

Ditch Witch[®]

JT4020 Mach 1

ISSUE NO. 06PL-07/11

For Replacement Copy Order **P/N 053-086**

This product is covered by one or more of the following patents:

US 4,953,638; 5,148,880; 5,242,026; 5,341,887; 5,490,569; 5,684,466; 5,713,423; 5,740,703; 5,758,553; 5,794,719; 5,880,680; 5,941,322; 6,085,852C1; 6,109,371; 6,179,065; 6,216,803; 6,250,403; 6,250,404; 6,290,606; 6,311,790; 6,411,094; 6,543,551; 6,550,547; 6,672,409; 6,739,413; 6,761,231; 6,776,246; 6,808,210; 6,827,158; 6,848,506; 6,871,712; 6,896,077; 7,000,710; 7,011,166; 7,013,990; 7,018,164; 7,025,152; 7,038,454; 7,111,693; 7,150,331; RE37,450; RE37,923; RE37,975; RE38,418

AU 689,533; 706,544; 718,034, 755,862

CA 2,156,398; 2,217,899

FR 674,093

DE 694 17 019; 695 29 634; 697 28 716;

EP 0927892; 1466068

GB 2,312,006; 2,418,553; EP674,093; EP817,901; EP846,841; EP927,892

JP 3,458,247

Other U.S. and foreign patents pending

This manual contains information concerning the following models:
JT4020 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.

ID0135011

FOREWORD

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

- ◆ Part numbers enclosed in a box 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 and Tech Bits articles referenced in footnotes are available through your local Ditch Witch dealer.
- ◆ Description 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.
- ◆ 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 ProTech 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 ProTech 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 it's 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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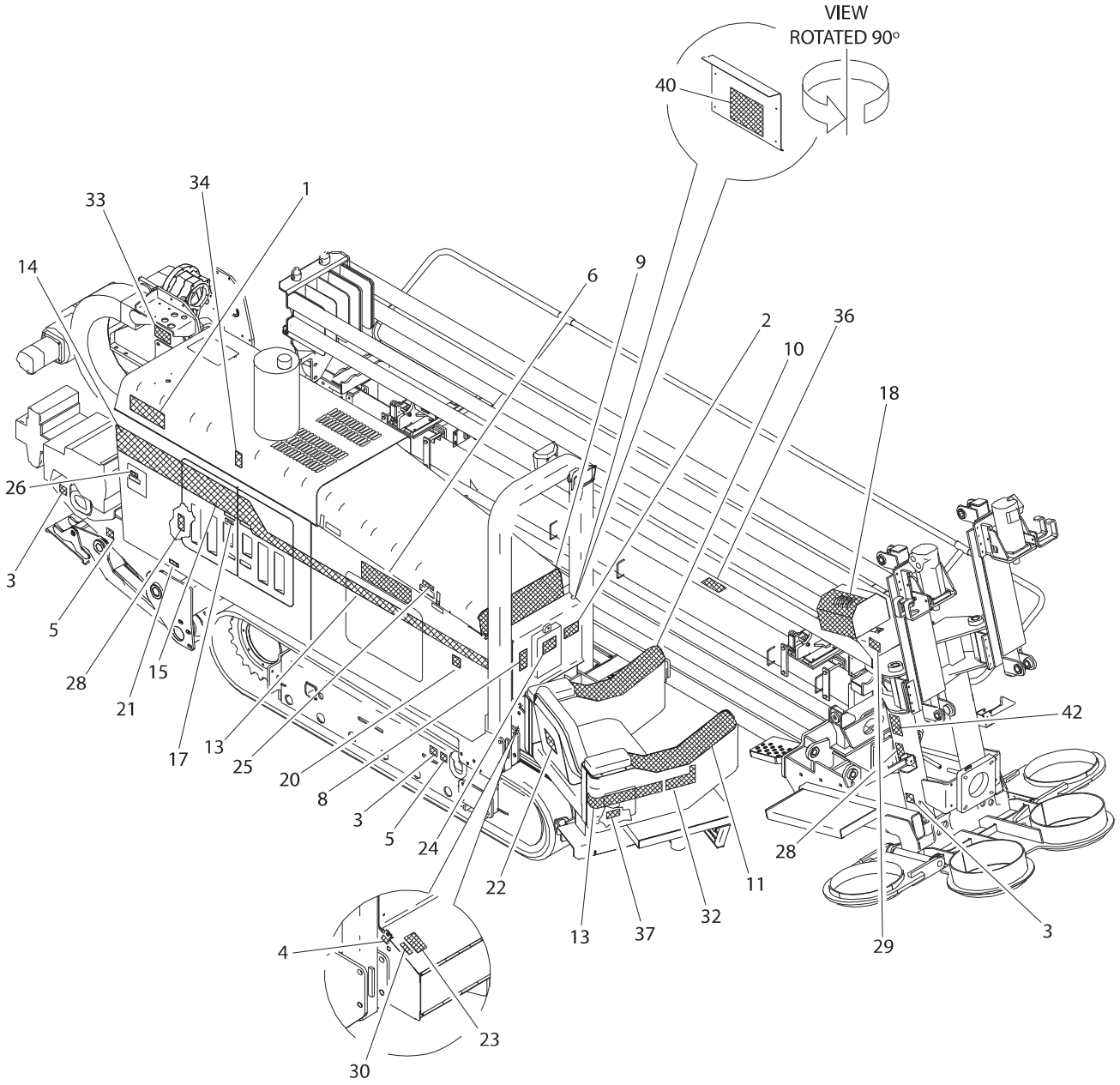
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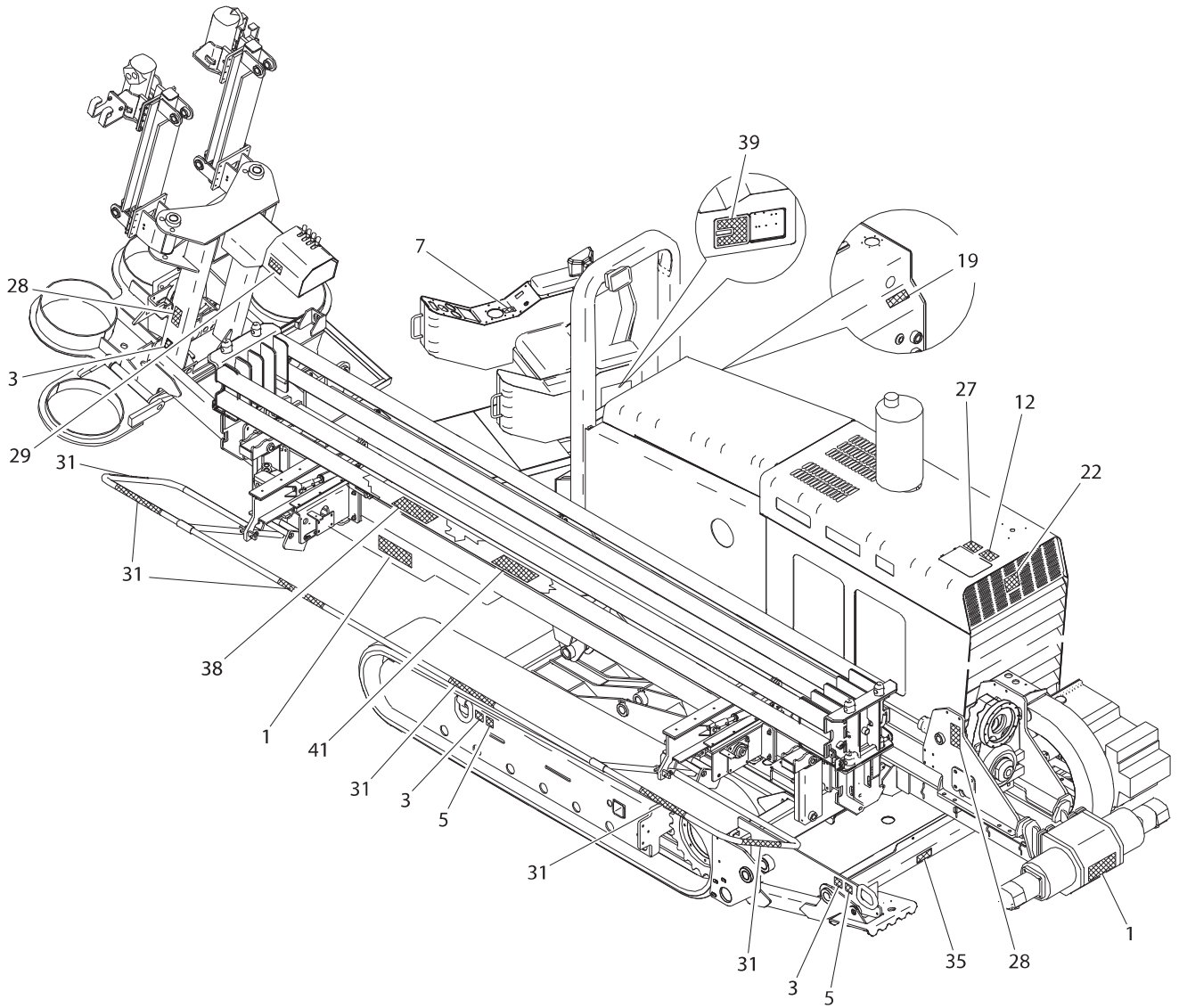
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DECALS

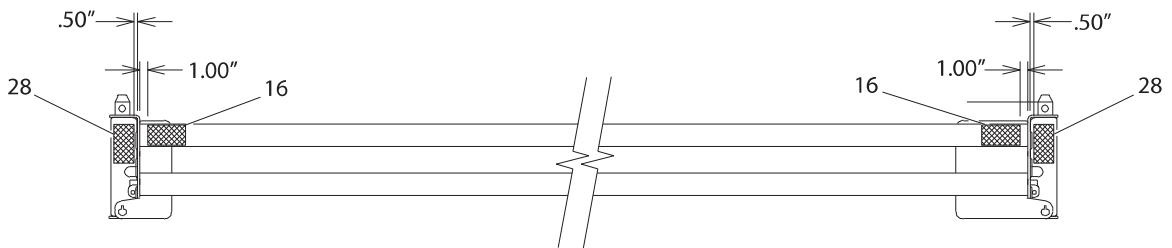
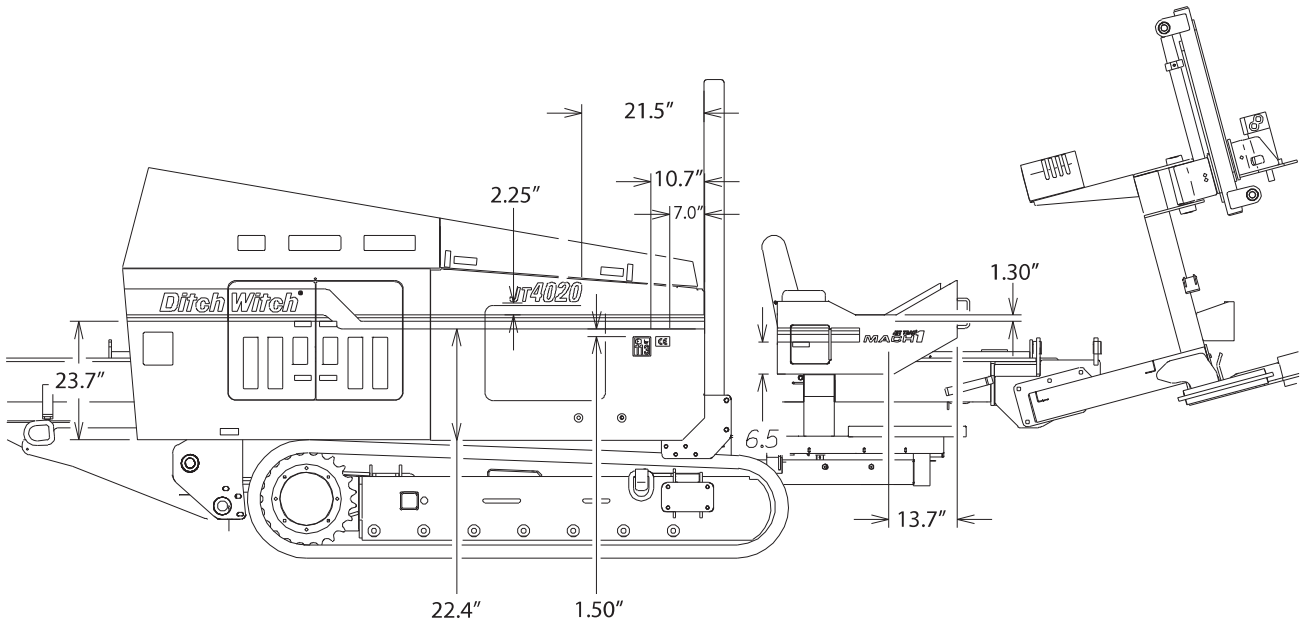
DECAL LOCATION JT4020 MACH 1



DECAL LOCATION JT4020 MACH 1



DECAL LOCATION JT4020 MACH 1



DECAL LOCATION JT4020 MACH 1

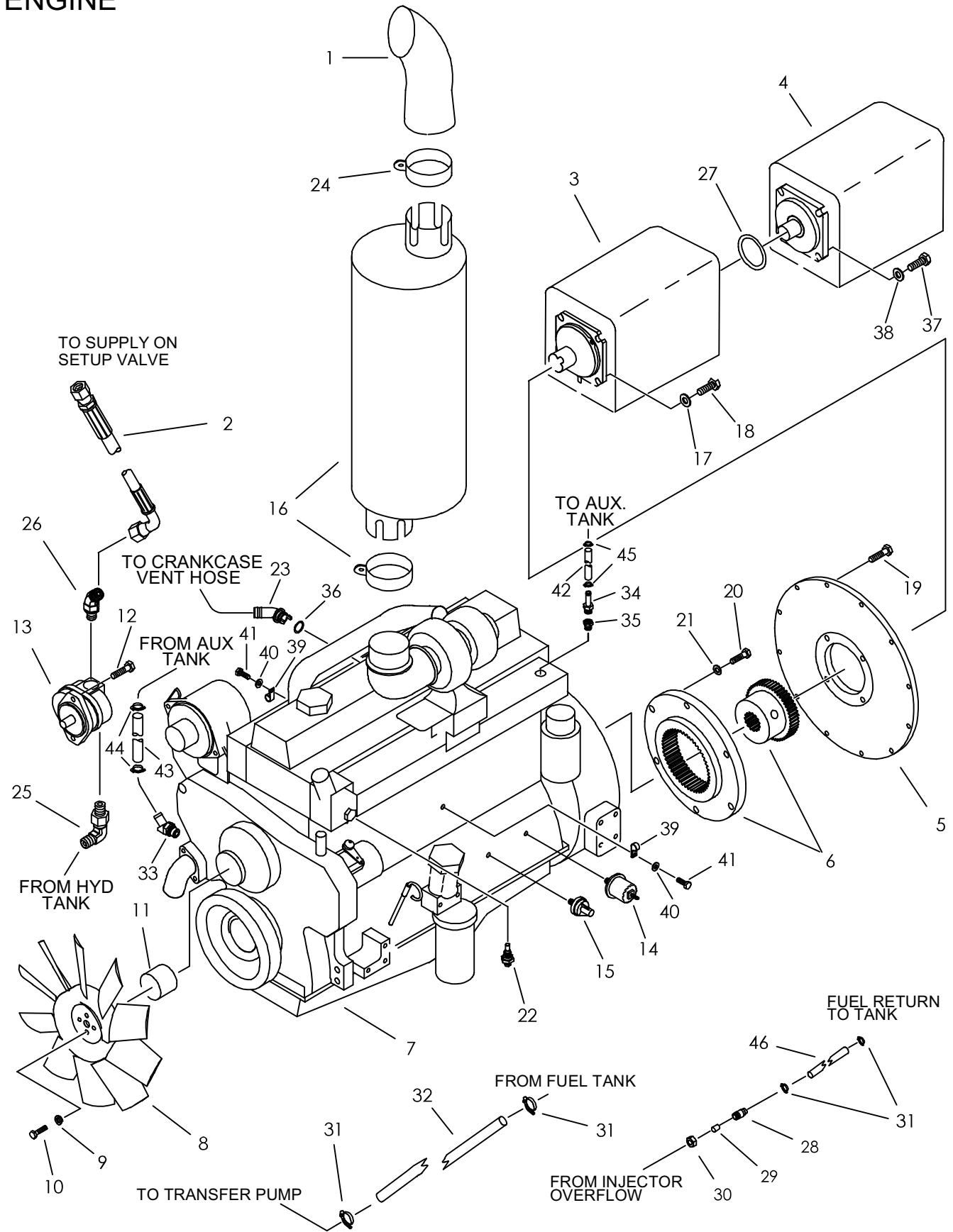
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	275-873		DECAL KIT - JT4020M1	
1	274-049	3	DANGER ELECTROCUTION	8 PER TRAFFIC CONES
2	274-050	1	WARNING JOBSITE HAZARD	
3	274-318	6	TIE DOWN LOCATION	
4	274-375	1	MASTER DISCONNECT SWITCH	
5	274-442	4	LIFT LOCATION	
6	274-678	1	JT4020 MODEL-ID	
7	274-724	1	ONE CALL NOTIFICATION	
8	274-780	1	JET TRAC PATENT(S)	
9	273-217	1	INSTRUMENT PANEL	
10	273-219	1	PIPE - ROTATION - FLUID	
11	273-218	1	IGNITION - JOYSTICK - GAUGE	
12	273-138	1	NOTICE COOLANT	
13	274-877	AR	GRAPHIC STRIPE	USE 80"
14	274-883	1	DITCH GRAPHIC STRIPE	
15	274-884	1	WITCH GRAPHIC STRIPE	
16	275-326	24	WARNING CRUSHING WEIGHT	4 PER PIPE BOX
17	275-400	1	NOTICE OIL LEVEL	
18	273-181	1	ANCHOR ROTATION-THRUST	
19	274-198	1	NOTICE OIL LEVEL	
20	273-016	1	SOUND POWER RATING	SEE FOOTNOTE 1
21	275-497	1	OIL DRAIN-ID	
22	275-449	2	DITCH WITCH LOGO PLACARD	
23	275-033	1	NOTICE ELECTRICAL SYSTEM	
24	275-048	1	IMPORTANT SAFETY RULES	
25	275-120	1	RESERVOIR (THF)	
	274-672	1	ENVIRO HYDRAULIC RESERVOIR	SEE FOOTNOTE 2
26	275-148	1	FUEL TANK (DIESEL)	
27	273-146	1	NOTICE ADD COOLANT	
28	275-184	28	WARNING MOVING PARTS	4 PER PIPE BOX
29	275-197	2	DANGER ROTATING SHAFT	
30	275-203	1	BATTERY	
31	275-230	6	WARNING STRIPE (1.75" X 18")	
32	273-186	1	MACH 1 IDENTIFIER	
33	275-341	1	WARNING SLIDING PARTS	
34	275-355	1	CAUTION HOT PARTS	
35	275-372	1	IMPORTANT CYLINDER LOCK	
36	273-227	1	SHUTTLE STOP INDICATOR	
37	273-198	1	TRACKER CONTROL	
38	273-233	1	FRONT WRENCH VALVE	
39	273-120	1	LEFT RELAY PANEL	
40	273-119	1	RELAY PANEL	
41	273-121	1	PIPELOADER/SEAT VALVE	
42	273-278	1	DANGER WRENCH	

FOOTNOTES

1. NOT PART OF KIT. FOR EUROPEAN UNITS ONLY.
2. NOT PART OF KIT. SEE 256-030 ENVIRONMENTAL HYDRAULIC OIL.

ENGINE COMPONENTS

ENGINE



ENGINE

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	196-373	1	EXTENSION TUBE (3" OD X 12")	
2.	154-955	-	HOSE (080FX90-102"-3000)	
3.	153-340	1	HYDRAULIC PUMP	
	149-939	1	FILTER ELEMENT	
4.	150-2180	1	HYDRAULIC PUMP LS	
	190-1371	-	PUMP SEAL KIT	
5.	336-051	1	FLY WHEEL HOUSING COVER	
6.	160-897	1	DRIVE COUPLING	SEE FOOTNOTE 1
7.	194-083	1	ENGINE - DEERE DIESEL	
	194-823	-	THERMOSTAT	
	165-883	-	GASKET, THERMOSTAT	
	194-815	-	OIL FILTER ELEMENT	
	194-816	-	FUEL FILTER ELEMENT	
	194-493	-	PRIMARY FILTER SEDIMENT BOWL	BEGINS WITH S/N
	217-451	-	ALTERNATOR 95 AMP (REMAN)	
	211-022	-	STARTER	
	170-373	-	FAN BELT	
	194-159	-	WATER PUMP	
	168-617	-	GASKET, WATER PUMP	
8.	194-134	1	FAN (26.0" OD, 2.50" BC)	SEE FOOTNOTE 3
9.	105-091	4	LOCK WASHER (5/16")	
10.	106-473	4	SCREW (M8-1.25 X 130mm)	
11.	184-404	2	COOLING FAN SPACER	
12.	106-079	2	SCREW (M10-1.50 X 30mm)	
13.	149-838	1	HYDRAULIC PUMP	SEE FOOTNOTE 2
	500-966	-	SEAL REPAIR KIT	
14.	215-183	1	SENDER, OIL PRESSURE HD	USE 567 LOCTITE PIPE SEALANT
15.	217-736	1	OIL PRESSURE SWITCH	USE 567 LOCTITE PIPE SEALANT
16.	196-372	1	MUFFLER OUTLINE	
	194-027	-	MUFFLER CLAMP (4.143")	
17.	105-244	4	WASHER (1/2")	
18.	105-048	4	BOLT (1/2-NC X 1-1/2")	USE 242 LOCTITE
19.	106-383	12	FLG LK SCREW (M10-1.50 X 30mm)	USE 242 LOCTITE
20.	105-156	8	BOLT (3/8-NC X 1-1/2")	USE 242 LOCTITE, TORQUE TO 30 FT LBS

NOT SHOWN:

FOOTNOTES:

NOTE:

ENGINE

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
21.	105-072	8	LOCK WASHER (3/8")	
22.	217-550	1	WATER TEMPERATURE SENDER	SEE FOOTNOTE 5
23.	153-161	1	ELBOW (-12H45, SPECIAL)	
24.	194-049	1	MUFFLER CLAMP (3.135")	
25.	154-286	1	CONNECTOR (120-16S90)	
26.	154-264	1	CONNECTOR (080-10S45)	
27.	157-201	-	O-RING (049 D70)	SEE FOOTNOTE 4
28.	156-275	1	TUBE CONNECTOR (04H-05T)	
29.	156-276	1	FERRULE (05T)	
30.	156-277	1	COMPRESSION NUT (05T)	
31.	110-528	4	SNAP-ON CLAMP (.531" TO .593")	USE 1 @ 68"
32.	116-108	AR	BULK HOSE (5/16", SOLD PER 1")	REMOVE PLUG AND INSTALL ELBOW IN WATER PUMP
33.	153-160	1	S/O COUPER (18M-10H45)	USE 567 LOCTITE PIPE SEALANT
34.	155-162	1	S/O COUPLER (04N-05H)	USE 567 LOCTITE PIPE SEALANT
35.	115-286	1	REDUCER (08N-1/4-NF)	
36.	157-050	1	O-RING (116 D70)	
37.	105-302	2	BOLT (5/8-NC X 2", GD8)	LOCTITE 242
38.	106-398	2	WASHER (M16, HARDENED)	
39.	110-259	2	BOLT-ON CLAMP (.625")	
40.	105-118	2	WASHER (3/8")	
41.	105-245	2	SCREW (M10-1.50 X 25mm)	
42.	116-108	AR	BULK HOSE (5/16", SOLD PER 1")	USE 1 @ 52"
43.	116-750	AR	BULK HOSE (5/8", SOLD PER 1")	USE 1 @ 28"
44.	110-026	2	WORM CLAMP (1/2" TO 1-1/4")	
45.	110-249	2	WORM CLAMP (1/4" TO 1")	
46.	116-108	AR	BULK HOSE (5/16", SOLD PER 1")	USE 1 @ 78.0"

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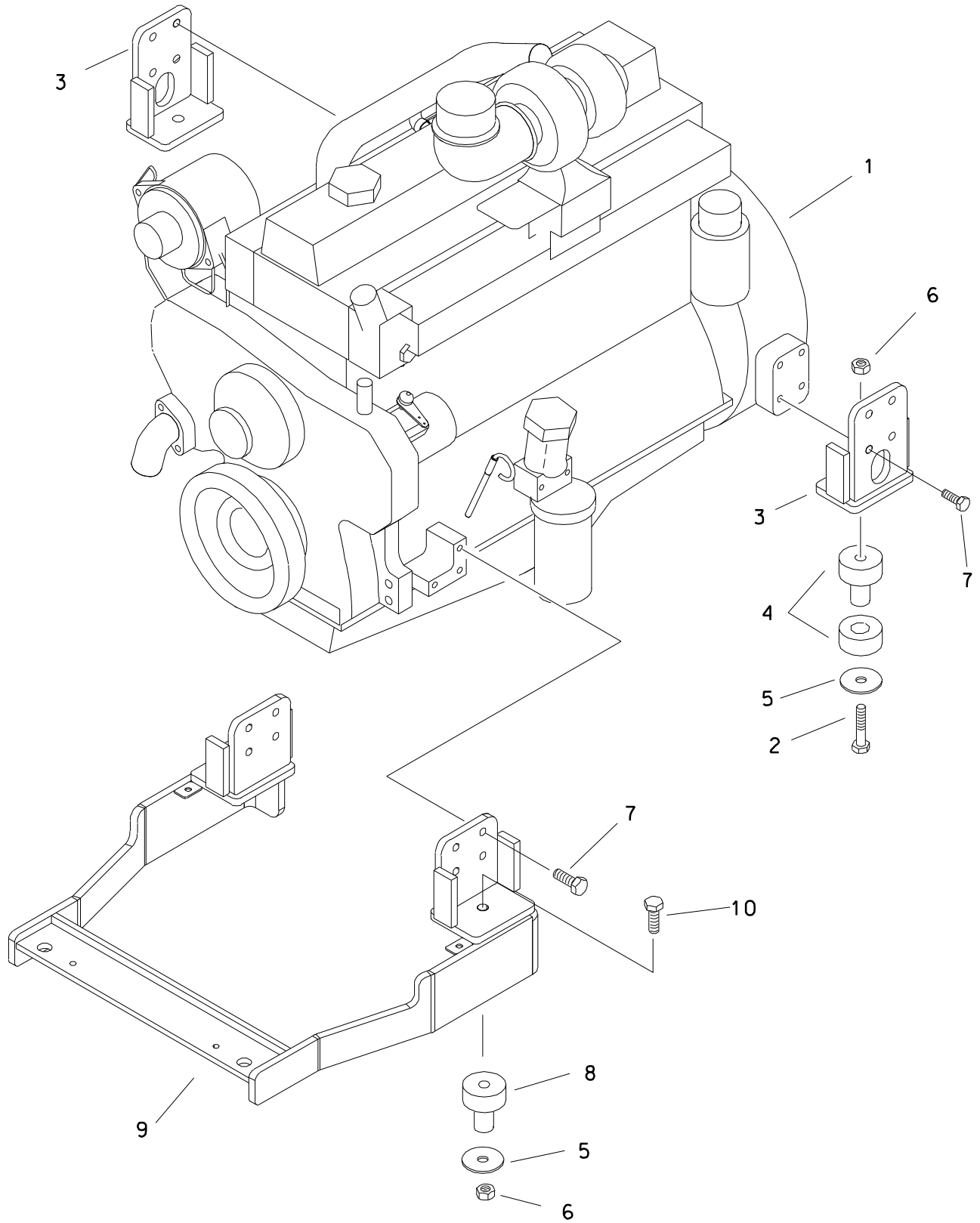
FOOTNOTES:

1. TORQUE CROSSBOLT TO 85-90 FT LB; MOUNT FLUSH WITH END OF SHAFT
2. RE-INSTALL GASKET FROM COVER PLATE.
3. FAN MUST BE CENTERED IN DIAMETER OF RADIATOR SHROUD OPENING, INSTALL WITH NOTCHES TOWARD RADIATOR
4. ONE O-RING COMES WITH REF. #3 (HYDROSTATIC PUMP) UNDER AUX MTG PAD COVER
5. REMOVE O-RING FROM PLUG AND INSTALL ON WATER TEMPATURE SENDER WHEN ASSEMBLING

NOTE:

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

ENGINE MOUNTS

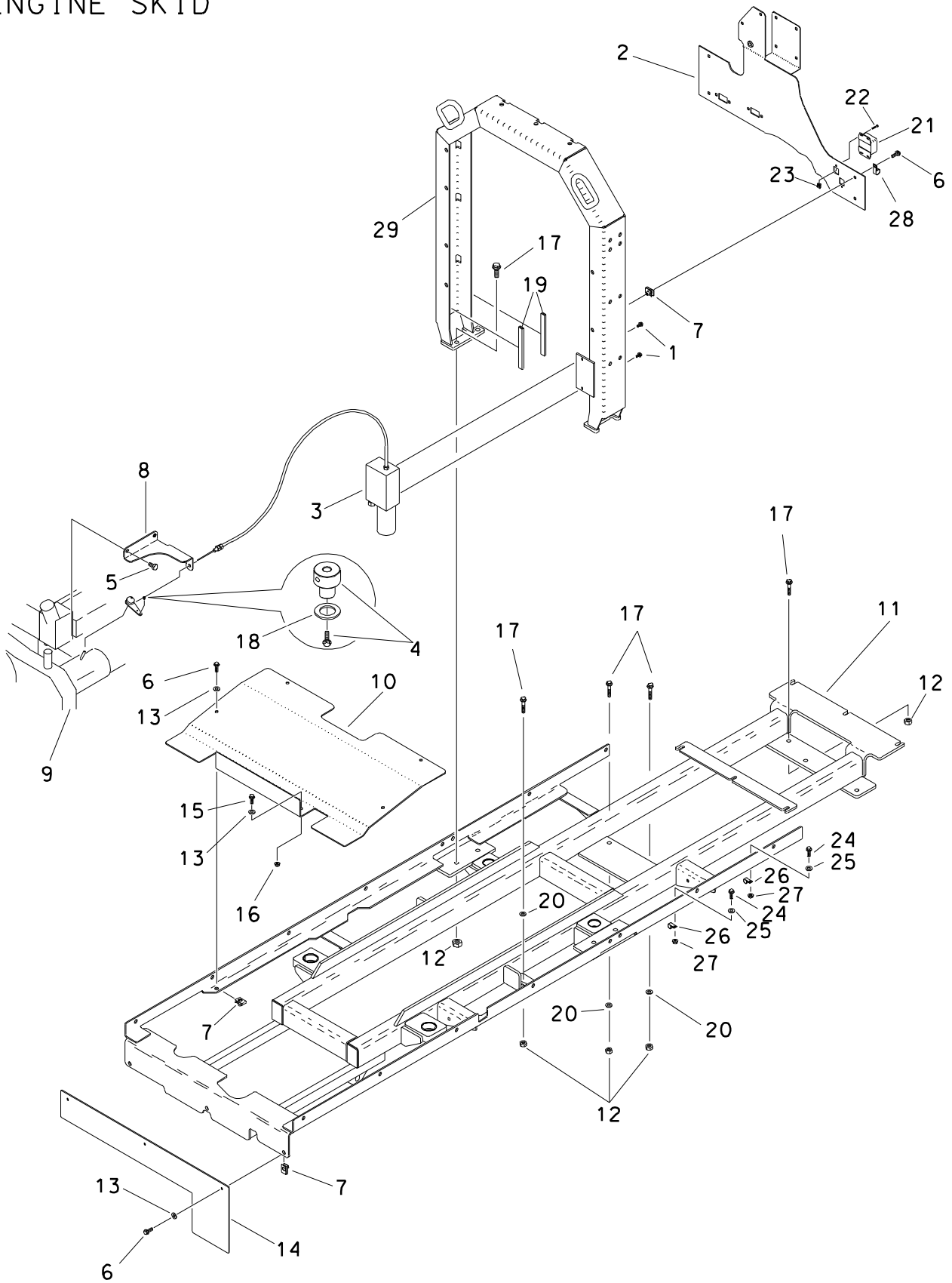


ENGINE MOUNTS

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	194-083	-	ENGINE - DEERE DIESEL	
2.	106-343	2	SCREW (M16-2.0 X 110mm)	
3.	354-325	2	REAR ENGINE MOUNT	
4.	116-127	2	SHOCK MOUNT	
5.	105-416	4	WASHER (5/8")	
6.	106-545	4	LOCKNUT (M16-2.00, PRV TRQ, 10.9)	
7.	105-247	14	SCREW (M12-1.75 X 35mm)	USE 242 LOCTITE
8.	116-726	2	SHOCK MOUNT	
9.	350-506	1	FRONT ENGINE MOUNT	
10.	106-342	2	SCREW (M16-2.0 X 90mm)	

FOOTNOTES

ENGINE SKID



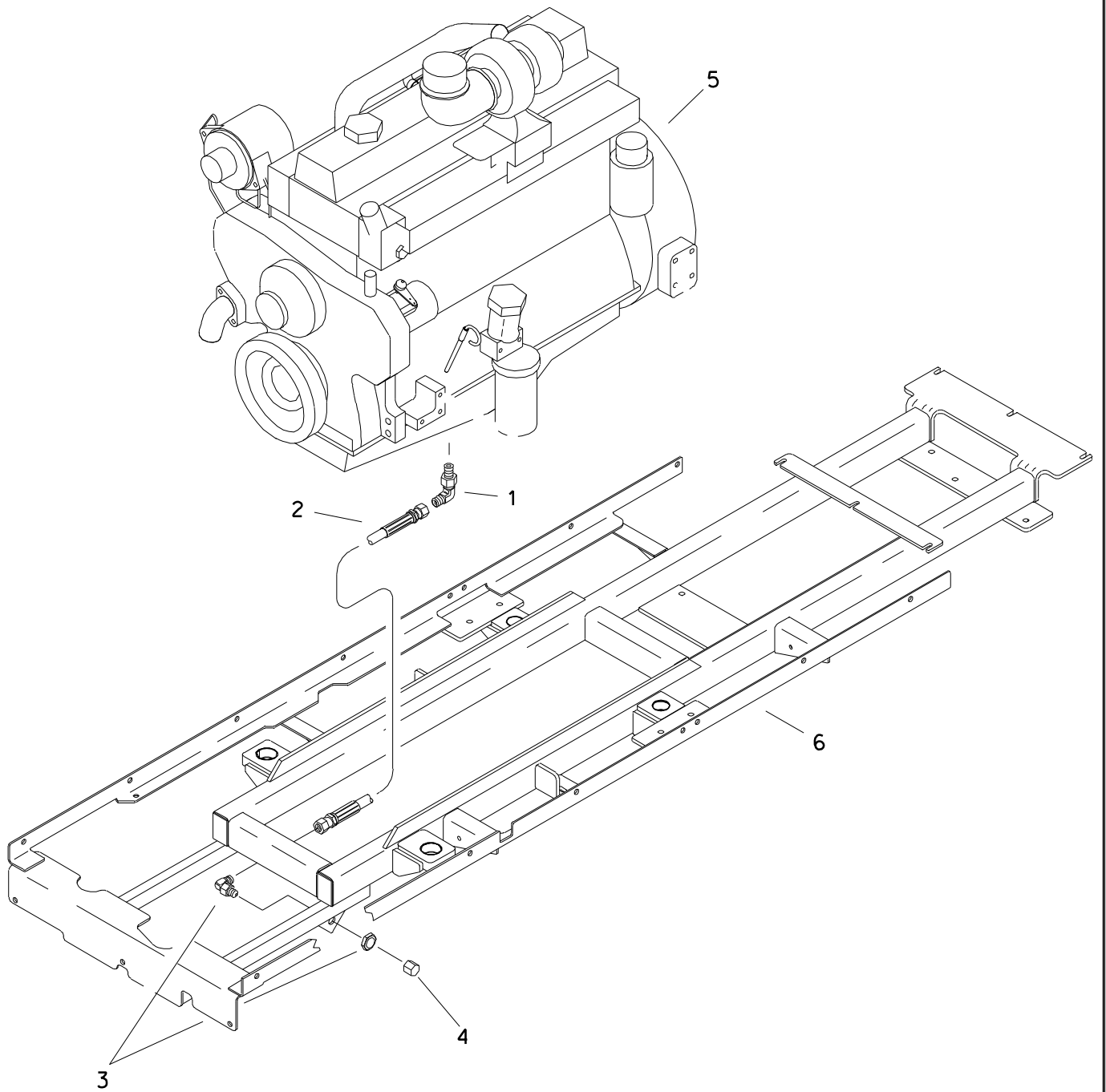
ENGINE SKID

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	105-836	2	FLG LOCK BOLT (1/4-NC X 1/2")	
2.	303-705	-	FIREWALL	
3.	215-231	1	LINEAR ACTUATOR	SEE FOOTNOTE 1
4.	196-058	1	CABLE SWIVEL (.081")	
5.	105-245	2	SCREW (M10-1.50 X 25mm)	
6.	106-991	11	FLG LK SCREW (M8-1.25 X 20mm)	
7.	106-551	44	CLIP NUT (M8-1.25)	
8.	354-952	1	BRACKET	
9.	194-083	-	ENGINE - DEERE DIESEL	
10.	350-415	1	DEFLECTOR FLAP	
11.	354-597	1	ENGINE SKID	
12.	106-685	13	LOCKNUT (M12-1.75, PRV TRQ, 10.9)	
13.	105-118	9	WASHER (3/8")	
14.	350-410	1	DEFLECTOR FLAP	
15.	106-381	2	FLG LK SCREW (M8-1.25 X 25mm)	
16.	106-561	2	LOCKNUT (M8-1.25, PRV TRQ, 10.9)	
17.	106-632	13	FLG LK SCR (M12-1.75X35MM, SER)	
18.	106-205	1	WASHER (.191")	
19.	115-686	AR	BULK EDGE (5/32", SOLD PER 1")	USE 2 @ 5.0"
20.	106-391	4	WASHER (M12)	USED ON SLOTTED HOLES
21.	211-017	1	12V-5V VOLTAGE CONVERTOR	
22.	107-268	2	SCREW (M4-0.70 X 20MM, SOC)	
23.	107-516	2	CLIP NUT (M4-.7)	
24.	106-162	2	FLG LK SCREW (M8-1.25 X 20MM)	
25.	105-118	2	WASHER (3/8")	
26.	110-333	2	BOLT-ON CLAMP (1")	
27.	106-561	2	LOCKNUT (M8-1.25, PRV TRQ, 10.9)	
28.	211-041	1	CONNECTOR CLIP	
29.	354-596	1	SKID LIFT	

FOOTNOTES

1. REMOVE MOUNTING PLATE AND MOUNT USING TWO 1/4" BOLTS THAT COME WITH LINEAR ACTUATOR

ENGINE OIL DRAIN



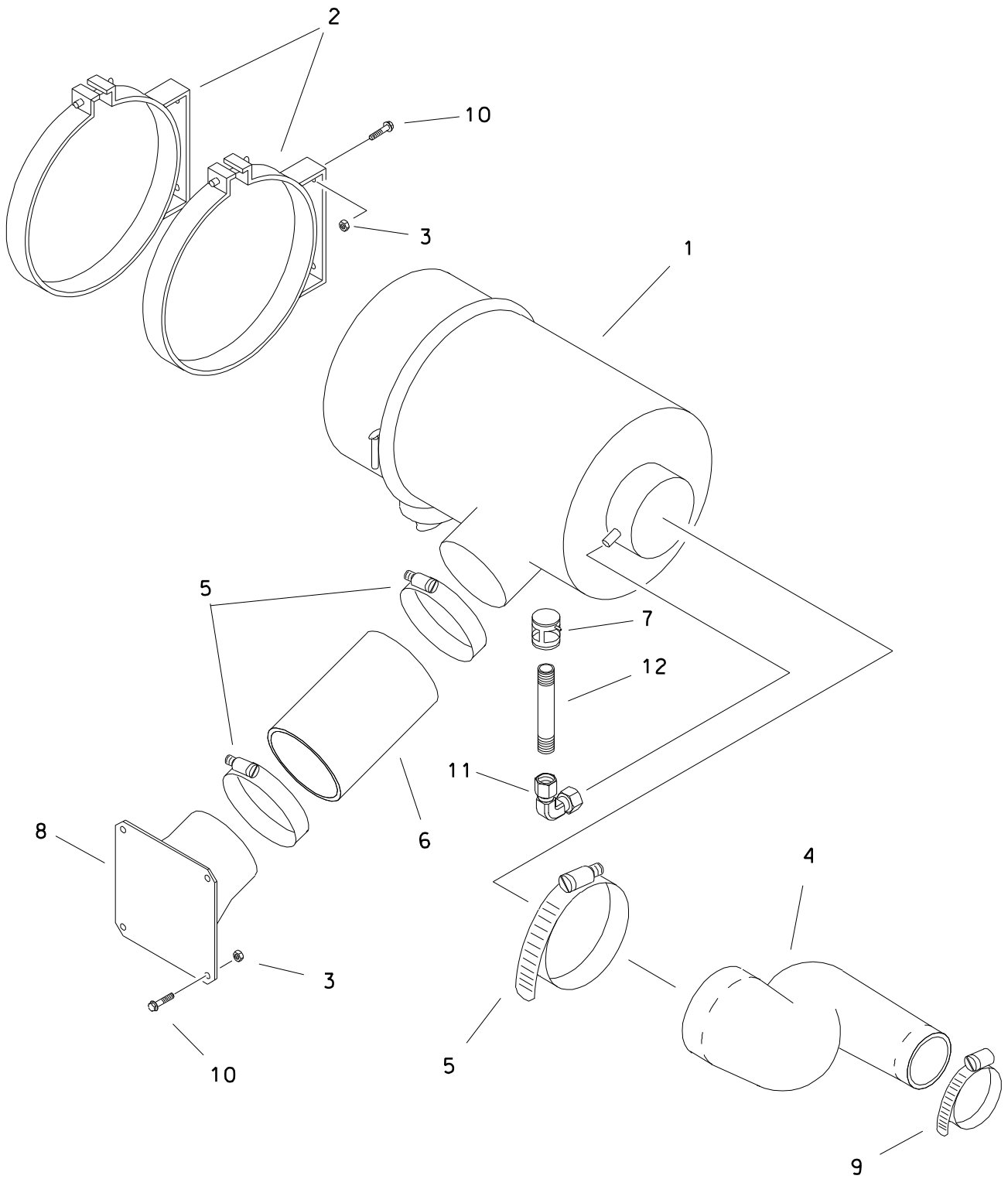
ENGINE OIL DRAIN

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	154-467	1	CONNECTOR (M18-1.50-08J90)	
2.	154-576	1	HOSE (08JFX-22.5"-2000)	
3.	154-148	1	BK CONNECTOR (08J-08J90BK)	
4.	154-089	1	CAP (08JF)	
5.	194-083	-	ENGINE - DEERE DIESEL	
6.	354-597	-	ENGINE SKID	USED WITH JT4020
	318-500	-	ENGINE SKID	USED WITH AT42M1

FOOTNOTES

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

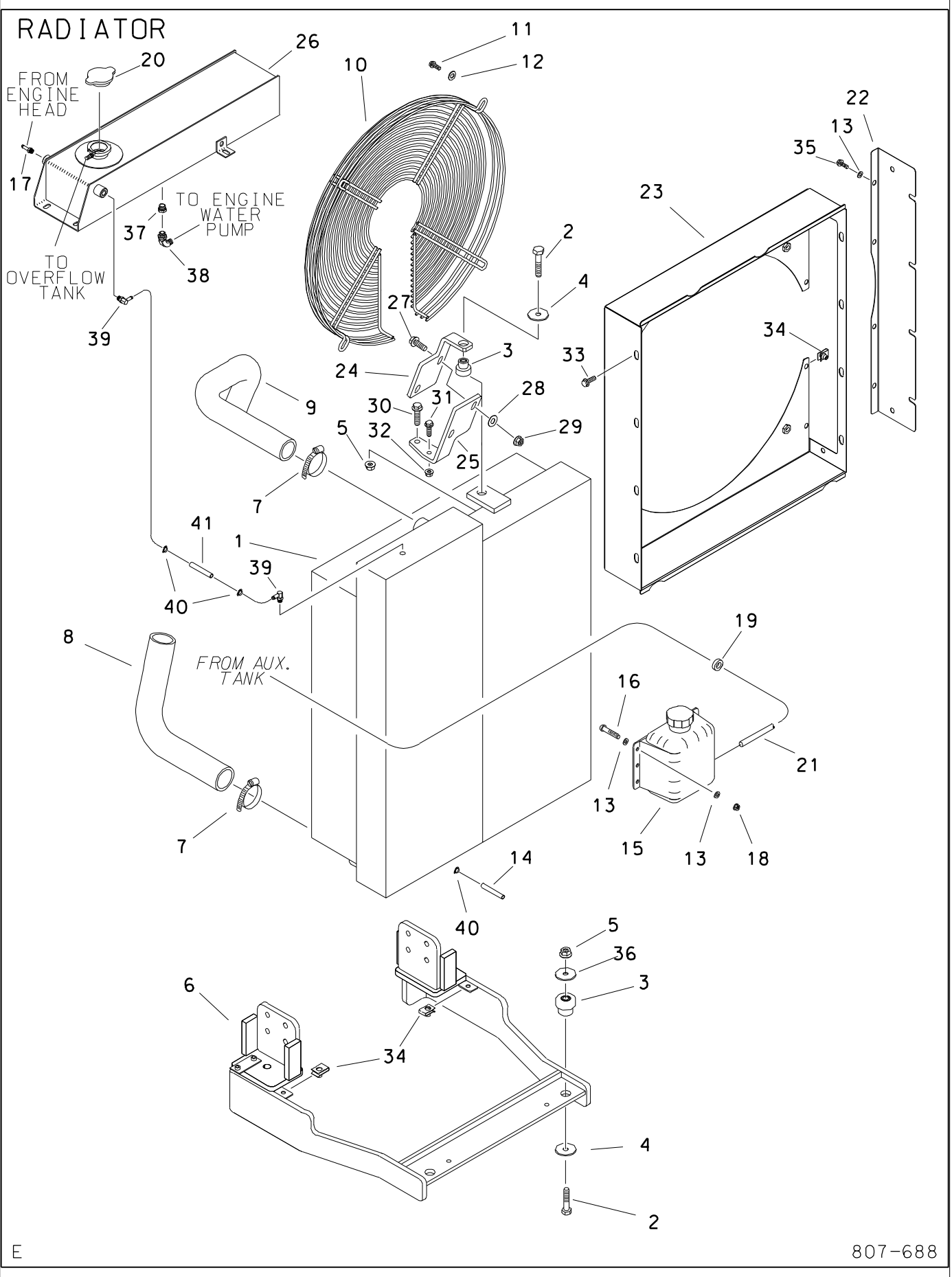
AIR FILTER SYSTEM



AIR FILTER SYSTEM

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	159-373	1	AIR FILTER	
	194-827	1	PRIMARY AIR FILTER ELEMENT	
	194-828	1	SECONDARY AIR FILTER ELEMENT	
2.	196-349	2	MOUNTING CLAMP (11.810")	
3.	106-561	8	LOCKNUT (M8-1.25, PRV TRQ, 10.9)	
4.	116-725	1	INTAKE HOSE (3" X 5")	
5.	110-391	3	WORM CLAMP (4-3/4" TO 5-5/8")	
6.	117-616	1	INTAKE HOSE (5" X 12")	
7.	194-788	1	RESTRICTION INDICATOR (25", H2O)	
8.	350-615	1	AIR INTAKE (5")	
9.	110-367	1	WORM CLAMP (3-1/4" TO 4-1/8")	
10.	106-162	8	FLG SCREW (M8-1.25 X 20MM)	
11.	156-228	1	ELBOW (O2NF-O2NF90)	
12.	115-188	1	NIPPLE (O2N-4.250")	

FOOTNOTES



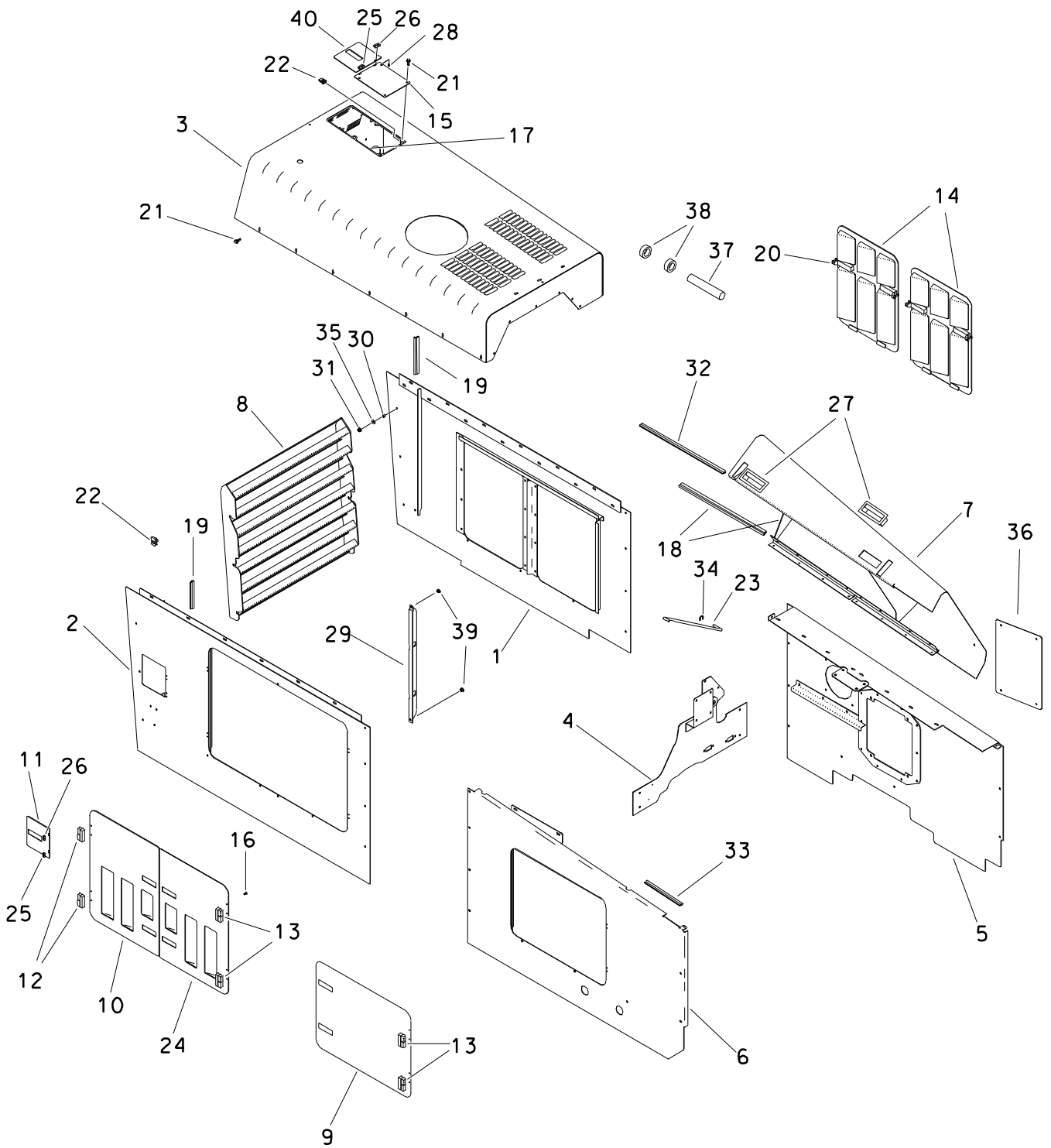
RADIATOR

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	194-085	1	RADIATOR	SEE FOOTNOTE 1
	111-084	1	RADIATOR CAP (16PSI)	
2.	106-142	3	SCREW (M10-1.50 X 65mm)	
3.	116-727	3	SHOCK MOUNT	
4.	105-223	3	WASHER (3/8")	
5.	106-387	3	FLG LOCKNUT (M10-1.50)	
6.	350-506	-	FRONT ENGINE MOUNT	
7.	110-134	4	WORM CLAMP (2.062" TO 2.750")	
8.	116-706	1	LOWER COOLANT HOSE	
9.	116-705	1	UPPER COOLANT HOSE	
10.	195-030	1	FAN GUARD (27")	
11.	106-162	4	FLG SCREW (M8-1.25 X 20MM)	
12.	105-118	4	WASHER (3/8")	
13.	105-117	14	WASHER (5/16")	SEE FOOTNOTE 2
14.	116-458	AR	BULK TUBING (3/8", SOLD PER 1')	USE 1 @ 48"
15.	364-229	1	OVERFLOW TANK (3 QUART)	
	190-053	-	POLY-PATCH TANK REPAIR KIT	
16.	107-334	2	SCREW (M8-1.25 X 25MM, BUT SOC)	
17.	155-162	1	S/O COUPLER (04N-05H)	
18.	106-561	2	LOCKNUT (M8-1.25, PRV TRQ, 10.9)	
19.	115-349	1	GROMMET (1/2")	SEE FOOTNOTE 1
20.	111-084	1	RADIATOR CAP (16 PSI)	
21.	115-381	AR	BULK TUBING (1/4", SOLD PER 1')	USE 1 @ 39"
22.	305-558	1	SHROUD COVER	
23.	310-267	1	FAN SHROUD	
24.	305-809	1	TOP RADIATOR BRACKET (UPPER)	
25.	305-808	1	TOP RADIATOR BRACKET (LOWER)	
26.	309-868	1	EXPANSION TANK	
27.	107-565	2	FLG LK SCREW (M12-1.75 X 40MM)	
28.	106-391	2	WASHER (M12)	
29.	106-685	2	LOCKNUT (M12-1.75, PRV TRQ, 10.9)	
30.	107-004	1	FLG LK SCREW (M12-1.75 X 45MM)	
31.	106-383	1	FLG LK SCREW (M10-1.50 X 30MM)	
32.	105-894	1	LOCKNUT (M10-1.50, PRV TRQ, 10.9)	
33.	105-826	8	FLG LOCK BOLT (3/8-NC X 1")	
34.	106-551	8	CLIP NUT (M8-1.25)	
35.	106-991	6	FLG LK SCREW (M8-1.25 X 20MM)	
36.	106-622	2	WASHER (3/8")	
37.	155-202	1	REDUCER (12N-08NF)	USE LOCTITE 567 PIPE SEALANT
38.	514-285	1	S/O COUPLER (08N-10H90)	USE LOCTITE 567 PIPE SEALANT
39.	155-164	2	S/O COUPLER (04N-05H90)	
40.	110-249	3	WORM CLAMP (1/4" TO 5/8")	
41.	116-108	AR	BULK HOSE (5/16", SOLD PER 1')	USE 1 @ 4.0"

FOOTNOTES

- FAN MUST BE CENTERED IN DIAMETER OF RADIATOR SHROUD OPENING. ROUTE OVERFLOW HOSE THROUGH HOLE AND GROMMET (115-349) IN TOP HOOD.
- ONE OF THESE WASHER (106-916) SHOULD BE PLACED BETWEEN NUT (106-561) AND OVERFLOW TANK (364-229), TWO PLACES. ONE OF THE WASHERS SHOULD BE PLACED BETWEEN OVERFLOW TANK AND HOOD STIFFENER PLATE, TWO PLACES.

ENGINE COVERS



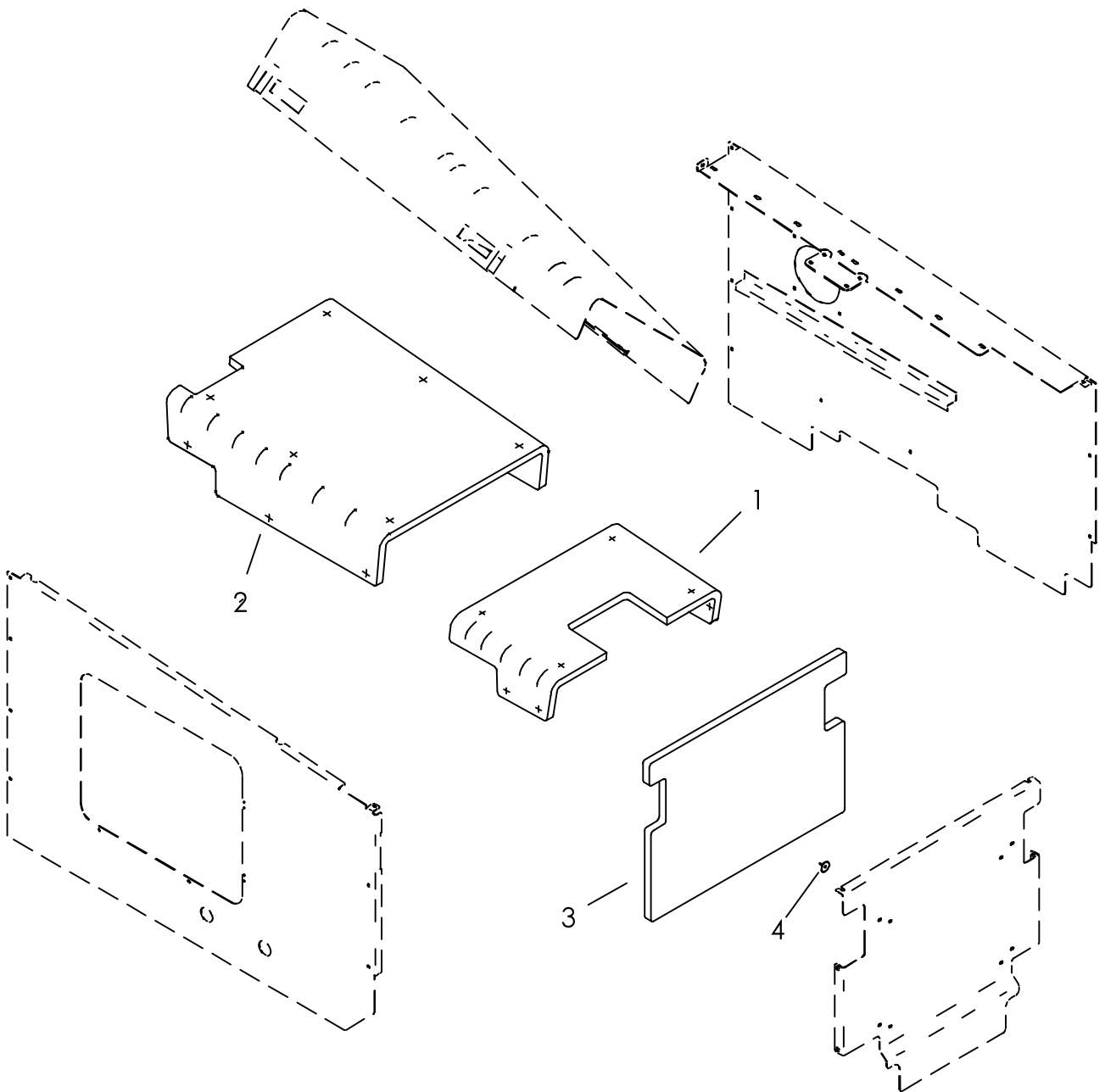
ENGINE COVERS

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	309-463	1	REAR ENGINE PANEL (LEFT)	
2.	309-462	1	REAR ENGINE PANEL (RIGHT)	
3.	309-236	1	ENGINE PANEL (TOP)	
4.	303-705	1	FIREWALL	
5.	310-452	1	FRONT ENGINE PANEL (LEFT)	
6.	310-448	1	FRONT ENGINE PANEL (RIGHT)	
7.	350-611	1	FRONT HOOD	
8.	354-564	1	GRILLE	
9.	354-579	1	DOOR PANEL	
10.	350-419	1	LEFT DOOR	
11.	354-581	1	DOOR PANEL	
12.	111-002	2	LIFT-OFF HINGE (OFF-SET)	
13.	105-617	4	LIFT-OFF HINGE (OFF-SET)	
14.	350-412	2	LEFT DOOR	
15.	309-243	1	PLATE	
16.	106-228	24	SCREW (M5-.80 X 10mm)	
17.	116-489	AR	BULK EDGE (1/8",SOLD PER 1')	USE 1 @ 35.5"
18.	116-489	AR	BULK EDGE (1/8",SOLD PER 1')	USE 1 @ 31.5"
19.	116-489	AR	BULK EDGE (1/8",SOLD PER 1')	USE 2 @ 27.5"
20.	117-558	14	ADJUST LEVER LATCH (LOCKING)	
	214-961		KEY, PAIR (BASE CODE)	
	217-309		LOCK PLUG 4/LATCH (BASE CODE)	
	110-757	14	LEVER LATCH (ADJUST LOCKING)	INCL KEYS
	110-596		KEYS (PAIR)	
21.	106-991	79	FLG LOCK SCREW (M8-1.25 X 20mm)	
22.	106-551	75	CLIP NUT (M8-1.25)	
23.	354-884	1	PROP BAR	
24.	350-420	1	RIGHT DOOR	
25.	111-051	2	HINGE	
26.	111-052	2	HINGE	
27.	110-989	2	POCKET PULL	
28.	105-650	16	SCREW (M4-.70 X 10mm)	
29.	350-745	1	BACKUP BAR	
30.	184-870	2	SPACER	
31.	106-561	2	LOCKNUT (M8-1.25, PRV TRQ, 10.9)	
32.	115-686	AR	BULK EDGE (5/32",SOLD PER 1")	USE 1 @ 35.5"
33.	115-686	AR	BULK EDGE (5/32",SOLD PER 1")	USE 1 @ 8.0"
34.	115-477	1	GRIP RING (.375")	
35.	106-389	2	WASHER (M8)	
36.	308-718	1	DOOR	
37.	117-378	AR	BULK HOSE, LOW PRESSURE (-12)	USE 1" @ 53.0", SEE FOOTNOTE 1
38.	115-033	2	GROMMET (1-1/4")	SEE FOOTNOTE 2
39.	106-386	2	FLG LOCKNUT (M8-1.25)	
40.	320-438	1	DOOR PANEL	

FOOTNOTES

1. INSTALL THROUGH HOLES IN TOP PANEL (309-236 REF#3) AFTER INSTALLING GROMMETS (115-033 REF#38).
2. INSTALL IN HOLES IN TOP PANEL (309-236 REF#3) BEFORE INSTALLING HOSE (117-378 REF#34).

SOUND INSULATION ENGINE COVERS



SOUND INSULATION ENGINE COVERS

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	354-937	1	SOUND INSULATION (HOOD-FRONT)	SEE FOOTNOTE 1, 2
2.	354-938	1	SOUND INSULATION (HOOD-REAR)	SEE FOOTNOTE 1, 2
3.	354-939	1	SOUND INSULATION (BATTERY PANEL)	
4.	107-950	20	INSULATION STUD	SEE FOOTNOTE 2

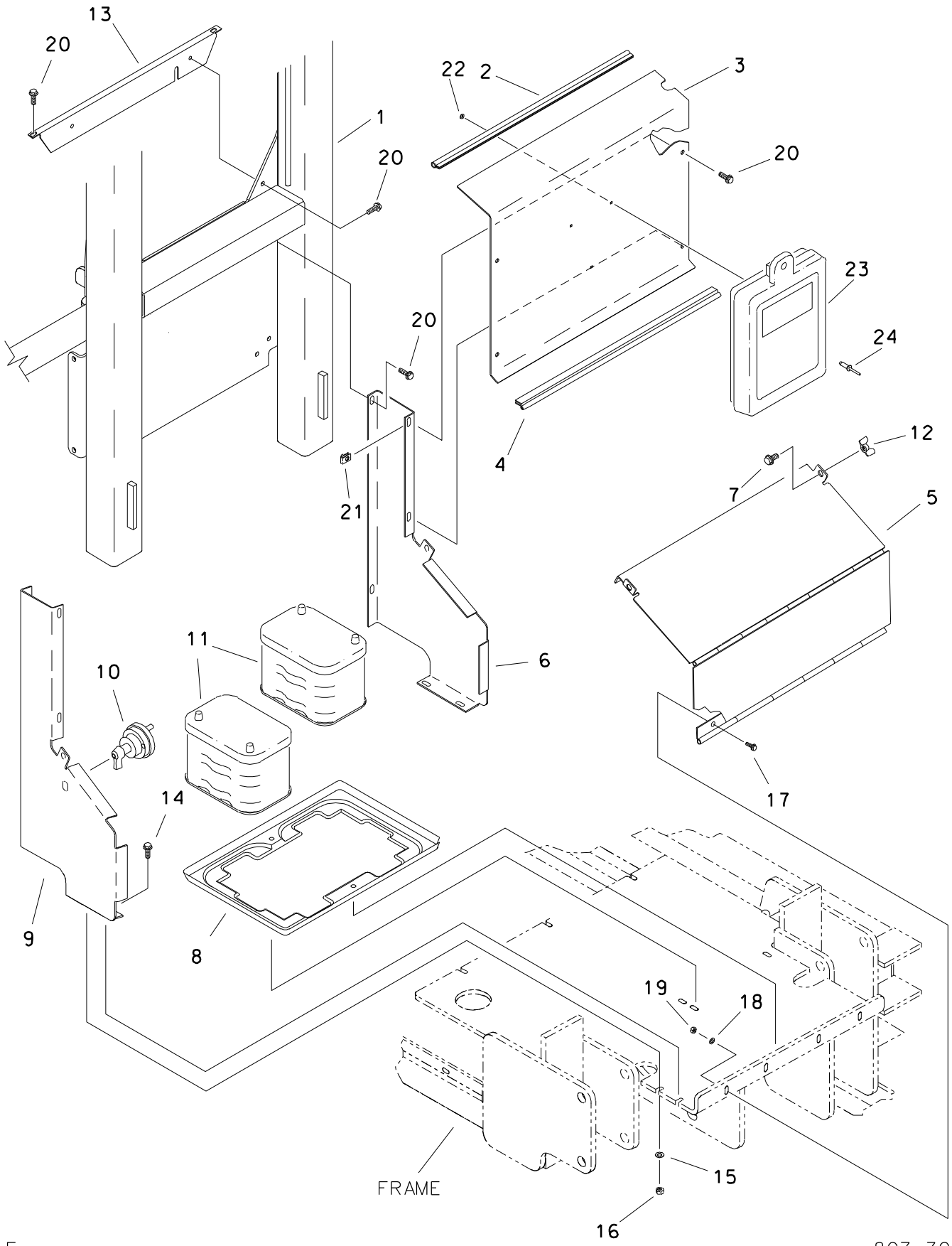
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FOOTNOTES:

1. FIBERGLASS MUST BE SCORED ALONG BEND LINE TO ACHIEVE ACCEPTABLE BEND RESULTS
2. "X" MARKS ON INSULATION INDICATE APPROX LOCATION OF INSULATION STUDS

NOTE:

BATTERY COVERS

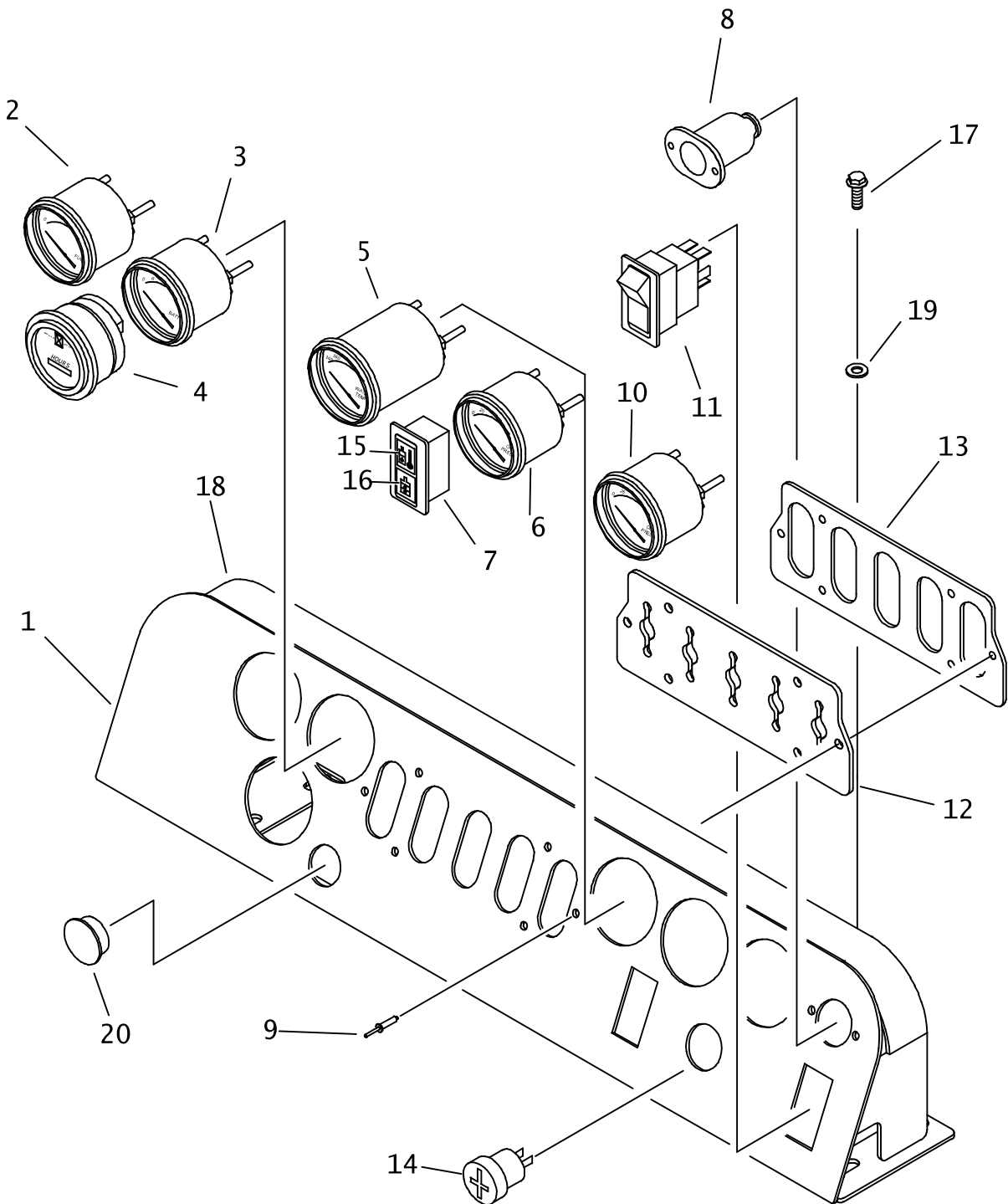


BATTERY COVERS

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	309-190	-	2-POST ROPS	
2.	116-421	AR	BULK EDGE (1/8", SOLD PER 1')	USE 1 @ 21.5"
3.	354-467	1	RELAY BOARD COVER	
4.	116-489	AR	BULK EDGE (1/8", SOLD PER 1')	USE 1 @ 22"
5.	354-880	1	BATTERY COVER	
6.	354-469	1	BATTERY SIDE PANEL (LEFT)	
7.	105-825	2	FLG LK BOLT (3/8-NC X 3/4")	
8.	362-784	-	BATTERY TRAY	
9.	354-468	1	BATTERY SIDE PANEL (RIGHT)	
10.	217-819	-	BATTERY DISCONNECT SWITCH	
11.	215-244	-	BATTERY	
12.	105-180	2	WING NUT (3/8-NC)	
13.	309-189	1	COVER PLATE	
14.	106-381	4	FLG LK SCREW (M8-1.25 X 25MM)	
15.	105-117	4	WASHER (5/16")	
16.	106-561	4	LOCKNUT (M8-1.25, PRV TRQ, 10.9)	
17.	106-379	4	FLG LK SCREW (M6-1.00 X 20mm)	
18.	105-117	4	WASHER (5/16")	
19.	106-538	4	LOCKNUT (M6-1.00, PRV TRQ, 10.9)	
20.	106-991	12	FLG LK SCREW (M8-1.25 X 20mm)	
21.	106-551	4	CLIP NUT (M8-1.25)	
22.	106-205	3	WASHER (.191")	
23.	250-622	1	MANUAL COMPARTMENT	
24.	110-560	3	PDP RIVET (3/16" X 1/2", ALUM)	

FOOTNOTES

GAUGE PANEL



GUAGE PANEL

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	308-337	1	INSTRUMENT PANEL	
2.	215-133		FUEL GAUGE	
	215-415		NITE-LIGHT KIT (12V DC)	
3.	215-129		VOLT METER	
	215-415		NITE-LIGHT KIT (12V DC)	
4.	215-128		HOUR METER	
5.	258-037		WATER TEMPERATURE GAUGE	
	215-415		NITE-LIGHT KIT (12V DC)	
6.	215-131		OIL PRESSURE GAUGE	
	215-415		NITE-LIGHT KIT (12V DC)	
7.	217-020		PILOT LIGHT	
	217-046		BULB (12V DC)	ON-ON, SPDT
8.	214-301		ACCESSORY SOCKET	
9.	110-560	8	POP RIVET (3/16" X 1/2", ALUM)	
10.	211-070		TACHOMETER (3000 RPM)	
11.	217-907		ROCKER SWITCH (DPDT) ON-ON	
12.	117-383	1	CONTROL HANDLE SEAL	
13.	310-126	1	SEAL BACK-UP PANEL	
14.	306-603		AUDIO ALARM	
15.	217-027		INSERT (RED) HYD OIL HI TEMP	
16.	217-036		INSERT (YELLOW) HYD OIL PSI	
17.	106-987	4	FLG LOCK SCREW (M6-1.00 X 16mm)	
18.	116-489	AR	BULK EDGE (1/8", SOLD PER 1 FT)	USE I @ 32.5"
19.	106-076	4	WASHER (1/4")	
20.	111-112	1	PLUG (1.00)	

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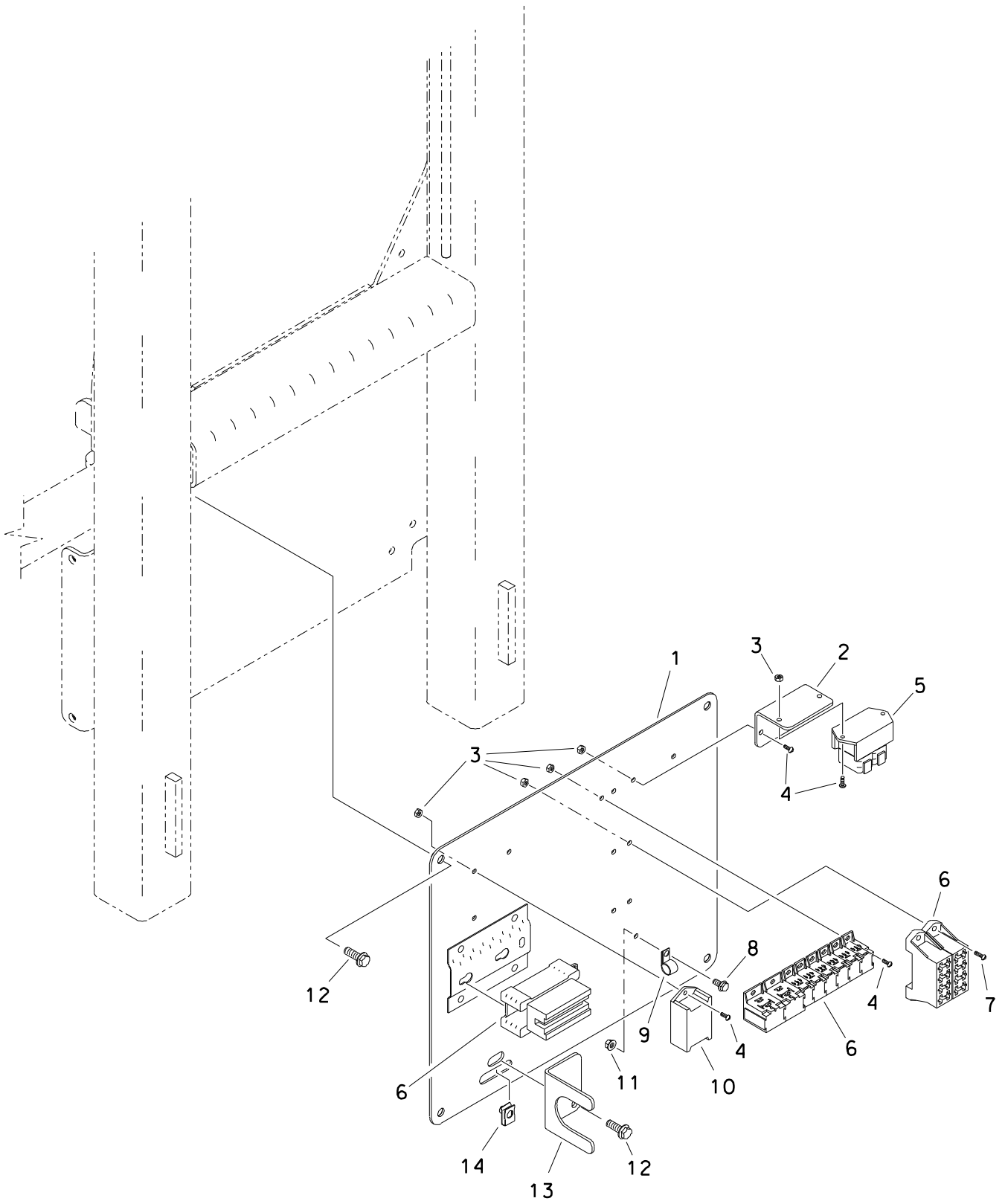
106-574 5 CLIP NUT (M6-1.00)

ATTACH TO HYDRAULIC TANK

FOOTNOTES:

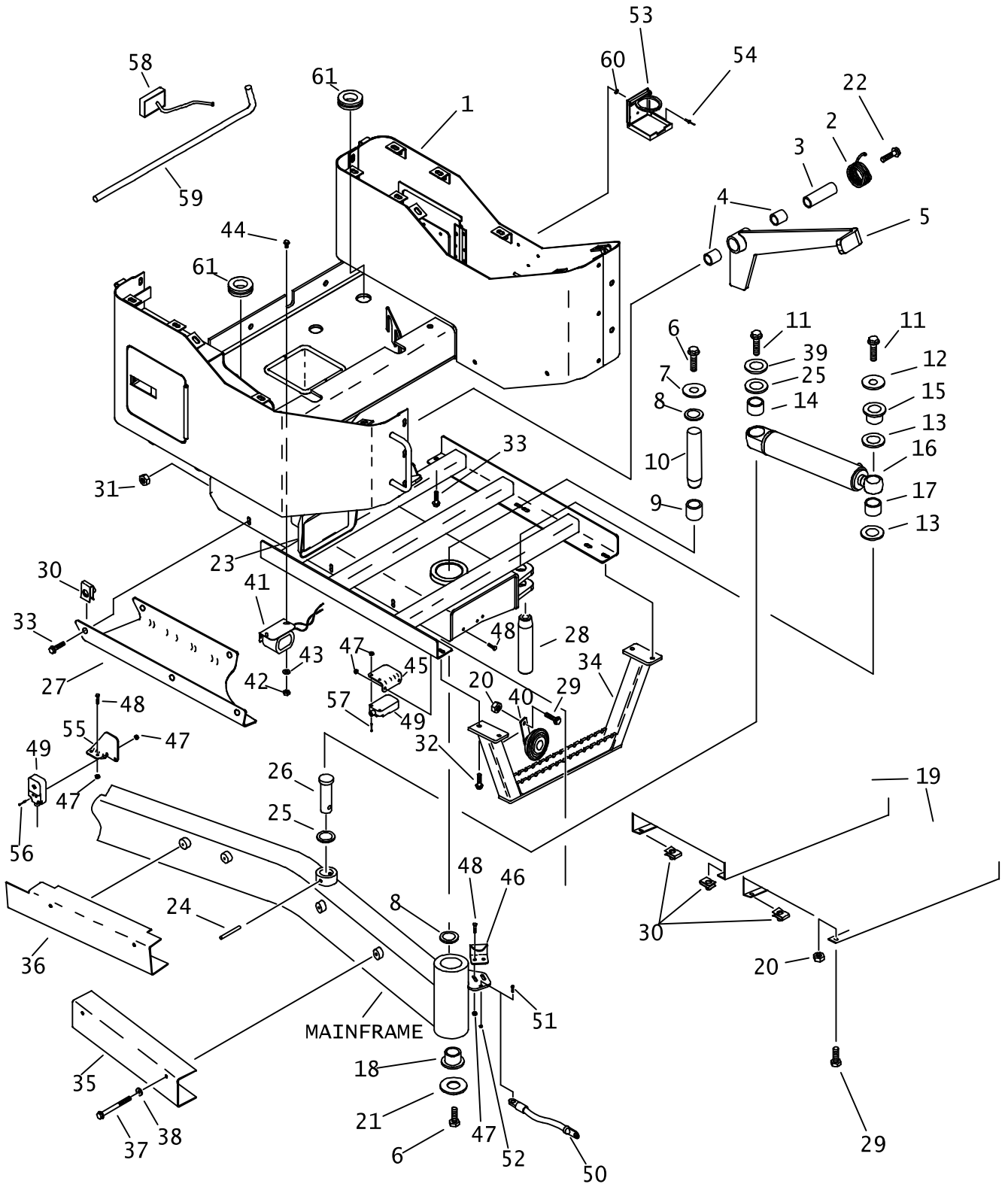
NOTE:

RELAY PANEL



OPERATOR'S STATION

OPERATOR STATION



OPERATOR STATION

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	308-794	1	OPERATOR FRAME WELDMENT	
2.	117-156	1	TORSION SPRING	
3.	354-454	1	HANDLE SPACER	
4.	125-813	2	COMPOSITION BUSHING (1")	
5.	354-390	1	HANDLE	
6.	106-345	2	SCREW (M20-2.50 X 50mm)	
7.	105-423	1	WASHER (3/4")	
8.	111-001	2	WASHER (M51.2)	
9.	125-754	1	COMPOSITION BUSHING (2")	
10.	179-226	1	TAPERED PIN (50.8mm X 272mm)	
11.	105-245	3	SCREW (M10-1.50 X 25mm)	
12.	106-396	1	WASHER (M10, HARDENED)	
13.	110-084	2	BRASS BUSHING (1-5/32")	
14.	125-771	1	COMPOSITION BUSHING (1.25")	
15.	181-981	1	TAPERED INSERT (1")	
16.	151-031	1	CYL (2" X 1" X 8")	
17.	125-770	1	COMPOSITION BUSHING (1")	
18.	184-064	1	TAPERED INSERT (2")	
19.	350-989	2	FLOOR TREADS	
20.	106-561	5	LOCKNUT (M8-1.25, PRV TRQ, 10.9)	
21.	106-399	1	WASHER (M20, HARDENED)	
22.	106-336	1	SCREW (M12-1.75 X 90mm)	
23.	217-007	1	WORKING LIGHT (CLEAR, RECT)	
24.	105-503	1	ROLL PIN (1/4" X 2")	
25.	110-093	2	MACHINERY BUSHING (1-1/4", 18GA)	
26.	179-225	1	PIN (31.75mm X 60mm)	
27.	350-988	1	CHANNEL COVER	
28.	183-767	1	TAPERED PIN (25.4mm X 60mm)	
29.	106-162	7	FLG SCREW (M8-1.25 X 20MM)	
30.	106-551	10	CLIP NUT (M8-1.25)	
31.	106-685	1	LOCKNUT (M12-1.75, PRV TRQ, 10.9)	
32.	106-381	4	FLG LK SCREW (M8-1.25 X 25MM)	
33.	106-992	10	FLG LK SCREW (M8-1.25 X 25MM)	
34.	354-488	1	STEP	
35.	354-500	1	WIRE COVER	
36.	311-799	1	WIRE COVER	
37.	106-595	4	SCREW (M6-1.00 X 60mm)	
38.	106-388	4	WASHER (M6)	
39.	105-223	1	WASHER (3/8")	
40.	192-006	1	HIGH FREQUENCY HORN	
	192-005	1	HORN BRACKET	
	306-609	1	HIGH FREQUENCY HORN----- OBSOLETE	
41.	214-416	1	HORN (ELECTRIC)	
42.	106-538	2	LOCKNUT (M6-1.00, PRV TRQ, 10.9)	

FOOTNOTES

NOT SHOWN

117-283 1 ABRASION SLEEVE (4.000" X 20")

NOTE:

OPERATOR STATION

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
43.	106-389	2	WASHER (M8)	
44.	106-379	2	FLG LK SCREW (M6-1.00 X 20MM)	
45.	307-773	1	BRACKET, SWITCH	
46.	307-771	1	TARGET PLATE	
47.	106-850	10	LOCKNUT (M5-.80)	
48.	107-430	6	SCREW (M5 X 14MM)	
49.	214-692	2	PROXIMITY SWITCH	
50.	214-088	1	CABLE ASS'Y (6GA X 200 MM)	
51.	106-217	1	BOLT (1/4-NC X 1", SIL BRZ)	
52.	106-455	1	LOCKNUT (1/4-NC, SIL BRZ)	
53.	354-905	1	CUP HOLDER	
54.	110-560	3	POP RIVET (3/16" X 1/2", ALUM)	
55.	307-772	1	BRACKET, SWITCH	
56.	106-426	4	SCREW (M5-.80 X 25MM, SOC)	
57.	106-427	2	SCREW (M5-0.80 X 22MM, SOC)	
58.	216-032	1	VOLT LIMITER (EL STR SYSTEM)	
59.	215-799	1	VOLTAGE STAKE	
60.	106-205	3	WASHER (.191")	
61.	115-355	2	GROMMET (1-3/8)	

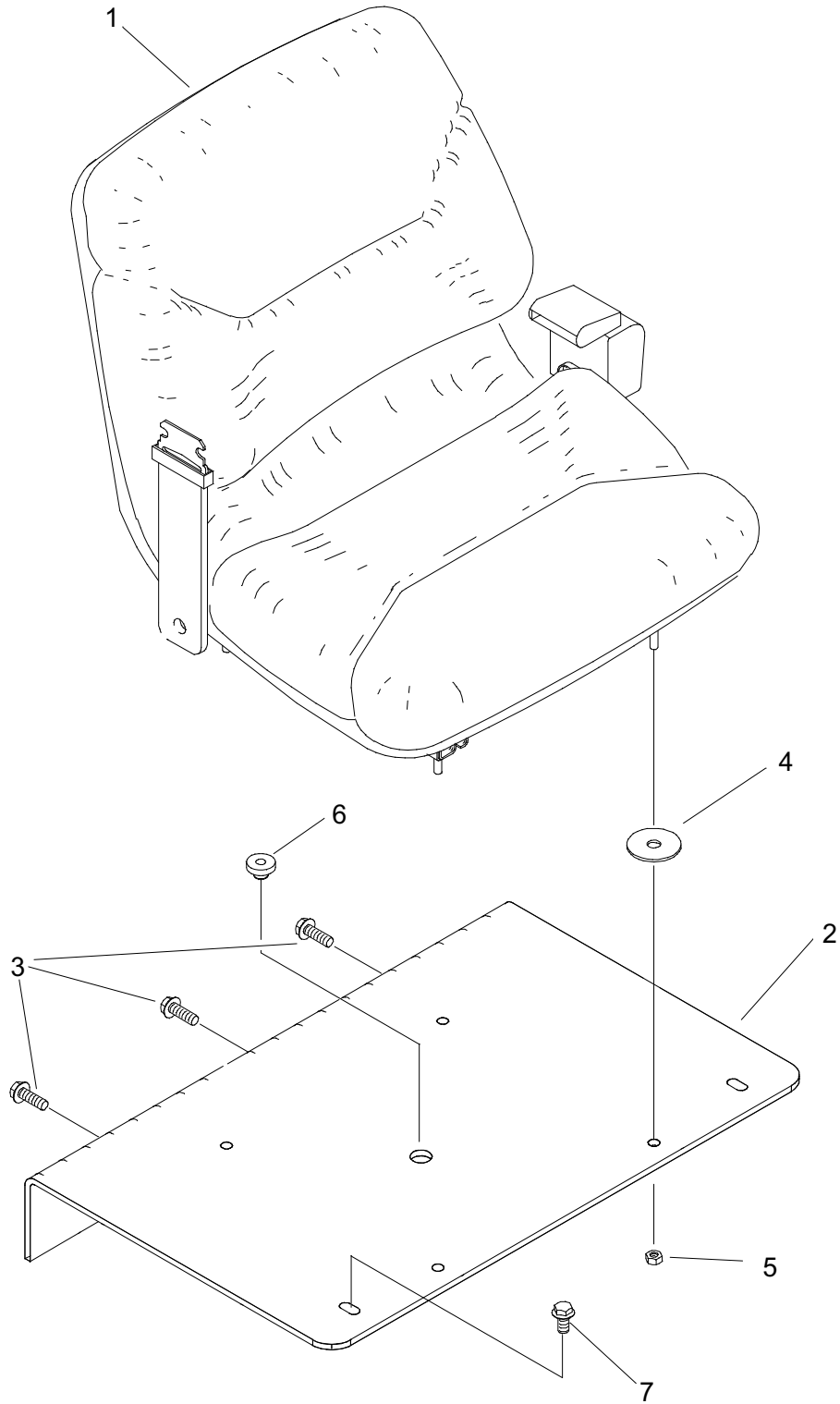
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107-269	4	SCREW (#4-40 X 3/4", PAN)
106-277	4	NUT (#4-40, BRASS)

FOOTNOTES

NOTE:

SEAT-BELT-COVER



SEAT-BELT-COVER

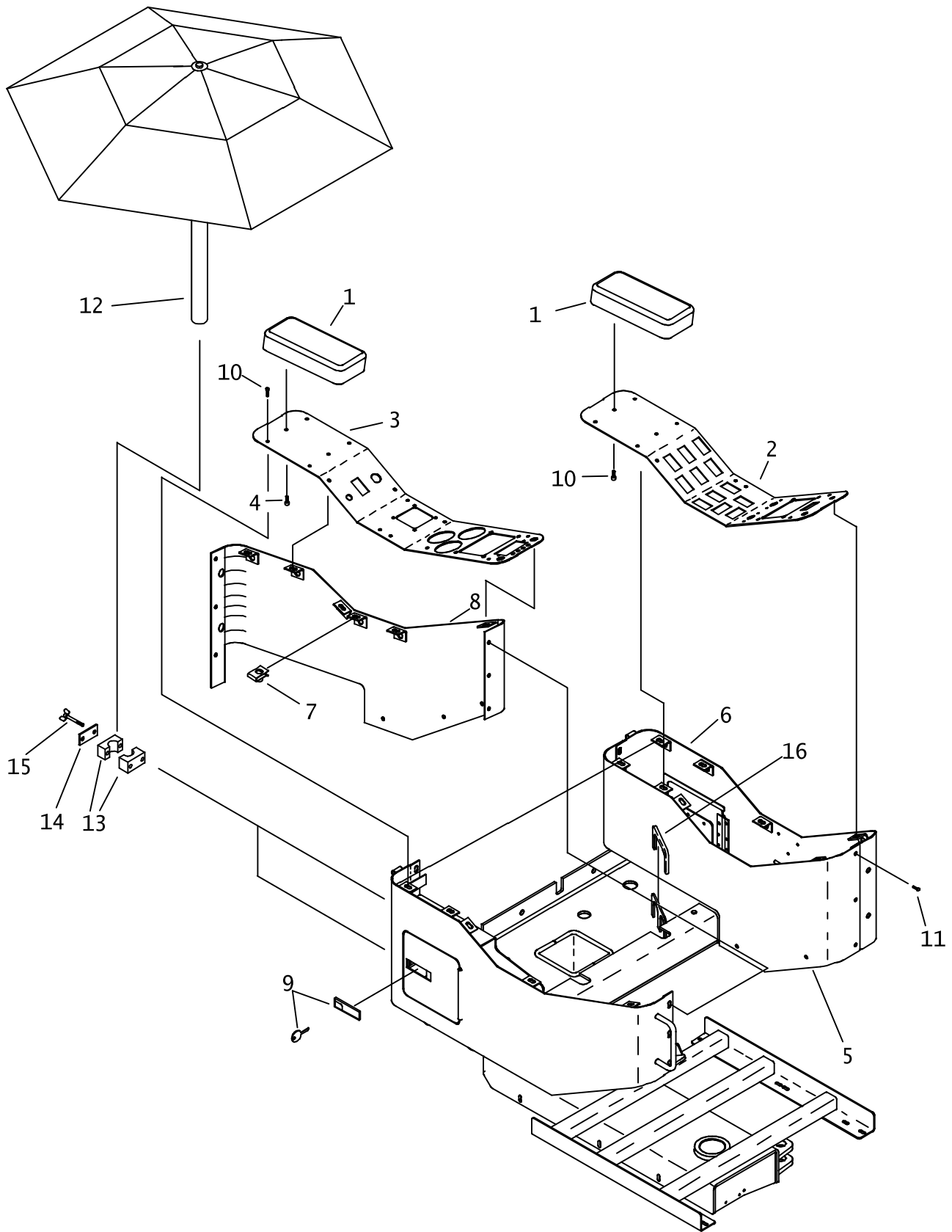
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	117-1000	1	SEAT ASS'Y W/ SEAT BELT	INCL SWITCH
	214-964	-	SEAT SWITCH W/ BOOT	
	214-965	-	SEAT SWITCH HARNESS	
2.	308-787	1	SEAT BASE	
3.	107-001	3	FLG LK SCREW (M10-1.50 X 25mm)	
4.	105-267	4	CUP WASHER (5/16")	
5.	106-561	4	LOCKNUT (M8-1.25,PRV TRQ,10.9)	
6.	116-203	1	GROMMET (9/16")	
7.	106-999	2	FLG LK SCREW (M10-1.50 X 20mm)	

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FOOTNOTES:

NOTE:

CONSOLE



CONSOLE

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	350-389	2	ARM REST PAD	
2.	211-012	1	LEFT CONSOLE COVER	
3.	211-011	1	RIGHT CONSOLE	
4.	105-865	4	BOLT (1/4-NC X 3/4", GD8)	
5.	350-749	1	LEFT CONSOLE	
6.	308-794	-	OPERATOR FRAME	
7.	106-574	36	CLIP NUT (M6-1.00)	
8.	308-790	1	RIGHT CONSOLE	
9.	117-558	2	ADJUST LEVER LATCH (LOCKING)	
	214-961		KEY, PAIR (BASE CODE)	
	217-309		LOCK PLUG 4/LATCH (BASE CODE)	
	<u>110-757</u>	2	LEVER LATCH (ADJUST LOCKING)	INCL KEYS
	110-596	-	KEY (PAIR)	
10.	106-640	19	SCREW (M6-1.00 X 20mm, BUT SOC)	
11.	106-988	17	FLG LK SCREW (M6-1.00 X 20mm)	
12.	344-0001	1	UMBRELLA (6.5')	
	500-1962	-	POLE (16")	
13.	111-026	2	BOLT-ON CLAMP (1-1/4", PAIR)	
14.	322-362	2	BACKUP SPACER	
15.	105-621	4	WING BOLT (1/4-NC X 3")	
16.	116-789	AR	RUBBER EDGE TRIM 1/8" (FT)	USES 2 AT 10"

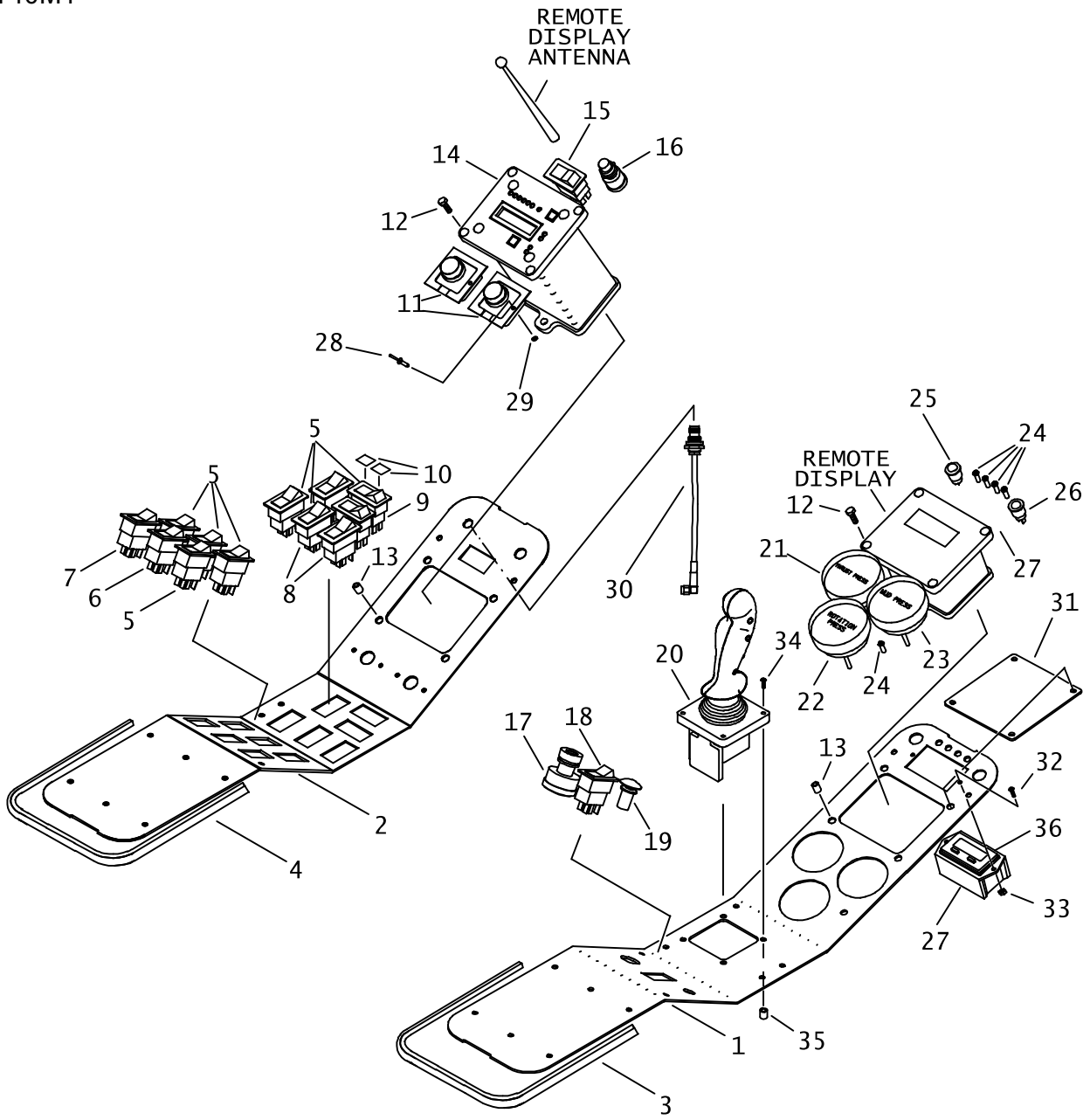
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FOOTNOTES:

NOTE:

CONSOLE GUAGES

JT40M1



CONSOLE GUAGES

JT40M1

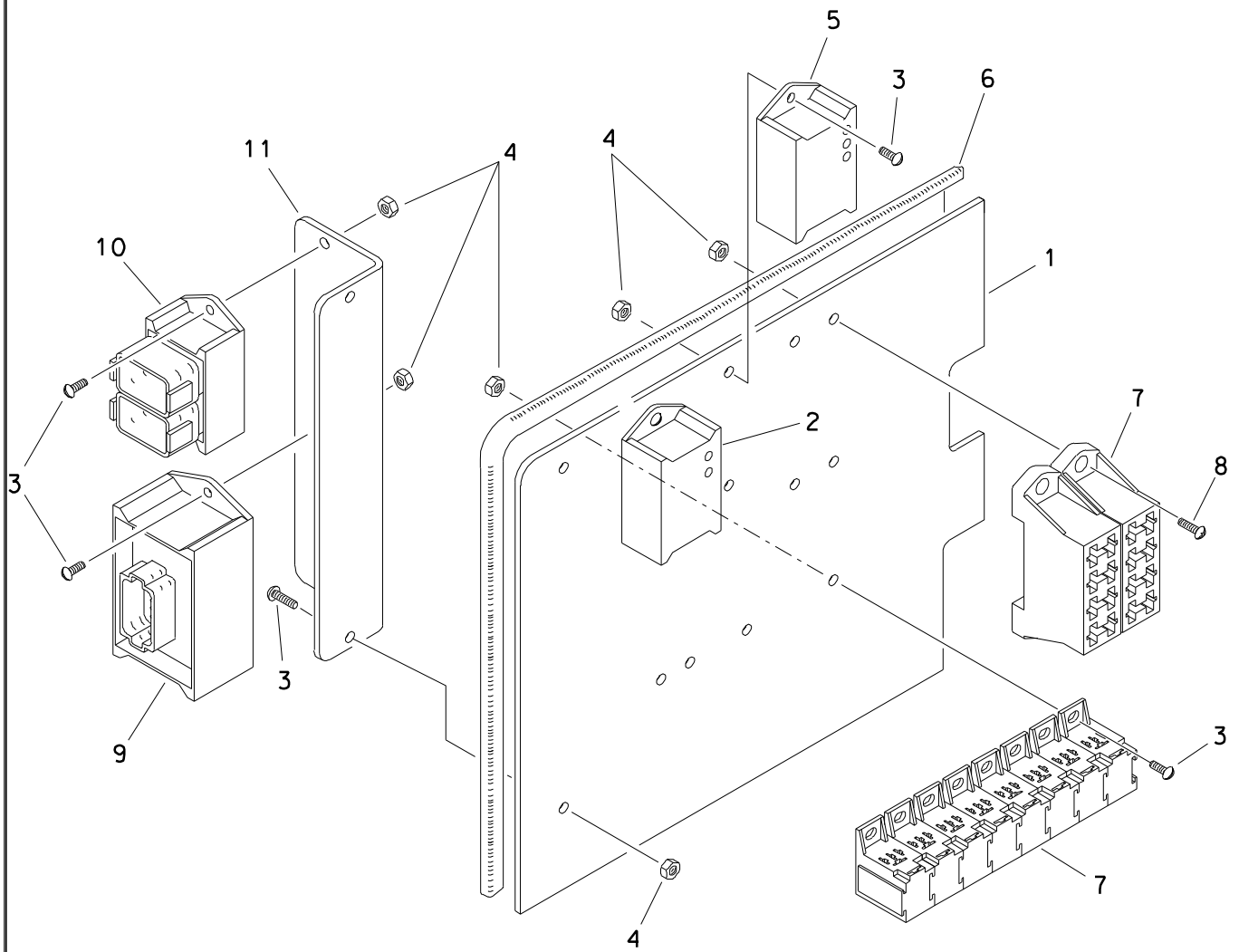
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	211-011	-	RIGHT CONSOLE	
2.	211-012	-	LEFT CONSOLE COVER	
3.	116-789	-	RUBBER EDGE TRIM," (FT)	USE 1 @ 86"
4.	116-789	-	RUBBER EDGE TRIM," (FT)	USE 1 @ 79"
5.	214-489	-	ROCKER SW (DPDT) (ON)-OFF-(ON)	
6.	110-962	1	FILLER PLUG	USE ONLY IF SPINDLE BRAKE IS INSTALLED.
	217-918	-	ROCKER SW (DPDT) ON-ON	
7.	217-912	-	ROCKER SWITCH (DPDT) ON-ON-ON	
8.	217-907	-	ROCKER SWITCH (DPDT) ON-ON	
9.	217-923	-	ROCKER SW (DPDT) ON-OFF-ON	
10.	217-156	2	DIFFUSION LENS (GREEN)	
11.	214-566	-	POTENTIOMETER	
12.	106-640	8	SCREW (M6-1.00 X 20MM, BUT SOC)	
13.	105-630	8	NUTSERT(M6X1.0).70-4.20THK	
14.	217-241	-	ESID MODULE	
15.	217-911	-	ROCKER SWITCH (SPDT) ON-OFF-ON	
16.	306-607	-	HORN BUTTON	
	306-608	-	BUTTON COVER	
17.	214-852	1	IGNITION SWITCH	
	214-961		KEY, PAIR	
	214-962		SWITCH MOUNTING NUT	
18.	217-917	-	ROCKER SWTCH (DPDT) OFF-(ON)	
19.	217-206	-	BUTTON SWITCH (SPST)	
20.	215-1224	-	DUAL AXIS JOYSTICK	
	197-104		REMANUFACTURED 214-565 JYSTK	
21.	258-045	-	GAUGE (4000 PSI)	
22.	258-036	-	HYD PRESSURE GAUGE (6000 PSI)	
23.	258-046	-	PRESSURE GAUGE (1500PSI)	
24.	214-701	-	STATUS LIGHT	
25.	214-563	-	RED LED 12V	
26.	214-840	-	GREEN LED (12V DC)	
27.	217-221	-	FLOW METER DISPLAY	
28.	110-560	4	POP RIVET (3/16" X ", ALUM)	
29.	106-205	4	WASHER (.191")	
30.	214-413	-	RIG RF CABLE 2130mm	USED TO COVER HOLE WHEN REMOTE DISPLAY IS NOT INSTALLED
31.	348-896	1	COVER PLATE	
32.	106-049	2	BOLT (#10-24 Xf", PLPS)	
33.	106-048	2	LOCKNUT (#10-24)	
34.	107-414	4	SCREW (M4-0.70 X 30mm, BUT SOC)	
35.	107-635	4	NUTSERT (M4 X 0.7)	
36.	319-412	1	FLOW METER WEATHER COVER	

NOT SHOWN:

FOOTNOTES:

NOTE:

LEFT CONSOLE RELAY PANEL

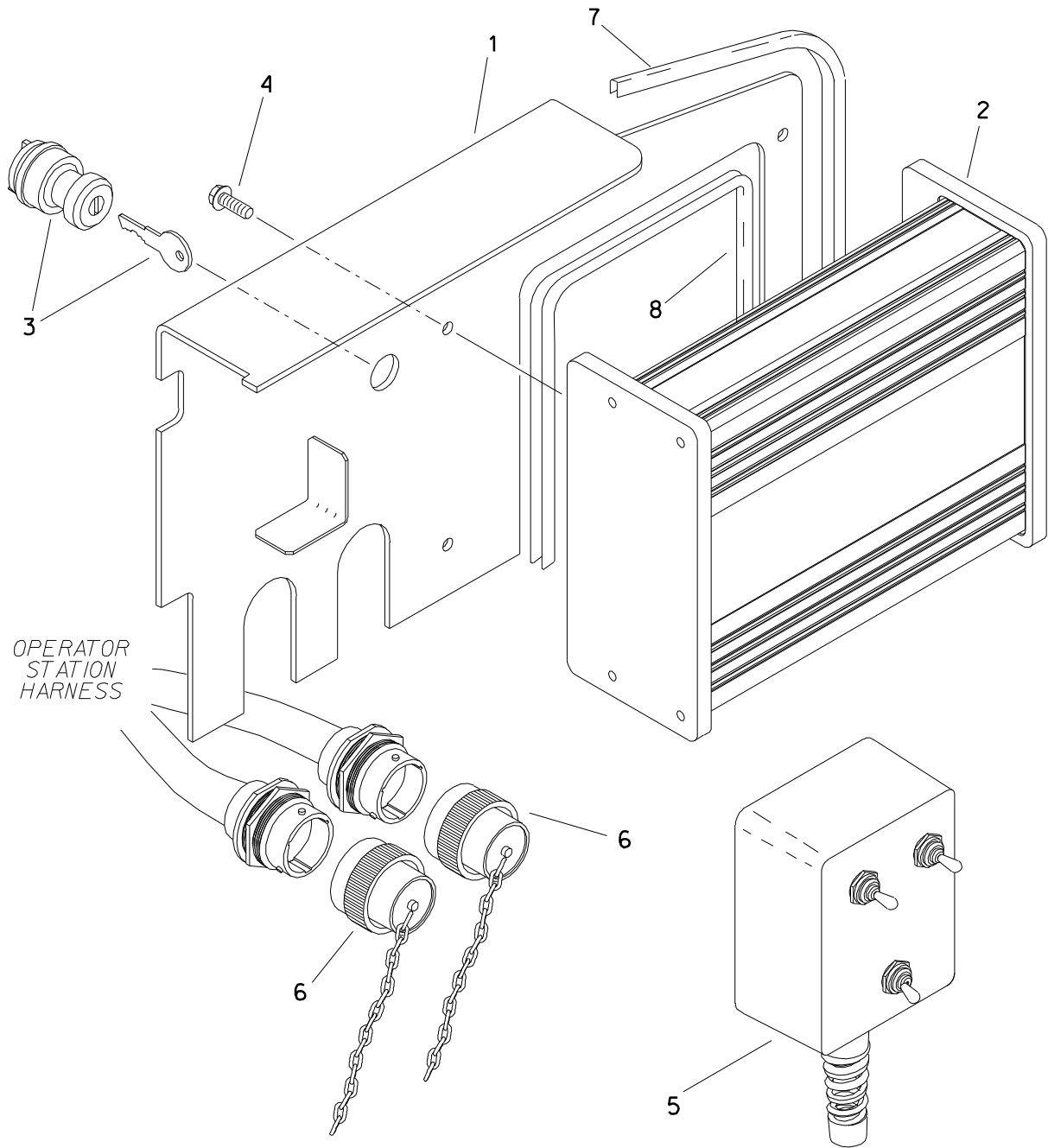


LEFT CONSOLE RELAY PANEL

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	308-794	-	OPERATOR FRAME	
2.	214-502	-	DELAY TIMER	
3.	105-185	14	BOLT (#10-24 X 1/2", RD_SLT)	
4.	106-048	18	LOCKNUT (#10-24)	
5.	217-184	-	DELAY TIMER (2-SECOND)	
6.	116-789	AR	RUBBER_EDGE_TRIM 1/8" (FT)	USE 1 @ 22.0"
7.	214-594	-	OPERATOR STATION HARNESS	
8.	106-049	4	BOLT (#10-24 X 3/4", PLPS)	
9.	211-031	-	BORE/MOBILE RESISTOR_PACK	
10.	211-026	-	DIODE PACK (DEUTSCH)	
11.	310-982	1	BRACKET	

FOOTNOTES

RIGHT CONSOLE

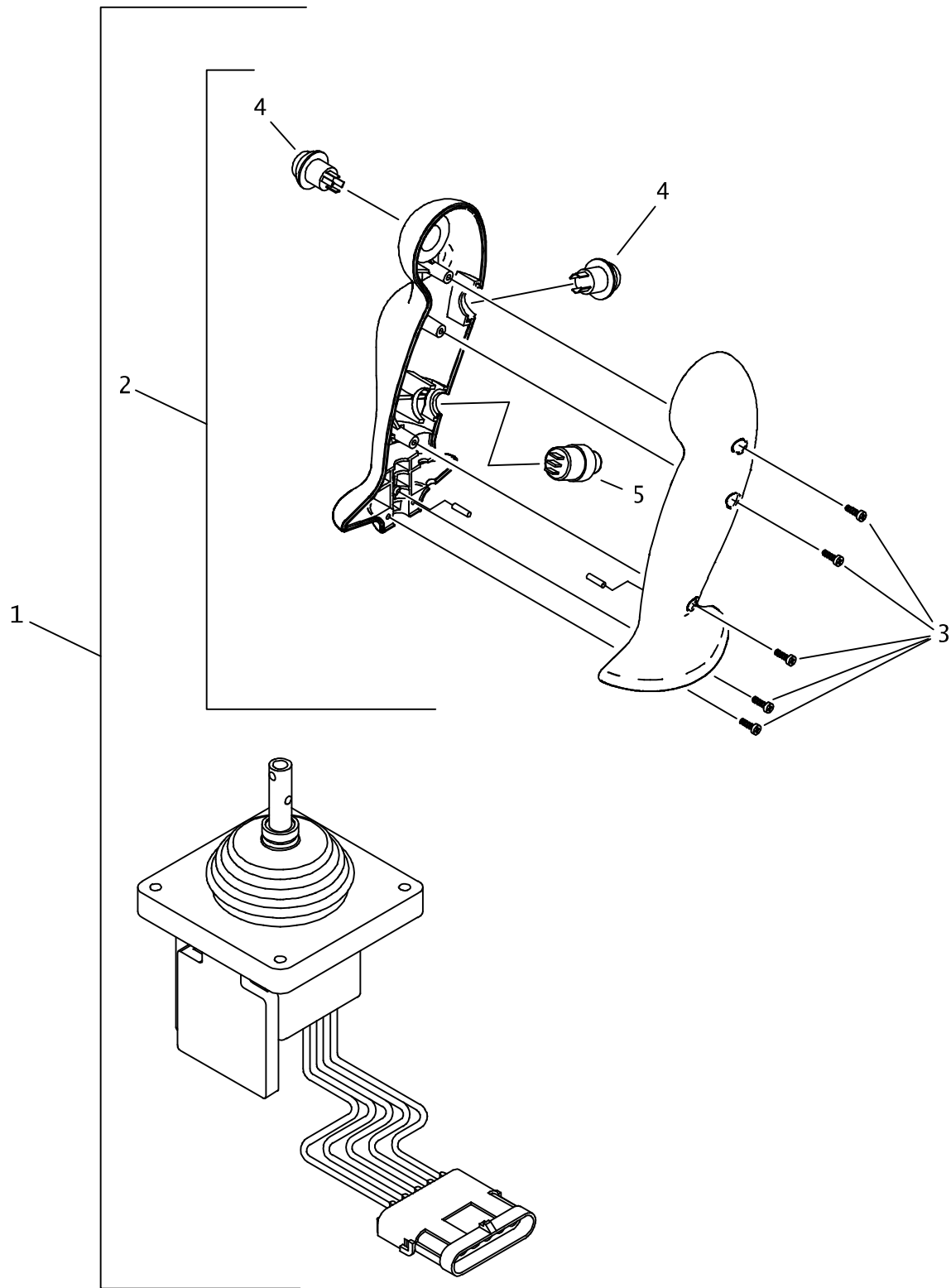


RIGHT CONSOLE

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	308-794	-	OPERATOR FRAME	
2.	216-059	-	CONTROL MODULE	
3.	214-908	-	OFF-ON KEY SWITCH	
4.	106-712	4	FLG SCREW (M6-1.00 X 16MM)	
5.	214-648	1	OVERRIDE CONTROL BOX	
6.	214-812	2	PROTECTIVE CAP	
7.	116-789	AR	RUBBER EDGE TRIM 1/8" (FT)	USE 1 AT 19"
8.	116-789	AR	RUBBER EDGE TRIM 1/8" (FT)	USE 1 AT 18"

FOOTNOTES

DUAL AXIS JOYSTICK



DUAL AXIS JOYSTICK

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	215-1224	-	DUAL AXIS JOYSTICK	
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	

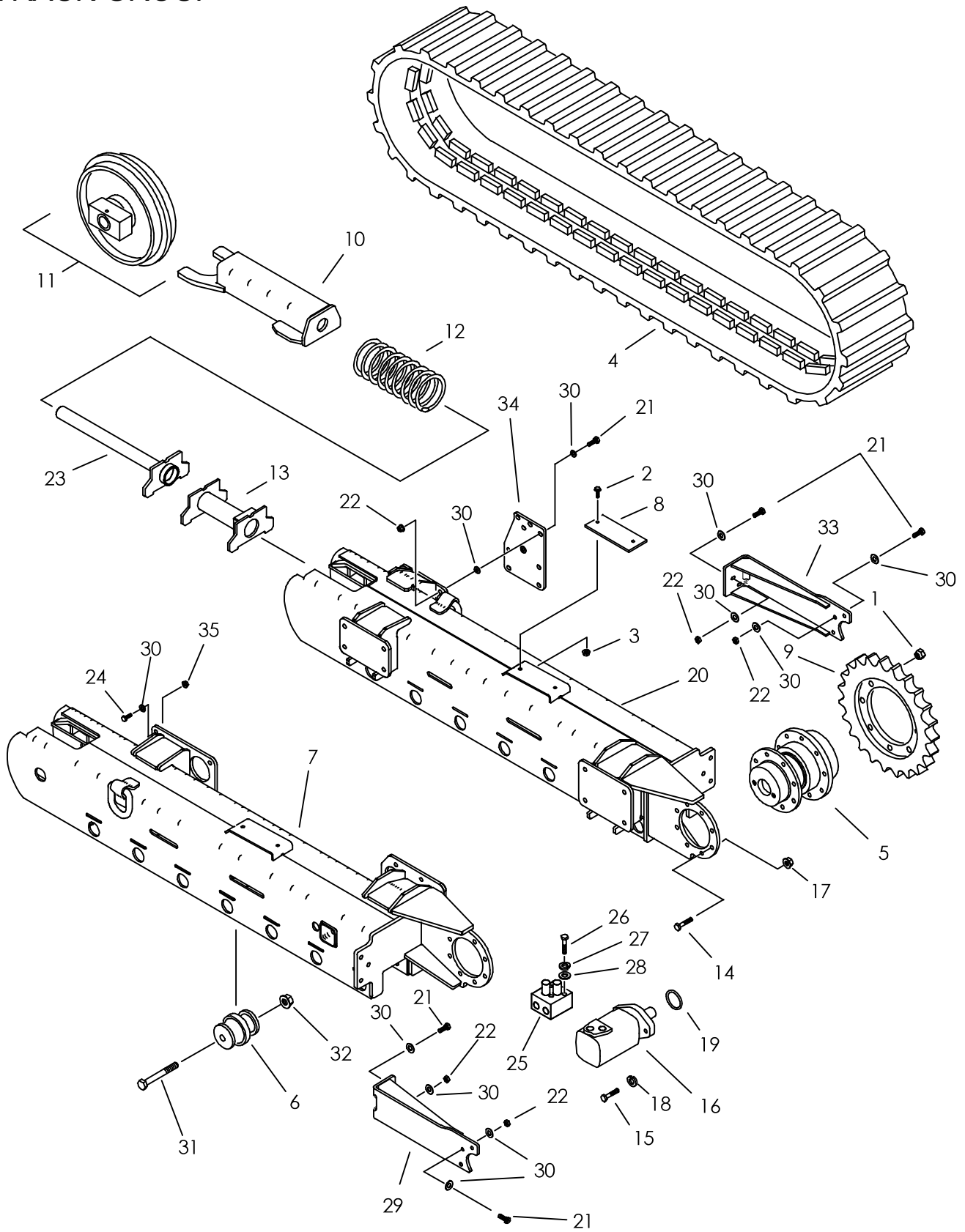
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FOOTNOTES:

NOTE:

TRACK FRAME & MAIN FRAME

TRACK GROUP



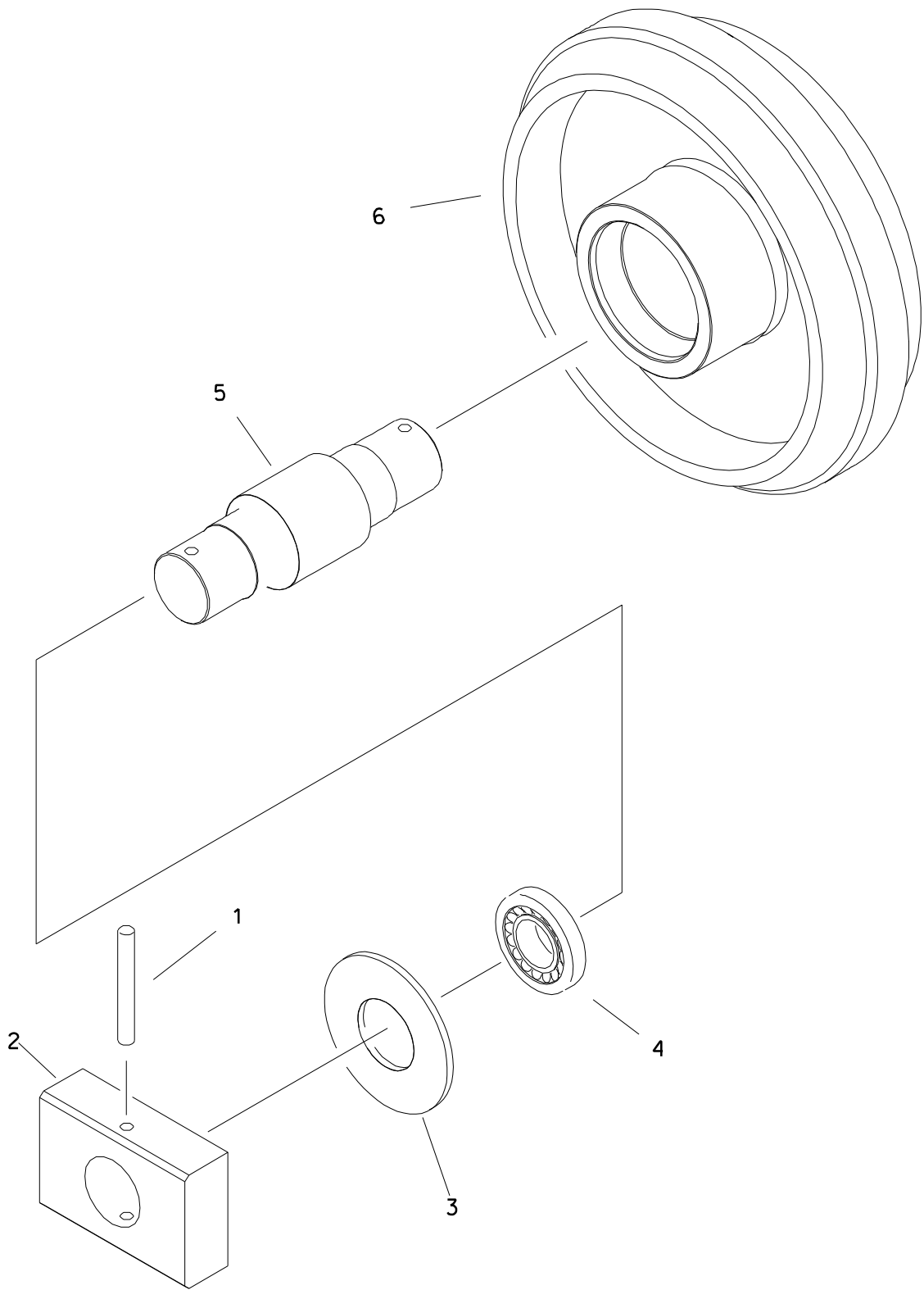
TRACK GROUP

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	106-066	16	LUG NUT (5/8-NF)	
2.	107-010	4	FLG LOCK SCREW (M12-1.75 X 30mm)	
3.	106-685	4	LOCKNUT (M12-1.75, PRV TRQ, 10.9)	
4.	354-480	2	RUBBER TRACK (400MM,82P,72MM)	
5.	166-285	2	PLANETARY GEARBOX	TRACK PLANETARY
	157-613	-	INTERNAL SEAL	
	300-2029	-	RETAINER RING, INTERANL	
6.	354-861	14	ROLLER	
7.	350-757	1	LEFT ROLLER FRAME	
8.	349-314	2	SLIDE PAD	
9.	175-293	2	SPROCKET (22T)	
10.	354-517	2	YOKE	
11.	354-860	2	IDLER PARTS ASS'Y	
12.	117-164	2	COMPRESSION SPRING	COMPRESSED LENGTH 18" +0 -1/4" TO KEEP TRACKS TIGHT
13.	354-531	1	RIGHT GREASE CYLINDER	
	354-530	1	LEFT GREASE CYLINDER	
14.	105-303	16	FLG BOLT (5/8-NC X 2-1/2")	
15.	107-773	4	SCREW (1/2-NC X 4.25, GD8)	USE 242 LOCTITE; TORQUE TO 130 FT LB
16.	158-949	1	HYDRAULIC MOTOR	RIGHT SIDE, ENDS WITH S/N 2X0254.
	158-592	1	HYDRAULIC MOTOR	RIGHT SIDE, BEGINS WITH S/N 2Y0003
	158-951	1	HYDRAULIC MOTOR	LEFT SIDE, ENDS WITH S/N 2X0254.
	158-593	1	HYDRAULIC MOTOR	LEFT SIDE, BEGINS WITH S/N 2Y0003
17.	105-994	16	FLG LOCKNUT (5/8-NC)	
18.	105-070	4	LOCK WASHER (1/2")	
19.	155-768	2	O-RING (155 D70)	
20.	350-758	1	RIGHT ROLLER FRAME	
21.	106-616	20	SCREW (M16-2.00 X 55mm, 10.9)	
22.	106-545	27	LOCKNUT (M16-2.00, PRV TRQ, 10.9)	
23.	354-529	2	SPRING GUIDE	
24.	107-598	16	SCREW (M16 X 60MM 10.9)	
25.	159-453	2	COUNTERBALANCE MANIFOLD	OBSOLETE
	158-020		HYDRAULIC VALVE	
26.	105-599	8	BOLT (3/8-NF X 4")	
27.	105-072	8	LOCK WASHER (3/8")	
28.	106-390	8	WASHER (M10)	
29.	354-569	1	LEFT TRACK GUARD	
30.	106-398	56	WASHER (M16, HARDENED)	
31.	105-597	14	BOLT (1-NC X 7-1/2", GD8)	
32.	105-919	14	FLG NUT (1-NC)	
33.	354-570	1	RIGHT TRACK GUARD	
34.	350-831	1	ROPS SUPPORT PLATE	
35.	106-442	16	FLG LKNUT (M16-2.00, PRV TRQ, 10.9)	USE 242 LOCTITE; TORQUE EVENLY TO 250 FT-LB

FOOTNOTES:

NOTE:

IDLER

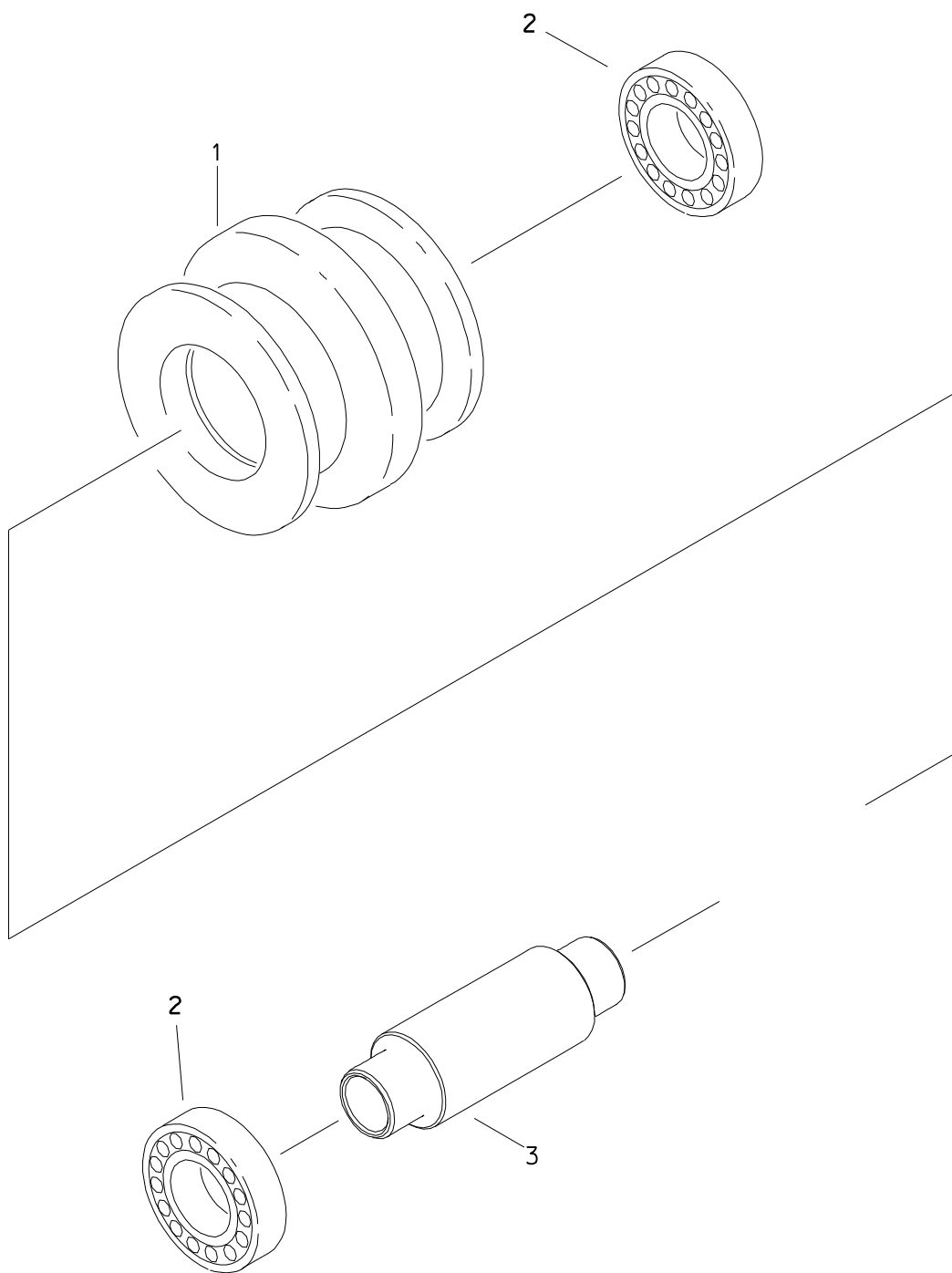


IDLER

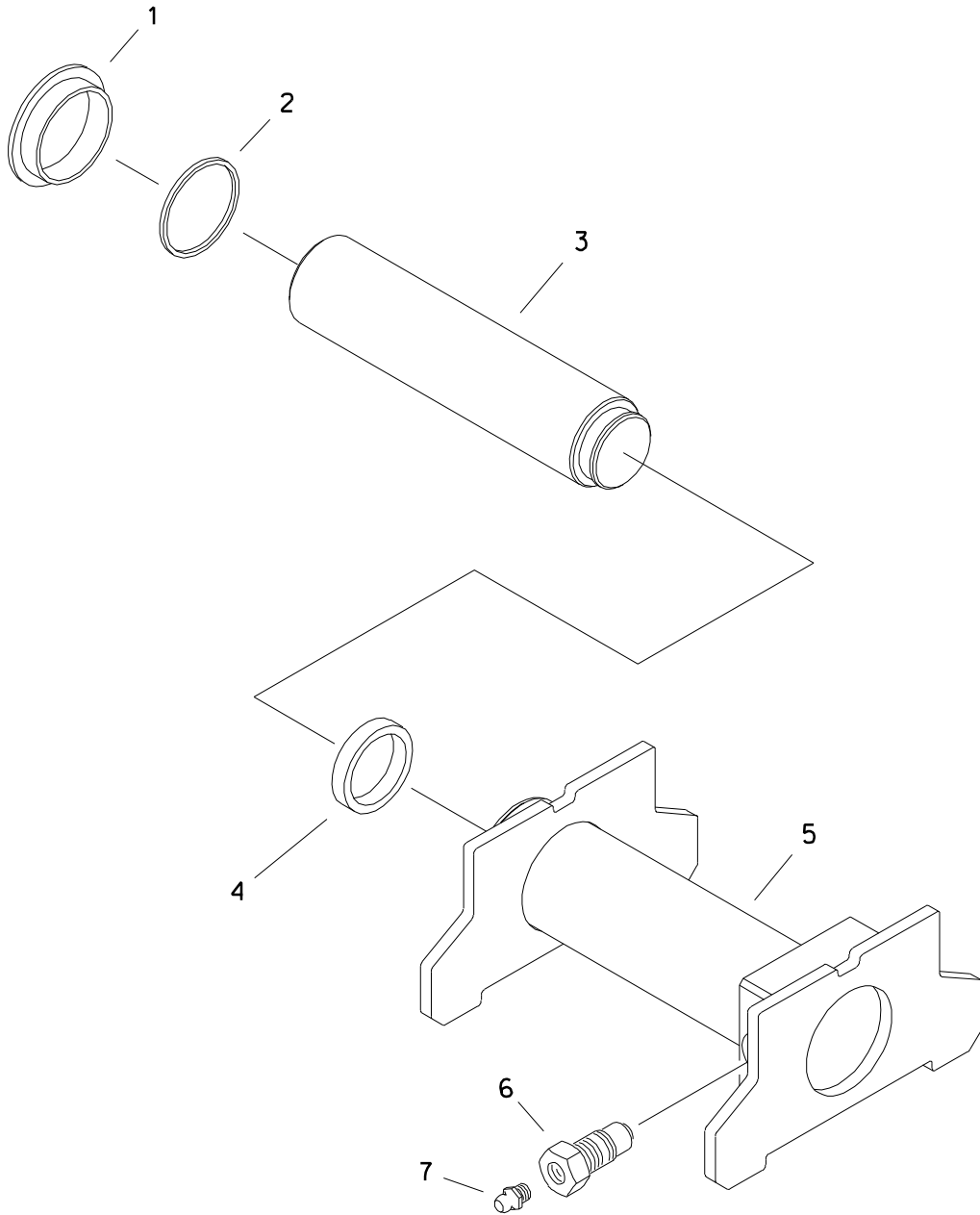
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	354-860		IDLER	INCL REF NO'S 1 - 6
1.	107-295	2	ROLL PIN (.375" X 3.75")	
2.	354-833	2	OUTER BLOCK	
3.	125-482	2	WASHER (2.283")	
4.	125-134	2	BALL BEARING (2.362")	PACK WITH GREASE
5.	354-827	1	IDLER SHAFT	
6.	350-515	1	IDLER	PACK INSIDE WITH GREASE

FOOTNOTES

ROLLER



GREASE CYLINDER

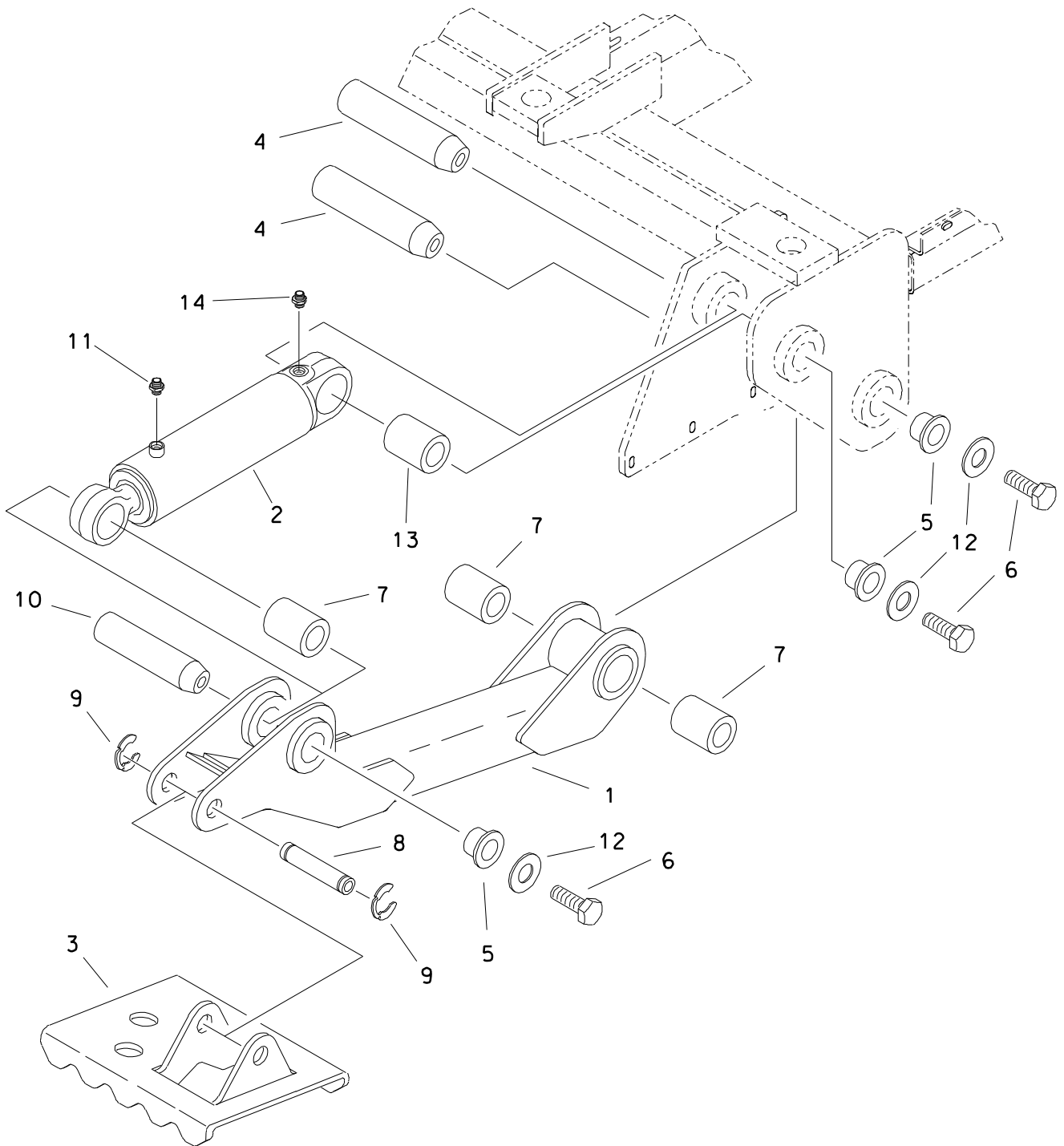


GREASE CYLINDER

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	354-530	1	LEFT GREASE CYLINDER	INCL REF NO'S 1 THRU 7
	354-531	1	RIGHT GREASE CYLINDER	INCL REF NO'S 1 THRU 7
1.	157-562	1	RETAINER RING (2.625")	
2.	157-561	1	ROD WIPER (2.492")	
3.	150-682	1	GREASE CYLINDER ROD	
4.	157-560	1	PISTON SEAL (1.975")	
5.	151-184	1	RIGHT BARREL	
	151-183	1	LEFT BARREL	
6.	159-093	1	RELIEF VALVE (5/8-NF, Q2N)	
7.	115-019	1	ZERK (Q2N)	

FOOTNOTES

REAR STABILIZER



REAR STABILIZER

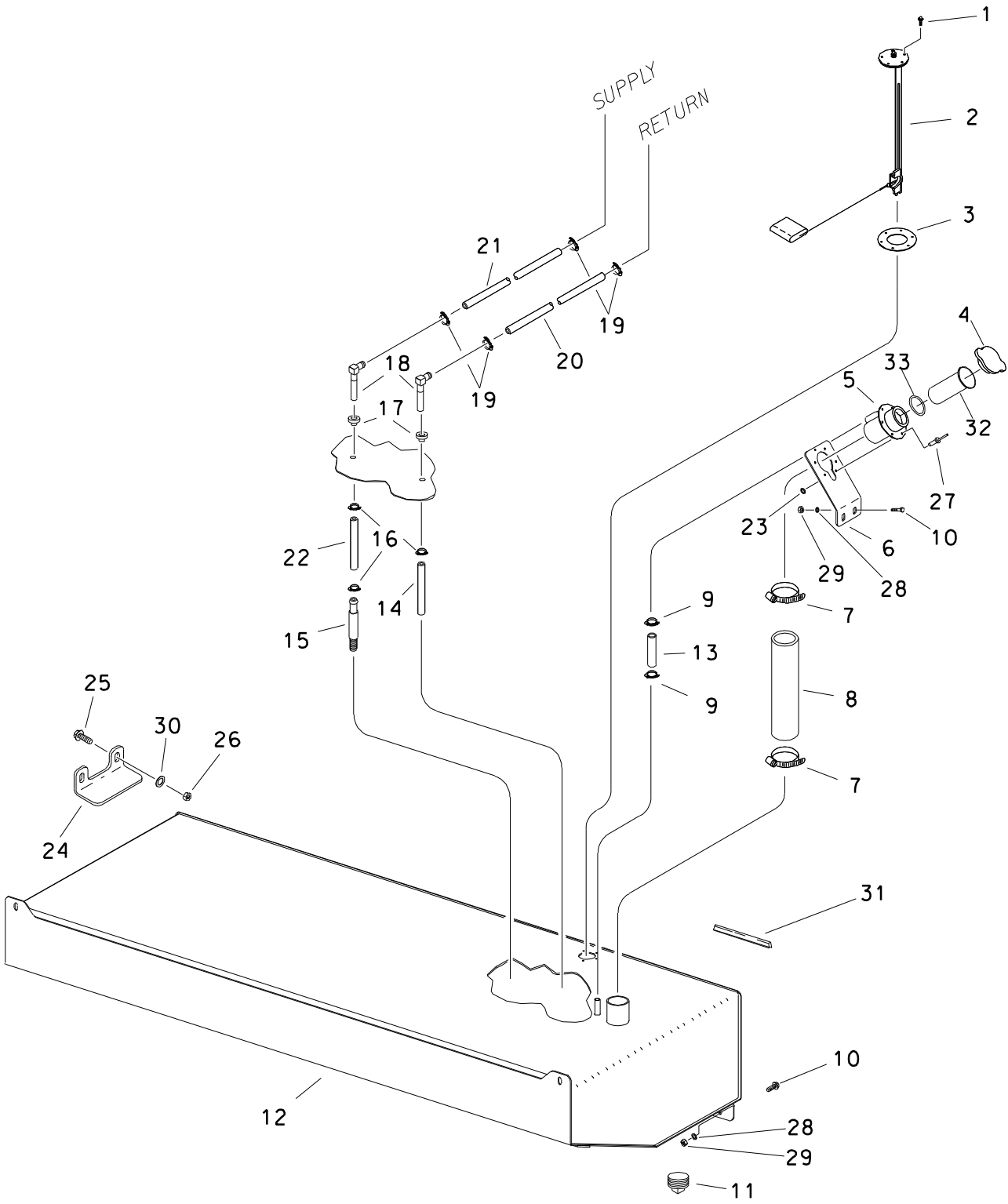
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	350-508	1	RIGHT STABILIZER	
	354-537	1	LEFT STABILIZER	
2.	151-187	2	CYLINDER ASSEMBLY	4" X 2" X 10"
3.	350-850	1	RIGHT STABILIZER PAD	
	354-536	1	LEFT STABILIZER PAD	
4.	179-223	4	TAPERED PIN (50.8mm X 208mm)	
5.	184-064	6	TAPERED INSERT (2")	
6.	106-798	6	SCREW (M20-2.50 X 55mm, 10.9)	
7.	125-754	6	COMPOSITION BUSHING (2")	
8.	179-224	2	PAD PIN	
9.	115-483	4	KLIP RING (1.25")	
10.	183-832	2	TAPERED PIN (50.8MM X 135MM)	
11.	154-261	2	CONNECTOR (040-08S)	
12.	106-399	6	WASHER (M20, HARDENED)	
13.	125-844	2	COMPOSITION BUSHING (2")	
14.	154-374	2	CONNECTOR (040-08S, DRF)	

FOOTNOTES

NOTES

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

FUEL TANK



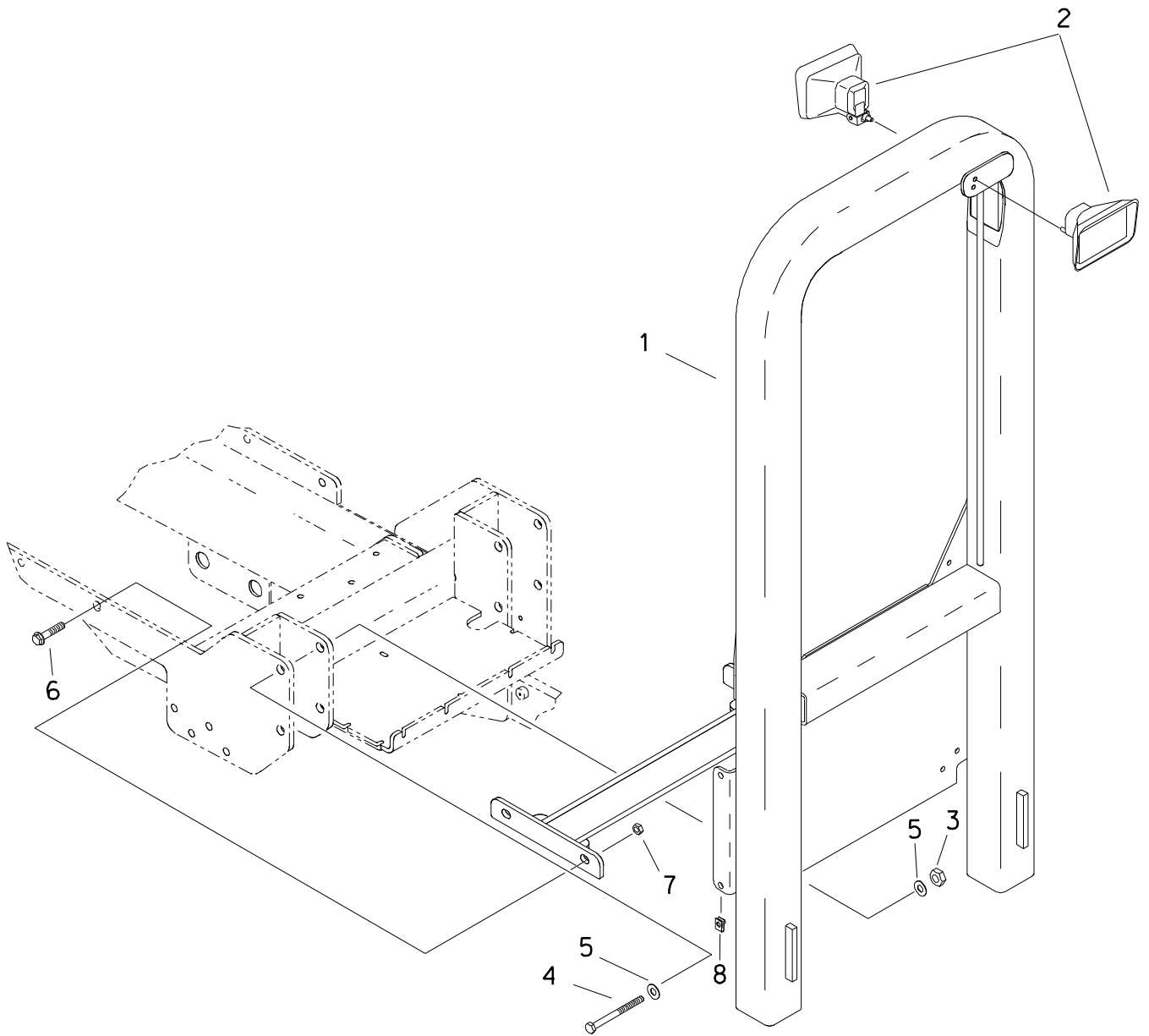
FUEL TANK

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	105-214	5	FLG SCREW (#10-24 X 1/2")	
2.	217-568	1	FUEL SENDER	
3.	165-704	1	GASKET	
4.	110-010	1	FUEL CAP (1-1/2")	
5.	364-080	1	FILLER NECK	
	364-659	1	FILLER NECK	
6.	364-487	1	FUEL FILL BRACKET	
7.	110-134	2	WORM CLAMP (2-1/16" TO 2-3/4")	
8.	116-721	1	FUEL HOSE (21")	
9.	110-217	2	WORM CLAMP (7/16" TO 1")	
10.	106-162	6	FLG SCREW (M8-1.25 X 20mm)	
11.	115-152	1	PLUG (12N, SQ, FM)	
12.	364-477	1	FUEL TANK	
13.	116-322	AR	BULK HOSE (1/2", SOLD PER 1')	USE 1 @ 22"
14.	118-096	AR	BULK FUEL TUBING (1/4", PER 1')	USE 1 @ 9"
15.	156-268	1	FUEL STRAINER (04H)	SEE FOOTNOTE 1
	194-505	1	FUEL PICKUP (04H)	BEGINS WITH S/N. SEE FOOTNOTE 1
16.	110-563	3	SPRING CLAMP (3/8")	
17.	116-325	2	GROMMET (.362")	SEE FOOTNOTE 1
18.	156-269	2	S/O COUPLER (04H-05H90)	BEGINS WITH S/N. SEE FOOTNOTE 1
19.	110-528	4	SNAP-ON CLAMP (.531" TO .593")	
20.	116-108	AR	BULK HOSE (5/16", SOLD PER 1')	USE 1 @ 78"
21.	116-108	AR	BULK HOSE (5/16", SOLD PER 1')	USE 1 @ 68"
22.	118-096	AR	BULK FUEL TUBING (1/4", PER 1')	USE 1 @ 7", SEE FOOTNOTE 1
23.	106-205	4	WASHER (.191")	INSTALL ON POP RIVET
24.	354-973	2	TANK CLAMP	
25.	106-632	4	FLG LK SCR (M12-1.75X35MM, SER)	
26.	106-685	4	LOCKNUT (M12-1.75, PRV TRQ, 10.9)	
27.	110-253	4	POP RIVET (3/16" X 1/2")	
28.	105-117	6	WASHER (5/16")	
29.	106-561	6	LOCKNUT (M8-1.25, PRV TRQ, 10.9)	
30.	106-391	4	WASHER (M12)	
31.	116-789	AR	RUBBER EDGE TRIM 1/8" (FT)	USE 1 @ 15", SEE FOOTNOTE 2
32.	364-663	1	FILLER NECK SCREEN	BEGINS WITH S/N.
33.	155-708	1	O-RING (218 D70)	BEGINS WITH S/N.

FOOTNOTES

- WHEN INSTALLING SUPPLY HOSE, INSTALL 116-325 ON SMALL PORTION OF LONG HOSE BARB OF 156-269 FIRST. INSTALL 7" HOSE 1.5" ONTO 156-269 AND FULLY ONTO 156-268. COMPLETED ASSEMBLY SHOULD MEASURE 10.8+/-0.1 FROM END TO END.
- START EDGING 8" FROM END OF TANK AND USE LOCTITE 401.

2-POST ROPS

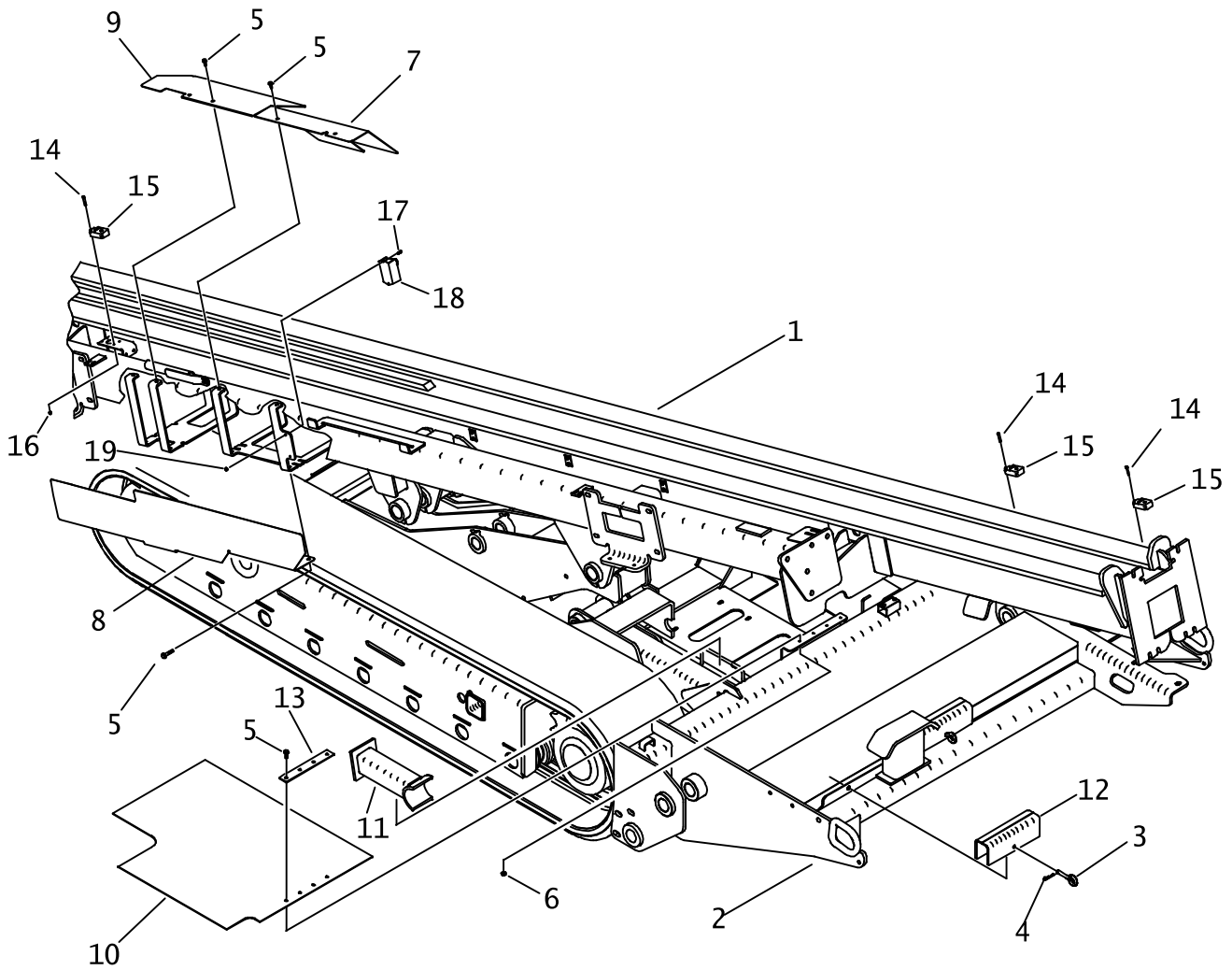


2-POST ROPS

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	309-190	1	2-POST ROPS	
2.	217-057	-	WORKING LIGHT - CLEAR	
-	105-033	1	BOLT (5/16-NC X 2")	
-	105-091	2	LOCK WASHER (5/16")	
-	105-092	2	NUT (5/16-NC)	
3.	106-665	4	LOCKNUT (M20-2.50, 10.9)	
4.	106-373	4	SCREW (M20-2.5 X 160mm)	
5.	106-399	8	WASHER (M20, HARDENED)	
6.	106-470	4	FLG SCREW (M16-2.00 X 40mm)	
7.	106-545	4	LOCKNUT (M16-2.00, PRV TRQ, 10.9)	
8.	107-687	4	CLIP NUT M8-1.25, LONG, WIDE	

FOOTNOTES

DRILLFRAME COVERS/LCKS/SWITCHES



DRILLFRAME COVERS/LCKS/SWITCHES

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	303-423	-	DRILL FRAME	
2.	309-910	-	MAIN FRAME	
3.	110-034	2	EYE PIN (7/16" X 3")	
4.	110-033	2	HAIR CLIP PIN (1/8" X ")	
5.	106-991	12	FLG LK SCREW (M8-1.25 X 20MM)	
6.	106-561	4	LOCKNUT (M8-1.25, PRV TRQ, 10.9)	
7.	305-948	1	VALVE COVER	
8.	305-949	1	VALVE COVER	
9.	305-947	1	VALVE COVER	
10.	116-863	1	COVER FLAP	
11.	354-562	1	DRILL FRAME STIFF LEG	
12.	354-980	2	CYLINDER LOCK	
13.	350-514	1	CLAMP PLATE	
14.	107-465	6	SCREW (M5-0.80 X 30MM, SOC)	
15.	214-692	3	PROXIMITY SWITCH	
16.	106-850	6	LOCKNUT (M5-0.80)	
17.	106-542	2	SCREW (M5-0.80X16MM, PAN PLPS)	
18.	211-025	-	IN-LINE DIODE PACK	
19.	106-850	2	LOCKNUT (M5-0.80)	

NOT SHOWN:

107-451 AR SHIM (.135")
213-103 1 PULLBACK HARNESS

FOOTNOTE 1

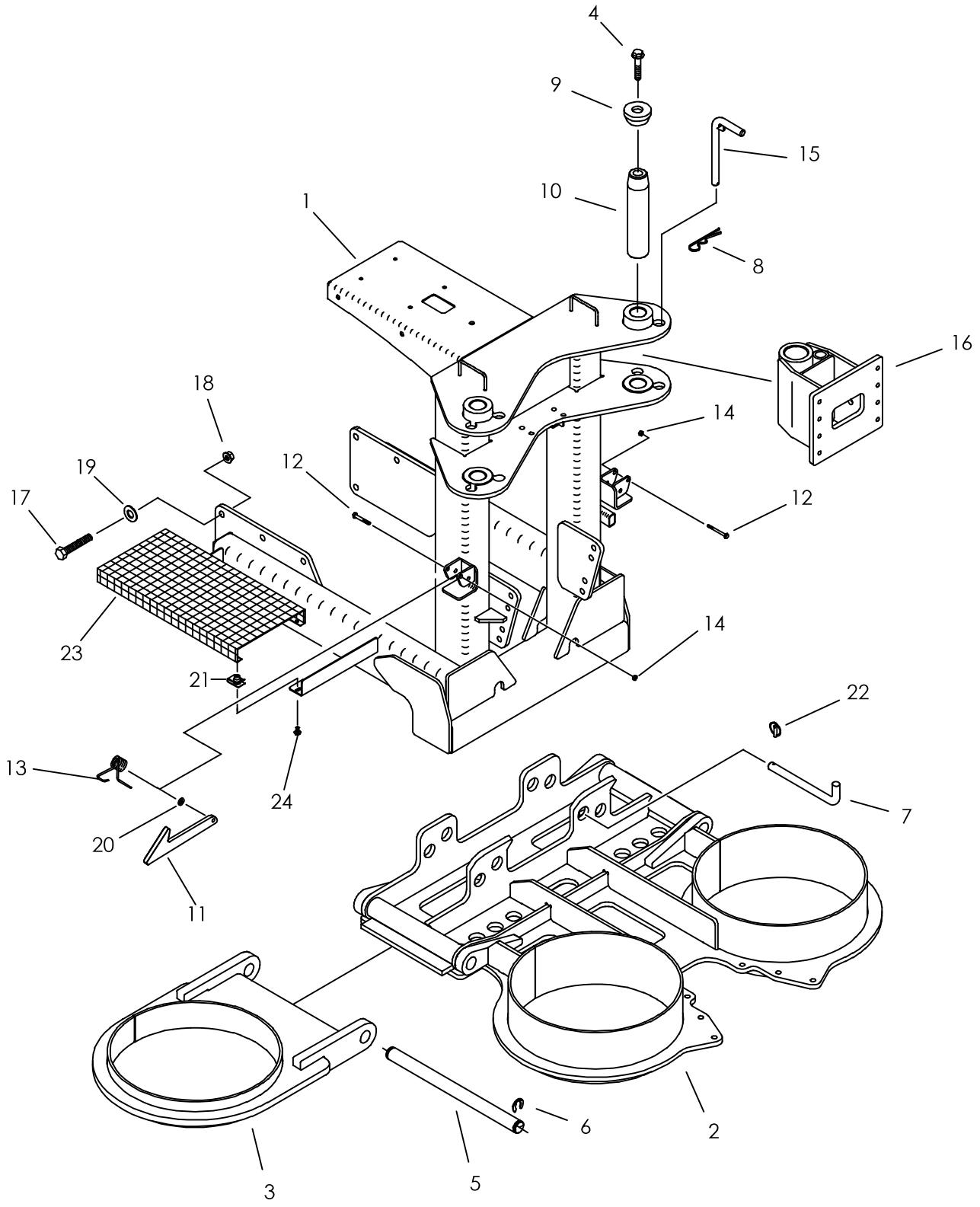
FOOTNOTES:

I. FOR REAR STOP RETROFIT KIT ORDER KIT #599-303

NOTE:

ANCHOR SYSTEMS

AUGER ANCHOR BASE



AUGER ANCHOR BASE

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	310-362	-	ANCHOR ATTACHMENT FRAME	
	327-1059	-	ANCHOR ATTACHMENT FRAME	SEE FOOTNOTE I
2.	313-592	1	ANCHOR BASE	
3.	343-548	2	PIVOT	
4.	106-470	2	FLG SCREW (M16-2.00 X 40mm)	
5.	184-973	2	PIN	
6.	115-483	4	KLIP RING (1.25")	
7.	343-445	2	PIN (31.75MM X 262MM)	
8.	110-128	2	SPRING CLIP PIN (5/32" X 1")	
9.	181-975	2	TAPERED INSERT (1.75")	
10.	179-239	2	TAPERED PIN (44.4mm X 288mm)	
11.	350-371	2	LATCH	
12.	106-332	4	SCREW (M10-1.50 X 70mm)	
13.	115-580	2	TORSION SPRING	
14.	105-894	4	LOCKNUT (M10-1.50, PRV TRQ, 10.9)	
15.	350-516	2	PIN	
16.	309-209	2	ARM	
17.	106-798	8	SCREW (M20-2.50 X 55MM, 10.9)	USE LOC TITE 242
18.	106-356	8	FLG LOCKNUT (M20-2.50, 10.9, PRV TRQ)	
19.	106-399	8	WASHER (M20, HARDENED)	
20.	105-884	6	WASHER (.531")	
21.	106-551	4	CLIP NUT (M8-1.25)	
22.	110-228	2	LYNCH PIN (7/16" X 2")	
23.	350-989	1	FLOOR TREADS	
24.	106-991	4	FLG LK SCREW (M8-1.25 X 20MM)	

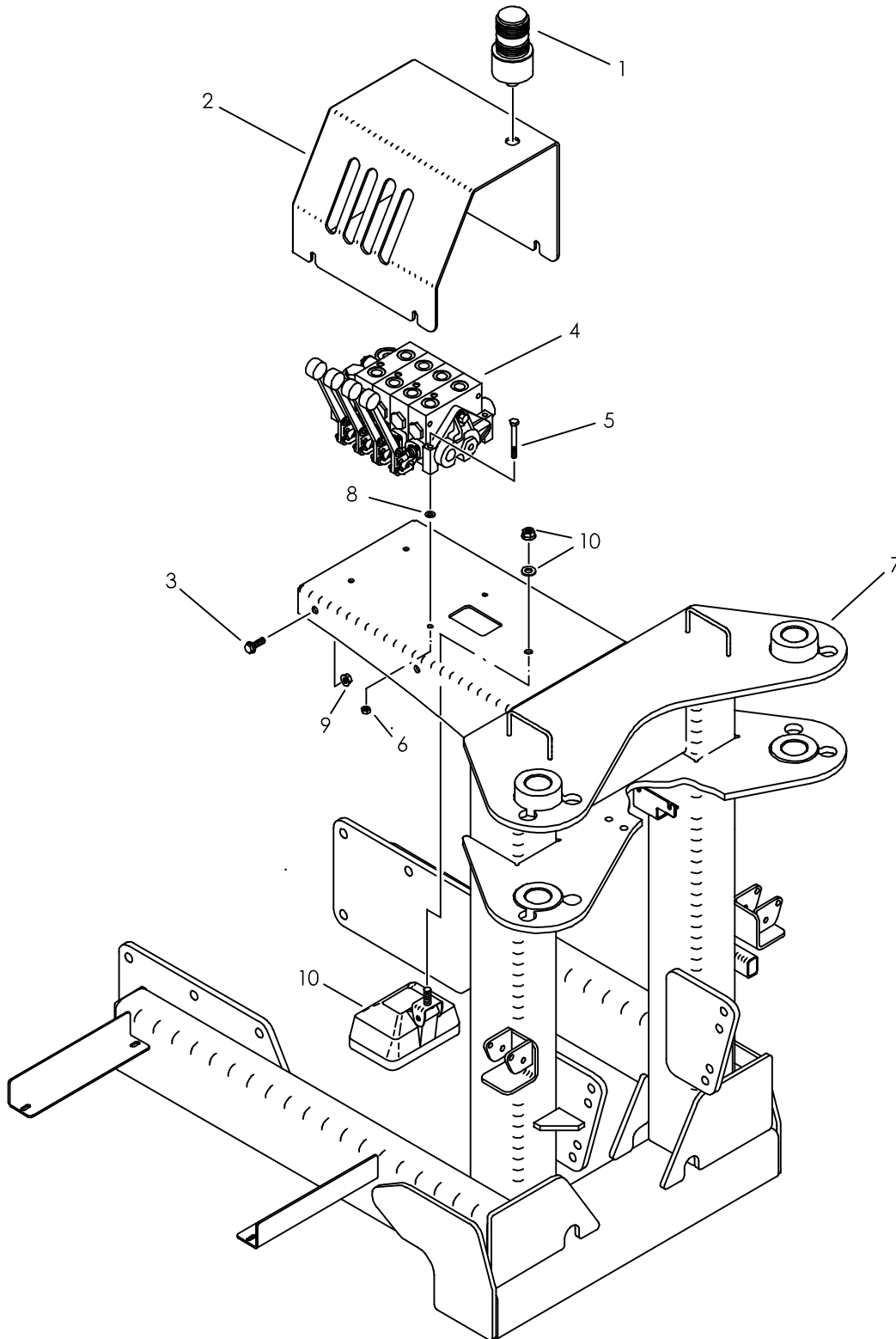
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FOOTNOTES:

I. USE ON 4020 WITH RACK AND PINION

NOTE:

ANCHOR VALVE & COVER MOUNT



ANCHOR VALVE & COVER MOUNT

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	214-697	-	STROBE LIGHT (12V, DC, GREEN)	INSTALL ELECTRICAL PLUG AFTER MOUNTING LIGHT
	217-297	-	STROBE LIGHT GREEN MED PROFILE	
	214-103	1	2-WAY MALE CONNECTOR	
	214-991	-	REPLACEMENT FLASH TUBE	
	217-303	-	REPLACEMENT LENS (GREEN)	
	157-645	2	WEATHER-PAC SEAL (2.80MM)	
	214-104	2	PACKARD MALE TERMINAL	
	217-301	-	BRUSH GUARD	
2.	309-254	1	VALVE COVER	
3.	106-383	4	FLG LK SCREW (M10-1.50 X 30MM)	
4.	149-952	-	HYD CONTROL VALVE (4-SPOOL)	
5.	106-330	3	SCREW (M8-1.25 X 70MM)	
6.	106-561	3	LOCKNUT (M8-1.25,PRV TRQ,10.9)	
7.	310-362	-	ANCHOR ATTACHMENT FRAME	SEE FOOTNOTE I
	327-1059	-	ANCHOR ATTACHMENT FRAME	
8.	106-389	3	WASHER (M8)	
9.	106-387	4	FLG LOCKNUT (M10-1.50)	
10.	217-007	1	WORKING LIGHT (CLEAR, RECT)	

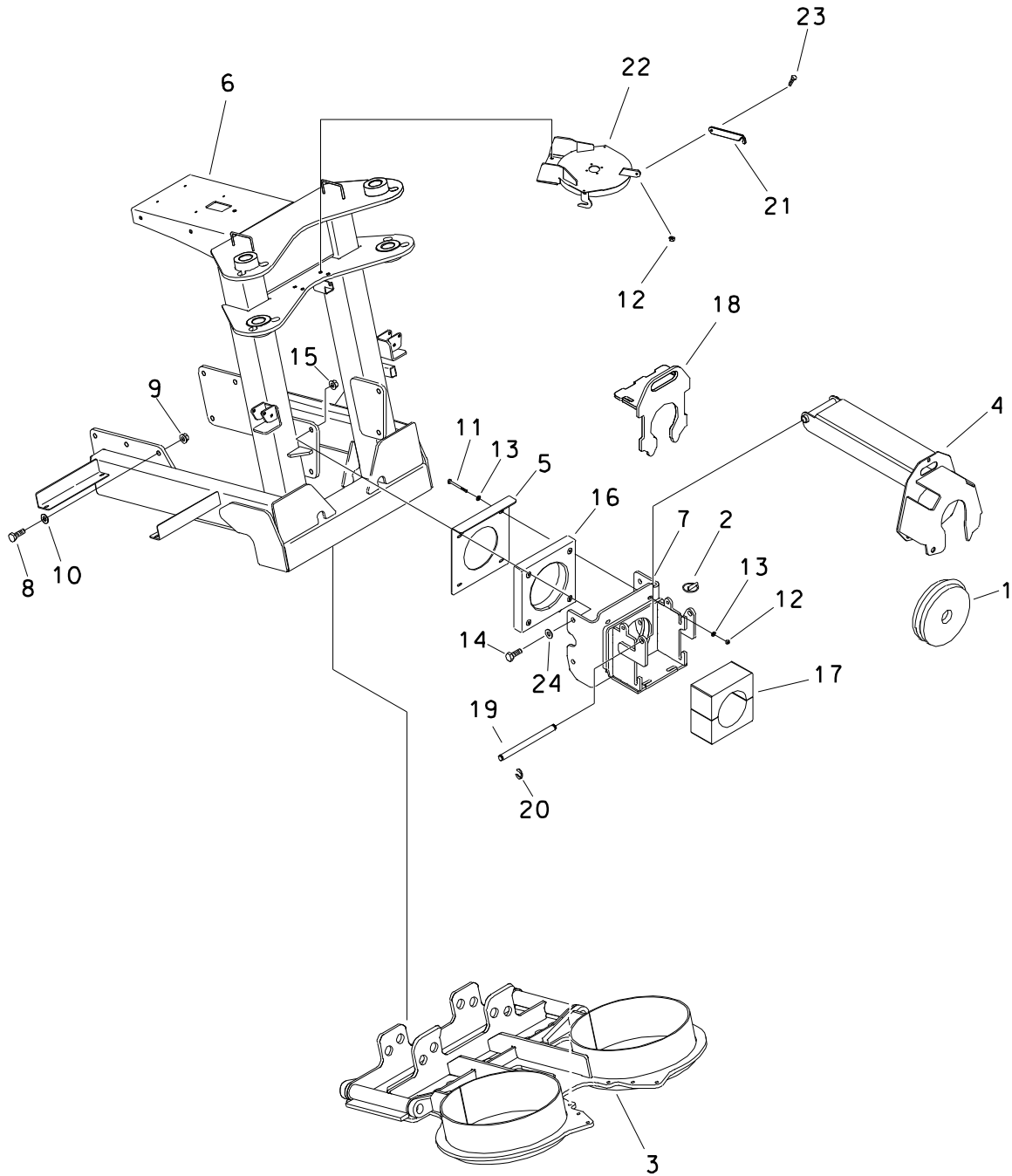
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FOOTNOTES:

I. USE ON 4020 WITH RACK AND PINION.

NOTE:

FRONT PIPE GUIDE



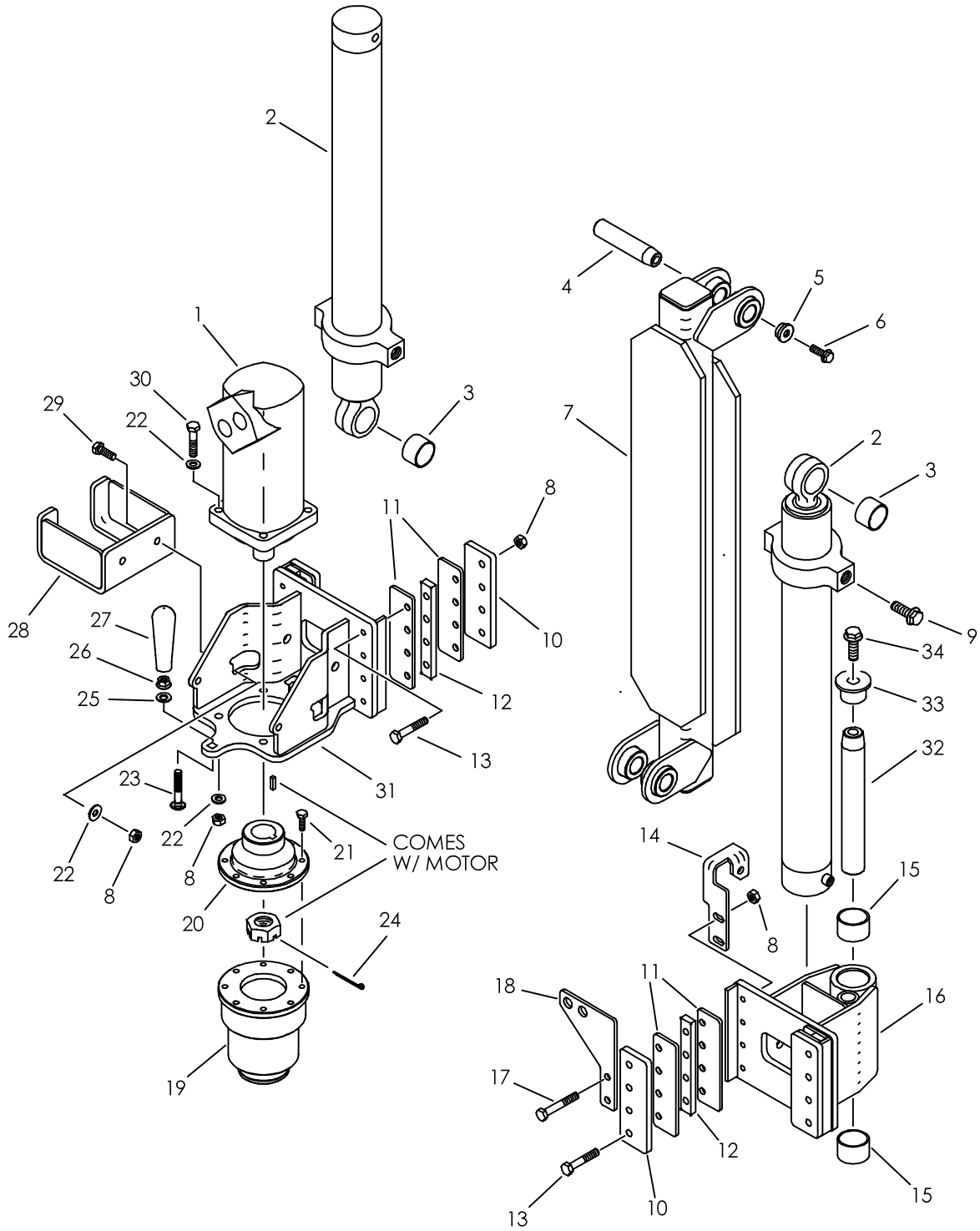
FRONT PIPE GUIDE

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	117-483	1	SPLIT ROD WIPER 2 1/4" ID	
2.	110-228	2	LYNCH PIN (7/16" X 2")	
3.	313-592	1	ANCHOR BASE	
4.	313-498	1	WIPER MOUNT	
5.	310-366	1	COVER	
6.	310-362	1	ANCHOR ATTACHMENT FRAME	
7.	310-365	1	GUIDE BEARING MOUNT	
8.	106-340	8	SCREW (M16-2.00 X 50MM)	
9.	106-442	8	FLG LOCKNUT (M16-2.00,PRV TRQ)	
10.	106-398	8	WASHER (M16, HARDENED)	
11.	106-602	4	SCREW (M8-1.25 X 80MM)	
12.	106-561	5	LOCKNUT (M8-1.25,PRV TRQ,10.9)	
13.	105-117	8	WASHER (5/16")	
14.	107-307	4	BOLT (M12-1.75 X 45MM)	
15.	106-685	4	LOCKNUT(M12-1.75,PRV TRQ,10.9)	
16.	216-063	1	CURRENT TRANSFORMER	
17.	314-360	2	GUIDE BLOCK (3.50)	
18.	314-387	1	BLOCK RETAINER	
19.	178-863	1	PIVOT PIN	
20.	115-503	2	KLIP RING (.750")	
21.	314-744	1	HOOK	FOOTNOTE 1
22.	350-400	-	COVER	FOOTNOTE 1
23.	107-349	1	SCREW (M8-1.25 X 20MM)	
24.	106-397	4	WASHER (M12, HARDENED)	

FOOTNOTES

1. EARLY MACHINES HAVE AN EARLIER REVISION OF 350-400 WITHOUT THE MOUNTING EAR FOR THE HOOK (314-744).

RIGHT AUGER ANCHOR DRIVE



RIGHT AUGER ANCHOR DRIVE

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	149-895	1	HYD MOTOR	
	500-390		SEAL REPAIR KIT - REAR	
	500-391		SEAL REPAIR KIT - SHAFT	
	502-177		SHAFT AND BEARING ASS'Y	
	107-792		BOLT (5/16"X 1-5/8", DBL HEX)	
	165-900		KEY (7/16" SQ X 1.250")	
	105-917		CASTLE NUT (1-1/4-NF)	SEE FOOTNOTE 1
	500-2123		FRONT RETAINER (ANCHOR MOTOR)	
2.	150-747	2	CYLINDER ASSEMBLY	
3.	125-771	2	COMPOSITION BUSHING (1.25")	
4.	183-765	2	TAPERED PIN (31.7MM X 110MM)	
5.	181-982	2	TAPERED INSERT (1.25")	
6.	106-469	2	FLG SCREW (M12-1.75 X 30MM)	USE LOCTITE 242
7.	359-799	1	MAST	
8.	106-685	23	LOCKNUT(M12-1.75,PRV TRQ,10.9)	
9.	106-471	4	FLG SCREW (M16-2.00 X 30MM)	USE LOCTITE 242
10.	309-194	4	CLAMP PLATE	
11.	309-195	8	GLIDE STRIP	
12.	309-203	4	CARRIAGE SPACER BAR	
13.	106-335	14	SCREW (M12-1.75 X 70MM)	
14.	309-205	1	BULKHEAD PLATE	
15.	125-773	2	COMPOSITION BUSHING (1.75")	
16.	309-209	1	ARM	
17.	106-700	2	SCREW (M12-1.75 X 80MM)	
18.	309-204	1	BULKHEAD PLATE	
19.	309-582	-	FLANGED HEX DRIVER	
20.	178-881	1	FLANGE	
21.	105-245	8	SCREW (M10-1.50 X 25MM)	USE LOCTITE 242
22.	106-397	9	WASHER (M12, HARDENED)	
23.	105-279	1	CARRIAGE BOLT (1/2-NC X 3")	
24.	105-501	1	COTTER PIN (1/8" X 2")	
25.	105-071	1	WASHER (1/2")	
26.	105-833	1	FLG LOCKNUT (1/2-NC)	
27.	110-531	1	HANDLE (1/2-NC, BLACK)	USE LOCTITE 242
28.	309-602	1	ANCHOR HANGER	
29.	106-333	2	SCREW (M12-1.75 X 40MM, 8.8)	
30.	106-594	4	SCREW (M12-1.75 X 60MM)	
31.	309-207	1	MOTOR MOUNT	
32.	179-239	1	TAPERED PIN (44.4MM X 288MM)	
33.	181-975	1	TAPERED INSERT (1.75")	
34.	106-470	1	FLG SCREW (M16-2.00 X 40MM)	USE LOCTITE 242

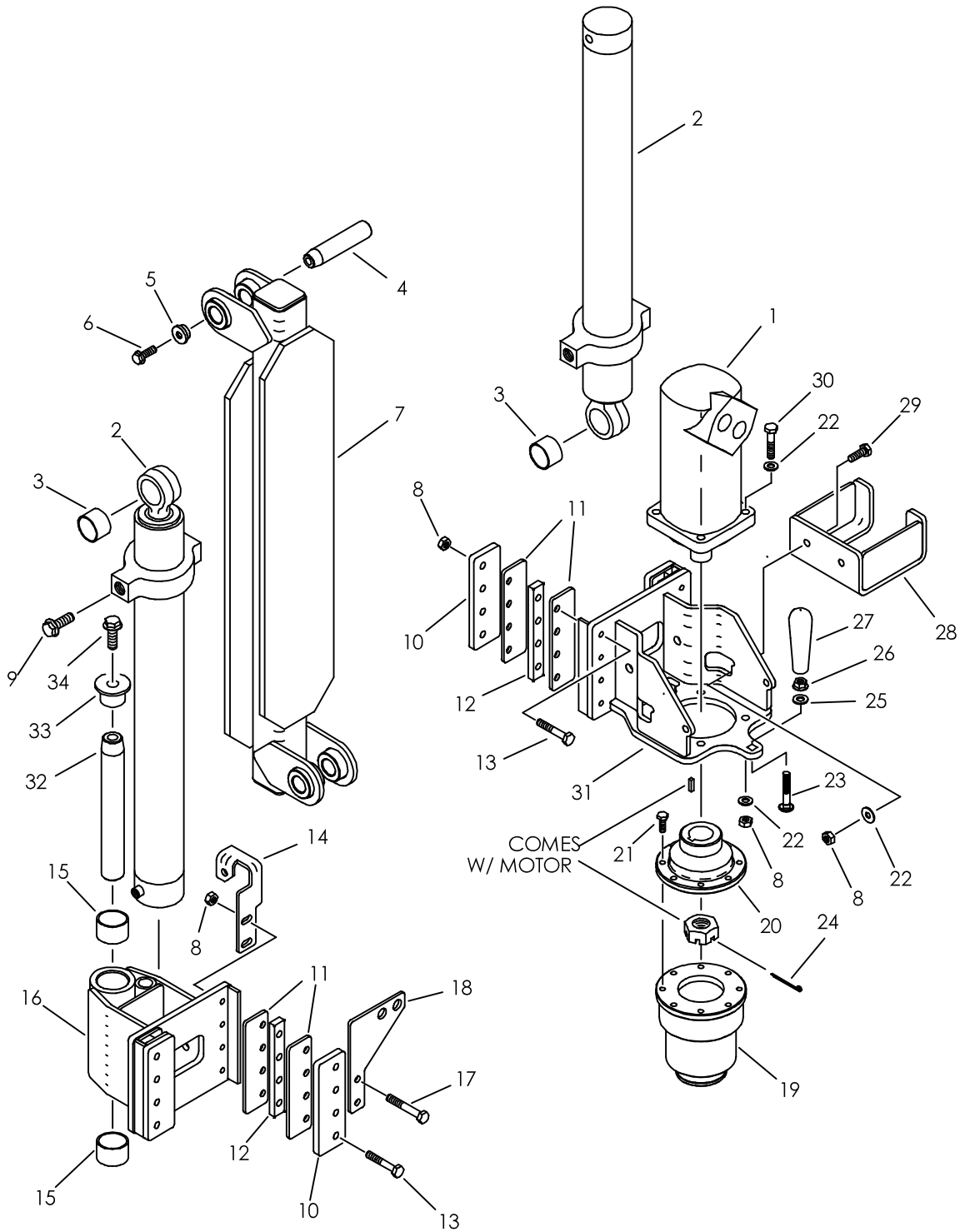
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FOOTNOTES:

- I. TORQUE NUT TO 375 FT. LB. DRY OR 275 FT. LB. LUBED

NOTE:

LEFT AUGER ANCHOR DRIVE



LEFT AUGER ANCHOR DRIVE

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	149-895	1	HYD MOTOR	
	500-390		SEAL REPAIR KIT - REAR	
	500-391		SEAL REPAIR KIT - SHAFT	
	502-177		SHAFT AND BEARING ASS'Y	
	107-792		BOLT (5/16" X 1-5/8", DBL HEX)	
	165-900		KEY (7/16" SQ X 1.250")	
	105-917		CASTLE NUT (1-1/4-NF)	SEE FOOTNOTE 1
	500-2123		FRONT RETAINER (ANCHOR MOTOR)	
2.	150-747	2	CYLINDER ASSEMBLY	
3.	125-771	2	COMPOSITION BUSHING (1.25")	
4.	183-765	2	TAPERED PIN (31.7MM X 110MM)	
5.	181-982	2	TAPERED INSERT (1.25")	
6.	106-469	2	FLG SCREW (M12-1.75 X 30MM)	USE LOCTITE 242
7.	359-799	1	MAST	
8.	106-685	23	LOCKNUT(M12-1.75,PRV TRQ,10.9)	
9.	106-471	4	FLG SCREW (M16-2.00 X 30MM)	USE LOCTITE 242
10.	309-194	4	CLAMP PLATE	
11.	309-195	8	GLIDE STRIP	
12.	309-203	4	CARRIAGE SPACER BAR	
13.	106-335	14	SCREW (M12-1.75 X 70MM)	
14.	309-206	1	BULKHEAD PLATE	
15.	125-773	2	COMPOSITION BUSHING (1.75")	
16.	309-209	1	ARM	
17.	106-700	2	SCREW (M12-1.75 X 80MM)	
18.	309-204	1	BULKHEAD PLATE	
19.	309-582	-	FLANGED HEX DRIVER	
20.	178-881	1	FLANGE	
21.	105-245	8	SCREW (M10-1.50 X 25MM)	USE LOCTITE 242
22.	106-397	9	WASHER (M12, HARDENED)	
23.	105-279	1	CARRIAGE BOLT (1/2-NC X 3")	
24.	105-501	1	COTTER PIN (1/8" X 2")	
25.	105-071	1	WASHER (1/2")	
26.	105-833	1	FLG LOCKNUT (1/2-NC)	
27.	110-531	1	HANDLE (1/2-NC, BLACK)	USE LOCTITE 242
28.	309-602	1	ANCHOR HANGER	
29.	106-333	2	SCREW (M12-1.75 X 40MM, 8.8)	
30.	106-594	4	SCREW (M12-1.75 X 60MM)	
31.	309-207	1	MOTOR MOUNT	
32.	179-239	1	TAPERED PIN (44.4MM X 288MM)	
33.	181-975	1	TAPERED INSERT (1.75")	
34.	106-470	1	FLG SCREW (M16-2.00 X 40MM)	USE LOCTITE 242

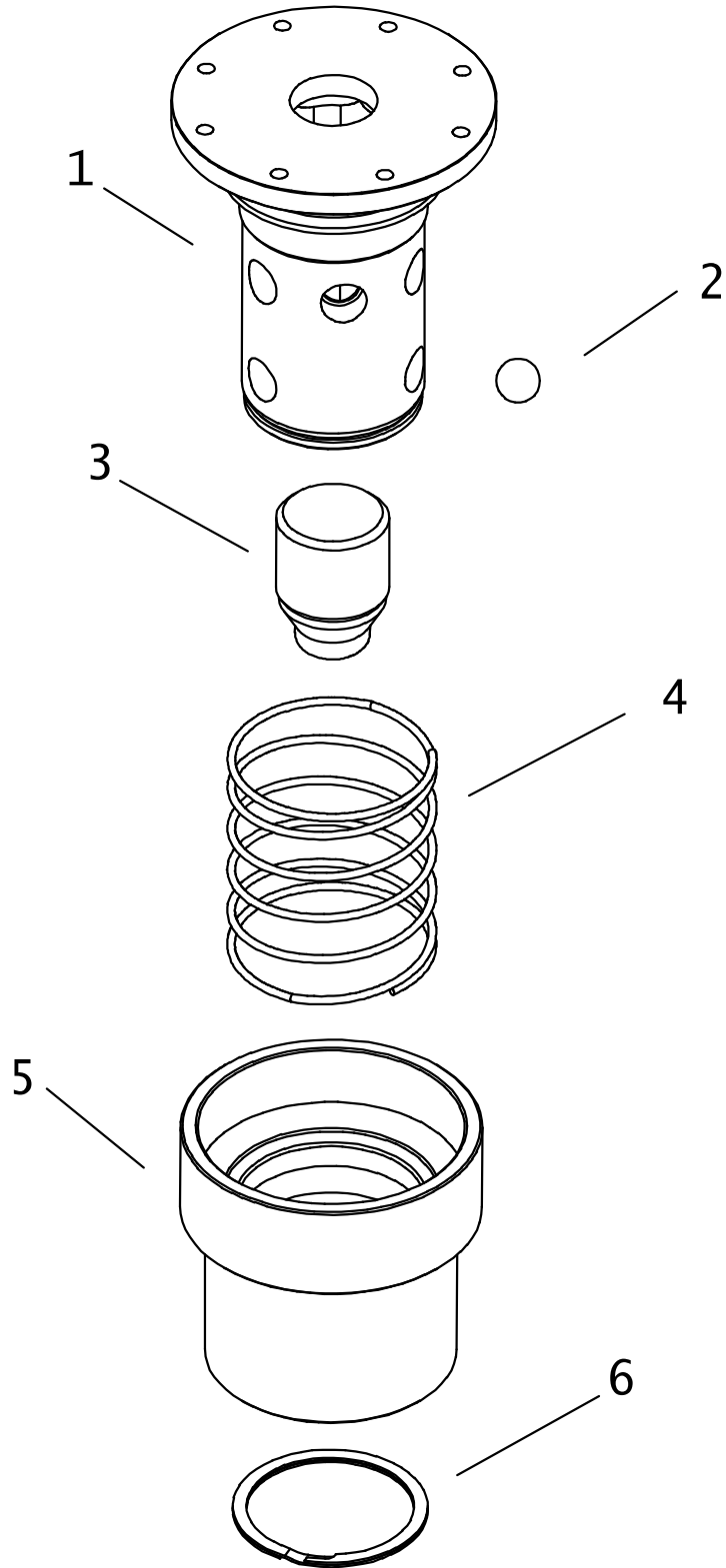
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FOOTNOTES:

1. TORQUE NUT TO 375 FT. LB. DRY OR 275 FT. LB. LUBED

NOTE:

FLANGED HEX DRIVER ASS'Y



FLANGED HEX DRIVER ASS'Y

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	309-582		FLANGED HEX DRIVER	INCLUDEDS REF NO. 1-6
1.	309-093	1	ANCHOR DRIVER	FOOTNOTE 2
2.	125-150	9	DETENT BALL (.875")	
3.	309-095	1	WEIGHT STOP	
4.	117-160	1	COMPRESSION RING	
5.	178-591	1	LOCK COLLAR	
6.	118-054	1	EXTERNAL SNAP RING	
	116-761	1	SPIRAL RETAINING RING	FOOTNOTE 1

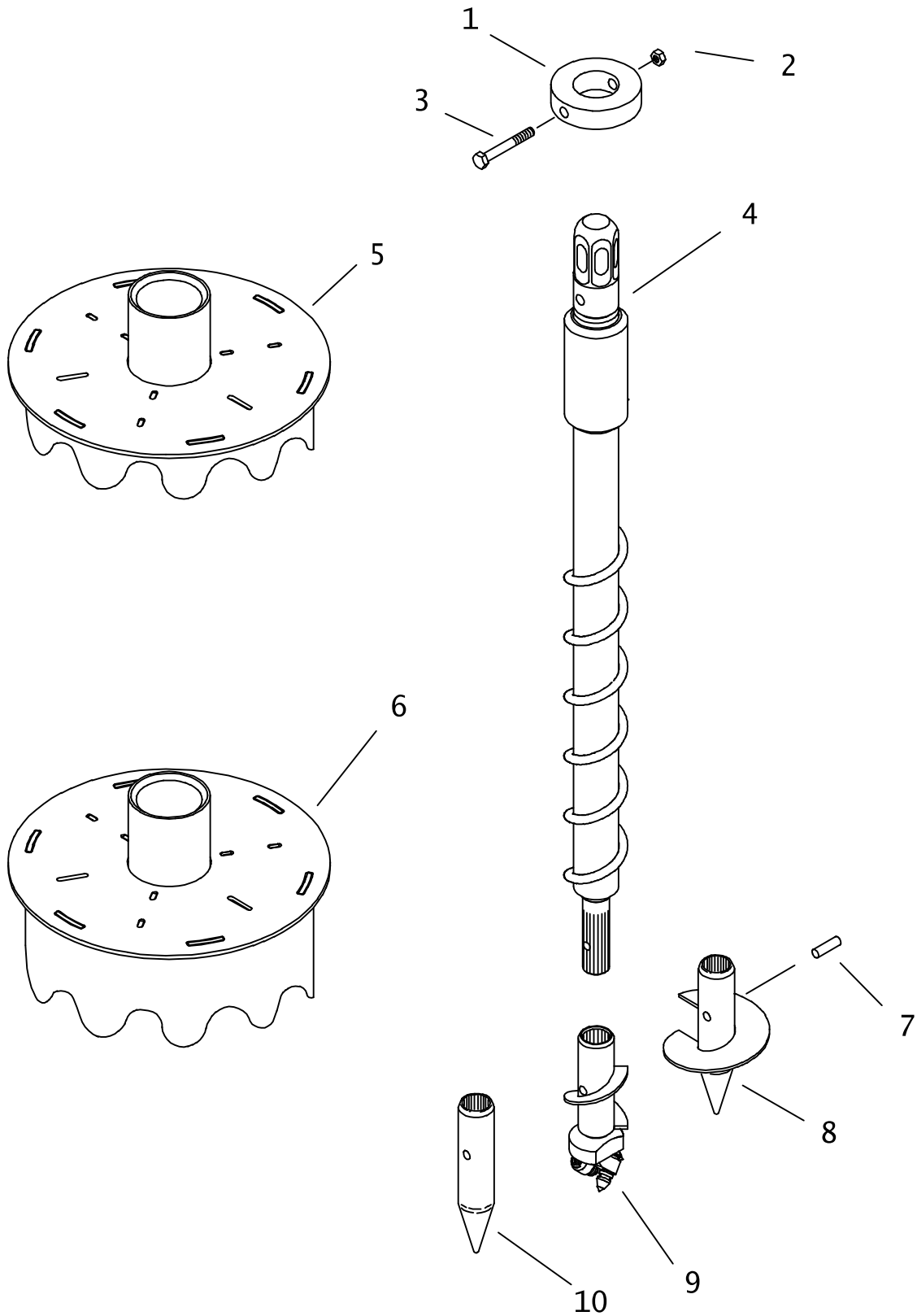
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FOOTNOTES:

1. USE WHEN INSTALLING UPDATED 309-093
2. UPDATED VERSION NECKED-DOWN FOR THICKER 116-761

NOTE:

ANCHOR



ANCHOR

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	309-250	-	ANCHOR SHAFT	INCL REF NO'S 1-4
1.	178-513	1	COLLAR	
2.	106-685	1	LOCKNUT(M12-1.75,PRV TRQ,10.9)	
3.	106-645	1	SCREW (M12-1.75 X 110MM, 10.9)	
4.	308-902	1	ANCHOR STAKE	
5.	309-750	1	CENTERING CAP	SHORT - USED IN SIDE POSITIONS
6.	308-903	1	CENTERING CAP	TALL - USED IN FRONT POSITIONS
7.	183-860	AR	ROLL PIN (1/2" X 1-7/8")	
8.	356-366	AR	AUGER (150MM}	
	356-365	AR	AUGER (225MM)	
	356-364	AR	AUGER (380MM)	
9.	369-438	AR	3.5" CAP ANCHOR BIT	ROCK BITS
	136-113	-	INSERT BIT - CARBIDE TIPPED	REPLACEMENT BIT FOR 369-438
	131-259	-	INSERT BIT- CARBIDE TIPPED	
	136-112	-	CLIP RETAINER	REPLACEMENT CLIP FOR 369-438
10.	357-330	AR	STAKE POINT	DIRT BITS

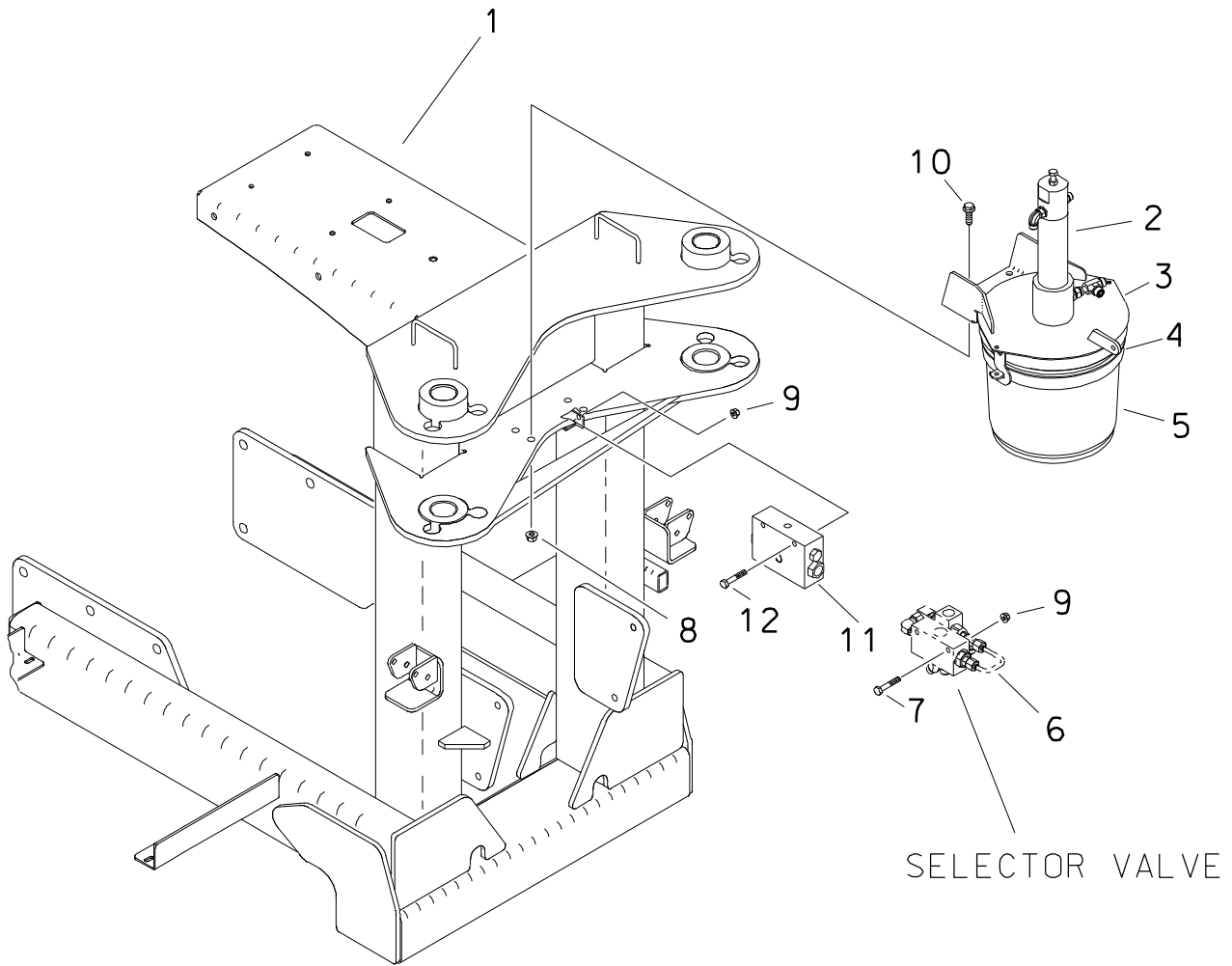
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FOOTNOTES:

NOTE:

LUBRICATOR SYSTEMS

GREASE PUMP MOUNTING



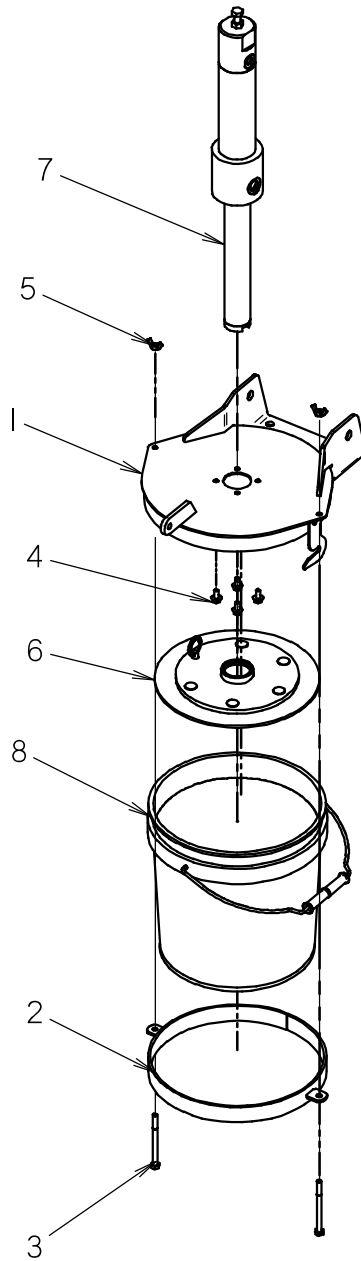
GREASE PUMP MOUNTING

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	310-362	-	ANCHOR ATTACHMENT FRAME	
2.	350-398	-	GREASE PUMP	
3.	350-400	-	COVER	
4.	350-399	-	BASE	
5.	259-858	-	TOOL JNT LUBE, STD SPRY 2 GAL	USE BELOW 80° F MAX TEMP
	256-031	-	TOOL JNT LUBE, SUMR SPRY 2 GAL	USE ABOVE 50° F MIN TEMP
6.		-	VALVE SUB-ASS'Y	ENDS WITH S/N 2V0900, SEE FOOTNOTE 1
7.	106-329	-	SCREW (M8-1.25 X 50MM)	ENDS WITH S/N 2V0900
8.	106-387	4	FLG LOCKNUT (M10-1.50)	
9.	106-386	-	FLG LOCKNUT (M8-1.25)	
10.	106-383	4	FLG LK SCREW (M10-1.50 X 30MM)	
11.	310-591	1	VALVE	BEGINS WITH S/N 2V0901
12.	106-570	2	SCREW (M8-1.25 X 60MM)	BEGINS WITH S/N 2V0901

FOOTNOTES

1. FOR PARTS BREAKDOWN OF SELECTOR VALVE, SEE SPECIFIC PARTS PAGE

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	

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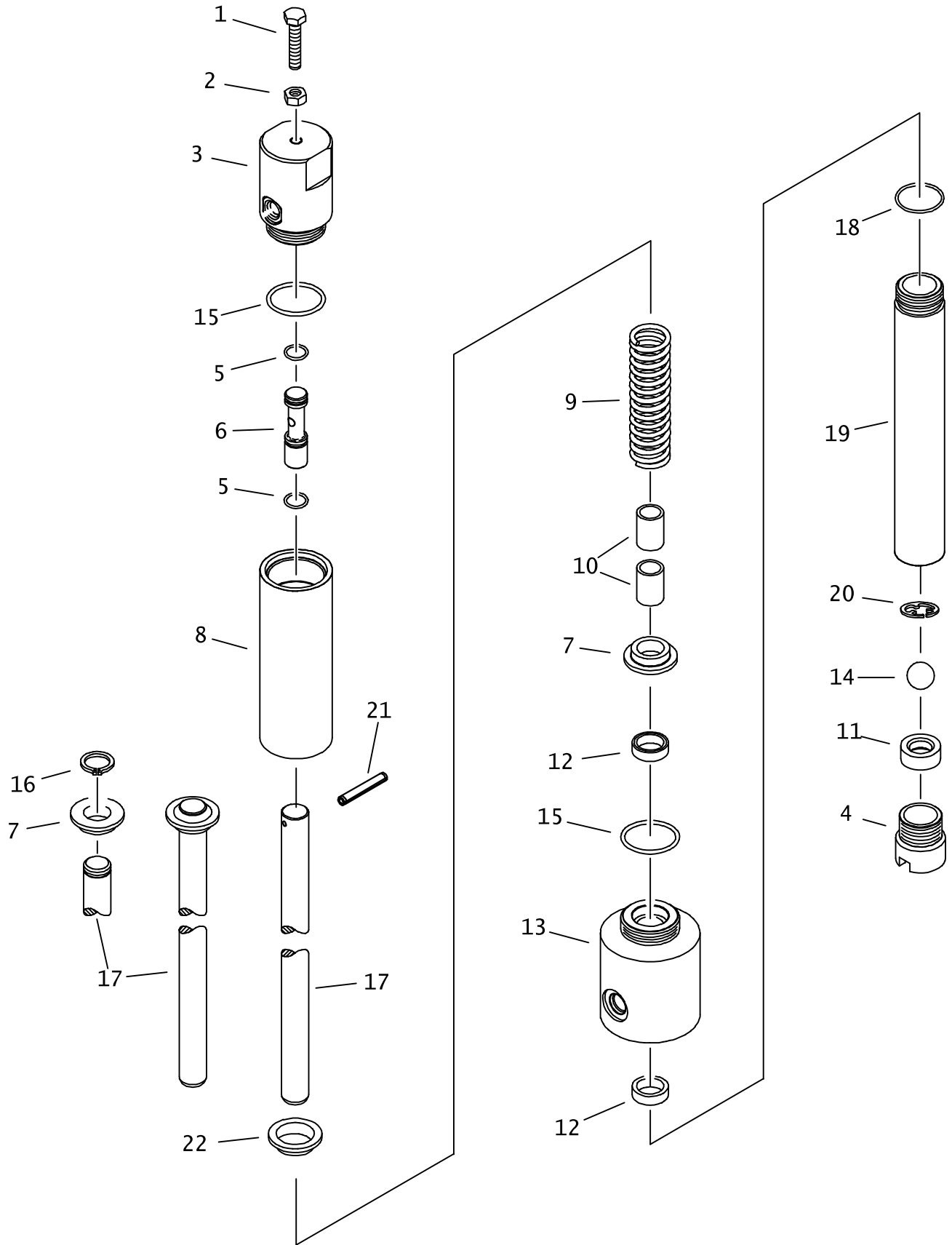
FOOTNOTES:

NOTE:

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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

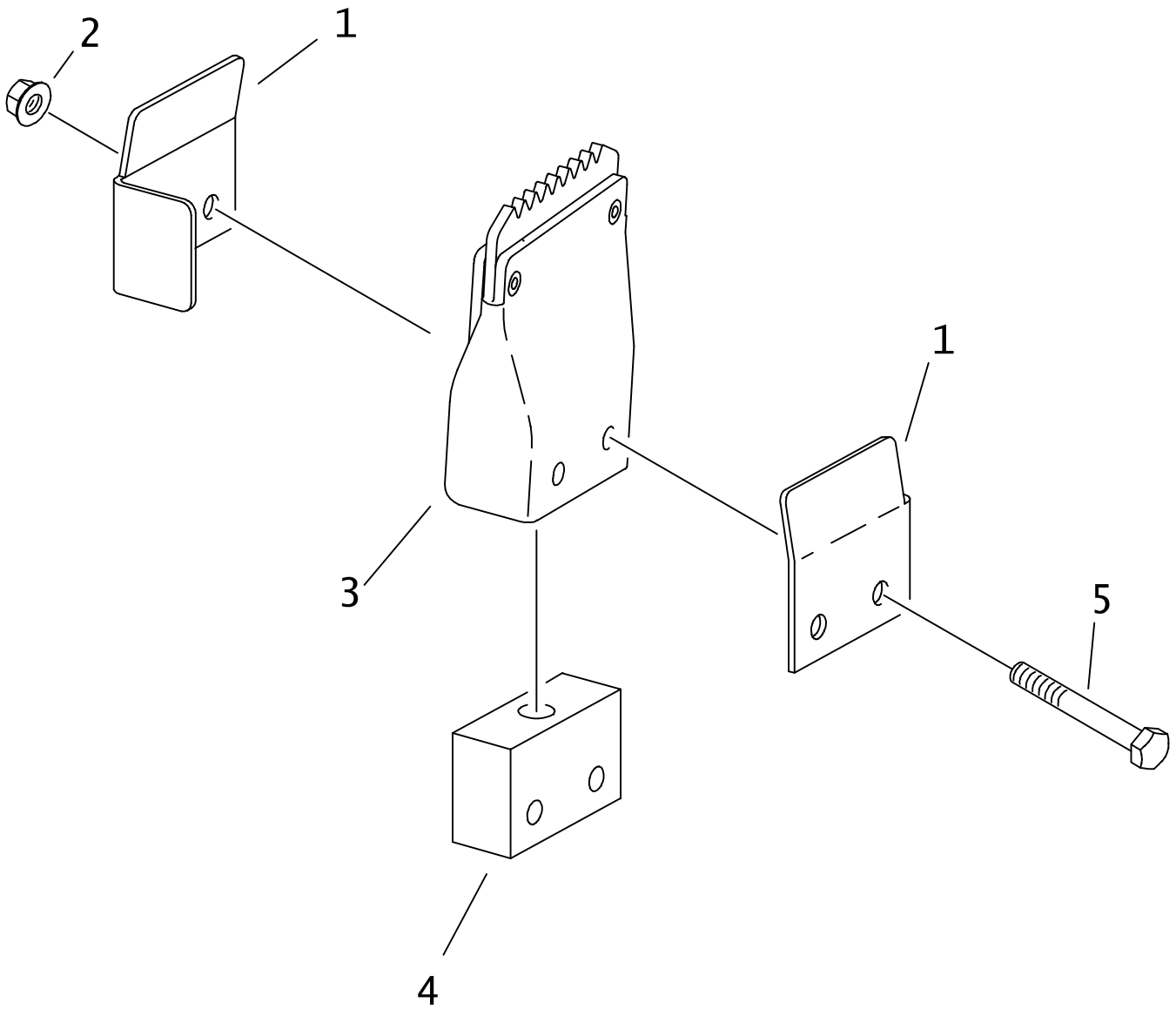
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FOOTNOTES:

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

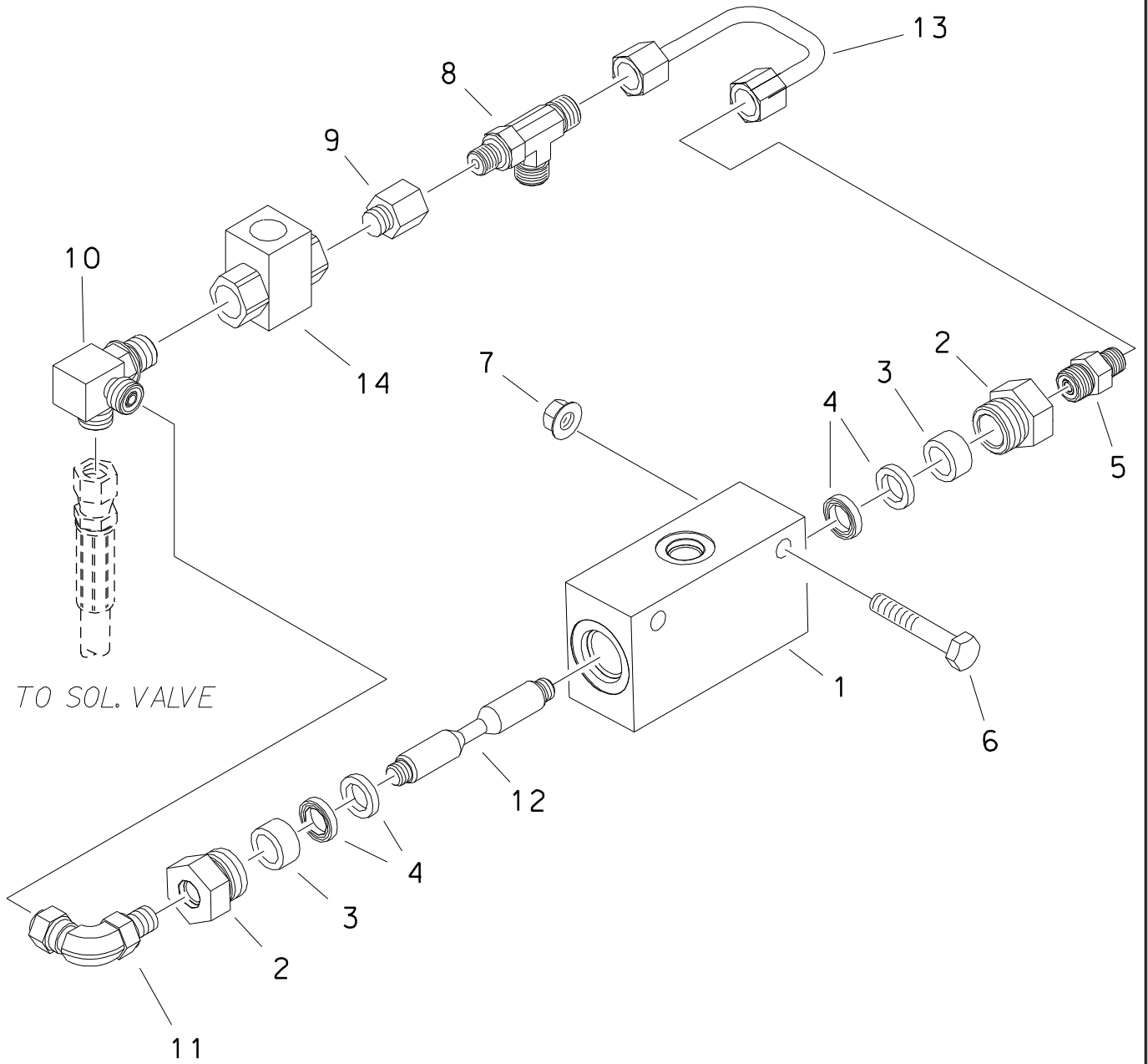
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	305-911	2	BRACKET, APPLICATOR	
2.	106-385	2	FLG LOCKNUT (M6-1.00)	
3.	306-423	1	WIPER PARTS ASS'Y	
	116-937	1	APPLICATOR	
	107-394	4	WASHER (.375", ALUMINUM)	
	107-395	2	RIVET (.156 X .500) SEMI-TUBUL	
4.	305-912	1	BASE, APPLICATOR	
5.	106-093	2	SCREW (M6-1.00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

NOT SHOWN:

FOOTNOTES:

NOTE:

SELECTOR VALVE



SELECTOR VALVE

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	101-085		GREASER VALVE KIT	INCL. REF. 1-4 & 12
1.	343-291	1	VALVE BODY	
2.	149-152	2	REDUCER (10S-04SF)	
3.	343-292	2	SPACER	
4.	116-880	4	SEAL (POLY PAK)	
5.	154-278	1	CONNECTOR (04S-040)	
6.	106-329	2	SCREW (M8-1.25 X 50MM)	
7.	106-386	2	FLG LOCKNUT (M8-1.25)	
8.	154-316	1	RUN TEE (04S-040-040)	
9.	155-254	1	REDUCER (06S-04SF)	
10.	154-230	1	BRANCH TEE (06S-040-040)	
11.	514-257	1	UNION (04S-040FX90)	
12.	350-690	1	VALVE SPOOL	
13.	149-519	1	HYD LINE	
14.	158-600	1	HYD SHUTTLE VALVE	

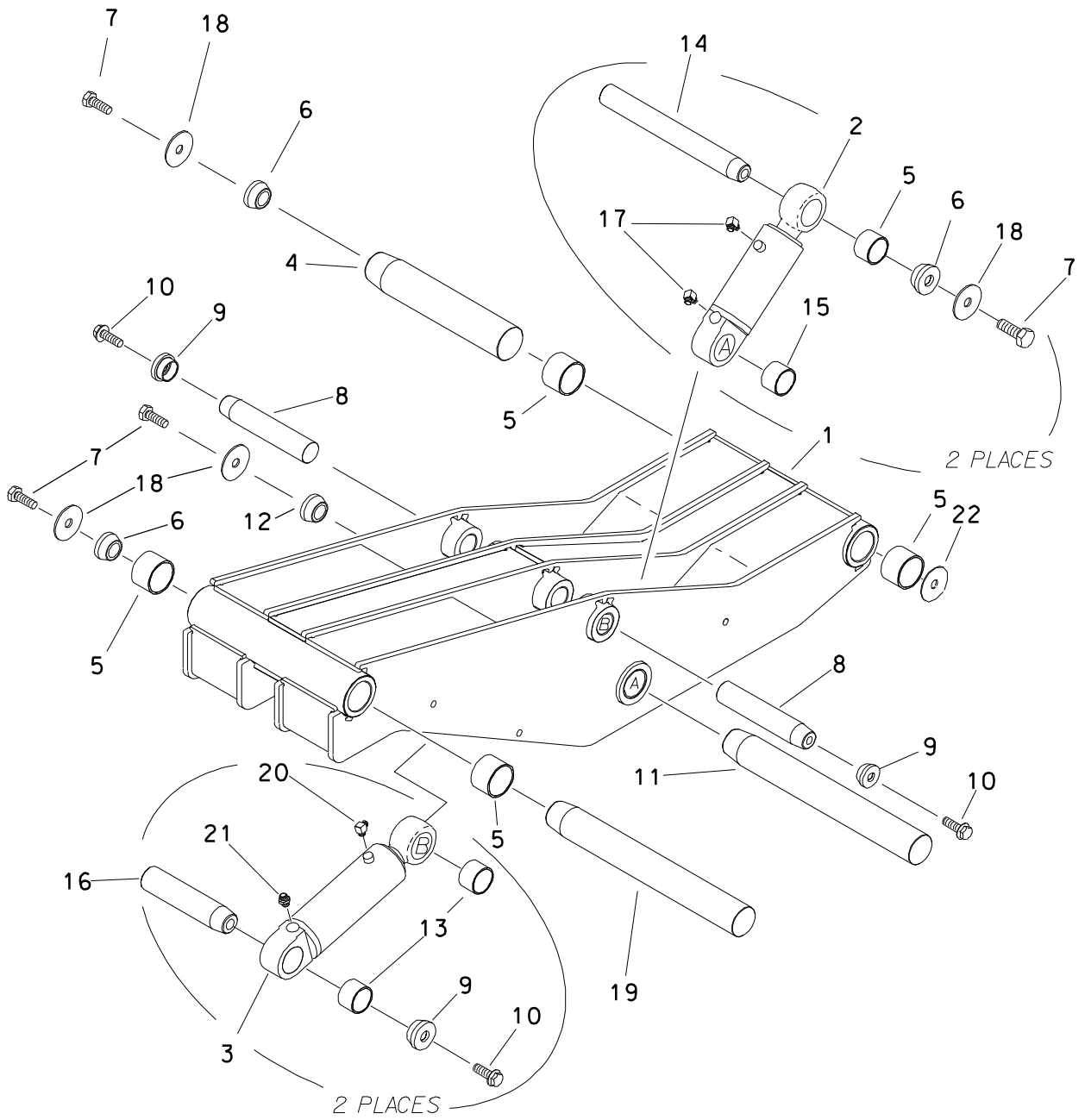
FOOTNOTES

NOTE:

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

DRILL FRAME

PIVOT



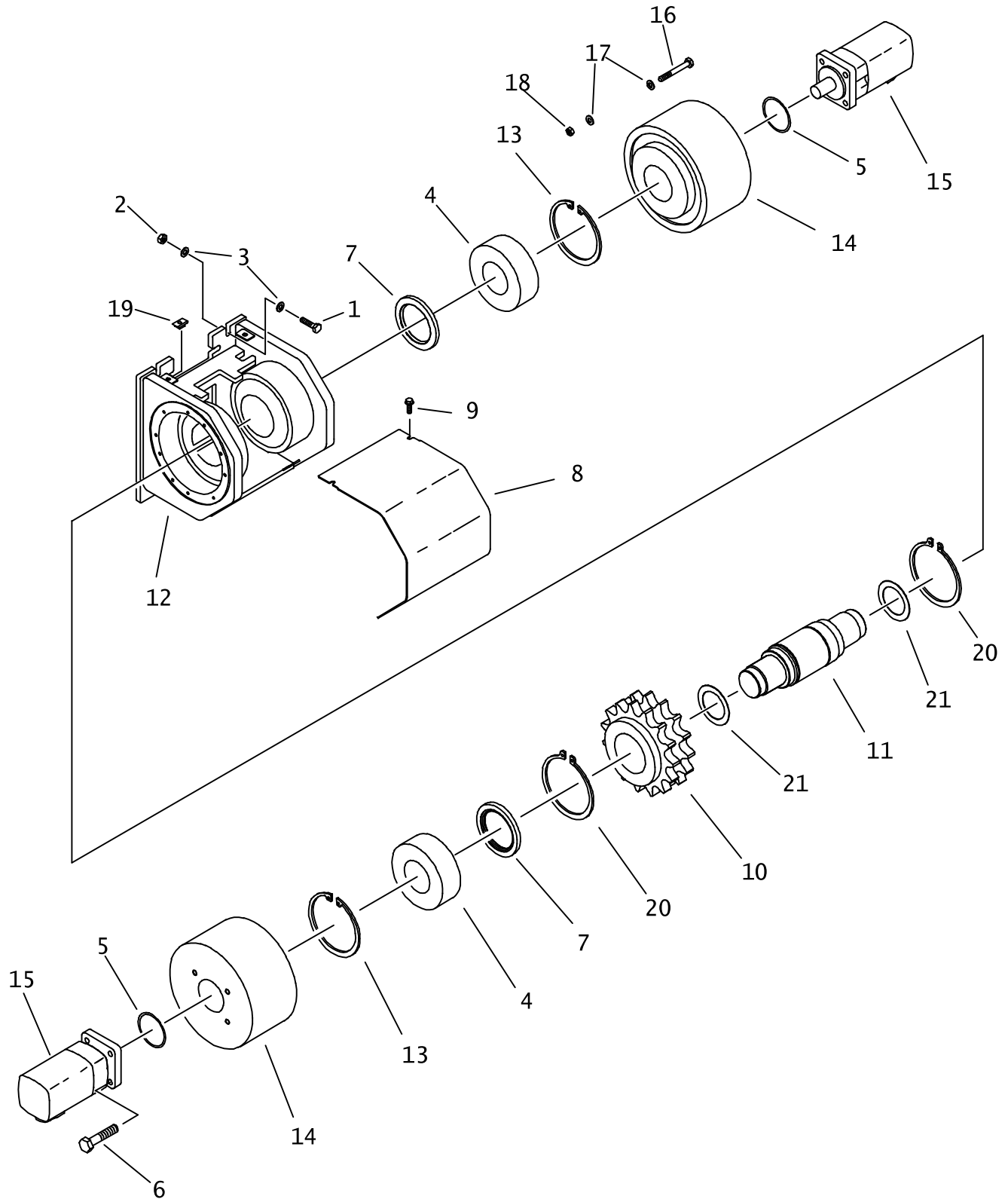
PIVOT

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	350-724	1	PIVOT	
2.	151-066	2	CYL (4" X 2" X 5")	
3.	151-070	2	CYL (3" X 1.75" X 8")	
4.	179-220	1	TAPERED PIN (50.8mm X 585mm)	
5.	125-754	6	COMPOSITION BUSHING (2")	
6.	184-064	4	TAPERED INSERT (2.00")	
7.	106-798	5	SCREW (M20-2.50 X 55MM, 10.9)	
8.	183-768	2	TAPERED PIN (44.4mm X 205mm)	
9.	181-975	4	TAPERED INSERT (1.750")	
10.	106-470	4	FLG SCREW (M16-2.00 X 40mm)	
11.	179-221	1	TAPERED PIN (57.1mm X 425mm)	
12.	184-031	1	TAPERED INSERT (2.250")	
13.	125-773	4	COMPOSITION BUSHING (1.75")	
14.	179-077	2	TAPERED PIN (50.8mm X 170mm)	
15.	125-781	2	COMPOSITION BUSHING (2.259")	
16.	183-882	2	TAPERED PIN (44.4mm X 228.6mm)	
17.	154-276	4	CONNECTOR (040-08S90)	
18.	106-399	5	WASHER (M20, HARDENED)	
19.	179-248	1	2.0" X 22.04" PIN	
20.	154-226	2	CONNECTOR (040-06S90)	
21.	154-220	2	CONNECTOR (040-06S)	
22.	110-168	4	MACHINERY BUSHING (2.00")	

FOOTNOTES

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

THRUST DRIVE



THRUST DRIVE

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	106-334	8	SCREW (M12-1.75 X 50mm)	
2.	106-685	8	LOCKNUT (M12-1.75, PRV TRQ, 10.9)	
3.	106-397	16	WASHER (M12, HARDENED)	
4.	125-314	2	ROLLER BEARING (2.952")	
5.	157-084	2	O-RING (159 D70)	
6.	105-066	8	BOLT (1/2-NC X 1-3/4")	
7.	155-883	2	INTERNAL SEAL (3.750")	
8.	350-726	1	THRUST DRIVE COVER	
9.	106-991	4	FLG LK SCREW (M8-1.25 X 20MM)	
10.	174-028	1	SPROCKET, THRUST DRIVE, SPLINE	
11.	167-318	1	THRUST DRIVE SHAFT	
12.	350-725	1	THRUST DRIVE HOUSING	
13.	118-031	2	INTERNAL SNAP RING (6.250")	
14.	166-151	2	GEARBOX PLANETARY	SEE FOOTNOTE 1
	501-861		PRIMARY CARRIER (8")	
	501-862		SECONDARY CARRIER (8")	
	501-863		COVER	
	501-864		RING GEAR, 8"	OBSOLETE
	501-865		SUN GEAR, 8"	
15.	158-026	2	HYDRAULIC MOTOR (15 CU/IN)	
	500-1552		SEAL REPAIR KIT	
	500-1553		SHAFT AND BEARING KIT	
	500-711		SEAL REPAIR KIT - REAR	
	500-758		SEAL REPAIR KIT - SHAFT	
16.	105-808	24	BOLT (3/8-NC X 7")	TORQUE TO 40 FT-LB
17.	106-390	48	WASHER (M10)	
18.	105-047	24	LOCKNUT (3/8-NC)	
19.	106-551	4	CLIP NUT (M8-1.25)	
20.	118-044	2	EXTERNAL SNAP RING (4.250")	
21.	126-127	AR	THRUST WASHER RACE (1.750")	

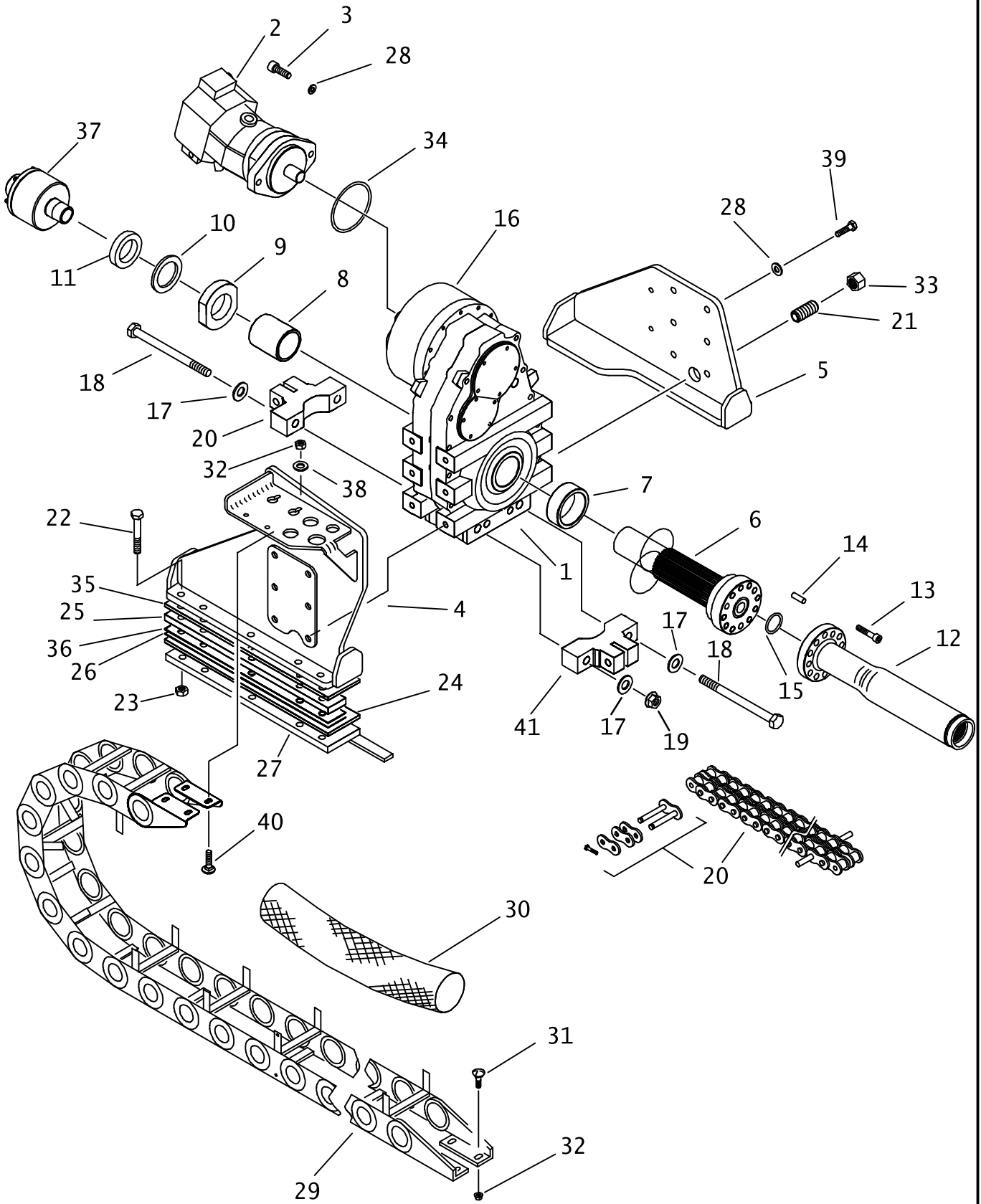
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FOOTNOTES:

1. APPLY A 3/16" MIN BEAD OF LOCTITE SUPERFLEX HIGH TEMP RTV (OR EQUIVALENT) ON BOTH SIDES OF EACH PLANETARY.

NOTE:

CARRIAGE



CARRIAGE

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	166-423	1	ROTATION DRIVE GEARBOX	SEE FOOTNOTE 4. INCLUDES PLANETARY (166-152)
	197-060		REBUILT ROTATION GEARBOX	SEE FOOTNOTE 4.
2.	153-244	1	HYD MOTOR	
	190-906		SEAL REPAIR KIT	
	157-750		SHAFT SEAL	
	217-745		CONTROL SOLENOID	
	499-176		CONNECTOR PLUG	
	197-075		REBUILT 158-012 HYD. MOTOR	
3.	105-997	2	BOLT (5/8-NC X 1-3/4", SOC)	USE 242 LOCTITE, TORQUE TO 175 LB-FT.
4.	303-431	1	RIGHT CARRIAGE SIDE	
5.	303-429	1	LEFT CARRIAGE SIDE	
6.	350-768	1	SLIDING OUTPUT SHAFT	APPLY 256-666 OR 256-034 TO SPLINED AREA.
7.	171-112	1	SPACER	
8.	184-946	1	SPACER	
9.	107-104	1	NUT (1-NF)	
10.	106-532	1	THRUST LOCK WASHER (2.937")	
11.	106-531	1	THRUST LOCKNUT (2.937-NS)	
12.	303-674	1	SAVER SUB (JT40M1)	
	400-1136	1	SAVER SUB (JT40M1)	
13.	107-354	9	SCREW (M16-2.00 X 55mm, SOC)	USE 242 LOCTITE, TORQUE 225 LB-FT.
14.	500-818	3	DOWEL PIN (16mm X 40mm)	
15.	157-151	1	O-RING (226 D90)	
16.	166-152	1	ROTATION GEARBOX PLANETARY	
17.	106-399	4	WASHER (M20, HARDENED)	
18.	107-204	2	SCREW (M20-2.5 X 300mm, 10.9)	
19.	106-665	2	LOCKNUT (M20-2.50, 10.9)	
20.	130-034	1	ROLLER CHAIN ASS'Y #140-2 311P	SEE FOOTNOTE 2.
	130-624	-	CONNECTOR LINK (#140-2, .707")	SEE FOOTNOTE 2.
	130-622	-	EXTENDED PIN (#140-2, .707")	SEE FOOTNOTE 2 & 3.
	129-021	1	ROLLER CHAIN #140-2 311P	INCLUDES 2X 129-023, 2X 179-601
	129-023	-	CONNECTOR LINK (#140-2, .701")	
	179-601	-	EXTD PIN LINK #140-2, .701"	
21.	115-161	1	NIPPLE (08N, 3-1/2")	
22.	107-144	10	SCREW (M16-2.0 X 100mm)	
23.	106-545	10	LOCKNUT (M16-2.00, PRV TRQ, 10.9)	
24.	350-932	2	BOTTOM SLIDE BAR	
25.	350-931	2	THICK SLIDE SPACER	

NOT SHOWN:

FOOTNOTES:

NOTE:

CARRIAGE

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
26.	350-933	2	SLIDE SHIM	
27.	310-192	1	LEFT SLIDE BAR	
	310-193	1	RIGHT SLIDE BAR	
28.	106-398	14	WASHER (M16, HARDENED)	
29.	211-069	1	HOSE CARRIER	INCL REF NO. 30, SEE FOOTNOTE 1 & 5.
	306-620	AR	REPAIR SECTION (5.00"W X 20"L)	
	308-831	AR	EASY-OUT BAR (1/2" X 5")	
	308-832	AR	ALUMINUM BAR (1/2" X 5")	
	308-833	AR	5" ALUMINUM FLAT BAR	
	308-834	AR	WINDOW EXTENDER	
	307-337	AR	BRACKET (LEFT)	
	307-338	AR	L1 BRACKET (RIGHT)	
30.	250-017	-	HOSE BAG	SEE FOOTNOTE 1 & 5.
31.	105-249	4	CARRIAGE BOLT (3/8-NC X 1-1/4")	
32.	105-047	8	LOCKNUT (3/8-NC)	
33.	514-106	1	CAP (08NF)	
34.	157-084	1	O-RING (159 D70)	
35.	354-515	2	TOP SLIDE BAR	
36.	354-509	2	THIN SLIDE SPACER	
37.	153-208	1	WATER SWIVEL (24N-24NF)	
	191-126		SWIVEL REPAIR KIT	
38.	106-390	2	WASHER (M10)	
39.	106-666	12	SCREW (M16-2.00 X 65MM, 10.9)	USE 277 LOCTITE, TORQUE TO 225 LB-FT.
40.	105-600	4	CARRIAGE BOLT (3/8-NC X 1")	
41.	130-623	2	CHAIN ANCHOR (#140-2, .707")	

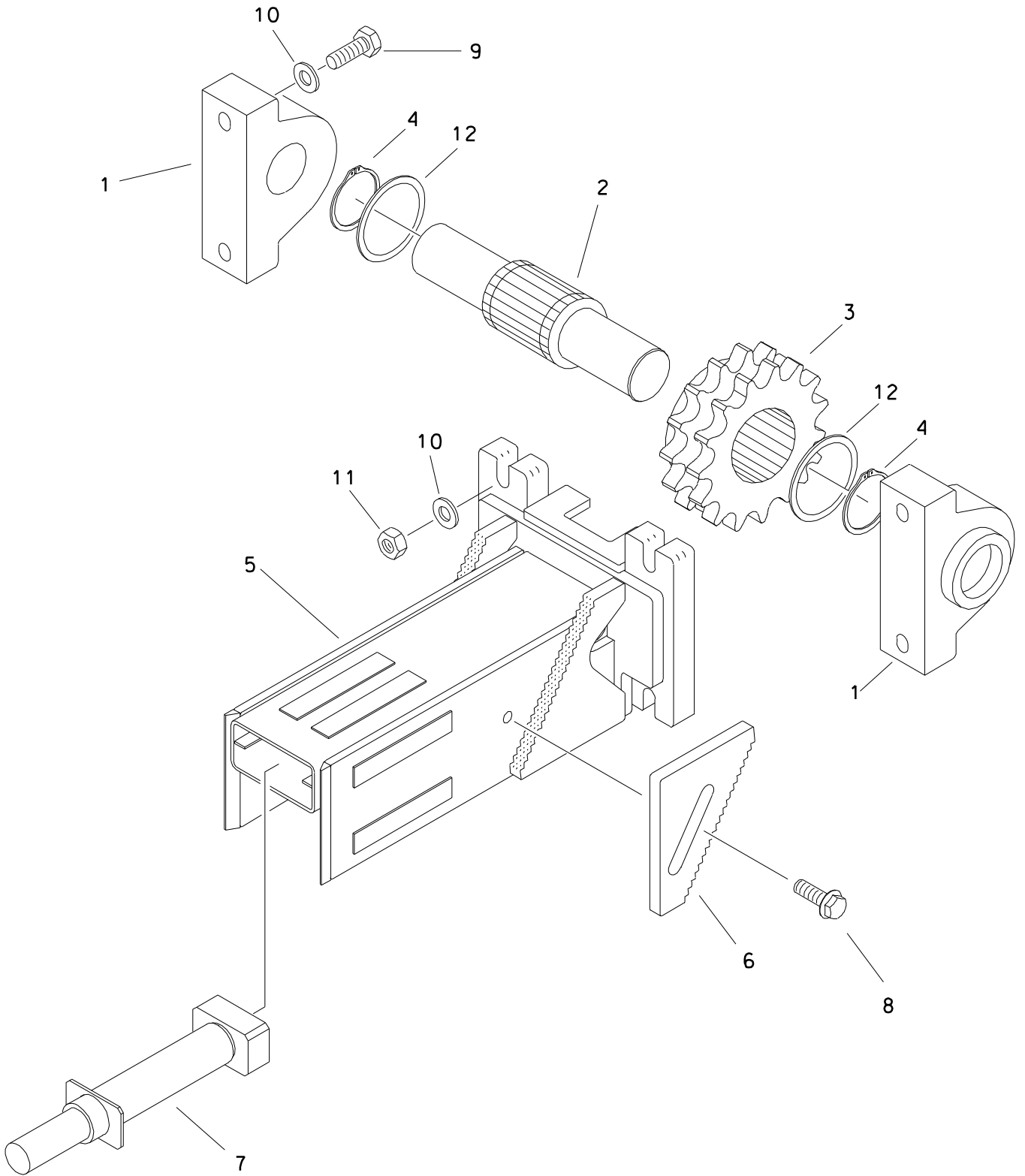
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FOOTNOTES:

- EXCEPT ON THE FOLLOWING MACHINES, INSTALL HOSE TRACK SO THAT THE POINT ATTACHING TO THE CARRIAGE IS THE END WITH EXTENDER BAR NEAREST THE END. ON MACHINES WITH SERIAL NUMBERS 2V0479 THRU 2V0686 & 2V0688 SWAP THE HOSE BAG (250-017) END FOR END INSIDE THE HOSE TRACK THEN SWAP THE HOSE TRACK END FOR END WHEN INSTALLING ON THE CARRIAGE AND DRILL FRAME.
- ROLLER CHAIN ASSY (130-034) COMES WITH 2 CHAIN ANCHORS, 2 CONNECTOR LINKS, & 2 EXTENDED PINS (INSTALLED). THE END THE EXTENDED PIN IS CLOSEST TO WILL ATTACH TO THE FRONT OF THE CARRIAGE. ONE CHAIN ANCHOR (130-623) IS ATTACHED TO CHAIN, SECOND CHAIN ANCHOR IS SHIPPED LOOSE TO ALLOW CHAIN TO BE INSTALLED THROUGH DRILL FRAME TUBE. WHEN INSTALLING SECOND CHAIN ANCHOR, INSTALL CONNECTOR LINK (130-624) OPPOSITE DIRECTION OF CONNECTOR LINK ON OTHER END OF CHAIN TO ALLOW BOLTS (ITEM 18) TO BE INSTALLED EASILY.
- REFER TO SERVICE BULLETIN 052-098 FOR INSTALLATION INSTRUCTIONS
- HOLDS 10.5 PINTS OF MPL, SEE GEAR BOX PAGE FOR SERVICE PARTS.
- INSTALL ELECTRIC CABLE THAT ATTACHES TO ROTATION MOTOR INSIDE ACCESSORY FLAP ON HOSE BAG.

NOTE:

THRUST IDLER



THRUST IDLER

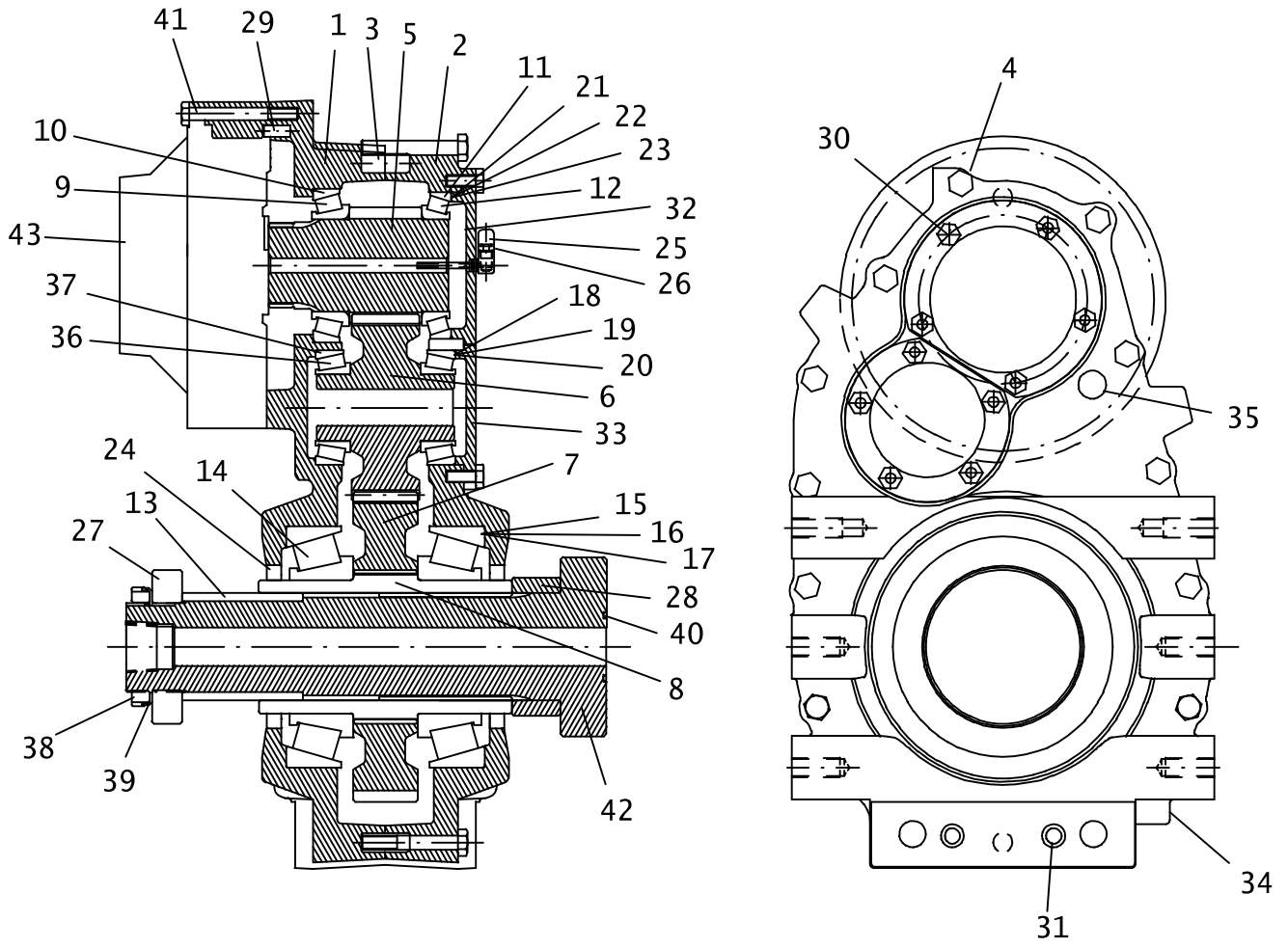
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	125-523	2	PILLOW BLOCK BEARING (2.930")	
	125-558	-	ADAPTER SLEEVE KIT (125-523)	
2.	166-473	1	IDLER SHAFT	BEGINS WITH SN 2W0295; SEE FOOTNOTE 2
	167-319	-	IDLER SHAFT	
	101-133	1	THRUST IDLER KIT	INCL. REF. NO.'S 2 - (166-473), 4 - (115-453) & REF. 12
3.	174-028	1	SPROCKET, THRUST DRIVE, SPLINE	SAME AS THRUST DRIVE
4.	118-044	2	EXTERNAL SNAP RING (4.250")	REQUIRED WITH SHAFT 167-319
	115-453	2	EXTERNAL SNAP RING (4")	BEGINS WITH SN 2W0295; SEE FOOTNOTE 2
5.	308-775	1	THRUST IDLER HOUSING	
6.	308-767	2	ADJUSTMENT PLATE	KEEP BOTH SIDES ON SAME NOTCH WHEN ADJUSTING
7.	151-165	1	GREASE CYLINDER	SEE FOOTNOTE 1
8.	106-470	2	FLG SCREW (M16-2.00 X 40mm)	
9.	106-633	4	BOLT (M20-2.50 X 130mm)	
10.	105-460	8	WASHER (13/16")	
11.	106-665	4	LOCKNUT (M20-2.50, 10.9)	
12.	179-489	2	INPUT SHIM 4.002 X 4.750 X .135	BEGINS WITH SN 2W0295; SEE FOOTNOTE 2

FOOTNOTES

1. WHEN ADJUSTING, RELEASE PRESSURE AFTER POSITIONING ADJUSTMENT PLATES
2. WHEN REPLACING IDLER SHAFT (167-319),
ORDER 101-133 WHICH INCLUDES:

115-453	2	EXTERNAL SNAP RING
166-473	1	IDLER SHAFT
179-489	2	INPUT SHIM 4.002 X 4.750 X .135

ROTATION DRIVE GEARBOX



ROTATION DRIVE GEARBOX

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	166-423		ROTATION DRIVE GEARBOX	INCL REF NO'S 1-12, 14-26, 29-37, 41, & 43.
	197-060		REBUILT ROTATION GEARBOX	INCL REF NO'S 1-12, 14-26, & 29-37. SEE FOOTNOTE 2
1.	169-074	1	COVER	
2.	169-075	1	COVER	
3.	500-818	5	DOWEL PIN (16mm X 40mm)	
4.	106-700	11	SCREW (M12-1.75 X 80mm)	
5.	168-034	1	INPUT PINION	
6.	168-035	1	IDLER GEAR	
7.	168-036	1	OUTPUT GEAR	
8.	167-309	1	OUTPUT SHAFT	
9.	125-308	1	TAPERED BEARING (3")	
10.	125-309	1	TAPERED RACE (5")	
11.	125-359	1	TAPERED RACE (4.781")	
12.	125-360	1	TAPERED BEARING (3")	
13.	184-946	1	SPACER	
14.	125-1009	2	TAPERED BRNG/RACE (110mm)	SEE FOOTNOTE 2
15.	165-810	3	SHIM (.002")	
16.	165-811	3	SHIM (.003")	
17.	165-812	3	SHIM (.007")	
18.	165-842	3	SHIM (.051mm)	
19.	165-843	3	SHIM (.076mm)	
20.	165-844	3	SHIM (.178mm)	
21.	165-869	3	SHIM (.051mm)	
22.	165-868	3	SHIM (.076mm)	
23.	165-870	3	SHIM (.178mm)	
24.	157-631	2	INTERNAL SEAL (4.250")	
25.	159-003	1	AIR VENT (02N)	
26.	514-123	1	PICKUP TUBE (02N-02NF90-2")	
27.	107-104	1	NUT (1-NF)	
28.	171-112	1	SPACER	
29.	105-534	3	DOWEL PIN (.375" X .875")	
30.	105-245	10	SCREW (M10-1.50 X 25mm)	
31.	106-117	2	SCREW (M12-1.75 X 80mm)	
32.	350-828	1	CAP	
33.	350-829	1	CAP	
34.	115-211	1	PLUG (08N, SQ, MAG)	SEE NOT SHOWN
35.	115-167	1	PLUG (12N, SQ)	
36.	126-170	2	TAPERED BEARING (2.250")	
37.	126-171	2	TAPERED RACE (3.740")	
38.	106-531	1	THRUST LOCKNUT (2.937-NS)	
39.	106-532	1	THRUST LOCK WASHER (2.937")	
40.	157-151	1	O-RING (226 D90)	
41.	105-179	12	BOLT (3/8-NC X 3-1/2")	TORQUE TO 40 FT LB
42.	350-768	1	SLIDING OUTPUT SHAFT	USE COMPOUND GREASE 256-666 ON INITIAL INSTALLATION
43.	166-152	1	ROTATION GEARBOX PLANETARY	SEE FOOTNOTE 1

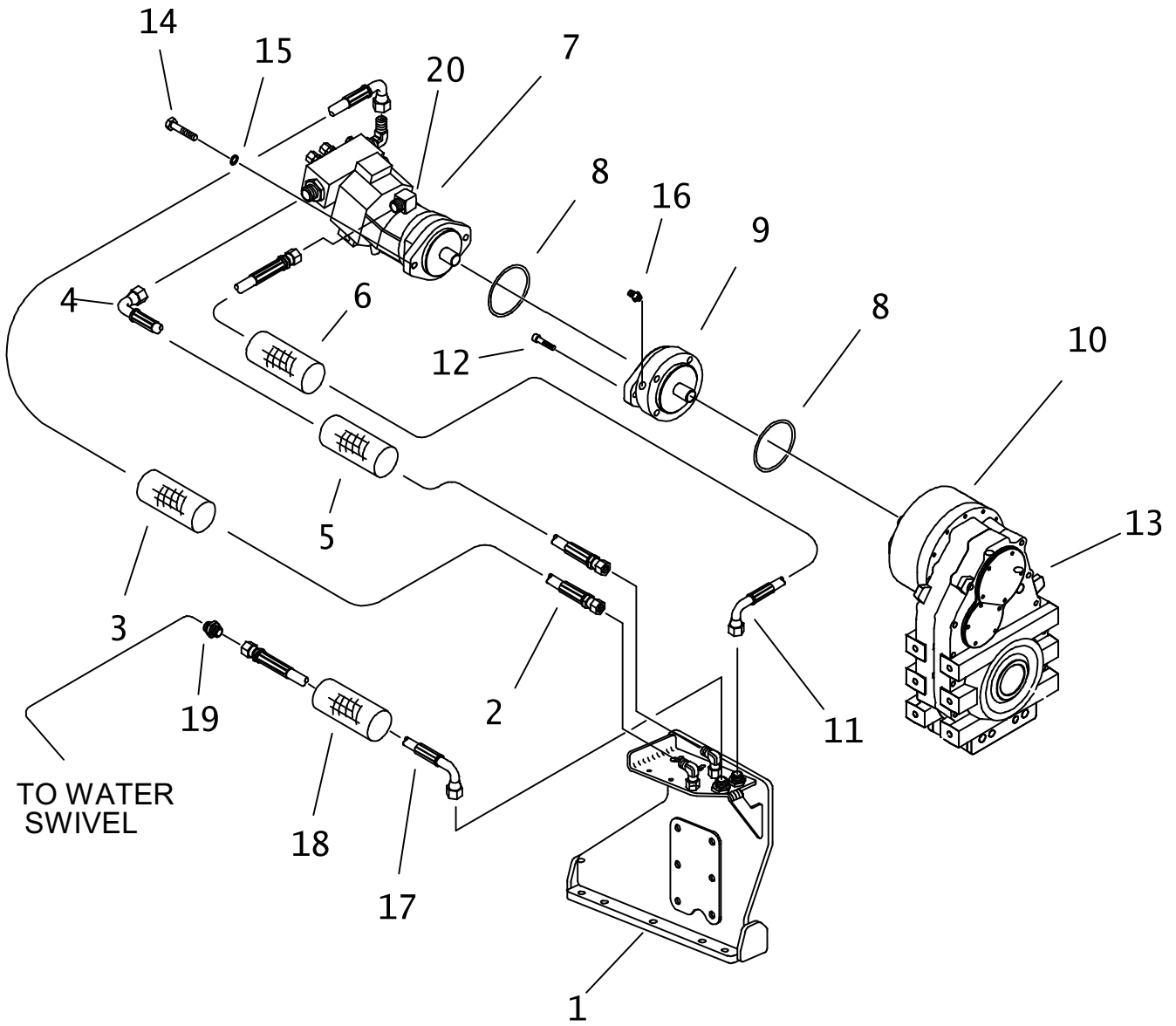
NOT SHOWN:

179-297	1	INPUT SHIM 3.120 X3.687 X.030	ASSEMBLY TOOLS REQUIRED WHEN REBUILDING GEARBOX
179-298	1	INPUT SHIM (4.002 X 4.750 X .030)	ASSEMBLY TOOLS REQUIRED WHEN REBUILDING GEARBOX
514-106	1	CAP (08NF)	USE ONE TO REPLACE ITEM #34
115-161	1	NIPPLE (08N, 3-1/2")	USE ONE TO REPLACE ITEM #34

FOOTNOTES:

- APPLY A 3/16" MIN. BEAD OF LOCTITE SUPERFLEX RED HIGH TEMP RTV (OR EQUIVALENT) ON BOTH SIDES OF PLANETARY. BE SURE THAT DOWELS (ITEM 29) ARE INSTALLED BEFORE ATTACHING PLANETARY
- 126-172 SUPERSEDED BY 125-1009. TIMKEN® 3222M WILL NOT WORK IN THIS APPLICATION.

SPINDLE BRAKE



SPINDLE BRAKE

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	303-431	-	RIGHT CARRIAGE SIDE	REUSE EXISTING SIDEPLATE & FITTINGS
2.	153-435	1	HOSE (160FX90S-44"-6000)	REPLACES 515-732
3.	115-715	-	ABRASION SLEEVE (2.07" X 42")	REUSE EXISTING ABRASION SLEEVE
4.	153-434	1	HOSE (160FX90S-29"-6000)	REPLACES 153-347
5.	117-296	1	ABRASION SLEEVE (2.07" X 30")	REPLACES 115-061
6.	117-678	1	ABRASION SLEEVE (1.75" X 29")	
7.	153-244	-	HYD MOTOR	REUSE EXISTING MOTOR & FITTINGS
8.	157-084	2	O-RING (159 D70)	DISCARD EXISTING O-RING, REPLACE WITH NEW O-RING
9.	160-1099	1	MODULAR BRAKE	SEE FOOTNOTE 1 & 2
	500-1283	-	OIL SEAL	
	191-166	-	O-RING KIT	
	191-167	-	GASKET KIT	
	191-168	-	BEARING KIT	
	191-169	-	STACK SERVICE KIT	
	163-212	-	BLEEDER SCREW, DISC BRAKE	
10.	166-152	-	ROTATION GEARBOX PLANETARY	
11.	149-823	1	HOSE (120FX90L-26"-3000)	REPLACES 156-890 (CASE DRAIN HARDLINE)
12.	107-495	4	BLT (1/2-NC X 4.50", SOC) GD 8	USE 242 LOCTITE
13.	<u>166-148</u>	-	ROTATION DRIVE GEARBOX	REUSE EXISTING GEARBOX
	166-423		ROTATION DRIVE GEARBOX	
14.	105-997	-	BOLT (5/8-NC X 1-3/4", SOC)	REUSE EXISTING BOLTS, USE 242 LOCTITE
15.	106-398	-	WASHER (M16, HARDENED)	REUSE EXISTING WASHERS
16.	154-411	1	CONNECTOR (04S-060)	SEE FOOTNOTE 2
17.	153-433	1	HOSE (200FX90L-66"-3000)	REPLACES 149-088
18.	115-894	-	ABRASION SLEEVE (2.38" X 60")	REUSE EXISTING HOSE SOCK
19.	153-392	-	CONNECTOR (-24N-200)	REUSE EXISTING FITTING
20.	154-338	-	CONNECTOR (12S-12090, XL)	REUSE EXISTING FITTING

NOT SHOWN:

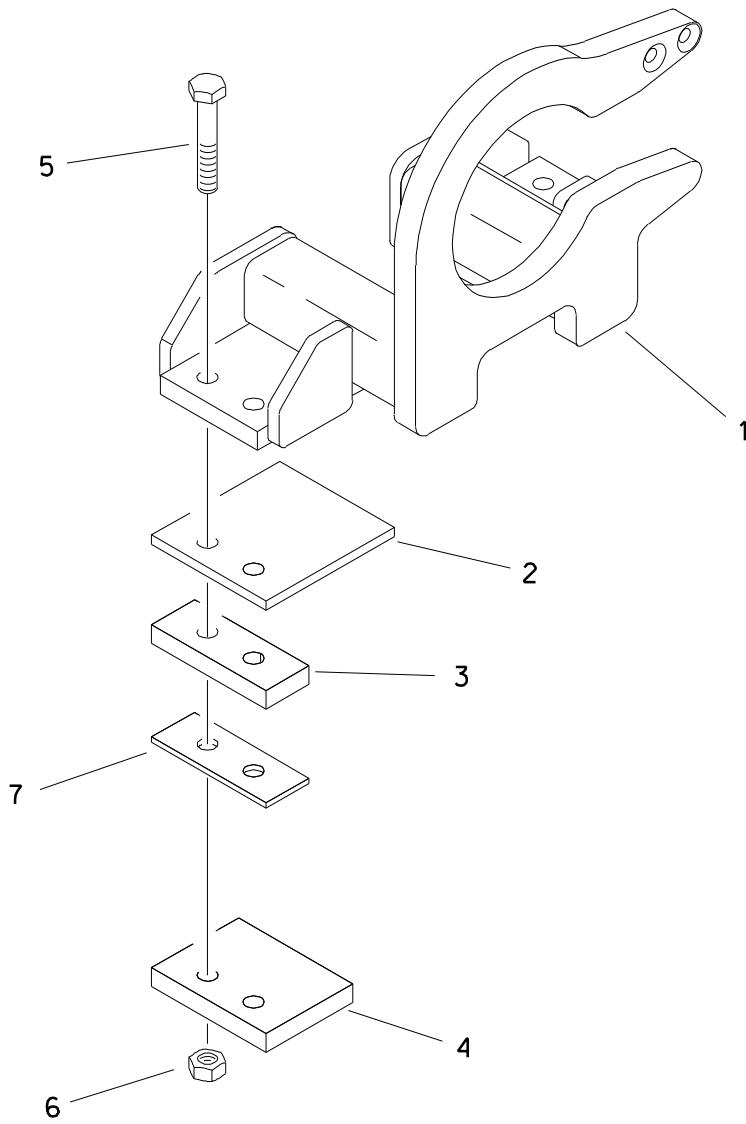
FOOTNOTES:

1. BRAKE IS SHIPPED DRY. BEFORE INSTALLING FILL WITH 5 OZ. OF THF LOCATION OF THE FILLER DRAIN PORT IS APPROXIMATELY MIDWAY BETWEEN FRONT & REAR OF THE BODY.
PUT THE 5 OZ. OF THF IN ONE OF THESE PORTS.
2. LOCATION OF THE PRESSURE/BLEEDER PORTS IS NEARER THE MOTOR MOUNT END OF THE BODY.
ONE OF THESE PORTS WILL HAVE A BLEEDER VALVE IN IT. INSTALL THE CONNECTOR FITTING IN THE OTHER PORT AND POINT TOWARD HOSE TRACK SIDE OF CARRIAGE.

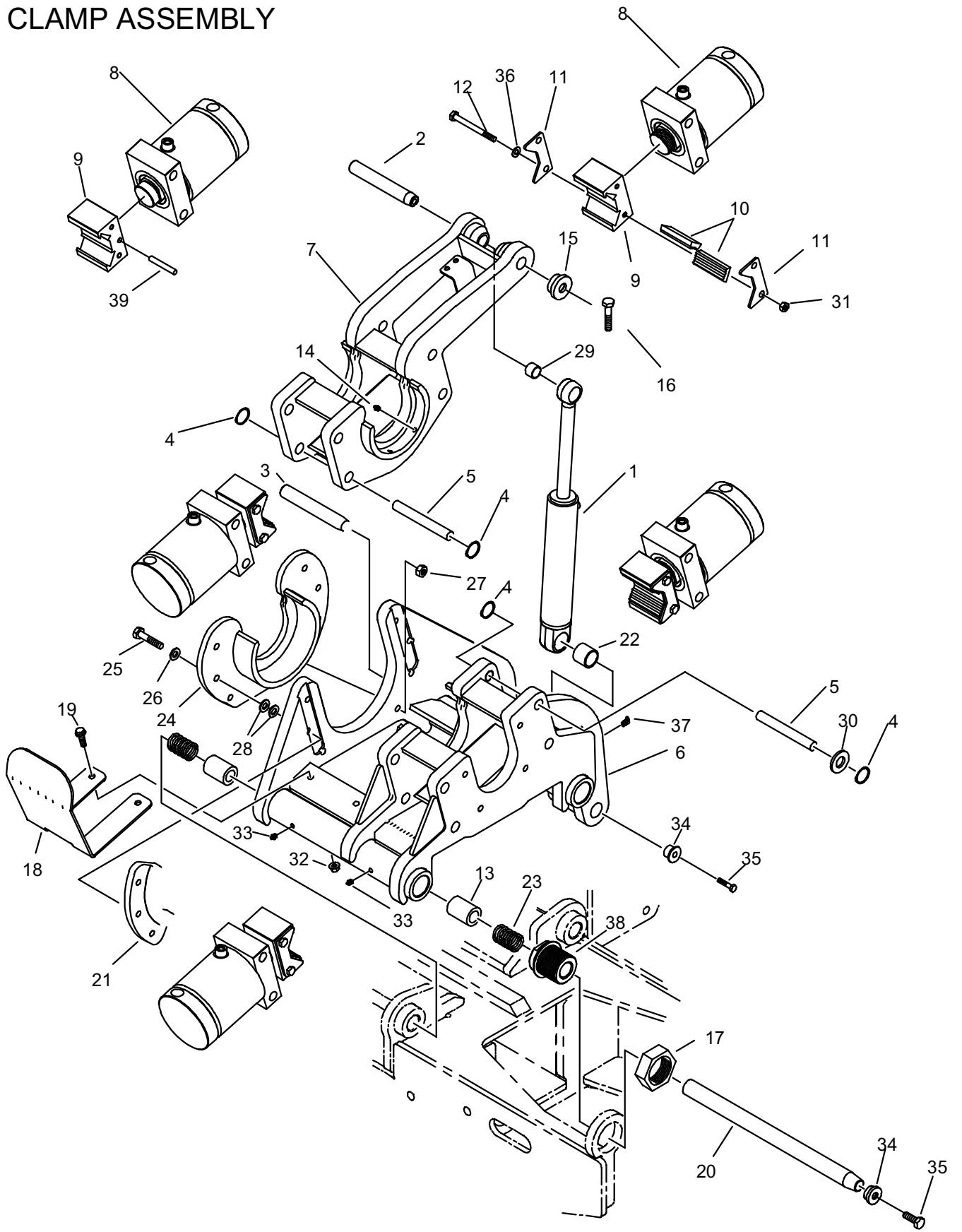
NOTE:

SPINDLE BRAKE KIT (101-081) INCLUDES SOME ITEMS ON THIS PAGE & SOME ITEMS ON SPINDLE BRAKE HYDRAULICS PAGE.

CENTER PIPE SUPPORT



CLAMP ASSEMBLY



CLAMP ASSEMBLY

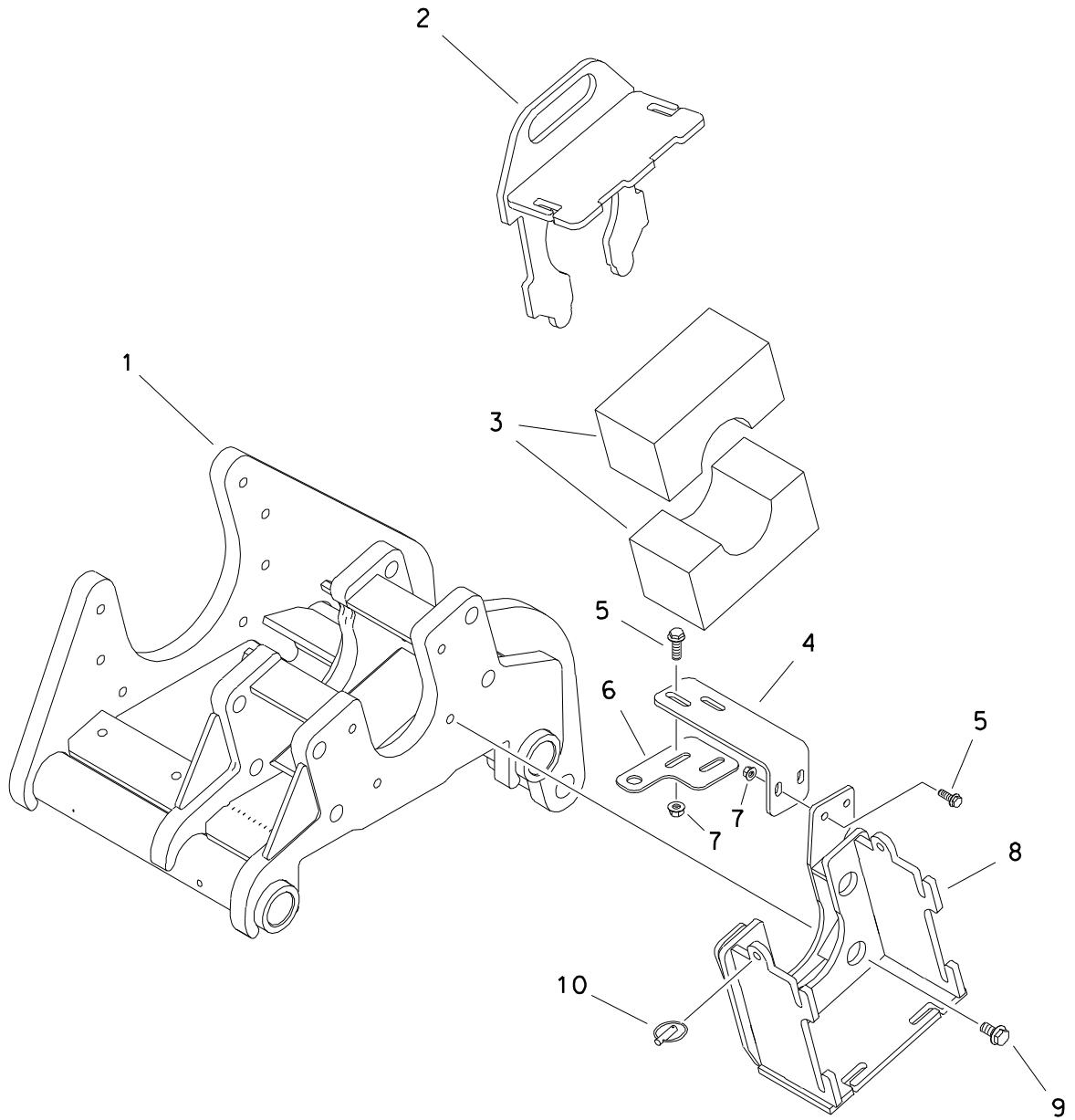
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	151-031	1	CYL (2" X 1" X 8")	
2.	184-789	1	TAPERED PIN (25.4MM X 158.7MM)	
3.	178-075	1	TAPERED PIN (31.7MM X 240MM)	
4.	118-053	16	EXTERNAL SNAP RING (.875")	
5.	105-1133	8	PIN	
6.	303-360	1	STATIONARY CLAMP	
7.	303-624	1	ROTATION CLAMP	
8.	151-206	4	CYL (4.50" X 2.25" X 2.75")	
	151-212	4	CYL (4.50" X 2.25" X 2.75")	USE WITH 300-2458
9.	350-445	4	JAW BLOCK	LOCTITE 242
	300-2458	4	JAW BLOCK	
10.	350-446	8	GRIPPER INSERT	
11.	308-643	8	RETAINER FORGING	
12.	105-022	8	BOLT (3/8-NC X 4")	
13.	178-456	4	BUSHING (1.26 X 1.75 X 1.75)	
14.	115-003	8	ZERK (1/4-NF, STR)	
15.	181-981	1	TAPERED INSERT (1")	
16.	105-245	1	SCREW (M10-1.50 X 25MM)	
17.	105-695	2	NUT (2-3/8-16 UNJ)	LOCTITE 242
18.	310-114	1	PLATE	
19.	106-383	2	FLG LK SCREW (M10-1.50 X 30MM)	
20.	178-317	2	TAPERED PIN (1.250" X 23.750")	
21.	306-783	2	BACKUP PLATE	
22.	125-771	1	COMPOSITION BUSHING (1.25")	
23.	117-123	4	COMPRESSION SPRING	
24.	303-622	1	RETAINER	
25.	106-659	7	SCREW (M12-1.75 X 55MM)	LOCTITE 242
26.	106-397	7	WASHER (M12, HARDENED)	
27.	106-685	1	LOCKNUT (M12-1.75, PRV TRQ, 10.9)	
28.	110-096	AR	MACHINERY BUSHING (1/2")	INSTALL SAME QTY ON EACH SCREW
29.	125-770	1	COMPOSITION BUSHING (1")	
30.	105-318	AR	WASHER (7/8")	INSTALL WASHERS SO THAT SLACK IS REMOVED
31.	105-053	8	NUT (3/8-NC)	LOCTITE 242
32.	106-387	2	FLG LOCKNUT (M10-1.50)	
33.	115-001	3	ZERK (O2N)	
34.	181-982	3	TAPERED INSERT (1.25")	
35.	106-469	3	FLG SCREW (M12-1.75 X 30MM)	
36.	105-118	8	WASHER (3/8")	
37.	115-017	1	ZERK (O2N65)	
38.	178-283	2	BOSS	
39.	107-777	4	SPIRAL SPRING PIN (.375" X 3.00")	USE WITH 300-2458

NOT SHOWN:

FOOTNOTES:

NOTE:

WRENCH PIPE GUIDE

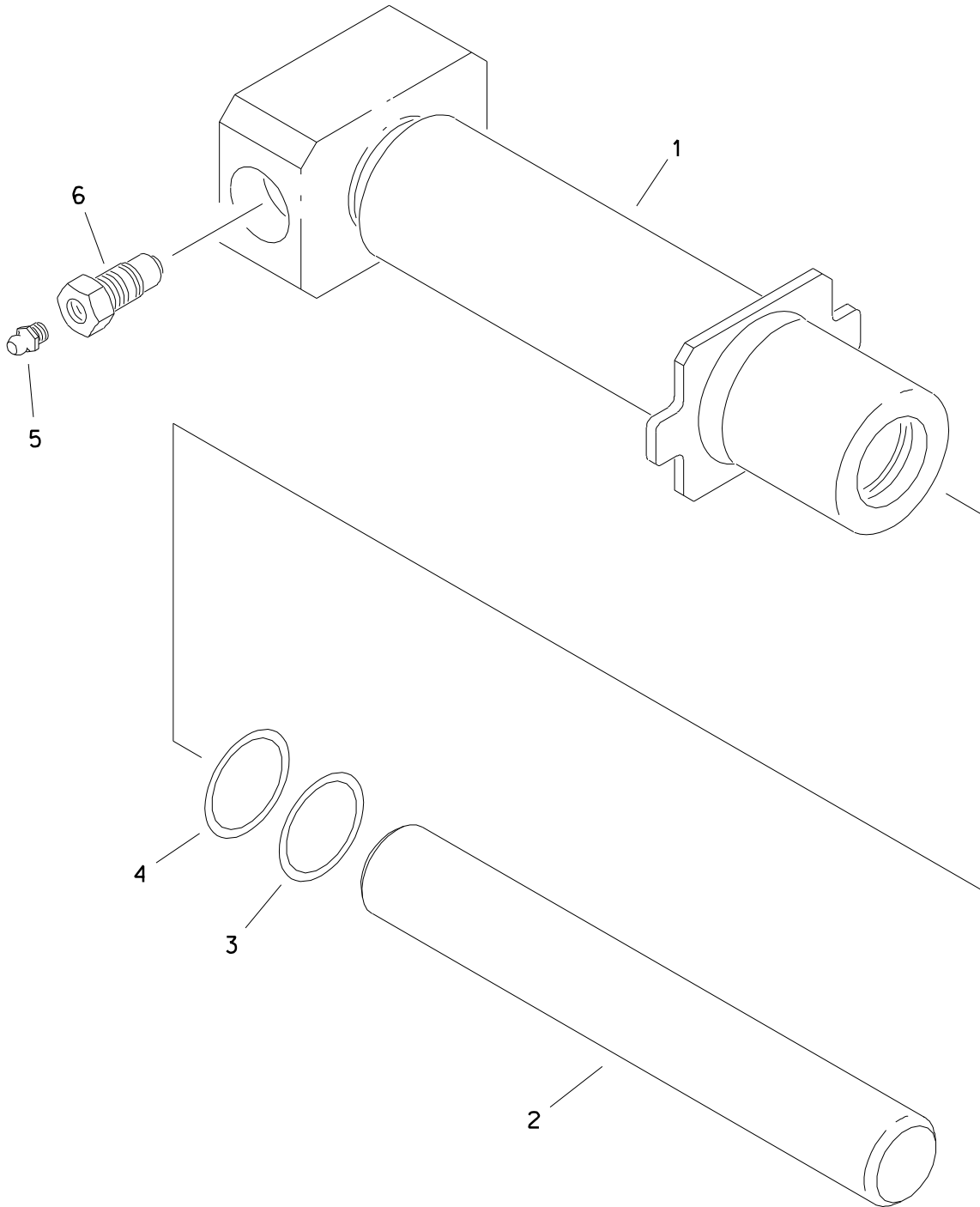


WRENCH PIPE GUIDE

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	303-360	-	STATIONARY CLAMP	
2.	314-387	1	BLOCK RETAINER	
3.	314-360	2	GUIDE BLOCK (3.50)	
4.	305-950	1	BRACKET, SPRAY	
5.	106-724	4	FLG SCREW (M10-1.50 X 25MM)	
6.	305-951	1	BRACKET, SPRAY	
7.	106-387	4	FLG LOCKNUT (M10-1.50)	
8.	310-454	1	WRENCH GUIDE FRAME	
9.	106-806	4	FLG LK SCREW (M12-1.75 X 25MM)	
10.	110-228	2	LYNCH PIN (7/16" X 2")	

FOOTNOTES

GREASE CYLINDER



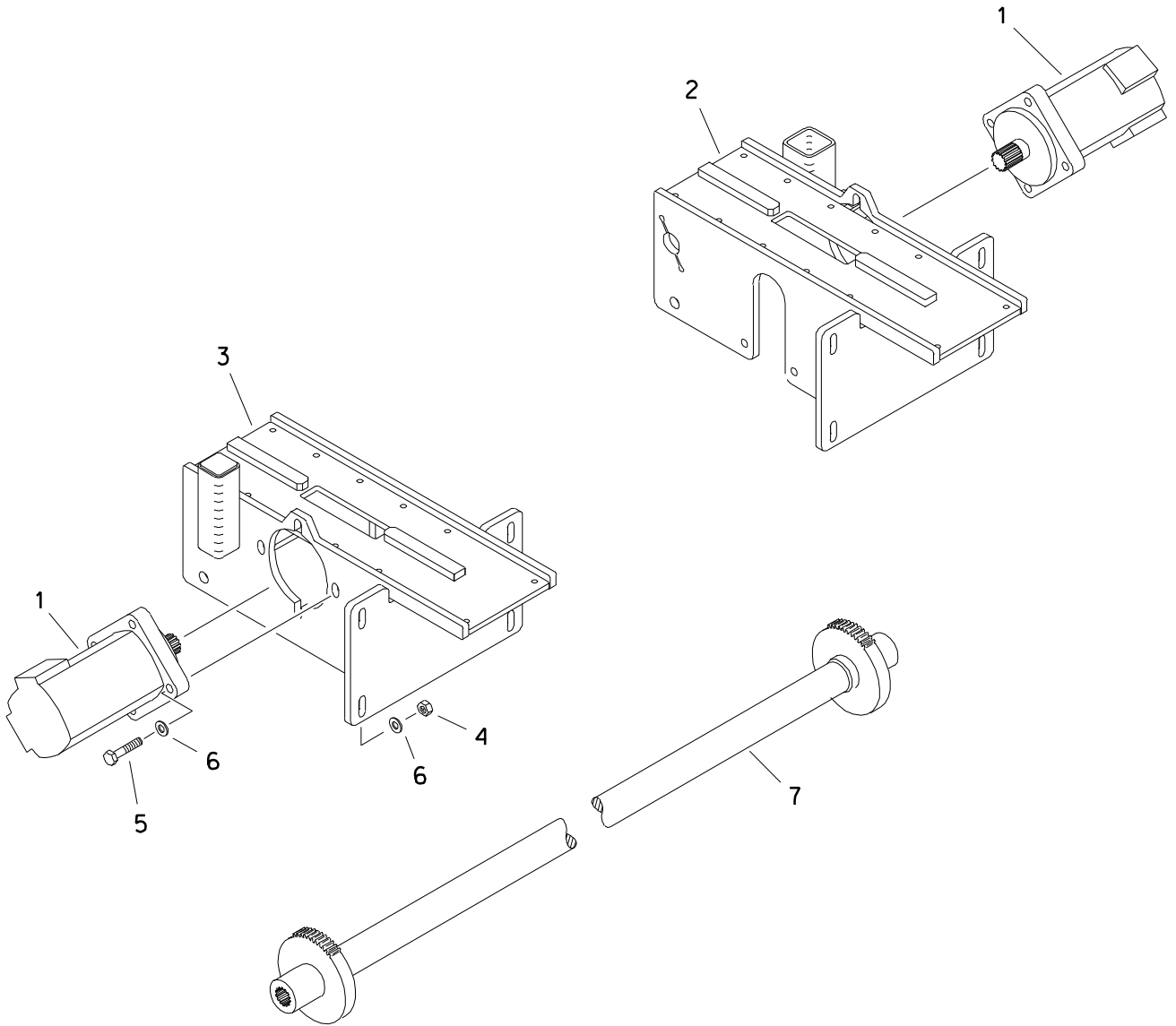
GREASE CYLINDER

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	151-165		GREASE CYLINDER	INCL REF NO'S 1 - 6
1.	353-404	1	GREASE CYLINDER	
2.	153-534	1	GREASE 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

PIPE LOADER SYSTEMS

PIPE LOADER SHUTTLE DRIVE

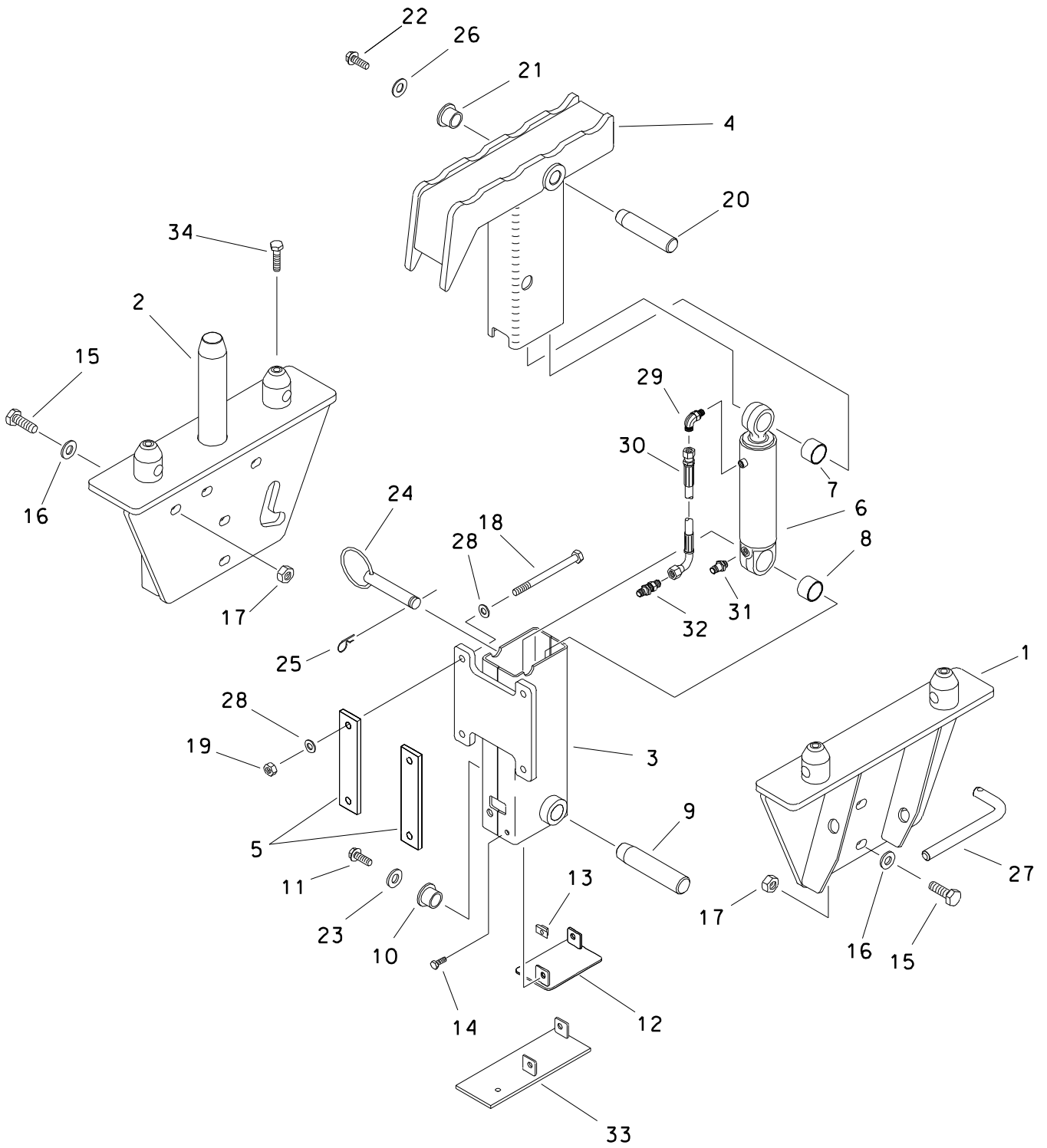


PIPE LOADER SHUTTLE DRIVE

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	158-026	2	HYDRAULIC MOTOR (15 CU/IN)	
2.	307-591	-	FRONT SHUTTLE SUPPORT	
3.	307-592	-	REAR SHUTTLE SUPPORT	
4.	106-685	8	LOCKNUT (M12-1.75, PRV TR0, 10.9)	
5.	106-594	8	SCREW (M12-1.75 X 60MM)	
6.	106-397	16	WASHER (M12, HARDENED)	
7.	307-589	1	PINION SHAFT	

FOOTNOTES

PIPE LOADER LIFTERS

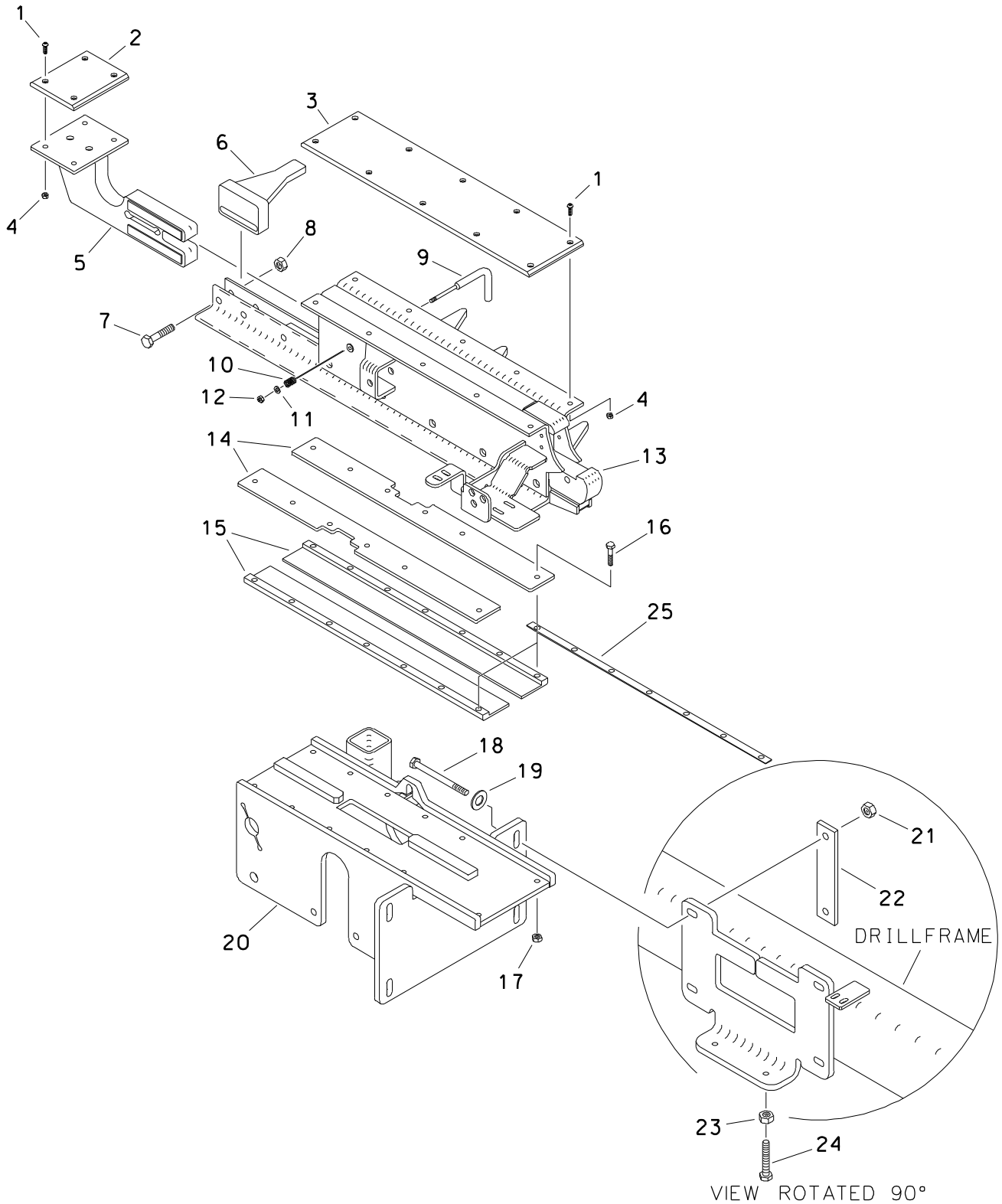


PIPE LOADER LIFTERS

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	308-088	1	FRONT BOX SUPPORT	
2.	308-089	1	REAR BOX SUPPORT	
3.	354-336	2	LIFTER OUTER TUBE	
4.	307-881	2	PIPE LIFTER	
5.	354-338	4	MOUNT PLATE	
6.	151-031	2	CYL (2.0" X 1.00" X 8.000")	
7.	125-770	2	COMPOSITION BUSHING (1")	
8.	125-771	2	COMPOSITION BUSHING (1.25")	
9.	183-863	2	TAPERED PIN (31.7MM X 128MM)	
10.	181-982	2	TAPERED INSERT (1.25")	
11.	105-273	2	SCREW (M12-1.75 X 30mm)	
12.	356-297	1	STABILIZER CAP	
13.	106-551	4	CLIP NUT (M8-1.25)	
14.	106-991	4	FLG LK SCREW (M8-1.25 X 20mm)	
15.	106-340	10	SCREW (M16-2.00 X 50mm)	
16.	106-398	10	WASHER (M16, HARDENED)	
17.	106-442	10	FLG LOCKNUT (M16-2.00, PRV TRQ)	
18.	106-620	8	SCREW (M12-1.75 X 150mm)	
19.	106-685	8	LOCKNUT (M12-1.75, PRV TRQ, 10.9)	
20.	179-024	2	TAPERED PIN (25.4MM X 117MM)	
21.	181-981	2	TAPERED INSERT (1.00")	
22.	105-245	2	SCREW (M10-1.50 X 25mm)	
23.	106-397	2	WASHER (M12, HARDENED)	
24.	180-559	2	PULL PIN (1" X 4.625")	
25.	110-128	2	SPRING CLIP PIN (5/32" X 1")	
26.	106-396	2	WASHER (M10, HARDENED)	
27.	178-446	2	PIPE ROTATION PIN	
28.	106-391	16	WASHER (M12)	
29.	154-252	-	CONNECTOR (04S-04090)	
30.	515-179	-	HOSE (040FX90-11"-3000)	
31.	154-403	-	CONNECTOR (04S-040, XL)	
32.	154-275	-	BK CONNECTOR (040-040BK)	
33.	306-741	1	CAP	
34.	106-477	4	SCREW (M12-1.75 X 45MM, 10.9)	

FOOTNOTES

FRONT PIPE LOADER SHUTTLE

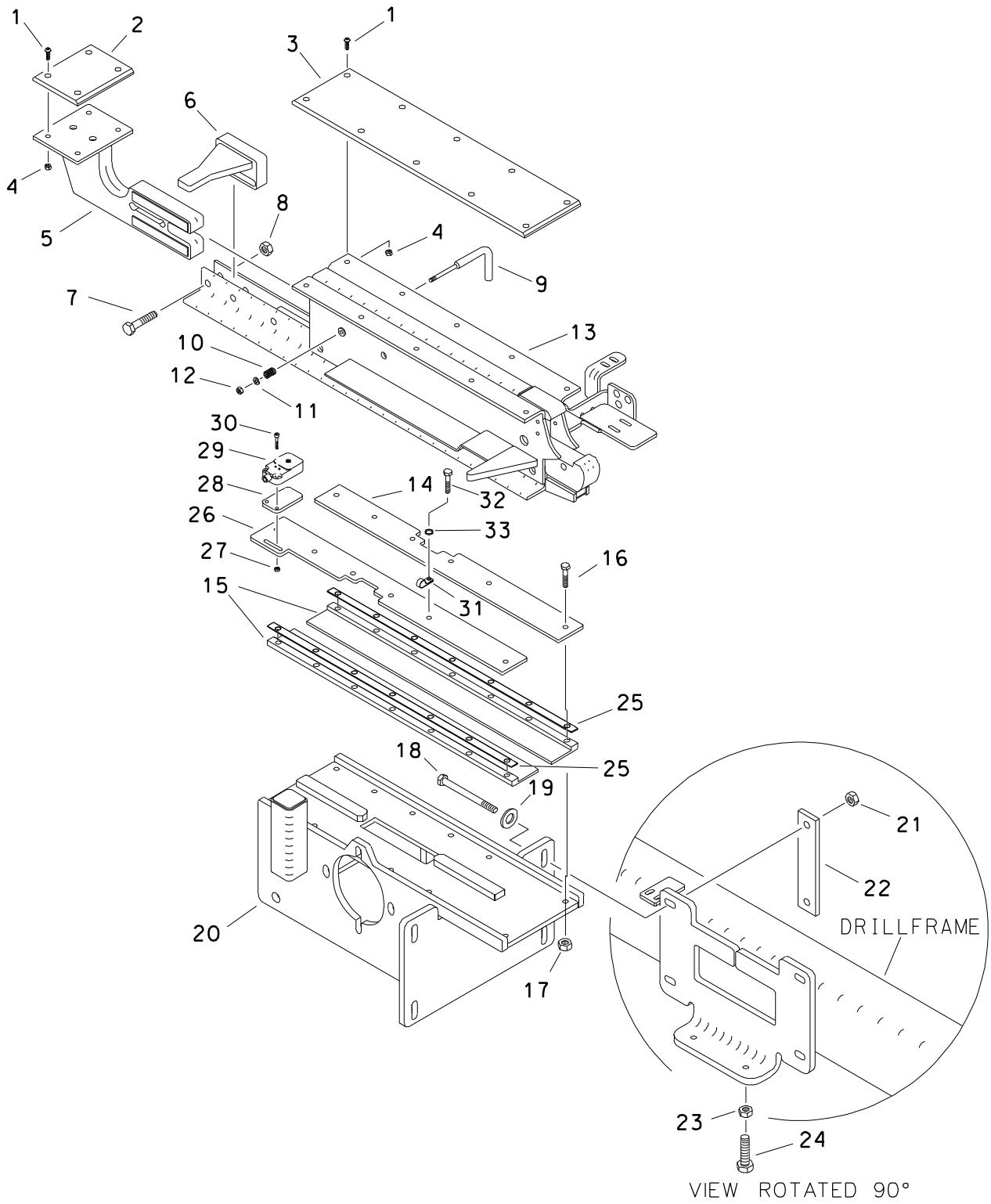


FRONT PIPE LOADER SHUTTLE

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	106-640	14	SCREW (M6-1.00 X 20MM,BUT SOC)	
2.	307-623	1	PIPE SLIDE BEARING	
3.	307-622	1	PIPE SLIDE BEARING	
4.	106-237	14	LOCKNUT (M6-1.00,PRV TRQ,NLK)	
5.	307-595	1	SINGLE PIPE LOADER	
6.	307-594	1	SHUTTLE STOP	
7.	106-708	2	SCREW (M12-1.75 X 60MM)	
8.	106-685	2	LOCKNUT(M12-1.75,PRV TRQ,10.9)	
9.	178-414	1	SHOULDER PIN	
10.	117-116	1	COMPRESSION SPRING	
11.	105-095	1	WASHER (1/4")	
12.	105-085	1	LOCKNUT (1/4-NC)	
13.	307-590	1	FRONT SHUTTLE	
14.	307-605	2	PLATE	
15.	307-621	2	SHUTTLE SLIDE BEARING	
16.	106-328	12	SCREW (M8-1.25 X 40MM)	
17.	106-561	12	LOCKNUT (M8-1.25,PRV TRQ,10.9)	
18.	107-213	4	SCREW (M12-1.75 X 160MM)	
19.	106-397	4	WASHER (M12, HARDENED)	
20.	307-591	1	FRONT SHUTTLE SUPPORT	
21.	106-685	4	LOCKNUT(M12-1.75,PRV TRQ,10.9)	
22.	354-338	2	MOUNT PLATE	
23.	106-089	2	NUT (M12-1.75, 10.9)	
24.	107-701	2	SCREW (M12-1.75 X 100MM)	
25.	117-539	AR	SHIM	USE ONLY IF PLASTIC IS TOO THIN

FOOTNOTES

REAR PIPE LOADER SHUTTLE

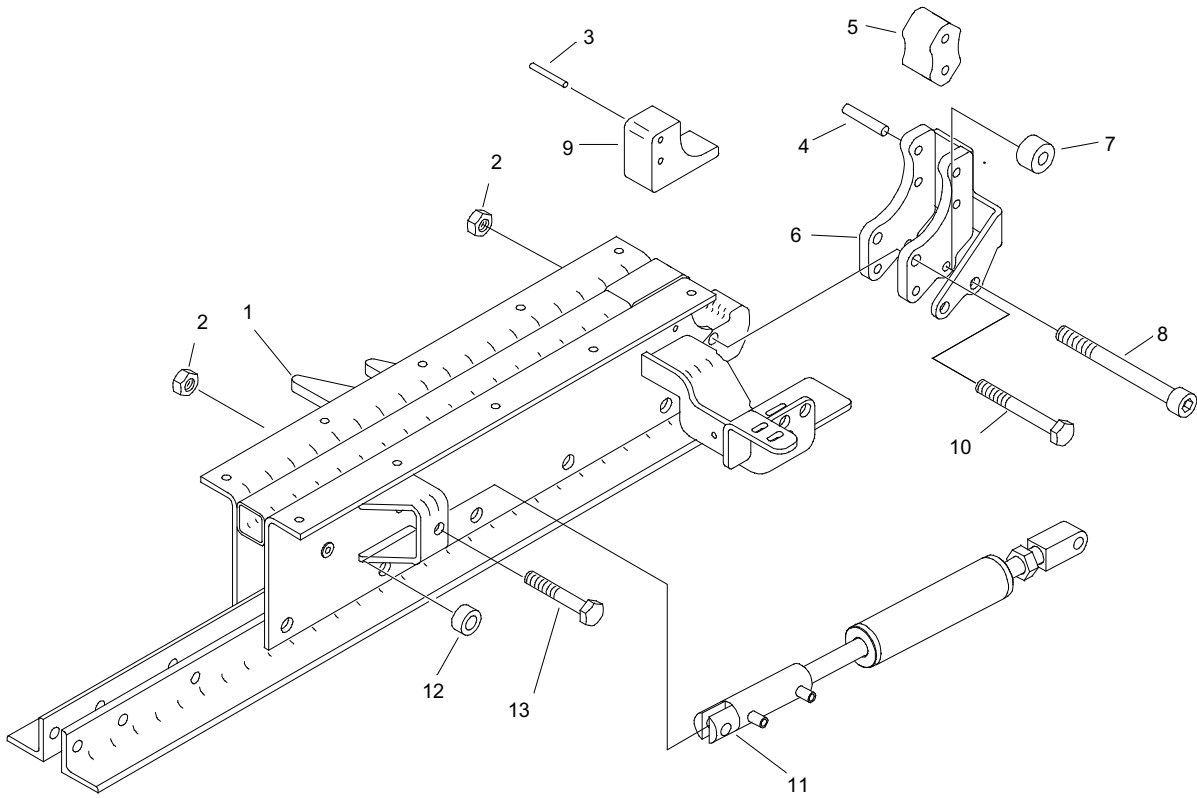


REAR PIPE LOADER SHUTTLE

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	106-640	14	SCREW (M6-1.00 X 20MM, BUT SOC)	
2.	307-623	1	PIPE SLIDE BEARING	
3.	307-622	1	PIPE SLIDE BEARING	
4.	106-237	14	LOCKNUT (M6-1.00,PRV TRQ,NLK)	
5.	307-595	1	SINGLE PIPE LOADER	
6.	307-594	1	SHUTTLE STOP	
7.	106-708	2	SCREW (M12-1.75 X 60MM)	
8.	106-685	2	LOCKNUT(M12-1.75,PRV TRQ,10.9)	
9.	178-414	1	SHOULDER PIN	
10.	117-116	1	COMPRESSION SPRING	
11.	105-095	1	WASHER (1/4")	
12.	105-085	1	LOCKNUT (1/4-NC)	
13.	307-593	1	REAR SHUTTLE	
14.	307-605	1	PLATE	
15.	307-621	2	SHUTTLE SLIDE BEARING	
16.	106-328	11	SCREW (M8-1.25 X 40MM)	
17.	106-561	12	LOCKNUT (M8-1.25,PRV TRQ,10.9)	
18.	107-213	4	SCREW (M12-1.75 X 160MM)	
19.	106-397	4	WASHER (M12, HARDENED)	
20.	307-592	1	REAR SHUTTLE SUPPORT	
21.	106-685	4	LOCKNUT(M12-1.75,PRV TRQ,10.9)	
22.	354-338	2	MOUNT PLATE	
23.	106-089	2	NUT (M12-1.75, 10.9)	
24.	107-701	2	SCREW (M12-1.75 X 100MM)	
25.	117-539	AR	SHIM	USE ONLY IF PLASTIC IS TOO THIN
26.	307-947	1	PLATE	
27.	106-850	2	LOCKNUT (M5-0.80)	
28.	107-451	AR	SHIM (0.135")	USE ONLY IF GAP IS TOO LARGE
29.	214-692	-	PROXIMITY SWITCH	
30.	107-465	2	SCREW (M5-0.80 X 30MM, SOC)	
31.	110-259	1	BOLT-ON CLAMP (.625")	
32.	106-932	1	SCREW (M8-1.25 X 45MM)	
33.	106-389	1	WASHER (M8)	

FOOTNOTES

PIPE LOADER GRIPPER



PIPE LOADER GRIPPER

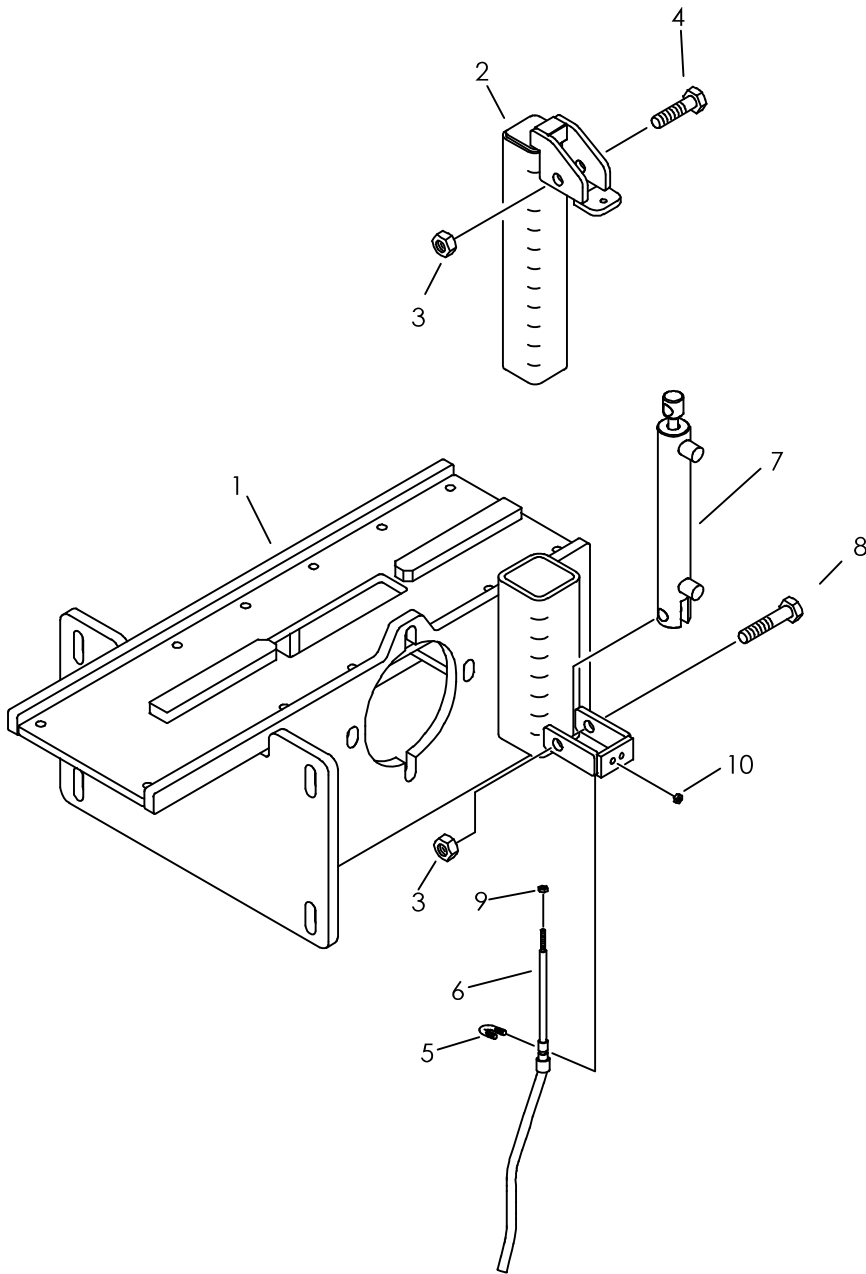
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	307-590	1	FRONT SHUTTLE	
	307-593	1	REAR SHUTTLE	
2.	105-065	2	LOCK NUT (1/2-NC)	
3.	105-503	2	ROLL PIN (1/4" X 2")	
4.	105-555	2	ROLL PIN (3/8" X 2-1/2")	
5.	307-769	1	GRIPPER PLATE	
6.	307-627	1	FRONT GRIPPER	
	307-628	1	REAR GRIPPER	
7.	307-614	1	ROLLER	
8.	107-613	2	SHLD BLT M12 X 40MM, M10-1.50,SP	LOCTITE 277
9.	307-616	1	SHUTTLE PAD	
10.	105-300	1	BOLT (1/2-NC X 3-1/4")	
11.	191-161	1	GRIPPER CYLINDER	
12.	354-354	1	SPACER	
13.	105-472	1	BOLT (1/2-NC X 5")	

NOT SHOWN:

FOOTNOTES:

NOTE:

SHUTTLE STOP



SHUTTLE STOP

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	327-1063	-	FRONT SHUTTLE SUPPORT	SEE FOOTNOTE 1
2.	308-344	1	STOP TUBE WELDMENT	
3.	105-065	2	LOCKNUT (1/2-NC)	
4.	105-002	1	BOLT (1/2-NC X 2-1/4")	
5.	106-630	1	U-BOLT (#10-24 X 5/16")	
6.	196-286	1	CONTROL CABLE	
7.	150-727	1	CYL (1.0" X .500" X 4.0")	
8.	105-067	1	BOLT (1/2-NC X 2-3/4")	
9.	106-138	2	NUT (M5-0.80)	
10.	105-186	2	NUT (#10-24)	

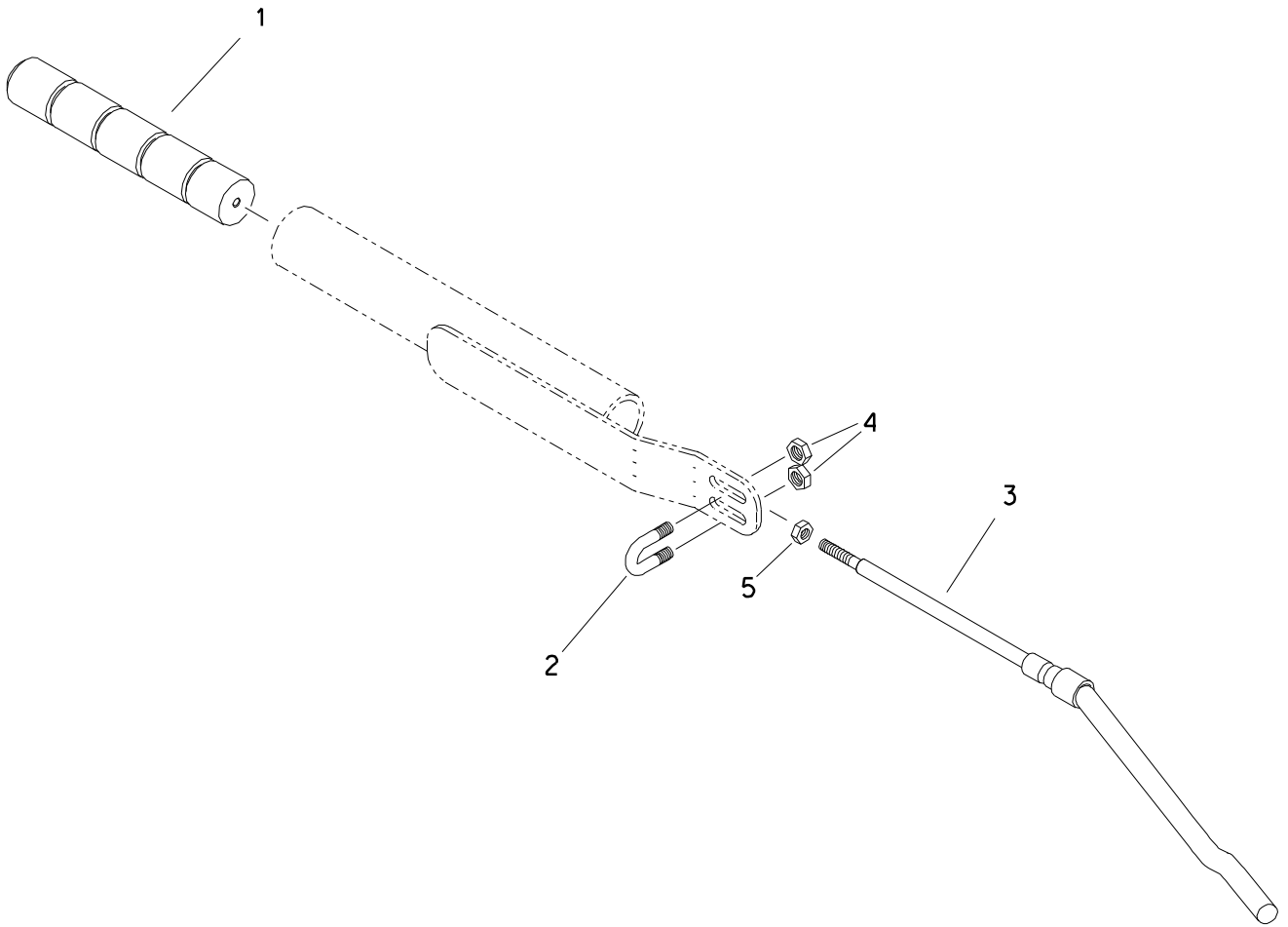
NOT SHOWN:

FOOTNOTES:

1. USE ON 4020 WITH RACK & PINION

NOTE:

SHUTTLE STOP INDICATOR

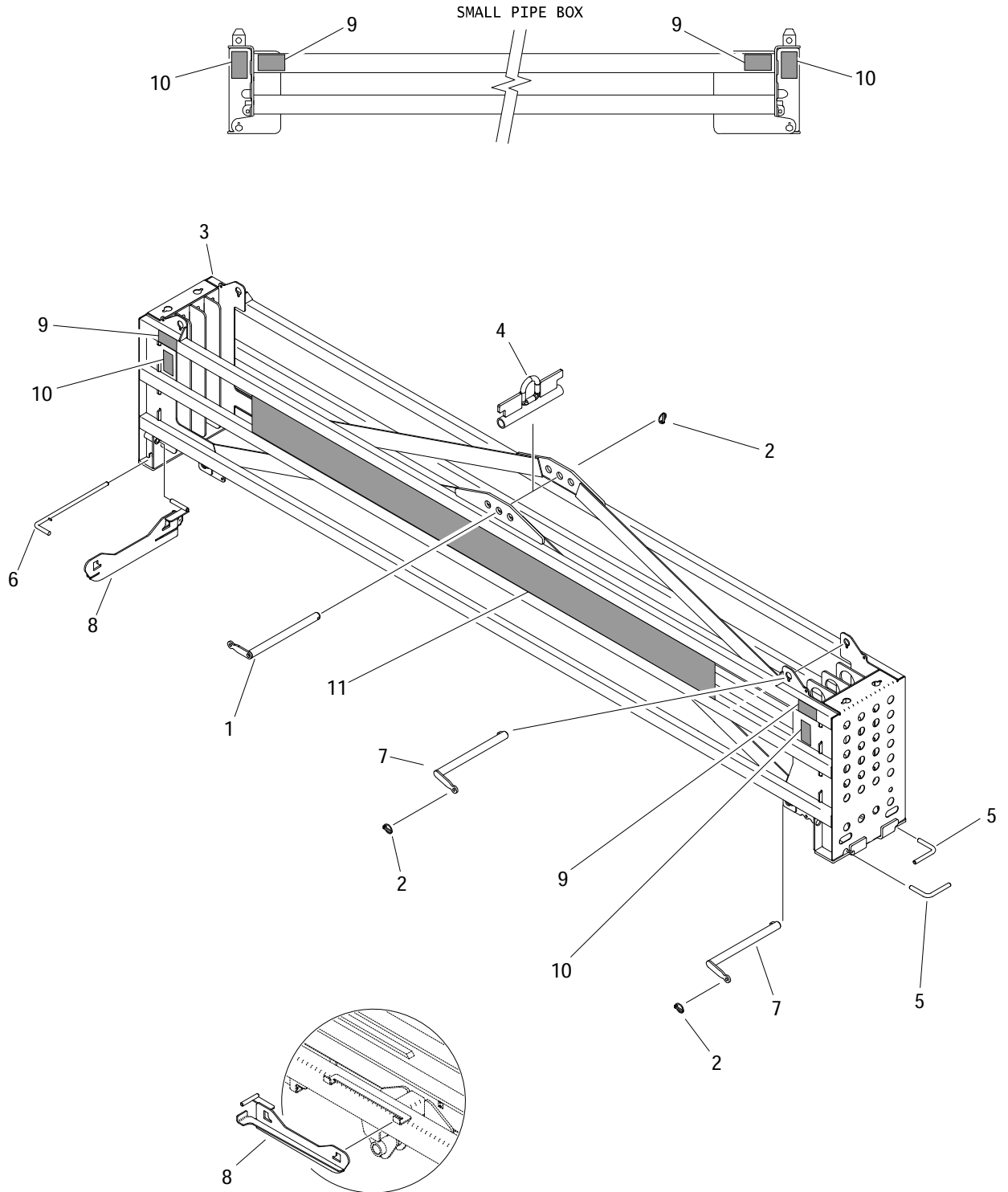


SHUTTLE STOP INDICATOR

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	258-032	1	ROW SELECT INDICATOR	
2.	106-630	1	U-BOLT (#10-24 X 5/16")	
3.	196-286	1	CONTROL CABLE	
4.	105-186	2	NUT (#10-24)	
5.	106-138	1	NUT (M5-0.80)	

FOOTNOTES

PIPE BOX JT42T2 PIPE

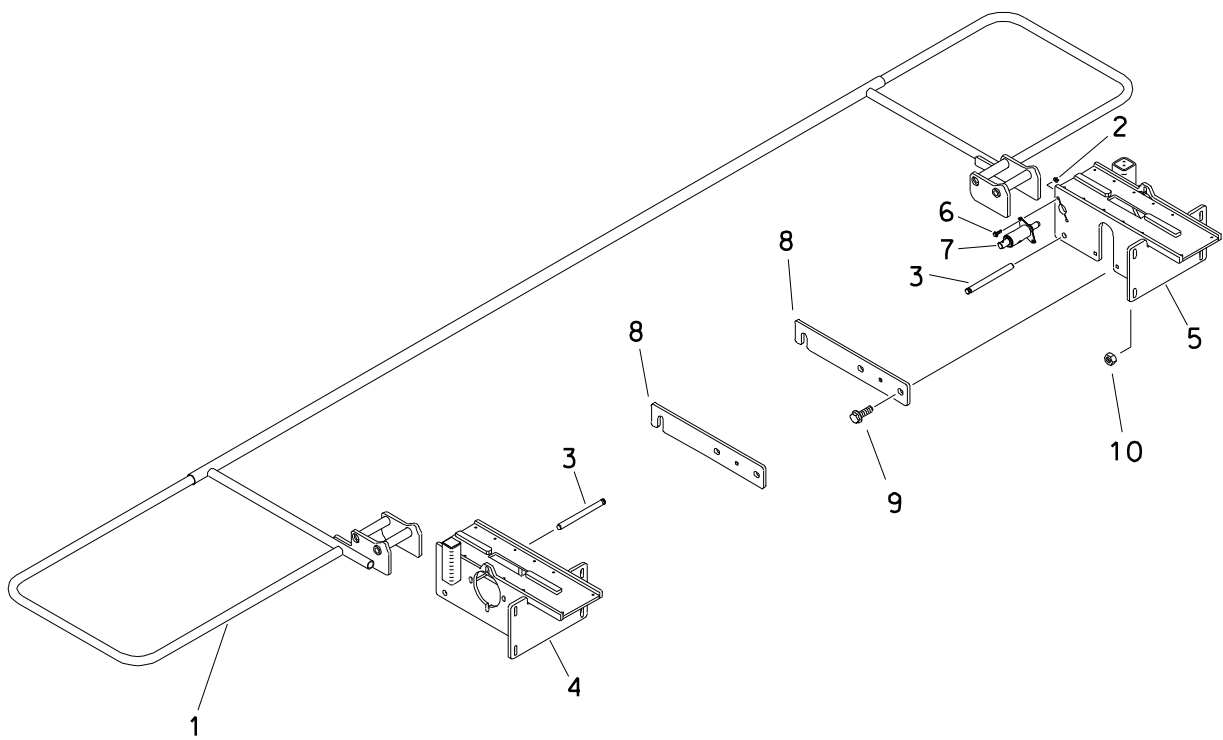


PIPE BOX JT42T2 PIPE

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	310-361		LARGE PIPE BOX	PARTS ASSEMBLY, INCLUDES ITEMS 1-11
	309-912		SMALL PIPE BOX	PARTS ASSEMBLY, INCLUDES ITEMS 1-10
1.	308-084	1	LIFT PIN	
2.	110-228	5	LYNCH PIN (7/16"X2")	
3.	308-082	1	PIPE BOX	PART OF 310-361
	309-709	1	PIPE BOX	PART OF 309-912
4.	308-083	1	LIFT PIN BLOCK	
5.	178-445	2	REAR PIN	
6.	308-091	1	FRONT PIN	
7.	308-086	4	SUPPORT PIN	
8.	308-868	1	SINGLE PIPE GUIDE	
9.	275-326	4	WARNING CRUSHING WEIGHT	USE 701-326 IN ALL FOREIGN KITS
10.	275-184	4	WARNING MOVING PARTS	USE 701-184 IN ALL FOREIGN KITS
11.	273-538	1	MODEL ID W/ LOGOTYPE	

FOOTNOTES

SHUTTLE GUARD

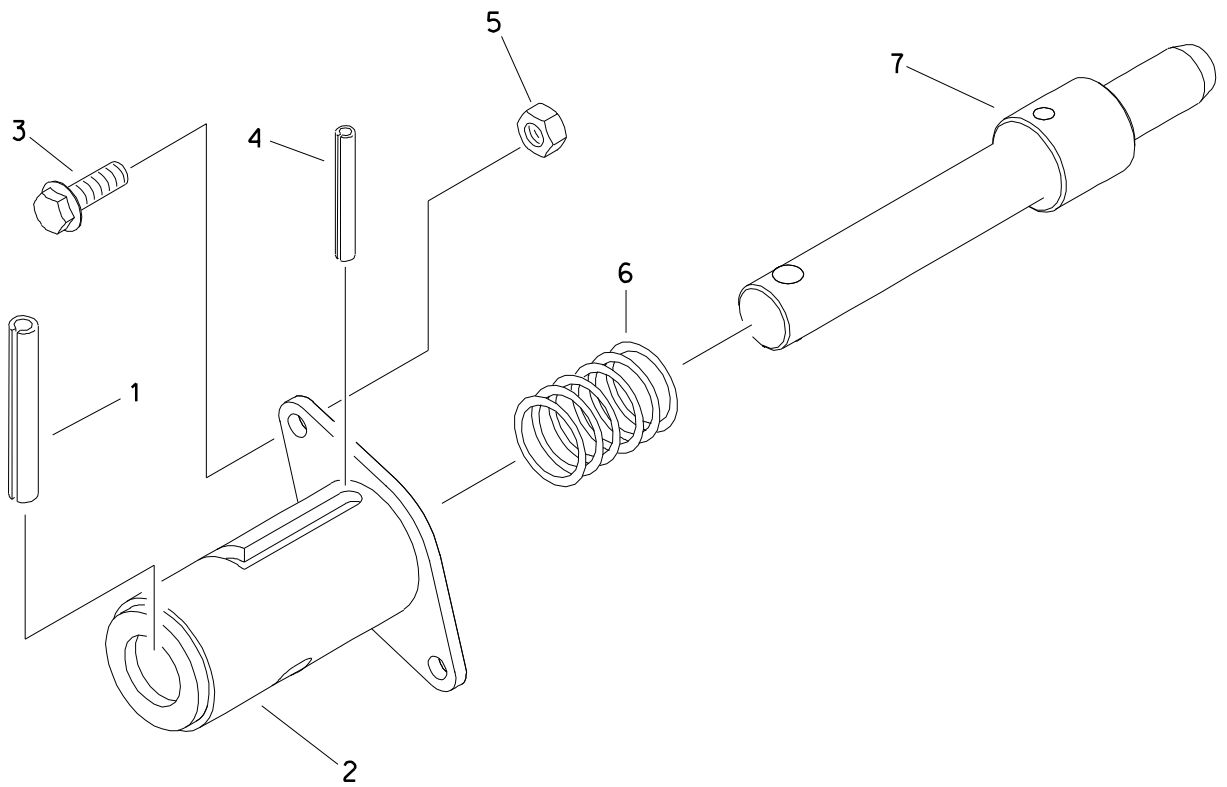


SHUTTLE GUARD

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	308-339	1	SHUTTLE GUARD	
2.	106-561	2	LOCKNUT (M8-1.25,PRV TRQ,10.9)	
3.	178-415	2	PIN	
4.	307-592	1	REAR SHUTTLE SUPPORT	
5.	307-591	1	FRONT SHUTTLE SUPPORT	
6.	106-992	2	FLG LK SCREW (M8-1.25 X 25MM)	
7.	354-571	1	GUARD LOCK PIN	
8.	307-619	2	PIN RETAINER	
9.	106-632	4	FLG LK SCR (M12-1.75X35MM,SER)	
10.	106-685	4	LOCKNUT(M12-1.75,PRV TRQ,10.9)	

FOOTNOTES

GUARD LOCK PIN



GUARD LOCK PIN

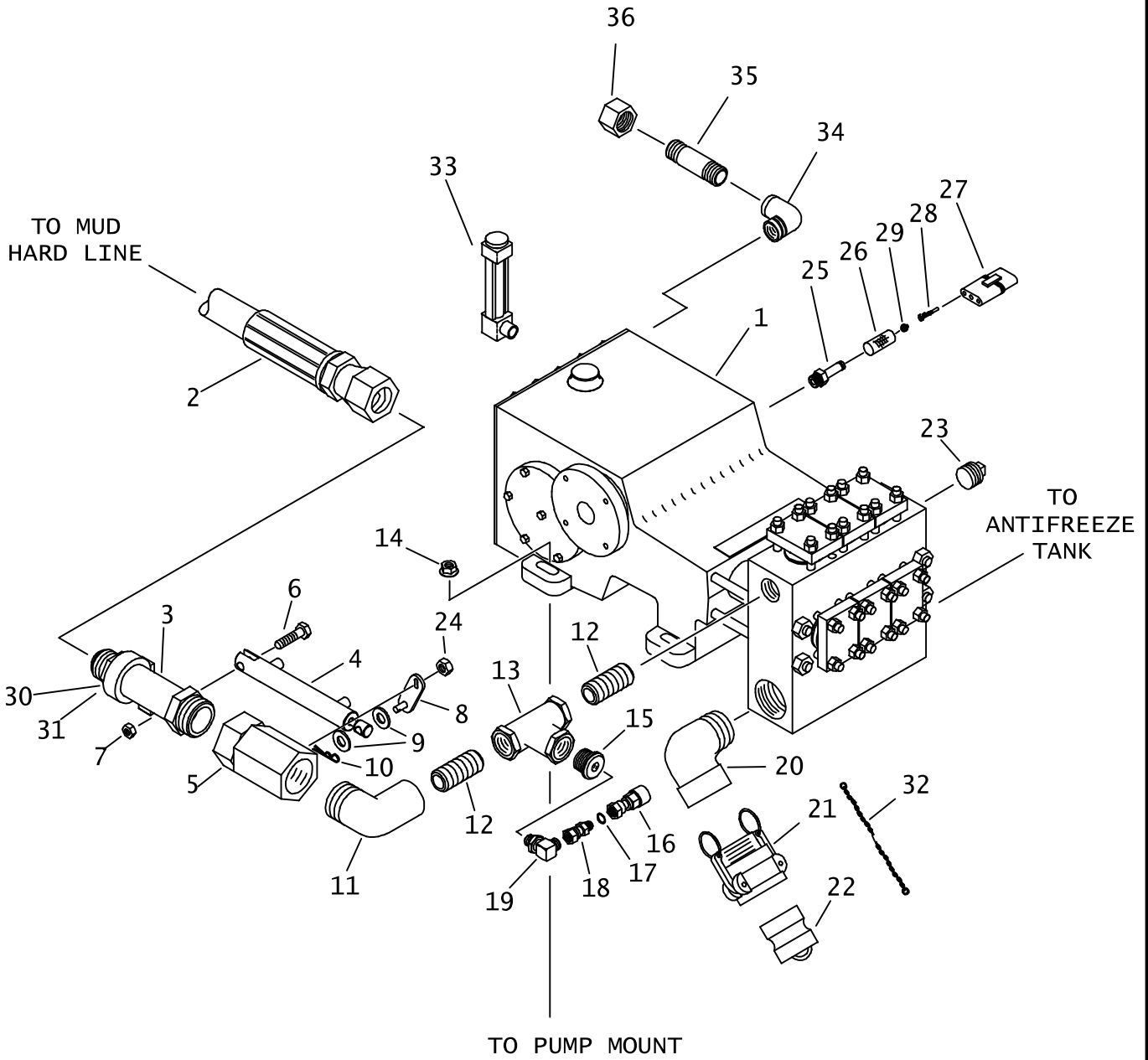
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	354-571		GUARD LOCK PIN	INCL REF NO.'S 1 THRU 7
1.	105-561	1	ROLL PIN (3/8" X 2-3/4")	
2.	354-566	1	PIN HOUSING	
3.	106-992	2	FLG LK SCREW (M8-1.25 X 25mm)	
4.	105-503	1	ROLL PIN (1/4" X 2")	
5.	106-561	2	LOCKNUT (M8-1.25, PRV TRQ, 10.9)	
6.	115-560	1	COMPRESSION SPRING	
7.	178-095	1	LOCKOUT PIN	

FOOTNOTES

FLUID SYSTEMS

MUD PUMP PLUMBING

120 GPM



MUD PUMP PLUMBING

120 GPM

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	149-396	1	MUD PUMP	INCLUDES REF NO. 45
2.	153-390	1	HOSE (24JFX-24OFX-38"-1250)	
3.	149-646	1	CYLINDER MOUNT (32N-24J)	
4.	151-211	1	CYL (1.25" X .50" X 4.00")	
5.	149-1001	1	SHUT-OFF (32NF-32NF)	
	191-069	-	BALL VALVE REPAIR KIT	
6.	106-334	1	SCREW (M12-1.75 X 50MM)	
7.	106-685	1	LOCKNUT(M12-1.75, PRV TRQ, 10.9)	
8.	306-388	1	VALVE ARM	
9.	106-391	2	WASHER (M12)	
10.	105-512	1	COTTER PIN (3/32" Xf")	
11.	115-052	1	ELBOW (32N-32NF90)	
12.	515-680	2	NIPPLE (32N-2")	
13.	153-344	1	TEE (32NF-32NF-32NF)3000PSI	
14.	106-442	4	FLG LOCKNUT (M16-2.00, PRV TRQ)	
15.	115-064	1	REDUCER (32N-12NF)	
16.	159-088	1	QDC BODY (08-08SF)	
17.	155-706	1	O-RING (908 D90)	
18.	156-732	1	CONNECTOR (08J-080)	
19.	154-490	1	CONNECTOR (12N-08090)	
20.	114-017	1	STREET ELBOW (48N-48NF90)	
21.	514-386	1	FHC BODY (3-1/2" FHC X 3"NPT)	
22.	153-255	1	FHC PLUG (-56)	
23.	156-938	1	PLUG (32N)	
24.	106-018	1	JAM NUT (3/8-NF)	
25.	216-047	1	SPEED PICKUP	
26.	216-026	1	FLEX-GUARD (.250")	
27.	215-224	1	3-WAY WP MALE CONNECTOR	
28.	214-104	3	PACKARD MALE TERMINAL	
29.	157-645	3	WEATHER-PAC SEAL (2.80MM)	
30.	178-969	AR	SHIM (.062)	REFER TO SERVICE BULLETIN 052-596 FOR INSTALLATION
31.	178-970	AR	SHIM (.100)	REFER TO SERVICE BULLETIN 052-596 FOR INSTALLATION
32.	313-759	1	LANYARD	
33.	499-557	1	SIGHTGLASS	
34.	115-115	1	STREET ELBOW (08N-08NF90)	
35.	115-164	1	NIPPLE (08N-2")	
36.	514-106	1	CAP (08NF)	

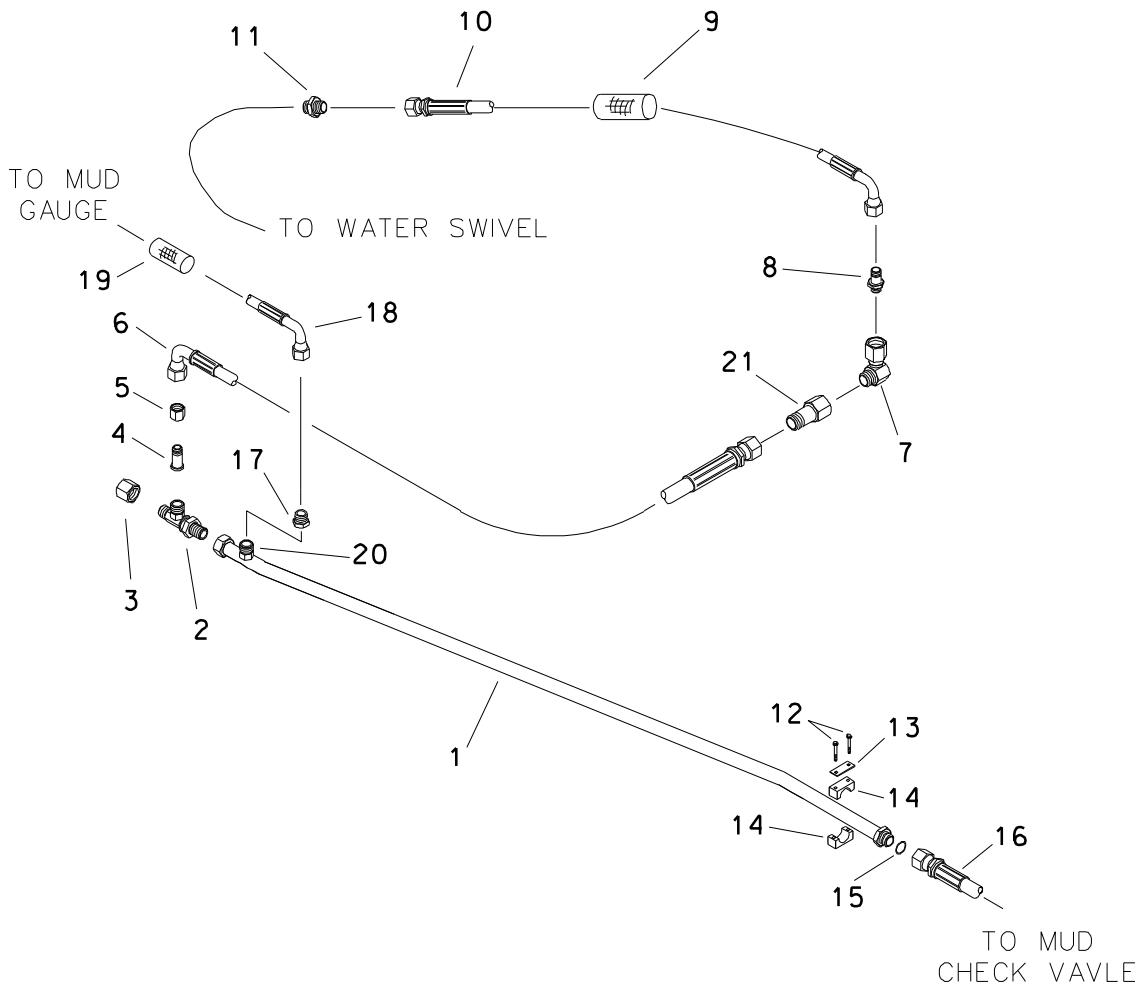
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FOOTNOTES:

NOTE:

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

MUD SYSTEM PLUMBING



MUD SYSTEM PLUMBING

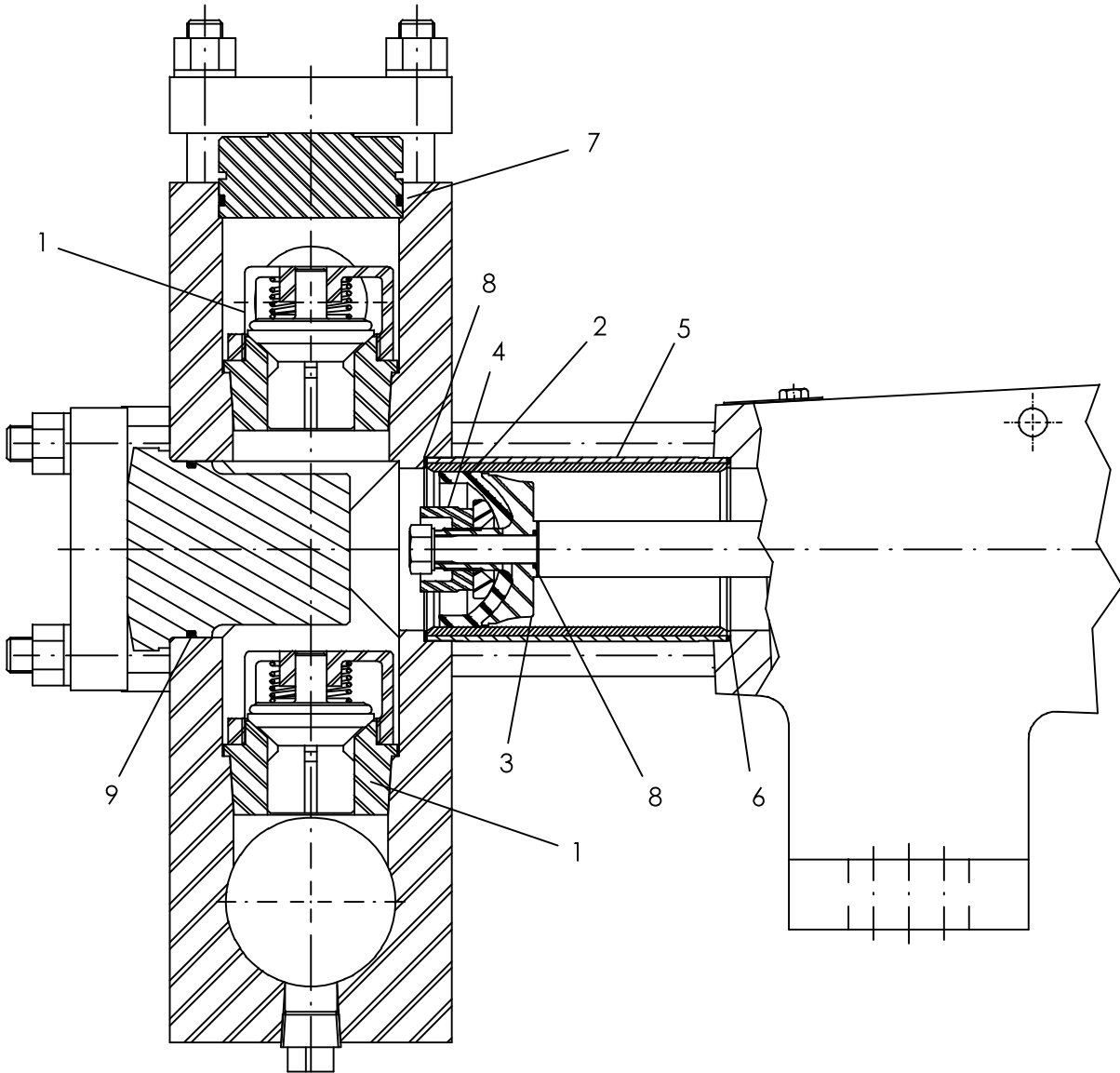
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	156-892	1	HYDRAULIC LINE (-24)	
2.	514-413	1	BK RUN TEE (240-240-240BK)	
3.	149-083	1	CAP (240F)	
4.	149-086	1	REDUCER NUT (240F)	
5.	149-085	1	REDUCER STEM (200)	
6.	116-912	1	HOSE (200FX90S-206"-3000)	
7.	514-422	1	CONNECTOR (200-200FX90)	
8.	514-096	1	BK CONNECTOR (200-200BK)	
9.	115-894	1	ABRASION SLEEVE (2.38" X 60")	
10.	149-088	1	HOSE (200FX90L-60"-3000)	
11.	153-392	1	CONNECTOR (-24N-200)	
12.	105-224	2	BOLT (1/4-NC X 2-1/2")	
13.	322-362	1	BACKUP SPACER	
14.	111-008	1	BLT-ON CLP (1.5",SOLD PER SET)	
15.	157-130	1	O-RING (029 D90)	
16.	153-390	1	HOSE (24JFX-240FX-38"-1250)	
17.	154-373	1	REDUCER (040-060F)	
18.	515-190	1	HOSE (040FX90S-88"-3000)	
19.	117-414	1	ABRASION SLEEVE (1.00" X 88")	
20.	157-038	1	O-RING (012 D90)	
21.	153-699	1	HYD LINE	

FOOTNOTES

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

FLUID PUMP (FLUID END)

120 GPM



FLUID PUMP (FLUID END) 120 GPM

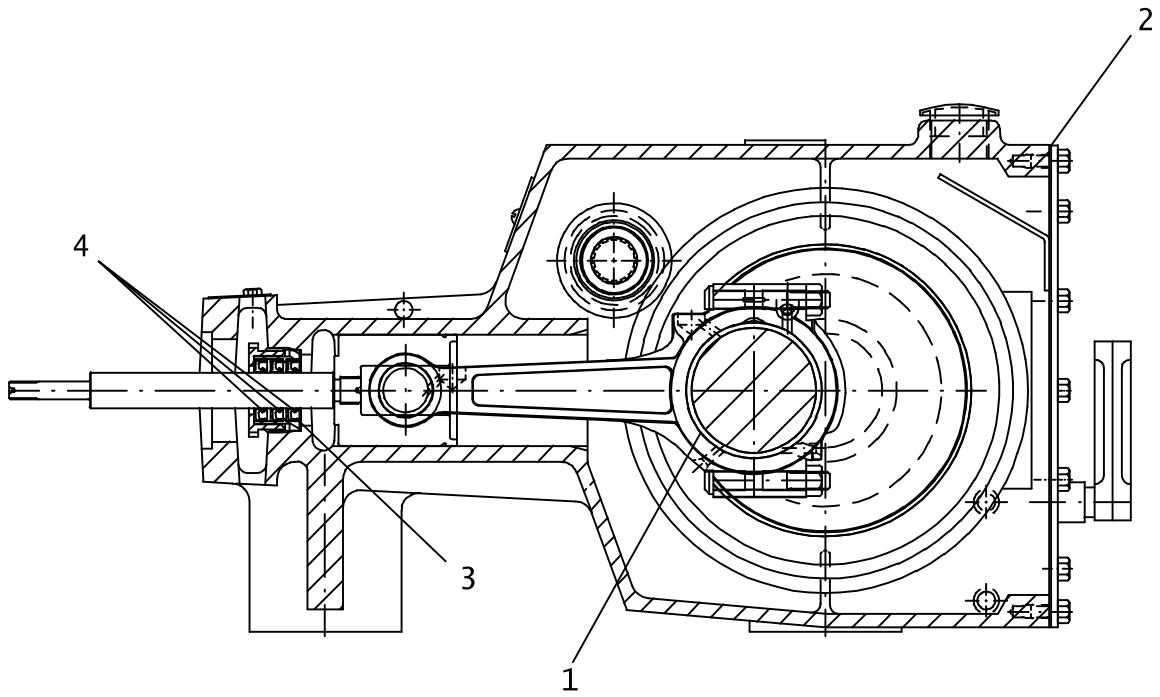
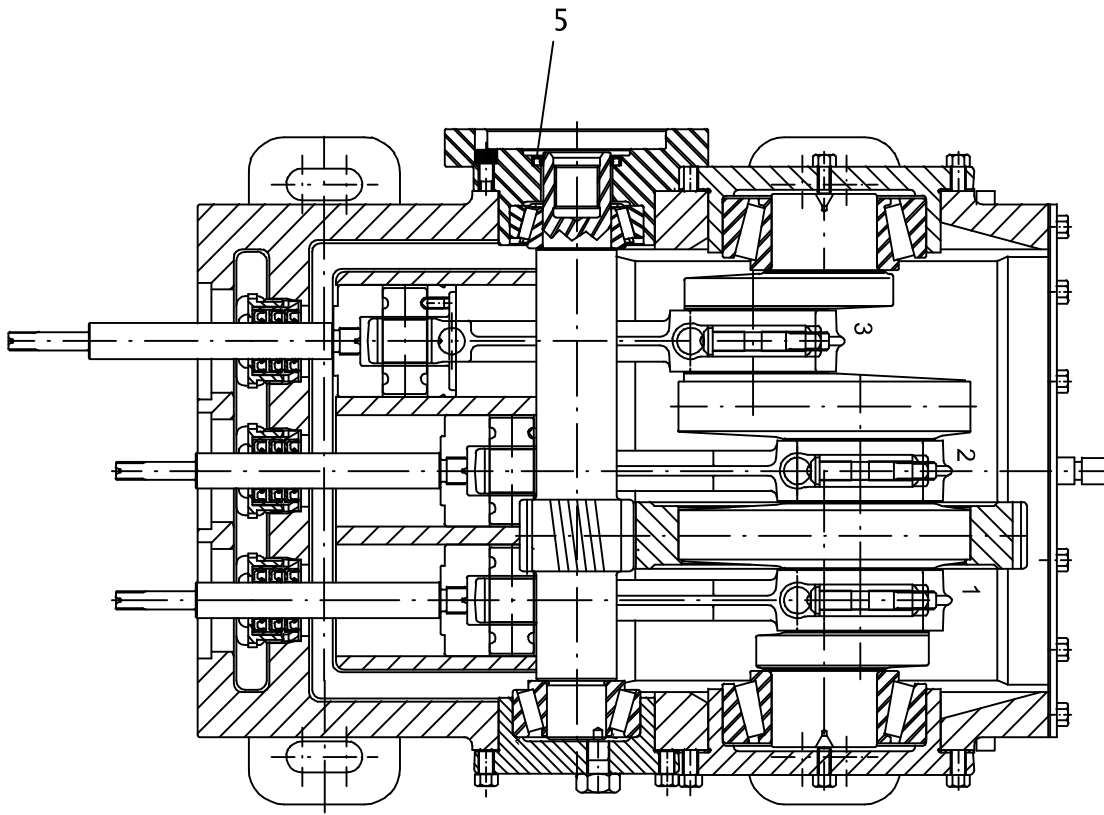
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	191-054	1	VALVE REPAIR KIT	INCLUDES PARTS FOR ALL VALVES IN PUMP. SEE FOOTNOTE 1.
2.	191-1008	1	PACKING REPAIR KIT	
3.	499-041	3	CUP HOLDER	
4.	499-039	3	PLUNGER NUT	
5.	499-089	3	CYL (2.750")	
6.	499-042	3	CYLINDER GASKET	
7.	157-191	3	O-RING (233 D90)	
8.	157-202	3	O-RING (042 D70)	
9.	157-031	3	O-RING (234 D90)	

NOT SHOWN:

FOOTNOTES:
KIT INCLUDES ALL PARTS, O-RINGS, GASKETS AND PLUNGER NUTS TO REBUILD ALL CYLINDERS.

NOTE:

FLUID PUMP (POWER END) L1122, L1622



FLUID PUMP (POWER END)

L1122, L1622

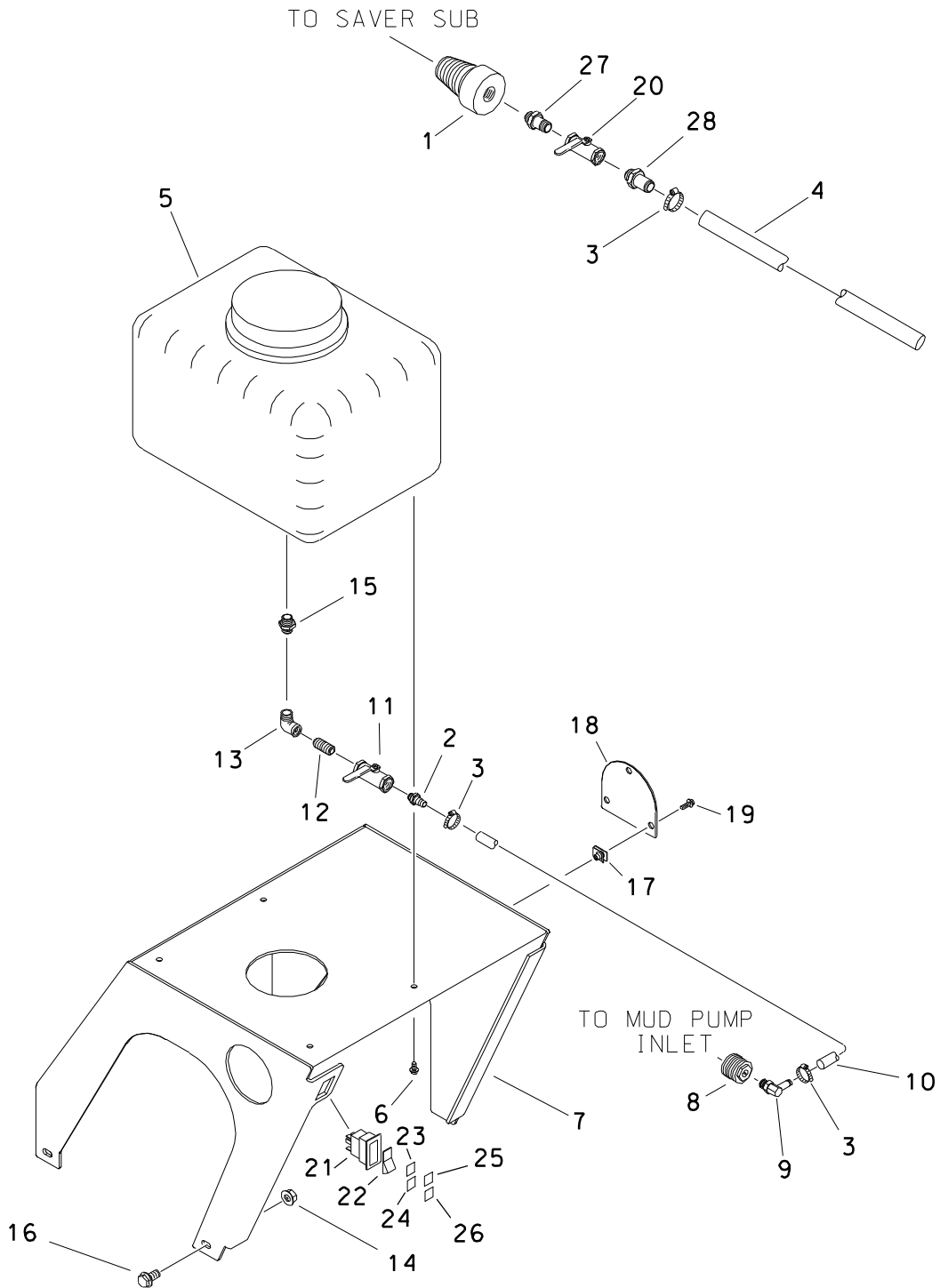
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	126-194	3	ROD BEARING (PAIR)	CONNECTING ROD USE 3 PAIR PER PUMP
2.	165-896	1	BACK COVER GASKET	
3.	165-888	3	SEAL HOLDER GASKET	
4.	157-739	9	INTERNAL SEAL	PLUNGER ROD
5.	157-742	1	INTERNAL SEAL	ADAPTER

NOT SHOWN:

FOOTNOTES:

NOTE:

ANTIFREEZE TANK



ANTIFREEZE TANK

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	194-244	1	ADAPTER	
2.	155-136	1	S/O COUPLER (16N-16H)	
3.	110-353	3	WORM CLAMP (3/4" TO 1-1/2")	
4.	116-897	AR	BULK TUBING (1", SOLD PER 1')	USE 1 @ 72"
5.	364-515	1	WATER TANK (8 GAL)	
	190-053	-	POLY-PATCH TANK REPAIR KIT	
	110-707	-	TANK CAP (96NF)	
6.	105-836	4	FLG LOCK BOLT (1/4-NC X 1/2")	
7.	310-581	1	TANK MOUNT	
8.	153-335	1	REDUCER BUSHING (48N-16NF)	
9.	155-137	1	S/O COUPLER(16N-16H90)	
10.	116-460	AR	BULK HOSE (1", SOLD PER 1')	USE 1 @ 22"
11.	514-318	1	SHUT-OFF (16NF-16NF)	ROTATE HANDLE TO SIDE, POINTED DOWN.
12.	114-011	1	ALL THREAD (16N)	
13.	115-440	1	STREET ELBOW (16N-16NF90)	
14.	106-387	4	FLG LOCKNUT (M10-1.50)	
15.	514-400	1	BK CONN (16NF-16NFBK, NYL)	
16.	106-164	4	FLG LK SCREW (M10-1.50 X 30MM)	
17.	106-551	3	CLIP NUT (M8-1.25)	
18.	310-694	1	COVER	
19.	106-991	3	FLG LK SCREW (M8-1.25 X 20MM)	
20.	120-074	1	SHUT-OFF VALVE (16S-16S)	
21.	217-918	1	ROCKER SW (DPDT) ON-ON	
22.	217-925	1	ROCKER SWITCH (ACTUATOR)	
23.	217-137	1	ICON (WHT) OFF-STOP	
24.	217-136	1	ICON (WHT) ON-START	
25.	217-158	1	DIFFUSION LENS (WHITE)	
26.	217-156	1	DIFFUSION LENS (GREEN)	
27.	514-121	1	CONNECTOR (16N-16S)	
28.	514-088	1	S/O COUPLER (16S-16H)	

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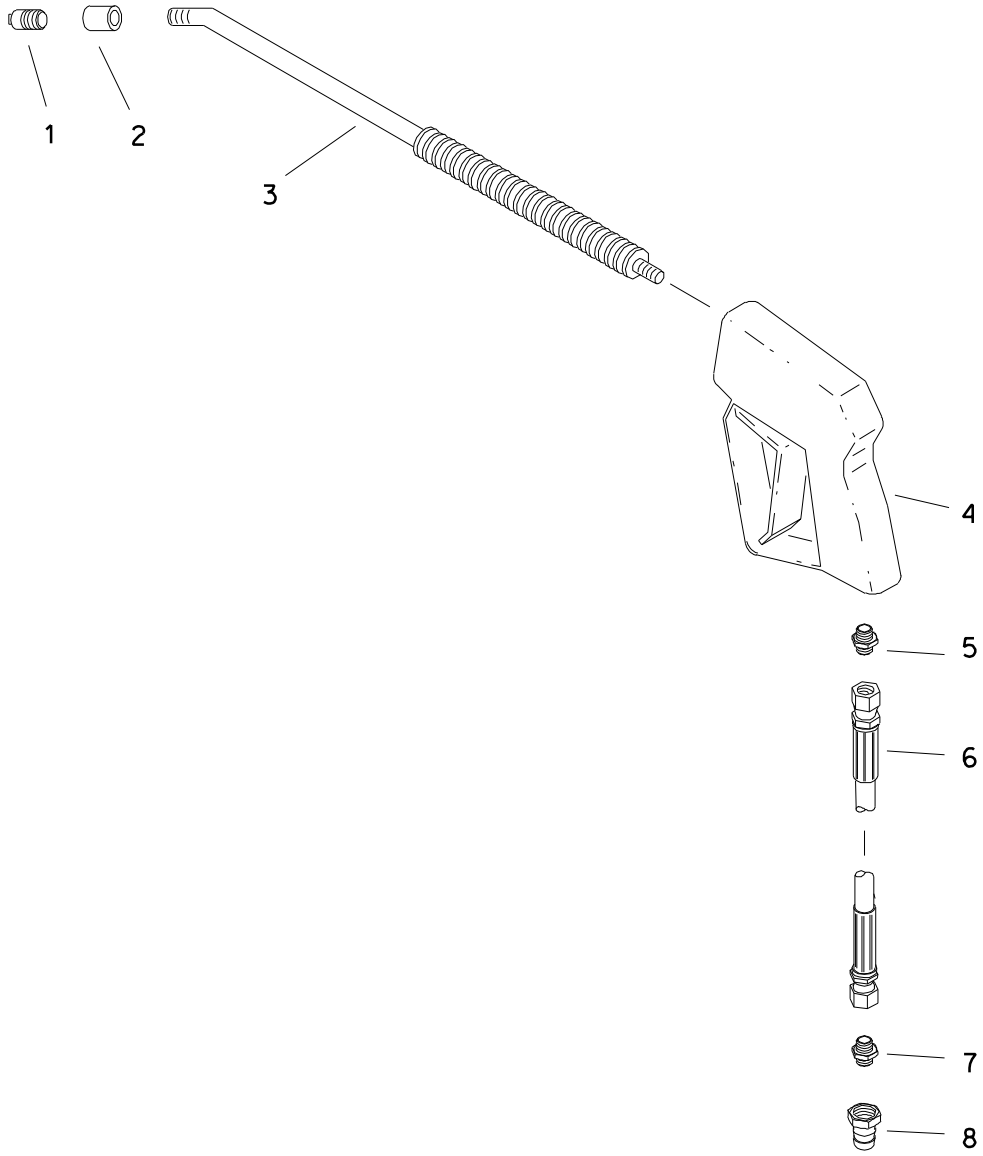
153-255 - FHC PLUG (-56) USE TO PLUG FHC FEMALE INLET ON MUD PUMP.

FOOTNOTES

NOTE:

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

WASH WAND



WASH WAND

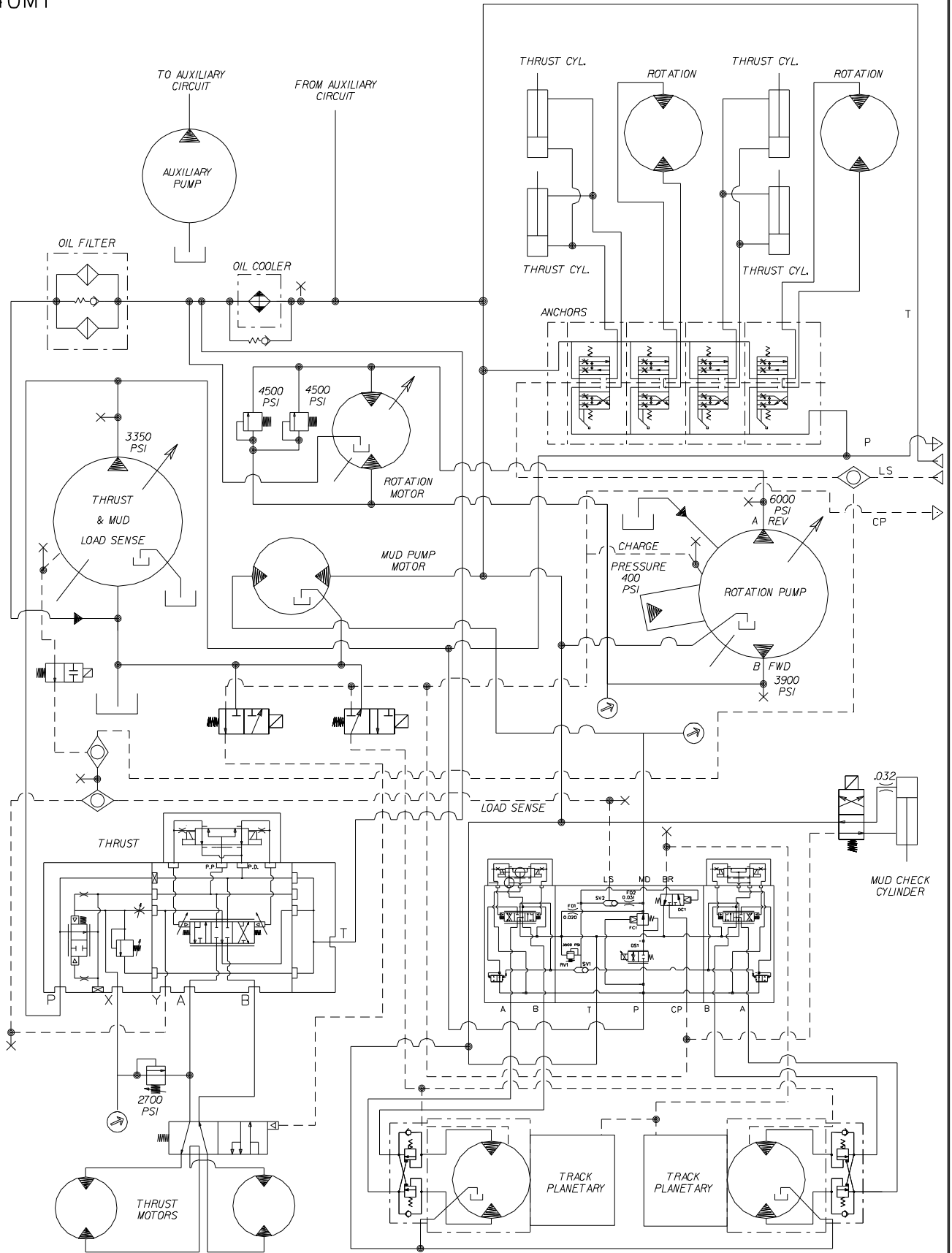
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	155-242	1	NOZZLE (04N, ORF .047", TC)	
2.	115-170	1	COLLAR (04NF)	
3.	259-353	1	WASH WAND (04N-36")	
4.	259-197	1	SPRAY GUN	
	190-179		SEAL REPAIR KIT	RHINO INDUSTRIES (190-938 CHAPPELL SUPPLY)
5.	514-141	1	CONNECTOR (06N-080)	
6.	154-753	1	HOSE (08OFX-600"-3000)	
7.	154-233	1	CONNECTOR (08S-080)	
8.	159-089	1	QDC ADAPTER (08-08SF)	
	190-186		SEAL REPAIR KIT	

FOOTNOTES

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

HYDRAULICS

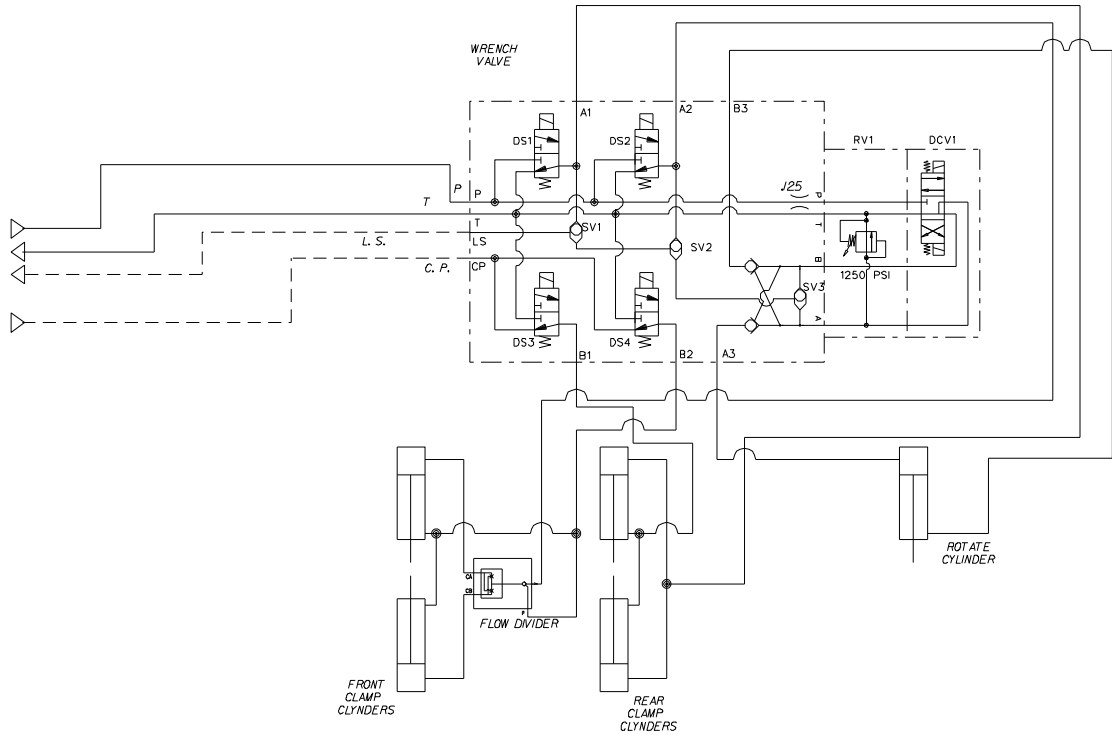
HYDRAULIC SCHEMATIC JT40M1



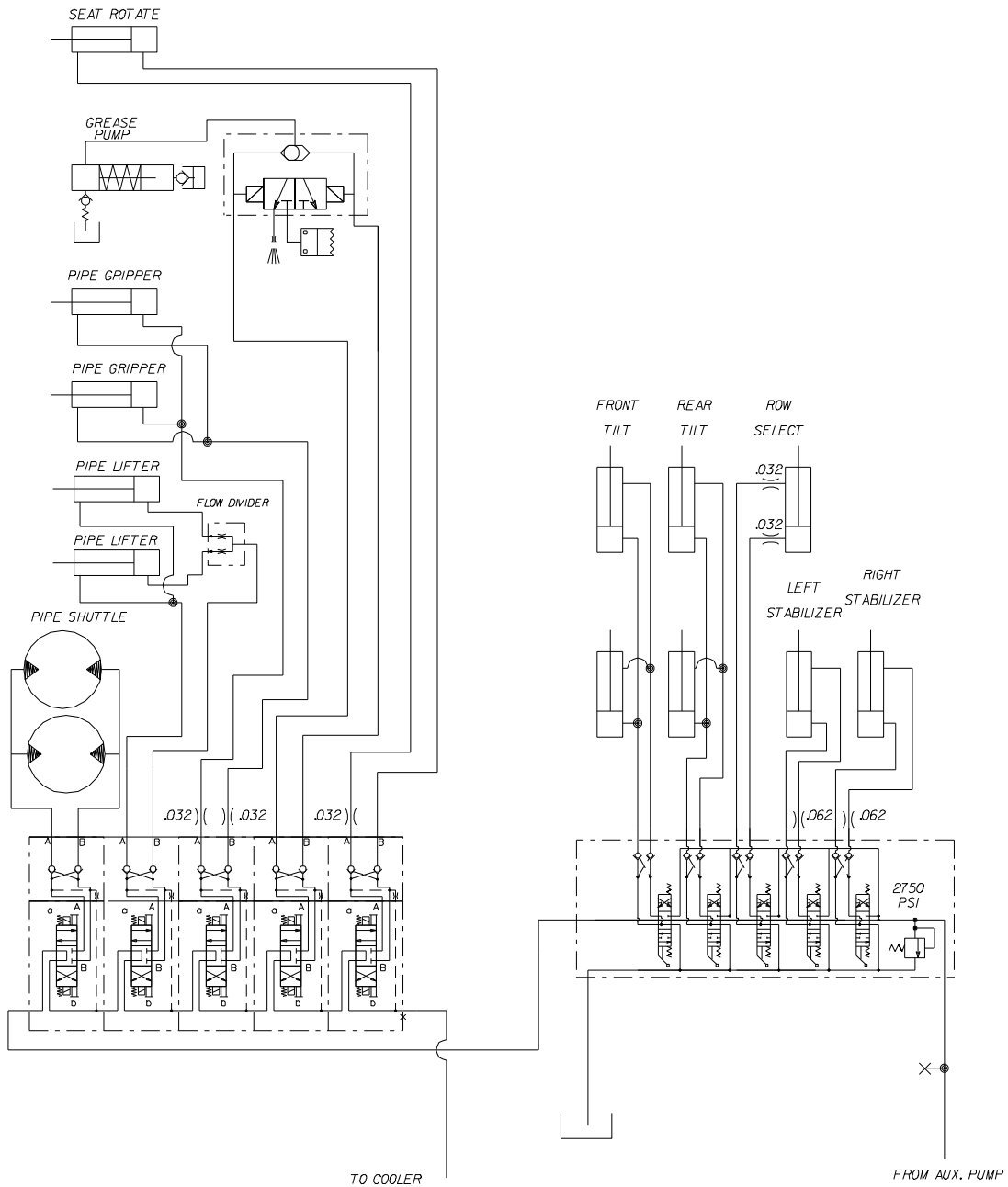
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807-769

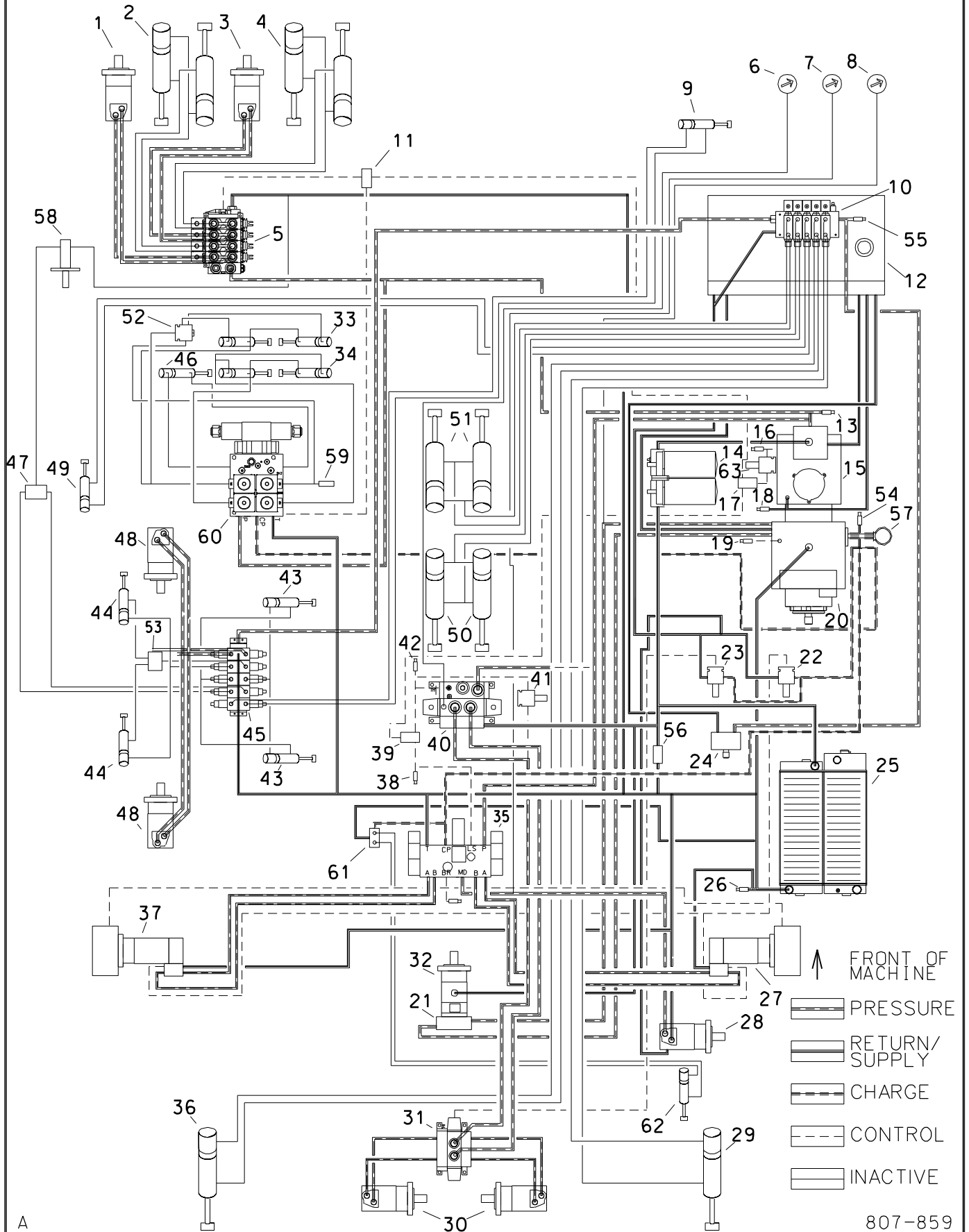
HYDRAULIC SCHEMATIC JT40M1



HYDRAULIC SCHEMATIC JT40M1



HYDRAULIC DIAGRAM



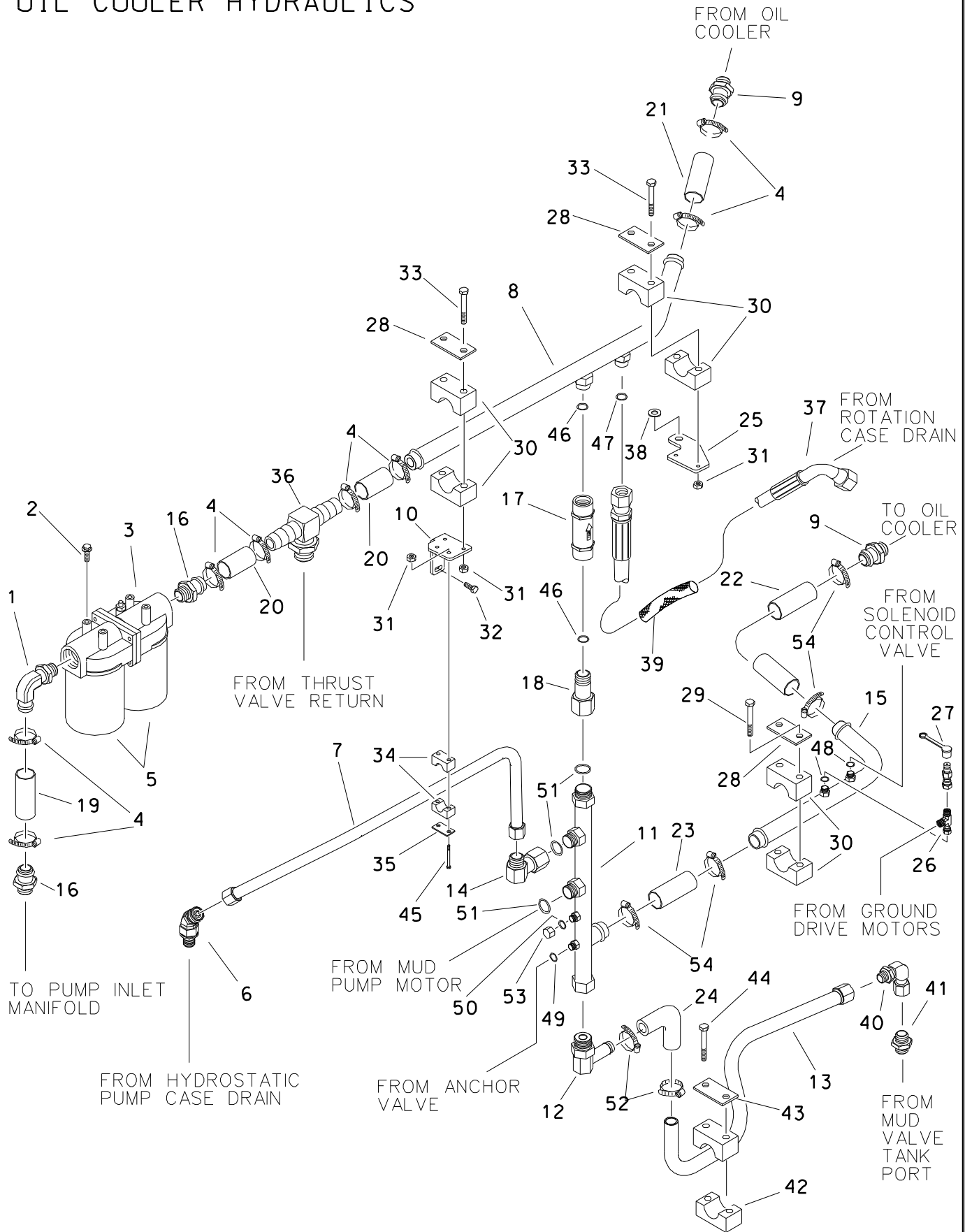
HYDRAULIC DIAGRAM

REF NO.	DESCRIPTION	REMARKS
1.	LEFT ANCHOR MOTOR	
2.	LEFT ANCHOR CYLINDERS	
3.	RIGHT ANCHOR MOTOR	
4.	RIGHT ANCHOR CYLINDERS	
5.	ANCHOR VALVE	
6.	THRUST PRESSURE GAUGE	
7.	DRILLING FLUID GAUGE	
8.	ROTATION PRESSURE GAUGE	
9.	SEAT ROTATION CYLINDER	
10.	SETUP VALVE	
11.	SHUTTLE VALVE	
12.	HYDRAULIC RESERVOIR	
13.	TEST PORT	
14.	OIL FILTERS	
15.	THRUST & DRILLING FLUID PUMP, ANCHORS	LOAD SENSE
16.	TEST PORT	
17.	SHUTTLE VALVE	
18.	TEST PORT	
19.	TEST PORT	
20.	HYDROSTATIC PUMP	
21.	SPIKE RELIEF MANIFOLD	
22.	TWO SPEED MOBILING VALVE	
23.	TWO SPEED THRUST VALVE	
24.	AUXILIARY PUMP	
25.	OIL COOLER/RADIATOR	
26.	TEST PORT	
27.	GROUND DRIVE MOTOR W/ COUNTERBALANCE VALVE	
28.	DRILLING FLUID MOTOR	
29.	RIGHT STABILIZER CYL	
30.	THRUST MOTORS	
31.	SERIES PARALLEL VALVE	
32.	ROTATION MOTOR	
33.	FRONT WRENCH CYLINDER	
34.	REAR WRENCH CYLINDER	
35.	GROUND DRIVE AND DRILLING FLUID VALVE	
36.	LEFT STABILIZER CYL	
37.	GROUND DRIVE MOTOR W/ COUNTERBALANCE VALVE	
38.	TEST PORT	
39.	SHUTTLE VALVE	

HYDRAULIC DIAGRAM

REF NO.	DESCRIPTION	REMARKS
40.	THRUST VALVE	
41.	THRUST LIMITER VALVE	
42.	TEST PORT	
43.	PIPE GRIPPER CYL	
44.	PIPE LIFTER CYL	
45.	PIPE HANDLING VALVE	
46.	WRENCH ROTATE CYLINDER	
47.	SELECTOR VALVE	
48.	SHUTTLE MOTOR	
49.	ROW SELECT VALVE	
50.	REAR DRILL FRAME PIVOT CYL	
51.	FRONT DRILL FRAME PIVOT CYL	
52.	FLOW DIVIDER/PO CHECK VALVE	
53.	DIVERTER VALVE	
54.	TEST PORT	
55.	TEST PORT	
56.	BYPASS CHECK VALVE	
57.	HYDRAULIC OIL FILTER	
58.	GREASE PUMP	
59.	PRESSURE SWITCH	
60.	WRENCH VALVE	
61.	MUD SHUT-OFF VALVE	
62.	MUD SHUT-OFF CYLINDER	
63.	LOAD SENSE SHUT-OFF	

OIL COOLER HYDRAULICS



OIL COOLER HYDRAULICS

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	514-135	1	S/O COUPLER (24S-24H90)	
2.	105-825	4	FLG LK BOLT (3/8-NC X 3/4")	
3.	159-411	1	FILTER HEAD (20SF-20SF)	
4.	110-250	10	WORM CLAMP (1-1/4" TO 2-1/8")	
5.	153-792	2	FILTER ELEMENT (10 MICRON)	SEE FOOTNOTE 1 & 2
	153-791	2	FILTER ELEMENT (5 MICRON)	SEE FOOTNOTE 1 & 2
6.	154-371	1	CONNECTOR (12S-16D45)	
7.	156-177	1	HYD LINE (-16)	CASE DRAIN
8.	156-876	1	HYD LINE	COOLER RETURN
9.	155-148	2	S/O COUPLER (20S-24H)	
10.	354-464	1	TOP REAR COOLANT BRACKET	
11.	153-389	1	COOLER BY-PASS	COOLER TUBE
12.	155-149	1	S/O COUPLER (16S-20H90)	
13.	156-894	1	HYD LINE (20)	VALVE DRAIN
14.	154-290	1	UNION (16D-16DFX90)	
15.	156-877	1	COOLER SUPPLY TUBE	COOLER TUBE
16.	514-138	2	S/O COUPLER (24S-24H)	
17.	153-436	1	FLOW CHECK (16SF-16SF)	FLOW ARROW ON CHECK VALVE MUST POINT UPWARD
18.	510-014	1	UNION (16J-16DFX)	
19.	116-588	AR	BULK HOSE (1-1/2", SOLD PER 1')	USE 1 @ 13"
20.	116-588	AR	BULK HOSE (1-1/2", SOLD PER 1')	USE 2 @ 6.5"
21.	116-588	AR	BULK HOSE (1-1/2", SOLD PER 1')	USE 1 @ 21.0"
22.	116-588	AR	BULK HOSE (1-1/2", SOLD PER 1')	USE 1 @ 24.75"
23.	116-588	AR	BULK HOSE (1-1/2", SOLD PER 1')	USE 1 @ 4.75"
24.	116-587	AR	BULK HOSE (1-1/4", SOLD PER 1')	USE 1 @ 17"
25.	354-465	1	TOP FRONT COOLANT BRACKET	
26.	154-265	1	UN RUN TEE (04OFX-04D-04D)	
27.	159-156	1	ODC ADAPTER (02-04OF)	
	159-148	1	DUST CAP (1/8")	
28.	322-362	3	BACKUP SPACER	
29.	105-224	2	BOLT (1/4-NC X 2-1/2")	
30.	111-008	3	BOLT-ON CLAMP (1-1/2", SET)	
31.	105-085	6	LOCKNUT (1/4-NC)	
32.	105-245	2	SCREW (M10-1.50 X 25mm)	
33.	105-297	4	BOLT (1/4-NC X 3-1/4")	
34.	110-573	1	BOLT-ON CLAMP (1", SOLD PER SET)	
35.	322-289	1	BACKUP (BOLT-ON)	
36.	514-441	1	S/O BR TEE (160-24H-24H)	
37.	155-470	1	HOSE (12DFX90M-90"-3000)	
38.	105-940	2	WASHER (5/8")	
39.	115-924	1	ABRASION SLEEVE (1.59" X 88")	
40.	514-422	1	CONNECTOR (20D-20DFX90)	

OIL COOLER HYDRAULICS

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
41.	514-094	1	CONNECTOR (16S-200)	
42.	110-852	2	BLT-ON CLP (1.2",SOLD PER SET)	
43.	322-362	1	BACKUP SPACER	
44.	105-224	2	BOLT (1/4-NC X 2-1/2")	
45.	107-025	2	SCREW (M6-1.00 X 50MM)	
46.	155-748	1	O-RING (Q16 D90)	
47.	157-017	1	O-RING (O18 D90)	
48.	157-037	2	O-RING (O11 D90)	
49.	157-040	1	O-RING (Q16 D90)	
50.	157-039	1	O-RING (O14 D90)	
51.	155-714	3	O-RING (O21 D90)	
52.	149-342	2	T-BOLT CLAMP (1.687"-1.50")	
53.	154-327	1	CAP (O8OF)	
54.	111-028	4	T-BOLT CLAMP (1.75"-2.00")	

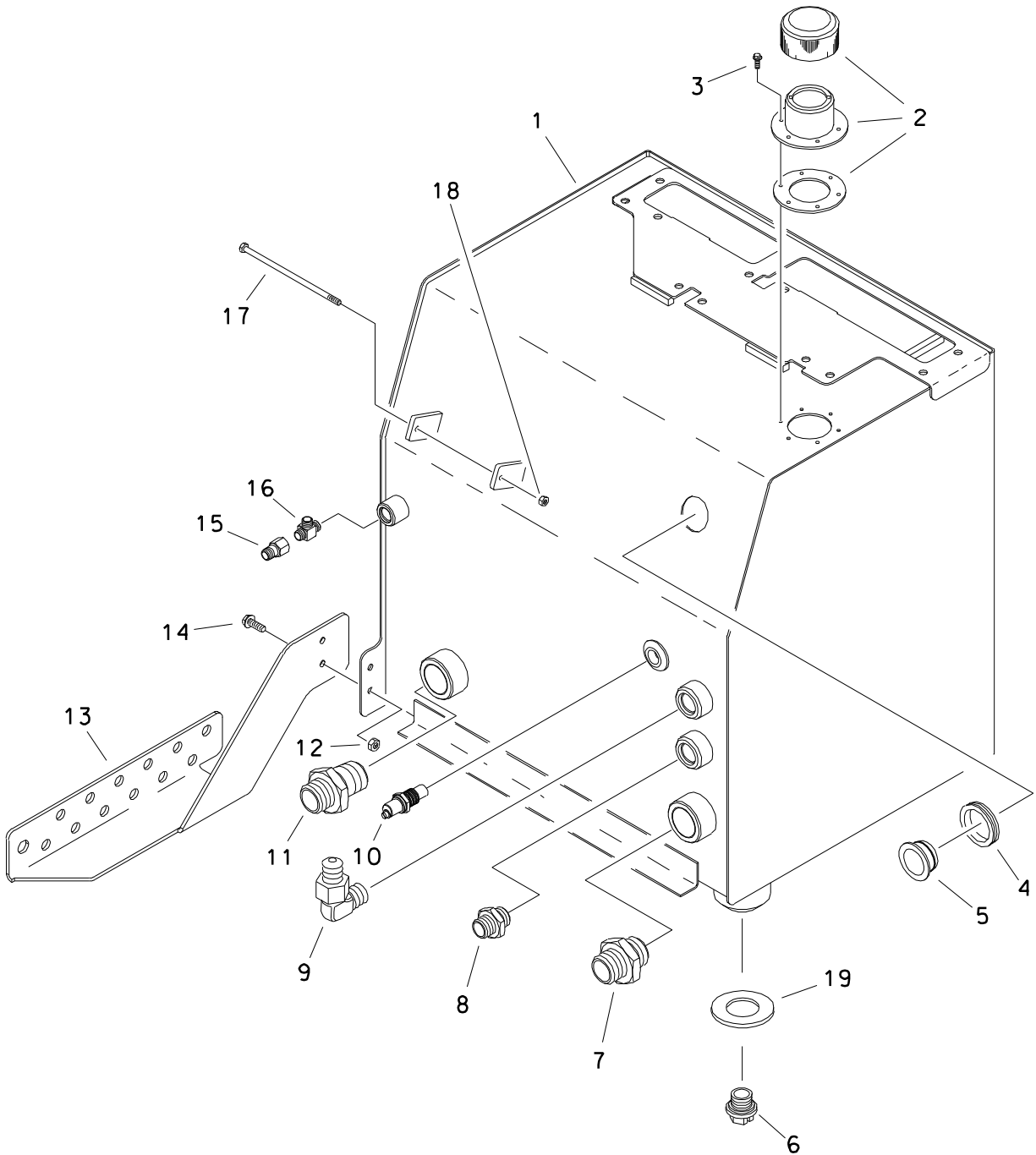
FOOTNOTES

- 1. USE 153-792 ELEMENT FOR NORMAL MAINTENANCE.
USE 153-791 ELEMENT AFTER HOSE OR COMPONENT REPLACEMENT OR REPAIR
- 2. INCLUDES 153-791 FILTER ON NEW MACHINES
REPLACE WITH 153-792 AFTER FIRST 50 HOURS OR SOONER IF FILTER INDICATOR LIGHT COMES ON.

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.	350-614	1	HYDRAULIC RESERVOIR	
2.	110-008	1	FILLER BREATHER (2-1/8")	
3.	105-214	6	FLG SCREW (#10-24 X 1/2")	
4.	115-320	1	GROMMET (1-1/2")	
5.	116-218	1	SIGHT GLASS (2")	INCL REFLECTOR, SEE FOOTNOTE 1
	360-849	-	REFLECTOR	
6.	149-398	1	DRAIN PLUG (1" W/.375 ORF)	
7.	154-497	1	CONNECTOR (160-20S)	
8.	154-300	1	CONNECTOR (100-12S90)	
9.	154-286	1	CONNECTOR (120-16S90)	
10.	214-819	1	TEMPERATURE SWITCH	USE 567 LOCTITE
11.	155-148	1	S/O COUPLER (20S-24H)	
12.	106-561	2	LOCKNUT (M8-1.25, PRV TRQ, 10.9)	
13.	354-466	1	BULKHEAD PLATE	
14.	106-162	2	FLG SCREW (M8-1.25 X 20MM, GD8)	
15.	154-262	1	REDUCER (060-080F)	
16.	154-299	-	RUN TEE (08S-080-080)	
17.	106-061	1	BOLT (1/4-NC X 6-1/2")	
18.	105-085	1	LOCKNUT (1/4-NC)	
19.	149-829	1	1" SEAL WASHER	

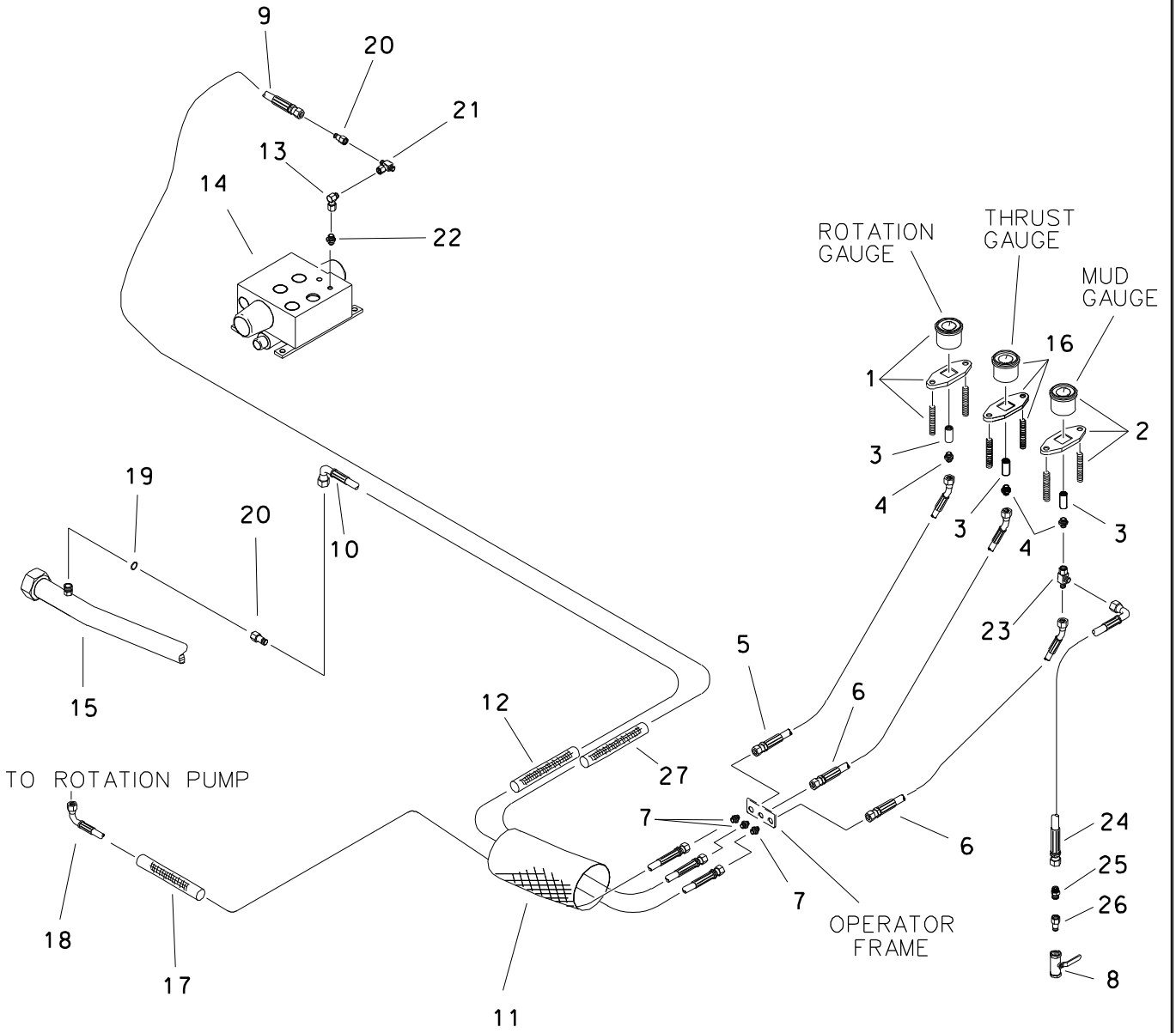
FOOTNOTES

1. REFER TO SPECIAL TOOL DIAGRAM 052-524, FOR INSTALLATION.

NOTE:

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

ROTATION, THRUST AND MUD GAUGES



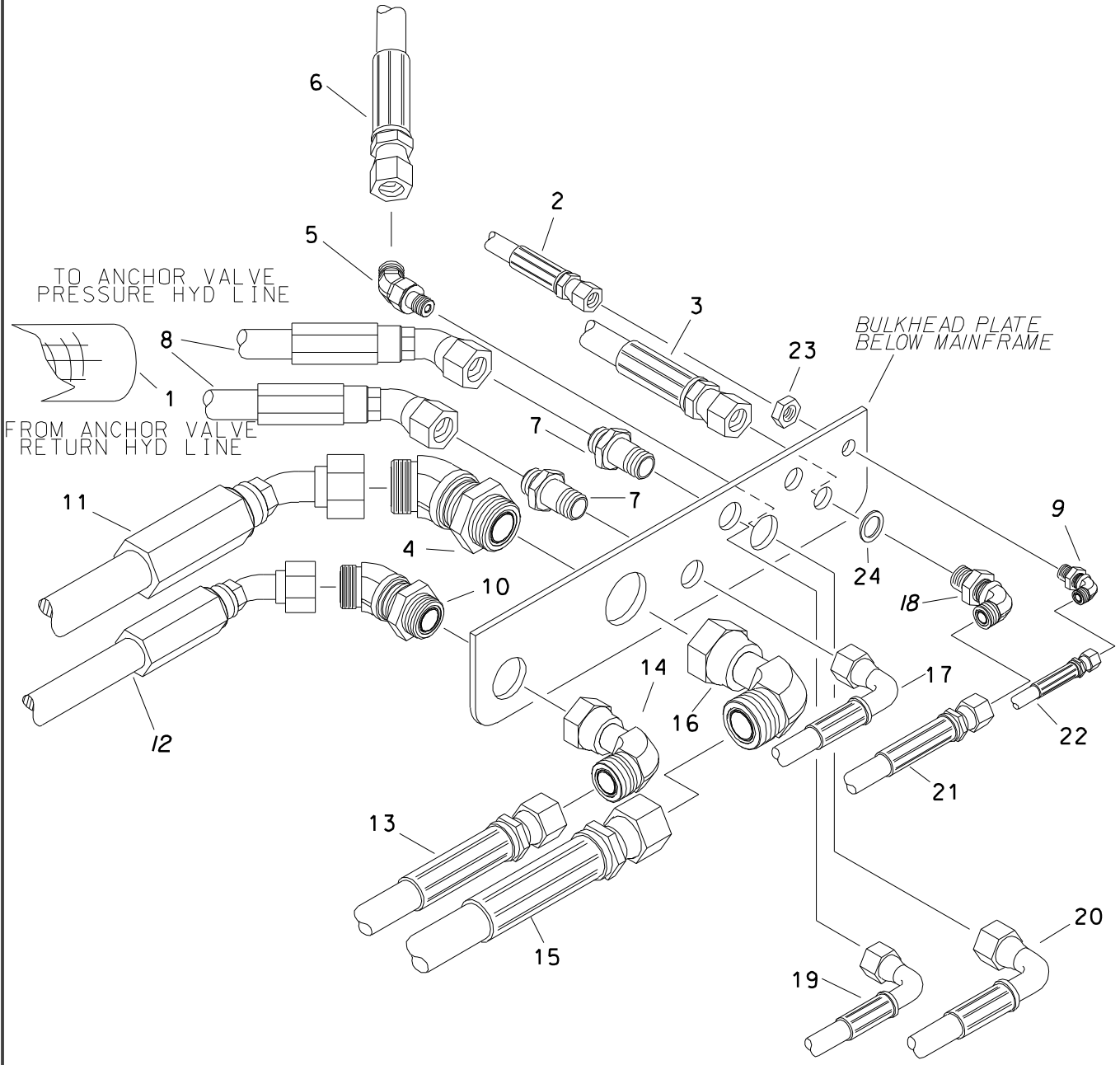
ROTATION, THRUST AND MUD GAUGES

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	258-036	1	HYD PRESSURE GAUGE (6000 PSI)	
2.	258-046	1	PRESSURE GAUGE (1500PSI)	
3.	514-408	3	COLLAR (04NF)	
4.	154-339	3	CONNECTOR (04N-040)	
5.	515-646	1	HOSE (040FX45-62"-10000)	
6.	515-283	2	HOSE (040FX45-62"-3000)	
7.	154-275	3	BK CONNECTOR (040-040BK)	
8.	120-071	1	SHUT-OFF (04NF-04NF)	
9.	515-161	1	HOSE (040FX-160"-3000)	
10.	515-190	1	HOSE (040FX90S-88"-3000)	
11.	117-283	1	ABRASION SLEEVE (4.000" X 20")	
12.	117-414	1	ABRASION SLEEVE (1.00" X 88")	
13.	154-228	-	UNION (060-060FX90)	
14.	516-092	-	THRUST VALVE (ELECTRIC)	
	157-440	-	THRUST VALVE (ELECTRIC)	
15.	156-892	-	HYDRAULIC LINE (-24)	
16.	258-045	1	GAUGE (4000 PSI)	
17.	117-421	1	ABRASION SLEEVE (1.00" X 122")	
18.	154-882	1	HOSE (040FX90S-122"-5000)	
19.	157-038	1	O-RING (012 D90)	
20.	154-373	2	REDUCER (040-060F)	
21.	154-348	-	UNION BRANCH TEE (060FX-060-060)	
22.	154-411	-	CONNECTOR (04S-060)	
23.	154-265	1	UNION RUN TEE (040FX-040-040)	
24.	515-179	1	HOSE (040FX90-11"-3000)	
25.	153-238	1	BK CONNECTOR (040-06S)	
26.	153-264	1	REDUCER (04N-06SF)	
27.	117-759	1	ABRASION SLEEVE (1.00" X 160")	

FOOTNOTES

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

MAIN FRAME BULKHEADS



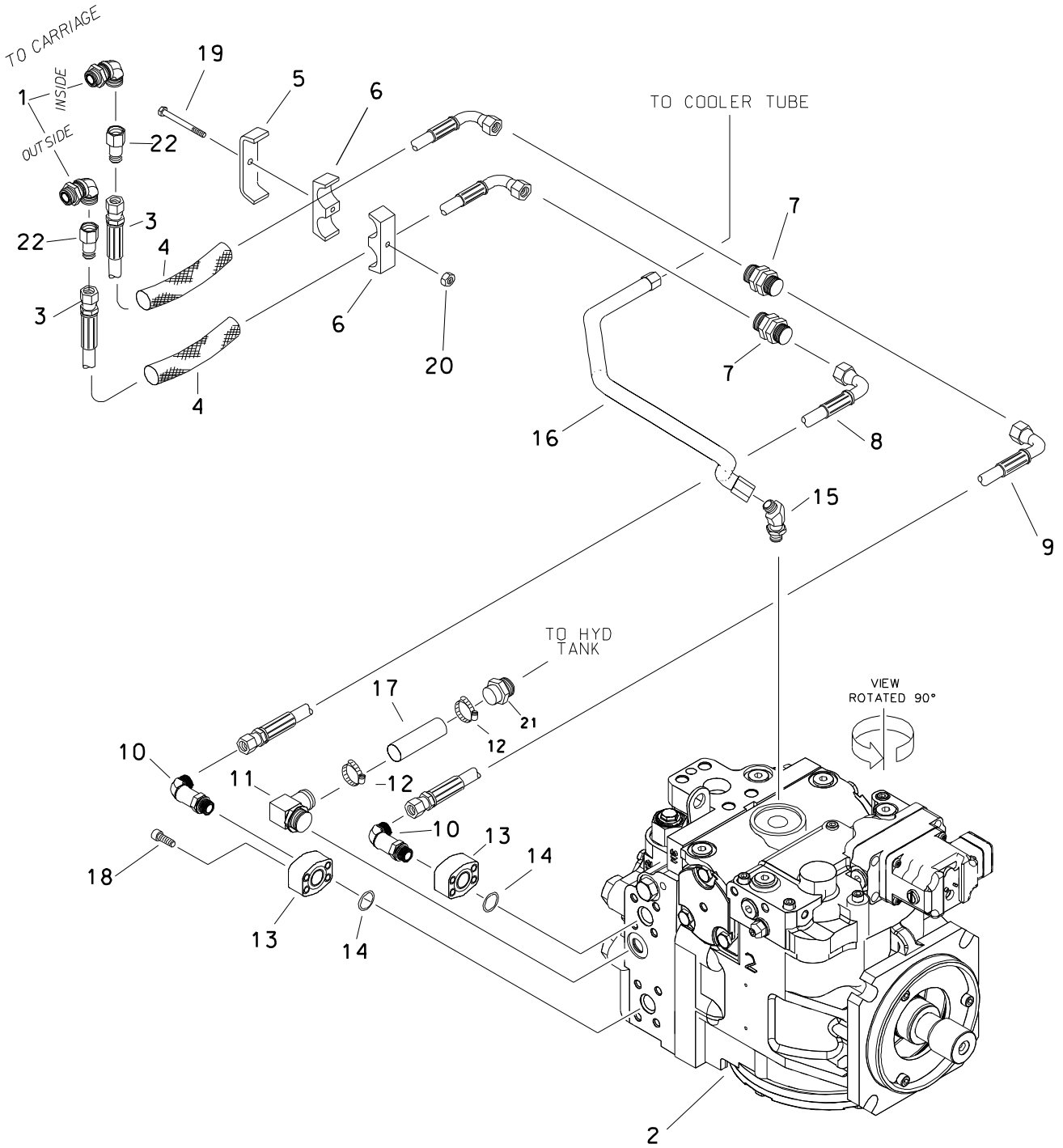
MAIN FRAME BULKHEADS

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	115-899	1	ABRASION SLEEVE (2.54" X 54")	
2.	154-651	-	HOSE (040FX-66"-3000)	TO HARD LINE TO SERIES PARALLEL VALVE
3.	154-877	-	HOSE (080FX90-90"-3000)	TO PIPE LOADER VALVE
4.	153-395	1	BK CONNECTOR (200-20045)	
5.	154-448	1	BK CONNECTOR (120-12045BK)	
6.	116-911	-	HOSE (120FX-220"-3000)	FROM ROTATION MOTOR CASE DRAIN
7.	154-309	2	BK CONNECTOR (100-100BK)	
8.	515-671	-	HOSE (100FX45-52"-3000)	SEE GRAPHICS
9.	154-355	1	BK CONNECTOR (040-04090BK)	
10.	514-242	1	BK CONNECTOR (160-16045BK)	
11.	153-396	-	HOSE (200FX-47"-4000)	TO THRUST VALVE, SUPPLY
12.	515-655	-	HOSE (160FX90-47"-3000)	FROM THRUST VALVE, RETURN
13.	154-815	-	HOSE (160FX-48"-4000)	TO RETURN LINE (BEFORE FILTERS)
14.	154-290	1	UNION (160-160FX90)	
15.	153-394	-	HOSE (200FX90L-27"-3000)	FROM LOAD SENSE PUMP
16.	514-422	1	CONNECTOR (200-200FX90)	
17.	515-690	-	HOSE (100FX90L-58"-3000)	TO COOLER TUBE
18.	154-396	1	BK CONNECTOR (080-08090BK)	
19.	515-454	-	HOSE (100FX90L-20"-3000)	FROM LOAD SENSE PUMP
20.	155-470	-	HOSE (120FX90M-90"-3000)	TO UPPER COOLER TUBE
21.	515-140	-	HOSE (080FX90-56"-3000)	FROM HYDRAULIC CONTROL VALVE ON HYD TANK
22.	154-692	-	HOSE (040FX-54"-3000)	FROM THRUST SHIFT SOLENOID VALVE
23.	105-431	1	JAM NUT (9/16-NF)	
24.	105-460	1	WASHER (13/16")	

FOOTNOTES

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

ROTATION HYDRAULICS



ROTATION HYDRAULICS

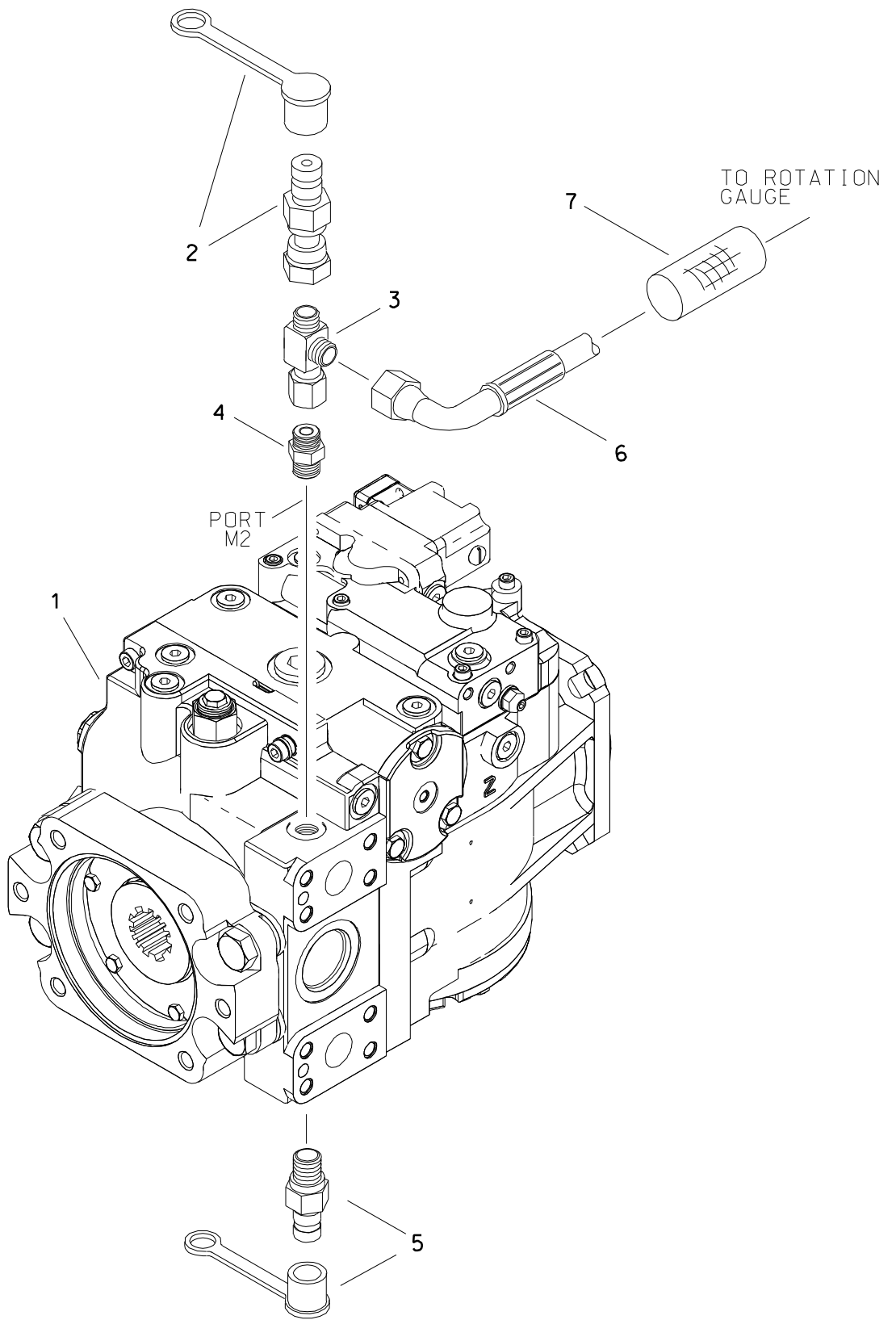
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	154-419	2	BK CONNECTOR (160-16090BK)	
2.	153-340	-	HYDRAULIC PUMP	
3.	116-910	2	HOSE (160FX90S-222"-6000)	
4.	117-290	2	ABRASION SLEEVE (2.07" X 58")	
5.	315-623	1	BACKUP SPACER	
6.	110-359	1	BOLT-ON CLAMP (1-1/2", SET)	
7.	154-389	2	BK CONNECTOR (160-160BK)	
8.	515-666	1	HOSE (160FX90-52"-6000)	
9.	154-763	1	HOSE (160FX90S-54"-6000)	
10.	154-289	2	CONNECTOR (16S-16090, XL)	
11.	155-176	1	S/O COUPLER (20S-24H90)	
12.	110-250	2	WORM CLAMP (1-1/4" TO 2-1/8")	
13.	514-245	2	HEAD FLANGE (16HFL-16SF)	
14.	157-029	2	O-RING (219 D90)	
15.	154-371	1	CONNECTOR (12S-16045)	
16.	156-177	1	HYD LINE (-16)	CASE DRAIN
17.	116-588	AR	BULK HOSE (1-1/2", SOLD PER FT)	USE 1 @ 18.5"
18.	105-918	8	BOLT (7/16-NC X 1-1/2", SOC)	
19.	107-078	1	SCREW (M8-1.25 X 90mm)	
20.	106-561	1	LOCKNUT (M8-1.25, PRV TRQ, 10.9)	
21.	155-148	-	S/O COUPLER (20S-24H)	
22.	153-698	2	HYD LINE	

FOOTNOTES

NOTE

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

ROTATION TEST PORTS



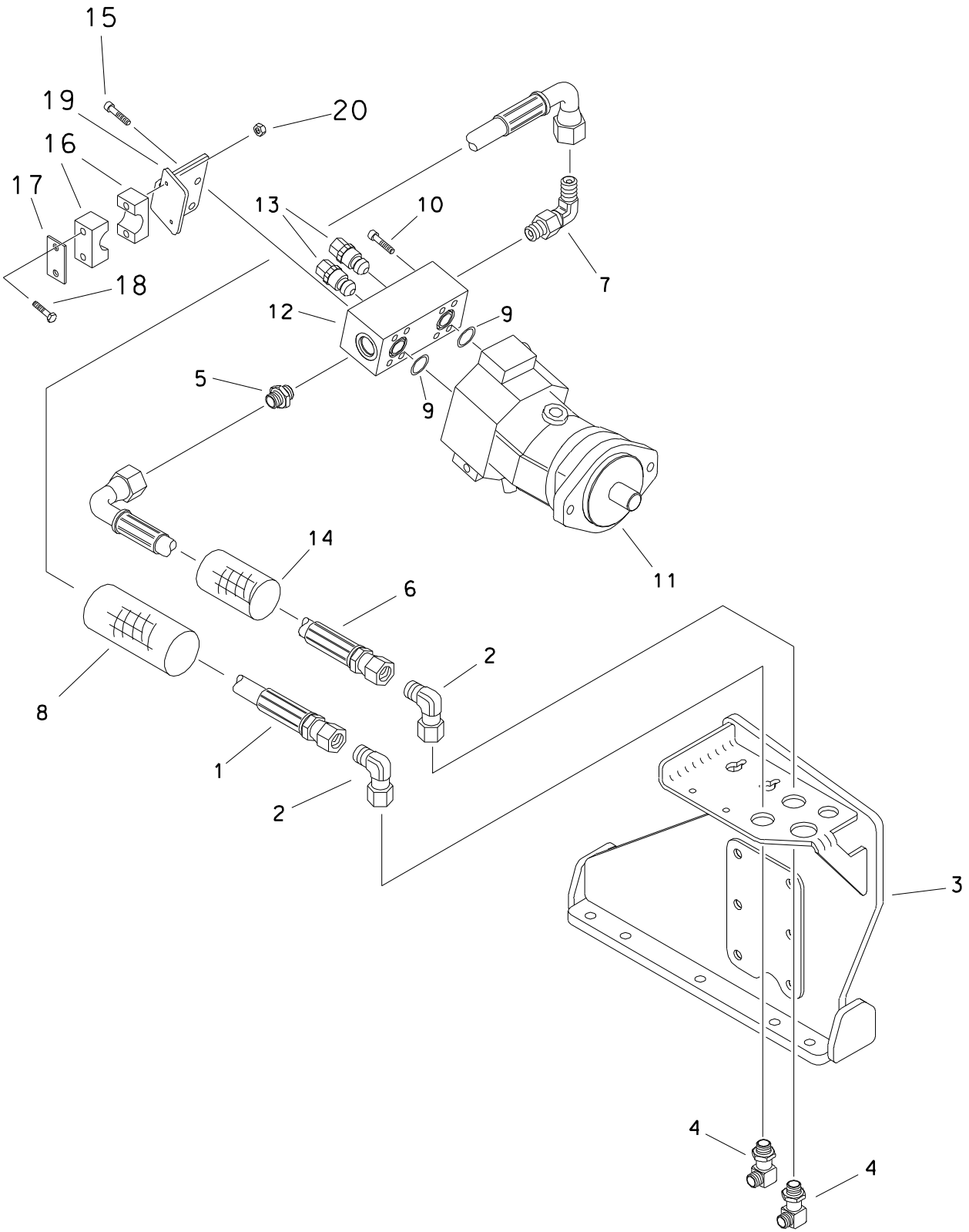
ROTATION TEST PORTS

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	153-340	1	HYDRAULIC PUMP	
2.	159-156	1	QDC ADAPTER (02-040F)	
	159-148	-	DUST CAP (1/8")	
3.	154-265	1	UN RUN TEE (040FX-040-040)	
4.	154-220	1	CONNECTOR (040-06S)	
5.	159-147	1	QDC ADAPTER (02-06S)	
	159-148	-	DUST CAP (1/8")	
6.	154-882	1	HOSE (040FX90S-122"-5000)	
7.	117-421	1	ABRASION SLEEVE (1.00" X 122")	

FOOTNOTES

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

ROTATION HYDRAULICS



ROTATION HYDRAULICS

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	515-732	1	HOSE (160FX90M-40"-6000)	
2.	154-290	2	UNION (160-160FX90)	
3.	303-431	-	RIGHT CARRIAGE SIDE	
4.	154-419	2	BK CONNECTOR (160-16090BK)	
5.	154-281	1	CONNECTOR (16S-160)	
6.	153-347	1	HOSE (160FX90M-24"-6000)	
7.	154-287	1	CONNECTOR (16S-16090)	
8.	115-715	1	ABRASION SLEEVE (2.07" X 42")	
9.	157-029	2	O-RING (219 D90)	
10.	107-535	6	SCR (7/16-NC X 3.75, SOC, GD8)	USE LOCTITE 242 - TORQUE TO 85 FT. LBS.
11.	153-244	-	HYD MOTOR	
12.	194-142	1	CARTRIDGE MANIFOLD	
13.	149-566	2	HYDRAULIC VALVE	SEE FOOTNOTE 1
	191-031	-	SEAL REPAIR KIT	
14.	115-061	1	ABRASION SLEEVE (2.07" X 26")	
15.	107-709	2	SCR (7/16-NC X 4.25, SOC, GD8)	USE LOCTITE 242 - TORQUE TO 85 FT. LBS.
16.	110-970	1	CLAMP (2.00")	
17.	110-973	1	COVER PLATE	
18.	107-151	2	SCREW (M6-1.00 X 85MM)	
19.	310-732	1	BRACKET	
20.	106-237	2	LOCKNUT (M6-1.00, PRV TRQ, NLK)	

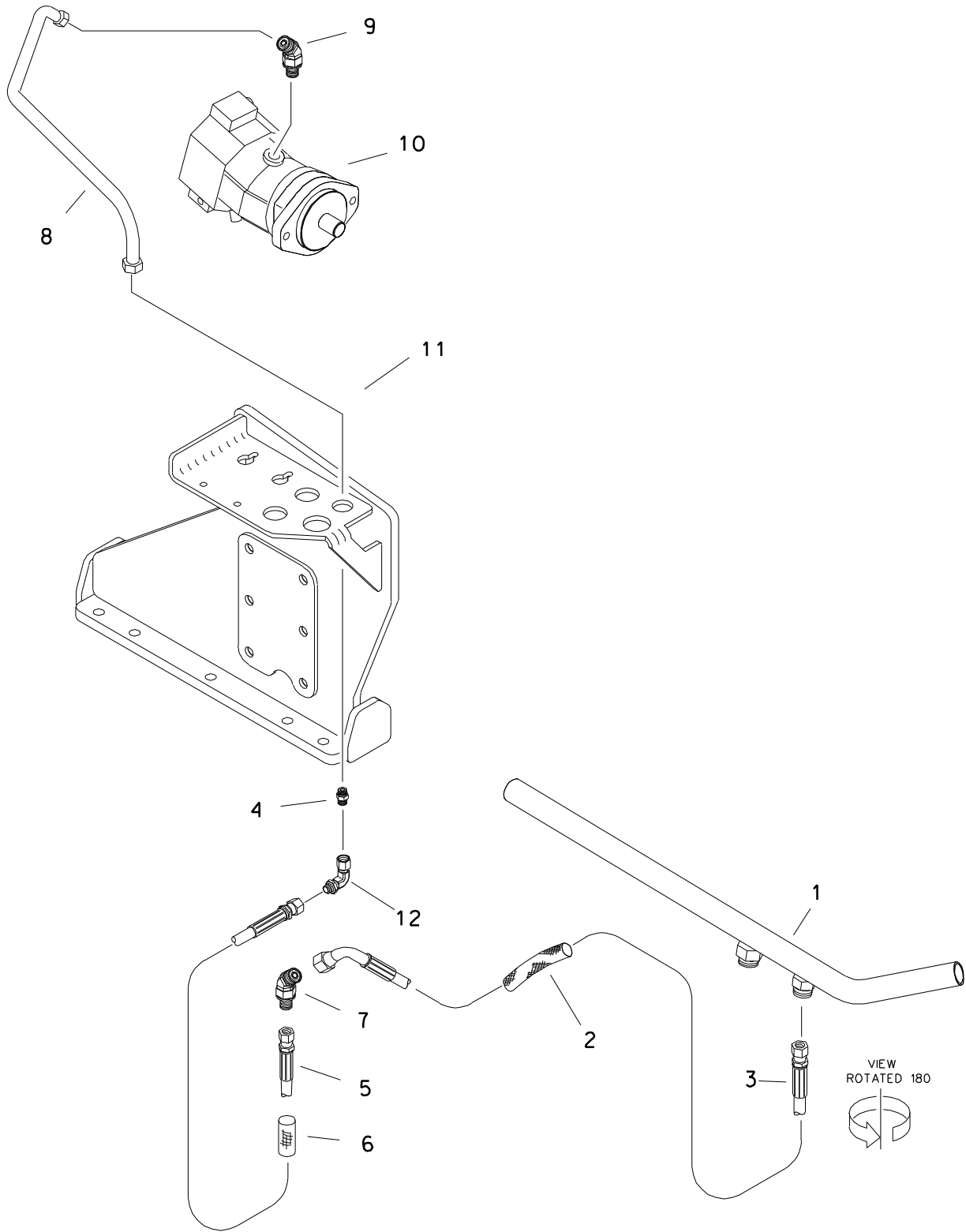
FOOTNOTES

1. TORQUE TO 80-90 FT. LBS, TIGHTEN ONLY AT BASE WITH DEEP SOCKET.

NOTE:

REFER TO O-RING CHART (800-310) IN BACK OF BOOK FOR REPLACEMENT OF O-RINGS

ROTATION MOTOR / CASE DRAIN HYDRAULICS



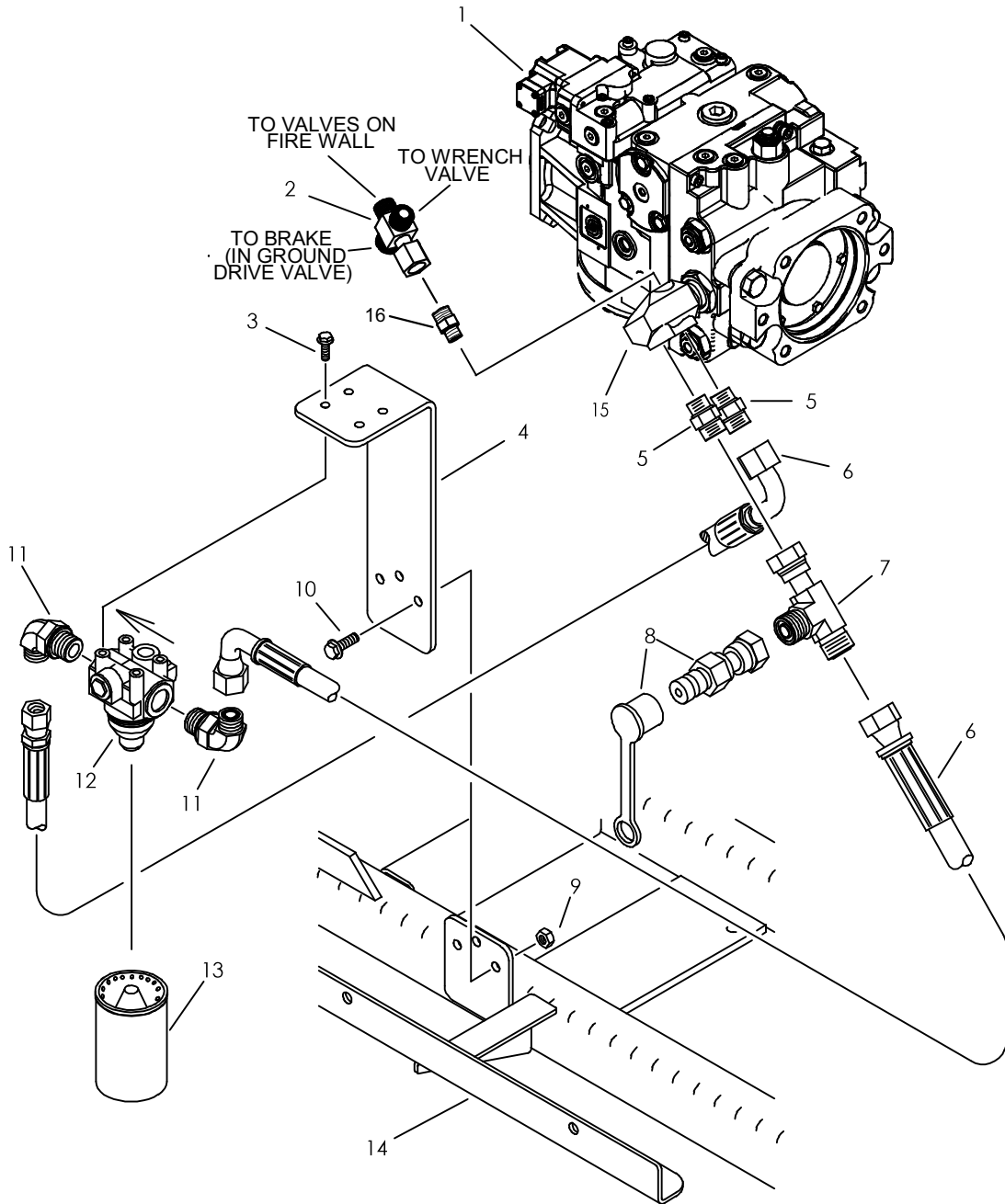
ROTATION MOTOR / CASE DRAIN HYDRAULICS

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	156-876	-	HYD LINE	
2.	115-924	1	ABRASION SLEEVE (1.59" X 88")	
3.	155-470	1	HOSE (120FX90M-90"-3000)	
4.	514-004	1	BK CONNECTOR (120-120BK)	
5.	116-911	1	HOSE (120FX-220"-3000)	
6.	116-634	1	ABRASION SLEEVE (1.59" X 65")	
7.	154-448	1	BK CONNECTOR (120-12045BK)	
8.	156-890	1	HYD LINE (-12)	
9.	154-338	1	CONNECTOR (12S-12090, XL)	
10.	153-244	1	HYD MOTOR	
	190-906		SEAL REPAIR KIT	
	157-750		SHAFT SEAL	
	217-745		CONTROL SOLENOID	
	499-176		CONNECTOR PLUG	
11.	303-431	-	RIGHT CARRIAGE SIDE	
12.	154-457	1	UNION (120-120FX90)	

FOOTNOTES

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

REMOTE FILTER



REMOTE FILTER

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	153-340	-	HYDRAULIC PUMP	INCLUDES ITEM 15
2.	150-1097	1	CROSS (F060-060-080-060)	
3.	105-823	4	FLG LK BOLT (5/16-NC X 3/4")	
4.	310-571	1	CHARGE FILTER BRACKET	
5.	154-301	2	CONNECTOR (10S-100)	
6.	153-268	2	HOSE (100FX90S-24"-1500)	
7.	154-488	1	UN RUN TEE (100FX-100-100)	
8.	159-159	1	QDC ADAPTER (02-100FX)	
	159-148	-	DUST CAP (1/8")	
9.	105-894	3	LOCKNUT(M10-1.50, PRV TRQ, 10.9)	
10.	106-724	3	FLG SCREW (M10-1.50 X 25MM)	
11.	154-300	2	CONNECTOR (100-12S90)	
12.	153-050	1	FILTER HEAD (12 SF)	
13.	149-939	1	FILTER	
14.	354-597	-	ENGINE SKID	
15.	149-845	-	REMOTE FILTRATION KIT (75/100)	PART OF ITEM 1, INCLUDES O-RING
16.	154-221	-	CONNECTOR (06S-060)	

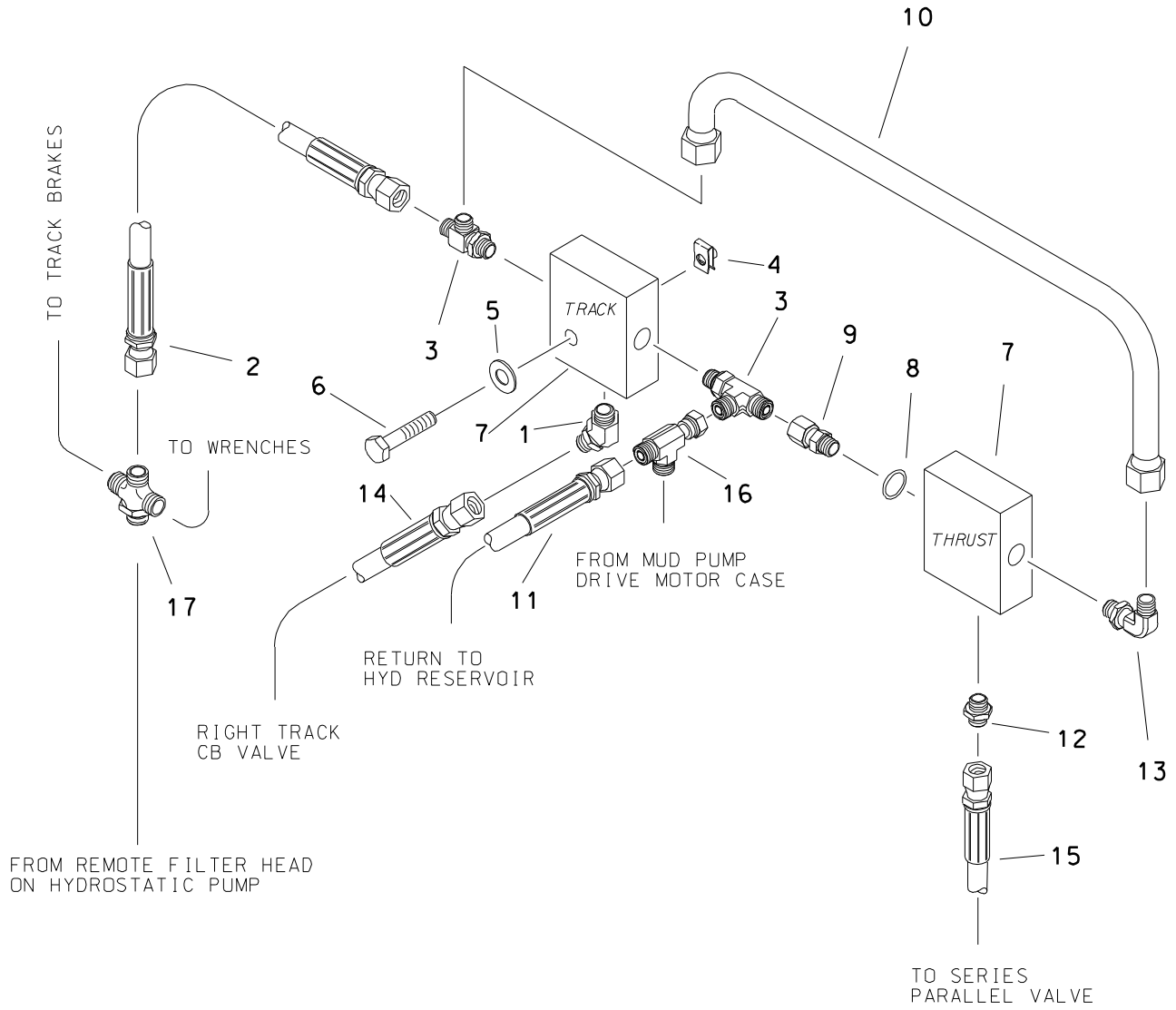
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FOOTNOTES:

NOTE:

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

2 SPEED TRACK AND THRUST



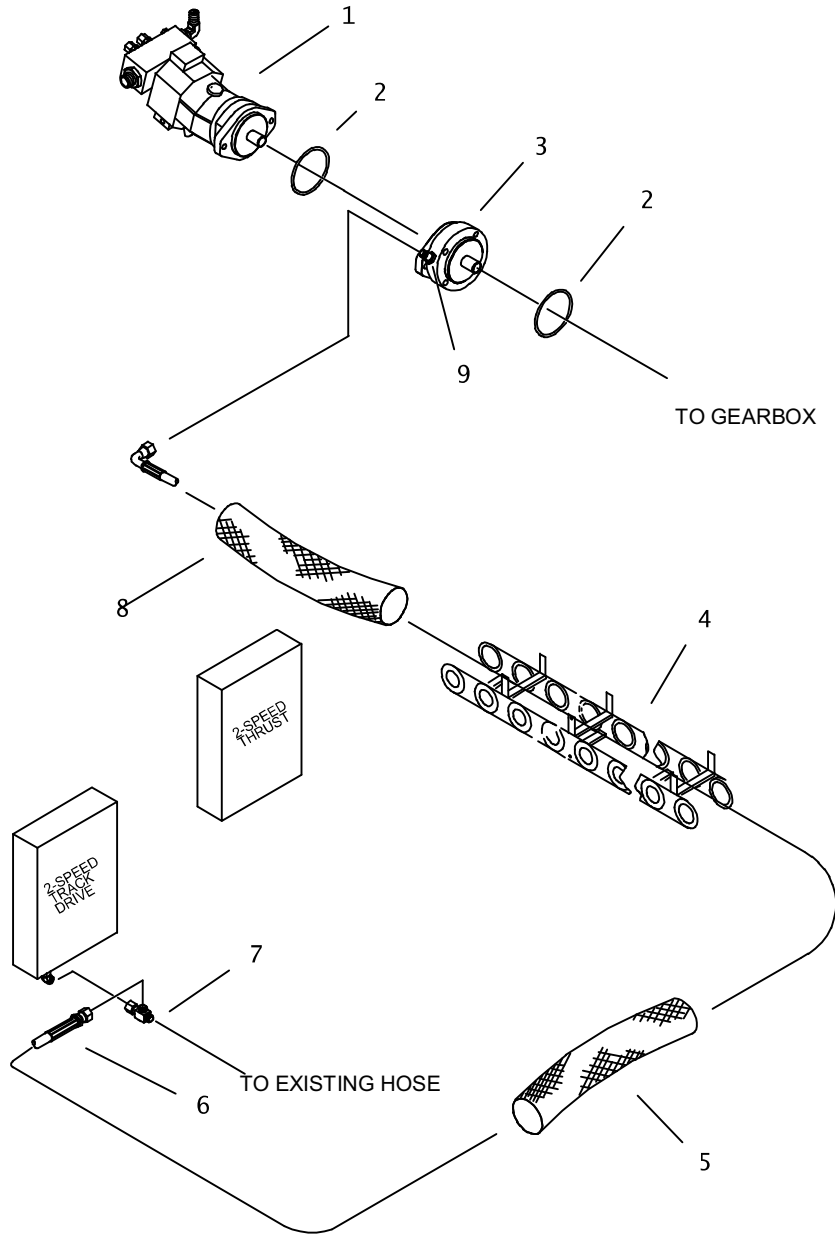
2 SPEED TRACK AND THRUST

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	154-224	1	CONNECTOR (06S-06045)	
2.	154-832	1	HOSE (060FX-23"-3000)	
3.	154-345	2	RUN TEE (06S-060-060)	
4.	106-574	4	CLIP NUT (M6-1.00)	
5.	105-095	4	WASHER (1/4")	
6.	107-025	4	SCREW (M6-1.0 X 50mm)	
7.	158-627	2	SOLENOID VALVE	
	500-756	1	SEAL REPAIR KIT	
	217-770	1	SOLENOID COIL	
	158-636	1	SOLENOID VALVE CARTRIDGE	
8.	155-705	1	O-RING (906 D90)	
9.	514-409	1	UNION (06J-060FX)	
10.	156-295	1	HYD LINE (-6)	
11.	154-754	1	HOSE (060FX-30"-3000)	
12.	154-220	1	CONNECTOR (040-06S)	
13.	154-342	1	CONNECTOR (06S-06090)	
14.	154-806	1	HOSE (060FX-54"-3000)	
15.	154-692	1	HOSE (040FX-54"-3000)	
16.	154-344	1	UN RUN TEE (060FX-060-060)	
17.	149-847	-	CROSS (06S-060-060-080)	

FOOTNOTES

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

SPINDLE BRAKE HYDRAULICS



SPINDLE BRAKE HYDRAULICS

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	153-244	-	HYD MOTOR	
2.	157-084	-	O-RING (159 D70)	
3.	160-1099	-	MODULAR BRAKE	
	500-1283	-	OIL SEAL	
	191-166	-	O-RING KIT	
	191-167	-	GASKET KIT	
	191-168	-	BEARING KIT	
	191-169	-	STACK SERVICE KIT	
	163-212	-	BLEEDER SCREW, DISC BRAKE	
4.	211-069	-	HOSE CARRIER	
5.	117-209	1	ABRASION SLEEVE (1.00" X 90")	
6.	149-824	1	HOSE (060FX90S-240"-3000)	
7.	154-344	1	UN RUN TEE (060FX-060-060)	
8.	117-676	1	ABRASION SLEEVE (1.00" X 30")	
9.	154-411	-	CONNECTOR (04S-060)	

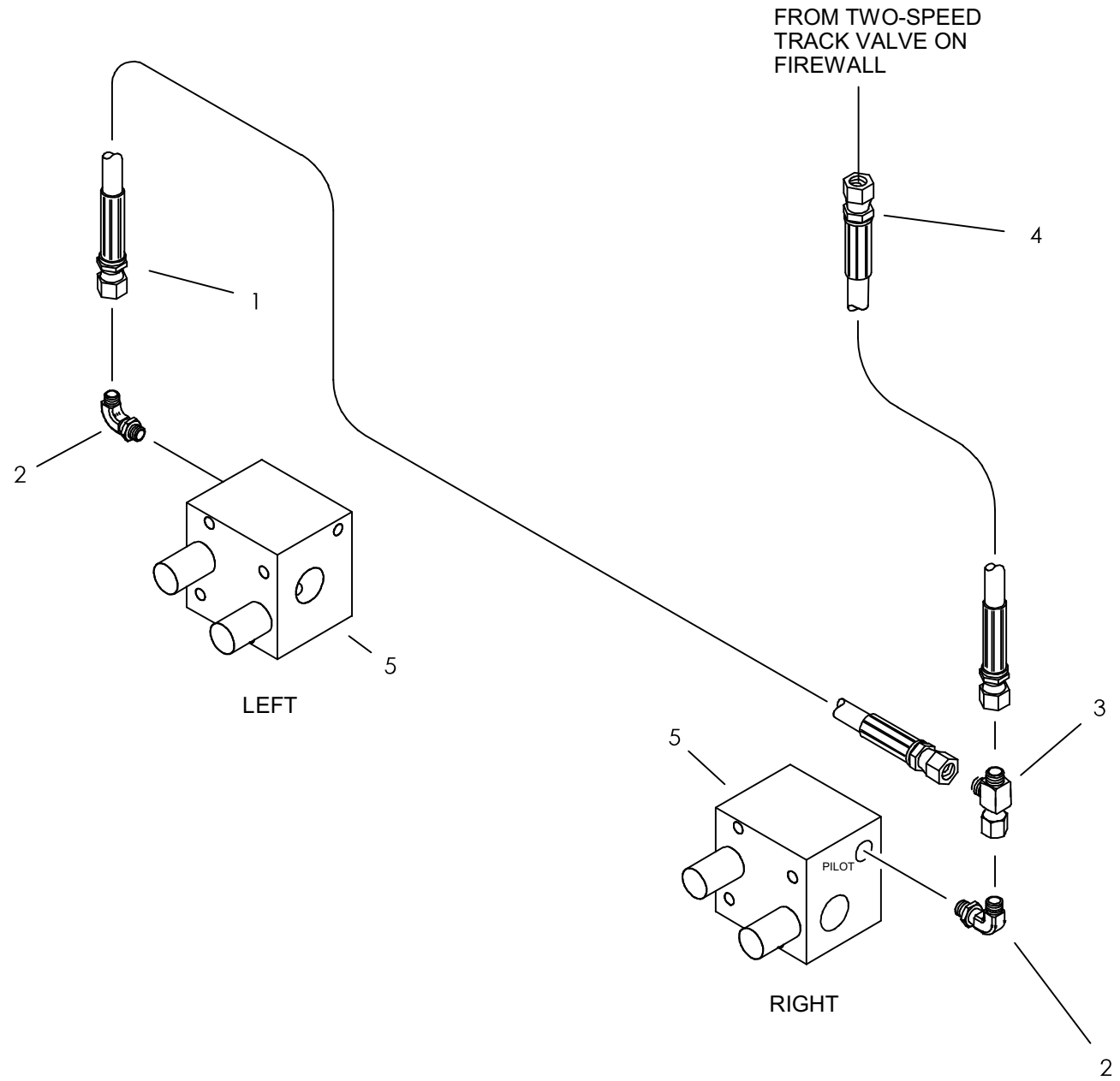
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FOOTNOTES:

NOTE:

SPINDLE BRAKE KIT {101-081} INCLUDES SOME ITEMS ON THIS PAGE AND SOME ITEMS ON SPINDLE BRAKE PAGE.

TRACK SHIFT



TRACK SHIFT

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	154-797	1	HOSE (060FX-48"-3000)	
2.	514-049	2	CONNECTOR (04S-06090)	
3.	154-344	1	UNION RUN TEE (060FX-060-060)	
4.	154-806	1	HOSE (060FX-54"-3000)	
5.	159-453	-	COUNTERBALANCE MANIFOLD	OBSOLETE, SERVICE CARTRIDGE

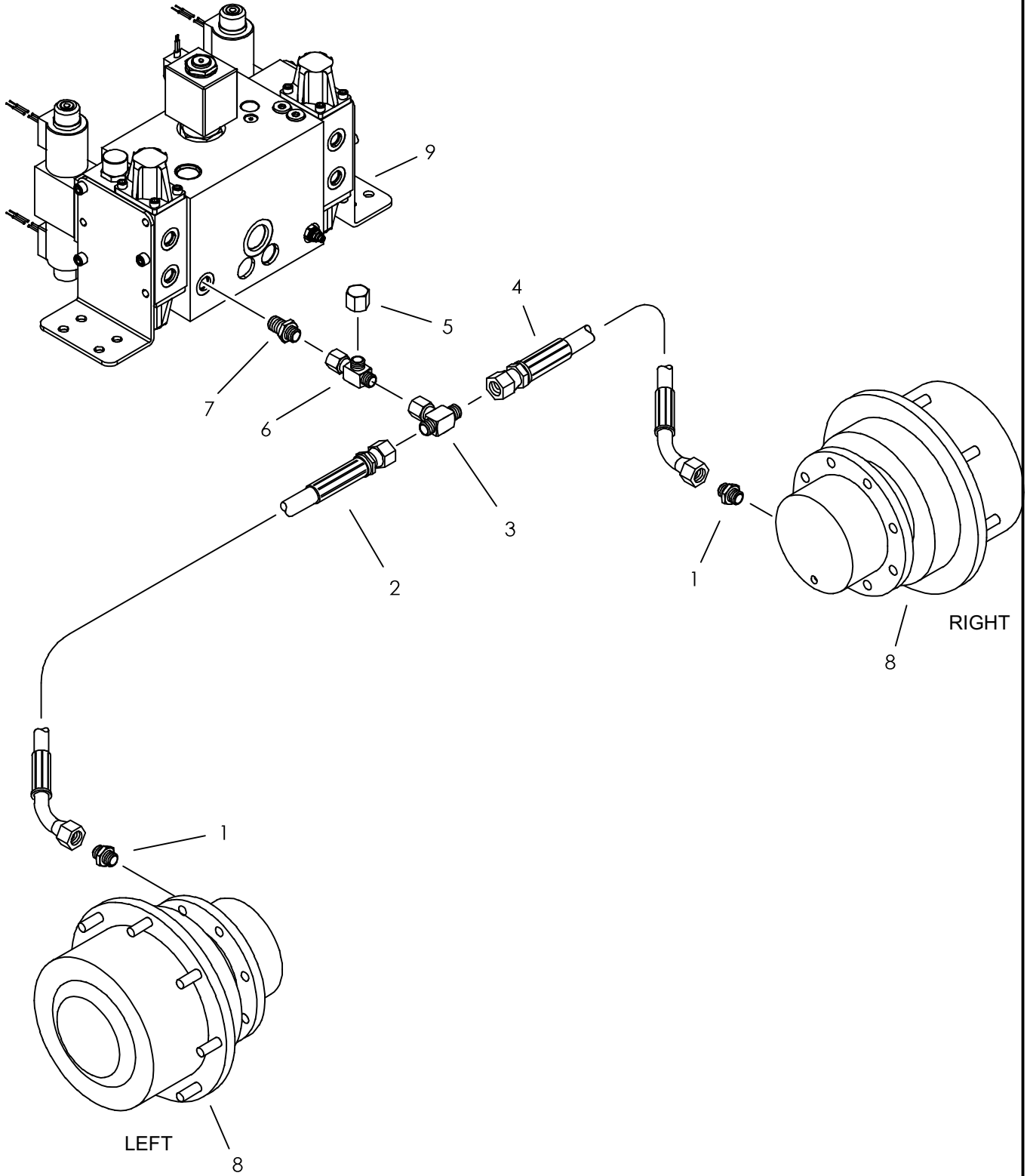
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FOOTNOTES:

NOTE:

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

TRACK BREAK



TRACK BREAK

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	154-411	2	CONNECTOR (04S-06O)	
2.	515-188	1	HOSE (06OFX90S-23"-3000)	
3.	154-348	1	UNION BR TEE (06OFX-06O-06O)	
4.	154-738	1	HOSE (06OFX90-34"-3000)	
5.	154-326	1	CAP (06OF)	
6.	154-344	1	UNION RUN TEE (06OFX-06O-06O)	
7.	154-221	1	CONNECTOR (06S-06O)	
8.	166-285	2	PLANETARY GEARBOX	
	157-613	-	INTERNAL SEAL	
	500-2029	-	RETAINER RING, INTERNAL	
9.	153-225	1	HYD CONTROL VALVE	OBSOLETE

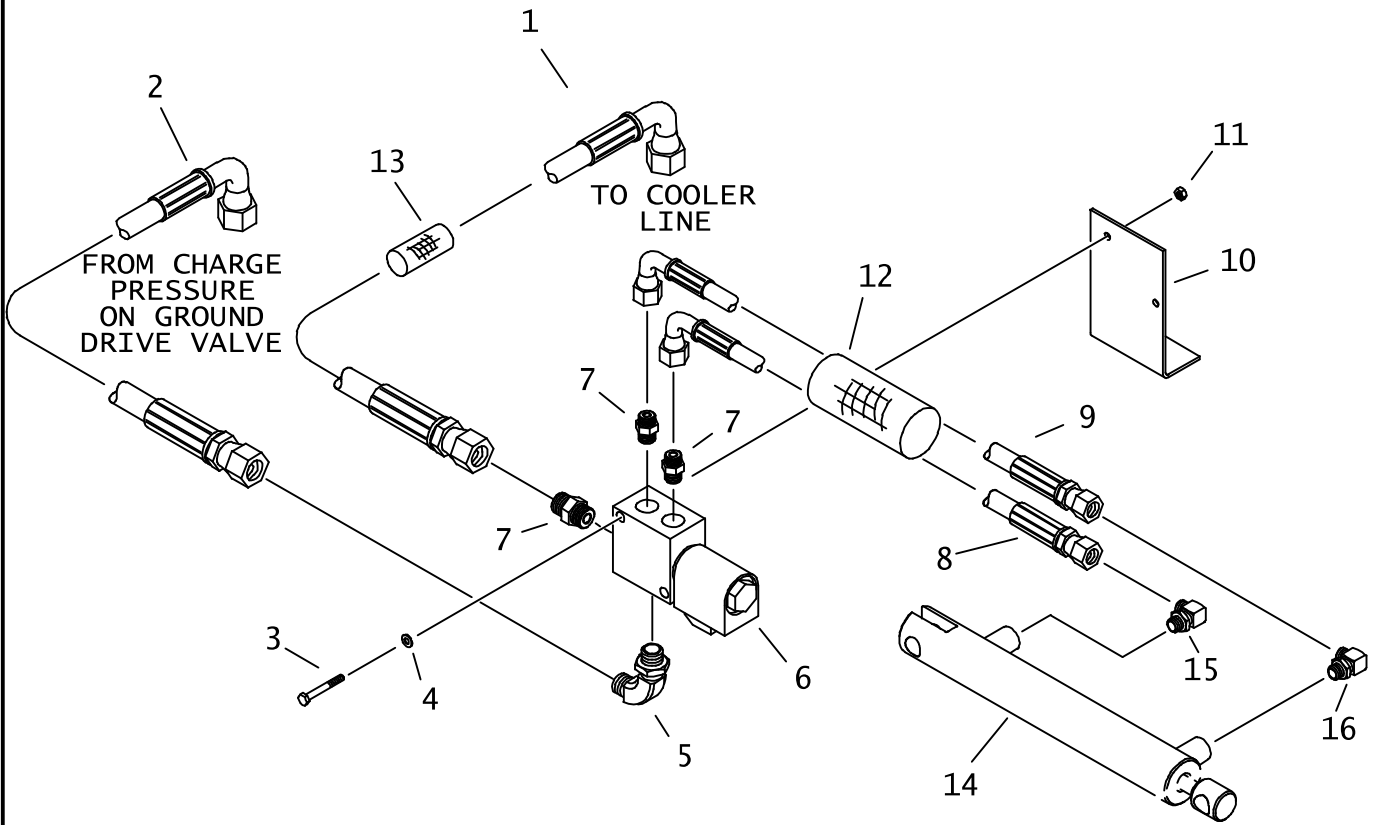
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FOOTNOTES:

NOTE:

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

FLUID CHECK SUPPLY HYDRAULICS



FLUID CHECK SUPPLY HYDRAULICS

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	515-696	1	HOSE (040FX90M-58"-3000)	
2.	515-583	1	HOSE (060FX90-12"-3000)	
3.	107-025	2	SCREW (M6-1.00 X 50MM)	
4.	105-095	2	WASHER (1/4")	
5.	154-342	1	CONNECTOR (06S-06090)	
6.	149-550	1	SOLENOID CONTROL VALVE	
	214-491	1	COIL (12V)	
7.	154-220	3	CONNECTOR (040-06S)	
8.	515-074	1	HOSE (040FX90-77"-3000)	
9.	154-982	1	HOSE (040FX90S-80"-3000)	
10.	310-637	1	VALVE BRACKET	
11.	106-538	1	LOCKNUT (M6-1.00,PRV TRQ,10.9)	
12.	115-963	1	ABRASION SLEEVE (1.59" X 75")	
13.	117-326	1	ABRASION SLEEVE (1.00" X 58")	
14.	150-727	-	CYL (1.0" X .500" X 4.0")	
15.	154-401	1	CONNECTOR (04S-04090, ORF)	
16.	154-252	1	CONNECTOR (04S-04090)	

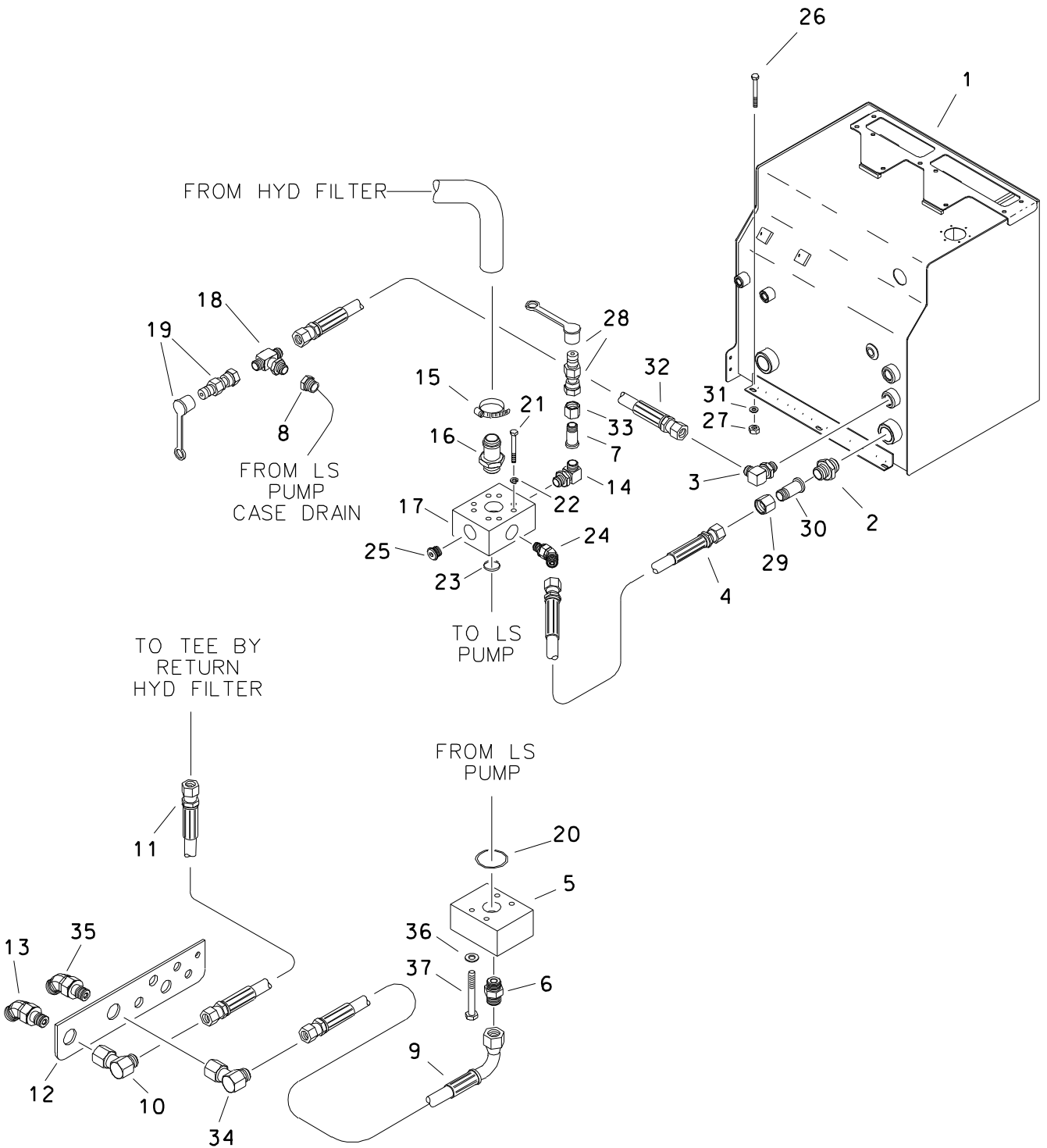
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FOOTNOTES:

NOTE:

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

THRUST/TRACK DRIVE PUMP HYDRAULICS



THRUST/TRACK DRIVE PUMP HYDRAULICS

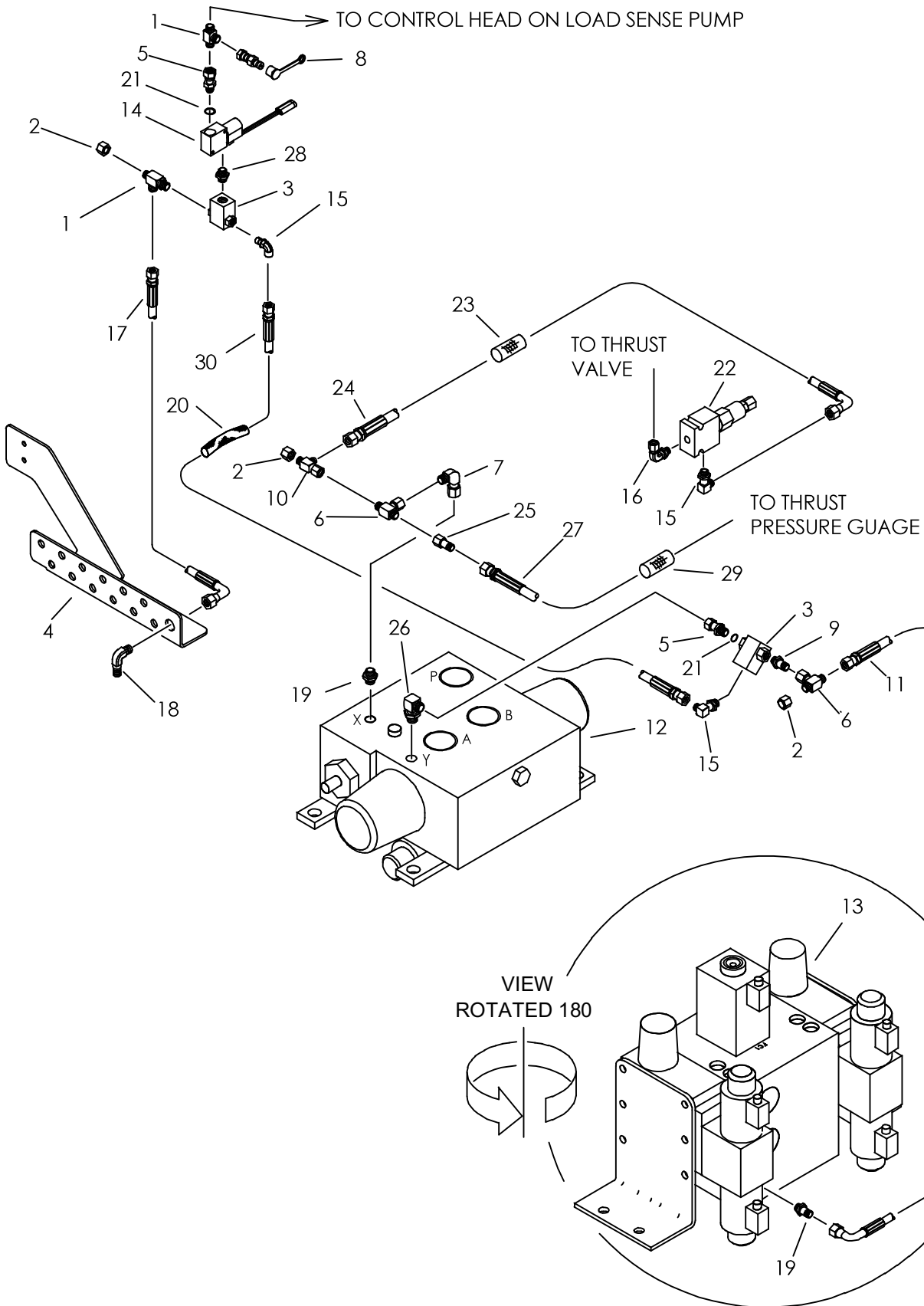
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	350-614	-	HYDRAULIC RESERVOIR	
2.	154-497	1	CONNECTOR (160-20S)	
3.	154-300	1	CONNECTOR (100-12S90)	
4.	154-698	1	HOSE (100FX-26"-2750)	
5.	153-393	1	MANIFOLD BLOCK	
6.	514-097	1	CONNECTOR (20S-200)	
7.	154-249	1	REDUCER STEM (080)	
8.	155-199	1	REDUCER (16S-10SF)	
9.	153-394	1	HOSE (200FX90L-27"-3000)	
10.	154-290	1	UNION (160-160FX90)	
11.	154-815	1	HOSE (160FX-48"-4000)	
12.	350-740	-	BULKHEAD PLATE	
13.	514-242	1	BK CONNECTOR (160-16045BK)	
14.	514-010	1	CONNECTOR (120-20S90)	
15.	110-250	1	WORM CLAMP (1-1/4" TO 2-1/8")	
16.	514-138	1	S/O COUPLER (24S-24H)	
17.	159-437	1	PUMP INLET MANIFOLD	
18.	154-318	1	BRANCH TEE (10S-100-100)	
19.	159-159	1	QDC ADAPTER (02-100FX)	
	159-148		DUST CAP (1/8")	
20.	157-128	1	O-RING (225 D90)	
21.	105-111	4	BOLT (1/2-NC X 4")	
22.	105-070	4	LOCK WASHER (.500")	
23.	157-015	1	O-RING (232 D70)	
24.	154-470	1	CONNECTOR (100-12S45)	
25.	155-144	1	PLUG (20S)	
26.	106-381	6	FLG LK SCREW (M8-1.25 X 25MM)	
27.	106-561	6	LOCKNUT (M8-1.25, PRV TRQ, 10.9)	
28.	159-158	1	QDC ADAPTER (02-080FX)	
	159-148		DUST CAP (1/8")	
29.	154-340	2	REDUCER NUT (160F)	
30.	154-442	2	REDUCER STEM (100)	
31.	105-118	6	WASHER (3/8")	
32.	515-516	1	HOSE (100FX-20"-3000)	
33.	154-271	1	REDUCER NUT (120F)	
34.	514-422	1	CONNECTOR (200-200FX90)	
35.	153-395	1	BK CONNECTOR (200-20045)	
36.	105-385	4	LOCK WASHER (5/8")	
37.	105-943	4	BOLT (5/8-NC X 2-3/4")	

FOOTNOTES

NOTE:

1. 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.	154-345	2	RUN TEE (06S-060-060)	
2.	154-326	3	CAP (060F)	
3.	158-600	2	HYD SHUTTLE VALVE	NOT SERVICABLE PER SUPPLIER
4.	354-466	-	BULKHEAD PLATE	
5.	514-409	2	UNION (06J-060FX)	
6.	154-348	2	UNION BR TEE (060FX-060-060)	
7.	154-228	1	UNION (060-060FX90)	
8.	159-157	1	QDC ADAPTER (02-060F)	
9.	154-221	1	CONNECTOR (06S-060)	
10.	154-344	1	UNION RUN TEE (060FX-060-060)	
11.	149-559	1	HOSE (060FX90M-20"-3000)	
12.	516-092	-	THRUST VALVE (ELECTRIC)	OBSOLETE
	157-440	-	THRUST VALVE (ELECTRIC)	
13.	153-225	-	HYD CONTROL VALVE	OBSOLETE
	217-897		SOLENOID COIL (LARGE)	
	214-434		SOLENOID COIL (SMALL)	
	149-565		3-WAY CARTRIDGE VALVE	
14.	158-661	1	HYD CONTROL VALVE	
15.	154-342	3	CONNECTOR (06S-06090)	
16.	154-343	1	UNION (06S-060FX90)	
17.	154-738	1	HOSE (060FX90-34"-3000)	SEE FOOTNOTE 1
18.	154-229	1	BK CONNECTOR (060-06090BK)	
19.	154-411	2	CONNECTOR (04S-060)	
20.	117-702	1	ABRASION SLEEVE (1.00" x 68")	
21.	155-705	2	O-RING (906 D90)	
22.	516-121	1	VALVE	
23.	117-611	1	ABRASION SLEEVE (1.00" x 22")	
24.	515-188	1	HOSE (060FX90S-23"-3000)	
25.	154-373	1	REDUCER (040-060F)	
26.	514-049	1	CONNECTOR (04S-06090)	
27.	515-161	1	HOSE (040FX-160"-3000)	
28.	155-153	1	CONNECTOR (06S-06S)	
29.	117-759	1	ABRASION SLEEVE (1.00" x 160")	
30.	154-808	1	HOSE (060FX-74"-3000)	SEE FOOTNOTE 2

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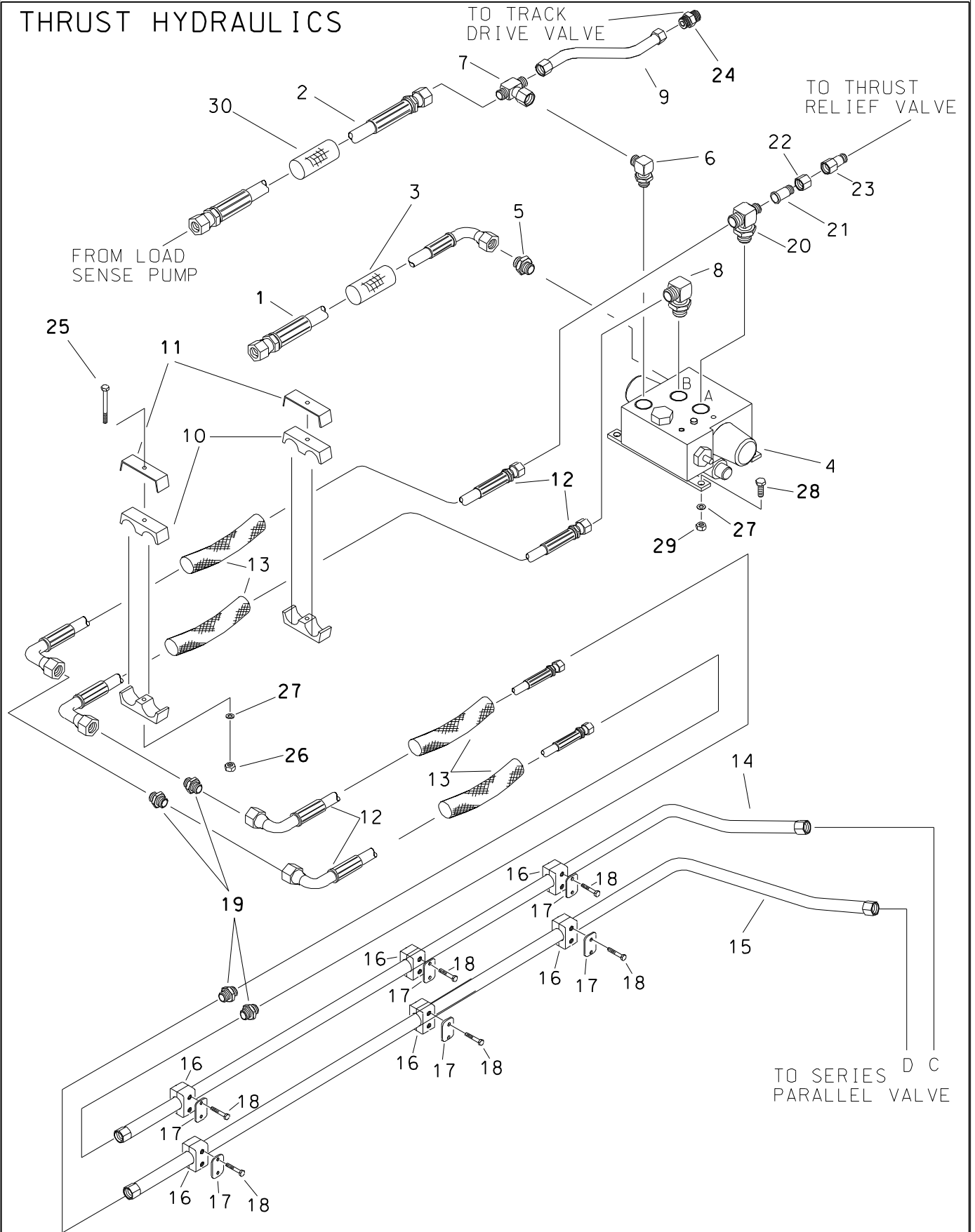
FOOTNOTES:

1. PRIOR TO S/N 2V2507, THIS HOSE CONNECTED TO ITEM 15 AT THE SHUTTLE VALVE NEAREST THE PUMP.
2. PRIOR TO S/N 2V2507, THIS HOSE CONNECTED TO ITEM 1 AT THE SHUTTLE VALVE NEAREST THE PUMP.

NOTE:

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

THRUST HYDRAULICS



THRUST HYDRAULICS

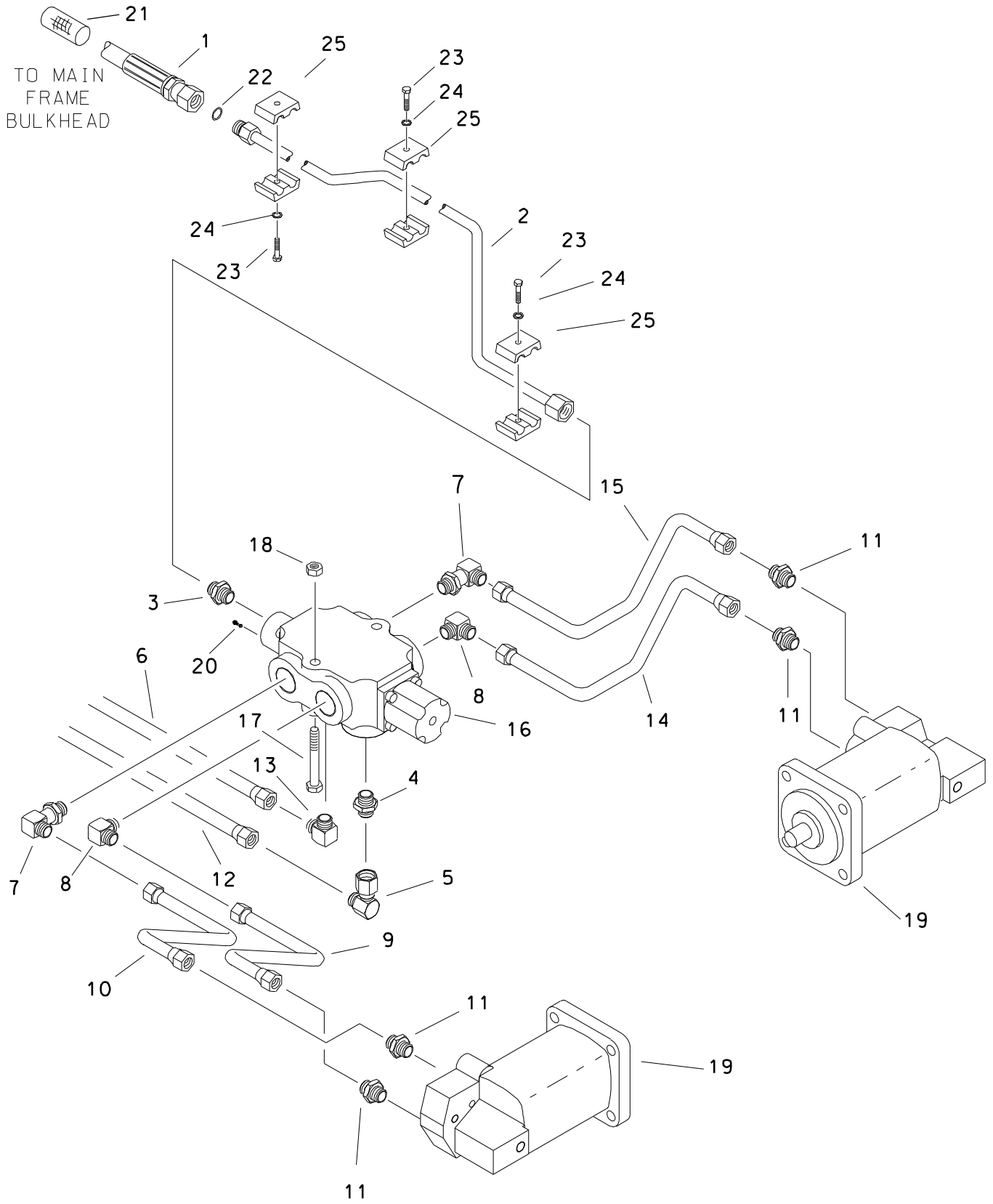
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	515-655	1	HOSE (160FX90-47"-3000)	
2.	157-499	1	HOSE (200FX-47"-3000, SPECIAL)	
3.	115-715	1	ABRASION SLEEVE (2.07" X 42")	
4.	157-440	1	THRUST VALVE (ELECTRIC)	
5.	154-398	1	CONNECTOR (16S-160, XLG)	
6.	154-287	1	CONNECTOR (16S-16090)	
7.	153-391	1	TEE (-200-160-160FX)	
8.	154-289	1	CONNECTOR (16S-16090, XL)	
9.	156-896	1	HYD LINE (160FX-4.7")	
10.	110-359	2	BOLT-ON CLAMP (1-1/2", SET)	
11.	315-623	2	BACKUP SPACER	
12.	515-656	4	HOSE (160FX90-55"-3000)	
13.	117-289	4	ABRASION SLEEVE (2.07" X 55")	
14.	149-296	1	HYD LINE (-16)	
15.	149-295	1	HYD LINE (-16)	
16.	110-573	6	BOLT-ON CLAMP (1", SOLD PER SET)	
17.	322-289	6	BACKUP (BOLT-ON)	
18.	105-818	12	BOLT (1/4-NC X 1-1/2")	
19.	154-439	4	CONNECTOR (160-160)	
20.	154-347	1	BRANCH TEE (16S-160-160)	
21.	154-341	1	REDUCER STEM (080)	
22.	154-340	1	REDUCER NUT (160F)	
23.	154-262	1	REDUCER (060-080F)	
24.	154-281	1	CONNECTOR (16S-160)	
25.	106-602	2	SCREW (M8-1.25 X 80MM)	
26.	106-561	2	LOCKNUT (M8-1.25, PRV TRQ, 10.9)	
27.	106-396	10	WASHER (M10, HARDENED)	
28.	106-079	8	SCREW (M10-1.50 X 30MM)	
29.	105-894	8	LOCKNUT (M10-1.50, PRV TRQ, 10.9)	
30.	117-668	1	ABRASION SLEEVE (2.38" X 42")	

FOOTNOTES

NOTE

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

THRUST DRIVE HYDRAULICS



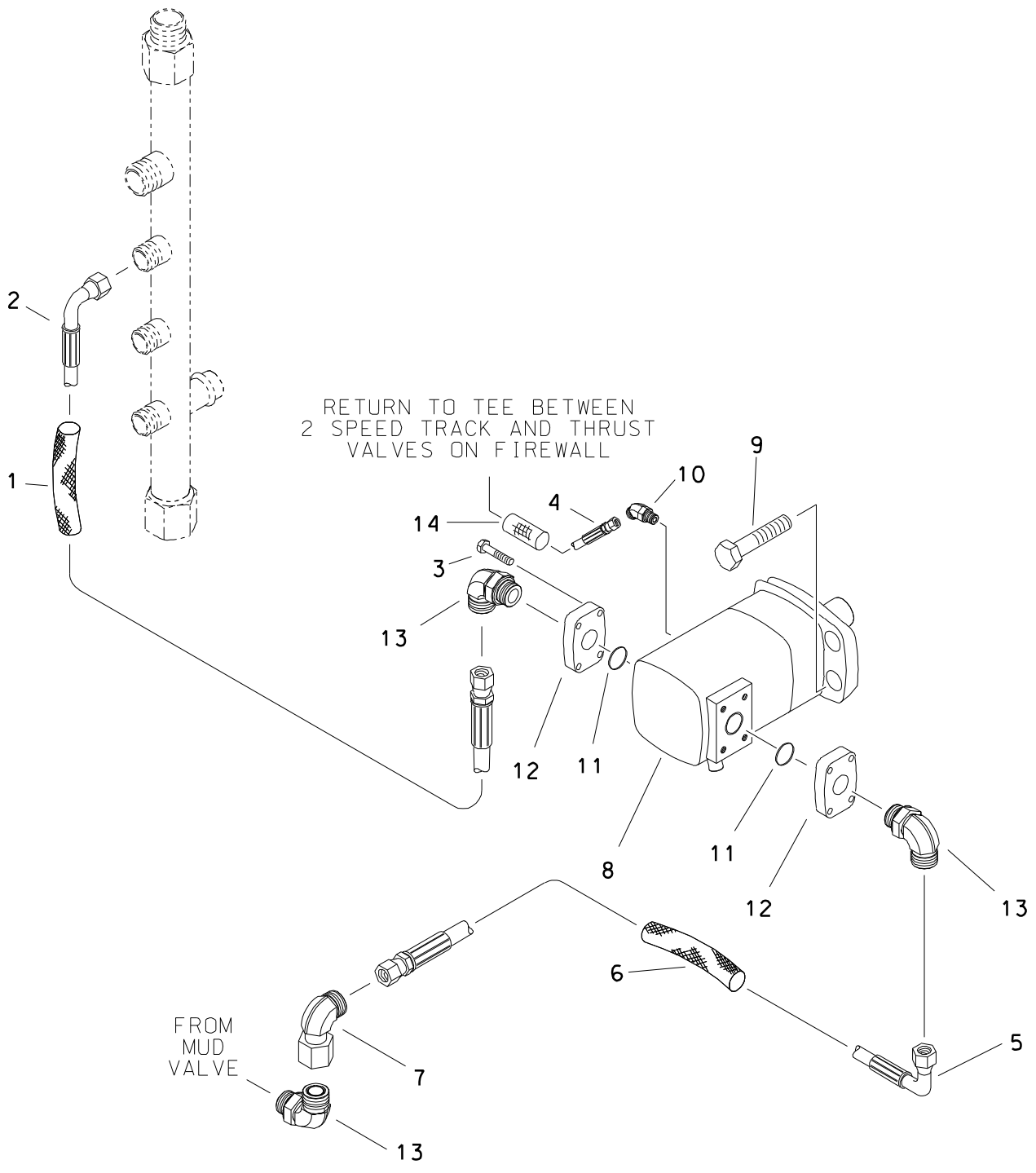
THRUST DRIVE HYDRAULICS

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	154-651	1	HOSE (040FX-66"-3000)	
2.	153-040	1	HYD LINE	
3.	154-411	1	CONNECTOR (04S-060)	
4.	154-281	1	CONNECTOR (16S-160)	
5.	154-290	1	UNION (160-160FX90)	
6.	149-296	-	HYD LINE (-16)	
7.	154-338	2	CONNECTOR (12S-12090, XL)	
8.	154-270	2	CONNECTOR (12S-12090)	
9.	156-886	1	HYD LINE (-12)	
10.	156-885	1	HYD LINE (-12)	
11.	154-269	4	CONNECTOR (12S-120)	
12.	149-295	-	HYD LINE (-16)	
13.	154-287	1	CONNECTOR (16S-16090)	
14.	156-884	1	HYD LINE (-12)	
15.	156-883	1	HYD LINE (-12)	
16.	149-343	1	HYDRAULIC CONTROL VALVE	
	190-863		SEAL REPAIR KIT	
	500-698		END CAP	NOT DRILLED/TAPPED
	310-800		END CAP	DRILLED/TAPPED
17.	106-570	2	SCREW (M8-1.25 X 60mm)	
18.	106-561	2	LOCKNUT (M8-1.25, PRV TRQ, 10.9)	
19.	158-026	2	HYD MOTOR (15 CU/IN)	
20.	163-101	1	BLEEDER VALVE	
21.	117-613	1	ABRASION SLEEVE (1.00" X 64")	
22.	157-037	1	O-RING (011 D90)	
23.	105-197	3	BOLT (1/4-NC X 1")	
24.	105-117	3	WASHER (5/16")	
25.	110-998	3	CLAMP HALVES (3/8") PAIR	

FOOTNOTES

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

MUD MOTOR HYDRAULICS



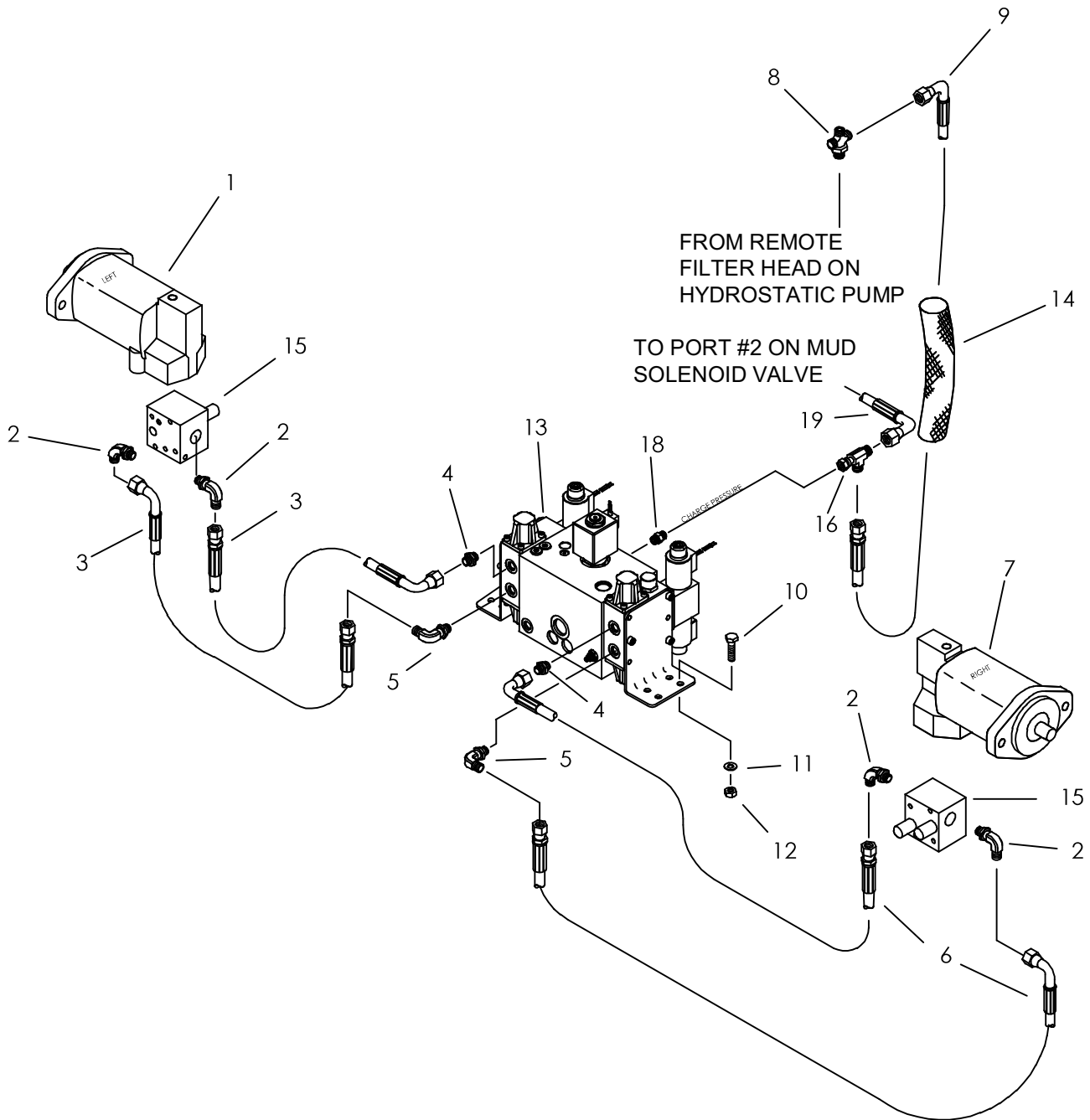
MUD MOTOR HYDRAULICS

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	117-097	1	ABRASION SLEEVE (2.07" X 80")	
2.	153-431	1	HOSE (160FX90S-78"-3000)	
3.	105-918	8	BOLT (7/16-NC X 1-1/2", SOC)	
4.	154-789	1	HOSE (060FX-102"-3000)	
5.	153-432	1	HOSE (160FX90S-64"-3000)	
6.	117-179	1	ABRASION SLEEVE (2.07" X 62")	
7.	154-290	1	UNION (160-160FX90)	
8.	149-395	1	HYDRAULIC MOTOR	
	191-263	-	SEAL REPAIR KIT	
9.	105-282	4	BOLT (1/2-NC X 1-1/4", SOC)	
10.	154-224	1	CONNECTOR (06S-06045)	
11.	157-078	2	O-RING (222 D90)	
12.	149-084	2	HEAD FLANGE (20HF-16SF)	
13.	154-287	3	CONNECTOR (16S-16090)	
14.	117-213	1	ABRASION SLEEVE (1.00" X 96")	

FOOTNOTES

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

TRACK DRIVE HYDRAULICS



TRACK DRIVE HYDRAULICS

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	158-951	-	HYD MOTOR	LEFT TRACK, ENDS WITH S/N 2X0254
	153-593	-	HYDRAULIC MOTOR	LEFT TRACK, BEGINS WITH S/N 2Y0003
2.	154-300	4	CONNECTOR (100-12S90)	
3.	515-520	2	HOSE (100FX90-15.5"-3000)	
4.	154-301	2	CONNECTOR (10S-100)	
5.	154-298	2	CONNECTOR (10S-10090)	
6.	515-597	2	HOSE (100FX90-17"-3000)	
7.	158-949	-	HYD MOTOR	RIGHT TRACK, ENDS WITH S/N 2X0254
	153-592	-	HYDRAULIC MOTOR	RIGHT TRACK, BEGINS WITH S/N 2Y0003
8.	149-847	-	CROSS (06S-060-060-080)	
9.	515-151	1	HOSE (060FX90-96"-3000)	
10.	106-079	4	SCREW (M10-1.50 x 30mm)	
11.	106-396	4	WASHER (M10, HARDENED)	
12.	105-894	4	LOCKNUT (M10-1.50, PRV TRQ, 10.9)	
13.	153-225	1	HYD CONTROL VALVE	OBSOLETE
14.	117-713	1	ABRASION SLEEVE (1.00" x 76")	
15.	159-453	2	COUNTERBALANCE MANIFOLD	OBSOLETE
	158-020		HYDRAULIC VALVE	
16.	154-344	1	UN RUN TEE (060FX-060-060)	BACK PORT (NOT SHOWN)
17.	154-252	2	CONNECTOR (04S-04090)	
18.	156-174	1	CONNECTOR (06S-060 LG)	
19.	515-583	-	HOSE (060FX90-12"-3000)	

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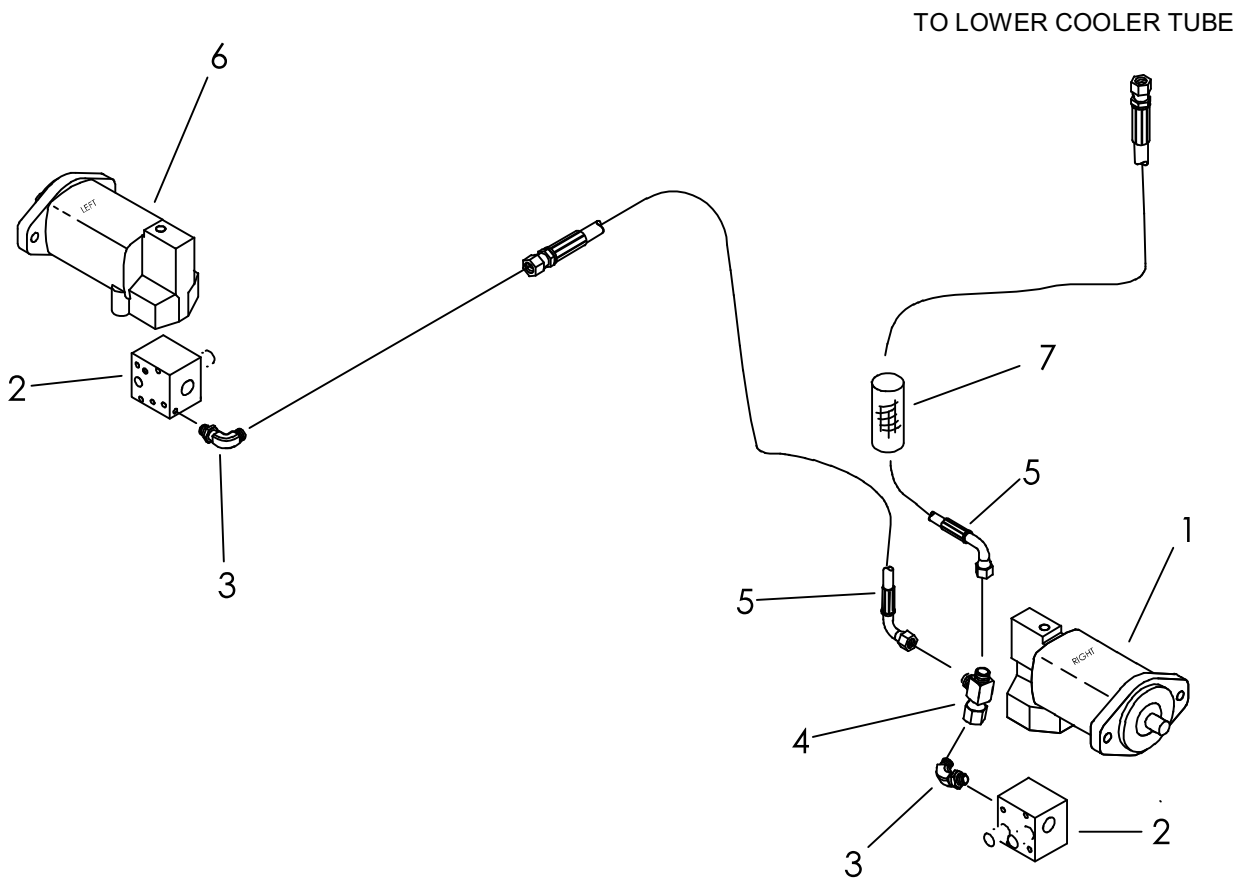
FOOTNOTES:

153-592 - USE SEAL KIT 500-752

NOTE:

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

TRACK CASE DRAIN HYDRAULICS



TRACK CASE DRAIN HYDRAULICS

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	158-949	-	HYDRAULIC MOTOR	RIGHT TRACK, ENDS WITH S/N 2X0254
	153-592	-	HYDRAULIC MOTOR	RIGHT TRACK, BEGINS WITH S/N 2Y0003
2.	159-453	-	COUNTERBALANCE MANIFOLD	OBSOLETE
3.	154-252	2	CONNECTOR (04S-04090)	
4.	154-265	1	UNION RUN TEE (040FX-040-040)	
5.	154-728	2	HOSE (040FX90-36"-3000)	
6.	158-951	-	HYDRAULIC MOTOR	LEFT TRACK, ENDS WITH S/N 2X0254
	153-593	-	HYDRAULIC MOTOR	LEFT TRACK, BEGINS WITH S/N 2Y0003
7.	117-718	1	ABRASION SLEEVE (1" X 36")	

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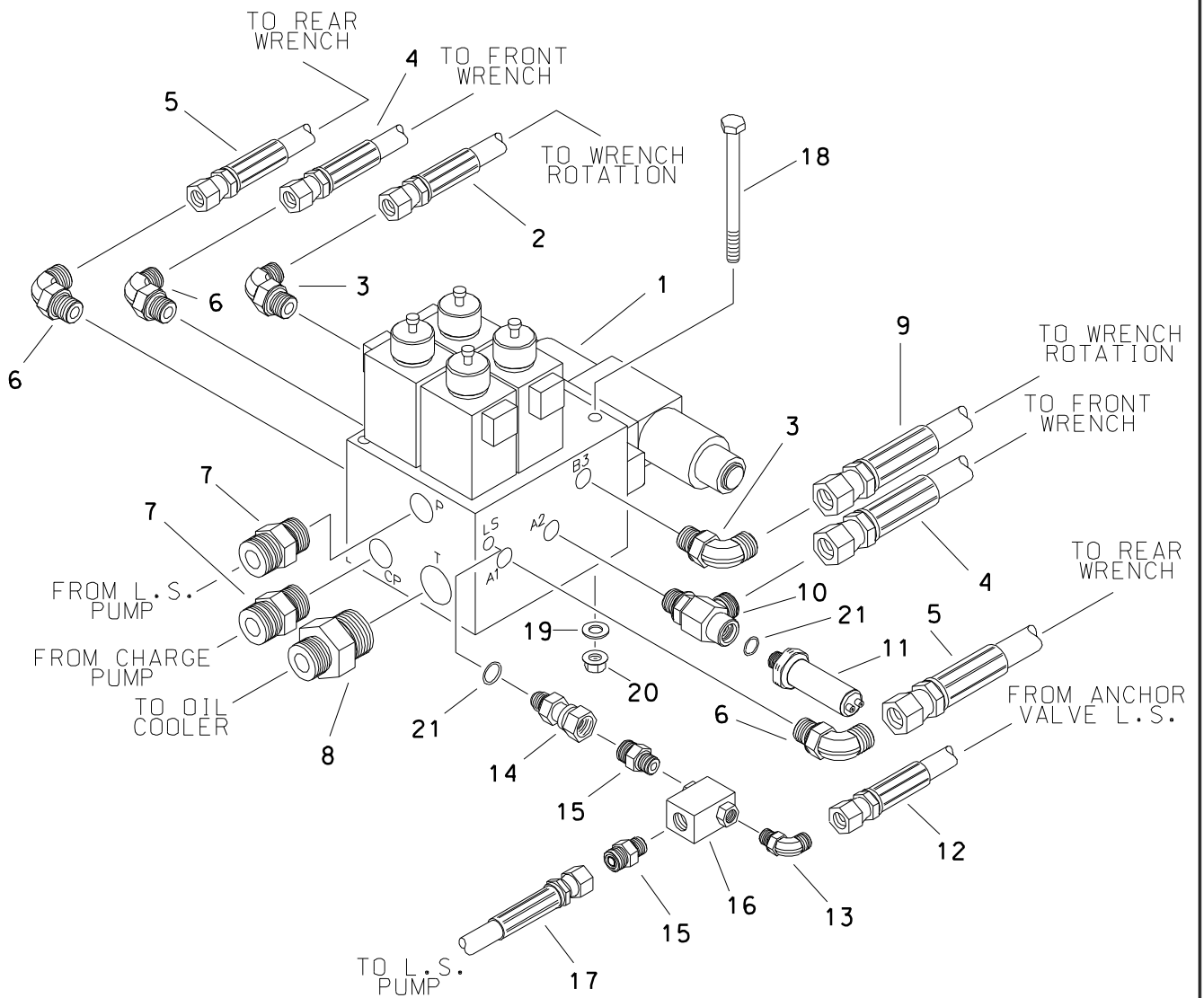
FOOTNOTES:

153-592 USE SEAL KIT 500-752

NOTE:

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

WRENCH HYDRAULICS



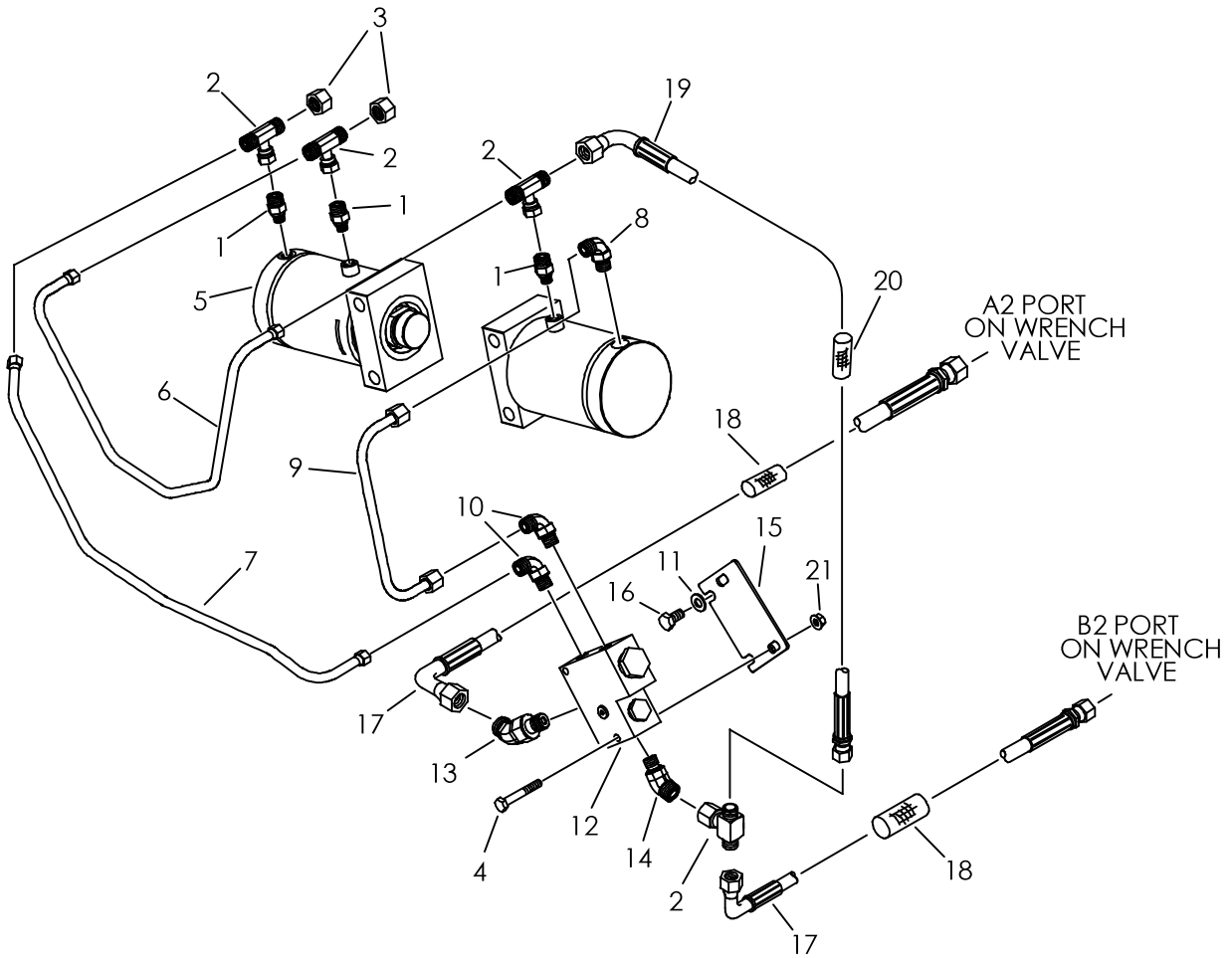
WRENCH HYDRAULICS

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	153-410	1	HYDRAULIC VALVE	
	499-309	-	SOLENOID	
	499-311	-	SOLENOID CARTRIDGE	
	499-312	-	SOLENOID COIL	
	501-872	-	SHUTTLE VALVE	
	499-313	-	CHECK VALVE	
	191-103	-	SEAL REPAIR KIT	
	191-104	-	SEAL REPAIR KIT	
	500-703	-	SEAL REPAIR KIT	
2.	154-797	-	HOSE (060FX-48"-3000)	
3.	154-227	2	CONNECTOR (060-08S90)	
4.	515-303	-	HOSE (080FX90-58"-3000)	
5.	515-141	-	HOSE (080FX90-82"-3000)	
6.	154-235	3	CONNECTOR (08S-08090)	
7.	154-269	2	CONNECTOR (12S-120)	
8.	154-367	1	CONNECTOR (120-16S)	
9.	154-996	-	HOSE (060FX-58"-3000)	
10.	149-572	1	CONNECTOR (08S-08090-06SF)	
11.	214-645	1	PRESSURE SWITCH (500PSI)	
12.	515-410	-	HOSE (060FX45-118"-3000)	
13.	154-342	1	CONNECTOR (06S-06090)	
14.	514-409	1	UNION (06J-060FX)	
15.	154-221	2	CONNECTOR (06S-060)	
16.	158-600	1	HYD SHUTTLE VALVE	
17.	154-816	-	HOSE (060FX-120"-3000)	
18.	105-288	3	BOLT (3/8-NC X 5-1/2")	
19.	106-390	3	WASHER (M10)	
20.	105-047	3	LOCKNUT (3/8-NC)	
21.	155-705	2	O-RING (906 D90)	

FOOTNOTES

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.	154-246	3	CONNECTOR (06S-080)	
2.	154-257	4	UN BR TEE (080FX-080-080)	
3.	154-327	2	CAP (080F)	
4.	106-142	2	SCREW (M10-1.50 X 65MM)	
5.	151-206	2	CYL (4.50" X 2.25" X 2.75")	
6.	149-500	1	HYD LINE	
7.	149-650	1	HYDRAULIC LINE (08)	
8.	154-253	1	CONNECTOR (06S-08090)	
9.	149-986	1	HYDRAULIC LINE (-08)	
10.	154-235	2	CONNECTOR (08S-08090)	
11.	106-397	2	WASHER (M12, HARDENED)	
12.	149-791	1	HYDRAULIC CONTROL VALVE	USE SERVICE PARTS: 500-2041 SEAL KIT & 500-2042 SEAL
13.	154-264	1	CONNECTOR (080-10S45)	
14.	154-283	1	CONNECTOR (06S-08045)	
15.	310-911	1	PLATE	
16.	107-521	2	SCREW (M12-1.75 X 20MM)	
17.	515-303	2	HOSE (080FX90-58"-3000)	
18.	117-669	2	ABRASION SLEEVE (1.75" X 55")	
19.	154-750	1	HOSE (080FX90-28"-3000)	
20.	117-708	1	ABRASION SLEEVE (1.59" X 28")	
21.	107-661	2	FLG LKNUT (M10-1.50, PRV TRQ)	

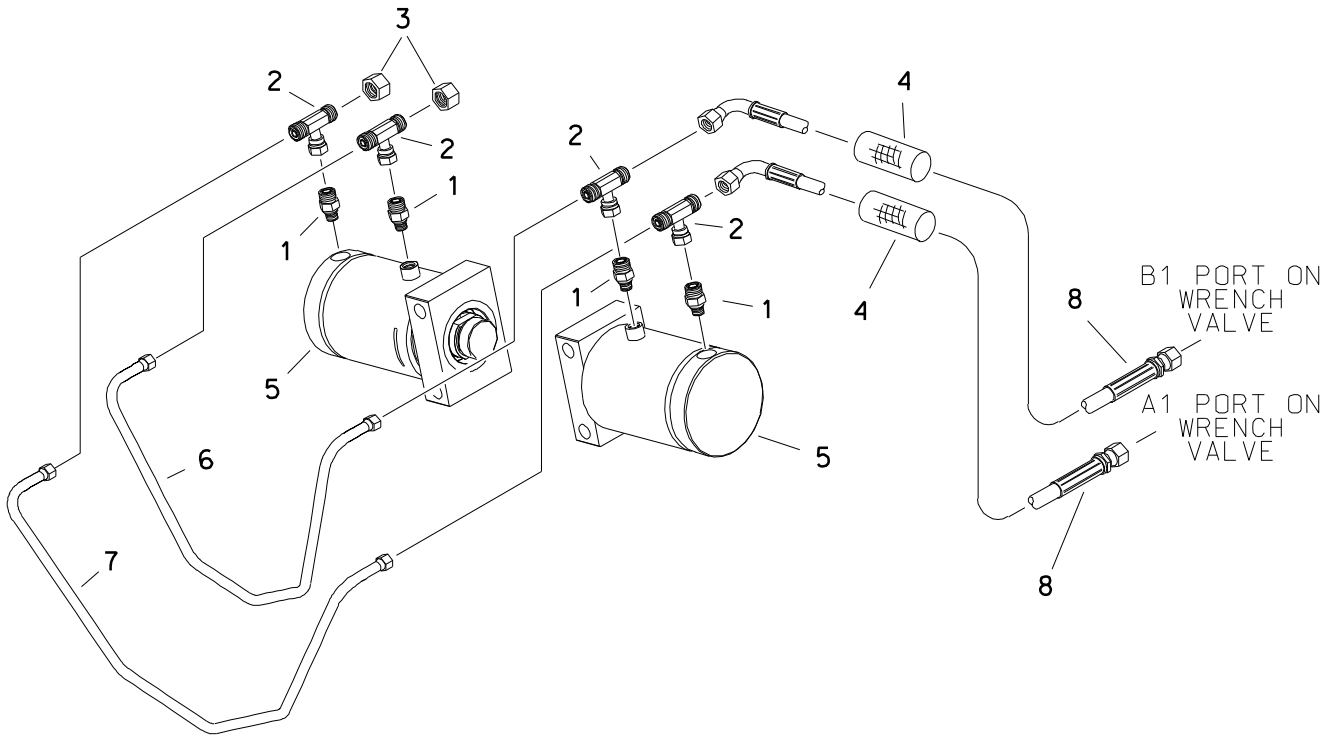
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FOOTNOTES:

NOTE:

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

REAR WRENCH HYDRAULICS



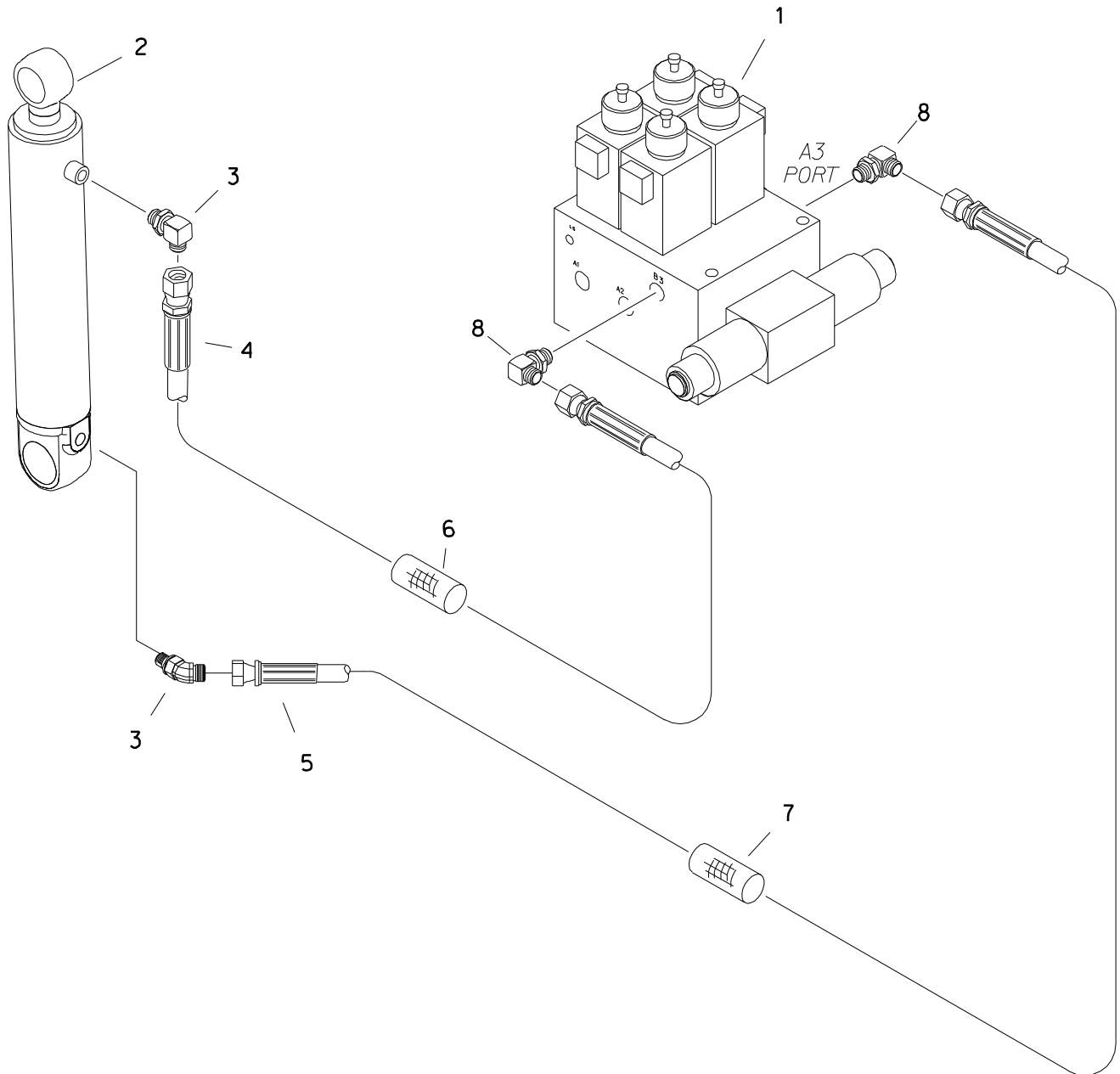
REAR WRENCH HYDRAULICS

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	154-246	4	CONNECTOR (06S-080)	
2.	154-257	4	UN BR TEE (080FX-080-080)	
3.	154-327	2	CAP (080F)	
4.	117-680	2	ABRASION SLEEVE (1.75" X 58")	
5.	151-206	2	CYL (4.50" X 2.25" X 2.75")	
6.	149-500	1	HYD LINE	
7.	149-501	1	HYD LINE	
8.	515-141	2	HOSE (080FX90-82"-3000)	

FOOTNOTES

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

WRENCH ROTATE HYDRAULICS



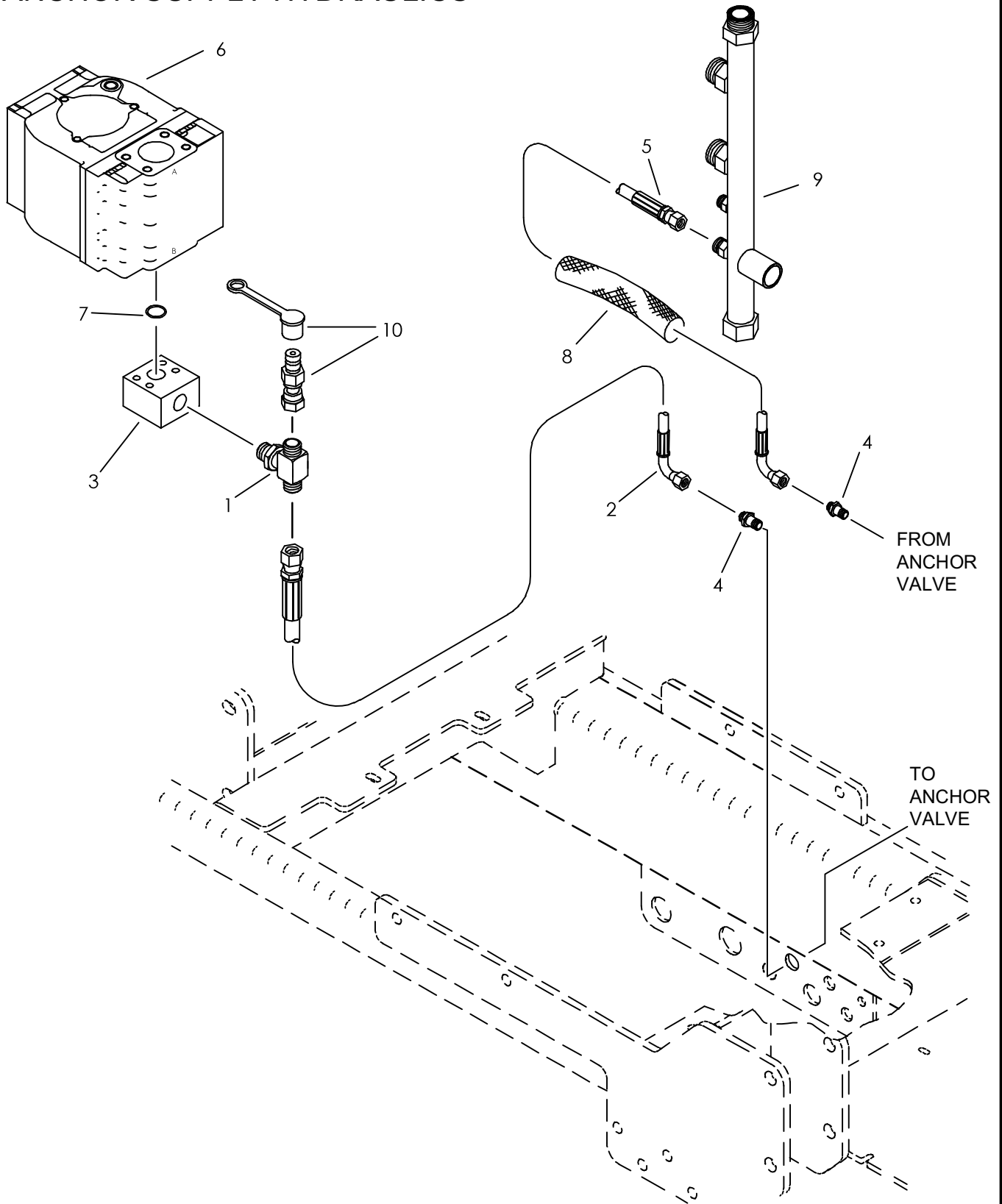
WRENCH ROTATE HYDRAULICS

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	149-258	1	HYDRAULIC CONTROL VALVE	
2.	151-031	-	CYL (2.0" X 1.0" X 8.0")	
3.	514-049	2	CONNECTOR (04S-06090)	
4.	154-996	1	HOSE (060FX-58"-3000)	
5.	154-797	1	HOSE (060FX-48"-3000)	
6.	117-707	1	ABRASION SLEEVE (1.59" X 56")	
7.	117-720	1	ABRASION SLEEVE (1.59" X 48")	
8.	154-227	-	CONNECTOR (060-08S90)	

FOOTNOTES

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

ANCHOR SUPPLY HYDRAULICS



ANCHOR SUPPLY HYDRAULICS

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	154-318	1	BRANCH TEE (10S-100-100)	
2.	515-454	1	HOSE (100FX90L-20"-3000)	
3.	153-393	1	MANIFOLD BLOCK	
4.	154-309	2	BK CONNECTOR (100-100BK)	
5.	515-690	1	HOSE (100FX90L-58"-3000)	
6.	150-2180	-	HYDRAULIC PUMP LS	
	190-1371	-	PUMP SEAL KIT	
7.	157-128	-	O-RING (225 D90)	
8.	115-903	1	ABRASION SLEEVE (1.59" X 50")	
9.	153-389	-	COOLER BY-PASS	
10.	159-159	1	QDC ADAPTER (02-100FX)	
	159-148	1	DUST CAP (1/8")	

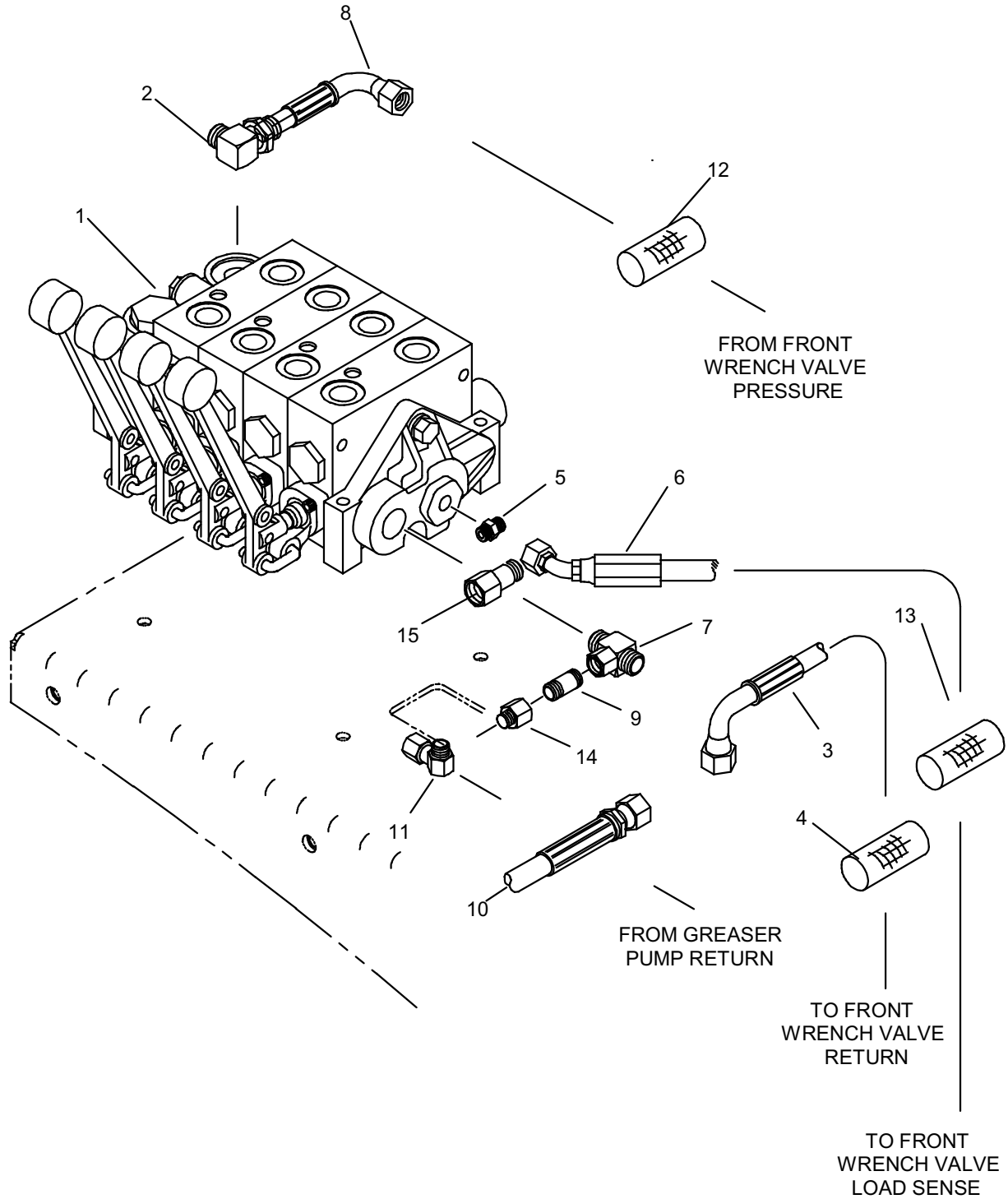
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FOOTNOTES:

NOTE:

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

ANCHOR VALE PRESSURE & RETURN HYDRAULICS



ANCHOR VALE PRESSURE & RETURN HYDRAULICS

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	158-064	1	HYD CONTROL VALVE (4-SPOOL)	
2.	154-300	1	CONNECTOR (100-12S90)	
3.	515-670	1	HOSE (100FX90-85"-3000)	
4.	115-817	1	ABRASION SLEEVE (1.59" X 84")	
5.	154-411	1	CONNECTOR (04S-060)	
6.	515-410	1	HOSE (060FX45-118"-3000)	
7.	154-458	1	UNION RUN TEE (06SFS-10S-100)	
8.	515-618	1	HOSE (100FX90-95"-3000)	
9.	159-381	1	CHECK VALVE (06S-060)	
10.	149-827	1	HOSE (040FX90S-24"-3000)	
11.	154-255	1	UNION (040-040FX90)	
12.	116-787	1	ABRASION SLEEVE (1.59" X 95")	
13.	117-212	1	ABRASION SLEEVE (1.25" X 118")	
14.	154-373	1	REDUCER (040-060F)	
15.	510-017	1	REDUCER (12S-10SF)	

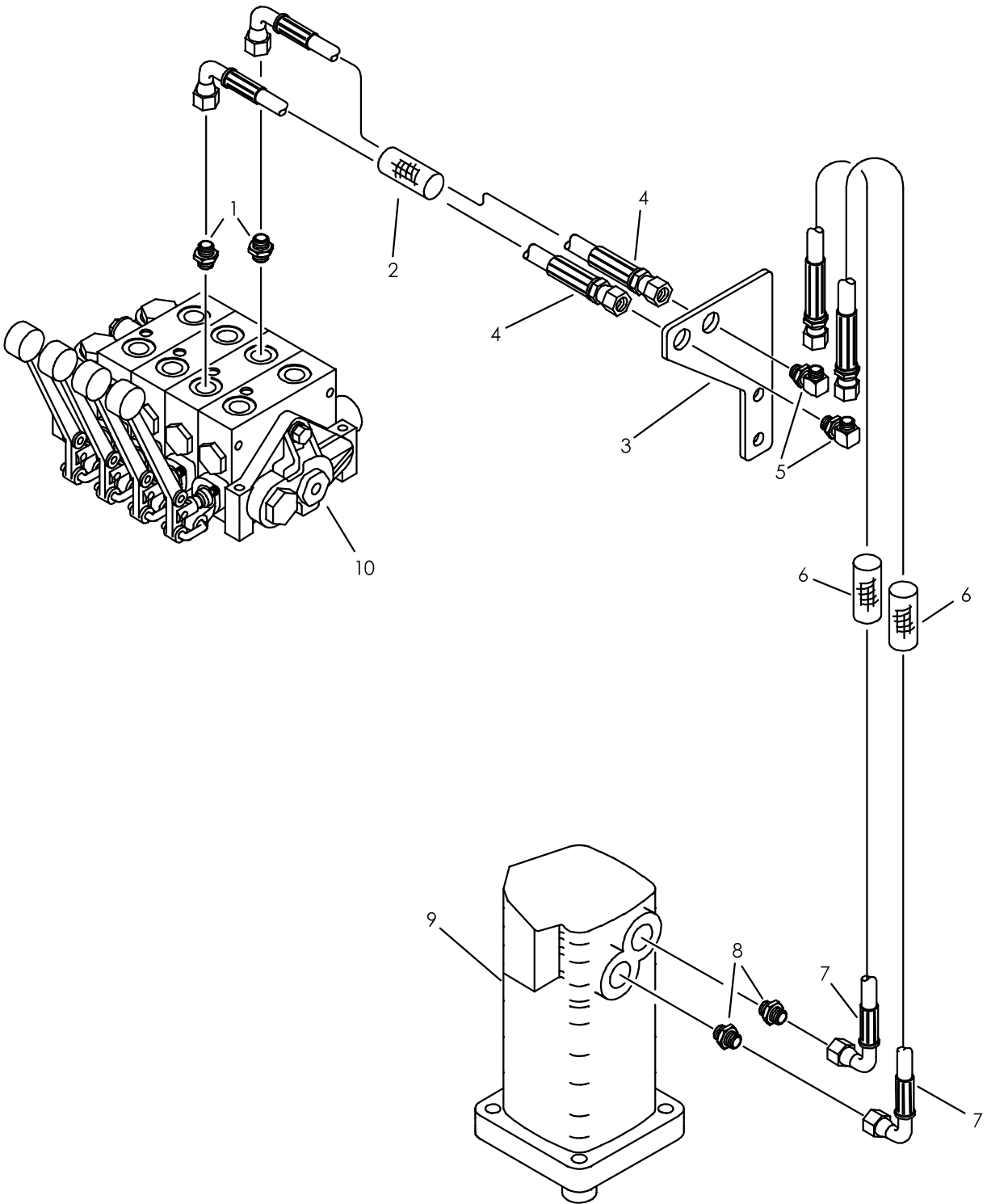
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FOOTNOTES:

NOTE:

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

RIGHT ANCHOR MOTOR HYDRAULICS



RIGHT ANCHOR MOTOR HYDRAULICS

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	154-233	2	CONNECTOR (08S-080)	
2.	117-455	1	ABRASION SLEEVE (2.07" X 38")	
3.	309-204	1	BULKHEAD PLATE	
4.	515-025	2	HOSE (080FX90-40"-3000)	
5.	154-396	2	BK CONNECTOR (080-08090BK)	
6.	117-324	2	ABRASION SLEEVE (1.25" X 48")	
7.	154-716	2	HOSE (080FX90-48"-3000)	
8.	154-307	2	CONNECTOR (16S-080)	
9.	149-895	-	HYD MOTOR	
	500-390		SEAL REPAIR KIT - REAR	
	500-391		SEAL REPAIR KIT - SHAFT	
	502-177		SHAFT AND BEARING ASS'Y	
	500-2123		FRONT RETAINER (ANCHOR MOTOR)	
10.	158-064	-	HYD CONTROL VALVE (4-SPOOL)	

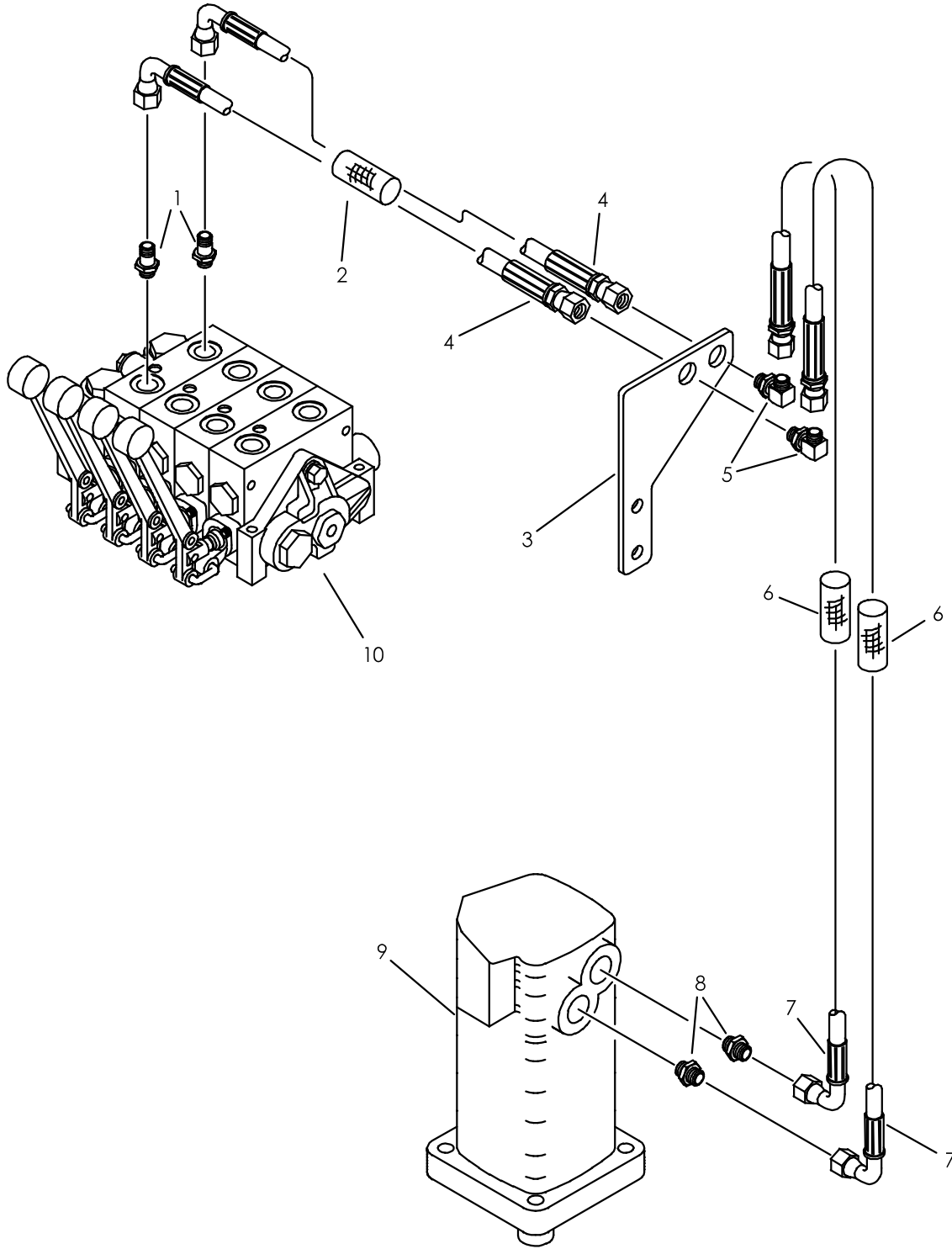
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FOOTNOTES:

NOTE:

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

LEFT ANCHOR MOTOR HYDRAULICS



LEFT ANCHOR MOTOR HYDRAULICS

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	154-438	2	CONNECTOR (08S-080, LG)	
2.	117-293	1	ABRASION SLEEVE (2.07" X 46")	
3.	309-204	1	BULKHEAD PLATE	
4.	154-716	2	HOSE (080FX90-48"-3000)	
5.	154-396	2	BK CONNECTOR (080-08090BK)	
6.	117-324	2	ABRASION SLEEVE (1.25" X 48")	
7.	154-716	2	HOSE (080FX90-48"-3000)	
8.	154-307	2	CONNECTOR (16S-080)	
9.	149-895	-	HYD MOTOR	
	500-390		SEAL REPAIR KIT - REAR	
	500-391		SEAL REPAIR KIT - SHAFT	
	502-177		SHAFT AND BEARING	
10.	158-064	-	HYD CONTROL VALVE (4-SPOOL)	

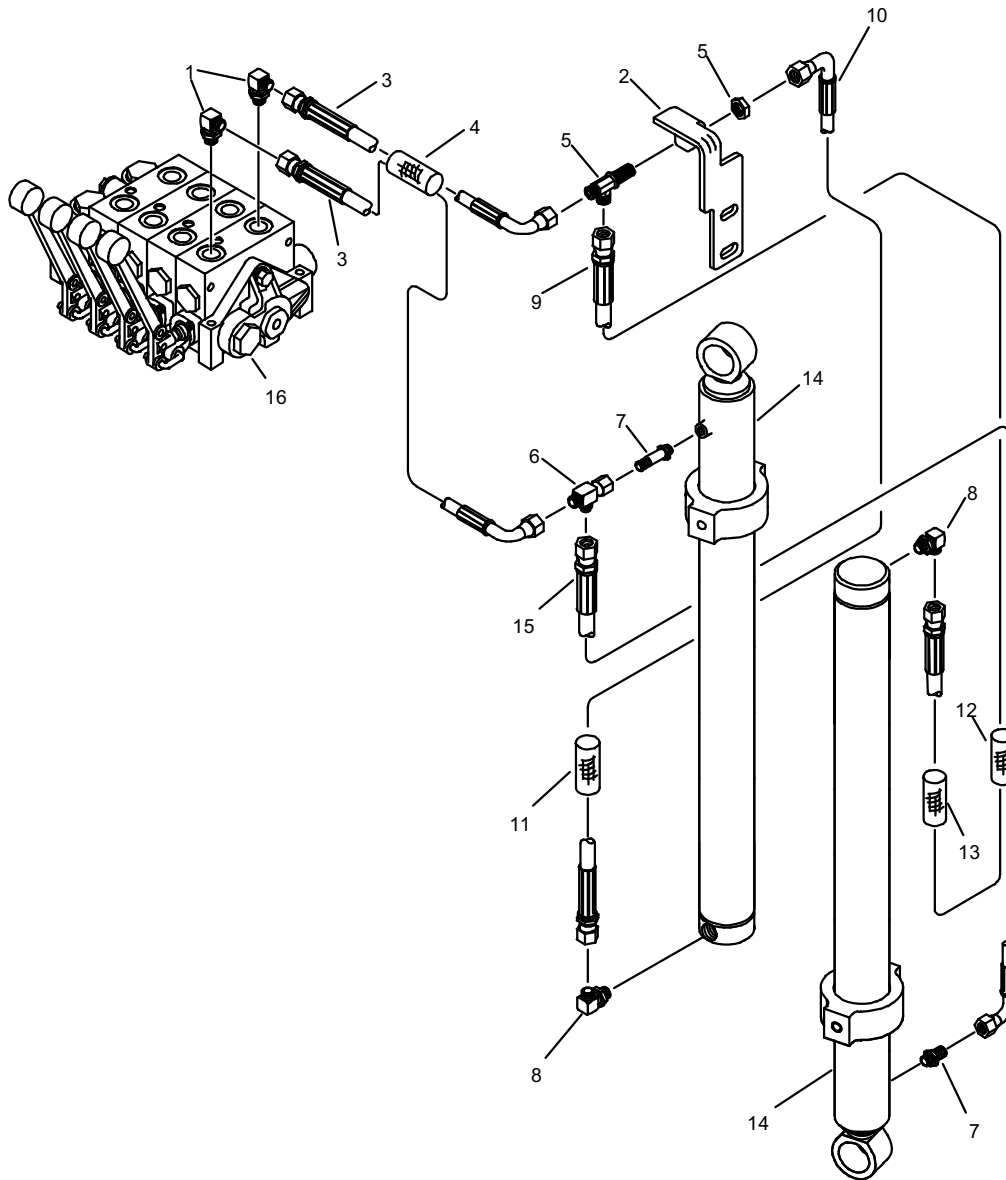
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FOOTNOTES:

NOTE:

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

RIGHT ANCHOR THRUST CYLINDER



RIGHT ANCHOR THRUST CYLINDER

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	154-276	2	CONNECTOR (040-08S90)	
2.	309-205	1	BULKHEAD PLATE	
3.	154-728	2	HOSE (040FX90-36"-3000)	
4.	117-655	1	ABRASION SLEEVE (1.59" X 38")	
5.	154-424	1	BK RUN TEE (040-040-040BK)	
6.	154-265	1	UNION RUN TEE (040FX-040-040)	
7.	154-403	2	CONNECTOR (04S-040, XL)	
8.	154-252	2	CONNECTOR (04S-04090)	
9.	515-054	1	HOSE (040FX-74"-3000)	
10.	515-683	1	HOSE (040FX90-28"-3000)	
11.	117-684	1	ABRASION SLEEVE (1.00" X 26")	
12.	117-657	1	ABRASION SLEEVE (1.59" X 54")	
13.	117-676	1	ABRASION SLEEVE (1.00" X 30")	
14.	150-747	2	CYLINDER ASSEMBLY	
15.	515-682	1	HOSE (040FX90M-48"-3000)	
16.	158-064	-	HYD CONTROL VALVE (4-SPOOL)	

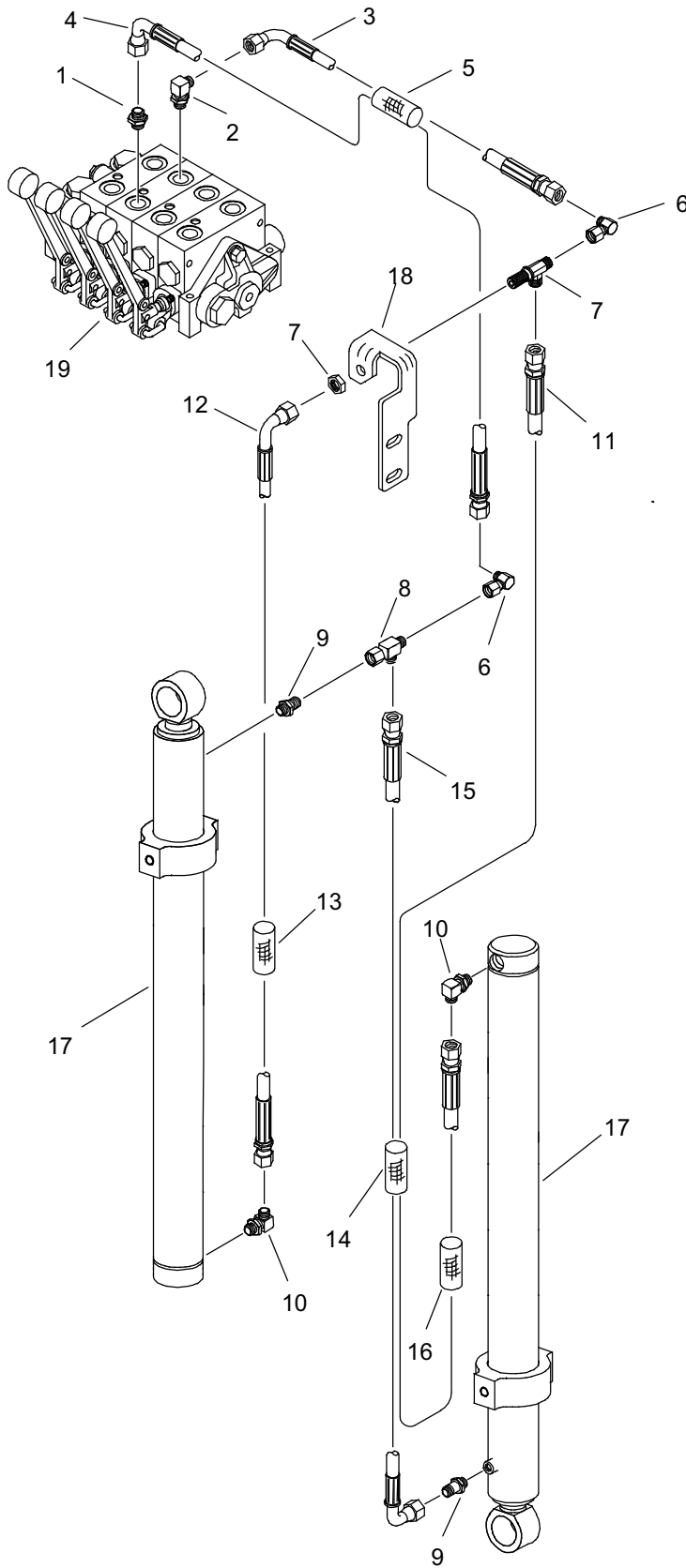
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FOOTNOTES:

NOTE:

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

LEFT ANCHOR THRUST CYLINDER



LEFT ANCHOR THRUST CYLINDER

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	154-261	1	CONNECTOR (040-08S)	
2.	154-276	1	CONNECTOR (040-08S90)	
3.	515-593	1	HOSE (040FX90-38"-3000)	
4.	515-012	1	HOSE (040FX90-42"-3000)	
5.	115-737	1	ABRASION SLEEVE (1.59" X 40")	
6.	154-255	2	UNION (040-040FX90)	
7.	154-424	1	BK RUN TEE (040-040-040BK)	
8.	154-265	1	UNION RUN TEE (040FX-040-040)	
9.	154-403	2	CONNECTOR (04S-040, XL)	
10.	154-252	2	CONNECTOR (04S-04090)	
11.	515-054	1	HOSE (040FX-74"-3000)	
12.	515-683	1	HOSE (040FX90-28"-3000)	
13.	117-684	1	ABRASION SLEEVE (1.00" X 26")	
14.	117-657	1	ABRASION SLEEVE (1.59" X 54")	
15.	515-682	1	HOSE (040FX90M-48"-3000)	
16.	117-676	1	ABRASION SLEEVE (1.00" X 30")	
17.	150-747	2	CYLINDER ASSEMBLY	
18.	309-206	1	BULKHEAD PLATE	
19.	158-064	-	HYD CONTROL VALVE (4-SPOOL)	

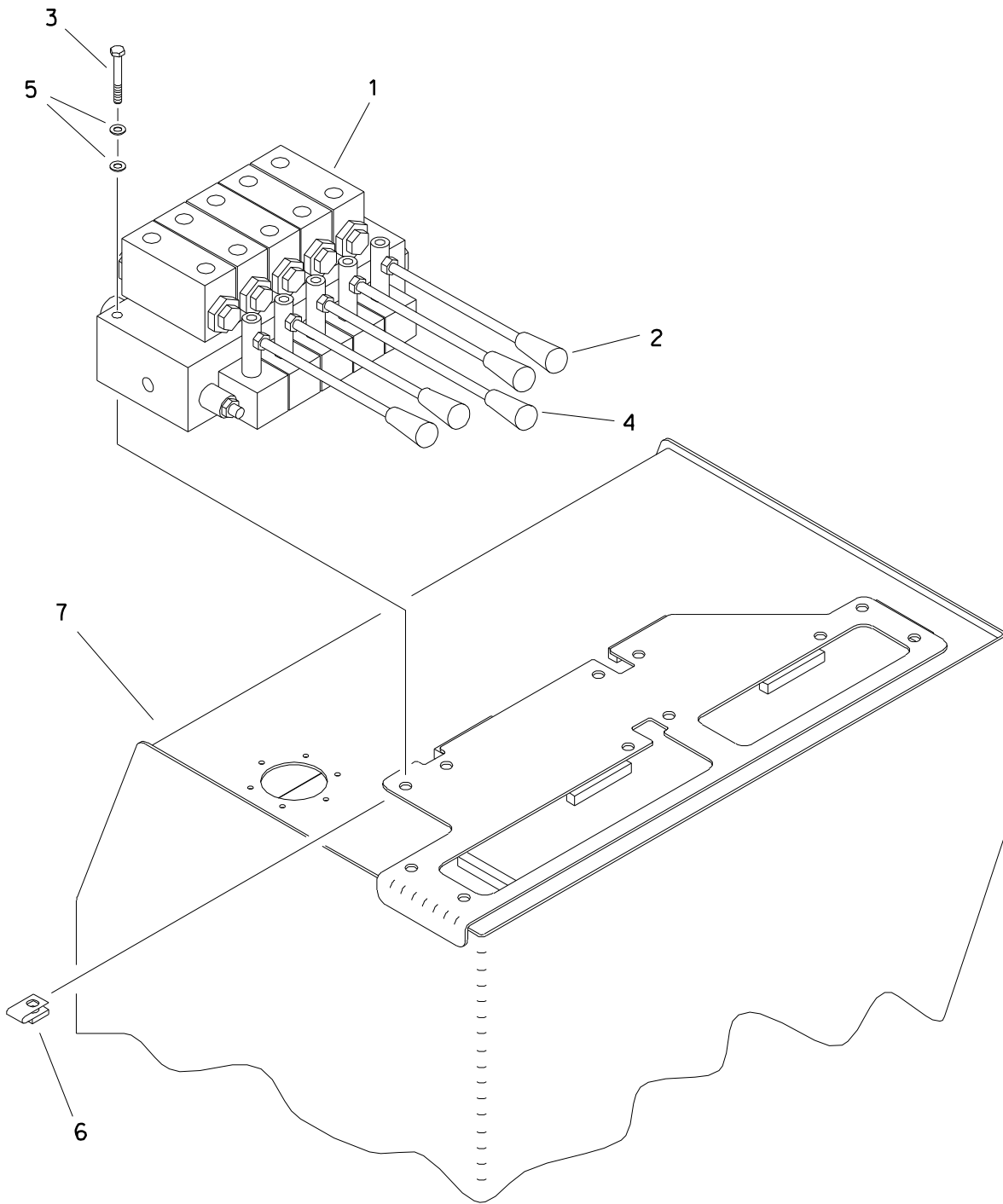
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FOOTNOTES:

NOTE:

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

AUXILIARY VALVE

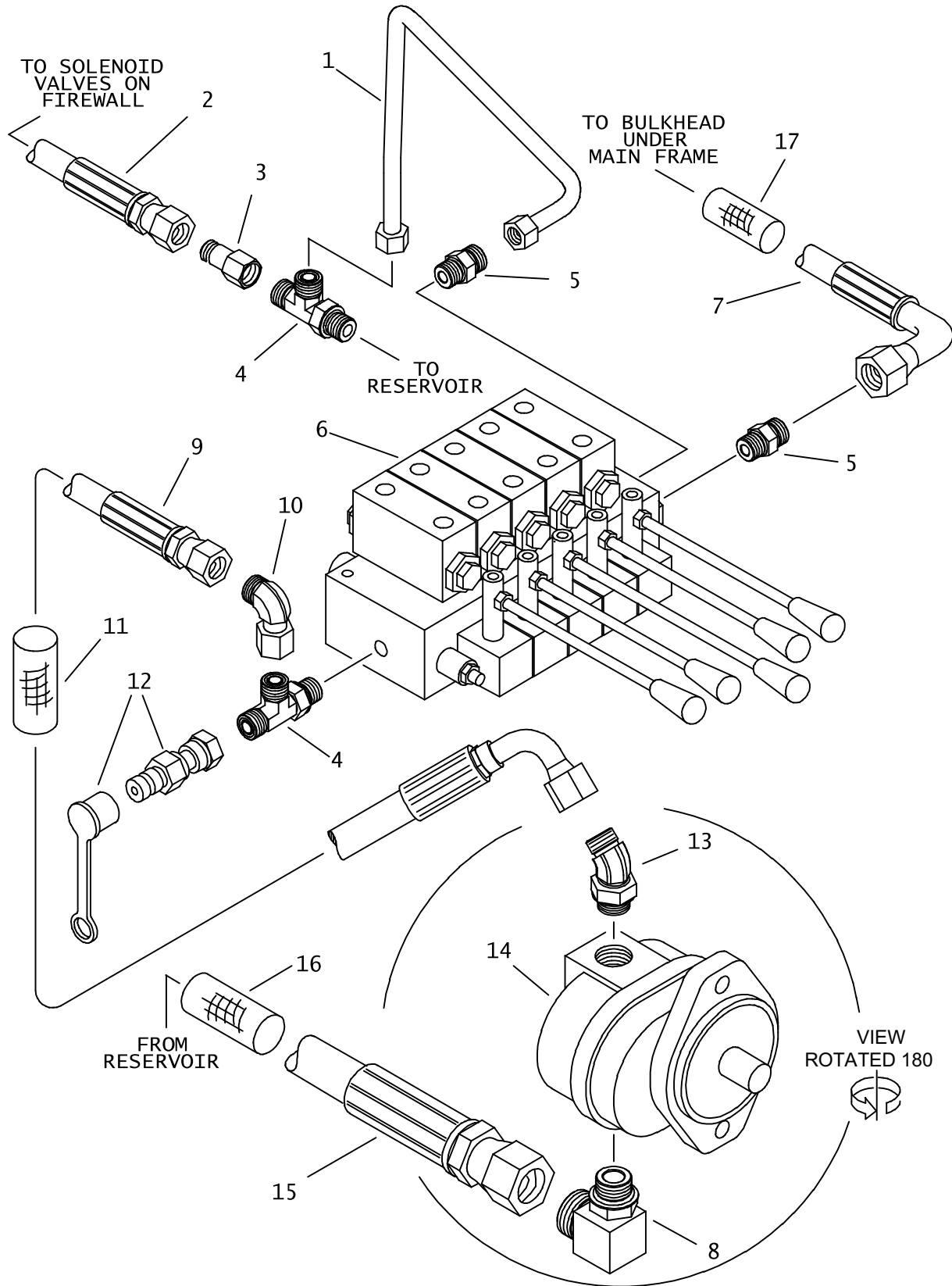


AUXILIARY VALVE

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	149-882	-	HYD CONTROL VALVE (5-SPOOL)	
2.	365-426	4	LEVER (M8-1.25 X 200MM)	
3.	106-595	3	SCREW (M6-1.00 X 60MM)	
4.	500-502	1	CONTROL VALVE HANDLE	
5.	106-076	6	WASHER (1/4")	
6.	106-574	3	CLIP NUT (M6-1.00)	
7.	350-614	-	HYD RESERVOIR	

FOOTNOTES

AUXILIARY SUPPLY & RETURN HYDRAULICS



AUXILIARY SUPPLY & RETURN HYDRAULICS

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	153-106	1	HYD LINE	
2.	154-754	-	HOSE (060FX-30"-3000)	
3.	154-262	1	REDUCER (060-080F)	
4.	154-299	2	RUN TEE (08S-080-080)	
5.	154-233	2	CONNECTOR (08S-080)	
6.	149-882	1	HYD CONTROL VALVE (5-SPPOOL)	
7.	515-140	1	HOSE (080FX90-56"-3000)	
8.	154-286	1	CONNECTOR (120-16S90)	
9.	154-955	1	HOSE (080FX90-102"-3000)	
10.	154-256	1	UNION (080-080FX90)	
11.	115-902	1	ABRASION SLEEVE (1.59" X 100")	
12.	159-158	1	QDC ADAPTER (02-080FX)	
	159-148	-	DUST CAP (1/8")	
13.	154-264	1	CONNECTOR (080-10S45)	
14.	149-838	1	HYDRAULIC PUMP	
15.	154-862	1	HOSE (120FX-80"-2250)	
16.	115-817	1	ABRASION SLEEVE (1.59" X 84")	
17.	117-655	1	ABRASION SLEEVE (1.59" X 38")	

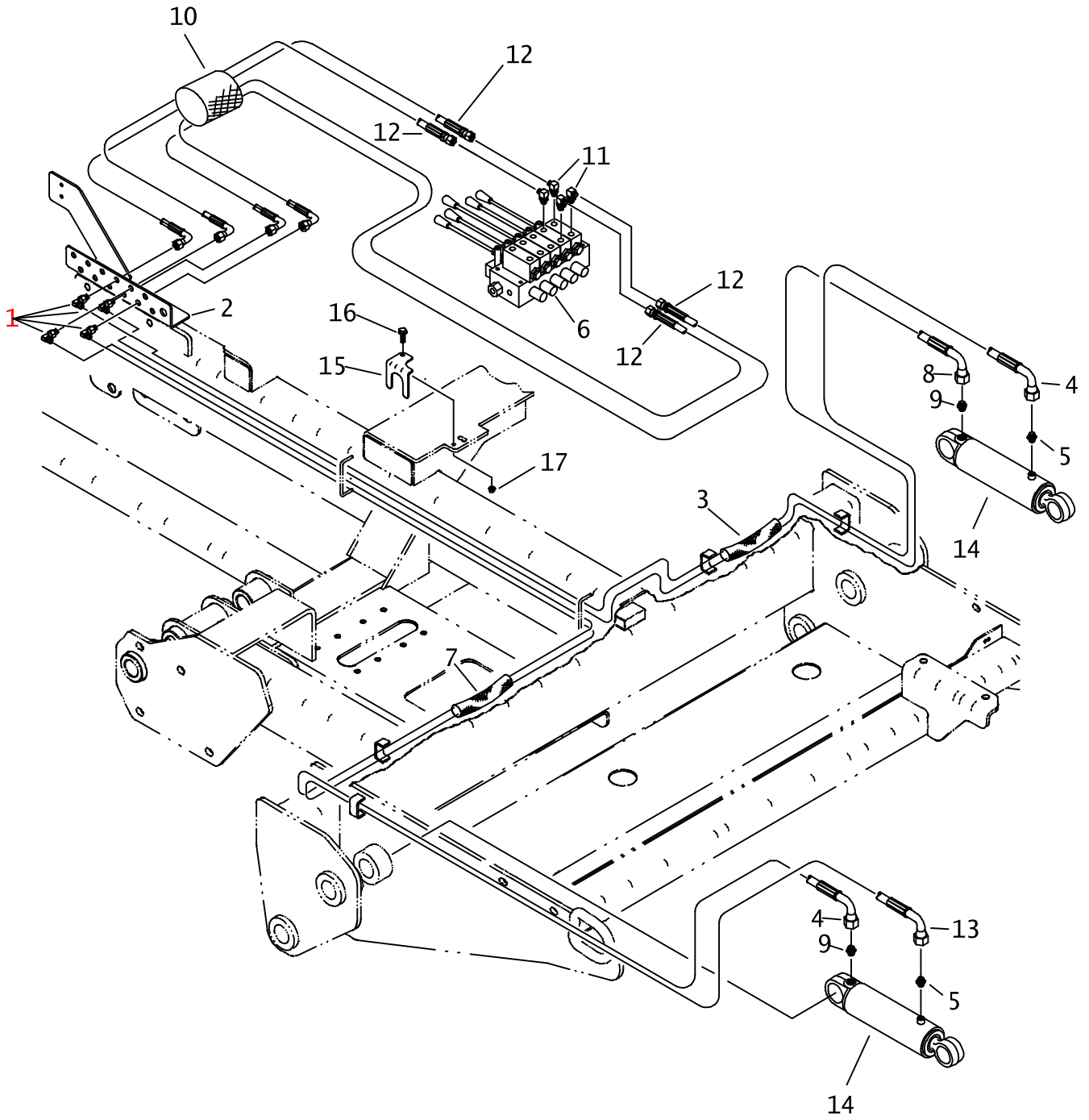
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FOOTNOTES:

NOTE:

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

STABILIZER HYDRAULICS



STABILIZER HYDRAULICS

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	154-355	4	BK CONNECTOR (040-04090BK)	
2.	354-466	-	BULKHEAD PLATE	
3.	116-633	1	ABRASION SLEEVE (1.59" X 115")	
4.	515-277	2	HOSE (040FX90S-128"-3000)	
5.	154-261	2	CONNECTOR (040-08S)	
6.	149-882	1	HYD CONTROL VALVE (5-SPOOL)	
7.	116-632	1	ABRASION SLEEVE (1.59" X 130")	
8.	515-239	1	HOSE (040FX90S-116"-3000)	
9.	154-374	1	CONNECTOR (040-08S, ORF)	
10.	117-789	-	HOSE BAG (4" X 36")	
11.	154-226	4	CONNECTOR (040-06S90)	
12.	515-439	4	HOSE (040FX90S-50"-3000)	
13.	515-146	1	HOSE (040FX90S-140"-3000)	
14.	151-187	2	CYLINDER ASSEMBLY	4" X 2" X 10"
15.	309-549	1	BRACKET	
16.	106-381	1	FLG LK SCREW (M8-1.25 X 25MM)	
17.	106-386	1	FLG LOCKNUT (M8-1.25)	

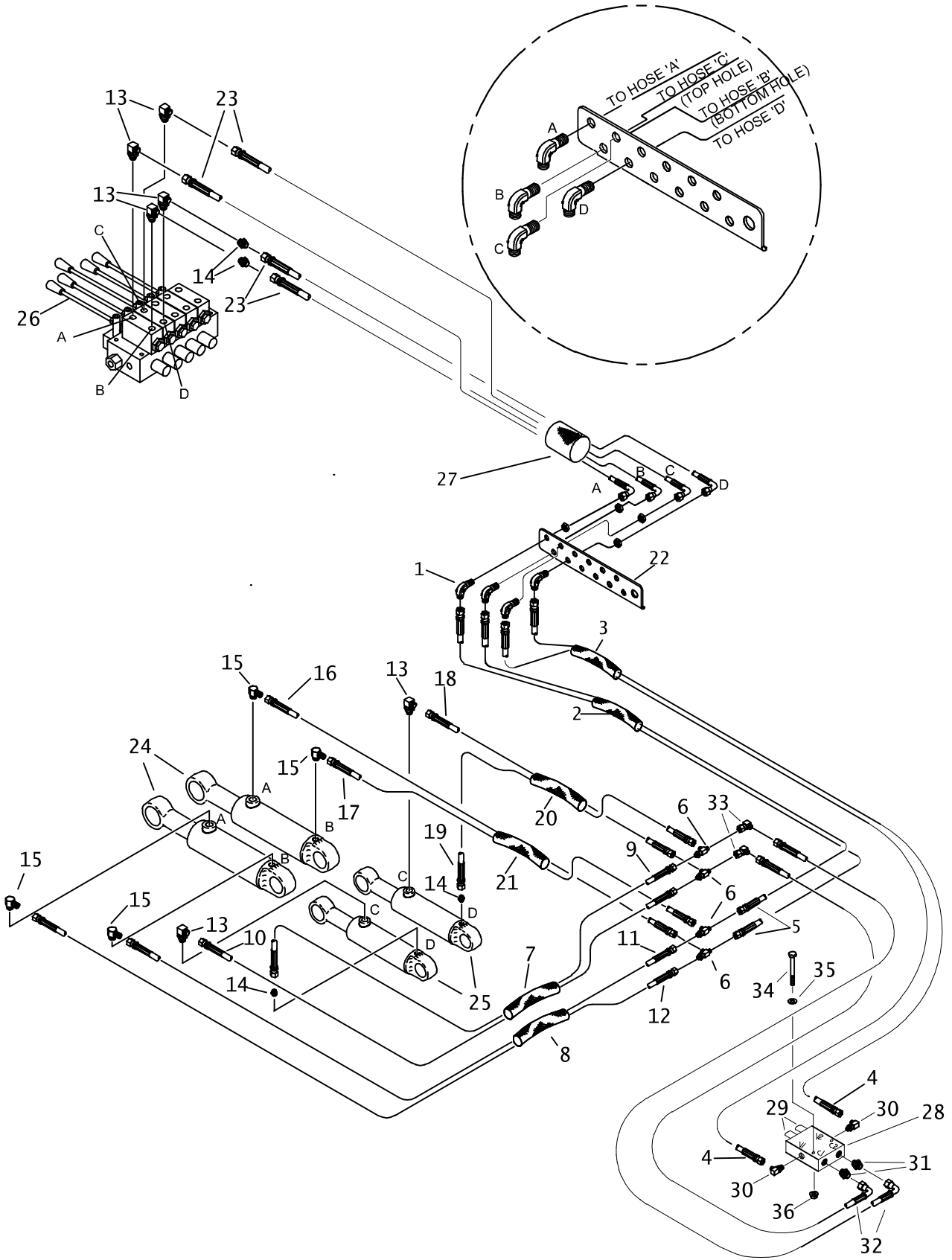
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FOOTNOTES:

NOTE:

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

FRAME TILT HYDRAULICS



FRAME TILT HYDRAULICS

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	154-355	4	BK CONNECTOR (040-04090BK)	
2.	117-603	1	ABRASION SLEEVE (1.59" X 62")	
3.	117-656	1	ABRASION SLEEVE (1.59" X 45")	
4.	515-424	2	HOSE (040FX-56"-3000)	
5.	154-681	2	HOSE (040FX-62"-3000)	
6.	154-424	4	BK RUN TEE (040-040-040BK)	
7.	115-777	1	ABRASION SLEEVE (1.59" X 15")	
8.	117-679	1	ABRASION SLEEVE (1.59" X 32")	
9.	154-672	1	HOSE (040FX-15"-3000)	
10.	515-735	1	HOSE (040FX-22"-3000)	
11.	154-668	1	HOSE (040FX-32"-3000)	
12.	154-653	1	HOSE (040FX-40"-3000)	
13.	154-226	6	CONNECTOR (040-06S90)	
14.	154-220	2	CONNECTOR (040-06S)	
15.	154-276	4	CONNECTOR (040-08S90)	
16.	154-911	1	HOSE (040FX-36"-3000AR)	
17.	515-509	1	HOSE (040FX-28"-3000)	
18.	155-484	1	HOSE (040FX-16"-3000)	
19.	154-719	1	HOSE (040FX-10"-3000)	
20.	115-776	1	ABRASION SLEEVE (1.59" X 7")	
21.	117-708	1	ABRASION SLEEVE (1.59" X 28")	
22.	354-466	-	BULKHEAD PLATE	
23.	515-447	4	HOSE (040FX90S-48"-3000)	
24.	151-066	2	CYL (4.0 X 2.0 X 5.0)	
25.	151-070	2	CYL (3.0" X 1.75" X 8.000")	
26.	149-882	-	HYD CONTROL VALVE (5-SPOOL)	
27.	117-789	1	HOSE BAG (4.000" X 36")	ALL HOSES FROM VALVE (149-882) GO INTO HOSE BAG.
28.	502-184	1	VALVE BLOCK	SEE FOOTNOTE 1
29.	500-478	2	COUNTERBALANCE CARTRIDGE KIT	SEE FOOTNOTE 1 & 2
30.	154-226	2	CONNECTOR (040-06S90)	SEE FOOTNOTE 1
31.	154-220	2	CONNECTOR (040-06S)	SEE FOOTNOTE 1
32.	154-726	2	HOSE (040FX90-15"-3000)	SEE FOOTNOTE 1
33.	154-255	2	UNION (040-040FX90)	SEE FOOTNOTE 1
34.	106-570	1	SCREW (M8-1.25 X 60MM)	SEE FOOTNOTE 1
35.	105-117	1	WASHER (5/16")	SEE FOOTNOTE 1
36.	106-386	1	FLG LOCKNUT (M8-1.25)	SEE FOOTNOTE 1

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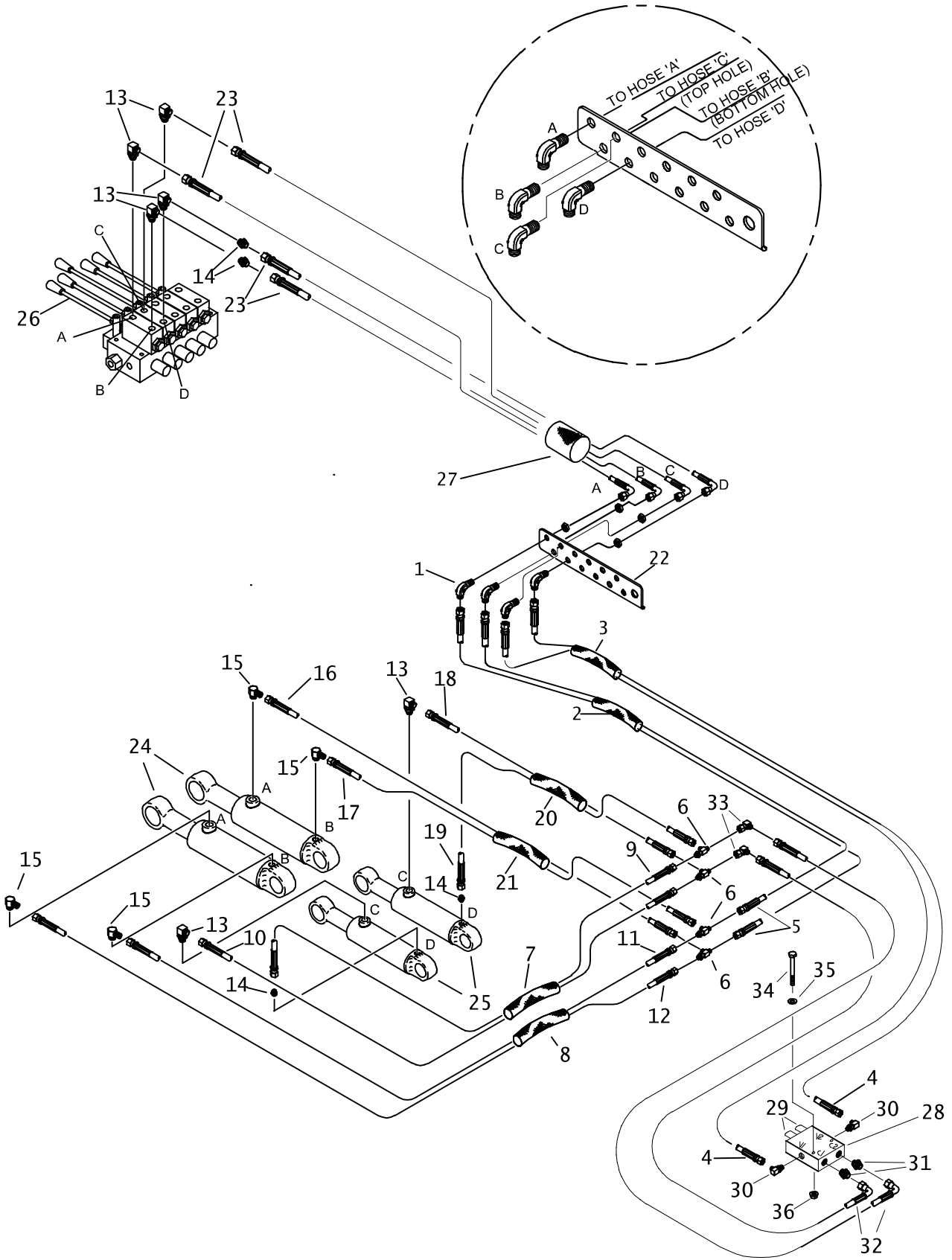
FOOTNOTES:

1. USE ON 4020 WITH RACK AND PINION
2. TURN ADJUSTMENT SCREW COMPLETELY OUT

NOTE:

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

FRAME TILT HYDRAULICS



FRAME TILT HYDRAULICS

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	154-355	4	BK CONNECTOR (040-04090BK)	
2.	117-603	1	ABRASION SLEEVE (1.59" X 62")	
3.	117-656	1	ABRASION SLEEVE (1.59" X 45")	
4.	515-424	2	HOSE (040FX-56"-3000)	
5.	154-681	2	HOSE (040FX-62"-3000)	
6.	154-424	4	BK RUN TEE (040-040-040BK)	
7.	115-777	1	ABRASION SLEEVE (1.59" X 15")	
8.	117-679	1	ABRASION SLEEVE (1.59" X 32")	
9.	154-672	1	HOSE (040FX-15"-3000)	
10.	515-735	1	HOSE (040FX-22"-3000)	
11.	154-668	1	HOSE (040FX-32"-3000)	
12.	154-653	1	HOSE (040FX-40"-3000)	
13.	154-226	6	CONNECTOR (040-06S90)	
14.	154-220	2	CONNECTOR (040-06S)	
15.	154-276	4	CONNECTOR (040-08S90)	
16.	154-911	1	HOSE (040FX-36"-3000AR)	
17.	515-509	1	HOSE (040FX-28"-3000)	
18.	155-484	1	HOSE (040FX-16"-3000)	
19.	154-719	1	HOSE (040FX-10"-3000)	
20.	115-776	1	ABRASION SLEEVE (1.59" X 7")	
21.	117-708	1	ABRASION SLEEVE (1.59" X 28")	
22.	354-466	-	BULKHEAD PLATE	
23.	515-447	4	HOSE (040FX90S-48"-3000)	
24.	151-066	2	CYL (4.0 X 2.0 X 5.0)	
25.	151-070	2	CYL (3.0" X 1.75" X 8.000")	
26.	149-882	-	HYD CONTROL VALVE (5-SPOOL)	
27.	117-789	1	HOSE BAG (4.000" X 36")	ALL HOSES FROM VALVE (149-882) GO INTO HOSE BAG.
28.	502-184	1	VALVE BLOCK	SEE FOOTNOTE 1
29.	500-478	2	COUNTERBALANCE CARTRIDGE KIT	SEE FOOTNOTE 1 & 2
30.	154-226	2	CONNECTOR (040-06S90)	SEE FOOTNOTE 1
31.	154-220	2	CONNECTOR (040-06S)	SEE FOOTNOTE 1
32.	154-726	2	HOSE (040FX90-15"-3000)	SEE FOOTNOTE 1
33.	154-255	2	UNION (040-040FX90)	SEE FOOTNOTE 1
34.	106-570	1	SCREW (M8-1.25 X 60MM)	SEE FOOTNOTE 1
35.	105-117	1	WASHER (5/16")	SEE FOOTNOTE 1
36.	106-386	1	FLG LOCKNUT (M8-1.25)	SEE FOOTNOTE 1

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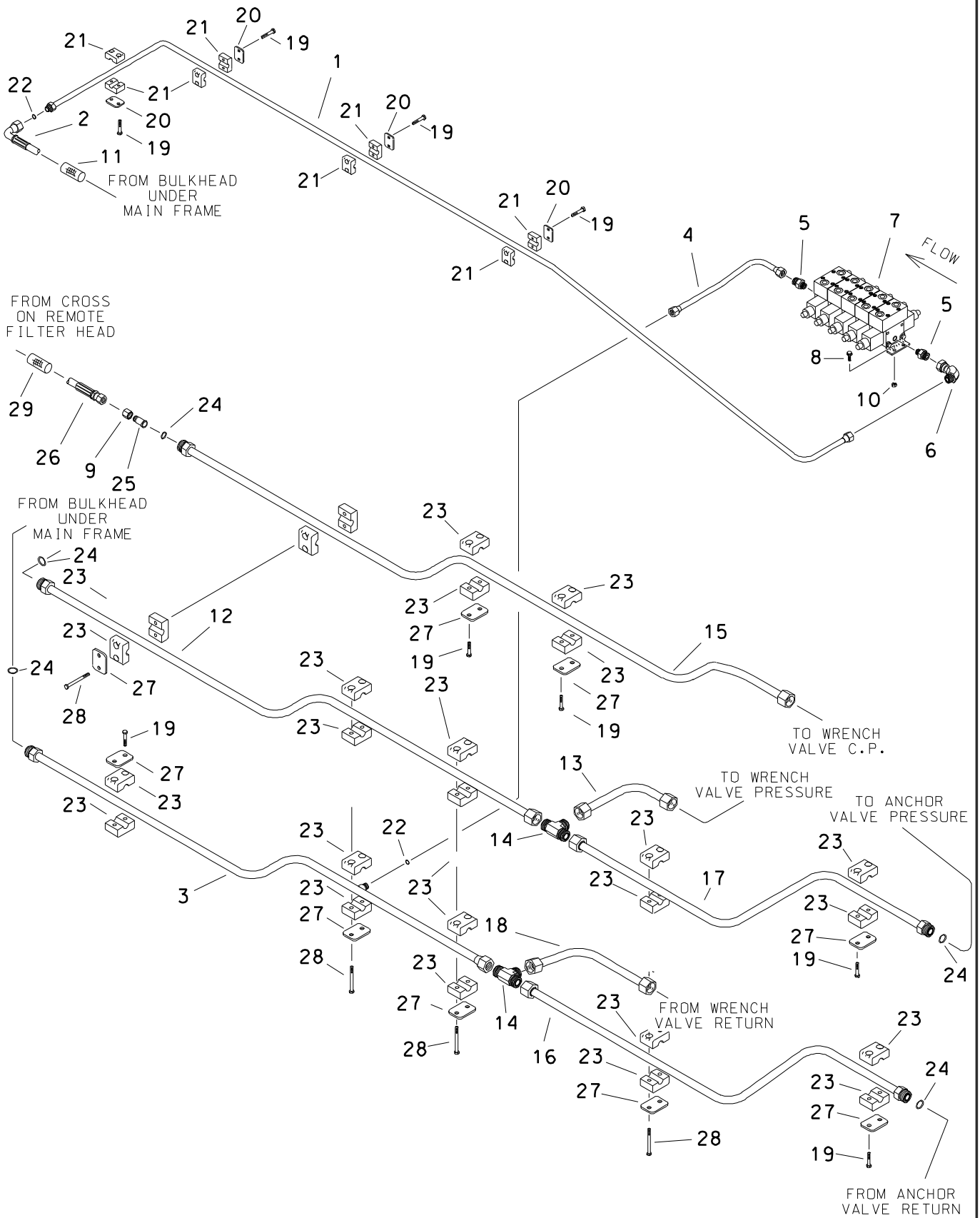
FOOTNOTES:

1. USE ON 4020 WITH RACK AND PINION
2. TURN ADJUSTMENT SCREW COMPLETELY OUT

NOTE:

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

PIPE LOADER SUPPLY & RETURN



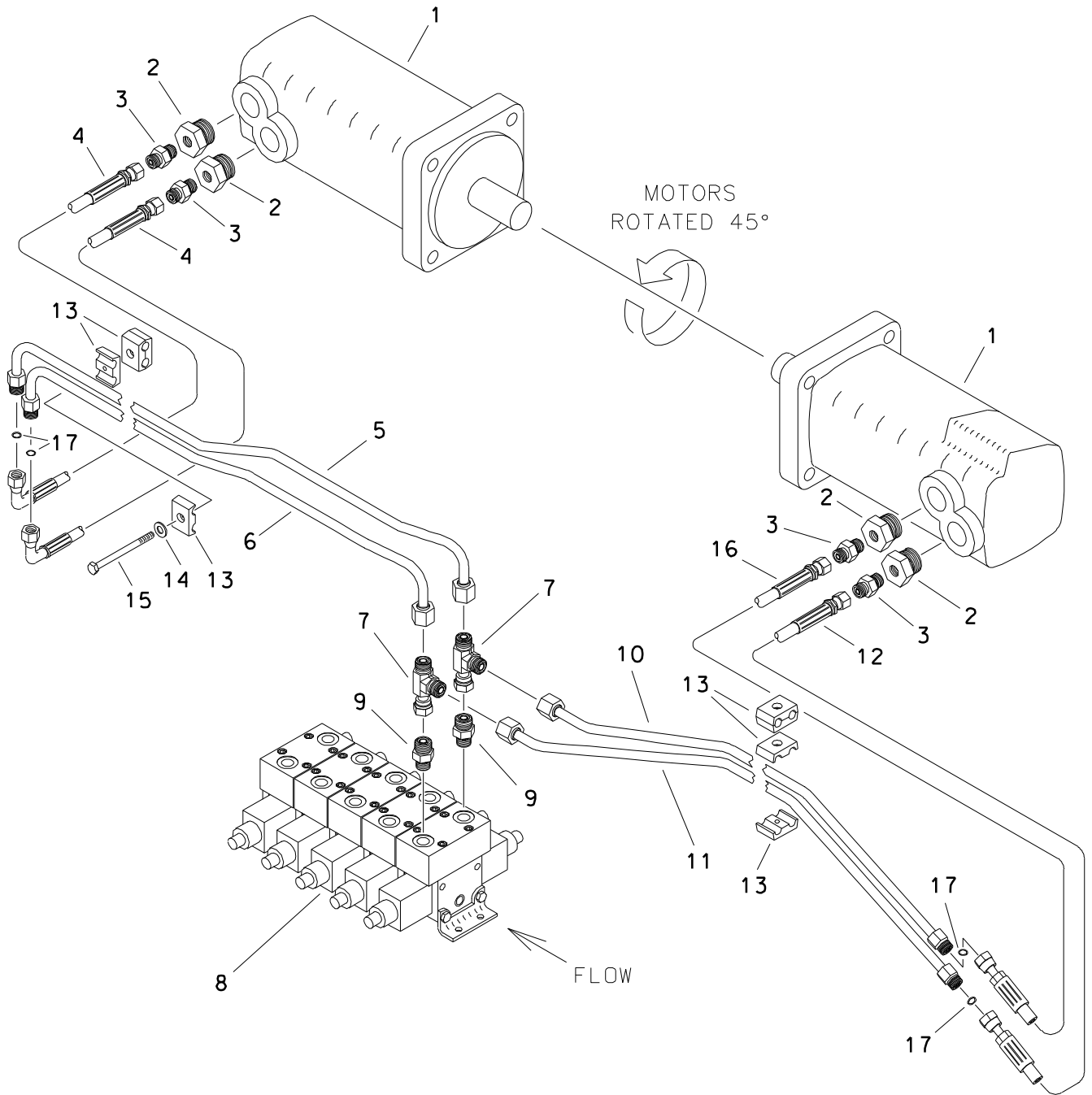
PIPE LOADER SUPPLY & RETURN

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	149-449	1	HYD LINE	
2.	515-141	1	HOSE (080FX90-82"-3000)	
3.	149-447	1	HYD LINE	
4.	149-499	1	HYD LINE	
5.	154-246	2	CONNECTOR (06S-080)	
6.	154-256	1	UNION (080-080FX90)	
7.	149-257	1	HYDRAULIC VALVE	
8.	106-379	4	FLG LK SCREW (M6-1.00 X 20MM)	
9.	154-310	1	REDUCER NUT (100F)	
10.	106-385	4	FLG LOCKNUT (M6-1.00)	
11.	117-390	1	ABRASION SLEEVE (1.25" X 85")	
12.	149-446	1	HYD LINE	
13.	149-476	1	HYD LINE	
14.	154-455	2	TEE (120)	
15.	149-448	1	HYD LINE	
16.	149-444	1	HYD LINE	
17.	149-445	1	HYD LINE	
18.	149-477	1	HYD LINE	
19.	105-818	18	BOLT (1/4-NC X 1-1/2")	
20.	110-958	4	BACKUP PLATE	
21.	110-866	4	CLAMP (1/2")	
22.	157-039	2	O-RING (014 D90)	
23.	110-411	13	BOLT-ON CLAMP (3/4", SET)	
24.	157-040	5	O-RING (016 D90)	
25.	154-312	1	REDUCER STEM (080)	
26.	154-877	1	HOSE (080FX90-90"-3000)	
27.	322-289	9	BACKUP (BOLT-ON)	
28.	107-743	8	SCREW (1/4-NC X 2.75, GD 5)	
29.	116-787	1	ABRASION SLEEVE (1.59" X 95")	

FOOTNOTES

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

PIPE SHUTTLE HYDRAULICS



PIPE SHUTTLE HYDRAULICS

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	158-026	-	HYDRAULIC MOTOR (15 CU/IN)	
2.	155-129	4	REDUCER (12S-06SF)	
3.	154-220	4	CONNECTOR (040-06S)	
4.	515-175	2	HOSE (040FX90-16"-3000)	
5.	149-958	1	HYD LINE	TOP
6.	149-424	1	HYD LINE	BOTTOM
7.	154-344	2	UN RUN TEE (060FX-060-060)	
8.	149-257	-	HYDRAULIC VALVE	
9.	154-221	2	CONNECTOR (06S-060)	
10.	149-426	1	HYD LINE	
11.	149-959	1	HYD LINE	
12.	155-484	1	HOSE (040FX-16"-3000)	
13.	110-998	8	CLAMP HALVES (3/8") PAIR	
14.	105-117	5	WASHER (5/16")	
15.	105-870	5	BOLT (1/4-NC X 3-1/2")	
16.	154-800	1	HOSE (040FX-18"-3000)	
17.	157-037	4	O-RING (011 D90)	

FOOTNOTES

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

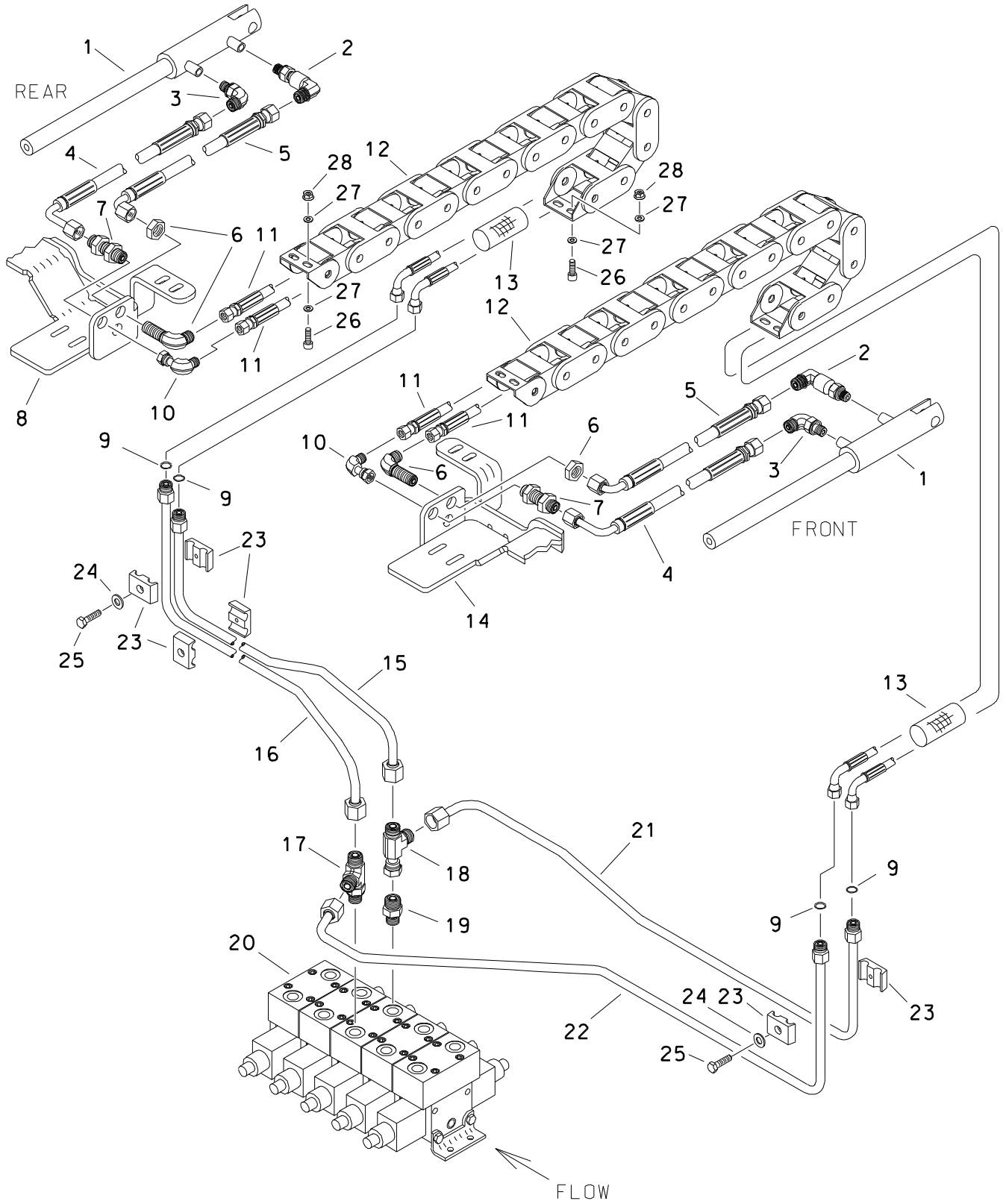
PIPE LIFTER HYDRAULICS

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	151-031	2	CYL (2.0" X 1.0" X 8.0")	
2.	154-252	2	CONNECTOR (04S-04090)	
3.	515-179	2	HOSE (040FX90-11"-3000)	
4.	154-275	2	BK CONNECTOR (040-040BK)	
5.	515-072	2	HOSE (040FX45-16"-3000)	
6.	154-403	2	CONNECTOR (04S-040, XL)	
7.	149-453	1	HYD LINE	TOP
8.	149-452	1	HYD LINE	BOTTOM
9.	154-471	1	CONNECTOR (060-06S90, LG)	
10.	154-342	2	CONNECTOR (06S-06090)	
11.	154-348	1	UN BR TEE (060FX-060-060)	
12.	516-087	1	FLOW DIVIDER	
13.	149-257	1	HYDRAULIC VALVE	
14.	155-153	1	CONNECTOR (06S-06S)	
15.	149-439	1	HYD LINE	OUTSIDE
16.	149-440	1	HYD LINE	INSIDE
17.	515-175	1	HOSE (040FX90-16"-3000)	
18.	110-998	7	CLAMP HALVES (3/8") PAIR	
19.	154-934	1	HOSE (040FX45-18"-3000)	
20.	157-037	4	O-RING (011 D90)	

FOOTNOTES

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

GRIPPER HYDRAULICS



GRIPPER HYDRAULICS

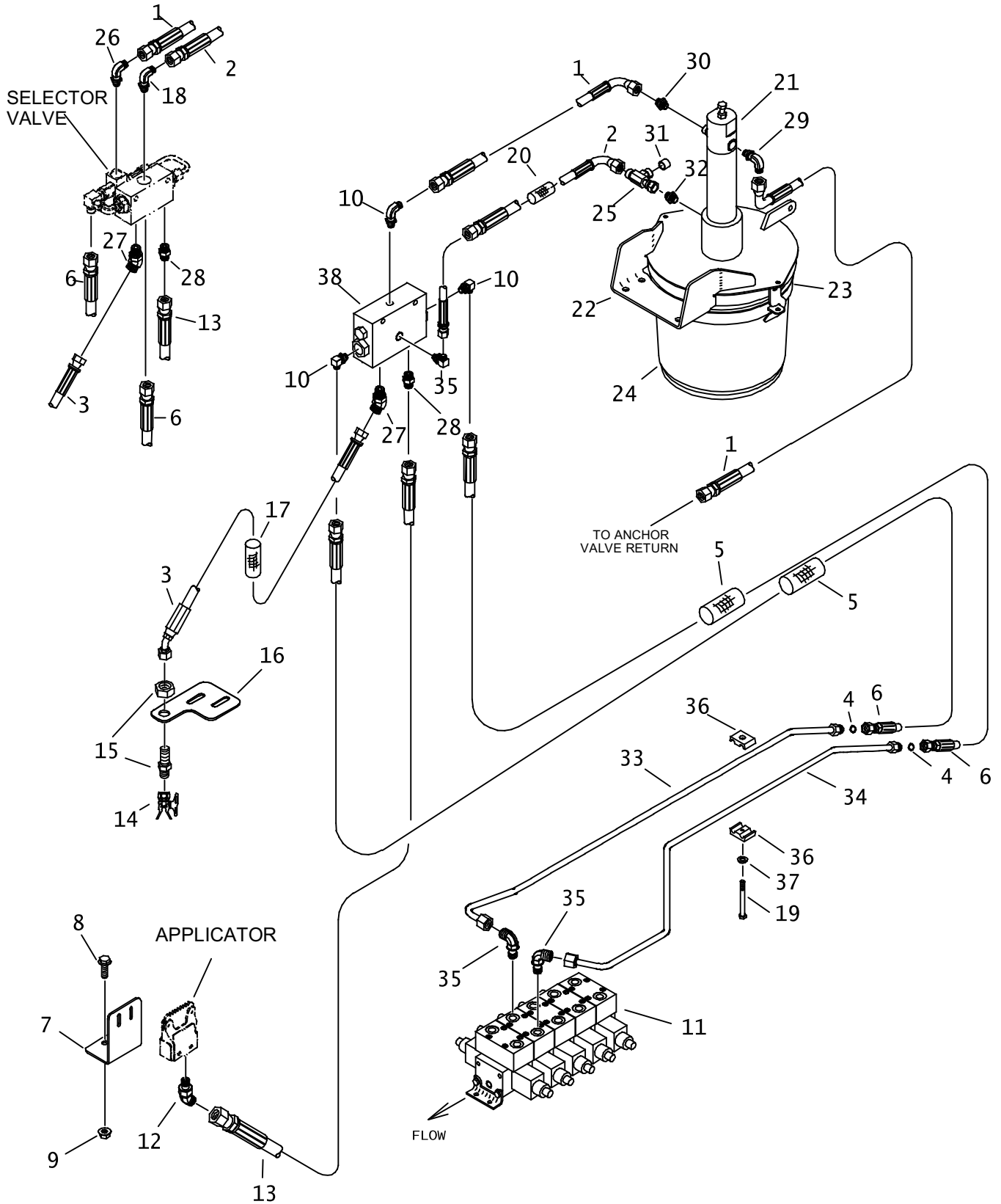
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	150-731	2	CYL ASS'Y	
2.	154-474	2	CONNECTOR (04S-04090,XL)	
3.	154-252	2	CONNECTOR (04S-04090)	
4.	153-349	2	HOSE (040FX90L-12"-3000)	
5.	153-364	2	HOSE (040FX90S-13"-3000)	
6.	154-355	2	BK CONNECTOR (040-04090BK)	
7.	154-275	2	BK CONNECTOR (040-040BK)	
8.	307-593	-	REAR SHUTTLE	
9.	157-037	4	O-RING (011 D90)	
10.	154-255	2	UNION (040-040FX90)	
11.	153-365	4	HOSE (040FX90S-34"-3000)	
12.	306-746	2	HOSE TRACK	
13.	117-322	2	ABRASION SLEEVE (1.59" X 34")	
14.	307-590	-	FRONT SHUTTLE	
15.	149-437	1	HYD LINE	
16.	149-438	1	HYD LINE	TOP
17.	153-667	1	SPECIAL TEE (06S,ORF-06D-06D)	BOTTOM
18.	154-344	1	UN RUN TEE (060FX-06D-06D)	
19.	156-067	1	CONNECTOR (06S-06D, ORF .031")	
20.	149-257	-	HYDRAULIC VALVE	
21.	149-427	1	HYD LINE	
22.	149-428	1	HYD LINE	TOP
23.	110-998	6	CLAMP HALVES (3/8") PAIR	BOTTOM
24.	105-117	2	WASHER (5/16")	
25.	105-197	2	BOLT (1/4-NC X 1")	
26.	106-640	8	SCREW (M6-1.00 X 20MM,BUT SDC)	
27.	105-284	8	WASHER (3/16")	
28.	106-237	8	LOCKNUT (M6-1.00,PRV TRQ,NLK)	

FOOTNOTES

NOTE:

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

GREASER HYDRAULICS



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807-715

GREASER HYDRAULICS

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	149-827	2	HOSE (040FX90S-24"-3000)	
2.	149-826	-	HOSE (060FX90L-12"-3000)	USED PRIOR TO S/N 2V0901
	153-320	1	HOSE (060FX90L-17"-3000)	USED S/N 2V0901 AND ABOVE
3.	149-825	1	HOSE (060FX90L-28"-3000)	
4.	157-037	2	O-RING (011 D90)	
5.	117-211	2	ABRASION SLEEVE (1.25" X 90")	
6.	154-724	2	HOSE (040FX-82"-3000)	
7.	306-714	1	BRACKET, WIPER	SEE FOOTNOTE 6
8.	106-724	2	FLG SCREW (M10-1.50 X 25MM)	
9.	106-387	2	FLG LOCKNUT (M10-1.50)	
10.	154-252	3	CONNECTOR (04S-04090)	USED S/N 2V0901 AND ABOVE, SEE FOOTNOTE 5
11.	149-257	-	HYDRAULIC VALVE	
12.	514-414	1	CONNECTOR (04S-06045)	
13.	153-424	1	HOSE (060FX-236"-3000)	
14.	149-399	1	SPRAY NOZZLE (65^)	
	191-259	1	SPRAY NOZZLE HANDLE KIT	
	153-096	1	CAP GASKET, NYLON	
15.	514-163	1	BK CONNECTOR (060-060BK)	
16.	305-951	1	BRACKET, SPRAY	
17.	117-684	1	ABRASION SLEEVE (1.00" X 26")	
18.	154-342	1	CONNECTOR (06S-06090)	SEE FOOTNOTE 1, USED PRIOR TO S/N 2V0901
19.	105-297	1	BOLT (1/4-NC X 3-1/4")	
20.	117-670	-	ABRASION SLEEVE (1.00" X 10")	USED PRIOR TO S/N 2V0901
	117-194	-	ABRASION SLEEVE (1.00" X 16")	USED S/N 2V0901 AND ABOVE
21.	350-398	-	GREASE PUMP ASSEMBLY	
22.	350-400	-	COVER	
23.	350-399	-	BASE	
24.	259-858	-	TOOL JNT LUBE, STD SPRY 2 GAL	
	256-031	-	TOOL JNT LUBE, SUMR SPRY 2 GAL	
25.	154-344	1	UN RUN TEE (060FX-060-060)	
26.	154-226	1	CONNECTOR (040-06S90)	SEE FOOTNOTE 4, USED PRIOR TO S/N 2V0901
27.	154-224	1	CONNECTOR (06S-06045)	SEE FOOTNOTE 2
28.	514-165	1	CONNECTOR (06S-060, ORF .078")	SEE FOOTNOTE 3
29.	154-401	1	CONNECTOR (04S-04090, ORF)	
30.	154-278	1	BK CONNECTOR (04S-040)	
31.	154-326	1	CAP (060F)	
32.	154-221	1	CONNECTOR (06S-060)	
33.	149-956	1	HYD LINE	
34.	149-957	1	HYD LINE	
35.	154-342	3	CONNECTOR (06S-06090)	QTY 2 USED PRIOR TO S/N 2V0901
36.	110-998	1	CLAMP HALVES (3/8") PAIR	
37.	105-117	1	WASHER (5/16")	
38.	310-591	1	VALVE ASS'Y	USED S/N 2V0901 AND ABOVE, SEE FOOTNOTE 5

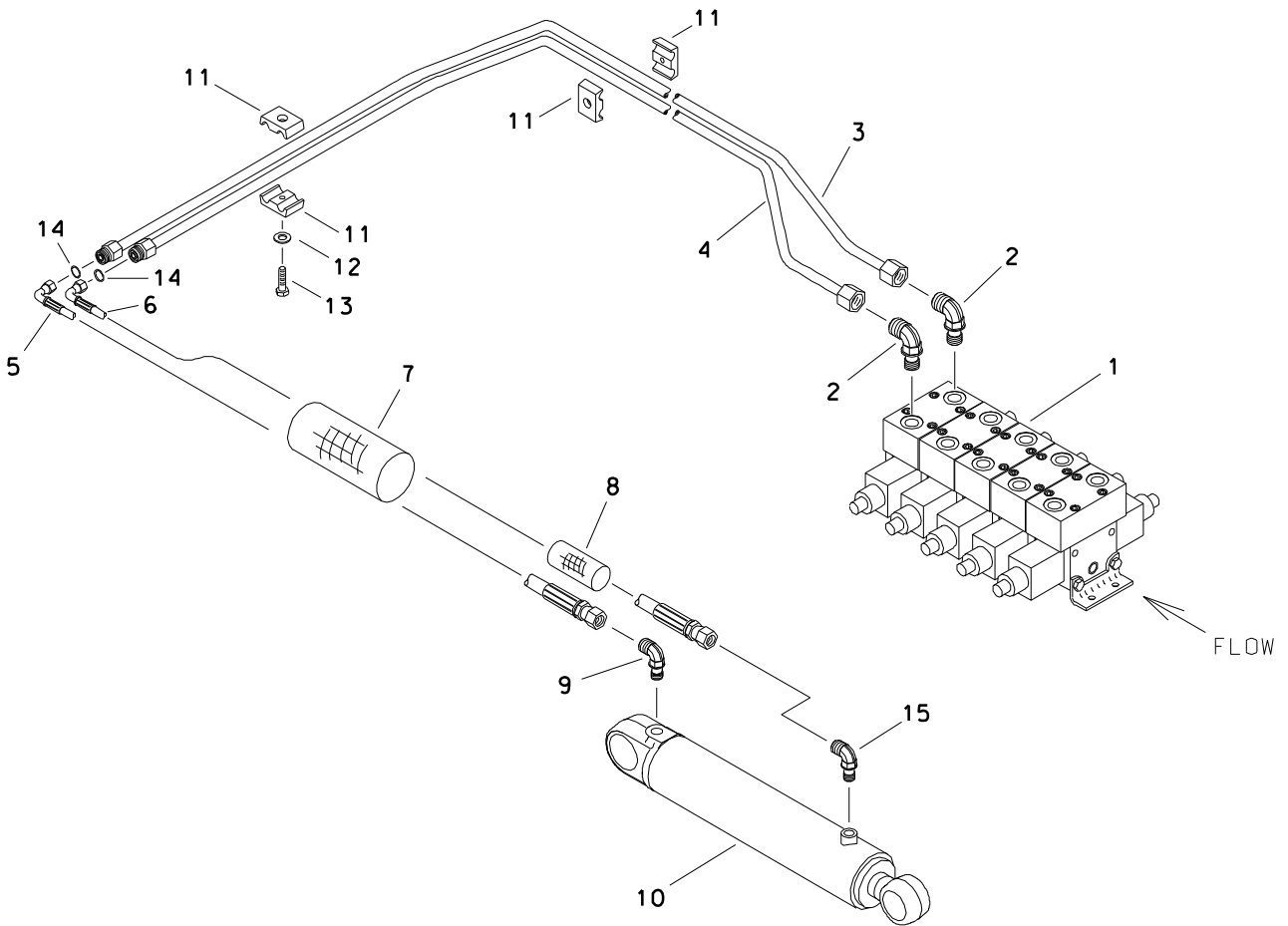
FOOTNOTES

- GREASE IN FROM PUMP.
- TO SPRAY NOZZEL.
- TO REAR APPLICATOR.
- HYDRAULIC OIL OUT TO LUBE PUMP.
- FOR PARTS BREAKDOWN OF SELECTOR VALVE & APPLICATOR, SEE SPECIFIC PARTS PAGES.
- USE SCREWS WITH APPLICATOR TO ATTACH TO BRACKET.

NOTE:

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

SEAT ROTATION HYDRAULICS



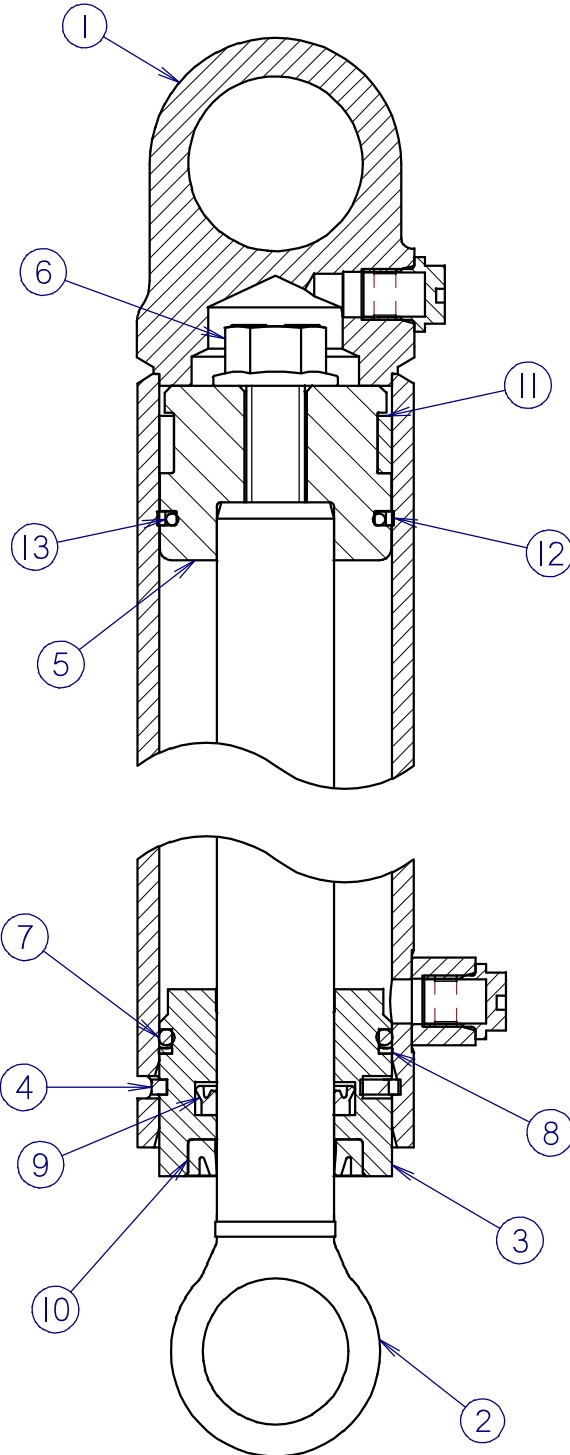
SEAT ROTATION HYDRAULICS

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	149-257	-	HYDRAULIC VALVE	
2.	154-342	2	CONNECTOR (06S-06090)	
3.	149-450	1	HYD LINE	TOP
4.	149-451	1	HYD LINE	BOTTOM
5.	515-277	1	HOSE (040FX90-128"-3000)	
6.	515-203	1	HOSE (040FX90-135"-3000)	
7.	116-632	1	ABRASION SLEEVE (1.59" X 130")	
8.	117-671	1	ABRASION SLEEVE (1.00" X 12")	
9.	154-401	1	CONNECTOR (04S-04090, ORF)	
10.	151-031	1	CYL (2.0" X 1.0" X 8.0")	
11.	110-998	5	CLAMP HALVES (3/8") PAIR	
12.	105-117	1	WASHER (5/16")	
13.	105-197	1	BOLT (1/4-NC X 1")	
14.	157-037	2	O-RING (011 D90)	
15.	154-252	1	CONNECTOR (04S-04090)	

FOOTNOTES

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

HYDRAULIC CYLINDERS (2.0" X 1.0")



HYDRAULIC CYLINDERS (2.0" X 1.0")

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	151-094	-	CYL (2.0 X 1.0 X 2.0)	SEE FOOTNOTES 1 & 2
1	152-029	1	CYLINDER BARREL (2.0 X 2.0)	
2	153-007	1	CYLINDER ROD (1.00 X 2.0)	
	149-667	-	CYL (2.0 X 1.0 X 2.5)	SEE FOOTNOTES 1 & 2
1	149-761	1	CYLINDER BARREL (2.0 X 2.5)	
2	149-728	1	CYLINDER ROD (1.00 X 2.5)	
	151-027	-	CYL (2.0 X 1.0 X 3.0)	SEE FOOTNOTES 1 & 2
1	150-282	1	CYLINDER BARREL (2.0 X 3.0)	
2	150-414	1	CYLINDER ROD (1.00 X 3.0)	
	151-038	-	CYL (2.0 X 1.0 X 4.0)	SEE FOOTNOTES 1 & 2
1	150-290	1	CYLINDER BARREL (2.0 X 4.0)	
2	150-421	1	CYLINDER ROD (1.00 X 4.0)	
	151-039	-	CYL (2.0 X 1.0 X 5.0)	SEE FOOTNOTES 1 & 2
1	150-291	1	CYLINDER BARREL (2.0 X 5.0)	
2	150-422	1	CYLINDER ROD (1.00 X 5.0)	
	151-044	-	CYL (2.0 X 1.0 X 6.0)	SEE FOOTNOTES 1 & 2
1	150-294	1	CYLINDER BARREL (2.0 X 6.0)	
2	150-424	1	CYLINDER ROD (1.00 X 6.0)	
	151-031	-	CYL (2.0 X 1.0 X 8.0)	SEE FOOTNOTES 1 & 2
1	150-285	1	CYLINDER BARREL (2.0 X 8.0)	
2	150-417	1	CYLINDER ROD (1.00 X 8.0)	
	151-076	-	CYL (2.0 X 1.0 X 10.0)	SEE FOOTNOTES 1 & 2
1	152-017	1	CYLINDER BARREL (2.0 X 10.0)	
2	150-444	1	CYLINDER ROD (1.00 X 10.0)	
	149-668	-	CYL (2.0 X 1.0 X 12.0)	SEE FOOTNOTES 1 & 2
1	150-286	1	CYLINDER BARREL (2.0 X 12.0)	
2	149-729	1	CYLINDER ROD (1.00 X 12.0)	
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)	
6	106-096	1	FLG BOLT (1/2-NC X 1-3/4",GD8)	SEE FOOTNOTE 3
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)	

NOT SHOWN:

259-100	U-SEAL INSTALLER (1" - 1.499")
259-235	1.00 ROD WIPER TOOL
259-239	WIPER/SEAL INSTALLER (2")
259-241	PISTON INSTALLER (2")
259-188	CYL HEAD SPANNER - TWO PIN

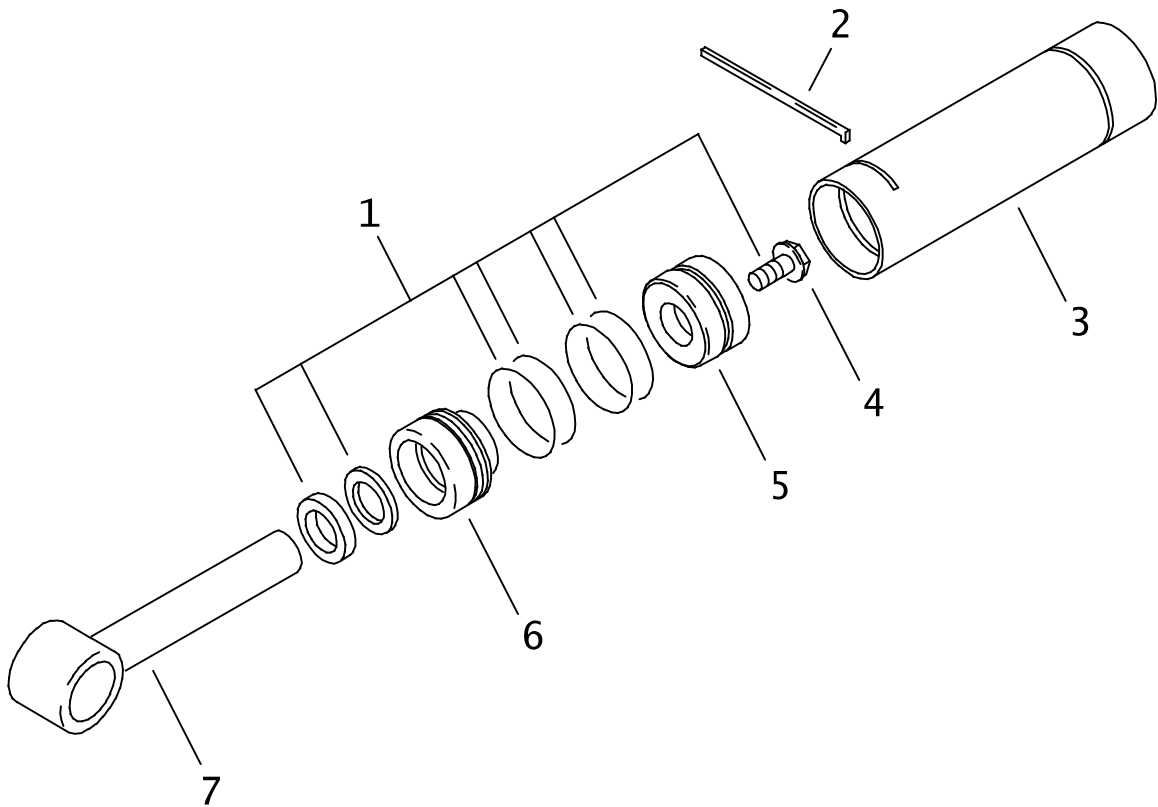
FOOTNOTES:

- REF. #1 & #2 ARE SPECIFIC TO EACH CYLINDER, REF. #3 THRU #13 ARE COMMON FOR ALL THE ABOVE LISTED CYLINDERS
- SEAL REPAIR KIT P/N: 190-165
- APPLY LOCTITE 277 OR EQUIVALENT, TORQUE TO 90-100 FT-LBS

NOTE:

HYDRAULIC CYLINDER

2.0" X 1.25" X 24.0"



HYDRAULIC CYLINDER

2.0" X 1.25" X 24.0"

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	150-747		CYL (2" X 1.25" X 24")	INCLUDE REF NO.'S 1 THRU 7
1.	190-169	1	SEAL REPAIR KIT (2.0" X 1.25")	INCLUDES REF NO.'S 4 & 5
2.	150-778	1	LOCK RING (2")	
3.	151-170	1	CYLINDER BARREL	
4.	106-097	1	FLG BOLT (5/8-NC X 1-3/4", GD8)	SEE FOOTNOTE 1
5.	150-771	1	CYLINDER PISTON (2.0" X 1.25")	INCLUDES MOLDED-ON WEAR RING
6.	150-770	1	CYLINDER HEAD (2.0" X 1.25")	
7.	150-679	1	CYLINDER ROD (1.25")	

NOT SHOWN:

259-100	U-SEAL INSTALLER (1"-1.499")
259-236	WIPER INSTALLER (1.250")
259-239	WIPER/SEAL INSTALLER (2")
259-241	PISTON INSTALLER (2")
259-188	CYL HEAD SPANNER - TWO PIN

FOOTNOTES

1. APPLY LOCTITE 271 OR 277. TORQUE TO 180-200 FT-LBS (245-270 N.M.)

NOTE:

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806-687

HYDRAULIC CYLINDERS (3.0" X 1.75")

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	149-683	-	CYL (3.0 X 1.75 X 3.0)	SEE FOOTNOTES 1 & 2
1	150-299	1	CYLINDER BARREL (3.0 X 3.0)	
2	150-446	1	CYLINDER ROD (1.75 X 3.0)	
	149-684	-	CYL (3.0 X 1.75 X 4.0)	SEE FOOTNOTES 1 & 2
1	152-004	1	CYLINDER BARREL (3.0 X 4.0)	
2	153-015	1	CYLINDER ROD (1.75 X 4.0)	
	149-685	-	CYL (3.0 X 1.75 X 5.0)	SEE FOOTNOTES 1 & 2
1	152-068	1	CYLINDER BARREL (3.0 X 5.0)	
2	150-432	1	CYLINDER ROD (1.75 X 5.0)	
	151-058	-	CYL (3.0 X 1.75 X 6.0)	SEE FOOTNOTES 1 & 2
1	152-008	1	CYLINDER BARREL (3.0 X 6.0)	
2	150-428	1	CYLINDER ROD (1.75 X 6.0)	
	151-070	-	CYL (3.0 X 1.75 X 8.0)	SEE FOOTNOTES 1 & 2
1	152-014	1	CYLINDER BARREL (3.0 X 8.0)	
2	150-436	1	CYLINDER ROD (1.75 X 8.0)	
	149-686	-	CYL (3.0 X 1.75 X 10.0)	SEE FOOTNOTES 1 & 2
1	150-284	1	CYLINDER BARREL (3.0 X 10.0)	
2	149-732	1	CYLINDER ROD (1.75 X 10.0)	
	151-042	-	CYL (3.0 X 1.75 X 12.0)	SEE FOOTNOTES 1 & 2
1	150-293	1	CYLINDER BARREL (3.0 X 12.0)	
2	150-425	1	CYLINDER ROD (1.75 X 12.0)	
	151-083	-	CYL (3.0 X 1.75 X 16.0)	SEE FOOTNOTES 1 & 2
1	150-288	1	CYLINDER BARREL (3.0 X 16.0)	
2	153-004	1	CYLINDER ROD (1.75 X 16.0)	
	151-122	-	CYL (3.0 X 1.75 X 20.0)	SEE FOOTNOTES 1 & 2
1	150-667	1	CYLINDER BARREL (3.0 X 20.0)	
2	153-020	1	CYLINDER ROD (1.75 X 20.0)	
	149-687	-	CYL (3.0 X 1.75 X 24.0)	SEE FOOTNOTES 1 & 2
1	149-763	1	CYLINDER BARREL (3.0 X 24.0)	
2	149-733	1	CYLINDER ROD (1.75 X 24.0)	
	149-688	-	CYL (3.0 X 1.75 X 30.0)	SEE FOOTNOTES 1 & 2
1	149-764	1	CYLINDER BARREL (3.0 X 30.0)	
2	149-734	1	CYLINDER ROD (1.75 X 30.0)	
3	150-763	1	CYLINDER HEAD (3.0 X 1.75)	
4	150-911	1	LOCK RING (3.0)	
5	150-765	1	CYLINDER PISTON (3.0 X 1.75)	INCL. MOLDED-ON WEAR RING
6	106-122	1	BOLT (7/8-NC X 2-1/4", GD8)	SEE FOOTNOTE 3
7	155-734	1	O-RING (334 D90)	
8	155-733	1	BACKUP RING (334 D90)	
9	157-550	1	U-SEAL (1.750")	
10	157-549	1	WIPER SEAL (1.750")	
11	105-363	1	WASHER (7/8")	

FOOTNOTES

- REF. #1 & #2 ARE SPECIFIC TO EACH CYLINDER, REF. #3 THRU #11 ARE COMMON FOR ALL THE ABOVE LISTED CYLINDERS.
- SEAL REPAIR KIT P/N: 190-172
- APPLY LOCTITE 277 OR EQUIVALENT, TORQUE TO 410-460 FT-LBS

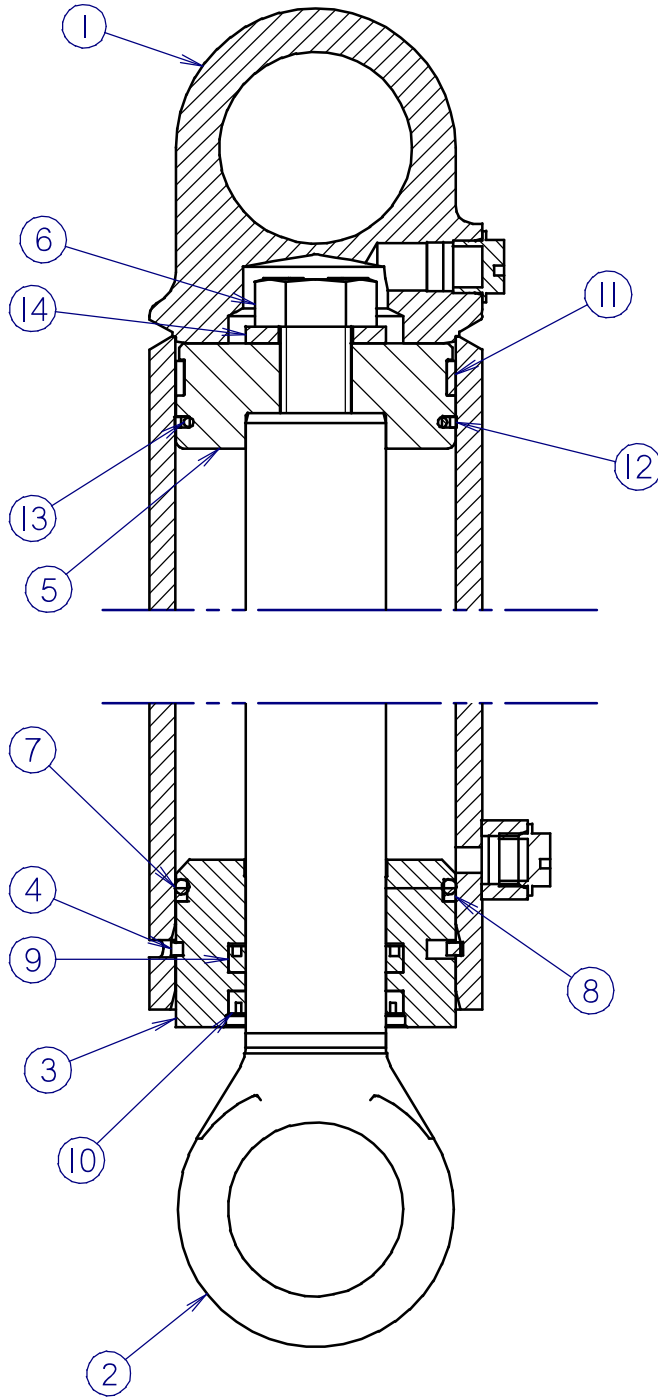
NOT SHOWN:

- 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

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809-366

HYDRAULIC CYLINDERS (4.0" X 2.0")



HYDRAULIC CYLINDERS (4.0" X 2.0")

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	149-698	-	CYL (4.0 X 2.0 X 4.0)	SEE FOOTNOTES 1 & 2
1	149-768	1	CYLINDER BARREL (4.0 X 4.0)	
2	153-021	1	CYLINDER ROD (2.00 X 4.0)	
	151-066	-	CYL (4.0 X 2.0 X 5.0)	SEE FOOTNOTES 1 & 2
1	152-012	1	CYLINDER BARREL (4.0 X 5.0)	
2	150-440	1	CYLINDER ROD (2.00 X 5.0)	
	149-699	-	CYL (4.0 X 2.0 X 6.0)	SEE FOOTNOTES 1 & 2
1	152-062	1	CYLINDER BARREL (4.0 X 6.0)	
2	149-735	1	CYLINDER ROD (2.00 X 6.0)	
	149-700	-	CYL (4.0 X 2.0 X 8.0)	SEE FOOTNOTES 1 & 2
1	152-030	1	CYLINDER BARREL (4.0 X 8.0)	
2	149-736	1	CYLINDER ROD (2.00 X 8.0)	
	149-701	-	CYL (4.0 X 2.0 X 10.0)	SEE FOOTNOTES 1 & 2
1	149-769	1	CYLINDER BARREL (4.0 X 10.0)	
2	153-016	1	CYLINDER ROD (2.00 X 10.0)	
	151-088	-	CYL (4.0 X 2.0 X 12.0)	SEE FOOTNOTES 1 & 2
1	150-298	1	CYLINDER BARREL (4.0 X 12.0)	
2	150-429	1	CYLINDER ROD (2.00 X 12.0)	
	149-702	-	CYL (4.0 X 2.0 X 16.0)	SEE FOOTNOTES 1 & 2
1	152-007	1	CYLINDER BARREL (4.0 X 16.0)	
2	149-737	1	CYLINDER ROD (2.00 X 16.0)	
	149-703	-	CYL (4.0 X 2.0 X 20.0)	SEE FOOTNOTES 1 & 2
1	149-770	1	CYLINDER BARREL (4.0 X 20.0)	
2	149-738	1	CYLINDER ROD (2.00 X 20.0)	
	149-704	-	CYL (4.0 X 2.0 X 24.0)	SEE FOOTNOTES 1 & 2
1	152-063	1	CYLINDER BARREL (4.0 X 24.0)	
2	149-739	1	CYLINDER ROD (2.00 X 24.0)	
3	149-006	1	CYLINDER HEAD (4.0 X 2.00)	
4	149-303	1	LOCK RING (4.0)	
5	149-307	1	CYLINDER PISTON (4.0 X 2.00)	
6	106-145	1	BOLT (1-NC X 2-1/4", GD8)	SEE FOOTNOTE 3
7	157-035	1	O-RING (342 D90)	
8	157-036	1	BACKUP RING (342 D90)	
9	157-559	1	U-SEAL (2.000")	
10	157-558	1	WIPER SEAL (2.000")	
11	125-793	1	WEAR RING	
12	157-570	1	BACKUP RING (238 D90)	
13	157-044	1	O-RING (238 D90)	
14	106-144	1	WASHER (1")	

FOOTNOTES

- REF. #1 & #2 ARE SPECIFIC TO EACH CYLINDER, REF. #3 THRU #14 ARE COMMON FOR ALL THE ABOVE LISTED CYLINDERS.
- SEAL REPAIR KIT P/N: 190-189
- APPLY LOCTITE 277 OR EQUIVALENT, TORQUE TO 630-700 FT-LBS

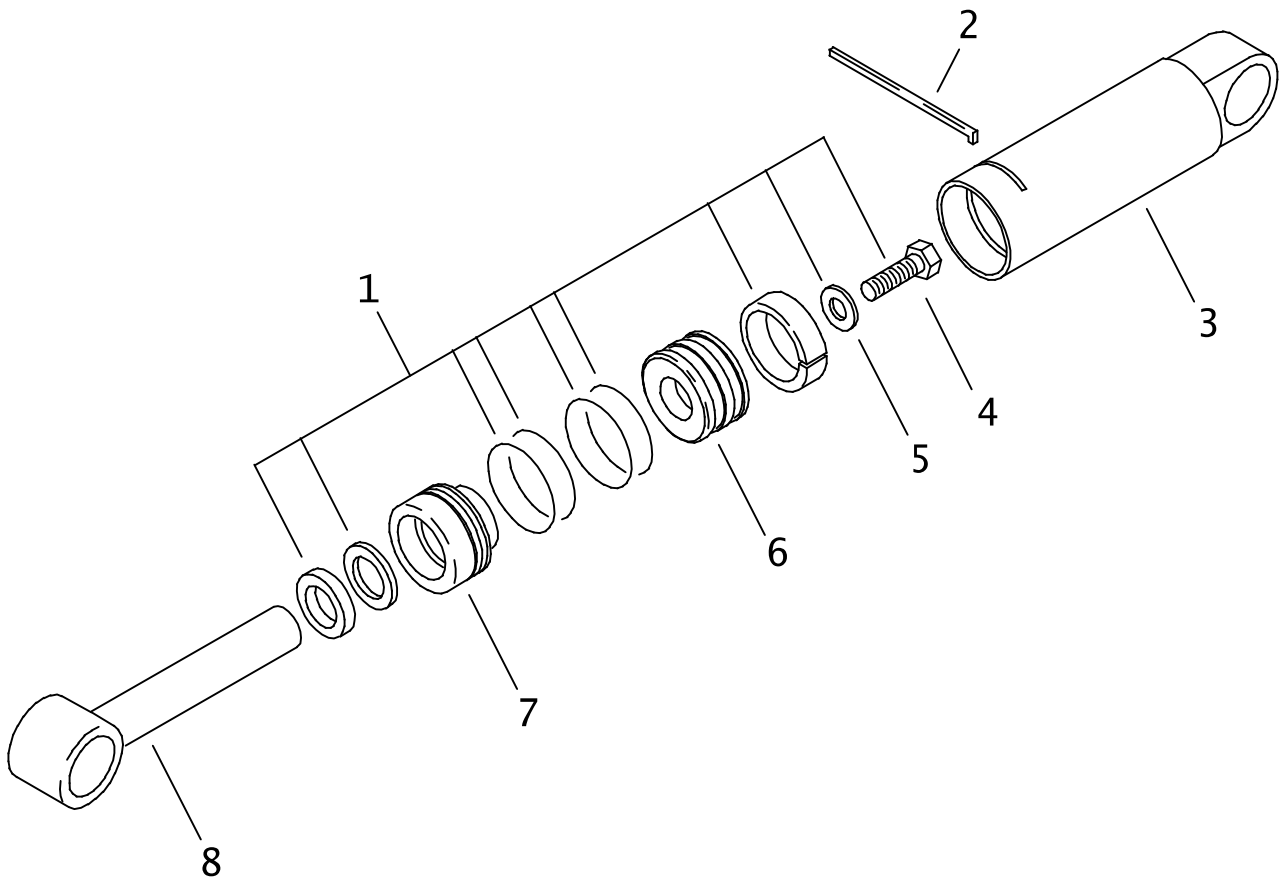
NOT SHOWN:

- 259-040 U-SEAL INSTALLER (1.5" - UP)
- 259-239 WIPER/SEAL INSTALLER (2")
- 259-246 PISTON SEAL INSTALLER (4")
- 259-247 PISTON INSTALLER (4")
- 259-188 CYL HEAD SPANNER - TWO PIN

A

809-369

HYDRAULIC CYLINDER (4.0" X 2.00" X 10.0")



HYDRAULIC CYLINDER (4.0" X 2.00" X 10.0")

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	151-187		CYLINDER ASSEMBLY	INCLUDES REF NO.'S 1 THRU 7
1.	190-189	1	SEAL REPAIR KIT (4.0" X 2.0")	INCLUDES REF. NO.'S 4 & 5
2.	149-303	1	LOCK RING (4")	
3.	152-071	1	CYLINDER BARREL	
4.	106-145	1	BOLT (1-NC X 2-1/4", GD8)	SEE FOOTNOTE 1
5.	106-144	1	WASHER (1")	
6.	149-307	1	CYLINDER PISTON (4" X 2")	
7.	149-006	1	CYLINDER HEAD (4" X 2")	
8.	153-016	1	CYLINDER ROD	

NOT SHOWN:

259-040	U-SEAL INSTALLER (1.500"-UP)
259-239	WIPER/SEAL INSTALLER (2")
259-246	PISTON SEAL INSTALLER (4")
259-247	PISTON INSTALLER (4")
259-188	CYL HEAD SPANNER - TWO PIN

FOOTNOTES

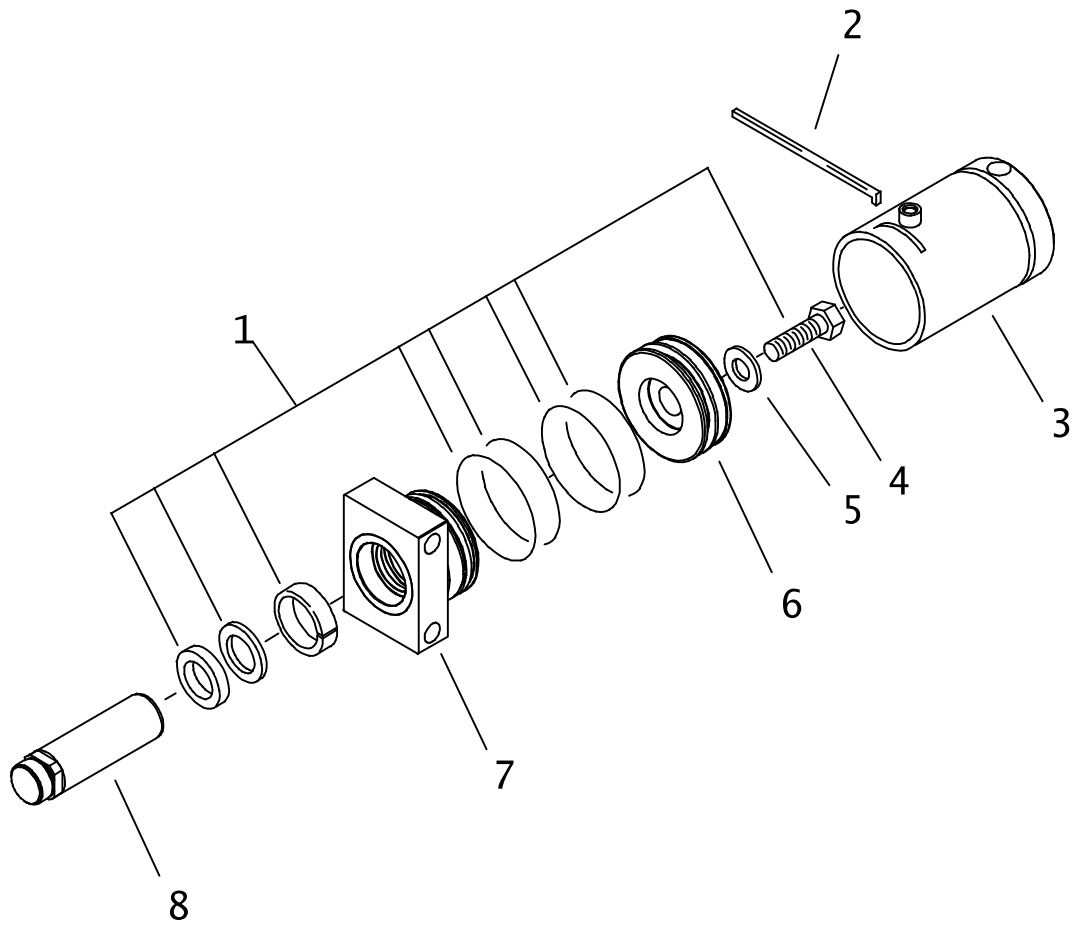
1 APPLY LOCTITE 271 OR 277. TORQUE TO 630-700 FT-LBS (855-950 NM)

NOTE:

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806-688

HYDRAULIC CYLINDER CYLINDER (4.50" X 2.25" X 2.75")



HYDRAULIC CYLINDER CYLINDER (4.50" X 2.25' X 2.75")

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	156-2006		CYL 4.50" X 2.25" X 2.75"	INCLUDES REF NO.'S 2 THRU 8 <u>OBSOLETE</u>
1.	190-900	1	SEAL REPAIR KIT	
2.	150-711	1	LOCK RING	
3.	152-073	1	4.5 X 2.75 BARREL	
4.	106-146	1	BOLT (1-1/8-NC X 2-1/2" GD8)	SEE FOOTNOTE 1
5.	106-147	1	WASHER (1-1/8")	
6.	149-168	1	4.5 X 2.25 PISTON	SEE FOOTNOTE 2
7.	151-207	1	GLAND	
8.	150-710	1	CYLINDER ROD	<u>OBSOLETE</u>
	153-753	1	CYLINDER ROD	SEE FOOTNOTE 3

NOT SHOWN:

259-040 U-SEAL INSTALLER (1.500"- UP

FOOTNOTES:

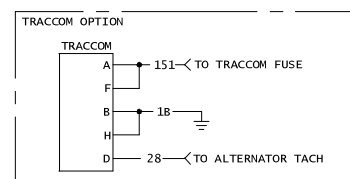
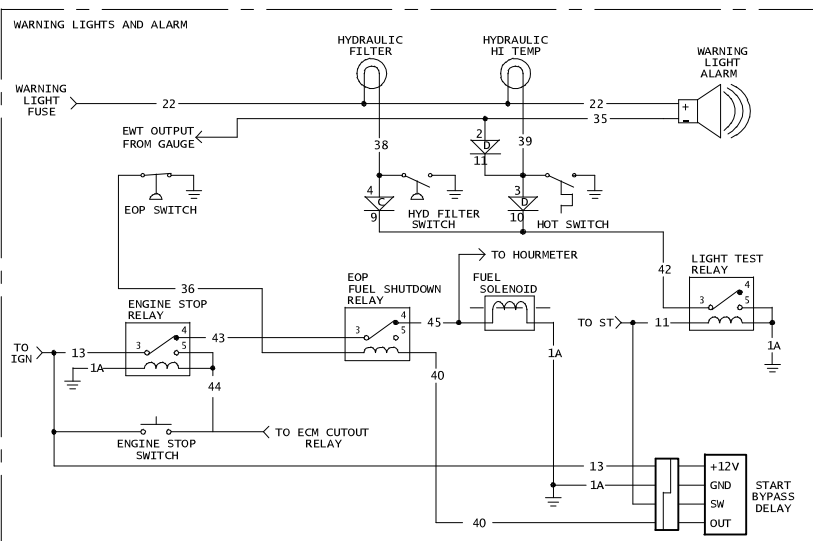
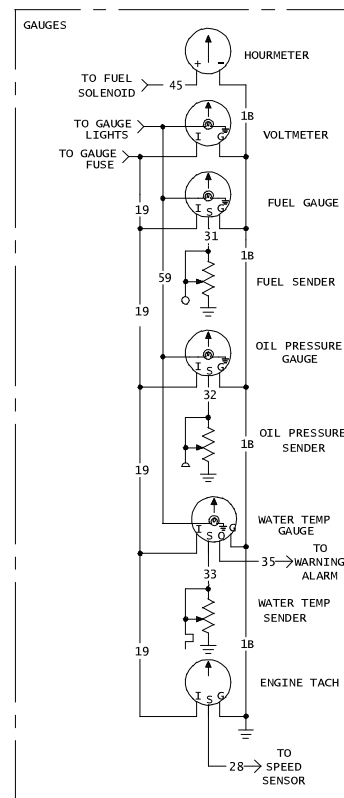
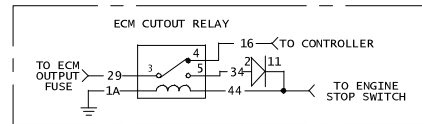
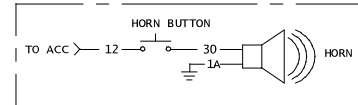
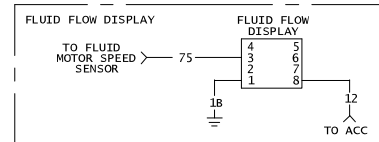
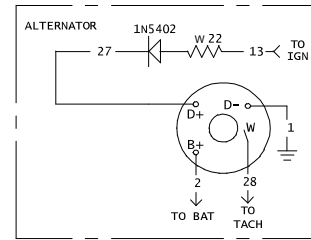
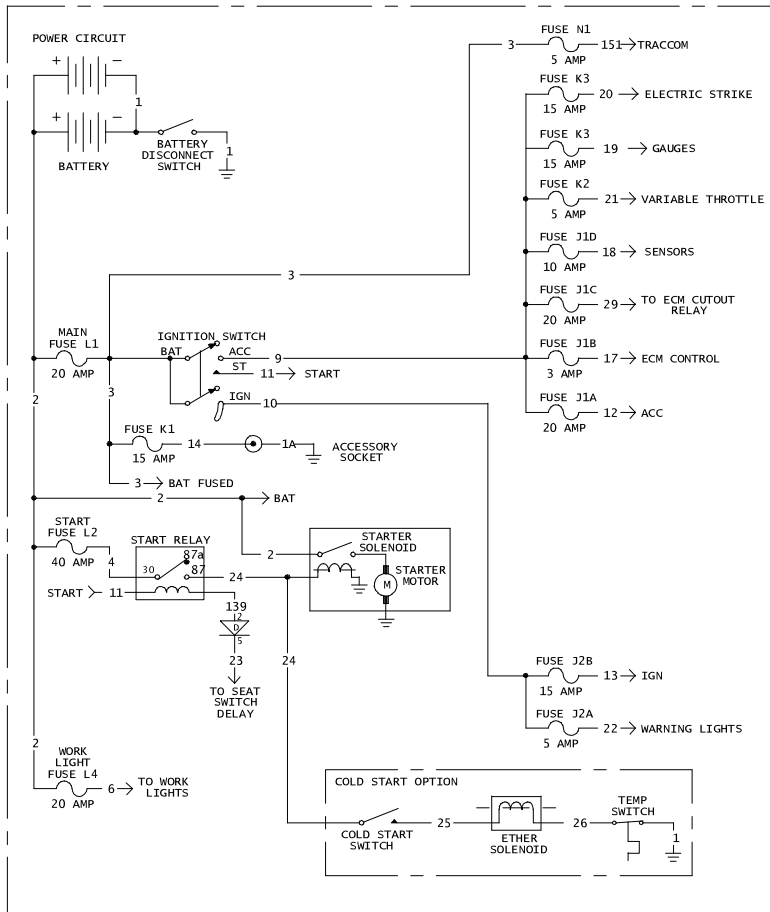
1. USE LOCTITE 271 OR 277. TORQUE TO 770-850 FT-LBS (1045-1150 N.M.).
2. UNITIZED PISTON INCLUDES WEAR RING, SQUARE LOADER RING & PISTON SEAL.
3. USES 329-179 JAW BLOCK AND 107-777 SPRING PIN.

NOTE:

ELECTRICAL

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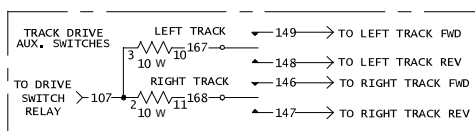
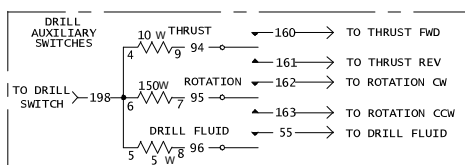
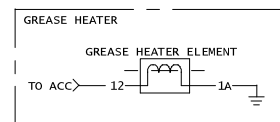
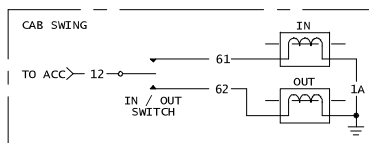
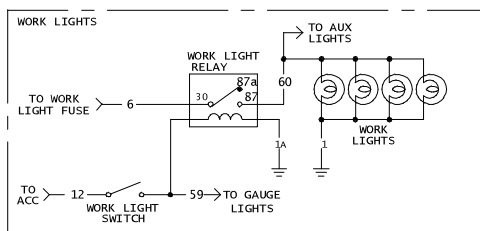
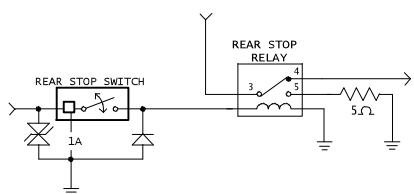
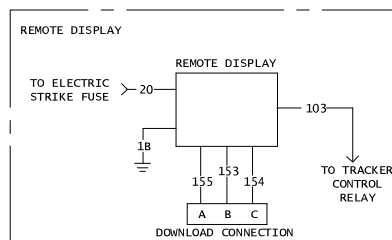
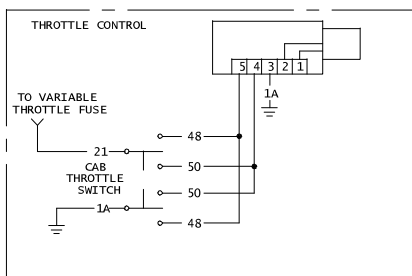
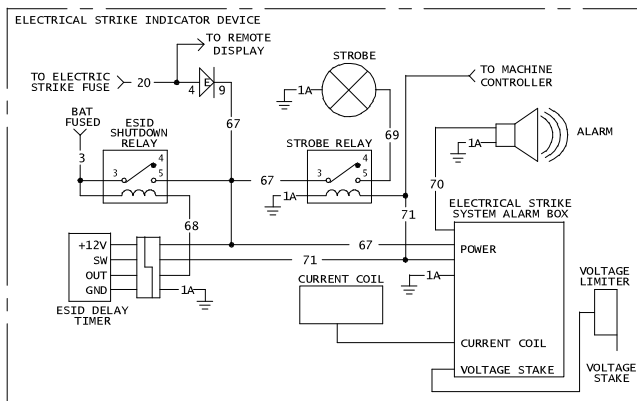


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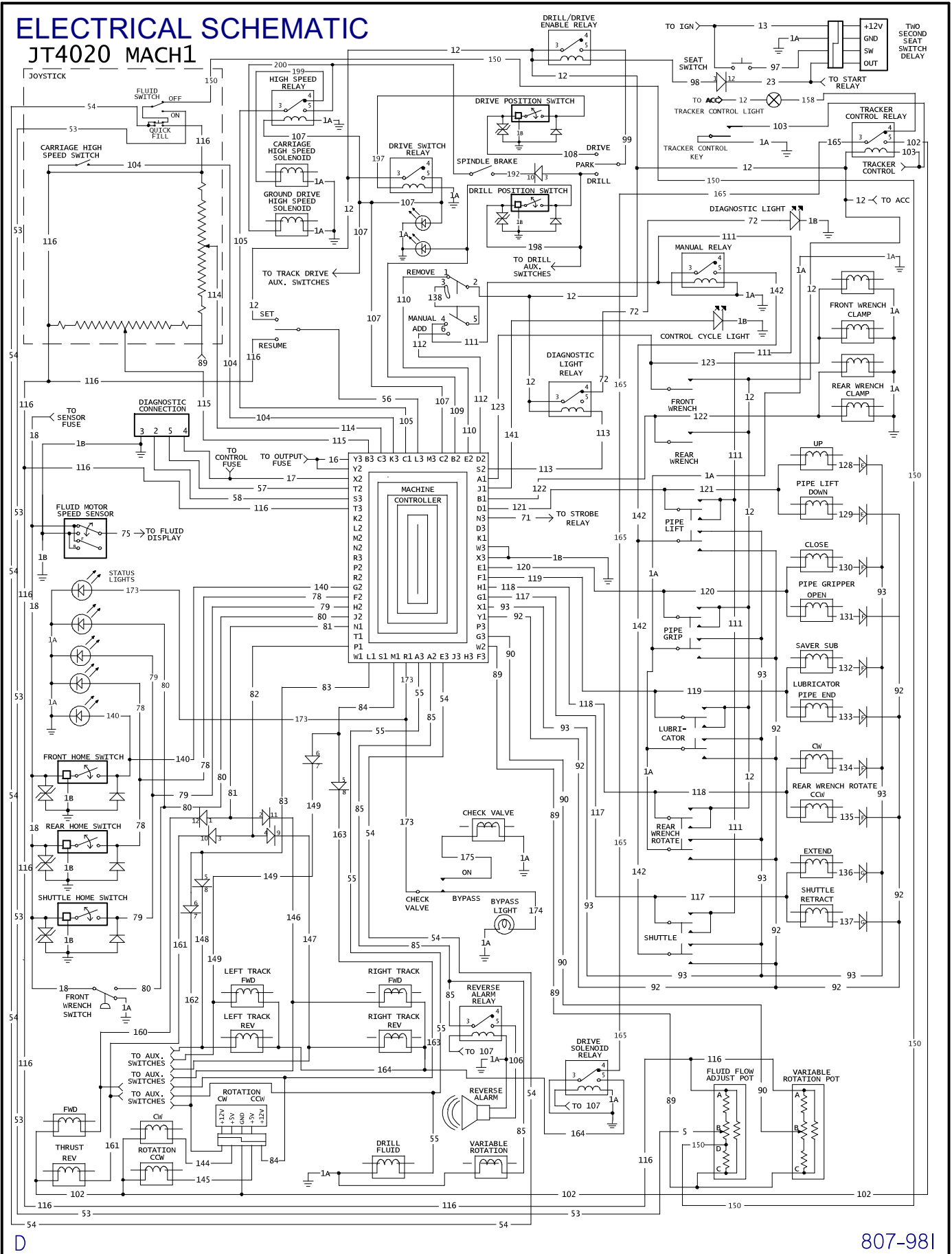


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JT4020 MACH1



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ELECTRICAL SCHEMATIC

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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.		NOT USED	
8.		NOT USED	
9.	ORG	IGNITION SWITCH ACCESSORY CIRCUIT	
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.	WHT/RED	START RELAY TO SEAT SWITCH DIODE	
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	ALT TO TACH & TRACCOM UNIT	
29.	RED/BRN	ECM OUTPUT FUSE TO ECM CUTOFF RELAY	
30.	TAN/BLU	HORN BUTTON TO HORN	
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, 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 LINEAR ACTUATOR	
49.		NOT USED	
50.	BLU/ORG	THROTTLE SWITCH TO LINEAR ACTUATOR	
51.		NOT USED	
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	

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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.	TAN/RED	WORK LIGHT SWITCH TO WORK LIGHT RELAY & GAUGE LIGHTS	
60.	YEL	WORK LIGHT RELAY TO WORK LIGHTS & AUX LIGHT CONNECTION	
61.	YEL/BLK	CAB SWING IN/OUT SWITCH TO IN SOLENOID	
62.	PUR/BLK	CAB SWING IN/OUT SWITCH TO OUT SOLENOID	
63.		NOT USED	
64.		NOT USED	
65.		NOT USED	
66.		NOT USED	
67.	ORG/RED	DIODE CATHODE TO DELAY TIMER, ESID, STROBE RELAY, & ESID SHUTDOWN RELAY	
68.	TAN/BLK	DELAY TIMER TO SHUTDOWN RELAY	
69.	WHT/YEL	STROBE RELAY TO STROBE	
70.	BRN	ESID TO LOCAL ESID ALARM	
71.	WHT/PUR	ESID TO ESID DELAY TIMER, 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 DIODES	
82.	BLU/YEL	MACHINE CONTROLLER TO THRUST REVERSE/RIGHT TRACK REVERSE DIODES	
83.	GRA/ORG	MACHINE CONTROLLER TO ROTATION CW VOLTAGE TRANSLATOR/LEFT TRACK REVERSE DIODES	
84.	GRA/YEL	MACHINE CONTROLLER TO ROTATION CCW VOLTAGE TRANSLATOR/LEFT TRACK FORWARD DIODES	
85.	PUR/GRN	MACHINE CONTROLLER TO VARIABLE ROTATION SOLENOID & REVERSE ALARM RELAY	
86.		NOT USED	
87.		NOT USED	
88.		NOT USED	
89.	YEL/BLK	MACHINE CONTROLLER TO GROUND FOR JOYSTICK & POTENTIOMETERS	
90.	WHT/GRN	VARIABLE ROTATION POT TO MACHINE CONTROLLER	
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 TWO SECOND DELAY TIMER	
98.	RED/WHT	DIODE ANODE TO DRILL/DRIVE ENABLE RELAY	
99.	ORG/WHT	DRILL/DRIVE ENABLE RELAY TO DRIVE/PARK/DRILL SWITCH	
100.		NOT USED	
101.		NOT USED	
102.	WHT/GRN	TRACKER CONTROL RELAY TO ROTATION AND THRUST SOLENOIDS & ROTATION TRANSLATOR	
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 HIGH SPEED RELAY	
106.	BLU/ORG	REVERSE WARNING ALARM RELAY TO REVERSE WARNING ALARM	
107.	YEL/GRN	DRIVE SWITCH RELAY TO INDICATOR LIGHT, MACHINE CONTROLLER, REVERSE ALARM RELAY, DRILL FLUID RELAY, HIGH SPEED RELAY, & TRACK DRIVE RESISTORS	
108.	GRA	DRIVE/PARK/DRILL SWITCH TO DRIVE POSITION SWITCH	
109.	YEL/PUR	DRILL POSITION SWITCH TO INDICATOR LIGHT & MACHINE CONTROLLER	
110.	BRN/ORG	REMOVE/MANUAL/ADD SWITCH TO MACHINE CONTROLLER	
111.	WHT/ORG	REMOVE/MANUAL/ADD SWITCH TO PIPELOADER FUNCTION SWITCHES & MANUAL RELAY	

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JT4020 MACH1

CKT NO.	WIRE COLOR	FUNCTION	REMARKS
112.	BRN/YEL	REMOVE/MANUAL/ADD SWITCH TO MACHINE CONTROLLER	
113.	TAN/BLK	MACHINE CONTROLLER TO DIAGNOSTIC LIGHT RELAY	
114.	GRA/GRN	JOYSTICK Y-AXIS OUTPUT TO MACHINE CONTROLLER	
115.	TAN/GRN	JOYSTICK X-AXIS OUTPUT 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 REAR WRENCH ROTATE SWITCH AND SOLENOIDS	
119.	GRA	MACHINE CONTROLLER TO LUBRICATOR SWITCH AND SOLENOIDS	
120.	GRN	MACHINE CONTROLLER TO PIPE GRIP SWITCH AND SOLENOIDS	
121.	BLU	MACHINE CONTROLLER TO PIPE LIFT SWITCH AND SOLENOIDS	
122.	YEL	MACHINE CONTROLLER TO REAR WRENCH SWITCH AND SOLENOIDS	
123.	BRN	MACHINE CONTROLLER TO FRONT WRENCH SWITCH AND SOLENOIDS	
124.		NOT USED	
125.		NOT USED	
126.		NOT USED	
127.		NOT USED	
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 CLOSE SOLENOID TO DIODE ANODE	
131.	GRN/ORG	PIPE GRIPPER OPEN 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	REAR WRENCH ROTATE CW SOLENOID TO DIODE ANODE	
135.	PUR/YEL	REAR WRENCH ROTATE CCW 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.	WHT/ORG	START RELAY TO DIODE ANODE	
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.	PUR/ORG	ROTATION CW VOLTAGE TRANSLATOR TO SOLENOID	
145.	PUR/YEL	ROTATION CCW VOLTAGE TRANSLATOR TO SOLENOID	
146.	GRN/PUR	RIGHT TRACK FORWARD DIODE TO RIGHT TRACK FORWARD SOLENOID	
147.	GRN/RED	RIGHT TRACK REVERSE DIODE TO RIGHT TRACK REVERSE SOLENOID	
148.	GRN/YEL	LEFT TRACK REVERSE DIODE TO LEFT TRACK REVERSE SOLENOID	
149.	GRN/ORG	LEFT TRACK FORWARD DIODE 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 TO THRUST FORWARD SOLENOID	
161.	TAN/YEL	THRUST REVERSE DIODE TO THRUST REVERSE SOLENOID	
162.	ORG/GRA	ROTATION CW DIODE TO ROTATION CW VOLTAGE TRANSLATOR	
163.	YEL/GRA	ROTATION CCW DIODE TO ROTATION CCW VOLTAGE TRANSLATOR	
164.	WHT/YEL	TRACK DRIVE SOLENOIDS TO DRIVE SOLENOID RELAY	
165.	TAN/PUR	TRACKER CONTROL RELAY TO DRIVE SOLENOID RELAY	
166.		NOT USED	
167.	BLU/WHT	RESISTOR TO LEFT TRACK AUXILIARY SWITCH	
168.	GRN/WHT	RESISTOR TO RIGHT TRACK AUXILIARY SWITCH	

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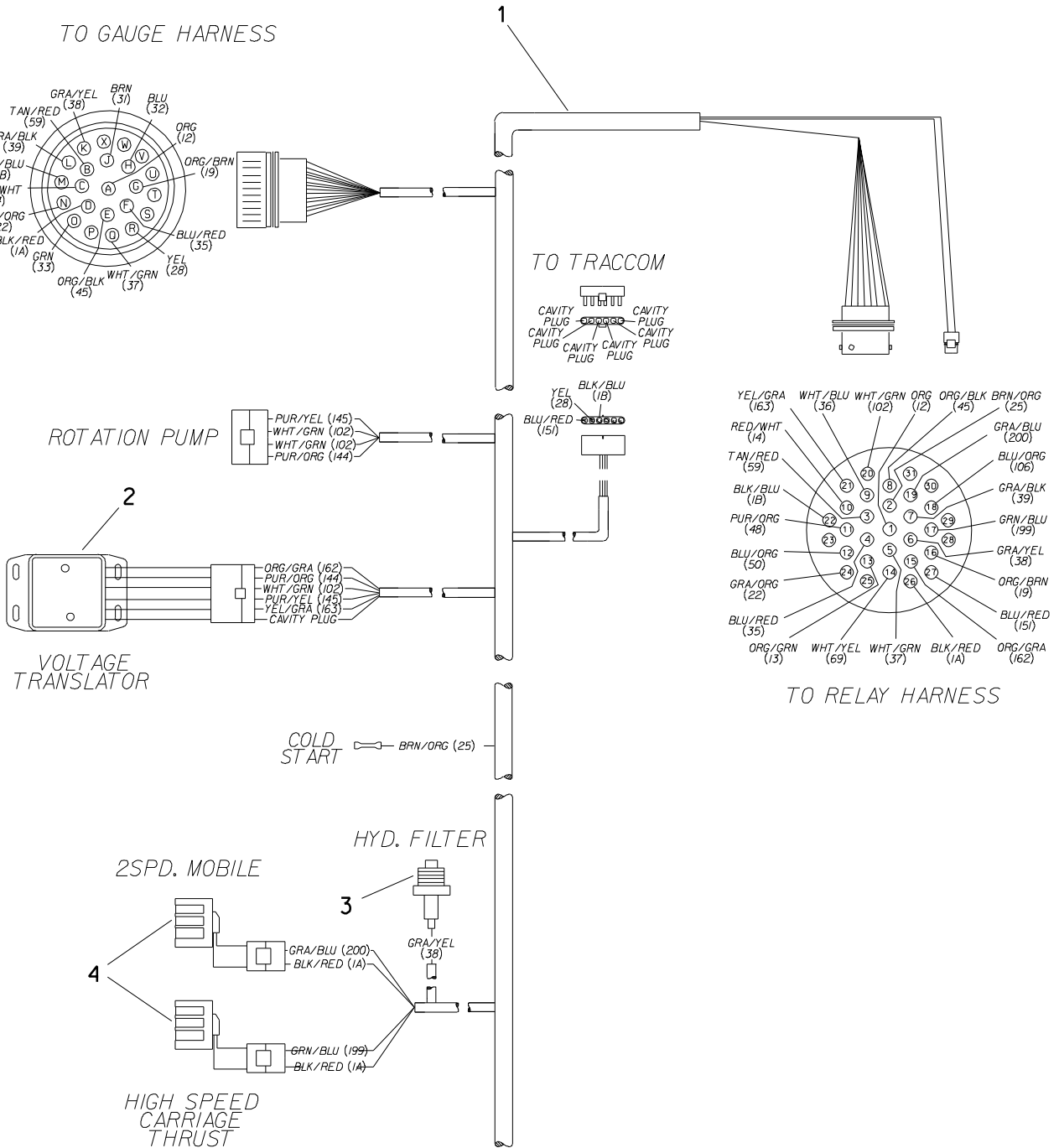
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ELECTRICAL SCHEMATIC

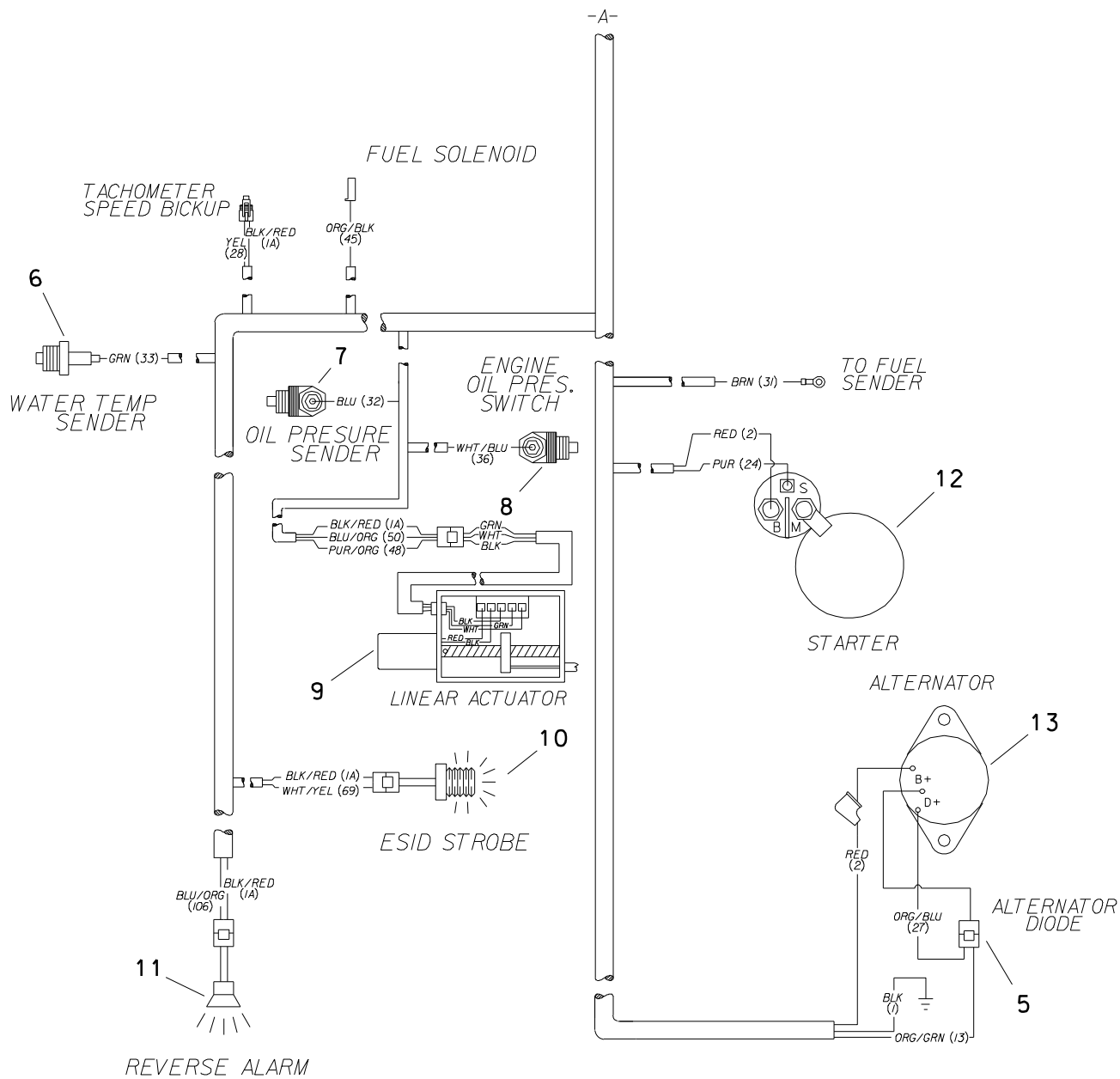
JT4020 MACH1

CKT NO.	WIRE COLOR	FUNCTION	REMARKS
169.		NOT USED	
170.		NOT USED	
171.		NOT USED	
172.		NOT USED	
173.	BRN/WHT	MACHINE CONTROLLER TO FLUID PUMP "ON" LED	
174.	GRN/RED	CHECK VALVE SWITCH TO BYPASS LIGHT	
175.	GRN/YEL	CHECK VALVE SWITCH TO CHECK VALVE SOLENOID	
176.		NOT USED	
177.		NOT USED	
178.		NOT USED	
179.		NOT USED	
180.		NOT USED	
181.		NOT USED	
182.		NOT USED	
183.		NOT USED	
184.		NOT USED	
185.		NOT USED	
186.		NOT USED	
187.		NOT USED	
188.		NOT USED	
189.		NOT USED	
190.		NOT USED	
191.		NOT USED	
192.	PUR/WHT	SPINDLE BRAKE SWITCH TO DIODE	
193.		NOT USED	
194.		NOT USED	
195.		NOT USED	
196.		NOT USED	
197.	PUR/WHT	DRIVE POSITION SWITCH TO DRIVE SWITCH RELAY	
198.	YEL/WHT	DRIVE/PARK/DRILL SWITCH TO DRILL POSITION SWITCH, DRILL RESISTORS, & DIODE	
199.	GRN/BLU	HIGH SPEED RELAY TO CARRIAGE HIGH SPEED RELAY	
200.	GRA/BLU	HIGH SPEED RELAY TO GROUND DRIVE HIGH SPEED SOLENOID & SPINDLE BRAKE SWITCH	

ELECTRICAL DIAGRAM ENGINE HARNESS



ELECTRICAL DIAGRAM ENGINE HARNESS

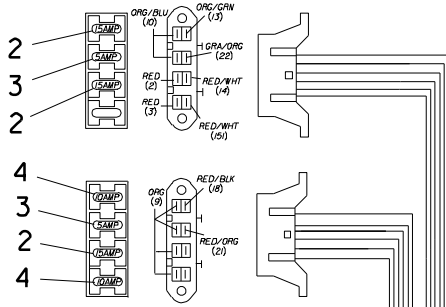


ELECTRICAL DIAGRAM ENGINE HARNESS

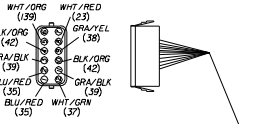
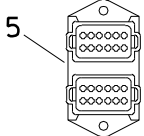
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	214-577	1	ENGINE HARNESS	
2.	211-017	1	12V-5V VOLTAGE CONVERTOR	
3.	216-067	1	RESTRICTION SWITCH	
4.	217-770	2	SOLENOID COIL	
5.	214-256	1	DIODE CONNECTOR	
6.	217-550	1	WATER TEMPERATURE SENDER	
7.	215-183	1	SENDER, OIL PRESSURE HD	
8.	217-736	1	OIL PRESSURE SWITCH	
9.	215-231	1	LINEAR ACTUATOR	INCL CABLE & ROLL PIN & PIGTAIL
	214-299	1	ACTUATOR PIGTAIL	
	196-331	1	CABLE (LINEAR ACTUATOR)	
	501-358	1	ROLL PIN (3/32" X 3/4")	
10.	217-041	1	STROBE LIGHT (12V DC)	INCL BULB
	217-720	1	BULB (12V DC)	
11.	306-602	1	BACKUP ALARM	
12.	211-022	1	STARTER	
13.	217-451	1	ALTERNATOR 95 AMP	

FOOTNOTES

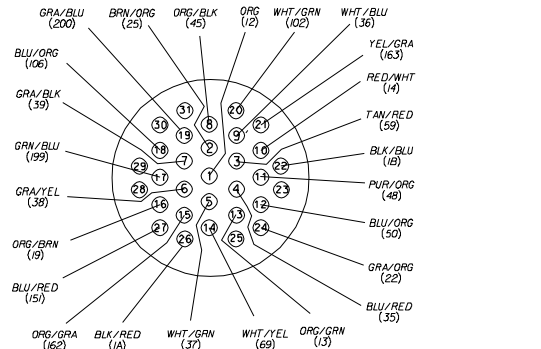
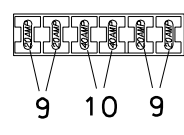
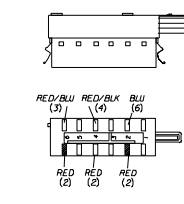
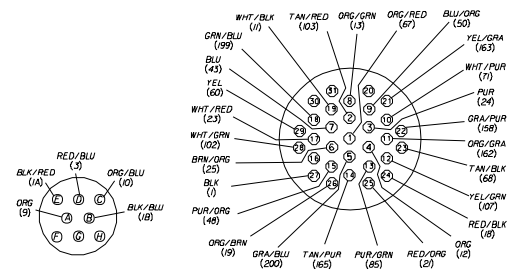
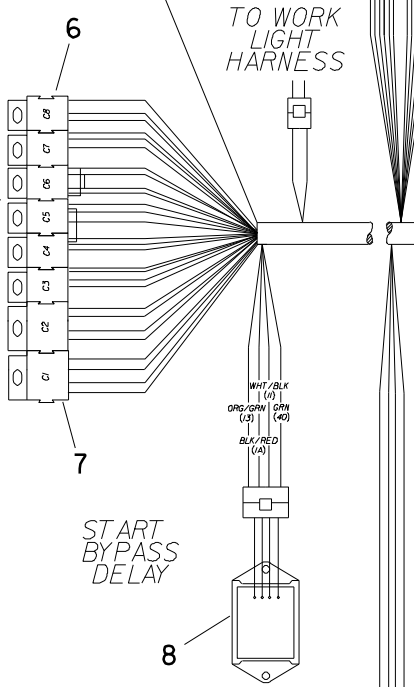
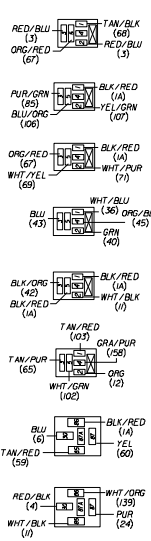
ELECTRICAL DIAGRAM RELAY PANEL



DIODE BLOCK



- ESID SHUTDOWN RELAY
- REVERSE ALARM RELAY
- STROBE RELAY
- EOP SHUTDOWN RELAY
- LIGHT TEST RELAY
- REMOTE LOCKOUT RELAY
- WORKLIGHT RELAY
- START RELAY



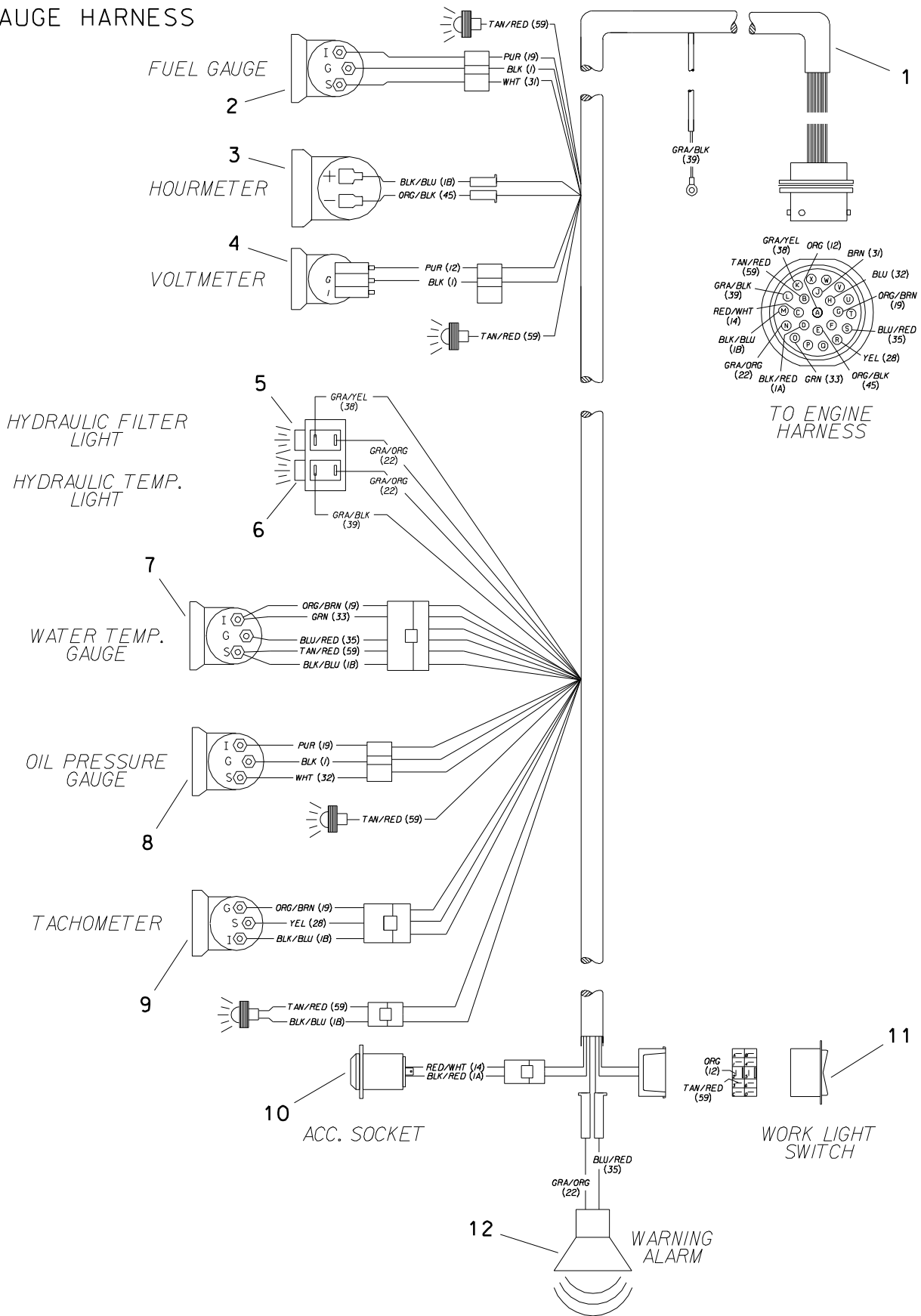
ELECTRICAL DIAGRAM

RELAY PANEL

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	214-596	1	RELAY PANEL	
2.	217-811	3	FUSE (ATC, 15 AMP)	
3.	217-809	2	FUSE (ATC, 5 AMP)	
4.	217-810	2	FUSE (ATC, 10 AMP)	
5.	211-026	1	DIODE PACK (DEUTSCH)	
6.	217-710	6	MICRO RELAY (SPDT)	
7.	217-826	2	MINI RELAY (SPDT)	
8.	217-937	1	START BYPASS DELAY TIMER	
9.	217-805	4	FUSE (MAXI, 20AMP)	
10.	217-791	2	FUSE (MAXI, 40 AMP)	

FOOTNOTES

ELECTRICAL DIAGRAM GAUGE HARNESS



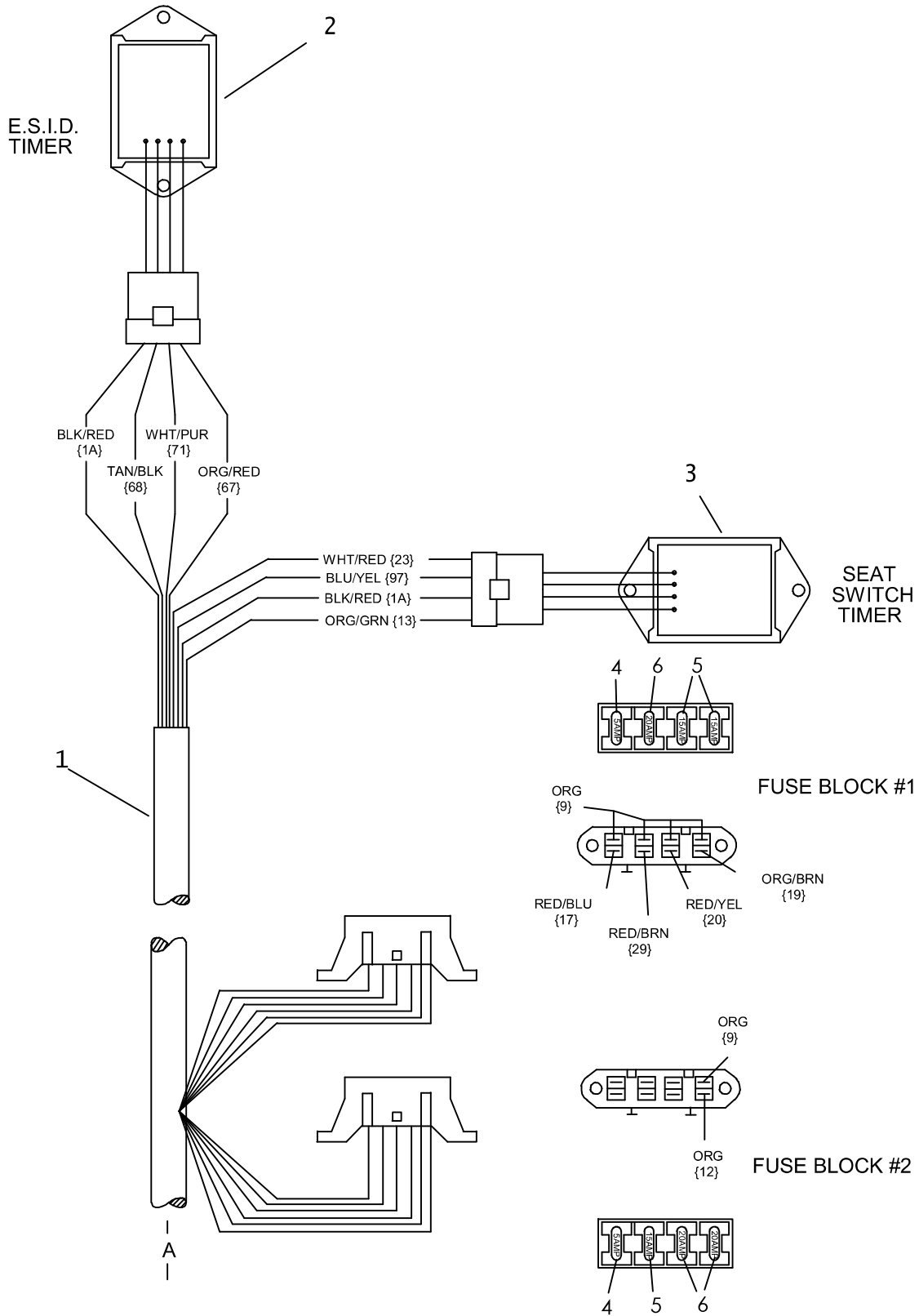
ELECTRICAL DIAGRAM

GAUGE HARNESS

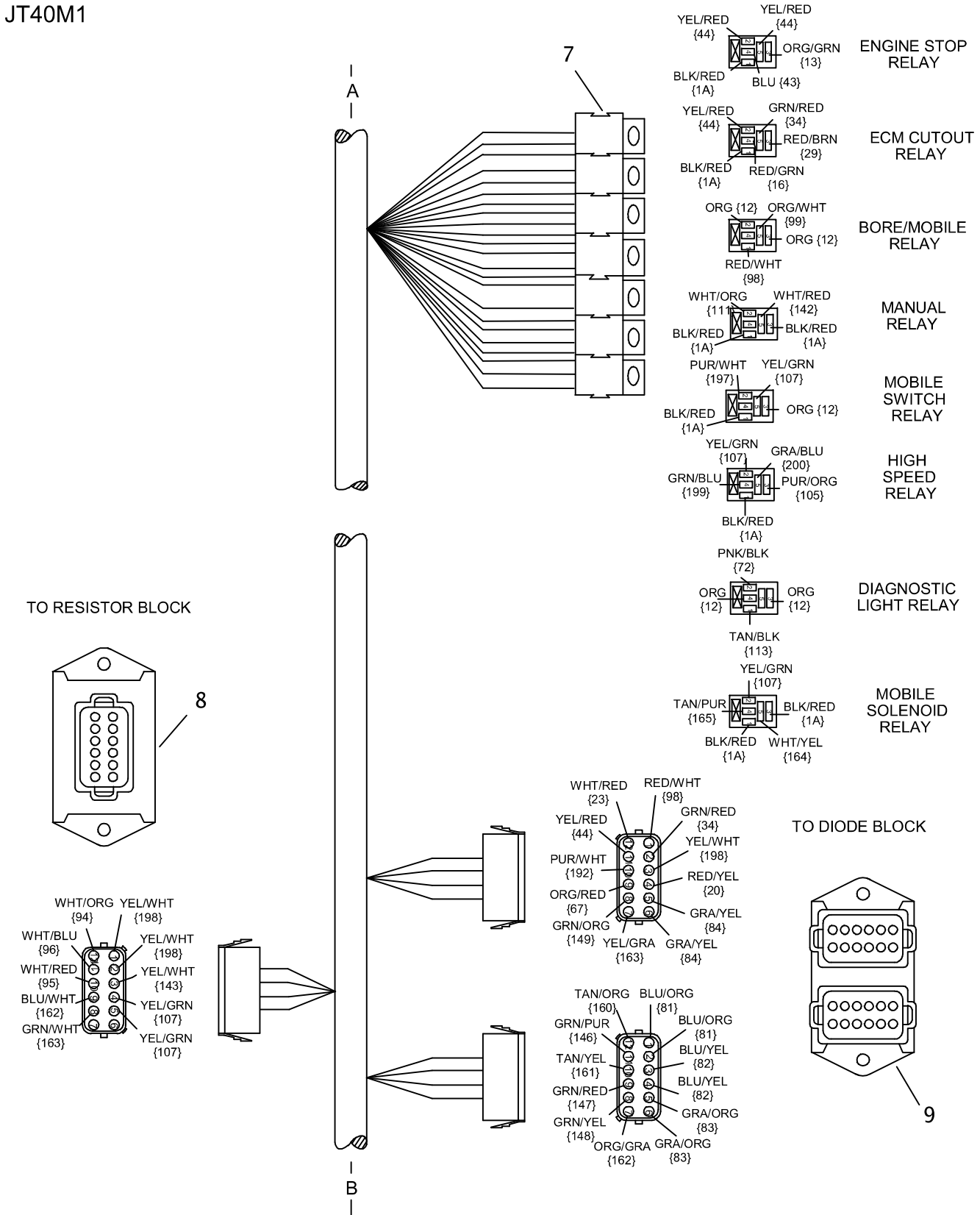
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	214-591	1	GAUGE HARNESS	
2.	215-133	1	FUEL GAUGE	
3.	215-128	1	HOUR METER	
4.	215-129	1	VOLT METER	
5.	217-036	1	INSERT (YEL) HYD OIL PSI	
6.	217-027	1	INSERT (RED) HYD OIL HI TEMP	
7.	258-037	1	WATER TEMPERATURE GAUGE	
8.	215-131	1	OIL PRESSURE GAUGE	
9.	211-070	1	TACHOMETER (3000 RPM)	
10.	214-301	1	ACCESSORY SOCKET	
11.	217-907	1	ROCKER SWITCH (DPDT) ON-ON	
12.	306-603	1	AUDIO ALARM	

FOOTNOTES

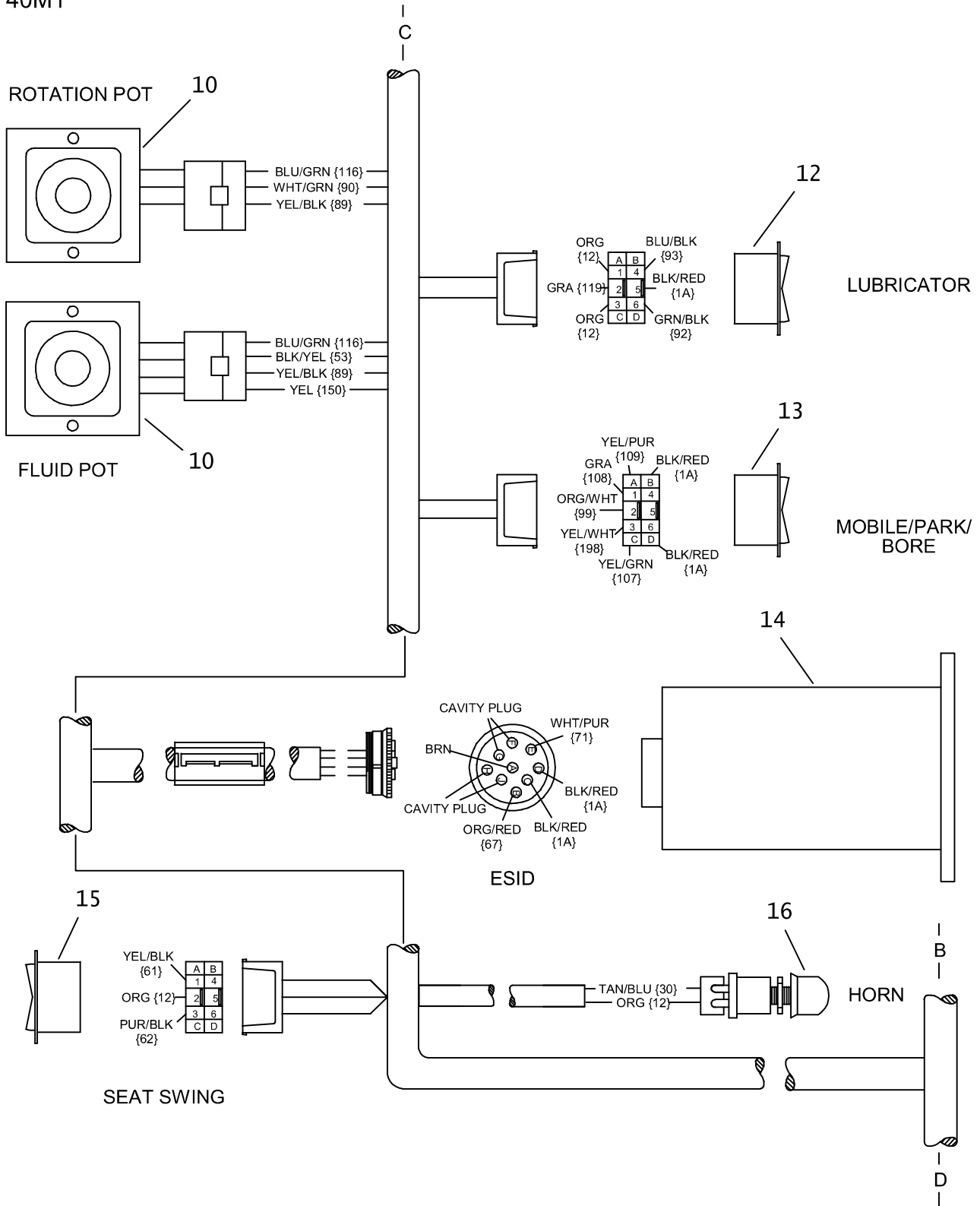
ELECTRICAL DIAGRAM OPERATOR STATION HARNESS JT40M1



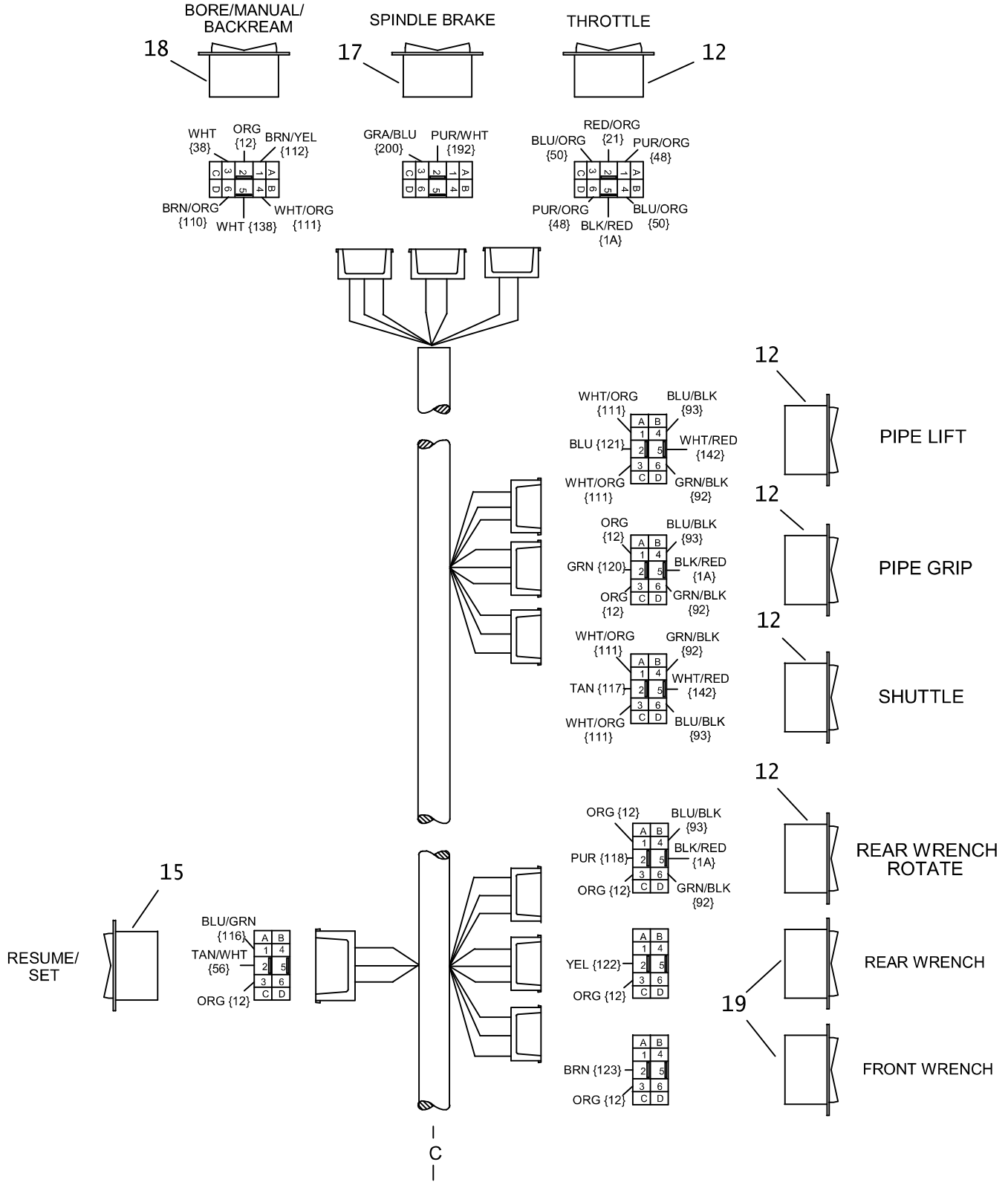
ELECTRICAL DIAGRAM OPERATOR STATION HARNESS JT40M1



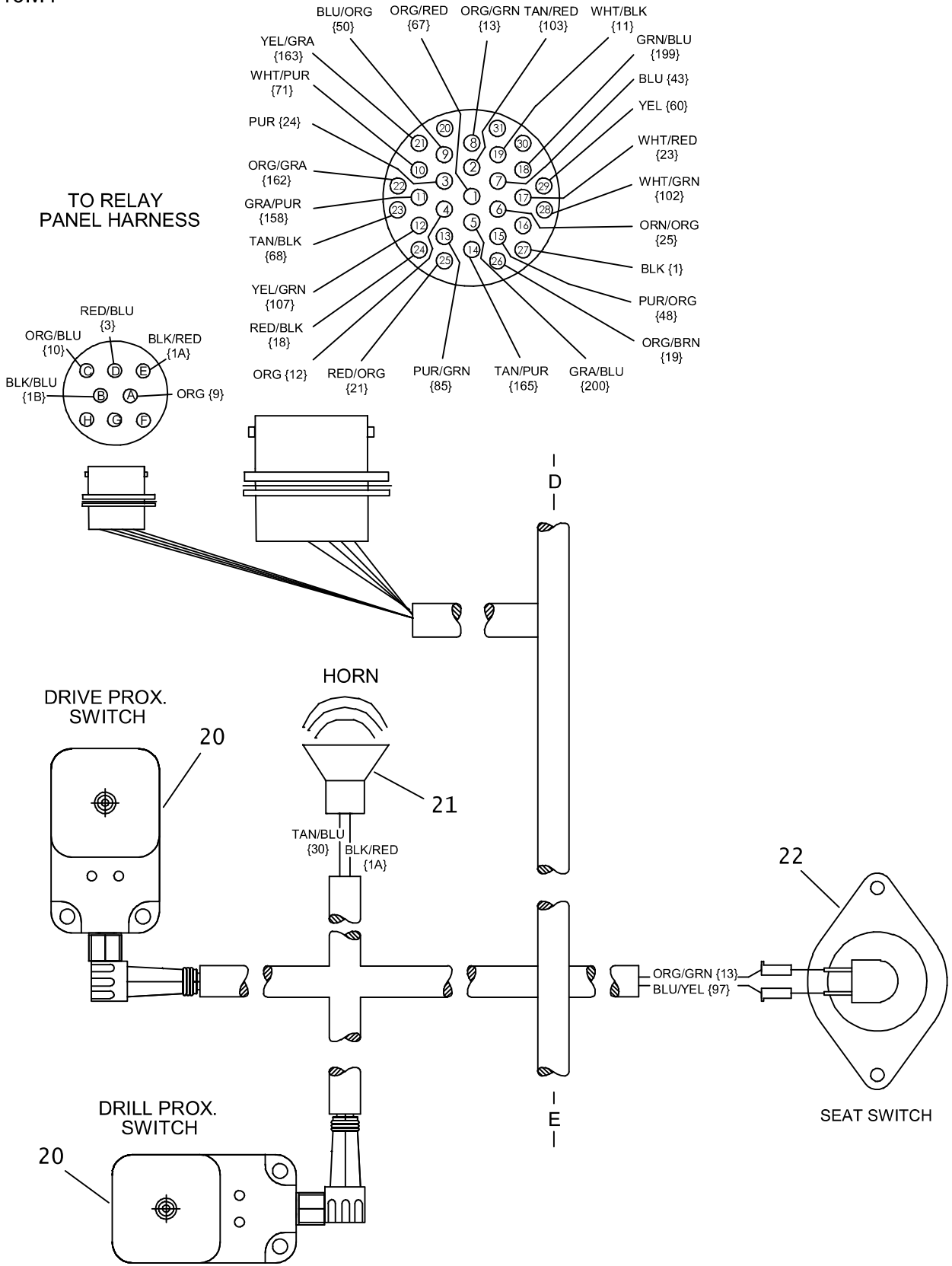
ELECTRICAL DIAGRAM OPERATOR STATION HARNESS JT40M1



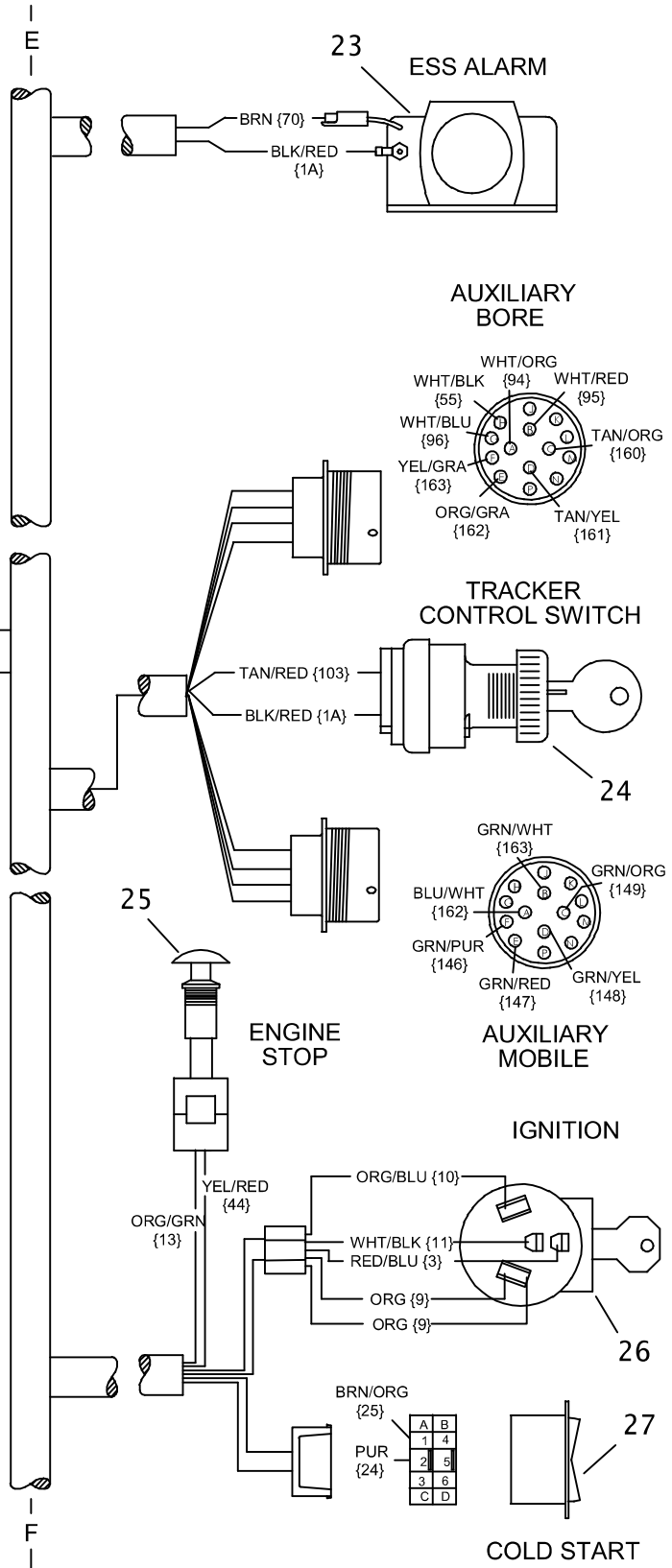
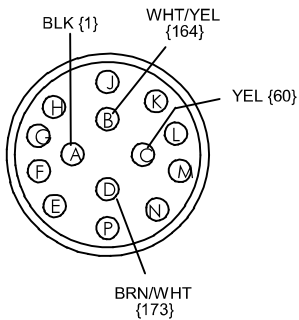
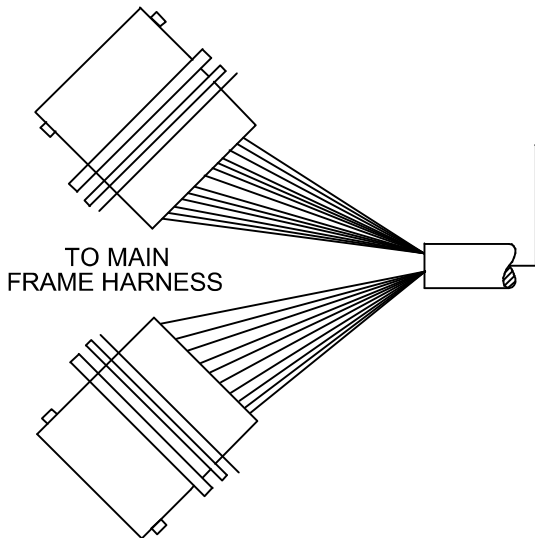
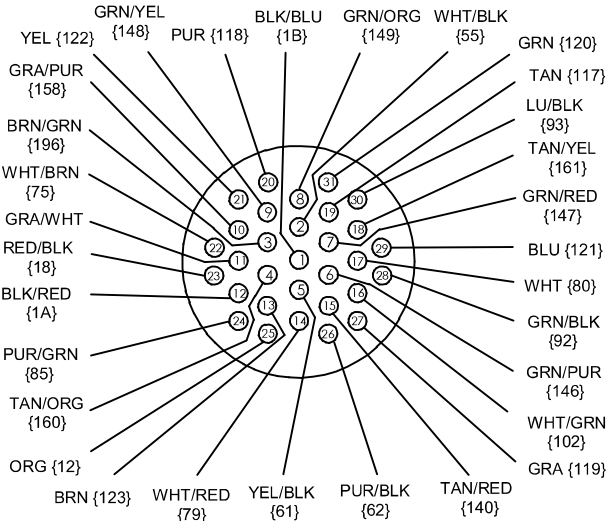
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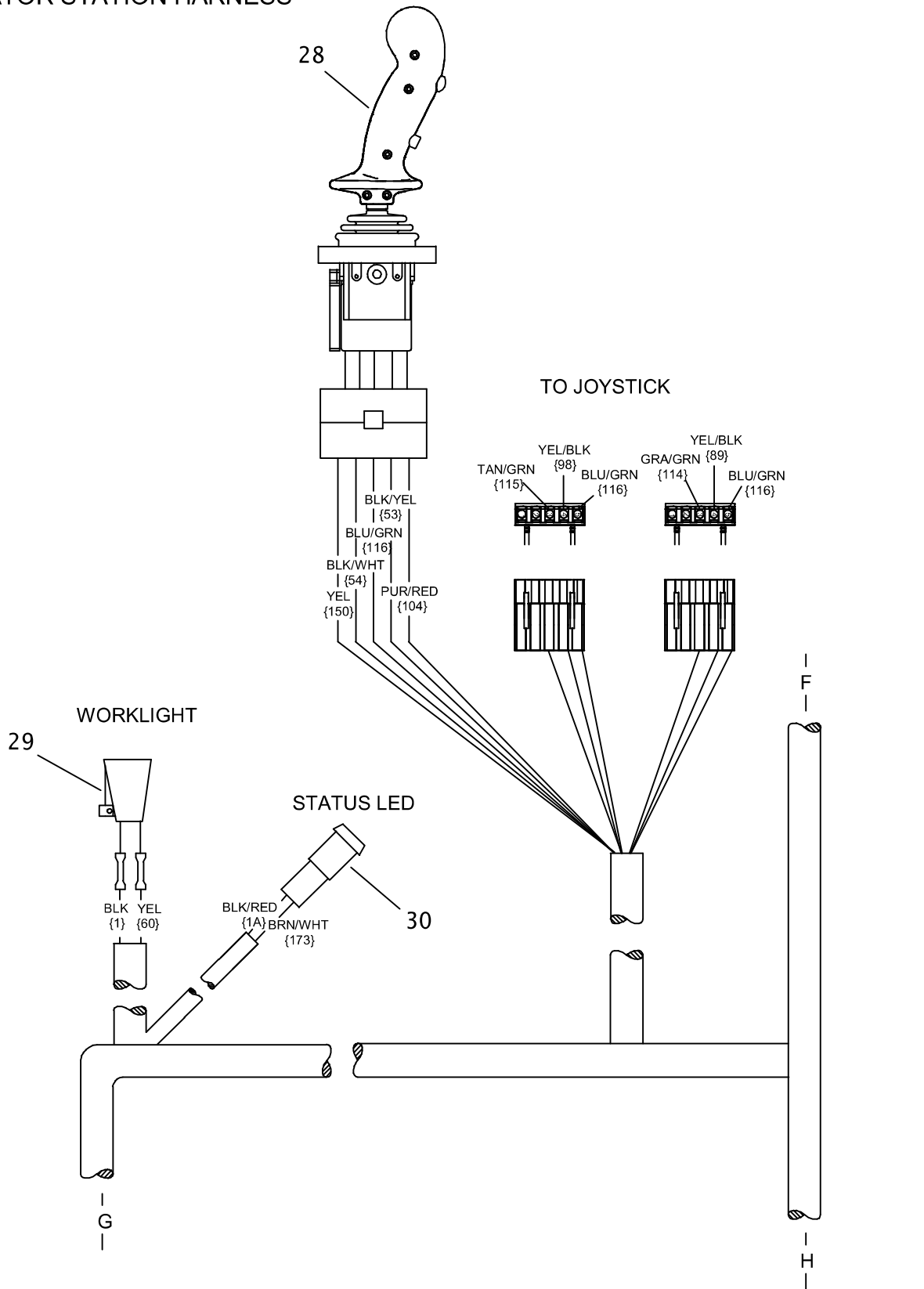
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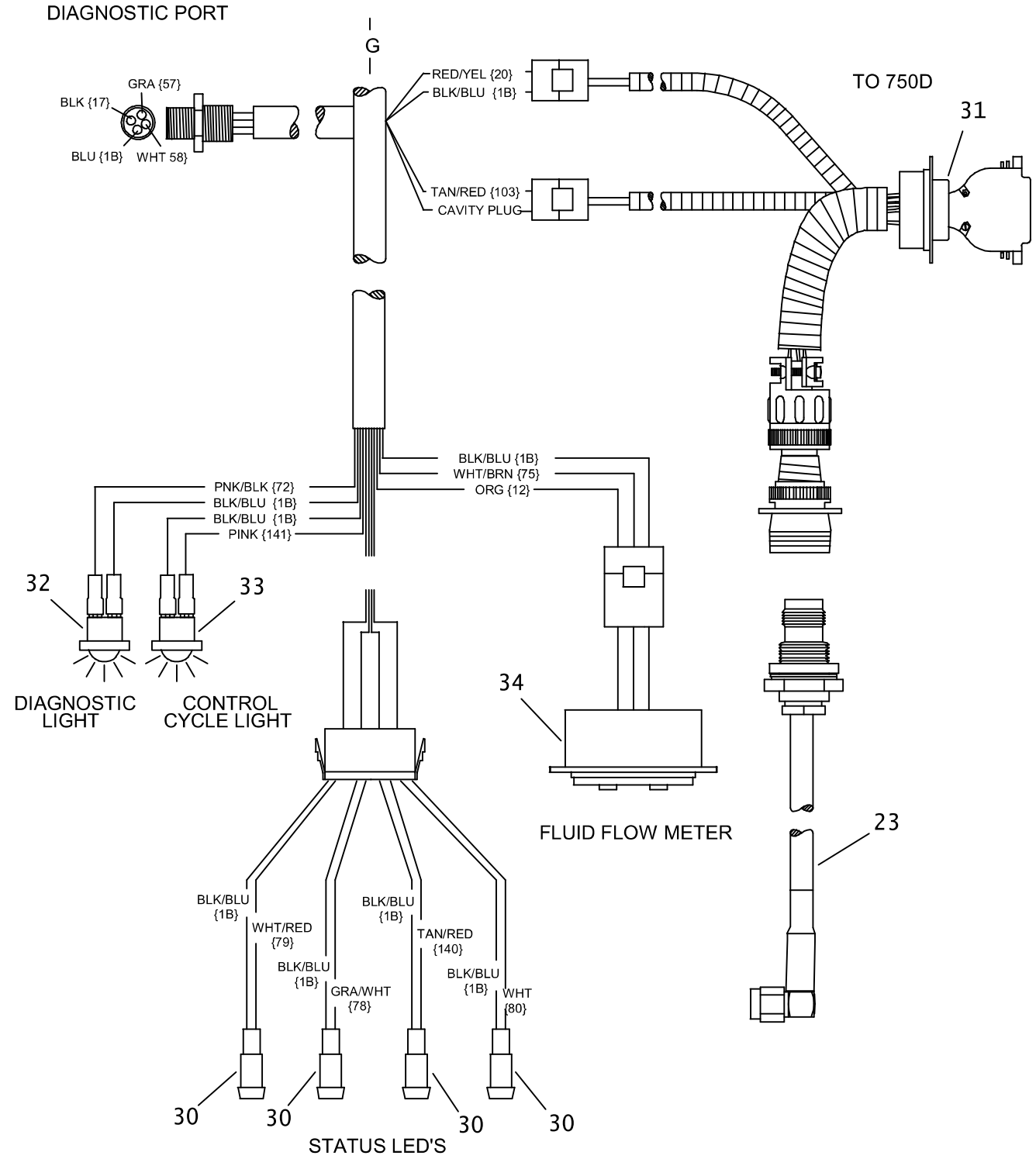
ELECTRICAL DIAGRAM OPERATOR STATION HARNESS JT40M1



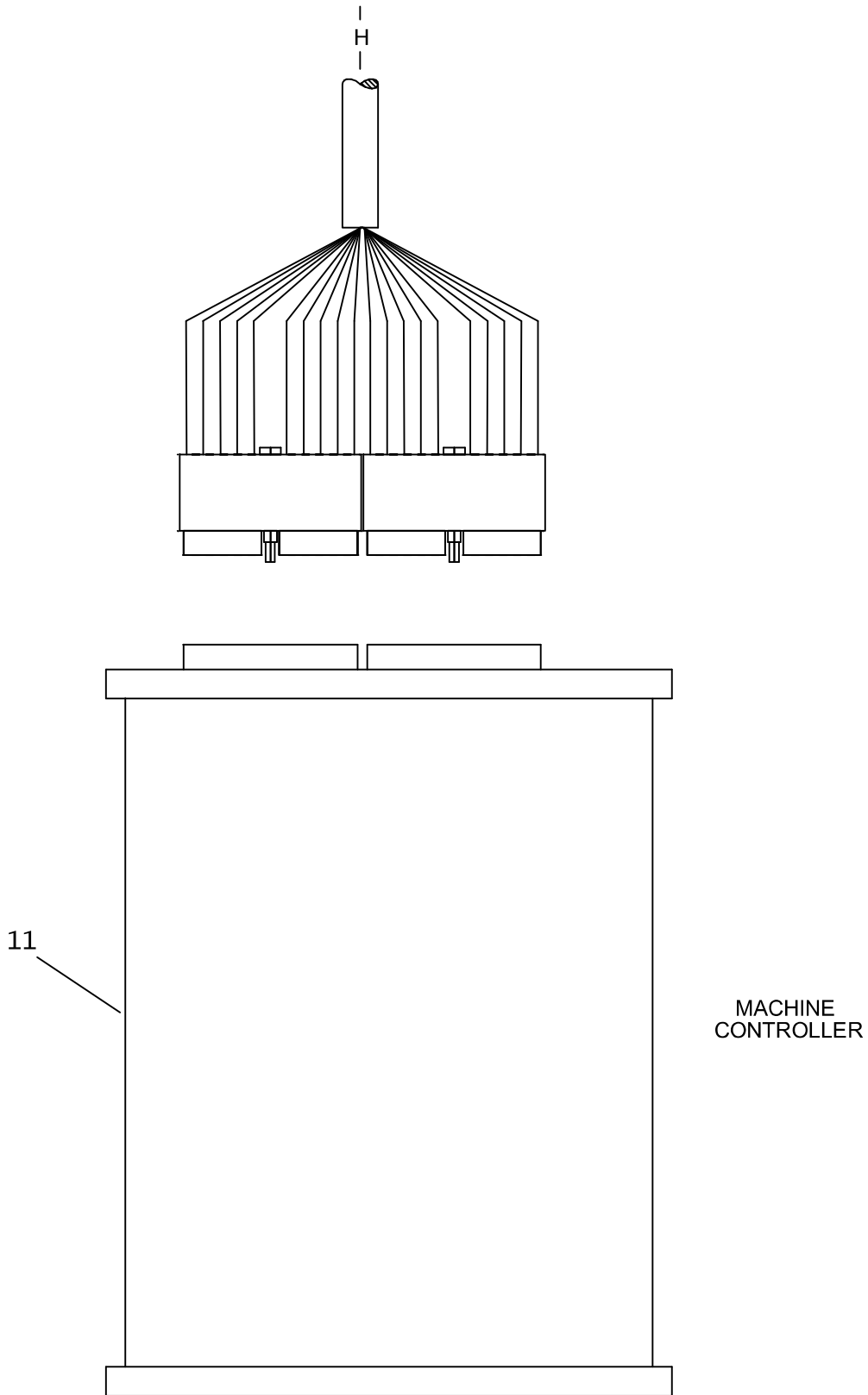
ELECTRICAL DIAGRAM OPERATOR STATION HARNESS JT40M1



ELECTRICAL DIAGRAM OPERATOR STATION HARNESS JT40M1



ELECTRICAL DIAGRAM
OPERATOR STATION HARNESS
JT40M1



ELECTRICAL DIAGRAM

OPERATOR STATION HARNESS

JT40M1

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	214-594	1	OPERATOR STATION HARNESS	
2.	214-502	1	DELAY TIMER	
3.	217-184	1	DELAY TIMER (2-SECOND)	
4.	217-809	2	FUSE (ATC, 5 AMP)	
5.	217-811	3	FUSE (ATC, 15 AMP)	
6.	217-812	3	FUSE (ATC, 20 AMP)	
7.	217-710	7	MICRO RELAY (SPDT)	
8.	211-031	1	BORE/MOBILE RESISTOR PACK	
9.	211-026	1	DIODE PACK (DEUTSCH)	
10.	214-566	2	POTENTIOMETER	
11.	216-059	1	CONTROL MODULE	
12.	214-489	6	ROCKER SW (DPDT) (ON)-OFF-(ON)	
13.	217-923	1	ROCKER SW (DPDT) ON-OFF-ON	
14.	217-241	1	ESID MODULE NEW (T)	
15.	217-911	2	ROCKER SWITCH (SPDT) ON-OFF-ON	
16.	306-607	1	HORN BUTTON	
	306-608	1	BUTTON COVER	
17.	217-918	1	ROCKER SW (DPDT) ON-ON	
18.	217-912	1	ROCKER SWITCH (DPDT) ON-ON-ON	
19.	217-907	2	ROCKER SWITCH (DPDT) ON-ON	
20.	214-692	2	PROXIMITY SWITCH	
21.	214-416	2	HORN (ELECTRIC)	
22.	217-750	1	SEAT SWITCH	
23.	214-413	1	RIG RF CABLE 2130MM	
24.	214-908	1	OFF-ON KEY SWITCH	
25.	217-206	1	BUTTON SWITCH (SPST)	
26.	214-852	1	IGNITION SWITCH	
	214-961		KEY, PAIR (BASE CODE)	
	214-962		SWITCH MOUNTING NUT	
27.	217-917	1	ROCKER SW (DPDT) OFF-(ON)	
28.	215-1224	1	DUAL AXIS JOYSTICK	
	197-104		REBUILT 214-565 JOYSTICK	
29.	217-007	1	WORKING LIGHT (CLEAR, RECT)	
30.	214-701	5	STATUS LIGHT	
31.	214-415	1	90D MODULE TO RIG CABLE	
32.	214-564	1	GREEN LED (12V DC)	
33.	217-071	1	RED PILOT LIGHT	
34.	217-221	1	FLOW METER DISPLAY	

NOT SHOWN:

FOOTNOTES:

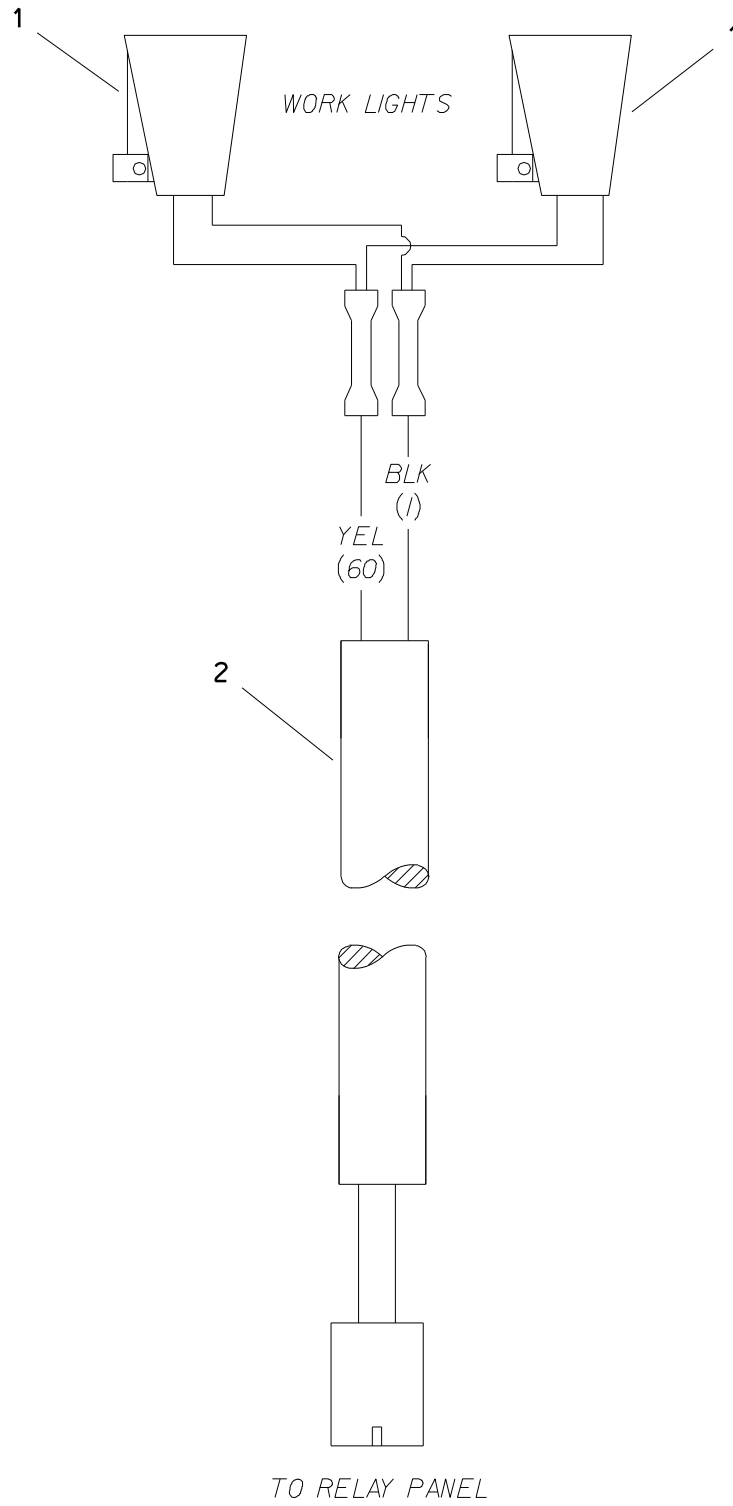
NOTE:

ELECTRICAL DIAGRAM MAIN FRAME HARNESS

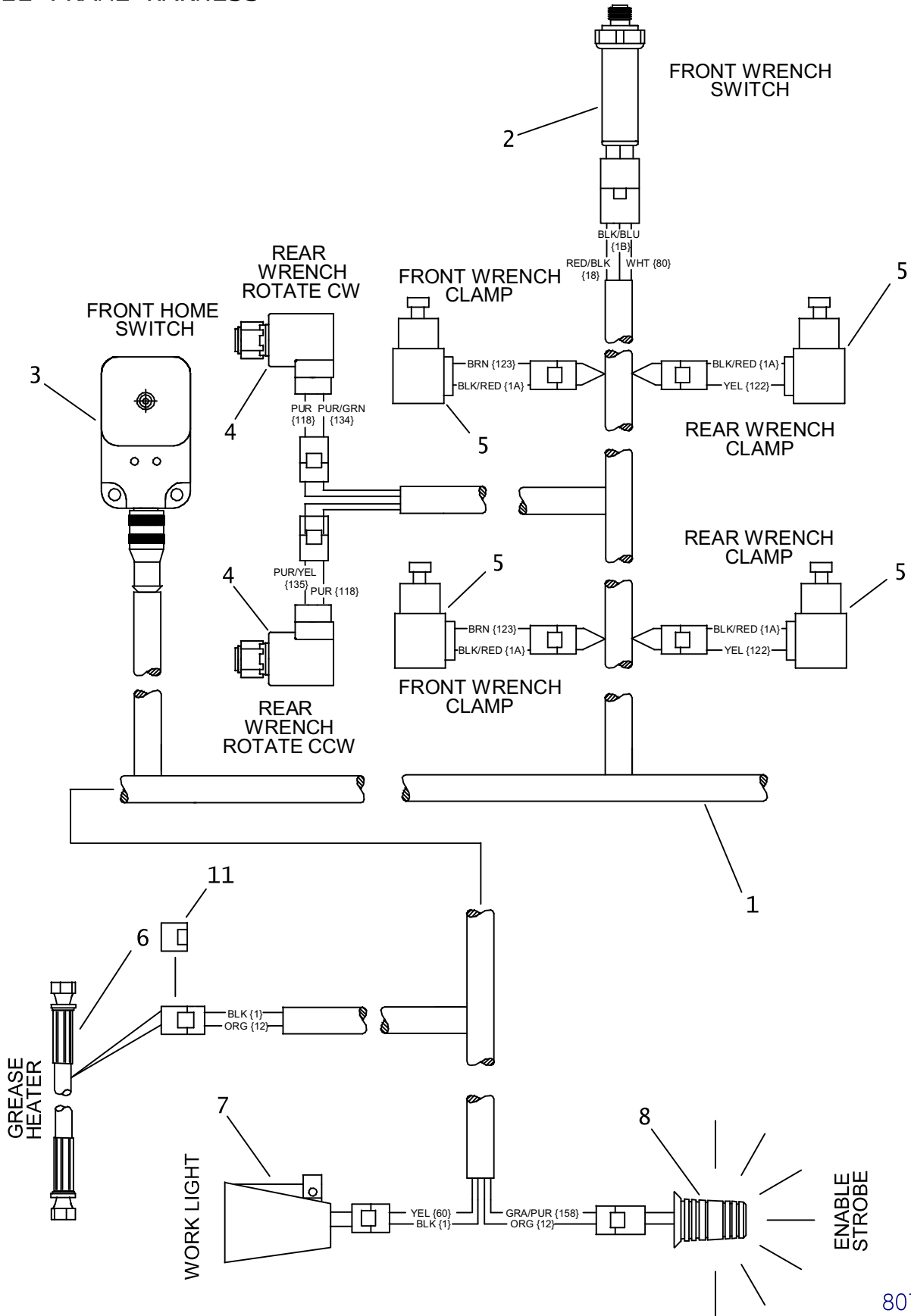
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	214-434	7	SOLENOID COIL (SMALL)	
2.	217-897	1	SOLENOID COIL (LARGE)	
3.	217-918	1	ROCKER SW (DPDT) ON-ON	
	217-925	1	ROCKER SWITCH (ACTUATOR)	
	217-137	1	ICON (WHT) OFF-STOP	
	217-158	1	DIFFUSION LENS (WHITE)	
	217-136	1	ICON (WHT) ON-START	
	217-156	1	DIFFUSION LENS (GREEN)	
4.	216-047	1	SPEED PICKUP	
5.	214-578	1	MAIN FRAME HARNESS	

FOOTNOTES

ELECTRICAL DIAGRAM WORK LIGHT HARNESS



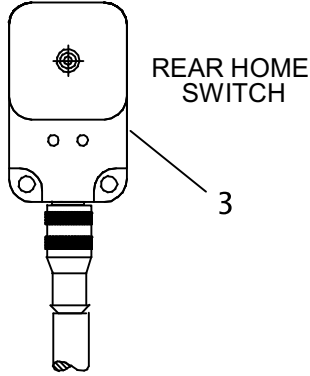
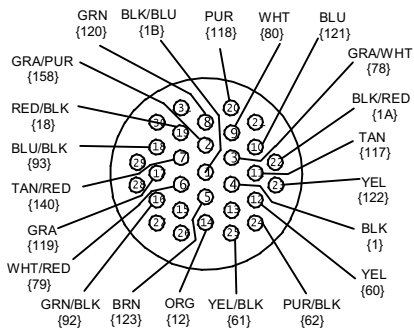
ELECTRICAL DIAGRAM DRILL FRAME HARNESS



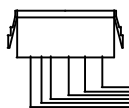
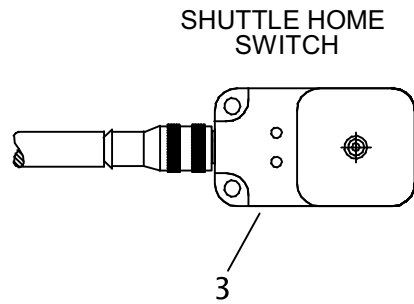
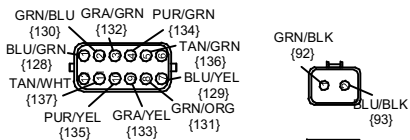
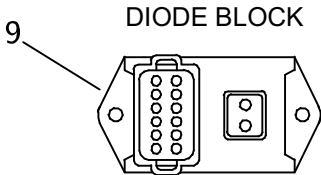
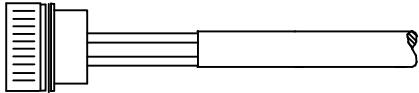
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807-810

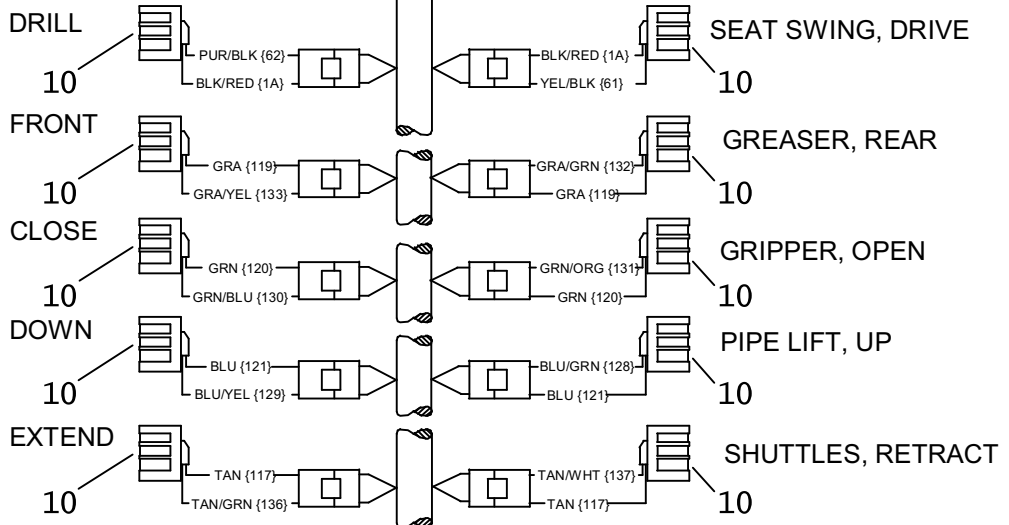
ELECTRICAL DIAGRAM DRILL FRAME HARNESS



TO MAIN
FRAME HARNESS



REAR OF MACHINE



FRONT OF MACHINE

G

807-810

ELECTRICAL DIAGRAM

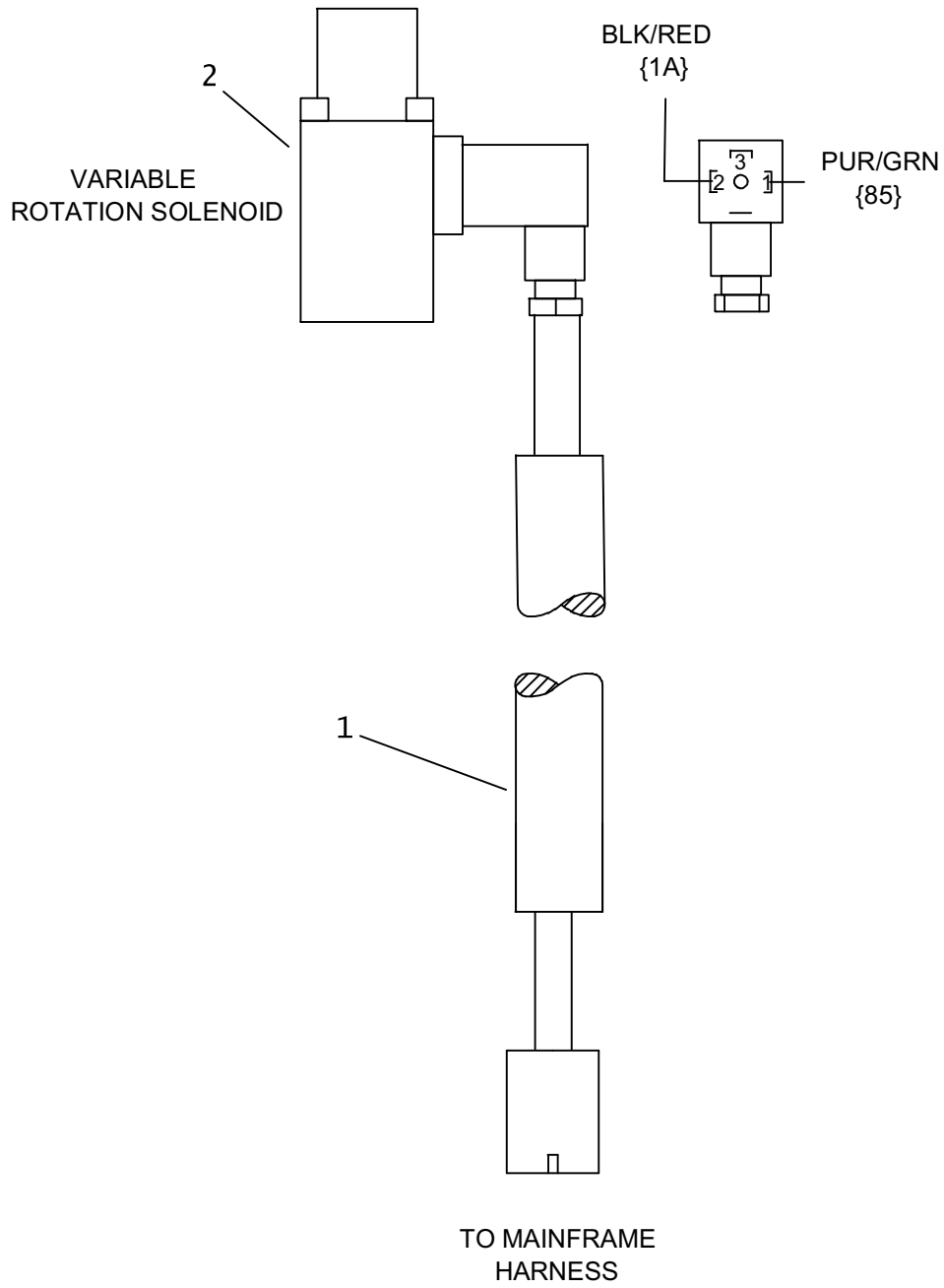
DRILL FRAME HARNESS

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	214-595	1	DRILL FRAME HARNESS	
2.	214-645	1	PRESSURE SWITCH (500PSI)	
3.	214-692	3	PROXIMITY SWITCH	
4.	499-310	2	SOLENOID COIL	
5.	217-897	4	SOLENOID COIL (LARGE)	
6.	153-585	1	HOSE (060FX-18"-3000, SPCL)	
7.	217-007	1	WORKING LIGHT (CLEAR, RECT)	
8.	214-697	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	
9.	211-025	1	IN-LINE DIODE PACK	
10.	214-435	10	SOLENOID COIL (12V)	
11.	214-209	1	2-WAY MALE CAP	

FOOTNOTES

NOTE:

ELECTRICAL DIAGRAM



ELECTRICAL DIAGRAM

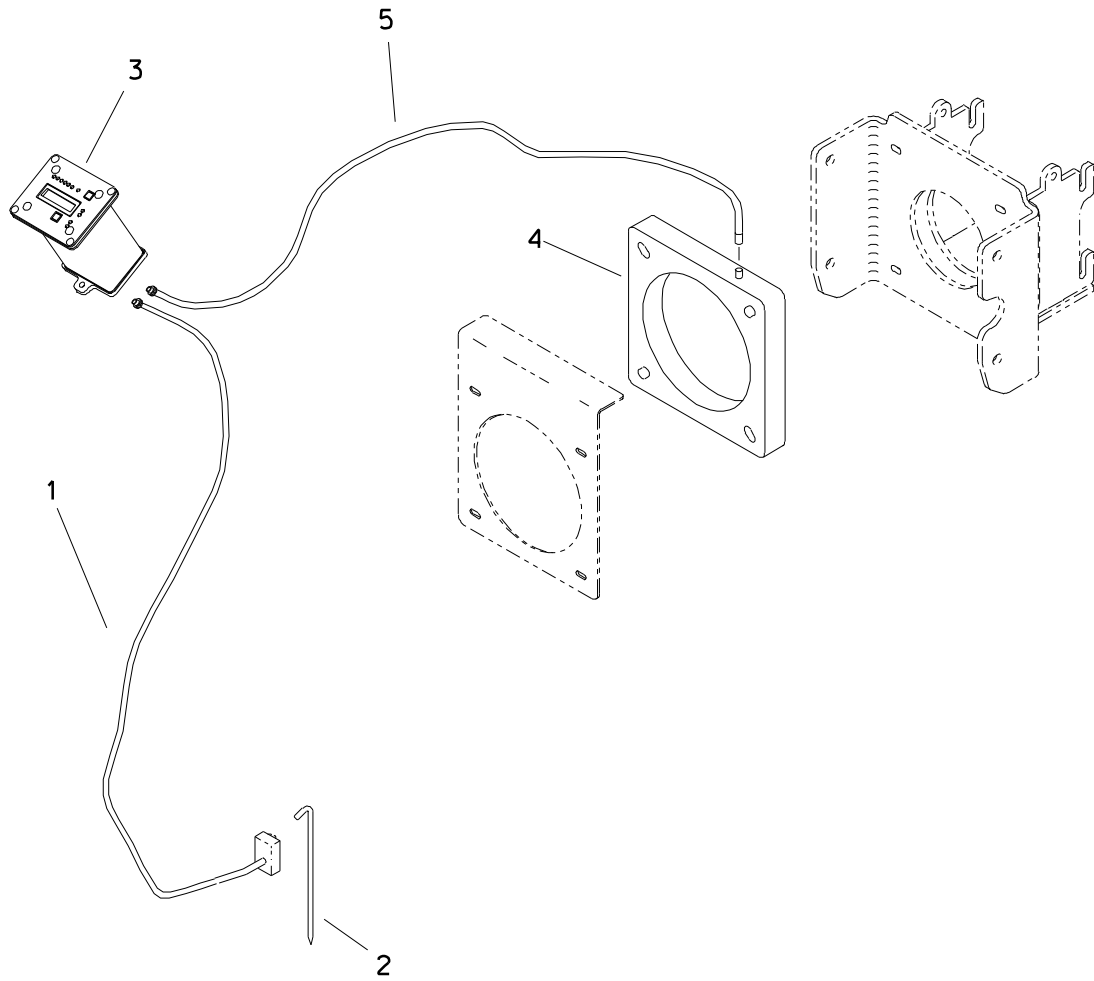
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	214-592	1	VARIABLE ROTATION HARNESS	
2.	217-745	1	CONTROL SOLENOID	

NOT SHOWN:

FOOTNOTES:

NOTE:

ELECTRICAL STRIKE SYSTEM

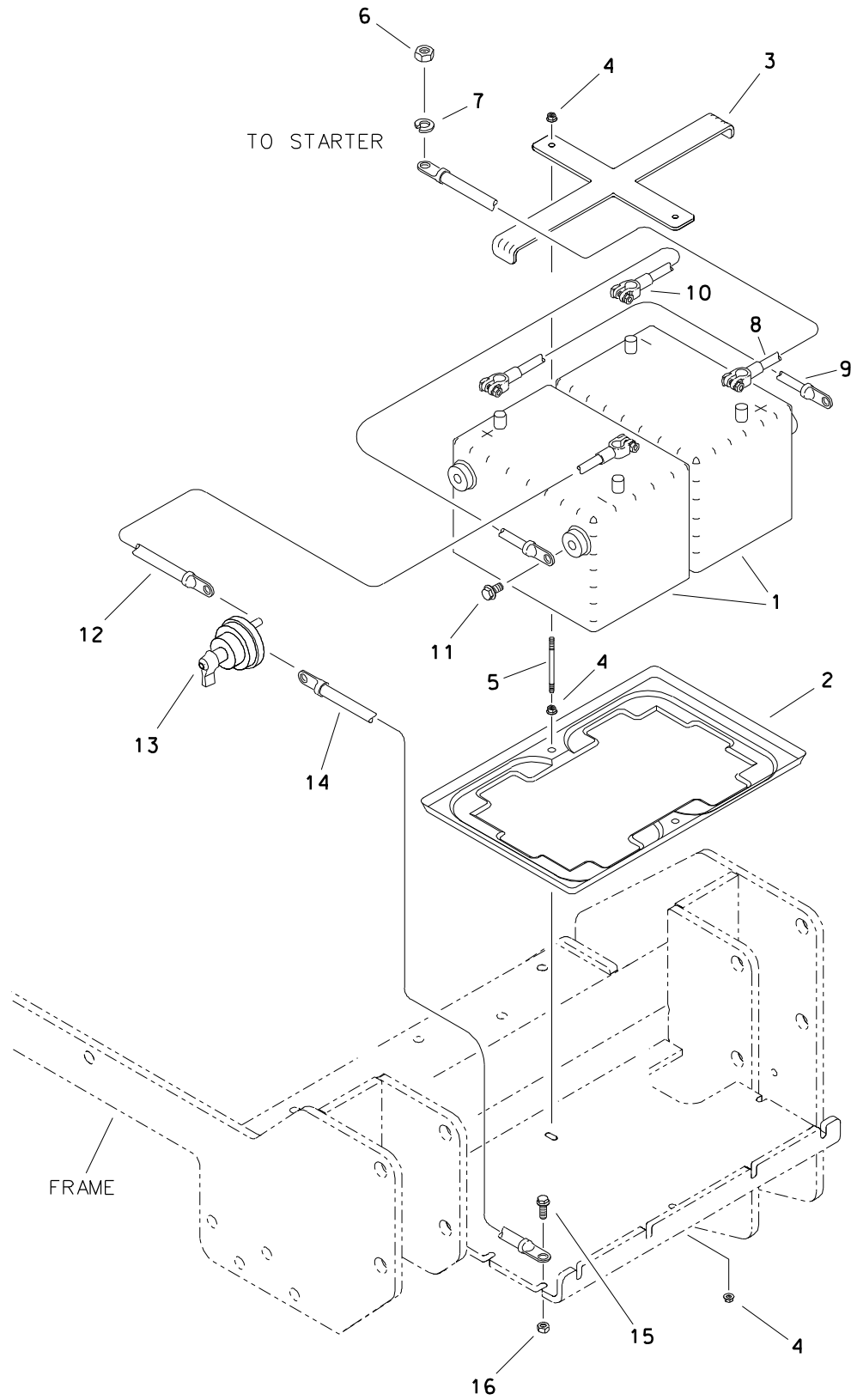


ELECTRICAL STRIKE SYSTEM

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	211-042	1	VOLTAGE LIMITER CABLE	
2.	215-799	1	VOLTAGE STAKE	
3.	217-241	1	ESID MODULE	
	197-079	-	REBUILT ESID MODULE 217-241	
4.	216-063	1	CURRENT TRANSFORMER	
5.	214-542	1	CURRENT COIL CABLE	

FOOTNOTES

BATTERY

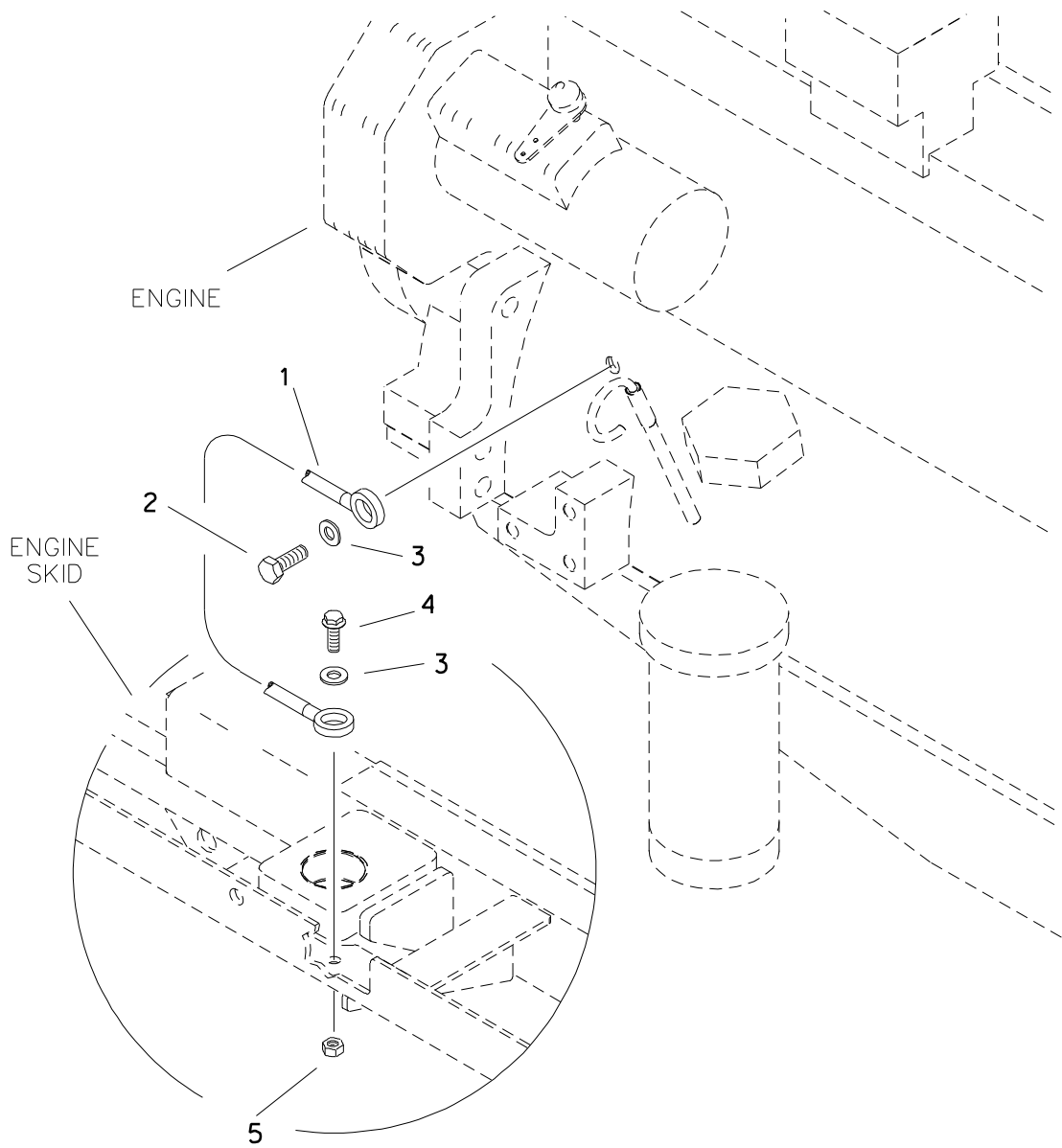


BATTERY

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	215-244	2	BATTERY	
2.	362-784	1	BATTERY TRAY	
3.	347-857	1	DUAL BATTERY STRAP	
4.	105-832	6	FLG LOCKNUT (1/4-NC)	
5.	356-491	2	TIE-DOWN ROD (1/4-NC X 9.3")	
6.	105-044	1	JAM NUT (1/2-NC)	
7.	105-070	1	LOCK WASHER (1/2")	
8.	215-241	1	BAT CABLE (2/0 GA X 81.8", RED)	
9.	215-361	1	BAT CABLE (2 GA X 23.6", RED)	
10.	215-360	1	BAT CABLE (2 GA X 23.6", BLK)	
11.	106-384	2	FLG LK BOLT (3/8-NC X 3/8")	
12.	215-337	1	BAT CABLE (2/0 GA X 19", BLK)	
13.	217-819	1	BAT DISCONNECT SWITCH	
14.	215-314	1	BAT CABLE (1/0 GA X 22", BLK)	
15.	106-381	1	FLG LK SCREW (M8-1.25 X 25MM)	
16.	106-561	1	LOCKNUT (M8-1.25, PRV TRQ, 10.9)	

FOOTNOTES

ENGINE GROUND



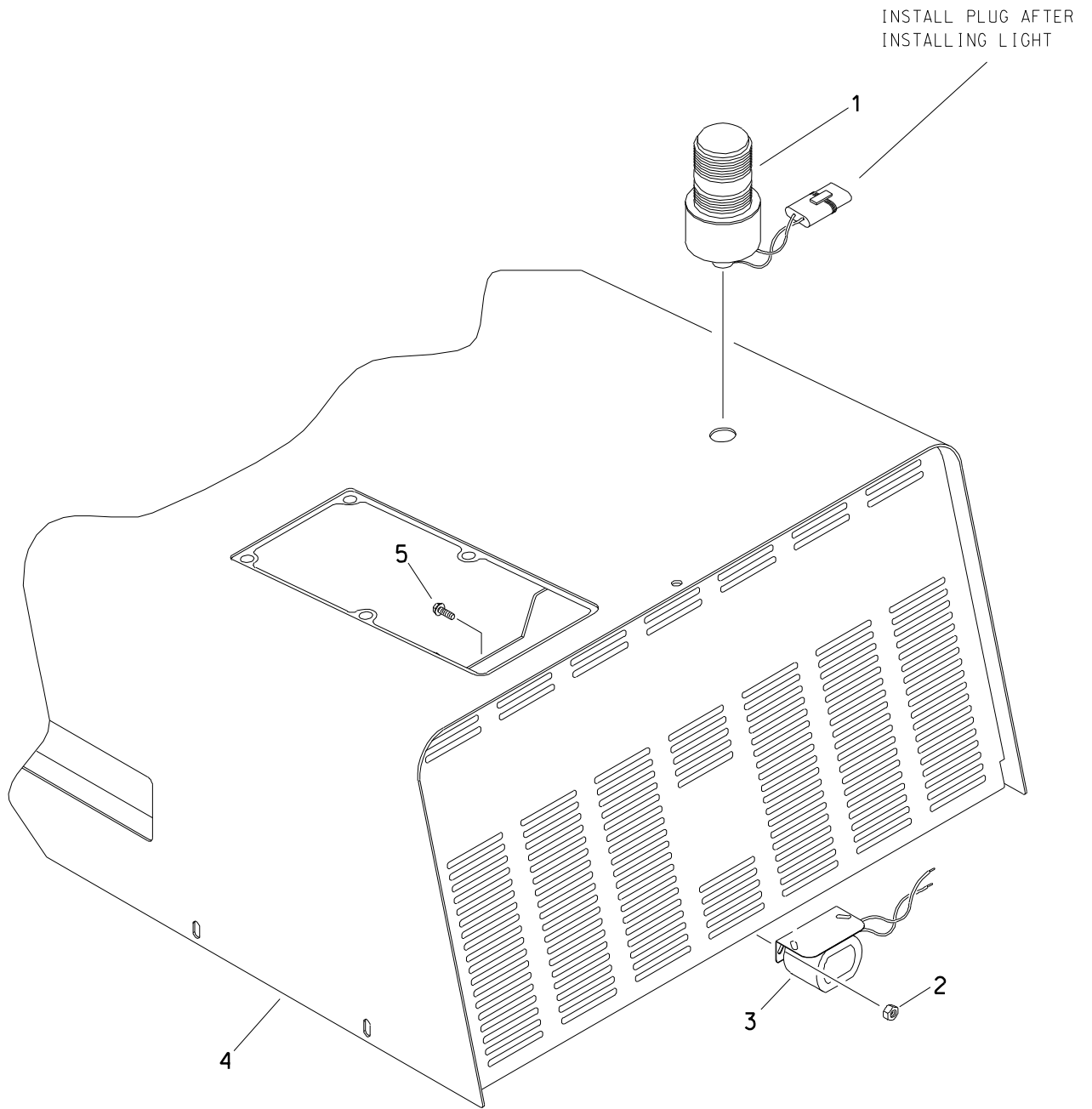
ENGINE GROUND

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	215-314	1	BAT CABLE (1/0 GA X 22", BLK)	SEE FOOTNOTE 1
2.	105-245	1	SCREW (M10-1.50 X 25MM)	
3.	105-118	2	WASHER (3/8")	
4.	106-162	1	FLG SCREW (M8-1.25 X 20MM)	
5.	106-561	1	LOCKNUT (M8-1.25,PRV TRQ,10.9)	

FOOTNOTES

- 1. REMOVE PAINT ON ENGINE SKID AND ENGINE BLOCK WHERE CABLE COMES INTO CONTACT.

ALARM AND STROBE LIGHT ELECTRICAL STRIKE SYSTEM



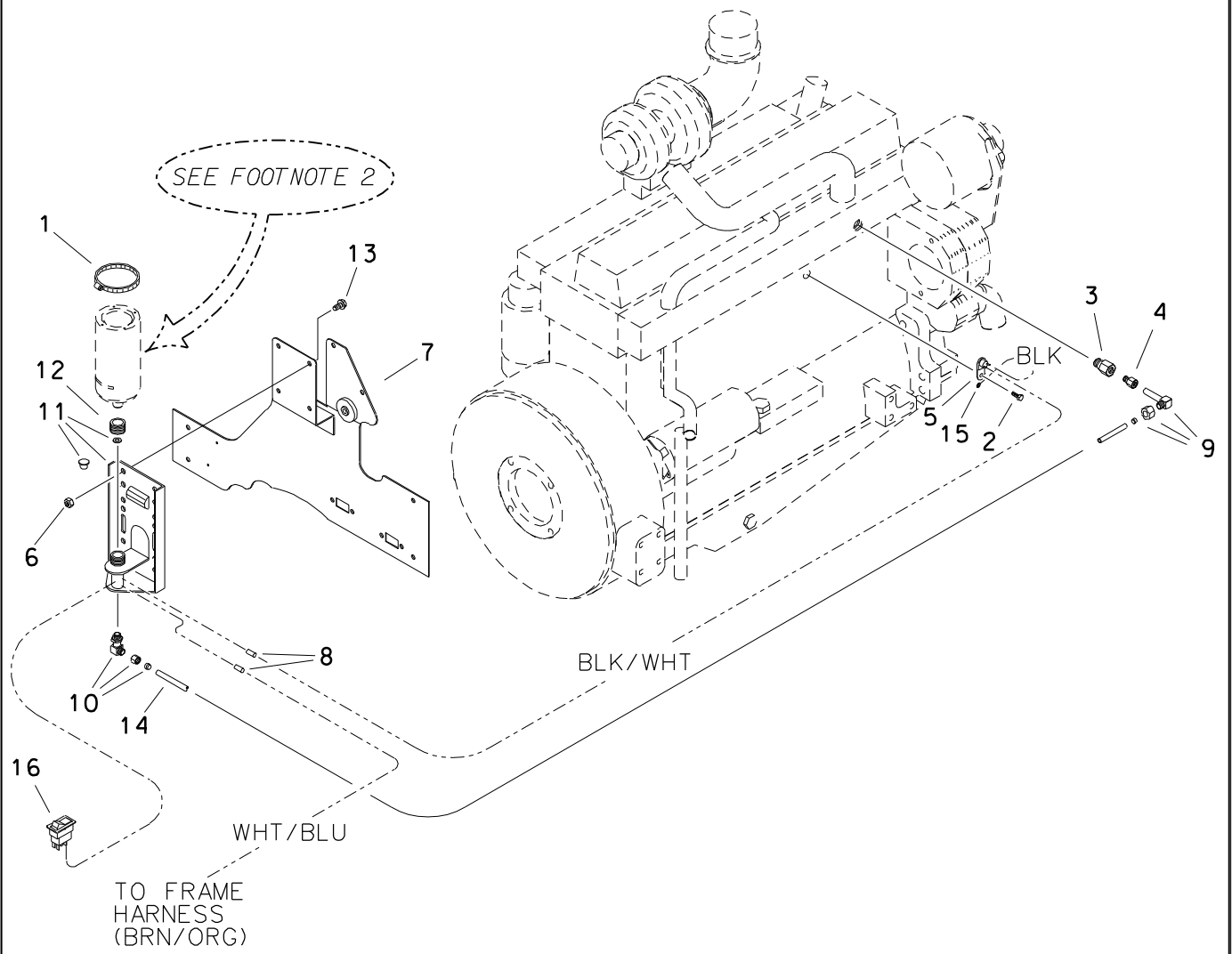
ALARM AND STROBE LIGHT ELECTRICAL STRIKE SYSTEM

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	214-722	1	STROBE LIGHT (AMBER)	INCL LENS & BULB
2.	106-561	2	LOCKNUT (M8-1.25, PRV TRQ, 10.9)	
3.	306-602	1	BACKUP ALARM	
4.	309-236	-	ENGINE PANEL (TOP)	
5.	106-162	2	FLG SCREW (M8-1.25 X 20MM)	

FOOTNOTES

ACCESSORIES

COLD START



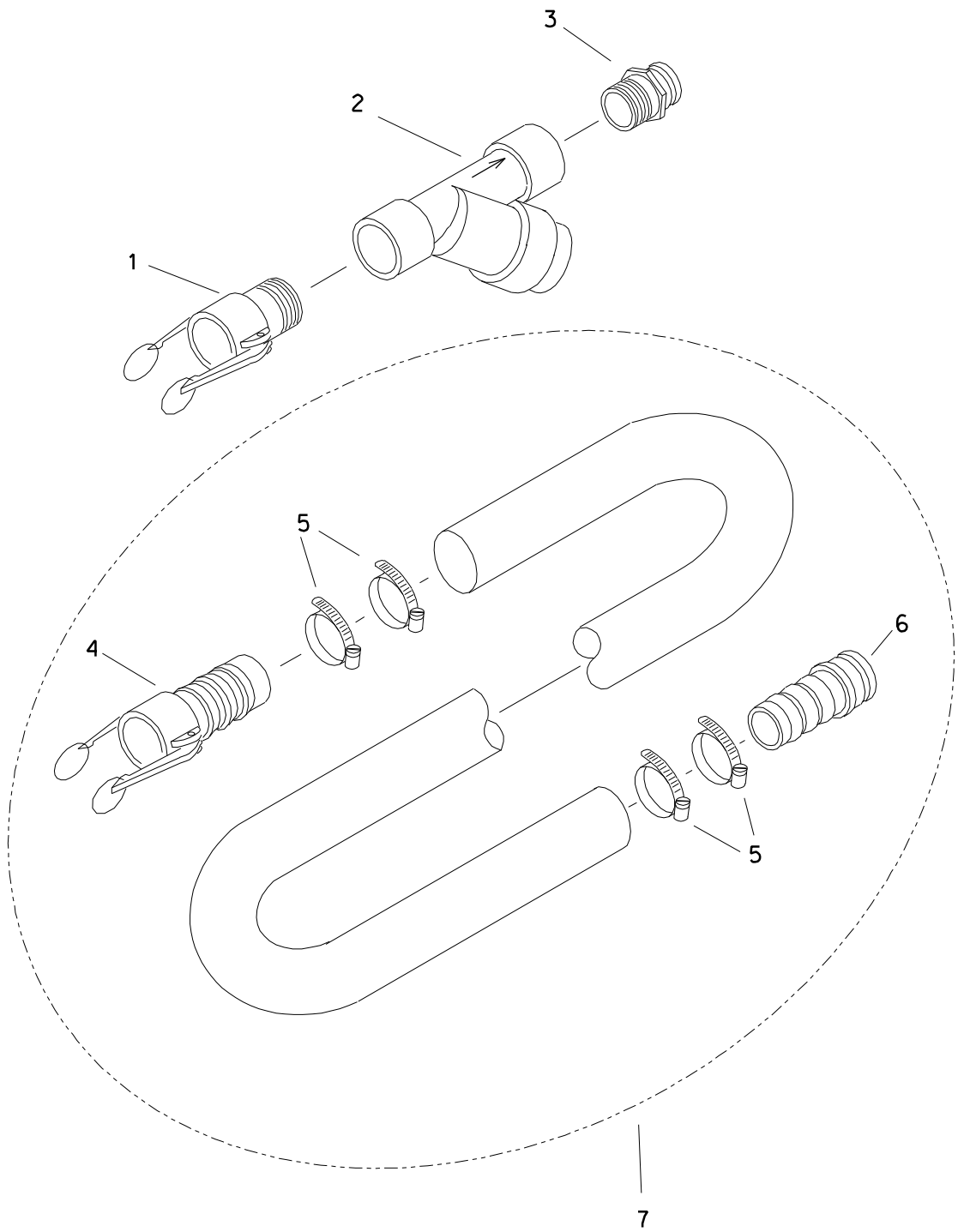
COLD START

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	101-073		COLD START KIT	INCL REF NOS. 1, 3-6, AND 8-16; SEE FOOTNOTE 1
1.	110-367	1	WORM CLAMP (3.250" TO 4.125")	
2.	105-245	1	SCREW (M10-1.50 X 25MM)	
3.	155-171	1	REDUCER (10S-06SF)	
4.	155-253	1	CONNECTOR (06S-02NF)	
5.	215-073	1	SENSOR SWITCH	
6.	105-047	4	LOCKNUT (3/8-NC)	
7.	303-705	1	FIREWALL	
8.	215-478	2	BUTT CONNECTOR (14-16 GA)	
9.	195-843	1	INJECTOR NOZZLE (CLDSTR)	INCL FERRULE AND NUT
	156-204	-	FERRULE (02T)	
	156-205	-	COMPRESSION NUT (02T)	
10.	156-272	1	TUBE CONNECTOR (02N-02T90,ORF)	INCL FERRULE AND NUT
	156-204	-	FERRULE (02T)	
	156-205	-	COMPRESSION NUT (02T)	
11.	195-841	1	VALVE/CANISTER BRACKET	INCL CAPLUG AND GASKET
	110-252	-	CAPLUG (3/4")	
	195-844	-	GASKET	
12.	115-365	AR	GROMMET (2-1/8", SOLD PER 1")	USE 1 @ 1.50"
13.	105-825	4	FLG LK BOLT (3/8-NC X 3/4")	
14.	156-018	AR	BULK TUBING (1/8", SOLD PER 1")	USE 1 @ 40"
15.	215-590	1	RING TERMINAL (3/8")	
16.	217-917	1	ROCKER SWTCH (DPDT) OFF-(ON)	REPLACES PLUG IN R.H. OPERATOR CONSOLE

FOOTNOTES

1. REFER TO INSTALLATION INSTRUCTIONS 051-252.
2. 8 OZ. ETHER CANISTER IS REQUIRED, WHICH WILL INCLUDE SEALS AND FOAM

DRILLING FLUID TRANSFER

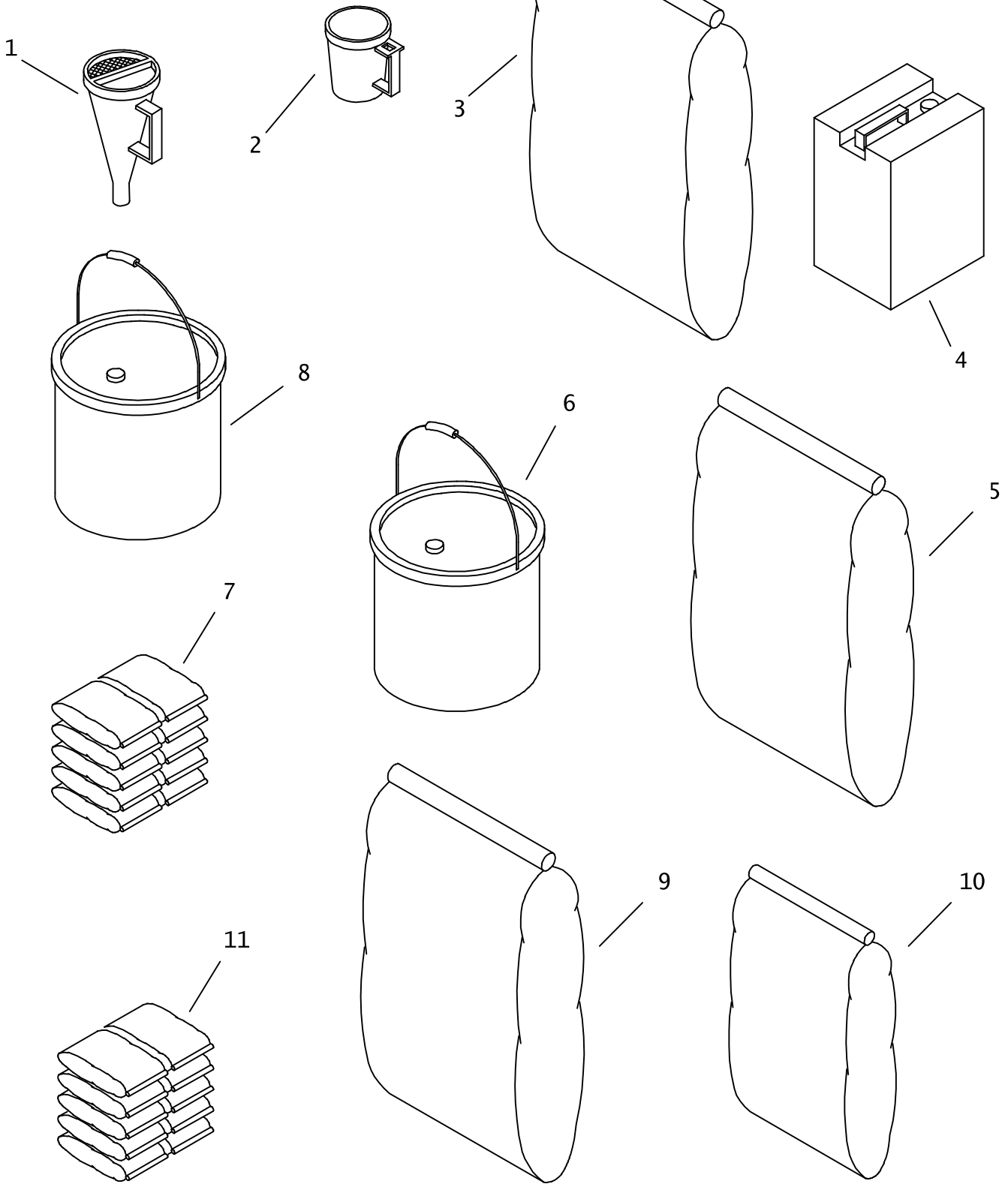


DRILLING FLUID TRANSFER

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	153-371		Y-STRAINER PARTS ASS'Y	INCL REF NO'S 1 - 3
1.	514-386	1	FHC BODY (3-1/2" FHC X 3"NPT)	
2.	159-439	1	Y-STRAINER (48NF)	
	159-490	-	STRAINER (4" X 9")	
	165-895	-	O-RING (END CAP)	
	111-083	-	END CAP	
	308-651	-	END CAP CLAMP	
3.	155-263	1	FHC ADAPTER (56-48N)	
4.	155-264	-	FHC BODY (56-48H)	USE TO REPAIR 153-358
5.	110-367	-	WORM CLAMP (3.250" TO 4.125")	USE TO REPAIR 153-358
6.	153-341	-	FHC ADAPTER (56-48H)	USE TO REPAIR 153-358
7.	153-358	-	TRANSFER HOSE (3" FHC, 50')	USE REF NO'S 4 - 6 TO REPAIR

FOOTNOTES

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)	

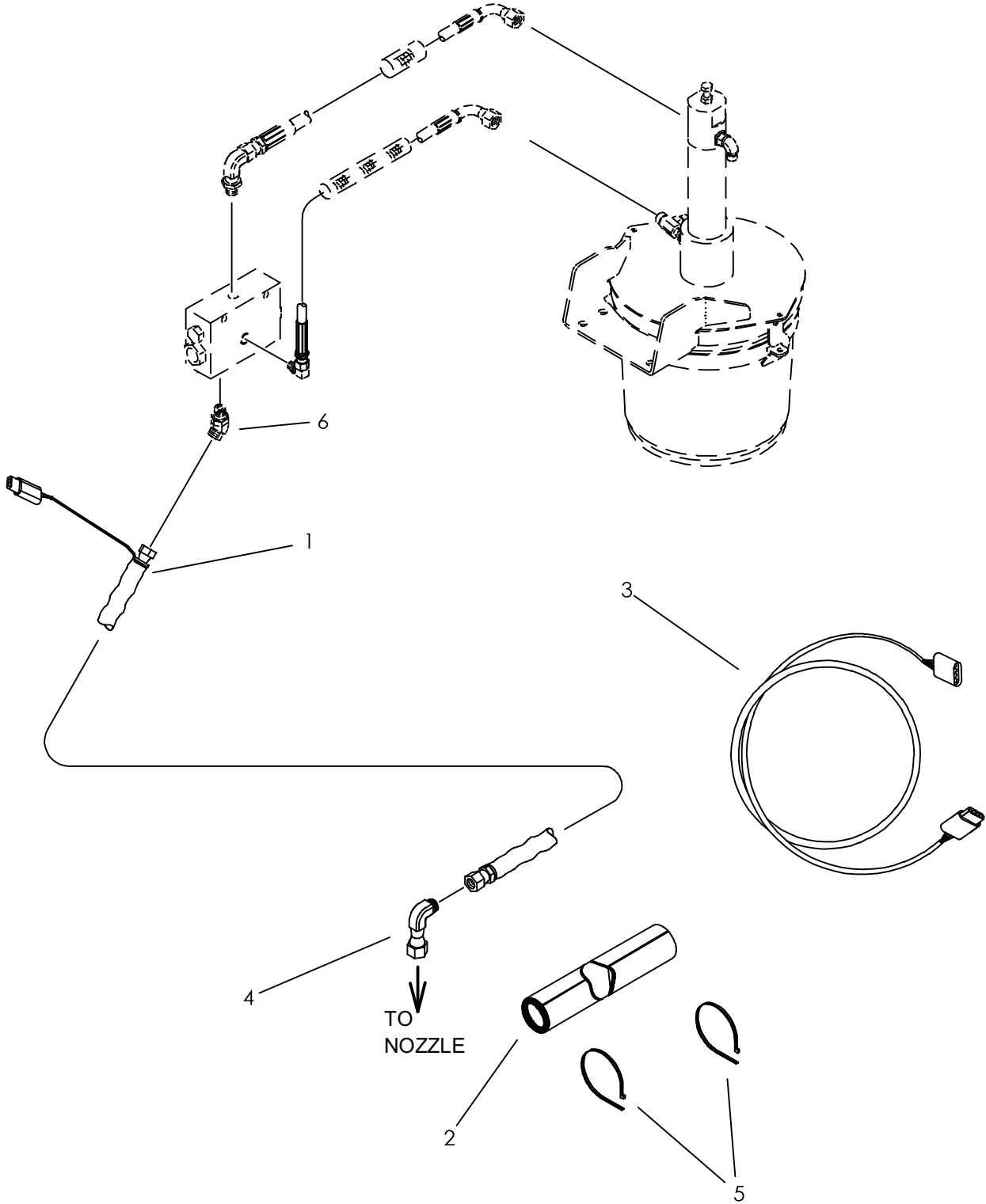
NOT SHOWN:

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

FOOTNOTES:

NOTE:

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)	

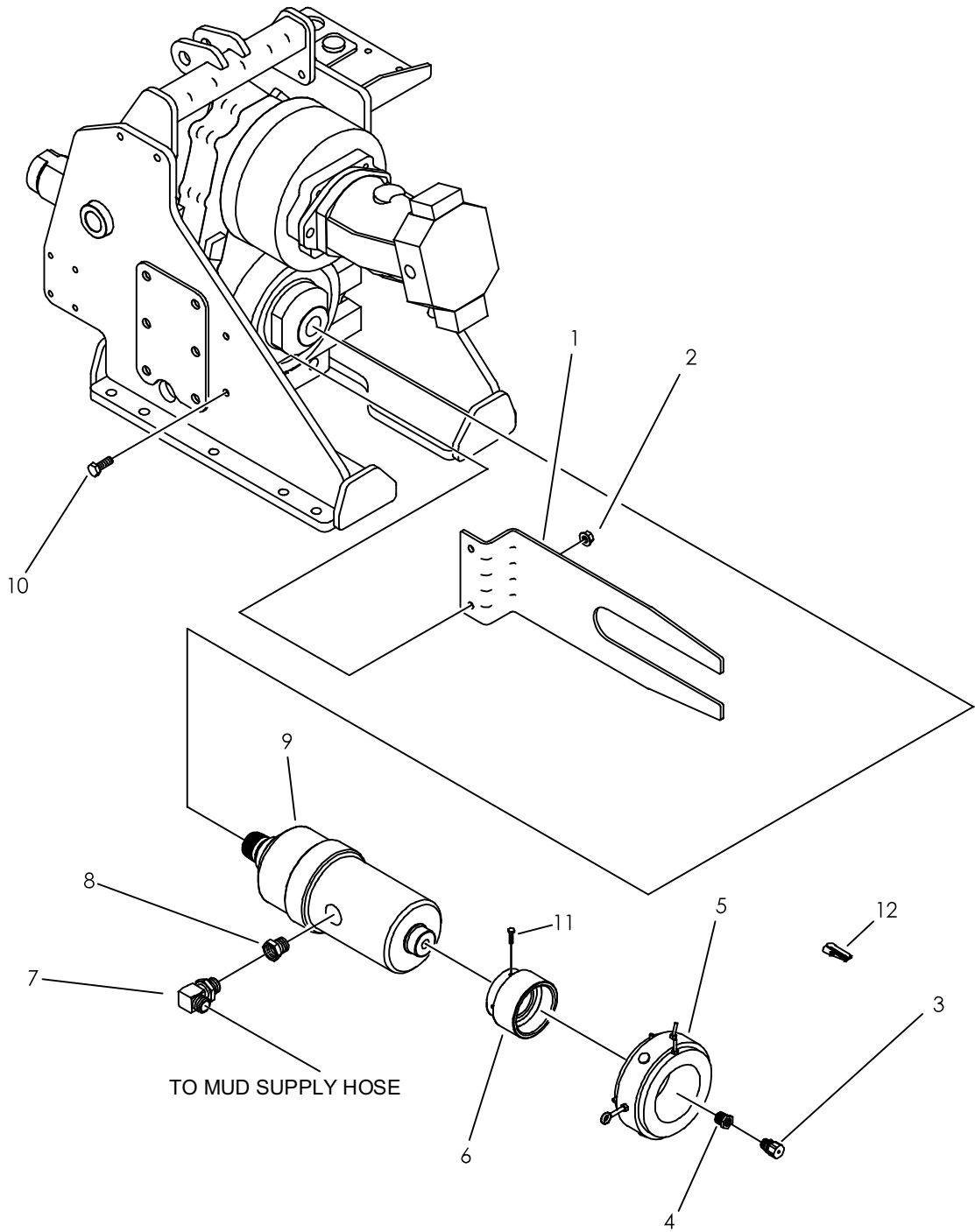
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FOOTNOTES:

NOTE:

REFERE TO INSTALLATION INSTRUCTION 05I-29I.

WIRELINER KIT



WIRELINER KIT

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	<u>190-910</u>	-	WIRELINER KIT	
	100-082	-	WIRELINER KIT	INCLUDES REFERENCES 1 THRU 12
1.	350-631	1	BRACKET	
2.	106-685	2	LOCKNUT (M12-1.75, PRV TRQ, 10.9)	
3.	358-855	1	PACK-OFF FITTING (.125-.187)	
4.	115-156	1	REDUCER (08N-06NF)	
5.	214-548	1	COLLECTOR RING	
6.	350-630	1	COIL MOUNT	
7.	514-095	1	CONNECTOR (20S-20090)	
8.	514-446	1	REDUCER (24S-20SF)	
9.	350-476	1	WATER SWIVEL	
	190-1423		SEAL KIT	
10.	106-333	2	SCREW (M12-1.75 X 40MM, 8.8)	
11.	105-688	4	SCREW (M6-1.00 X 35MM)	
12.	105-693	1	ALLIGATOR CLIP (.312 X 2.343)	

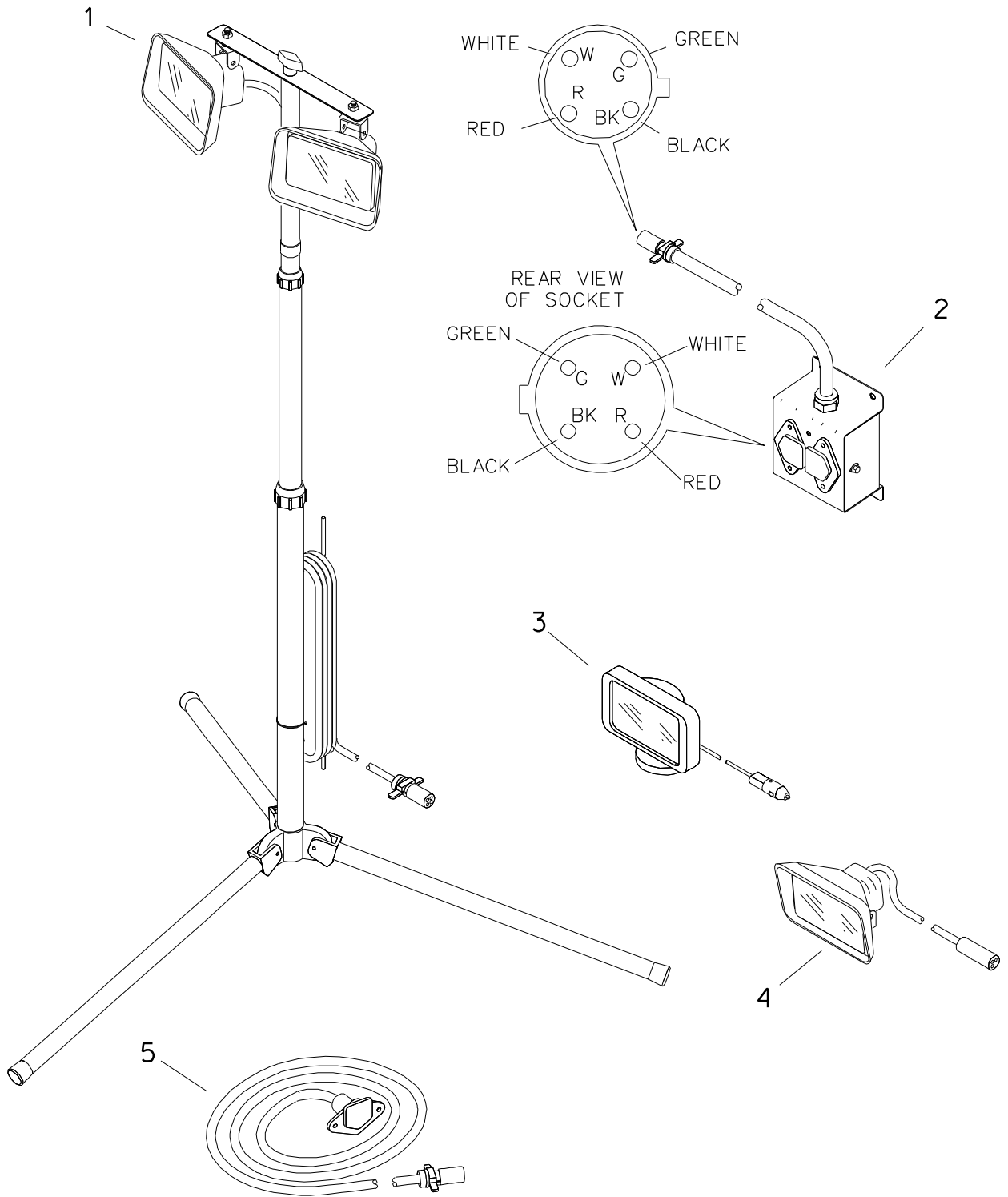
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FOOTNOTES:

NOTE:

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

WORKING LIGHT

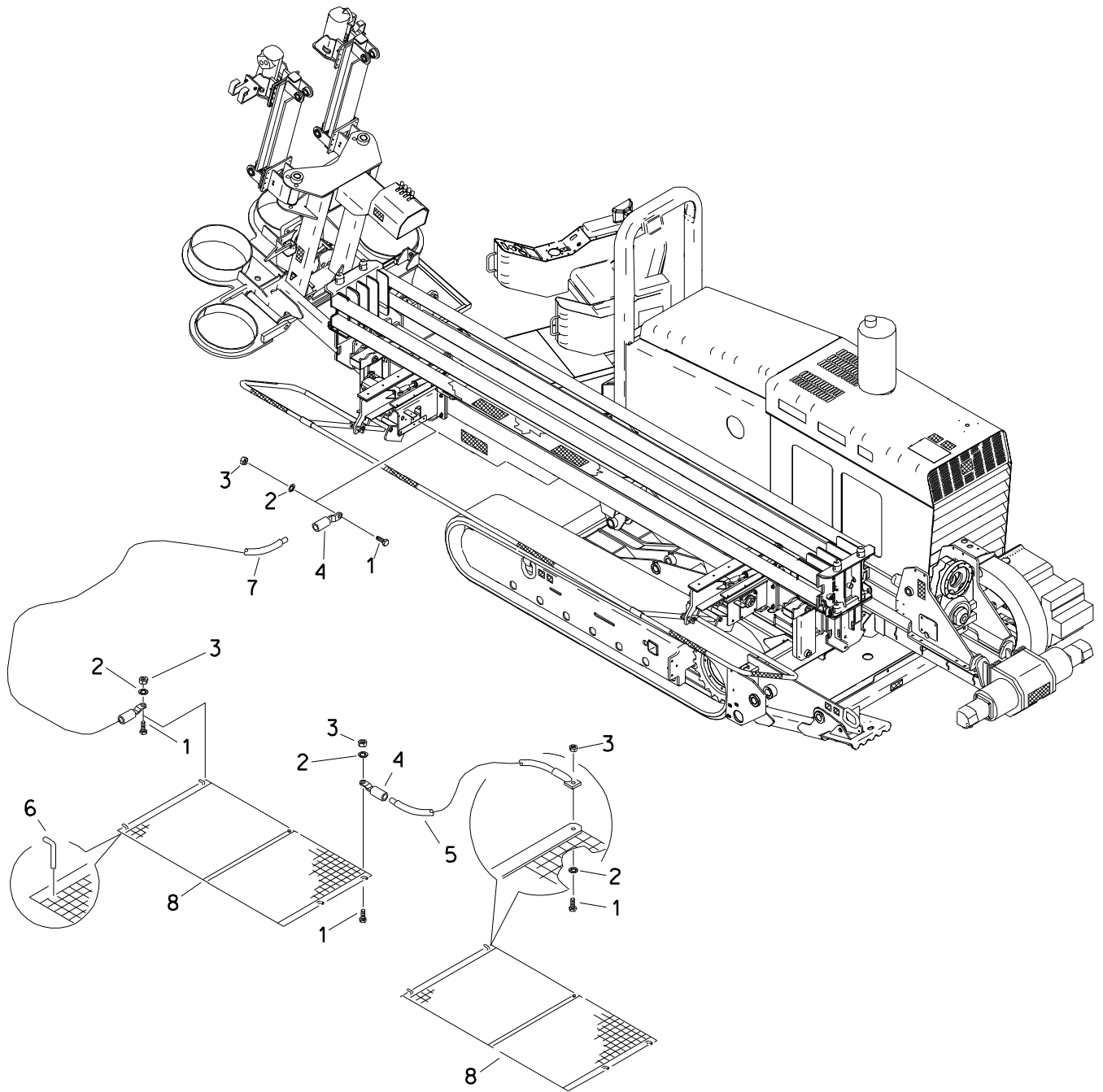


WORKING LIGHT

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	190-663	1	WORKING LIGHT CONVERSION KIT	INCL TRIPOD
	217-084	-	TRIPOD	
	217-094	1	DUAL LIGHT CABLE	
	217-080	2	WORKING LAMP (12V DC)	RECTANGULAR, MULTI-PURPOSE
	214-228	2	LIQUID-TIGHT FITTING	
	106-176	2	CONDUIT LOCKNUT (Ø8N)	
	110-373	1	BOLT-ON CLAMP (13/16")	
	106-162	1	FLG SCREW (M8-1.25 X 20mm)	
	106-386	1	FLG LOCKNUT (M8-1.25)	
	347-832	1	BRACKET (LIGHT KIT)	
	110-030	1	CABLE TIE (1/16" TO 4")	
	110-259	1	BOLT-ON CLAMP (.625")	
2.	190-664	1	LIGHT BOX KIT	
	347-833	1	LIGHT JUNCTION BOX	
	347-836	1	BACK PLATE	
	214-229	1	LIGHT HARNESS	JUNCTION BOX
	217-040	3	CONNECTOR (4-WAY, FM)	
	217-039	1	INDICATOR LIGHT (RED)	
	106-379	10	FLG LK SCREW (M6-1.00 X 20mm)	
	106-106	6	NUT (M6-1.00)	
	106-754	4	WELD NUT (M10-1.50)	
3.	217-098	1	WORK LAMP {12V DC, MAGNETIC}	
4.	190-665	1	LIGHT KIT (SINGLE)	
	217-080	1	WORKING LAMP (12V DC)	RECTANGULAR, MULTI-PURPOSE
	217-092	1	SINGLE LIGHT CABLE	
	214-228	1	LIQUID-TIGHT FITTING	
	106-176	1	CONDUIT LOCKNUT (Ø8N)	
5.	217-095	1	EXTENSION CABLE (15 M)	50 FT
	217-096	1	EXTENSION CABLE (30M {100'})	

FOOTNOTES

GROUNDING HARDWARE

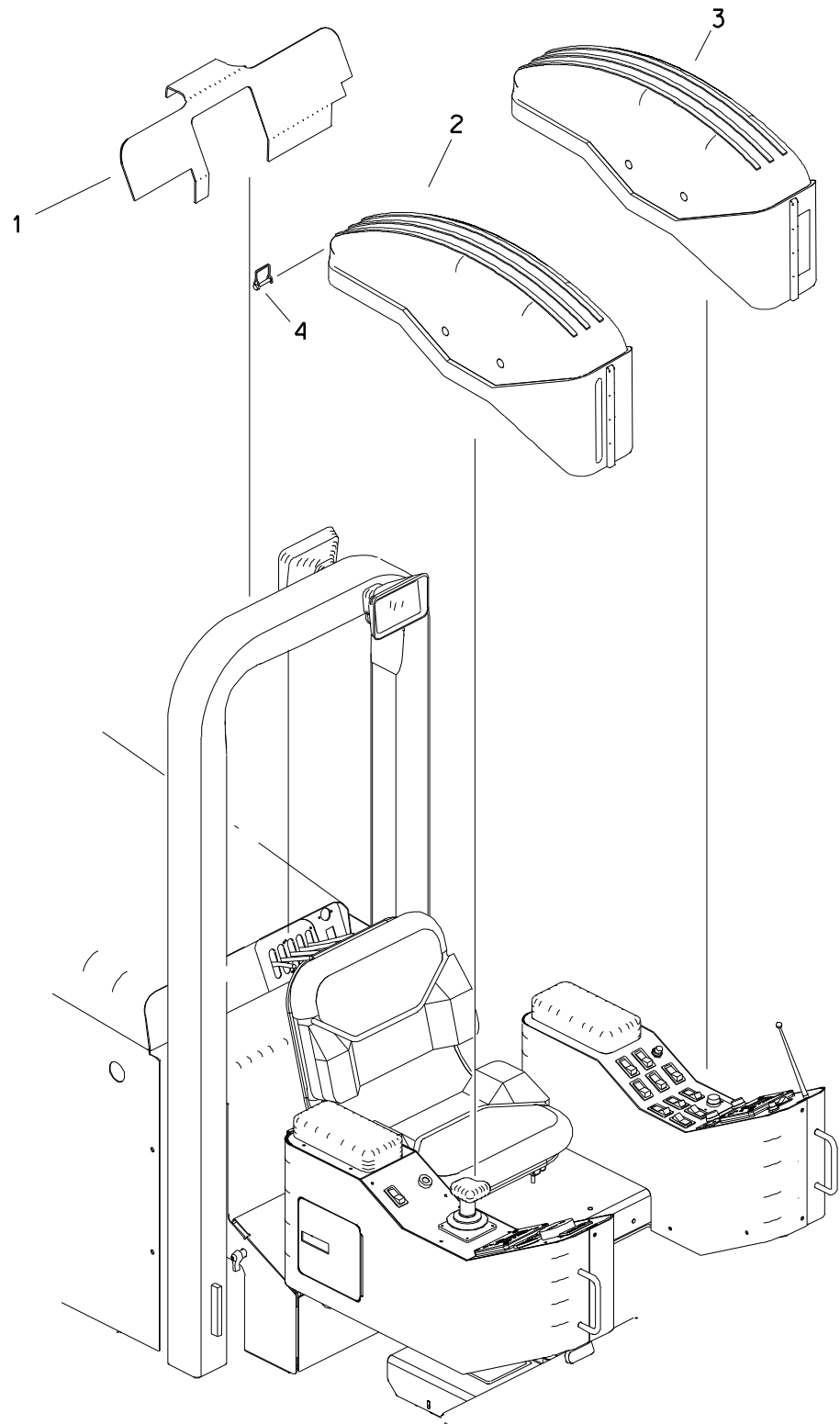


GROUNDING HARDWARE

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	100-074	-	STRIKE MAT KIT	INCL REF NO'S 1-8
1.	106-217	4	BOLT (1/4-NC X 1", SIL BRZ)	
2.	106-221	4	INT STAR WASHER (1/4", SIL BRZ)	
3.	106-455	4	LOCKNUT (1/4-NC, SIL BRZ)	
4.	215-771	2	GROUND RECEPTACLE (.3125" FM)	
5.	215-827	1	GROUND CABLE (6 GA X 6' M-EYE)	
6.	183-658	8	MAT STAKE	
7.	215-790	1	GROUND CABLE (6GA X 20' M-EYE)	
8.	215-824	2	GRID (6')	

FOOTNOTES

VANDAL COVERS

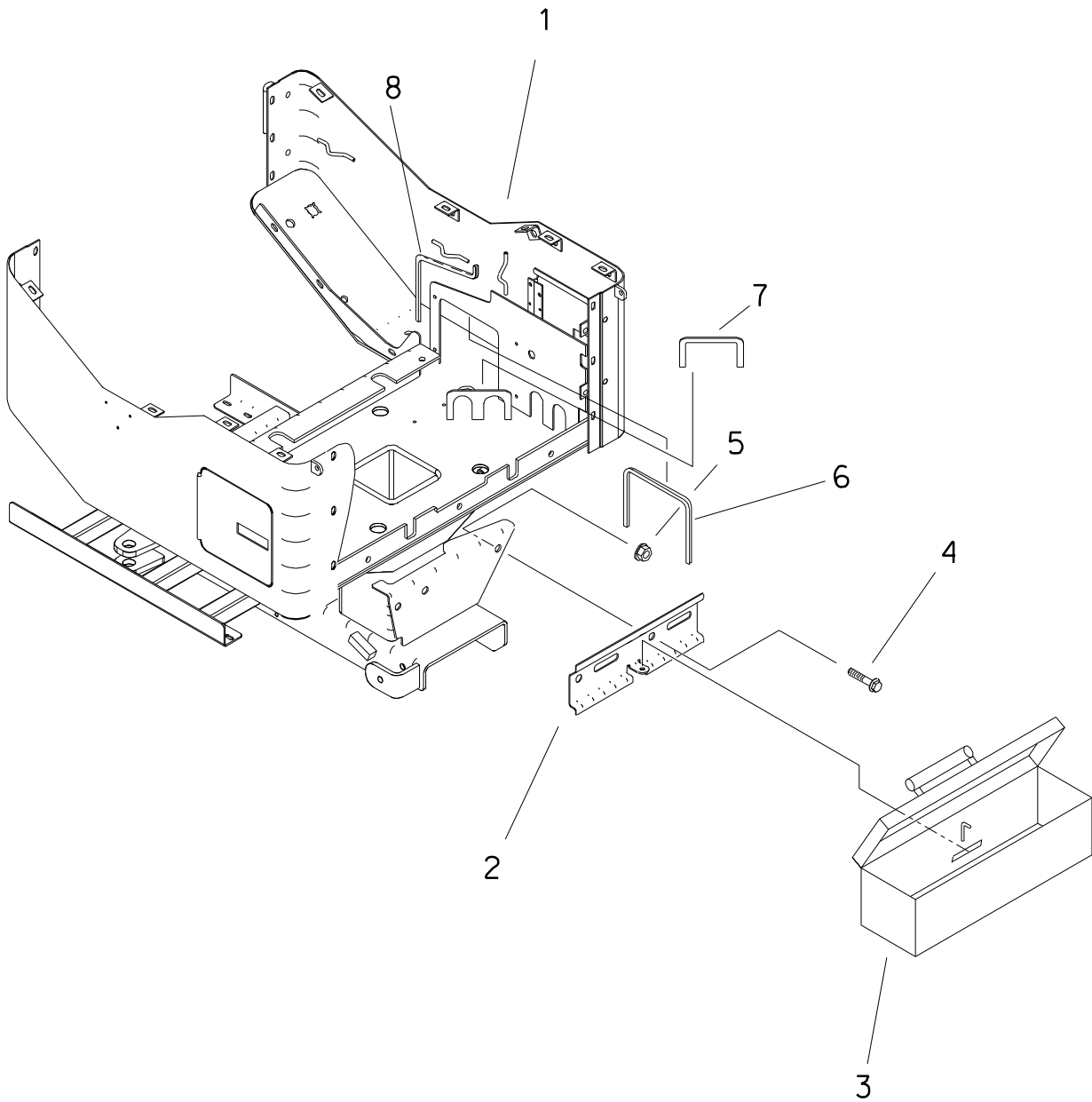


VANDAL COVERS

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
			VANDAL KIT	
1.	310-961	1	GAUGE VANDAL COVER	
2.	310-960	1	RIGHT SIDE VANDAL COVER	
3.	310-959	1	LEFT SIDE VANDAL COVER	
4.	110-032	2	SNAPPER PIN (5/16" X 2-1/2")	

FOOTNOTES

TOOL BOX



TOOL BOX

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	308-794	-	OPERATOR FRAME	
	313-778	-	PLATE	SEE FOOTNOTE 1.
2.	313-777	1	BRACKET	
3.	313-776	1	TOOL BOX	
4.	106-471	2	FLG SCREW (M16-2.00 X 30MM)	
5.	106-442	2	FLG LOCKNUT (M16-2.00,PRV TRQ)	
6.	116-789	AR	RUBBER EDGE TRIM 1/8" (FT)	USE 1 AT 18"
7.	116-789	AR	RUBBER EDGE TRIM 1/8" (FT)	USE 2 AT 10"
8.	116-789	AR	RUBBER EDGE TRIM 1/8" (FT)	USE 1 AT 19"

FOOTNOTES

1. EARLY MACHINES WILL REQUIRE THIS PART TO BE WELDED TO OPERATOR CONSOLE.

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

JT4020 Mach 1

Related Publications

Component	Ass'y	P/N
Model:		
JT4020 Mach 1 Parts Manual		053-086
JT4020 Mach 1 Operators Manual		054-074
JT4020 Mach 1 Repair Guide (Service Manual)		N/A
JT4020 Mach 1 Supplementary Maint Guide - Trenchless		055-485
JT4020 Mach 1 Special Tools Guide		052-901
Engine:		
John Deere Parts Manual - 6068TF250	194-083	053-061
John Deere Operators Manual - 6068TF250		054-049
John Deere Service (Shop) Manual - 6068TF250		054-049

Filters

Engine:		
Air Filter Parts Ass'y		159-373
Element (primary)		194-827
Element (secondary)		194-828
Oil Filter Element (spin-on) - John Deere		194-815
Fuel Filter Element (water trap, spin-on) - John Deere		194-816
Fuel Strainer (04H) In Fuel Tank.....		156-268
Hydraulic:		
Oil Filter Element (_-/_-UNF, spin-on) – Charge Remote		149-939
Element (_-/_-UNF, spin-on, Micron 10, Replacement) - Return		153-792
Element (_-/_-UNF, spin-on, Micron 5, Break-In) - Return		153-791

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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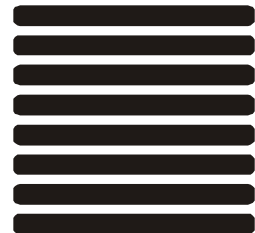
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