCREW (M10-1.50 X 30MM)	
44.	105-830	4	FLG LK BOLT (1/2-NC X 1-1/4")	
45.	105-278	1	BOLT (1/2-NC X 3-1/2", SOC)	
46.	106-203	1	BOLT (1/2-NC X 4", SOC, GD8)	
47.	106-301	2	LOCKNUT (1/2-NC, NLK)	
48.	306-926	1	LUBE APPLICATOR BRACKET	
49.	106-162	2	FLG SCREW (M8-1.25 X 20MM)	
50.	106-386	6	FLG LOCKNUT (M8-1.25)	
51.	105-884	1	WASHER (.531")	
52.	322-360	2	FITTING GUARD (3.0" CYL)	
53.	106-570	4	SCREW (M8-1.25 X 60MM)	

FRONT SHUTTLE



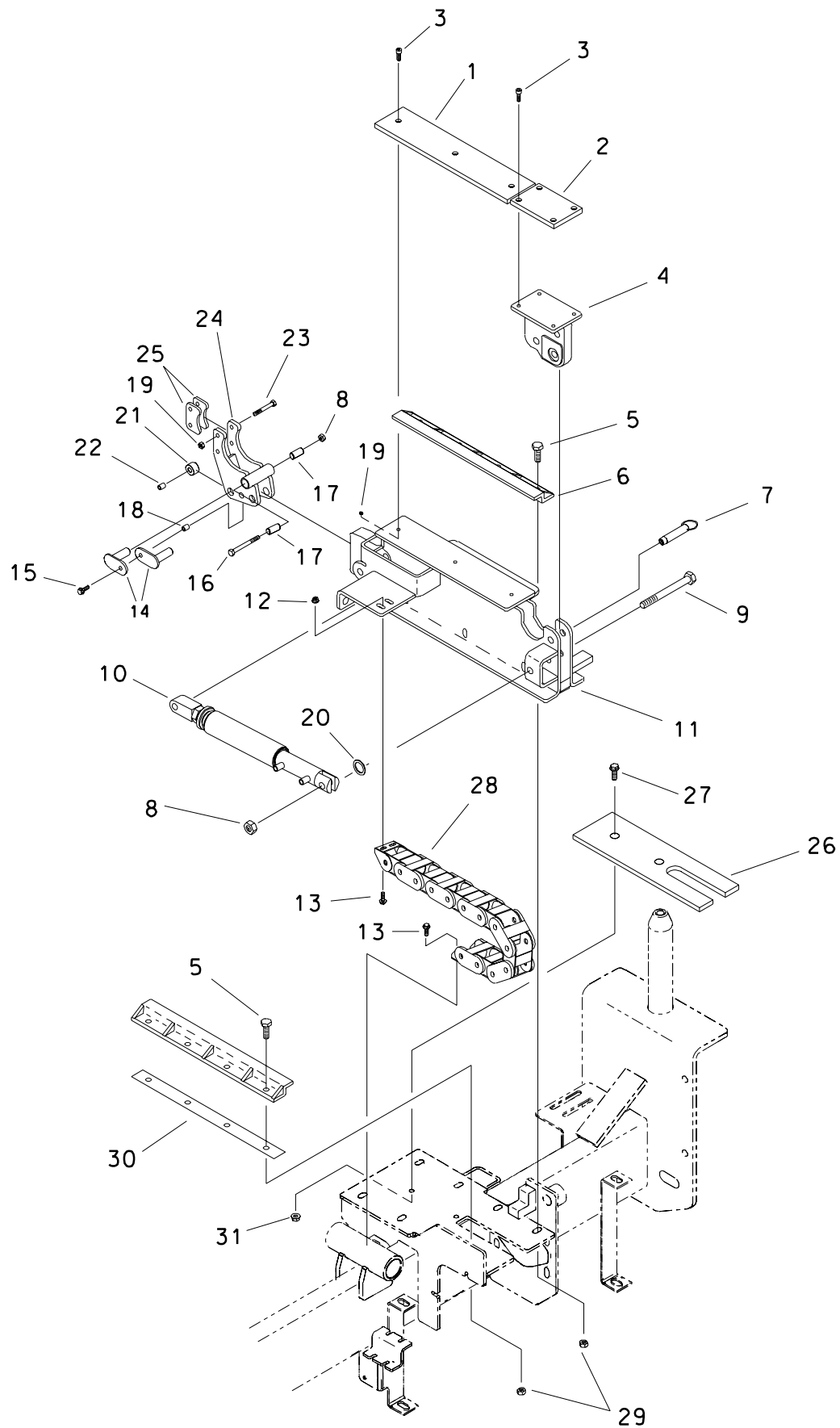
FRONT SHUTTLE

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	305-907	1	WEAR PAD	
2.	305-908	1	WEAR PAD	
3.	106-640	7	SCREW (M6-1.00 X 20MM, BUT SOC)	
4.	214-692	1	PROXIMITY SWITCH	
5.	305-906	1	SWIVEL BODY	
6.	105-245	8	SCREW (M10-1.50 X 25MM)	
7.	375-376	2	SHUTTLE CLAMP	
8.	183-411	1	PULL PIN (1/2" X 2")	
9.	106-301	2	LOCKNUT (1/2-NC, NLK)	
10.	105-111	1	BOLT (1/2-NC X 4")	
11.	191-161	-	GRIPPER CYLINDER	SEE FOOTNOTE 1.
12.	309-694	1	LOWER SHUTTLE	
13.	106-385	4	FLG LOCKNUT (M6-1.00)	
14.	106-161	4	FLG SCREW (M6-1.00 X 20MM)	
15.	309-440	2	PIN	
16.	106-379	1	FLG LK SCREW (M6-1.00 X 20MM)	
17.	105-110	1	BOLT (1/2-NC X 4-1/2")	
18.	125-469	2	COMPOSITION BUSHING (.500")	
19.	106-670	1	NUTSERT (M6-1.00)	
20.	106-237	9	LOCKNUT (M6-1.00, PRV TRQ, NLK)	
21.	105-244	1	WASHER (1/2")	
22.	178-560	1	ROLLER	
23.	125-430	1	BRONZE BUSHING (.502")	
24.	106-093	2	SCREW (M6-1.00 X 45MM)	
25.	309-449	1	GRIPPER	
26.	309-451	2	GRIPPER PAD	
27.	117-791	1	BEARING PLATE	
28.	106-916	2	SCREW (M8-1.25 X 25MM, SOC)	
29.	309-465	1	HOSE TRACK	
30.	105-894	8	LOCKNUT (M10-1.50, PRV TRQ, 10.9)	
31.	106-408	2	BOLT (#10-24 X 1-1/4", SOC, GD8)	
32.	106-048	2	LOCKNUT (#10-24)	
33.	117-385	2	SHIM	
34.	106-386	2	FLG LOCKNUT (M8-1.25)	

FOOTNOTES

1. SEE PARTS PAGE FOR GRIPPER CYLINDER AT END OF THIS SECTION FOR PARTS BREAKDOWN.

BACK SHUTTLE



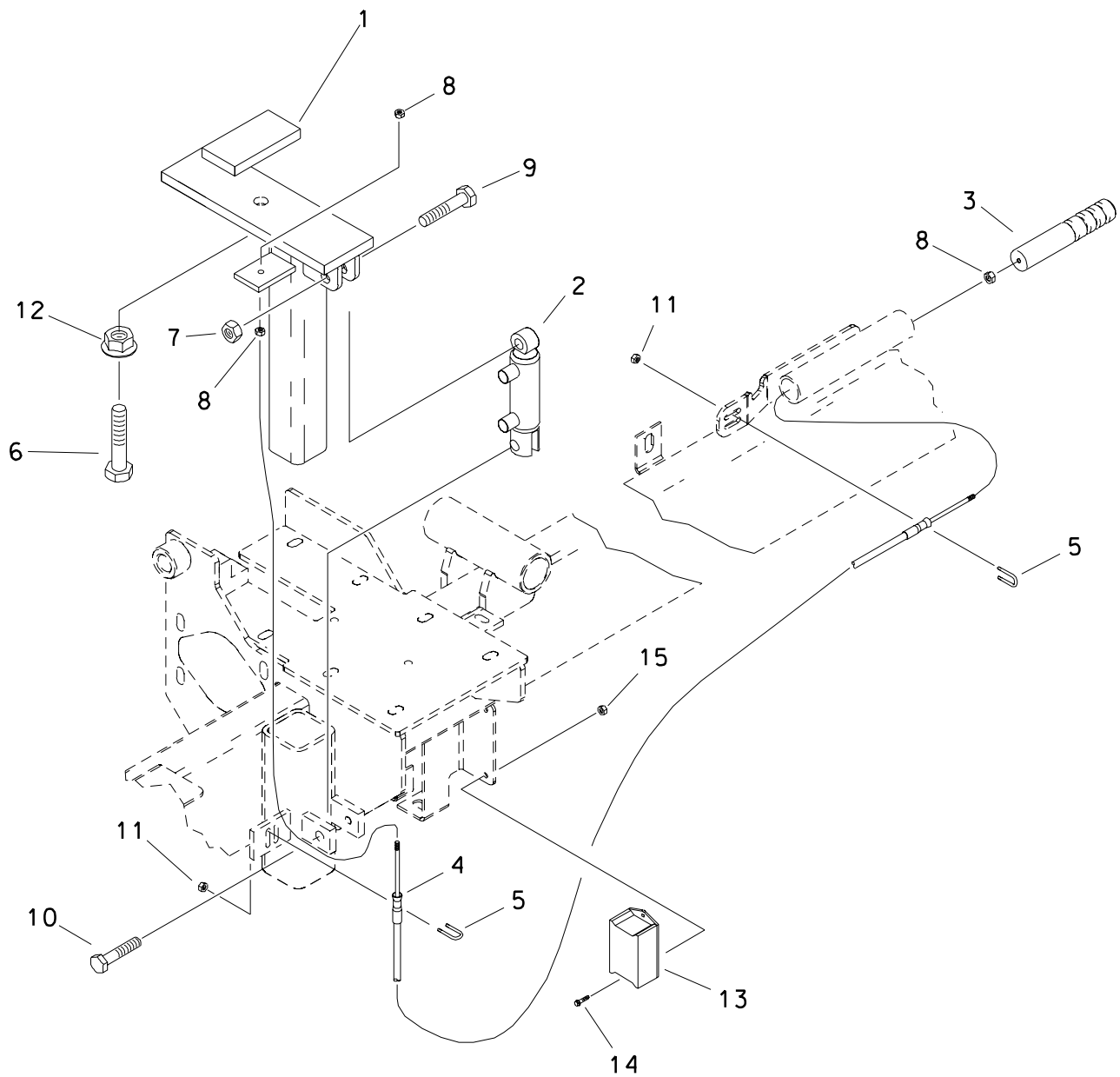
BACK SHUTTLE

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	305-907	1	WEAR PAD	
2.	305-908	1	WEAR PAD	
3.	106-640	7	SCREW (M6-1.00 X 20MM,BUT SOC)	
4.	305-906	1	SWIVEL BODY	
5.	105-245	8	SCREW (M10-1.50 X 25MM)	
6.	375-376	2	SHUTTLE CLAMP	
7.	183-411	1	PULL PIN (1/2" X 2")	
8.	106-301	2	LOCKNUT (1/2-NC, NLK)	
9.	105-111	1	BOLT (1/2-NC X 4")	
10.	191-161	-	GRIPPER CYLINDER	SEE NOTE 1.
11.	303-920	1	SHUTTLE	
12.	106-385	4	FLG LOCKNUT (M6-1.00)	
13.	106-161	4	FLG SCREW (M6-1.00 X 20MM)	
14.	309-440	2	PIN	
15.	106-379	1	FLG LK SCREW (M6-1.00 X 20MM)	
16.	105-110	1	BOLT (1/2-NC X 4-1/2")	
17.	125-469	2	COMPOSITION BUSHING (.500")	
18.	106-670	1	NUTSERT (M6-1.00)	
19.	106-237	9	LOCKNUT (M6-1.00,PRV TRQ,NLK)	
20.	105-244	1	WASHER (1/2")	
21.	178-560	1	ROLLER	
22.	125-430	1	BRONZE BUSHING (.502")	
23.	106-093	2	SCREW (M6-1.00 X 45MM)	
24.	309-449	1	GRIPPER	
25.	309-451	2	GRIPPER PAD	
26.	117-791	1	BEARING PLATE	
27.	106-916	2	SCREW (M8-1.25 X 25MM, SOC)	
28.	309-465	1	HOSE TRACK	
29.	105-894	8	LOCKNUT(M10-1.50,PRV TRQ,10.9)	
30.	117-385	2	SHIM	
31.	106-386	2	FLG LOCKNUT (M8-1.25)	

FOOTNOTES

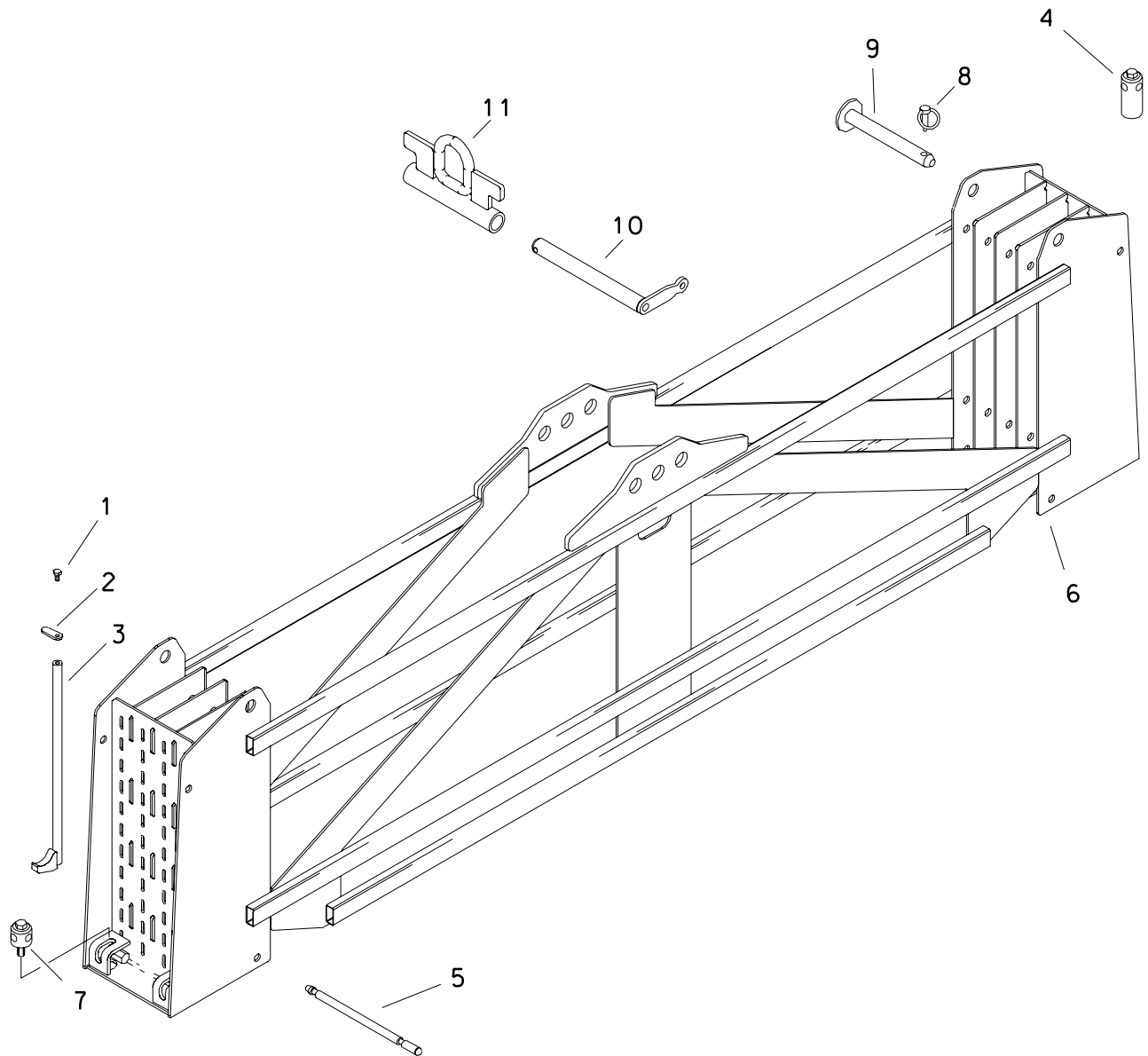
1. SEE PARTS PAGE FOR GRIPPER CYLINDER AT END OF THIS SECTION FOR PARTS BREAKDOWN.

SHUTTLE STOP



D

PIPE BOX

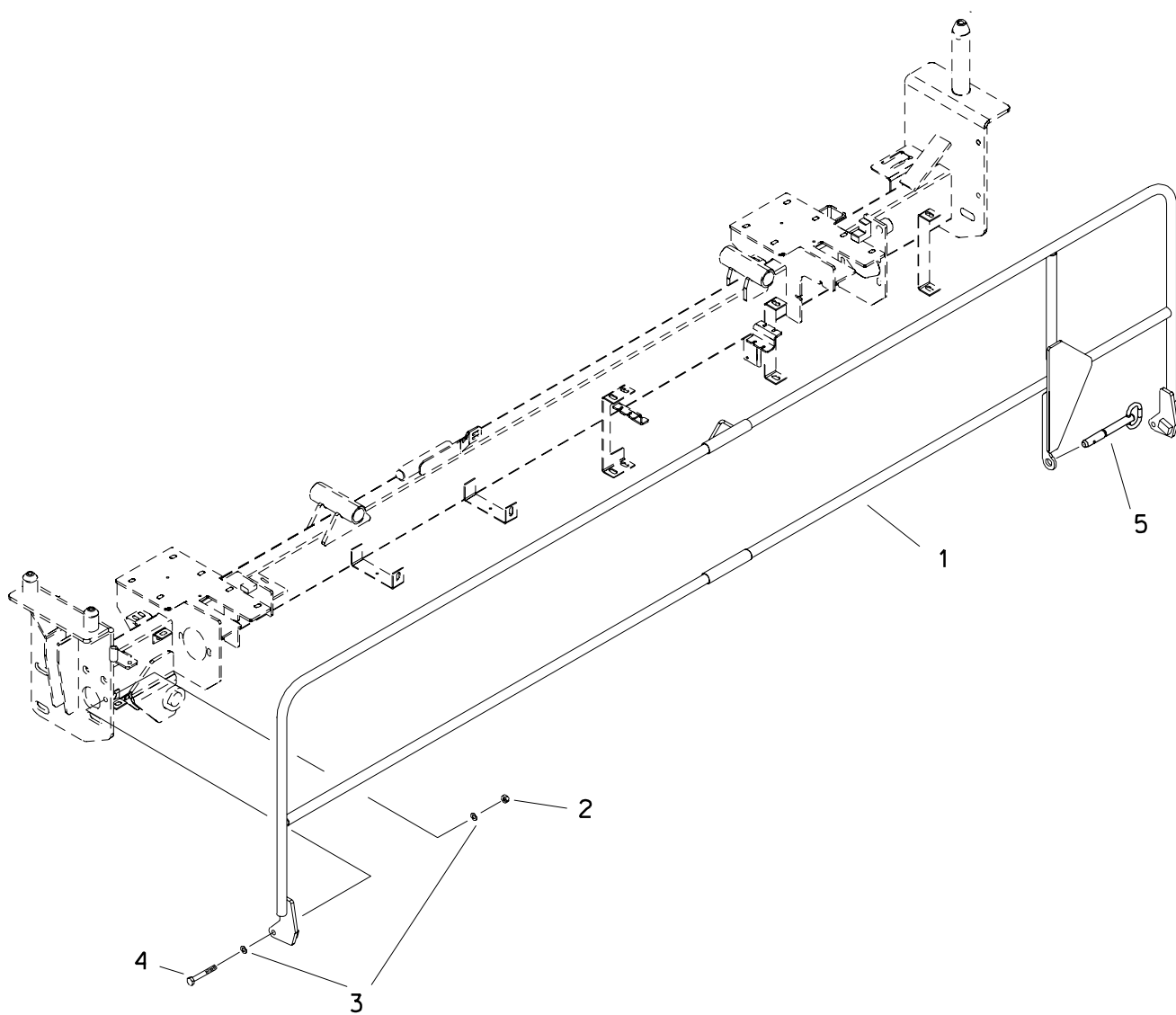


PIPE BOX

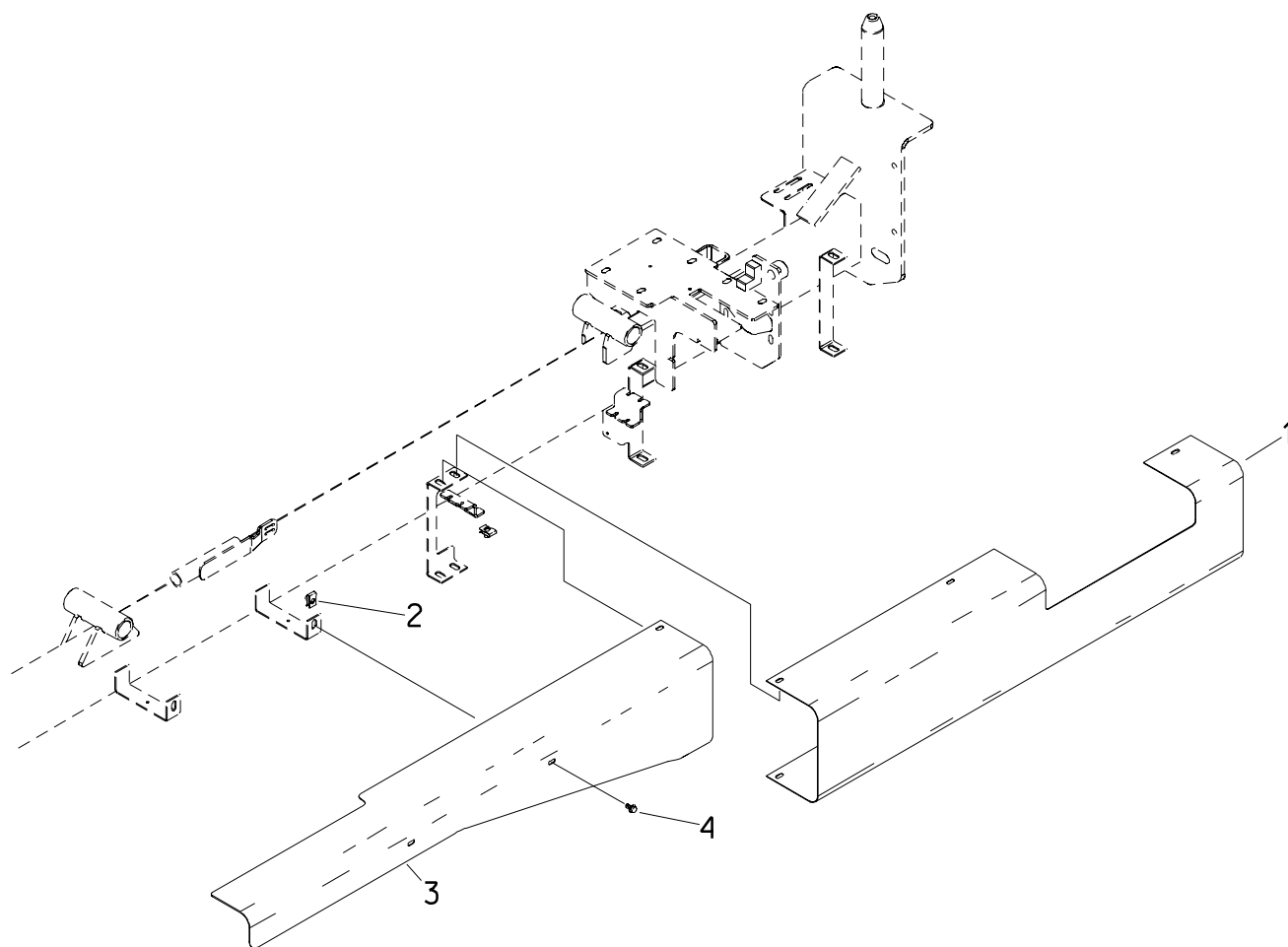
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	307-394	-	PIPE BOX	INCL REF NO.'S 1 - 11
1.	105-274	2	SCREW (M10-1.50 X 20MM)	
2.	309-491	2	LEVER PLATE	
3.	309-493	2	ROW CATCH	
4.	310-260	1	CAP LOCK	
5.	359-707	2	PIN	
6.	306-636	1	PIPE LOADER BOX	
7.	309-613	2	CAP LOCK	
8.	110-228	3	LYNCH PIN (7/16" X 2")	
9.	359-610	2	PIPE BOX PIN	
10.	310-661	1	LIFT PIN	
11.	310-657	1	LIFT RING	

FOOTNOTES

SHUTTLE GUARD

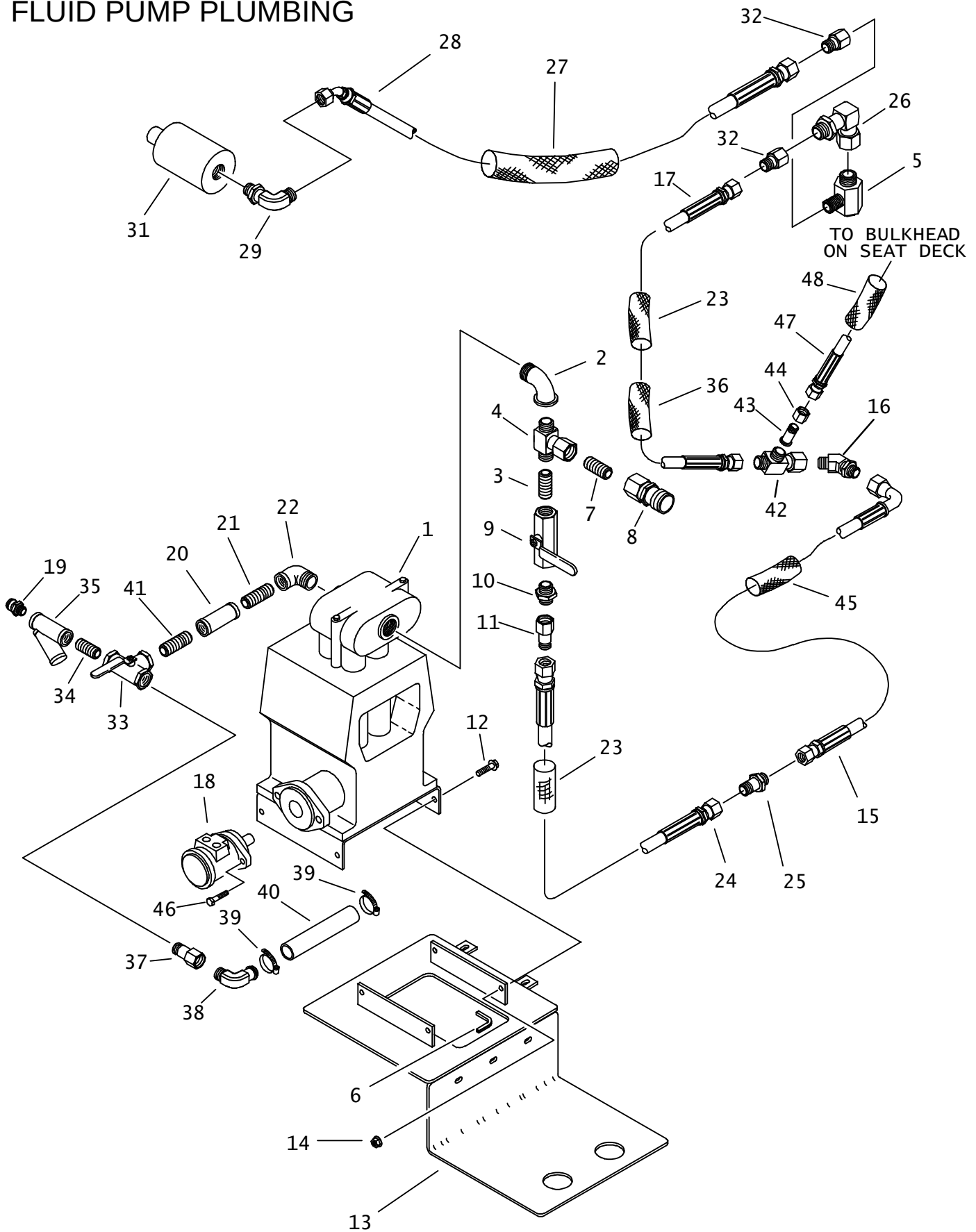


PIPE LOADER COVERS



FLUID SYSTEMS

FLUID PUMP PLUMBING



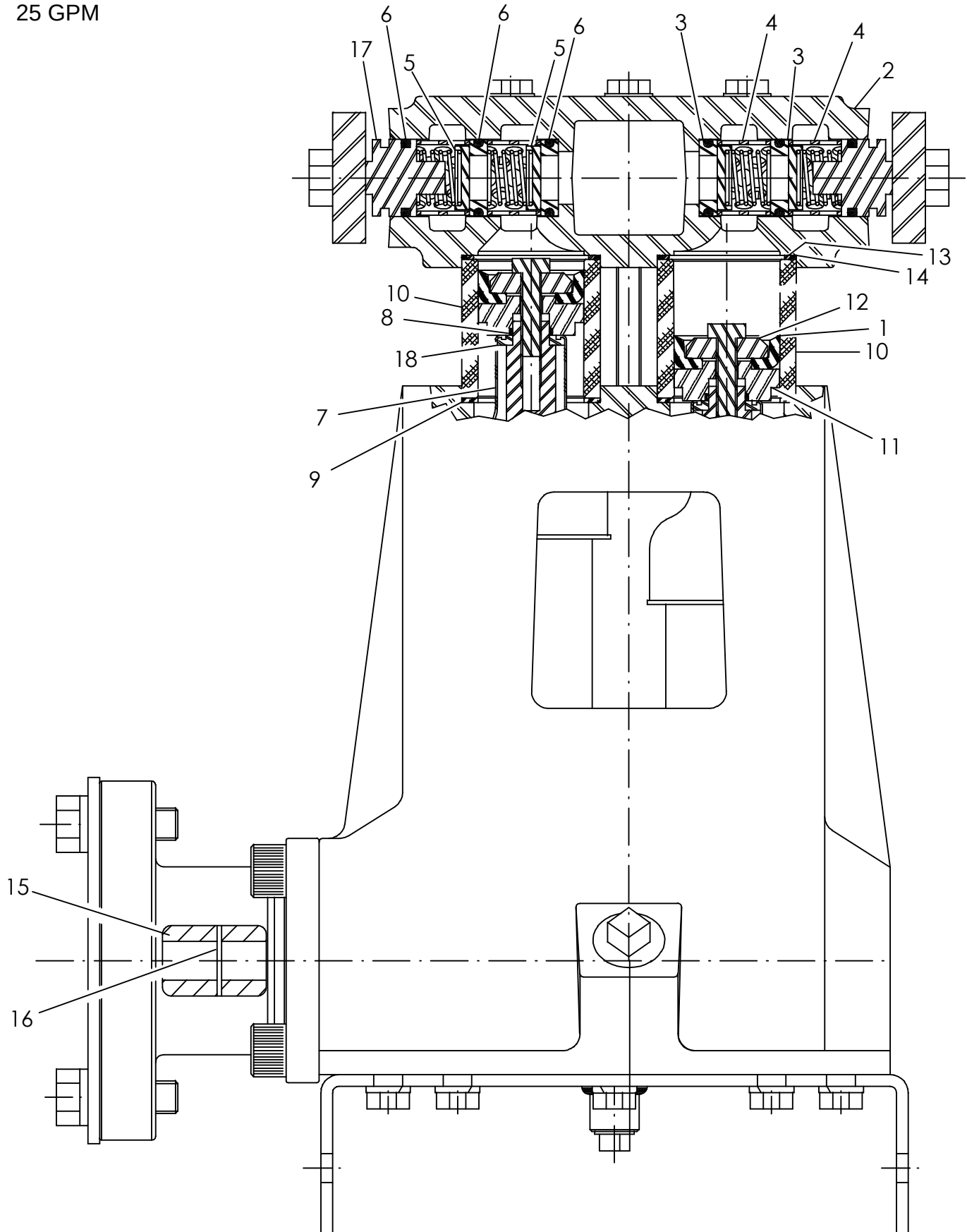
FLUID PUMP PLUMBING

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	149-977	1	DRILLING FLUID PUMP	
	197-065		REBUILT 149-977 MUD PUMP	
	191-022	1	PACKING REPAIR KIT	
	191-023	1	VALVE REPAIR KIT	
2.	115-120	1	STR ELB (12N-12NF90, 2000 PSI)	
3.	115-163	1	ALL THREAD (12N) SCH 80	
4.	155-084	1	SERVICE TEE (12N-12NF-12NF)	
5.	159-287	1	CHECK VALVE (90 DEG, 70PSI)	
6.	115-671	AR	BULK EDGE (1/16", SOLD PER 1")	USE 1 @ 6"
7.	156-956	1	CONNECTOR (08S-12N)	
8.	159-088	1	QDC BODY (08-08SF)	
	155-936	1	DUST PLUG (1/2" - 3/4")	
9.	120-073	1	SHUT-OFF (12NF-12NF)	
10.	154-351	1	CONNECTOR (12N-120)	
11.	154-441	1	REDUCER (100-120F)	
12.	106-382	4	FLG LK SCREW (M10-1.50 X 20MM)	
13.	348-850	-	RIGHT FUEL TANK COVER	
14.	106-387	4	FLG LOCKNUT (M10-1.50)	
15.	515-368	1	HOSE (100FX90-68"-3000)	
16.	514-243	1	BK CONNECTOR (100-10045BK)	
17.	153-274	1	HOSE (100FX-122"-3000)	
18.	158-948	1	HYDRAULIC MOTOR	
19.	155-204	1	FHC ADAPTER (20-24N)	
20.	514-124	1	SWEDGE COLLAR (24NF-20NF, 4.5")	
21.	115-179	1	NIPPLE (20N-6")	
22.	115-132	1	STREET ELBOW (20N-20NF90)	
23.	117-415	2	ABRASION SLEEVE (1.59" X 10")	
24.	154-712	1	HOSE (100FX-32"-2750)	
25.	154-309	1	BK CONNECTOR (100-100BK)	
26.	154-457	2	UNION (120-120FX90)	
27.	117-706	1	ABRASION SLEEVE (1.59" X 17")	
28.	515-048	1	HOSE (100FX45-18"-3000)	
29.	514-113	1	CONNECTOR (100-12N90)	
30.	115-165	1	PLUG (08N, SOC)	
31.	153-242	1	WATER SWIVEL (12NF-12NF)	
32.	154-441	2	REDUCER (100-120F)	
33.	120-076	1	3 WAY VALVE (24NF-24NF-24NF)	
34.	115-040	1	NIPPLE (24N-3")	
35.	159-476	1	Y STRAINER (1-1/2")	
	159-503	1	SCREEN, Y-STRAINER (12 MESH)	
	500-2080	1	O-RING	USED ON Y STRAINER CAP
37.	115-271	1	REDUCER (24N-12NF)	
38.	514-433	1	S/O COUPLER (12N-12HSB90)	
39.	110-353	2	WORM CLAMP (3/4" TO 1-1/2")	
40.	116-636	AR	BULK HOSE (3/4", SOLD PER 1")	USE 1 @ 13"
41.	115-263	1	ALL THREAD (24N)	
42.	154-488	1	UN RUN TEE (100FX-100-100)	
43.	154-310	1	REDUCER NUT (100F)	
44.	154-311	1	REDUCER STEM (040)	
45.	117-691	1	ABRASION SLEEVE (1.25" X 68")	
46.	106-204	2	BOLT (1/2-NC X 1-1/2", SOC)	USE 242 LOCTITE
47.	515-156	1	HOSE (040FX45-40"-3000)	
48.	117-717	1	ABRASION SLEEVE (1.00" X 40")	

NOTE:

REFER TO O-RING CHART (800-301) IN BACK OF THE BOOK FOR REPLACEMENT OF O-RINGS.

FLUID PUMP 25 GPM



FLUID PUMP

25 GPM

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	149-977		DRILLING FLUID PUMP	
	197-065		REBUILT 149-977 MUD PUMP	
	191-022	1	PACKING REPAIR KIT	INCLUDES REF NO'S 1, 8, 9, 13 & 14
	191-023	1	VALVE REPAIR KIT	INCLUDES REF NO'S 3-6
1.	500-900	4	CUP (1-5/8" HSN)	OBSOLETE
2.	499-043	1	FLUID CYLINDER	
3.	500-901	8	VALVE SEAT	OBSOLETE, SEE FOOTNOTE 2
4.	499-044	8	CAGE	OBSOLETE, SEE FOOTNOTE 2
5.	500-902	8	DISC & SPRING	OBSOLETE, SEE FOOTNOTE 2
6.	157-157	12	O-RING (213 D90)	OBSOLETE, SEE FOOTNOTE 2
7.	499-045	4	UMBRELLA SEAL	
8.	157-158	4	O-RING (015 D90)	OBSOLETE, SEE FOOTNOTE 1
9.	165-845	4	CYLINDER GASKET	OBSOLETE, SEE FOOTNOTE 1
10.	500-903	4	CERAMIC CYLINDER	
11.	499-046	4	PACKING HOLDER	
12.	499-047	4	WASHER	
13.	499-048	4	SEAL RING	OBSOLETE, SEE FOOTNOTE 1
14.	157-159	4	O-RING (033 D90)	
15.	499-066	1	COUPLING (PUMP TO DRIVE MOTOR)	
16.	499-067	1	RETAINER RING	USED ON EARLIER MODELS
	500-2012	1	SPRING PIN 3/32" X 1.5"	
17.	499-086	4	VALVE COVER	
18.	499-087	4	WASHER	

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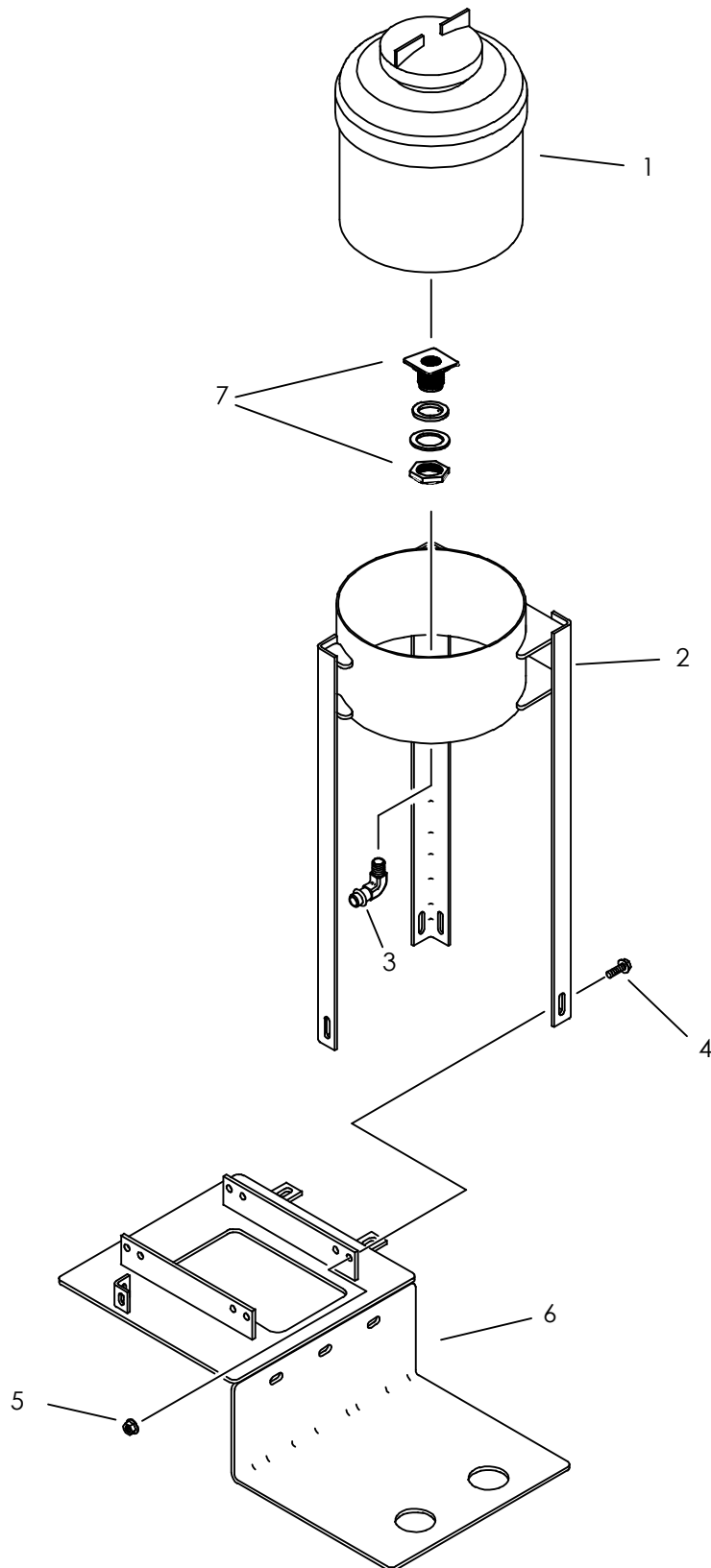
157-751	4	CRANKSHAFT SEAL
499-125	-	PLUNGER ROD OIL SEAL

FOOTNOTES:

1. THESE SERVICE PARTS REPLACED BY PACKING REPAIR KIT 191-022
2. THESE SERVICE PARTS REPLACED BY VALVE REPAIR KIT 191-023

NOTE:

ANTIFREEZE TANK



ANTIFREEZE TANK

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	190-834		ANTIFREEZE CONVERSION KIT	INCL REF NO'S 1 - 7; SEE FOOTNOTE 1
1.	364-325	1	ANTIFREEZE TANK (3 GAL)	SEE FOOTNOTE 2
2.	348-668	1	TANK MOUNT	
3.	514-433	1	S/O COUPLER (12N-12HB90)	
4.	106-992	3	FLG LK SCREW (M8-1.25 X 25MM)	
5.	106-386	3	FLG LOCKNUT (M8-1.25)	
6.	348-850	-	RIGHT FUEL TANK COVER	
7.	500-1289	1	BK CONNECTOR (12NF, POLY)	

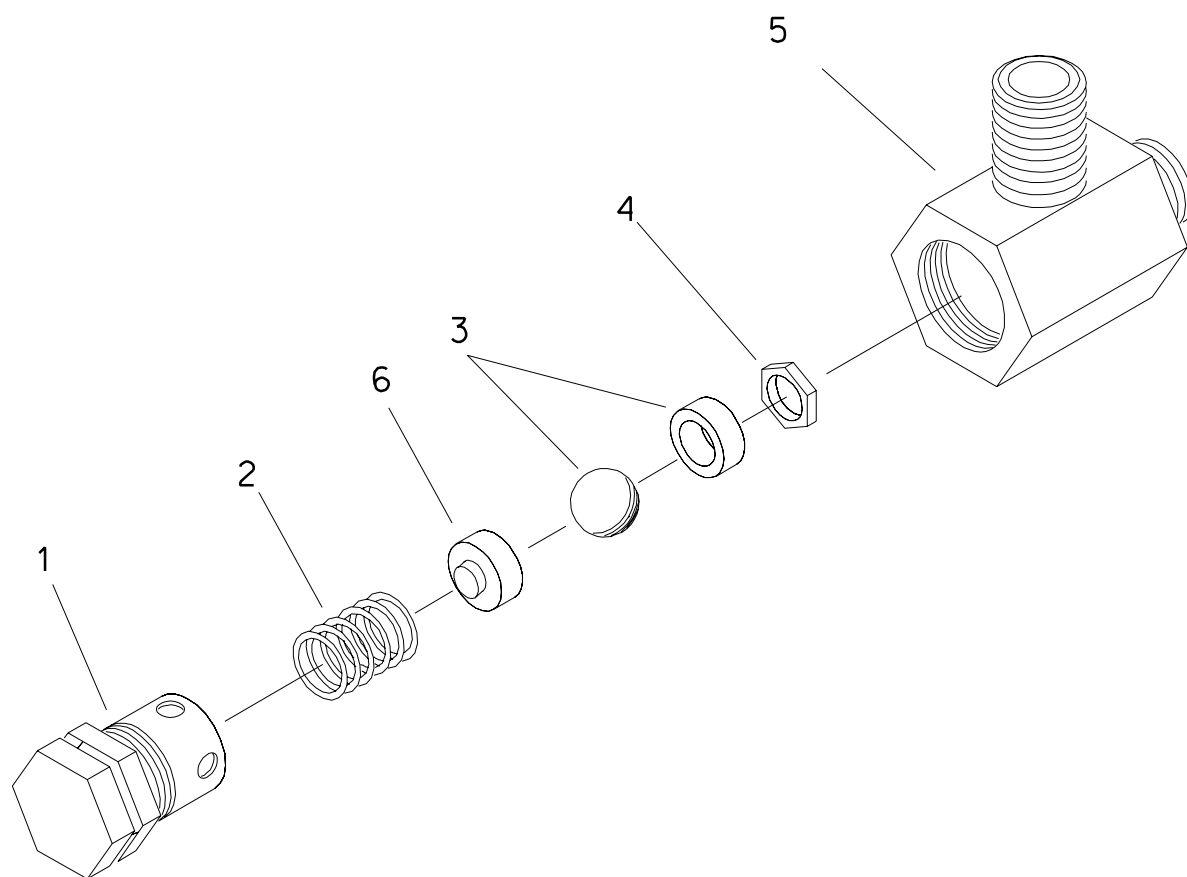
NOT SHOWN:
363-535 3 SPRING TAB

NOT SHOWN:

FOOTNOTES:
1. REFER TO INSTRUCTIONS 051-186
2. INCLUDES REFERENCE NO. 7

NOTE:

CHECK VALVE

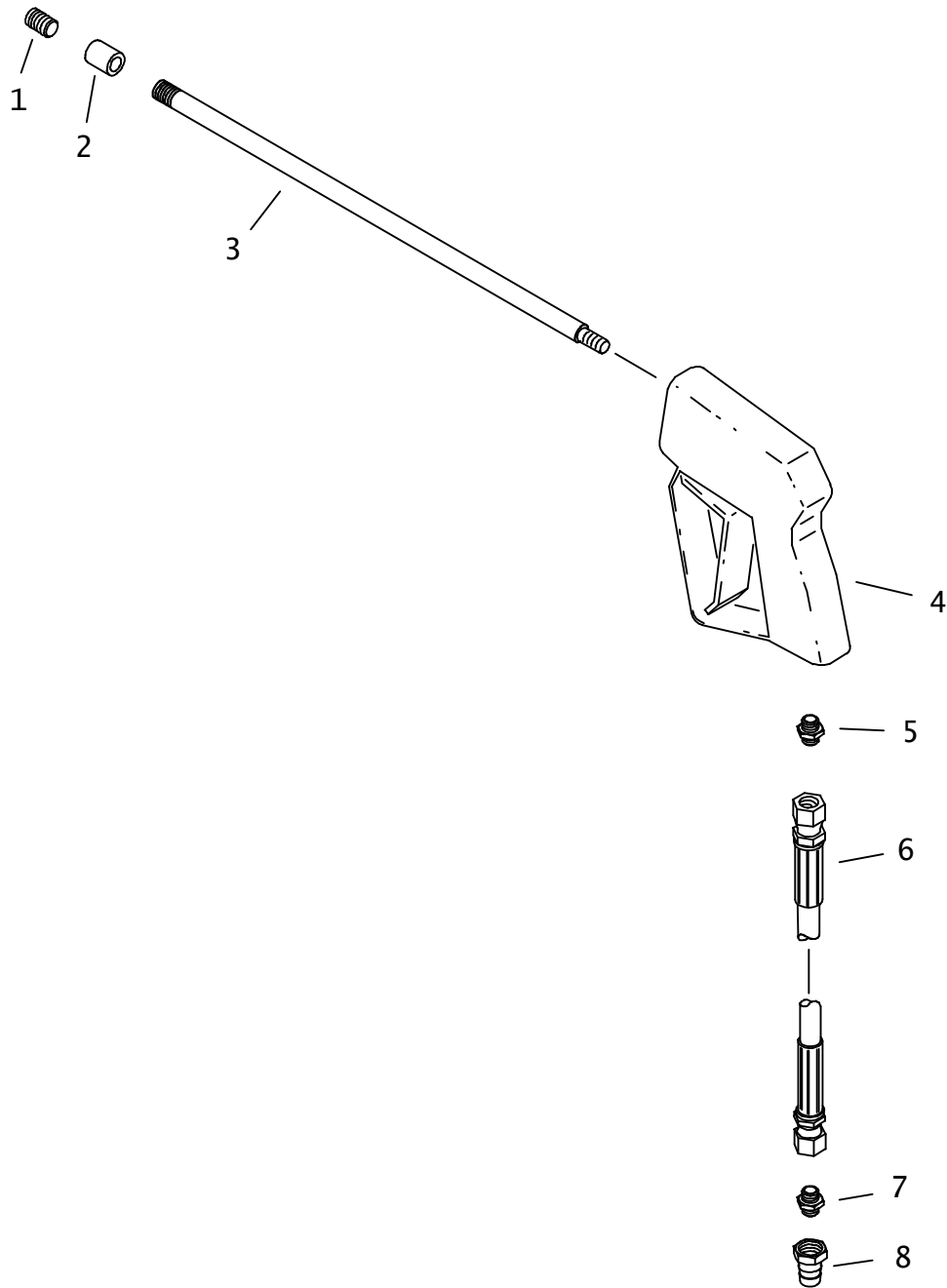


CHECK VALVE

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	159-287	-	CHECK VALVE (90 DEG, 70PSI)	INCL REF NO'S 1 - 5
1.	159-325	1	CAGE ASSEMBLY	
2.	117-303	1	COMPRESSION SPRING	
3.	159-310	1	BALL & SEAT	
4.	159-327	1	SHIM	
5.	159-328	1	BODY	
6.	308-765	1	SPRING GUIDE	

FOOTNOTES

WASH WAND



WASH WAND

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	259-374		WATER SPRAY GUN (PARTS ASS'Y)	INCL REF NO.'S 1 THRU 8
1.	155-242	1	NOZZLE (04N, ORF. 047", TC)	
2.	115-170	1	COLLAR (04NF)	
3.	259-353	1	WASH WAND (04N-36")	
4.	259-197	1	SPRAY GUN	
	190-179	1	SEAL REPAIR KIT	
5.	514-141	1	CONNECTOR (06N-080)	
6.	154-804	1	HOSE (080FX-290"-3000)	
7.	154-233	1	CONNECTOR (08S-080)	
8.	159-089	1	QDC ADAPTER (08-08SF)	
	190-186	1	SEAL REPAIR KIT	

NOT SHOWN:

FOOTNOTES:

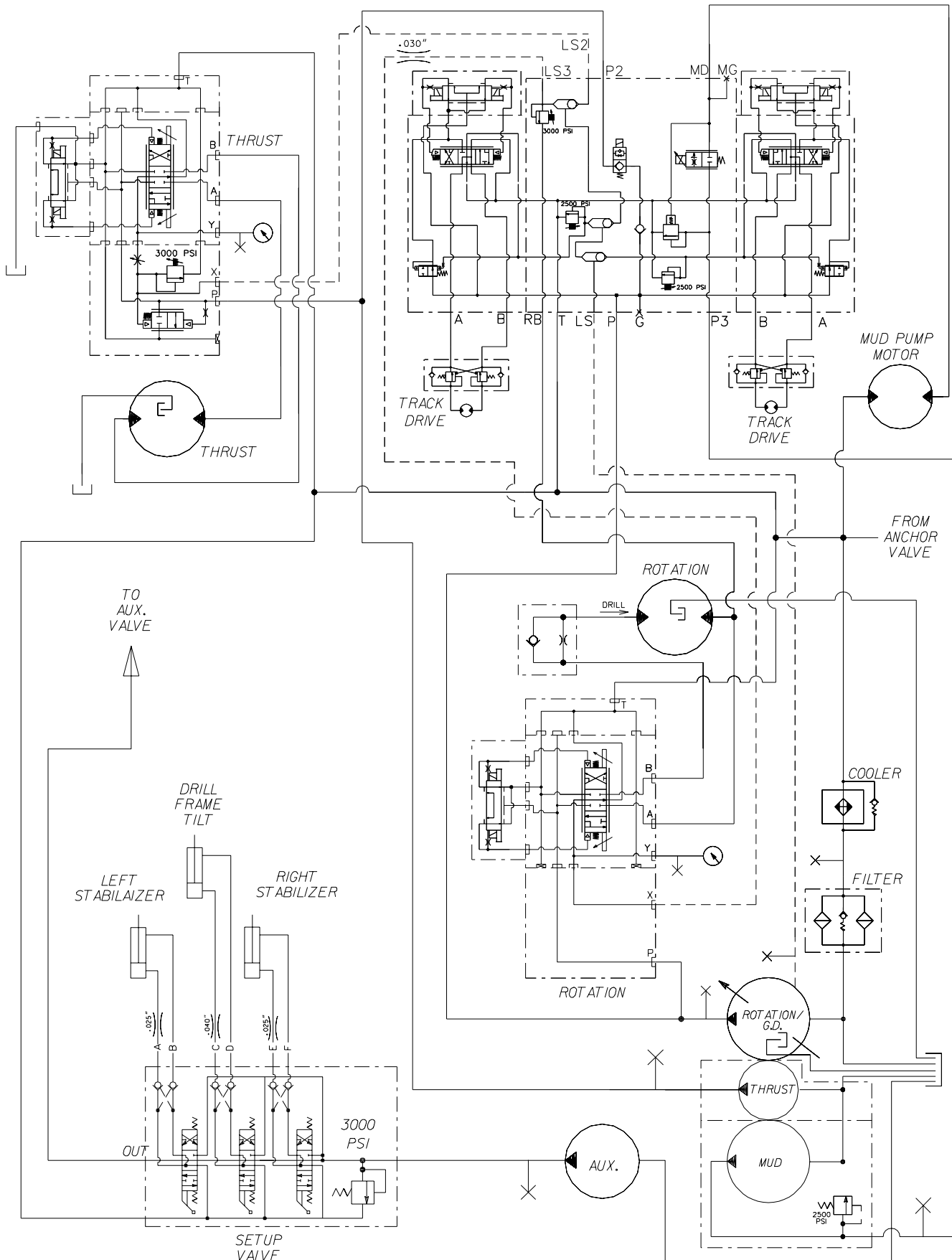
NOTE:

REFER TO O-RING CHART (800-301) IN BACK OF THE BOOK FOR REPLACEMENT OF O-RINGS.

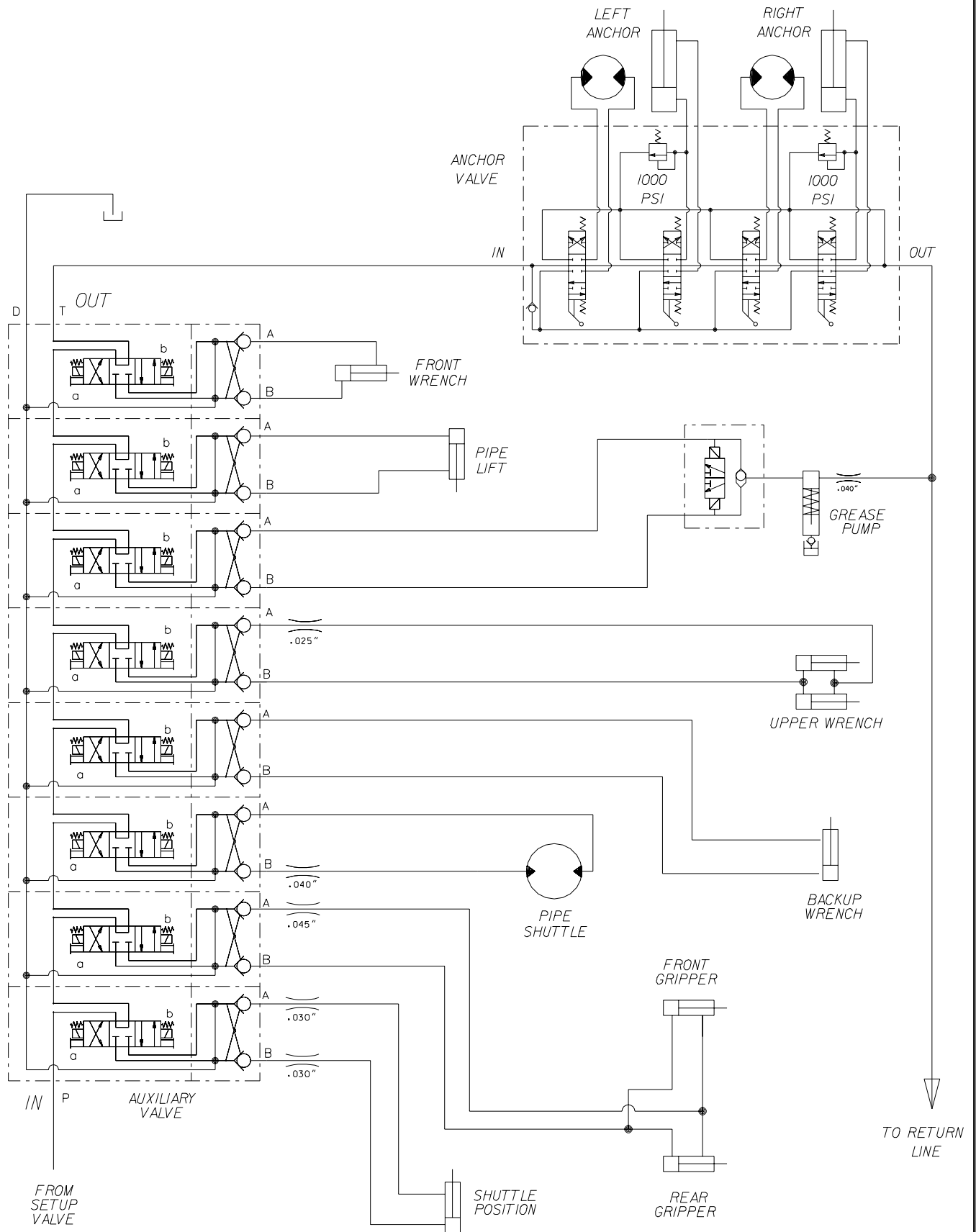
NOTES:

HYDRAULICS

HYDRAULIC SCHEMATIC



HYDRAULIC SCHEMATIC

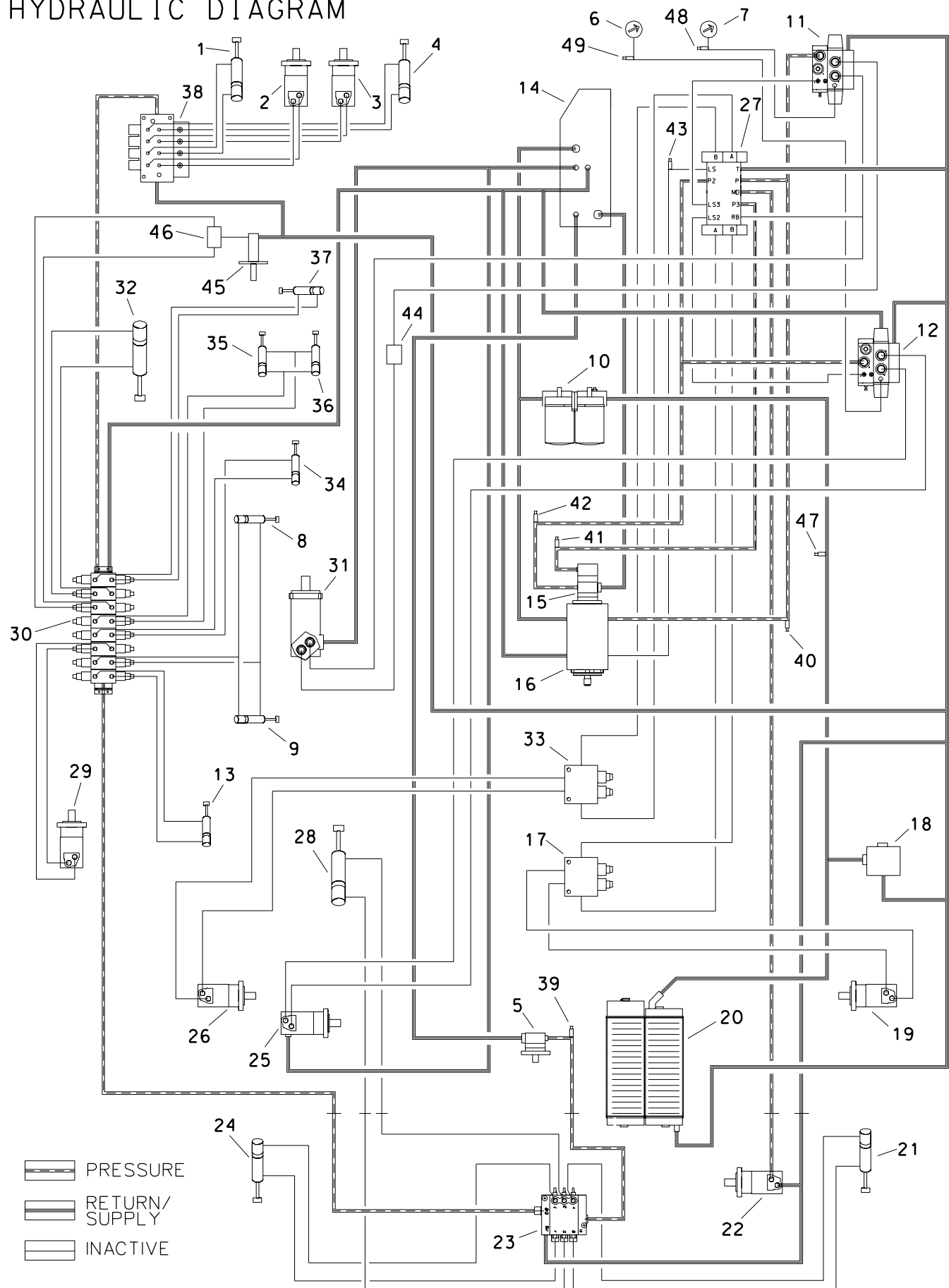


HYDRAULIC SCHEMATIC

SPECIFICATIONS

ENGINE		PUMP			MOTOR	
MFG (NO LOAD)	RPM	TYPE	GPM	DISPLACEMENT	TYPE	DISPLACEMENT
DEERE 4045D	2500	ROTATION	45	4.52	ROTATION	30.0
		THRUST	7	.66	THRUST	18.7
		MUD	12	1.20	GROUND DRIVE	11.9
					MUD	4.0
					SHUTTLE	14.9
					ANCHOR	24.0

HYDRAULIC DIAGRAM

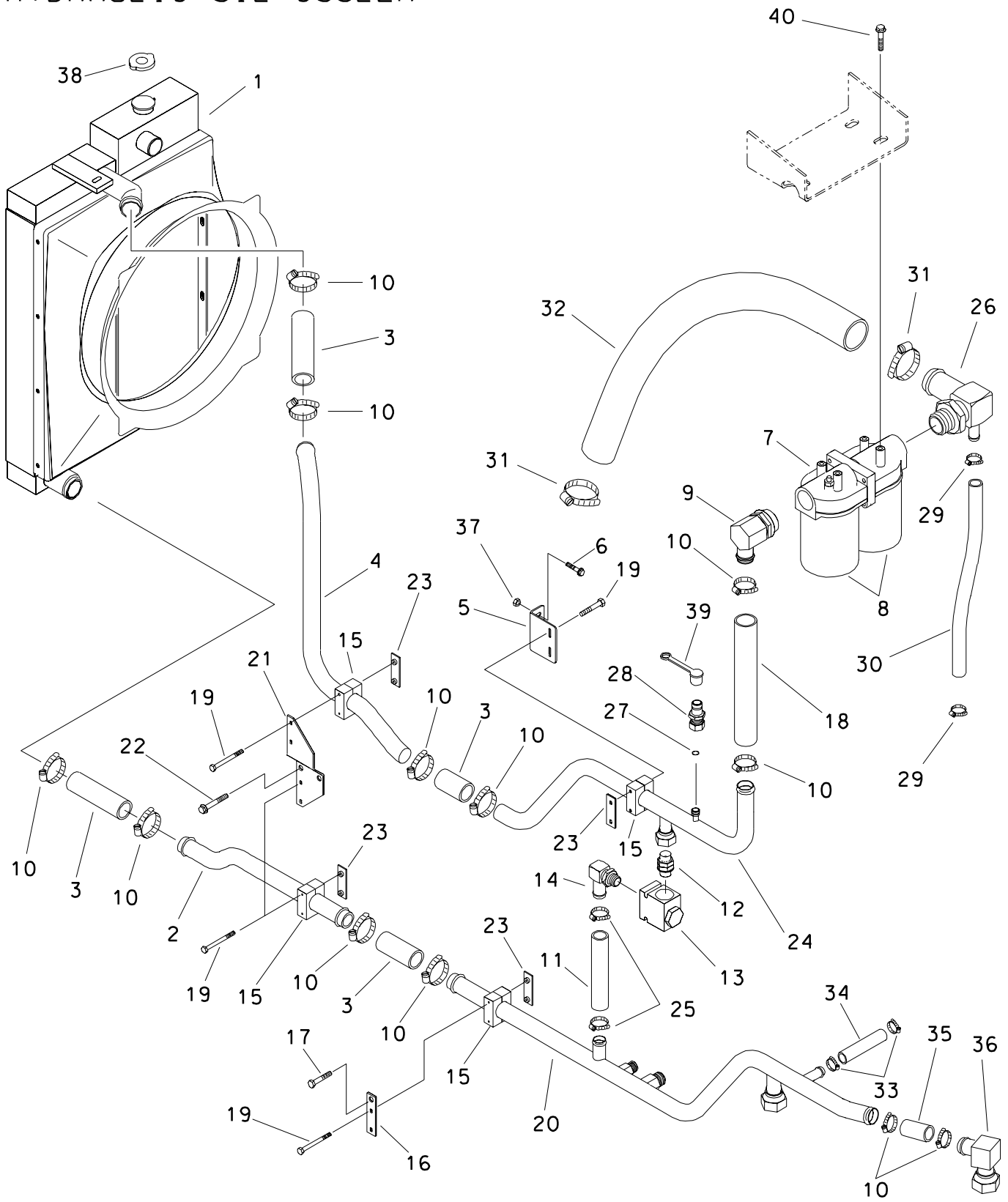


HYDRAULIC DIAGRAM

REF NO.	DESCRIPTION	REMARKS
1.	LEFT ANCHOR CYLINDER	
2.	LEFT ANCHOR MOTOR	
3.	RIGHT ANCHOR MOTOR	
4.	RIGHT ANCHOR CYLINDER	
5.	AUXILIARY PUMP	
6.	THRUST GAUGE	
7.	ROTATION GAUGE	
8.	FRONT GRIPPER CYLINDER	
9.	REAR GRIPPER CYLINDER	
10.	HYD FILTER	
11.	ROTATION VALVE	
12.	THRUST VALVE	
13.	SHUTTLE POSITION CYLINDER	
14.	HYD RESERVOIR	
15.	THRUST/MUD PUMP	
16.	ROTATION/GROUND DRIVE PUMP	
17.	RIGHT GROUND DRIVE COUNTERBALANCE VALVE	
18.	COOLER BYPASS VALVE	
19.	RIGHT GROUND DRIVE MOTOR	
20.	RADIATOR/OIL COOLER	
21.	RIGHT STABILIZER CYLINDER	
22.	MUD PUMP MOTOR	
23.	SETUP VALVE	
24.	LEFT STABILIZER CYLINDER	
25.	THRUST MOTOR	
26.	LEFT GROUND DRIVE MOTOR	
27.	GROUND DRIVE/MUD VALVE	
28.	TILT CYLINDER	
29.	SHUTTLE MOTOR	
30.	WRENCH/PIPE LOADER VALVE	
31.	ROTATION MOTOR	
32.	LIFT CYLINDER	
33.	LEFT GROUND DRIVE COUNTERBALANCE VALVE	
34.	BACKUP WRENCH CYLINDER	
35.	LEFT UPPER WRENCH CYLINDER	
36.	RIGHT UPPER WRENCH CYLINDER	
37.	FRONT WRENCH CYLINDER	
38.	ANCHOR VALVE	
39.	AUXILIARY TEST PORT	
40.	LOAD SENSE PRESSURE TESTPORT	
41.	MUD TESTPORT	
42.	THRUST AND TESTPORT	
43.	LOAD SENSE SIGNAL TESTPORT	
44.	ORIFICED CHECK VALVE	
45.	GREASE PUMP	
46.	GREASE SELECT VALVE	
47.	RETURN PRESSURE TEST PORT	
48.	ROTATION GAUGE TEST PORT	
49.	THRUST GAUGE TEST PORT	

FOOTNOTES

HYDRAULIC OIL COOLER



HYDRAULIC OIL COOLER

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	306-834	1	RADIATOR/ OIL COOLER	
2.	156-990	1	COOLER INLET LINE	
3.	116-588	AR	BULK HOSE (1-1/2", SOLD PER 1')	USE 4 @ 6"
4.	156-197	1	COOLER RETURN LINE	
5.	309-913	1	CLAMP BRACKET	
6.	106-382	2	FLG LK SCREW (M10-1.50 X 20MM)	
7.	159-411	-	FILTER HEAD (20SF-20SF)	
	168-616	1	FILTER HEAD GASKET	
8.	159-079	2	FILTER ELEMENT (1-1/2-UNF)	SEE FOOTNOTE 1
	149-840	2	FILTER ELEMENT (1-1/2-UNF)	
9.	514-135	1	S/O COUPLER (24S-24H90)	
10.	111-028	12	T-BOLT CLAMP (1.75" TO 2.00")	
11.	116-587	AR	BULK HOSE (1-1/4", SOLD PER 1')	USE 1 @ 7"
12.	154-269	1	CONNECTOR (12S-12D)	
13.	159-253	1	FLOW CHECK (12S-12S)	
14.	514-027	1	S/O COUPLER (12S-20H90)	
15.	111-008	4	BOLT-ON CLAMP (1-1/2", SET)	
16.	348-817	1	HOSE CLAMP SUPPORT	
17.	106-596	1	SCREW (M14-2.00 X 30MM, EPOXY)	
18.	116-588	7	BULK HOSE (1-1/2", SOLD PER 1')	USE 1 @ 7.5"
19.	105-224	8	BOLT (1/4-NC X 2-1/2")	
20.	153-179	1	HARDLINE	
21.	348-815	1	HOSE CLAMP SUPPORT	
22.	107-010	2	FLG LK SCREW (M12-1.75 X 30MM)	
23.	322-363	4	WELD PLATE	
24.	149-630	1	COOLER RETURN LINE	
25.	110-250	2	WORM CLAMP (1-1/4" TO 2-1/8")	
26.	514-398	1	S/O COUPLER (20S-32H90-12H)	
27.	157-038	1	O-RING (O12 D90)	
28.	159-157	1	ODC ADAPTER (O2-O6OF)	
29.	110-353	2	WORM CLAMP (3/4" TO 1-1/2")	
30.	115-374	1	BULK HOSE (3/4", SOLD PER 1')	USE 1 @ 14"
31.	110-815	2	T-BLT CLAMP (2.250" TO 2.560")	
32.	116-817	1	BULK HOSE (2")	USE 1 @ 21"
33.	111-027	2	T-BOLT CLAMP (1.25"-1.50")	
34.	116-460	1	BULK HOSE (1", SOLD PER 1')	USE 1 @ 6.5"
35.	116-588	1	BULK HOSE (1-1/2", SOLD PER 1')	USE 1 @ 7.5"
36.	153-229	1	ELBOW (16DFX-24H90)	
37.	105-894	2	LOCKNUT (M10-1.50, PRV TRQ, 10.9)	
38.	111-091	-	RADIATOR CAP	
39.	159-148	1	DUST CAP (1/8")	
40.	105-825	4	FLG LK BOLT (3/8-NC X 3/4")	

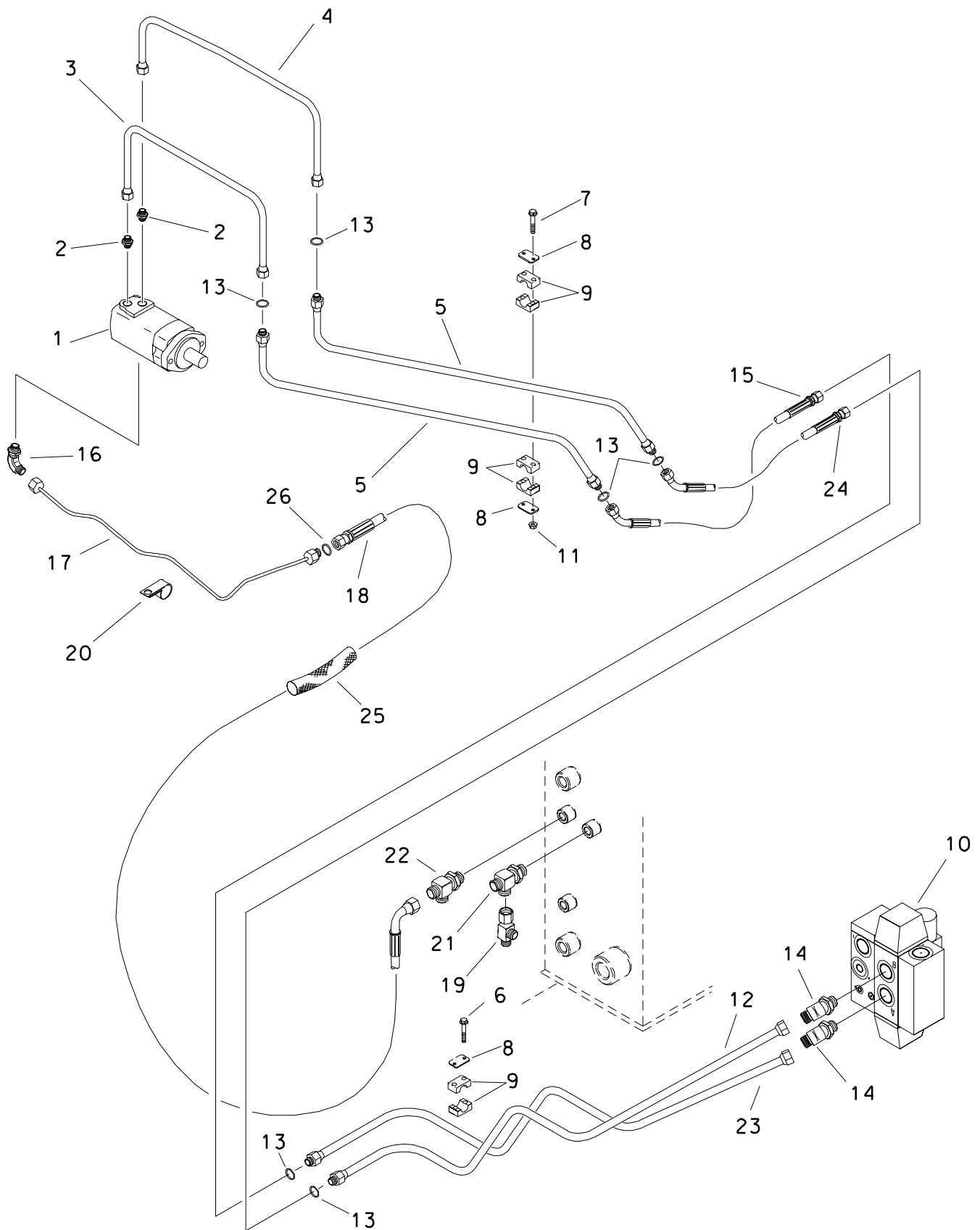
FOOTNOTES

1. USE 159-079 ELEMENT FOR NORMAL MAINTENANCE. USE 149-840 ELEMENT AFTER HOSE OR COMPONENT REPAIR OR REPLACEMENT.

NOTE

REFER TO O-RING CHART (800-301) IN BACK OF THE BOOK FOR REPLACEMENT OF O-RINGS.

THRUST MOTOR HYDRAULICS



THRUST MOTOR HYDRAULICS

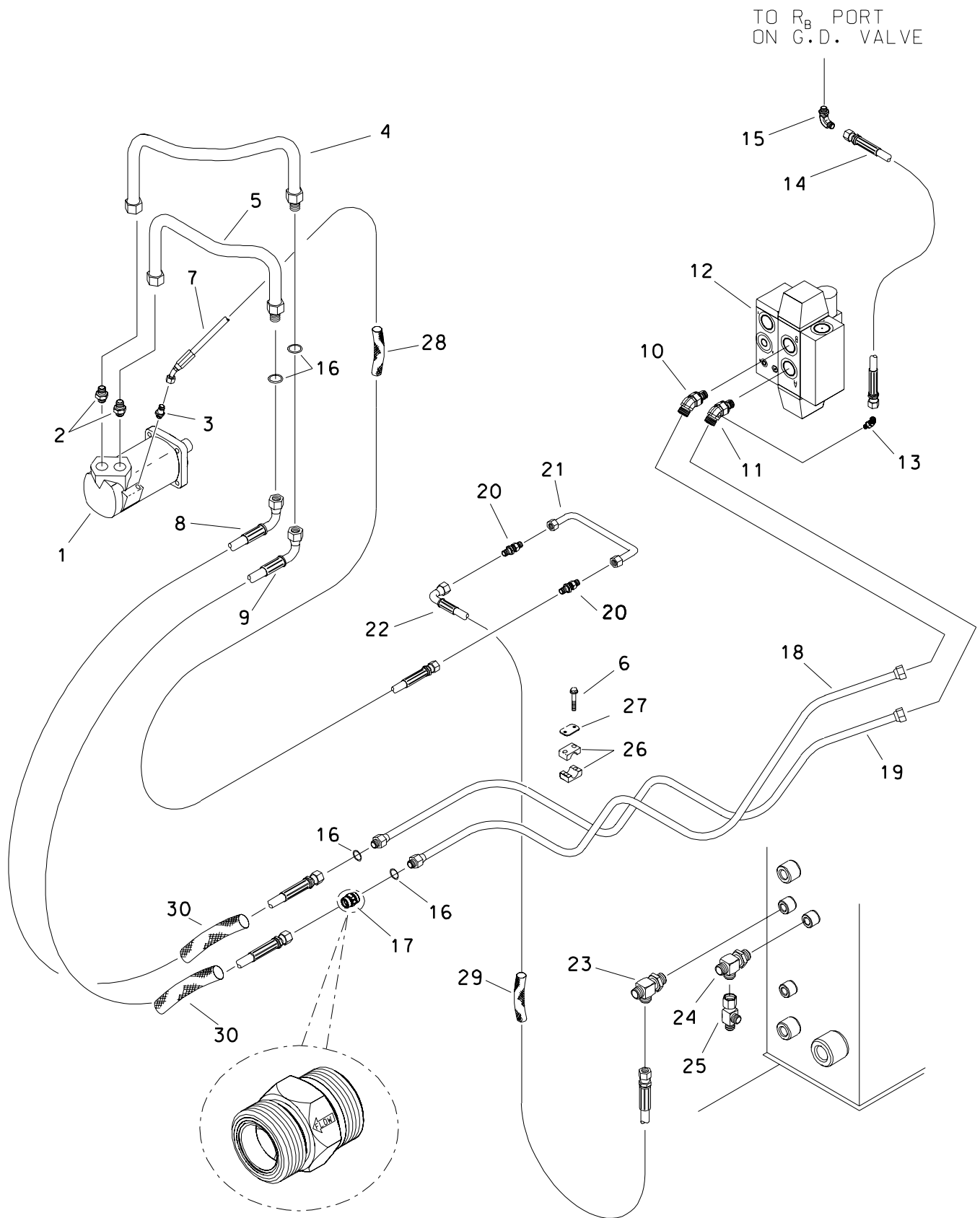
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	155-598	-	HYD MOTOR (THRUST)	
2.	154-301	2	CONNECTOR (10S-100)	
3.	153-168	1	HARDLINE	
4.	153-167	1	HARDLINE	
5.	153-170	2	THRUST LINE	
6.	105-818	4	BOLT (1/4-NC X 1-1/2")	
7.	106-945	4	SCREW (M6-1.00 X 100MM)	
8.	322-289	4	BACKUP (BOLT-ON)	
9.	110-573	4	BOLT-ON CLAMP (1", SOLD PER SET)	
10.	149-268	-	HYD CONTROL VALVE (THRUST)	
11.	106-385	4	FLG LOCKNUT (M6-1.00)	
12.	153-175	1	HARDLINE	
13.	155-714	6	O-RING (O21 D90)	
14.	154-388	2	CONNECTOR (16S-16045)	
15.	154-958	1	HOSE (160FX45-27"-3000)	
16.	514-049	1	CONNECTOR (04S-06090)	
17.	153-169	1	HYDRAULIC LINE	
18.	515-411	1	HOSE (060FX90-118"-3000)	
19.	154-265	1	UN RUN TEE (040FX-040-040)	
20.	110-126	1	BOLT-ON CLAMP (1/2")	
21.	153-422	1	TEE (08S-060-040)	
22.	153-421	1	TEE (08S-060-060)	
23.	153-174	1	HARDLINE	
24.	515-677	1	HOSE (160FX45S-25"-3000)	
25.	117-281	1	ABRASION SLEEVE (1.25" X 122")	
26.	157-038	1	O-RING (O12 D90)	

FOOTNOTES

NOTE

REFER TO O-RING CHART (800-301) IN BACK OF THE BOOK FOR REPLACEMENT OF O-RINGS.

ROTATION MOTOR HYDRAULICS



ROTATION MOTOR HYDRAULICS

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	158-945	-	HYDRAULIC MOTOR	
2.	154-281	2	CONNECTOR (16S-160)	
3.	154-411	1	CONNECTOR (04S-060)	
4.	156-191	1	OUTSIDE ROTATION LINE	
5.	156-190	1	INSIDE ROTATION LINE	
6.	105-818	4	BOLT (1/4-NC X 1-1/2")	
7.	515-355	1	HOSE (06DFX45-133"-3000)	
8.	515-647	1	HOSE (16DFX90-115"-3000)	
9.	515-648	1	HOSE (16DFX90-113.5"-3000)	
10.	154-388	1	CONNECTOR (16S-16045)	
11.	514-410	1	CONNECTOR (16S-16045-06SF)	
12.	153-581	-	HYD CONTROL VALVE (ROTATION)	ROTATION
13.	154-224	2	CONNECTOR (06S-06045)	
14.	154-707	1	HOSE (06DFX-16"-3000)	
15.	514-049	1	CONNECTOR (04S-06090)	
16.	155-714	4	O-RING (021 D90)	
17.	153-428	1	CHECK VALVE	SEE FOOTNOTE 1
18.	153-173	1	HARDLINE	
19.	153-172	1	HARDLINE	
20.	514-163	2	BK CONNECTOR (060-060BK)	
21.	149-655	1	HYD LINE (-06)	
22.	515-176	1	HOSE (06DFX-38"-3000)	
23.	153-421	1	TEE (08S-060-060)	
24.	153-422	1	TEE (08S-060-040)	
25.	154-265	1	UN RUN TEE (040FX-040-040)	
26.	110-573	2	BOLT-ON CLAMP (1",SOLD PER SET)	
27.	322-289	2	BACKUP (BOLT-ON)	
28.	117-611	1	ABRASION SLEEVE (1.00" X 22")	
29.	117-410	1	ABRASION SLEEVE (1.00" X 38")	
30.	117-564	2	ABRASION SLEEVE (1.75" X 15")	

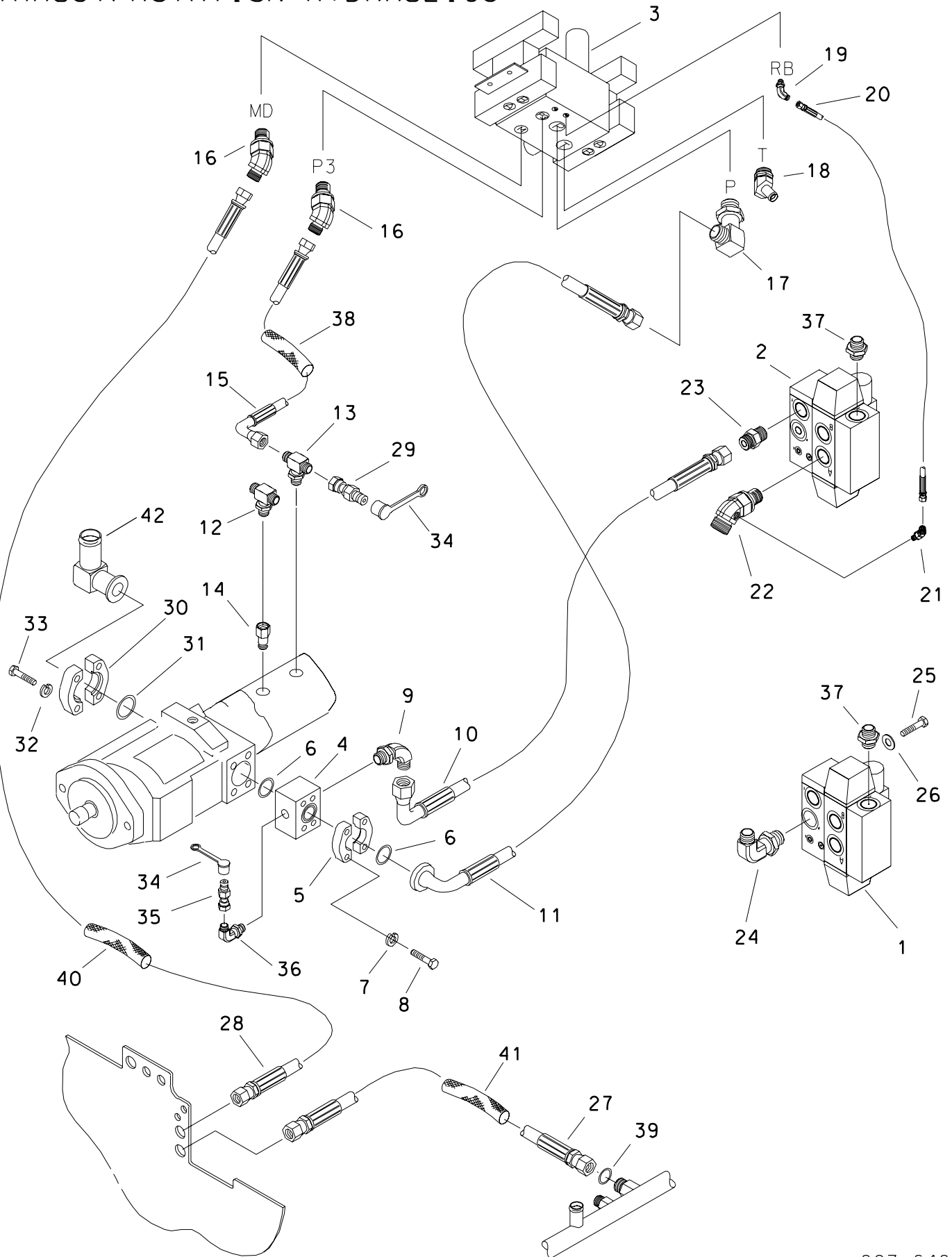
FOOTNOTES

1. NOTE DIRECTION OF FLOW MARKED ON FITTING

NOTE:

REFER TO O-RING CHART (800-301) IN BACK OF THE BOOK FOR REPLACEMENT OF O-RINGS.

THRUST/ROTATION HYDRAULICS



THRUST/ROTATION HYDRAULICS

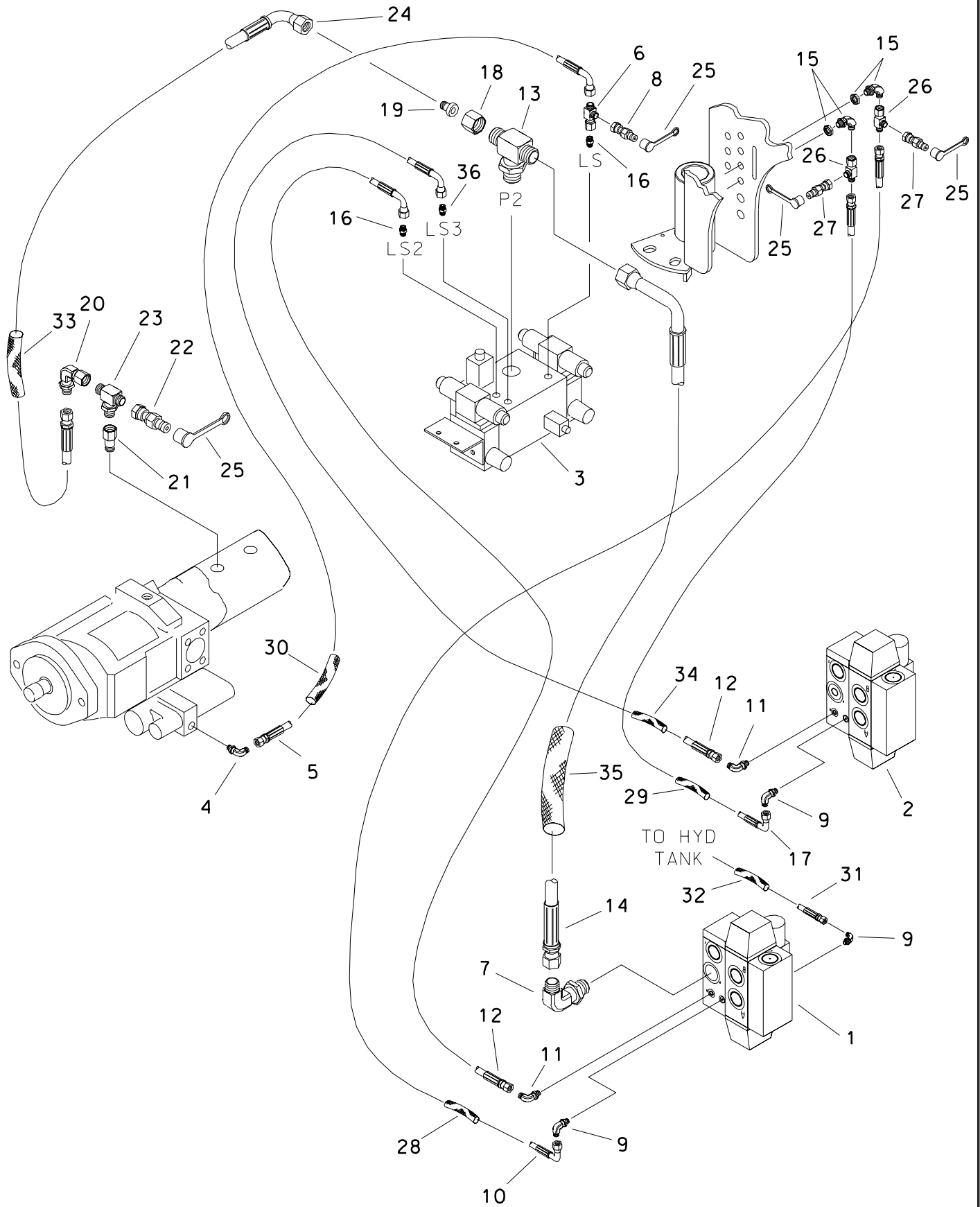
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	149-268	1	HYD CONTROL VALVE (THRUST)	
2.	153-581	1	HYD CONTROL VALVE (ROTATION)	
3.	516-080	1	HYD CONTROL VALVE (GRND DRIVE)	
4.	153-281	1	MANIFOLD BLOCK	
5.	155-947	2	SPLIT FLANGE (16SF, PAIR)	
6.	157-029	2	O-RING (219 D90)	
7.	105-072	4	LOCK WASHER (3/8")	
8.	105-258	4	BOLT (3/8-NC X 3-3/4")	
9.	154-287	1	CONNECTOR (16S-16090)	
10.	153-338	1	HOSE (160FX90S-24"-3000)	
11.	153-420	1	HOSE (16FL90-160FX-19"-3000)	
12.	154-337	-	BRANCH TEE (08S-080-080)	
13.	154-318	1	BRANCH TEE (10S-100-100)	
14.	155-193	-	REDUCER (10S-08SF)	
15.	515-454	1	HOSE (100FX90L-20"-3000)	
16.	154-470	2	CONNECTOR (100-12S45)	
17.	154-289	1	CONNECTOR (16S-16090, XL)	
18.	155-230	1	S/O COUPLER (16S-16H45)	
19.	514-049	1	CONNECTOR (04S-06090)	
20.	154-707	1	HOSE (060FX-16"-3000)	
21.	154-224	1	CONNECTOR (06S-06045)	
22.	514-410	1	CONNECTOR (16S-16045-06SF)	
23.	154-281	1	CONNECTOR (16S-160)	
24.	154-287	1	CONNECTOR (16S-16090)	
25.	105-826	8	FLG LK BOLT (3/8-NC X 1")	
26.	105-118	8	WASHER (3/8")	
27.	515-165	1	HOSE (100FX-64"-3000)	
28.	153-070	1	HOSE (100FX45M-85"-3000)	
29.	159-159	1	QDC ADAPTER (02-100FX)	
30.	514-104	2	SPLIT FLANGE (32SF)	
31.	500-031	1	O-RING (228 D90)	
32.	105-070	4	LOCK WASHER (1/2")	
33.	105-048	4	BOLT (1/2-NC X 1-1/2")	
34.	159-148	2	DUST CAP (1/8")	
35.	159-157	1	QDC ADAPTER (02-060FX)	
36.	154-342	1	CONNECTOR (06S-06090)	
37.	154-281	2	CONNECTOR (16S-160)	
38.	117-622	1	ABRASION SLEEVE (1.25" X 20")	
39.	157-040	1	O-RING (016 D90)	
40.	115-817	1	ABRASION SLEEVE (1.59" X 84")	
41.	116-634	1	ABRASION SLEEVE (1.59" X 65")	
42.	514-399	1	S/O COUPLER (32F-32H90)	

FOOTNOTES

NOTE

REFER TO O-RING CHART (800-301) IN BACK OF THE BOOK FOR REPLACEMENT OF O-RINGS.

LOAD SENSE HYDRAULICS



LOAD SENSE HYDRAULICS

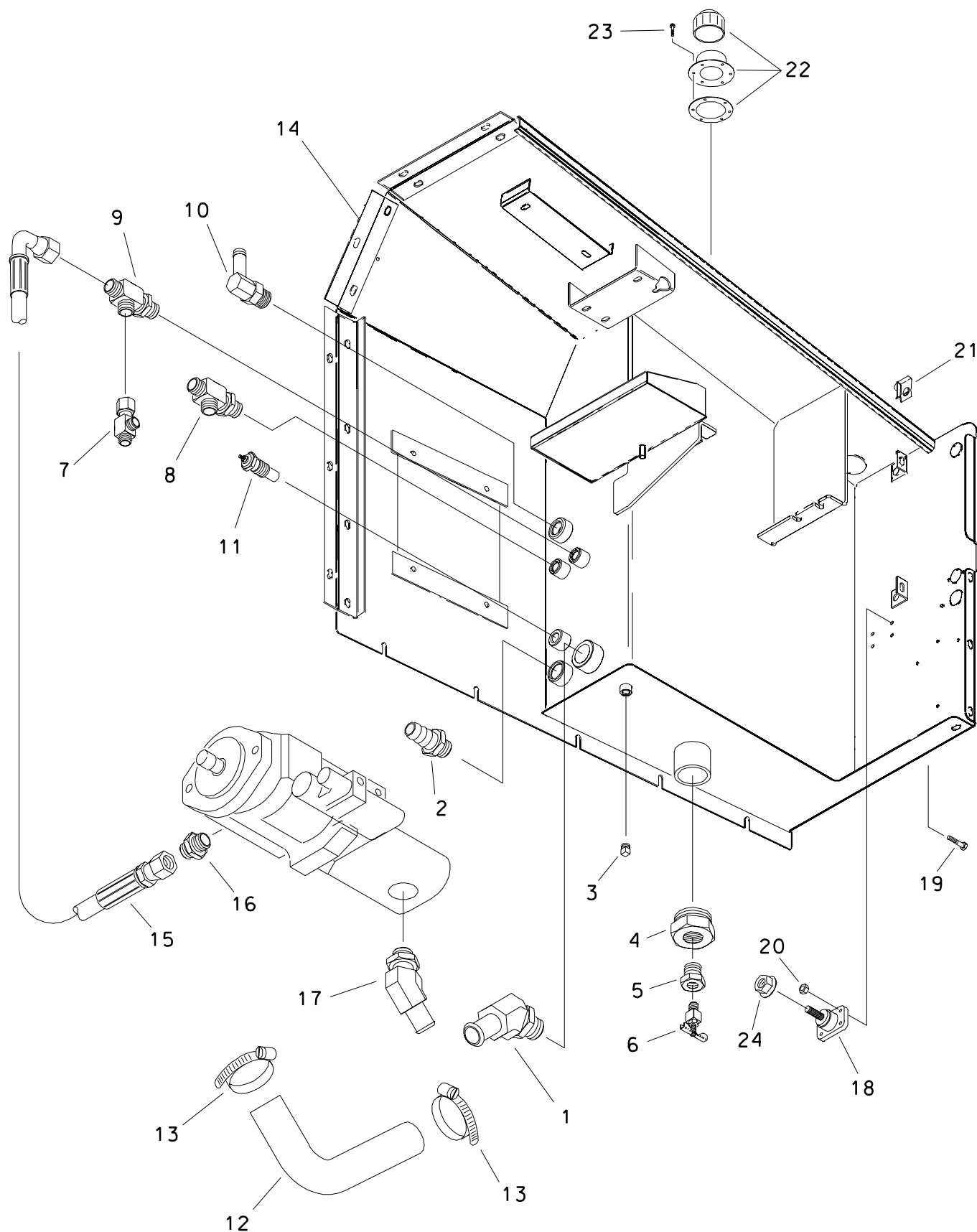
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	149-268	1	HYD CONTROL VALVE (THRUST)	
2.	153-581	1	HYD CONTROL VALVE (ROTATION)	
3.	516-080	1	HYD CONTROL VALVE (GRND DRIVE)	
4.	154-342	1	CONNECTOR (06S-06090)	
5.	154-881	1	HOSE (060FX90-46"-3000)	
6.	154-344	1	UN RUN TEE (060FX-060-060)	
7.	154-287	1	CONNECTOR (16S-16090)	
8.	159-157	1	QDC ADAPTER (02-060F)	
9.	154-252	3	CONNECTOR (04S-04090)	
10.	515-447	1	HOSE (040FX90S-48"-3000)	
11.	514-049	2	CONNECTOR (04S-06090)	
12.	515-221	2	HOSE (060FX90S-28"-3000)	
13.	154-347	1	BRANCH TEE (16S-160-160)	
14.	153-360	1	HOSE 160FX90L-18"-3000)	
15.	154-355	2	BK CONNECTOR (040-04090BK)	
16.	154-411	2	CONNECTOR (04S-060)	
17.	515-011	1	HOSE (040FX90-32"-3000)	
18.	154-340	1	REDUCER NUT (160F)	
19.	154-341	1	REDUCER STEM (080)	
20.	154-256	1	UNION (080-080FX90)	
21.	155-193	1	REDUCER (10S-08SF)	
22.	159-158	1	QDC ADAPTER (02-080FX)	
23.	154-337	1	BRANCH TEE (08S-080-080)	
24.	154-740	1	HOSE (080FX90S-26"-3000)	
25.	159-148	4	DUST CAP (1/8")	
26.	154-265	1	UNION RUN TEE (040FX-040-040)	
27.	159-156	1	QDC ADAPTER (02-040F)	
28.	117-416	1	ABRASION SLEEVE (1.00" X 50")	
29.	117-411	1	ABRASION SLEEVE (1.00" X 32")	
30.	117-612	1	ABRASION SLEEVE (1.00" X 46")	
31.	515-509	1	HOSE (060FX90-25"-4000)	
32.	117-409	1	ABRASION SLEEVE (1.00" X 28")	
33.	117-611	1	ABRASION SLEEVE (1.00" X 22")	
34.	117-684	1	ABRASION SLEEVE (1.00" X 26")	
35.	117-793	1	ABRASION SLEEVE (1.75" X 16")	
36.	157-976	1	CONNECTOR (04S - 060-ORF .030)	

FOOTNOTES

NOTE

REFER TO O-RING CHART (800-301) IN BACK OF THE BOOK FOR REPLACEMENT OF O-RINGS.

HYDRAULIC RESERVOIR



HYDRAULIC RESERVOIR

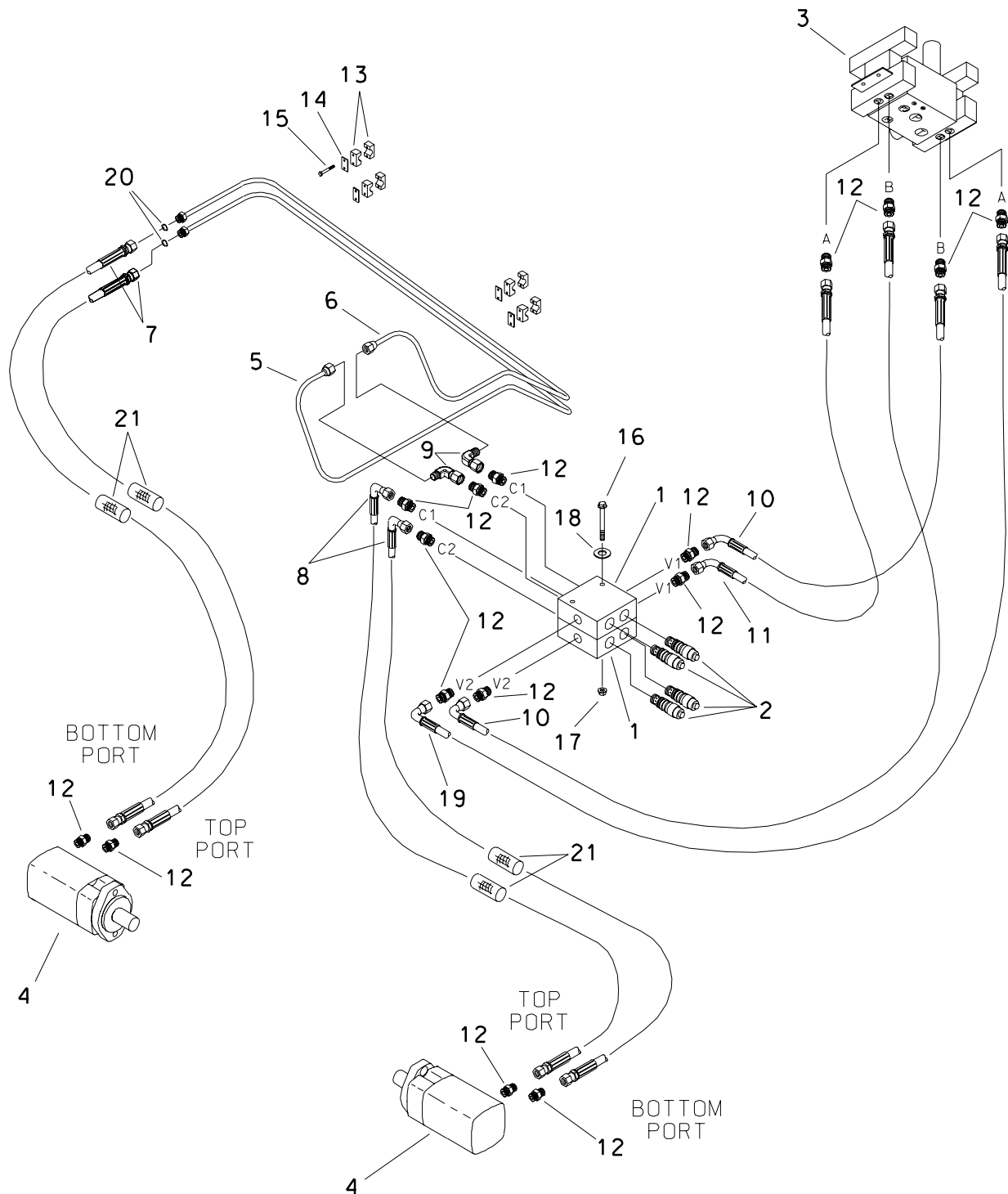
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	153-370	1	S/O COUPLER (24S-24H45)	
2.	514-088	1	S/O COUPLER (16S-16H)	
3.	154-384	1	PLUG (06S)	
4.	115-290	1	REDUCER (32N-12NF)	
5.	115-150	1	REDUCER (12N-04NF)	
6.	110-141	1	DRAIN VALVE (04N)	
7.	154-265	1	UN RUN TEE (040FX-040-040)	
8.	153-421	1	TEE (08S-060-060)	
9.	153-422	1	TEE (08S-060-040)	
10.	155-174	1	S/O COUPLER (12S-12H90)	
11.	214-819	1	TEMPERATURE SWITCH	
12.	116-588	AR	BULK HOSE (1-1/2", SOLD PER 1')	USE 1 @ 8"
13.	111-028	2	T-BOLT CLAMP (1.75"-2.00")	
14.	149-391	1	RESERVOIR	
15.	515-188	1	HOSE (060FX90S-23"-3000)	
16.	154-222	1	CONNECTOR (060-08S)	
17.	514-226	1	S/O COUPLER (20S-24H45)	
18.	217-838	1	TERMINAL BLOCK	
19.	106-379	4	FLG LK SCREW (M6-1.00 X 20MM)	
20.	106-385	4	FLG LOCKNUT (M6-1.00)	
21.	106-551	4	CLIP NUT (M8-1.25)	
22.	110-996	-	FILLER BREATHER CAP	
23.	105-214	-	FLG SCREW (#10-24 X .5")	
24.	106-387	1	FLG LOCKNUT (M10-1.50)	

FOOTNOTES

NOTE:

REFER TO O-RING CHART (800-301) IN BACK OF THE BOOK FOR REPLACEMENT OF O-RINGS.

GROUND DRIVE HYDRAULICS



GROUND DRIVE HYDRAULICS

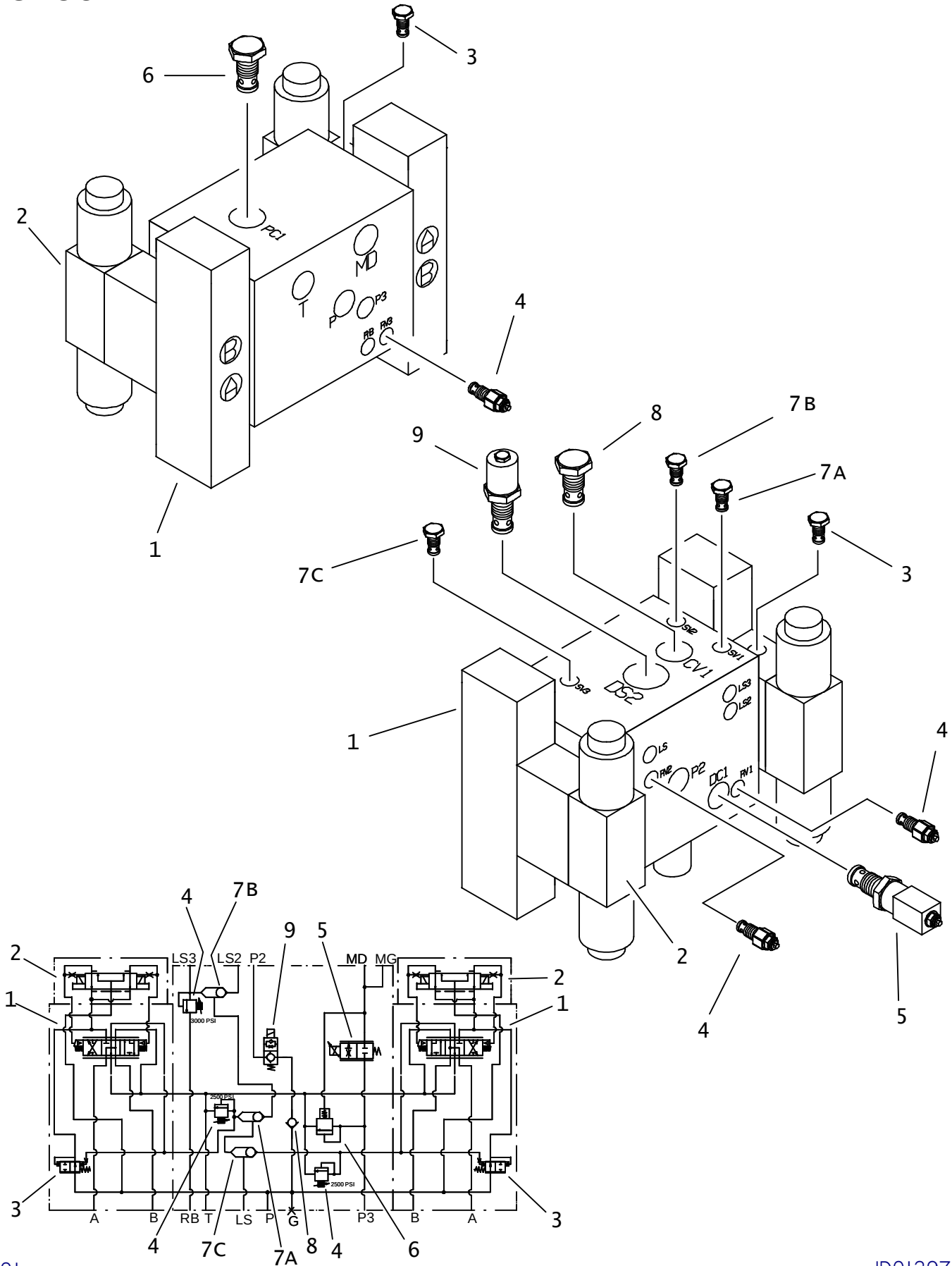
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	158-821	2	COUNTERBALANCE VALVE	
2.	500-471	4	COUNTERBALANCE CARTRIDGE KIT	
3.	516-080	1	HYD CONTROL VALVE (GRND DRIVE)	
4.	155-581	2	HYD MOTOR	
5.	153-261	1	HYD LINE	
6.	153-260	1	HYD LINE	
7.	154-759	2	HOSE (080FX-36"-3000)	
8.	154-838	2	HOSE (080FX90-44"-3000)	
9.	154-256	2	UNION (080-080FX90)	
10.	515-025	2	HOSE (080FX90-40"-3000)	
11.	515-003	1	HOSE (080FX90-31"-3000)	
12.	154-279	16	CONNECTOR (080-10S)	
13.	110-866	4	CLAMP (1/2")	
14.	110-958	4	BACKUP PLATE	
15.	105-818	8	BOLT (1/4-NC X 1-1/2")	
16.	105-589	2	SCREW (M8-1.25 X 100MM)	
17.	106-386	2	FLG LOCKNUT (M8-1.25)	
18.	105-095	2	WASHER (1/4")	
19.	154-716	1	HOSE (080FX90-48"-3000)	
20.	157-038	2	O-RING (O12 D90)	
21.	115-813	4	ABRASION SLEEVE (1.59" X 36")	

FOOTNOTES

NOTE

REFER TO O-RING CHART (800-301) IN BACK OF THE BOOK FOR REPLACEMENT OF O-RINGS.

GROUND DRIVE VALVE



GROUND DRIVE VALVE

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	516-080	-	HYD CONTROL VALVE	GROUND DRIVE
1.	501-866	2	HYD FLOW CONTROL VALVE	GROUND DRIVE
	191-099	2	SEAL REPAIR KIT	
2.	501-867	2	PILOT PRESSURE CONTROL VALVE	GROUND DRIVE
	191-100	2	SEAL REPAIR KIT	
	499-301	4	SOLENOID TUBE ASSEMBLY	
	214-434	4	SOLENOID COIL (SMALL)	
3.	N/A	2	GROUND DRIVE SECTION COMPENSATOR	
4.	501-869	3	RELIEF VALVE	GROUND DRIVE, CLOCKWISE ROTATION
	191-101	3	SEAL REPAIR KIT	
5.	501-870	1	HYD CONTROL VALVE	MUD
	191-102	1	SEAL REPAIR KIT	
	217-897	1	SOLENOID COIL (LARGE)	
6.	501-871	1	HYD COMPENSATOR VALVE	MUD
	191-103	1	SEAL REPAIR KIT	
7.	501-872	1	SHUTTLE VALVE	
	191-104	1	SEAL REPAIR KIT	
8.	501-874	1	HYD CHECK VALVE	THRUST
	191-102	1	SEAL REPAIR KIT	
9.	501-873	1	HYD CONTROL VALVE	HIGH SPEED THRUST
	191-105	1	SEAL REPAIR KIT	
	214-432	1	SOLENOID COIL	

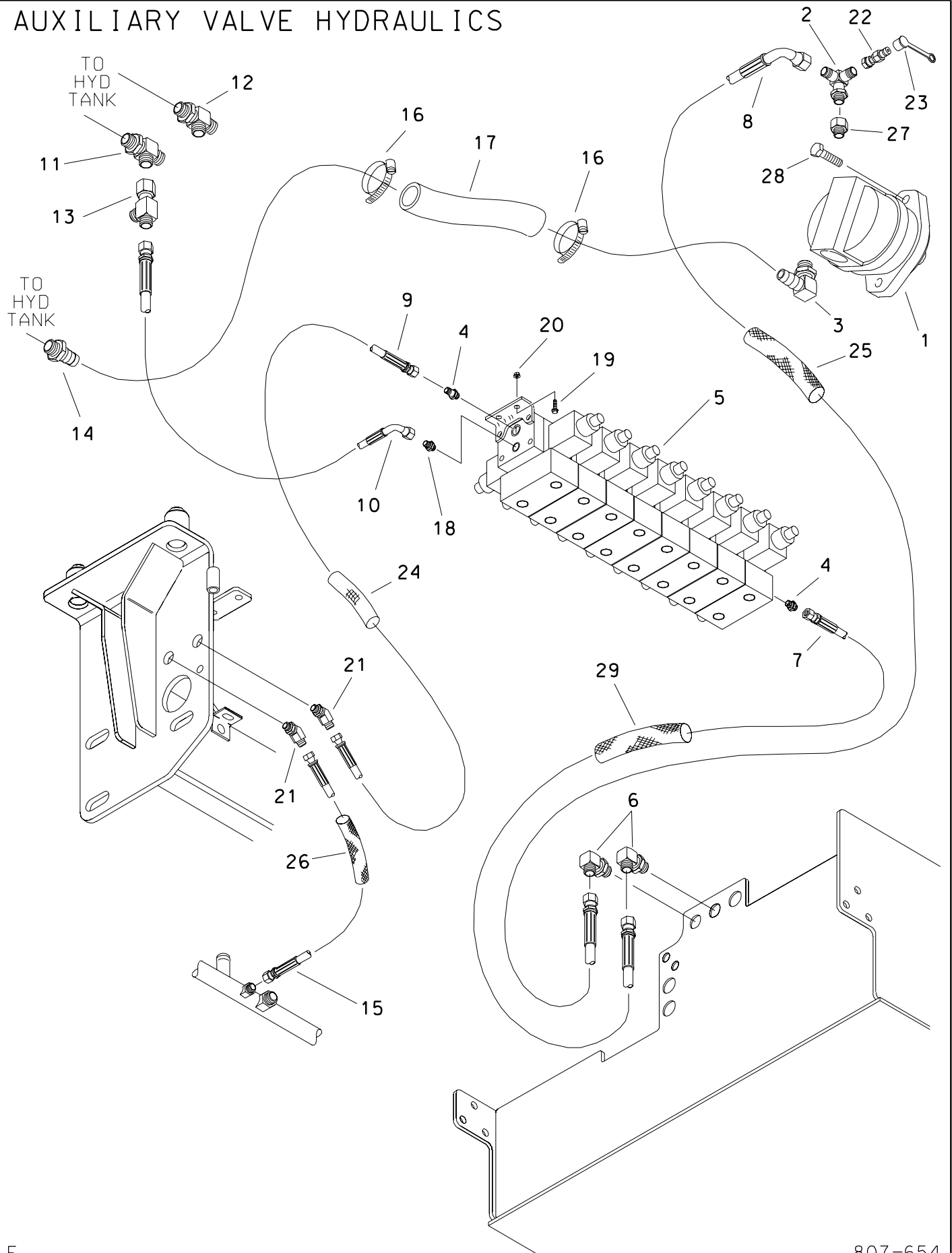
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FOOTNOTES:

NOTE:

REFER TO O-RING CHART (800-301) IN BACK OF THE BOOK FOR REPLACEMENT OF O-RINGS.

AUXILIARY VALVE HYDRAULICS



AUXILIARY VALVE HYDRAULICS

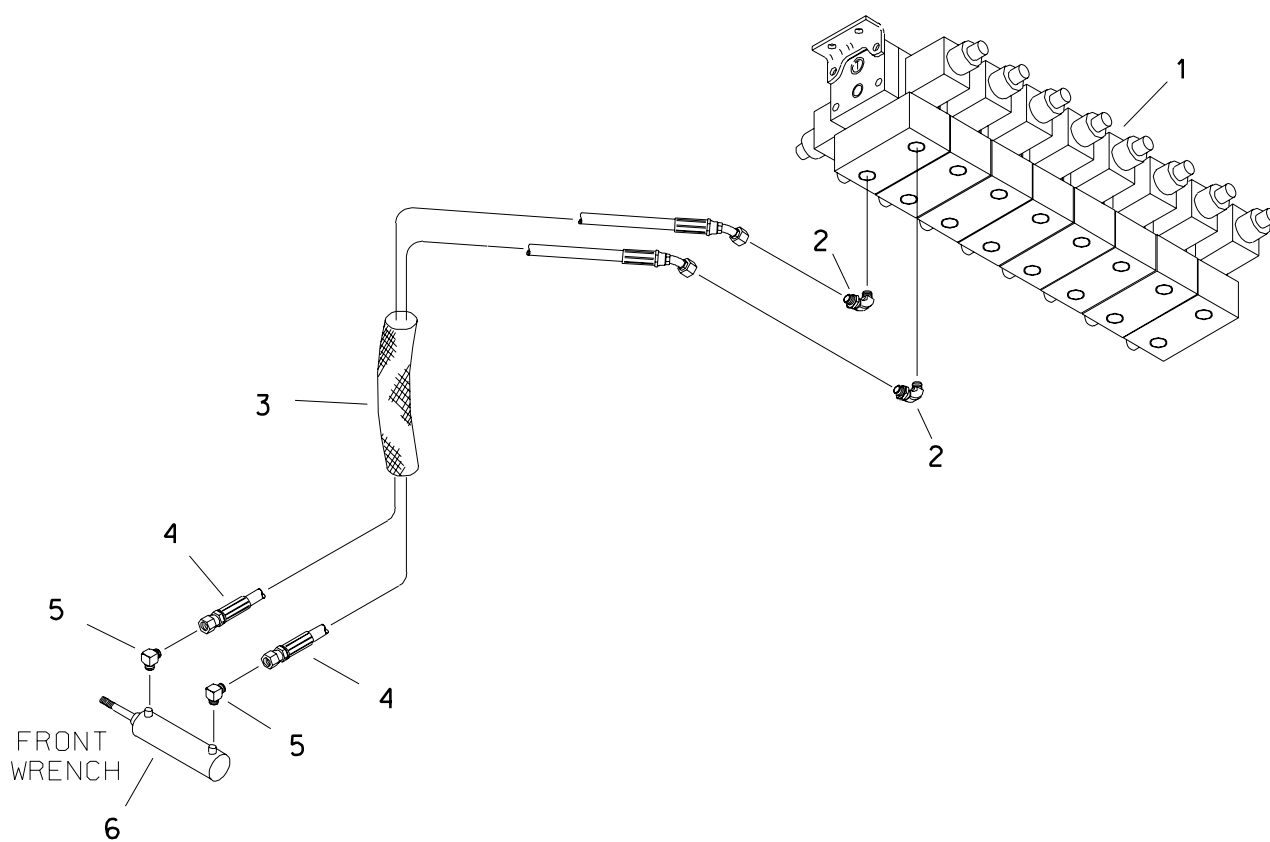
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	158-461	1	HYDRAULIC PUMP	
2.	514-160	1	BRANCH TEE (08S-080-040)	
3.	154-188	1	S/O COUPLER (16S-16H90)	
4.	154-246	2	CONNECTOR (06S-080)	
5.	153-209	1	HYD CONTROL VALVE	
6.	154-396	2	BK CONNECTOR (08D-08090BK)	
7.	154-812	1	HOSE (080FX-42"-3000)	
8.	515-192	1	HOSE (080FX90L-54"-3000)	
9.	515-684	1	HOSE (080FX-82"-3000)	
10.	154-705	1	HOSE (040FX90-60"-3000)	
11.	153-422	-	TEE (08S-060-040)	
12.	153-421	-	TEE (08S-060-060)	
13.	154-265	-	UN RUN TEE (040FX-040-040)	
14.	514-088	-	S/O COUPLER (16S-16H)	
15.	155-497	1	HOSE (080FX-131"-3000)	
16.	111-027	2	T-BOLT CLAMP (1.25"-1.50")	
17.	116-460	AR	BULK HOSE (1", SOLD PER 1')	USE 1 @ 55"
18.	154-220	1	CONNECTOR (040-06S)	
19.	106-988	4	FLG LK SCREW (M6-1.00 X 20MM)	
20.	106-538	4	LOCKNUT (M6-1.00,PRV TR0,10.9)	
21.	154-393	2	BK CONNECTOR (08D-08045BK)	
22.	159-156	1	ODC ADAPTER (02-040F)	
23.	159-148	1	DUST CAP (1/8")	
24.	115-817	1	ABRASION SLEEVE (1.59" X 84")	
25.	117-416	1	ABRASION SLEEVE (1.00" X 50")	
26.	117-212	1	ABRASION SLEEVE (1.25" X 118")	
27.	155-193	1	REDUCER (10S-08SF)	
28.	106-081	2	SCREW (M10-1.50 X 35MM, 12.9)	
29.	115-737	1	ABRASION SLEEVE (1.59" X 40")	

FOOTNOTES

NOTE:

REFER TO O-RING CHART (800-301) IN BACK OF THE BOOK FOR REPLACEMENT OF O-RINGS.

FRONT WRENCH HYDRAULICS



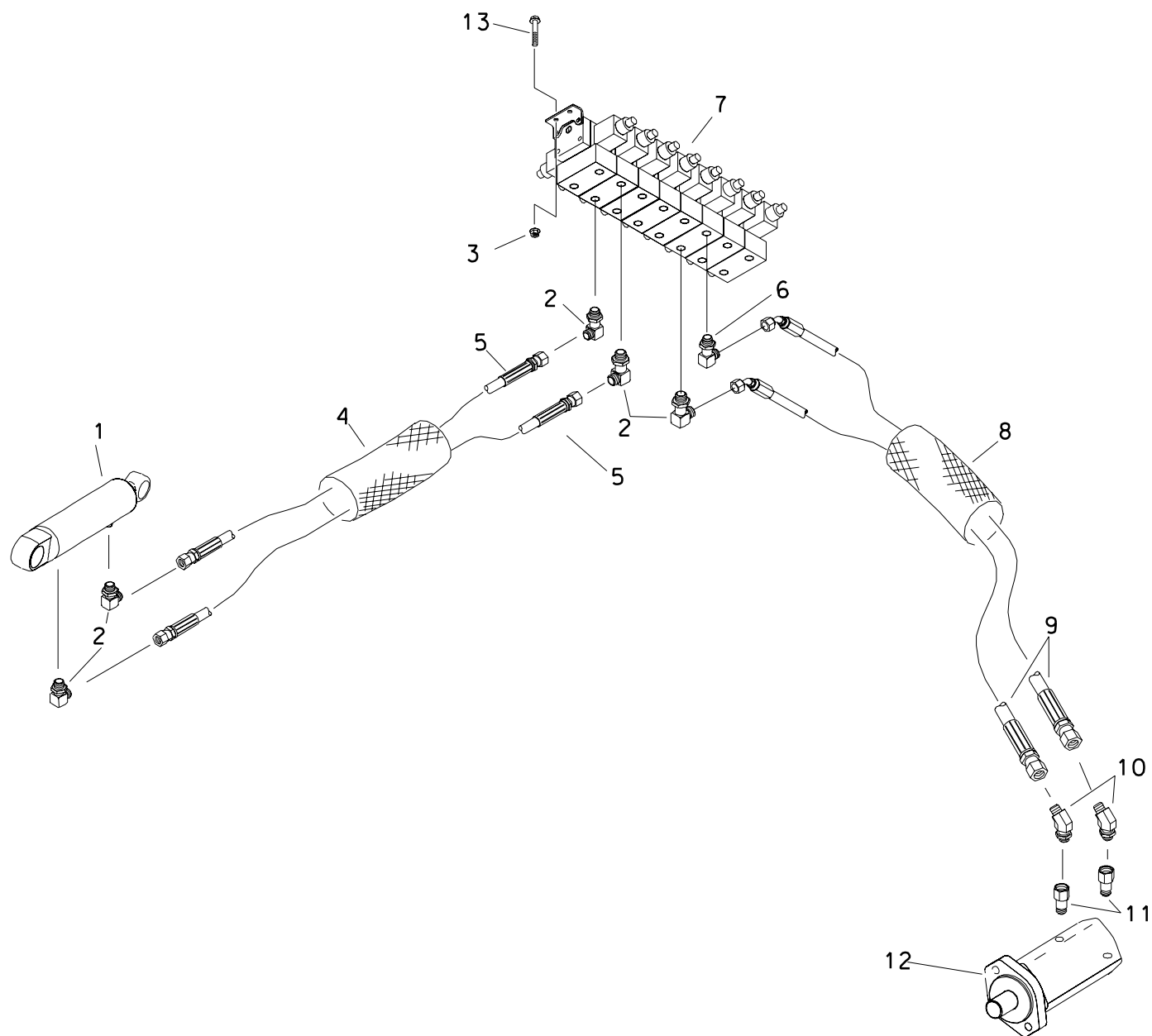
FRONT WRENCH HYDRAULICS

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	153-209	-	HYDRAULIC CONTROL VALVE	
2.	154-226	2	CONNECTOR (040-06S90)	
3.	115-902	1	ABRASION SLEEVE (1.59" X 100")	
4.	515-057	2	HOSE (040FX45-102"-3000)	
5.	154-252	2	CONNECTOR (04S-04090)	
6.	150-725	-	CYL, 1" BORE X 2.5" STROKE THRD	

FOOTNOTES

NOTE:
REFER TO O-RING CHART (800-301) IN BACK OF THE BOOK FOR REPLACEMENT OF O-RINGS.

PIPE LOADER HYDRAULICS



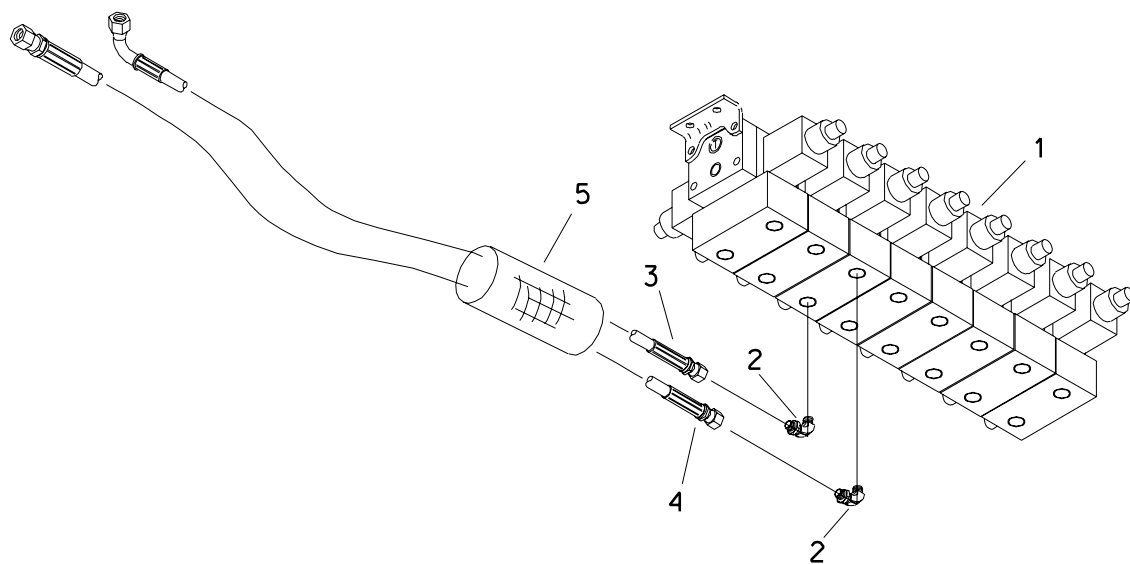
PIPE LOADER HYDRAULICS

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1	151-045	1	CYL (2.5 X 1.25 X 8.0)	
2	154-226	5	CONNECTOR (040-06S90)	
3	106-538	4	LOCKNUT (M6-1.0,PRV TRQ,10.9)	
4	115-903	1	ABRASION SLEEVE (1.59" X 50")	
5	154-670	2	HOSE (04QFX-70"-3000)	
6	154-387	1	CONNECTOR (040-06S90, ORF)	
7	153-209	-	HYDRAULIC CONTROL VALVE	
8	115-754	1	ABRASION SLEEVE (1.59" X 30")	
9	153-073	2	HOSE (04QFX45-28"-3000)	
10	154-263	2	CONNECTOR (04S-04045)	
11	155-181	2	REDUCER (10S-04SF)	
12	158-733	1	HYDRAULIC MOTOR	
13	106-988	4	FLG LK SCREW (M6-1.00 X 20MM)	

FOOTNOTES

NOTE
REFER TO O-RING CHART (800-301) IN BACK OF THE BOOK FOR REPLACEMENT OF O-RINGS.

LUBRICATOR HYDRAULICS



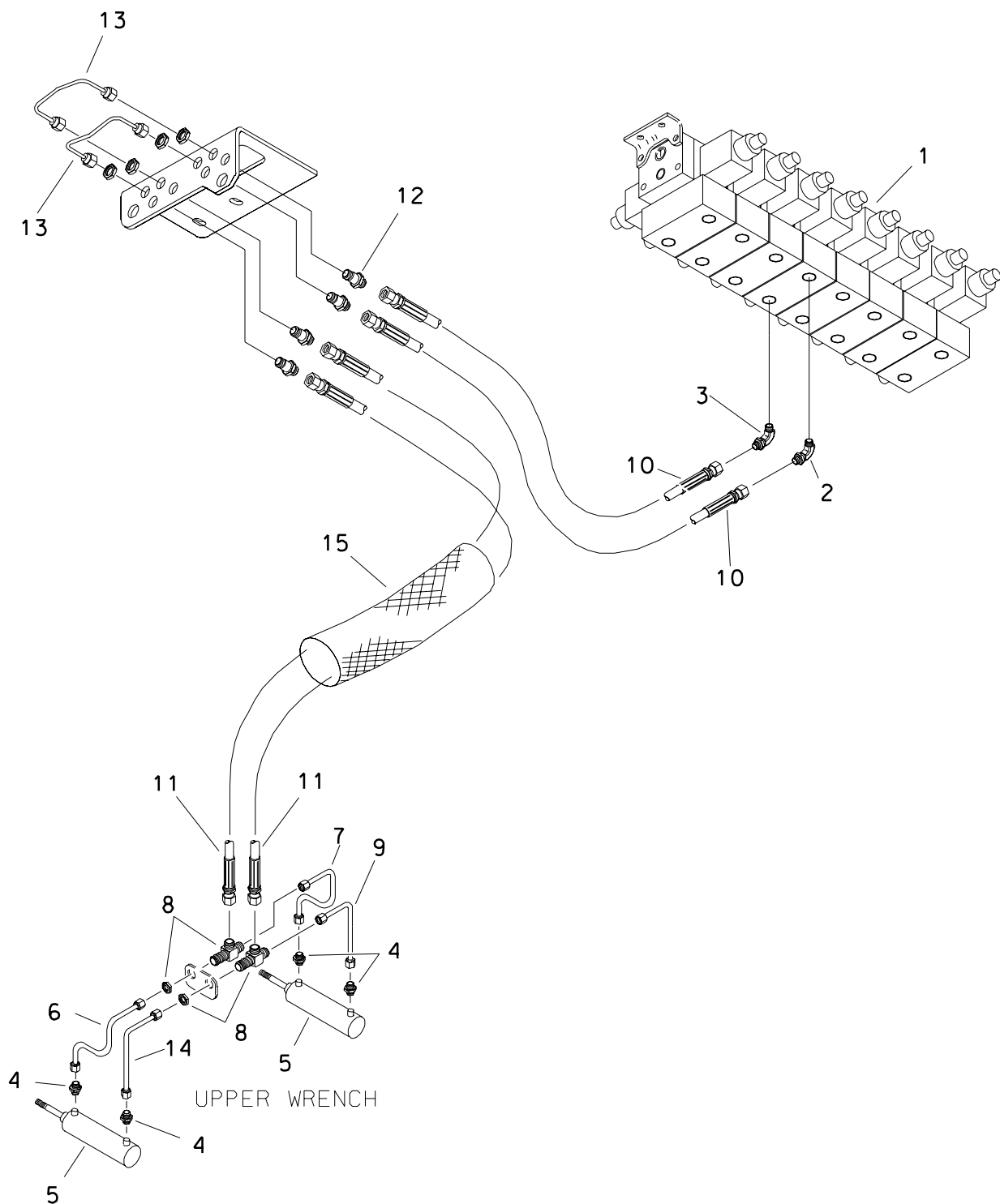
LUBRICATOR HYDRAULICS

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	153-209	-	HYDRAULIC CONTROL VALVE	
2.	154-226	2	CONNECTOR (040-06S90)	
3.	154-916	1	HOSE (040FX90-120"-3000)	
4.	154-811	1	HOSE (040FX-116"-3000)	
5.	117-231	1	ABRASION SLEEVE (1.59" X 105")	

FOOTNOTES

NOTE:
REFER TO O-RING CHART (800-301) IN BACK OF THE BOOK FOR REPLACEMENT OF O-RINGS.

UPPER WRENCH HYDRAULICS



UPPER WRENCH HYDRAULICS

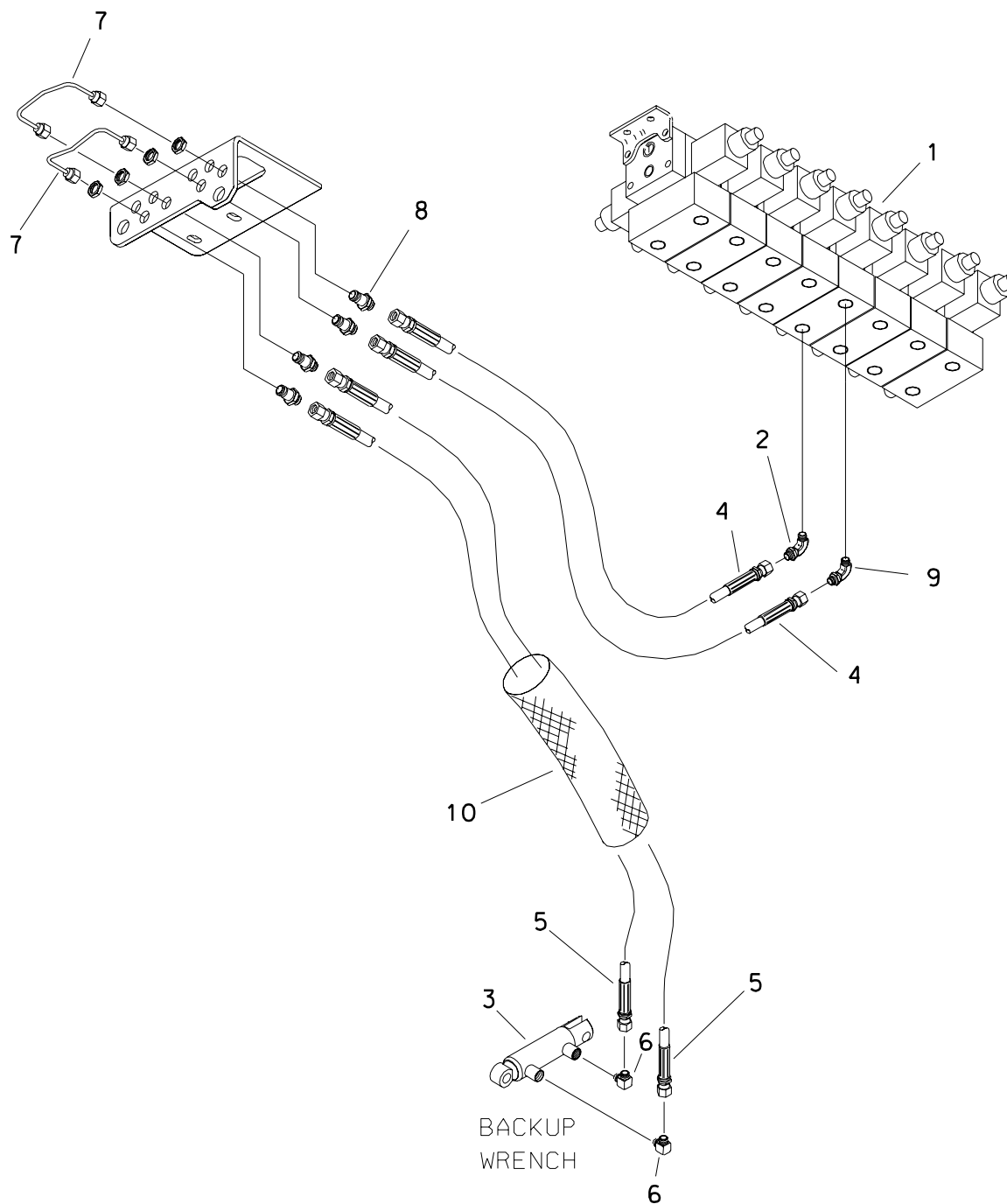
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	153-209	-	HYDRAULIC CONTROL VALVE	
2.	154-364	1	CONNECTOR (040-06S90, ORF)	
3.	154-226	1	CONNECTOR (040-06S90)	
4.	154-278	4	CONNECTOR (04S-040)	
5.	150-724	2	CYL, 1"BOREX2"STROKE THRD	
6.	156-862	1	HYD LINE (-04)	
7.	156-863	1	HYD LINE (-04)	
8.	154-424	2	BK RUN TEE (040-040-040BK)	
9.	156-860	1	HYD LINE (-04)	
10.	154-668	2	HOSE (040FX-32"-3000)	
11.	154-742	2	HOSE (040FX-130"-3000)	
12.	154-275	4	BULKHEAD CONNECTOR (040-040BK)	
13.	149-656	2	HYD LINE (-04)	
14.	156-861	1	HYD LINE (-04)	
15.	115-811	1	ABRASION SLEEVE (1.59" X 20")	

FOOTNOTES

NOTE:

REFER TO O-RING CHART (800-301) IN BACK OF THE BOOK FOR REPLACEMENT OF O-RINGS.

BACK-UP WRENCH HYDRAULICS



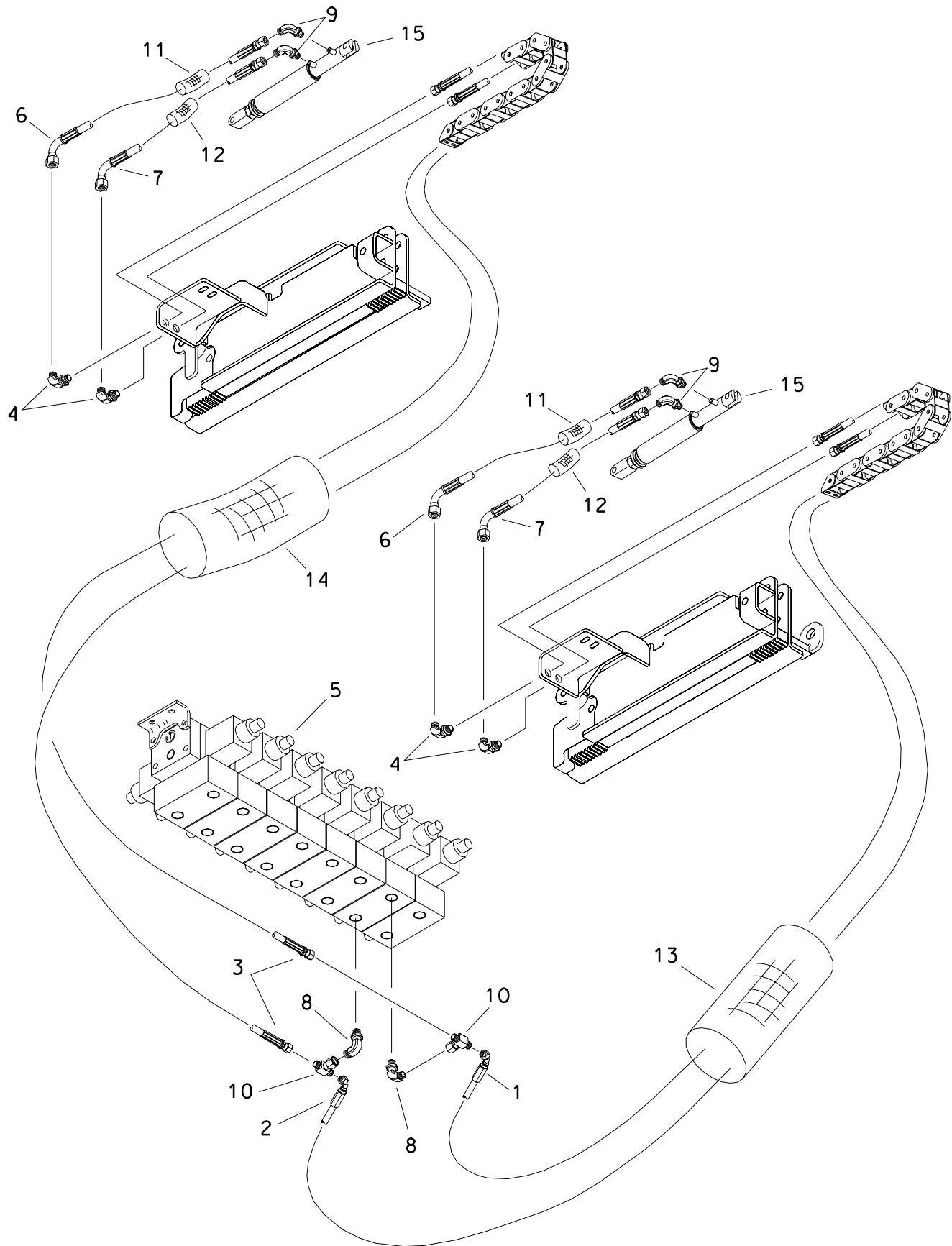
BACK-UP WRENCH HYDRAULICS

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	153-209	-	HYDRAULIC CONTROL VALVE	
2.	154-226	1	CONNECTOR (040-06S90)	
3.	150-723	1	CYL, 1"BOREX2"STROKE W/EYE	
4.	154-668	2	HOSE (040FX-32"-3000)	
5.	515-278	2	HOSE (040FX-121"-3000)	
6.	154-252	4	CONNECTOR (04S-04090)	
7.	149-656	2	HYD LINE (-04)	
8.	154-275	4	BULKHEAD CONNECTOR (040-040BK)	
9.	514-417	1	CONNECTOR (040-06S90, ORF)	
10.	117-622	1	ABRASION SLEEVE (1.25" X 20")	

FOOTNOTES

NOTE:
REFER TO O-RING CHART (800-301) IN BACK OF THE BOOK FOR REPLACEMENT OF O-RINGS.

GRIPPER HYDRAULICS



GRIPPER HYDRAULICS

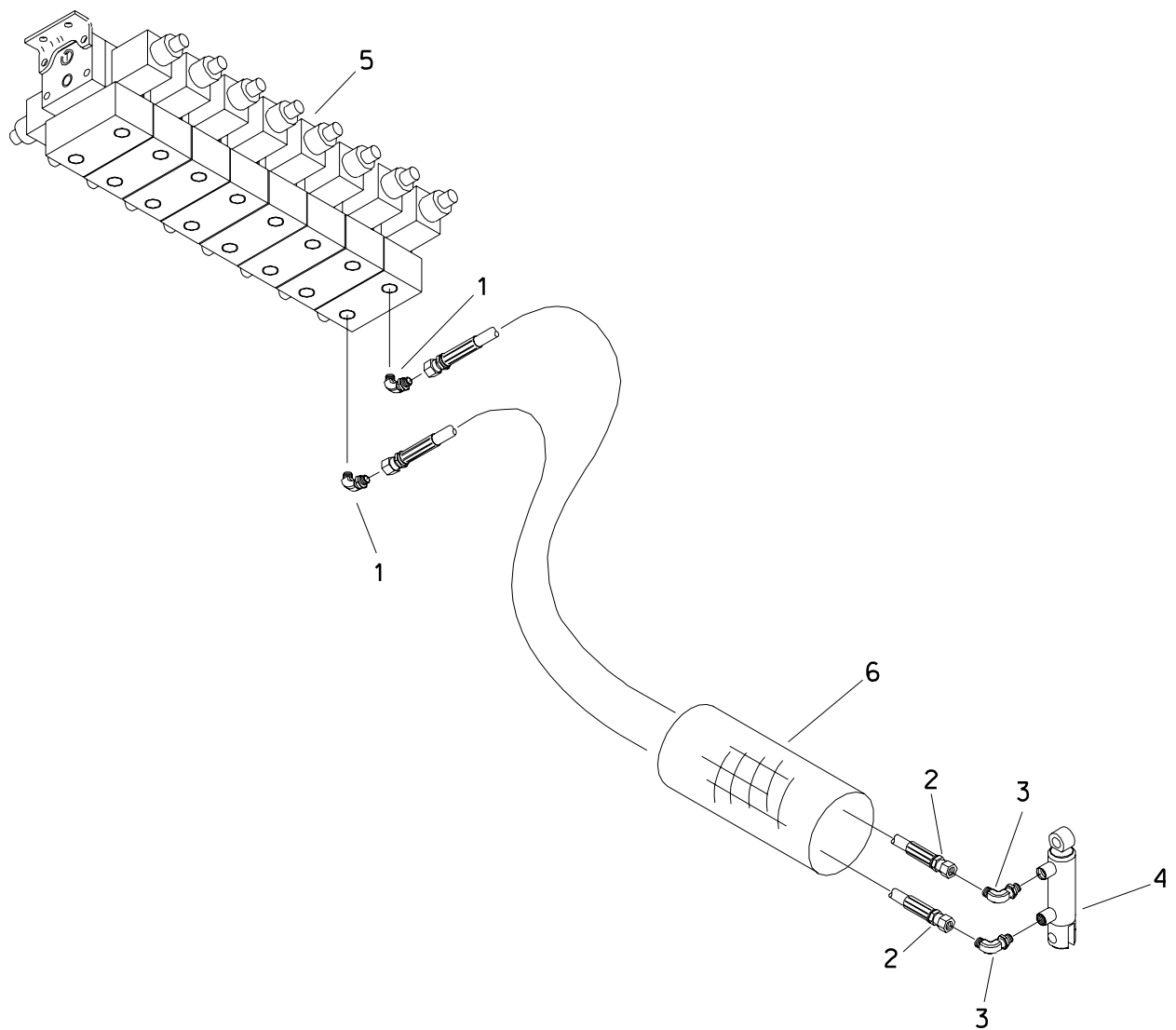
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	515-135	1	HOSE (040FX45-48"-3000)	
2.	515-425	1	HOSE (040FX45-42"-3000)	
3.	154-742	2	HOSE (040FX-130"-3000)	
4.	154-355	4	BK CONNECTOR (040-04090BK)	
5.	153-209	-	HYDRAULIC CONTROL VALVE	
6.	154-726	2	HOSE (040FX90-15"-3000)	
7.	515-598	2	HOSE (040FX90-12"-3000)	
8.	154-226	2	CONNECTOR (040-06S90)	
9.	154-252	4	CONNECTOR (04S-04090)	
10.	154-379	2	UN BR TEE (040FX-040-040)	
11.	117-608	2	ABRASION SLEEVE (1.00" X 15")	
12.	117-671	2	ABRASION SLEEVE (1.00" X 12")	
13.	115-737	1	ABRASION SLEEVE (1.59" X 40")	
14.	117-204	1	ABRASION SLEEVE (1.59" X 108")	
15.	191-161	2	GRIPPER CYLINDER	

FOOTNOTES

NOTE:

REFER TO O-RING CHART (800-301) IN BACK OF THE BOOK FOR REPLACEMENT OF O-RINGS.

SHUTTLE POSITION HYDRAULICS



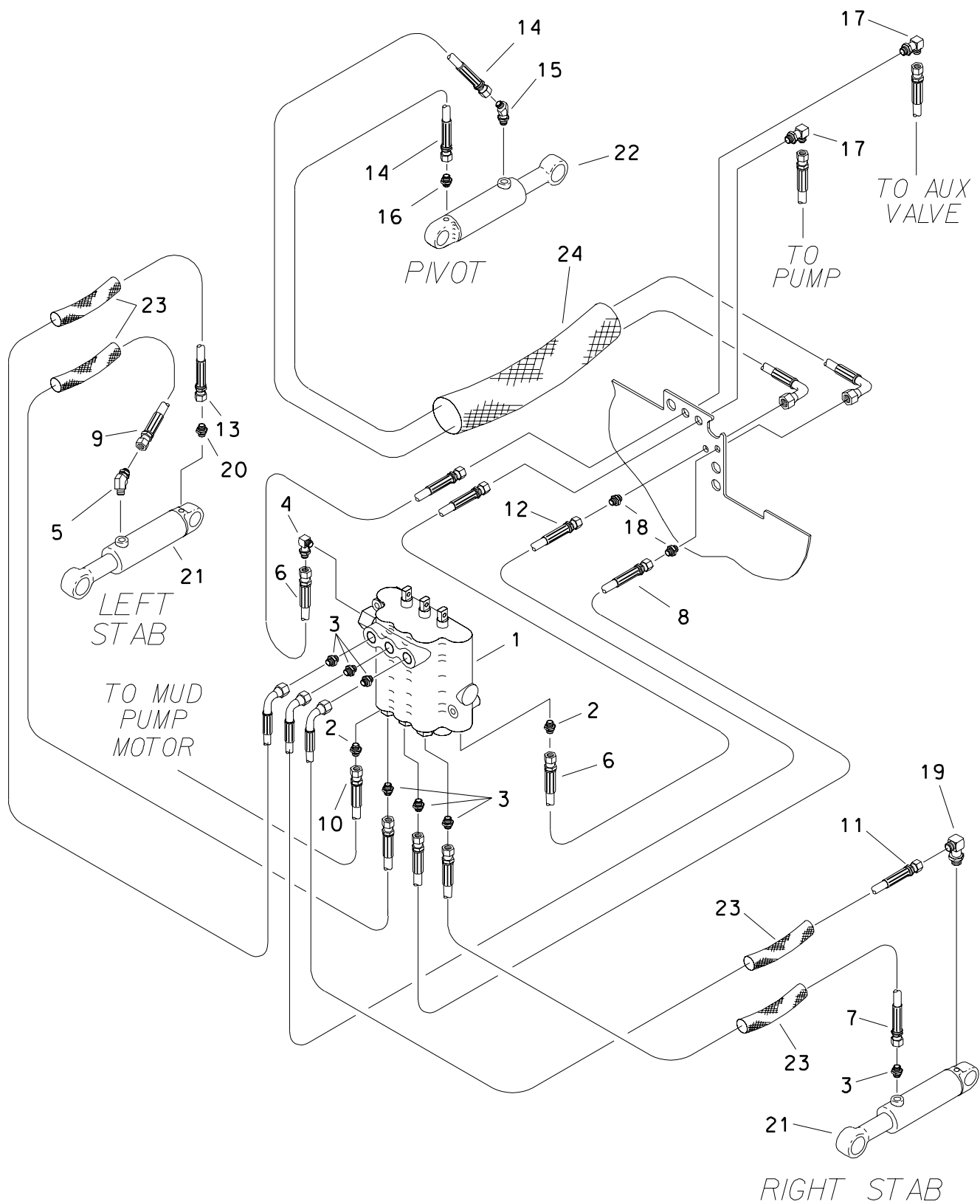
SHUTTLE POSITION HYDRAULICS

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	154-364	2	CONNECTOR (040-06S90,ORF)	
2.	154-702	2	HOSE (040FX-30"-3000)	
3.	154-401	2	CONNECTOR (04S-04090,ORF)	
4.	150-723	1	CYL,1"BOREX2"STROKE W/EYE	
5.	153-209	-	HYDRAULIC CONTROL VALVE	
6.	117-241	1	ABRASION SLEEVE (1.59" X 29")	

FOOTNOTES

NOTE:
REFER TO O-RING CHART (800-301) IN BACK OF THE BOOK FOR REPLACEMENT OF O-RINGS.

SET-UP HYDRAULICS



SET-UP HYDRAULICS

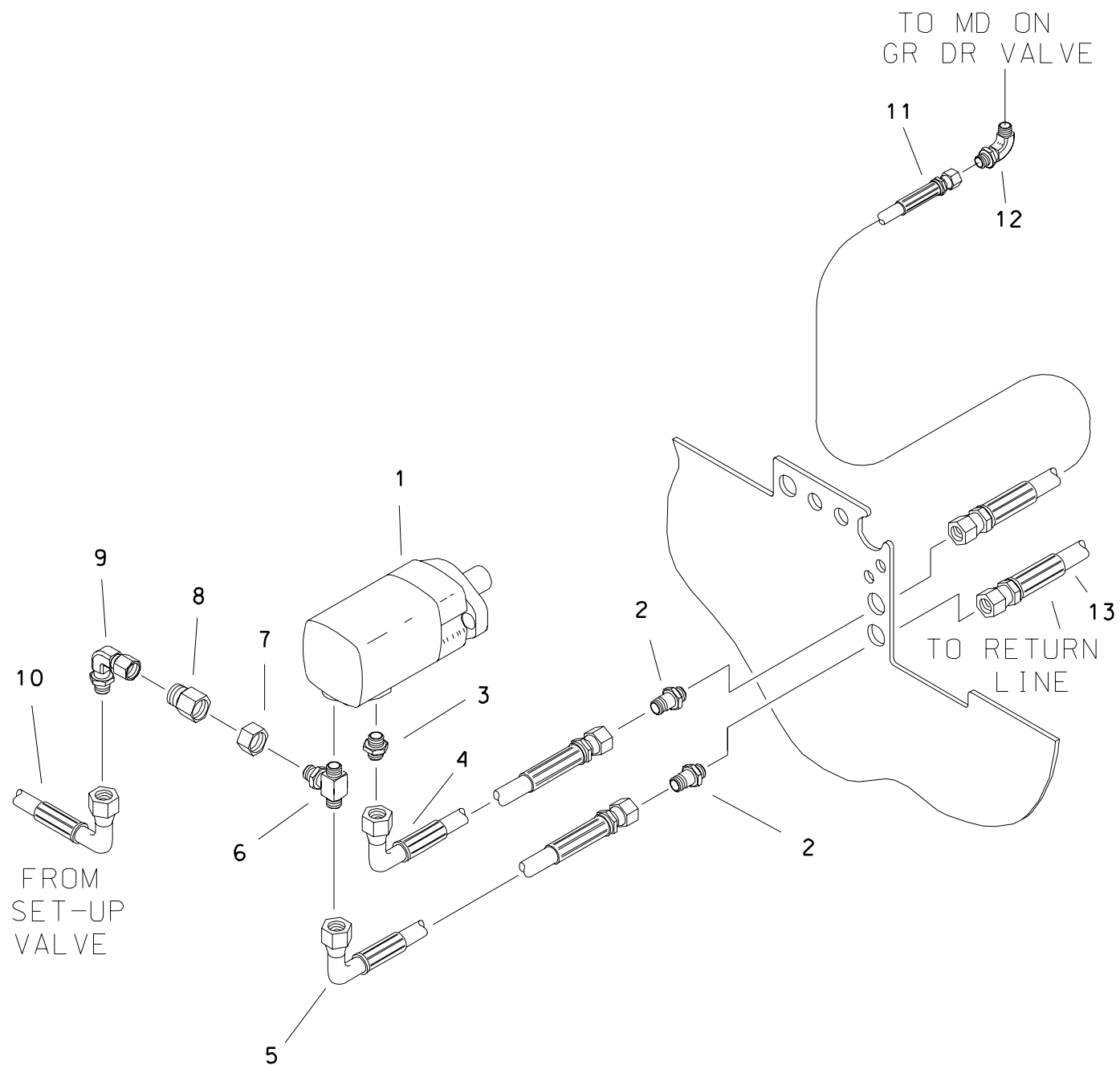
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	516-093	-	HYDRAULIC CONTROL VALVE	
2.	154-233	2	CONNECTOR (08S-080)	
3.	154-220	7	CONNECTOR (040-06S)	
4.	154-235	1	CONNECTOR (08S-08090)	
5.	154-250	1	CONNECTOR (040-06S45)	
6.	154-675	2	HOSE (080FX-40"-3000)	
7.	154-911	1	HOSE (040FX-36"-3000)	
8.	154-653	1	HOSE (040FX-40"-3000)	
9.	154-692	1	HOSE (040FX-54"-3000)	
10.	515-224	1	HOSE (080FX90-21"-3000)	
11.	515-093	1	HOSE (040FX90S-42"-3000)	
12.	154-729	1	HOSE (040FX90-44"-3000)	
13.	154-705	1	HOSE (040FX90-60"-3000)	
14.	515-257	2	HOSE (040FX90S-54"-3000)	
15.	154-223	1	CONNECTOR (040-08S45)	
16.	514-017	1	CONNECTOR (040-08S, DRF)	
17.	154-396	-	BK CONNECTOR (080-08090BK)	
18.	154-275	2	BK CONNECTOR (040-040BK)	
19.	514-417	1	CONNECTOR (040-06S90, DRF)	
20.	514-074	1	CONNECTOR (06S-040, DRF)	
21.	151-179	-	CYL (3" X 1.5" X 5")	
22.	151-089	-	CYL (3.5" X 1.75" X 3")	
23.	117-676	4	ABRASION SLEEVE (1.00" X 30")	
24.	117-656	1	ABRASION SLEEVE (1.59" X 45")	

FOOTNOTES

NOTE

REFER TO O-RING CHART (800-301) IN BACK OF THE BOOK FOR REPLACEMENT OF O-RINGS.

MUD PUMP HYDRAULICS



MUD PUMP HYDRAULICS

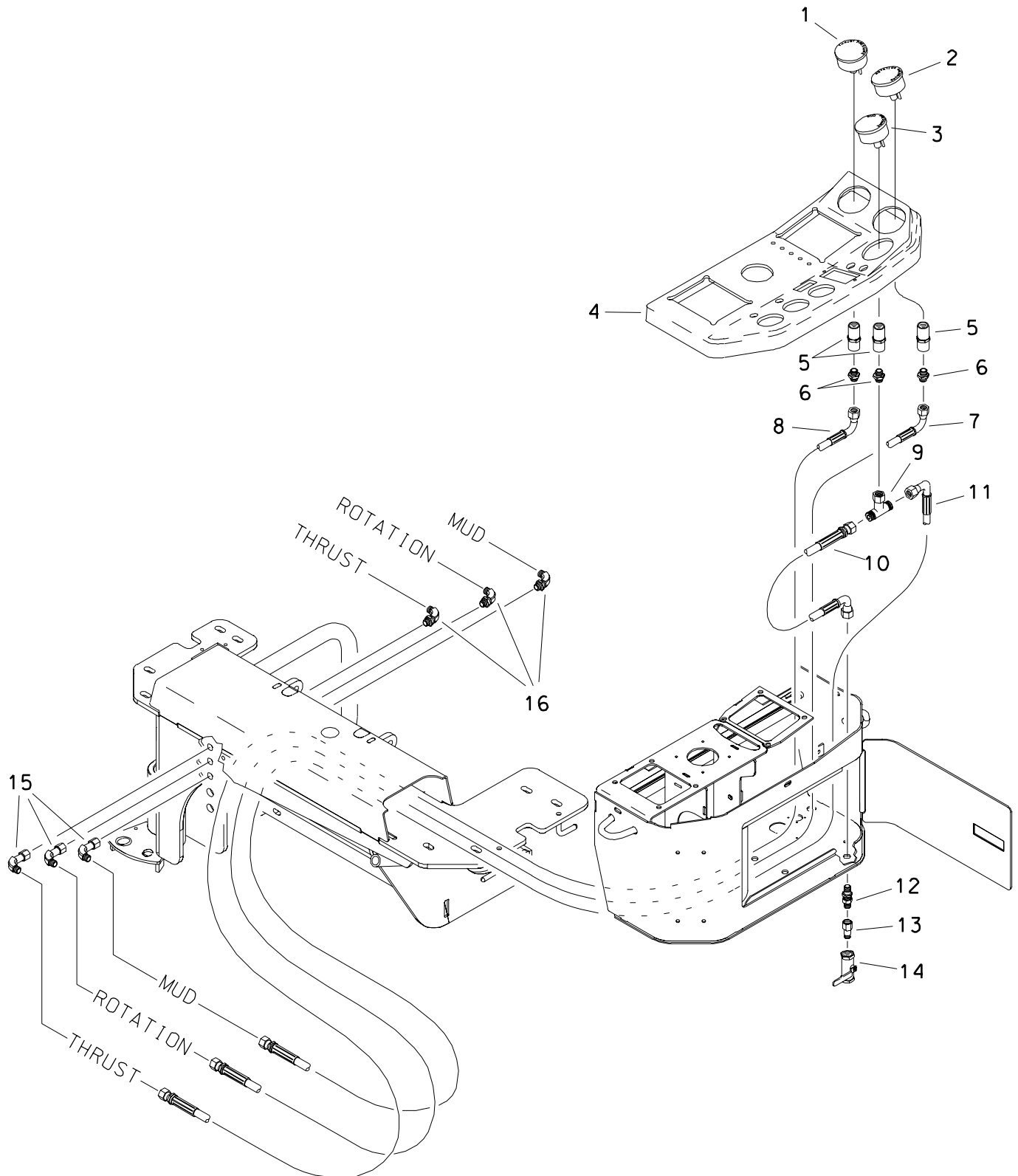
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	158-948	-	HYDRAULIC MOTOR	
2.	154-309	2	BK CONNECTOR (100-100BK)	
3.	514-105	1	CONNECTOR (10S-100)	
4.	515-644	1	HOSE (100FX90-31"-3000)	
5.	154-932	1	HOSE (100FX90-34"-3000)	
6.	154-317	1	RUN TEE (10S-100-100)	
7.	154-310	1	REDUCER NUT (100F)	
8.	154-312	1	REDUCER STEM (080)	
9.	154-256	1	UNION (080-080FX90)	
10.	515-224	-	HOSE (080FX90-21"-3000)	
11.	153-070	1	HOSE (100FX45M-85"-3000)	
12.	154-470	1	CONNECTOR (100-12S45)	
13.	515-165	1	HOSE (100FX-64"-3000)	

FOOTNOTES

NOTE

REFER TO O-RING CHART (800-301) IN BACK OF THE BOOK FOR REPLACEMENT OF O-RINGS.

RIGHT CONSOLE HYDRAULICS

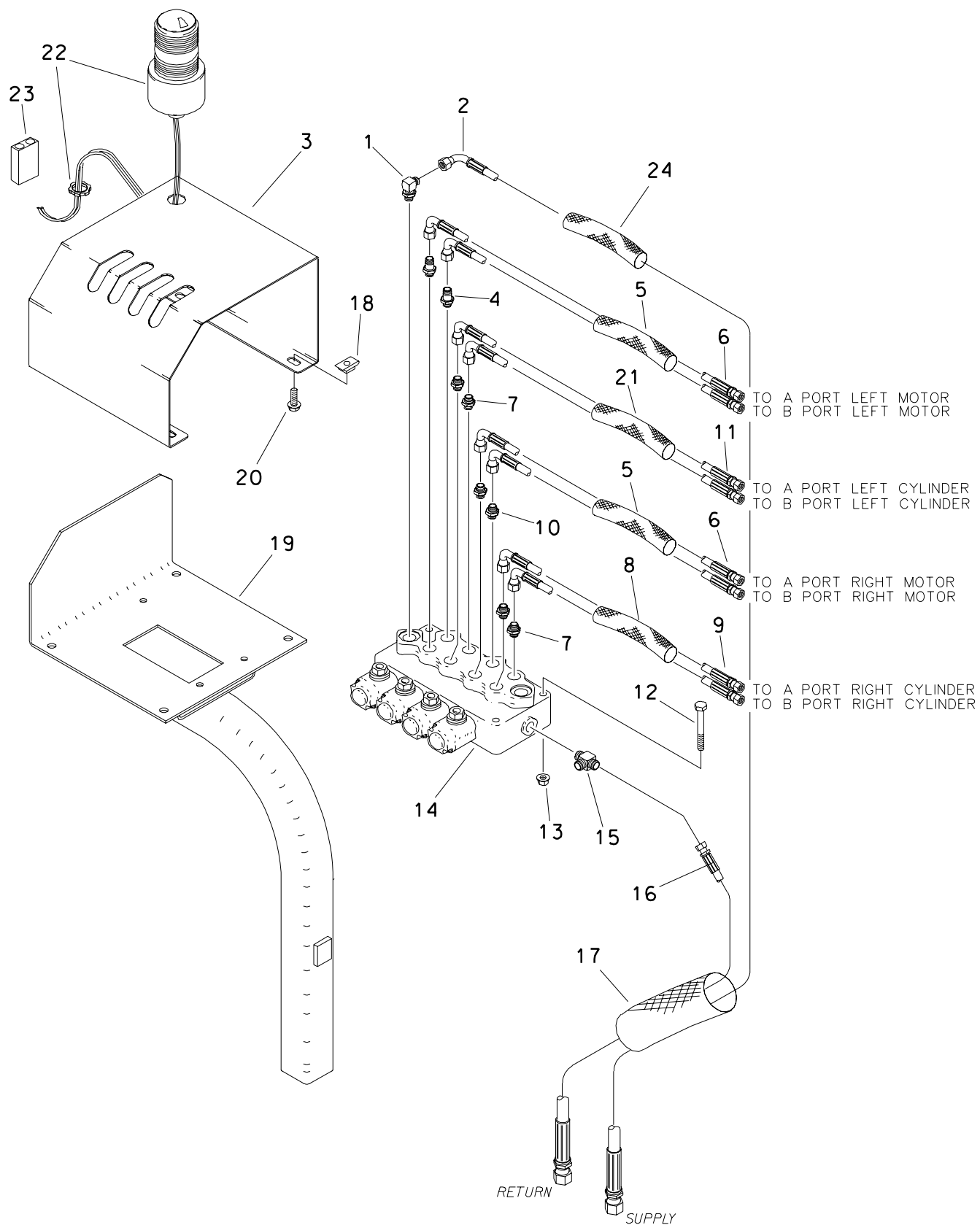


RIGHT CONSOLE HYDRAULICS

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	258-045	1	GAUGE (4000 PSI)	(THRUST)
2.	258-036	1	HYD PRESSURE GAUGE (6000 PSI)	(ROTATION)
3.	258-046	1	PRESSURE GAUGE (1500PSI)	(MUD)
4.	211-014	-	RIGHT CONSOLE COVER	
5.	514-408	3	COLLAR (04NF)	
6.	154-339	3	CONNECTOR (04N-040)	
7.	515-667	1	HOSE (04DFX90-54"-5000)	(ROTATION)
8.	154-900	1	HOSE (04DFX90S-62"-3000)	(TRUST)
9.	154-379	1	UN BR TEE (04DFX-040-040)	
10.	515-065	1	HOSE (04DFX90S-14"-3000)	
11.	515-257	1	HOSE (04DFX90S-54"-3000)	(MUD)
12.	153-238	1	BK CONNECTOR (040-06S)	
13.	153-264	1	REDUCER (04N-06SF)	
14.	120-071	1	SHUT-OFF (04NF-04NF)	
15.	154-255	3	UNION (040-04DFX90)	
16.	154-355	3	BK CONNECTOR (040-04090BK)	

FOOTNOTES

ANCHOR CONTROL HYDRAULICS



ANCHOR CONTROL HYDRAULICS

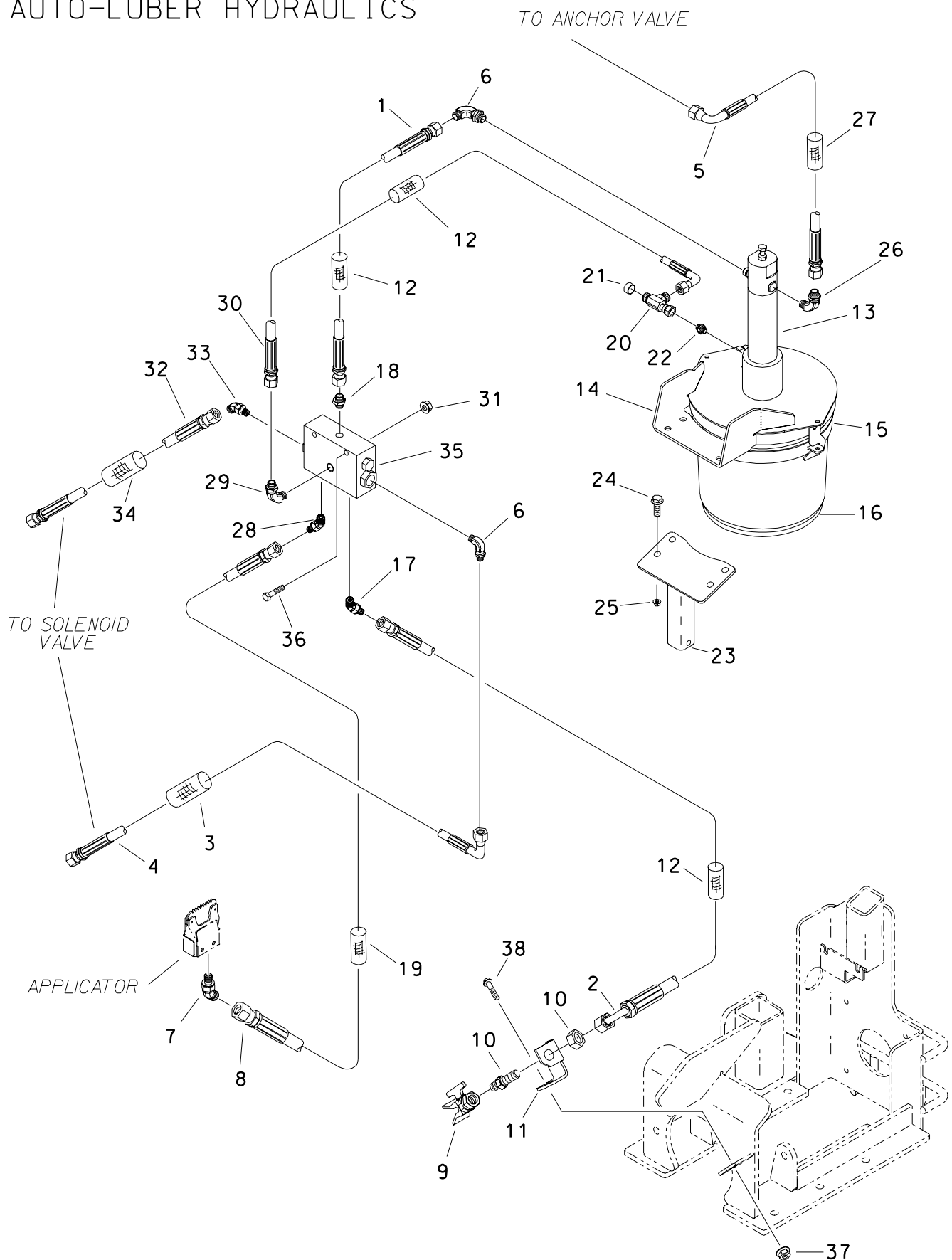
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	154-235	1	CONNECTOR (08S-08090)	
2.	154-884	1	HOSE (080FX90-60"-3000)	
3.	310-337	1	COVER	
4.	156-174	2	CONNECTOR (06S-060)	
5.	117-686	2	ABRASION SLEEVE (1.75" X 43")	
6.	515-015	4	HOSE (060FX90M-44"-3000)	
7.	154-220	4	CONNECTOR (040-06S)	
8.	117-761	1	ABRASION SLEEVE (1.59" X 70")	
9.	154-964	2	HOSE (040FX90-70"-3000)	
10.	154-221	2	CONNECTOR (06S-060)	
11.	149-064	2	HOSE (040FX90L-54"-3000)	
12.	106-570	3	SCREW (M8-1.25 X 60MM)	
13.	106-386	3	FLG LOCKNUT (M8-1.25)	
14.	158-944	1	HYD CONTROL VALVE	
-	499-443	-	VP RELIEF	
-	190-641	-	SEAL REPAIR KIT	
15.	514-063	1	RUN TEE (08S-080-040)	
16.	515-366	1	HOSE (080FX-52"-3000)	
17.	117-696	1	ABRASION SLEEVE (2.38" X 48")	
18.	106-551	4	CLIP NUT (M8-1.25)	
19.	310-505	1	VALVE SUPPORT	
20.	106-991	4	FLG LK SCREW (M8-1.25 X 20MM)	
21.	117-707	1	ABRASION SLEEVE (1.59" X 56")	
22.	214-697	1	STROBE LIGHT (12V, DC, GREEN)	INCL LOCKNUT
-	217-297	1	STROBE LIGHT GREEN MED PROFILE	
-	214-991	-	REPLACEMENT FLASH TUBE	
-	217-303	-	REPLACEMENT LENS (GREEN)	
-	217-301	-	BRUSH GUARD	
23.	214-103	1	2-WAY MALE CONNECTOR	
-	157-645	2	WEATHER-PAC SEAL (2.80MM)	
-	214-104	2	PACKARD MALE TERMINAL	
24.	117-566	1	ABRASION SLEEVE (1.25" X 11")	

FOOTNOTES

NOTE:

REFER TO O-RING CHART (800-301) IN BACK OF THE BOOK FOR REPLACEMENT OF O-RINGS.

AUTO-LUBER HYDRAULICS



AUTO-LUBER HYDRAULICS

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	154-682	1	HOSE (040FX-17"-3000)	SEE FOOTNOTE B
2.	515-538	1	HOSE (060FX90S-15"-3000)	SEE FOOTNOTE D
3.	117-195	1	ABRASION SLEEVE (1.00" X 125")	
4.	154-916	1	HOSE (040FX90-120"-3000)	
5.	154-802	1	HOSE (040FX90-26"-3000)	
6.	154-252	2	CONNECTOR (04S-04090)	
7.	514-414	1	CONNECTOR (04S-06045)	
8.	154-655	1	HOSE (060FX-160"-3000)	SEE FOOTNOTE C
9.	149-399	1	SPRAY NOZZLE (65)	
10.	514-163	1	BK CONNECTOR (060-060BK)	
11.	308-644	1	NOZZLE BRACKET	
12.	117-194	4	ABRASION SLEEVE (1.00" X 16")	
13.	350-398	-	GREASE PUMP PARTS	
14.	350-400	-	COVER	
15.	350-399	-	BASE	
16.	259-858	-	TOOL JNT LUBE, STD SPRY 2 GAL	
	256-031	-	TOOL JNT LUBE, SUMR SPRY 2 GAL	
17.	154-224	1	CONNECTOR (06S-06045)	
18.	154-278	1	BK CONNECTOR (04S-040BK)	
19.	117-759	1	ABRASION SLEEVE (1.00" X 160")	
20.	154-344	1	UN RUN TEE (060FX-060-060)	
21.	154-326	1	CAP (060F)	
22.	154-221	1	CONNECTOR (06S-060)	
23.	305-834	1	HOLDER ASSEMBLY	
24.	106-383	4	FLG LK SCREW (M10-1.50 X 30MM)	
25.	106-387	4	FLG LOCKNUT (M10-1.50)	
26.	154-401	1	CONNECTOR (04S-04090, DRF)	
27.	117-280	1	ABRASION SLEEVE (1.00" X 25")	
28.	154-382	1	CONNECTOR (06S-06045, DRF)	
29.	154-342	1	CONNECTOR (06S-06090)	
30.	154-929	1	HOSE (060FX90-19"-3000)	SEE FOOTNOTE A
31.	106-386	2	FLG LOCKNUT (M8-1.25)	
32.	154-811	1	HOSE (040FX-116"-3000)	
33.	154-263	1	CONNECTOR (04S-04045)	
34.	117-792	1	ABRASION SLEEVE (1.00" X 115")	
35.	310-591	1	VALVE	
36.	106-570	2	SCREW (M8-1.25 X 60MM)	
37.	106-385	1	FLG LOCKNUT (M6-1.00)	
38.	106-848	1	FLG SCREW (M6-1.00 X 25MM)	

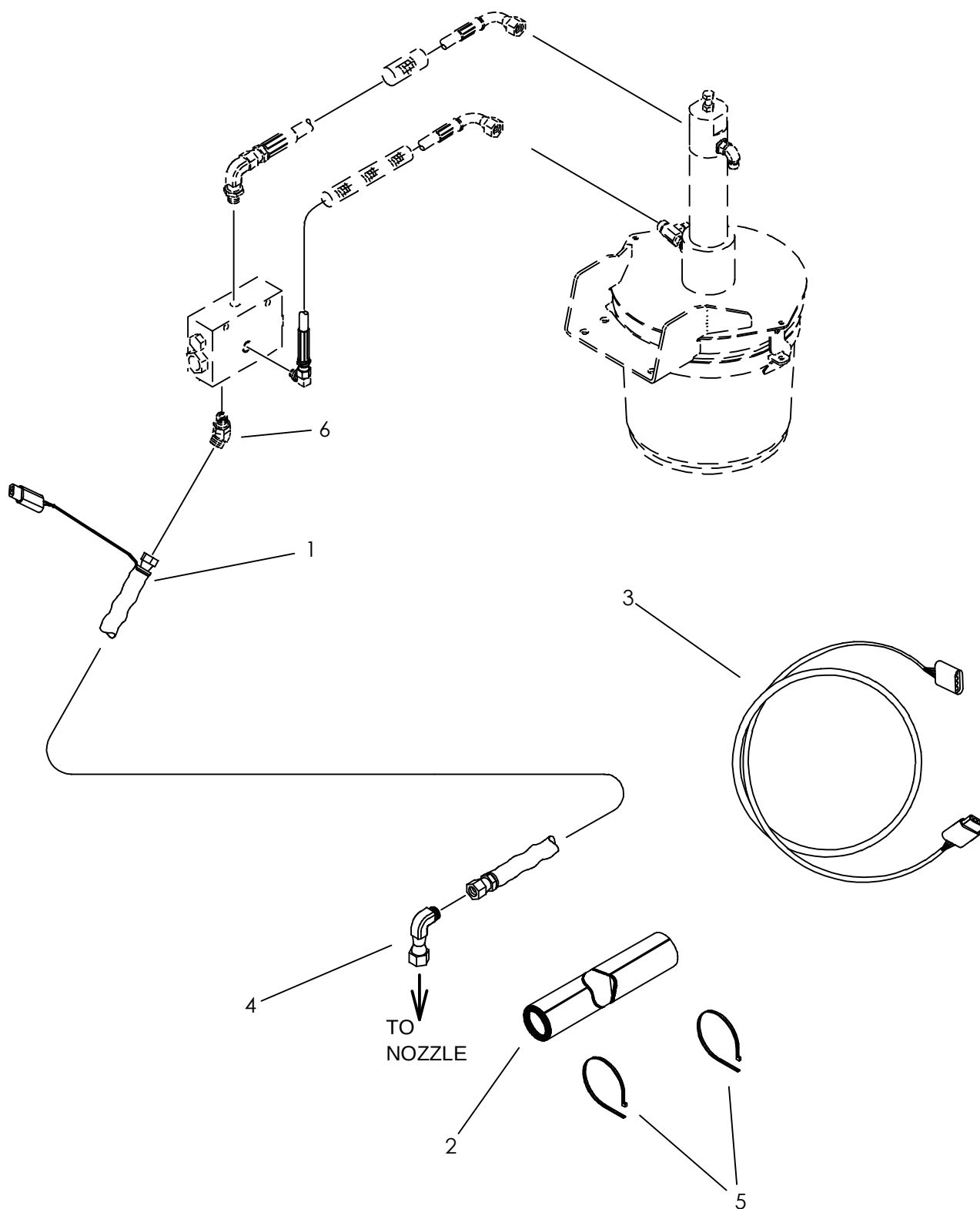
FOOTNOTES

- A. GREASE IN FROM PUMP
 B. HYDRAULIC OIL OUT TO LUBE PUMP
 C. TO REAR APPLICATOR
 D. TO SPRAY NOZZLE

NOTE

REFER TO O-RING CHART (800-301) ON BACK OF THE BOOK FOR REPLACEMENT OF O-RINGS.

HEATED HOSE KIT



HEATED HOSE KIT

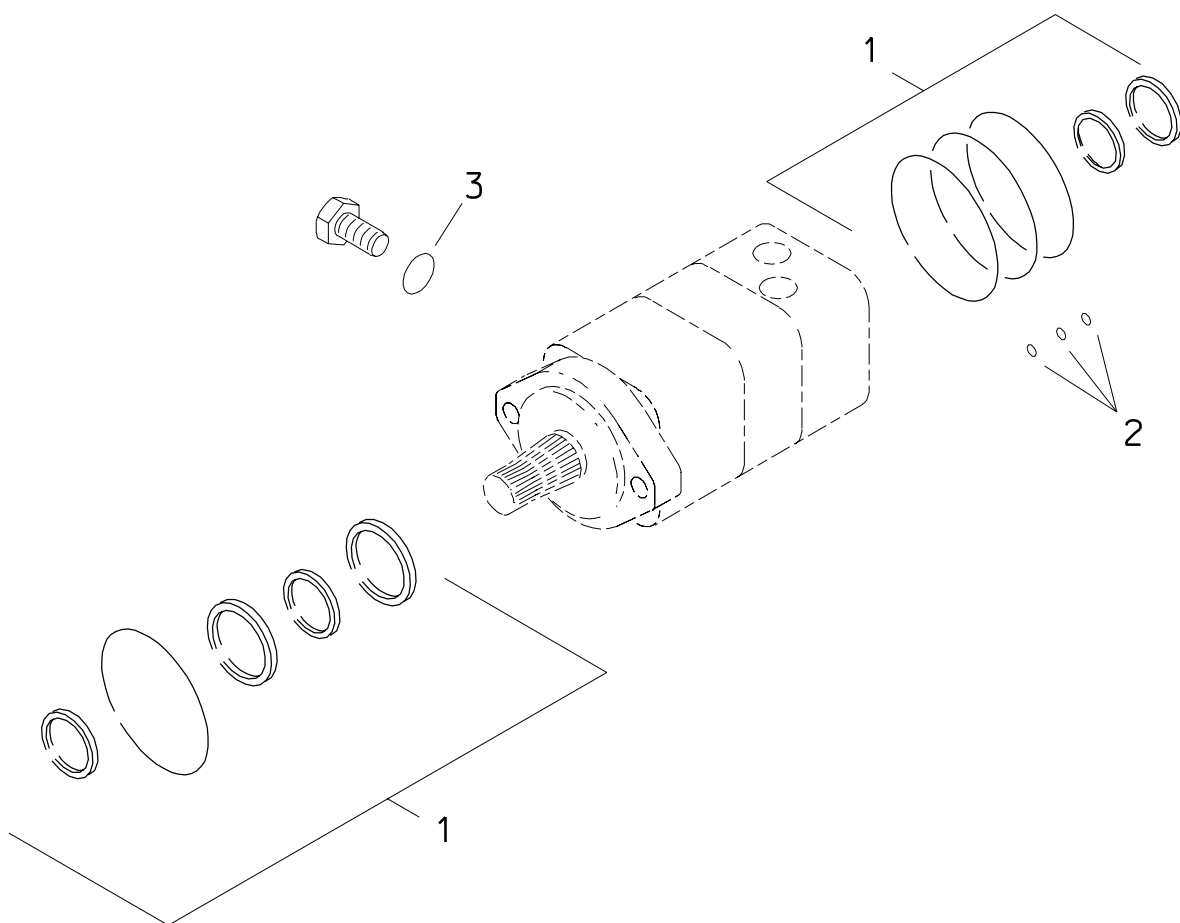
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	101-088		JT27M1 HEATED HOSE KIT	USE REF.'S 1, 2, 3, & 5
	101-089		HEATED HOSE KIT	USE REF.'S 1, 2, 4, & 5
1.	153-585	1	HOSE (060FX-18"-3000,SPCL)	
2.	117-549	1	INSULATOR (1" ID X 5.00")	
3.	214-843	1	GREASER JUMPER HARNESS	USED ON JT2720 MACH 1 ONLY
4.	154-228	1	UNION (060-060FX90)	USED ON JT1720 MACH 1 & JT4020 MACH 1 ONLY
5.	110-030	4	CABLE TIE (1/16" TO 4")	
6.	154-224	1	CONNECTOR (06S-06045)	

NOT SHOWN:

FOOTNOTES:

NOTE:
REFERE TO INSTALLATION INSTRUCTION 05I-29I.

HYDRAULIC MOTOR

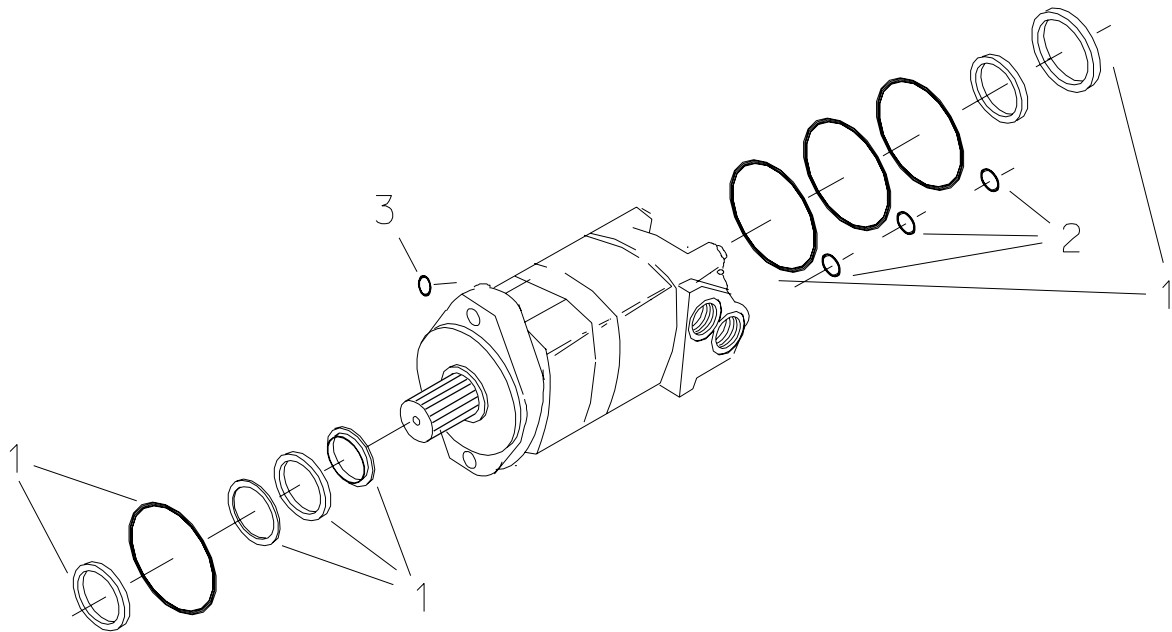


HYDRAULIC MOTOR

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	155-598		HYDRAULIC MOTOR (THRUST)	INCL REF NO.'S 1 THRU 3
1.	500-347	1	SEAL REPAIR KIT	
2.	155-760	1	O-RING (904 D90)	
3.	155-771	1	O-RING (011 D70)	

FOOTNOTES

HYDRAULIC MOTOR

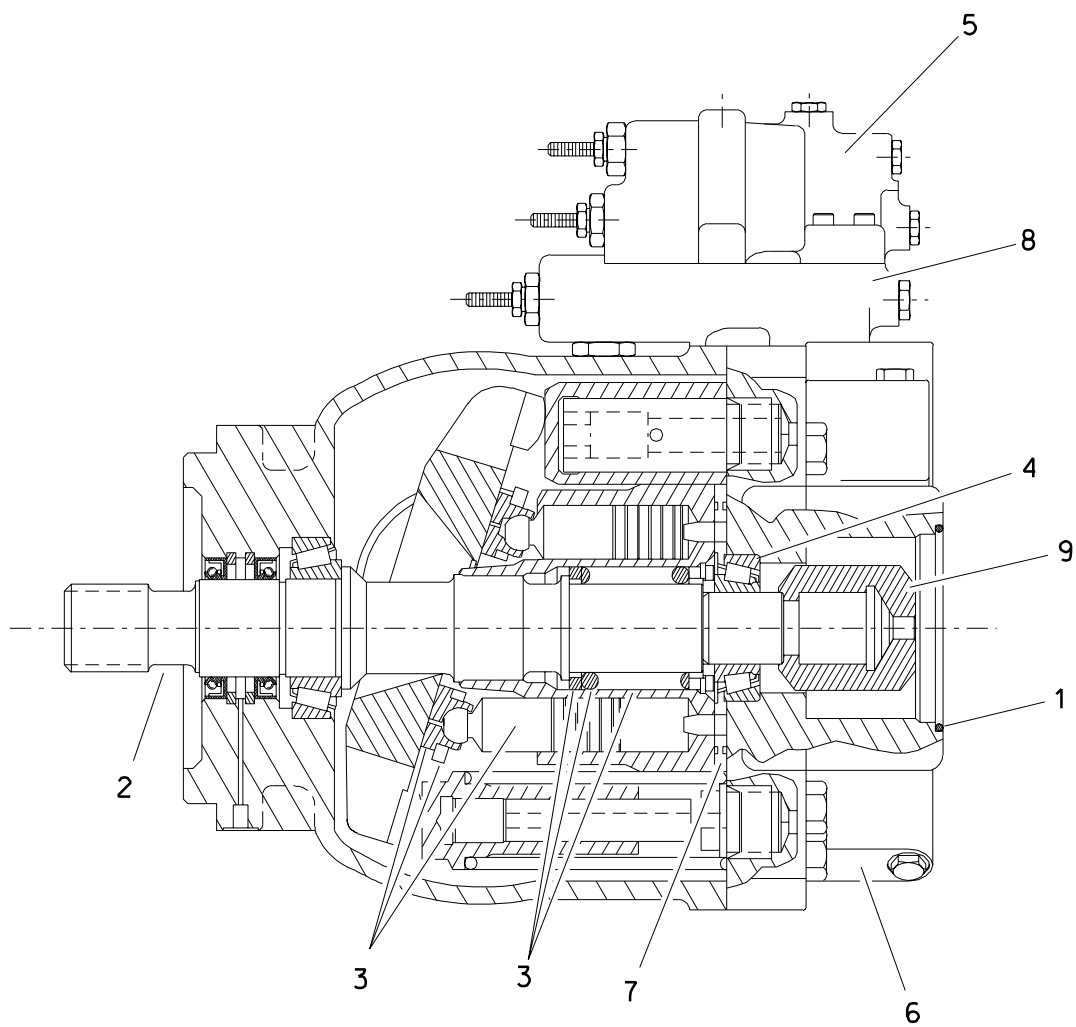


HYDRAULIC MOTOR

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	155-581		HYDRAULIC MOTOR	INCL REF NO'S 1-3
1.	500-347	1	SEAL REPAIR KIT	
2.	155-771		O-RING (011 D70)	
3.	155-760		O-RING (904 D90)	

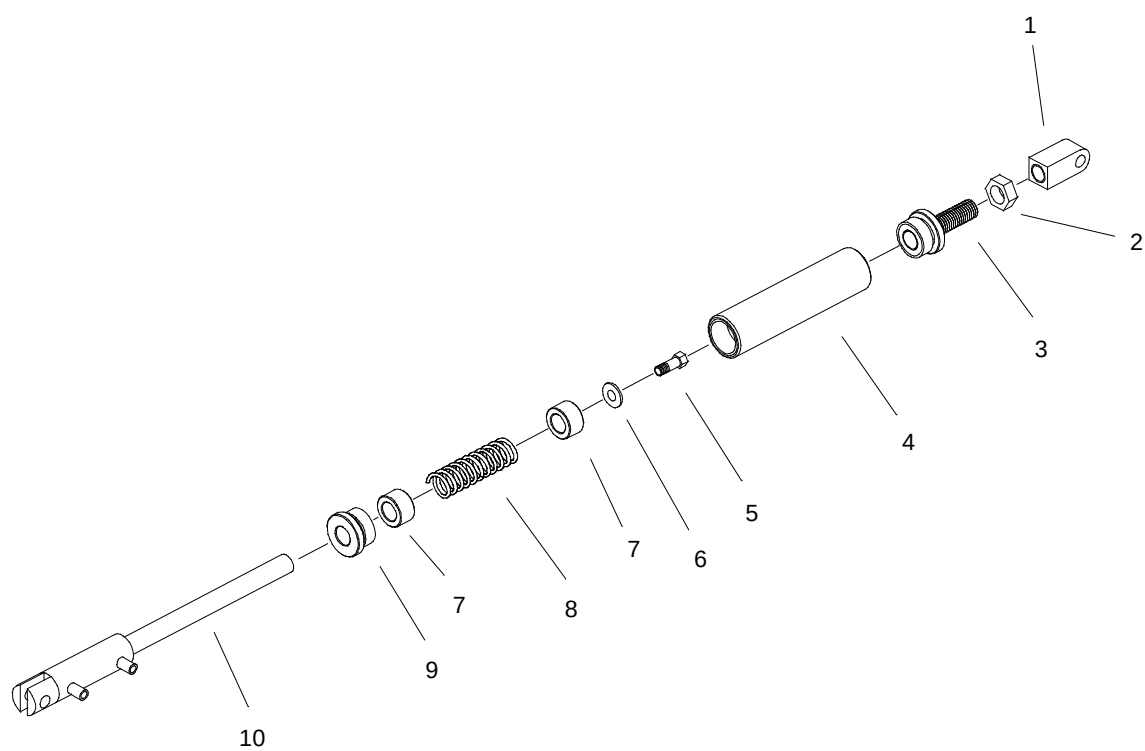
FOOTNOTES

LOAD SENSE PUMP



FOOTNOTES
1. INCLUDES ALL O-RINGS, GASKETS, & SEALS IN PUMP. NOT SHOWN

GRIPPER CYLINDER



GRIPPER CYLINDER

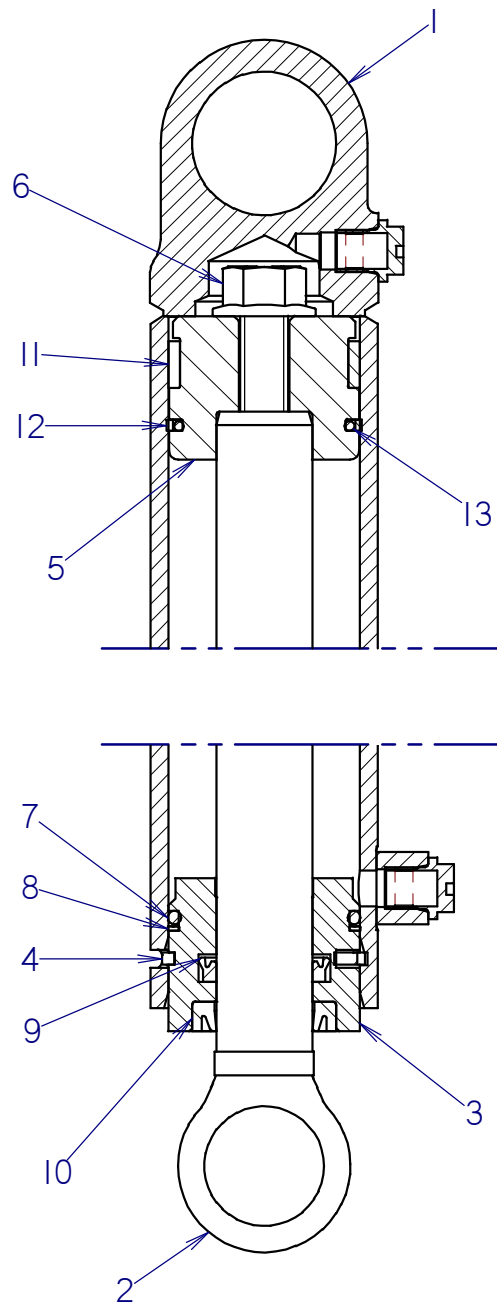
REF	PART				
NO.	NUMBER	QTY	DESCRIPTION	REMARKS	
	191-161	-	GRIPPER CYLINDER	INCL. 1-10	
1.	354-357	1	ROD END		
2.	105-310	1	JAM NUT (3/4-NC)		
3.	354-323	1	PLUNGER		
4.	354-355	1	TUBE		
5.	105-031	1	BOLT (3/8-NC X 1")	242 LOCTITE	
6.	105-118	1	WASHER (3/8")		
7.	354-356	2	SPRING GUIDE		
8.	117-180	1	COMPRESSION SPRING		
9.	354-432	1	CAP		
10.	150-731	1	CYL ASS'Y (NON-REPAIRABLE)	GREASE ROD BEFORE ASSEMBLY	

NOT SHOWN:

FOOTNOTES:

NOTE:

HYDRAULIC CYLINDER (2.0 X 1.0 X 24.0)



HYDRAULIC CYLINDER (2.0 X 1.0 X 24.0)

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	151-096	-	CYL (2.0 X 1.0 X 24.0)	INCL. REF NOS 1 THRU 13
1	152-031	1	CYLINDER BARREL (2.0 X 24.0)	
2	153-009	1	ROD ASSEMBLY 1 X 24	
3	150-772	1	CYLINDER HEAD (2.0 X 1.00)	
4	150-778	1	LOCK RING (2.0)	
5	150-775	1	CYLINDER PISTON (2.0 X 1.00)	INCL. MOLDED-ON WEAR RING
6	106-096	1	FLG BOLT (1/2-NC X 1-3/4"GD8)	SEE FOOTNOTE 2
7	157-022	1	O-RING (224 D90)	
8	155-732	1	BACKUP RING (224 D90)	
9	157-540	1	U-SEAL (1.000")	
10	157-537	1	WIPER SEAL (1.000")	
11	125-774	1	WEAR RING	
12	157-534	1	BACKUP RING (131 D90)	
13	157-018	1	O-RING (131 D90)	

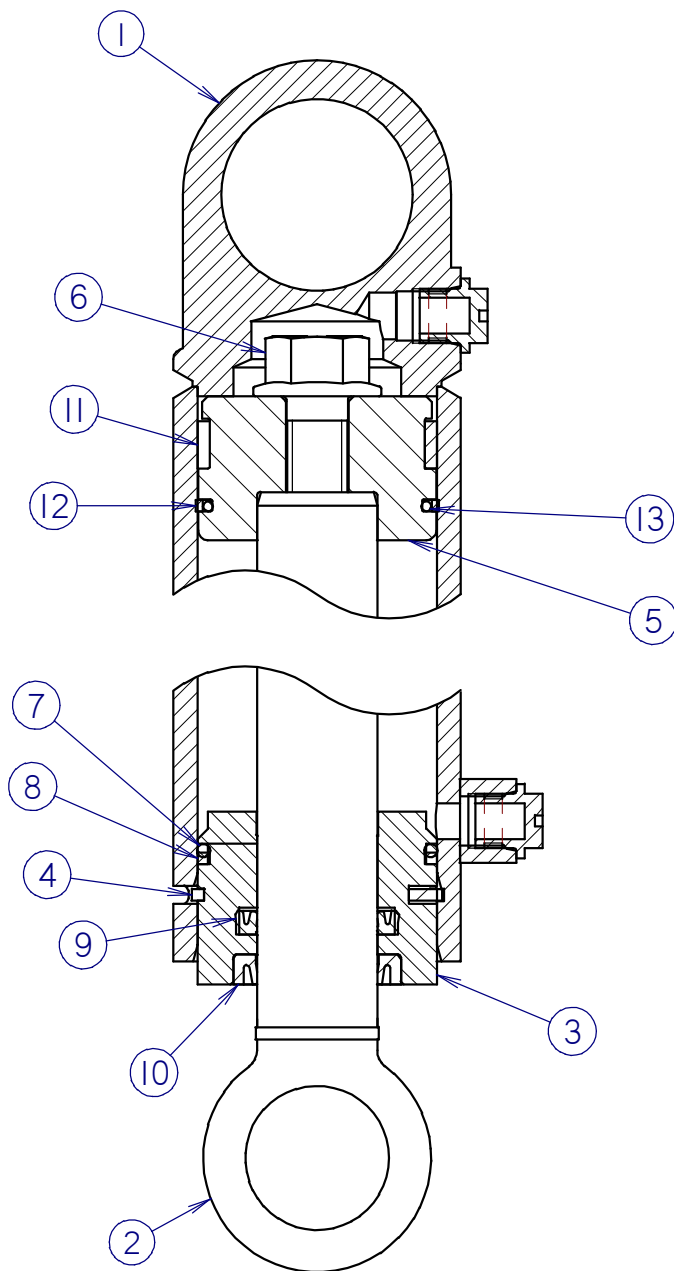
FOOTNOTES

1. SEAL KIT P/N: 190-169
2. APPLY LOCTITE 277 OR EQUIVALENT, TORQUE TO 90-100 FT-LBS (120-135 NM)

NOT SHOWN:

- 259-100 U-SEAL INSTALLER (1" - 1.499")
- 259-236 WIPER INSTALLER (1.25")
- 259-239 WIPER SEAL INSTALLER (2")
- 259-241 PISTON INSTALLER (2")
- 259-188 CYL HEAD SPANNER - TWO PIN

HYDRAULIC CYLINDERS (2.5" X 1.25")



HYDRAULIC CYLINDERS (2.5" X 1.25")

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	151-101	-	CYL (2.5 X 1.25 X 2.0)	SEE FOOTNOTES 1 & 2
1	152-034	1	CYLINDER BARREL (2.5 X 2.0)	
2	153-012	1	CYLINDER ROD (1.25 X 2.0)	
	151-084	-	CYL (2.5 X 1.25 X 2.5)	SEE FOOTNOTES 1 & 2
1	152-022	1	CYLINDER BARREL (2.5 X 2.5)	
2	153-005	1	CYLINDER ROD (1.25 X 2.5)	
	151-055	-	CYL (2.5 X 1.25 X 3.0)	SEE FOOTNOTES 1 & 2
1	152-005	1	CYLINDER BARREL (2.5 X 3.0)	
2	150-435	1	CYLINDER ROD (1.25 X 3.0)	
	151-028	-	CYL (2.5 X 1.25 X 4.0)	SEE FOOTNOTES 1 & 2
1	150-283	1	CYLINDER BARREL (2.5 X 4.0)	
2	150-415	1	CYLINDER ROD (1.25 X 4.0)	
	149-797	-	CYL (2.5 X 1.25 X 5.0)	SEE FOOTNOTES 1 & 2
1	149-810	1	CYLINDER BARREL (2.5 X 5.0)	
2	150-423	1	CYLINDER ROD (1.25 X 5.0)	
	151-061	-	CYL (2.5 X 1.25 X 6.0)	SEE FOOTNOTES 1 & 2
1	152-010	1	CYLINDER BARREL (2.5 X 6.0)	
2	150-438	1	CYLINDER ROD (1.25 X 6.0)	
	151-045	-	CYL (2.5 X 1.25 X 8.0)	SEE FOOTNOTES 1 & 2
1	150-295	1	CYLINDER BARREL (2.5 X 8.0)	
2	150-427	1	CYLINDER ROD (1.25 X 8.0)	
	149-675	-	CYL (2.5 X 1.25 X 10.0)	SEE FOOTNOTES 1 & 2
1	150-692	1	CYLINDER BARREL (2.5 X 10.0)	
2	149-730	1	CYLINDER ROD (1.25 X 10.0)	
	151-180	-	CYL (2.5 X 1.25 X 12.0)	SEE FOOTNOTES 1 & 2
1	152-015	1	CYLINDER BARREL (2.5 X 12.0)	
2	150-418	1	CYLINDER ROD (1.25 X 12.0)	
3	150-773	1	CYLINDER HEAD (2.5 X 1.25)	
4	150-779	1	LOCK RING (2.5)	
5	150-776	1	CYLINDER PISTON (2.5 X 1.25)	
6	106-097	1	FLG BOLT (5/8-NC X 1-3/4",GD8)	SEE FOOTNOTE 3
7	500-031	1	O-RING (228 D90)	
8	157-021	1	BACKUP RING (228 D90)	
9	157-541	1	U-SEAL (1.250")	
10	157-538	1	WIPER SEAL (1.250")	
11	125-775	1	WEAR RING	
12	157-535	1	BACKUP RING (139 D90)	
13	157-019	1	O-RING (139 D90)	

NOT SHOWN:

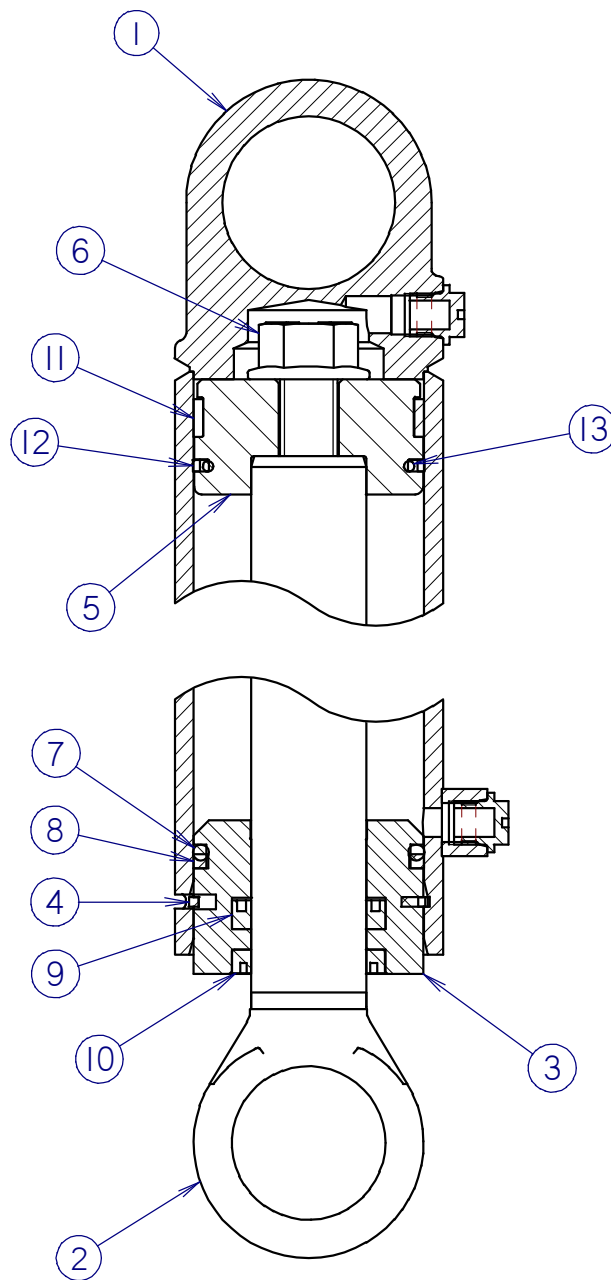
259-100	U-SEAL INSTALLER (1" - 1.499")
259-236	WIPER INSTALLER (1.25")
259-242	PISTON SEAL INSTALLER (2.5")
259-243	PISTON INSTALLER (2.5")
259-188	CYL HEAD SPANNER - TWO PIN

FOOTNOTES:

1. REF. #1 & #2 ARE SPECIFIC TO EACH CYLINDER, REF #3 THRU #13 ARE COMMON FOR ALL THE ABOVE LISTED CYLINDERS.
2. SEAL REPAIR KIT P/N: 190-166
3. APPLY LOCTITE 277 OR EQUIVALENT, TORQUE TO 180-200 FT-LBS

NOTE:

HYDRAULIC CYLINDERS (3.0" X 1.5")



HYDRAULIC CYLINDERS (3.0" X 1.5")

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	149-682	-	CYL (3.0 X 1.5 X 2.5)	SEE FOOTNOTES 1 & 2
1	149-804	1	CYLINDER BARREL (3.0 X 2.5)	
2	149-731	1	CYLINDER ROD (1.50 X 2.5)	
	151-049	-	CYL (3.0 X 1.5 X 3.0)	SEE FOOTNOTES 1 & 2
1	150-299	1	CYLINDER BARREL (3.0 X 3.0)	
2	150-431	1	CYLINDER ROD (1.50 X 3.0)	
	151-054	-	CYL (3.0 X 1.5 X 4.0)	SEE FOOTNOTES 1 & 2
1	152-004	1	CYLINDER BARREL (3.0 X 4.0)	
2	150-434	1	CYLINDER ROD (1.50 X 4.0)	
	151-179	-	CYL (3.0 X 1.5 X 5.0)	SEE FOOTNOTES 1 & 2
1	152-068	1	CYLINDER BARREL (3.0 X 5.0)	
2	153-038	1	CYLINDER ROD (1.50 X 5.0)	
	151-086	-	CYL (3.0 X 1.5 X 6.0)	SEE FOOTNOTES 1 & 2
1	152-008	1	CYLINDER BARREL (3.0 X 6.0)	
2	153-003	1	CYLINDER ROD (1.50 X 6.0)	
	151-136	-	CYL (3.0 X 1.5 X 8.0)	SEE FOOTNOTES 1 & 2
1	152-014	1	CYLINDER BARREL (3.0 X 8.0)	
2	153-027	1	CYLINDER ROD (1.50 X 8.0)	
	151-029	-	CYL (3.0 X 1.5 X 10.0)	SEE FOOTNOTES 1 & 2
1	150-284	1	CYLINDER BARREL (3.0 X 10.0)	
2	150-416	1	CYLINDER ROD (1.50 X 10.0)	
	151-043	-	CYL (3.0 X 1.5 X 12.0)	SEE FOOTNOTES 1 & 2
1	150-293	1	CYLINDER BARREL (3.0 X 12.0)	
2	150-426	1	CYLINDER ROD (1.50 X 12.0)	
	151-034	-	CYL (3.0 X 1.5 X 16.0)	SEE FOOTNOTES 1 & 2
1	150-288	1	CYLINDER BARREL (3.0 X 16.0)	
2	150-419	1	CYLINDER ROD (1.50 X 16.0)	
	151-117	-	CYL (3.0 X 1.5 X 20.0)	SEE FOOTNOTES 1 & 2
1	152-054	1	CYLINDER BARREL (3.0 X 20.0)	
2	150-669	1	CYLINDER ROD (1.50 X 20.0)	
3	150-774	1	CYLINDER HEAD (3.0 X 1.50)	
4	150-911	1	LOCK RING (3.0)	
5	150-777	1	CYLINDER PISTON (3.0 X 1.50)	
6	106-098	1	FLG BOLT (3/4-NC X 2", GD8)	SEE FOOTNOTE 3
7	155-734	1	O-RING (334 D90)	
8	155-733	1	BACKUP RING (334 D90)	
9	157-542	1	U-SEAL (1.500")	
10	157-539	1	WIPER SEAL (1.500")	
11	125-776	1	WEAR RING	
12	157-536	1	BACKUP RING (230 D90)	
13	157-020	1	O-RING (230 D90)	

NOT SHOWN:

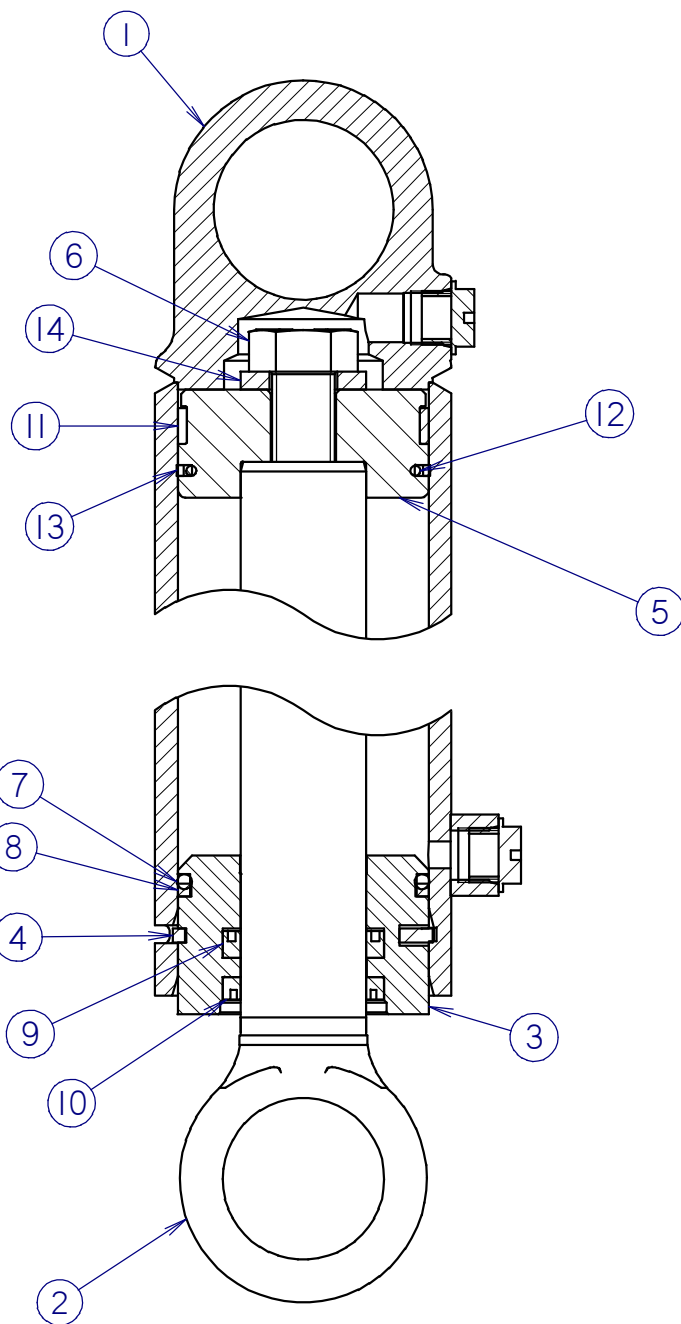
259-040	U-SEAL INSTALLER (1.5" - UP)
259-237	ROD WIPER INSTALLER (1.5")
259-065	PISTON SEAL INSTALLER (3")
259-066	PISTON INSTALLER (3")
259-188	CYL HEAD SPANNER - TWO PIN

FOOTNOTES:

1. REF. #1 & #2 ARE SPECIFIC TO EACH CYLINDER, REF. #3 THRU #13 ARE COMMON FOR ALL THE ABOVE LISTED CYLINDERS.
2. SEAL REPAIR KIT P/N: 190-167
3. APPLY LOCTITE 277 OR EQUIVALENT, TORQUE TO 290-325 FT-LBS

NOTE:

HYDRAULIC CYLINDERS (3.5" X 1.75")



HYDRAULIC CYLINDERS (3.5" X 1.75")

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	151-089	-	CYL (3.5 X 1.75 X 3.0)	SEE FOOTNOTES 1 & 2
1	152-025	1	CYLINDER BARREL (3.5 X 3.0)	
2	150-446	1	CYLINDER ROD (1.75 X 3.0)	
	151-112	-	CYL (3.5 X 1.75 X 4.0)	SEE FOOTNOTES 1 & 2
1	152-037	1	CYLINDER BARREL (3.5 X 4.0)	
2	153-015	1	CYLINDER ROD (1.75 X 4.0)	
	151-050	-	CYL (3.5 X 1.75 X 5.0)	SEE FOOTNOTES 1 & 2
1	150-300	1	CYLINDER BARREL (3.5 X 5.0)	
2	150-432	1	CYLINDER ROD (1.75 X 5.0)	
	151-046	-	CYL (3.5 X 1.75 X 6.0)	SEE FOOTNOTES 1 & 2
1	150-296	1	CYLINDER BARREL (3.5 X 6.0)	
2	150-428	1	CYLINDER ROD (1.75 X 6.0)	
	151-056	-	CYL (3.5 X 1.75 X 8.0)	SEE FOOTNOTES 1 & 2
1	152-006	1	CYLINDER BARREL (3.5 X 8.0)	
2	150-436	1	CYLINDER ROD (1.75 X 8.0)	
	149-689	-	CYL (3.5 X 1.75 X 10.0)	SEE FOOTNOTES 1 & 2
1	152-040	1	CYLINDER BARREL (3.5 X 10.0)	
2	149-732	1	CYLINDER ROD (1.75 X 10.0)	
	151-069	-	CYL (3.5 X 1.75 X 12.0)	SEE FOOTNOTES 1 & 2
1	150-297	1	CYLINDER BARREL (3.5 X 12.0)	
2	150-425	1	CYLINDER ROD (1.75 X 12.0)	
	149-799	-	CYL (3.5 X 1.75 X 16.0)	SEE FOOTNOTES 1 & 2
1	149-805	1	CYLINDER BARREL (3.5 X 16.0)	
2	153-004	1	CYLINDER ROD (1.75 X 16.0)	
	149-690	-	CYL (3.5 X 1.75 X 20.0)	SEE FOOTNOTES 1 & 2
1	149-765	1	CYLINDER BARREL (3.5 X 20.0)	
2	153-020	1	CYLINDER ROD (1.75 X 20.0)	
	149-691	-	CYL (3.5 X 1.75 X 24.0)	SEE FOOTNOTES 1 & 2
1	149-766	1	CYLINDER BARREL (3.5 X 24.0)	
2	149-733	1	CYLINDER ROD (1.75 X 24.0)	
3	150-761	1	CYLINDER HEAD (3.5 x 1.75)	
4	149-302	1	LOCK RING (3.5)	
5	149-301	1	CYLINDER PISTON (3.5 X 1.75)	
6	106-122	1	BOLT (7/8-NC X 2-1/4", GD8)	SEE FOOTNOTE 3
7	157-030	1	O-RING (338 D90)	
8	157-032	1	BACKUP RING (338 D90)	
9	157-550	1	U-SEAL (1.750")	
10	157-549	1	WIPER SEAL (1.750")	
11	125-784	1	WEAR RING	
12	157-031	1	O-RING (234 D90)	
13	157-554	1	BACKUP RING (234 D90)	
14	105-363	1	WASHER (7/8")	

NOT SHOWN:

259-040	U-SEAL INSTALLER (1.5" - UP)
259-238	WIPER INSTALLER (1.75")
259-244	PISTON SEAL INSTALLER (3.5")
259-245	PISTON INSTALLER (3.5")
259-188	CYL HEAD SPANNER - TWO PIN

FOOTNOTES:

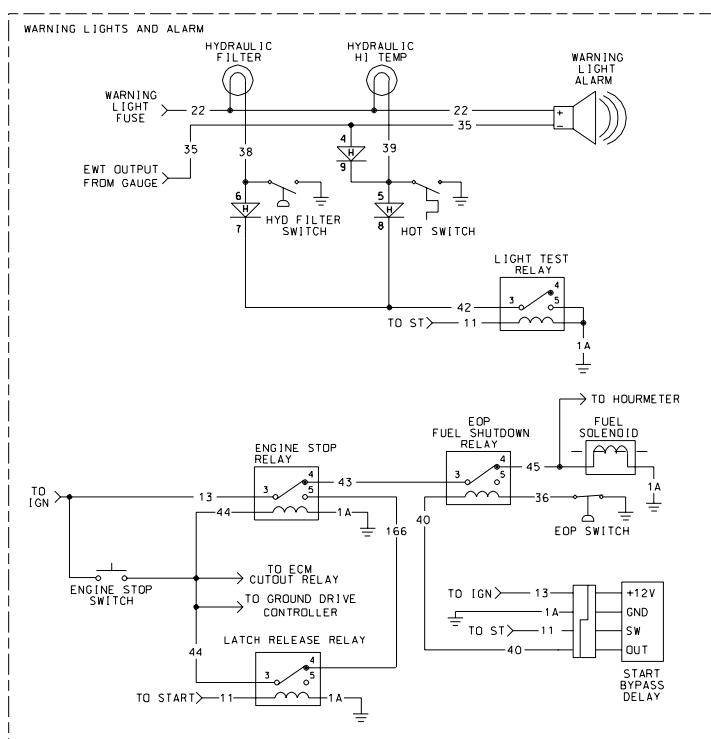
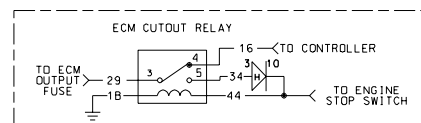
1. REF. #1 & #2 ARE SPECIFIC TO EACH CYLINDER, REF. #3 THRU #14 ARE COMMON FOR ALL THE ABOVE LISTED CYLINDERS.
2. SEAL REPAIR KIT P/N: 190-174
3. APPLY LOCTITE 277 OR EQUIVALENT, TORQUE TO 410-460 FT-LBS

NOTE:

NOTES:

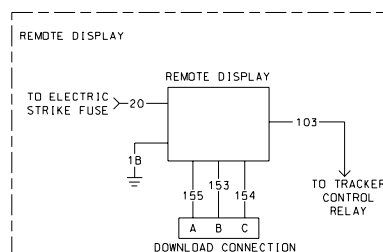
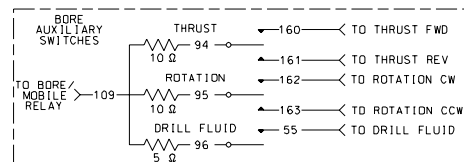
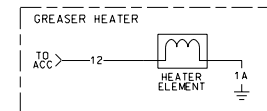
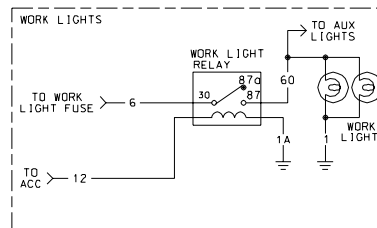
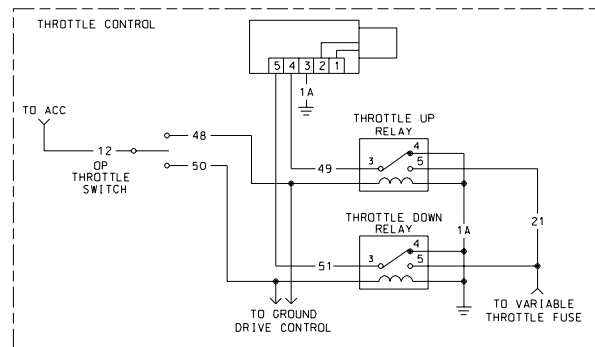
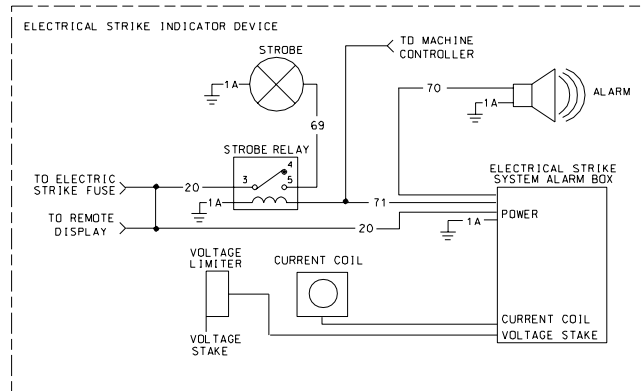
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ELECTRICAL



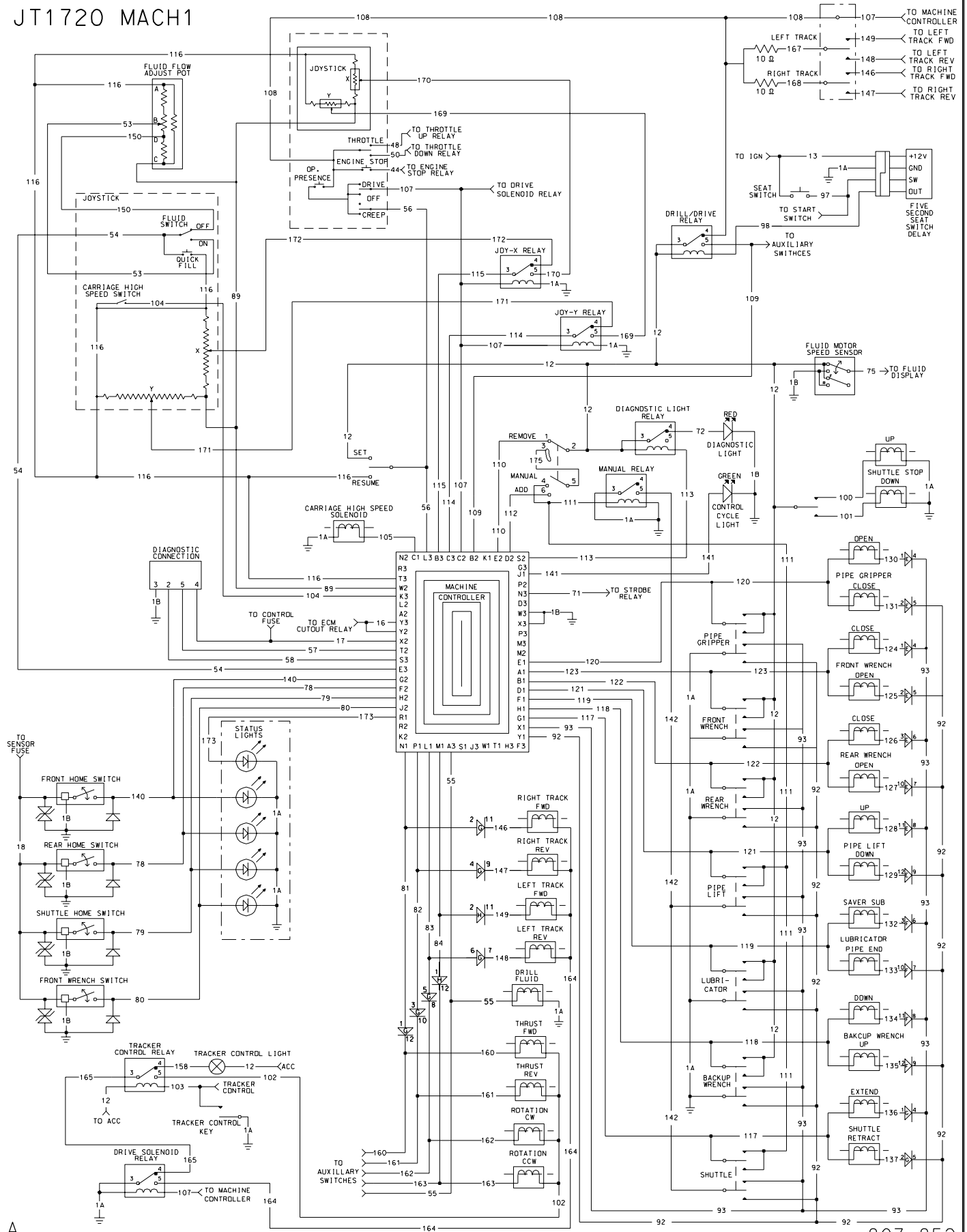
ELECTRICAL SCHEMATIC

JT1720 MACH1



ELECTRICAL SCHEMATIC

JT1720 MACH1



ELECTRICAL SCHEMATIC

JT1720 MACH1

CKT NO.	WIRE COLOR	FUNCTION	REMARKS
1.	BLK	SYSTEM GROUND & HIGH LOAD GROUND	
1A.	BLK/RED	MEDIUM LOAD GROUND	
1B.	BLK/BLU	LOW LOAD GROUND	
2.	RED	BATTERY POSITIVE TO FUSE BLOCK	
3.	RED	FUSED BATTERY POWER	
4.	RED/BLK	START FUSE TO START RELAY	
5.		NOT USED	
6.	BLU	WORK LIGHT FUSE TO RELAY	
7.	BRN	ACCESSORY RELAY CIRCUIT	
8.		NOT USED	
9.	ORG	IGNITION SWITCH ACCESSORY TO ACCESSORY RELAY	
10.	ORG/BLU	IGNITION SWITCH IGNITION CIRCUIT	
11.	WHT/BLK	IGNITION SWITCH START CIRCUIT	
12.	ORG	FUSED ACCESSORY CIRCUIT	
13.	ORG/GRN	FUSED IGNITION CIRCUIT	
14.	RED/WHT	ACCESSORY SOCKET CIRCUIT	
15.		NOT USED	
16.	RED/GRN	ECM CUTOFF RELAY TO MACHINE CONTROLLER	
17.	RED/BLU	MACHINE CONTROLLER CONTROL FUSE CIRCUIT	
18.	RED/BLK	SENSOR/SWITCH FUSE CIRCUIT	
19.	ORG/BRN	GAUGE CIRCUIT	
20.	RED/YEL	ELECTRIC STRIKE CIRCUIT	
21.	RED/ORG	VARIABLE THROTTLE CIRCUIT	
22.	GRA/ORG	WARNING LIGHT CIRCUIT	
23.		NOT USED	
24.	PUR	START RELAY TO STARTER & COLD START OPTION	
25.	BRN/ORG	COLD START SWITCH TO ETHER SOLENOID	
26.	BLK	ETHER SOLENOID TO TEMP SWITCH	
27.	ORG/BLU	RESISTOR - DIODE TO ALTERNATOR EXCITER CONNECTION	
28.	YEL	TACH SPEED PICKUP TO TACHOMETER & TRACOM	
29.	RED/BRN	ECM OUTPUT FUSE TO ECM CUTOFF RELAY	
30.		NOT USED	
31.	BRN	FUEL SENDER TO FUEL GAUGE	
32.	BLU	OIL PRESSURE SENDER TO OIL PRESSURE GAUGE	
33.	GRN	WATER TEMP SENDER TO WATER TEMP GAUGE	
34.	GRN/RED	ECM CUTOFF RELAY TO DIODE	
35.	BLU/RED	WARNING LIGHT ALARM (NEG) TO DIODES & WATER TEMP GAUGE OUTPUT	
36.	WHT/BLU	EOP FUEL SHUTDOWN RELAY TO EOP SWITCH	
37.		NOT USED	
38.	GRA/YEL	HYDRAULIC FILTER SWITCH TO LIGHT & DIODE	
39.	GRA/BLK	HYDRAULIC OIL TEMP SWITCH TO LIGHT & DIODES	
40.	GRN	START BYPASS DELAY TIMER TO EOP FUEL SHUTDOWN RELAY	
41.		NOT USED	
42.	BLK/ORG	LIGHT TEST RELAY TO DIODES	
43.	BLU	ENGINE STOP RELAY TO EOP FUEL SHUTDOWN RELAY	
44.	YEL/RED	ENGINE STOP SWITCH TO ENGINE STOP RELAY, LATCH RELEASE RELAY, ECM CUTOFF RELAY, & DIODE	
45.	ORG/BLK	EOP FUEL SHUTDOWN RELAY TO FUEL SOLENOID AND HOURMETER	
46.		NOT USED	
47.		NOT USED	
48.	PUR/ORG	THROTTLE SWITCH TO THROTTLE UP RELAY	
49.	WHT/ORG	THROTTLE UP RELAY TO LINEAR ACTUATOR	
50.	BLU/ORG	THROTTLE SWITCH TO THROTTLE DOWN RELAY	
51.	GRN/ORG	THROTTLE DOWN RELAY TO LINEAR ACTUATOR	
52.		NOT USED	
53.	BLK/YEL	FLUID FLOW ADJUST POT TO FLUID SWITCH "ON"	
54.	BLK/WHT	MACHINE CONTROLLER TO ON-OFF FLUID SWITCH & QUICK-FILL SWITCH	
55.	WHT/BLK	MACHINE CONTROLLER TO DRILL FLUID SOLENOID & STATUS LIGHT	

ELECTRICAL SCHEMATIC

JT1720 MACH1

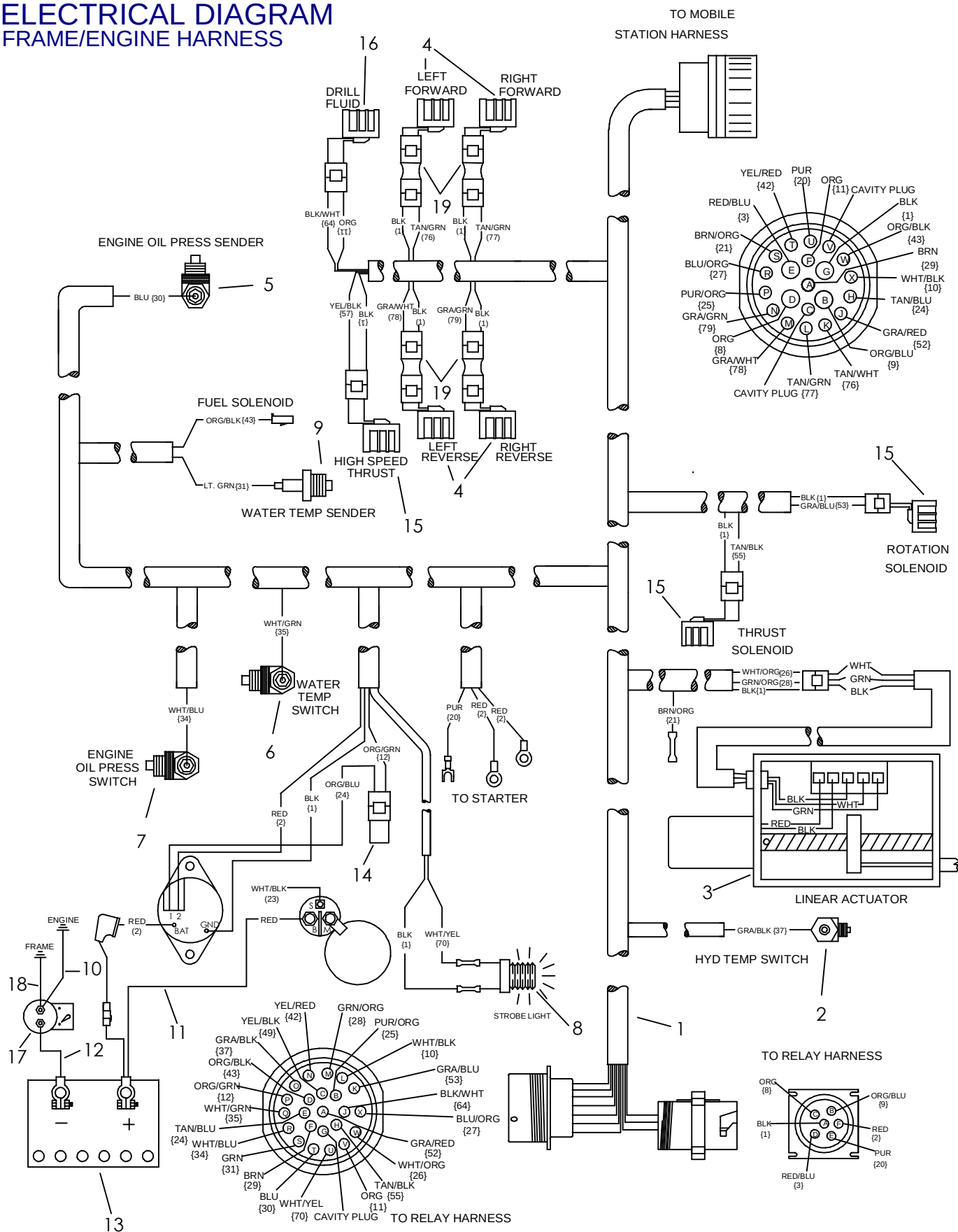
CKT NO.	WIRE COLOR	FUNCTION	REMARKS
56.	TAN/WHT	MACHINE CONTROLLER TO SET/RESUME SWITCH	
57.	PNK/BLU	MACHINE CONTROLLER TO DIAGNOSTICS CONNECTION "5"	
58.	PNK/WHT	MACHINE CONTROLLER TO DIAGNOSTICS CONNECTION "2"	
59.		NOT USED	
60.	YEL	WORK LIGHT RELAY TO WORK LIGHTS & AUX LIGHT CONNECTION	
61.		NOT USED	
62.		NOT USED	
63.		NOT USED	
64.		NOT USED	
65.		NOT USED	
66.		NOT USED	
67.		NOT USED	
68.		NOT USED	
69.	WHT/YEL	STROBE RELAY TO STROBE	
70.	BRN	ESID TO LOCAL ESID ALARM	
71.	WHT/PUR	ESID TO STROBE RELAY & MACHINE CONTROLLER	
72.	PNK/BLK	DIAGNOSTIC LIGHT RELAY TO DIAGNOSTIC LIGHT	
73.		NOT USED	
74.		NOT USED	
75.	WHT/BRN	FLUID MOTOR SPEED SENSOR TO FLUID FLOW DISPLAY	
76.		NOT USED	
77.		NOT USED	
78.	GRA/WHT	REAR HOME POSITION SWITCH TO MACHINE CONTROLLER & LED	
79.	WHT/RED	SHUTTLE SWITCH TO MACHINE CONTROLLER & LED	
80.	WHT	FRONT WRENCH SWITCH TO MACHINE CONTROLLER & LED	
81.	BLU/ORG	MACHINE CONTROLLER TO THRUST FORWARD/RIGHT TRACK FORWARD DIODE ANODES	
82.	BLU/YEL	MACHINE CONTROLLER TO THRUST REVERSE/RIGHT TRACK REVERSE DIODE ANODES	
83.	GRA/ORG	MACHINE CONTROLLER TO ROTATION CW/LEFT TRACK REVERSE DIODE ANODES	
84.	GRA/YEL	MACHINE CONTROLLER TO ROTATION CCW/LEFT TRACK FORWARD DIODE ANODES	
85.		NOT USED	
86.		NOT USED	
87.		NOT USED	
88.		NOT USED	
89.	YEL/BLK	MACHINE CONTROLLER TO GROUND FOR JOYSTICKS AND POTENTIOMETER	
90.		NOT USED	
91.		NOT USED	
92.	GRN/BLK	MACHINE CONTROLLER TO PIPELOADER FUNCTION SWITCHES AND DIODES	
93.	BLU/BLK	MACHINE CONTROLLER TO PIPELOADER FUNCTION SWITCHES AND DIODES	
94.	WHT/ORG	RESISTOR TO THRUST AUXILIARY SWITCH	
95.	WHT/RED	RESISTOR TO ROTATION AUXILIARY SWITCH	
96.	WHT/BLU	RESISTOR TO DRILL FLUID AUXILIARY SWITCH	
97.	BLU/YEL	SEAT SWITCH TO FIVE SECOND DELAY TIMER & START SWITCH	
98.	RED/WHT	DRILL/DRIVE ENABLE RELAY TO SEAT SWITCH TIMER	
99.		NOT USED	
100.	PUR/WHT	SHUTTLE STOP SWITCH TO UP SOLENOID	
101.	BLU/WHT	SHUTTLE STOP SWITCH TO DOWN SOLENOID	
102.	WHT/GRN	TRACKER CONTROL RELAY TO ROTATION AND THRUST SOLENOIDS	
103.	TAN/RED	TRACKER CONTROL RELAY TO REMOTE DISPLAY & TRACKER CONTROL KEY	
104.	PUR/RED	CARRIAGE HIGH SPEED SWITCH TO MACHINE CONTROLLER	
105.	PUR/ORG	MACHINE CONTROLLER TO CARRIAGE HIGH SPEED SOLENOID	
106.		NOT USED	
107.	YEL/GRN	DRIVE SEL. SWITCH TO MACHINE CONTROLLER, JOY-X RELAY, JOY-Y RELAY, & DRIVE SOLENOID RELAY	
108.	GRA	DRILL/DRIVE RELAY TO TETHER CONTROL & TRACK DRIVE RESISTORS	
109.	YEL/PUR	DRILL/DRIVE RELAY TO MACHINE CONTROLLER & DRILL RESISTORS	
110.	BRN/ORG	REMOVE/MANUAL/ADD SWITCH TO MACHINE CONTROLLER	
111.	WHT/ORG	REMOVE/MANUAL/ADD SWITCH TO PIPELOADER FUNCTION SWITCHES & MANUAL RELAY	
112.	BRN/YEL	REMOVE/MANUAL/ADD SWITCH TO MACHINE CONTROLLER	

ELECTRICAL SCHEMATIC

JT1720 MACH1

CKT NO.	WIRE COLOR	FUNCTION	REMARKS
113.	TAN/BLK	MACHINE CONTROLLER TO DIAGNOSTIC LIGHT RELAY	
114.	GRA/GRN	JOYSTICK Y-AXIS RELAY TO MACHINE CONTROLLER	
115.	TAN/GRN	JOYSTICK X-AXIS RELAY TO MACHINE CONTROLLER	
116.	BLU/GRN	5 VOLT OUTPUT FROM MACHINE CONTROLLER	
117.	TAN	MACHINE CONTROLLER TO SHUTTLE SWITCH AND SOLENOIDS	
118.	PUR	MACHINE CONTROLLER TO BACKUP WRENCH SWITCH AND SOLENOIDS	
119.	GRA	MACHINE CONTROLLER TO LUBRICATOR SWITCH AND SOLENOIDS	
120.	GRN	MACHINE CONTROLLER TO PIPE GRIPPER SWITCH AND SOLENOIDS	
121.	BLU	MACHINE CONTROLLER TO PIPE LIFT SWITCH AND SOLENOIDS	
122.	YEL	MACHINE CONTROLLER TO REAR WRENCH SWITCH AND SOLENOID	
123.	BRN	MACHINE CONTROLLER TO FRONT WRENCH SWITCH AND SOLENOID	
124.	BRN/ORG	FRONT WRENCH CLOSE SOLENOID TO DIODE ANODE	
125.	BRN/YEL	FRONT WRENCH OPEN SOLENOID TO DIODE ANODE	
126.	YEL/RED	REAR WRENCH CLOSE SOLENOID TO DIODE ANODE	
127.	YEL/BLU	REAR WRENCH OPEN SOLENOID TO DIODE ANODE	
128.	BLU/GRN	PIPE LIFT UP SOLENOID TO DIODE ANODE	
129.	BLU/YEL	PIPE LIFT DOWN SOLENOID TO DIODE ANODE	
130.	GRN/BLU	PIPE GRIPPER OPEN SOLENOID TO DIODE ANODE	
131.	GRN/ORG	PIPE GRIPPER CLOSED SOLENOID TO DIODE ANODE	
132.	GRA/GRN	SAVER SUB LUBRICATOR SOLENOID TO DIODE ANODE	
133.	GRA/YEL	PIPE END LUBRICATOR SOLENOID TO DIODE ANODE	
134.	PUR/GRN	BACKUP WRENCH DOWN SOLENOID TO DIODE ANODE	
135.	PUR/YEL	BACKUP WRENCH UP SOLENOID TO DIODE ANODE	
136.	TAN/GRN	SHUTTLE EXTEND SOLENOID TO DIODE ANODE	
137.	TAN/WHT	SHUTTLE RETRACT SOLENOID TO DIODE ANODE	
138.	WHT	JUMPER ON REMOVE/MANUAL/ADD SWITCH	
139.		NOT USED	
140.	TAN/RED	FRONT HOME SWITCH TO MACHINE CONTROLLER & LED	
141.	PNK	MACHINE CONTROLLER TO CONTROL CYCLE LIGHT	
142.	WHT/RED	MANUAL RELAY TO MANUAL PIPELOADER SWITCHES	
143.		NOT USED	
144.		NOT USED	
145.		NOT USED	
146.	GRN/PUR	RIGHT TRACK FORWARD DIODE CATHODE TO RIGHT TRACK FORWARD SOLENOID	
147.	GRN/RED	RIGHT TRACK REVERSE DIODE CATHODE TO RIGHT TRACK REVERSE SOLENOID	
148.	GRN/YEL	LEFT TRACK REVERSE DIODE CATHODE TO LEFT TRACK REVERSE SOLENOID	
149.	GRN/ORG	LEFT TRACK FORWARD DIODE CATHODE TO LEFT TRACK FORWARD SOLENOID	
150.	YEL	FLUID FLOW POT 0.5V TO FLUID SWITCH "OFF"	
151.	BLU/RED	TRACCOM FUSE CIRCUIT	
152.		NOT USED	
153.	WHT	REMOTE DISPLAY TO DOWNLOAD CONNECTION "B"	
154.	YEL	REMOTE DISPLAY TO DOWNLOAD CONNECTION "C"	
155.	BLK	REMOTE DISPLAY TO DOWNLOAD CONNECTION "A"	
156.		NOT USED	
157.		NOT USED	
158.	GRA/PUR	TRACKER CONTROL RELAY TO TRACKER CONTROL LIGHT	
159.		NOT USED	
160.	TAN/ORG	THRUST FORWARD DIODE CATHODE TO THRUST FORWARD SOLENOID	
161.	TAN/YEL	THRUST REVERSE DIODE CATHODE TO THRUST REVERSE SOLENOID	
162.	ORG/GRA	ROTATION CW DIODE CATHODE TO ROTATION CW SOLENOID	
163.	YEL/GRA	ROTATION CCW DIODE CATHODE TO ROTATION CCW SOLENOID	
164.	WHT/YEL	DRIVE SOLENOID RELAY TO TRACK DRIVE SOLENOIDS	
165.	TAN/PUR	TRACKER CONTROL RELAY TO DRIVE SOLENOID RELAY	
166.	WHT	ENGINE STOP RELAY TO LATCH RELEASE RELAY	
167.	BLU/WHT	RESISTOR TO LEFT TRACK AUXILIARY SWITCH	
168.	GRN/WHT	RESISTOR TO RIGHT TRACK AUXILIARY SWITCH	
169.	GRA/RED	TETHER JOYSTICK Y-AXIS OUTPUT TO JOY-Y RELAY	

ELECTRICAL DIAGRAM FRAME/ENGINE HARNESS



ELECTRICAL DIAGRAM

FRAME/ENGINE HARNESS

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	214-384	1	FRAME/ENGINE HARNESS	
2.	215-148	1	TEMPERATURE SWITCH	
3.	215-231	1	LINEAR ACTUATOR	
	196-331	-	CABLE	
	214-299	-	ACTUATOR PIGTAIL	
	501-358	-	ROLL PIN (3/32" X 3/4")	
4.	214-434	4	SOLENOID COIL	
5.	215-113	1	OIL PRESSURE SWITCH	
	215-183	1	SENDER, OIL PRESSURE HD	
6.	217-575	1	HIGH TEMPERATURE SWITCH	
7.	217-736	1	OIL PRESSURE SWITCH	
8.	217-041	1	STROBE LIGHT	
	217-720	1	BULB (12V DC)	
9.	217-550	1	WATER TEMPERATURE SENDER	
10.	215-359	1	BAT CABLE (2/0 GA X 70", BLK)	
11.	215-331	1	BAT CABLE (2/0 GA X 64", RED)	
12.	215-337	1	BATT CABLE (2/0 GA X 19", BLK)	
13.	215-275	1	BATTERY	
	215-244	1	BATTERY	
14.	214-256	1	DIODE CONNECTOR	
15.	214-432	3	SOLENOID COIL	
16.	217-897	1	SOLENOID COIL	
17.	217-819	1	BAT DISCONNECT SWITCH	
18.	215-305	1	BAT CABLE (4 GA X 30", BLK)	BEGIN WITH S/N
19.	214-505	4	INLINE DIODE CONNECTOR	

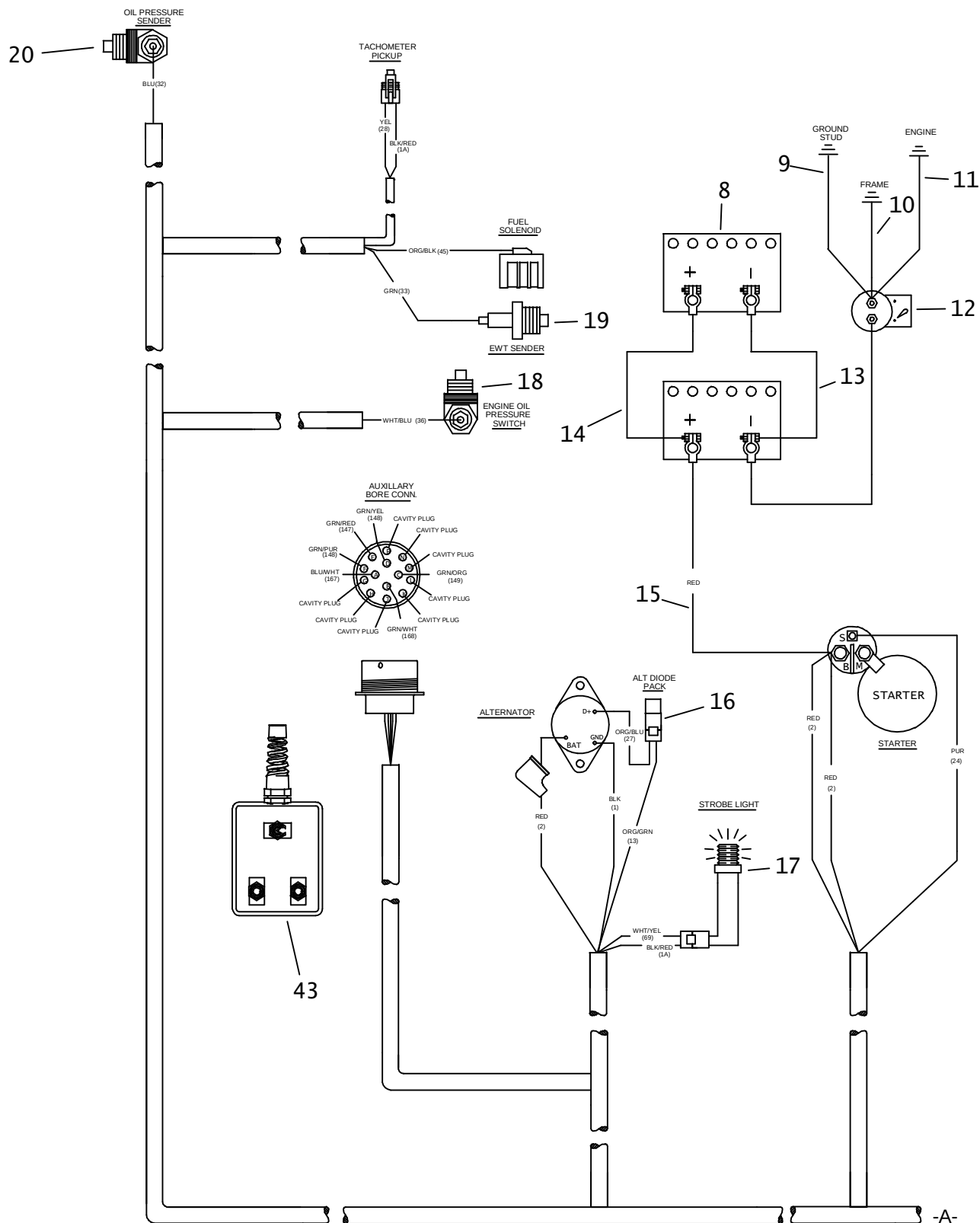
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FOOTNOTES:

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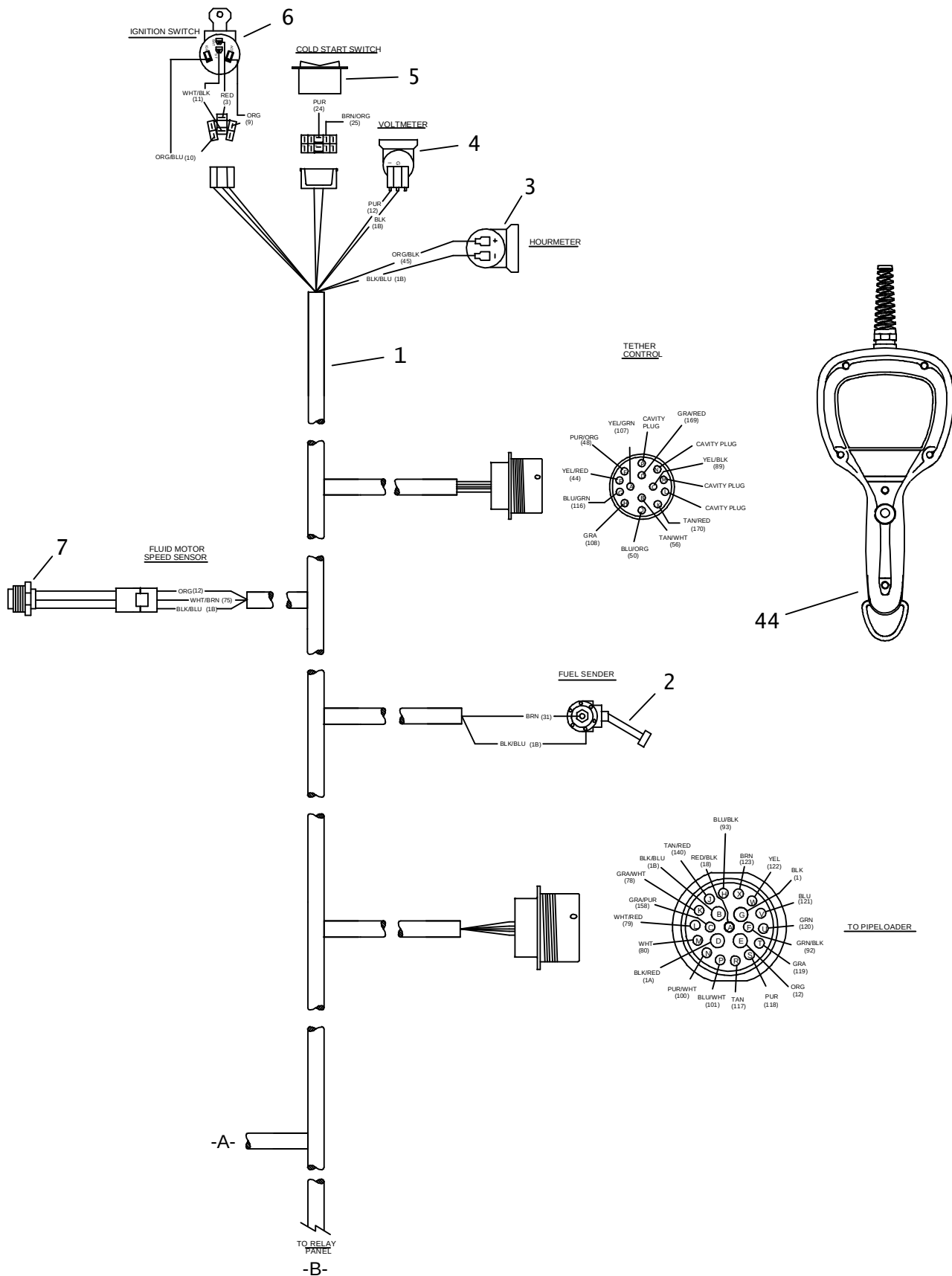
RELAY/ENGINE HARNESS

JT1720



RELAY/ENGINE HARNESS

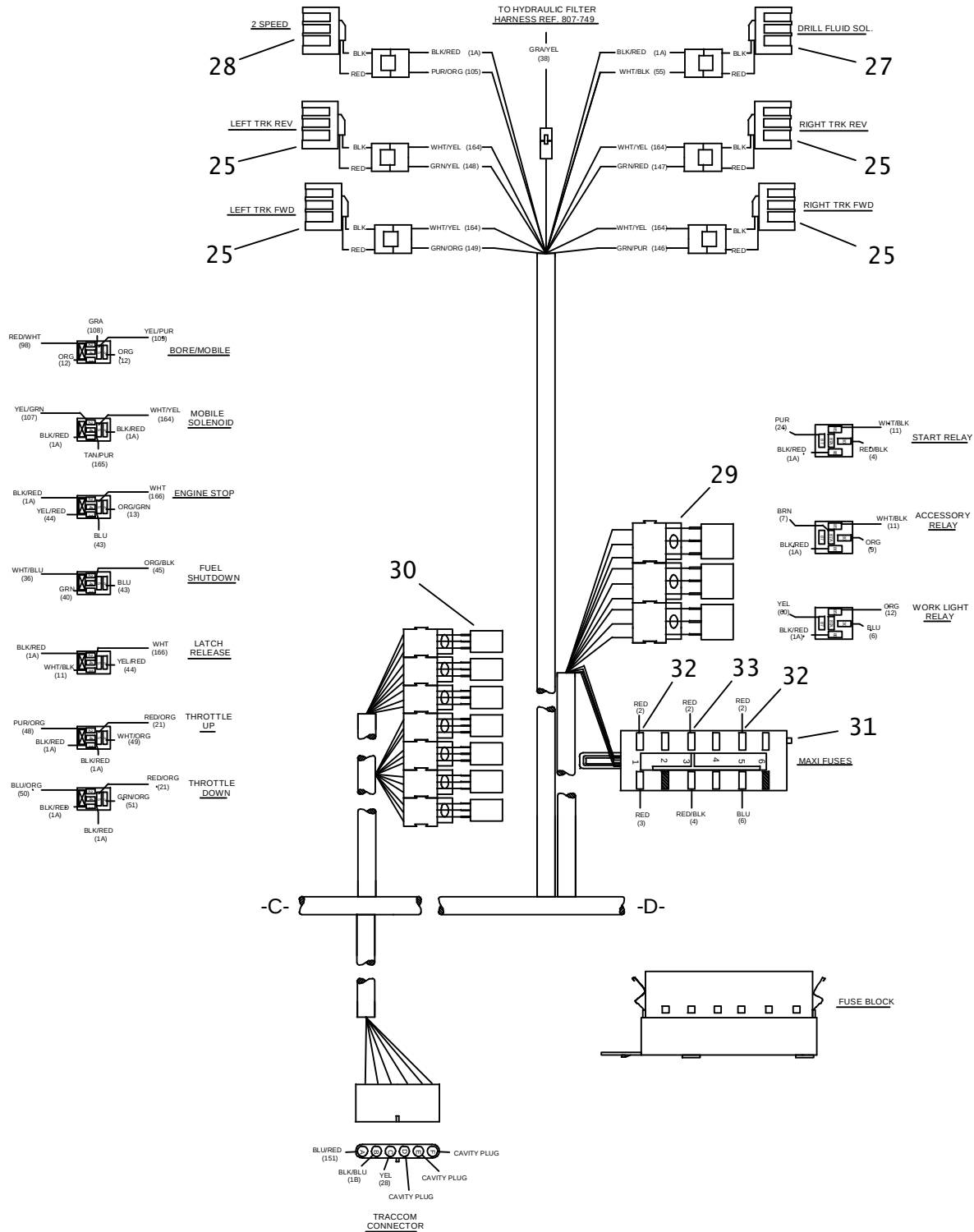
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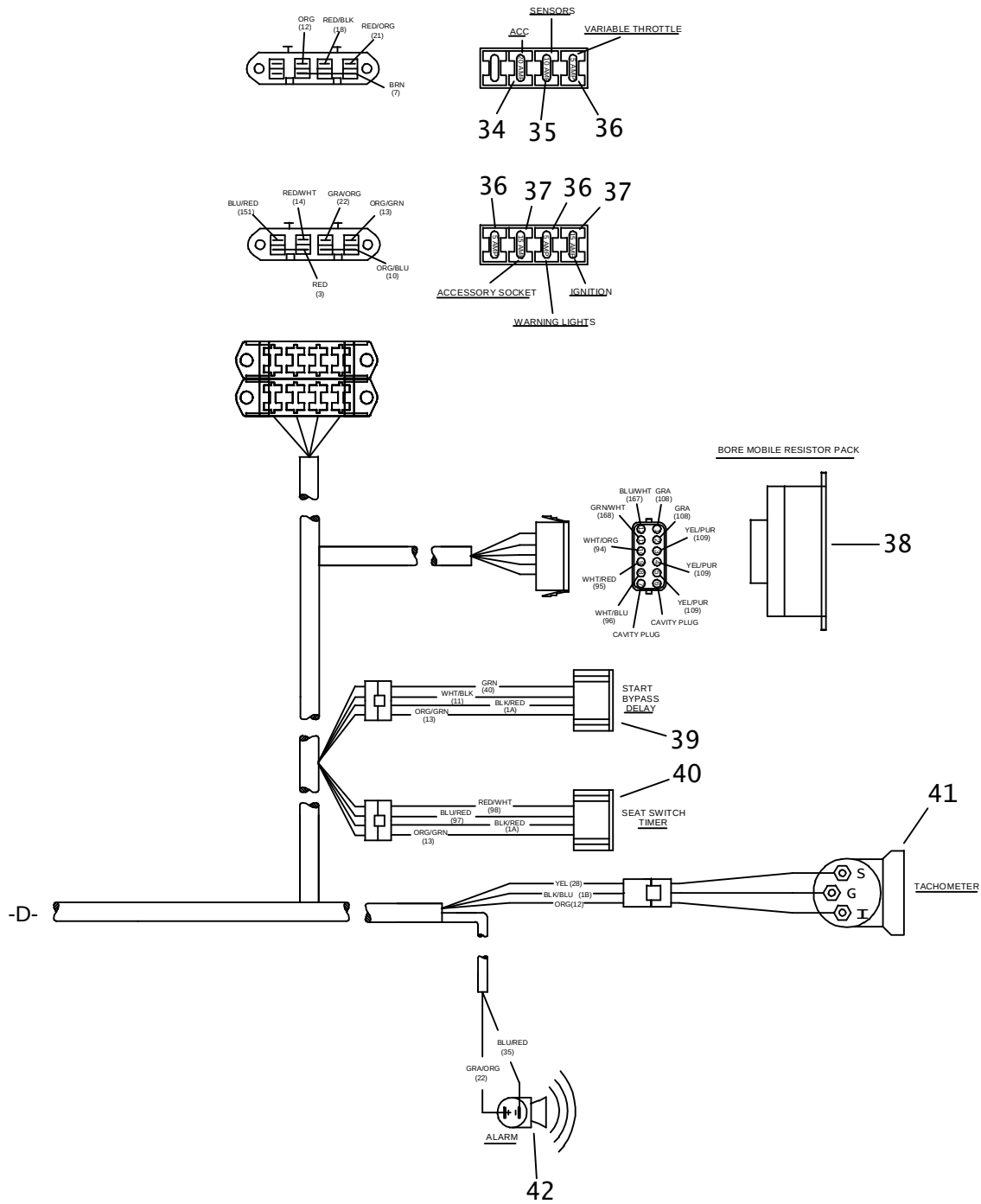
RELAY/ENGINE HARNESS

JT1720



RELAY/ENGINE HARNESS

JT1720



RELAY/ENGINE HARNESS

JT1720

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	214-742	1	RELAY/ENGINE HARNESS	
2.	217-568	1	FUEL SENDER	
3.	215-128	1	HOURLMETER	
4.	215-129	1	VOLTMETER	
5.	217-917	1	ROCKER SWITCH (DPDT) OFF-(ON)	
6.	214-852	1	IGNITION SWITCH	
	214-961		KEY, PAIR	
	214-962		SWITCH MOUNTING NUT	
7.	214-010	1	SPEED SENSOR	
8.	215-244	1	BATTERY	
9.	215-359	1	BATTERY CABLE (2/0 GA X 70" BLK)	
10.	215-304	1	BATTERY CABLE (4 GA X13" BLK)	
11.	214-775	1	NEGATIVE BATTERY CABLE	
12.	217-819	1	BATTERY DISCONNECT SWITCH	
13.	215-350	2	BATTERY CABLE (2 GA X 8" BLK)	
14.	215-349	1	BATTERY CABLE (2 GA X 8" RED)	
15.	214-774	1	POSITIVE BATTERY CABLE	
16.	214-256	1	DIODE PACK	
17.	214-722	1	STROBE LIGHT (AMBER)	
	217-870	-	STROBE LIGHT BULB	
	217-296	1	STROBE LIGHT AMBER MED PROFILE	
	214-991	-	REPLACEMENT FLASH TUBE	
	157-645	2	WEATHER PAC-SEAL (2.80MM)	
	214-103	1	2-WAY MALE CONNECTOR	
	214-104	2	PACKARD MALE TERMINAL	
18.	217-736	1	ENGINE OIL PRESSURE SWITCH	
19.	217-550	1	ENGINE WATER TEMPERATURE SENDER	
20.	215-113	1	ENGINE OIL PRESSURE SWITCH	
21.	215-231	1	LINEAR ACTUATOR	
22.	217-838	1	GROUND STUD	
23.	214-301	1	ACC SOCKET	
24.	217-017	1	WORKLIGHT CONNECTOR (COLE HERSEE)	
25.	214-434	8	SOLENOID COIL	
26.	215-148	1	HYDRAULIC TEMPERATURE SWITCH	
27.	217-897	1	SOLENOID COIL	
28.	214-432	1	SOLENOID COIL	
29.	217-826	3	MINI RELAY (SPDT)	
30.	217-710	7	MICRO RELAY (SPDT)	
31.		1	MAXI FUSE BOX	
32.	217-805	2	20 AMP MAXI FUSE	
33.	217-791	1	40 AMP MAXI FUSE	
34.	217-812	1	20 AMP ATC FUSE	
35.	217-810	1	10 AMP ATC FUSE	
36.	217-809	3	5 AMP ATC FUSE	
37.	217-811	2	15 AMP ATC FUSE	
38.	211-031	1	BORE/MOBILE RESISTOR PACK	
39.	217-937	1	START BYPASS TIMER	
40.	217-184	1	DELAY TIMER (2-SECOND)	
41.	211-070	1	TACHOMETER (3000 RPM)	
42.	306-603	1	AUDIO ALARM	
43.	214-648	1	OVERRIDE CONTROL BOX	
44.	214-589	1	GROUND DRIVE CONTROL	

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FOOTNOTES:

NOTE:

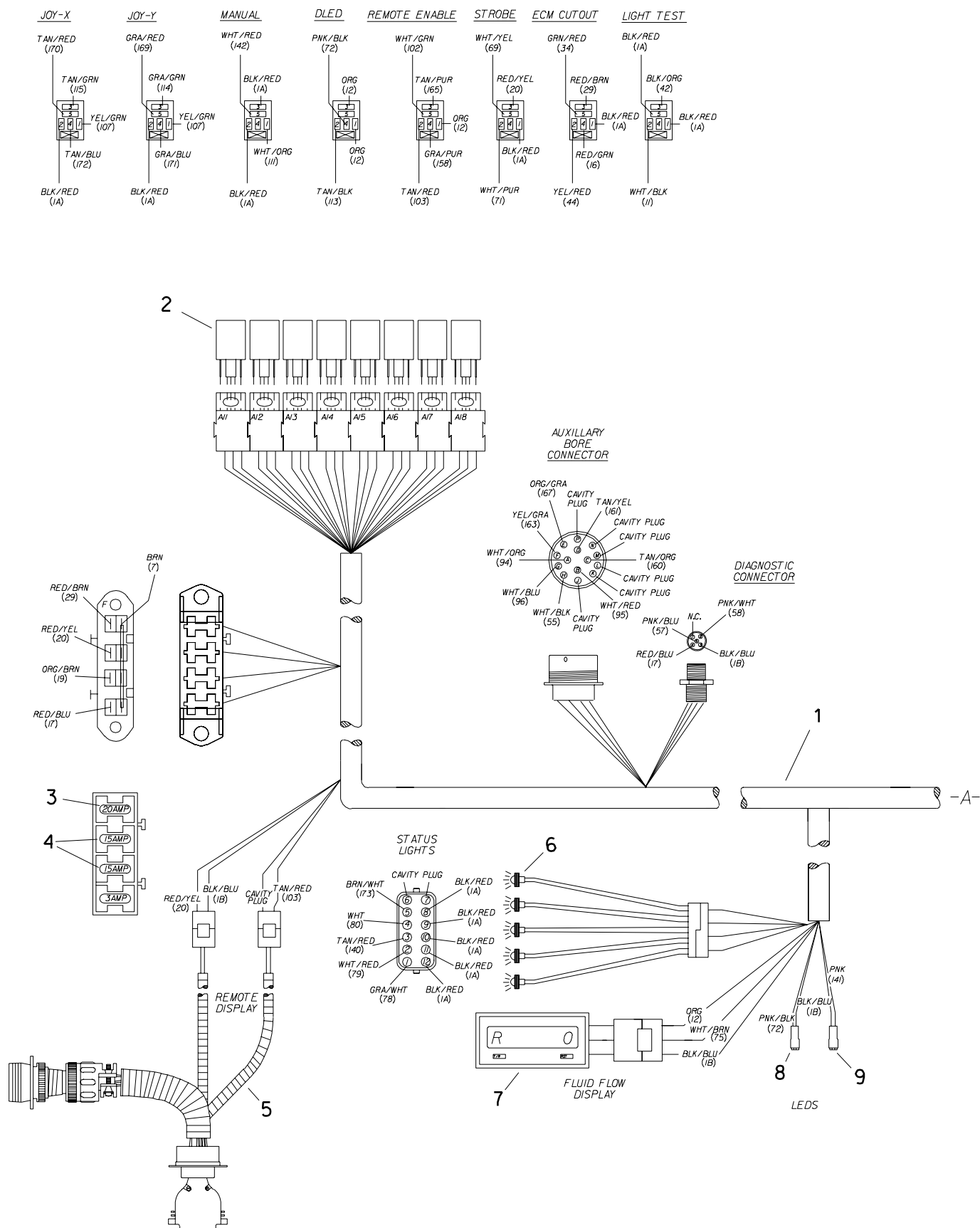
CONSOLE HARNESS

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	214-741	1	CONSOLE HARNESS	
2.	217-710	8	MICRO RELAY (SPDT)	
3.	217-812	1	FUSE (ATC, 20 AMP)	
4.	217-811	2	FUSE (ATC, 15 AMP)	
5.	214-415	1	90D MODULE TO RIG CABLE	
6.	214-701	5	STATUS LIGHT	
7.	217-221	1	FLOW METER DISPLAY	
8.	214-563	1	RED LED 12V	
9.	214-840	1	GREEN LED (12V DC)	
10.	258-037	1	WATER TEMPERATURE GAUGE	
11.	217-020	1	PILOT LIGHT	
-	217-027	1	INSERT (RED) HYD OIL HI TEMP	
-	217-036	1	INSERT (YEL) HYD OIL PSI	
-	217-074	2	LENS REFLECTOR	
12.	217-206	1	BUTTON SWITCH (SPST)	
13.	306-607	1	HORN BUTTON	
-	306-608	1	BUTTON COVER	
14.	214-908	1	OFF-ON KEY SWITCH	
15.	216-059	1	CONTROL MODULE	
16.	215-131	1	OIL PRESSURE GAUGE	
17.	215-133	1	FUEL GAUGE	
18.	217-912	1	ROCKER SWITCH (DPDT) ON-ON-ON	
19.	214-489	6	ROCKER SW (DPDT) (ON)-OFF-(ON)	
20.	217-916	1	ROCKER SWITCH (DPDT) ON-OFF-ON	
21.	214-565	1	DUAL AXIS HALL EFFECT JOYSTICK	
-	197-104		REBUILT 214-565 JOYSTICK	
22.	306-602	1	BACKUP ALARM	
23.	217-935	1	SEAT SWITCH	
24.	217-241	1	ESID MODULE	
25.	214-566	1	POTENTIOMETER	
26.	217-911	1	ROCKER SWITCH (SPDT) ON-OFF-ON	
27.	211-026	1	DIODE PACK (DEUTSCH)	
28.	214-811	1	TEMPERATURE GAUGE HARNESS	
29.	110-930	1	SPIRAL WRAP (1.5", SOLD PER FT)	1 @ 44", SEE FOOTNOTE 1

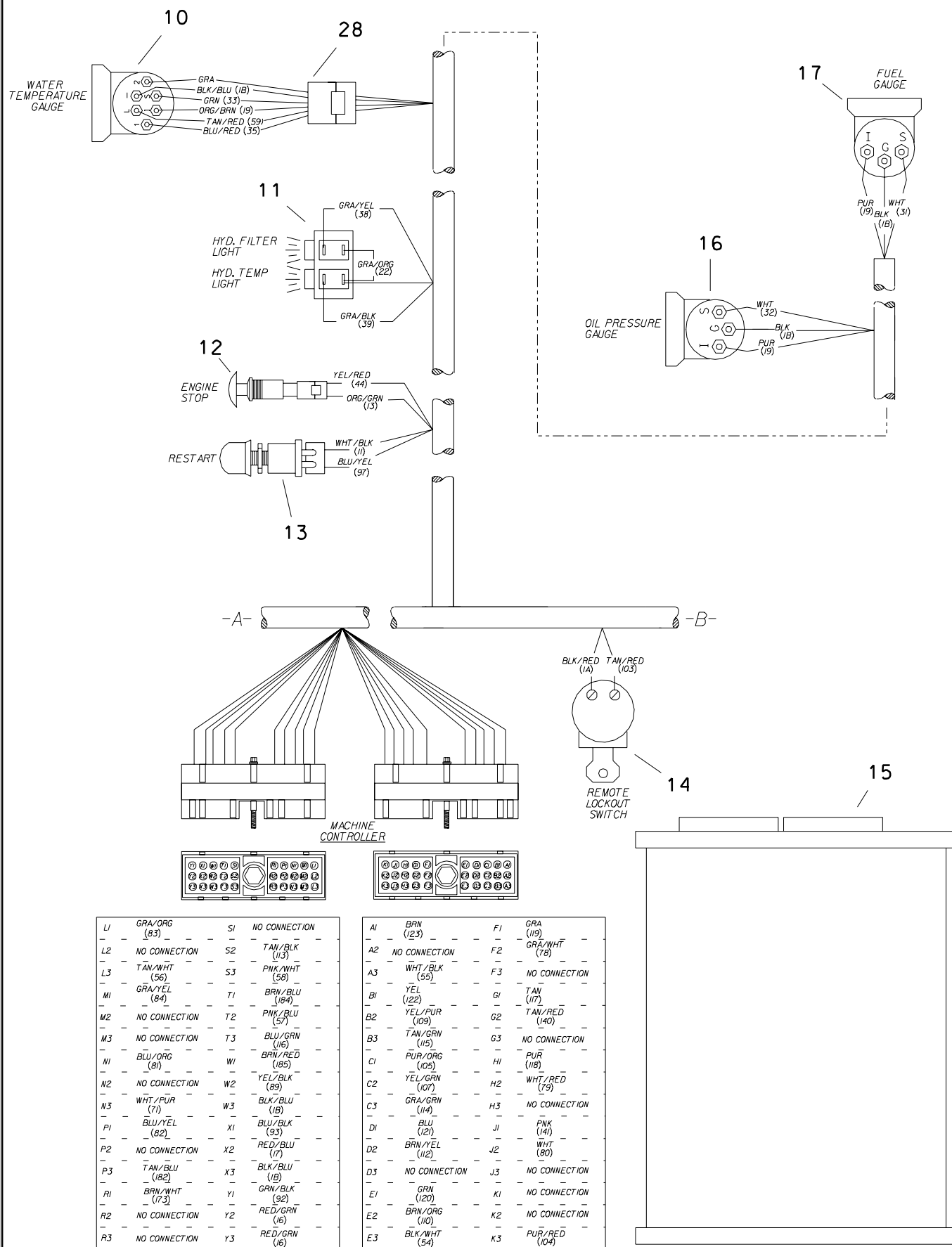
FOOTNOTES

1. INSTALL SPIRAL WRAP " FROM THE #27 DIODE PACK BREAKOUT EXTENDING TOWARD THE RELAY ENGINE HARNESS CONNECTORS.

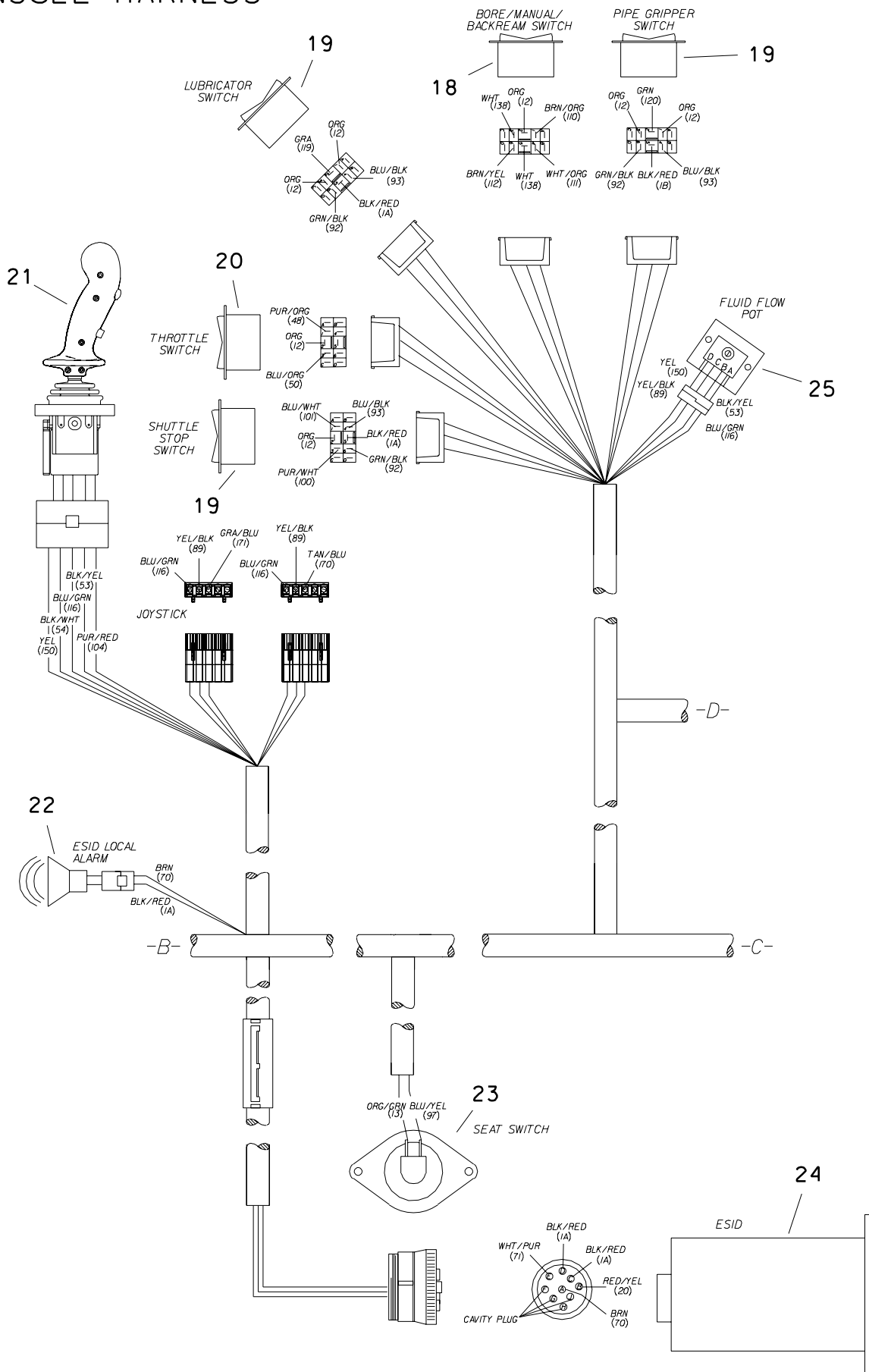
CONSOLE HARNESS



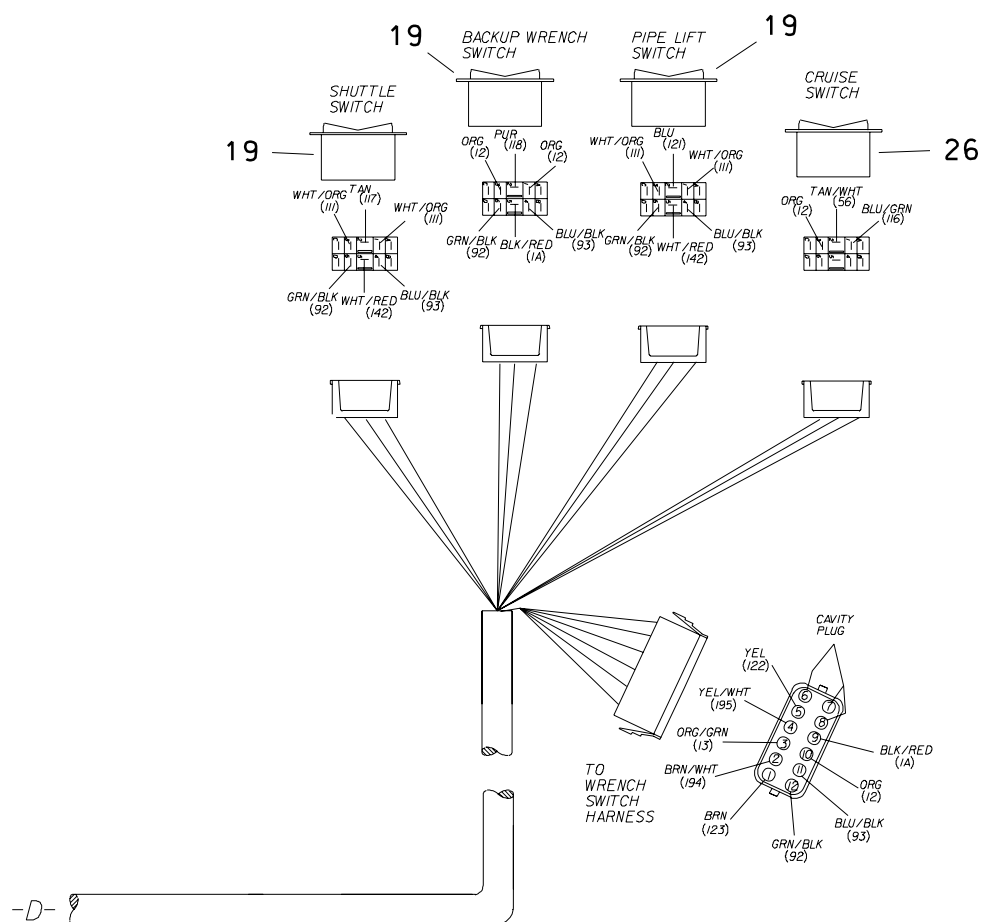
CONSOLE HARNESS



CONSOLE HARNESS

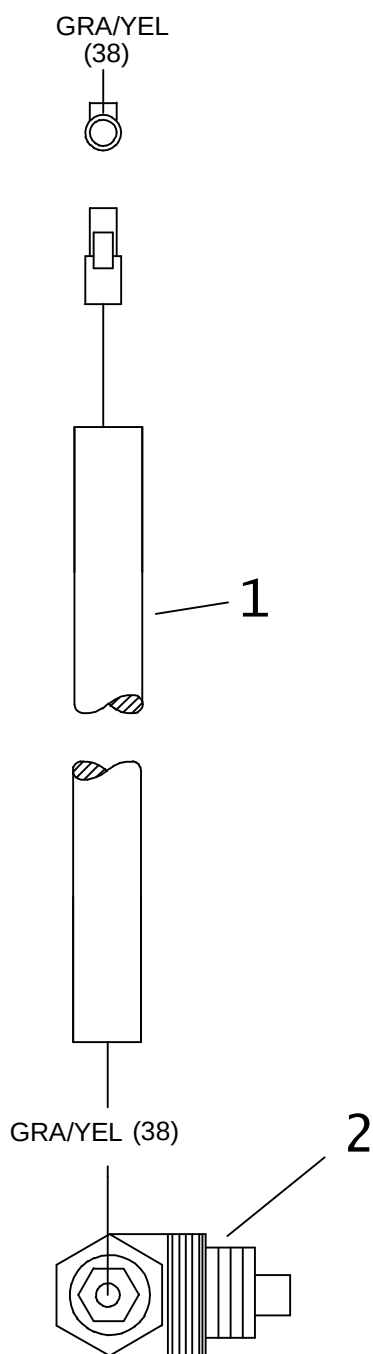


CONSOLE HARNESS



HYDRAULIC FILTER HARNESS

TO RELAY/ENGINE HARNESS
CMW: 214-742



TO HYDRAULIC
FILTER SWITCH

HYDRAULIC FILTER HARNESS

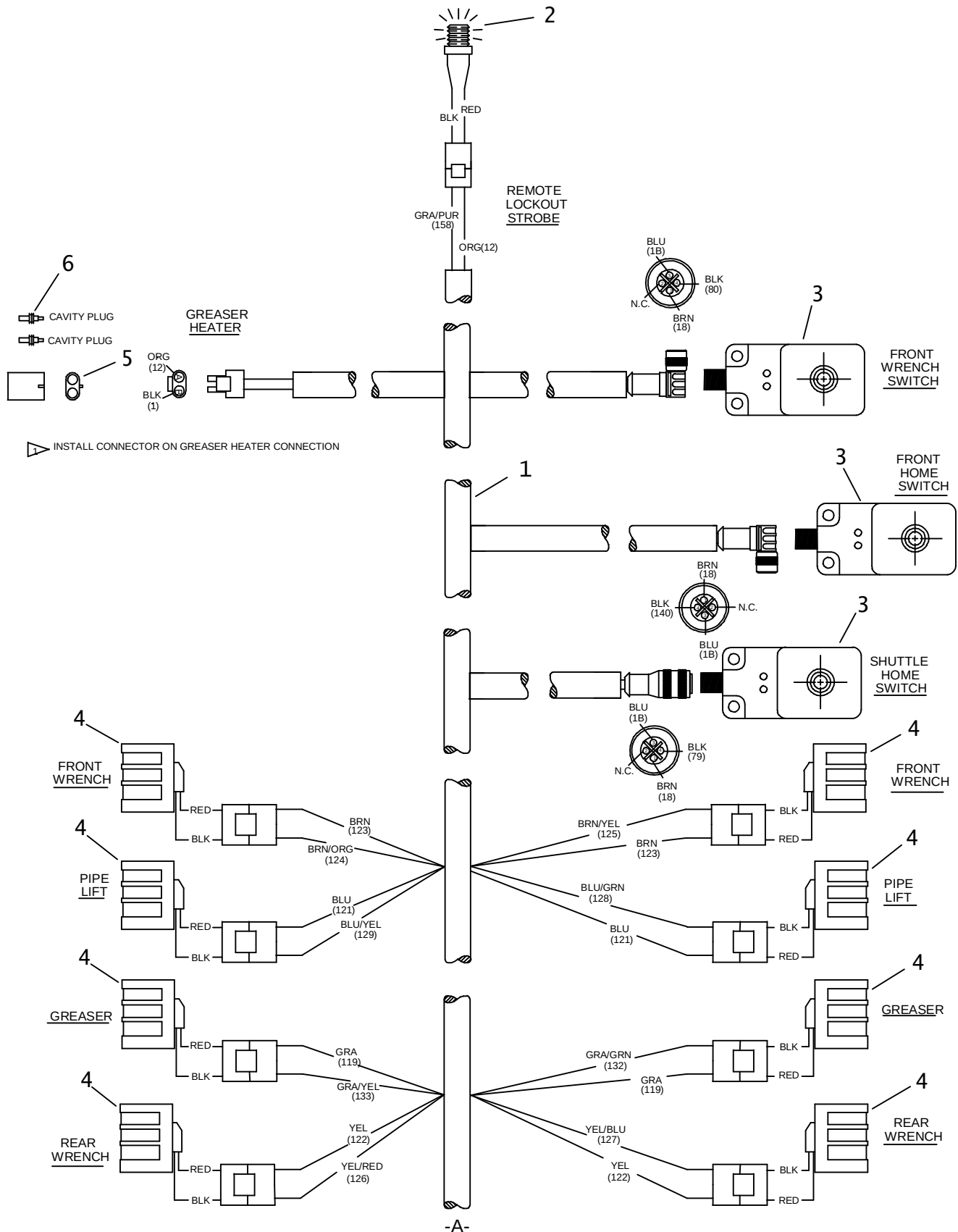
REF	PART				
NO.	NUMBER	QTY	DESCRIPTION	REMARKS	
1.	214-676	1	HYD FILTER SWITCH HARNESS		
2.	217-765	1	INDICATOR SWITCH		

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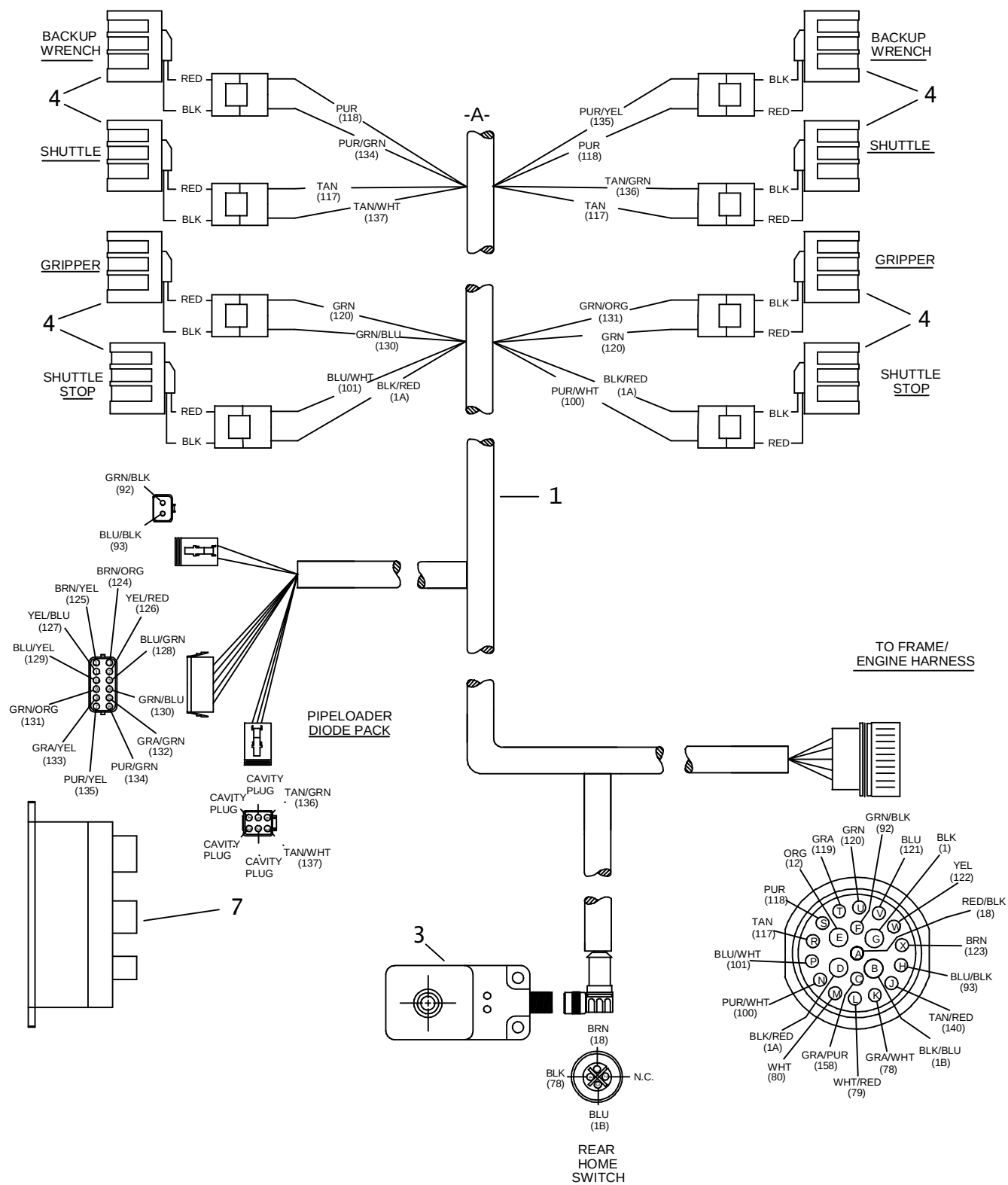
FOOTNOTES:

NOTE:

PIPE LOADER HARNESS



PIPE LOADER HARNESS



PIPE LOADER HARNESS

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	214-743	1	PIPE LOADER HARNESS	
2.	<u>214-697</u>	1	STROBE LIGHT (12V, DC, GREEN)	
	217-297	1	STROBE LIGHT GREEN MED PROFILE	
	214-103	1	(2-WAY) MALE CONNECTOR	
	214-991	-	REPLACEMENT FLASH TUBE	
	157-645	2	WEATHER-PAC SEAL (2.80MM)	
	214-104	2	PACKARD MALE TERMINAL	
3.	214-692	4	PROXIMITY SWITCH	
4.	214-434	16	SOLENOID COIL	
5.	214-103	1	2-WAY MALE CONNECTOR	
6.	211-060	2	WEATHER PACK CAVITY PLUG	
7.	211-066	1	INLINE DIODE PACK	

NOT SHOWN:

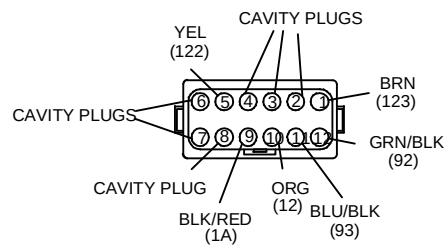
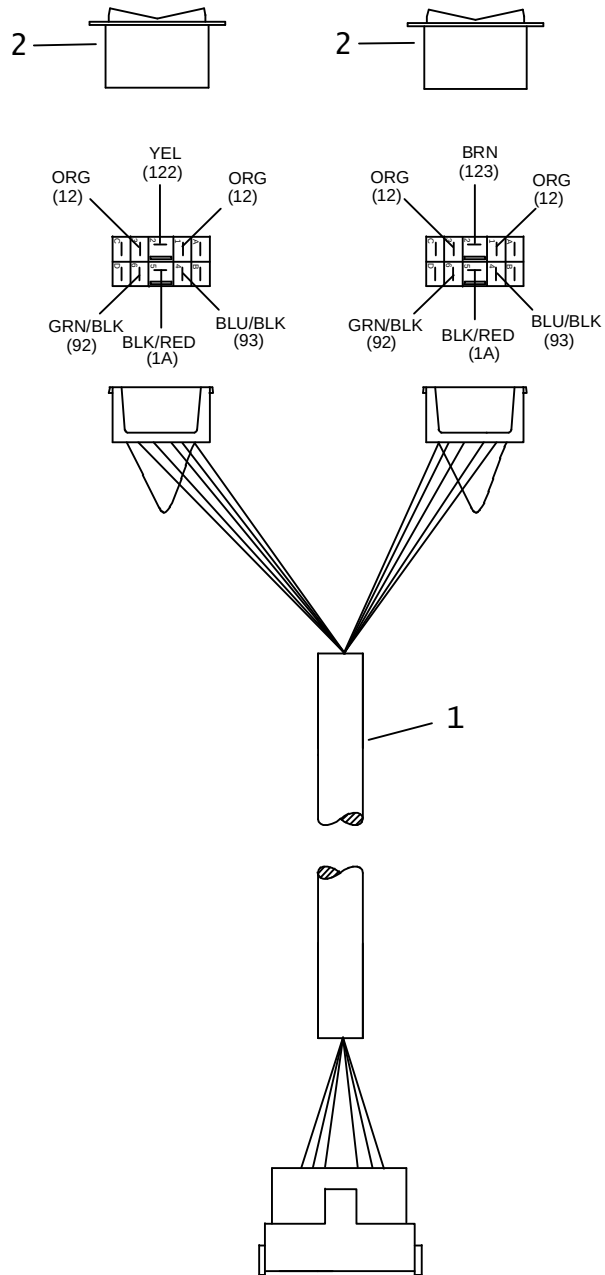
FOOTNOTES:

NOTE:

WRENCH SWITCH HARNESS

REAR WRENCH

FRONT WRENCH



TO CONSOLE HARNESS

CMW: 214-741

WRENCH SWITCH HARNESS

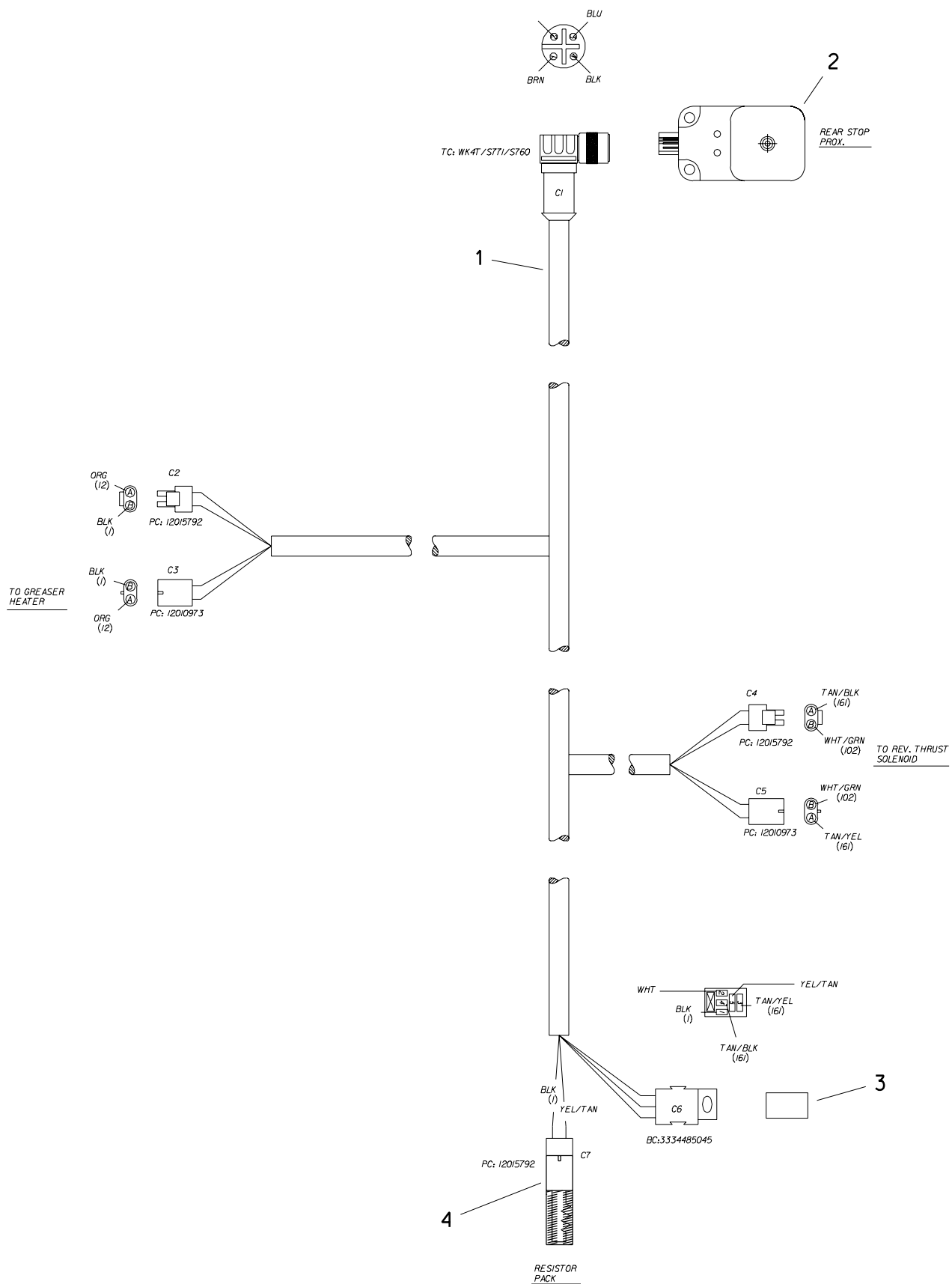
REF	PART				
NO.	NUMBER	QTY	DESCRIPTION		REMARKS
1.	214-776	1	JT17M1 WRENCH SWITCH HARNESS		
2.	214-489	2	ROCKER SWITCH (DPDT) (ON)-OFF-(ON)		

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FOOTNOTES:

NOTE:

REAR STOP HARNESS BEGINS WITH 2X0585

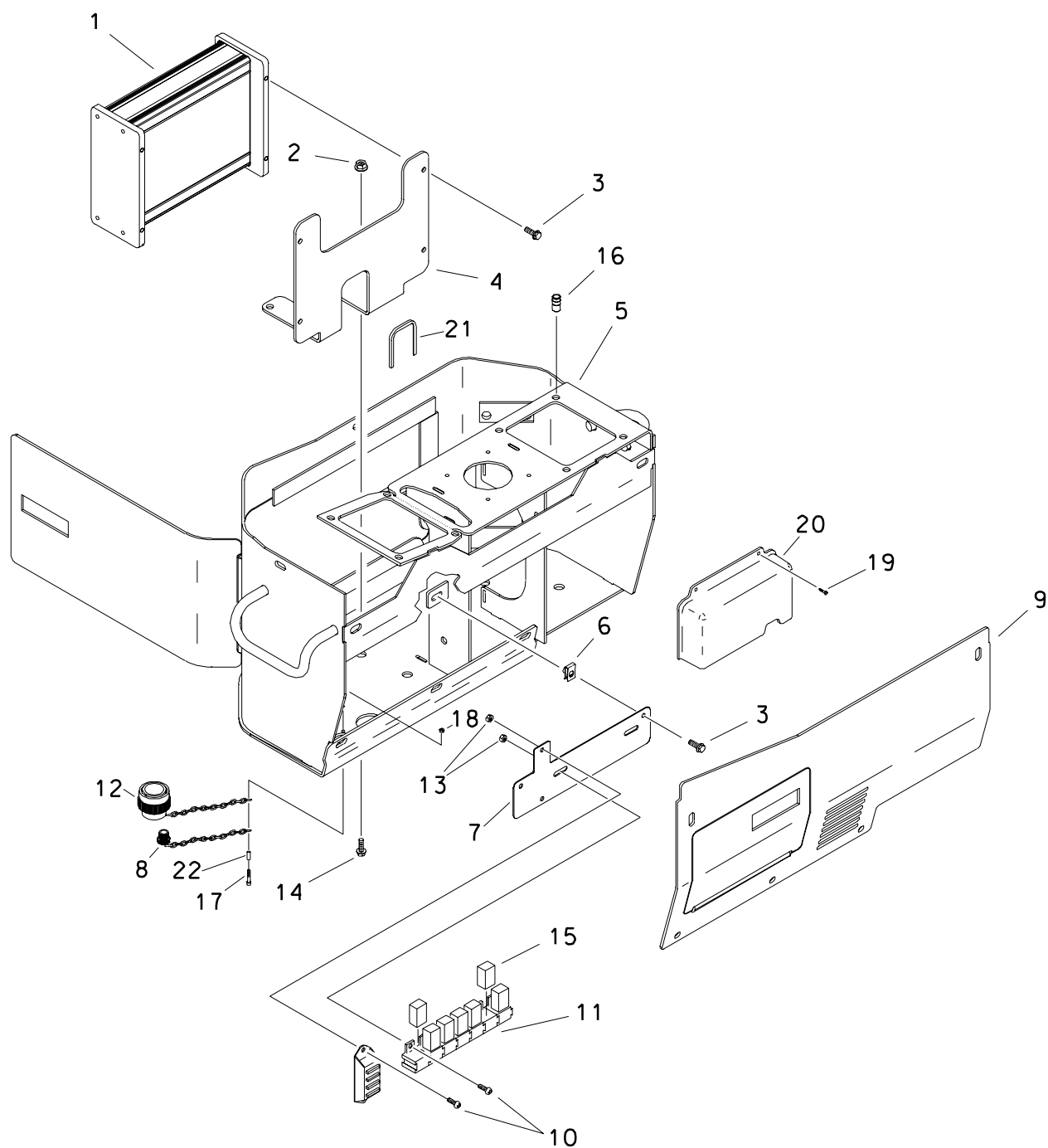


REAR STOP HARNESS
BEGINS WITH 2X0585

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	213-101	1	JT17M1 REAR STOP HARNESS	
2.	214-692	1	PROXIMITY SWITCH	
3.	217-710	1	MICRO RELAY (SPDT)	
4.	211-279	1	INNER ROTATION RESISTOR PACK	

FOOTNOTES

RIGHT CONSOLE ELECTRICAL

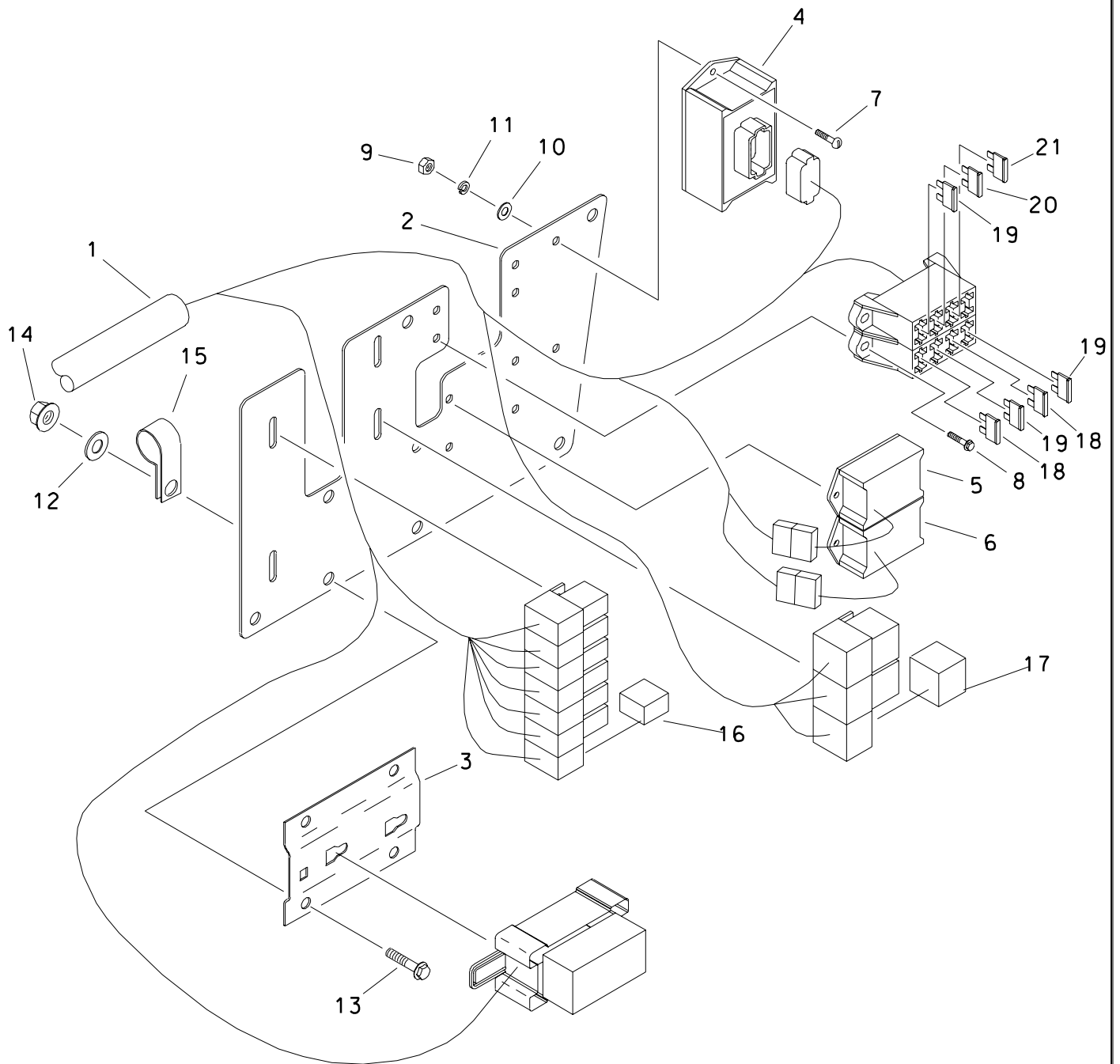


RIGHT CONSOLE ELECTRICAL

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	216-059	1	CONTROL MODULE	
2.	106-386	2	FLG LOCKNUT (M8-1.25)	
3.	106-378	6	FLG LK SCREW (M6-1.00 X 12MM)	
4.	305-990	1	BRACKET, CONTROLLER	
5.	303-956	-	RIGHT CONSOLE	
6.	106-574	2	CLIP NUT (M6-1.00)	
7.	315-439	1	RELAY PANEL	
8.	211-078	1	CONNECTOR CAP (TURCK RS-CC)	
9.	309-234	-	RIGHT COVER	
10.	106-049	4	BOLT (#10-24 X 3/4", PLPS)	
11.	214-741	1	CONSOLE HARNESS	
	110-930	1	SPIRAL WRAP (1.5", SOLD PER FT)	1 @ 50"
12.	214-812	1	PROTECTIVE CAP	
13.	106-048	4	LOCKNUT (#10-24)	
14.	106-380	2	FLG LK SCREW (M8-1.25 X 16MM)	
15.	217-710	7	MICRO RELAY (SPDT)	
16.	106-670	8	NUTSERT (M6-1.00)	
17.	107-269	4	SCREW (#4-40 X 3/4", PAN)	
18.	105-662	4	NUT (#4-40)	
19.	105-214	2	FLG SCREW (#10-24 X 1/2")	
20.	315-410	1	RELAY COVER	
21.	115-686	-	BULK EDGE (5/32", SOLD PER 1')	1 @ 2.5'
22.	350-275	1	ALUMINUM SLEEVE (1/16")	

FOOTNOTES

RELAY PANEL ASSEMBLY

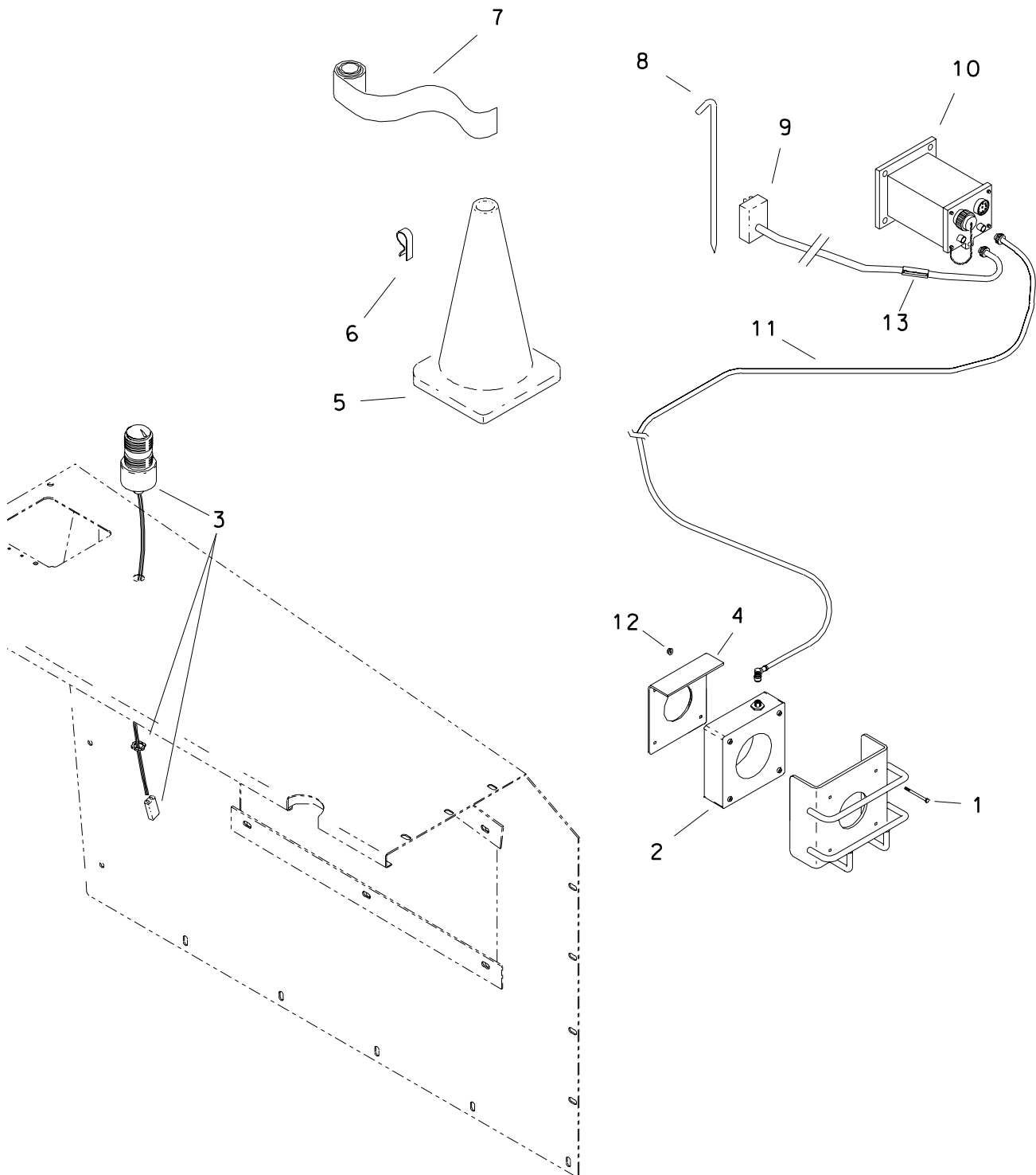


RELAY PANEL ASSEMBLY

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	214-742	1	VALVE/RELAY HARNESS	
2.	309-743	1	RELAY PANEL	
3.	353-135	1	FUSE PLATE ADAPTER	
4.	211-031	1	BORE/MOBILE RESISTOR PACK	
5.	217-184	1	DELAY TIMER (2-SECOND)	
6.	217-937	1	START BYPASS DELAY TIMER	
7.	105-185	10	BOLT (#10-24 X 1/2", RD SLT)	
8.	106-049	4	BOLT (#10-24 X 3/4", PLPS)	
9.	105-186	14	NUT (#10-24)	
10.	105-284	14	WASHER (3/16")	
11.	195-418	14	LOCK WASHER (#10)	
12.	105-226	1	WASHER (5/16")	
13.	105-823	4	FLG LK BOLT (5/16-NC X 3/4")	
14.	105-003	4	FLG LOCKNUT (5/16-NC)	
15.	110-373	1	BOLT-ON CLAMP (13/16")	
16.	217-710	7	MICRO RELAY (SPDT)	
17.	217-826	3	MINI RELAY (SPDT)	
18.	217-811	3	FUSE (ATC, 15 AMP)	
19.	217-809	2	FUSE (ATC, 5 AMP)	
20.	217-810	1	FUSE (ATC, 10 AMP)	
21.	217-805	1	FUSE (MAXI, 20 AMP)	

FOOTNOTES

ELECTRICAL STRIKE SYSTEM

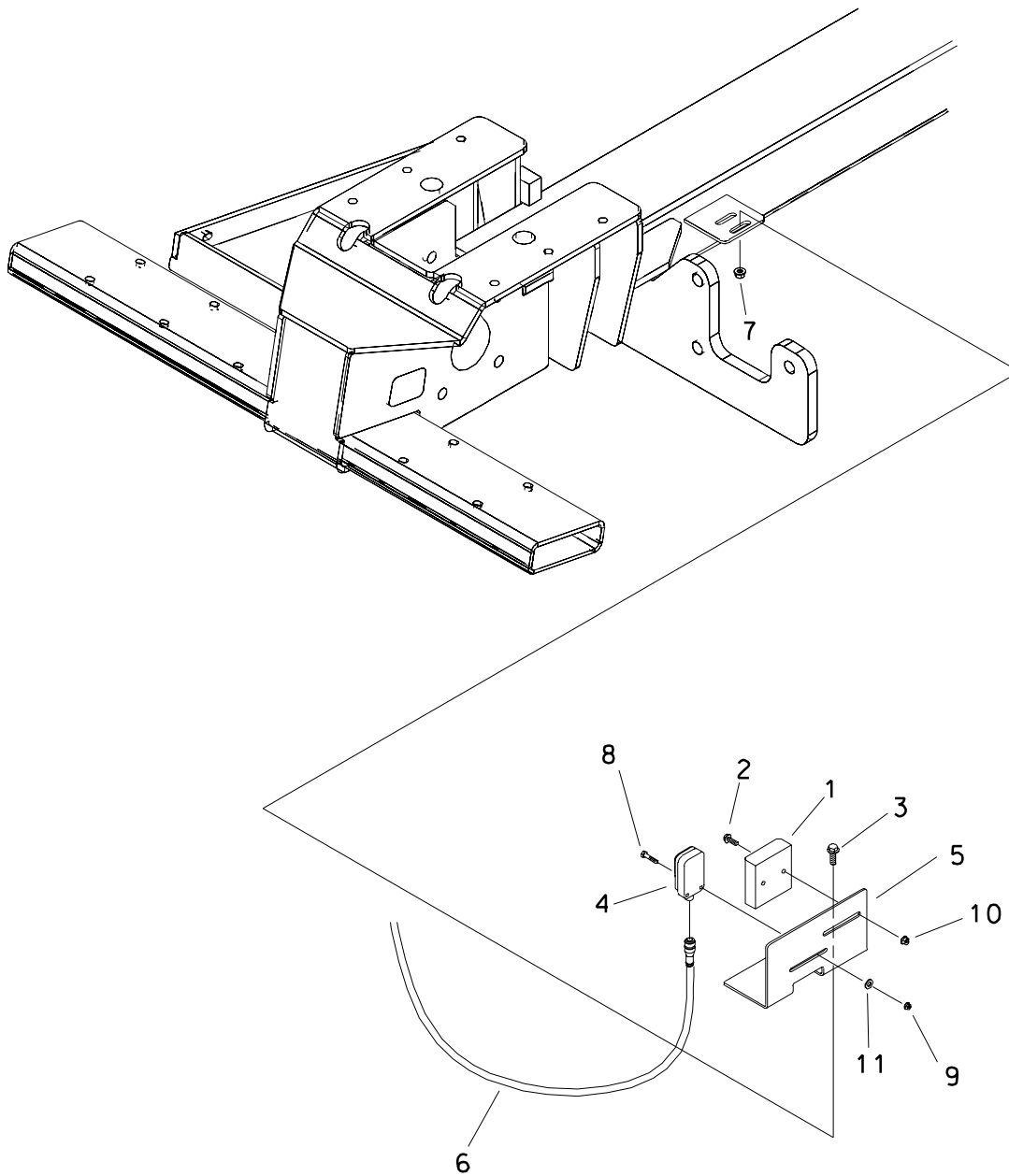


ELECTRICAL STRIKE SYSTEM

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	106-602	4	SCREW (M8-1.25 X 80MM)	
2.	216-064	1	CURRENT TRANSFORMER	
	211-083	1	CURRENT TRANSFORMER	
3.	214-722	1	STROBE LIGHT (AMBER)	INCL LOCKNUT AND CONNECTOR
	217-870	-	STROBE LIGHT BULB	
	217-296	1	STROBE LIGHT AMBER MED PROFILE	
	214-991	-	REPLACEMENT FLASH TUBE	
	217-302	-	REPLACEMENT LENS (AMBER)	
	217-301	-	BRUSH GUARD	
	214-103	1	2-WAY MALE CONNECTOR	
	157-645	2	WEATHER-PAC SEAL (2.80MM)	
	214-104	2	PACKARD MALE TERMINAL	
4.	309-758	1	COVER	
5.	259-210	1	TRAFFIC CONE - ORANGE	
6.	259-234	8	CONE CLIP	
7.	260-223	1	BARRIER TAPE (3" X 1000')	
8.	215-799	1	VOLTAGE STAKE	
9.	211-042	1	VOLTAGE LIMITER CABLE	
10.	217-241	1	ESID MODULE NEW (T)	
11.	214-550	1	CURRENT COIL CABLE	
12.	106-386	4	FLG LOCKNUT (M8-1.25)	
13.	217-331	1	SMALL FERRITE CLAMP-ON	

FOOTNOTES

FRONT DRILL FRAME SENSOR

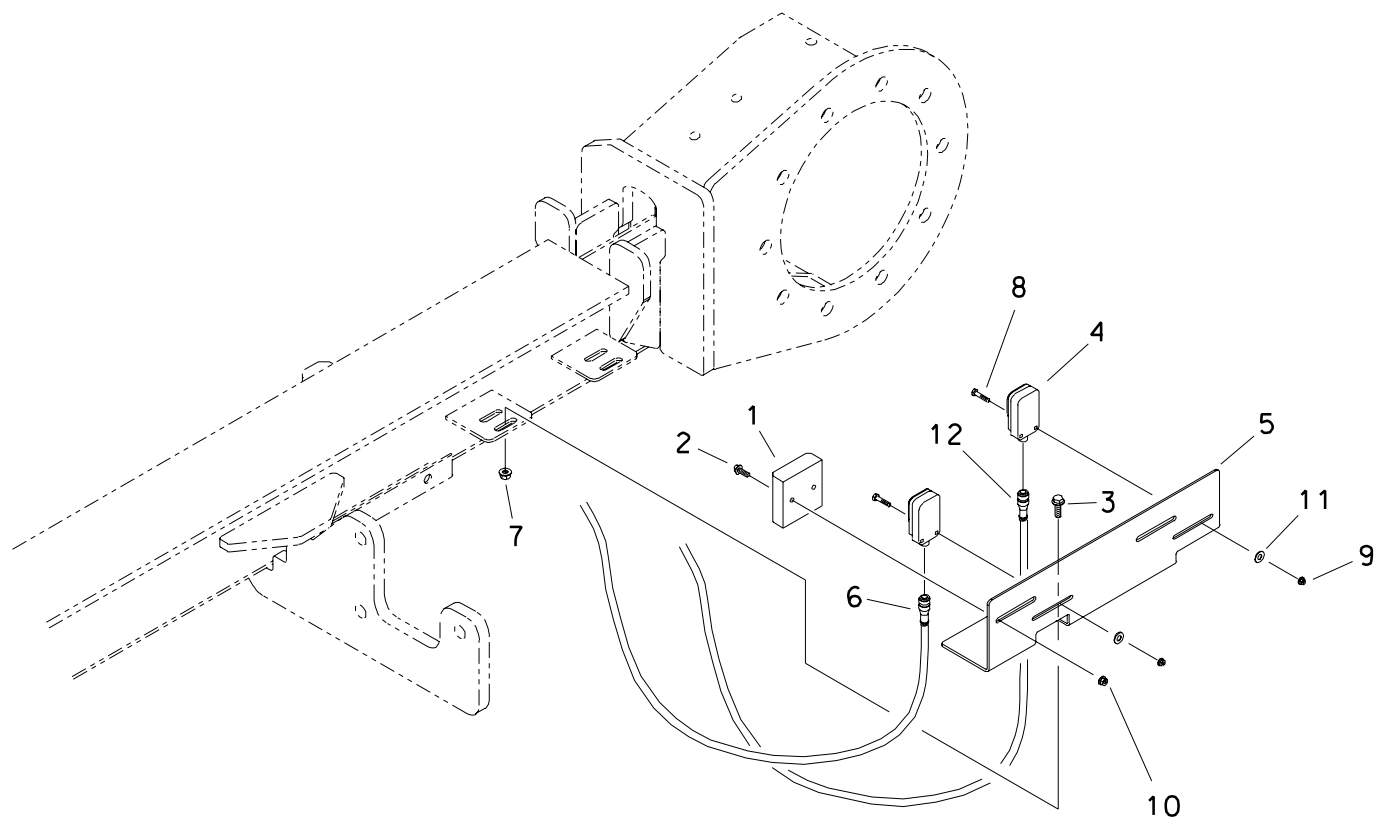


FRONT DRILL FRAME SENSOR

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	307-327	1	PROX SWITCH SLIDE PAD	
2.	106-848	2	FLG SCREW (M6-1.00 X 25MM)	
3.	106-381	2	FLG LK SCREW (M8-1.25 X 25MM)	
4.	214-692	1	PROXIMITY SWITCH	
5.	310-353	1	FRONT SWITCH PLATE	
6.	214-743	1	PIPELOADER HARNESS	
7.	106-386	2	FLG LOCKNUT (M8-1.25)	
8.	106-426	2	SCREW (M5-0.80 X 25MM, SOC)	
9.	106-850	2	LOCKNUT (M5-0.80)	
10.	106-385	2	FLG LOCKNUT (M6-1.00)	
11.	105-284	2	WASHER (3/16")	

FOOTNOTES

REAR DRILL FRAME SENSOR

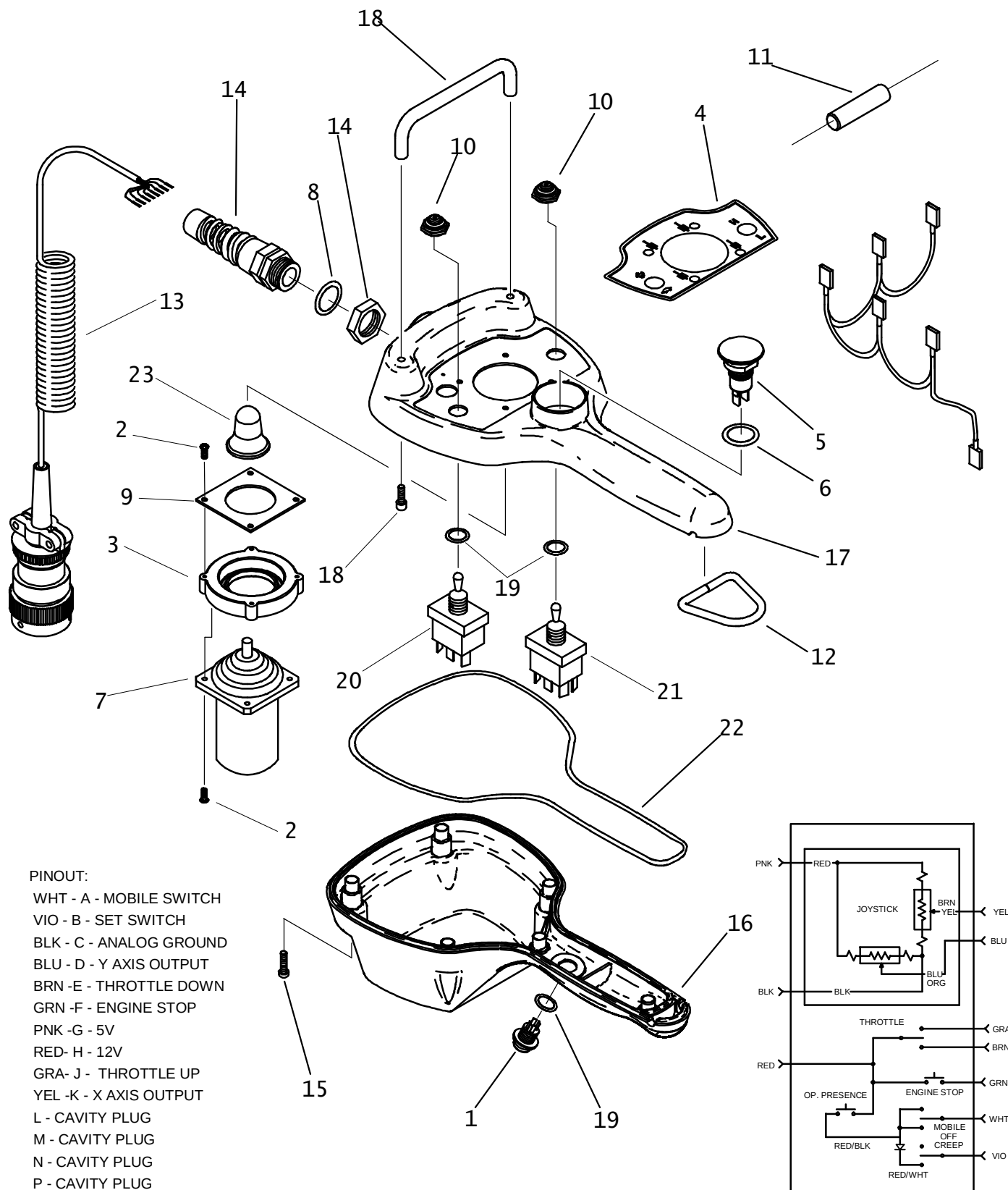


REAR DRILL FRAME SENSOR

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	307-327	2	PROX SWITCH SLIDE PAD	
2.	106-848	4	FLG SCREW (M6-1.00 X 25MM)	
3.	106-381	4	FLG LK SCREW (M8-1.25 X 25MM)	
4.	214-692	2	PROXIMITY SWITCH	
5.	310-352	1	REAR SWITCH PLATE	ENDS WITH S/N: 2X0446
	320-671	1	REAR SWITCH PLATE	BEGINS WITH S/N: 2X0585
6.	214-743	1	PIPELOADER HARNESS	
7.	106-386	4	FLG LOCKNUT (M8-1.25)	
8.	106-426	4	SCREW (M5-0.80 X 25MM, SOC)	
9.	106-850	4	LOCKNUT (M5-0.80)	
10.	106-385	4	FLG LOCKNUT (M6-1.00)	
11.	105-284	4	WASHER (3/16")	
12.	213-101	1	JT17M1 REAR STOP HARNESS	BEGINS WITH S/N: 2X0585

FOOTNOTES

GROUND DRIVE CONTROL



GROUND DRIVE CONTROL

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	214-589		GROUND DRIVE CONTROL	
1.	214-614	1	PUSH BUTTON SWITCH (SPST) OFF-(ON)	
2.	106-820	8	SCREW, SELF TAPPING (3.0 X 12MM)	
3.	305-664	1	JOY STICK ADAPTER	
4.	274-998	1	DECAL	
5.	214-615	1	KILL SWITCH	
6.	157-040	1	O-RING (1-016 D90)	
7.	214-613	1	JOYSTICK ASSEMBLY	SEE FOOTNOTE 1
	215-1394	1	JOYSTICK ASSEMBLY	SEE FOOTNOTE 1
8.	157-017	1	O-RING (018 D90)	
9.	149-558	1	JOYSTICK GASKET	
10.	214-728	2	TOGGLE SWITCH HALF BOOT (SEAL)	
11.	215-1720	1	DIODE 1N5402	
12.	105-775	1	D-RING	
13.	211-020	1	COILED CORD-MALE	
14.	211-021	1	STRAIN RELIEF	
15.	106-876	6	SCREW	
16.	214-497	1	LOWER HOUSING	
17.	214-498	1	UPPER HOUSING	
18.	116-933	1	HANDLE	
	106-894	2	SCREW (#8-32 X 1" PLPS SS)	SEE FOOTNOTE 2
19.	157-039	2	O-RING (1-014 D90)	
20.	217-896	1	TOGGLE SWITCH	
21.	214-570	1	TOGGLE SWITCH (DPDT) ON-OFF-ON	
22.	116-549	AR	ROPE GASKET (USE 27")	
23.	116-932	1	JOYSTICK KNOB	

NOT SHOWN:

FOOTNOTES:

1. JOYSTICK SHOULD BE ORIENTED WITH LABEL POINTING TOWARDS CABLE END. (REV G)
1. JOYSTICK SHOULD BE ORIENTED WITH X+ ON LABEL POINTING TOWARDS CABLE END. (REV H)
Y-AXIS OUTPUT: 3.75V FORWARD 1.25V BACK
X-AXIS OUTPUT: 3.75V LEFT 1.25V RIGHT

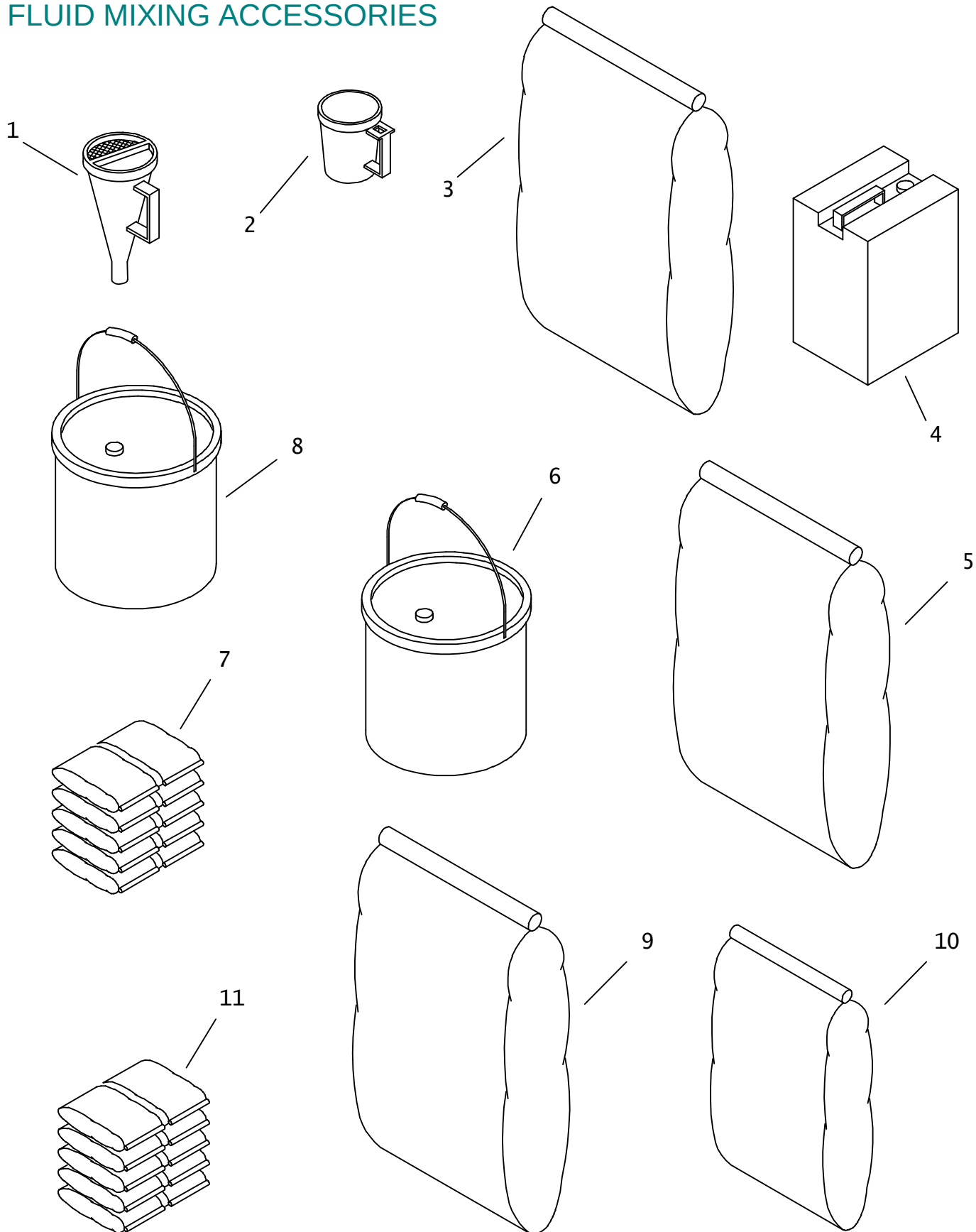
2. APPLY THREAD LOCKING COMPOUND TO BOTH HANDLE SCREWS.

NOTE:

NOTES:

ACCESSORIES

FLUID MIXING ACCESSORIES



FLUID MIXING ACCESSORIES

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	259-195	1	VISCOSITY FUNNEL	
2.	259-196	1	VISCOSITY CUP	
3.	259-804	AR	BENTONITE, QUIK-GEL (50 LB)	
4.	259-805	AR	LIQUID POLYMER, EZ-MUD (5 GAL)	
5.	259-807	AR	BENTONITE, BORE-GEL (50 LB)	
6.	259-808	AR	VISCOSIFIER, LIQUI-TROL (5 GAL)	
7.	259-809	AR	POWDER POLYMER, QUIK-TROL (20 LB)	
8.	259-810	AR	WET AGENT, CON-DET (5 GAL)	
9.	259-821	AR	'PAC-R' FILTRATION CONTROL	
10.	259-822	AR	'BARAZAN D+' VISCOSIFIER	
11.	259-832	AR	'NO SAG' (20# BOX/10-2#BAGS)	

NOT SHOWN:

191-158	1	DRILLING FLUID TEST KIT
259-487	1	SHEAROMETER

FOOTNOTES:

NOTE:

MISCELLANEOUS

SAE Bolt and Nut Torque Value Chart

Grade 5: UNC or UNF Thread

Size	Hex nut, or bolt tapped into hex nut, or d&t hole		Hex top deformed locknut		Flange nut, locknut, or bolt tapped into flange nut or d&t* hole	
	ft•lb	N•m	ft•lb	N•m	ft•lb	N•m
1/4	12	16	8	11	20	27
5/16	25	34	15	20	45	60
3/8	40	54	25	34	75	100
7/16	65	90	40	55	125	170
1/2	100	135	60	80	190	260
9/16	150	200	90	125	270	370
5/8	200	270	120	165	370	500
3/4	350	475	210	285	650	880
7/8	560	760	340	460	1250	1425
1	840	1140	500	680	1580	2145
1-1/8	1030	1400	320	840	1950	3645
1-1/4	1460	1980	880	1195	2760	3475

Grade 8: UNC or UNF Thread

Size	Hex nut, or bolt tapped into hex nut, or d&t hole		Hex top deformed locknut		Flange nut, locknut, or bolt tapped into flange nut or d&t* hole	
	ft•lb	N•m	ft•lb	N•m	ft•lb	N•m
1/4	14	19	10	14	24	33
5/16	30	40	18	25	50	70
3/8	55	73	35	50	90	125
7/16	85	115	50	70	140	190
1/2	130	175	80	110	220	300
9/16	190	260	110	150	310	420
5/8	260	355	160	245	430	585
3/4	450	610	270	365	750	1015
7/8	730	990	440	600	1210	1640
1	1090	1480	650	880	1320	2465
1-1/8	1550	2100	930	1260	2580	3500
1-1/4	2180	2955	1310	1780	3640	4935

*drilled and tapped

Metric Bolt and Cap Screw Torque Values

Size	Class 4.8				Class 8.8 and 9.8				Class 10.9				Class 12.9			
	Lubricated		Dry		Lubricated		Dry		Lubricated		Dry		Lubricated		Dry	
	N•m	ft•lb	N•m	ft•lb	N•m	ft•lb	N•m	ft•lb	N•m	ft•lb	N•m	ft•lb	N•m	ft•lb	N•m	ft•lb
M6	4.8	3.5	6	4.5	9	6.5	11	8.5	13	9.5	17	12	15	11.5	19	14.5
M8	12	8.5	15	11	22	16	28	20	32	24	40	30	37	28	47	35
M10	23	17	29	21	43	32	55	40	63	47	80	60	75	55	95	70
M12	40	29	50	37	75	55	95	70	110	80	140	105	130	95	165	120
M14	63	47	80	60	120	88	150	110	175	130	225	165	205	150	260	190
M16	100	73	125	92	190	140	240	175	275	200	350	225	320	240	400	300
M18	135	100	175	125	260	195	330	250	375	275	475	350	440	325	560	410
M20	190	140	240	180	375	275	475	350	530	400	675	500	625	460	800	580
M22	260	190	330	250	510	375	650	475	725	540	925	675	850	625	1075	800
M24	330	250	425	310	650	475	825	600	925	675	1150	850	1075	800	1350	1000
M27	490	360	625	450	950	700	1200	875	1350	1000	1700	1250	1600	1150	2000	1500
M30	675	490	850	625	1600	950	1650	1200	1850	1350	2300	1700	2150	1600	2700	2000
M33	900	675	1150	850	1750	1300	2200	1650	2500	1850	3150	2350	2900	2150	3700	2750
M36	1150	850	1450	1075	2250	1650	2850	2100	3200	2350	4050	3000	3750	2750	4750	3500

Do not use these values if a different torque value or tightening procedure is given for specific application. Torque values listed are for general use only. Check tightness of fasteners periodically.

Shear bolts are designed to fail under predetermined loads. Always replace shear bolts with identical property class fasteners.

Fasteners should be replaced with the same or higher property class. If higher property class fasteners are used, these should only be tightened to strength of original.

Make sure fastener threads are clean and that the threads are properly started. This will prevent them from cross threading or galling when tightened.

Tighten plastic insert or crimped type steel locknuts to approximately 50% of dry torque indicated on chart. Apply torque to the nut - not the bolt head. Tighten toothed or serrated type locknuts to full torque value.

LUBRICATED means coated with lubricant. DRY means plain or zinc plated without any type of lubricant.

Hydraulic Cylinder Bolt Torque Chart

Bolt Size (inch)	Bolt Part No.	Cylinder Repair Kit Part No.	Torque (ft•lb)	Torque (N•m)
1/2	106-096	190-165	90-100	120-135
5/8	106-097	190-166 & 190-169	180-200	245-270
3/4	106-098	190-167 & 190-170	290-325	395-440
7/8	106-122	190-172 & 190-174	410-640	550-625
1	106-145	190-175 & 190-189	630-700	855-950
1-1/8	106-146	190-177	770-850	1045-1170

As a general rule:

- 1/2-inch bolts are used in cylinders with 1-inch rods
- 5/8-inch bolts are used in cylinders with 1 1/4-inch rods
- 3/4-inch bolts are used in cylinders with 1 1/2-inch rods
- 7/8-inch bolts are used in cylinders with 1 3/4-inch rods
- 1-inch bolts are used in cylinders with 2-inch rods (one with 1 3/4-inch)
- 1-1/8-inch bolts are used in cylinders with 2-1/4-inch rods

IMPORTANT: Do not reuse cylinder piston bolts when rebuilding a hydraulic cylinder. Each cylinder repair kit contains a new bolt. Use it. Lubricate lightly and torque to value shown on chart.

SAE & ORS Hydraulic Fitting Replacement O-Ring Chart

Fraction Size	Dash Size	SAE (Port Seal O-Ring)		ORS (Face Seal O-Ring)	
		Thread Size	O-Ring P/N	Thread Size	O-Ring P/N
1/16	1	NA	NA	NA	NA
1/8	2	5/16 - 24	NA	NA	NA
3/16	3	3/8 - 24	NA	NA	NA
1/4	4	7/16 - 20	155-760	9/16 - 18	157-037
5/16	5	1/2 - 20	NA	NA	NA
3/8	6	9/16 - 18	155-705	11/16 - 16	157-038
1/2	8	3/4 - 16	155-706	13/16 - 16	157-039
5/8	10	7/8 - 14	155-707	1 - 14	157-040
3/4	12	1-1/16 - 12	155-709	1-3/16 - 12	157-017
7/8	14	1-3/16 - 12	155-747	NA	NA
1	16	1-5/16 - 12	155-748	1-7/16 - 12	155-714
1-1/4	20	1-5/8 - 12	155-702	1-11/16 - 12	NA
1-1/2	24	1-7/8 - 12	157-001	2 - 12	NA
2	32	2-1/2 - 12	NA	NA	NA
2-1/2	40	3 - 12	NA	NA	NA
3	48	3-1/2 - 12	NA	NA	NA

Thread size indicates the diameter of the threaded area in fractions of an inch and number of threads per inch.

NA = not a current CMW part numbered o-ring, or dash size does not occur in current CMW applications

SAE = straight thread fitting that seals by sandwiching a hard o-ring between a shoulder on the male part and an angular surface at the mouth of the female port.

ORS = o-ring face seal; a type of fitting that seals by compressing a hard, captive o-ring between two flat parallel faces, one grooved for the o-ring and the other plain to act as the sealing surface

JT1720 Mach 1

Related Publications

Component	Ass'y	P/N
Model:		
JT1720 Mach 1 Parts Manual		053-079
JT1720 Mach 1 Operators Manual		054-073
JT1720 Mach 1 Repair Guide (Service Manual)		N/A
JT1720 Mach 1 Supplementary Maint Guide - Trenchless		055-485
JT1720 Mach 1 Special Tools Guide		052-901
Engine:		
John Deere Parts Manual - 4045DF150	194-123	053-059
John Deere Operators Manual - 4045DF150		054-049
John Deere Service (Shop) Manual - 4045DF150		054-049

Filters

Engine:		
Air Filter Parts Ass'y		197-762
Element (primary)		197-763
Element (secondary)		197-764
Oil Filter Element (spin-on) - John Deere (4045DF150)		194-815
Fuel Filter Element (spin-on) - John Deere (4045DF150)		194-816
Fuel Strainer (04H)		156-268
Hydraulic:		
Oil Filter Element (1-1/2-UNF, spin-on, Replacement)		159-079
Element (1-1/2-UNF, spin-on, Break-In)		149-840
Water {H2O}:		
Water Strainer (2.250" x 7.0", 12 Mesh) - Y-Strainer		159-503

Optional Kits

O-ring Repair Kit - FLG, ORS & SAE (15 different O-rings)	190-051
O-ring Repair Kit - Field Service (46 different O-rings)	190-052


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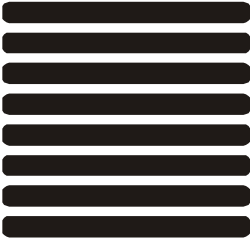
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