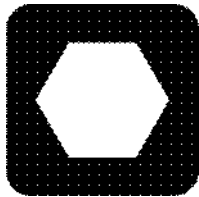


# **JT5/FT5**

## **Parts Manual**



# ***Ditch Witch***<sup>®</sup>

## **JT5/FT5**

ISSUE NO. 03PL-10/11

For Replacement Copy Order **P/N 053-2354**

This manual contains information concerning the following models:  
**JT5, FT5**

**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**

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# 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 its nearest authorized dealer upon inquiry. CMW reserves the right to supply remanufactured replacement parts under this warranty as it deems appropriate.

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

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

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

# CONTENTS

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## Decals

Decal Location - FT5 .....	12
Decal Location - JT5 .....	8

## Engine Components

Air Filter System .....	22
Engine Enclosure .....	30
Engine Mount .....	18
Exhaust/Throttle .....	20
Fixed Hood .....	34
Fixed Hood Support .....	36
Fuel Tank .....	28
Pump Mount .....	16
Radiator .....	26
Relay Panel .....	24
Removable Hood .....	32

## Frame Components

Carriage .....	56
Drill Frame .....	46
Hose Carrier .....	64
Idler Assembly .....	42
Inner Roller .....	44
Pipe Cover .....	48
Rotating Wrench .....	54
Rotation Gearbox .....	58
Stabilizer & Pivot .....	50
Stationary Wrench .....	52
Thrust Drive .....	60
Tracks .....	40
Water Swivel & Slide.....	62

## Operator's Station

Console .....	74
Operator's Station - Controls .....	70
Operator's Station - Seat .....	68
Setup Valve .....	76
Wrench Valve .....	72

## Hydraulics

Anchor Hydraulics - Left .....	104
Anchor Hydraulics - Right .....	106
Auxiliary Valves Pressure .....	90
Drilling Fluid Motor Hydraulics .....	98
Ground Drive Hydraulics .....	94
Hydraulic Cylinder (2.0" X 1.0") .....	108
Hydraulic Cylinder (2.5" X 1.25").....	110
Hydraulic Oil Cooler .....	82
Hydraulic Reservoir/Battery.....	80
Rotating Wrench Hydraulics .....	100

## Hydraulics, continued

Rotation Hydraulics .....	86
Stabilizer/Tilt Hydraulics .....	96
Stationary Wrench Hydraulics .....	102
Thrust Hydraulics .....	88
Thrust/Rotation Valve Hydraulics .....	84
Wrench/Anchor Valve Return .....	92

## Anchor System

Anchor System .....	116
Anchor Valve Mount .....	114

## Fluid System

Drill Fluid Pump.....	124
Drill Fluid Pump Inlet .....	120
Drill Fluid Pump Outlet .....	122
Engine – Honda, 5.5 hp .....	140
Fluid Transfer Hopper – FT5, ZFT5 .....	142
Fluid Transfer System - FT5 - Begins.....	128
Fluid Transfer System - FT5 - Ends.....	132
Fluid Transfer System - ZFT5 .....	136
Garden Hose Adapter .....	126

## Accessories

2 Gallon Thread Lubricator .....	148
Antifreeze Kit .....	154
Electric Thread Lubricator .....	146
Fluid Mixing Accessories.....	160
Grease Pump – Low Output .....	152
Pump/Bucket Assembly .....	150
Umbrella Kit .....	156
Wash Wand Kit .....	158

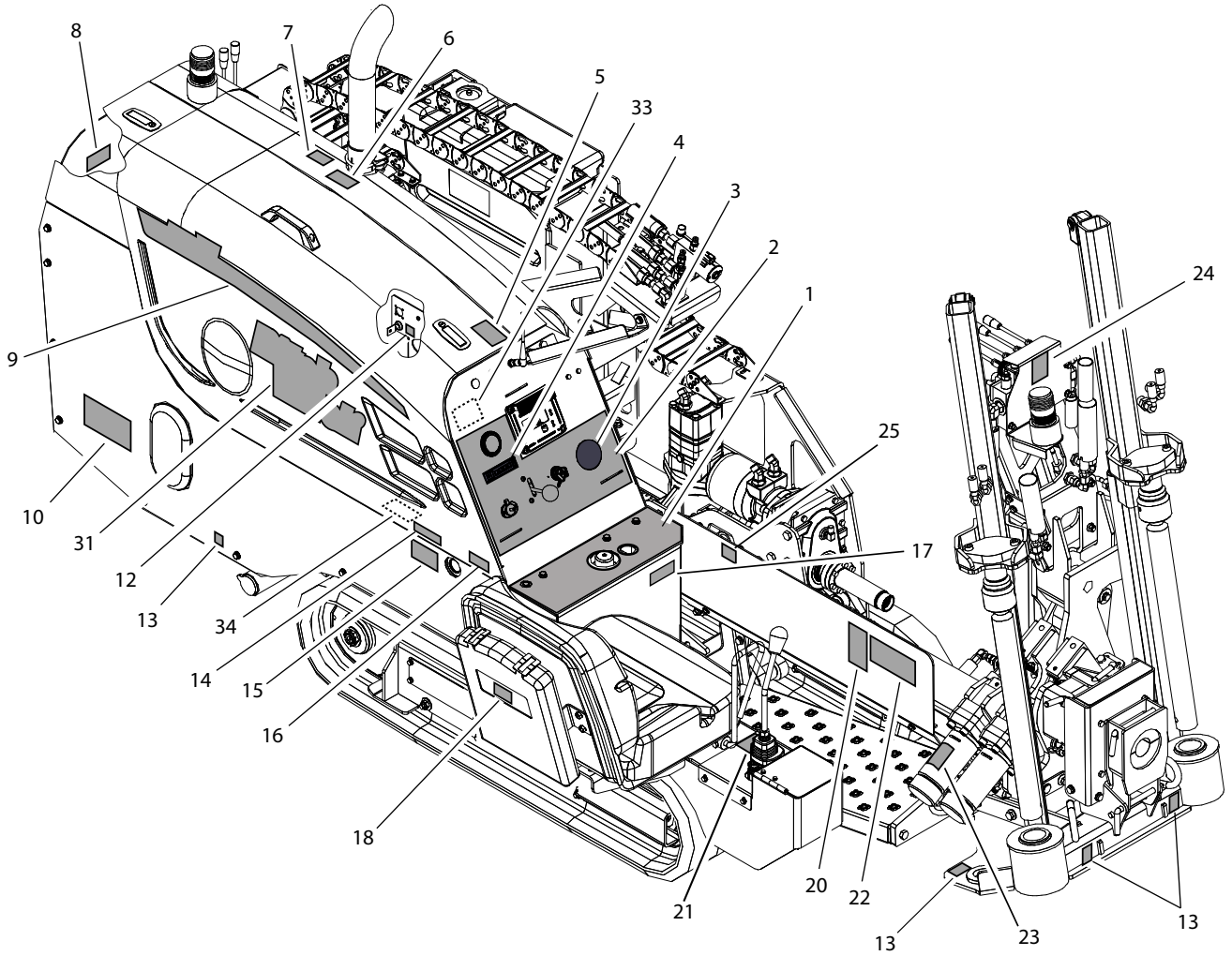
## Miscellaneous

Bolt/Nut Torque Chart .....	164
Filters .....	168
Optional Kits .....	168
Parts Manual Change Request .....	169
Related Publications .....	168
Replacement O-Ring Chart.....	167
Warranty Registration .....	172

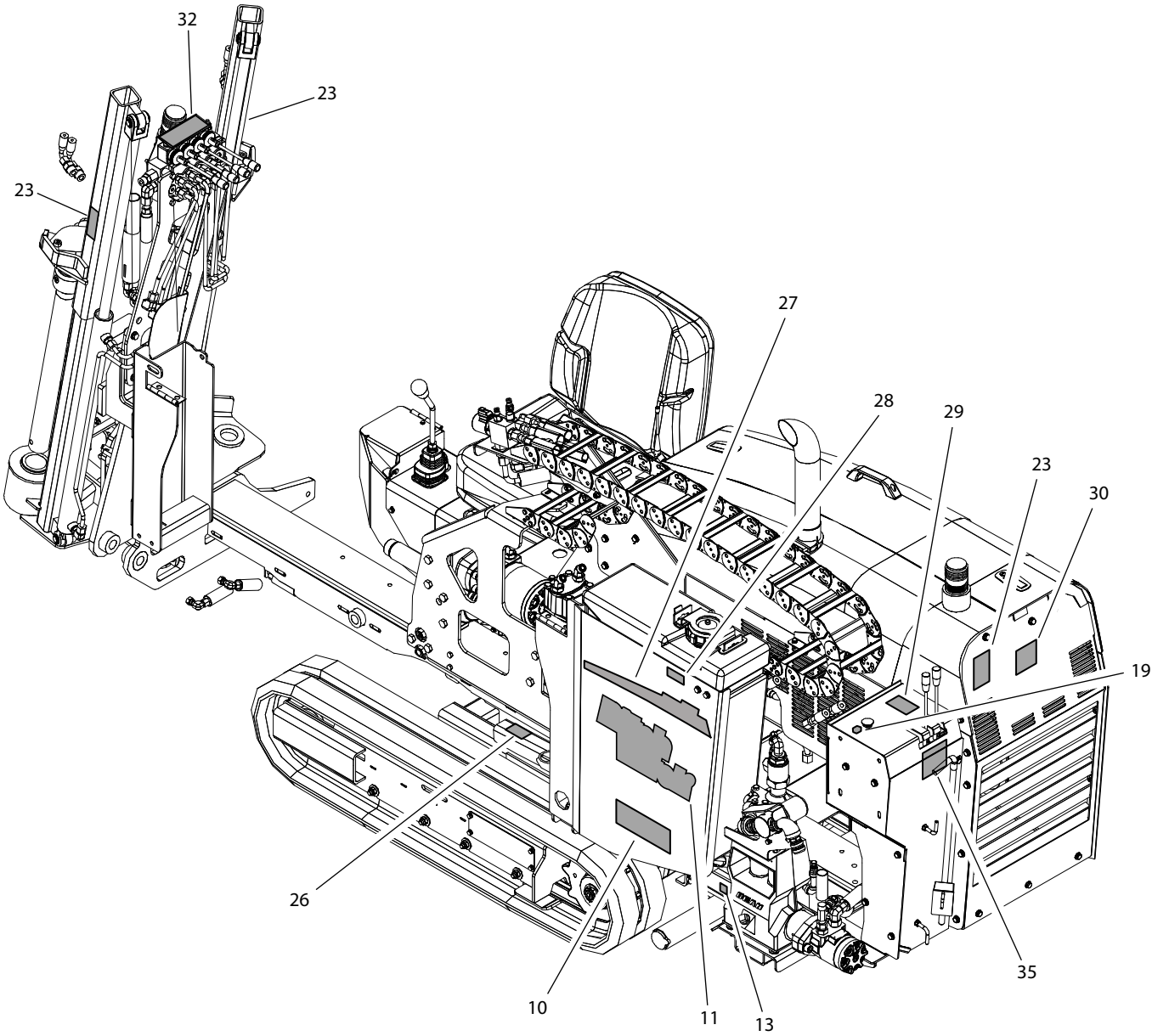


# DECALS

# DECAL LOCATION JT5



# DECAL LOCATION JT5



DECAL LOCATION  
JT5

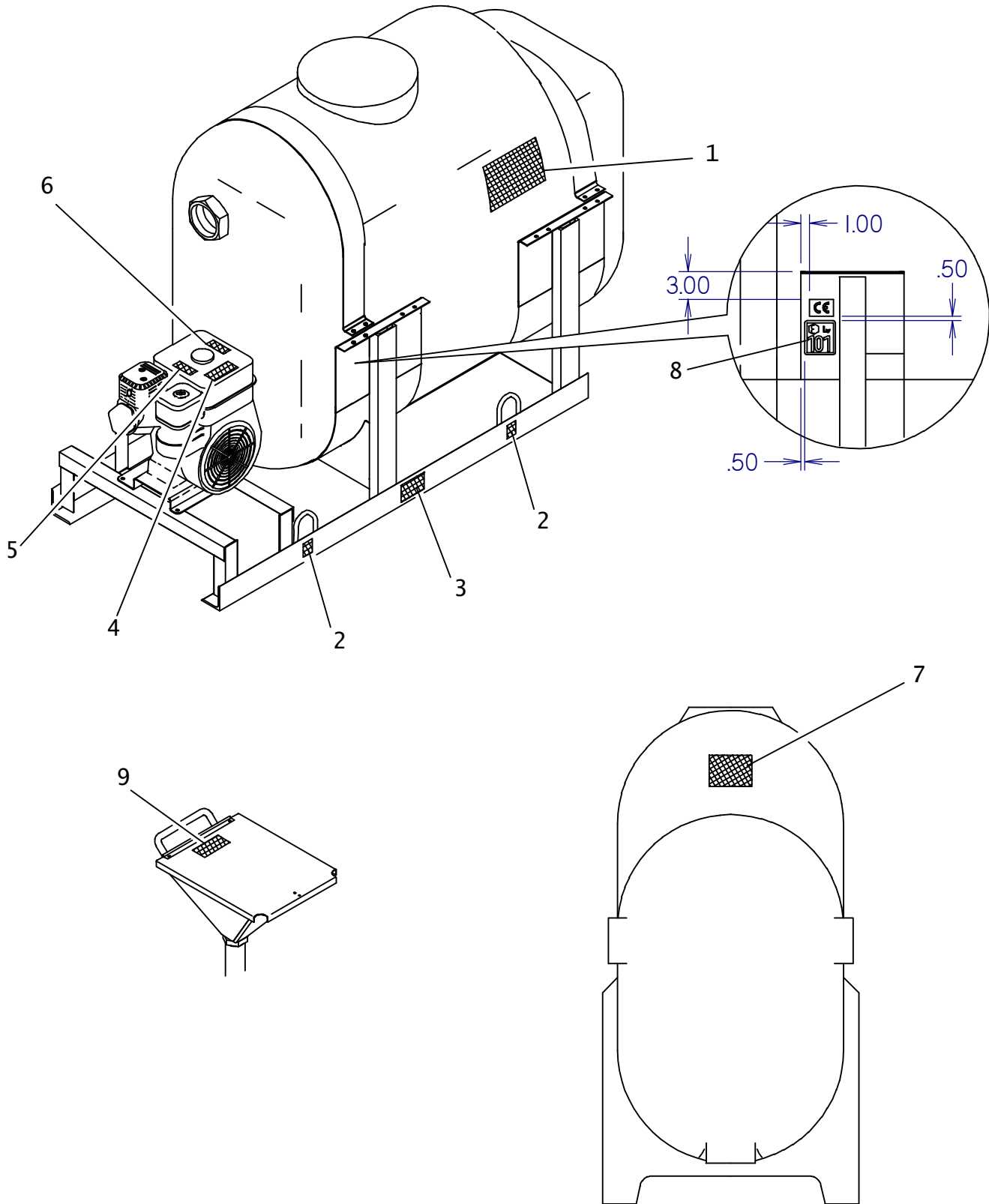
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	270-2671		JT5 SERVICE DECAL KIT	
1	270-4669	1	LEFT CONTROL PANEL	
2	270-4664	1	INSTRUMENT PANEL	
3	270-2670	1	FLUID PRESSURE DIAL	
4	270-4668	1	LED DISPLAY	
5	274-780	1	JET TRAC PATENT (S)	
6	273-423	1	CAUTION HOT PARTS	
7	273-459	1	NOTICE EXPLOSION POSSIBLE	
8	273-138	1	NOTICE-COOLANT	
9	270-4666	1	JT5 MODEL ID RT	
10	274-049	2	DANGER ELECTROCUTION	
11	700-196	1	STACKED DITCH WITCH LOGOTYPE	
12	700-116	1	TRACKER CONTROL	
13	274-318	5	TIE DOWN LOCATION	
14	275-400	1	NOTICE OIL LEVEL DECAL	
15	274-198	1	DECAL - NOTICE - OIL LEVEL	
16	275-203	1	BATTERY	
17	274-050	1	WARNING JOBSITE HAZARD	
18	275-048	1	IMPORTANT SAFTEY RULES	
19	273-601	1	ENGINE STOP	
20	273-278	1	DANGER WRENCH	
21	274-974	1	RIGHT CONTROL PANEL	
22	275-197	1	DANGER ROTATING SHAFT	
23	273-546	4	WARNING MOVING PARTS	
24	270-1506	1	DANGER ROTATING SHAFT	
25	275-341	1	WARNING SLIDING PARTS	
26	275-372	1	IMPORTANT - CYLINDER LOCK	
27	270-4667	1	JT5 MODEL ID LT	
28	275-148	1	FUEL TANK (DIESEL) DECAL	
29	275-383	1	NOTICE SLOPE PARKING DECAL	
30	275-449	1	DITCH WITCH LOGO PLACARD	
31	700-158	1	STACKED DITCH WITCH LOGOTYPE	
32	700-071	1	STAKE DRIVER	
33	270-4663	1	JT5 RELAY/FUSE DECAL	
34	275-033	1	NOTICE ELECTRICAL SYSTEM	
35	274-970	1	SETUP CONTROL PANEL	

FOOTNOTES





# DECAL LOCATION FT5



## DECAL LOCATION

### FT5

REF PART NO. NUMBER	QTY	DESCRIPTION	REMARKS
275-813		FT5 DECAL KIT	
1. 273-037	2	FT5 MODEL IDENTIFIER	
2. 274-442	4	LIFT LOCATION	
3. 274-817	2	NOTICE, DO NOT LIFT	
4. 275-173	1	FUEL TANK (GASOLINE)	
5. 275-355	1	CAUTION HOT PARTS DECAL	
6. 275-419	1	WARNING, NO FLAME	
7. 275-449	1	DITCH WITCH LOGO PLACARD	
8. 274-291	1	SOUND POWER RATING DECAL	SEE FOOTNOTE 1
9. 275-184	1	WARNING MOVING PARTS	

NOT SHOWN:

FOOTNOTES:

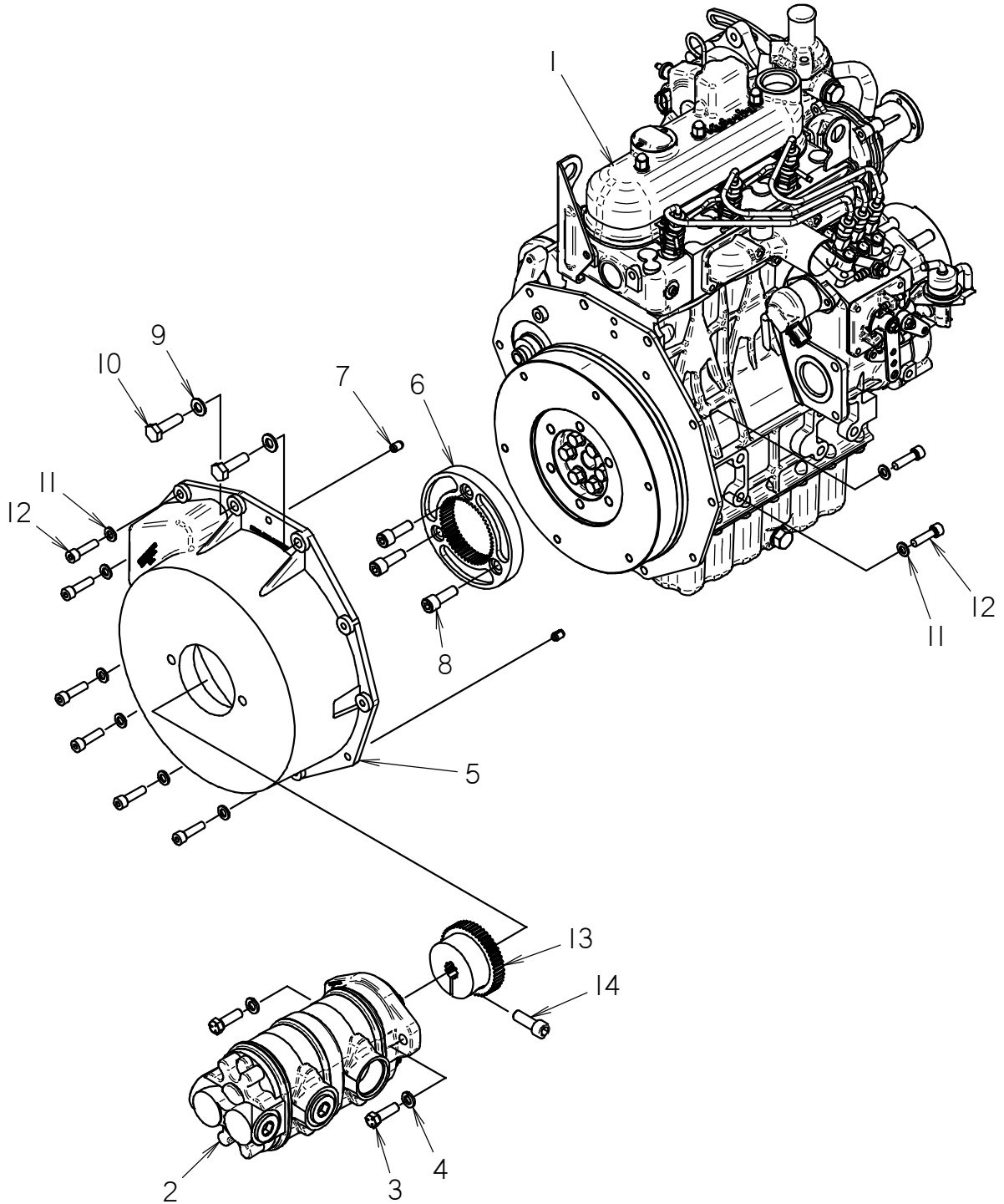
1. NOT PART OF KIT. FOR EUROPEAN UNITS ONLY.

NOTE:

**NOTES:**


# **ENGINE COMPONENTS**

# PUMP MOUNT



# PUMP MOUNT

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1	195-1188	1	ENGINE, KUBOTA D1105-E T4	
2	150-2972	1	TRIPLE GEAR PUMP	
3	105-052	2	BOLT (3/8-NC X 1-1/4")	USE 242 LOCTITE OR EQUIVALENT.
4	105-072	2	LOCK WASHER (3/8")	
5	194-376	1	ENGINE PUMP MOUNT	INCLUDES REF NUMBERS 6-14. SEE 052-245 MOUNTING INSTRUCTIONS.
6	194-387	1	PUMP MOUNT FLANGE	
7	N/A	2	ROLL PIN (M8 X 12MM)	
8	107-925	3	SCREW (M10-1.25 X 30MM, SOC)	TORQUE TO 52 FT-LBS. APPLY GREASE TO CENTER. SEE FOOTNOTE I.
9	106-390	2	WASHER (M10)	
10	107-357	2	SCREW (M10-1.25 X 35MM, 10.9)	TORQUE TO 36 FT-LBS. SEE FOOTNOTE I.
11	106-389	8	WASHER (M8)	
12	105-892	8	SCREW (M8-1.25 X 30MM, SOC)	TORQUE TO 18 FT-LBS. SEE FOOTNOTE I.
13	194-388	1	HUB (PUMP MOUNT)	REFER TO 052-245 INSTRUCTIONS FOR POSITION ON SHAFT.
14	106-305	1	BOLT (7/16-NC X 1-1/4", SOC, GD8)	TORQUE TO 72 FT-LBS. SEE FOOTNOTE I.

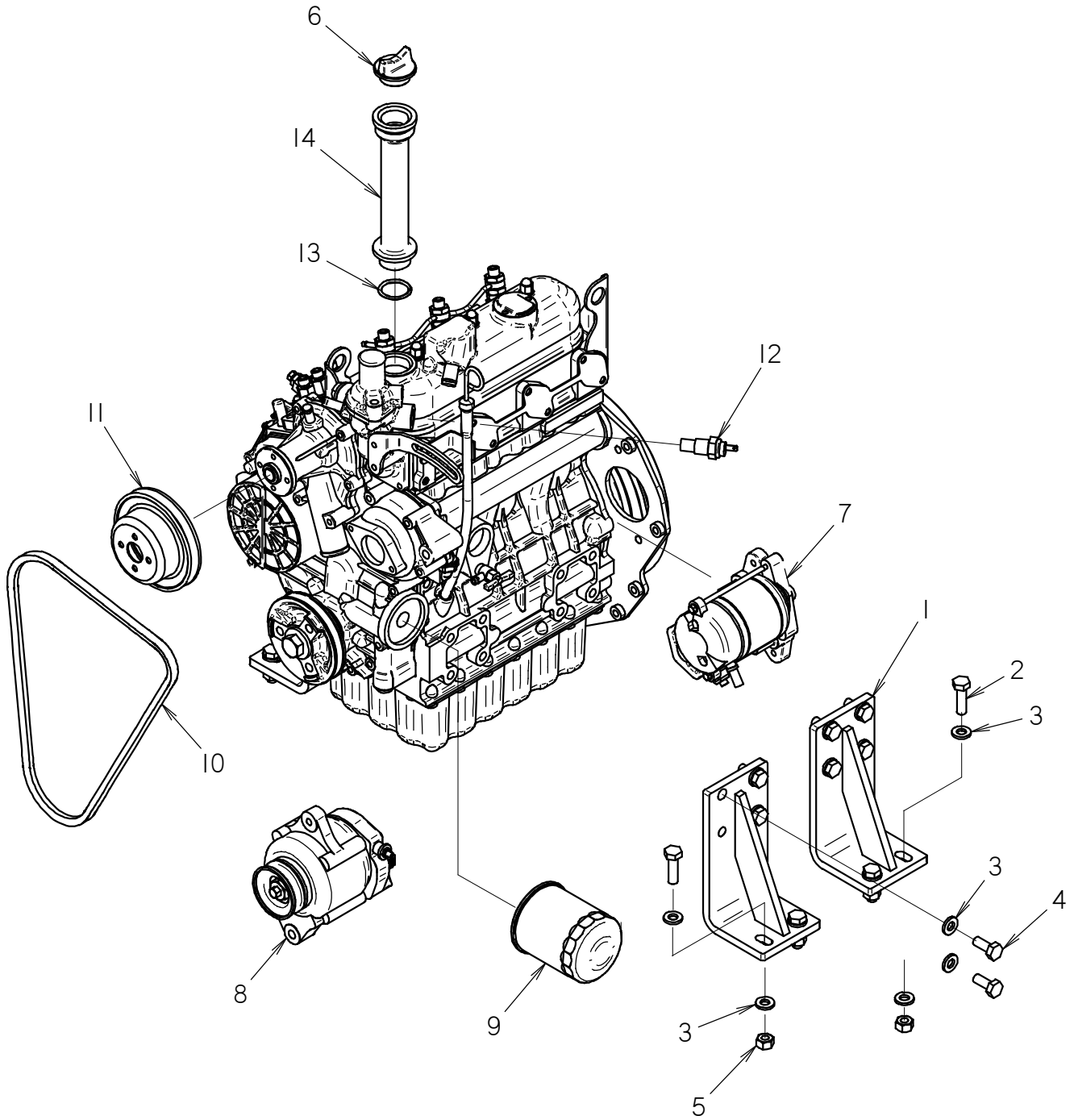
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FOOTNOTES:

I. USE 242 LOCTITE OR EQUIVALENT.

NOTE:

# ENGINE MOUNT



# ENGINE MOUNT

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	195-1188	1	ENGINE, KUBOTA D1105-E T4	INCL'S REF NO'S 6 THRU 9 & NOT SHOWN LIST
1	302-702	4	ENGINE MOUNT	
2	105-876	8	SCREW (M10-1.50 X 35MM)	
3	106-396	32	WASHER (M10, HARDENED)	
4	111-054	16	SCREW (M10-1.25 X 25MM)	USE LOCTITE 242 OR EQUIVALENT
5	105-894	8	LOCKNUT(M10-1.50,PRV TRQ,10.9)	
6	499-827	1	OIL FILLER PLUG	
7	194-382	1	STARTER	
8	217-453	1	ALTERNATOR	
9	194-041	1	OIL FILTER ELEMENT	
10	500-1928	1	BELT, FAN (38")	
11	500-1180	1	FAN PULLEY (118MM)	
12	213-338	1	TEMPERATURE SWITCH	
13	155-724	1	O-RING (217 D70)	
14	195-1502	1	OIL FILLER FLANGE	

## NOT SHOWN:

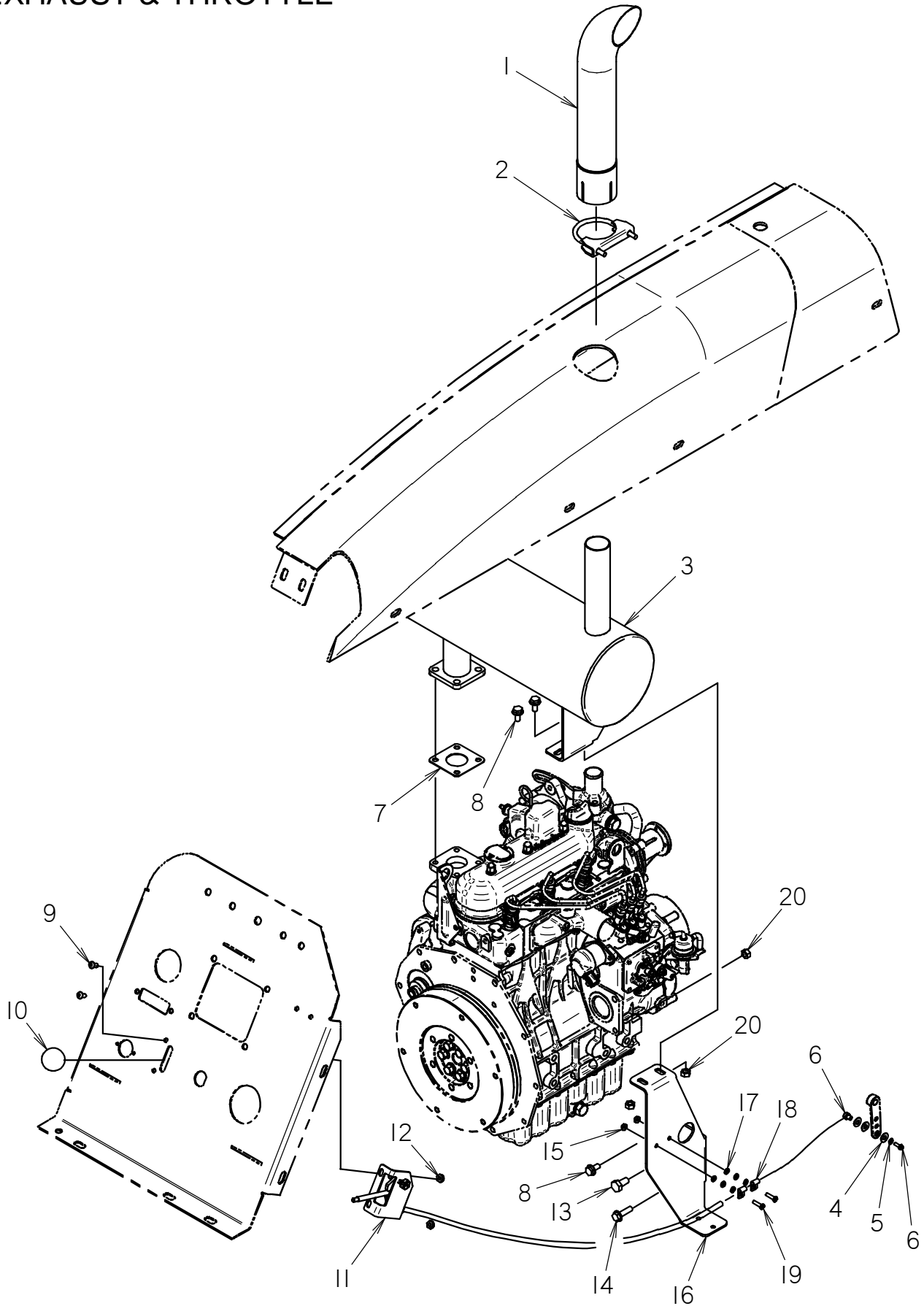
217-952	OIL PRESSURE SWITCH
194-379	FUEL PUMP, MECHANICAL
213-324	STOP SOLENOID
194-218	WATER PUMP
153-353	WATER PUMP GASKET
194-378	FLY WHEEL AND RING GEAR
194-383	GLOW PLUG
194-381	INJECTION PUMP
194-210	THERMOSTAT
153-352	THERMOSTAT GASKET
155-748	O-RING (916 D90)

## FOOTNOTES:

## NOTE:



## EXHAUST &amp; THROTTLE



# EXHAUST & THROTTLE

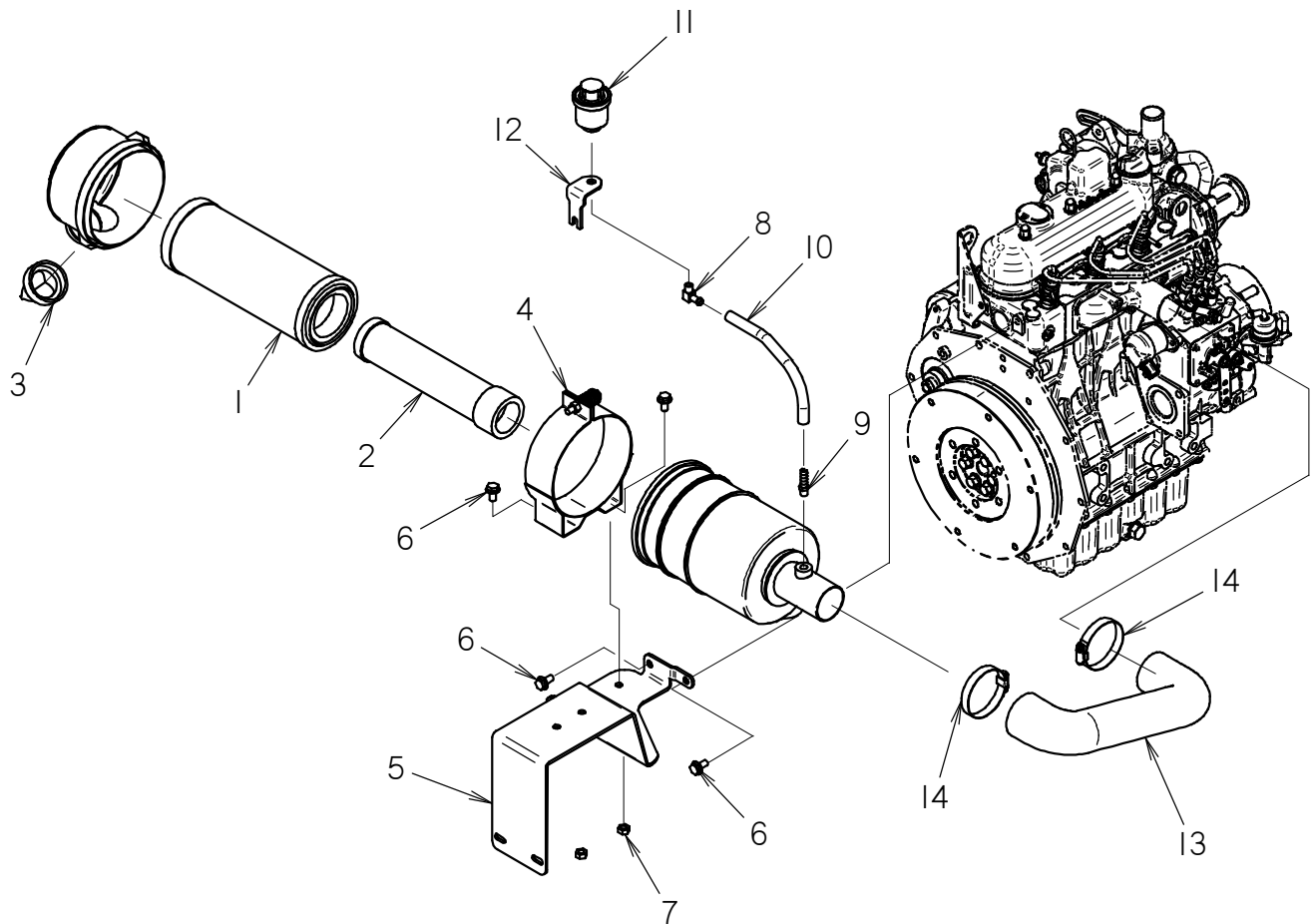
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1	196-076	1	EXHAUST EXTENSION TUBE	
2	196-009	1	U-BOLT CLAMP (2.500")	
3	194-365	1	EXHAUST MUFFLER	
4	106-076	3	WASHER (1/4")	
5	106-013	1	WASHER (3/16")	
6	196-058	1	CABLE SWIVEL (.081")	
7	149-326	1	GASKET, MUFFLER	
8	106-380	3	FLG LK SCREW (M8-1.25 X 16MM)	
9	106-103	2	BOLT (1/4-NC X 1/2", BUT SOC)	
10	111-064	1	KNOB (1/4-NC, ORANGE)	
11	196-123	1	THROTTLE CABLE (40")	
12	105-085	2	LOCKNUT (1/4"-NC)	
13	106-958	1	SCREW (M10-1.25 X 20MM)	
14	106-163	1	FLG SCREW (M8-1.25 X 30MM)	
15	106-048	2	LOCKNUT (#10-24)	
16	302-867	1	BRACKET	
17	106-205	6	WASHER (.191")	
18	149-556	2	CABLE CLAMP	
19	106-049	2	BOLT (#10-24 X 3/4", PLPS)	
20	106-561	3	LOCKNUT (M8-1.25,PRV TRQ,10.9)	

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FOOTNOTES:

NOTE:

## AIR FILTER SYSTEM



# AIR FILTER SYSTEM

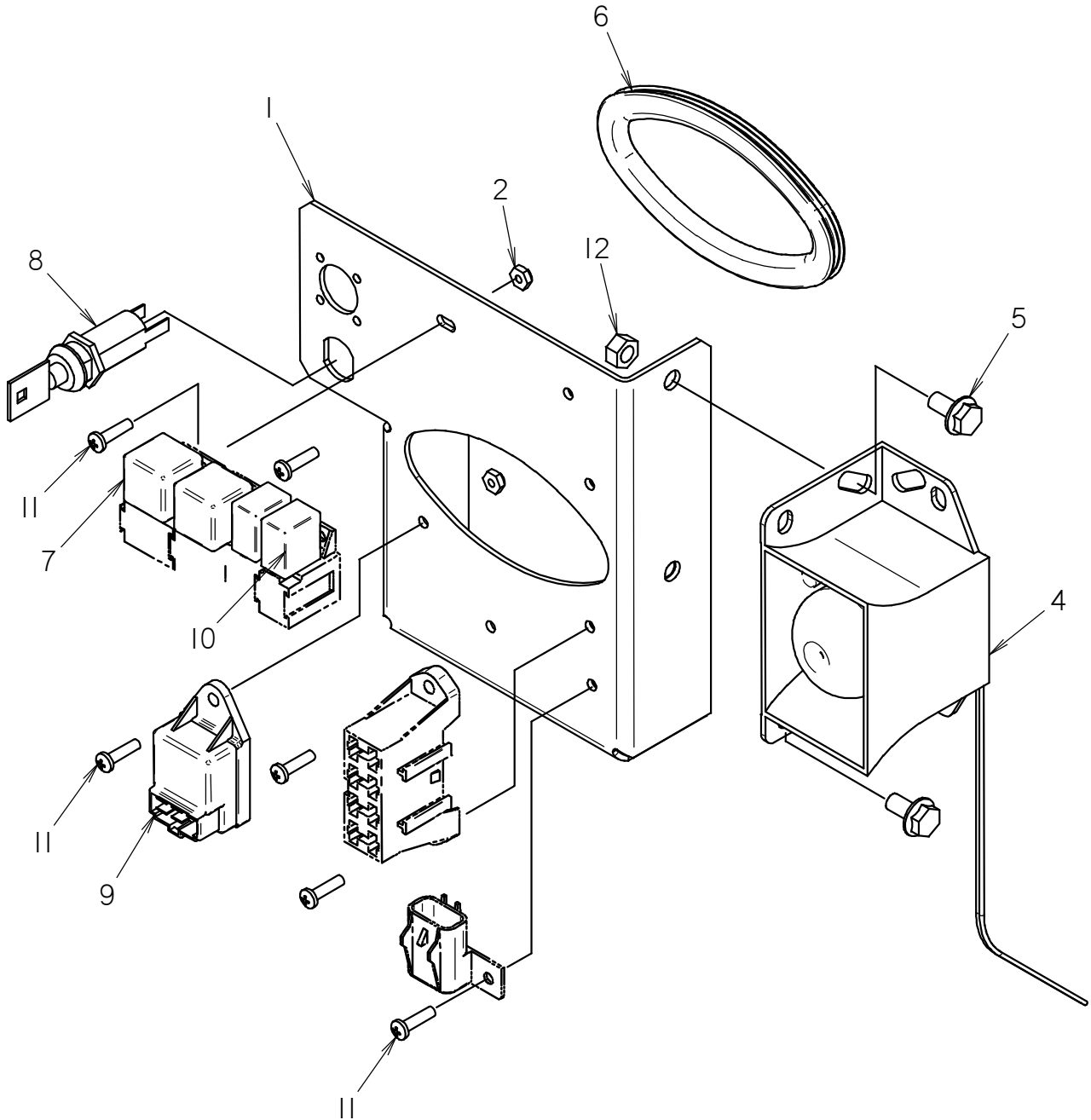
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	194-035	1	AIR FILTER PARTS ASSEMBLY	INCL'S REF NO'S 1, 2 & 3
1	194-038	1	FILTER ELEMENT, PRIMARY	
2	194-039	1	FILTER ELEMENT - SECONDARY	
3	194-761	1	DISCHARGE VALVE	
4	194-036	1	MOUNTING CLAMP (5.750")	
5	300-9370	1	FILTER MOUNT	
6	106-380	4	FLG LK SCREW (M8-1.25 X 16MM)	
7	106-561	2	LOCKNUT (M8-1.25,PRV TRQ,10.9)	
8	155-241	1	S/O COUPLER (O2N-05H90)	
9	155-142	1	S/O COUPLER (O2N-02H)	
10	116-108	9	BULK HOSE (5/16", SOLD PER 1')	
11	195-1344	1	GRADUATED RESTRICTION INDICATOR (20"H20)	
12	300-5036	1	MOUNT BRACKET	
13	120-556	1	AIR INTAKE HOSE	
14	110-134	2	WORM CLAMP (2.062" TO 2.750")	

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FOOTNOTES:

NOTE:

# RELAY PANEL



# RELAY PANEL

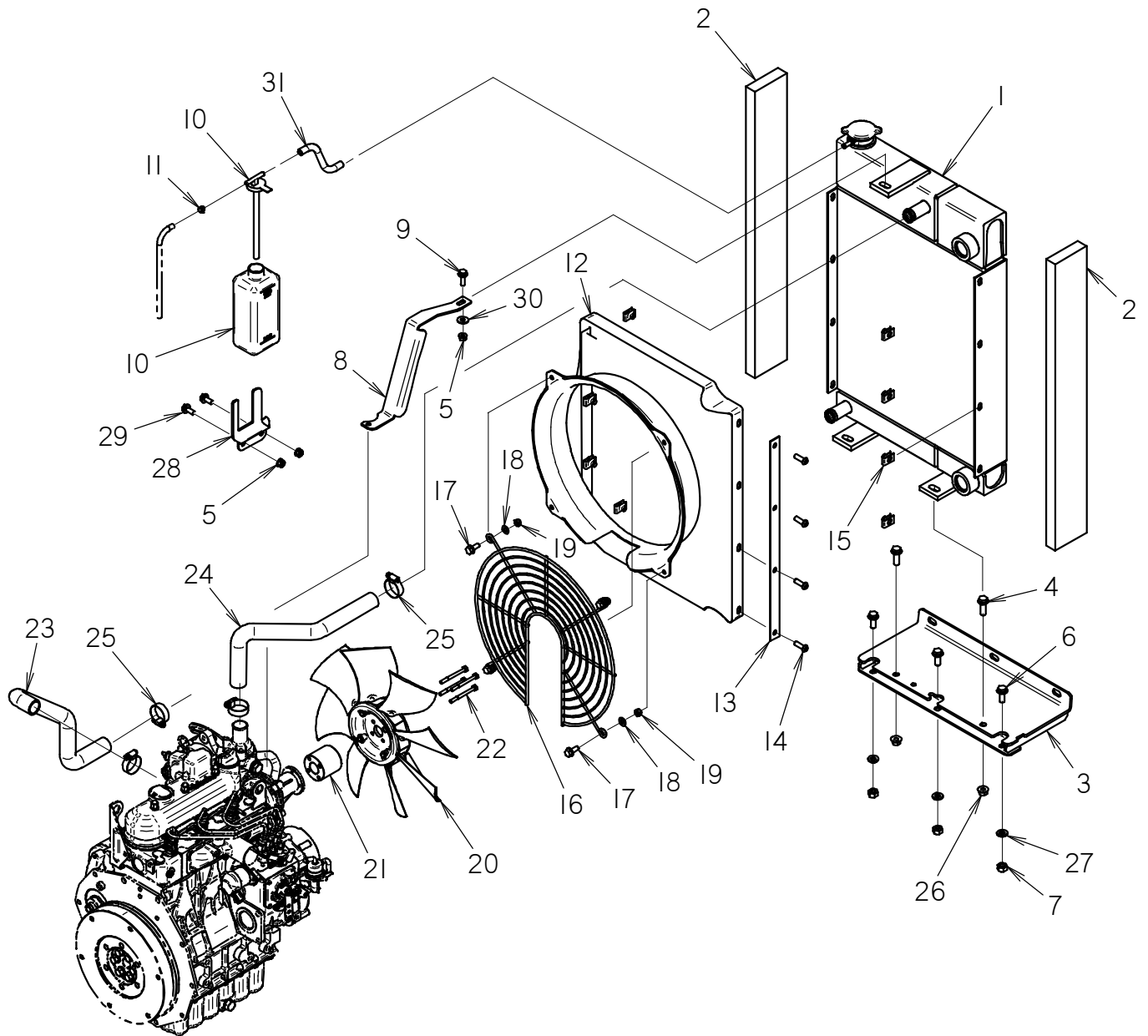
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1	302-876	1	RELAY PANEL	
2	106-048	6	LOCKNUT (#10-24)	
4	306-602	1	ALARM	
5	106-380	2	FLG LK SCREW (M8-1.25 X 16MM)	
6	115-686	12	BULK EDGE	
7	217-826	2	MINI RELAY (SPDT)	
8	214-908	1	ON-OFF KEY SWITCH	
9	217-856	1	LAMPTIMER 12V	
10	217-710	2	MICRO RELAY (SPDT)	
11	106-049	6	BOLT (#10-24 X 3/4", PLPS)	
12	106-561	2	LOCKNUT (M8-1.25,PRV TRQ,10.9)	

NOT SHOWN:

FOOTNOTES:

NOTE:

# RADIATOR



# RADIATOR

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1	195-1163	1	RADIATOR/OIL COOLER	110-898 RADIATOR CAP (14 PSI)
2	116-883	2	SOUND INSULATION	
3	300-3752	1	RADIATOR/OIL COOLER MOUNT	
4	106-383	2	FLG LK SCREW (M10-1.50 X 30MM)	
5	106-386	3	FLG LOCKNUT (M8-1.25)	
6	106-724	3	FLG SCREW (M10-1.50 X 25MM)	
7	105-894	3	LOCKNUT(M10-1.50,PRV TRQ,10.9)	
8	300-9020	1	RADIATOR BRACKET	
9	106-992	1	FLG LK SCREW (M8-1.25 X 25MM)	
10	364-529	1	COOLANT OVERFLOW RESERVOIR	
11	310-343	1	SPRING CLAMP	
12	362-1117	1	FAN SHROUD	
13	300-8374	2	SHROUD MOUNTING BAR	
14	107-334	8	SCREW (M8-1.25 X 25MM,BUT SOC)	
15	106-551	8	CLIP NUT (M8-1.25)	
16	196-369	1	FAN GUARD	
17	106-162	4	FLG SCREW (M8-1.25 X 20MM, GD8)	
18	105-226	4	WASHER (5/16")	
19	107-096	4	LOCKNUT (M8-1.25, NLK)	
20	195-1165	1	FAN (14.2")	
21	194-100	1	FAN SPACER	
22	106-972	4	SCREW (M6-1.00 X 65MM)	USE LOCTITE 242 OR EQUIVALENT, TORQUE TO 84 IN-LBS
23	195-1461	1	OUTLET HOSE	
24	116-858	1	INLET HOSE	
25	110-353	4	WORM CLAMP (3/4" TO 1-1/2")	
26	106-387	2	FLG LOCKNUT (M10-1.50)	
27	106-396	3	WASHER (M10, HARDENED)	
28	301-2165	1	RESERVOIR MOUNT	
29	106-991	2	FLG LK SCREW (M8-1.25 X 20MM)	
30	105-117	1	WASHER (5/16")	
31	116-108	6	BULK HOSE (5/16", SOLD PER 1")	

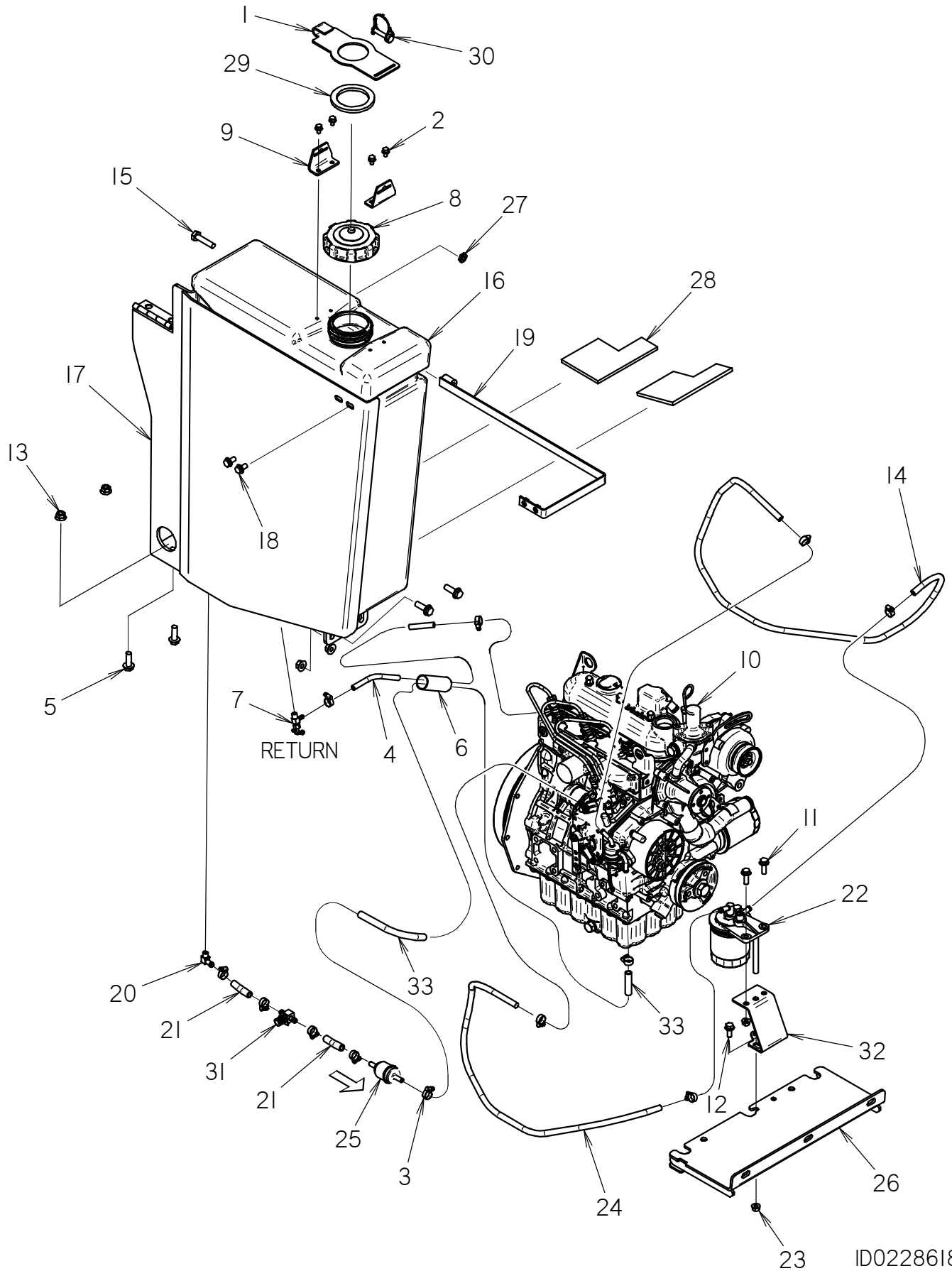
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FOOTNOTES:

NOTE:



# FUEL TANK



# FUEL TANK

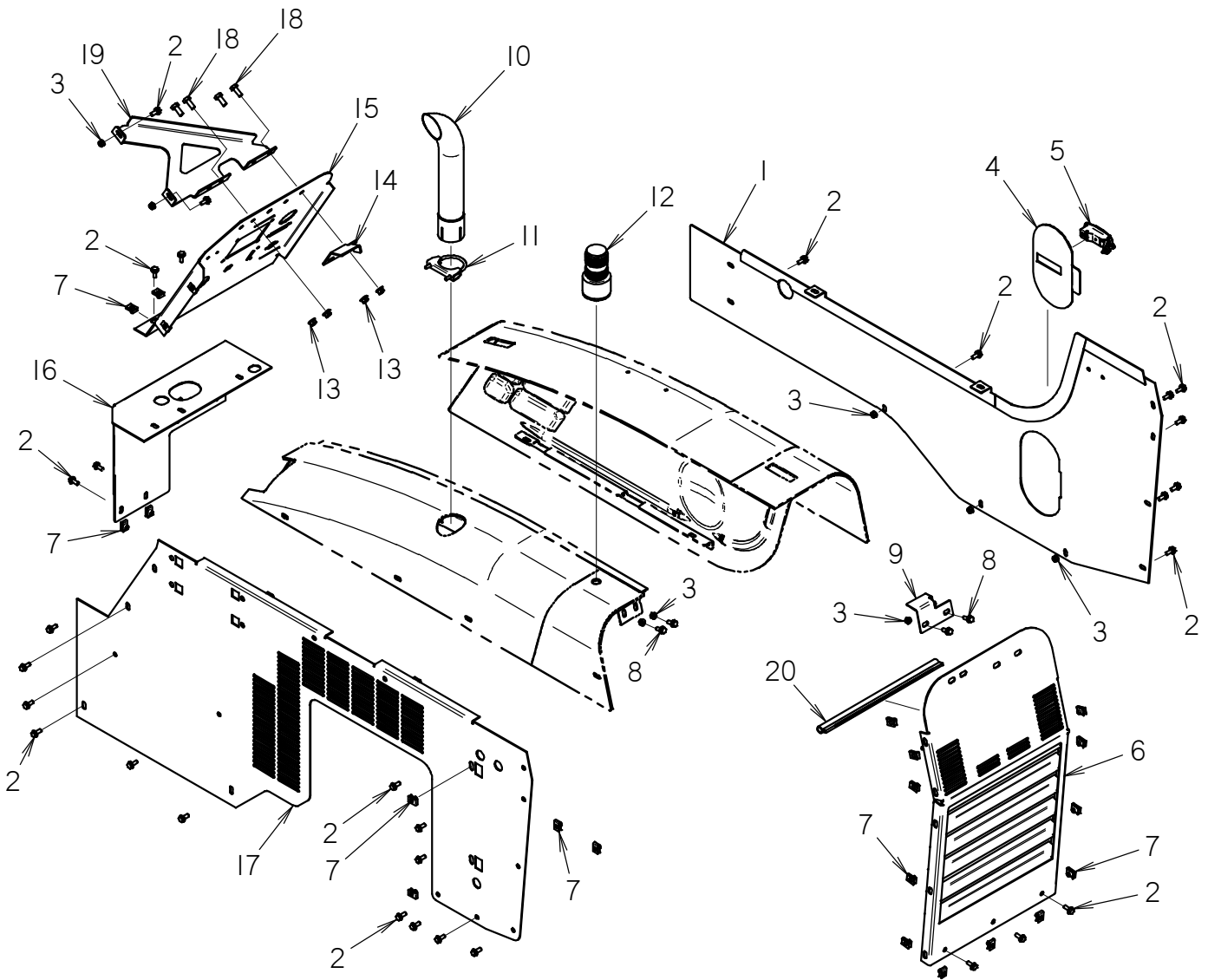
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1	300-6248	1	LOCK STRAP	
2	106-224	4	FLG SCREW (M6-1.00 X 10MM)	
3	110-249	12	WORM CLAMP (1/4" TO 5/8")	
4	116-866	43	BULK HOSE (3/16";SOLD PER 1')	
5	106-383	4	FLG LK SCREW (M10-1.50 X 30MM)	
6	117-989	1	ABRASION SLEEVE (1.00" X 24")	
7	156-064	1	S/O SHUT-OFF (02N-03H90)	
8	364-698	1	FUEL CAP	
9	300-6249	2	LOCK TAB	
10	195-1188	1	ENGINE, KUBOTA D1105-E T4	
11	106-992	2	FLG LK SCREW (M8-1.25 X 25MM)	
12	106-162	2	FLG SCREW (M8-1.25 X 20MM, GD8)	
13	106-387	4	FLG LOCKNUT (M10-1.50)	
14	116-108	40	BULK HOSE (5/16"; SOLD PER 1')	
15	105-1430	1	SCREW (M10-1.50 X 45MM, FULL THRD)	
16	362-1396	1	FUEL TANK	
17	301-1613	1	BOX END/TANK MOUNT	
18	106-380	2	FLG LK SCREW (M8-1.25 X 16MM)	
19	301-1643	1	TANK STRAP	
20	155-241	1	S/O COUPLER (02N-05H90)	
21	116-108	4	BULK HOSE (5/16"; SOLD PER 1')	2X @ 2"
22	149-536	1	FUEL FILTER	194-386 FUEL FILTER ELEMENT
23	106-386	4	FLG LOCKNUT (M8-1.25)	
24	116-108	33	BULK HOSE (5/16"; SOLD PER 1')	
25	194-095	1	FUEL FILTER (05H-05H, IN-LINE)	
26	300-3752	1	RADIATOR/OIL COOLER MOUNT	
27	107-769	1	JAM NUT (M10-1.50)	
28	117-1031	2	LINER PAD (.25" THK)	
29	362-1528	1	FOAM RING	
30	105-1529	1	SNAPPER PIN (5/16" X 1-3/8")	
31	153-762	1	S/O SHUT-OFF (05H-05H)	
32	300-3947	1	FUEL FILTER MOUNT	
33	116-108	36	BULK HOSE (5/16"; SOLD PER 1')	

NOT SHOWN:

FOOTNOTES:

NOTE:

# ENGINE ENCLOSURE



# ENGINE ENCLOSURE

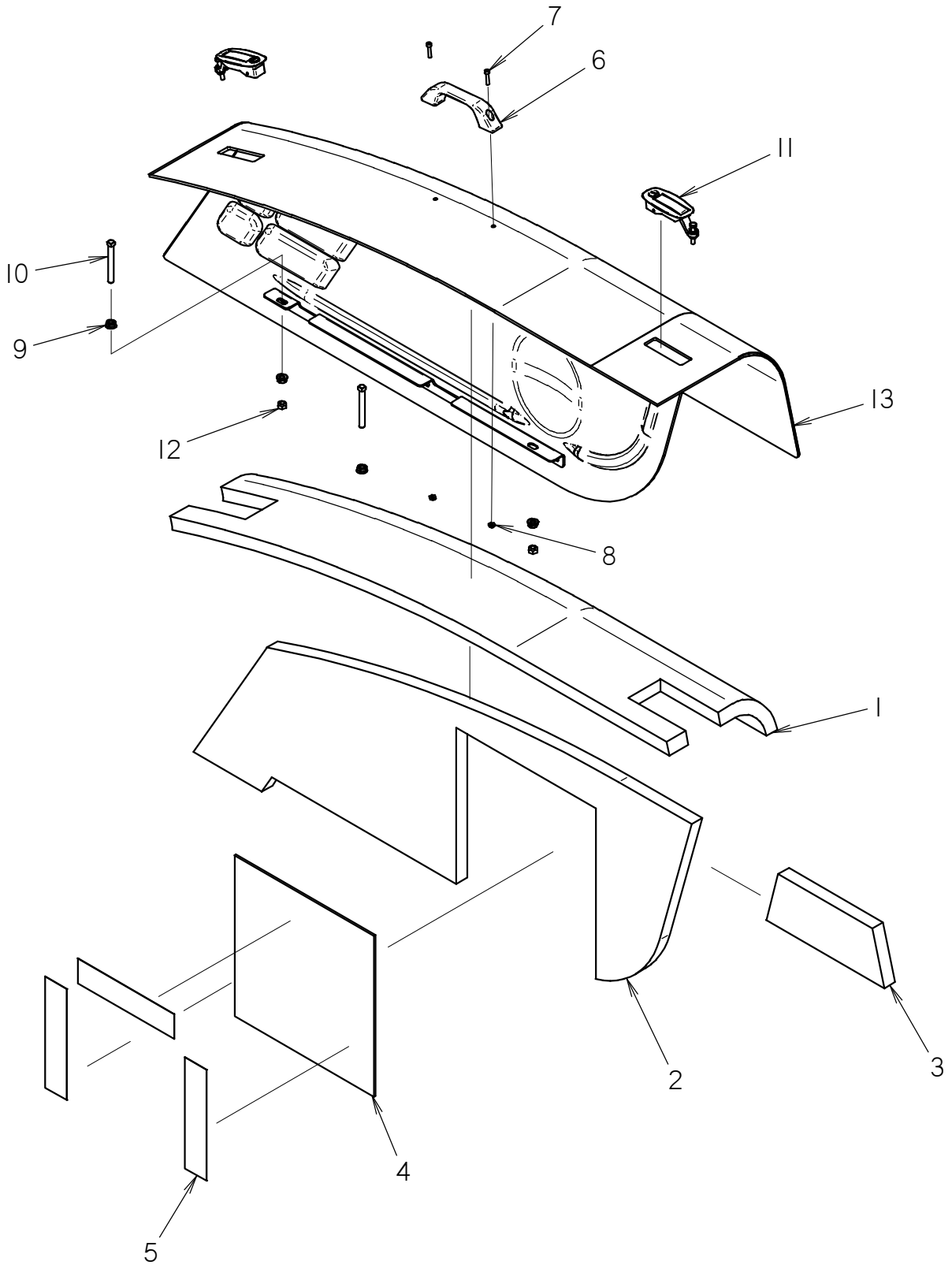
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1	300-9021	1	LOWER COVER	
2	106-991	28	FLG LK SCREW (M8-1.25 X 20MM)	
3	106-386	9	FLG LOCKNUT (M8-1.25)	
4	301-1984	1	COVER	
5	117-558	1	ADJUSTABLE LEVER LATCH (LOCKING)	
6	300-8379	1	GRILLE WELDMENT	
7	106-551	25	CLIP NUT (M8-1.25)	
8	106-162	6	FLG SCREW (M8-1.25 X 20MM, GD8)	
9	300-8254	1	HOOD BRACKET	
10	196-076	1	EXHAUST EXTENSION TUBE	
11	196-009	1	U-BOLT CLAMP (2.500")	
12	217-296	1	STROBE LIGHT (AMBER)	
13	106-387	4	FLG LOCKNUT (M10-1.50)	
14	300-5463	1	BRACKET	
15	300-5420	1	UPPER FRONT COVER	
16	300-8336	1	LOWER FRONT COVER	
17	300-5469	1	LEFT ENGINE COVER	
18	105-245	4	SCREW (M10-1.50 X 25MM)	
19	301-1579	1	BRACKET	
20	116-421	17	BULK EDGE (1/8", SOLD PER FT)	

NOT SHOWN:

FOOTNOTES:

NOTE:

# REMOVABLE HOOD



# REMOVABLE HOOD

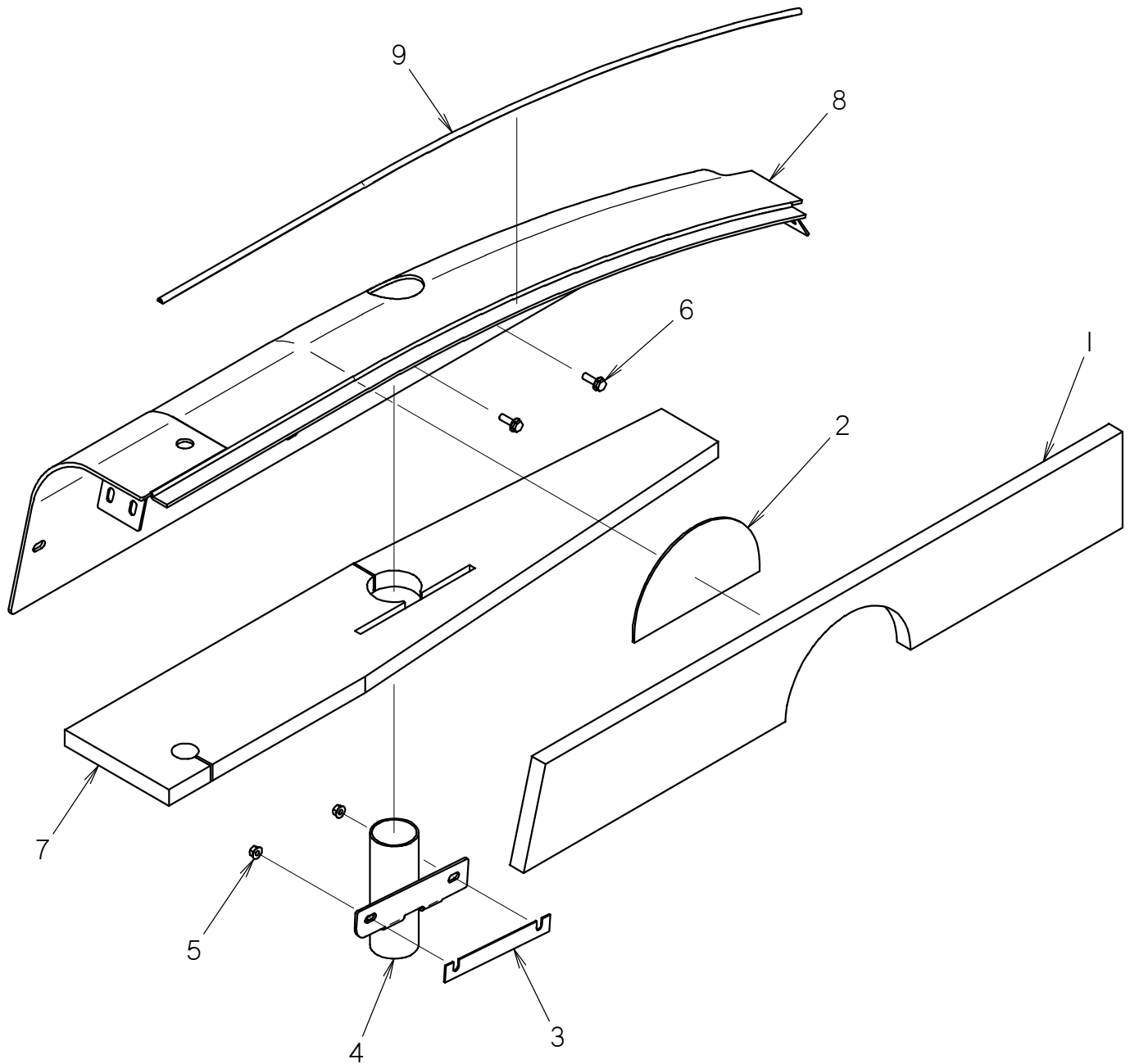
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1	362-1369	1	INSULATION	
2	362-1370	1	INSULATION	
3	362-1371	1	INSULATION	
4	362-1372	1	THERMAL BARRIER	
5	118-388	3	3MIL FLEXIBLE SILVER TAPE	
6	117-538	1	GRAB HANDLE	
7	105-810	2	BOLT (#10-24 X 7/8", SOC)	
8	106-048	2	LOCKNUT (#10-24)	
9	105-834	4	FLG LOCKNUT (3/8-NC)	
10	105-706	2	SET SCREW (3/8-NC X 3", SQ)	
11	117-558	2	ADJUSTABLE LEVER LATCH (LOCKING)	
12	105-047	2	LOCKNUT (3/8-NC)	
13	301-2072	1	REMOVABLE HOOD	

NOT SHOWN:

FOOTNOTES:

NOTE:

## FIXED HOOD



# FIXED HOOD

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1	362-1426	1	INSULATION	
2	362-1453	1	THERMAL INSULATION	
3	301-1588	1	SHIM	AS REQUIRED
4	301-1587	1	VENTURI MOUNT	
5	106-386	2	FLG LOCKNUT (M8-1.25)	
6	106-381	2	FLG LK SCREW (M8-1.25 X 25MM)	
7	362-1412	1	INSULATION	
8	301-2073	1	FIXED HOOD	
9	116-724	46	BULK SEAL (3/32", SOLD PER FT)	

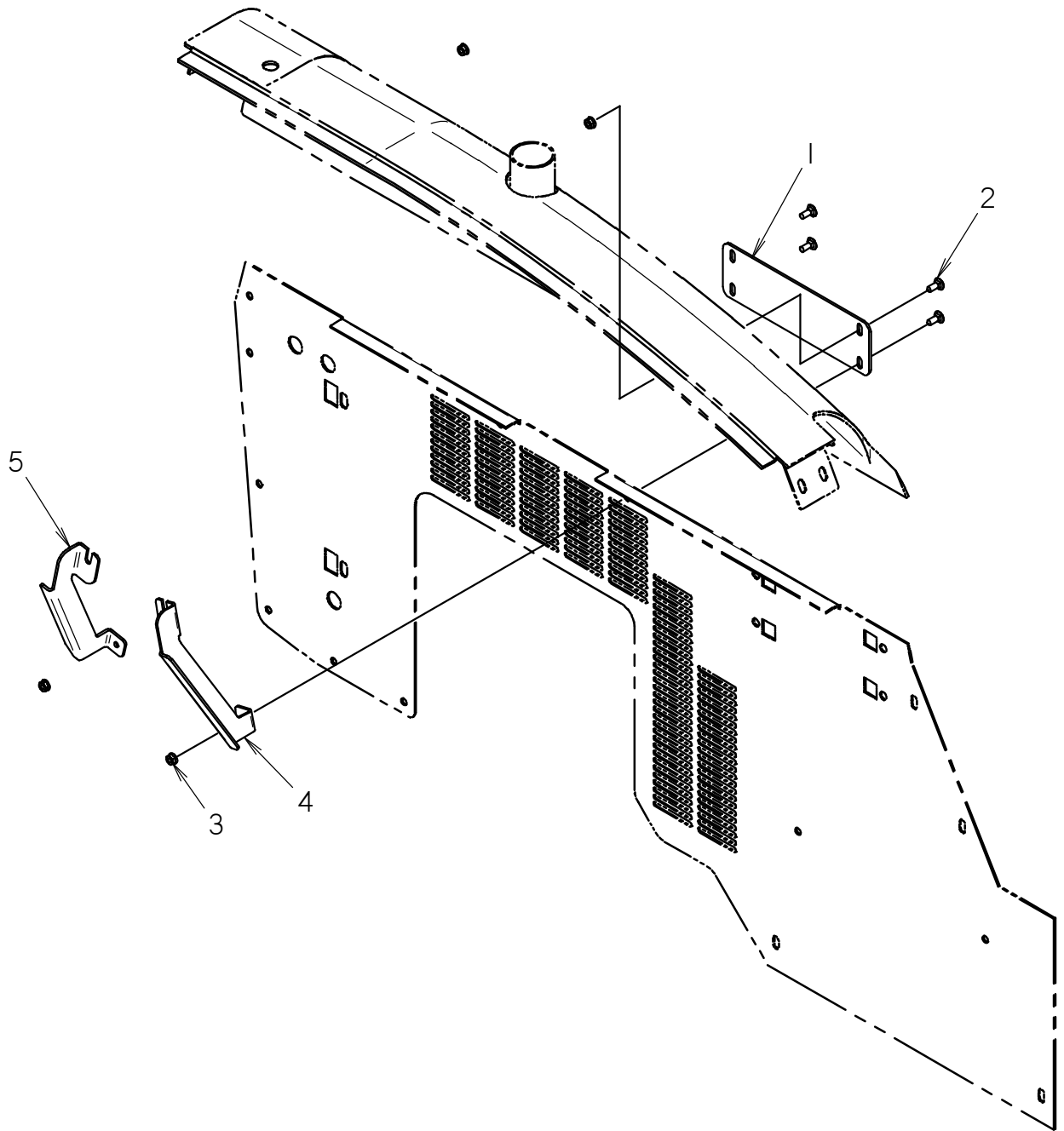
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FOOTNOTES:

NOTE:



# FIXED HOOD SUPPORT



# FIXED HOOD SUPPORT

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1	301-1828	1	SUPPORT PLATE	
2	106-195	4	CARRIAGE BOLT (5/16-NC X 3/4")	
3	105-003	4	FLG LOCKNUT (5/16-NC)	
4	301-1935	1	FRONT SUPPORT BRACKET	
5	301-1936	1	REAR SUPPORT BRACKET	

NOT SHOWN:

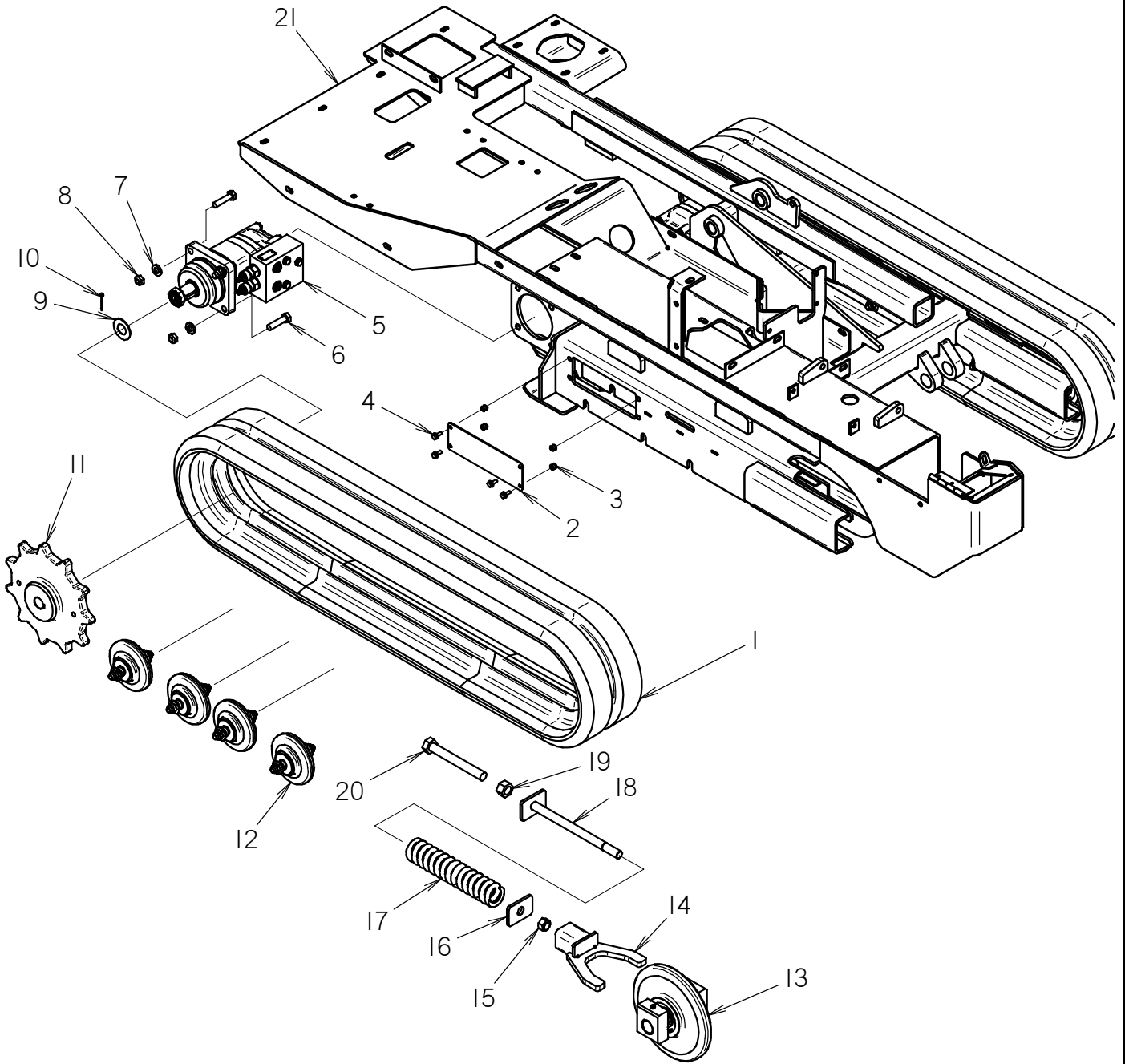
FOOTNOTES:

NOTE:



# **FRAME COMPONENTS**

# TRACKS



# TRACKS

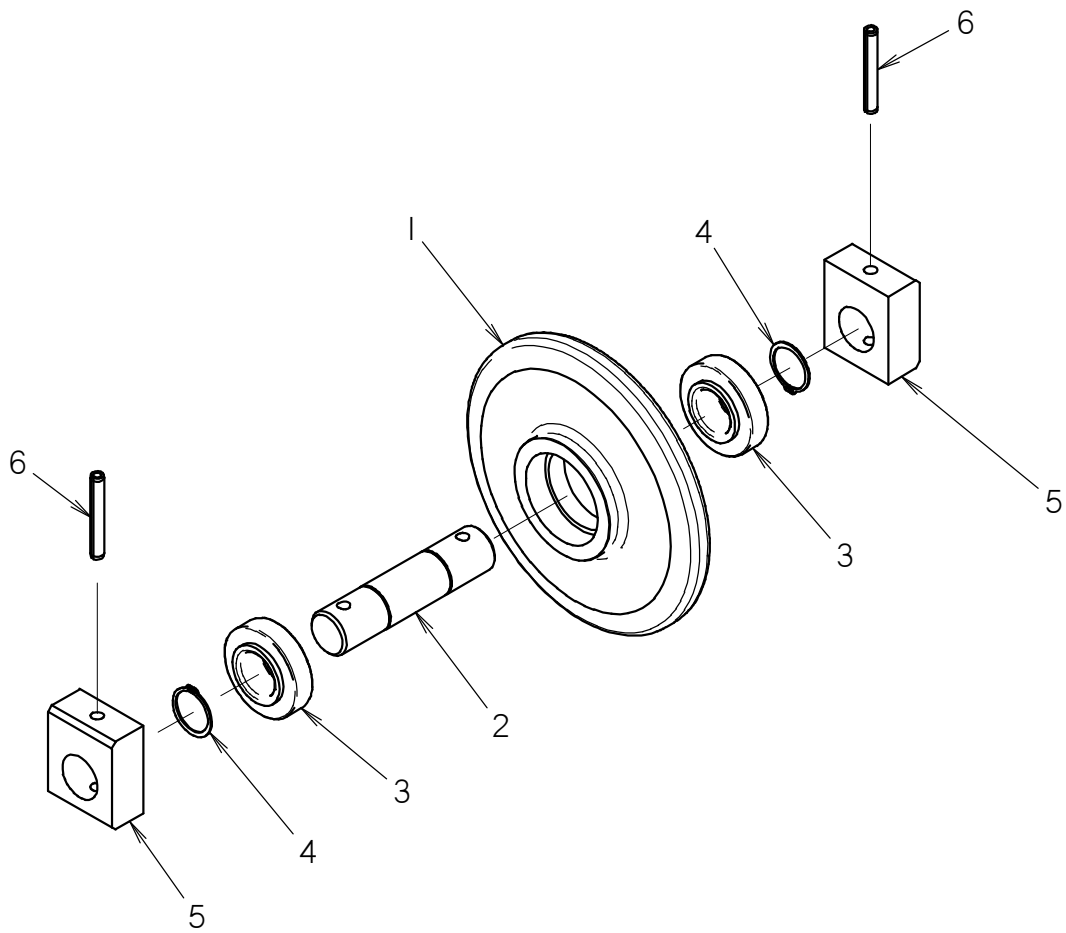
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1	302-644	2	RUBBER TRACK (180MM,39P,72MM)	
2	302-707	2	ADJUSTMENT COVER	
3	105-631	8	NUTSERT(M6X1.0) 4.20-6.6 THK	
4	106-712	8	FLG SCREW (M6-1.00 X 16MM)	
5	158-965	2	HYD MOTOR W/ COUNTER BALANCE	500-658 SEAL REPAIR KIT. 155-776 O-RING (BETWEEN BLOCK & MOTOR)
6	106-334	8	SCREW (M12-1.75 X 50MM)	
7	106-397	8	WASHER (M12, HARDENED)	
8	106-685	8	LOCKNUT(M12-1.75,PRV TRQ,10.9)	
9	110-112	2	MACHINERY BUSHING (1")	
10	105-511	2	COTTER PIN (1/8" X 1-1/4")	
11	140-1085	2	11 TOOTH SPROCKET	
12	355-972	8	ROLLER	
13	350-2222	2	IDLER ASSEMBLY	SEE IDLER ASSEMBLY PAGE FOR BREAKDOWN
14	355-930	2	YOKE	
15	106-851	2	LOCKNUT (M18-2.5)	
16	355-926	2	END PLATE	
17	117-047	2	COMPRESSION SPRING	
18	355-924	2	SHAFT	
19	106-374	2	HEX NUT (M20-2.50, 10.9) ZP	
20	106-672	2	SCREW (M20-2.50 X 160MM)	USE LOCTITE 767 OR EQUIVALENT
21	300-8622	1	MAIN FRAME	

NOT SHOWN:

FOOTNOTES:

NOTE:

## IDLER ASSEMBLY



# IDLER ASSEMBLY

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	170-342		IDLER ROLLER SUB	INCLUDES REFERENCE NUMBERS 1 & 3
1	348-509	1	IDLER	
2	167-340	1	IDLER SHAFT	
3	125-005	2	BALL BEARING (1.378")	
4	115-465	2	EXTERNAL SNAP RING (1.375")	
5	347-023	2	PUSH BLOCK	
6	105-561	2	ROLL PIN (3/8" X 2-3/4")	

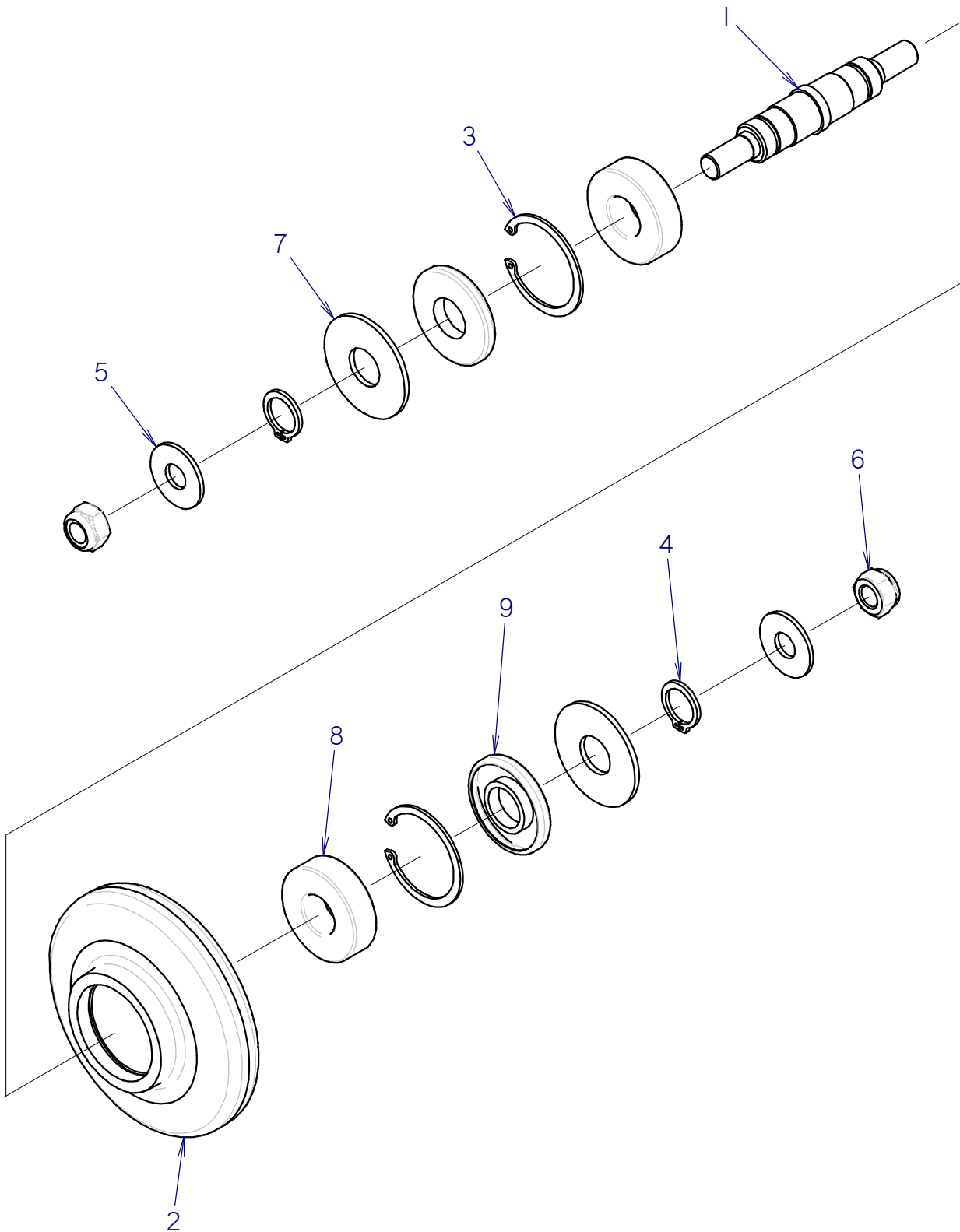
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FOOTNOTES:

NOTE:



# INNER ROLLER



# INNER ROLLER

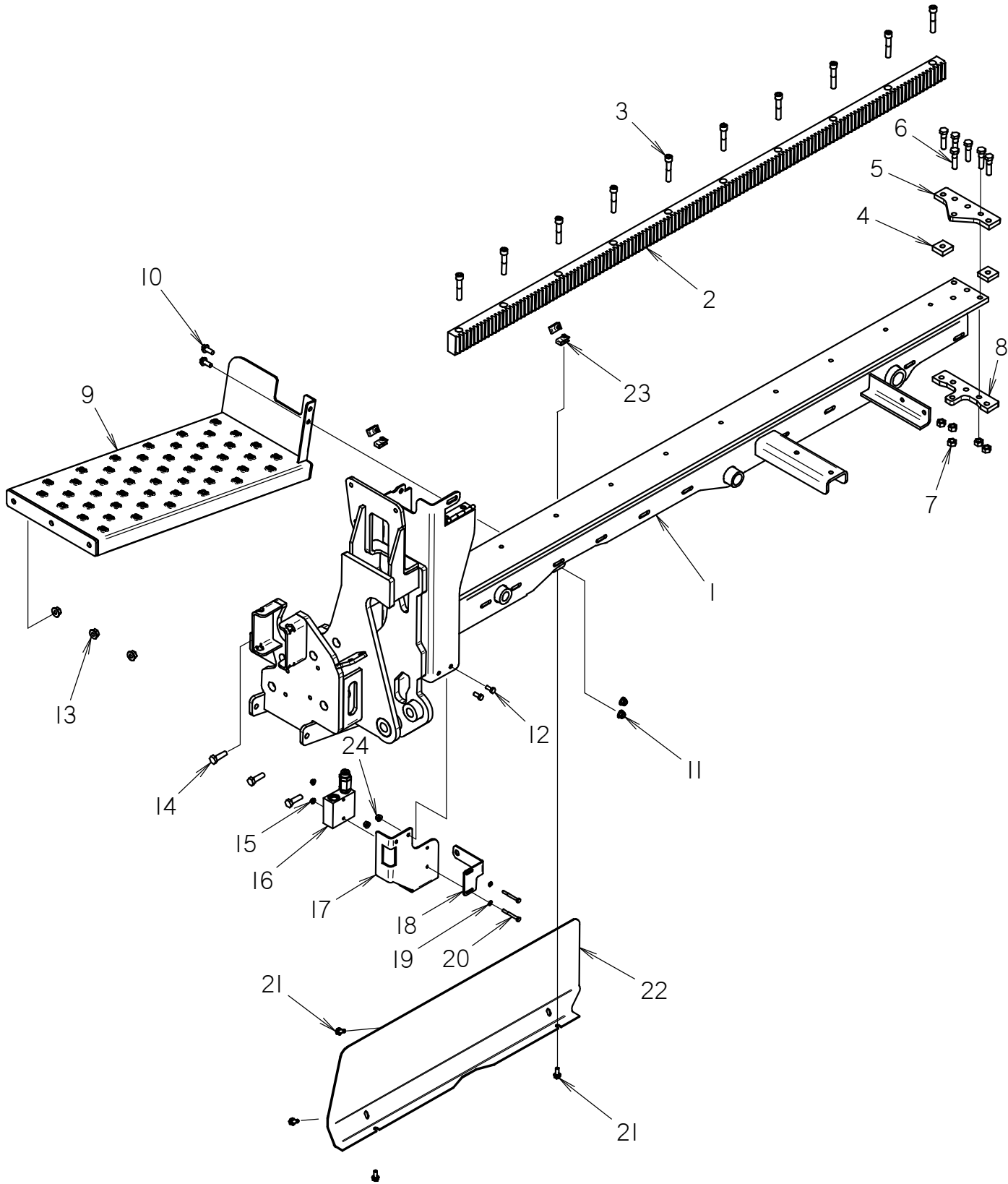
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	355-972		ROLLER	INCLUDES REF No's 1 - 9
1	355-942	1	ROLLER SHAFT	
2	356-265	1	ROLLER	
3	118-018	2	INTERNAL SNAP RING (1.875)	
4	115-545	2	EXTERNAL SNAP RING (.750)	
5	105-059	2	WASHER (.7/16")	
6	106-031	2	LOCKNUT (M12-1.75, NLK)	
7	110-773	2	MACHINERY BUSHING (3/4"X18 GA)	
8	125-094	2	BALL BEARING (.787")	
9	157-500	2	INTERNAL SEAL	

NOT SHOWN:

FOOTNOTES:

NOTE:

# DRILL FRAME



# DRILL FRAME

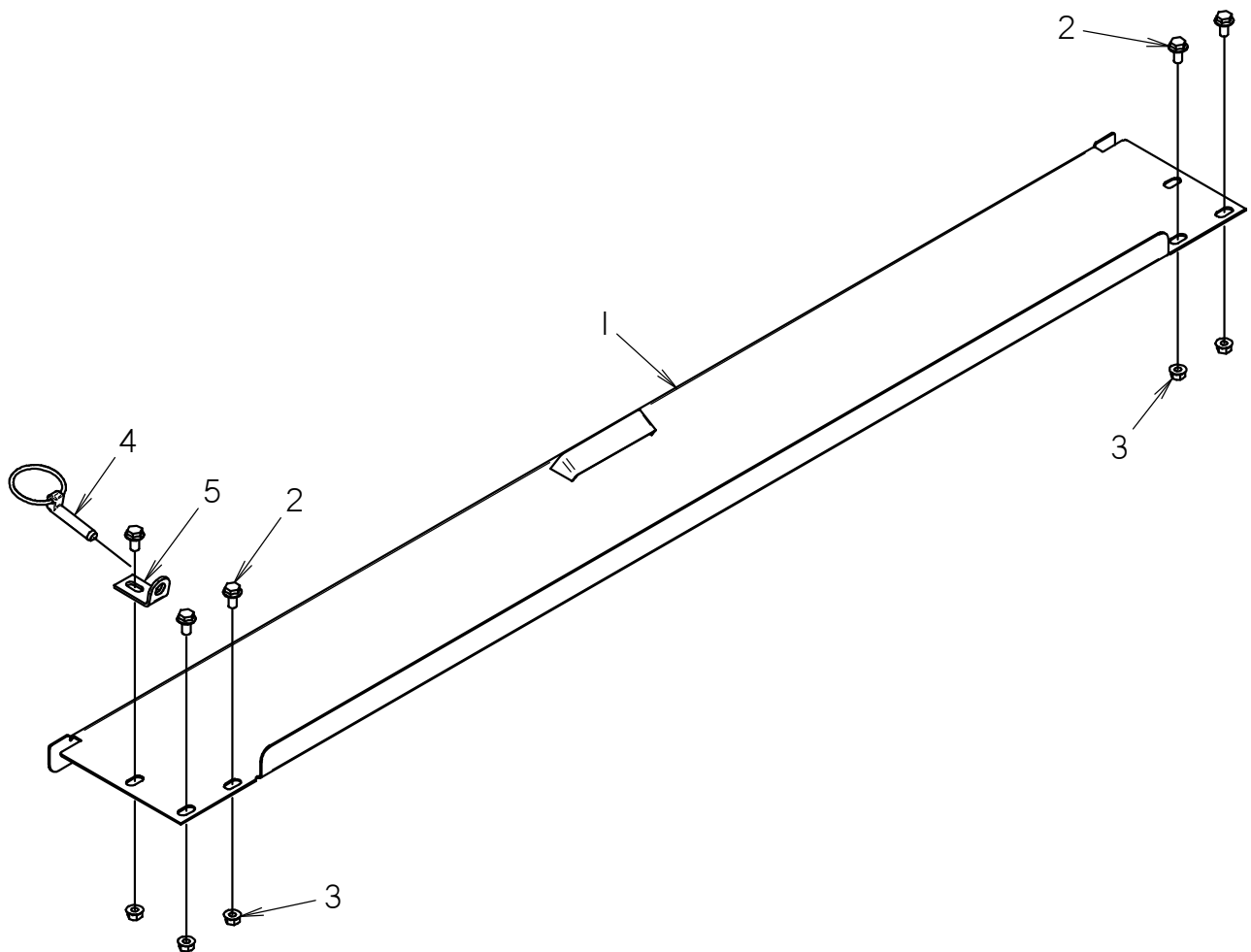
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1	300-8665	1	DRILL FRAME	
2	160-1144	1	6DP RACK	
3	105-1316	10	SCREW (M12-1.75 X 65MM, SOC)	LUBRICATE WITH WD-40 OR EQUIVALENT & TORQUE TO 60 FT-LBS
4	362-1523	2	STOP	
5	300-8109	1	STOP PLATE	
6	107-748	6	SCREW (M12-1.75 X 50MM, 10.9)	
7	106-089	5	HEX NUT (M12-1.75, 10.9) ZP	
8	300-8110	1	STOP BAR	
9	300-8671	1	FLOOR WELDMENT	
10	106-724	2	FLG SCREW (M10-1.50 X 25MM)	
11	106-387	2	FLG LOCKNUT (M10-1.50)	
12	106-083	2	SCREW (M8-1.25 X 20MM)	
13	106-709	3	FLG LK NUT (M12-1.75)	
14	106-333	3	SCREW (M12-1.75 X 40MM, 8.8)	
15	106-385	2	FLG LOCKNUT (M6-1.00)	
16	157-249	1	SEQUENCE VALVE	
17	300-8167	1	BRACKET	
18	300-8168	1	BULKHEAD BRACKET	
19	106-388	2	WASHER (M6)	
20	106-893	2	SCREW (M6-1.00 X 55MM)	
21	106-162	4	FLG SCREW (M8-1.25 X 20MM, GD8)	
22	300-9113	1	PANEL	
23	107-687	4	CLIP NUT M8-1.25, LONG, WIDE	
24	106-386	2	FLG LOCKNUT (M8-1.25)	

NOT SHOWN:

FOOTNOTES:

NOTE:

## PIPE COVER



# PIPE COVER

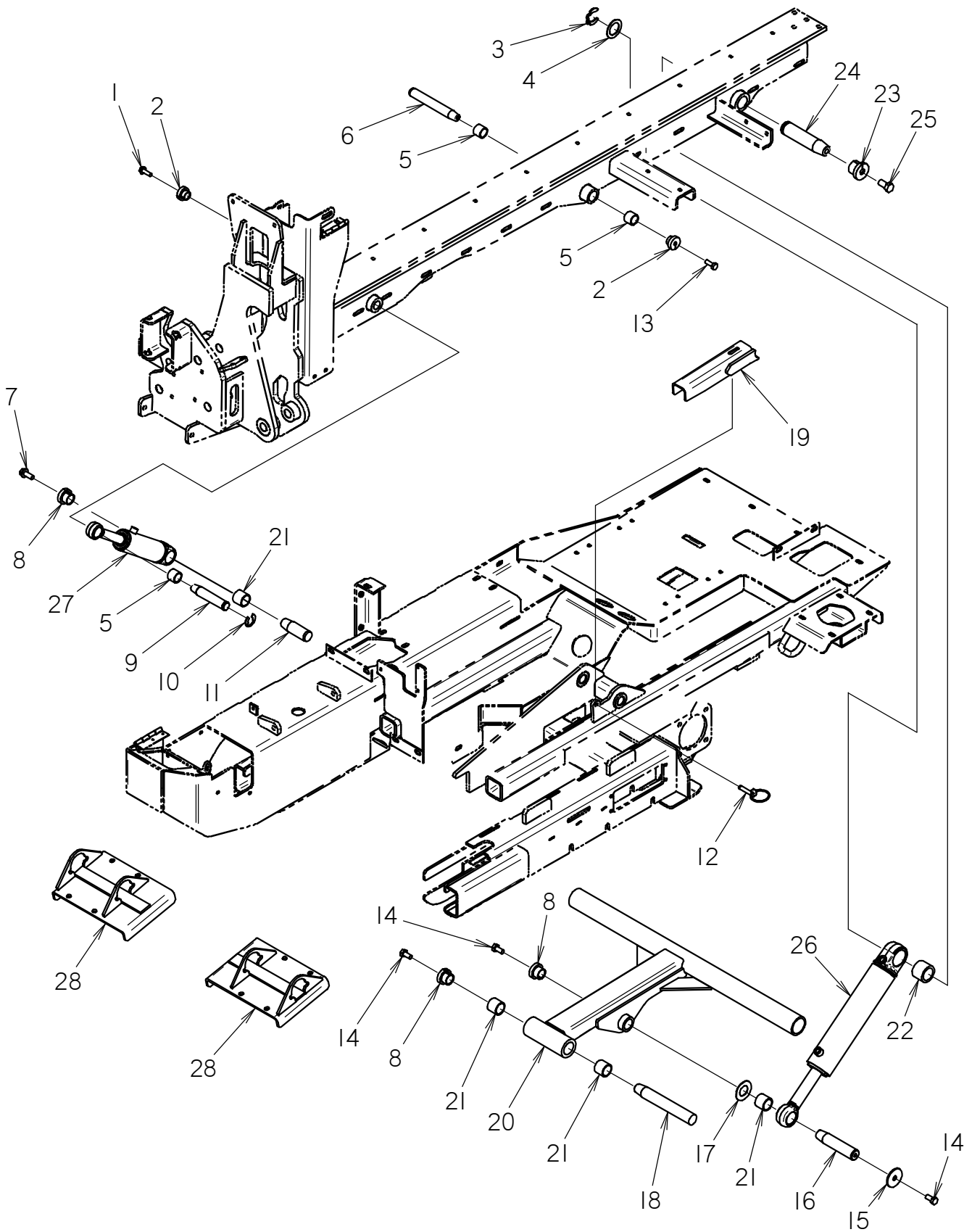
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1	301-1278	1	PIPE COVER	
2	107-095	5	FLG SCREW (M8-1.25 X 16MM)	
3	106-386	5	FLG LOCKNUT (M8-1.25)	
4	110-228	1	LYNCH PIN (7/16" X 2")	
5	301-1255	1	PIN TAB	

NOT SHOWN:

FOOTNOTES:

NOTE:

# STABILIZER & PIVOT



# STABILIZER & PIVOT

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1	106-383	1	FLG LK SCREW (M10-1.50 X 30MM)	
2	181-981	2	TAPERED INSERT (1")	
3	115-511	1	KLIP RING (1.50")	
4	110-220	1	MACH BUSHING (1-1/2", 14GA)	
5	125-770	3	COMPOSITION BUSHING (1.000")	
6	302-735	1	TAPERED PIN (1.000" X 7.200")	
7	106-469	1	FLG SCREW (M12-1.75 X 30MM)	
8	181-982	3	TAPERED INSERT (1.25")	
9	300-8666	1	TAPERED PIN (1.00 X 5.00)	
10	115-499	1	KLIP RING (1.000")	
11	300-8623	1	TAPERED PIN (1.25 X 3.88)	
12	110-228	1	LYNCH PIN (7/16" X 2")	
13	106-079	1	SCREW (M10-1.50 X 30MM)	
14	106-559	3	SCREW (M12-1.75 X 25MM)	USE LOCTITE 242 OR EQUIVALENT
15	105-475	1	WASHER (1/2")	USE LOCTITE 242 OR EQUIVALENT
16	302-731	1	PIN	
17	180-118	1	BRASS BUSHING (1.25")	
18	303-278	1	TAPERED PIN (31.7MM X 221MM)	
19	300-8698	1	CYLINDER LOCK	
20	300-8672	1	STABILIZER WELDMENT	
21	125-771	4	COMPOSITION BUSHING (1.25")	
22	125-772	1	COMPOSITION BUSHING (1.5")	
23	181-974	1	TAPERED INSERT (1.5")	
24	300-8667	1	TAPERED PIN	
25	106-338	1	SCREW (M16-2.00 X 30MM)	USE LOCTITE 242 OR EQUIVALENT
26	149-675	1	CYL (2.5 X 1.25 X 10.0)	
27	151-038	1	CYL (2.0 X 1.0 X 4.0)	
28	300-9444	2	STABILIZER PAD	ACCESSORY

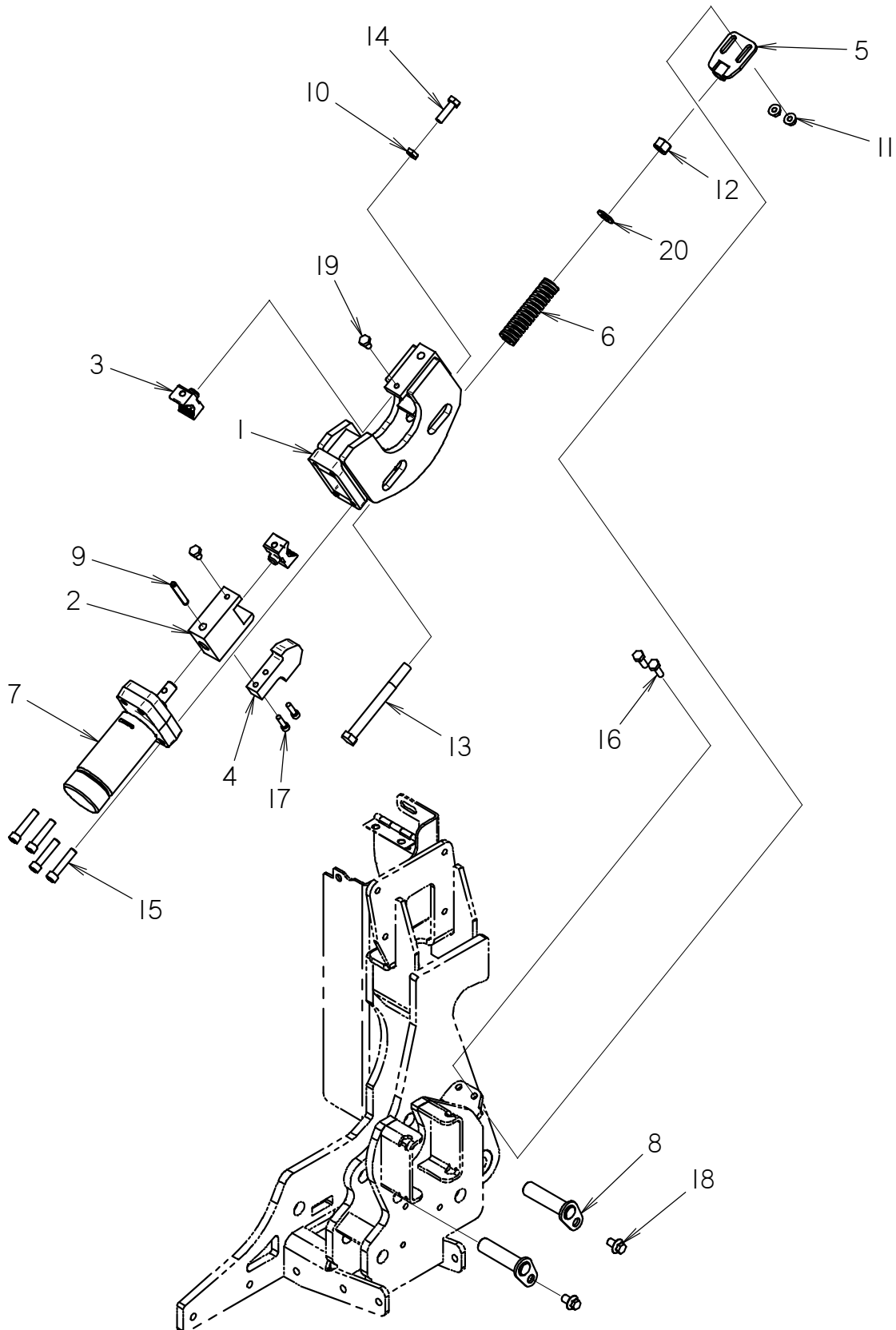
NOT SHOWN:

FOOTNOTES:

NOTE:



# STATIONARY WRENCH



# STATIONARY WRENCH

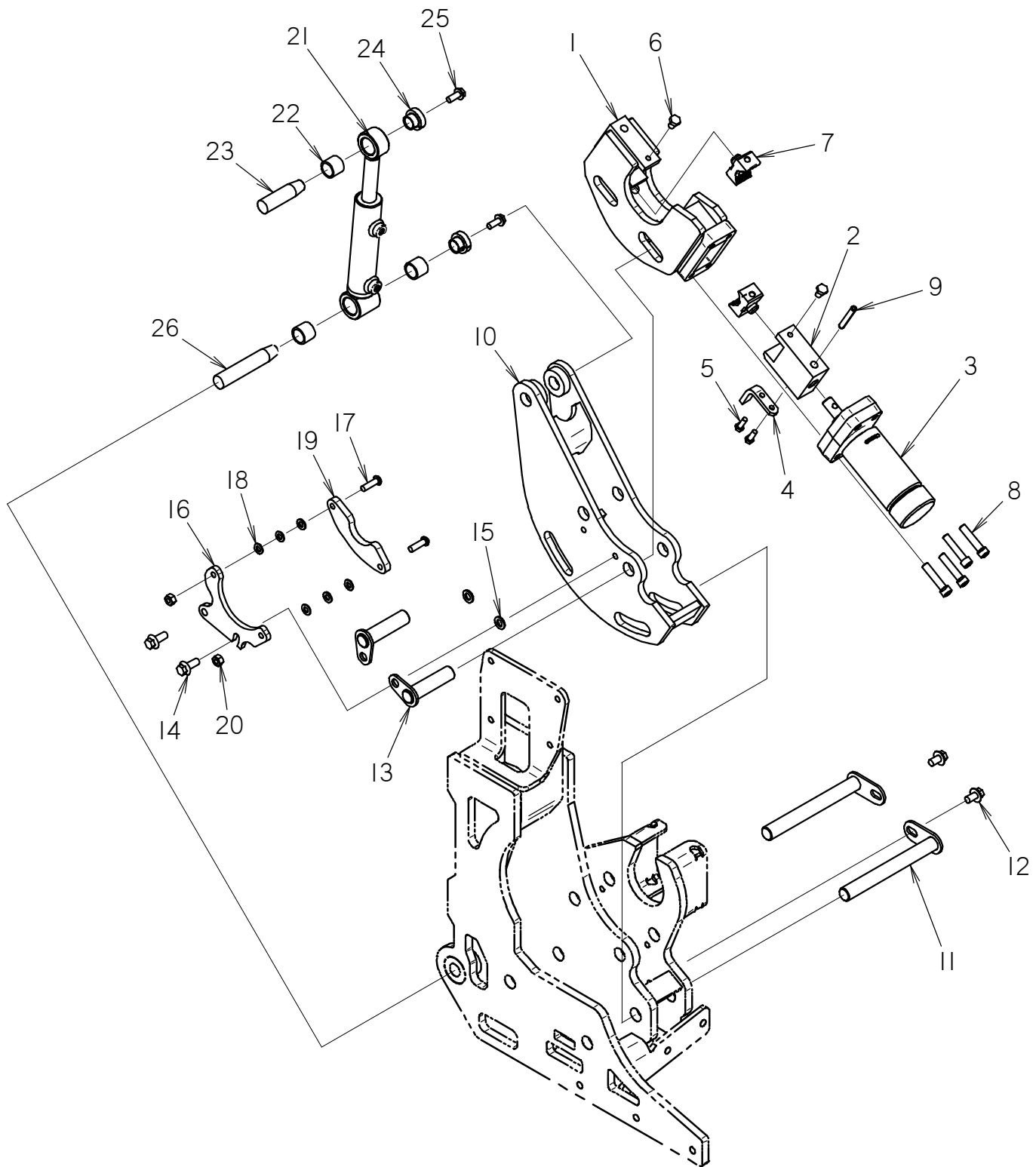
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1	300-8124	1	WRENCH	
2	300-8126	1	JAW	
3	375-1029	2	JAW INSERT	
4	362-1343	1	STOP	
5	300-8132	1	SPRING STOP	
6	118-115	1	COMPRESSION SPRING	
7	150-2784	1	CYL (2.5 X 1.25 X 2.0)	
8	300-8116	2	WRENCH PIN - SHORT	
9	105-555	1	ROLL PIN (3/8" X 2-1/2")	
10	107-669	1	JAM NUT (M12-1.75)	
11	106-387	2	FLG LOCKNUT (M10-1.50)	
12	106-545	1	LOCKNUT (M16-2.0,PRV TRQ,10.9)	
13	107-118	1	SCREW (M16-2.00 X 160MM, 10.9)	
14	106-333	1	SCREW (M12-1.75 X 40MM, 8.8)	
15	107-602	4	SCREW (M12-1.75 X 55MM, SOC)	USE LOCTITE 242 OR EQUIVALENT
16	107-612	2	SCREW (M10-1.50 X 30MM, CL10.9)	
17	105-892	2	SCREW (M8-1.25 X 30MM, SOC)	
18	105-1012	2	FLG LK SCREW (M12-1.75 X 20MM)	
19	106-654	2	SCREW (M10-1.50 X 16MM)	USE LOCTITE 242 OR EQUIVALENT
20	106-392	1	WASHER (M16)	

NOT SHOWN:

FOOTNOTES:

NOTE:

## ROTATING WRENCH



# ROTATING WRENCH

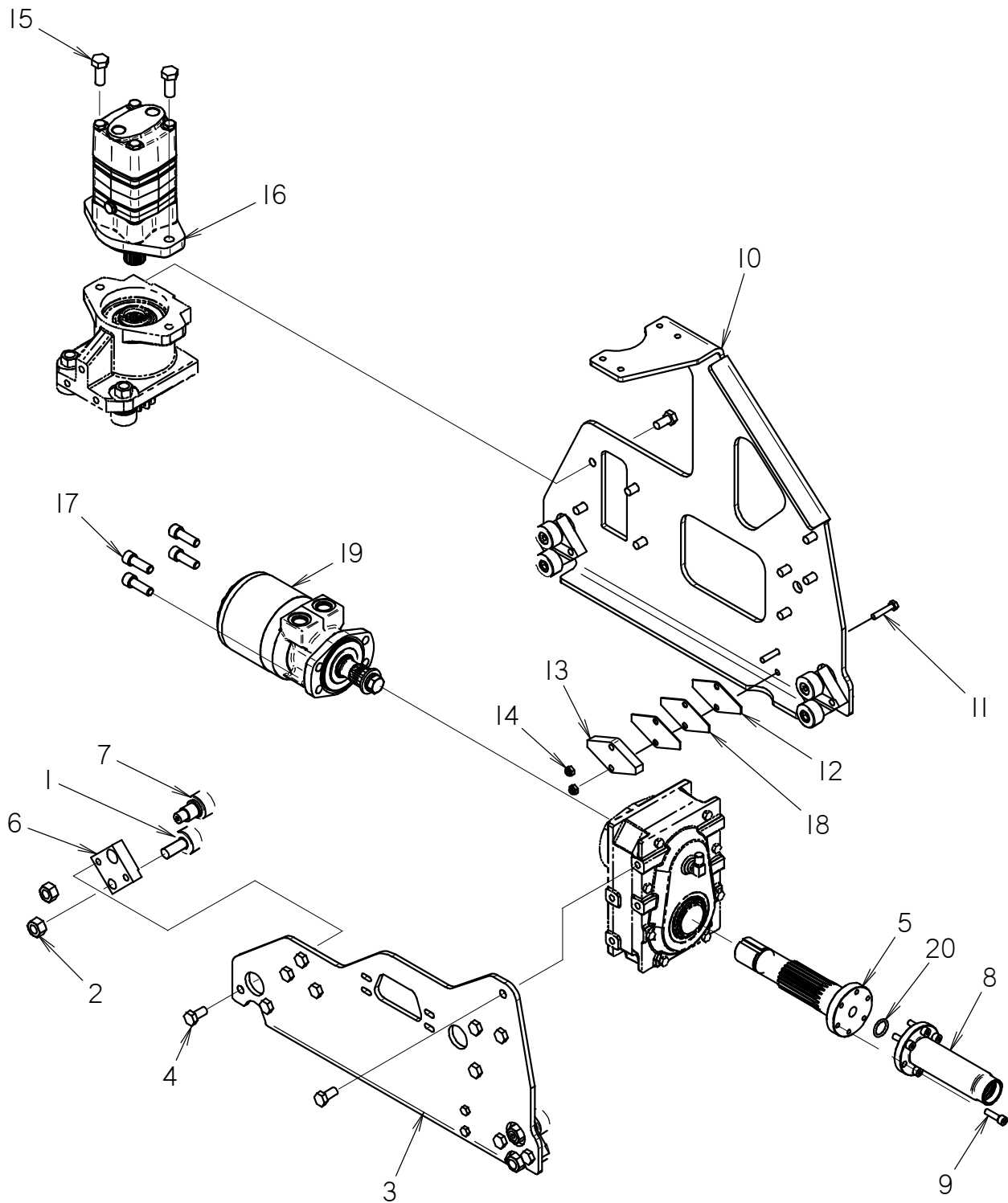
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1	300-8124	1	WRENCH	
2	300-8126	1	JAW	
3	150-2784	1	CYL (2.5 X 1.25 X 2.0)	
4	300-8134	1	STOP	
5	105-806	2	SCREW (M8-1.25 X 25MM)	
6	106-654	2	SCREW (M10-1.50 X 16MM)	USE LOCTITE 242 OR EQUIVALENT
7	375-1029	2	JAW INSERT	
8	107-602	4	SCREW (M12-1.75 X 55MM, SOC)	USE LOCTITE 242 OR EQUIVALENT
9	105-555	1	ROLL PIN (3/8" X 2-1/2")	
10	300-8135	1	ROTATING WRENCH	
11	300-8119	2	WRENCH PIN - LONG	
12	105-1012	2	FLG LK SCREW (M12-1.75 X 20MM)	
13	300-8116	2	WRENCH PIN - SHORT	
14	107-010	2	FLG LK SCREW (M12-1.75 X 30MM)	
15	106-391	2	WASHER (M12)	
16	300-8121	1	PIPE REST MOUNT	
17	107-421	2	SCREW (M10-1.50 X 35MM,BUT SOC)	
18	106-390	6	WASHER (M10)	
19	362-1220	1	PIPE REST	
20	105-894	2	LOCKNUT(M10-1.50,PRV TRQ,10.9)	
21	150-2975	1	CYLINDER (1.5 X 1.0 X 4.0)	
22	125-770	3	COMPOSITION BUSHING (1.000")	
23	300-8140	1	TAPERED PIN (1" X 3.75")	
24	181-981	2	TAPERED INSERT (1")	
25	106-724	2	FLG SCREW (M10-1.50 X 25MM)	
26	179-987	1	TAPERED PIN (1" X 5.50")	

NOT SHOWN:

FOOTNOTES:

NOTE:

## CARRIAGE



# CARRIAGE

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1	140-1042	4	ROLLER (1.50")	
2	105-390	8	NUT (5/8-NF)	TORQUE TO 100 FT-LBS
3	300-8113	1	RIGHT SIDE PLATE	
4	106-559	23	SCREW (M12-1.75 X 25MM)	USE LOCKTITE 242 OR EQUIVALENT, TORQUE TO 86 FT-LBS
5	300-7902	1	SLIDING SHAFT	
6	300-7823	4	ROLLER MOUNT	
7	140-1053	4	ROLLER EC (1.50")	
8	300-7827	1	SAVER SUB	
9	105-892	6	SCREW (M8-1.25 X 30MM, SOC)	USE LOCTITE 242 OR EQUIVALENT, TORQUE TO 28 FT-LBS
10	300-8112	1	LEFT SIDE PLATE	
11	106-328	4	SCREW (M8-1.25 X 40MM)	
12	300-7822	4	SPACER	SEE FOOTNOTE I
13	362-1318	2	SLIDE	
14	107-096	4	LOCKNUT (M8-1.25, NLK)	
15	106-472	2	SCREW (M14-2.0 X 35MM)	USE LOCTITE 242 OR EQUIVALENT, TORQUE TO 88 FT-LBS
16	150-3014	1	GEROLER MOTOR, 15.26 CIR	
17	106-204	4	BOLT (1/2 - NC X 1.50", SOC)	USE LOCTITE 271 OR EQUIVALENT, TORQUE TO 100 FT-LBS
18	300-9136	2	SPACER (060")	SEE FOOTOTE I
19	150-3249	1	HYDRAULIC MOTOR, 18.9 CIR	
20	155-792	1	O-RING (212 D70)	

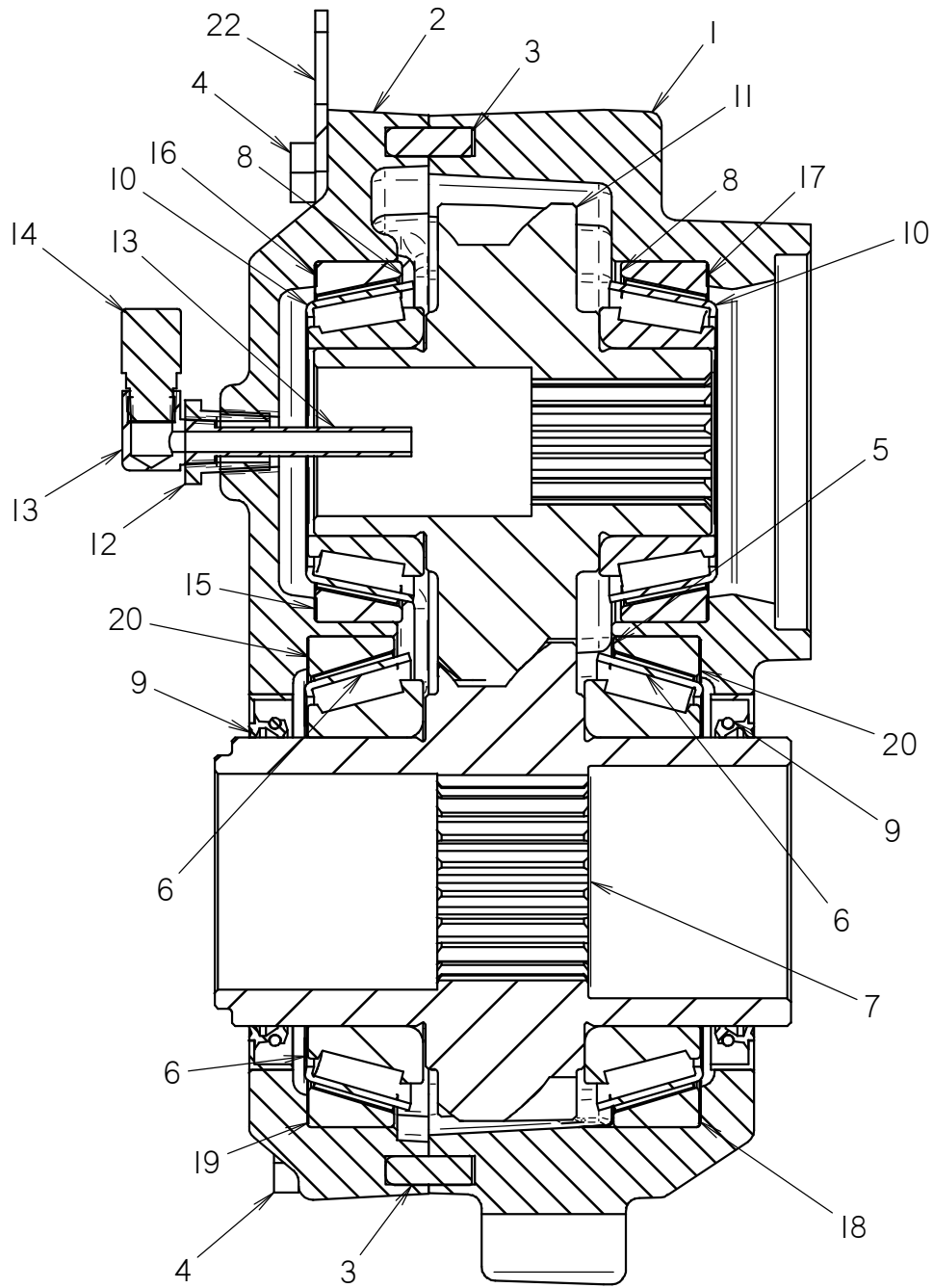
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FOOTNOTES:

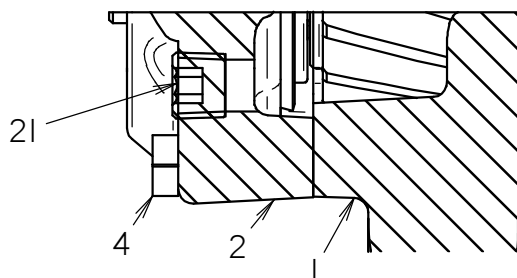
I. USE AS REQUIRED TO FILL SPACE BETWEEN SLIDE AND DRILL FRAME BAR. SPLIT SPACING EQUALLY ON EACH SIDE.

NOTE:

# ROTATION GEAR BOX



SECTION A-A



SECTION B-B

# ROTATION GEAR BOX

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	350-2030	-	GEARBOX	INCL REF'S 1 THRU 22 AND 150-3249 HYD MOTOR
1	300-5484	1	GEARBOX HOUSING	
2	166-419	1	GEARBOX COVER	
3	106-906	2	DOWEL PIN (1.250 X .750)	
4	106-063	8	SCREW (M8-1.25 X 40MM, 10.9)	
5	125-528	2	BEARING CUP	
6	125-529	2	BEARING CONE	
7	160-1152	1	OUTPUT SHAFT	
8	125-332	2	TAPERED RACE (3.125")	
9	153-638	2	Internal Seal	
10	125-331	2	TAPERED BEARING (1.625")	
11	166-407	1	PINION	
12	115-181	1	REDUCER (04N-02NF)	
13	514-123	1	PICKUP TUBE (02N-02NF90-2")	
14	159-003	1	AIR VENT (02N)	
15	178-930	2	SHIM	
16	178-927	2	SHIM	
17	178-928	2	SHIM	
18	178-931	2	SHIM	
19	178-932	2	SHIM	
20	178-933	2	SHIM	
21	115-444	2	PLUG (04N, SOC, SS)	
22	301-2131	1	JT5 GEARBOX LIFT EYE	

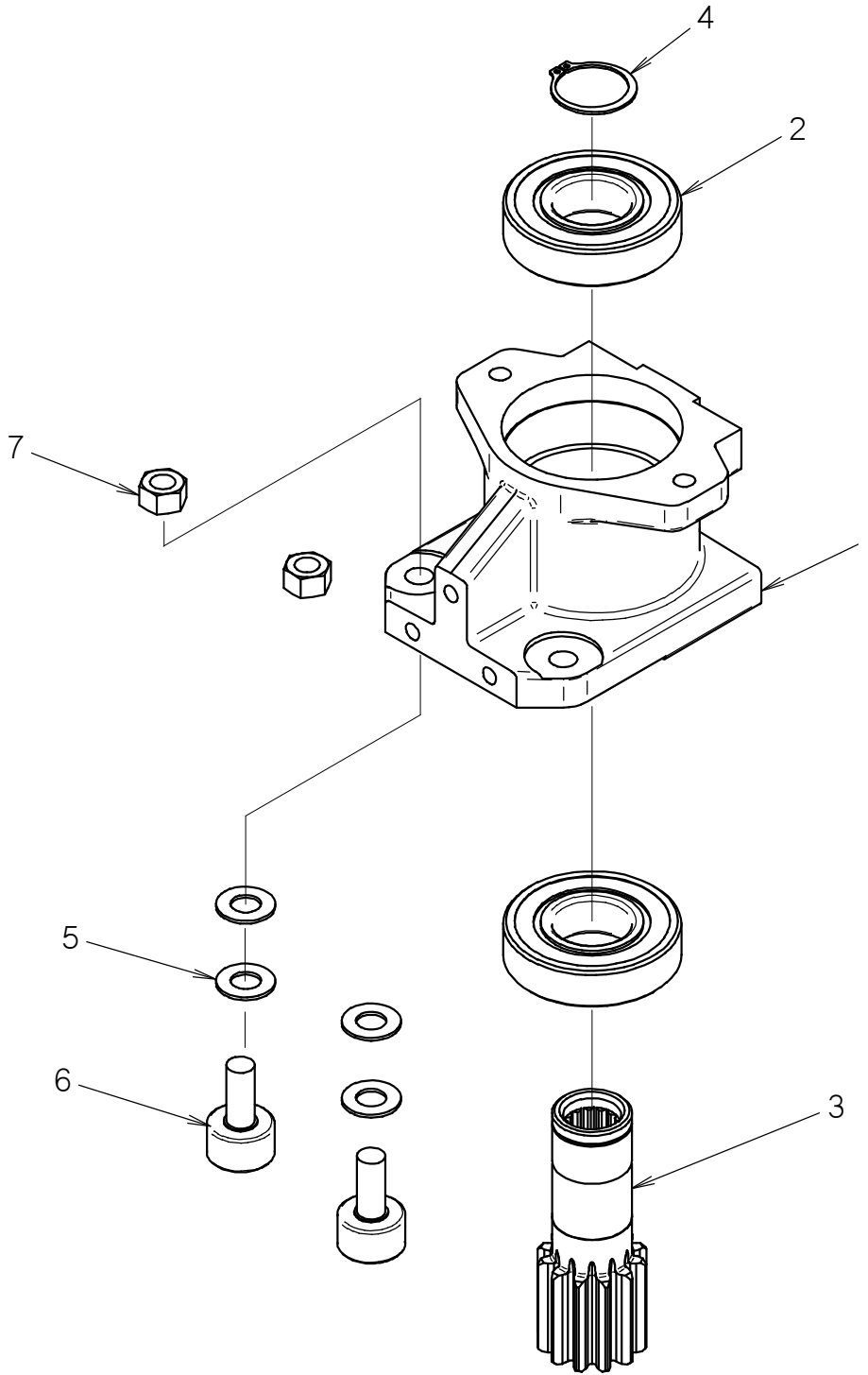
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FOOTNOTES:

NOTE:



# THRUST DRIVE



# THRUST DRIVE

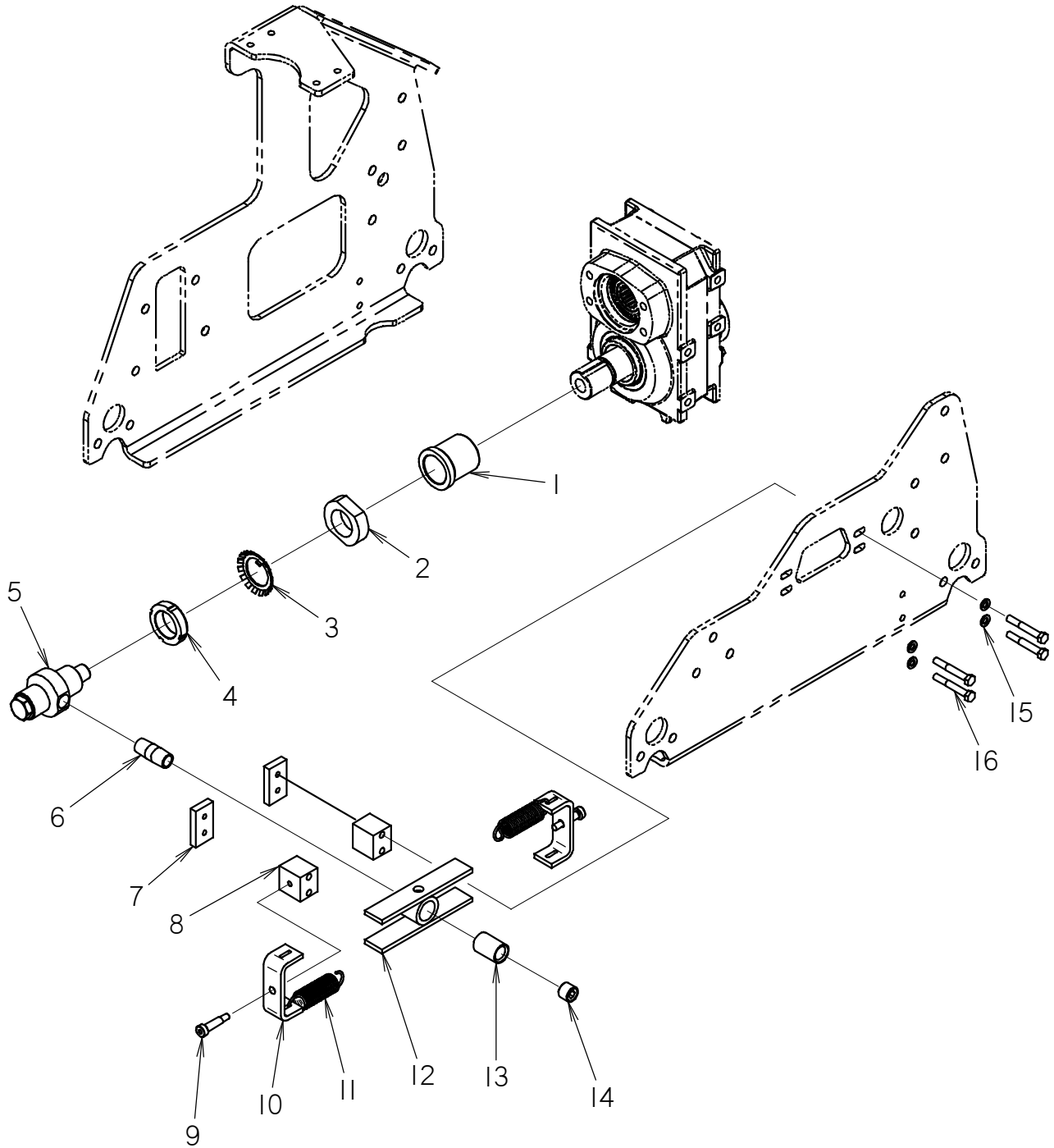
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1	300-5520	1	THRUST DRIVE	
2	125-044	2	BEARING (FAFNIR 309PP)	
3	160-1038	1	PINION	
4	115-456	1	SNAP RING	
5	105-1393	4	WASHER (5/8", HARDENED)	
6	140-1042	2	ROLLER (1.50")	
7	105-390	2	NUT (5/8-NF)	TORQUE TO 100 FT-LBS

NOT SHOWN:

FOOTNOTES:

NOTE:

# WATER SWIVEL & SLIDE



# WATER SWIVEL & SLIDE

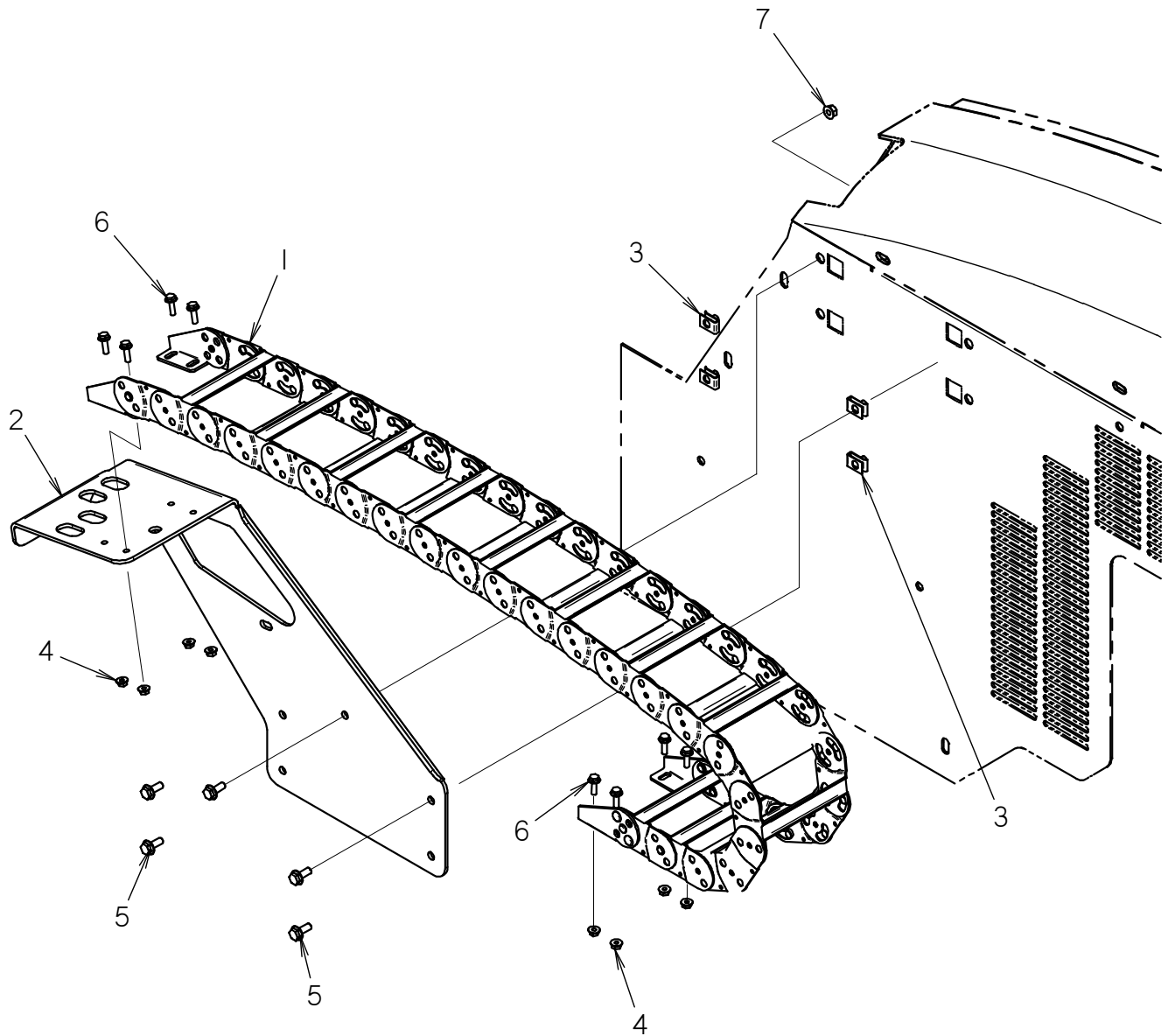
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1	300-7903	1	SHAFT SPACER	
2	105-1319	1	NUT (I.562-18)	
3	105-435	1	TANG LOCK WASHER (I.583")	
4	105-434	1	THRUST LOCKNUT (I.563-NEF-18)	
5	150-2678	1	WATER SWIVEL (I-08N)	
6	115-118	1	NIPPLE (O8N-2")	
7	300-8152	2	BAR	
8	300-3825	2	MOUNT BLOCK	
9	105-750	2	SHLD BLT (M10 X 30MM, M8-1.25)	USE LOCTITE 242 OR EQUIVALENT
10	300-3823	2	EXTENSION BRACKET	
11	105-1151	2	EXTENSION SPRING	
12	300-3826	1	SLIDE	
13	115-155	1	COLLAR (O8NF)	
14	115-165	1	PLUG (O8N, SOC)	
15	106-389	4	WASHER (M8)	
16	106-570	4	SCREW (M8-1.25 X 60MM)	
17*	106-063	2	SCREW (M8-1.25 X 40MM, 10.9)	

NOT SHOWN:

FOOTNOTES:

NOTE:

## HOSE CARRIER



# HOSE CARRIER

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1	118-1007	1	HOSE CARRIER	SEE FOOTNOTE 1 FOR SERVICE PARTS
2	300-8413	1	CARRIER MOUNT	
3	106-551	4	CLIP NUT (M8-1.25)	
4	106-385	8	FLG LOCKNUT (M6-1.00)	
5	106-991	5	FLG LK SCREW (M8-1.25 X 20MM)	
6	106-161	8	FLG SCREW (M6-1.00 X 20MM)	
7	106-386	1	FLG LOCKNUT (M8-1.25)	

NOT SHOWN:

FOOTNOTES:

1- 500-2072 REPAIR SECTION INCLUDES THREE LINKS W/ MOVING END  
 500-2073 PIN/SNAP RING KIT

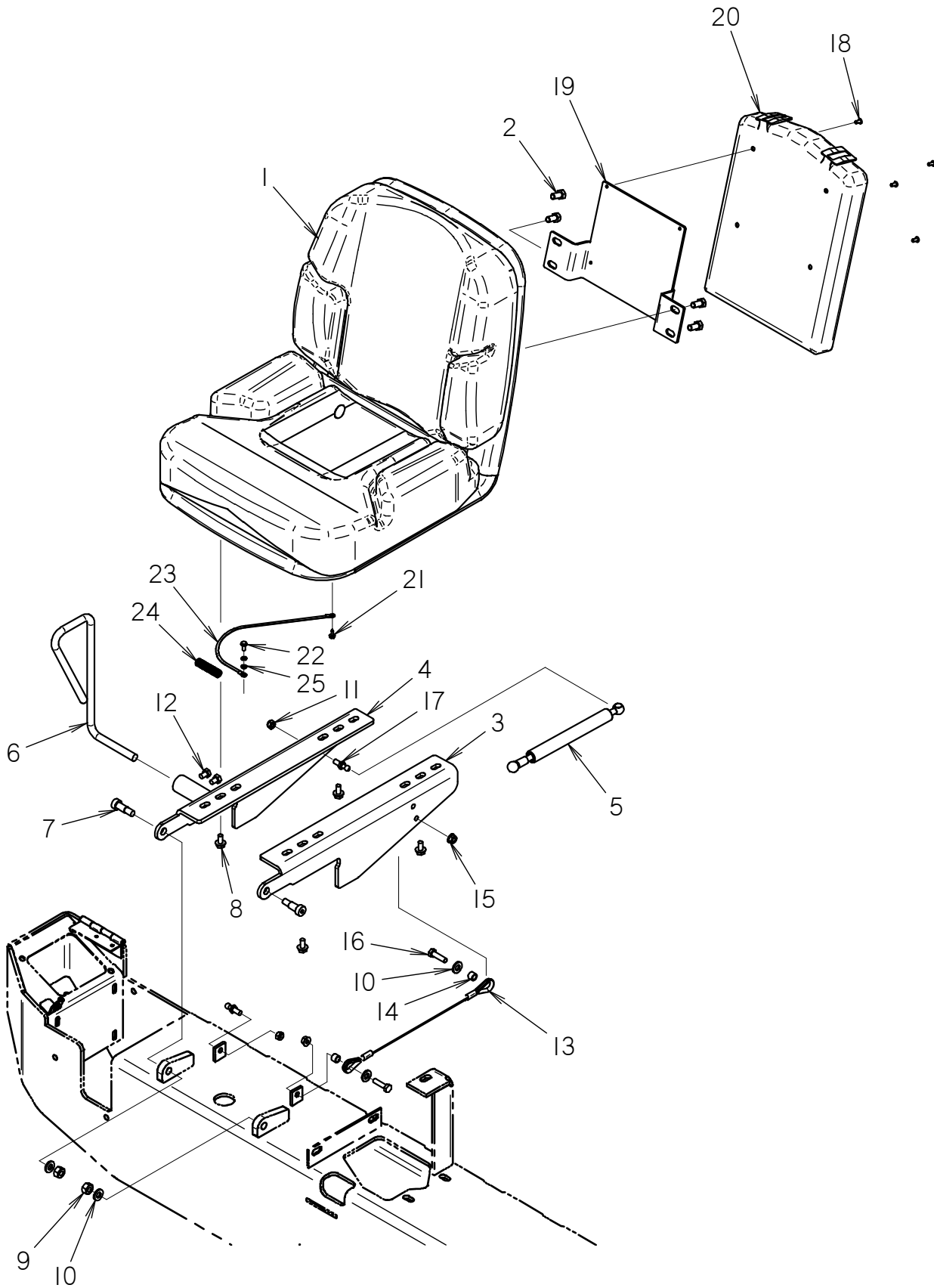
NOTE:



# **OPERATOR'S STATION**



# OPERATORS STATION-SEAT



# OPERATORS STATION-SEAT

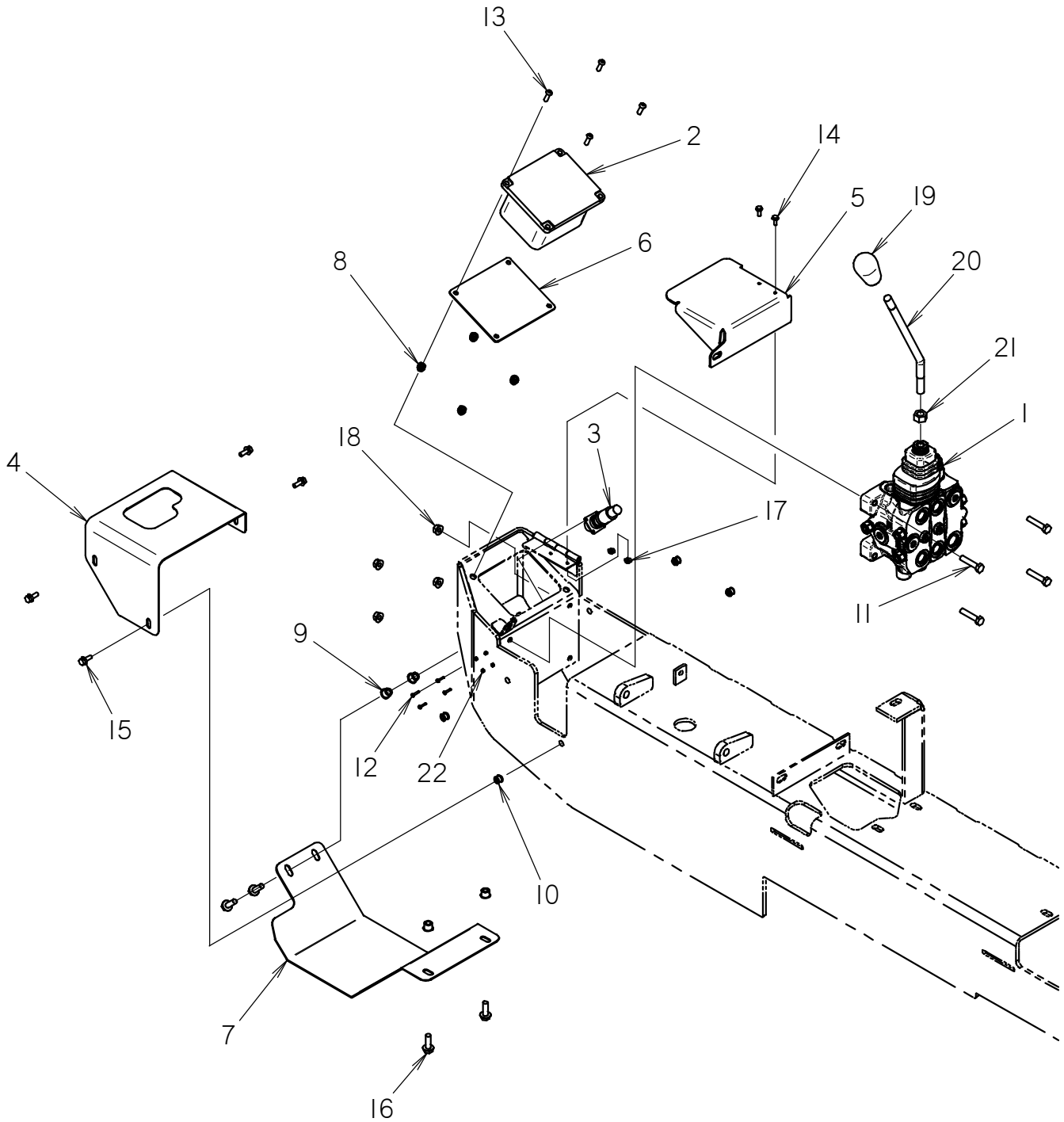
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1	117-230	1	SEAT	
2	105-032	4	BOLT (3/8-NC X 3/4")	
3	301-1867	1	LEFT SEAT PLATE	
4	301-1848	1	RIGHT SEAT MOUNT	
5	105-694	1	STRUT (90 LB.)	
6	301-1850	1	BAR	
7	106-739	2	SHLD BLT (M12 X 20MM,M10-1.50)	
8	501-325	4	FLG LK BOLT (5/16-NC X 5/8")	
9	105-894	2	LOCKNUT(M10-1.50,PRV TRQ,10.9)	
10	106-396	4	WASHER (M10, HARDENED)	
11	105-089	2	LOCKNUT (5/16-NC)	
12	107-519	2	SCREW (M8-1.25 X 12MM)	
13	105-1551	1	SEAT CABLE	
14	125-174	2	BRONZE BUSHING (.375" X .500")	
15	106-386	2	FLG LOCKNUT (M8-1.25)	
16	106-327	2	SCREW (M8-1.25 X 30MM)	
17	110-655	2	BALL SCREW (5/16-NC X 1/2")	
18	110-560	4	POP RIVET (3/16" X 1/2", ALUM)	
19	300-8414	1	MANUAL BOX MOUNT	
20	318-588	1	MANUAL COMPARTMENT	
21	105-804	1	FLG SCREW (#10-16 X 1/2")	
22	105-214	1	FLG SCREW (#10-24 X .5")	
23	215-1781	1	1/4" GROUND STRAP	
24	215-488	11	FLEX GUARD (3/8", SOLD PER 1")	
25	106-205	2	WASHER (1/91")	

NOT SHOWN:

FOOTNOTES:

NOTE:

# OPERATORS STATION-CONTROLS



# OPERATORS STATION-CONTROLS

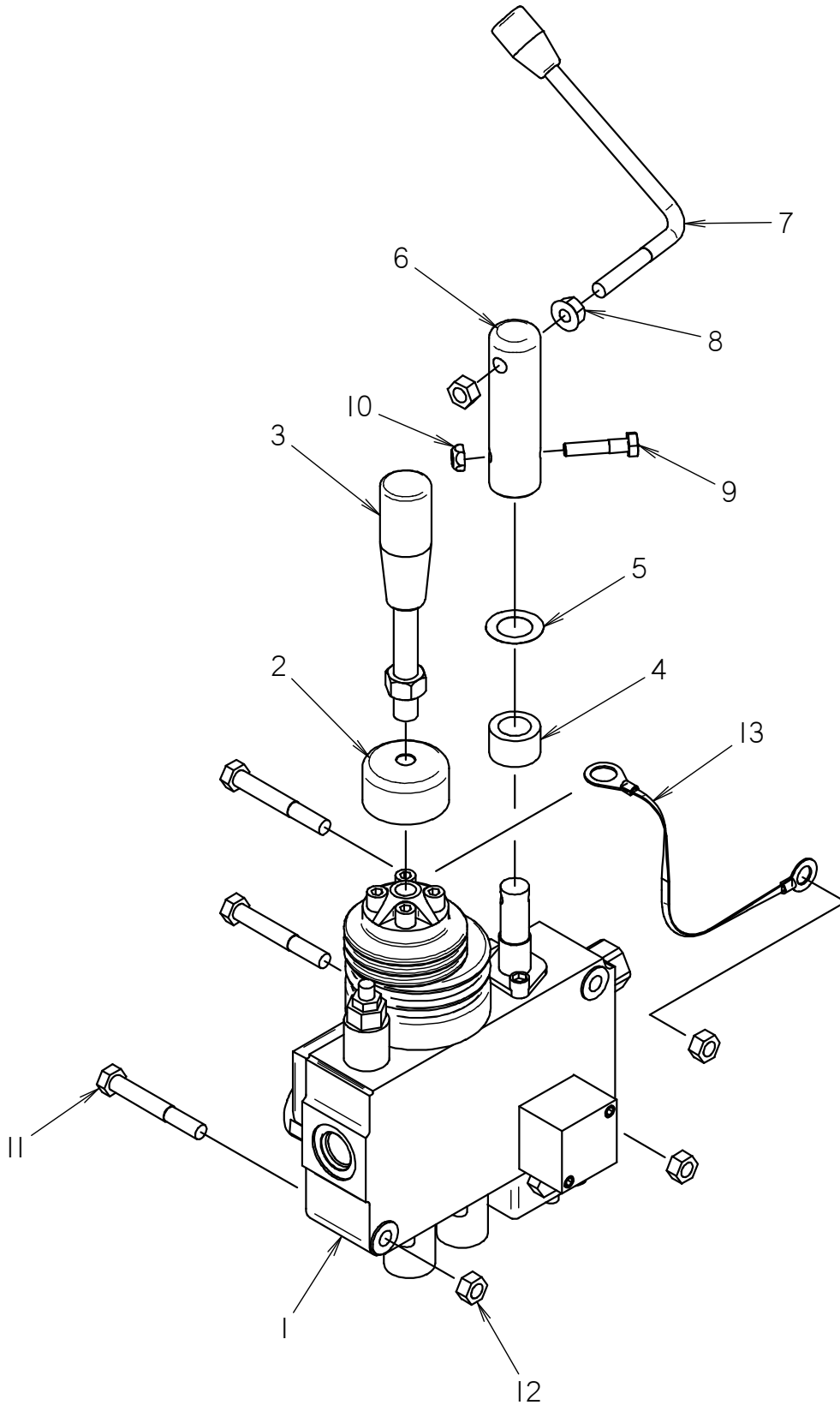
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1	150-2319	1	HYD CONTROL VALVE	
2		1	REMOTE DISPLAY	
3	215-1564	1	REMOTE DISPLAY TO RIG CABLE	
4	300-9490	1	VALVE COVER	
5	300-9019	1	VANDAL COVER	
6	348-896	1	COVER PLATE	
7	300-8726	1	ACCESS COVER	
8	105-630	4	NUTSERT(M6X1.0)70-4.20THK	
9	105-633	4	NUTSERT (M8-1.25) 3.8-7.9" THK	
10	105-631	4	NUTSERT(M6X1.0) 4.20-6.6 THK	
11	106-328	4	SCREW (M8-1.25 X 40MM)	
12	107-269	4	SCREW (#4-40 X 3/4", PAN)	
13	106-640	4	SCREW (M6-1.00 X 20MM,BUT SOC)	
14	105-214	2	FLG SCREW (#10-24 X .5")	
15	106-712	4	FLG SCREW (M6-1.00 X 16MM)	
16	106-381	4	FLG LK SCREW (M8-1.25 X 25MM)	
17	106-048	2	LOCKNUT (#10-24)	
18	106-386	4	FLG LOCKNUT (M8-1.25)	
19	110-022	1	KNOB (1/2-NC, BLACK)	
20	301-1804	1	HANDLE	
21	106-089	1	HEX NUT (M12-1.75, 10.9) ZP	
22	105-662	4	NUT (#4-40)	

NOT SHOWN:

FOOTNOTES:

NOTE:

# WRENCH VALVE



# WRENCH VALVE

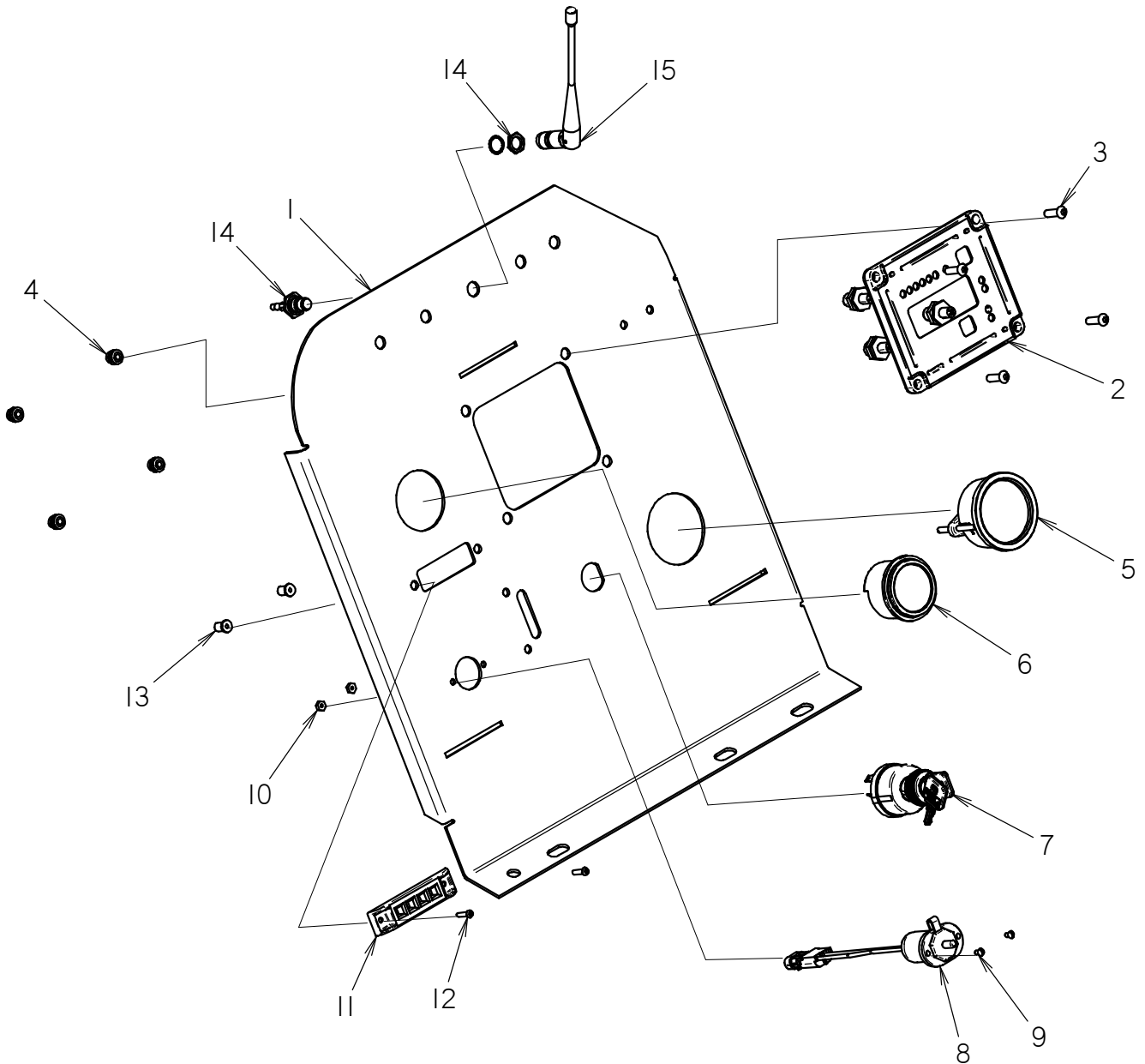
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1	150-3258	1	DIRECTIONAL VALVE, SD5, 3 SPOOL	
2	111-077	1	VINYL CAP (1.625")	
3	149-163	1	LEVER (M12-1.75, BLACK)	
4	178-266	1	SPACER	
5	110-085	1	SPRING WASHER	
6	302-767	1	TUBE	
7	149-127	1	LEVER (M8 -1.25)	
8	106-386	1	FLG LOCKNUT (M8-1.25)	USE LOCTITE 242 OR EQUIVALENT
9	105-856	1	BOLT (1/4-NC X 1 1/4")	
10	105-085	1	LOCKNUT (1/4"-NC)	
11	106-570	3	SCREW (M8-1.25 X 60MM)	
12	106-561	4	LOCKNUT (M8-1.25,PRV TRQ,10.9)	
13	215-1782	1	8" GROUND STRAP	

NOT SHOWN:

FOOTNOTES:

NOTE:

## CONSOLE



# CONSOLE

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1	300-5420	1	UPPER FRONT COVER	
2	220-1222	1	ESID MODULE	
3	106-640	4	SCREW (M6-1.00 X 20MM,BUT SOC)	
4	105-630	4	NUTSERT(M6X1.0).70-4.20THK	
5	217-577	1	3000 PSI PRESSURE GAUGE	
6	215-128	1	HOUR METER	
7	214-852	1	IGNITION SWITCH	
8	214-301	1	ACCESSORY SOCKET	
9	106-058	2	BOLT (#6-32 X 1-1/8", RD SLT)	
10	105-215	2	NUT (#6-32)	
11	220-664	1	INDICATOR ASSEMBLY	
12	107-580	2	SCREW (M4-0.70 X 16MM,BUT SOC)	
13	107-358	2	WELLNUT (M4-0.7 X 12.67MM LG)	
14	214-413	1	RIG RF CABLE 2130MM	
15		1	REMOTE DISPLAY ANTENNA	

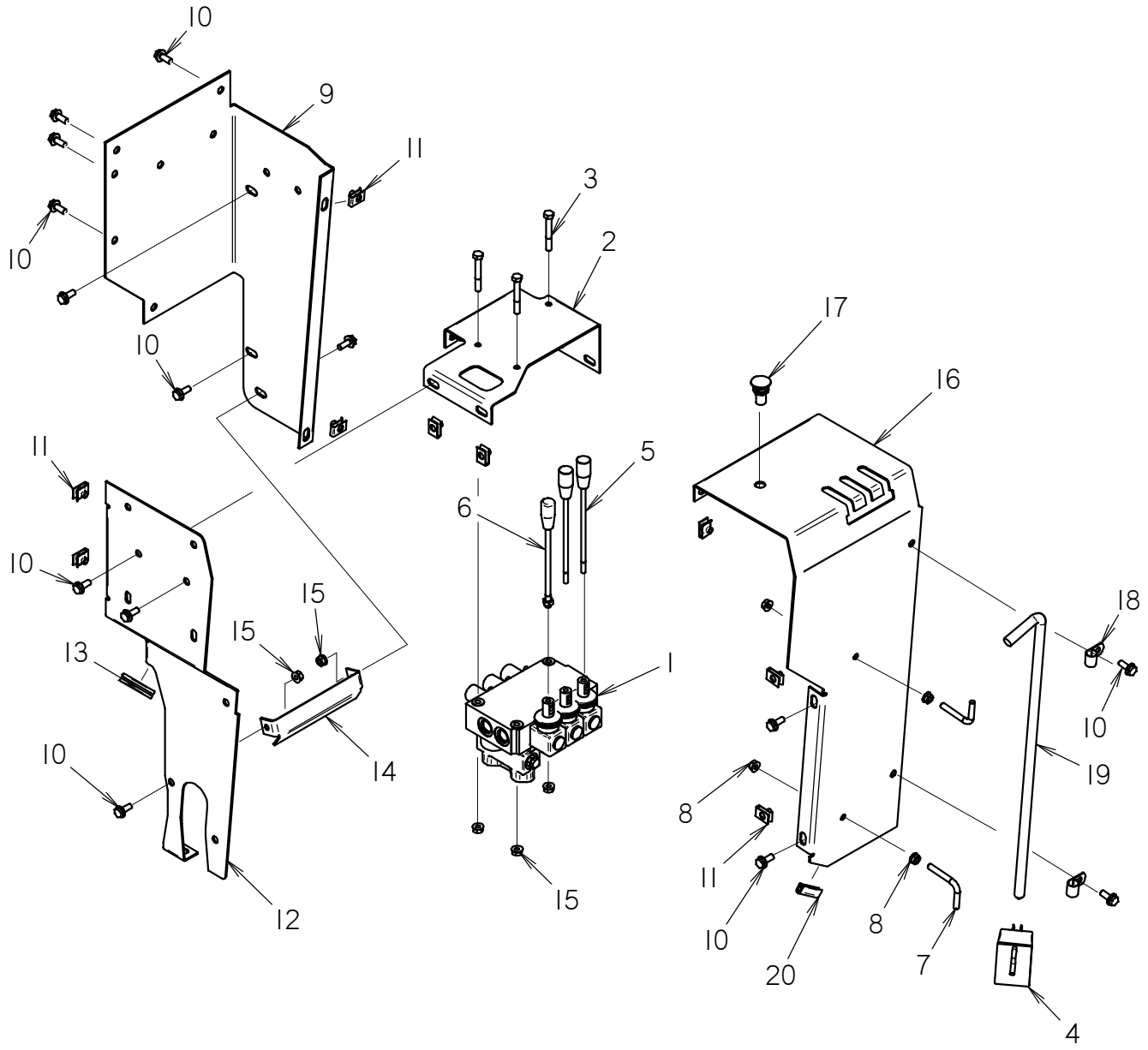
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FOOTNOTES:

NOTE:



# SETUP VALVE



# SETUP VALVE

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1	150-2994	1	HYD CONTROL VALVE	
2	302-845	1	VALVE MOUNT PLATE	
3	106-570	3	SCREW (M8-1.25 X 60MM)	
4	211-042	1	VOLTAGE LIMITER CABLE	
5	365-426	2	LEVER (M8-1.25 X 200MM)	
6	500-908	1	LEVER (M8-1.25, BLACK)	
7	343-086	2	CABLE SUPPORT	
8	105-003	4	FLG LOCKNUT (5/16-NC)	
9	300-8690	1	CONSOLE FRONT	
10	106-991	20	FLG LK SCREW (M8-1.25 X 20MM)	
11	106-551	15	CLIP NUT (M8-1.25)	
12	300-8691	1	CONSOLE SIDE	
13	115-320	1	GROMMET (1-1/2")	
14	300-8694	1	RETAINER	
15	106-386	6	FLG LOCKNUT (M8-1.25)	
16	300-8692	1	SETUP CONSOLE COVER	
17	217-206	1	BUTTON SWITCH (SPST)	
18	110-259	2	BOLT-ON CLAMP (.625")	
19	215-799	1	VOLTAGE STAKE	
20	115-686	2	BULK EDGE (5/32";SOLD PER 1")	

NOT SHOWN:

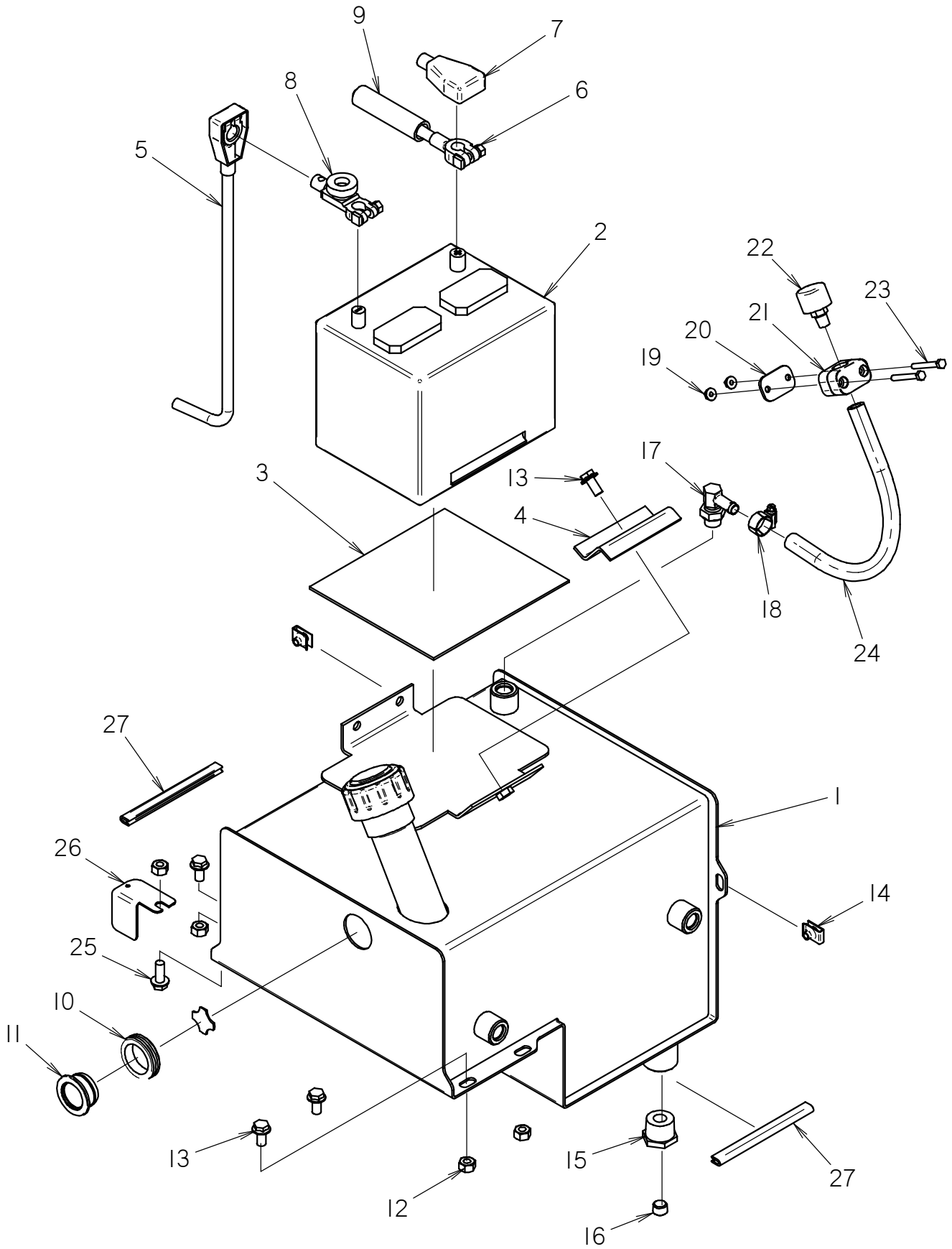
FOOTNOTES:

NOTE:



# HYDRAULICS

# HYDRAULIC RESERVOIR/BATTERY



# HYDRAULIC RESERVOIR/BATTERY

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1	300-9369	1	HYDRAULIC RESERVOIR	
2	215-258	1	BATTERY (12V, 675 AMP)	
3	116-995	1	BATTERY PAD	
4	302-859	1	BATTERY RETAINER	
5	215-351	1	BAT CABLE (1 GA X 40", BLK)	
6	215-310	1	BAT CABLE (1 GA X 50", RED)	
7	116-193	1	TERMINAL COVER (RED)	
8	217-833	1	BATTERY DISCONNECT SWITCH	
9	116-389	47	BULK TUBING (3/4".SOLD PER FT)	
10	115-320	1	GROMMET (1-1/2")	
11	116-218	1	SIGHT GLASS (2")	SEE FOOTNOTE 1
12	105-894	4	LOCKNUT(M10-1.50,PRV TRQ,10.9)	
13	106-382	4	FLG LK SCREW (M10-1.50 X 20MM)	
14	106-551	2	CLIP NUT (M8-1.25)	
15	115-235	1	PIPE BUSHING (INPT TP 3/8NPT)	
16	114-002	1	PLUG (O6N, SOC)	
17	514-297	1	S/O COUPLER (O8S-08H90)	
18	110-217	1	WORM CLAMP (7/16" TO 1")	
19	106-385	2	FLG LOCKNUT (M6-1.00)	
20	322-289	1	BACKUP (BOLT-ON)	
21	110-411	1	BOLT-ON CLAMP (3/4", SET)	
22	111-021	1	BREATHER CAP (TANK)	
23	107-025	2	SCREW (M6-1.00 X 50MM)	
24	116-322	16	BULK HOSE (1/2",SOLD PER 1")	
25	106-724	1	FLG SCREW (M10-1.50 X 25MM)	
26	301-2039	1	BRACKET	
27	115-686	12	BULK EDGE (5/32",SOLD PER 1")	2X @ 6"

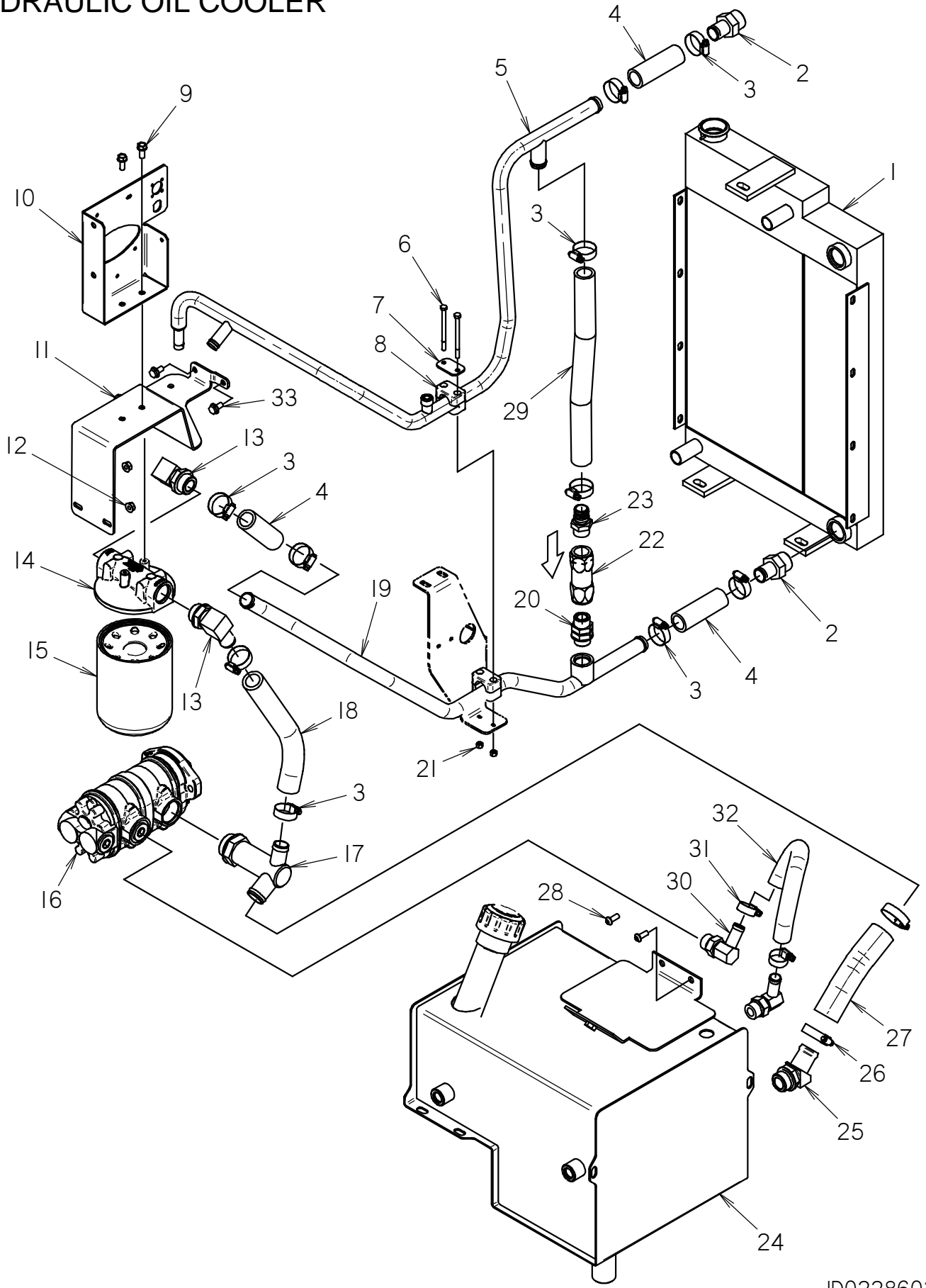
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FOOTNOTES:

- I. INCLUDES REFLECTOR, REFER TO SPECIAL TOOL DIAGRAM 052-524

NOTE:

# HYDRAULIC OIL COOLER



# HYDRAULIC OIL COOLER

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1	195-1163	1	RADIATOR/OIL COOLER	
2	514-088	2	S/O COUPLER (16S-16H)	
3	110-353	10	WORM CLAMP (3/4" TO 1-1/2")	
4	116-460	12	BULK HOSE (1", SOLD PER FT)	3X @ 4"
5	150-3050	1	HYD LINE (1-16)	
6	107-151	2	SCREW (M6-1.00 X 85MM)	
7	322-289	1	BACKUP (BOLT-ON)	
8	110-573	2	BOLT-ON CLAMP (1",SOLD PER SET)	
9	105-823	2	FLG LK BOLT (5/16-NC X 3/4")	
10	302-876	1	RELAY PANEL	
11	300-9370	1	FILTER MOUNT	
12	106-386	2	FLG LOCKNUT (M8-1.25)	
13	154-188	2	S/O COUPLER (16S-16H90)	
14	155-999	1	FILTER HEAD	
15	155-954	1	FILTER ELEMENT	
16	150-2972	1	TRIPLE GEAR PUMP	
17	156-958	1	S/O BR TEE (20S-20H-16H)	
18	116-460	12	BULK HOSE (1", SOLD PER 1')	
19	150-1591	1	HYDRAULIC LINE (12S-16H-16H)	
20	155-152	1	CONNECTOR (12S-12S)	
21	106-538	2	LOCKNUT (M6-1.00,PRV TRQ,10.9)	
22	158-576	1	CHECK VALVE (12SF-12SF)	
23	155-161	1	S/O COUPLER (12S-16H)	
24	300-9369	1	HYDRAULIC RESERVOIR	
25	115-281	1	S/O COUPLER (16S-20H45)	
26	110-133	2	WORM CLAMP(1-1/16"TO 1-15/16")	
27	116-587	7	BULK HOSE (1-1/4", SOLD PER FT)	
28	107-032	2	BOLT (M8-1.25 X 20MM,BUT SOC)	
29	116-460	15	BULK HOSE (1", SOLD PER 1')	
30	155-174	2	S/O COUPLER (12S-12H90)	
31	110-026	2	WORM CLAMP (1/2" TO 1-1/4")	
32	116-636	11	BULK HOSE (3/4", SOLD PER FT)	
33	106-380	2	FLG LK SCREW (M8-1.25 X 16MM)	

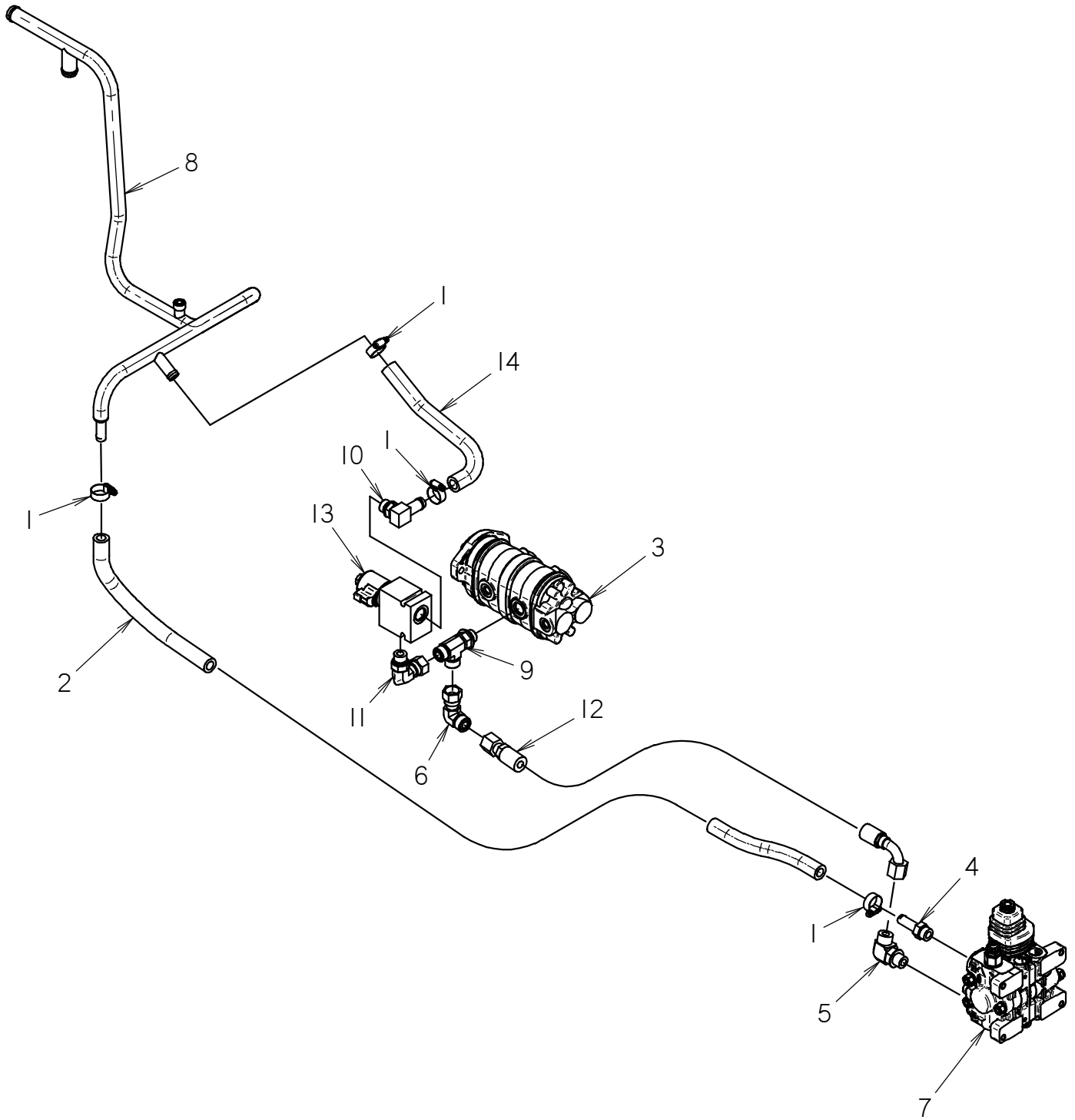
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FOOTNOTES:

NOTE:



# THRUST/ROTATE VALVE HYD



# THRUST/ROTATE VALVE HYD

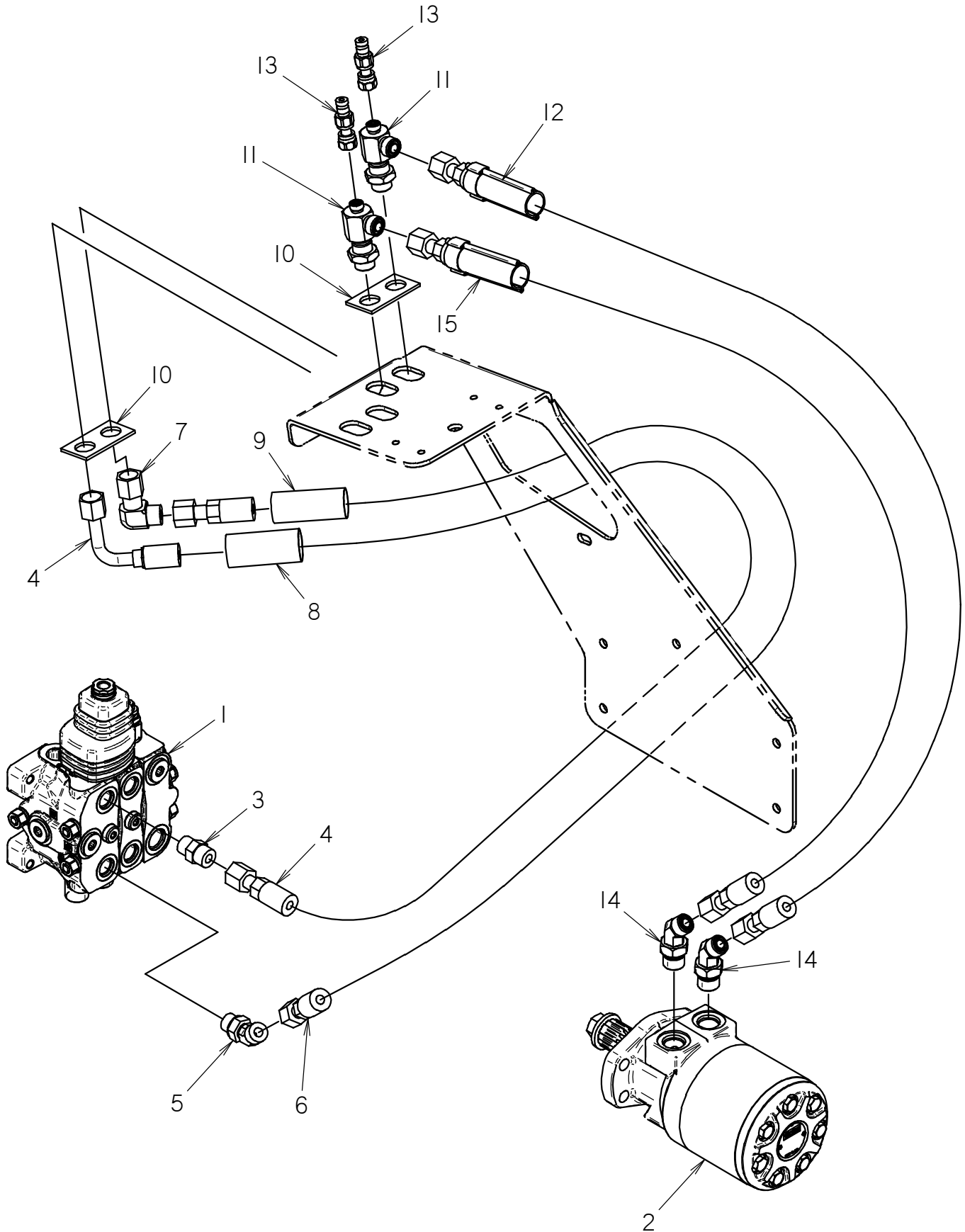
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1	110-026	4	WORM CLAMP (1/2" TO 1-1/4")	
2	116-044	59	BULK HOSE (5/8", SOLD PER 1')	
3	150-2972	1	TRIPLE GEAR PUMP	
4	155-135	1	S/O COUPLER (10S-10H)	
5	154-298	1	CONNECTOR (10S-10090)	
6	154-315	1	UNION (100-100FX90)	
7	150-2319	1	HYD CONTROL VALVE	
8	150-3050	1	HYD LINE (-16)	
9	154-317	1	RUN TEE (10S-100-100)	
10	154-362	1	S/O COUPLER (10S-12H90)	
11	154-372	1	UNION (10S-100FX90)	
12	150-3307	1	HOSE (100FX90S-46"-3045)	
13	150-3190	1	CARTRIDGE VALVE, 2P, 2W, NO	
14	116-636	11	BULK HOSE (3/4", SOLD PER FT)	

NOT SHOWN:

FOOTNOTES:

NOTE:

# ROTATION HYDRAULICS



# ROTATION HYDRAULICS

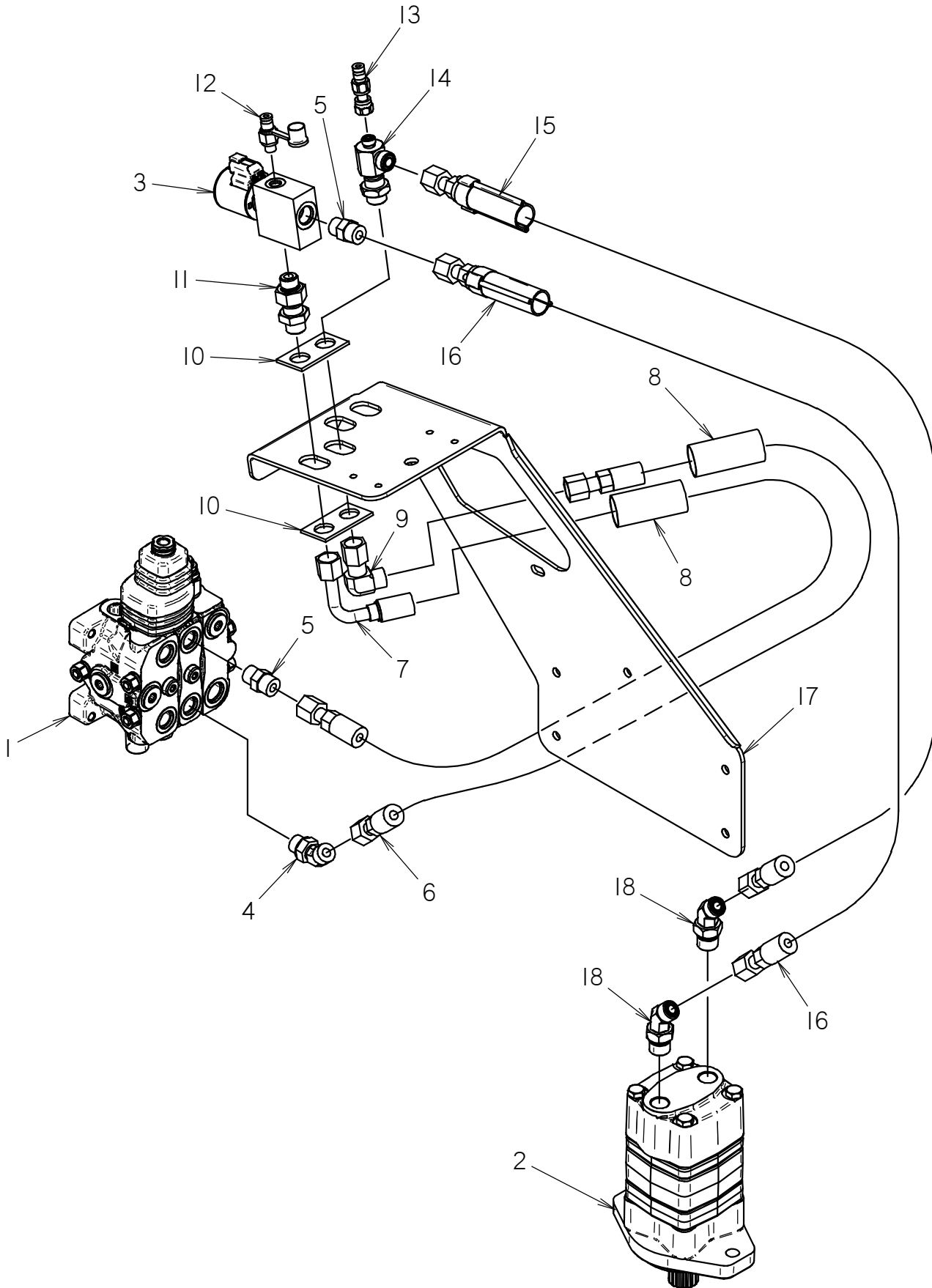
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1	150-2319	1	HYD CONTROL VALVE	
2	150-3249	1	HYDRAULIC MOTOR, 18.9 CIR	
3	154-233	1	CONNECTOR (08S-080)	
4	150-3114	1	HOSE (080FX90L-72"-3000)	
5	154-284	1	CONNECTOR (08S-08045)	
6	150-3113	1	HOSE (080FX-68"-3000)	
7	154-256	1	UNION (080-080FX90)	
8	105-1473	1	ABRASION SLEEVE (1.25" X 72")	
9	117-691	1	ABRASION SLEEVE (1.25" X 68")	
10	300-8111	2	SPACER	
11	150-2313	2	BK RUN TEE (040-080-080BK)	
12	150-3255	1	HOSE (080FX-68"-3000-WS)	
13	159-156	2	QDC ADAPTER (02-040F)	
14	154-264	2	CONNECTOR (080-10S45)	
15	150-3255	1	HOSE (080FX-68"-3000-WS)	

NOT SHOWN:

FOOTNOTES:

NOTE:

# THRUST HYDRAULICS



# THRUST HYDRAULICS

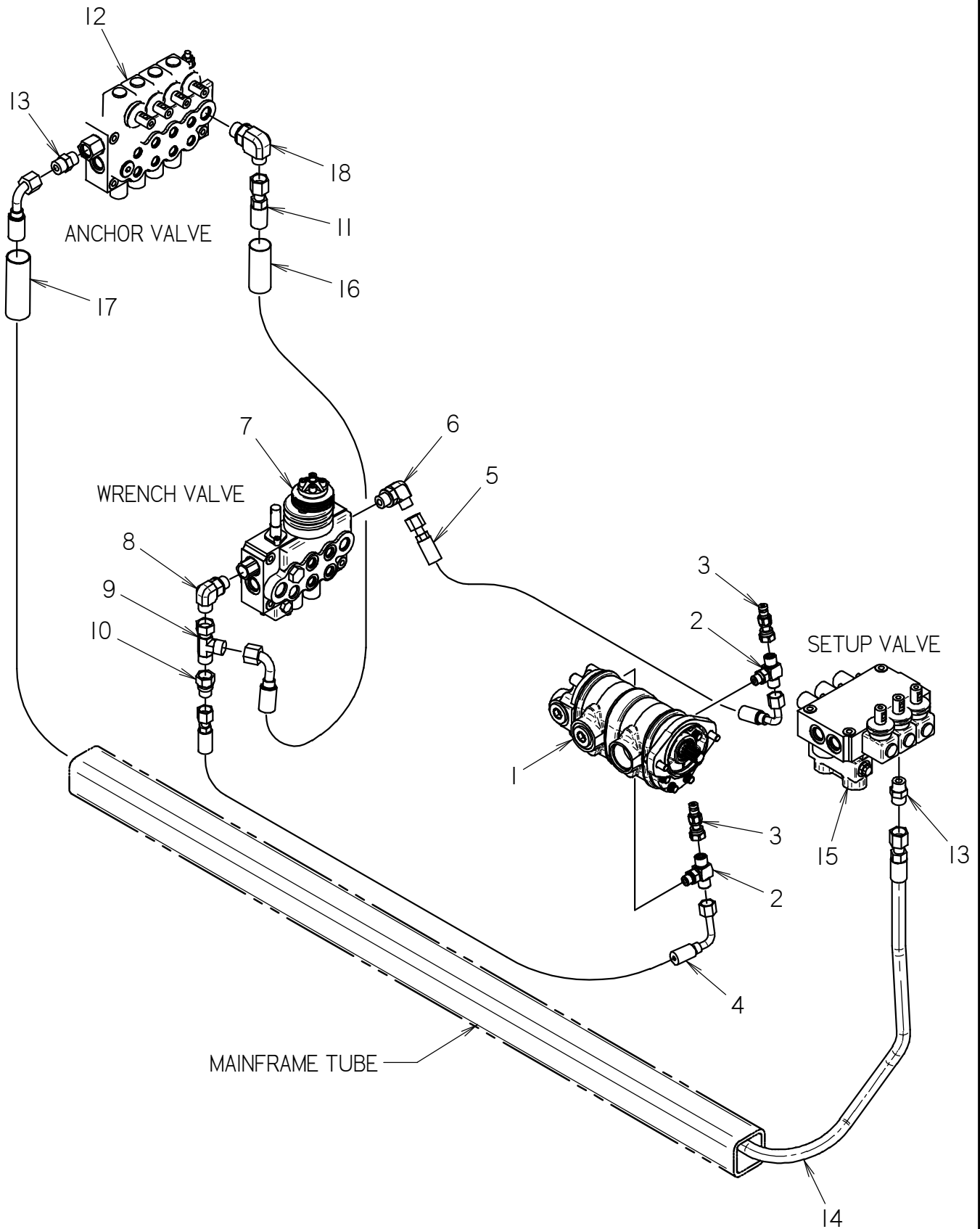
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1	150-2319	1	HYD CONTROL VALVE	
2	150-3014	1	GEROLER MOTOR, 15.26 CIR	
3	150-3152	1	BLOCKING VALVE, 2W, 2P, NC	
4	154-284	1	CONNECTOR (08S-08045)	
5	154-233	2	CONNECTOR (08S-080)	
6	150-3261	1	HOSE (080FX-72"-3000)	
7	150-3114	1	HOSE (080FX90L-72"-3000)	
8	105-1473	2	ABRASION SLEEVE (1.25" X 72")	
9	154-256	1	UNION (080-080FX90)	
10	300-8111	2	SPACER	
11	149-841	1	BK CONNECTOR (08S-080BK)	
12	159-154	1	QDC ADAPTER (02-04S)	
13	159-156	1	QDC ADAPTER (02-040F)	
14	150-2313	1	BK RUN TEE (040-080-080BK)	
15	150-3256	1	HOSE (080FX-57"-3000-WS)	
16	150-3257	1	HOSE (080FX-56"-3000-WS)	
17	300-8413	1	CARRIER MOUNT	
18	154-264	2	CONNECTOR (080-10S45)	

NOT SHOWN:

FOOTNOTES:

NOTE:

# AUXILIARY VALVES PRESSURE



# AUXILIARY VALVES PRESSURE

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1	150-2972	1	TRIPLE GEAR PUMP	
2	154-346	2	BRANCH TEE (06S-060-060)	
3	159-157	2	QDC ADAPTER (02-060F)	
4	150-1998	1	HOSE (060FX90L-38"-3000)	
5	157-822	1	HOSE (060FX90M-30"-3000)	
6	154-227	1	CONNECTOR (060-08S90)	
7	150-3258	1	DIRECTIONAL VALVE, SD5, 3 SPOOL	
8	154-235	1	CONNECTOR (08S-08090)	
9	154-266	1	UNION RUN TEE (080FX-080-080)	
10	154-262	1	REDUCER (060-080F)	
11	150-3123	1	HOSE (080FX90S-104"-3000)	
12	157-241	1	HYD CONTROL VALVE (4-SPOOL)	
13	154-233	2	CONNECTOR (08S-080)	
14	154-979	1	HOSE (080FX90S-170"-3000)	
15	150-2994	1	HYD CONTROL VALVE	
16	117-389	1	ABRASION SLEEVE (1.25" X 104")	
17	105-1475	1	ABRASION SLEEVE (1.25" X 170")	
18	154-322	1	CONNECTOR (080-10S90)	

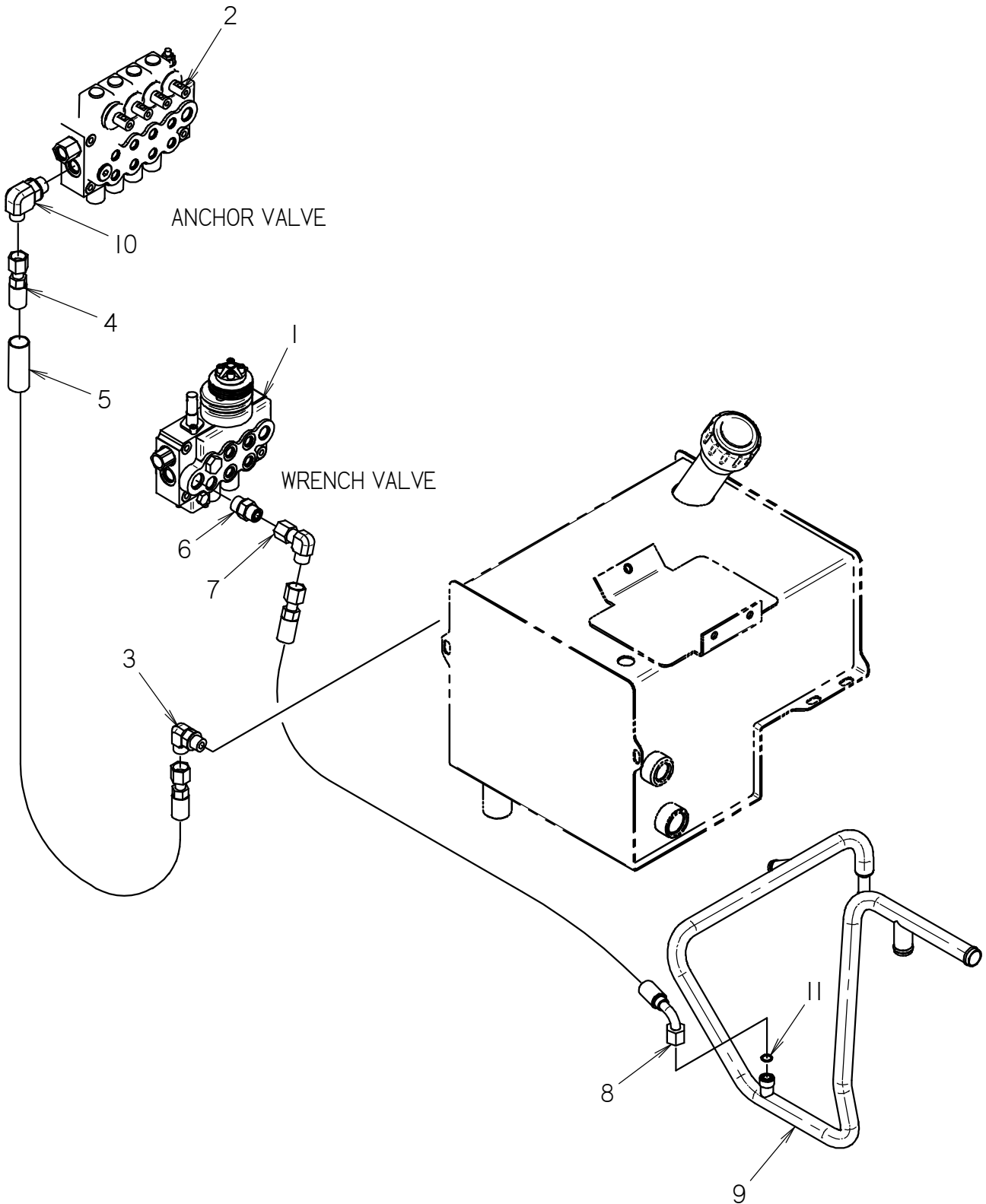
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FOOTNOTES:

NOTE:



# WRENCH/ANCHOR VALVE RETURN



# WRENCH/ANCHOR VALVE RETURN

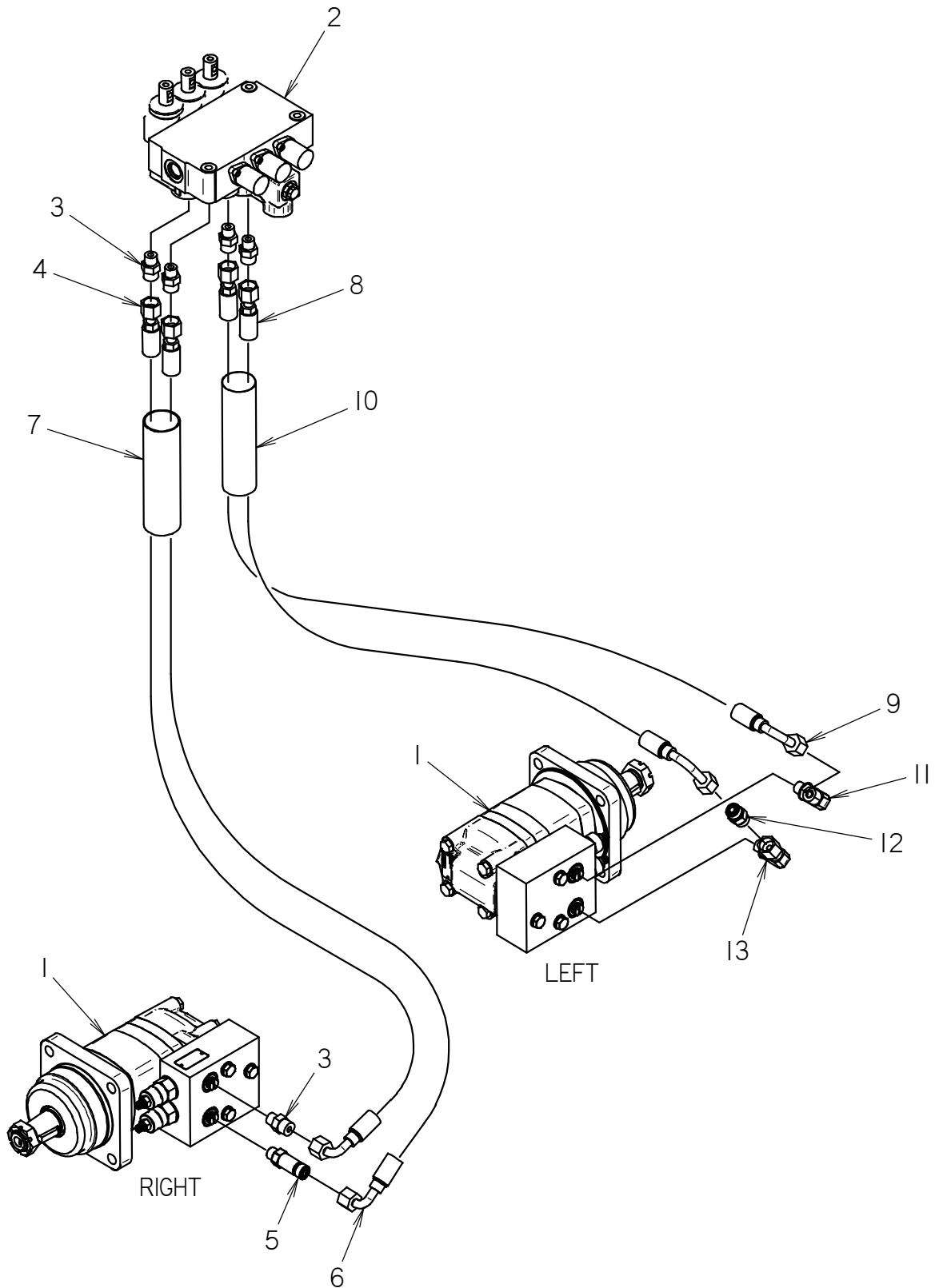
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1	150-3258	1	DIRECTIONAL VALVE, SD5, 3 SPOOL	
2	157-241	1	HYD CONTROL VALVE (4-SPOOL)	
3	154-235	1	CONNECTOR (08S-08090)	
4	154-662	1	HOSE (080FX-98"-3000)	
5	117-213	1	ABRASION SLEEVE (1.00" X 96")	
6	154-279	1	CONNECTOR (080-10S)	
7	154-256	1	UNION (080-080FX90)	
8	150-3122	1	HOSE (080FX90S-45"-3000)	
9	150-3050	1	HYD LINE (1-16)	
10	154-322	1	CONNECTOR (080-10S90)	
11	157-039	1	O-RING (014 D90)	

NOT SHOWN:

FOOTNOTES:

NOTE:

# GROUND DRIVE HYDRAULICS



# GROUND DRIVE HYDRAULICS

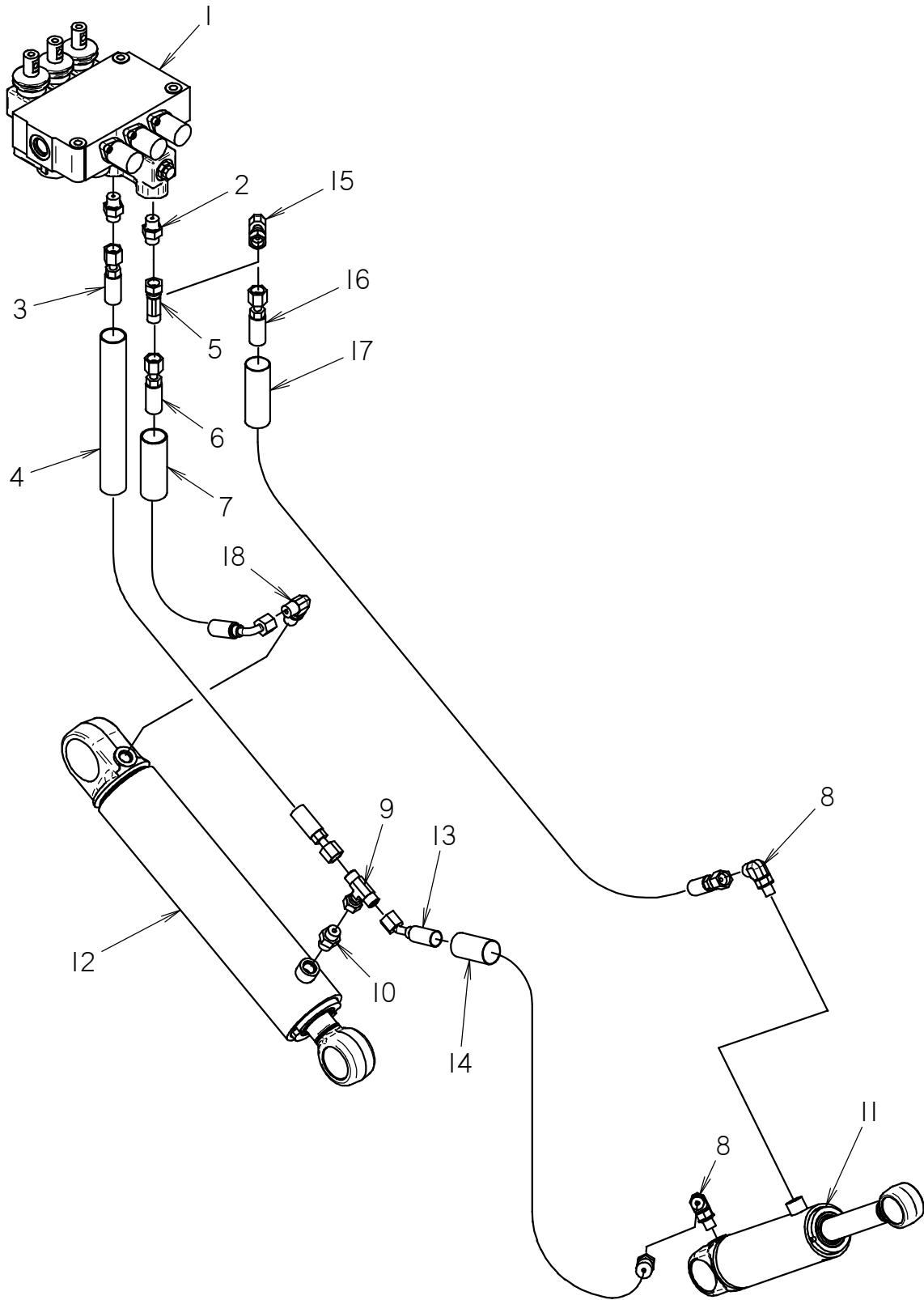
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1	158-965	2	HYD MOTOR W/ COUNTER BALANCE	
2	150-2994	1	HYD CONTROL VALVE	
3	154-221	5	CONNECTOR (06S-060)	
4	150-3118	1	HOSE (060FX90S-68"-3000)	
5	156-174	1	CONNECTOR (06S-060 LG)	
6	150-3118	1	HOSE (060FX90S-68"-3000)	
7	115-938	1	ABRASION SLEEVE (1.59" X 66")	
8	150-3120	1	HOSE (060FX90L-55"-3000)	
9	150-3119	1	HOSE (060FX90M-55"-3000)	
10	117-657	1	ABRASION SLEEVE (1.59" X 54")	
11	154-342	1	CONNECTOR (06S-06090)	
12	154-413	1	CONNECTOR (060-060)	
13	154-343	1	UNION (06S-060FX90)	

NOT SHOWN:

FOOTNOTES:

NOTE:

# STABILIZER/TILT HYDRAULICS



# STABILIZER/TILT HYDRAULICS

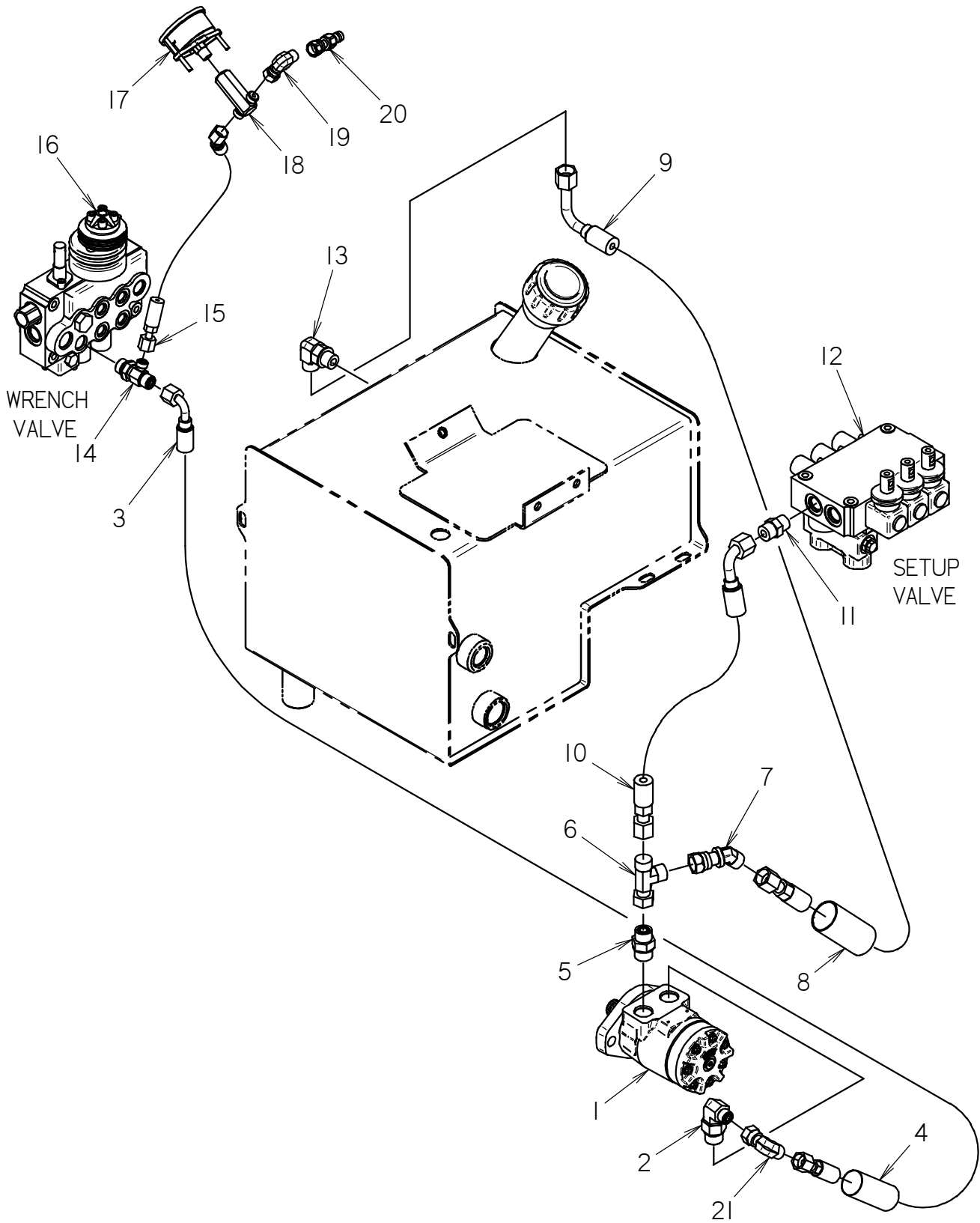
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1	150-2994	1	HYD CONTROL VALVE	
2	514-018	2	CONNECTOR (O40-06S. ORF)	
3	154-669	1	HOSE (O40FX-50"-3000)	
4	117-416	1	ABRASION SLEEVE (1.00" X 50")	
5	154-265	1	UNION RUN TEE (O40FX-040-040)	
6	154-728	1	HOSE (O40FX90S-36"-3000)	
7	117-718	1	ABRASION SLEEVE (1" X 36")	
8	154-252	2	CONNECTOR (O4S-04090)	
9	154-379	1	UN BR TEE (O40FX-040-040)	
10	154-220	1	CONNECTOR (O40-06S)	
11	151-038	1	CYL (2.0 X 1.0 X 4.0)	
12	149-675	1	CYL (2.5 X 1.25 X 10.0)	
13	515-123	1	HOSE (O40FX45-46"-3000)	
14	117-612	1	ABRASION SLEEVE (1.00" X 46")	
15	154-255	1	UNION (O40-040FX90)	
16	515-170	1	HOSE (O40FX-86"-3000)	
17	117-398	1	ABRASION SLEEVE (1.00" X 86")	
18	154-226	1	CONNECTOR (O40-06S90)	

NOT SHOWN:

FOOTNOTES:

NOTE:

# DRILLING FLUID MOTOR HYDRAULICS



# DRILLING FLUID MOTOR HYDRAULICS

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1	158-469	1	GEAR MOTOR (3.0 CU\REV)	
2	154-421	1	CONNECTOR (060-10S90)	
3	154-954	1	HOSE (060FX90S-70"-3000)	
4	117-690	1	ABRASION SLEEVE (1.25" X 58")	
5	154-279	1	CONNECTOR (080-10S)	
6	154-266	1	UNION RUN TEE (080FX-080-080)	
7	150-1789	1	CONNECTOR (080-080FX45)	
8	117-392	1	ABRASION SLEEVE (1.25" X 60")	
9	150-3114	1	HOSE (080FX90L-72"-3000)	
10	515-196	1	HOSE (080FX90S-17"-3000)	
11	154-233	1	CONNECTOR (08S-080)	
12	150-2994	1	HYD CONTROL VALVE	
13	154-235	1	CONNECTOR (08S-08090)	
14	153-422	1	TEE (08S-060-040)	
15	515-072	1	HOSE (040FX45-16"-3000)	
16	150-3258	1	DIRECTIONAL VALVE, SD5, 3 SPOOL	
17	217-577	1	3000 PSI PRESSURE GAUGE	
18	156-974	1	BRANCH TEE (040-040-04N)	
19	154-255	1	UNION (040-040FX90)	
20	159-156	1	QDC ADAPTER (02-040F)	
21	154-228	1	UNION (060-060FX90)	

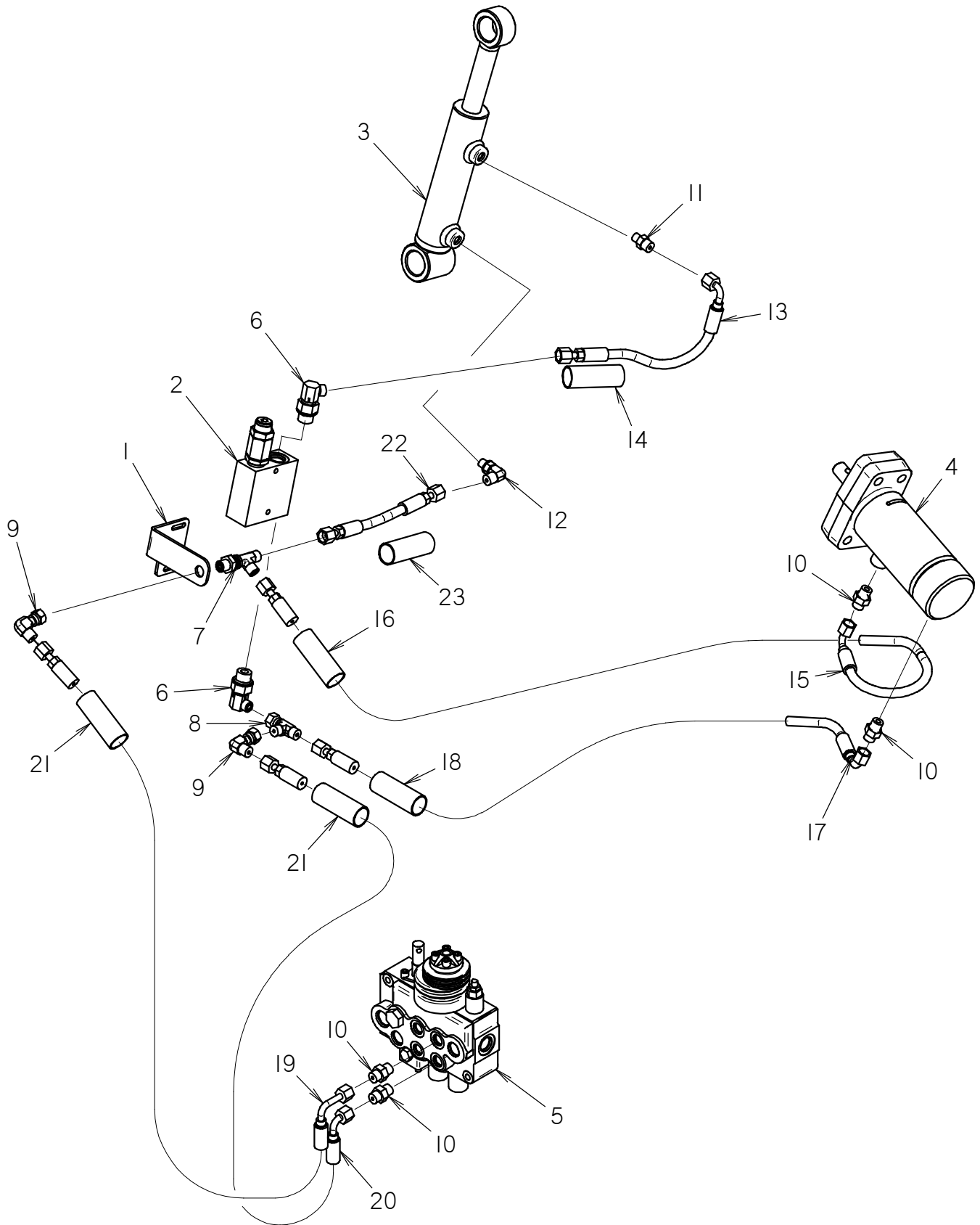
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FOOTNOTES:

NOTE:



# ROTATING WRENCH HYDRAULICS



# ROTATING WRENCH HYDRAULICS

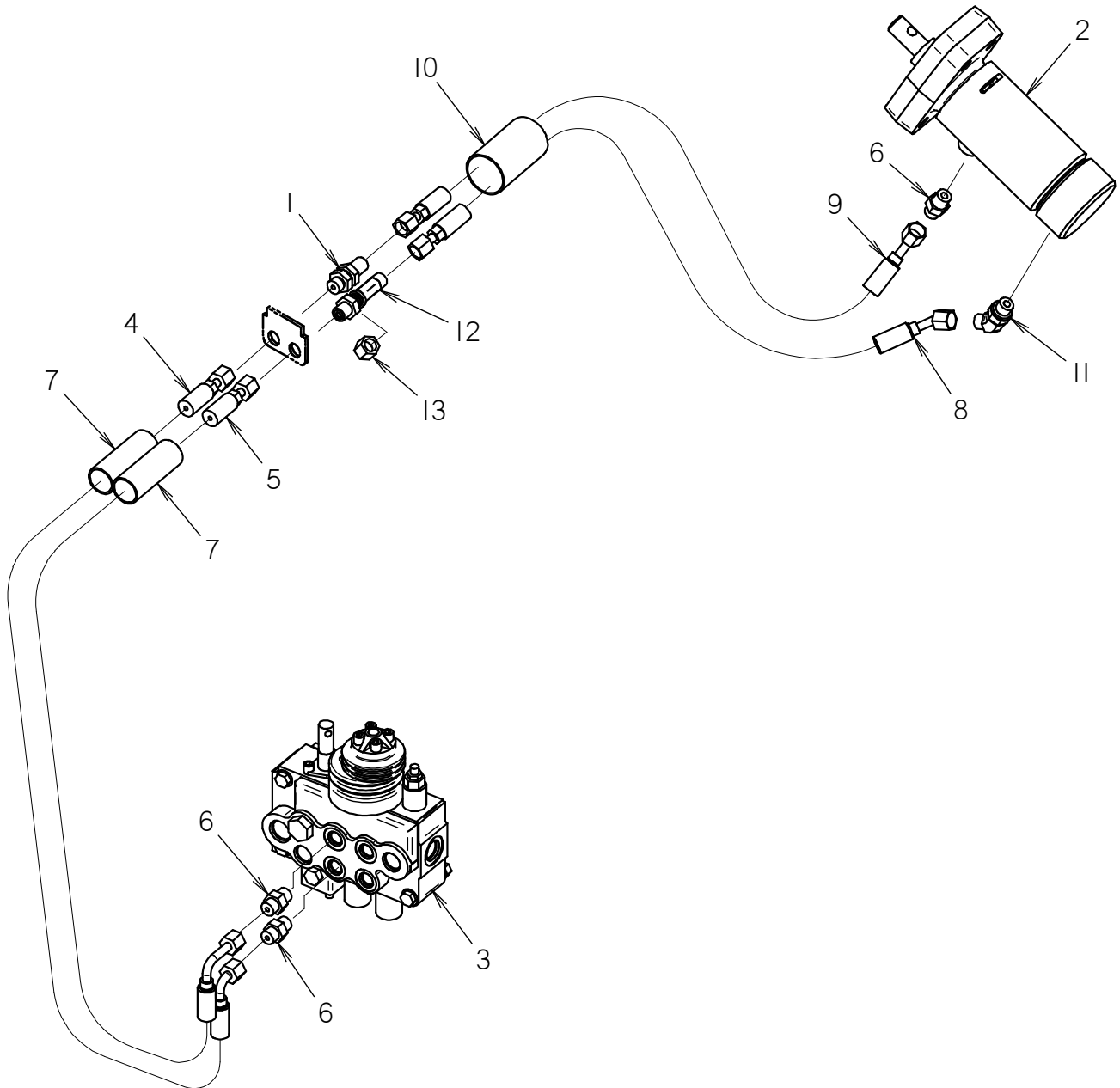
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1	300-8168	1	BULKHEAD BRACKET	
2	157-249	1	SEQUENCE VALVE	
3	150-2975	1	CYLINDER (1.5 X 1.0 X 4.0)	
4	150-2784	1	CYL (2.5 X 1.25 X 2.0)	
5	150-3258	1	DIRECTIONAL VALVE, SD5, 3 SPOOL	
6	154-276	2	CONNECTOR (040-08S90)	
7	154-424	1	BK RUN TEE (040-040-040BK)	
8	154-265	1	UNION RUN TEE (040FX-040-040)	
9	154-255	2	UNION (040-040FX90)	
10	154-220	4	CONNECTOR (040-06S)	
11	154-278	1	CONNECTOR (04S-040)	
12	154-252	1	CONNECTOR (04S-04090)	
13	515-598	1	HOSE (040FX90-12"-3000)	
14	117-671	1	ABRASION SLEEVE (1" X 12")	
15	153-365	1	HOSE (040FX90S-34"-3000)	
16	117-412	1	ABRASION SLEEVE (1" X 34")	
17	154-802	1	HOSE (040FX90S-26"-3000)	
18	117-684	1	ABRASION SLEEVE (1.00" X 26")	
19	158-993	1	HOSE (040FX90L-50"-3000)	
20	515-439	1	HOSE (040FX90S-50"-3000)	
21	117-416	2	ABRASION SLEEVE (1.00" X 50")	
22	150-3064	1	HOSE (040FX-9"-3000)	
23	105-1379	1	ABRASION SLEEVE (1" X 9")	

NOT SHOWN:

FOOTNOTES:

NOTE:

# STATIONARY WRENCH HYDRAULICS



# STATIONARY WRENCH HYDRAULICS

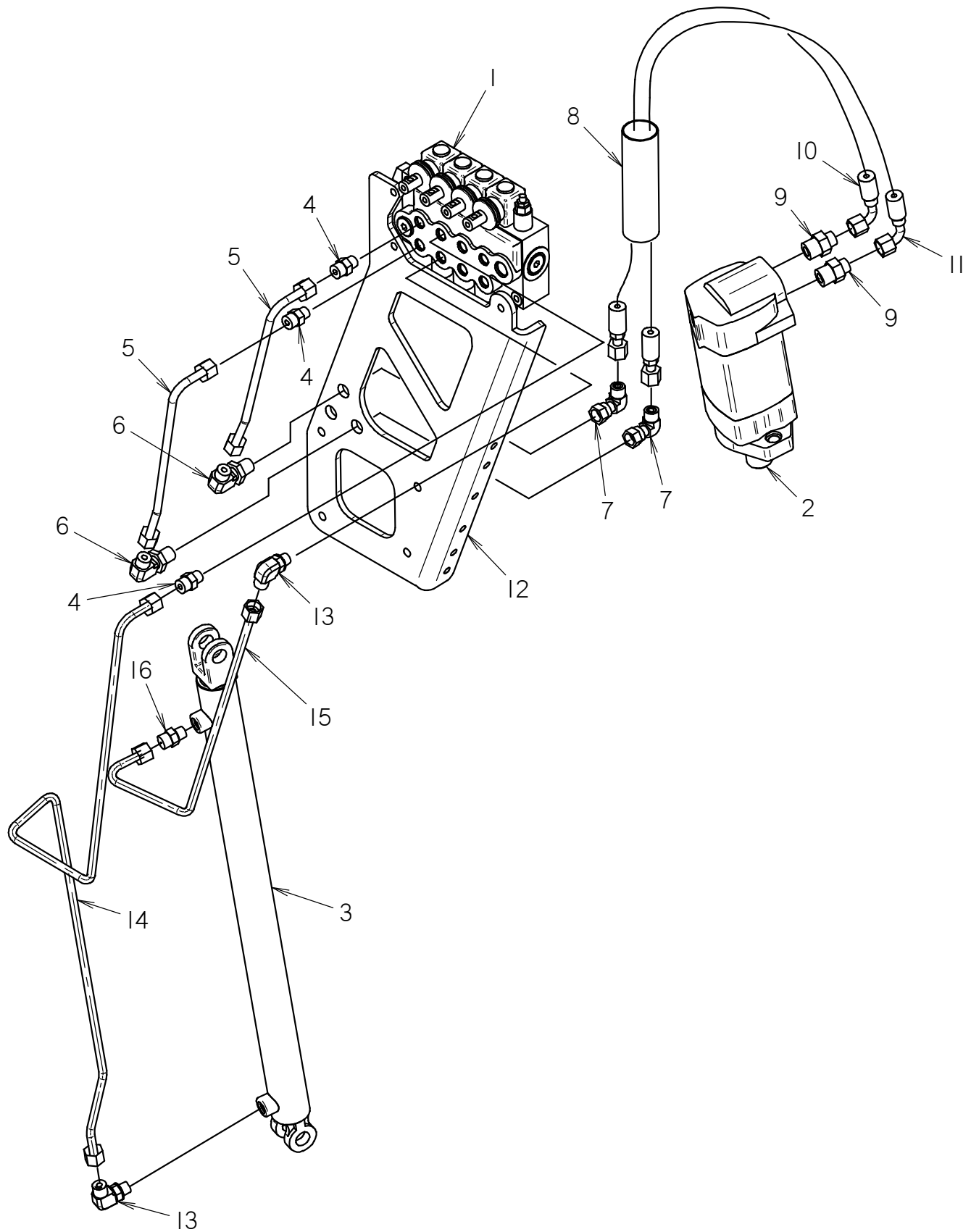
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1	154-275	1	BK CONNECTOR (040-040BK)	
2	150-2784	1	CYL (2.5 X 1.25 X 2.0)	
3	150-3258	1	DIRECTIONAL VALVE, SD5, 3 SPOOL	
4	515-093	1	HOSE (040FX90S-42"-3000)	
5	153-298	1	HOSE (040FX90L-42"-3000)	
6	154-220	3	CONNECTOR (040-06S)	
7	117-717	2	ABRASION SLEEVE (1.00" X 40")	
8	154-934	1	HOSE (040FX45-18"-3000)	
9	154-934	1	HOSE (040FX45-18"-3000)	
10	117-706	1	ABRASION SLEEVE (1.59" X 17")	
11	154-250	1	CONNECTOR (040-06S45)	
12	154-424	1	BK RUN TEE (040-040-040BK)	
13	154-296	1	CAP (040F)	

NOT SHOWN:

FOOTNOTES:

NOTE:

## LEFT ANCHOR HYDRAULICS



# LEFT ANCHOR HYDRAULICS

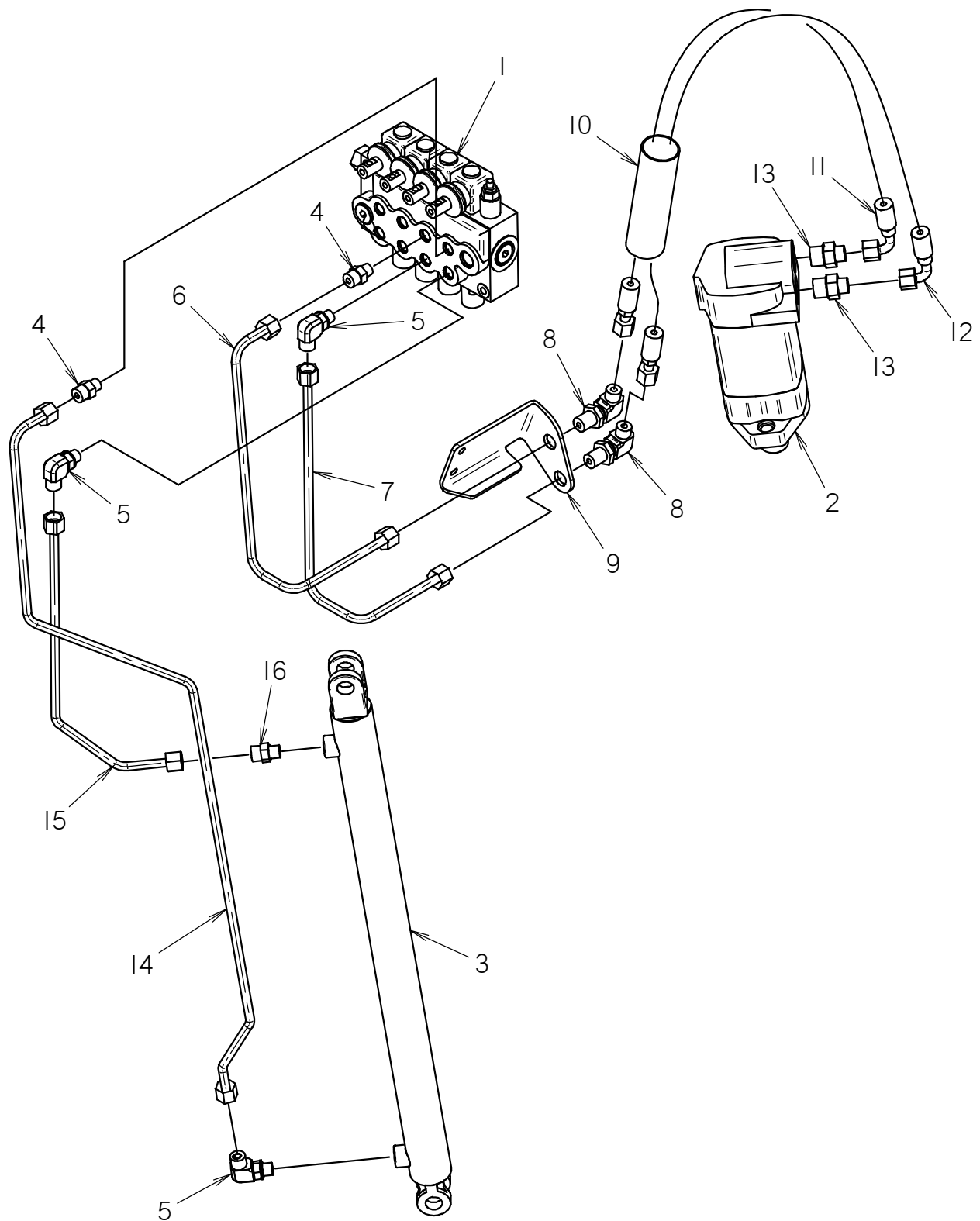
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1	157-241	1	HYD CONTROL VALVE (4-SPOOL)	
2	158-700	1	HYD MOTOR	
3	151-214	1	HYD CYL	
4	154-221	3	CONNECTOR (06S-060)	
5	150-2333	2	HYD LINE (-06)	
6	154-229	2	BK CONNECTOR (060-06090BK)	
7	154-228	2	UNION (060-060FX90)	
8	117-679	1	ABRASION SLEEVE (1.59" X 32")	
9	154-369	2	CONNECTOR (060-10S)	
10	157-822	1	HOSE (060FX90-32"-3000)	
11	515-707	1	HOSE (060FX90-32"-3000)	
12	300-8122	1	MOUNT PLATE	
13	154-342	2	CONNECTOR (06S-06090)	
14	150-3081	1	HYD LINE (-06)	
15	150-3080	1	HYD LINE (-06)	
16	510-015	1	ADAPTER (06S-060, ORF)	

NOT SHOWN:

FOOTNOTES:

NOTE:

## RIGHT ANCHOR HYDRAULICS



# RIGHT ANCHOR HYDRAULICS

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1	157-241	1	HYD CONTROL VALVE (4-SPOOL)	
2	158-700	1	HYD MOTOR	
3	151-214	1	HYD CYL	
4	154-221	2	CONNECTOR (06S-060)	
5	154-342	3	CONNECTOR (06S-06090)	
6	150-3085	1	HYD LINE (-06)	
7	150-3083	1	HYD LINE (-06)	
8	154-229	2	BK CONNECTOR (060-06090BK)	
9	300-9721	1	BULKHEAD BRACKET	
10	117-679	1	ABRASION SLEEVE (1.59" X 32")	
11	157-822	1	HOSE (060FX90-30"-3000)	
12	515-707	1	HOSE (060FX90-32"-3000)	
13	154-369	2	CONNECTOR (060-10S)	
14	150-3086	1	HYD LINE (-06)	
15	150-3084	1	HYD LINE (-06)	
16	510-015	1	ADAPTER (06S-060, ORF)	

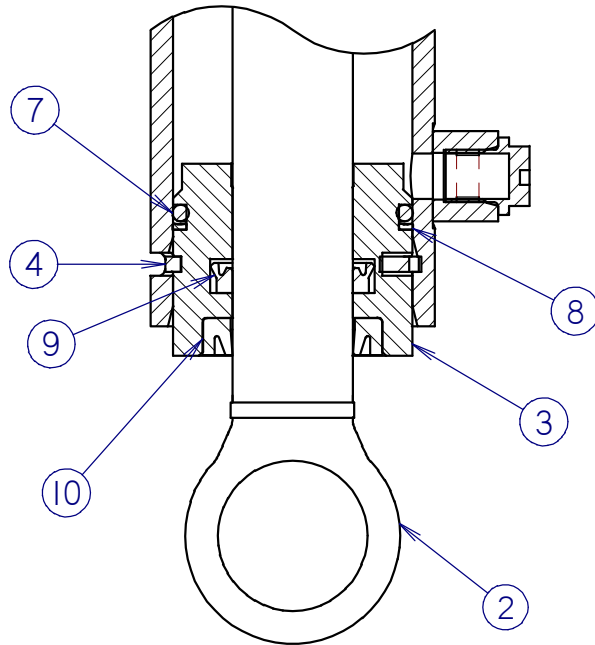
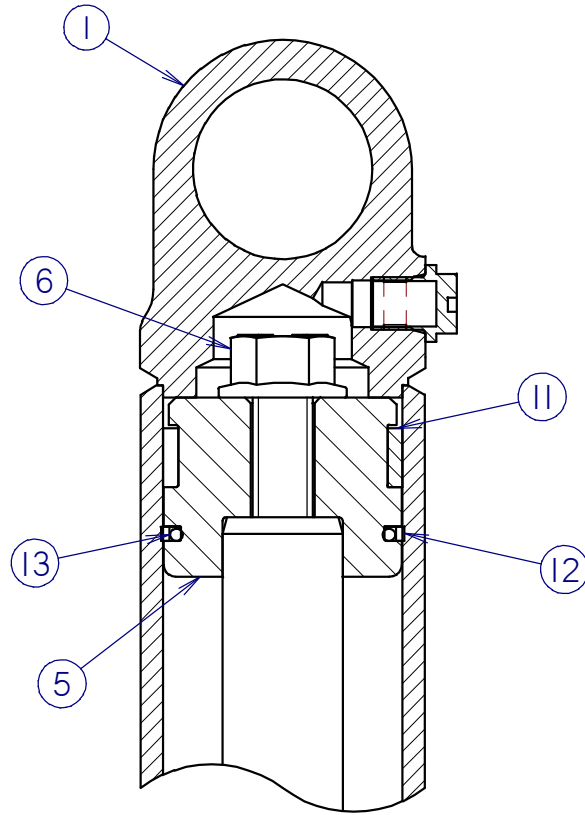
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FOOTNOTES:

NOTE:



# HYDRAULIC CYLINDERS (2.0" X 1.0")



## HYDRAULIC CYLINDERS (2.0" X 1.0")

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	151-094	-	CYL (2.0 X 1.0 X 2.0)	SEE FOOTNOTES 1 & 2
1	152-029	1	CYLINDER BARREL (2.0 X 2.0)	
2	153-007	1	CYLINDER ROD (1.00 X 2.0)	
	149-667	-	CYL (2.0 X 1.0 X 2.5)	SEE FOOTNOTES 1 & 2
1	149-761	1	CYLINDER BARREL (2.0 X 2.5)	
2	149-728	1	CYLINDER ROD (1.00 X 2.5)	
	151-027	-	CYL (2.0 X 1.0 X 3.0)	SEE FOOTNOTES 1 & 2
1	150-282	1	CYLINDER BARREL (2.0 X 3.0)	
2	150-414	1	CYLINDER ROD (1.00 X 3.0)	
	151-038	-	CYL (2.0 X 1.0 X 4.0)	SEE FOOTNOTES 1 & 2
1	150-290	1	CYLINDER BARREL (2.0 X 4.0)	
2	150-421	1	CYLINDER ROD (1.00 X 4.0)	
	151-039	-	CYL (2.0 X 1.0 X 5.0)	SEE FOOTNOTES 1 & 2
1	150-291	1	CYLINDER BARREL (2.0 X 5.0)	
2	150-422	1	CYLINDER ROD (1.00 X 5.0)	
	151-044	-	CYL (2.0 X 1.0 X 6.0)	SEE FOOTNOTES 1 & 2
1	150-294	1	CYLINDER BARREL (2.0 X 6.0)	
2	150-424	1	CYLINDER ROD (1.00 X 6.0)	
	151-031	-	CYL (2.0 X 1.0 X 8.0)	SEE FOOTNOTES 1 & 2
1	150-285	1	CYLINDER BARREL (2.0 X 8.0)	
2	150-417	1	CYLINDER ROD (1.00 X 8.0)	
	151-076	-	CYL (2.0 X 1.0 X 10.0)	SEE FOOTNOTES 1 & 2
1	152-017	1	CYLINDER BARREL (2.0 X 10.0)	
2	150-444	1	CYLINDER ROD (1.00 X 10.0)	
	149-668	-	CYL (2.0 X 1.0 X 12.0)	SEE FOOTNOTES 1 & 2
1	150-286	1	CYLINDER BARREL (2.0 X 12.0)	
2	149-729	1	CYLINDER ROD (1.00 X 12.0)	
3	150-772	1	CYLINDER HEAD (2.0 X 1.00)	
4	150-778	1	LOCK RING (2.0)	
5	150-775	1	CYLINDER PISTON (2.0 X 1.00)	
6	106-096	1	FLG BOLT (1/2-NC X 1-3/4"GD8)	SEE FOOTNOTE 3
7	157-022	1	O-RING (224 D90)	
8	155-732	1	BACKUP RING (224 D90)	
9	157-540	1	U-SEAL (1.000")	
10	157-537	1	WIPER SEAL (1.000")	
11	125-774	1	WEAR RING	
12	157-534	1	BACKUP RING (131 D90)	
13	157-018	1	O-RING (131 D90)	

**NOT SHOWN:**

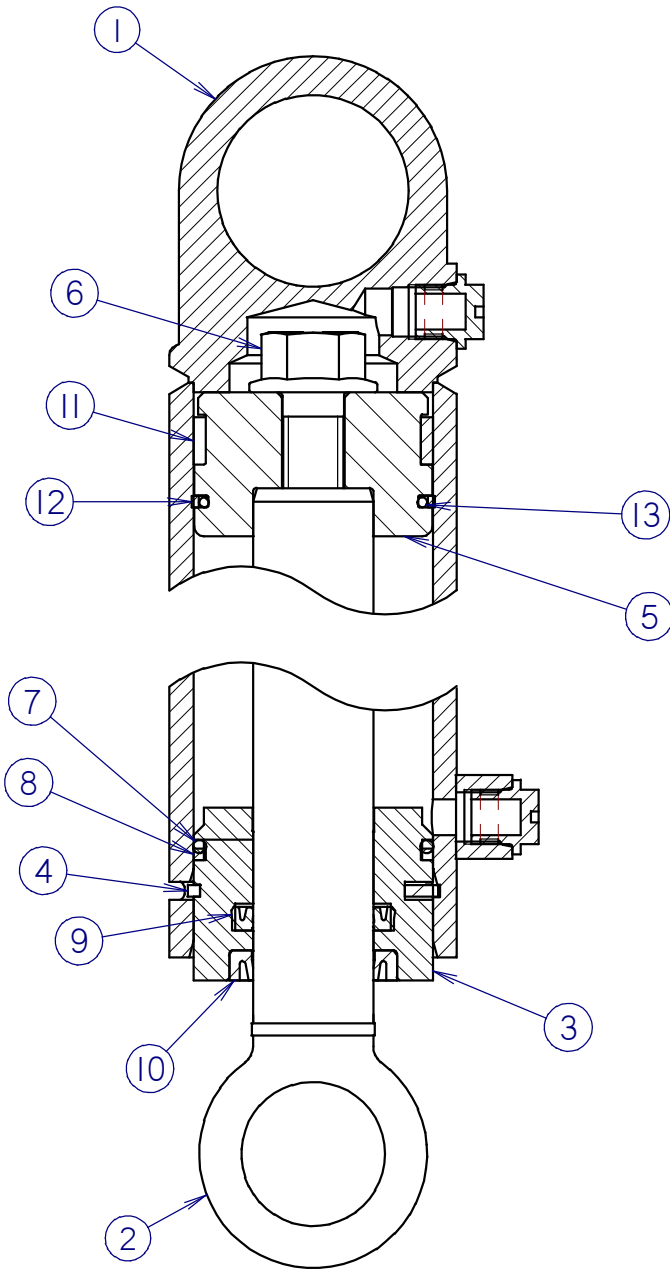
259-100	U-SEAL INSTALLER (1" - 1.499")
259-235	1.00 ROD WIPER TOOL
259-239	WIPER/SEAL INSTALLER (2")
259-241	PISTON INSTALLER (2")
259-188	CYL HEAD SPANNER - TWO PIN

**FOOTNOTES:**

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

**NOTE:**

# HYDRAULIC CYLINDERS (2.5" X 1.25")



## HYDRAULIC CYLINDERS (2.5" X 1.25")

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

**NOT SHOWN:**

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

**FOOTNOTES:**

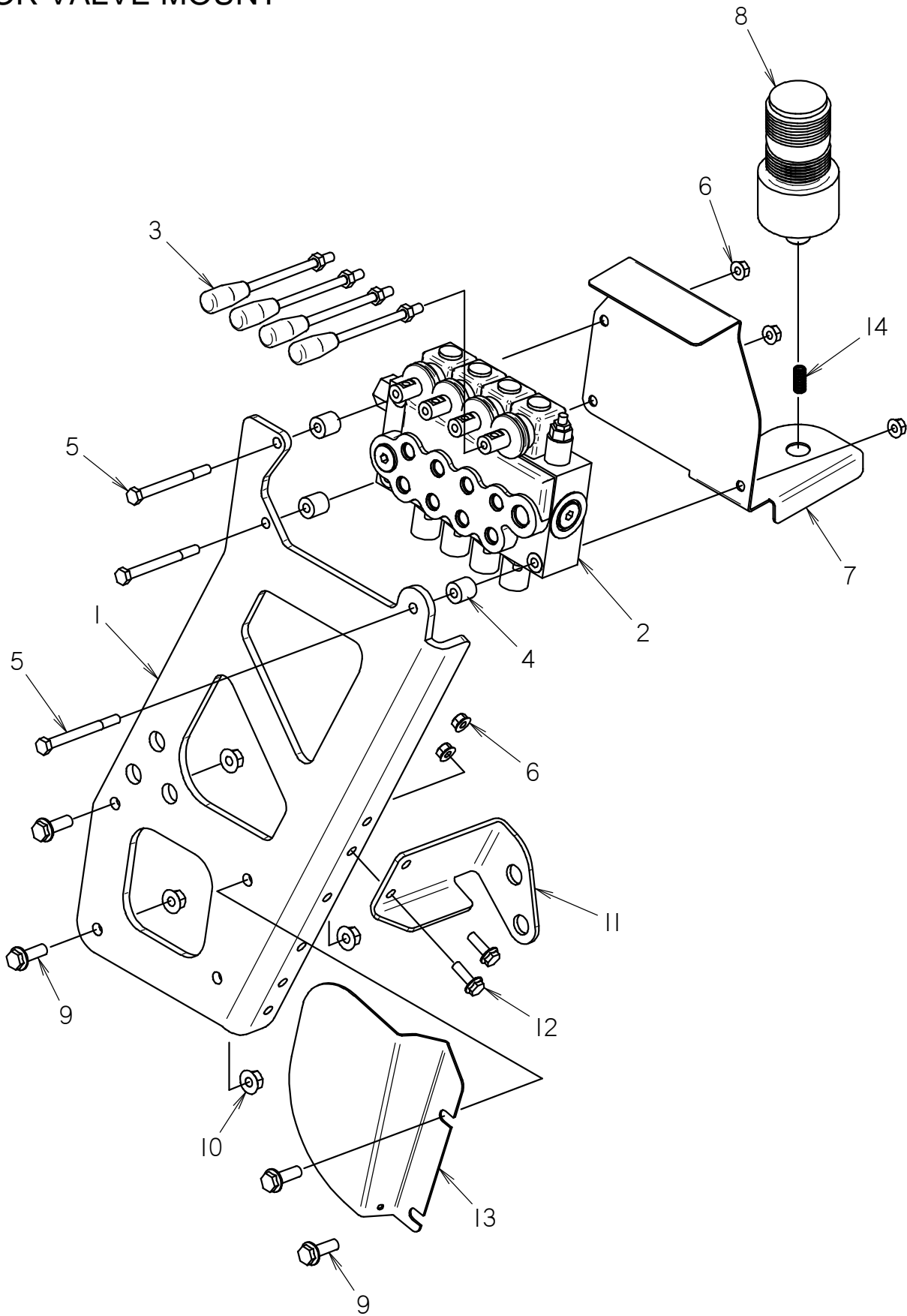
- REF. #1 & #2 ARE SPECIFIC TO EACH CYLINDER, REF #3 THRU #13 ARE COMMON FOR ALL THE ABOVE LISTED CYLINDERS.
- SEAL REPAIR KIT P/N: 190-166
- APPLY LOCTITE 277 OR EQUIVALENT, TORQUE TO 180-200 FT-LBS

**NOTE:**



# **ANCHOR SYSTEMS**

# ANCHOR VALVE MOUNT



# ANCHOR VALVE MOUNT

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1	300-8122	1	MOUNT PLATE	
2	157-241	1	HYD CONTROL VALVE (4-SPOOL)	
3	500-908	4	LEVER (M8-1.25, BLACK)	
4	179-501	3	SPACER	
5	107-078	3	SCREW (M8-1.25 X 90MM)	
6	106-386	5	FLG LOCKNUT (M8-1.25)	
7	319-330	1	LIGHT MOUNT	
8	217-297	1	STROBE LIGHT (GREEN)	
9	106-383	4	FLG LK SCREW (M10-1.50 X 30MM)	
10	106-387	4	FLG LOCKNUT (M10-1.50)	
11	300-9721	1	BULKHEAD BRACKET	
12	106-381	2	FLG LK SCREW (M8-1.25 X 25MM)	
13	301-1686	1	SHIELD	
14	216-026	15	FLEX-GUARD (2.5")	

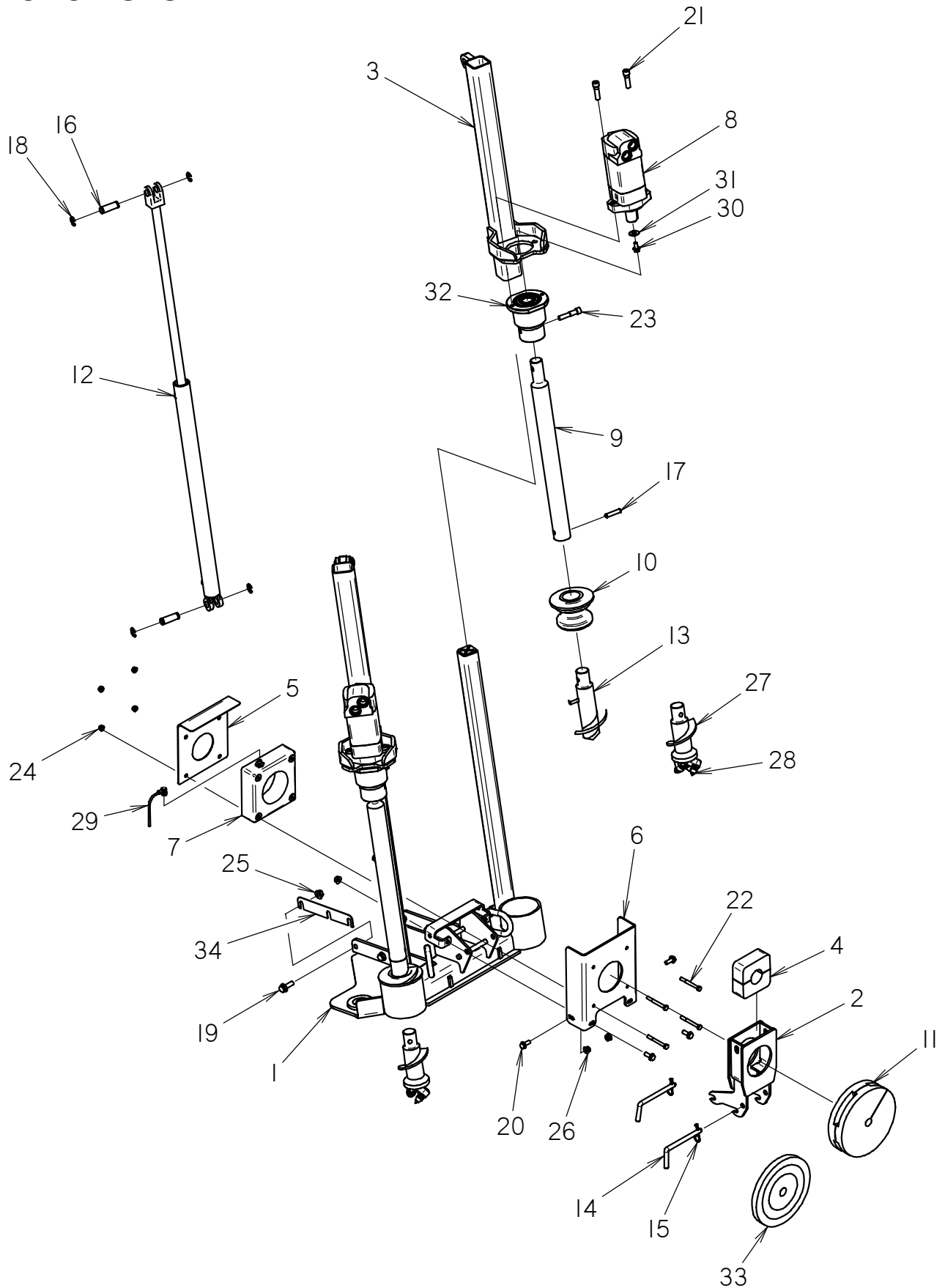
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FOOTNOTES:

NOTE:



# ANCHOR SYSTEM



# ANCHOR SYSTEM

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1	300-8683	1	ANCHOR WELDMENT	
2	300-3930	1	PIPE GUIDE MOUNT	
3	316-767	2	UPPER TUBE	
4	362-1344	2	PIPE GUIDE	
5	309-758	1	COVER	
6	300-8685	1	COVER	
7	211-083	1	CURRENT TRANSFORMER	
8	158-700	2	HYD MOTOR	
9	166-617	2	SHAFT	
10	158-238	2	CENTERING CAP	
11	362-1419	1	SPLIT ROD WIPER (1.00")	
12	151-214	2	HYD CYL	
13	327-460	2	AUGER (4")	
14	107-870	2	PULL PIN (1.5 X 5")	
15	110-033	2	HAIR CLIP PIN (1/8" X 1/2")	
16	179-736	4	PIN	
17	107-331	2	ROLL PIN (M12 X 50MM)	
18	115-503	8	KLIP RING (.750")	
19	106-632	6	FLG LK SCR (M12-1.75X35MM,SERI)	
20	106-724	4	FLG SCREW (M10-1.50 X 25MM)	
21	106-707	4	SCREW (M12-1.75 X 45MM, SOC)	
22	105-292	4	SCREW (M8-1.25 X 75MM)	
23	106-771	2	SCREW (M12-1.75 X 60MM, SOC)	
24	106-386	4	FLG LOCKNUT (M8-1.25)	
25	106-709	6	FLG LK NUT (M12-1.75)	
26	106-266	4	FLG NUT (M10-1.50)	
27	327-457	2	ROCK ANCHOR	
28	131-259	6	INSERT BIT - CARBIDE TIPPED	
29	214-554	1	CURRENT COIL CABLE	
30	105-825	2	FLG LK BOLT (3/8-NC X 3/4)	
31	105-794	2	WASHER (M12)	
32	350-2174	2	ANCHOR DRIVE COUPLER	
33	116-515	1	ROD WIPER	
34	301-2295	1	SHIM	AS REQUIRED

NOT SHOWN:

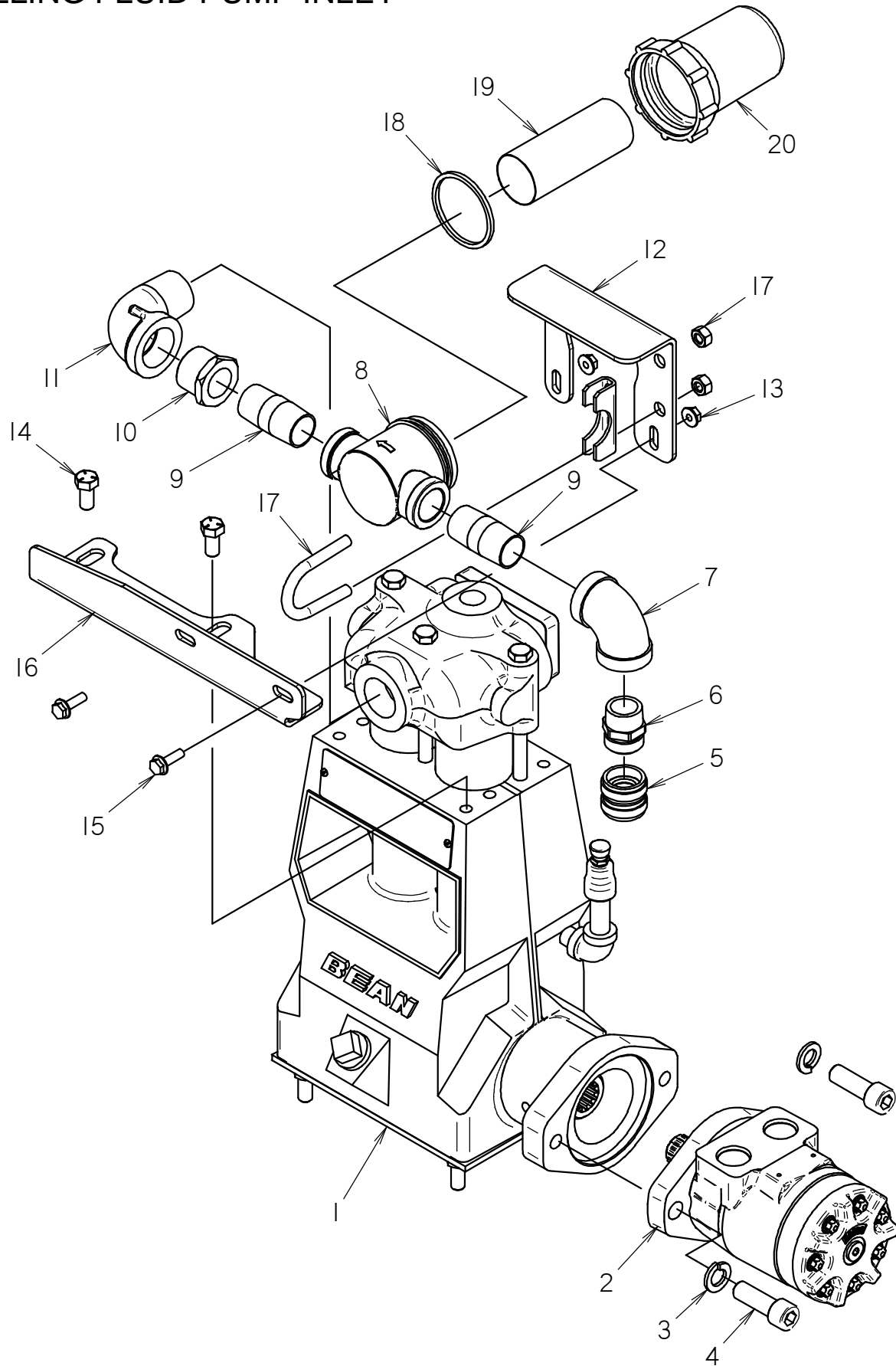
FOOTNOTES:

NOTE:



# **FLUID SYSTEMS**

# DRILLING FLUID PUMP INLET



# DRILLING FLUID PUMP INLET

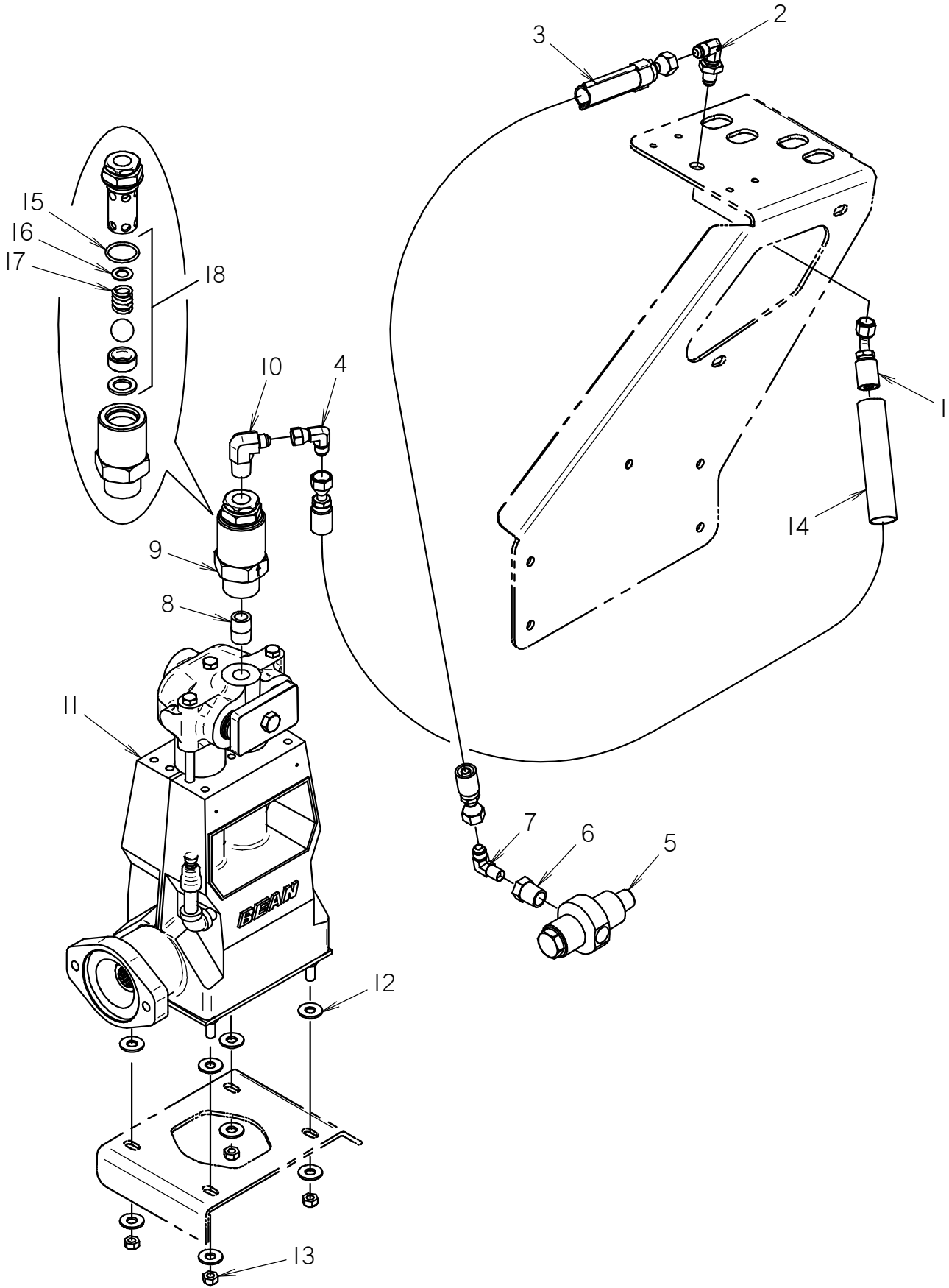
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1	158-057	1	DRILLING FLUID PUMP	
2	158-469	1	GEAR MOTOR (3.0 CU/REV)	
3	105-070	2	LOCK WASHER (1/2")	
4	106-204	2	BOLT (1/2 - NC X 1.50", SOC)	
5	156-968	1	CONNECTOR (12GF-12GF)	
6	115-449	1	REDUCER (12N-12G, BRASS)	
7	114-013	1	ELBOW (12NF90)	
8	153-133	1	STRAINER (12NF)	INCLUDES REFERENCE NUMBERS 18-20
9	115-121	2	NIPPLE (12N-2")	
10	115-151	1	REDUCER (16N-12NF)	
11	115-440	1	STREET ELBOW (16N-16NF90)	
12	301-1687	1	UPPER FILTER BRACKET	
13	106-385	2	FLG LOCKNUT (M6-1.00)	
14	105-032	2	BOLT (3/8-NC X 3/4")	
15	106-161	2	FLG SCREW (M6-1.00 X 20MM)	
16	300-8686	1	LOWER FILTER BRACKET	
17	118-345	1	MUFFLER CLAMP (1-1/8")	
18	153-676	1	FILTER GASKET	
19	153-198	1	SCREEN (20 MESH)	
20	153-677	1	FILTER BOWL	

NOT SHOWN:

FOOTNOTES:

NOTE:

# DRILLING FLUID PUMP OUTLET



# DRILLING FLUID PUMP OUTLET

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1	150-3115	1	HOSE (06JFX45-92"-2250)	
2	154-024	1	BK CONNECTOR (06J90)	
3	150-3116	1	HOSE (06JFX-71"-2250-WS)	
4	154-044	1	UNION (06J-06JFX90)	
5	150-2678	1	WATER SWIVEL (1-08N)	
6	514-085	1	REDUCER (08N-06NF)	
7	154-056	1	CONNECTOR (06N-06J90)	
8	115-148	1	ALL THREAD (08N)	
9	149-324	1	FLOW CHECK (08NF-08NF/64PSI)	
10	150-2332	1	CONNECTOR (08N-06J90)	
11	158-057	1	DRILLING FLUID PUMP	
12	107-368	8	WASHER (3/8" HARDENED)	
13	105-047	4	LOCKNUT (3/8-NC)	
14	105-1051	1	ABRASION SLEEVE (1.00 X 92")	
15	155-748	1	O-RING (916 D90)	
16	110-096	1	MACHINERY BUSHING (1/2")	NOT REQUIRED WITH INITIAL 190-963 REPAIR KIT INSTALLATION
17	159-326	1	COMPRESSION SPRING	
18	190-963	-	REPAIR KIT	INCLUDES REF NO'S 15,16 & 17

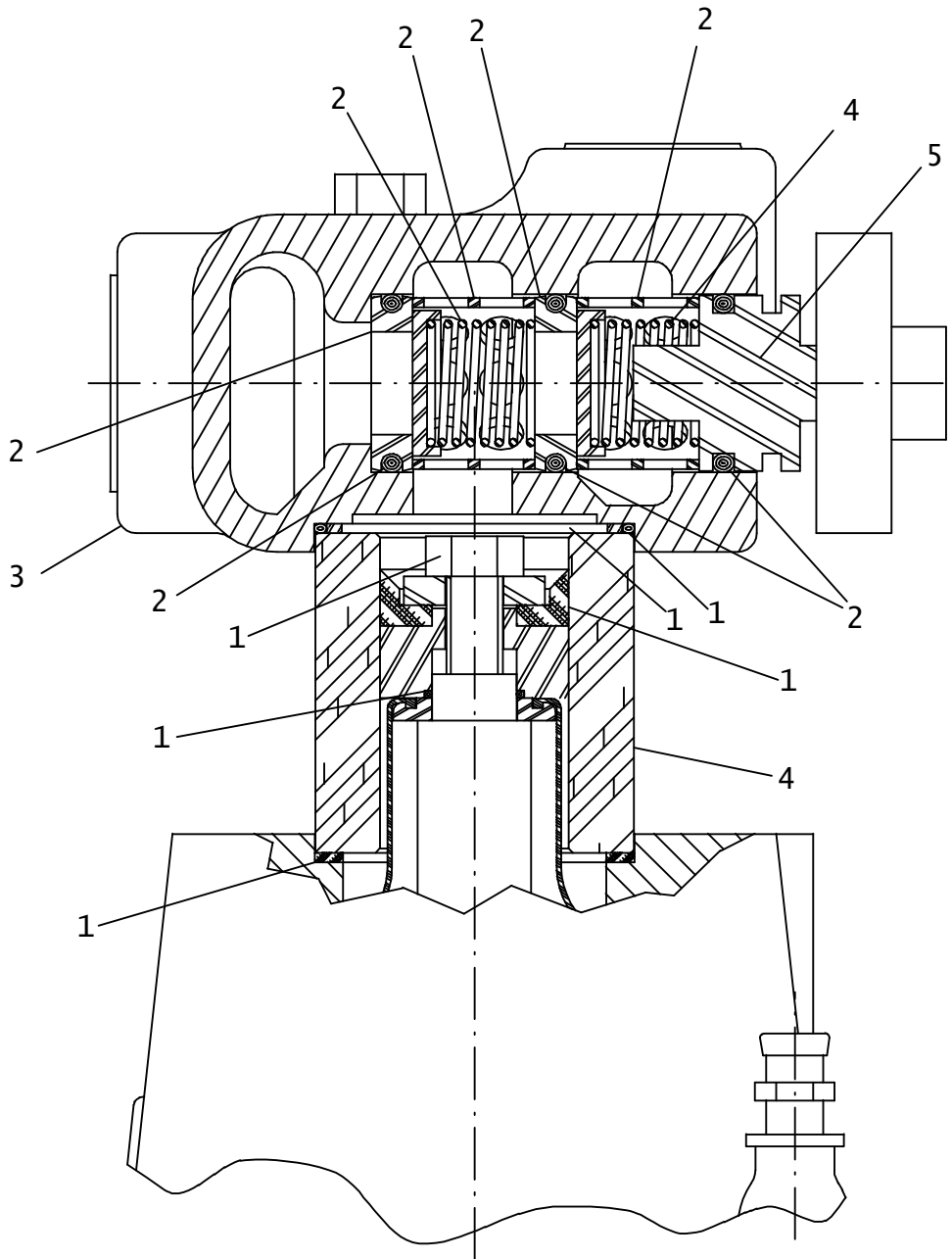
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FOOTNOTES:

NOTE:



# DRILLING FLUID PUMP



# DRILLING FLUID PUMP

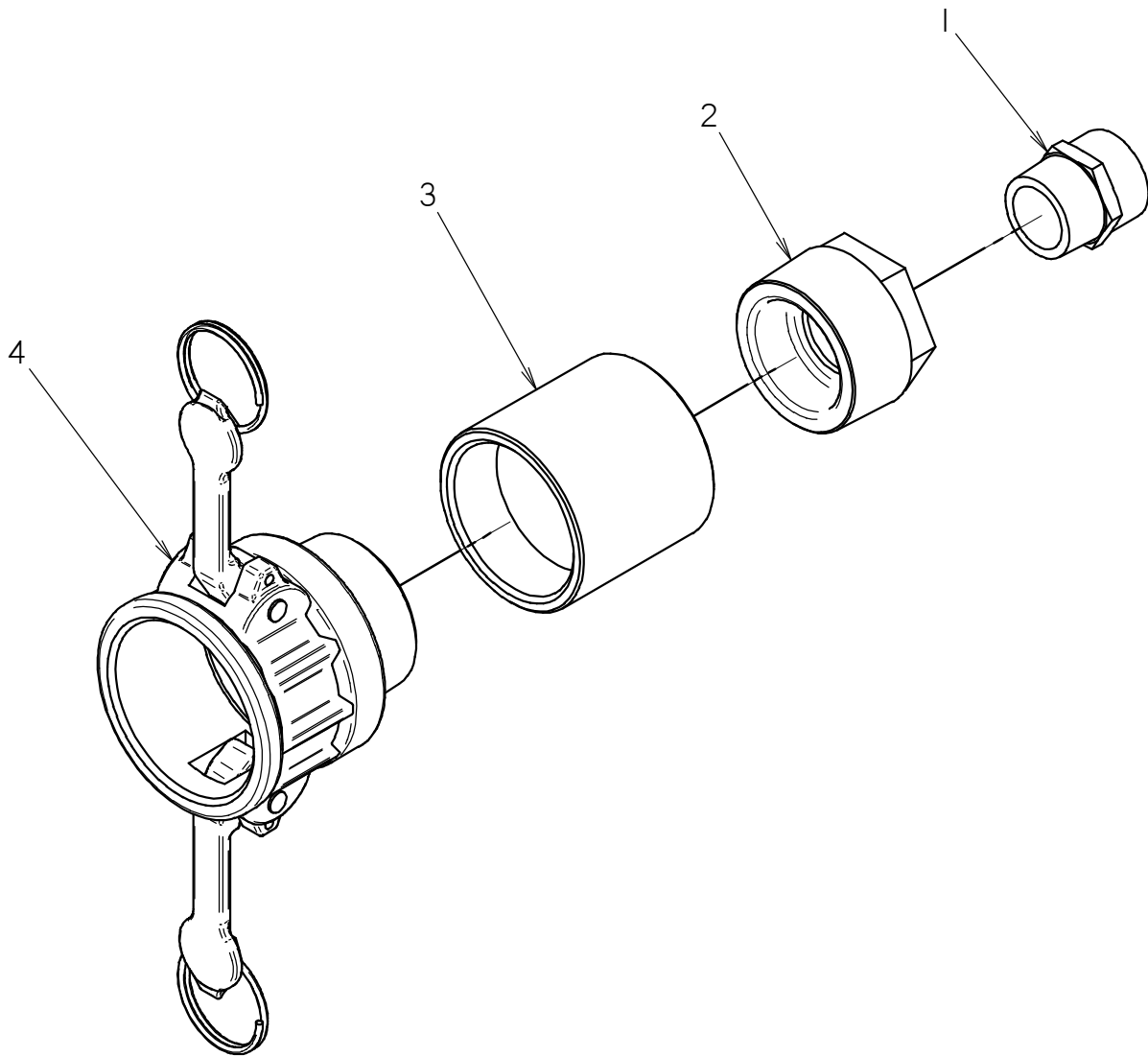
REF PART NO. NUMBER	QTY	DESCRIPTION	REMARKS
158-057	1	DRILLING FLUID PUMP	
197-087	-	REBUILT 158-057 FLUID PUMP	
1. 190-933	-	PACKING REPAIR KIT	
2. 190-815	-	VALVE REPAIR KIT	
3. 499-015	1	VALVE CHAMBER/FLUID CYLINDER	
4. 500-903	2	CLINDER, CERAMIC	
5. 499-086	2	VALVE COVER	

NOT SHOWN:

FOOTNOTES:

NOTE:

# GARDEN HOSE ADAPTER



# GARDEN HOSE ADAPTER

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	159-891		GARDEN HOSE ADAPTER	INCL. REF No's 1 - 4
1	114-038	1	NIPPLE (12N-12NH)	
2	115-271	1	REDUCER (24N-12NF)	
3	115-134	1	COLLAR (24NF)	
4	159-500	1	FHC BODY (24-24N)	

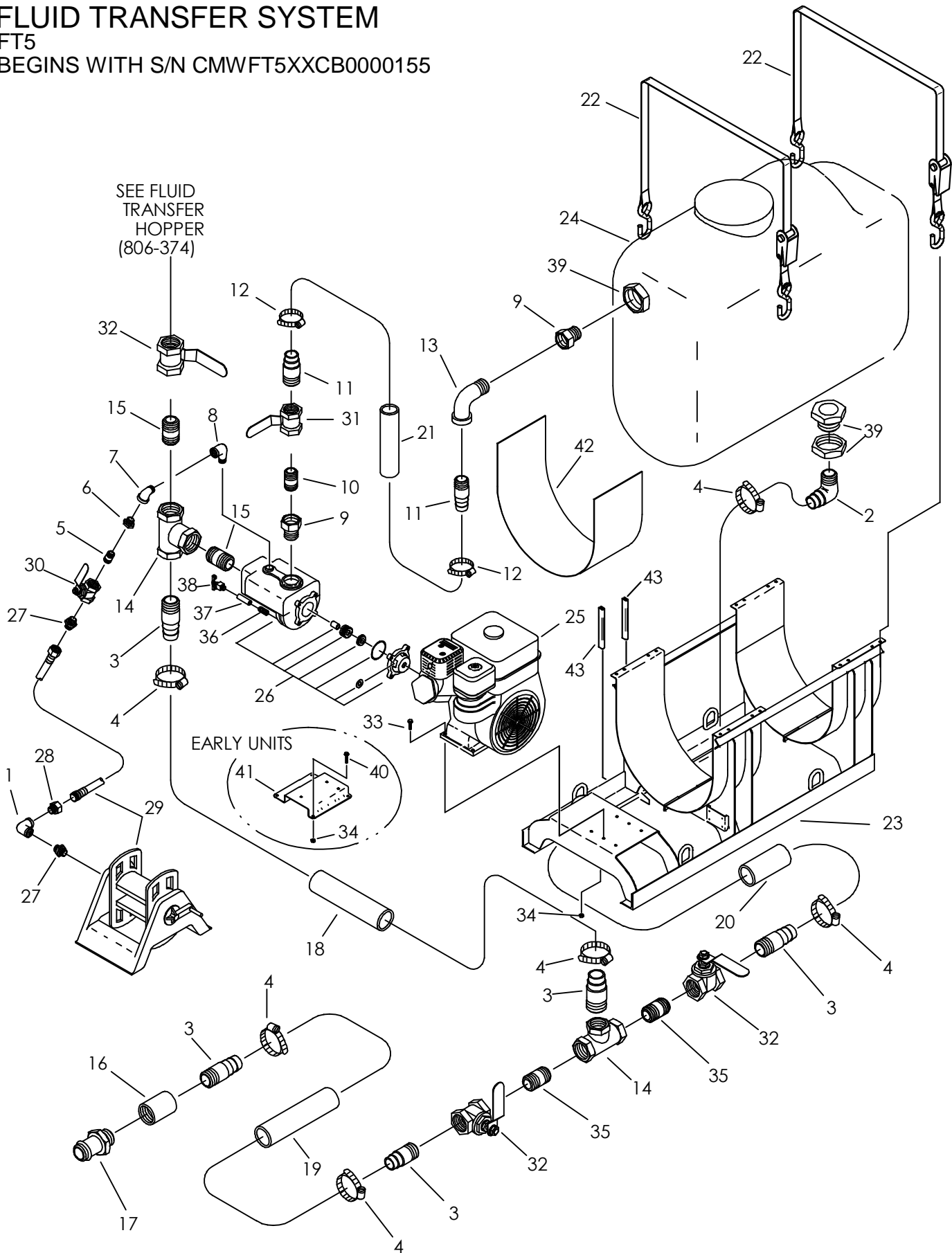
NOT SHOWN:

FOOTNOTES:

NOTE:

# FLUID TRANSFER SYSTEM

FT5  
BEGINS WITH S/N CMWFT5XXCB0000155



# FLUID TRANSFER SYSTEM

## FT5

### BEGINS WITH S/N CMWFT5XXCB0000155

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	115-108	1	ELBOW (12NF-12NF90)	NOT INCLUDED WITH SYSTEM
2.	514-320	1	S/O COUPLER (32N-32H90)	
3.	514-089	5	S/O COUPLER (32N-32H)	
4.	110-134	6	WORM CLAMP (2.062" TO 2.750")	
5.	115-104	1	NIPPLE (12N X 1-1/2")	
6.	115-151	1	REDUCER (16N-12NF)	
7.	114-007	1	STREET ELBOW (16N-16NF45)	
8.	115-440	1	STREET ELBOW (16N-16NF90)	
9.	115-087	2	REDUCER (32N-24NF)	
10.	115-040	1	NIPPLE (24N-3")	
11.	155-188	2	S/O COUPLER (24N-24H)	
12.	110-250	2	WORM CLAMP (1-1/4" TO 2-1/8")	
13.	115-044	1	STREET ELBOW (24N-24NF90)	
14.	154-484	2	TEE (32NF-32NF-32NF)	
15.	115-295	2	ALL THREAD (32N-2")	
16.	115-186	1	COLLAR (32NF)	
17.	159-181	1	FHC ADAPTER (40-32N)	
18.	116-505	AR	BULK HOSE (2", SOLD PER 1')	SEE FOOTNOTE 1
19.	116-505	AR	BULK HOSE (2", SOLD PER 1')	USE 1 @ 23"
20.	116-505	AR	BULK HOSE (2", SOLD PER 1')	USE 1 @ 27"
21.	116-047	AR	BULK HOSE (1-1/2", SOLD PER 1')	USE 1 @ 21"
22.	118-181	2	RATCHET STRAP (1" X 6')	
23.	319-176	1	SADDLE PUMP SKID	
	303-209	1	SADDLE PUMP SKID	OBSOLETE SEE FOOTNOTE 2
24.	364-591	1	WATER TANK (200 GAL)	
	153-718	1	TANK LID	
	190-053		POLY-PATCH TANK REPAIR KIT	
	<u>364-519</u>	1	WATER TANK (200 GAL)	OBSOLETE INCL FILLWELL AND COVER
	303-982	1	FILLWELL (10"), WATER TANK	SERVICE PART FOR 364-519
	303-983	1	COVER (10")	SERVICE PART FOR 364-519
25.	195-028	1	ENGINE - HONDA	
	194-009	-	FUEL TANK CAP	
26.	158-398	-	WATER PUMP	OBSOLETE
	149-929	1	CENTRIFUGAL PUMP	
	165-834	1	SHIM (.015", IMPELLER)	
	157-668	-	EXTERNAL SHAFT SEAL (3/4")	OBSOLETE
	191-017	1	PUMP SEAL KIT	
	180-817	1	SLEEVE	
	500-248	1	O-RING (246 D70)	
	194-044	1	ENGINE ADAPTER (HONDA 5.5 HP)	
	500-860	1	SLINGER	
27.	114-038	2	NIPPLE (12N-12NH)	ONE INCLUDED WITH SYSTEM
28.	114-037	1	CONNECTOR (12N-12NHF)	NOT INCLUDED WITH SYSTEM
29.	NA	1	WATER HOSE & HOSE REEL	NOT INCLUDED WITH SYSTEM

NOT SHOWN:

FOOTNOTES:

1. USE 1 @ 8". EARLY UNITS WITH ORIGINAL SKID USE 1 @ 10"
2. ORIGINAL SKID USED ENGINE MOUNT PLATE (REF. 46).

NOTE:

# FLUID TRANSFER SYSTEM

## FT5

### BEGINS WITH S/N CMWFT5XXCB0000155

REF PART NO. NUMBER	QTY	DESCRIPTION	REMARKS
30. 120-018	1	SHUT-OFF (12NF)	
31. 120-023	1	SHUT-OFF (24NF-24NF)	
32. 120-059	3	SHUT-OFF (32NF-32NF)	
33. 106-989	4	FLG LK SCREW (M8-1.25 X 35mm)	
34. 106-386	4	FLG LOCKNUT (M8-1.25)	8 USED ON EARLY UNITS
35. 115-296	2	NIPPLE (32N-4")	
36. 115-166	1	NIPPLE (04N-1.5")	
37. 115-170	1	COLLAR (04NF)	
38. 110-141	1	DRAIN VALVE (04N)	
39. 155-261	2	BK CONNECTOR (32NF-32NF, NYL)	OBSOLETE
	157-492	2 BK CONNECTOR (32NF, POLY)	SEE FOOTNOTE 4
40. 106-991	4	FLG LK SCREW (M8-1.25 X 20mm)	USED ON EARLY UNITS WITH ORIGINAL SKID
41. 346-350	1	ENGINE MOUNT PLATE	USED ON EARLY UNITS WITH ORIGINAL SKID
42. 305-597	2	TANK PAD (13")	USED ON EARLY UNITS WITH ORIGINAL SKID. SEE FOOTNOTE 3
	305-572	2 TANK PAD (15")	BEGINS WITH S/N 2S0739. SEE FOOTNOTE 3
	256-665	AR ADHESIVE	ENDS WITH S/N 2S0738. SEE FOOTNOTE 3
43. 115-704	AR	BULK EDGE (1/4",SOLD PER 1")	USE 2 @ 6"

NOT SHOWN:

FOOTNOTES:

3. NOT REQUIRED PARTS.

4. HOLES MAY REQUIRE MODIFICATION FOR NEW FITTINGS.

NOTE:

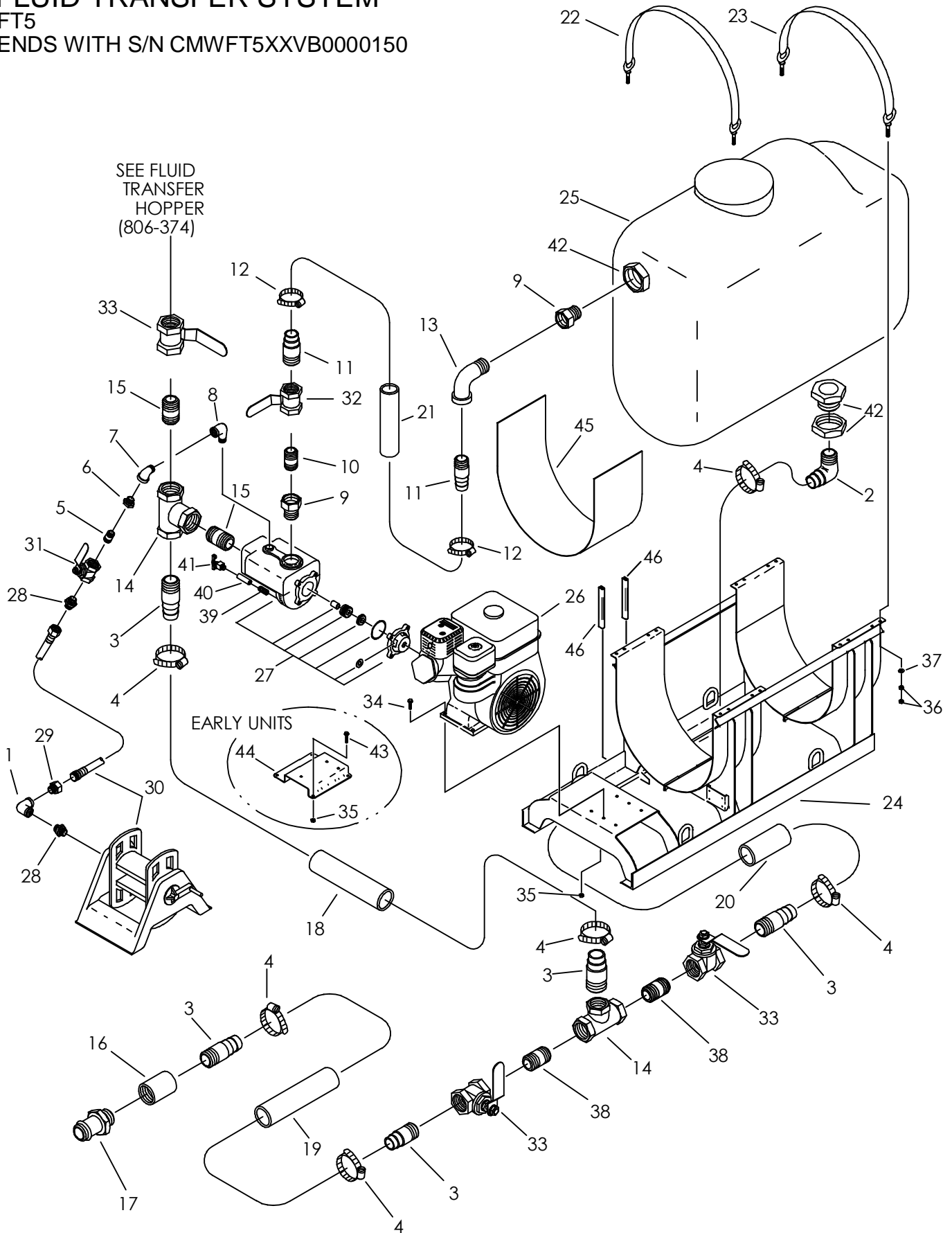
REFER TO O-RING CHART (800-301) IN THE BACK OF THE BOOK FOR REPLACEMENT O-RINGS.





# FLUID TRANSFER SYSTEM

FT5  
ENDS WITH S/N CMWFT5XXVB0000150



# FLUID TRANSFER SYSTEM

## FT5

### ENDS WITH S/N CMWFT5XXVB0000150

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	115-108	1	ELBOW (12NF-12NF90)	NOT INCLUDED WITH SYSTEM
2.	514-320	1	S/O COUPLER (32N-32H90)	
3.	514-089	5	S/O COUPLER (32N-32H)	
4.	110-134	6	WORM CLAMP (2.062" TO 2.750")	
5.	115-104	1	NIPPLE (12N X 1-1/2")	
6.	115-151	1	REDUCER (16N-12NF)	
7.	114-007	1	STREET ELBOW (16N-16NF45)	
8.	115-440	1	STREET ELBOW (16N-16NF90)	
9.	115-087	2	REDUCER (32N-24NF)	
10.	115-040	1	NIPPLE (24N-3")	
11.	155-188	2	S/O COUPLER (24N-24H)	
12.	110-250	2	WORM CLAMP (1-1/4" TO 2-1/8")	
13.	115-044	1	STREET ELBOW (24N-24NF90)	
14.	154-484	2	TEE (32NF-32NF-32NF)	
15.	115-295	2	ALL THREAD (32N-2")	
16.	115-186	1	COLLAR (32NF)	
17.	159-181	1	FHC ADAPTER (40-32N)	
18.	116-505	AR	BULK HOSE (2", SOLD PER 1')	SEE FOOTNOTE 1
19.	116-505	AR	BULK HOSE (2", SOLD PER 1')	USE 1 @ 23"
20.	116-505	AR	BULK HOSE (2", SOLD PER 1')	USE 1 @ 27"
21.	116-047	AR	BULK HOSE (1-1/2", SOLD PER 1')	USE 1 @ 21"
22.	316-596	1	STRAP	
23.	316-595	1	STRAP	
24.	319-176	1	SADDLE PUMP SKID	
	303-209	1	SADDLE PUMP SKID	OBSOLETE SEE FOOTNOTE 2
25.	364-591	1	WATER TANK (200 GAL)	
	153-718	1	TANK LID	
	190-053		POLY-PATCH TANK REPAIR KIT	
	<u>364-519</u>	1	WATER TANK (200 GAL)	OBSOLETE INCL FILLWELL AND COVER
	303-982	1	FILLWELL (10"), WATER TANK	SERVICE PART FOR 364-519
	303-983	1	COVER (10")	SERVICE PART FOR 364-519
26.	195-028	1	ENGINE - HONDA	
	194-009	-	FUEL TANK CAP	
27.	158-398	-	WATER PUMP	OBSOLETE
	149-929	1	CENTRIFUGAL PUMP	
	165-834	1	SHIM (.015", IMPELLER)	
	157-668	-	EXTERNAL SHAFT SEAL (3/4")	OBSOLETE
	191-017	1	PUMP SEAL KIT	
	180-817	1	SLEEVE	
	500-248	1	O-RING (246 D70)	
	194-044	1	ENGINE ADAPTER (HONDA 5.5 HP)	
	500-860	1	SLINGER	
28.	114-038	2	NIPPLE (12N-12NH)	ONE INCLUDED WITH SYSTEM
29.	114-037	1	CONNECTOR (12N-12NHF)	NOT INCLUDED WITH SYSTEM
30.	NA	1	WATER HOSE & HOSE REEL	NOT INCLUDED WITH SYSTEM

NOT SHOWN:

FOOTNOTES:

1. USE 1 @ 8". EARLY UNITS WITH ORIGINAL SKID USE 1 @ 10"
2. ORIGINAL SKID USED ENGINE MOUNT PLATE (REF. 46).

NOTE:

# FLUID TRANSFER SYSTEM

## FT5

### ENDS WITH S/N CMWFT5XXVB0000150

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
31.	120-018	1	SHUT-OFF (12NF)	
32.	120-023	1	SHUT-OFF (24NF-24NF)	
33.	120-059	3	SHUT-OFF (32NF-32NF)	
34.	106-989	4	FLG LK SCREW (M8-1.25 X 35mm)	
35.	106-386	4	FLG LOCKNUT (M8-1.25)	8 USED ON EARLY UNITS
36.	106-175	8	LOCKNUT (M10-1.50)	
37.	105-118	4	WASHER (3/8")	
38.	115-296	2	NIPPLE (32N-4")	
39.	115-166	1	NIPPLE (04N-1.5")	
40.	115-170	1	COLLAR (04NF)	
41.	110-141	1	DRAIN VALVE (04N)	
42.	155-261	2	BK CONNECTOR (32NF-32NF, NYL)	OBSOLETE
	157-492	2	BK CONNECTOR (32NF, POLY)	SEE FOOTNOTE 4
43.	106-991	4	FLG LK SCREW (M8-1.25 X 20mm)	USED ON EARLY UNITS WITH ORIGINAL SKID
44.	346-350	1	ENGINE MOUNT PLATE	USED ON EARLY UNITS WITH ORIGINAL SKID
45.	305-597	2	TANK PAD (13")	USED ON EARLY UNITS WITH ORIGINAL SKID. SEE FOOTNOTE 3
	305-572	2	TANK PAD (15")	BEGINS WITH S/N 2S0739. SEE FOOTNOTE 3
	256-665	AR	ADHESIVE	ENDS WITH S/N 2S0738. SEE FOOTNOTE 3
46.	115-704	AR	BULK EDGE (1/4",SOLD PER 1")	USE 2 @ 6"

NOT SHOWN:

FOOTNOTES:

3. NOT REQUIRED PARTS.

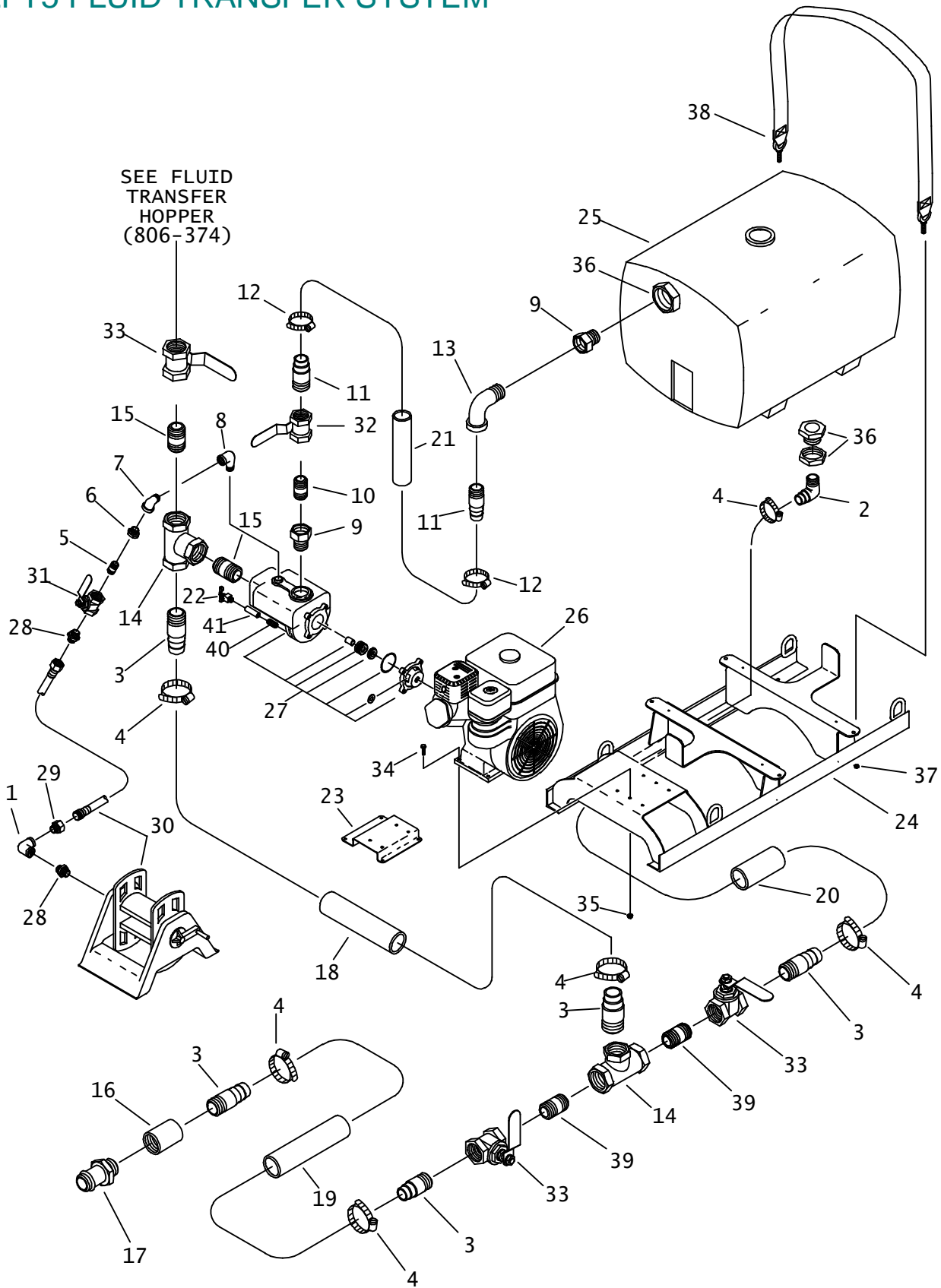
4. HOLES MAY REQUIRE MODIFICATION FOR NEW FITTINGS.

NOTE:

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



# ZFT5 FLUID TRANSFER SYSTEM



## ZFT5 FLUID TRANSFER SYSTEM

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	115-108	1	ELBOW (12NF-12NF90)	NOT INCLUDED WITH SYSTEM
2.	514-320	1	S/O COUPLER (32N-32H90)	
3.	514-089	5	S/O COUPLER (32N-32H)	
4.	110-134	6	WORM CLAMP (2.062" TO 2.750")	
5.	115-104	1	NIPPLE (12N X 1-1/2")	
6.	115-151	1	REDUCER (16N-12NF)	
7.	114-007	1	STREET ELBOW (16N-16NF45)	
8.	115-440	1	STREET ELBOW (16N-16NF90)	
9.	115-087	2	REDUCER (32N-24NF)	
10.	115-040	1	NIPPLE (24N-3")	
11.	155-188	2	S/O COUPLER (24N-24H)	
12.	110-250	2	WORM CLAMP (1-1/4" TO 2-1/8")	
13.	115-044	1	STREET ELBOW (24N-24NF90)	
14.	154-484	2	TEE (32NF-32NF-32NF)	
15.	115-295	2	ALL THREAD (32N-2")	
16.	115-186	1	COLLAR (32NF)	
17.	159-181	1	FHC ADAPTER (40-32N)	
18.	116-505	AR	BULK HOSE (2", SOLD PER 1')	USE 1 @ 8"
19.	116-505	AR	BULK HOSE (2", SOLD PER 1')	USE 1 @ 23"
20.	116-505	AR	BULK HOSE (2", SOLD PER 1')	USE 1 @ 18"
21.	116-047	AR	BULK HOSE (1-1/2", SOLD PER 1')	USE 1 @ 25"
22.	110-141	1	DRAIN VALVE (04N)	
23.	346-350	1	ENGINE MOUNT PLATE	USED ON EARLY UNITS
24.	305-795	1	ZFT5 SKID	
25.	149-432	1	WATER TANK (100 GAL)	INCL COVER
	305-799	1	COVER (5")	
26.	195-028	1	ENGINE - HONDA	
	194-009	-	FUEL TANK CAP	
27.	<u>158-398</u>	1	WATER PUMP	
	149-929	1	CENTRIFUGAL PUMP	
	165-834	1	SHIM (.015", IMPELLER)	
	<u>157-668</u>	1	EXTERNAL SHAFT SEAL (3/4")	
	191-017	1	PUMP SEAL KIT	
	180-817	1	SLEEVE	
	500-248	1	O-RING (246 D70)	
	194-044	1	ENGINE ADAPTER (HONDA 5.5 HP)	
NOT SHOWN	500-860	1	SLINGER	
28.	114-038	2	NIPPLE (12N-12NH)	ONE INCLUDED WITH SYSTEM
29.	114-037	1	CONNECTOR (12N-12NHF)	NOT INCLUDED WITH SYSTEM
30.	NA	1	WATER HOSE & HOSE REEL	NOT INCLUDED WITH SYSTEM
31.	120-018	1	SHUT-OFF (12NF)	
32.	120-023	1	SHUT-OFF (24NF-24NF)	

FOOTNOTES:

NOTE:

## ZFT5 FLUID TRANSFER SYSTEM

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
33.	120-059	3	SHUT-OFF (32NF-32NF)	
34.	106-989	4	FLG LK SCREW (M8-1.25 X 35MM)	
35.	106-386	4	FLG LOCKNUT (M8-1.25)	
36.	155-261	2	BK CONNECTOR (32NF-32NF, NYL)	
	157-492	2	BK CONNECTOR (32NF, POLY)	SEE FOOTNOTE 1
37.	105-814	4	FLG LOCKNUT (3/8-NC)	
38.	105-779	2	STRAP	
39.	115-296	2	NIPPLE (32N-4")	
40.	115-166	1	NIPPLE (04N-1.5")	
41.	115-170	1	COLLAR (04NF)	

NOT SHOWN:

FOOTNOTES:

1. HOLES MAY REQUIRE MODIFICATION FOR NEW FITTINGS.

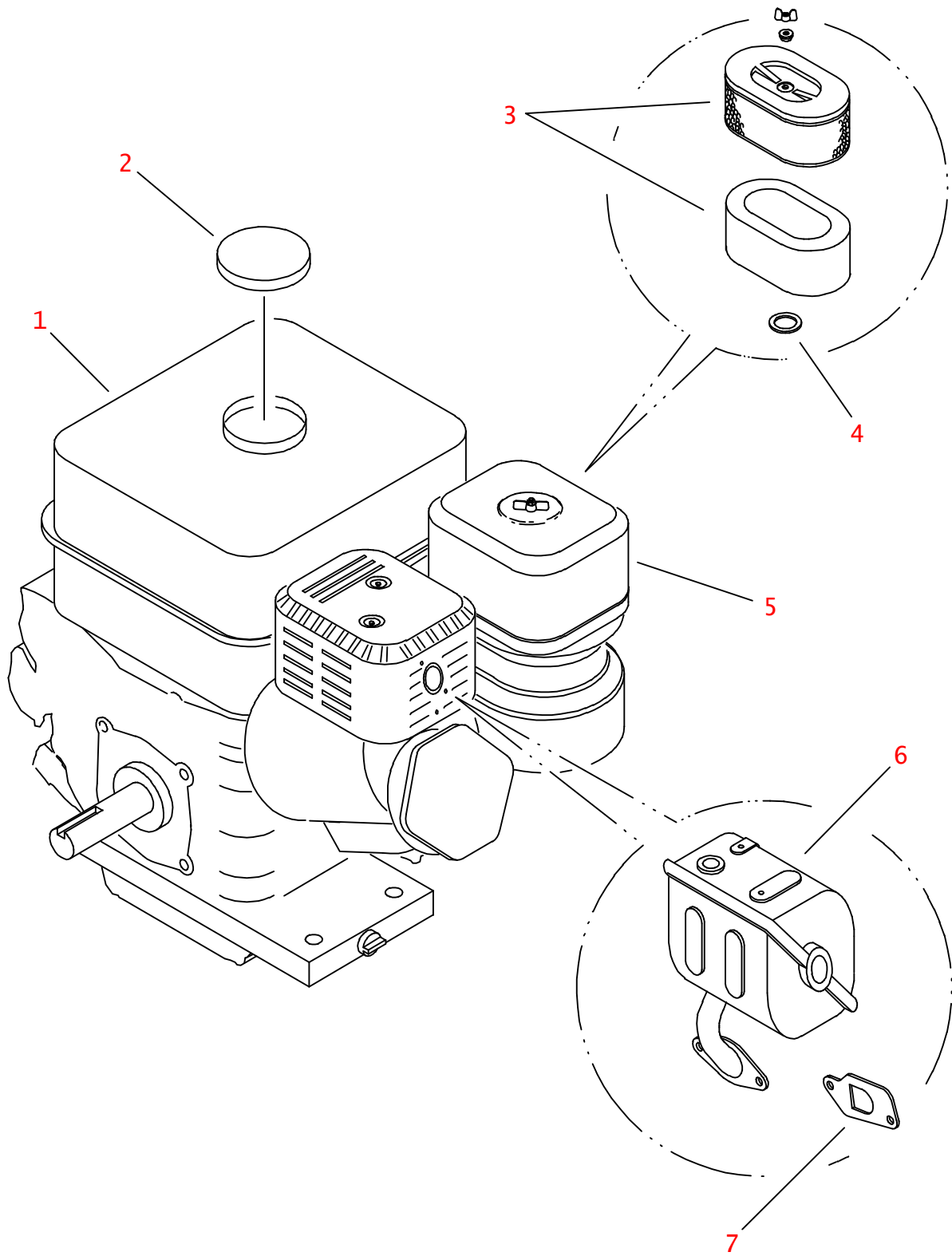
NOTE:

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





# ENGINE - HONDA



## ENGINE - HONDA

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	194-598	1	ENGINE - HONDA (GX160K1QX)	GASOLINE
	195-028	1	ENGINE - HONDA (GX160K1TX)	GASOLINE
1.	194-010	1	FUEL TANK	
2.	194-009	1	CAP	FUEL TANK
3.	194-001	1	ELEMENT SET (PRIMARY/SECONDARY)	AIR FILTER
4.	194-007	1	GASKET	AIR FILTER
5.	194-003	1	COVER	AIR FILTER
6.	194-004	1	MUFFLER	
7.	194-005	1	GASKET	MUFFLER

NOT SHOWN:

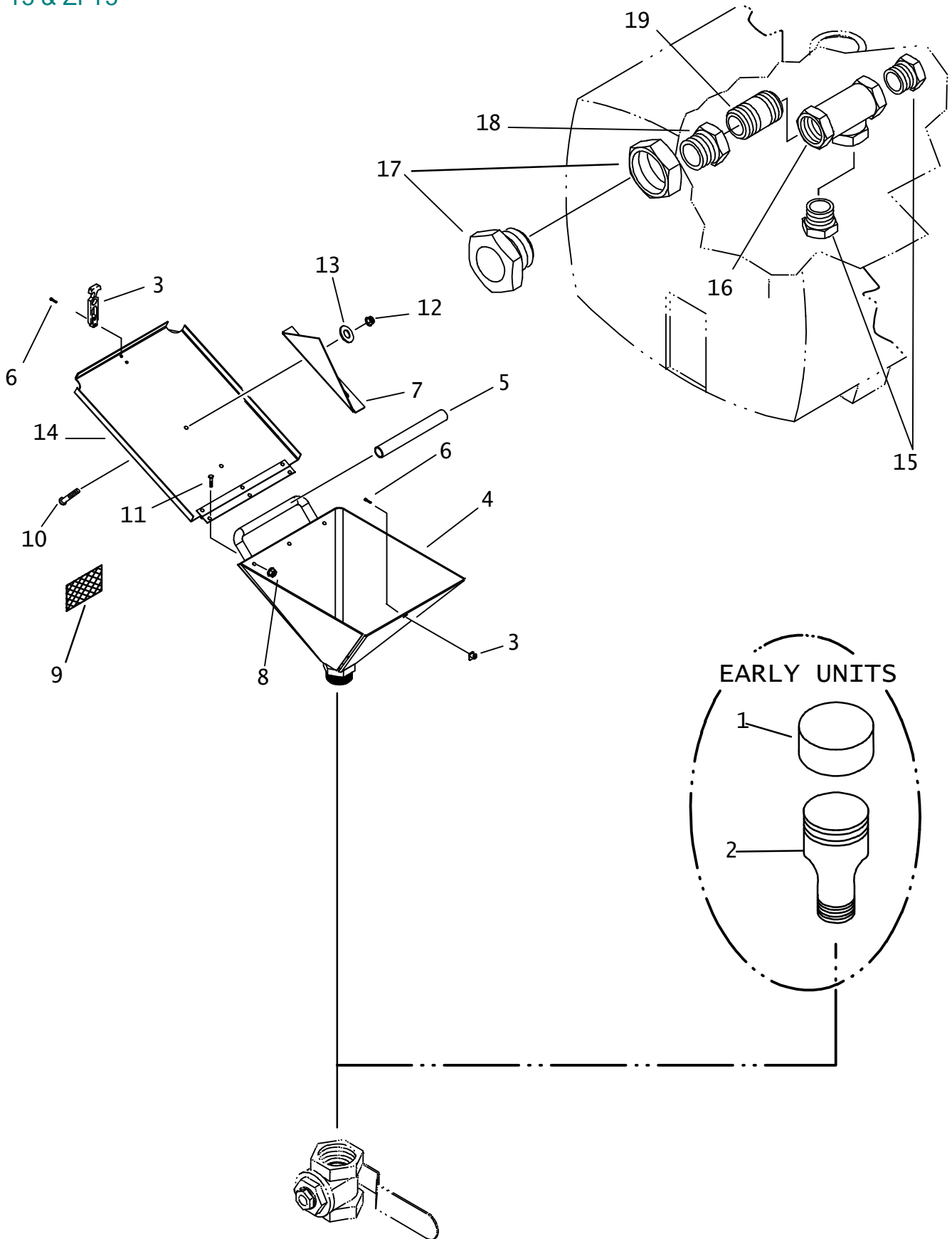
194-011	1	OIL LEVEL SWITCH
194-002	1	FUEL FILTER (04H-04H, IN-LINE)
194-006	1	RECOIL STARTER
194-008	1	CARBURETOR

FOOTNOTES:

NOTE:

# FLUID TRANSFER HOPPER

FT5 & ZFT5



## FLUID TRANSFER HOPPER FT5 & ZFT5

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	105-768	1	PLASTIC CAP (64N)	USED ON EARLY UNITS
2.	149-379	1	SWAGE NIPPLE (34N X 64N)	USED ON EARLY UNITS
3.	110-638	1	FLEX DRAW LATCH	
4.	308-478	1	HOPPER	
5.	116-389	AR	BULK TUBING (3/4" SOLD PER 1')	USE 1 @ 6"
6.	106-428	3	SCREW (M5-0.80 X 14mm, SOC)	
7.	346-521	1	BAG OPENER	
8.	105-085	3	LOCK NUT (1/4-NC)	
9.	275-184	1	WARNING MOVING PARTS DECAL	
10.	105-835	2	CARRIAGE BOLT (3/8-NC Xf")	
11.	105-174	3	BOLT (1/4-NC X ")	
12.	105-047	2	LOCKNUT (3/8-NC)	
13.	105-118	2	WASHER (3/8)	
14.	308-476	1	LID	
15.	115-271	2	REDUCER(24N-12NF)	SEE FOOTNOTE 1
16.	115-269	1	TEE (24NF)	SEE FOOTNOTE 1
17.	<u>514-269</u>	-	BK CONN. (48N-32NFBK, NYL)	
	157-492	-	BK CONNECTOR (32NF, POLY)	SEE FOOTNOTE 2
18.	115-087	1	REDUCER (32N-24NF)	SEE FOOTNOTE 1
19.	115-263	1	ALL THREAD (24N)	SEE FOOTNOTE 1

NOT SHOWN:

FOOTNOTES:

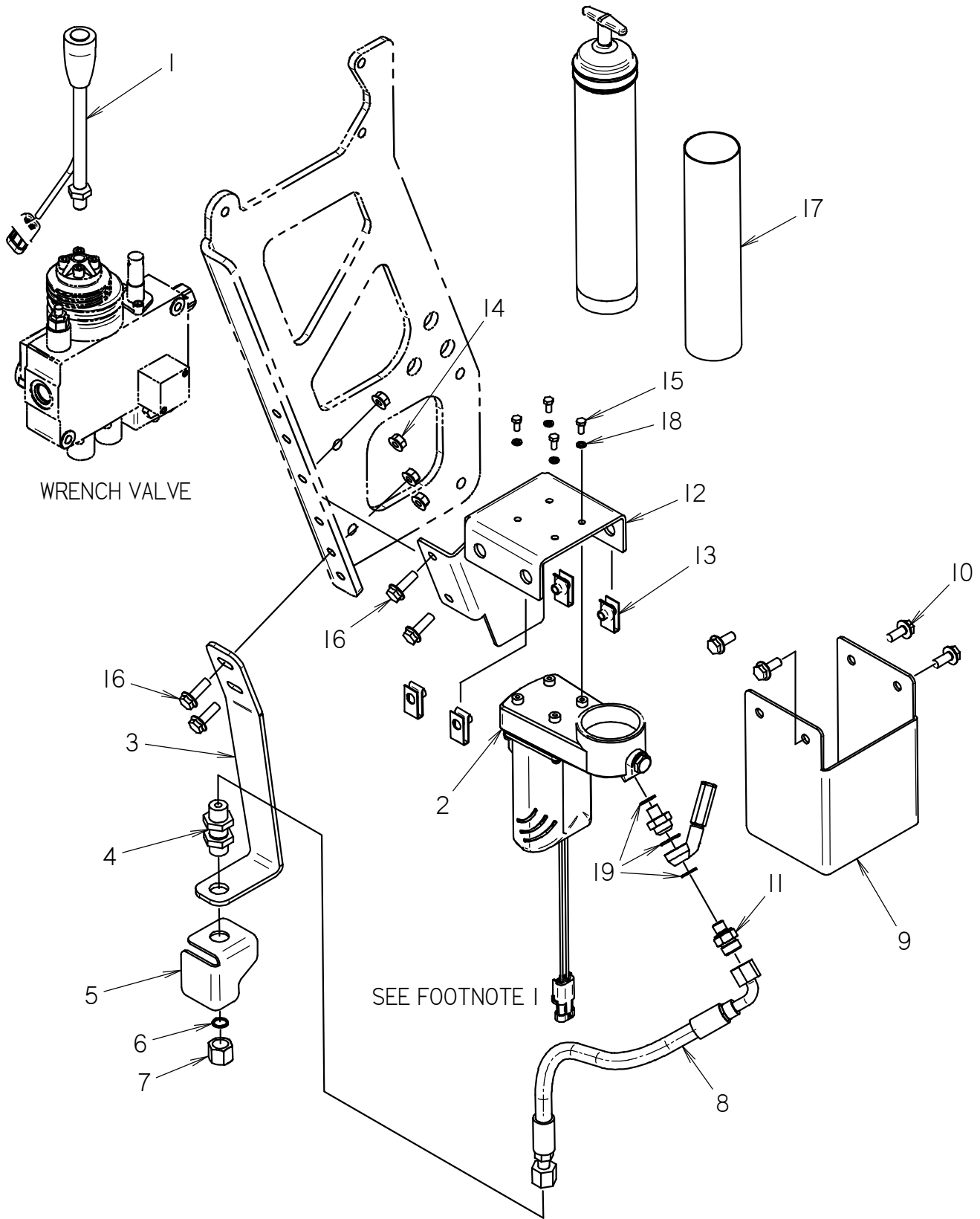
1. USE ONLY ON UNITS WITH HOPPER
2. HOLES MAY REQUIRE MODIFICATION FOR NEW FITTINGS.

NOTE:



# ACCESSORIES

# ELECTRIC THREAD LUBRICATOR



# ELECTRIC THREAD LUBRICATOR

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	190-1669	-	THREAD LUBRICATOR	INCLUDES REFERENCE NUMBER'S 1-19
1	301-1967	1	LEVER W/ SWITCH	
2	301-1966	1	ELECTRIC GREASER ASSEMBLY	INCLUDES GREASE TUBE ASSEMBLY
3	300-9212	1	NOZZLE MOUNTING BRACKET	
4	514-163	1	BK CONNECTOR (060-060BK)	
5	301-1696	1	GREASE SHIELD	
6	105-890	1	SEAL WASHER (7/16")	
7	149-221	1	NOZZLE	
8	154-737	1	HOSE (060FX90S-17"-3000)	153-585 HEATED HOSE
9	300-9210	1	COVER	
10	106-991	4	FLG LK SCREW (M8-1.25 X 20MM)	
11	150-2718	1	CONNECTOR (7/16"-060)	
12	300-9209	1	GREASER MOUNTING BRACKET	
13	107-135	4	CLIP NUT (M8-1.25)	
14	106-386	4	FLG LOCKNUT (M8-1.25)	
15	106-228	4	SCREW (M5-0.80 X 10MM)	
16	106-381	4	FLG LK SCREW (M8-1.25 X 25MM)	
17	256-663	1	GREASE (14 OZ CARTRIDGE)	256-026 GREASE (14OZ CARTRIDGE, ARCTIC GRADE)
18	106-429	4	LOCK WASHER (M5)	
19	500-2113	1	GASKET KIT	

NOT SHOWN:

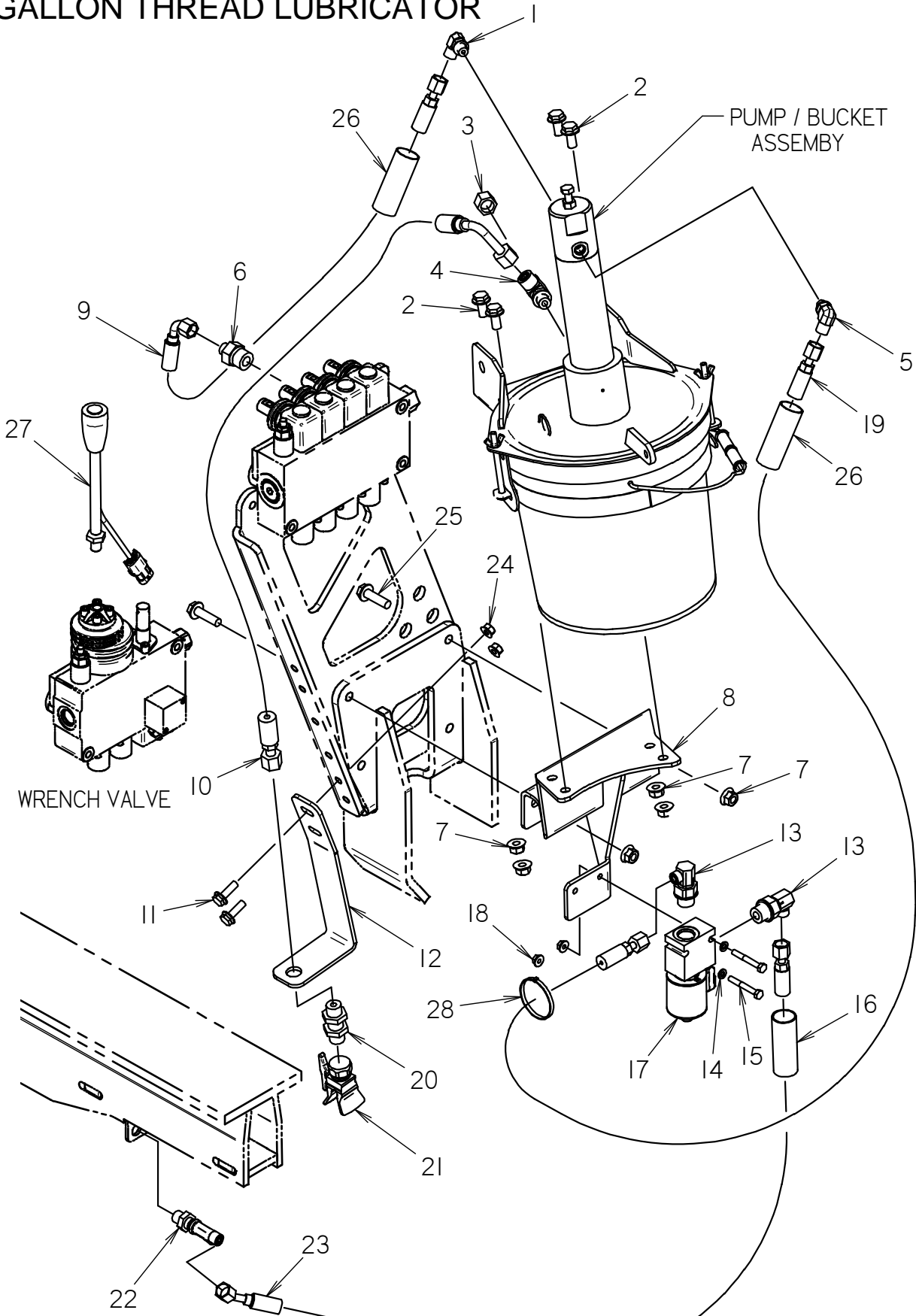
FOOTNOTES:

1- CONNECT TO MACHINE HARNESS CONNECTOR WITH BLACK & ORANGE/RED WIRES.

NOTE:



# 2 GALLON THREAD LUBRICATOR



## 2 GALLON THREAD LUBRICATOR

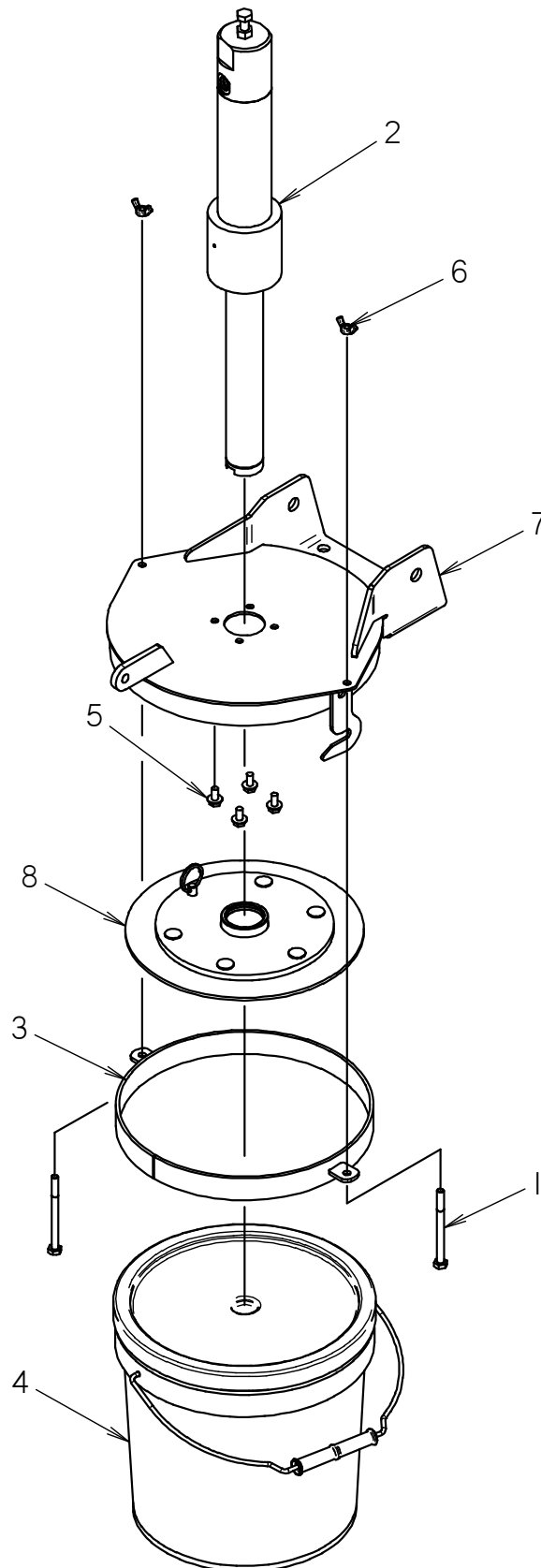
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	190-1726		2 GAL LUBRICATOR KIT	INCLUDES REFERENCE NUMBERS 1-28
1	154-252	1	CONNECTOR (04S-04090)	
2	106-382	4	FLG LK SCREW (M10-1.50 X 20MM)	
3	154-326	1	CAP (060F)	
4	154-345	1	RUN TEE (06S-060-060)	
5	154-401	1	CONNECTOR (04S-04090, ORF)	
6	153-969	1	HYDRAULIC FITTING (10S-040)	
7	106-387	6	FLG LOCKNUT (M10-1.50)	
8	301-2339	1	LUBRICATOR MOUNT	
9	154-743	1	HOSE (040FX90S-23"-3000)	
10	150-1585	1	HOSE (060FX90L-24"-3000)	
11	106-381	2	FLG LK SCREW (M8-1.25 X 25MM)	
12	301-2340	1	NOZZLE MOUNTING BRACKET	
13	154-276	2	CONNECTOR (040-08S90)	
14	106-388	2	WASHER (M6)	
15	106-093	2	SCREW (M6-1.00 X 45MM)	
16	105-1515	1	ABRASION SLEEVE (1.00" X 44")	
17	150-1982	1	SOLENOID VALVE 2W-2P-NC	
18	106-385	2	FLG LOCKNUT (M6-1.00)	
19	154-783	1	HOSE (040FX-24"-3000)	
20	514-163	1	BK CONNECTOR (060-060BK)	
21	149-399	1	SPRAY NOZZLE (65)	
22	154-424	1	BK RUN TEE (040-040-040BK)	
23	150-1422	1	HOSE (040FX45-44"-3000)	
24	106-386	2	FLG LOCKNUT (M8-1.25)	
25	106-497	2	FLG SCREW (M10-1.50 X 35MM)	
26	117-611	2	ABRASION SLEEVE (1.00" X 22")	
27	301-1967	1	LEVER W/ SWITCH	
28	110-030	1	CABLE TIE (1/16" TO 4")	

NOT SHOWN:

FOOTNOTES:

NOTE:

# PUMP / BUCKET ASSEMBLY



# PUMP / BUCKET ASSEMBLY

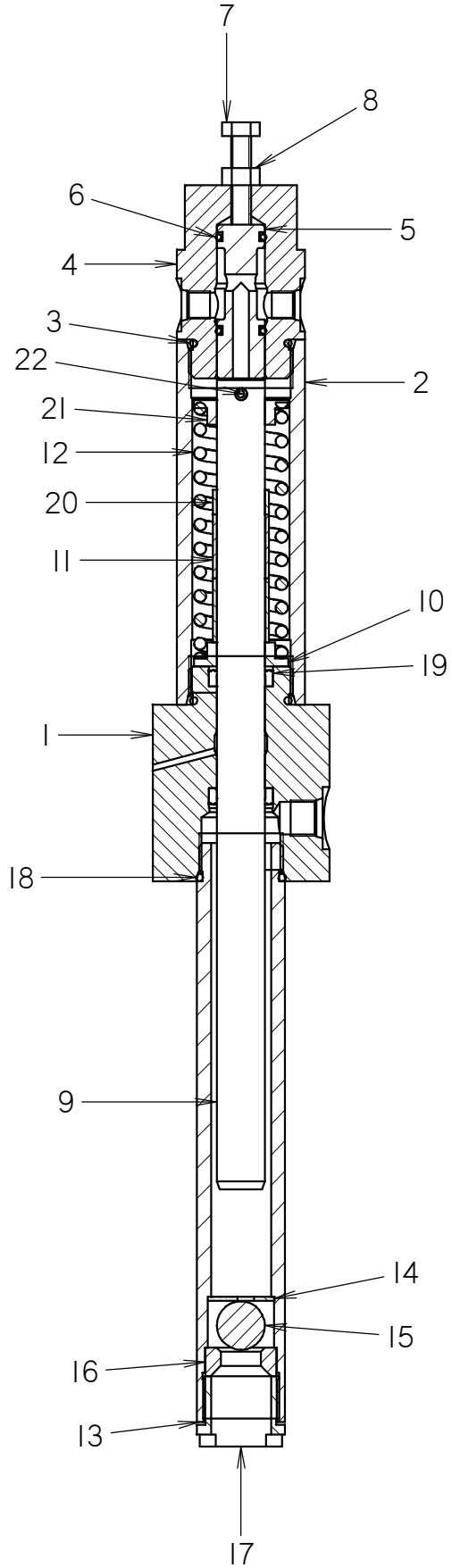
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1	105-297	2	BOLT (1/4-NC X 3-1/4")	
2	350-1760	1	GREASE PUMP - LOW OUTPUT	
3	350-399	1	BASE	
4	259-858	1	TOOL JNT LUBE, STD SPRY 2 GAL	
5	106-378	4	FLG LK SCREW (M6-1.00 X 12MM)	
6	195-339	2	WING NUT (1/4-NC)	
7	350-400	1	COVER WELDMENT	
8	350-1932	1	TOOL JOINT LUBE FOLLOWER	

NOT SHOWN:

FOOTNOTES:

NOTE:

# GREASE PUMP - LOW OUTPUT



# GREASE PUMP - LOW OUPUT

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	350-1760	-	GREASE PUMP - LOW OUTPUT	
1	350-687	1	PUMP BODY	
2	350-682	1	BARREL	
3	155-702	2	O-RING (920 D90)	
4	350-686	1	CYLINDER CAP	
5	350-421	1	ADJUSTING SPOOL	
6	157-049	2	O-RING (113 D70)	
7	107-492	1	SCREW (M8-1.25 X 35MM,ALL THD)	
8	106-078	1	NUT (M8-1.25)	
9	166-280	1	PLUNGER	SEE FOOTNOTE 1
10	350-671	1	ROD GUIDE	
11	125-424	2	BRONZE BUSHING (.750")	
12	117-228	1	COMPRESSION SPRING	
13	350-693	1	PUMP BARREL	
14	301-0196	1	RETAINER CLIP	SUPERSEDES RETAINER CLIP 105-653
15	125-125	1	DETENT BALL (.750")	
16	350-691	1	VALVE SEAT	
17	350-692	1	INLET TUBE	
18	155-748	1	O-RING (916 D90)	
19	117-227	2	SEAL (POLY PAK)	
20	125-422	1	BRONZE BUSHING (.751")	
21	178-467	1	ROD CAP	SEE FOOTNOTE 1
22	105-525	1	ROLL PIN (3/16" X 1-1/4")	SEE FOOTNOTE 1

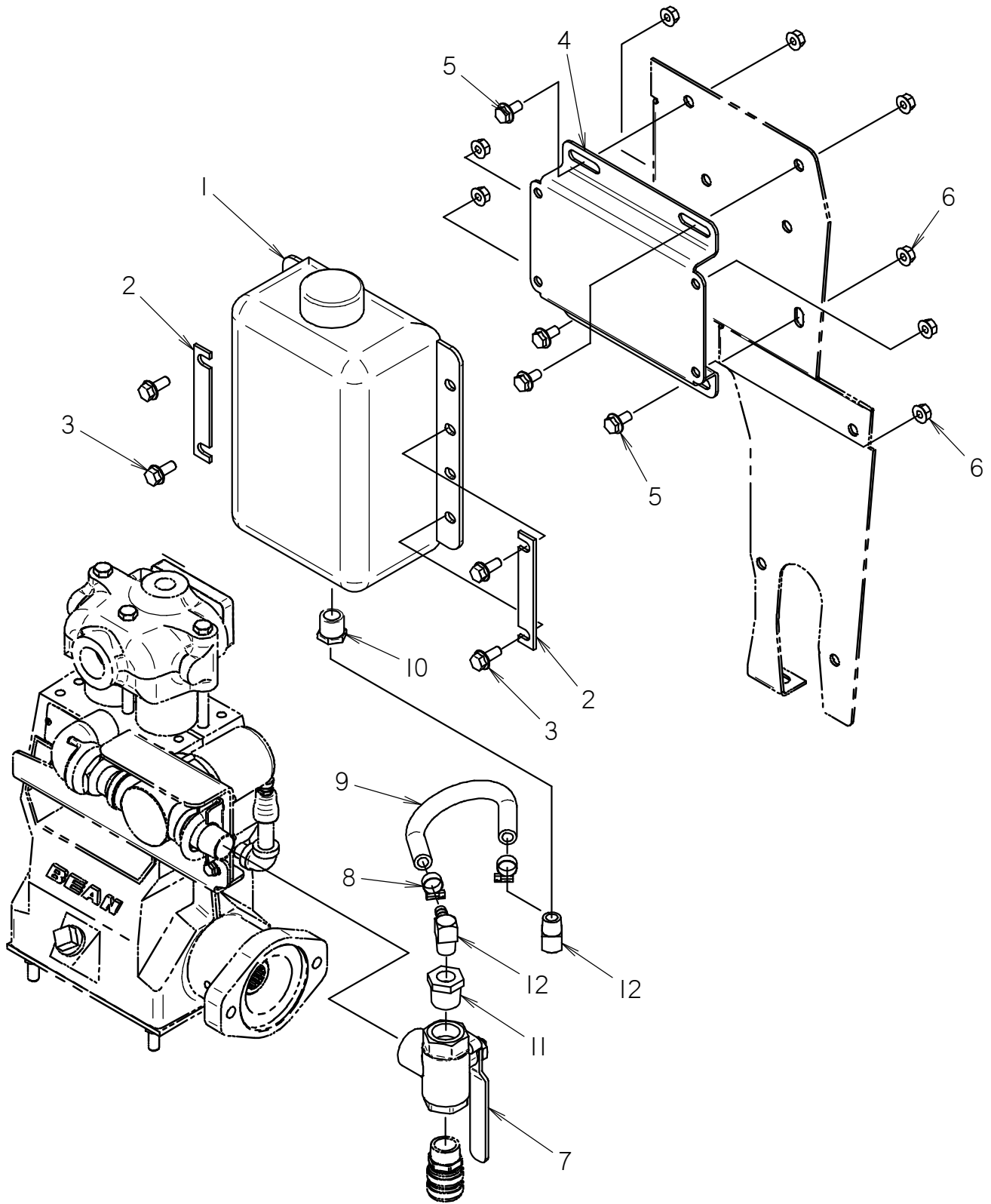
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FOOTNOTES:

1. USE 166-280, 178-467 & 105-525 TO SUPERCEDE 308-603

NOTE:

# ANTIFREEZE KIT



# ANTIFREEZE KIT

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	190-1662	-	ANTIFREEZE KIT	INCLUDES REFERENCE NUMBERS 1-12
1	149-382	1	WATER TANK (1 GAL.)	
2	305-579	2	MOUNT BAR	
3	106-162	4	FLG SCREW (M8-1.25 X 20MM, GD8)	
4	300-9231	1	TANK MOUNT	
5	106-380	4	FLG LK SCREW (M8-1.25 X 16MM)	
6	106-386	8	FLG LOCKNUT (M8-1.25)	
7	149-431	1	3-WAY SHUT-OFF (1/2NF) VALVE	
8	110-249	2	WORM CLAMP (1/4" TO 5/8")	
9	116-881	9	BULK HOSE (3/8", SOLD PER FT)	
10	115-156	1	REDUCER (08N-06NF)	
11	115-219	1	REDUCER (12N-06NF)	
12	153-871	2	S/O COUPLER (06N-06H90, BRS)	

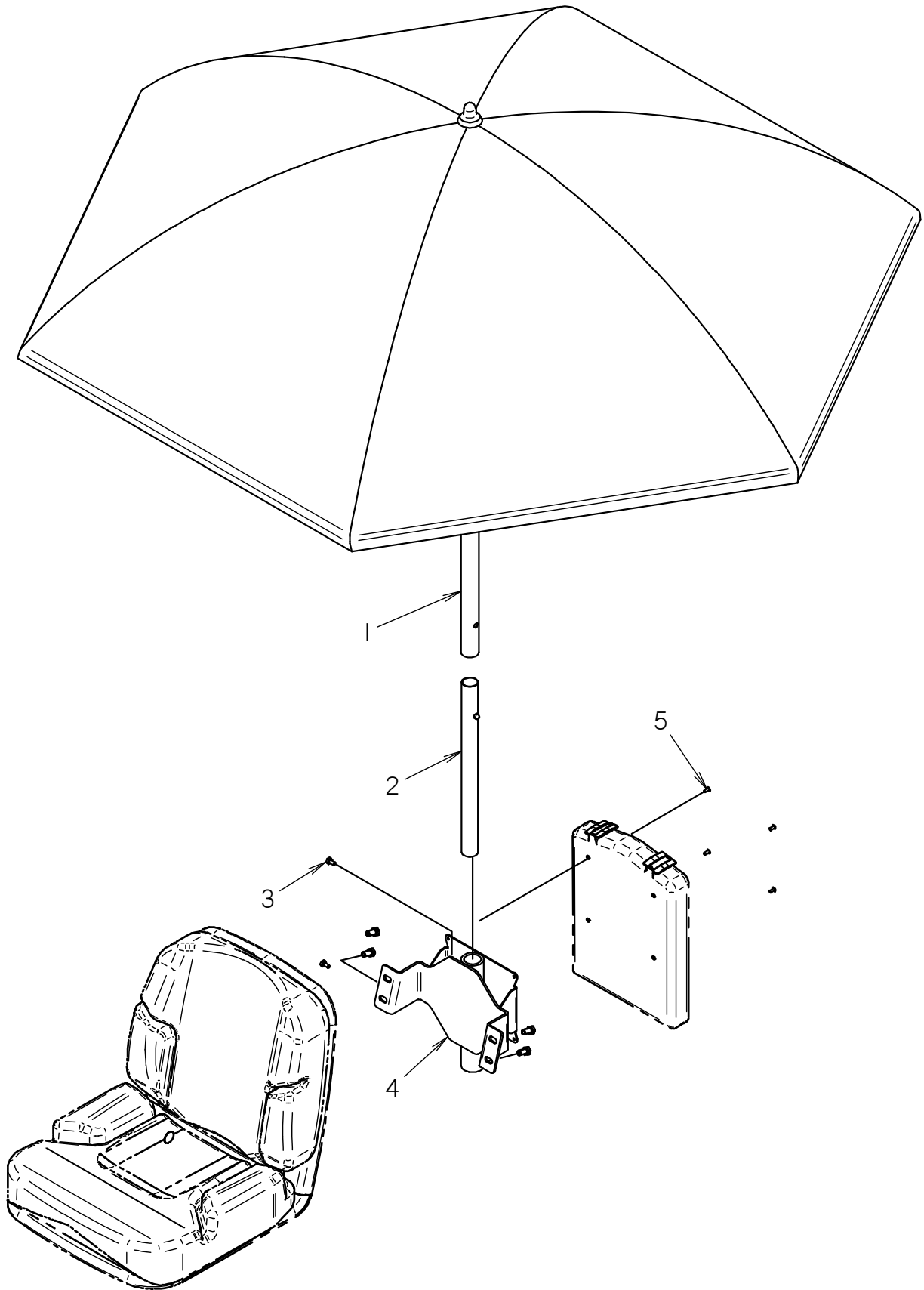
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FOOTNOTES:

NOTE:



## UMBRELLA KIT



# UMBRELLA KIT

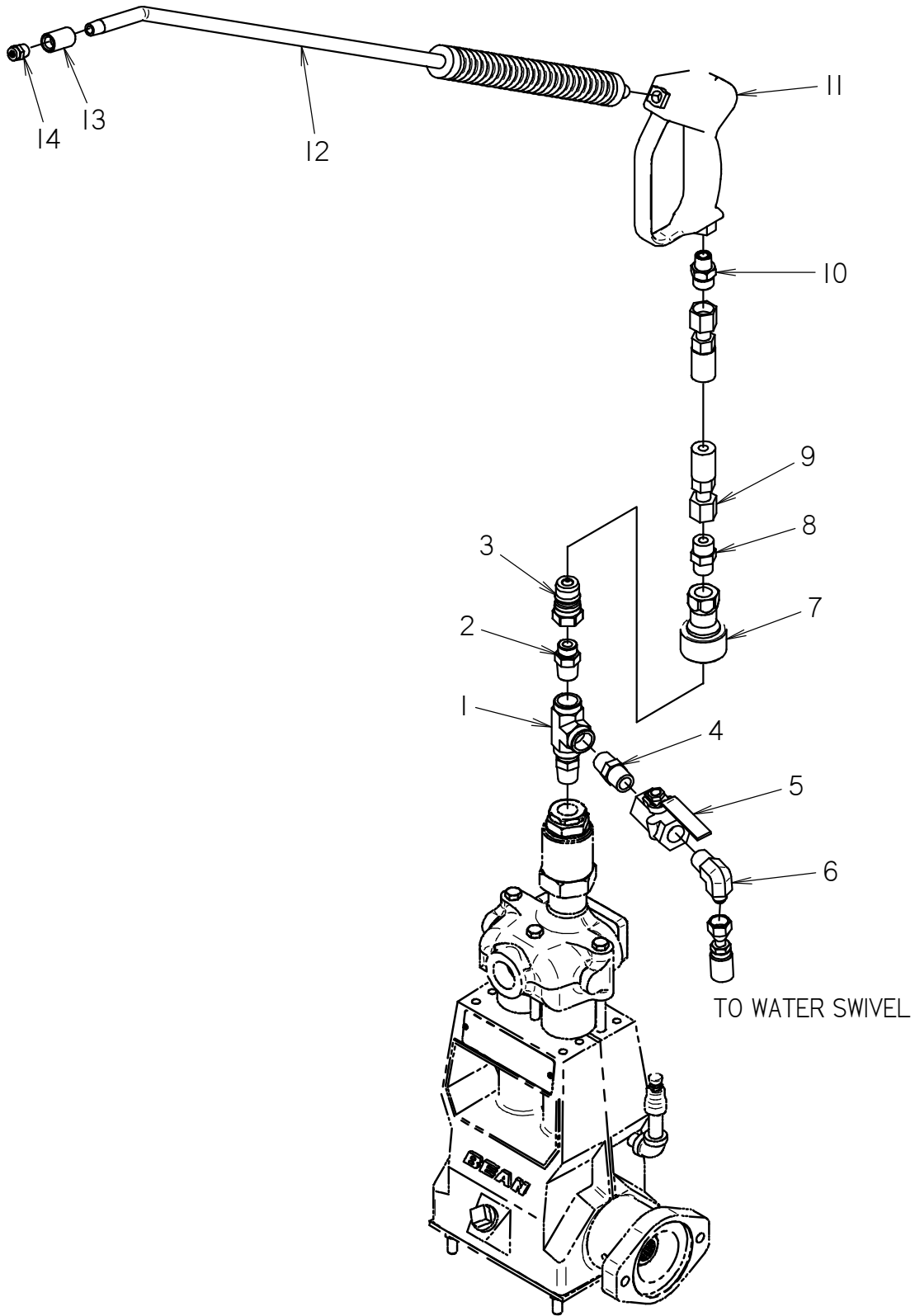
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	190-1731		UMBRELLA KIT	INCLUDES REFERENCE NUMBERS 1-5
1	344-0001	1	UMBRELLA	INCLUDES REFERENCE NUMBER 2
2	500-1962	1	UMBRELLA POLE (16")	
3	105-174	2	BOLT (1/4-NC X 1/2")	
4	301-2607	1	UMBRELLA MOUNT	
5	110-560	4	POP RIVET (3/16" X 1/2", ALUM)	

NOT SHOWN:

FOOTNOTES:

NOTE:

# WASH WAND KIT



# WASH WAND KIT

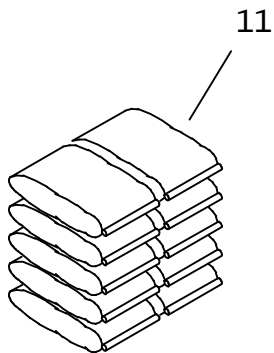
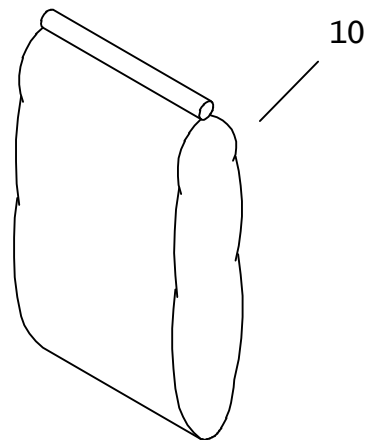
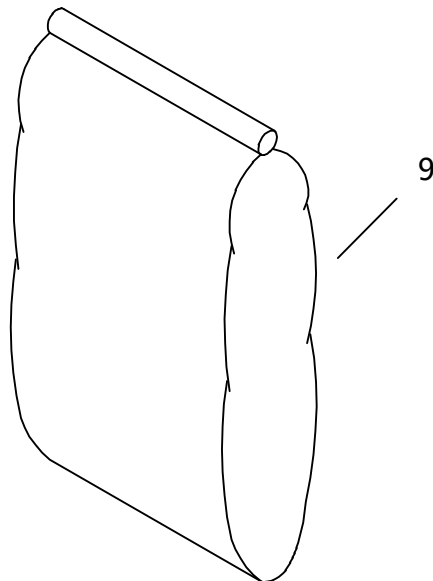
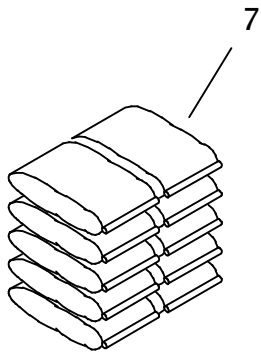
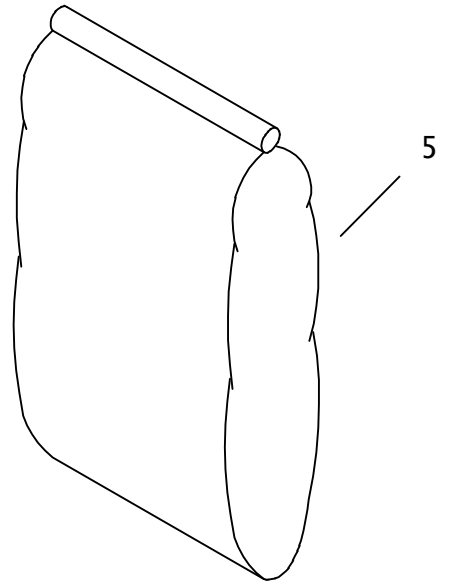
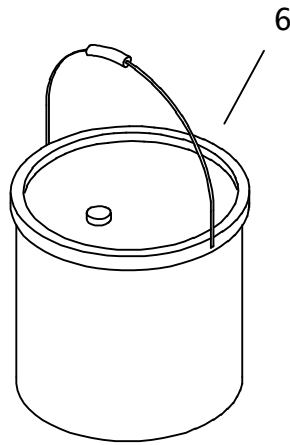
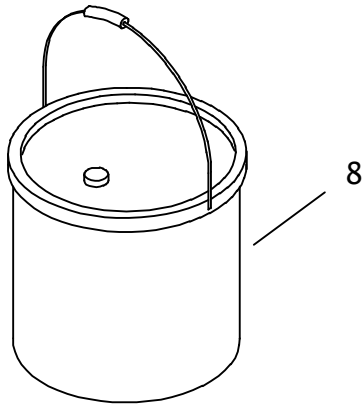
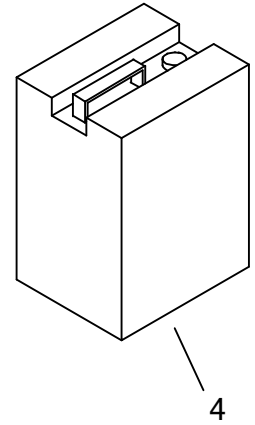
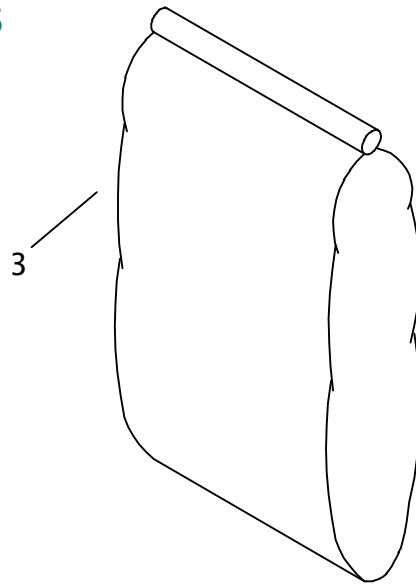
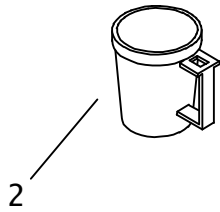
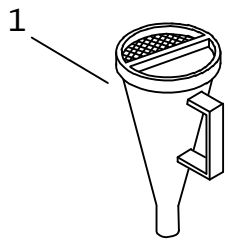
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	190-1670	-	WASH WAND KIT	INCLUDES REFERENCE NUMBERS 1-14
1	514-241	1	TEE (08N-08N-08N)	
2	514-240	1	CONNECTOR (08N-08S)	
3	159-089	1	QDC ADAPTER (08-08SF)	
4	155-210	1	CONNECTOR (08N-08N)	
5	158-579	1	SHUT-OFF (08NF-08NF)	
6	150-2332	1	CONNECTOR (08N-06J90)	
7	159-088	1	QDC BODY (08-08SF)	
8	154-233	1	CONNECTOR (08S-080)	
9	154-804	1	HOSE (080FX-290"-3000)	
10	514-141	1	CONNECTOR (06N-080)	
11	259-197	1	SPRAY GUN	
12	259-353	1	WASH WAND	
13	115-170	1	COLLAR (04NF)	
14	150-2121	1	NOZZLE (#05, 04N, 15 DEG, SS)	

NOT SHOWN:

FOOTNOTES:

NOTE:

# FLUID MIXING ACCESSORIES



## FLUID MIXING ACCESSORIES

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

NOT SHOWN:

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

FOOTNOTES:

NOTE:



# MISCELLANEOUS



# SAE Bolt and Nut Torque Value Chart

## Grade 5: UNC or UNF Thread

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

## Grade 8: UNC or UNF Thread

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

\*drilled and tapped

# Metric Bolt and Cap Screw Torque Values

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

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

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

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

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

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

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

## Hydraulic Cylinder Bolt Torque Chart

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

As a general rule:

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

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

# SAE & ORS Hydraulic Fitting Replacement O-Ring Chart

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

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

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

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

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

# JT5

## Related Publications

Component	Ass'y	P/N
<b>Model:</b>		
JT5 - FT5 ..... Parts Manual .....		053-2354
JT5 ..... Operators Manual .....		053-2380
FT5 ..... Operators Manual .....		054-058
<b>Engine:</b>		
Kubota ..... Parts Manual .....195-1188.....		053-1338
Kubota ..... Operators Manual .....195-1188...		053-1337
Kubota ..... Service (Shop) Manual .....195-1188 ...		055-051
<b>WATER TRANSFER SYSTEM OPTION: FT5</b>		
Honda 5.5hp ..... Parts Manual - GX160K1TX .....	195-028 .....	053-042
Honda 5.5hp ..... Operators Manual - GX160K1TX .....		N/A
Honda 5.5hp ..... Service (Shop) Manual - GX160K1TX .....		N/A

## Filters

<b>Engine:</b>		
Air Filter Parts Ass'y .....		194-035
Element (primary, paper) .....		194-038
Element (secondary, foam) .....		194-039
Oil Filter Element (spin-on) .....		194-041
Fuel Filter (05H-05H, in-line) .....		194-095
Fuel Filter Element (spin-on) .....		194-386
<b>WATER TRANSFER SYSTEM OPTION: FT5</b>		
Air Filter Parts Ass'y - Honda 5.5hp (GX160K1TX) .....		N/A
Element Set (primary, paper) - Honda (GX160K1TX) .....		194-001
(secondary, foam) - Honda (GX160K1TX) .....		194-001
Fuel Filter (04H-04H, in-line) - Honda 5.5hp (GX160K1TX) .....		194-002
<b>Hydraulic:</b>		
Oil Filter Element (1-1/2-UNF, spin-on) .....		155-954

## 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



# Ditch Witch®

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Date: \_\_\_\_\_ Dealer No. (required): \_\_\_\_\_

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1. _____ - _____ .....	1. _____
2. _____ - _____ .....	2. _____
3. _____ - _____ .....	3. _____

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*Thank you for taking the time to submit this request. We will contact you if further information is needed to process your request.*



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This will enable you to receive updates on this equipment as well as information on new products of interest.

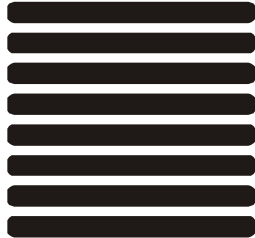
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