

# ***Ditch Witch***<sup>®</sup>

## **JT7020**

ISSUE NO. 05PL-08/11

For Replacement Copy Order **P/N 053-473**

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

**US** B1 4,858,704; 4,953,638; 5,148,880; 5,242,026; 5,341,887; 5,490,569; 5,684,466; 5,713,423, 5,794,719; 5,880,680; 5,941,322; 6,085,852; 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; 6,776,246; 6,808,210; 6,827,158; RE37,450; RE37,923; RE37,975; RE38,418

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

**CA** 2,156,398

**FR** 674,093

**DE** 694 17 019; 695 29 634; 297 01 406

**EP** 0683845; 0674093; 0817901; 0846841


**GB** 2,209,239; 2,312,006; EP674,093; EP846,841

**JP** 3,458,247

**Other U.S. and foreign patents pending**

This manual contains information concerning the following models:  
**JT7020 Directional Drilling System**

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

ID0040617



# FOREWORD

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

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

**Keep the following in mind when ordering ProTech replacement parts:**

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

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

# WARRANTY

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DW WARRANTY Policy  
July, 2005

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

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

### **EXCLUSIONS FROM PRODUCT WARRANTY**

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

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

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

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

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

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

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



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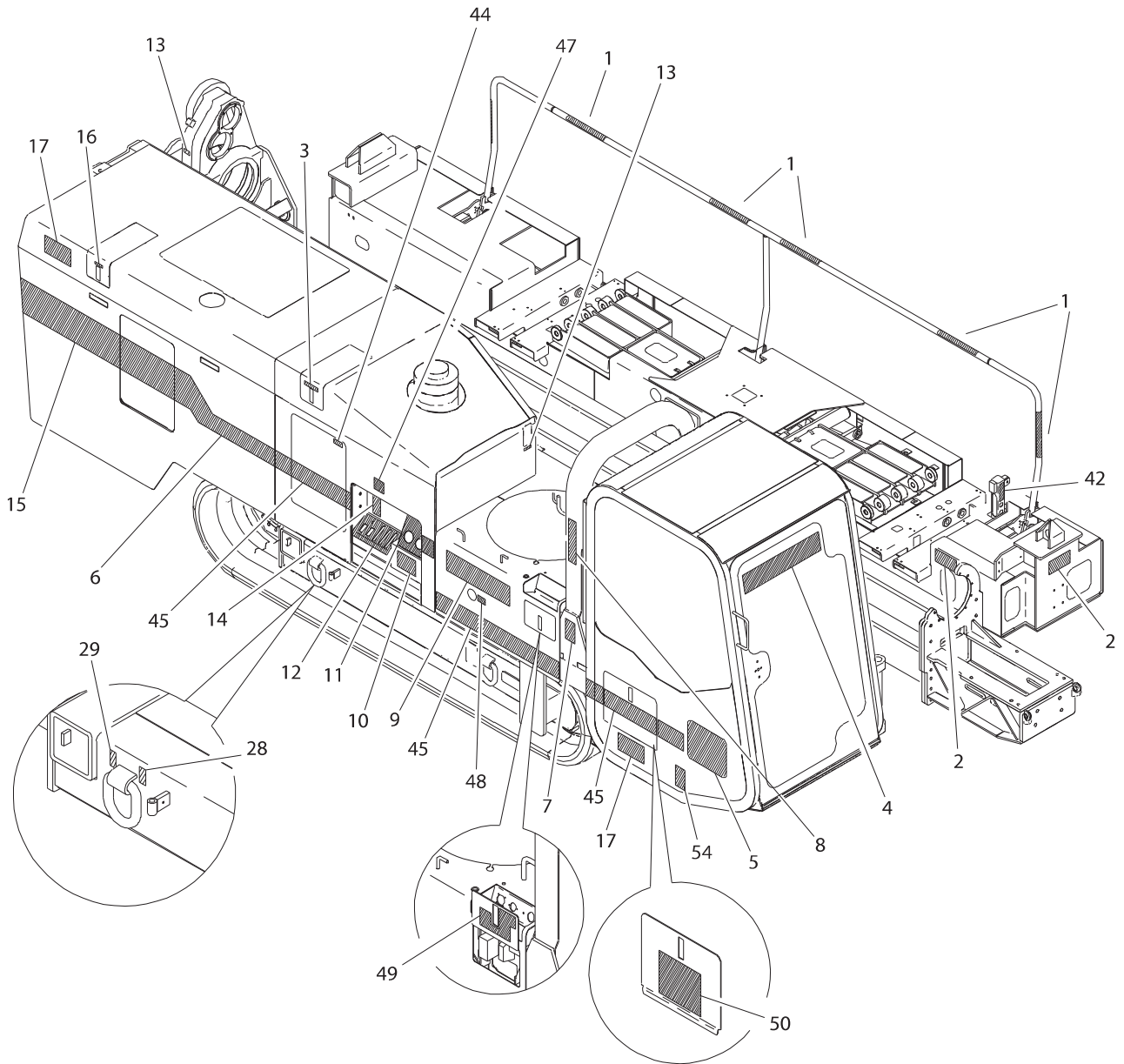
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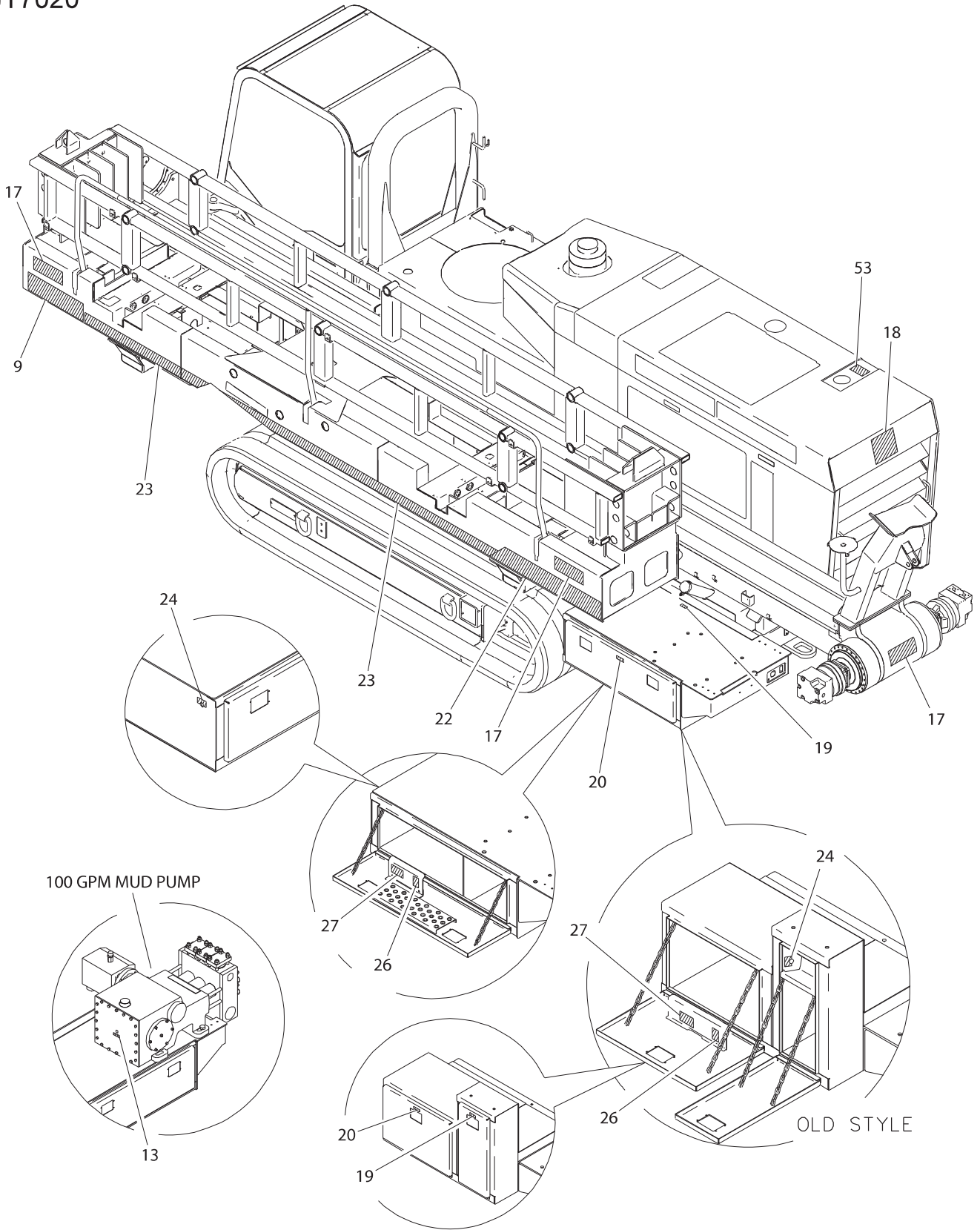
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# DECALS

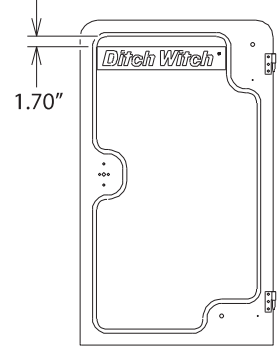
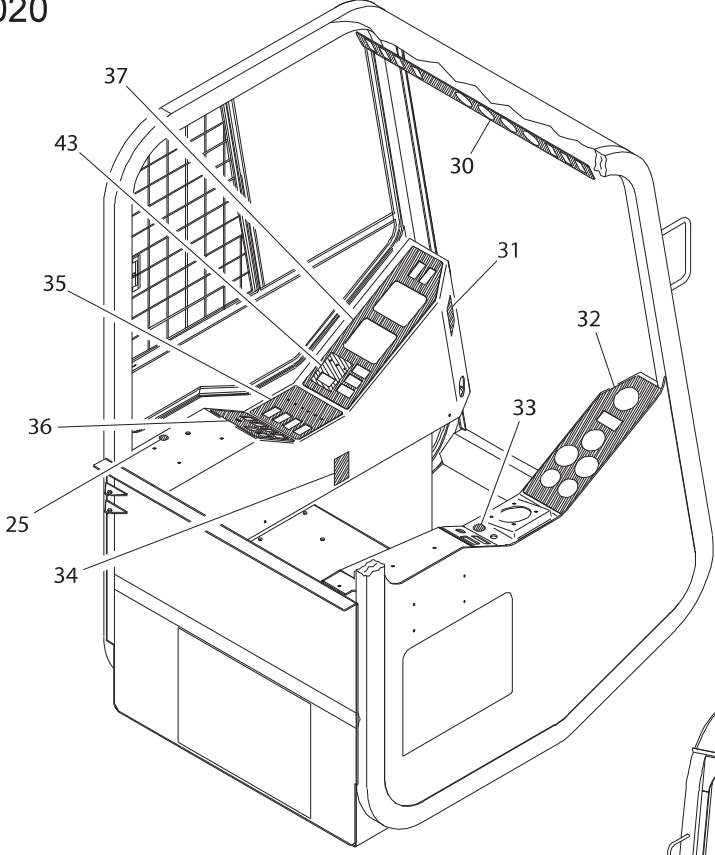
# DECAL LOCATION JT7020



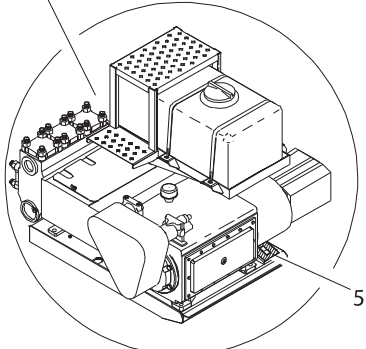
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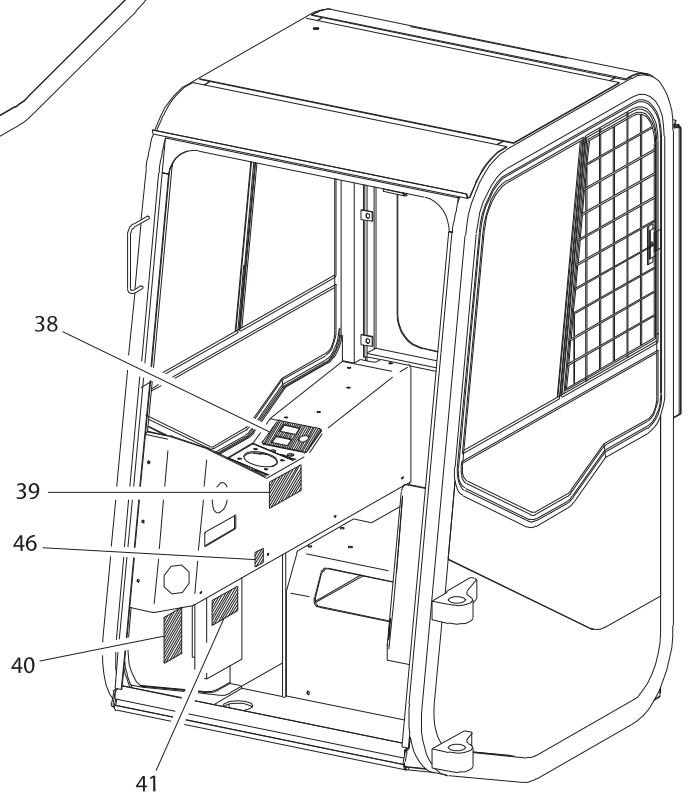
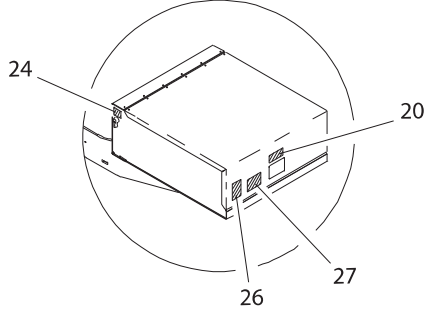
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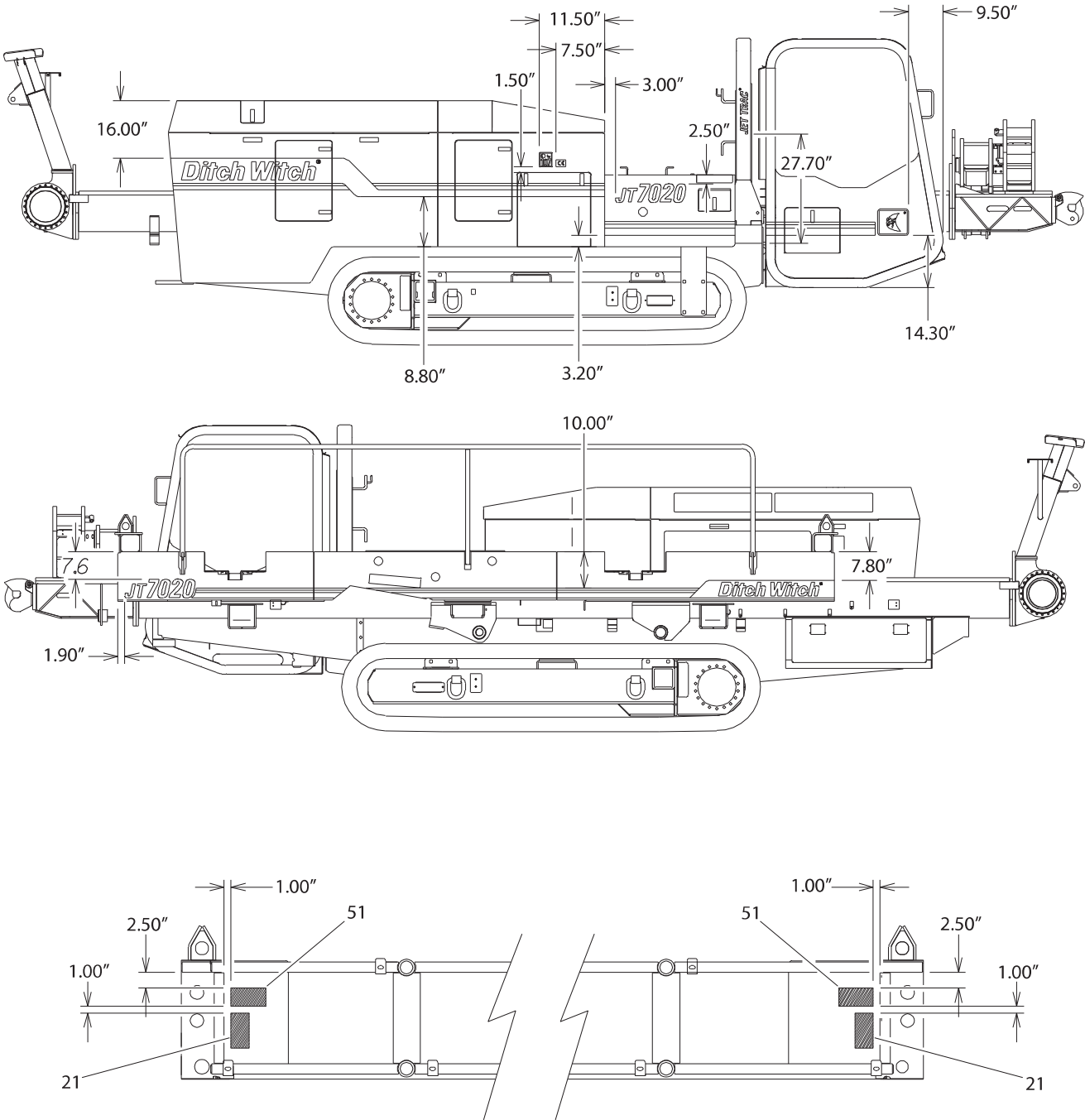
200 GPM MUD PUMP



BEGINS WITH S/N 251115



# DECAL LOCATION JT7020



## DECAL LOCATION JT7020

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	275-895		DECAL KIT - JT7020	
I	275-230	6	DANGER STRIPE (1.75" X 18")	
2	275-197	2	DANGER ROTATING SHAFT	
3	275-120	1	RESERVOIR (THF)	
	274-672	1	ENVIRO HYDRAULIC RESERVOIR	SEE FOOT NOTE I
4	274-997	1	SEE-THRU LOGOTYPE	BEGINS WITH S/N 2R1847
	274-243	1	SEE-THRU LOGOTYPE	ENDS WITH S/N 2R1779
5	274-853	1	DITCH WITCH LOGO	
6	274-873	1	RIGHT GRAPHIC STRIPE	
7	274-204	1	CRUSHING FORCE HAZARD ALERT	
8	274-875	1	JET TRAC LOGOTYPE	
9	274-871	2	JT7020 MODEL IDENTIFIER	
10	274-050	1	WARNING JOBSITE HAZARD	
II	274-856	1	GAUGE PANEL	
12	274-771	1	SET-UP CONTROL PANEL	
13	275-023	3	OIL LEVEL	
14	274-855	1	TEST PORTS	
15	274-872	1	DITCH WITCH GRAPHIC STRIPE	
16	275-149	1	COOLANT	
17	274-049	5	DANGER ELECTROCUTION	
18	274-854	1	LOGO PLACARD	
19	275-148	1	FUEL TANK (DIESEL)	
20	275-203	1	BATTERY	
21	275-184	32	WARNING MOVING PARTS	4 PER PIPE BOX
22	274-876	1	DITCH WITCH GRAPHIC STRIPE	
23	274-877	AR	GRAPHIC STRIPE (SOLD PER INCH)	USE 138"
24	274-375	1	MASTER DISCONNECT SWITCH	
25	274-857	1	CAB SWING LOCK/UNLOCK	SEE FOOT NOTE 2
26	275-419	1	WARNING	
27	275-033	1	NOTICE ELECTRICAL SYSTEM	
28	274-442	4	LIFT LOCATION	
29	274-318	4	TIE DOWN LOCATION	
30	274-767	1	TOP INSTRUMENT PANEL	
31	274-724	1	ONE CALL NOTIFICATION	
32	274-765	1	RIGHT INSTRUMENT PANEL	
33	275-222	1	ENGINE STOP	BEGINS WITH S/N 2R0314
	274-858	1	REMOTE START/STOP	NOT PART OF KIT: ENDS WITH S/N 2R0146
34	274-852	1	CLIMATE CONTROL	
35	274-770	1	LEFT CONTROL PANEL	
36	274-769	1	HORN-BRAKE-THROTTLE-FLUID	
37	274-766	1	LEFT INSTRUMENT PANEL	
38	274-768	1	RIGHT CONSOLE PANEL	
39	274-830	1	JOYSTICK CONTROL	
40	274-780	1	JET TRAC PATENT (S)	
41	275-048	1	IMPORTANT SAFETY RULES	
42	274-831	1	PIPE ROW INDICATOR	

### FOOTNOTES

I. P/N 274-672 IS NOT PART OF KIT. SEE 191-046 ENVIRONMENTAL HYDRAULIC OIL KIT.



## DECAL LOCATION JT7020

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
43	274-908	1	AUTO LOAD OVERLAY	
44	275-400	1	NOTICE OIL LEVEL	
45	274-874	AR	GRAPHIC STRIPE (SOLD PER INCH)	USE 157"; SEE FOOTNOTE 2
46	274-923	1	POWER POINT	
47	274-291	1	SOUND POWER 10	SEE FOOTNOTE 3
48	274-933	1	LUBRICATION	
49	274-926	1	FUSE PANEL JT7020	
50	274-955	1	ELECTRICAL PANEL	
51	275-326	32	WARNING CRUSHING WEIGHT	4 PER PIPE BOX
52	274-859	1	WASH WAND	USE BEGINNING WITH S/N 2S1115
53	273-138	1	NOTICE COOLANT	
54	273-278	1	DANGER WRENCH	

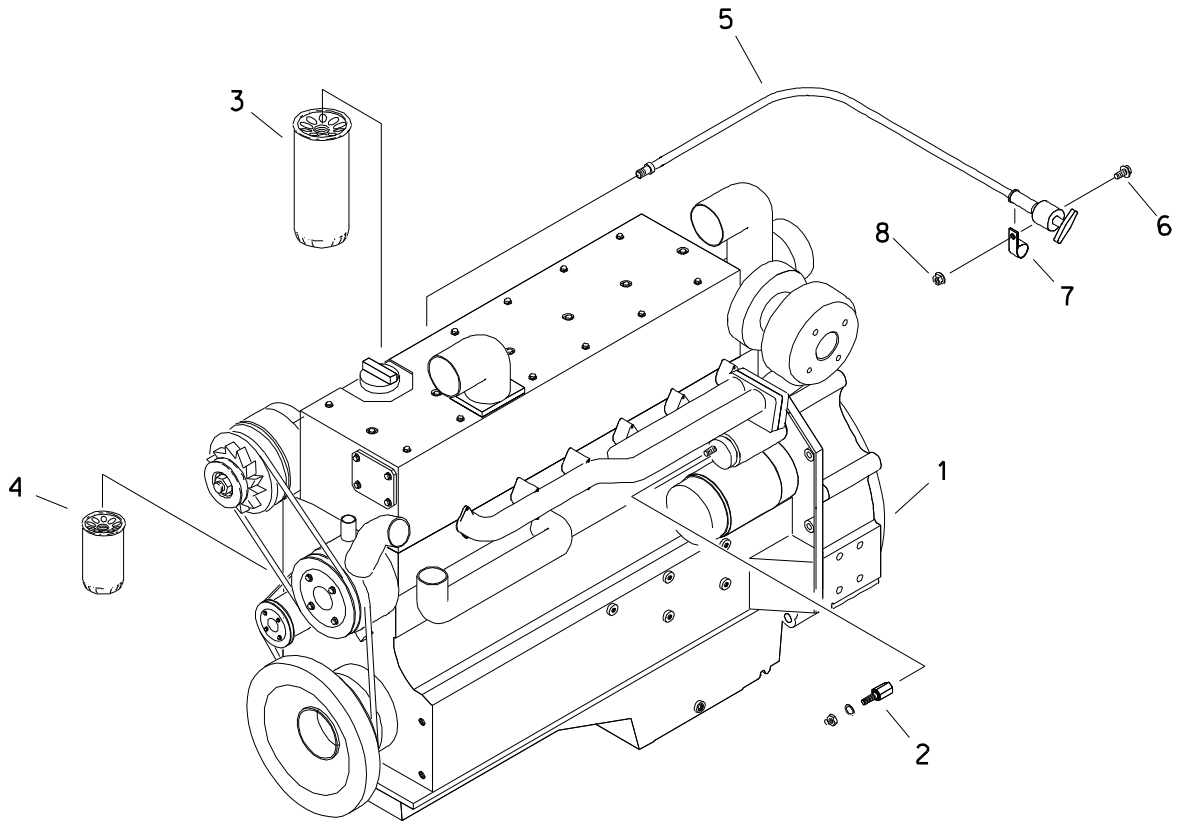
### FOOTNOTES

1. APPLY AROUND BACK OF OPERATOR'S STATION.
2. NOT PART OF KIT. FOR EUROPEAN UNITS ONLY.

<b>NOTES:</b>

# **ENGINE COMPONENTS**

# ENGINE

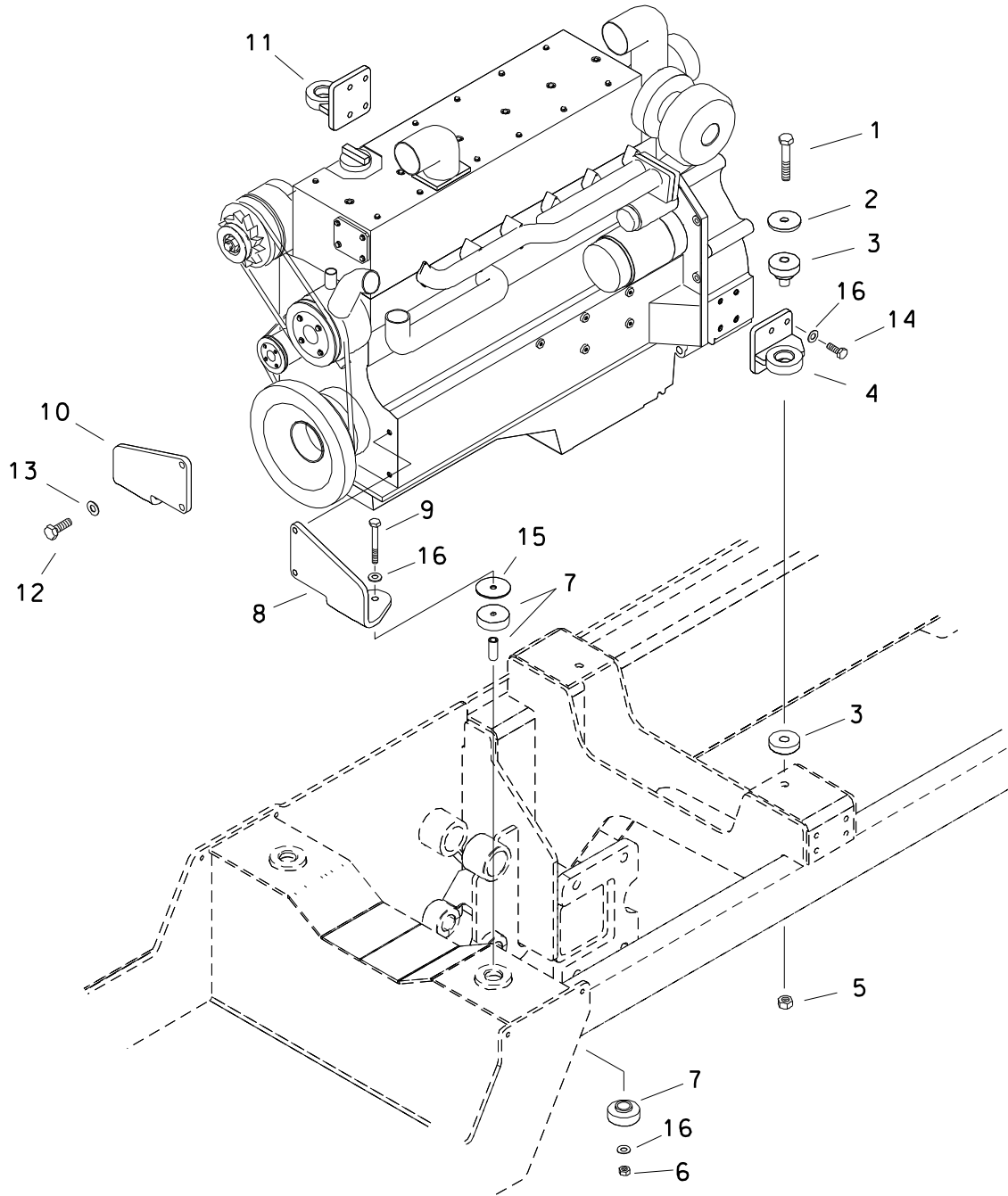


# ENGINE

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	194-776	1	ENGINE (DEUTZ, 221hp)	INCL REF NO'S 3 & 4
	159-435		FUEL PRE-FILTER	
	168-618		THERMOSTAT GASKET	
	171-014		BELT- ALTERNATOR	
	171-015		BELT- WATER PUMP	
	194-833		STARTER	
	194-834		WATER PUMP	
	194-835		THERMOSTAT	
	194-836		FUEL LIFT PUMP	
	194-837		FUEL GALLEY CHECK VALVE	
	194-838		EXHAUST MAINFOLD GASKET	
	194-839		EXHAUST FLANGE GASKET	
	194-840		RUBBER MANIFOLD	
	217-452		ALTERNATOR	
	214-636		OIL PRESSURE SENDER	
	214-637		TEMPERATURE SWITCH	
	116-986		BULK INJECTOR RETURN HOSE	
2.	159-448	1	ADAPTER	
3.	159-332	1	OIL FILTER ELEMENT (SPIN-ON)	
4.	159-334	1	FUEL FILTER ELEMENT (SPIN-ON)	USE LOCTITE 242 OR EQUIVALENT
5.	194-792	1	FLUID LEVEL INDICATOR	
6.	106-382	1	FLG LK BOLT (M10-1.50 X 20mm)	
7.	110-333	1	BOLT-ON CLAMP (1")	
8.	106-387	1	FLG LOCKNUT (M10-1.50)	

FOOTNOTES

# ENGINE MOUNT

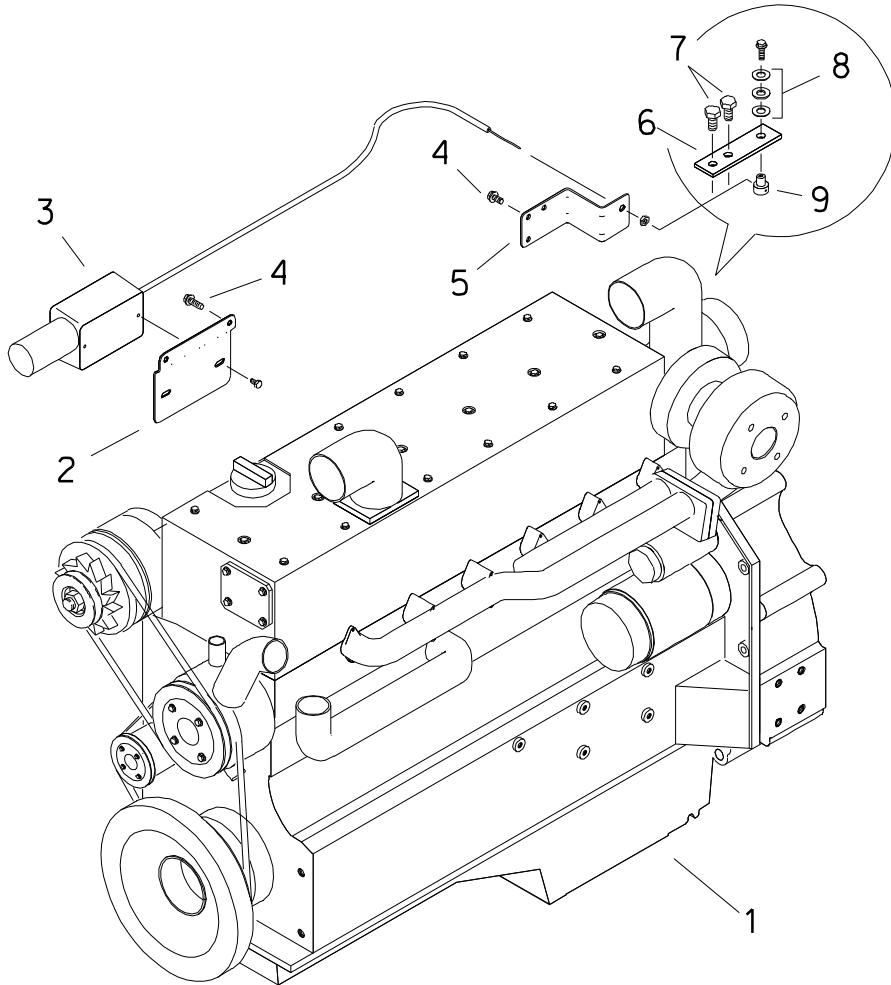


# ENGINE MOUNT

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	107-144	2	SCREW (M16-2.00 X 100mm)	
2.	105-964	2	WASHER (5/8")	
3.	116-691	2	SHOCK MOUNT (REAR)	
4.	349-078	1	REAR ENGINE MOUNT (LH)	
5.	106-545	2	LOCKNUT (M16-2.00)	
6.	106-685	2	LOCKNUT (M12-1.75, PRV TRQ)	
7.	116-690	2	SHOCK MOUNT (FRONT)	
8.	349-071	1	FRONT ENGINE MOUNT (RT)	
9.	106-336	2	SCREW (M12-1.75 X 90mm)	
10.	349-075	1	FRONT ENGINE MOUNT (LFT)	
11.	349-077	1	REAR ENGINE MOUNT (RH)	
12.	105-998	4	SCREW (M16-2.00 X 40mm)	TORQUE TO 140 FT LBS; USE LOCTITE 242 OR EQUIVALENT
13.	106-398	4	WASHER (M16, HARDENED)	
14.	105-273	8	SCREW (M12-1.75 X 30mm)	TORQUE TO 60 FT LBS; USE LOCTITE 242 OR EQUIVALENT
15.	178-072	2	SPACER	
16.	106-397	12	WASHER (M12, HARDENED)	

FOOTNOTES

# THROTTLE



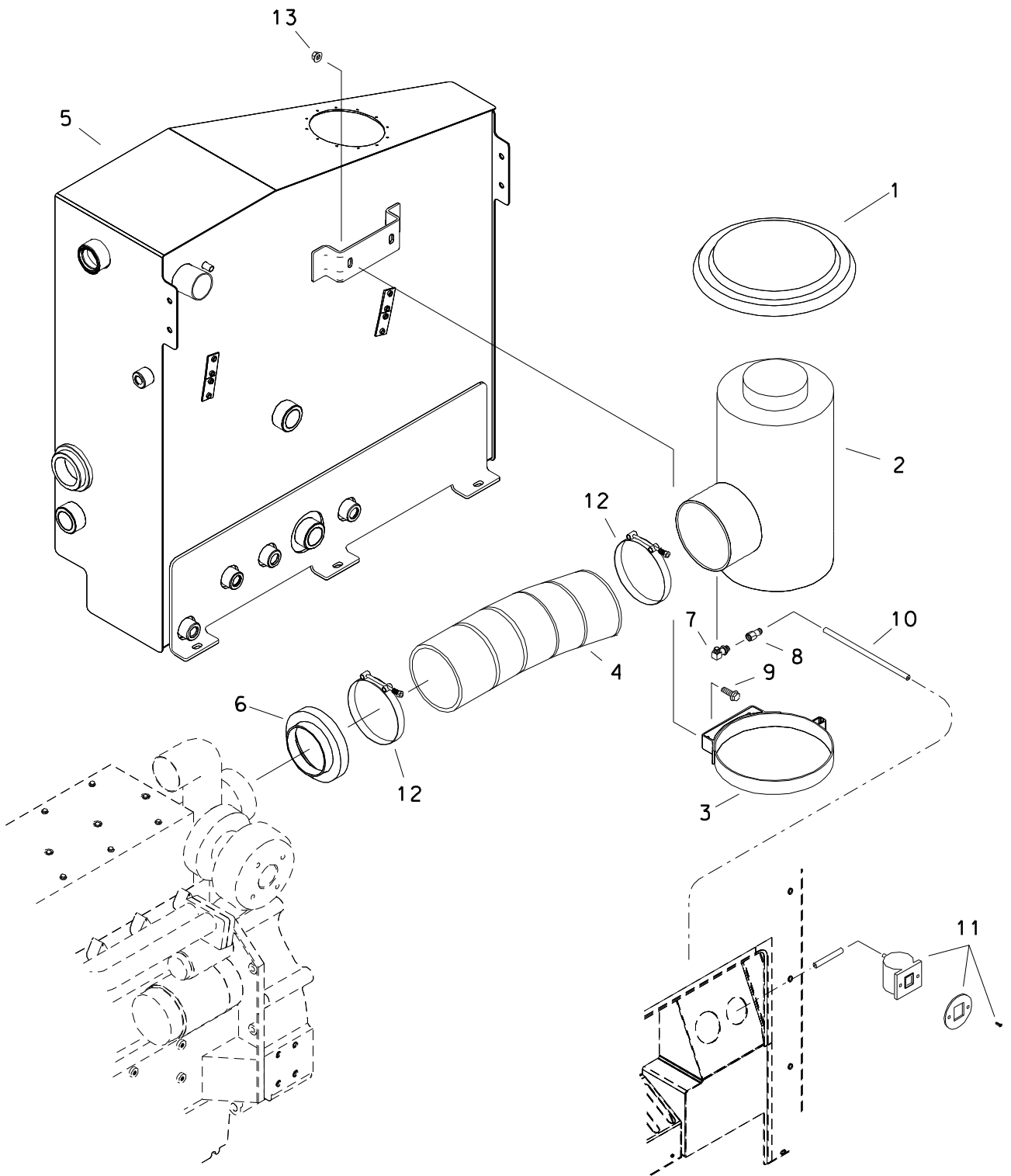


# THROTTLE

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	194-776	-	ENGINE (DEUTZ, 221HP)	
2.	349-012	1	MOUNT BRACKET	
3.	215-231	1	LINEAR ACTUATOR	
4.	106-380	5	FLG SCREW (M8-1.25 X 16MM)	
5.	349-014	1	CABLE BRACKET	
6.	349-826	1	SWIVEL ARM	
7.	106-378	2	FLG LK SCREW (M6-1.00 X 12MM)	
8.	106-388	3	WASHER (M6)	
9.	196-058	1	CABLE SWIVEL (.081")	

FOOTNOTES

## AIR FILTER SYSTEM



# AIR FILTER SYSTEM

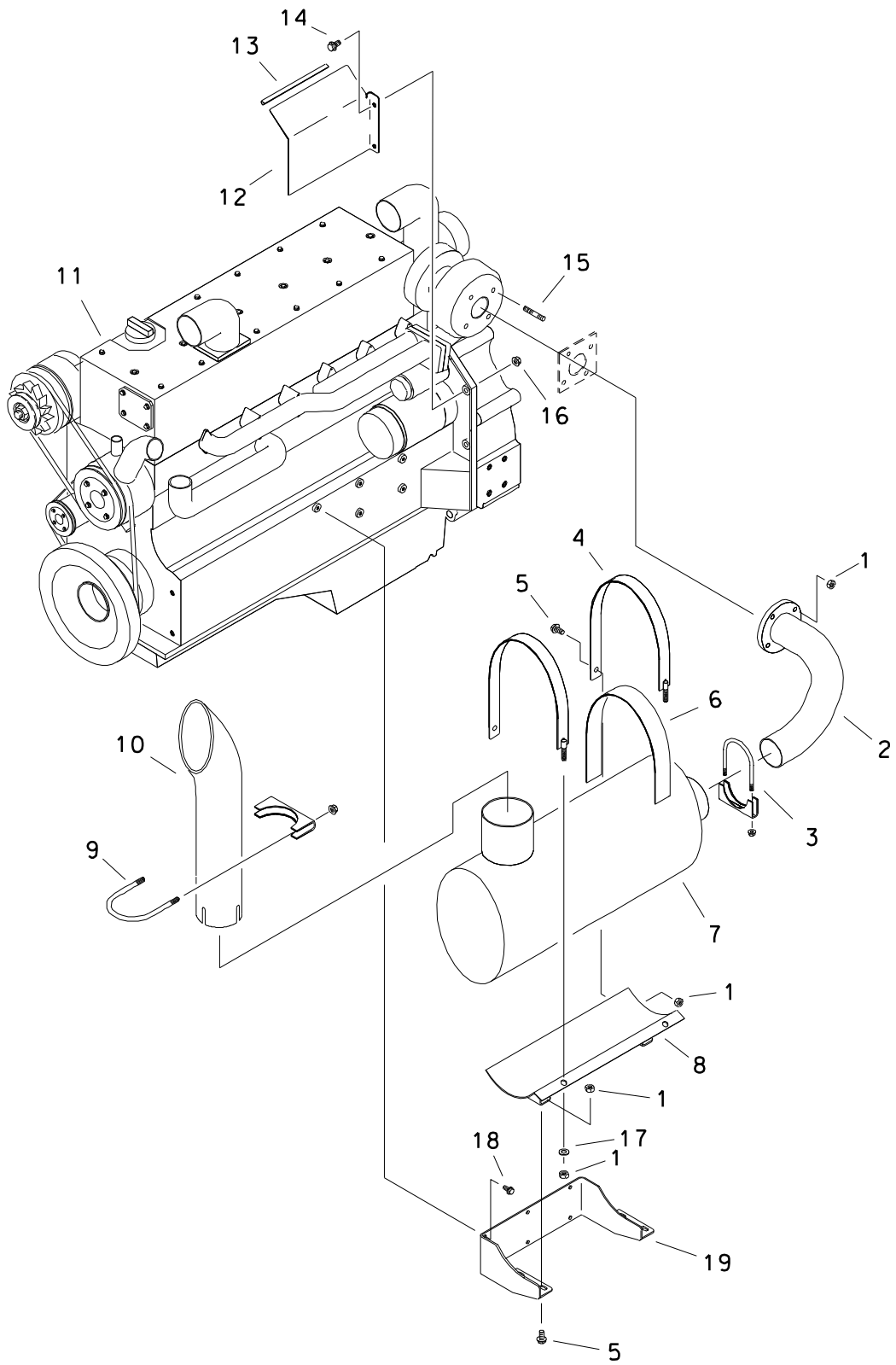
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	196-317	1	STACK CAP (5")	
2.	195-448	1	AIR FILTER	
3.	195-705	1	MOUNTING CLAMP (9.000")	
4.	116-695	1	HOSE	AIR CLEANER TO TURBO
5.	349-070	-	HYDRAULIC RESERVOIR	
6.	349-009	1	SLEEVE	
7.	156-228	1	CONNECTOR (O2N-O2NF90)	
8.	155-150	1	S/O COUPLER (O2N-O2H)	
9.	106-382	2	FLG LK SCREW (M10-1.50 X 20mm)	
10.	116-192	AR	BULK HOSE (7/64", SOLD PER 1')	USE 1 @ 40"
11.	215-150	1	RESTRICTION INDICATOR (20", H20)	
12.	110-986	2	T-BOLT CLAMP (6" - 6.24")	
13.	106-387	2	FLG LOCKNUT (M10-1.50)	

NOT SHOWN:

194-822 PRIMARY ELEMENT

FOOTNOTES

## EXHAUST

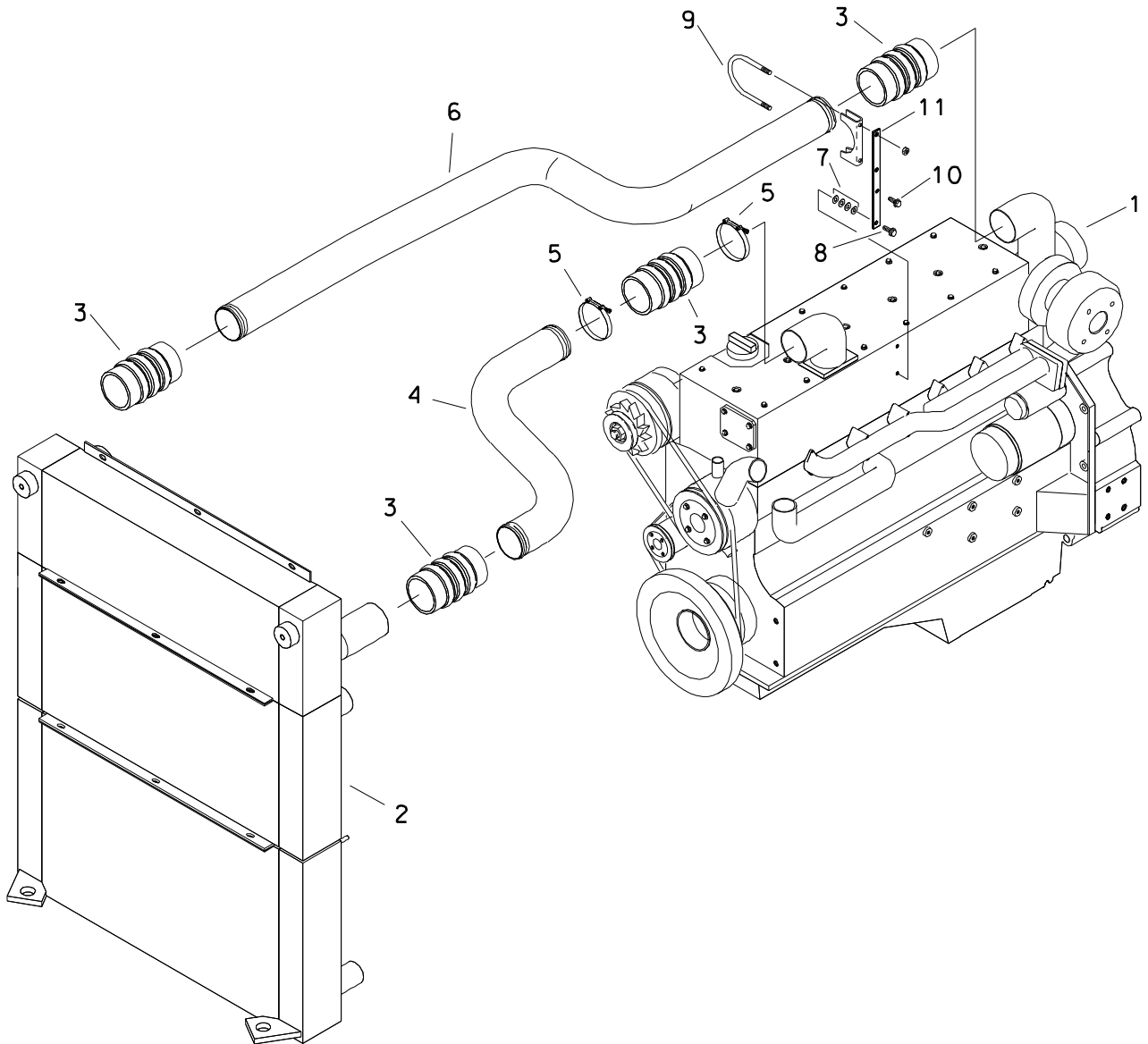


# EXHAUST

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	105-894	12	LOCKNUT (M10-1.50, PRV TRQ)	
2.	349-080	1	EXHAUST TUBE	
3.	196-341	1	MUFFLER CLAMP (2-3/4")	
4.	349-895	2	MUFFLER STRAP	
5.	105-274	6	SCREW (M10-1.5 X 20mm)	
6.	115-834	AR	EXHAUST WRAP (2", SOLD PER 1')	USE 2 @ 36"
7.	194-016	1	EXHAUST SILENCER	
8.	349-082	1	MUFFLER MOUNT	
9.	196-214	1	U-BOLT CLAMP (4")	
10.	196-318	1	EXHAUST STACK	
11.	194-776	-	ENGINE (DEUTZ, 221HP )	
12.	349-011	1	HEAT SHIELD	
13.	115-686	AR	BULK EDGE (5/32", SOLD PER 1')	USE 1 @ 9"
14.	106-163	2	FLG SCREW (M8-1.25 X 30mm)	
15.	106-139	4	STUD BOLT (M10-1.5 X 42mm)	
16.	106-386	2	FLG LOCKNUT (M8-1.25)	
17.	106-390	4	WASHER (M10)	
18.	106-380	5	FLG LK SCREW (M8-1.25 X 16mm)	
19.	370-318	1	MOUNT PLATE	

FOOTNOTES

## CHARGE AIR COOLER

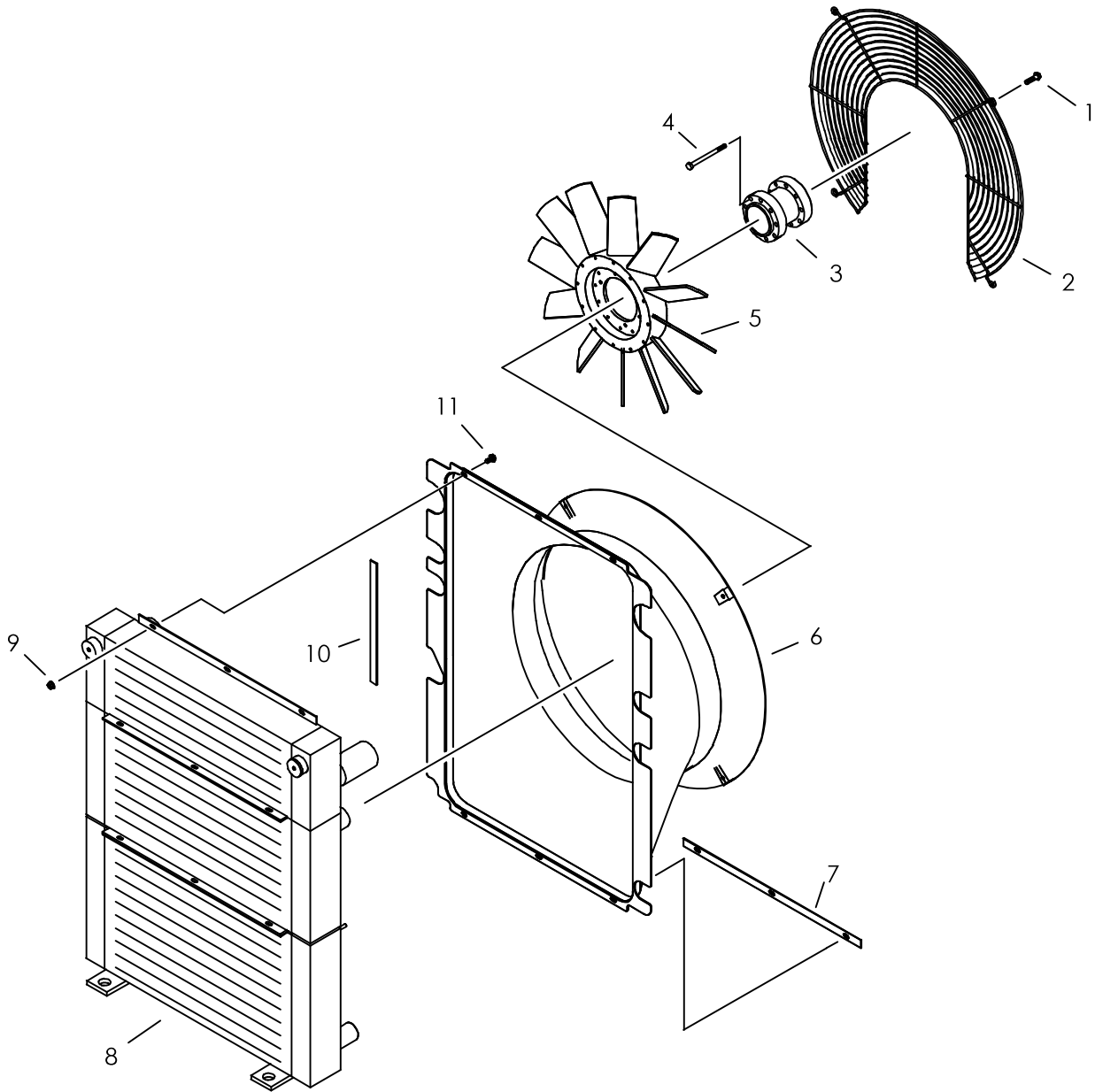


# CHARGE AIR COOLER

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	194-776	-	ENGINE -DEUTZ DIESEL	
2.	306-818	-	RADIATOR	
3.	116-703	4	CHARGE AIR COOLER HOSE	
4.	156-813	1	HYD LINE (48H-18.314")	TURBO TO COOLER
5.	110-959	8	T-BOLT CLAMP (3")	
6.	156-814	1	HYD LINE (48H-50.18")	COOLER TO TURBO
7.	106-389	4	WASHER (M8)	
8.	106-381	1	FLG LK SCREW (M8-1.25 X 25mm)	
9.	196-010	1	U-BOLT CLAMP (3")	
10.	106-380	1	FLG LK SCREW (M8-1.25 X 16mm)	
11.	349-896	1	CLAMP BAR	

FOOTNOTES

# FAN DRIVE





## FAN DRIVE

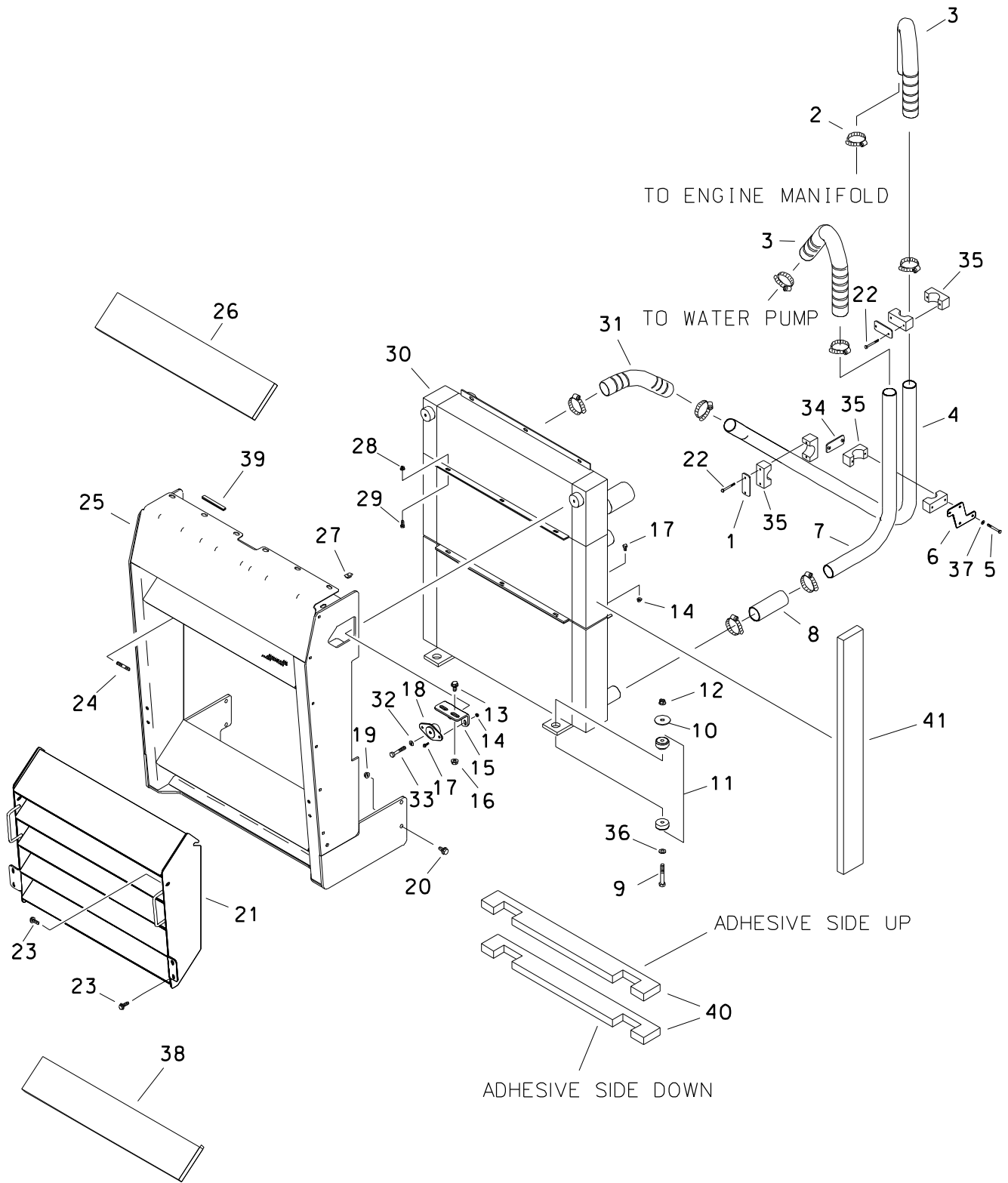
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	106-724	4	FLG SCREW (M10-1.5 X 25mm)	
2.	196-320	1	FAN GUARD	
3.	349-013	1	FAN SPACER	
4.	107-288	9	SCREW (M10-1.5 X 180mm, 10.9)	TORQUE TO 47 FT LBS; USE 242 LOCTITE OR EQUIVALENT
5.	194-779	1	FAN (26")	OBSOLETE
6.	196-314	1	FAN SHROUD	OBSOLETE
7.	349-863	1	SHROUD PLATE	
8.	306-818	-	RADIATOR	
9.	106-386	6	FLG LOCKNUT (M8-1.25)	
10.	115-380	AR	WEATHER STRIP (3/8" X 3/4")	USE 1 @ 94"
11.	106-381	6	FLG LK SCREW (M8-1.25 X 25mm)	

NOT SHOWN:

FOOTNOTES:

NOTE:

# RADIATOR

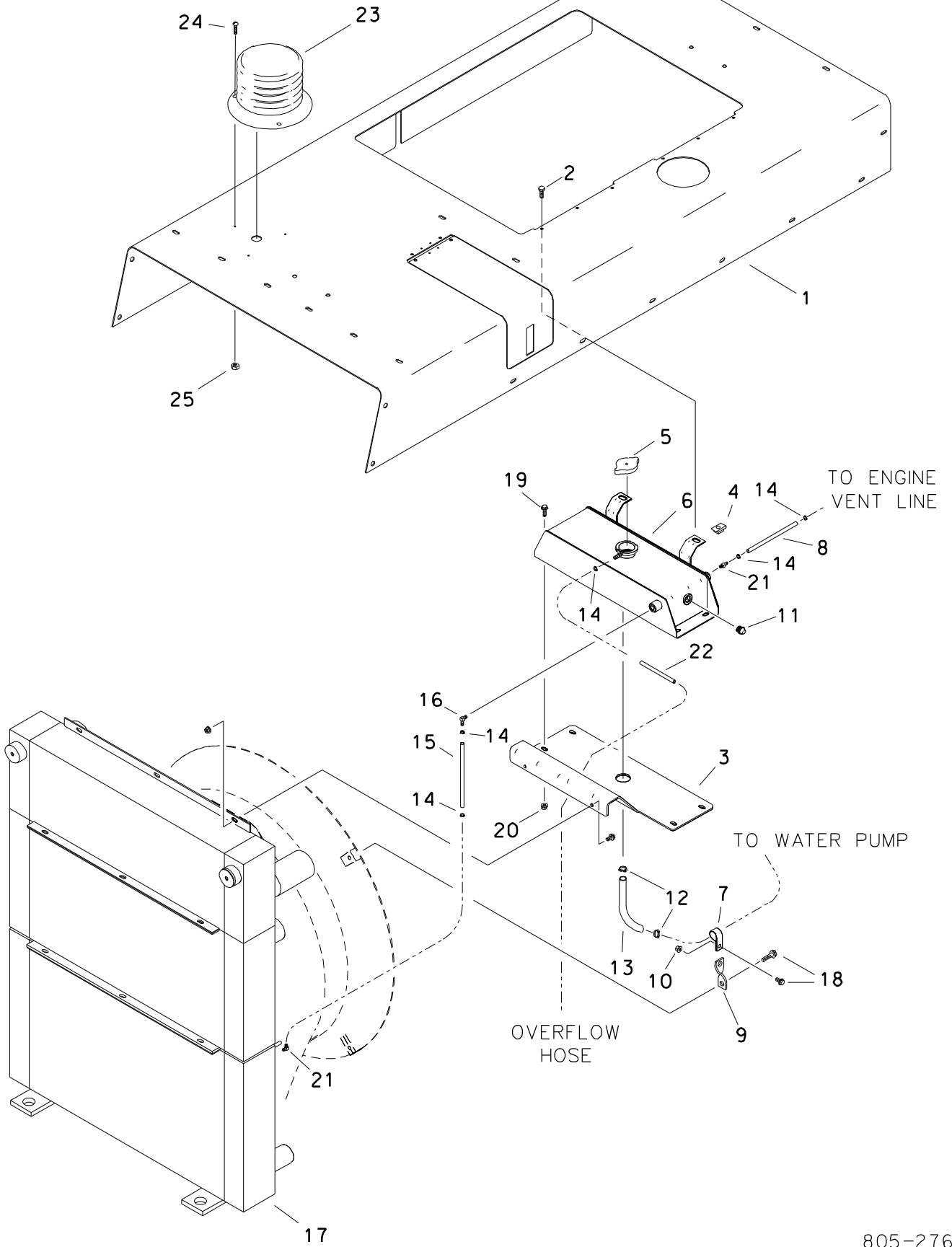


## RADIATOR

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	110-973	2	COVER PLATE	
2.	110-134	8	WORM CLAMP (2.062" TO 2.750")	
3.	116-754	2	COOLANT HOSE (24")	
4.	156-127	1	HYD LINE (UPPER RADIATOR)	
5.	106-967	2	BOLT (1/4-NC X 2.75", SIL BRZ)	
6.	349-846	1	CLAMP BRACKET	
7.	156-128	1	LOWER RADIATOR TUBE	
8.	116-827	1	COOLANT HOSE	
9.	106-578	2	SCREW (M12-1.75 X 80mm)	
10.	105-475	2	WASHER (.531")	
11.	116-496	2	SHOCK MOUNT	
12.	106-685	2	LOCKNUT (M12-1.75, PRV TRQ)	
13.	106-469	4	FLG SCREW (M12-1.75 X 30mm)	
14.	106-386	10	FLG LOCKNUT (M8-1.25)	
15.	349-036	2	MOUNT BRACKET	
16.	106-709	4	FLG NUT (M12-1.75)	
17.	106-162	10	FLG SCREW (M8-1.25 X 20mm)	
18.	116-683	2	SHOCK MOUNT	
19.	106-709	4	FLG NUT (M12-1.75)	
20.	106-632	6	FLG LK SCREW (M12-1.75 X 35mm)	
21.	349-822	1	GRILLE INSERT	
22.	106-967	4	BOLT (1/4"-NC X 2.75")	
23.	106-724	6	SCREW (M10-1.50 X 25mm)	
24.	106-139	2	STUD BOLT (M10-1.5 X 42mm)	
25.	349-025	1	GRILLE	
26.	349-026	6	NOISE BARRIER	
27.	106-551	6	CLIP NUT (M8-1.25)	
28.	105-003	6	FLG LOCKNUT (5/16-NC)	
29.	105-800	6	SCREW (5/16-NC X 1.25", SOC)	
30.	306-818	1	RADIATOR	
	306-824	-	CHARGE AIR COOLER	
	306-819	-	HYDRAULIC OIL COOLER	
	306-825	-	RADIATOR	
31.	116-755	1	COOLANT HOSE (17")	
32.	105-118	2	WASHER (3/8")	
33.	105-839	2	SCREW (M10-1.50 X 55mm)	
34.	110-972	1	WELD PLATE	
35.	110-970	6	CLAMP (2.00")	
36.	106-397	2	WASHER (M12, HARDENED)	
37.	105-095	4	WASHER (1/4")	
38.	370-312	1	NOISE BARRIER	
39.	116-421	AR	BULK EDGE (1/8", SOLD PER 1')	USE 1 @ 35"
40.	117-185	2	SOUND INSULATION	
41.	117-799	2	SOUND INSULATION	

## FOOTNOTES

# EXPANSION TANK

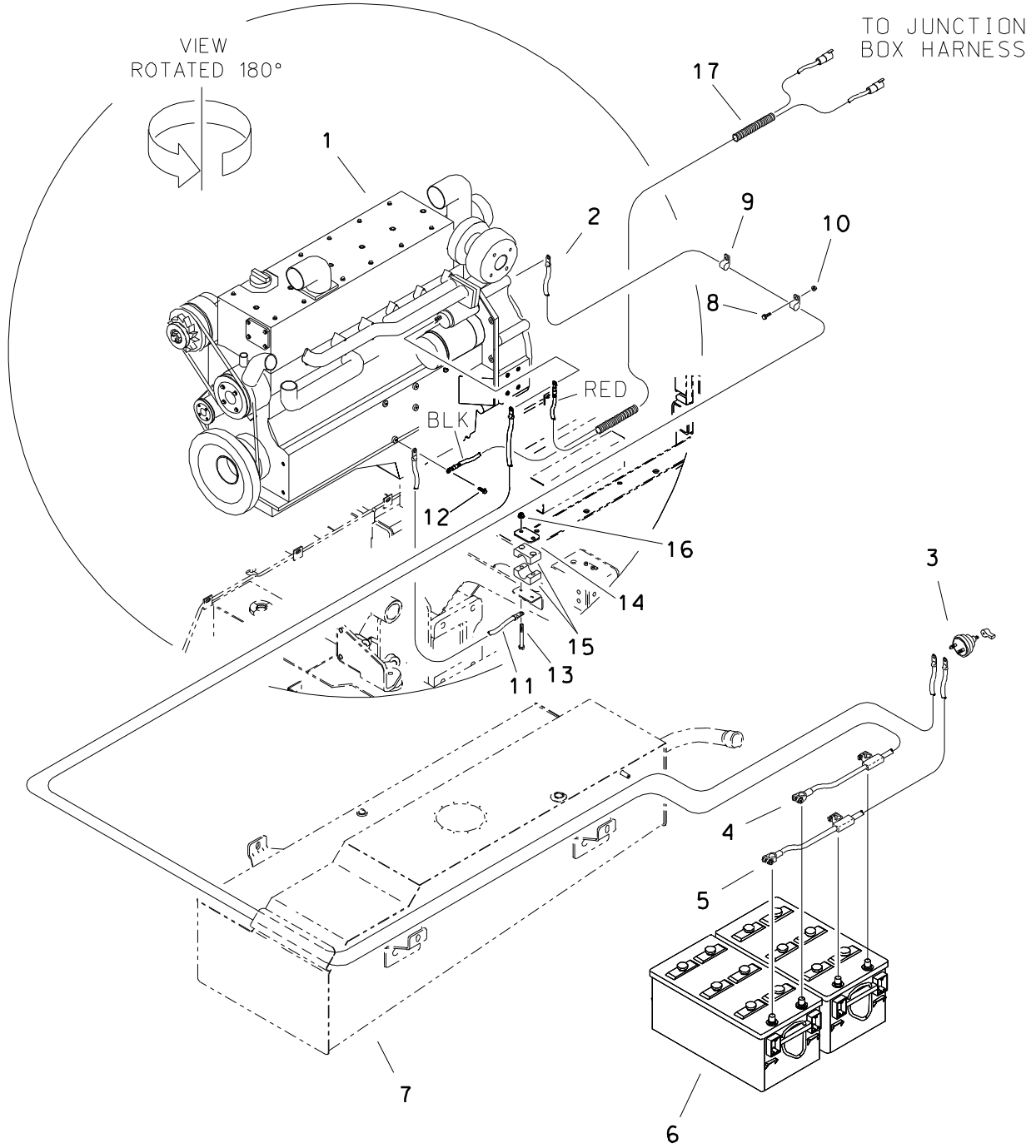


# EXPANSION TANK

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	349-698	-	HOOD	
2.	106-381	2	SCREW (M8-1.25 X 25mm)	
3.	349-861	1	TANK BRACKET	
4.	106-551	2	CLIP NUT (M8-1.25)	
5.	110-898	1	RADIATOR CAP (14 PSI)	
6.	364-454	1	EXPANSION TANK	
7.	110-333	1	BOLT-ON CLAMP (1")	
8.	115-381	AR	BULK HOSE (1/4", SOLD PER 1')	USE 1 @ 19"
9.	357-170	1	BRACKET	
10.	106-387	1	FLG LOCKNUT (M10-1.50)	
11.	116-872	1	SIGHT GLASS (08S)	
12.	110-353	2	WORM CLAMP (3/4" TO 1-1/2")	
13.	116-751	AR	BULK HOSE (3/4", SOLD PER 1')	USE 1 @ 35"
14.	110-249	5	WORM CLAMP (1/4" TO 5/8")	
15.	116-108	AR	BULK HOSE (5/16", SOLD PER 1')	USE 1 @ 30"
16.	155-164	1	S/O COUPLER (04N-05H90)	
17.	306-818	-	RADIATOR	
18.	106-724	1	FLG SCREW (M10-1.50 X 25mm)	
19.	106-162	4	FLG SCREW (M8-1.25 X 20mm)	
20.	106-386	4	FLG LOCKNUT (M8-1.25)	
21.	155-093	2	S/O COUPLER (04N-04H)	
22.	116-108	AR	BULK HOSE (5/16", SOLD PER 1')	USE 1 @ 55"
23.	217-041	1	STROBE LIGHT	
24.	105-185	3	BOLT (#10-24 X 1/2", RD SLT)	
25.	106-048	3	LOCKNUT (#10-24)	

FOOTNOTES

# BATTERY & POWER CABLES

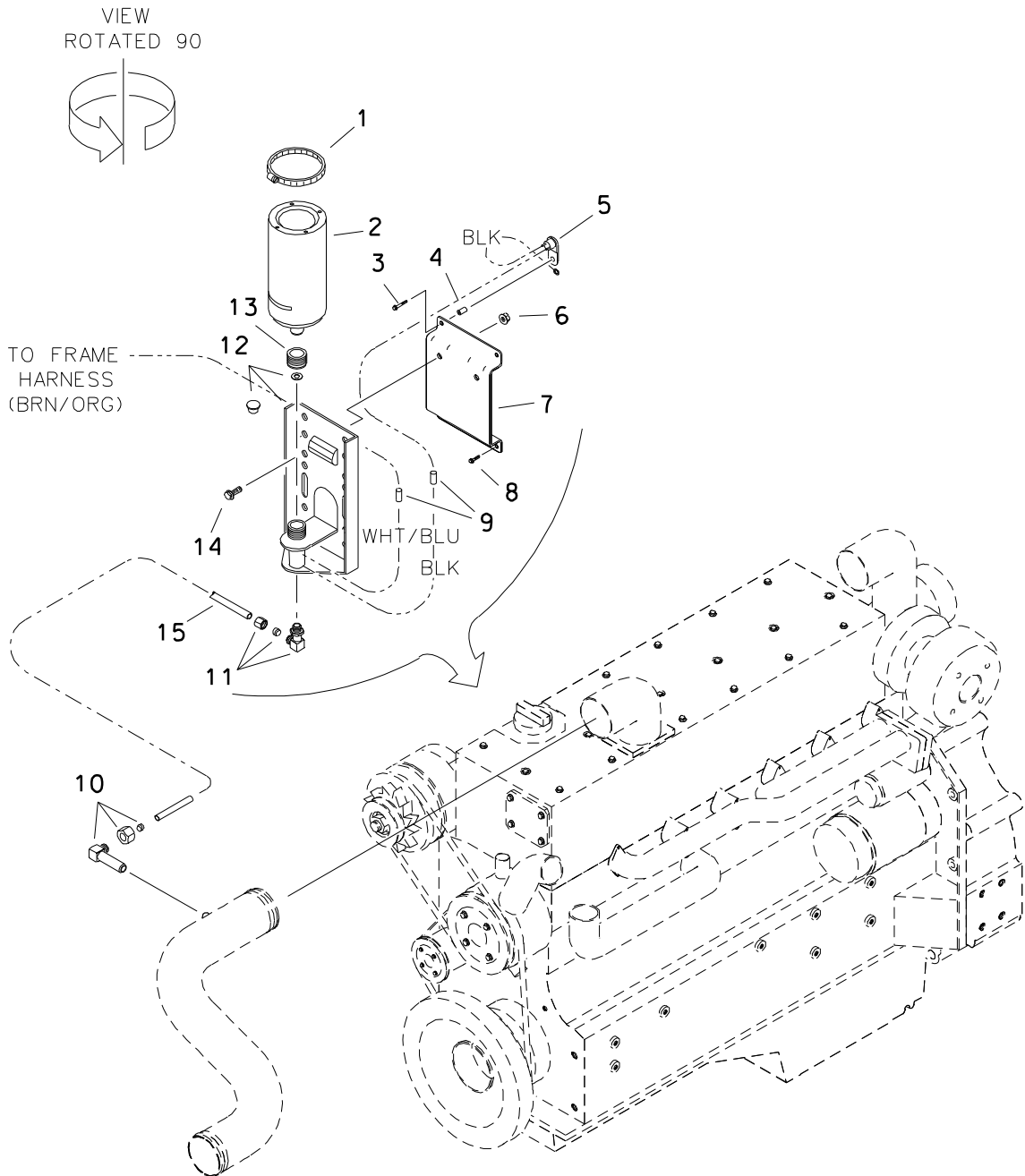


# BATTERY & POWER CABLES

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	194-776	-	ENGINE (DEUTZ, 221HP)	
2.	215-234	1	BATTERY CABLE (4/0 X 127", BLK)	
3.	217-819	-	BATTERY DISCONNECT SWITCH	
4.	215-236	1	BATTERY CABLE (4/0 DUAL, RED)	
5.	215-235	1	BATTERY CABLE (2/0 DUAL, BLK)	
6.	215-282	-	BATTERY	
7.	349-040	-	FUEL TANK	
8.	106-381	2	FLG LK SCREW (M8-1.25 X 25MM)	
9.	110-373	2	BOLT-ON CLAMP (13/16")	
10.	106-386	2	FLG LOCKNUT (M8-1.25)	
11.	215-304	1	ENGINE GROUND STRAP	
12.	106-162	1	FLG SCREW (M8-1.25 X 20MM)	
13.	107-196	-	BOLT (1/4-NC X 3", GD 5)	
14.	322-362	-	BACK-UP SPACER	
15.	110-852	-	BOLT-ON CLAMP (1-1/4", SET)	
16.	105-832	-	FLG LOCKNUT (1/4-NC)	
17.	214-464	1	POWER & GROUND HARNESS	

FOOTNOTES

# COLD START KIT





## COLD START KIT

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	N/A		COLD START KIT	INCL REF NO'S 1 & 3-15; SEE FOOTNOTE 1
1.	110-367	1	CLAMP (3-1/4" TO 4-1/8")	
2.	195-842	1	ETHER CANISTER	SEE FOOTNOTE 2
3.	106-200	2	FLG LK SCREW (M8-1.25 X 45mm)	
4.	181-652	2	SPACER	
5.	215-073	1	SENSOR SWITCH	
6.	106-387	2	FLG LOCKNUT (M10-1.50)	
7.	349-775	1	BRACKET	
8.	106-162	2	FLG SCREW (M8-1.25 X 20mm)	
9.	215-478	2	BUTT CONNECTOR (14-16 GA)	
10.	195-843	1	INJECTOR NOZZLE	INCL FERRULE AND NUT
	156-204		FERRULE (O2T)	
	156-205		COMPRESSION NUT (O2T)	
11.	156-272	1	TUBE CONNECTOR (O2N-O2T90,ORF)	INCL FERRULE AND NUT
	156-204		FERRULE (O2T)	
	156-205		COMPRESSION NUT (O2T)	
12.	195-841	1	VALVE/CANISTER BRACKET	
	110-252		CAPLUG (3/4")	
	195-844		GASKET	
13.	115-365	1	GROMMET (2-1/8")	
14.	106-382	2	FLG LK SCREW (M10-1.50 X 20mm)	
15.	156-018	AR	BULK TUBING (1/8",SOLD PER 1")	USE 1 @ 50"

## NOT SHOWN:

217-136	1	ICON (WHT) ON/START
217-137	1	ICON (WHT) OFF/STOP
217-156	1	DIFFUSION LENS (GREEN)
217-158	1	DIFFUSION LENS (WHITE)
217-924	1	ROCKER SWITCH (OFF (ON), DPDT)
217-925	1	ROCKER SWITCH ACTUATOR

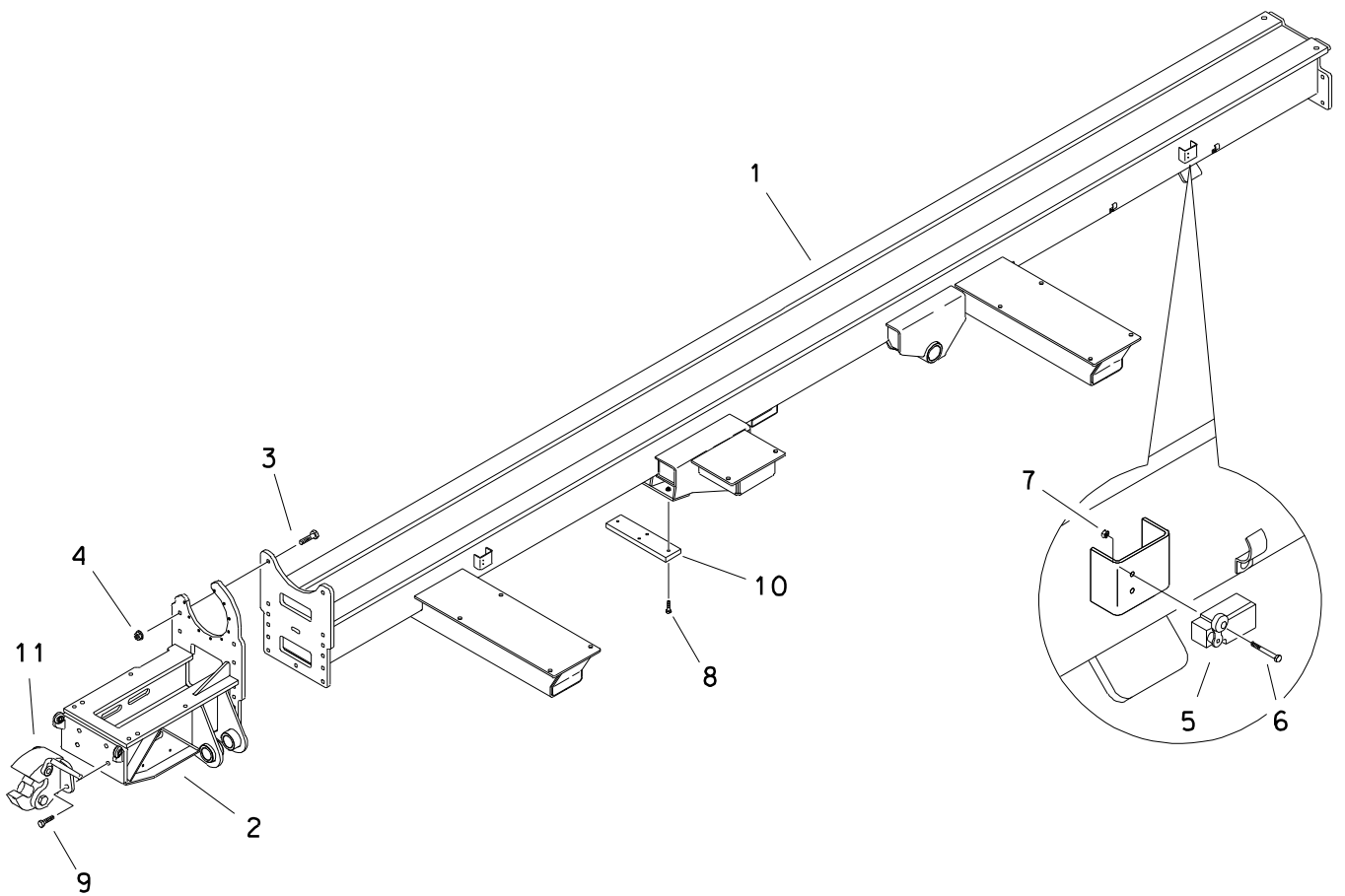
## FOOTNOTES

- REFER TO INSTALLATION INSTRUCTIONS
- NOT PART OF KIT, NEED TO ORDER SEPARATELY

<b>NOTES:</b>

# **FRAME COMPONENTS**

# DRILL FRAME



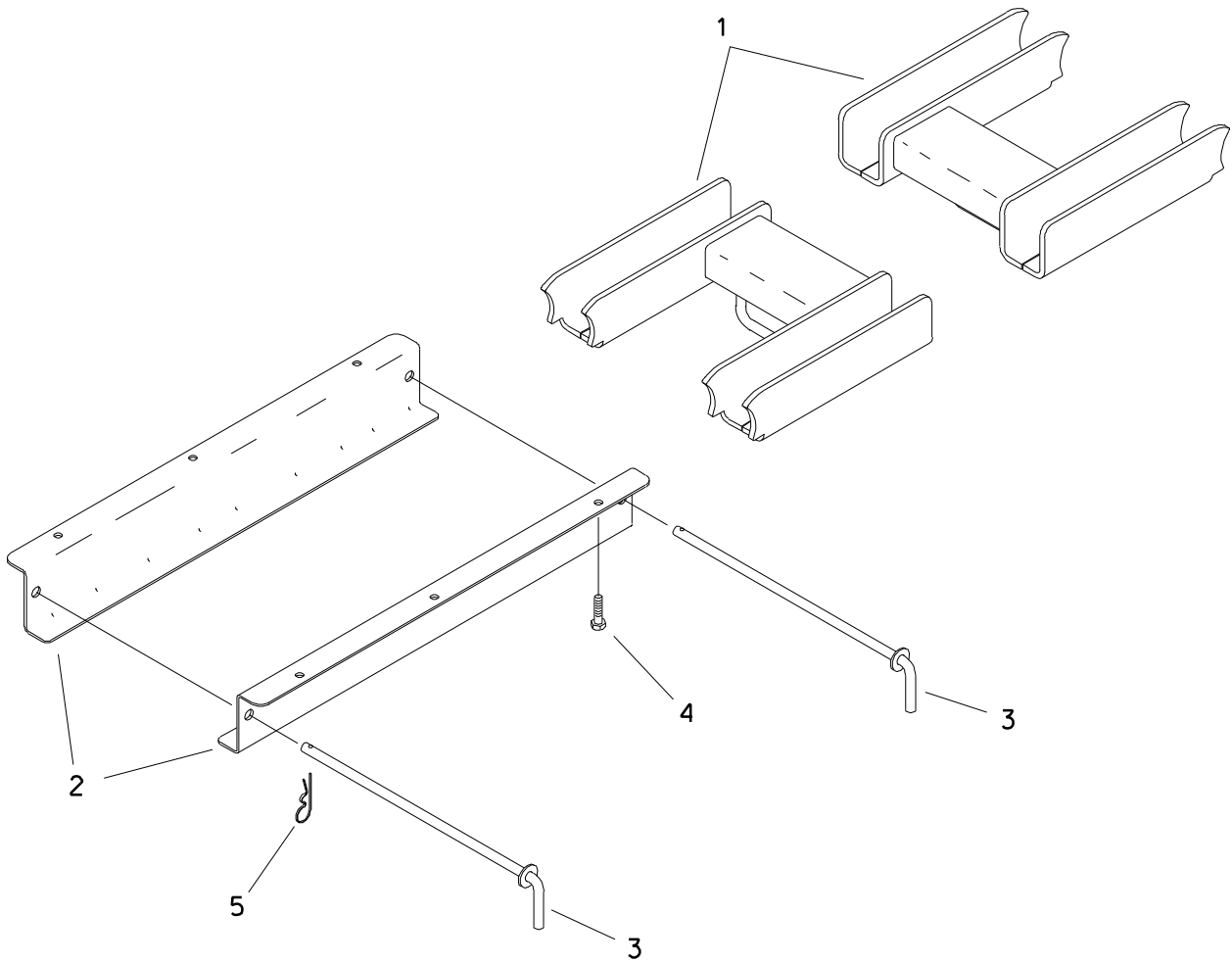
# DRILL FRAME

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	349-650	1	DRILL FRAME	
2.	349-675	1	FRONT FRAME	
3.	106-074	15	SCREW (M16-2.0 X 60mm)	
4.	106-442	15	FLG LOCKNUT (M16-2.0, PRV TRQ)	TORQUE TO 140 FT LBS (190Nm)
5.	217-085	2	LIMIT SWITCH	
	365-488	2	LEVER	
6.	105-816	4	SCREW (#10-24 X 1-1/2", PAN SLT)	
7.	106-048	4	LOCKNUT (#10-24)	
8.	105-271	4	SCREW (M10-1.5 X 40mm)	USE LOCTITE 242 OR EQUIVALENT; SEE FOOTNOTE 1
9.	105-339	4	BOLT (3/4-NC X 2-3/4")	EARLY UNITS
	106-098	4	FLG BOLT (3/4-NC X 2", GD8)	LATER UNITS
10.	370-364	1	STOP PAD	SEE FOOTNOTE 1
11.	206-076		COUPLING	BEGINS WITH S/N _____
	206-360	1	COUPLING	ENDS WITH S/N _____
	179-276		HANDLE ASSEMBLY	

FOOTNOTES

1. USED ON STEEL TRACK MODELS ONLY.

## CYLINDER LOCKS

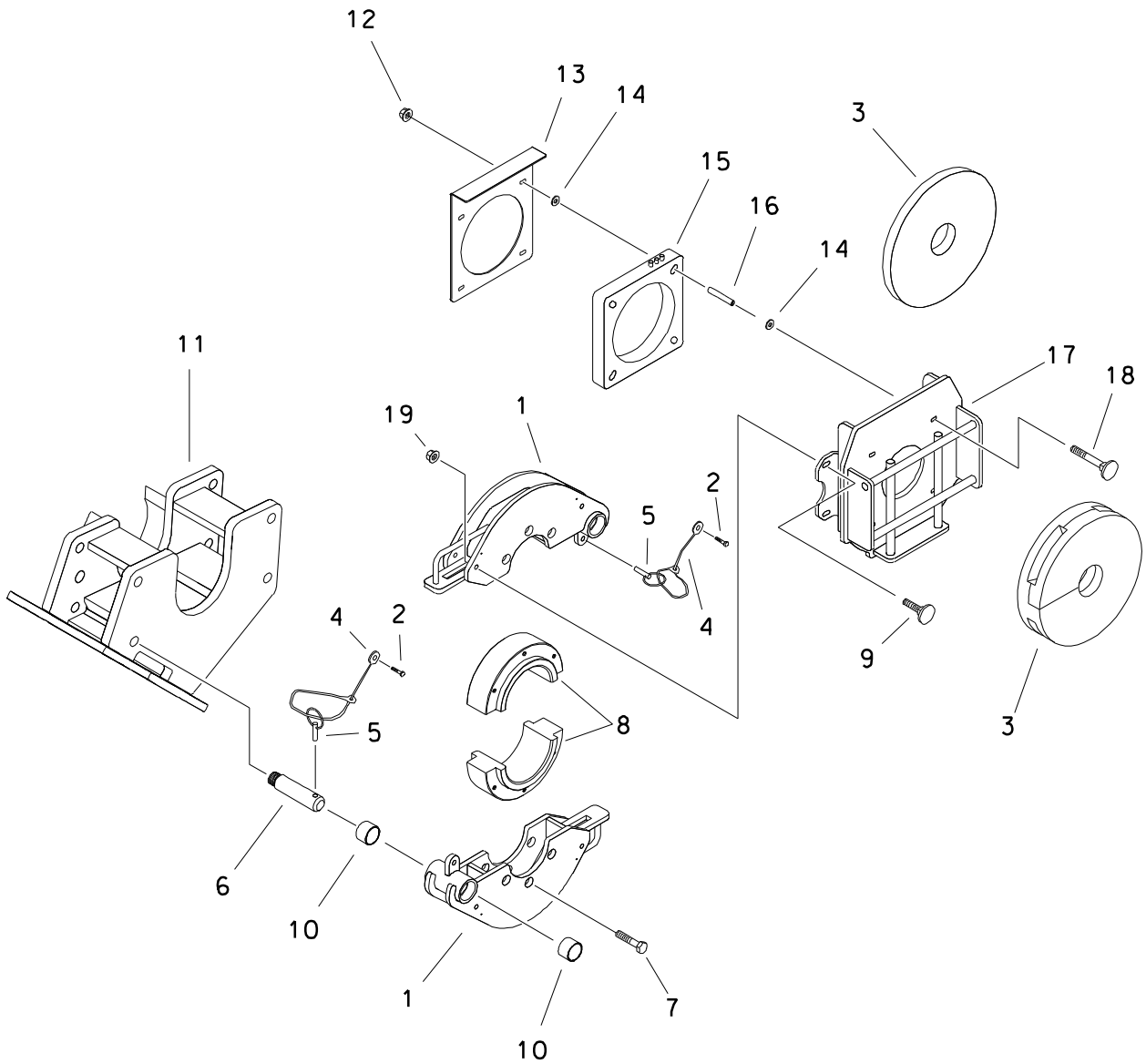


# CYLINDER LOCKS

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	370-376	2	CYLINDER LOCK	
2.	370-408	2	FORMED PLATE	
3.	370-410	2	PIN	
4.	106-383	6	FLG LK SCREW (M10-1.5 X 30MM)	
5.	110-033	2	HAIR CLIP PIN (1/8" X 1/2")	

FOOTNOTES

## PIPE GUIDE





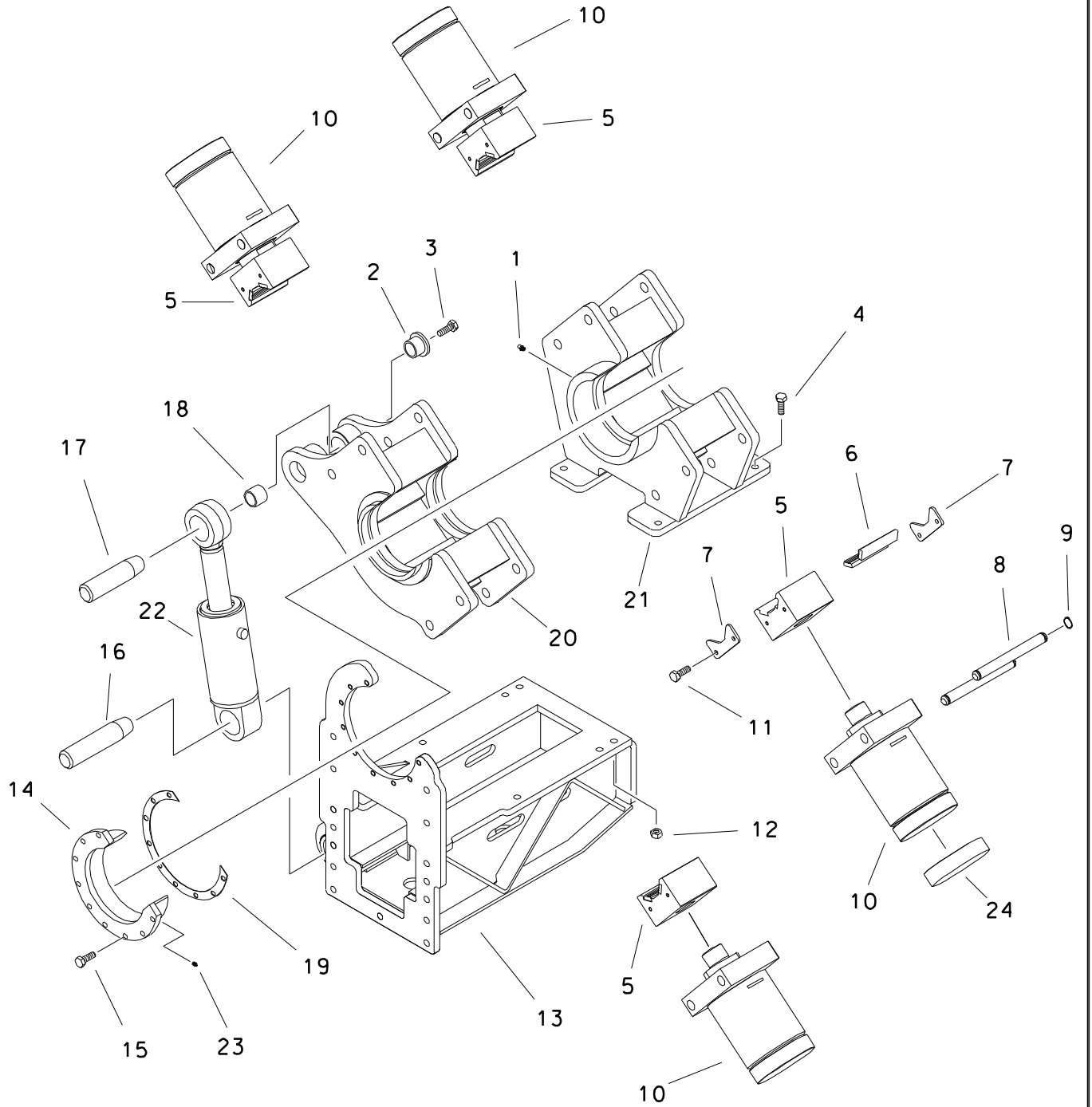
# PIPE GUIDE

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	370-061	2	GUIDE HALF	
2.	105-184	4	SCREW (#10-24 X 3/4", SLF TAP)	
3.	157-170	1	ROD WIPER	
	157-196	1	ROD WIPER	SPLIT STYLE
4.	110-710	4	LANYARD	
5.	110-228	4	LYNCH PIN (7/16" X 2")	
6.	370-075	2	GUIDE PIN	
7.	106-079	12	SCREW (M10-1.5 X 30mm)	
8.	370-440	2	SPLIT GUIDE	
9.	105-249	4	CARRIAGE BOLT (3/8-NC X 1.25")	
10.	125-760	4	COMPOSITION BUSHING (1.5")	
11.	349-188	-	STATIONARY CLAMP	
12.	105-003	4	FLG LOCKNUT (5/16-NC)	
13.	349-631	1	BACK COVER PLATE	
14.	116-283	8	WASHER (.531", RUBBER)	
15.	216-042	1	CURRENT TRANSFORMER	SEE FOOTNOTE 1.
16.	349-635	4	SPACER TUBE	
17.	349-615	1	STRIKE BOX MOUNT	
18.	107-311	4	CARRIAGE BOLT (5/16-NC X 3.00")	
19.	105-834	4	FLG LOCKNUT (3/8-NC)	

### FOOTNOTES

1. REF 15 OBSOLETE, 216-042 REPLACED WITH 101-144.

# FRONT WRENCHES ENDS WITH S/N



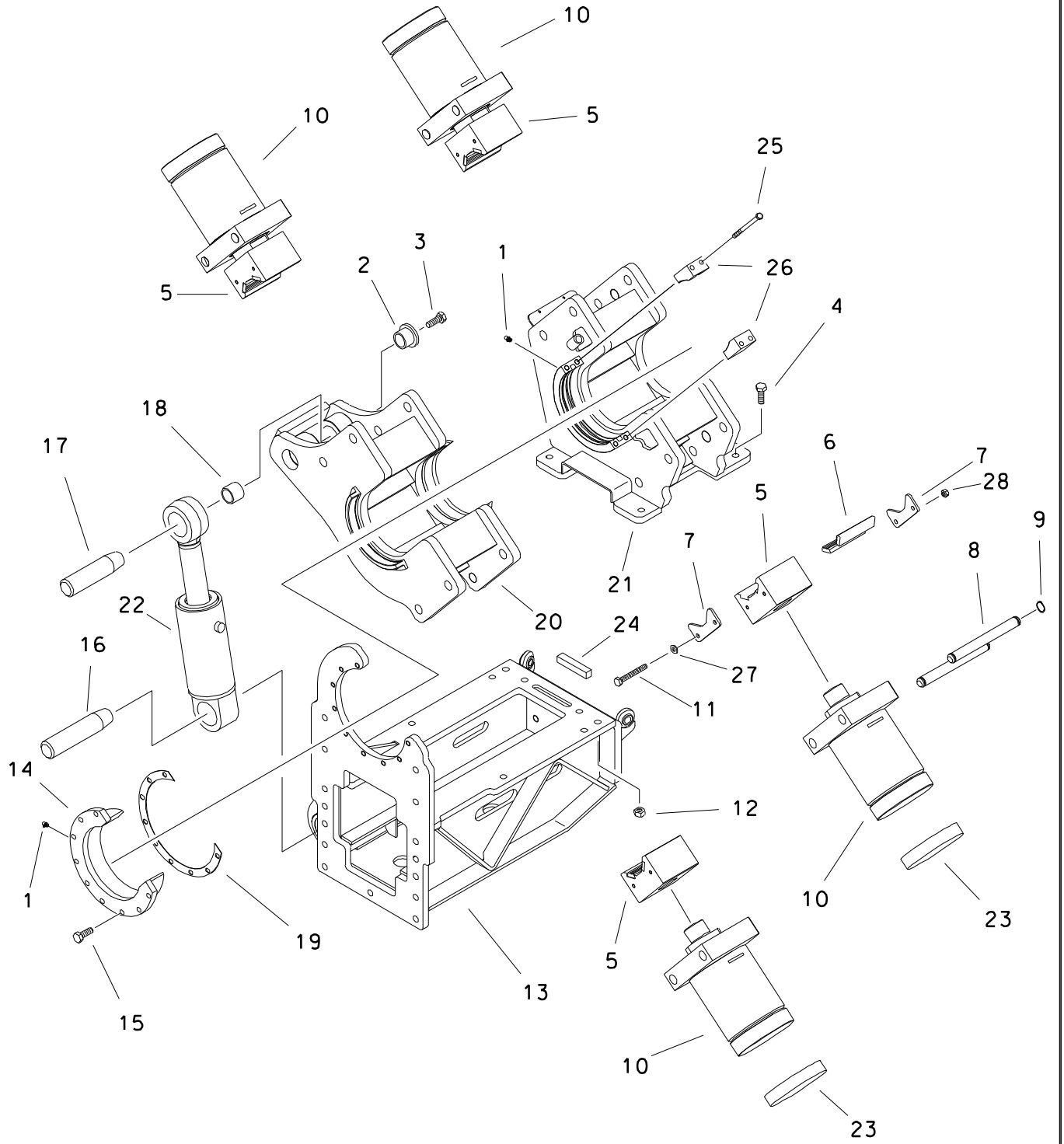
# FRONT WRENCHES ENDS WITH S/N

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	115-005	2	ZERK (1/4-NF, 90)	
2.	184-031	2	TAPERED INSERT (2.25")	
3.	106-345	2	SCREW (M20-2.50 X 50mm)	
4.	106-074	6	SCREW (M16-2.0 X 60mm)	USE LOCTITE 680 AND TORQUE TO 140 FT-LBS
5.	349-958	4	JAW BLOCK	
6.	349-884	8	GRIPPER INSERT	
7.	370-028	8	INSERT RETAINER	
8.	349-190	8	PIN	
9.	115-499	16	KLIP RING (1.000")	
10.	151-176	4	CYL (6.00" X 4.00" X 3.00")	
11.	106-079	16	SCREW (M10-1.50 X 30mm)	
12.	106-355	6	FLG NUT (M16-2.0, 10.9)	
13.	349-675	1	FRONT FRAME	
14.	349-191	1	RETAINER	
15.	106-333	9	SCREW (M12-1.75 X 40mm)	
16.	179-183	1	TAPERED PIN (57.15mm X 195mm)	
17.	179-016	1	TAPERED PIN (57.15mm X 225mm)	
18.	125-781	2	COMPOSITION BUSHING (2.259")	
19.	349-192	AR	SHIM	
20.	349-187	1	ROTATION CLAMP	
21.	349-188	1	STATIONARY CLAMP	
22.	151-158	1	CYL (4" X 2.25" X 6")	
23.	115-002	1	ZERK (O2N90)	
24.	116-879	2	RUBBER CUSHION	

FOOTNOTES

# FRONT WRENCHES

BEGINS WITH SERIAL NO. 2S0796



# FRONT WRENCHES

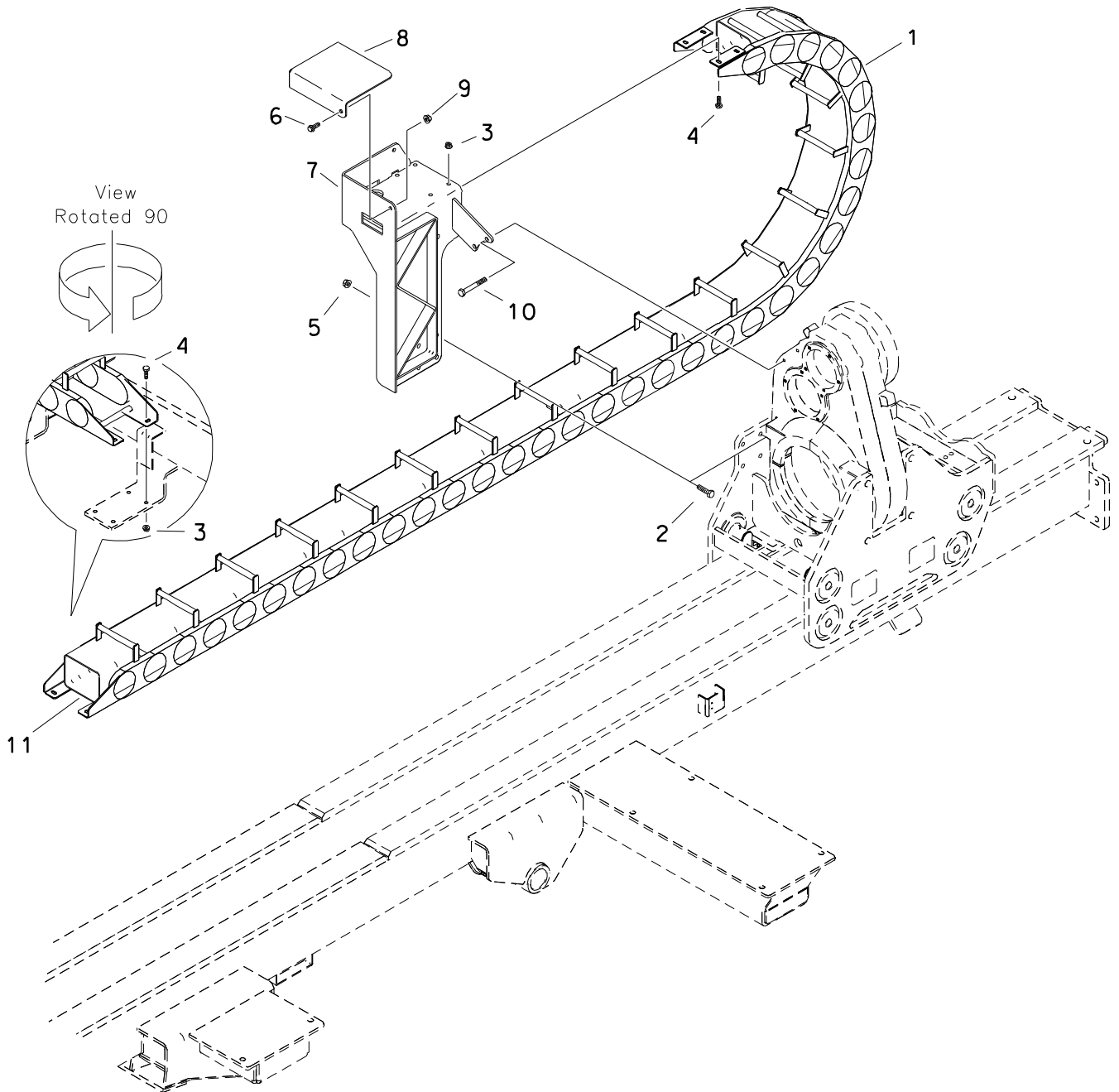
## BEGINS WITH SERIAL NO. 2S0796

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	115-013	2	ZERK (1/4-NF, STR)	
2.	184-031	2	TAPERED INSERT (2.25")	
3.	106-345	2	SCREW (M20-2.50 X 50MM)	
4.	106-666	8	SCREW (M16-2.0 X 65MM)	USE LOCKTITE 680, TORQUE TO 200 FT-LBS
5.	349-958	4	JAW BLOCK	SEE FOOTNOTE 1.
	319-910	4	JAW BLOCK	SEE FOOTNOTE 1.
6.	349-884	8	GRIPPER INSERT	SEE FOOTNOTE 1.
	319-856	8	GRIPPER INSERT	SEE FOOTNOTE 1.
7.	370-028	8	INSERT RETAINER	
8.	349-190	8	PIN	
9.	115-499	16	EXTERNAL CLIP RING (1")	
10.	151-176	4	HYD CYLINDER	
11.	106-639	8	SCREW (M10-1.50 X 160MM)	SEE FOOTNOTE 2.
12.	106-442	6	FLG LOCKNUT (M16-2.0)	
13.	349-675	1	FRONT FRAME	
14.	370-135	1	RETAINING RING	
15.	106-333	9	SCREW (M12-1.75 X 40MM)	
16.	179-183	1	TAPERED PIN (57.15MM X 195MM)	
17.	179-016	1	TAPERED PIN (57.15MM X 225MM)	
18.	125-781	2	COMPOSITION BUSHING (2.259")	
19.	349-192	AR	SHIM	
20.	370-275	1	ROTATION CLAMP	
21.	370-276	1	STATIONARY CLAMP	
22.	151-158	1	HYD CYL (4" X 2.25" X 6")	
23.	116-879	2	RUBBER CUSHION	TORQUE TO 80 FT-LBS
24.	166-815	1	KEY (3/4" X 4")	
25.	106-645	4	SCREW (M12-1.75 X 110MM, 10.9)	
26.	370-281	2	CAP	
27.	106-415	8	WASHER (.406")	
28.	106-758	8	LOCKNUT (M10-1.5)	

### FOOTNOTES

- 319-856 IS INTERCHANGABLE WITH 349-958 & 319-910 JAW BLOCKS. 349-884 MAY BE USED WITH 319-910 BY ADDING CHAMFERS TO CLEAR DOVETAIL RADIUS IN JAWBLOCK.
- 349-958 REQUIRES REF. 11 106-079 QTY. 4 PER JAW BLOCK.

## CABLE TRAY



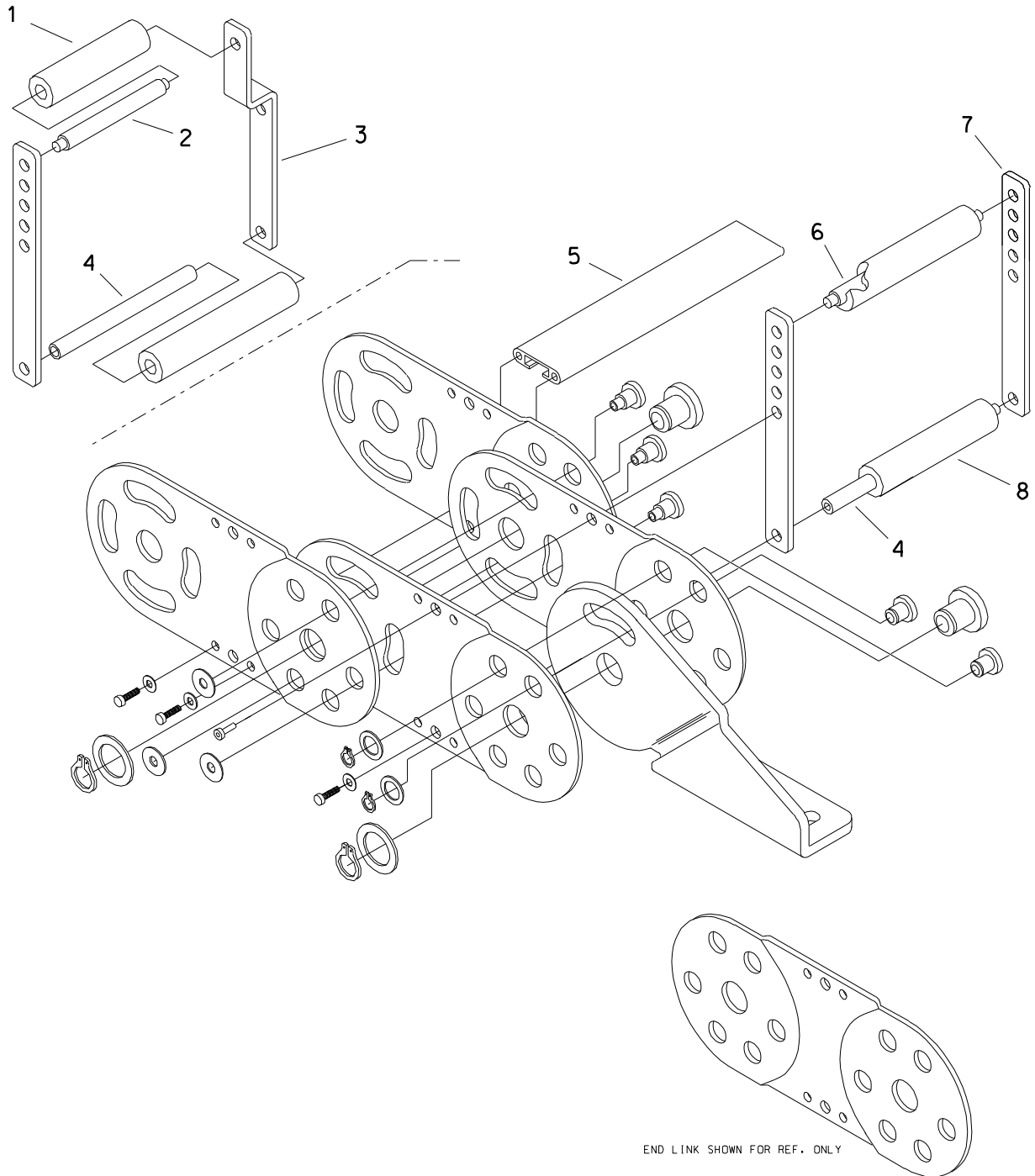
# CABLE TRAY

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	349-007	1	CABLE TRAY	
	178-589	-	POLY ROLLER (.675"X6-1/16")	
	178-590	-	POLY ROLLER (.675X5-1/16")	
	309-752	-	4 LINK REPAIR SECTION	
	309-753	-	EASY-OUT BAR (1/2"X6-1/8")	
	309-754	-	EASY-OUT BAR (1/2"X5-1/8")	
	309-757	-	ALUMINUM BAR (1/2"X6-1/8")	
	309-759	-	6-3/8" ALUMINUM FLAT BAR	
	309-760	-	WINDOW EXTENDER	
	309-761	-	BENT WINDOW EXTENDER	SEE FOOTNOTE 1
2.	106-477	4	SCREW (M12-1.75 X 45MM)	
3.	105-834	8	FLG LOCKNUT (3/8 NC)	
4.	105-249	8	CARRIAGE BOLT (3/8-NC X 1-1/4")	
5.	106-709	4	FLG NUT (M12-1.75)	
6.	106-724	3	FLG SCREW (M10-1.50 X 25MM)	
7.	349-569	1	MOUNT BRACKET	
8.	370-180	1	COVER	
9.	106-387	3	FLG NUT (M10-1.50)	
10.	106-336	-	SCREW (M12-1.75 X 90MM)	
11.	370-038	1	CABLE TRAY HOSE SOCK	

FOOTNOTES

- 1. SCREWS FASTEN GEAR BOX HALVES TOGETHER

## HOSE TRACK REPAIR SECTION



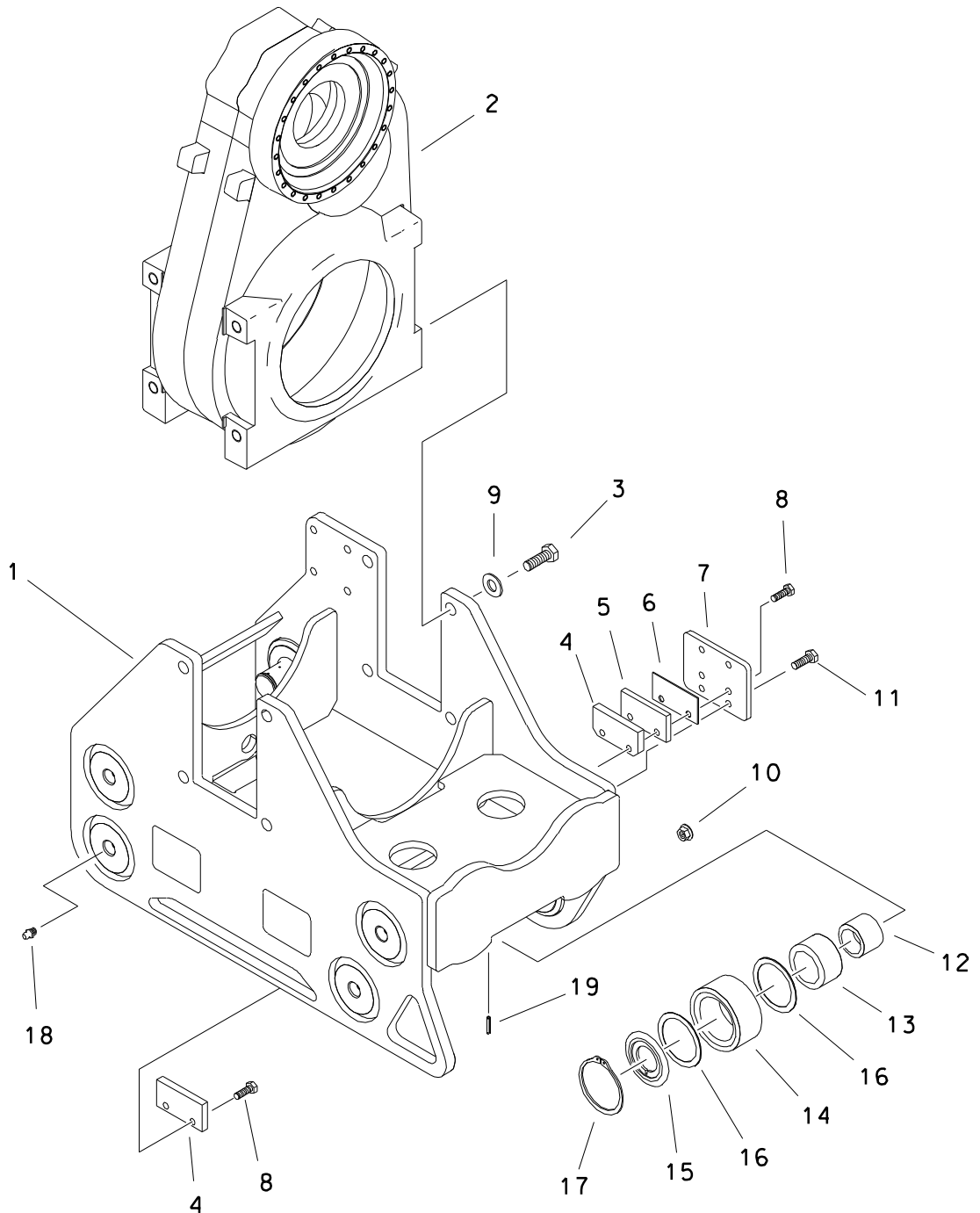


# HOSE TRACK REPAIR SECTION

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	349-007	-	CABLE TRAY	
1.	178-590	-	POLY ROLLER (.675 X 5-1/6")	
2.	309-754	-	EASY-OUT BAR (1/2" X 5 1/8")	
3.	309-761	-	BENT WINDOW EXTENDER	
4.	309-757	-	ALUMINUM BAR (1/2" X 6-1/8")	
5.	309-759	-	6 3/8" ALUMINUM FLAT BAR	
6.	309-753	-	EASY-OUT BAR (1/2" X 6 1/8")	
7.	309-760	-	WINDOW EXTENDER	
8.	178-589	-	POLY ROLLER (.675 X 6-1/6")	

FOOTNOTES

## CARRIAGE



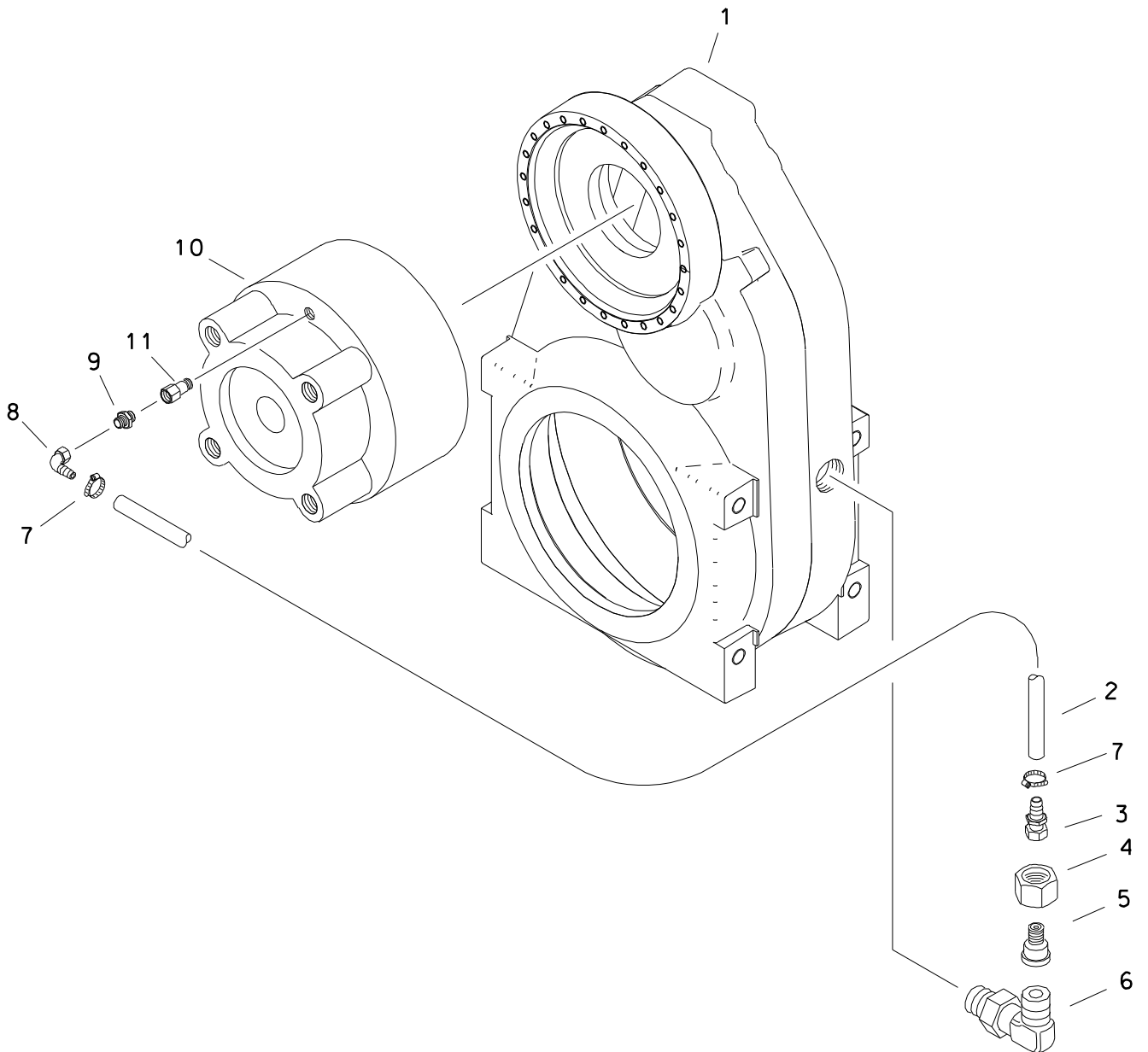
# CARRIAGE

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	349-558	1	CARRIAGE	
2.	166-146	-	ROTATION DRIVE GEAR BOX	
3.	106-075	8	SCREW (M20-2.5 X 60mm, 10.9)	
4.	349-573	4	CENTERING PAD	
5.	349-575	2	CLAMP PLATE	
6.	349-572	2	SHIM	
7.	349-574	2	BOLT BLOCK	
8.	107-001	12	FLG LK SCREW (M10-1.50 X 25mm)	USE LOCTITE 242 OR EQUIVALENT
9.	106-949	8	WASHER (3/4", HARDENED)	
10.	105-894	4	LOCKNUT (M10-1.50, PRV TRQ)	
11.	106-331	4	SCREW (M10-1.50 X 50mm)	
12.	125-246	8	NEEDLE RACE (1.750")	USE LOCTITE 680 OR EQUIVALENT
13.	126-155	8	NEEDLE BEARING (-----")	
14.	349-551	8	ROLLER SHELL	
15.	349-552	8	RETAINER	
16.	110-926	16	THRUST WASHER	
17.	115-060	8	EXTERNAL SNAP RING (1.750")	LATER STYLE USED WITH ROLL PIN
	115-456	8	EXTERNAL SNAP RING (1.750")	EARLY STYLE
18.	115-001	8	ZERK (02N)	
19.	105-533	8	ROLL PIN (5/32" X 7/8")	

FOOTNOTES

NOTE

## CARRIAGE SIGHT TUBE



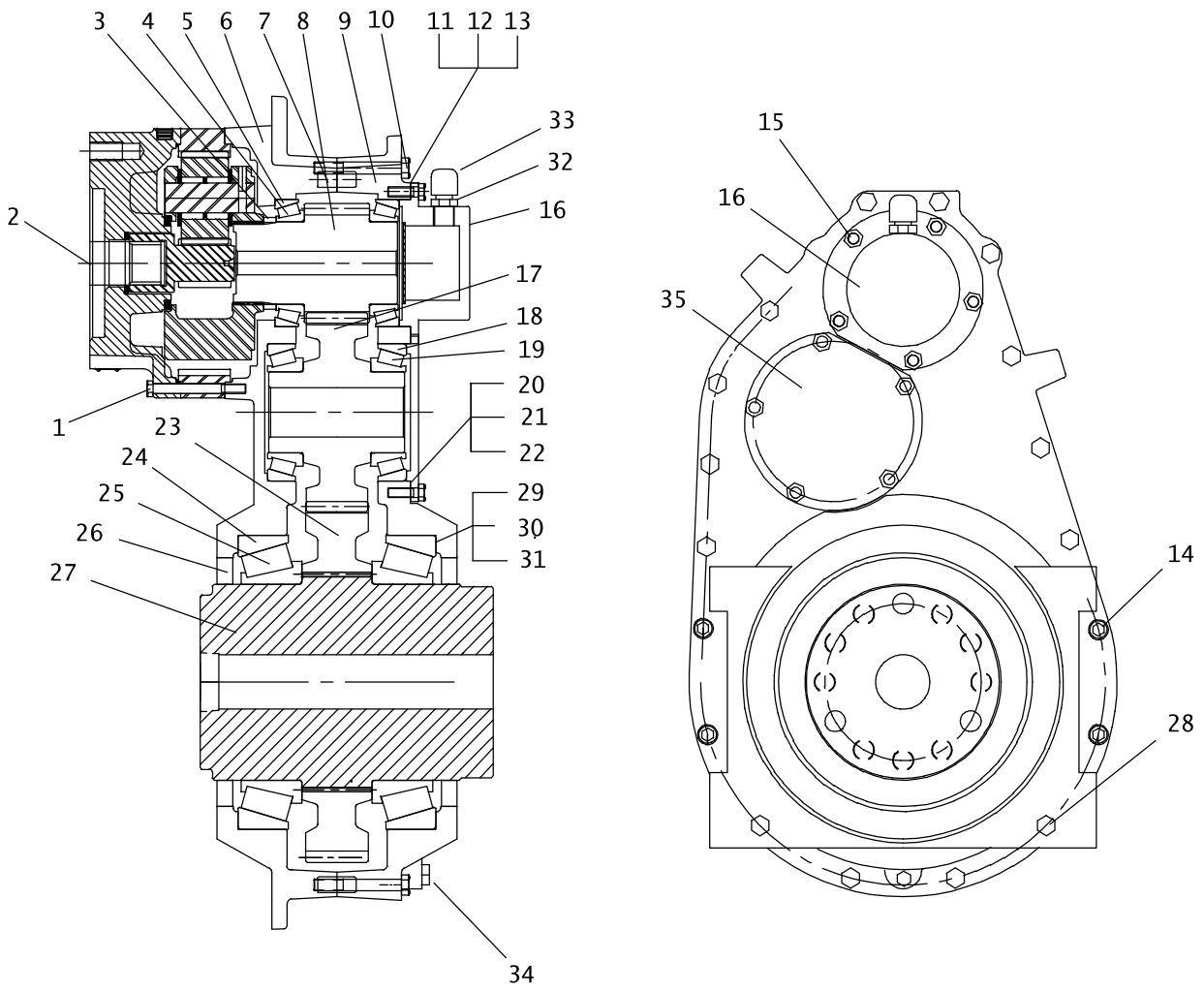
# CARRIAGE SIGHT TUBE

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	166-146	-	ROTATION DRIVE GEAR BOX	
2.	117-902	AR	BULK TUBING (1/4", SOLD PER 1')	USE 1 @ 22"
3.	514-427	1	S/O COUPLER (040F-04H90)	
4.	154-310	1	REDUCER NUT (100F)	
5.	154-311	1	REDUCER STEM (040)	
6.	154-300	1	CONNECTOR (12S-10090)	
7.	110-249	2	WORM CLAMP (1/4" TO 5/8")	
8.	514-428	1	S/O COUPLER (040F-04H90)	
9.	154-339	1	CONNECTOR (040-040)	
10.	166-141	-	ROTATION PLANETARY	
11.	115-106	1	REDUCER (06N-04NF)	

FOOTNOTES

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

# DRIVE GEAR BOX - ROTATION



## DRIVE GEAR BOX - ROTATION

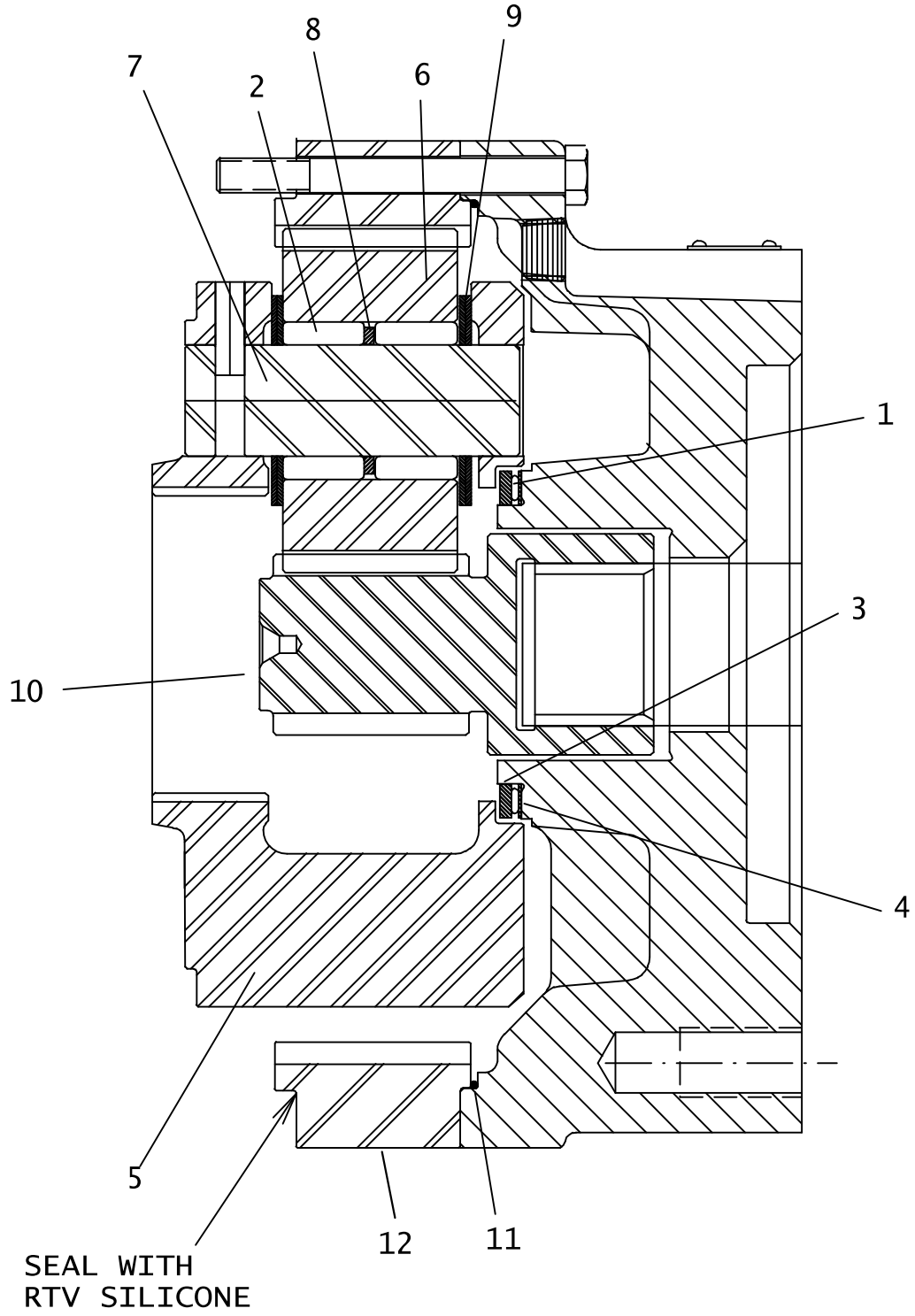
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	166-146		DRIVE GEAR BOX - ROTATION	OBSOLETE
	197-056		REBUILT 166-146 GEAR BOX	OBSOLETE
	166-230		DRIVE GEAR BOX - ROTATION	
	197-091		REBUILT 166-230 DRIVE GEARBOX	
1.	105-258	20	BOLT (3/8-NC X 3-3/4")	
2.	166-141	1	PLANETARY GEAR BOX - ROTATION	
3.	349-396	1	SPACER	
4.	126-075	2	TAPERED BEARING	
5.	126-076	2	TAPERED RACE	
6.	349-408	1	HOUSING	
7.	500-818	5	DOWEL PIN (16mm X 40mm)	
8.	168-033	1	INPUT PINION	
9.	349-409	1	COVER	
10.	106-336	13	SCREW (M12-1.75 X 90mm)	
11.	165-859	AR	SHIM (.050mm, RED)	
12.	165-860	AR	SHIM (.076mm, GREEN)	
13.	165-861	AR	SHIM (.191mm, TRANSPARENT WHT)	ENDS WITH S/N 2R1847
14.	106-117	4	SCREW (M12-1.75 X 80mm)	BEGINS WITH S/N 2R2160
15.	105-245	10	BOLT (M10-1.50 X 25mm)	
16.	350-392	1	UPPER CAP	
17.	168-032	1	INTERMEDIATE GEAR	
18.	126-157	2	TAPERED RACE (____")	
19.	126-156	2	TAPERED BEARING (____")	
20.	165-862	AR	SHIM (.050mm)	
21.	165-863	AR	SHIM (.076mm)	
22.	165-864	AR	SHIM (.191mm)	
23.	168-031	1	OUTPUT GEAR	
24.	126-159	2	BEARING RACE	
25.	126-158	2	BEARING	
26.	157-706	2	SEAL (7.875" X 10")	OBSOLETE
27.	167-313	1	OUTPUT SHAFT	
	166-229	1	OUTPUT SHAFT	
28.	106-855	2	SCREW (M12-1.75 X 140mm)	
29.	165-865	AR	SHIM (.051mm)	
30.	165-866	AR	SHIM (.178mm)	
31.	165-867	AR	SHIM (.508mm)	
32.	115-133	1	REDUCER (12N-02NF)	
33.	159-003	1	AIR VENT (02N)	
34.	155-074	1	PLUG (08S, ALN)	
35.	349-411	1	LOWER CAP	

NOT SHOWN:

FOOTNOTES:

NOTE:

# PLANETARY GEARBOX - ROTATION





## PLANETARY GEARBOX - ROTATION

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	166-141		PLANETARY GEARBOX - ROTATION	
1.	126-182	1	THRUST BEARING	
2.	126-183	108	NEEDLE BEARING	
3.	501-845	1	THRUST WASHER	
4.	501-846	1	THRUST WASHER	
5.	501-847	1	CARRIER	
6.	501-848	3	PLANET GEAR	
7.	501-850	3	PLANET SHAFT	
8.	501-851	3	THRUST WASHER	
9.	501-852	12	THRUST WASHER	
10.	501-853	1	SUN GEAR	
11.	157-203	2	O-RING	
12.	501-849	1	RING GEAR	

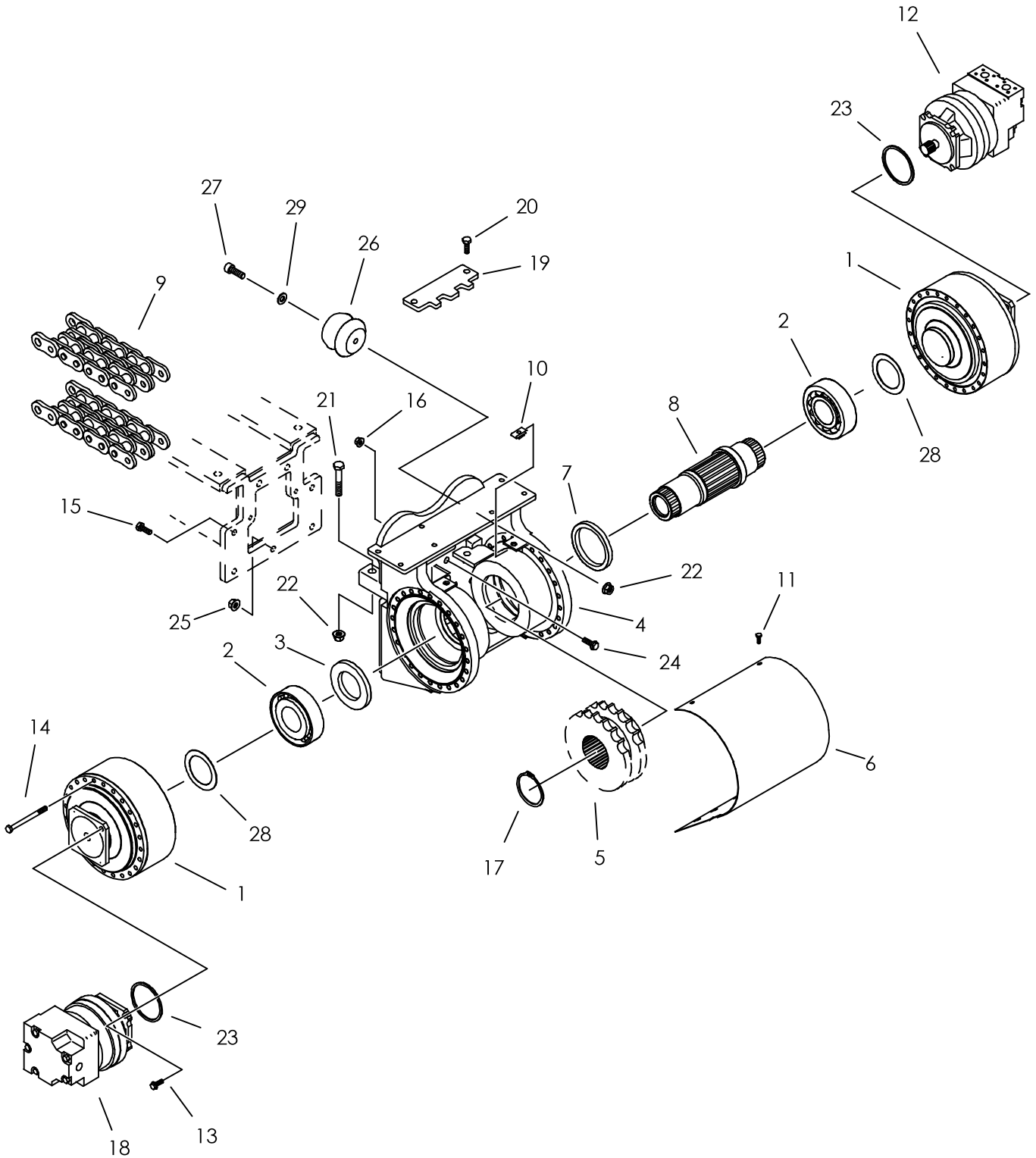
NOT SHOWN:

**FOOTNOTES:**

DRIVE ROLL PIN INTO PLANET SHAFT, THEN PRESS OUT SHAFT TO REMOVE. REMOVE ROLL PIN FROM SHAFT ONCE THE SHAFT IS OUT.

NOTE:

# THRUST DRIVE JT7020



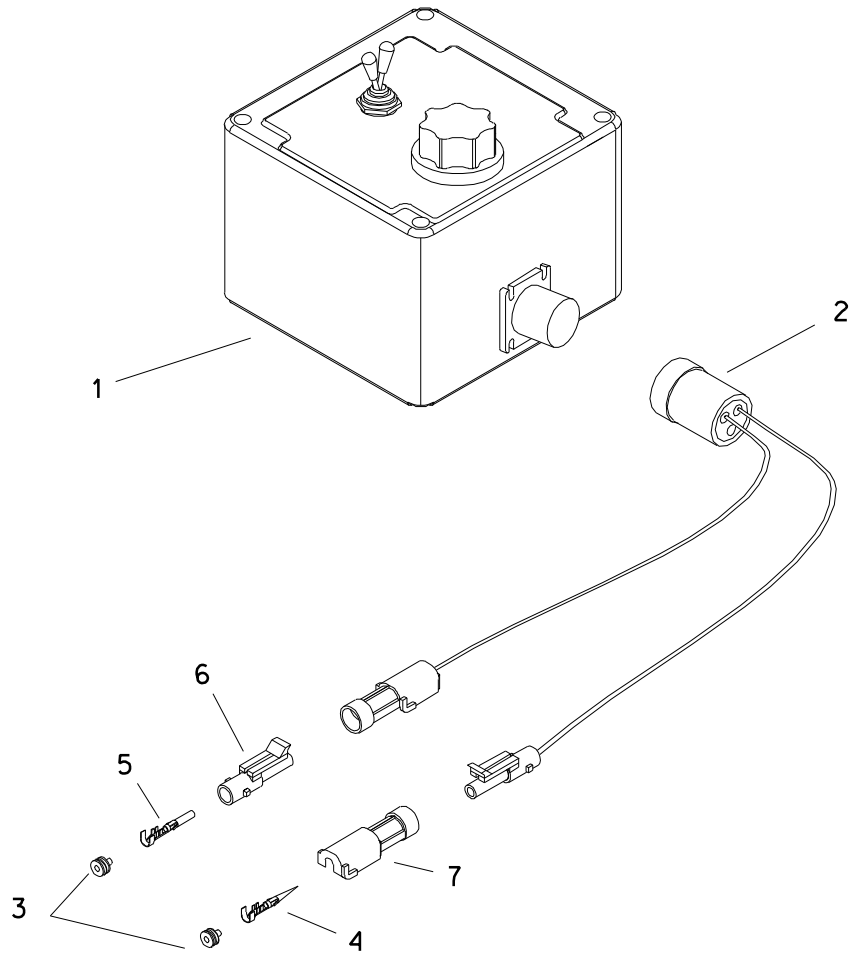
## THRUST DRIVE JT7020

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	165-559	-	THRUST DRIVE GEAR BOX PARTS ASS'Y	
1.	166-178	2	THRUST PLANETARY	
	N/A	2	BEARING RETENTION NUT	USE SERVICE TOOL 301-575
	499-893	2	THRUST WASHER	TANGED WASHER INSIDE COVER
2.	125-1023	2	BEARING SET	
3.	157-790	1	INTERNAL SEAL (3.75")	
4.	370-218	1	THRUST DRIVE HOUSING (24-BOLT)	
5.	175-746	1	DOUBLE SPROCKET (160-2B13)	
6.	349-382	1	COVER	
7.	157-710	1	INTERNAL SEAL (4.75")	
8.	167-337	1	THRUST SHAFT	
9.	130-332	1	ROLLER CHAIN (#160-2, 265P)	
	130-713	-	CONNECTOR LINK (#160-2)	THRUST
	179-250	-	CONNECTOR PIN (#160-2)	
	370-245	-	CHAIN CONNECTOR	
	129-012	-	CLEVIS PLATE LINK	
10.	106-558	2	CLIP NUT (M10-1.5)	
11.	106-724	6	FLG SCREW (M10-1.50 X 25mm)	
12.	158-905	1	HYD MOTOR (THRUST)	TORQUE TO 97 FT LBS (131 NM)
	190-765	-	SEAL REPAIR KIT	
	217-408	-	SOLENOID VALVE (12V)	
13.	106-499	8	FLG BOLT (1/2-NC X 1-1/2", GD8)	
14.	107-298	48	SCREW M14-2.00 X 160mm)	
15.	106-616	4	SCREW M16-2.00 X 55mm, 10.9)	
16.	106-355	7	FLG NUT (M16-2.0)	
17.	115-453	1	EXTERNAL SNAP RING (4")	
18.	158-959	1	HYD MOTOR (THRUST)	
	165-893	1	END CAP GASKET	THRUST, W/ SPEED PICKUP
	126-196	2	CRADLE BEARING	
	499-083	1	VALVE PLATE	
	157-199	1	O-RING (171 D75)	
	126-020	1	BEARING (STRAIGHT ROLLER)	
	157-740	1	O-RING (016 D90)	
	217-408	-	SOLENOID VALVE (12V)	
	165-894	1	FRONT COVER GASKET	
	157-200	1	O-RING (153 D75)	
	216-049	1	SPEED PICK-UP	
19.	370-050	1	CHAIN RETAINER	
20.	105-998	2	SCREW (M16-2.00 X 40mm)	
21.	106-663	2	SCREW (M20-2.50 X 110mm, 10.9)	
22.	106-356	4	FLG NUT (M20-2.50, 10.9)	
23.	157-084	2	O-RING (159 D70)	
24.	106-666	3	SCREW (M16-2 X 65mm, 10.9)	
25.	106-442	1	FLG LOCKNUT (M16-2.00, PRV TRQ)	
26.	116-769	2	BUMPER	
27.	107-275	2	SCREW (M20-2.50 X 55mm, ALN)	
28.	499-174	-	SHIM	
29.	106-393	2	WASHER (M20)	

NOT SHOWN:  
259-461 1 PICK-UP ALIGNMENT TOOL

FOOTNOTES:

# THRUST CONTROL KIT - JT7020

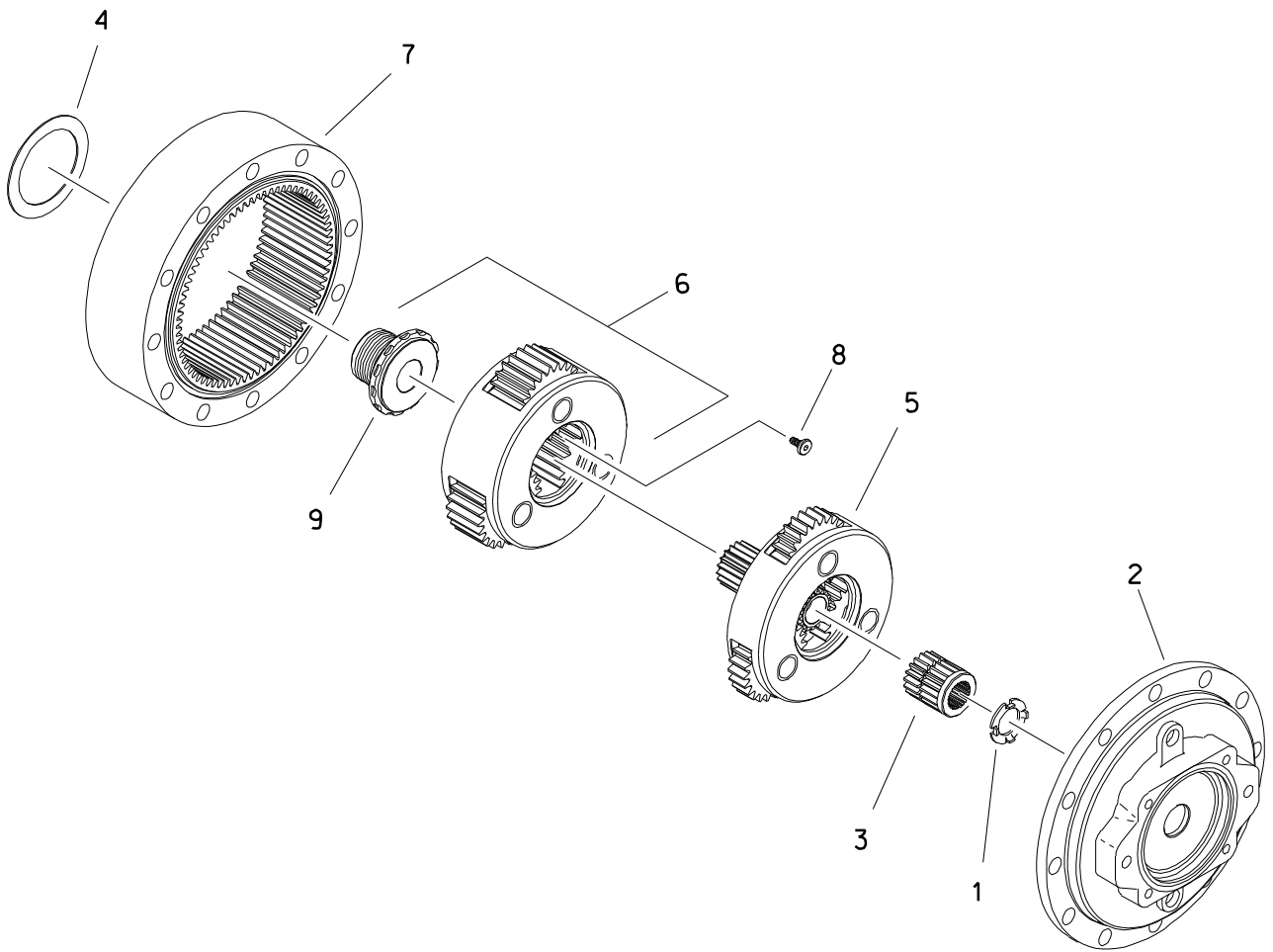


# THRUST CONTROL KIT - JT7020

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	101-069	-	THRUST CONTROL KIT	CONTAINS REF NO. 1-7
1.	308-955	1	THRUST CONTROL BOX	
2.	214-673	1	VARIABLE THRUST HARNESS	
3.	157-645	2	WEATHER-PAC SEAL (2.80MM)	
4.	214-048	1	PACKARD WP TERMINAL FEMALE	
5.	214-104	1	PACKARD MALE TERMINAL	
6.	214-246	1	1-WAY MALE CONNECTOR	
7.	211-046	1	1-WAY FEMALE CONNECTOR	

FOOTNOTES

## THRUST PLANETARY GEARBOX

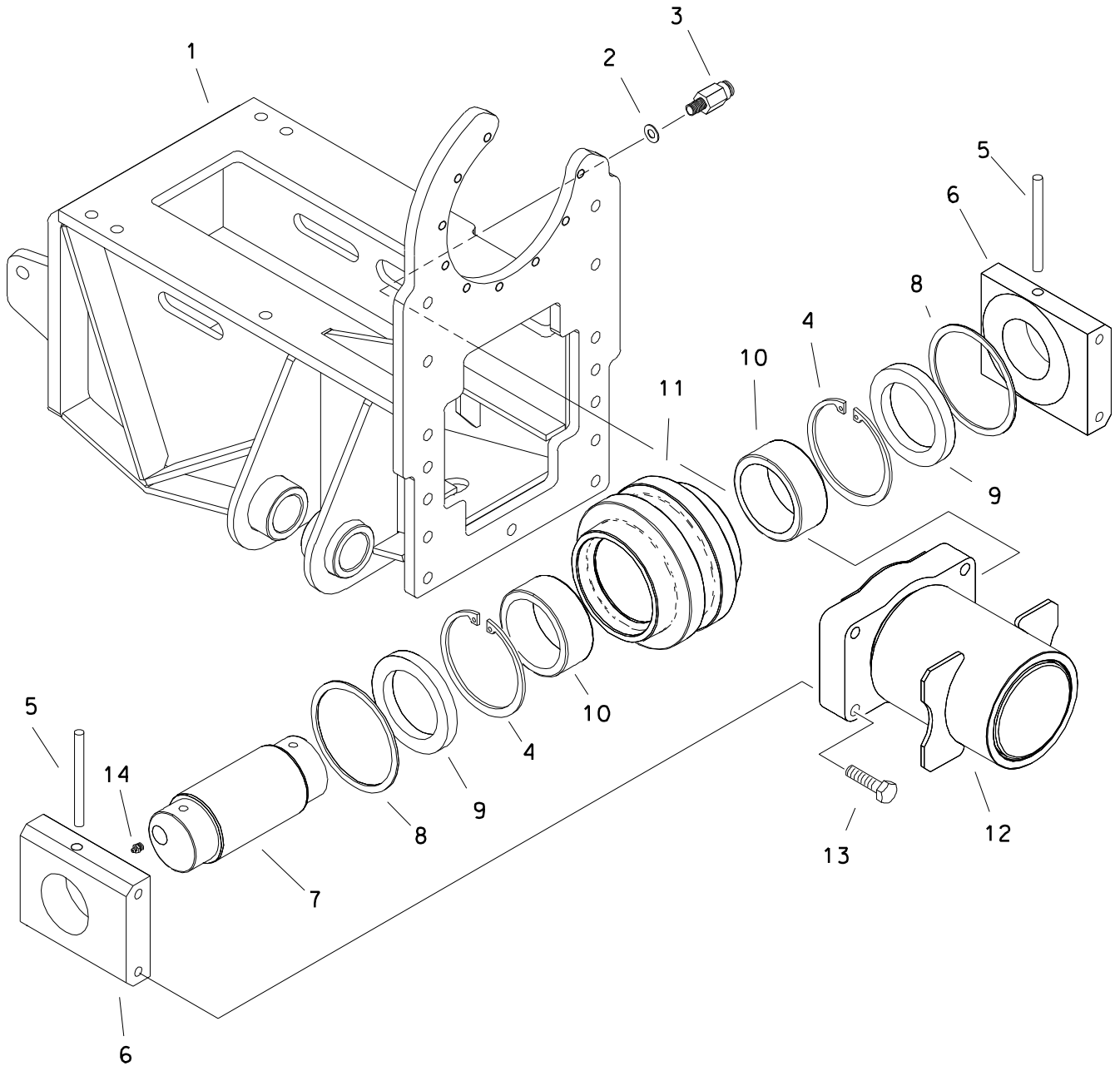


# THRUST PLANETARY GEARBOX

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	166-178	1	THRUST PLANETARY GEARBOX	
1.	499-893	1	THRUST WASHER (1.031")	
2.	165-589	1	PLANETARY GEARBOX COVER	
3.	165-590	1	PRIMARY SUN GEAR	
4.	499-174	1	SHIM (3.55")	
5.	165-592	1	PRIMARY CARRIER	
6.	165-593	1	SECONDARY CARRIER	
7.	165-594	1	RING GEAR	
8.	107-362	1	LOCK SCREW (.312" X .500")	
9.	121-026	1	NUT LOCK	USE SERVICE TOOL #301-575 ON NUT

FOOTNOTES

## THRUST CHAIN IDLER/ADJUSTMENT





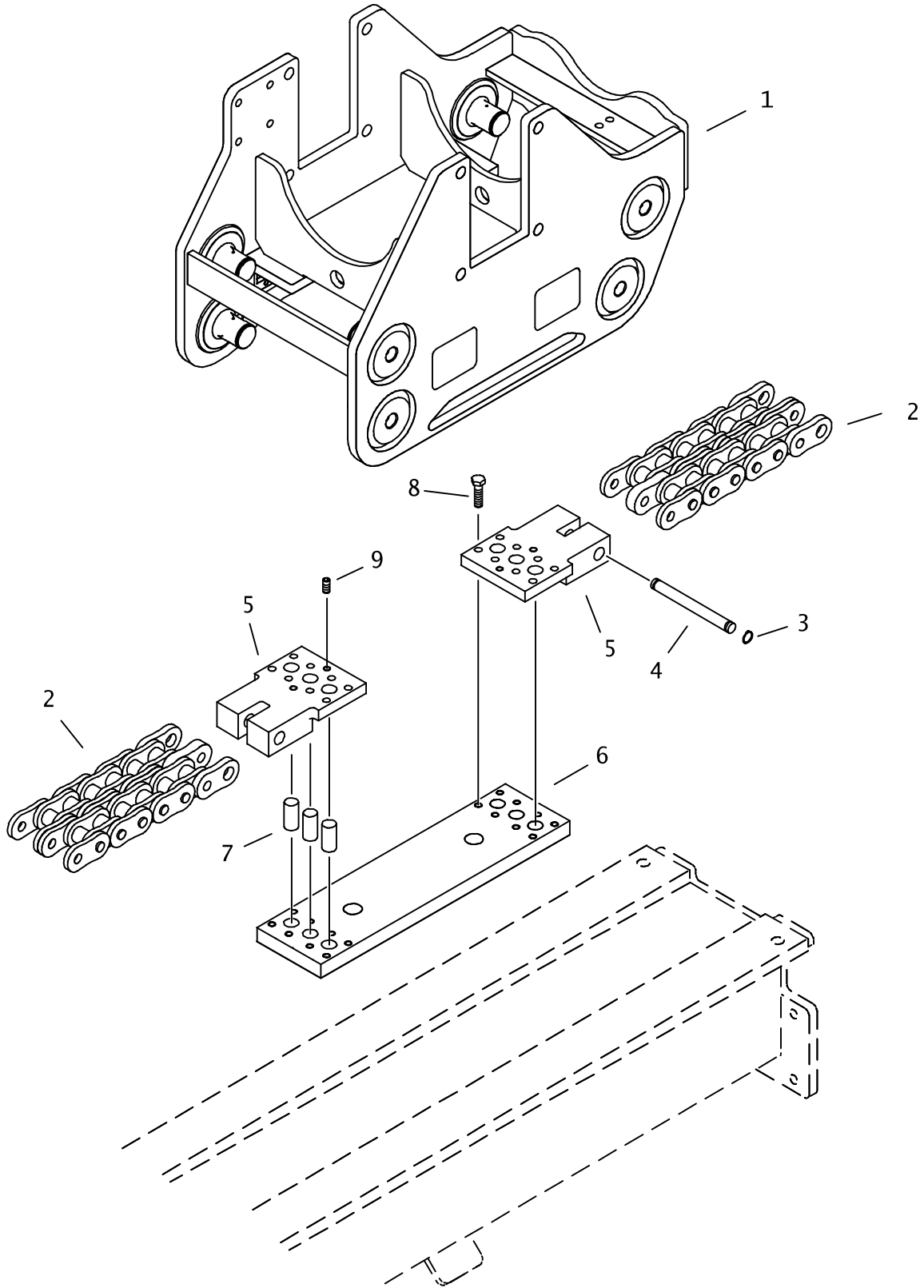
# THRUST CHAIN IDLER/ADJUSTMENT

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	349-675	-	FRONT FRAME	ENDS WITH S/N: 2V2567
	314-557	-	FRONT FRAME	BEGINS WITH S/N: 2W0856
2.	115-023	1	SEAL WASHER (M17)	
3.	115-022	1	VALVE ZERK (M16-1.50)	
4.	115-534	2	INTERNAL SNAP RING (5.000")	
5.	105-578	2	ROLL PIN (M12 X 160MM)	
6.	349-385	2	MOUNT BLOCK	
7.	167-310	1	IDLER SHAFT	
8.	110-938	2	THRUST WASHER (3.996", DELRIN)	
9.	157-171	2	EXTERNAL SEAL (4.000")	
10.	126-173	2	NEEDLE BEARING (4.000")	
11.	370-216	1	IDLER	
12.	349-391	1	ADJUSTMENT CYLINDER	
13.	106-341	4	SCREW (M16-2.0 X 70MM)	USE LOCTITE 242 OR EQUIVALENT
14.	115-013	2	ZERK (1/4-NF, STR)	

FOOTNOTES

NOTE

# CHAIN CONNECTOR



## CHAIN CONNECTOR

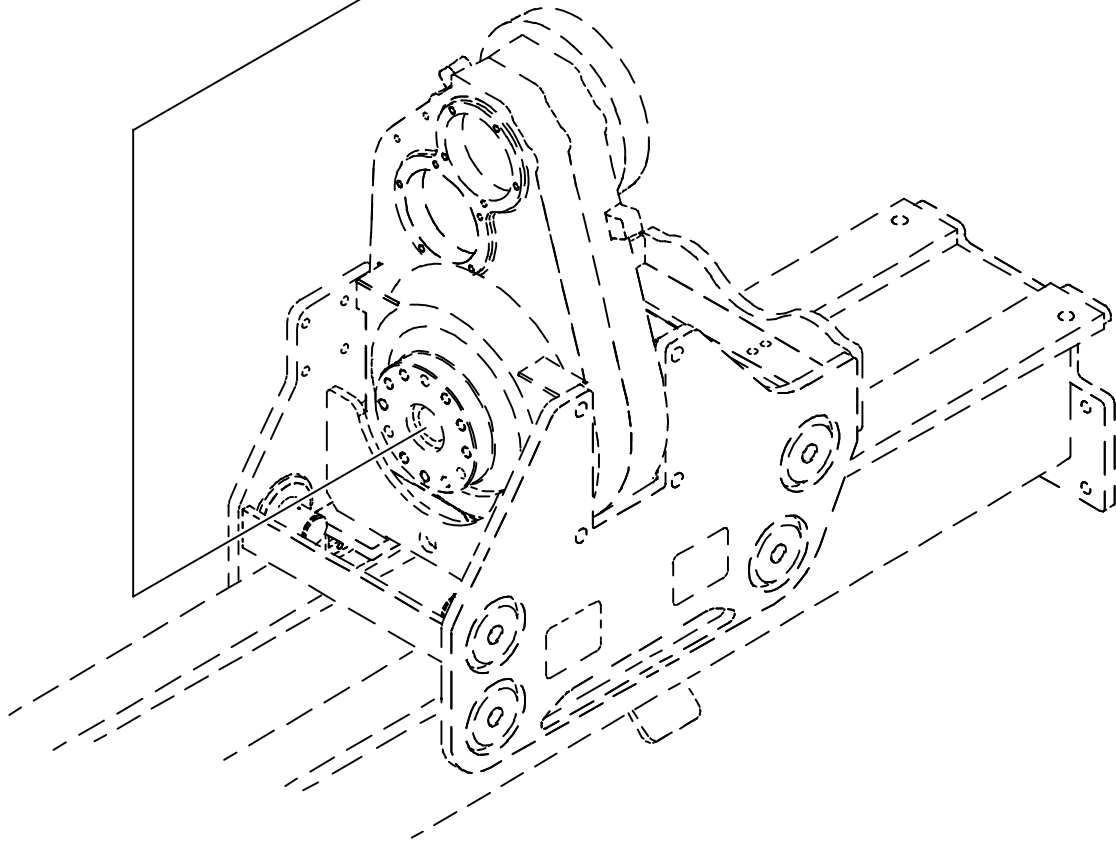
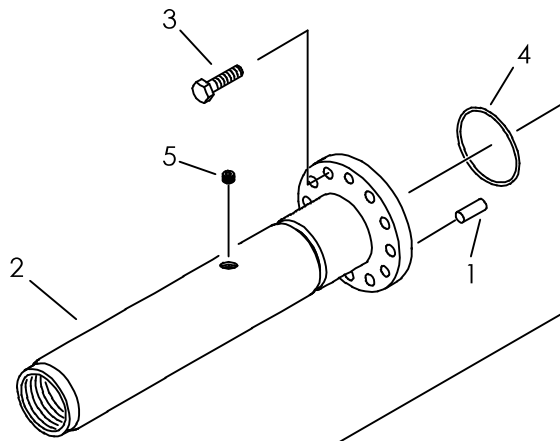
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	349-558	-	CARRIAGE	
2.	130-332	1	THRUST CHAIN	INCL REF NO.'S 3, 4 & 5
	129-003	-	3 LINK REPAIR SECTION (2.000P)	
	130-713	-	CONNECTOR LINK (#160-2)	
3.	118-053	4	EXTERNAL SNAP RING (.875")	
4.	179-250	2	CHAIN CONNECTOR PIN (.938")	
5.	370-245	2	CHAIN CONNECTOR	
6.	349-557	1	CHAIN CONNECTOR	
7.	105-587	6	DOWEL PIN (1" X 2")	
8.	106-477	16	SCREW (M12-1.75 X 45MM)	
9.	107-303	4	SETSCREW (M12-1.75 X 20MM)	

NOT SHOWN:

FOOTNOTES:

NOTE:

# SAVER SUB (JT)



## SAVER SUB (JT)

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	500-818	3	DOWEL PIN (16mm X 40mm)	
2.	400-1132	1	SAVER SUB 10,000T	SUPERSEDES 370-179
3.	106-244	9	SCREW (M16-2 X 60mm)	USE LOCTITE 242 OR EQUIVALENT
4.	155-701	1	O-RING (345 D70)	
5.	115-158	1	PLUG (06N, SQ)	

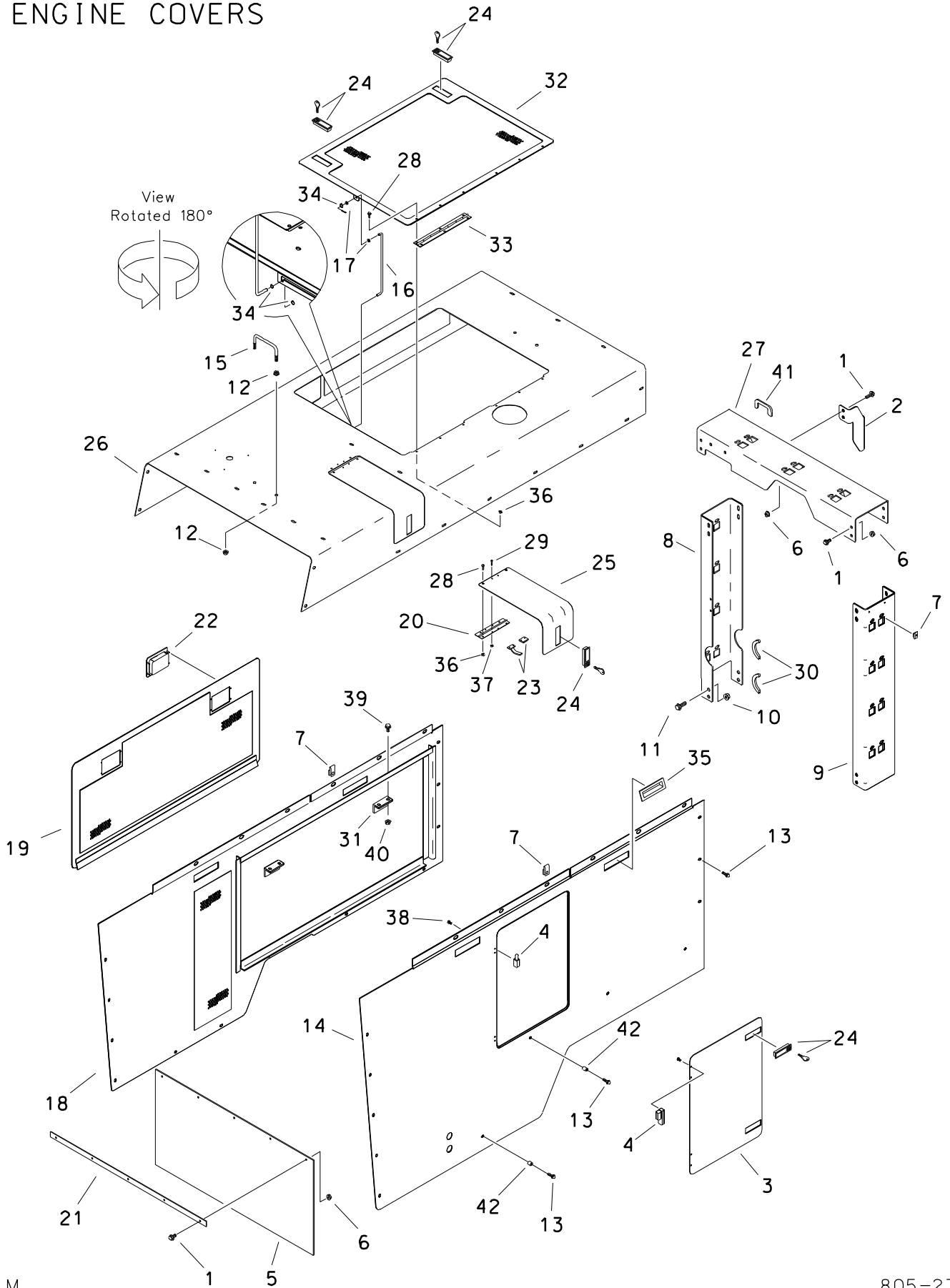
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368-164      THREAD PROTECT PLUG 3.27-4

FOOTNOTES:

NOTE:

# ENGINE COVERS

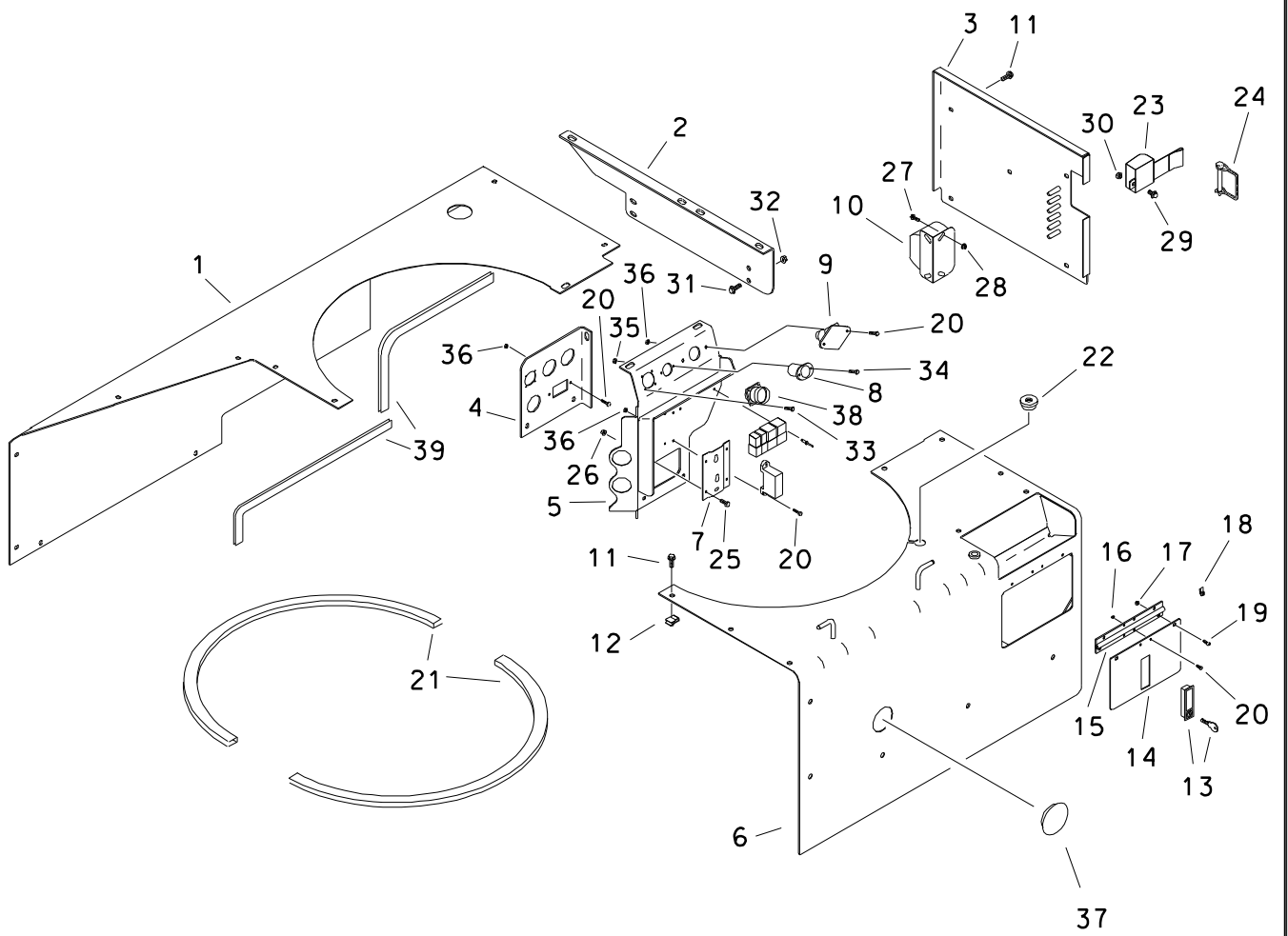


## ENGINE COVERS

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	106-382	19	FLG LK SCREW (M10-1.5 X 20mm)	
2.	349-693	1	REAR TANK BRACKET	
3.	349-398	1	DOOR	
4.	111-002	2	LIFT-OFF HINGE (OFF-SET)	
5.	370-109	1	DEFLECTOR FLAP	
6.	106-387	19	FLG LOCKNUT (M10-1.5)	
7.	106-551	34	CLIP NUT (M8-1.25)	
8.	349-690	1	FORMED COLUMN	
9.	349-691	1	FORMED COLUMN	
10.	106-709	8	FLG NUT (M12-1.75)	
11.	106-469	8	FLG SCREW (M12-1.75 X 30mm)	
12.	105-834	8	FLG LOCKNUT (3/8-NC)	
13.	106-991	67	FLG LK SCREW (M8-1.25 X 20mm)	
14.	349-702	1	RIGHT SIDE COVER	
15.	349-836	2	HANDLE	
16.	353-172	1	PROP ROD	
17.	106-388	4	WASHER (M6)	
18.	349-709	1	LEFT SIDE COVER	
19.	349-705	1	ACCESS DOOR	
20.	110-580	1	HINGE (6")	
21.	370-108	1	CLAMP BAR	
22.	110-514	2	LOCKING LATCH	INCL KEY
	110-596		KEY (PAIR)	
23.	110-524	1	SPRING RETAINER CLIP	
24.	117-558	5	ADJUST LEVER LATCH (LOCKING)	
	214-961		KEY, PAIR (BASE CODE)	
	217-309		LOCK PLUG 4/LATCH (BASE CODE)	
	<del>110-757</del>	5	LEVER LATCH	ADJUSTABLE, LOCKING; INCL KEY
	110-596		KEY (PAIR)	
25.	349-697	1	ACCESS DOOR	
26.	349-695	1	HOOD	
27.	349-689	1	FORMED CROSSMEMBER	
28.	106-640	16	SCREW (M6-1 X 20mm, BUT SOC)	
29.	106-542	4	SCREW (M5-.8 X 16mm, PAN)	
30.	115-686	AR	BULK EDGE (5/32", SOLD PER 1")	USE TWO @ 6.00"
31.	349-807	2	DOOR STOP	
32.	370-182	1	ACCESS DOOR	
33.	110-337	2	HINGE (11")	
34.	115-476	4	GRIP RING (.250")	
35.	110-699	4	PULL HANDLE	
36.	106-538	16	LOCKNUT (M6-1.00, 10.9)	
37.	106-850	4	LOCKNUT (M5-0.80)	
38.	106-228	8	SCREW (M5-0.8 X 10mm)	
39.	106-162	4	FLG SCREW (M8-1.25 X 20mm)	
40.	106-386	4	FLG LOCK NUT (M8-1.25)	
41.	115-686	AR	BULK EDGE (5/32", SOLD PER 1")	USE 1 @ 6"
42.	105-633	2	NUTSERT (M8X1.25)3.80-7.90THK	

## FOOTNOTES

## FRONT COVERS



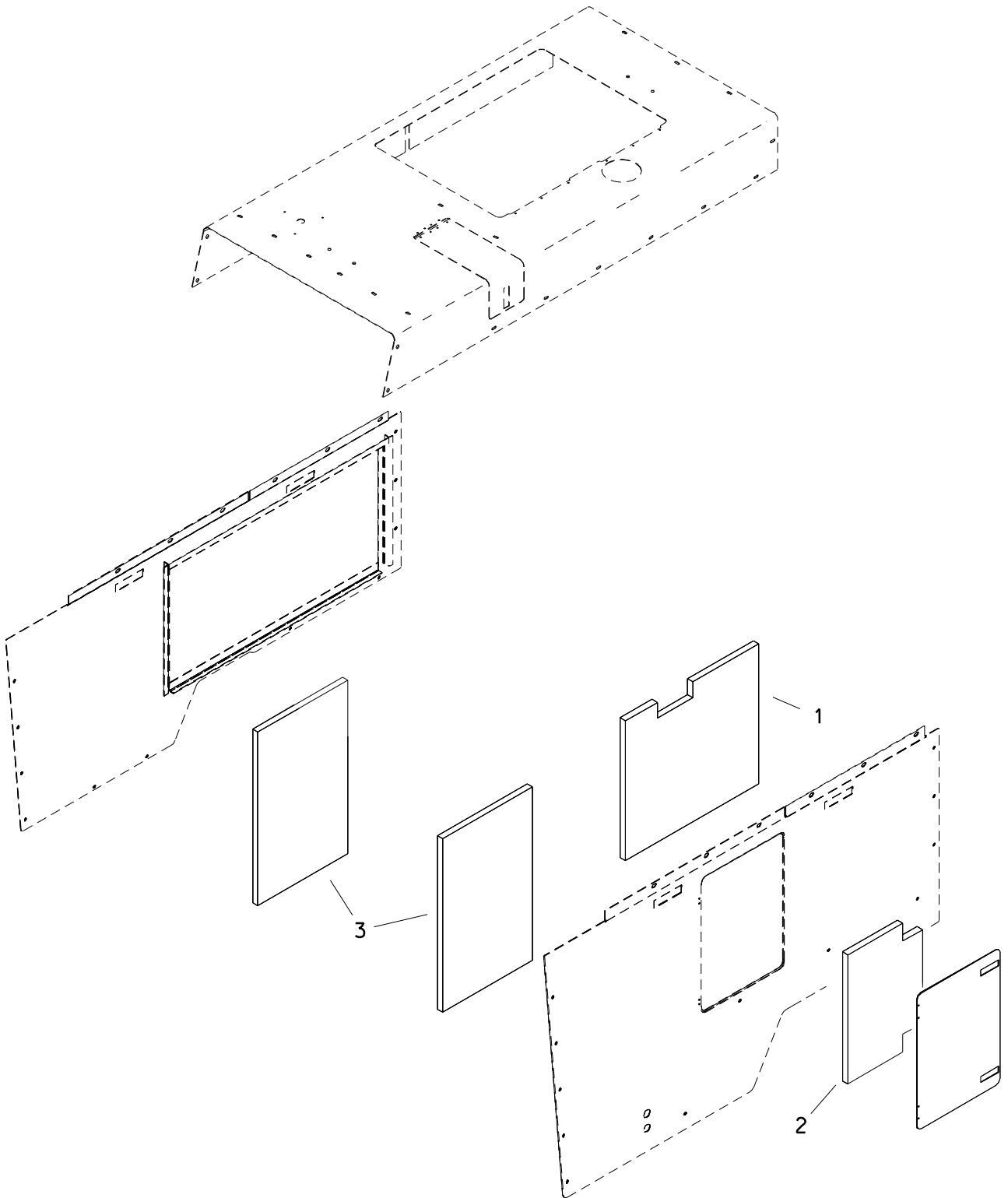


## FRONT COVERS

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	349-798	-	LEFT COVER	USED WITH CRANE
	370-458	-	LEFT COVER	USED WITHOUT CRANE
2.	349-830	1	TOP COVER MOUNT	
3.	349-828	1	COVER PLATE	
4.	349-831	1	BULKHEAD PLATE	
5.	301-745	1	CONNECTOR/FUSE PANEL	BEGINS WITH S/N 2R2376
	349-832	1	CONNECTOR/FUSE PANEL	ENDS WITH S/N 2R2326
6.	349-833	1	RIGHT COVER	USED WITH CRANE
	370-460	-	RIGHT COVER	USED WITHOUT CRANE
7.	353-135	1	FUSE PLATE	
8.	214-301	1	ACCESSORY SOCKET	
9.	217-017	1	CONNECTOR (4-WAY, FM)	
10.	306-602	1	BACKUP ALARM	
11.	106-991	33	FLG LK SCREW (M8-1.25 X 20mm)	
12.	106-551	33	CLIP NUT (M8-1.25)	
13.	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	ADJUSTABLE, LOCKING; INCL KEYS
	110-596	-	KEY (PAIR)	
14.	348-299	1	ACCESS PANEL	BEGINS WITH S/N 2R1847
	344-629	1	DOOR PANEL	ENDS WITH S/N 2R1779
15.	111-047	1	HINGE (214mm)	BEGINS WITH S/N 2R1847
	110-580	1	HINGE (6")	ENDS WITH S/N 2R1779
16.	106-138	4	NUT (M5-0.80)	
17.	106-538	4	LOCKNUT (M6-1.00, PRV TRQ, 10.9)	
18.	110-524	1	SPRING RETAINER CLIP	
19.	106-640	4	BOLT (M6-1.00 X 20mm, BUT SOC)	
20.	106-542	14	SCREW (M5-0.80 X 16mm, PHLPS)	
21.	115-686	AR	BULK EDGE (1/16", SOLD PER 1")	USE 2 @ 40", USED ONLY WITH HOIST
22.	116-768	1	GROMMET (1/4")	
23.	171-008	1	RETRACTABLE BELT (ORANGE)	
24.	110-032	1	SNAPPER PIN (5/16" X 2-1/2")	
25.	106-234	4	SCREW (M6-1 X 12mm)	
26.	106-385	4	FLG LOCKNUT (M6-1.00)	
27.	106-162	2	FLG SCREW (M8-1.25 X 20mm)	
28.	106-386	2	FLG LOCKNUT (M8-1.25)	
29.	106-469	1	FLG SCREW (M12-1.75 X 30mm)	
30.	106-685	1	LOCKNUT (M12-1.75, PRV TRQ, 10.9)	
31.	106-382	4	FLG LK SCREW (M10-1.5 X 20mm)	
32.	106-387	4	FLG LOCKNUT (M10-1.50)	
33.	105-214	4	FLG SCREW (#10-24 X 1/2")	
34.	106-058	10	BOLT (#6-32 X 1-1/8", RD SLT)	
35.	105-215	10	NUT (#6-32)	
36.	106-850	14	LOCKNUT (M5-0.80)	
37.	110-982	1	DOME PLUG (2.5")	
38.	214-468	-	RECEPTACLE (19 PIN)	
39.	115-686	AR	BULK EDGE (5/32", SOLD PER 1")	USE 1 @ 45"

## FOOTNOTES

# SOUND INSULATION ENGINE COVERS



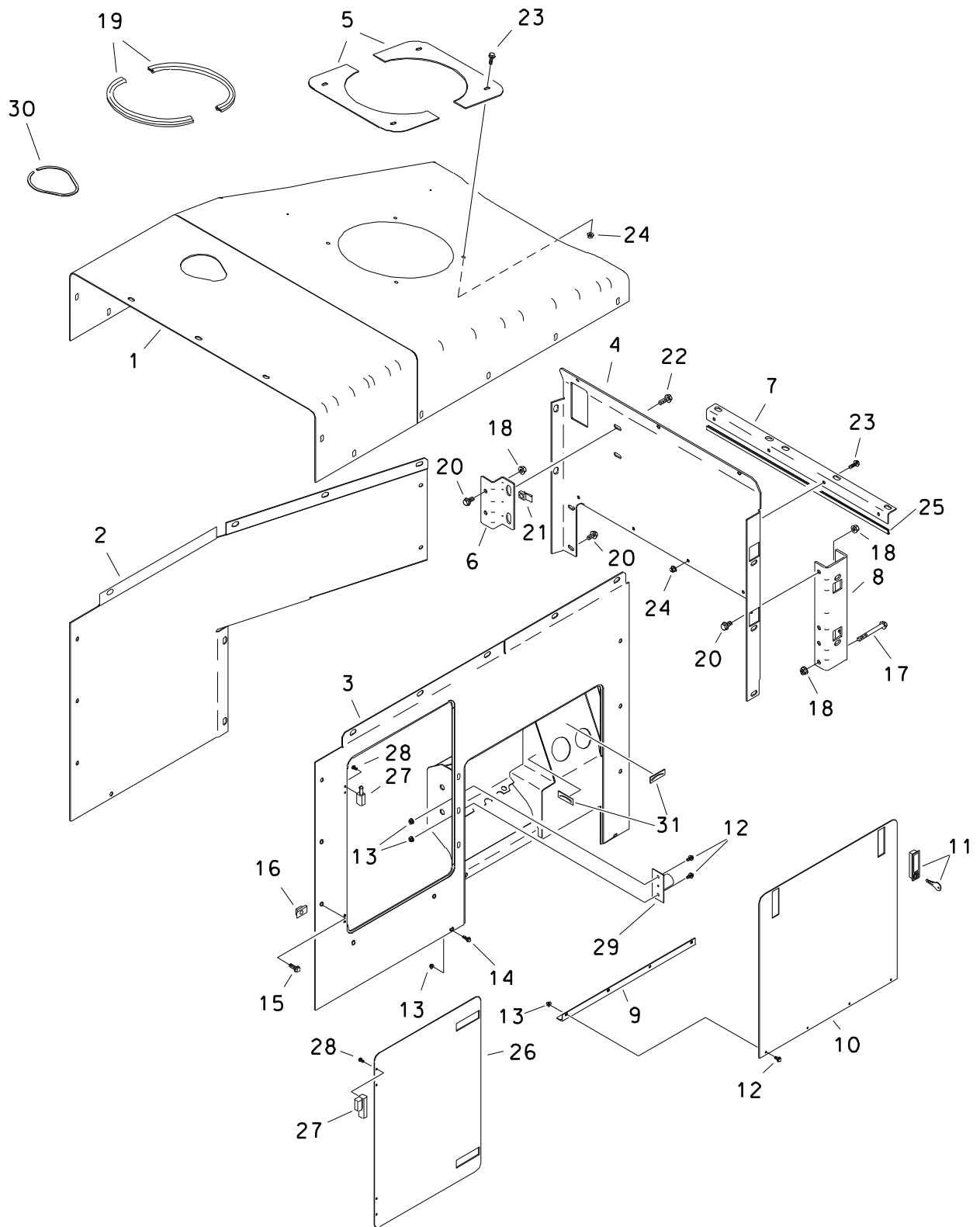
# SOUND INSULATION ENGINE COVERS

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	117-780	1	SOUND INSULATION	
2.	117-781	1	SOUND INSULATION	
3.	117-782	2	SOUND INSULATION	

FOOTNOTES

# COVERS

## HYD RESERVOIR AND PUMPS



## COVERS

### HYD RESERVOIR AND PUMPS

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	370-406	1	FRONT HOOD	BEGINS WITH S/N 2R2969
	349-737	1	FRONT HOOD	ENDS WITH S/N 2R2499
2.	349-794	1	FRONT LEFT SIDE COVER	
3.	349-756	1	FRONT RIGHT SIDE COVER	
4.	349-793	1	END PLATE	
5.	349-810	2	COVER PLATE	
6.	349-795	1	FRONT TANK BRACKET	
7.	349-806	1	BRACKET	
8.	349-796	1	CHANNEL	
9.	110-980	1	HINGE	
10.	349-755	1	DOOR	
11.	117-558	4	ADJUST LEVER LATCH (LOCKING)	
	214-961		KEY, PAIR (BASE CODE)	
	217-309		LOCK PLUG 4/LATCH (BASE CODE)	
	110-757	4	LEVER LATCH	ADJUSTABLE, LOCKING; INCL KEYS 110-596
12.	106-378	10	FLG LK SCREW (M6-1.0 X 12MM)	
13.	106-385	12	FLG LOCKNUT (M6-1.00)	
14.	106-379	2	FLG LK SCREW (M6-1.0 X 20MM)	
15.	106-991	31	FLG SCREW (M8-1.25 X 20MM)	
16.	106-551	31	CLIP NUT (M8-1.25)	
17.	106-206	2	SCREW (M10-1.50 X 90MM)	
18.	106-387	6	FLG LOCKNUT (M10-1.5)	
19.	116-421	AR	BULK EDGE (1/8", SOLD PER 1")	USE 2 @ 15-1/4"
20.	106-382	6	FLG LK SCREW (M10-1.50 X 20MM)	
21.	106-558	2	CLIP NUT (M10-1.5)	
22.	106-383	2	FLG SCREW (M10-1.50 X 30MM)	
23.	106-162	8	FLG SCREW (M8-1.25 X 20MM, GD 8)	
24.	106-386	8	FLG LOCKNUT (M8-1.25)	
25.	115-704	AR	BULK EDGE (1/4", SOLD PER 1")	USE 1 @ 23-3/4"
26.	349-398	1	DOOR	
27.	111-002	2	LIFT-OFF HINGE (OFF-SET)	
28.	106-228	8	SCREW (M5-.8 X 10MM)	
29.	215-412	1	LICENSE PLATE LAMP	
30.	115-686	AR	BULK EDGE (5/32", SOLD PER 1")	USE 1 @ 15"
31.	110-208	2	LEVEL	

#### FOOTNOTES



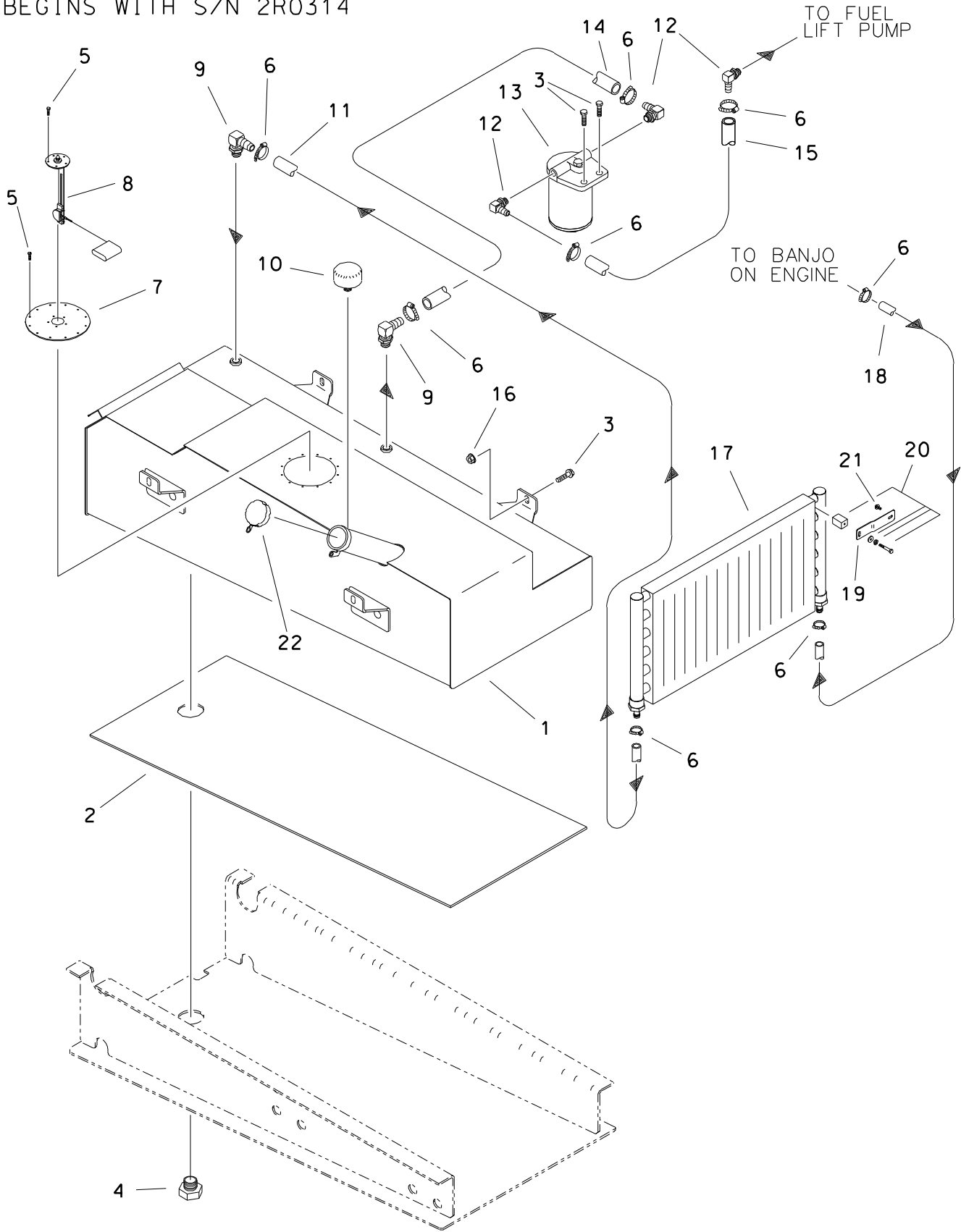
# FUEL TANK ENDS WITH S/N 2R0313

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	349-040	1	FUEL TANK	
2.	349-048	1	TANK PAD	
3.	106-632	6	FLG LK SCR (M12-1.75 X 35mm, SER)	
4.	115-152	1	PLUG (12N, SQ FM)	
5.	105-214	22	FLG SCREW (#10-24 X 1/2 ")	
6.	110-485	1	FUEL CAP (1-1/2")	
7.	364-080	1	FILLER NECK	
	364-659	1	FILLER NECK	
8.	110-134	2	WORM CLAMP (2.06" TO 2.75")	
9.	110-217	10	WORM CLAMP (7/16" TO 1")	
10.	116-322	AR	BULK HOSE (1/2", SOLD PER 1")	USE 1 @ 33"
11.	116-721	1	FUEL HOSE (21")	
12.	349-887	1	COVER PLATE	
13.	217-564	1	FUEL SENDER	
14.	156-108	2	S/O COUPLER (08N-08H90)	
15.	159-446	1	BREATHER VENT	
16.	116-760	AR	BULK HOSE (1/2", SOLD PER FT)	USE 1 @ 86"
17.	514-368	3	S/O COUPLER (M16-1.5-08H90)	
18.	159-465	-	FUEL PRE-FILTER	
	159-435	-	FUEL PRE-FILTER ELEMENT	
19.	116-760	AR	BULK HOSE (1/2", SOLD PER FT)	USE 1 @ 33"
20.	116-760	AR	BULK HOSE (1/2", SOLD PER FT)	USE 1 @ 19"
21.	106-709	4	FLG NUT (M12-1.75)	
22.	194-019	1	FUEL COOLER (JT7020)	
23.	116-760	AR	BULK HOSE (1/2", SOLD PER FT)	USE 1 @ 94"
24.	370-311	4	MOUNT BAR	
25.	190-818	2	MOUNT BRACKET KIT	
26.	106-382	4	FLG LK SCREW (M10-1.50 X 20mm)	

FOOTNOTES

# FUEL TANK

BEGINS WITH S/N 2R0314





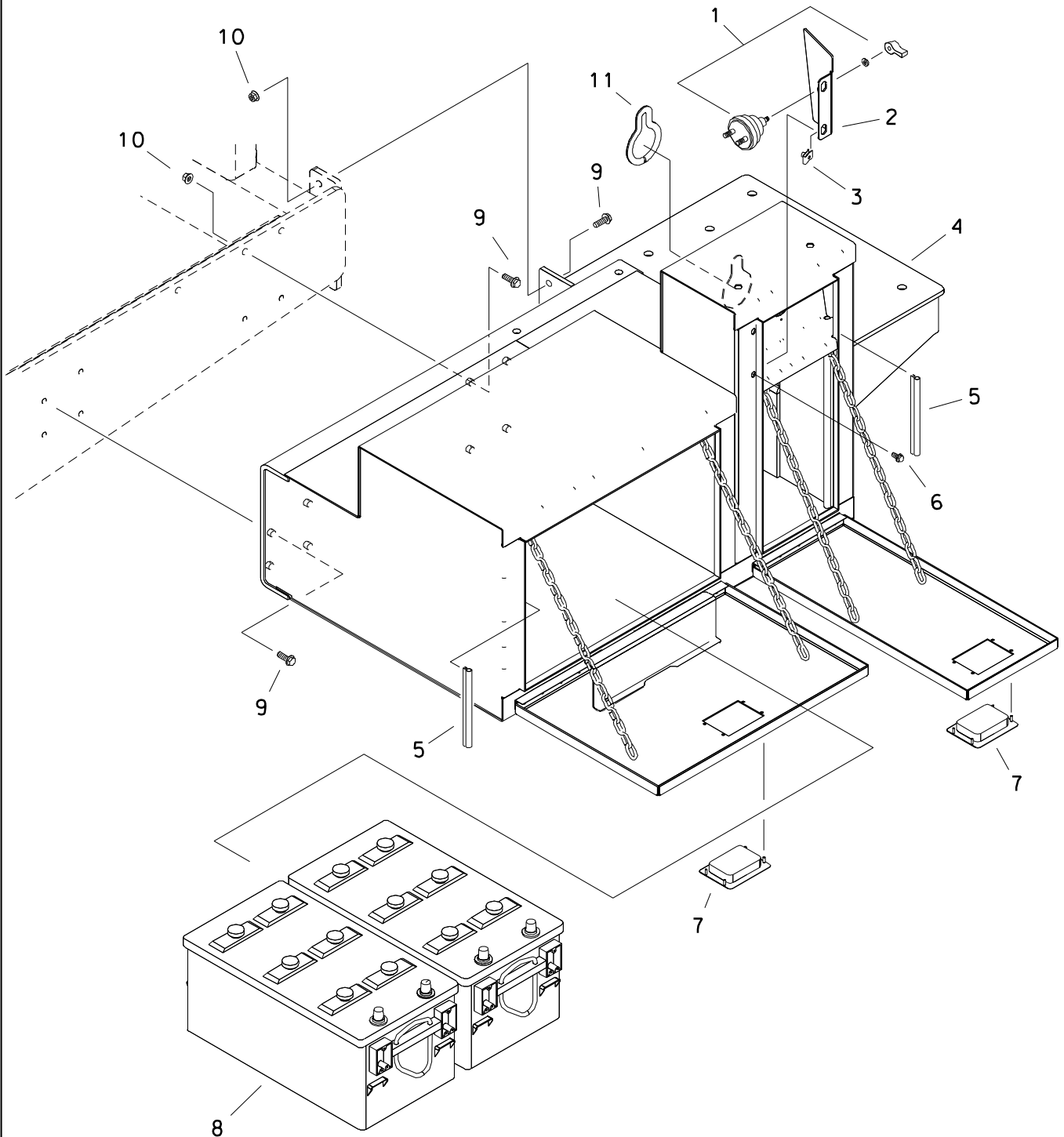
# FUEL TANK

## BEGINS WITH S/N 2R0314

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	370-353	1	FUEL TANK	
2.	349-048	1	TANK PAD	
3.	106-632	6	FLG LK SCREW (M12-1.75 X 35mm)	
4.	115-152	1	PLUG (12N, SQ)	
5.	105-214	16	FLG SCREW (#10-24 X 1/2")	
6.	110-217	8	WORM CLAMP (7/16" TO 1")	
7.	349-887	1	COVER PLATE	
8.	217-564	1	FUEL SENDER	
9.	156-108	2	S/O COUPLER (08N-08H90)	
10.	159-446	1	BREATHER VENT	
11.	116-760	AR	BULK HOSE (1/2", SOLD PER 1')	USE 1 @ 86"
12.	514-368	3	CONNECTOR (M16-1.5-08H90)	
13.	159-465	-	FUEL PRE-FILTER	
	159-435	-	FUEL PRE-FILTER ELEMENT	
	157-934	-	SEAL RING (-240)	
14.	116-760	AR	BULK HOSE (1/2", SOLD PER 1')	USE 1 @ 33"
15.	116-760	AR	BULK HOSE (1/2", SOLD PER 1')	USE 1 @ 19"
16.	106-709	4	FLG NUT (M12-1.75)	
17.	194-019	1	FUEL COOLER	USE 1 @ 94"
18.	116-760	AR	BULK HOSE (1/2", SOLD PER 1')	
19.	370-311	4	MOUNT BAR	
20.	190-818	2	MOUNTING BRACKET KIT	
21.	106-382	4	FLG LK SCREW (M10-1.50 X 20mm)	
22.	111-046	1	LOCKING CAP (NON-VENTED)	

### FOOTNOTES

# TOOL BOX/BATTERY BOX OLD STYLE

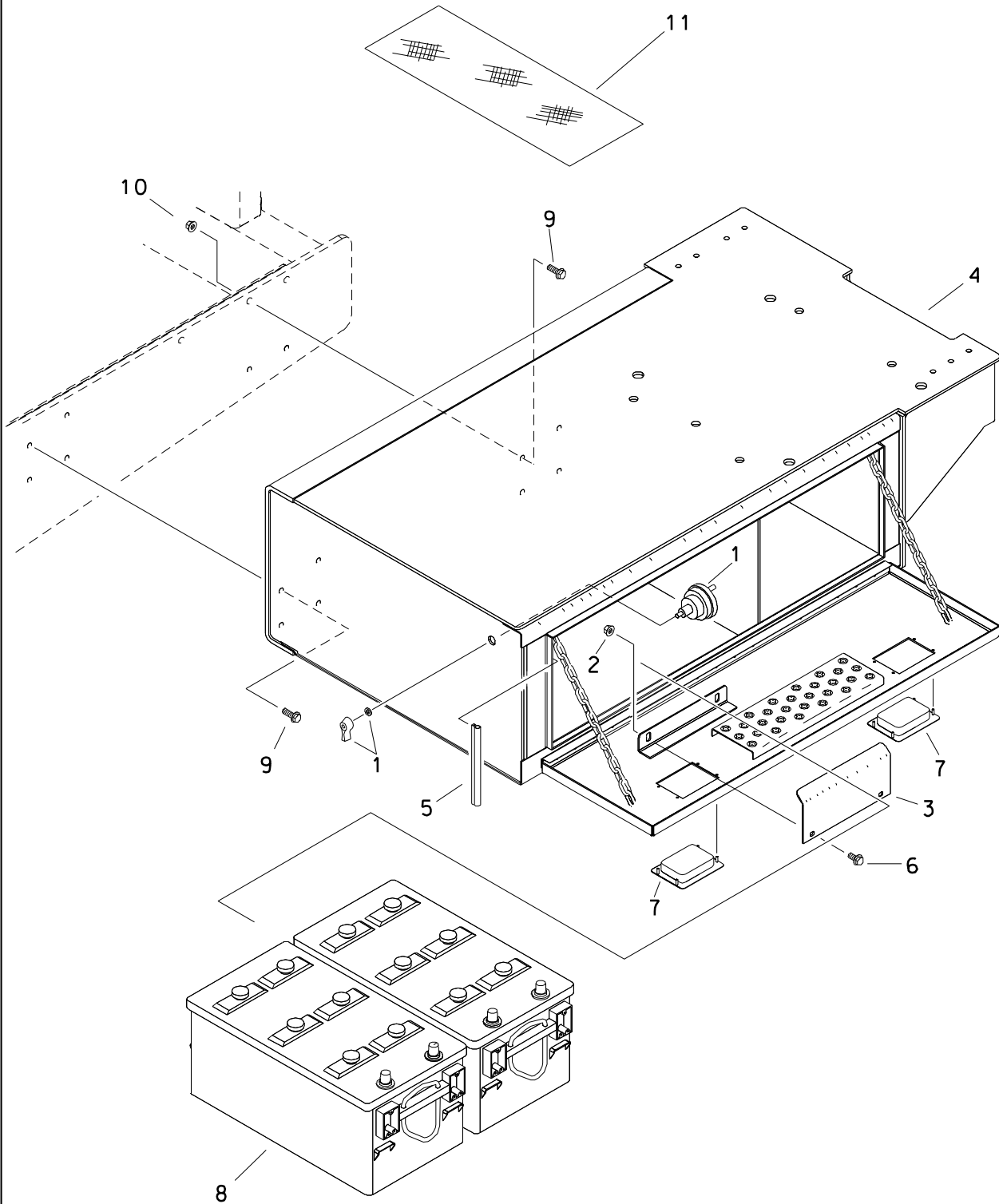


# TOOL BOX/BATTERY BOX OLD STYLE

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	217-819	1	BATTERY DISCONNECT SWITCH	
2.	349-721	1	MOUNT PLATE	
3.	106-551	2	CLIP NUT (M8-1.25)	
4.	349-725	1	TOOL BOX	
5.	116-421	AR	BULK EDGING (1/8", SOLD PER 1")	USE 2 @ 60" & 69"
6.	107-032	2	SCREW (M8-1.25 X 20mm, BUT SOC)	
7.	110-514	2	LOCKING LATCH	INCL KEY
	110-596		KEY	
8.	215-282	2	BATTERY	
9.	106-632	11	FLG LK SCREW (M12-1.75 X 35mm)	
10.	106-709	5	FLG NUT (M12-1.75)	
11.	116-723	AR	BULK EDGE (3/32", SOLD PER 1")	USE 1 @ 13"

FOOTNOTES

# TOOL BOX/BATTERY BOX NEW STYLE

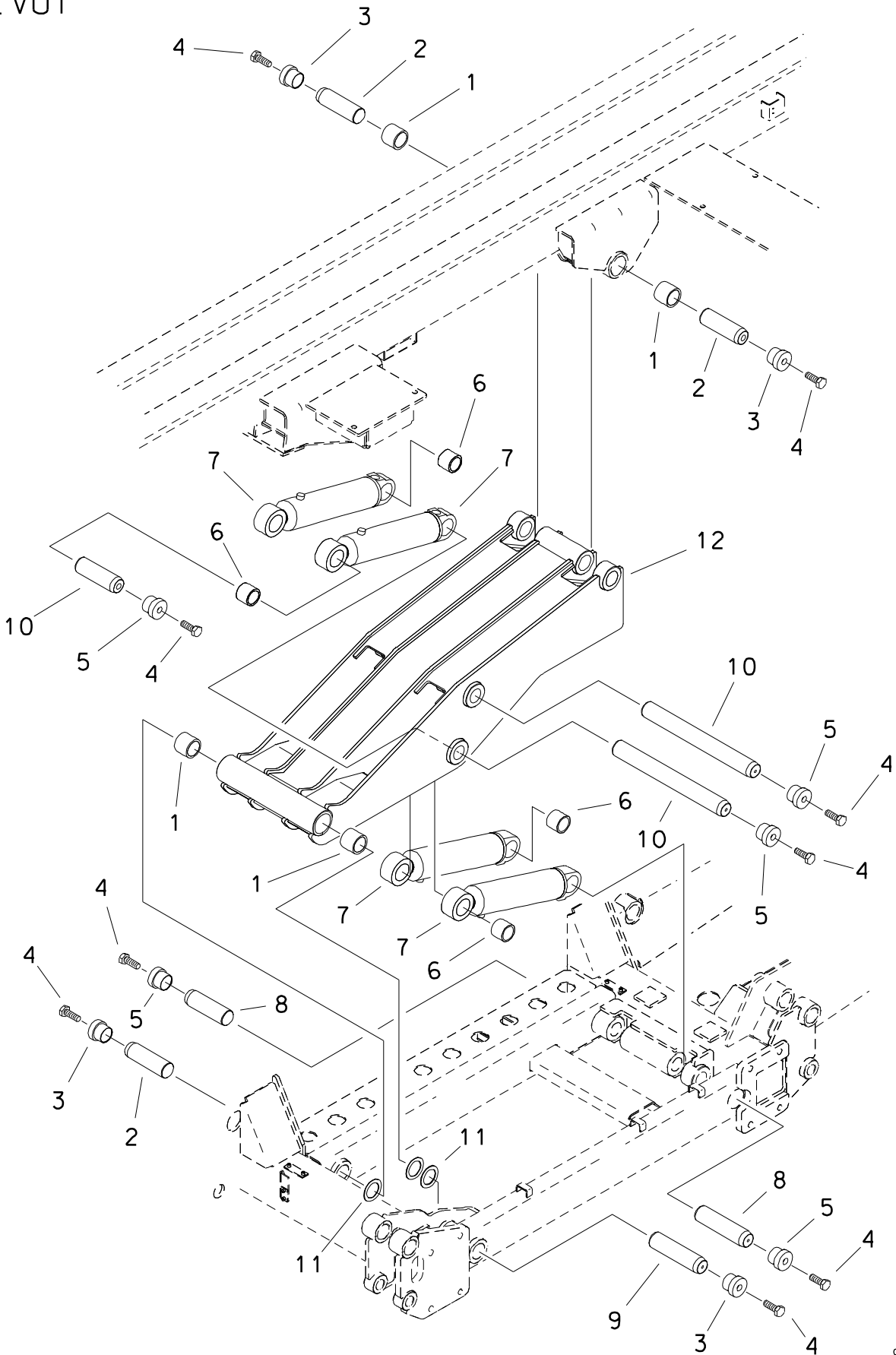


# TOOL BOX/BATTERY BOX NEW STYLE

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	217-819	1	BATTERY DISCONNECT SWITCH	
2.	106-387	2	FLG LOCKNUT (M10-1.50)	
3.	370-345	1	FORMED PLATE	
4.	370-336	1	TOOL BOX	
5.	116-421	AR	BULK EDGING (1/8", SOLD PER 1')	USE 1 @ 92"
6.	106-382	2	FLG LK SCREW (M10-1.5 X 20mm)	
7.	110-514	2	FLUSH LATCH	INCL KEY
	110-596		KEY	
8.	215-282	2	BATTERY	
9.	106-632	8	FLG LK SCREW (M12-1.75 X 35mm)	
10.	106-709	2	FLG NUT (M12-1.75)	
11.	115-318	AR	BULK NON-SKID (6", SOLD PER 1')	USE 3 @ 20"

FOOTNOTES

# PIVOT

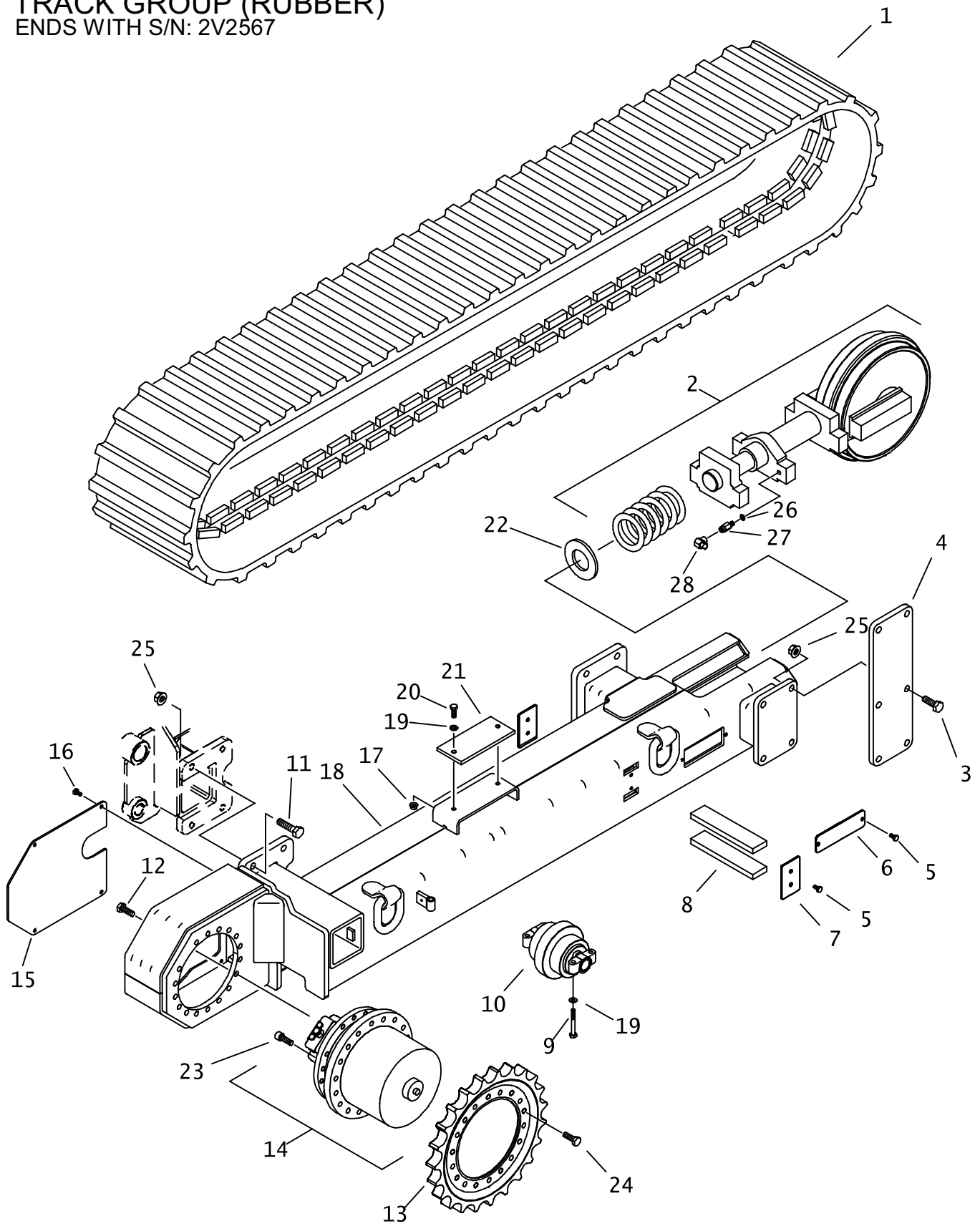


# PIVOT

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	125-781	4	COMPOSITION BUSHING (2.259")	
2.	183-837	3	TAPERED PIN (57.15mm X 180mm)	
3.	184-031	4	TAPERED INSERT (2.25")	
4.	106-345	9	SCREW (M20-2.50 X 50mm)	USE LOCKTITE WITH 242 OR EQUIVALENT
5.	184-064	5	TAPERED INSERT (2")	
6.	125-754	8	COMPOSITION BUSHING (2")	
7.	151-047	4	CYL (3.5" X 2.0" X 12.0")	
8.	183-919	2	TAPERED PIN (50.8mm X 190mm)	
9.	183-838	1	TAPERED PIN (57.1mm X 250mm)	
10.	179-177	3	TAPERED PIN (50.8mm X 460mm)	
11.	110-211	AR	MACHINERY BUSHING (2.25")	
12.	349-350	1	PIVOT	

FOOTNOTES

**TRACK GROUP (RUBBER)**  
 ENDS WITH S/N: 2V2567





## TRACK GROUP (RUBBER)

ENDS WITH S/N: 2V2567

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	349-004	2	RUBBER TRACK (450MM, 88P,71MM)	
2.	349-006	2	IDLER	
3.	106-075	6	SCREW (M20-2.50 X 60MM, 10.9)	USE LOCTITE 277 OR EQUIVALENT
4.	349-171	1	SUPPORT BAR	ENDS WITH S/N: 2V2567
	315-984	1	SUPPORT PLATE	BEGINS WITH S/N: 2W0856
5.	106-382	12	FLG LK SCREW (M10-1.5 X 20MM)	
6.	349-330	2	COVER	
7.	349-324	4	COVER	
8.	349-325	4	RECOIL STOP BAR	USE LOCTITE 242 OR EQUIVALENT
9.	106-335	56	SCREW (M12-1.75 X 70MM)	
10.	129-004	14	TRACK ROLLER	
11.	107-127	16	SCREW (M20-2.50 X 80MM, 10.9)	USE LOCTITE 277 OR EQUIVALENT
12.	105-998	34	SCREW (M16-2.00 X 40MM)	USE LOCTITE 242 OR EQUIVALENT
13.	175-736	2	SPROCKET (5.303"A23)	GROUND DRIVE
14.	166-162	2	GEARBOX & DRIVE PLANETARY	GROUND DRIVE
	160-1173	2	GEARBOX & DRIVE PLANETARY	
	166-139	1	GROUND DRIVE PLANETARY	
	160-1172	1	GROUND DRIVE PLANETARY	
	159-910	1	HYDRAULIC MOTOR	
15.	349-336	2	COVER	
16.	106-654	8	FLG LK SCREW (M10-1.50 X 16MM)	
17.	106-685	4	LOCKNUT (M12-1.75, PRV TRQ, 10.9)	
18.	349-300	1	RIGHT ROLLER FRAME	ENDS WITH S/N: 2V2567
	315-883	1	RIGHT ROLLER FRAME	BEGINS WITH S/N: 2W0856
	349-301	1	LEFT ROLLER FRAME	ENDS WITH S/N: 2V2567
	315-882	1	LEFT ROLLER FRAME	BEGINS WITH S/N: 2W0856
19.	106-397	60	WASHER (M12, HARDENED)	
20.	106-333	4	SCREW (M12-1.75 X 40MM, 8.8)	
21.	349-314	2	SLIDE PAD	
22.	370-382	2	SPACER RING	SEE FOOTNOTE 1
23.	107-116	4	SCREW (M16-2.00 X 35MM)	TORQUE TO 240 FT LBS; USE LOCTITE 242 OR EQUIVALENT.
24.	106-340	36	SCREW (M16-2.00 X 50MM)	TORQUE TO 240 FT LBS; USE LOCTITE 242 OR EQUIVALENT.
25.	106-356	22	FLG NUT (M20-2.50 10.9)	
26.	115-023	2	SEAL WASHER (M17)	
27.	115-022	2	VALVE ZERK (M16-1.50)	
28.	115-258	1	COUPLER (02NF, BUT)	

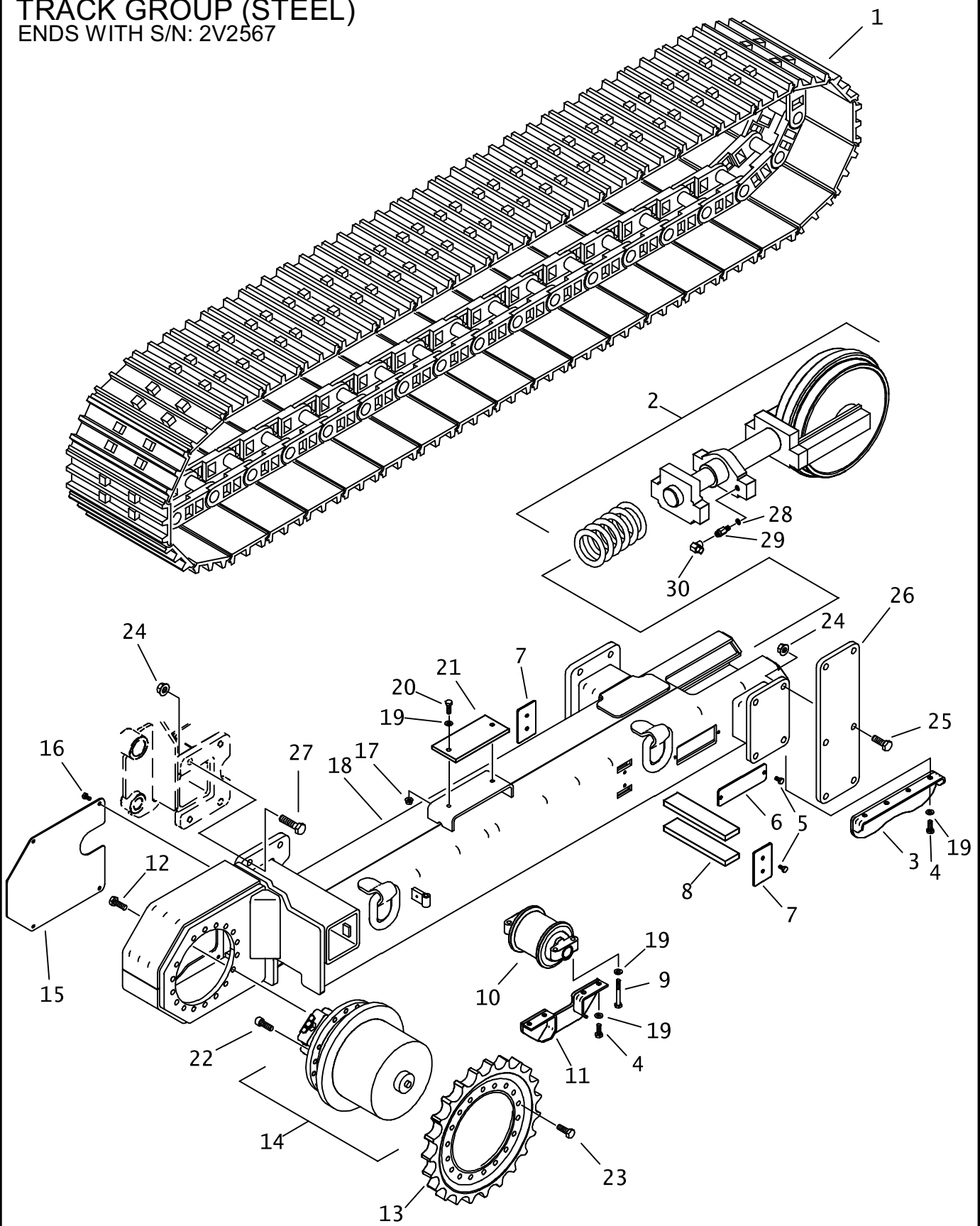
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FOOTNOTES:

NOTE:

# TRACK GROUP (STEEL)

ENDS WITH S/N: 2V2567



## TRACK GROUP (STEEL)

ENDS WITH S/N: 2V2567

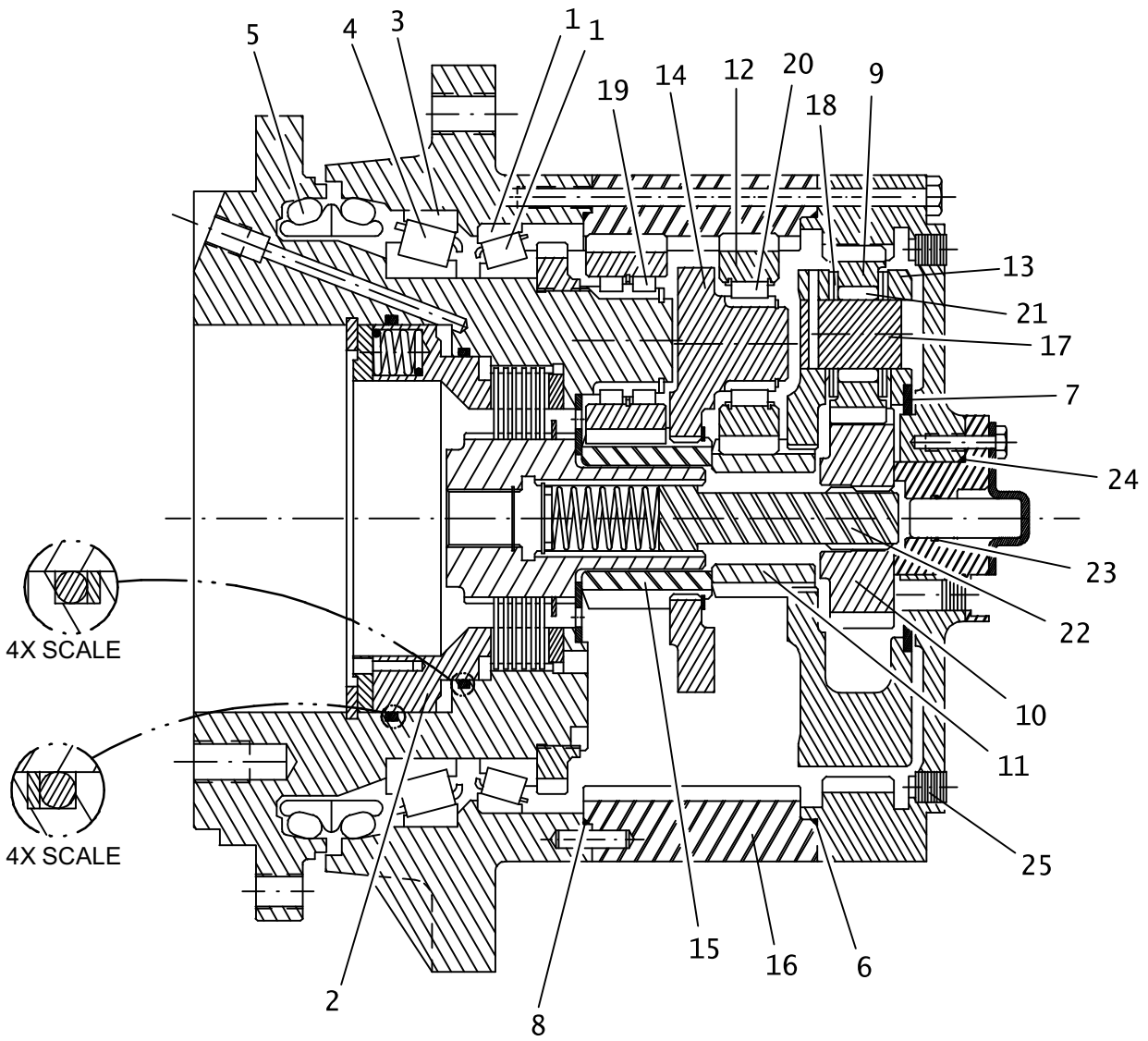
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	349-003	2	STEEL TRACK (450MM, 88P, 71MM)	
	370-501	44	TRACK LINK (RH)	
	370-502	44	TRACK LINK (LH)	
	370-503	86	TRACK BUSHING	
	370-504	2	TRACK MASTER BUSHING	
	370-505	86	TRACK PIN	
	370-506	2	TRACK MASTER PIN	
	370-507	176	TRACK SPACER	
2.	349-006	2	IDLER	
3.	349-341	4	FRONT GUARD	
4.	105-273	32	SCREW (M12-1.75 X 30MM)	
5.	106-382	12	FLG LK SCREW (M10-1.5 X 20MM)	
6.	349-330	2	COVER	
7.	349-324	4	COVER	
8.	349-333	4	RECOIL STOP BAR	
9.	106-335	56	SCREW (M12-1.75 X 70MM)	USE LOCTITE 242 OR EQUIVALENT
10.	349-002	14	TRACK ROLLER	
11.	349-337	4	MIDDLE GUARD	
12.	105-998	34	SCREW (M16-2.00 X 40MM)	USE LOCTITE 242 OR EQUIVALENT
13.	142-083	2	SPROCKET (5.515" A21)	
14.	166-162	2	GEARBOX & DRIVE PLANETARY	
	160-1173	2	GEARBOX & DRIVE PLANETARY	
	166-139	1	GROUND DRIVE PLANETARY	
	160-1172	1	GROUND DRIVE PLANETARY	
	159-910	1	HYDRAULIC MOTOR	
15.	349-336	2	COVER	
16.	106-654	8	FLG LK SCREW (M10-1.50 X 16MM)	
17.	106-685	4	LOCKNUT (M12-1.75, PRV TRQ, 10.9)	
18.	349-300	1	RIGHT ROLLER FRAME	ENDS WITH S/N: 2V2567
	315-883	1	RIGHT ROLLER FRAME	BEGINS WITH S/N: 2W0856
	349-301	1	LEFT ROLLER FRAME	ENDS WITH S/N: 2V2567
	315-882	1	LEFT ROLLER FRAME	BEGINS WITH S/N: 2W0856
19.	106-397	92	WASHER (M12, HARDENED)	
20.	106-333	4	SCREW (M12-1.75 X 40MM, 8.8)	USE LOCTITE 242 OR EQUIVALENT
21.	349-314	2	SLIDE PAD	
22.	106-478	4	SCREW (M16-2.00 X 40MM, 10.9)	TORQUE TO 240 FT LBS; USE LOCTITE 242 OR EQUIVALENT
23.	106-340	36	SCREW (M16-2.00 X 50MM)	
24.	106-356	22	FLG NUT (M20-2.50, 10.9)	
25.	106-075	6	SCREW (M20-2.50 X 60MM, 10.9)	USE LOCTITE 277 OR EQUIVALENT
26.	349-171	1	SUPPORT BAR	ENDS WITH S/N: 2V2567
	315-984	1	SUPPORT PLATE	BEGINS WITH S/N: 2W0856
27.	107-127	16	SCREW (M20-2.50 X 80MM, 10.9)	USE LOCTITE 277 OR EQUIVALENT
28.	115-023	1	SEAL WASHER (M17)	
29.	115-022	1	VALVE ZERK (M16-1.50)	
30.	115-258	1	COUPLER (O2NF, BUT)	

NOT SHOWN:  
FOOTNOTES:

NOTE:

# GROUND DRIVE PLANETARY GEARBOX

ENDS WITH S/N:CMWJT100HA0000023



## GROUND DRIVE PLANETARY GEARBOX ENDS WITH S/N:CMWJT100HA0000023

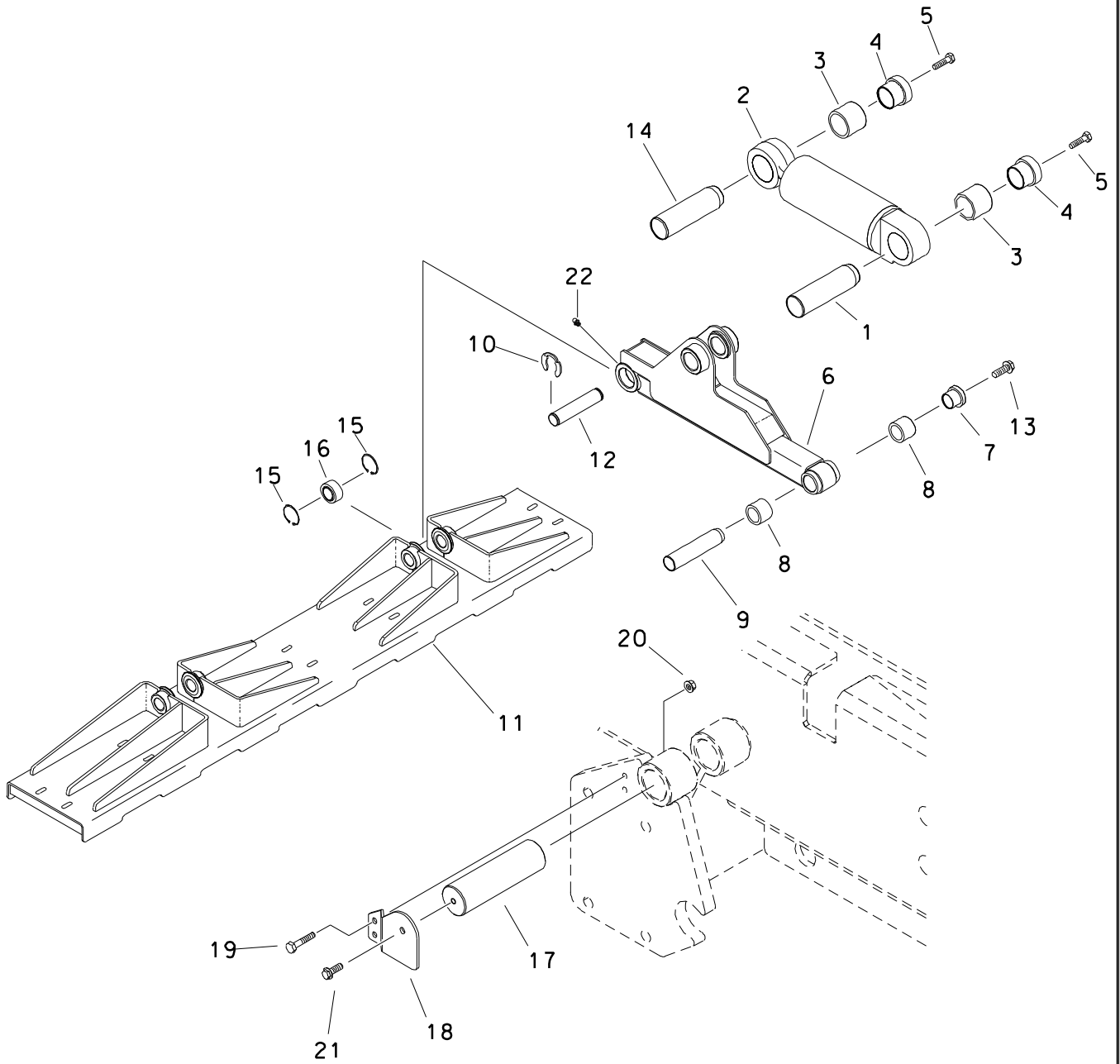
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	500-1571	1	BEARING	SUPERSEEDS 125-191 TAPERED RACE AND 125-186 TAPERED BEARING.
2.	160-508	1	BRAKE, INPUT (PLANETARY CT-26)	
3.	125-192	1	TAPERED RACE	
4.	125-187	1	TAPERED BEARING	
5.	149-403	1	FACE SEAL	
6.	157-203	1	O-RING	
7.	105-771	1	THRUST WASHER	
8.	149-405	1	O-RING (-178)	
9.	230-006	3	PLANET GEAR	
10.	230-007	1	SUN GEAR	
11.	230-008	1	SUN GEAR (63,69,95, 110:1)	
12.	230-009	3	PLANET GEAR (2ND STG. 110:1)	
13.	166-215	1	CARRIER ( 1ST STG 63:1 )	
14.	166-216	1	CARRIER (CT18 63,69,95,110:1)	
15.	230-010	1	SUN GEAR	
16.	230-011	1	RING GEAR	
17.	166-213	3	PLANET SHAFT	
18.	105-772	12	THRUST WASHER	
19.	125-188	5	CYL ROLLER BEARING	
20.	125-189	3	CYL ROLLER BEARING	
21.	125-190	57	NEEDLE BEARING	
22.	166-214	1	INPUT SHAFT	
23.	149-406	1	O-RING (-112)	
24.	149-407	1	O-RING(-131)	
25.	115-153	3	PLUG (04N, SQ)	

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FOOTNOTES:

NOTE:

## STABILIZERS



# STABILIZERS

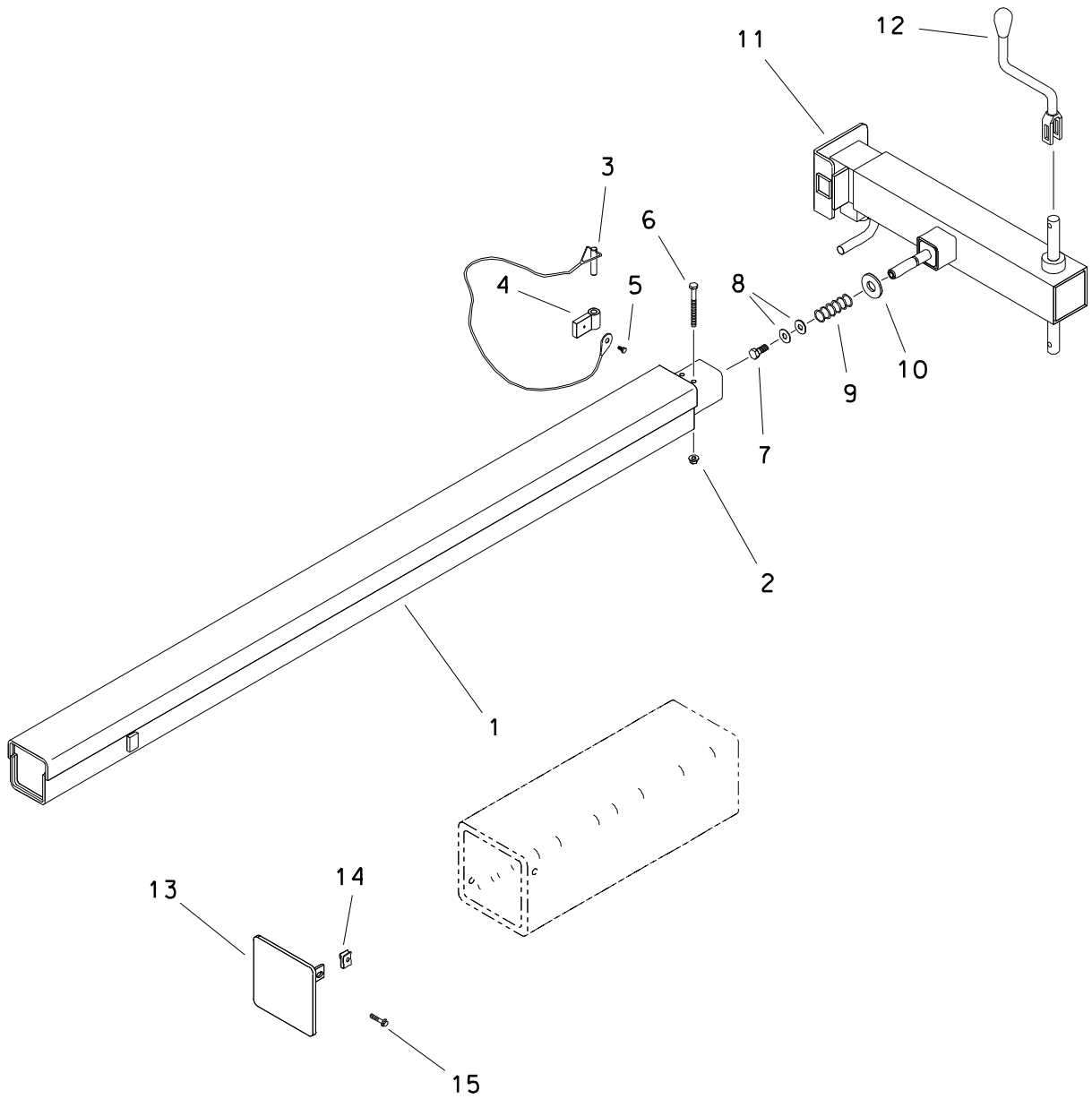
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	179-183	3	TAPERED PIN (57.1mm X 195mm)	
2.	151-095	4	HYD CYL (4" X 2.25" X 8")	SEE FOOTNOTE 1
3.	125-781	8	COMPOSITION BUSHING (2.259")	
4.	184-031	7	TAPERED INSERT (2.25")	
5.	106-345	7	SCREW (M20-2.5 X 50mm)	
6.	349-511	3	STABILIZER	
	349-516	1	FRONT RIGHT STABILIZER	
7.	181-974	4	TAPERED INSERT (1.5")	
8.	125-772	8	COMPOSITION BUSHING (1.5")	
9.	179-241	4	TAPERED PIN (1.500" X 7.20")	
10.	115-511	8	CLIP RING (1-1/2")	
11.	349-917	1	FRONT STABILIZER PAD	
	349-930	1	BACK STABILIZER PAD	
12.	349-956	4	PAD PIN	
13.	105-970	4	FLG BOLT (5/8-NC X 1-3/4, GD8)	
14.	179-101	4	TAPERED PIN (57.1mm X 155mm)	
15.	115-509	8	INTERNAL SNAP RING (2.440")	
16.	125-131	4	BALL BEARING (1.125")	
17.	370-040	1	PIN	
18.	370-039	1	RETAINER PLATE	
19.	106-995	2	FLG LK BOLT (M10-1.50 X 45mm)	
20.	106-387	2	FLG LOCKNUT (M10-1.50)	
21.	107-001	1	FLG LK SCREW (M10-1.50 X 25mm)	
22.	115-001	4	ZERK (Q2N)	

FOOTNOTES

1. PORTS GO UP ON REAR CYLINDERS, DOWN ON FRONT CYLINDERS.

NOTE

# AUXILIARY STABILIZER



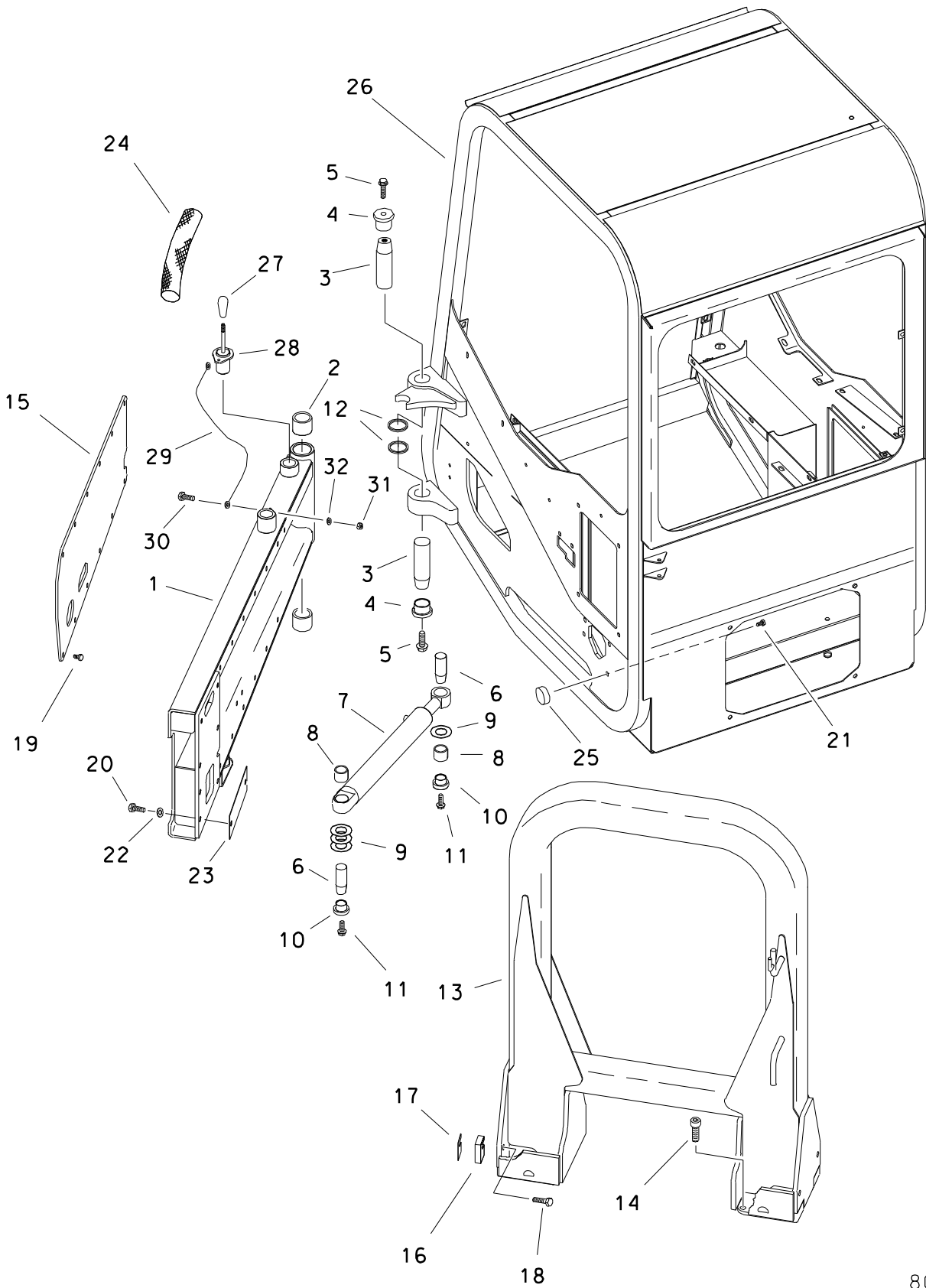


# AUXILIARY STABILIZER

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	349-524	1	STABILIZER SLIDE ARM	
2.	105-047	2	LOCKNUT (3/8- NC)	
3.	110-824	1	ADJUSTMENT PIN (1/2" X 2-1/2")	
4.	349-300	-	RIGHT ROLLER FRAME	
5.	105-836	1	FLG LK BOLT (1/4- NC X 1/2")	
6.	105-022	2	BOLT (3/8- NC X 4")	
7.	105-045	1	BOLT (1/2-NC X 1-1/4", NLK)	
8.	105-059	2	WASHER (1/2")	
9.	115-591	1	COMPRESSION SPRING	
10.	105-439	1	WASHER (7/8")	
11.	349-520	1	JACK	
12.	206-351	1	JACK CRANK	INCL MOUNTING HARDWARE
13.	349-878	1	CAP	
14.	106-551	2	CLIP NUT (M8-1.25)	
15.	106-991	2	FLG LK SCREW (M8-1.25 X 20mm)	

FOOTNOTES

# CAB ARM & ROPS



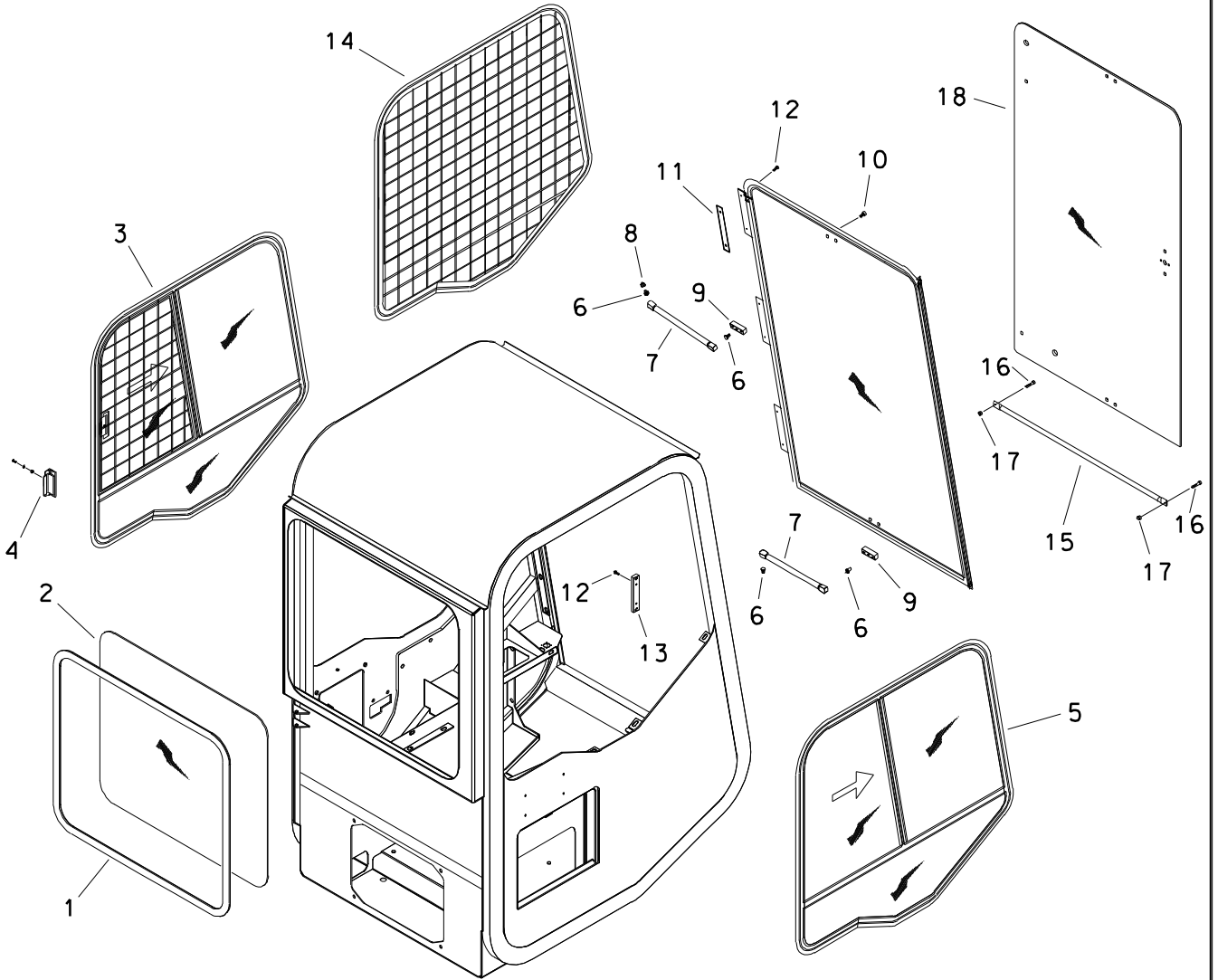
# CAB ARM & ROPS

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	349-172	1	CAB ARM	
2.	125-773	2	COMPOSITION BUSHING (1.75")	
3.	183-957	2	TAPERED PIN (44.5mm X 110mm)	
4.	181-975	2	TAPERED INSERT (1.75")	
5.	106-470	2	FLG SCREW (M16-2.0 X 40mm)	
6.	183-765	2	TAPERED PIN (31.7mm X 110mm)	
7.	151-182	1	HYD CYL (2" X 1.25" X 14.25")	
8.	125-771	2	COMPOSITION BUSHING (1.25")	
9.	180-118	4	BRASS BUSHING (1.25")	
10.	181-982	2	TAPERED INSERT (1.25")	
11.	106-469	2	FLG SCREW (M12-1.75 X 30mm)	
12.	501-125	2	MACHINERY BUSHING (1.784")	
13.	349-022	1	ROPS	
14.	107-275	12	SCREW (M20-2.5 X 55mm, ALN)	TORQUE TO 310 FT LBS
15.	349-487	1	COVER PLATE	
16.	349-485	2	SPACER	
17.	349-486	AR	SHIM	
18.	106-341	2	SCREW (M16-2.0 X 70mm)	
19.	106-559	13	SCREW (M12-1.75 X 25mm)	
20.	106-340	6	SCREW (M16-2.0 X 50mm)	
21.	106-654	1	FLG LK SCREW (M10-1.5 X 16mm)	
22.	106-398	6	WASHER (M16, HARDENED)	
23.	349-397	3	SHIM	SEE FOOTNOTE 1
24.	117-789	1	ABRASION SLEEVE (4" X 36")	
25.	116-788	1	BUFFER	
26.	349-415	1	CAB FRAME	
27.	110-375	1	KNOB (1/2-NC, YELLOW)	
28.	370-392	1	LOCKOUT PIN	
29.	110-239	1	LANYARD CABLE	
30.	106-712	2	FLG SCREW (M6-1.00 X 16mm)	
31.	106-237	2	LOCKNUT (M6-1.00, PRV TRQ, NYL)	
32.	106-388	2	WASHER (M6)	

FOOTNOTES

1. USE 2 SHIMS IN TOP HOLES; 1 SHIM IN MIDDLE HOLES

# CAB DOOR/WINDOWS ENDS WITH S/N 2R1779



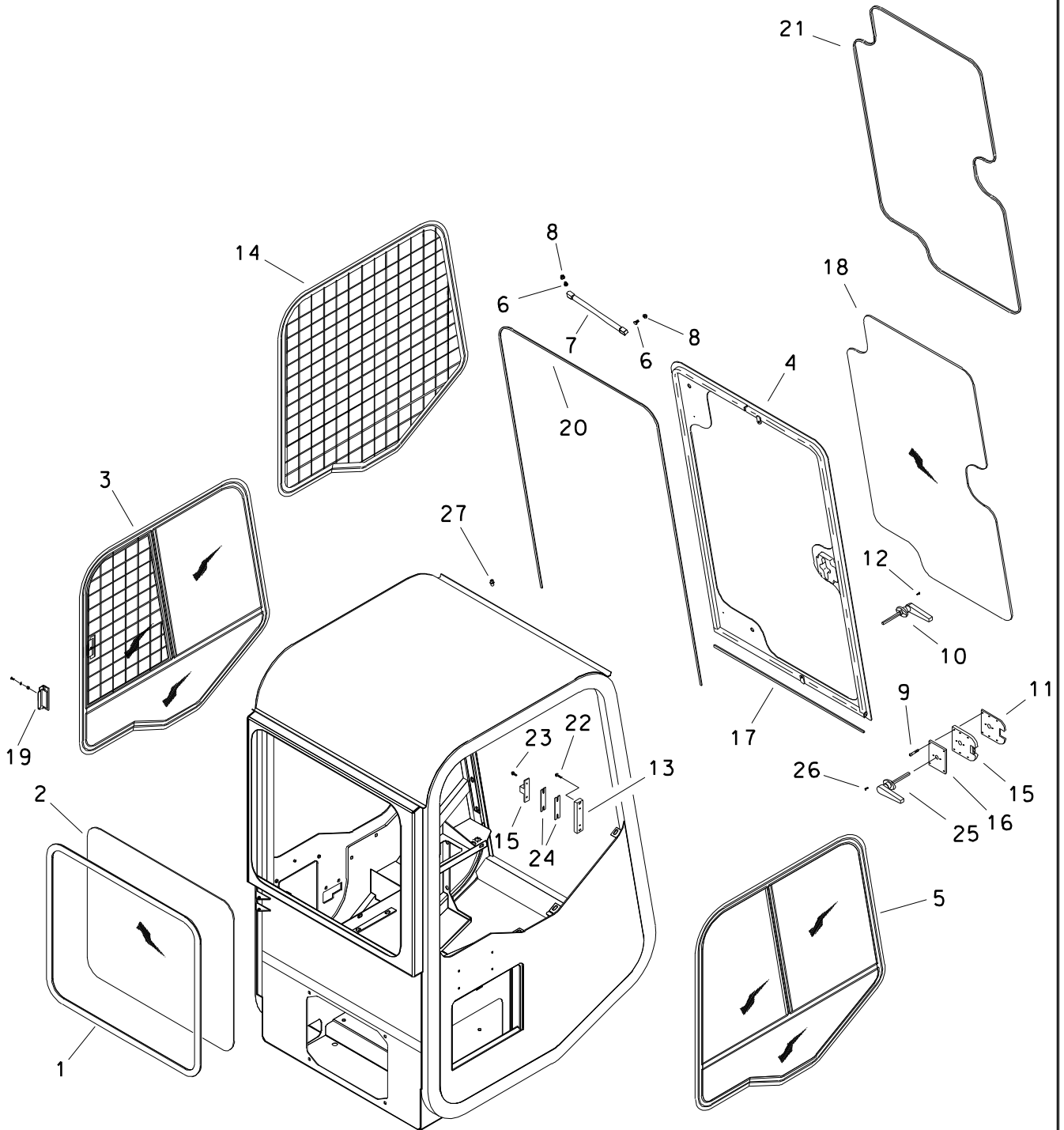
CAB DOOR/WINDOWS  
 ENDS WITH S/N 2R1779

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	116-722	AR	LOCKING GASKET	USE 115"
2.	349-421	1	REAR WINDOW	
3.	349-419	1	LEFT WINDOW	
4.	370-420	1	LATCH	
5.	349-418	1	RIGHT WINDOW	
6.	110-655	4	BALL SCREW (5/16-NC X 1/2")	
7.	111-016	2	STRUT	
8.	105-003	1	FLG LOCKNUT (5/16-NC)	
9.	349-882	2	MOUNT BAR	
10.	106-264	4	BOLT (5/16-NC X 3/4", BUT SOC)	
11.	349-883	AR	SPACER PLATE	
12.	106-541	8	FLG SCREW (M6-1.0 X 20MM, SLF TP)	
13.	349-961	1	SPACER BAR	
14.	349-420	1	WINDOW	WITHOUT HEAT/AIR
15.	370-273	1	CROSS BAR	
16.	107-296	2	BOLT (1/4-NC X 1-1/4", BUT SOC)	
17.	107-294	2	ACORN NUT (1/4-NC)	
18.	350-390	1	WINDSHIELD GLASS (LEXAN)	
	501-875	1	FRONT GLASS (TEMPERED GLASS)	

FOOTNOTES

# CAB DOOR/WINDOWS

BEGINS WITH S/N 2R1847



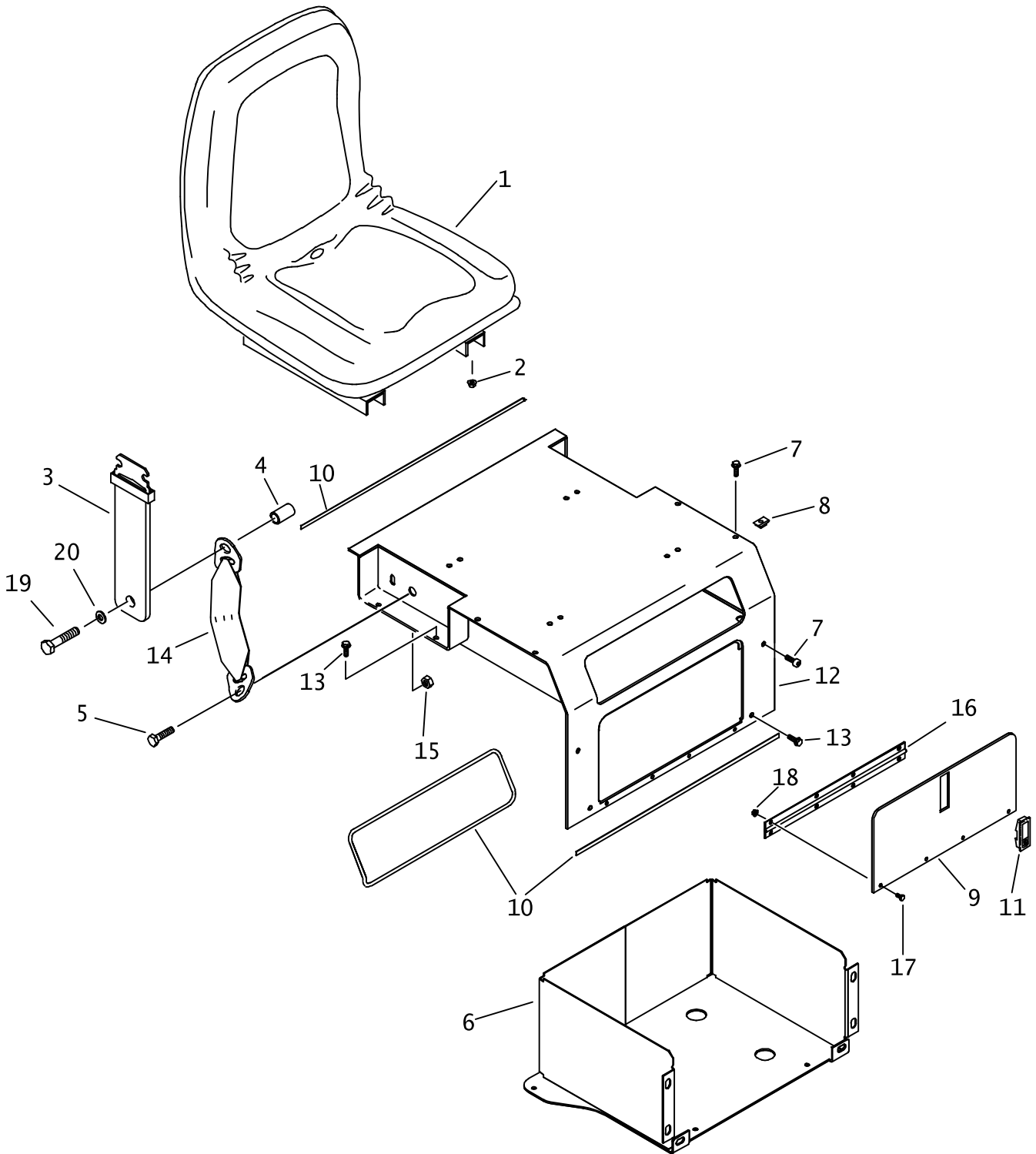
# CAB DOOR/WINDOWS

BEGINS WITH S/N 2R1847

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	116-722	AR	LOCKING GASKET (SOLD PER 1')	USE 1 @ 115"
2.	349-421	1	REAR WINDOW	
3.	349-419	1	LEFT WINDOW	
4.	370-383	1	DOOR FRAME	INCL WINDSHIELD WIPER
5.	349-418	1	RIGHT WINDOW	
6.	110-655	4	BALL SCREW (5/16-NC X 1/2")	
7.	111-016	2	STRUT	
8.	105-003	3	FLG LOCKNUT (5/16-NC)	
9.	106-925	6	BOLT (1/4-NC X 1-1/2", BUT SOC)	
10.	149-133	1	LEVER HANDLE	
	166-225	-	KEY	
11.	370-435	1	LOCK PLATE	
12.	106-408	2	BOLT (#10-24 X 1-1/4", ALN, GD8)	
13.	370-429	1	SPACER BAR	
14.	349-420	1	WINDOW	WITHOUT HEAT/AIR
15.	111-061	1	LATCH	
16.	370-434	1	LOCK PLATE	
17.	116-848	AR	BULK EDGE (3/4" X 3/8")	USE 1 @ 33"
18.	370-418	1	FRONT WINDSHIELD	
19.	370-420	1	LATCH	
20.	116-847	AR	BULK EDGE (1/8", SOLD PER 1')	USE 1 @ 141"
21.	116-722	AR	LOCKING GASKET (SOLD PER 1')	USE 1 @ 161"
22.	106-848	2	FLG BOLT (M6-1.00 X 25mm)	
23.	106-256	2	FLG LK SCREW (M6-1.00 X 20mm)	
24.	370-438	AR	SHIM	
25.	111-062	1	HANDLE	
26.	107-327	2	SCREW (#10-24 X 1/2", PHLPS)	
27.	115-001	2	ZERK (02N)	

FOOTNOTES

# SEAT MOUNT WITHOUT HEAT/AIR





## SEAT MOUNT WITHOUT HEAT/AIR

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	<u>117-100</u>	1	SEAT	ENDS WITH S/N 2Z0237
	117-631	1	SEAT ASSY	BEGINS WITH S/N 2Z0658
2.	105-003	4	FLG LOCKNUT (5/16-NC)	
3.	<u>171-011</u>	1	SEAT BELT SET	ENDS WITH S/N 2Z0237
	118-271	1	SEAT BELT	BEGINS WITH S/N 2Z0658
4.	184-252	2	BUSHING (.562" X 1" X .590")	
5.	105-247	2	SCREW (M12-1.75 X 35MM)	
6.	370-128	1	LOWER COMPARTMENT	
7.	106-381	8	FLG LK SCREW (M8-1.25 X 25MM)	
8.	106-551	12	CLIP NUT (M8-1.25)	USE 2 @ 23"; 1 @ 40"
9.	370-130	1	COMPARTMENT DOOR	
10.	116-723	AR	BULK EDGE (3/32", SOLD PER 1')	
	256-665	AR	ADHESIVE	
11.	117-558	1	ADJUST LEVER LATCH (LOCKING)	
	<u>214-961</u>		KEY, PAIR (BASE CODE)	INCL KEY
	217-309		LOCK PLUG 4/ LATCH (BASE CODE)	
	110-757	1	LEVER LATCH (ADJUST, LOCKING)	
	110-596		KEY (PAIR)	
12.	370-126	1	SEAT MOUNT	
13.	106-162	6	FLG SCREW (M8-1.25 X 20mm)	
14.	115-430	2	SEAT BELT TETHER	
15.	106-685	2	LOCKNUT (M12-1.75, PRV TRQ, 10.9)	
16.	110-430	1	HINGE (14-5/8")	
17.	106-234	8	SCREW (M6-1.0 X 12mm)	
18.	106-385	8	FLG LOCKNUT (M6-1.00)	
19.	106-477	2	SCREW (M12-1.75 X 45MM, 10.9)	
20.	106-397	2	WASHER (M12, HARDENED)	

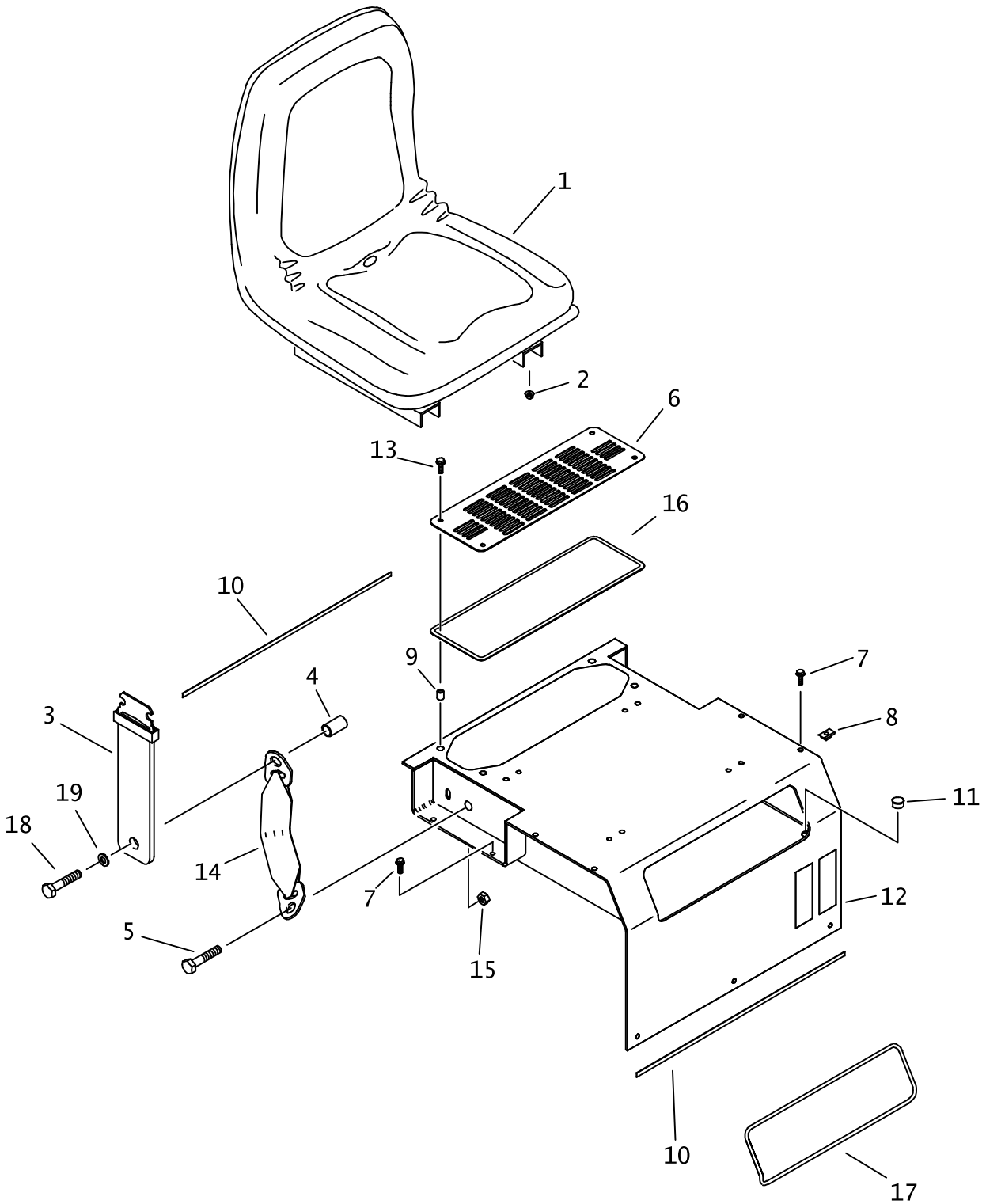
FOOTNOTES

NOTE:

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805-874

# SEAT MOUNT WITH HEAT/AIR



## SEAT MOUNT WITH HEAT/AIR

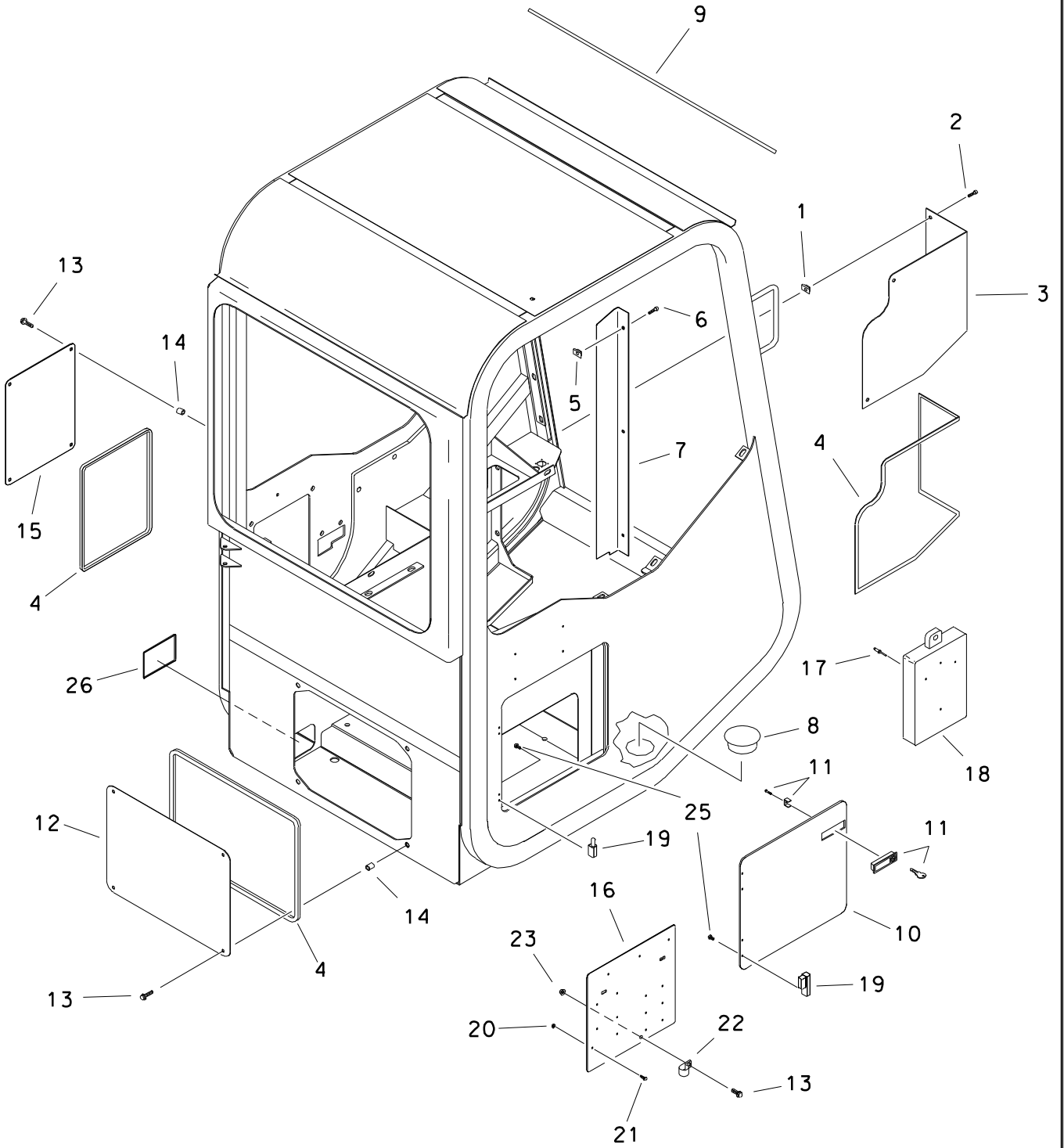
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	<u>117-100</u>	1	SEAT	ENDS WITH S/N 2Z0237
	117-631	1	SEAT ASSY	BEGINS WITH S/N 2Z0658
2.	105-003	4	FLG LOCKNUT (5/16-NC)	
3.	<u>171-011</u>	1	SEAT BELT SET	ENDS WITH S/N 2Z0237
	118-271	1	SEAT BELT	BEGINS WITH S/N 2Z0658
4.	184-252	2	BUSHING (.562" X 1" X .590")	
5.	105-247	2	SCREW (M12-1.75 X 35MM)	
6.	349-746	1	VENT PLATE	
7.	106-334	8	SCREW (M8-1.25 X 25MM, BUT SOC)	
8.	106-551	10	CLIP NUT (M8-1.25)	
9.	105-633	4	NUTSERT (M8X1.25) 3.8-7.9" THK	
10.	116-723	AR	BULK EDGE (3/32", SOLD PER 1')	USE 2 @ 23"
	256-665	AR	ADHESIVE	
11.	110-653	2	PLUG (3/4")	
12.	349-464	1	SEAT MOUNT	
13.	106-162	4	FLG SCREW (M8-1.25 X 20mm)	
14.	115-430	2	SEAT BELT TETHER	
15.	106-685	2	LOCKNUT (M12-1.75, PRV TRQ, 10.9)	
16.	116-724	AR	BULK SEAL (3/32", SOLD PER 1')	USE 1 @ 44"
17.	116-723	AR	BULK EDGE (3/32", SOLD PER 1')	USE 1 @ 40"
18.	106-477	2	SCREW (M12-1.75 X 45MM, 10.9)	
19.	106-397	2	WASHER (M12, HARDENED)	

NOT SHOWN:

FOOTNOTES:

NOTE:

# CAB COVERS



# CAB COVERS

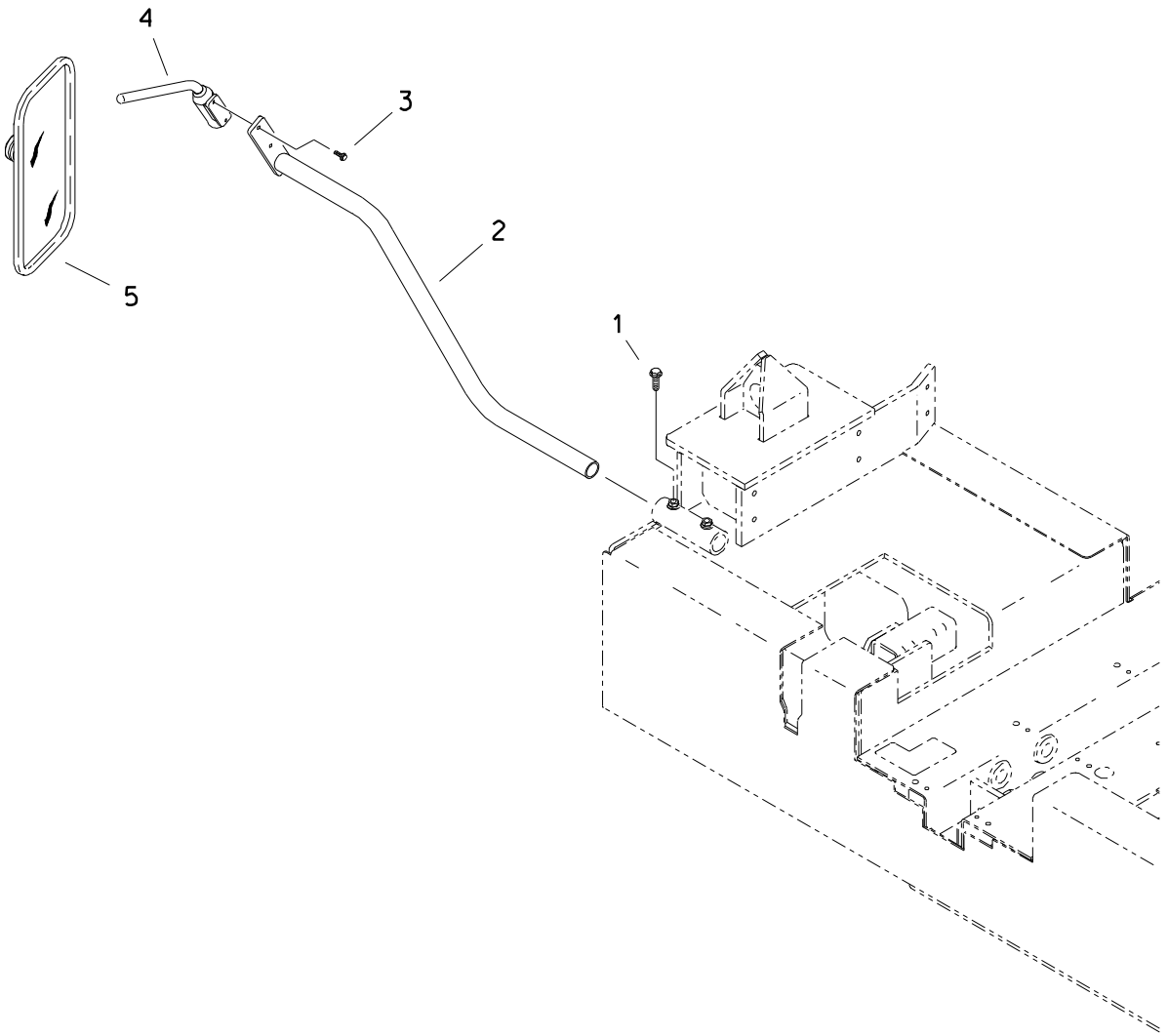
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	106-551	4	CLIP NUT (M8-1.25)	
2.	107-334	4	SCREW (M8-1.25 X 25mm, BUT SOC)	
3.	349-479	1	LOWER COVER	
4.	116-724	3	BULK SEAL (3/32", SOLD PER 1')	USE 1 @ 63", USE 1 @ 46 1/2"
5.	106-574	3	CLIP NUT (M6-1)	
6.	106-640	3	SCREW (M6-1 X 20mm, BUT SOC)	
7.	349-478	1	CABLE COVER	
8.	110-947	1	DOME PLUG (3")	
9.	115-671	1	BULK EDGE (1/16", SOLD PER 1')	USE 1 @ 36"
10.	349-477	1	ACCESS DOOR	
11.	117-558	1	ADJUST LEVER LATCH (LOCKING)	
	214-961		KEY, PART (BASE CODE)	
	217-309		LOCK PLUG 4/LATCH (BASE CODE)	
	<u>110-757</u>	1	LEVER LATCH	ADJUSTABLE, LOCKING; INCL KEY
	110-596		KEY	
12.	349-745	1	ACCESS COVER	
13.	106-162	9	FLG SCREW (M8-1.25 X 20mm)	
14.	105-633	4	NUTSERT(M8X1.25)3.80-7.90TH	
15.	349-475	1	ACCESS COVER	
16.	349-493	1	RELAY PANEL	
17.	110-560	3	POP RIVET (3/16" X 1/2")	
18.	250-622	1	MANUAL COMPARTMENT	
19.	111-002	2	LIFT-OFF HINGE (OFF-SET)	
20.	106-850	29	LOCKNUT (M5-0.80)	
21.	106-542	29	SCREW (M5-0.80 X 16mm, PLPS)	
22.	110-332	1	BOLT-ON CLAMP (1-5/8")	
23.	106-386	1	FLG LOCKNUT (M8-1.25)	
24.	105-632	4	NUTSERT(M8X1.25).70-3.80THK	
25.	106-228	8	SCREW (M5-.80 X 10MM)	
26.	115-686	1	BULK EDGE (5/32", SOLD PER 1')	USE 1 @ 17 1/2"

NOT SHOWN:

116-737	1	FLOOR MAT
115-318	AR	BULK NON-SKID (6", SOLD PER 1')

FOOTNOTES

# REAR VIEW MIRROR LEFT SIDE

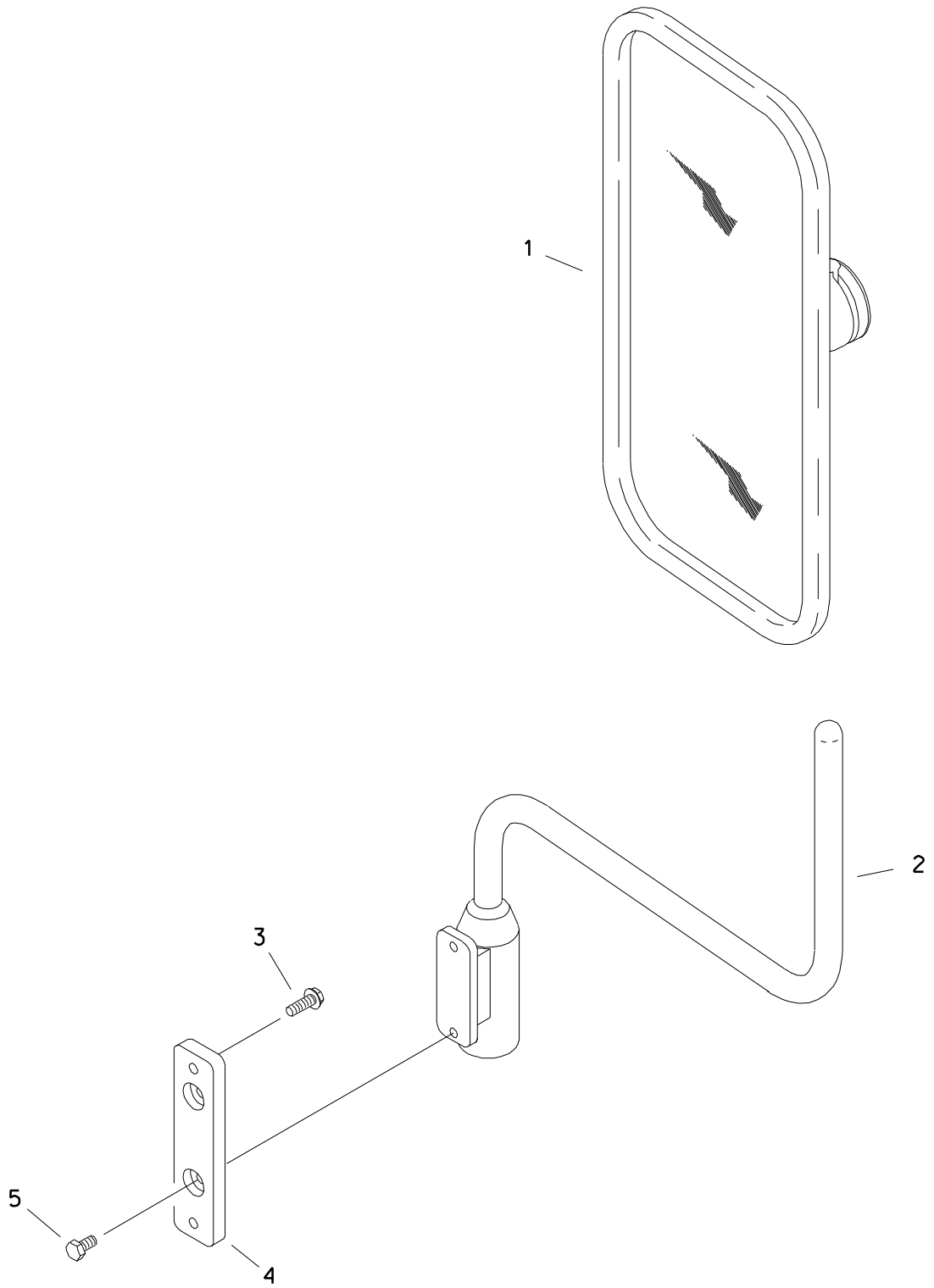


# REAR VIEW MIRROR LEFT SIDE

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	105-245	2	SCREW (M10-1.50 X 25MM)	
2.	370-399	1	ADJUSTMENT ARM	
3.	106-161	2	FLG SCREW (M6-1.00 X 20MM)	
4.	116-851	1	MIRROR ARM	
5.	214-426	1	CONVEX MIRROR	

FOOTNOTES

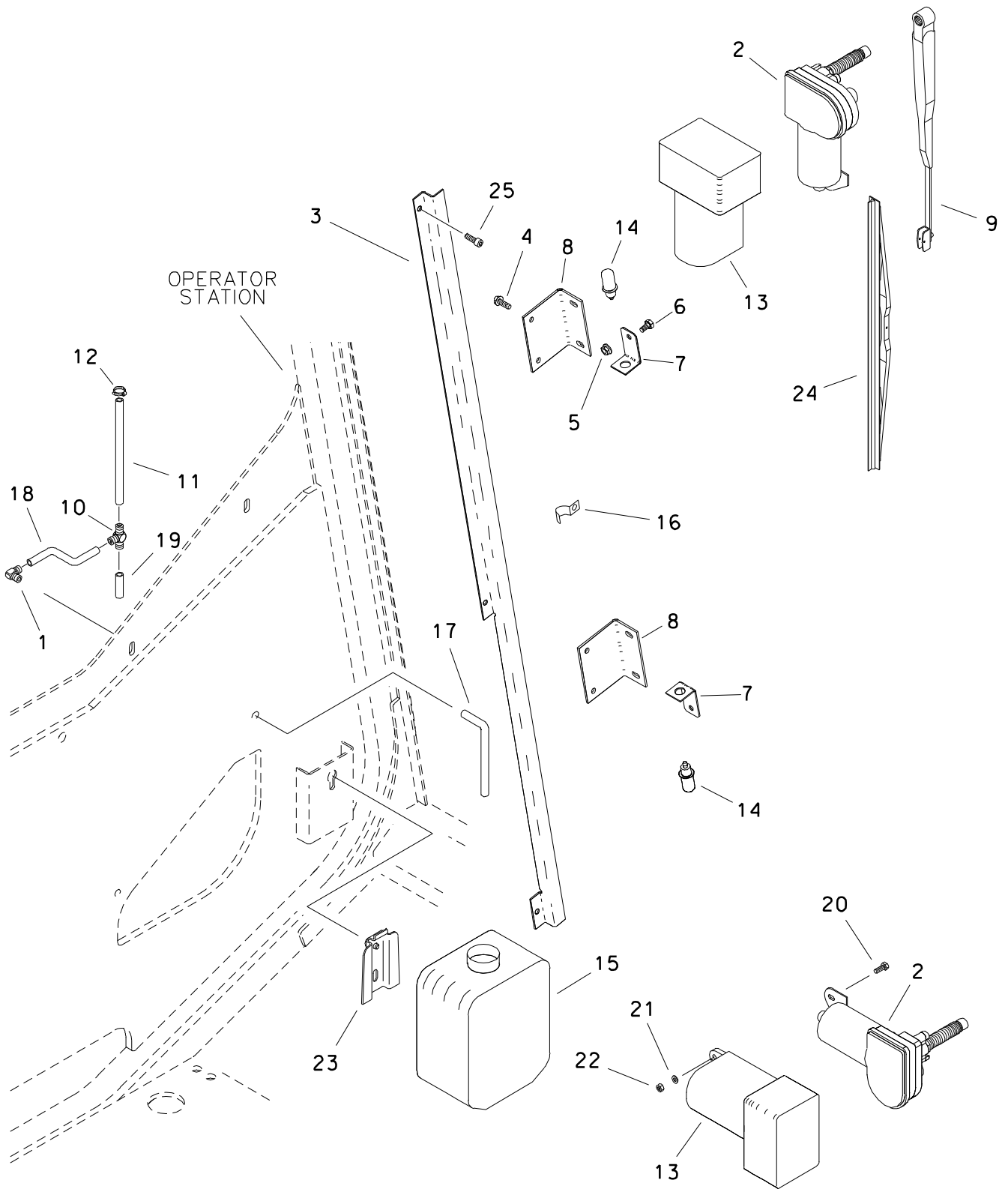
REAR VIEW MIRROR  
RIGHT SIDE







# WINDSHIELD WIPERS/WASHER

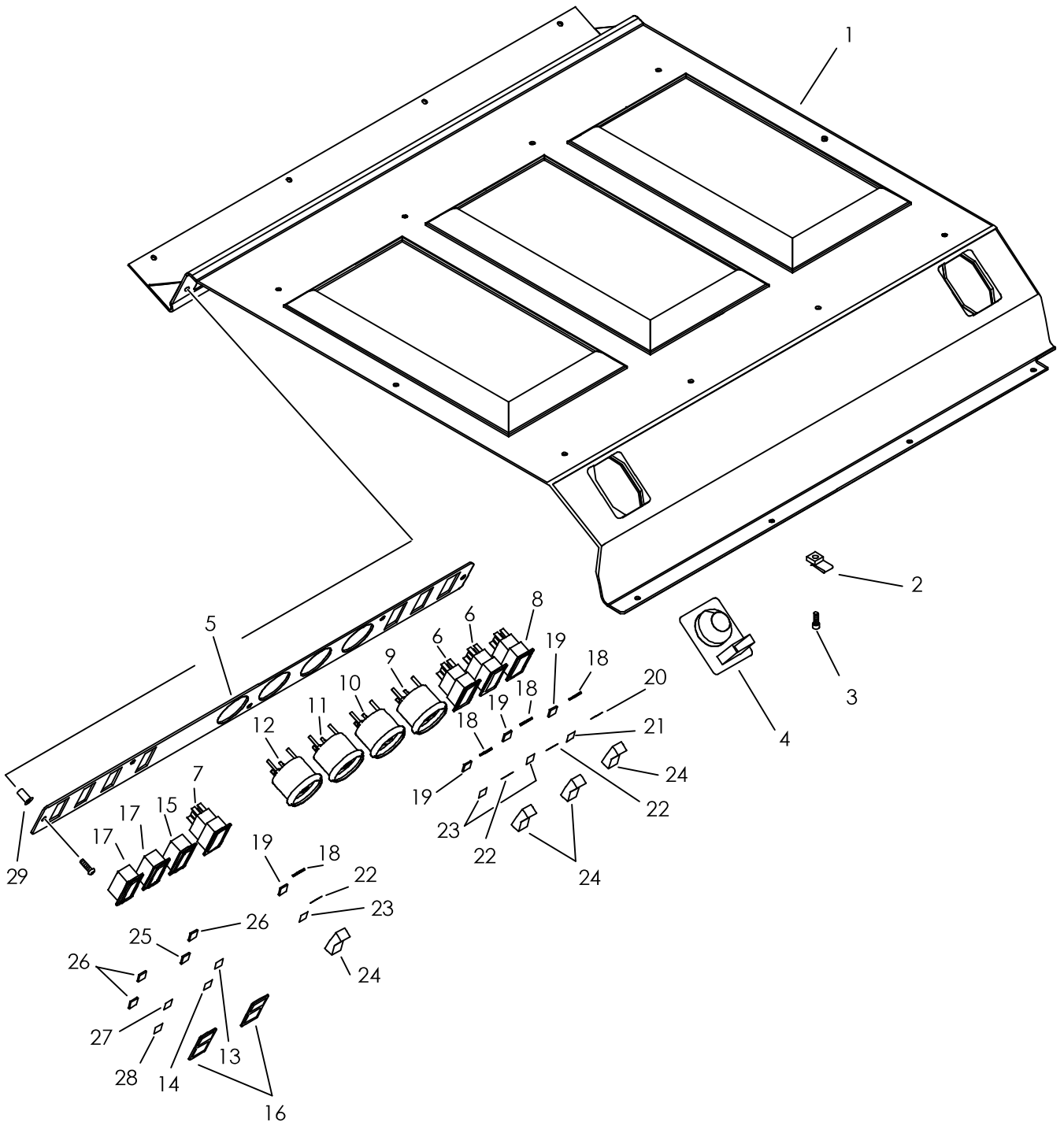


# WINDSHIELD WIPERS/WASHER

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	514-379	1	S/O COUPLER (04H-04H90)	
2.	502-063	2	WIPER MOTOR (100°)	
3.	349-957	1	CABLE COVER	
4.	106-541	4	FLG SCREW (M6 X 20mm)	
5.	106-385	2	FLG LOCKNUT (M6-1.00)	
6.	106-234	2	SCREW (M6-1 X 12mm)	
7.	349-959	2	NOZZLE BRACKET	
8.	349-960	2	COVER PLATE	
9.	111-058	2	WIPER ARM	
10.	514-380	1	S/O TEE (04H-04H-04H)	
11.	116-770	AR	BULK HOSE (3/32", SOLD PER 1")	USE 1 @ 34"
12.	110-249	3	WORM CLAMP (1/4" TO 5/8")	
13.	116-862	2	COVER	
14.	149-122	2	WASHER NOZZLE	
15.	344-115 190-053	1	WINDSHIELD WASHER TANK POLY-PATCH TANK REPAIR KIT	
16.	110-341	1	CONDUIT CLAMP (.375")	PLACE 15" BELOW UPPER REF 8
17.	116-770	AR	BULK HOSE (3/32", SOLD PER 1")	USE 1 @ 20"
18.	116-770	AR	BULK HOSE (3/32", SOLD PER 1")	USE 1 @ 2"
19.	116-770	AR	BULK HOSE (3/32", SOLD PER 1")	USE 1 @ 9.75"
20.	106-542	2	SCREW (M5-0.80 X 16mm, PHLPS)	
21.	105-284	2	WASHER (3/16")	
22.	106-850	2	LOCKNUT (M5-0.80)	
23.	370-430	1	TANK BRACKET	
24.	111-059	2	WIPER BLADE	
25.	106-640	3	BOLT (M6-1.00 X 20mm, BUT SDC)	

FOOTNOTES

# TOP LINING/PANEL



## TOP LINING/PANEL

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	349-412	1	TOP LINING	
2.	106-574	18	CLIP NUT (M6-1.00)	
3.	107-312	23	BOLT (M6-1.00 X 25mm, BUT SOC)	
4.	217-113	2	DIRECTIONAL LIGHT	
5.	349-461	1	TOP INSTRUMENT PANEL	
6.	217-919	2	ROCKER SW (DPDT) ON-ON-(ON)	WINDSHIELD WIPER/WASHER
7.	217-918	1	ROCKER SW {SPDT} ON-ON	WORK LIGHTS
8.	217-228	1	ROCKER SW (DPDT) {ON}-OFF-{ON}	CAB SWING
	217-921	1	ROCKER SW (SPDT) (ON)-OFF-(ON)	OBSOLETE
9.	215-129	1	VOLT METER	
	215-415		NITE LIGHT KIT (12V DC)	
10.	215-133	1	FUEL GAUGE	
	215-415		NITE LIGHT KIT (12V DC)	
11.	217-554	1	ENGINE OIL PRESSURE GAUGE	
	215-415		NITE LIGHT KIT (12V DC)	
12.	217-556	1	ENGINE WATER TEMPERATURE GAUGE	
	215-415		NITE LIGHT KIT (12V DC)	
13.	217-143	1	ICON (WHT) HYD OIL TEMP	
14.	217-142	1	ICON (WHT) HYD OIL FILTER	OBSOLETE
15.	110-962	1	FILLER PLUG	
16.	217-133	2	INDICATOR LENS FRAME	
17.	217-132	2	INDICATOR LIGHT	
18.	217-156	4	DIFFUSION LENS (GREEN)	
19.	217-158	4	DIFFUSION LENS (WHITE)	
20.	217-149	1	ICON (WHT) OPERATOR SEAT- IN	
21.	217-148	1	ICON (WHT) OPERATOR SEAT- OUT	
22.	217-136	3	ICON (WHT) ON-START	
23.	217-137	3	ICON (WHT) OFF-STOP	
24.	217-925	4	ROCKER SWITCH (ACTUATOR)	
25.	217-154	1	DIFFUSION LENS (AMBER)	
26.	217-157	3	DIFFUSION LENS (RED)	
27.	217-141	1	ICON (WHT) ENGINE COOLANT TEMP	
28.	217-140	1	ICON (WHT) ENG OIL PSI	
29.	105-643	5	WELLNUT (M6-1.00 X 16MM LG)	

NOT SHOWN:

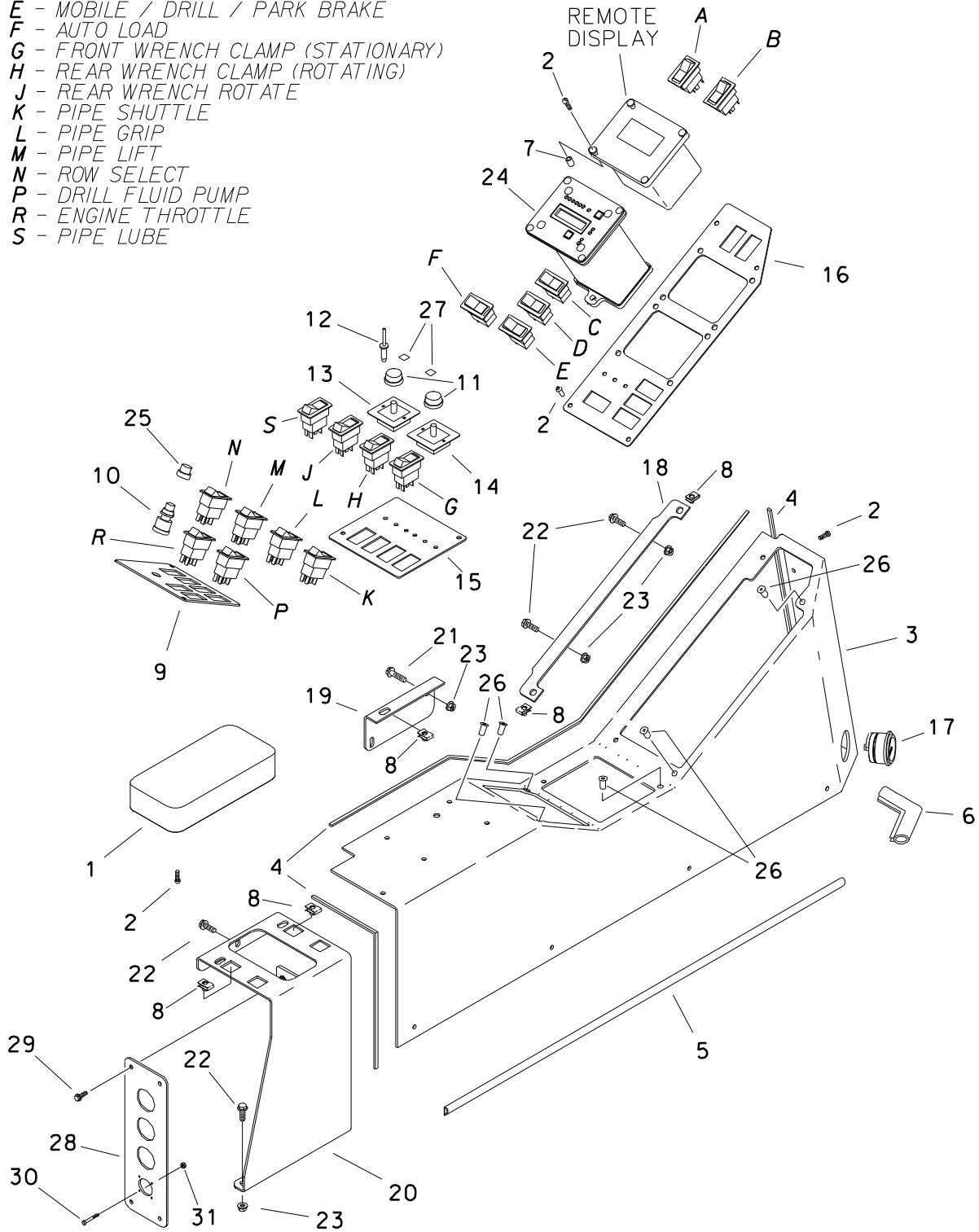
FOOTNOTES:

NOTE:

# LEFT CONSOLE

— SWITCH LEGEND —

- A - HEAT/AIR FAN SPEED
- B - HEAT/AIR ON /OFF
- C - FRONT DRILL FRAME TILT
- D - REAR DRILL FRAME TILT
- E - MOBILE / DRILL / PARK BRAKE
- F - AUTO LOAD
- G - FRONT WRENCH CLAMP (STATIONARY)
- H - REAR WRENCH CLAMP (ROTATING)
- J - REAR WRENCH ROTATE
- K - PIPE SHUTTLE
- L - PIPE GRIP
- M - PIPE LIFT
- N - ROW SELECT
- P - DRILL FLUID PUMP
- R - ENGINE THROTTLE
- S - PIPE LUBE



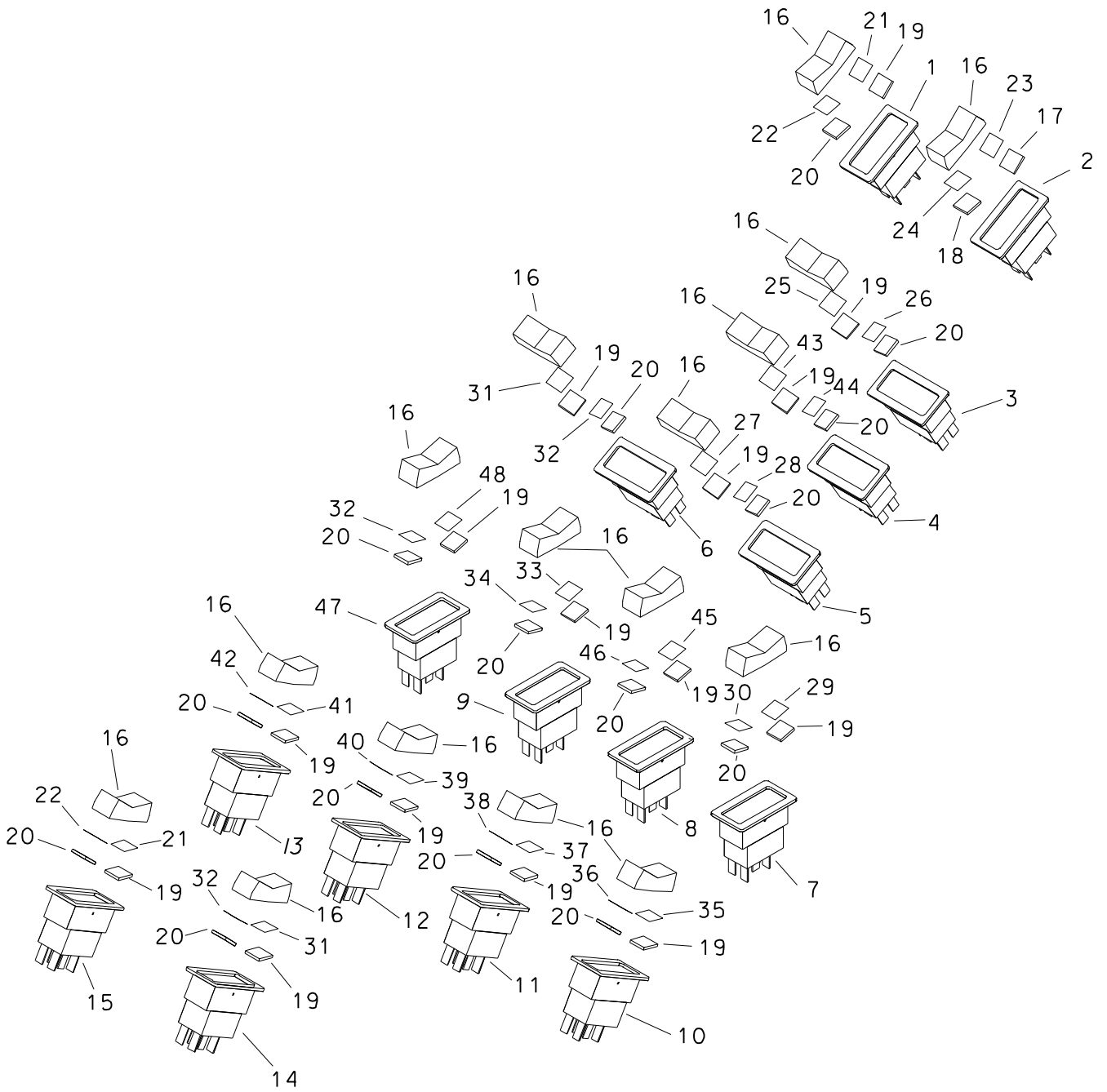
## LEFT CONSOLE

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	349-406	1	ARM REST PAD	
2.	107-312	28	BOLT (M6-1.00 X 25mm, BUT SOC)	
3.	349-414	1	LEFT CONSOLE	
4.	116-723	AR	BULK EDGE (3/32", SOLD PER 1")	USE 1 @ 78.7" SEE FOOTNOTE 1
	256-665	AR	ADHESIVE	
5.	116-724	AR	BULK SEAL (3/32", SOLD PER 1")	USE 1 @ 41.7"
6.	116-421	AR	BULK EDGE (1/8", SOLD PER 1")	USE 1 @ 7.9"
7.	105-630	8	NUTSERT(M6X1.0).70-4.20THK	
8.	106-574	13	CLIP NUT (M6-1.00)	
9.	349-463	1	LEFT REAR PANEL	
10.	306-607	1	HORN BUTTON	
11.	116-849	2	POTENTIOMETER KNOB	
12.	110-560	4	POP RIVET (3/16" X 1/2")	
13.	217-960	1	POTENTIOMETER	ROTATION SPEED
14.	217-959	1	POTENTIOMETER	DRILLING FLUID
15.	349-490	1	LEFT CENTER PANEL	
16.	349-460	1	LEFT INSTRUMENT PANEL	
17.	215-128	1	HOUR METER	
18.	349-446	1	LEFT CONSOLE MOUNT	
19.	349-404	1	LEFT CONSOLE CENTER MOUNT	
20.	370-412	1	LEFT CONSOLE REAR MOUNT	
21.	106-163	4	FLG SCREW (M8-1.25 X 30mm)	
22.	106-162	5	FLG SCREW (M8-1.25 X 20mm)	
23.	106-386	9	FLG LOCKNUT (M8-1.25)	
24.	217-232	1	EL STR SYS CONTROL MODULE	
	197-232	1	ESID MODULE REBUILT	
25.	306-608	1	BUTTON COVER	
26.	105-643	5	WELLNUT (M6-1.00)	
27.	274-940	2	INDICATOR DECAL	
28.	370-414	1	CONNECTOR PANEL	
29.	106-379	4	FLG LK SCREW (M6-1.00 X 20mm)	
30.	105-189	4	SCREW (#6-32 X 1/2")	
31.	105-215	4	NUT (#6-32)	

## FOOTNOTES

1. USE LOCTITE 401

# LEFT CONSOLE SWITCHES





## LEFT CONSOLE SWITCHES

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	217-922	1	ROCKER SW (SPDT) ON-ON-ON	HEAT/AIR FAN SPEED
2.	217-923	1	ROCKER SW (DPDT) ON-OFF-ON	HEAT/AIR ON/OFF
3.	217-228	1	ROCKER SW (DPDT) {ON}-OFF-{ON}	FRONT DRILL FRAME TILT
	<del>217-921</del>	<del>1</del>	<del>ROCKER SW (SPDT) (ON)-OFF-(ON)</del>	
4.	217-228	1	ROCKER SW (DPDT) {ON}-OFF-{ON}	REAR DRILL FRAME TILT
	<del>217-921</del>	<del>1</del>	<del>ROCKER SW (SPDT) (ON)-OFF-(ON)</del>	
5.	217-923	1	ROCKER SW (DPDT) {ON}-OFF-{ON}	MOBILE /DRILL/PARK BRAKE
6.	217-228	1	ROCKER SW (DPDT) {ON}-OFF-{ON}	AUTO LOAD
	<del>217-921</del>	<del>1</del>	<del>ROCKER SW (SPDT) (ON)-OFF-(ON)</del>	
7.	217-228	1	ROCKER SW (DPDT) {ON}-OFF-{ON}	FRONT WRENCH CLAMP
	<del>217-921</del>	<del>1</del>	<del>ROCKER SW (SPDT) (ON)-OFF-(ON)</del>	
8.	217-228	1	ROCKER SW (DPDT) {ON}-OFF-{ON}	REAR WRENCH CLAMP
	<del>217-921</del>	<del>1</del>	<del>ROCKER SW (SPDT) (ON)-OFF-(ON)</del>	
9.	217-228	1	ROCKER SW (DPDT) {ON}-OFF-{ON}	REAR WRENCH ROTATE
	<del>217-921</del>	<del>1</del>	<del>ROCKER SW (SPDT) (ON)-OFF-(ON)</del>	
10.	217-228	1	ROCKER SW (DPDT) {ON}-OFF-{ON}	PIPE SHUTTLE
	<del>217-921</del>	<del>1</del>	<del>ROCKER SW (SPDT) (ON)-OFF-(ON)</del>	
11.	217-228	1	ROCKER SW (DPDT) {ON}-OFF-{ON}	PIPE GRIP
	<del>217-921</del>	<del>1</del>	<del>ROCKER SW (SPDT) (ON)-OFF-(ON)</del>	
12.	217-228	1	ROCKER SW (DPDT) {ON}-OFF-{ON}	PIPE LIFT
	<del>217-921</del>	<del>1</del>	<del>ROCKER SW (SPDT) (ON)-OFF-(ON)</del>	
13.	217-228	1	ROCKER SW (DPDT) {ON}-OFF-{ON}	ROW SELECT
	<del>217-921</del>	<del>1</del>	<del>ROCKER SW (SPDT) (ON)-OFF-(ON)</del>	
14.	217-919	1	ROCKER SW (DPDT) ON-ON-{ON}	DRILL FLUID PUMP
15.	217-228	1	ROCKER SW (DPDT) {ON}-OFF-{ON}	
	<del>217-921</del>	<del>1</del>	<del>ROCKER SW (SPDT) (ON)-OFF-(ON)</del>	ENGINE THROTTLE
16.	217-925	16	ACTUATOR ROCKER	
17.	217-157	1	DIFFUSION LENS (RED)	
18.	217-155	1	DIFFUSION LENS (BLUE)	
19.	217-156	15	DIFFUSION LENS (GREEN)	
20.	217-158	15	DIFFUSION LENS (WHITE)	
21.	217-138	2	ICON (WHT) FAST	
22.	217-139	2	ICON (WHT) SLOW	
23.	217-144	1	ICON (WHT) INTERIOR HEAT	
24.	217-145	1	ICON (WHT) AIR CONDITION	
25.	217-167	1	ICON (WHT) FRAME-EXTEND FRONT	
26.	217-168	1	ICON (WHT) FRAME-RETRACT FRONT	
27.	217-147	1	ICON (WHT) DRILL HEAD	
28.	217-146	1	ICON (WHT) BORING - GRD DRIVE	
29.	217-171	1	ICON (WHT) FRONT CLAMP - OPEN	
30.	217-172	1	ICON (WHT) FRONT CLAMP - CLOSE	
31.	217-136	2	ICON (WHT) ON-START	
32.	217-137	3	ICON (WHT) OFF-STOP	
33.	217-176	1	ICON (WHT) REAR CLAMP-ROTATE CCW	
34.	217-175	1	ICON (WHT) REAR CLAMP-ROTATE CW	
35.	217-179	1	ICON (WHT) SHUTTLE-RETRACT	

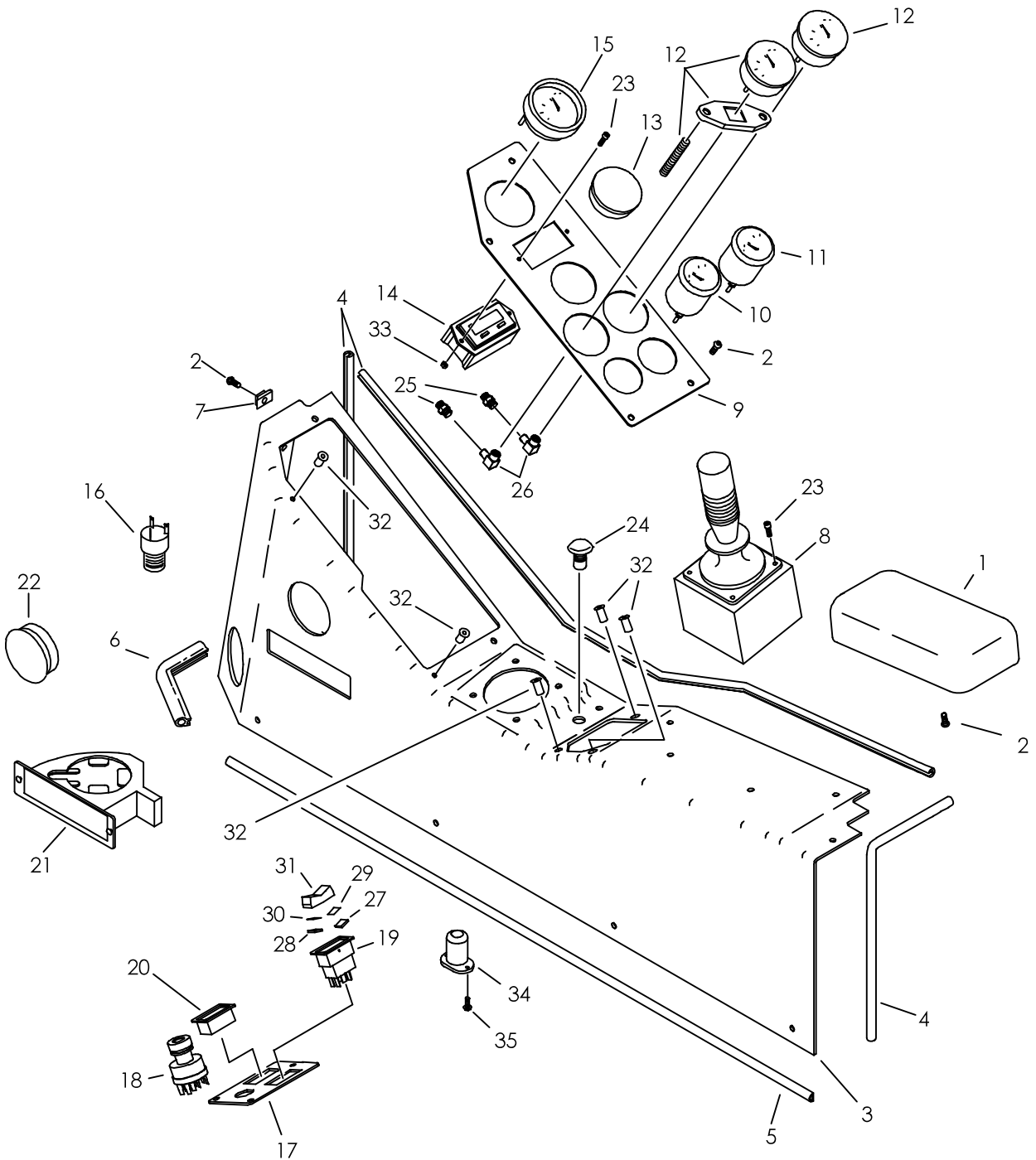
FOOTNOTES

# LEFT CONSOLE SWITCHES

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
36.	217-153	1	ICON (WHT) LOADER-SHUTTLE	
37.	217-178	1	ICON (WHT) PIPE GRIP - CLOSE	
38.	217-177	1	ICON (WHT) PIPE GRIP - OPEN	
39.	217-181	1	ICON (WHT) PIPE LIFT-LOWER	
40.	217-180	1	ICON (WHT) PIPE LIFT-RAISE	
41.	217-150	1	ICON (WHT) LOADER-ROW-OUT	
42.	217-151	1	ICON (WHT) LOADER-ROW-IN	
43.	217-170	1	ICON (WHT) FRAME-RETRACT REAR	
44.	217-169	1	ICON (WHT) FRAME-EXTEND REAR	
45.	217-173	1	ICON (WHT) REAR CLAMP-OPEN	
46.	217-174	1	ICON (WHT) REAR CLAMP-CLOSE	
47.	217-924	1	ROCKER SWITCH (DPDT) OFF(ON)	PIPE LUBE
48.	217-192	1	ICON (WHT) AUTO LUBRICATION	



# RIGHT CONSOLE JT7020



## RIGHT CONSOLE JT7020

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	349-406	1	ARM REST PAD	
2.	107-312	20	BOLT (M6-1.0 X 25mm, BUT SOC)	
3.	349-413	1	RIGHT CONSOLE	
4.	116-723	AR	BULK EDGE (3/32", SOLD PER 1')	USE 1 @ 79"
5.	116-724	AR	BULK SEAL (3/32", SOLD PER 1')	USE 1 @ 42"
6.	116-421	AR	BULK EDGE (1/8", SOLD PER 1')	USE 1 @ 8"
7.	106-574	13	CLIP NUT (M6-1.0)	
8.	<u>217-895</u>	-	JOYSTICK	
	217-219	1	JOYSTICK (10 DEG)	DUAL AXIS OUTPUT
9.	349-459	1	RIGHT INSTRUMENT PANEL	
10.	217-562	1	TACHOMETER (3000 RPM)	ENGINE
11.	217-561	1	TACHOMETER (250 RPM)	SPINDLE
12.	217-552	2	PRESSURE GAUGE (6000PSI)	
	499-202		CLAMP, GAUGE 2-BOLT	SEE FOOTNOTE 1
	217-079	2	PRESSURE GAUGE (10,000PSI)	
13.	110-982	1	DOME PLUG (2.5")	
14.	217-221	1	FLOW METER DISPLAY	
	<u>217-196</u>	1	FLOW METER DISPLAY	
15.	217-543	1	PRESSURE GAUGE (3000PSI)	
16.	306-603	1	AUDIO ALARM	
17.	349-462	1	RIGHT REAR PANEL	
18.	214-852	1	IGNITION SWITCH	
	214-961		KEY, PAIR (BASE CODE)	
	214-962		SWITCH MOUNTING NUT	
19.	217-924	1	ROCKER SW (DPDT) OFF-{ON}	COLD START
20.	<u>110-962</u>	1	FILLER PLUG	
21.	349-416	1	CUP HOLDER	
22.	110-947	2	DOME PLUG (3")	W/O HEAT & AIR
23.	105-649	6	BOLT (#10-32 X 3/4", BUT SOC)	
24.	214-943	1	BUTTON SWITCH (SPST)	
25.	154-020	2	CONNECTOR (04J-04N)	
26.	514-355	2	CONNECTOR (04NF-04NF90)	
27.	217-156	1	DIFFUSION LENS (GREEN)	
28.	217-158	1	DIFFUSION LENS (WHITE)	
29.	217-136	1	ICON (WHT) ON-START	
30.	217-137	1	ICON (WHT) OFF-STOP	
31.	217-925	1	ROCKER SWITCH (ACTUATOR)	
32.	105-643	5	WELLNUT (M6-1.00)	
33.	106-850	2	LOCKNUT (M5-0.80)	
34.	214-301	1	ACCESSORY SOCKET	
35.	105-214	2	FLG SCREW (#10-24 X 1/2")	

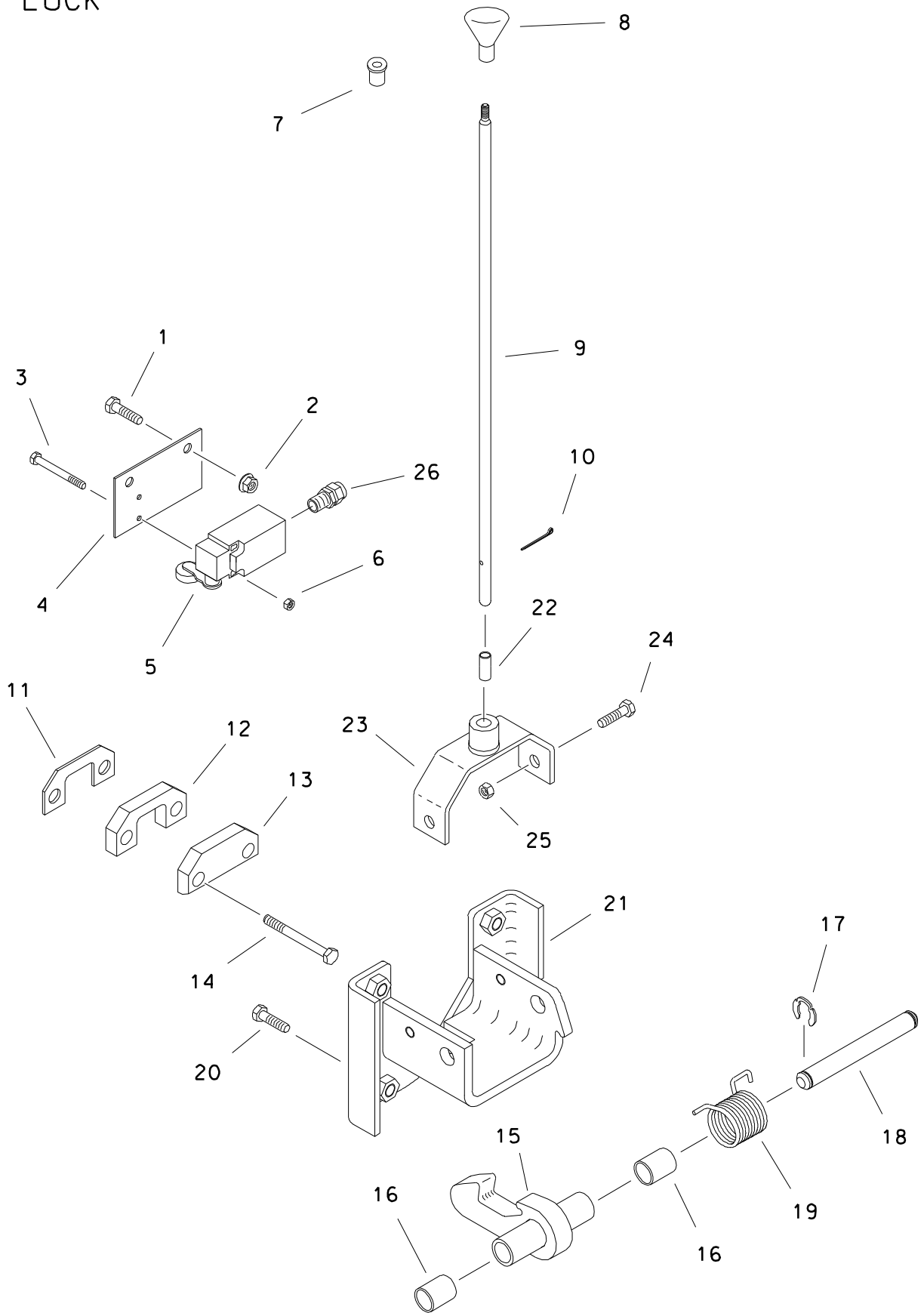
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FOOTNOTES:

1. BEGINS WITH S/N \_\_\_\_\_

NOTE:

# CAB LOCK

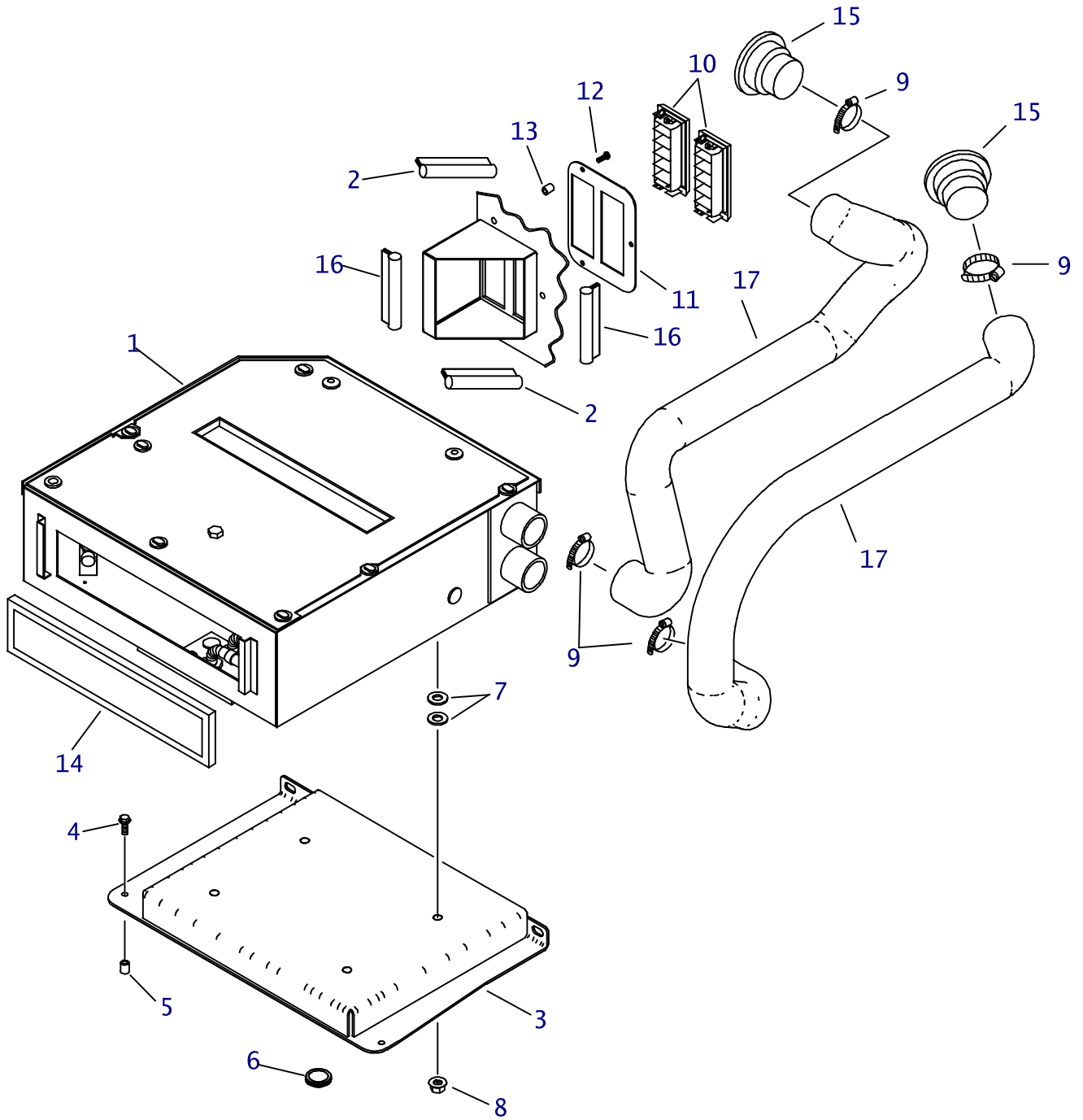


# CAB LOCK

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	106-162	2	FLG SCREW (M8-1.25 X 20mm)	
2.	106-386	2	FLG LOCKNUT (M8-1.25)	
3.	105-816	2	SCREW (#10-24 X 1-1/2", PAN SLT)	
4.	349-859	1	SWITCH MOUNT	
5.	217-085	1	LIMIT SWITCH	
6.	106-048	2	LOCKNUT (#10-24)	
7.	125-798	1	FLG BUSHING (.376", NYLON)	
8.	110-071	1	KNOB (1/4-NC, BLACK)	
9.	349-900	1	ROD	
10.	105-523	1	COTTER PIN (.125" X .750")	
11.	349-955	AR	SHIM	
12.	349-954	AR	SPACER	
13.	349-953	1	LATCH PLATE	
14.	106-700	2	SCREW (M12-1.75 X 80mm)	
15.	349-945	1	LATCH	
16.	125-403	2	BRONZE BUSHING (.625")	
17.	115-780	2	KLIP RING (.625")	
18.	349-948	1	PIN	
19.	117-054	1	TORSION SPRING	
20.	105-273	4	SCREW (M12-1.75 X 30mm)	
21.	349-942	1	LATCH MOUNT	
22.	125-436	1	BRONZE BUSHING (.376")	
23.	349-951	1	ROD GUIDE	
24.	105-245	2	SCREW (M10-1.50 X 25mm)	
25.	105-894	2	LOCKNUT (M10-1.50, PRV TRQ)	
26.	214-228	1	LIQUID-TIGHT FITTING	

FOOTNOTES

# CAB HEAT/AIR





## CAB HEAT/AIR

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	500-1385	1	HEAT/AIR SYSTEM	
2.	116-421 AR		BULK EDGE (1/8", SOLD PER 1')	USE 2 @ 5"
3.	349-471	1	HEAT/AIR MOUNT	
4.	106-162	4	FLG SCREW (M8-1.25 X 20mm)	
5.	105-633	4	NUTSERT (M8X1.25) 3.8-7.9" THK	
6.	116-689	2	GROMMET	
7.	106-397	8	WASHER (M12, HARDENED)	
8.	105-833	4	FLG LOCKNUT (1/2-NC)	
9.	110-134	4	WORM CLAMP (2.062" TO 2.75")	
10.	502-064	2	RECTANGULAR LOUVER	
11.	349-894	1	LOUVER PLATE	
12.	106-640	3	SCREW (M6-1.0 X 20mm, BUT SOC)	
13.	105-631	3	NUTSERT (M6X1.0) 4.20-6.60THK	
14.	502-066	1	FOAM FILTER (1/2" X 4" X 17")	
15.	502-065	2	ROUND LOUVER	
	502-067	2	HOSE ADAPTER	
16.	116-421 AR		BULK EDGE (1/8", SOLD PER 1')	USE 2 @ 5.50"
17.	500-1383	1	HOSE KIT	

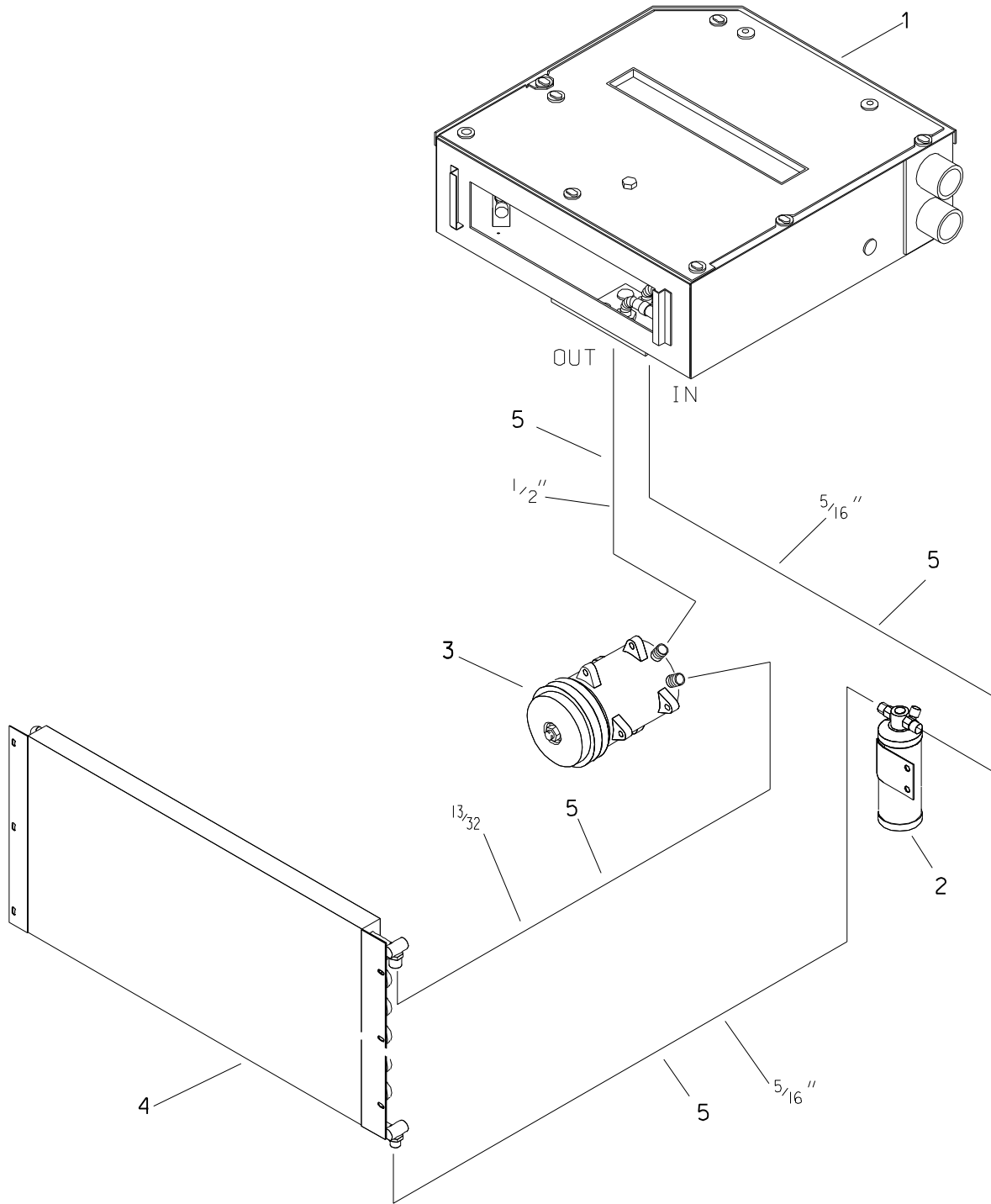
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499-210	1	EXPANSION VALVE
499-205	1	DRIER
499-211	1	COMPRESSOR
500-1382	1	CONDENSER
500-1286	1	HOSE, AC

FOOTNOTES:

NOTE:

# HEAT/AIR DIAGRAM



# HEAT/AIR DIAGRAM

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	349-099	-	HEAT/AIR SYSTEM	
2.	215-222	-	A/C DRYER	USE ON 7020'S AND B MODELS ONLY
	499-205	-	DRIER	USE ON MACH 1'S ONLY
3.	215-220	-	A/C COMPRESSOR	USE ON 7020'S AND B MODELS ONLY
	499-211	-	COMPRESSOR	USE ON MACH 1'S ONLY
4.	215-221	-	AIR CONDENSER	USE ON 7020'S AND B MODELS ONLY
5.	499-558	-	A/C HOSE KIT (R134)	USE ON MACH 1'S ONLY

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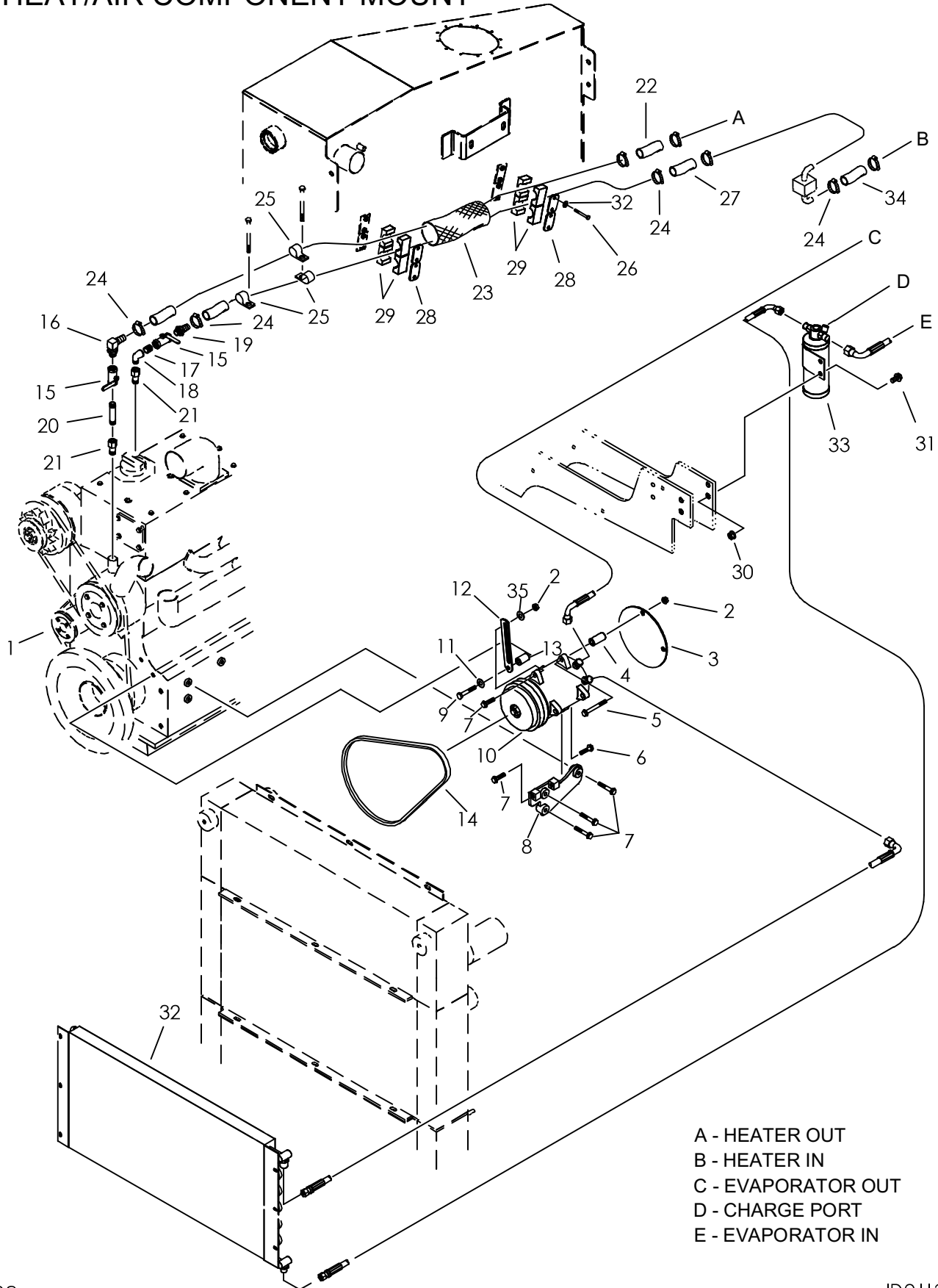
- 214-946 BINARY SWITCH
- 214-947 PRESSURE SWITCH
- 499-210 EXPANSION VALVE
- 499-559 A/C THERMOSTAT

FOOTNOTES

NOTE:

- TORQUE FITTINGS TO THE FOLLOWING SPECIFICATIONS
- 6 HOSES: 11-13 FT-LBS
- 8 HOSES: 15-20 FT-LBS
- 10 HOSES: 21-27 FT-LBS

# HEAT/AIR COMPONENT MOUNT



## HEAT/AIR COMPONENT MOUNT

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	194-086	-	ENGINE, DEUTZ	OBSOLETE
	194-372	-	ENGINE - DEUTZ DIESEL T2	OBSOLETE
2.	106-386	9	FLG LOCKNUT (M8-1.25)	
3.	349-815	1	HEAT SHIELD	
4.	349-816	2	SPACER	
5.	106-330	3	SCREW (M8-1.25 X 70MM)	
6.	106-200	1	FLG LK SCREW (M8-1.25 X 45MM)	
7.	106-163	5	FLG SCREW (M8-1.25 X 30MM)	
8.	349-739	1	COMPRESSOR BRACKET	
9.	106-329	1	SCREW (M8-1.25 X 50MM)	
10.	215-220	1	A/C COMPRESSOR	
11.	106-389	1	WASHER (M8)	
12.	349-743	1	ADJUSTING BAR	
13.	349-744	1	SPACER	
14.	171-007	1	COMPRESSOR BELT	
15.	158-579	2	SHUT-OFF (08NF-08NF)	
16.	514-285	1	S/O COUPLER (08N-10H90)	
17.	115-122	1	NIPPLE (08N-1-1/2")	
18.	115-115	1	STREET ELBOW (08N-08NF90)	
19.	514-140	1	S/O COUPLER (08N-10H)	
20.	115-162	1	NIPPLE (08N-4")	
21.	514-335	2	REDUCER (M26-1.50-08NF)	
22.	116-750	AR	BULK HOSE (5/8", SOLD PER FT)	USE 1 @ 250"
23.	117-610	1	ABRASION SLEEVE (1.75" X 138")	
24.	110-026	6	WORM CLAMP (1/2" TO 1-1/4")	
25.	110-226	3	BOLT-ON CLAMP (1")	
26.	105-818	8	BOLT (1/4-NC X 1-1/2")	
27.	116-750	AR	BULK HOSE (5/8", SOLD PER FT)	USE 1 @ 205"
28.	322-289	4	BACKUP (BOLT-ON)	
29.	111-007	4	BOLT-ON CLAMP (7/8", SET)	
30.	105-834	5	FLG LOCKNUT (3/8-NC)	
31.	106-162	3	FLG SCREW (M8-1.25 X 20MM, GD8)	
32.	215-221	1	AIR CONDENSER	
33.	215-222	1	A/C DRYER	
34.	116-750	AR	BULK HOSE (5/8", SOLD PER FT)	USE 1 @ 38"
35.	105-095	1	WASHER (1/4")	

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FOOTNOTES:

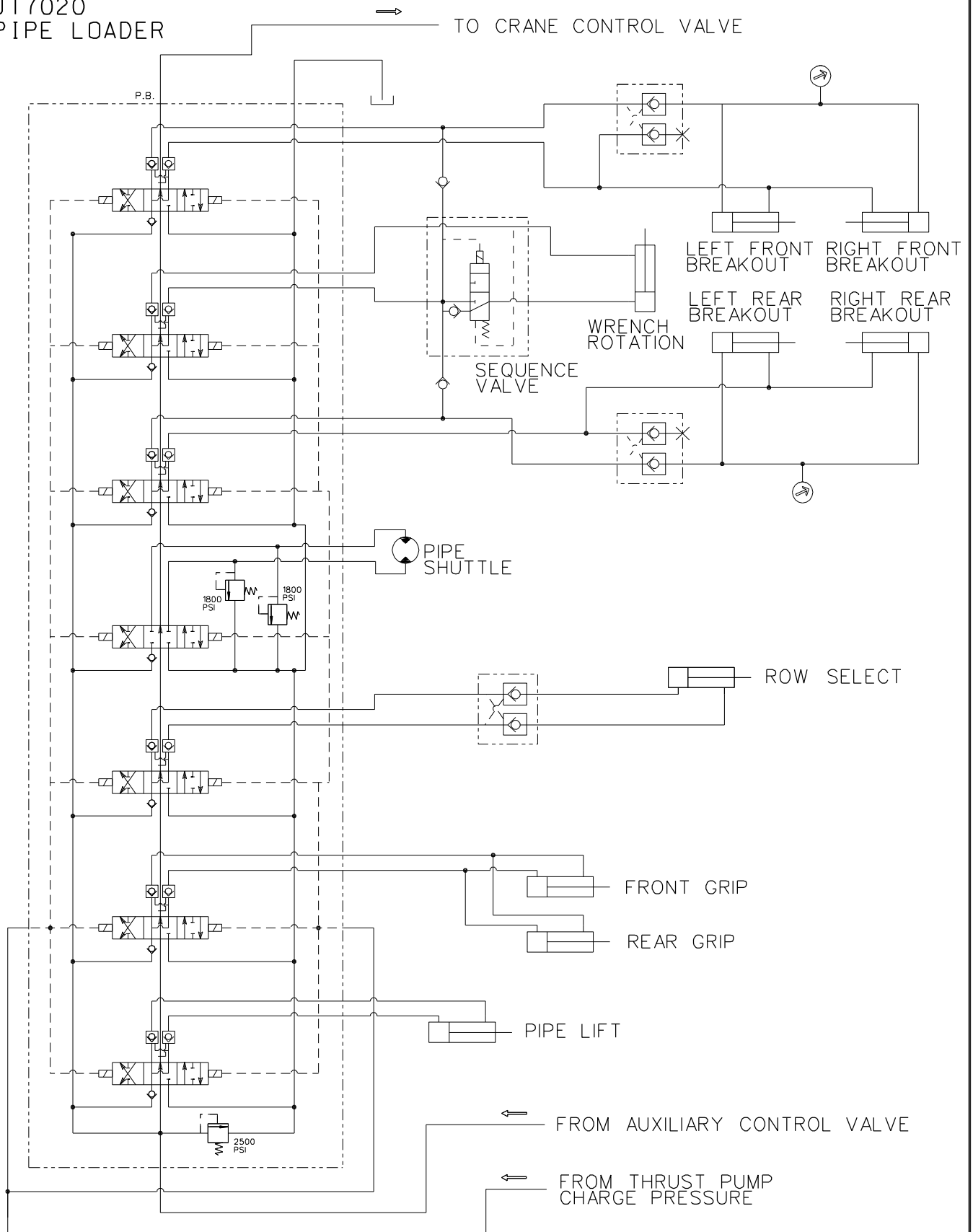
NOTE:

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# HYDRAULICS

# HYDRAULIC SCHEMATIC

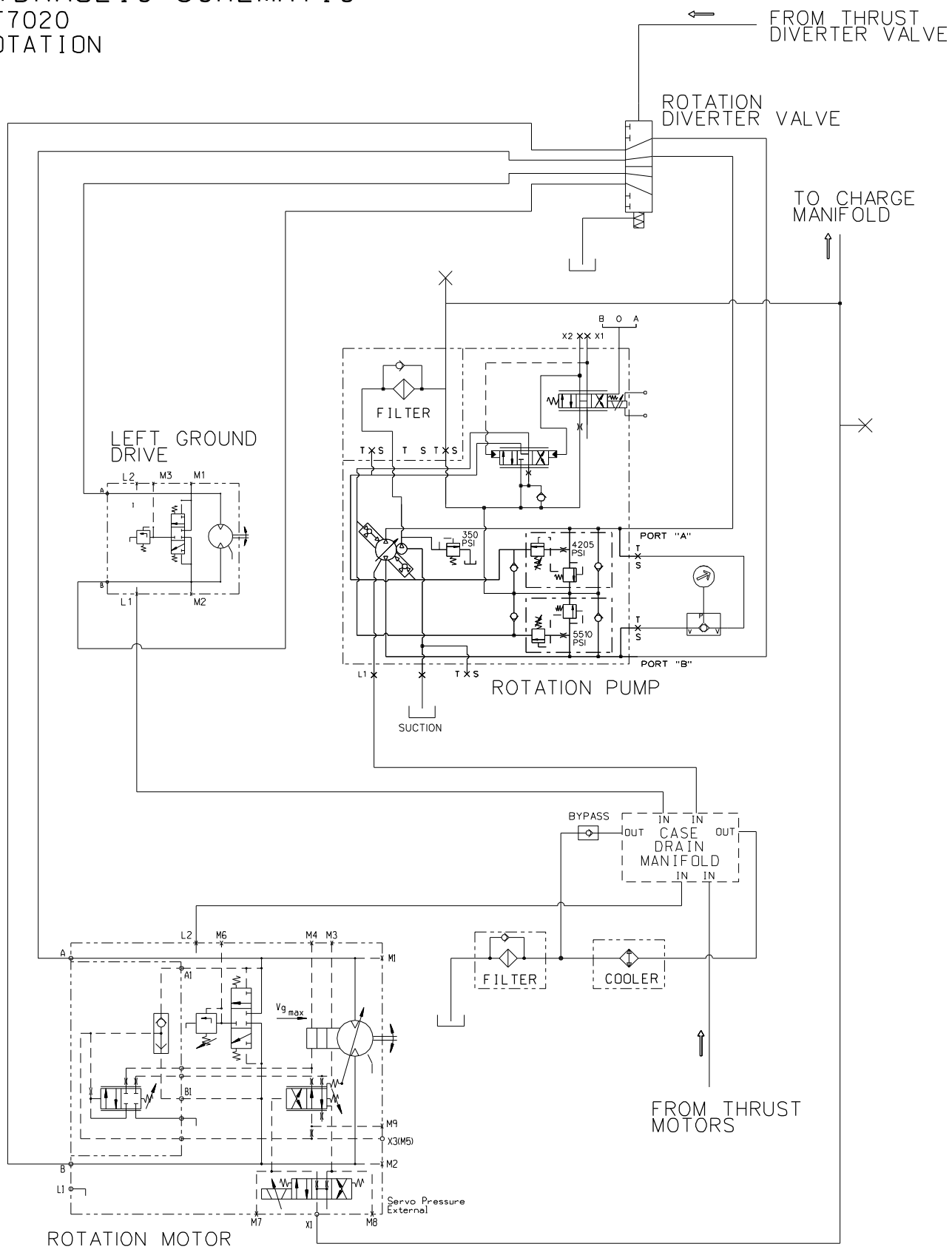
JT7020  
PIPE LOADER





# HYDRAULIC SCHEMATIC

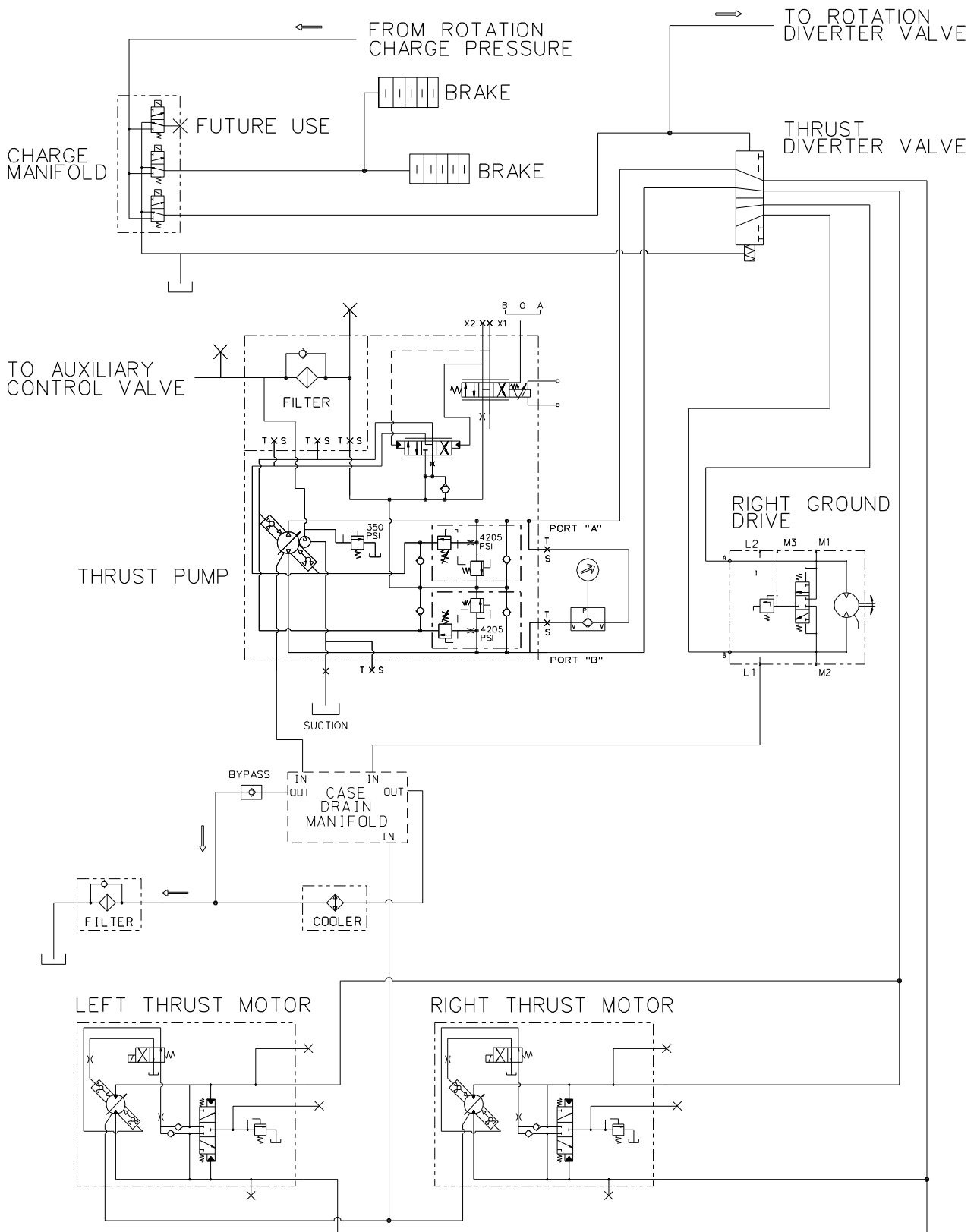
JT7020  
ROTATION



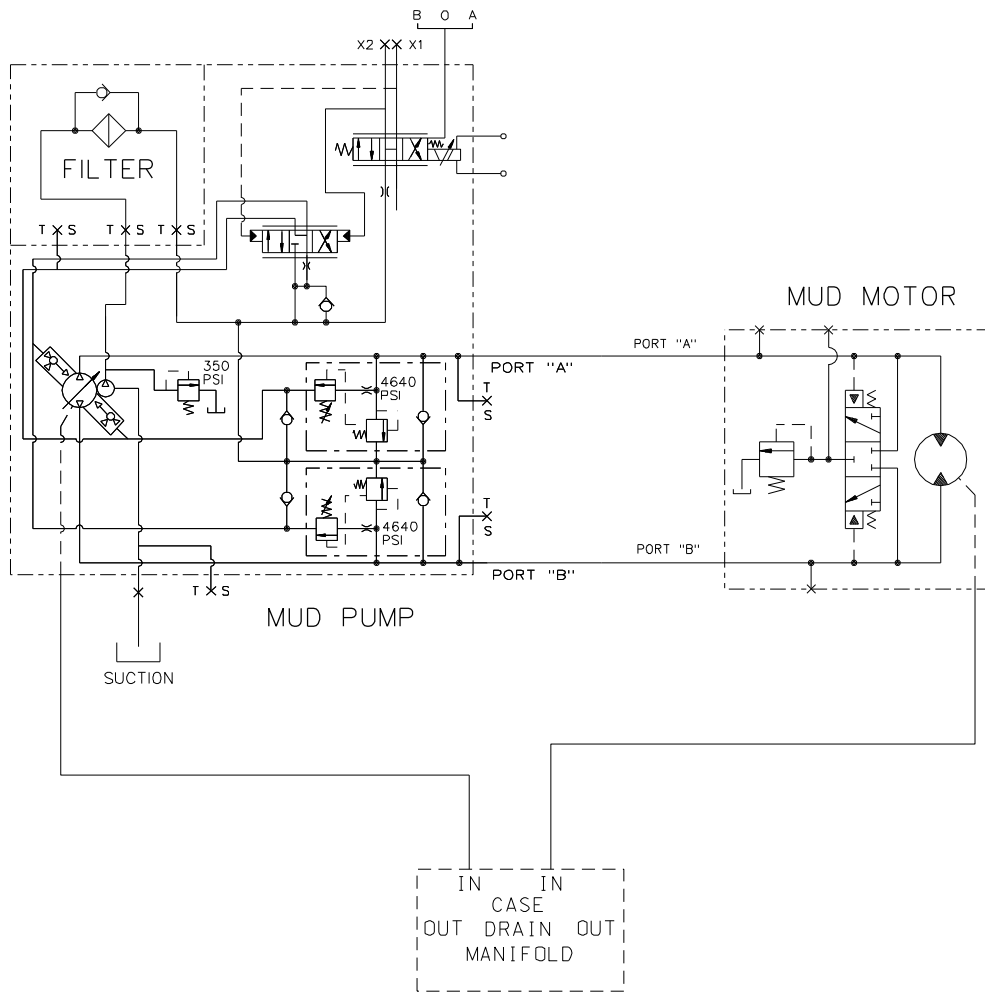
# HYDRAULIC SCHEMATIC

## JT7020

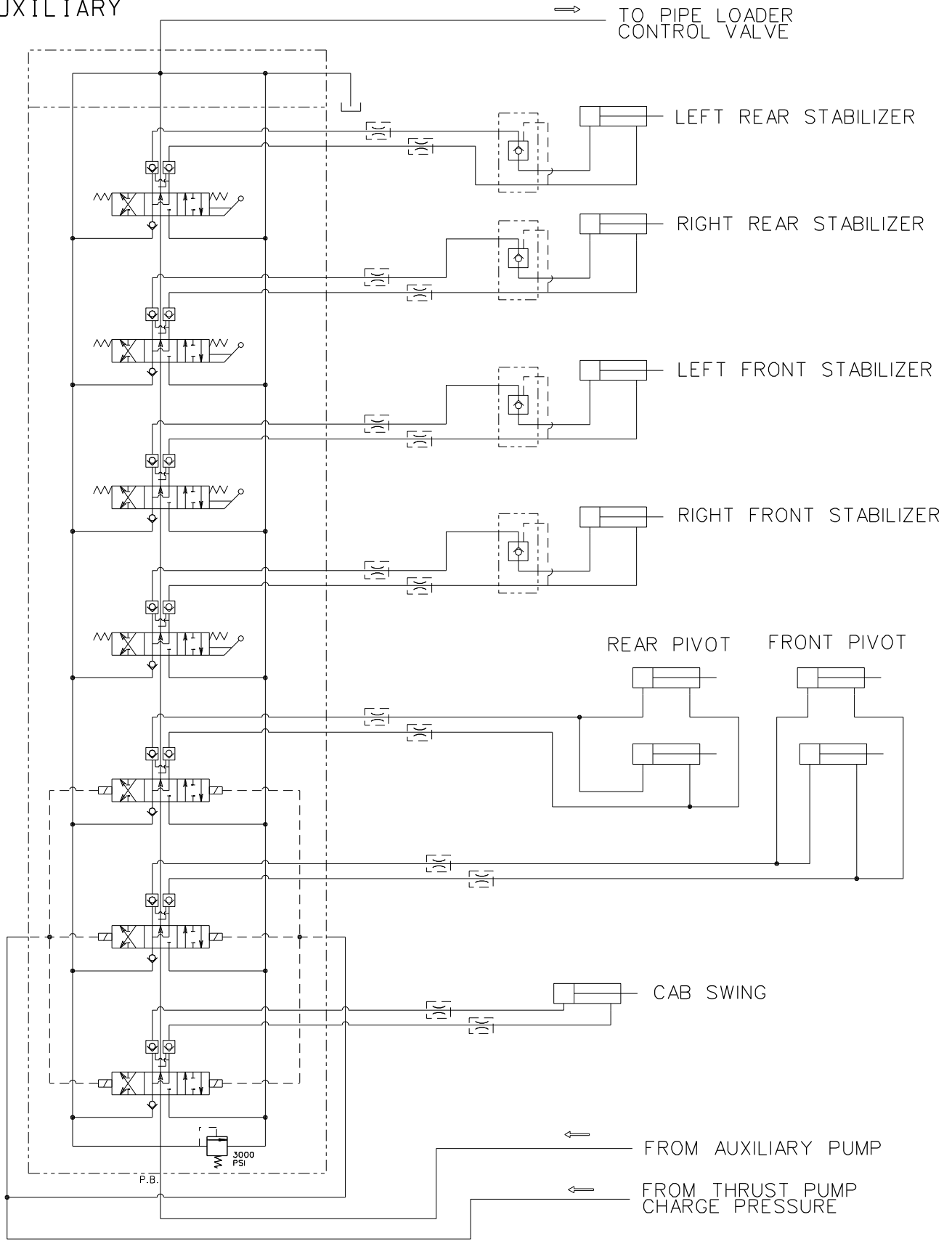
### THRUST



HYDRAULIC SCHEMATIC  
 JT7020  
 MUD

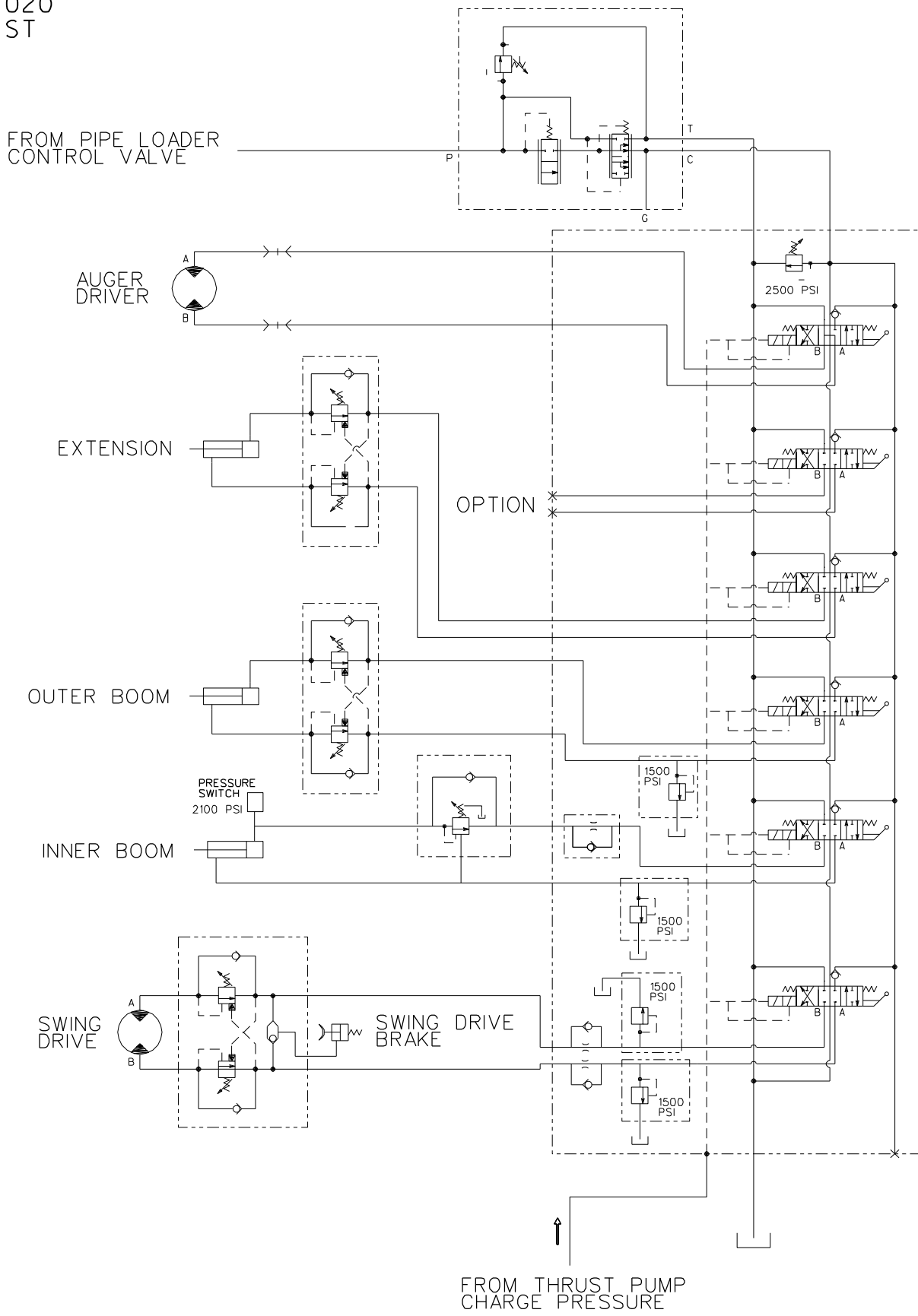


# HYDRAULIC SCHEMATIC JT7020 AUXILIARY

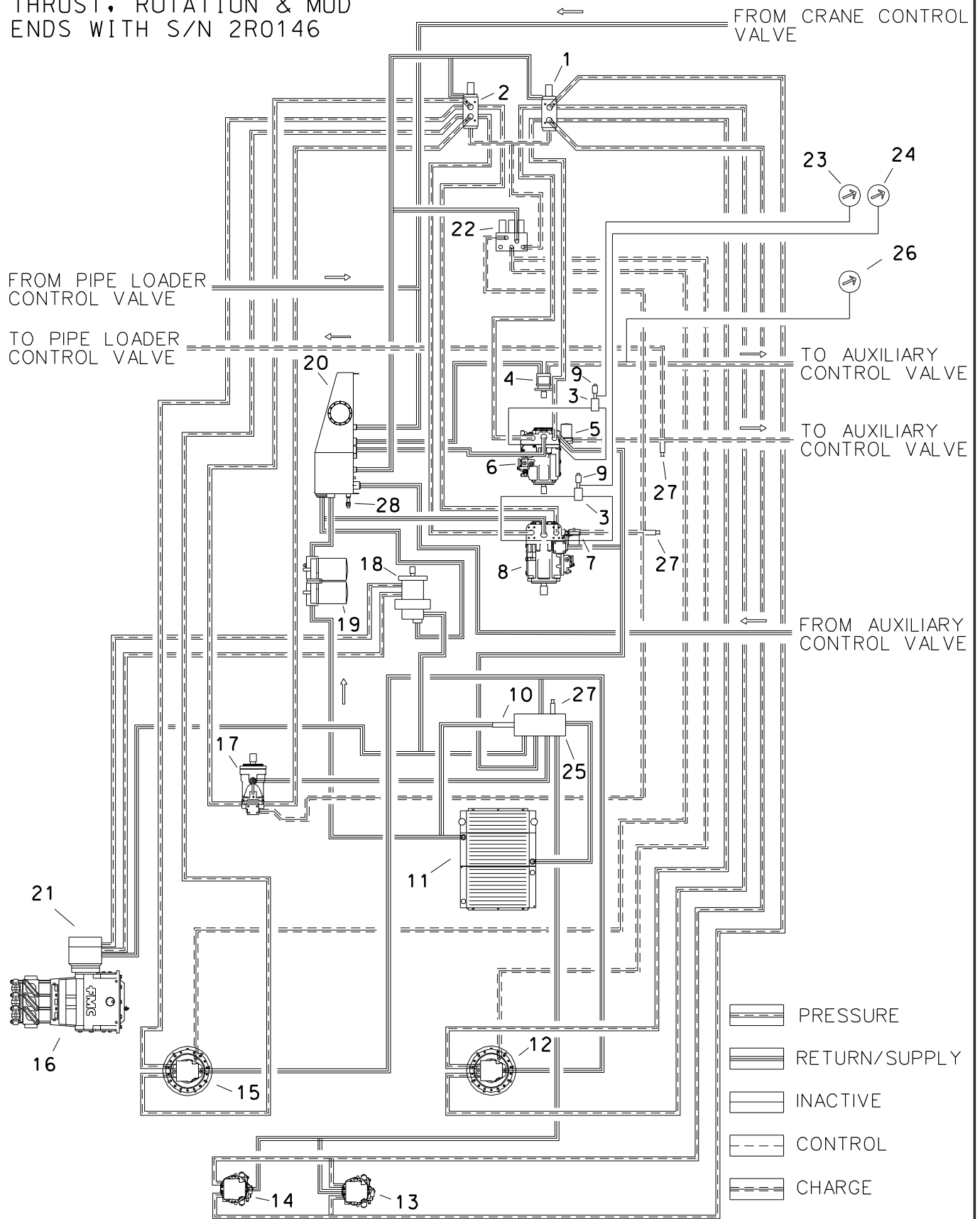


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# HYDRAULIC SCHEMATIC JT7020 HOIST



HYDRAULIC DIAGRAM  
THRUST, ROTATION & MUD  
ENDS WITH S/N 2R0146



HYDRAULIC DIAGRAM  
 THRUST, ROTATION & MUD  
 ENDS WITH S/N 2R0146

REF NO.	DESCRIPTION	REMARKS
1.	THRUST SELECTOR VALVE	
2.	ROTATION SELECTOR VALVE	
3.	SHUTTLE VALVE	
4.	AUXILIARY PUMP	
5.	THRUST CHARGE FILTER	
6.	THRUST PUMP	
7.	ROTATION CHARGE FILTER	
8.	ROTATION PUMP	
9.	PRESSURE TRANSDUCER	
10.	BYPASS VALVE	
11.	OIL COOLER	
12.	RIGHT GROUND DRIVE MOTOR	
13.	RIGHT THRUST MOTOR	
14.	LEFT THRUST MOTOR	
15.	LEFT GROUND DRIVE MOTOR	
16.	TRIPLEX MUD PUMP	
17.	ROTATION MOTOR	
18.	MUD SYSTEM HYD PUMP	
19.	OIL FILTERS	
20.	OIL RESERVIOR	
21.	MUD PUMP DRIVE MOTOR	
22.	CHARGE MANIFOLD	
23.	THRUST GAUGE	
24.	ROTATION GAUGE	
25.	CASE DRAIN MANIFOLD	
26.	AUXILIARY PRESSURE GAUGE	
27.	TEST PORT	
28.	HYD TEMPERTURE SENDER	

FOOTNOTES

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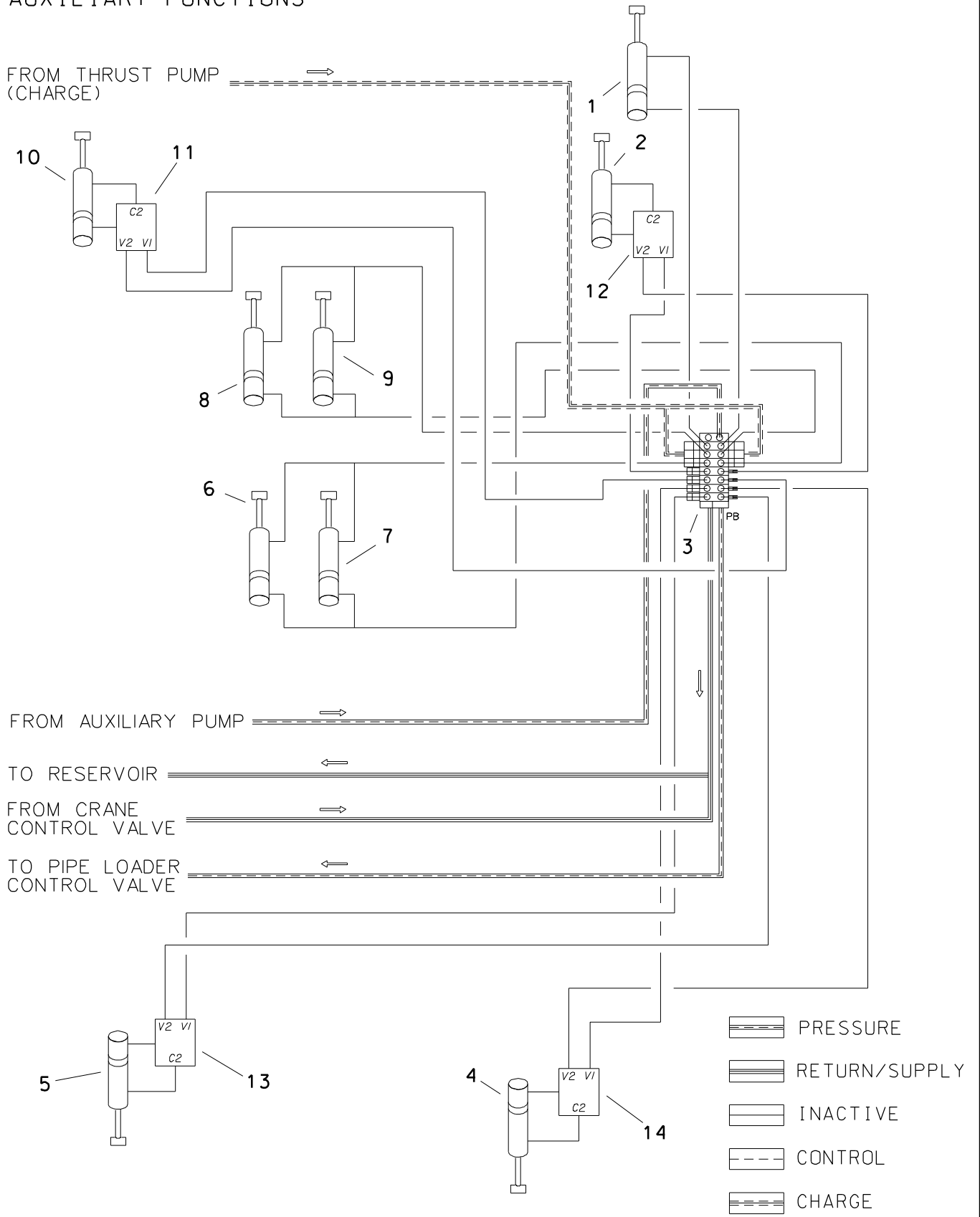
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# HYDRAULIC DIAGRAM AUXILIARY FUNCTIONS





# HYDRAULIC DIAGRAM AUXILIARY FUNCTIONS

REF NO.	DESCRIPTION	REMARKS
1.	CAB SWING CYLINDER	
2.	RIGHT FRONT STABILIZER CYLINDER	
3.	AUXILIARY CONTROL VALVE	
4.	RIGHT REAR STABILIZER CYLINDER	
5.	LEFT REAR STABILIZER CYLINDER	
6.	LEFT REAR PIVOT CYLINDER	
7.	RIGHT REAR PIVOT CYLINDER	
8.	LEFT FRONT PIVOT CYLINDER	
9.	RIGHT FRONT PIVOT CYLINDER	
10.	LEFT FRONT STABILIZER CYLINDER	
11.	LEFT FRONT STABILIZER CYLINDER LOCKOUT	
12.	RIGHT FRONT STABILIZER CYLINDER LOCKOUT	
13.	LEFT REAR STABILIZER CYLINDER LOCKOUT	
14.	RIGHT REAR STABILIZER CYLINDER LOCKOUT	

FOOTNOTES

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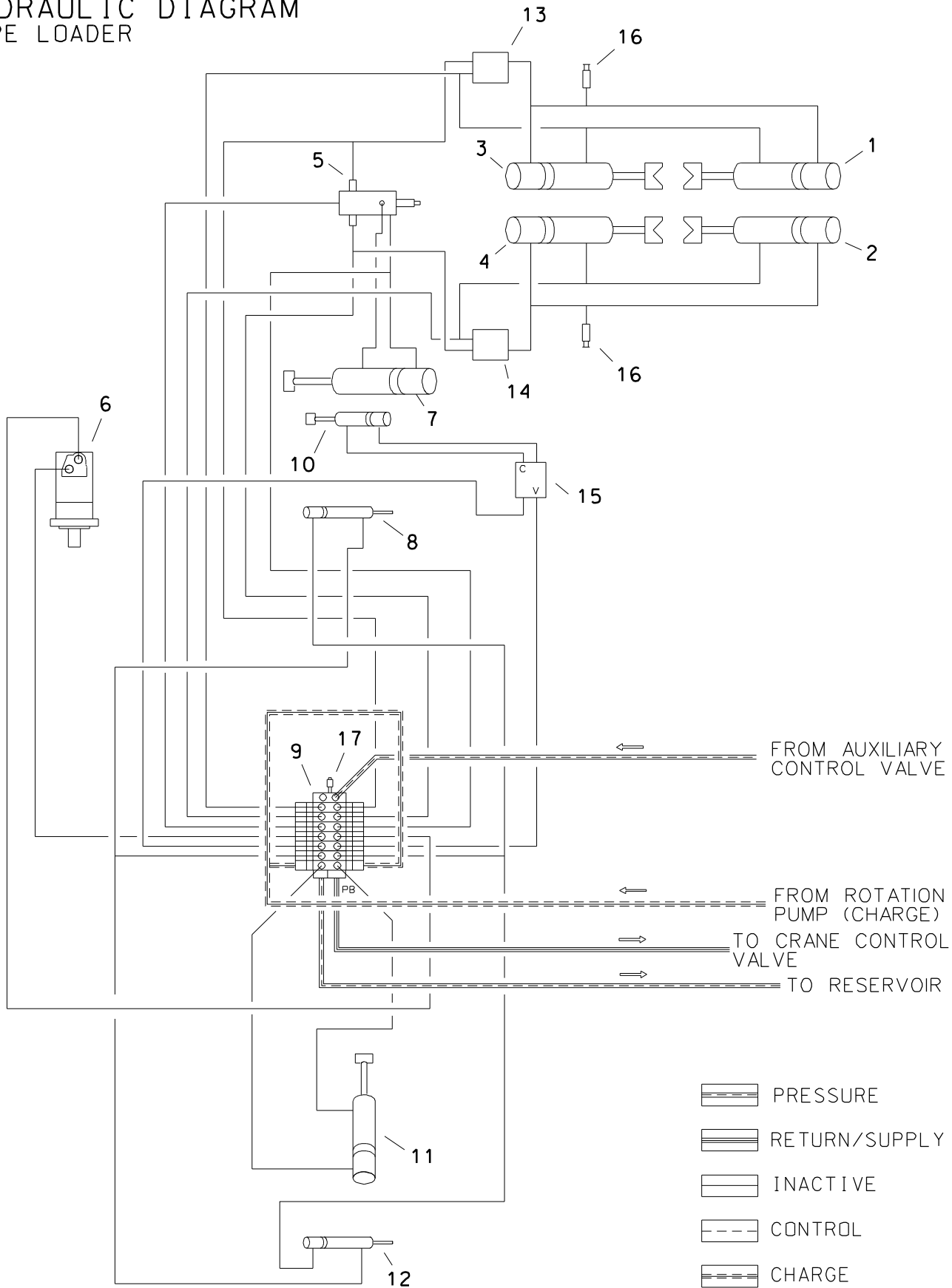
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HYDRAULIC DIAGRAM  
PIPE LOADER



# HYDRAULIC DIAGRAM PIPE LOADER

REF NO.	DESCRIPTION	REMARKS
1.	RIGHT FRONT BREAKOUT WRENCH CYLINDER	
2.	RIGHT REAR BREAKOUT WRENCH CYLINDER	
3.	LEFT FRONT BREAKOUT WRENCH CYLINDER	
4.	LEFT REAR BREAKOUT WRENCH CYLINDER	
5.	SEQUENCING VALVE	
6.	PIPE SHUTTLE DRIVE MOTOR	
7.	BREAKOUT WRENCH ROTATION CYLINDER	
8.	FRONT PIPE LOADER GRIP CYLINDER	
9.	PIPE LOADER CONTROL VALVE	
10.	ROW SELECT CYLINDER	
11.	PIPE LIFT CYLINDER	
12.	REAR PIPE LOADER GRIP CYLINDER	
13.	PILOT OPERATED CHECK FRONT WRENCH CYLINDER	
14.	PILOT OPERATED CHECK REAR WRENCH CYLINDER	
15.	PILOT OPERATED CHECK ROW SELECT CYLINDER	
16.	TEST PORT	
17.	PRESSURE TRANSDUCER	

FOOTNOTES

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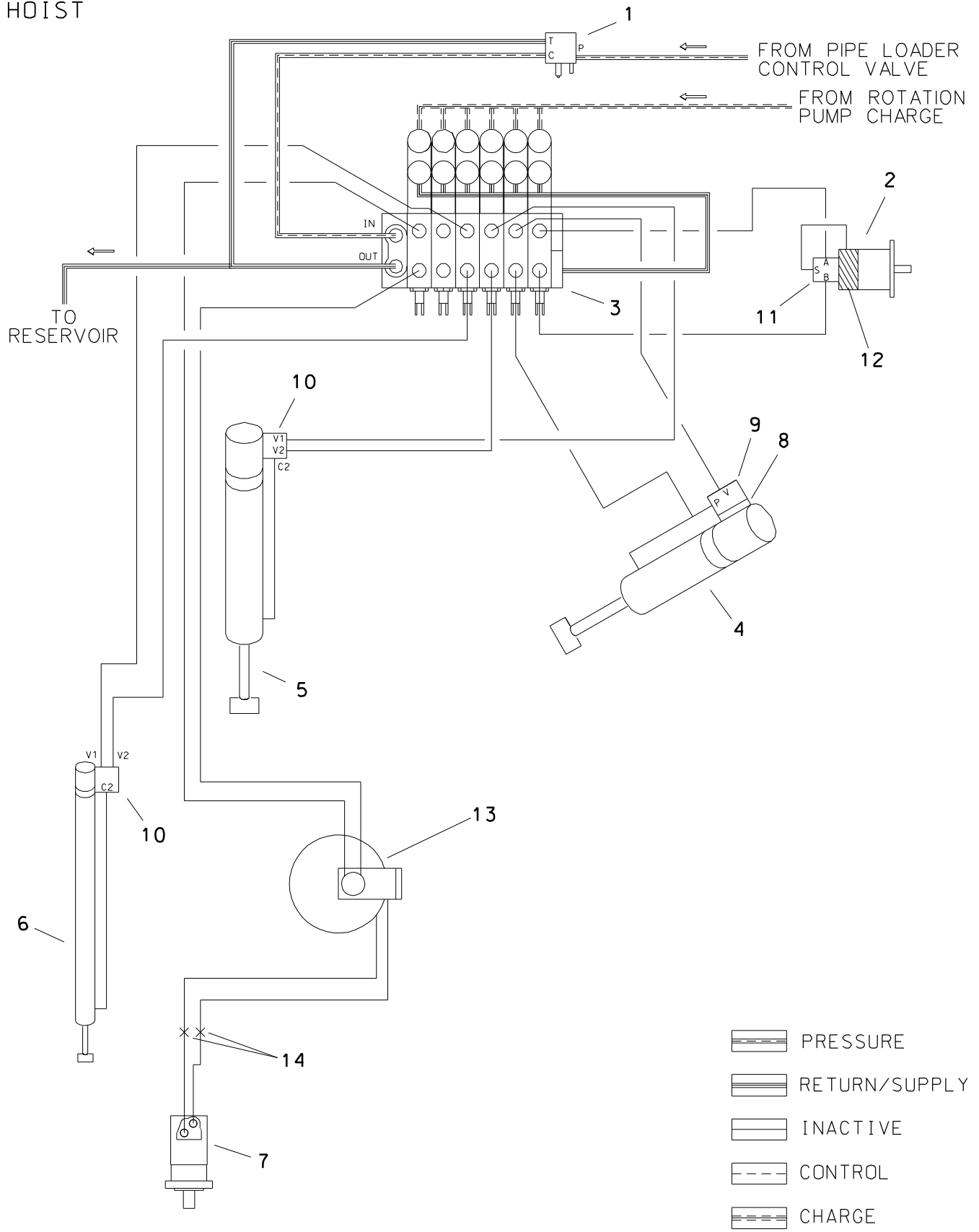
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# HYDRAULIC DIAGRAM HOIST



# HYDRAULIC DIAGRAM HOIST

REF NO.	DESCRIPTION	REMARKS
1.	PROPORTIONING VALVE	
2.	SWING DRIVE	
3.	CRANE CONTROL VALVE	
4.	INNER BOOM CYLINDER	
5.	OUTER BOOM CYLINDER	
6.	EXTENSION CYLINDER	
7.	AUGER DRIVER MOTOR	
8.	MANIFOLD SENSE VALVE	
9.	COUNTERBALANCE VALVE	
10.	COUNTERBALANCE VALVE	
11.	SWING DRIVE MOTOR W/ COUNTERBALANCE VALVE	
12.	SWING DRIVE BRAKE	
13.	HOSE REEL	
14.	QUICK DISCONNECT COUPLINGS	

FOOTNOTES

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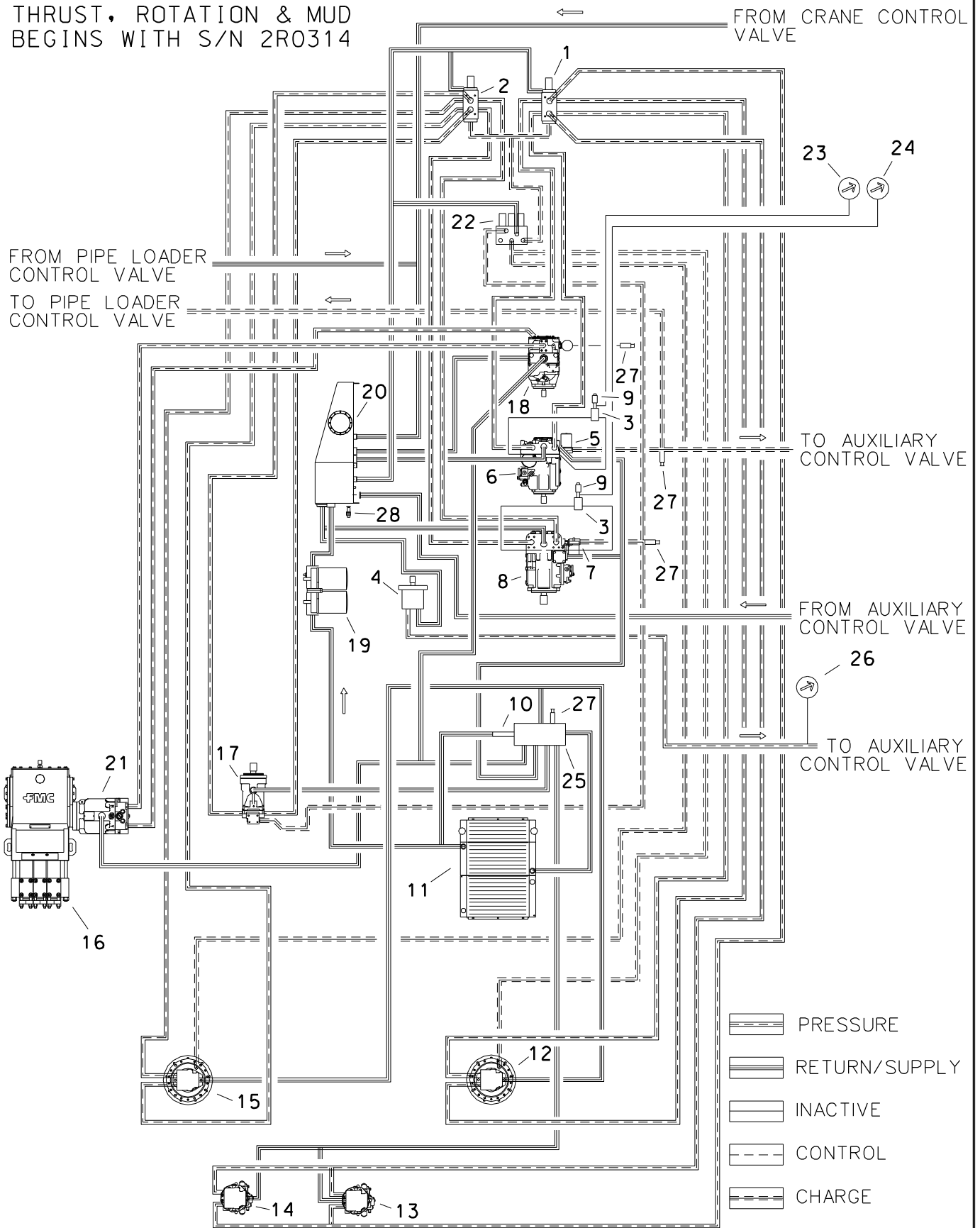
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HYDRAULIC DIAGRAM  
 THRUST, ROTATION & MUD  
 BEGINS WITH S/N 2R0314



HYDRAULIC DIAGRAM  
 THRUST, ROTATION & MUD  
 BEGINS WITH S/N 2R0314

REF NO.	DESCRIPTION	REMARKS
1.	THRUST SELECTOR VALVE	
2.	ROTATION SELECTOR VALVE	
3.	SHUTTLE VALVE	
4.	AUXILIARY PUMP	
5.	THRUST CHARGE FILTER	
6.	THRUST PUMP	
7.	ROTATION CHARGE FILTER	
8.	ROTATION PUMP	
9.	PRESSURE TRANSDUCER	
10.	BYPASS VALVE	
11.	OIL COOLER	
12.	RIGHT GROUND DRIVE MOTOR	
13.	RIGHT THRUST MOTOR	
14.	LEFT THRUST MOTOR	
15.	LEFT GROUND DRIVE MOTOR	
16.	TRIPLEX MUD PUMP	
17.	ROTATION MOTOR	
18.	MUD SYSTEM HYD PUMP	
19.	OIL FILTERS	
20.	OIL RESERVIOR	
21.	MUD PUMP DRIVE MOTOR	
22.	CHARGE MANIFOLD	
23.	THRUST GAUGE	
24.	ROTATION GAUGE	
25.	CASE DRAIN MANIFOLD	
26.	AUXILIARY PRESSURE GAUGE	
27.	TEST PORT	
28.	HYD TEMPERTURE SENDER	

FOOTNOTES

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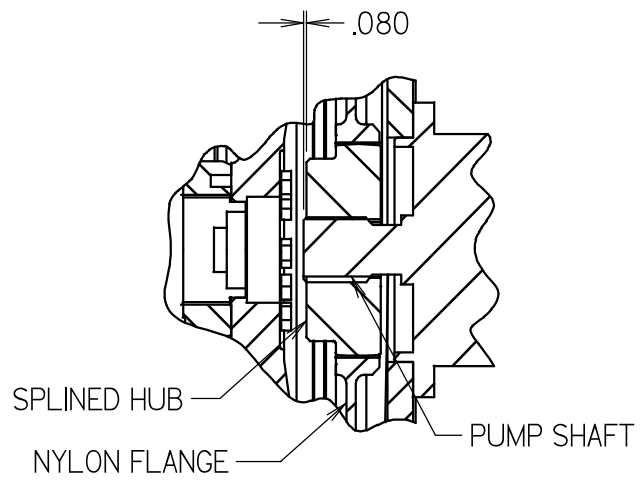
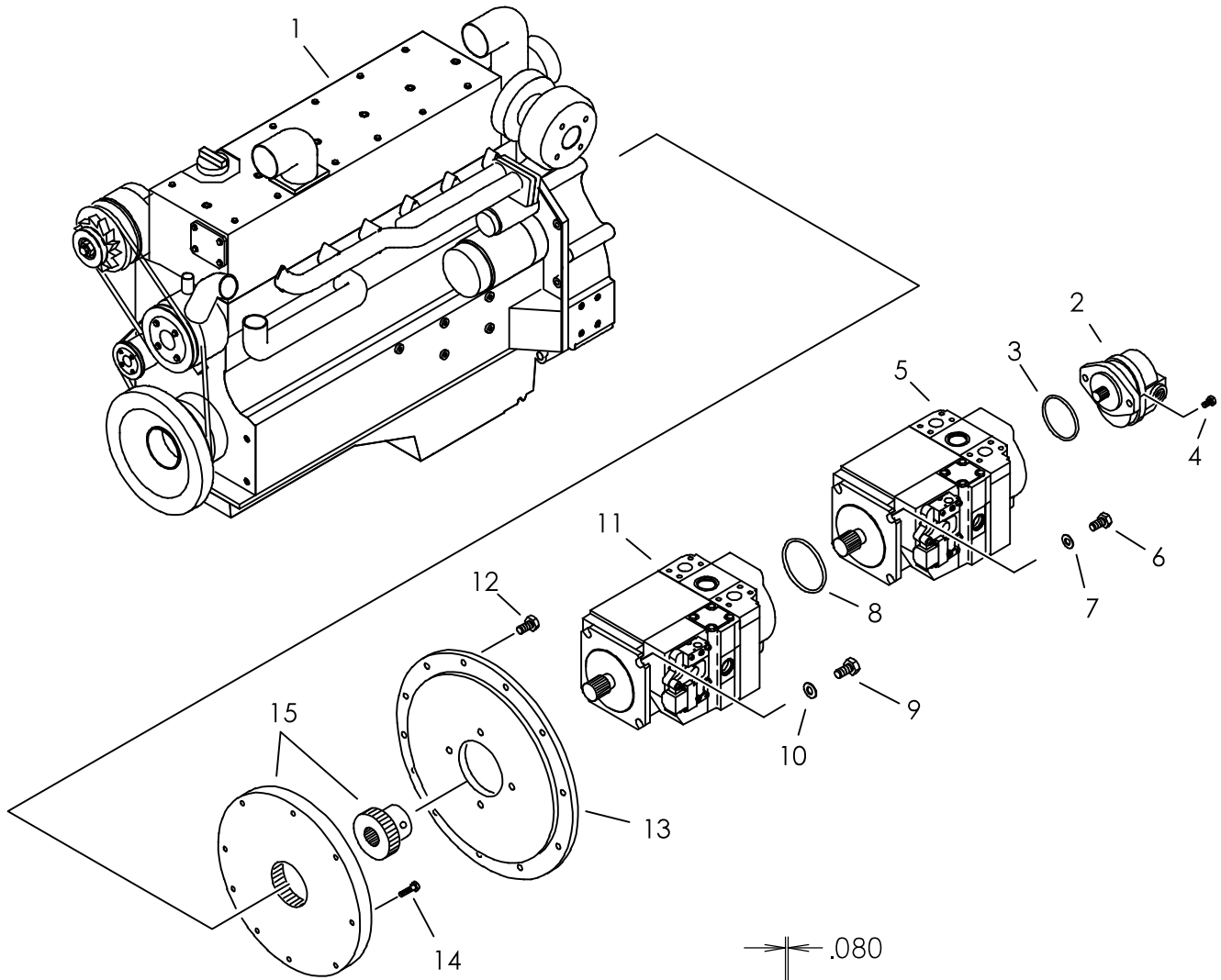
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# PUMP MOUNTING

ENDS WITH S/N 2R0313





## PUMP MOUNTING ENDS WITH S/N 2R0313

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	194-776	1	ENGINE (DEUTZ, 221HP)	
2.	158-435	1	HYDRAULIC PUMP	
	500-966		SEAL REPAIR KIT	
3.	157-099	1	O-RING (042 D70)	
4.	105-052	2	BOLT (3/8-NC X 1-1/4")	USE LOCTITE 242 OR EQUIVALENT
5.	158-431	1	HYDRAULIC PUMP	
	190-764		SEAL REPAIR KIT	
6.	105-858	4	BOLT (1/2-NC X 1-1/4 ")	USE LOCTITE 242 OR EQUIVALENT
7.	106-743	4	WASHER (1/2", HARDENED)	
8.	157-183	1	O-RING (048 D70)	
9.	105-319	4	BOLT (3/4-NC X 1-1/2")	USE LOCTITE 242 OR EQUIVALENT
10.	106-949	4	WASHER (3/4", HARDENED)	
11.	158-430	1	HYDRAULIC PUMP	
	190-763		SEAL REPAIR KIT	
12.	106-383	12	FLG LK SCREW (M10-1.50 X 30mm)	USE LOCTITE 242 OR EQUIVALENT
13.	349-001	1	FLYWHEEL HOUSING COVER	
14.	105-876	8	SCREW (M10-1.50 X 35mm)	USE LOCTITE 242 OR EQUIVALENT; TORQUE TO 32 FT LBS
15.	194-777	1	FLYWHEEL COUPLING	OBSOLETE, SEE FOOTNOTE 1

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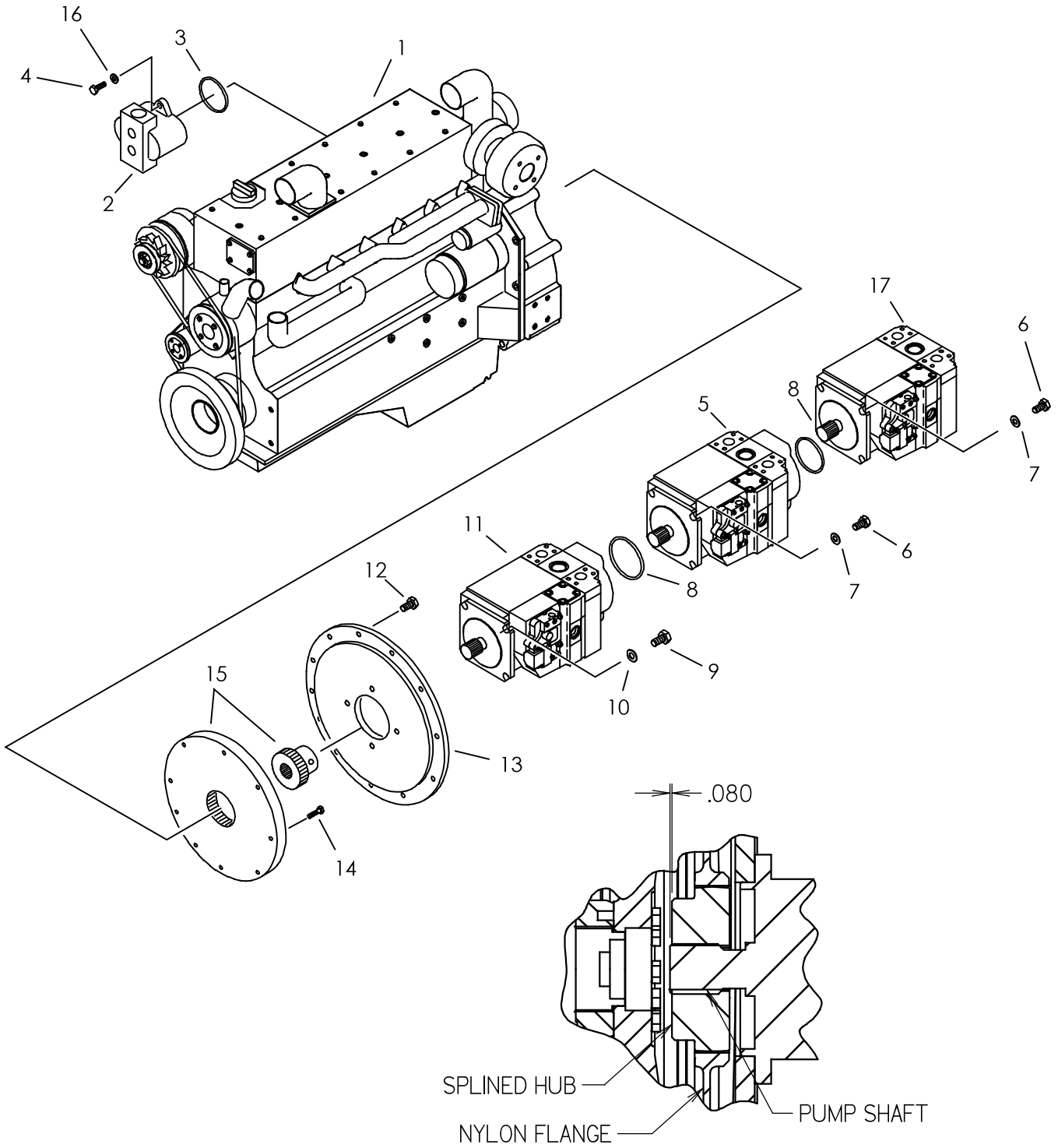
FOOTNOTES:

- 1.REPLACE WITH FLYWHEEL COUPLING 195-1685. FLAT SIDE OF NYLON FLANGE GOES TOWARD FLYWHEEL. HUB FACE SHOULD MEASURE .080 INCHES FROM END OF PUMP SHAFT, SEE SKETCH. USE LOCTITE 242 OR EQUIVALENT & TORQUE TO 200 FT LBS.

NOTE:

# PUMP MOUNTING

BEGINS WITH S/N 2R0314



## PUMP MOUNTING BEGINS WITH S/N 2R0314

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	194-776	1	ENGINE (DEUTZ, 221HP)	INCL REF NO. 3
2.	158-490	1	HYDRAULIC PUMP	
3.	499-955	-	O-RING (ID 3.95, OD 4.25)	AUX PUMP MOUNTING
4.	106-333	2	BOLT (M12-1.75 X 40mm, 8.8)	USE LOCTITE 242 OR EQUIVALENT
5.	158-492	1	HYDRAULIC PUMP	
	158-431	1	HYDRAULIC PUMP	
	190-764		SEAL REPAIR KIT	
6.	105-858	8	BOLT (1/2-NC X 1-1/4")	USE LOCTITE 242 OR EQUIVALENT
7.	106-743	8	WASHER (1/2", HARDENED)	
8.	157-183	2	O-RING (O48 D70)	
9.	105-319	4	BOLT (3/4-NC X 1-1/2")	USE LOCTITE 242 OR EQUIVALENT
10.	106-949	4	WASHER (3/4", HARDENED)	
11.	158-430	1	HYDRAULIC PUMP	
	190-763		SEAL REPAIR KIT	
12.	106-383	12	FLG LK SCREW (M10-1.50 X 30mm)	USE LOCTITE 242 OR EQUIVALENT
13.	349-001	1	FLYWHEEL HOUSING COVER	
14.	105-876	8	SCREW (M10-1.50 X 35mm)	USE LOCTITE 242 OR EQUIVALENT; TORQUE TO 32 FT LBS
15.	194-777	1	FLYWHEEL COUPLING	OBSOLETE, SEE FOOTNOTE 1
16.	106-397	2	WASHER (M12, HARDENED)	
17.	158-489	1	HYDRAULIC PUMP	

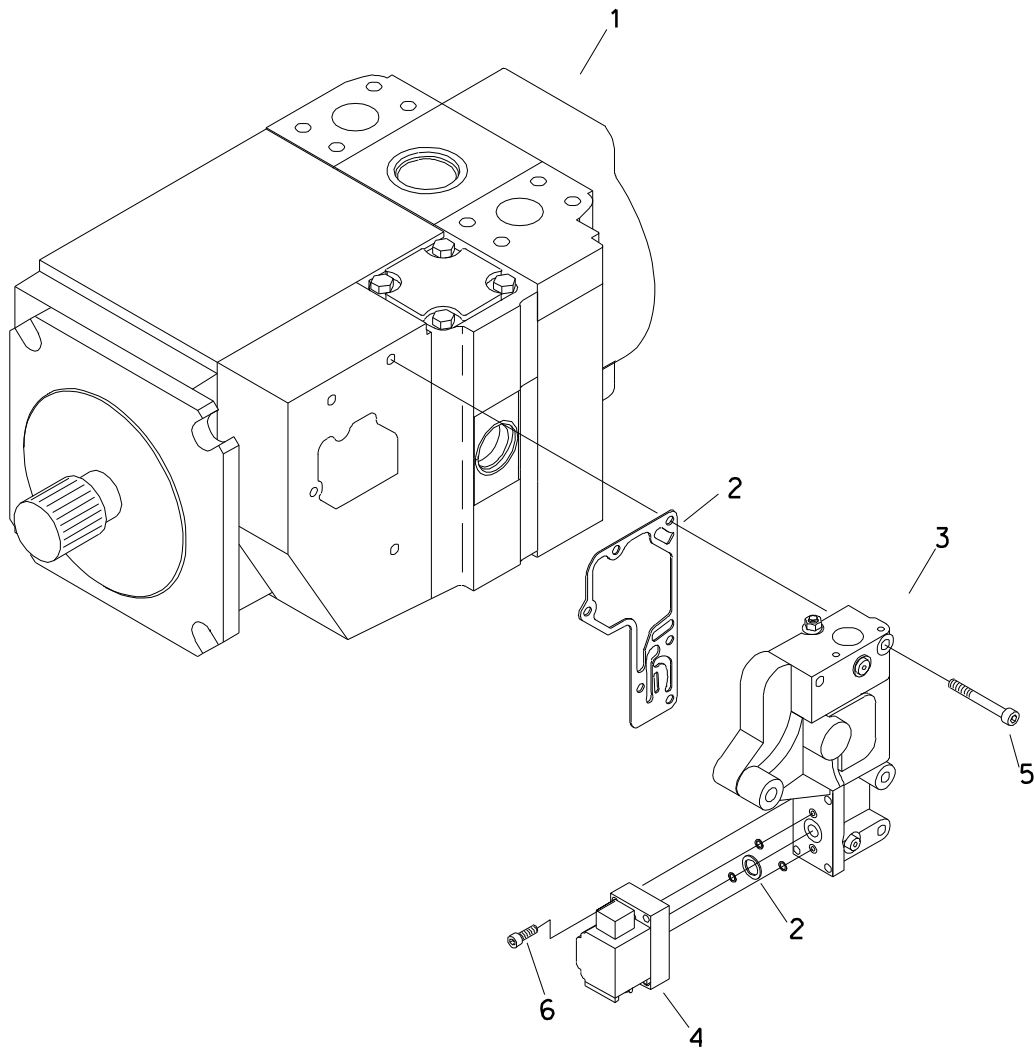
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### FOOTNOTES:

1. REPLACE WITH FLYWHEEL COUPLING 195-1685. FLAT SIDE OF NYLON FLANGE GOES TOWARD FLYWHEEL. HUB FACE SHOULD MEASURE .080 INCHES FROM END OF PUMP SHAFT, SEE SKETCH. USE LOCTITE 242 OR EQUIVALENT & TORQUE TO 200 FT LBS.

NOTE:

# ROTATION PUMP CONTROL

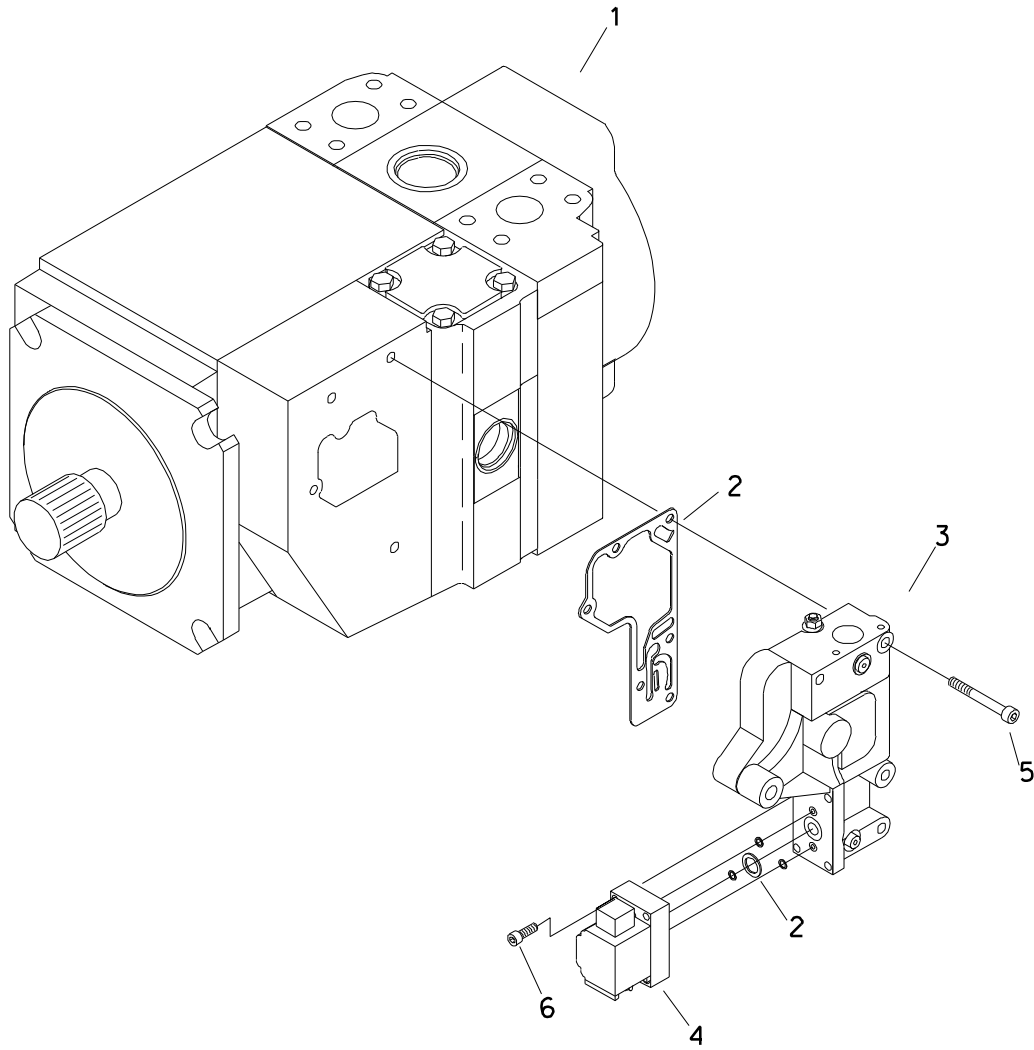


# ROTATION PUMP CONTROL

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	158-430	-	ROTATION PUMP	
2.	190-981	1	EDC KIT 75/100/130CC	
3.	149-545	1	EDC CONTROLLER F/130CC	
4.	149-546	1	PILOT VALVE	
5.	107-402	4	SCREW (M6-1.0 X 50MM, ALN)	
6.	106-428	4	SCREW (M5-0.80 X 14MM, ALN)	

FOOTNOTES

# THRUST PUMP CONTROL

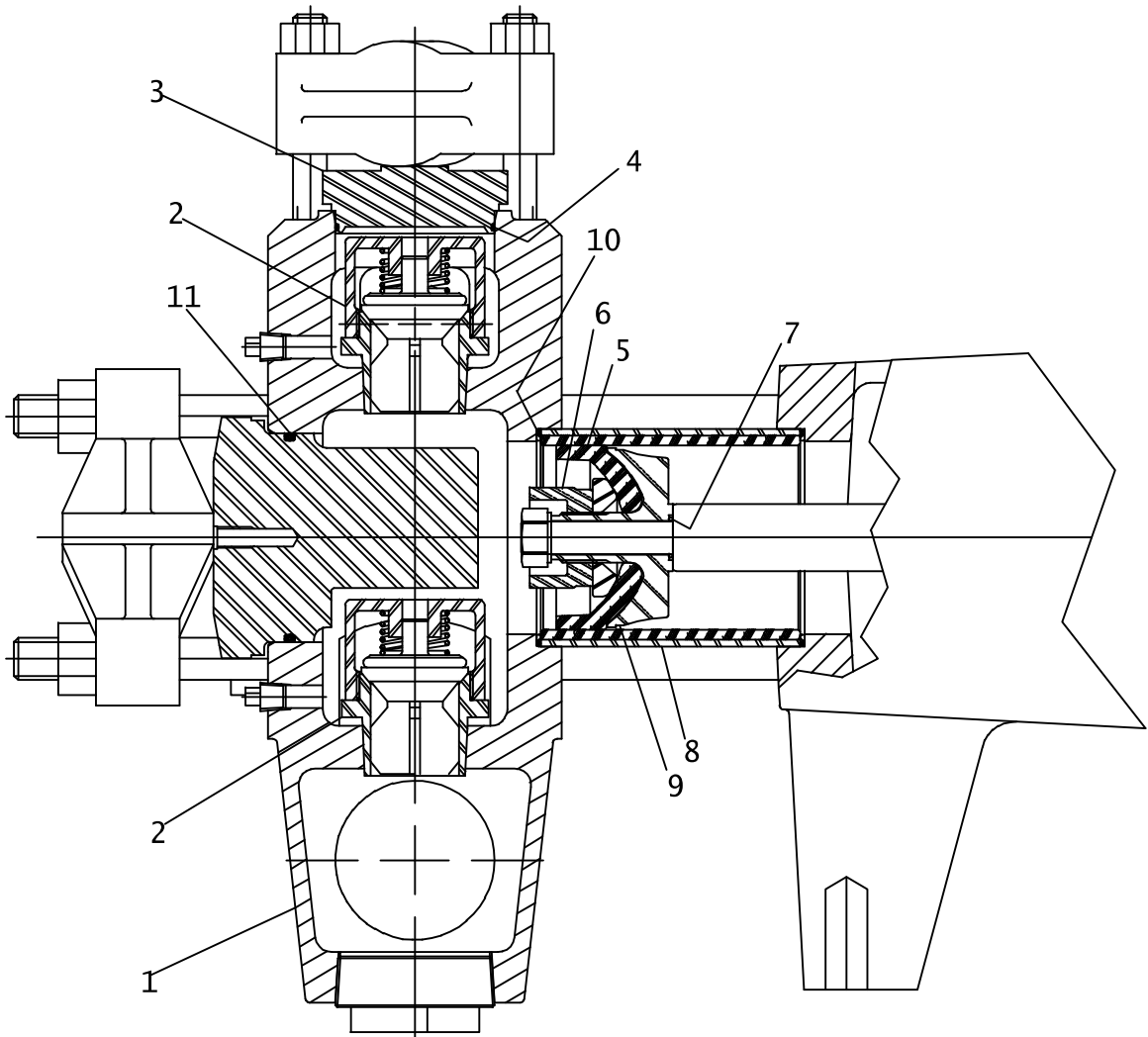


# THRUST PUMP CONTROL

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	158-492	-	HYDRAULIC PUMP	
2.	190-981	1	EDC KIT 75/100/130CC	
3.	149-544	1	EDC CONTROLLER F/100CC	
4.	149-546	1	PILOT VALVE	
5.	107-402	4	SCREW (M6-1.0 X 50MM, ALN)	
6.	106-428	4	SCREW (M5-0.80 X 14MM, ALN)	

FOOTNOTES

**FLUID PUMP (FLUID END)**  
70 GPM





## FLUID PUMP (FLUID END) 70 GPM

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	158-434		FLUID PUMP	INCL REF NO'S 1 - 11
	197-062		REBUILT 158-434 MUD PUMP	INCL REF NO'S 1 - 11
	158-017		MUD PUMP	
	190-783		L1122 A/R VALVE SERVICE KIT	INCL REF NO'S 2, 4 & 11
1.	499-035	1	FLUID CYLINDER	
2.	499-036	6	VALVE	
3.	499-037	3	VALVE COVER	
4.	157-190	3	O-RING (139 D90)	
5.	191-1008	1	PACKING REPAIR KIT	SEE FOOTNOTE 1
6.	499-039	3	PLUNGER NUT	
7.	155-778	3	O-RING (014 D70, VITON)	
8.	499-040	3	CYLINDER (2-3/4")	
9.	499-041	3	CUP HOLDER	
10.	499-042	6	CYLINDER GASKET	
11.	157-191	3	O-RING (233 D90)	

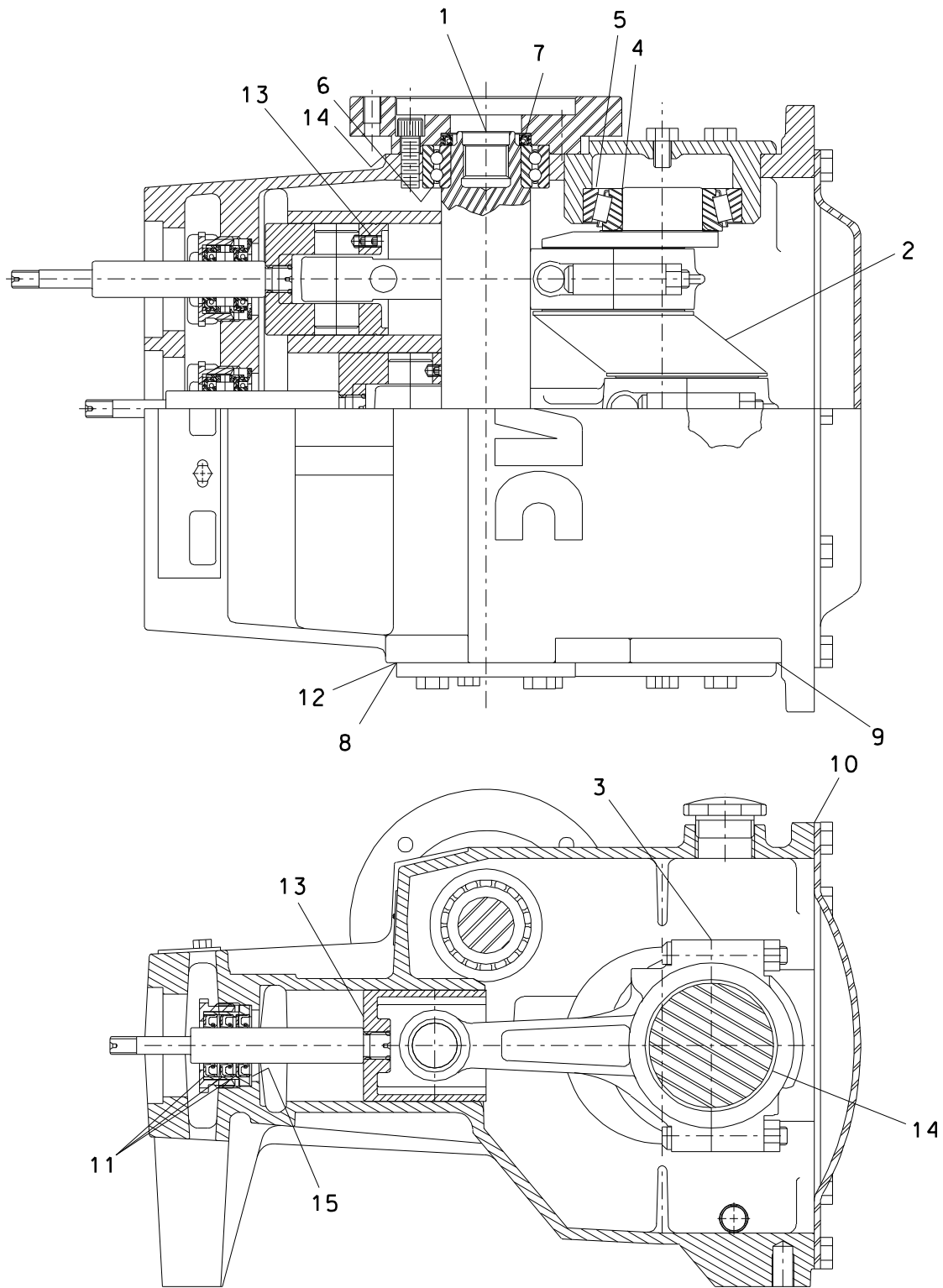
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FOOTNOTES:

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

NOTE:

FLUID PUMP (POWER END)

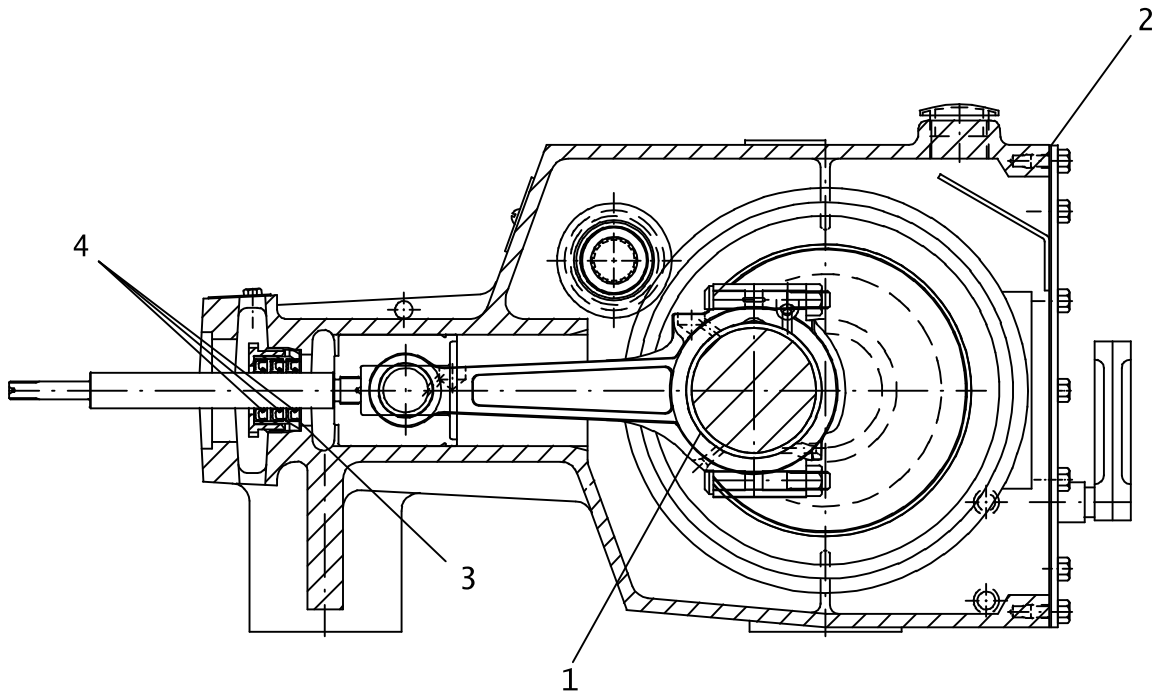
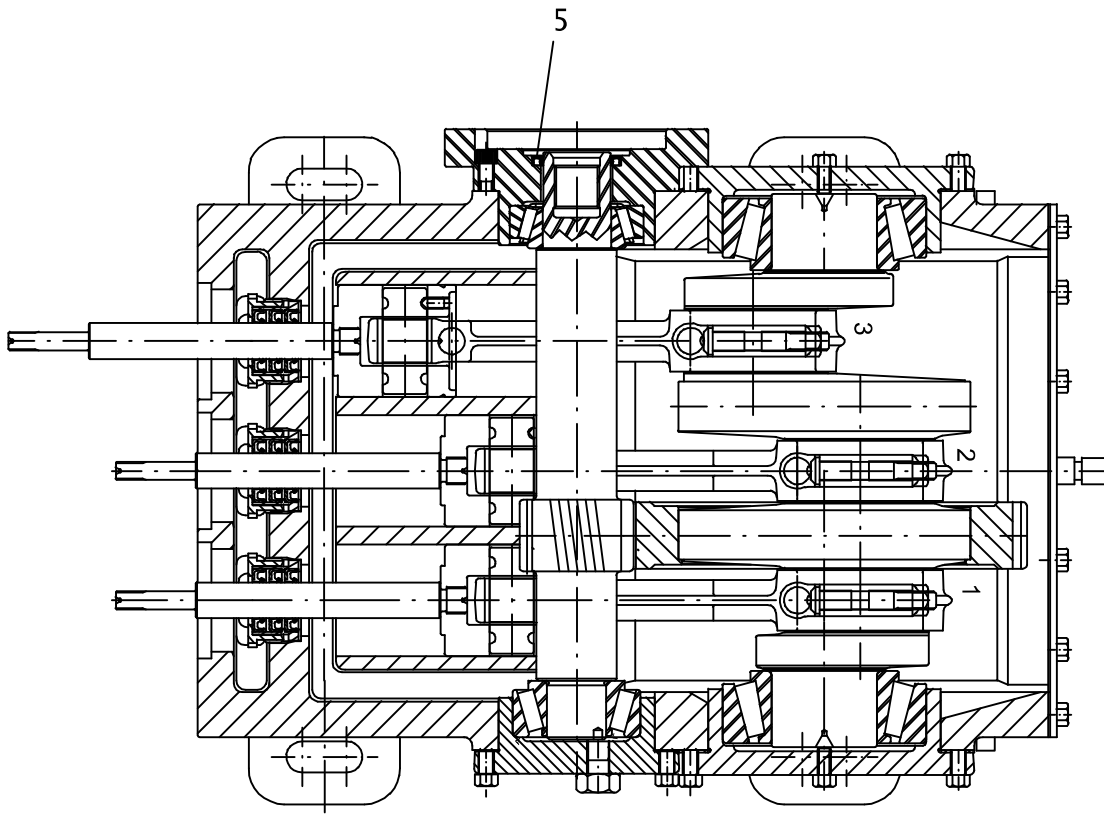


# FLUID PUMP (POWER END)

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	158-434		FLUID PUMP	INCL REF NO'S 1 - 15
	197-062		REBUILT 158-434 FLUID PUMP	
	158-017		FLUID PUMP	INCL REF NO'S 1 - 15
1.	499-075	1	PINION SHAFT	
2.	499-076	1	ECCENTRIC GEAR	
3.	499-077	3	CONNECTING ROD	
4.	126-192	2	TAPERED BEARING (2.250")	
5.	126-193	2	TAPERED RACE (4.437")	
6.	125-144	2	BALL BEARING (1.968")	
7.	157-738	1	OIL SEAL, PINION SHAFT	
8.	165-884	2	GASKET, PINION CAP	
9.	165-885	2	GASKET, BEARING CAP	
10.	165-886	1	GASKET, BACKCOVER	
11.	157-739		INTERNAL SEAL (. . . . .")	
12.	165-887	6	SHIM	
13.	499-078	3	CROSSHEAD	
14.	126-194	6	ROD BEARING (PAIR)	
15.	165-888	3	SEAL HOLDER - GASKET	

FOOTNOTES

# FLUID PUMP (POWER END) L1122, L1622



## FLUID PUMP (POWER END)

L1122, L1622

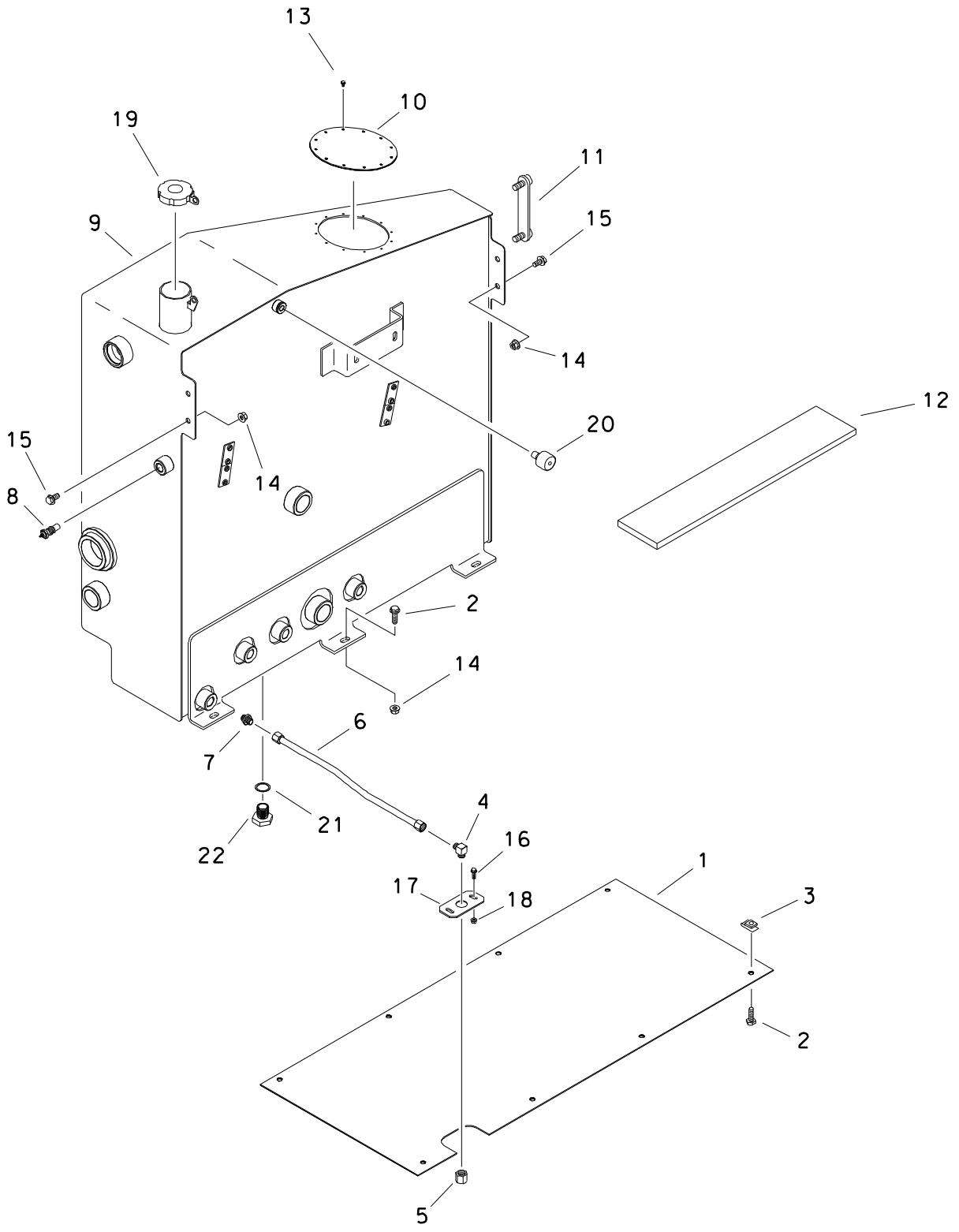
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	126-194	3	ROD BEARING (PAIR)	CONNECTING ROD USE 3 PAIR PER PUMP
2.	165-896	1	BACK COVER GASKET	
3.	165-888	3	SEAL HOLDER GASKET	
4.	157-739	9	INTERNAL SEAL	PLUNGER ROD
5.	157-742	1	INTERNAL SEAL	ADAPTER

NOT SHOWN:

FOOTNOTES:

NOTE:

# HYDRAULIC RESERVOIR



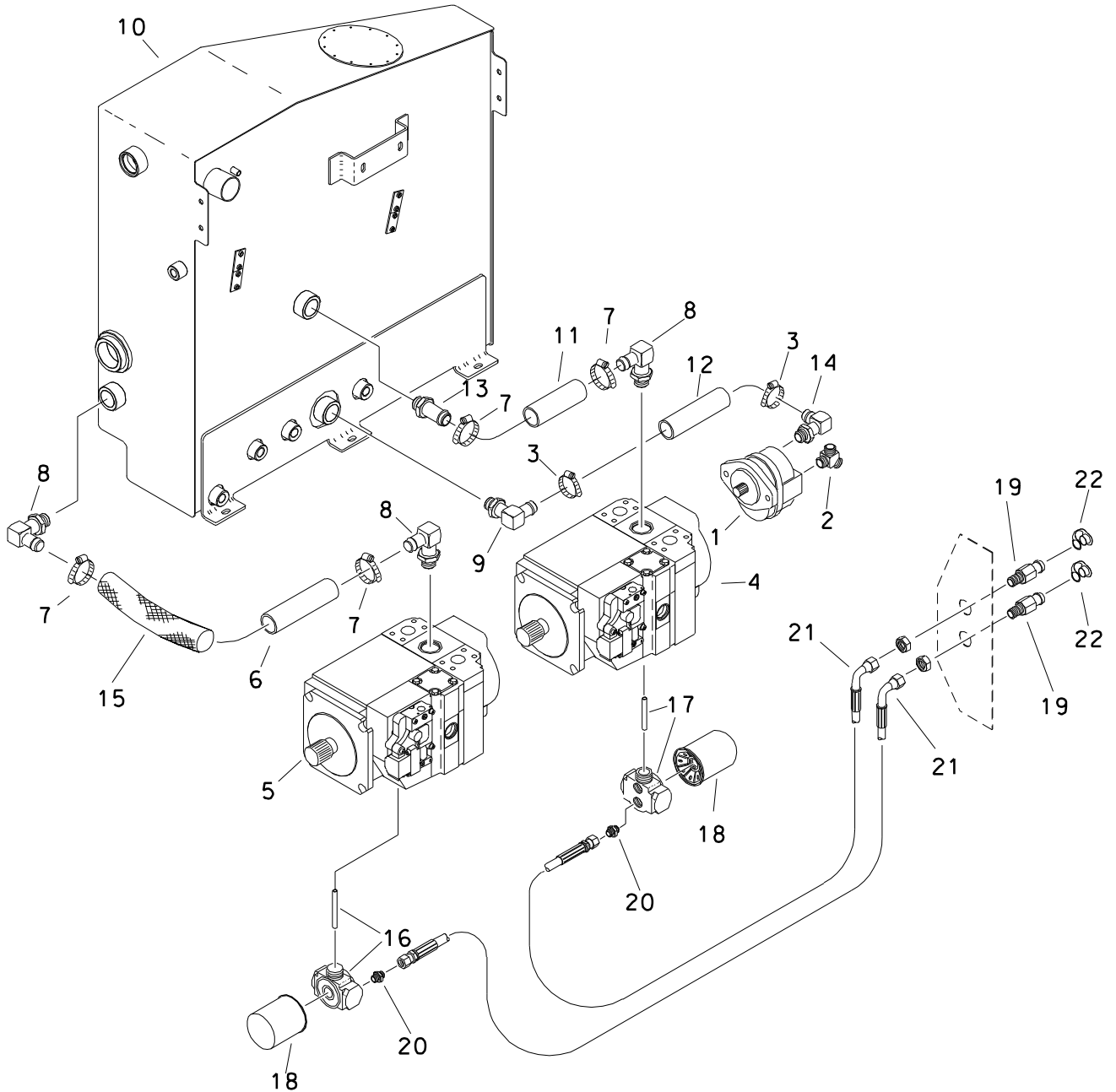
## HYDRAULIC RESERVOIR

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	349-482	1	BOTTOM COVER	USED ON EARLY UNITS.
	370-314	1	BOTTOM COVER	
2.	106-724	11	SCREW (M10-1.5 X 25mm)	
3.	106-558	8	CLIP NUT (M10-1.5)	
4.	154-291	1	BK CONNECTOR (100-10090BK)	
5.	154-324	1	CAP (100F)	
6.	156-848	1	HYD LINE (100FX)	
7.	154-301	1	CONNECTOR (10S-100)	
8.	215-148	1	TEMPERATURE SWITCH	
9.	370-403	1	HYD RESERVOIR	BEGINS WITH S/N 2R2969
	349-070	1	HYD RESERVOIR	ENDS WITH S/N 2R2499
10.	349-090	1	COVER	
11.	364-171	1	SIGHT GAUGE	
12.	349-098	1	TANK PAD	SEE FOOTNOTE 1
13.	105-214	12	FLG SCREW (#10-24 X 1/2")	
14.	106-387	7	FLG LOCKNUT (M10-1.50)	
15.	106-382	4	FLG LK SCREW (M10-1.50 X 20mm)	
16.	106-379	2	FLG LK BOLT (M6-1.00 X 20mm)	
17.	370-305	1	MOUNT BAR	
18.	106-385	2	FLG LOCKNUT (M6-1.00)	
19.	111-046	1	LOCKING CAP (NON-VENTED)	
20.	111-021	1	BREATHER CAP (TANK)	
21.	105-776	1	WASHER (1.010" BRS)	
22.	149-398	1	DRAIN PLUG (1" W/.375 ORF)	

## FOOTNOTES

1. APPLY ADHESIVE (P/N 256-665) TO BOTTOM OF PAD BEFORE INSTALLING ON MAIN FRAME.

PUMP HYDRAULICS  
 ENDS WITH S/N 2R0313





# PUMP HYDRAULICS ENDS WITH S/N 2R0313

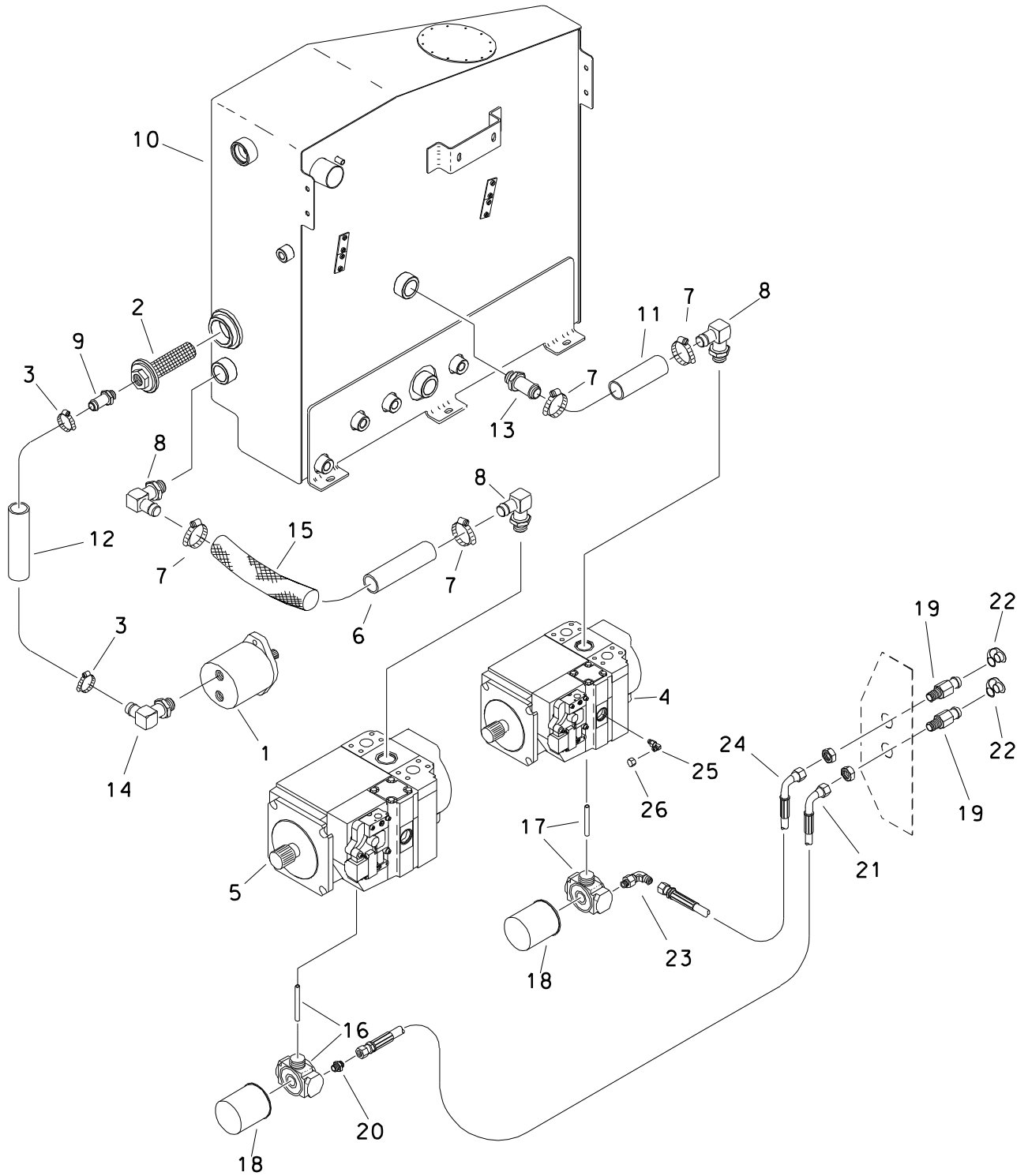
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	158-435	-	HYDRAULIC PUMP	
2.	155-298	1	RUN TEE (10S-100-040)	
3.	111-011	2	WORM CLAMP (1" TO 1-3/4")	
4.	158-431	-	HYDRAULIC PUMP	INCL REF NO. 17
5.	158-430	-	HYDRAULIC PUMP	INCL REF NO. 16
6.	116-588	AR	BULK HOSE (1-1/2", SOLD PER 1')	USE 1 @ 23.5"
7.	110-250	4	WORM CLAMP (1-1/4" TO 2-1/8")	
8.	514-136	3	S/O COUPLER (20S-24H90)	
9.	155-168	1	S/O COUPLER (20S-20H90)	
10.	349-070	-	HYDRAULIC RESERVOIR	
11.	116-588	AR	BULK HOSE (1-1/2", SOLD PER 1')	USE 1 @ 13"
12.	116-587	AR	BULK HOSE (1-1/4", SOLD PER 1')	USE 1 @ 23"
13.	155-148	1	S/O COUPLER (20S-24H)	
14.	155-149	1	S/O COUPLER (16S-20H90)	
15.	115-680	1	ABRASION SLEEVE (2.07" X 21")	
16.	159-424	1	FILTER HEAD (040F-040F)	5.66" TUBE
17.	159-425	1	FILTER HEAD (040F-040F)	5.35" TUBE
18.	159-074	2	FILTER ELEMENT (1-3/8-UNF)	
19.	155-260	2	QDC ADAPTER (02-040)	
20.	154-220	2	CONNECTOR (040-06S)	
21.	154-802	2	HOSE (040FX90-26"-3000)	
22.	159-148	2	DUST CAP (1/8")	

FOOTNOTES

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

# PUMP HYDRAULICS

BEGINS WITH S/N 2R0314



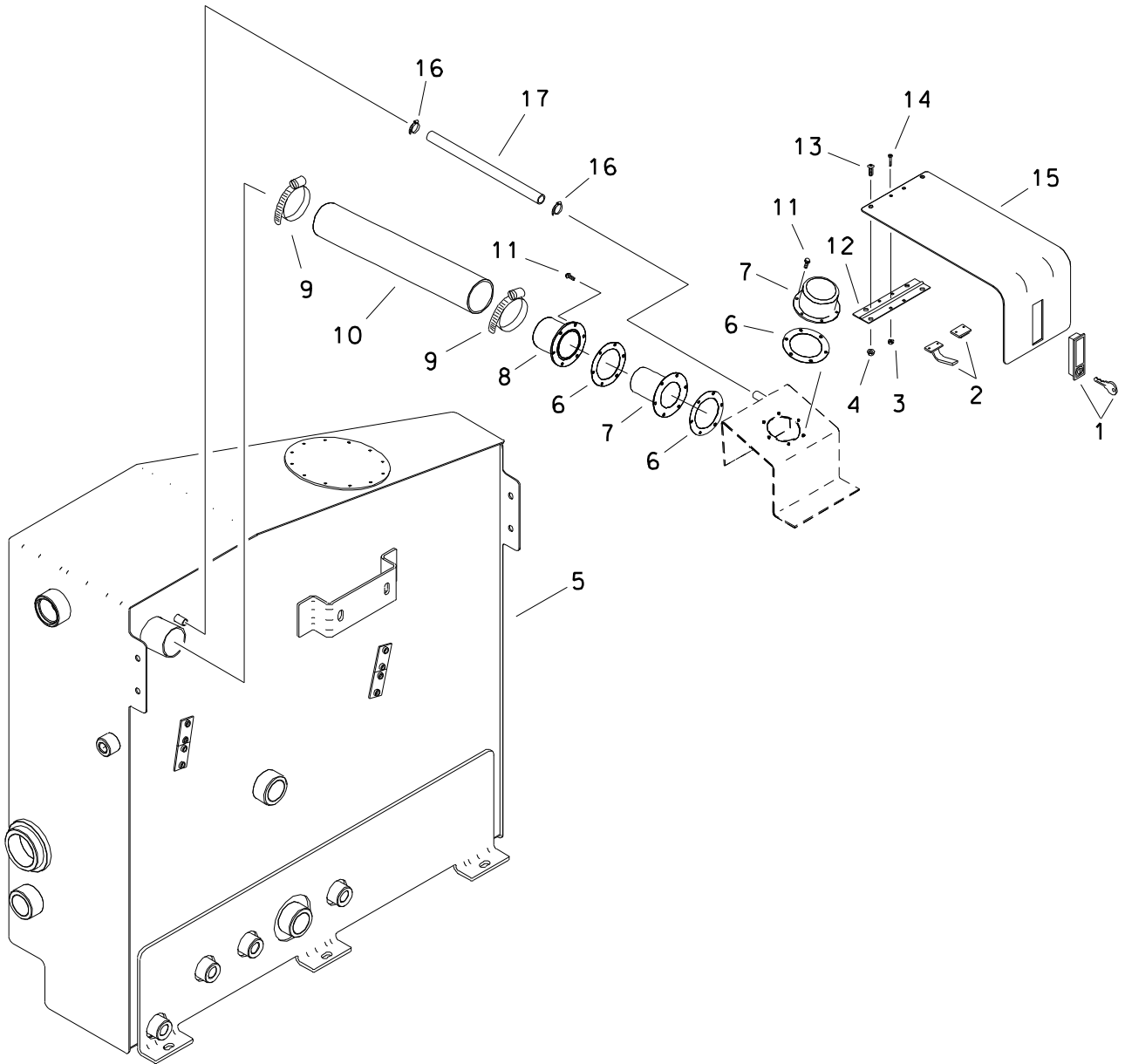
**PUMP HYDRAULICS**  
**BEGINS WITH S/N 2R0314**

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	158-490	1	HYDRAULIC PUMP	
	500-996		SEAL REPAIR KIT	
2.	159-432	1	TANK FILTER SCREEN	
3.	110-353	2	WORM CLAMP (3/4" TO 1-1/2")	
4.	158-492	-	HYDRAULIC PUMP	INCL REF NO. 17
	190-764	-	SEAL REPAIR KIT	
5.	158-430	-	HYDRAULIC PUMP	INCL REF NO. 16
	190-763	-	SEAL REPAIR KIT	
6.	116-588	AR	BULK HOSE (1-1/2", SOLD PER 1')	USE 1 @ 23.5"
7.	110-250	4	WORM CLAMP (1-1/4" TO 2-1/8")	
8.	514-136	3	S/O COUPLER (20S-24H90)	
9.	154-476	1	S/O COUPLER (20S-16H)	
10.	349-070	-	HYDRAULIC RESERVOIR	
11.	116-588	AR	BULK HOSE (1-1/2", SOLD PER 1')	USE 1 @ 13"
12.	116-460	AR	BULK HOSE (1", SOLD PER 1')	USE 1 @ 23"
13.	155-148	1	S/O COUPLER (20S-24H)	
14.	155-195	1	S/O COUPLER (20S-20H90)	
15.	115-680	1	ABRASION SLEEVE (2.07" X 21")	
16.	159-424	-	PRESSURE FILTRATION (5.66")	INCL REF NO. 18
17.	159-425	-	PRESSURE FILTRATION (5.35")	INCL REF NO. 18
18.	159-074	2	FILTER ELEMENT (1-3/8-UNF)	
19.	155-260	2	QDC ADAPTER (02-040)	
20.	154-220	1	CONNECTOR (040-06S)	
21.	154-802	1	HOSE (040FX90-26"-3000)	
22.	159-148	2	DUST CAP (1/8")	
23.	154-226	1	CONNECTOR (040-06S90)	
24.	515-011	1	HOSE (040FX90-32"-3000)	
25.	154-226	1	CONNECTOR (040-06S90)	
26.	154-296	1	CAP (040F)	

**FOOTNOTES**

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

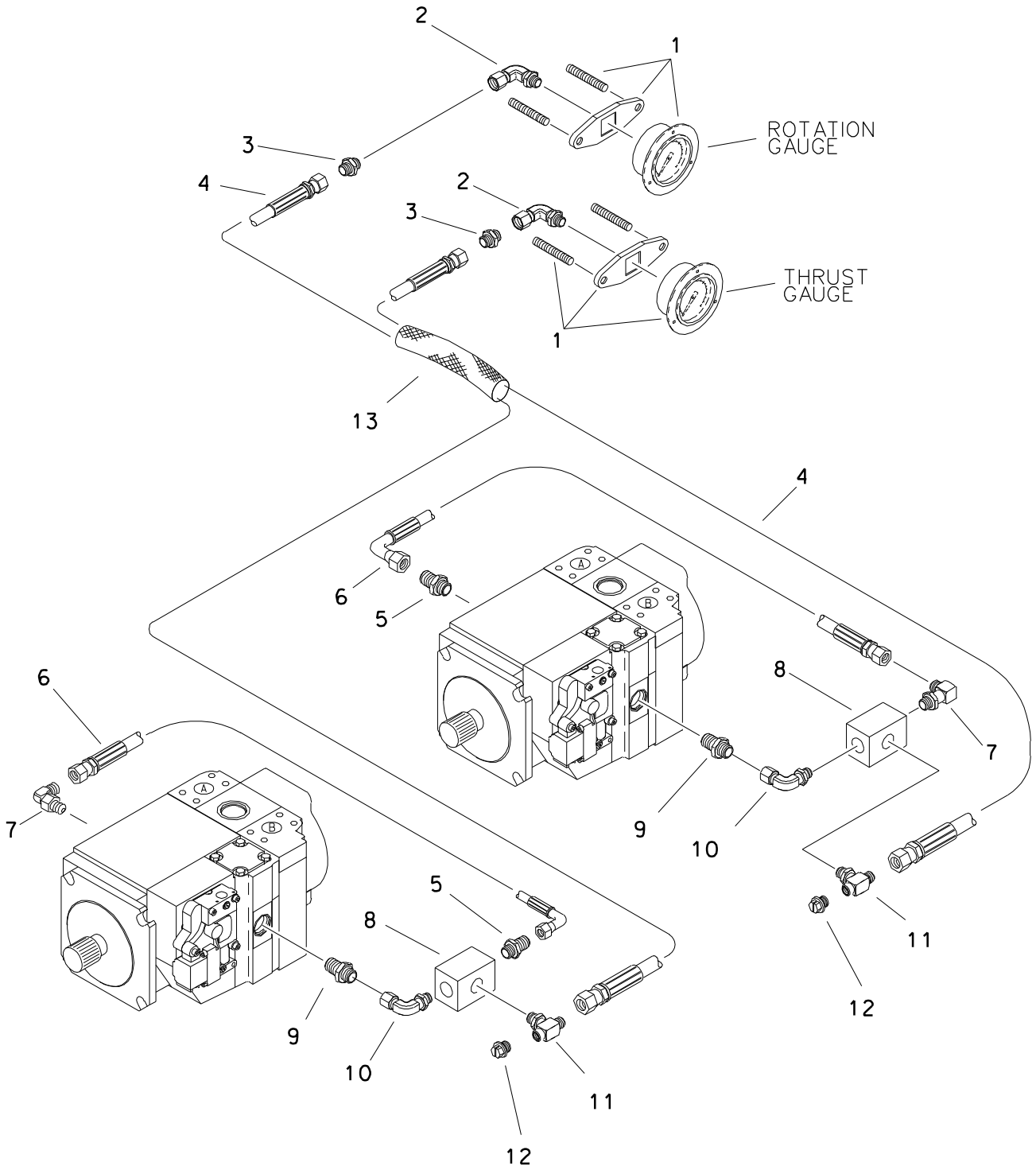
# HYDRAULIC FILLER ENDS WITH S/N 2R2499





# HYDROSTATIC GAUGE HYDRAULICS

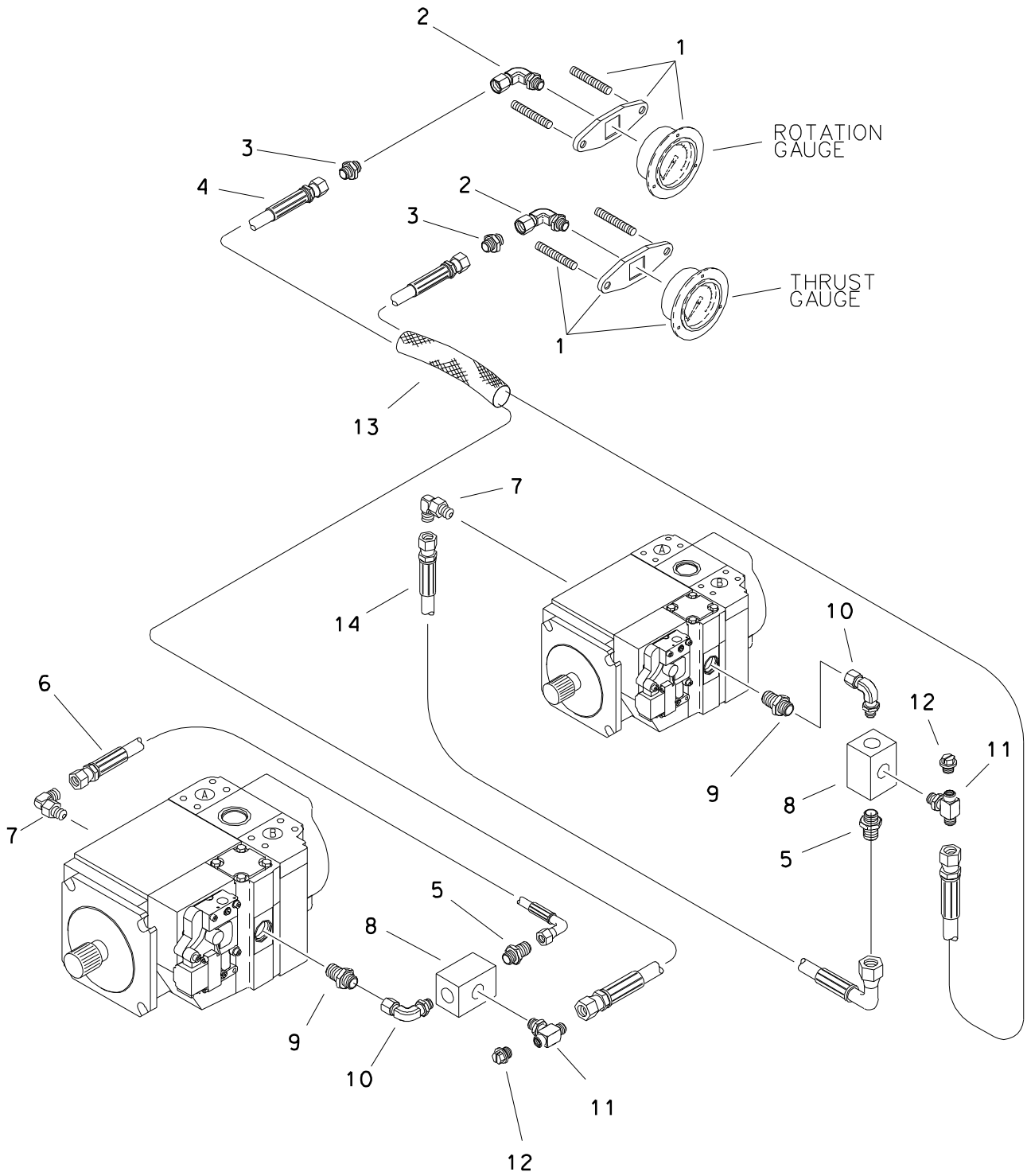
ENDS WITH S/N 2R0313





# HYDROSTATIC GAUGE HYDRAULICS

BEGINS WITH S/N 2R0314





# HYDROSTATIC GAUGE HYDRAULICS

BEGINS WITH S/N 2R0314

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	217-079	2	PRESSURE GAUGE (10,000PSI)	
	499-202		CLAMP, GAUGE 2-BOLT	SEE FOOTNOTE 1
2.	514-355	2	CONNECTOR (04NF-04NF90)	
3.	154-020	2	CONNECTOR (04N-04J)	
4.	155-490	2	HOSE (04JFX-306"-6000)	
5.	154-220	2	CONNECTOR (040-06S)	
6.	515-304	1	HOSE (040FX90-15"-5000)	
7.	154-226	2	CONNECTOR (040-06S90)	
8.	159-475	2	SHUTTLE VALVE	
9.	154-221	2	CONNECTOR (06S-060)	
10.	154-343	2	CONNECTOR (06S-060FX90)	
11.	149-043	2	BK BR TEE (06S-04J-04SFBK)	
12.	155-125	2	PLUG (04S)	
13.	116-840	1	ABRASION SLEEVE (1.00" X 306")	
14.	515-305	1	HOSE (040FX90-21"-5000)	

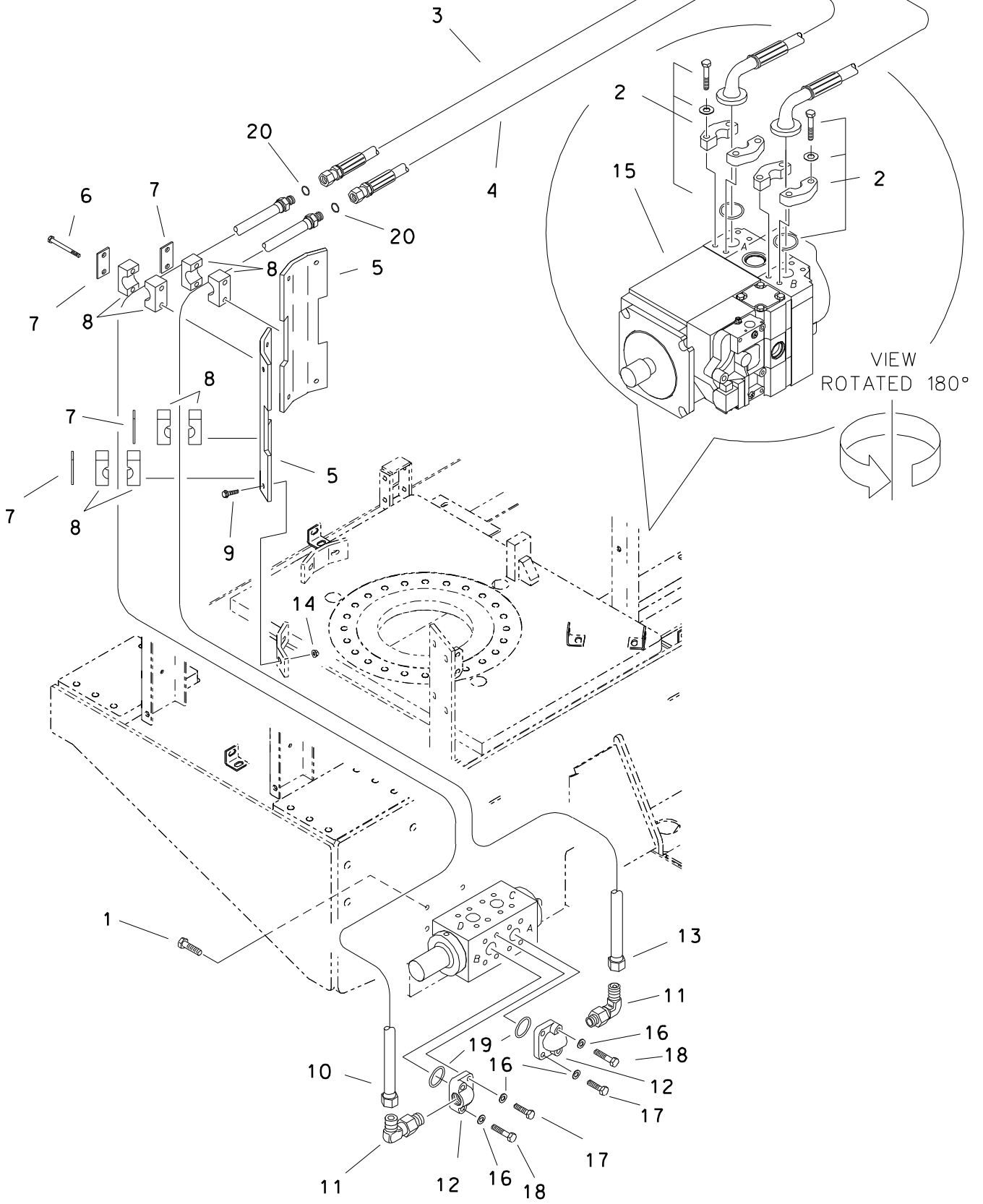
FOOTNOTES

1. BEGINS WITH S/N -----

NOTE

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

# ROTATION PUMP HYDRAULICS



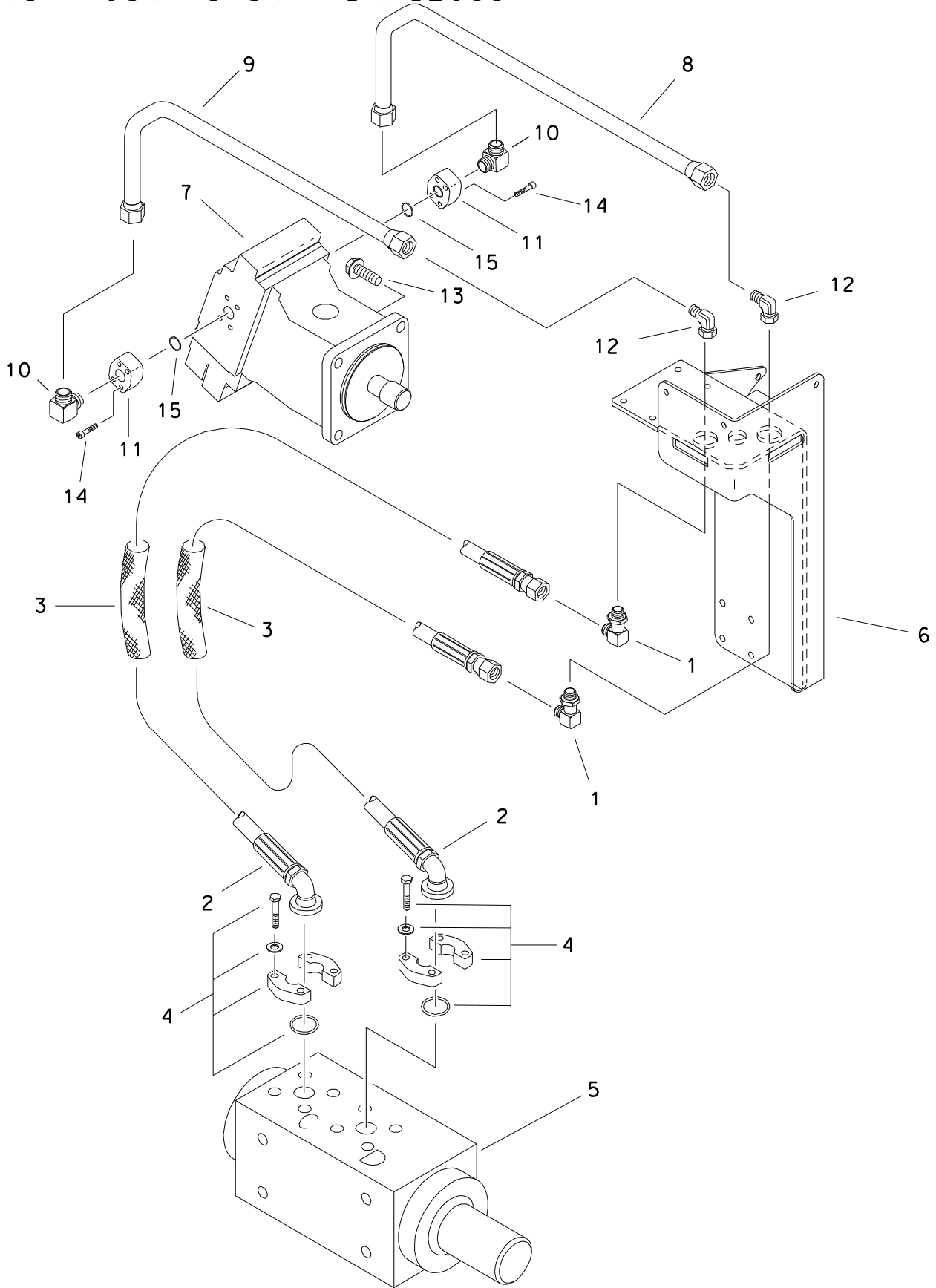
# ROTATION PUMP HYDRAULICS

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	105-829	4	FLG LK BOLT (1/2-NC X 1")	
2.	159-436	2	SPLIT FLANGE (20SF, SET)	
	105-066	4	BOLT (1/2-NC X 1-3/4")	
	105-070	4	LOCK WASHER (1/2")	
	157-078	1	O-RING (222 D90)	
3.	515-565	1	HOSE (200FX-20FLH90-43"-6000)	
4.	515-566	1	HOSE (200FX-20FLH90-45"-6000)	
5.	349-851	2	MOUNT CLAMP	
6.	105-224	8	BOLT (1/4-NC X 2-1/2")	
7.	322-362	4	BACKUP SPACER	
8.	110-852	4	BOLT-ON CLAMP (1-1/4", SET)	
9.	106-724	4	FLG SCREW (M10-1.50 X 25mm)	
10.	156-137	1	HYD LINE (200-200FX)	
11.	514-095	2	CONNECTOR (20S-20090)	
12.	514-333	2	HEAD FLANGE (20FL-16SF)	
13.	156-136	1	HYD LINE (200-200FX)	
14.	106-387	4	FLG LOCKNUT (M10-1.50)	
15.	158-430	-	HYDRAULIC PUMP	
16.	105-070	8	LOCK WASHER (1/2")	
17.	105-048	4	BOLT (1/2-NC X 1-1/2")	
18.	105-067	4	BOLT (1/2-NC X 2-3/4")	
19.	157-078	2	O-RING (222 D90)	
20.	157-129	2	O-RING (025 D90)	

FOOTNOTES

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

# ROTATION MOTOR HYDRAULICS



# ROTATION MOTOR HYDRAULICS

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	514-178	2	BK CONNECTOR (200-20090BK)	
2.	515-576	2	HOSE (200FX-20FL45-226"-6000)	
3.	115-962	-	ABRASION SLEEVE (2.54" X 255")	USE W/O HOSE SOCK
	115-901	2	ABRASION SLEEVE (2.54" X 72")	USE WITH HOSE SOCK
4.	159-436	2	SPLIT FLANGE (20SF, SET)	
	105-066	4	BOLT (1/2-NC X 1-3/4")	
	105-070	4	LOCK WASHER (.500")	
5.	516-033	-	SELECTOR VALVE DIVERTER	
6.	349-569	-	MOUNT BRACKET	
7.	158-904	-	HYD MOTOR (PISTON)	
	197-312	-	REBUILT 158-904 MOTOR	
8.	156-141	1	HYD LINE (200FX)	
9.	156-142	1	HYD LINE (200FX)	
10.	514-244	2	CONNECTOR (16S-20090)	
11.	514-245	2	HEAD FLANGE (16HFL-16SF)	
12.	514-422	2	CONNECTOR (200-200FX90)	
13.	106-098	4	FLG BOLT (3/4-NC X 2", GD8)	
14.	105-918	8	BOLT (7/16-NC X 1-1/2", ALN)	
15.	157-029	2	O-RING (219-D90)	

## NOT SHOWN:

	214-337	1	ROTATION CABLE	SEE FOOTNOTE 1
	117-166	1	ABRASION SLEEVE (1.59" X 120")	
	115-447	1	ABRASION SLEEVE (1.59" X 120")	SEE FOOTNOTE 1
	117-655	1	ABRASION SLEEVE (1.59" X 38")	SEE FOOTNOTE 1

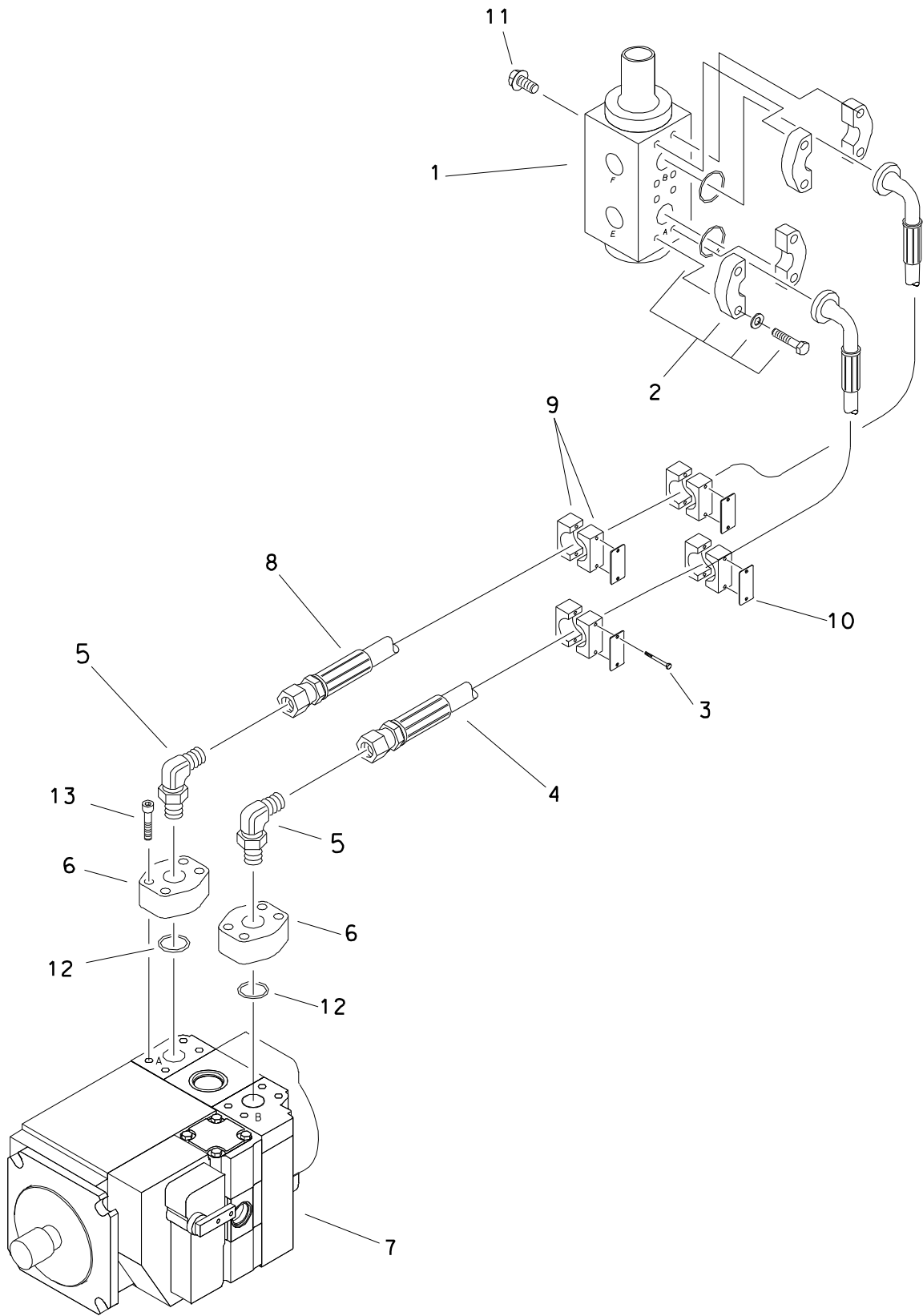
## FOOTNOTES

1. 115-447 AND 117-655 ARE USED ON THE ROTATION CABLE (214-337). 115-447 IS USED ON THE FRONT END AND 117-655 ON THE BACK END.

## NOTE

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

# THRUST PUMP HYDRAULICS



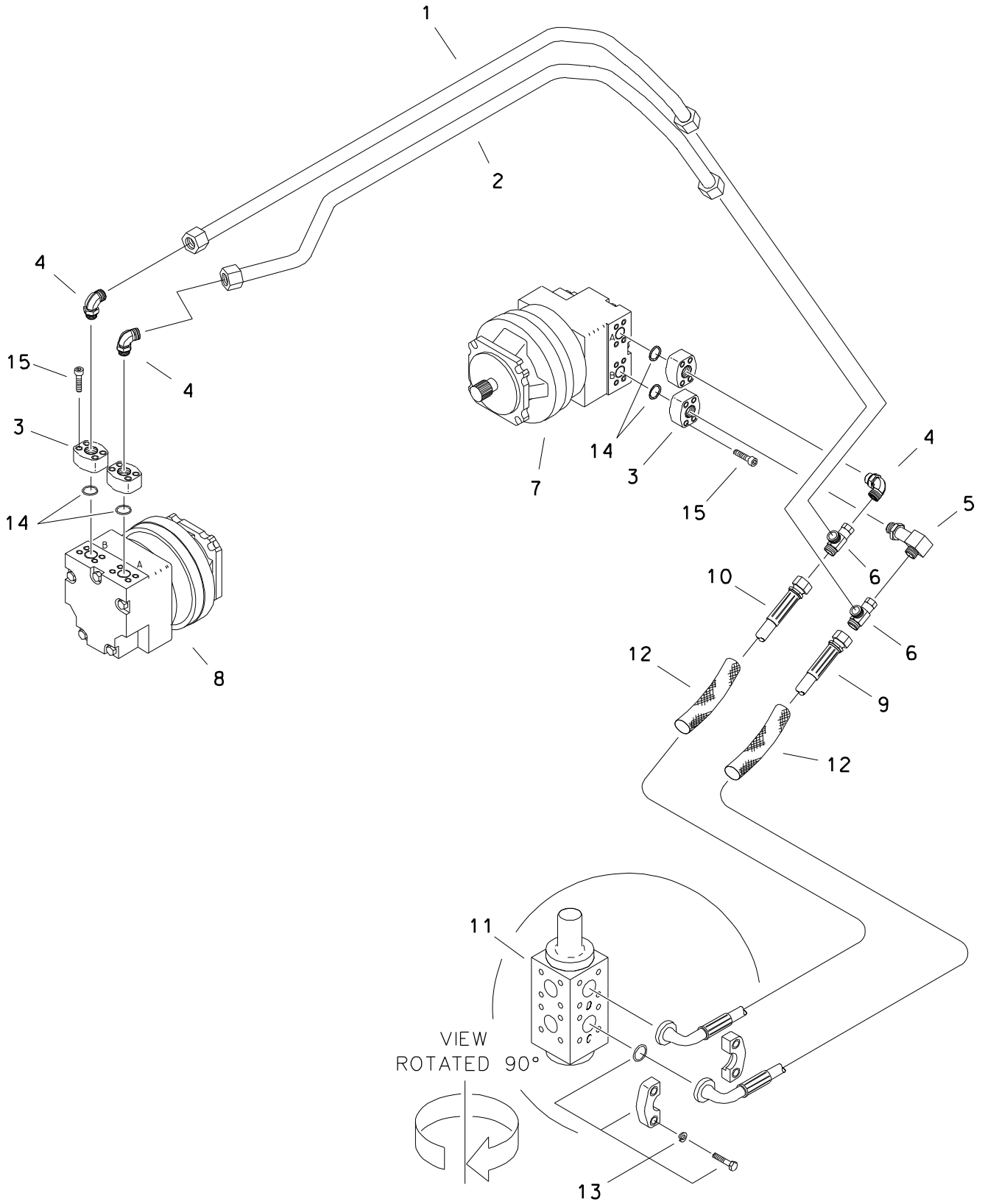
# THRUST PUMP HYDRAULICS

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	516-033	1	SELECTOR VALVE DIVERTER	
2.	159-436	2	SPLIT FLANGE (20SF, SET)	
	105-066	4	BOLT (1/2-NC X 1-3/4")	
	105-070	4	LOCK WASHER (1/2")	
	157-078	1	O-RING (222 D90)	
3.	105-224	8	BOLT (1/4-NC X 2-1/2")	
4.	515-564	1	HOSE (16QFX-20FL90-68"-6000)	
5.	154-287	2	CONNECTOR (16S-16090)	
6.	514-245	2	HEAD FLANGE (16HFL-16SF)	
7.	158-492	-	HYDRAULIC PUMP	
8.	515-563	1	HOSE (16QFX-20FL90-71"-6000)	
9.	111-008	4	BOLT-ON CLAMP (1.500", SET)	
10.	322-362	4	BACKUP SPACER	
11.	105-829	4	FLG LK BOLT (1/2-NC X 1")	
12.	157-029	2	O-RING (219 D90)	
13.	105-918	8	BOLT (7/16-NC X 1-1/2", ALN)	

FOOTNOTES

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

# THRUST MOTOR HYDRAULICS





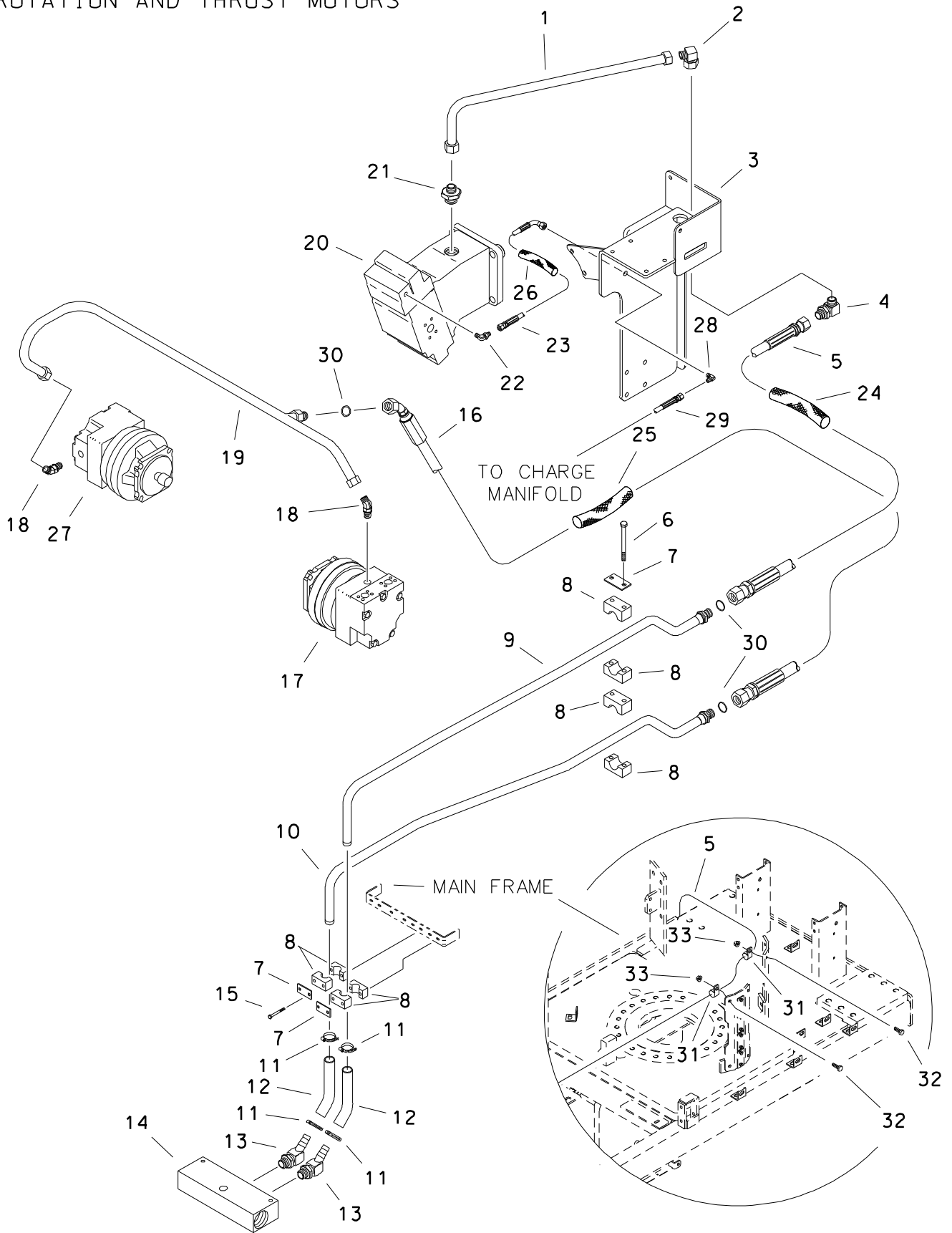
# THRUST MOTOR HYDRAULICS

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	156-298	1	HYD LINE (160FX)	
2.	156-297	1	HYD LINE (160FX)	
3.	514-245	4	HD FLANGE (16HFL-16SF)	
4.	154-287	3	CONNECTOR (16S-16090)	
5.	154-289	1	CONNECTOR (16S-16090, XL)	
6.	154-409	2	UNION RUN TEE (160FX-160-160)	
7.	158-959	-	HYD MOTOR (THRUST)	WITH SPEED PICKUP
	126-195	1	ROLLER BEARING	
	126-196	2	CRADLE BEARING	
	165-893	1	END CAP GASKET	
	165-894	1	FRONT COVER GASKET	
	157-199	1	O-RING (171 D75)	
	157-200	1	O-RING (153 D75)	
	157-740	1	LIP SEAL	
	217-408	1	SOLENOID VALVE (12V)	
	499-083	1	VALVE PLATE	
8.	158-905	-	HYD MOTOR (THRUST)	
	190-765	-	SEAL REPAIR KIT	
	217-408	1	SOLENOID VALVE (12V)	
9.	515-568	-	HOSE (160FX-20FL90-204"-6000)	
10.	515-567	-	HOSE (160FX-20FL90-208"-6000)	
11.	516-033	-	SELECTOR VALVE DIVERTER	
12.	116-832	2	ABRASION SLEEVE (2.00" X 208")	
13.	159-436	2	SPLIT FLANGE (20SF, SET)	
	105-066	4	BOLT (1/2-NC X 1-3/4")	
	105-070	4	LOCK WASHER (1/2")	
	157-078	1	O-RING (222 D90)	
14.	157-029	4	O-RING (219 D90)	
15.	105-918	16	BOLT (7/16-NC X 1-1/2", ALN)	

FOOTNOTES

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

# CASE DRAIN HYDRAULICS ROTATION AND THRUST MOTORS



## CASE DRAIN HYDRAULICS ROTATION AND THRUST MOTORS

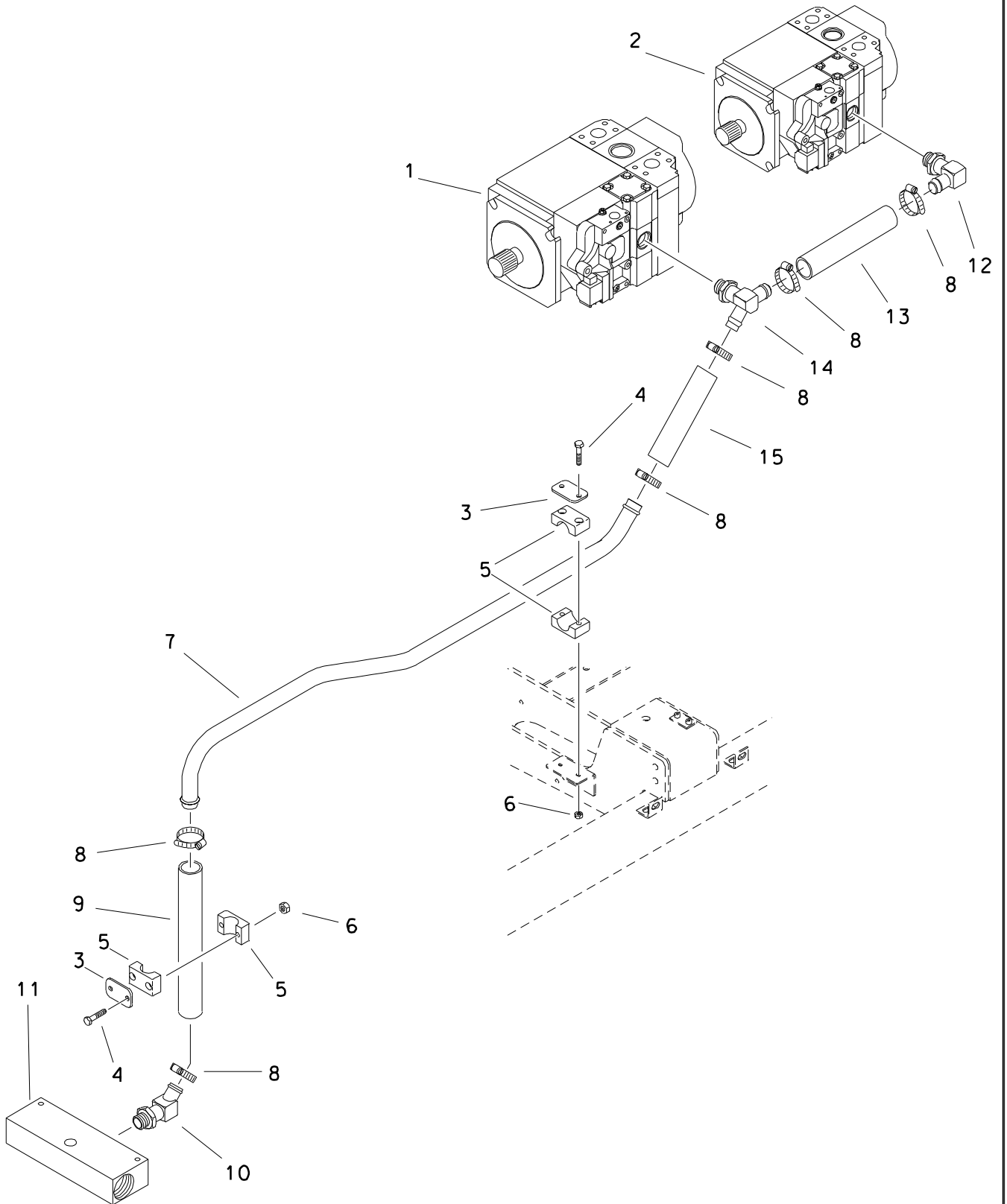
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	156-180	1	HYD LINE (120FX)	
2.	154-457	1	UNION (120-120FX90)	
3.	349-569	-	MOUNT BRACKET	
4.	156-482	1	BK CONNECTOR (120-12090BK)	
5.	515-570	1	HOSE (120FX-312"-1500)	
6.	106-967	2	BOLT (1/4-NC X 2.75", SIL BRZ)	
7.	322-289	3	BACKUP (BOLT-ON)	
8.	110-573	4	BOLT-ON CLAMP (1", SOLD PER SET)	
9.	156-134	1	HYD LINE (160-16H)	
10.	156-135	1	HYD LINE (160-16H)	
11.	111-011	4	WORM CLAMP (1" TO 1-3/4")	
12.	116-094	AR	BULK HOSE (1", SOLD PER 1")	USE 2 @ 9.5"
13.	155-230	2	S/O COUPLER (16S-16H45)	
14.	159-414	-	CASE DRAIN MANIFOLD	
15.	105-106	4	BOLT (1/4-NC X 2")	
16.	515-569	1	HOSE (120FX45-287"-1500)	
17.	158-905	1	HYD MOTOR (THRUST)	
	190-765	-	SEAL REPAIR KIT	
	217-408	1	SOLENOID VALVE (12V)	
18.	154-371	2	CONNECTOR (12S-16045)	
19.	156-299	1	HYD LINE (160-160FX-160FX)	
20.	158-904	-	HYD MOTOR (PISTON)	
	197-312	-	REBUILT 158-904 MOTOR	
	190-819	-	SHAFT SEAL REPAIR KIT	
	499-082	1	BEARING PLATE	
	165-892	1	END CAP GASKET	
21.	154-367	1	CONNECTOR (120-16S)	
22.	154-226	1	CONNECTOR (040-06S90)	
23.	515-011	1	HOSE (040FX90-32"-3000)	
24.	117-776	-	ABRASION SLEEVE (1.75" X 310")	USE W/O HOSE SOCK
	117-610	1	ABRASION SLEEVE (1.75" X 138")	USE WITH HOSE SOCK
25.	117-775	1	ABRASION SLEEVE (1.75" X 285")	
26.	117-676	1	ABRASION SLEEVE (1" X 30")	
27.	158-959	1	HYD MOTOR (THRUST)	75CC, 2-SPEED, W/SPEED PICKUP
	165-893	1	END CAP GASKET	
	126-196	2	CRADLE BEARING	
	499-083	1	VALVE PLATE	
	157-199	1	O-RING (171 D75)	
	126-020	1	BEARING (STRAIGHT ROLLER)	
	157-740	1	O-RING (016 D90)	
	165-894	1	FRONT COVER GASKET	
	157-200	1	O-RING (153 D75)	
	217-408	1	SOLENOID VALVE (12V)	
28.	154-355	1	BK CONNECTOR (040-04090BK)	
29.	515-628	-	HOSE (040FX90-227"-3000)	
30.	157-017	3	O-RING (018 D90)	
31.	110-332	2	BOLT-ON CLAMP (1-5/8")	
32.	107-001	2	FLG LK SCREW (M10-1.50 X 25mm)	
33.	106-387	2	FLG LOCKNUT (M10-1.50)	

### FOOTNOTES

### NOTE

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

CASE DRAIN HYDRAULICS  
 ROTATION AND THRUST PUMPS



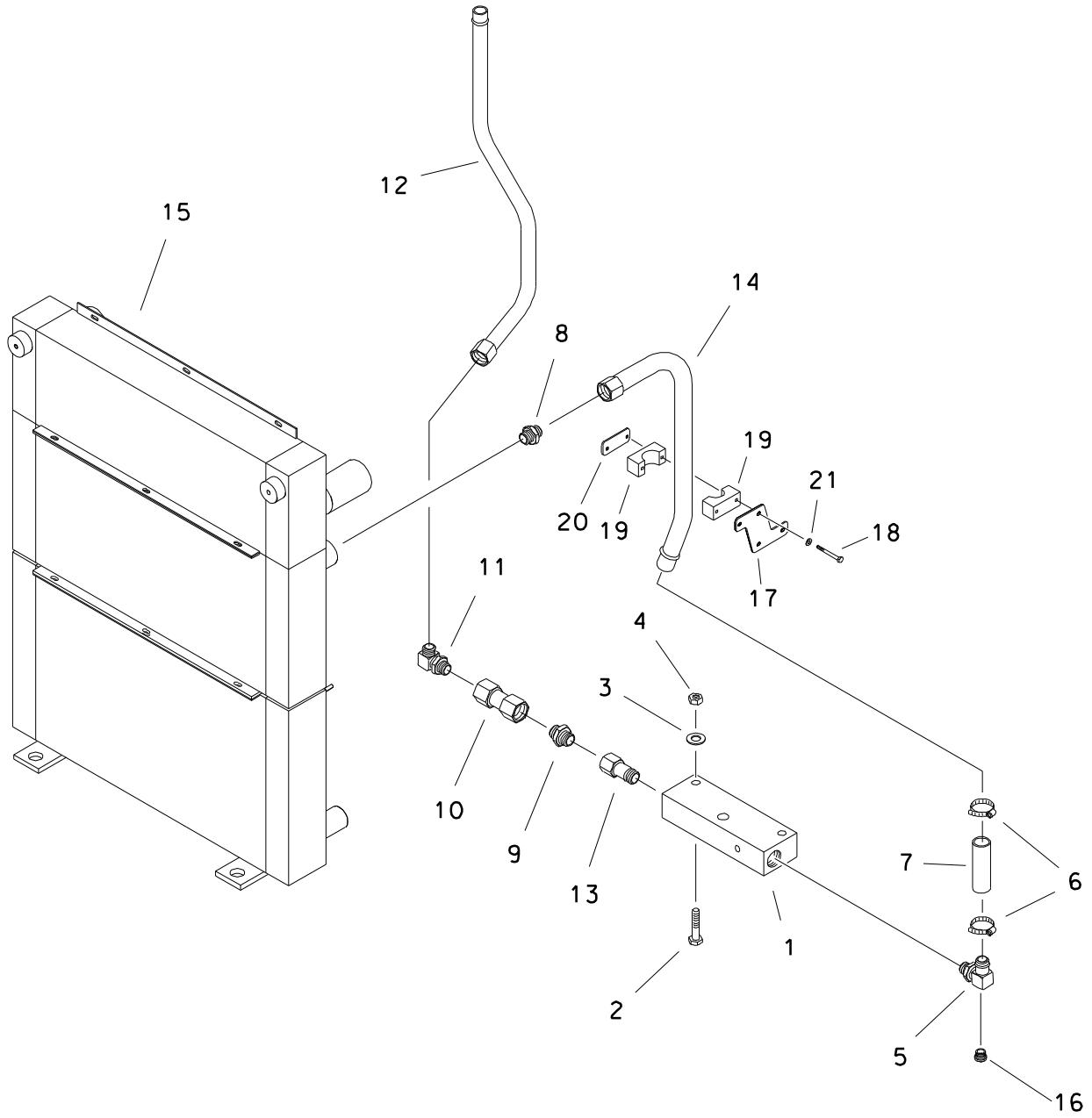
# CASE DRAIN HYDRAULICS ROTATION AND THRUST PUMPS

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	158-430	1	HYDRAULIC PUMP	
	190-763		SEAL REPAIR KIT	
2.	158-492	1	HYDRAULIC PUMP	
	190-764		SEAL REPAIR KIT	
3.	322-362	2	SPACER PLATE	
4.	107-196	4	BOLT (1/4-NC X 3")	
5.	110-852	2	BOLT-ON CLAMP (1-1/4", SET)	
6.	105-832	4	FLG LOCKNUT (1/4-NC)	
7.	156-133	1	HYD LINE (20)	
8.	111-011	6	WORM CLAMP (1" TO 1-3/4")	
9.	115-373	AR	BULK HOSE (1-1/4", SOLD PER 1")	USE 1 @ 9.5"
10.	115-281	1	S/O COUPLER (16S-20H45)	
11.	159-414	-	CASE DRAIN MANIFOLD	
12.	514-027	1	S/O COUPLER (12S-20H90)	
13.	115-373	AR	BULK HOSE (1-1/4", SOLD PER 1")	USE 1 @ 15"
14.	514-360	1	S/O BR TEE (16S-20H-20H)	
15.	115-373	AR	BULK HOSE (1-1/4", SOLD PER 1")	USE 1 @ 8"

FOOTNOTES

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

# OIL COOLER HYDRAULICS



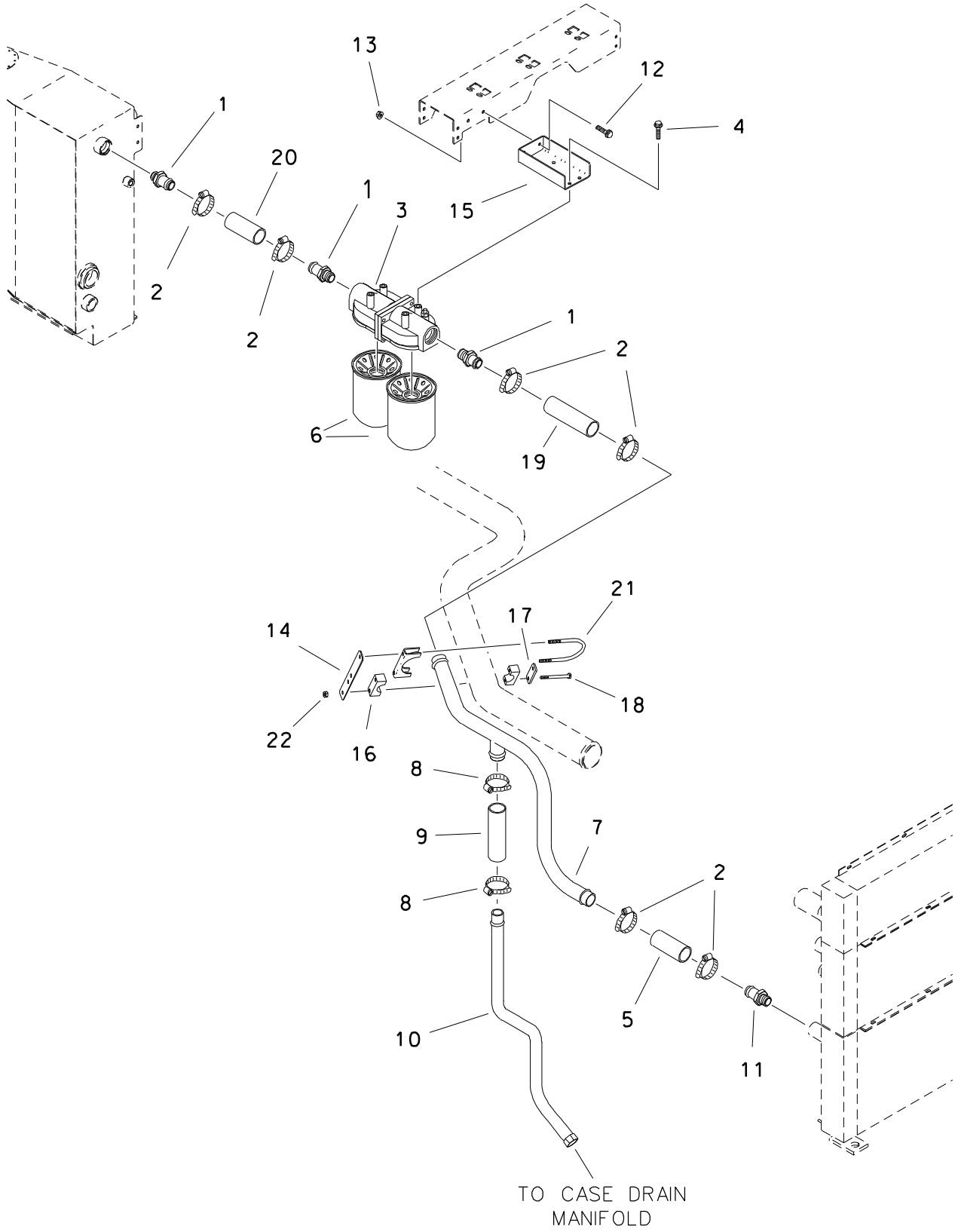
# OIL COOLER HYDRAULICS

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	159-414	1	CASE DRAIN MANIFOLD	
2.	106-206	2	SCREW (M10-1.50 X 90MM)	
3.	106-390	2	WASHER (M10)	
4.	105-894	2	LOCKNUT (M10-1.50,PRV TRQ)	
5.	514-429	1	S/O COUPLER (20S-24H90-04S)	
6.	110-250	2	WORM CLAMP (1-1/4" TO 2-1/8")	
7.	116-588	AR	BULK HOSE (1-1/2", SOLD PER 1")	USE 1 @ 10"
8.	514-354	1	CONNECTOR (20S-240)	
9.	514-131	1	CONNECTOR (16S-16S)	
10.	158-693	1	FLOW CHECK VALVE (16SF-16SF)	
11.	156-895	1	CONNECTOR (16S-20090)	
12.	156-131	-	HYD LINE (200-20H)	
13.	514-353	1	REDUCER (20S-16SF)	
14.	156-129	1	HYD LINE (240-24H)	
15.	306-818	-	RADIATOR	
16.	154-383	1	PLUG (04S)	
17.	349-846	-	CLAMP BRACKET	
18.	105-224	2	BOLT (1/4-NC X 2-1/2")	
19.	111-008	1	BOLT-ON CLAMP (1-1/2",SET)	
20.	322-363	1	WELD PLATE	
21.	105-095	2	WASHER (1/4")	

FOOTNOTES

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

# COOLER OUTLET HYDRAULICS





## COOLER OUTLET HYDRAULICS

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	514-138	3	S/O COUPLER (24S-24H)	
2.	110-250	6	WORM CLAMP (1-1/4" TO 2-1/8")	
3.	159-411	1	HYD OIL FILTER (20S)	
	168-616	1	GASKET, FILTER HEAD	
4.	105-826	4	FLG LK BOLT (3/8-NC X 1")	
5.	116-588	AR	BULK HOSE (1-1/2", SOLD PER 1')	USE 1 @ 5"
6.	159-079	2	FILTER ELEMENT (1-1/2-UNF)	
	149-840	2	FILTER ELEMENT (1-1/2-UNF)	SEE FOOTNOTE 1
7.	156-130	1	HYD LINE (24)	USE 1 @ 5"
8.	111-011	2	WORM CLAMP (1" - 1-3/4")	
9.	116-587	AR	BULK HOSE (1-1/4", SOLD PER 1')	
10.	156-131	1	HYD LINE (20)	
11.	155-148	1	S/O COUPLER (20S-24H)	
12.	106-724	2	FLG SCREW (M10-1.50 X 25MM)	
13.	106-387	2	FLG NUT (M10-1.50)	
14.	349-985	1	CLAMP BAR	
15.	349-734	1	FILTER BRACKET	
16.	111-008	1	CLAMP (1-1/2", SET)	
17.	322-362	1	BACK-UP SPACER	
18.	107-196	2	BOLT (1/4-NC X 3")	USE 1 @ 15.5"
19.	116-588	AR	BULK HOSE (1-1/2", SOLD PER 1')	USE 1 @ 8.5"
20.	116-588	AR	BULK HOSE (1-1/2", SOLD PER 1')	
21.	196-010	1	U-BOLT CLAMP (3")	
22.	105-085	2	LOCKNUT (1/4-NC)	

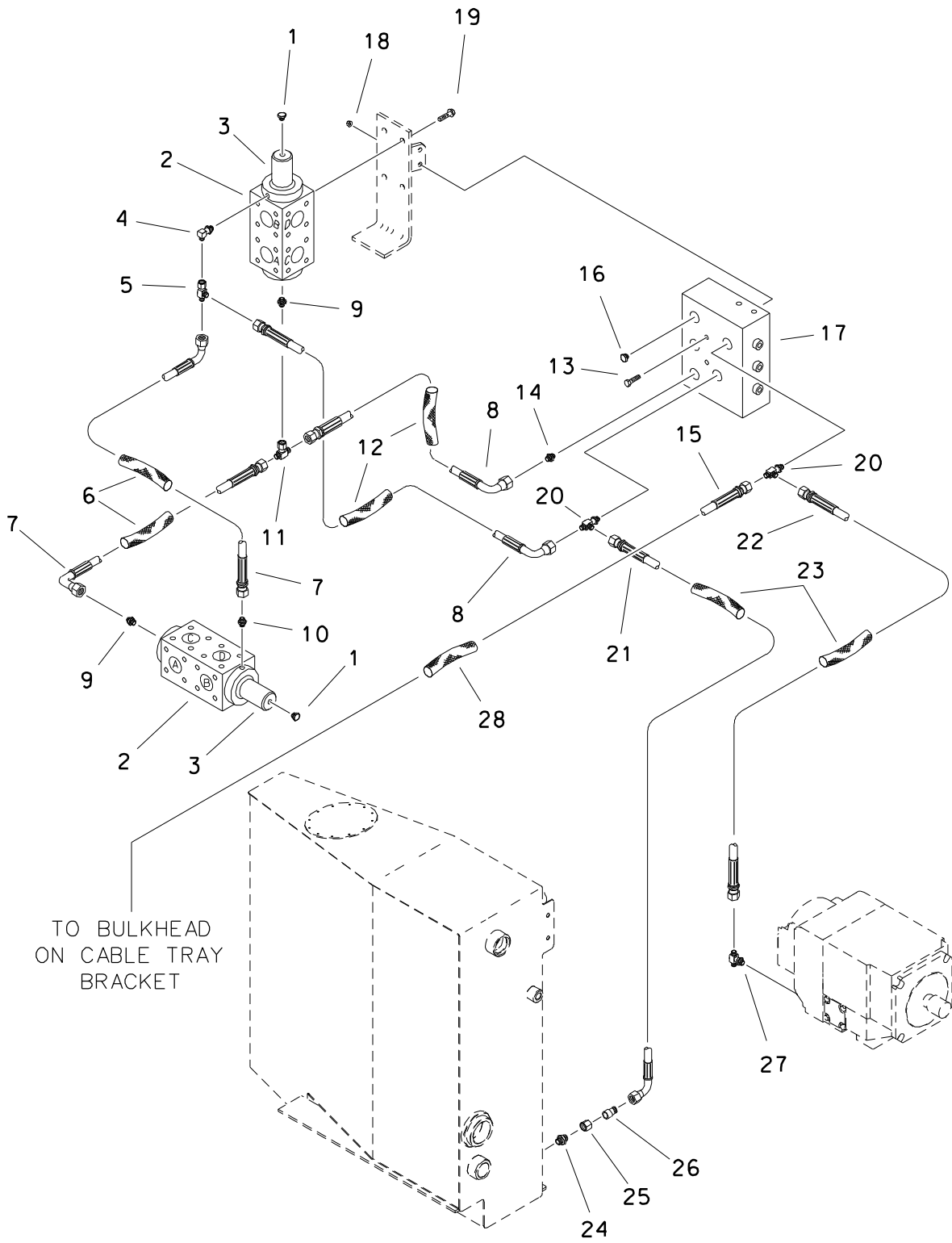
## FOOTNOTES

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

## NOTE

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

# PILOT VALVE HYDRAULICS



# PILOT VALVE HYDRAULICS

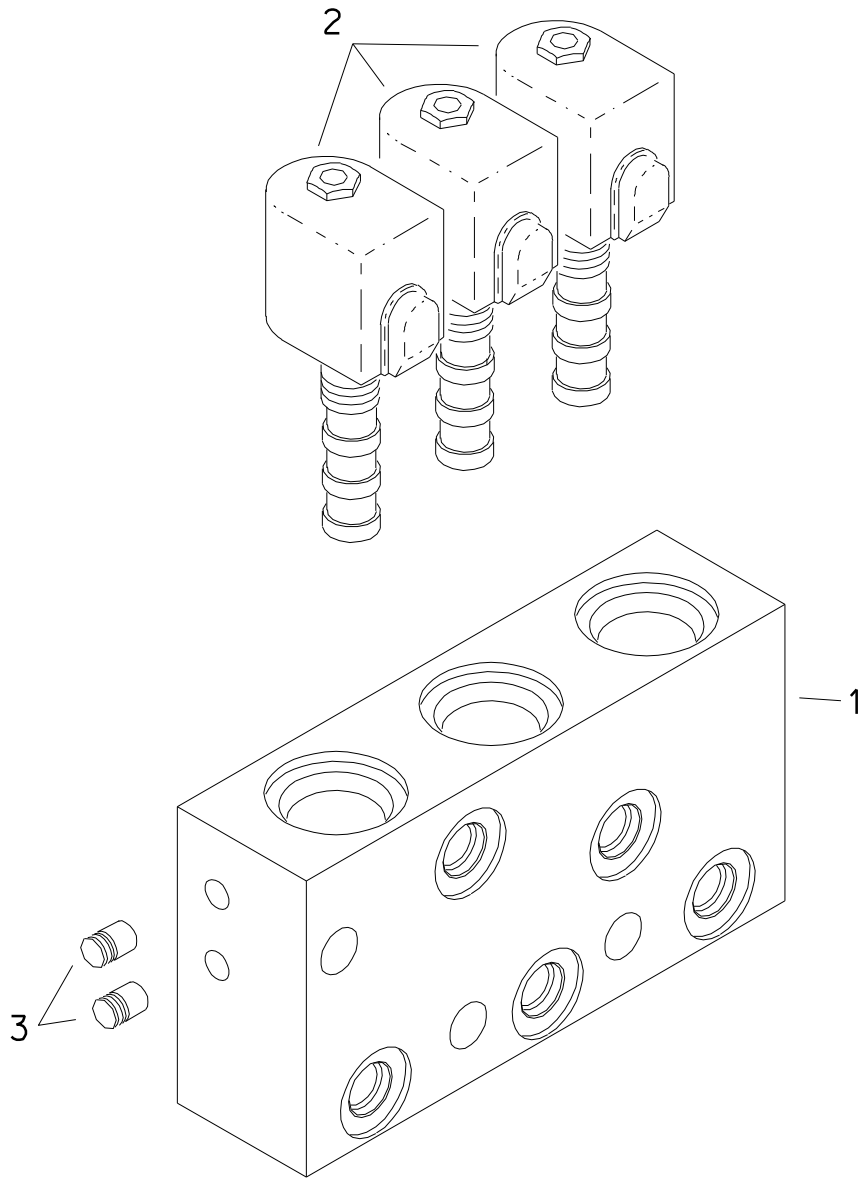
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	115-153	2	PLUG (04N, SQ)	
2.	516-033	2	SELECTOR VALVE DIVERTER	
3.	159-426	-	SPRING OFFSET KIT	
4.	154-482	1	CONNECTOR (04N-04090)	
5.	154-265	1	UNION RUN TEE (040FX-040-040)	
6.	117-676	2	ABRASION SLEEVE (1" X 30")	
7.	154-727	2	HYD HOSE (040FX90-30"-3000)	
8.	515-041	2	HYD HOSE (040FX90-20"-3000)	
9.	514-005	2	CONNECTOR (040-06N)	
10.	154-339	1	CONNECTOR (04N-040)	
11.	154-379	1	UN BR TEE (040FX-040-040)	
12.	117-672	2	ABRASION SLEEVE (1" X 20")	
13.	105-839	2	SCREW (M10-1.50 X 55MM)	
14.	154-278	1	CONNECTOR (04S-040)	
15.	515-628	1	HOSE (040FX-060FX90-227"-3000)	
16.	155-016	1	RELIEF PLUG (04S)	
17.	159-194	1	CHARGE MANIFOLD	
18.	106-387	2	FLG LOCKNUT (M10-1.50)	
19.	105-829	8	FLG LK BOLT (1/2-NC X 1")	
20.	154-316	1	RUN TEE (04S-040-040)	
21.	154-964	1	HYD HOSE (040FX90-70"-3000)	
22.	154-670	1	HYD HOSE (040FX-70"-3000)	
23.	117-702	2	ABRASION SLEEVE (1" X 68")	
24.	154-279	1	CONNECTOR (10S-080)	
25.	154-272	1	REDUCER NUT (080F)	
26.	154-248	1	REDUCER STEM (040-080F)	
27.	154-230	1	BRANCH TEE (06S-040-040)	
28.	116-842	-	ABRASION SLEEVE (1.59"X227")	USE W/O HOSE SOCK
	117-702	1	ABRASION SLEEVE (1.00" X 68")	USE WITH HOSE SOCK

## FOOTNOTES

### NOTE

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

# CHARGE MANIFOLD



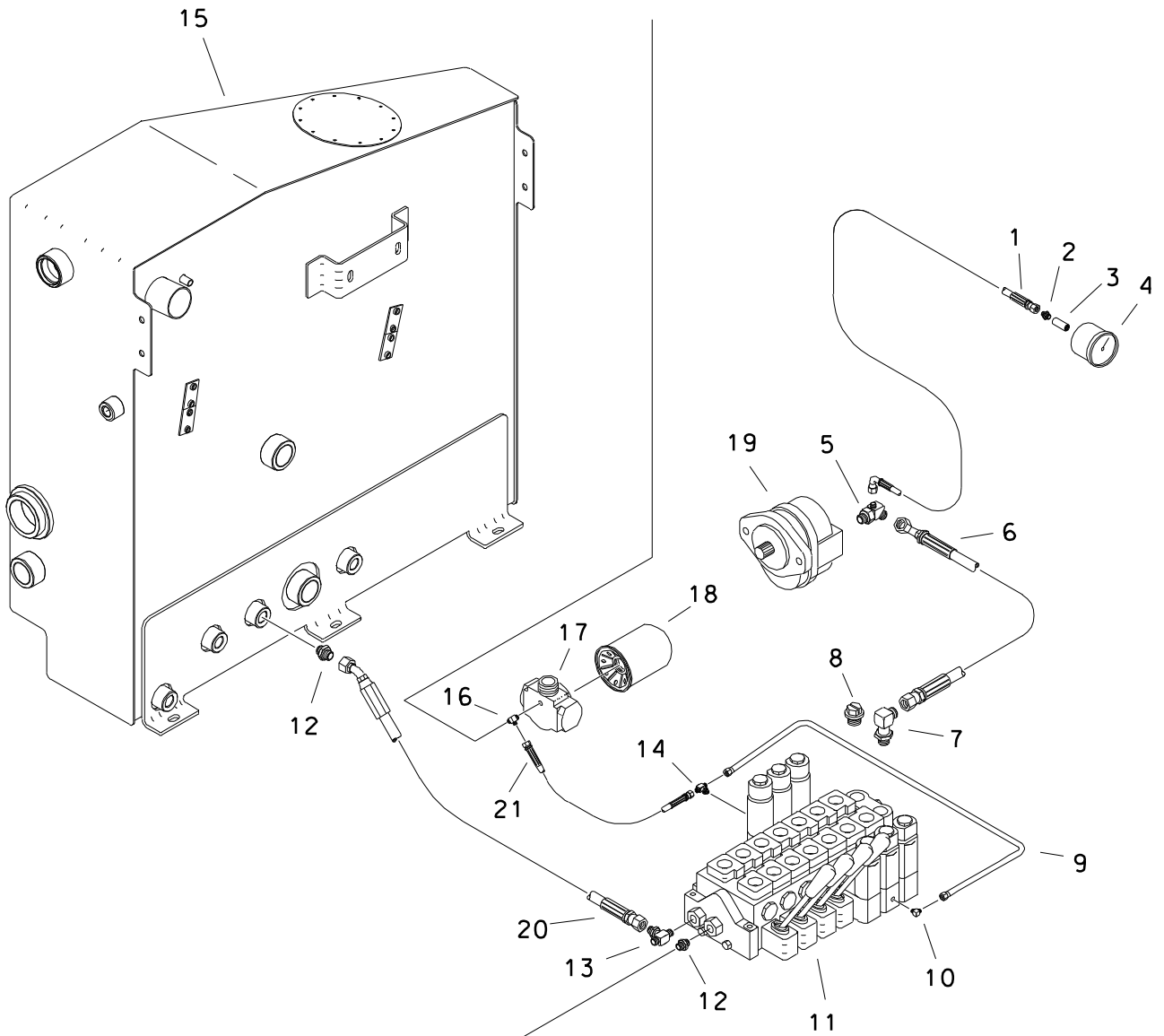
# CHARGE MANIFOLD

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	159-194		CHARGE MANIFOLD	INCL REF NO.'S 1 THRU 3
1.	159-149	1	MANIFOLD BLOCK	
2.	158-636	3	SOLENOID VALVE CARTRIDGE	TORQUE TO 30 FT LBS
	500-756		SEAL REPAIR KIT	
	217-770		SOLENOID COIL	
3.	110-264	4	EXPANDER PLUG (.275")	

FOOTNOTES

AUXILIARY VALVE HYDRAULICS  
 ENDS WITH S/N 2R0146

TO PILOT PRESSURE  
 FOR PIPE LOADER  
 CONTROL VALVE



TO IN PORT ON THE  
 PIPE LOADER  
 CONTROL VALVE

# AUXILIARY VALVE HYDRAULICS

## ENDS WITH S/N 2R0146

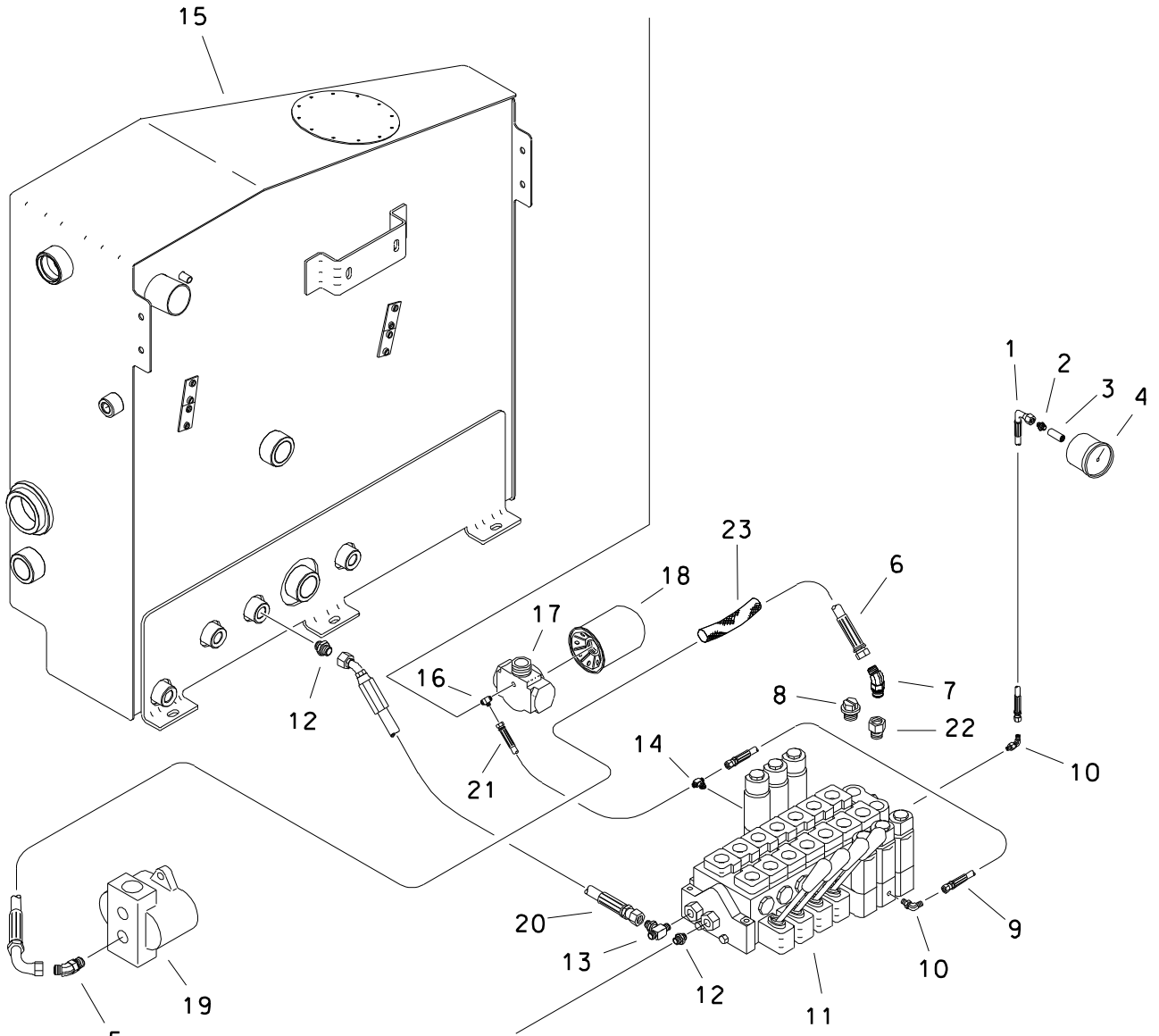
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	154-726	1	HOSE (040FX90-15"-3000)	
2.	154-339	1	CONNECTOR (04N-040)	
3.	115-170	1	COLLAR (04NF)	
4.	217-552	1	PRESSURE GAUGE (6000 PSI)	
5.	155-298	-	RUN TEE (10S-100-040)	
6.	515-259	1	HOSE (100FX45-14"-3000)	
7.	154-300	1	CONNECTOR (12S-10090)	
8.	500-302	1	PLUG (12S)	
9.	156-146	1	HYD LINE (040FX)	
10.	154-252	1	CONNECTOR (04S-04090)	
11.	516-049	-	HYD CONTROL VALVE (7-SPOOL)	
12.	154-301	2	CONNECTOR (10S-100)	
13.	154-370	1	RUN TEE (12S-100-100)	
14.	154-293	1	BRANCH TEE (04S-040-040)	
15.	349-070	-	HYDRAULIC RESERVIOR	
16.	154-230	1	BRANCH TEE (06S-040-040)	
17.	159-425	-	FILTER HEAD (040F-040F)	
18.	159-074	-	FILTER ELEMENT (1-3/8-UNF)	
19.	158-435	-	AUXILIARY PUMP	
20.	515-259	1	HOSE (100FX45-14"-3000)	
21.	155-484	1	HOSE (040FX-16"-3000)	

FOOTNOTES

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

# AUXILIARY VALVE HYDRAULICS BEGINS WITH S/N 2R0314

TO PILOT PRESSURE  
FOR PIPE LOADER  
CONTROL VALVE



TO IN PORT ON THE  
PIPE LOADER  
CONTROL VALVE



# AUXILIARY VALVE HYDRAULICS

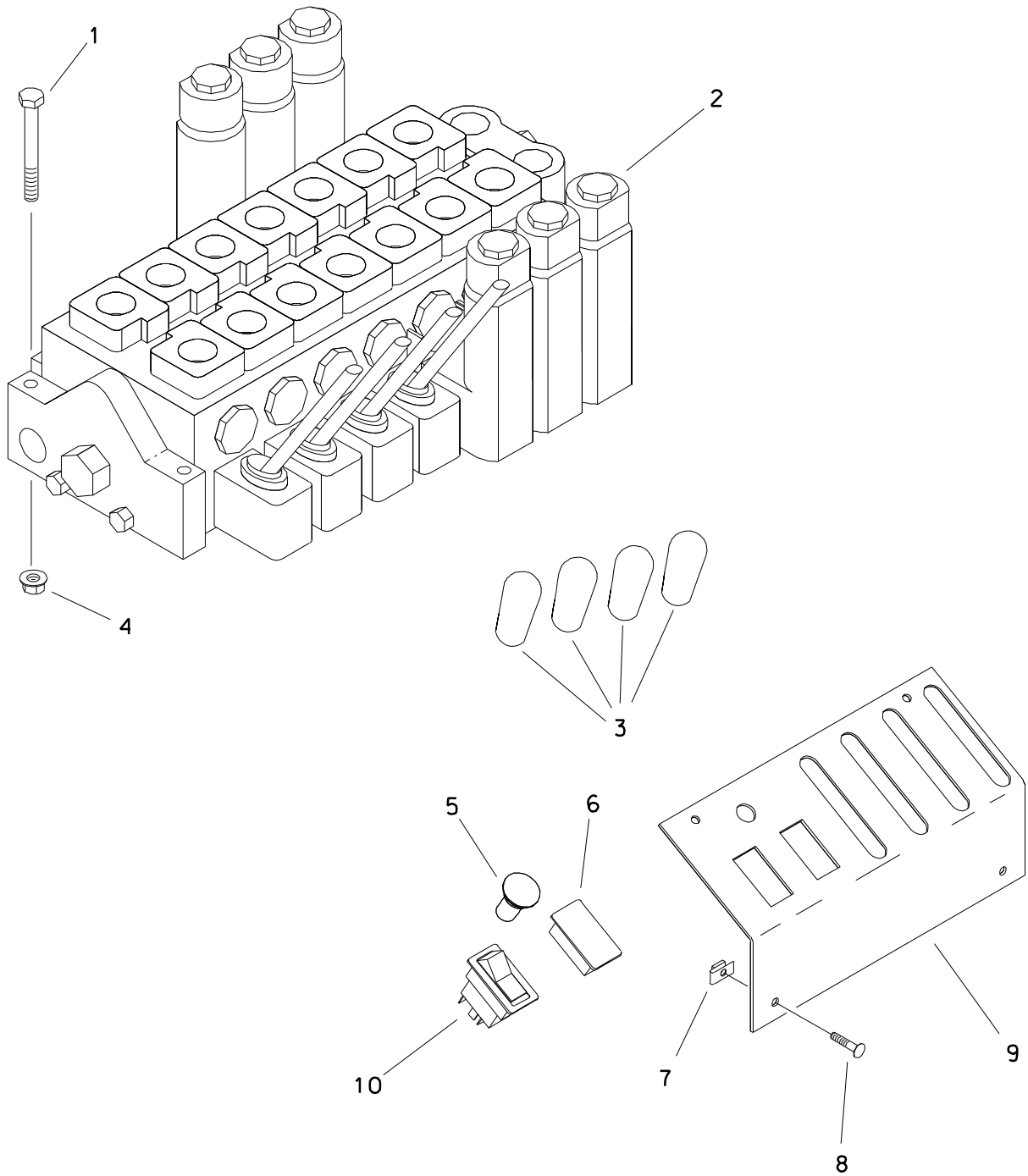
BEGINS WITH S/N 2R0314

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	515-304	1	HOSE (040FX90-15"-5000)	
2.	154-339	1	CONNECTOR (04N-040)	
3.	115-170	1	COLLAR (04NF)	
4.	217-552	1	PRESSURE GAUGE (6000PSI)	
5.	154-470	1	CONNECTOR (12S-10045)	
6.	154-986	1	HOSE (100FX90-80"-3000)	
7.	154-399	1	CONNECTOR (10S-10045)	
8.	500-302	1	PLUG (12S)	
9.	154-652	1	HOSE (040FX-20"-3000)	
10.	154-252	2	CONNECTOR (04S-04090)	
11.	516-049	-	HYD CONTROL VALVE (7-SPOOL)	
12.	154-301	1	CONNECTOR (10S-100)	
13.	154-370	1	RUN TEE (12S-100-100)	
14.	154-293	1	BRANCH TEE (04S-040-040)	
15.	349-070	-	HYDRAULIC RESERVOIR	
16.	154-230	1	BRANCH TEE (06S-040-040)	
17.	159-425	-	PRESSURE FILTRATION	
18.	159-074	-	FILTER ELEMENT (1-3/8-UNF)	
19.	158-490	-	HYD. PUMP GEAR	
20.	515-259	1	HYD HOSE (100FX45-14"-3000)	
21.	155-484	1	HYD HOSE (040FX-16"-3000)	
22.	510-017	1	CONNECTOR (12S-10SF)	
23.	115-817	1	ABRASION SLEEVE (1.59" X 84")	

FOOTNOTES

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

# SETUP VALVE



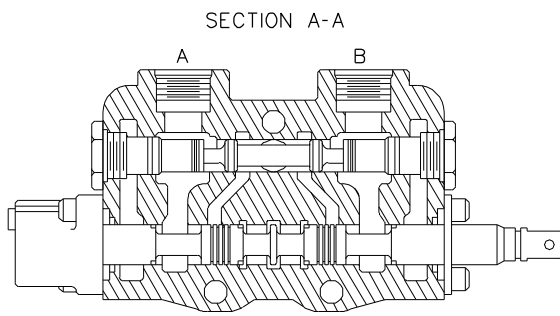
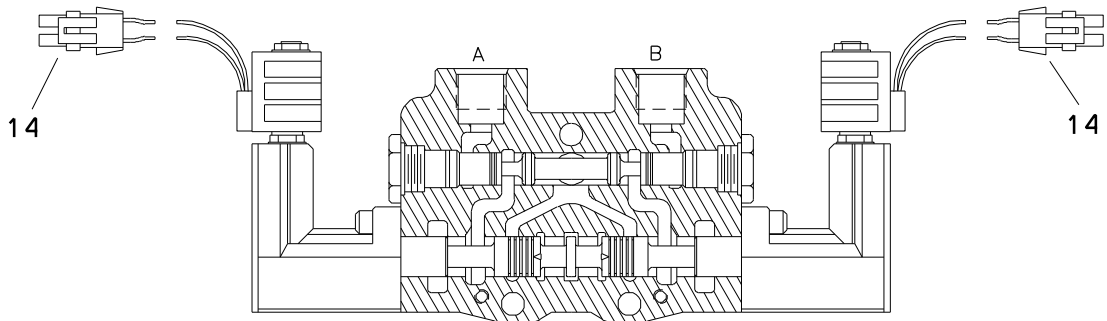
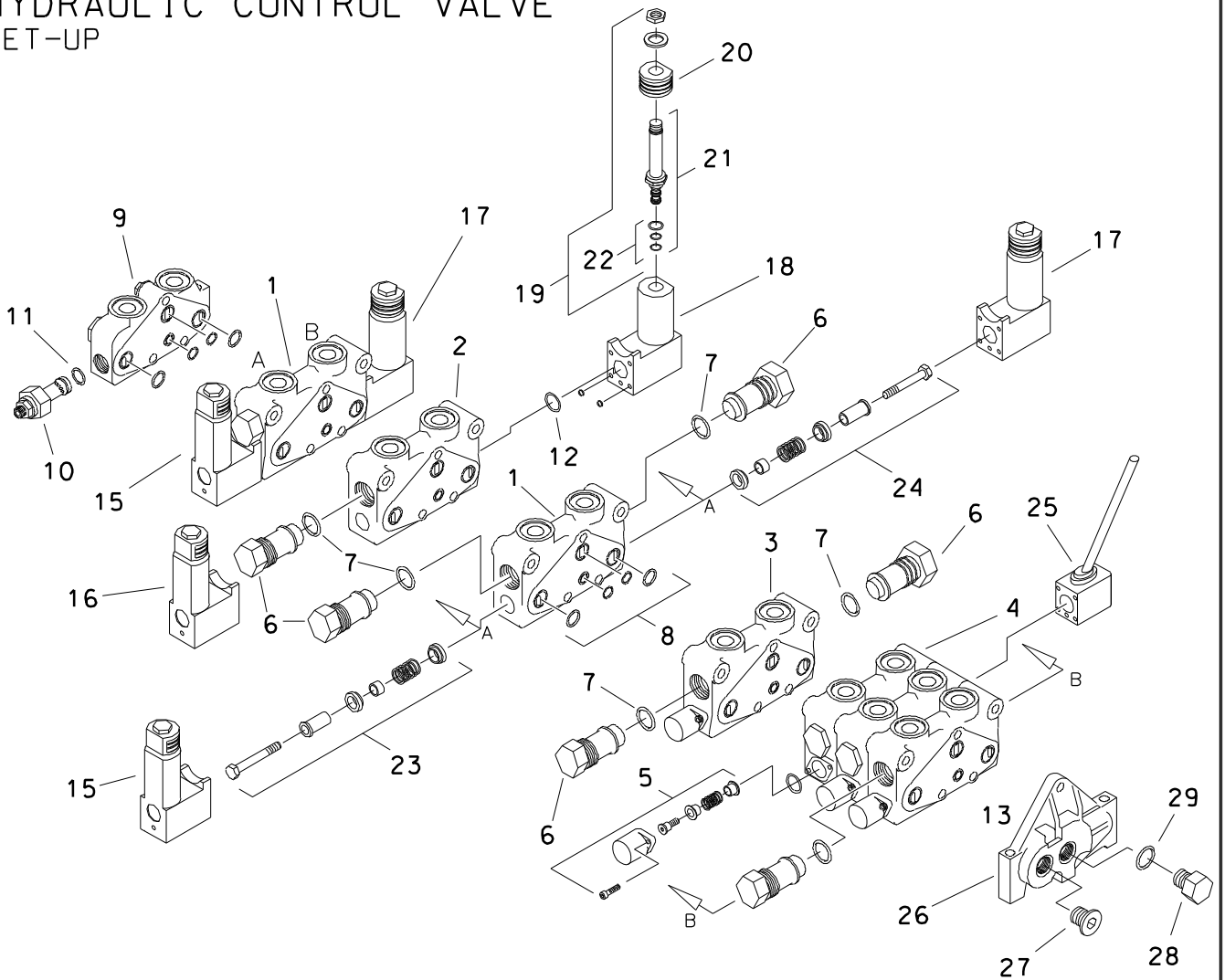
# SETUP VALVE

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	106-330	3	SCREW (M8-1.25 X 70mm)	
2.	516-049	1	HYD CONTROL VALVE (7-SPOOL)	
3.	110-283	4	KNDB (3/8-NC, BLACK)	
4.	106-386	3	FLG LOCKNUT (M8-1.25)	
5.	217-206	1	BUTTON SWITCH (SPST)	
6.	110-962	1	FILLER PLUG	
7.	106-574	4	CLIP NUT (M6-1.00)	
8.	106-640	4	SCREW (M6-1.00 X 20mm, BUT SOC)	
9.	349-752	1	VALVE COVER	
10.	217-228	1	ROCKER SW (DPDT) (ON) OFF (ON)	
	<u>217-921</u>	1	ROCKER SW (SPDT) (ON)-OFF-(ON)	
	217-925	1	SWITCH ACTUATOR	
	217-138	1	ICON (WHT) FAST	
	217-139	1	ICON (WHT) SLOW	
	217-156	1	DIFFUSION LENS (GREEN)	
	217-158	1	DIFFUSION LENS (WHITE)	

FOOTNOTES

NOTE

# HYDRAULIC CONTROL VALVE SET-UP

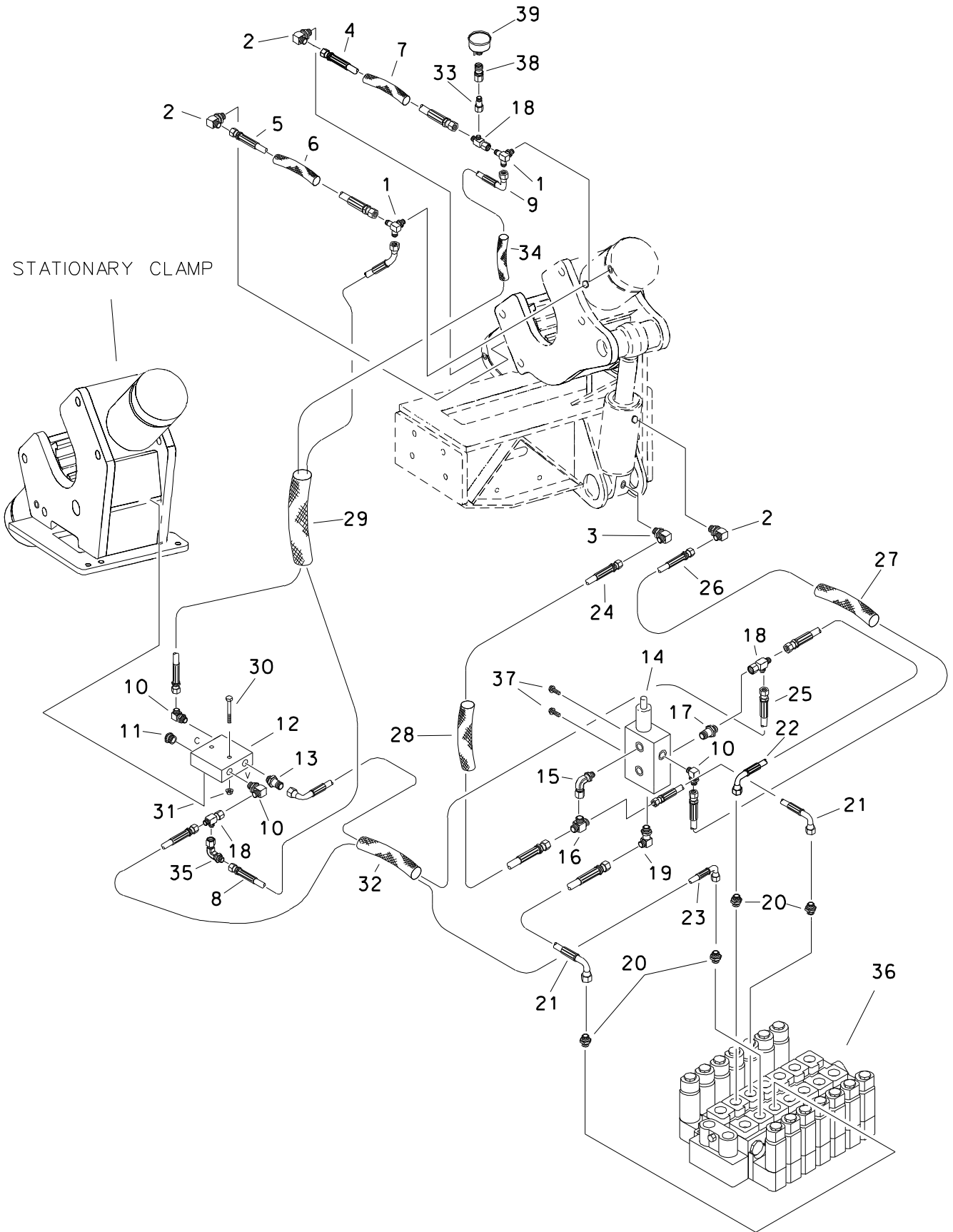


# HYDRAULIC CONTROL VALVE SET-UP

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	516-049		HYD CONTROL VALVE	
1.	499-145	2	VALVE SECTION	
2.	499-146	1	VALVE SECTION	
3.	499-148	1	VALVE SECTION	
4.	499-149	3	VALVE SECTION	
5.	500-592	4	STANDARD SPOOL POSITIONER KIT	
6.	499-029	14	LOCK OUT CARTRIDGE	
7.	499-030	-	LOCK OUT CARTRIDGE REPAIR KIT	
8.	500-588	8	SECTIONAL O-RING REPAIR KIT	
9.	499-144	1	INLET COVER HOUSING	
10.	500-956	1	WH RELIEF CARTRIDGE (3000 PSI)	
11.	500-581	-	SEAL REPAIR KIT	
12.	499-150	-	BONNET SEAL REPAIR KIT	
13.	500-587	-	SPOOL SEAL REPAIR KIT	
14.	499-151	-	COIL CONNECTOR KIT	
15.	499-156	2	SOLENOID ACTUATOR	
16.	499-157	1	SOLENOID ACTUATOR	
17.	499-158	2	SOLENOID ACTUATOR	
18.	499-159	1	SOLENOID ACTUATOR	
19.	217-949	-	SOLENOID CARTRIDGE KIT	
20.	217-950	-	SOLENOID COIL KIT (W/CONN)	
21.	499-152	-	CARTRIDGE TUBE KIT	
22.	499-153	-	CARTRIDGE SEAL REPAIR KIT	
23.	499-154	3	SPRING SUB	
24.	499-155	3	SPRING SUB	
25.	159-319	-	RUBBER DUST BOOT	
26.	500-298	1	OUTLET COVER	
27.	500-591	1	PLUG (12S)	
28.	499-160	-	POWER BEYOND SLEEVE KIT	
29.	499-055	-	POWER BEYOND SLEEVE REPAIR KIT	

FOOTNOTES

# ROTATING CLAMP HYDRAULICS



## ROTATING CLAMP HYDRAULICS

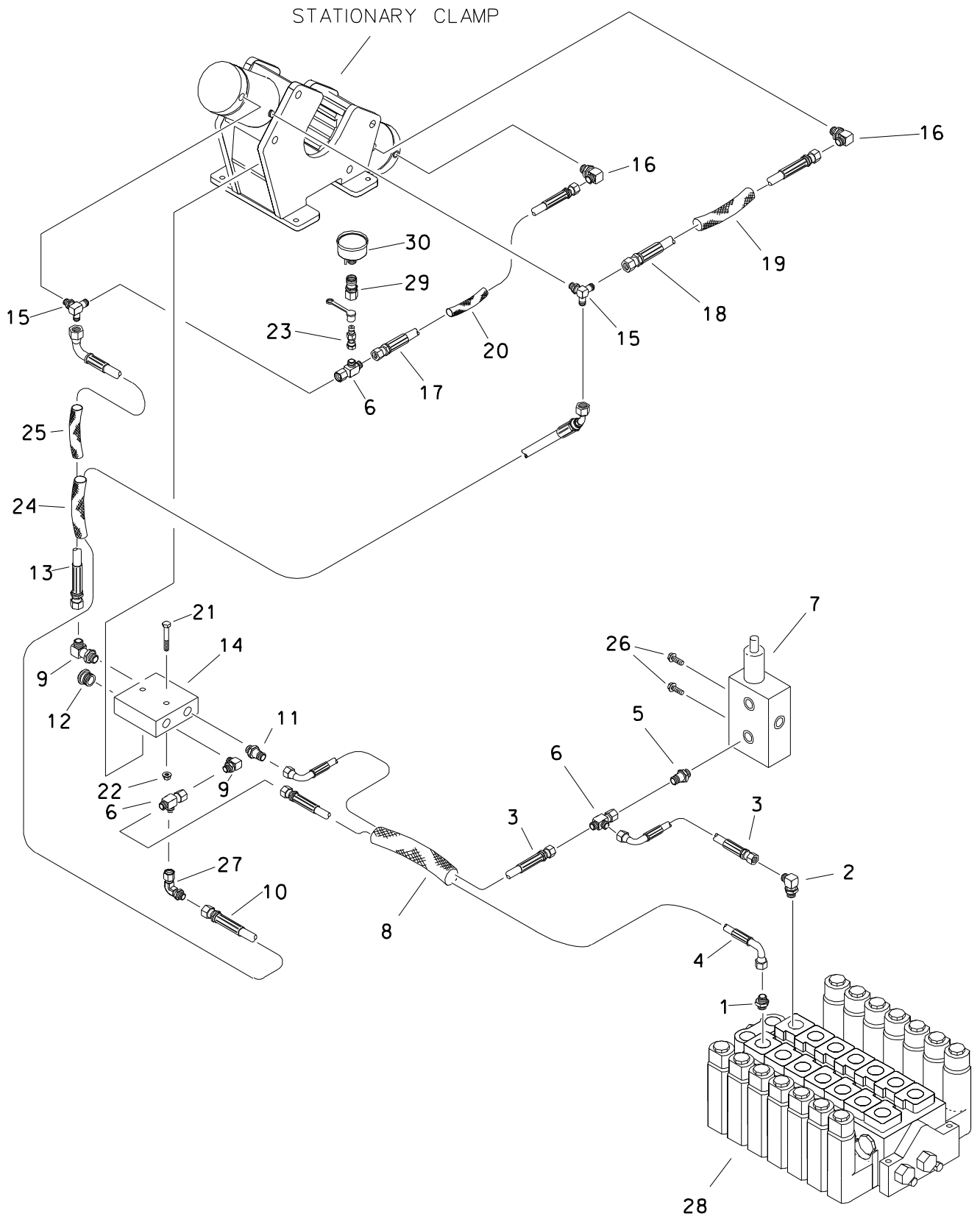
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	514-051	2	BRANCH TEE (08S-060-060)	
2.	154-227	3	CONNECTOR (08S-06090)	
3.	154-225	1	CONNECTOR (08S-06045)	
4.	515-637	1	HYD HOSE (060FX-38"-4000)	
5.	515-638	1	HYD HOSE (060FX-26"-4000)	
6.	117-684	1	ABRASION SLEEVE (1" X 26")	
7.	117-718	1	ABRASION SLEEVE (1" X 36")	
8.	515-635	1	HYD HOSE (060FX45-22"-4000)	
9.	515-636	1	HYD HOSE (060FX90-28"-4000)	
10.	154-342	3	CONNECTOR (06S-06090)	
11.	155-130	1	PLUG (06S)	
12.	155-623	1	HYD CHECK VALVE	
13.	154-221	1	CONNECTOR (06S-060)	
14.	159-279	1	SEQUENCE VALVE	
15.	154-460	1	CONNECTOR (06S-06SF90)	
16.	154-346	1	BRANCH TEE (06S-060-060)	
17.	158-813	1	FLOW CHECK VALVE (06S-060)	
18.	154-344	3	UN RUN TEE (060FX-060-060)	
19.	149-039	1	CONNECTOR (04N-06090)	
20.	154-369	4	CONNECTOR (060-10S)	
21.	515-632	2	HYD HOSE (060FX90-40"-4000)	
22.	515-630	1	HYD HOSE (060FX90-33"-4000)	
23.	515-629	1	HYD HOSE (060FX90-75"-4000)	
24.	515-634	1	HYD HOSE (060FX-20"-4000)	
25.	515-631	1	HYD HOSE (060FX90-47"-4000)	
26.	515-627	1	HYD HOSE (060FX-13"-4000)	
27.	117-671	1	ABRASION SLEEVE (1" X 12")	
28.	117-672	1	ABRASION SLEEVE (1.00" X 20")	
29.	117-675	1	ABRASION SLEEVE (1.75" X 24")	
30.	502-651	2	SCREW (M6-1.00 X 35MM)	
31.	106-385	2	FLG LOCKNUT (M6-1.00)	
32.	115-737	1	ABRASION SLEEVE (1.59" X 40")	
33.	159-157	1	QDC ADAPTER (02-060F)	
34.	117-670	1	ABRASION SLEEVE (1.00" X 10")	
35.	154-228	1	CONNECTOR (060-060FX90)	
36.	516-078	-	HYD CONTROL VALVE	
37.	105-826	2	FLG LOCK BOLT (3/8-NC X 1")	
38.	159-146	1	QDC BODY (02-04NF)	
39.	215-116	1	PRESSURE GAUGE	

### FOOTNOTES

### NOTE

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

# STATIONARY CLAMP HYDRAULICS





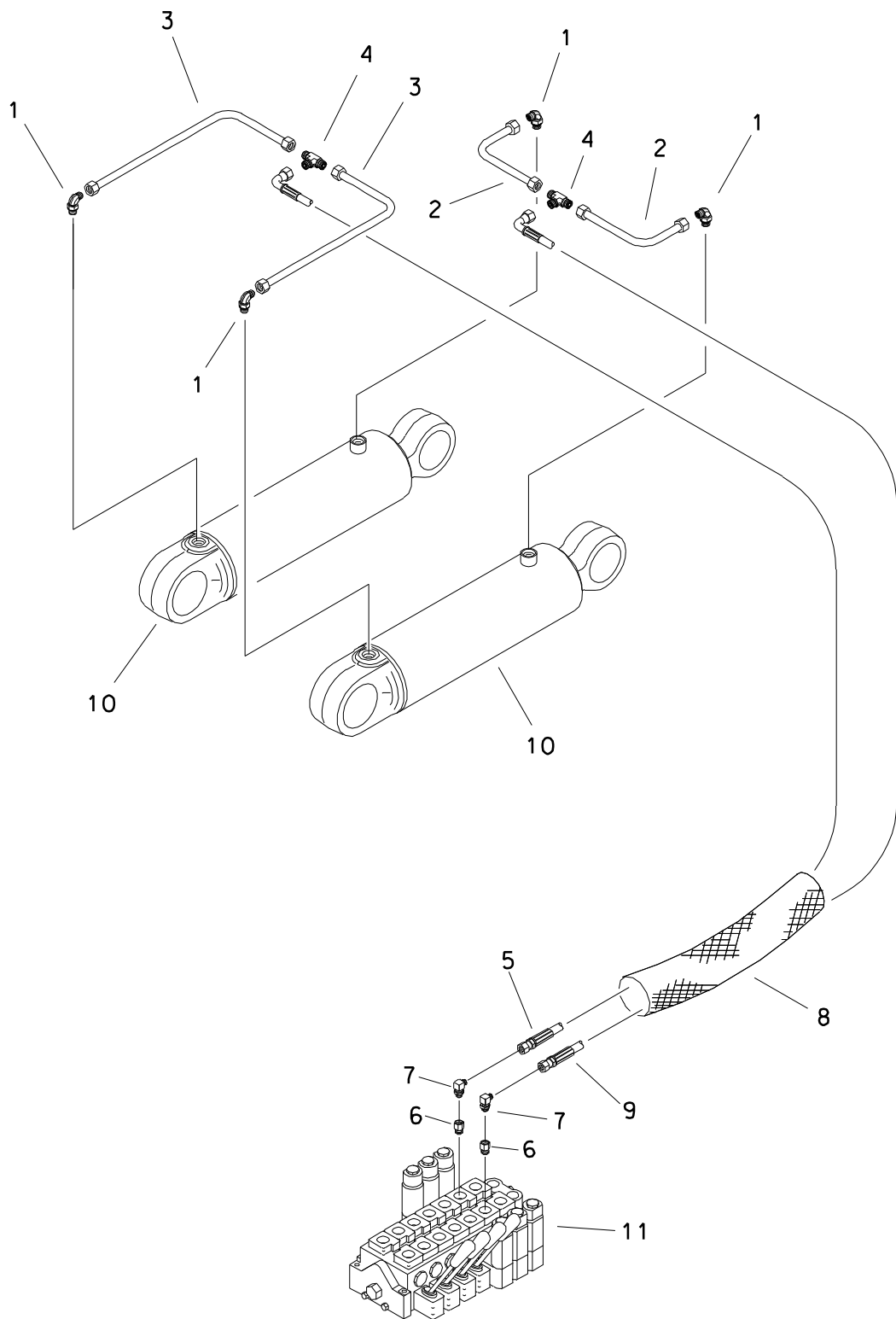
## STATIONARY CLAMP HYDRAULICS

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	154-369	1	CONNECTOR (060-10S)	
2.	154-421	1	CONNECTOR (060-10S90)	
3.	515-633	2	HOSE (060FX90-38"-4000)	
4.	515-629	1	HOSE (060FX90-75"-4000)	
5.	158-813	1	FLOW CHECK VALVE (06S-060)	
6.	154-344	3	UN RUN TEE (060FX-060-060)	
7.	159-279	-	SEQUENCE VALVE	
8.	115-737	1	ABRASION SLEEVE (1.59" X 40")	
9.	154-342	2	CONNECTOR (06S-06090)	
10.	515-635	1	HOSE (060FX45-22"-4000)	
11.	154-221	1	CONNECTOR (06S-060)	
12.	155-130	1	PLUG (06S)	
13.	515-636	1	HOSE (060FX90-28"-4000)	
14.	155-623	1	DOUBLE LOCKOUT VALVE	
15.	514-051	2	BRANCH TEE (08S-060-060)	
16.	154-227	2	CONNECTOR (08S-06090)	
17.	515-637	1	HOSE (060FX-38"-4000)	
18.	515-638	1	HOSE (060FX-26"-4000)	
19.	117-684	1	ABRASION SLEEVE (1" X 26")	
20.	117-718	1	ABRASION SLEEVE (1" X 36")	
21.	502-651	2	SCREW (M6-1.00 X 35MM)	
22.	106-385	2	FLG LOCKNUT (M6-1.00)	
23.	159-157	1	QDC ADAPTER (02-060F)	
	159-148		DUST CAP (1/8")	
24.	117-675	1	ABRASION SLEEVE (1.75" X 24")	
25.	117-670	1	ABRASION SLEEVE (1" X 10")	
26.	105-826	2	FLG LOCK BOLT (3/8-NC X 1")	
27.	154-228	1	CONNECTOR (060-060FX90)	
28.	516-078	-	HYD CONTROL VALVE (7-SPOOL)	
29.	159-146	1	QDC BODY (02-04NF)	
30.	215-116	1	PRESSURE GAUGE (5000PSI)	

## FOOTNOTES

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

## PIVOT FRONT LIFT HYDRAULICS



# PIVOT FRONT LIFT HYDRAULICS

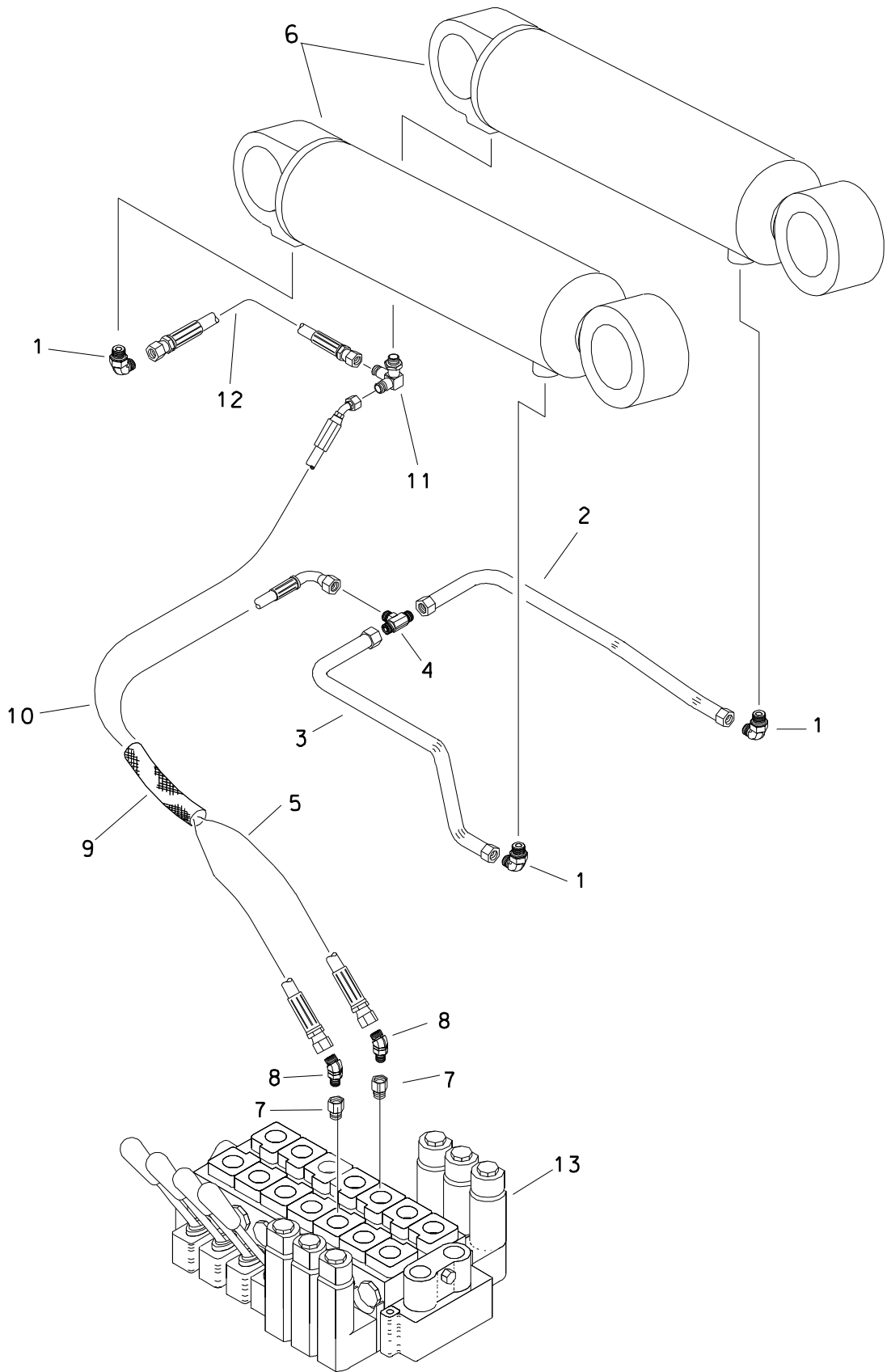
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	154-227	4	CONNECTOR (060-08S90)	
2.	156-156	2	HYD LINE (060FX)	
3.	156-157	2	HYD LINE (060FX)	
4.	154-437	2	TEE (060-060-060)	
5.	154-954	1	HOSE (060FX90-70"-3000)	
6.	155-171	2	REDUCER (10S-06SF)	
7.	514-436	2	CONNECTOR (06S-06090, DRF, 060")	
8.	115-938	1	ABRASION SLEEVE (1.59" X 66")	
9.	515-562	1	HOSE (060FX90-73"-3000)	
10.	151-047	-	HYD CYL (3.5" X 2" X 12")	
11.	516-049	-	HYD CONTROL VALVE (7-SPOOL)	

FOOTNOTES

NOTE

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

# PIVOT REAR LIFT HYDRAULICS



# PIVOT REAR LIFT HYDRAULICS

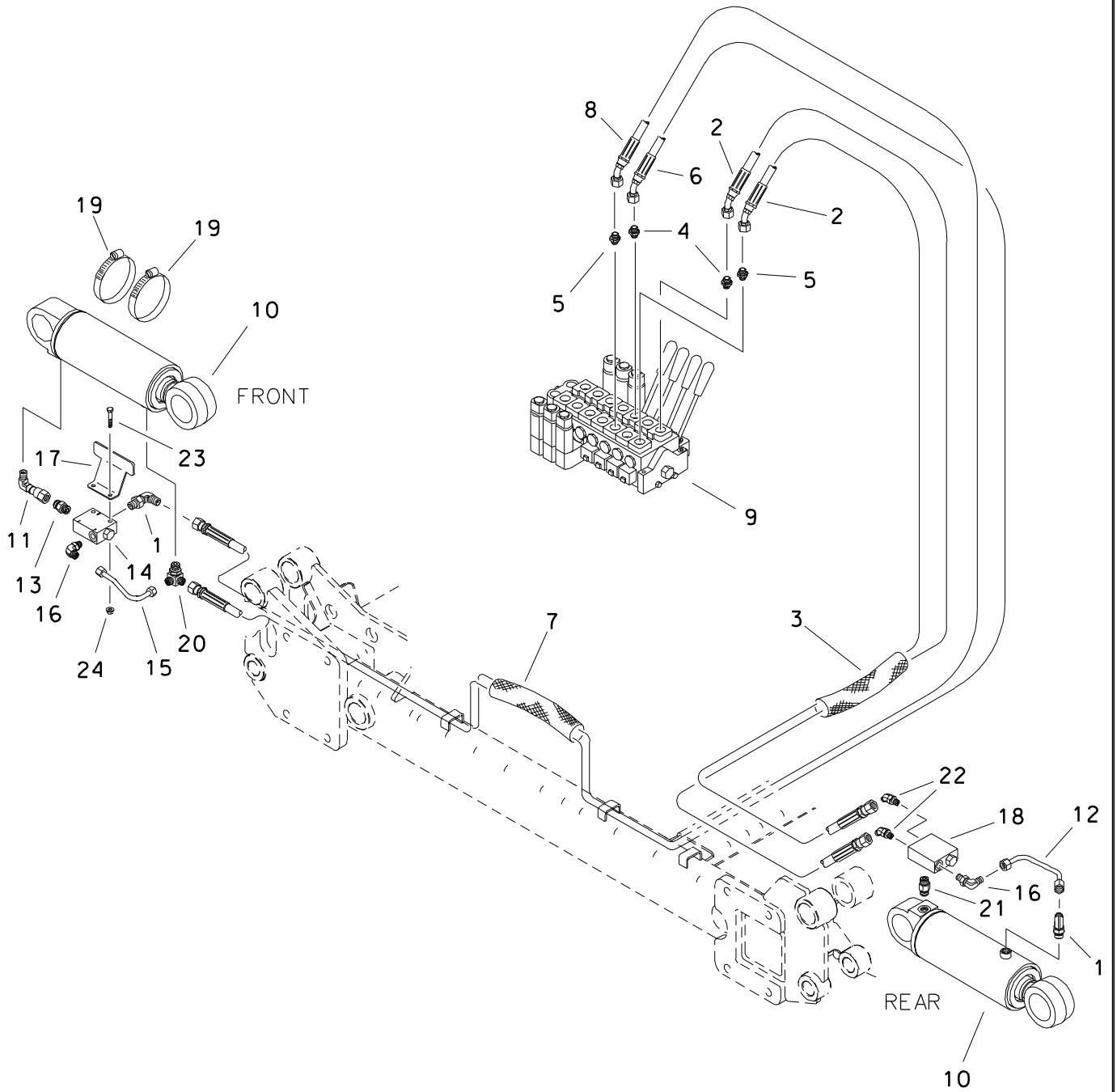
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	154-227	3	CONNECTOR (060-08S90)	
2.	156-158	1	HYD LINE (060FX)	
3.	156-159	1	HYD LINE (060FX)	
4.	154-437	1	TEE (060-060-060)	
5.	515-561	1	HOSE (060FX90-125"-3000)	
6.	151-047	-	CYL (3.5" X 2" X 12")	
7.	155-171	2	REDUCER (10S-06SF)	
8.	514-437	2	CONNECTOR (06S-06045,DRF)	
9.	116-633	1	ABRASION SLEEVE (1.59" X 115")	
10.	515-410	1	HOSE (060FX45-118"-3000)	
11.	514-051	1	BRANCH TEE (08S-060-060)	
12.	515-354	1	HOSE (060FX-10.5"-3000)	
13.	516-049	-	HYD CONTROL VALVE (7-SPOOL)	

FOOTNOTES

NOTE

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

# LEFT STABILIZER HYDRAULICS



# LEFT STABILIZER HYDRAULICS

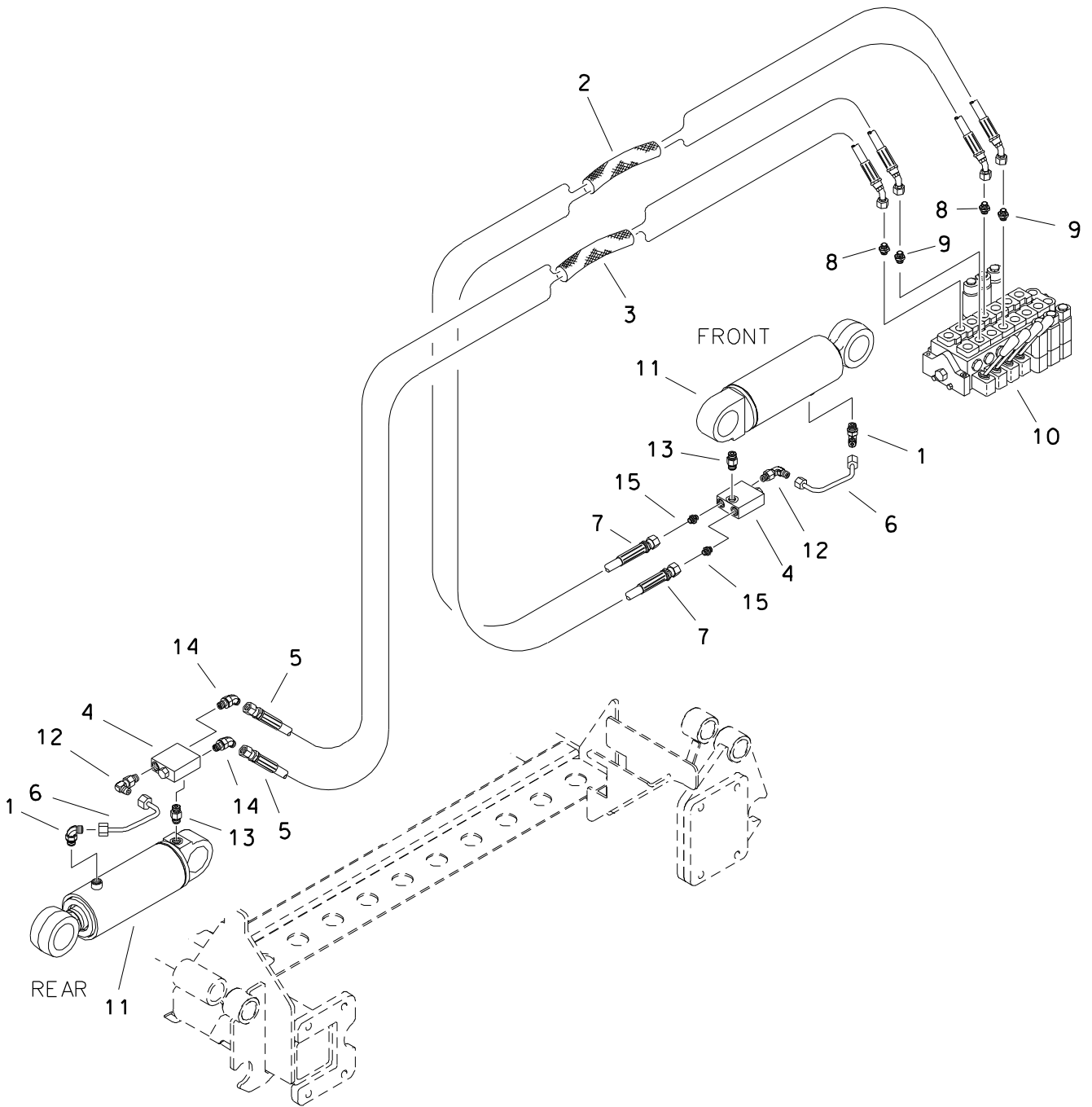
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	154-227	2	CONNECTOR (060-08S90)	
2.	515-410	2	HOSE (060FX45-118"-3000)	
3.	117-674	1	ABRASION SLEEVE (1.59" X 122")	
4.	154-369	2	CONNECTOR (060-10S)	
5.	514-352	2	CONNECTOR (060-10S, ORF)	
6.	515-559	1	HOSE (060FX45-153"-3000)	
7.	117-771	1	ABRASION SLEEVE (1.59" X 155")	
8.	515-558	1	HOSE (060FX45-165"-3000)	
9.	516-049	-	HYD CONTROL VALVE (7-SPOOL)	
10.	151-095	-	HYD CYL (4" X 2.25" X 8")	
11.	154-418	1	UNION (08S-080FX90)	
12.	149-090	1	HYD LINE (060FX)	
13.	154-233	1	CONNECTOR (08S-080)	
14.	159-487	1	CHECK VALVE	
15.	149-091	1	HYD LINE (060FX)	
16.	154-342	2	CONNECTOR (06S-06090)	
17.	370-363	1	CLAMP BRACKET	
18.	159-482	1	CHECK VALVE	
19.	110-391	2	WORM CLAMP (4-5/8" TO 5-1/2")	
20.	514-051	1	BRANCH TEE (08S-060-060)	
21.	154-466	1	CONNECTOR (08S-08S)	
22.	154-224	2	CONNECTOR (06S-06045)	
23.	106-932	2	SCREW (M8-1.25 X 45mm)	
24.	106-386	2	FLG LOCKNUT (M8-1.25)	

FOOTNOTES

NOTE

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

# RIGHT STABILIZER HYDRAULICS





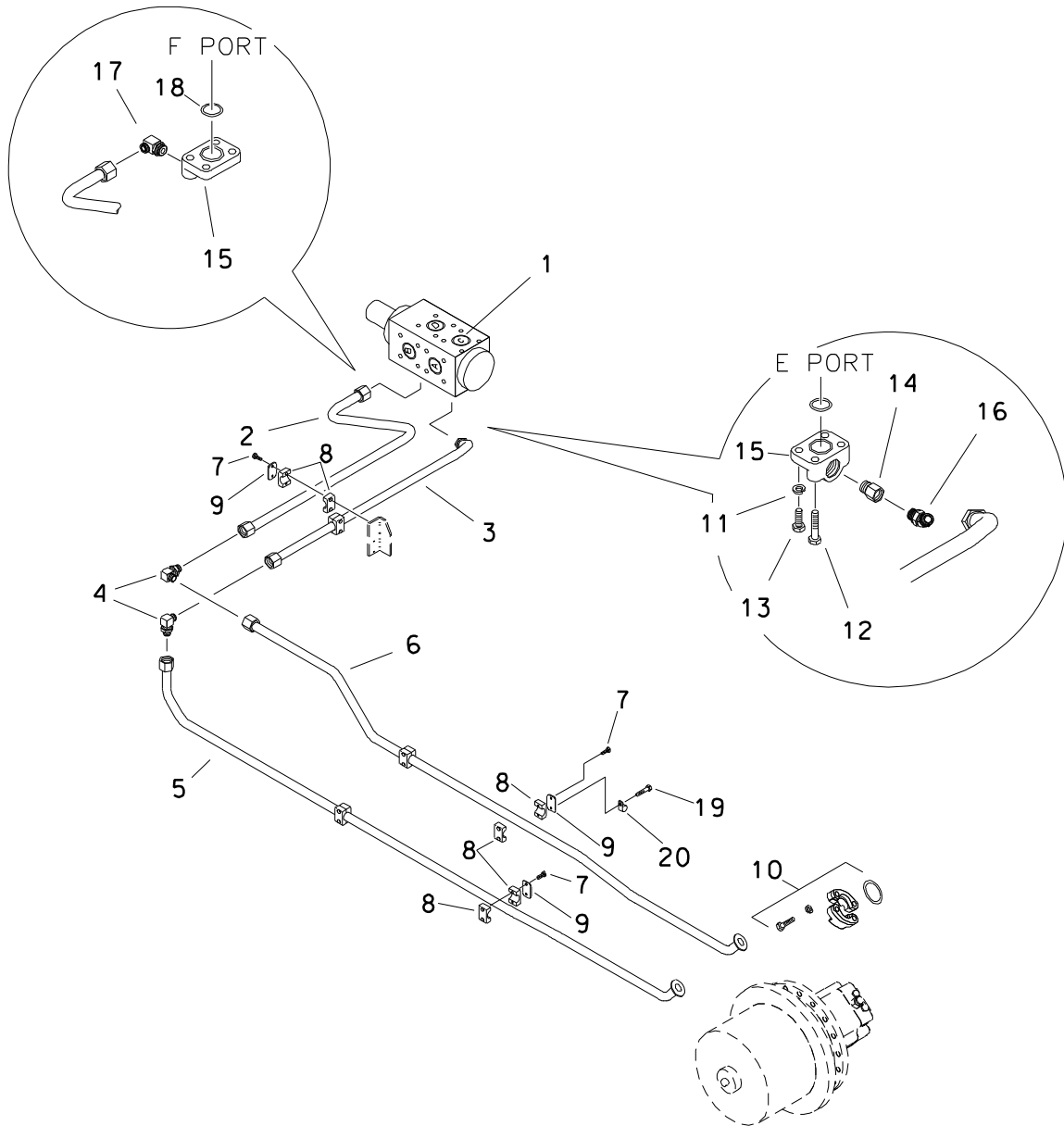
# RIGHT STABILIZER HYDRAULICS

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	154-227	2	CONNECTOR (060-08S90)	
2.	116-633	1	ABRASION SLEEVE (1.59" X 115")	
3.	115-938	1	ABRASION SLEEVE (1.59" X 66")	
4.	159-482	2	CHECK VALVE	
5.	154-969	2	HOSE (060FX45-58"-3000)	
6.	149-090	2	HYD LINE (060FX)	
7.	515-560	2	HOSE (060FX45-106"-3000)	
8.	514-352	2	CONNECTOR (060-10S, DRF)	
9.	154-369	2	CONNECTOR (060-10S)	
10.	516-049	-	HYD CONTROL VALVE (7-SPOOL)	
11.	151-095	-	CYL (4" X 2.25" X 8")	
12.	154-342	2	CONNECTOR (06S-06090)	
13.	154-466	2	CONNECTOR (08S-08S)	
14.	154-224	2	CONNECTOR (06S-06045)	
15.	154-221	2	CONNECTOR (06S-060)	

FOOTNOTES

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

# LEFT GROUND DRIVE HYDRAULICS



# LEFT GROUND DRIVE HYDRAULICS

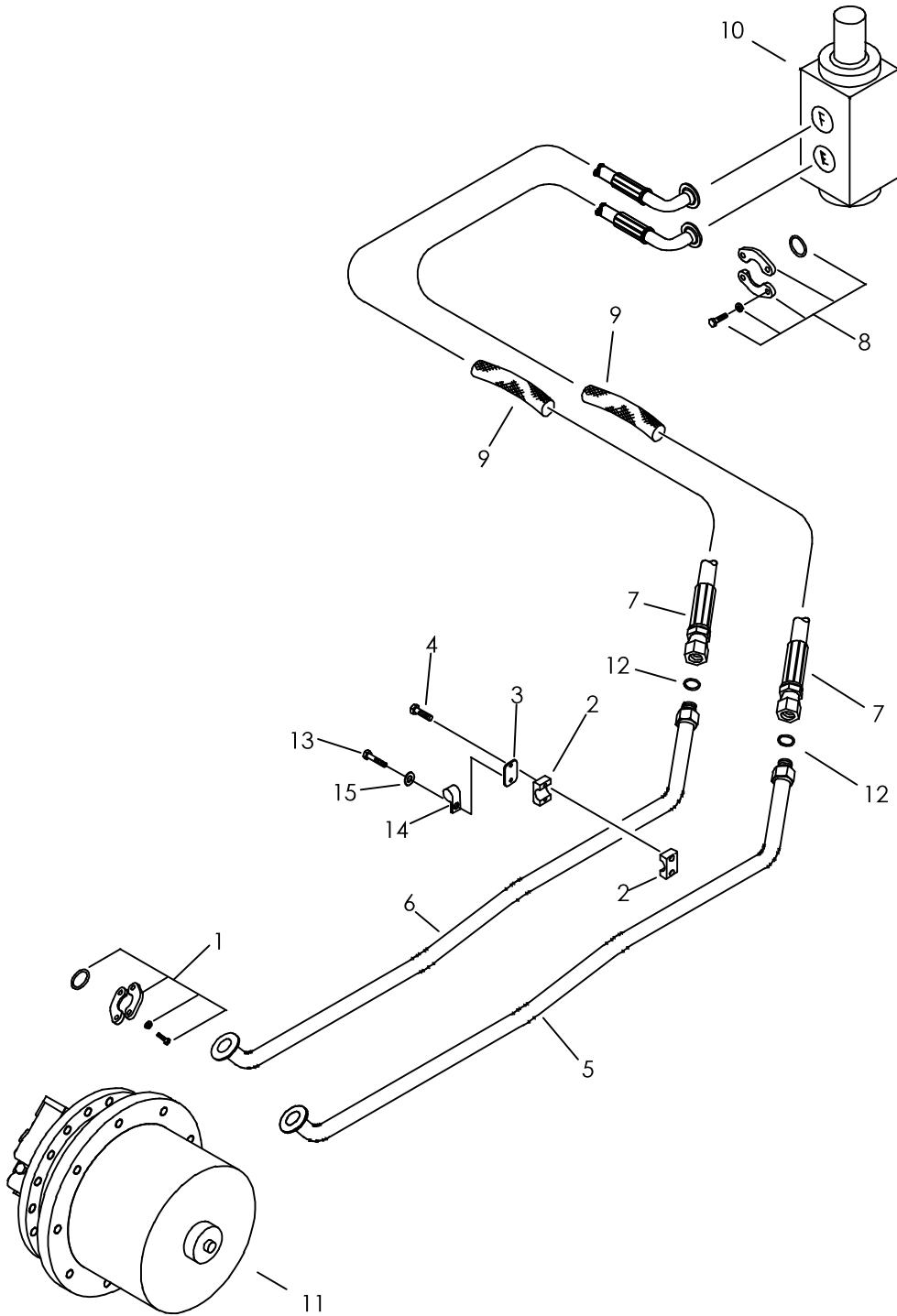
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	516-033	-	SELECTOR VALVE DIVERTER	
2.	156-164	1	HYD LINE (160FX)	
3.	156-165	1	HYD LINE (160FX)	
4.	514-009	2	CONNECTOR (160-16090)	
5.	156-154	1	HYD LINE (160FX-16FL)	
6.	156-155	1	HYD LINE (160FX-16FL)	
7.	105-818	8	BOLT (1/4-NC X 1-1/2")	
8.	110-573	6	BOLT-ON CLAMP (1",SOLD PER SET)	
9.	322-289	6	BACKUP (BOLT-ON)	
10.	159-077	2	SPLIT FLANGE (16SF)	
	157-029	2	O-RING (219 D90)	
	105-156	8	BOLT (3/8-NC X 1-1/2")	
	105-072	8	LOCK WASHER (3/8")	
11.	105-070	8	LOCK WASHER (1/2")	
12.	105-067	4	BOLT (1/2-NC X 2-3/4")	
13.	105-048	4	BOLT (1/2-NC X 1-1/2")	
14.	514-353	1	REDUCER (20S-16SF)	
15.	514-333	2	HEAD FLANGE (20FL-16SF)	
16.	154-388	1	CONNECTOR (16S-16045)	
17.	514-196	1	CONNECTOR (160-20S90)	
18.	157-078	2	O-RING (222 D90)	
19.	105-106	-	BOLT (1/4-NC X 2")	
20.	110-373	-	BOLT-ON CLAMP (13/16")	

FOOTNOTES

NOTE

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

# RIGHT GROUND DRIVE HUDRAULICS



## RIGHT GROUND DRIVE HUDRAULICS

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	159-077	2	SPLIT FLANGE (16SFL)	
	157-029	2	O-RING (219 D90)	
	105-156	8	BOLT (3/8-NC X 1-1/2")	
	105-072	8	LOCK WASHER (3/8")	
2.	110-573	2	BOLT-ON CLAMP (1", SOLD PER SET)	
3.	322-289	2	BACKUP (BOLT-ON)	
4.	105-818	3	BOLT (1/4-NC X 1-1/2")	
5.	156-152	1	HYD LINE (-16)	
6.	156-153	1	HYD LINE (-16)	
7.	515-575	2	HOSE (160FX-20FL90-62"-6000)	ENDS WITH S/N: 2V2567
	157-998	2	HOSE (160FX-20FL90-68"-6000)	BEGINS WITH S/N: 2W0856
8.	159-436	2	SPLIT FLANGE (20SF, SET)	
	157-078	1	O-RING (222 D90)	
	105-070	4	LOCK WASHER (1/2")	
	105-066	4	BOLT (1/2-NC X 1-3/4")	TORQUE TO 45 FT. LB.
9.	117-179	2	ABRASION SLEEVE (2.07" X 62")	ENDS WITH S/N: 2V2567
	117-292	2	ABRASION SLEEVE (2.07" X 70")	BEGINS WITH S/N: 2W0856
10.	516-033	-	SELECTOR VALVE DIVERTER	
11.	166-162	-	GEARBOX AND GRND DRIVE PLANETARY	
12.	155-714	2	O-RING (021 D90)	
13.	105-198	1	BOLT (1/4-NC X 1-3/4")	
14.	110-373	1	BOLT-ON CLAMP (13/16")	
15.	105-095	1	WASHER (1/4")	

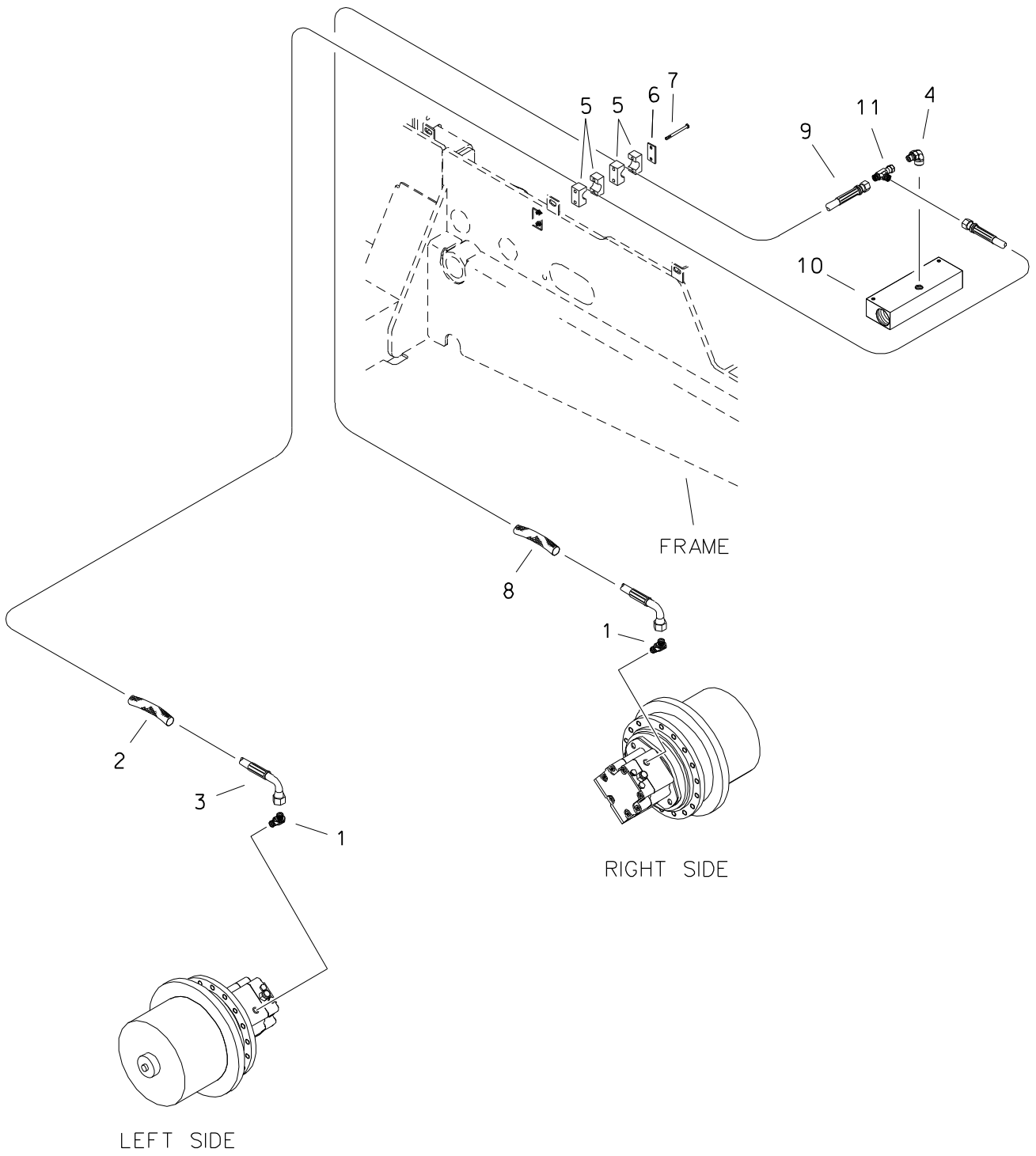
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FOOTNOTES:

NOTE:

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

# CASE DRAIN (GROUND DRIVE)



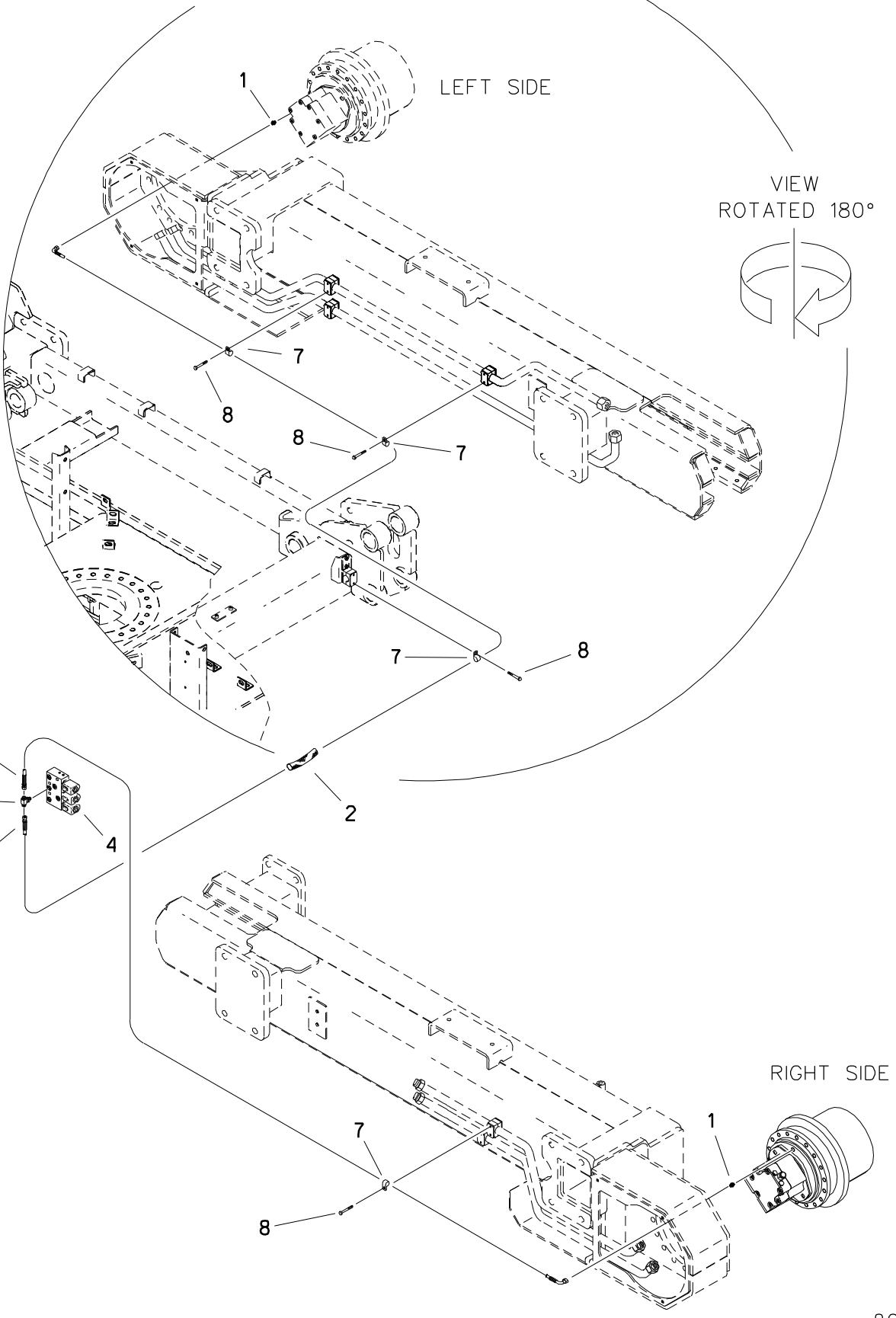
# CASE DRAIN (GROUND DRIVE)

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	154-264	2	CONNECTOR (080-10S45)	
2.	116-632	1	ABRASION SLEEVE (1.59" X 130")	
3.	515-573	1	HOSE (080FX90-184"-3000)	
4.	154-253	1	CONNECTOR (06S-08090)	
5.	111-007	2	BOLT-ON CLAMP (7/8", SET)	
6.	322-289	1	BACKUP (BOLT-ON)	
7.	106-967	2	BOLT (1/4-NC X 2-3/4")	
8.	117-764	1	ABRASION SLEEVE (1.59" X 90")	
9.	515-572	1	HOSE (080FX90-134"-3000)	
10.	159-414	-	CASE DRAIN MANIFOLD	
11.	154-266	1	UN RUN TEE (080FX-080-080)	

FOOTNOTES

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

# PARK BRAKE HYDRAULICS



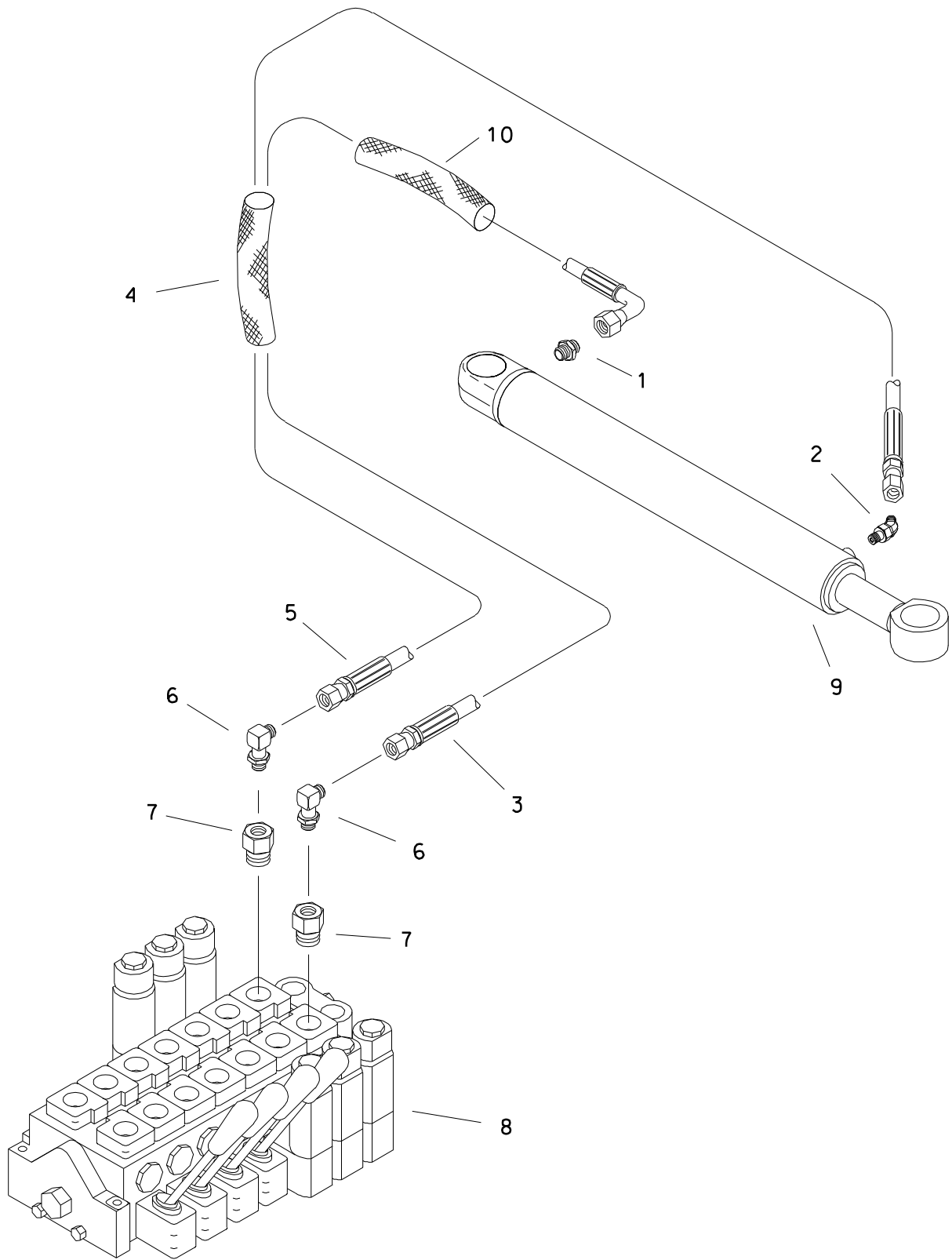


# PARK BRAKE HYDRAULICS

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	514-301	2	CONNECTOR (040-M12-1.50)	
2.	117-673	1	ABRASION SLEEVE (1" X 150")	
3.	515-571	1	HOSE (040FX90-170"-3000)	
4.	159-194	-	CHARGE MANIFOLD	
5.	154-293	1	BRANCH TEE (04S-040-040)	
6.	515-277	1	HOSE (040FX90-128"-3000)	
7.	110-373	4	BOLT-ON CLAMP (13/16")	
8.	105-106	4	BOLT (1/4-NC X 2")	

FOOTNOTES

# CAB SWING HYDRAULICS



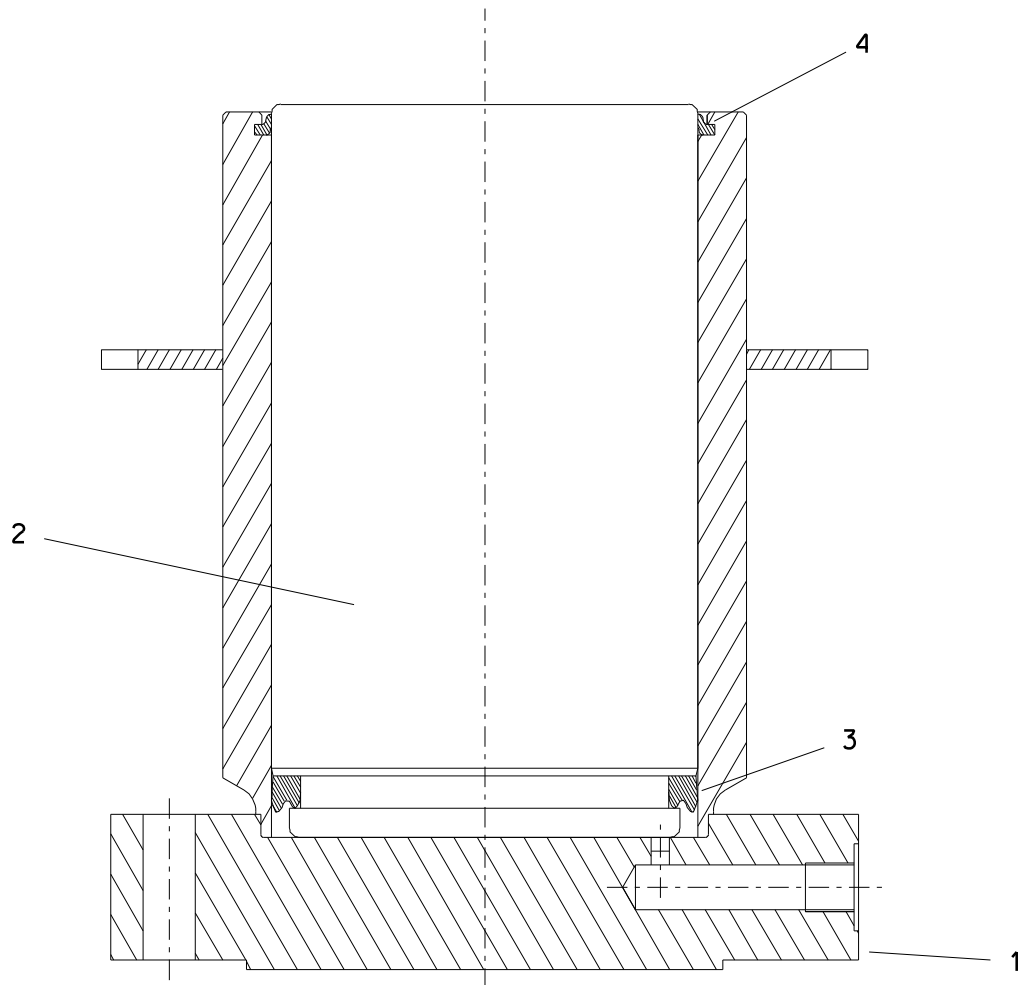
# CAB SWING HYDRAULICS

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	154-278	1	CONNECTOR (04S-040)	
2.	154-263	1	CONNECTOR (04S-04045)	
3.	515-277	1	HOSE (040FX90-128"-3000)	
4.	116-633	1	ABRASION SLEEVE (1.59" X 115")	
5.	515-098	1	HOSE (040FX-110"-3000)	
6.	154-364	2	CONNECTOR (040-06S90, ORF)	
7.	155-171	2	REDUCER (10S-06SF)	
8.	516-049	1	HYD CONTROL VALVE (7-SPOOL)	
9.	151-182	-	CYL (2.0" X 1.25" X 14.250")	
10.	117-611	1	ABRASION SLEEVE (1.00" X 22")	

FOOTNOTES

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

## ADJUSTMENT CYLINDER



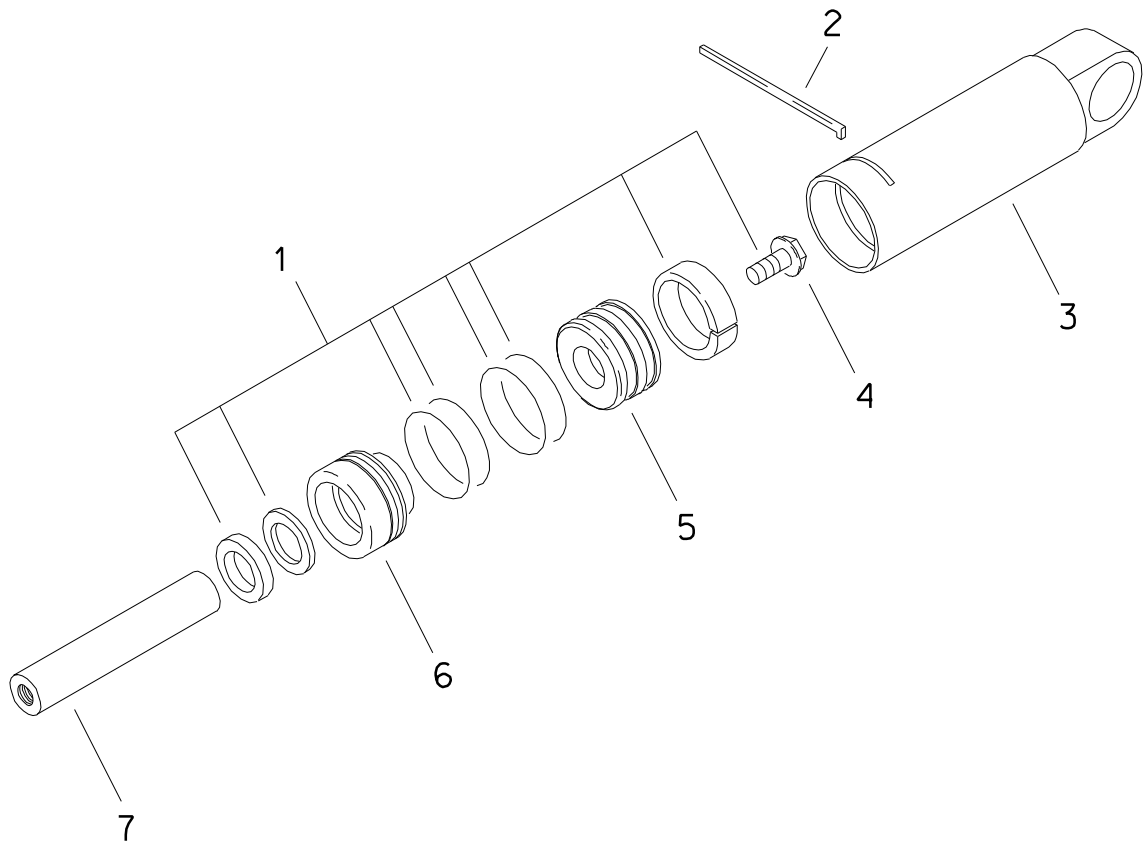
# ADJUSTMENT CYLINDER

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	349-391	-	ADJUSTMENT CYLINDER	INCL REF NO.'S 1 - 4
1.	349-388	1	CYL BARREL	
2.	349-386	1	CYL RAM	
3.	157-172	1	PISTON SEAL	
4.	157-173	1	ROD WIPER SEAL (5.5")	

FOOTNOTES

# HYDRAULIC CYLINDER

2" X 1" X 3"



# HYDRAULIC CYLINDER 2" X 1" X 3"

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	151-163		CYL (2" X 1" X 3")	INCL REF NO.'S 1 - 7
1.	190-165	1	SEAL REPAIR KIT (2" X 1")	
2.	150-778	1	LOCK RING (2")	
3.	150-282	1	CYLINDER BARREL (2")	
4.	106-096	1	FLG BOLT (1/2-NC X 1-3/4", GD 8)	SEE FOOTNOTE 1
5.	150-775	1	CYLINDER PISTON (2" X 1")	
6.	150-772	1	CYLINDER HEAD (2" X 1")	
7.	150-676	1	CYLINDER ROD	

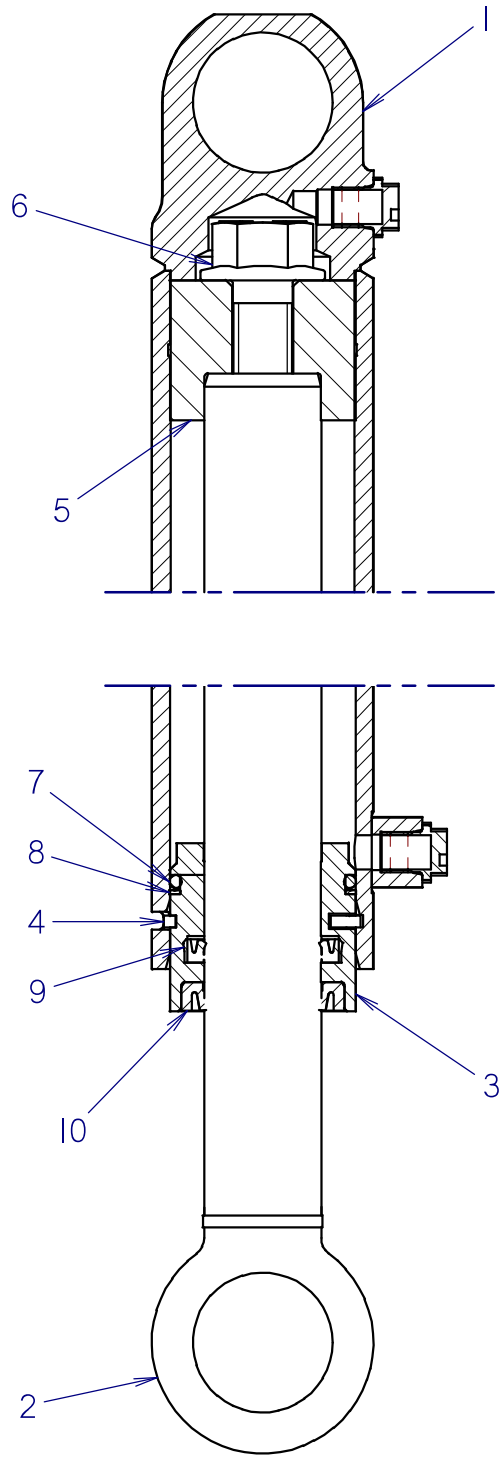
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259-100	U-SEAL INSTALLER (1" - 1.499")
259-239	WIPER/SEAL INSTALLER (2")
259-241	PISTON INSTALLER (2")
259-188	CYL HEAD SPANNER - TWO PIN

FOOTNOTES

1. CLEAN AND DRY THREADS. APPLY RED LOCKTITE (RC271 OR RC272). TORQUE TO 90-100 FT-LBS (120-135 NM).

HYDRAULIC CYLINDER (2.0 X 1.25 X 14.25)  
2" X 1.25" X 14.25"





## HYDRAULIC CYLINDER (2.0 X 1.25 X 14.25) 2" X 1.25" X 14.25"

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	I51-I82	-	CYL (2.0 X 1.25 X 14.25)	INCL REF NO'S 1 THRU 10, SEE FOOTNOTE 1
1	I52-069	1	CYLINDER BARREL (2.0 X	
2	I50-448	1	CYLINDER ROD (1.25 X 16.0)	
3	I50-770	1	CYLINDER HEAD (2.0 X 1.25)	
4	I50-778	1	LOCK RING (2.0)	
5	I50-771	1	CYLINDER PISTON (2.0 X 1.25)	INCL MOLDED-ON WEAR RING
6	I06-097	1	FLG BOLT (5/8-NC X 1-3/4",GD8)	SEE FOOTNOTE 2
7	I57-022	1	O-RING (224 D90)	
8	I55-732	1	BACKUP RING (224 D90)	
9	I57-541	1	U-SEAL (1.250")	
10	I57-538	1	WIPER SEAL (1.250")	

NOT SHOWN:

FOOTNOTES:

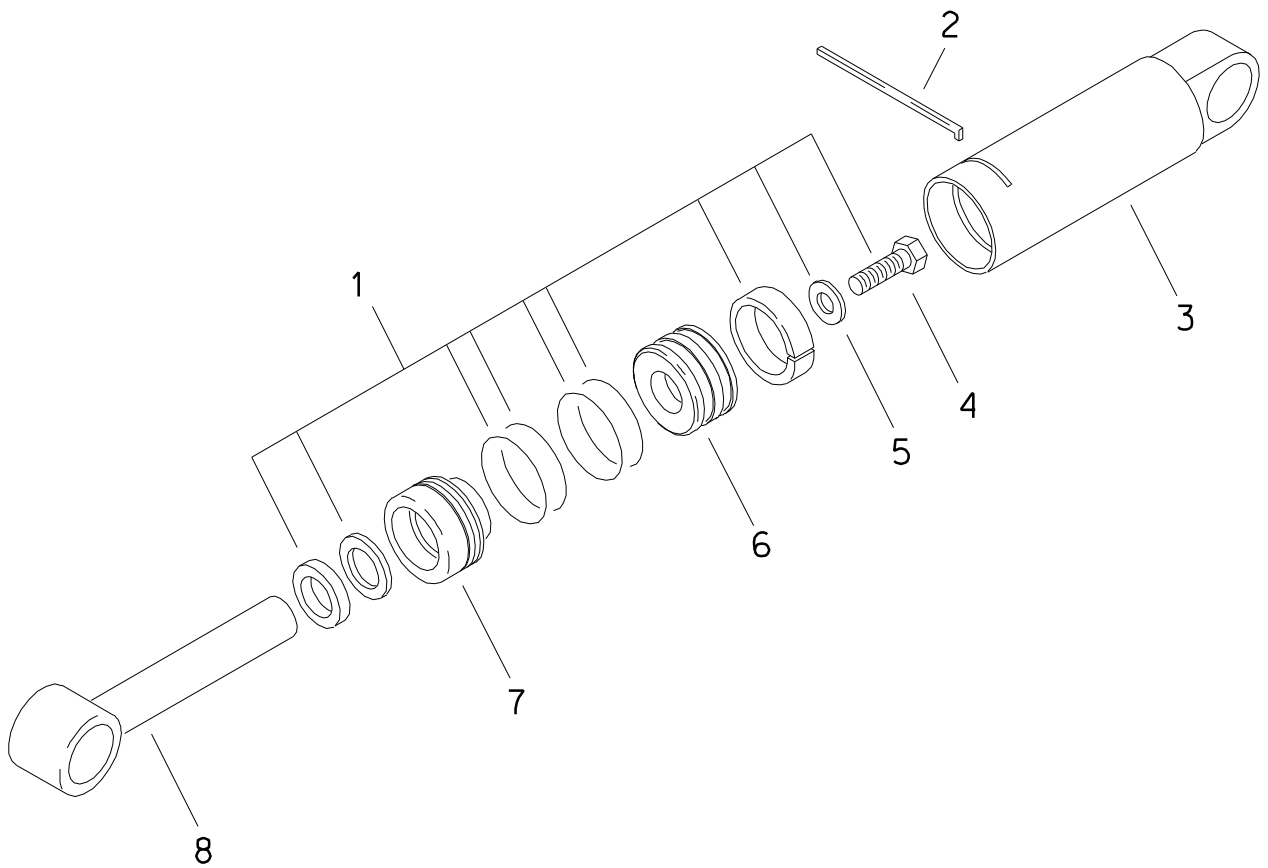
1. SEAL KIT P/N I90-I69
2. APPLY LOCTITE 277 OR EQUIVALENT, TORQUE TO 180-200 FT-LBS

NOTE:

259-100	U-SEAL INSTALLER (1"-4.99")
259-236	WIPER INSTALLER (1.25")
259-239	WIPER/SEAL INSTALLER (2")
259-241	PISTON INSTALLER (2")
259-188	CYL HEAD SPANNER - TWO PIN

# HYDRAULIC CYLINDER

3.5" X 1.75" X 16"



# HYDRAULIC CYLINDER 3.5" X 1.75" X 16"

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	151-085		CYL (3.5" X 1.75" X 16")	INCL. REF. NO.'S 1 - 7
1.	190-174	1	SEAL REPAIR KIT (3.5" X 1.75")	INCL. REF. NO.'S 4 & 5
2.	149-302	1	LOCK RING (3.5")	
3.	152-021	1	CYLINDER BARREL	
4.	106-122	1	BOLT (7/8-NC X 2-1/4", GD 8)	SEE FOOTNOTE 1
5.	105-363	1	WASHER (7/8")	
6.	149-301	1	CYL PISTON 3.5" X 1.75")	
7.	150-761	1	CYL HEAD (3.5" X 1.75")	
8.	153-004	1	1.75" ROD ASSEMBLY	

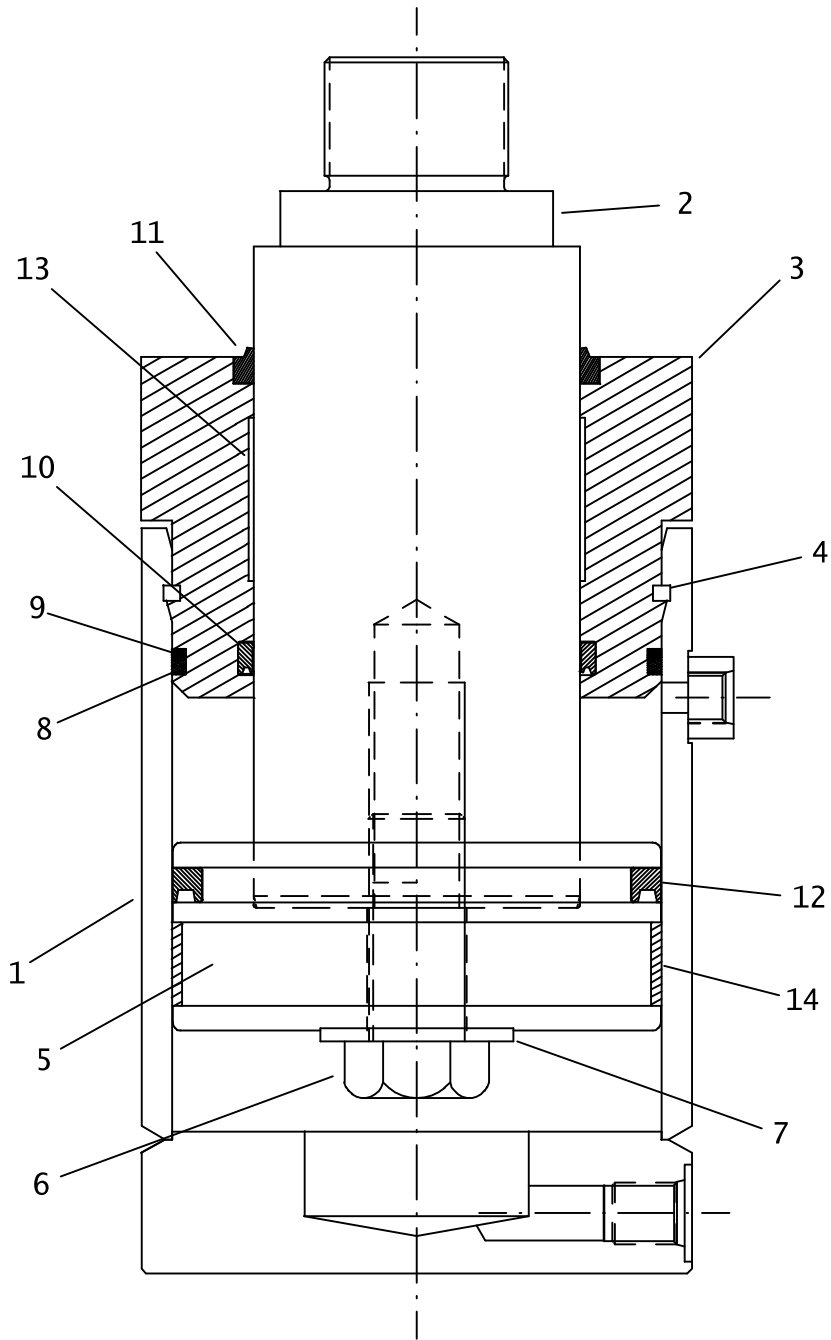
NOT SHOWN:

259-040	U-SEAL INSTALLER (1.500" - UP)
259-238	WIPER INSTALLER (1.75")
259-244	PISTON SEAL INSTALLER (3.50")
259-245	PISTON INSTALLER (3.5")
259-188	CYL HEAD SPANNER - TWO PIN

FOOTNOTES

1-USE LOCTITE 277, TORQUE TO 410-460 FT-LBS (550-625 N.M)

# HYDRAULIC CYLINDER 6" X 4" X 3"



## HYDRAULIC CYLINDER 6" X 4" X 3"

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	151-176		CYL (6.00" X 4.00" X 3.00")	INCL REF NO.'S 1 - 14
	190-774		SEAL REPAIR KIT	INCL REF NO.'S 6, 8 - 14,
1.	152-615	1	BARREL	
2.	150-681	1	CYLINDER ROD	
3.	151-175	1	CYL GLAND	
4.	150-707	1	LOCK RING	
5.	149-319	1	PISTON (6")	
6.	105-1074	1	SCREW (M30-1.50 X 90MM,10.9)	SEE FOOTNOTE # 1
7.	106-780	1	WASHER (M30)	
8.	157-082	1	O-RING (358 D90)	
9.	157-083	1	BACKUP RING (358 D90)	
10.	157-729	1	U-SEAL	
11.	157-648	1	PISTON SEAL (4")	
12.	157-186	1	PISTON SEAL 6.00"	
13.	125-851	1	WEAR RING	
14.	125-850	1	WEAR RING	

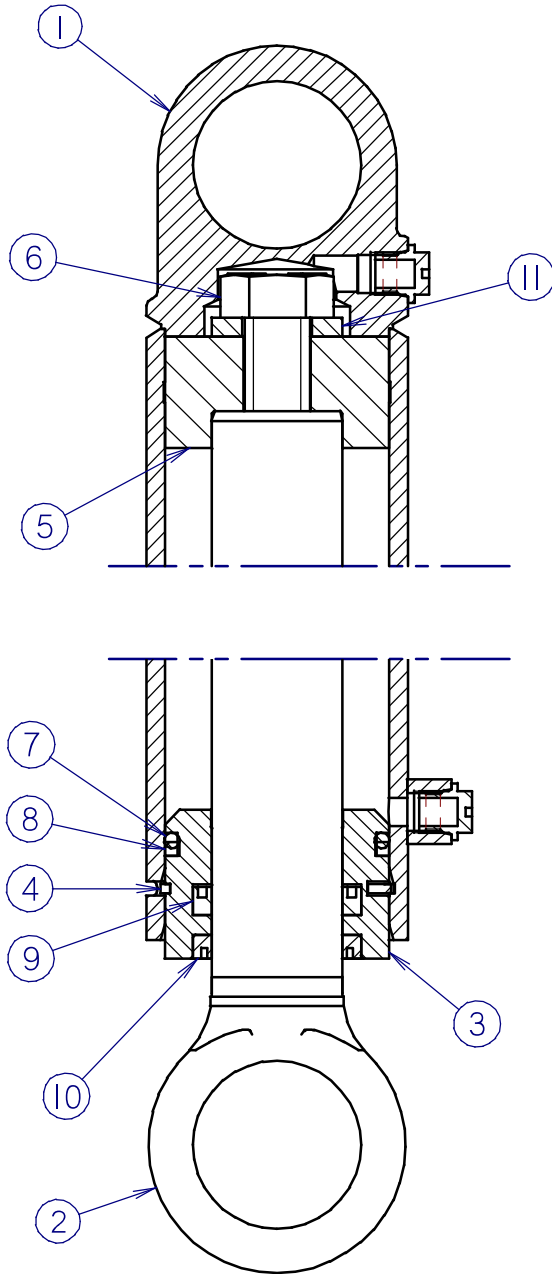
NOT SHOWN:

FOOTNOTES:

I. CLEAN AND DRY THREADS. APPLY RED LOCTITE (RC 271 OR 277). TORQUE TO 1300 FT/LBS.

NOTE:

# HYDRAULIC CYLINDERS (3.0" X 1.75")



## HYDRAULIC CYLINDERS (3.0" X 1.75")

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

### FOOTNOTES

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

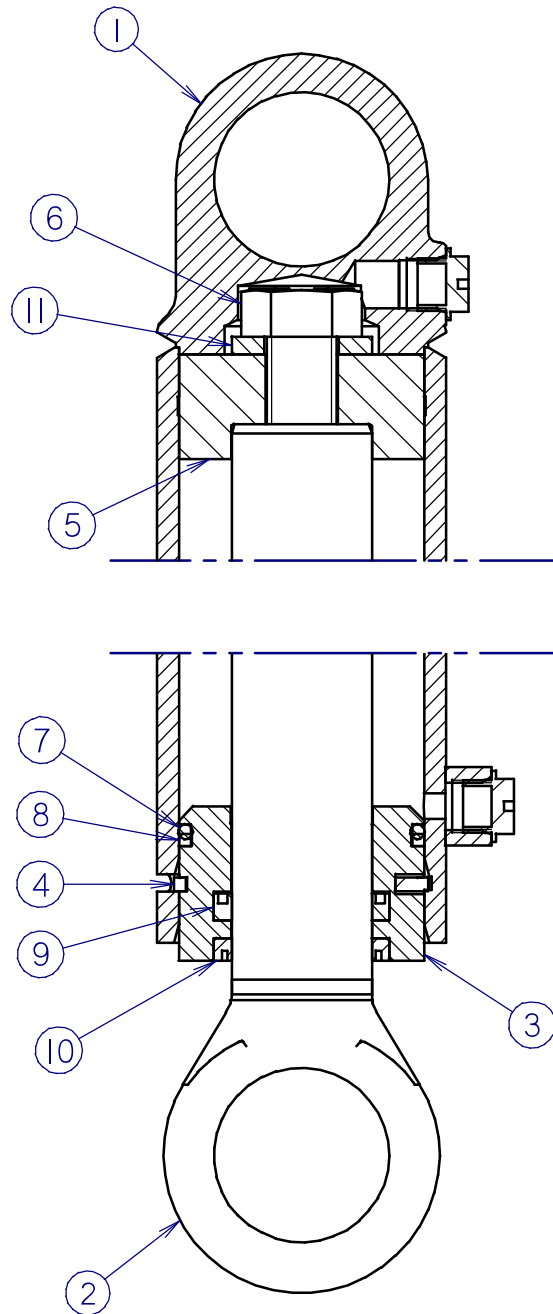
### NOT SHOWN:

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

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809-366

# HYDRAULIC CYLINDERS (3.5" X 2.0")





## HYDRAULIC CYLINDERS (3.5" X 2.0")

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	151-123	-	CYL (3.5 X 2.0 X 4.0)	SEE FOOTNOTES 1 & 2
1	152-037	1	CYLINDER BARREL (3.5 X 4.0)	
2	153-021	1	CYLINDER ROD (2.00 X 4.0)	
	151-178	-	CYL (3.5 X 2.0 X 5.0)	SEE FOOTNOTES 1 & 2
1	150-300	1	CYLINDER BARREL (3.5 X 5.0)	
2	150-440	1	CYLINDER ROD (2.00 X 5.0)	
	149-692	-	CYL (3.5 X 2.0 X 5.0)	SEE FOOTNOTES 1 & 2
1	150-296	1	CYLINDER BARREL (3.5 X 6.0)	
2	149-735	1	CYLINDER ROD (2.00 X 6.0)	
	149-693	-	CYL (3.5 X 2.0 X 8.0)	SEE FOOTNOTES 1 & 2
1	152-006	1	CYLINDER BARREL (3.5 X 8.0)	
2	149-736	1	CYLINDER ROD (2.00 X 8.0)	
	151-116	-	CYL (3.5 X 2.0 X 10.0)	SEE FOOTNOTES 1 & 2
1	152-040	1	CYLINDER BARREL (3.5 X 10.0)	
2	153-016	1	CYLINDER ROD (2.00 X 10.0)	
	151-047	-	CYL (3.5 X 2.0 X 12.0)	SEE FOOTNOTES 1 & 2
1	150-297	1	CYLINDER BARREL (3.5 X 12.0)	
2	150-429	1	CYLINDER ROD (2.00 X 12.0)	
	149-694	-	CYL (3.5 X 2.0 X 16.0)	SEE FOOTNOTE 1 & 2
1	149-737	1	CYLINDER ROD (2.00 X 16.0)	
2	149-805	1	CYLINDER BARREL (3.5 X 16.0)	
	149-695	-	CYL (3.5 X 2.0 X 20.0)	SEE FOOTNOTES 1 & 2
1	149-765	1	CYLINDER BARREL (3.5 X 20.0)	
2	149-738	1	CYLINDER ROD (2.00 X 20.0)	
	149-696	-	CYL (3.5 X 2.0 X 24.0)	SEE FOOTNOTES 1 & 2
1	149-766	1	CYLINDER BARREL (3.5 X 24.0)	
2	149-739	1	CYLINDER ROD (2.00 X 24.0)	
	149-697	-	CYL (3.5 X 2.0 X 30.0)	SEE FOOTNOTES 1 & 2
1	149-767	1	CYLINDER BARREL (3.5 X 30.0)	
2	149-740	1	CYLINDER ROD (2.00 X 30.0)	
3	150-759	1	CYLINDER HEAD (3.5 X 2.00)	
4	149-302	1	LOCK RING (3.5)	
5	150-992	1	CYLINDER PISTON (3.5 X 2.00)	INCL. MOLDED-ON WEAR RING
6	106-145	1	BOLT (I-NC X 2-1/4", GD8)	SEE FOOTNOTE 3
7	157-030	1	O-RING (338 D90)	
8	157-032	1	BACKUP RING (338 D90)	
9	157-559	1	U-SEAL (2.000")	
10	157-558	1	WIPER SEAL (2.000")	
11	106-144	1	WASHER (1")	

### FOOTNOTES

- REF. #1 & #2 ARE SPECIFIC TO EACH CYLINDER, REF. #3 THRU #11 ARE COMMON FOR ALL THE ABOVE LISTED CYLINDERS.
- SEAL REPAIR KIT P/N: 190-175
- APPLY LOCTITE 277 OR EQUIVALENT, TORQUE TO 630-700 FT-LBS

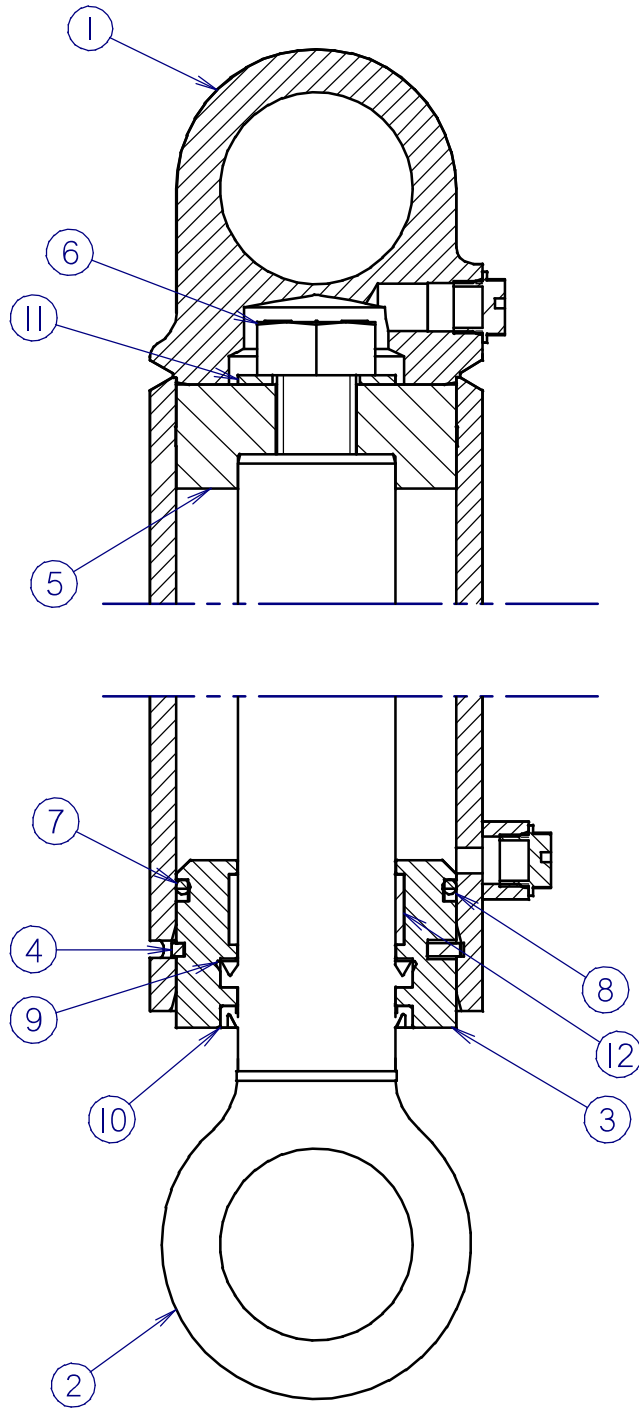
### NOT SHOWN:

- 259-040 U-SEAL INSTALLER (1.5" - UP)
- 259-239 WIPER/SEAL INSTALLER (2")
- 259-244 PISTON SEAL INSTALLER (3.5")
- 259-245 PISTON INSTALLER (3.5")
- 259-188 CYL HEAD SPANNER - TWO PIN

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809-368

# HYDRAULIC CYLINDERS (4.0" X 2.25")



## HYDRAULIC CYLINDERS (4.0" X 2.25")

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	149-705	-	CYL (4.0 X 2.25 X 4.0)	SEE FOOTNOTES 1 & 2
1	149-768	1	CYLINDER BARREL (4.0 X 4.0)	
2	149-741	1	CYLINDER ROD (2.25 X 4.0)	
	151-132	-	CYL (4.0 X 2.25 X 5.0)	SEE FOOTNOTES 1 & 2
1	152-012	1	CYLINDER BARREL (4.0 X 5.0)	
2	153-023	1	CYLINDER ROD (2.25 X 5.0)	
	151-158	-	CYL (4.0 X 2.25 X 6.0)	SEE FOOTNOTES 1 & 2
1	152-062	1	CYLINDER BARREL (4.0 X 6.0)	
2	153-036	1	CYLINDER ROD (2.25 X 6.0)	
	151-095	-	CYL (4.0 X 2.25 X 8.0)	SEE FOOTNOTES 1 & 2
1	152-030	1	CYLINDER BARREL (4.0 X 8.0)	
2	153-008	1	CYLINDER ROD (2.25 X 8.0)	
	149-706	-	CYL (4.0 X 2.25 X 10.0)	SEE FOOTNOTES 1 & 2
1	149-769	1	CYLINDER BARREL (4.0 X 10.0)	
2	149-742	1	CYLINDER ROD (2.25 X 10.0)	
	151-048	-	CYL (4.0 X 2.25 X 12.0)	SEE FOOTNOTES 1 & 2
1	150-298	1	CYLINDER BARREL (4.0 X 12.0)	
2	150-430	1	CYLINDER ROD (2.25 X 12.0)	
	151-059	-	CYL (4.0 X 2.25 X 16.0)	SEE FOOTNOTES 1 & 2
1	152-007	1	CYLINDER BARREL (4.0 X 16.0)	
2	150-470	1	CYLINDER ROD (2.25 X 16.0)	
	149-707	-	CYL (4.0 X 2.25 X 20.0)	SEE FOOTNOTES 1 & 2
1	149-770	1	CYLINDER BARREL (4.0 X 20.0)	
2	149-801	1	CYLINDER ROD (2.25 X 20.0)	
	151-162	-	CYL (4.0 X 2.25 X 24.0)	SEE FOOTNOTES 1 & 2
1	152-063	1	CYLINDER BARREL (4.0 X 24.0)	
2	153-037	1	CYLINDER ROD (2.25 X 24.0)	
	149-708	-	CYL (4.0 X 2.25 X 30.0)	SEE FOOTNOTES 1 & 2
1	149-771	1	CYLINDER BARREL (4.0 X 30.0)	
2	149-743	1	CYLINDER ROD (2.25 X 30.0)	
	149-709	-	CYL (4.0 X 2.25 X 30.0)	SEE FOOTNOTES 1 & 2
1	149-772	1	CYLINDER BARREL (4.0 X 36.0)	
2	149-744	1	CYLINDER ROD (2.25 X 36.0)	
3	150-757	1	CYLINDER HEAD (4.0 X 2.25)	
4	149-303	1	LOCK RING (4.0)	
5	150-993	1	CYLINDER PISTON (4.0 X 2.25)	
6	106-146	1	BOLT (1-1/8-NC X 2-1/2", GD8)	SEE FOOTNOTE 3
7	157-035	1	O-RING (342 D90)	
8	157-036	1	BACKUP RING (342 D90)	
9	157-526	1	U-SEAL (2.250")	
10	157-527	1	WIPER SEAL (2.250")	
11	106-147	1	WASHER (1-1/8")	
12	149-318	1	WEAR RING	

### FOOTNOTES

- REF. #1 & #2 ARE SPECIFIC TO EACH CYLINDER, REF. #3 THRU #12 ARE COMMON FOR ALL THE ABOVE LISTED CYLINDERS.
- SEAL REPAIR KIT P/N: 190-177
- APPLY LOCTITE 277 OR EQUIVALENT, TORQUE TO 770-850 FT-LBS

### NOT SHOWN:

- 259-040 U-SEAL INSTALLER (1.5" - UP)
- 259-240 WIPER/SEAL INSTALLER (2.25")
- 259-246 PISTON SEAL INSTALLER (4")
- 259-247 PISTON INSTALLER (4")
- 259-188 CYL HEAD SPANNER - TWO PIN

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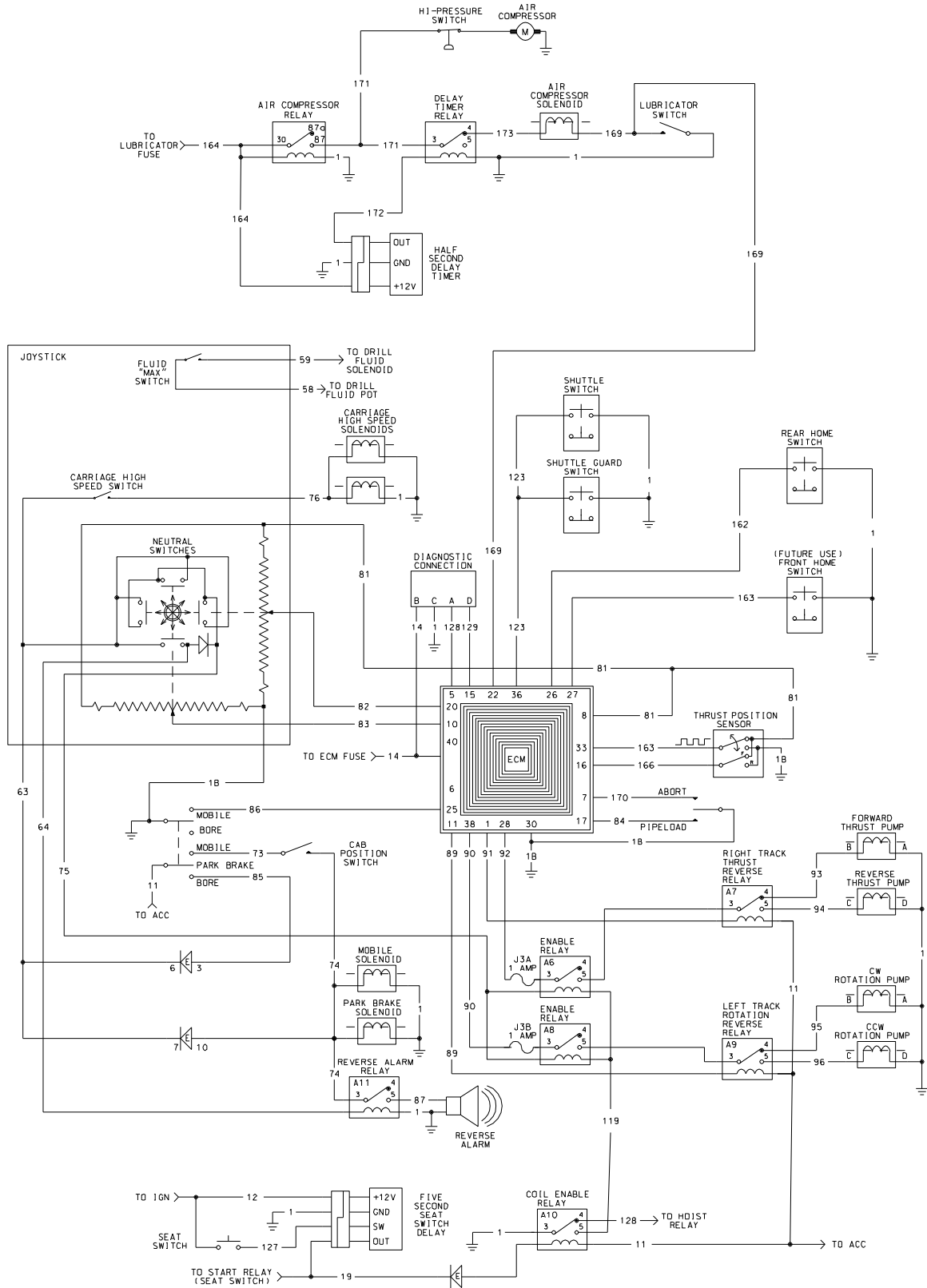
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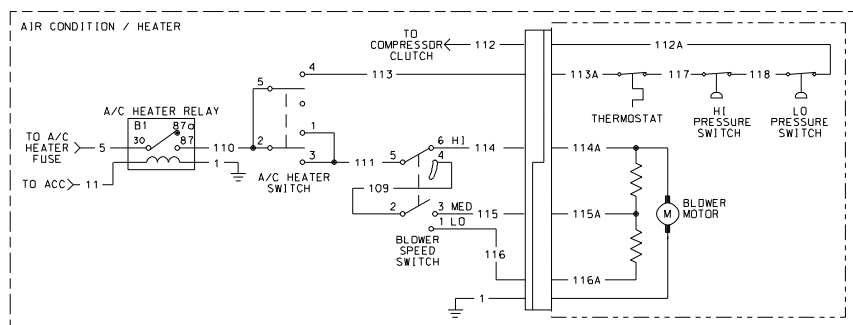
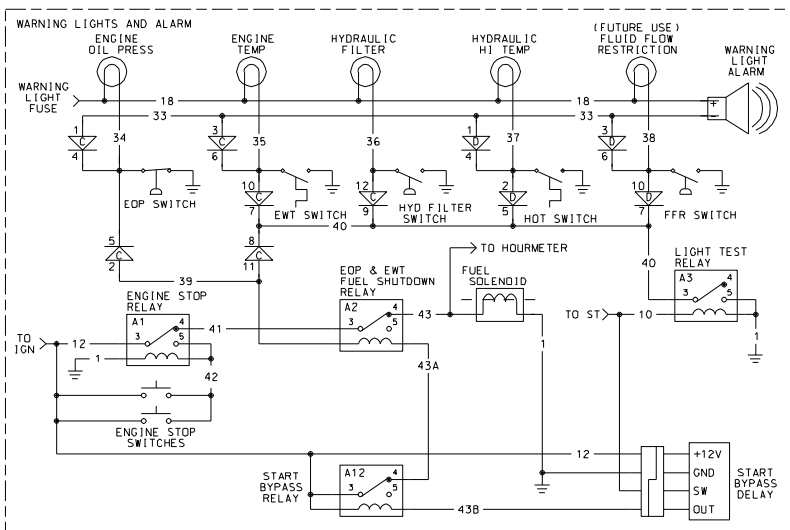
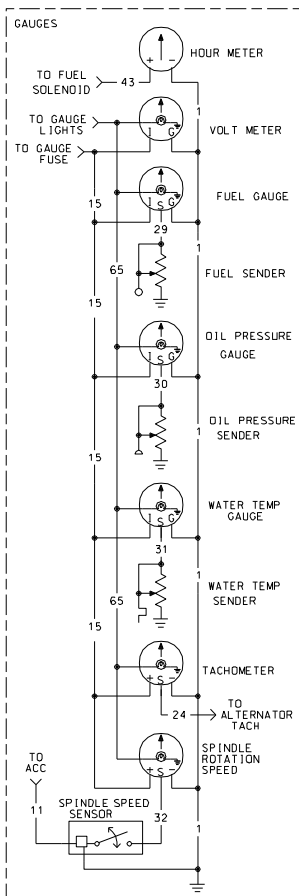
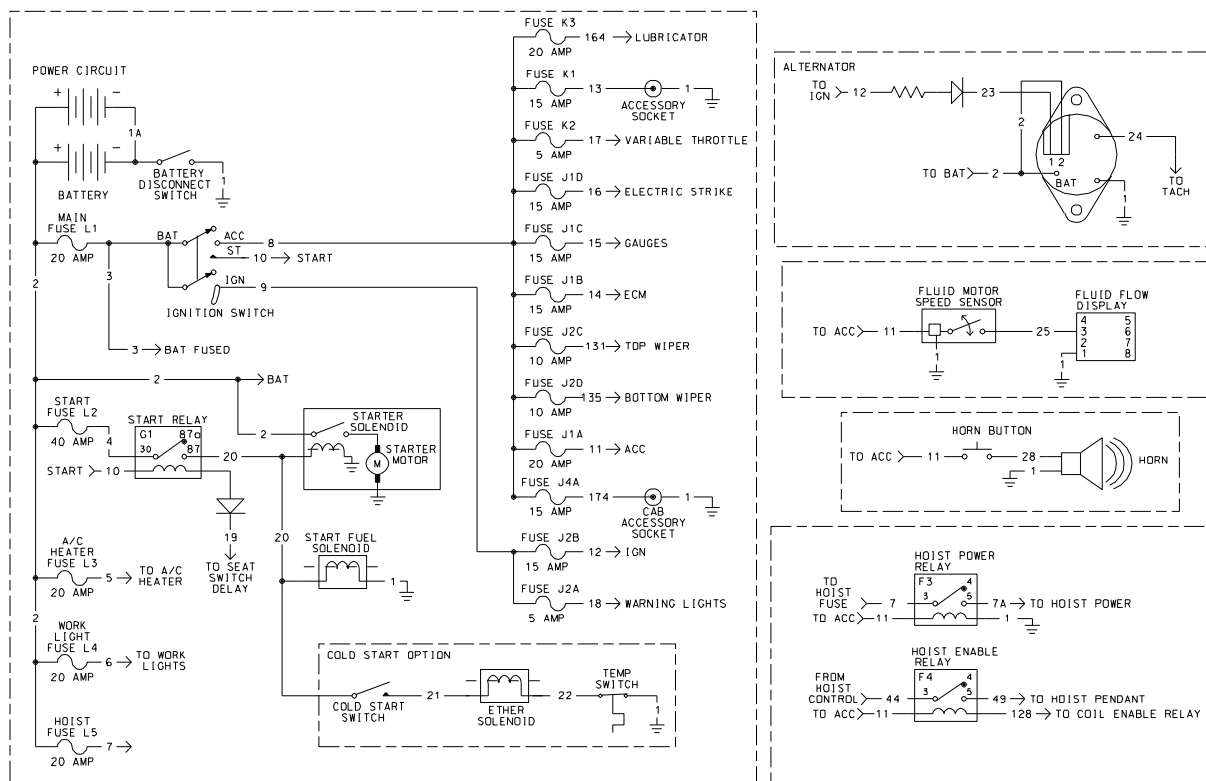
# **ELECTRICAL**

# ELECTRICAL SCHEMATIC

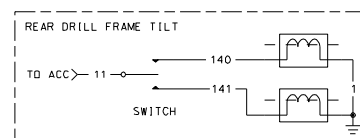
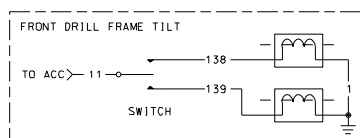
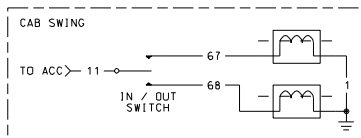
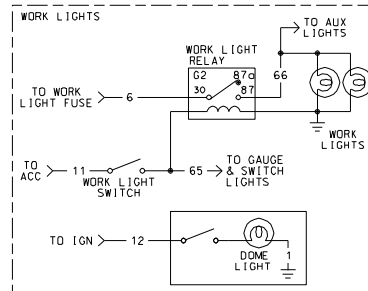
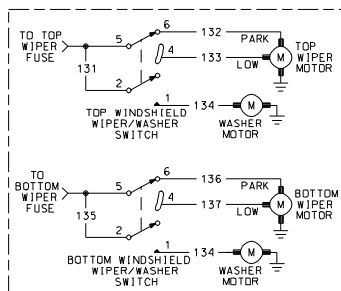
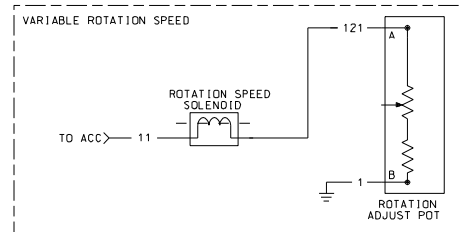
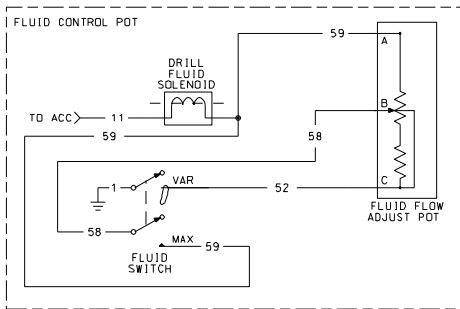
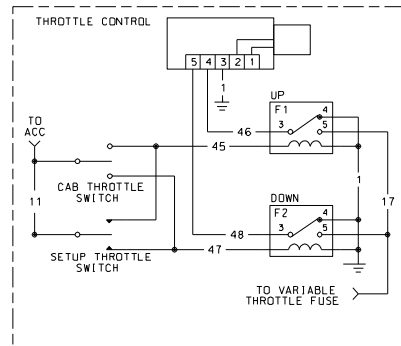
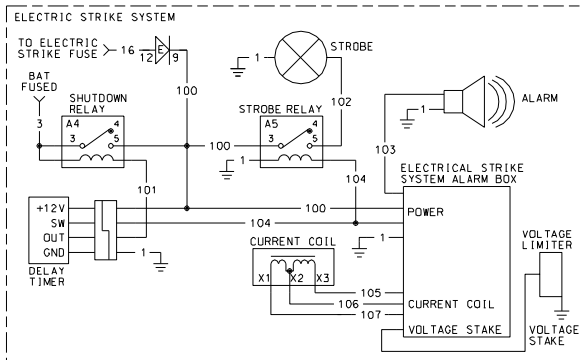
## JT7020



# ELECTRICAL SCHEMATIC JT7020



# ELECTRICAL SCHEMATIC JT7020





# ELECTRICAL SCHEMATIC

## JT7020

CKT NO.	WIRE COLOR	FUNCTION	REMARKS
1.	BLK	SYSTEM GROUND	
1A.	BLK	BATTERY NEGATIVE TO BATTERY DISCONNECT SWITCH	
1B.	BLK/GRN	ELECTRONIC CONTROL MODULE GROUND	
2.	RED	BATTERY POSITIVE TO FUSE BLOCK	
3.	RED	FUSED BATTERY POWER	
4.	RED/BLK	START FUSE TO START RELAY	
5.	GRA	A/C HEATER FUSE TO RELAY	
6.	BLU	WORK LIGHT FUSE TO RELAY	
7.	BRN	HOIST FUSE TO HOIST	
7A.	BLU	HOIST POWER RELAY TO HOIST	
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.	ORG/WHT	ELECTRONIC CONTROL MODULE (ECM) CIRCUIT	
15.	ORG/BRN	GAUGE CIRCUIT	
16.	RED/YEL	ELECTRIC STRIKE CIRCUIT	
17.	RED/ORG	VARIABLE THROTTLE CIRCUIT	
18.	GRA/ORG	WARNING LIGHT CIRCUIT	
19.	WHT/RED	START RELAY TO SEAT SWITCH DIODE	
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.	YEL	ALTERNATOR CONNECTOR SPLICE TO TACHOMETER	
25.	TAN/BLU	FLUID MOTOR SPEED SENSOR TO FLUID FLOW DISPLAY & UMB CONN	
26.	GRN/BLU	PIPE COUNTER SWITCH TO PIPE COUNTER DISPLAY (PIPE INCREMENT)	
27.	WHT/BLU	PIPE COUNTER SWITCH TO PIPE COUNTER DISPLAY (PIPE DECREMENT)	
28.	TAN/BLU	HORN BUTTON TO HORN	
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 LIGHT & DIODES	
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.	TAN/BLK	FLUID FLOW RESTRICTION SWITCH TO LIGHT & DIODES	
39.	GRA	EOP & EWT FUEL SHUTDOWN RELAY TO DIODES	
40.	BLK/ORG	LIGHT TEST RELAY TO DIODES	
41.	BLU	ENGINE STOP RELAY TO EOP & EWT FUEL SHUTDOWN RELAY	
42.	YEL/RED	ENGINE STOP SWITCH TO ENGINE STOP RELAY & UMB CONN	
43.	ORG/BLK	EOP & EWT FUEL SHUTDOWN RELAY TO FUEL SOLENOID AND HOUR METER	
43A.	BLU	EOP & EWT FUEL SHUTDOWN RELAY TO START BYPASS RELAY	
44.	TAN	HOIST CONTROL TO HOIST ENABLE RELAY	
45.	PUR/ORG	THROTTLE SWITCH UP TO UP RELAY	
46.	WHT/ORG	UP RELAY TO VARIABLE LINEAR ACTUATOR	
47.	BLU/ORG	THROTTLE SWITCH DOWN TO DOWN RELAY	
48.	GRN/ORG	DOWN RELAY TO VARIABLE LINEAR ACTUATOR	
49.	GRA	HOIST ENABLE RELAY TO HOIST PENDANT	
50.	BLU	FLUID FLOW ADJUST POT TO 5 VOLT RELAY	
51.	GRN	FLUID FLOW ADJUST POT TO FLUID SHUTOFF RELAY	
52.	BLK/YEL	FLUID FLOW ADJUST POT TO FLUID SWITCH	
53.			

# ELECTRICAL SCHEMATIC

## JT7020

CKT NO.	WIRE COLOR	FUNCTION	REMARKS
54.			
55.			
56.			
57.			
58.	GRN/BLK	DRILL FLUID CONTROL POT TO FLUID "MAX" SWITCHES	
59.	BLK/WHT	DRILL FLUID CONTROLLER TO FLUID MAX RELAY & DRILL FLUID SOLENOID	
60.			
61.			
62.			
63.	YEL/BLU	DIODES TO JOYSTICK NEUTRAL SWITCHES	
64.	GRA/GRN	BACKUP RELAY TO JOYSTICK REVERSE SWITCH	
65.	TAN/RED	WORK LIGHT SWITCH TO RELAY & GAUGE LIGHTS	
66.	YEL	WORK LIGHT RELAY TO WORK LIGHTS & AUX LIGHT CONNECTION	
67.	YEL/BLK	CAB SWING IN/OUT SWITCH TO IN SOLENOID	
68.	PUR/BLK	CAB SWING IN/OUT SWITCH TO OUT SOLENOID	
69.	TAN/RED	PIPE SUPPORT UP/DOWN SWITCH TO UP SOLENOID	
70.	PUR/RED	PIPE SUPPORT UP/DOWN SWITCH TO DOWN SOLENOID	
71.	GRA/YEL	ROW SELECT IN/OUT SWITCH TO IN SOLENOID	
72.	BRN/YEL	ROW SELECT IN/OUT SWITCH TO OUT SOLENOID	
73.	YEL/BLK	MOBILE/BORE SWITCH TO CONTROLLER, CAB SW, MOBILE & PARK BRAKE SOL	
74.	YEL/GRN	CAB POSITION SWITCH TO DIODE	
75.	WHT/BRN	JOYSTICK NEUTRAL SWITCHES TO COIL ENABLE RELAY	
76.	PUR	HIGH THRUST SPEED SWITCH TO SOLENOID	
77.	WHT/YEL	SOLENOID TO THRUST SPEED SWITCH	
78.	BLU/BRN	ROTATION PRESSURE TRANSDUCER TO JOYSTICK CONTROLLER	
79.	YEL/BRN	THRUST PRESSURE TRANSDUCER TO JOYSTICK CONTROLLER	
80.			
81.	BLU/GRN	5 VOLT OUTPUT FROM JOYSTICK CONTROLLER	
82.	YEL/GRN	JOYSTICK Y-AXIS OUTPUT TO JOYSTICK CONTROLLER	
83.	TAN/GRN	JOYSTICK X-AXIS OUTPUT TO JOYSTICK CONTROLLER	
84.	BLU/ORG	AUTOBORE SWITCH TO JOYSTICK CONTROLLER	
85.	GRA/RED	MOBILE/BORE SWITCH TO COIL ENABLE RELAY	
86.	PUR/BLK	MOBILE/BORE SWITCH TO JOYSTICK CONTROLLER	
87.	BLU/RED	BACKUP RELAY TO BACKUP ALARM	
88.	BLK/BLU	BACKUP RELAY TO DIODES	
89.	WHT/BLU	CONTROLLER OUTPUT TO PUMP #2 RELAY	
90.	GRA/YEL	CONTROLLER OUTPUT TO PUMP #2 RELAY	
91.	WHT/GRN	CONTROLLER OUTPUT TO PUMP #1 RELAY	
92.	GRA/ORG	CONTROLLER OUTPUT TO PUMP #1 RELAY	
93.	BRN/ORG	PUMP #1 RELAY TO COIL A	
94.	PUR/ORG	PUMP #1 RELAY TO COIL B	
95.	BRN/YEL	PUMP #2 RELAY TO COIL A	
96.	PUR/YEL	PUMP #2 RELAY TO COIL B	
97.	RED/WHT	12 VOLT SUPPLY, COIL ENABLE RELAY TO PUMP COILS	
98.	GRA/BLK	COIL ENABLE RELAY TO DIODE	
99.	YEL/RED	DIODES TO SEAT SWITCH	
100.	ORG/RED	DIODE CATHODE TO DELAY TIMER & ELECTRIC STRIKE SYSTEM	
101.	TAN/BLK	DELAY TIMER TO SHUTDOWN RELAY	
102.	WHT/YEL	STROBE RELAY TO STROBE	
103.	BRN	ELECTRIC STRIKE BOX TO LOCAL ALARM	
104.	WHT/PUR		
105.	RED	ELECTRIC STRIKE BOX TO CURRENT COIL X3	
106.	BLK	ELECTRIC STRIKE BOX TO CURRENT COIL X2	
107.	WHT	ELECTRIC STRIKE BOX TO CURRENT COIL X1	
108.			
109.	WHT	JUMPER ON BLOWER SPEED SWITCH	
110.	BLU/BLK	A/C HEATER RELAY TO A/C HEATER SWITCH	

# ELECTRICAL SCHEMATIC

## JT7020

CKT NO.	WIRE COLOR	FUNCTION	REMARKS
111.	GRN/BLK	A/C HEATER SWITCH TO BLOWER SPEED SWITCH	
112.	A/C	- HEATER UNIT CONNECTION TO COMPRESSOR CLUTCH	
112A.	LT GRN	LO PRESSURE SWITCH TO A/C - HEATER CONNECTION	
113.	GRA/GRN	A/C HEATER SWITCH TO A/C - HEATER UNIT CONNECTION	
113A.	DK GRN	A/C HEATER UNIT CONNECTION TO THERMOSTAT	
114.	WHT/ORG	BLOWER SPEED SWITCH TO UNIT CONNECTION	
114A.	ORG	UNIT CONNECTION TO BLOWER SPEED MOTOR "HI"	
115.	WHT/PUR	BLOWER SPEED SWITCH TO UNIT CONNECTION	
115A.	LT BLU	UNIT CONNECTION TO "MED" RESISTOR	
116.	WHT/YEL	BLOWER SPEED SWITCH TO UNIT CONNECTION	
116A.	YEL	UNIT CONNECTION TO RESISTOR "LOW"	
117.	- - -	A/C HEATER THERMOSTAT TO HI PRESSURE SWITCH	
118.	- - -	A/C HEATER HI PRESSURE SWITCH TO LO PRESSURE SWITCH	
119.	GRA/BLU	COIL ENABLE RELAY TO LEFT TRACK AND RIGHT TRACK REVERSE RELAYS	
120.	BLU/YEL	ROTATION ADJUST POT TO VARIABLE SPEED CONTROLLER	
121.	PUR/GRN	ROTATION ADJUST POT TO VARIABLE SPEED CONTROLLER	
122.	BLK/GRN	VARIABLE SPEED CONTROLLER TO ROTATION SPEED SOLENOID	
123.	WHT/RED	MICROPROCESSOR TO SHUTTLE SWITCH AND SHUTTLE GUARD SWITCH	
124.			
125.	GRA/WHT	NO THRUST RELAY TO FORWARD THRUST PUMP	
126.	PNK/WHT	JOYSTICK CONTROLLER TO TEST PORT	
127.	BLU/YEL	SEAT SWITCH TO HALF SECOND DELAY	
128.	PNK/BLU	JOYSTICK CONTROLLER TO TEST PORT	
129.	GRA/RED	JOYSTICK CONTROLLER TO RIGHT TRACK SPEED PICKUP	
130.	GRN/RED	JOYSTICK CONTROLLER TO LEFT TRACK SPEED PICKUP	
131.	GRA/RED	TOP WIPER FUSE TO SWITCH	
132.	GRA/BLU	TOP WIPER SWITCH TO "PARK" ON TOP WIPER MOTOR	
133.	GRA/GRN	TOP WIPER SWITCH TO "LOW" ON TOP WIPER MOTOR	
134.	GRA/ORG	TOP AND BOTTOM WIPER SWITCHES TO WINDSHIELD WASHER MOTOR	
135.	PUR/ORG	BOTTOM WIPER FUSE TO SWITCH	
136.	PUR/YEL	BOTTOM WIPER SWITCH TO "PARK" ON BOTTOM WIPER MOTOR	
137.	PUR/GRN	BOTTOM WIPER SWITCH TO "LOW" ON BOTTOM WIPER MOTOR	
138.	GRA/BLU	FRONT DRILL FRAME TILT SWITCH TO UP SOLENOID	
139.	GRA/BLK	FRONT DRILL FRAME TILT SWITCH TO DOWN SOLENOID	
140.	WHT/BLU	REAR DRILL FRAME TILT SWITCH TO UP SOLENOID	
141.	WHT/BLK	REAR DRILL FRAME TILT SWITCH TO DOWN SOLENOID	
142.	BRN	MICROPROCESSOR TO PIPE LIFT REVERSING RELAY	
143.	GRA	MICROPROCESSOR TO PIPE GRIP REVERSING RELAY	
144.	WHT	MICROPROCESSOR TO ROW SELECT REVERSING RELAY	
145.	GRN/ORG	MICROPROCESSOR TO PIPE SHUTTLE REVERSING RELAY	
146.	WHT/ORG	MICROPROCESSOR TO REAR WRENCH ROTATE REVERSING RELAY	
147.	PUR/GRN	MICROPROCESSOR TO REAR WRENCH REVERSING RELAY	
148.	GRA/BLK	MICROPROCESSOR TO FRONT WRENCH REVERSING RELAY	
149.	BLU	MICROPROCESSOR TO PIPE HANDLING REVERSING RELAYS	
150.	BLU/BRN	REAR WRENCH ROTATE SWITCH TO CCW SOLENOID	
151.	BLU/RED	REAR WRENCH ROTATE SWITCH TO CW SOLENOID	
152.	PUR/YEL	REAR WRENCH SWITCH TO GRIP SOLENOID	
153.	PUR/BLK	REAR WRENCH SWITCH TO UNGRIP SOLENOID	
154.	WHT/GRN	FRONT WRENCH SWITCH TO GRIP SOLENOID	
155.	RED/WHT	FRONT WRENCH SWITCH TO UNGRIP SOLENOID	
156.	GRA/YEL	ROW SELECT SWITCH TO IN SOLENOID	
157.	BRN/YEL	ROW SELECT SWITCH TO OUT SOLENOID	
158.	TAN/GRN	PIPE SHUTTLE SWITCH TO IN SOLENOID	
159.		PIPE SHUTTLE SWITCH TO OUT SOLENOID	
160.	YEL/BLU	PIPE GRIP SWITCH TO GRIP SOLENOID	
161.	YEL/RED	PIPE GRIP SWITCH TO UNGRIP SOLENOID	
162.	GRA/WHT	MICROPROCESSOR TO REAR HOME SWITCH	

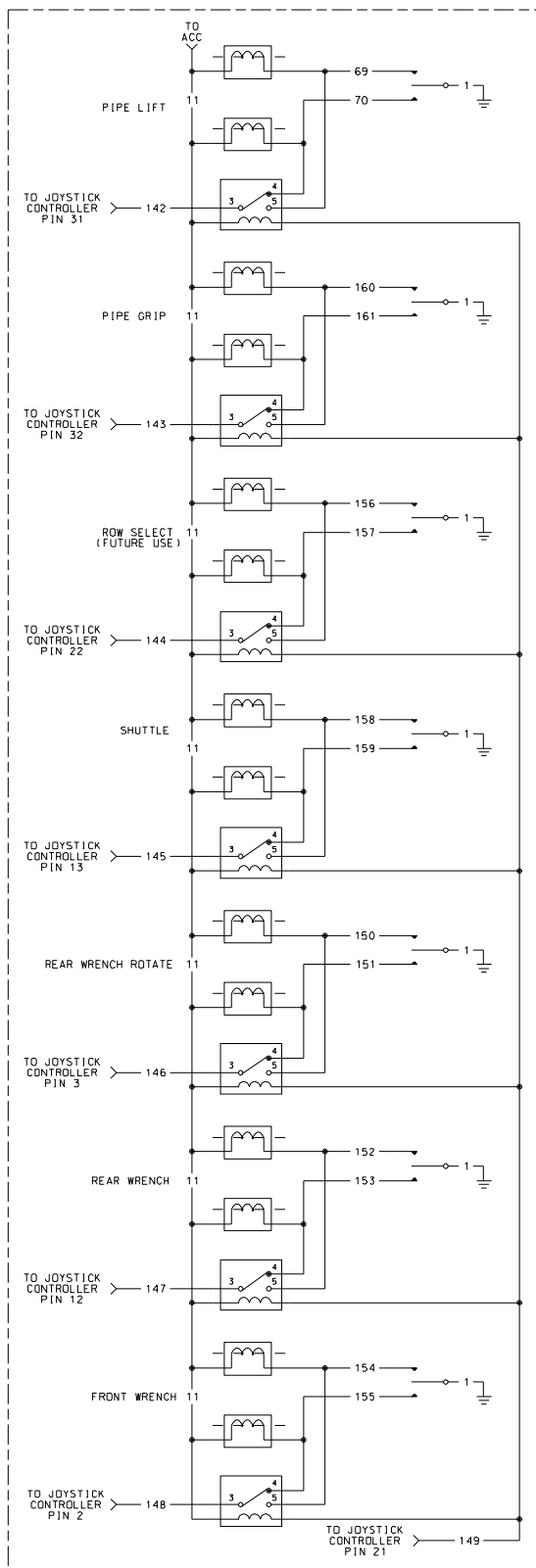
# ELECTRICAL SCHEMATIC

## JT7020

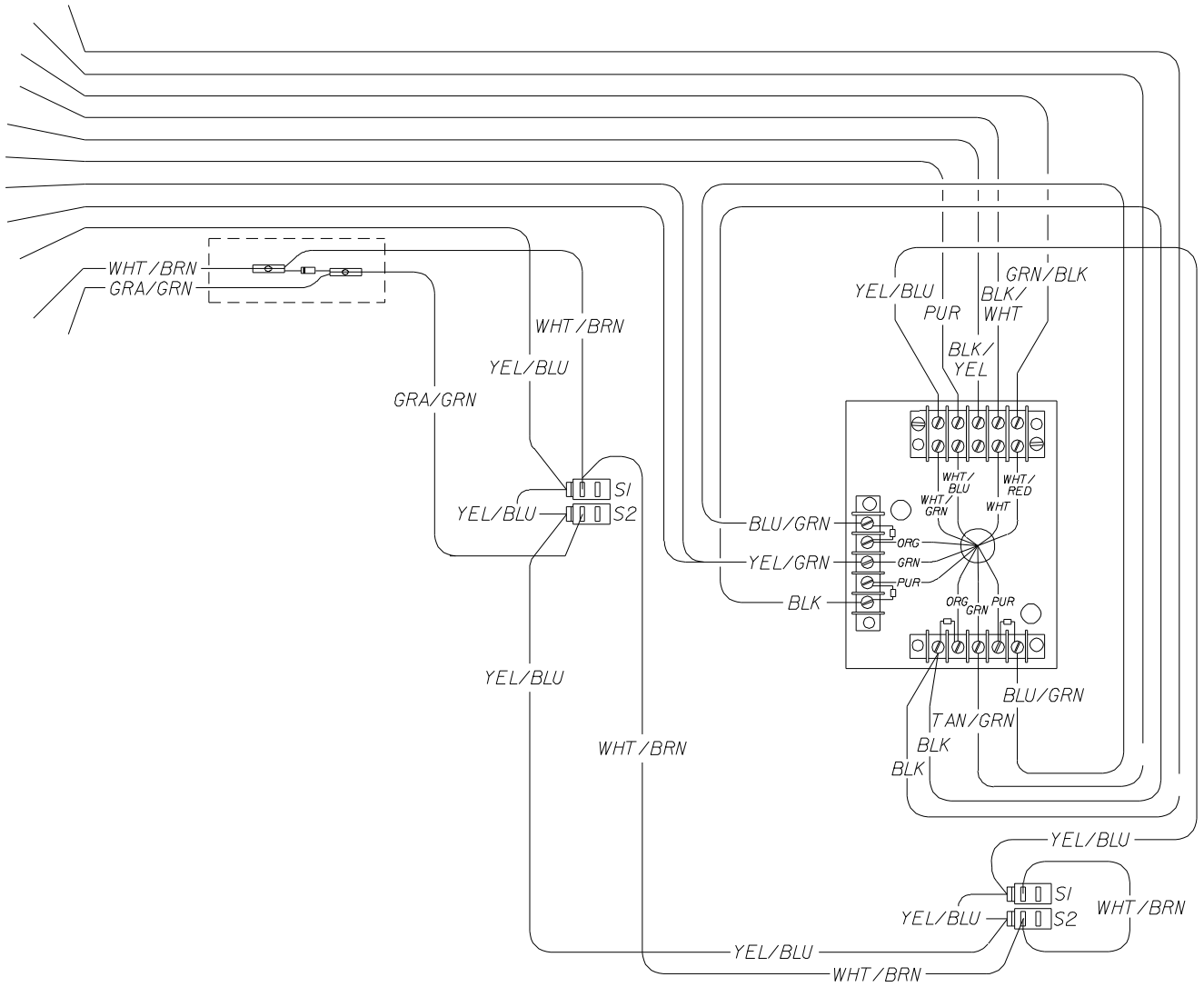
CKT NO.	WIRE COLOR	FUNCTION	REMARKS
163.	GRA/GRN	MICROPROCESSOR TO FRONT HOME SWITCH	
164.	RED/GRN	LUBRICATOR FUSE TO RELAY	
165.	TAN/BLU	THRUST PULSE TO ECM	
166.	TAN	THRUST DIRECTION TO ECM	
167.	PUR/ORG	ROTATION DIRECTION TO ECM (FUTURE USE)	
168.	PUR/RED	AUX X-DUCER TO ECM (FUTURE USE)	
169.	GRA/BRN	LUBRICATOR SOLENOID TO	
170.	YEL/BRN	ABORT SWITCH TO ECM	
171.	GRN/RED	LUBRICATOR RELAY TO AIR COMPRESSOR	
172.	WHT/BLU	AIR COMP RELAY TO DELAY TIMER	
173.	ORG/BLK	AIR COMP RELAY TO AIR COMP SOLENOID	
174.	ORG/YEL	FUSE TO CAB ACCESSORY SOCKET	

# ELECTRICAL SCHEMATIC

## JT7020

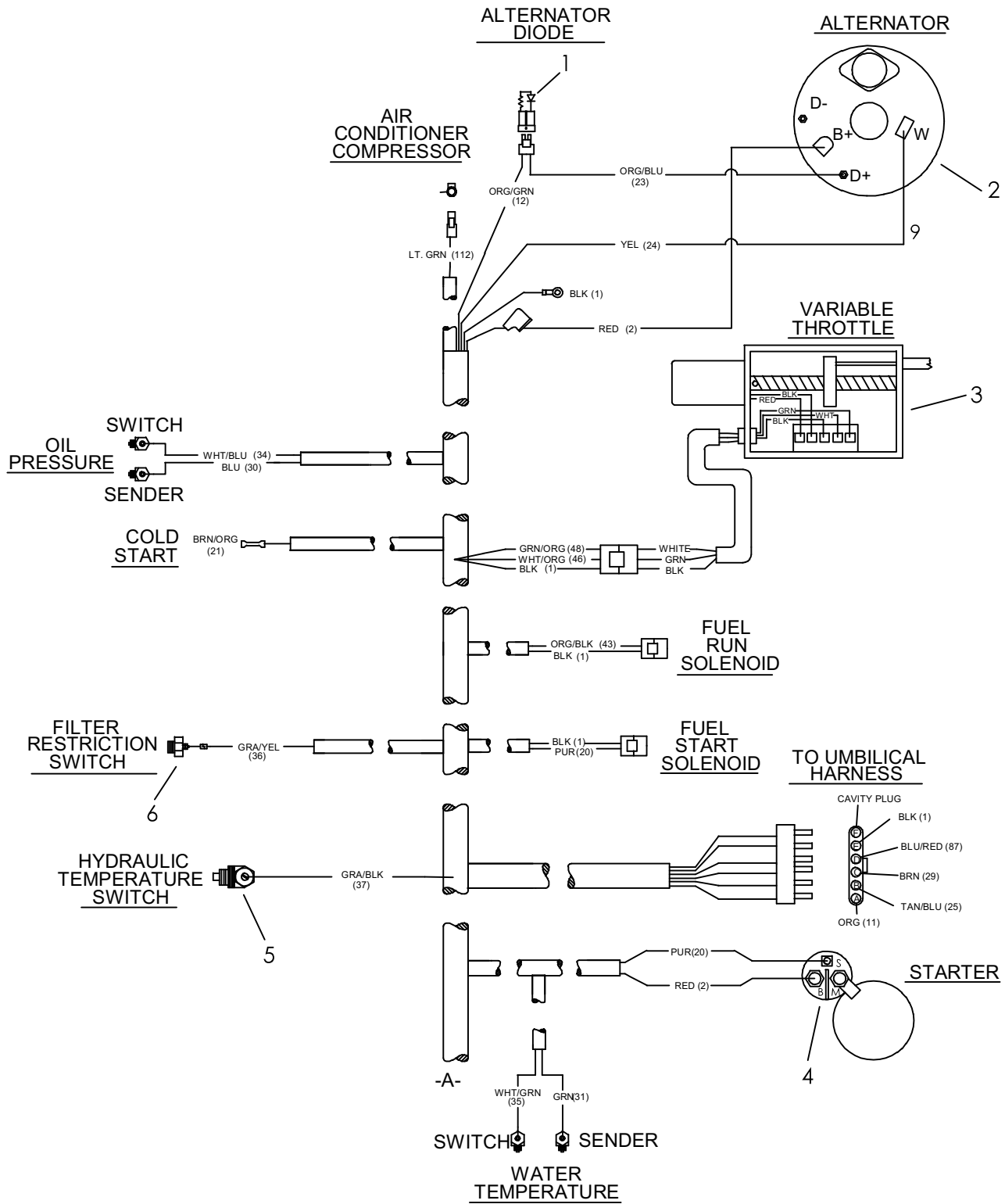


# ELECTRICAL SCHEMATIC JOYSTICK





# FRAME/ENGINE HARNESS







## FRAME/ENGINE HARNESS

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	214-256	1	DIODE CONNECTOR	
2.	217-452	1	ALTERNATOR (JT7020)	
3.	215-231	1	LINEAR ACTUATOR	
	214-299	1	ACTUATOR PIGTAIL	
	196-331	1	CABLE (LINEAR ACTUATOR)	
	501-358	-	ROLL PIN (3/32" X 3/4")	
4.	194-833	1	STARTER, ENGINE	
5.	214-819	1	TEMPERATURE SWITCH	
6.	N/A	1	FILTER RESTRICTION SWITCH	
7.	215-412	1	LICENSE PLATE LAMP	
8.	217-724	1	BUTTON SWITCH (SPST)	
	214-943	1	BUTTON SWITCH (SPST)	
9.	217-228	1	ROCKER SW (DPDT) {ON}-OFF-(ON)	
	217-921	1	ROCKER SW (SPDT) (ON)-OFF-(ON)	
10.	214-334	1	FRAME/ENGINE HARNESS	

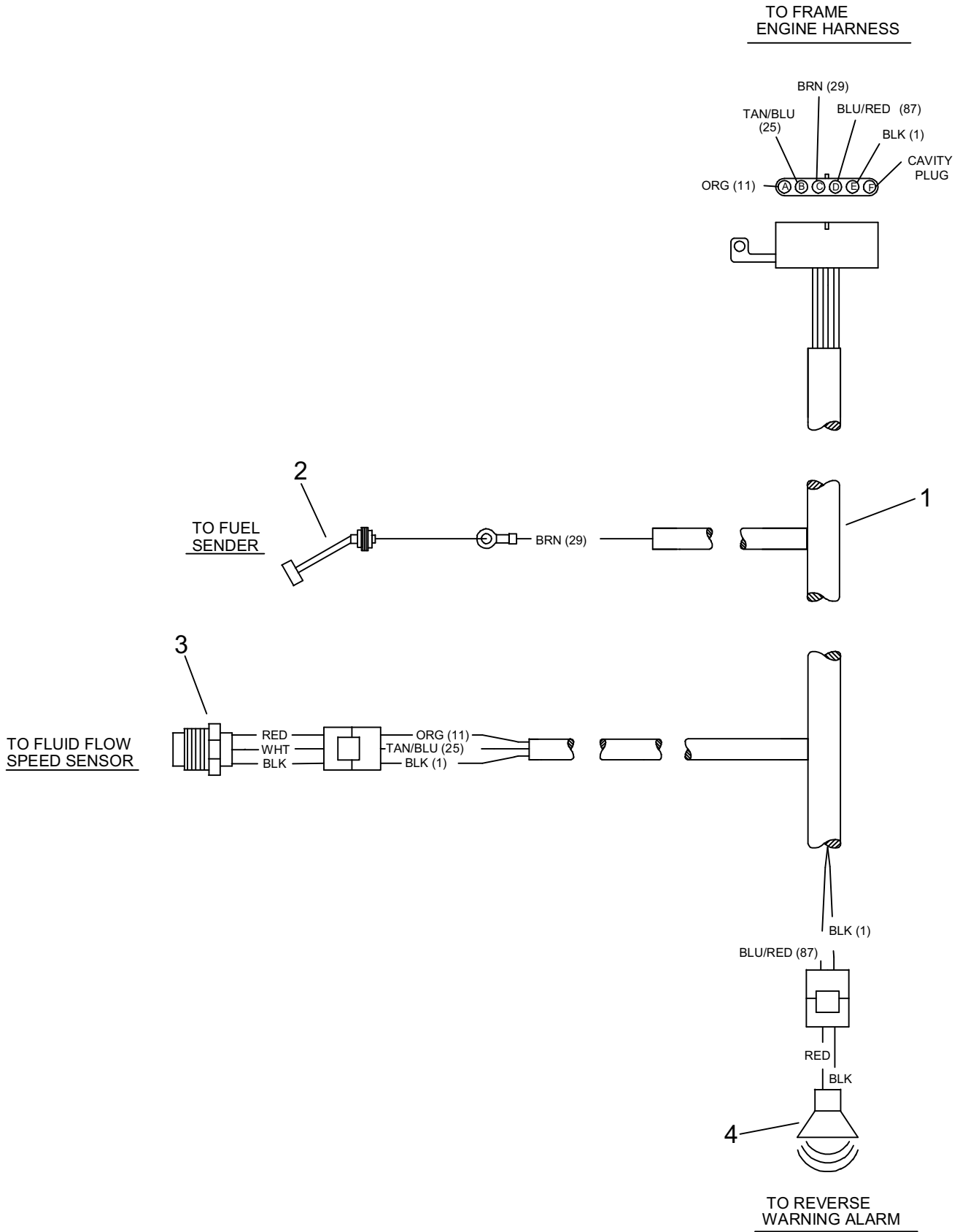
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FOOTNOTES:

NOTE:



# UMBILICAL HARNESS



## UMBILICAL HARNESS

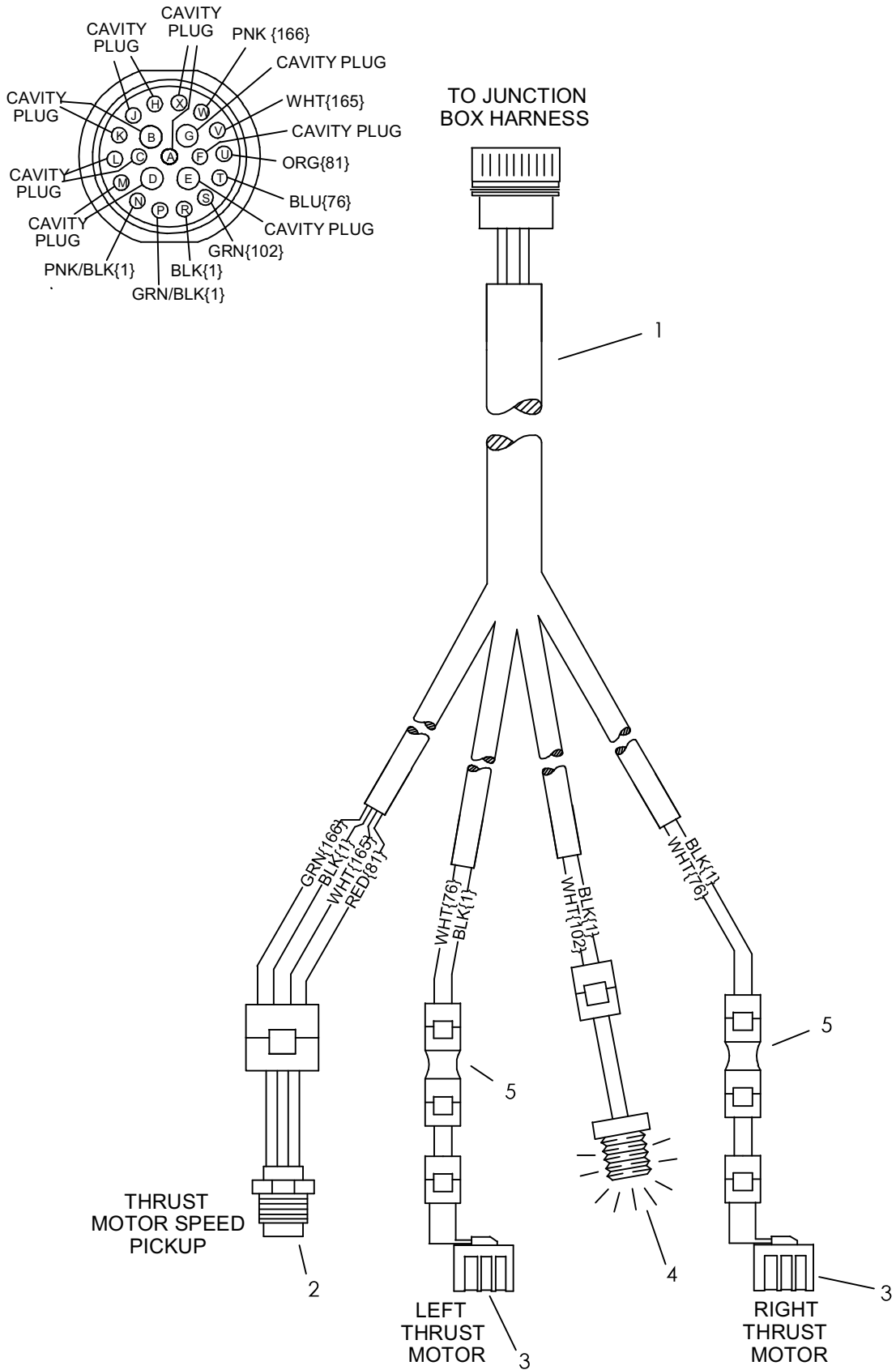
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	214-335	1	UMBILICAL HARNESS	
2.	217-564	1	FUEL SENDER	
3.	216-047	1	SPEED PICK-UP	
4.	306-602	1	BACKUP ALARM	

NOT SHOWN:

FOOTNOTES:

NOTE:

# CARRIAGE HARNESS



## CARRIAGE HARNESS

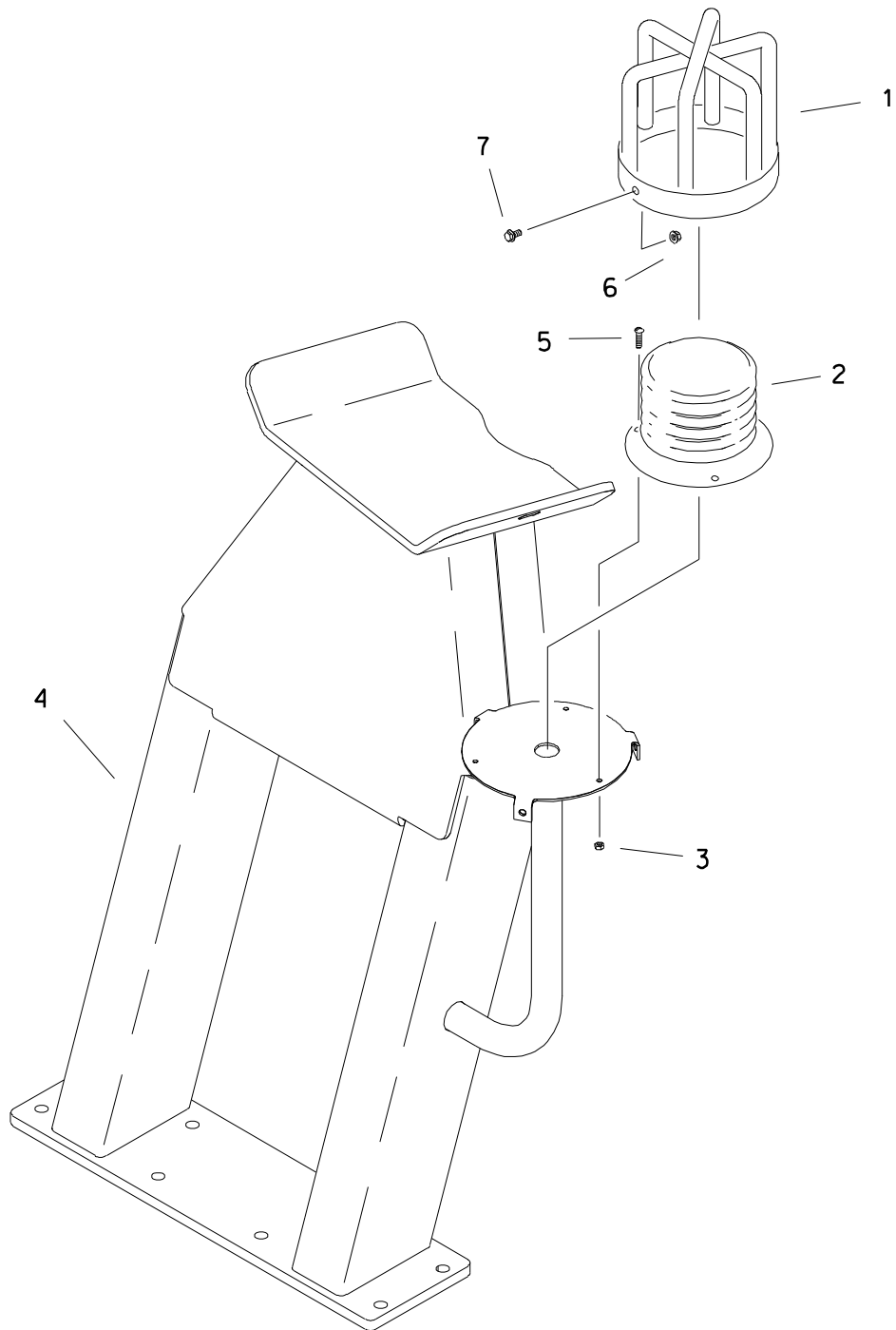
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	214-336	1	CARRIAGE CABLE	
2.	216-049	1	SPEED PICK-UP	
3.	217-408	2	SOLENOID VALVE (12V)	
4.	217-041	1	STROBE LIGHT	
5.	214-505	2	INLINE DIODE CONNECTOR	

NOT SHOWN:

FOOTNOTES:

NOTE:

ELECTRICAL STRIKE SYSTEM  
STROBE LIGHT  
ENDS W/ -----





# ELECTRICAL STRIKE SYSTEM

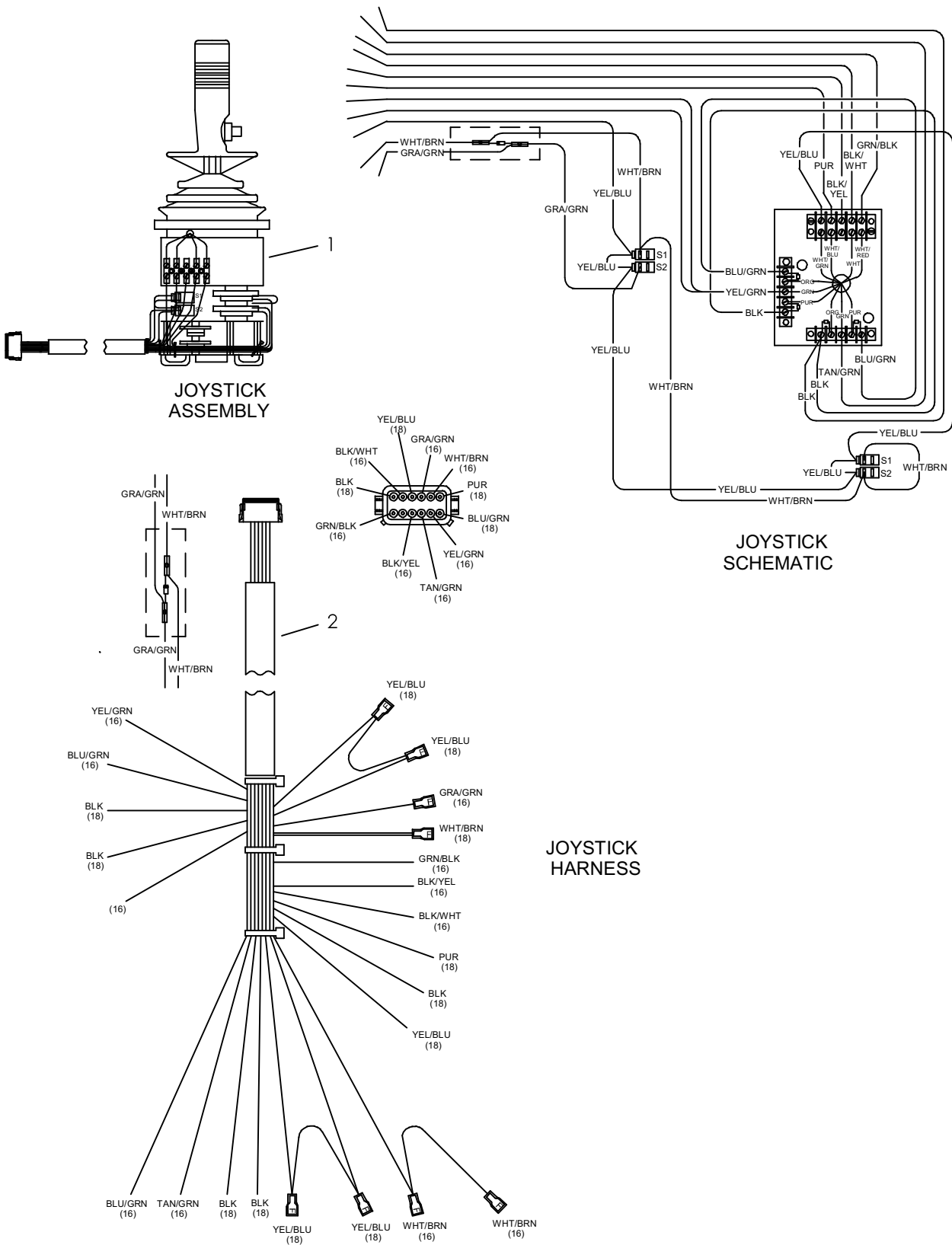
## STROBE LIGHT

ENDS W/ -----

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	362-620	1	LIGHT COVER	
2.	217-041	1	STROBE LIGHT	
3.	106-048	3	LOCKNUT (#10-24)	
4.	349-908	-	HOIST SUPPORT	
5.	105-185	3	SCREW (#10-24 X 1/2", RD SLT)	
6.	105-832	3	FLG LOCKNUT (1/4-NC)	
7.	105-836	3	FLG LOCK BOLT (1/4-NC X 1/2")	

FOOTNOTES

# ELECTRICAL DIAGRAM JOYSTICK HARNESS



## ELECTRICAL DIAGRAM JOYSTICK HARNESS

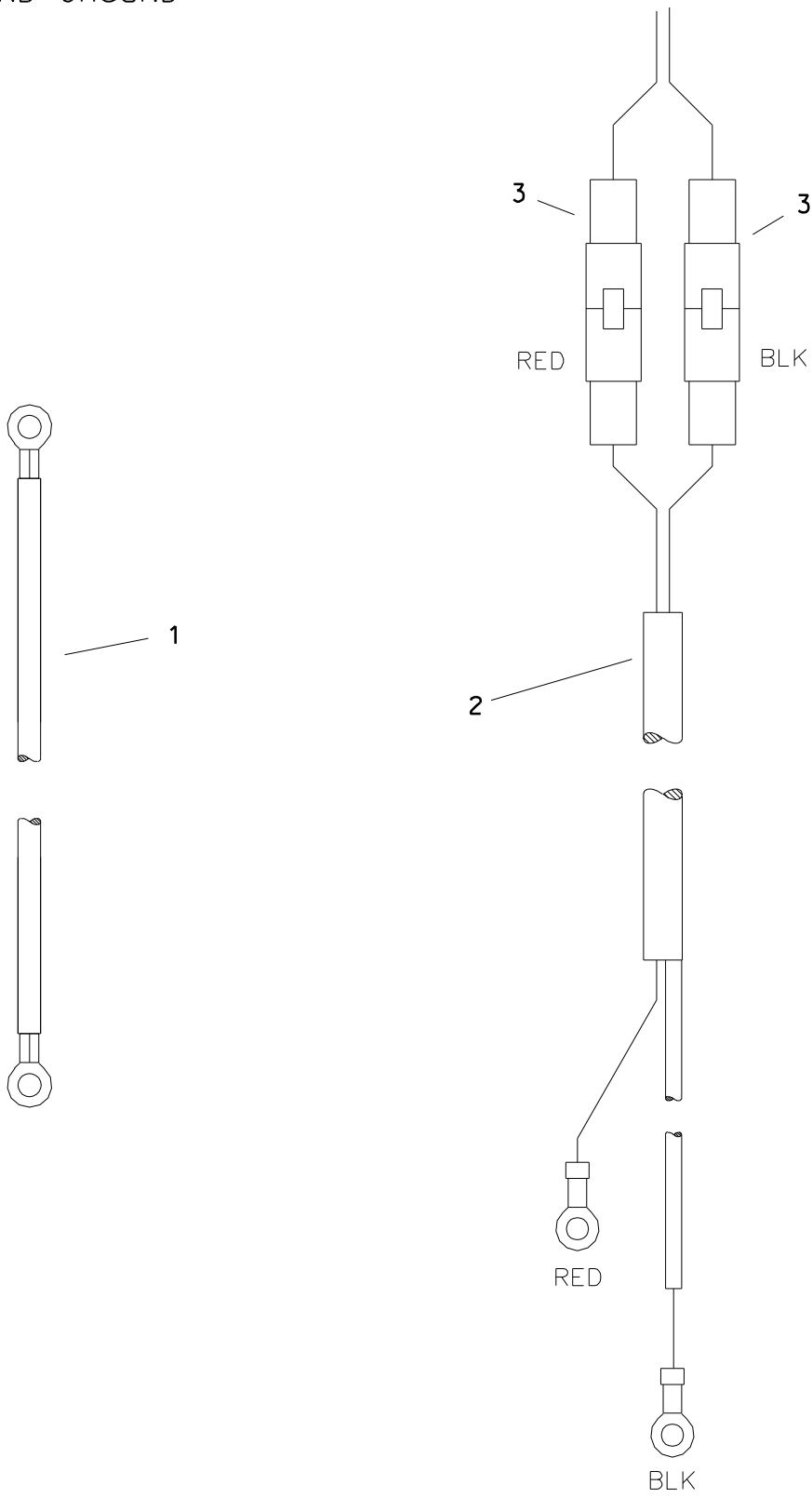
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	217-895	1	DUAL AXIS OUTPUT JOYSTICK	
	217-219	1	JOYSTICK (10 DEG)	
2.	214-332	1	JOYSTICK HARNESS	

NOT SHOWN:

FOOTNOTES:

NOTE:

# ELECTRICAL DIAGRAM POWER AND GROUND



# ELECTRICAL DIAGRAM POWER AND GROUND

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	214-353	1	GROUND STRAP	
2.	214-464	1	POWER & GROUND HARNESS	
3.	214-356	1	JUNCTION BOX HARNESS	

FOOTNOTES

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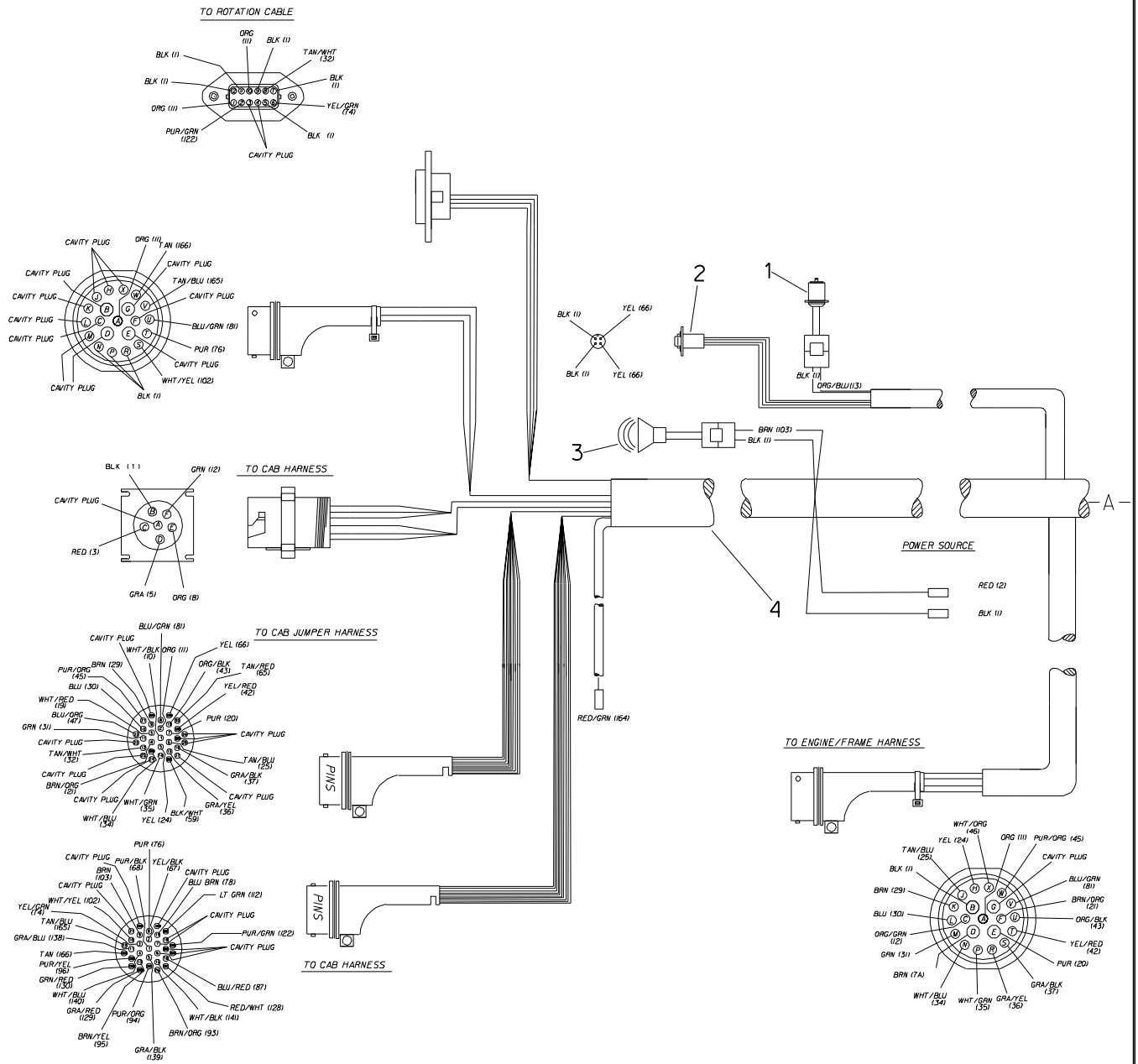
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# JUNCTION BOX HARNESS

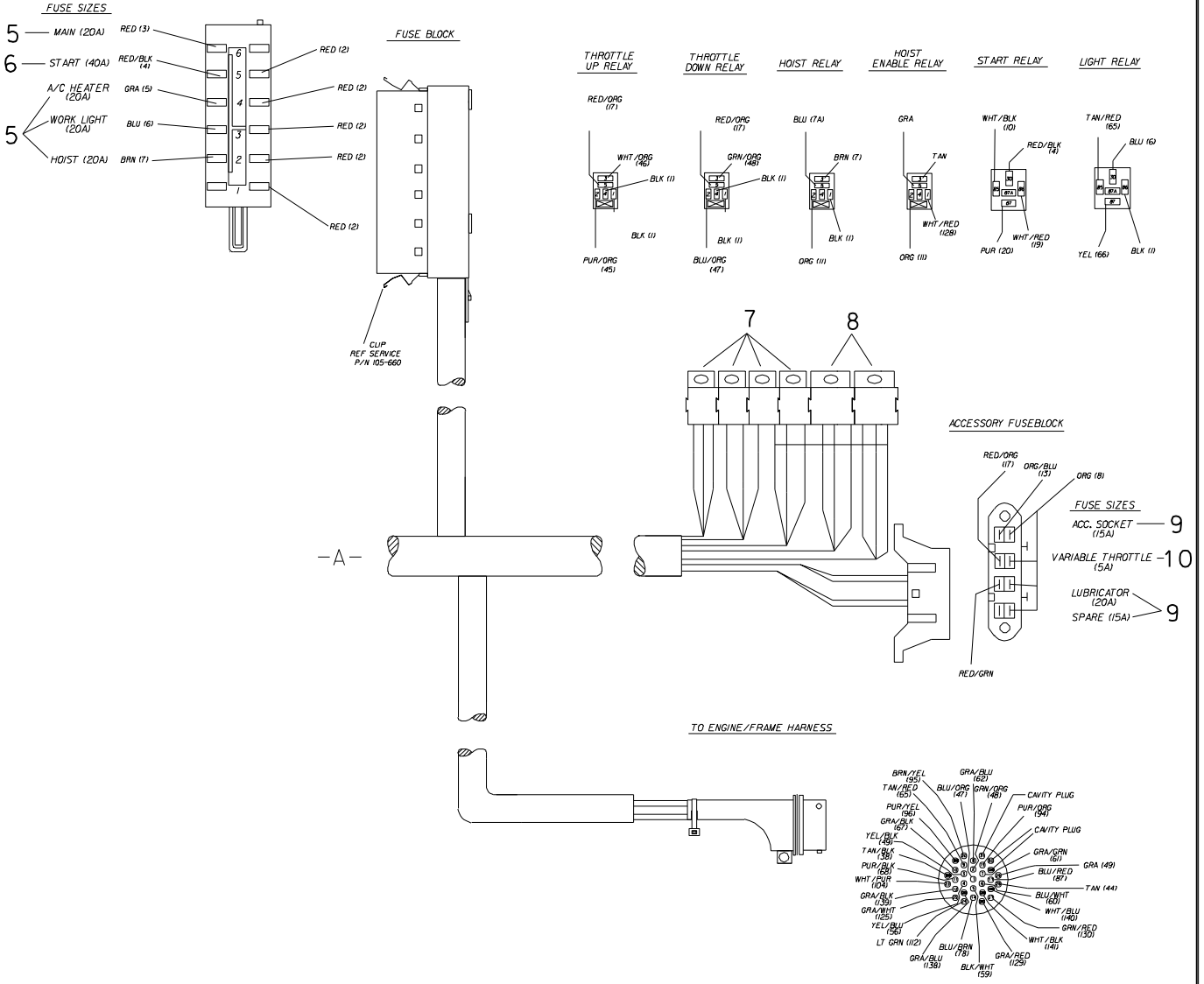


# JUNCTION BOX HARNESS

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	214-301	1	ACCESSORY SOCKET	
2.	217-017	1	CONNECTOR (4-WAY, FM)	
3.	306-602	1	BACKUP ALARM	
4.	214-356	1	JUNCTION BOX HARNESS	
5.	217-805	4	FUSE (MAXI, 20 AMP)	
6.	217-791	1	FUSE (MAXI, 40 AMP)	
7.	217-710	4	MICRO RELAY (SPDT)	
8.	217-826	2	MINI RELAY (SPDT)	
9.	217-811	3	FUSE (ATC, 15 AMP)	
10.	217-809	1	FUSE (ATC, 5 AMP)	

FOOTNOTES

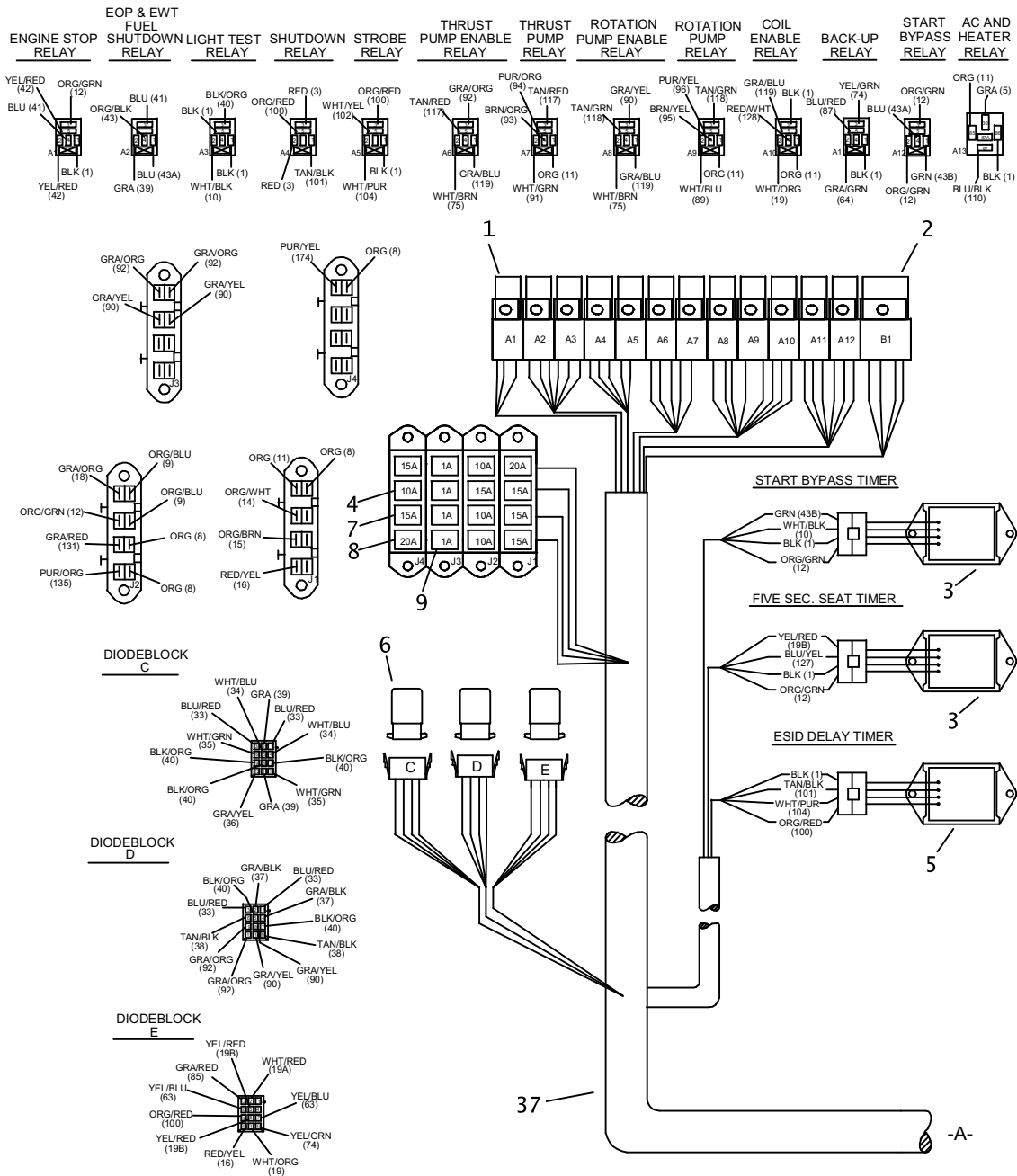
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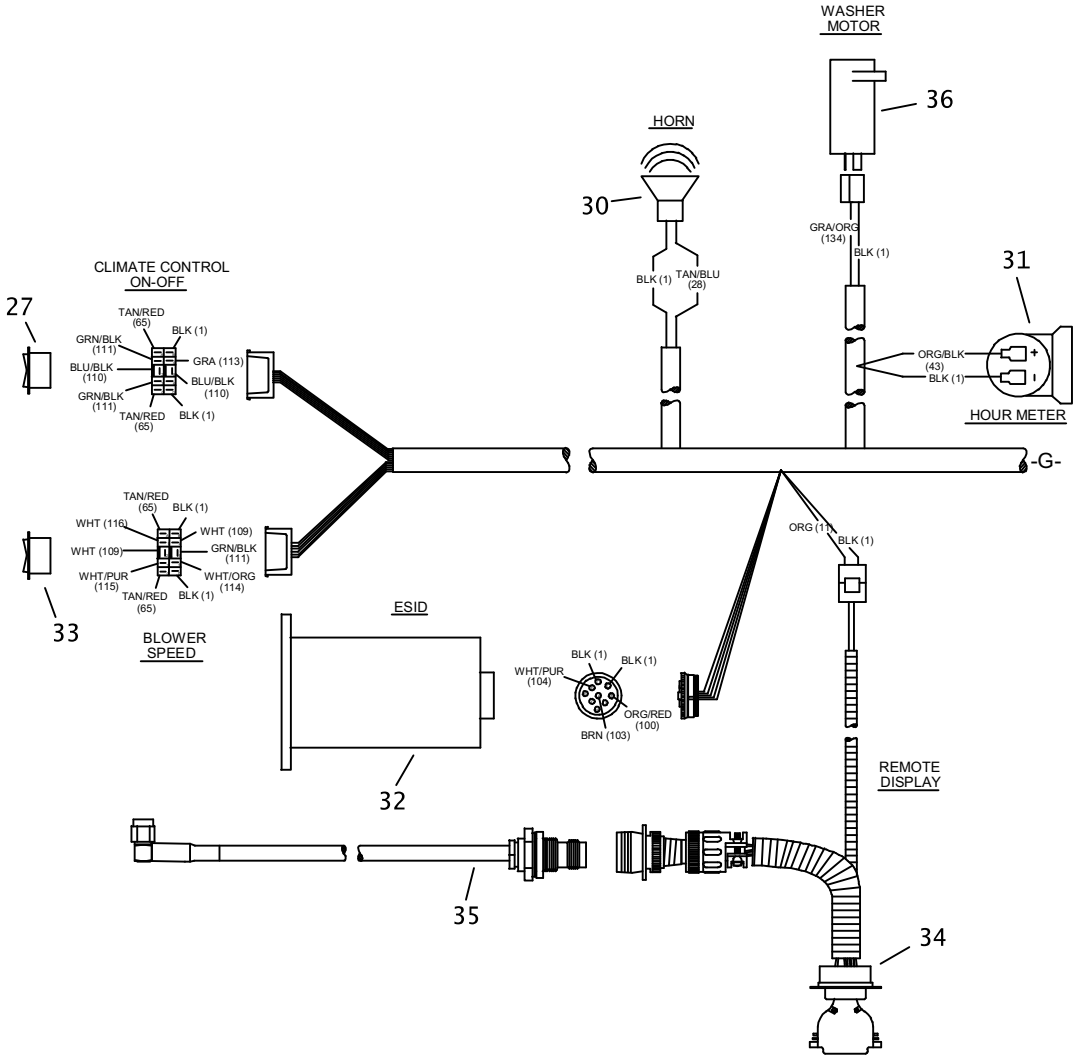




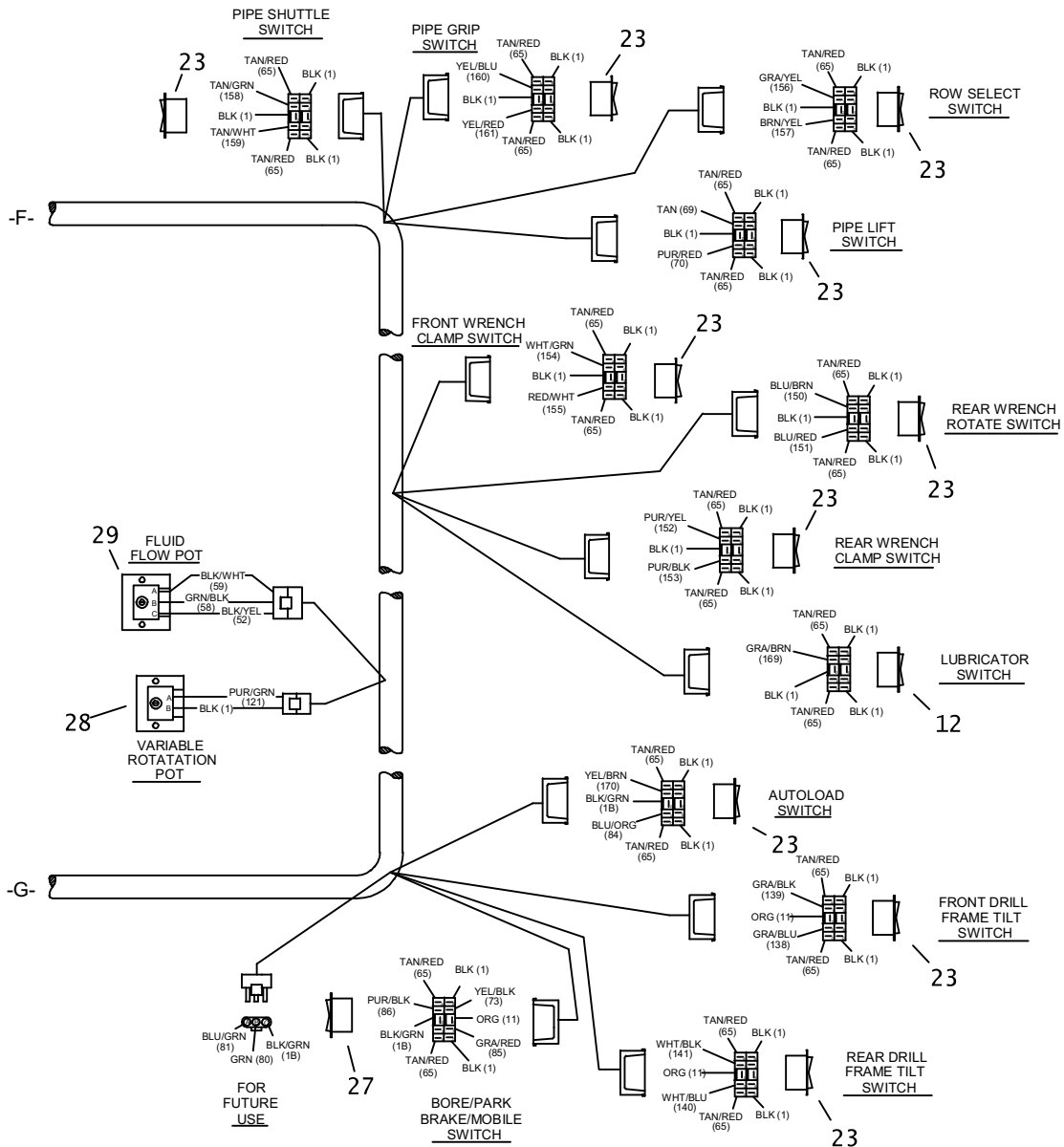
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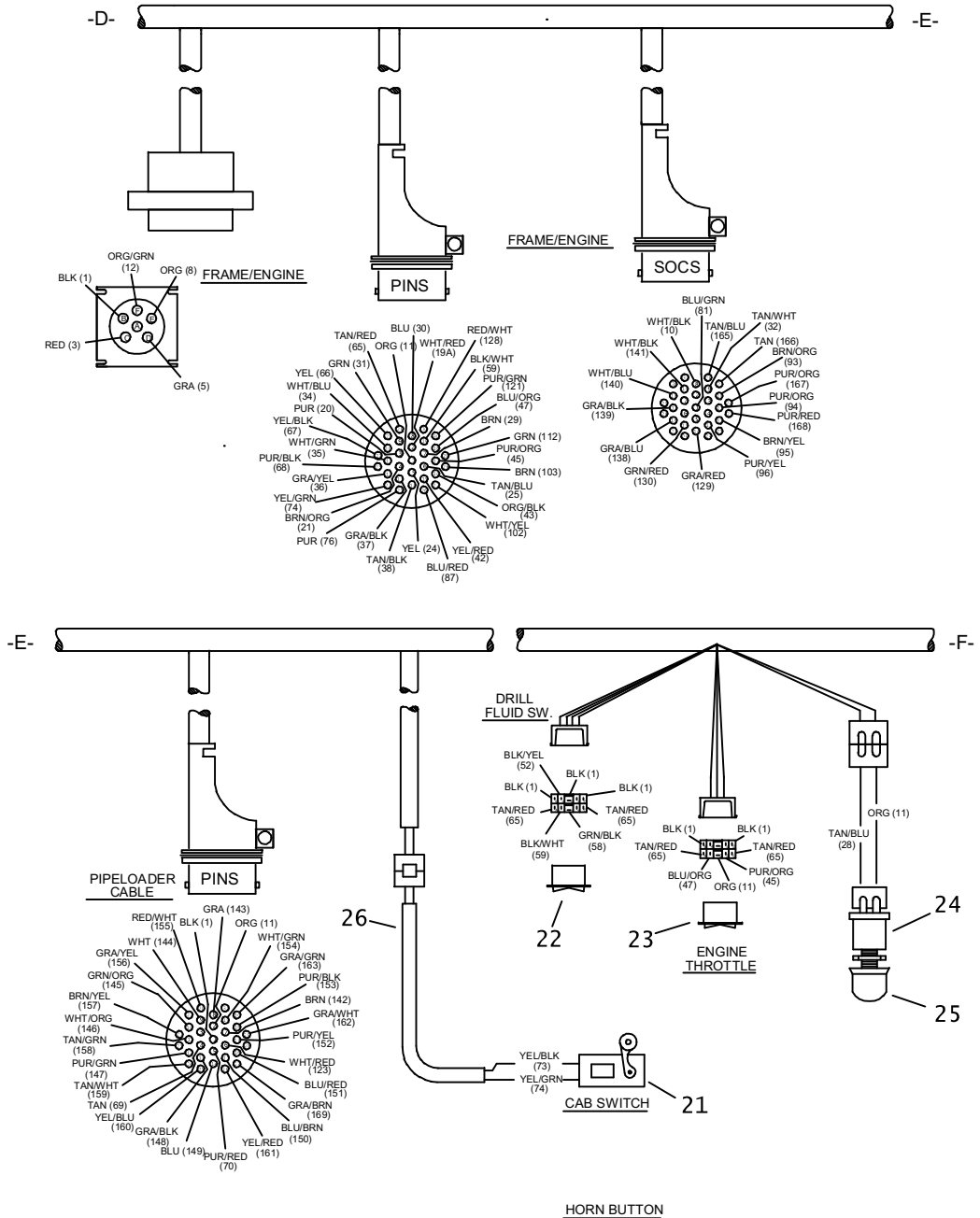
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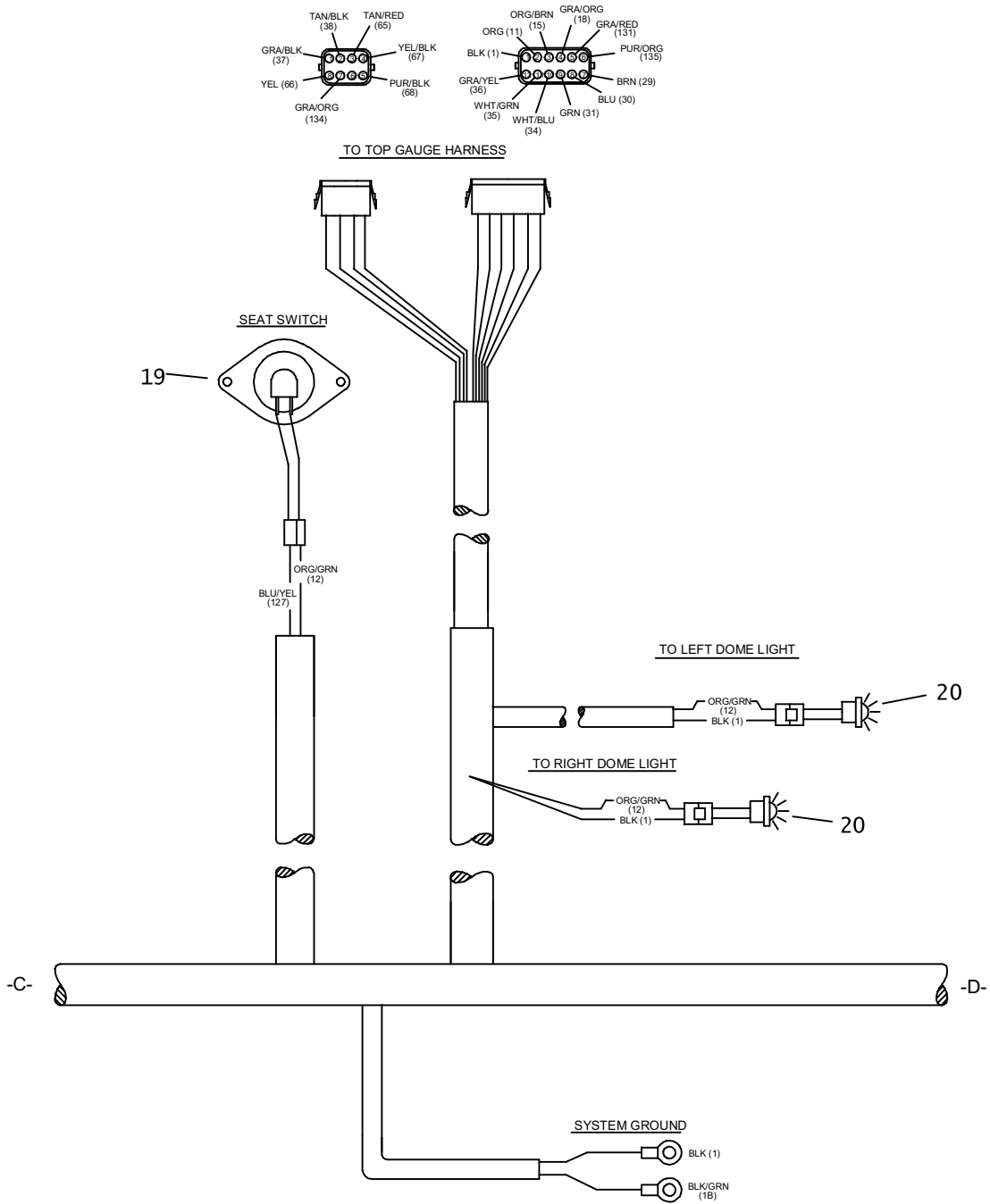
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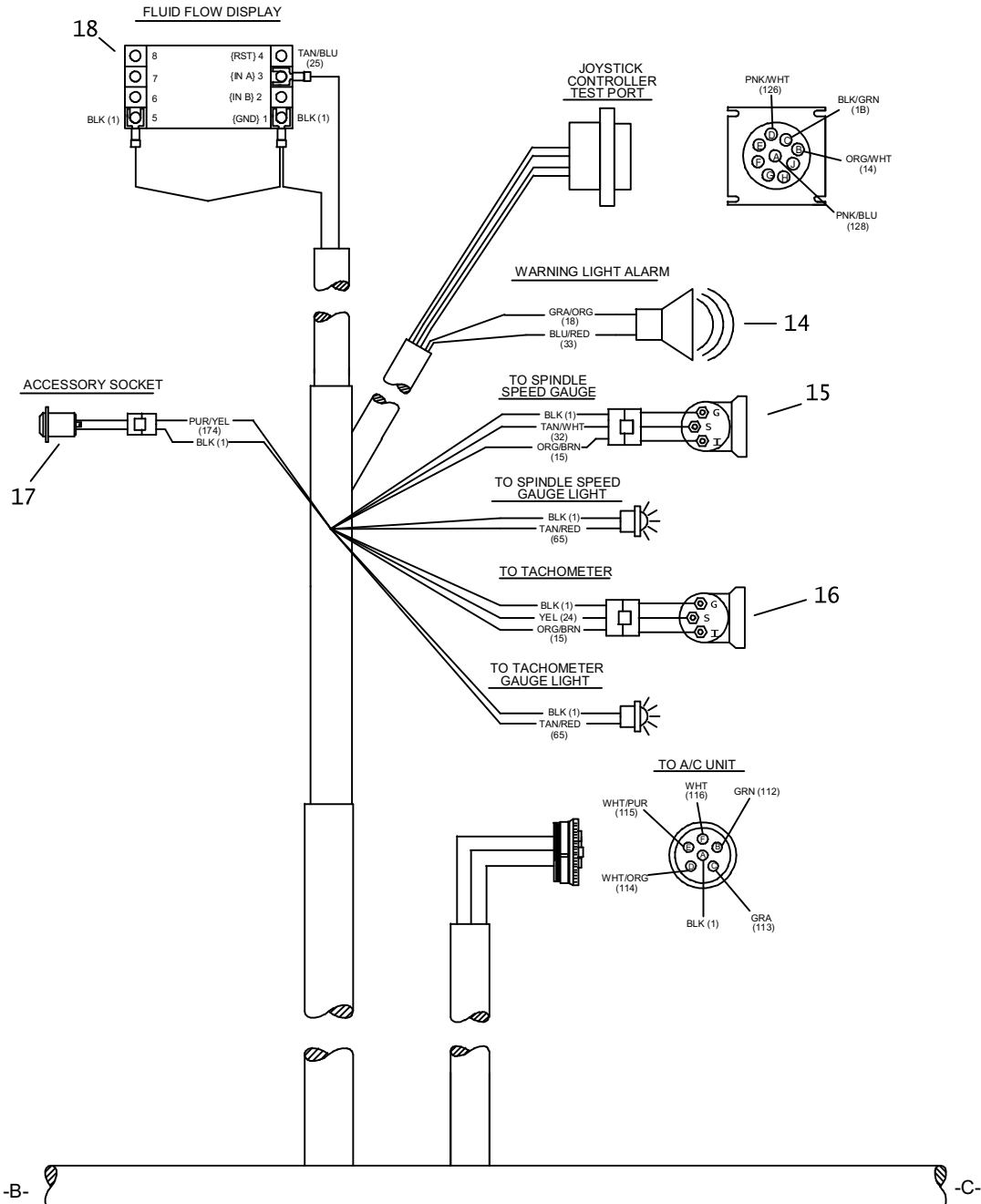
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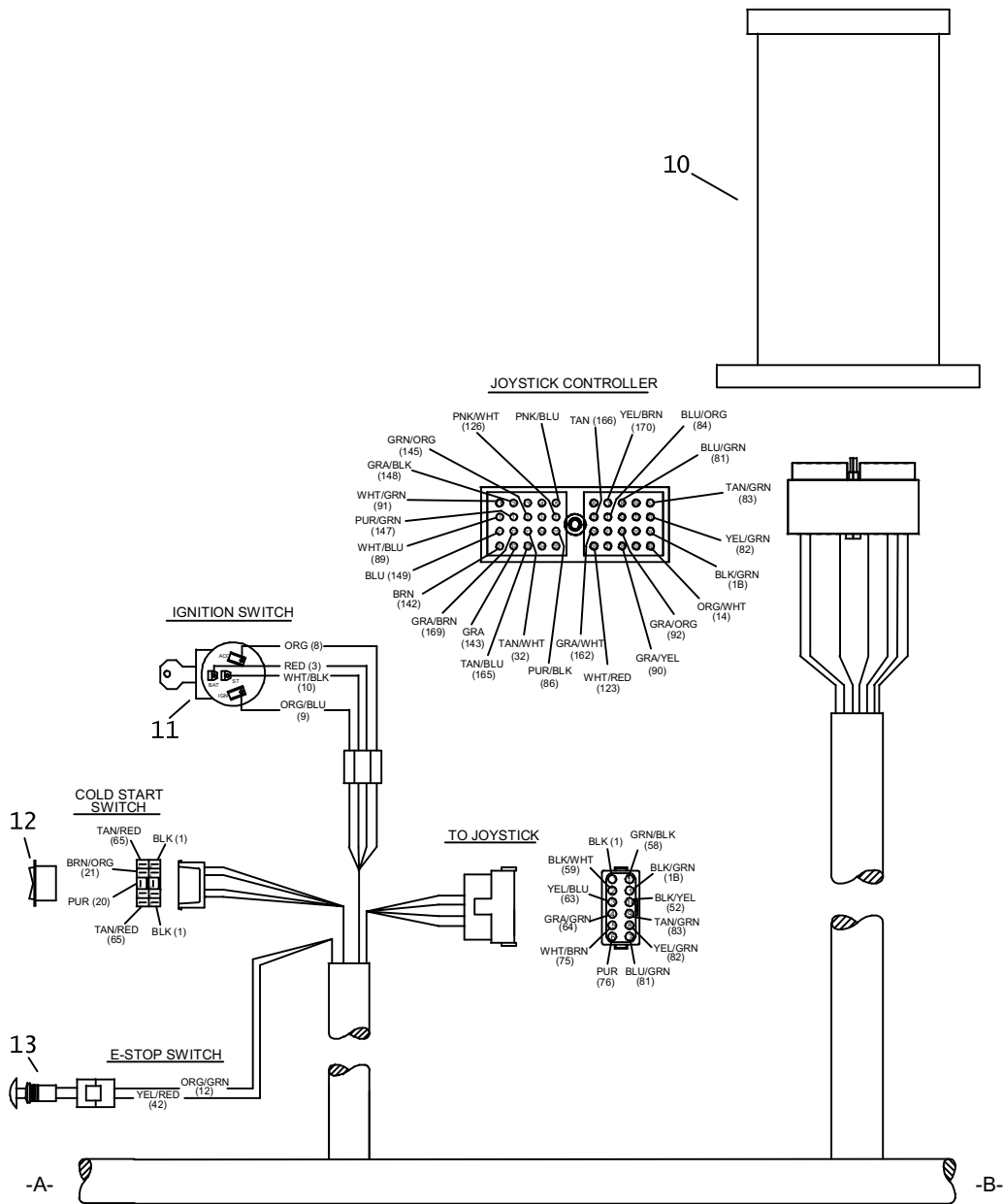
# CAB HARNESS JT7020



# CAB HARNESS JT7020



# CAB HARNESS JT7020





# CAB HARNESS

## JT7020

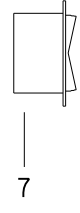
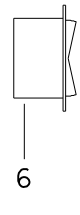
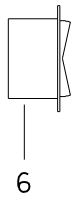
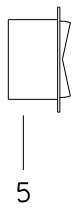
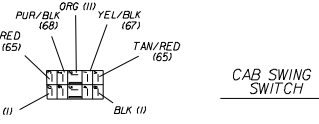
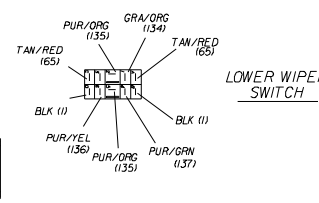
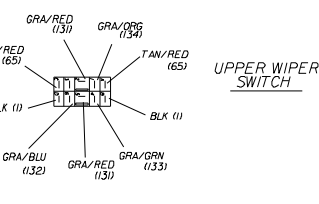
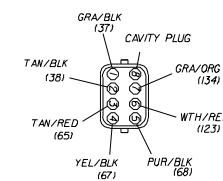
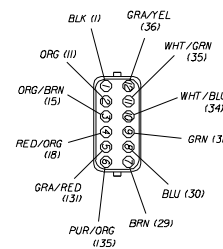
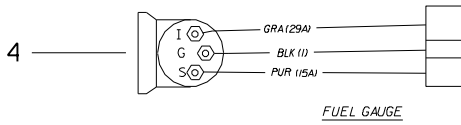
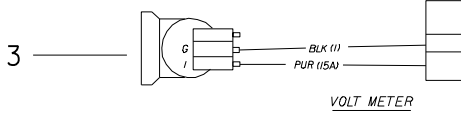
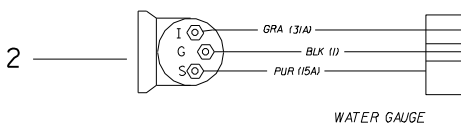
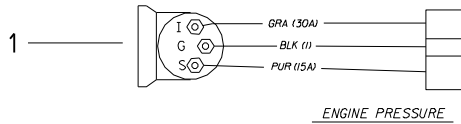
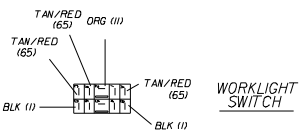
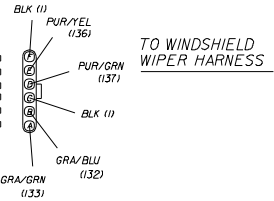
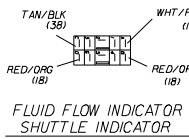
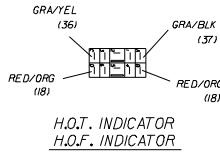
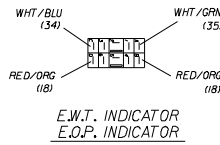
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	217-710	12	MICRO RELAY (SPDT)	
2.	217-826	1	MINI RELAY	
3.	217-804	2	START BYPASS DELAY	
4.	217-810	4	FUSE (ATC, 10 AMP)	
5.	214-502	1	DELAY TIMER	
6.	216-521	3	DIODE BLOCK	
7.	217-811	6	FUSE (ATC, 15 AMP)	
8.	217-812	2	FUSE (ATC, 20 AMP)	
9.	217-580	4	FUSE (ATC, 1 AMP)	
10.	216-041	1	CONTROL MODULE	
11.	214-852	1	IGNITION SWITCH	
	214-961		KEY, PAIR (BASE CODE)	
	214-962		SWITCH MOUNTING NUT	
12.	217-924	2	LTG ROCKER SW OFF(ON),DPDT	
13.	214-943	1	BUTTON SWITCH (SPST)	
14.	306-603	1	AUDIO ALARM	
15.	217-561	1	SPINDLE TACHOMETER (250 RPM)	
16.	217-562	1	ENGINE TACHOMETER (3000 RPM)	
17.	214-301	1	ACCESSORY SOCKET	
18.	217-196	1	FLOW METER DISPLAY	
19.	217-750	1	SEAT SWITCH	
20.	217-113	2	DIRECTIONAL LIGHT	
21.	217-085	1	LIMIT SWITCH	
22.	217-919	1	LTG ROCKER SW ON-ON-(ON),DPDT	
23.	217-228	11	LTG ROCKER SW (ON)OFF(ON),DPDT	
	217-921	11	LTG ROCKER SW (ON)OFF(ON) SPDT	OBSOLETE
24.	306-607	1	HORN BUTTON	
25.	306-608	1	BUTTON COVER	
26.	214-299	1	ACTUATOR PIGTAIL	
27.	217-923	2	LTG ROCKER SW ON-OFF-ON,DPDT	
28.	217-960	1	ROTATION POTENTIOMETER	
29.	217-959	1	FLUID FLOW POTENTIOMETER	
30.	192-006	1	HIGH FREQUENCY HORN	
	306-609	1	HIGH FREQUENCY HORN	OBSOLETE
31.	215-128	1	HOUR METER	
32.	217-232	1	CONTROL MODULE	
33.	217-922	1	LTG ROCKER SW ON-ON-ON,SPDT	
34.	214-415	1	90D MODULE TO RIG CABLE	
35.	214-414	1	RIG RF CABLE (4270MM)	
36.	344-115	1	WINDSHIELD WASHER TANK	
37.	214-469	1	CAB HARNESS	

NOT SHOWN:

FOOTNOTES:

NOTE:

# TOP GAUGE HARNESS

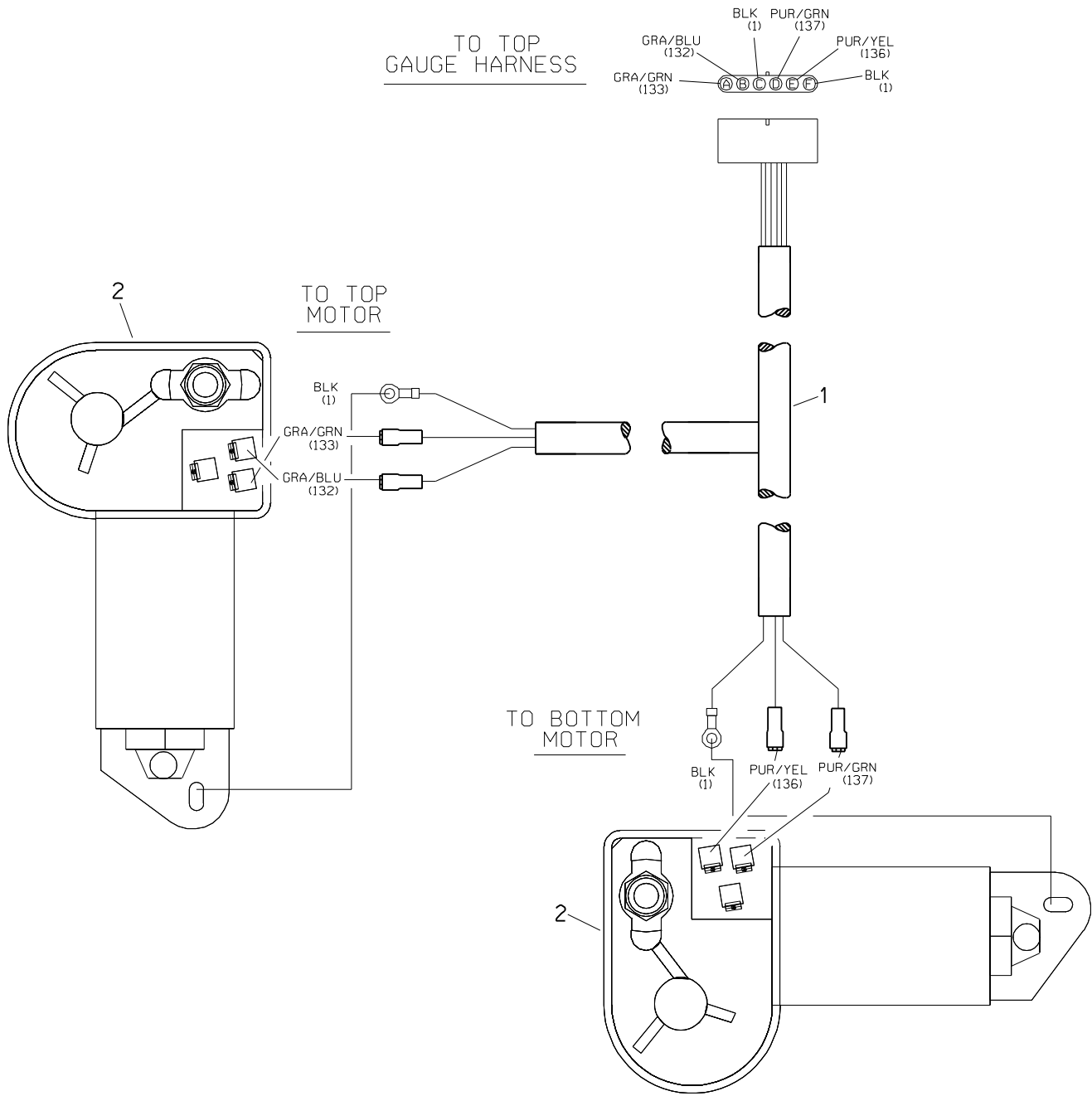


# TOP GAUGE HARNESS

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	217-554	1	ENGINE OIL PRESSURE GAUGE	
2.	217-556	1	ENGINE WATER TEMPERATURE GAUGE	
3.	215-129	1	VOLT METER	
	215-415		NITE-LIGHT KIT (12V DC)	
4.	215-133	1	FUEL GAUGE	
	215-415		NITE-LIGHT KIT (12V DC)	
5.	217-918	1	ROCKER SW (DPDT) ON-ON	
6.	217-919	2	ROCKER SWITCH (DPDT) ON-ON-(ON	
7.	217-228	1	ROCKER SWITCH (DPDT) ON)-OFF-(ON)	
	<u>217-921</u>	1	ROCKER SWITCH (SPDT) ON)-OFF-(ON	
8.	214-333	1	TOP GAUGE HARNESS (JT7020)	

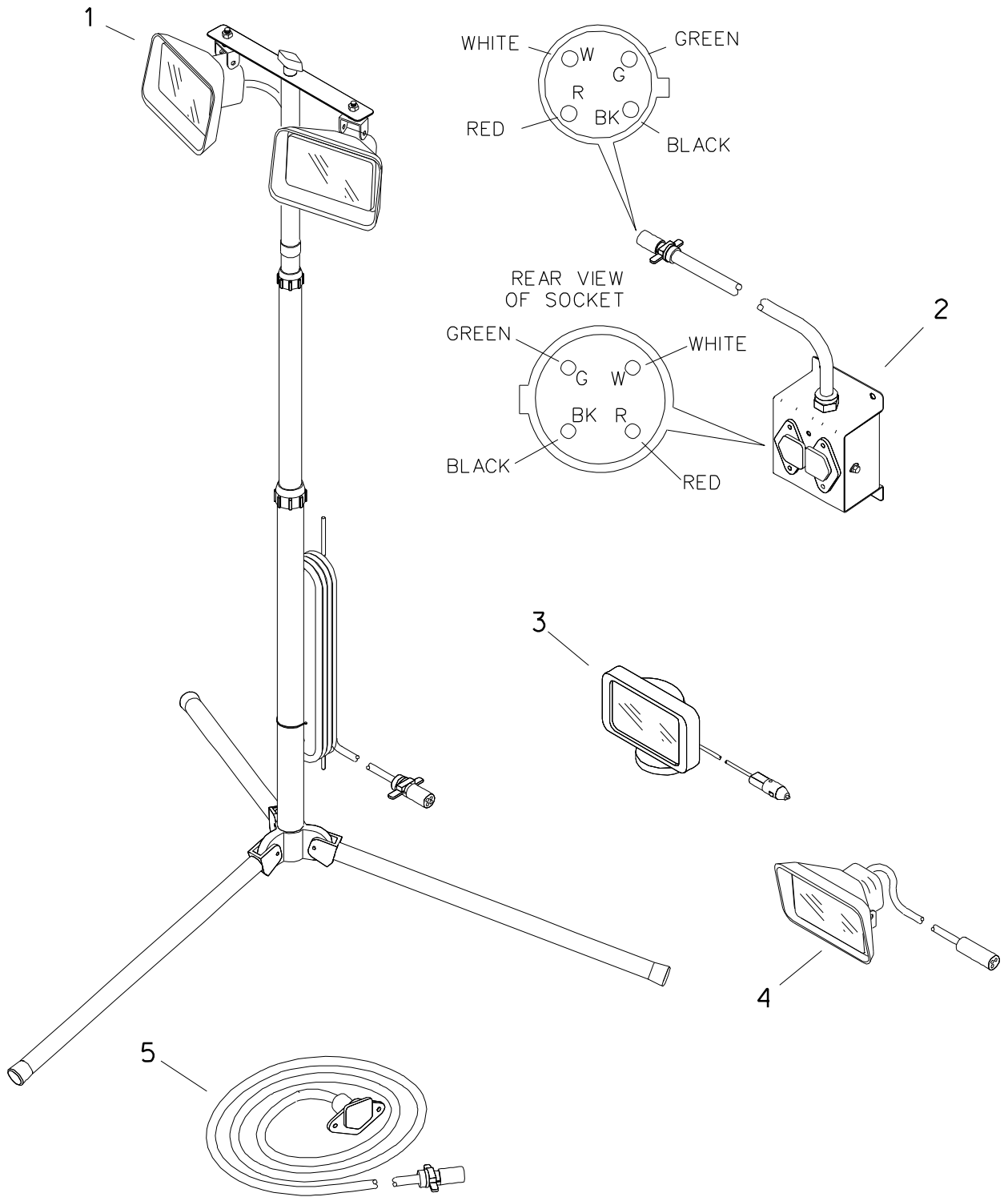
FOOTNOTES

# WINDSHIELD WIPER HARNESS





# WORKING LIGHT

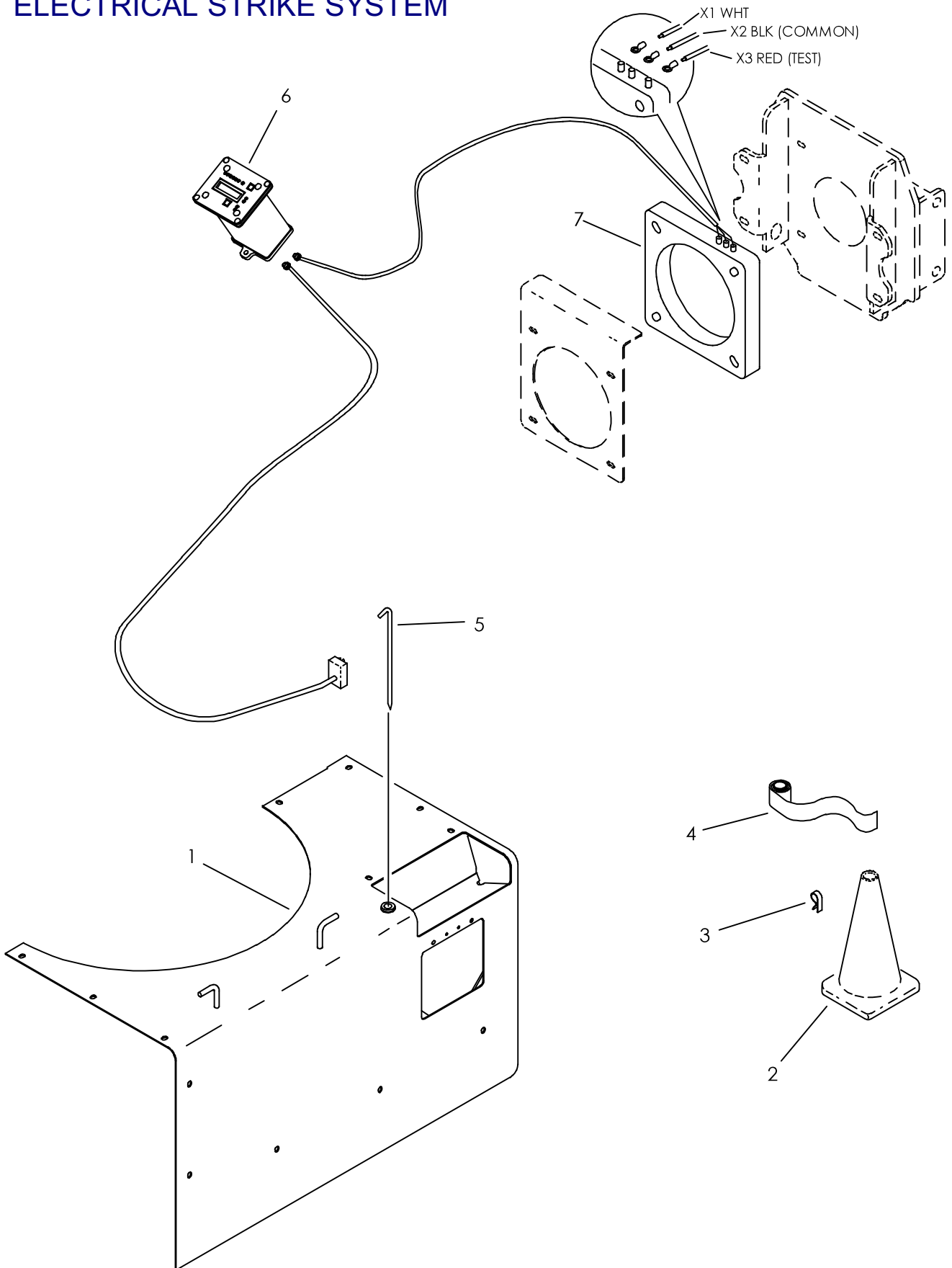


# WORKING LIGHT

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

FOOTNOTES

# ELECTRICAL STRIKE SYSTEM



E

805-967



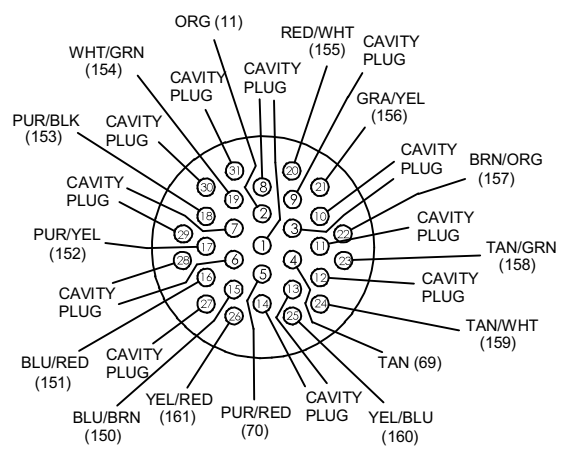
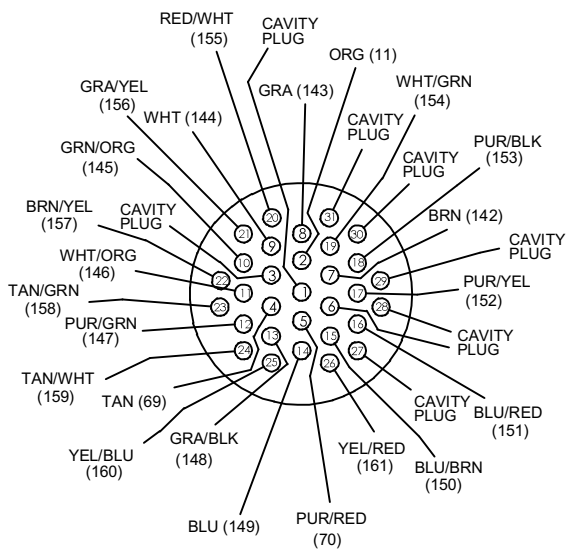
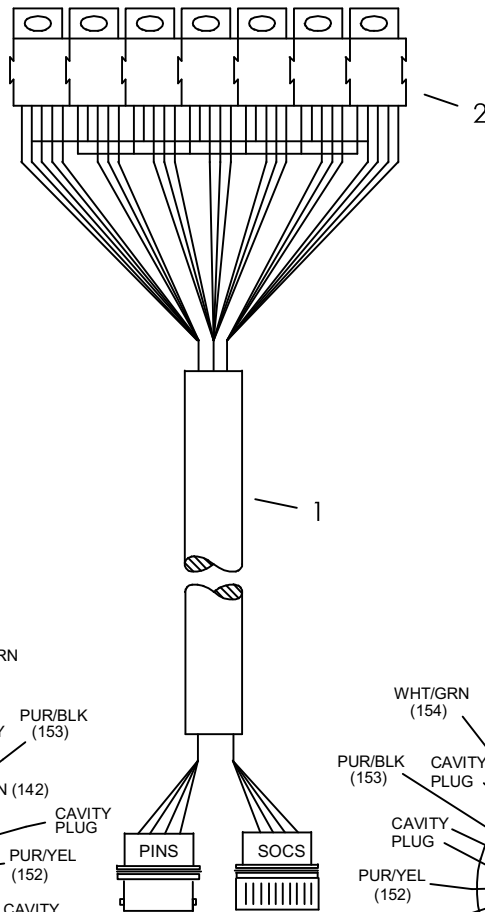
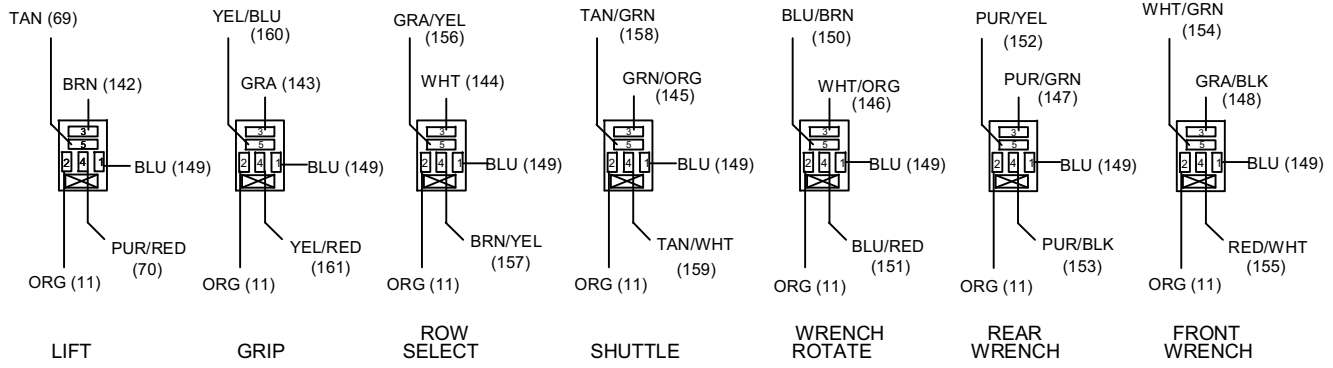
# ELECTRICAL STRIKE SYSTEM

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	349-833	-	RIGHT COVER	
2.	259-210	8	TRAFFIC CONE-ORANGE	OBSOLETE
3.	259-234	8	CONE CLIP	OBSOLETE USED WITH REF NO.'S 2 & 4
4.	260-223	1	BARRIER TAPE (3" X 1000')	OBSOLETE
5.	215-799	1	VOLTAGE STAKE	
6.	214-429	-	CONTROL MODULE	OBSOLETE
	217-232	-	CONTROL MODULE	
7.	216-042	-	CURRENT TRANSFORMER	SEE FOOTNOTE 1.

FOOTNOTES  
 1. REF 7 OBSOLETE, 216-042 REPLACED WITH 101-144.

NOTE:

# ELECTRICAL DIAGRAM AUTOMATION HARNESS



## ELECTRICAL DIAGRAM AUTOMATION HARNESS

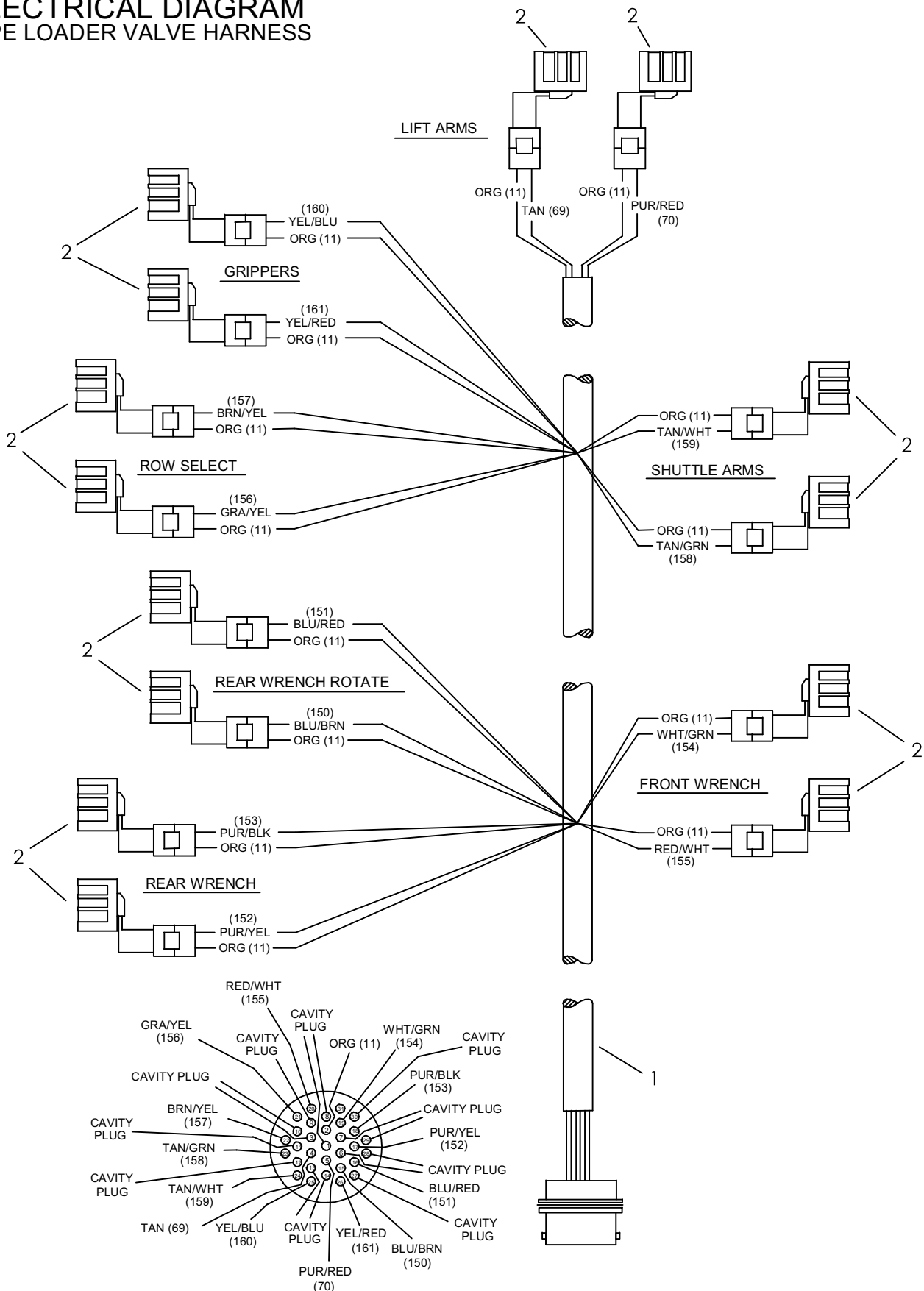
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	214-444	1	AUTOMATION HARNESS	
2.	217-710	7	RELAY	

NOT SHOWN:

FOOTNOTES:

NOTE:

# ELECTRICAL DIAGRAM PIPE LOADER VALVE HARNESS



## ELECTRICAL DIAGRAM PIPE LOADER VALVE HARNESS

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	214-409	1	PIPE LOADER VALVE HARNESS	
2.	217-950	14	SOLENOID COIL	

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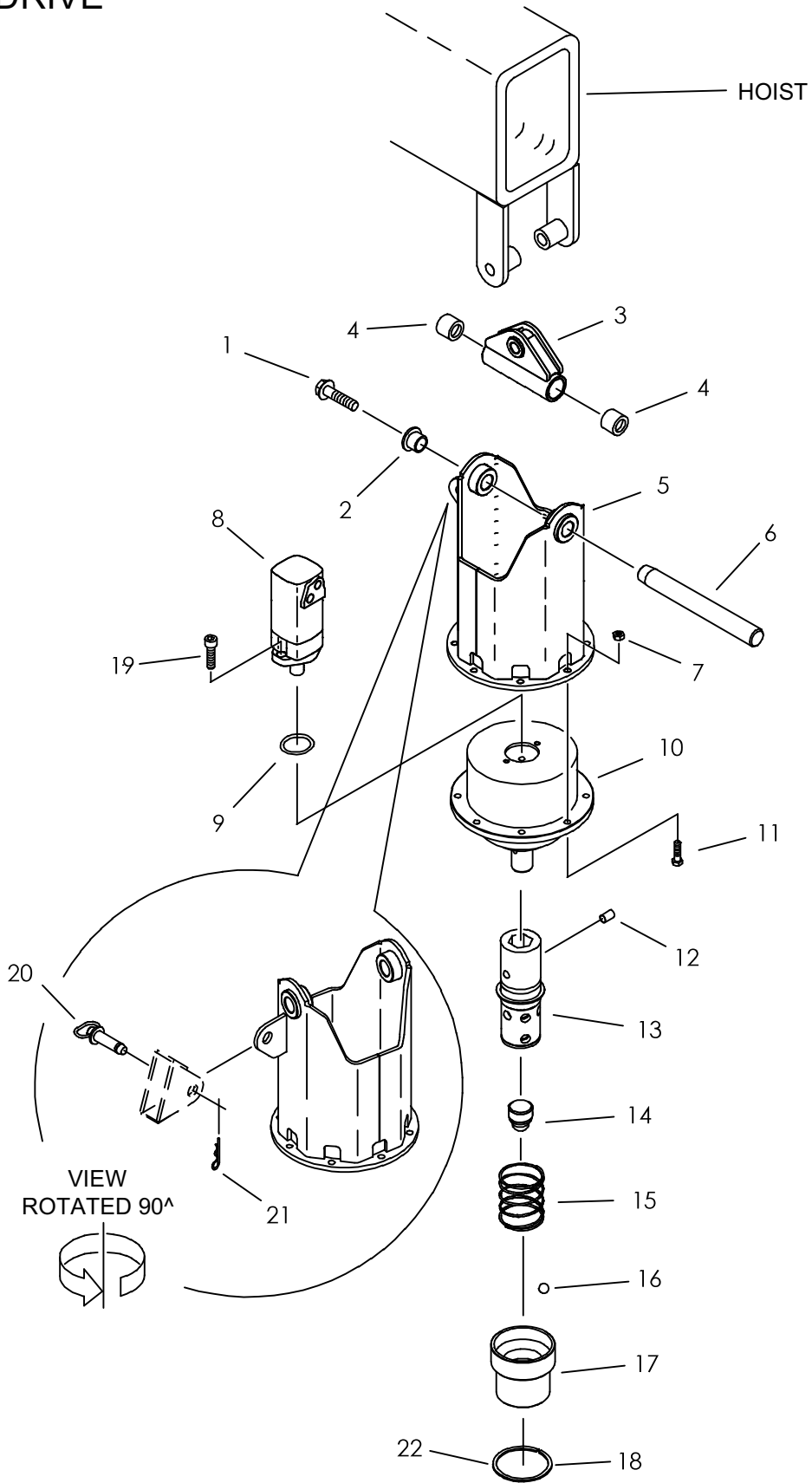
FOOTNOTES:

NOTE:

<b>NOTES:</b>

# **ANCHOR SYSTEMS**

# AUGER DRIVE





## AUGER DRIVE

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	<u>370-313</u>		ANCHOR DRIVER PARTS ASS'Y	INCL REF NO'S 13 - 18; SEE FOOTNOTE 1 SEE FOOTNOTE 2
	370-072		ANCHOR DRIVER PARTS ASS'Y	
1.	106-470	1	FLG SCREW (M16-2.00 X 40mm)	
2.	181-974	1	TAPERED INSERT (1.5")	
3.	349-840	1	COUPLING	
4.	125-772	2	COMPOSITION BUSHING (1.5")	
5.	349-839	1	AUGER DRIVER	
6.	179-209	1	TAPERED PIN (38.1mm X 320mm)	
7.	106-526	8	NUT (M14- 2.0, 10.9)	
8.	158-753	1	THRUST DRIVE MOTOR	
	500-658		SEAL REPAIR KIT	
9.	157-099	1	O-RING (O42 D70)	
10.	166-161	1	AUGER DRIVE GEAR BOX	
11.	106-527	8	SCREW (M14-2.00 X 50mm)	
12.	105-585	2	ROLL PIN (.750" X 1.250")	
13.	309-977	1	ANCHOR DRIVER	USE SIX REF. 16 TO RETAIN STOP (REF 14)
	<u>303-643</u>	1	ANCHOR DRIVER	SEE FOOTNOTE 3 USE REF. NO. 18
	<u>370-519</u>	1	ANCHOR DRIVER (3.625)	SEE FOOTNOTE 3 USE REF. NO. 18
14.	370-054	1	WEIGHT/STOP	
15.	117-160	1	COMPRESSION SPRING	
16.	125-150	9	DETENT BALL (.875")	
17.	178-591	1	LOCK COLLAR	
18.	118-054	1	EXTERNAL SNAP RING	
19.	106-204	2	BOLT (1/2-NC X 1-1/2", ALN)	USE 242 LOCTITE OR EQUIVALENT
20.	183-328	1	PULL PIN (1.000" X 2.750")	
21.	110-128	1	SPRING CLIP PIN (5/32" X 1")	
22.	116-761	1	EXTERNAL SNAP RING	USE WITH 309-977 ANCHOR DRIVER

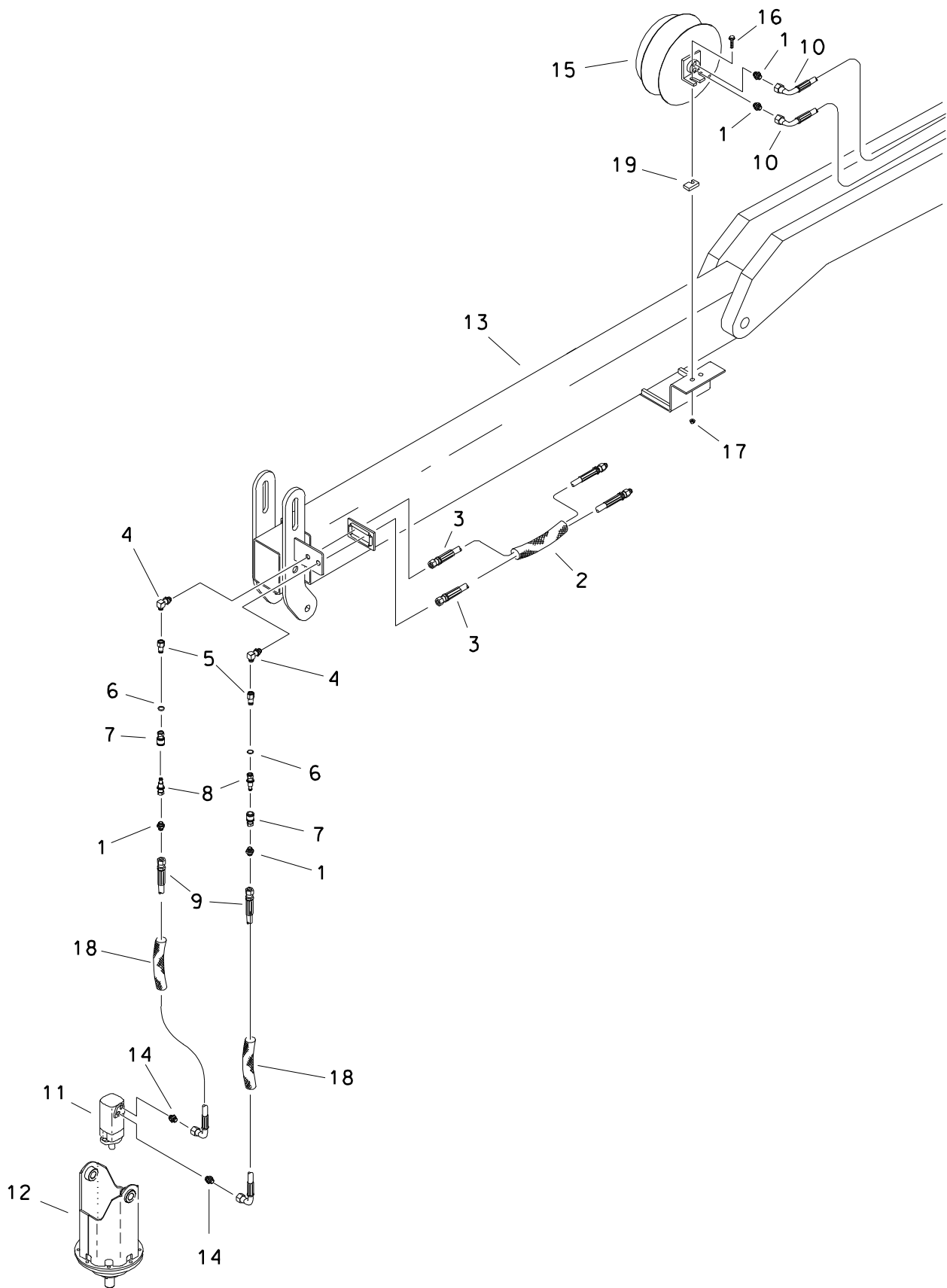
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### FOOTNOTES:

1. USE WITH 370-102 AUGER SHAFT.
2. USE WITH 166-200 AUGER SHAFT
3. 370-519 IS 11.05" OVERALL LENGTH AND HAS HOLES FOR DETENT BALLS IN STAGGERED PATTERN. 303-643 IS 11.30" OVERALL LENGTH AND HAS HOLES ALIGNED. USED THREE BALLS (REF 16) TO RETAIN STOP (REF 14).

NOTE:

## ANCHOR DRIVER HYDRAULICS



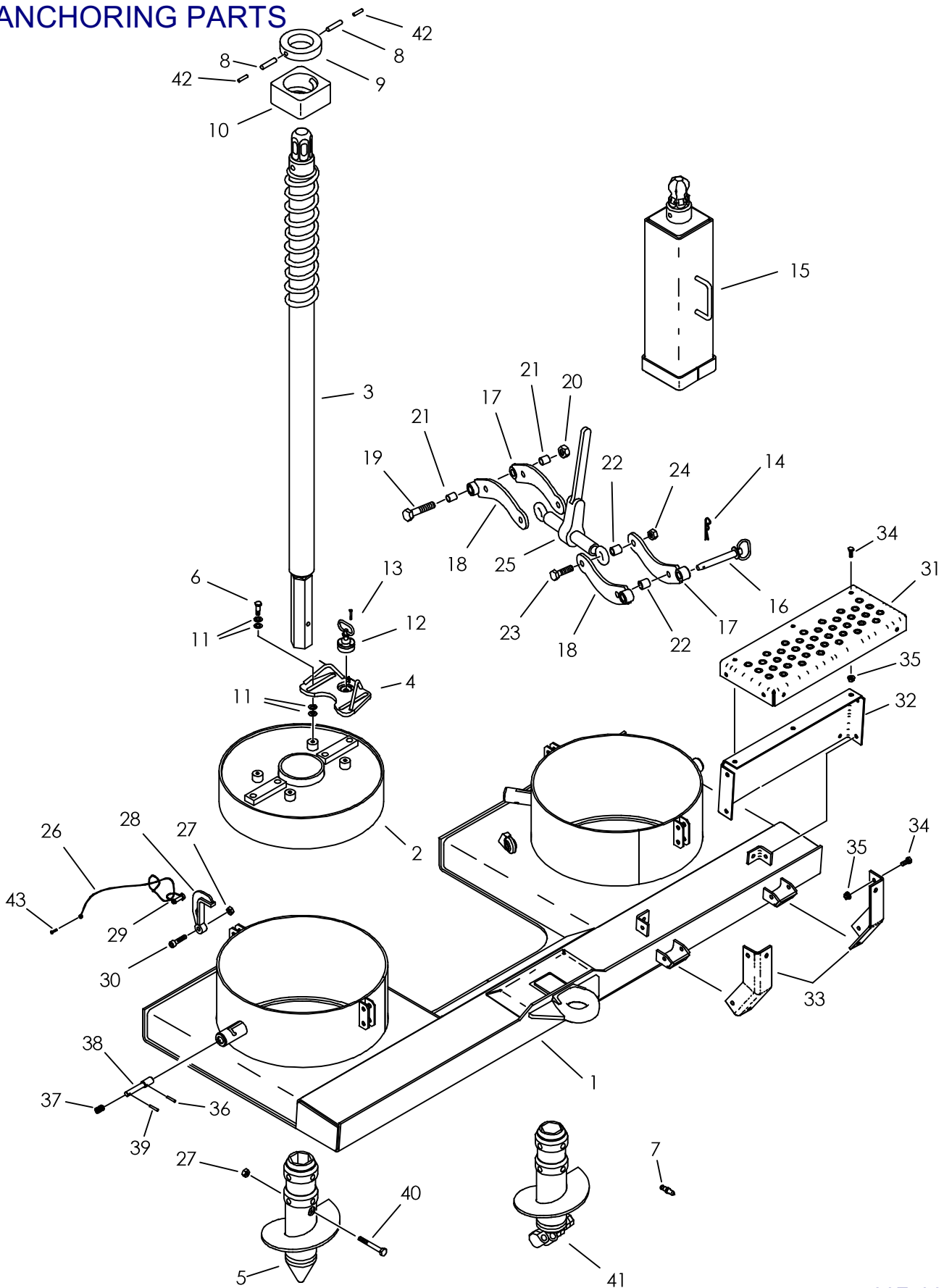
# ANCHOR DRIVER HYDRAULICS

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	154-233	4	CONNECTOR (08S-080)	
2.	117-741	1	ABRASION SLEEVE (1.59" X 145")	
3.	515-754	2	HOSE (080FX-08BX-170"-3000)	BEGINS WITH S/N 2R3371
	154-663	2	HOSE (080FX-170"-3000)	ENDS WITH S/N 2R3335
4.	154-396	2	BK CONNECTOR (080-08090BK)	
5.	156-732	2	CONNECTOR (08J-080F)	
6.	155-706	2	O-RING (908 D90)	
7.	155-989	2	QDC BODY (08-08SF)	
8.	155-990	2	QDC ADAPTER (08-08SF)	
9.	154-830	2	HOSE (080FX90-18"-3000)	
10.	515-642	2	HOSE (080FX90-176"-3000)	
11.	158-753	-	THRUST DRIVE MOTOR	
12.	349-839	-	AUGER DRIVER	
13.	349-005	-	HOIST	
14.	154-279	2	CONNECTOR (080-10S)	
15.	159-419	1	DUAL HOSE REEL	
16.	105-885	2	FLG LK BOLT (1/2-NC X 2")	
17.	105-833	2	FLG LOCKNUT (1/2-NC)	
18.	117-622	2	ABRASION SLEEVE (1.25" X 20")	
19.	349-485	2	SPACER	

FOOTNOTES

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

# ANCHORING PARTS



D

807-092

## ANCHORING PARTS

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	370-080	1	ANCHOR PLATE	OBSOLETE
	370-522	1	ANCHOR PLATE	
2.	370-190	2	AUGER CAP	
3.	166-200	2	SHAFT	
4.	370-196	4	LATCH	
5.	370-111	AR	AUGER (240mm)	
	370-110	AR	AUGER (380mm)	
	370-112	AR	AUGER (480mm)	
6.	106-739	8	SHLD BLT (M12 X 20mm, M10-1.50)	USE LOCTITE 277 OR EQUIVALENT
7.	136-101	AR	INSERT BIT	
8.	105-609	4	ROLL PIN (5/8" X 2-1/4")	
9.	370-320	2	STOP COLLAR	
10.	370-244	2	ANCHOR NUT (CAST)	
11.	105-058	AR	BELLEVILLE WASHER (1/2")	
12.	347-888	8	SPRING LOADED PIN	
13.	106-796	16	SCREW (M4-.70 X 30mm)	
14.	110-128	2	SPRING CLIP PIN (5/32" X 1")	
15.	370-120	1	NUT DRIVER	
16.	183-110	2	PULL PIN (3/4" X 4-1/2")	
17.	370-219	4	RIGHT ARM BAR	
18.	370-203	4	LEFT ARM BAR	
19.	105-365	2	BOLT (3/4-NC X 4")	
20.	105-372	2	LOCKNUT (3/4-NC)	
21.	125-424	4	BRONZE BUSHING (.750")	
22.	370-189	8	SPACER	
23.	107-197	8	SCREW (M16-2.00 X 80mm, 10.9)	
24.	106-545	8	LOCKNUT (M16-2.00, PRV TRQ, 10.9)	
25.	111-017	2	LOAD BINDER	
26.	110-710	4	LANYARD (3/64" X 6")	
27.	106-545	6	LOCKNUT (M16-2.00, PRV TRQ, 10.9)	
28.	370-230	4	CAP RETAINER	
29.	110-368	4	SNAPPER PIN (3/8" X 1-1/2")	
30.	106-707	4	SCREW (M12-1.75 X 45mm, SOC)	
31.	370-267	1	STEP PLATE	
32.	370-269	1	FRONT PLATE	
33.	370-268	2	STEP LEG	
34.	105-245	17	SCREW (M10-1.50 X 25mm)	
35.	106-387	17	FLG LOCKNUT (M10-1.50)	
36.	105-503	4	ROLL PIN (1/4" X 2")	
37.	115-560	4	COMPRESSION SPRING	
38.	184-535	4	LOCK PIN	
39.	105-561	4	ROLL PIN (3/8" X 2-3/4")	
40.	106-342	2	SCREW (M16-2.00 X 90MM)	
41.	370-443	AR	ROCK ANCHOR (9.5")	
	370-453	AR	ROCK ANCHOR (7.5")	
42.	105-520	2	ROLL PIN (3/8" X 1-1/4")	
43.	105-214	4	FLG SCREW (#10-24 X .5")	

### FOOTNOTES

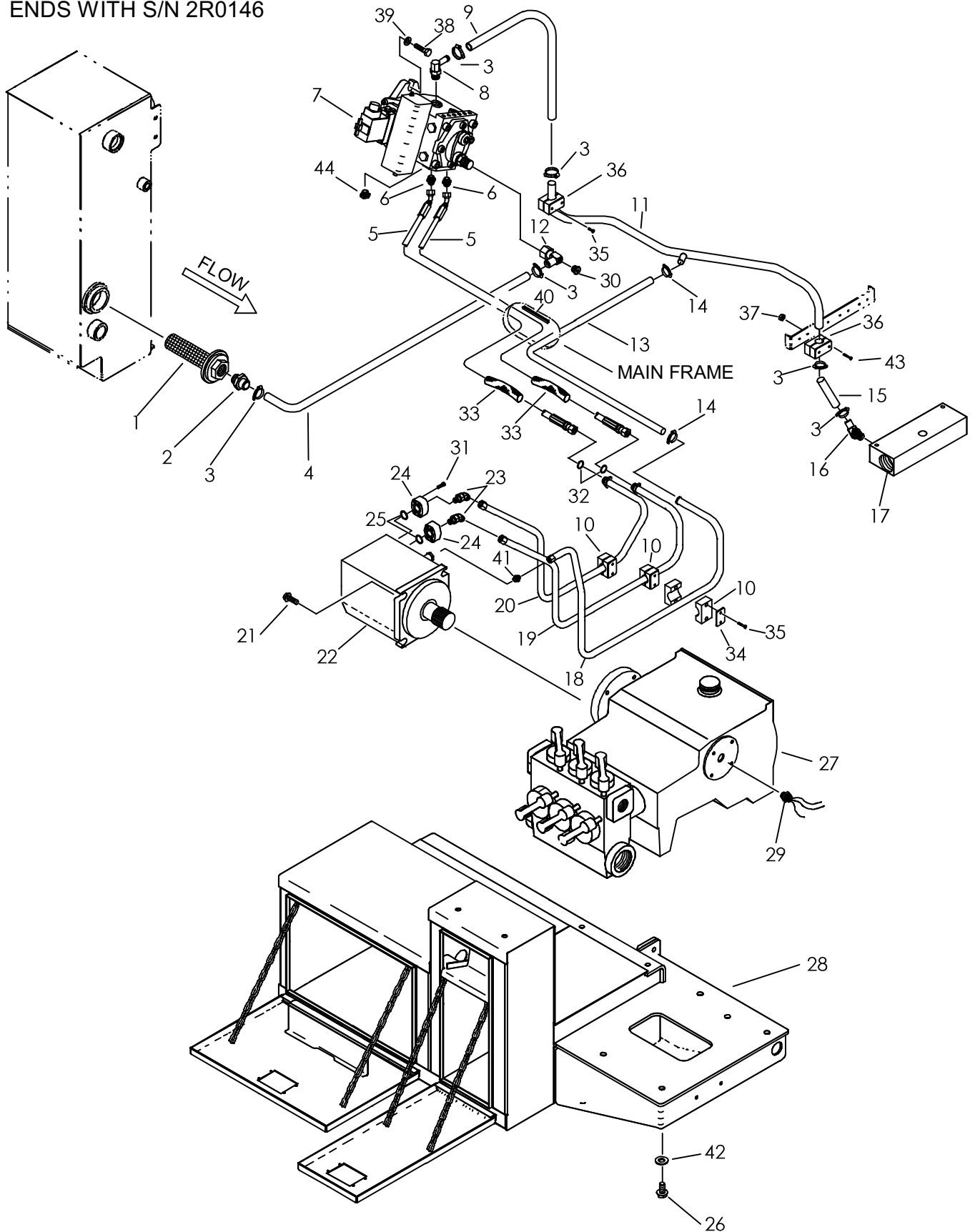
NOTE:



# **FLUID SYSTEMS**

# FLUID PUMP MOUNTING & HYDRAULICS

ENDS WITH S/N 2R0146





## FLUID PUMP MOUNTING & HYDRAULICS ENDS WITH S/N 2R0146

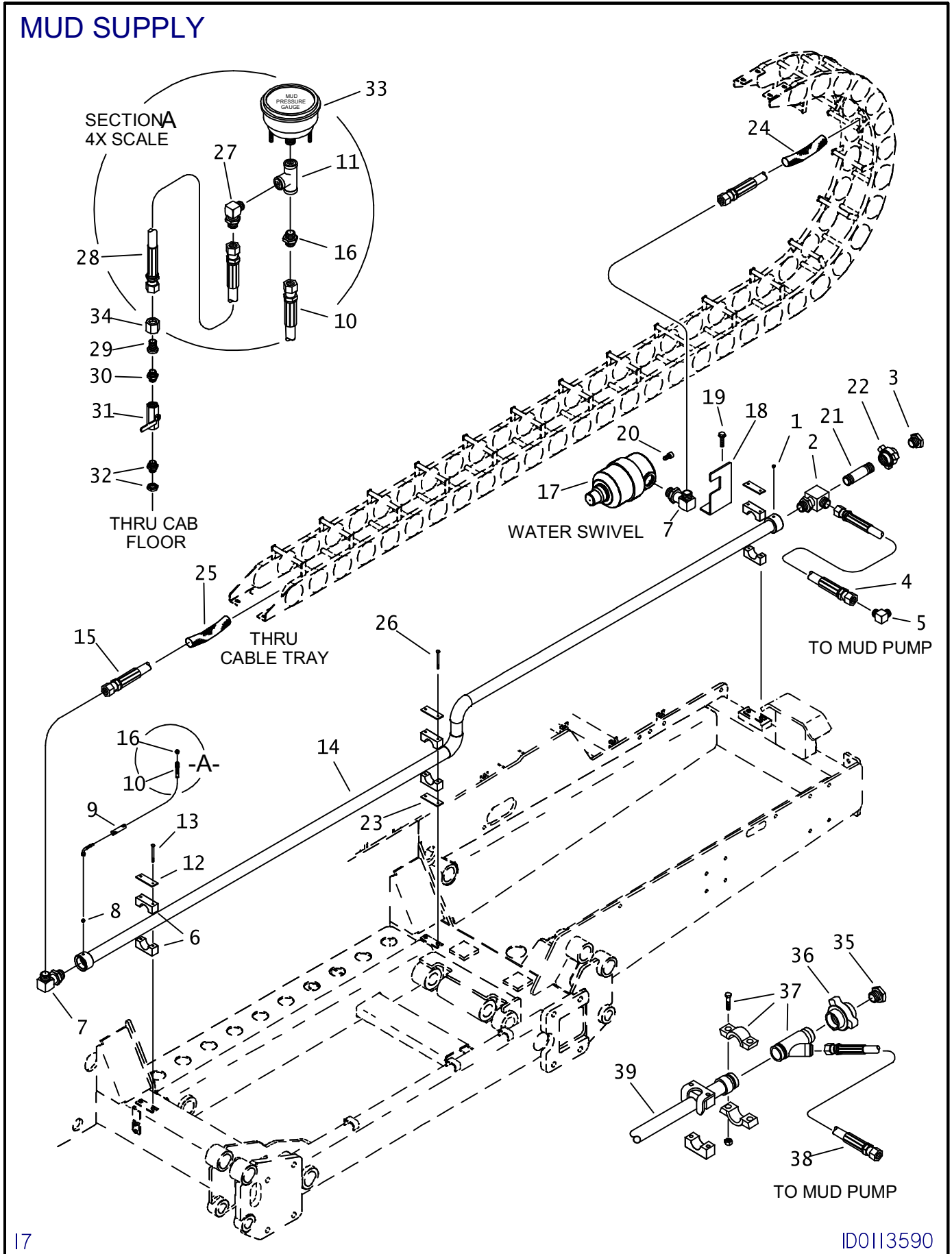
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	159-432	1	TANK FILTER SCREEN	
2.	154-476	1	S/O COUPLER (20S-16H)	
3.	111-011	6	WORM CLAMP (1" TO 1-3/4")	
4.	116-460	1	BULK HOSE (1", SOLD PER 1')	USE 1 @ 29"
5.	149-061	2	HYD HOSE (120FX45-59"-5000)	
6.	154-269	2	CONNECTOR (12S-120)	
7.	158-432	1	HYD PUMP	FLUID DRIVE, INCL REF NO. 44
	190-791		SEAL REPAIR KIT	
	217-404	1	CONTROL, 'Y' ELECT PROPORTIONAL	OBSOLETE
8.	155-146	1	S/O COUPLER (12S-16H90)	
9.	116-460	1	BULK HOSE (1", SOLD PER 1')	USE 1 @ 18"
10.	110-411	3	BOLT-ON CLAMP (3/4", SET)	
11.	156-132	1	HYD LINE (16H-16H-12H)	
12.	154-480	1	S/O COUPLER (10S-16H90-08SF)	
13.	116-636	1	BULK HOSE (3/4", SOLD PER 1')	USE 1 @ 60"
14.	110-026	2	WORM CLAMP (1/2" TO 1-1/4")	
15.	116-460	1	BULK HOSE (1", SOLD PER 1')	USE 1 @ 9"
16.	155-230	1	S/O COUPLER (16S-16H45)	
17.	159-414	-	CASE DRAIN MANIFOLD	
18.	156-151	1	HYD LINE (120FX-12H)	
19.	156-150	1	HYD LINE (120-120FX)	
20.	156-149	1	HYD LINE (120-120FX)	
21.	106-499	4	FLG BOLT (1/2-NC X 1-1/2", GD8)	
22.	158-909	1	HYD MOTOR	FLUID PUMP DRIVE
	190-792		SEAL REPAIR KIT	
23.	154-358	2	CONNECTOR (120-16S45)	
24.	514-245	2	HEAD FLANGE (16HFL-16S)	
25.	157-029	2	O-RING (219 D90)	
26.	105-400	5	FLG BOLT (5/8-NC X 1-1/4")	
27.	158-434	1	FLUID PUMP	FMC L1122
	197-062	-	REBUILT (158-434)	
	158-487	-	FLUID PUMP	FMC L1622
28.	349-725	-	TOOL BOX	
29.	216-047	1	SPEED PICKUP	
30.	155-074	1	PLUG (08S, ALN)	
31.	105-918	8	BOLT (7/16-NC X 1-1/2", ALN)	
32.	157-017	2	O-RING (018 D90)	
33.	115-755	2	ABRASION SLEEVE (1.59" X 60")	
34.	322-289	5	BACKUP (BOLT-ON)	
35.	105-818	8	BOLT (1/4-NC X 1-1/2")	
36.	110-573	2	BOLT-ON CLAMP (1", SOLD PER SET)	USE 242 LOCTITE OR EQUIVALENT
37.	105-832	2	FLG LOCKNUT (1/4-NC)	
38.	106-333	2	SCREW (M12-1.75 X 40mm)	USE 1 @ 16"
39.	106-397	2	WASHER (M12, HARDENED)	
40.	116-259	AR	BULK EDGE (1/2", SOLD PER 1")	
41.	154-269	1	CONNECTOR (12S-120)	
42.	106-398	5	WASHER (M16, HARDENED)	
43.	105-106	2	BOLT (1/4-NC X 2")	
44.	500-302	-	PLUG (12S)	

## FOOTNOTES:

## NOTE:

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

# MUD SUPPLY



## MUD SUPPLY

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	115-157	1	PLUG (02N, ALN)	
2.	159-463	1	BK CONN (24J-24S90BK, 32NF)	
3.	114-008	1	PLUG (32N, SQ, GALV)	
4.	515-577	1	HOSE (24JFX-41"-1700)	ENDS WITH S/N 2R0146
	515-687	1	HOSE (24JFX-27"-1700)	BEGINS WITH S/N 2R0314
5.	514-336	-	CONNECTOR (24J-20N90)	ENDS WITH S/N 2R0146
	514-339	-	UNION (24J-24JFX90)	BEGINS WITH S/N 2R0314
6.	111-010	6	BOLT-ON CLAMP(1.750", HALF)	
7.	514-341	2	CONNECTOR (24S-24J90)	
8.	154-365	1	CONNECTOR (02N-040)	
9.	117-170	1	ABRASION SLEEVE (1" X 197")	
10.	515-384	1	HYD HOSE (040FX90-190"-3000)	
11.	115-130	1	PIPE TEE	
12.	110-973	3	COVER PLATE	
13.	106-967	6	BOLT (1/4-NC X 2.75")	
14.	349-781	1	TUBE	
15.	515-609	1	HYD HOSE (24JFX-236"-1700)	
16.	154-339	1	CONNECTOR (04N-040)	
17.	349-008	1	WATER SWIVEL	ENDS WITH S/N
	149-592	1	WATER SWIVEL	BEGINS WITH S/N
	190-821	2	SEAL REPAIR KIT	
18.	349-905	1	TORQUE BRACKET	
19.	106-559	2	SCREW (M12-1.75 X 25mm)	
20.	115-165	1	PLUG (08N, ALN)	
21.	115-050	1	NIPPLE (32N-6")	
22.	149-078	1	HAMMER UNION (32NF)	
23.	370-422	AR	SHIM	
24.	115-899	1	ABRASION SLEEVE (2.54" X 54")	
25.	115-901	1	ABRASION SLEEVE (2.54" X 72")	
26.	107-196	2	BOLT (1/4-NC X 3")	
27.	154-482	1	CONNECTOR (04N-04090)	
28.	515-249	1	HOSE (040FX-26"-3000)	
29.	154-248	1	REDUCER (040-080F)	
30.	154-349	1	CONNECTOR (08N-080)	
31.	158-579	1	SHUT-OFF (08NF-08NF)	
32.	149-364	1	BK CONN (08NPT-08ORS)	
33.	217-543	-	PRESSURE GAUGE (3000PSI)	
34.	154-272	1	REDUCER NUT (080F)	
35.	114-008	1	PLUG (32N, SQ. GALV)	USE ON JT7020B ONLY
36.	149-078	1	HAMMER UNION (32NF)	USE ON JT7020B ONLY
37.	153-278	1	Y-CONNECTOR (24J-32N-32V)	USE ON JT7020B ONLY
38.	153-132	1	HOSE (24JFX-45"-1700)	USE ON JT7020B ONLY
39.	313-885	1	MUD SUPPLY TUBE	USE ON JT7020B ONLY

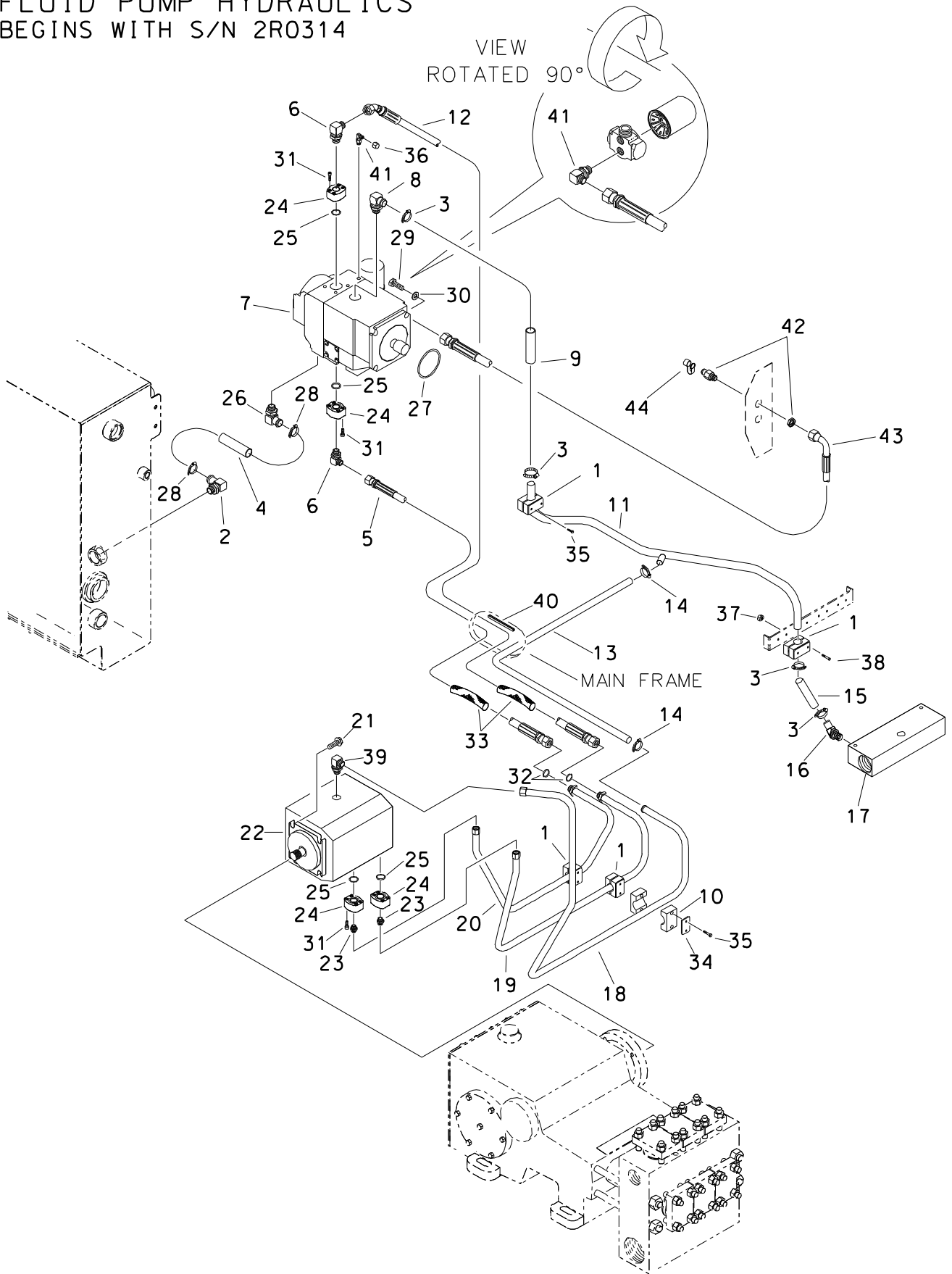
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FOOTNOTES:

NOTE:

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

FLUID PUMP HYDRAULICS  
 BEGINS WITH S/N 2R0314



## FLUID PUMP HYDRAULICS BEGINS WITH S/N 2R0314

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	110-573	4	BOLT-ON CLAMP (1", SOLD PER SET)	
2.	155-168	1	S/O COUPLER (20S-20H90)	
3.	110-353	4	WORM CLAMP (3/4" TO 1-1/2")	
4.	116-587	1	BULK HOSE (1-1/4", SOLD PER 1')	USE 1 @ 22"
5.	515-685	1	HOSE (160FX-147"-5000)	
6.	154-287	2	CONNECTOR (16S-16090)	
7.	158-489	1	HYDRAULIC PUMP	MUD DRIVE
	N/A	1	SEAL REPAIR KIT	
8.	155-146	1	S/O COUPLER (12S-16H90)	
9.	116-094	1	BULK HOSE (1", SOLD PER 1')	USE 1 @ 57"
10.	110-411	1	BOLT-ON CLAMP (3/4", PER SET)	
11.	156-132	1	HYD LINE (16H-16H-12H)	
12.	515-686	1	HOSE (160FX45-147"-5000)	
13.	116-636	1	BULK HOSE (3/4", SOLD PER 1')	USE 1 @ 60"
14.	110-026	2	WORM CLAMP (1/2" TO 1-1/4")	
15.	116-094	1	BULK HOSE (1", SOLD PER 1')	USE 1 @ 9.5"
16.	155-230	1	S/O COUPLER (16S-16H45)	
17.	159-414	-	CASE DRAIN MANIFOLD	
18.	510-022	1	HYD LINE (12H-120FX)	
19.	510-021	1	HYD LINE (120-160FX)	
20.	510-020	1	HYD LINE (120-160FX)	
21.	106-499	4	FLG BOLT (1/2-NC X 1-1/2", GD8)	
22.	158-968	1	HYDRAULIC MOTOR	
	N/A	1	SEAL REPAIR KIT	
23.	154-281	2	CONNECTOR (16S-160)	
24.	514-245	4	HD FLANGE (16HFL-16S)	
25.	157-029	4	O-RING (219 D90)	
26.	155-149	1	S/O COUPLER (16S-20H90)	
27.	157-201	1	O-RING (049 D70)	
28.	110-133	2	WORM CLAMP (1.062" TO 1.937")	
29.	105-858	4	BOLT (1/2-NC X 1-1/4")	
30.	106-743	4	WASHER (.531", HARDENED)	
31.	105-918	16	BOLT (7/16-NC X 1-1/2", ALN)	
32.	157-017	2	O-RING (018 D90)	
33.	116-640	2	ABRASION SLEEVE (1.75" X 150")	
34.	322-289	5	BACKUP (BOLT-ON)	
35.	105-818	8	BOLT (1/4-NC X 1-1/2")	
36.	154-296	1	CAP (040F)	
37.	105-832	2	FLG LOCKNUT (1/4-NC)	
38.	105-106	2	BOLT (1/4-NC X 2")	
39.	154-270	1	CONNECTOR (12S-12090)	
40.	116-259	AR	BULK EDGE (1/2", SOLD PER 1')	USE 1 @ 16"
41.	154-226	2	CONNECTOR (040-06S90)	
42.	155-260	1	QDC ADAPTER (02-040)	
43.	154-706	1	HOSE (040FX90-40"-3000)	
44.	159-148	1	DUST CAP (1/8")	
NOT SHOWN:				
	158-017	1	FLUID PUMP	FMC
	158-487	1	FLUID PUMP	FMC L1622
	216-047	1	SPEED PICKUP	FOOTNOTE 1

### FOOTNOTES

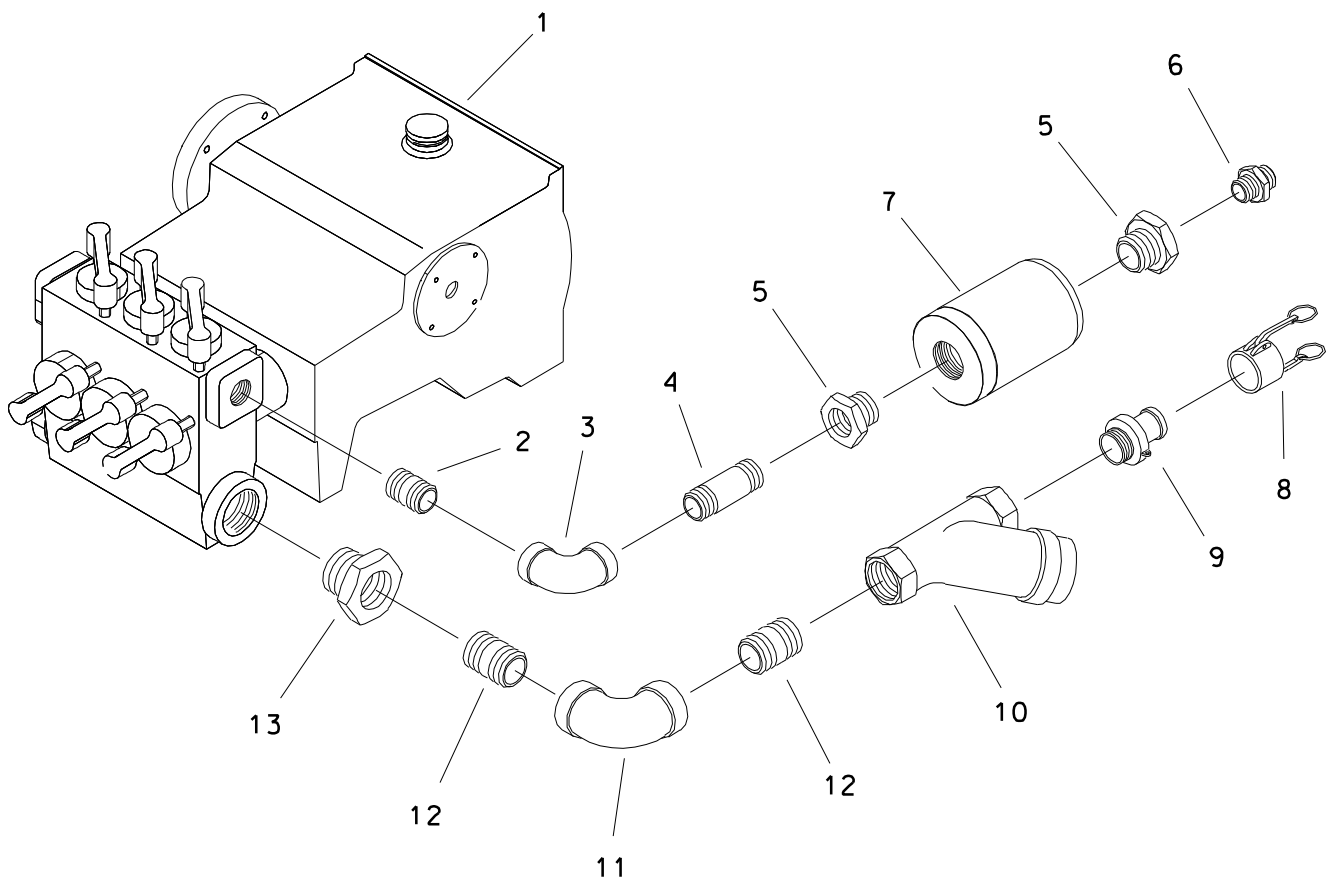
1. 3 EACH 214-104 AND 3 EACH 157-645 ARE NEEDED TO INSTALL 215-224. USED WITH SPEED PICKUP (216-047). NEED TO USE CRIMPING TOOL.

### NOTE

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

# MUD PUMP PLUMBING

ENDS WITH S/N 2R0313

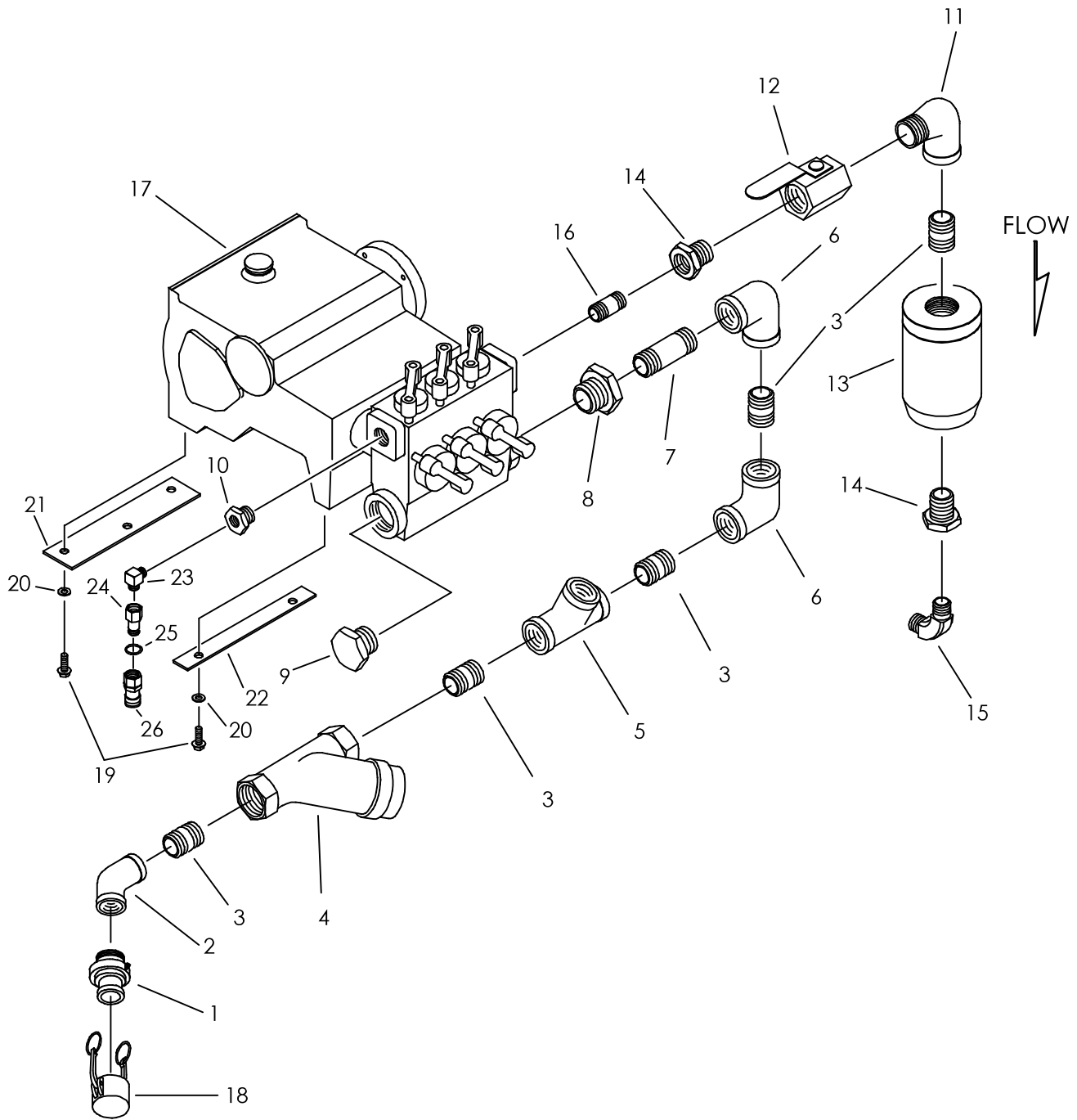


# MUD PUMP PLUMBING ENDS WITH S/N 2R0313

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	158-434	-	MUD PUMP	
2.	115-207	1	NIPPLE (20N-2")	
3.	115-209	1	ELBOW (20NF-20NF90)	
4.	N/A	1	NIPPLE (20N-3")	
5.	515-678	2	REDUCER (32N-20NF)	
6.	514-337	1	CONNECTOR (20N-24J)	
7.	370-251	-	CHECK VALVE	
8.	159-486	1	FHC CAP (32)	
9.	159-181	1	FHC ADAPTER (40-32N)	
10.	159-176	1	Y-STRAINER (32NF)	
	159-239		STRAINER (2.2" X 7")	
11.	115-293	1	ELBOW (32NF-32NF90)	
12.	115-295	2	ALL THREAD (32N-2")	
13.	114-024	1	REDUCER (40N-32NF)	

# MUD PUMP PLUMBING

BEGINS WITH S/N 2R0314





## MUD PUMP PLUMBING BEGINS WITH S/N 2R0314

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	149-256	1	FHC ADAPTER (56-32N)	BEGINS WITH S/N
	159-181	1	FHC ADAPTER (40-32N)	ENDS WITH S/N
2.	115-297	1	ELBOW (32NF-32NF45)	
3.	515-680	5	ALL THREAD (32N-2")	
4.	159-176	1	Y-STRAINER (32NF)	
	159-239		STRAINER (2.2" X 7")	
5.	154-484	1	TEE (32NF-32NF-32NF)	
6.	115-293	2	ELBOW (32NF-32NF90)	
7.	114-014	1	NIPPLE (32N-5")	
8.	114-024	1	REDUCER (40N-32NF)	
9.	156-944	1	PLUG (40N)	
10.	115-260	1	REDUCER (12NF)	
11.	115-052	1	STREET ELBOW (32N-32NF90)	
12.	149-1001	1	SHUT-OFF (32NF-32NF)	
13.	370-251		MUD CHECK VALVE	
14.	515-678	2	REDUCER (32N-20NF)	
15.	514-336	1	CONNECTOR (20N-24J90)	
16.	149-561	1	NIPPLE (20N-3")	
17.	158-017	1	MUD PUMP	
18.	105-728	1	FHC CAP (48)	BEGINS WITH S/N
	159-486	1	FHC CAP (32)	ENDS WITH S/N
19.	105-969	5	FLG BOLT (5/8-NC X 1-1/2", GD8)	
20.	106-398	5	WASHER (M16, HARDENED)	
21.	370-350	1	SPACER BAR	
22.	370-351	1	SPACER BAR	
23.	154-490	1	CONNECTOR (12N-08O90)	
24.	156-732	1	CONNECTOR (08J-08O)	
25.	155-706	1	O-RING (908 D90)	
26.	159-088	1	QDC BODY (08-08SF)	
	190-186		SEAL REPAIR KIT	

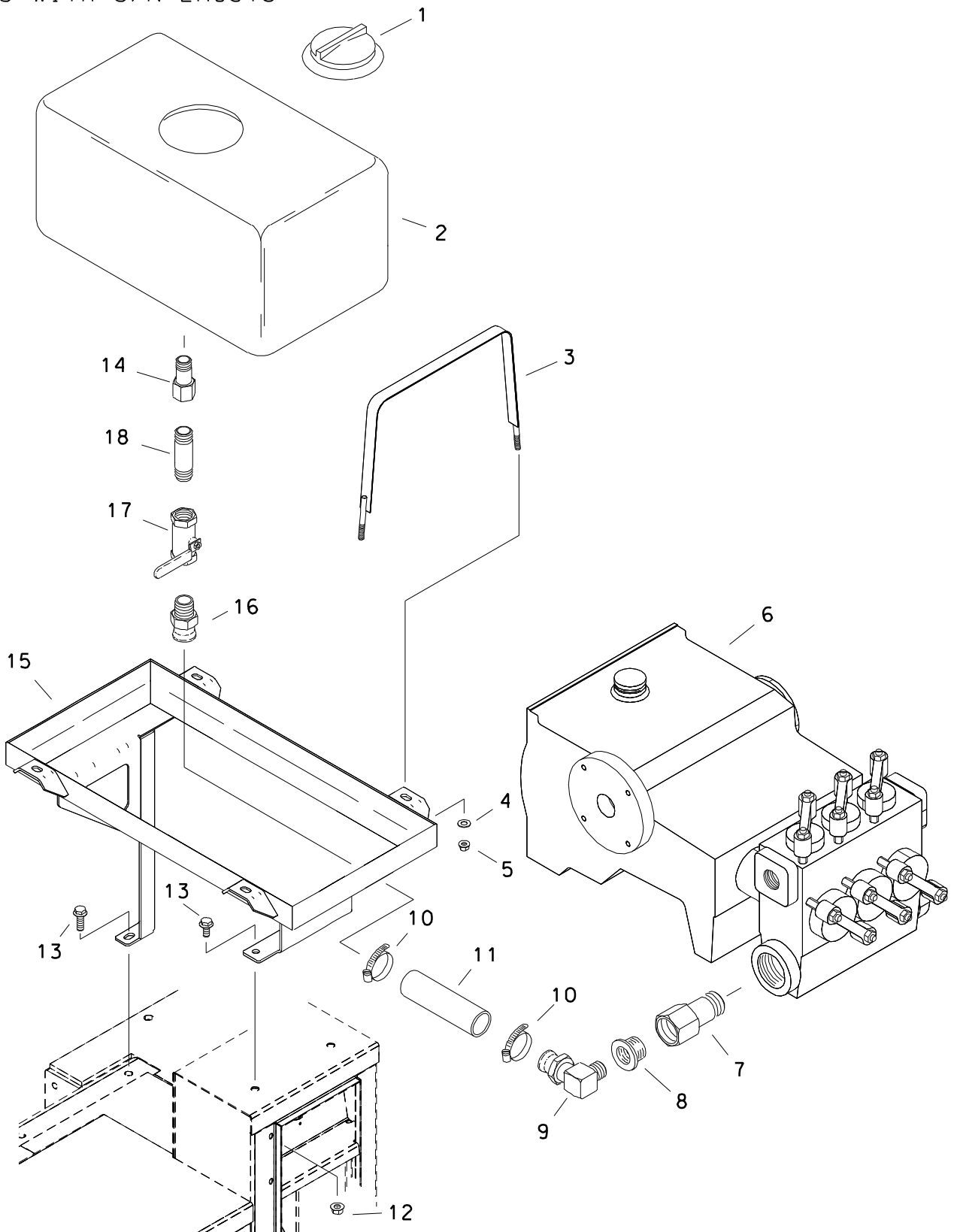
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FOOTNOTES:

NOTE:

# ANTIFREEZE TANK

ENDS WITH S/N 2R0313



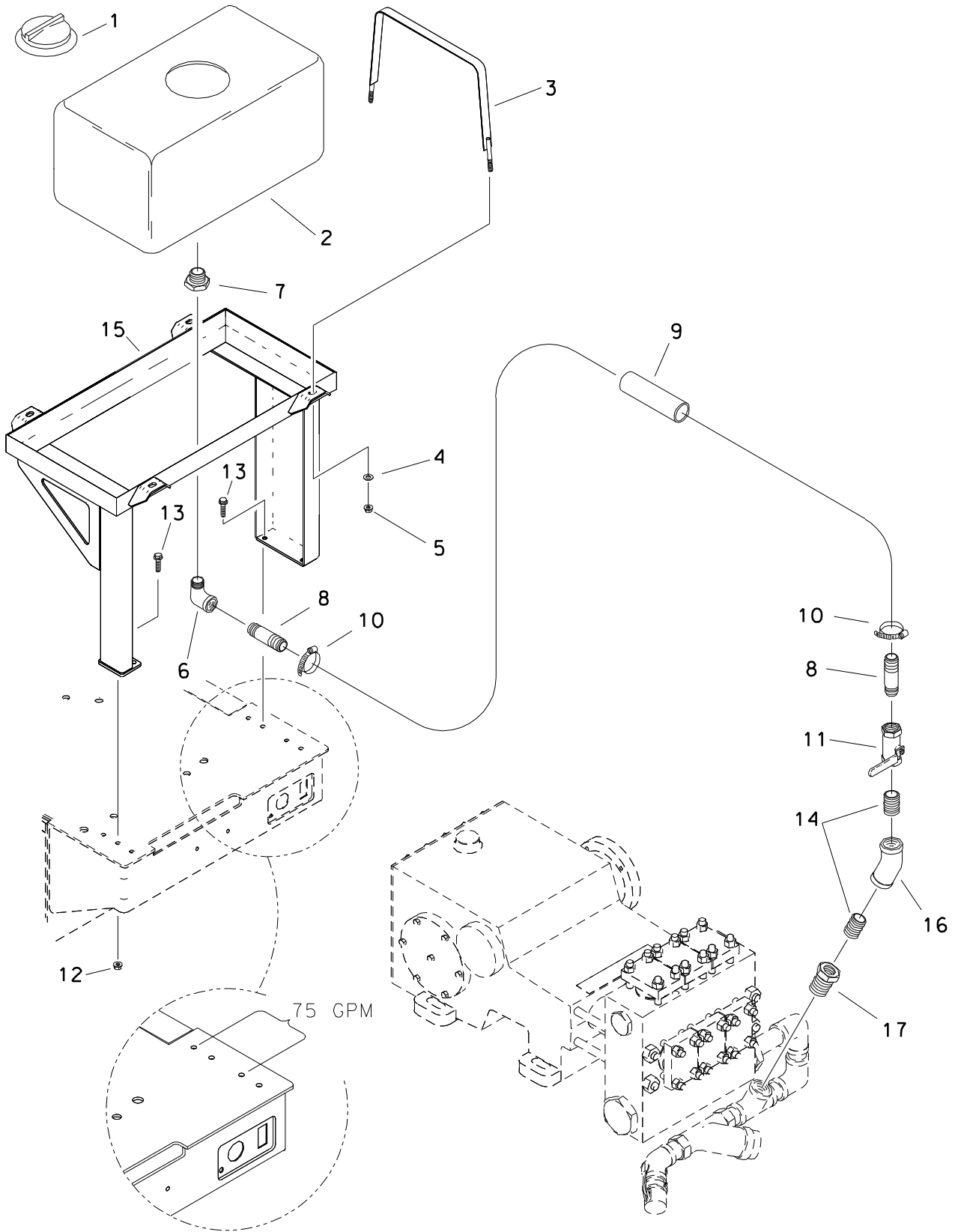
# ANTIFREEZE TANK

## ENDS WITH S/N 2R0313

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	110-707	1	TANK CAP (96NF)	
2.	364-412	1	STORAGE TANK (20 GAL)	INCL REF NO. 1
	190-053		TANK REPAIR KIT	
	155-235	1	BK CONNECTOR (24NF-24NFBK)	
3.	338-087	2	STRAP	
4.	105-118	4	WASHER (3/8")	
5.	105-814	4	FLG LOCKNUT (3/8")	
6.	158-434	-	FLUID PUMP	FMC L1122
	158-487	-	FLUID PUMP	FMC L1622
7.	114-024	1	REDUCER (40N-32NF)	
8.	115-085	1	REDUCER (32N-16NF)	
9.	155-137	1	S/O COUPLER (16N-16H90)	
10.	110-353	2	WORM CLAMP (3/4" TO 1-1/2")	
11.	116-460	AR	BULK HOSE (1", SOLD PER 1')	USE 1 @ 20"
12.	106-709	2	FLG NUT (M12-1.75)	
13.	106-632	3	FLG LK SCREW (M12-1.75 X 35MM)	
14.	115-261	1	REDUCER (24N-16NF)	
15.	370-029	1	TANK MOUNT	
16.	155-136	1	S/O COUPLER (16N-16H)	
17.	120-067	1	SHUT-OFF (16NF-16NF)	
18.	115-206	1	NIPPLE (16N-2-1/2")	

FOOTNOTES

# ANTI-FREEZE TANK BEGINS WITH S/N 2R0314



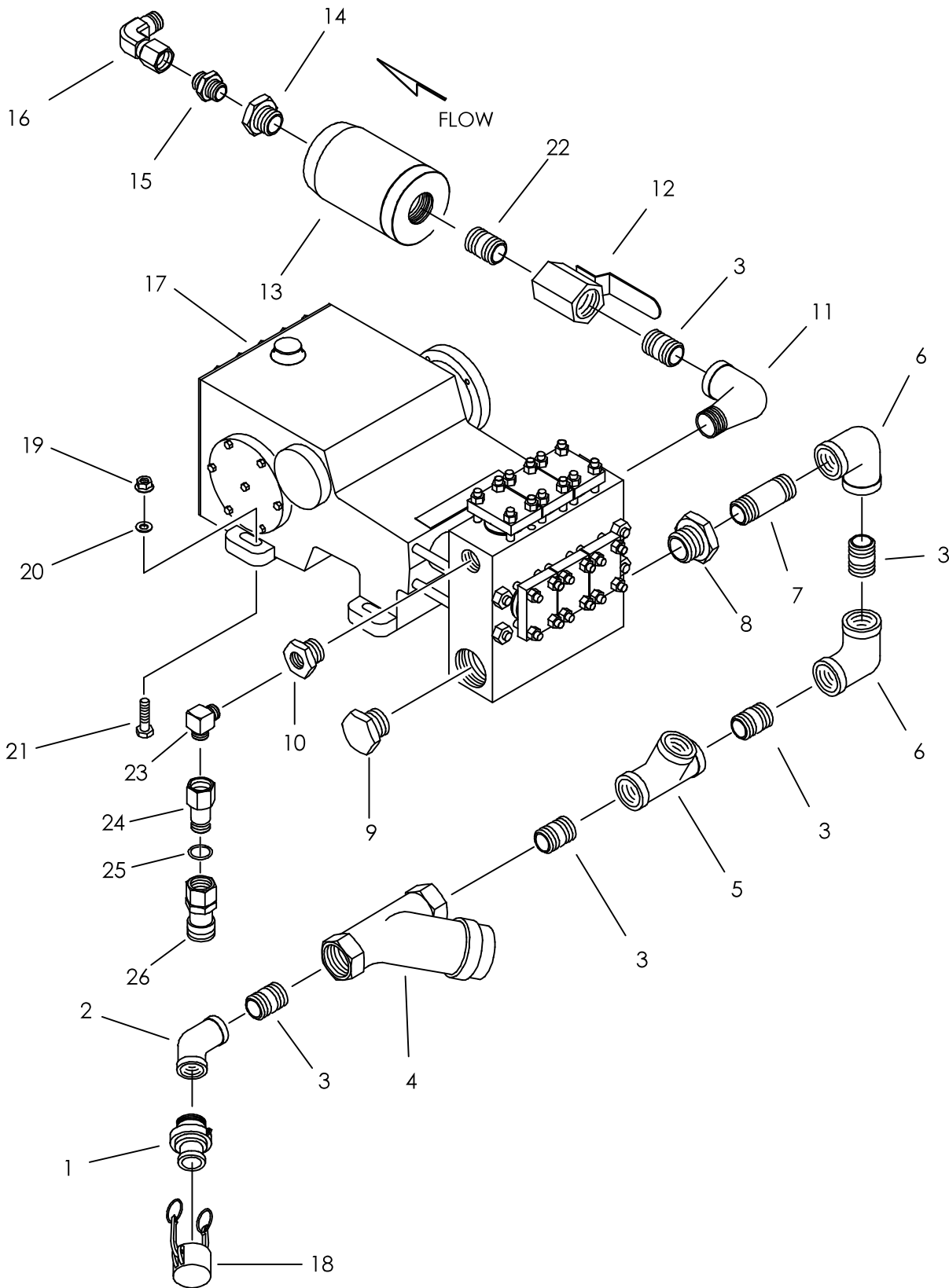
# ANTI-FREEZE TANK

## BEGINS WITH S/N 2R0314

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	110-707	1	TANK CAP (96NF)	
2.	364-412	1	STORAGE TANK (20 GAL)	INCL REF NO. 1
	190-053		TANK REPAIR KIT	
	155-235	1	BK CONNECTOR (24NF-24NFBK)	
3.	338-087	2	STRAP	
4.	105-118	4	WASHER (3/8")	
5.	105-814	4	FLG LOCKNUT (3/8")	
6.	115-132	1	STREET ELBOW (20N-20NF90)	
7.	514-152	1	REDUCER (24N-20NF)	
8.	156-940	2	SLIP-ON COUPLER (20N-20H)	
9.	116-587	AR	BULK HOSE (1-1/4")	USE 1 @ 21"
10.	111-011	2	WORM CLAMP (1" TO 1-3/4")	
11.	120-022	1	SHUT-OFF (20NF-20NF)	
12.	106-266	4	FLG NUT (M10-1.50)	
13.	107-111	4	FLG LK SCREW (M10-1.50 X 35MM)	
14.	115-207	2	NIPPLE (20N X 2")	
15.	370-356	1	TANK MOUNT	
16.	115-051	1	ELBOW (20NF-20NF45)	
17.	515-678	1	BUSHING (32N-20NF)	

FOOTNOTES

# FLUID PUMP PLUMBING HI-FLOW



## FLUID PUMP PLUMBING HI-FLOW

REF PART NO. NUMBER	QTY	DESCRIPTION	REMARKS
1. 149-256	1	FHC ADAPTER (56-32N)	BEGINS WITH S/N 2W0856
159-181	1	FHC ADAPTER (40-32N)	ENDS WITH S/N 2V2567
2. 115-297	1	ELBOW (32NF-32NF45)	
3. 515-680	6	ALL THREAD (32N-2")	
4. 159-491	1	Y-STRAINER (32NF)	
N/A		- STRAINER (4" X 9")	
5. 154-484	1	TEE (32NF-32NF-32NF)	
6. 115-293	2	ELBOW (32NF-32NF90)	
7. 114-014	1	NIPPLE (32N-5")	
8. 115-253	1	REDUCER (48N-32NF)	
9. 156-939	1	PLUG (48N)	
10. 115-064	1	REDUCER (32N-12NF)	
11. 115-052	1	STREET ELBOW (32N-32NF90)	
12. 149-1001	1	SHUT-OFF (32NF-32NF)	
13. 370-251		- CHECK VALVE	
14. 515-678	1	REDUCER (32N-20NF)	
15. 514-337	1	CONNECTOR (20N-24J)	
16. 514-339	1	UNION (24J-24JFX90)	
17. 158-487	1	FLUID PUMP	OIL CAPACITY 11 QTS.
18. 105-728	1	FHC CAP (48)	BEGINS WITH S/N 2W0856
159-486	1	FHC CAP (32)	ENDS WITH S/N 2V2567
19. 106-356	4	FLG NUT (M20-2.50, 10.9)	
20. 106-393	4	WASHER (M20-2.50)	
21. 106-474	4	SCREW (M20-2.50 X 60MM)	
22. 114-032	1	ALL THREAD (32N-3")	
23. 154-490	1	CONNECTOR (12N-08O90)	
24. 156-732	1	CONNECTOR (08J-08O)	
25. 155-706	1	O-RING (908 D90)	
26. 159-088	1	QDC BODY (08-08SF)	

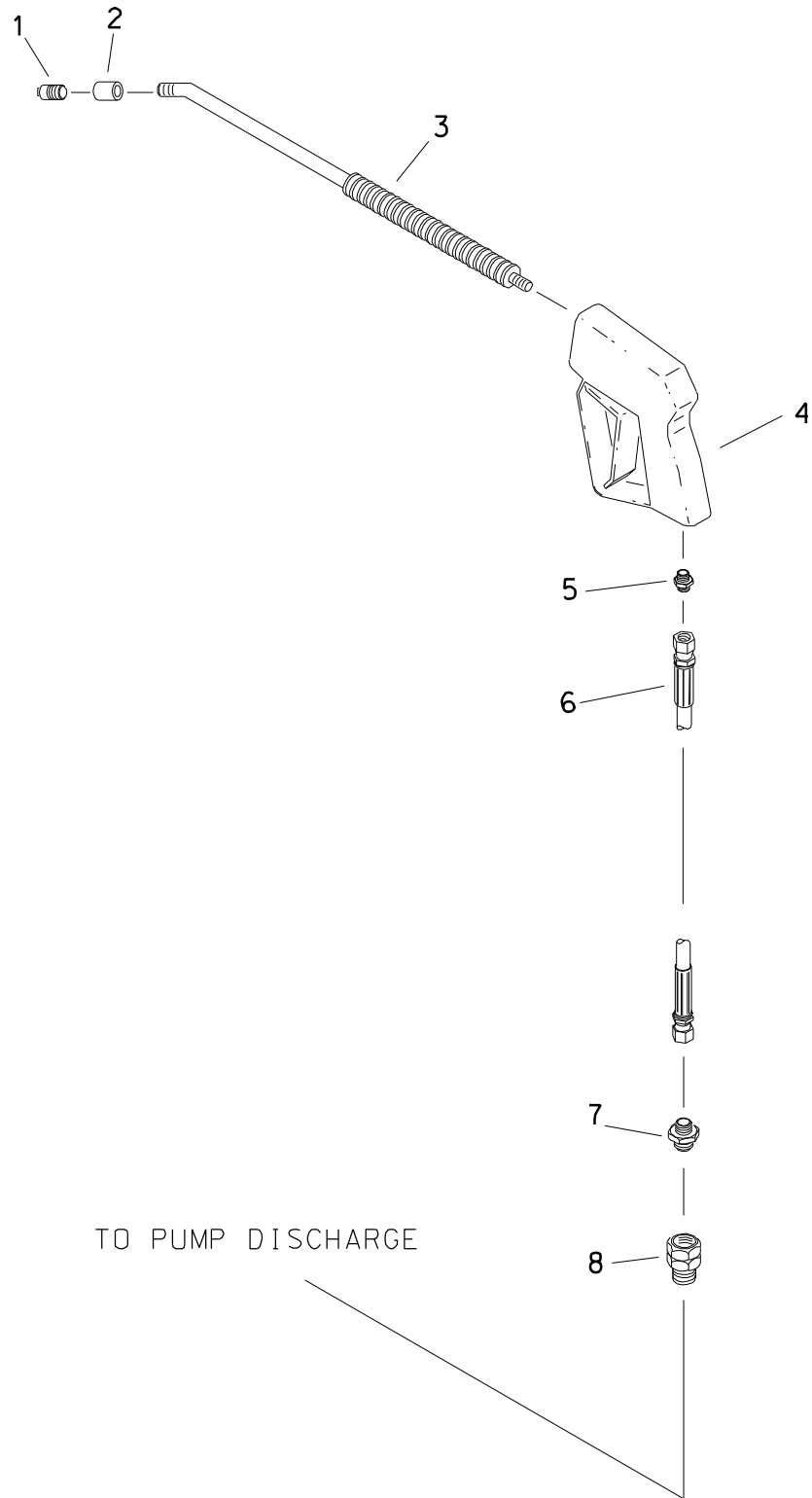
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FOOTNOTES:

NOTE:

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

# WASH WAND



TO PUMP DISCHARGE



# WASH WAND

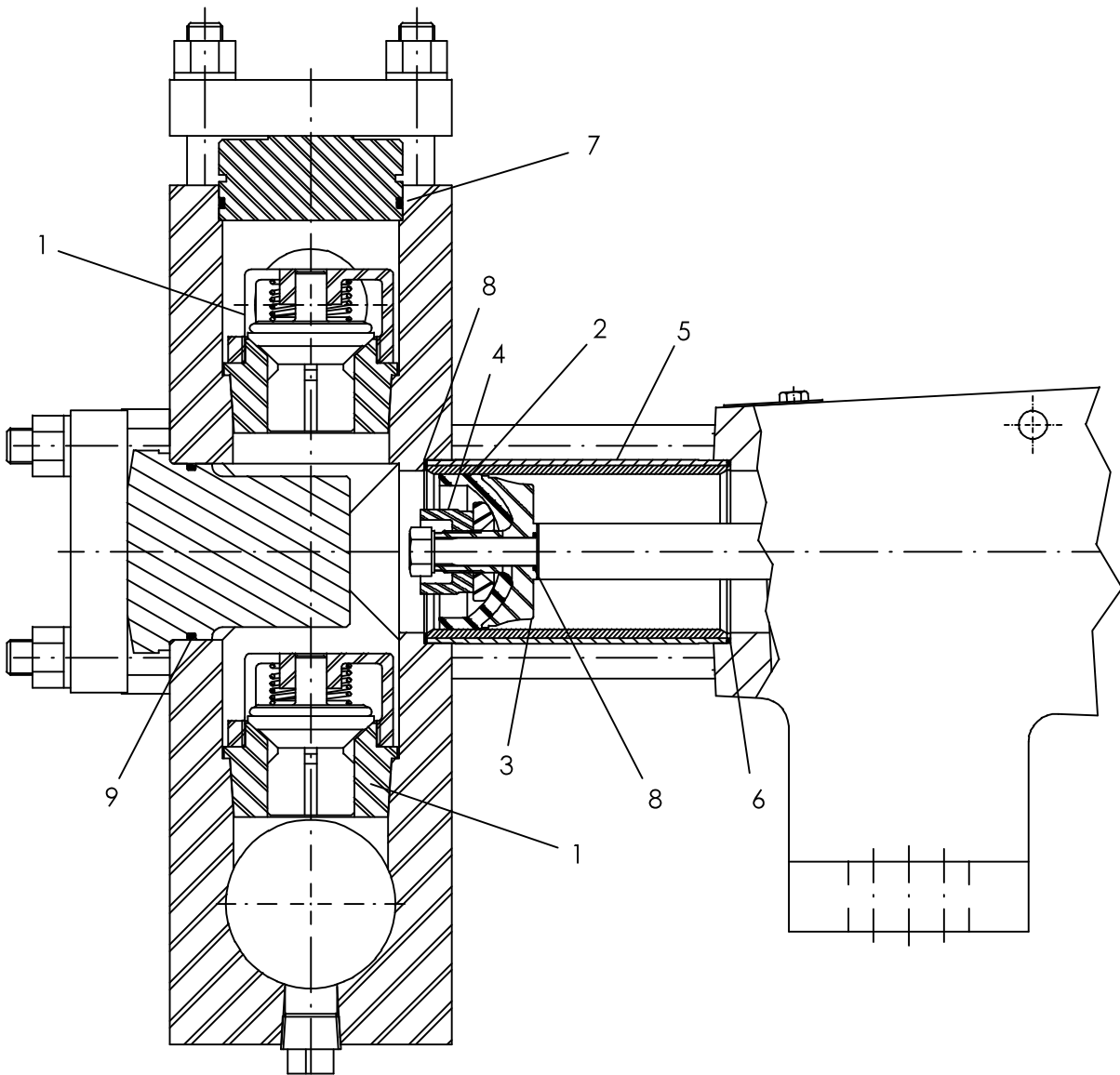
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	155-242	1	NOZZLE (04N, ORF.047", TC)	
2.	115-170	1	COLLAR (04NF)	
3.	259-353	1	WASH WAND (04N-36")	
4.	259-197	1	SPRAY GUN	
	190-179	1	SEAL REPAIR KIT	RHINO
	190-938	1	SPRAY GUN, REPAIR KIT	CHAPPELL
5.	514-141	1	CONNECTOR (06N-080)	
6.	154-753	1	HOSE (080FX-600"-3000)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

FOOTNOTES

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

# FLUID PUMP (FLUID END)

120 GPM



## FLUID PUMP (FLUID END) 120 GPM

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

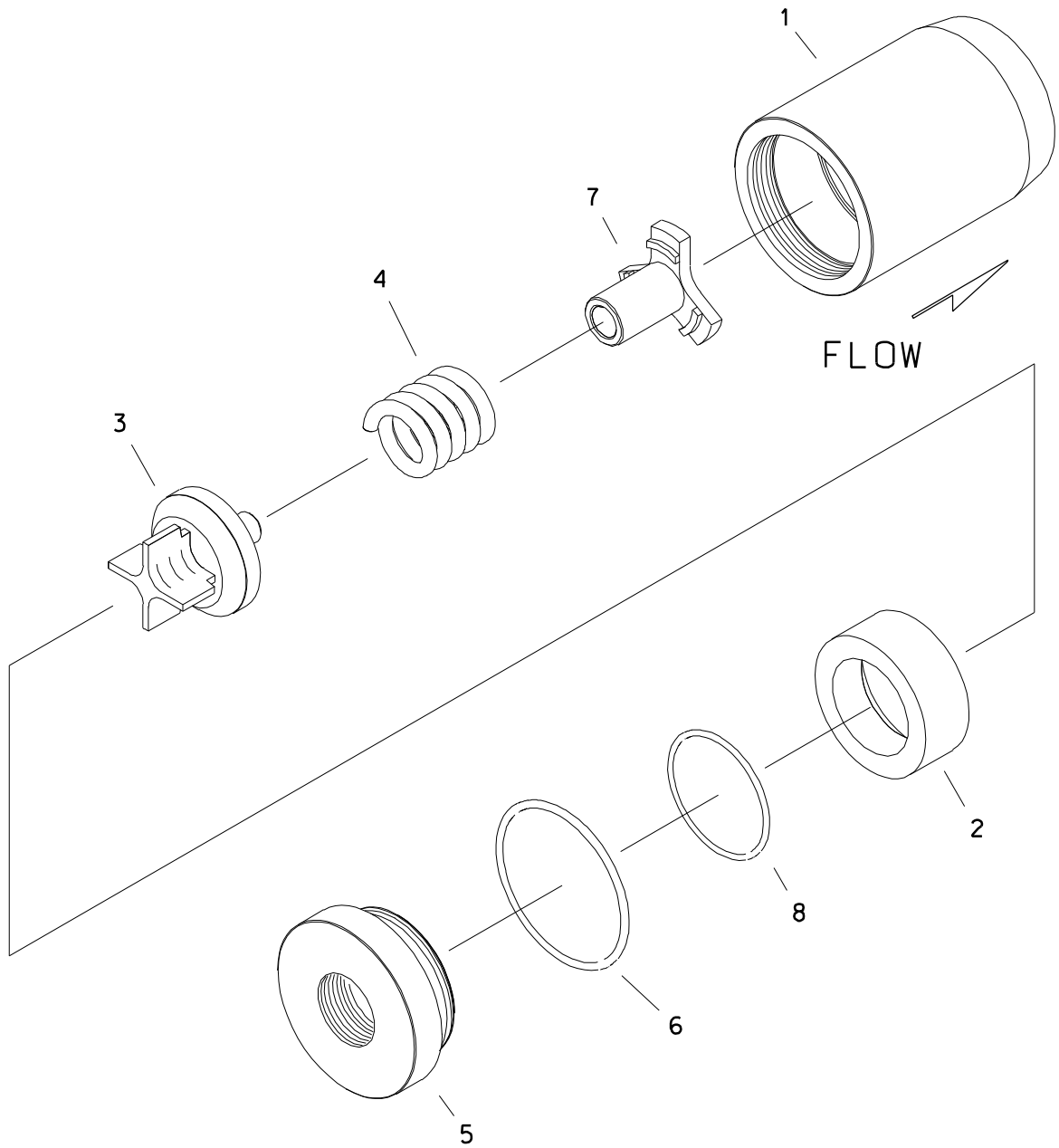
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FOOTNOTES:

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

NOTE:

## MUD CHECK VALVE



# MUD CHECK VALVE

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	370-251	1	MUD CHECK VALVE PARTS ASS'Y	INCL REF NO.'S 1 THRU 8
	191-070	1	REPAIR KIT	INCL REF NO.'S 2,4,5,7,8
1.	370-252	1	VALVE BODY	
2.	370-253	1	SEAT INSERT	
	370-411	1	SEAT INSERT	
3.	370-254	1	WING VALVE	
4.	117-176	1	COMPRESSION SPRING	
	116-869	1	COMPRESSION SPRING	
5.	370-256	1	END CAP	
6.	149-057	1	O-RING (348 D70)	
7.	370-255	1	SPRING GUIDE	
8.	149-067	1	O-RING (341 D70)	

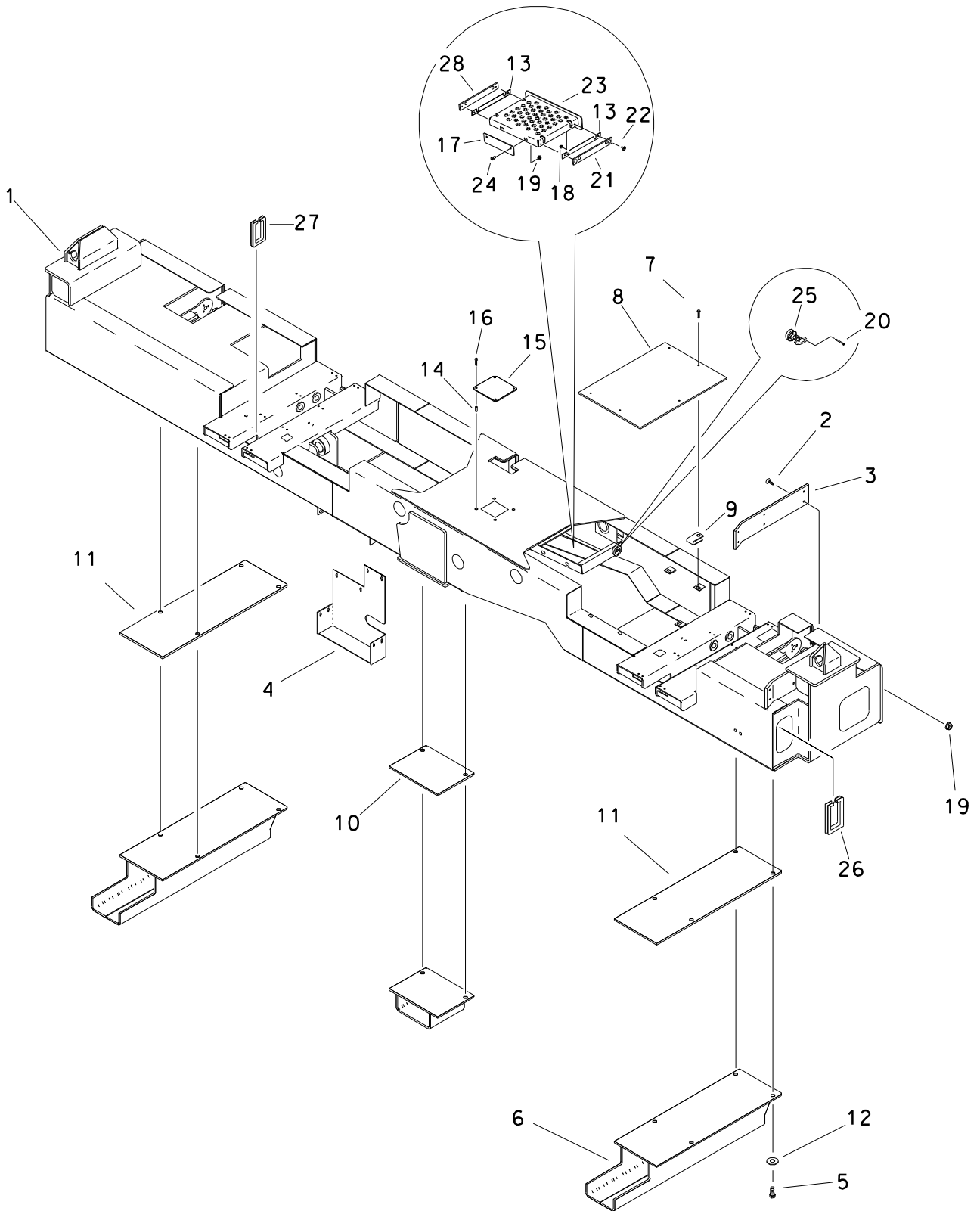
FOOTNOTES

NOTE



# **PIPE LOADER SYSTEMS**

## PIPE LOADER MOUNT



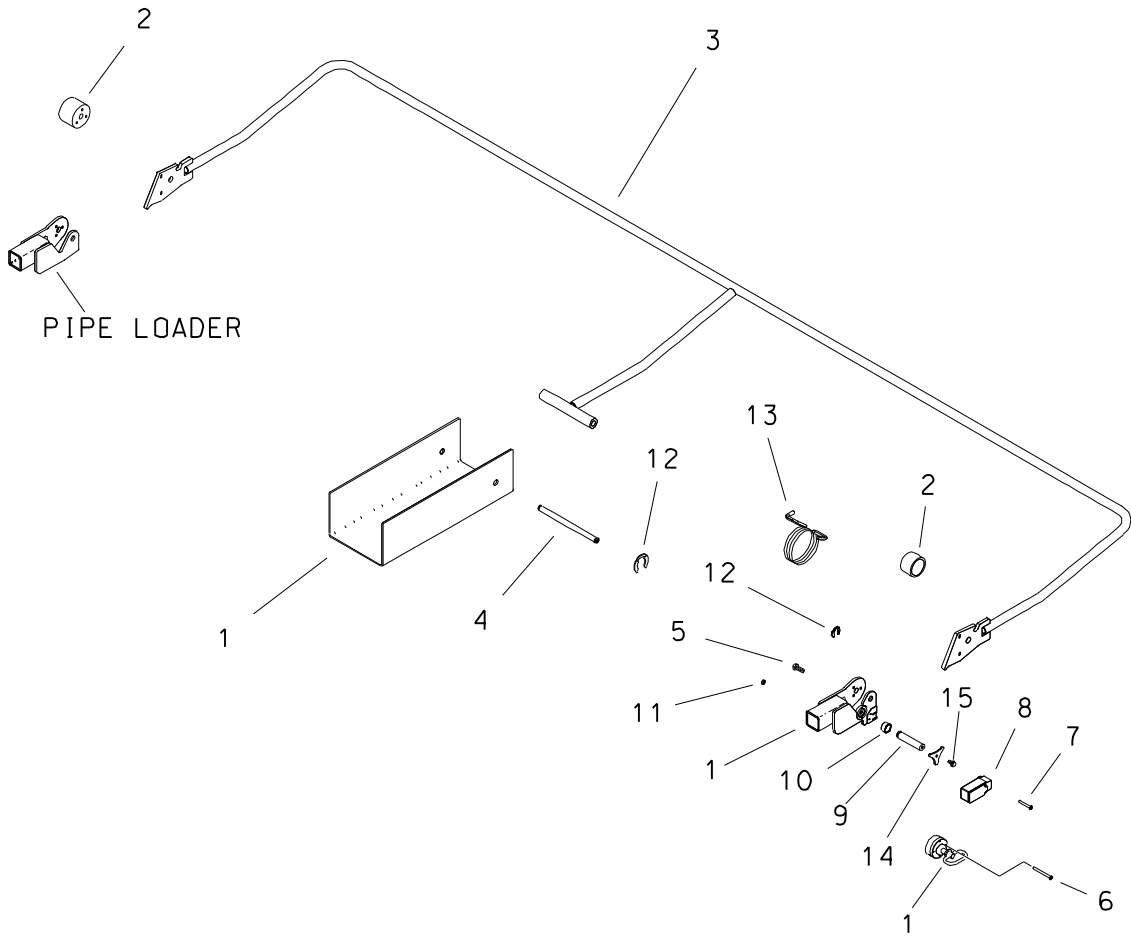


# PIPE LOADER MOUNT

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	349-262	1	PIPE LOADER SUPPORT FRAME	
2.	107-187	6	ELEVATOR BOLT (M8-1.25 X 35mm)	
3.	349-984	1	SLIDE PAD	
4.	370-369	1	COVER PLATE	
5.	106-340	10	SCREW (M16-2.0 X 50mm)	
6.	349-650	-	DRILL FRAME	
7.	106-162	13	SCREW (M8-1.25 X 20mm)	
8.	370-133	1	COVER PLATE	
9.	106-551	13	CLIP NUT (M8-1.25)	
10.	370-148	AR	TOP FLG PLATE (3/8")	
	370-165	AR	CENTER SHIM PLATE (1/8")	
11.	370-163	AR	SPACER PLATE (3/8")	
	370-164	AR	SHIM PLATE (1/8")	
12.	106-398	10	WASHER (M16, HARDENED)	
13.	370-325	AR	SHIM (.065")	
14.	105-633	1	NUTSERT(M8X1.25)3.80-7.90THK	
15.	370-079	1	COVER PLATE	
16.	107-032	4	SCREW (M8-1.25 X 20mm, BUT SOC)	
17.	370-242	1	STOP PLATE	
18.	106-353	4	FLG NUT (M6-1.00)	
19.	106-386	8	FLG LOCKNUT (M8-1.25)	
20.	106-796	2	SCREW (M4-.70 X 30mm)	
21.	370-243	1	SLIDE BAR	
22.	107-170	4	BOLT (M6-1.0 X 20mm)	
23.	370-231	1	STEP	
24.	106-380	2	FLG LK SCREW (M8-1.25 X 16mm)	
25.	347-888	1	SPRING LOADED PIN	
26.	116-259	AR	BULK EDGE (1/2", SOLD PER 1")	USE 4 @ 4"
27.	115-686	AR	BULK EDGE (5/32", SOLD PER 1")	USE 4 @ ___"
28.	370-241	1	CROSS BAR	

FOOTNOTES

# GUARD RAIL



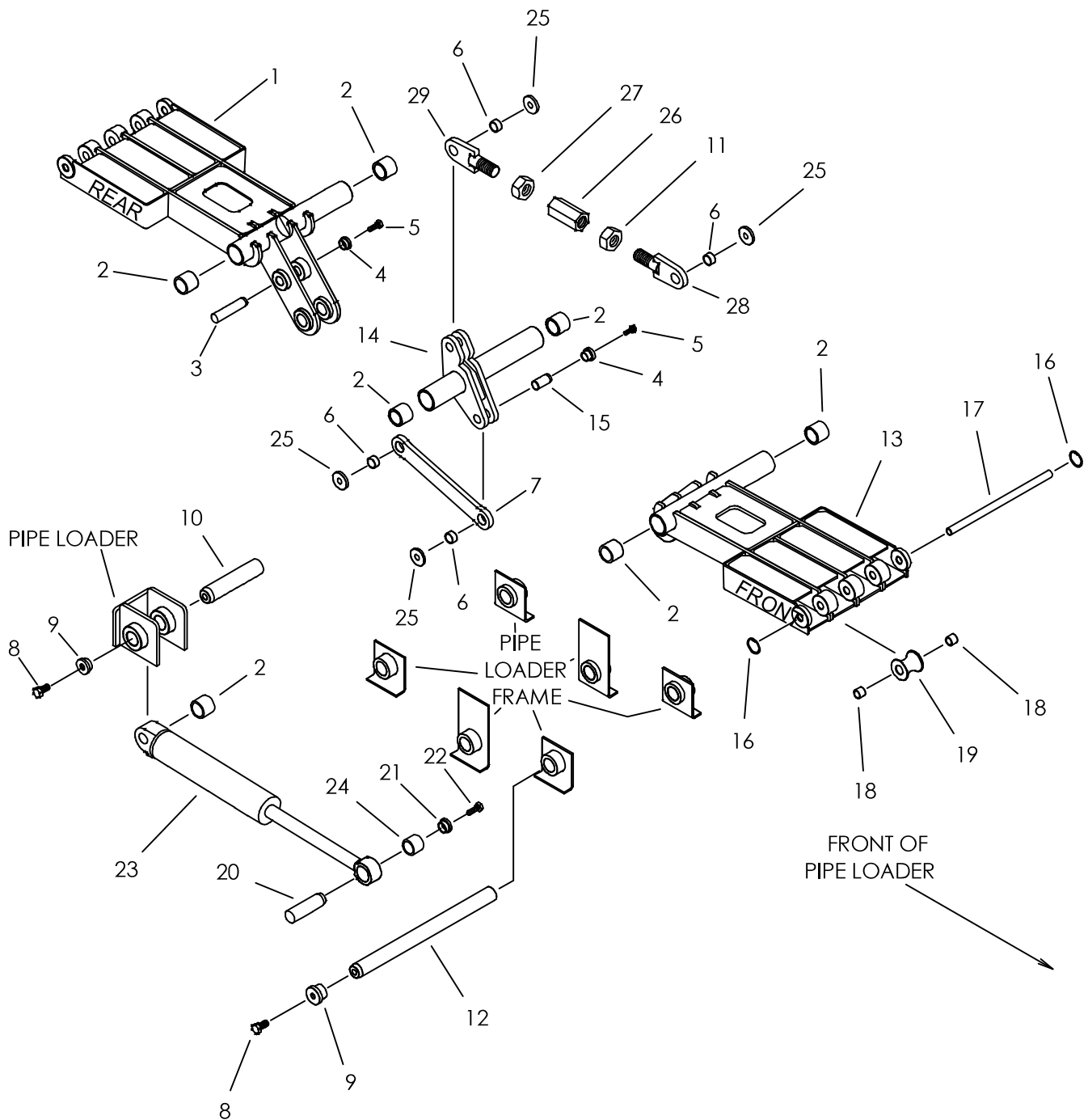
# GUARD RAIL

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	347-888	1	SPRING LOADED PIN	
2.	348-098	2	SPRING TUBE	
3.	349-288	1	GUARD RAIL	
4.	348-068	1	SUPPORT PIN	
5.	106-381	6	FLG LK SCREW (M8-1.25 X 25mm)	
6.	106-796	2	SCREW (M4-0.70 X 30mm)	
7.	105-816	2	BOLT (#10-24 X 1-1/2, PAN SLT)	
8.	217-085	1	LIMIT SWITCH	
9.	370-334	2	PIN	
10.	125-731	2	COMPOSITION BUSHING (.750")	
11.	106-048	2	LOCKNUT (#10-24)	
12.	115-503	4	KLIP RING (.750")	
13.	117-121	2	TORSION SPRING	
14.	370-335	2	HEAD PLATE	
15.	106-378	2	FLG LK BOLT (M6-1.00 X 12mm)	

FOOTNOTES

# PIPE LOADER LIFT ARMS

ENDS WITH S/N: CMWJT100PA0000027



## PIPE LOADER LIFT ARMS

ENDS WITH S/N: CMWJT100PA0000027

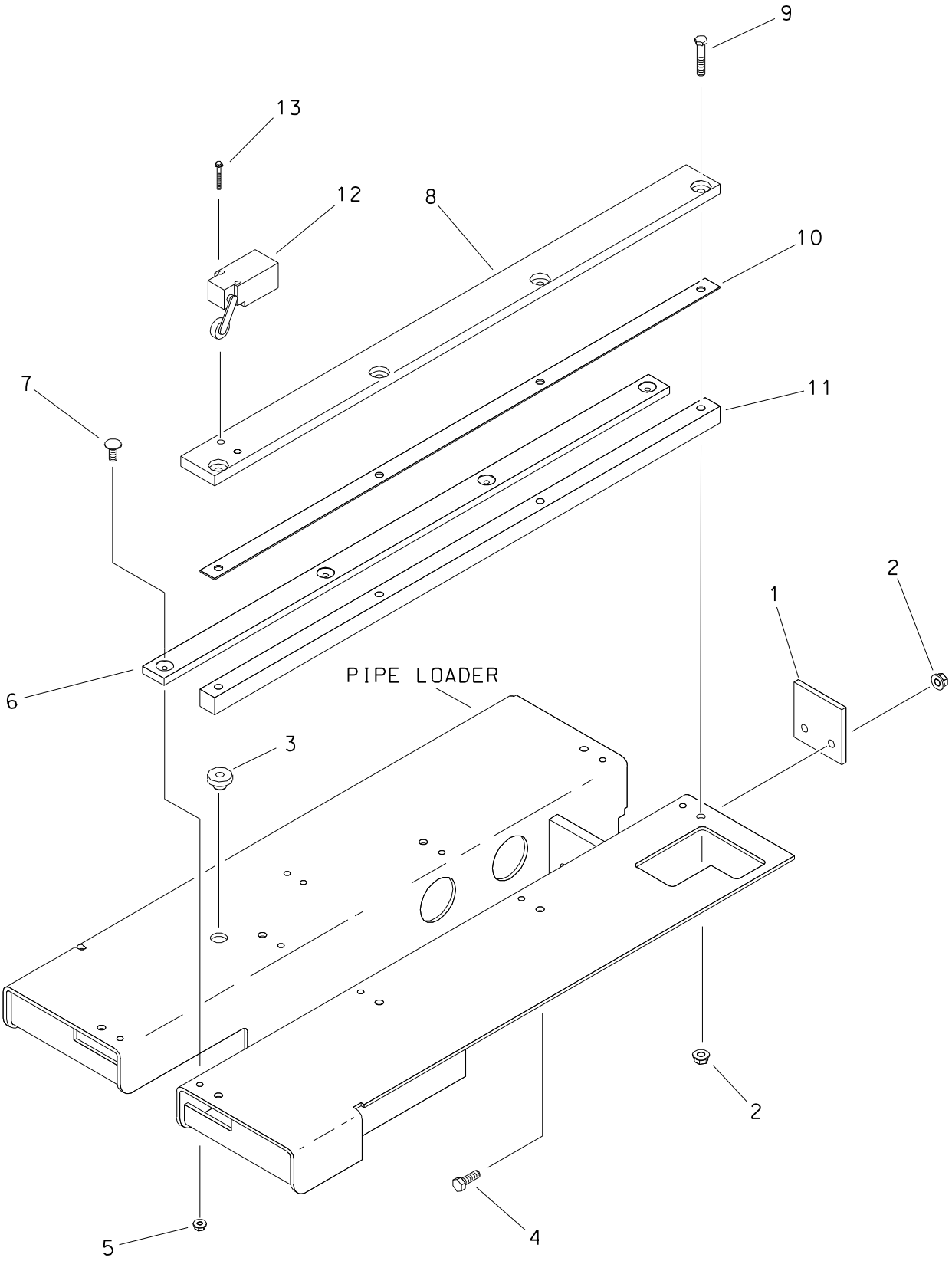
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	349-967	1	LIFT ARM	
2.	125-754	7	COMPOSITION BUSHING (2")	
3.	179-042	2	TAPERED PIN (31.75MM X 144MM)	
4.	181-982	4	TAPERED INSERT (1.25")	
5.	105-247	2	SCREW (M12-1.75 X 35MM)	USE LOCTITE 242 OR EQUIVALENT
6.	125-143	4	BRONZE BUSHING (1.250")	
7.	349-965	1	LINKAGE ARM	
8.	106-344	4	SCREW (M20-2.5 X 40MM)	USE LOCTITE 242 OR EQUIVALENT
9.	184-064	4	TAPERED INSERT (2")	
10.	179-236	1	TAPERED PIN (50.8MM X 200MM)	
11.	105-604	1	JAM NUT (1-1/2 NF-12, LH THD)	
12.	179-168	3	TAPERED PIN (50.8MM X 655MM)	
13.	349-237	1	LIFT ARM	
14.	349-962	1	CENTER LINKAGE	
15.	179-232	2	TAPERED PIN (31.75MM X 65MM)	
16.	118-047	4	INTERNAL SNAP RING (1.000")	
17.	349-240	2	LIFT BAR	
18.	125-770	16	COMPOSITION BUSHING (1")	
19.	349-766	8	ROLLER	
20.	183-878	1	TAPERED PIN (44.4MM X 135MM)	
21.	181-975	1	TAPERED INSERT (1.75")	
22.	106-470	1	FLG SCREW (M16-2.0 X 40MM)	USE LOCTITE 242 OR EQUIVALENT
23.	151-085	1	CYL (3.5" X 1.75" X 16")	
24.	125-773	1	COMPOSITION BUSHING (1.75")	
25.	110-056	AR	MACHINERY BUSHING (1.25")	
26.	370-303	1	ADJUSTMENT BAR	
27.	105-377	1	JAM NUT (1-1/2-NF)	
28.	370-298	1	FRONT LINK	
29.	370-301	1	BACK LINK	

NOT SHOWN:

FOOTNOTES:

NOTE:

# PIPE LOADER (SHUTTLE MOUNT)

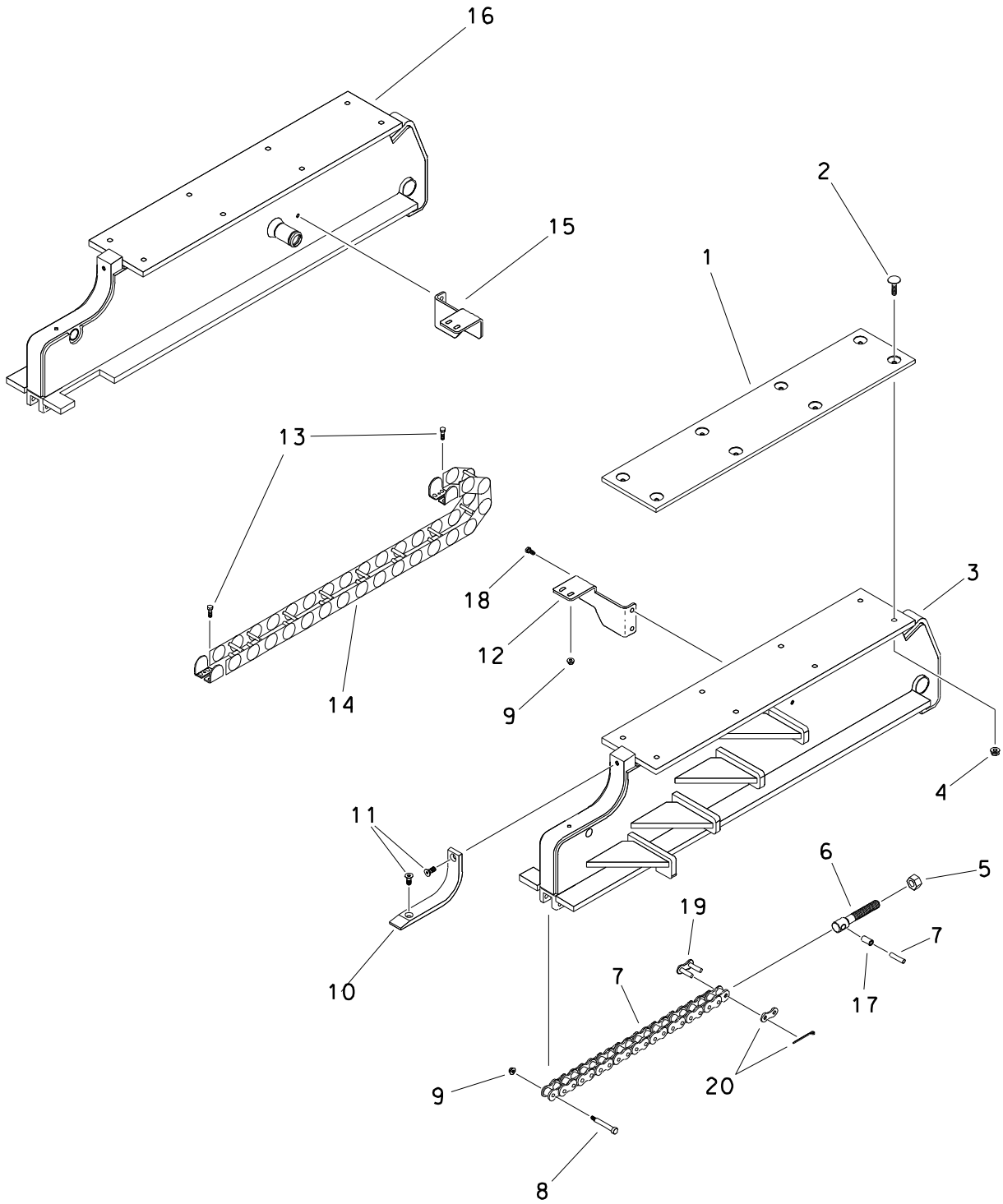


# PIPE LOADER (SHUTTLE MOUNT)

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	348-064	2	SHIM	
2.	106-386	20	FLG LOCKNUT (M8-1.25)	
3.	116-325	1	GROMMET (.362")	
4.	106-163	4	SCREW (M8-1.25 x 30MM)	
5.	106-353	16	FLG LOCKNUT (M6-1.00)	
6.	349-297	4	BOTTOM SLIDE BAR	
7.	107-170	16	ELEVATOR BOLT (M6-1.0 x 20MM)	
8.	349-295	4	RETAINER BAR	
9.	106-329	16	SCREW (M8-1.25 x 50MM)	
10.	348-065	4	OUTER SHIM	
11.	349-278	4	BAR	
12.	217-085	1	LIMIT SWITCH	
13.	105-816	2	SCREW (#10-24 x 1-1/2", PAN SLT)	

FOOTNOTES

## PIPE LOADER SHUTTLE



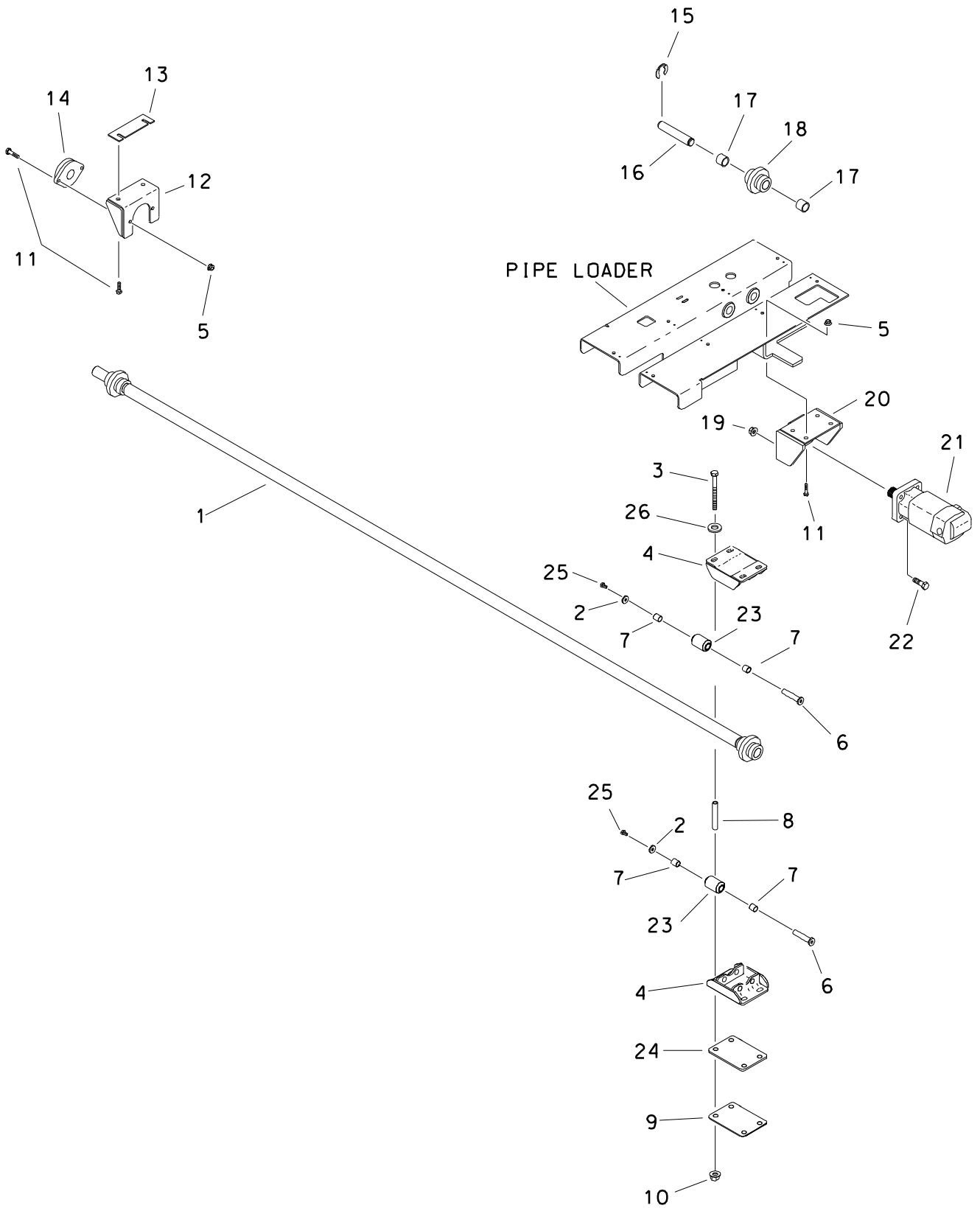


# PIPE LOADER SHUTTLE

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	349-296	2	TOP SLIDE BAR	
2.	107-187	16	ELEVATOR BOLT (M8-1.25 x 35mm)	
3.	349-243	1	FRONT SHUTTLE	
4.	106-386	16	FLG LOCKNUT (M8-1.25)	
5.	105-357	2	LOCKNUT (5/8-NC)	
6.	356-205	2	CHAIN ADJUSTER	
7.	130-330	2	ROLLER CHAIN (#80, 58P)	INCL REF NO'S 19 AND 20
8.	107-160	2	SHLDR BOLT (M8 X 50MM, M6-1.00)	
9.	106-353	10	FLG LOCKNUT (M6-1.0)	
10.	348-036	2	WEAR PAD	
11.	106-943	4	SCREW (M8-1.25 x 16mm, CSK SLT)	
12.	349-978	1	TRACK BRACKET	
13.	106-379	8	SCREW (M6-1.0 x 20mm)	
14.	349-068	2	HOSE TRACK	
15.	349-980	1	TRACK BRACKET	
16.	349-255	1	BACK SHUTTLE	
17.	130-300	2	ROLLER BUSHING (#80)	
18.	106-381	4	FLG LK BOLT (M8-1.25 X 25mm)	
19.	130-305	-	OFFSET LINK (#80)	
20.	130-304	-	CONNECTOR LINK (#80)	

FOOTNOTES

PIPE LOADER (SHUTTLE DRIVE)



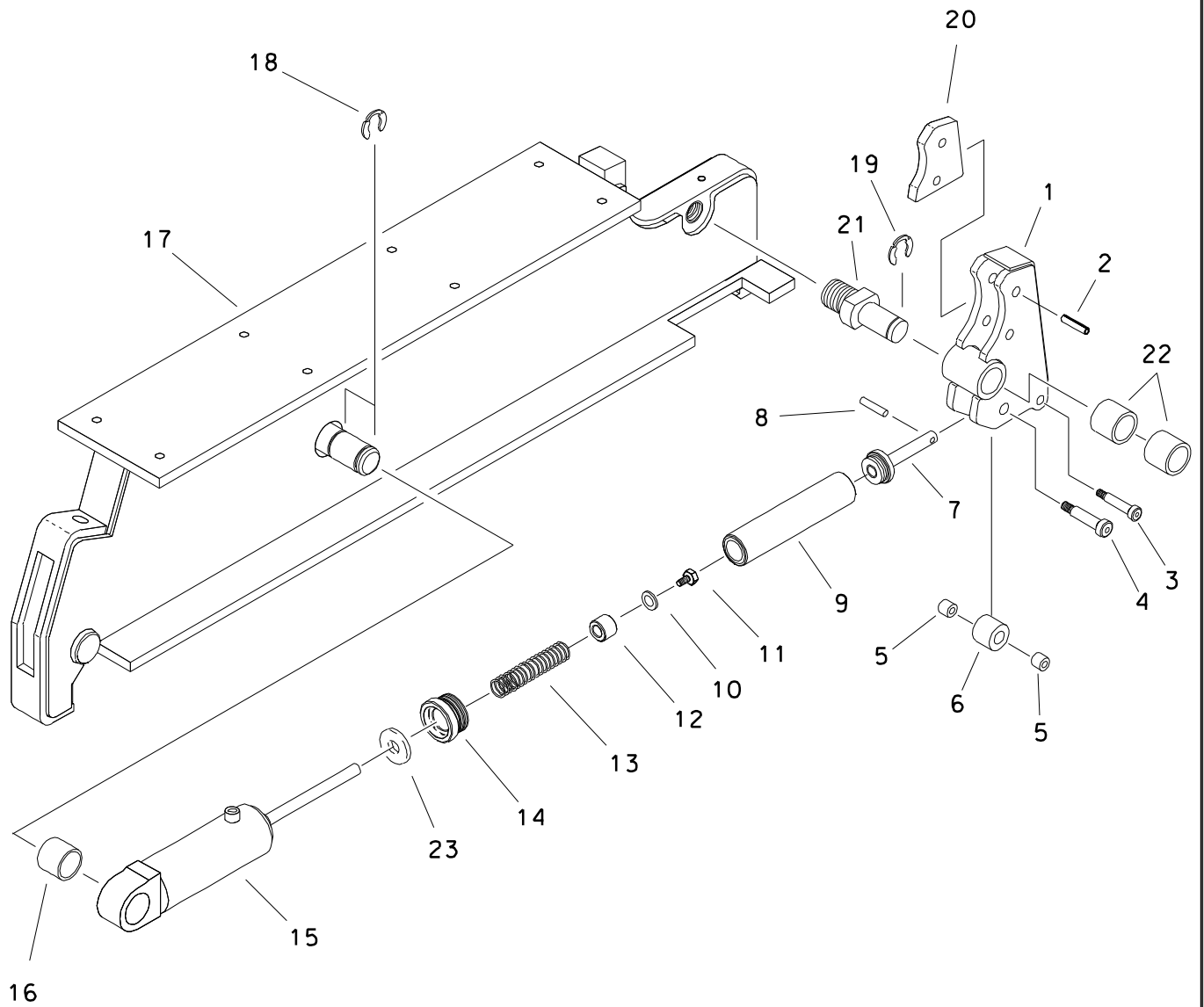
## PIPE LOADER (SHUTTLE DRIVE)

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	349-228	1	SHAFT	
2.	105-264	8	WASHER (3/8")	
3.	106-620	8	SCREW (M12-1.75 X 150MM)	
4.	348-053	4	SHAFT SUPPORT	
5.	106-387	8	FLG LOCKNUT (M10-1.50)	
6.	370-518	8	PIN	
7.	125-403	16	BUSHING (.625", BRZ)	
8.	370-036	8	SPACER	
9.	348-067	AR	SUPPORT SHIM	
10.	106-354	6	FLG LOCKNUT (M12-1.75)	
11.	106-383	8	FLG LK SCREW (M10-1.50 x 30MM)	
12.	348-062	1	BEARING MOUNT	
13.	349-804	1	SPACER PLATE	
14.	125-605	1	FLG BEARING (1.25")	
15.	115-499	8	EXTERNAL KLIP RING (1")	
16.	183-912	4	PIN	
17.	125-770	8	COMPOSITION BUSHING (1")	
18.	175-529	4	IDLER SPROCKET (9T, #80)	
19.	106-198	4	FLG LOCKNUT (1/2- NC)	
20.	348-060	1	MOUNT PLATE	
21.	158-952	1	HYDRAULIC MOTOR	SEE FOOTNOTE 1
22.	105-066	4	BOLT (1/2- NC x 1.75")	
23.	370-361	8	ROLLER	
24.	370-360	AR	SPACER PLATE	
25.	105-274	8	SCREW (M10-1.50 X 20MM)	
26.	106-391	8	WASHER (M12)	

## FOOTNOTES

1. SEAL REPAIR KIT 500-658

## PIPE LOADER GRIPPER

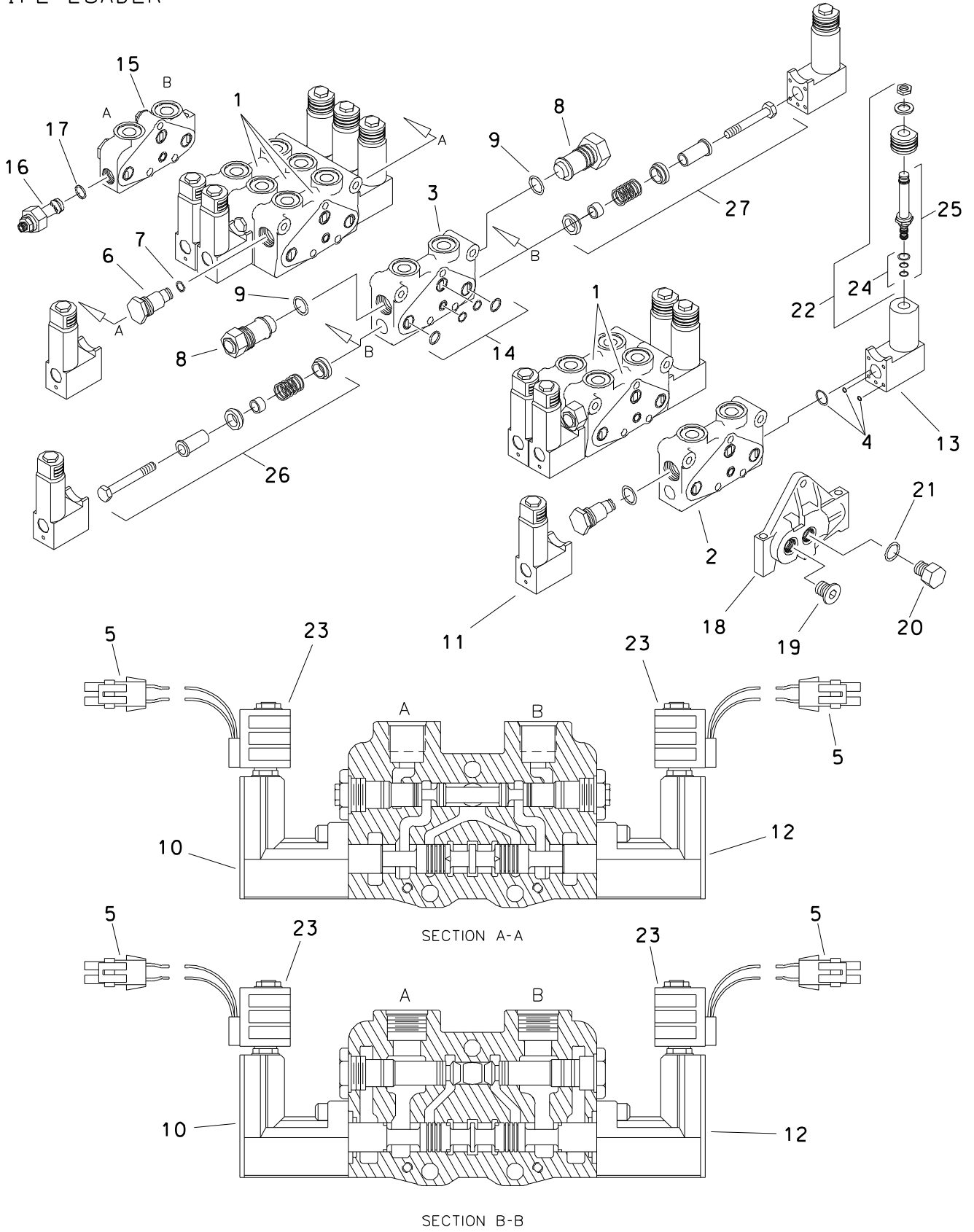


# PIPE LOADER GRIPPER

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	349-970	1	GRIPPER	REAR
	349-233	1	GRIPPER	FRONT
	101-112	-	ADJUSTABLE GRIPPER KIT	(OPTIONAL UPGRADE)
2.	106-799	4	ROLL PIN (M12-1.75 X 45mm)	
3.	107-223	2	SHLDR BOLT (M10 X 35mm, M8-1.25)	
4.	107-043	2	SHLDR BOLT (M12 X 35mm, M10-1.50)	
5.	125-137	4	BALL BEARING (.375")	
6.	370-154	2	ROLLER	
7.	349-057	2	PLUNGER	
8.	125-430	2	BRONZE BUSHING (.502" X 1.0")	
9.	349-060	2	TUBE	
10.	348-037	2	SPRING WASHER	
11.	105-858	2	BOLT (1/2-NC X 1-1/2")	
12.	349-061	2	SPRING GUIDE	
13.	117-128	2	COMPRESSION SPRING	
14.	351-163	2	CAP	
15.	151-163	2	HYD CYL (2" X 1" X 3")	
16.	125-771	2	COMPOSITION BUSHING (1.25")	
17.	349-243	-	FRONT SHUTTLE	
	349-255	-	BACK SHUTTLE	
18.	115-483	4	KLIP RING (1-1/4")	
19.	115-499	2	KLIP RING (1")	
20.	349-298	4	GRIP PAD	
21.	349-972	2	PIN (1.5" X 4.569")	
22.	125-770	4	COMPOSITION BUSHING (1")	
23.	157-537	2	WIPER SEAL	

FOOTNOTES

# CONTROL VALVE PIPE LOADER

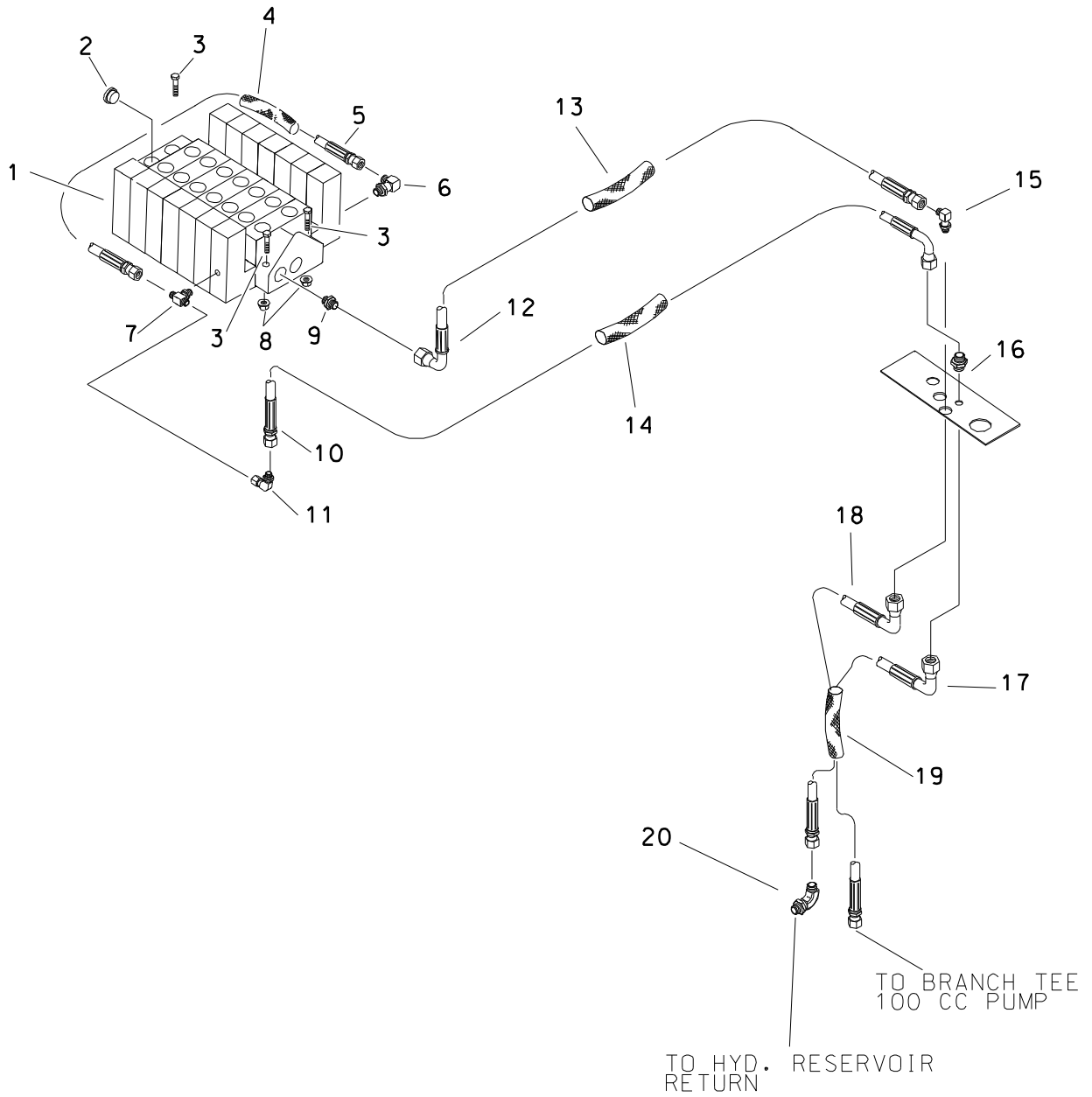


# CONTROL VALVE PIPE LOADER

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	516-078		CONTROL VALVE (7-SPOOL)	
1.	499-145	5	VALVE SECTION	
2.	499-146	1	VALVE SECTION	
3.	499-147	1	VALVE SECTION	
4.	499-150	14	BONNET SEAL REPAIR KIT	
5.	499-151	14	COIL CONNECTOR KIT	
6.	499-029	12	LOCK OUT CARTRIDGE	
7.	499-030	12	LOCK OUT CARTRIDGE REPAIR SEAL KIT	
8.	500-638	2	RC RELIEF CARTRIDGE (1500 PSI)	
9.	500-950	2	RELIEF CARTRIDGE REPAIR SEAL KIT	
10.	499-156	6	SOLENOID ACTUATOR ASSY	
11.	499-157	1	SOLENOID ACTUATOR ASSY	CONTAINS PILOT PORT
12.	499-158	6	SOLENOID ACTUATOR ASSY	
13.	499-159	1	SOLENOID ACTUATOR ASSY	CONTAINS PILOT PORT
14.	500-588	8	SECTIONAL O-RING REPAIR KIT	
15.	499-144	1	INLET COVER HOUSING	
16.	155-630	1	WH RELIEF CARTRIDGE (2000 PSI)	
17.	500-581	1	SEAL REPAIR KIT	
18.	500-298	1	OUTLET COVER	
19.	500-591	1	PLUG (12S)	
20.	499-160	1	POWER BEYOND SLEEVE KIT	
21.	499-055	1	SLEEVE SEAL KIT	
22.	217-949	-	SOLENOID CARTRIDGE KIT	
23.	217-950	-	SOLENOID COIL KIT (W/CONN)	
24.	499-153	-	CARTRIDGE SEAL REPAIR KIT	
25.	499-152	-	CARTRIDGE TUBE KIT	
26.	499-154	-	SPRING SUB ASSY	
27.	499-155	-	SPRING SUB ASSY	

FOOTNOTES

# PIPE LOADER VALVE HYDRAULICS





# PIPE LOADER VALVE HYDRAULICS

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	516-078	1	HYD CONTROL VALVE (7-SPOOL)	INCL REF NO. 2
2.	500-302	1	PLUG (12S)	SEE FOOTNOTE 1
3.	105-292	3	SCREW (M8-1.25 X 75mm)	
4.	117-718	1	ABRASION SLEEVE (1" X 36")	
5.	154-911	1	HOSE 040FX-36"-3000)	
6.	154-252	1	CONNECTOR (04S-04090)	
7.	154-293	1	BR TEE (04S-040-040)	
8.	106-386	3	FLG LOCKNUT (M8-1.25)	
9.	154-308	1	CONNECTOR (100-12S)	
10.	116-804	1	HOSE (040FX90-69"-3000)	
11.	154-255	1	UNION (040-04FX90)	
12.	116-806	1	HOSE (040FX90-65"-3000)	
13.	116-634	1	ABRASION SLEEVE (1.59" X 65")	
14.	117-702	1	ABRASION SLEEVE (1" X 68")	
15.	154-291	1	BK CONNECTOR (100-10090BK)	
16.	154-275	1	BK CONNECTOR (040-040BK)	
17.	515-186	1	HOSE (040FX90-81"-3000)	
18.	116-803	1	HOSE (100FX90-78"-3000)	
19.	115-963	1	ABRASION SLEEVE (1.59" X 75")	
20.	154-298	1	CONNECTOR (10S-10090)	

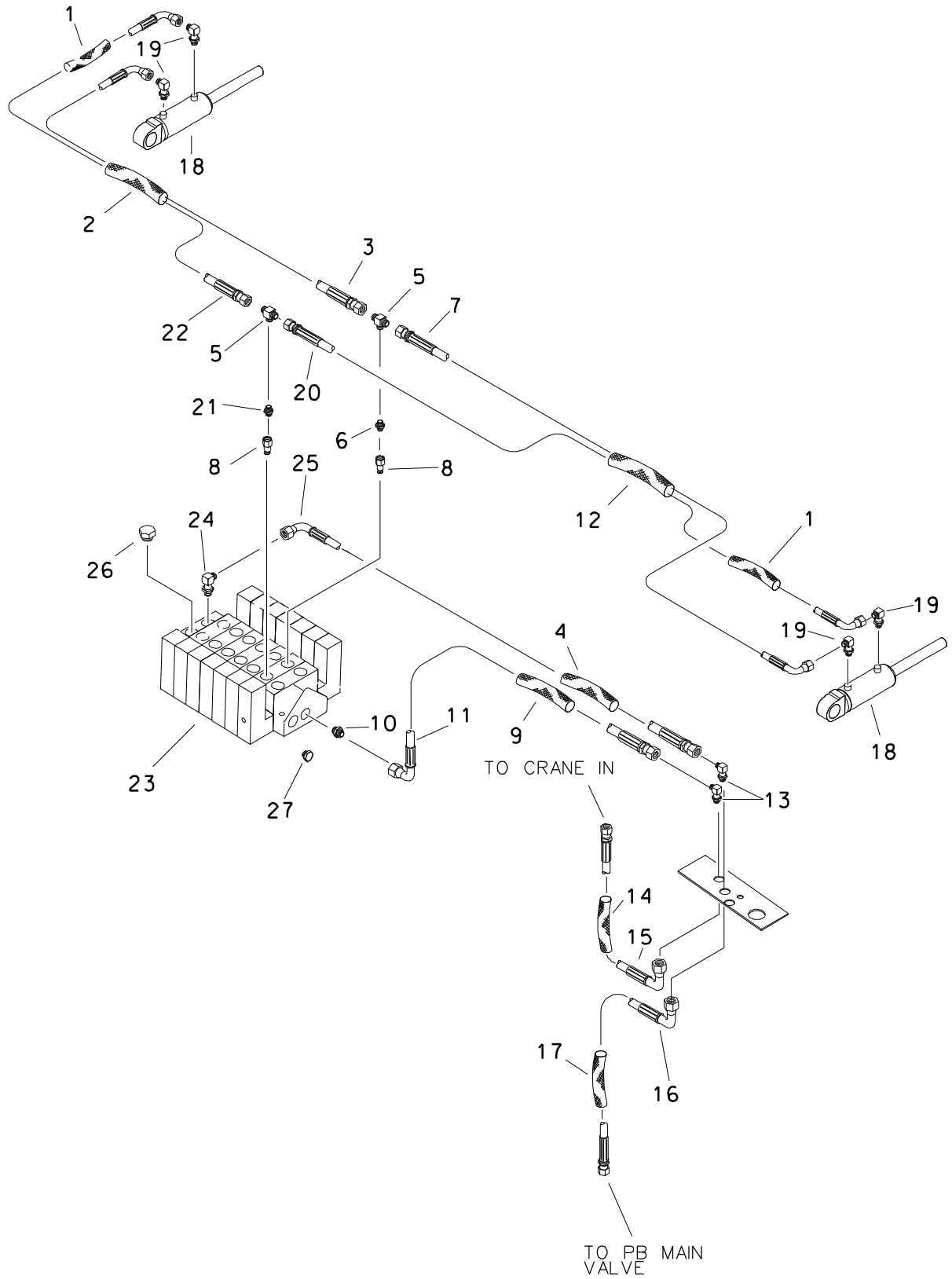
**FOOTNOTES**

1. TAKE EXISTING PLUG OUT OF RETURN PORT AND PLACE IN THE PORT SHOWN.

**NOTE**

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

# PIPE GRIP HYDRAULICS



## PIPE GRIP HYDRAULICS

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	117-670	2	ABRASION SLEEVE (1.59" X 10")	
2.	117-761	1	ABRASION SLEEVE (1.59" X 70")	
3.	515-240	1	HOSE (040FX90-72"-3000)	
4.	115-963	1	ABRASION SLEEVE (1.59" X 75")	
5.	154-379	2	UN BR TEE (040FX-040-040)	
6.	514-018	1	CONNECTOR (06S-040, DRF)	
7.	116-809	1	HOSE (040FX90-132"-3000)	
8.	155-171	2	REDUCER (10S-06SF)	
9.	115-755	1	ABRASION SLEEVE (1.59" X 60")	SEE FOOTNOTE 2
10.	154-301	1	CONNECTOR (10S-100)	SEE FOOTNOTE 2
11.	116-805	1	HOSE (100FX90-58"-3000)	SEE FOOTNOTE 2
12.	116-632	1	ABRASION SLEEVE (1.59" X 130")	
13.	154-291	2	BK CONNECTOR (100-10090BK)	SEE FOOTNOTE 2,4
14.	117-205	-	ABRASION SLEEVE (1.59" X 195")	SEE FOOTNOTE 2
15.	<del>515-688</del>	1	HOSE (100FX90-193"-3000)	SEE FOOTNOTE 2
	149-645	1	HOSE (100FX90-183"-3000)	SEE FOOTNOTE 2
16.	116-802	1	HOSE (100FX90-120"-3000)	
17.	<del>117-166</del>	1	ABRASION SLEEVE (1.59" X 120")	
	115-447	1	ABRASION SLEEVE (1.59" X 120")	
18.	151-163	2	HYD CYL (2" X 1" X 3")	
19.	154-252	4	CONNECTOR (04S-04090)	
20.	116-808	1	HOSE (040FX90-138"-3000)	
21.	154-220	1	CONNECTOR (040-06S)	
22.	116-810	1	HOSE (040FX90-76"-3000)	
23.	516-078	-	HYD CONTROL VALVE (7-SPOOL)	INCL REF NO. 26
24.	154-300	1	CONNECTOR (100-12S90)	
25.	116-812	1	HOSE (100FX90-72"-3000)	
26.	500-302	-	PLUG (12S)	SEE FOOTNOTE 1
27.	155-160	1	PLUG (14S, ALN)	SEE FOOTNOTE 3

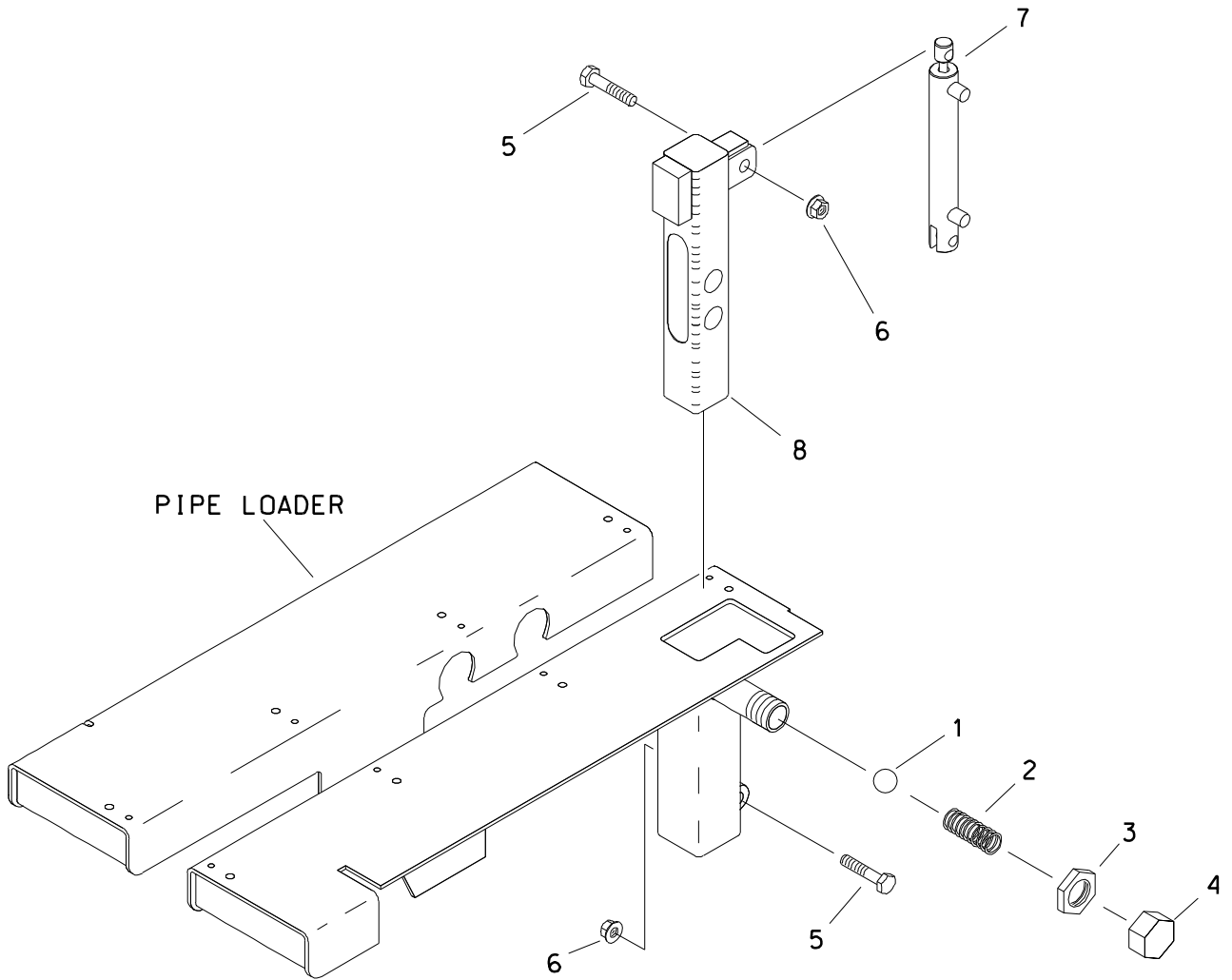
## FOOTNOTES

1. TAKE EXISTING PLUG OUT OF RETURN PORT AND PLACE IN THE PORT SHOWN.
2. USED WITH CRANE ONLY.
3. USED WITHOUT CRANE.
4. QTY 1 WHEN USED WITHOUT CRANE.

## NOTE

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

## PIPE LOADER (ROW SELECT)

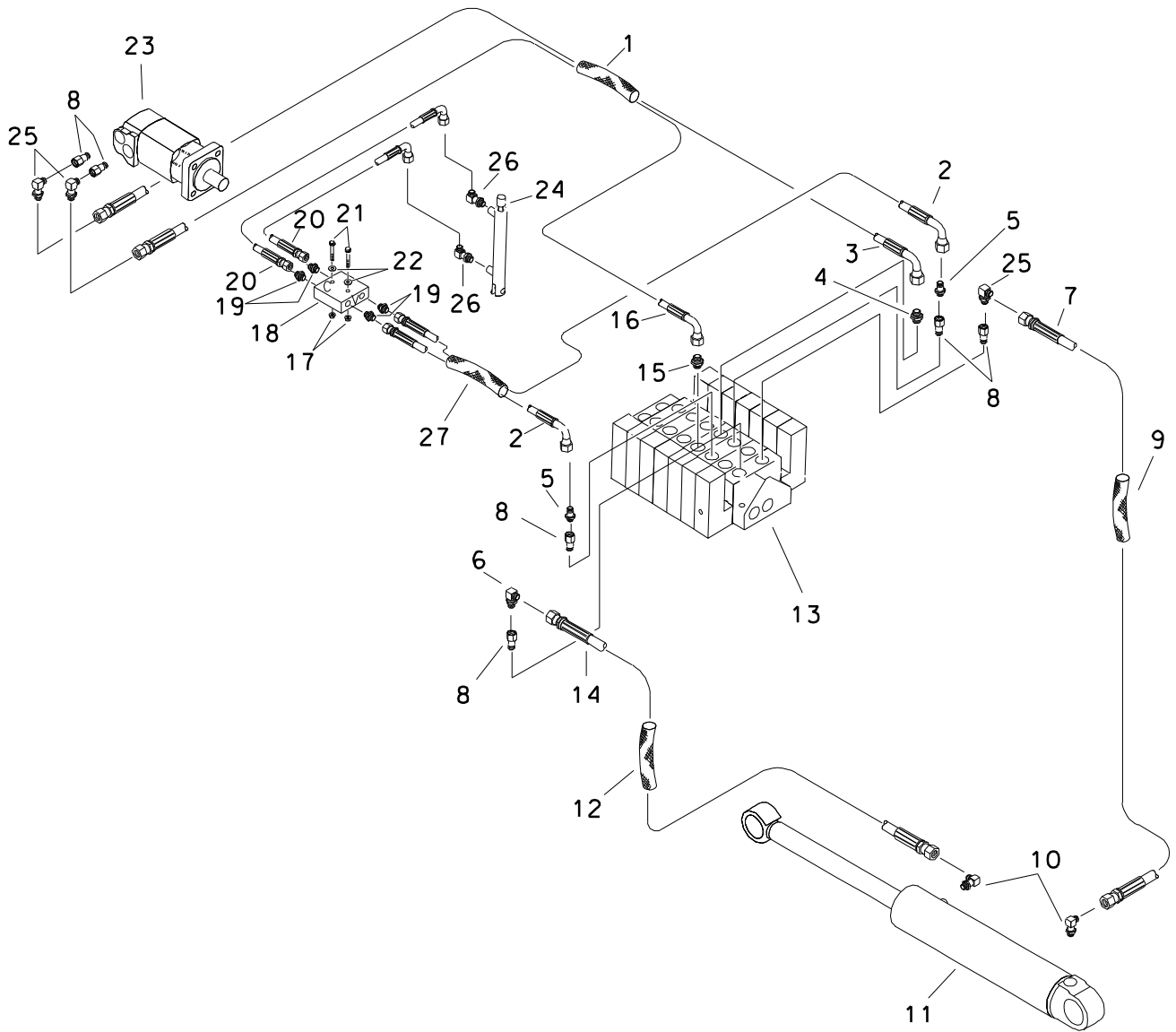


# PIPE LOADER (ROW SELECT)

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	125-121	1	CHROME BALL (1")	
2.	117-115	1	COMPRESSION SPRING	
3.	107-108	1	JAM NUT (1-5/16")	
4.	370-263	1	CAP	
5.	106-334	2	SCREW (M12-1.75 X 50MM)	
6.	106-685	2	LOCKNUT (M12-1.75, PRV TRQ)	
7.	151-151	1	CYL (25.4MM X 12.7MM X 152.4MM)	
8.	349-258	1	ROW SELECT TUBE	

FOOTNOTES

## PIPE LIFT AND SHUTTLE HYDRAULICS



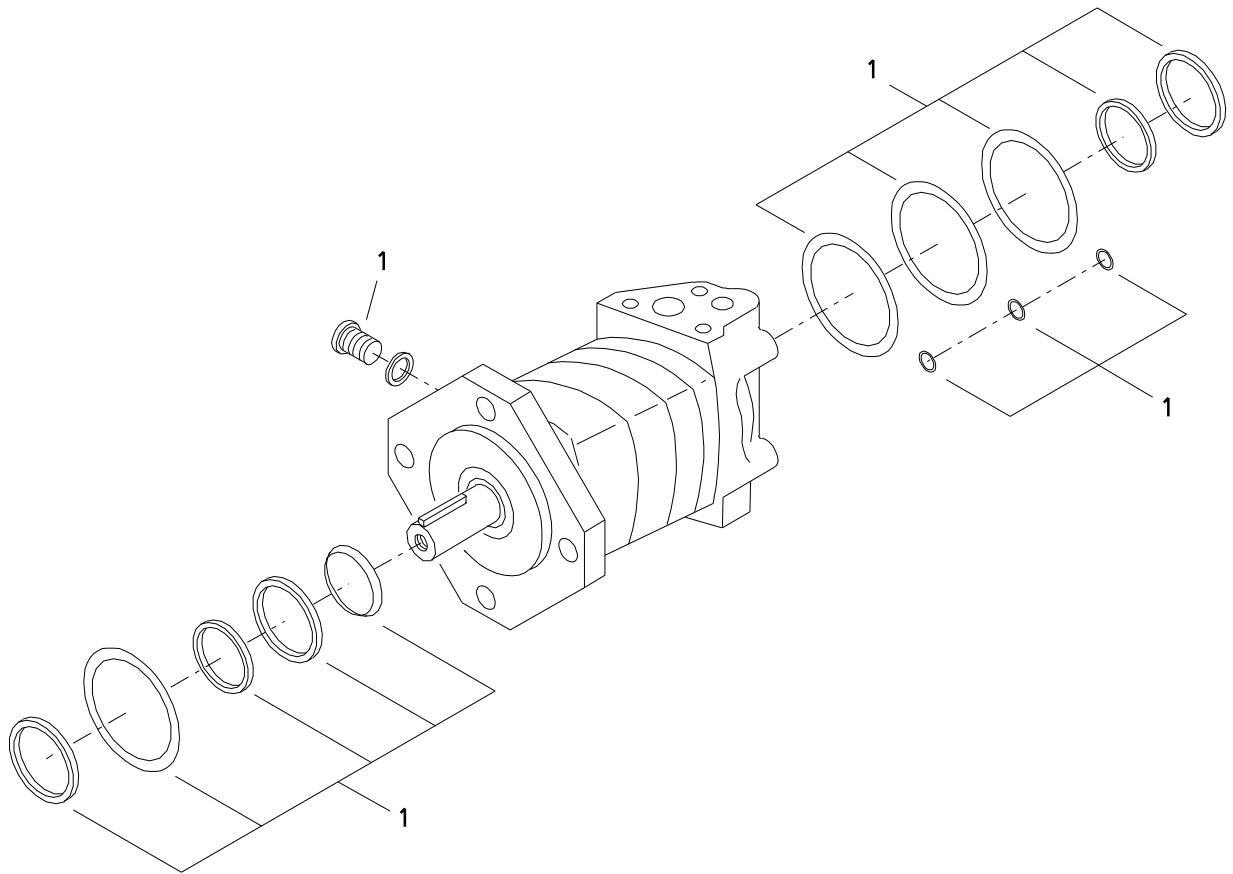
# PIPE LIFT AND SHUTTLE HYDRAULICS

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	115-737	1	ABRASION SLEEVE (1.59" X 40")	
2.	154-743	2	HOSE (040FX90-23"-3000)	
3.	116-811	1	HOSE (060FX90-40"-3000)	
4.	156-993	1	CONNECTOR (10S-060, DRF)	
5.	514-074	2	CONNECTOR (06S-040, DRF)	
6.	156-193	1	CONNECTOR (06S-06090, DRF)	
7.	116-807	1	HOSE (060FX-80"-3000)	
8.	155-171	6	REDUCER (10S-06SF)	
9.	117-168	1	ABRASION SLEEVE (1" X 80")	
10.	154-227	2	CONNECTOR (060-08S90)	
11.	151-085	1	CYL (3.5" X 1.75" X 16")	
12.	117-613	1	ABRASION SLEEVE (1" X 64")	
13.	516-078	1	HYD CONTROL VALVE (7-SPOOL)	
14.	154-798	1	HOSE (060FX-62"-3000)	
15.	154-369	1	CONNECTOR (060-10S)	
16.	515-015	1	HOSE (060FX90-44"-3000)	
17.	105-832	2	FLG LOCKNUT (1/4-NC)	
18.	155-623	1	DOUBLE LOCKOUT VALVE	
19.	154-220	4	CONNECTOR (040-06S)	
20.	515-041	2	HOSE (040FX90-20"-3000)	
21.	105-106	2	BOLT (1/4-NC X 2")	
22.	105-095	2	WASHER (1/4")	
23.	158-952	1	HYD MOTOR (SHUTTLE)	
24.	151-151	1	HYD CYL (ROW SELECT)	
25.	154-342	3	CONNECTOR (06S-06090)	
26.	154-252	2	CONNECTOR (04S-04090)	
27.	117-706	1	ABRASION SLEEVE (1.59" X 17")	

FOOTNOTES

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

HYDRAULIC MOTOR  
SHUTTLE DRIVE  
SAE MOUNT PORTS



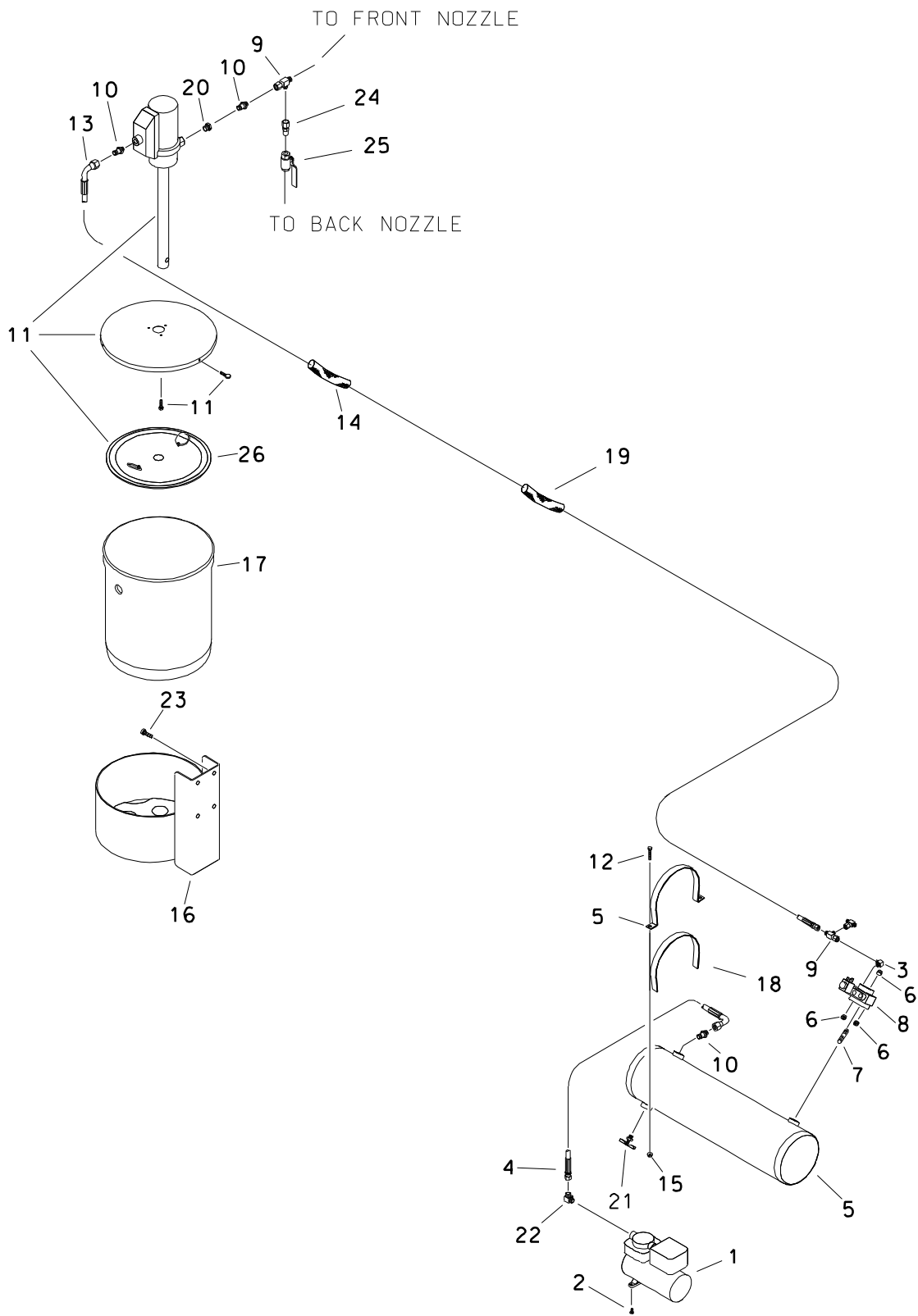


HYDRAULIC MOTOR  
SHUTTLE DRIVE  
SAE MOUNT PORTS

REF	PART				
NO.	NUMBER	QTY	DESCRIPTION		REMARKS
	158-952		HYDRAULIC MOTOR (SHUTTLE)		
1.	500-658	1	SEAL REPAIR KIT		
	157-712	1	SHAFT SEAL		

FOOTNOTES

# AUTO-GREASER (PUMP AND COMPRESSOR)



## AUTO-GREASER (PUMP AND COMPRESSOR)

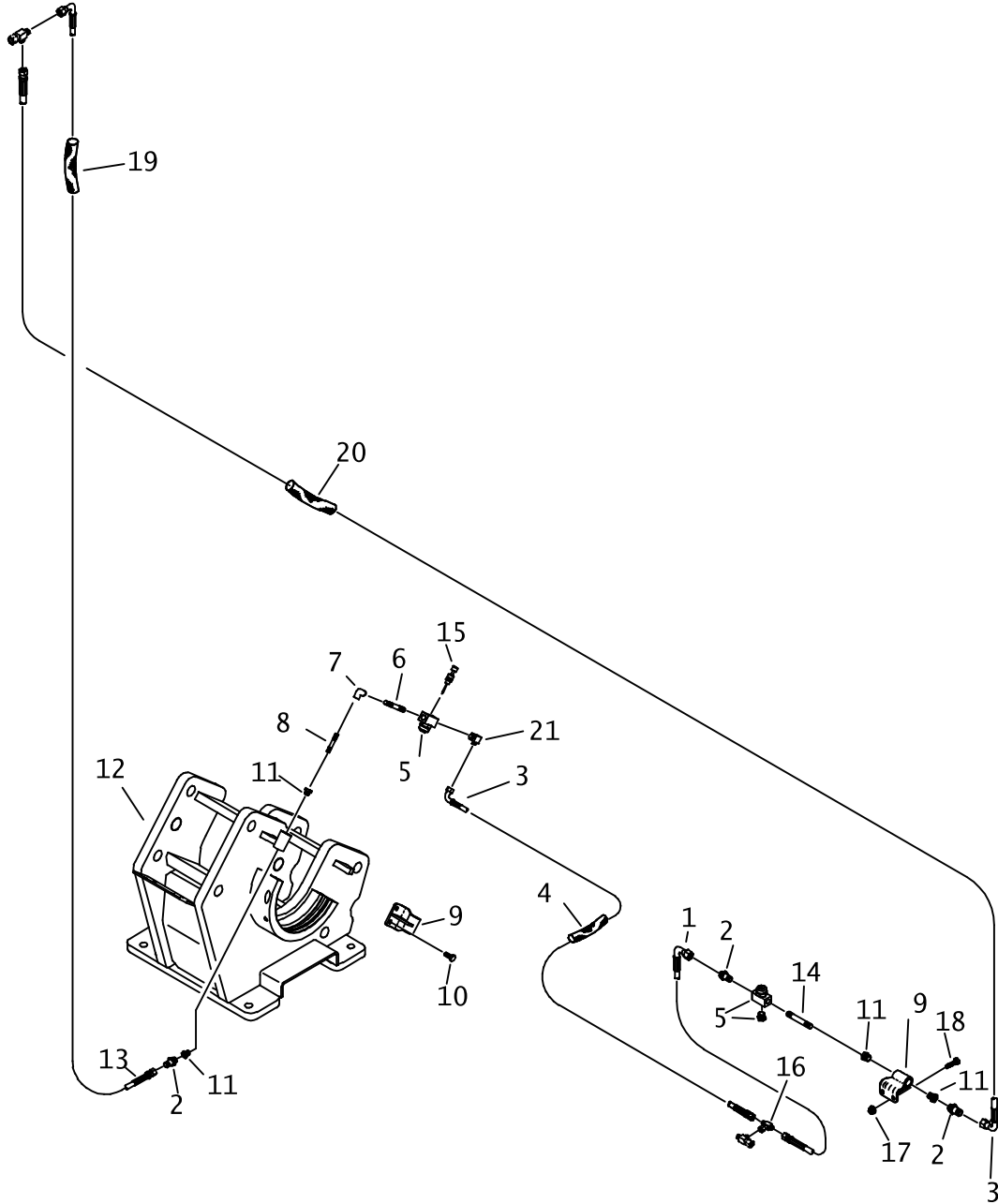
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	120-077	1	AIR COMPRESSOR	
2.	106-349	3	BOLT (#8-32 X 3/4", PAN)	
3.	154-482	1	CONNECTOR (04N-04090)	
4.	154-743	1	HOSE (040FX90-23"-3000)	
5.	370-264	1	AIR TANK	
6.	115-444	3	PLUG (04N, ALN, SS)	
7.	115-166	1	NIPPLE (04N-1.5")	
8.	214-417	1	SOLENOID VALVE	SEE FOOTNOTE 1
9.	154-265	2	UNION RUN TEE (040FX-040-040)	
10.	154-339	3	CONNECTOR (04N-040)	
11.	156-189	1	GREASE PUMP	
	191-096	1	AIR VALVE KIT	
	159-488	1	CHECK VALVE	
	191-064	1	PUMP TUBE REPAIR KIT	
12.	106-270	4	SCREW (M6-1.00 X 20mm)	
13.	149-068	1	HOSE (04NFX90-224"-3000)	
14.	117-672	1	ABRASION SLEEVE (1" X 20")	
15.	106-353	4	FLG NUT (M6-1.00)	
16.	370-292	1	GREASE BUCKET CONTAINER	
17.	256-025	-	TOOL JNT LUBE, SUMR SPRY 5 GAL	
	256-027	1	TOOL JNT LUBE, STD SPRAY 5 GAL	
18.	115-834	AR	EXHAUST WRAP (2", SOLD PER 1")	
19.	115-737	1	ABRASION SLEEVE (1.59" X 40")	
20.	115-106	1	REDUCER (06N-04NF)	
21.	110-141	1	DRAIN (04N)	
22.	156-273	1	CONNECTOR (02N-04090)	
23.	106-383	4	FLG LK SCREW (M10-1.5 X 30mm)	
24.	149-868	1	CONNECTOR (04N-040FX)	
25.	120-090	1	SHUT-OFF (04NF-04NF, NONVENTED)	
26.	499-299	1	GREASE FOLLOWER	

### FOOTNOTES

1. PORT 1 INLET, PORT 4 OUTLET, PORTS 2, 3, AND 5 ARE PLUGGED

# AUTO-GREASER (NOZZLES)

ENDS WITH CMW S/N:



## AUTO-GREASER (NOZZLES)

ENDS WITH CMW S/N:

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	154-743	1	HOSE (040FX90-23"-3000)	
2.	154-339	4	CONNECTOR (04N-040)	
3.	149-068	2	HOSE (04NFX90-230"-3000)	
4.	117-612	1	ABRASION SLEEVE (1.00" X 46")	
5.	149-056	2	SPRAY NOZZLE	
	159-480	1	AIR CAP (SS)	
	159-481	1	FLUID CAP (SS)	
	165-890	1	GASKET, PLUG	
	165-891	1	GASKET, FLUID CAP	
6.	149-071	1	NIPPLE (04N-5")	
7.	115-114	1	ELBOW (04NF-04NF90)	
8.	115-1010	1	NIPPLE (04N-2.0")	
9.	370-296	2	NOZZLE MOUNT	FRONT NOZZLE MOUNT USED ON EARLY MODELS ONLY
10.	106-083	-	SCREW (M8-1.25 X 20MM)	USED ON EARLY UNITS
11.	115-135	4	REDUCER (08N-04NF)	
12.	370-276	1	STATIONARY CLAMP	
13.	154-963	1	HOSE (040FX45-24"-3000)	
14.	115-136	1	NIPPLE (04N-4")	
15.	156-927	1	NEEDLE VALVE	
16.	154-379	1	UN BR TEE (040FX-040-040)	
17.	106-386	2	FLG LOCKNUT (M8-1.25)	
18.	106-327	2	SCREW (M8-1.25 X 30MM)	
19.	117-611	1	ABRASION SLEEVE (1.0" X 22")	
20.	115-737	1	ABRASION SLEEVE (1.59" X 40")	
21.	154-482	1	CONNECTOR (04N-04090)	

NOT SHOWN:

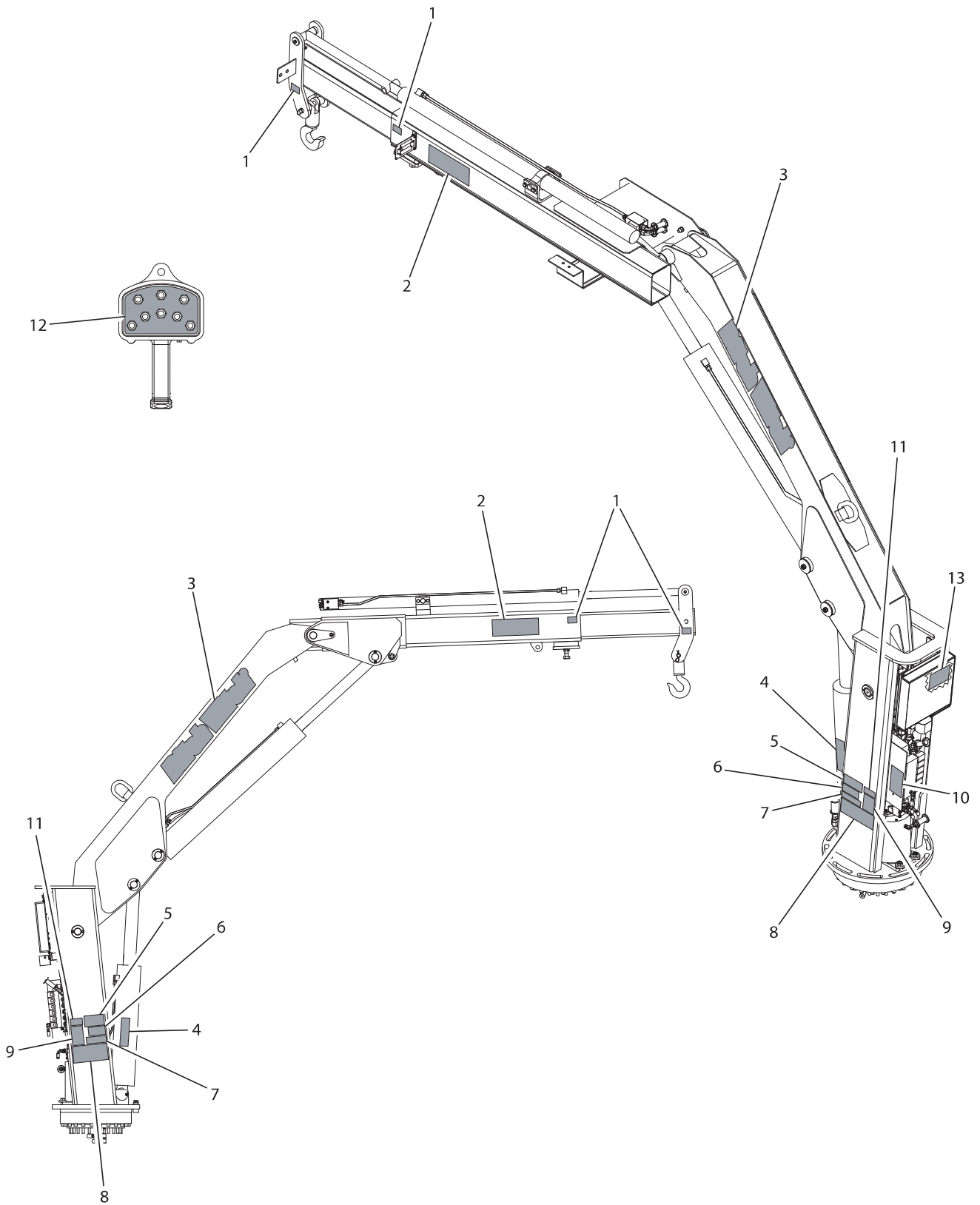
FOOTNOTES:

NOTE:

<b>NOTES:</b>

# **HOIST SYSTEMS**

# DECAL LOCATION CRANE



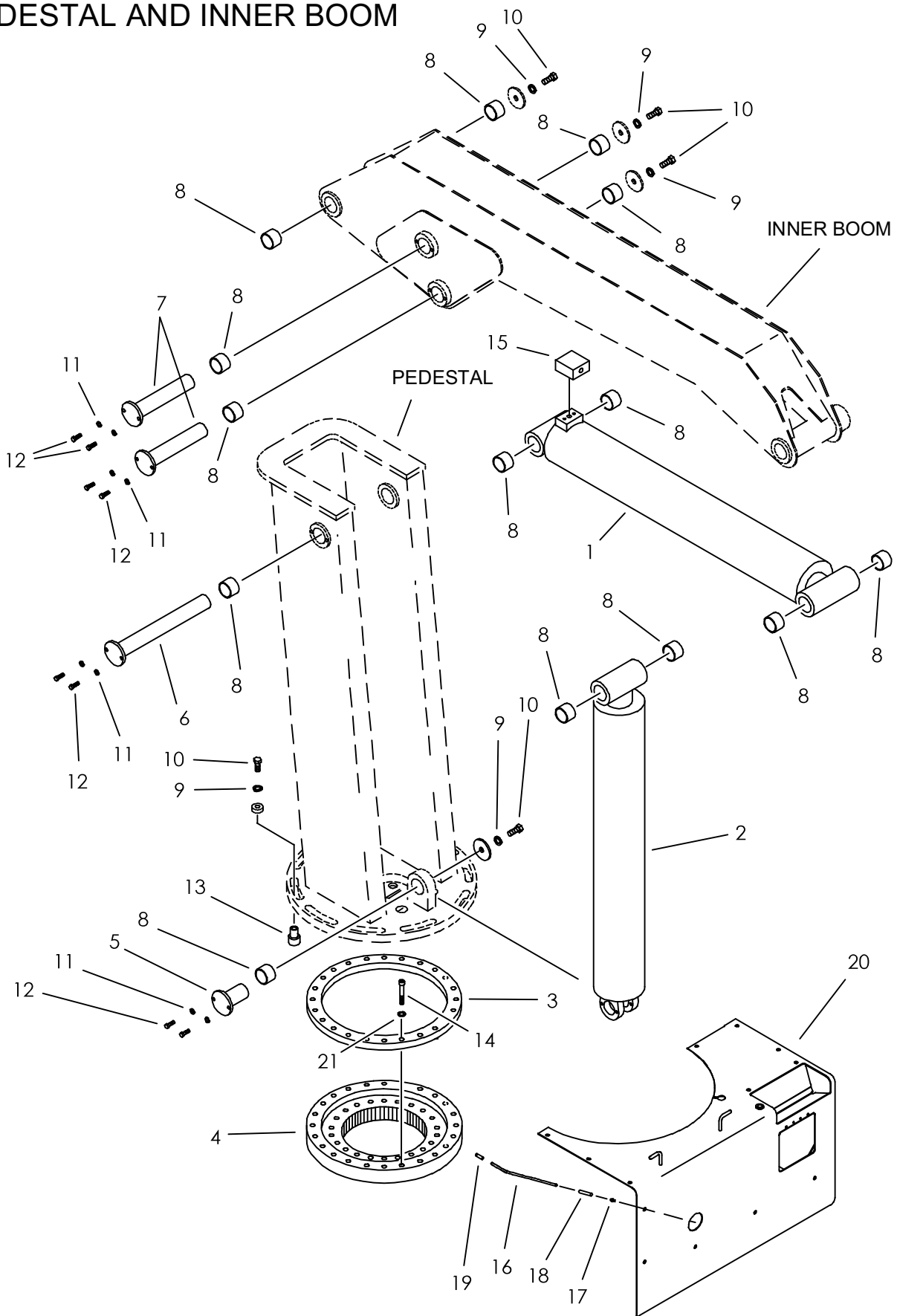


## DECAL LOCATION CRANE

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	275-792		DECAL KIT - CRANE	
I	274-968	4	STAY CLEAR OF BOOM	
2	274-966	2	ELECTROCUTION HAZARD	
3	274-967	2	DITCH WITCH LOGOTYPE	
4	274-965	2	PINCH POINT	
5	274-960	2	EXTEND OUTRIGGER	
6	275-326	2	WARNING CRUSHING WEIGHT	
7	274-962	2	NEVER RIDE ON HOOK	
8	274-957	2	LOAD CHART	
9	274-959	2	OPERATION INSTRUCTIONS	
10	700-963	1	MANUAL VALVE OPERATION	
II	273-475	2	NOTICE - READ MANUAL	
12	700-958	1	PENDANT CONTROL	
13	273-670	1	TERMINAL BLOCK	

FOOTNOTES

# PEDESTAL AND INNER BOOM



## PEDESTAL AND INNER BOOM

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	151-197	-	CYL, HYD, BOOM	SEE FOOTNOTE 1.
	190-849		SEAL KIT, OUTER BOOM CYL	
2.	151-198	-	CYL, HYD LIFT	
	190-849		SEAL KIT, OUTER BOOM CYL	
3.	348-285	-	RING SPACER	
4.	348-284	-	ROTATION BEARING	
5.	179-267	-	LIFT CYL. PIN	
6.	179-268	-	PIN	
7.	179-269	-	PIN	
8.	125-483	-	BUSHING	
9.	105-385	-	LOCK WASHER (5/8")	
10.	105-969	-	FLG BOLT (5/8-NC X 1-1/2", GD8)	
11.	105-072	-	LOCK WASHER (3/8")	
12.	105-052	-	BOLT (3/8-NC X 1-1/4")	
13.	179-270	-	SLIDE STOP PIN	
14.	106-480	24	SCREW (M16-2 X 110MM CL-10.9)	
15.	516-118	-	COUNTERBALANCE VALVE	
16.	370-517	1	LUBRICATION TUBE	
17.	115-001	1	ZERK (02N)	
18.	115-172	1	COLLAR (02NF)	
19.	259-462	1	GREASE GUN COUPLER	
20.	349-833	-	RIGHT COVER	
21.	106-398	AR	WASHER (M16, HARDENED)	

### NOT SHOWN:

156-950	HYD LINE, LIFT CYL
156-951	HYD LINE, OUTER BOOM
515-693	HYD HOSE, OUTER BOOM
515-694	HYD HOSE, LIFT CYL

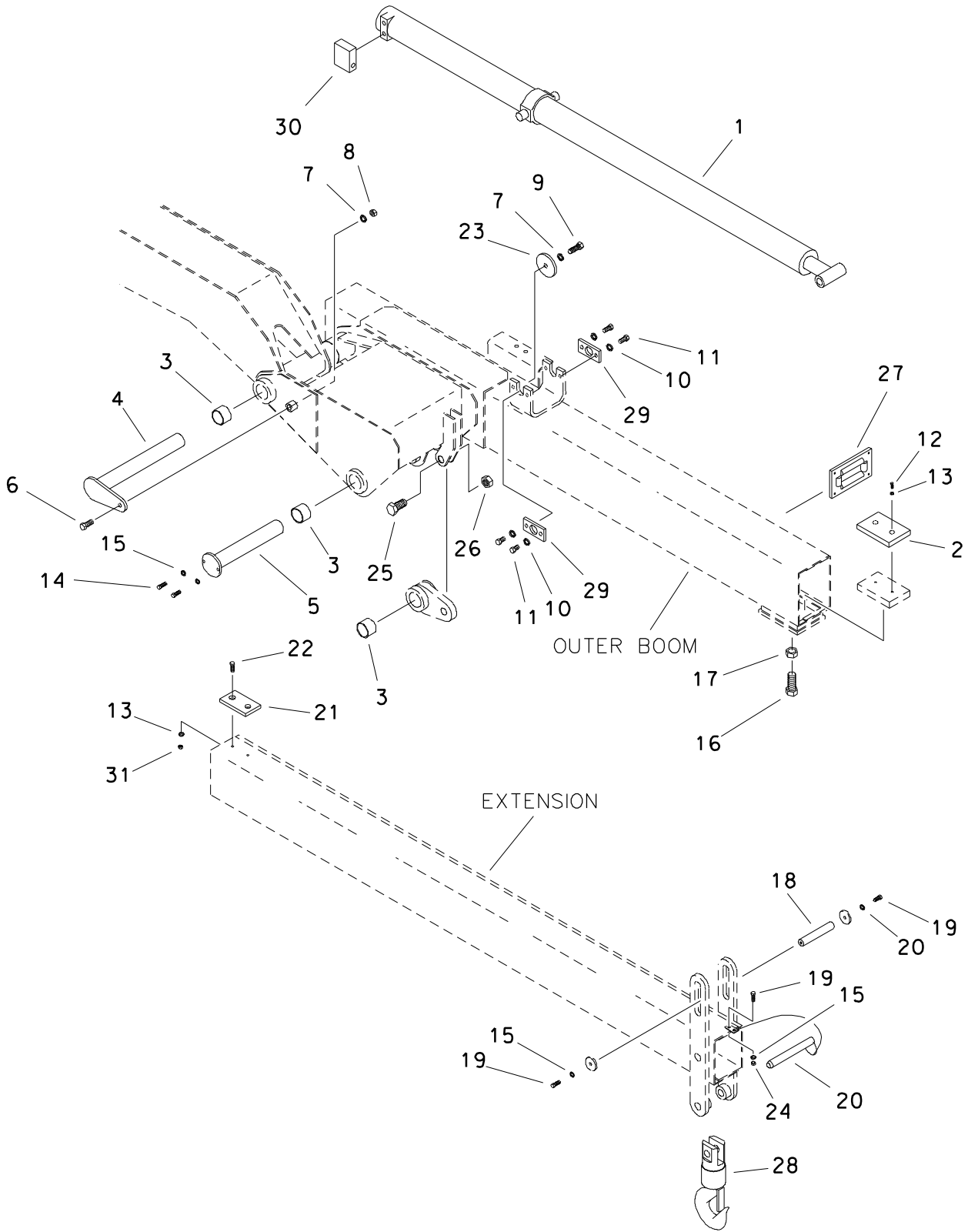
### FOOTNOTES:

1. SEAL KIT 500-2120.

### NOTE:

# SINGLE STAGE BOOM

ENDS WITH S/N 2S2372



**SINGLE STAGE BOOM  
ENDS WITH S/N 2S2372**

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	151-199	-	CYLINDER, EXT	
	190-850	-	SEAL REPAIR KIT	
2.	348-286	-	SLIDE PAD, BOOM	
3.	125-483	-	BRONZE BUSHING	
4.	179-271	-	PIN, BOOM	
5.	179-272	-	PIN, BOOM	
6.	105-393	-	BOLT (5/8-NC X 2-1/4")	
7.	105-385	-	LOCK WASHER (5/8")	
8.	105-357	-	LOCKNUT (5/8-NC)	
9.	105-358	-	BOLT (5/8-NC X 1-1/2", GD8)	
10.	105-070	-	LOCK WASHER (1/2")	
11.	105-121	-	BOLT (1/2-NC X 1")	
12.	105-865	-	BOLT (1/4-NC X 3/4", GD8)	
13.	105-079	-	LOCK WASHER (1/4")	
14.	105-052	-	BOLT (3/8-NC X 1-1/4")	
15.	105-072	-	LOCK WASHER (3/8")	
16.	106-167	-	BOLT (1-NC X 2")	
17.	106-033	-	JAM NUT (1-NC)	
18.	179-273	-	PIN, EXT BOOM	
19.	105-031	-	BOLT (3/8-NC X 1")	
20.	179-274	-	PIN ASS'Y, BOOM	
21.	348-287	-	SLIDE PAD, BOOM	
22.	105-197	-	BOLT (1/4-NC X 1")	
23.	499-235	-	WASHER	
24.	105-053	-	NUT (3/8-NC)	
25.	105-425	-	BOLT (1-NC X 2-1/2")	
26.	105-375	-	NUT (1-NC)	
27.	370-288	-	HOSE REEL GUIDE	
28.	111-041	-	HOOK, SWIVEL	
	117-839	-	LATCH KIT	
29.	348-297	-	TRUNION CAP	
30.	516-118	-	COUNTERBALANCE VALVE	

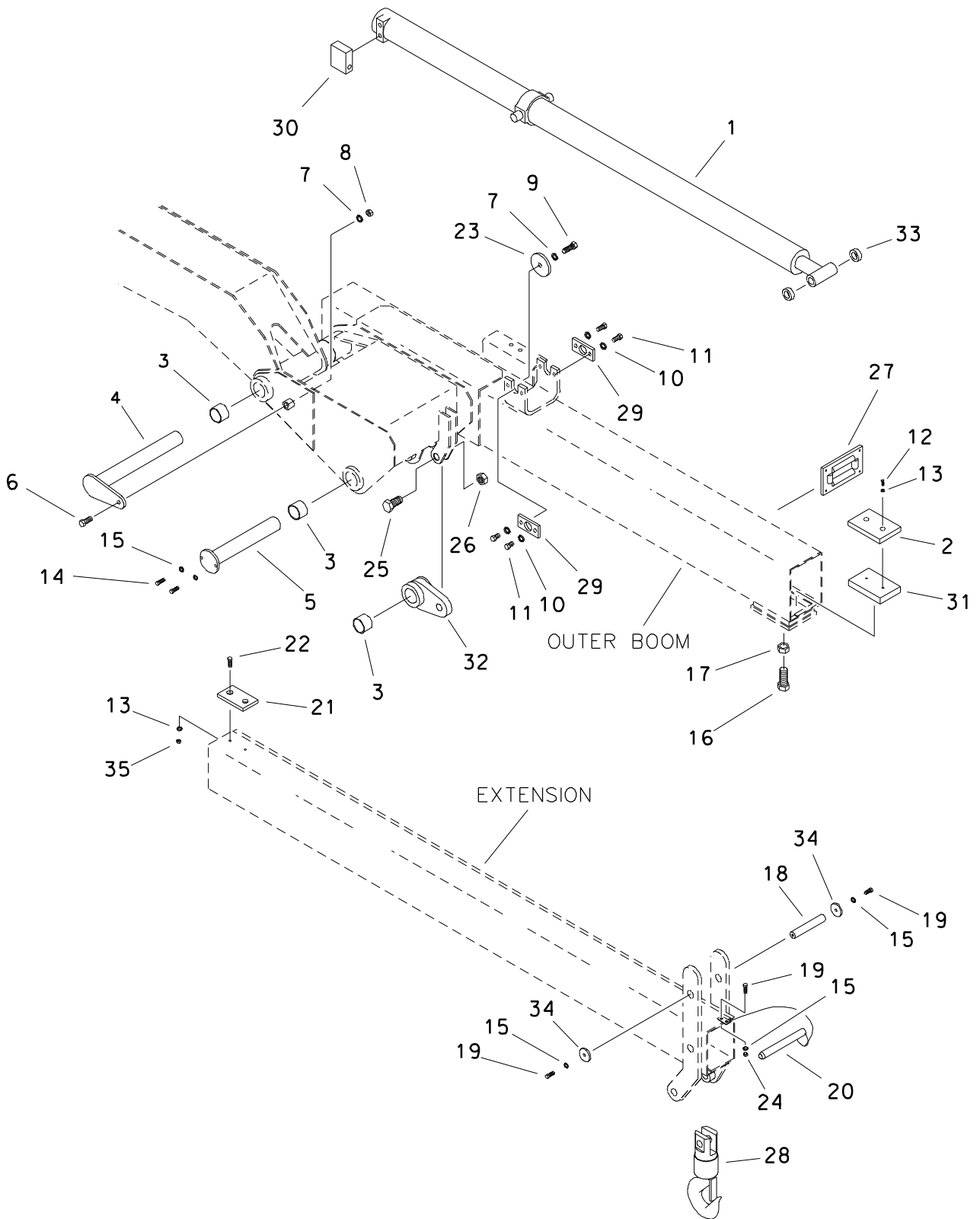
NOT SHOWN:

- 156-952 - HYD LINE, EXT CYL
- 515-692 - HYD HOSE, EXTENSION

FOOTNOTES

# SINGLE STAGE BOOM

BEGINS WITH S/N 2T11721



# SINGLE STAGE BOOM

## BEGINS WITH S/N 2T11721

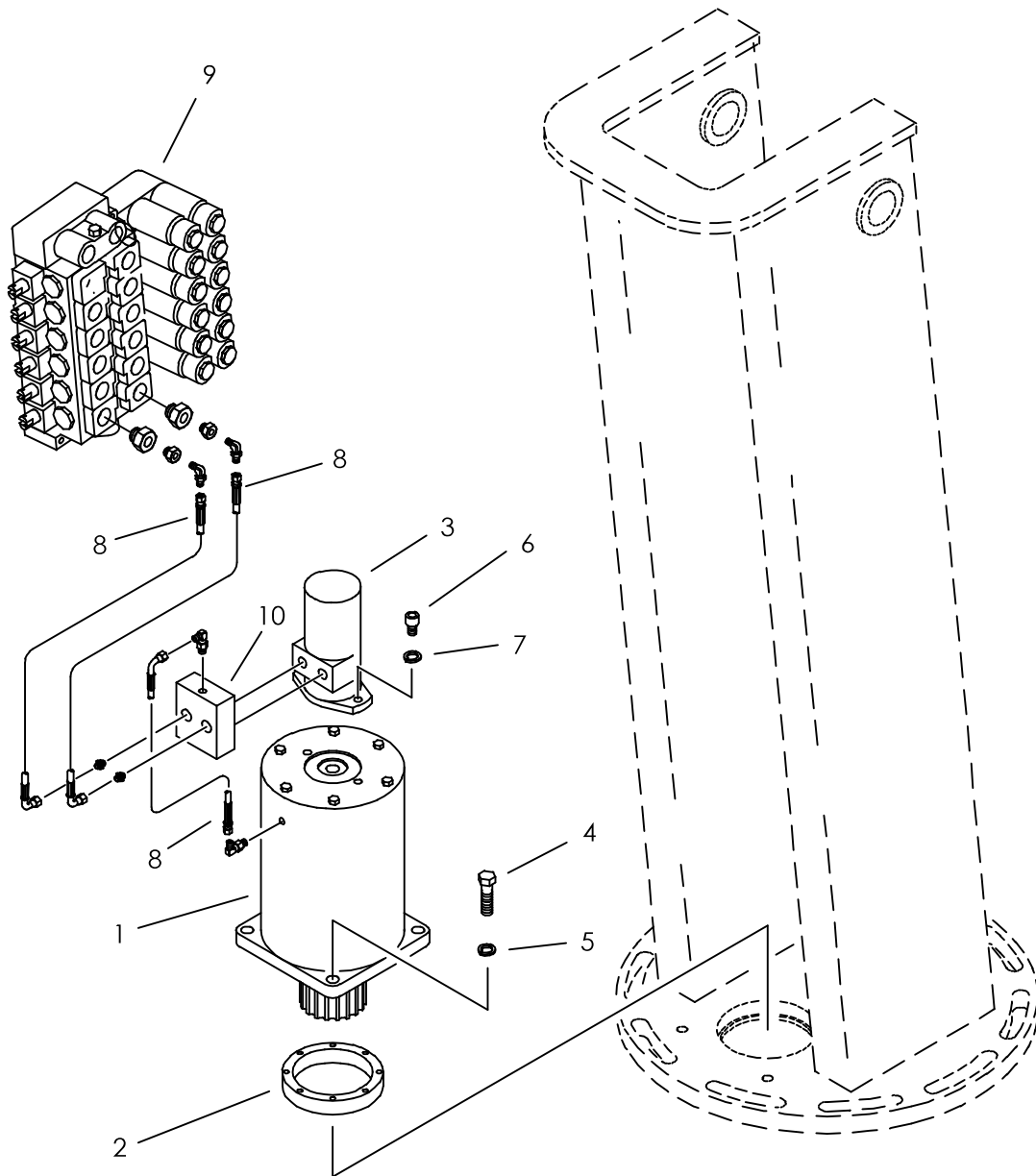
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	151-199	-	EXTENSION CYLINDER (HOIST)	
	190-850	-	SEAL REPAIR KIT	
2.	348-286	-	SLIDE PAD	
3.	125-483	-	BRONZE BUSHING	
4.	179-271	-	BOOM, PIN	
5.	179-272	-	BOOM, PIN	
6.	105-376	-	BOLT (5/8-NC X 3", GD8)	
7.	105-385	-	LOCK WASHER (5/8")	
8.	105-357	-	LOCKNUT (5/8-NC)	
9.	105-358	-	BOLT (5/8-NC X 1-1/2", GD8)	
10.	105-070	-	LOCK WASHER (1/2")	
11.	105-121	-	BOLT (1/2-NC X 1")	
12.	105-865	-	BOLT (1/4-NC X 3/4", GD8)	
13.	105-079	-	LOCK WASHER (1/4")	
14.	105-052	-	BOLT (3/8-NC X 1-1/4")	
15.	105-072	-	LOCK WASHER (3/8")	
16.	106-167	-	BOLT (1-NC X 2")	
17.	106-033	-	JAM NUT (1-NC)	
18.	179-273	-	EXT BOOM PIN	
19.	105-031	-	BOLT (3/8-NC X 1")	
20.	179-274	-	BOOM PIN	
21.	348-287	-	SLIDE PAD	
22.	105-197	-	BOLT (1/4-NC X 1")	
23.	499-235	-	WASHER PIN	
24.	105-053	-	NUT (3/8-NC)	
25.	105-425	-	BOLT (1-NC X 2-1/2")	
26.	105-375	-	NUT (1-NC)	
27.	370-288	-	HOSE REEL GUIDE	
28.	111-041	-	SWIVEL, HOOK	
	117-839	-	LATCH KIT	
29.	348-297	-	TRUNION CAP	
30.	516-118	-	VALVE COUNTERBALANCE	
31.	499-261	-	SLIDE PAD PLATE	
32.	499-262	-	LIFTING LUG	
33.	499-263	-	ROUND TUBING	
34.	499-264	-	WASHER	
35.	105-078	-	NUT (1/4-NC)	

## NOT SHOWN:

156-952 - HYD LINE, (EXT CYL)  
515-692 - HYD HOSE, (EXTENSION)

## FOOTNOTES

# SWING DRIVE MOUNT





## SWING DRIVE MOUNT

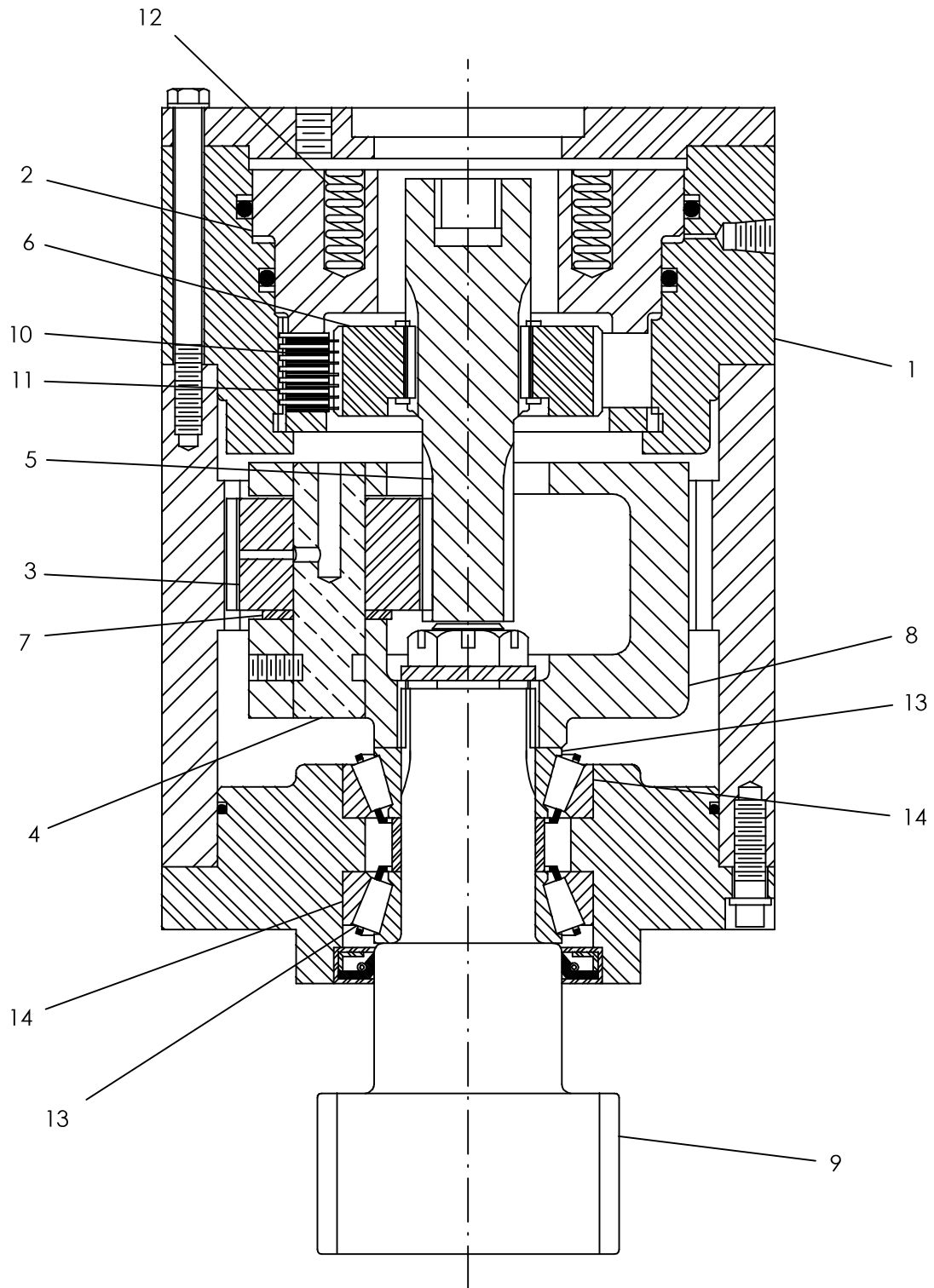
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	348-276	-	SWING DRIVE	OBSOLETE
2.	348-277	-	ECCENTRIC RING	
3.	158-969	-	HYD MOTOR	
4.	105-400	-	BOLT (5/8-NC X 1-1/4")	
5.	105-385	-	LOCK WASHER (5/8")	
6.	105-282	-	BOLT (1/2-NC X 1-1/4", ALN)	
7.	105-070	-	LOCK WASHER (1/2")	
8.	515-691	-	HOSE	SWING DRIVE
9.	516-113	-	HYD CONTROL VALVE	OBSOLETE
10.	516-117	-	COUNTERBALANCE VALVE	

NOT SHOWN:

FOOTNOTES:

NOTE:

# SWING DRIVE



## SWING DRIVE

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	348-276		SWING DRIVE	
1.	348-278	1	BRAKE CYLINDER	INCLUDES REF NO.'S I-I4, OBSOLETE
2.	348-279	1	BRAKE PISTON	OBSOLETE
3.	168-058	3	PLANET GEAR	OBSOLETE
4.	167-344	3	PLANET GEAR SHAFT	
5.	168-059	1	INPUT GEAR	
6.	348-280	1	BRAKE DRIVER	
7.	126-197	3	THRUST BEARING	
8.	166-183	1	PLANET CARRIER	
9.	167-345	1	OUTPUT SHAFT	
10.	348-281	7	FRICTION DISC	
11.	348-282	7	BRAKE DISC	
12.	348-283	14	BRAKE SPRING	
13.	126-198	2	BEARING CONE	
14.	126-199	2	BEARING CUP	

NOT SHOWN:

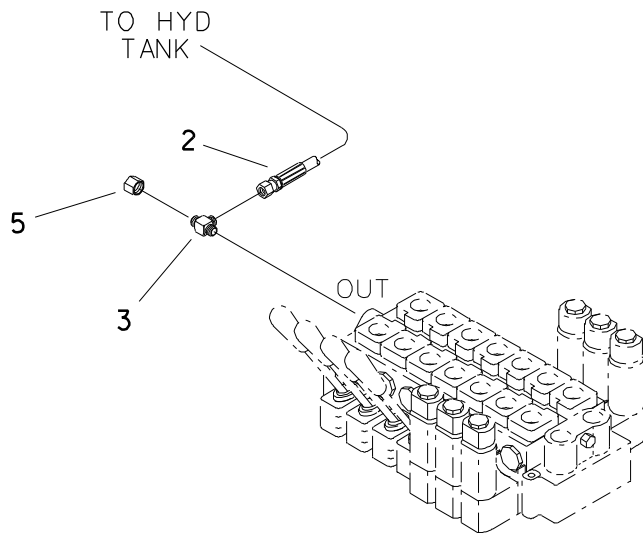
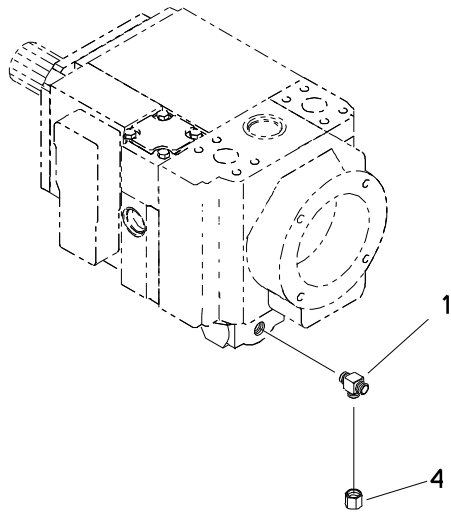
165-897 1 HYD. MOTOR GASKET  
190-987 1 SEAL REPAIR KIT

FOOTNOTES:

NOTE:

# HOIST HYDRAULICS WITHOUT HOIST

ROTATION PUMP



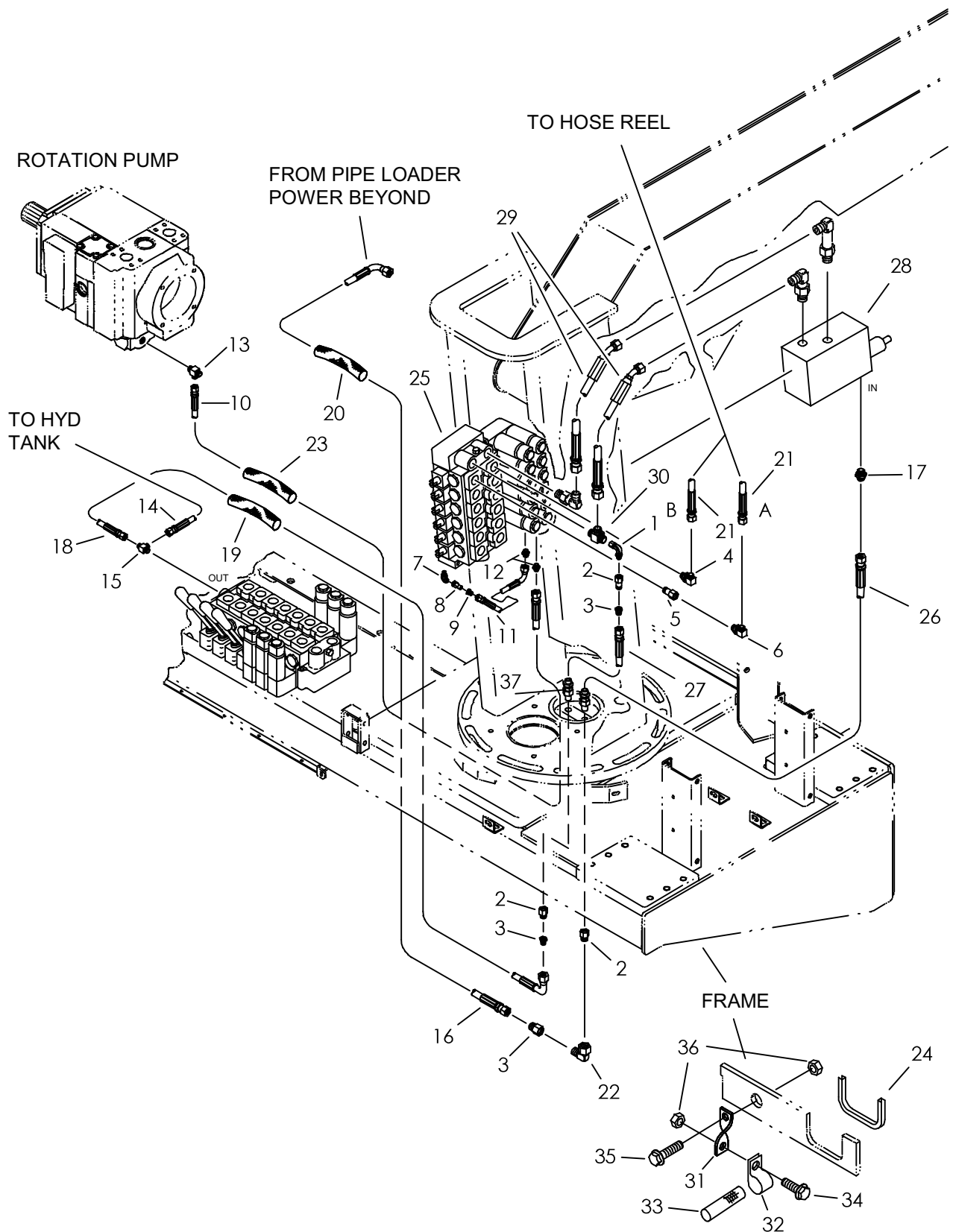
# HOIST HYDRAULICS WITHOUT HOIST

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	154-230	-	BRANCH TEE (06S-040-040)	
2.	515-259	-	HOSE (100FX45-14"-3000)	
3.	154-370	-	RUN TEE (12S-100-100)	
4.	154-296	1	CAP (040F)	
5.	154-324	1	CAP (100F)	

FOOTNOTES

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

# HOIST HYDRAULICS



# HOIST HYDRAULICS

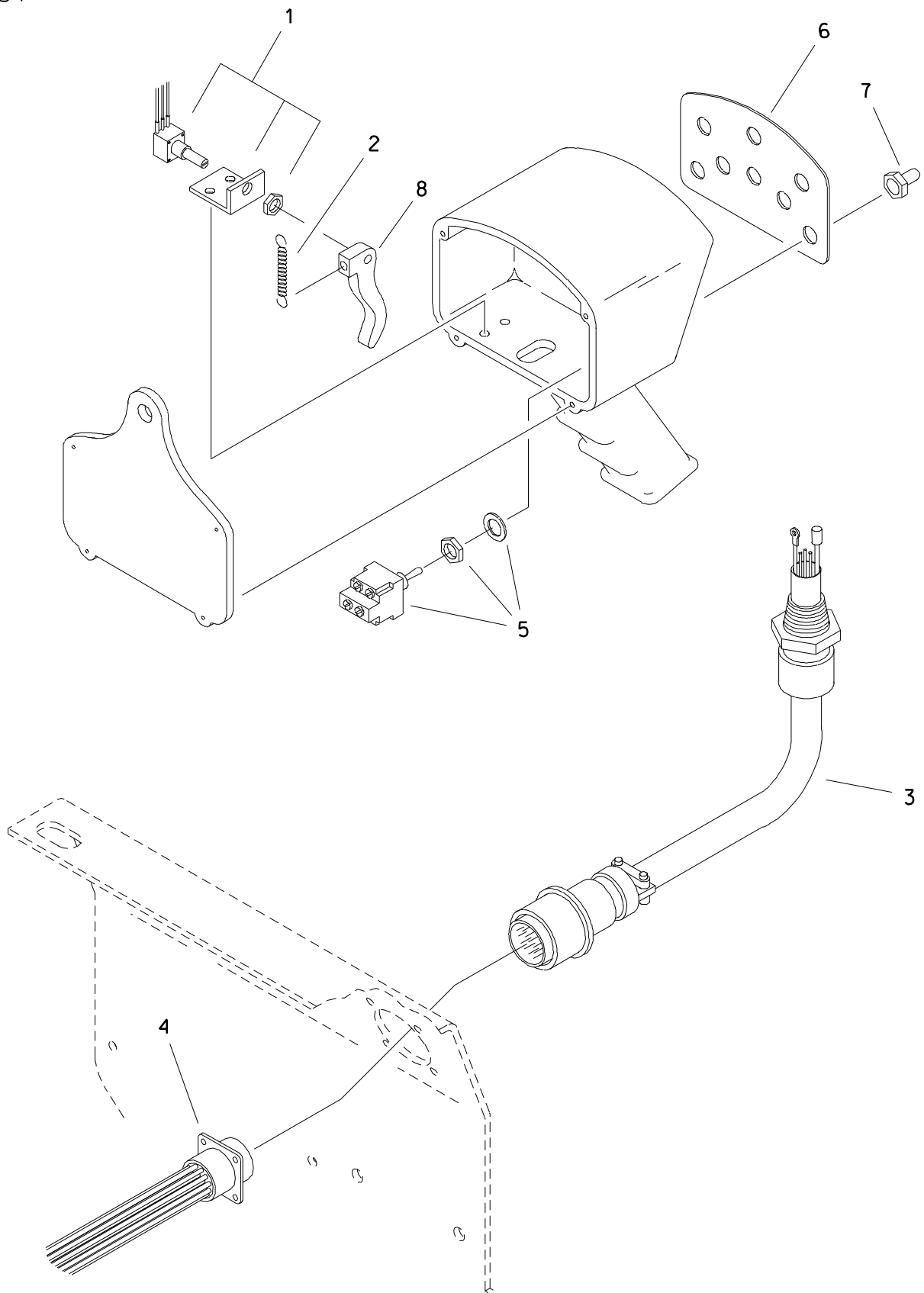
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	154-026	-	UNION (12J-12JFX90)	
2.	514-021	2	UNION (120-12JFX)	
3.	154-441	2	REDUCER (100-120F)	
4.	154-322	1	CONNECTOR (080-10S90)	
5.	155-193	1	REDUCER (10S-08SF)	
6.	154-235	1	CONNECTOR (08S-08090)	
7.	154-470	-	CONNECTOR (100-12S45)	
8.	154-310	-	REDUCER NUT (100F)	
9.	154-311	-	REDUCER STEM (040)	
10.	515-639	1	HOSE (040FX-140"-3000)	
11.	515-175	-	HOSE (040FX90-16"-3000)	
12.	154-220	2	CONNECTOR (040-06S)	
13.	154-230	1	BRANCH TEE (06S-040-040)	
14.	515-259	-	HOSE (100FX45-14"-3000)	
15.	154-370	1	RUN TEE (12S-100-100)	
16.	515-688	-	HOSE (100FX90-193"-3000)	
	149-645	-	HOSE (100FX90-183"-3000)	
17.	154-308	-	CONNECTOR (100-12S)	
18.	515-689	1	HOSE (100FX90-105"-3000)	
19.	117-204	1	ABRASION SLEEVE (1.59" X 108")	
20.	117-205	1	ABRASION SLEEVE (1.59" X 195")	
21.	515-642	-	HOSE (080FX90-176"-3000)	
22.	154-457	1	UNION (120-120FX90)	
23.	117-203	1	ABRASION SLEEVE (1.00" X 143")	USE 1 @ 12"
24.	116-259	AR	BULK EDGE (1/2", SOLD PER 1")	
25.	516-113	-	HYD CONTROL VALVE	OBSOLETE
26.	515-727	-	HOSE (12JFX-38"-2250)	
27.	515-728	-	HOSE (12JFX90S-42"-2250)	
28.	516-103	-	PROPORTIONAL VALVE	
29.	515-726	-	HOSE (120FX45S-12"-2250)	
30.	156-976	-	UNION RUN TEE (12JFX-12J-12J)	
31.	357-170	1	BRACKET	
32.	110-333	1	BOLT-ON CLAMP (1")	
33.	117-669	1	ABRASION SLEEVE (1.75" X 55")	
34.	106-162	1	FLG SCREW (M8-1.25 X 20MM,8.8)	
35.	106-163	1	FLG SCREW (M8-1.25 X 30MM)	
36.	106-561	2	LOCKNUT (M8-1.25,PRV TRQ,10.9)	
37.	499-268	-	BULKHEAD SWIVEL	

NOT SHOWN:

FOOTNOTES:

NOTE:

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

PENDANT  
HOIST



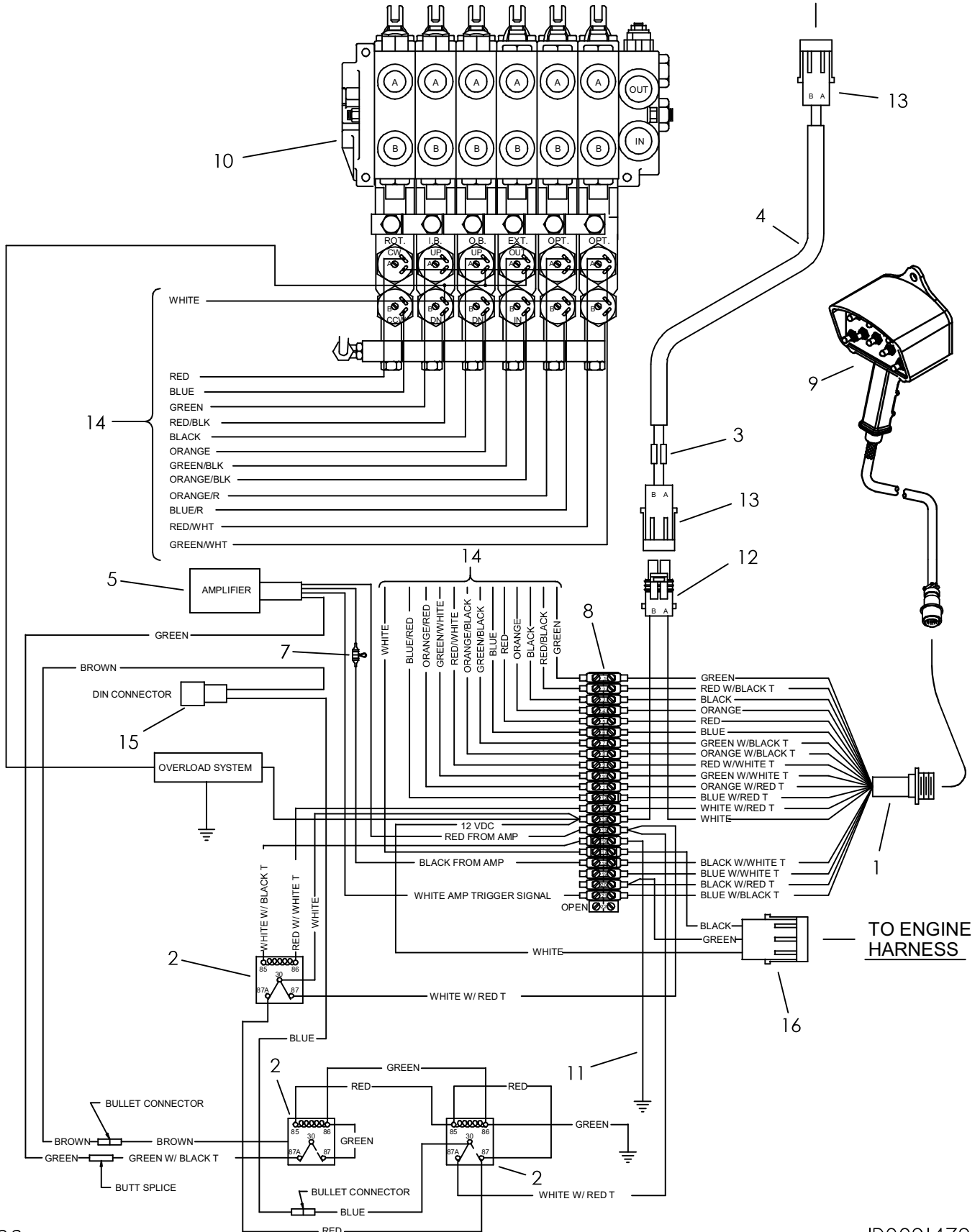
# PENDANT HOIST

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	217-407		PROPORTIONAL PENDANT	INCL REF NO'S 1 - 8
1.	217-406	-	POTENTIOMETER	
2.	117-206	-	SPRING, TRIGGER	
3.	216-058	-	PENDANT CABLE	
4.	214-468	-	RECEPTACLE (19 PIN)	
5.	499-271	-	TOGGLE SWITCH, DPDT	
6.	499-272	-	PROPORTIONAL PENDENT DECAL	
7.	499-273	-	TOGGLE BOOT	
8.	499-431	-	TRIGGER	

FOOTNOTES

# ELECTRICAL DIAGRAM HOIST

TO ENGINE HARNESS



## ELECTRICAL DIAGRAM HOIST

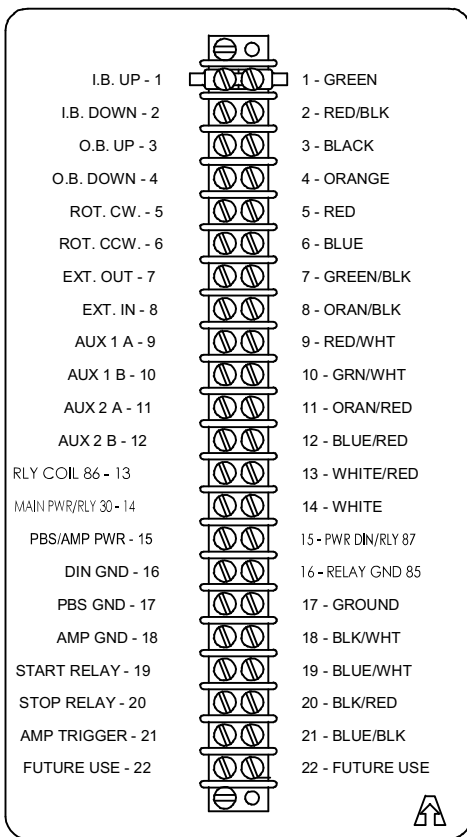
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	213-391	1	PENDENT TO PANEL	
2.	217-826	3	MINI RELAY (SPRT)	
3.	215-478	2	BUTT CONNECTOR (14-16 GA)	
4.	215-734	AR	CABLE (16 GA, 2-CONDUCTOR)	USE 1 @ 11'
5.	217-405	1	PROPORTIONAL AMPLIFIER	
6.	217-406	1	POTENTIOMETER	
7.	217-810	1	FUSE (ATC, 10 AMP)	
8.	213-314	1	TERMINAL BLOCK, 22 STATION	
9.	213-389	1	PROPORTIONAL PENDENT	
	213-394	1	PENDENT CABLE	
10.	516-113	1	HYD CONTROL VALVE	OBSOLETE
11.	213-393	1	RELAY HARNESS	
12.	214-047	1	WEATHER PACK (2-WAY FEMALE)	
13.	214-103	2	MALE CONNECTOR (2-WAY)	
14.	213-392	1	PANEL TO SOLENOID	
15.	213-296	1	DIN CONNECTOR HARNESS	
16.	215-224	1	3-WAY WP MALE CONNECTOR	

NOT SHOWN:

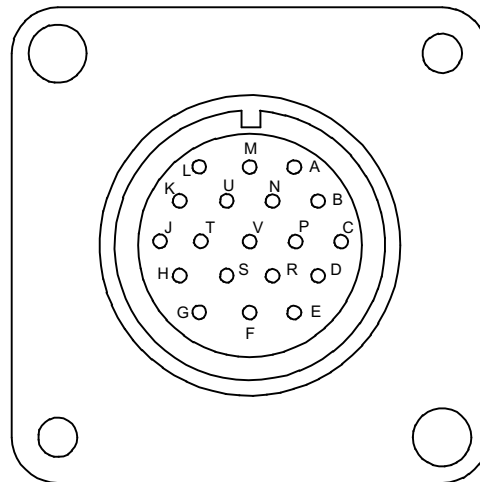
FOOTNOTES:

NOTE:

# ELECTRICAL DIAGRAM HOIST



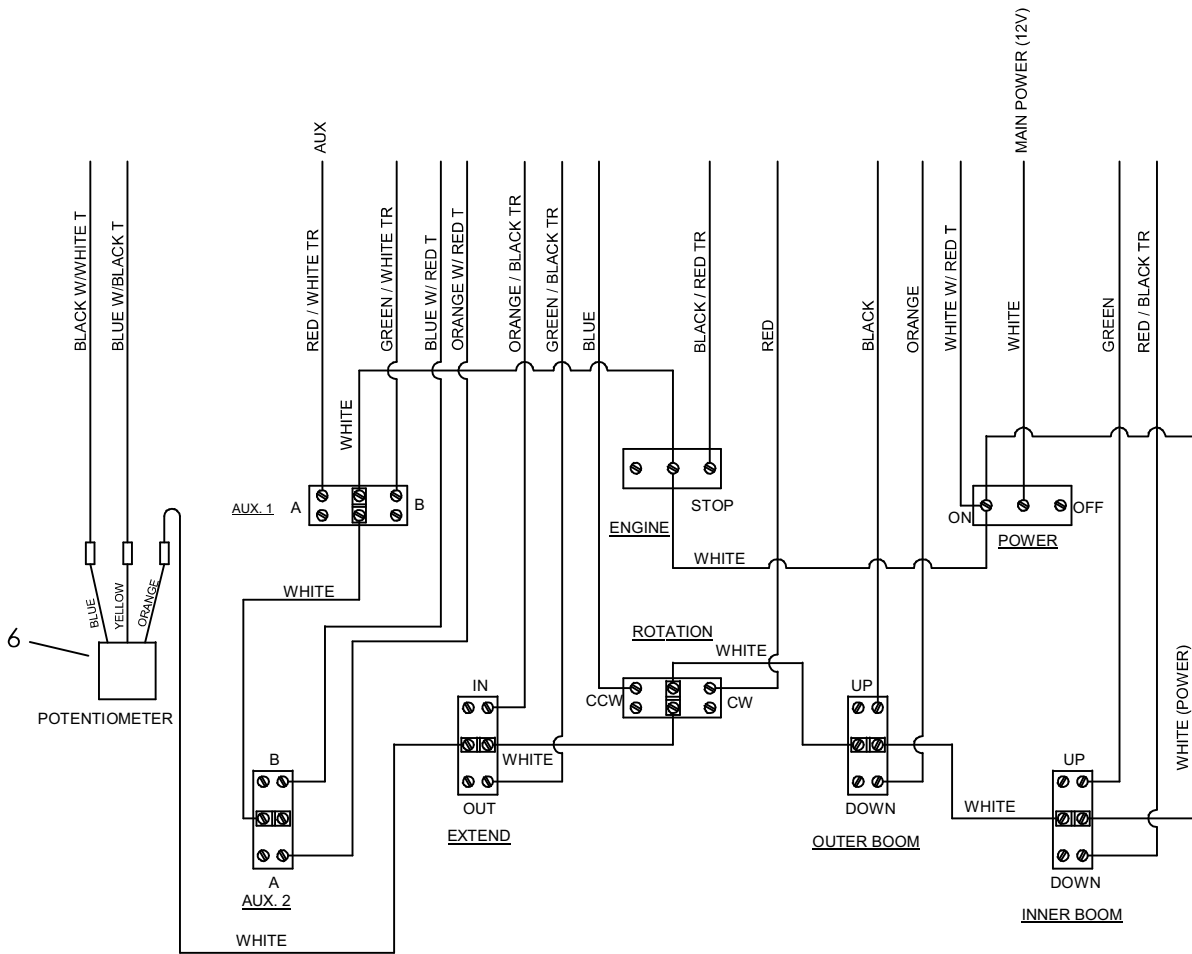
22 STATION TERMINAL BLOCK



WIRING GUIDE, RECEPTACLE

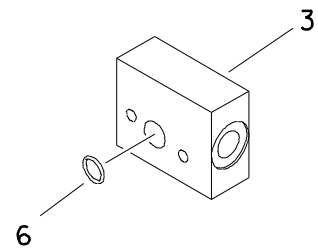
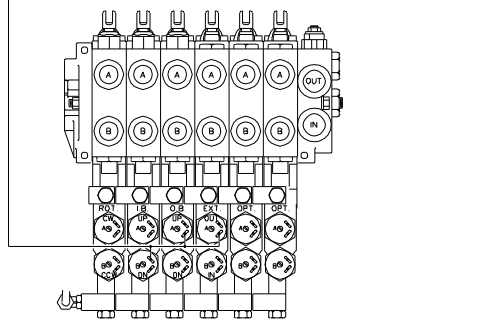
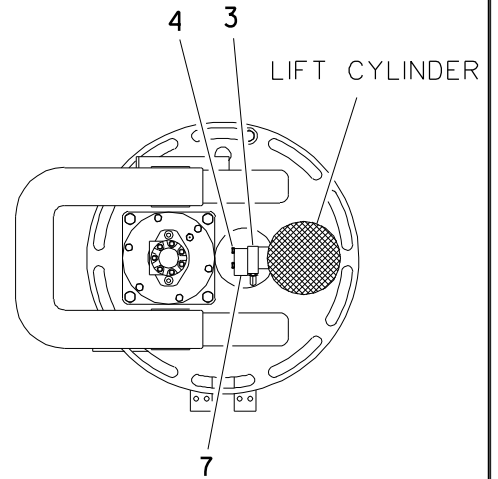
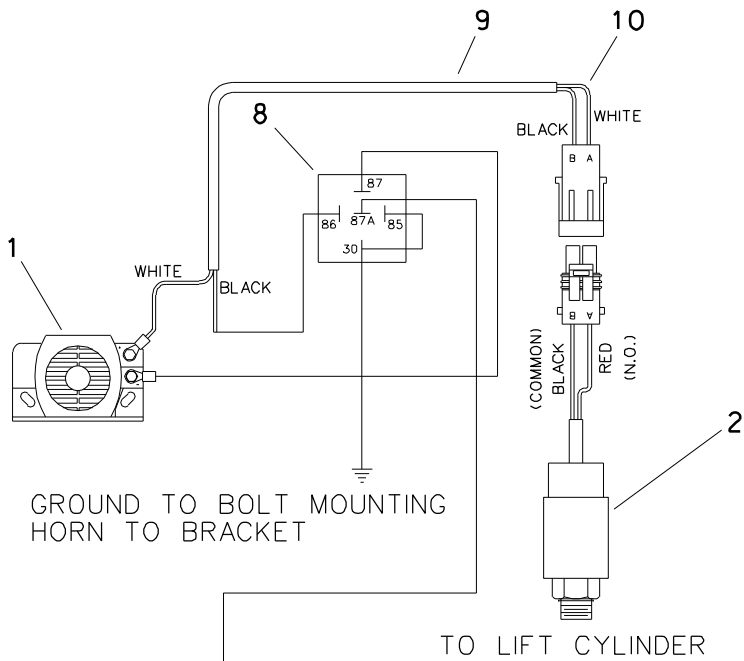
- |                    |                   |
|--------------------|-------------------|
| A-RED              | L-WHITE           |
| B-GREEN            | M-BLUE W/BLACK T  |
| C-ORANGE           | N-BLACK W/WHITE T |
| D-RED W/WHITE T    | P-GREEN W/WHITE T |
| E-BLACK            | R-BLUE W/WHITE T  |
| F-RED W/BLACK T    | S-BLACK W/RED T   |
| G-BLUE             | T-WHITE W/RED T   |
| H-ORANGE W/BLACK T | U-ORANGE W/RED T  |
| J-GREEN W/BLACK T  | V-BLUE W/RED T    |
| K-WHITE W/BLACK T  |                   |

# ELECTRICAL DIAGRAM HOIST



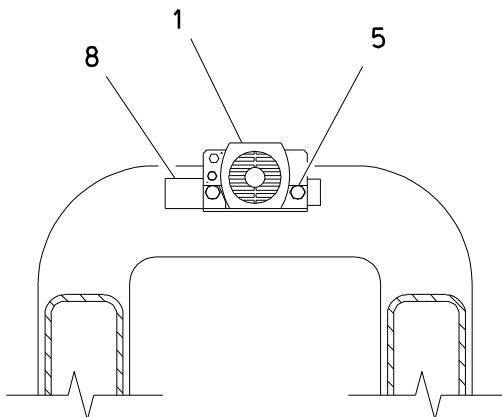
PROPORTIONAL PENDANT

# OVERLOAD ALERT

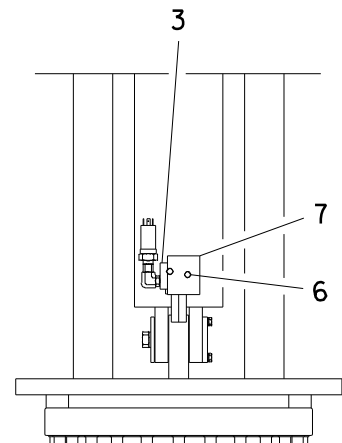


WIRE HARNESS & GROUNDS NOT USED IN OVERLOAD PROTECTION CIRCUIT REMOVED FOR CLARITY.

## WIRING DETAIL



HORN MOUNTING DETAIL  
UNDERSIDE OF TOP OF PEDESTAL



PRESSURE SWITCH DETAIL  
LIFT CYLINDER

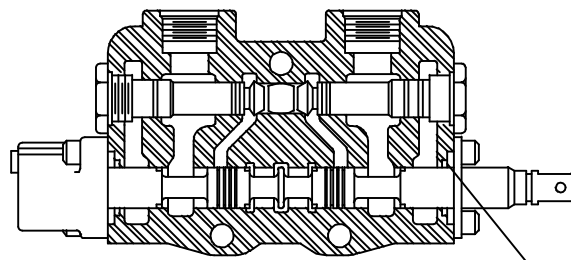
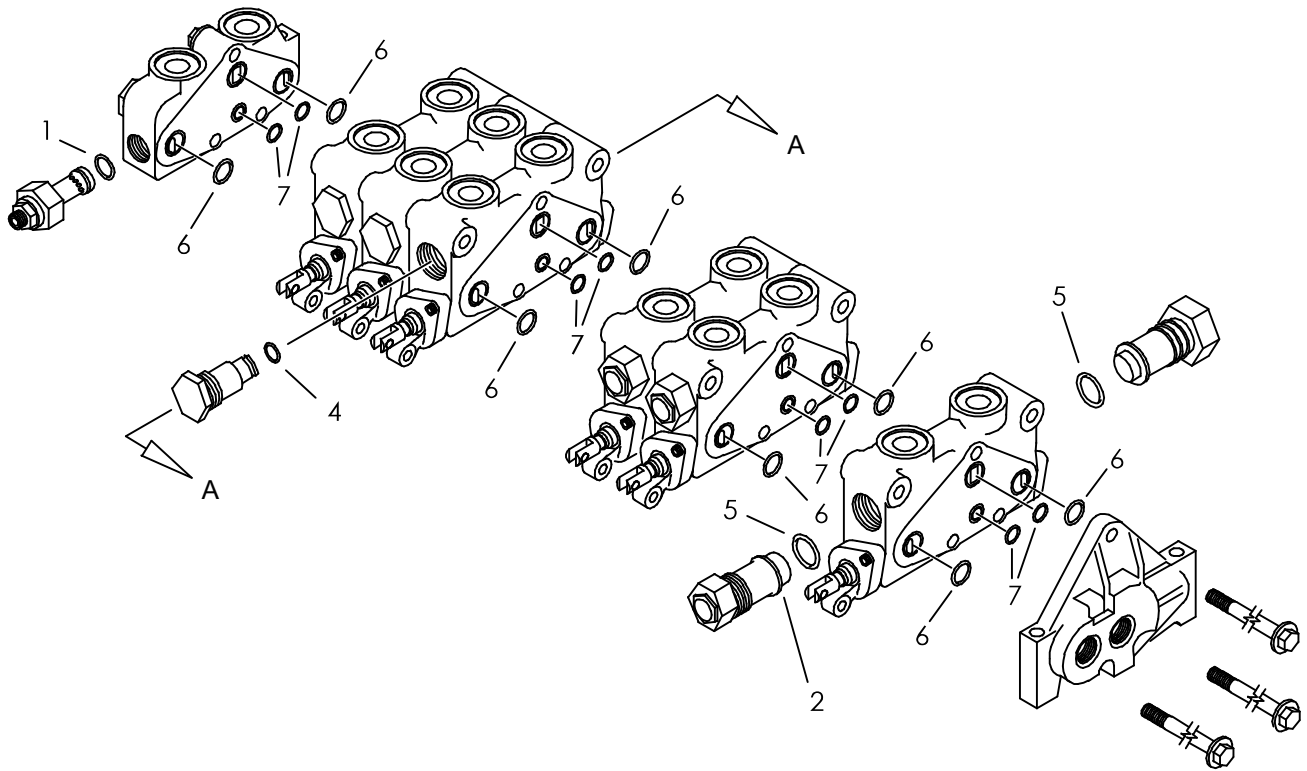
# OVERLOAD ALERT

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	306-610	-	HORN ALERT	
2.	217-943	-	PRESSURE SWITCH	
3.	516-111	-	SENSE VALVE	
4.	105-224	-	BOLT (1/4-NC X 2-1/2")	
5.	105-197	-	BOLT (1/4-NC X 1")	
	105-152	-	NUT (1/4-NF)	
	105-095	-	WASHER (1/4")	
	105-079	-	LOCK WASHER (1/4")	
6.	157-743	-	O-RING SEAL	
7.	516-112	-	COUNTER BALANCE VALVE	
8.	217-944	-	OVERLOAD RELAY	
9.	214-461	-	LOOM	
10.	214-462	-	HORN ALERT WIRE ASSY	

FOOTNOTES

REMOVE METAL TAB FROM HORN COVERING GROUND TO ISOLATE GROUND.

# HYD CONTROL VALVE HOIST



SECTION A-A



## HYD CONTROL VALVE HOIST

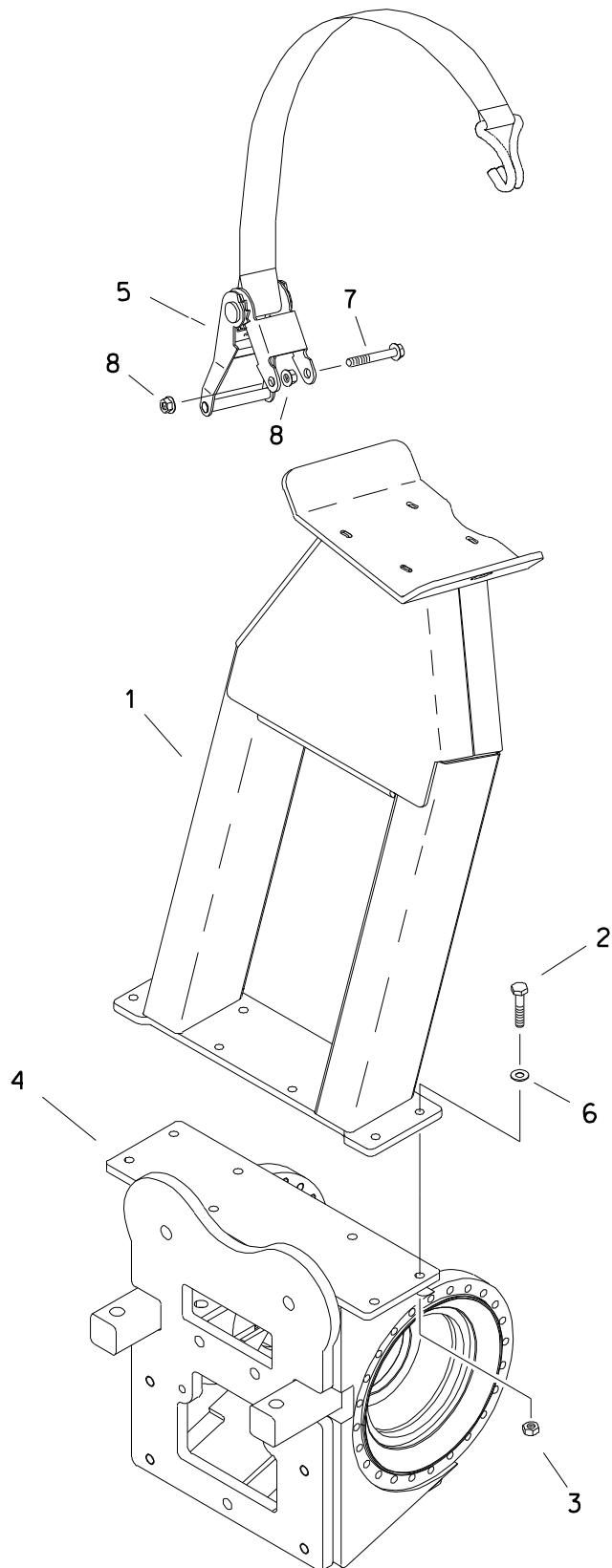
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	516-113		CONTROL VALVE	OBSOLETE
1.	190-845	-	SEAL REPAIR KIT	INLET RELIEF
2.	190-846	-	SEAL REPAIR KIT	PORT RELIEF
3.	499-090	-	SEAL/WASHER SPOOL	
4.	190-847	-	SEAL REPAIR KIT	LOAD PLUG
5.	190-848	-	SEAL REPAIR KIT	PORT RELIEF
6.	155-757	-	O-RING (021 D70)	
7.	155-758	-	O-RING (019 D70)	

NOT SHOWN:

FOOTNOTES:

NOTE:

## HOIST REST



# HOIST REST

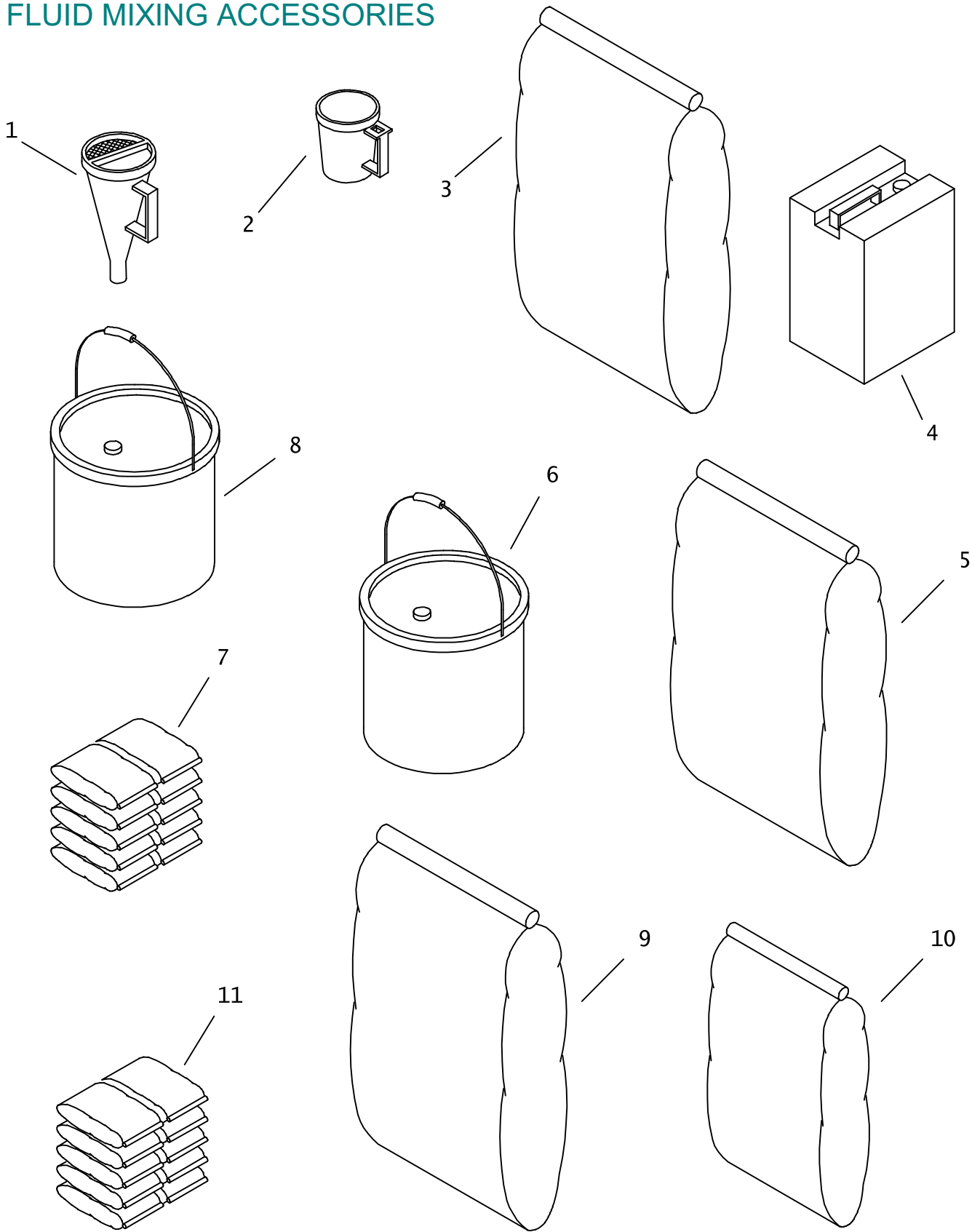
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	306-946	1	CRANE SUPPORT	
2.	106-477	8	SCREW (M12-1.75 X 45MM)	
3.	106-709	8	FLG NUT (M12-1.75)	
4.	370-218	-	THRUST DRIVE HOUSING	
5.	111-015	1	LOAD BINDER	
6.	106-743	8	WASHER (.531", HARDENED)	
7.	106-700	1	SCREW (M12-1.75 X 80MM)	
8.	106-685	2	LOCKNUT (M12-1.75, PRVLG TORQ)	

FOOTNOTES



# **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)	

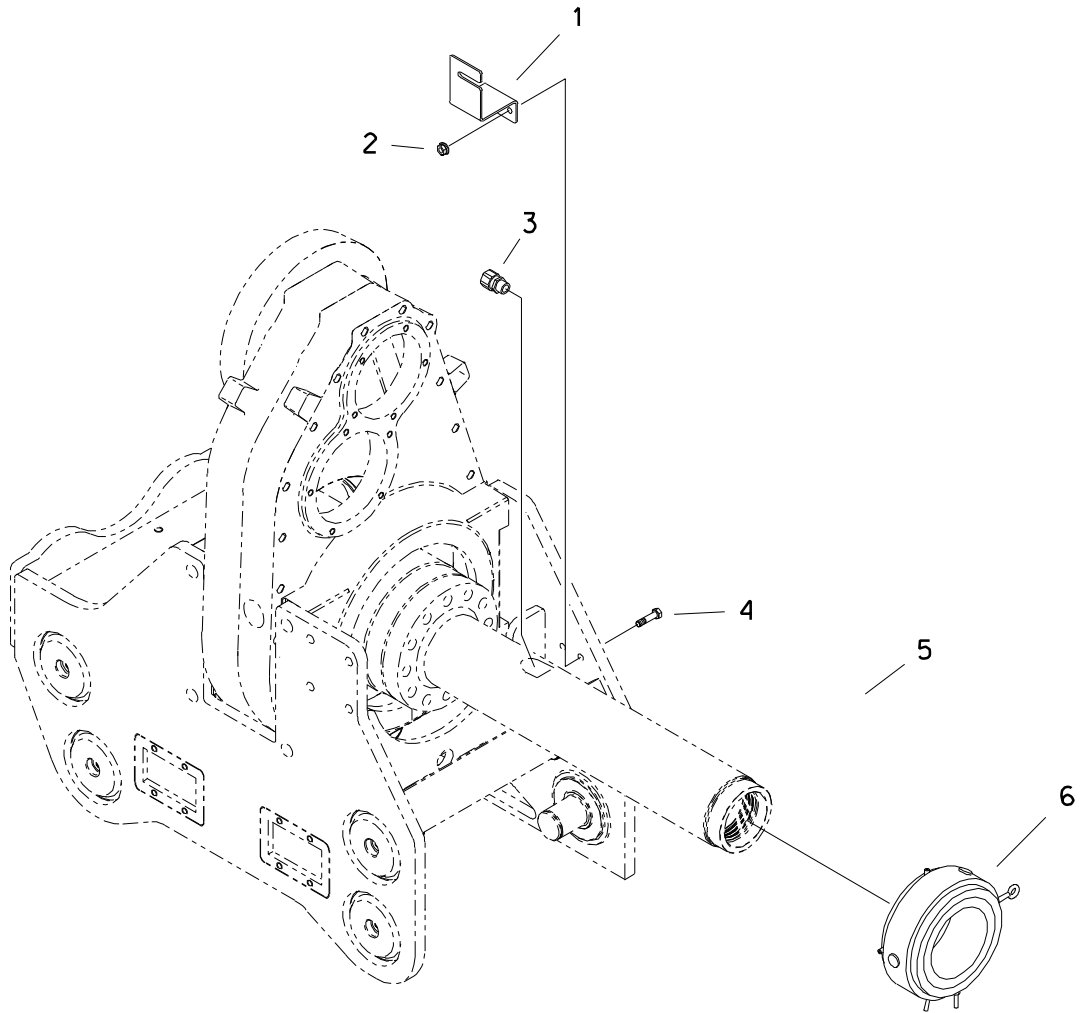
NOT SHOWN:

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

FOOTNOTES:

NOTE:

# WIRELINE KIT THRU SAVER SUB



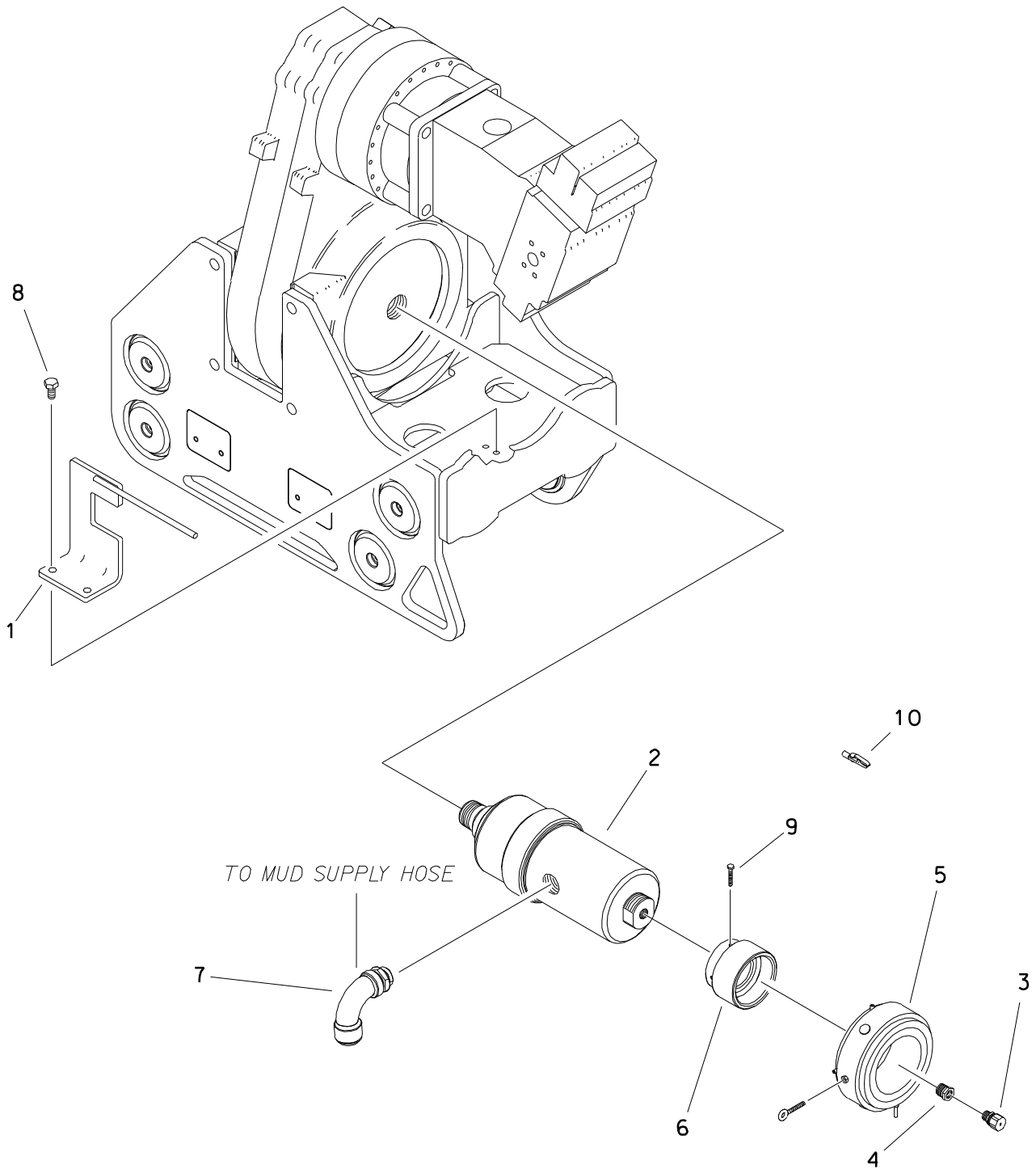


# WIRELINE KIT THRU SAVER SUB

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	101-061	-	SIDE ENTRY WIRELINE KIT	
1.	308-449	1	TORQUE BRACKET	
2.	106-386	2	FLG LOCKNUT (M8-1.25)	
3.	358-855	1	PACK-OFF FITTING (.125-.187)	
4.	106-267	2	SCREW (M8-1.25 X 35MM)	
5.	105-693	1	ALLIGATOR CLIP .312" X 2.343"	
6.	214-548	1	COLLECTOR RING	

FOOTNOTES

WIRELINER KIT  
JT7020  
BEGINS WITH S/N 2T3030

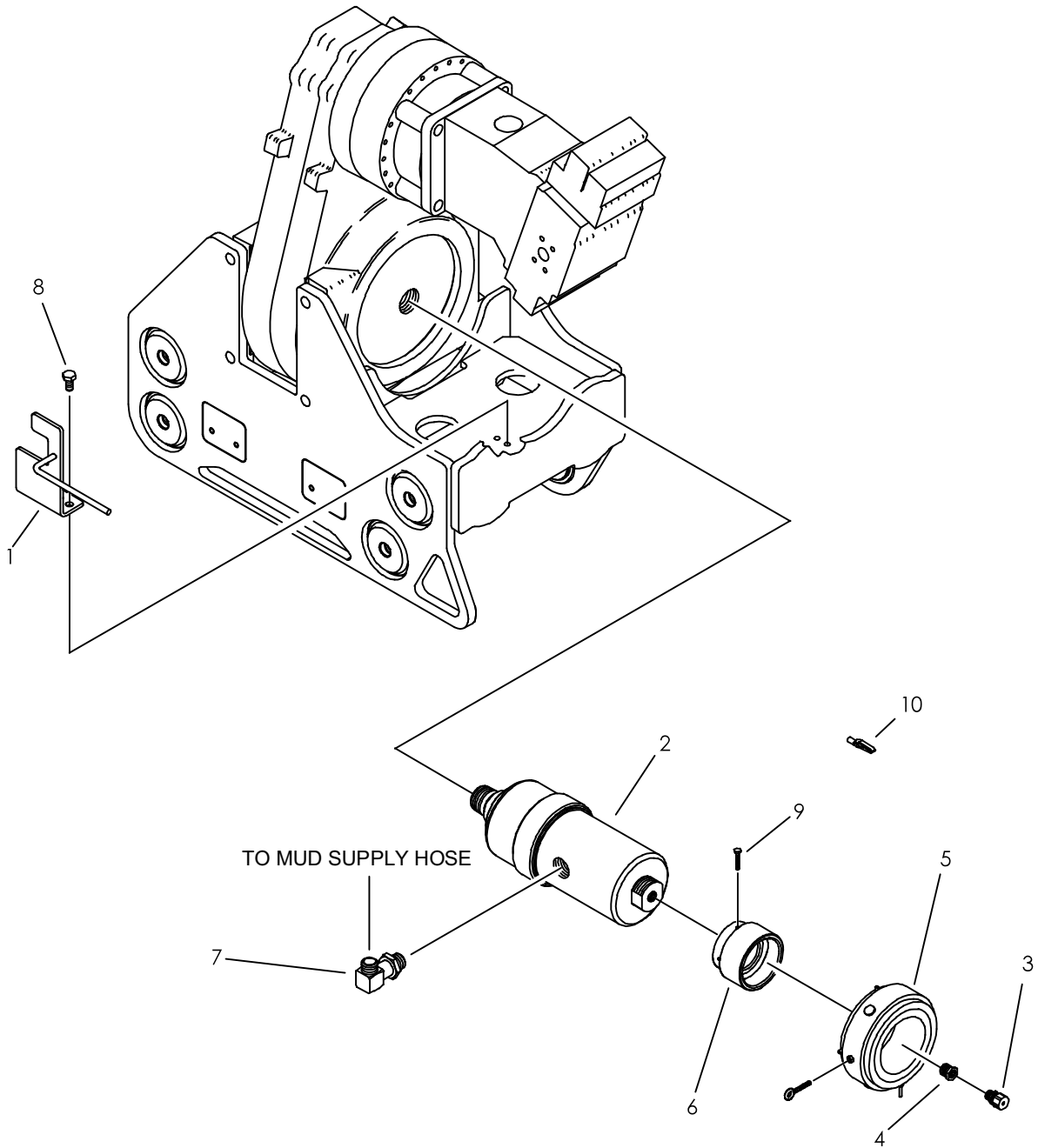


WIRELINE KIT  
 JT7020  
 BEGINS WITH S/N 2T3030

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	101-059	-	WIRELINE KIT	
1.	308-450	1	TORQUE BRACKET	
2.	149-592	1	WATER SWIVEL (WIRELINE)	
	190-821	2	SEAL KIT	
3.	358-855	1	STRAIN GRIP (06N)	
4.	115-156	1	REDUCER (08N-06NF)	
5.	214-548	1	COLLECTOR RING	
6.	350-630	1	COIL MOUNT	
7.	153-150	1	CONNECTOR (24S-32J90)	
8.	106-559	2	SCREW (M12-1.75 X 25mm)	
9.	105-688	3	SCREW (M6-1.00 X 35mm)	
10.	105-693	1	ALLIGATOR CLIP .312" X 2.343"	

FOOTNOTES

# WIRELINER KIT JT7020



## WIRESLINE KIT JT7020

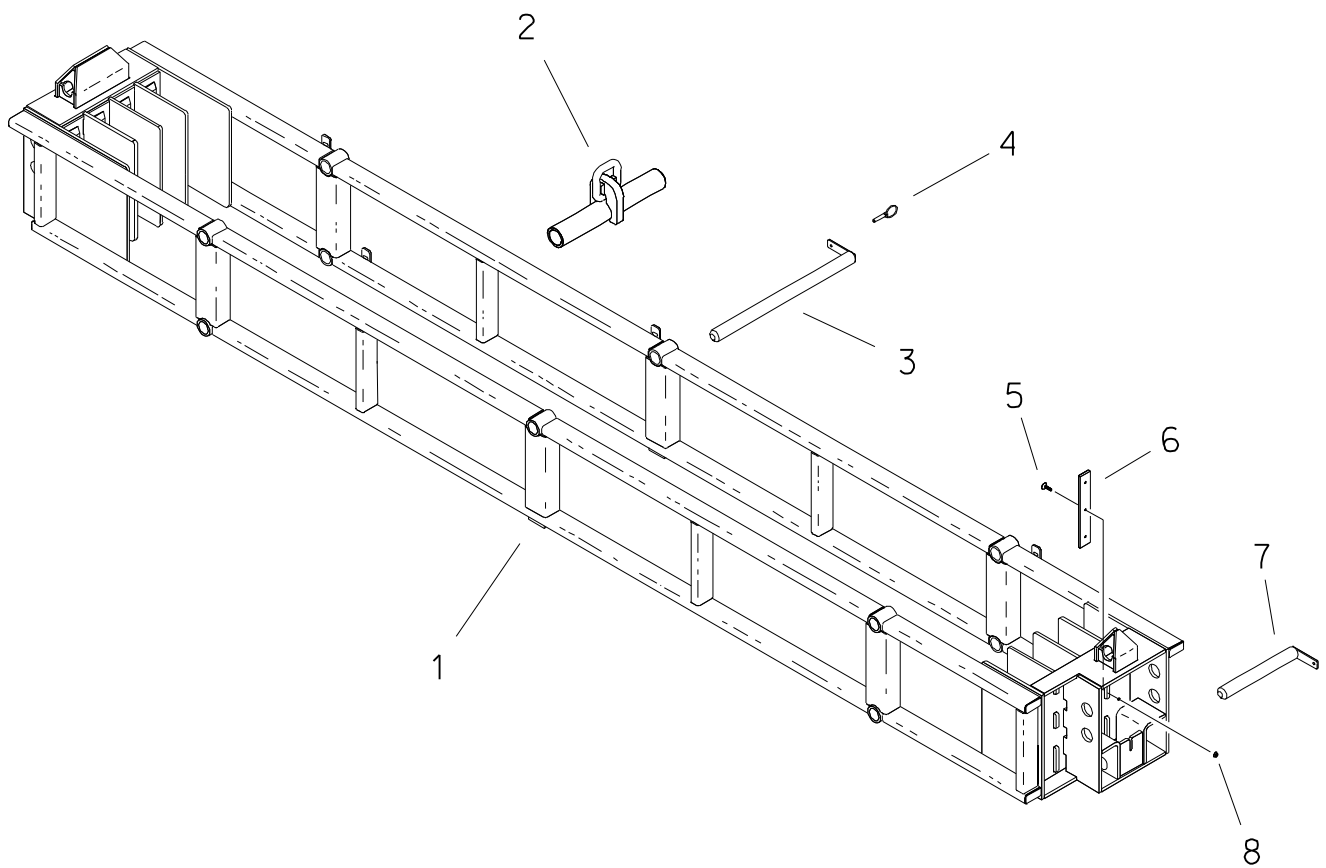
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	101-060	-	WIRESLINE KIT	
1.	370-526	1	TORQUE BRACKET	
2.	350-476	1	WATER SWIVEL	
	190-1423	2	SEAL KIT	
3.	358-855	1	STRAIN GRIP (06N)	
4.	115-156	1	REDUCER (08N-06NF)	
5.	214-548	1	COLLECTOR RING	
6.	350-630	1	COIL MOUNT	
7.	514-341	1	CONNECTOR (24S-24J90)	
8.	106-559	2	SCREW (M12-1.75 X 25mm)	
9.	105-688	3	SCREW (M6-1.00 X 35mm)	
10.	105-693	1	ALLIGATOR CLIP .312" X 2.343"	

NOT SHOWN:

FOOTNOTES:

NOTE:

## PIPE BOX



# PIPE BOX

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	348-001	1	PIPE BOX (10,000 lb)	
2.	348-091	1	PIPE BOX LIFT MOUNT	
3.	348-031	6	PIN	
4.	110-228	7	LYNCH PIN (7/16" X 2")	
5.	107-187	24	ELEVATOR BOLT (M8-1.25 X 35mm)	
6.	348-034	8	SLIDE BAR	
7.	370-033	1	SHORT PIN	
8.	106-201	24	FLG NUT (M8-1.25)	

FOOTNOTES





# 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

# JT7020

## Related Publications

Component	Ass'y	P/N
<b>Model:</b>		
JT7020 ..... Parts Manual .....		053-473
JT7020 ..... Operators Manual .....		054-518
JT7020 ..... Repair Guide (Service Manual) .....		055-516
JT7020 ..... Supplementary Maint Guide - Trenchless .....		055-485
JT7020 ..... Special Tools Guide .....		052-901
<b>Engine:</b>		
Deutz ..... Parts Manual - BF6M1013EC .....	194-776	N/A
Deutz ..... Parts Fiche Set - BF6M1013EC .....		N/A
Deutz ..... Operators Manual - BF6M1013EC .....		N/A
Deutz ..... Service (Shop) Manual - BF6M1013EC .....		N/A
Deutz ..... Problem Diagnosis Guide .....		050-555
Deutz ..... Sales & Service Directory .....		050-556

## Filters

<b>Engine:</b>		
Air Filter Parts Ass'y .....		195-448
Element (primary) .....		194-822
Air Stack Cap (5.000") .....		196-317
Oil Filter Element (spin-on) - Deutz .....		159-332
Fuel Filter Element (pre-filter, cartridge) - Deutz.....		159-334
Element (primary, spin-on) - Deutz .....		195-435
<b>Hydraulic:</b>		
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
<b>Water {H2O}:</b>		
Water Strainer (2.250" x 7.0") - Y-Strainer .....		159-239
Strainer (4.000" x 9.0") - Y-Strainer .....		159-490

## 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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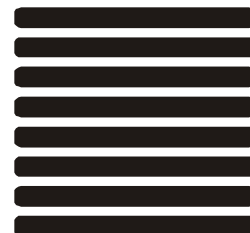
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