

Ditch Witch®

JT2720

ISSUE NO. 09PL-05/12

For Replacement Copy Order **P/N 053-471**

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:
JT2720 Directional Drilling System

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FOREWORD

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

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

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

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

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

WARRANTY

DW WARRANTY Policy
July, 2005

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

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

EXCLUSIONS FROM PRODUCT WARRANTY

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

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

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

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

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

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

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

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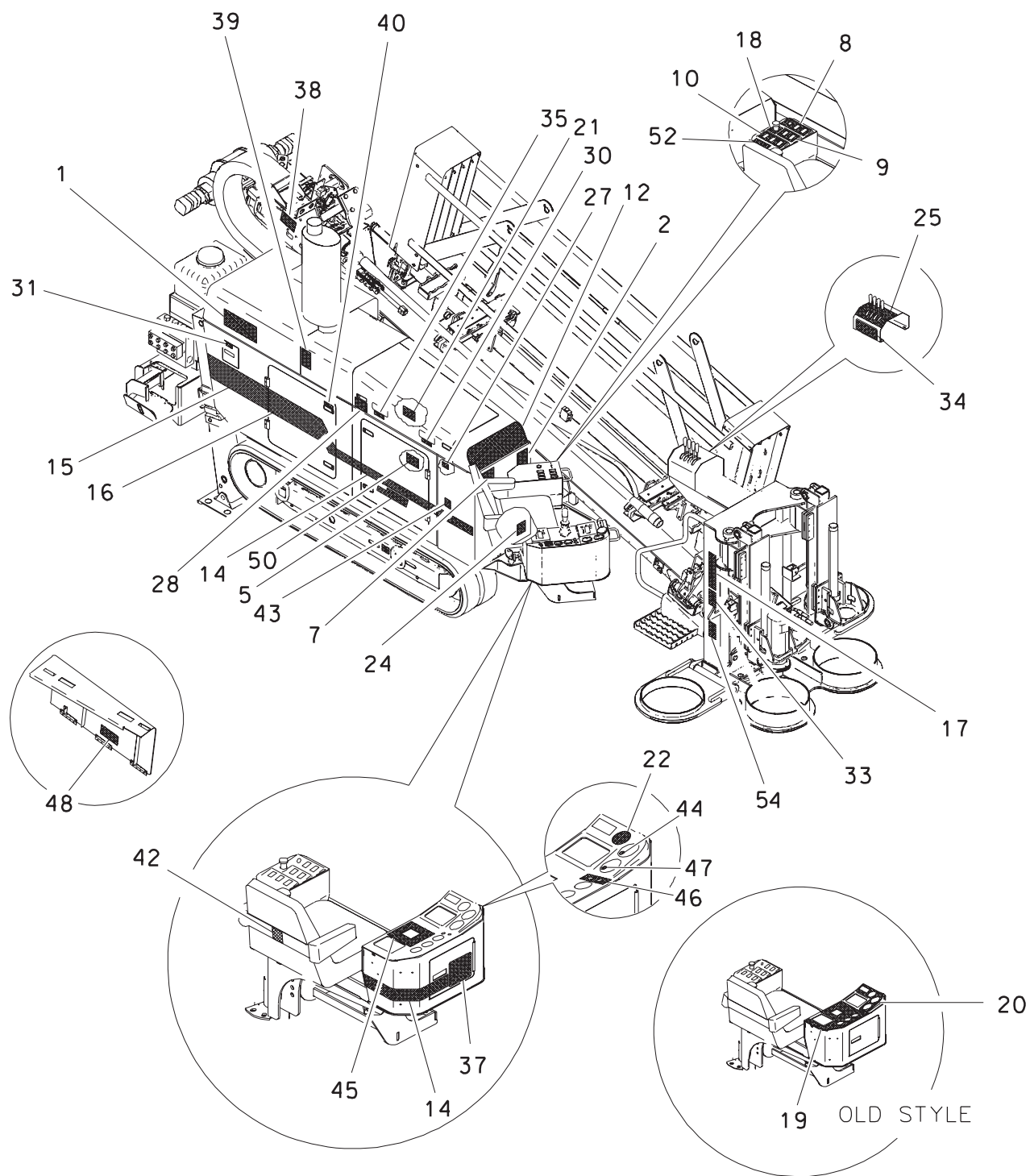
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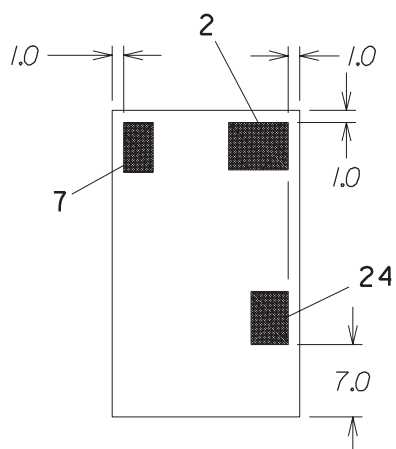
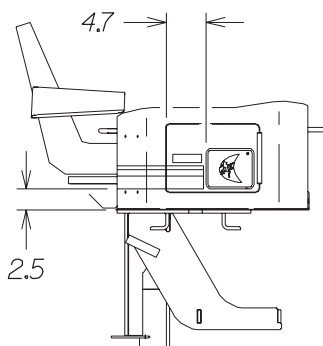
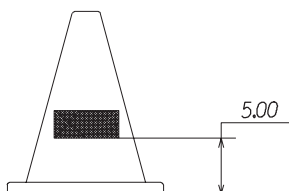
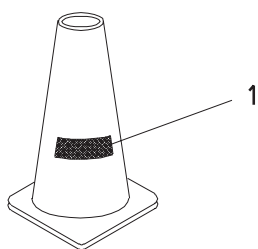
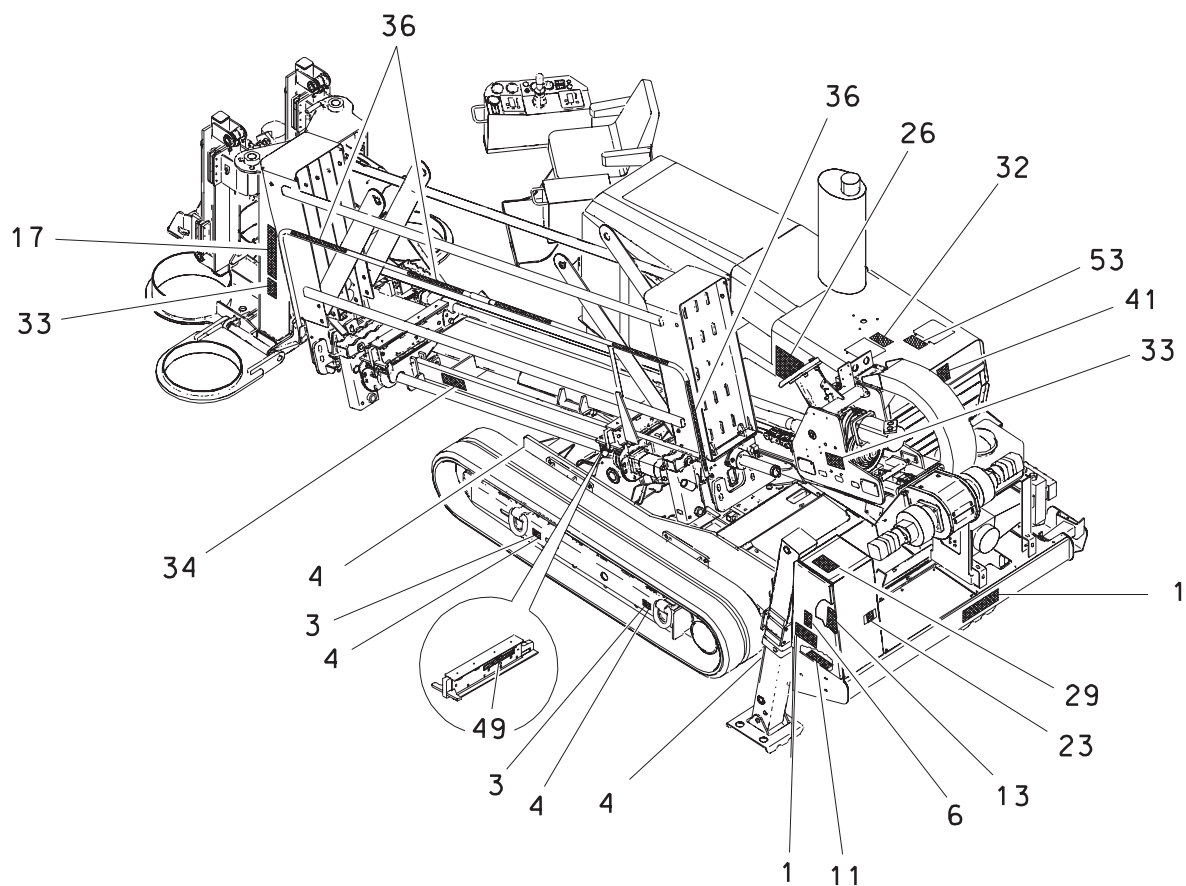
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DECALS

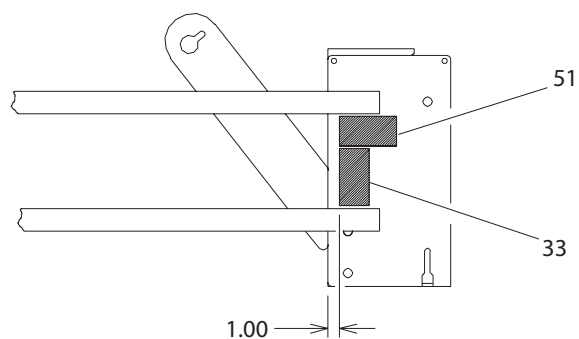
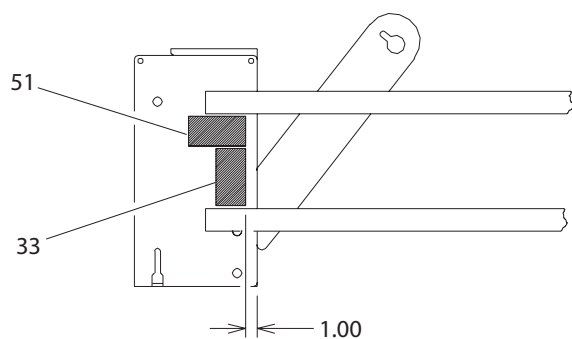
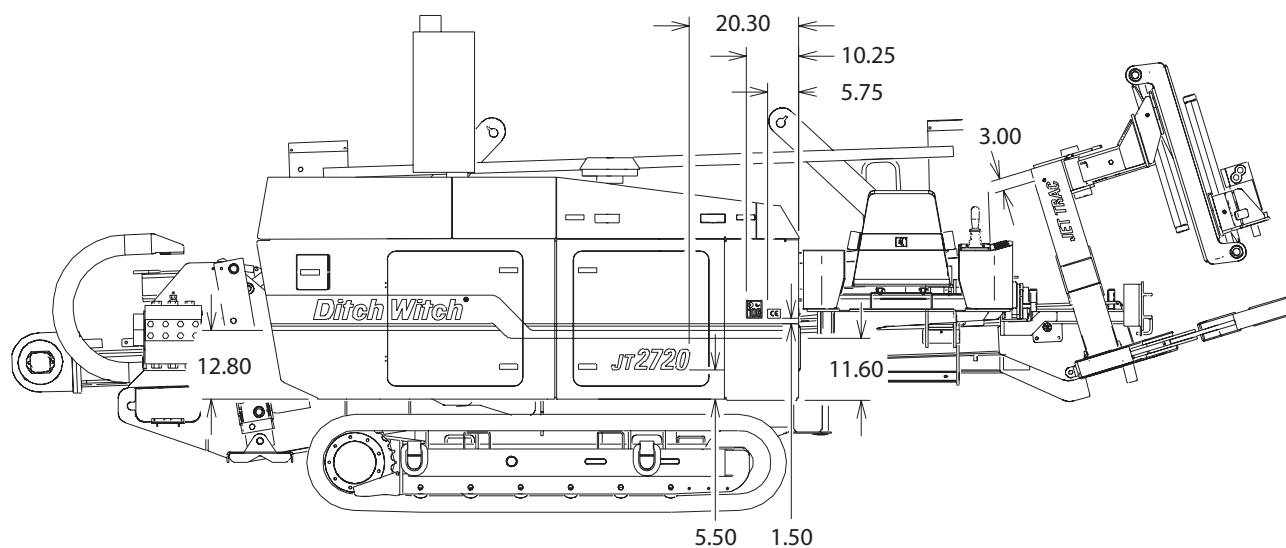
DECAL LOCATION JT2720



DECAL LOCATION JT2720



DECAL LOCATION JT2720



DECAL LOCATION

JT2720

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	275-728		DECAL KIT - JT2720	
1	274-049	7	DANGER ELECTROCUTION	4 PER TRAFFIC CONE
2	274-050	1	WARNING JOBSITE HAZARD	
3	274-318	4	TIE DOWN LOCATION	
4	274-442	8	LIFT LOCATION	
5	274-679	1	JT2720 MODEL - ID	
6	274-724	1	ONE CALL NOTIFICATION	
7	274-780	1	JET TRAC PATENT (SI)	
8	274-862	1	FRONT SWITCH PANEL	
9	274-863	1	CENTER SWITCH PANEL	
10	274-864	1	BACK SWITCH PANEL	
11	274-865	1	SET UP CONTROL PANEL	
12	274-866	1	BATTERY-LIGHTS-ROTATION	
13	274-869	1	INSTRUMENT PANEL	
14	274-877	AR	GRAPHIC STRIPE	USE 65"
15	274-883	1	DITCH GRAPHIC STRIPE	
16	274-884	1	WITCH GRAPHIC STRIPE	
17	274-875	2	JET TRAC LOGOTYPE	
18	274-890	1	PULLBACK SPEED CONTROL	
19	274-891	1	RIGHT CONTROL PANEL	
20	274-892	1	RIGHT GAUGE PANEL	ENDS WITH S/N 2R2814
21	274-920	1	AUTOMATION CONTROLLER	ENDS WITH S/N 2R2814
22	274-922	1	FLUID PRESSURE 47 GPM - 1366 PSI	
23	274-934	1	GROUND DRIVE SWITCH PANEL	
24	274-935	1	HYD HOSE CONNECTION	
25	274-936	1	ANCHOR DRIVER CONTROL PANEL	
26	274-909	4	AUTOMATION REFLECTOR PANEL	SEE FOOT NOTE 2
27	275-023	1	OIL LEVEL	
28	275-033	1	NOTICE ELECTRICAL SYSTEM	
29	275-048	1	IMPORTANT SAFETY RULES	
30	275-120	1	RESERVOIR (THF)	
	274-672	1	ENVIRO HYDRAULIC RESERVOIR	SEE FOOT NOTE 1
31	275-148	1	FUEL TANK (DIESEL)	
32	273-146	1	CAUTION ADD COOLANT	
33	275-184	11	WARNING MOVING PARTS	4 PER PIPE BOX
34	275-197	2	DANGER ROTATING SHAFT	
35	275-203	1	BATTERY DECAL	
36	275-230	6	WARNING STRIPE (11.750" X 18")	
37	275-307	1	DITCH WITCH EMBLEM	
38	275-341	1	WARNING SLIDING PARTS	
39	275-355	1	CAUTION HOT PARTS	
40	275-400	1	NOTICE OIL LEVEL	
41	275-449	1	LOGO PLACARD	
42	275-450	1	LOGO PLACARD	SEE FOOT NOTE 3
43	274-291	1	SOUND POWER RATING	BEGINS WITH S/N 2R2815
44	274-993	1	THRUST GAUGE OVERLAY	BEGINS WITH S/N 2R2815
45	274-990	1	RIGHT CONSOLE PANEL	BEGINS WITH S/N 2R2815
46	274-991	1	REMOTE START/STOP	BEGINS WITH S/N 2R2815
47	274-992	1	ROTATION GAUGE OVERLAY	
48	274-952	1	RELAY PANEL	
49	274-946	1	ROW SELECTOR PANEL	
50	274-198	1	NOTICE OIL LEVEL	
51	275-326	8	WARNING CRUSHING WEIGHT	4 PER PIPE BOX
52	273-106	1	LUBRICATOR	
53	273-138	1	NOTICE COOLANT	
54	273-278	1	DANGER WRENCH	

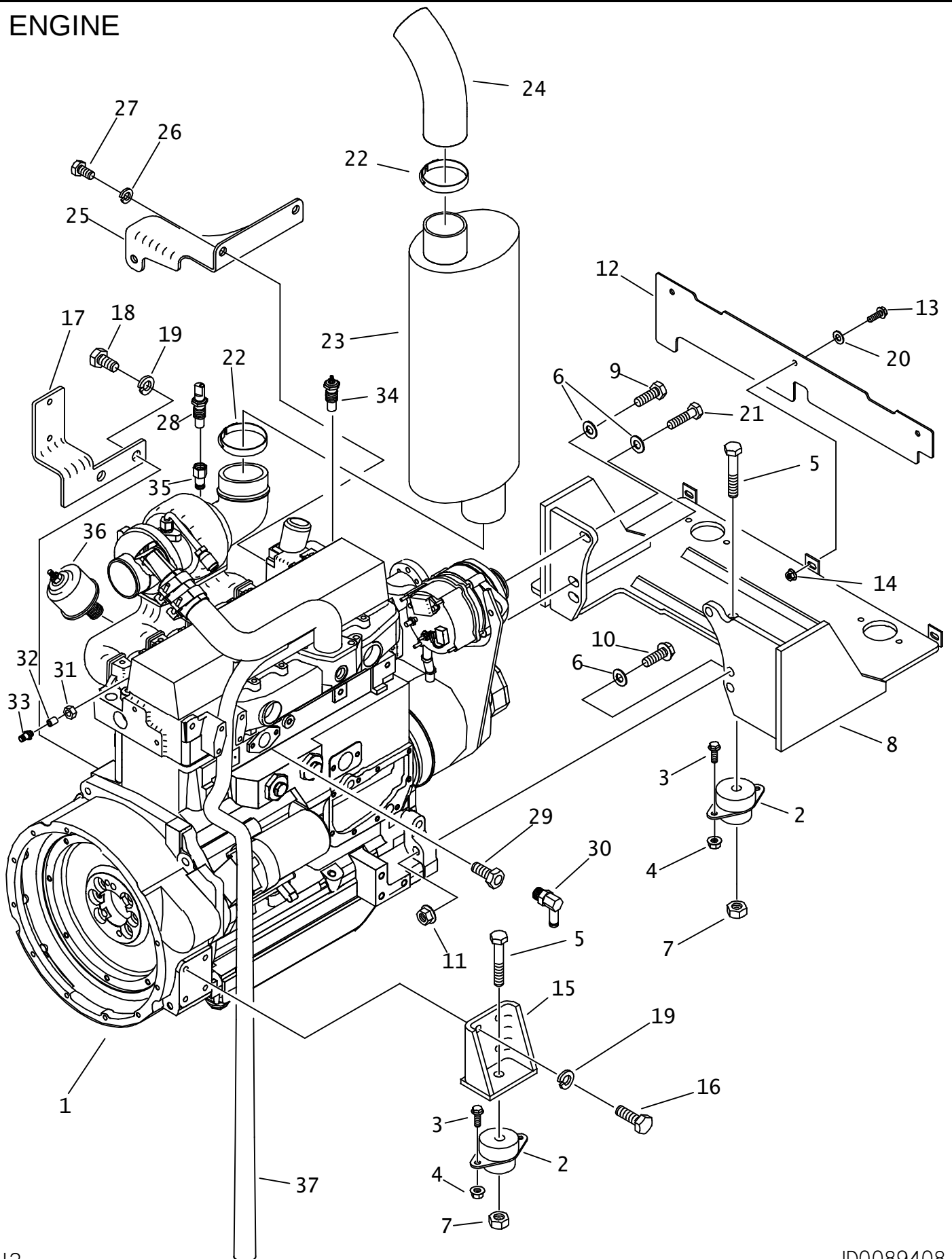
FOOTNOTES

1. NOT PART OF KIT. SEE 256-030 ENVIRONMENTAL HYDRAULIC OIL.
2. NOT PART OF KIT. USED ON MACHINE W/PHOTOELECTRIC EYES.
3. NOT PART OF KIT. FOR EUROPEAN UNITS ONLY.

NOTES:

ENGINE COMPONENTS

ENGINE



ENGINE

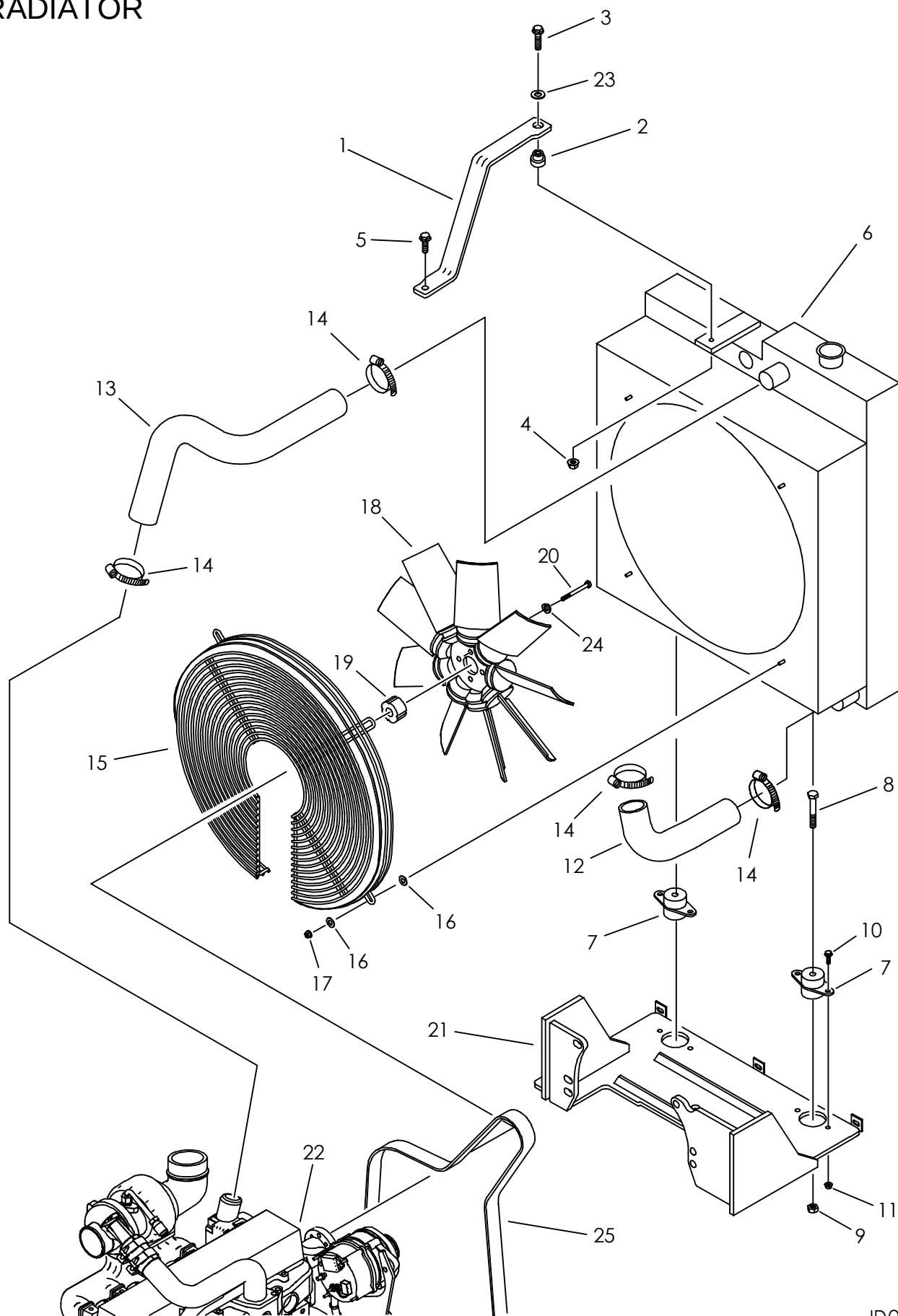
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	194-020	1	ENGINE - JOHN DEERE DIESEL	OBSOLETE
	217-450		ALTERNATOR	
	195-897		STARTER	
	194-823		THERMOSTAT	
	165-883		GASKET, THERMOSTAT	
	194-815		OIL FILTER ELEMENT	
	159-231		FUEL FILTER ELEMENT (SPIN-ON)	
	194-493		PRIMARY FILTER SEDIMENT BOWL	
	165-755		EXHAUST MUFFLER GASKET	
	165-769		AIR INLET GASKET	
	194-432		WATER PUMP (CAST IRON)	
	194-433		WATER PUMP INSERT PLATE KIT	
2.	116-488	3	ISOLATION MOUNT	
3.	106-724	6	FLG SCREW (M10-1.5 X 25mm)	
4.	106-387	6	FLG LOCKNUT (M10-1.50)	
5.	106-342	3	SCREW (M16-2.00 X 90mm)	
6.	106-398	6	WASHER (M16, HARDENED)	
7.	106-545	3	LOCKNUT (M16-2.00 PRV TRQ, 10.9)	
8.	353-312	1	ENGINE MOUNT	
9.	105-998	4	BOLT (M16-2.00 X 40mm)	
10.	106-341	2	SCREW (M16-2.00 X 70mm)	
11.	106-545	2	LOCKNUT (M16-2.00, PRV TRQ, 10.9)	
12.	343-416	1	RUBBER GUARD	
13.	106-162	3	FLG SCREW (M8-1.25 X 20mm, GD8)	
14.	107-096	3	LOCKNUT (M8-1.25, NLK)	
15.	353-313	2	REAR ENGINE MOUNT	
16.	105-247	8	SCREW (M12-1.75 X 35mm)	
17.	363-677	1	BRACKET	
18.	105-273	2	SCREW (M12-1.75 X 30mm)	
19.	105-070	10	LOCK WASHER (1/2")	
20.	105-117	3	WASHER (5/16")	
21.	106-074	1	SCREW (M16-2.00 X 60mm)	
22.	194-027	2	MUFFLER CLAMP (4.143")	
23.	194-031	1	MUFFLER	OBSOLETE
	194-201	1	MUFFLER	
24.	196-351	1	EXHAUST TUBE (4" X 12")	
25.	354-661	1	THROTTLE BRACKET	
26.	106-090	2	LOCK WASHER (M10)	
27.	105-245	2	SCREW (M10-1.50 X 25mm)	
28.	217-736	1	OIL PRESSURE SWITCH	LOCTITE 567
29.	114-033	1	REDUCER (M10-1.0 -02NF)	
30.	155-241	1	S/O COUPLER (02N-05H90)	LOCTITE 567
31.	156-277	1	COMPRESSION NUT (05T)	
32.	156-276	1	FERRULE (05T)	
33.	156-275	1	TUBE CONNECTOR (04H-05T)	
34.	217-550	1	WATER TEMPERATURE SENDER	LOCTITE 567
35.	156-226	1	REDUCER (02N-02NF)	
36.	215-113	1	OIL PRESSURE SENDER	OBSOLETE, LOCTITE 567
	215-183	1	SENDER, OIL PRESSURE HD	
37.	117-378	AR	BULK HOSE, LOW PRESSURE (-12)	USE 1 @ 110"

NOT SHOWN:

FOOTNOTES:

NOTE:

RADIATOR



RADIATOR

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	343-683	1	TOP RADIATOR BRACKET	
2.	116-727	1	SHOCK MAINT	
3.	106-628	1	SCREW (M10-1.5 X 60MM)	
4.	105-894	1	LOCKNUT (M10-1.5, PRV TRQ, 10.9)	
5.	107-010	1	FLG LK SCREW (M12-1.75 X 30MM)	
6.	306-833	1	RADIATOR/OIL COOLER	ENDS WITH S/N 2R2552
	343-289	1	RADIATOR	BEGINS WITH S/N 2R2217
7.	116-487	2	ISOLATOR MOUNT	
8.	106-700	2	SCREW (M12-1.75 X 80mm)	
9.	106-685	2	LOCKNUT (M12-1.75, PRV TRQ, 10.9)	
10.	106-164	4	FLG LK SCREW (M10-1.50 X 30MM)	
11.	105-894	4	LOCKNUT (M10-1.5, PRV TRQ, 10.9)	
12.	116-733	1	LOWER COOLANT HOSE	
13.	116-732	1	UPPER COOLANT HOSE	
14.	110-134	4	WORM CLAMP (2.062" TO 2.750")	
15.	194-737	1	FAN GUARD (24")	
16.	105-117	4	WASHER (5/16")	
17.	107-096	4	LOCKNUT (M8-1.25, NLK)	
18.	194-809	1	FAN (23")	9 BLADE, 35P
19.	184-404	1	COOLING FAN SPACER	
20.	106-602	4	SCREW (M8-1.25 X 80MM)	
21.	353-312	-	ENGINE MOUNT	
22.	194-020	-	ENGINE - JOHN DEERE DIESEL	OBSOLTE
23.	106-397	1	WASHER (M12, HARDENED)	
24.	105-091	4	LOCK WASHER (5/16")	
25.	170-344	-	FAN BELT	ENDS WITH S/N 2R2216; SEE FOOTNOTE 1
	170-354	-	FAN BELT	BEGINS WITH S/N 2R2217; SEE FOOTNOTE 2

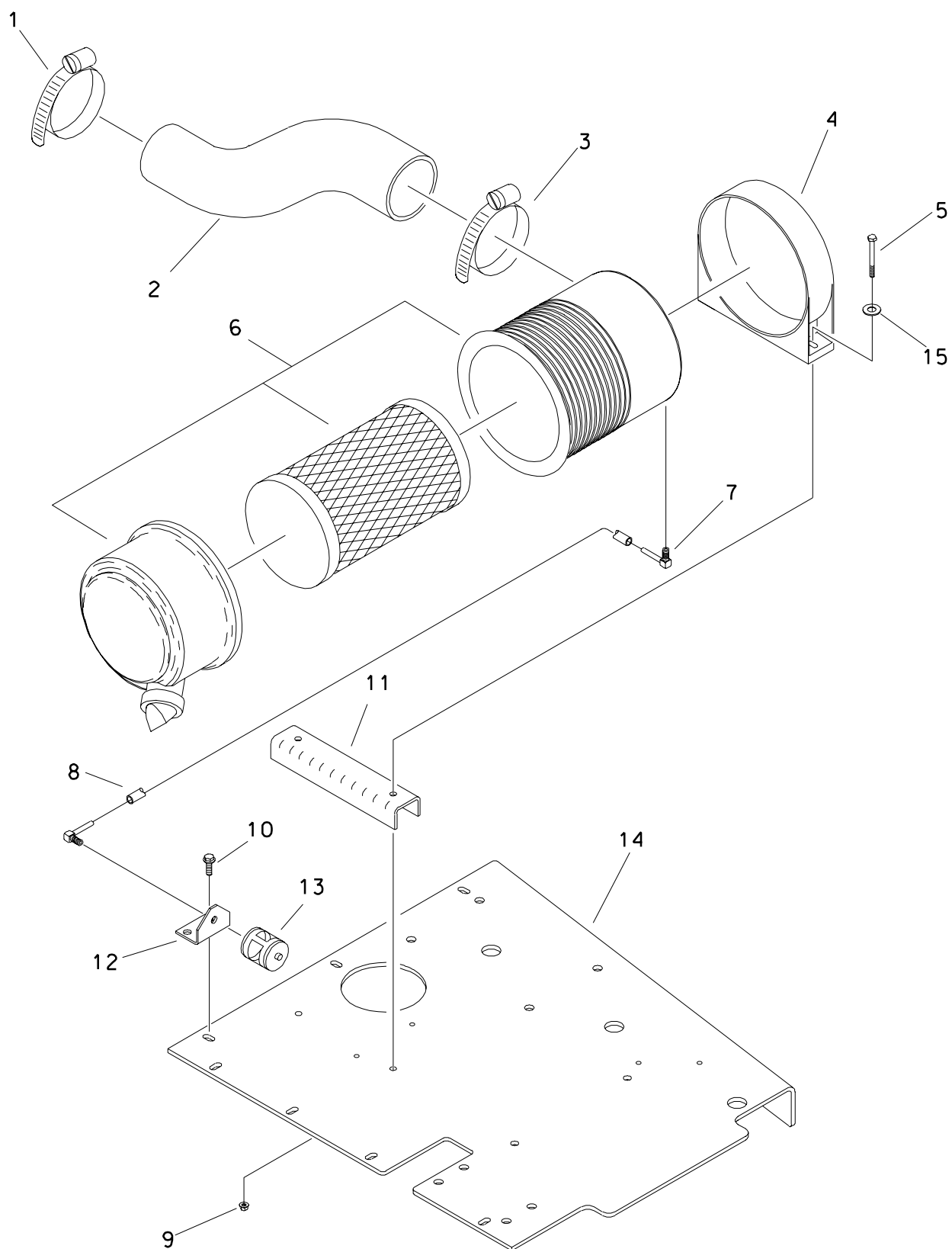
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FOOTNOTES:

1. 170-344 FAN BELT USED W/ 6.8" MAX O.D. CRANKSHAFT PULLEY
2. 170-354 FAN BELT USED W/ 7.55" MAX O.D. CRANKSHAFT PULLEY

NOTE:

AIR FILTER SYSTEM

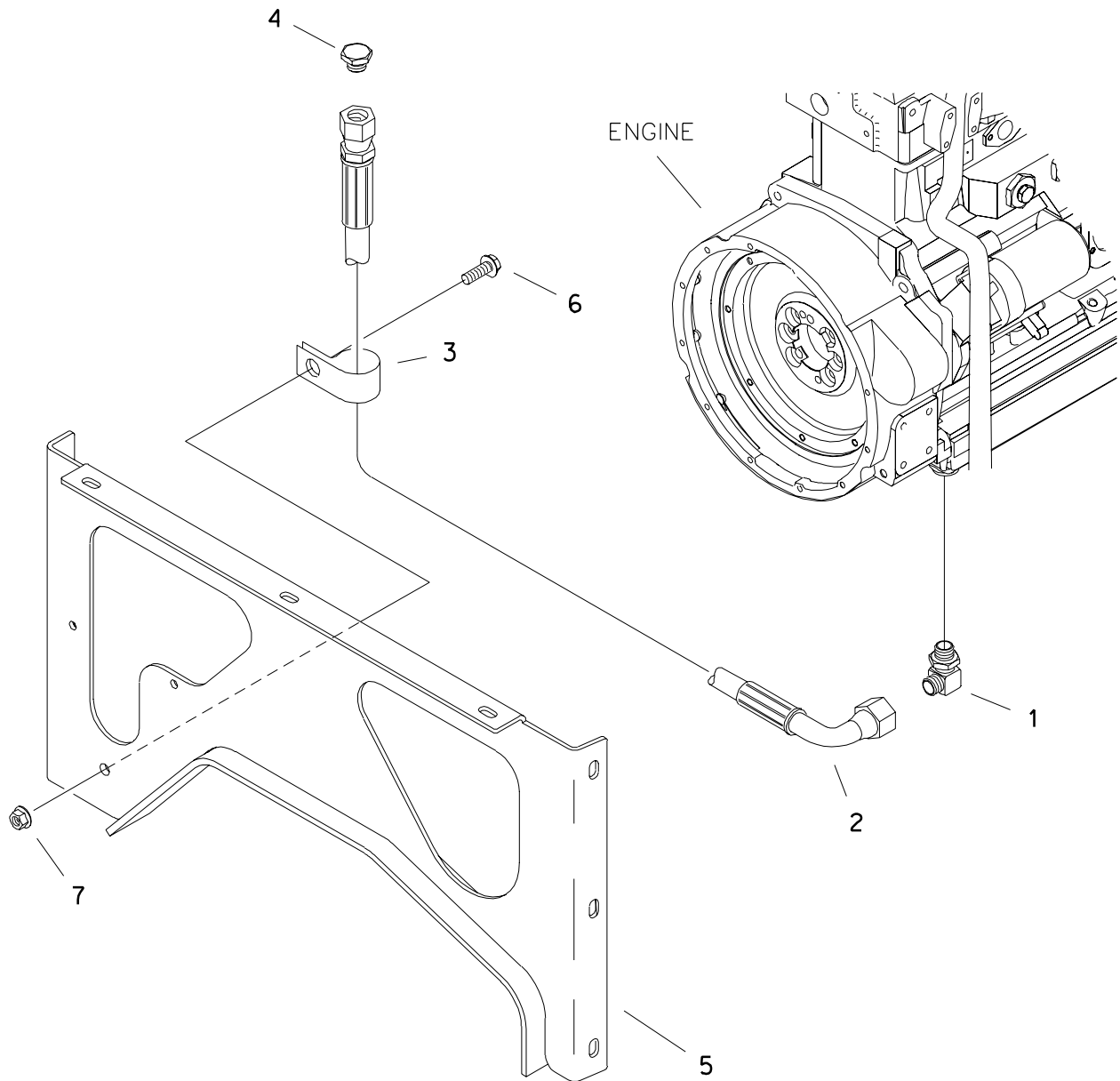


AIR FILTER SYSTEM

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	110-169	1	WORM CLAMP (2.812" TO 3.750")	
2.	120-555	1	FILTER HOSE	
3.	110-367	1	WORM CLAMP (3.250" TO 4.125")	
4.	120-080	1	MOUNTING CLAMP (8.350")	
5.	106-330	2	SCREW (M8-1.25 X 70MM)	
6.	120-081	1	AIR FILTER	
	194-830		ELEMENT (PRIMARY)	
7.	155-241	2	S/O COUPLER (02N-05H90)	LOCTITE 567
8.	116-108	AR	BULK HOSE (5/16", SOLD PER 1')	USE 1 @ 19.0"
9.	106-561	2	LOCKNUT (M8-1.25, PRV TRQ, 10.9)	
10.	106-992	1	FLG LK SCREW (M8-1.25 X 25MM)	
11.	343-970	1	SPACER	
12.	348-846	1	RESTRICTION INDICATOR SUPPORT	
13.	194-788	1	RESTRICTION INDICATOR (25"H20)	
14.	343-606	-	BATTERY SUPPORT PLATE	
15.	105-117	2	WASHER (5/16")	

FOOTNOTES

REMOTE ENGINE OIL DRAIN

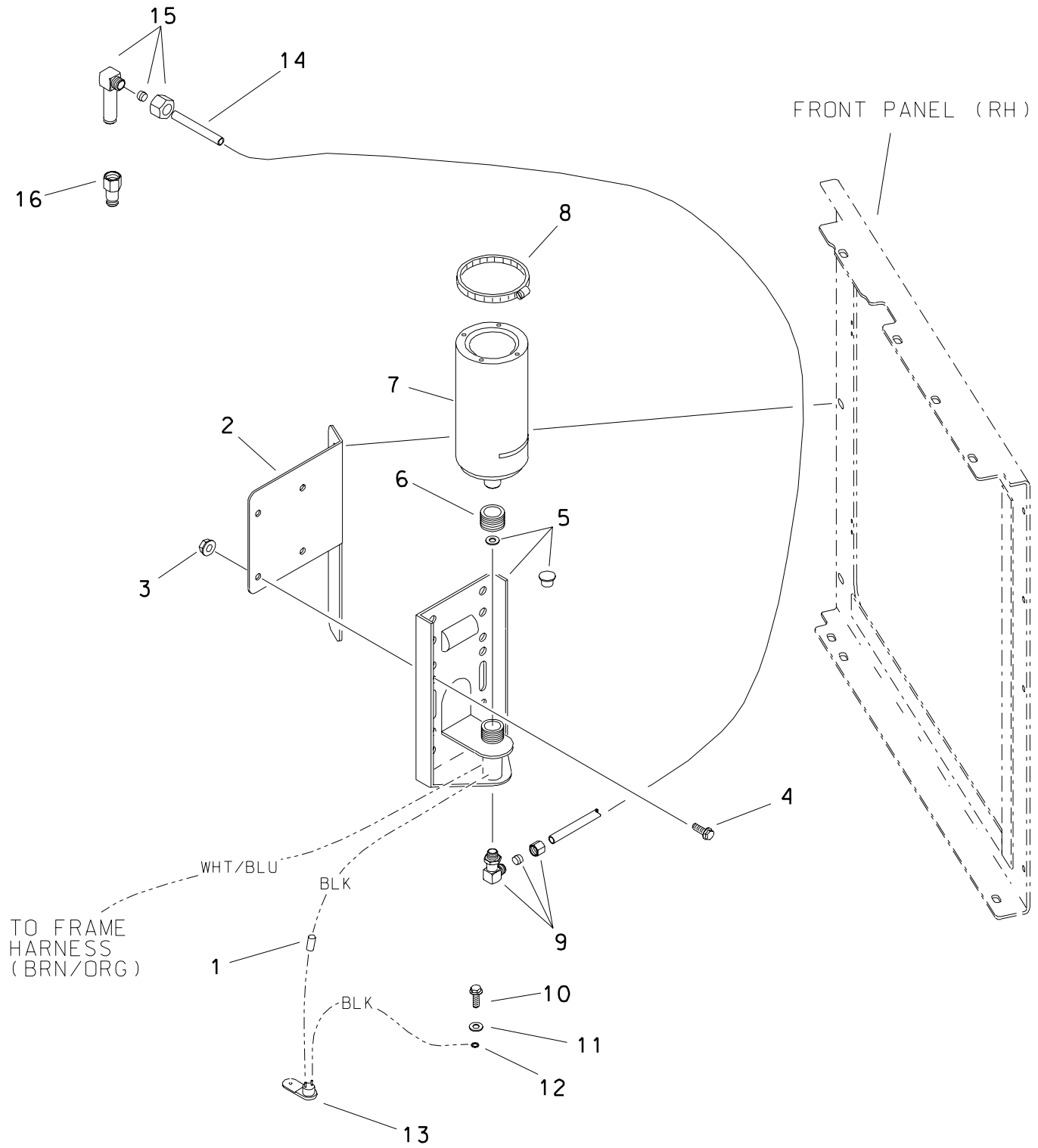


REMOTE ENGINE OIL DRAIN

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	154-467	1	CONNECTOR (M18-1.50-08J90)	
2.	515-700	1	HOSE (08JFX90-32"-3000)	
3.	110-332	1	BOLT-ON CLAMP (1-5/8")	
4.	154-093	1	PLUG (08J)	
5.	343-775	-	SUPPORT	
6.	106-162	1	FLG SCREW (M8-1.25 X 20MM)	
7.	106-386	1	FLG LOCKNUT (M8-1.25)	

FOOTNOTES

COLD START KIT



COLD START KIT

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	190-881		COLD START CONVERSION KIT	INCL REF NO'S 2-6 & 8-17; SEE FOOTNOTE 1
1.	215-478		BUTT CONNECTOR (14-16 GA)	
2.	343-318	1	COLD START BRACKET	
3.	106-386	2	FLG LOCKNUT (M8-1.25)	
4.	106-162	4	FLG SCREW (M8-1.25 X 20MM)	
5.	195-841	1	VALVE/CANISTER BRACKET	
	110-252		CAPLUG (3/4")	
	195-844		GASKET	
6.	115-365	1	GROMMET (2-1/8", SOLD PER 1")	
7.	195-842	1	ETHER CANISTER	SEE FOOTNOTE 2
8.	110-367	1	WORM CLAMP (3.250" TO 4.125")	
9.	156-272	1	TUBE CONNECTOR (O2N-O2T90,ORF)	INCL FERRULE & NUT, SEE FOOTNOTE 3
	156-204		FERRULE (O2T)	
	156-205		COMPRESSION NUT (O2T)	
10.	106-382	1	FLG LK SCREW (M10-1.5 X 20MM)	
11.	105-072	1	LOCK WASHER (3/8")	
12.	215-590	1	RING TERMINAL (3/8")	
13.	215-073	1	SENSOR SWITCH	
14.	156-018	AR	BULK TUBING (1/8",SOLD PER 1")	USE 1 @ 63"
15.	195-843	1	INJECTOR NOZZLE	INCL FERRULE & NUT, SEE FOOTNOTE 3
	156-204		FERRULE (O2T)	
	156-205		COMPRESSION NUT (O2T)	
16.	514-402		CONNECTOR (10S - O2NF)	

NOT SHOWN

110-248 CABLE TIE (1/16" - 1/4")

FOOTNOTES

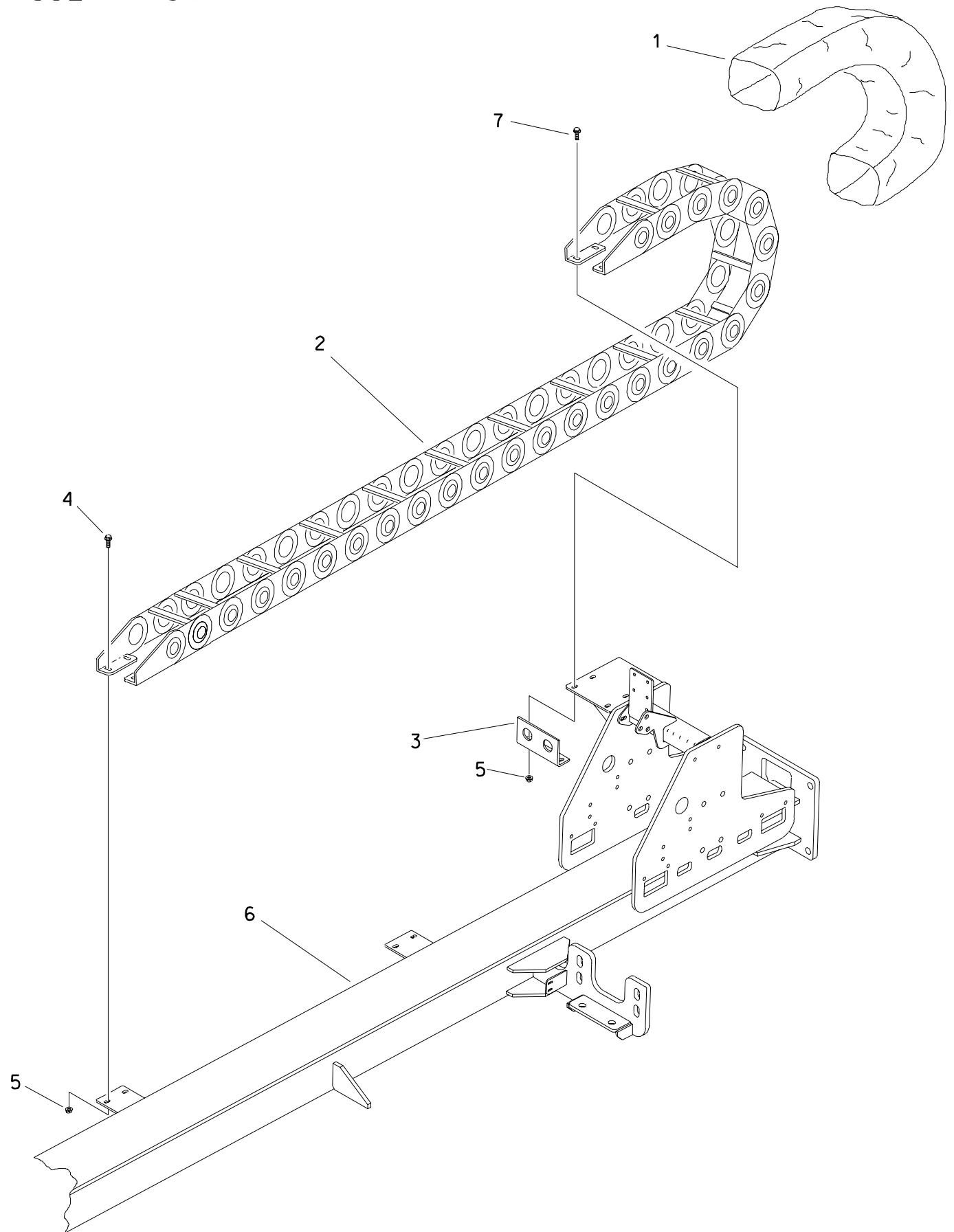
1. REFER TO INSTALLATION INSTRUCTIONS 051-198
2. NOT PART OF KIT; NEED TO ORDER SEPARATELY.
3. DO NOT INSTALL WITH LOCTITE 567

NOTES:

[illegible]

FRAME COMPONENTS

HOSE TRACK

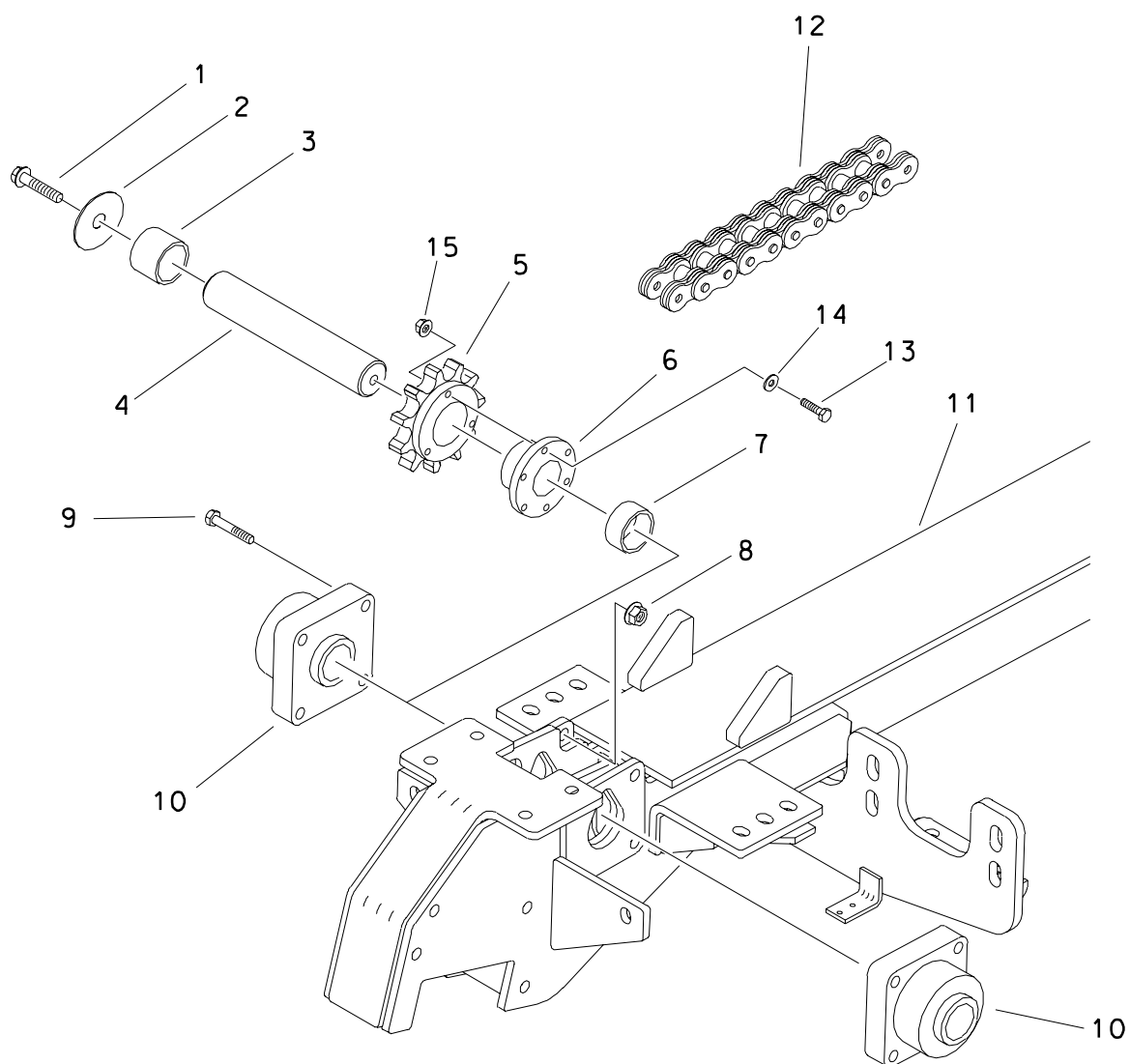


HOSE TRACK

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	359-856	1	HOSE BAG (5.136" X 96")	
2.	343-534	1	HOSE TRACK (6" X 120")	
-	306-621	-	EASY-OUT BAR (1/2" OD X 6.0")	
-	307-336	-	REPAIR SECTION (6" W X 20" L)	
-	307-337	-	L1 BRACKET (LEFT)	
-	307-338	-	L1 BRACKET (RIGHT)	
-	307-339	-	6" ALUMINUM FLAT BAR (INVERTED)	
-	359-773	-	ALUMINUM BAR (1/2" X 6.000")	
3.	343-451	1	BULKHEAD PLATE	
4.	106-724	6	FLG SCREW (M10-1.5 X 25mm)	
5.	106-387	8	FLG LOCKNUT (M10-1.50)	
6.	353-409	-	DRILL FRAME	
7.	106-383	2	FLG LK SCREW (M10-1.5 X 30mm)	

FOOTNOTES

FRONT SPROCKET



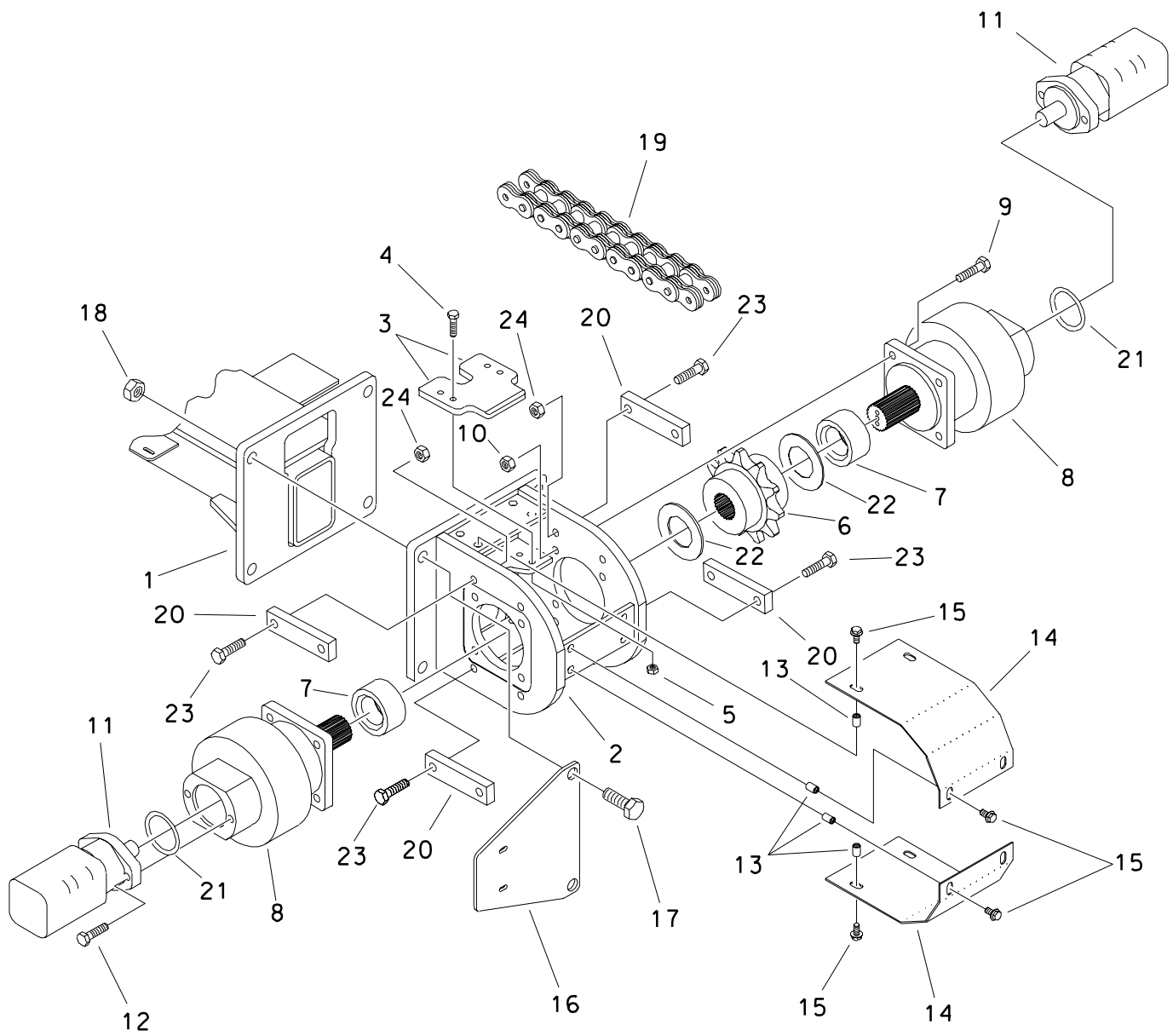
FRONT SPROCKET

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	106-338	2	SCREW (M16-2.00 X 30mm)	
2.	105-964	2	WASHER (.656")	
3.	343-621	1	RIGHT SPACER	
4.	343-792	1	IDLER SHAFT	
5.	175-700	1	SPROCKET (140A11)	
6.	178-082	1	BUSHING (2.187", QT)	
7.	343-622	1	LEFT SPACER	
8.	106-545	8	LOCKNUT (M16-2.00, PRV TRQ, 10.9)	
9.	106-340	8	SCREW (M16-2.00 X 50mm)	
10.	125-154	2	FLANGE BEARING (2.187")	SEE FOOTNOTE 1
11.	353-409	-	DRILL FRAME	
12.	130-605	-	DBL ROLLER CHAIN (#140-2, 205P)	
	129-002	-	ROLLER CHAIN (#140 ECH, 205P)	
	129-009	-	ROLLER CHAIN (#140-ECH, 205P)	
13.	105-667	3	SCREW (3/8-NC X 2.50", GD8)	TORQUE TO 52 FI LBS LOCTITE 242
14.	105-072	3	LOCK WASHER (3/8")	
15.	105-047	3	LOCKNUT (3/8-NC)	

FOOTNOTES

1. AT ASSEMBLY EACH ZERK NEEDS 20X OF MULTI PURPOSE GREASE

THRUST DRIVE

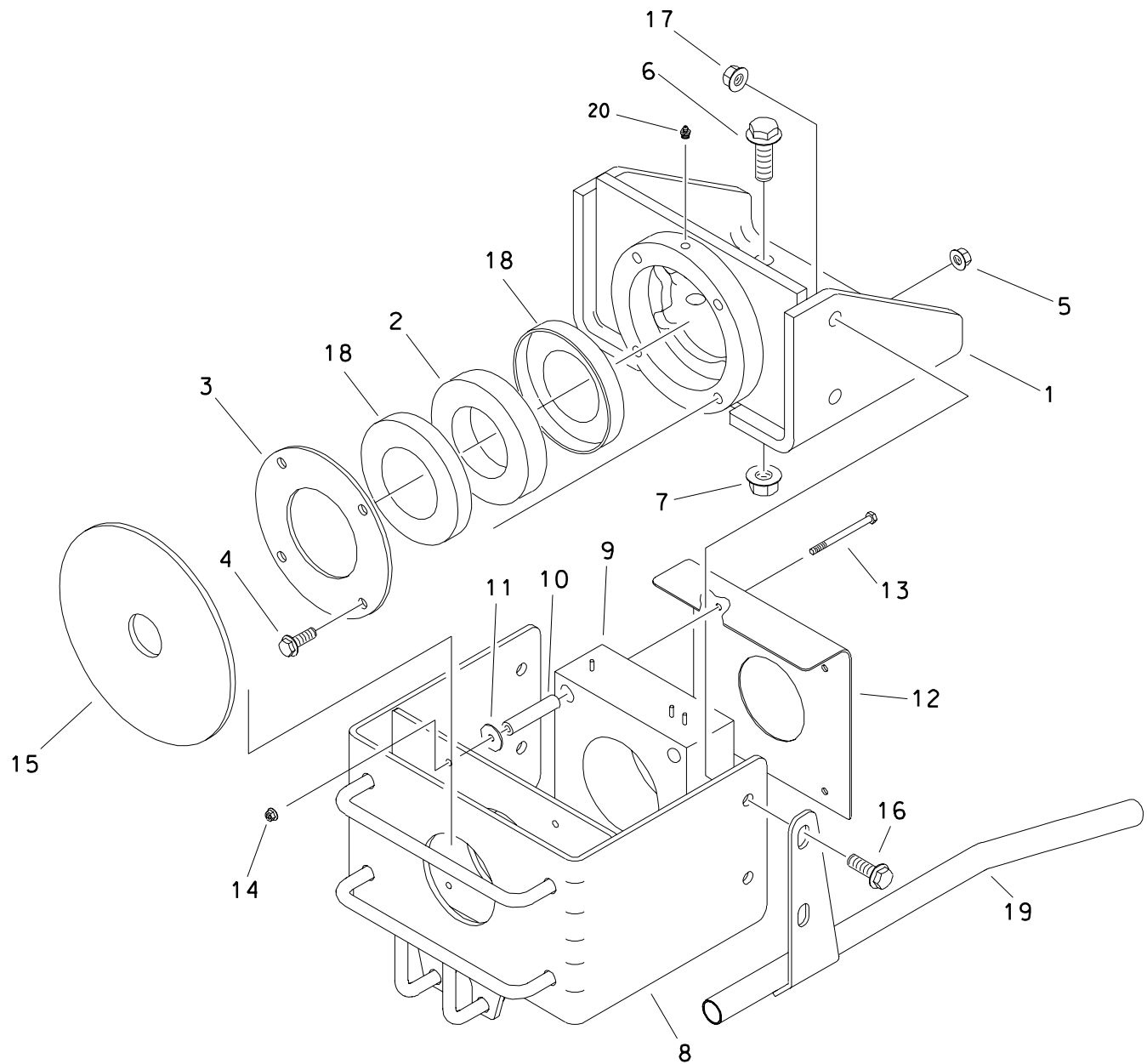


THRUST DRIVE

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	353-409	-	DRILL FRAME	
2.	353-417	1	MOUNT THRUST DRIVE	
3.	305-616	1	WEAR PLATE	
4.	105-271	4	SCREW (M10-1.5 X 40mm)	
5.	105-894	4	LOCKNUT (M10-1.5, PRV TRQ, 10.9)	
6.	175-738	1	SPROCKET (140B11)	
7.	353-383	2	SPACER	
8.	166-158	2	THRUST DRIVE GEAR BOX	THRUST DRIVE
-	190-061	AR	BEARING & SEAL KIT (2.0" X 1.18")	
-	190-799	AR	SEAL REPAIR KIT	
-	125-368	2	TAPERED RACE (4.330")	
-	125-387	1	TAPERED BEARING (2.625")	
-	125-388	1	TAPERED BEARING (2.687")	
-	166-257	-	GEARBOX COVER	
-	105-160	-	AR BOLT (5/16 - NC X 1-1/4")	
-	157-521	1	EXTERNAL SEAL (3.375")	
-	501-629	AR	EXTERNAL SNAP RING SET (2.63")	
-	501-830	-	CARRIER ASSEMBLY 6"	
-	499-893	-	THRUST WASHER (1.031")	
-	501-676	-	"NS" GEARBOX HUB	
-	166-258	-	SUN GEAR, #6	
-	501-721	1	RING GEAR	
-	501-723	-	OUTPUT SHAFT	
-	107-467	-	SCREW (3/8-NF X 1-3/4", NYL)	THRUST
9.	107-318	8	SCREW (M14-2.0 X 60mm, 10.9)	
10.	107-319	8	LOCKNUT (M14-2.0, PRV TRQ, 10.9)	TORQUE TO 130 FT LBS- 242 LOCTITE
11.	149-169	-	HYD MOTOR	
-	500-347	-	SEAL REPAIR KIT	
-	155-598	-	HYD MOTOR	THRUST, EARLY
12.	106-204	4	BOLT (1/2-NC X 1-1/2", SOC)	
13.	106-550	8	NUTSERT (M10-1.50)	
14.	353-380	2	COVER	
15.	106-382	8	FLG LK SCREW (M10-1.5 X 20mm)	
16.	343-453	1	MOUNT PLATE	
17.	106-346	4	SCREW (M20-2.5 X 70mm)	
18.	106-665	4	LOCKNUT (M20-2.50, 10.9)	
19.	130-605	-	DBL ROLLER CHAIN (#140-2, 205P)	
-	129-002	-	ROLLER CHAIN (#140 ECH, 205P)	
-	129-009	-	ROLLER CHAIN (#140-ECH, 205P)	
20.	343-322	4	PLANETARY SUPPORT BAR	
21.	157-099	2	O-RING (343 D70)	
22.	181-504	2	BUSHING	
23.	106-575	8	BOLT (1/2-NC X 2-1/4", GD8)	
24.	105-065	8	LOCKNUT (1/2-NC)	

FOOTNOTES

FRONT BEARING SUPPORT



FRONT BEARING SUPPORT

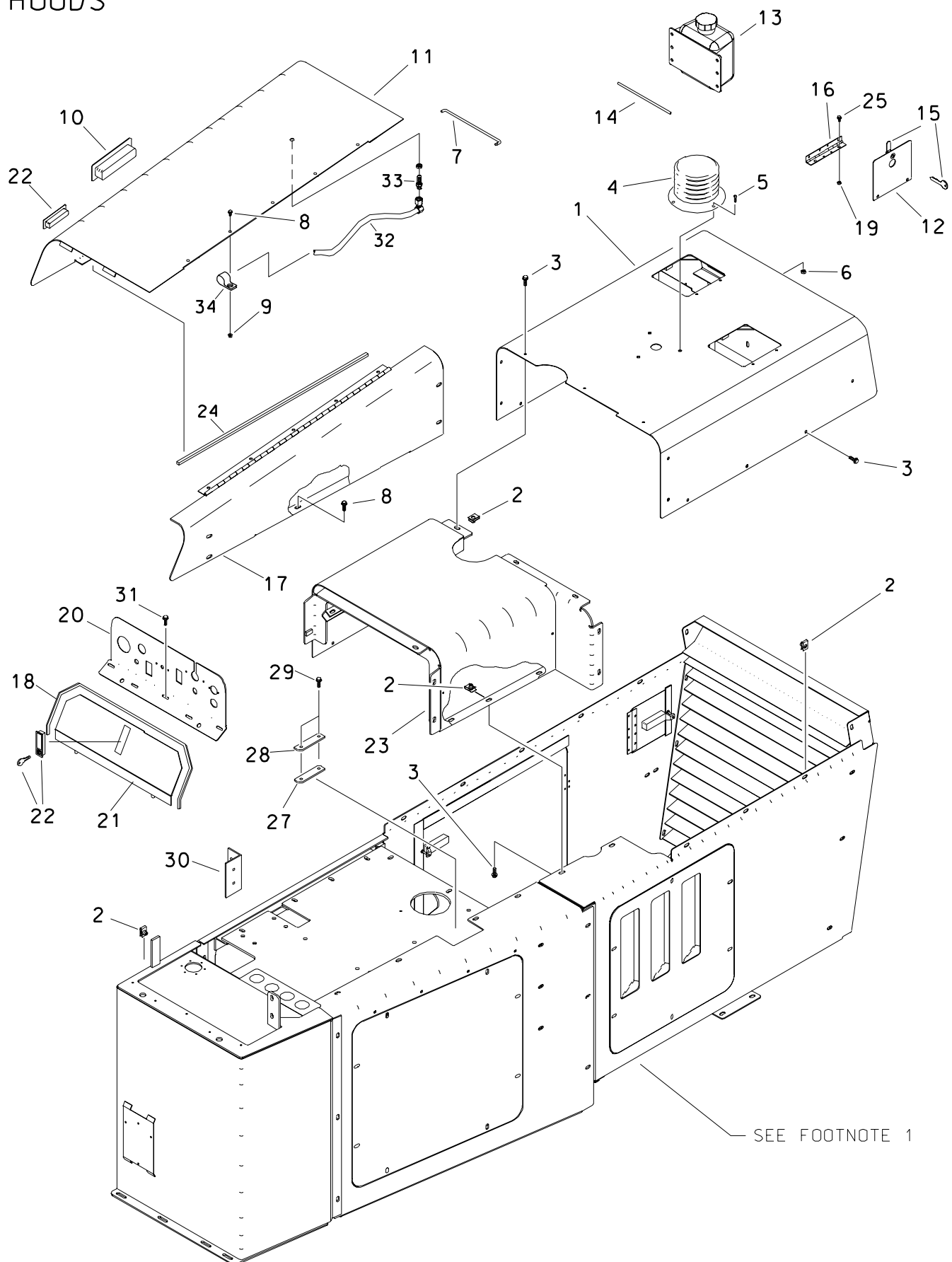
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	343-571	1	FRONT BEARING SUPPORT	
2.	305-865	1	GUIDE BEARING	USE WITH REF 18
	125-467	1	BALL BEARING (2.952")	NOT SHOWN SEE FOOTNOTE 1
3.	353-459	1	BEARING COVER	
4.	105-996	4	SCREW (M10-1.50 X 45MM)	
5.	105-894	4	LOCKNUT (M10-1.5, PRV TRQ, 10.9)	
6.	106-340	4	SCREW (M16-2.00 X 50mm)	
7.	106-545	4	LOCKNUT (M16-2.00, PRV TRQ, 10.9)	
8.	350-627	1	COIL MOUNT	
9.	216-023	1	CURRENT TRANSFORMER	SEE FOOTNOTE 2.
10.	116-376	4	SPACER	
11.	116-283	4	WASHER (.531", RUBBER)	
12.	362-623	1	COIL COVER (BACK)	
13.	105-843	4	SCREW (M6-1.00 X 80mm)	
14.	106-385	4	FLG LOCKNUT (M6-1.00)	
15.	116-485	1	ROD WIPER (1.750")	
16.	107-565	4	FLG LK SCREW (M12-1.75X40MM)	
17.	106-685	4	LOCKNUT (M12-1.75, PRV TRQ, 10.9)	
18.	305-866	2	GUIDE BEARING	USE WITH REF 2
19.	307-757	1	GUARD MOUNTING BRACKET	
20.	115-001	1	ZERK (Q2N)	

FOOTNOTES

1. CAN BE USED IN PLACE OF 305-865 AND 305-866
2. REF 9 OBSOLETE. 216-023 REPLACED WITH 101-150.

NOT SHOWN: 191-084 BEARING KIT - INCLUDES 2, 3, 4, 5, 18, & 20.

HOODS



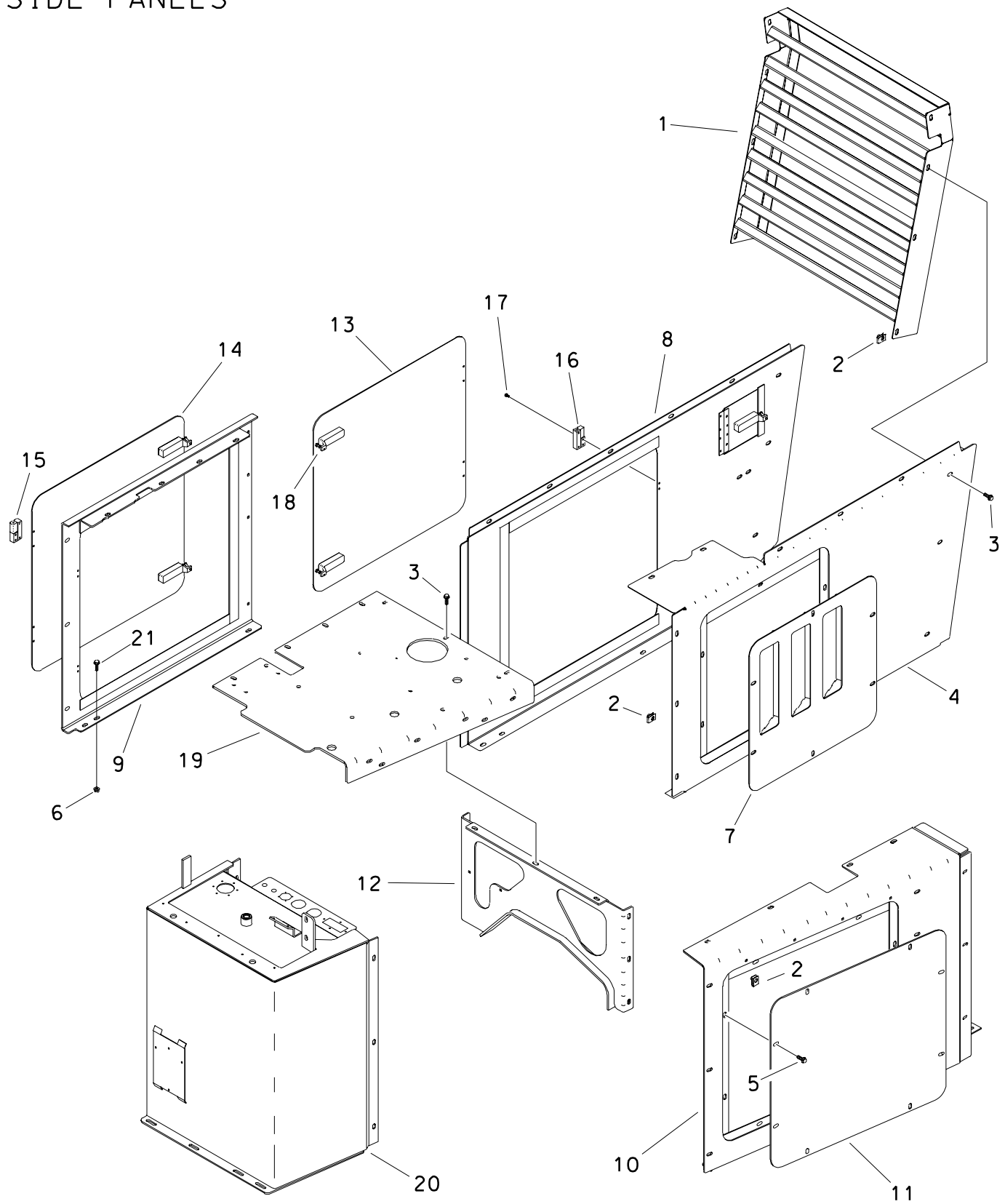
HOODS

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	308-782	1	TOP COVER (REAR)	
2.	106-551	30	CLIP NUT (M8-1.25)	
3.	106-991	24	FLG LK SCREW (M8-1.25 X 20mm)	
4.	217-041	1	STROBE LIGHT	
	217-720	-	BULB (12V DC)	
	217-124	-	LENS (AMBER)	
5.	105-185	3	BOLT (#10-24 X 1/2", RD SLT)	
6.	106-048	3	LOCKNUT (#10-24)	
7.	343-932	1	PROP ROD	
	105-512	1	COTTER PIN (3/32" X 3/4")	
	353-173	1	CLIP	
	106-862	1	PDP RIVET (1/8" X .---")	
8.	106-162	28	FLG SCREW (M8-1.25 X 20MM)	
9.	106-386	11	FLG LOCKNUT (M8-1.25)	
10.	110-989	2	POCKET PULL	
11.	344-122	1	TOP PANEL HOOD WELDMENT	
12.	194-157	2	RADIATOR DOOR	
13.	364-531	1	OVERFLOW TANK (3 QT)	
14.	115-381	20	BULK HOSE (1/4", SOLD PER 1')	
15.	117-915	2	CAM LOCK (BASE CODE)	
	214-961		KEY, PAIR (BASE CODE)	
	110-711	2	CAM LOCK	INCL KEYS
	217-844		KEY	
16.	110-580	2	HINGE (6")	
17.	343-325	1	LEFT HOOD	
18.	116-421	32	BULK EDGE (1/8", SOLD PER 1')	
19.	105-832	8	FLG LOCKNUT (1/4 -NC)	
20.	350-664		PANEL, ENGINE CONSOLE	
21.	350-434	1	VANDAL GUARD	
22.	117-558	3	ADJUST LEVER LATCH (LOCKING)	
	214-961		KEY, PAIR (BASE CODE)	
	217-309		LOCK PLUG 4/LATCH (BASE CODE)	
	110-757	3	LEVER LATCH (ADJUSTABLE, LOCKING)	ADJUSTABLE, LOCKING; INCL KEYS
	110-596		KEY (PAIR)	
23.	343-567	1	BRIDGE	
24.	116-578	AR	BULK EDGE (1/8", SOLD PER 1')	USE 1 @ 32"
25.	105-836	8	FLG LOCK BOLT (1/4-NC X 1/2")	
26.	105-832	4	FLG LOCKNUT (1/4-NC)	
27.	307-550	1	BACKUP BAR	
28.	307-551	1	HOOD COVER PLATE	
29.	105-185	2	BOLT (#10-24 X 1/2", RD SLT)	
30.	305-848	1	HOOD ADJUSTMENT BRACKET	
31.	106-378	5	FLG SCREW (M6-1.00 X 12MM)	
32.	214-682	1	CABLE	
	211-072	1	CABLE	
33.	211-055	1	ANTENNA BULKHEAD CONNECTOR	
34.	110-126	2	BOLT-ON CLAMP {1/2"}	

FOOTNOTES

1. SEE PAGE TITLED "SIDE PANELS" FOR PANELS.

SIDE PANELS

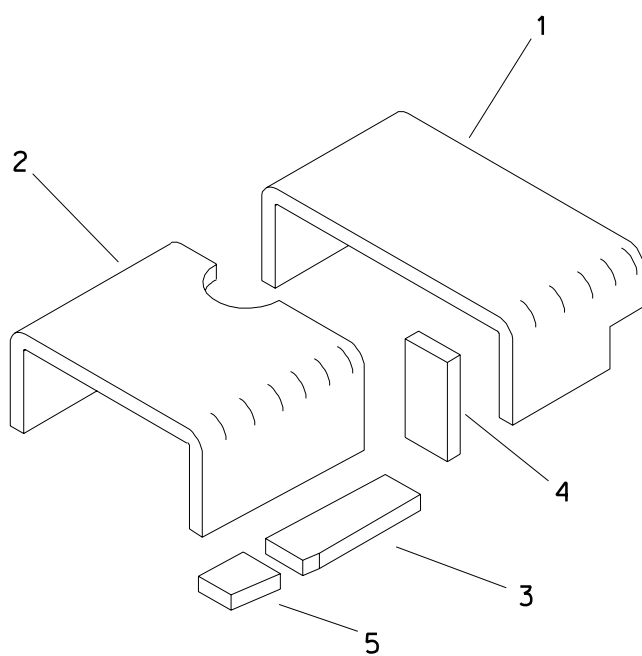


SIDE PANELS

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	353-316	1	BACK GRILLE	ENDS WITH SN 2R2706
	343-286	1	BACK GRILL E	BEGINS WITH SN 2R2707
2.	106-551	42	CLIP NUT (M8-1.25)	
3.	106-992	25	FLG SCREW (M8-1.25 X 25mm)	
4.	343-191	1	LOWER REAR PANEL (LH)	
5.	106-991	42	FLG LOCK SCREW (M8-1.25 X 20mm)	
6.	106-386	15	FLG LOCKNUT (M8-1.25)	
7.	343-517	1	LEFT REAR DOOR	
	343-287	1	VENT	
8.	343-190	1	LOWER REAR PANEL (RH)	
9.	343-189	1	FRONT PANEL (RH)	ENDS WITH SN 2R2218
10.	343-187	1	FRONT PANEL (LH)	BEGINS WITH SN 2R2219
11.	343-533	1	FRONT DOOR (LH)	
12.	343-775	1	SUPPORT	
13.	343-336	1	RIGHT REAR DOOR	
14.	343-514	1	RIGHT FRONT DOOR	
15.	111-002	2	LIFT-OFF HINGE (OFFSET)	
16.	105-617	2	LIFT-OFF HINGE (OFFSET)	
17.	106-228	16	SCREW (M5-0.80 X 10mm)	LOCTITE 242
18.	117-558	5	ADJUST LEVER LATCH (LOCKING)	
	214-961		KEY, PAIR (BASE CODE)	
	217-309		LOCK PLUG 4/LATCH (BASE CODE)	
	110-757	5	LEVER LATCH	ADJUSTABLE, LOCKING; INCL KEYS
	110-596		KEY (PAIR)	
19.	343-606	1	BATTERY SUPPORT PLATE	
20.	350-518	1	HYDRAULIC RESERVOIR	
21.	106-162	15	FLG SCREW (M8-1.25 X 20mm)	

FOOTNOTES

UPPER SOUND INSULATION

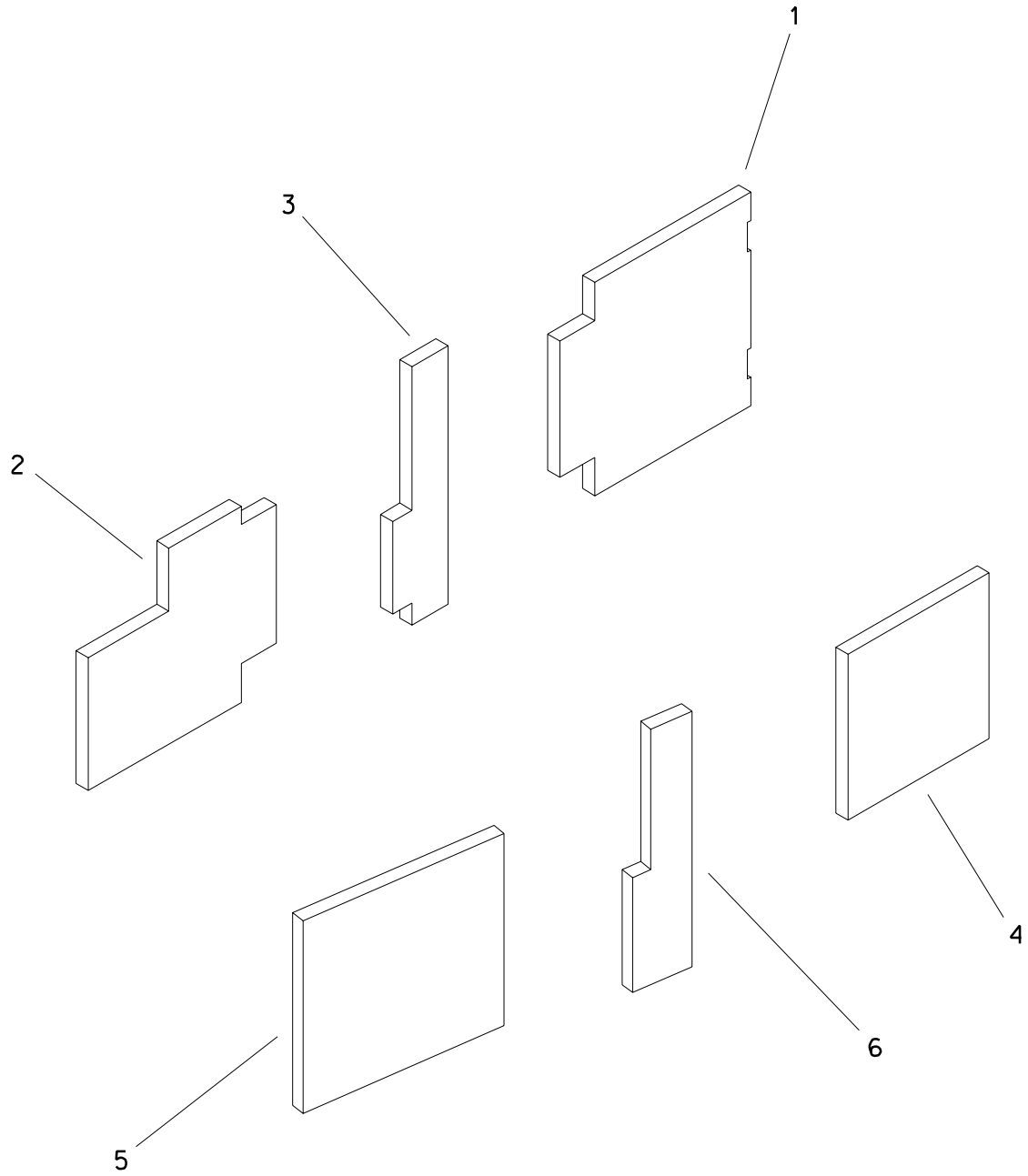


UPPER SOUND INSULATION

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	343-950	1	NOISE BARRIER, REAR TOP PANEL	
2.	343-951	1	NOISE BARRIER, CENTER TOP PANEL	
3.	343-952	1	NOISE BARRIER, CTR TOP PNL, LW	
4.	343-953	1	NOISE BARRIER, CTR TOP PNL, RE	
5.	117-229	1	NOISE BARRIER, BOTTOM PANEL	

FOOTNOTES

LOWER SOUND INSULATION

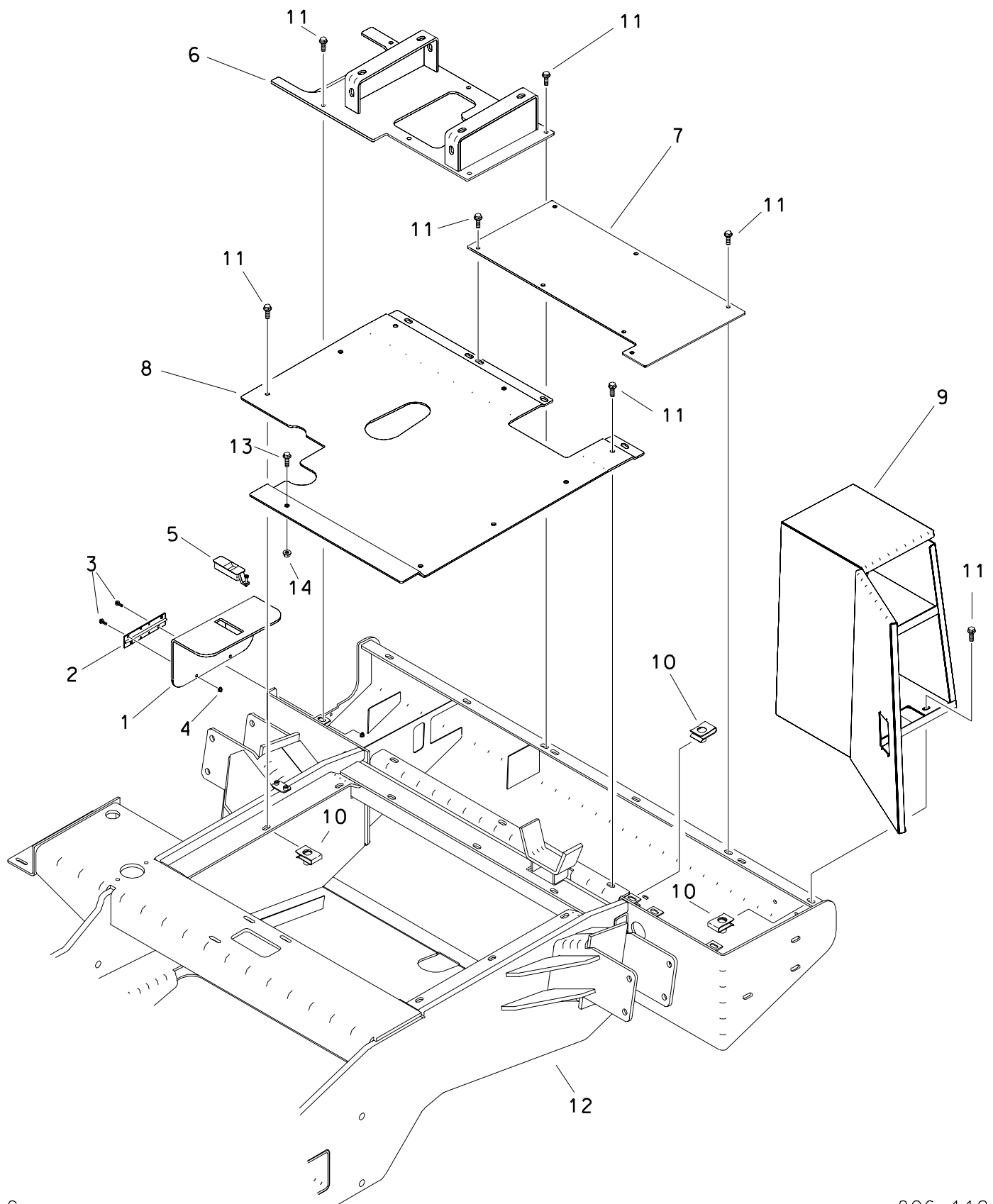


LOWER SOUND INSULATION

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	343-944	1	NOISE BARRIER, RH REAR DOOR	
2.	343-945	1	NOISE BARRIER, RH FRONT DOOR	
3.	343-946	1	NOISE BARRIER, RH SIDE PANEL	
4.	343-947	1	NOISE BARRIER, LH REAR DOOR	
5.	343-948	1	NOISE BARRIER, LH FRONT DOOR	
6.	343-949	1	NOISE BARRIER, LH SIDE PANEL	

FOOTNOTES

COVERS

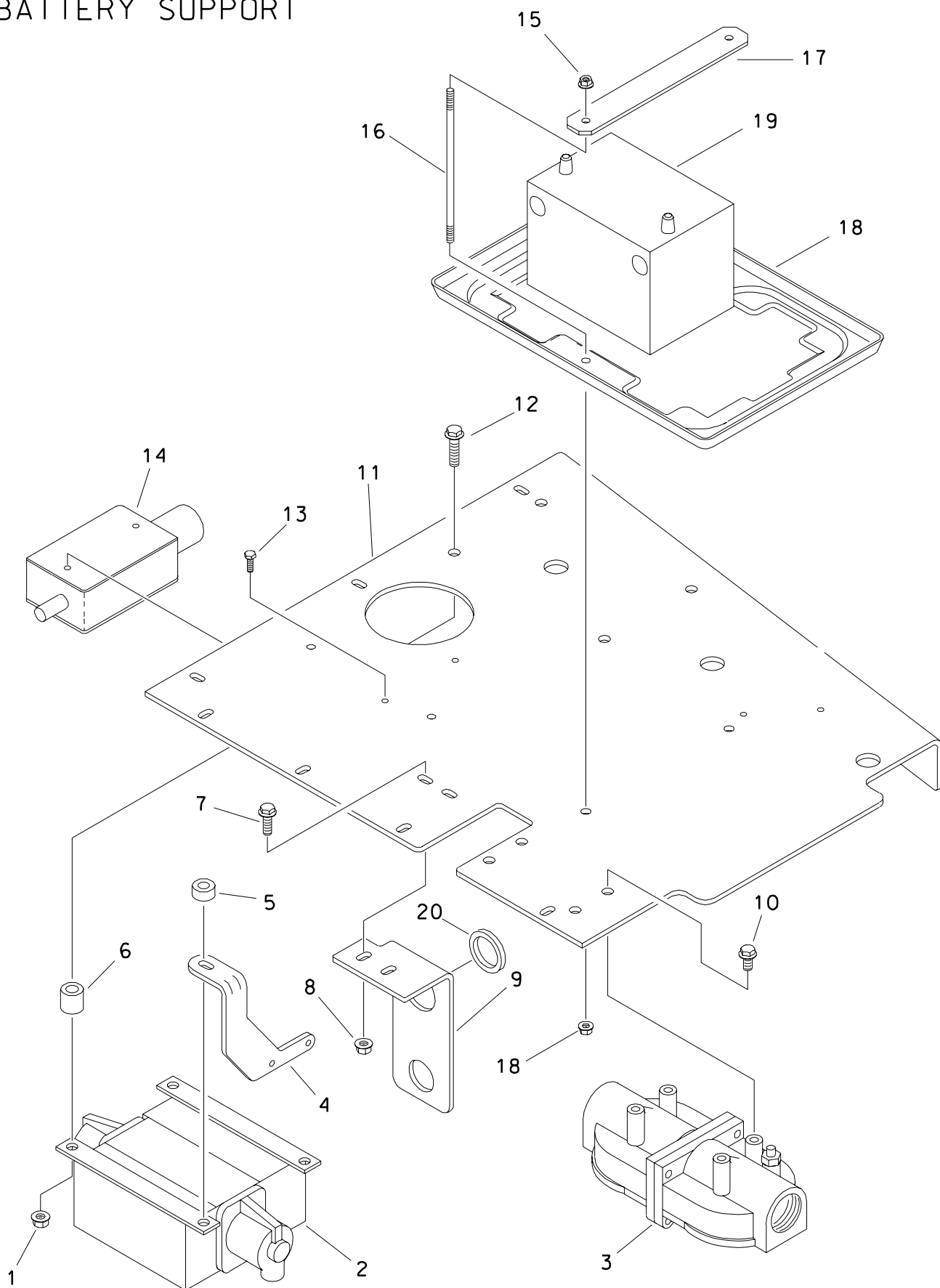


COVERS

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	343-262	1	RIGHT REAR DOOR	
2.	110-580	1	HINGE (6")	
3.	106-379	4	FLG LK SCREW (M6-1.00 X 20MM)	
4.	106-385	4	FLG LOCKNUT (M6-1.00)	
5.	117-558	1	ADJUST LEVER LATCH (LOCKING)	
-	214-961	-	KEY, PAIR (BASE CODE)	
-	217-309	-	LOCK PLUG 4/LATCH (BASE CODE)	
-	110-757	1	LEVER LATCH (ADJUST, LOCKING)	INCL KEY
-	110-596	-	KEY (PAIR)	
6.	343-563	1	COVER	
7.	343-889	1	PLATE, TOP REAR	
8.	343-894	1	COVER, TOP	
9.	339-245	1	TOOL BOX	
10.	106-558	26	CLIP NUT (M10-1.50)	
11.	106-383	28	FLG LK SCREW (M10-1.50 X 30MM)	
12.	343-555	-	CENTER FRAME	
13.	106-724	1	FLG SCREW (M10-1.50 X 25MM)	
14.	106-387	1	FLG LOCKNUT (M10-1.50)	

FOOTNOTES

BATTERY SUPPORT



BATTERY SUPPORT

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	105-894	4	LOCKNUT (M10-1.50, PRV TRQ,10.9)	
2.	516-489	1	HYD CONTROL VALVE	
3.	159-411	1	FILTER HEAD (20SF-20SF)	
	168-616	-	FILTER HEAD GASKET	
	149-840	2	FILTER ELEMENT (1-1/2-UNF)	SEE FOOTNOTE 1 & 2
4.	343-330	1	VALVE MOUNT	
5.	181-634	1	BOSS	
6.	178-011	3	BOSS	
7.	105-826	2	FLG LOCK BOLT (3/8-NC X 1")	
8.	105-834	2	FLG LOCKNUT (3/8-NC)	
9.	343-332	1	BULKHEAD MOUNT	
10.	105-825	4	FLG LK BOLT (3/8-NC X 3/4")	
11.	343-606	1	BATTERY SUPPORT PLATE	
12.	105-839	4	SCREW (M10-1.50 X 55mm)	
13.	105-865	2	BOLT (1/4-NC X 3/4", GD8)	
14.	215-231	1	LINEAR ACTUATOR	
	196-058	1	CABLE SWIVEL (.081)	
	196-331	1	CABLE (LINEAR ACTUATOR)	
	214-299	1	ACTUATOR PIGTAIL	
15.	105-832	6	FLG LOCKNUT (1/4-NC)	
16.	356-491	2	TIE-DOWN ROD (1/4-NC X 9.3")	
17.	357-172	1	BATTERY STRAP	
18.	362-784	1	BATTERY TRAY	
19.	215-275	1	BATTERY	ENDS WITH SN 2R3175
	215-244	1	BATTERY	BEGINS WITH SN 2R3281
20.	115-663	1	GROMMET EDGE (1/4" X 12.7")	

FOOTNOTES

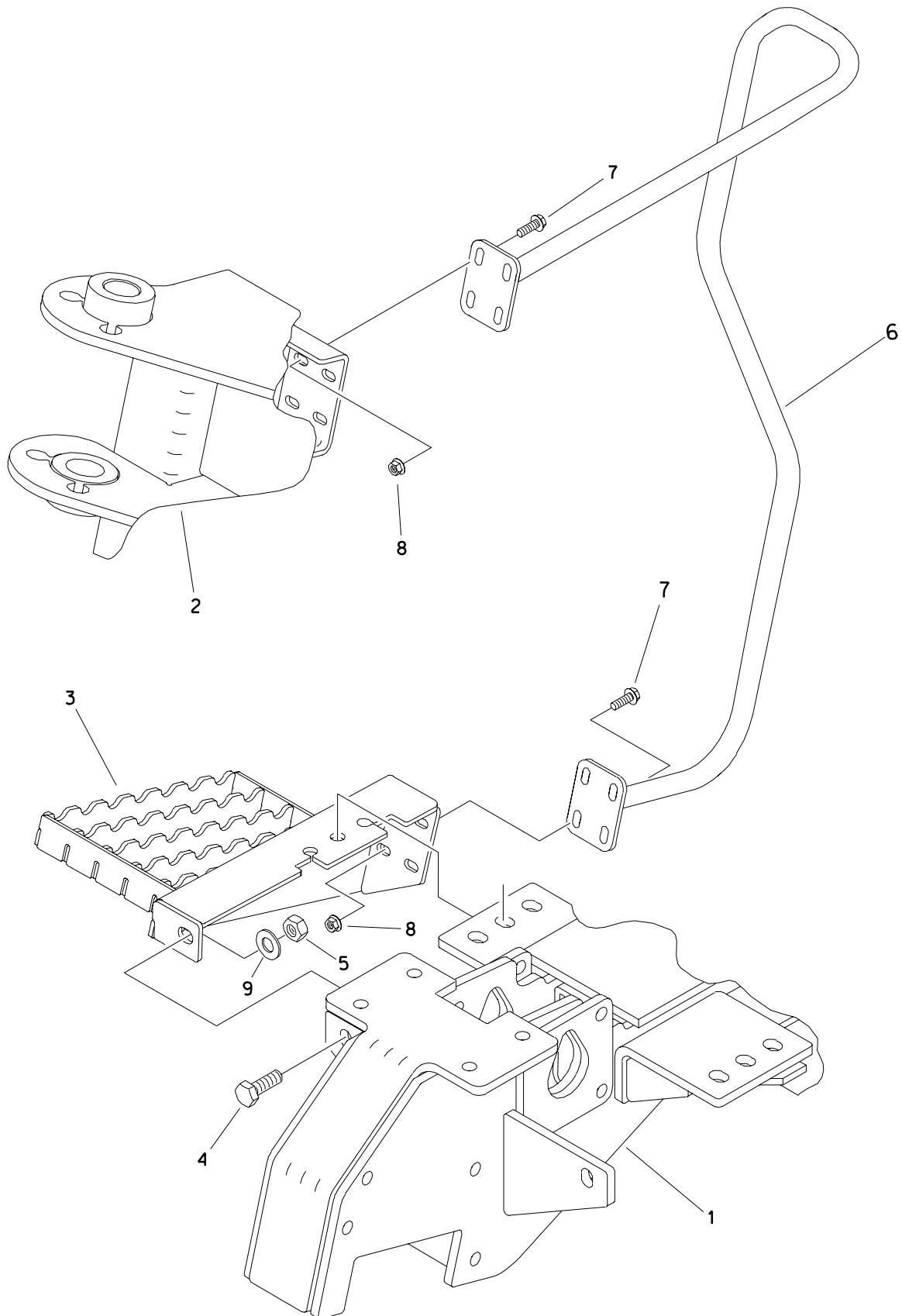
- USE 159-079 ELEMENT FOR NORMAL MAINTENANCE.
USE 149-840 ELEMENT AFTER HOSE OR COMPONENT REPLACEMENT OR REPAIR
- INCLUDES 149-840 FILTER ON NEW MACHINES.
REPLACE WITH 159-079 AFTER FIRST 50 HOURS.

NOTES:

[illegible]

OPERATOR'S STATION

STEP & HANDLE

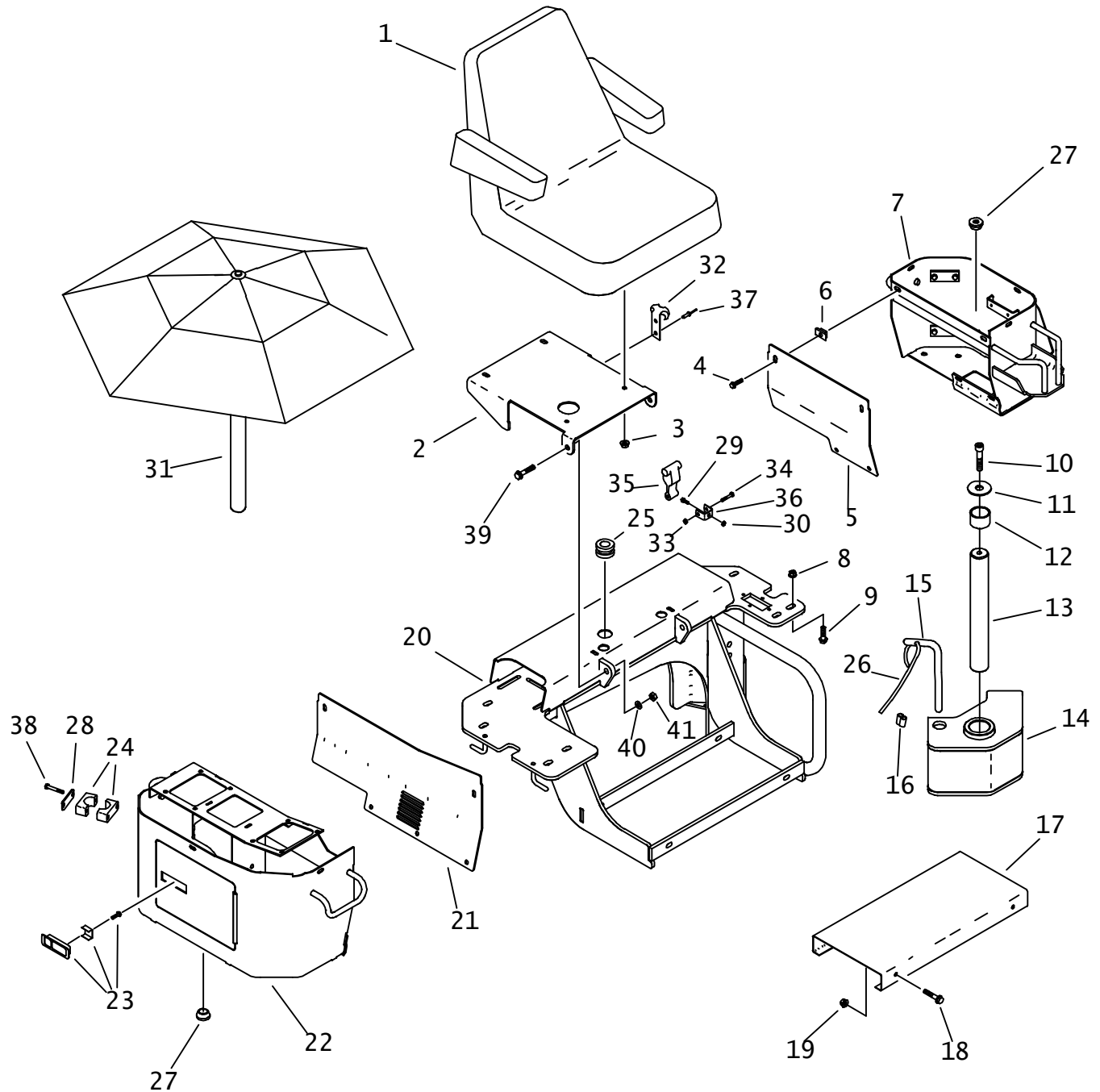


STEP & HANDLE

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	353-409	-	DRILL FRAME	
2.	343-194	-	PIVOT FRAME	
3.	343-252	1	STEP	
4.	106-470	1	FLG SCREW (M16-2.00 X 40MM)	NOT REQUIRED FOR ROCK DRILLING SYSTEM
5.	106-545	1	LOCKNUT (M16-2.0, PRV TRQ, 10.9)	NOT REQUIRED FOR ROCK DRILLING SYSTEM
6.	303-414	1	HANDLE	
7.	106-383	8	FLG LK SCREW (M10-1.5 X 30MM)	
8.	105-894	8	LOCKNUT (M10-1.5,PRV TRQ,10.9)	
9.	106-398	1	WASHER (M16, HARDENED)	

FOOTNOTES

SEAT MOUNT

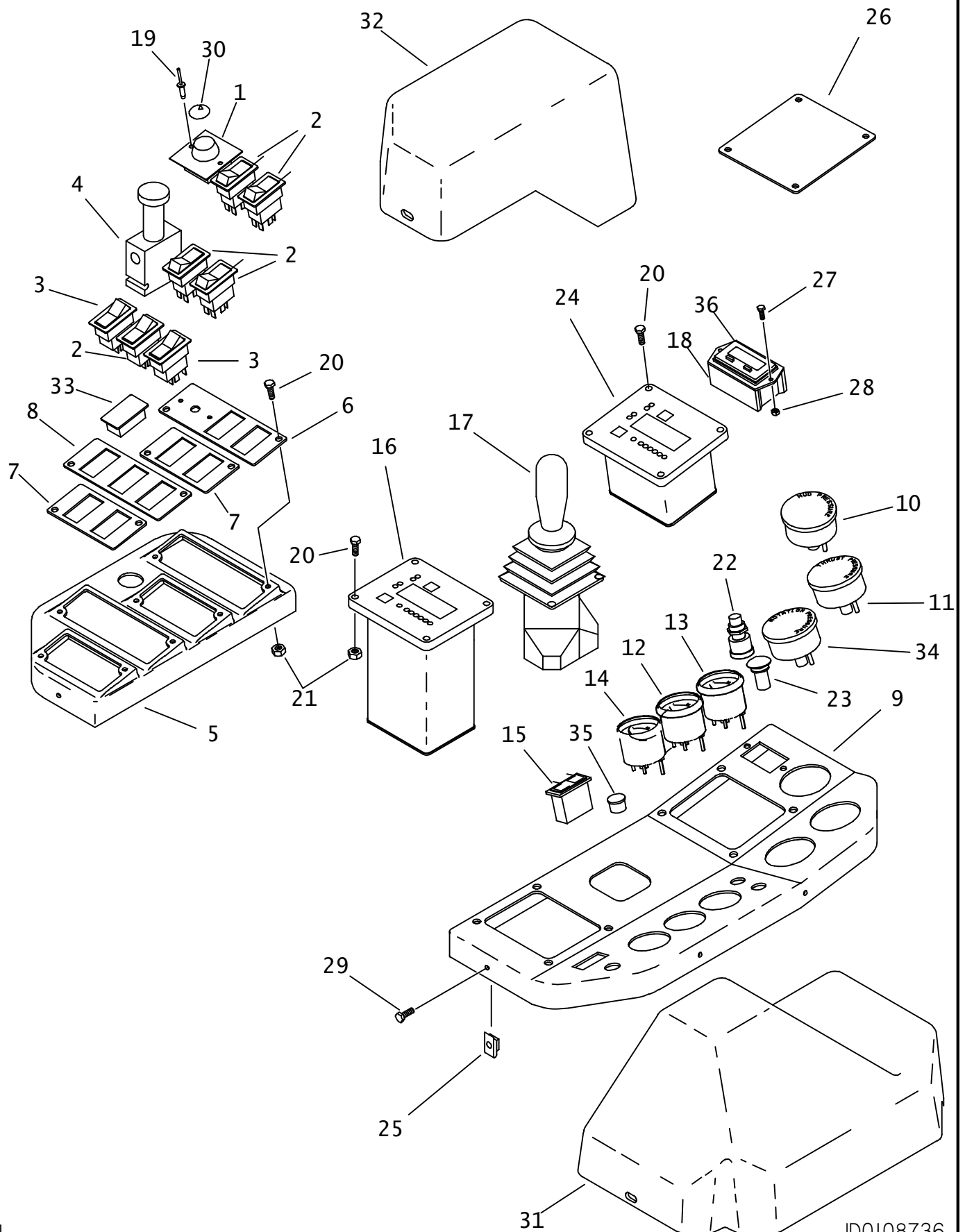


SEAT MOUNT

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	117-402	1	SEAT ARM REST	INCL SEAT SWITCH (ON/OFF)
	217-935	-	SEAT SWITCH (ON/OFF)	
2.	348-721	1	SEAT PLATE	
3.	105-003	8	FLG LOCKNUT (5/16-NC)	
4.	107-095	9	FLG SCREW (M8-1.25 X 16MM)	
5.	348-694	1	LEFT COVER	
6.	106-551	9	CLIP NUT (M8-1.25)	
7.	348-685	1	LEFT CONSOLE	
8.	105-833	8	FLG LOCKNUT (1/2-NC)	
9.	106-413	8	CARRIAGE BOLT (1/2-NC X 1")	
10.	107-206	2	SCREW (M12-1.75 X 35MM)	
11.	105-057	2	WASHER (9/16")	
12.	125-739	4	COMPOSITION BUSHING (1.756")	
13.	179-240	1	PIN	
14.	348-600	-	TRACK FRAME	JT1720
	343-555	-	CENTER FRAME	JT2720
15.	179-244	1	PIN	
16.	350-275	2	ALUMINUM SLEEVE (1/16")	
17.	348-695	1	FLOOR TREAD	
18.	106-992	4	FLG LK SCREW (M8-1.25 X 25MM)	
19.	106-386	4	FLG LOCKNUT (M8-1.25)	
20.	348-711	1	SEAT MOUNT	
21.	348-693	1	RIGHT COVER	
22.	348-684	1	RIGHT CONSOLE	
23.	117-558	1	ADJUST LEVER LATCH (LOCKING)	
	214-961		KEY, PAIR (BASE CODE)	
	217-309		LOCK PLUG 4/LATCH (BASE CODE)	
	<u>110-757</u>	1	LEVER LATCH (ADJUST, LOCKING)	INCL KEYS
	110-596	-	KEY (PAIR)	
24.	111-026	2	BOLT-ON CLAMP (1-1/4", PAIR)	
25.	115-355	1	GROMMET (1-3/8")	
26.	110-981	AR	BULK CABLE (1/16",SOLD PER 1')	USE 1 @ 12"
27.	115-069	2	GROMMET (3/4")	
28.	322-362	2	BACKUP SPACER	
29.	105-806	1	SCREW (M8-1.25 X 25MM)	
30.	107-096	1	LOCKNUT (M8-1.25, NLK)	
31.	344-0001	1	UMBRELLA (6.5')	
	500-1962	-	UMBRELLA POLE (16")	
32.	110-223	1	LATCH BRACKET	
33.	106-237	1	LOCKNUT (M6-1.00,PRV TRQ,NLK)	
34.	106-093	1	SCREW (M6-1.00 X 45MM)	
35.	110-222	1	HOOD LATCH	
36.	110-224	1	ANCHOR BRACKET	
37.	110-253	2	POP RIVET (3/16" X 1/2")	
38.	105-297	4	BOLT (1/4-NC X 3-1/4")	
39.	106-739	2	SHLD BLT (M12 X 20MM,M10-1.50)	
40.	106-391	2	WASHER (M12)	
41.	106-758	2	LOCKNUT (M10-1.50)	

FOOTNOTES:

OPERATORS STATION GAUGES



OPERATORS STATION GAUGES

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	217-940	1	FLUID FLOW POTENTIOMETER	
	217-209	1	POTENTIOMETER POD	
	116-849	1	POTENTIOMETER KNOB	INCL REF NO 30
2.	217-911	5	ROCKER SWITCH (ON-OFF-ON (SPDT)	
3.	217-916	2	ROCKER SWITCH (ON-OFF-ON (DPDT)	
4.	159-450	1	HYD VALVE (PRESSURE REDUCING)	
	190-860	1	SEAL REPAIR KIT	(VITON)
5.	121-014	1	LEFT CONSOLE COVER	
6.	362-931	1	SWITCH PANEL	
7.	362-930	2	SWITCH PANEL	
8.	362-929	1	SWITCH PANEL	
9.	121-013	1	RIGHT CONSOLE COVER	
10.	191-047	1	PRESSURE GAUGE (3000PSI)	USED ON JT1720
	217-579	1	PRESSURE GAUGE (6000PSI)	USED ON JT2720
11.	217-552	1	PRESSURE GAUGE (6000PSI)	
12.	215-131	1	OIL PRESSURE GAUGE	
	215-415		NITE-LIGHT KIT (12V DC)	OPTION
13.	217-531	1	WATER TEMPERATURE GAUGE	
	215-415		NITE-LIGHT KIT (12V DC)	OPTION
14.	215-133	1	FUEL GAUGE	
	215-415		NITE-LIGHT KIT (12V DC)	OPTION
15.	217-020	1	PILOT LIGHT	
	217-027	1	INSERT (RED) HYD OIL HI TEMP	
	217-036	1	INSERT (YELLOW) HYD OIL PSI	
	217-074	2	LENS REFLECTOR	
	217-046		BULB (12V DC)	
16.	214-429	1	CONTROL MODULE	
	197-431		REBUILT CONTROL MODULE	
	217-232	1	CONTROL MODULE	EL STR SYS
	197-232		REBUILT CONTROL MODULE	
17.	516-086	1	HYD CONTROL VALVE (DIRECTIONAL) W/HANDLE	
	190-876	-	SEAL REPAIR KIT (PUSH PIN SET)	
	499-108	-	PUSH BUTTON	FOR USE WITH 516-086
	499-109	-	3 POSITION SWITCH	FOR USE WITH 516-086
	500-1539	-	VALVE	
	300-6747	-	HANDLE ASSEMBLY	
18.	217-221	1	FLOW METER DISPLAY	
19.	110-560	2	POP RIVET (3/16" X ", ALUM)	
20.	106-640	16	SCREW (M6-1.00 X 20MM, BUT SOC)	
21.	106-237	22	LOCKNUT (M6-1.00, PRV TRQ, NLK)	
22.	306-607	1	HORN BUTTON	
	306-608	1	BUTTON COVER	
23.	217-206	1	BUTTON SWITCH (SPST)	INCL ANTENNA (LOCATED ON HOOD)
	214-103	1	2-WAY MALE CONNECTOR	
24.	N/A	1	SUBSITE 90D	FOR UNITS WITHOUT 90D ANTENNA
25.	106-574	6	CLIP NUT (M6-1.00)	
26.	348-896	1	COVER PLATE	

NOT SHOWN:

FOOTNOTES:

NOTES:

OPERATORS STATION GAUGES

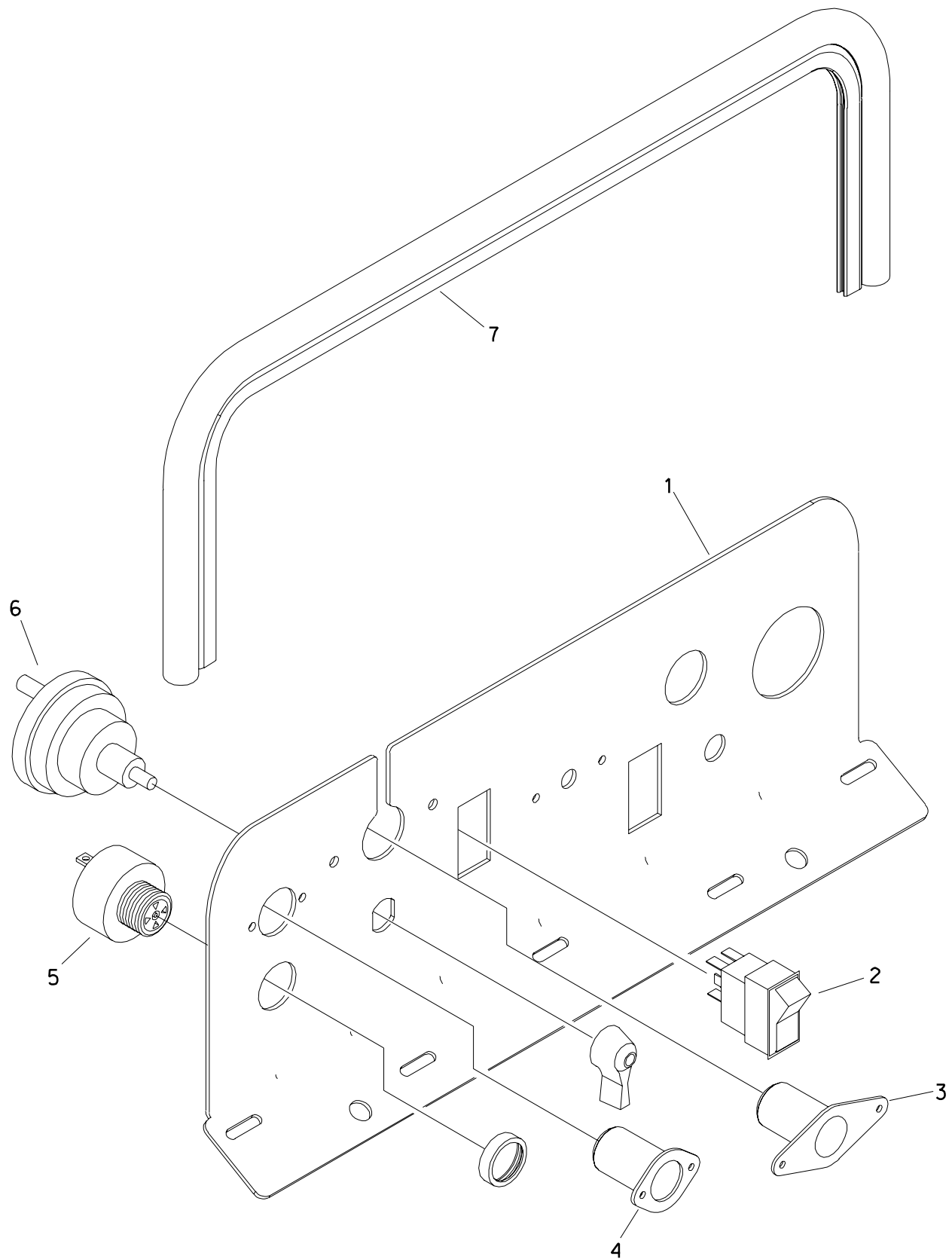
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
27.	105-810	2	BOLT (#10-24 X 1/2", SOC)	
28.	106-048	2	LOCKNUT (#10-24)	
29.	107-312	6	SCREW (M6-1.00 X 25MM, BUT SOC)	
30.	274-940	1	INDICATOR DECAL	
31.	348-960	1	RIGHT CONSOLE COVER	BEGINS WITH S/N 2R3048
32.	348-961	1	LEFT CONSOLE COVER	BEGINS WITH S/N 2R3048
33.	110-962	2	FILLER PLUG	
34.	217-079	1	PRESSURE GAUGE (10000PSI)	USED ON JT2720
	217-552	1	PRESSURE GAUGE (6000PSI)	USED ON JT1720
35.	111-030	1	PLUG (1/2" DOUBLE D)	
36.	319-412	1	FLOW METER WEATHER COVER	

NOT SHOWN:

FOOTNOTES:

NOTES:

AUXILIARY CONSOLE



AUXILIARY CONSOLE

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	350-664	-	PANEL, ENGINE CONSOLE	
2.	217-907	1	ROCKER SWITCH (SPDT) ON-ON	
3.	217-017	1	CONNECTOR (4-WAY, FM)	
4.	214-301	1	ACCESSORY SOCKET	
5.	306-603	1	AUDIO ALARM	
6.	217-819	1	BATTERY DISCONNECT SWITCH	
7.	116-421	1	BULK EDGE (1/8", SOLD PER 1')	USE 32"

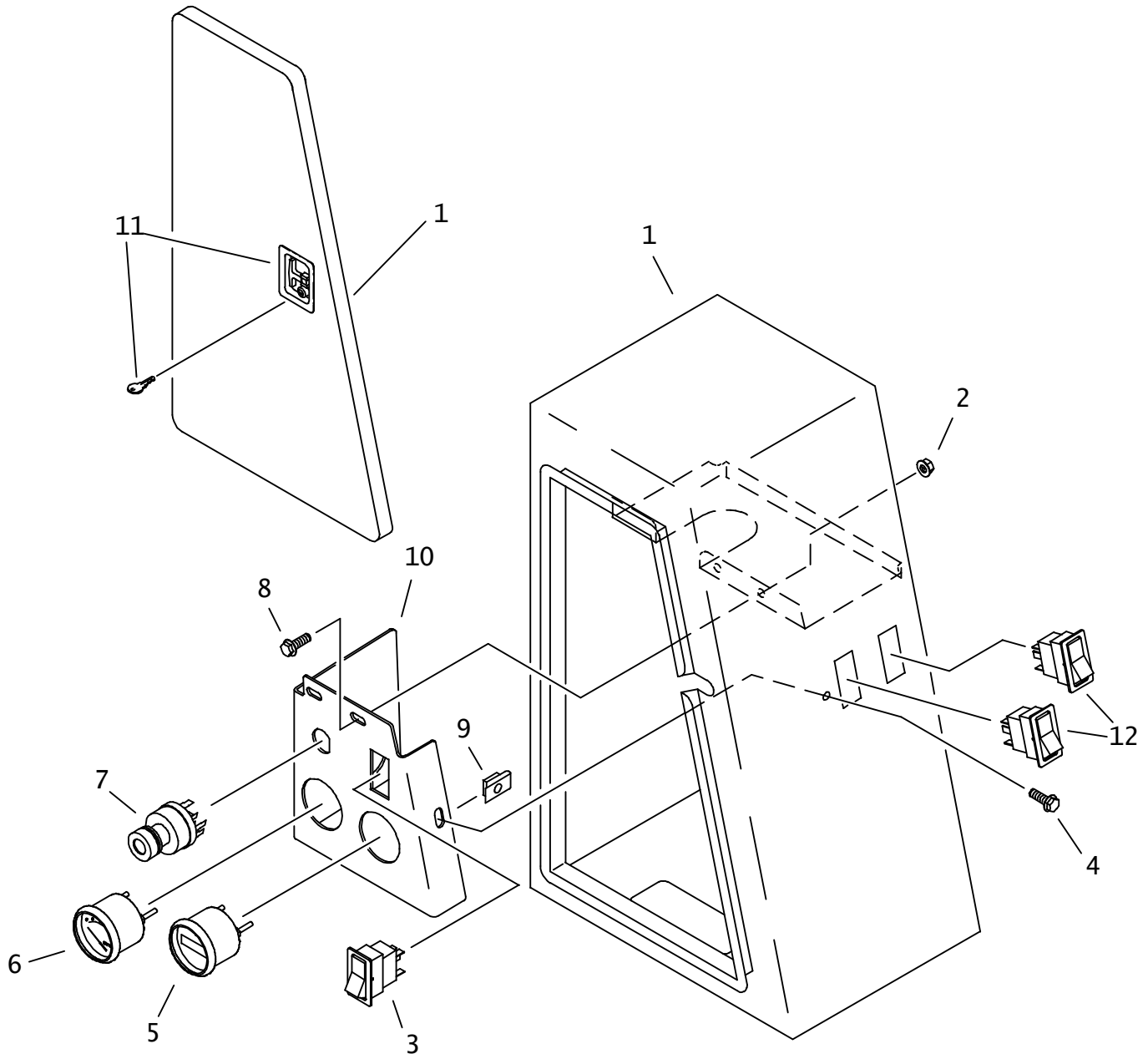
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314-392 1 GAUGE HARNESS

FOOTNOTES

TOOL BOX GAUGES

ENDS WITH S/N 2S4079
JT2720



TOOL BOX GAUGES **ENDS WITH S/N 2S4079** **JT2720**

REF	PART			
NO.	NUMBER	QTY	DESCRIPTION	REMARKS
1.	339-245	1	TOOL BOX	
2.	106-386	2	FLG LOCKNUT (M8-1.25)	
3.	217-917	1	ROCKER SWITCH (DPDT) OFF-(ON)	
4.	106-381	1	FLG LK SCREW (M8-1.25 X 25mm)	
5.	215-128	1	HOUR METER	
6.	215-129	1	VOLT METER	
	215-415		NITE-LIGHT KIT (12V DC)	OPTION
7.	214-852	1	IGNITION SWITCH	
	214-961		KEY, PAIR (BASE CODE)	
	214-962		SWITCH MOUNTING NUT	
8.	106-162	2	FLG SCREW (M8-1.25 X 20mm)	
9.	106-551	1	CLIP NUT (M8-1.25)	
10.	343-271	1	GAUGE PANEL	
11.	110-514	1	LOCKING LATCH (ADJUSTABLE)	INCL KEYS
	110-596		KEYS (PAIR)	
12.	217-911	2	ROCKER SWITCH (SPDT) (ON) OFF(ON)	

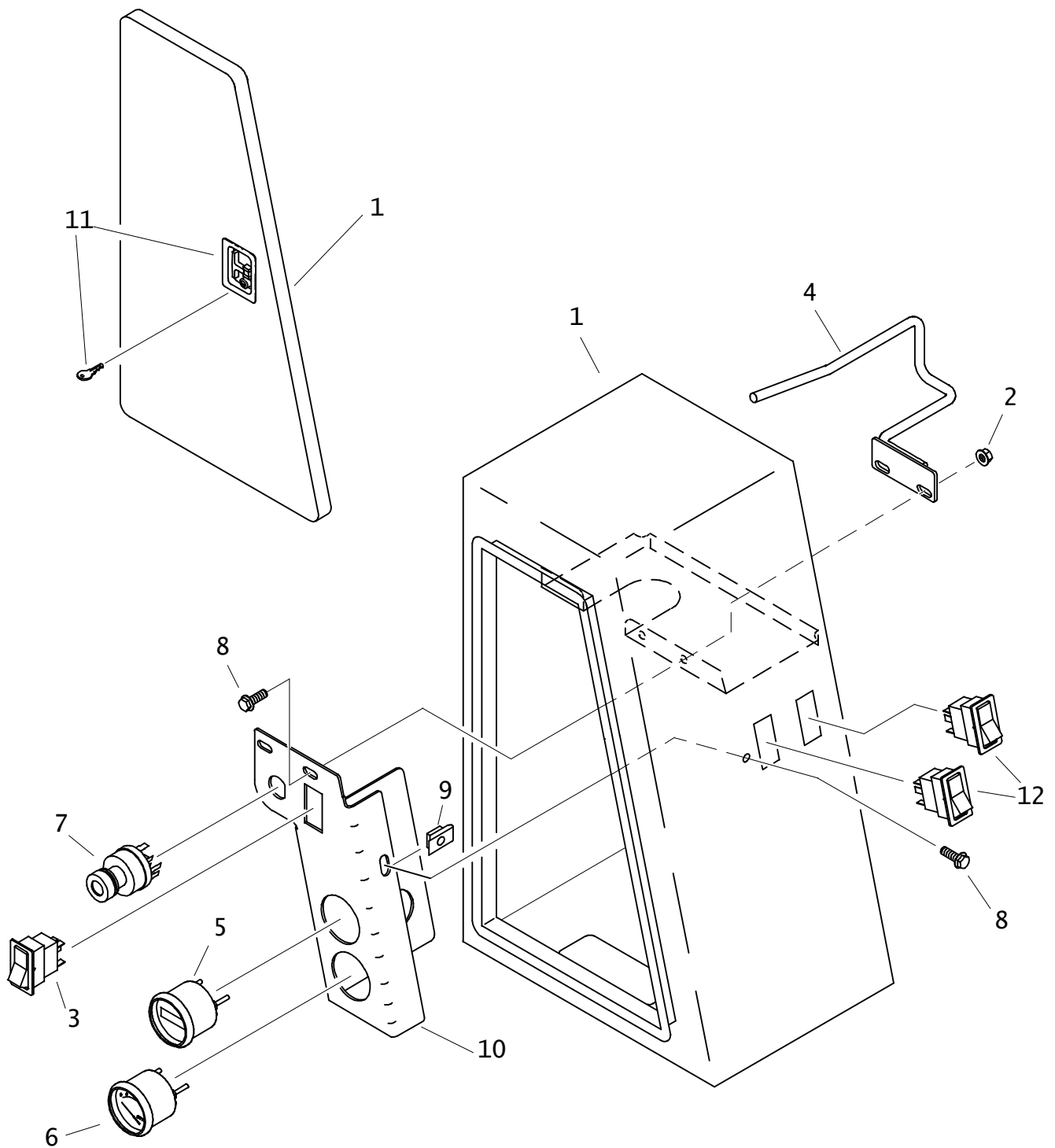
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FOOTNOTES:

NOTE:

TOOL BOX GAUGES

BEGINS WITH S/N 2S4122
JT2720



TOOL BOX GAUGES BEGINS WITH S/N 2S4122 JT2720

REF PART NO. NUMBER QTY	DESCRIPTION	REMARKS
1. 339-245 1	TOOL BOX	
2. 106-386 2	FLG LOCKNUT (M8-1.25)	
3. 217-917 1	ROCKER SWITCH (DPDT) OFF-(ON)	
4. 307-469 1	HANGER	
5. 215-128 1	HOUR METER	
6. 215-129 1	VOLT METER	
215-415	NITE-LIGHT KIT (12V DC)	OPTION
7. 214-852 1	IGNITION SWITCH	
214-961	KEY, PAIR	
214-962	SWITCH MOUNTING NUT	
8. 106-162 3	FLG SCREW (M8-1.25 X 20mm)	
9. 106-551 1	CLIP NUT (M8-1.25)	
10. 307-470 1	GAUGE PANEL	
11. 110-514 1	LOCKING LATCH (ADJUSTABLE)	INCL KEYS
110-596	KEYS (PAIR)	
12. 217-911 2	ROCKER SWITCH (SPDT) (ON) OFF (ON)	

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FOOTNOTES:

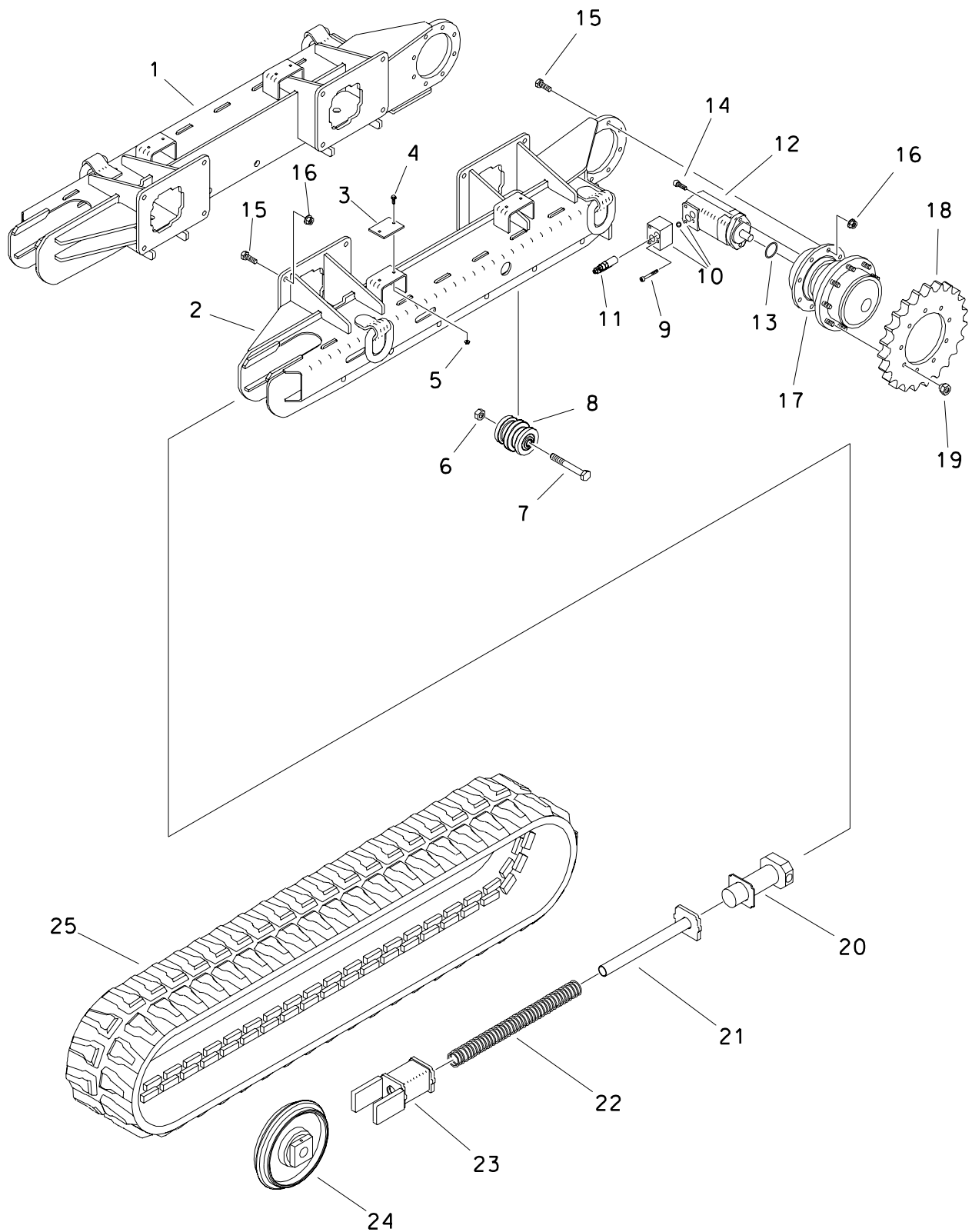
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TRACK FRAME

TRACK GROUP



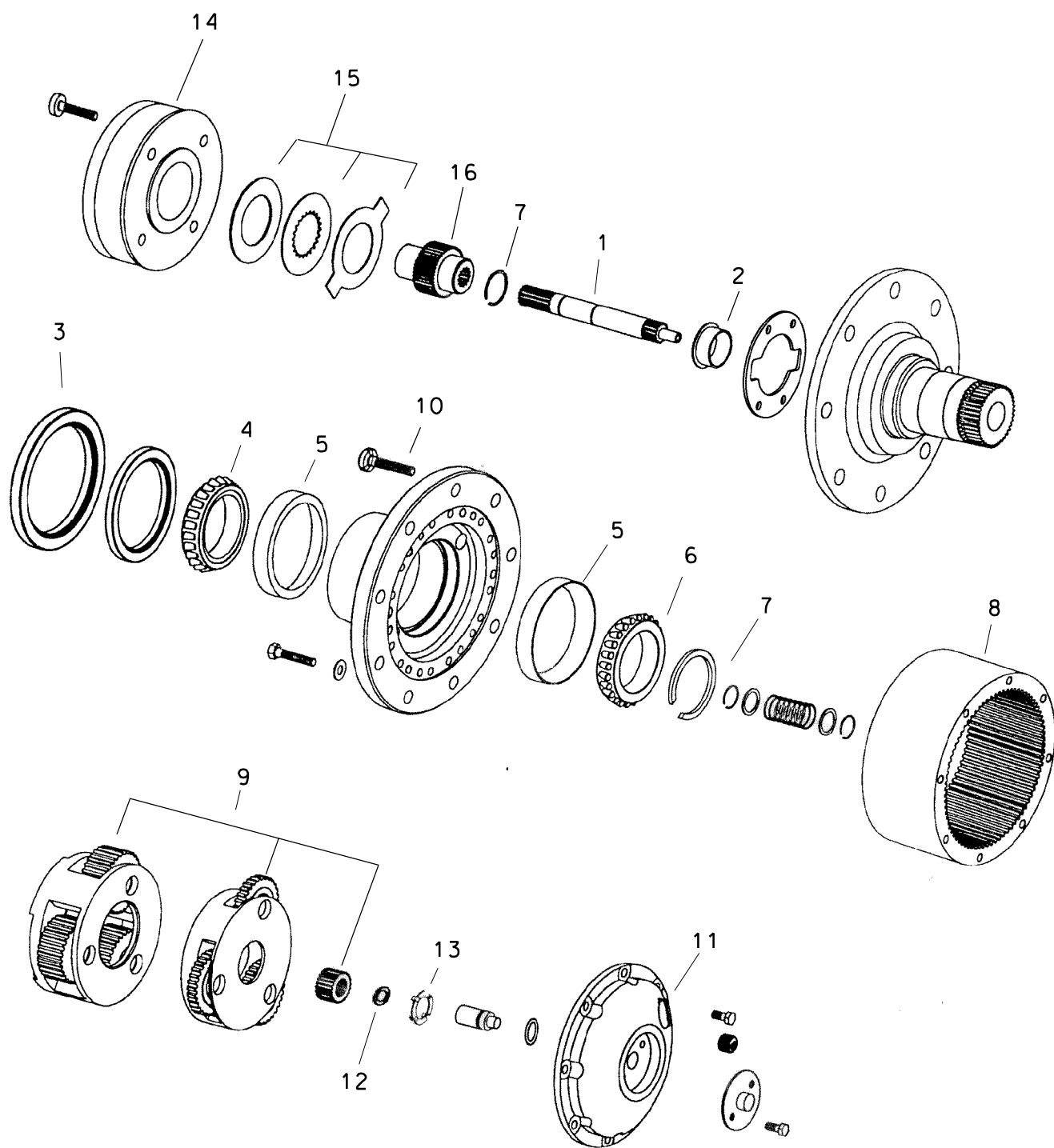
TRACK GROUP

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	343-554	1	RH TRACK FRAME	
2.	343-553	1	LH TRACK FRAME	
3.	356-788	4	SLIDE PAD	
4.	106-381	8	FLG LK SCREW (M8-1.25 X 25mm)	
5.	106-386	8	FLG LOCKNUT (M8-1.25)	
6.	106-665	12	LOCKNUT (M20-2.50, 10.9)	
7.	106-727	12	SCREW (M20-2.50 X 180mm, 10.9)	
8.	170-338	12	IDLER ROLLER	
9.	105-281	6	BOLT (3/8-NC X 2-1/2", SOC, GD8)	
10.	155-981	2	COUNTERBALANCE MANIFOLD	INCL O-RINGS, SEE FOOTNOTE 1
	155-776	4	O-RING (117 D70)	
11.	500-372	2	CARTRIDGE KIT (3:1, 1000PSI)	
	500-373		SEAL REPAIR KIT	
12.	158-953	2	HYD MOTOR	
	500-658		SEAL REPAIR KIT	
13.	157-099	2	O-RING (O42 D70)	
14.	106-204	4	BOLT (1/2-NC X 1-1/2", SOC)	INSTALL WITH 242 LOCTITE; TORQUE TO 130 FT LBS
15.	106-340	16	SCREW (M16-2.00 X 50MM)	
16.	106-545	16	LOCKNUT (M16-2.0, PRV TRQ, 10.9)	
17.	166-140	2	PLANETARY GEAR BOX (TRACK)	SEE FOOTNOTE 1
18.	175-287	2	SPROCKET (5.303" A23)	
19.	105-114	18	LUG NUT (1/2-NF)	TORQUE TO 100 FT LBS
20.	151-181	2	GREASE CYLINDER	
21.	343-550	2	TUBE	
22.	117-112	2	SPRING	
23.	343-551	2	YOKE	
24.	170-339	2	FRONT IDLER ROLLER	
25.	343-211	2	RUBBER TRACK (92P)	

FOOTNOTES

1. BRAKE PORT AND COUNTER BALANCE PORTS TO SAME SIDE

PLANETARY GEAR BOX-TRACK DRIVE

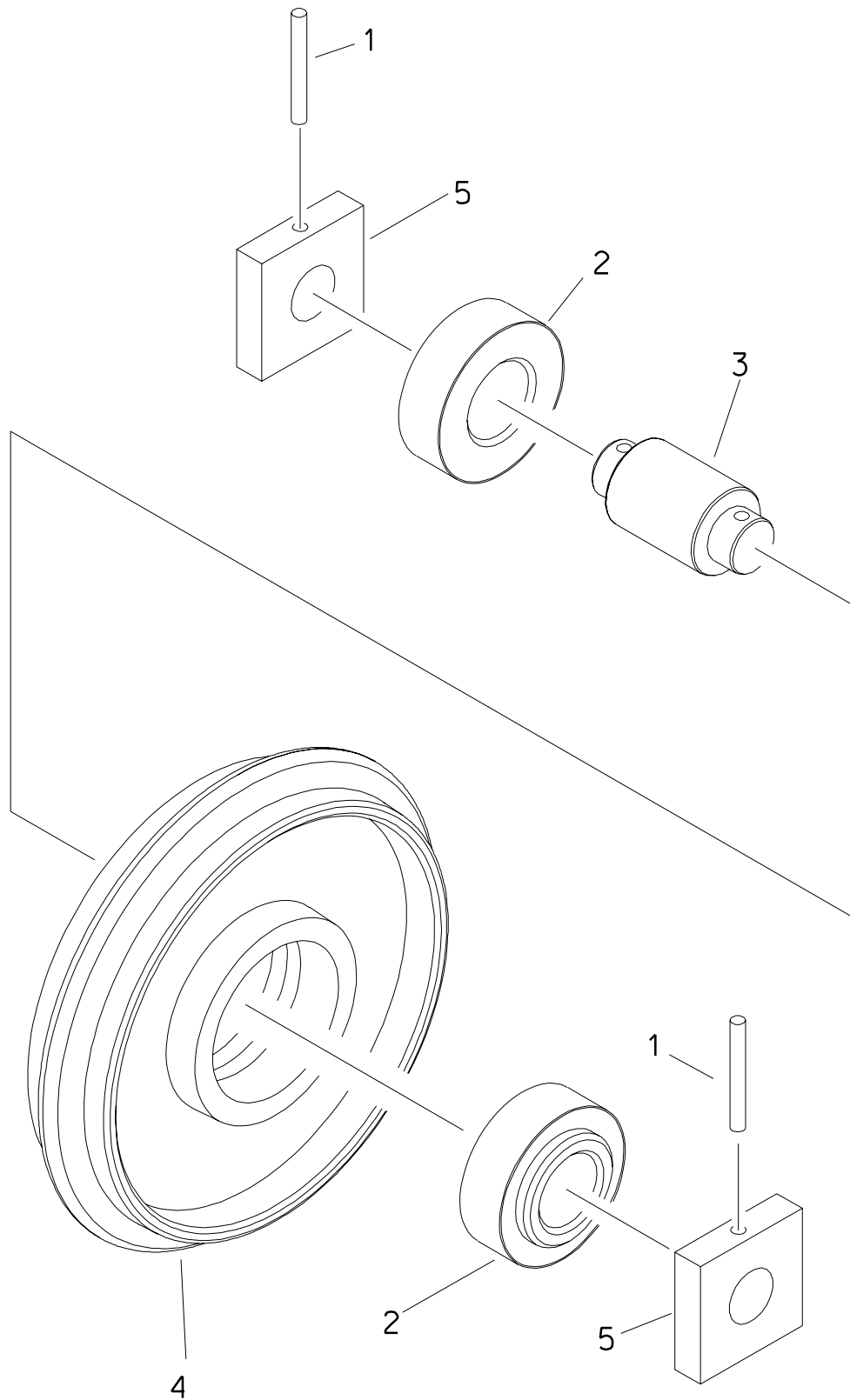


PLANETARY GEAR BOX-TRACK DRIVE

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	166-140		PLANETARY GEARBOX (TRACK)	
	166-414		PLANETARY GEARBOX	
1.	501-838	1	INPUT SHAFT (6")	
2.	126-074	1	FLANGE BEARING (1-1/2")	
3.	157-521	1	EXTERNAL SEAL (3.375")	
4.	125-387	1	TAPERED BEARING (2.625")	
5.	125-368	2	TAPERED RACE (4.330")	
6.	125-388	1	TAPERED BEARING (2.687")	
7.	501-629	2	EXTERNAL SNAP RING KIT (2.63")	
8.	501-839	1	RING GEAR (6")	
9.	499-409	1	PLANET-SUN GEAR SET	
10.	105-232	9	LUG BOLT (1/2 - NF X 2-3/8")	
11.	501-855	1	COVER (6")	
12.	501-842	1	THRUST WASHER (1-1/4")	
13.	501-630	1	THRUST WASHER	
14.	501-859	1	BRAKE, HYDRA (6")	EARLY UNITS
	499-405	1	HYDRAULIC BRAKE	LATE UNITS
15.	501-738	-	BRAKE DISK/SPACER BAR	EARLY UNITS
	499-404	-	STACK SERVICE KIT	LATE UNITS
16.	501-836	1	ADAPTER, SPLINED	

FOOTNOTES

IDLER

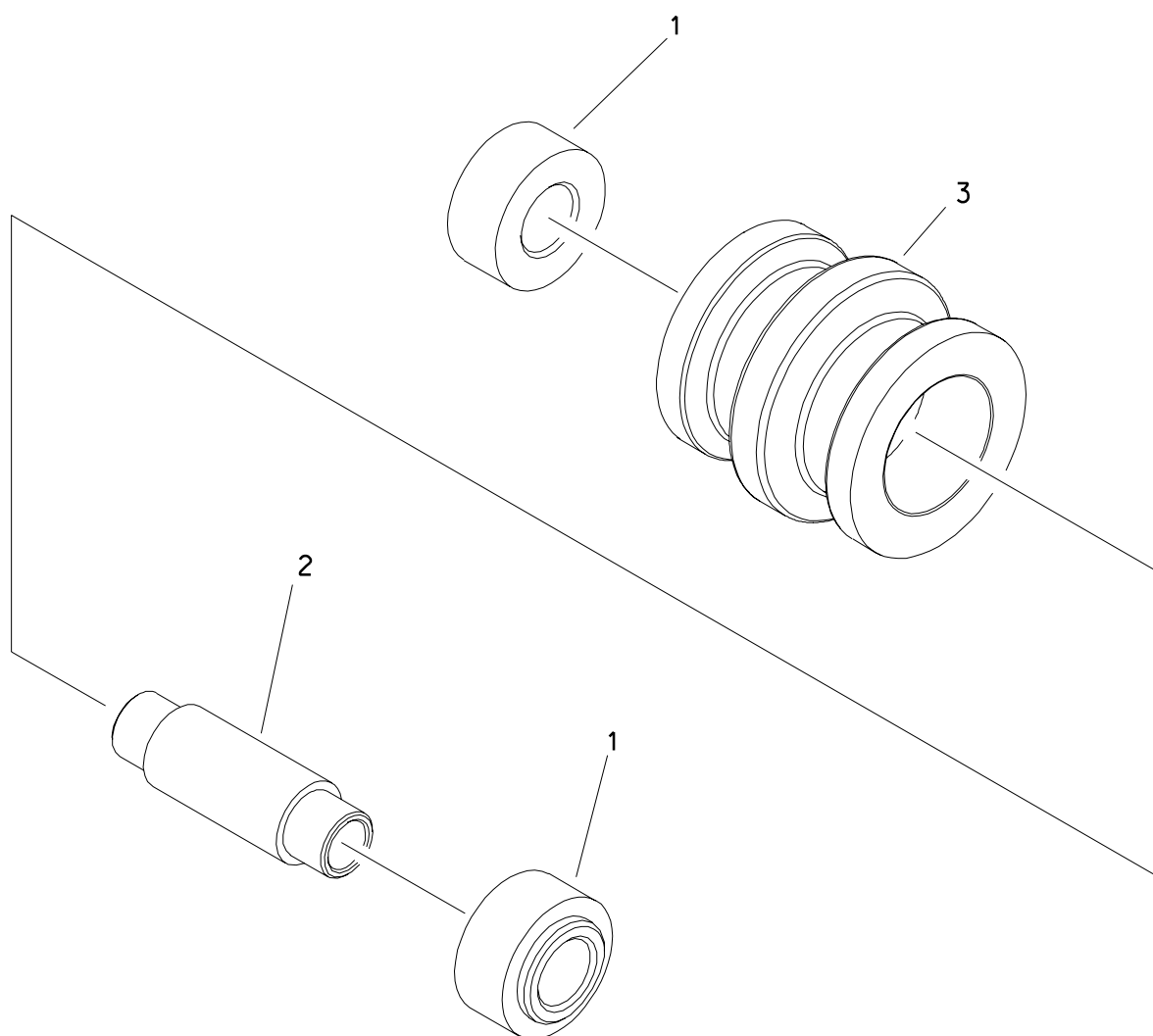


IDLER

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	170-339		FRONT IDLER ROLLER	INCL REF NO'S 1 THRU 5
1.	105-561	2	ROLL PIN (3/8" X 2-3/4")	
2.	125-134	2	BALL BEARING (2.362")	
3.	343-836	1	IDLER SHAFT	
4.	343-837	1	IDLER	
5.	343-835	2	PUSH BLOCK	

FOOTNOTES

IDLER ROLLER

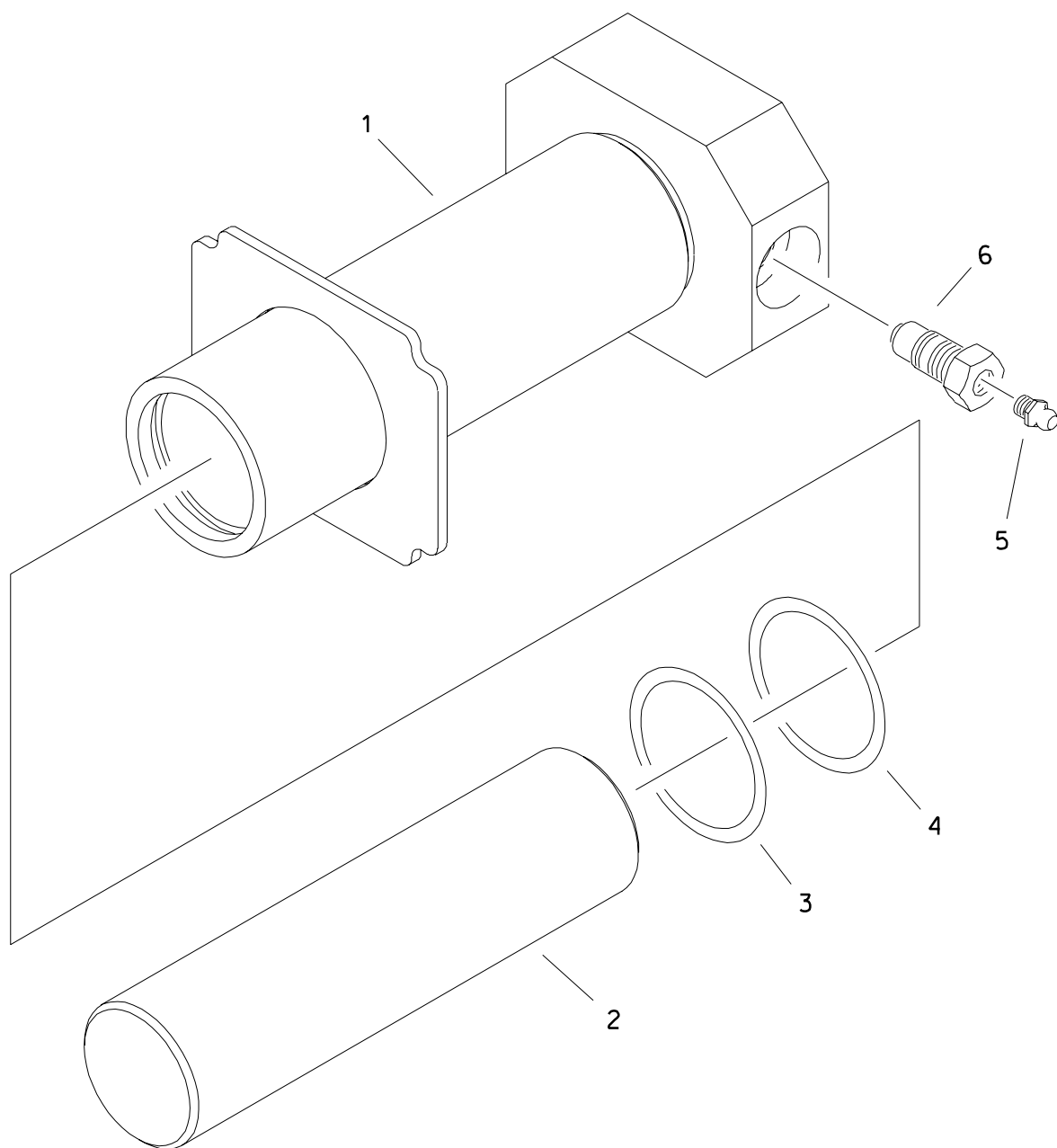


IDLER ROLLER

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	170-338		IDLER ROLLER	INCL REF NO'S 1 THRU 3
1.	125-135	2	BALL BEARING (2.362")	
2.	343-825	1	ROLLER SHAFT	
3.	343-824	1	ROLLER SHELL	

FOOTNOTES

GREASE CYLINDER

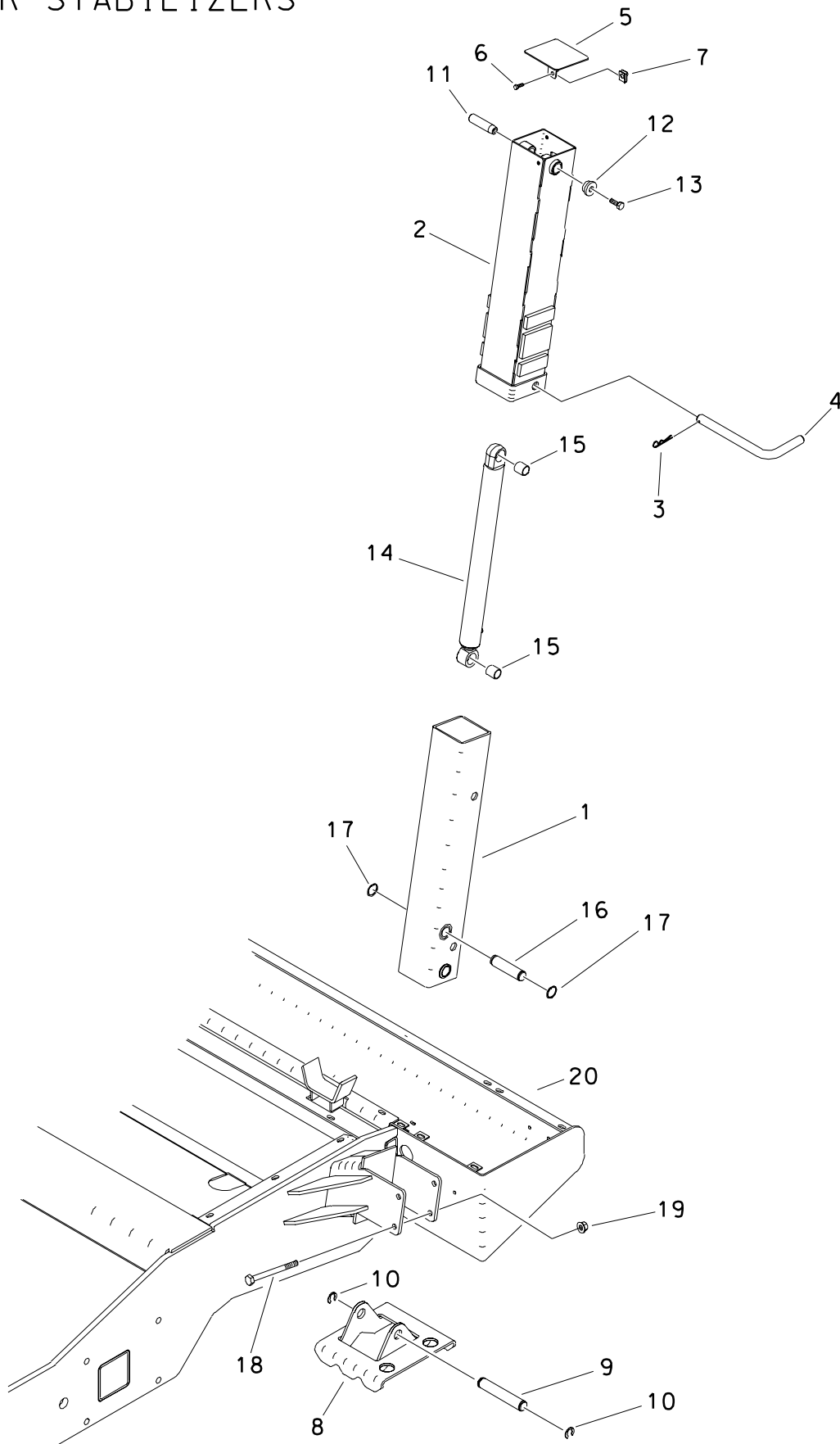


GREASE CYLINDER

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	151-181		GREASE CYLINDER	INCL REF NO'S 1,2,3,4, & 6.
1.	343-552	1	GREASE CYLINDER	
2.	350-804	1	CYLINDER ROD	
3.	157-021	1	BACKUP RING (228 D90)	
4.	500-031	1	O-RING (228 D90)	
5.	115-019	1	ZERK (02N)	
6.	159-093	1	RELIEF VALVE (5/8 - NF, 02N)	

FOOTNOTES

REAR STABILIZERS

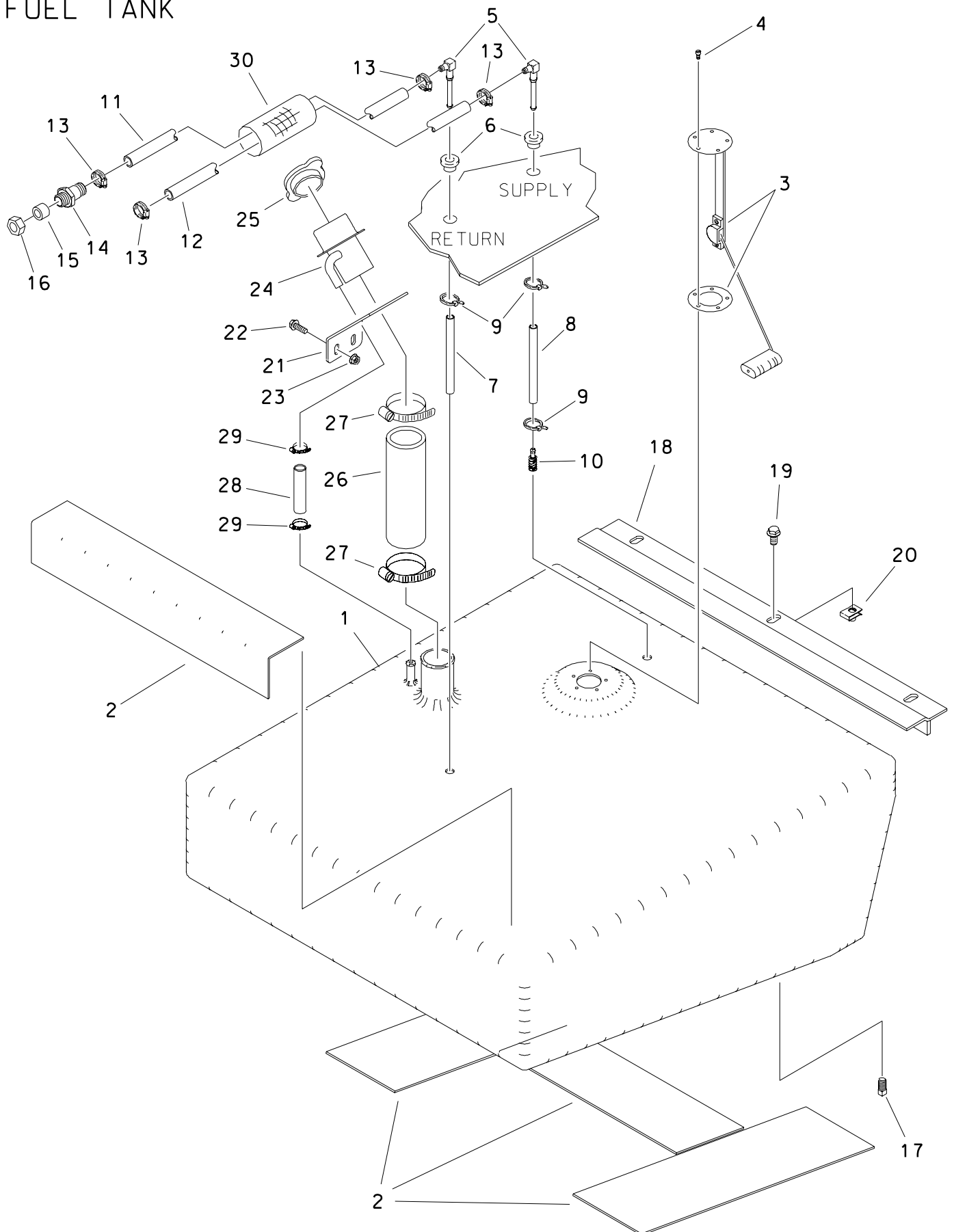


REAR STABILIZERS

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	343-561	2	STABILIZER TUBE	
2.	343-560	2	STABILIZER	
3.	110-128	2	SPRING CLIP PIN (5/32" X 1")	
4.	343-540	2	PIN	
5.	343-559	2	COVER	
6.	106-162	4	FLG SCREW (M8-1.25 X 20MM)	
7.	106-551	4	CLIP NUT (M8-1.25)	
8.	343-562	2	STABILIZER FOOT	
9.	343-919	2	PIN, STABILIZER FOOT	
10.	115-483	4	KLIP RING (1.25")	
11.	179-042	2	TAPERED PIN (31.7MM X 144MM)	
12.	181-982	2	TAPERED INSERT (1.25")	
13.	106-469	2	FLG SCREW (M12-1.75 X 30MM)	
14.	151-065	2	CYLINDER (2" X 1.25" X 20")	
15.	125-771	4	COMPOSITION BUSHING (1.25")	
16.	343-918	2	PIN, LOWER	
17.	118-007	4	INTERNAL SNAP RING (1.25")	
18.	106-612	4	SCREW (M16-2.00 X 180MM, 10.9)	
19.	106-545	4	LOCKNUT (M16-2.0, PRV TRQ, 10.9)	
20.	343-555	-	CENTER FRAME	

FOOTNOTES

FUEL TANK



FUEL TANK

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	343-547	1	FUEL TANK	
2.	353-490	3	RUBBER BELT (15.3mm X 526mm)	
3.	353-420	1	FUEL SENDER	
	165-704	1	GASKET	
4.	105-185	5	BOLT (#10-24 X 1/2", RD SLT)	
5.	156-269	2	S/O COUPLER (04H-05H90)	
6.	116-325	2	GROMMET (.362")	
7.	118-096	AR	BULK FUEL TUBING (1/4", PER FT)	USE 1 @ 6"
8.	118-096	AR	BULK FUEL TUBING (1/4", PER FT)	USE 1 @ 16"
9.	110-563	3	SPRING CLAMP (3/8")	
10.	156-268	1	FUEL STRAINER (04H)	
11.	116-108	AR	BULK HOSE (5/16", SOLD PER 1")	USE 1 @ 84"
12.	116-108	AR	BULK HOSE (5/16", SOLD PER 1")	USE 1 @ 84"
13.	110-528	4	SNAP-ON CLAMP (.531" TO .593")	
14.	156-275	1	TUBE CONNECTOR (04H-05T)	INCL REF NO'S 15 & 16
15.	156-276	1	FERRULE (05T)	
16.	156-277	1	COMPRESSION NUT (05T)	
17.	115-444	1	PLUG (04N, SOC, SS)	
18.	343-240	1	RETAINER, FUEL TANK	
19.	106-383	3	FLG LK SCREW (M10-1.50 X 30mm)	
20.	106-558	3	CLIP NUT (M10-1.50)	
21.	364-487	1	FUEL FILL BRACKET	
22.	106-162	2	FLG SCREW (M8-1.25 X 20mm)	
23.	106-386	2	FLG LOCKNUT (M8-1.25)	
24.	364-080	1	FILLER NECK	
	364-659	1	FILLER NECK	
	110-253	4	POP RIVET (3/16" X 1/2")	
25.	110-010	1	FUEL CAP (1-1/2")	
26.	116-841	AR	FUEL HOSE	USE 1 @ 21"
27.	110-134	2	WORM CLAMP (2.06" TO 2.75")	
28.	116-322	AR	BULK HOSE (1/2", SOLD PER 1")	USE 1 @ 27.50"
29.	110-217	2	WORM CLAMP (7/16" TO 1")	
30.	117-690	1	ABRASION SLEEVE (1.25" X 58")	

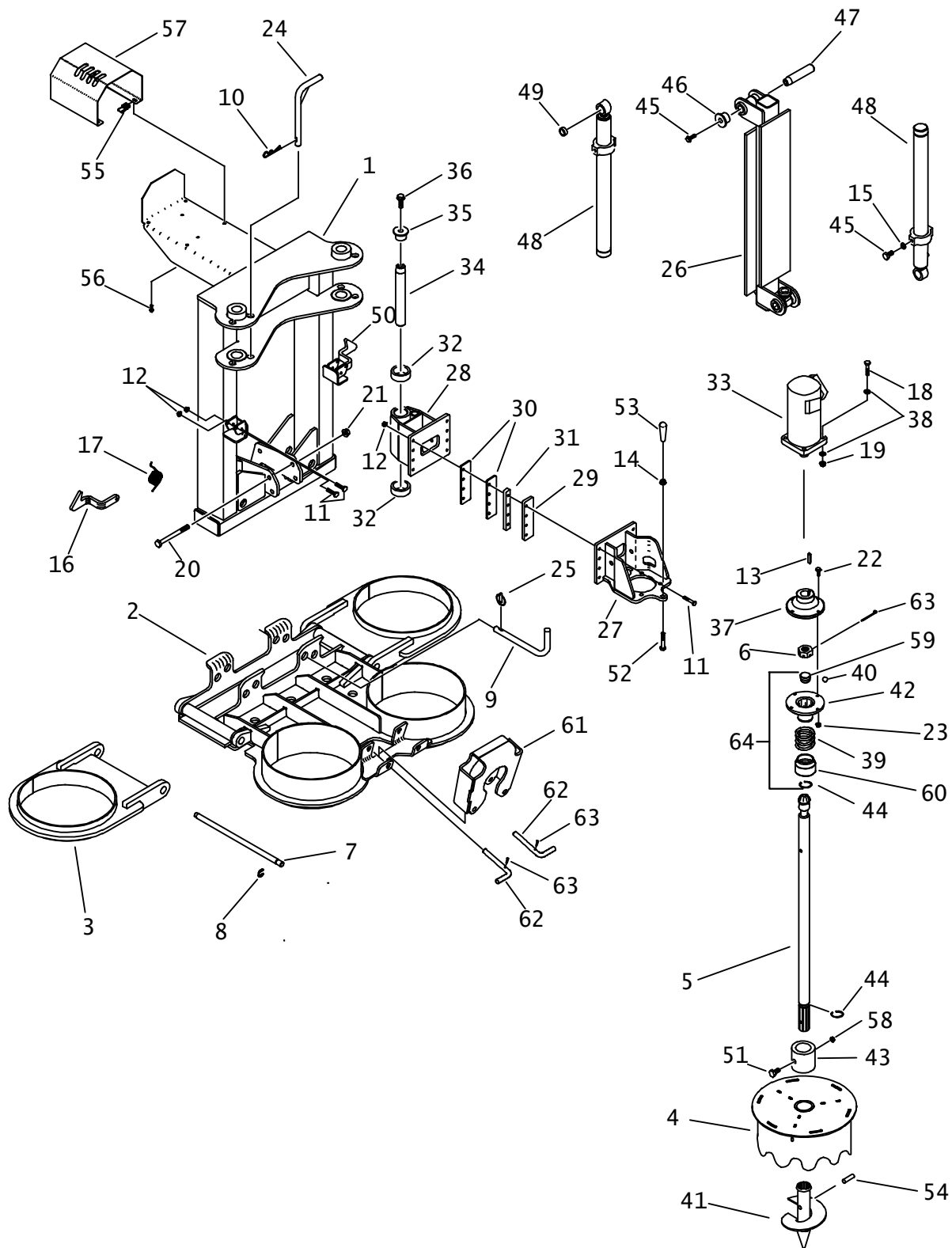
FOOTNOTES

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ANCHOR SYSTEMS

AUGER DRIVER



AUGER DRIVER

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	343-194	1	PIVOT FRAME	
2.	353-329	1	ANCHOR BASE	
3.	343-548	1	PIVOT	
4.	350-363	4	CENTERING CAP	
5.	343-300	4	HEX STAKE	OBSOLETE
	309-508	4	HEX STAKE	
	343-272	-	ANCHOR PARTS ASS'Y	INCLUDES REF NO'S 4, 5, 43, 44, 51, 54 & 58
6.	105-917	1	CASTLE NUT (1-1/4-NF)	
7.	184-973	2	PIN	
8.	115-483	4	KLIP RING (1.250")	
9.	343-445	2	PIN (31.75mm x 262mm)	
10.	110-128	2	SPRING CLIP PIN (5/32" X 1")	
11.	106-332	20	SCREW (M10-1.50 X 70mm)	
12.	105-894	18	LOCKNUT (M10-1.50, PRV TRQ, 10.9)	
13.	165-900	1	KEY (7/16" SQ X 1.250")	
14.	105-833	1	FLANGE LOCKNUT (1/2-NC)	
15.	343-270	4	SLEEVE	
16.	343-312	1	ANCHOR PIVOT LATCH (LEFT)	
17.	115-580	2	TORSION SPRING	
18.	106-594	4	SCREW (M12-1.75 X 60mm)	
19.	106-685	4	LOCKNUT (M12-1.75, PRV TRQ, 10.9)	
20.	106-612	4	SCREW (M16-2.00 X 180MM, 10.9)	
21.	106-545	4	LOCKNUT (M16-2.0, PRV TRQ, 10.9)	
22.	106-164	4	FLG LOCK SCREW (M10-1.50 X 30mm)	
23.	106-387	4	FLANGE LOCKNUT (M10-1.50)	
24.	350-516	2	PIN	
25.	110-228	2	LYNCH PIN (7/16" X 2")	
26.	359-799	2	MAST	
27.	359-816	2	MOTOR MOUNT	
28.	343-549	2	ARM	
29.	356-066	2	CLAMP PLATE	
30.	343-989	8	GLIDE STRIP	
31.	343-990	4	CARRIAGE SPACER BAR	
32.	125-773	4	COMPOSITION BUSHING (1.75")	
33.	158-934	2	HYD MOTOR	
	500-711	-	OFFSET JOYSTICK LEVER	
	500-758	-	SEAL REPAIR KIT - SHAFT	
	499-854	-	SHAFT AND BEARING KIT	
34.	179-239	2	TAPERED PIN (44.4mm X 288mm)	
35.	181-975	2	TAPERED INSERT (1.75")	
36.	106-470	2	FLG SCREW (M16-2.00 X 40mm)	
37.	350-225	1	FLANGE	OBSOLETE
	178-882	1	FLANGE	
38.	106-397	8	WASHER (M12, HARDENED)	
39.	117-134	1	COMPRESSION SPRING	
40.	125-084	6	DETENT BALL (.500")	
41.	356-364	1	AUGER (380mm)	
	356-365		AUGER (225mm)	
	356-366		AUGER (150mm)	
	347-806		ANCHOR SHAFT BIT	

FOOTNOTES:

NOTE:

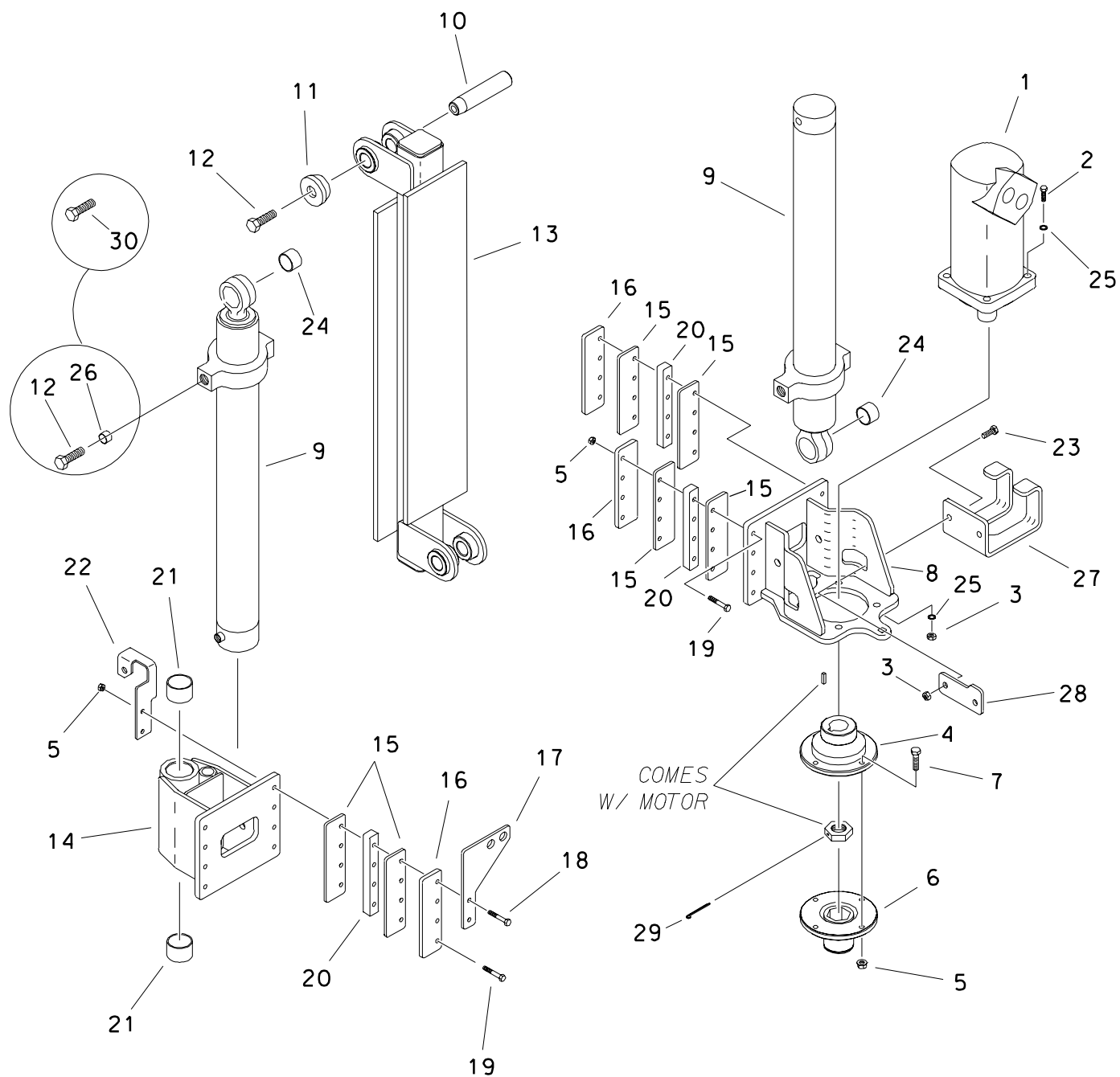
AUGER DRIVER

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
42.	350-239	1	FLANGED HEX DRIVER	
43.	348-965	1	STOP TUBE	
44.	501-028	1	EXTERNAL SNAP RING (2.437")	
45.	106-469	4	FLG SCREW (M12-1.75 X 30mm)	
46.	181-982	4	TAPERED INSERT (1.25")	
47.	183-765	4	TAPERED PIN (31.7mm X 110mm)	
48.	151-167	4	CYL (2." X 1.25" X 24.")	
	150-747	4	CYLINDER ASSEMBLY	
49.	125-771	4	COMPOSITION BUSHING (1.25")	
50.	343-311	1	ANCHOR PIVOT LATCH (RIGHT)	
51.	107-308	1	SCREW (M12-1.75 X 75mm)	
52.	105-279	1	CARRIAGE BOLT (1/2-NC X 3")	
53.	110-531	1	HANDLE (1/2-NC, BLACK)	
54.	183-860	AR	ROLL PIN (1/2" X 1-7/8")	
55.	106-551	4	CLIP NUT (M8-1.25)	
56.	106-162	4	FLG SCREW (M8-1.25 X 20mm)	
57.	343-216	1	COVER	
58.	106-685	1	LOCKNUT (M12-1.75, PRV TRQ, 10.9)	
59.	350-378	1	WEIGHT	
60.	309-357	1	COLLAR WELDMENT	
61.	303-314	1	GUIDE PLATE	
62.	303-292	2	PIN	
63.	105-501	2	COTTER PIN (.125" X 2.0")	
64.	350-383	-	ANCHOR STAKE COUPLER ASS'Y	INCL REF NO.'S 39, 40, 42, 44, 59 & 60

FOOTNOTES:

NOTE:

LEFT AUGER ANCHOR DRIVE



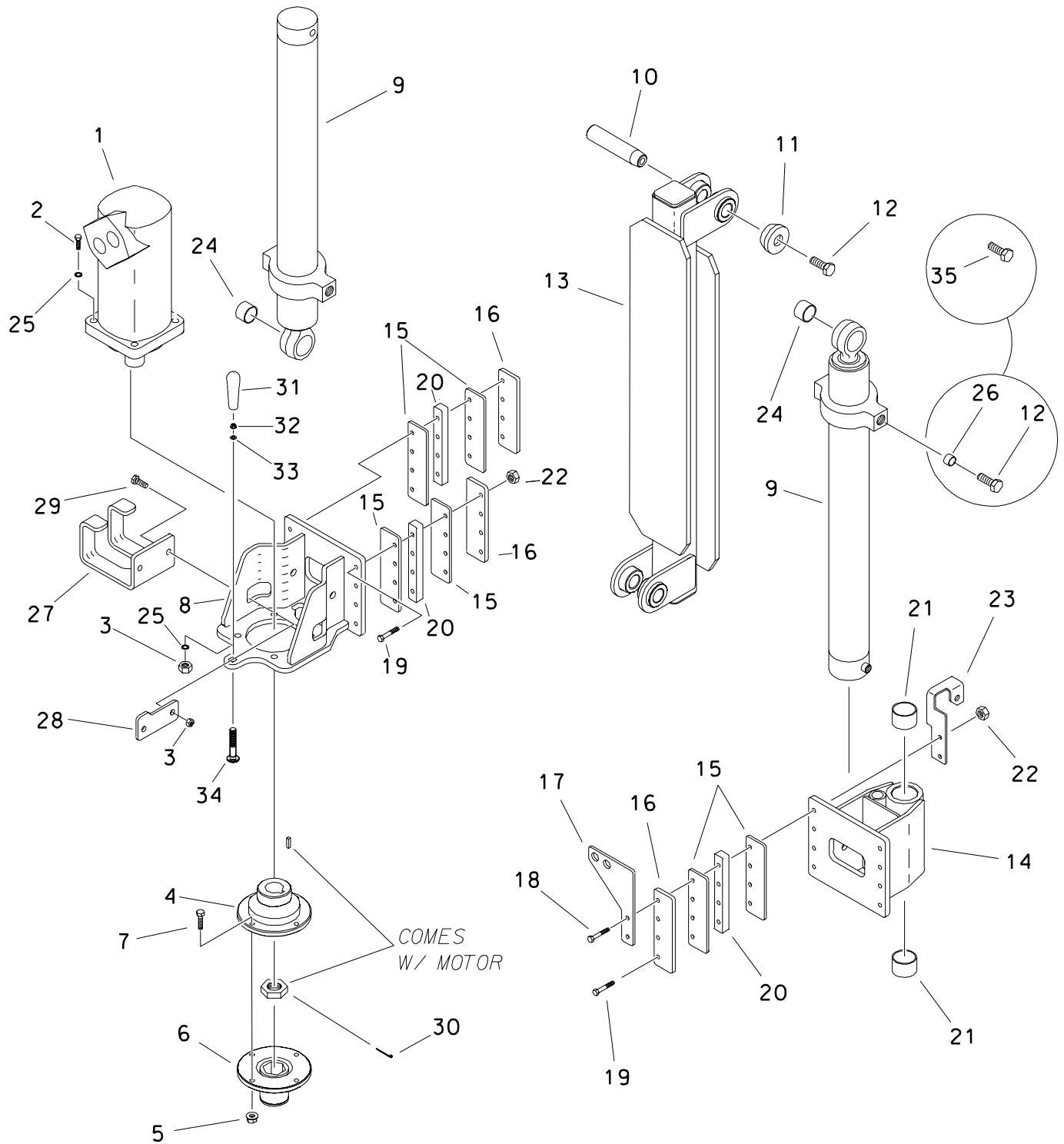
LEFT AUGER ANCHOR DRIVE

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	158-934	1	HYD MOTOR	
	500-711	-	SEAL REPAIR KIT - REAR	
	500-758	-	SEAL REPAIR KIT - SHAFT	
-	499-854	-	SHAFT AND BEARING KIT	
	105-917	-	CASTLE NUT (1-1/4-NF)	
	165-900	-	KEY (3/16" SQ. X 1.250")	
2.	106-594	4	SCREW (M12-1.75 X 60MM)	
3.	106-685	6	LOCKNUT (M12-1.75, PRV TRQ, 10.9)	
4.	350-225	1	FLANGE	
	178-882	1	FLANGE	
5.	105-894	20	LOCKNUT (M10-1.50, PRV TRQ, 10.9)	
6.	350-239	1	FLANGED HEX DRIVER	
7.	105-271	4	SCREW (M10-1.5 X 40MM)	
8.	359-816	1	MOTOR MOUNT	
9.	151-167	2	CYL (2" X 1.25" X 24")	END W/ S/N
	150-747	2	CYLINDER ASSEMBLY	BEGINS W/ S/N
10.	183-765	2	TAPERED PIN (31.7MM X 110MM)	
11.	181-982	2	TAPERED INSERT (1.25")	
12.	106-469	2	FLG SCREW (M12-1.75 X 30MM)	SEE FOOTNOTE 1.
13.	359-799	1	MAST	
14.	343-549	1	ARM	
15.	343-989	8	GLIDE STRIP	
16.	356-066	4	CLAMP PLATE	
17.	343-237	1	BULKHEAD PLATE	
18.	106-617	2	SCREW (M10-1.50 X 80MM)	
19.	106-332	14	FLG SCREW (M10-1.50 X 70MM)	
20.	343-990	4	CARRIAGE SPACER BAR	
21.	125-773	2	COMPOSITION BUSHING (1.75")	
22.	343-238	1	BULKHEAD PLATE	
23.	106-333	2	SCREW (M12-1.75 X 40MM)	
24.	125-771	2	COMPOSITION BUSHING (1.25")	
25.	106-397	8	WASHER (M12, HARDENED)	
26.	343-270	4	SLEEVE	ENDS W/ S/N
27.	354-969	1	ANCHOR BRACKET	
28.	354-970	1	MOUNT PLATE	
29.	105-501	1	COTTER PIN (.125" X 2.0")	
30.	106-471	4	FLG SCREW (M16-2.00 X 30MM)	APPLY LOCKTITE 242; BEGINS W/ S/N

FOOTNOTES

1. USE QTY 6, PRIOR TO S/N

RIGHT AUGER ANCHOR DRIVE



RIGHT AUGER ANCHOR DRIVE

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	158-934	1	HYD MOTOR	INCL CASTLE NUT & KEY
	500-711	-	SEAL REPAIR KIT - REAR	
	500-758	-	SEAL REPAIR KIT - SHAFT	
-	165-900	-	KEY (7/16" SQ X 1.250")	
	105-917	-	CASTLE NUT (1-1/4-NF)	
	499-854	-	SHAFT AND BEARING KIT	
-	106-594	4	SCREW (M12-1.75 X 60mm)	
3.	106-685	6	LOCKNUT (M12-1.75, PRV TRQ, 10.9)	
-	350-225	1	FLANGE	
-	178-882	1	FLANGE	
5.	105-894	16	LOCKNUT (M10-1.5, PRV TRQ, 10.9)	
-	350-239	1	FLANGED HEX DRIVER	
-	105-271	4	SCREW (M10-1.5 X 40mm)	
8.	359-816	1	MOTOR MOUNT	
-	151-167	2	CYL (2" X 1.25" X 24")	SEE FOOTNOTE 1
-	150-747	2	CYLINDER ASSEMBLY	SEE FOOTNOTE 2
10.	183-765	2	TAPERED PIN (31.7mm X 110mm)	
11.	181-982	2	TAPERED INSERT (1.25")	
12.	106-469	2	FLG SCREW (M12-1.75 X 30mm)	SEE FOOTNOTE 1
13.	359-799	1	MAST	
14.	343-549	1	ARM	
15.	343-989	8	GLIDE STRIP	
16.	356-066	4	CLAMP PLATE	
17.	343-237	1	BULKHEAD PLATE	
18.	106-617	2	SCREW (M10-1.50 X 80mm)	
19.	106-332	14	SCREW (M10-1.50 X 70mm)	
20.	343-990	4	CARRIAGE SPACER BAR	
21.	125-773	2	COMPOSITION BUSHING (1.75")	
22.	105-894	16	LOCKNUT (M10-1.50, PRV TRQ, 10.9)	
23.	343-239	1	BULKHEAD PLATE	
24.	125-771	2	COMPOSITION BUSHING (1.25")	
25.	106-397	8	WASHER (M12, HARDENED)	
26.	343-270	4	SLEEVE	SEE FOOTNOTE 1
27.	354-969	1	ANCHOR BRACKET	
28.	354-970	1	MOUNT PLATE	
29.	106-333	2	SCREW (M12-1.75 X 40mm, 8.8)	
30.	105-501	1	COTTER PIN (.125" X 2.0")	
31.	110-531	1	HANDLE (1/2-NC, BLACK)	
32.	105-833	1	FLG LOCKNUT (1/2-NC)	
33.	105-071	1	WASHER (1/2")	
34.	105-279	1	CARRIAGE BOLT (1/2-NC X 3")	
35.	106-471	4	FLG SCREW (M16-2.00 X 30MM)	SEE FOOTNOTE 2; APPLY LOCTITE 242

FOOTNOTES

1. EARLY STYLE CYLINDER, THAT USED FOUR (4) M12 SCREWS (REF 12) AND SLEEVE (REF 26), ENDS WITH S/N----- IF REPLACING THIS CYLINDER SEE FOOTNOTE 2.
2. CURRENT CYLINDER, USING M16 BOLTS, BEGINS WITH S/N----- IF REPLACING EARLY CYLINDER ORDER NEW CYLINDER AND SCREWS (REF 35).

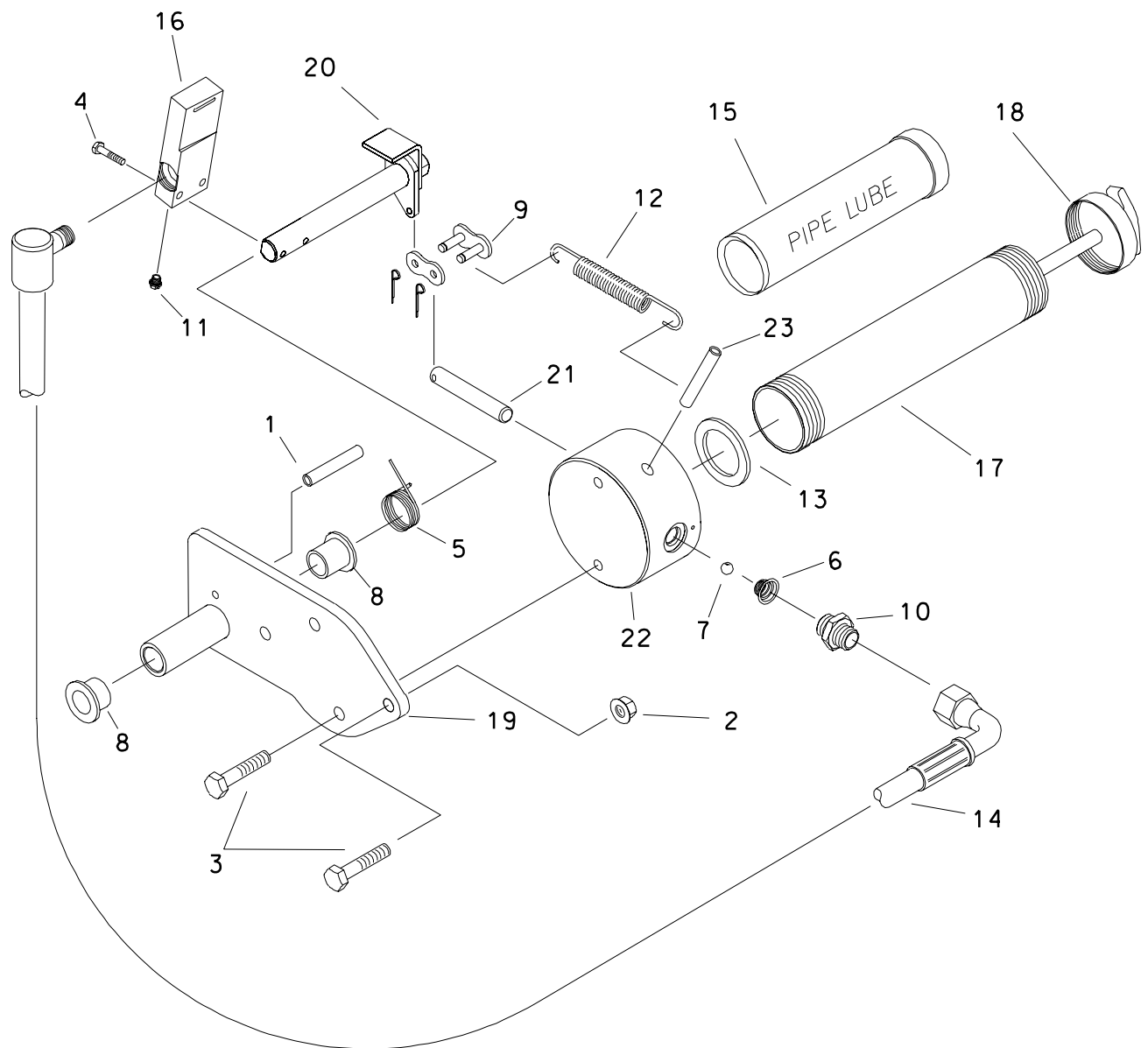
NOTES:

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LUBRICATOR SYSTEMS

THREAD LUBRICATOR

ENDS WITH S/N 2S4079



THREAD LUBRICATOR

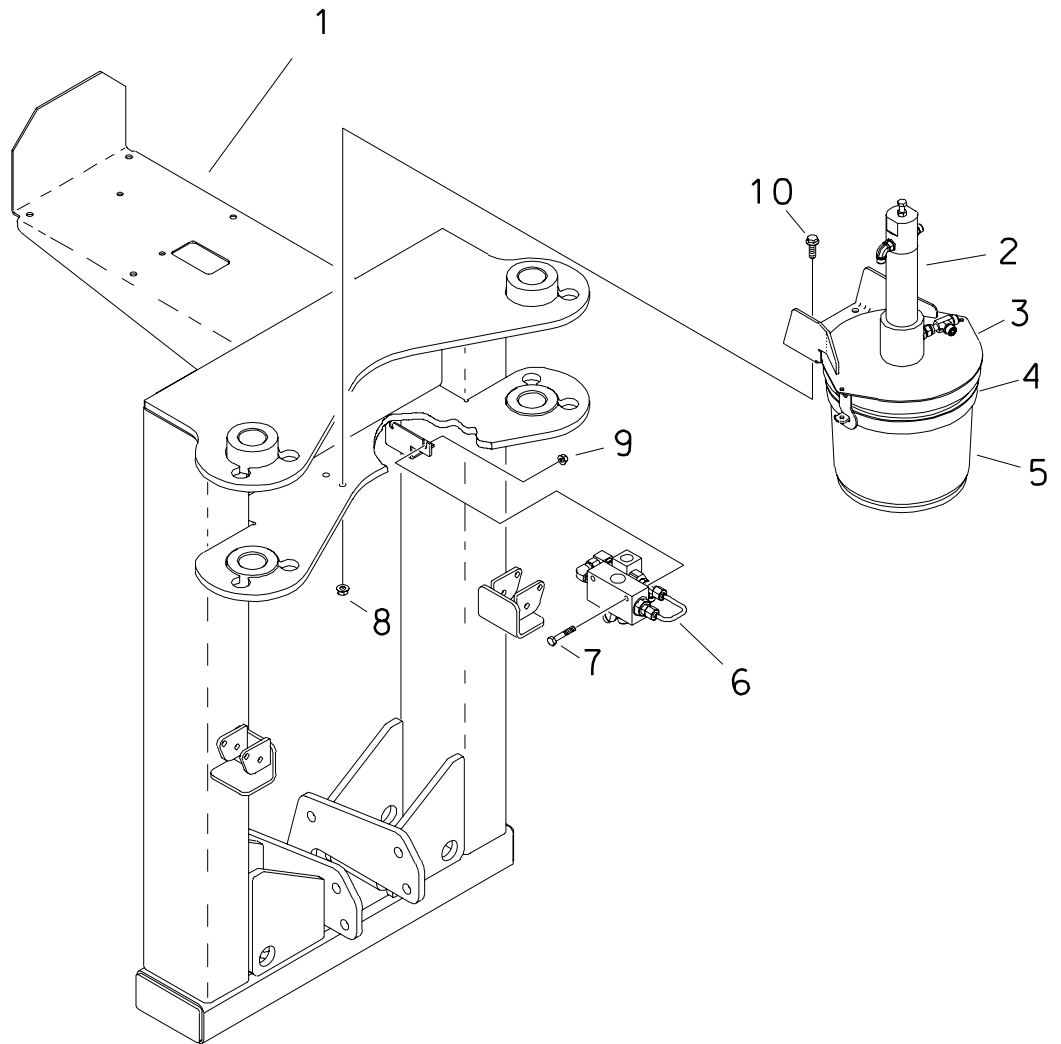
ENDS WITH S/N 2S4079

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	190-778		LUBRICATOR KIT	INCL REF NO'S 1 THRU 23
1.	105-510	1	ROLL PIN (1/4" X 1-1/2")	
2.	106-387	2	FLG LOCKNUT (M10-1.50)	
3.	106-383	4	FLG LK SCREW (M10-1.50 X 30mm)	
4.	106-554	2	SCREW (M6-1.00 X 30mm, SOC)	
5.	117-141	1	TORSION SPRING	
6.	117-162	1	COMPRESSION SPRING (.438")	
7.	125-136	1	DETENT BALL (.187", CHROME)	
8.	125-806	2	BUSHING (.750", NYLINER)	
9.	130-331	1	CONNECTOR LINK (1-1/4")	
10.	154-221	1	CONNECTOR (06S-060)	
11.	154-383	1	PLUG (04S)	
12.	117-186	1	EXTENSION SPRING (3.625")	
13.	157-716	1	GREASE SEAL	
14.	159-458	1	HOSE (060FX90/90-31"-3000)	
15.	256-663	AR	GREASE (14 OZ CARTRIDGE)	
	256-026	AR	GREASE (14 OZ CART, ARTIC GD)	
16.	359-859	1	GREASE APPLICATOR	
17.	359-869	1	GREASE BARREL	
18.	359-871	1	PLUNGER	
19.	350-436	1	LUBER BASE	
20.	350-437	1	PUMP SHAFT	
21.	359-924	1	PLUNGER	
22.	359-925	1	LUBER BASE	SEE FOOTNOTE 1
23.	105-521	1	ROLL PIN (1/4" X 1")	

FOOTNOTES

1. COAT ITEM 21 WITH COPPER TOOL JOINT COMPOUND (256-633 OR EQUIV.) AS LUBRICANT.

GREASE PUMP MOUNTING

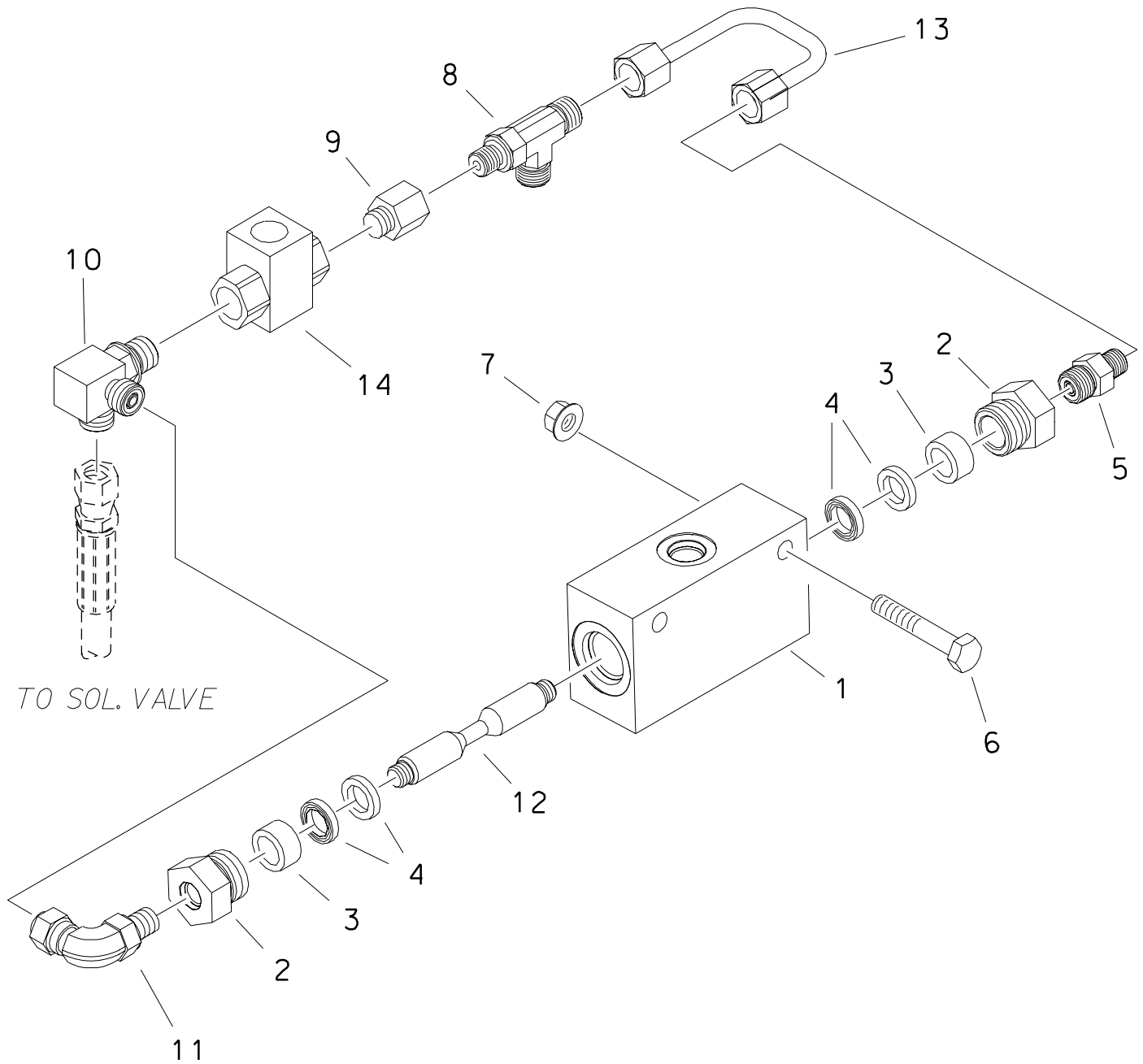


GREASE PUMP MOUNTING

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	343-194	-	PIVOT FRAME	USED ON JT2720
	350-770	-	ANCHOR ATTACHMENT FRAME	USED ON JT4020
2.	350-398	-	GREASE PUMP	
3.	350-400	-	COVER	
4.	350-399	-	BASE	
5.	259-858	-	TOOL JNT LUBE, STD SPRY 2 GAL	
	256-031	-	TOOL JNT LUBE, SUMR SPRY 2 GAL	
6.	N/A	-	VALVE SUB-ASS'Y	
7.	106-329	-	SCREW (M8-1.25 X 50MM)	
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)	

FOOTNOTES

SELECTOR VALVE



SELECTOR VALVE

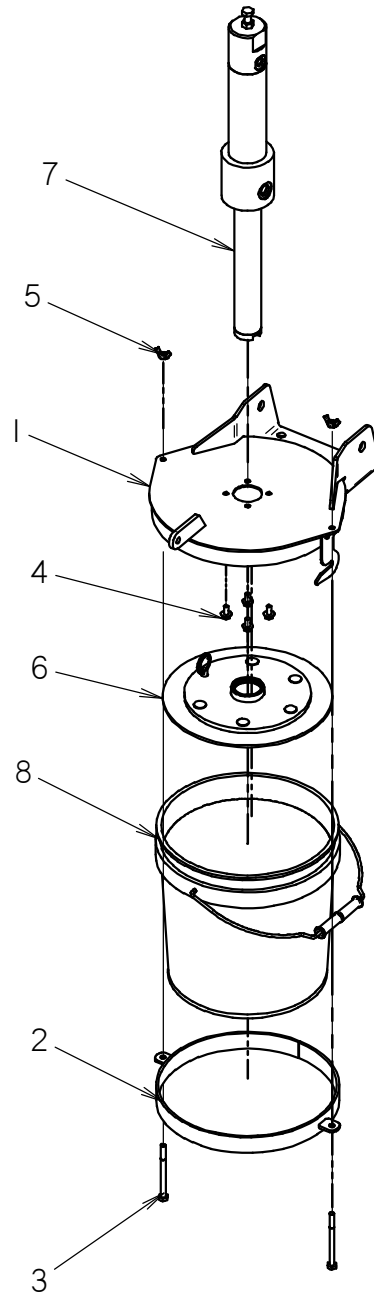
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	101-085		GREASER VALVE KIT	INCL. REF. 1-4 & 12
1.	343-291	1	VALVE BODY	
2.	149-152	2	REDUCER (10S-04SF)	
3.	343-292	2	SPACER	
4.	116-880	4	SEAL (POLY PAK)	
5.	154-278	1	CONNECTOR (04S-040)	
6.	106-329	2	SCREW (M8-1.25 X 50MM)	
7.	106-386	2	FLG LOCKNUT (M8-1.25)	
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.

AUTO-LUBER ASSEMBLY



AUTO-LUBER ASSEMBLY

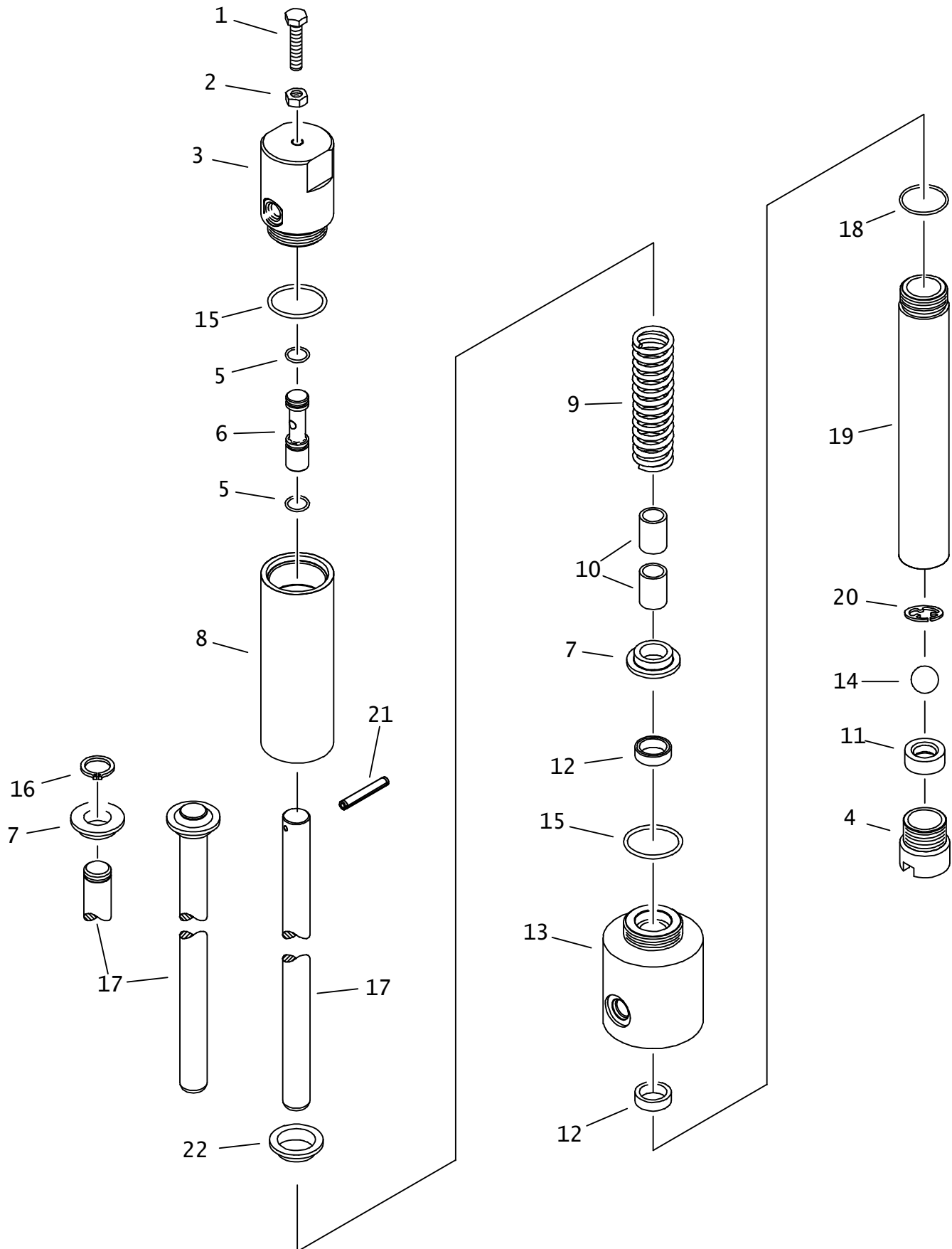
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1	350-400	1	COVER WELDMENT	
2	350-399	1	BASE	
3	105-297	2	BOLT (1/4-NC X 3-1/4")	
4	106-378	4	FLG LK SCREW (M6-1.00 X 12MM)	
5	195-339	2	WING NUT (1/4-NC)	
6	350-1932	1	TOOL JOINT LUBE FOLLOWER	
7	350-398	1	GREASE PUMP PARTS	
8	259-858	1	TOOL JNT LUBE, STD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

NOT SHOWN:

FOOTNOTES:

NOTE:

GREASE PUMP



GREASE PUMP

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

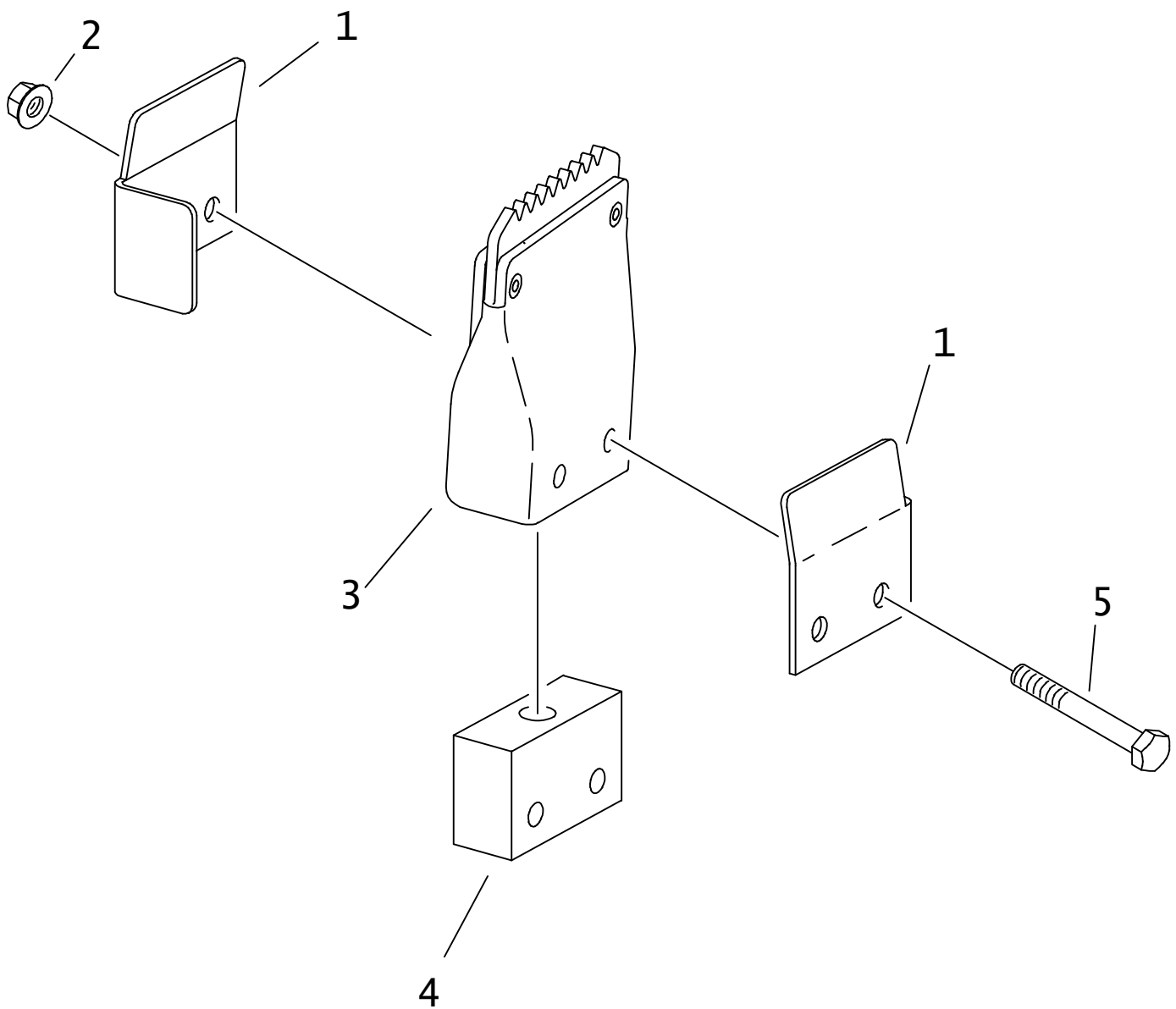
NOT SHOWN:

FOOTNOTES:

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

NOTE:

APPLICATOR



APPLICATOR

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

NOT SHOWN:

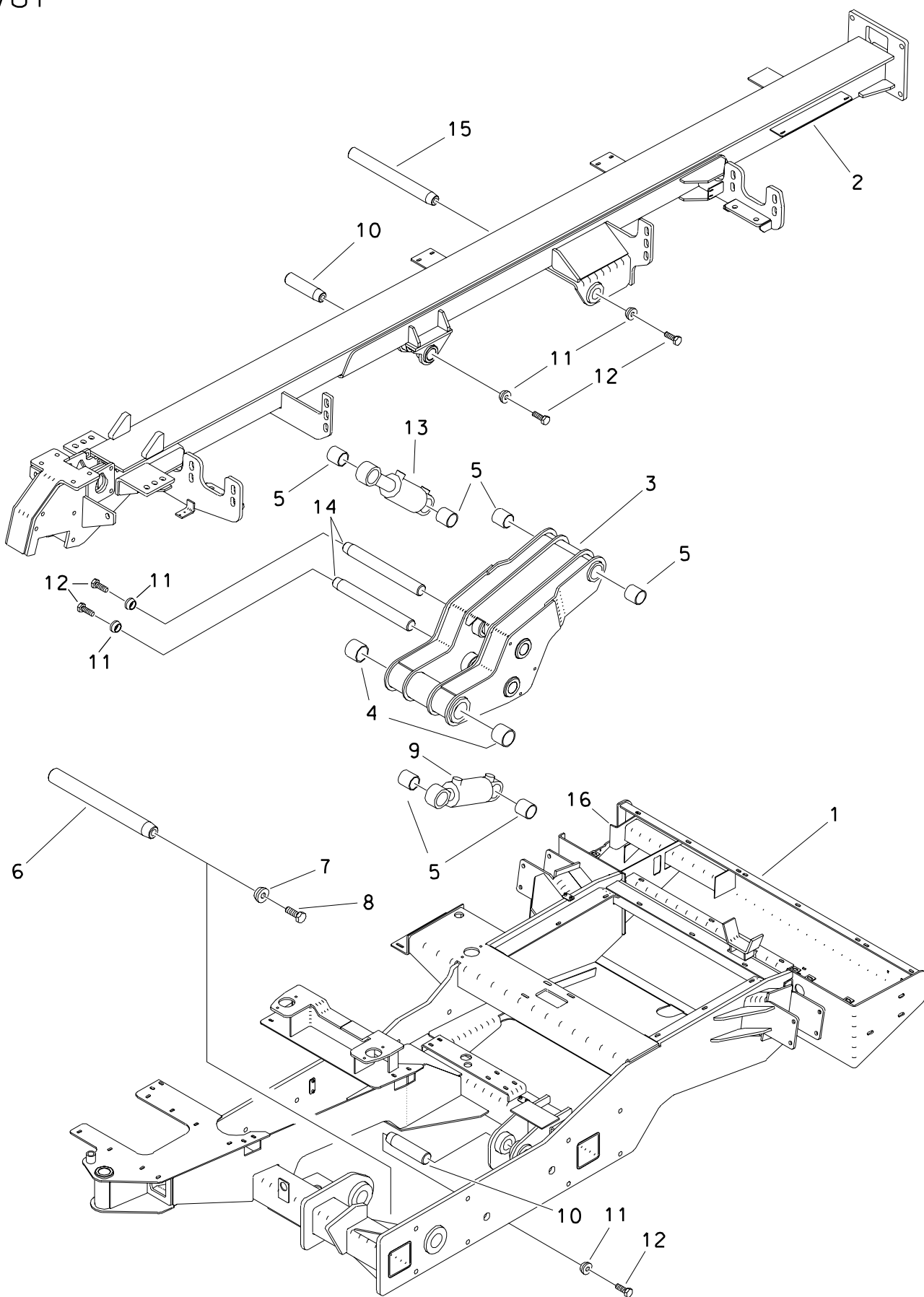
FOOTNOTES:

NOTE:

NOTES:

DRILL FRAME

PIVOT

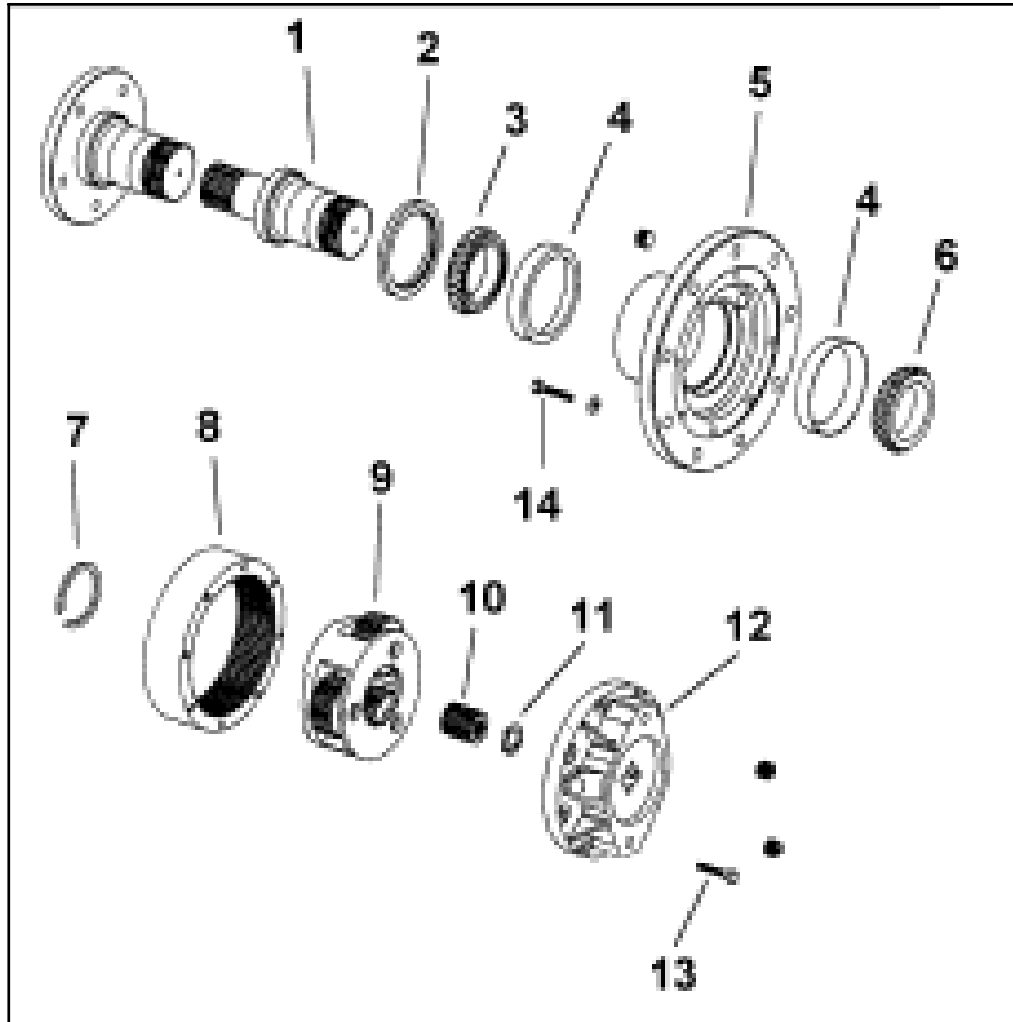


PIVOT

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	343-555	-	CENTER FRAME	
2.	353-409	1	DRILL FRAME	
3.	353-405	1	LINK	
4.	125-762	2	SPRING BUSHING (2.500")	
5.	125-754	6	COMPOSITION BUSHING (2.000")	
6.	179-186	1	TAPERED PIN (63.5mm x 480mm)	
7.	184-575	1	TAPERED INSERT (2.500")	
8.	106-667	1	SCREW (M24-3.0 X 65mm, 10.9)	USE LOCTITE 277
9.	151-123	1	CYL (3.5" X 2" X 4")	
10.	179-188	2	TAPERED PIN (50.8mm x 158mm)	
11.	184-064	5	TAPERED INSERT (2.000")	
12.	106-607	5	SCREW (M20-2.50 X 50mm, 10.9)	USE LOCTITE 277
13.	151-178	1	CYL (3.50" X 2" X 5")	
14.	179-189	2	TAPERED PIN (50.8mm x 378mm)	
15.	179-187	1	TAPERED PIN (50.8mm x 390mm)	
16.	343-242	1	SUPPORT	SERVICE PROP ROD, STORED POSITION

FOOTNOTES

PLANETARY GEARBOX-THRUST DRIVE



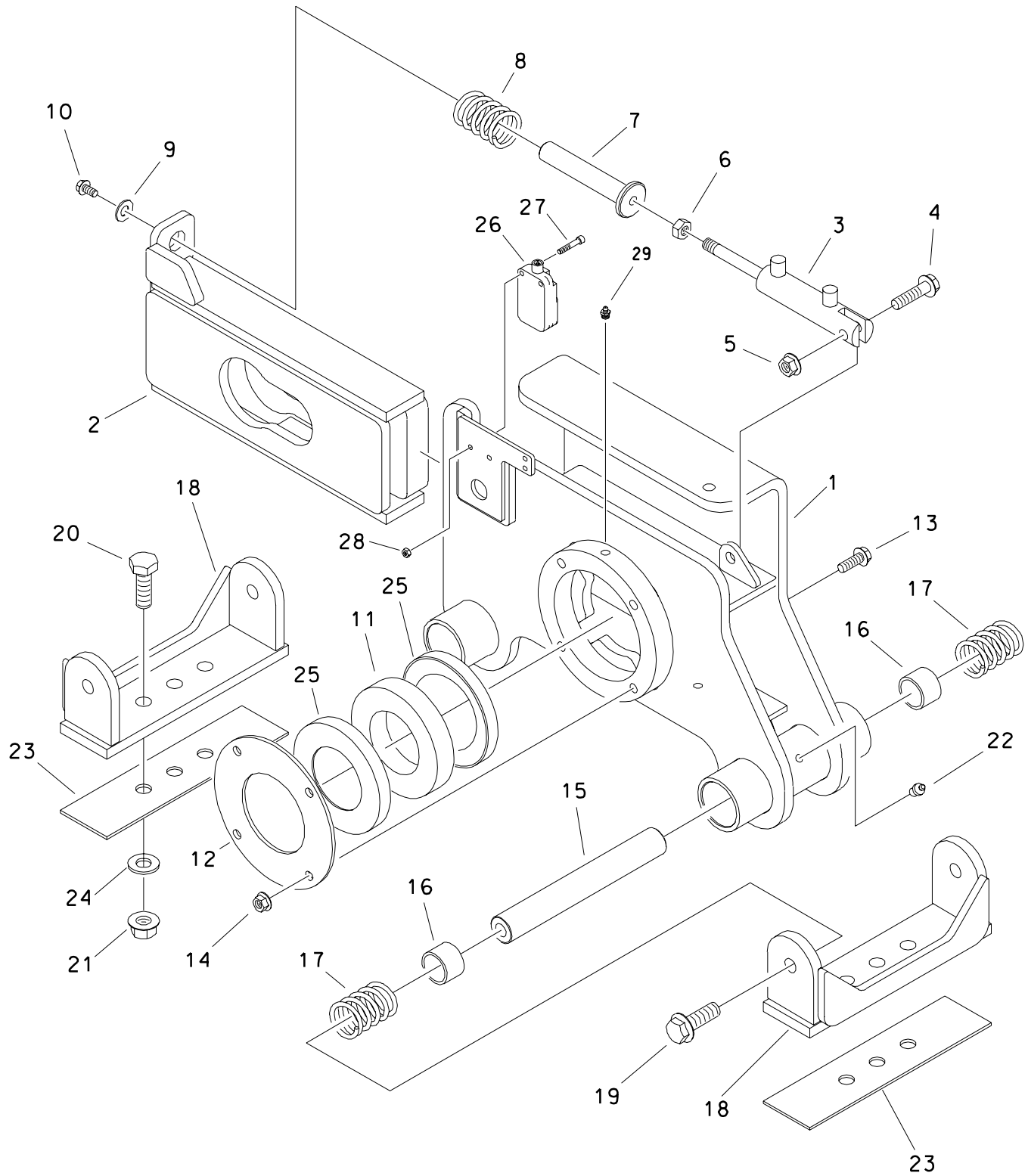
PLANETARY GEARBOX-THRUST DRIVE

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	166-158	-	GEAR BOX	
	190-061	-	SEAL KIT	
	190-799	-	BEARING AND SEAL KIT	
1.	501-723	1	OUTPUT SHAFT	
2.	157-521	1	OIL SEAL	
3.	125-388	1	BEARING CONE	
4.	125-368	2	BEARING CUP	
5.	501-676	1	HUB	
6.	125-387	1	BEARING CONE	
7.	501-629	1	RETAINING RING KIT	
8.	501-721	1	RING GEAR	
9.	501-830	1	CARRIER ASSEMBLY 6"	
10.	166-258	1	SUN GEAR, 6"	
11.	499-893	1	THRUST WASHER	
12.	166-257	1	GEARBOX COVER	
13.	107-467	6	SCREW (3/8-NF X 1-3/4, NYL)	
14.	105-160	8	(5/16-NC X 1-1/4")	

FOOTNOTES

NOTE:

FRONT WRENCH



FRONT WRENCH

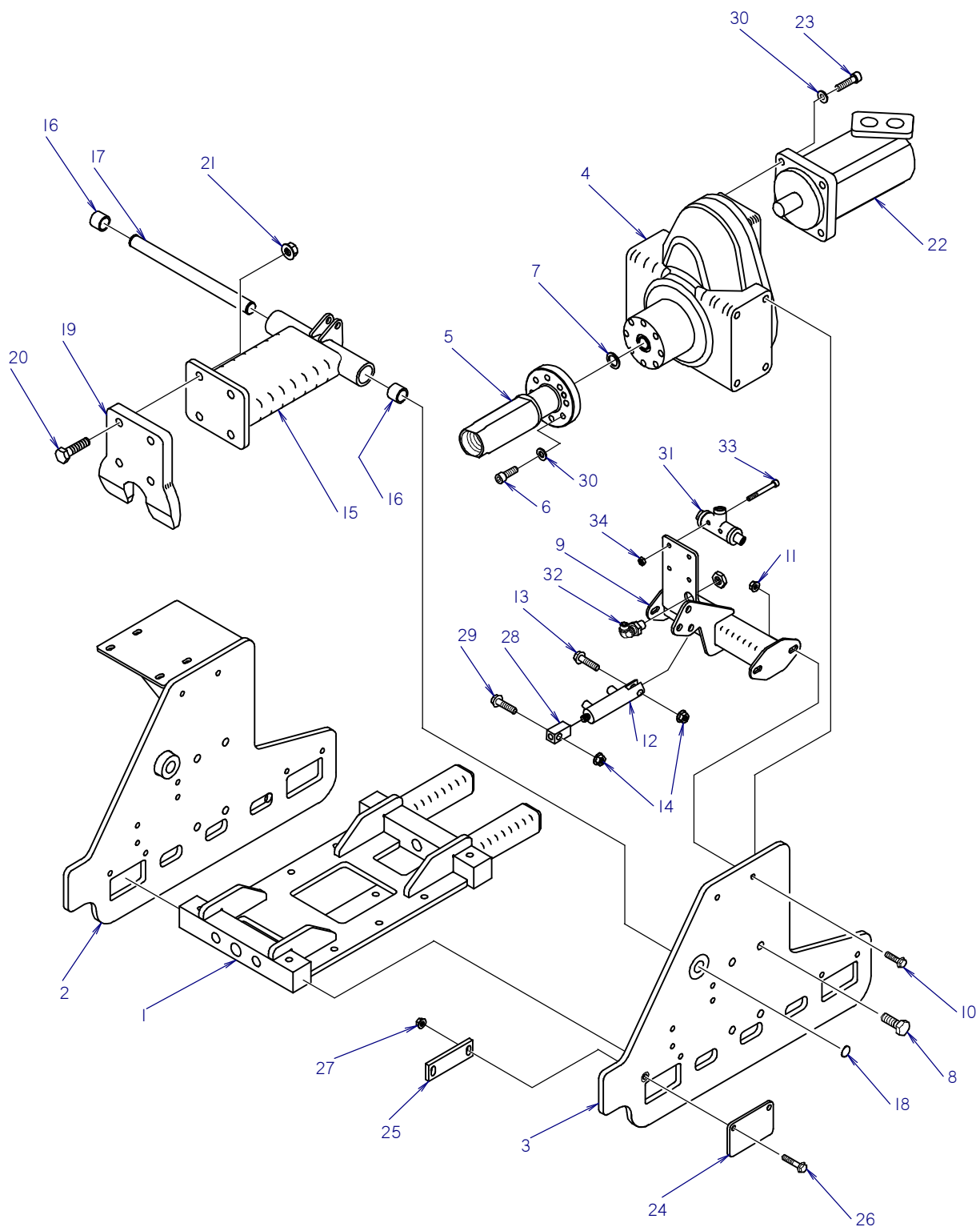
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	343-572	1	WRENCH MOUNT	
2.	343-557	1	WRENCH PLATE	ENDS WITH S/N 2T4215
	307-581	1	WRENCH PLATE	BEGINS WITH S/N 2T4216
3.	150-732	1	2.50" STROKE CYLINDER	SEE FOOTNOTE 1
4.	107-004	1	FLG LK SCREW (M12-1.75 X 45mm)	
5.	106-709	1	FLG LOCKNUT (M12-1.75)	
6.	107-669	1	JAM NUT (M12-1.75)	
7.	179-208	1	SPRING GUIDE	
8.	115-553	1	COMPRESSION SPRING	
9.	106-260	1	WASHER (3/8")	
10.	106-992	1	FLG LK SCREW (M8-1.25 X 25mm)	
11.	305-865	1	GUIDE BEARING	USED WITH REF 25
	125-467	1	BALL BEARING (2.952")	NOT SHOWN SEE FOOTNOTE 3
12.	353-459	1	BEARING COVER	
13.	105-996	4	BOLT (M10-1.50 X 45mm)	
14.	105-894	4	LOCKNUT (M10-1.5, PRV TRQ, 10.9)	
15.	343-969	2	WRENCH SLIDE PIN	
16.	125-415	4	BRONZE BUSHING (1.253")	609 LOCKTITE
17.	117-173	4	COMPRESSION SPRING	
18.	343-573	2	MOUNT BRACKET	
19.	106-470	4	FLG SCREW (M16-2.00 X 40mm)	TORQUE TO 100 FT LBS LOCKTITE 242
20.	106-074	6	SCREW (M16-2.00 X 60mm)	
21.	106-545	6	LOCKNUT (M16-2.00, PRV TRQ, 10.9)	
22.	115-001	2	ZERK (O2N)	SEE FOOTNOTE 2
23.	350-665	4	SPACER PLATE	USE QTY (4) OR AS REQUIRED
24.	106-398	6	WASHER (M16, HARDENED)	
25.	305-866	2	GUIDE BEARING	USE WITH REF 11
26.	214-692	1	PROXIMITY SWITCH	
27.	106-426	2	SCREW (M5-0.80 X 25MM, SOC)	
28.	106-850	2	LOCKNUT (M5-0.80)	
29.	115-001	1	ZERK (O2N)	

FOOTNOTES

1. ENDS WITH S/N 2R2157; CYLINDER MODIFIED AT FACTORY BEGINS WITH S/N 2R2158.
MODIFIED CYLINDER HAS "C" STAMPED NEAR BARREL END TO INDICATE CHANGE.
2. AT ASSEMBLY EACH ZERK NEEDS 6X OF MULTI PURPOSE GREASE.
3. CAN BE USED IN PLACE OF 305-865 AND 305-866.

NOT SHOWN: 191-084 BEARING KIT - INCLUDES 11, 12, 13, 14, 25, & 29.

CARRIAGE



CARRIAGE

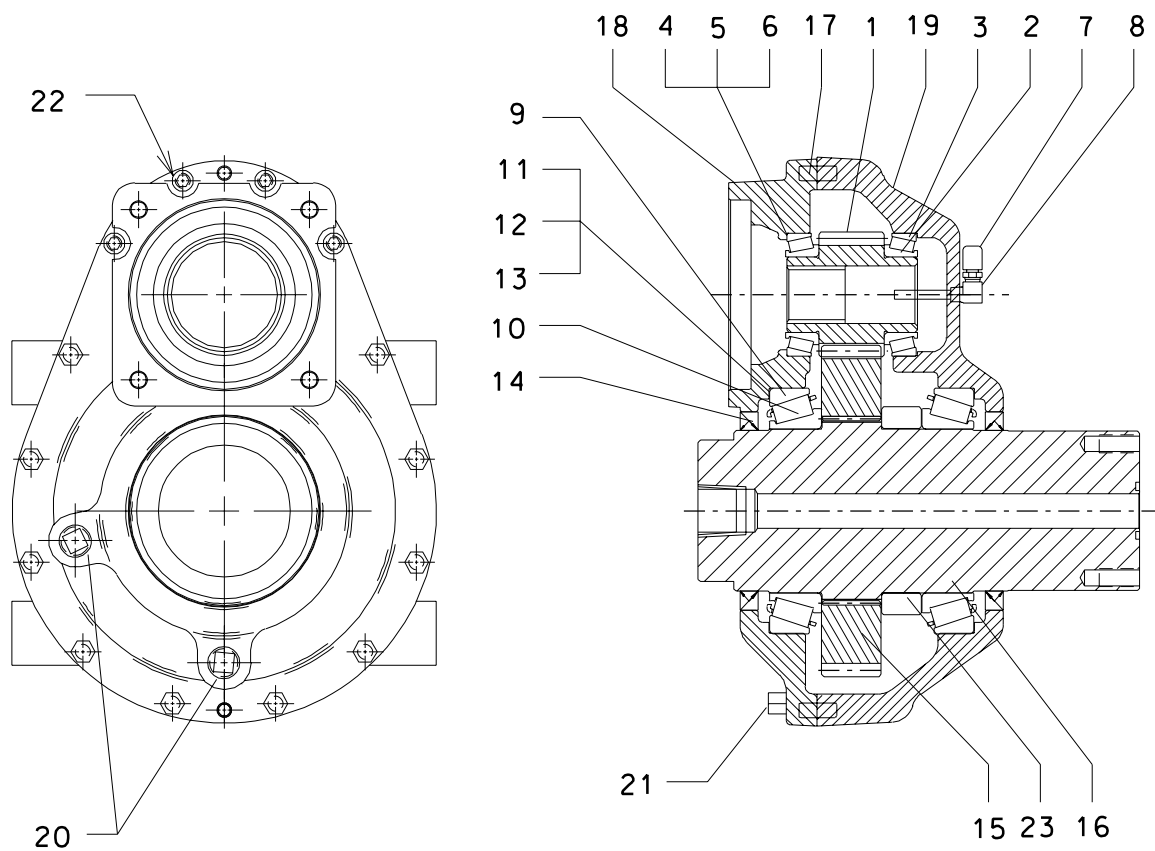
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	343-746	1	CARRIAGE	
2.	343-575	1	RH SIDE PLATE	
3.	343-574	1	LH SIDE PLATE	
4.	166-159	1	ROTATION GEAR BOX	
5.	343-275	1	SAVER SUB 2.06 - 4 FM DS	
	106-797	8	SCREW (M12-1.75 X 35MM, SOC)	ENDS WITH S/N 2R2553, TORQUE 80 FT/LBS 242 LOCKTITE
6.	106-708	8	SCREW (M12-1.75 X 60mm)	BEGINS WITH S/N 2R2702, TORQUE 80 FT/LBS 242 LOCKTITE
7.	155-708	1	O-RING (218 D70)	
8.	106-478	8	SCREW (M16-2 X 40mm, 10.9)	LOCTITE 242
9.	343-736	1	CYLINDER SUPPORT	
10.	106-164	4	FLG LK SCREW (M10-1.50 X 30mm)	
11.	106-387	4	FLG LOCKNUT (M10-1.50)	
12.	150-733	1	2.00" STROKE CYLINDER	
13.	107-004	1	FLG LK SCREW (M12-1.75 X 45mm)	
14.	106-709	2	FLG LKNUT (M12-1.75)	
15.	343-739	1	WRENCH ARM	
16.	125-800	2	COMPOSITION BUSHING (1")	
17.	343-745	1	WRENCH PIVOT PIN	
18.	115-484	2	EXTERNAL SNAP RING (1.000")	
19.	343-744	1	PLATE, WRENCH	
20.	106-074	4	SCREW (M16-2.0 X 60mm)	
21.	106-545	4	LOCKNUT (M16-2.00, PRV TRQ, 10.9)	
22.	158-913		HYDRAULIC MOTOR	ENDS WITH S/N 2R3370
	149-254	1	HYDRAULIC MOTOR	BEGINS WITH S/N 2R3399
	500-390		REAR SEAL KIT	
	500-391		SHAFT SEAL KIT	
23.	105-869	4	BOLT (1/2-NC X 2", SOC)	TORQUE 100 FT/LBS 242 LOCKTITE
24.	343-467	3	GUARD	
25.	343-468	4	GUIDE	
26.	106-994	8	FLG LK SCREW (M10-1.50 X 40mm)	
27.	106-266	8	FLG NUT (M10-1.50)	
28.	343-355	1	ADAPTER	
29.	107-008	1	FLG LK SCREW (M12-1.75 X 50mm)	
30.	106-397	12	WASHER (M12, HARDENED)	
31.	159-451	-	CHECK VALVE	
32.	154-229	-	BK CONNECTOR (060-06090BK)	
33.	105-624	4	SCREW (M8-1.25 X 70MM, SOC)	
34.	107-096	4	LOCKNUT (M8-1.25, NLK)	

NOT SHOWN:

FOOTNOTES:

NOTE:

ROTATION GEAR BOX

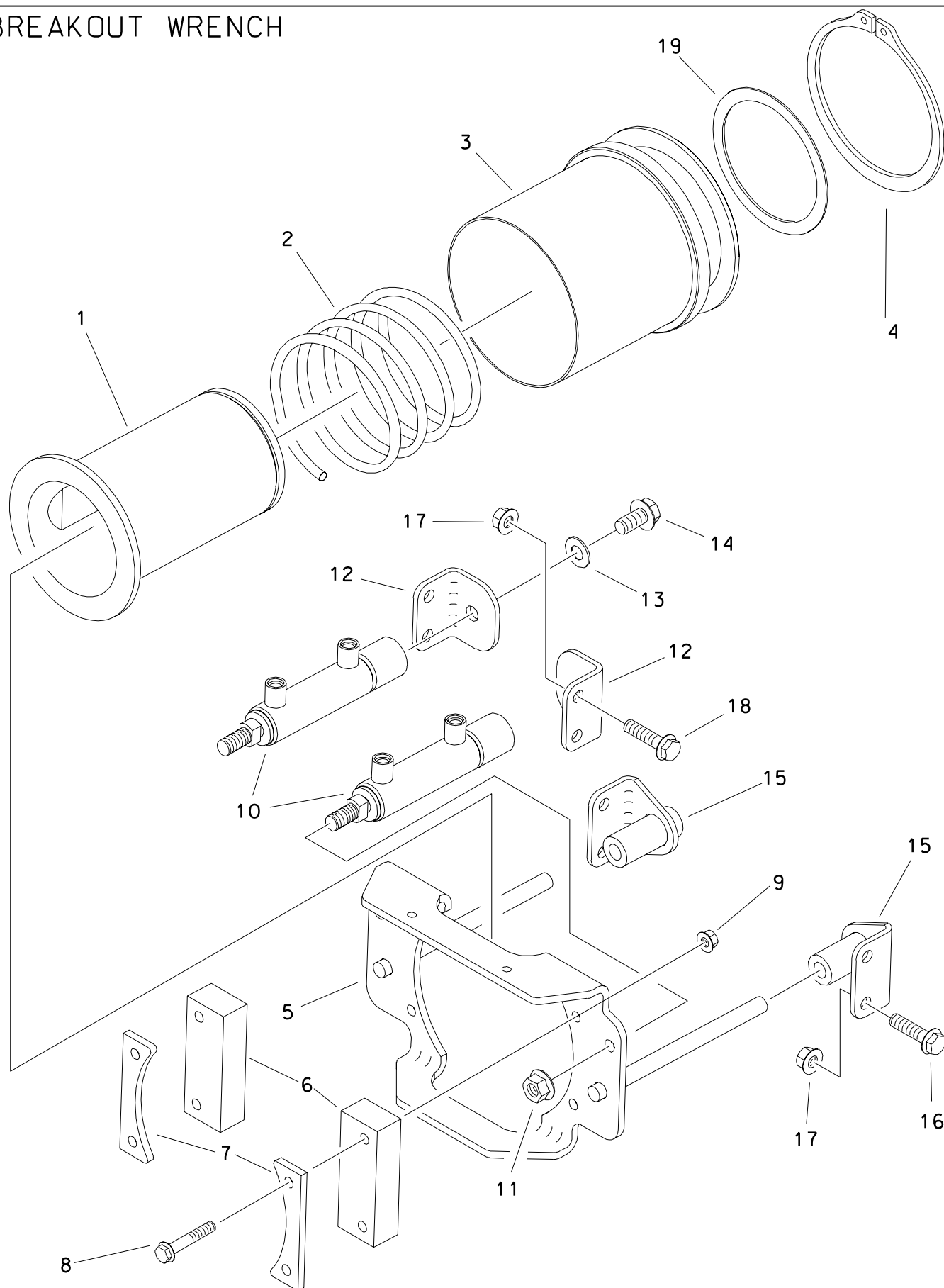


ROTATION GEAR BOX

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	166-159	1	ROTATION GEAR BOX	
1.	168-040	1	INPUT PINION	
2.	126-100	2	TAPERED BEARING (2")	
3.	126-099	2	TAPERED RACE (3.25")	
4.	165-800	2	SHIM (.002")	
5.	165-801	2	SHIM (.003")	
6.	165-802	2	SHIM (.007")	
7.	159-003	1	AIR VENT (O2N)	
8.	514-123	1	PICKUP TUBE (O2N-O2NF90-2")	
9.	126-063	2	TAPERED RACE (6.496")	
10.	126-064	2	TAPERED BEARING (4.330")	
11.	165-803	2	SHIM (.002")	
12.	165-804	2	SHIM (.003")	
13.	165-805	2	SHIM (.007")	
14.	157-631	2	INTERNAL SEAL (4.250")	
15.	168-022	1	OUTPUT GEAR	
16.	165-533	1	OUTPUT SHAFT	
17.	105-534	2	DOWEL PIN (.375" X .875")	
18.	169-078	1	COVER	
19.	169-049	1	HOUSING	
20.	115-211	2	PLUG (O8N, SQ, MAG)	
21.	106-621	10	SCREW (M10-1.50 X 45mm, 10.9)	
22.	106-555	4	SCREW (M10-1.50 X 45mm, SOC)	
23.	184-974	1	SPACER	

FOOTNOTES

BREAKOUT WRENCH

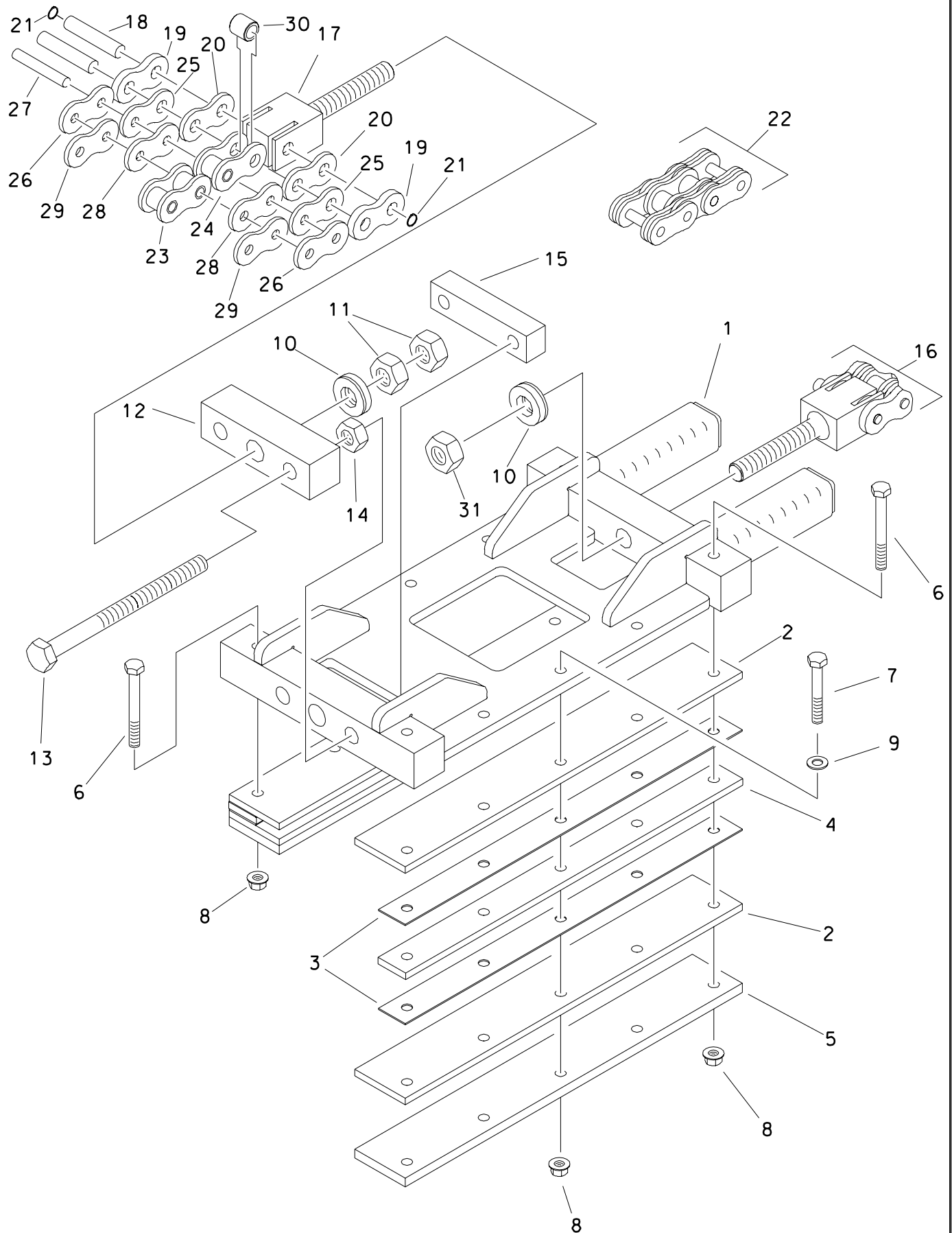


BREAKOUT WRENCH

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	343-494	1	WRENCH COLLAR	
2.	117-066	1	COMPRESSION SPRING	
3.	343-772	1	SLEEVE	
4.	115-453	1	EXTERNAL SNAP RING (4")	
5.	343-765	1	SHIFT ARM	
6.	343-770	2	TAB, SHIFT	
7.	343-771	2	PLATE, BACKING	
8.	106-329	4	SCREW (M8-1.25 X 50mm)	
9.	106-386	4	FLG LOCKNUT (M8-1.25)	
10.	150-725	2	CYL, 1" BORE X 2.5" STROKE THRD	
11.	106-709	2	FLG LOCKNUT (M12-1.75)	
12.	343-978	2	CYL MOUNT BRACKET	
13.	106-397	2	WASHER (M12, HARDENED)	
14.	106-806	2	FLG LK SCREW (M12-1.75 X 25mm)	LOCTITE 242
15.	343-564	2	SLIDE BOSS	
16.	106-383	4	FLG LK SCREW (M10-1.5 X 30mm)	
17.	106-387	8	FLG LOCKNUT (M10-1.50)	
18.	106-164	4	FLG LK SCREW (M10-1.50 X 30mm)	LOCTITE 277
19.	309-872	1	WASHER, SPRING RETAINER	BEGINS W/ SN

FOOTNOTES

CARRIAGE CHAIN



CARRIAGE CHAIN

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	343-746	-	CARRIAGE	
2.	343-755	4	SLIDE BAR	
3.	343-756	4	SHIM PLATE	
4.	343-816	2	SLIDE BAR	
5.	343-757	2	BACKUP BAR	
6.	106-645	4	SCREW (M12-1.75 X 110mm, 10.9)	
7.	106-578	6	SCREW (M12-1.75 X 80mm)	
8.	106-685	10	LOCKNUT (M12-1.75, PRV TRQ, 10.9)	
9.	106-397	6	WASHER (M12, HARDENED)	
10.	107-273	2	WASHER (1/2")	SEE FOOTNOTE 1
11.	106-352	3	NUT (M24-3.00)	
12.	343-758	1	BAR, CHAIN TENSIONER	
13.	105-594	2	SCREW (M20-2.50 X 240mm)	
14.	106-374	4	NUT (M20-2.50, 10.9)	
15.	343-759	1	THREADED BAR	
16.	130-605	1	DBL ROLLER CHAIN (#140-2, 205P)	INCL REF NO'S 17 - 30, ENDS WITH S/N 2T0710
	129-002	1	ROLLER CHAIN (#140-ECH, 205P)	INCL REF NO 22 (191-044), SEE FOOTNOTE 2
	129-009	1	ROLLER CHAIN (#140-ECH, 205P)	
17.	130-612	-	CLEVIS (#140-2)	
18.	130-613	-	RETAINING PIN (#140-2)	
19.	130-614	-	CONNECTOR LINK (#140-2)	
20.	130-616	-	LINK PLATE ROLLER (#140-2)	
21.	130-620	-	RETAINING RING (#140-2)	
22.	130-621	-	CHAIN REPAIR KIT (#140-2, 3P)	
	191-044	-	CHAIN REPAIR KIT (#140 ECH, 5P)	
23.	130-608	-	ROLLER LINK (#140-2)	
24.	130-617	-	ROLLER LINK PIN (#140-2)	
25.	130-615	-	LINK PLATE CLEVIS (#140-2)	
26.	130-609	-	LINK PLATE PIN (#140-2)	
27.	130-619	-	RIVET PIN (#140-2)	
28.	130-610	-	LINK PLATE-SLIP FIT (#140-2)	
29.	130-611	-	ARTICULATING INNER PLATE (#140-2)	
30.	130-618	-	ROLLER (#140-2)	
31.	107-103	1	LOCKNUT (M24-3.00, 10.9)	

FOOTNOTES

1. ADD COPPER TOOL JOINT COMPOUND (259-830) ; COPPER ARTIC FORMULA (259-858)
2. BEGINS WITH S/N 2T0711 AND INCLUDES S/N'S 2S2965, 2S3394, 2S3473, 2S3476, 2S3510, 2S3590, 2S3592, 2T0378, 2T0706

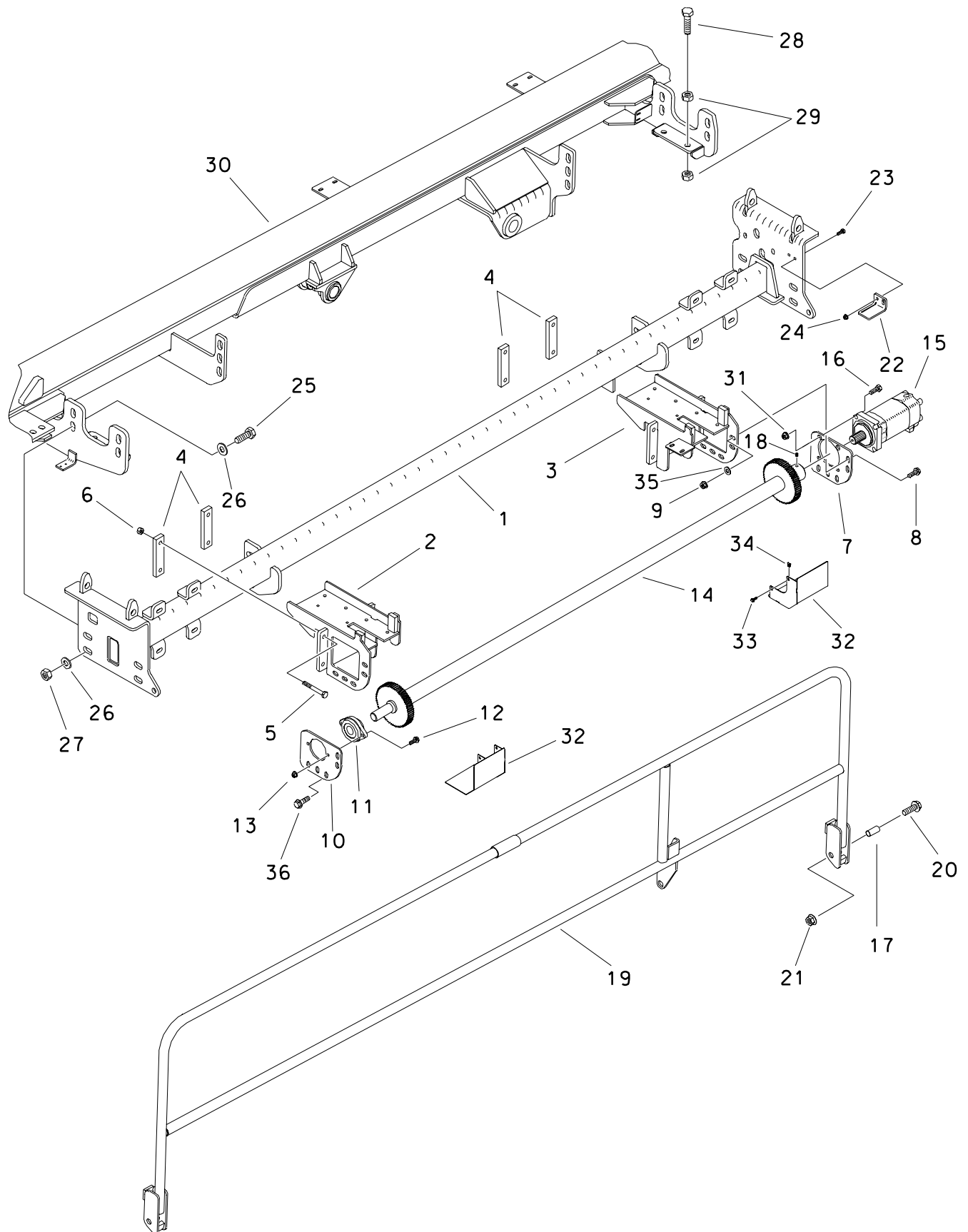
NOTES:

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PIPE LOADER SYSTEMS

PIPE LOADER MOUNT

ENDS WITH S/N 2S4079



PIPE LOADER MOUNT

ENDS WITH S/N 2S4079

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	354-553	1	PIPE LOADER	SEE FOOTNOTE 2
2.	343-235	1	SHUTTLE MOUNT (FRONT)	
3.	343-236	1	SHUTTLE MOUNT (REAR)	
4.	343-435	4	MOUNT PLATE	
5.	106-584	8	SCREW (M12-1.75 X 100mm)	
6.	106-685	8	LOCKNUT (M12-1.75, PRV TRQ, 10.9)	
7.	303-346	1	MOTOR MOUNTING PLATE	
8.	106-469	5	FLG SCREW (M12-1.75 X 30mm)	
9.	106-685	10	LOCKNUT (M12-1.75, PRV TRQ, 10.9)	
10.	343-341	1	BEARING MOUNT	
11.	125-605	1	FLANGE BEARING (1.250", 2-BLT)	
12.	106-383	2	FLG LK SCREW (M10-1.5 X 30mm)	
13.	106-387	2	FLG LOCKNUT (M10-1.50)	
14.	348-499	1	PINION SHAFT	
15.	158-022	1	HYD MOTOR	
	500-711		SEAL REPAIR KIT - REAR	
	500-758		SEAL REPAIR KIT - SHAFT	
16.	106-527	4	SCREW (M14-2.0 X 50mm, GD8)	
17.	354-935	2	SPACER	
18.	106-638	2	SET SCREW (M10-1.50 X 12mm)	
19.	354-585	1	SHUTTLE GUARD	
20.	105-466	2	BOLT (3/4-NC X 2-1/2")	
21.	105-953	2	LOCKNUT (3/4-NC)	
22.	343-225	-	ELECTRIC EYE MOUNT	
23.	105-806	2	SCREW (M8-1.25 X 25mm)	
24.	106-386	2	FLG LOCKNUT (M8-1.25)	
25.	106-798	14	SCREW (M20-2.50 X 55mm, 10.9)	
26.	105-384	14	WASHER (.750")	
27.	106-665	14	LOCKNUT (M20-2.50, 10.9)	
28.	105-625	4	SCREW (M20-2.5 X 80mm)	
29.	106-356	8	FLG NUT (M20-2.50, 10.9)	
30.	353-409	-	DRILL FRAME	
31.	107-319	4	LOCKNUT (M14-2.0, PRV TRQ, 10.9)	
32.	343-274	2	GEAR COVER	
33.	106-162	4	FLG SCREW (M8-1.25 X 20mm)	
34.	106-551	4	CLIP NUT (M8-1.25)	
35.	106-397	10	WASHER (M12, HARDENED)	
36.	106-632	5	FLG LK SCREW (M12-1.75 X 35MM)	

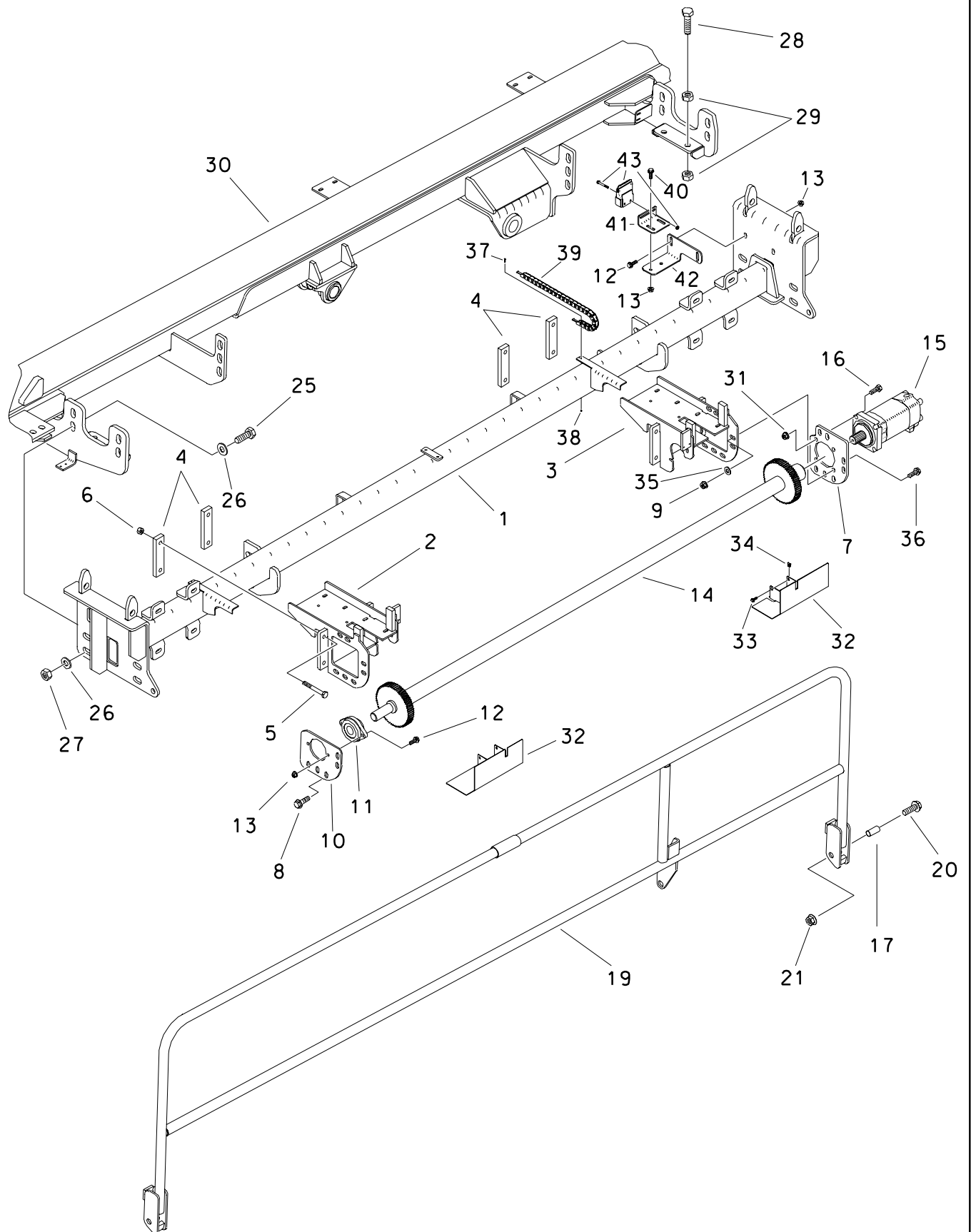
FOOTNOTES

NOTE

- SEE PAGE TITLED "SHUTTLE" AND PAGE TITLED "PIPE LOADER HYDRAULICS" FOR ITEMS NOT SHOWN ON THIS PAGE.
- THIS PIPE LOADER REPRESENTS THE PIPE LOADER FRAME CHANGE MADE @ S/N .
PIP LIFTERS USED AFTER SERIAL NUMBER MUST BE USED W/ THIS FRAME.

PIPE LOADER MOUNT

BEGINS WITH S/N 2S4122



PIPE LOADER MOUNT

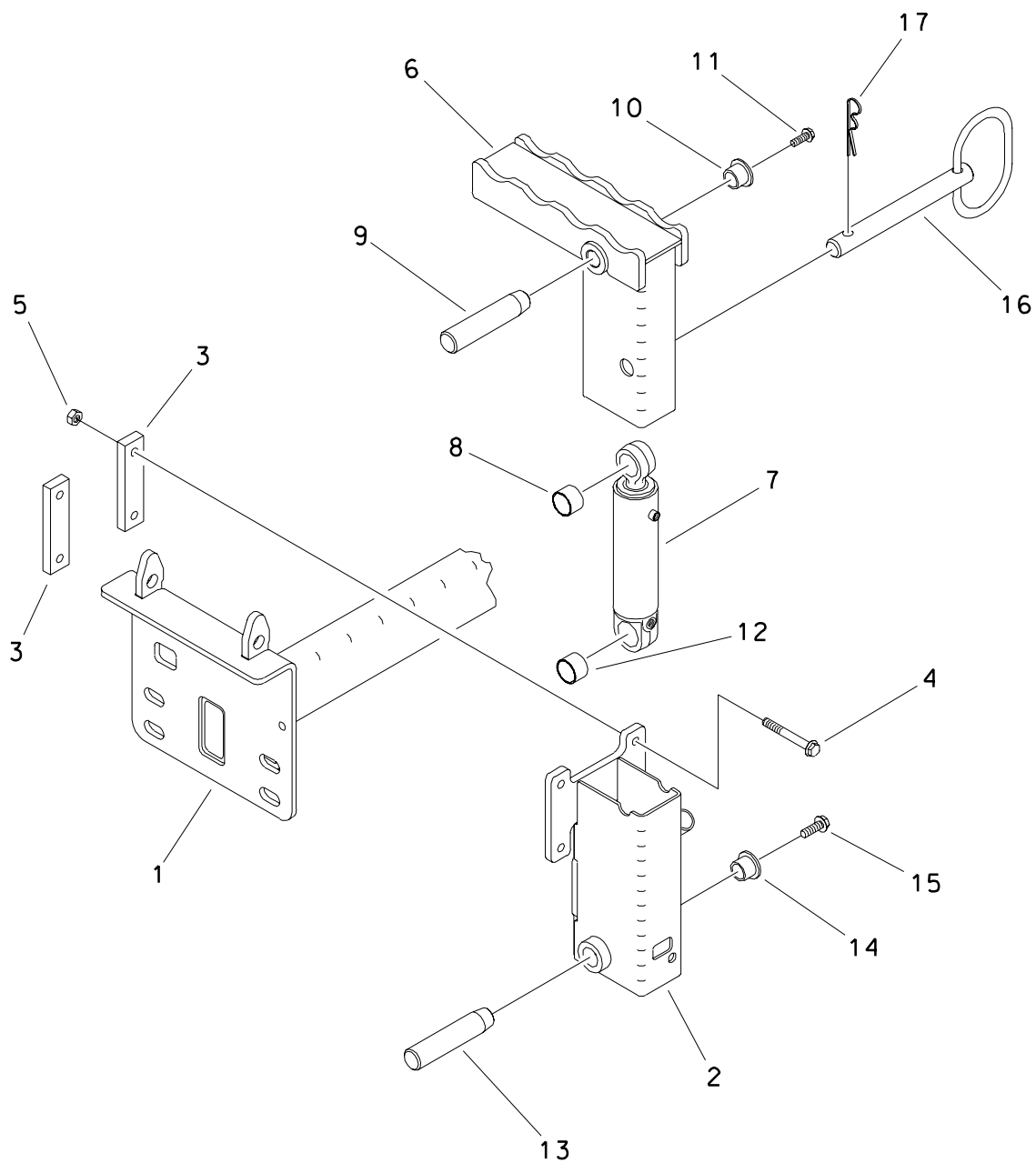
BEGINS WITH S/N 2S4122

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	354-553	1	PIPE LOADER	SEE FOOTNOTE 2
2.	343-235	1	SHUTTLE MOUNT (FRONT)	
3.	308-484	1	SHUTTLE MOUNT (REAR)	
4.	343-435	4	MOUNT PLATE	
5.	106-584	8	SCREW (M12-1.75 X 100mm)	
6.	106-685	8	LOCKNUT (M12-1.75, PRV TRQ, 10.9)	
7.	303-346	1	MOTOR MOUNT PLATE	
8.	106-469	5	FLG SCREW (M12-1.75 X 30mm)	
9.	106-685	10	LOCKNUT (M12-1.75, PRV TRQ, 10.9)	
10.	343-341	1	BEARING MOUNT	
11.	125-605	1	FLANGE BEARING (1.250", 2-BLT)	
12.	106-383	4	FLG LK SCREW (M10-1.5 X 30mm)	
13.	106-387	6	FLG LOCKNUT (M10-1.50)	
14.	348-499	1	PINION SHAFT	
15.	158-022	1	HYD MOTOR	
	500-711		SEAL REPAIR KIT - REAR	
	500-758		SEAL REPAIR KIT - SHAFT	
16.	106-527	4	SCREW (M14-2.0 X 50mm,)	
17.	354-935	2	SPACER	
18.	106-638	2	SET SCREW (M10-1.50 X 12mm)	
19.	354-585	1	SHUTTLE GUARD	
20.	106-074	2	SCREW (M16-2.00 X 60MM)	
21.	106-545	2	LOCKNUT (M16-2.0, PRV TRQ, 10.9)	
22.	343-225	-	ELECTRIC EYE MOUNT	
23.	105-806	2	SCREW (M8-1.25 X 25mm)	
24.	106-386	2	FLG LOCKNUT (M8-1.25)	
25.	106-798	14	SCREW (M20-2.50 X 55MM, 10.9)	
26.	105-384	14	WASHER (.750")	
27.	106-665	14	LOCKNUT (M20-2.50, 10.9)	
28.	105-625	4	SCREW (M20-2.5 X 80mm)	
29.	106-356	8	FLG NUT (M20-2.50, 10.9)	
30.	353-409	-	DRILL FRAME	
31.	107-319	4	LOCKNUT (M14-2.0, PRV TRQ, 10.9)	
32.	307-827	2	GEAR COVER	
33.	106-162	4	FLG SCREW (M8-1.25 X 20mm)	
34.	106-551	4	CLIP NUT (M8-1.25)	
35.	106-397	10	WASHER (M12, HARDENED)	
36.	106-632	5	FLG LK SCREW (M12-1.75 X 35MM)	
37.	106-367	4	SCREW (#6-32 X 1/2", PLPS, SS)	
38.	106-368	4	NUT (#6-32 SS)	
39.	307-555	-	WIRE TRACK	SERVICE PART, COMPONENT OF 214-679
40.	106-724	2	FLG SCREW (M10-1.50 X 25MM)	
41.	307-332	1	REAR MOUNT BRACKET	
42.	307-333	1	REAR MOUNT BRACKET	
43.	N/A	-	APPLICATOR SUB ASS'Y	SEE FOOTNOTE 3

FOOTNOTES

- SEE PAGE TITLED "SHUTTLE" AND PAGE TITLED "PIPE LOADER HYDRAULICS" FOR ITEMS NOT SHOWN ON THIS PAGE.
- THIS PIPE LOADER REPRESENTS THE PIPE LOADER FRAME CHANGE MADE @ S/N .
PIPE LIFTERS USED AFTER SERIAL NUMBER MUST BE USED W/ THIS FRAME.
- SEE PAGE TITLED "APPLICATOR ASSEMBLY" FOR ADDITIONAL PARTS BREAK OUT.

PIPE LOADER LIFTERS END W/SN



PIPE LOADER LIFTERS
END W/SN

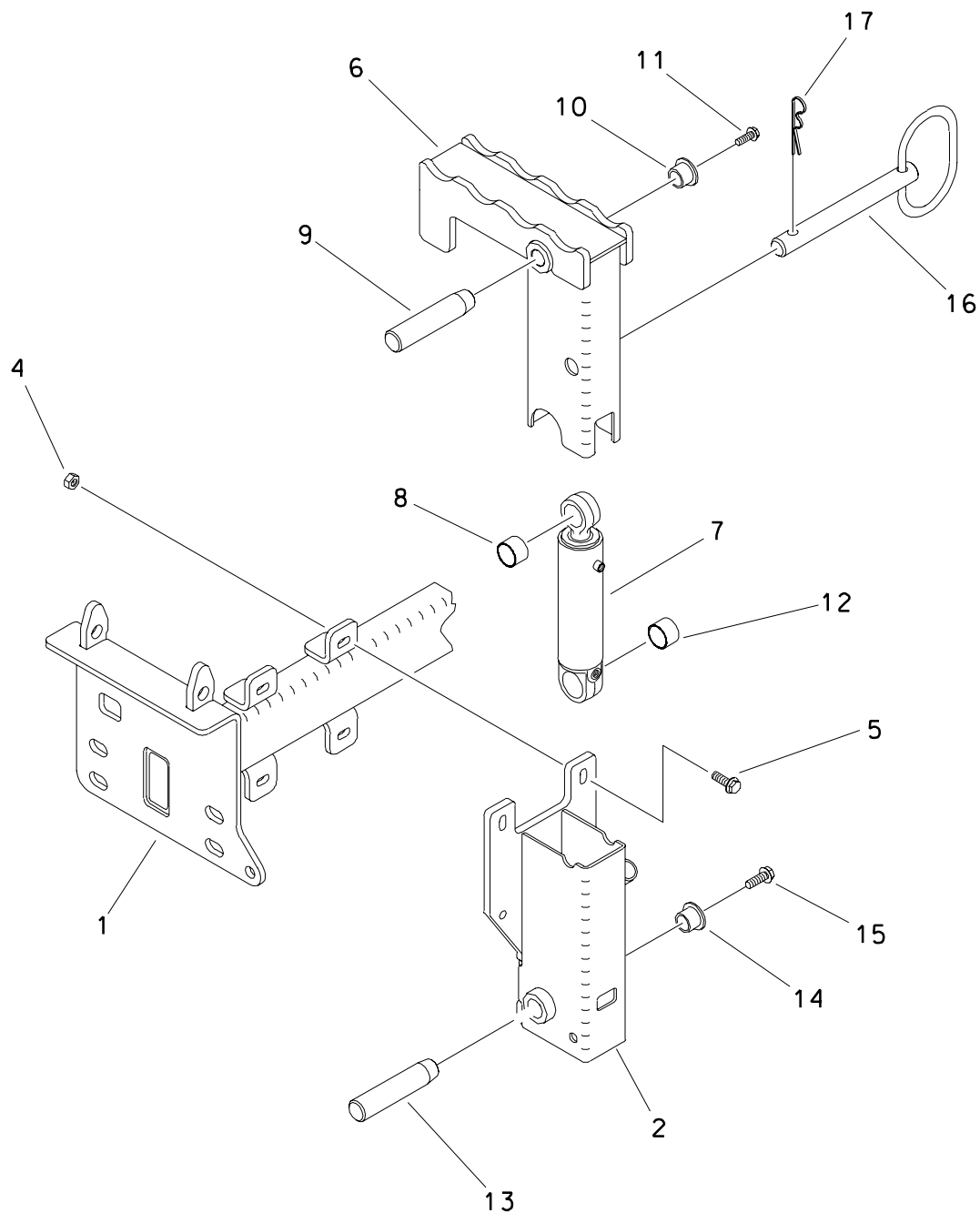
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	354-553	-	PIPE LOADER	
2.	305-685	2	OUTER LIFTER TUBE	SEE FOOTNOTE 1
3.	343-435	4	MDUNT PLATE	
4.	106-584	8	SCREW (M12-1.75 X 100mm)	
5.	106-685	8	LOCKNUT (M12-1.75, PRV TRQ,10.9)	
6.	305-684	2	LIFTER	
7.	151-044	2	CYL (2" X 1" X 6")	
8.	125-770	2	COMPOSITION BUSHING (1")	
9.	179-024	2	TAPERED PIN (25.4mm X 117mm)	
10.	181-981	2	TAPERED INSERT (1")	
11.	106-724	2	FLG SCREW (M10-1.50 X 25mm)	
12.	125-771	2	COMPOSITION BUSHING (1.25")	
13.	183-863	2	TAPERED PIN (31.7mm X 128mm)	
14.	181-982	2	TAPERED INSERT (1.25")	
15.	106-469	2	FLG SCREW (M12-1.75 X 30mm)	
16.	180-559	2	PULL PIN (1" X 4.625")	
17.	110-128	2	SPRING CLIP PIN (5/32" X 1")	

FOOTNOTES

1. REFER TO INSTALLATION INSTRUCTIONS 051-223 TO INSTALL LIFT TUBE BRACKETS

PIPE LOADER LIFTERS

BEGIN W/SN



PIPE LOADER LIFTERS

BEGIN W/SN

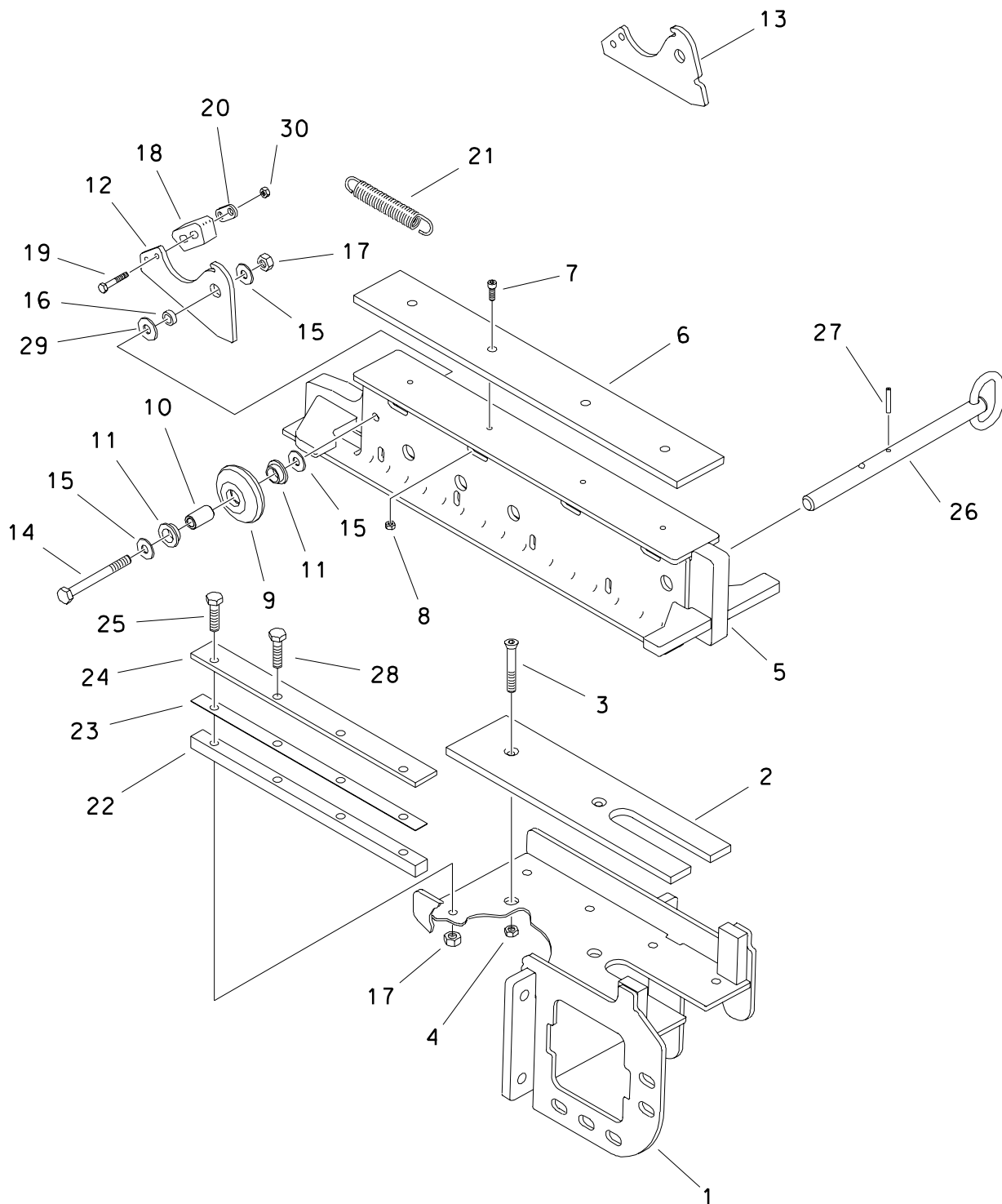
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	354-553	-	PIPE LOADER	
2.	305-685	2	OUTER LIFTER TUBE	SEE FOOTNOTE 1
3.	110-128	2	SPRING CLIP PIN (5/32" X 1")	
4.	106-709	8	FLG LK NUT (M12-1.75)	
5.	107-004	8	FLG LK SCREW (M12-1.75 X 45MM)	
6.	305-684	2	LIFTER	
7.	151-044	2	CYL (2" X 1" X 6")	
8.	125-770	2	COMPOSITION BUSHING (1")	
9.	179-024	2	TAPERED PIN (25.4mm X 117mm)	
10.	181-981	2	TAPERED INSERT (1")	
11.	106-724	2	FLG SCREW (M10-1.50 X 25mm)	
12.	125-771	2	COMPOSITION BUSHING (1.25")	
13.	183-863	2	TAPERED PIN (31.7mm X 128mm)	
14.	181-982	2	TAPERED INSERT (1.25")	
15.	106-469	2	FLG SCREW (M12-1.75 X 30mm)	
16.	180-559	2	PULL PIN (1" X 4.625")	

FOOTNOTES

1. REFER TO INSTALLATION INSTRUCTIONS 051-223 TO INSTALL LIFT TUBE BRACKETS

SHUTTLE

ENDS WITH S/N 2S4079



SHUTTLE

ENDS WITH S/N 2S4079

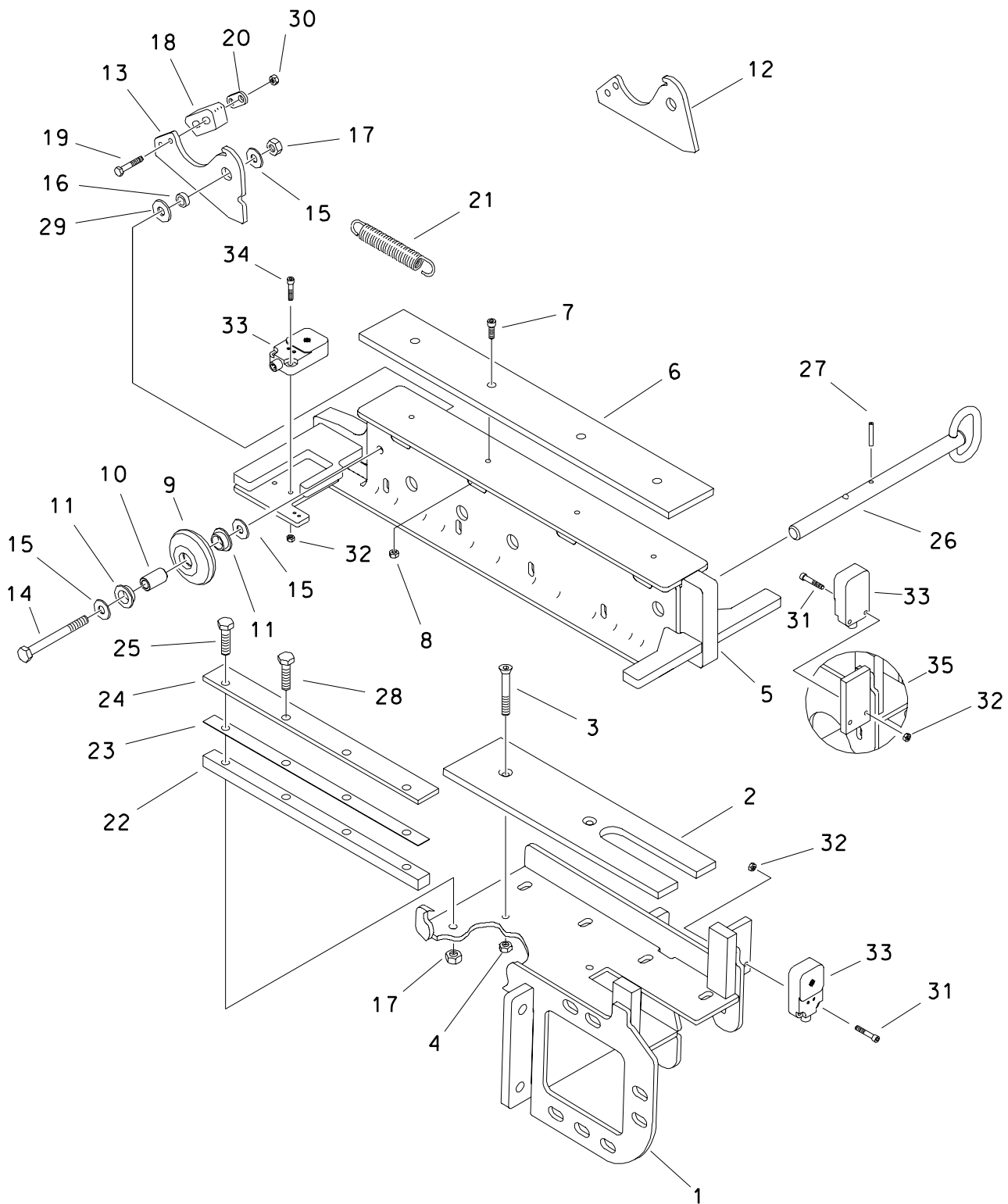
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	343-235	-	SHUTTLE MOUNT (FRONT)	
2.	343-301	2	BEARING PLATE	
3.	106-916	4	BOLT (M8-1.25 X 25mm, SDC)	SEE FOOTNOTE 1
4.	106-386	8	FLG LOCKNUT (M8-1.25)	
5.	343-499	2	SHUTTLE	
6.	343-599	2	WEAR STRIP	
7.	106-640	8	SCREW (M6-1.00 X 20mm, BUT SOC)	SEE FOOTNOTE 1
8.	106-237	4	LOCKNUT (M6-1.00, PRV TRQ, NLK)	
9.	170-340	2	ROLLER	
10.	178-076	2	BUSHING	
11.	348-778	4	BUSHING	
12.	343-267	2	LATCH	USED WITH 2.063" DRILL PIPE
13.	350-624	2	LATCH	USED WITH 2.235" DRILL PIPE
14.	106-564	2	SCREW (M10-1.50 X 100mm)	
15.	105-118	6	WASHER (3/8")	
16.	184-888	2	SPACER	
17.	105-894	18	LOCKNUT (M10-1.5, PRV TRQ, 10.9)	
18.	163-207	2	PIPE GRIPPER	
19.	106-267	4	SCREW (M8-1.25 X 35mm)	
20.	306-706	2	WASHER PLATE	
21.	116-709	2	EXTENSION SPRING	
22.	353-373	4	SPACER BAR	
23.	353-452	8	PLATE, SHIM	
24.	353-453	4	BAR, RETAINER	
25.	105-996	16	SCREW (M10-1.50 X 45mm)	SEE FOOTNOTE 1
26.	185-154	2	PULL PIN (3/4" X 7")	
27.	115-545	2	EXTERNAL SNAP RING (.75")	USED ON OLDER STYLE PINS
	105-525	2	ROLL PIN (3/16" X 1-1/4")	
28.	105-271	4	SCREW (M10-1.5 X 40mm)	
29.	105-886	2	WASHER (.410")	
30.	106-561	4	LOCKNUT (M8-1.25, PRV TRQ, 10.9)	

FOOTNOTES

1. TIGHTEN PLASTIC DOWN WITH BOLTS, DO NOT DEFORM PLASTIC.

SHUTTLE

BEGINS WITH S/N 2S4122



SHUTTLE

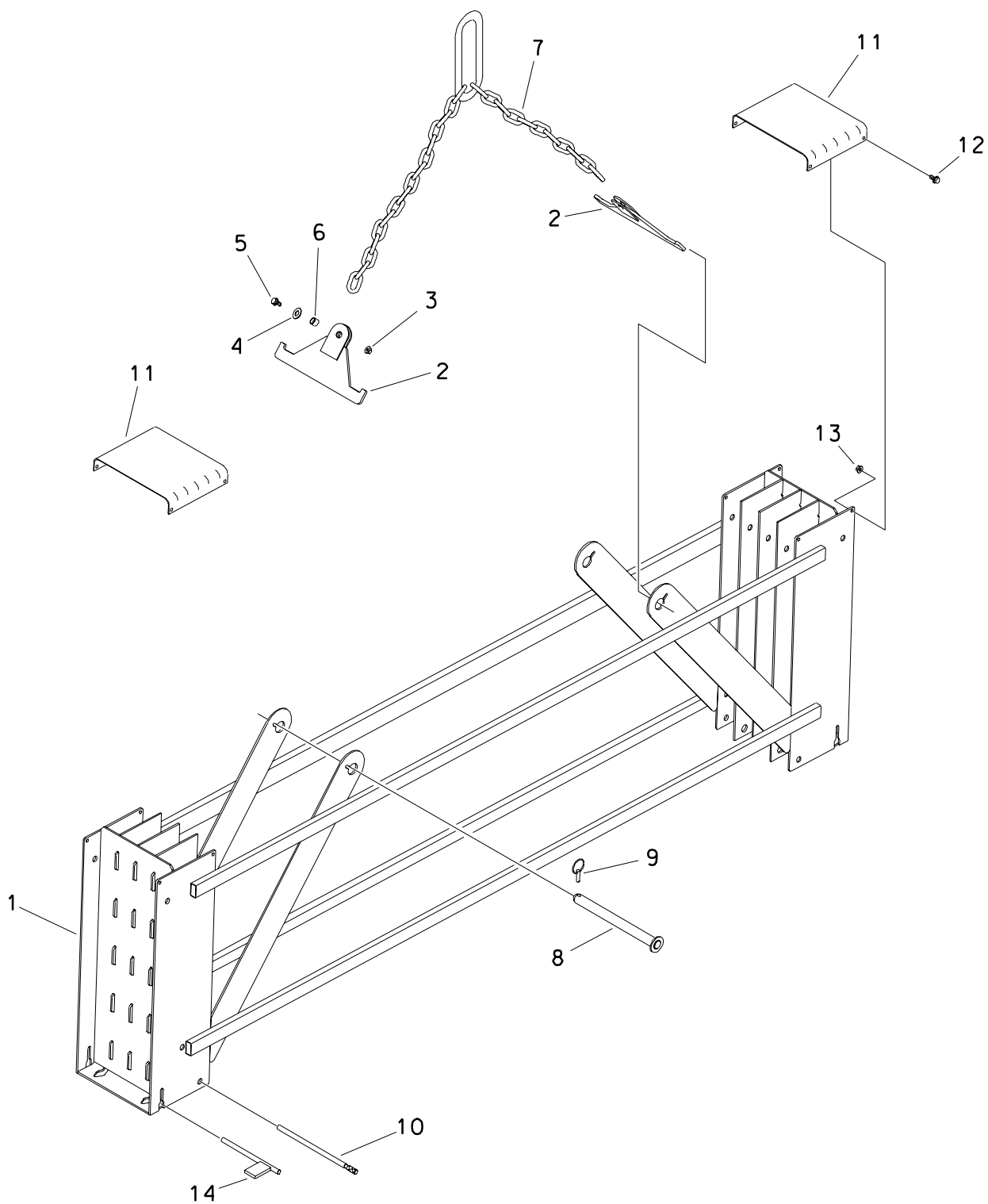
BEGINS WITH S/N 2S4122

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	343-235	-	SHUTTLE MOUNT (FRONT)	
2.	343-301	2	BEARING PLATE	
3.	106-916	4	SCREW (M8-1.25 X 25mm, ALN)	SEE FOOTNOTE 1
4.	106-386	8	FLG LOCKNUT (M8-1.25)	
5.	308-493	2	SHUTTLE	
6.	343-599	2	WEAR STRIP	
7.	106-640	8	SCREW (M6-1.00 X 20mm, BUT SOC)	SEE FOOTNOTE 1
8.	106-237	8	LOCKNUT (M6-1.00, PRV TRQ, NLK)	
9.	170-340	2	ROLLER	
10.	178-076	2	BUSHING	
11.	348-778	4	BUSHING	
12.	343-267	2	LATCH	USED WITH 2.063" DRILL PIPE
13.	350-624	2	LATCH	USED WITH 2.235" DRILL PIPE
14.	106-564	2	SCREW (M10-1.50 X 100mm)	
15.	105-118	6	WASHER (3/8")	
16.	184-888	2	SPACER	
17.	105-894	18	LOCKNUT (M10-1.5, PRV TRQ, 10.9)	
18.	163-207	2	PIPE GRIPPER	
19.	106-267	4	SCREW (M8-1.25 X 35mm)	
20.	306-706	2	WASHER PLATE	
21.	116-709	2	EXTENSION SPRING	
22.	353-373	4	SPACER BAR	
23.	353-452	8	PLATE, SHIM	
24.	353-453	4	BAR, RETAINER	
25.	105-996	16	SCREW (M10-1.50 X 45mm)	SEE FOOTNOTE 1
26.	107-449	2	PULL PIN (3/4" X 7 - 1/2")	
27.	115-545	2	EXTERNAL SNAP RING (.75")	USED WITH OLDER STYLE PIN
	105-525	2	ROLL PIN (3/16" X 1-1/4")	
28.	105-271	4	SCREW (M10-1.5 X 40mm)	
29.	105-886	2	WASHER (.410)	
30.	106-561	4	LOCKNUT (M8-1.25, PRV TRQ, 10.9)	
31.	107-465	4	SCREW (M5-0.80 X 30MM, SOC)	
32.	106-850	8	LOCKNUT (M5-0.80)	
33.	214-692	4	PROXIMITY SWITCH	
34.	106-426	4	SCREW (M5-0.80 X 25MM, SOC)	
35.	343-236	1	SHUTTLE MOUNT (REAR)	

FOOTNOTES

1. TIGHTEN PLASTIC DOWN WITH BOLTS, DO NOT DEFORM PLASTIC.

PIPE BOX



PIPE BOX

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	353-415	1	PIPE BOX	
2.	343-691	2	SPREADER BAR	
3.	106-077	2	NUT (M16-2.00, 10.9)	
4.	106-398	2	WASHER (M16, HARDENED)	
5.	106-470	2	FLG SCREW (M16-2.00 X 40mm)	
6.	184-906	2	CHAIN ANCHOR BOSS	
7.	111-042	1	SLING CHAIN	
8.	359-948	2	PIPE BOX PIN	
9.	110-228	2	LYNCH PIN (7/16" X 2")	
10.	343-485	2	PIN (44.45mm x 429mm)	
11.	353-419	2	COVER	
12.	106-382	8	FLG LK SCREW (M10-1.5 X 20mm)	
13.	106-387	8	FLG LOCKNUT (M10-1.50)	
14.	359-735	2	RETAINER PIN	

FOOTNOTES

AUXILIARY PIPE BOX

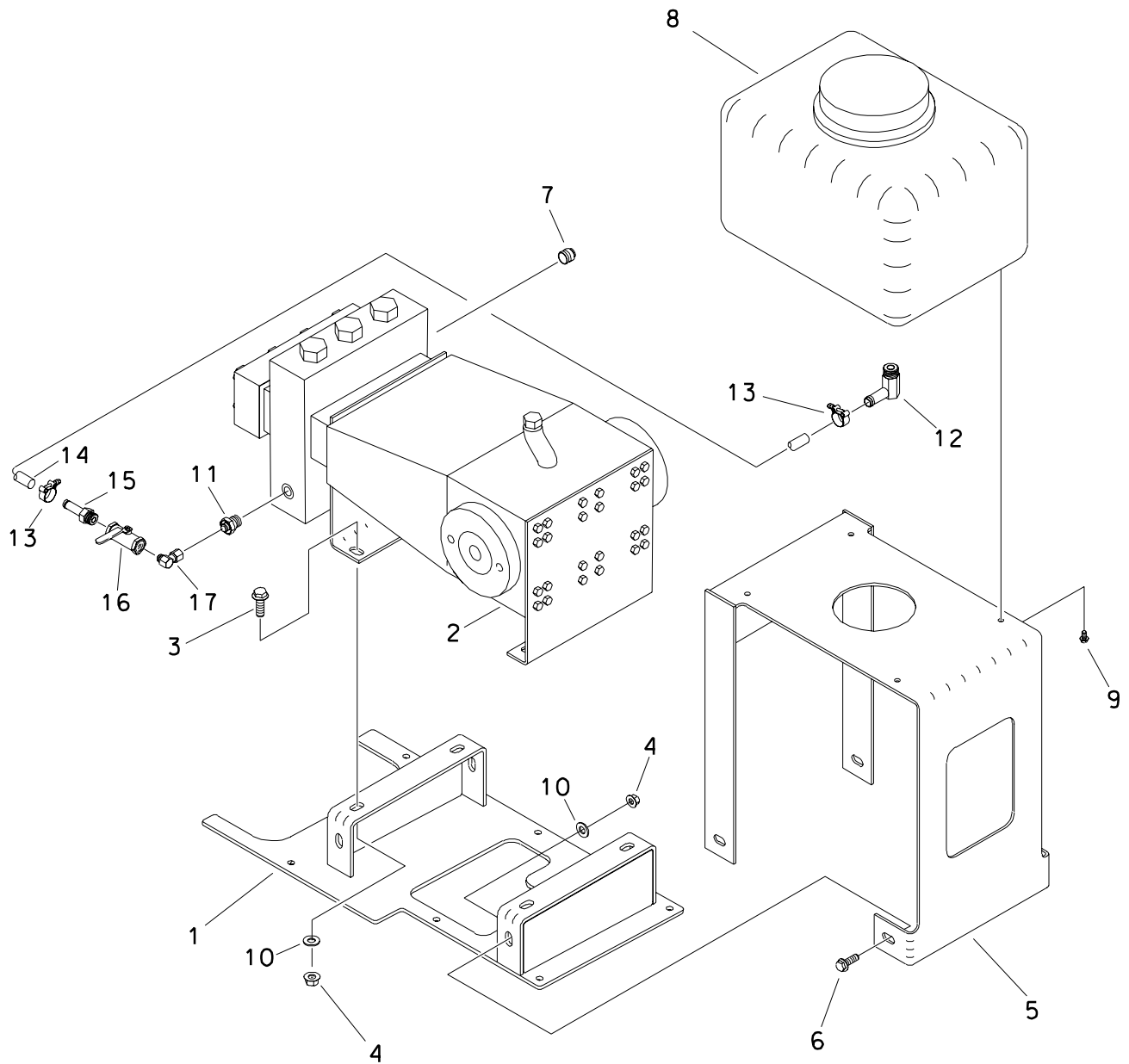
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	190-862	-	PIPE BOX KIT (SMALL)	INCLUDES ITEMS 1, 8 - 14
1.	343-243	1	PIPE BOX (SMALL)	
2.	343-691	2	SPREADER BAR	
3.	106-077	2	NUT (M16-2.00, 10.9)	
4.	106-398	2	WASHER (M16, HARDENED)	
5.	106-470	2	FLG SCREW (M16-2.00 X 40mm)	
6.	184-906	2	CHAIN ANCHOR BOSS	
7.	111-042	1	SLING CHAIN	
8.	359-948	2	PIPE BOX PIN	
9.	110-228	2	LYNCH PIN (7/16" X 2")	
10.	343-485	2	PIN (44.45mm x 429mm)	
11.	353-419	2	COVER	
12.	106-382	8	FLG LK SCREW (M10-1.50 X 20mm)	
13.	106-387	8	FLG LOCKNUT (M10-1.50)	
14.	359-735	2	RETAINER PIN	

FOOTNOTES

NOTES:

FLUID SYSTEMS

MUD PUMP & ANTIFREEZE TANK



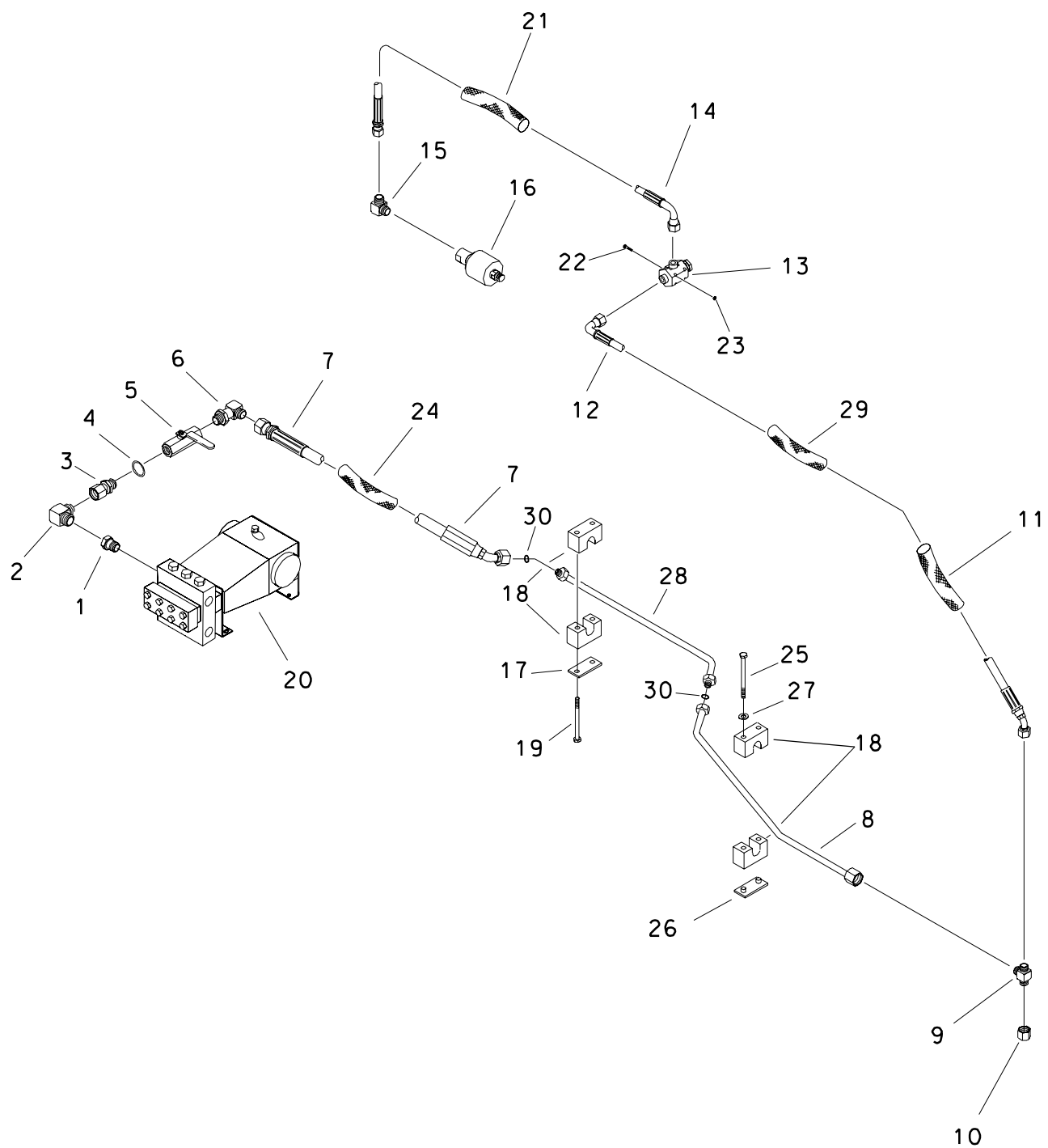
MUD PUMP & ANTIFREEZE TANK

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	190-838		ANTIFREEZE KIT	INCL REF NO.'S 5, 8, & 12 THRU 16, 18, & FOOTNOTE 1
1.	343-563	-	COVER	
2.	158-016	-	MUD PUMP (10.8 CU/IN, 46 GPM)	
3.	106-383	4	FLG LK SCREW (M10-1.75 X 30mm)	
4.	105-894	8	LOCKNUT (M10-1.5, PRV TRQ, 10.9)	
5.	343-241	1	TANK SUPPORT	
6.	106-724	4	FLG SCREW (M10-1.50 X 25mm)	
7.	149-120	1	DUST PLUG (32 FHC)	LOCTITE 567
8.	364-515	1	WATER TANK (8 GAL)	
	110-707		TANK CAP (96NF)	
	190-053		POLY-PATCH TANK REPAIR KIT	
	514-400	1	BK CONNECTOR (16NF-16NFBK, NYLON)	
	157-490	1	BK CONNECTOR (16NF, POLY)	SEE FOOTNOTE 2
9.	105-836	4	FLG LOCK BOLT (1/4-NC X 1/2")	
10.	106-397	8	WASHER (M12, HARDENED)	
11.	514-438	1	REDUCER (32N-16N)	LOCTITE 567
12.	155-137	1	S/O COUPLER (16N-16H90)	LOCTITE 567
13.	111-027	2	T-BOLT CLAMP (1.25"-1.50")	
14.	116-460	AR	BULK HOSE (1", SOLD PER 1')	USE 1 @ 15"
15.	155-136	1	S/O COUPLER (16N-16H)	LOCTITE 567
16.	514-318	1	SHUT-OFF (16NF-16NF)	
17.	155-113	1	UNION (16N-16NFX90)	LOCTITE 567

FOOTNOTES

1. REFER TO INSTRUCTION DIAGRAM 051-254.
2. HOLES MAY REQUIRE MODIFICATION FOR NEW FITTINGS.

MUD PUMP HYDRAULICS



MUD PUMP HYDRAULICS

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	115-261	1	REDUCER (24N-16NF)	LOCKTITE 567
2.	510-011	2	CONNECTOR (16N-160)	LOCKTITE 567
3.	510-014	1	UNION (16J-160FX)	
4.	155-748	1	O-RING (916 D90)	
5.	120-074	1	SHUT-OFF VALVE (16S-16S)	
6.	154-289	1	CONNECTOR (16S-16090, XL)	
7.	149-514	1	HOSE (160FX45S-50"-3000)	
8.	149-483	1	HYD LINE (160FX-160FX)	DRILL MUD
9.	510-018	1	TEE (16J-160-160)	
10.	510-016	1	CAP (16JF)	
11.	117-292	1	ABRASION SLEEVE (2.07" X 70")	
12.	515-709	1	HOSE (160FX45/90-160"-3000)	
13.	159-451	1	CHECK VALVE	
	599-188		CHECK VALVE UPGRADE KIT	
	190-973		CHECK VALVE REPAIR KIT	
	190-891		CHECK VALVE KIT	
	149-515		RETAINER	
	305-927		BALL GUIDE	
	499-104		BRASS WASHER	
	499-105		BALL AND SEAT	
	499-106		SPRING	
	117-264		SPRING	
	499-107		O-RING SET	
14.	515-725	1	HOSE (16FX90S-31"-3000)	
15.	510-011	1	CONNECTOR (16N-16090)	
16.	159-382	1	WATER SWIVEL (16N-16NF)	
	190-905		SWIVEL REPAIR KIT	
17.	322-289	1	BACKUP (BOLT-ON)	
18.	110-573	2	BOLT-ON CLAMP (1", SOLD PER SET)	
19.	105-818	2	BOLT (1/4-NC X 1-1/2")	
20.	158-016	1	MUD PUMP (10.8 CU/IN, 46 GPM)	
21.	115-061	1	ABRASION SLEEVE (2.07" X 26")	
22.	105-624		SCREW (M8-1.25 X 70MM, SOC)	
23.	107-096		LOCKNUT (M8-1.25, NLK)	
24.	117-293	1	ABRASION SLEEVE (2.07" X 46")	
25.	105-224	2	BOLT (1/4-NC X 2-1/2")	
26.	322-290	1	MOUNT (WELD-ON)	
27.	105-284	2	WASHER (3/16")	
28.	149-484	1	HYD LINE (160-160FX)	DRILL MUD
29.	117-295	1	ABRASION SLEEVE (2.07" X 60")	
30.	155-714	2	O-RING (021 D90)	

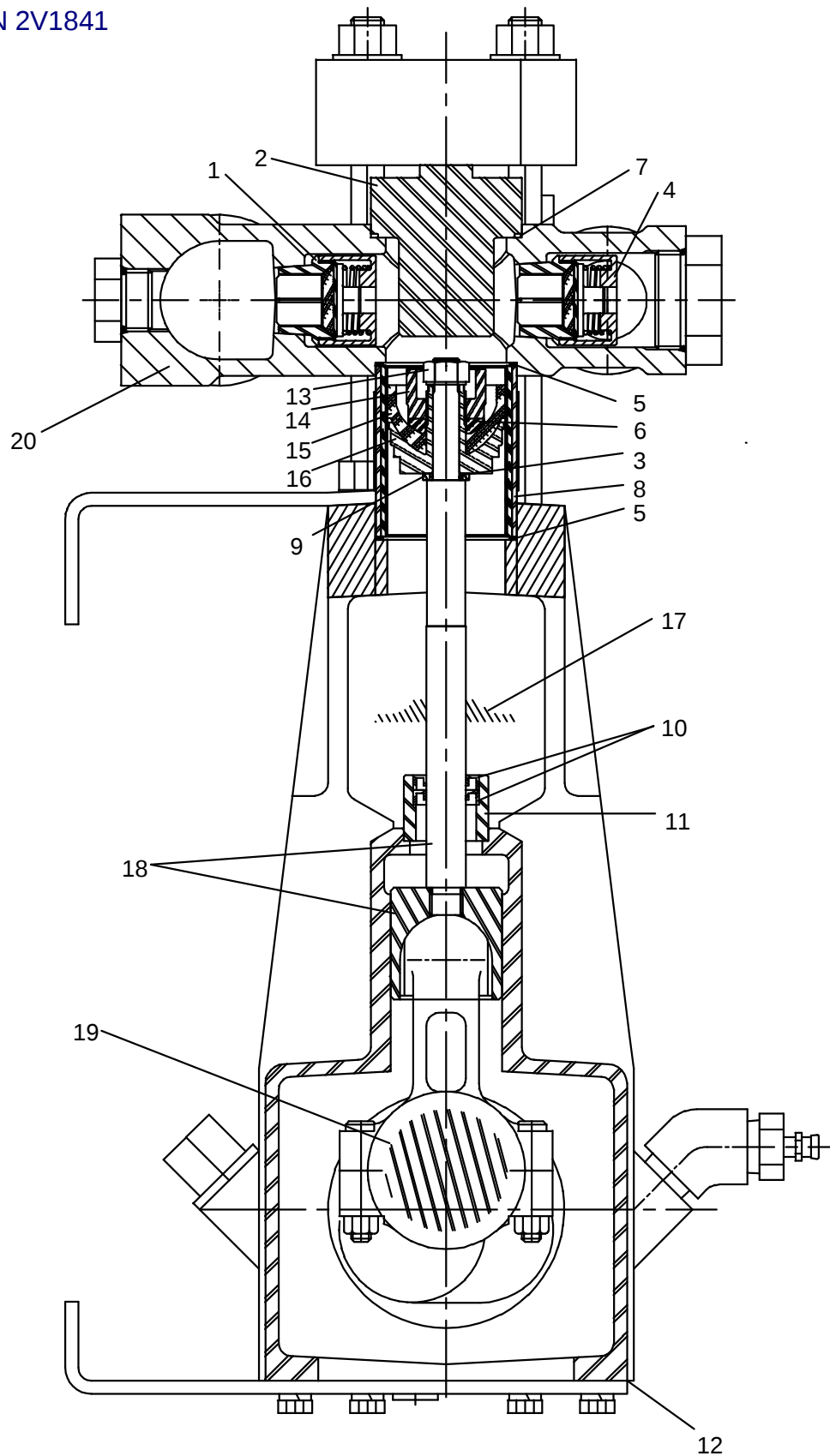
FOOTNOTES

1. CHECK VALVE UPGRADE KIT CONTAINS PARTS TO CHANGE CHECK VALVE TO NEW DESIGN. REFER TO INSTRUCTIONS 052-228.
2. THIS REPAIR KIT REBUILDS CHECK VALVE. IF THE VALVE HAS NOT BEEN UPGRADED ALSO ORDER A NEW RETAINER. REFER TO INSTRUCTIONS 052-228.

NOTE

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

MUD PUMP
46 GPM
ENDS WITH S/N 2V1841



MUD PUMP

46 GPM

ENDS WITH S/N 2V1841

REF	PART				
NO.	NUMBER	QTY	DESCRIPTION	REMARKS	
	158-016	-	MUD PUMP (17.9 CU/IN, 46 GPM)		
	190-801		SEAL REPAIR KIT	INCLUDES 3,5,7,15.	
	191-094		PACKING REPAIR KIT		
	197-059		REBUILT MUD PUMP		
	190-802		VALVE REPAIR KIT	INCLUDES 1.4	
1.	499-110	3	VALVE - SUCTION AR		
2.	499-118	3	CYLINDER COVER		
3.	499-116	3	O-RING (014 D70)		
4.	499-111	3	VALVE - DISCHARGE AR		
5.	165-730	3	CYLINDER GASKET		
6.	499-119	3	WASHER		
7.	499-115	3	O-RING (146 D70)		
8.	499-112	3	CERAMIC CYLINDER		
9.	499-113	3	SEAL HOLDER		
10.	499-125	6	EXTERNAL SEAL		
11.	499-126	3	SEAL HOLDER		
12.	499-123	1	BASE GASKET		
13.	107-734	3	LOCKNUT (1/2-NC, BRASS)		
14.	499-039	3	PLUNGER NUT		
15.	499-121	3	PISTON CUP (HSN)	SEE FOOTNOTE 1. OBSOLETE	
16.	499-117	3	PISTON HOLDER		
17.	153-438	3	WIPER SEAL		
18.	499-392	3	CROSSHEAD ROD ASSEMBLY		
19.	499-393	3	ROD BEARING (PAIR)		
20.	499-569	1	FLUID CYLINDER (L06)		

NOT SHOWN:

499-122	2	BEARING HOUSING GASKET
499-124	1	GREASE SEAL
259-352	-	FMC PISTON/PACKING TOOL
259-470	-	FMC VALVE TOOL
499-394	1	SIGHT GAGE (FMC)

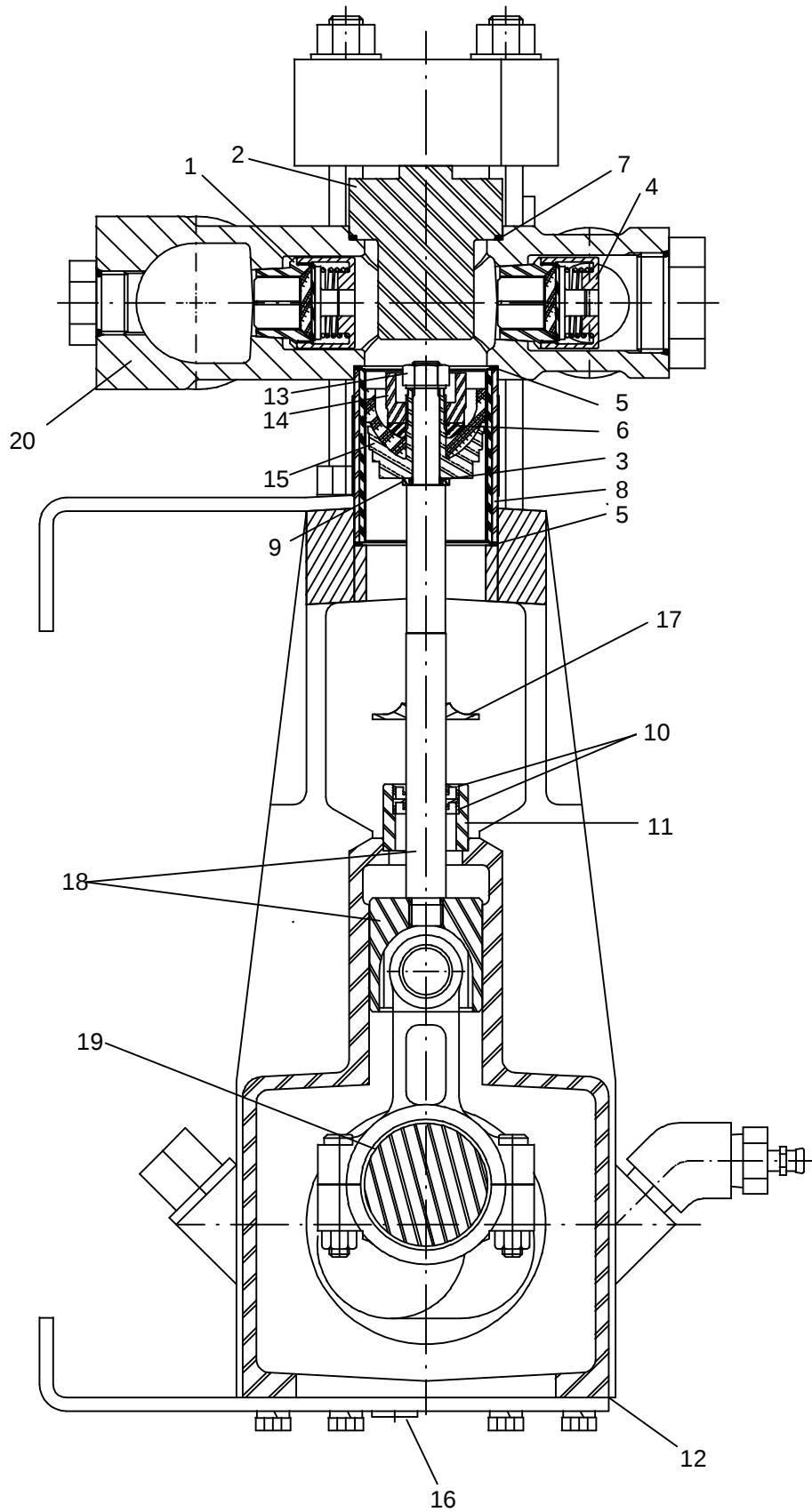
FOOTNOTES:

1. INDIVIDUAL PISTON CUPS NO LONGER AVAILABLE. ORDER SEAL REPAIR KIT 190-801.

NOTE:

MUD PUMP

46 GPM BEGINS WITH S/N 2V1841



MUD PUMP

46 GPM BEGINS WITH S/N 2V1841

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	153-544	-	MUD PUMP (17.9 CU/IN, 46 GPM)	
	191-094		PACKING REPAIR KIT	INCLUDES 3,5,7 & PISTON CUPS
	197-083		REBUILT MUD PUMP	
	190-802		VALVE REPAIR KIT	INCLUDES 1,4
1.	499-110	3	VALVE - SUCTION AR	
2.	499-118	3	CYLINDER COVER	
3.	499-116	3	O-RING (014 D70)	
4.	499-111	3	VALVE - DISCHARGE AR	
5.	165-730	3	CYLINDER GASKET	
6.	499-119	3	WASHER	
7.	499-115	3	O-RING (146 D70)	
8.	499-302	3	CERAMIC CYLINDER	
9.	499-113	3	SEAL HOLDER	
10.	499-125	6	EXTERNAL SEAL	
11.	499-126	3	SEAL HOLDER	
12.	499-123	1	BASE GASKET	
13.	499-114	3	NUT (HEX, SPECIAL, BRASS)	
14.	499-039	3	PLUNGER NUT	
15.	310-962	3	PISTON HOLDER	
16.	499-394	1	SIGHT GAGE	
17.	153-438	1	WIPER SEAL	
18.	499-392	1	CROSSHEAD ROD ASSEMBLY	
19.	499-393	1	ROD BEARING (PAIR)	
20.	499-569	1	FLUID CYLINDER (L06)	

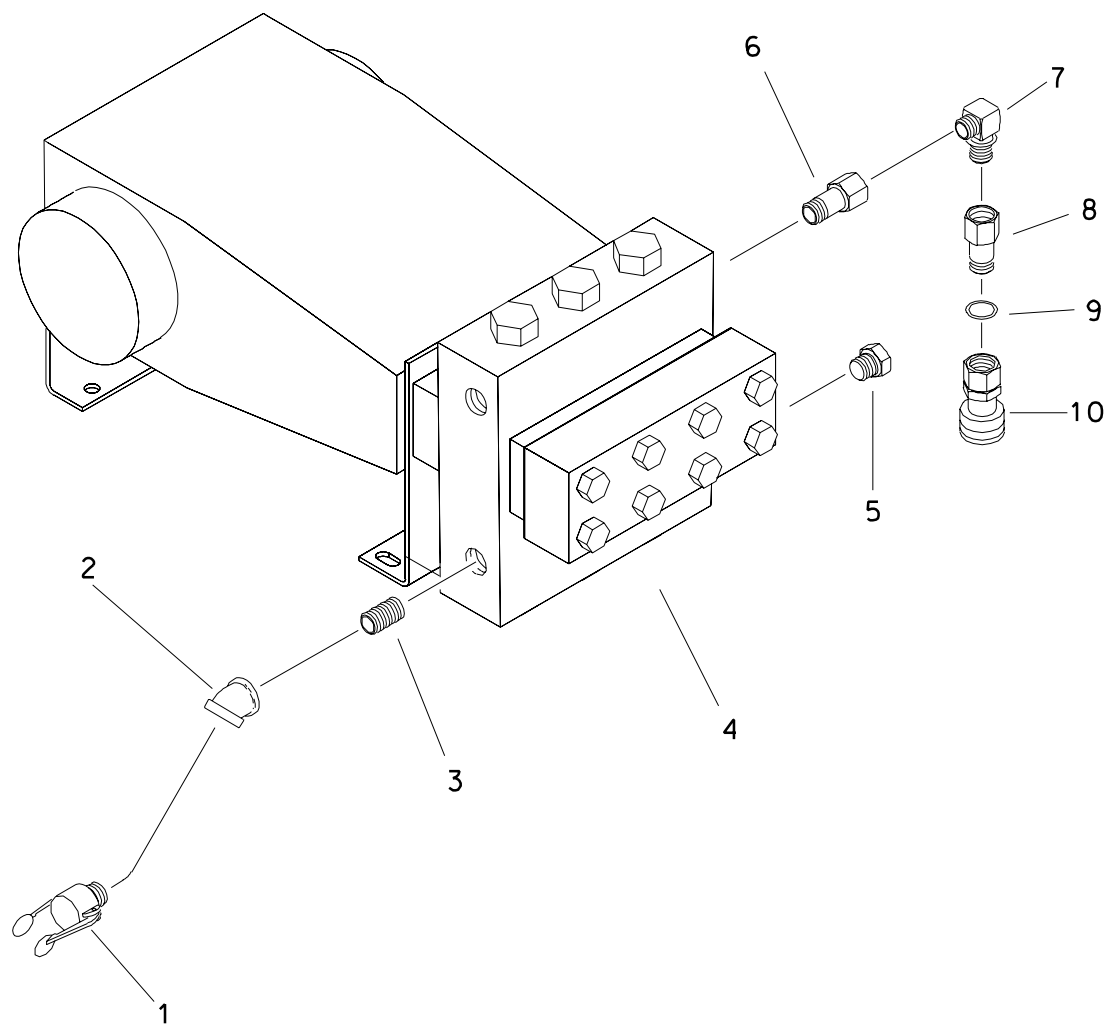
NOT SHOWN:

499-122	2	BEARING HOUSING GASKET
499-124	1	GREASE SEAL
259-352	-	FMC PISTON/PACKING TOOL
259-470	-	FMC VALVE TOOL

FOOTNOTES:

NOTE:

MUD PUMP INLET & WASH WAND CONNECTION



MUD PUMP INLET & WASH WAND CONNECTION

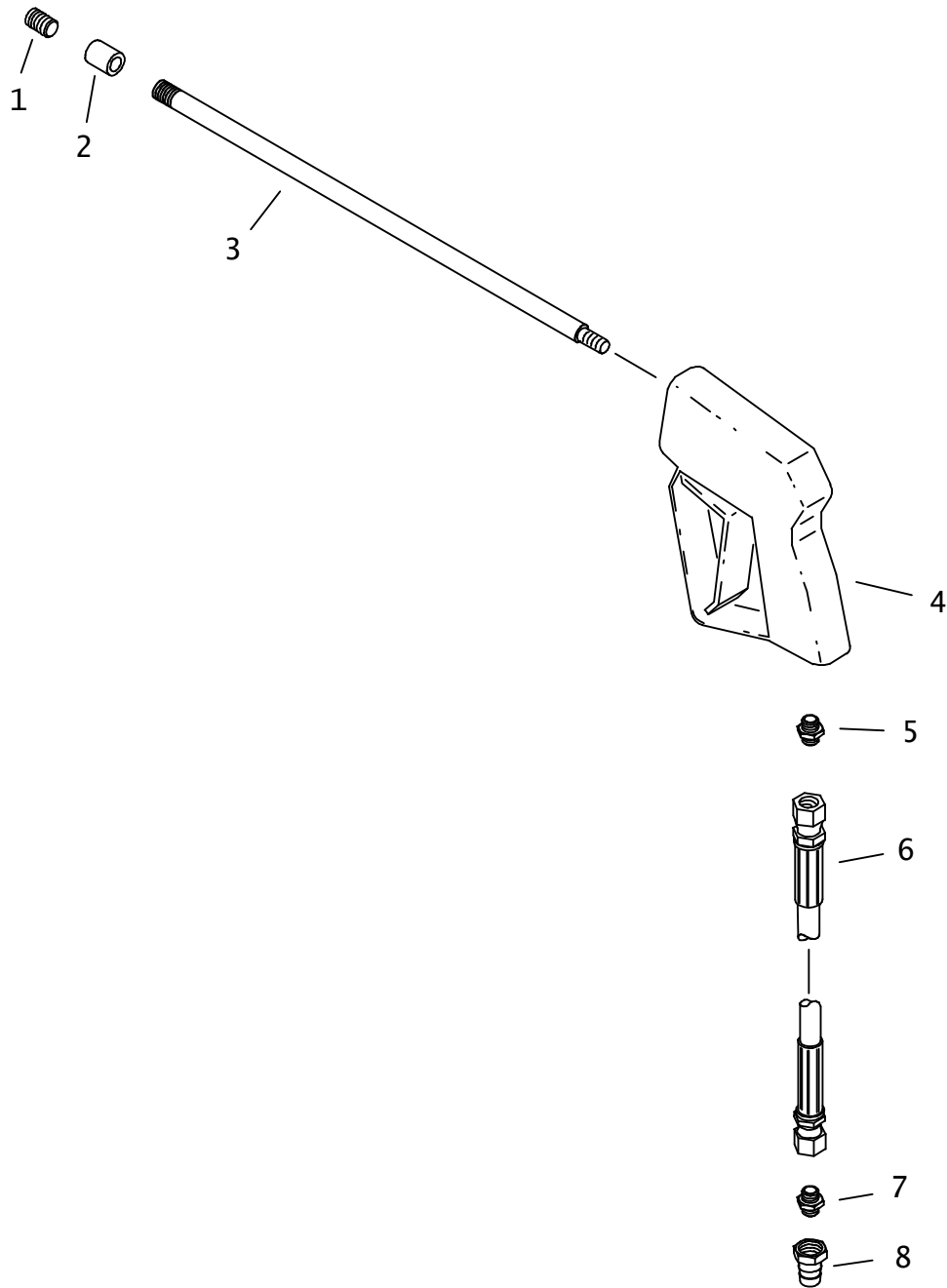
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	159-485	1	FHC BODY (32-32N)	LOCTITE 567
2.	115-297	1	CONNECTOR (32NF-32NF45)	
3.	115-295	2	ALL THREAD (32N-3")	LOCTITE 567
4.	158-016	-	MUD PUMP (10.8 CU/IN, 46GPM)	
5.	114-008	1	PLUG (32N, SQ, GALV)	LOCTITE 567
6.	115-271	1	REDUCER (24N-12NF)	LOCTITE 567
7.	154-490	1	CONNECTOR (12N-08090)	LOCTITE 567
8.	156-732	1	CONNECTOR (08J-080)	
9.	155-706	1	O-RING (908 D90)	
10.	159-088	1	QDC BODY (08-08SF)	
	190-186	1	SEAL REPAIR KIT	

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

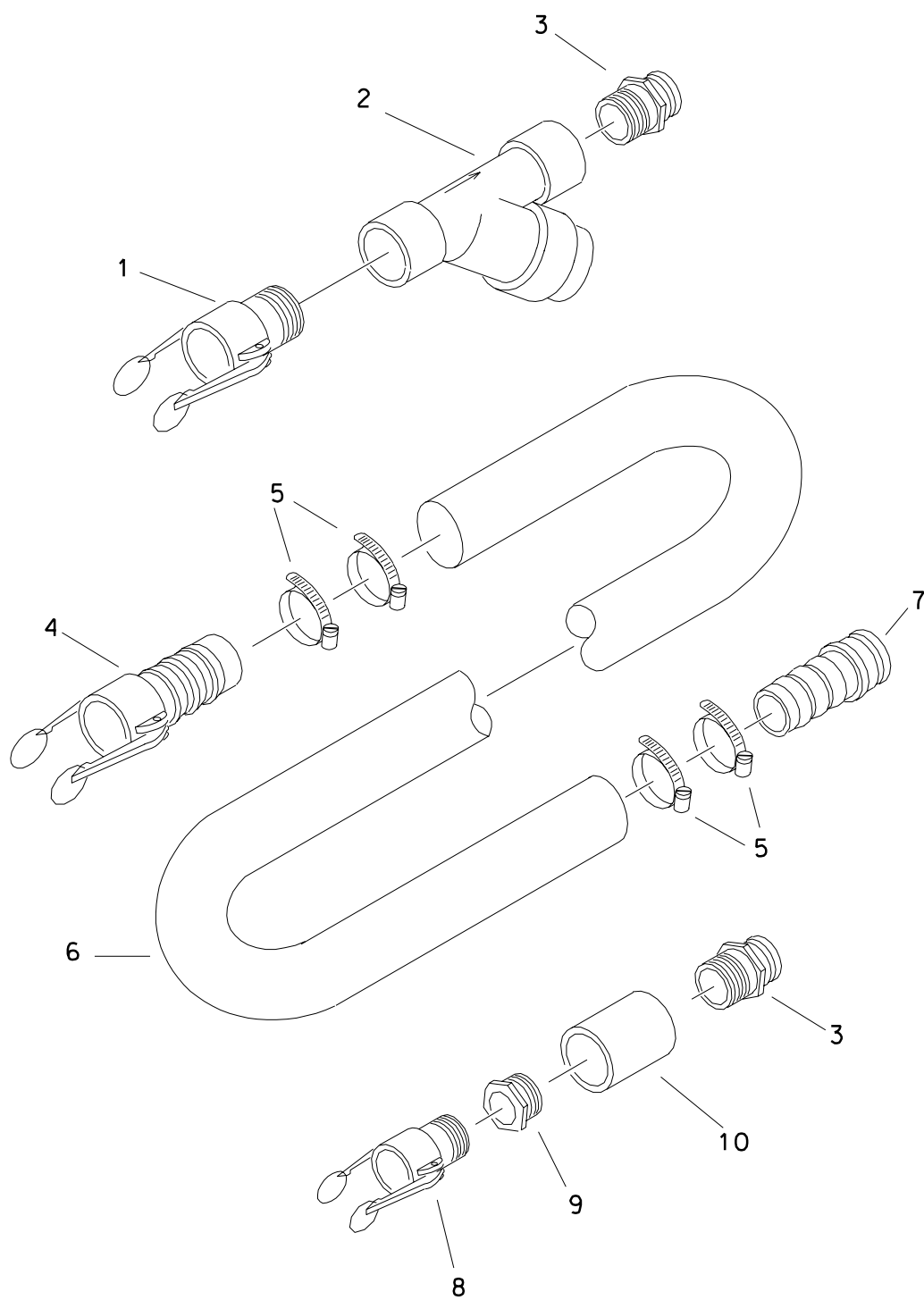
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FOOTNOTES:

NOTE:

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

DRILLING FLUID TRANSFER



DRILLING FLUID TRANSFER

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	343-273	-	Y-STRAINER PARTS ASS'Y	INCL REF NO'S 1 - 3
	343-278		TRANSFER HOSE ASS'Y (2" X 50')	INCL REF NO'S 4 - 7
	149-116	-	FHC (24 - 32N) PARTS ASS'Y	INCL REF NO'S 3, 8 - 10
1.	159-485	1	FHC BODY (32-32N)	
2.	159-176	1	Y-STRAINER (32NF)	
	159-239	-	STRAINER (2.2" X 7")	
3.	159-181	2	FHC ADAPTER (40-32N)	
4.	159-180	1	FHC BODY (40-32H)	
5.	110-134	4	WORM CLAMP (2.062" TO 2.750")	
6.	116-856	1	TRANSFER HOSE (50')	
	149-919	1	TRANSFER HOSE ASSY HD 2" X 50'	
7.	149-119	1	FHC ADAPTER (32-32H)	
8.	159-500	1	FHC BODY (24-24N)	
9.	115-087	1	REDUCER (32N-24NF)	
10.	115-186	1	COLLAR (32NF)	

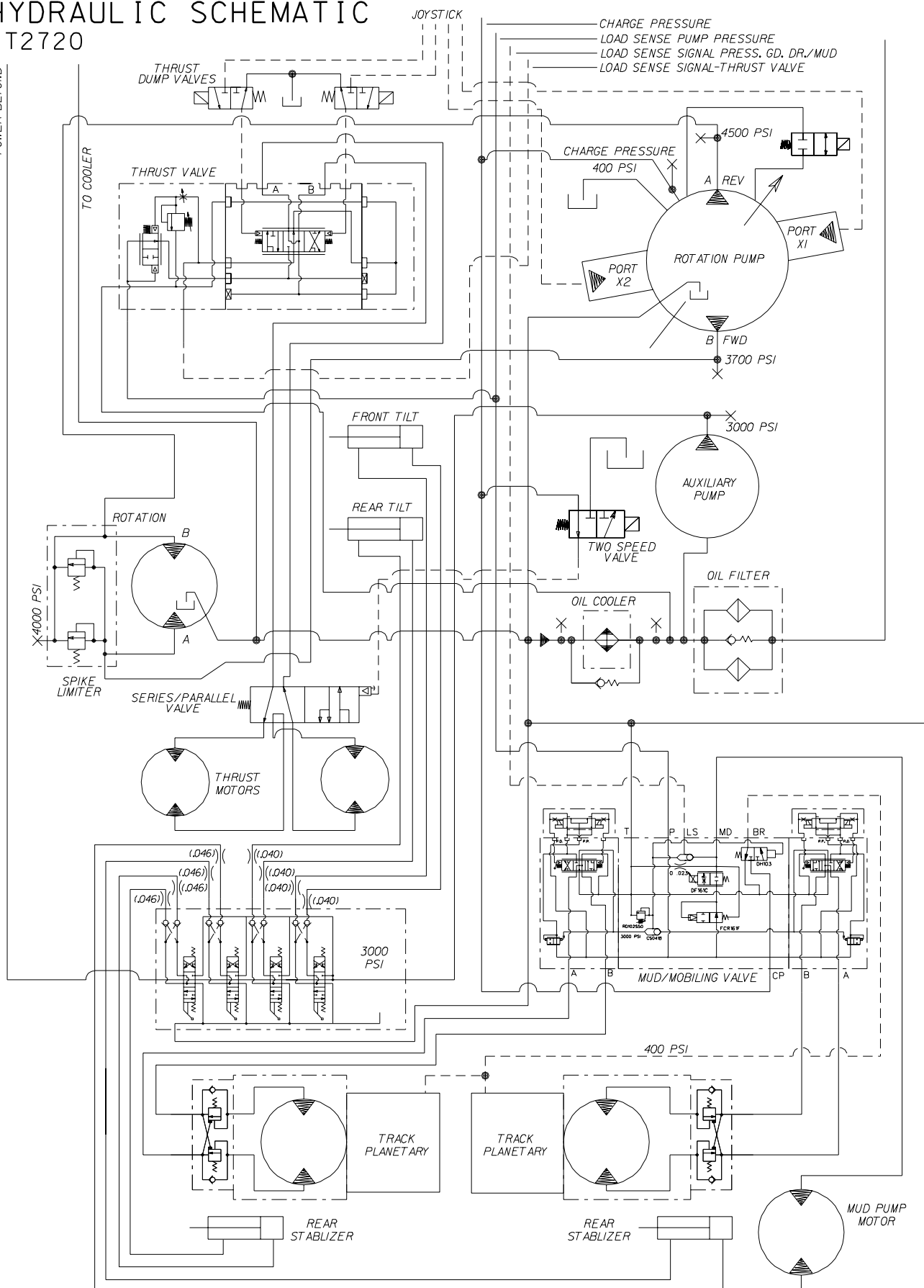
FOOTNOTES

NOTES:

HYDRAULICS

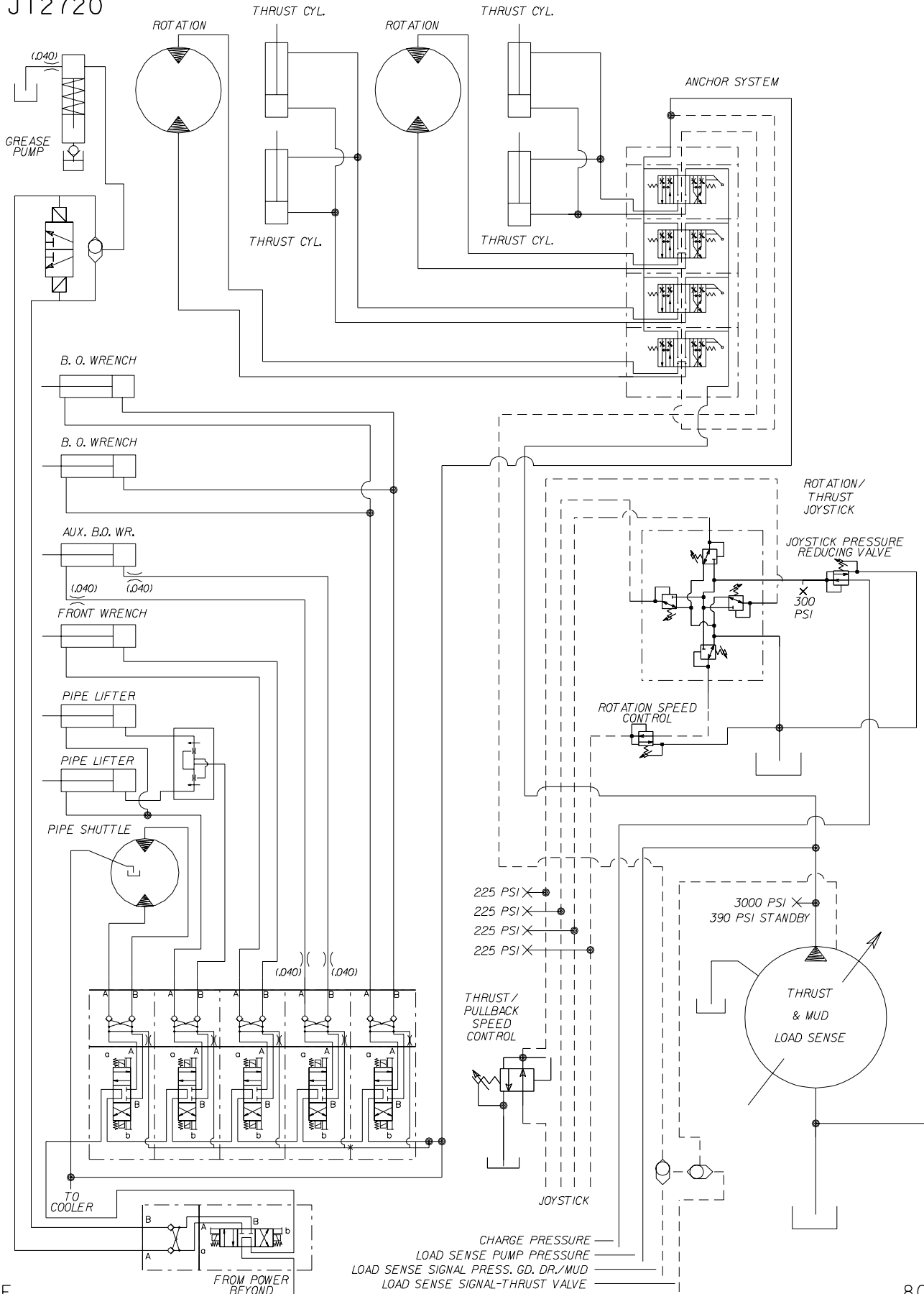
HYDRAULIC SCHEMATIC JT2720

POWER BEYOND



HYDRAULIC SCHEMATIC

JT2720



HYDRAULIC SCHEMATIC

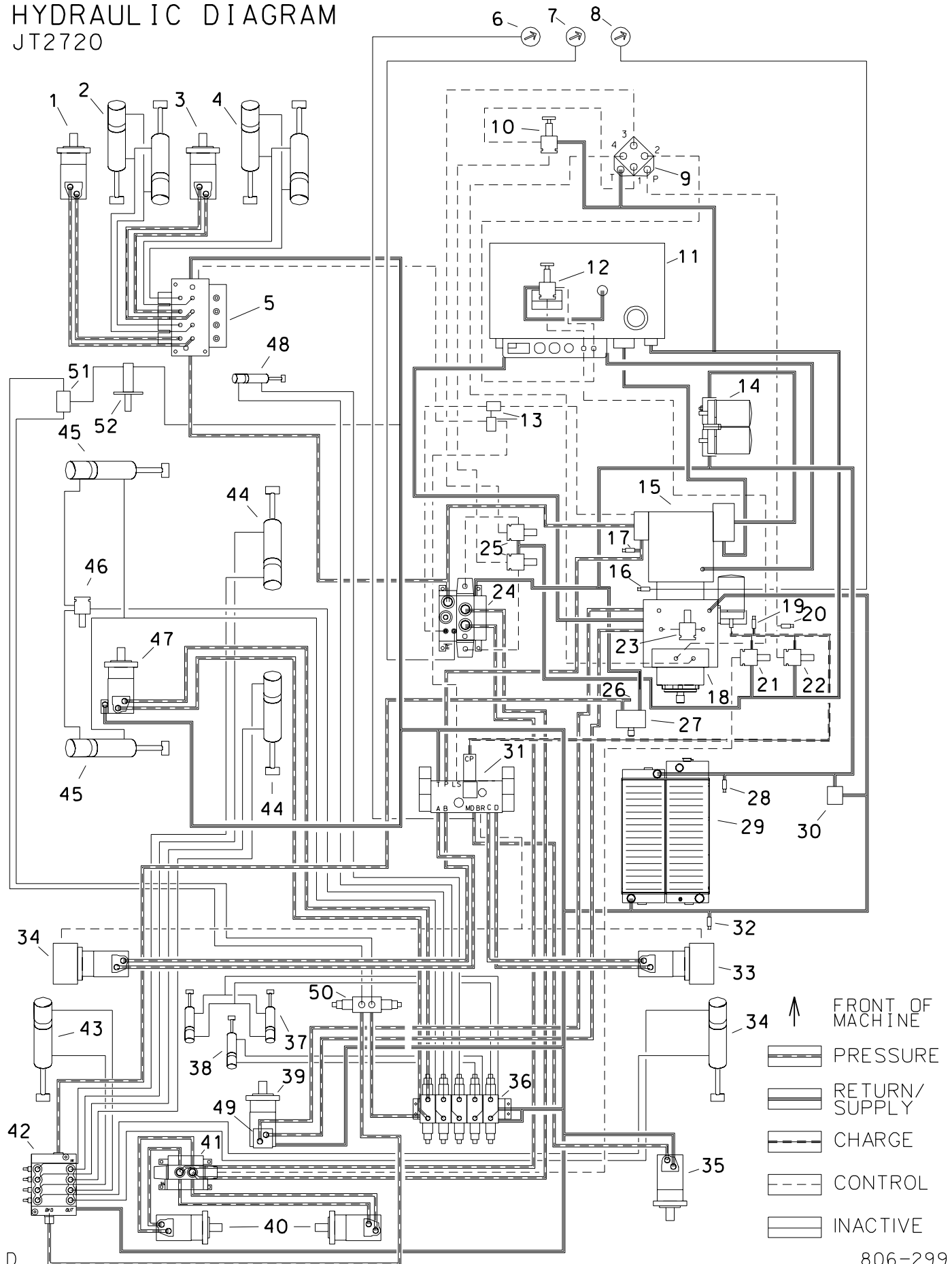
JT2720

SPECIFICATIONS

ENGINE		PUMP			MOTOR	
MFG (NO LOAD)	RPM	TYPE	GPM	DISPLACEMENT	TYPE	DISPLACEMENT
<i>DEERE 4045TF250</i>	<i>2400</i>	<i>ROTATION MAKEUP 3700 PSI BREAKOUT 4500 PSI</i>	<i>57.1</i>	<i>6.102 C.I.</i>	<i>ROTATION</i>	<i>23.9 C.I.</i>
		<i>THRUST & MUD 3000 PSI</i>	<i>60.5</i>	<i>6.468 C.I.</i>	<i>THRUST</i>	<i>18.7 C.I.</i>
		<i>AUXILIARY 3000 PSI</i>	<i>4.7</i>	<i>0.5 C.I.</i>	<i>GROUND DRIVE</i>	<i>8.0 C.I.</i>
					<i>MUD</i>	<i>9.6 C.I.</i>
					<i>SHUTTLE</i>	<i>24.03 C.I.</i>
					<i>ANCHOR</i>	<i>38.0 C.I.</i>

HYDRAULIC DIAGRAM

JT2720

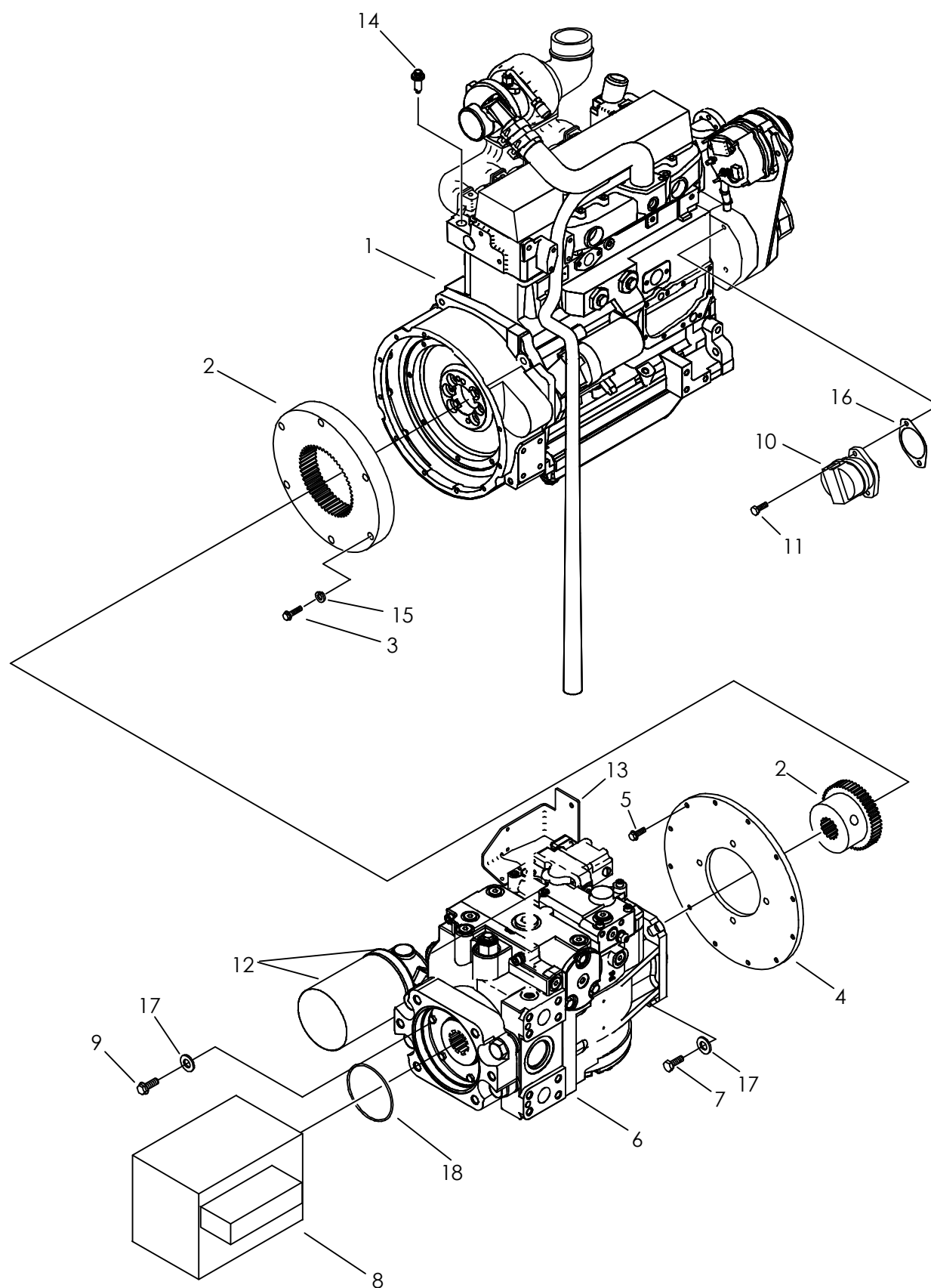


HYDRAULIC DIAGRAM

JT2720

REF NO.	DESCRIPTION	REMARKS
1.	LEFT ANCHOR MOTOR	
2.	LEFT ANCHOR CYLINDERS	
3.	RIGHT ANCHOR MOTOR	
4.	RIGHT ANCHOR CYLINDER	
5.	ANCHOR VALVE	
6.	DRILLING FLUID GAUGE	
7.	THRUST GAUGE	
8.	FORWARD ROTATION GAUGE	
9.	THRUST AND ROTATION CONTROL JOYSTICK	
10.	THRUST/PULLBACK SPEED CONTROL	
11.	HYDRAULIC RESERVOIR	
12.	ROTATION SPEED CONTROL	
13.	SHUTTLE VALVES	
14.	HYDRAULIC OIL FILTER	
15.	LOAD SENSE PUMP	
16.	ROTATION CONTROL TEST PORT	
17.	LOAD SENSE PRESSURE TEST PORT	
18.	ROTATION PUMP	
19.	CHARGE PRESSURE TEST PORT	
20.	JOYSTICK SUPPLY PRESSURE TEST PORT	
21.	TWO SPEED VALVE	
22.	JOYSTICK PRESSURE REDUCING VALVE	
23.	ROTATION SHUT OFF VALVE	
24.	THRUST VALVE	
25.	THRUST SHUT OFF VALVE	
26.	AUXILIARY PRESSURE TEST TEE	
27.	AUXILIARY PUMP	
28.	OIL COOLER OUTLET TEST PORT	
29.	OIL COOLER	
30.	OIL COOLER BYPASS	
31.	GROUND DRIVE AND MUD VALVE	
32.	OIL COOLER INLET TEST PORT	
33.	GROUND DRIVE MOTORS W/ COUNTER BALANCE VALVES	
34.	RIGHT STABILIZER CYLINDER	
35.	DRILLING FLUID MOTOR	
36.	PIPE HANDLING VALVE	
37.	REAR BREAK-OUT WRENCH CYLINDER	
38.	AUXILIARY BREAK-OUT WRENCH CYLINDER	
39.	ROTATION MOTOR	
40.	THRUST MOTOR	
41.	SERIES PARALLEL VALVE	
42.	SET-UP VALVE	
43.	LEFT STABILIZER CYLINDER	
44.	DRILL FRAME PIVOT CYLINDER	
45.	PIPE LIFT CYLINDER	
46.	FLOW DIVIDER VALVE	
47.	PIPE LOADER SHUTTLE MOTOR	
48.	FRONT WRENCH CYLINDER	
49.	SPIKE LIMITER BLOCK	
50.	GREASE VALVE	
51.	GREASE SELECT VALVE	
52.	GREASE PUMP	
-	-	-
-	-	-

HYDRAULIC PUMPS



HYDRAULIC PUMPS

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	194-020	-	ENGINE JOHN DEERE DIESEL	OBSOLETE
2.	160-914	1	FLYWHEEL COUPLING	SEE FOOTNOTE 1
3.	105-156	8	BOLT (3/8-NC X 1-1/2")	TORQUE TO 55 FT LBS LOCTITE 277
4.	160-901	1	PUMP PLATE	
5.	106-164	12	FLG LK SCREW (M10-1.50 X 30mm)	
6.	158-468	1	HYD PUMP	OBSOLETE, SEE FOOTNOTE 2
	149-389	1	HYD PUMP	OBSOLETE, SEE FOOTNOTE 2
	197-063		REBUILT 149-389 HYD PUMP	OBSOLETE, SEE FOOTNOTE 2
	153-104	1	PUMP, HYDRAULIC	
	499-061		CHARGE PUMP - 26CC	
	499-062		PUMP SHAFT (13T)	
	500-764		MULTIFUNCTION VALVE - LIMITER	
	190-764		SEAL REPAIR KIT	
7.	106-333	4	SCREW (M12-1.75 X 40mm)	
8.	158-467	1	HYD PUMP	OBSOLETE
	149-926	1	HYD PUMP	
	190-803		SEAL REPAIR KIT	
	190-804		BEARING KIT	
	499-063		SHAFT (SPLINED 14T)	
	499-064		LOAD SENSE CONTROL	
9.	105-048	4	BOLT (1/2-NC X 1-1/2")	
10.	158-461	1	HYD PUMP	
	500-966		SEAL REPAIR KIT	
11.	106-081	2	SCREW (M10-1.50 X 35MM, 12.9)	
12.	159-425	1	FILTER HEAD (040F-040F)	SEE FOOTNOTE 3
	159-074	1	FILTER ELEMENT (1-3/8-UNF)	SEE FOOTNOTE 3
13.	343-791	1	MOUNT BRACKET	
14.	217-575	1	HIGH TEMPERATURE SWITCH	
15.	105-072	8	LOCK WASHER (3/8")	
16.	168-619	1	GASKET	
17.	105-244	8	WASHER (1/2")	
18.	157-183	1	O-RING (048 D70)	

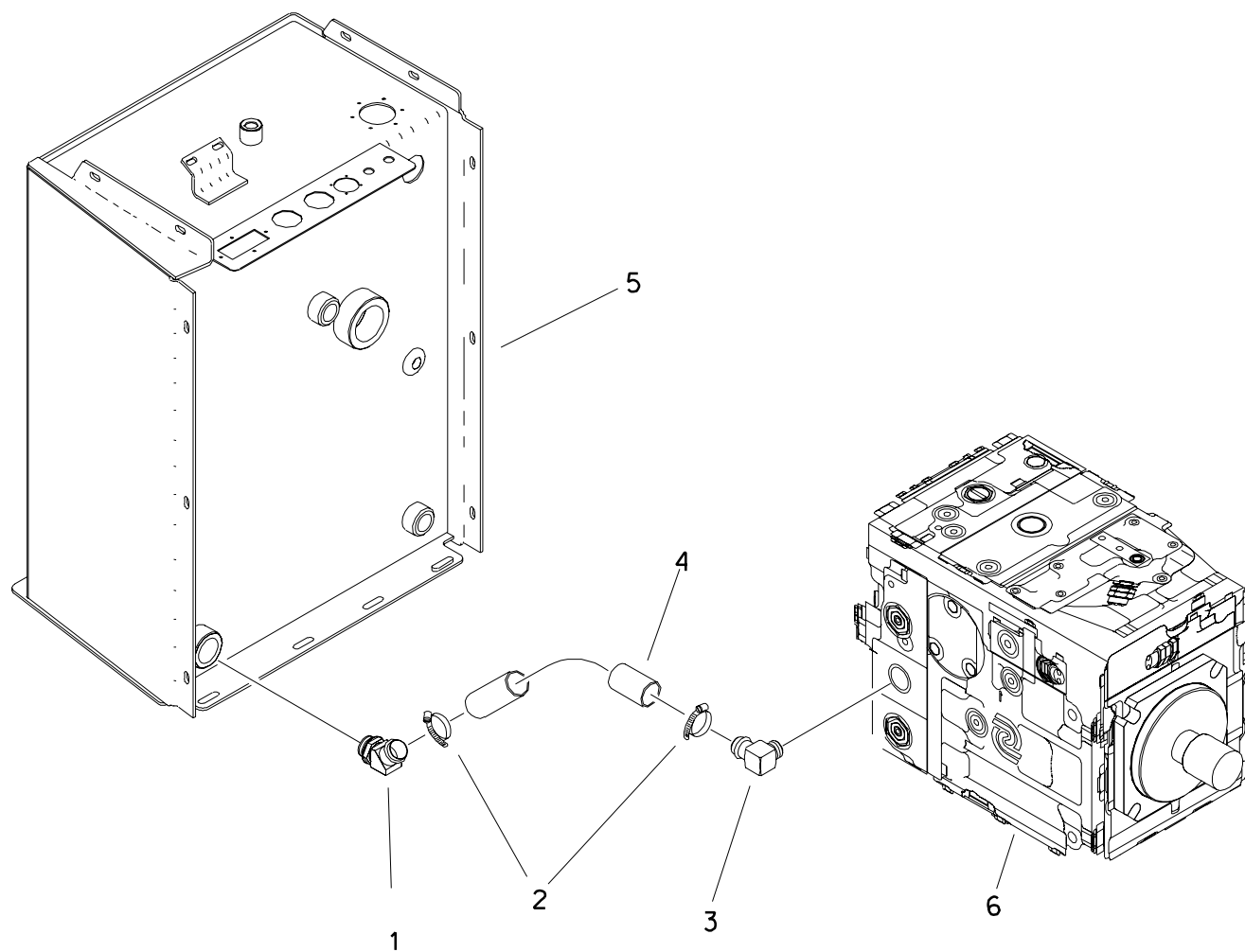
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FOOTNOTES:

1. TORQUE BOLT TO 63 FT LBS
2. FOR REPLACEMENT ORDER HYDRAULIC PUMP REPLACEMENT KIT 599-281
3. TO INSTALL REMOTE FILTER ORDER REMOTE CHARGE FILTER KIT 599-228 AND REFER TO INSTRUCTION 050-434.

NOTE:

PUMP INLET



PUMP INLET

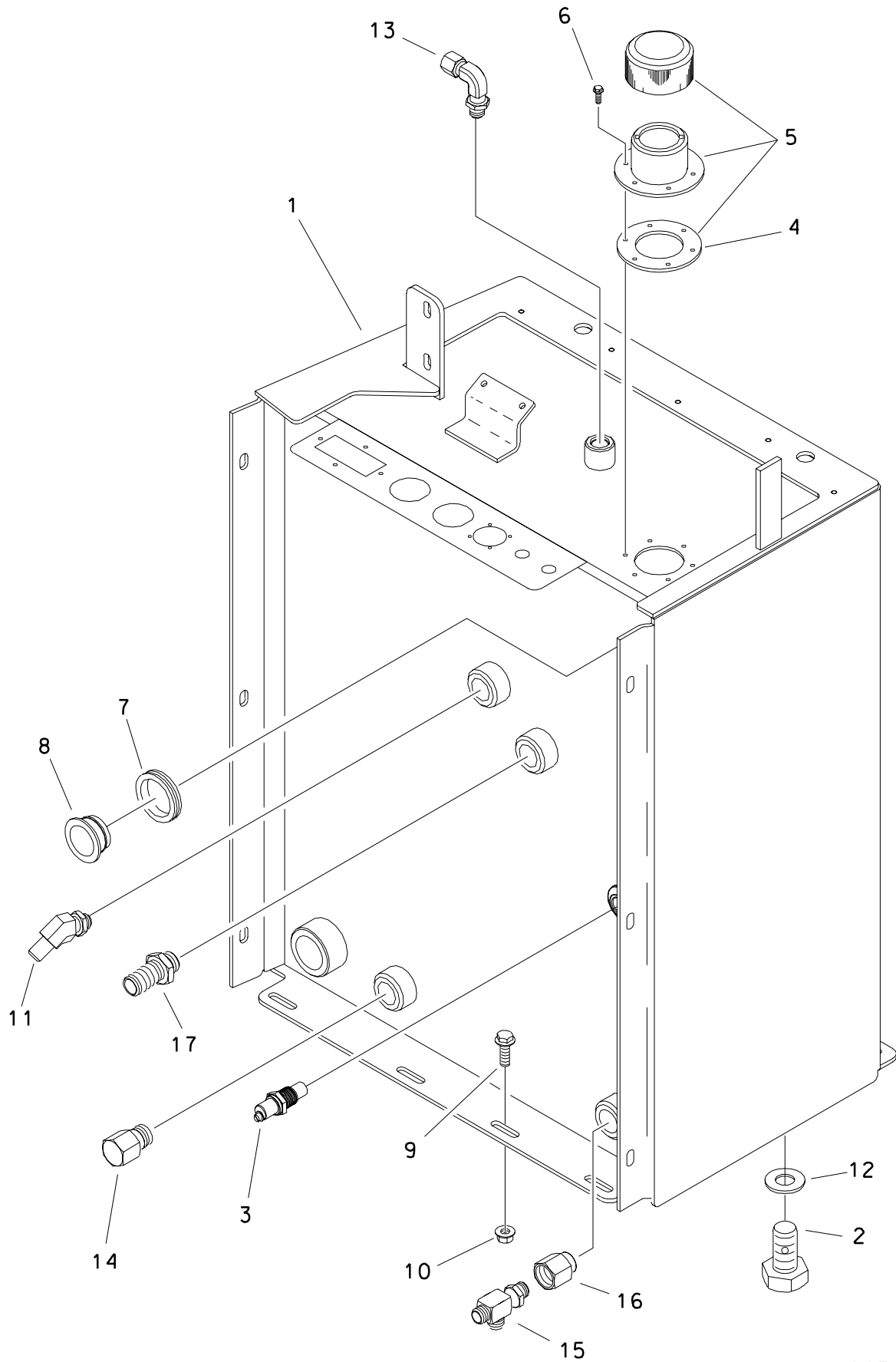
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	514-226	1	S/O COUPLER (20S-24H45)	
2.	111-028	2	T-BOLT CLAMP (1.75"-2.00")	
3.	155-176	1	S/O COUPLER (20S-24H90)	
4.	116-588	1	BULK HOSE (1-1/2", SOLD PER FT)	USE 1 @ 16-1/2"
5.	350-518	-	HYD RESERVOIR	
6.	158-468	-	HYDRAULIC PUMP	
	149-389	-	HYDRAULIC PUMP	
	153-104	-	PUMP, HYDRAULIC	

FOOTNOTES

NOTE

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

HYDRAULIC RESERVOIR



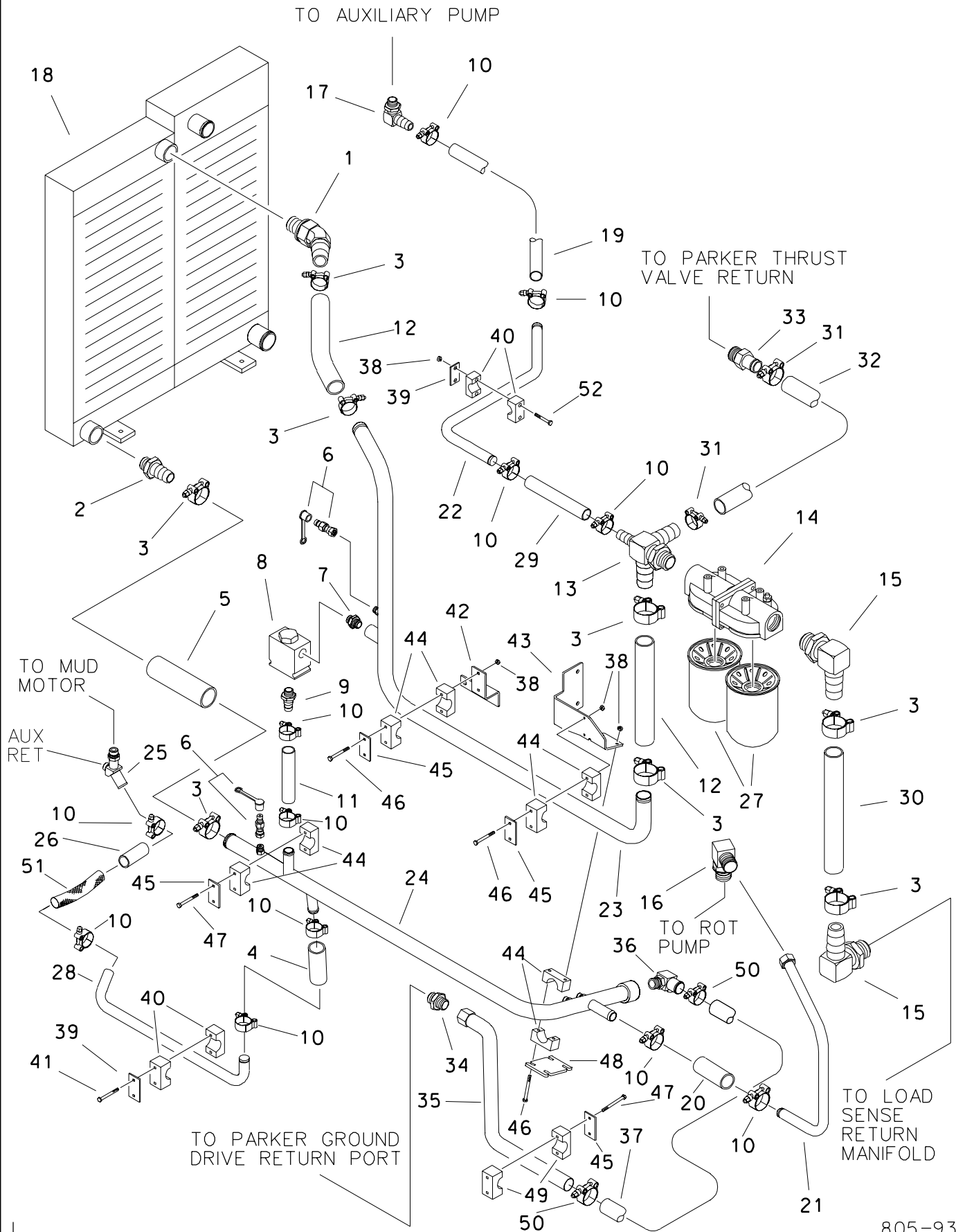
HYDRAULIC RESERVOIR

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	350-518	1	HYD RESERVOIR	
2.	149-398	1	DRAIN PLUG (1" W. .375 ORF)	
3.	215-148	1	TEMPERATURE SWITCH	
	214-819	1	TEMPERATURE SWITCH	LOCTITE 567
4.	165-626	1	FILLER NECK GASKET	
5.	110-008	1	FILLER BREATHER (2-1/8")	INCL REF NO.'S 4 & 6
6.	105-214	6	FLG SCREW (#10-24 X 1/2")	
7.	115-320	1	GROMMET (1-1/2")	
8.	116-218	1	SIGHT GLASS (2")	SEE FOOTNOTE 1
	360-849	-	REFLECTOR	
9.	106-724	8	FLG SCREW (M10-1.50 X 25mm)	
10.	106-387	8	LOCKNUT (M10-1.50)	
11.	159-427	1	CHECK VALVE (32N-16NF, 3 PSI)	ENDS WITH S/N 2R2808, LOCTITE 567
	115-085	1	REDUCER (32N-16NF)	BEGINS W/ S/N 2R2809, ENDS W/ S/N 2S2963
	155-196	1	S/O COUPLER (12S-12H45)	BEGINS W/ S/N 2S2964
12.	149-829	1	SEAL WASHER (1")	
13.	154-227	1	CONNECTOR (06D-08S90)	
14.	500-302	1	PLUG (12S)	
15.	154-345	1	RUN TEE (06S-060-060)	
16.	155-129	1	REDUCER (12S-06SF)	
17.	155-161	1	S/O COUPLER (12S-16H)	

FOOTNOTES

1. REFER TO SPECIAL TOOL DIAGRAM 052-524 TO INSTALL REPLACEMENT SIGHT GLASS (REF NO. 8)

COOLER HYDRAULICS



COOLER HYDRAULICS

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	514-226	1	S/O COUPLER (20S-24H45)	
2.	155-148	1	S/O COUPLER (20S-24H)	
3.	111-028	8	T-BOLT CLAMP (1.75" - 2.00")	
4.	116-460	AR	BULK HOSE (1", SOLD PER 1')	USE 1 @ 4.5"
5.	116-588	AR	BULK HOSE (1-1/2" SOLD PER 1")	USE 1 @ 5.75"
6.	159-157	2	QDC ADAPTER (02-060FX)	
	159-148	2	DUST CAP (1/8")	
7.	155-152	1	CONNECTOR (12S-12S)	
8.	159-253	1	FLOW CHECK VALVE	
	500-820		SEAL REPAIR KIT	
9.	155-161	1	S/O COUPLER (12S-16H)	
10.	111-027	8	T-BOLT CLAMP (1.25 - 1.50)	
11.	116-460	AR	BULK HOSE (1", SOLD PER 1')	USE 1 @ 5.75"
12.	116-588	AR	BULK HOSE (1-1/2", SOLD PER 1")	USE 2 @ 12"
13.	514-440	1	S/O RUN TEE (24S-16H-20H-24H)	
14.	159-411	1	FILTER HEAD (20SF-20SF)	
	168-616	1	FILTER HEAD GASKET	
15.	514-135	2	S/O COUPLER (24S-24H90)	
16.	154-377	1	CONNECTOR (12S-16090)	
17.	154-188	1	S/O COUPLER (16S-16H90)	
	306-833	1	RADIATOR/OIL COOLER	
18.	343-289	1	RADIATOR/OIL COOLER	USE 1 @ 19"
19.	116-460	AR	BULK HOSE (1" SOLD PER 1')	USE 1 @ 4.5"
20.	116-460	AR	BULK HOSE (1" SOLD PER 1')	ROTATION CASE DRAIN
21.	156-918	1	HYD LINE	AUXILIARY PUMP
22.	156-907	1	HYD LINE	COOLER OUTLET
23.	156-906	1	HYD LINE	COOLER INLET
24.	156-905	1	HYD LINE	
25.	149-511	1	TEE (10S-080-16H), SPECIAL	SEE FOOTNOTE 1 & 2
26.	116-460	AR	BULK HOSE (1", SOLD PER 1')	USE 1 @ 30"
27.	149-840	2	FILTER ELEMENT (1-1/2-UNF)	MUD RETURN
28.	149-510	1	MUD RETURN LINE	
29.	116-460	AR	BULK HOSE (1", SOLD PER 1')	USE 1 @ 9"
30.	116-588	AR	BULK HOSE (1-1/2", SOLD PER 1')	USE 1 @ 15"
31.	149-342	2	T-BOLT CLAMP (1.687"-1.50")	USE 1 @ 24"
32.	116-587	AR	BULK HOSE (1-1/4", SOLD PER 1')	
33.	155-047	1	S/O COUPLER (16S-20H)	
34.	514-094	1	CONNECTOR (16S-200)	RETURN
35.	156-919	1	HYD LINE (200FX-20H)	
36.	514-439	1	S/O RUN TEE (12S-100-20H)	USE 1 @ 22"
37.	116-587	AR	BULK HOSE (1-1/4", SOLD PER 1')	
38.	105-085	8	LOCKNUT (1/4-NC)	
39.	322-289	2	BACKUP (BOLT-ON)	

COOLER HYDRAULICS

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
40.	110-573	2	BOLT-ON CLAMP (1",SOLD PER SET)	
41.	105-818	2	BOLT (1/4-NC X 1-1/2")	
42.	363-677	1	BRACKET	
43.	343-791	1	MOUNT BRACKET	
44.	111-008	4	BOLT-ON CLAMP (1-1/2", SOLD PER SET)	
45.	322-362	5	BACKUP SPACER	
46.	107-283	6	BOLT (1/4-NC X 3")	
47.	105-224	4	BOLT (1/4-NC X 2-1/2")	
48.	343-333	1	BACKUP PLATE	
49.	110-852	1	BLT-ON CLP (1.2",SOLD PER SET)	
50.	149-342	2	T-BOLT CLAMP (1.687"-1.50")	
51.	117-708	1	ABRASION SLEEVE (1.59" X 28")	
52.	105-106	2	BOLT (1/4-NC X 2")	

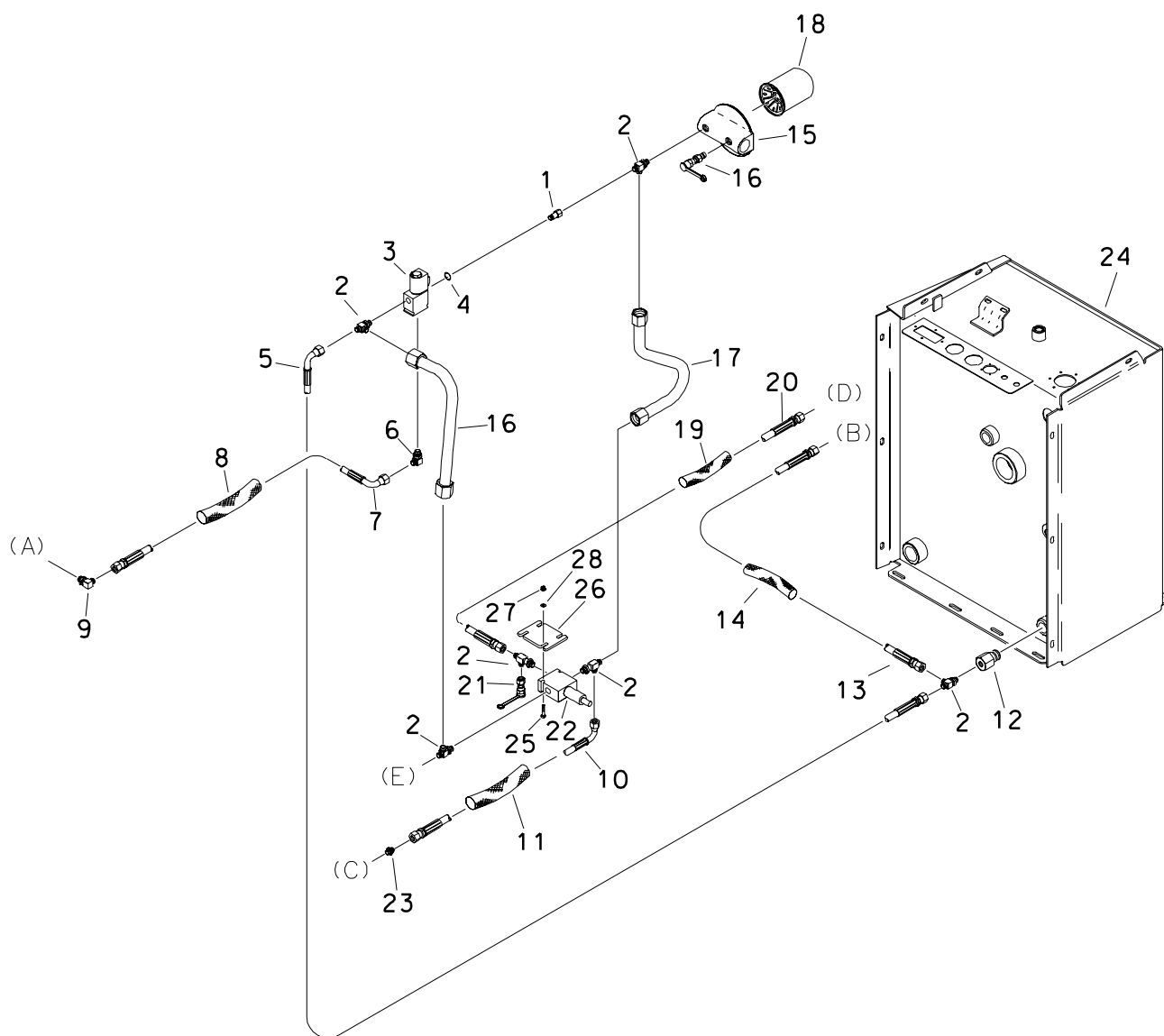
FOOTNOTES

NOTE:

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

1. USE 159-079 ELEMENT FOR NORMAL MAINTENANCE.
USE 149-840 ELEMENT AFTER HOSE OR COMPONENT REPLACEMENT OR REPAIR.
2. INCLUDES 149-840 FILTER ON NEW MACHINES.
REPLACE WITH 159-079 AFTER FIRST 50 HOURS.

CHARGE FILTER & SERIES PARALLEL SHIFTING SOLENOID



CHARGE FILTER & SERIES PARALLEL SHIFTING SOLENOID

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	514-409	1	UNION (06J-060FX)	
2.	154-345	6	RUN TEE (06S-060-060)	SEE FOOTNOTE 5
3.	158-627	1	SOLENOID VALVE	
	500-756		SEAL REPAIR KIT	
	158-636		SOLENOID VALVE CARTRIDGE	
	217-770		SOLENOID COIL	
4.	157-039	1	O-RING (014 D90)	
5.	515-707	1	HOSE (060FX90-32"-3000)	
6.	154-226	1	CONNECTOR (04Q-06S90)	
7.	515-522	1	HOSE (040FX90-169"-3000)	
8.	117-759	1	ABRASION SLEEVE (1" X 160")	
9.	154-252	1	CONNECTOR (04S-04090)	SEE FOOTNOTE 1
10.	515-176	1	HOSE (060FX90-38"-3000)	
11.	117-718	1	ABRASION SLEEVE (1" X 36")	
12.	155-129	1	REDUCER (12S-06SF)	
13.	154-996	1	HOSE (060FX-58"-3000)	SEE FOOTNOTE 2
14.	117-714	1	ABRASION SLEEVE (1" X 54")	
15.	159-425	1	HYD OIL FILTER (040F - 040F)	
16.	153-052	1	HYDRAULIC LINE (-06)	
17.	153-051	1	HYDRAULIC LINE (-06)	
18.	159-074	1	FILTER ELEMENT (1-3/8-UNF)	
19.	117-693	1	ABRASION SLEEVE (1" X 60")	RETURN
20.	154-798	1	HOSE (060FX-62"-3000)	PRESSURE
21.	159-157	1	QDC ADAPTER (02-060F)	
	159-148	1	DUST CAP (1/8")	SEE FOOTNOTE 4
22.	516-039	1	HYD CONTROL VALVE	
	190-860		SEAL REPAIR KIT (VITON)	
23.	154-224	1	CONNECTOR (06S-06045)	
24.	353-315	-	HYD RESERVOIR	
25.	105-106	2	BOLT (1/4-NC X 2")	SEE FOOTNOTE 3
26.	343-333	1	BACKUP PLATE	
27.	105-085	2	LOCKNUT (1/4-NC)	
28.	106-388	2	WASHER (M6)	

FOOTNOTES

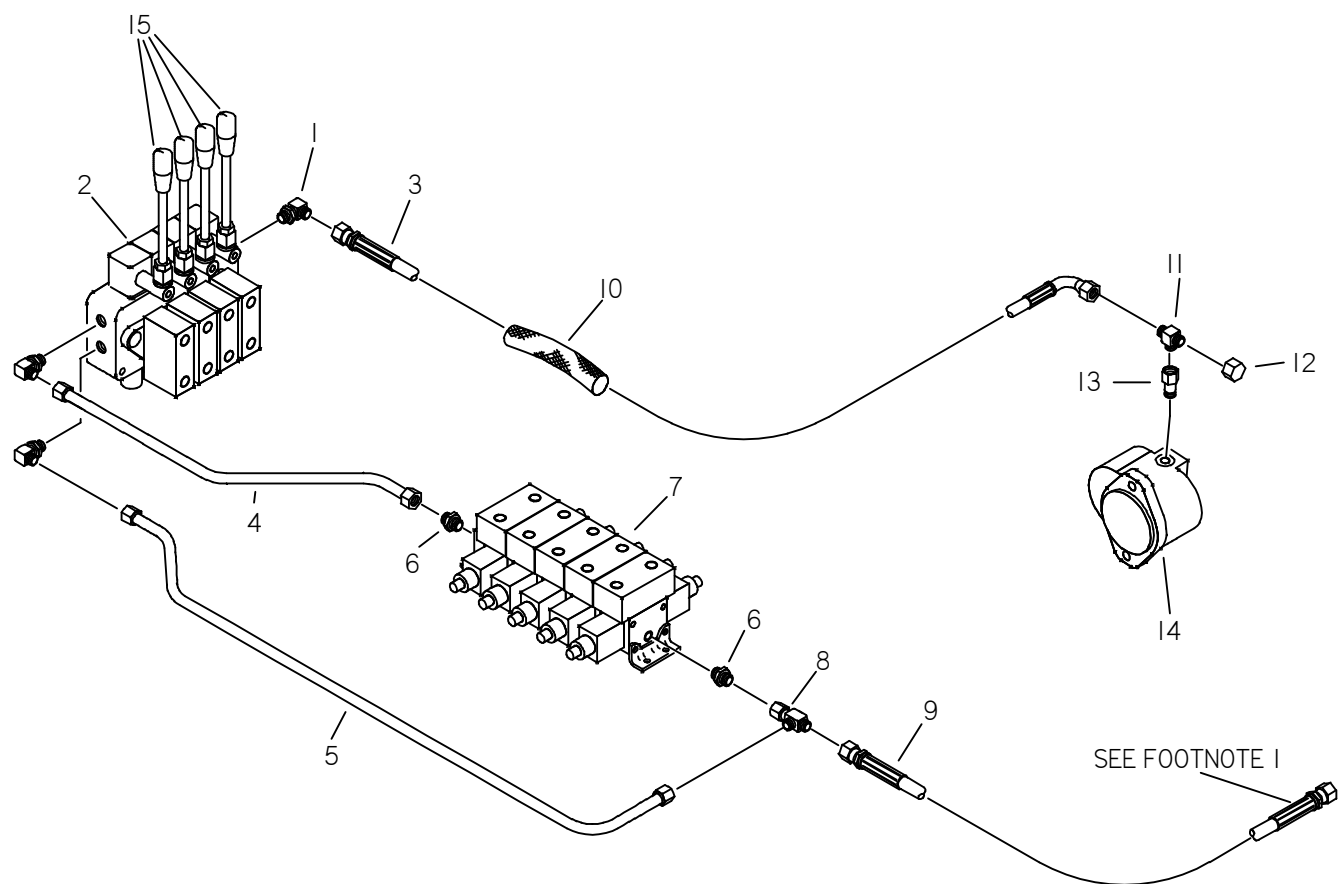
1. (A) CONNECTS TO SERIES PARALLEL VALVE
2. (B) CONNECTS TO BULKHEAD ON CONSOLE LEG MARKED "T".
3. (C) CONNECTS TO PARKER GD MOBILE VALVE "CP"
4. (D) CONNECTS TO BULKHEAD ON CONSOLE LEG MARKED "P".
5. (E) CONNECTS TO "T" ON THRUST DUMP VALVES

NOTE

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

AUXILIARY PRESSURE HYDRAULICS

ENDS WITH S/N: WITHOUT SPRAY LUBE SYSTEM



AUXILIARY PRESSURE HYDRAULICS

ENDS WITH S/N: WITHOUT SPRAY LUBE SYSTEM

REF PART NO. NUMBER QTY DESCRIPTION	REMARKS
1. 154-235 3 CONNECTOR (08S-08090)	
2. 149-077 1 HYD CONTROL VALVE (4-SP00L)	
3. 515-701 1 HOSE (080FX90-122"-3000)	
4. 156-922 1 HYD LINE	AUXILIARY PRESSURE
5. 156-921 1 HYD LINE	AUXILIARY RETURN
6. 154-246 2 CONNECTOR (06S-080)	
7. 516-091 1 HYD CONTROL VALVE	SEE FOOTNOTE 2
214-435 COIL	
8. 154-266 1 UN RUN TEE (080FX-080-080)	
9. 154-739 1 HOSE (080FX-32"-3000)	
10. 115-902 1 ABRASION SLEEVE (1.59" X 100")	
11. 514-160 1 BRANCH TEE (08S-080-040)	
12. 154-296 1 CAP (040F)	
13. 155-193 1 CONNECTOR (10S-08SF)	
14. 158-461 1 HYD PUMP	
500-966 1 SEAL REPAIR KIT	
15. 365-426 4 LEVER (M8-1.25 X 200mm, BLK)	

NOT SHOWN:

FOOTNOTES:

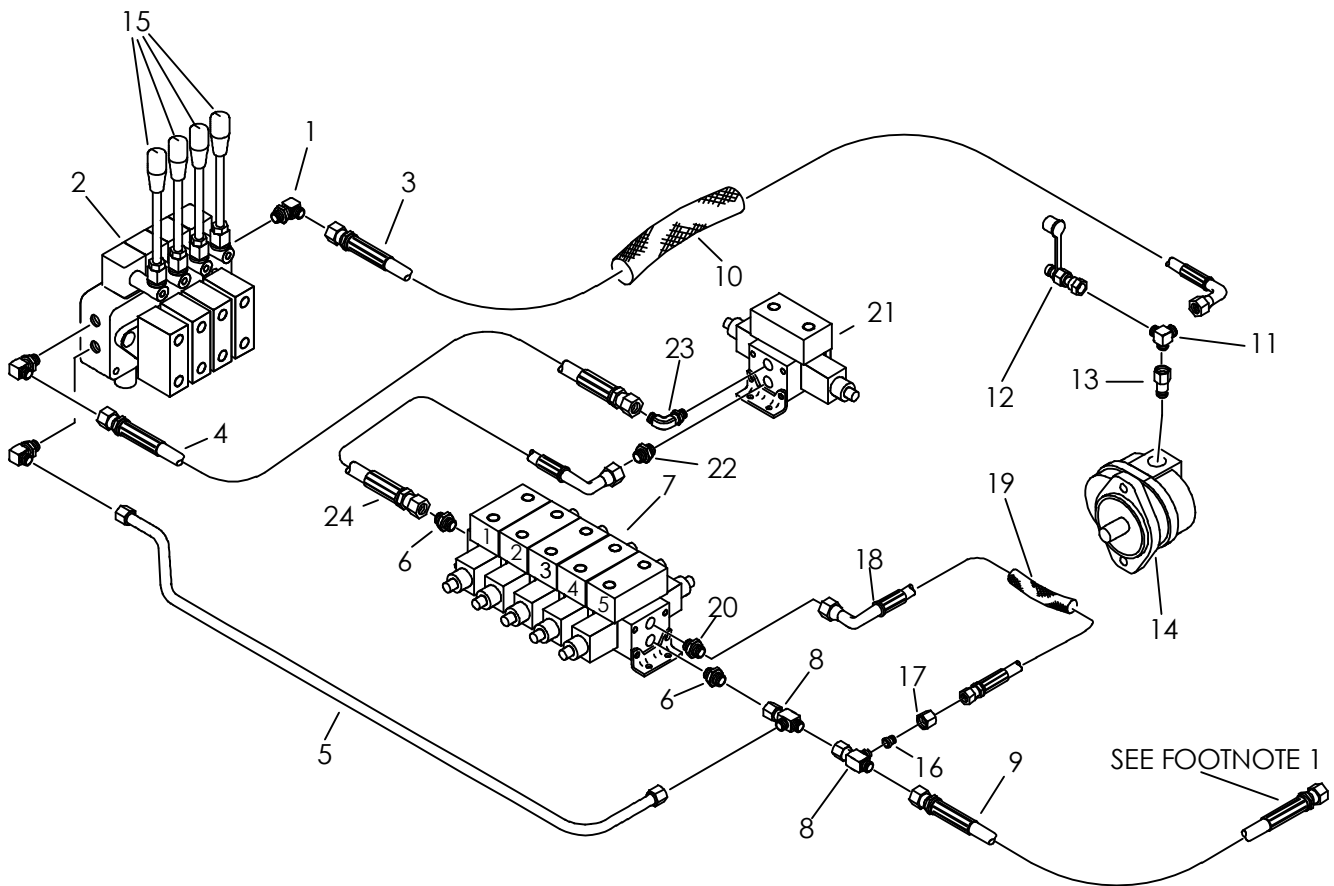
1. CONNECTS RETURN HOSE TO 08 ORS SPUD ON MUD MOTOR RETURN LINE.
2. SERVICE PARTS INCLUDE: (1X) 149-608 VALVE SECTION, (4X) 149-614 VALVE SECTION, (5X) 149-615 PO CHECK, (2X) 149-616 CAP NUT, (1X) 157-212 O-RING, (10X) 159-505 SOLENOID TUBE, (5X) 190-997 STACKING KIT, (5X) 190-998 SEAL REPAIR KIT, (1X) 190-999 SEAL REPAIR KIT

NOTE:

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

AUXILIARY PRESSURE HYDRAULICS

BEGINS WITH S/N: WITH SPRAY LUBE SYSTEM



AUXILIARY PRESSURE HYDRAULICS

BEGINS WITH S/N: WITH SPRAY LUBE SYSTEM

REF	PART				REMARKS
NO.	NUMBER	QTY	DESCRIPTION		
1.	154-235	3	CONNECTOR (08S-08090)		
2.	149-077	1	HYD CONTROL VALVE (4-SPOOL)		
3.	515-701	1	HOSE (080FX90-122"-3000)		
4.	154-711	1	HOSE (080FX90-30"-3000)		AUXILIARY PRESSURE
5.	156-921	1	HYD LINE (080FX-080FX)		AUXILIARY RETURN
6.	154-246	2	CONNECTOR (06S-080)		
7.	516-091	1	HYD CONTROL VALVE		ENDS WITH S/N 2R3327
	156-981	1	HYD CONTROL VALVE		BEGINS WITH S/N 2R3328 SEE FOOTNOTE 2
	197-057	-	REBUILT HYD CONTROL VALVE		USED WITH 156-981
	149-608	-	VALVE SECTION		
	149-614	-	VALVE SECTION		
	149-615	-	PO CHECK W/ AUX PORT		
	149-616	-	CAP NUT		
	190-997	-	STACKING KIT		
	190-998	-	SEAL REPAIR KIT		
	190-999	-	SEAL REPAIR KIT		
	214-435	-	SOLENOID COIL		
8.	154-266	2	UN RUN TEE (080FX-080-080)		
9.	154-739	1	HOSE (080FX-32"-3000)		
10.	115-902	1	ABRASION SLEEVE (1.59" X 100")		
11.	514-160	1	BRANCH TEE (08S-080-040)		
12.	159-156	1	QDC ADAPTER (02-040F)		
	159-148		DUST CAP (1/8")		
13.	155-193	1	REDUCER (10S-08SF)		
14.	158-461	-	HYD PUMP		
15.	365-426	4	LEVER (M8-1.25 X 200mm)		
16.	154-248	1	REDUCER STEM (040)		
17.	154-272	1	REDUCER NUT (080F)		
18.	154-715	1	HOSE (040FX90-18"-3000)		
19.	117-608	1	ABRASION SLEEVE (1.00" X 15")		
20.	154-220	1	CONNECTOR (040-06S)		
21.	516-098	1	SOLENOID VALVE (SINGLE)		
22.	154-246	1	CONNECTOR (06S-080)		
23.	154-253	1	CONNECTOR (06S-08090)		
24.	515-003	1	HOSE (080FX90S-18"-3000)		

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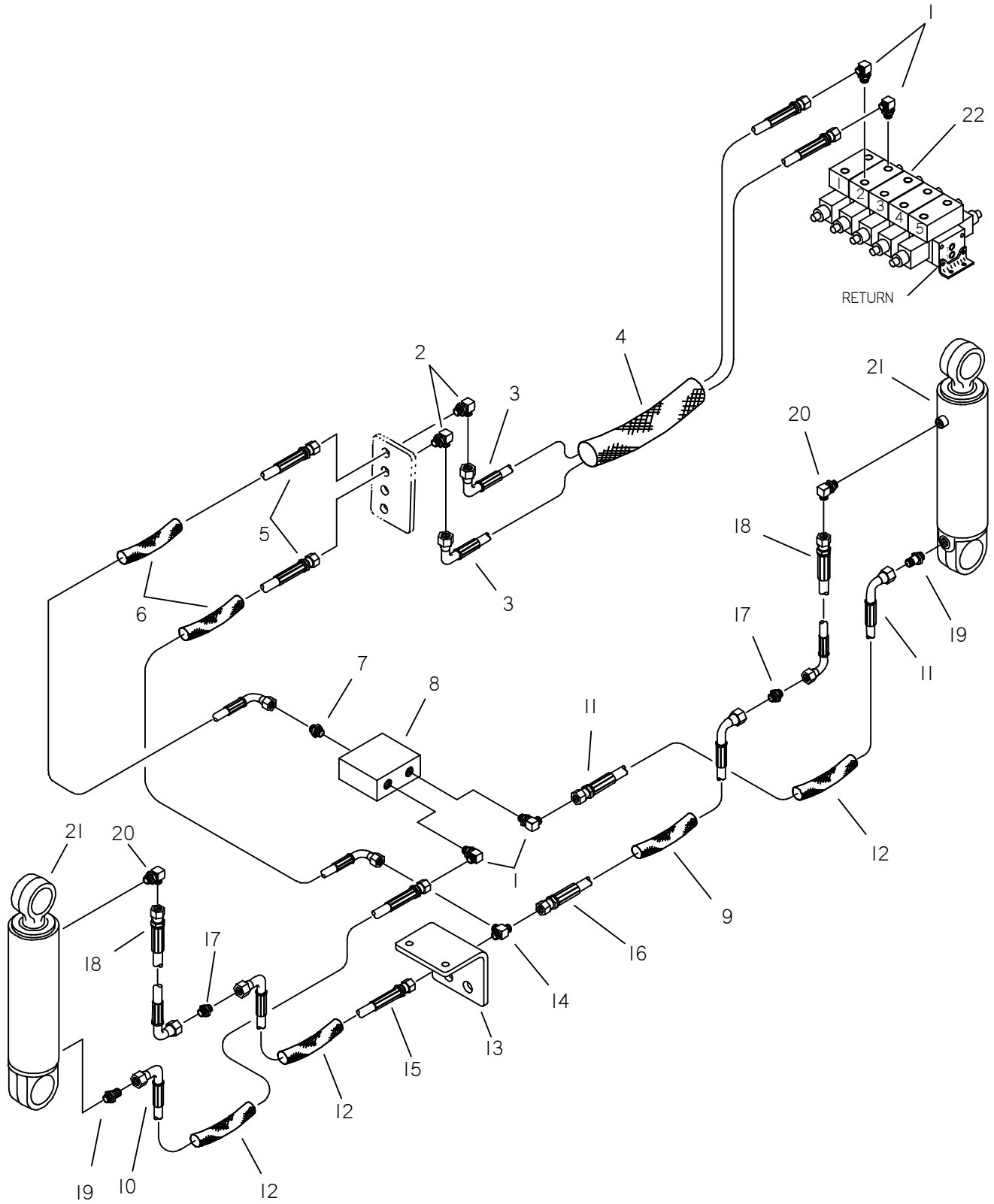
FOOTNOTES:

1. CONNECTS RETURN HOSE TO 08 ORS SPUD ON MUD MOTOR TEE.
2. ON REPLACEMENT OF 516-091 USE 156-981 AND KIT, PART NUMBER 599-182. 599-182 CONSISTS OF REF NO'S 7, 8 (IX), 16, 17, 18, 19, 20

NOTE:

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

AUXILIARY VALVE/PIPE LIFT HYDRAULICS



AUXILIARY VALVE/PIPE LIFT HYDRAULICS

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	154-226	4	CONNECTOR (040-06S90)	
2.	154-355	2	BK CONNECTOR (040-04090BK)	
3.	515-258	2	HOSE (040FX90-94"-3000)	
4.	115-924	1	ABRASION SLEEVE (1.59" X 88")	
5.	515-011	2	HOSE (040FX90-32"-3000)	
6.	117-676	2	ABRASION SLEEVE (1.00" X 30")	
7.	154-220	1	CONNECTOR (040-06S)	
8.	516-087	1	FLOW DIVIDER	
	190-861		SEAL REPAIR KIT	
9.	117-612	1	ABRASION SLEEVE (1.00" X 46")	
10.	515-696	1	HOSE (040FX90-58"-3000)	
11.	515-730	1	HOSE (040FX90-54"-3000)	
12.	117-218	3	ABRASION SLEEVE (1.00" X 52")	
13.	354-583	1	FLOW DIVIDER BULKHEAD	ENDS WITH S/N 2S4079
	307-575	1	FLOW DIVIDER BLKHD BKT	BEGINS WITH S/N 2S4122
14.	154-424	1	BK RUN TEE (040-040-040BK)	
15.	515-257	1	HOSE (040FX90-54"-3000)	
16.	515-729	1	HOSE (040FX90-52"-3000)	
17.	154-275	2	BK CONNECTOR (040-040BK)	
18.	149-613	2	HOSE (040FX90M-10"-3000)	
19.	154-403	2	CONNECTOR (04S-040, XL)	
20.	154-252	2	CONNECTOR (04S-04090)	
21.	151-044	2	CYL (2" X 1" X 6")	
22.	156-981	-	HYDRAULIC VALVE	
	149-608	-	VALVE SECTION	
	149-614	-	VALVE SECTION	
	149-615	-	PO CHECK W/ AUX PORT	
	149-616	-	CAP NUT	
	157-212	-	O-RING	
	159-505	-	SOLENOID TUBE	
	190-997	-	STACKING KIT	
	190-998	-	SEAL REPAIR KIT	
	190-999	-	SEAL REPAIR KIT	
	214-435	-	SOLENOID COIL	

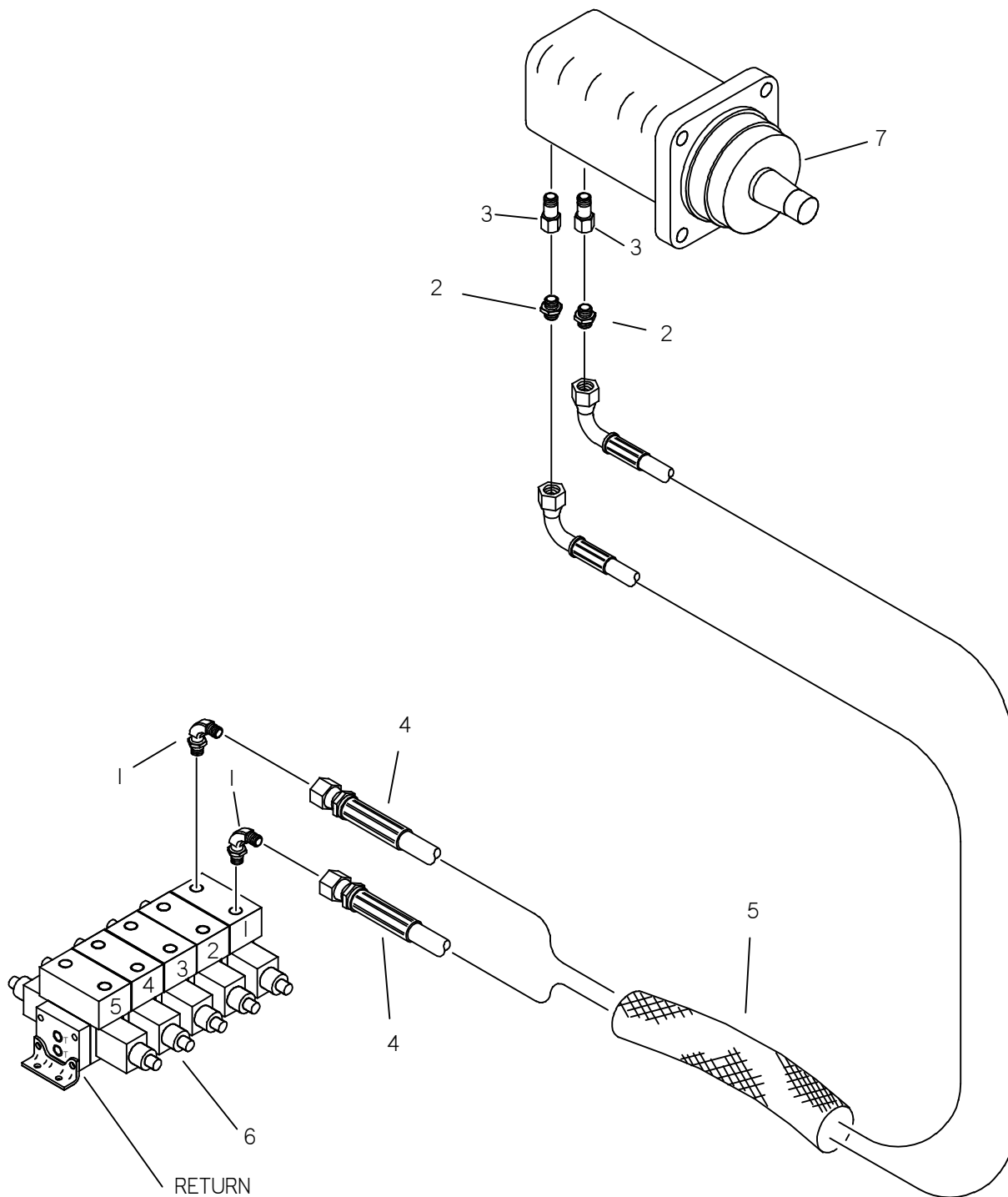
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FOOTNOTES:

NOTE:

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

SHUTTLE MOTOR/AULILIARY VALVE



SHUTTLE MOTOR/AULILIARY VALVE

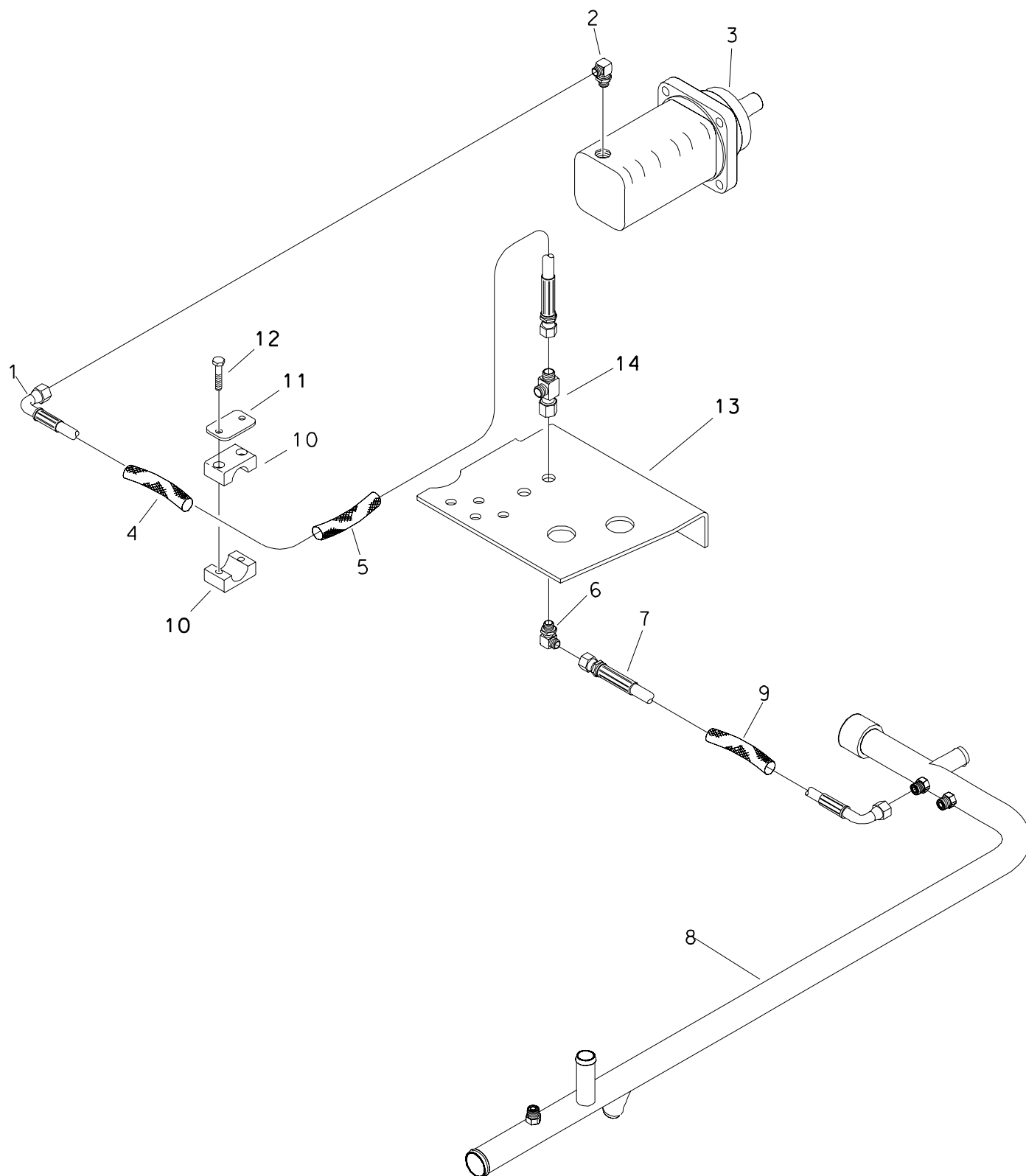
REF	PART				
NO.	NUMBER	QTY	DESCRIPTION		REMARKS
1.	154-226	2	CONNECTOR (040-06S90)		
2.	154-220	2	CONNECTOR (040-06S)		
3.	155-129	2	REDUCER (12S-06SF)		
4.	515-697	2	HOSE (040FX90-102"-3000)		
5.	117-210	1	ABRASION SLEEVE (1.25" X 100")		
6.	156-981	-	HYDRAULIC VALVE		
	149-608	-	VALVE SECTION		
	149-614	-	VALVE SECTION		
	149-615	-	PO CHECK W/ AUX PORT		
	149-616	-	CAP NUT		
	157-212	-	O-RING		
	159-505	-	SOLENOID TUBE		
	190-997	-	STACKING KIT		
	190-998	-	SEAL REPAIR KIT		
	190-999	-	SEAL REPAIR KIT		
	214-435	-	SOLENOID COIL		
7.	158-022	1	HYD MOTOR		
	500-711		SEAL REPAIR KIT - REAR		
	500-758		SEAL REPAIR KIT - SHAFT		

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FOOTNOTES:

NOTE:

SHUTTLE MOTOR CASE DRAIN HYDRAULICS



SHUTTLE MOTOR CASE DRAIN HYDRAULICS

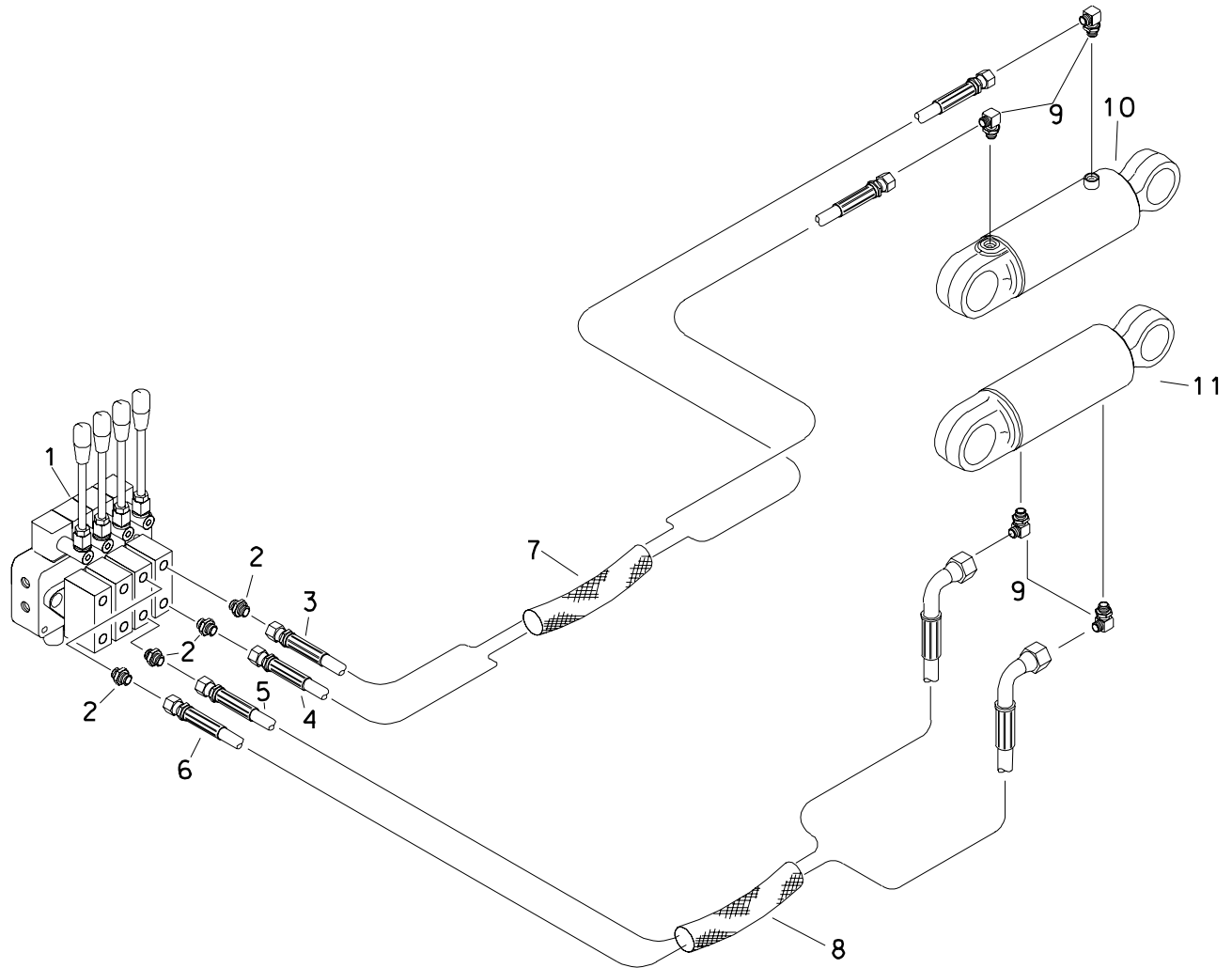
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	515-151	1	HOSE (060FX90-96"-3000)	
2.	154-411	1	CONNECTOR (04S-060)	
3.	158-022	-	HYD MOTOR	
4.	117-676	1	ABRASION SLEEVE (1" X 30")	
5.	117-714	1	ABRASION SLEEVE (1" X 54")	
6.	154-229	1	BK CONNECTOR (060-06090BK)	
7.	515-716	1	HOSE (060FX90-42"-3000)	
8.	156-905	1	HYD LINE (24)	COOLER INLET
9.	117-717	1	ABRASION SLEEVE (1" X 40")	
10.	110-879	1	BOLT-ON CLAMP (5/8", SOLD PER SET)	COOLER INLET
11.	110-958	1	BACKUP PLATE	
12.	105-818	2	BOLT (1/4-NC X 1-1/2")	
13.	343-555	-	CENTER FRAME	
14.	154-344	1	UN RUN TEE (060FX-060-060)	

FOOTNOTES

NOTE

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

DRILL FRAME PIVOT HYDRAULICS



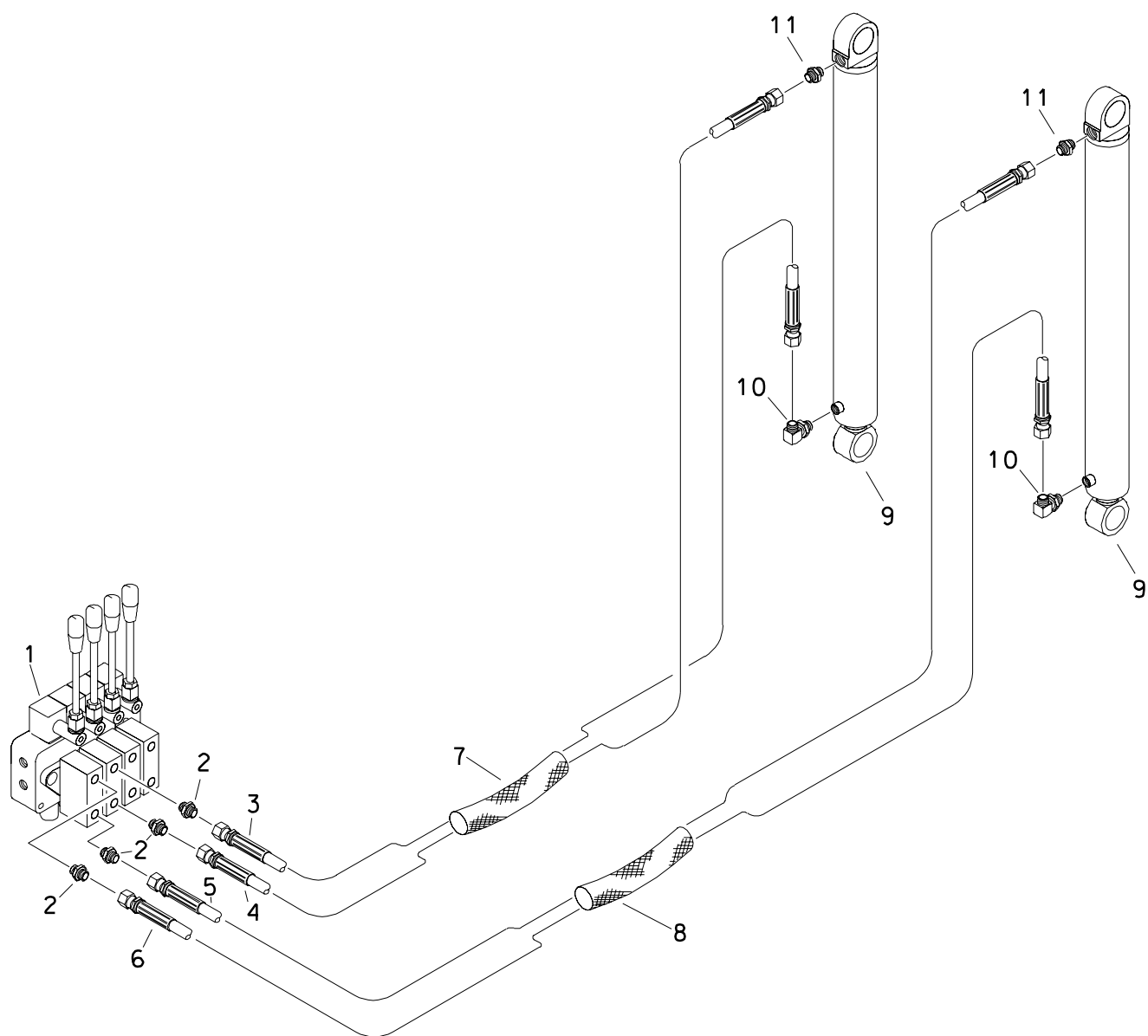
DRILL FRAME PIVOT HYDRAULICS

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	149-077	1	HYD CONTROL VALVE (4-SPOOL)	
	365-426	-	LEVER (M8-1.25 X 200MM)	
2.	510-015	4	ADAPTER (06S-060, DRF)	
3.	154-757	1	HOSE (060FX-86"-3000)	
4.	154-786	1	HOSE (060FX-90"-3000)	
5.	515-714	1	HOSE (06FX90-82"-3000)	
6.	515-715	1	HOSE (06FX90-86"-3000)	
7.	115-938	1	ABRASION SLEEVE (1.59" X 66")	
8.	115-755	1	ABRASION SLEEVE (1.59" X 60")	
9.	154-227	4	CONNECTOR (06S-08090)	
10.	151-178	1	CYL (3.5" X 2" X 5")	
11.	151-123	1	CYL (3.5" X 2" X 4")	

FOOTNOTES

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

STABILIZER HYDRAULICS



STABILIZER HYDRAULICS

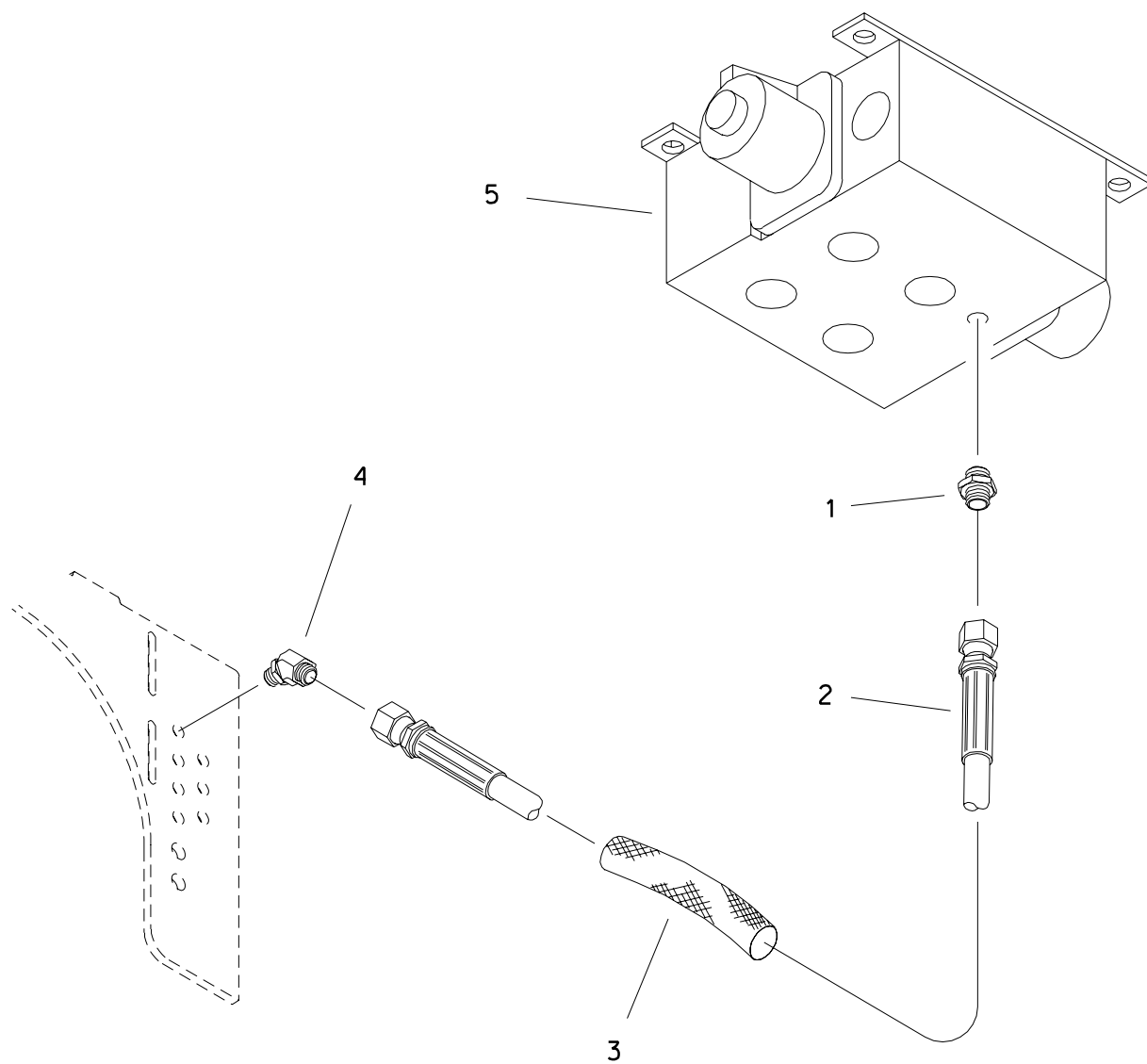
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	149-077	1	HYD CONTROL VALVE (4 SPOOL)	
	365-426	4	LEVER (M8-1.25 X 200mm)	
2.	154-385	4	CONNECTOR (04D-06S, ORF)	
3.	154-651	1	HOSE (04DFX-66"-3000)	
4.	154-693	1	HOSE (04DFX-44"-3000)	
5.	154-966	1	HOSE (04DFX-95"-3000)	
6.	154-811	1	HOSE (04DFX-116"-3000)	
7.	115-737	1	ABRASION SLEEVE (1.59" X 40")	
8.	115-924	1	ABRASION SLEEVE (1.59" X 88")	
9.	151-065	2	CYL (2" X 1.25" X 20")	
10.	154-252	2	CONNECTOR (04S-04090)	
11.	154-278	2	CONNECTOR (04S-040)	

FOOTNOTES

NOTE:

REFER TO O-RING CHART (800-3001) IN THE PACK OF THE BOOK FOR REPLACEMENT OF O-RINGS.

THRUST PRESSURE GAUGE

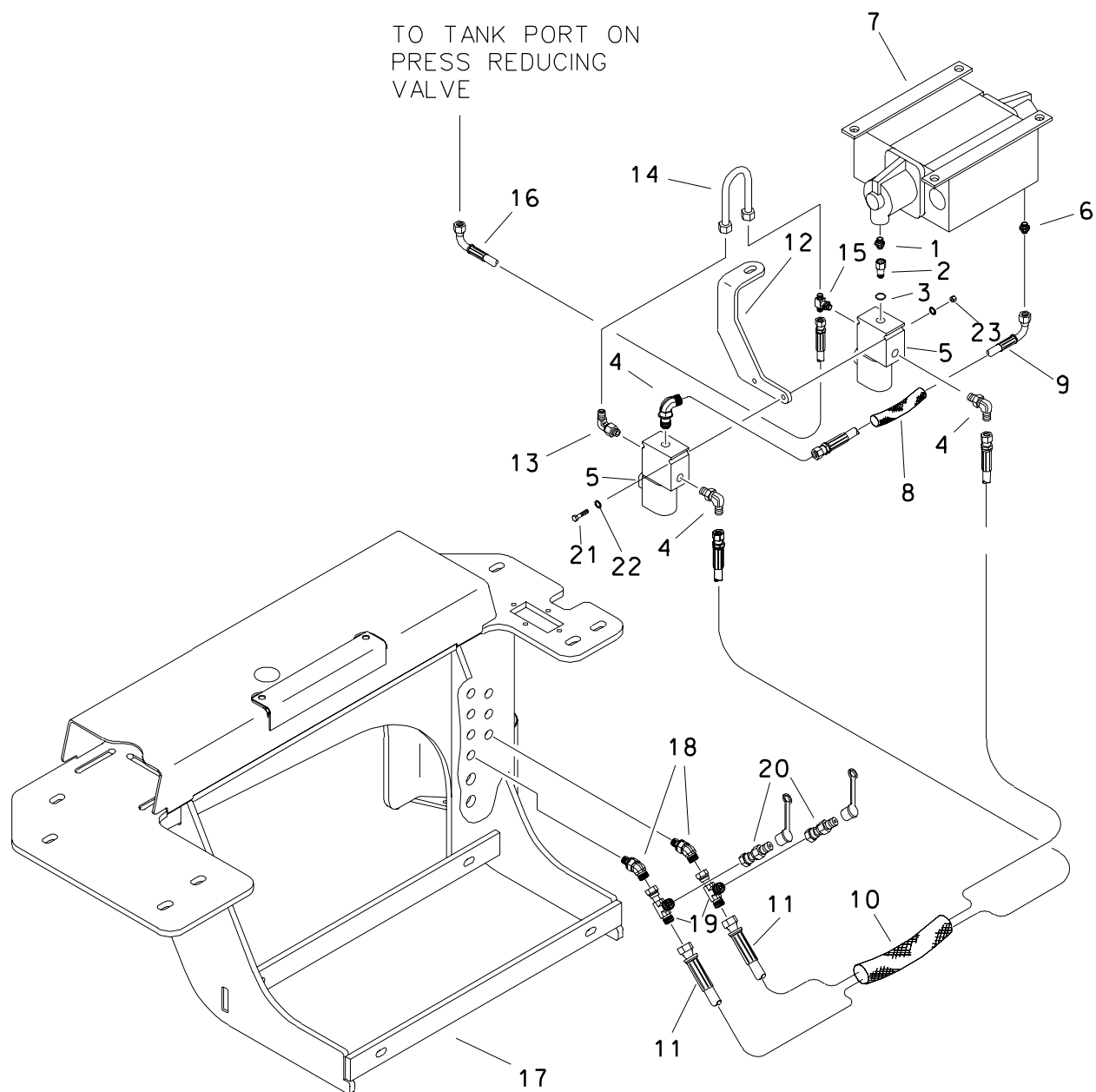


THRUST PRESSURE GAUGE

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	154-278	1	CONNECTOR (04S-040)	
2.	154-725	1	HOSE (040FX90"-3000)	
3.	117-209	1	ABRASION SLEEVE (1" X 90")	
4.	154-285	2	BK CONNECTOR (040-04045BK)	
5.	516-489	-	HYD CONTROL VALVE	
-	105-810	-	BOLT (#10-24 X 7/8", SOC)	COVER (FLAT)
-	157-017	2	O-RING (018 D90)	COVER (FLAT)
-	155-779	1	O-RING (013 D70)	COVER (FLAT)
-	N/A	1	O-RING (010 D70)	COVER (FLAT)
-	157-130	1	O-RING (029 D90)	COVER (SIDE SPOOL)
-	157-154	2	O-RING (032 D70)	COVER (DOME MIDDLE SECTION)

FOOTNOTES

THRUST DUMP HYDRAULICS



THRUST DUMP HYDRAULICS

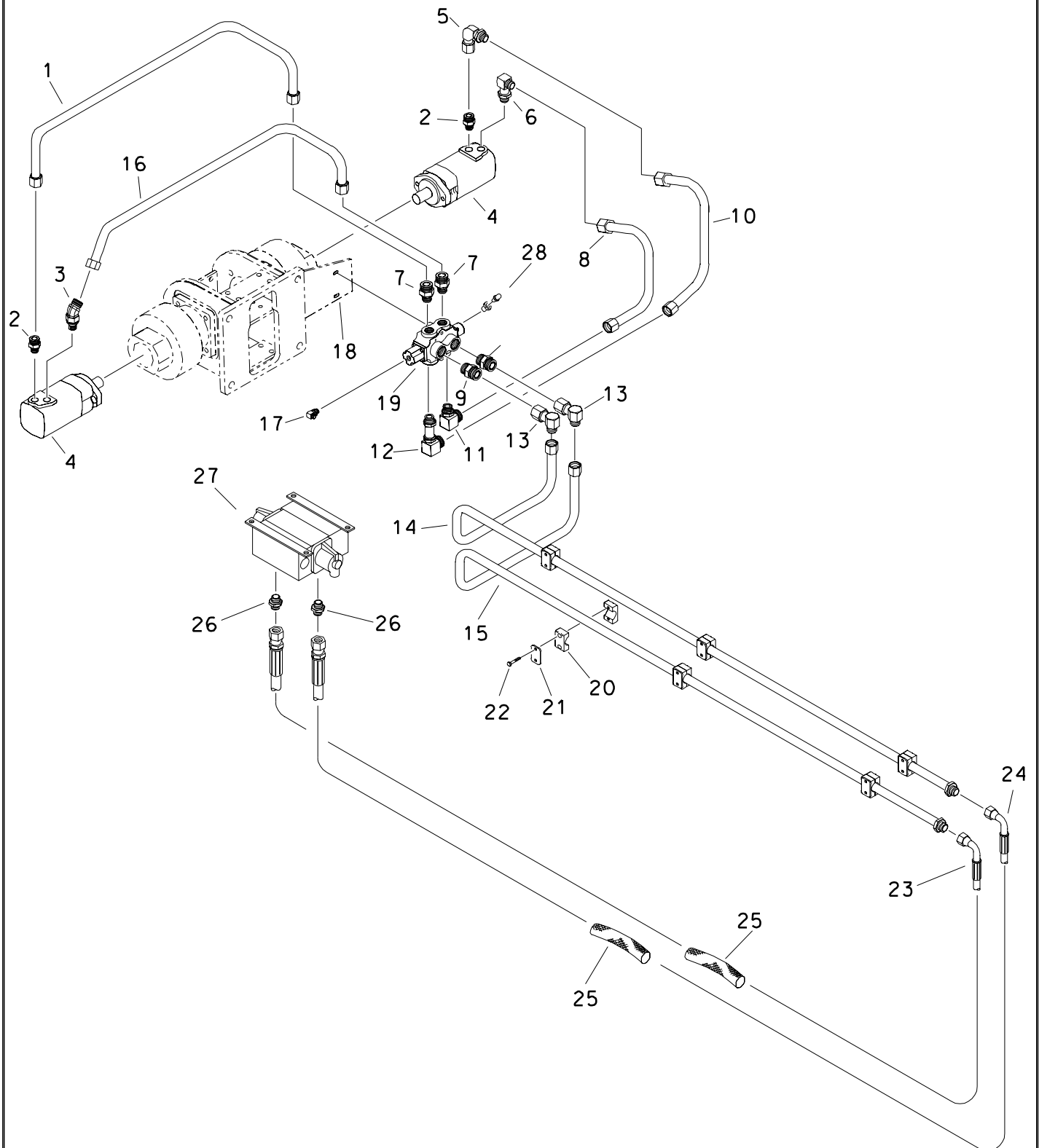
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	154-411	1	CONNECTOR (04S-060)	
2.	514-409	1	UNION (06J-060FX)	
3.	155-705	1	O-RING (906 D90)	
4.	154-226	3	CONNECTOR (04D-06S90)	
5.	158-627	2	SOLENOID VALVE	
	500-756		SEAL REPAIR KIT	
	158-636		SOLENOID VALVE CARTRIDGE	
	217-770		SOLENOID COIL (12V DC)	
6.	154-278		CONNECTOR (04S-040)	
7.	516-489		HYD CONTROL VALVE	
8.	117-671	1	ABRASION SLEEVE (1.00" X 12")	SEE FOOTNOTE 1
9.	515-598	1	HOSE (040FX90-12"-3000)	SEE FOOTNOTE 1
10.	117-761	1	ABRASION SLEEVE (1.59" X 70")	
11.	515-099	2	HOSE (040FX-72"-3000)	
12.	343-330	1	VALVE MOUNT	
13.	154-342	1	CONNECTOR (06S-06090)	
14.	156-953	1	HYD LINE	THRUST DUMP RETURN
15.	154-346	1	BRANCH TEE (06S-060-060)	
16.	155-486	1	HOSE (060FX90-31"-3000)	
17.	348-711		SEAT MOUNT	
18.	154-285	2	BK CONNECTOR (04D-04045BK)	
19.	154-265	2	UN RUN TEE (040FX-040-040)	
20.	159-156	2	QDC ADAPTER (02-040F)	
	159-148	2	DUST CAP (1/8")	
21.	107-054	2	SCREW (M6-1.00 X 90MM)	
22.	105-284	4	WASHER (3/16")	
23.	106-237	2	LOCKNUT (M6-1.00, PRV TRQ, NLK)	

FOOTNOTES

1. REFER TO INSTALLATION INSTRUCTIONS 051-188.
KIT, PART NUMBER 599-179, INCLUDES REF NO'S 8 & 9. REST OF KIT COMPONENTS ARE ON 805-995

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

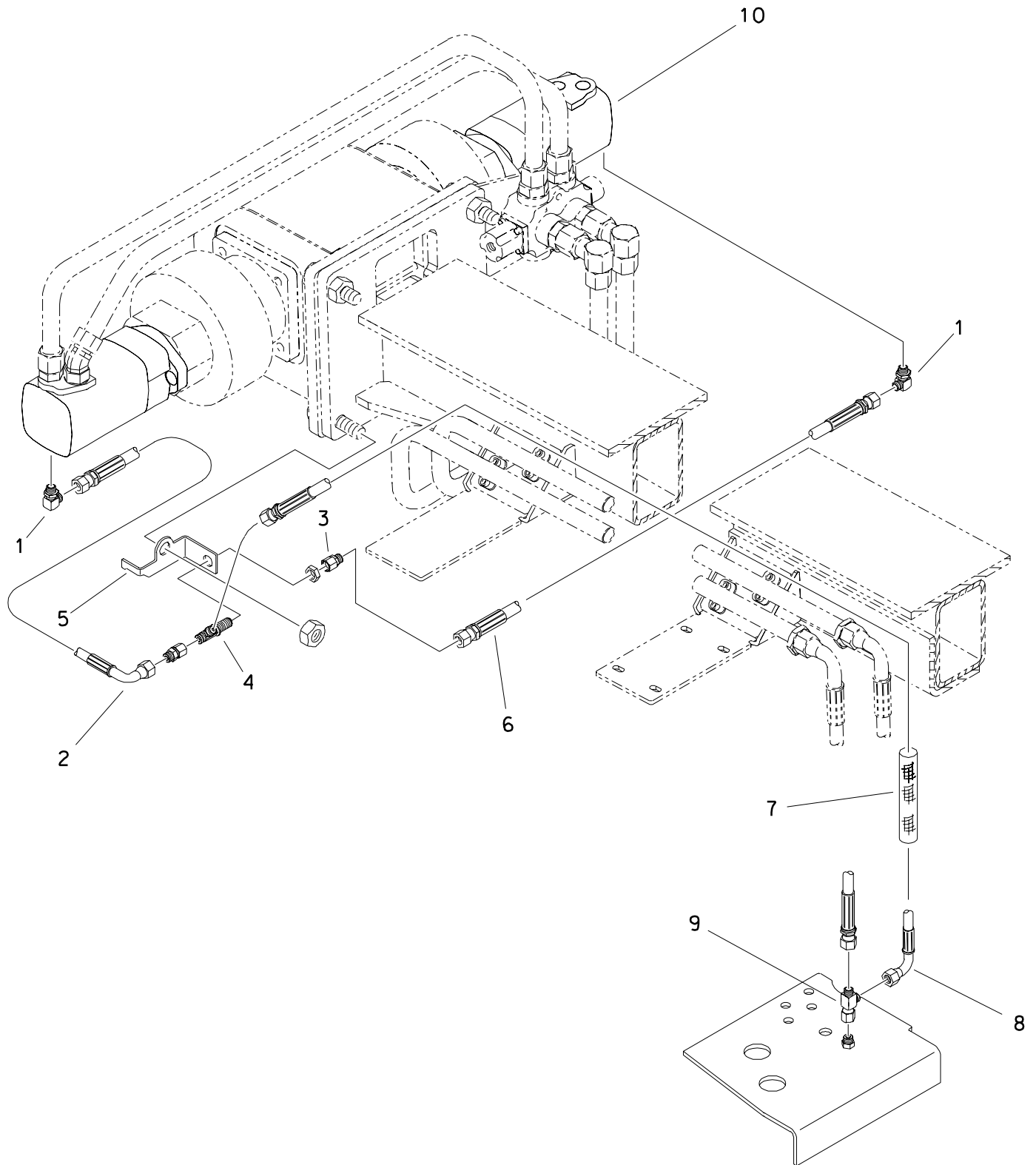
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	156-901	1	HYD LINE (120FX-120FX)	THRUST PORT, RH A
2.	154-247	2	CONNECTOR (10S-120)	
3.	154-336	1	CONNECTOR (10S-12045)	
4.	149-169	2	HYDRAULIC MOTOR	
	500-347	-	SEAL REPAIR KIT	
5.	154-457	1	CONNECTOR (120-120FX90)	
6.	154-273	1	CONNECTOR (10S-12090)	
7.	154-269	2	CONNECTOR (12S-120)	THRUST PORT, LH A
8.	156-899	1	HYD LINE (120FX-120FX)	
9.	154-281	2	CONNECTOR (16S-160)	THRUST PORT, LH B
10.	156-900	1	HYD LINE (120FX-120FX)	
11.	154-270	1	CONNECTOR (12S-12090)	
12.	154-338	1	CONNECTOR (12S-12090, XL)	
13.	154-290	2	CONNECTOR (160-160FX90)	RETURN
14.	156-904	1	HYD LINE (160-160FX)	PRESSURE
15.	156-903	1	HYD LINE (160-160FX)	THRUST PORT, RH B
16.	156-902	1	HYD LINE 120FX-120FX)	
17.	154-252	1	CONNECTOR (04S-04090)	
18.	343-453	1	MOUNT PLATE	
19.	149-343	1	HYDRAULIC CONTROL VALVE	
	190-863	-	SEAL REPAIR KIT	
20.	110-573	6	BOLT-ON CLAMP (1", SOLD PER SET)	
21.	322-289	6	BACKUP (BOLT ON)	
22.	105-818	12	BOLT (1/4-NC X 1-1/2")	
23.	515-722	1	HOSE (016FX90-60"-3000)	
24.	515-723	1	HOSE (016FX90-62"-3000)	
25.	117-294	2	ABRASION SLEEVE (2.07" X 56")	
26.	154-281	2	CONNECTOR (16S-160)	
27.	516-489		HYD CONTROL VALVE	
28.	163-101	1	BLEEDER VALVE	

FOOTNOTES

NOTE:

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

THRUST DRIVE CASE DRAIN BEGINS WITH S/N 2T3952



THRUST DRIVE CASE DRAIN
BEGINS WITH S/N 2T3952

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	599-247	-	THRUST DRIVE CASE DRAIN KIT	INCLUDE REF NO'S 1-9; SEE FOOTNOTE 1
- 1.	154-252	2	CONNECTOR (04S-04090)	
- 2.	515-437	1	HOSE (040FX90-21"-3000)	
3.	154-373	2	REDUCER (040-060F)	
- 4.	154-400	1	BK RUN TEE (060-060-060BK)	
- 5.	310-207	1	BULKHEAD MOUNT	
6.	515-249	1	HOSE (040FX-26"-3000)	
- 7.	117-195	1	ABRASION SLEEVE (1.00" X 125")	
- 8.	515-561	1	HOSE (060FX90S-125"-3000)	
9.	154-344	1	UN RUN TEE (060FX-060-060)	
10.	155-598	-	HYD MOTOR	

FOOTNOTES

1. REFER TO INSTALLATION INSTRUCTIONS 051-256
2. INSTALLATION OF KIT ALSO INCLUDES S/N'S : 2T3927, 2T3932, 2T3935, 2T3941, 2T3947-49.

MUD PRESSURE HYDRAULICS

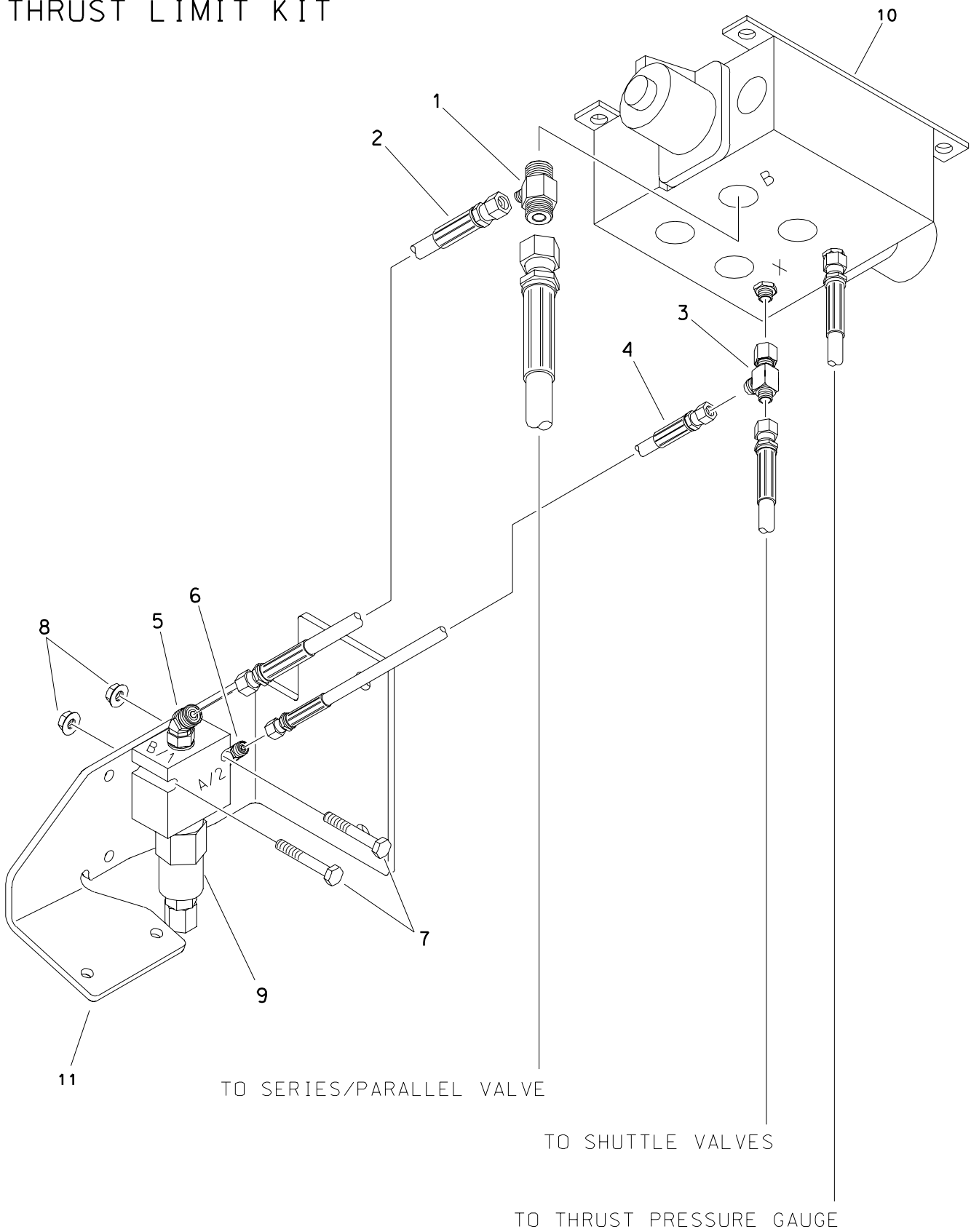
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	154-301	1	CONNECTOR (10S-100)	
2.	155-466	1	HOSE (100FX90-74"-2750)	
3.	117-761	1	ABRASION SLEEVE (1.59" X 70")	
4.	154-315	1	CONNECTOR (100-100FX90)	
5.	514-041	1	RUN TEE (10S-100-040)	
6.	510-017	1	CONNECTOR (12S-10SF)	
7.	515-612	1	HOSE (040FX90-98"-3000)	
8.	117-213	1	ABRASION SLEEVE (1" X 96")	
9.	158-936	1	HYD MOTOR	INCL REF NO 11
	500-658		SEAL REPAIR KIT	
10.	516-488		HYD CONTROL VALVE	
	197-073		REBUILT HYD CONTROL VALVE	
11.	214-010		SPEED SENSOR	
12.	149-511	1	TEE (10S-080-16H), SPECIAL	
13.	106-204	2	BOLT (1/2-NC X 1-1/2", SOC)	USE LOCTITE 244 ON BOLTS AND TORQUE TO 100 FT-LBS

FOOTNOTES

NOTE:

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

THRUST LIMIT KIT



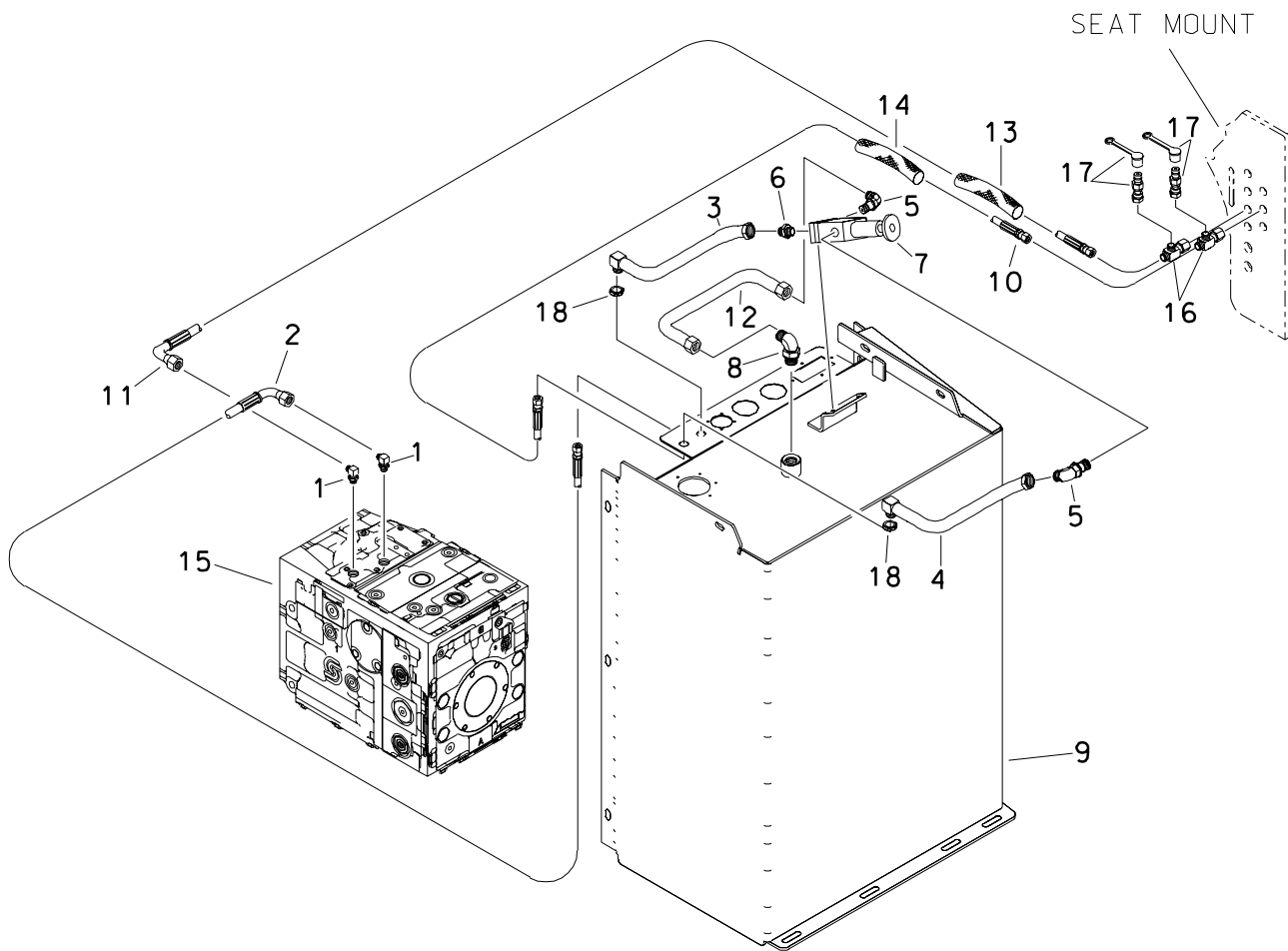
THRUST LIMIT KIT

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	100-059		THRUST LIMITER KIT	INCLUDE REF NO'S 1-9; SEE FOOTNOTE 1
1.	514-411	1	RUN TEE (16S-160-060)	
2.	154-831	1	HOSE (060FX-21"-3000)	
3.	154-265	1	UNION RUN TEE (040FX-040-040)	
4.	154-652	1	HOSE (040FX-20"-3000)	
5.	154-224	1	CONNECTOR (06S-06045)	
6.	154-226	1	CONNECTOR (040-06S90)	
7.	105-818	2	BOLT (1/4-NC X 1-1/2")	
8.	105-085	2	LOCKNUT (1/4-NC)	
9.	516-121	1	VALVE	
10.	516-092	-	THRUST VALVE (ELECTRIC)	
11.	343-791	-	MOUNT BRACKET	

FOOTNOTES

1. REFER TO INSTALLATION INSTRUCTIONS 050-467

ROTATION CONTROL HYDRAULICS



ROTATION CONTROL HYDRAULICS

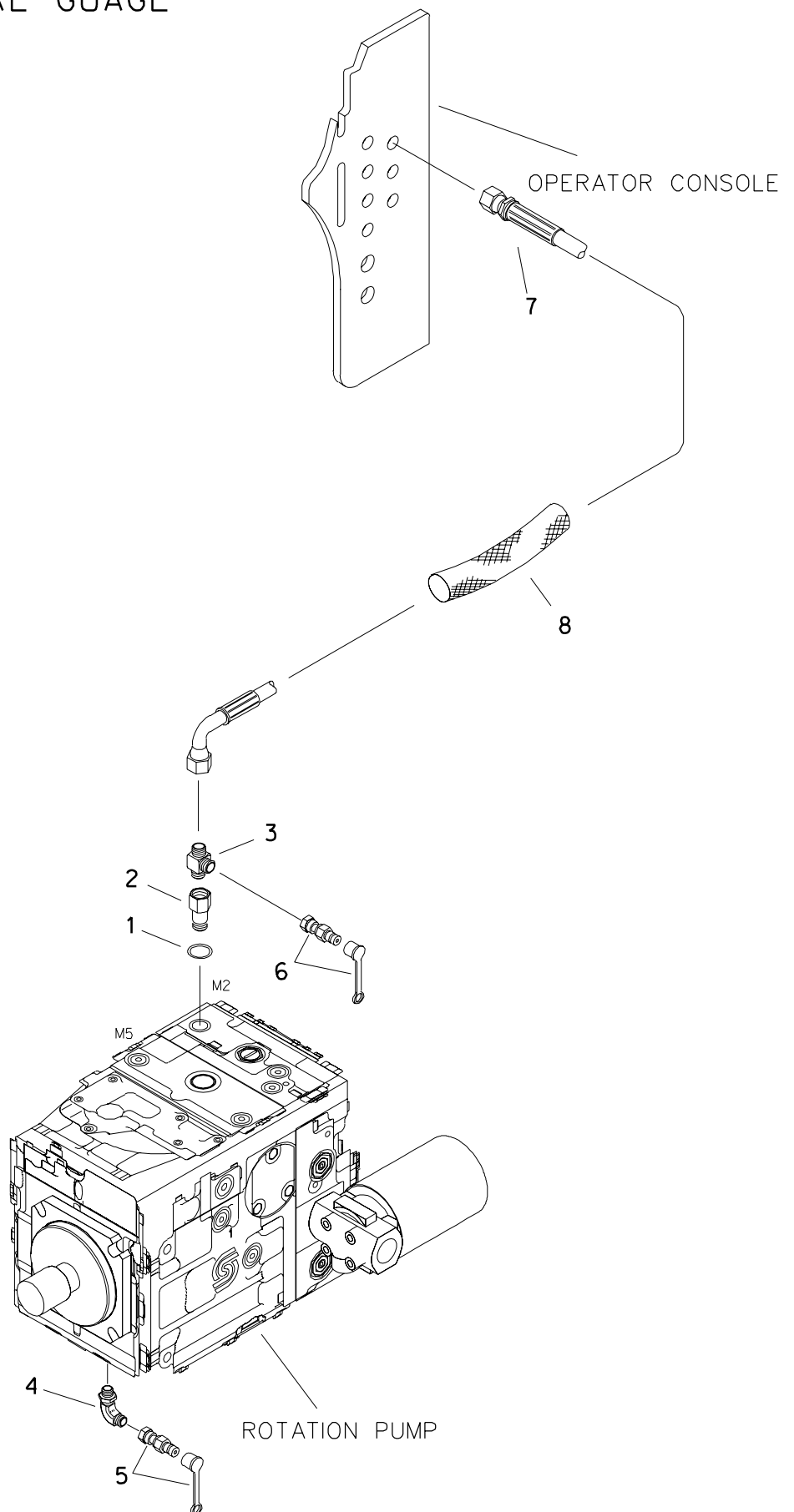
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	154-226	2	CONNECTOR (040-06S90)	
2.	515-712	1	HOSE (04FX90L-68"-3000)	
3.	156-948	1	HYD LINE (06DFX - 06090)	RETURN CONTROL PRESSURE
4.	156-949	1	HYD LINE (06DFX - 06090)	ROTATION CONTROL PRESSURE INLET
5.	154-342	2	CONNECTOR (06S-06090)	
6.	154-221	1	CONNECTOR (06S-060)	
7.	159-450	1	HYD CONTROL VALVE	PRESSURE REDUCING
	190-860		SEAL REPAIR KIT (VITON)	
8.	154-227	1	CONNECTOR (06Q-08S90)	
9.	350-518	-	HYDRAULIC TANK WLDMN'T	
10.	154-724	1	HOSE (04DFX-82"-3000)	
11.	515-137	1	HOSE (04DFX90-90"-3000)	
12.	156-947	1	HYD LINE (06DFX - 060FX)	ROTATION CONTROL RETURN
13.	117-209	1	ABRASION SLEEVE (1" X 90")	
14.	117-693	1	ABRASION SLEEVE (1" X 60")	
15.	158-468	-	HYDRAULIC PUMP	
	149-389	-	HYDRAULIC PUMP	
	153-104	-	PUMP, HYDRAULIC	
16.	154-265	2	UN RUN TEE (04DFX-040-040)	
17.	159-156	2	QDC ADAPTER (02-04DF)	
	159-148		DUST CAP (1/8")	
18.	105-431	2	JAM NUT (9/16-NF)	

FOOTNOTES

NOTE:

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

ROTATION PRESSURE GUAGE



ROTATION PRESSURE GUAGE

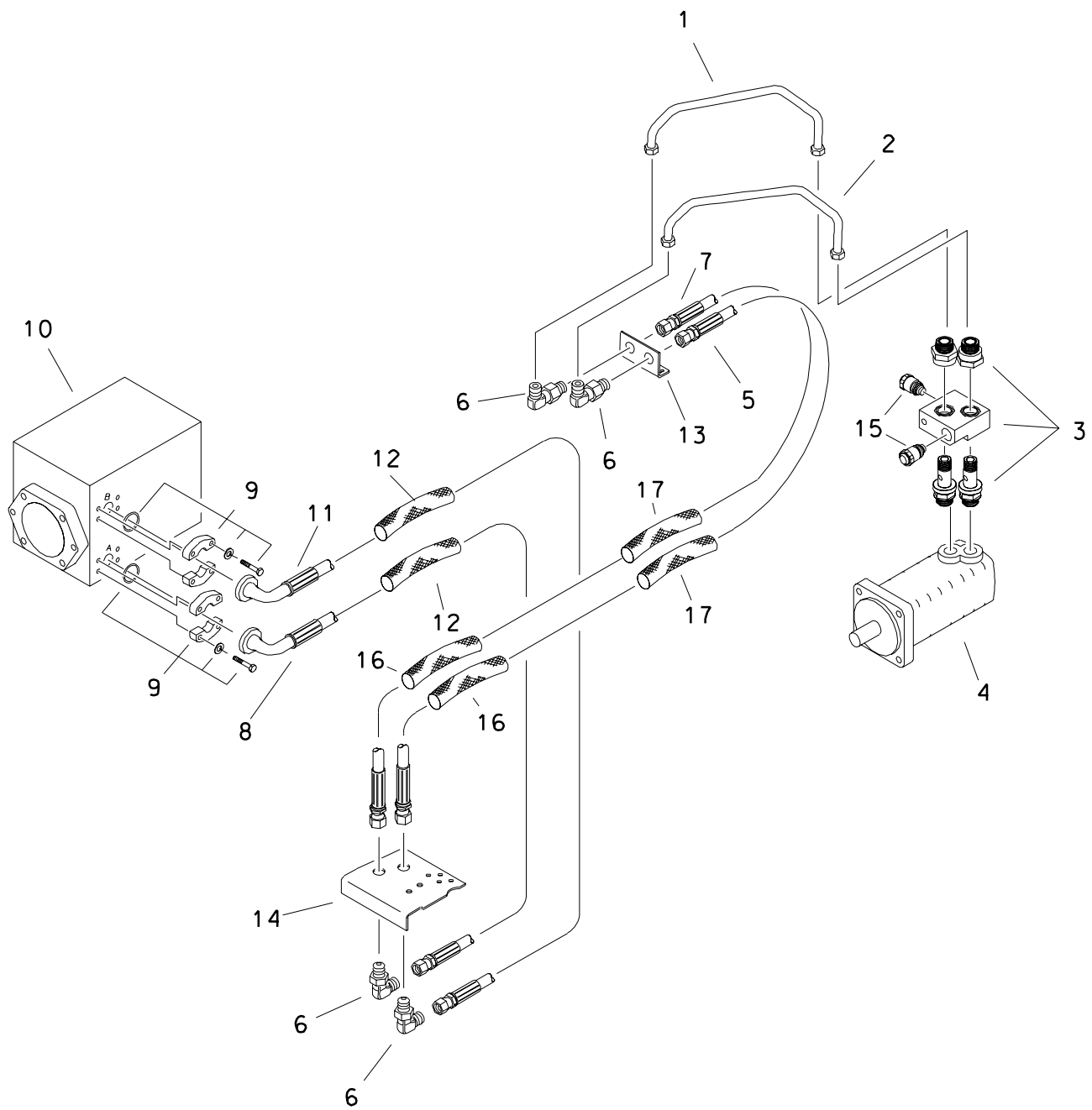
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	157-039	1	O-RING (014 D90)	
2.	154-220	1	CONNECTOR (040-06S)	
3.	154-265	1	UN RUN TEE (040FX-040-040)	
4.	154-342	1	CONNECTOR (06S-06090)	
5.	159-157	1	QDC ADAPTER (02-060F)	
	159-148	1	DUST CAP (1/8")	
6.	159-156	1	QDC ADAPTER (02-040F)	
	159-148	1	DUST CAP (1/8")	
7.	154-933	1	HOSE (040FX90-94"-5000)	
8.	117-209	1	ABRASION SLEEVE (1" X 90")	

FOOTNOTES

NOTE:

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

ROTATION HYDRAULICS



ROTATION HYDRAULICS

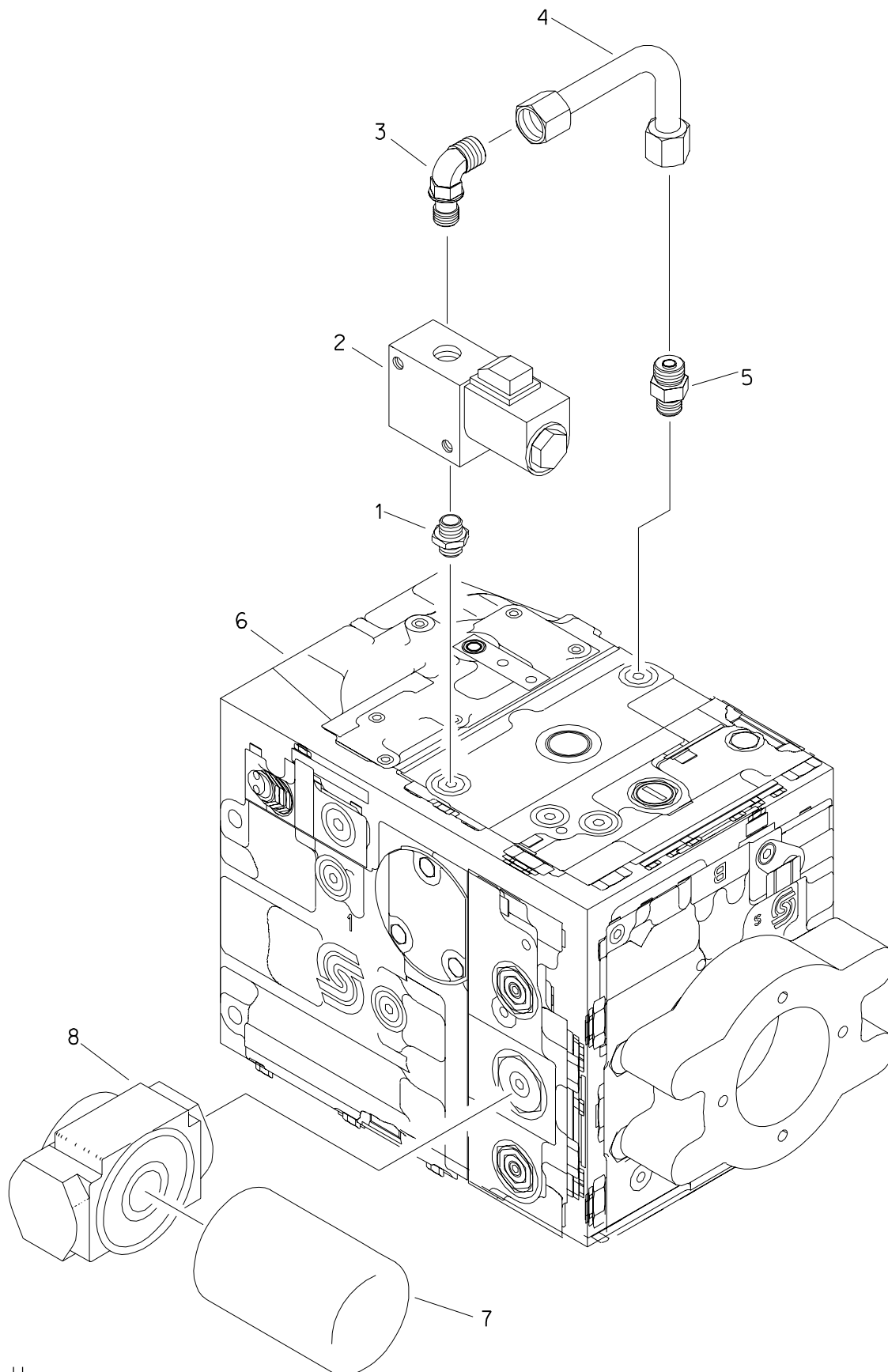
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	149-347	1	HYD LINE (160FX-160FX)	ROTATION PRESSURE
2.	149-346	1	HYD LINE (160FX-160FX)	ROTATION RETURN
3.	149-651	1	VALVE BODY	
4.	149-254	-	HYDRAULIC MOTOR	
5.	515-706	1	HOSE (160FX-158"-5000)	
6.	154-419	4	BK CONNECTOR (160-16090BK)	
7.	515-704	1	HOSE (160FX-160"-5000)	
8.	154-803	1	HOSE (160FL90-160FX-33.5"-5000)	
9.	159-077	2	SPLIT FLANGE (16SFL)	
	105-222	4	BOLT (7/16-NC X 1-3/4")	
	105-073	4	LOCK WASHER (7/16")	
	157-029	1	O-RING (219 D90)	
10.	158-468	-	HYD PUMP	
	149-389	-	HYDRAULIC PUMP	
	153-104	-	PUMP, HYDRAULIC	
11.	515-705	1	HOSE (160FL90-160FX-38.5"-3000)	
12.	117-294	2	ABRASION SLEEVE (2.07" X 56")	
13.	343-451	-	BULKHEAD PLATE	
14.	343-555	-	CENTER FRAME	
15.	149-497	2	HYDRAULIC VALVE	TORQUE TO 85 FT. LBS.
	190-986	-	SEAL REPAIR KIT	
16.	117-292	2	ABRASION SLEEVE (2.07" X 70")	
17.	117-295	2	ABRASION SLEEVE (2.07" X 60")	

FOOTNOTES

NOTE

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

ROTATION DUMP SOLENOID VALVE



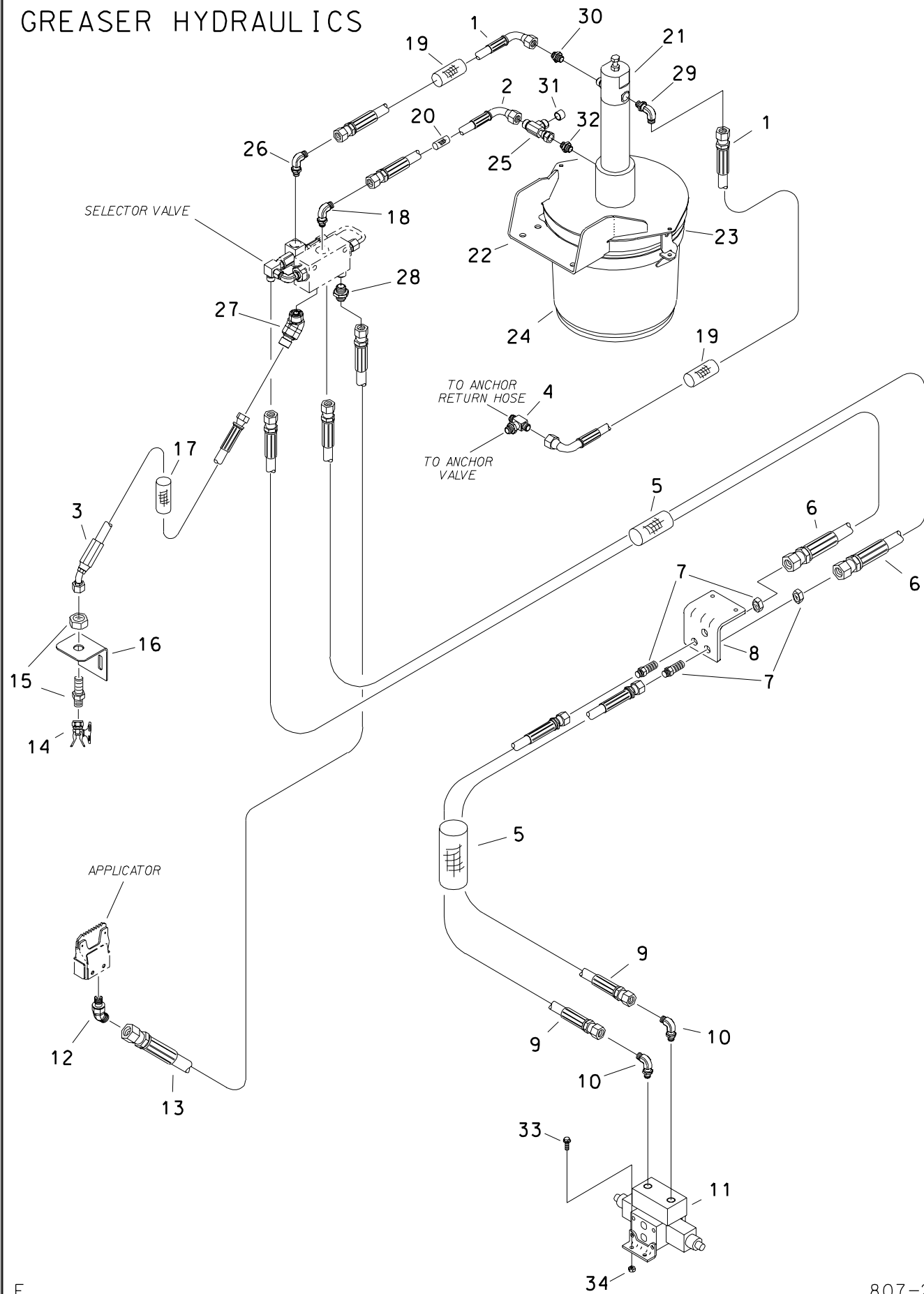
ROTATION DUMP SOLENOID VALVE

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	155-153	1	CONNECTOR (06S-06S)	
2.	158-661	1	HYD CONTROL VALVE	
-	500-757	-	SEAL REPAIR KIT	
-	214-491	-	COIL (12V)	
3.	154-342	1	CONNECTOR (06S-06090)	
4.	156-917	1	HYD LINE (060FX-060FX)	ROTATION DUMP SOL
5.	154-221	1	CONNECTOR (06S-060)	
6.	158-468	-	HYD PUMP	INCL REF NO.'S 7 & 8
-	149-389	-	HYDRAULIC PUMP	
-	153-104	-	PUMP, HYDRAULIC	
-	190-764	-	SEAL REPAIR KIT	
-	499-061	-	CHARGE PUMP (26CC)	
-	499-062	-	PUMP SHAFT (13T)	
-	500-764	-	MULTIFUNCTION VALVE-LIMITER	
7.	159-074	1	FILTER ELEMENT (1-3/8-UNF)	SEE FOOTNOTE 1
8.	159-425	1	FILTER HEAD (040F-040F)	SEE FOOTNOTE 1

FOOTNOTES

1. TO INSTALL REMOTE FILTER ORDER REMOTE CHARGE FILTER KIT 599-228 AND REFER TO INSTRUCTIONS 050-434

GREASER HYDRAULICS



GREASER HYDRAULICS

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	515-744	2	HOSE (040FX90S-28"-3000)	
2.	149-826	1	HOSE (060FX90L-12"-3000)	
3.	149-842	1	HOSE (060FX45-18"-3000)	
4.	149-117	1	BK BR TEE (08S-100-040)	
5.	117-211	2	ABRASION SLEEVE (1.25" X 90")	
6.	515-435	2	HOSE (040FX-96"-3000)	
7.	154-275	2	BK CONNECTOR (040-04DBK)	
8.	307-575	1	FLOW DIVIDER BULKHEAD	
9.	155-487	2	HOSE (040FX-106"-3000)	
10.	154-226	2	CONNECTOR (040-06S90)	
11.	516-098	1	SOLENOID VALVE (SINGLE)	
12.	514-414	1	CONNECTOR (04S-06045)	
13.	154-655	1	HOSE (060FX-160"-3000)	
14.	149-399	1	SPRAY NOZZLE (65°)	
	400-137	1	SPRAY NOZZLE HANDLE KIT	
	153-096	1	CAP GASKET, NYLON	
15.	514-163	1	BK CONNECTOR (060-06DBK)	
16.	306-785	1	BRACKET, SPRAY	
17.	117-194	1	ABRASION SLEEVE (1.00" X 16")	
18.	154-342	1	CONNECTOR (06S-06090)	SEE FOOTNOTE A
19.	117-684	2	ABRASION SLEEVE (1.00" X 26")	
20.	117-670	1	ABRASION SLEEVE (1.00" X 10")	
21.	350-398	-	GREASE PUMP ASSEMBLY	
22.	350-400	-	COVER WELDMENT	
23.	350-399	-	BASE WLDMN'T	
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 D
27.	154-224	1	CONNECTOR (06S-06045)	SEE FOOTNOTE B
28.	514-165	1	CONNECTOR (06S-060, DRF .078")	SEE FOOTNOTE C
29.	154-401	1	CONNECTOR (04S-04090, DRF)	
30.	154-278	1	CONNECTOR (04S-040)	
31.	154-326	1	CAP (060F)	
32.	154-221	1	CONNECTOR (06S-060)	
33.	106-379	4	FLG LK SCREW (M6-1.00 X 20MM)	
34.	106-237	4	LOCKNUT (M6-1.00, PRV TRQ, NLK)	

FOOTNOTES

A. GREASE IN FROM PUMP

B. TO SPRAY NOZZLE

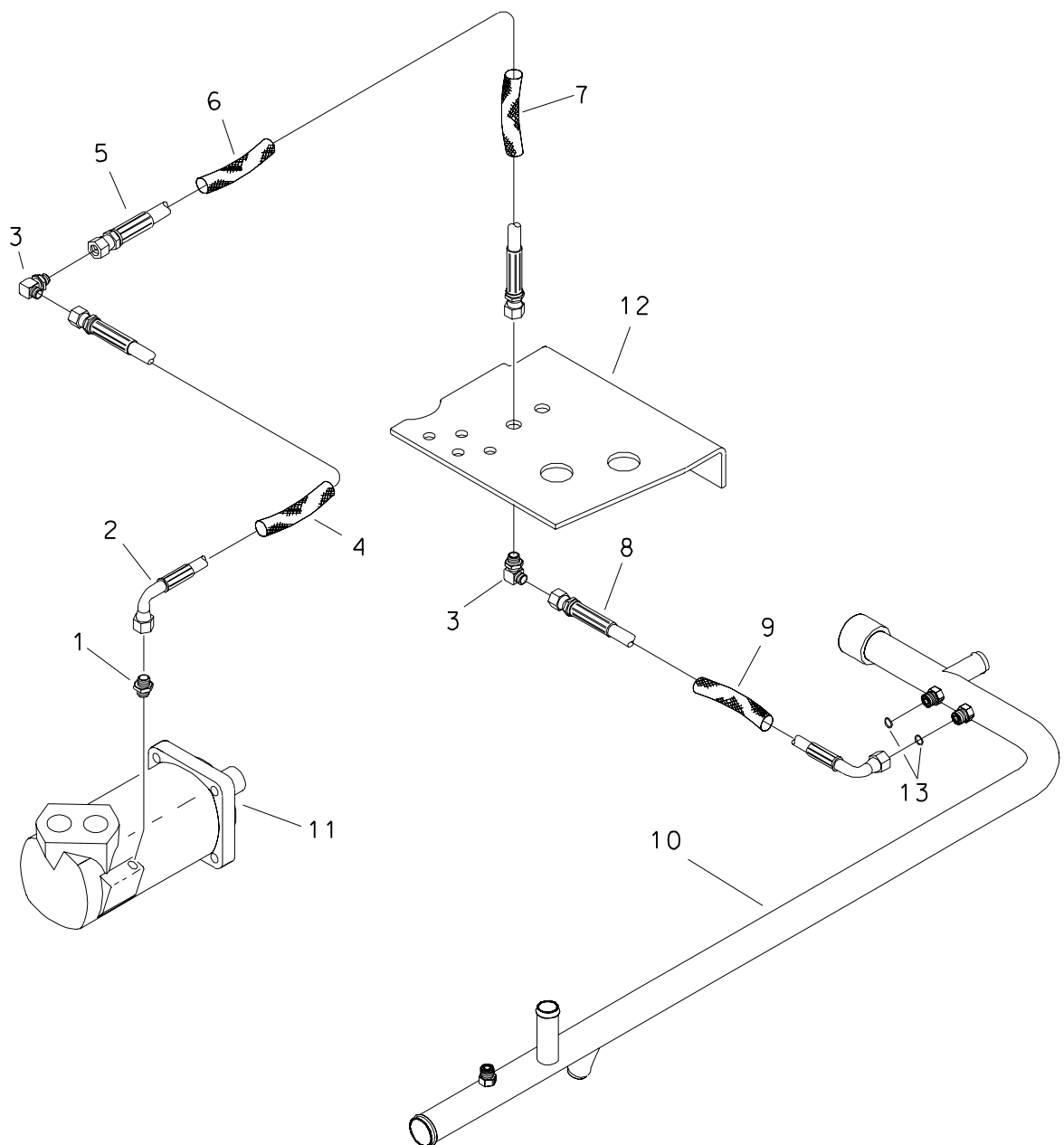
C. TO REAR APPLICATOR

D. HYDRAULIC OIL OUT TO LUBE PUMP

NOTE

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

ROTATION MOTOR CASE DRAIN

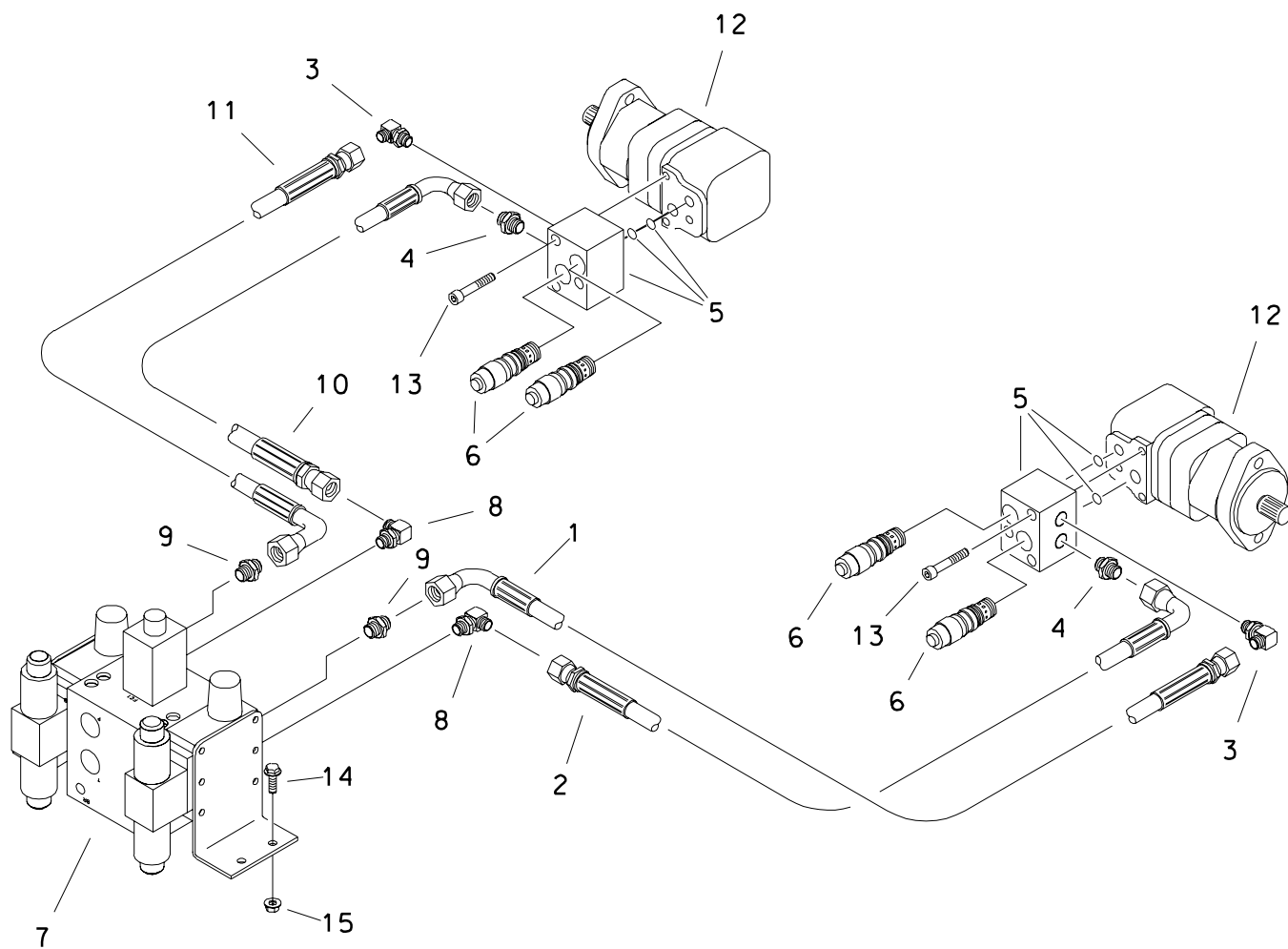


ROTATION MOTOR CASE DRAIN

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	154-221	1	CONNECTOR (06S-060)	
2.	154-737	1	HOSE (06DFX90-17"-3000)	
3.	154-229	2	BK CONNECTOR (060 - 06090BK)	
4.	117-194	1	ABRASION SLEEVE (1.00" X 16")	
5.	154-656	1	HOSE (06DFX-170"-3000)	
6.	117-676	1	ABRASION SLEEVE (1.00" X 30")	
7.	117-702	1	ABRASION SLEEVE (1" X 68")	
8.	515-716	1	HOSE (06DFX90-42"-3000)	
9.	117-717	1	ABRASION SLEEVE (1.00" X 40")	
10.	156-905	1	HYD LINE (24)	COOLER INLET
11.	149-254	1	HYDRAULIC MOTOR	
-	500-390	-	SEAL REPAIR KIT - REAR	
-	500-391	-	SEAL REPAIR KIT - SHAFT	
-	500-685	-	MOTOR SHAFT	
12.	343-555	-	CENTER FRAME	
13.	157-038	2	O-RING (012 D90)	

FOOTNOTES

GROUND DRIVE CONTROL HYDRAULICS



GROUND DRIVE CONTROL HYDRAULICS

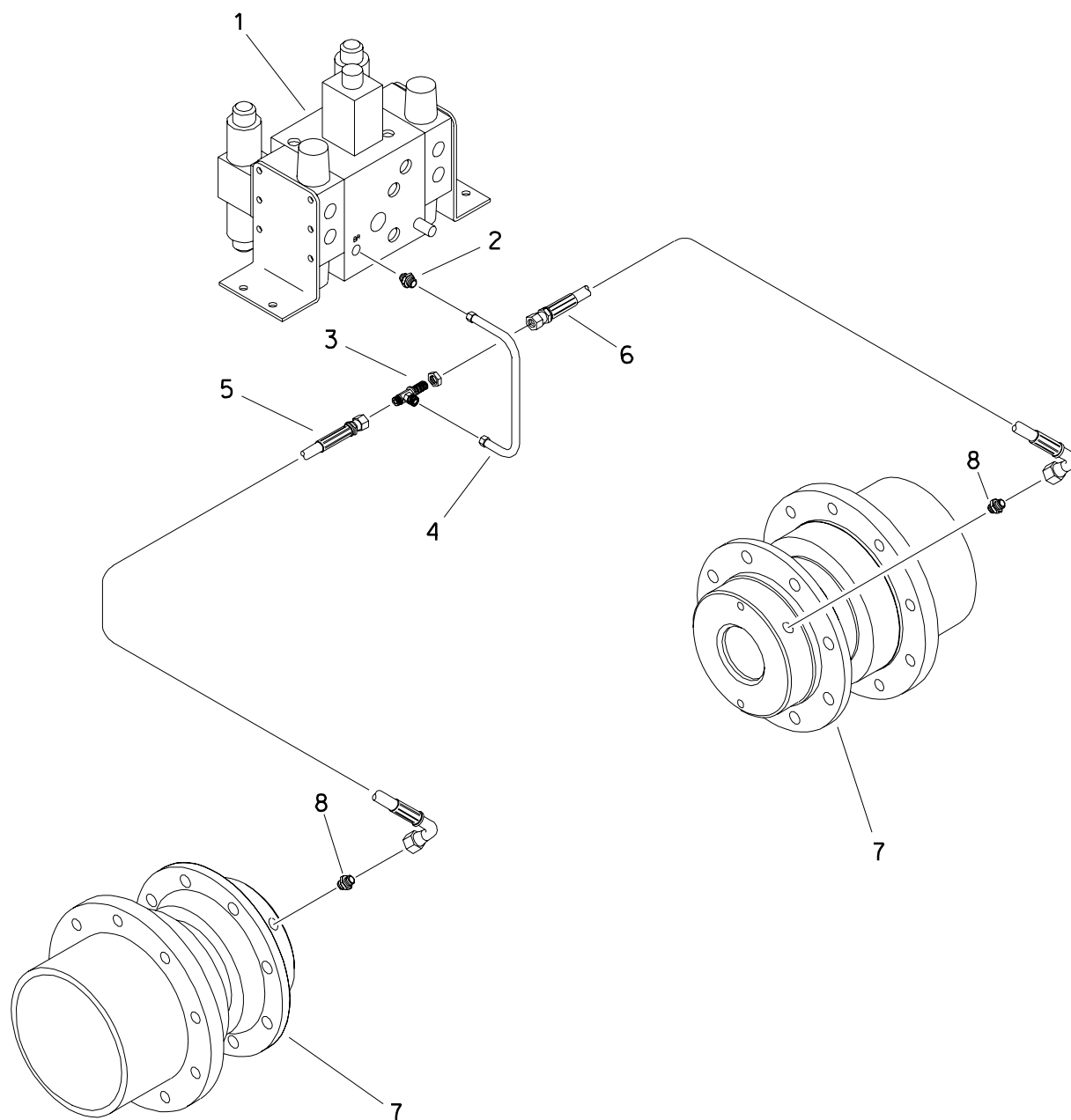
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	515-719	1	HOSE (1000FX90M-32"-3000)	
2.	515-720	1	HOSE (1000FX90S-32"-3000)	
3.	154-323	2	CONNECTOR (08S-10090)	
4.	154-391	2	CONNECTOR (08S-100)	
5.	155-981	2	COUNTERBALANCE MANIFOLD	
	155-776	-	O-RING (117 D70)	
6.	158-018	4	RELIEF CARTRIDGE	
7.	516-488	-	HYD CONTROL VALVE	GRND DRY
	197-073	1	REBUILT HYD CONTROL VALVE	USE ON 516-488
	217-897	A/R	SOLENOID COIL (LARGE)	
	501-904	1	CTRL.VALVE FOR LRG COIL	
	501-869	1	RELIEF VLVE	LOCATED AT PORT (RV1)
	501-872	2	SHUTTLE VLVE	LOCATED AT PORTS (SV1&2)
	214-434	4	SOLENOID COIL (SMALL)	
	499-631	-	COIL RETAINER CAP (214-434)	
	501-867	2	VALVE W/ 2 SMALL COILS	
	149-565	1	3/WAY CART VLVE	LOCATED AT PORT (DC1)
	499-597	-	PRESSURE FLOW REGULATOR	
8.	154-298	2	CONNECTOR (10S-10090)	LOCATED AT PORT (FC1)
9.	154-301	2	CONNECTOR (10S-100)	
10.	515-047	1	HOSE (100FX90-22"-3000)	
11.	515-721	1	HOSE (100FX90-32"-3000)	
12.	158-953	2	HYD MOTOR	
	500-658	-	SEAL REPAIR KIT	
13.	105-281	6	BOLT (3/8-NC X 2-1/2", ALN, GD8)	
14.	106-724	4	FLG SCREW (M10-1.50 X 25MM)	
15.	106-387	4	FLG LOCKNUT (M10-1.50)	

FOOTNOTES

NOTE:

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

BRAKE LINE

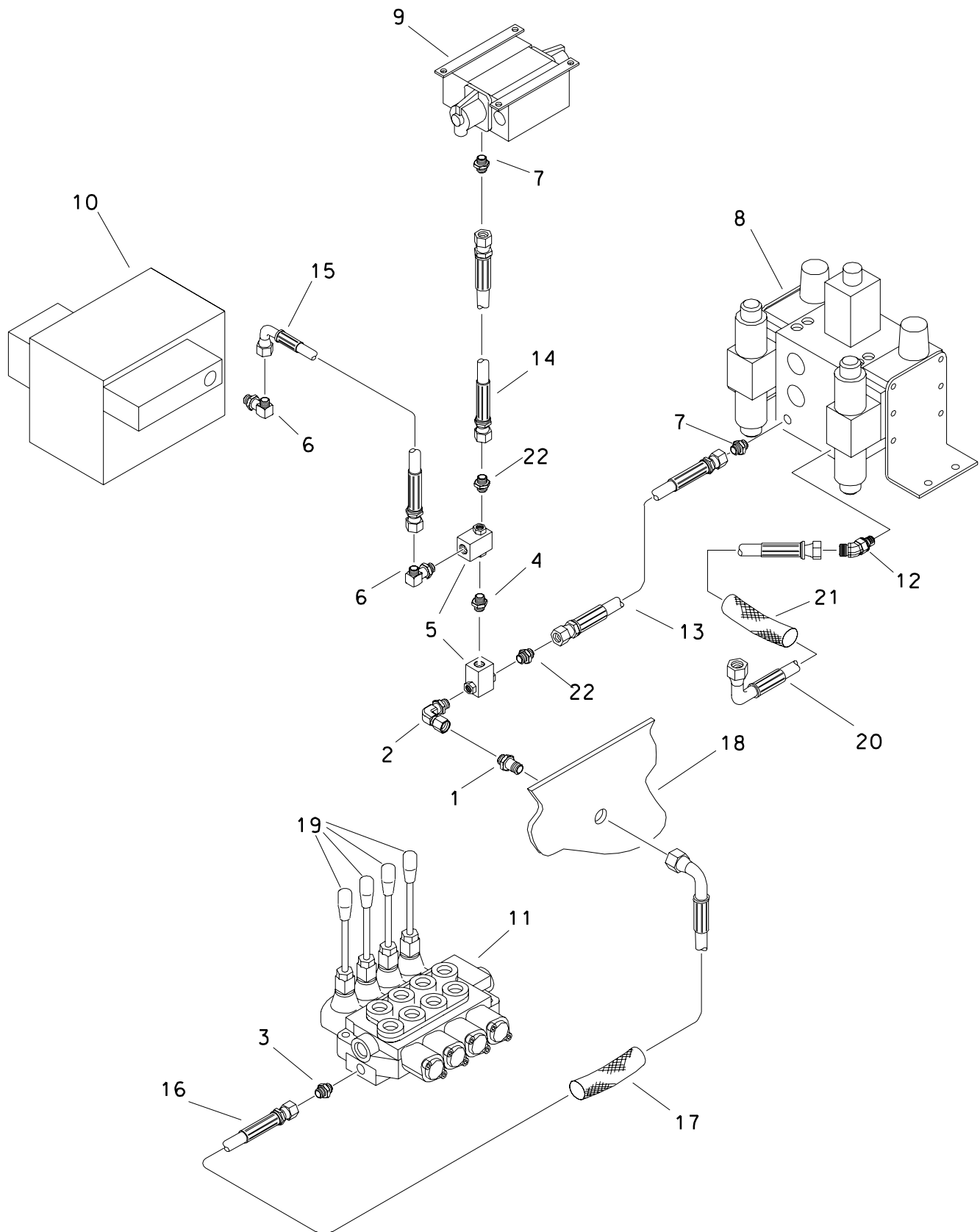


BRAKE LINE

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	516-488	-	HYD CONTROL VALVE	GROUND DRIVE
	197-073		REBUILT HYD CONTROL VALVE	
2.	154-221	1	CONNECTOR (06S-060)	
3.	154-400	1	BK RUN TEE (060-060-060BK)	
4.	156-954	1	HYD LINE (060FX-060FX)	BRAKE
5.	515-176	1	HOSE (060FX90-28"-3000)	
6.	155-486	1	HOSE (060FX90-31"-3000)	
7.	166-140		PLANETARY GEAR BOX	TRACK
8.	154-411	2	CONNECTOR (04S-060)	

FOOTNOTES

LOAD SENSE HYDRAULICS



LOAD SENSE HYDRAULICS

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	514-163	1	BK CONNECTOR (060-060BK)	
2.	154-343	1	UNION (06S-060FX90)	
3.	154-221	1	CONNECTOR (06S-060)	
4.	155-153	1	CONNECTOR (06S-06S)	
5.	158-600	2	HYD SHUTTLE VALVE	
6.	154-226	2	CONNECTOR (040-06S90)	SEE FOOTNOTE 1
7.	154-278	2	CONNECTOR (04S-040)	SEE FOOTNOTE 1
8.	516-488		HYD CONTROL VALVE	GRND DRV
9.	516-489	1	HYD CONTROL VALVE	
	149-565		3-WAY CARTRIDGE VALVE	
	214-434		SOLENOID COIL (SMALL)	
	217-897		SOLENOID COIL (LARGE)	
10.	158-467		HYD PUMP	
	149-926		HYDRAULIC PUMP	
	499-063		SHAFT (SPLINED 14T)	
	190-803		SEAL REPAIR KIT	
	499-064		LOAD SENSE CONTROL	
	190-804		BEARING KIT	
11.	516-094		HYDRAULIC CONTROL VALVE	
	516-120		HYD CONTROL VALVE	
	190-864		KIT, SPRING CENTERING	
	190-865		SEAL REPAIR KIT	
	365-493		HANDLE (M10 X180mm, BLK)	
	499-093		SPOOL POSITIONER END CAP	
	499-094		PLUG, VMP RELIEF	
	499-095		SENSE CHECK	
12.	154-224	1	CONNECTOR (06S-06045)	
13.	515-756	1	HOSE (040FX-23"-3000)	SEE FOOTNOTE 1
14.	515-755	1	HOSE (040FX-25"-3000)	SEE FOOTNOTE 1
15.	515-210	1	HOSE (040FX90-28"-3000)	SEE FOOTNOTE 1
16.	515-717	1	HOSE (06FX90-168"-3000)	
17.	117-759	1	ABRASION SLEEVE (1.00" X 160")	
18.	343-555		CENTER FRAME	
19.	365-493		HANDLE (M10 X 180mm, BLK)	
20.	515-176	1	HOSE (060FX90-38"-3000)	
21.	117-676	AR	ABRASION SLEEVE (1" X 30")	
22.	154-220	2	CONNECTOR (040-06S)	SEE FOOTNOTE 1

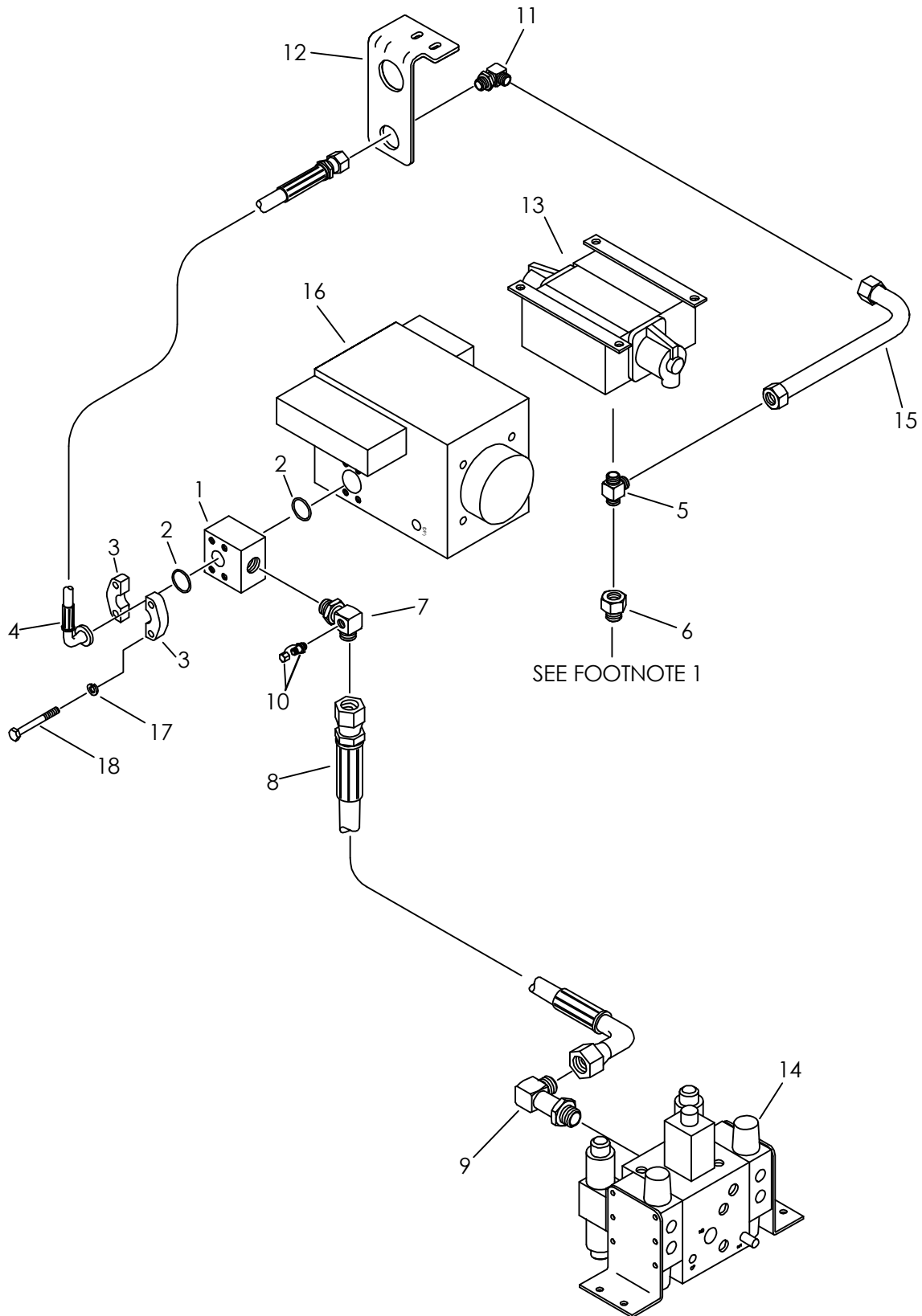
FOOTNOTES

1. TO UPGRADE EARLY UNITS TO THIS CONFIGURATION ORDER LOAD SENSE AND THRUST DUMP KIT 599-179 AND REFER TO INSTRUCTIONS 051-188. ADDITIONAL KIT PARTS ARE SHOWN ON PAGE 'LOAD SENSE HYDRAULICS' - 805-995.

NOTE:

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

LOAD SENSE PRESSURE HYDRAULICS



LOAD SENSE PRESSURE HYDRAULICS

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	354-441	1	MANIFOLD BLOCK	OBSOLETE
2.	157-029	2	O-RING (219 D90)	
3.	155-947	1	SPLIT FLANGE (16SF PAIR)	
4.	515-702	1	HOSE (16FL90-16FX-27"-3000)	
5.	154-359	1	RUN TEE (16S-160-160)	
6.	154-442	1	REDUCER STEM (100)	
	154-340	1	REDUCER NUT (160F)	
7.	150-2384	1	CONNECTOR (12S-16090,06SF) SPCL	
8.	515-703	1	HOSE (160FX90-50"-3000)	
9.	154-289	1	CONNECTOR (16S-16090, XL)	
10.	159-147	1	QDC ADAPTER (02-06S)	
	159-148	1	DUST CAP (1/8")	
11.	154-419	1	BK CONNECTOR (160-16090BK)	
12.	343-332	1	BULKHEAD MOUNT	
13.	516-489	-	HYD CONTROL VALVE	
	191-112	-	COMPENSATOR SECTION SEAL KIT	
	191-113	-	SPOOL SECTION SEAL KIT	
	191-114	-	RETURN SECTION SEAL KIT	
	499-304	-	ADJUSTABLE RELIEF	
14.	516-488	-	HYD CONTROL VALVE	GRND DRV
15.	156-916	1	HYD LINE (060FX-060FX)	THRUST DUMP
16.	158-467	-	HYDRAULIC PUMP	OBSOLETE
	149-926	-	HYDRAULIC PUMP	
17.	105-072	4	LOCK WASHER (3/8")	
18.	105-081	4	BOLT (3/8-NC X 3-1/4")	

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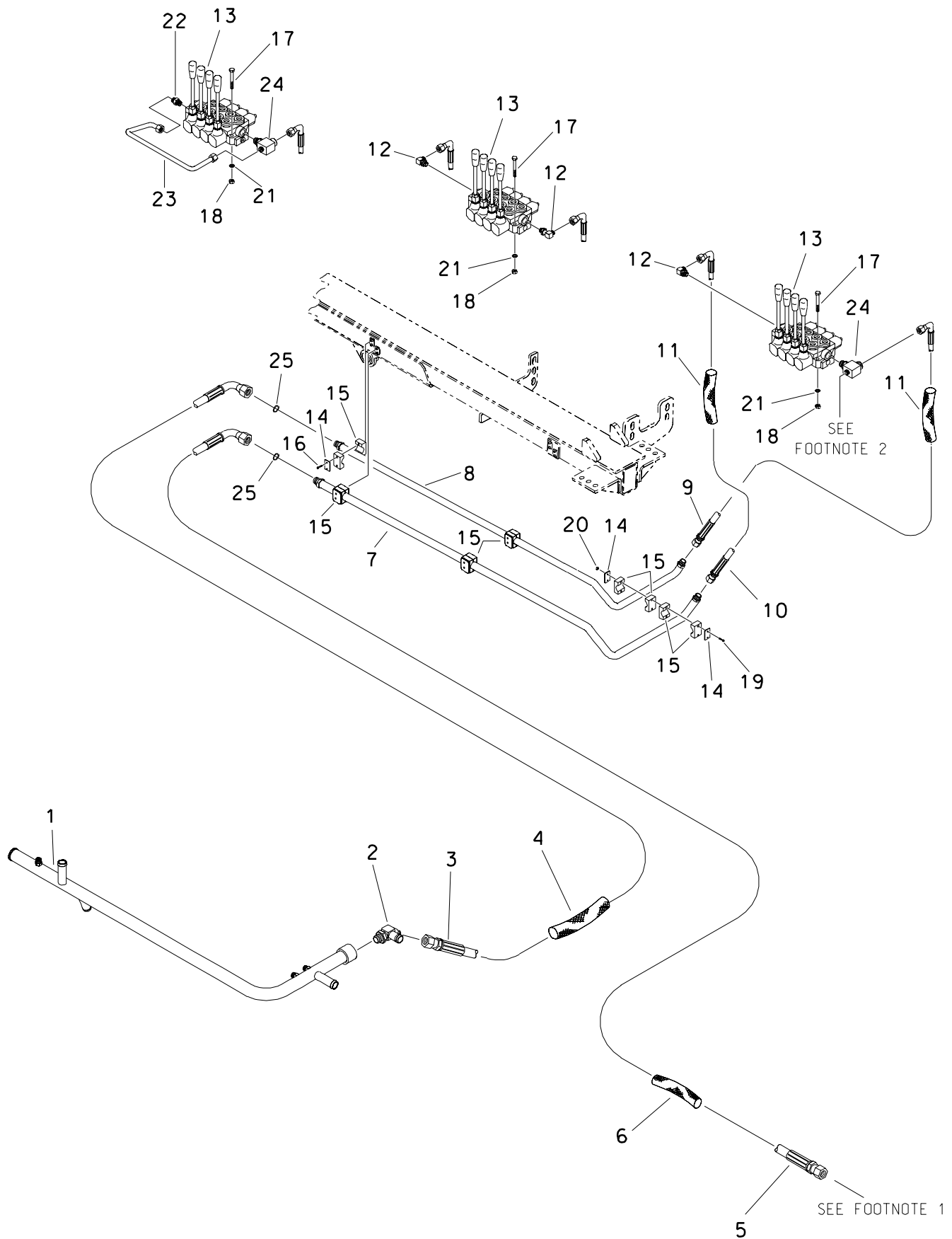
FOOTNOTES:

1. CONNECTS TO PRESSURE PORT ON BONDIOLL ANCHOR VALVE

NOTE:

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

ANCHOR VALVE PRESSURE & RETURN HYDRAULICS



ANCHOR VALVE PRESSURE & RETURN HYDRAULICS

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	156-905	-	HYD LINE (24)	COOLER INLET
2.	514-439	1	S/O RUN TEE (12S-100-20H)	
3.	154-938	1	HOSE (040FX90-94"-5000)	
4.	117-214	1	ABRASION SLEEVE (1.25" X 40")	
5.	515-082	1	HOSE (100FX90-60"-3000)	SEE FOOTNOTE 1
6.	117-690	1	ABRASION SLEEVE (1.25" X 58")	
7.	156-897	1	HYD LINE (100 - 100)	ANCHOR PRESSURE
8.	156-898	1	HYD LINE (100 - 100)	ANCHOR RETURN
9.	515-527	1	HOSE (100FX90-54"-3000)	
10.	515-548	1	HOSE (100FX90-62"-3000)	
11.	117-657	2	ABRASION SLEEVE (1.59" X 54")	
12.	154-323	2	CONNECTOR (08S-10090)	
13.	516-120	1	HYD CONTROL VALVE (4-SPOOL)	
	365-493	-	HANDLE (M10 - 1.50 X 180MM, BLK)	
	499-093	-	SPOOL POSITIONER END CAP	
	499-095	-	SENSE CHECK	
	190-864	-	KIT, SPRING CENTERING	
	499-094	-	PLUG, VMP RELIEF	
	190-865	-	SEAL REPAIR KIT	
14.	110-958	6	BACKUP PLATE	
15.	110-879	6	BOLT-ON CLAMP (5/8", SOLD PER SET)	
16.	105-818	8	BOLT (1/4-NC X 1-1/2")	
17.	106-570	2	SCREW (M8-1.25 X 60mm)	
18.	106-561	2	LOCKNUT (M8-1.25, PRV TRQ, 10.9)	
19.	105-297	2	BOLT (1/4-NC X 3-1/4")	
20.	105-085	2	LOCKNUT (1/4-NC)	
21.	106-389	2	WASHER (M8)	ENDS WITH S/N 2R2813
22.	514-074	1	CONNECTOR (06S-040, ORF)	ENDS WITH S/N 2R2813
23.	156-957	1	HYD LINE (040FX - 040FX)	ENDS WITH S/N 2R2813
24.	149-117	1	BK BRANCH TEE (08S-100-040BK)	BEGINS WITH S/N 2S4122
	149-117	1	BK BRANCH TEE (08S-100-040BK)	
25.	157-040	2	O-RING (016 D90)	

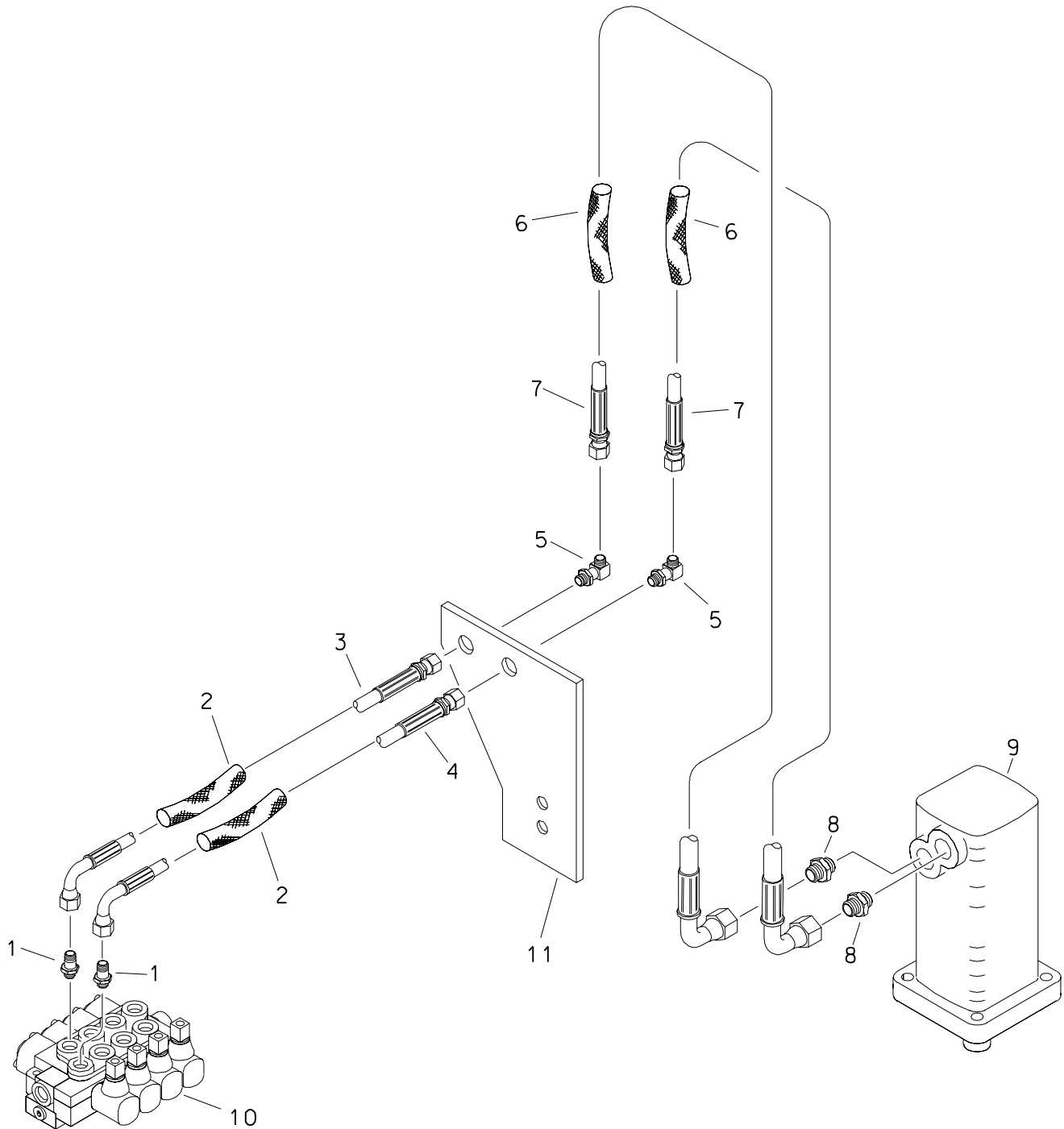
FOOTNOTES

1. CONNECTS TO "T" IN PARKER THRUST VALVE PRESSURE INLET PORT.
2. CONNECTS TO GREASE PUMP RETURN HOSE

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

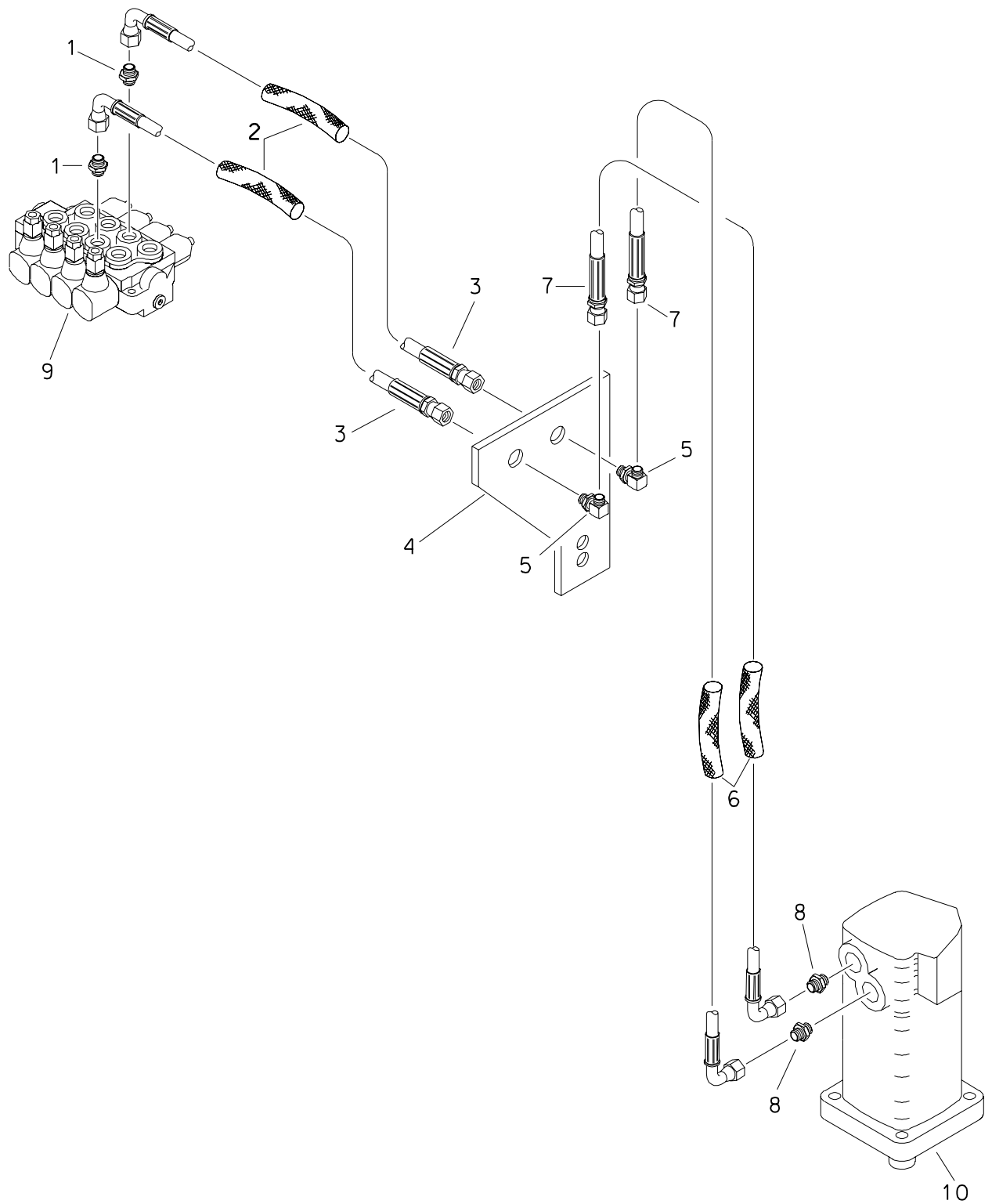
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	154-438	2	CONNECTOR (08S-080, LG)	
2.	117-214	2	ABRASION SLEEVE (1.25" X 40")	
3.	515-025	1	HOSE (080FX90-40"-3000)	
4.	515-718	1	HOSE (08FX90S-42"-3000)	
5.	154-396	2	BK CONNECTOR (080-08090BK)	
6.	117-215	2	ABRASION SLEEVE (1.25" X 46")	
7.	154-716	2	HOSE (080FX90-48"-3000)	
8.	154-234	2	CONNECTOR (080-12S)	
9.	158-934	1	HYD MOTOR	
	500-711		SEAL REPAIR KIT - REAR	
	500-758		SEAL REPAIR KIT - SHAFT	
	105-917		CASTLE NUT (1-1/4-NF)	
	165-900		KEY (7/16" SQ X 1.250")	
	499-854		SHAFT AND BEARING KIT	
10.	516-120	-	HYD CONTROL VALVE (4-SPOOL)	
11.	343-237	1	BULKHEAD PLATE	

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

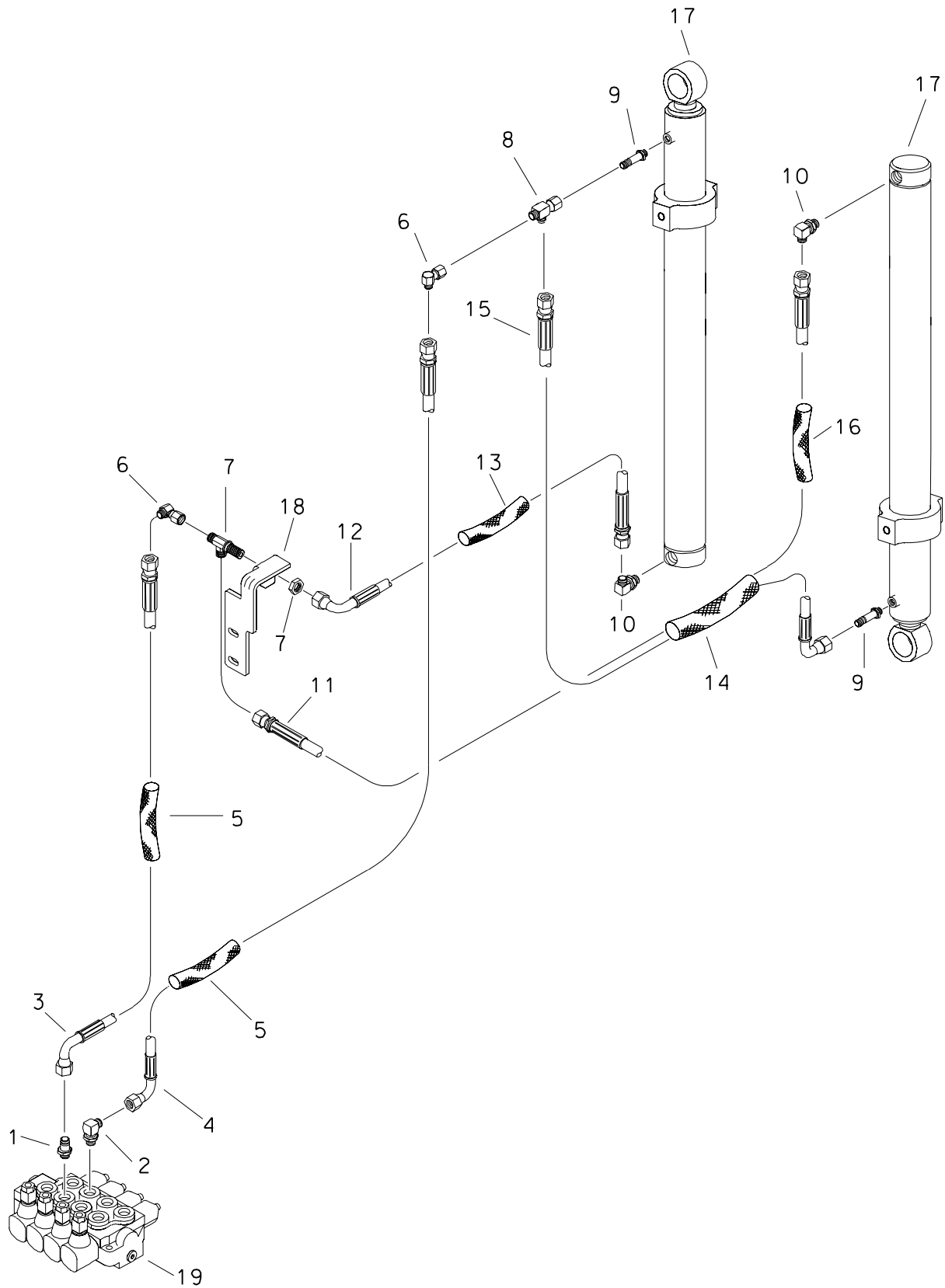
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	154-233	2	CONNECTOR (08S-080)	
2.	117-214	2	ABRASION SLEEVE (1.25" X 40")	
3.	515-025	2	HOSE (080FX90-40"-3000)	
4.	343-237	1	BULKHEAD PLATE	
5.	154-396	2	BK CONNECTOR (080-08090BK)	
6.	117-215	2	ABRASION SLEEVE (1.25" X 46")	
7.	154-716	2	HOSE (080FX90-48"-3000)	
8.	154-234	2	CONNECTOR (080-12S)	
9.	516-120	-	HYD CONTROL VALVE (4-SPool)	
10.	158-934	-	HYD MOTOR	
	105-917		CASTLE NUT (1-1/4-NF)	
	165-900	-	KEY (7/16" SQ X 1.250")	
	499-854		SHAFT AND BEARING KIT	
	500-711		SEAL REPAIR KIT - REAR	
	500-758		SEAL REPAIR KIT - SHAFT	

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

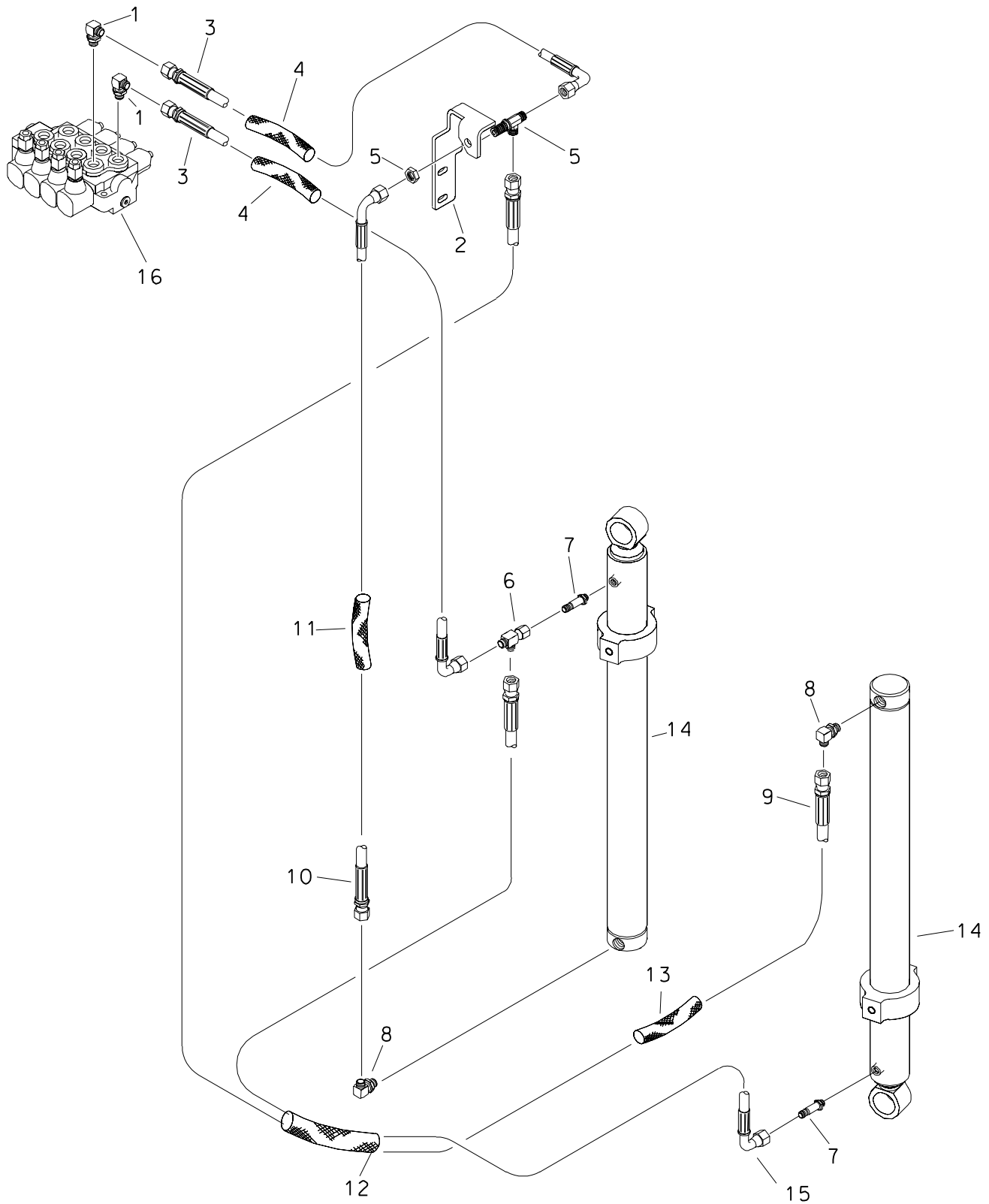
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	154-374	1	CONNECTOR (040-08S, ORF)	
2.	510-019	1	CONNECTOR (040-08S90, ORF)	
3.	515-713	1	HOSE (04FX90-38"-3000)	
4.	154-728	1	HOSE (040FX90-36"-3000)	
5.	117-718	2	ABRASION SLEEVE (1" X 36")	
6.	154-255	2	UNION (040-040FX90)	
7.	154-424	1	BK RUN TEE (040-040-040BK)	
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" 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" X 30")	
17.	151-167	2	CYL (2" X 1.25" X 24")	
18.	343-238	1	BULKHEAD PLATE	
19.	516-120	-	HYD CONTROL VALVE (4-SPDOL)	

FOOTNOTES

NOTE

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

RIGHT ANCHOR THRUST CYLINDER



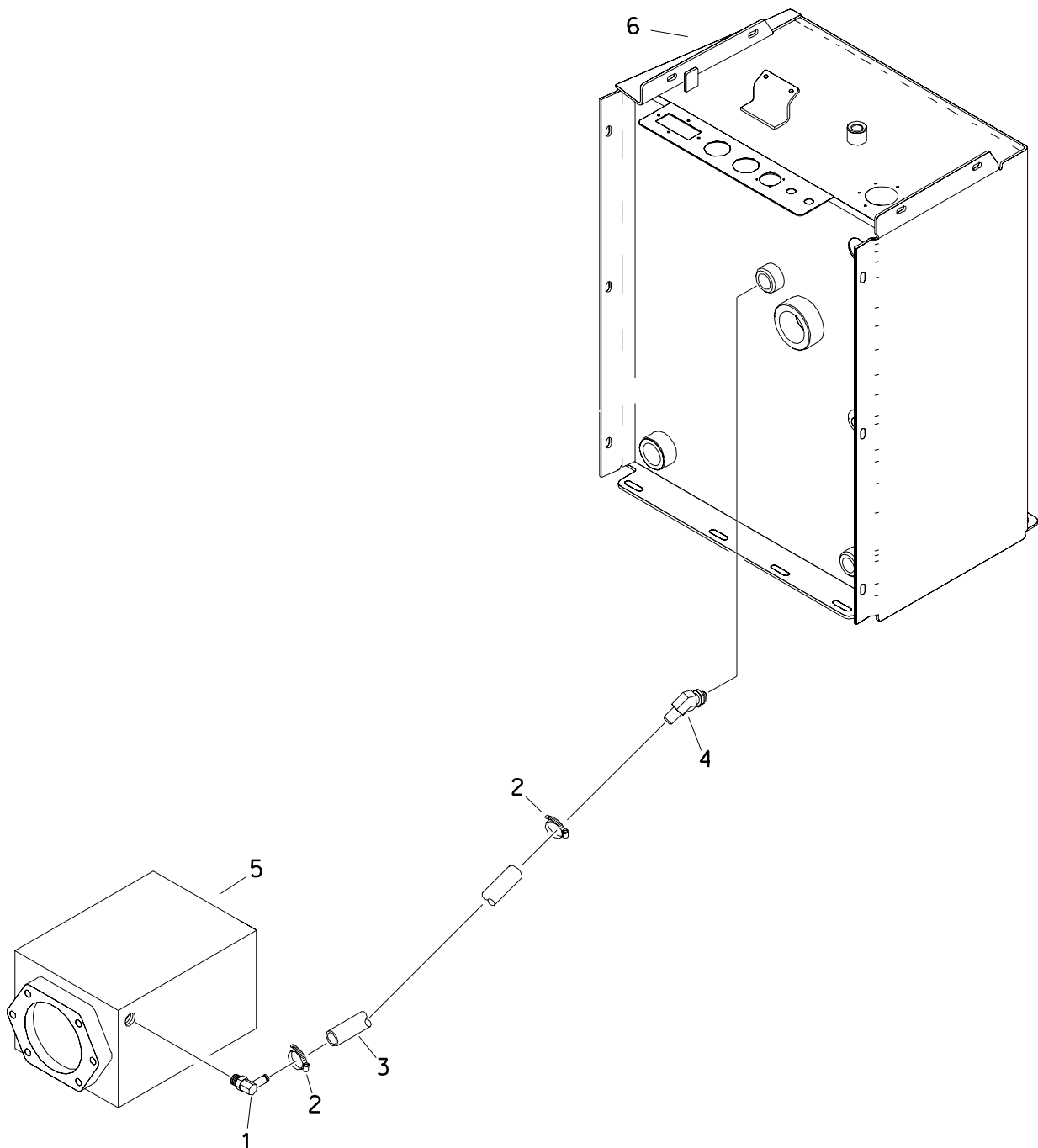
RIGHT ANCHOR THRUST CYLINDER

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	510-019	2	CONNECTOR (040-08S90, ORF)	
2.	343-239	1	BULKHEAD PLATE	
3.	154-728	2	HOSE (040FX90-36"-3000)	
4.	117-718	2	ABRASION SLEEVE (1.00" X 36")	
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.	151-167	2	CYL (2" X 1.25" X 24")	
15.	515-682	1	HOSE (040FX90-48"-3000)	
16.	516-120	-	HYD CONTROL VALVE (4-SPool)	

FOOTNOTES

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

LOAD SENSE PUMP/CASE DRAIN



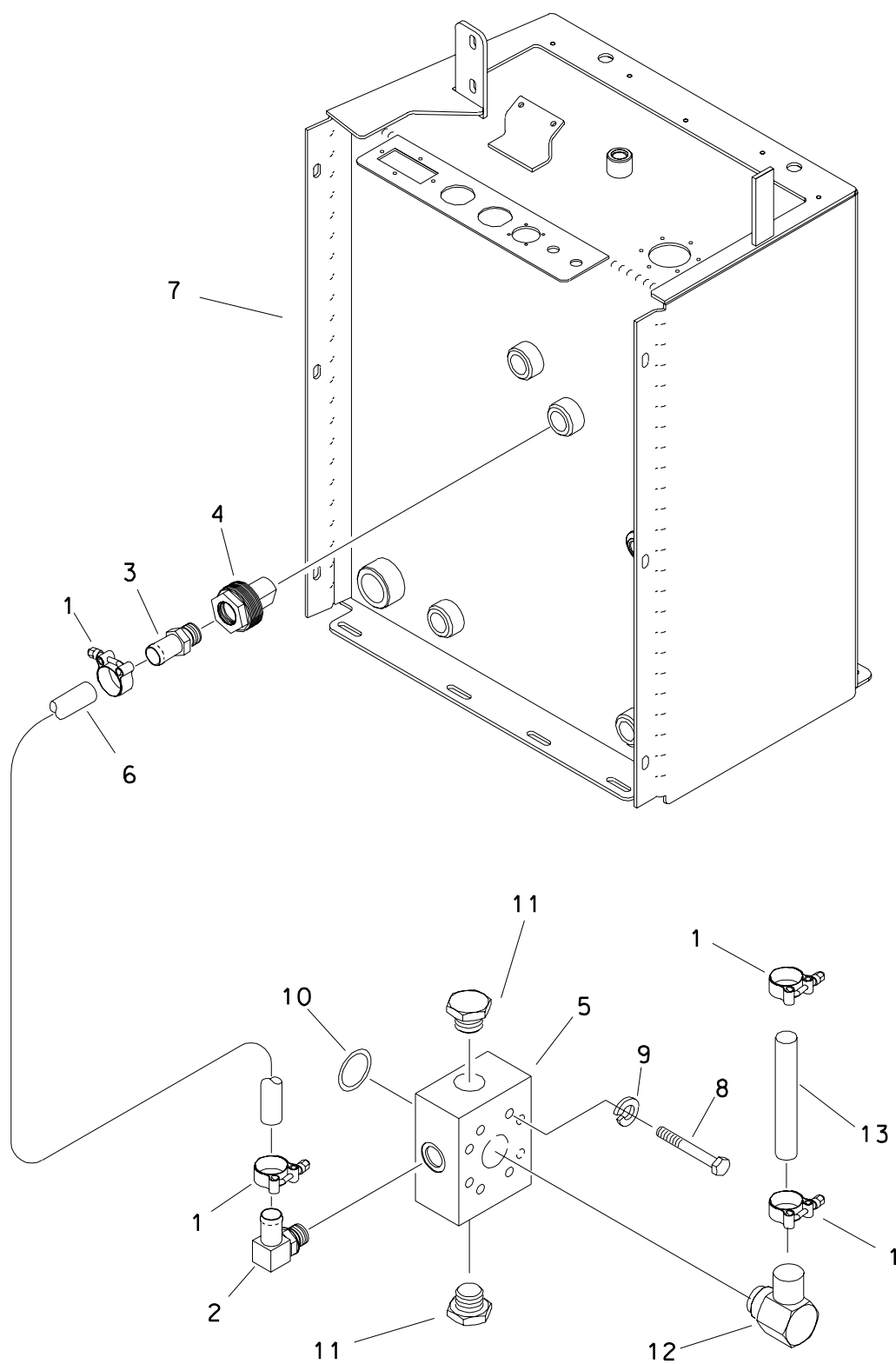
LOAD SENSE PUMP/CASE DRAIN

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	154-362	1	S/O COUPLER (10S-12H90)	
2.	110-026	2	WORM CLAMP (1/2" - 1-1/4")	
3.	116-636	1	BULK HOSE (3/4", SOLD PER 1')	USE 1 @ 11"
4.	155-196	1	S/O COUPLER (12S-12H45)	
5.	158-467	-	HYD PUMP	
-	149-926	-	HYDRAULIC PUMP	
-	190-804	-	BEARING KIT	
6.	350-518	-	HYD RESERVOIR	

FOOTNOTES

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

LOAD SENSE RETURN HYDRAULICS



LOAD SENSE RETURN HYDRAULICS

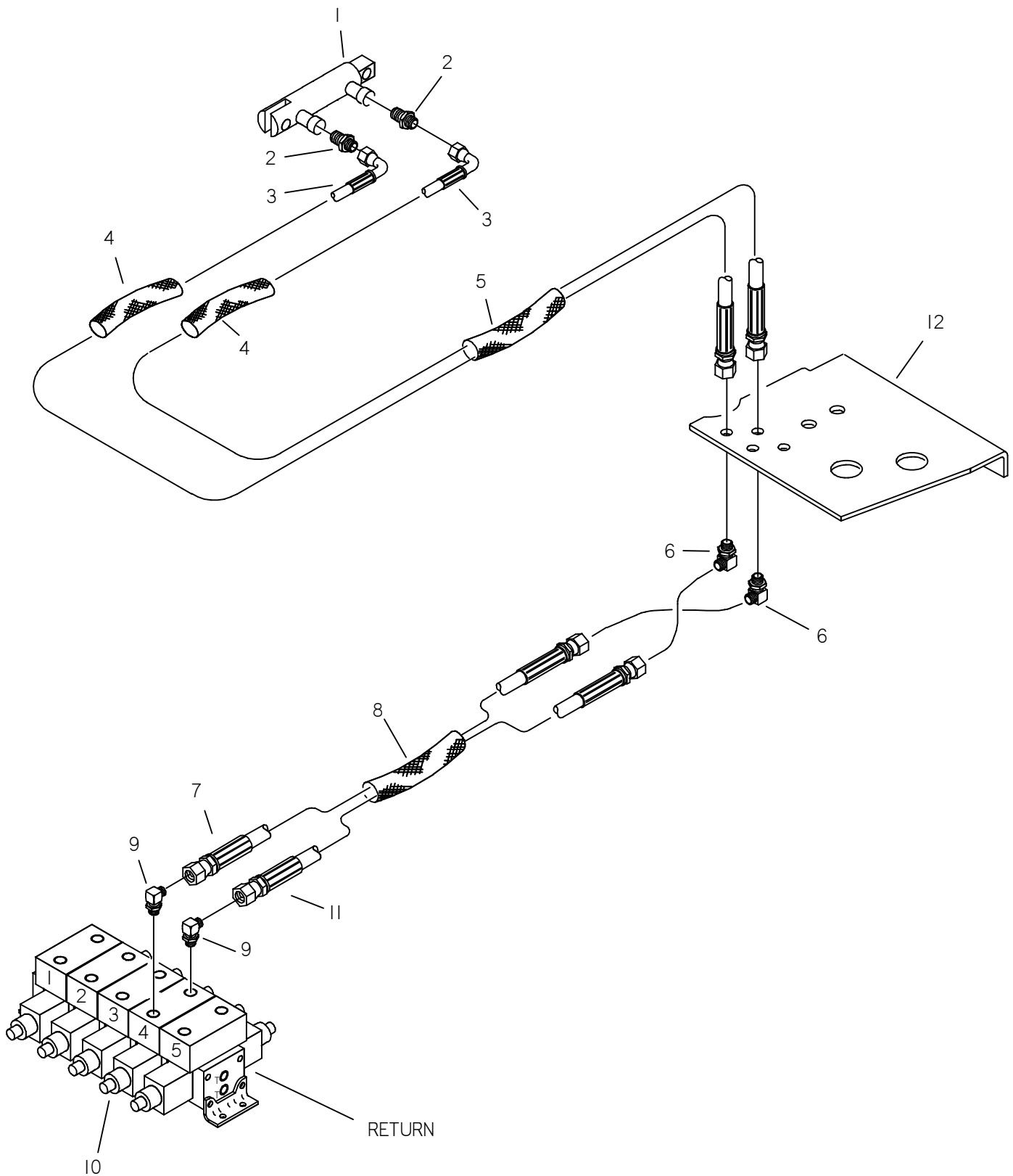
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	111-028	2	T-BOLT CLAMP (1.75"-2.00")	
2.	155-146	1	S/O COUPLER (12S-16H90)	
3.	155-136	1	S/O COUPLER (16N-16H)	LOCTITE 567
4.	159-427	1	CHECK VALVE (32N-16NF, 3 PSI)	LOCTITE 567
5.	159-437	1	PUMP INLET MANIFOLD	
6.	116-364	1	HOSE (1" X 8.5")	
7.	350-518	-	HYD RESERVOIR	
8.	105-111	4	BOLT (1/2-NC X 4")	
9.	105-070	4	LOCK WASHER (1/2")	
10.	157-015	1	O-RING (232 D70)	
11.	155-144	2	PLUG (20S)	
12.	514-135	1	S/O COUPLER (24S-24H90)	
13.	116-588	AR	BULK HOSE (1-1/2", SOLD PER 1')	USE 1 @ 15'

FOOTNOTES

NOTE:

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

AUX VALVE BREAK-OUT WRENCH



AUX VALVE BREAK-OUT WRENCH

REF	PART			
NO.	NUMBER	QTY	DESCRIPTION	REMARKS
1.	151-192	1	CYLINDER	
2.	156-069	2	CONNECTOR (04S-040 ORF)	
3.	515-698	2	HOSE (040FX90-174"-3000)	
4.	115-754	1	ABRASION SLEEVE (1.59" X 30")	
5.	115-938	1	ABRASION SLEEVE (1.59" X 66")	
6.	154-355	2	BK CONNECTOR (040-04090BK)	
7.	515-098	1	HOSE (040FX-110"-3000)	
8.	115-902	1	ABRASION SLEEVE (1.59" X 100")	
9.	154-364	2	CONNECTOR (040-06S90,ORF)	
10.	516-091	1	HYD CONTROL VALVE	SEE FOOTNOTE 1
	214-435	-	SOLENOID COIL (12V)	
	156-981	-	HYDRAULIC VALVE	
	149-608	-	VALVE SECTION	
	149-614	-	VALVE SECTION	
	149-615	-	PO CHECK W/ AUX PORT	
	149-616	-	CAP NUT	
	157-212	-	O-RING	
	159-505	-	SOLENOID TUBE	
	190-997	-	STACKING KIT	
	190-998	-	SEAL REPAIR KIT	
	190-999	-	SEAL REPAIR KIT	
11.	515-710	1	HOSE (040FX-108"-3000)	
12.	343-555	-	CENTER FRAME	

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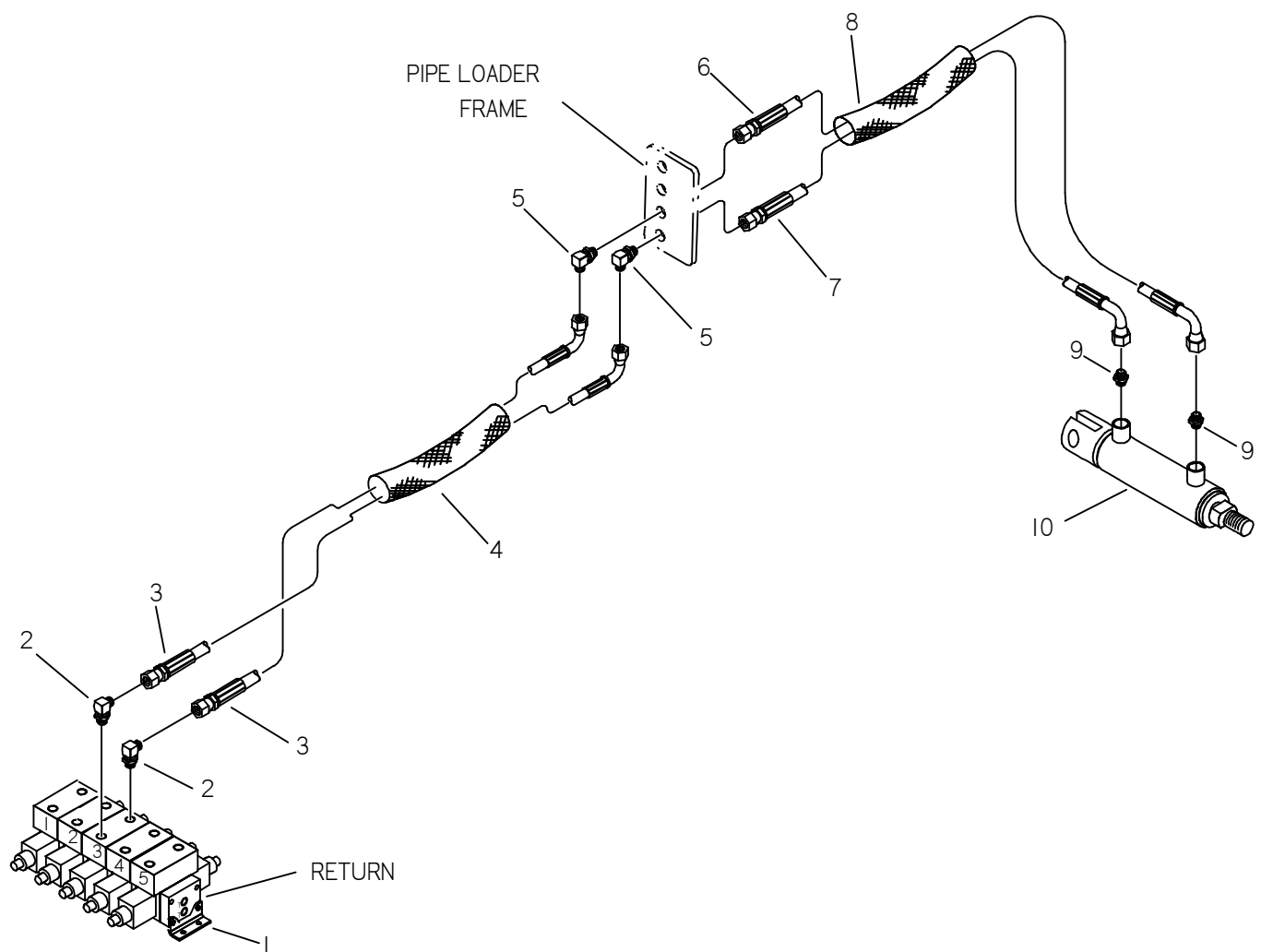
FOOTNOTES:

- SECTION 1 CONTROLS REAR WRENCH AUXILIARY HYDRAULICS (SEE 805-988)
- SECTION 2 CONTROLS PIPE LIFT HYDRAULICS (SEE 805-987)
- SECTION 3 CONTROLS FRONT WRENCH HYDRAULICS (SEE 805-986)
- SECTION 4 CONTROLS AUXILIARY BREAK-OUT WRENCH
- SECTION 5 CONTROLS REAR WRENCH AUXILIARY HYDRAULICS (SEE 805-984)

NOTE:

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

AUXILIARY VALVE/FRONT WRENCH HYDRAULICS



AUXILIARY VALVE/FRONT WRENCH HYDRAULICS

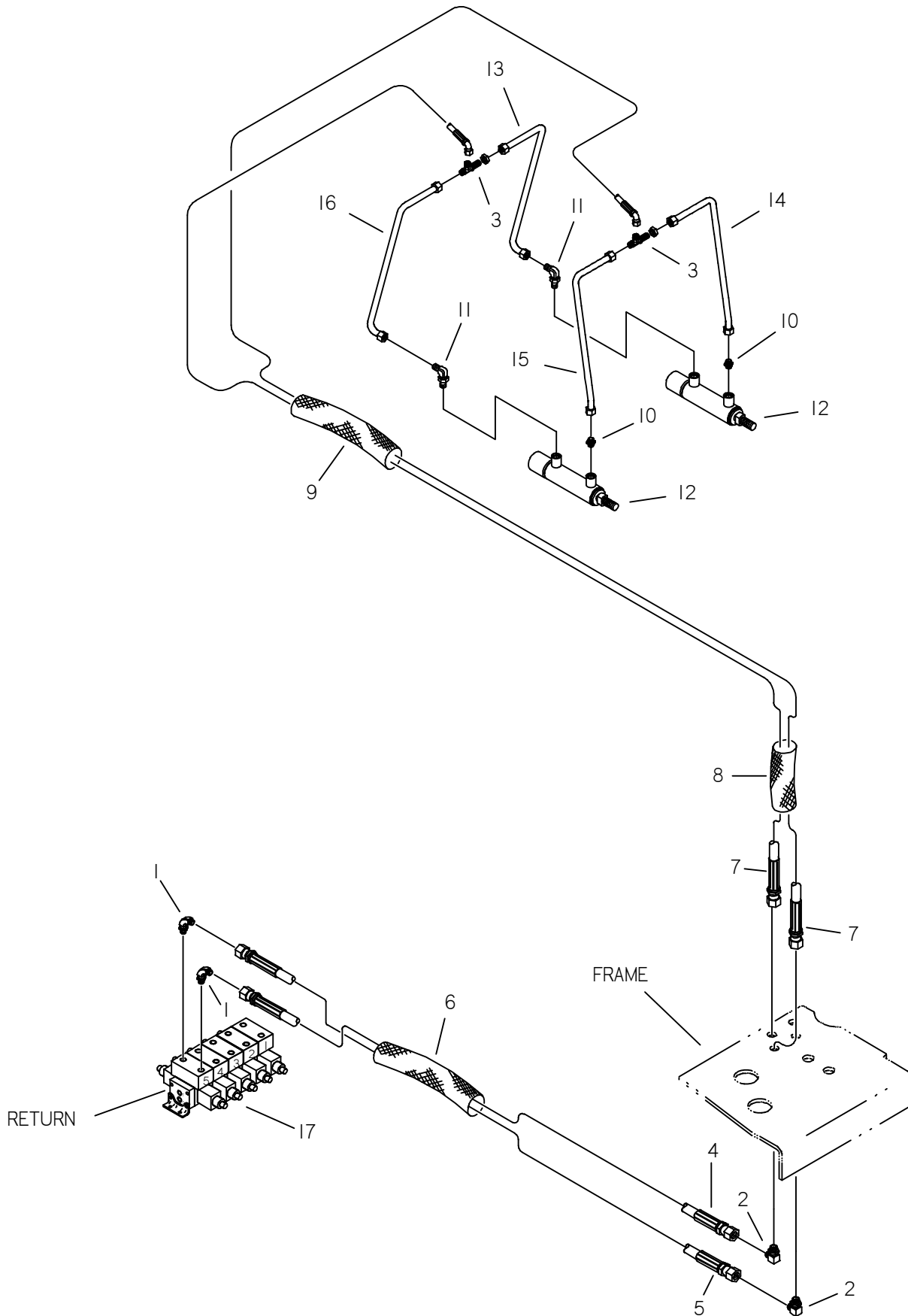
REF	PART	
NO.	NUMBER	QTY DESCRIPTION REMARKS
1.	156-981	- HYDRAULIC VALVE
	149-608	- VALVE SECTION
	149-614	- VALVE SECTION
	149-615	- PO CHECK W/ AUX PORT
	149-616	- CAP NUT
	157-212	- O-RING
	159-505	- SOLENOID TUBE
	190-997	- STACKING KIT
	190-998	- SEAL REPAIR KIT
	190-999	- SEAL REPAIR KIT
	214-435	- SOLENOID COIL
2.	154-226	2 CONNECTOR (040-06S90)
3.	515-258	2 HOSE (040FX90-94"-3000)
4.	115-924	1 ABRASION SLEEVE (1.59" X 88")
5.	154-355	2 BK CONNECTOR (040-04090BK)
6.	154-968	1 HOSE (040FX90-122"-3000)
7.	154-916	1 HOSE (040FX90-120"-3000)
8.	117-212	1 ABRASION SLEEVE (1.25" X 118")
9.	154-278	2 CONNECTOR (04S-040)
10.	151-188	1 CYL (1" X .5" X 2.5")

NOT SHOWN:

FOOTNOTES:

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

REAR WRENCH AUXILIARY VALVE HYDRAULICS



REAR WRENCH AUXILIARY VALVE HYDRAULICS

REF PART NO. NUMBER QTY DESCRIPTION	REMARKS
1. 154-226 2 CONNECTOR (040-06S90)	
2. 154-355 2 BK CONNECTOR (040-04090BK)	
3. 154-424 2 BK RUN TEE (040-040-040BK)	
4. 515-710 1 HOSE (040FX-108"-3000)	
5. 515-098 1 HOSE (040FX-110"-3000)	
6. 115-902 1 ABRASION SLEEVE (1.59" X 100")	
7. 515-522 2 HOSE (040FX90-169"-3000)	
8. 115-938 1 ABRASION SLEEVE (1.59" X 66")	
9. 115-754 1 ABRASION SLEEVE (1.59" X 30")	
10. 154-278 2 CONNECTOR (04S-040)	
11. 154-252 2 CONNECTOR (04S-04090)	
12. 151-153 2 CYL (1" X 2.5")	
13. 156-914 1 HY LINE (040FX-040FX)	REAR WRENCH (BARREL)
14. 156-912 1 HYD LINE (040FX-040FX)	LH REAR WRENCH (ROD)
15. 156-913 1 HYD LINE (040FX-040FX)	RH REAR WRENCH (ROD)
16. 156-915 1 HYD LINE (040FX-040FX)	REAR WRENCH (BARREL)
17. 156-981 - HYDRAULIC VALVE	
149-608 - VALVE SECTION	
149-614 - VALVE SECTION	
149-615 - PO CHECK W/ AUX PORT	
149-616 - CAP NUT	
157-212 - O-RING	
159-505 - SOLENOID TUBE	
190-997 - STACKING KIT	
190-998 - SEAL REPAIR KIT	
190-999 - SEAL REPAIR KIT	
214-435 - SOLENOID COIL	

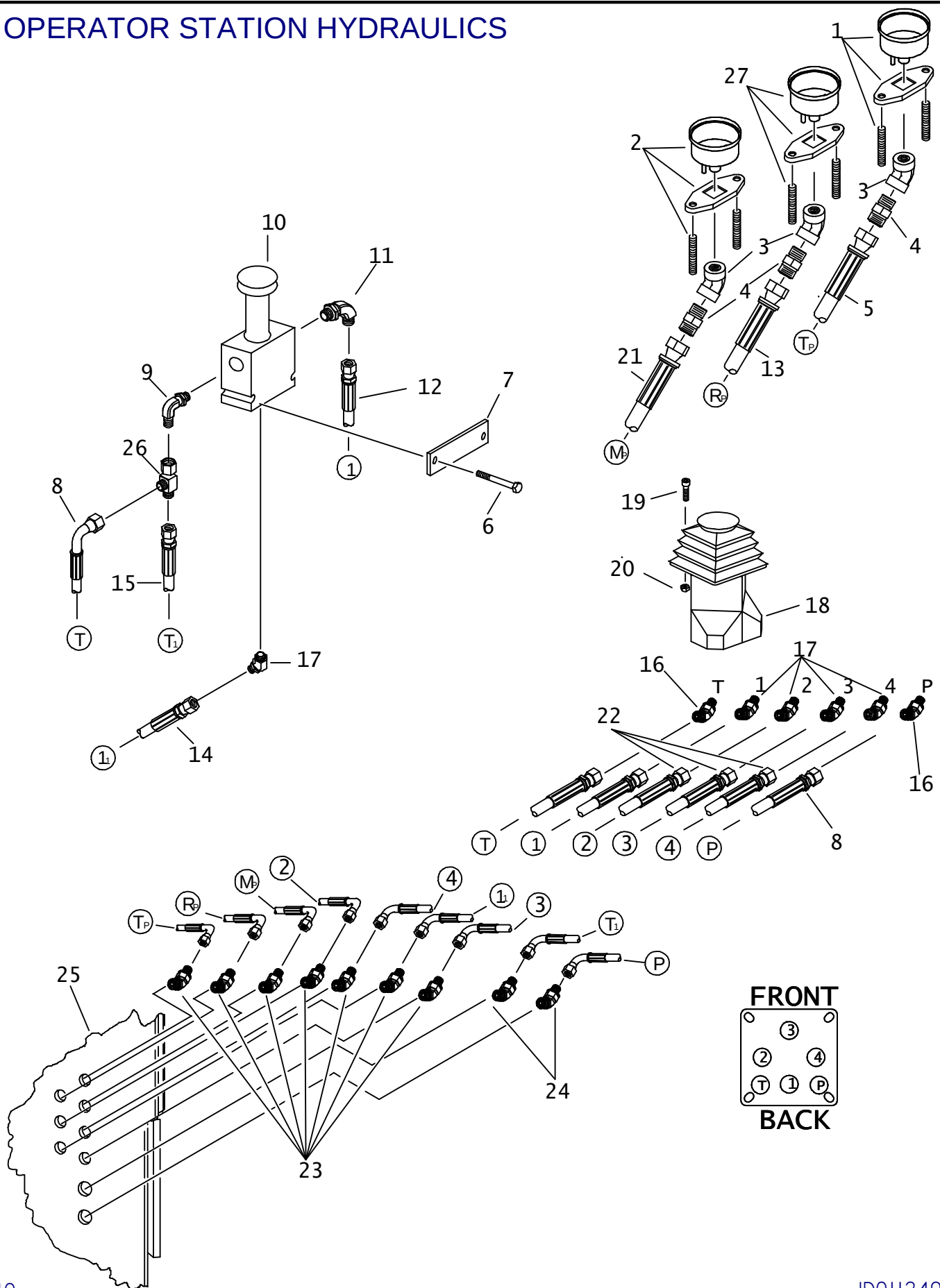
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FOOTNOTES:

NOTE:

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

OPERATOR STATION HYDRAULICS



OPERATOR STATION HYDRAULICS

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	217-552	-	PRESSURE GAUGE (6000PSI)	USE 567 LOCTITE
	499-202		GAUGE CLAMP & STUDS	BEGINS WITH S/N _____
2.	191-047	1	GAUGE KIT	USED ON JT1720, USE 567 LOCTITE
	499-202		GAUGE CLAMP & STUDS	BEGINS WITH S/N _____
	191-048	1	GAUGE KIT	USED ON JT2720
3.	514-418	3	ELBOW (04NF-04NF45F)	5000 PSI
4.	154-339	3	CONNECTOR (04N-040)	USE 567 LOCTITE
5.	515-257	1	HOSE (040FX90-54"-3000)	
6.	106-093	2	SCREW (M6-1.00 X 45mm)	
7.	348-723	1	SUPPORT BAR	
8.	515-451	2	HOSE (060FX90-48"-3000)	
9.	154-342	1	CONNECTOR (06S-06090)	
10.	159-450	1	HYD CONTROL VALVE	PRESSURE REDUCING
	190-860	-	SEAL REPAIR KIT (VITON)	
11.	154-226	1	CONNECTOR (040-06S90)	
12.	154-669	1	HOSE (040FX-50"-3000)	
13.	515-667	1	HOSE (040FX90-54"-5000)	
14.	515-437	1	HOSE (040FX90-21"-3000)	
15.	515-657	1	HOSE (060FX90L-23"-3000)	
16.	154-224	2	CONNECTOR (06S-06045)	
17.	154-250	5	CONNECTOR (040-06S45)	
18.	516-086	1	HYD CONTROL VALVE W/HANDLE	DIRECTIONAL
	190-876	-	SEAL REPAIR KIT	PUSH PIN SET
	499-108	-	PUSH BUTTON	FOR USE WITH 516-086
	499-109	-	3 POSITION SWITCH	FOR USE WITH 516-086
	500-1539	-	VALVE	
	300-6747	-	HANDLE ASSEMBLY	
19.	106-528	4	SCREW (M6-1.00 X 20mm, SOC)	
20.	106-237	4	LOCKNUT (M6-1.00, PRV TRQ NLK)	
21.	154-900	1	HOSE (040FX90-62"-3000)	
22.	154-706	3	HOSE (040FX90S-40"-3000)	
23.	154-285	7	BK CONNECTOR (040-04045BK)	
24.	154-425	2	BK CONNECTOR (060-06045BK)	
25.	348-711	-	SEAT MOUNT	
26.	154-344	1	UN RUN TEE (060FX-060-060)	
27.	217-079	-	PRESSURE GAUGE (10000 PSI)	USED ON JT2720, USE 567 LOCTITE
	499-202		GAUGE CLAMP & STUDS	BEGINS WITH S/N _____

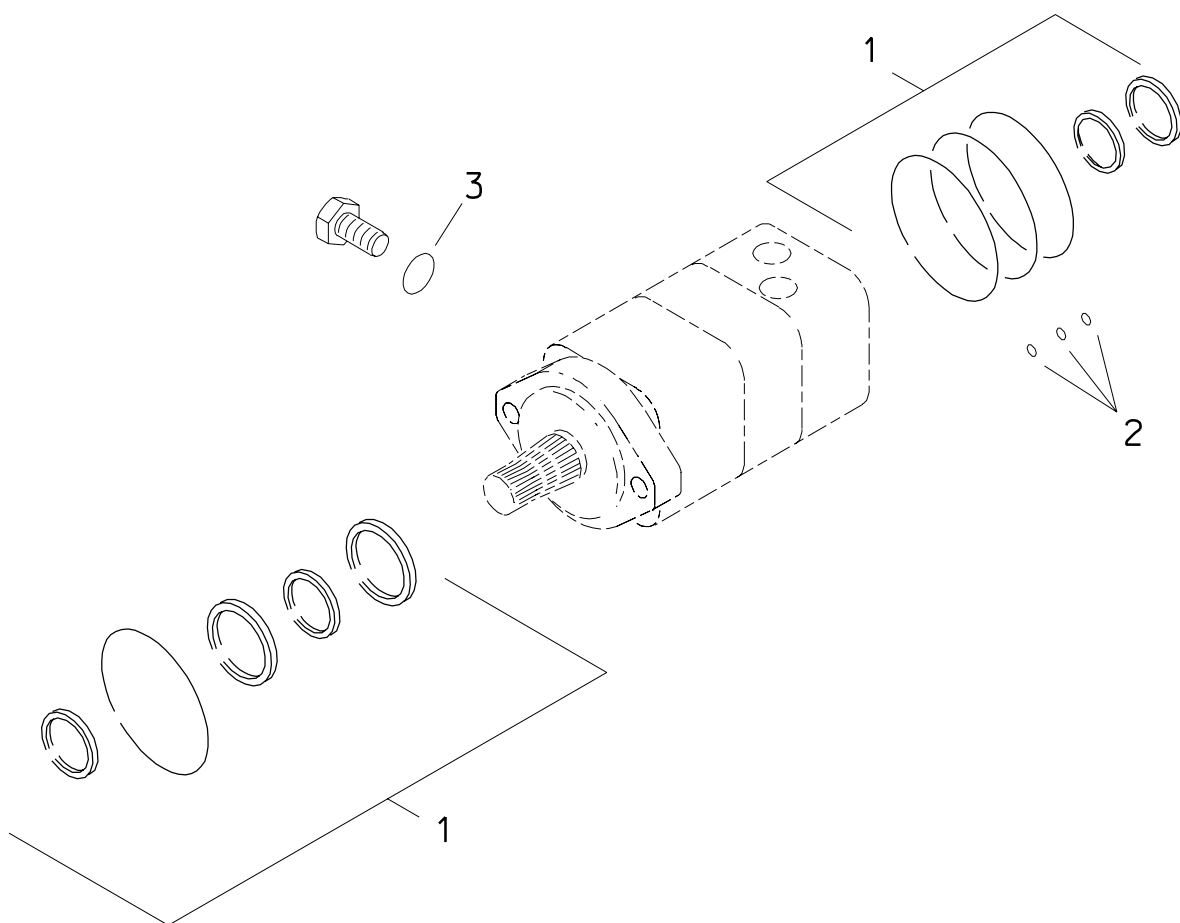
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FOOTNOTES:

NOTE:

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

HYDRAULIC MOTOR

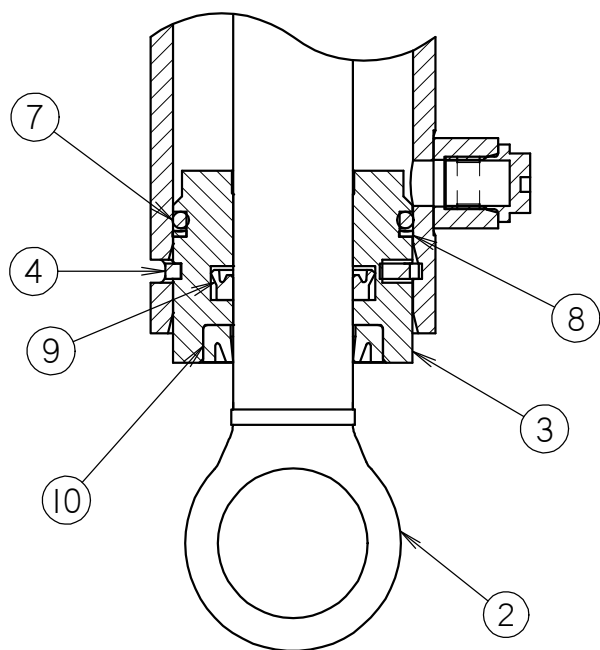
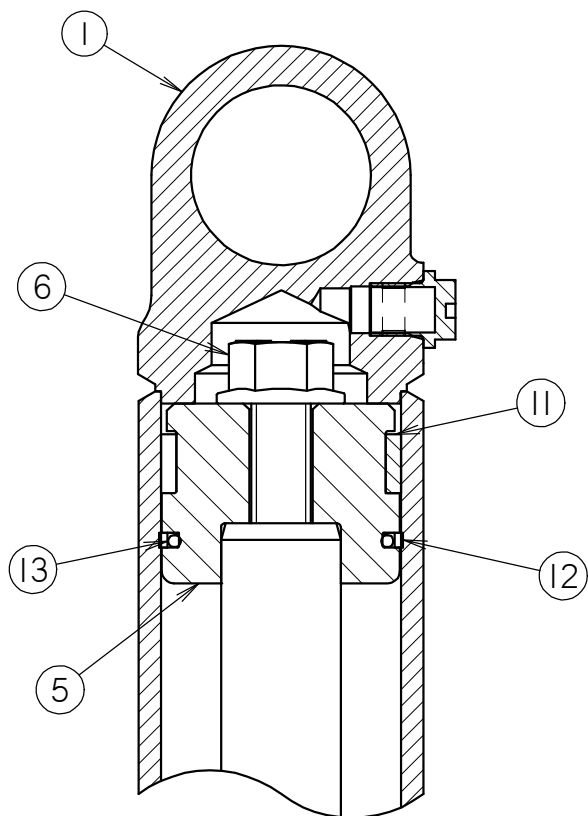


HYDRAULIC MOTOR

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

FOOTNOTES

HYDRAULIC 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:

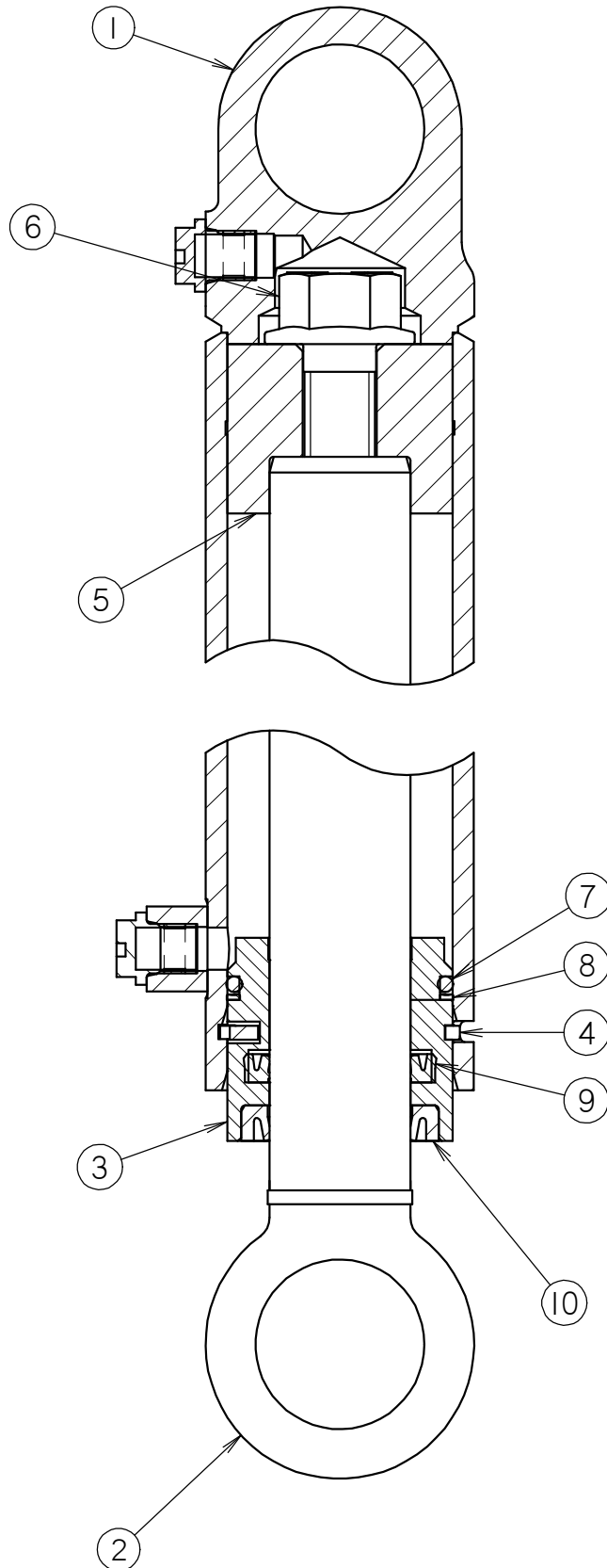
259-100	U-SEAL INSTALLER (1" - 1.499")
259-235	1.00 ROD WIPER TOOL
259-239	WIPER/SEAL INSTALLER (2")
259-241	PISTON INSTALLER (2")
259-188	CYL HEAD SPANNER - TWO PIN

FOOTNOTES:

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

NOTE:

HYDRAULIC CYLINDERS (2.0" X 1.25")



HYDRAULIC CYLINDERS (2.0" X 1.25")

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	149-669	-	CYL (2.0 X 1.25 X 2.0)	SEE FOOTNOTES 1 & 2
1	152-029	1	CYLINDER BARREL (2.0 X 2.0)	
2	153-012	1	CYLINDER ROD (1.25 X 2.0)	
	149-670	-	CYL (2.0 X 1.25 X 2.5)	SEE FOOTNOTES 1 & 2
1	149-761	1	CYLINDER BARREL (2.0 X 2.5)	
2	153-005	1	CYLINDER ROD (1.25 X 2.5)	
	149-671	-	CYL (2.0 X 1.25 X 3.0)	SEE FOOTNOTES 1 & 2
1	150-282	1	CYLINDER BARREL (2.0 X 3.0)	
2	150-435	1	CYLINDER ROD (1.25 X 3.0)	
	149-672	-	CYL (2.0 X 1.25 X 4.0)	SEE FOOTNOTES 1 & 2
1	150-290	1	CYLINDER BARREL (2.0 X 4.0)	
2	150-415	1	CYLINDER ROD (1.25 X 4.0)	
	151-060	-	CYL (2.0 X 1.25 X 5.0)	SEE FOOTNOTES 1 & 2
1	150-291	1	CYLINDER BARREL (2.0 X 5.0)	
2	150-423	1	CYLINDER ROD (1.25 X 5.0)	
	149-673	-	CYL (2.0 X 1.25 X 6.0)	SEE FOOTNOTES 1 & 2
1	150-294	1	CYLINDER BARREL (2.0 X 6.0)	
2	150-438	1	CYLINDER ROD (1.25 X 6.0)	
	151-057	-	CYL (2.0 X 1.25 X 8.0)	SEE FOOTNOTES 1 & 2
1	150-285	1	CYLINDER BARREL (2.0 X 8.0)	
2	150-427	1	CYLINDER ROD (1.25 X 8.0)	
	149-674	-	CYL (2.0 X 1.25 X 10.0)	SEE FOOTNOTES 1 & 2
1	152-017	1	CYLINDER BARREL (2.0 X 10.0)	
2	149-730	1	CYLINDER ROD (1.25 X 10.0)	
	151-032	-	CYL (2.0 X 1.25 X 12.0)	SEE FOOTNOTES 1 & 2
1	150-286	1	CYLINDER BARREL (2.0 X 12.0)	
2	150-418	1	CYLINDER ROD (1.25 X 12.0)	
	151-091	-	CYL (2.0 X 1.25 X 16.0)	SEE FOOTNOTES 1 & 2
1	152-027	1	CYLINDER BARREL (2.0 X 16.0)	
2	150-448	1	CYLINDER ROD (1.25 X 16.0)	
	151-065	-	CYL (2.0 X 1.25 X 20.0)	SEE FOOTNOTES 1 & 2
1	152-011	1	CYLINDER BARREL (2.0 X 20.0)	
2	150-439	1	CYLINDER ROD (1.25 X 20.0)	
3	150-770	1	CYLINDER HEAD (2.0 X 1.25)	
4	150-778	1	LOCK RING (2.0)	
5	150-771	1	CYLINDER PISTON (2.0 X 1.25)	INCL MOLDED-ON WEAR RING
6	106-097	1	FLG BOLT (5/8-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	157-541	1	U-SEAL (1.250")	
10	157-538	1	WIPER SEAL (1.250")	

NOT SHOWN:

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

FOOTNOTES:

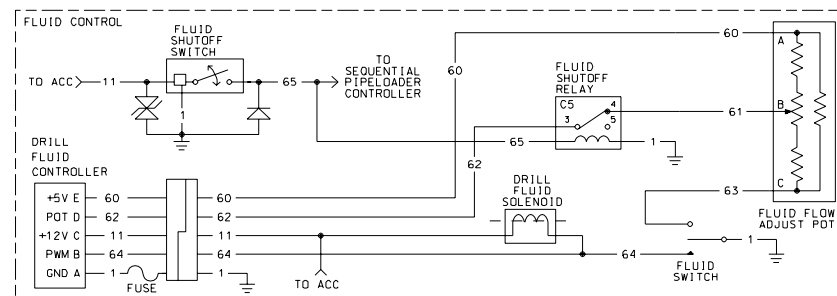
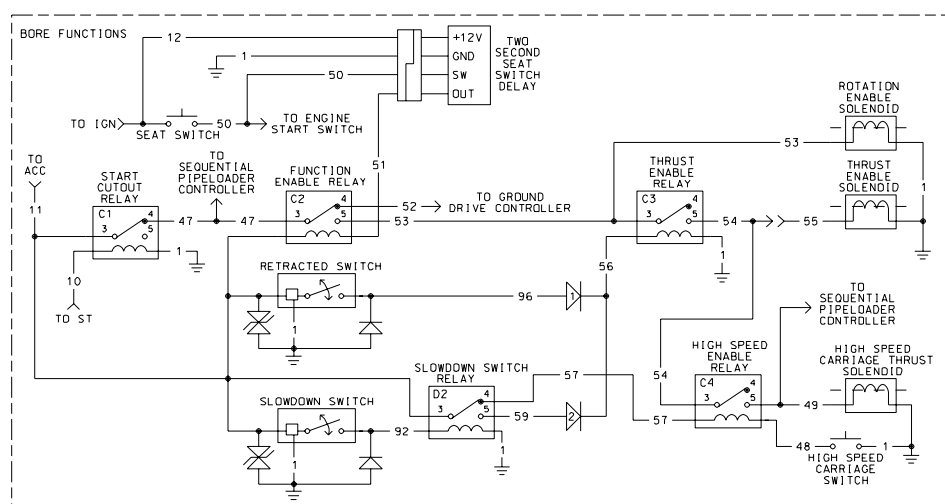
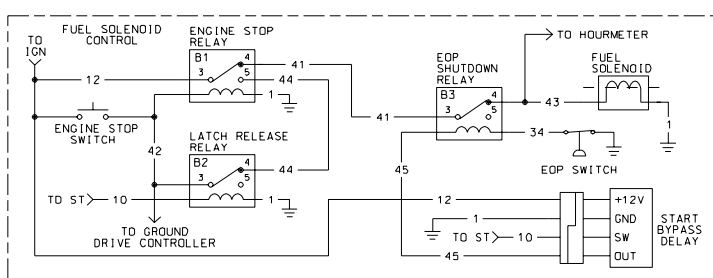
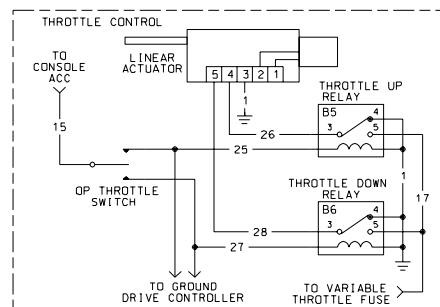
- REF. #1 & #2 ARE SPECIFIC TO EACH CYLINDER, REF. #3 THRU #10 ARE COMMON FOR ALL THE ABOVE LISTED CYLINDERS.
- SEAL KIT P/N: 190-169
- APPLY LOCTITE 277 OR EQUIVALENT, TORQUE TO 180-200 FT-LBS

NOTE:

NOTES:

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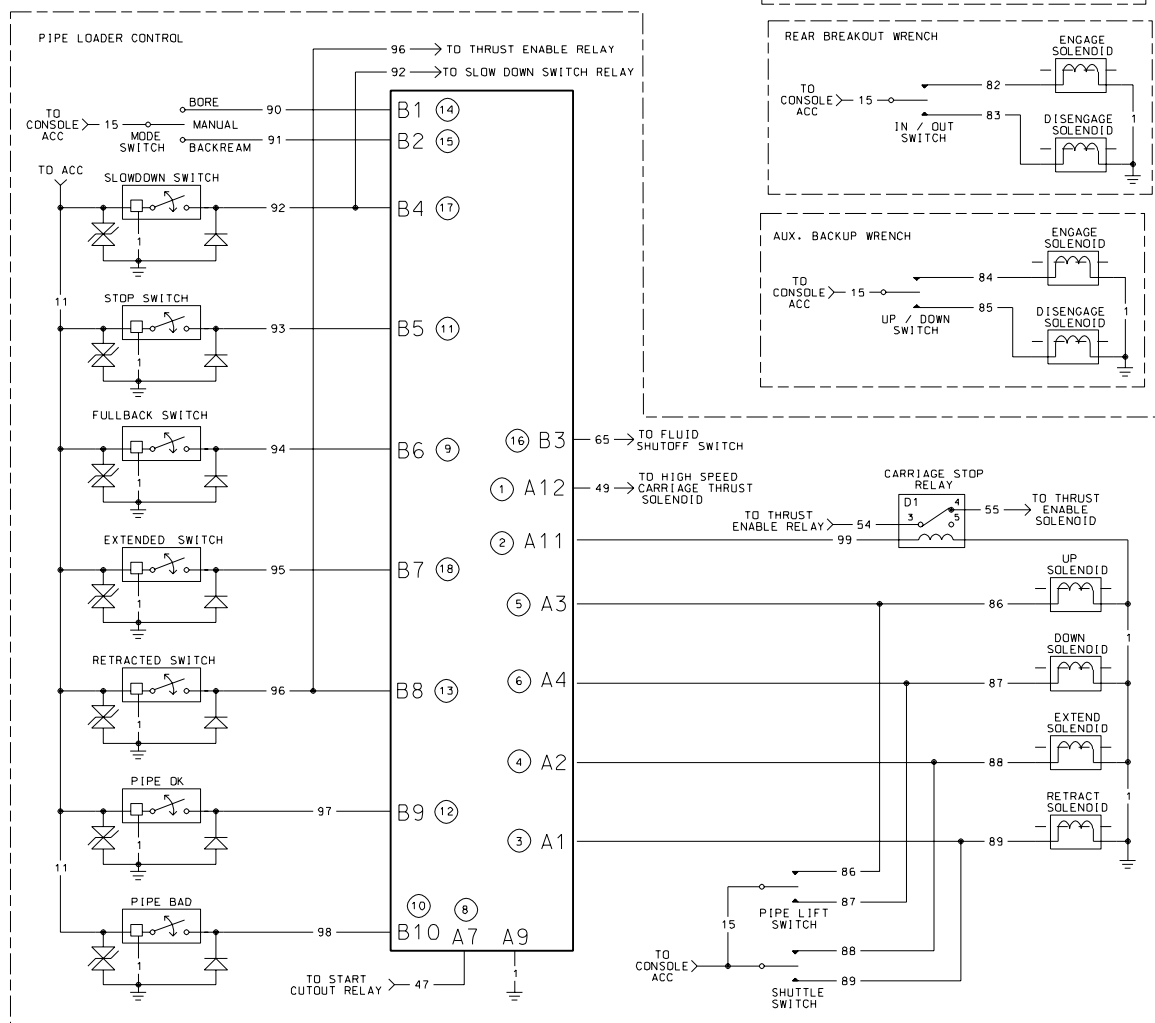
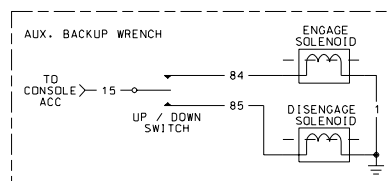
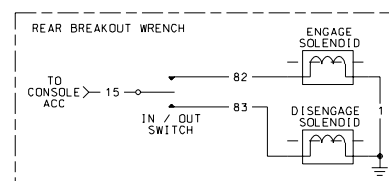
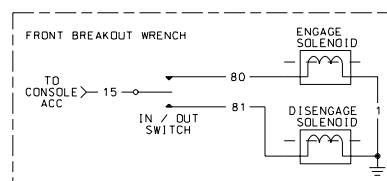
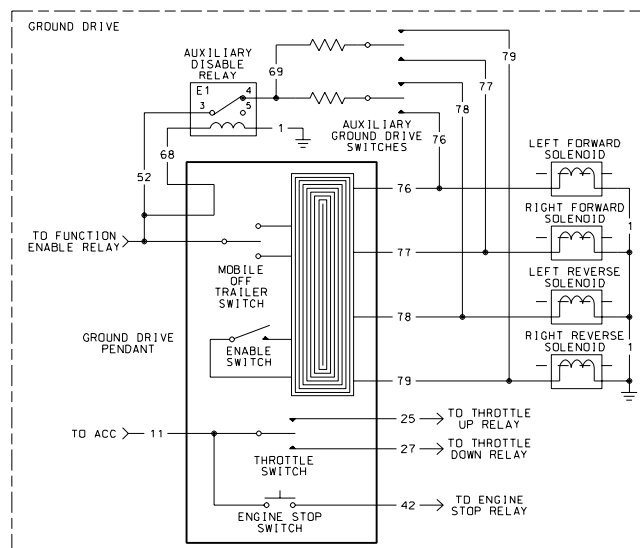
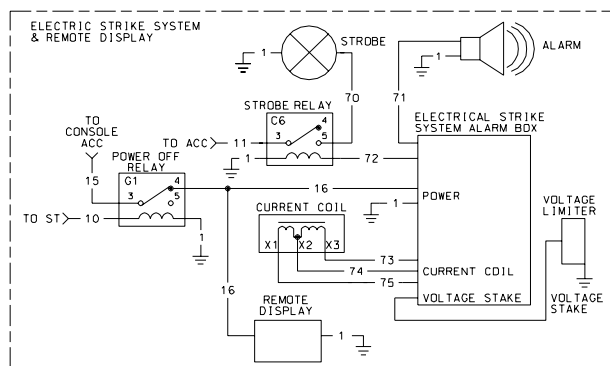
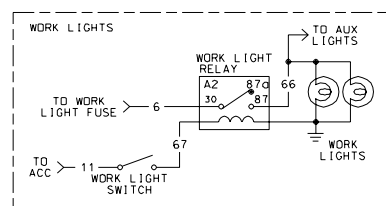
ELECTRICAL



ELECTRICAL SCHEMATIC

JT1720 ENDS WITH S/N 2S4073

JT2720 ENDS WITH S/N 2S4079



ELECTRICAL SCHEMATIC

JT1720 ENDS WITH S/N 2S4073

JT2720 ENDS WITH S/N 2S4079

CKT NO.	WIRE COLOR	FUNCTION
1	BLK	SYSTEM GROUND
1A	BLK	BATTERY NEGATIVE TO BATTERY DISCONNECT SWITCH
2	RED	BATTERY POSITIVE TO FUSE BLOCK
3	RED/BLU	FUSED BATTERY POWER
4	RED/BLK	START FUSE TO START RELAY
5		
6	BLU	WORK LIGHT FUSE TO WORK LIGHT RELAY
7		
8	ORG	IGNITION SWITCH ACCESSORY CIRCUIT
9	ORG/BLU	IGNITION SWITCH IGNITION CIRCUIT
10	WHT/BLK	IGNITION SWITCH START CIRCUIT
11	ORG	FUSED ACCESSORY CIRCUIT
12	ORG/GRN	FUSED IGNITION CIRCUIT
13	ORG/BLU	ACCESSORY SOCKET CIRCUIT
14		
15	ORG/BRN	CONSOLE ACCESSORY CIRCUIT
16	ORG/BLU	ELECTRIC STRIKE CIRCUIT
17	RED/ORG	VARIABLE THROTTLE CIRCUIT
18		
19		
20	PUR	START RELAY TO STARTER, START FUEL SOLENOID & COLD START OPTION
21	BRN/ORG	COLD START SWITCH TO ETHER SOLENOID
22	BLK	ETHER SOLENOID TO TEMP SWITCH
23	ORG/BLU	RESISTOR - DIODE TO ALTERNATOR EXCITER CONNECTION
24	TAN/BLU	FLUID MOTOR SPEED SENSOR TO FLUID FLOW DISPLAY
25	PUR/ORG	THROTTLE SWITCH UP TO THROTTLE UP RELAY
26	WHT/ORG	THROTTLE UP RELAY TO VARIABLE THROTTLE LINEAR ACTUATOR
27	BLU/ORG	THROTTLE SWITCH DOWN TO THROTTLE DOWN RELAY
28	GRN/ORG	THROTTLE DOWN RELAY TO VARIABLE LINEAR ACTUATOR
29	BRN	FUEL SENDER TO FUEL GAUGE
30	BLU	OIL PRESSURE SENDER TO OIL PRESSURE GAUGE
31	GRN	WATER TEMP SENDER TO WATER TEMP GAUGE
32	TAN/WHT	SPINDLE SPEED PICKUP TO SPINDLE SPEED DISPLAY
33	BLU/RED	WARNING LIGHT ALARM (NEG) TO DIODES
34	WHT/BLU	ENGINE OIL PRESSURE SWITCH TO DIODE
35	WHT/GRN	ENGINE WATER TEMP SWITCH TO LIGHT & DIODES
36	GRA/YEL	HYDRAULIC FILTER SWITCH TO LIGHT & DIODES
37	GRA/BLK	HYDRAULIC OIL TEMP SWITCH TO LIGHT & DIODES
38		
39		
40	BLK/ORG	LIGHT TEST RELAY TO DIODES
41	BLU	ENGINE STOP RELAY TO EOP SHUTDOWN RELAY
42	YEL/RED	ENGINE STOP SWITCH TO ENGINE STOP RELAY & GROUND DRIVE CONTROLLER
43	ORG/BLK	EOP SHUTDOWN RELAY TO FUEL SOLENOID AND HOURMETER
44	WHT	ENGINE STOP RELAY TO LATCH RELEASE RELAY
45	WHT/ORG	START BYPASS DELAY MODULE TO START BYPASS RELAY
46		
47	ORG/RED	START CUTOFF RELAY TO FUNCTION ENABLE RELAY & PIPELOADER CONTROLLER
48	PUR/GRN	HIGH SPEED ENABLE RELAY TO HIGH SPEED CARRIAGE SWITCH
49	YEL/BLK	HIGH SPEED ENABLE RELAY TO HIGH SPEED THRUST SOLENOID
50	BLU/YEL	SEAT SWITCH TO TWO SECOND DELAY
51	BLU/WHT	FUNCTION ENABLE RELAY TO TWO SECOND DELAY
52	GRA/RED	FUNCTION ENABLE RELAY TO GROUND DRIVE CONTROLLER
53	GRA/BLU	FUNCTION ENABLE RELAY TO ROTATION ENABLE SOLENOID & THRUST ENABLE RELAY
54	TAN/RED	THRUST ENABLE RELAY TO CARRIAGE STOP RELAY & HIGH SPEED ENABLE RELAY

ELECTRICAL SCHEMATIC

JT1720 ENDS WITH S/N 2S4073

JT2720 ENDS WITH S/N 2S4079

CKT WIRE

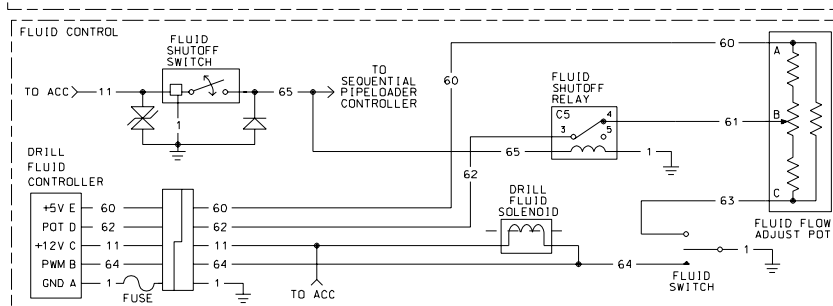
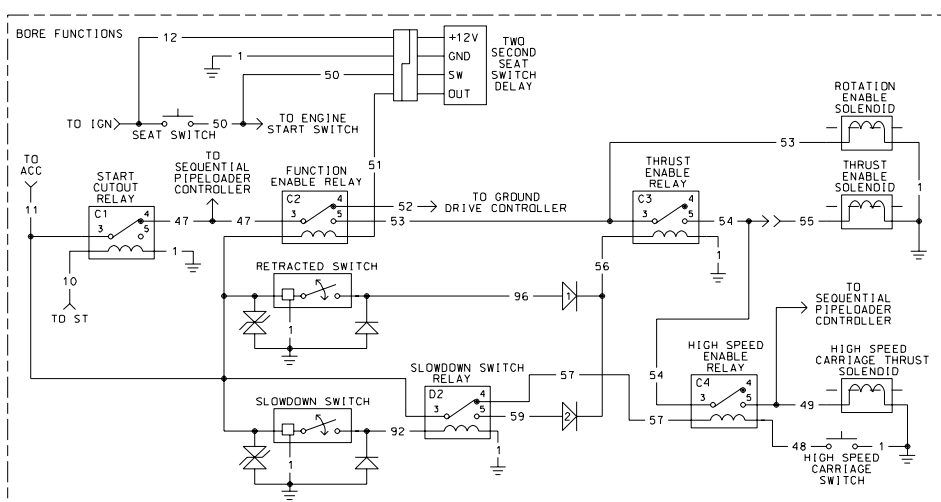
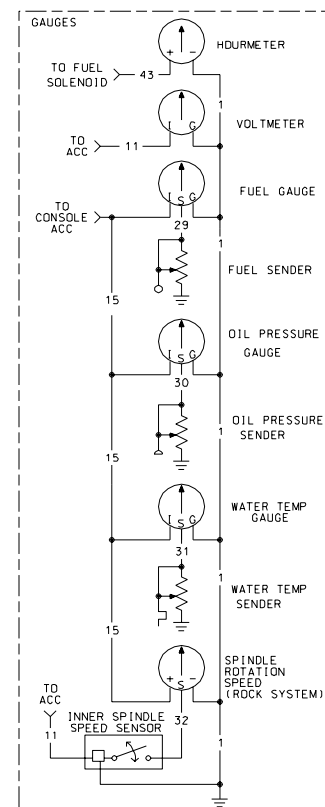
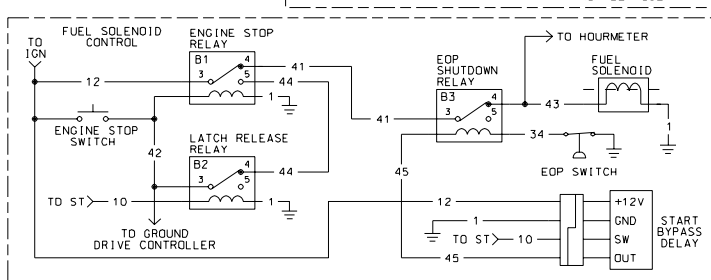
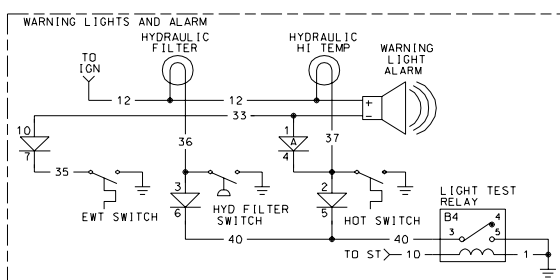
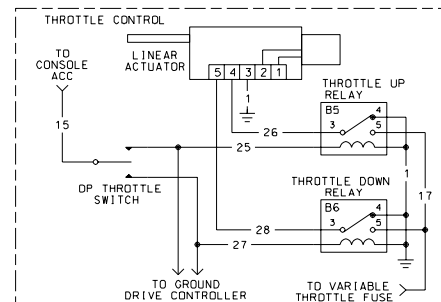
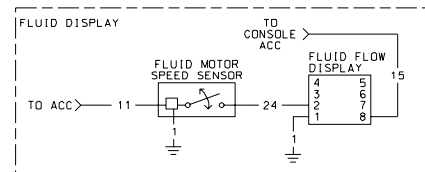
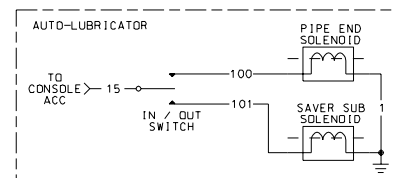
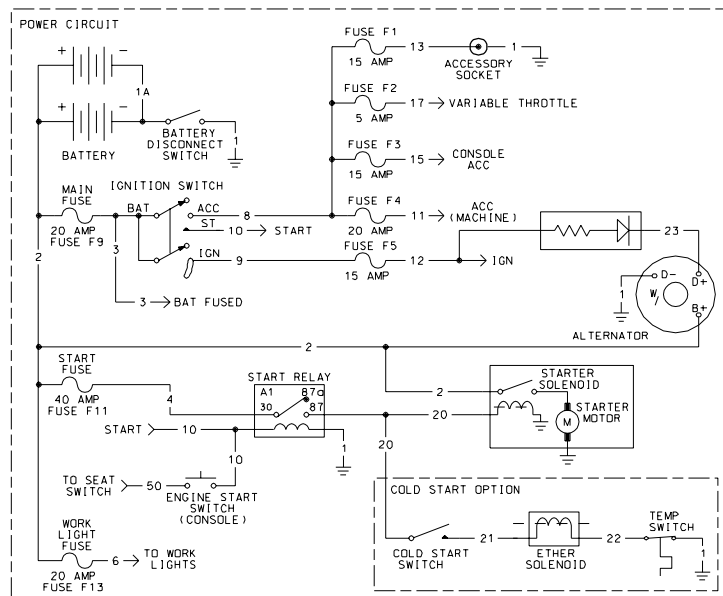
NO. COLOR FUNCTION

55	TAN/BLK	CARRIAGE STOP RELAY TO THRUST ENABLE SOLENOID
56	RED/WHT	DIODES TO THRUST ENABLE RELAY
57	BRN/YEL	SLOW-DOWN SWITCH RELAY TO HIGH SPEED ENABLE RELAY
58		
59	BLU/RED	SLOW-DOWN SWITCH RELAY TO DIODE
60	BLU	FLUID FLOW ADJUST POT TO DRILL FLUID CONTROLLER (5V)
61	GRN	FLUID FLOW ADJUST POT TO FLUID SHUT-OFF RELAY
62	GRN	FLUID SHUT-OFF RELAY TO DRILL FLUID CONTROLLER
63	BLK/YEL	FLUID FLOW ADJUST POT TO FLUID SWITCH
64	BLK/WHT	DRILL FLUID SOLENOID TO FLUID SWITCH & DRILL FLUID CONTROLLER
65	WHT	FLUID SHUT-OFF RELAY TO FLUID SHUT-OFF SWITCH & PIPE LOADER CONTROLLER
66	YEL	WORK LIGHT RELAY TO WORK LIGHTS & AUX LIGHT CONNECTION
67	TAN/RED	WORK LIGHT SWITCH TO WORK LIGHT RELAY
68	RED/YEL	GROUND DRIVE CONTROLLER TO MANUAL DISABLE RELAY
69	WHT/ORG	MANUAL DISABLE RELAY TO DIODE CONNECTOR TO AUXILIARY GROUND DRIVE SWITCHES
70	WHT/YEL	STROBE RELAY TO STROBE
71	BRN/YEL	ELECTRIC STRIKE BOX TO LOCAL ALARM
72	WHT/PUR	ELECTRIC STRIKE BOX TO STROBE RELAY
73	RED	ELECTRIC STRIKE BOX TO CURRENT COIL X3
74	BLK	ELECTRIC STRIKE BOX TO CURRENT COIL X2
75	WHT	ELECTRIC STRIKE BOX TO CURRENT COIL X1
76	TAN/WHT	GROUND DRIVE CONTROLLER TO LEFT FORWARD SOLENOID
77	TAN/GRN	GROUND DRIVE CONTROLLER TO RIGHT FORWARD SOLENOID
78	GRA/WHT	GROUND DRIVE CONTROLLER TO LEFT REVERSE SOLENOID
79	GRA/GRN	GROUND DRIVE CONTROLLER TO RIGHT REVERSE SOLENOID
80	GRA/BLU	FRONT BREAK-OUT WRENCH TO ENGAGE SOLENOID
81	BLK/GRN	FRONT BREAK-OUT WRENCH SWITCH TO DISENGAGE SOLENOID
82	PUR/ORG	REAR BREAK-OUT WRENCH SWITCH TO ENGAGE SOLENOID
83	PUR/YEL	REAR BREAK-OUT WRENCH SWITCH TO DISENGAGE SOLENOID
84	TAN/GRN	BACK-UP WRENCH SWITCH TO ENGAGE SOLENOID
85	YEL/GRN	BACK-UP WRENCH SWITCH TO DISENGAGE SOLENOID
86	YEL/BLU	PIPE LIFT SWITCH TO UP SOLENOID
87	YEL/BRN	PIPE LIFT SWITCH TO DOWN SOLENOID
88	GRN/BLU	SHUTTLE SWITCH TO EXTEND SOLENOID
89	GRN/BLK	SHUTTLE SWITCH TO RETRACT SOLENOID
90	GRA/GRN	MODE SWITCH (BORE) TO PIPELOADER CONTROLLER
91	GRA	MODE SWITCH (BACKREAM) TO PIPELOADER CONTROLLER
92	BLU/WHT	SLOW-DOWN SWITCH TO PIPELOADER CONTROLLER & SLOW-DOWN SWITCH RELAY
93	GRA/WHT	STOP SWITCH # 2 TO PIPELOADER CONTROLLER
94	TAN/WHT	FULL BACK SWITCH #3 TO PIPELOADER CONTROLLER
95	GRN/RED	EXTENDED SWITCH TO PIPELOADER CONTROLLER
96	WHT/RED	RETRACTED SWITCH TO DIODE & PIPELOADER CONTROLLER
97	PUR/ORG	PIPE OK SWITCH TO PIPELOADER CONTROLLER
98	BRN/ORG	PIPE BAD SWITCH TO PIPELOADER CONTROLLER
99	GRA/BLK	PIPE LOADER CONTROLLER TO CARRIAGE STOP RELAY

ELECTRICAL SCHEMATIC

JT1720 BEGINS WITH S/N 2S4116

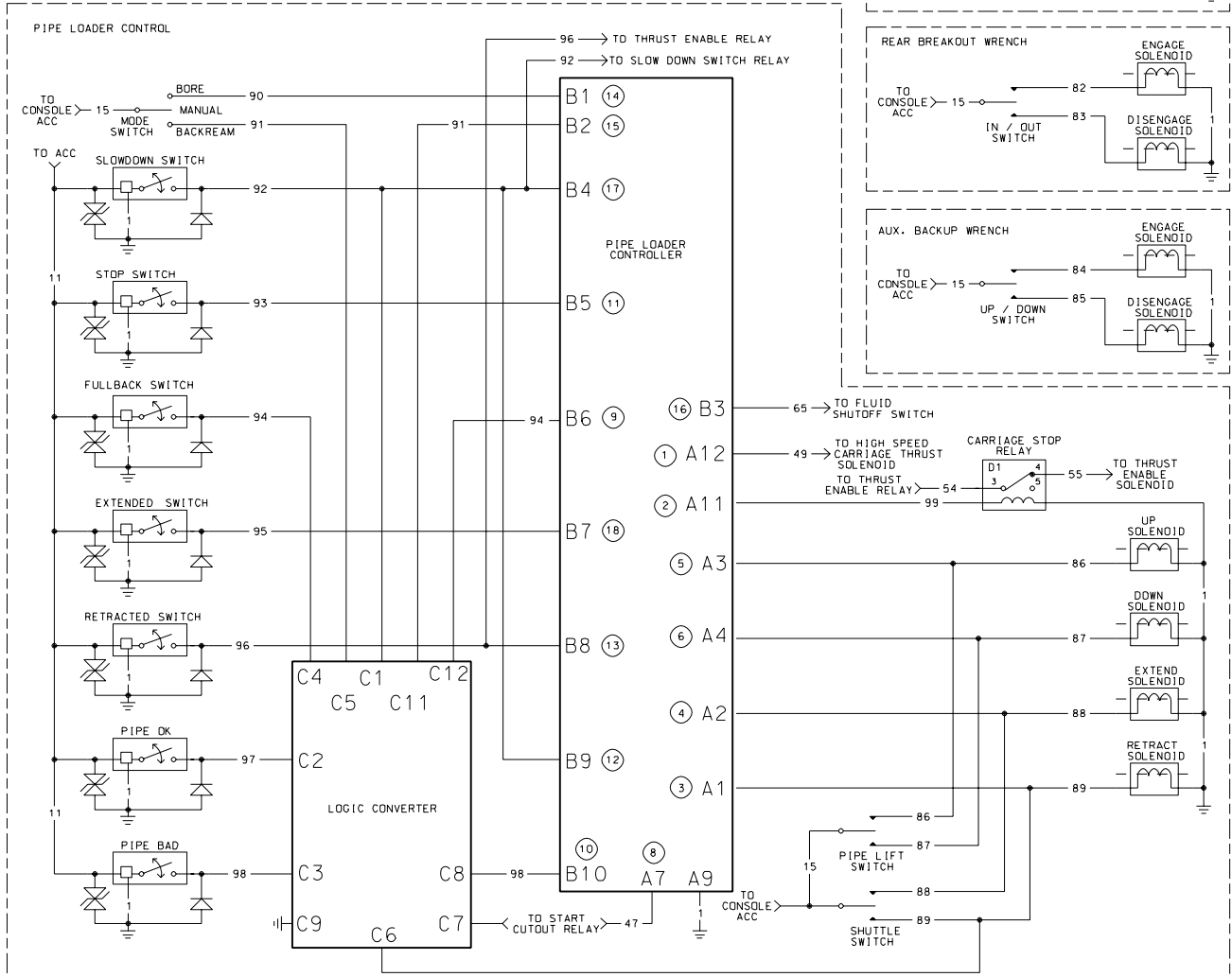
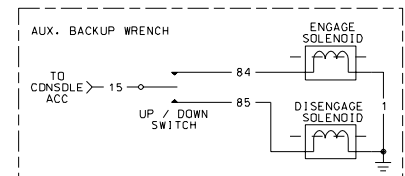
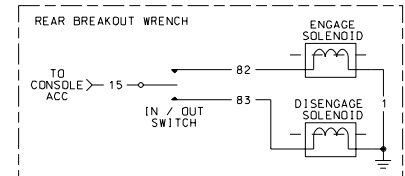
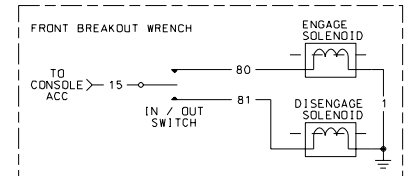
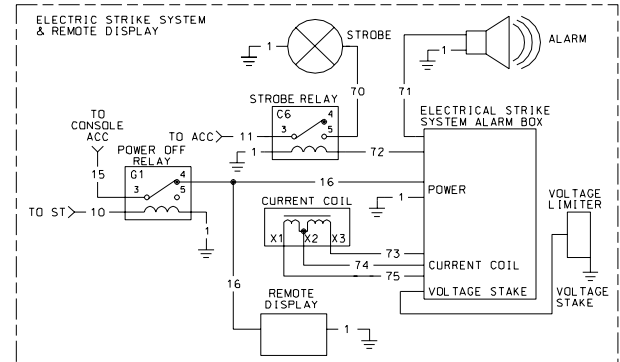
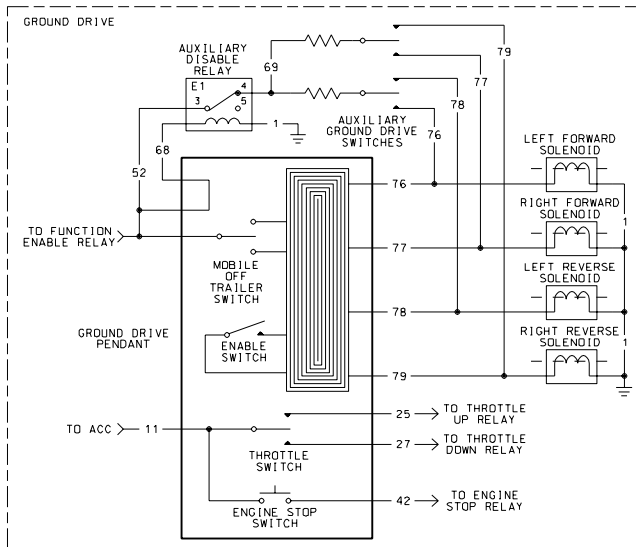
JT2720 BEGINS WITH S/N 2S4122



ELECTRICAL SCHEMATIC

JT1720 BEGINS WITH S/N 2S4116

JT2720 BEGINS WITH S/N 2S4122



ELECTRICAL SCHEMATIC

JT1720 BEGINS WITH S/N 2S4116

JT2720 BEGINS WITH S/N 2S4122

CKT NO.	WIRE COLOR	FUNCTION
1	BLK	SYSTEM GROUND
1A	BLK	BATTERY NEGATIVE TO BATTERY DISCONNECT SWITCH
2	RED	BATTERY POSITIVE TO FUSE BLOCK
3	RED/BLU	FUSED BATTERY POWER
4	RED/BLK	START FUSE TO START RELAY
5		
6	BLU	WORK LIGHT FUSE TO WORK LIGHT RELAY
7		
8	ORG	IGNITION SWITCH ACCESSORY CIRCUIT
9	ORG/BLU	IGNITION SWITCH IGNITION CIRCUIT
10	WHT/BLK	IGNITION SWITCH START CIRCUIT
11	ORG	FUSED ACCESSORY CIRCUIT
12	ORG/GRN	FUSED IGNITION CIRCUIT
13	ORG/BLU	ACCESSORY SOCKET CIRCUIT
14		
15	ORG/BRN	CONSOLE ACCESSORY CIRCUIT
16	ORG/BLU	ELECTRIC STRIKE CIRCUIT
17	RED/ORG	VARIABLE THROTTLE CIRCUIT
18		
19		
20	PUR	START RELAY TO STARTER, START FUEL SOLENOID & COLD START OPTION
21	BRN/ORG	COLD START SWITCH TO ETHER SOLENOID
22	BLK	ETHER SOLENOID TO TEMP SWITCH
23	ORG/BLU	RESISTOR - DIODE TO ALTERNATOR EXCITER CONNECTION
24	TAN/BLU	FLUID MOTOR SPEED SENSOR TO FLUID FLOW DISPLAY
25	PUR/ORG	THROTTLE SWITCH UP TO THROTTLE UP RELAY
26	WHT/ORG	THROTTLE UP RELAY TO VARIABLE THROTTLE LINEAR ACTUATOR
27	BLU/ORG	THROTTLE SWITCH DOWN TO THROTTLE DOWN RELAY
28	GRN/ORG	THROTTLE DOWN RELAY TO VARIABLE LINEAR ACTUATOR
29	BRN	FUEL SENDER TO FUEL GAUGE
30	BLU	OIL PRESSURE SENDER TO OIL PRESSURE GAUGE
31	GRN	WATER TEMP SENDER TO WATER TEMP GAUGE
32	TAN/WHT	SPINDLE SPEED PICKUP TO SPINDLE SPEED DISPLAY
33	BLU/RED	WARNING LIGHT ALARM (NEG) TO DIODES
34	WHT/BLU	ENGINE OIL PRESSURE SWITCH TO DIODE
35	WHT/GRN	ENGINE WATER TEMP SWITCH TO LIGHT & DIODES
36	GRA/YEL	HYDRAULIC FILTER SWITCH TO LIGHT & DIODES
37	GRA/BLK	HYDRAULIC OIL TEMP SWITCH TO LIGHT & DIODES
38		
39		
40	BLK/ORG	LIGHT TEST RELAY TO DIODES
41	BLU	ENGINE STOP RELAY TO EOP SHUTDOWN RELAY
42	YEL/RED	ENGINE STOP SWITCH TO ENGINE STOP RELAY & GROUND DRIVE CONTROLLER
43	ORG/BLK	EOP SHUTDOWN RELAY TO FUEL SOLENOID AND HOURMETER
44	WHT	ENGINE STOP RELAY TO LATCH RELEASE RELAY
45	WHT/ORG	START BYPASS DELAY MODULE TO START BYPASS RELAY
46		
47	ORG/RED	START CUTOFF RELAY TO FUNCTION ENABLE RELAY & PIPELOADER CONTROLLER
48	PUR/GRN	HIGH SPEED ENABLE RELAY TO HIGH SPEED CARRIAGE SWITCH
49	YEL/BLK	HIGH SPEED ENABLE RELAY TO HIGH SPEED THRUST SOLENOID
50	BLU/YEL	SEAT SWITCH TO TWO SECOND DELAY
51	BLU/WHT	FUNCTION ENABLE RELAY TO TWO SECOND DELAY
52	GRA/RED	FUNCTION ENABLE RELAY TO GROUND DRIVE CONTROLLER
53	GRA/BLU	FUNCTION ENABLE RELAY TO ROTATION ENABLE SOLENOID & THRUST ENABLE RELAY
54	TAN/RED	THRUST ENABLE RELAY TO CARRIAGE STOP RELAY & HIGH SPEED ENABLE RELAY

ELECTRICAL SCHEMATIC

JT1720 BEGINS WITH S/N 2S4116

JT2720 BEGINS WITH S/N 2S4122

CKT WIRE

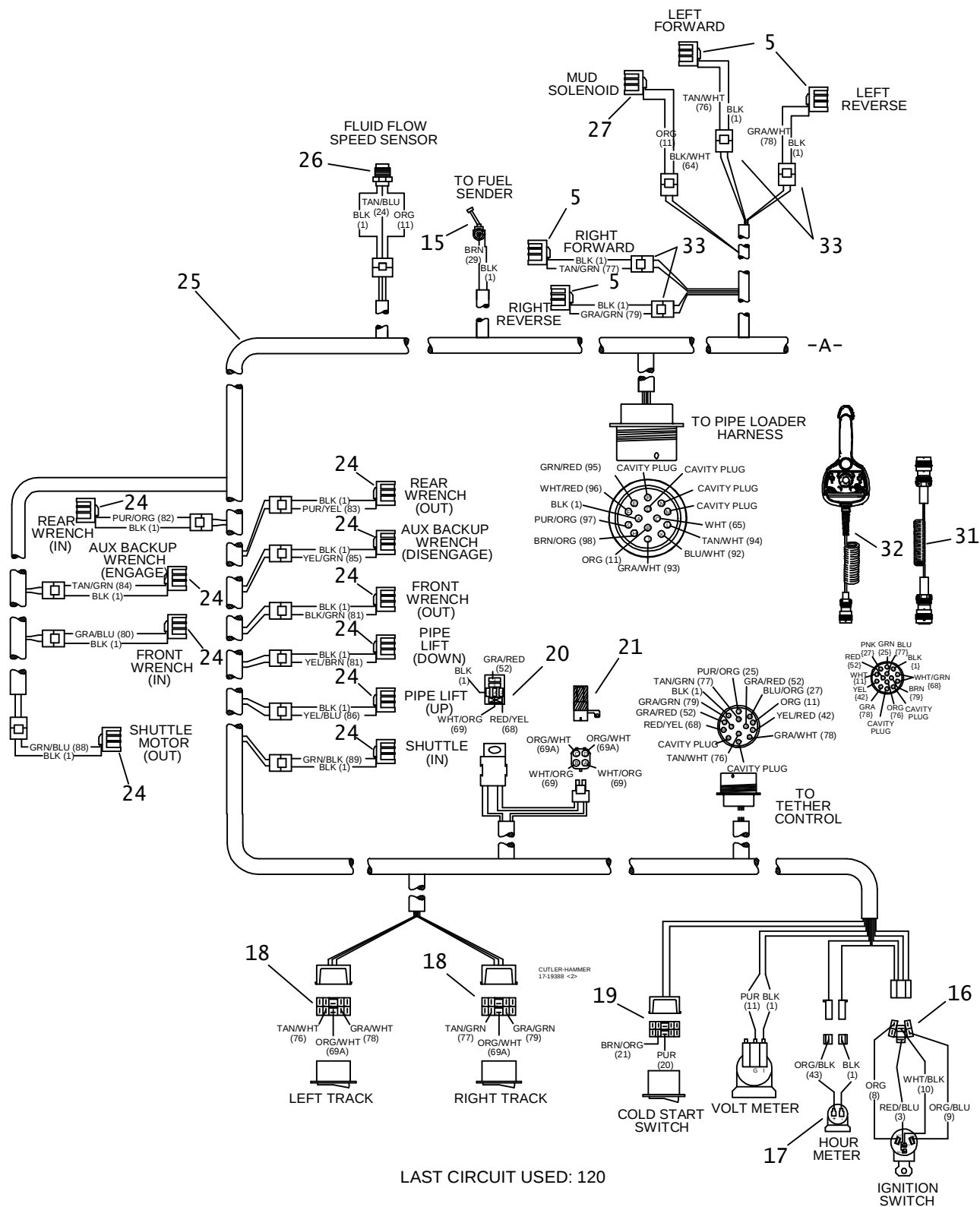
NO. COLOR FUNCTION

55	TAN/BLK	CARRIAGE STOP RELAY TO THRUST ENABLE SOLENOID
56	RED/WHT	DIODES TO THRUST ENABLE RELAY
57	BRN/YEL	SLOW-DOWN SWITCH RELAY TO HIGH SPEED ENABLE RELAY
58		
59	BLU/RED	SLOW-DOWN SWITCH RELAY TO DIODE
60	BLU	FLUID FLOW ADJUST POT TO DRILL FLUID CONTROLLER (5V)
61	GRN	FLUID FLOW ADJUST POT TO FLUID SHUT-OFF RELAY
62	GRN	FLUID SHUT-OFF RELAY TO DRILL FLUID CONTROLLER
63	BLK/YEL	FLUID FLOW ADJUST POT TO FLUID SWITCH
64	BLK/WHT	DRILL FLUID SOLENOID TO FLUID SWITCH & DRILL FLUID CONTROLLER
65	WHT	FLUID SHUT-OFF RELAY TO FLUID SHUT-OFF SWITCH & PIPE LOADER CONTROLLER
66	YEL	WORK LIGHT RELAY TO WORK LIGHTS & AUX LIGHT CONNECTION
67	TAN/RED	WORK LIGHT SWITCH TO WORK LIGHT RELAY
68	RED/YEL	GROUND DRIVE CONTROLLER TO MANUAL DISABLE RELAY
69	WHT/ORG	MANUAL DISABLE RELAY TO DIODE CONNECTOR TO AUXILIARY GROUND DRIVE SWITCHES
70	WHT/YEL	STROBE RELAY TO STROBE
71	BRN/YEL	ELECTRIC STRIKE BOX TO LOCAL ALARM
72	WHT/PUR	ELECTRIC STRIKE BOX TO STROBE RELAY
73	RED	ELECTRIC STRIKE BOX TO CURRENT COIL X3
74	BLK	ELECTRIC STRIKE BOX TO CURRENT COIL X2
75	WHT	ELECTRIC STRIKE BOX TO CURRENT COIL X1
76	TAN/WHT	GROUND DRIVE CONTROLLER TO LEFT FORWARD SOLENOID
77	TAN/GRN	GROUND DRIVE CONTROLLER TO RIGHT FORWARD SOLENOID
78	GRA/WHT	GROUND DRIVE CONTROLLER TO LEFT REVERSE SOLENOID
79	GRA/GRN	GROUND DRIVE CONTROLLER TO RIGHT REVERSE SOLENOID
80	GRA/BLU	FRONT BREAK-OUT WRENCH TO ENGAGE SOLENOID
81	BLK/GRN	FRONT BREAK-OUT WRENCH SWITCH TO DISENGAGE SOLENOID
82	PUR/ORG	REAR BREAK-OUT WRENCH SWITCH TO ENGAGE SOLENOID
83	PUR/YEL	REAR BREAK-OUT WRENCH SWITCH TO DISENGAGE SOLENOID
84	TAN/GRN	BACK-UP WRENCH SWITCH TO ENGAGE SOLENOID
85	YEL/GRN	BACK-UP WRENCH SWITCH TO DISENGAGE SOLENOID
86	YEL/BLU	PIPE LIFT SWITCH TO UP SOLENOID
87	YEL/BRN	PIPE LIFT SWITCH TO DOWN SOLENOID
88	GRN/BLU	SHUTTLE SWITCH TO EXTEND SOLENOID
89	GRN/BLK	SHUTTLE SWITCH TO RETRACT SOLENOID
90	GRA/GRN	MODE SWITCH (BORE) TO PIPELOADER CONTROLLER
91	GRA	MODE SWITCH (BACKREAM) TO PIPELOADER CONTROLLER
92	BLU/WHT	SLOW-DOWN SWITCH TO PIPELOADER CONTROLLER & SLOW-DOWN SWITCH RELAY
93	GRA/WHT	STOP SWITCH # 2 TO PIPELOADER CONTROLLER
94	TAN/WHT	FULL BACK SWITCH #3 TO PIPELOADER CONTROLLER
95	GRN/RED	EXTENDED SWITCH TO PIPELOADER CONTROLLER
96	WHT/RED	RETRACTED SWITCH TO DIODE & PIPELOADER CONTROLLER
97	PUR/ORG	PIPE OK SWITCH TO PIPELOADER CONTROLLER
98	BRN/ORG	PIPE BAD SWITCH TO PIPELOADER CONTROLLER
99	GRA/BLK	PIPE LOADER CONTROLLER TO CARRIAGE STOP RELAY
100	BRN	LUBRICATOR SWITCH TO PIPE END LUBRICATOR SOLENOID
101	BRN/YEL	LUBRICATOR SWITCH TO SAVER SUB LUBRICATOR SOLENOID

ELECTRICAL DIAGRAM

ENGINE/FRAME HARNESS

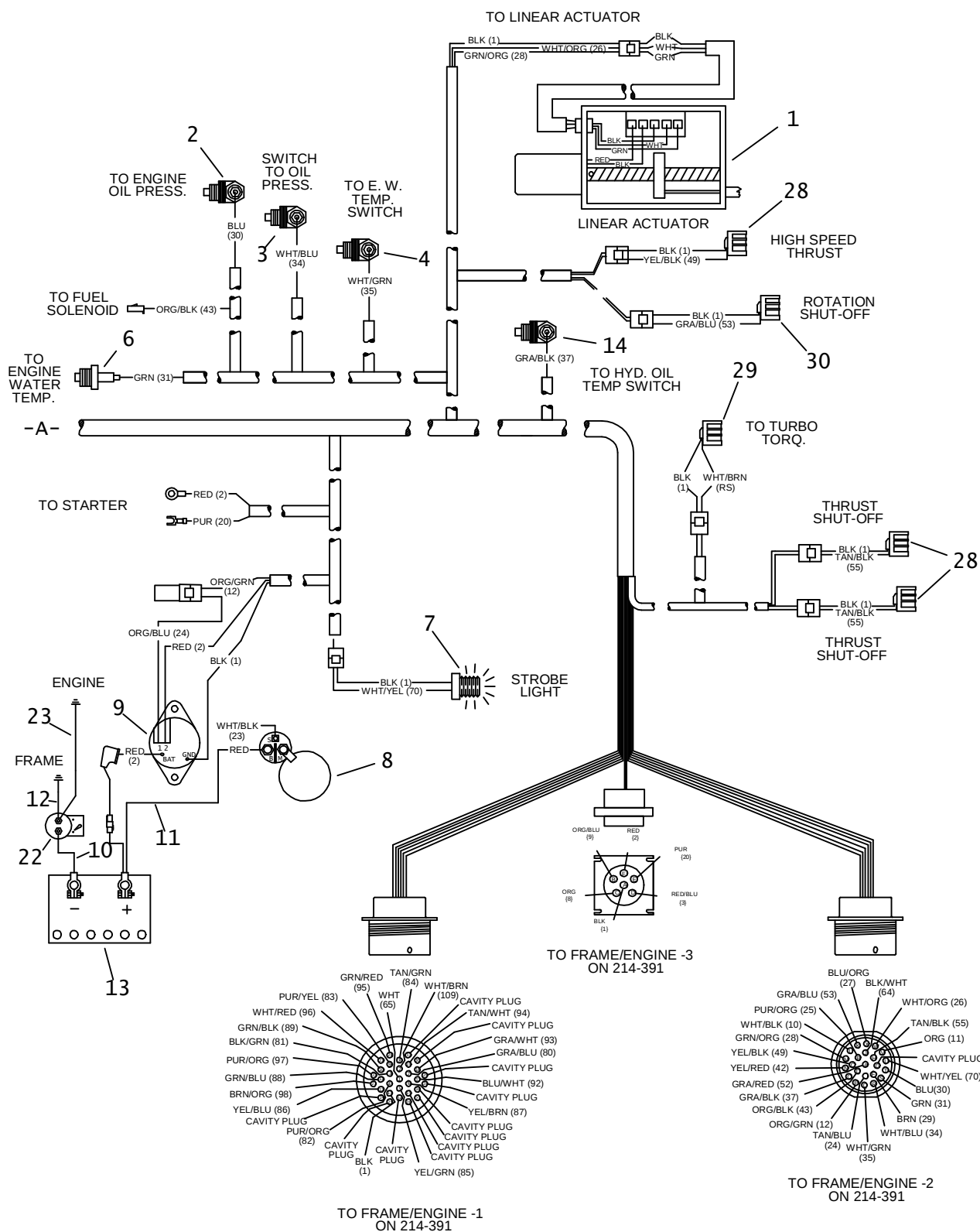
JT2720



ELECTRICAL DIAGRAM

ENGINE/FRAME HARNESS

JT2720



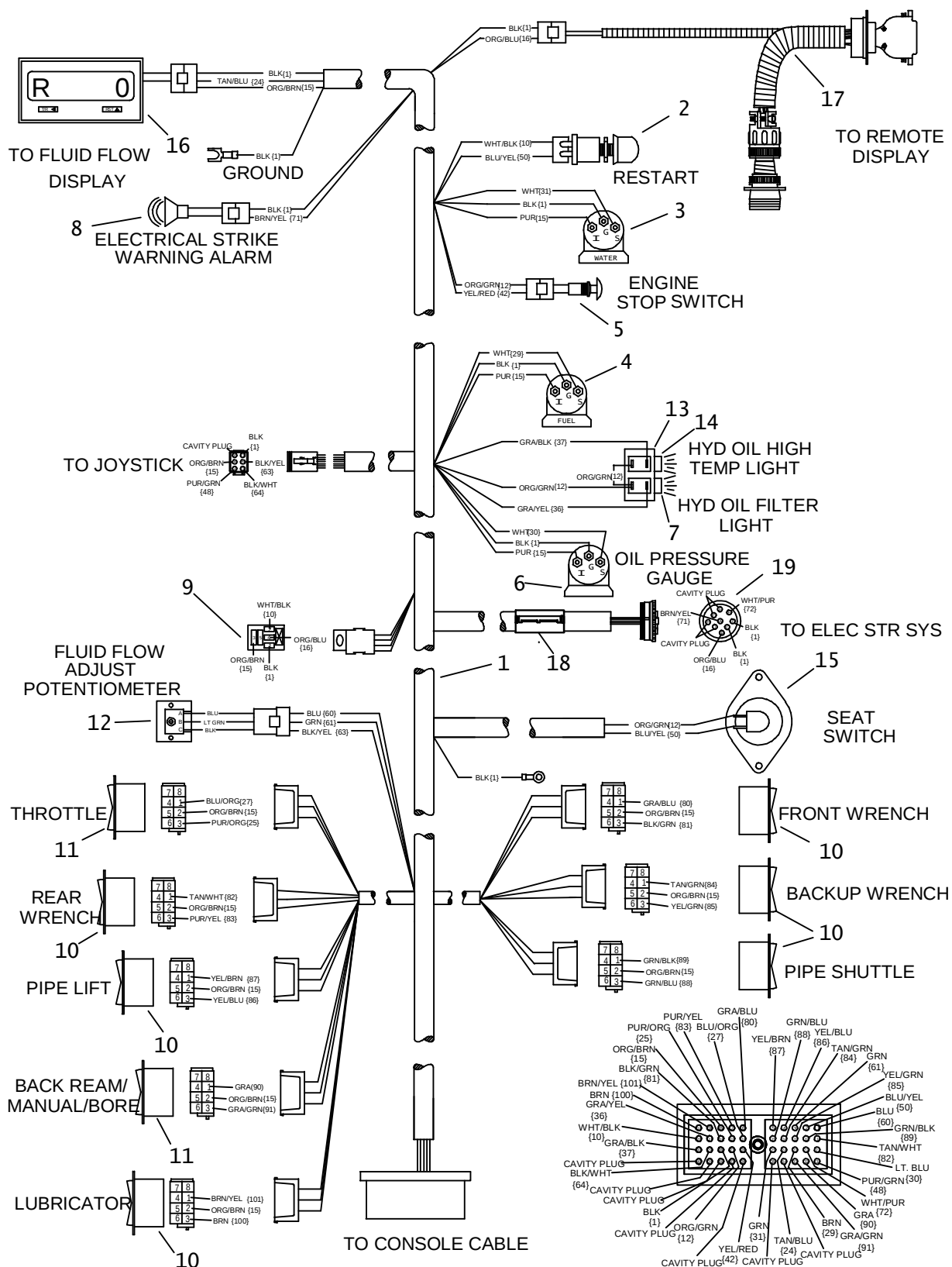
ELECTRICAL DIAGRAM ENGINE/FRAME HARNESS JT2720

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	215-231	1	LINEAR ACTUATOR	
2.	215-113	1	ENGINE OIL PRESSURE SENDER	
	215-183	1	SENDER, OIL PRESSURE HD	
3.	217-736	1	OIL PRESSURE SWITCH	
4.	217-575	1	HIGH TEMPERATURE SWITCH	
5.	214-434	4	SOLENOID COIL	
6.	217-550	1	WATER TEMPERATURE SENDER	
7.	217-720	1	BULB (12V DC)	
8.	195-897	1	STARTER	
9.	217-450	1	ALTERNATOR	
10.	215-337	1	BATTERY CABLE (2/0 GA X 19", BLK)	
11.	215-317	1	BATTERY CABLE (2/0 GA X 54", RED)	
12.	215-304	1	BATTERY CABLE (4 GA X 13", BLK)	
13.	215-275	1	BATTERY	OPIMA
	215-244		BATTERY	INTERSTATE
14.	215-148	1	TEMPERATURE SWITCH	
15.	353-420	1	FUEL SENDER	
16.	214-852	1	IGNITION SWITCH	
	214-961		KEY, PAIR (BASE CODE)	
	214-962		SWITCH MOUNTING NUT	
17.	215-128	1	HOUR METER	
18.	217-911	2	ROCKER SWITCH (ON-OFF-ON, SPDT)	
19.	217-917	1	ROCKER SWITCH (OFF-ON, DPDT)	
20.	217-710	1	MICRO RELAY (SPDT)	
21.	214-443	1	RESISTOR CONNECTOR	
22.	217-819	1	BATTERY DISCONNECT SWITCH	
23.	215-359	1	BATTERY CABLE (2/0 GA X 70", BLK)	
24.	214-435	10	SOLENOID COIL	
25.	214-390	1	FRAME/ENGINE HARNESS	
26.	214-010	1	SPEED SENSOR	
27.	217-897	1	SOLENOID COIL	
28.	217-770	3	SOLENOID COIL	
29.	217-947	1	COIL	
30.	214-491	1	COIL (12V)	
31.	214-465	1	COILED CABLE 15'	
	190-896		CABLE FM REPLACEMENT CONN KIT	
	190-897		CABLE M REPLACEMENT CONN KIT	
	259-511		UNIVERSAL HAND CRIMP TOOL	
32.	190-1551	1	GROUND DRIVE CONTROL	
	214-496	1	GROUND DRIVE CONTROL	
	214-559	1	GRD DRIVE CONTROL	
	197-907		'REBUILT' GRD DRV CONTROL	
	214-377	1	GRD DRIVE CONTROL(8-CHANNEL)	
33.	214-505	4	INLINE DIODE CONNECTOR	

FOOTNOTES:

1. EARLY UNITS USED THIS GROUND DRIVE CONTROL (REF. NO. 32) AND COILED CABLE (REF. NO. 31). IF REPLACING THIS EARLY GROUND DRIVE CONTROL SEE FOOTNOTE 3.
2. THIS GROUND DRIVE OCNTROL DID NOT REQUIRE COILED CABLE. IT IS NO LONGER AVAILABLE, SEE FOOTNOTE 3.
3. THIS GROUND DRIVE CONTROL IS USED IN PRESENT PRODUCTION AND FOR REPLACEMENTS. IT DOES NOT REQUIRE COILED CABLE.

ELECTRICAL DIAGRAM CONSOLE HARNESS



ELECTRICAL DIAGRAM CONSOLE HARNESS

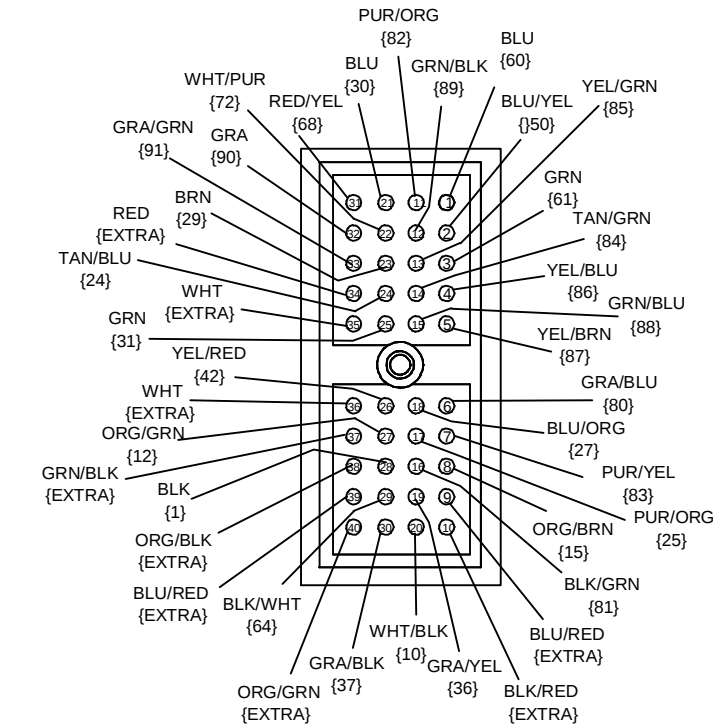
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	214-383	1	CONSOLE HARNESS	INCL REF NO 20
2.	306-607	1	HORN BUTTON	
	306-608	1	BUTTON COVER	
3.	217-531	1	WATER TEMPERATURE GAUGE	
	215-415		NITE-LIGHT KIT (12V DC)	
4.	215-133	1	FUEL GAUGE	
	215-415		NITE-LIGHT KIT (12V DC)	
5.	217-206	1	BUTTON SWITCH (SPST)	
	214-103	1	2-WAY MALE CONNECTOR	
6.	215-131	1	OIL PRESSURE GAUGE	
	215-415		NITE-LIGHT KIT (12V DC)	
7.	217-036	1	INSERT (YELLOW) HYD OIL PSI	
8.	306-602	1	BACKUP ALARM	
9.	217-710	1	MICRO RELAY (SPDT)	
10.	217-911	6	ROCKER (SPDT) (ON)OFF(ON)	
11.	217-916	2	ROCKER SWITCH (DPDT) ON-OFF-ON	
12.	217-940	1	FLUID FLOW POTENTIOMETER	
13.	217-020	1	PILOT LIGHT	
14.	217-027	1	INSERT (RED) HYD OIL HIGH TEMP.	
15.	217-935	-	SEAT SWITCH	
16.	217-221	1	FLOW METER DISPLAY	
17.	214-415	1	90D MODULE TO RIG CABLE	
18.	217-332	1	LARGE FERRITE CLAMP - ON	
19.	190-844	-	EL STR SYS CONNECTOR KIT	

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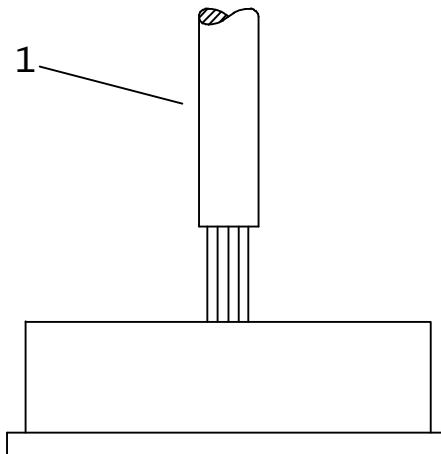
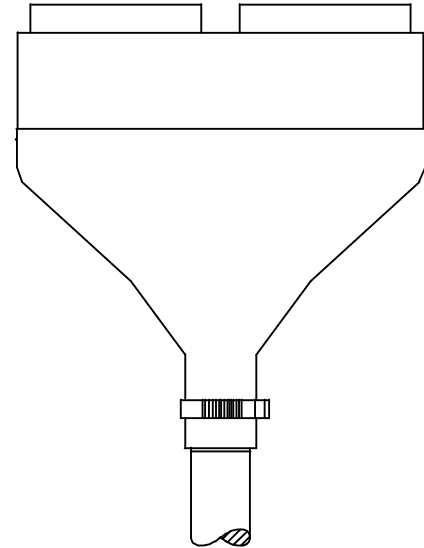
FOOTNOTES:

NOTE:

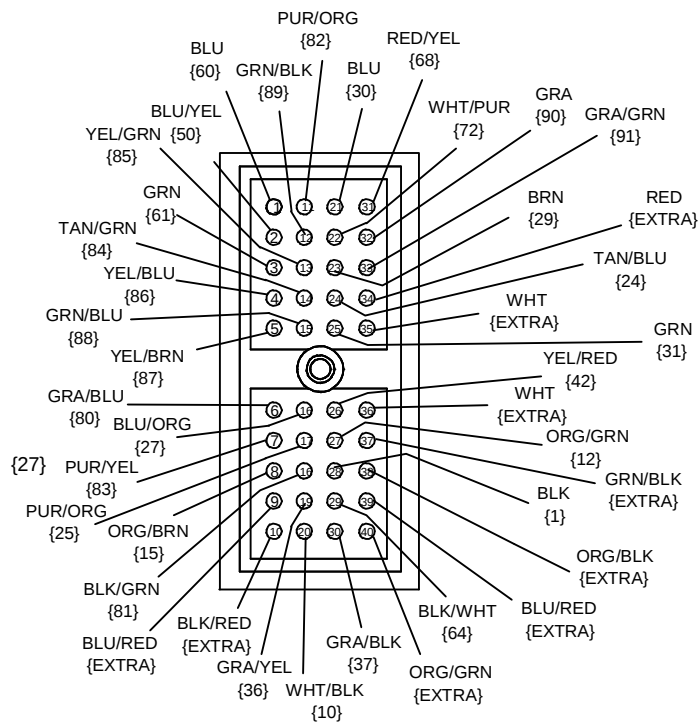
ELECTRICAL DIAGRAM CONSOLE CABLE



TO CONSOLE HARNESS



TO RELAY HARNESS



ELECTRICAL DIAGRAM
CONSOLE CABLE

REF	PART				
NO.	NUMBER	QTY	DESCRIPTION	REMARKS	
1.	214-388	1	CONSOLE CABLE		

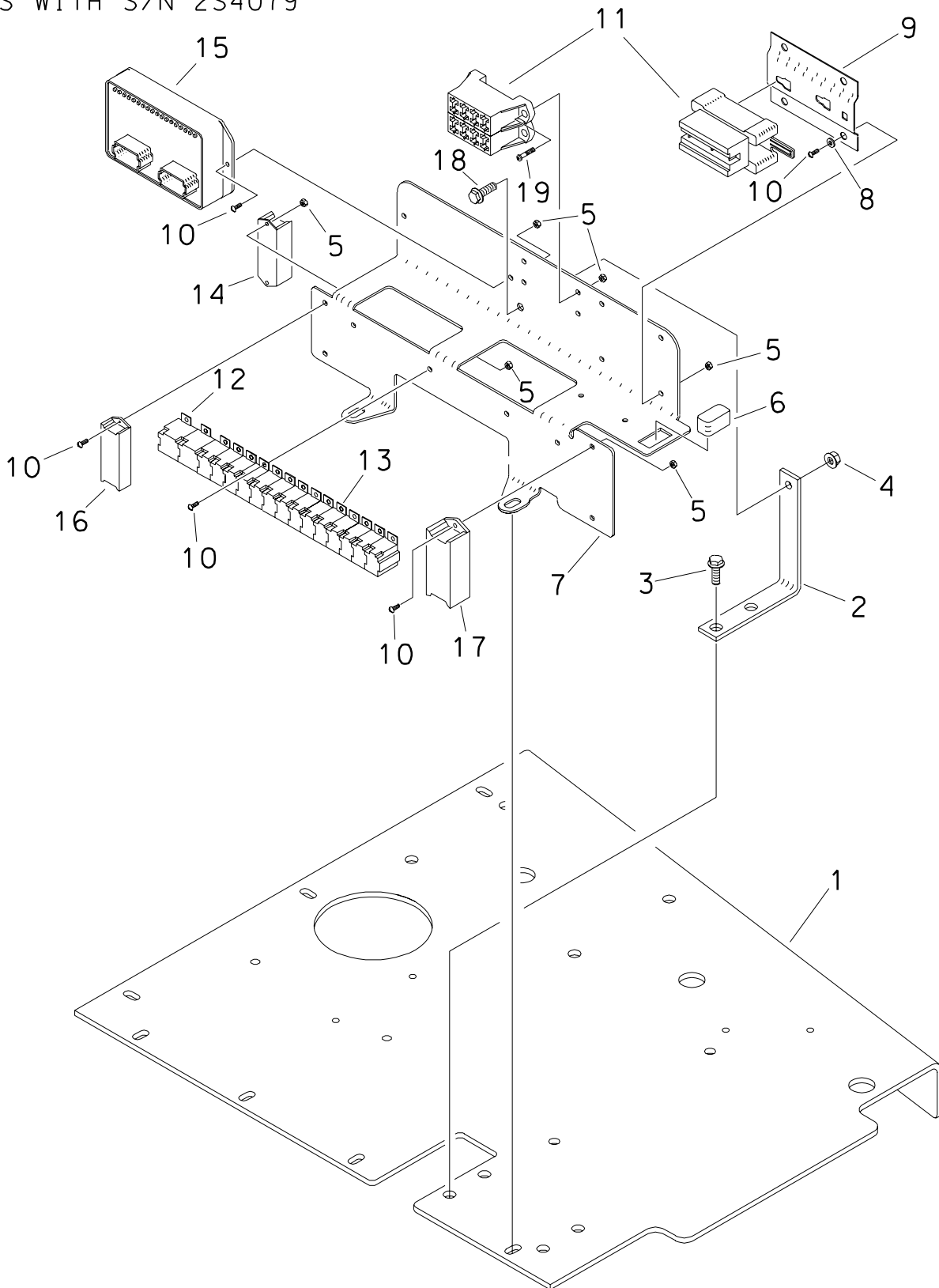
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FOOTNOTES:

NOTE:

RELAY PANEL

ENDS WITH S/N 2S4079



RELAY PANEL

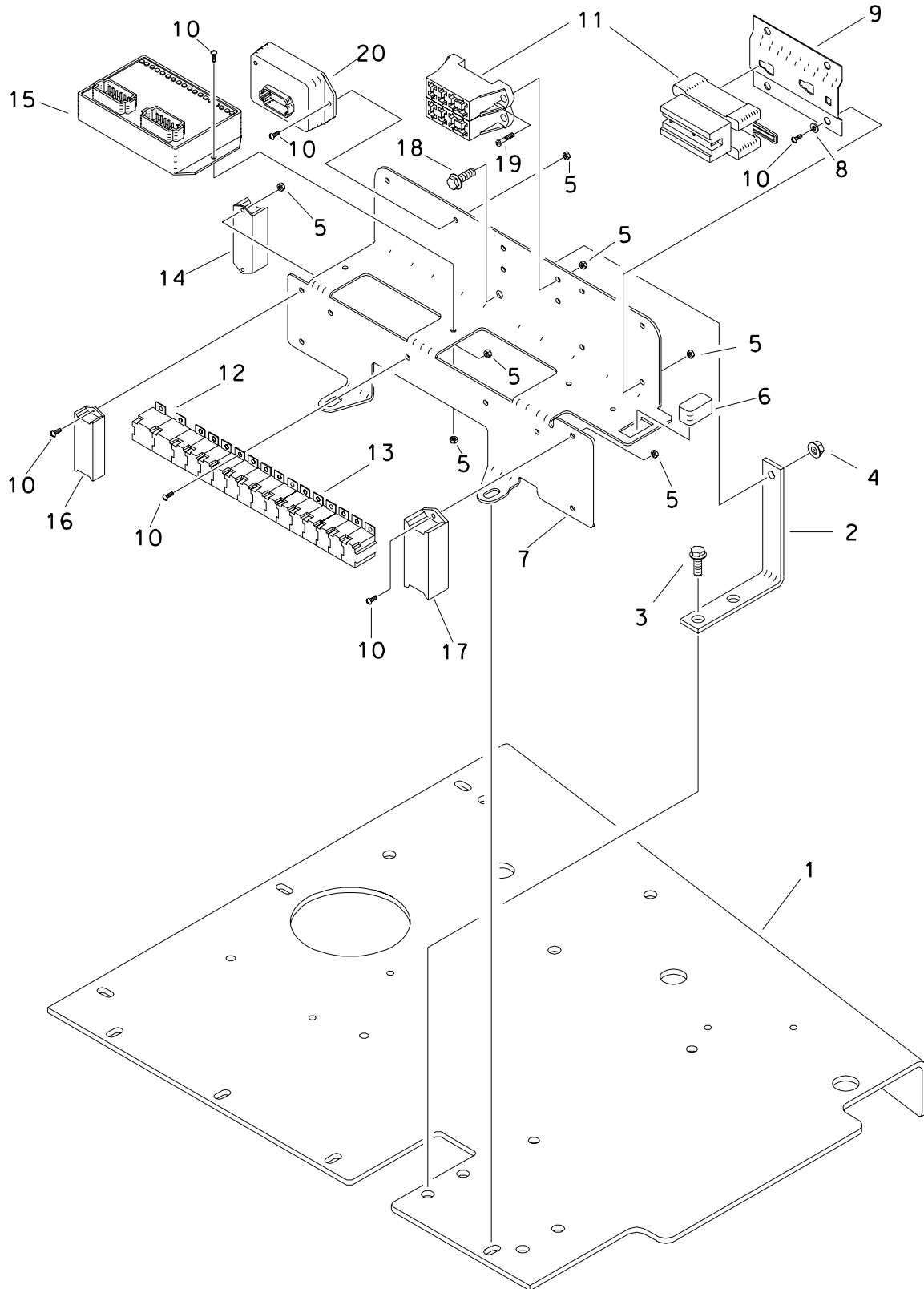
ENDS WITH S/N 2S4079

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	343-606	-	BATTERY SUPPORT PLATE	
2.	343-335	1	RELAY PANEL BRACKET	
3.	105-825	4	FLG LK BOLT (3/8-NC X 3/4")	
4.	106-386	1	FLG LOCKNUT (M8-1.25)	
5.	106-048	18	LOCKNUT (#10-24)	
6.	216-521	1	DIODE BLOCK	
7.	343-334	1	RELAY PANEL	
8.	105-284	4	WASHER (3/16")	
9.	353-135	1	FUSE ADAPTER PLATE	
10.	105-185	14	BOLT (#10-24 X 1/2", RD SLT)	
11.	214-391	-	RELAY HARNESS	
12.	217-826	2	MINI RELAY (SPDT)	
13.	217-710	14	MICRO RELAY (SPDT)	
14.	217-184	1	DELAY TIMER (2-SECOND)	
15.	217-186	1	SEQ PIPE LOADER CONTROLLER	
16.	217-937	1	START BY-PASS DELAY TIMER	
17.	215-914	1	DRILL FLUID CONTROLLER	
18.	106-162	1	FLG SCREW (M8-1.25 X 20mm)	
19.	106-049	4	BOLT (#10-24 X 3/4", PLPS)	

FOOTNOTES

RELAY PANEL

BEGINS WITH S/N 2S4122



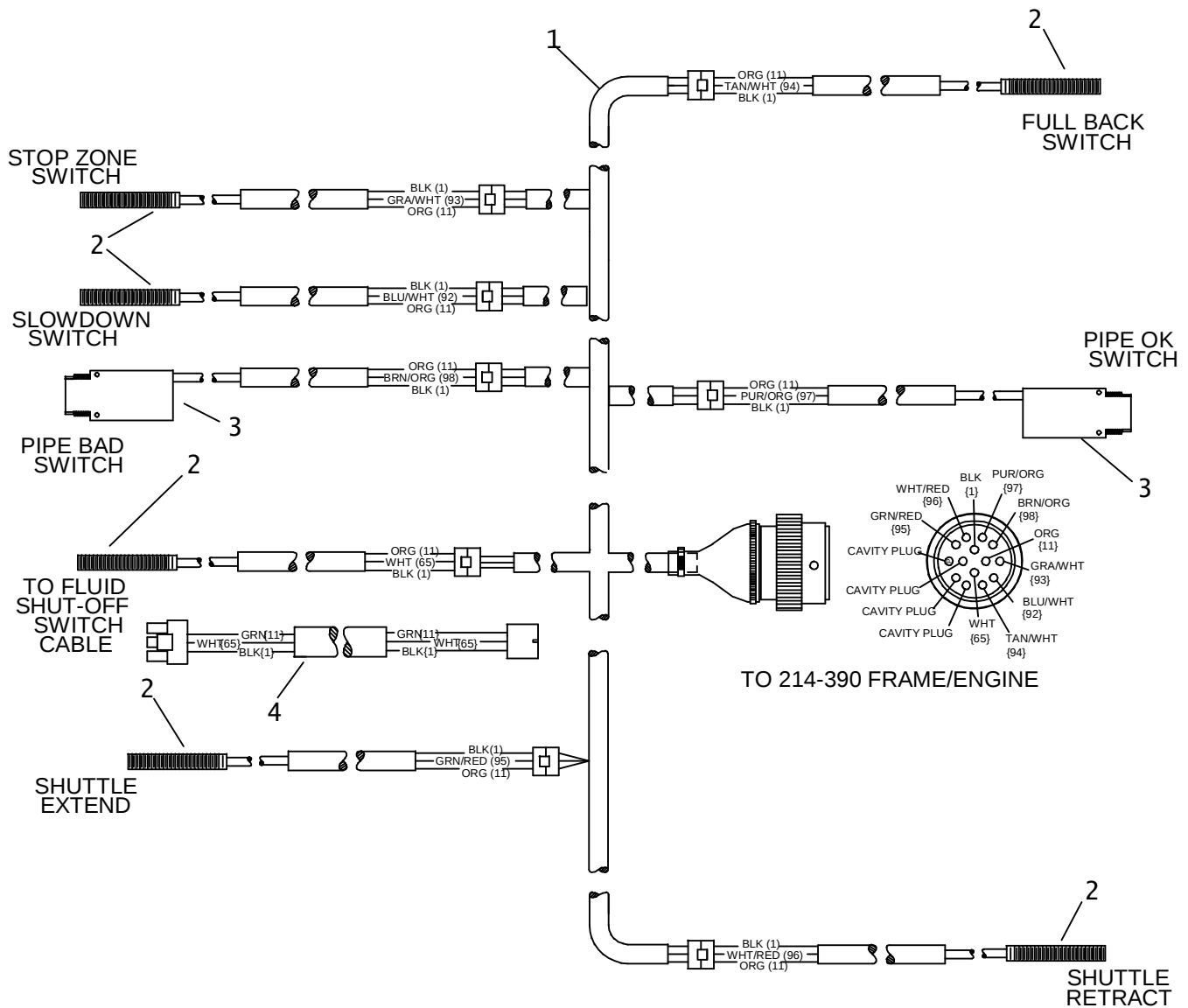
RELAY PANEL

BEGINS WITH S/N 2S4122

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	343-606	-	BATTERY SUPPORT PLATE	
2.	343-335	1	RELAY PANEL BRACKET	
3.	105-825	4	FLG LK BOLT (3/8-NC X 3/4")	
4.	106-386	1	FLG LOCKNUT (M8-1.25)	
5.	106-048	18	LOCKNUT (#10-24)	
6.	216-521	1	DIODE BLOCK	
7.	343-334	1	RELAY PANEL	
8.	105-284	4	WASHER (3/16")	
9.	353-135	1	FUSE PLATE ADAPTER	
10.	105-185	14	BOLT (#10-24 X 1/2", RD SLT)	
11.	214-391	-	RELAY HARNESS	
12.	217-826	2	MINI RELAY (SPDT)	
13.	217-710	14	MICRO RELAY (SPDT)	
14.	217-184	1	DELAY TIMER (2-SECOND)	
15.	217-186	1	SEQ PIPE LOADER CONTROLLER	
16.	217-937	1	START BY-PASS DELAY TIMER	
17.	215-914	1	DRILL FLUID CONTROLLER	
18.	106-162	1	FLG SCREW (M8-1.25 X 20mm)	
19.	106-049	4	BOLT (#10-24 X 3/4", PHLPS)	
20.	211-045	1	CONTROLLER ADAPTER	

FOOTNOTES

ELECTRICAL DIAGRAM **PIPE LOADER HARNESS** **ENDS WITH S/N 2S4079**



ELECTRICAL DIAGRAM
PIPE LOADER HARNESS
ENDS WITH S/N 2S4079

REF	PART			
NO.	NUMBER	QTY	DESCRIPTION	REMARKS
1.	214-393	1	PIPE LOADER HARNESS	
2.	217-939	6	PROXIMITY SWITCH	
3.	217-189	2	PHOTO-ELECTRIC SENSOR	
4.	214-450	1	FLUID SHUT-OFF CABLE	

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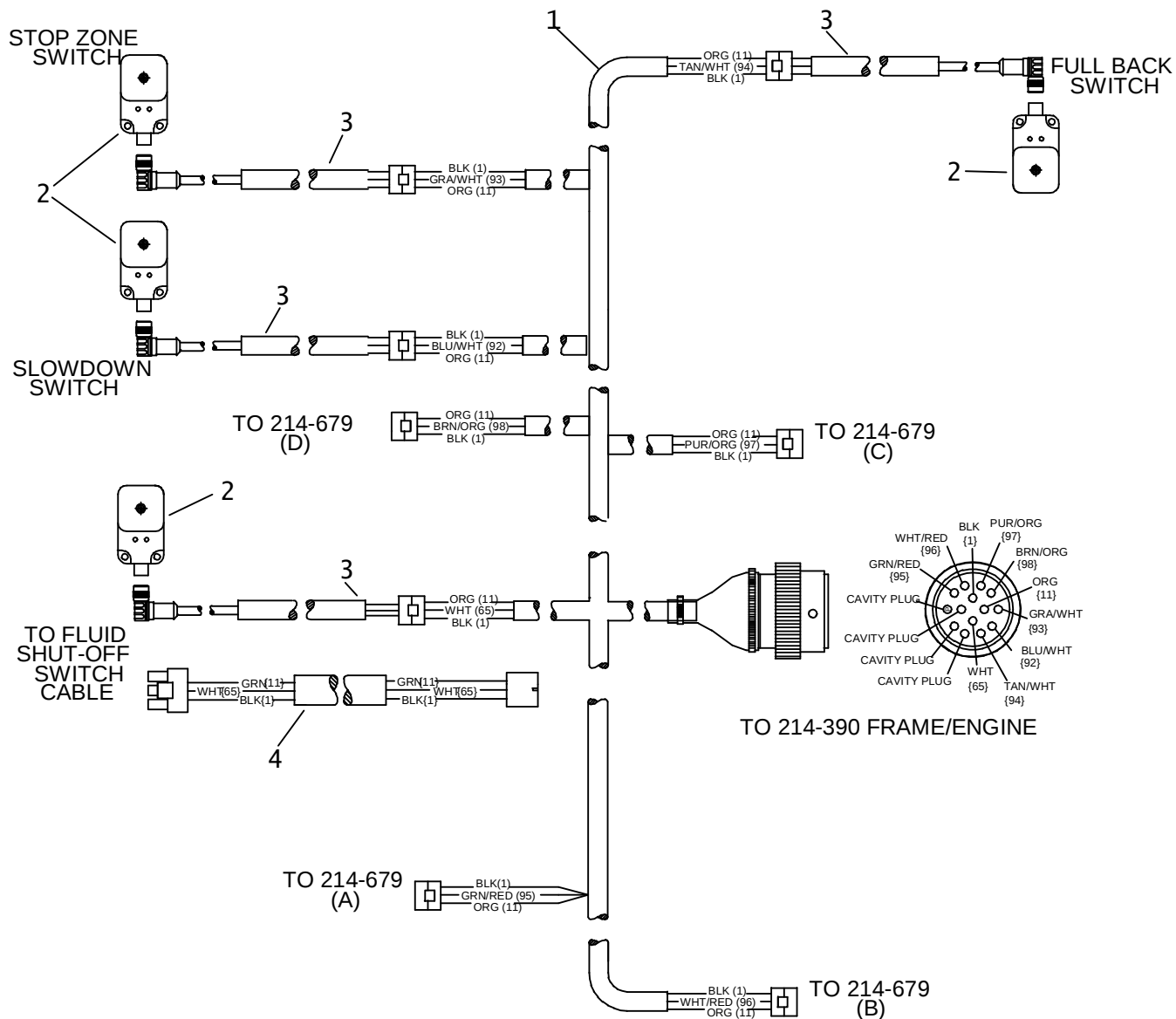
FOOTNOTES:

NOTE:

ELECTRICAL DIAGRAM

PIPE LOADER HARNESS

BEGINS WITH S/N 2S4122



ELECTRICAL DIAGRAM
PIPE LOADER HARNESS
BEGINS WITH S/N 2S4122

REF	PART			
NO.	NUMBER	QTY	DESCRIPTION	REMARKS
1.	214-393	1	PIPE LOADER HARNESS	
2.	214-692	4	PROXIMITY SWITCH	
3.	214-683	4	PROXIMITY SWITCH HARNESS	
4.	214-450	1	FLUID SHUT-OFF CABLE	

NOT SHOWN:

FOOTNOTES:

NOTE:



ELECTRICAL DIAGRAM
AUTOMATION HARNESS
ENDS WITH S/N 2S4079

REF	PART			
NO.	NUMBER	QTY	DESCRIPTION	REMARKS
1.	214-447	1	AUTOMATION HARNESS	
2.	217-186	1	SEQ PIPE LOADER CONTROLLER	
3.	217-710	2	MICRO RELAY (SPDT)	
4.	214-449	1	DIODE CONNECTOR	

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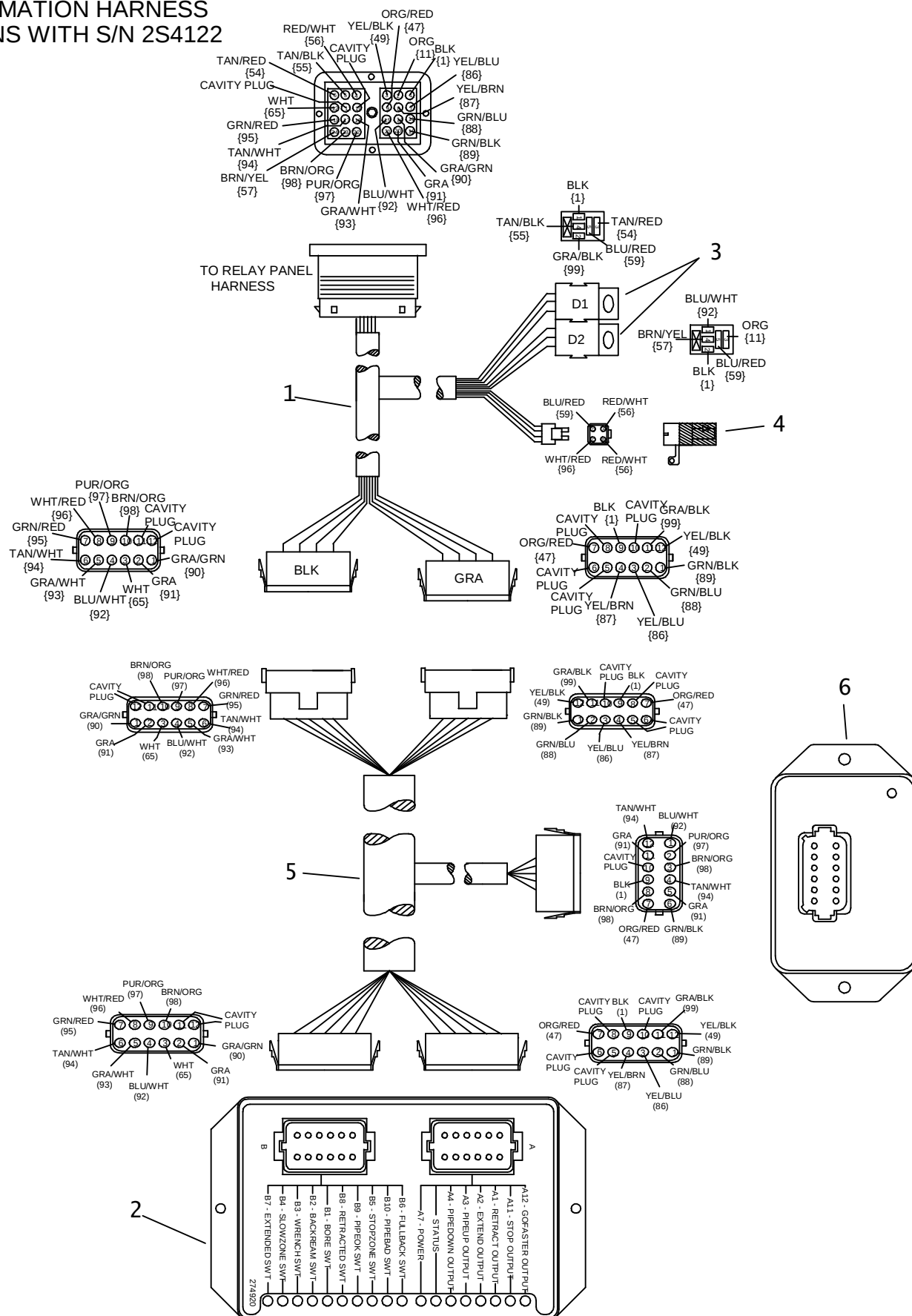
FOOTNOTES:

NOTE:

ELECTRICAL DIAGRAM

AUTOMATION HARNESS

BEGINS WITH S/N 2S4122



ELECTRICAL DIAGRAM
AUTOMATION HARNESS
BEGINS WITH S/N 2S4122

REF	PART			
NO.	NUMBER	QTY	DESCRIPTION	REMARKS
1.	214-447	1	AUTOMATION HARNESS	
2.	217-186	1	SEQ PIPE LOADER CONTROLLER	
3.	217-710	2	MICRO RELAY (SPDT)	
4.	214-449	1	DIODE CONNECTOR	
5.	214-665	1	LOGIC BOX HARNESS	
6.	211-045	1	CONTROLLER ADAPTER	

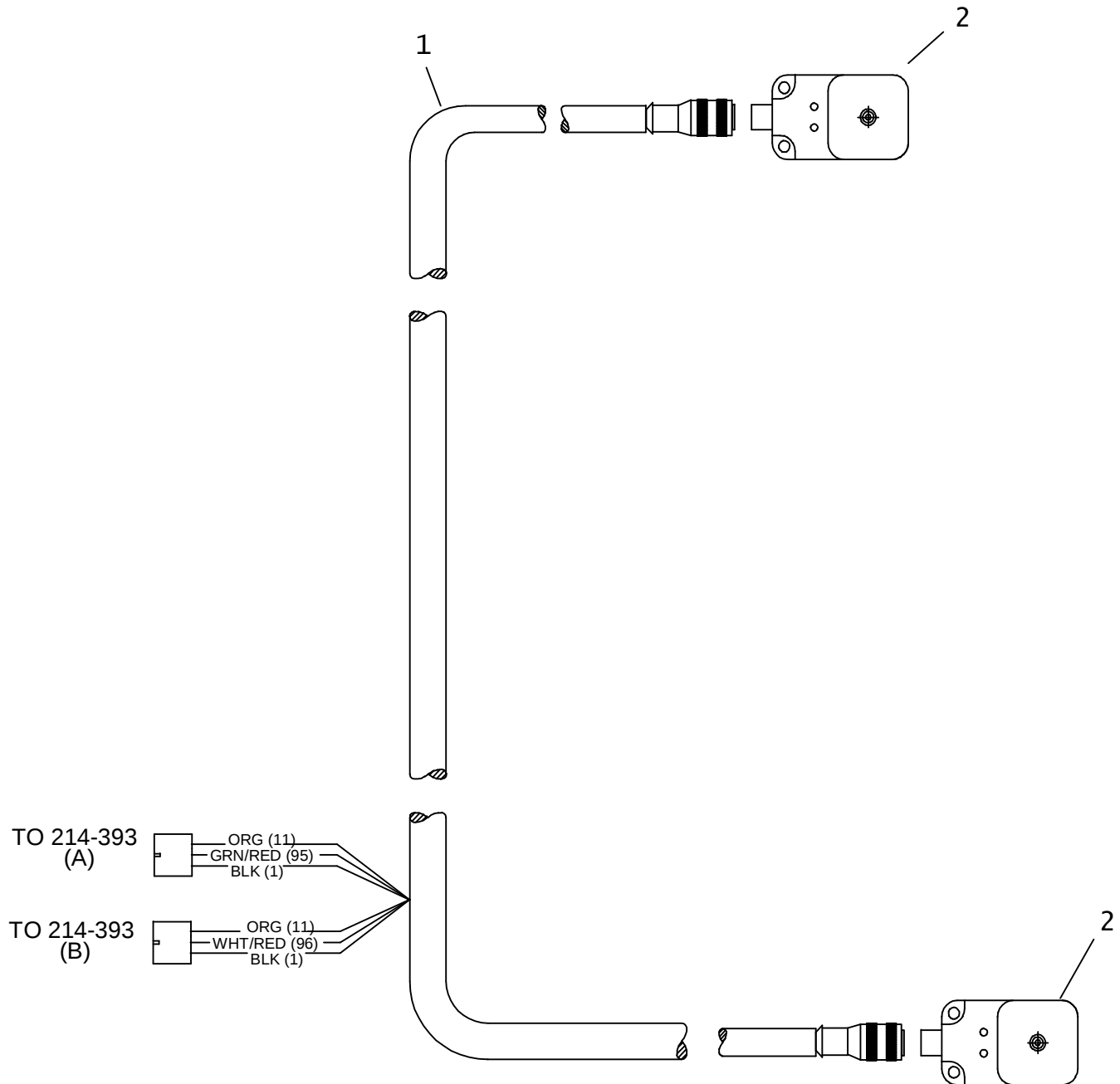
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FOOTNOTES:

NOTE:

ELECTRICAL DIAGRAM

PROXIMITY SWITCH HARNESS
ENDS WITH S/N 2S4121



ELECTRICAL DIAGRAM
PROXIMITY SWITCH HARNESS
ENDS WITH S/N 2S4121

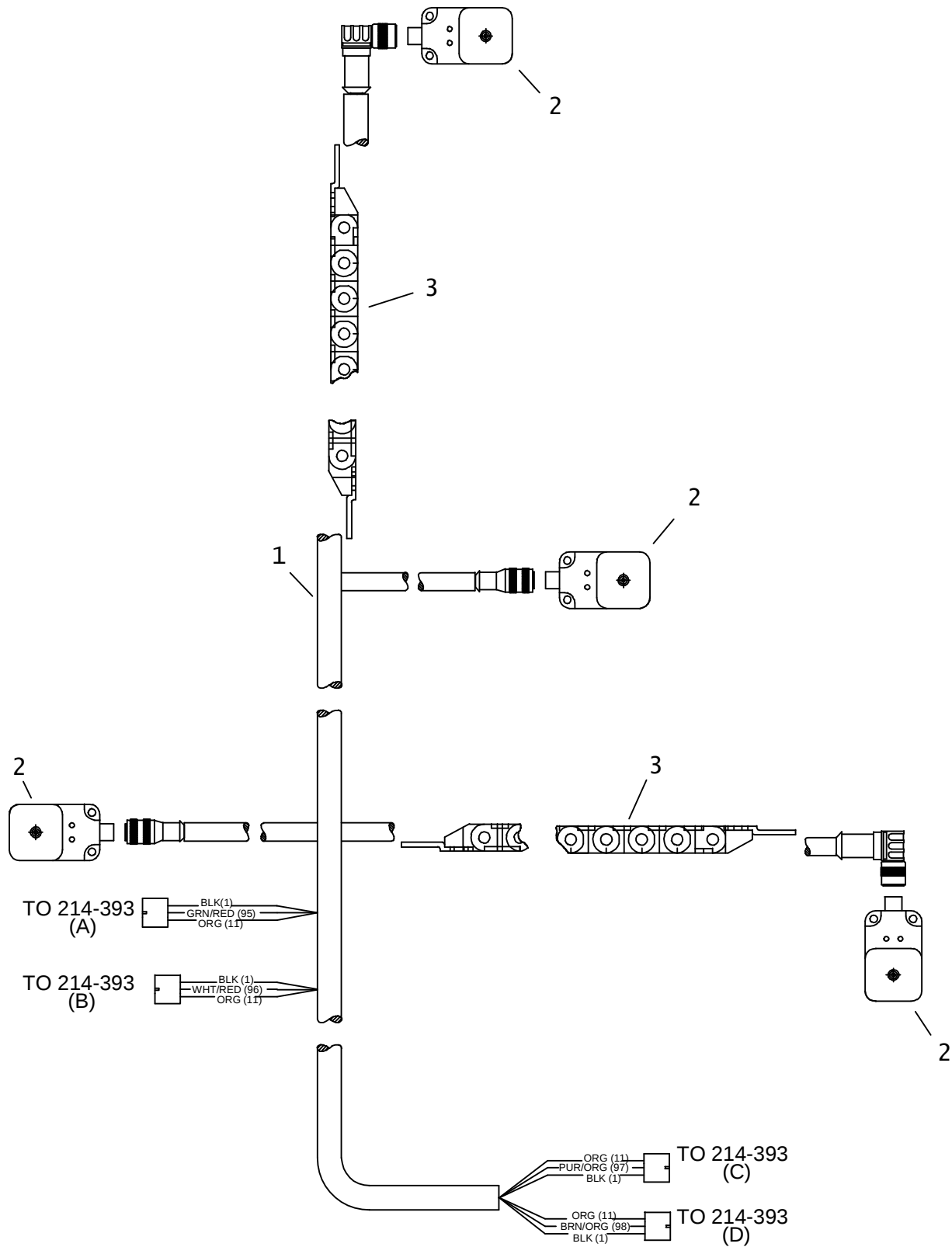
REF	PART				
NO.	NUMBER	QTY	DESCRIPTION	REMARKS	
1.	214-718	1	PROX SWITCH HARNESS		
2.	214-692	2	PROXIMITY SWITCH		

NOT SHOWN:

FOOTNOTES:

NOTE:

ELECTRICAL DIAGRAM **PROXIMITY SWITCH HARNESSS** **BEGINS WITH S/N 2S4122**



ELECTRICAL DIAGRAM
PROXIMITY SWITCH HARNESS
BEGINS WITH S/N 2S4122

REF	PART				
NO.	NUMBER	QTY	DESCRIPTION	REMARKS	
1.	214-679	1	PIPE SWITCH HARNESS	INCLUDES REF NO. 3	
2.	214-692	4	PROXIMITY SWITCH		
3.	307-555	2	WIRE TRACK		

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FOOTNOTES:

NOTE:

PHOTO-ELECTRIC EYE

ENDS WITH S/N 2S4079

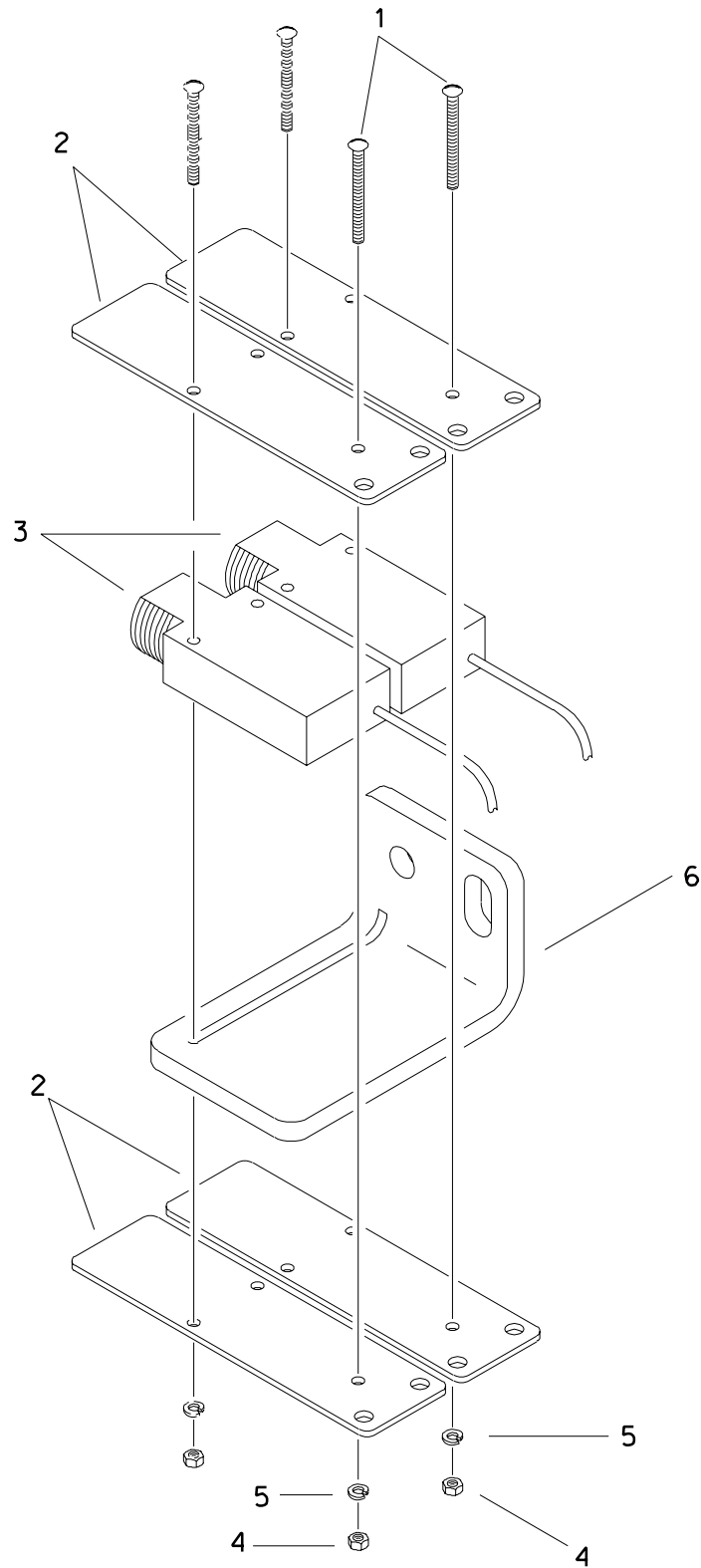


PHOTO-ELECTRIC EYE
ENDS WITH S/N 2S4079

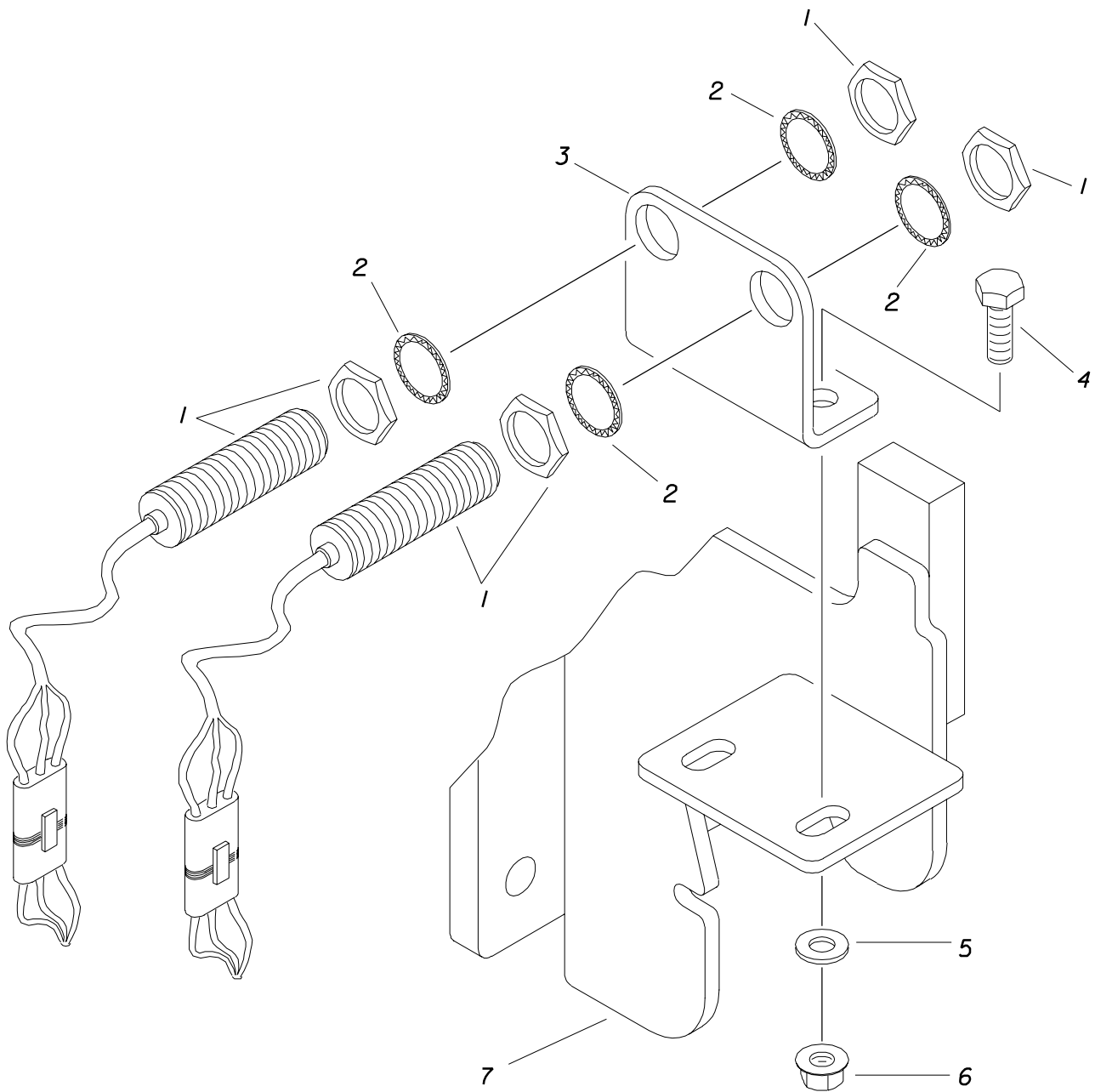
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	105-661	2	BOLT (#4-40 X 1.25")	
2.	343-293	4	COVER PLATE	
3.	214-504	2	PHOTO-ELECTRIC SENSOR	SEE FOOTNOTE 1
4.	105-662	2	NUT (#4-40)	
5.	106-835	2	LOCK WASHER (#4-40, SS)	
6.	343-225	1	ELECTRIC EYE MOUNT	

FOOTNOTES

1. TWO BOLTS, TWO LOCK WASHERS, AND TWO NUTS PROVIDED WITH EACH SENSOR

PROXIMITY SWITCH

ENDS WITH S/N 2S4079

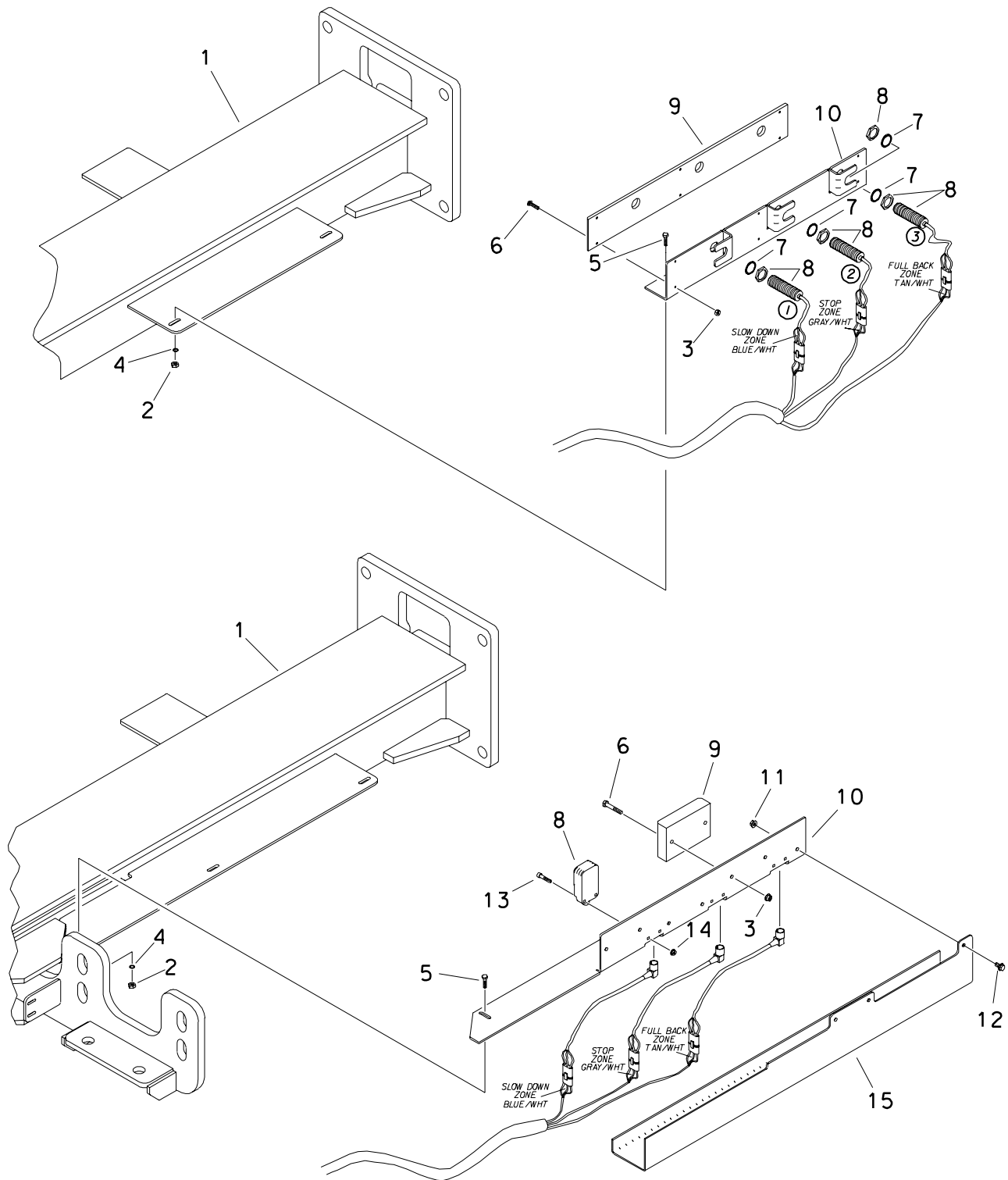


PROXIMITY SWITCH
ENDS WITH S/N 2S4079

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	217-939	2	PROXIMITY SWITCH	
2.	105-498	4	CAM WASHER (3/4")	
3.	343-338	1	PROXIMITY SWITCH MOUNT	
4.	105-806	2	SCREW (M8-1.25 X 25MM)	
5.	106-389	2	WASHER (M8)	
6.	106-561	2	LOCKNUT (M8-1.25, PRV TRQ, 10.9)	
7.	343-236	-	SHUTTLE MOUNT (REAR)	

FOOTNOTES

PROXIMITY SWITCHES BEGINS WITH SIN 254080

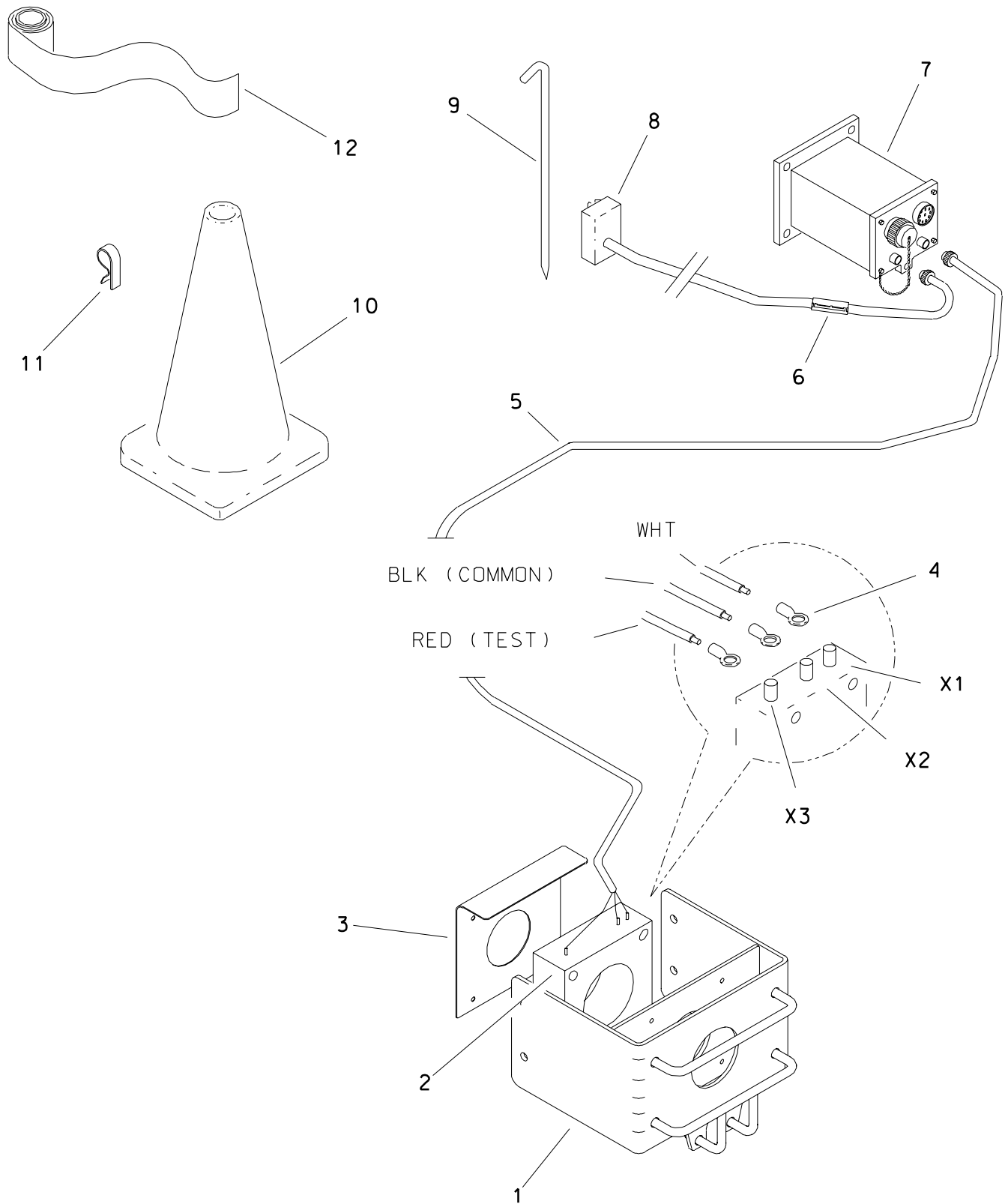


PROXIMITY SWITCHES BEGINS WITH SIN 2S4080

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	353-409	-	DRILL FRAME	
2.	106-385	2	FLG LOCKNUT (M6-1.00)	ENDS W/2S4079
	106-385	3	FLG LOCKNUT (M6-1.00)	BEGINS W/2S4122
3.	106-048	6	LOCKNUT (#10-24)	ENDS W/2S4079
	106-048	4	LOCKNUT (#10-24)	BEGINS W/2S4122
4.	106-389	2	WASHER (M8)	ENDS W/2S4079
	106-389	3	WASHER (M8)	BEGINS W/2S4122
5.	106-848	2	FLG SCREW (M6-1.00 X 25MM)	ENDS W/2S4079
	106-848	3	FLG SCREW (M6-1.00 X 25MM)	BEGINS W/2S4122
6.	105-185	6	BOLT (#10-24 X 1/2", SLT)	ENDS W/2S4079
	105-185	4	BOLT (#10-24 X 1/2", SLT)	BEGINS W/2S4122
7.	105-498	6	CAM WASHER (3/4")	ENDS W/2S4079
8.	217-939	3	PROXIMITY SWITCH	ENDS W/2S4079
	214-692	3	PROXIMITY SWITCH	BEGINS W/2S4122
9.	343-458	1	BEARING PLATE	ENDS W/2S4079
	307-328	2	CENTER SWITCH SLIDE PAD	BEGINS W/2S4122
10.	343-230	1	SWITCH PLATE	ENDS W/2S4079
	306-635	1	CARRIAGE PROX BRACKET	BEGINS W/2S4122
11.	106-385	3	FLG LOCKNUT (M6-1.00)	BEGINS W/2S4122
12.	106-378	3	FLG LK SCREW (M6-1.00 X 12MM)	BEGINS W/2S4122
13.	106-426	6	SCREW (M5-0.80 X 25MM, SOC)	BEGINS W/2S4122
14.	106-850	6	LOCKNUT (M5-0.80)	BEGINS W/2S4122
15.	307-890	1	COVER PLATE	BEGINS W/2S4122

FOOTNOTES

ELECTRIC STRIKE SYSTEM



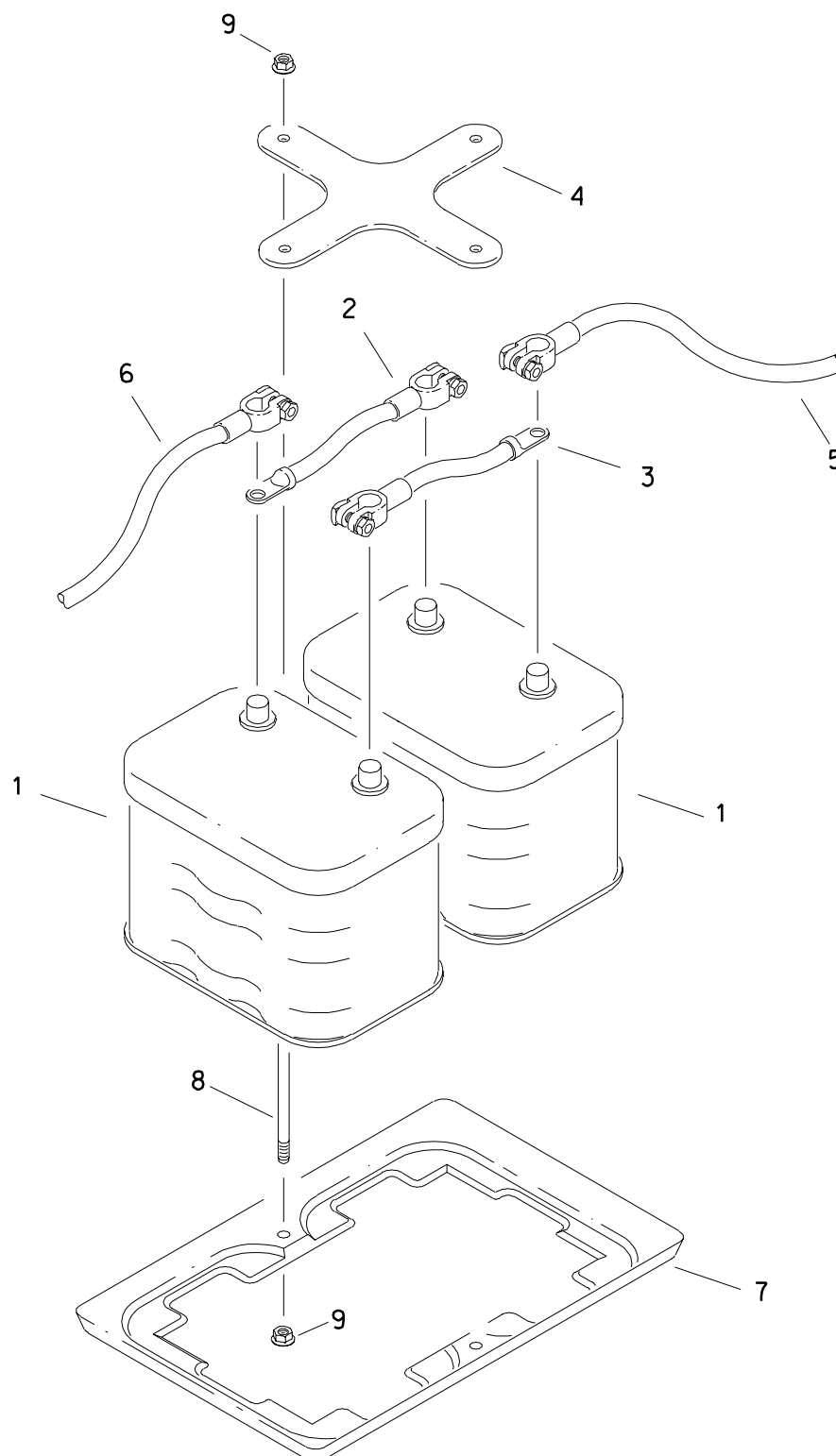
ELECTRIC STRIKE SYSTEM

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	350-627	-	COIL MOUNT	
2.	216-023	-	CURRENT TRANSFORMER	SEE FOOTNOTE 1.
3.	362-623	-	COIL COVER (BACK)	
4.	215-476	3	RING TERMINAL (#10)	
5.	214-421	1	EL SR SYSTM CABLE (8.8M)	
6.	217-331	1	SMALL FERRITE CLAMP-ON	
7.	217-232	-	EL STR SYS CONTROL MODULE	
	197-232	-	ESID MODULE REBUILT	USE-ON 217-232
8.	216-032	1	VOLT LIMITER (EL STR SYSTM)	
9.	215-799	1	VOLTAGE STAKE	
10.	259-210	8	TRAFFIC CONE - ORANGE	
11.	259-234	8	CONE CLIP	
12.	260-223	1	BARRIER TAPE (3" X 1000")	

FOOTNOTES

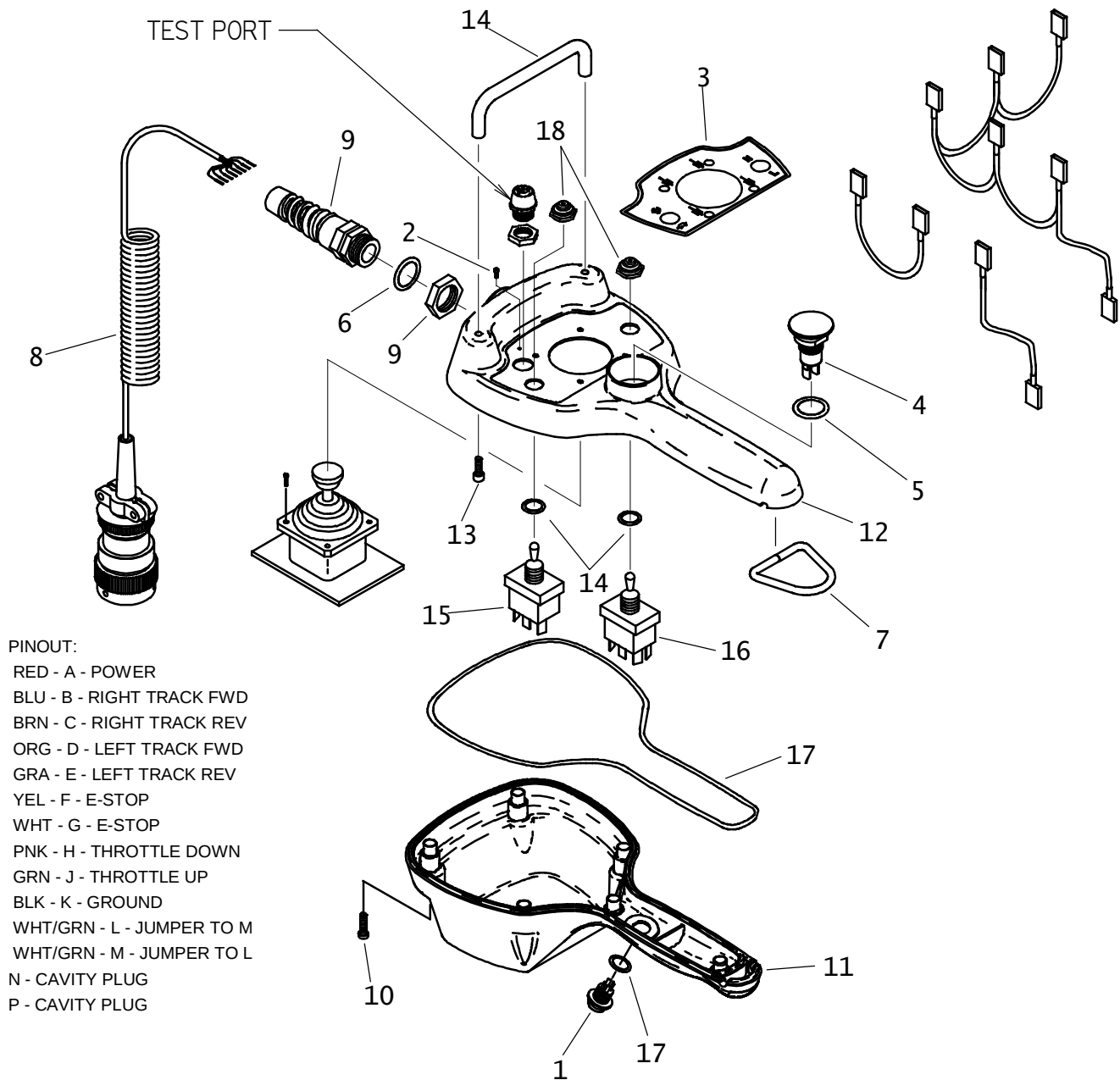
1. REF 2 OBSOLETE. 216-023 REPLACED WITH 101-150.

DUAL BATTERY KIT



1. REFER TO INSTRUCTIONS 051-251.
2. LOCATE DECAL ON BATTERY SO THAT DECAL IS VISIBLE WHEN VIEWING BATTERY.

GROUND DRIVE CONTROL



GROUND DRIVE CONTROL

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	214-614	1	PUSH BUTTON SWITCH (SPST) OFF-(ON)	
2.	106-790	1	SCREW	
3.	214-998	1	DECAL	
4.	214-615	1	KILL SWITCH	
5.	157-040	1	O-RING	
6.	157-017	1	O-RING	
7.	105-775	1	D-RING	
8.	211-024	1	COILED CORD-FEMALE	
9.	211-021	1	STRAIN RELIEF	
10.	106-876	6	SCREW	
11.	214-497	1	LOWER HOUSING	
12.	214-498	1	UPPER HOUSING	
13.	116-933	1	HANDLE	
	106-894	2	SCREW (#8-32 X 1" PLPS SS)	SEE FOOTNOTE 1
14.	157-039	2	O-RING	
15.	217-896	1	TOGGLE SWITCH	
16.	214-570	1	TOGGLE SWITCH (DPDT) ON-OFF-ON	
17.	116-549	AR	ROPE GASKET (USE 27")	
18.	214-728	2	TOGGLE SWITCH HALF BOOT (SEAL)	

NOT SHOWN:

FOOTNOTES:

1. APPLY THREAD LOCKING COMPOUND TO BOTH HANDLE SCREWS.

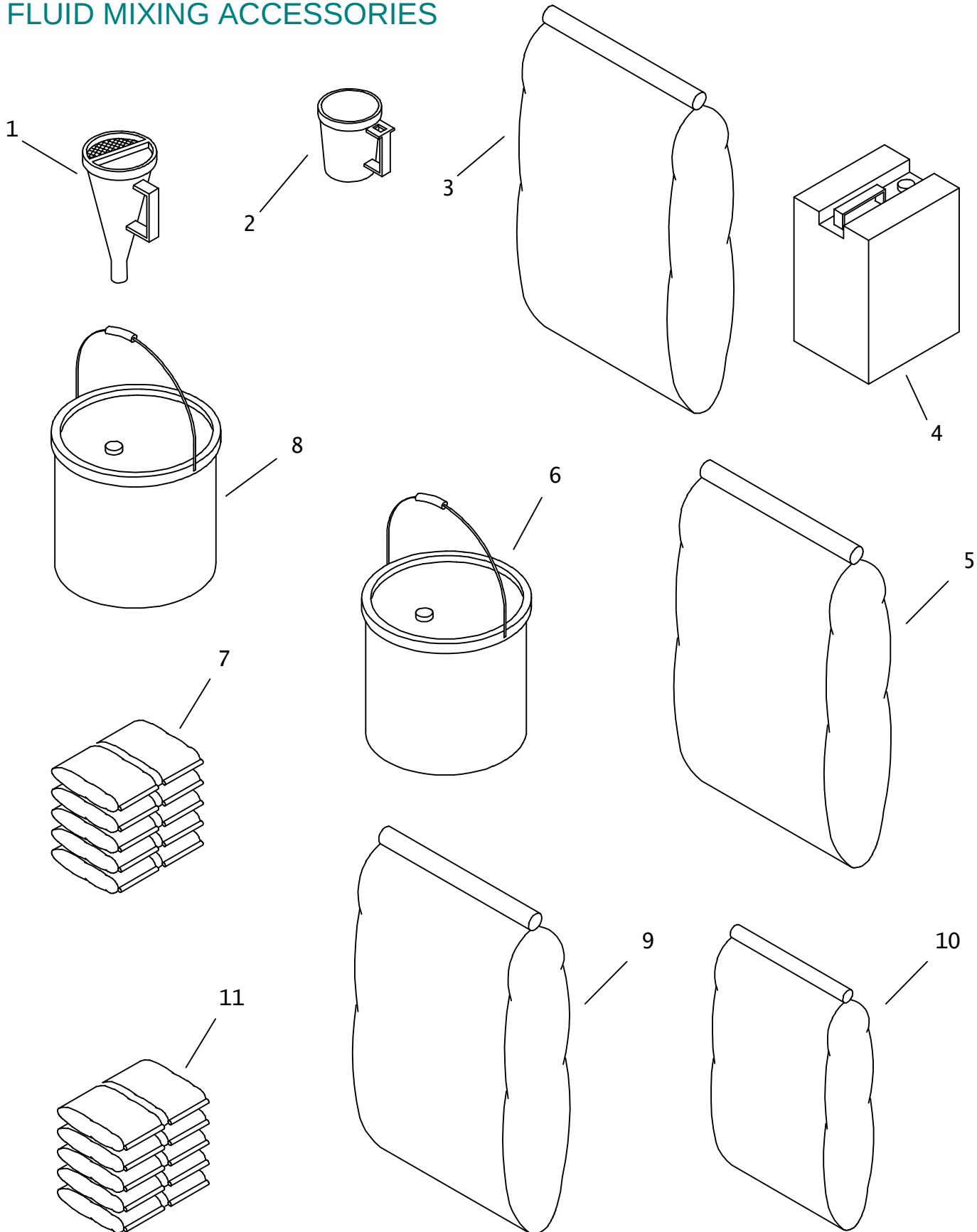
NOTE:

NOTES:

[illegible]

ACCESSORIES

FLUID MIXING ACCESSORIES



FLUID MIXING ACCESSORIES

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

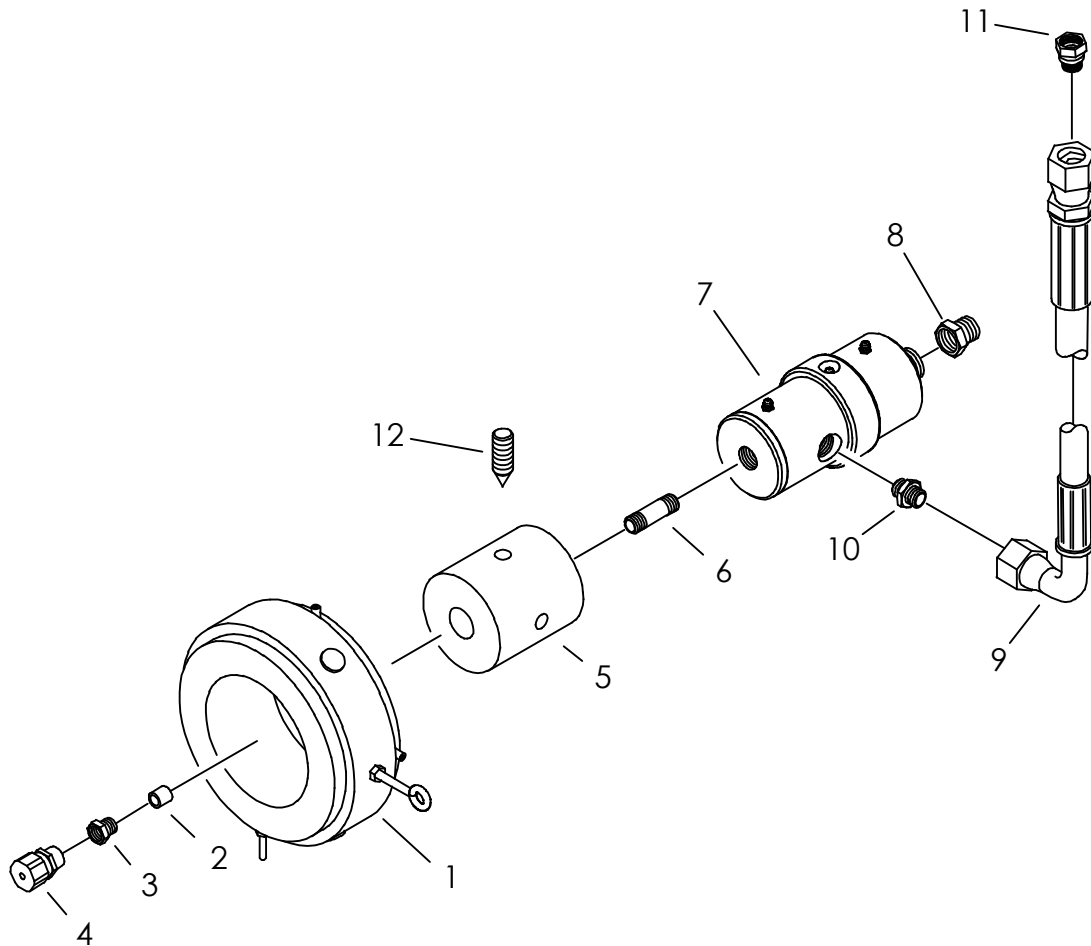
NOT SHOWN:

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

FOOTNOTES:

NOTE:

WIRE LINE ASSEMBLY



WIRE LINE ASSEMBLY

REF	PART				
NO.	NUMBER	QTY	DESCRIPTION		REMARKS
1.	358-860	1	COLLECTOR RING		
2.	115-155	1	COLLAR (08NF-08NF)		
3.	115-156	1	REDUCER (08N-06NF)		
4.	358-855	1	PACK-OFF FITTING (.125-.187)		
5.	306-980	1	ADAPTER, COLLECTOR RING		
6.	115-162	1	NIPPLE (08N-4")		
7.	159-288	1	WATER SWIVEL THRU SHAFT		
8.	115-151	1	REDUCER (16N-12NF)		
9.	154-867	1	HOSE (120FX90-36"-2250)		
10.	149-595	1	CONNECTOR (8N-120)		
11.	154-378	1	REDUCER STEM (120-160F)		
12.	105-707	4	SET SCREW (1/4-NF X3/8",CUP)		

NOT SHOWN:

FOOTNOTES:

NOTE:

NOTES:

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

Related Publications

Component	Ass'y	P/N
<u>Model:</u>		
JT2720 Parts Manual		053-471
JT2720 Operators Manual		054-521
JT2720 Repair Guide (Service Manual)		055-519
JT2720 Supplementary Maint Guide - Trenchless		055-485
JT2720 Special Tools Guide		052-901
<u>Engine:</u>		
John Deere Parts Manual - 4045TF150	194-020	053-059
John Deere Operators Manual - 4045TF150		054-049
John Deere Service (Shop) Manual - 4045TF150		054-049

Filters

<u>Engine:</u>		
Air Filter Parts Ass'y		120-081
Element (primary)		194-830
Oil Filter Element (spin-on) - John Deere (4045TF150)		194-815
Fuel Filter Element (spin-on) - John Deere (4045TF150)		159-231
Fuel Strainer (04H)		156-268
Fuel Filter Element (water trap, clamp-on) - 3.75" x 5.00" x 3.12"		159-009
Element (water trap, clamp-on) - 3.75" x 5.00" x 3.25", Early Style .		159-111
<u>Hydraulic:</u>		
Oil Filter Element (1-3/8-UNF, spin-on)		159-074
Element (1-1/2-UNF, spin-on, Replacement)		159-079
Element (1-1/2-UNF, spin-on, Break-In)		149-840
<u>Water {H2O}:</u>		
Water Strainer (2.250" x 7.0") - Y-Strainer		159-239

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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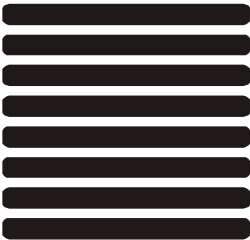
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