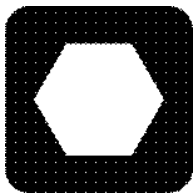


JT5/FT5

Parts Manual



Ditch Witch[®]

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

Copyright 2011 by The Charles Machine Works, Inc.



**Ditch
Witch**

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

FOREWORD

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

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

Keep the following in mind when ordering ProTech replacement parts:

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

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

WARRANTY

DW WARRANTY Policy
July, 2005

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

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

EXCLUSIONS FROM PRODUCT WARRANTY

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

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

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

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

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

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

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

CONTENTS

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

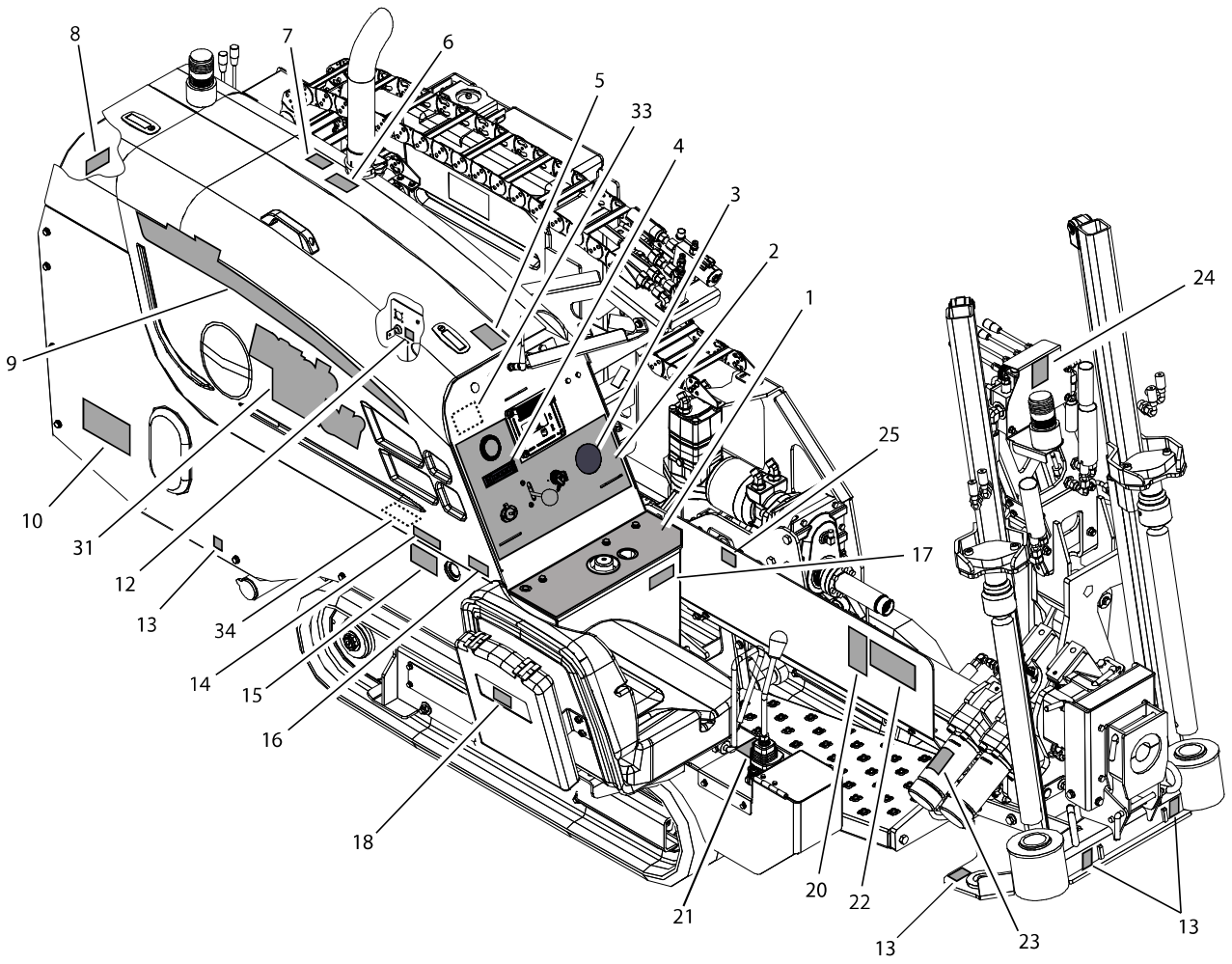
2 Gallon Thread Lubricator	148
Antifreeze Kit	154
Electric Thread Lubricator	146
Fluid Mixing Accessories	160
Grease Pump – Low Output	152
Pump/Bucket Assembly	150
Umbrella Kit	156
Wash Wand Kit	158

Miscellaneous

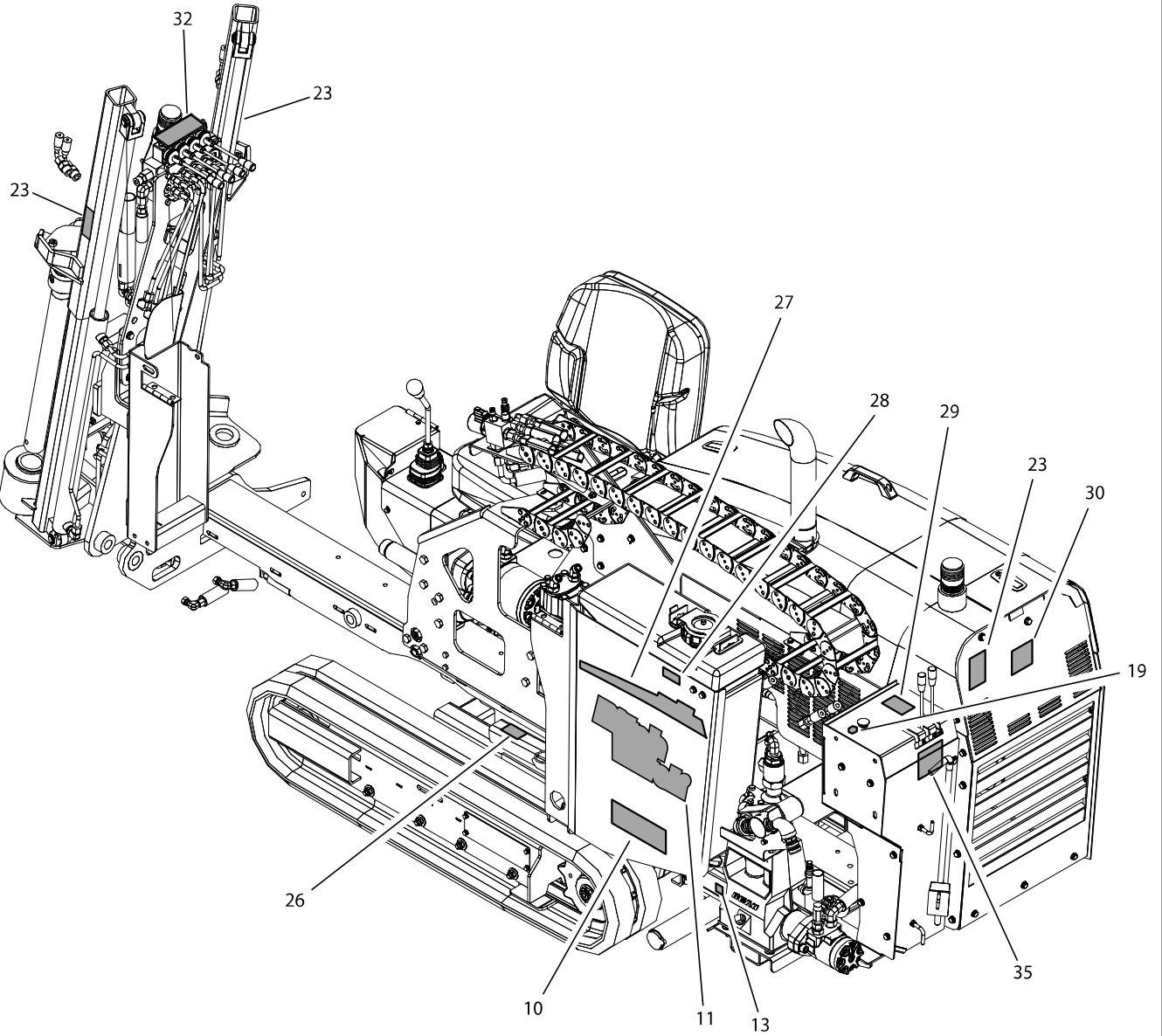
Bolt/Nut Torque Chart	164
Filters	168
Optional Kits	168
Parts Manual Change Request	169
Related Publications	168
Replacement O-Ring Chart	167
Warranty Registration	172

DECALS

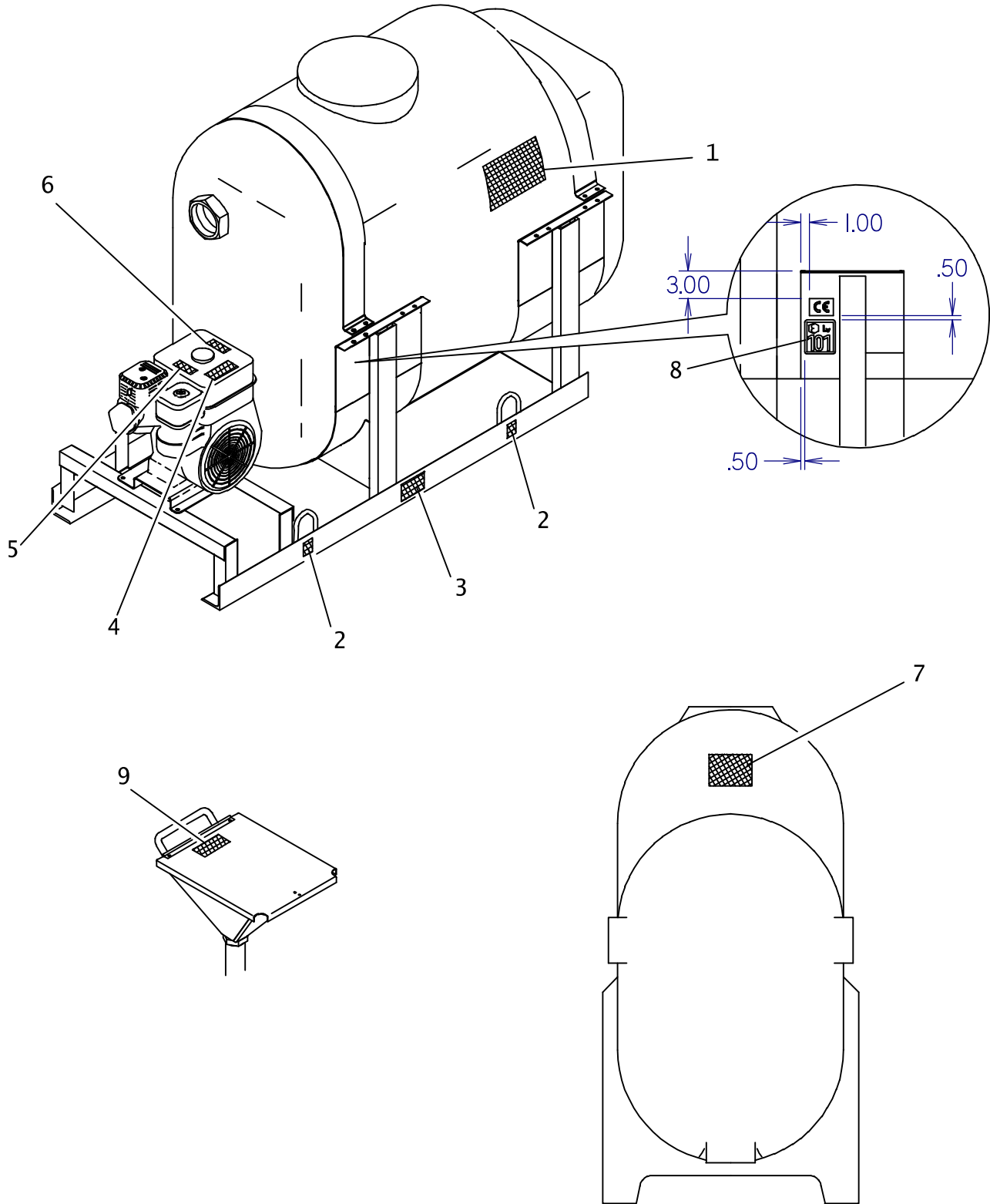
DECAL LOCATION JT5



DECAL LOCATION JT5



DECAL LOCATION FT5



DECAL LOCATION

FT5

REF NO.	PART 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:

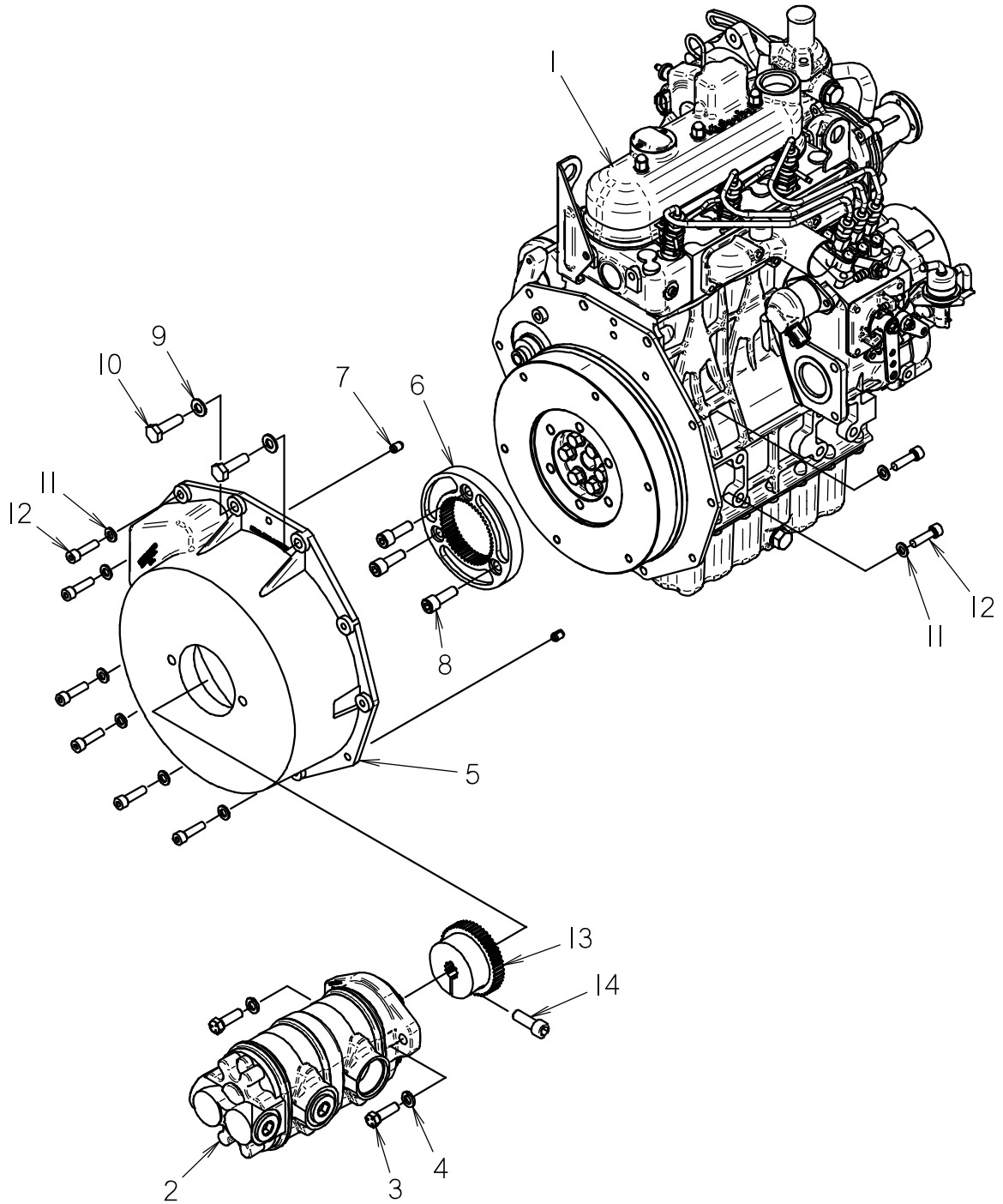
FOOTNOTES:

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

NOTE:

ENGINE COMPONENTS

PUMP MOUNT



PUMP MOUNT

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1	I95-I188	1	ENGINE, KUBOTA D1105-E T4	
2	I50-2972	1	TRIPLE GEAR PUMP	
3	I05-052	2	BOLT (3/8-NC X 1-1/4")	USE 242 LOCTITE OR EQUIVALENT.
4	I05-072	2	LOCK WASHER (3/8")	
5	I94-376	1	ENGINE PUMP MOUNT	INCLUDES REF NUMBERS 6-14. SEE 052-245 MOUNTING INSTRUCTIONS.
6	I94-387	1	PUMP MOUNT FLANGE	
7	N/A	2	ROLL PIN (M8 X 12MM)	
8	I07-925	3	SCREW (M10-I.25 X 30MM, SOC)	TORQUE TO 52 FT-LBS. APPLY GREASE TO CENTER. SEE FOOTNOTE I.
9	I06-390	2	WASHER (M10)	
10	I07-357	2	SCREW (M10-I.25 X 35MM, I0.9)	TORQUE TO 36 FT-LBS. SEE FOOTNOTE I.
11	I06-389	8	WASHER (M8)	
12	I05-892	8	SCREW (M8-I.25 X 30MM, SOC)	TORQUE TO 18 FT-LBS. SEE FOOTNOTE I.
13	I94-388	1	HUB (PUMP MOUNT)	REFER TO 052-245 INSTRUCTIONS FOR POSITION ON SHAFT.
14	I06-305	1	BOLT (7/16-NC X 1-1/4", SOC, GD8)	TORQUE TO 72 FT-LBS. SEE FOOTNOTE I.

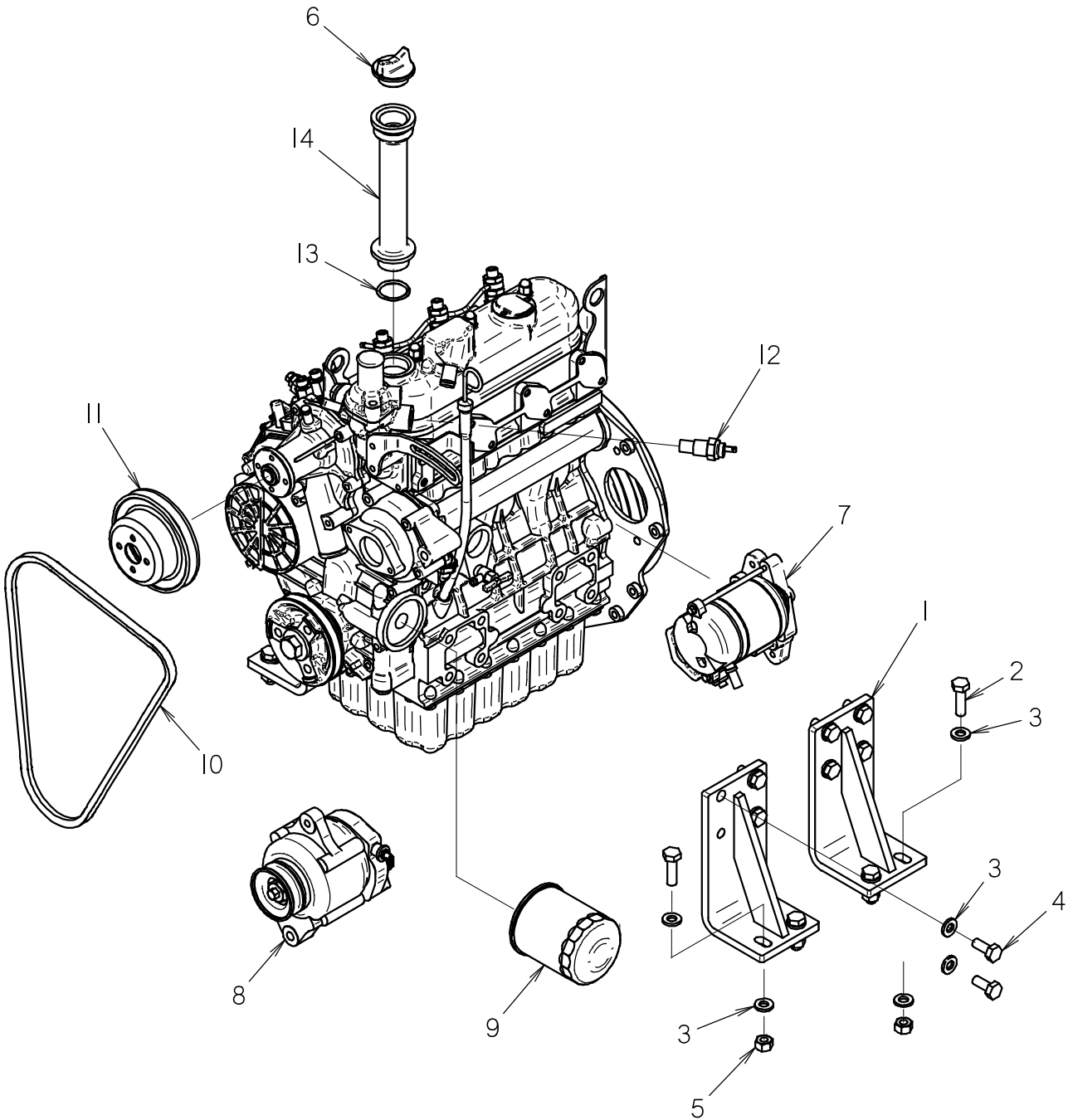
NOT SHOWN:

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-I.50 X 35MM)	
3	106-396	32	WASHER (M10, HARDENED)	
4	111-054	16	SCREW (M10-I.25 X 25MM)	USE LOCTITE 242 OR EQUIVALENT
5	105-894	8	LOCKNUT(M10-I.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	

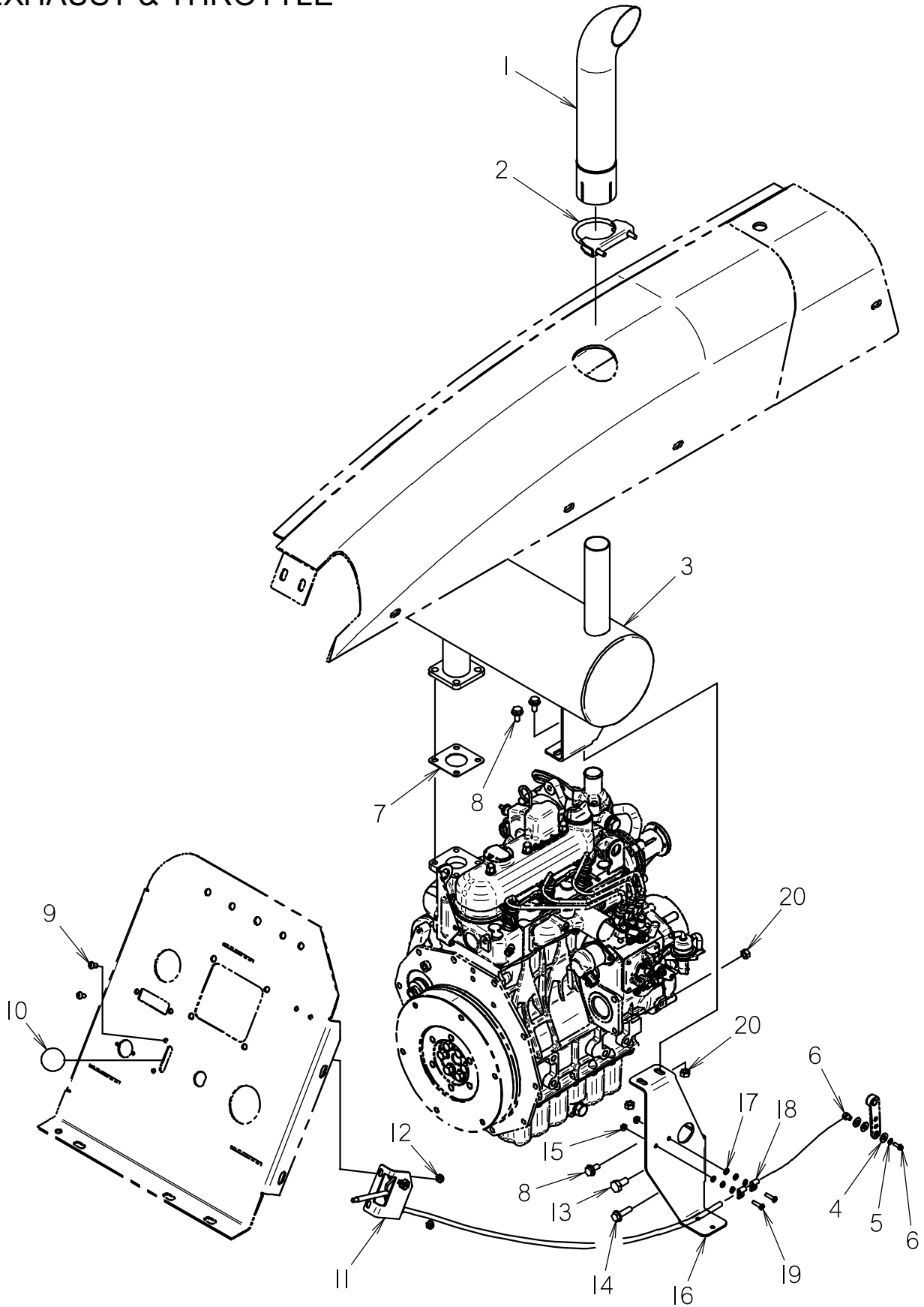
NOT SHOWN:

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 & THROTTLE



01

ID0228675

EXHAUST & THROTTLE

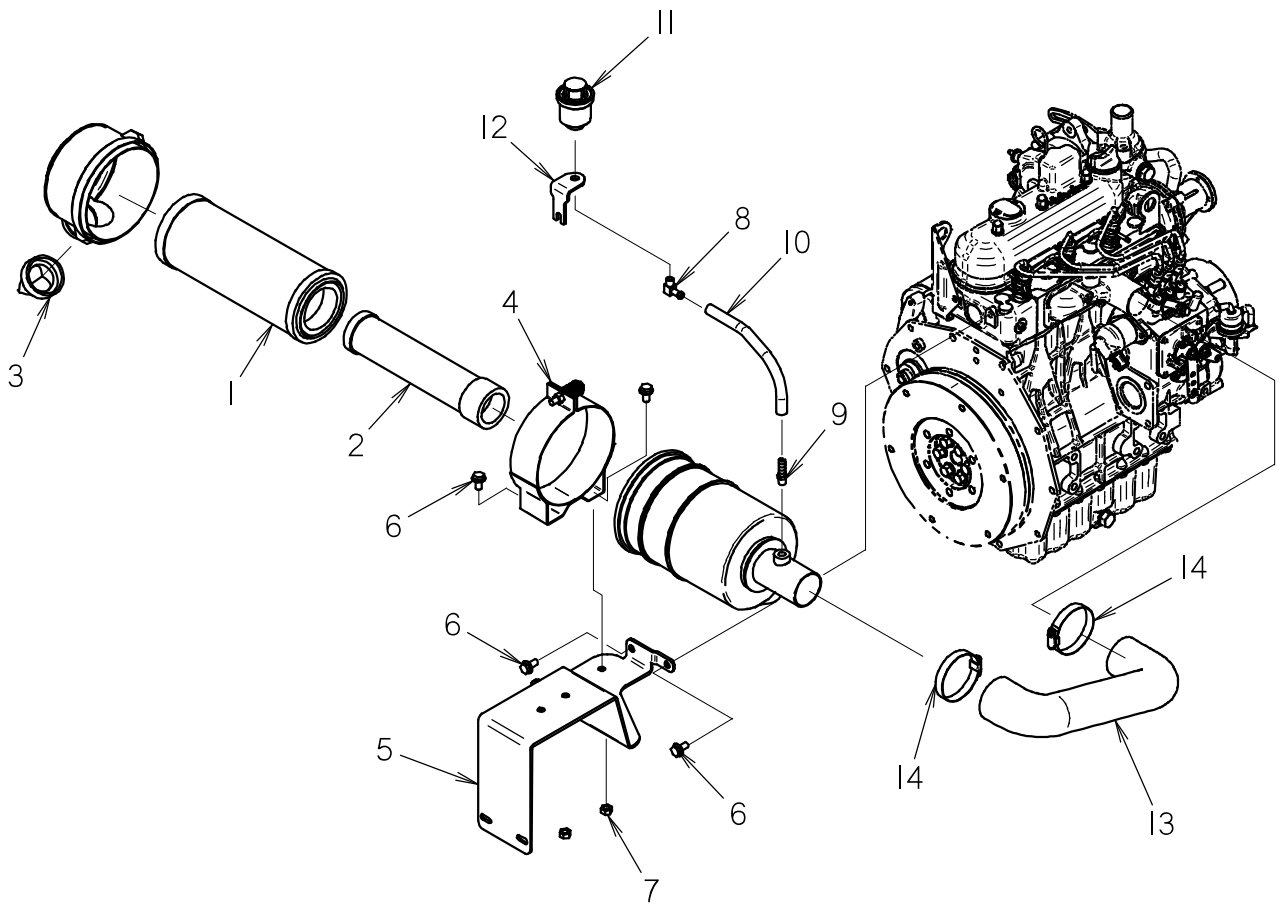
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1	196-076	1	EXHAUST EXTENSION TUBE	
2	196-009	1	U-BOLT CLAMP (2.500")	
3	194-365	1	EXHAUST MUFFLER	
4	106-076	3	WASHER (1/4")	
5	106-013	1	WASHER (3/16")	
6	196-058	1	CABLE SWIVEL (.081")	
7	149-326	1	GASKET, MUFFLER	
8	106-380	3	FLG LK SCREW (M8-1.25 X 16MM)	
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)	

NOT SHOWN:

FOOTNOTES:

NOTE:

AIR FILTER SYSTEM



AIR FILTER SYSTEM

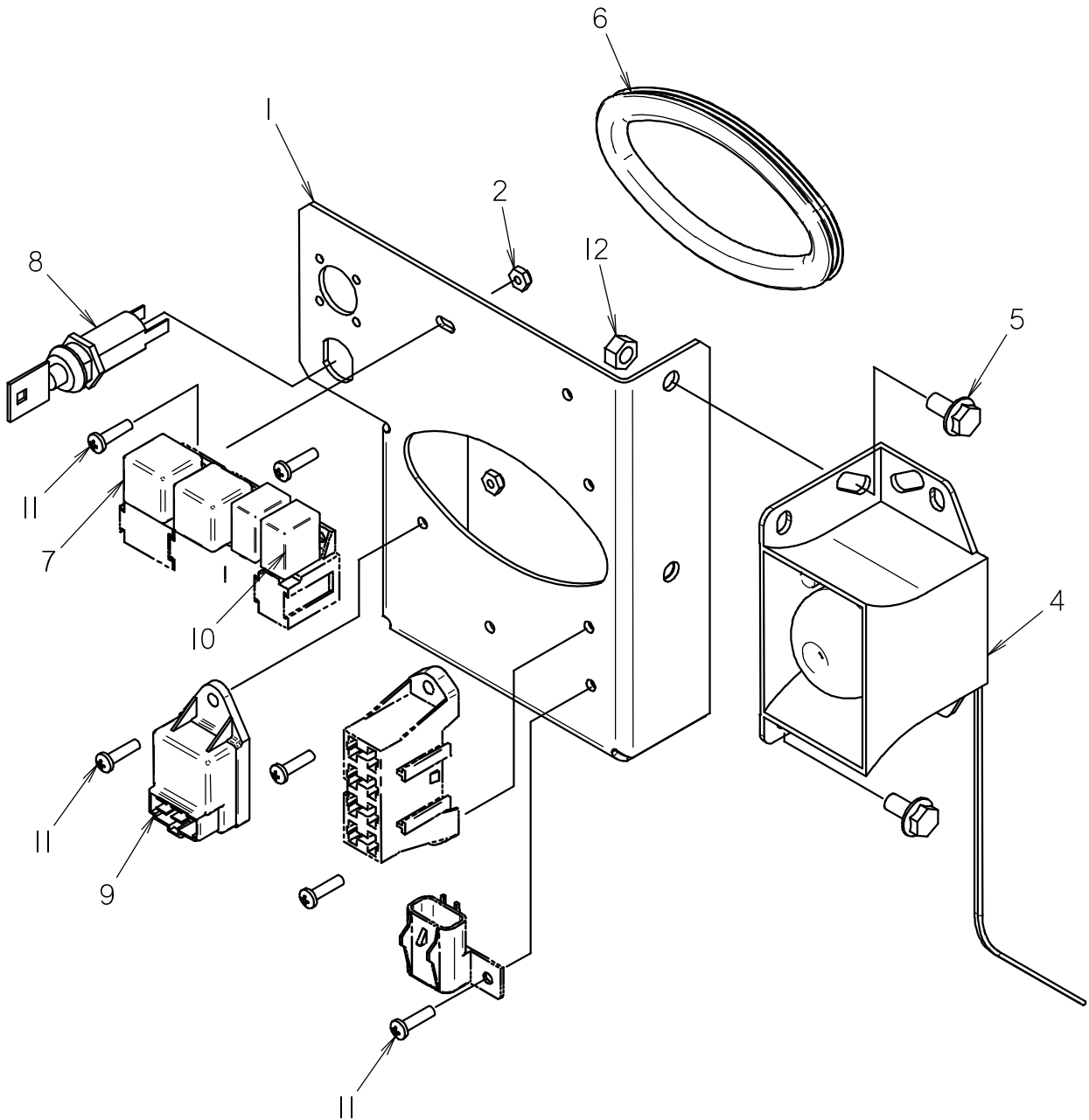
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	194-035	1	AIR FILTER PARTS ASSEMBLY	INCL'S REF NO.'S 1, 2 & 3
1	194-038	1	FILTER ELEMENT, PRIMARY	
2	194-039	1	FILTER ELEMENT - SECONDARY	
3	194-761	1	DISCHARGE VALVE	
4	194-036	1	MOUNTING CLAMP (5.750")	
5	300-9370	1	FILTER MOUNT	
6	106-380	4	FLG LK SCREW (M8-1.25 X 16MM)	
7	106-561	2	LOCKNUT (M8-1.25,PRV TRQ,10.9)	
8	155-241	1	S/O COUPLER (02N-05H90)	
9	155-142	1	S/O COUPLER (02N-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")	

NOT SHOWN:

FOOTNOTES:

NOTE:

RELAY PANEL



RELAY PANEL

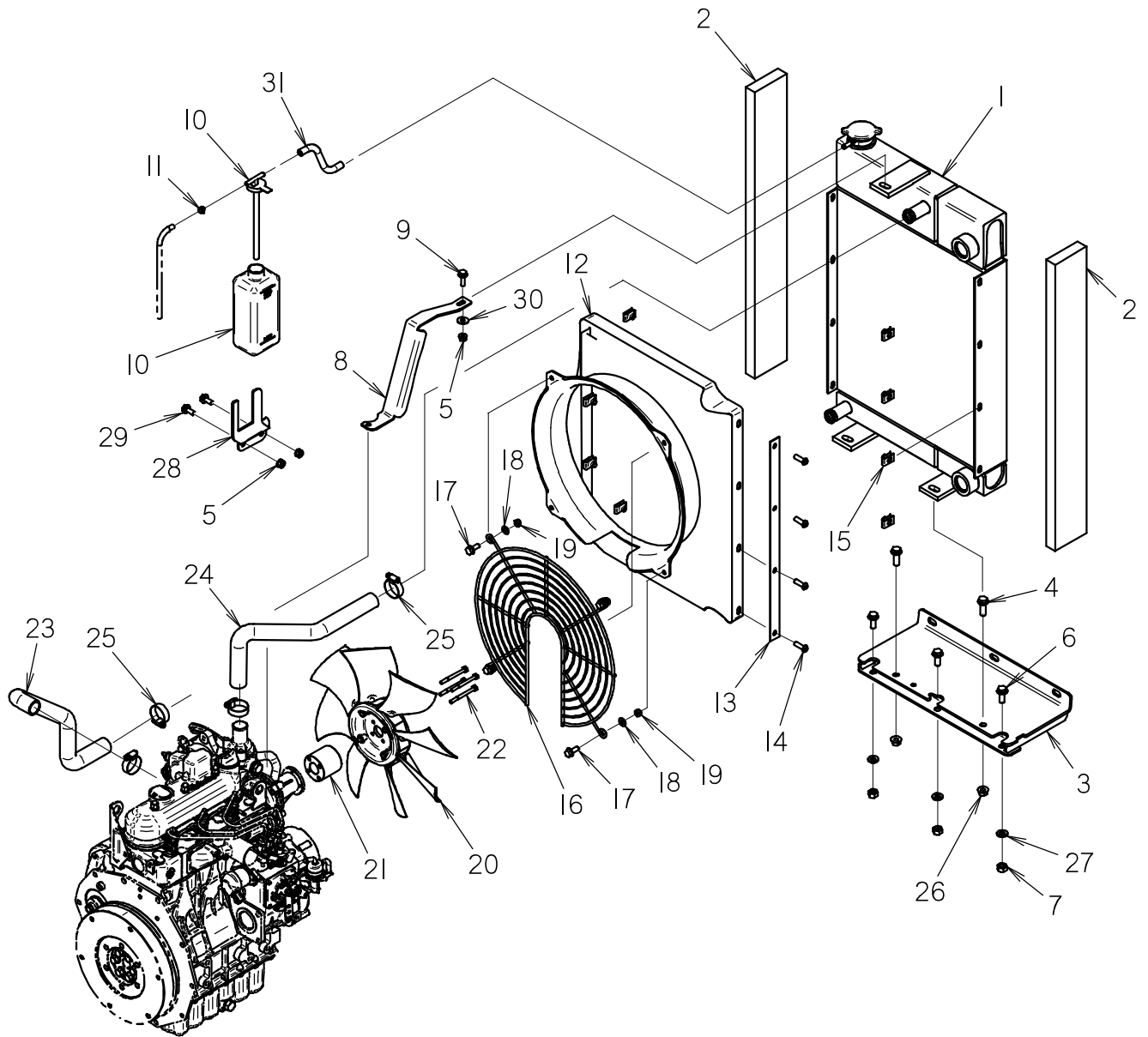
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1	302-876	1	RELAY PANEL	
2	106-048	6	LOCKNUT (#10-24)	
4	306-602	1	ALARM	
5	106-380	2	FLG LK SCREW (M8-1.25 X 16MM)	
6	115-686	12	BULK EDGE	
7	217-826	2	MINI RELAY (SPDT)	
8	214-908	1	ON-OFF KEY SWITCH	
9	217-856	1	LAMPTIMER 12V	
10	217-710	2	MICRO RELAY (SPDT)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

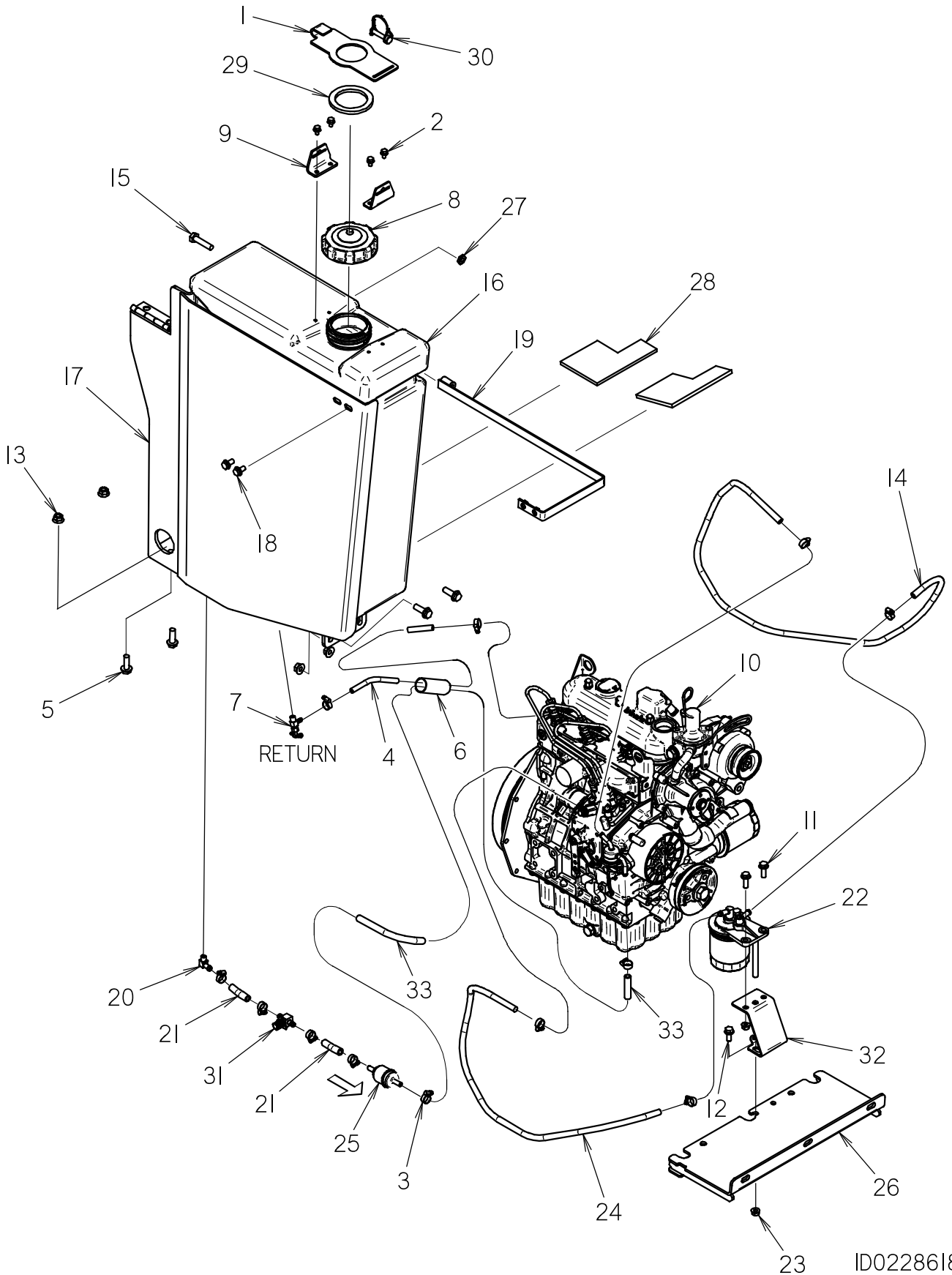
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1	195-1163	1	RADIATOR/OIL COOLER	110-898 RADIATOR CAP (14 PSI)
2	116-883	2	SOUND INSULATION	
3	300-3752	1	RADIATOR/OIL COOLER MOUNT	
4	106-383	2	FLG LK SCREW (M10-1.50 X 30MM)	
5	106-386	3	FLG LOCKNUT (M8-1.25)	
6	106-724	3	FLG SCREW (M10-1.50 X 25MM)	
7	105-894	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')	

NOT SHOWN:

FOOTNOTES:

NOTE:

FUEL TANK



FUEL TANK

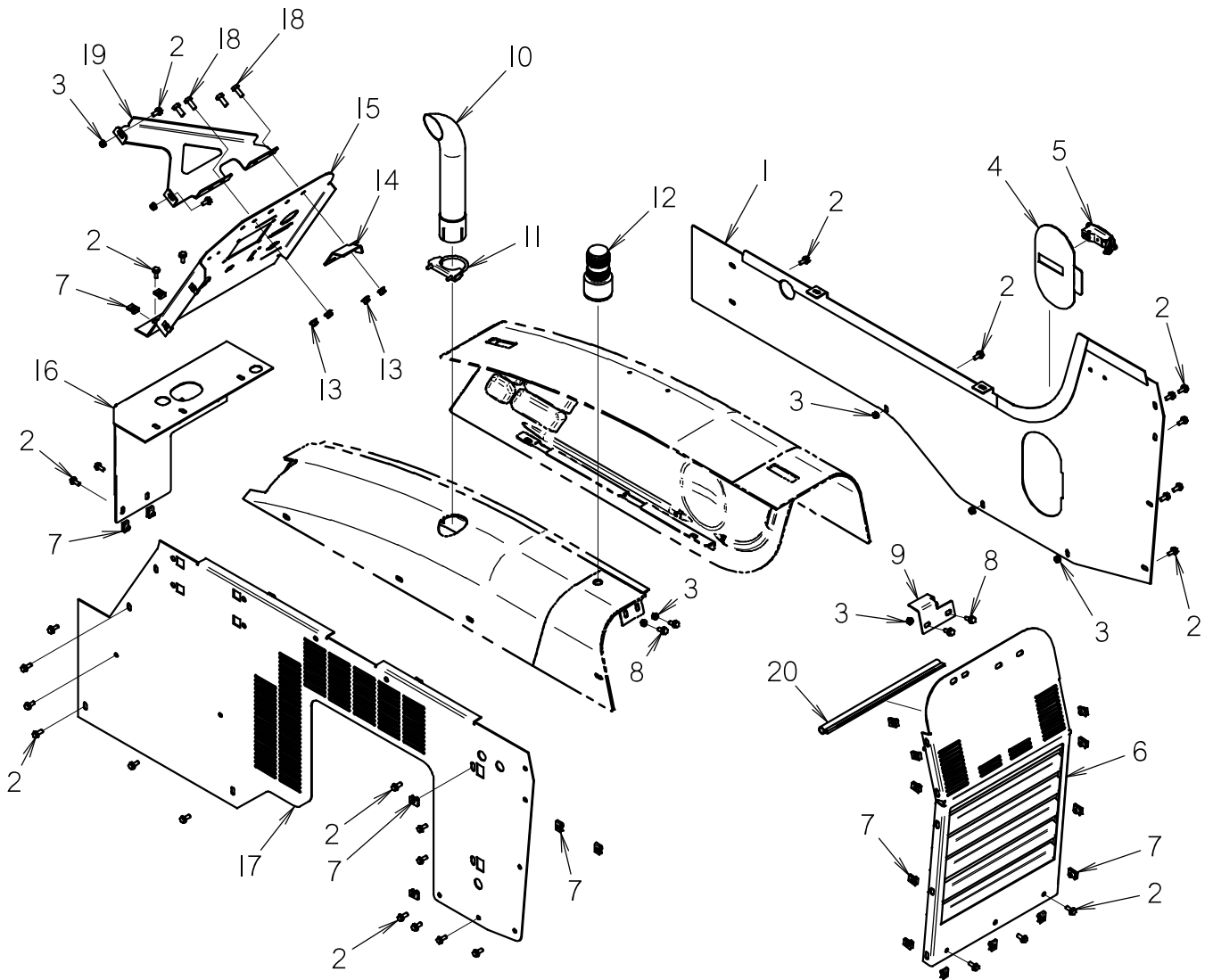
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1	300-6248	1	LOCK STRAP	
2	106-224	4	FLG SCREW (M6-1.00 X 10MM)	
3	110-249	12	WORM CLAMP (1/4" TO 5/8")	
4	116-866	43	BULK HOSE (3/16",SOLD PER 1')	
5	106-383	4	FLG LK SCREW (M10-1.50 X 30MM)	
6	117-989	1	ABRASION SLEEVE (1.00" X 24")	
7	156-064	1	S/O SHUT-OFF (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

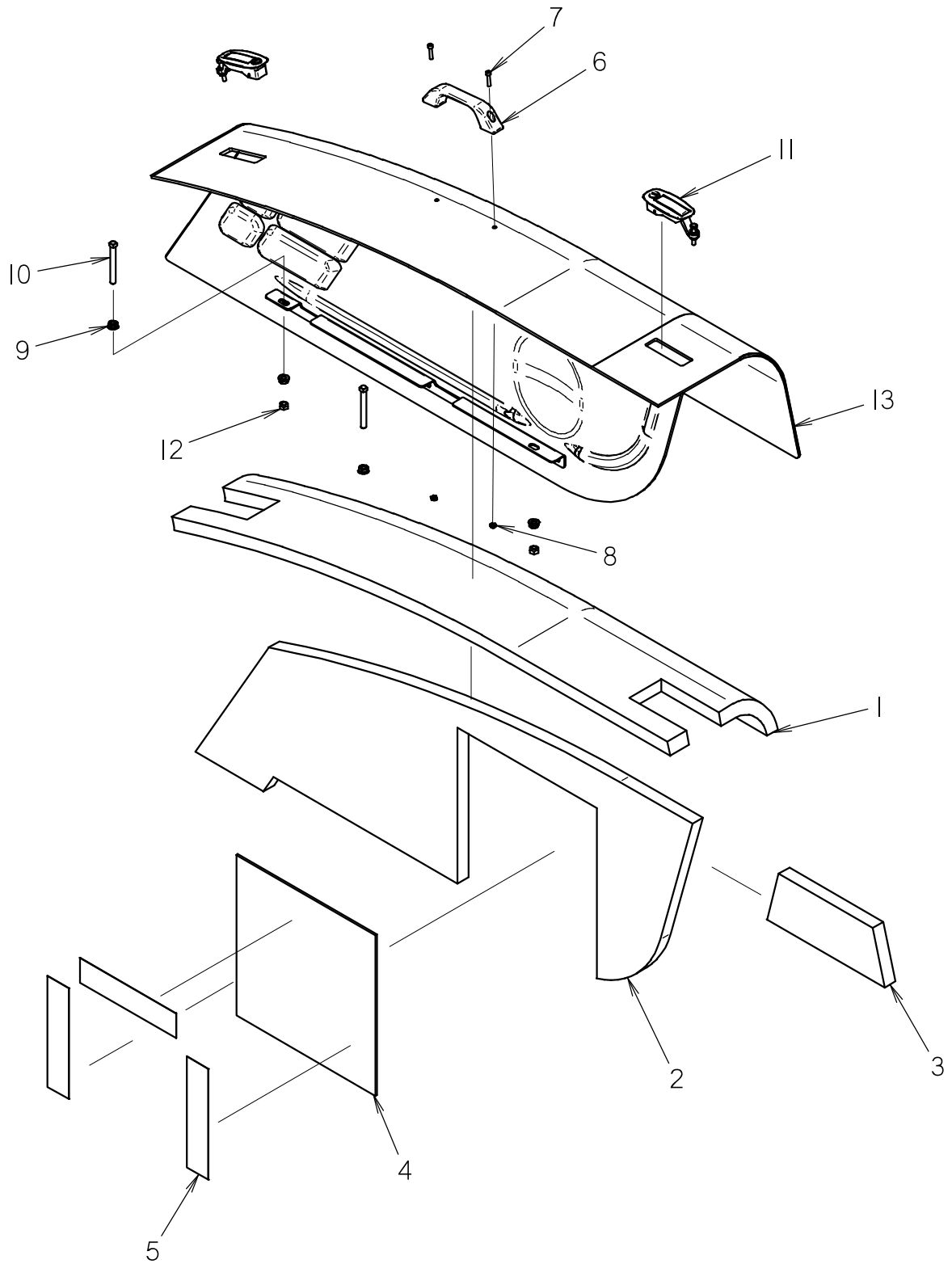
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1	300-9021	1	LOWER COVER	
2	106-991	28	FLG LK SCREW (M8-1.25 X 20MM)	
3	106-386	9	FLG LOCKNUT (M8-1.25)	
4	301-1984	1	COVER	
5	117-558	1	ADJUSTABLE LEVER LATCH (LOCKING)	
6	300-8379	1	GRILLE WELDMENT	
7	106-551	25	CLIP NUT (M8-1.25)	
8	106-162	6	FLG SCREW (M8-1.25 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

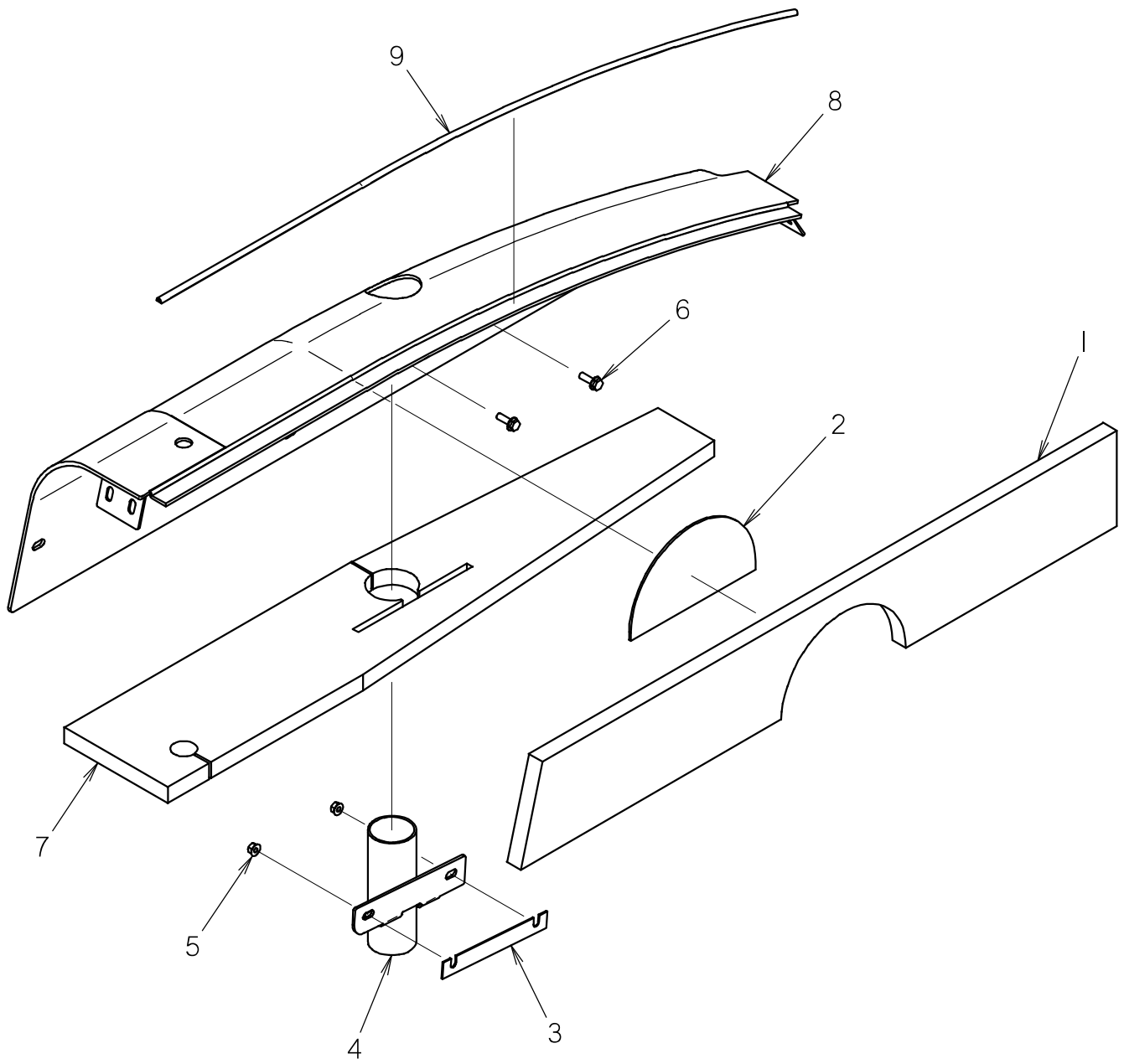
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1	362-1369	1	INSULATION	
2	362-1370	1	INSULATION	
3	362-1371	1	INSULATION	
4	362-1372	1	THERMAL BARRIER	
5	118-388	3	3MIL FLEXIBLE SILVER TAPE	
6	117-538	1	GRAB HANDLE	
7	105-810	2	BOLT (#10-24 X 7/8", SOC)	
8	106-048	2	LOCKNUT (#10-24)	
9	105-834	4	FLG LOCKNUT (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

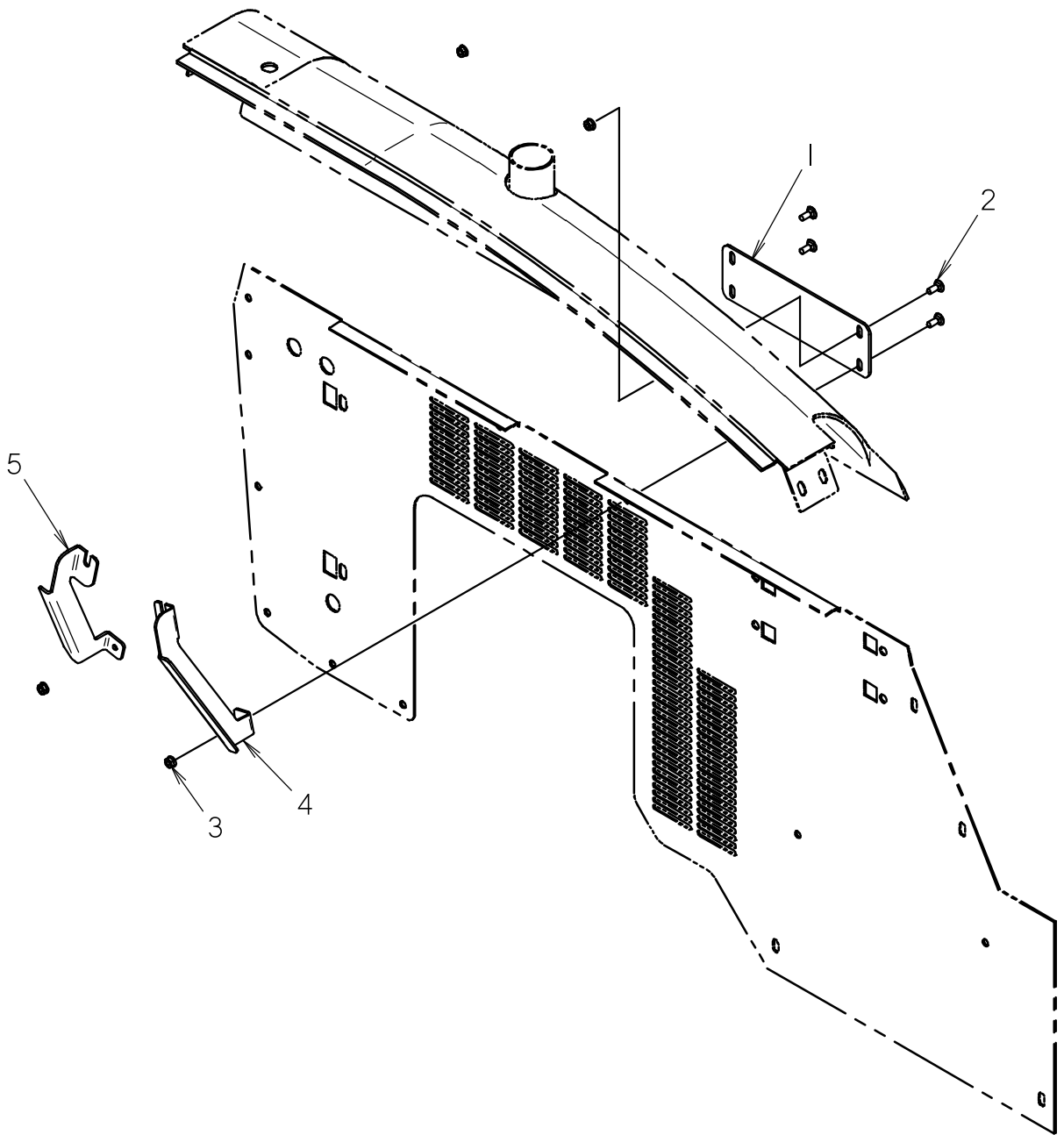
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1	362-1426	1	INSULATION	
2	362-1453	1	THERMAL INSULATION	
3	301-1588	1	SHIM	AS REQUIRED
4	301-1587	1	VENTURI MOUNT	
5	106-386	2	FLG LOCKNUT (M8-1.25)	
6	106-381	2	FLG LK SCREW (M8-1.25 X 25MM)	
7	362-1412	1	INSULATION	
8	301-2073	1	FIXED HOOD	
9	116-724	46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

NOT SHOWN:

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	

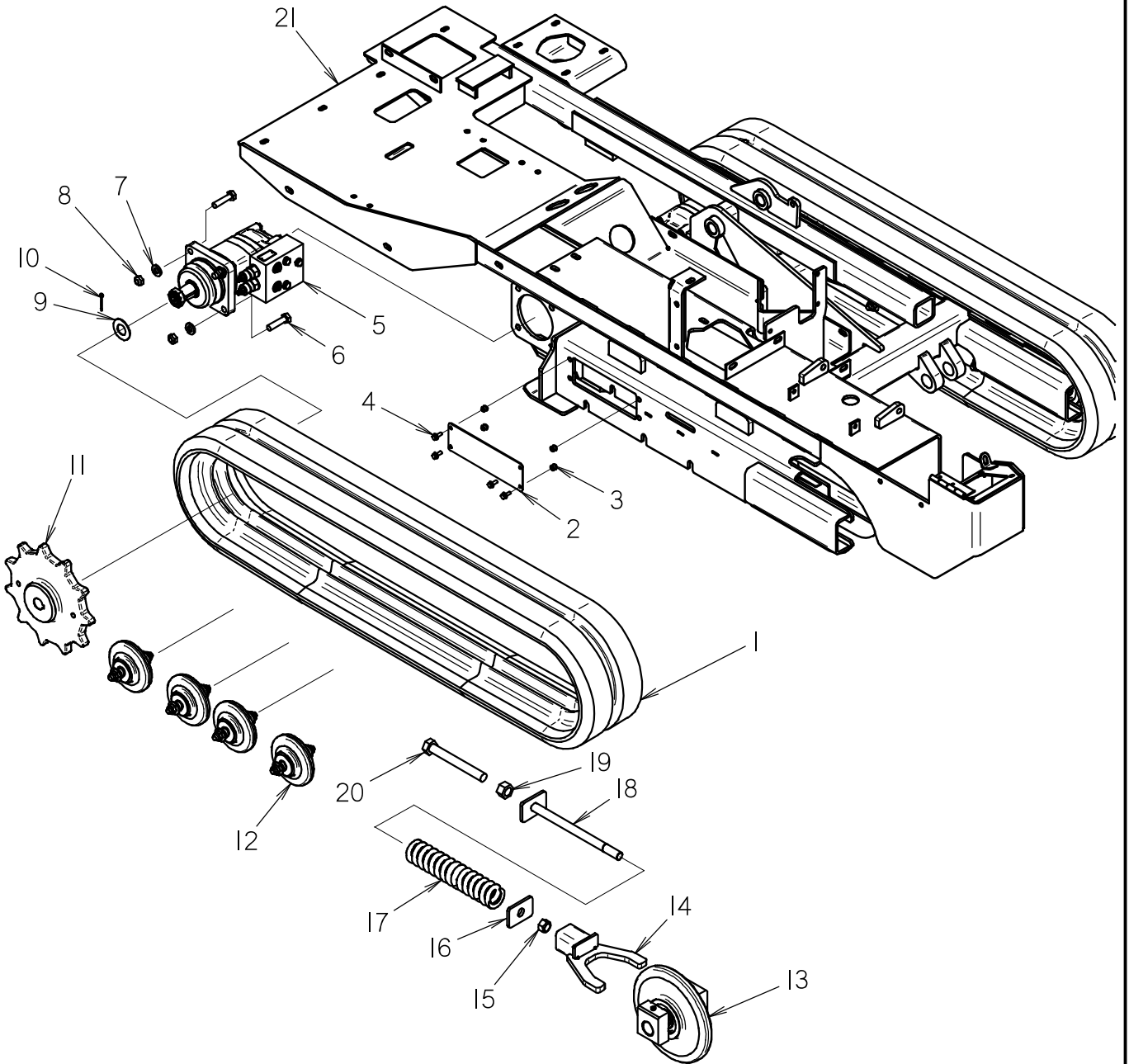
NOT SHOWN:

FOOTNOTES:

NOTE:

FRAME COMPONENTS

TRACKS



TRACKS

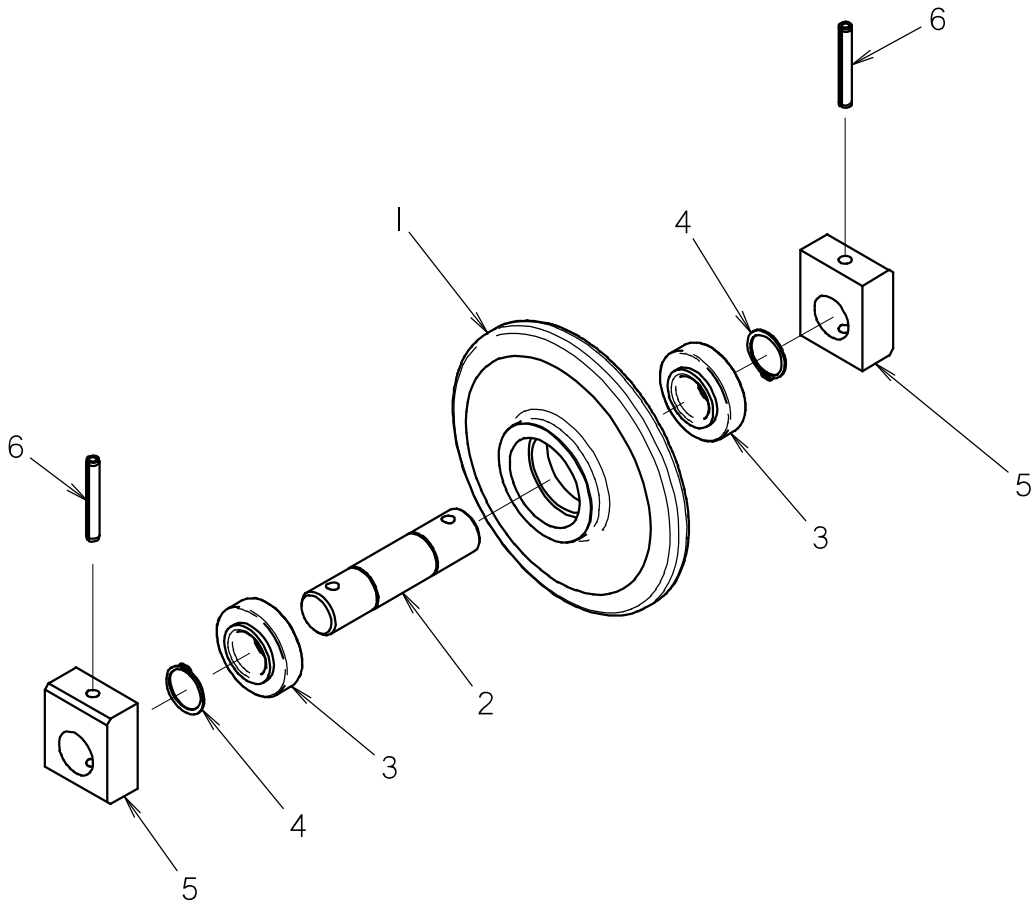
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1	302-644	2	RUBBER TRACK (180MM,39P,72MM)	
2	302-707	2	ADJUSTMENT COVER	
3	105-631	8	NUTSERT(M6X1.0) 4.20-6.6 THK	
4	106-712	8	FLG SCREW (M6-1.00 X 16MM)	
5	158-965	2	HYD MOTOR W/ COUNTER BALANCE	500-658 SEAL REPAIR KIT. 155-776 O-RING (BETWEEN BLOCK & MOTOR)
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

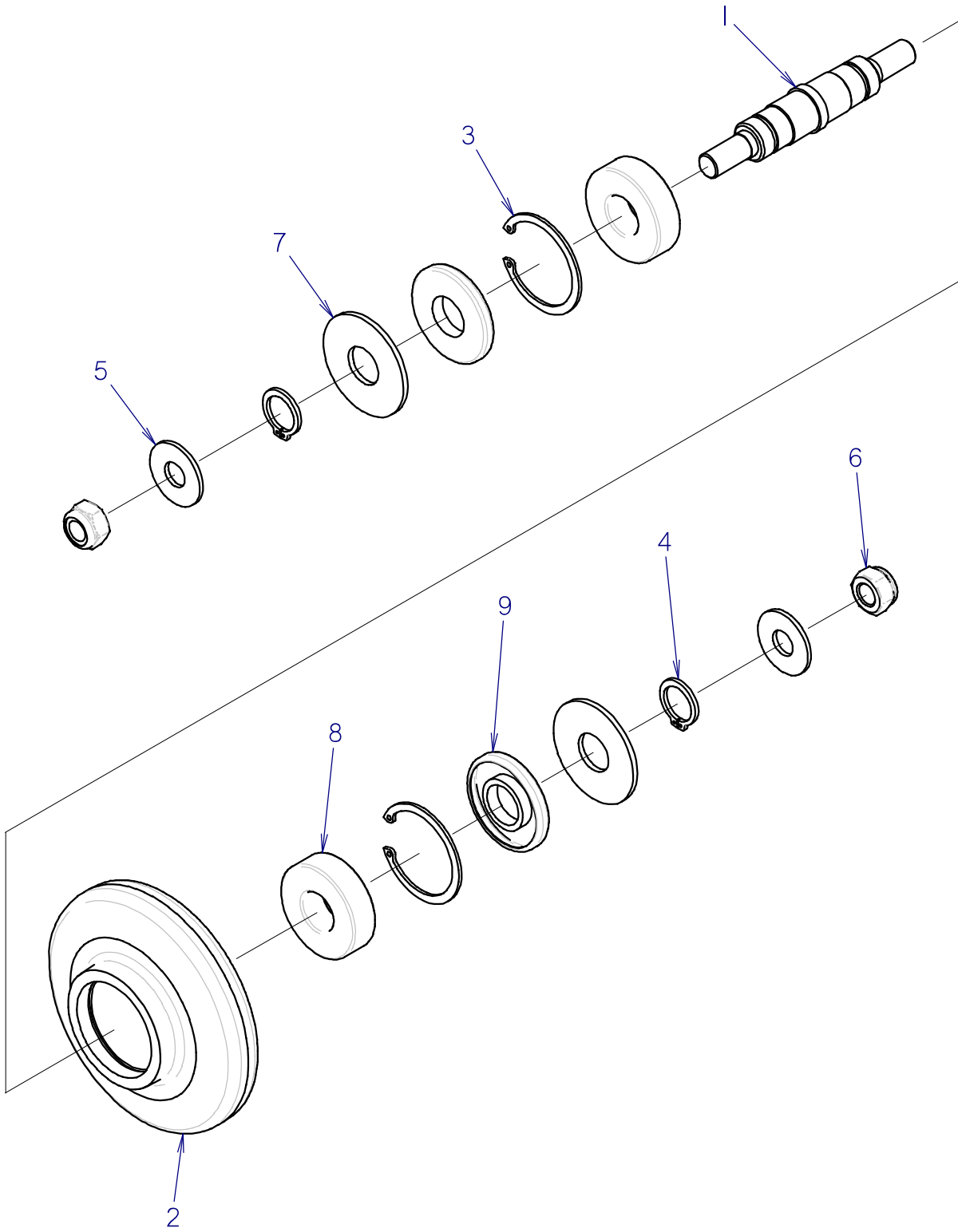
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	170-342		IDLER ROLLER SUB	INCLUDES REFERENCE NUMBERS 1 & 3
1	348-509	1	IDLER	
2	167-340	1	IDLER SHAFT	
3	125-005	2	BALL BEARING (1.378")	
4	115-465	2	EXTERNAL SNAP RING (1.375")	
5	347-023	2	PUSH BLOCK	
6	105-561	2	ROLL PIN (3/8" X 2-3/4")	

NOT SHOWN:

FOOTNOTES:

NOTE:

INNER ROLLER



INNER ROLLER

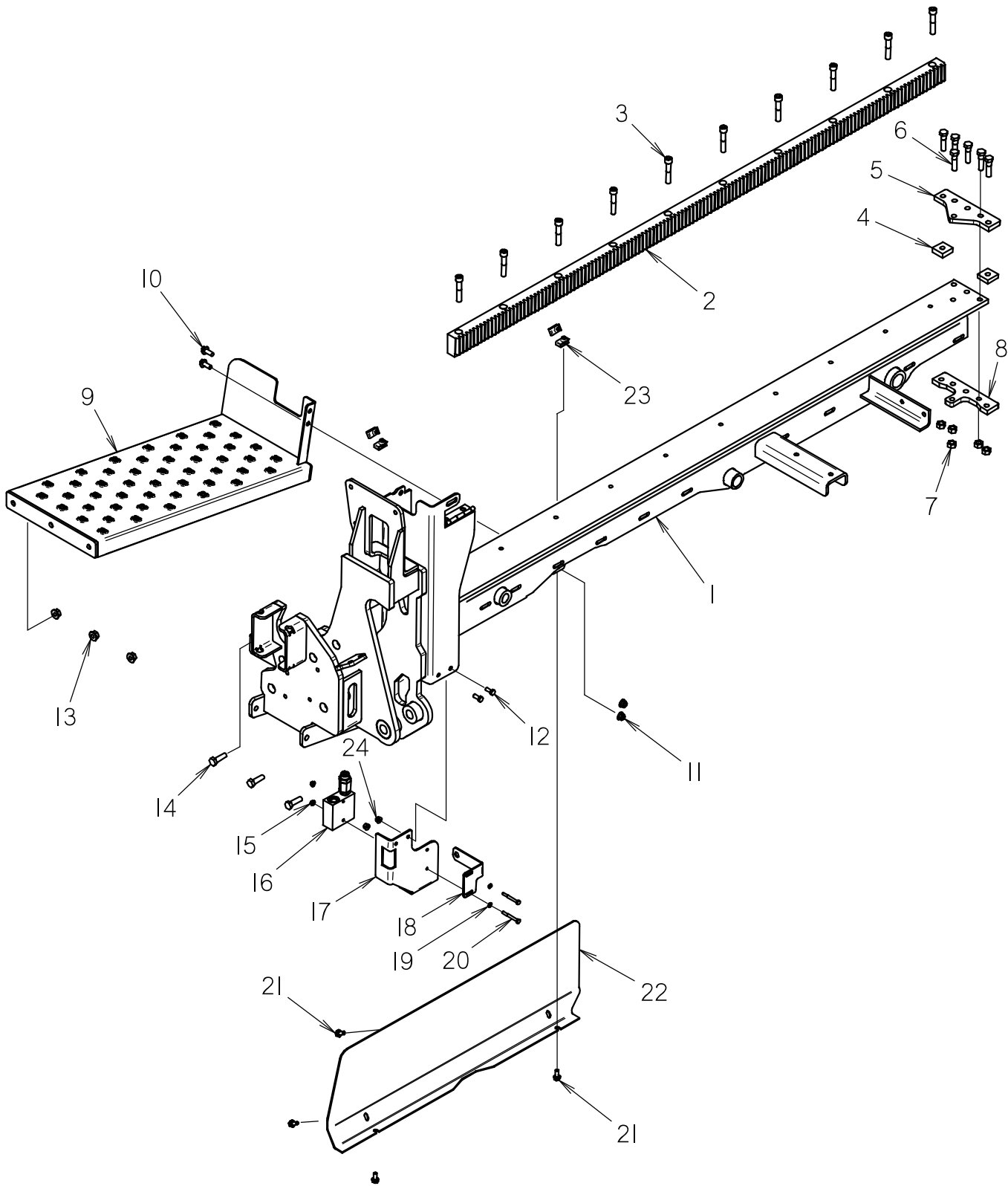
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	355-972		ROLLER	INCLUDES REF No's 1 - 9
1	355-942	1	ROLLER SHAFT	
2	356-265	1	ROLLER	
3	118-018	2	INTERNAL SNAP RING (1.875)	
4	115-545	2	EXTERNAL SNAP RING (.750)	
5	105-059	2	WASHER (.716")	
6	106-031	2	LOCKNUT (M12-1.75, NLK)	
7	110-773	2	MACHINERY BUSHING (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

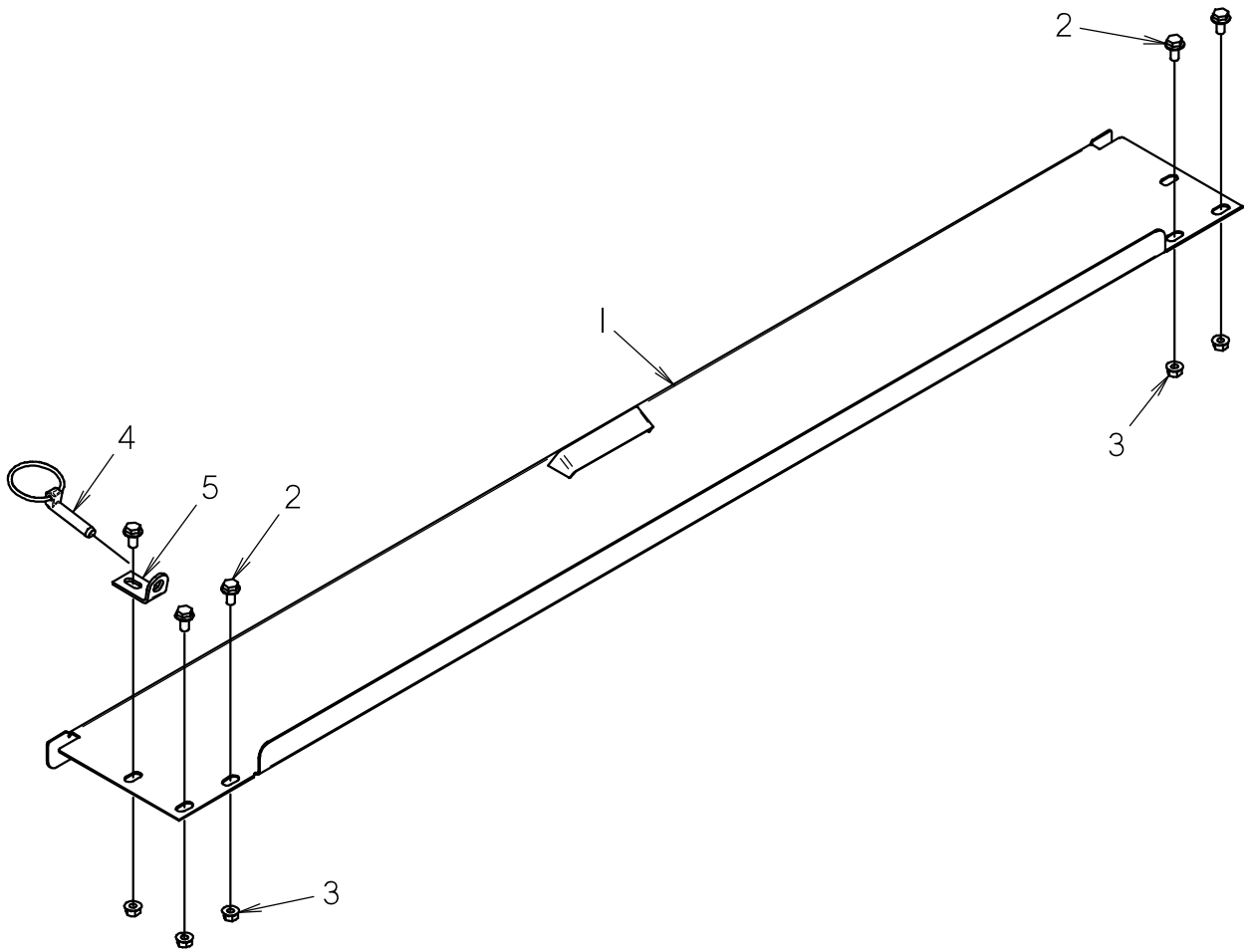
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1	300-8665	1	DRILL FRAME	
2	160-1144	1	6DP RACK	
3	105-1316	10	SCREW (M12-1.75 X 65MM, SOC)	LUBRICATE WITH WD-40 OR EQUIVALENT & TORQUE TO 60 FT-LBS
4	362-1523	2	STOP	
5	300-8109	1	STOP PLATE	
6	107-748	6	SCREW (M12-1.75 X 50MM, 10.9)	
7	106-089	5	HEX NUT (M12-1.75, 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

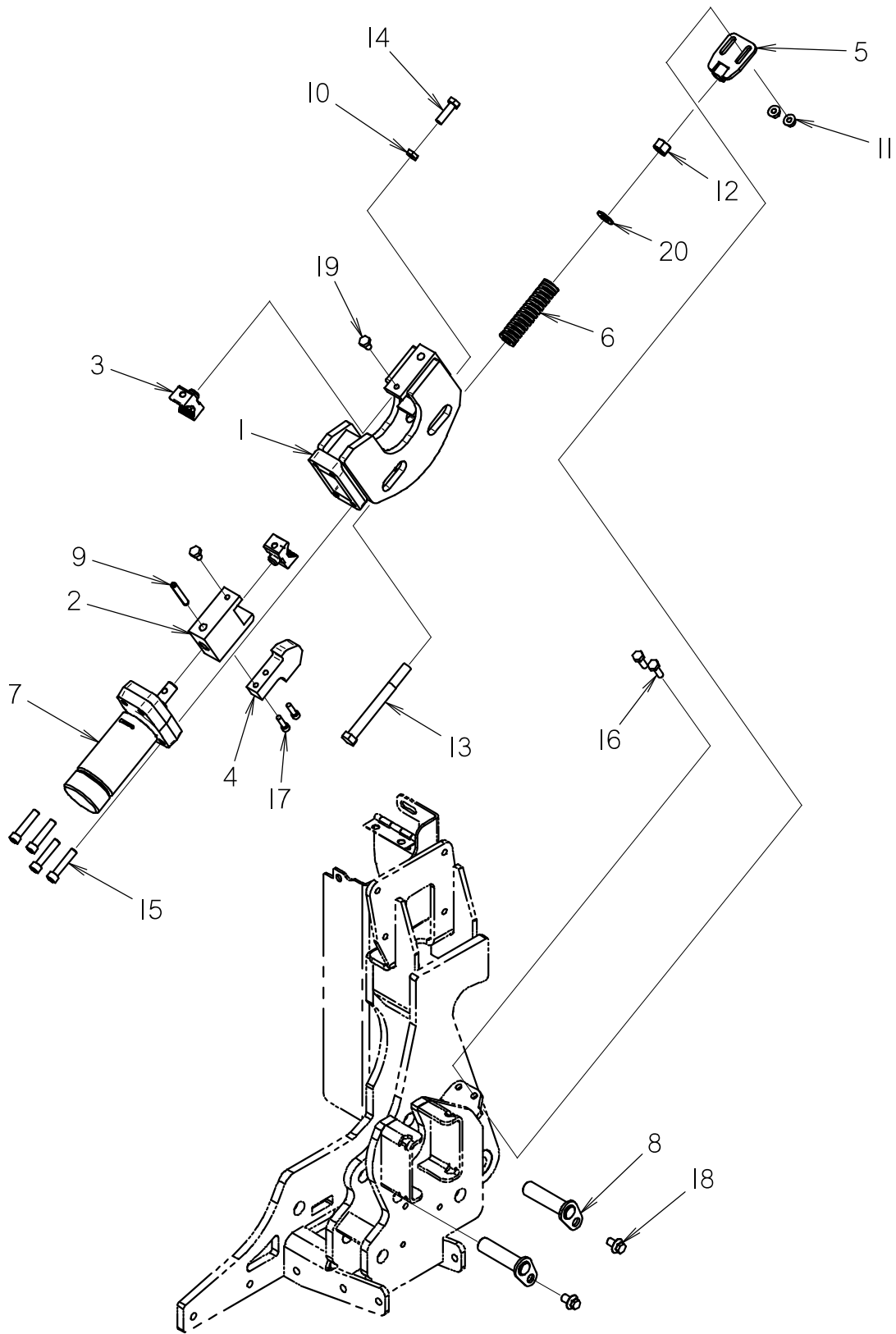
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1	106-383	1	FLG LK SCREW (M10-1.50 X 30MM)	
2	181-981	2	TAPERED INSERT (1")	
3	115-511	1	KLIP RING (1.50")	
4	110-220	1	MACH BUSHING (1-1/2", 14GA)	
5	125-770	3	COMPOSITION BUSHING (1.000")	
6	302-735	1	TAPERED PIN (1.000" X 7.200")	
7	106-469	1	FLG SCREW (M12-1.75 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

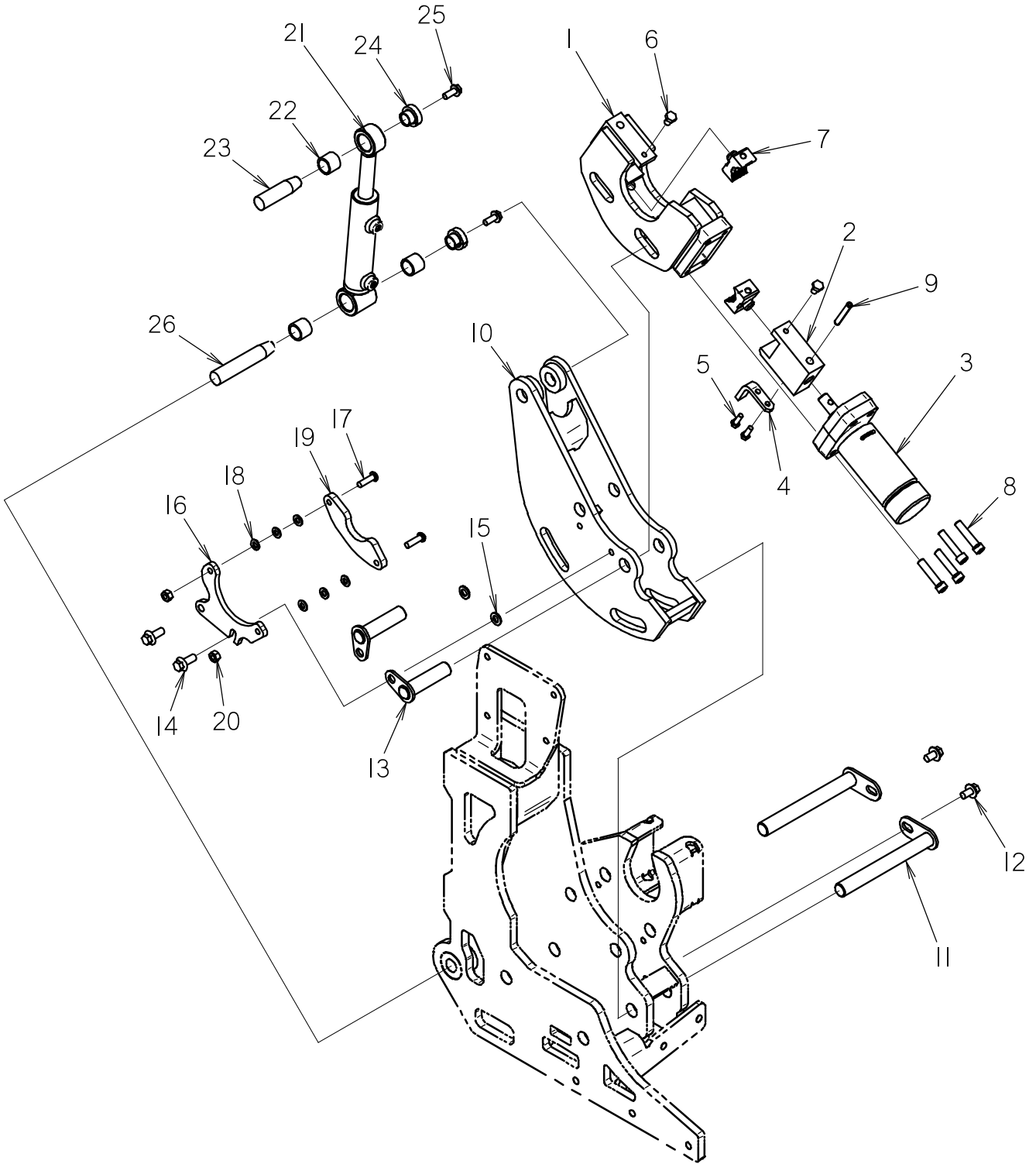
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1	300-8124	1	WRENCH	
2	300-8126	1	JAW	
3	375-1029	2	JAW INSERT	
4	362-1343	1	STOP	
5	300-8132	1	SPRING STOP	
6	118-115	1	COMPRESSION SPRING	
7	150-2784	1	CYL (2.5 X 1.25 X 2.0)	
8	300-8116	2	WRENCH PIN - SHORT	
9	105-555	1	ROLL PIN (3/8" X 2-1/2")	
10	107-669	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

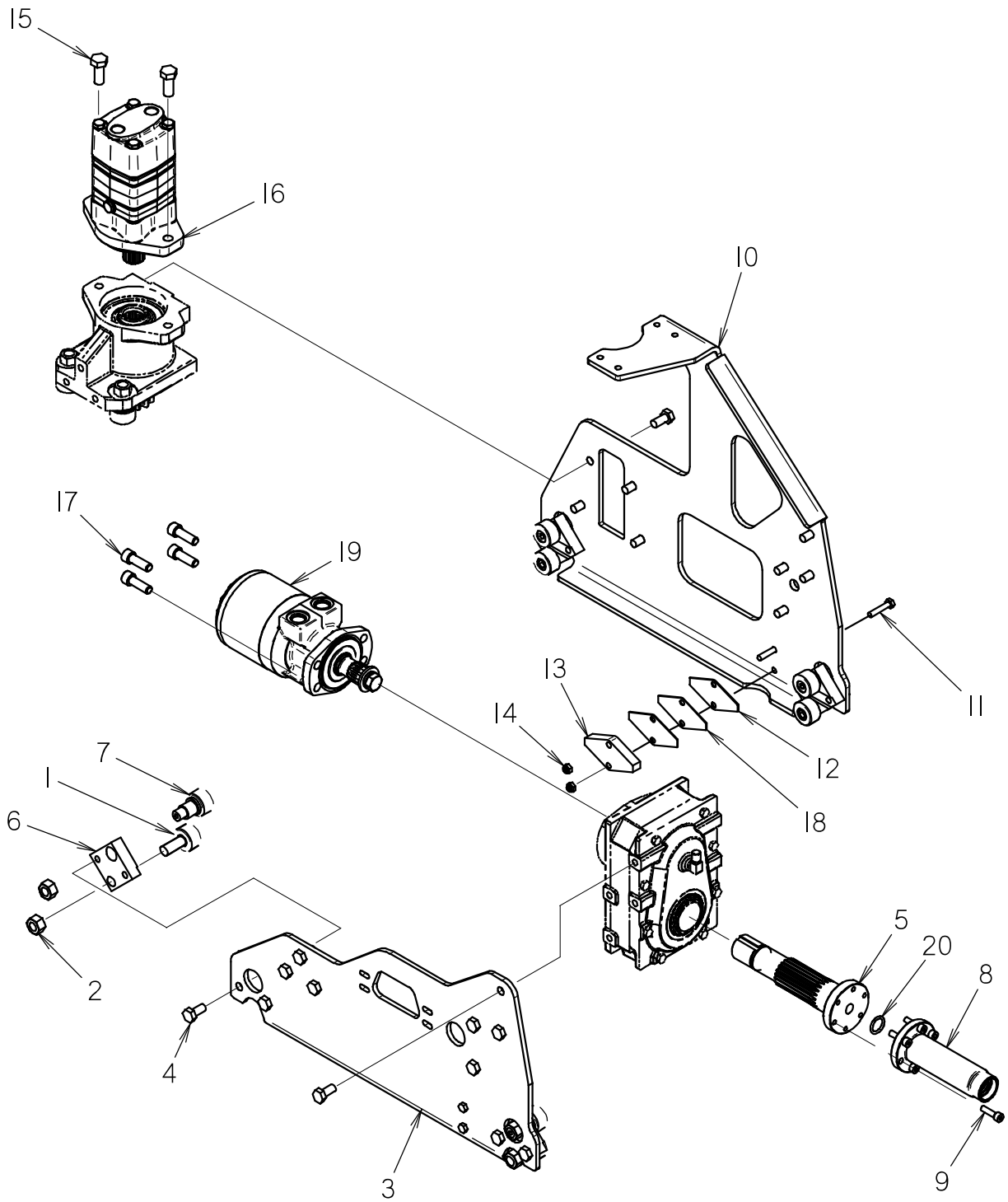
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1	300-8124	1	WRENCH	
2	300-8126	1	JAW	
3	150-2784	1	CYL (2.5 X 1.25 X 2.0)	
4	300-8134	1	STOP	
5	105-806	2	SCREW (M8-1.25 X 25MM)	
6	106-654	2	SCREW (M10-1.50 X 16MM)	USE LOCTITE 242 OR EQUIVALENT
7	375-1029	2	JAW INSERT	
8	107-602	4	SCREW (M12-1.75 X 55MM, 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	ROLLER 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 (0.60")	SEE FOOTOTE I
19	150-3249	1	HYDRAULIC MOTOR, 18.9 CIR	
20	155-792	1	O-RING (212 D70)	

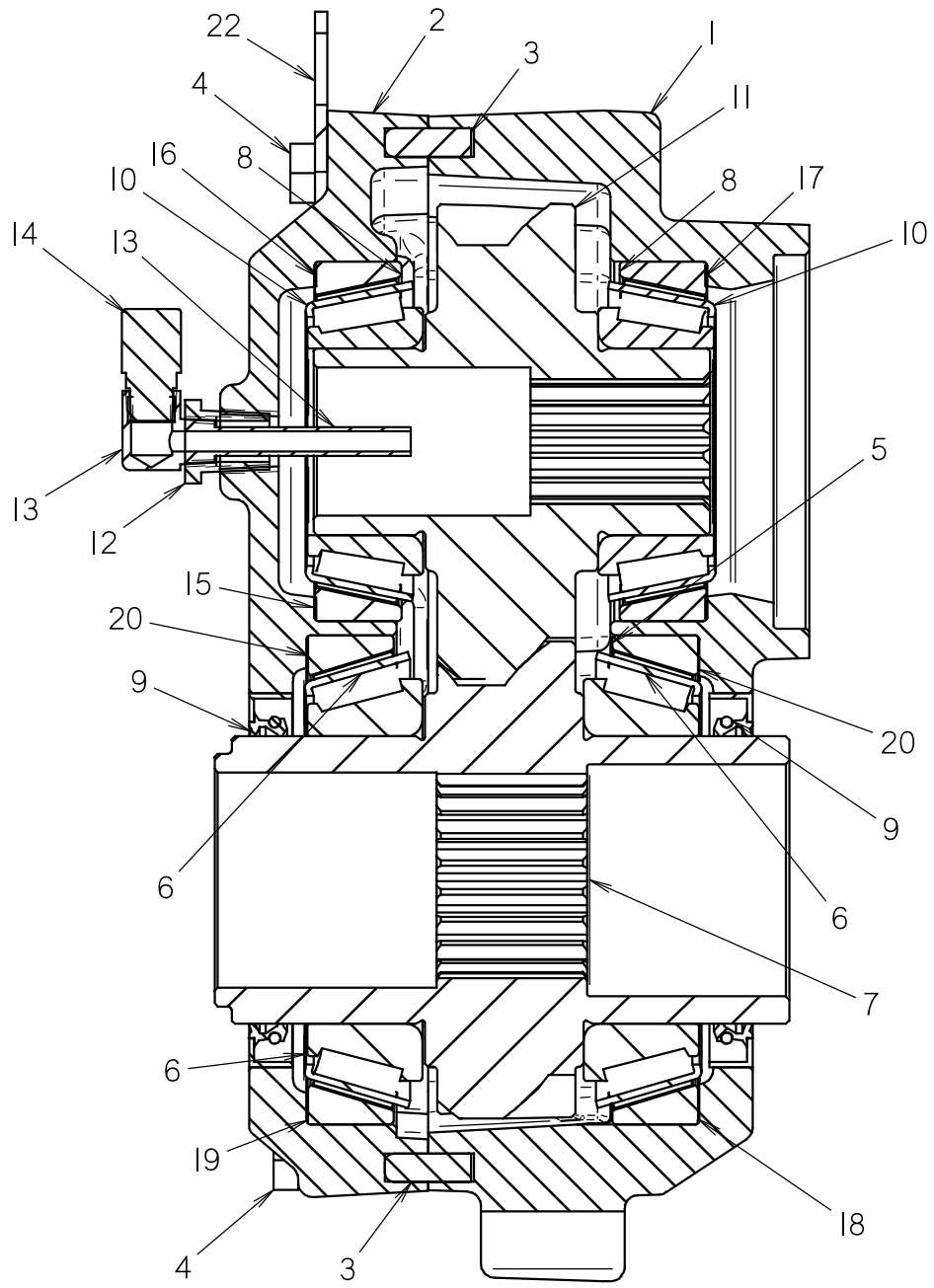
NOT SHOWN:

FOOTNOTES:

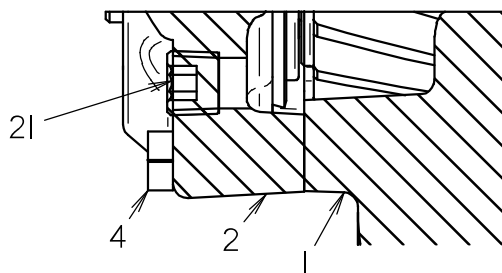
I. USE AS REQUIRED TO FILL SPACE BETWEEN SLIDE AND DRILL FRAME BAR. SPLIT SPACING EQUALLY ON EACH SIDE.

NOTE:

ROTATION GEAR BOX



SECTION A-A



SECTION B-B

ROTATION GEAR BOX

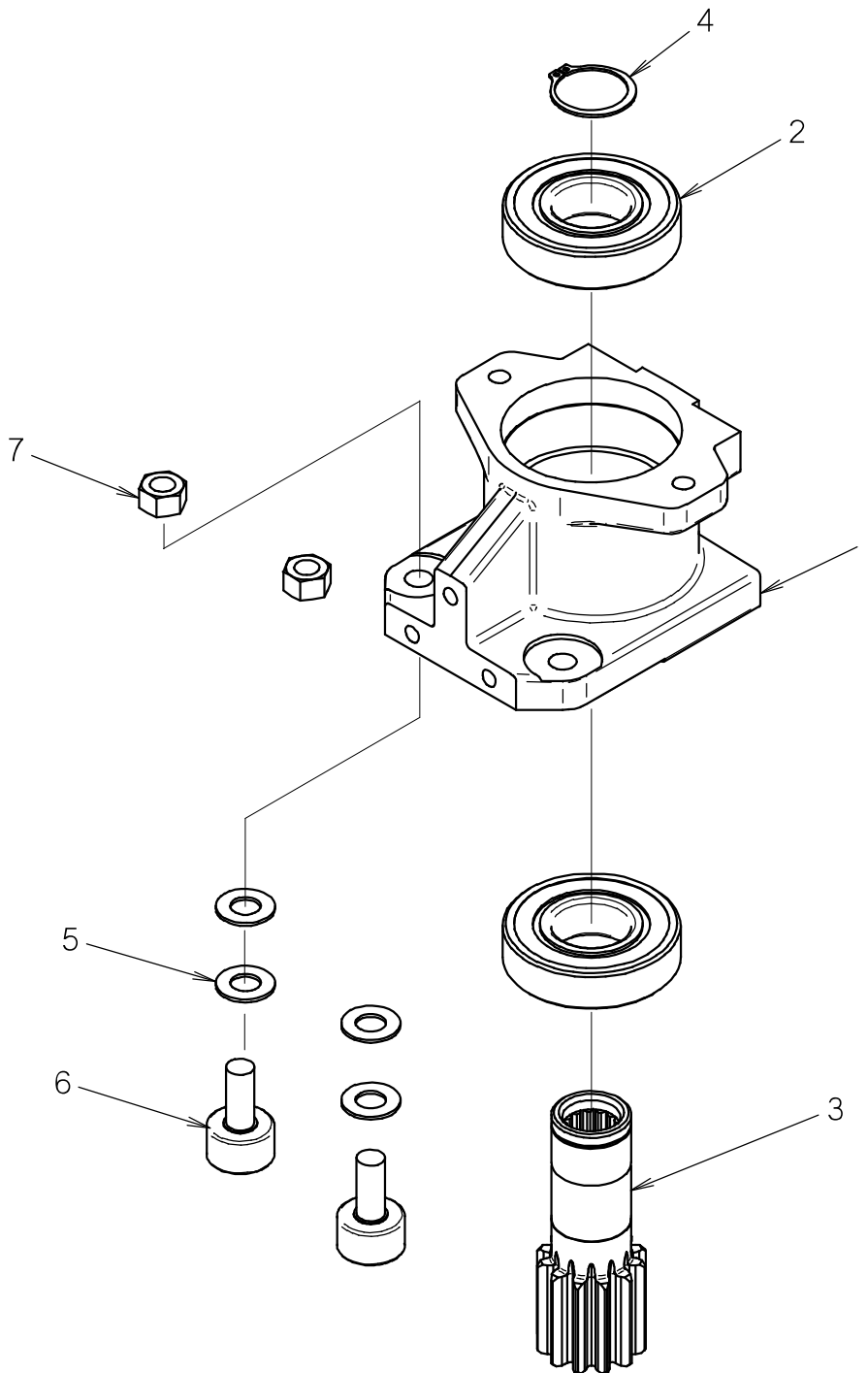
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	350-2030	-	GEARBOX	INCL REF'S 1 THRU 22 AND 150-3249 HYD MOTOR
1	300-5484	1	GEARBOX HOUSING	
2	166-419	1	GEARBOX COVER	
3	106-906	2	DOWEL PIN (.250 X .750)	
4	106-063	8	SCREW (M8-1.25 X 40MM, 10.9)	
5	125-528	2	BEARING CUP	
6	125-529	2	BEARING CONE	
7	160-1152	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, SSI)	
22	301-2131	1	JT5 GEARBOX LIFT EYE	

NOT SHOWN:

FOOTNOTES:

NOTE:

THRUST DRIVE



THRUST DRIVE

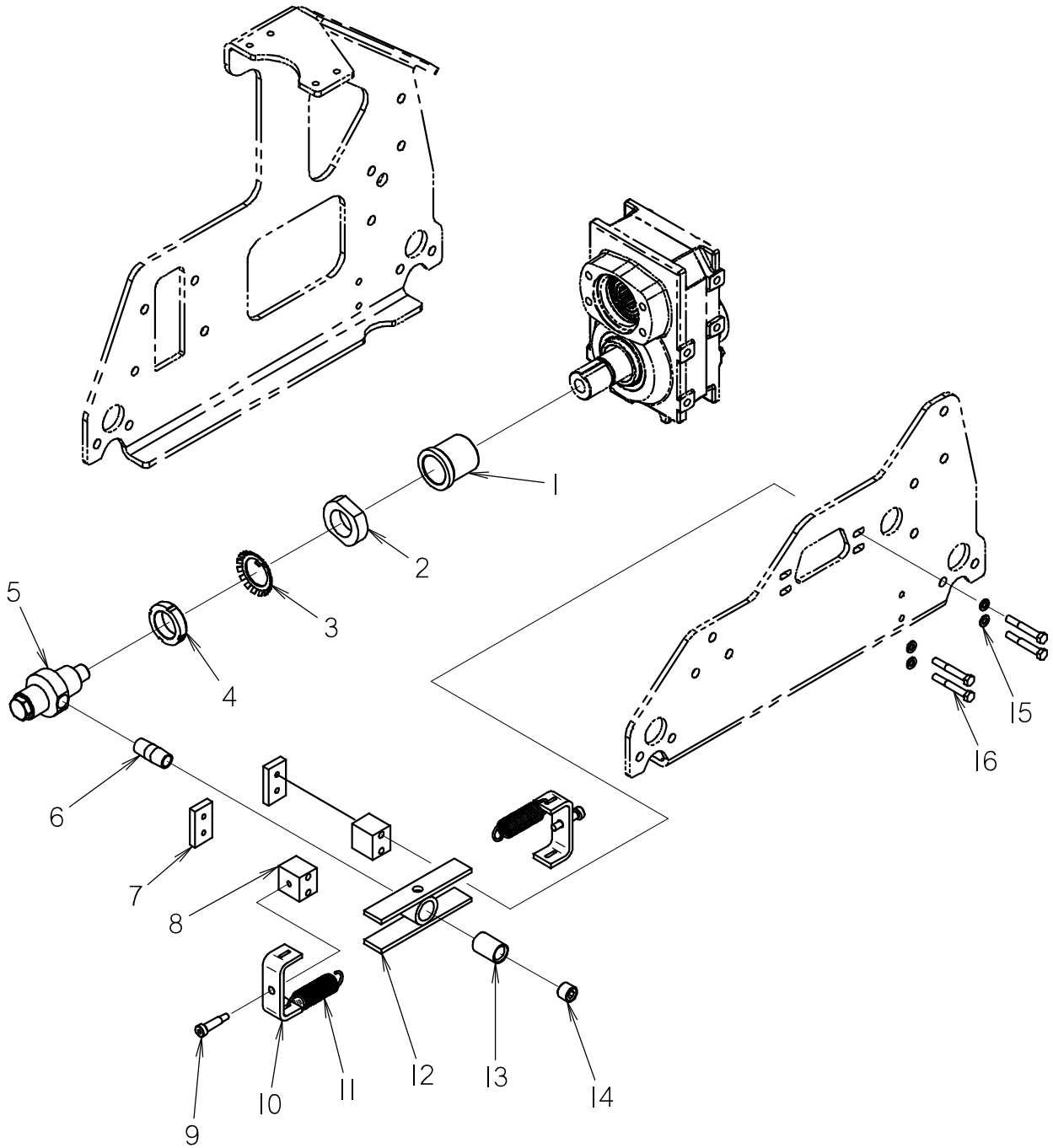
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1	300-5520	1	THRUST DRIVE	
2	125-044	2	BEARING (FAFNIR 309PP)	
3	160-1038	1	PINION	
4	115-456	1	SNAP RING	
5	105-1393	4	WASHER (5/8", HARDENED)	
6	140-1042	2	ROLLER (1.50")	
7	105-390	2	NUT (5/8-NF)	TORQUE TO 100 FT-LBS

NOT SHOWN:

FOOTNOTES:

NOTE:

WATER SWIVEL & SLIDE



WATER SWIVEL & SLIDE

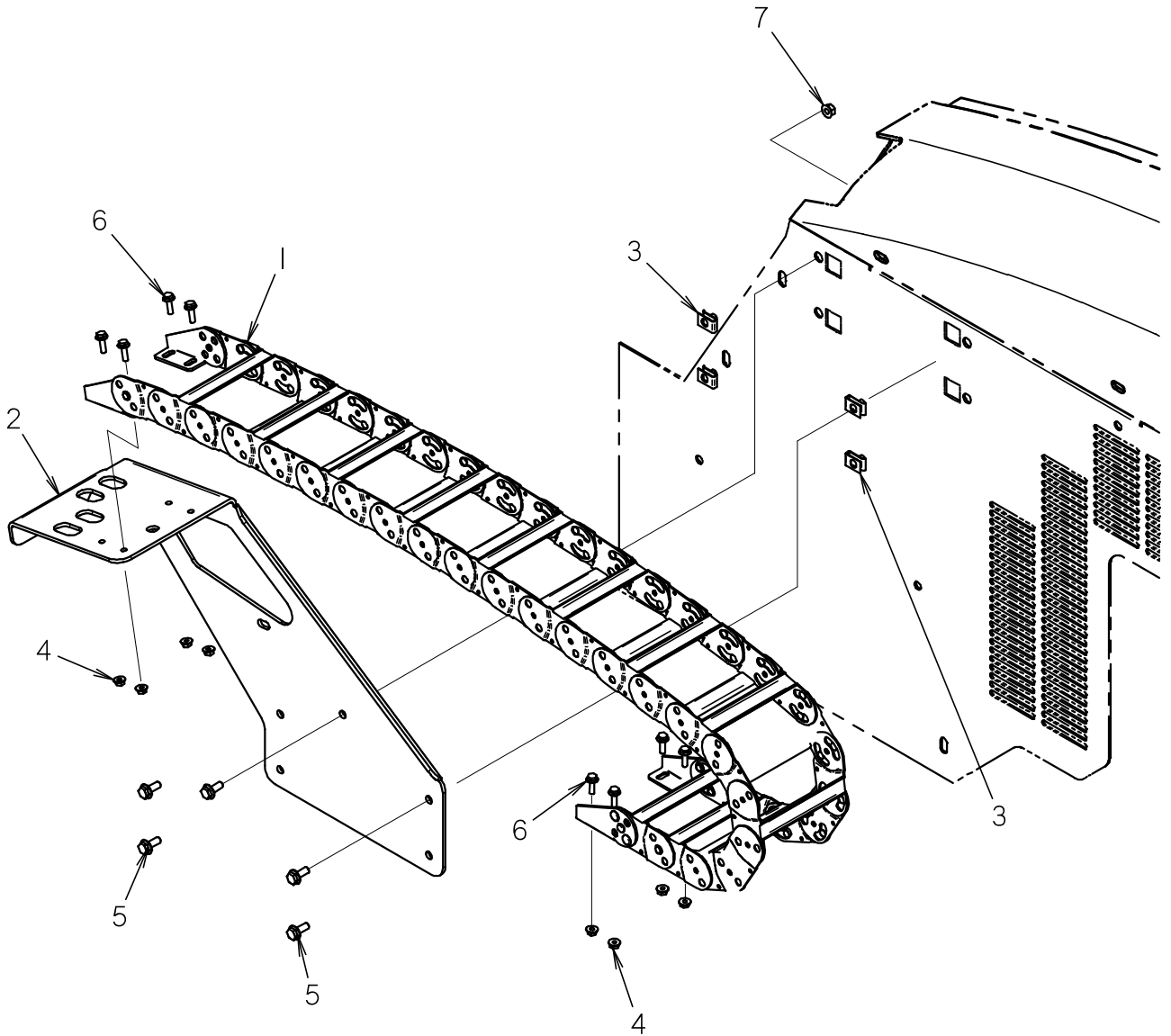
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1	300-7903	1	SHAFT SPACER	
2	105-1319	1	NUT (1.562-18)	
3	105-435	1	TANG LOCK WASHER (1.583")	
4	105-434	1	THRUST LOCKNUT (1.563-NEF-18)	
5	150-2678	1	WATER SWIVEL (108N)	
6	115-118	1	NIPPLE (08N-2")	
7	300-8152	2	BAR	
8	300-3825	2	MOUNT BLOCK	
9	105-750	2	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 (08NF)	
14	115-165	1	PLUG (08N, 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:

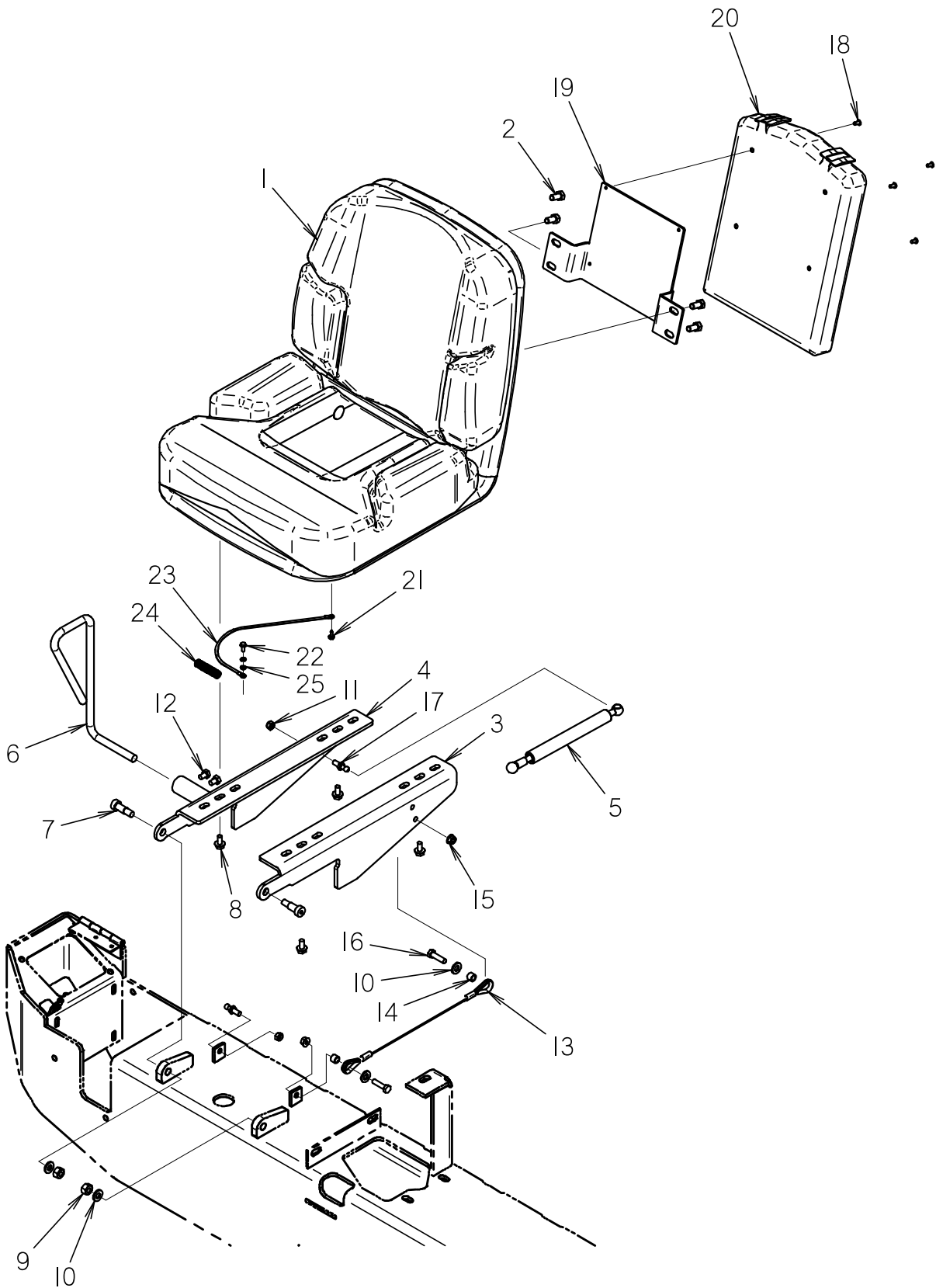
FOOTNOTES:

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

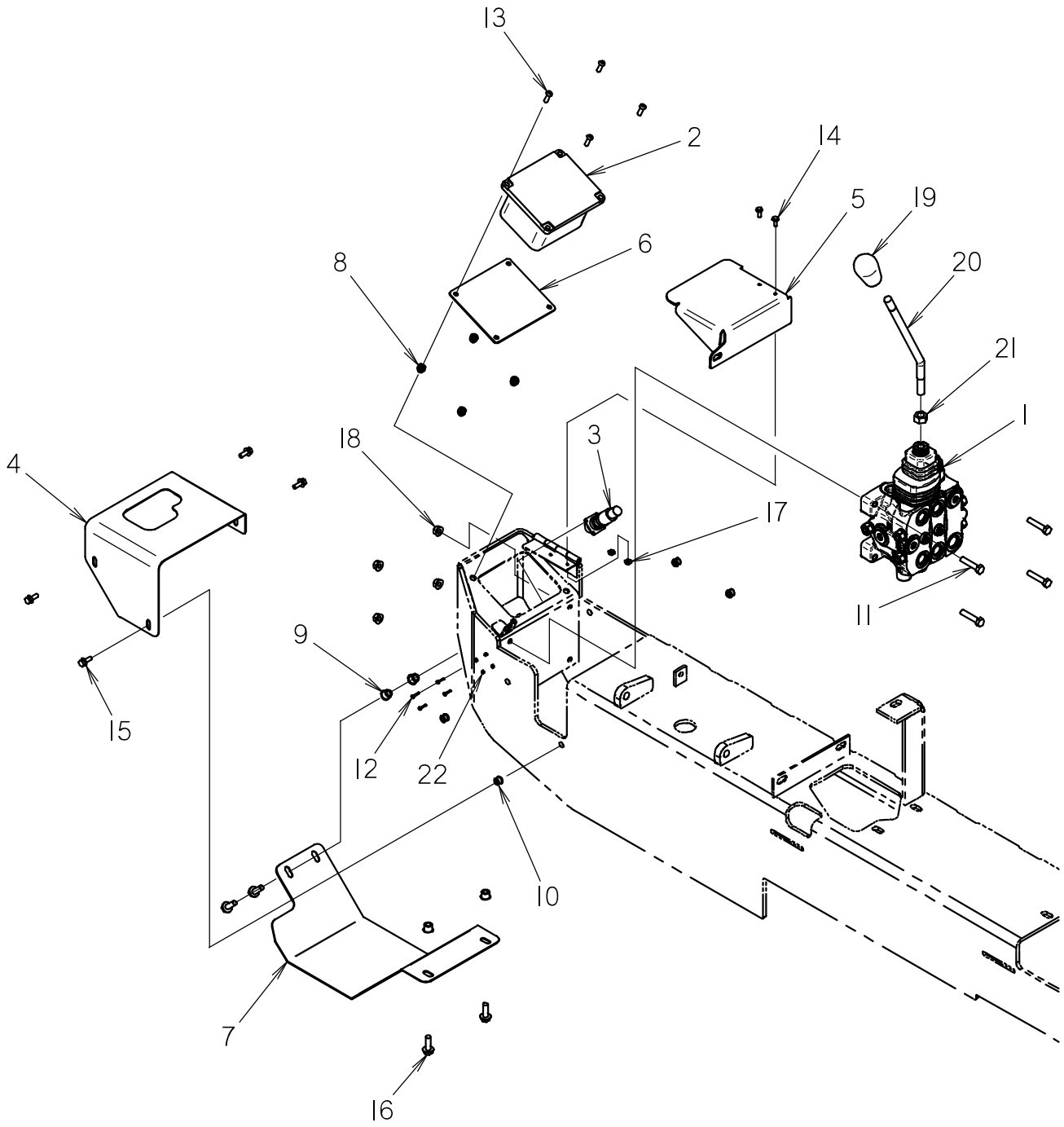
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1	117-230	1	SEAT	
2	105-032	4	BOLT (3/8-NC X 3/4")	
3	301-1867	1	LEFT SEAT PLATE	
4	301-1848	1	RIGHT SEAT MOUNT	
5	105-694	1	STRUT (90 LB.)	
6	301-1850	1	BAR	
7	106-739	2	SHLD BLT (M12 X 20MM/M10-1.50)	
8	501-325	4	FLG LK BOLT (5/16-NC X 5/8")	
9	105-894	2	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	14" GROUND STRAP	
24	215-488	11	FLEX GUARD (3/8", SOLD PER 1")	
25	106-205	2	WASHER (.191")	

NOT SHOWN:

FOOTNOTES:

NOTE:

OPERATORS STATION-CONTROLS



OPERATORS STATION-CONTROLS

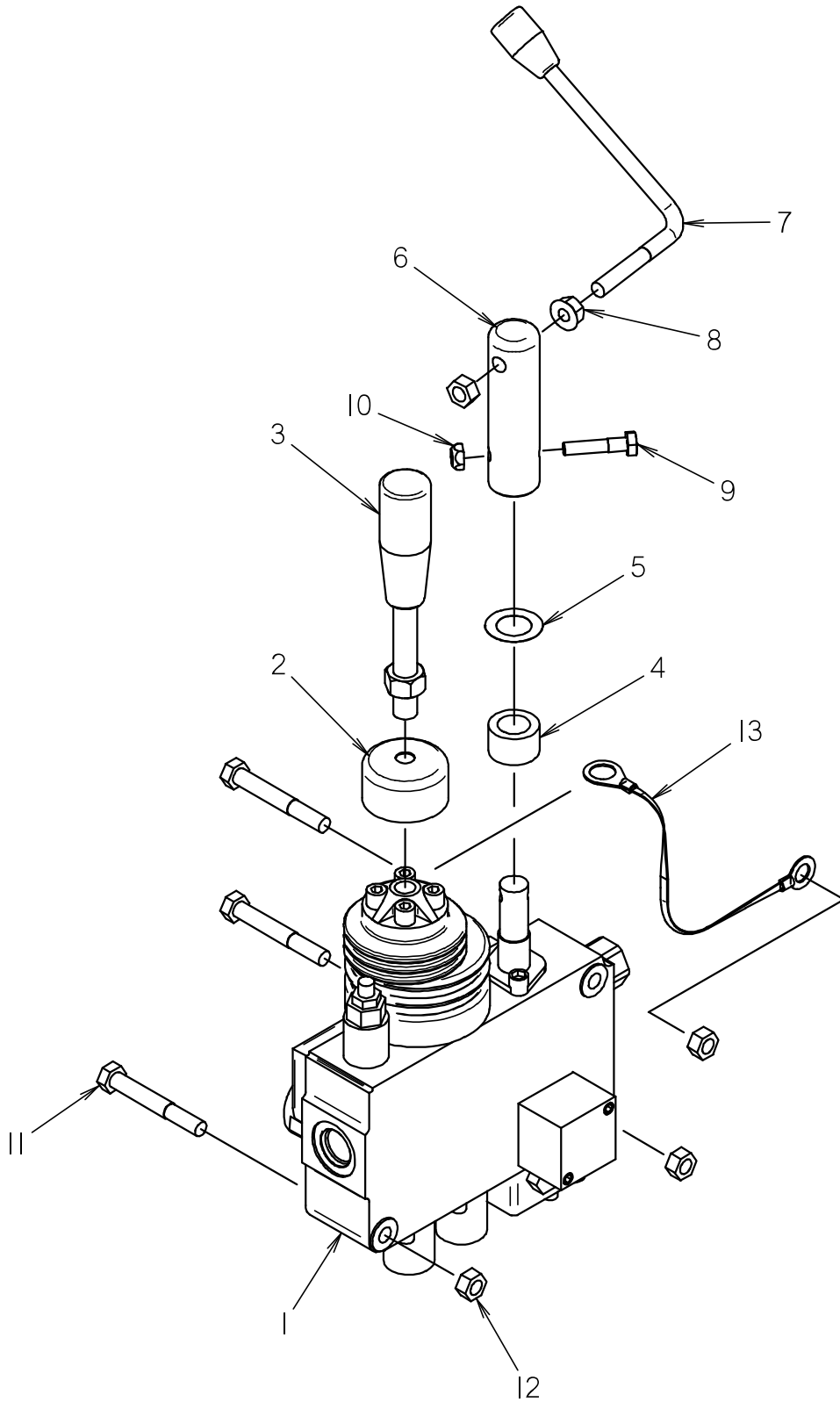
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1	150-2319	1	HYD CONTROL VALVE	
2		1	REMOTE DISPLAY	
3	215-1564	1	REMOTE DISPLAY TO RIG CABLE	
4	300-9490	1	VALVE COVER	
5	300-9019	1	VANDAL COVER	
6	348-896	1	COVER PLATE	
7	300-8726	1	ACCESS COVER	
8	105-630	4	NUTSERT(M6X1.0)1.70-4.20THK	
9	105-633	4	NUTSERT (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

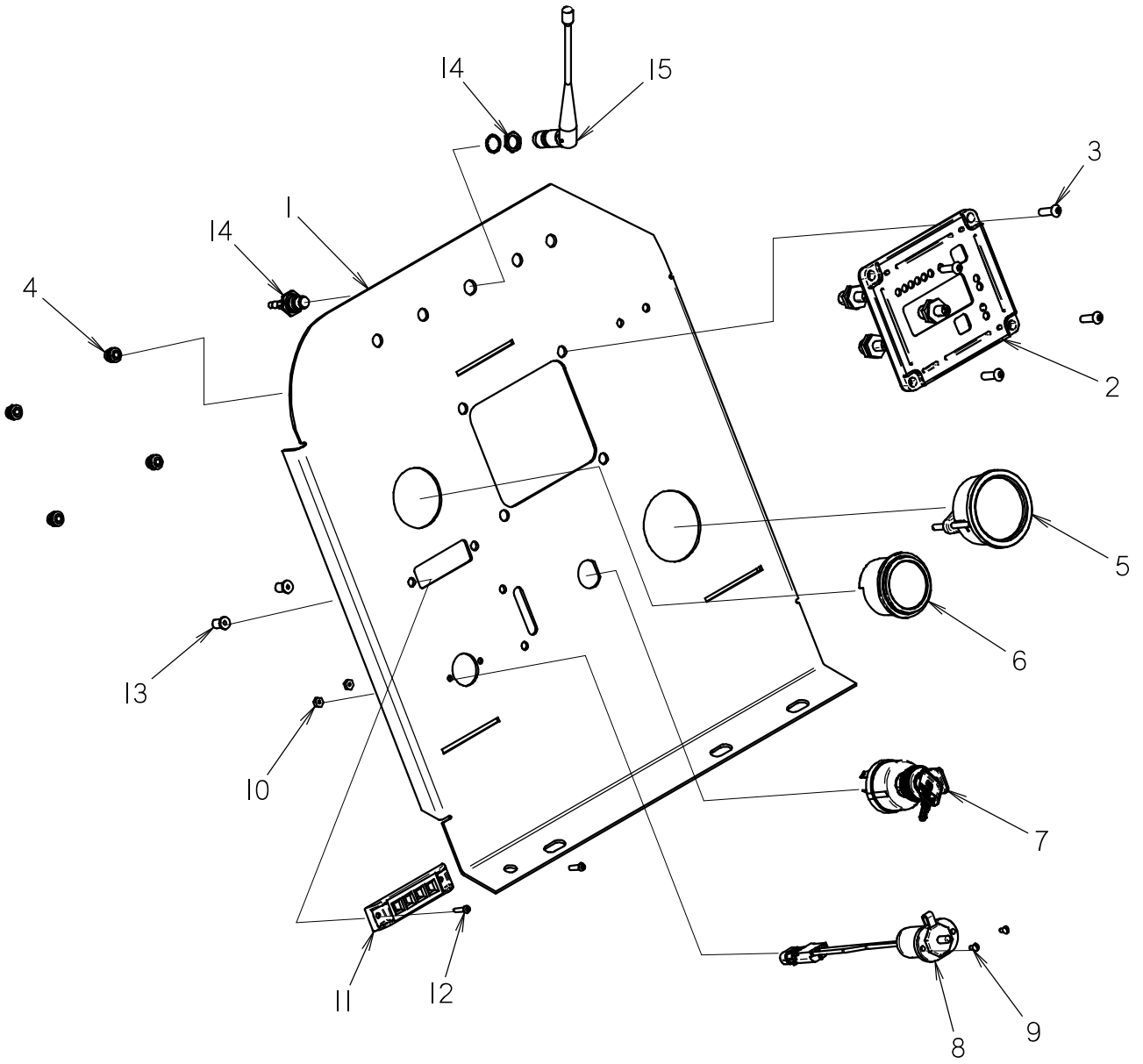
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1	150-3258	1	DIRECTIONAL VALVE, SD5, 3 SPOOL	
2	111-077	1	VINYL CAP (1.625")	
3	149-163	1	LEVER (M12-1.75, BLACK)	
4	178-266	1	SPACER	
5	110-085	1	SPRING WASHER	
6	302-767	1	TUBE	
7	149-127	1	LEVER (M8 -1.25)	
8	106-386	1	FLG LOCKNUT (M8-1.25)	USE LOCTITE 242 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

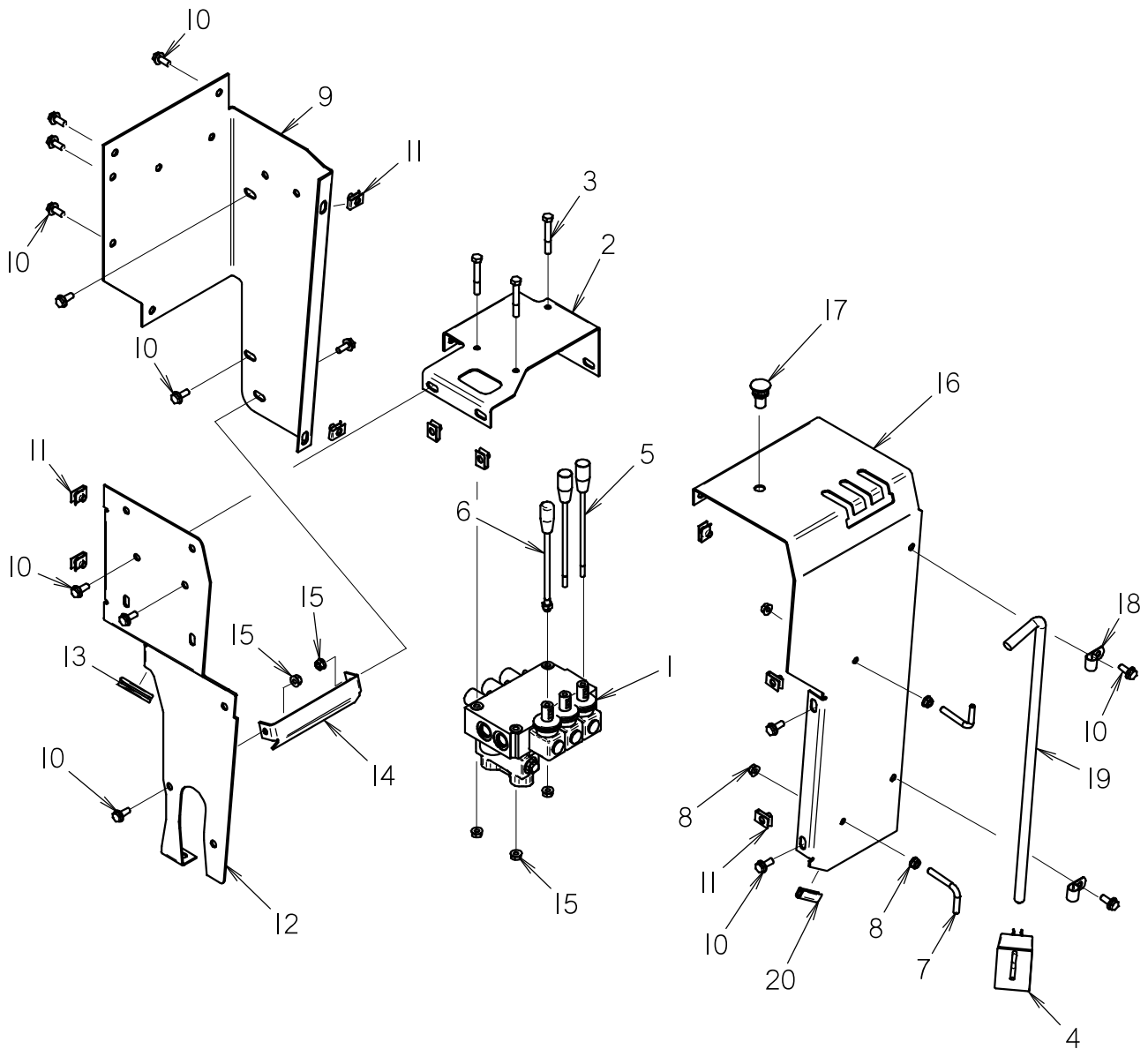
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1	300-5420	1	UPPER FRONT COVER	
2	220-1222	1	ESID MODULE	
3	106-640	4	SCREW (M6-1.00 X 20MM,BUT SOC)	
4	105-630	4	NUTSERT(M6X1.0,1.70-4.20THK)	
5	217-577	1	3000 PSI PRESSURE GAUGE	
6	215-128	1	HOUR METER	
7	214-852	1	IGNITION SWITCH	
8	214-301	1	ACCESSORY SOCKET	
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	

NOT SHOWN:

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")	

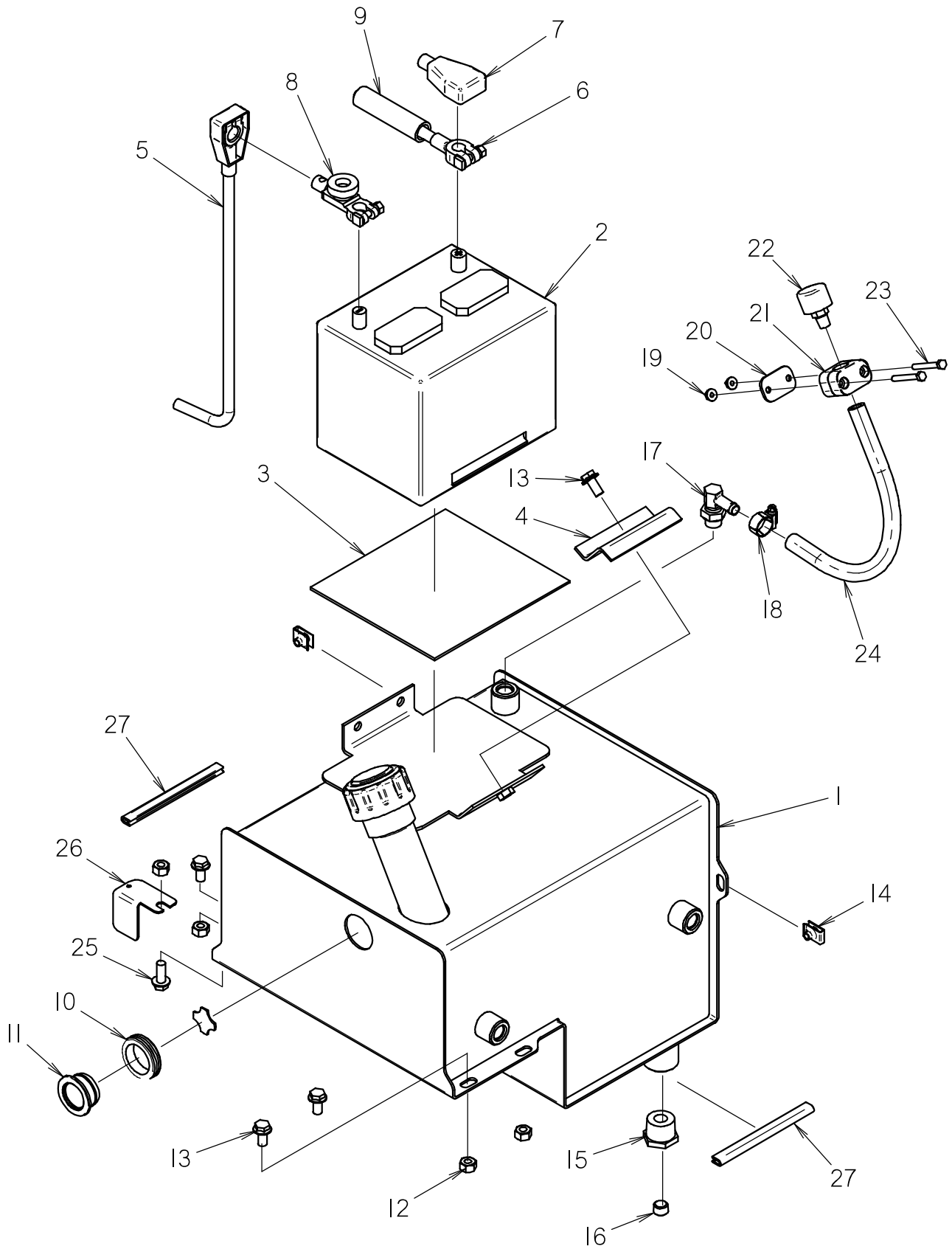
NOT SHOWN:

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 (1INPT TP 3/8NPT)	
16	114-002	1	PLUG (O6N, SOCI)	
17	514-297	1	S/O COUPLER (O8S-O8H90)	
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"

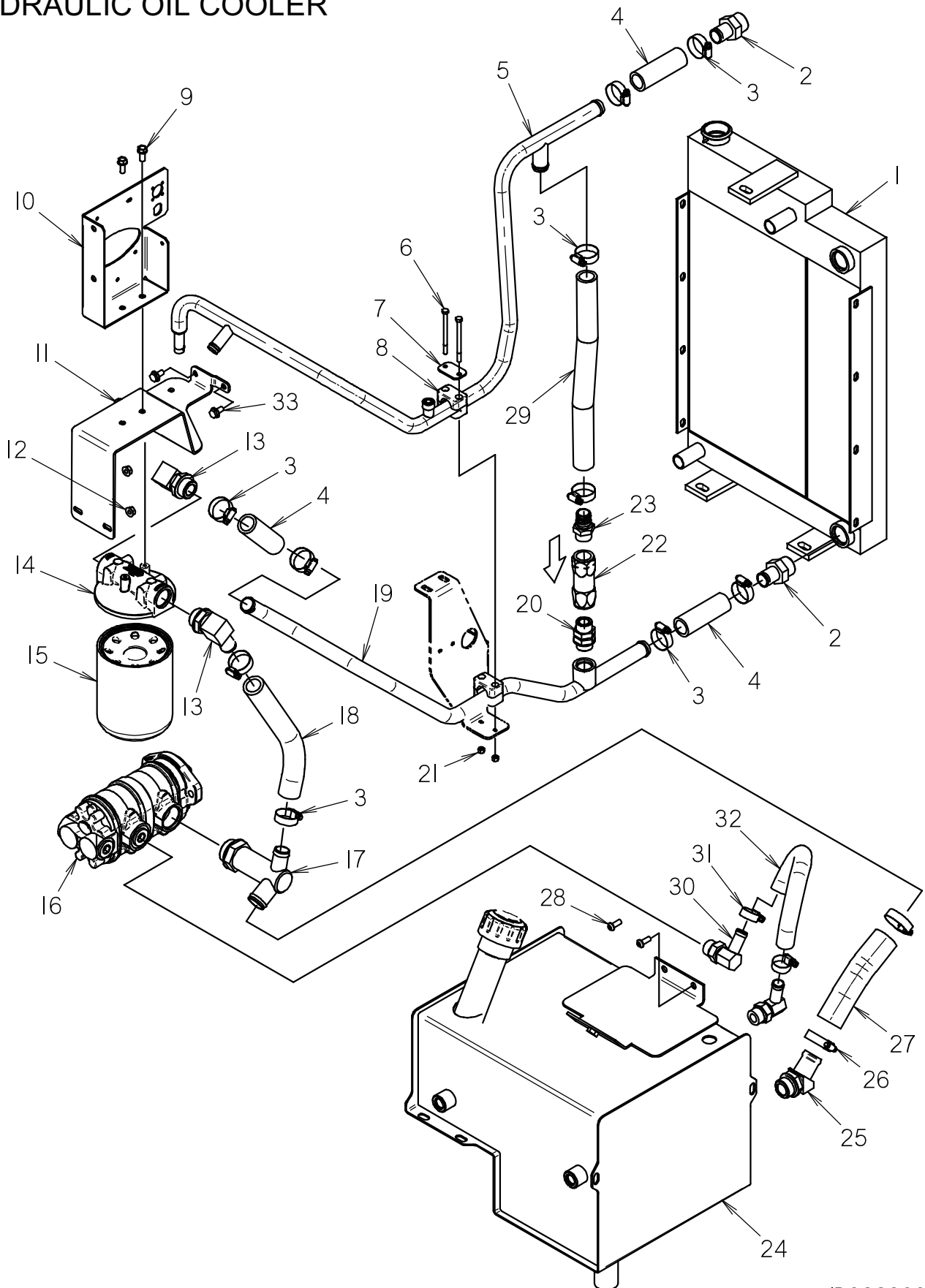
NOT SHOWN:

FOOTNOTES:

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

NOTE:

HYDRAULIC OIL COOLER



01

ID0228603

HYDRAULIC OIL COOLER

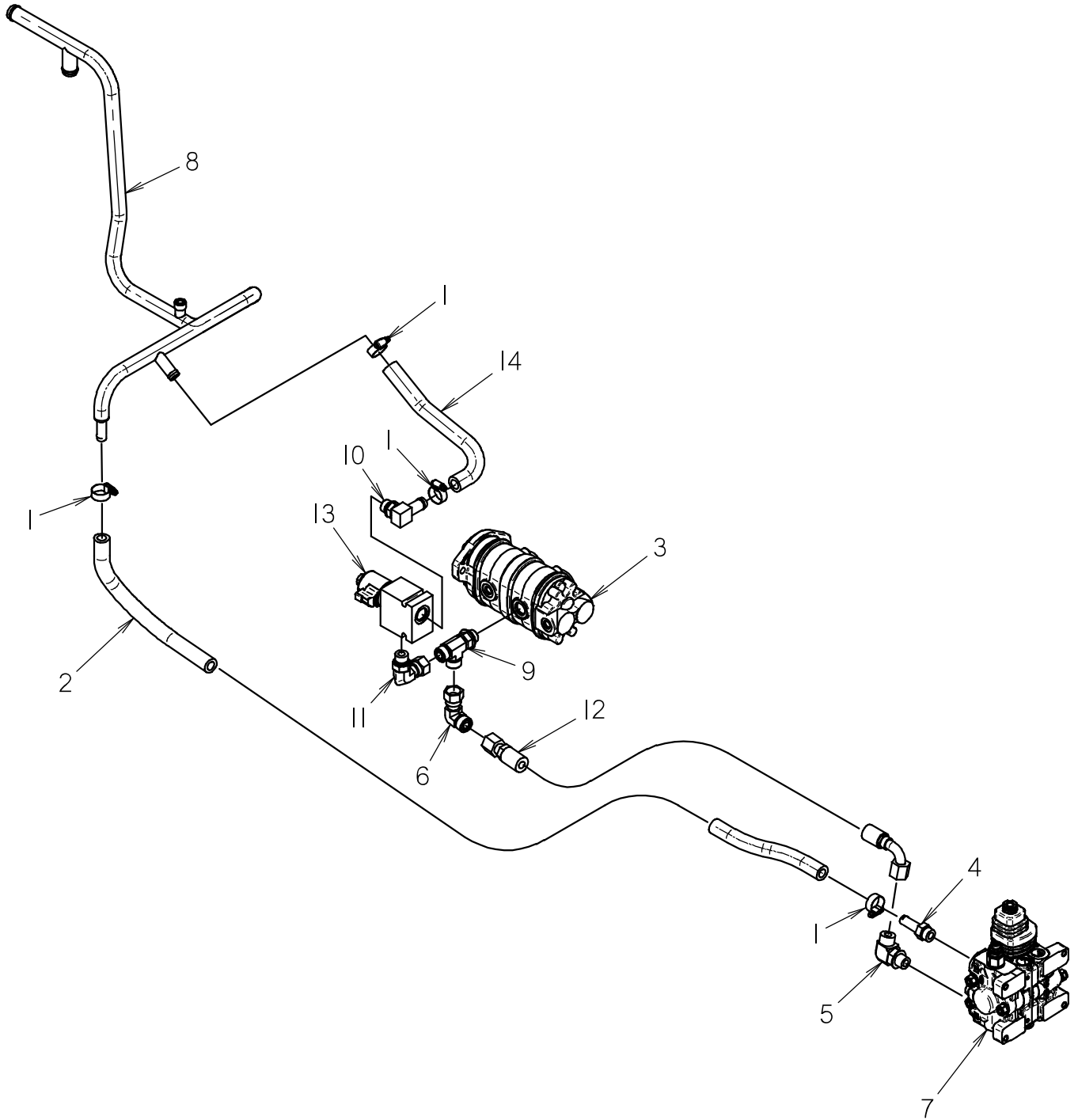
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1	195-1163	1	RADIATOR/OIL COOLER	
2	514-088	2	S/O COUPLER (16S-16H)	
3	110-353	10	WORM CLAMP (3/4" TO 1-1/2")	
4	116-460	12	BULK HOSE (1", SOLD PER FT)	3X @ 4"
5	150-3050	1	HYD LINE (-16)	
6	107-151	2	SCREW (M6-1.00 X 85MM)	
7	322-289	1	BACKUP (BOLT-ON)	
8	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	SO 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)	

NOT SHOWN:

FOOTNOTES:

NOTE:

THRUST/ROTATE VALVE HYD



THRUST/ROTATE VALVE HYD

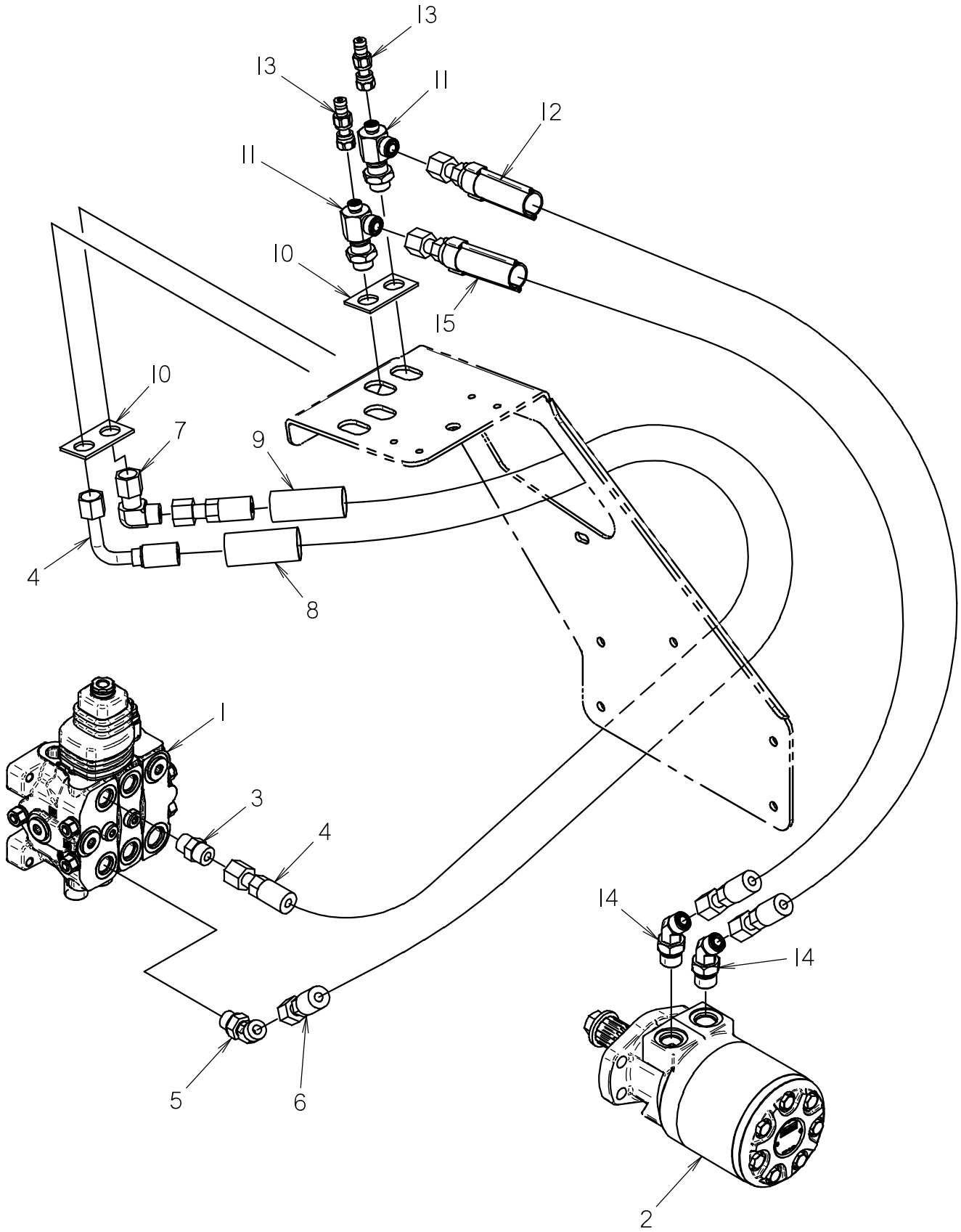
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1	110-026	4	WORM CLAMP (1/2" TO 1-1/4")	
2	116-044	59	BULK HOSE (5/8", SOLD PER FT)	
3	150-2972	1	TRIPLE GEAR PUMP	
4	155-135	1	S/O COUPLER (10S-10H)	
5	154-298	1	CONNECTOR (10S-10090)	
6	154-315	1	UNION (100-100FX90)	
7	150-2319	1	HYD CONTROL VALVE	
8	150-3050	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

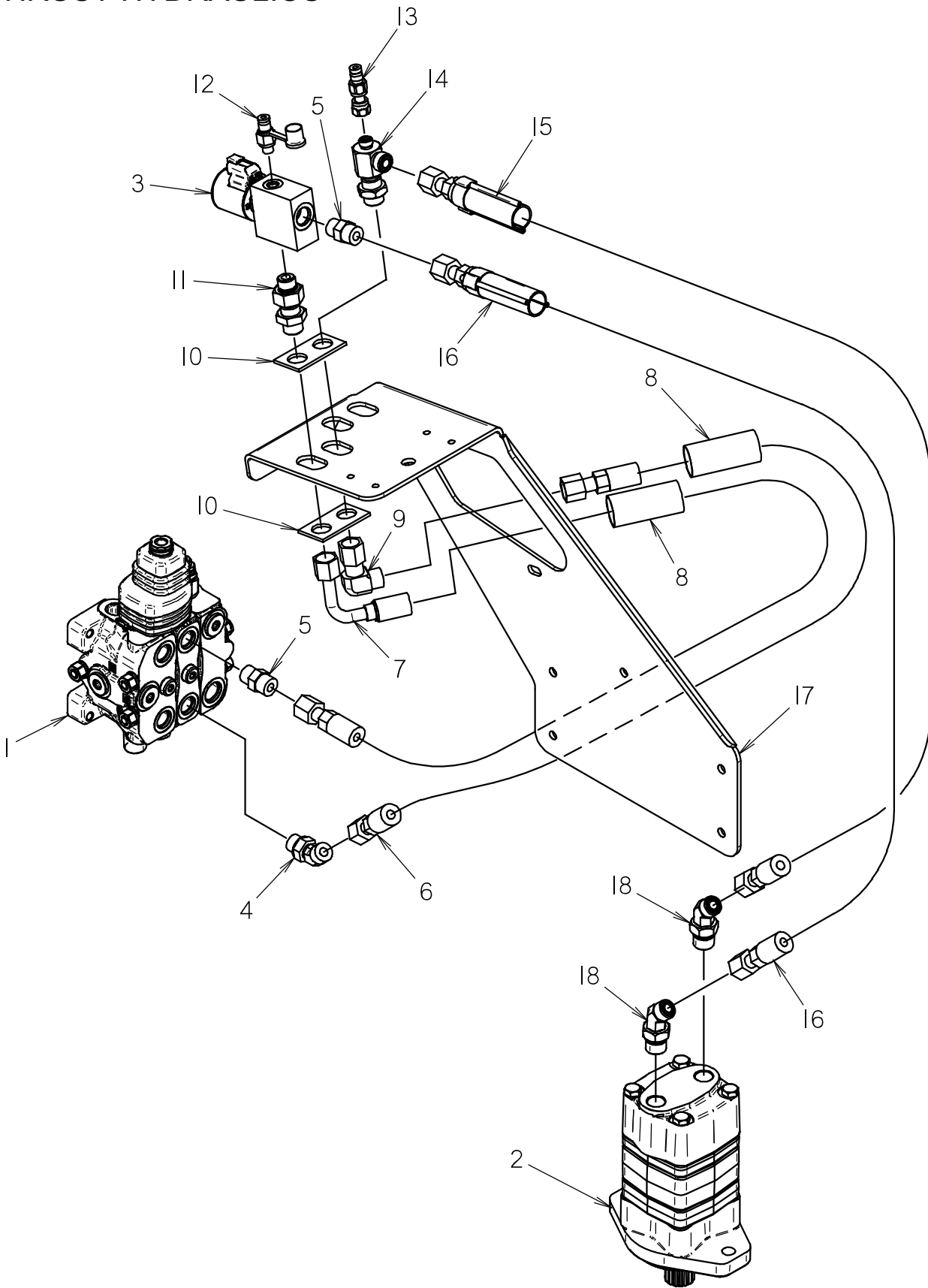
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1	150-2319	1	HYD CONTROL VALVE	
2	150-3249	1	HYDRAULIC MOTOR, 18.9 CIR	
3	154-233	1	CONNECTOR (08S-080)	
4	150-3114	1	HOSE (080FX90L-72"-3000)	
5	154-284	1	CONNECTOR (08S-08045)	
6	150-3113	1	HOSE (080FX-68"-3000)	
7	154-256	1	UNION (080-080FX90)	
8	105-1473	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

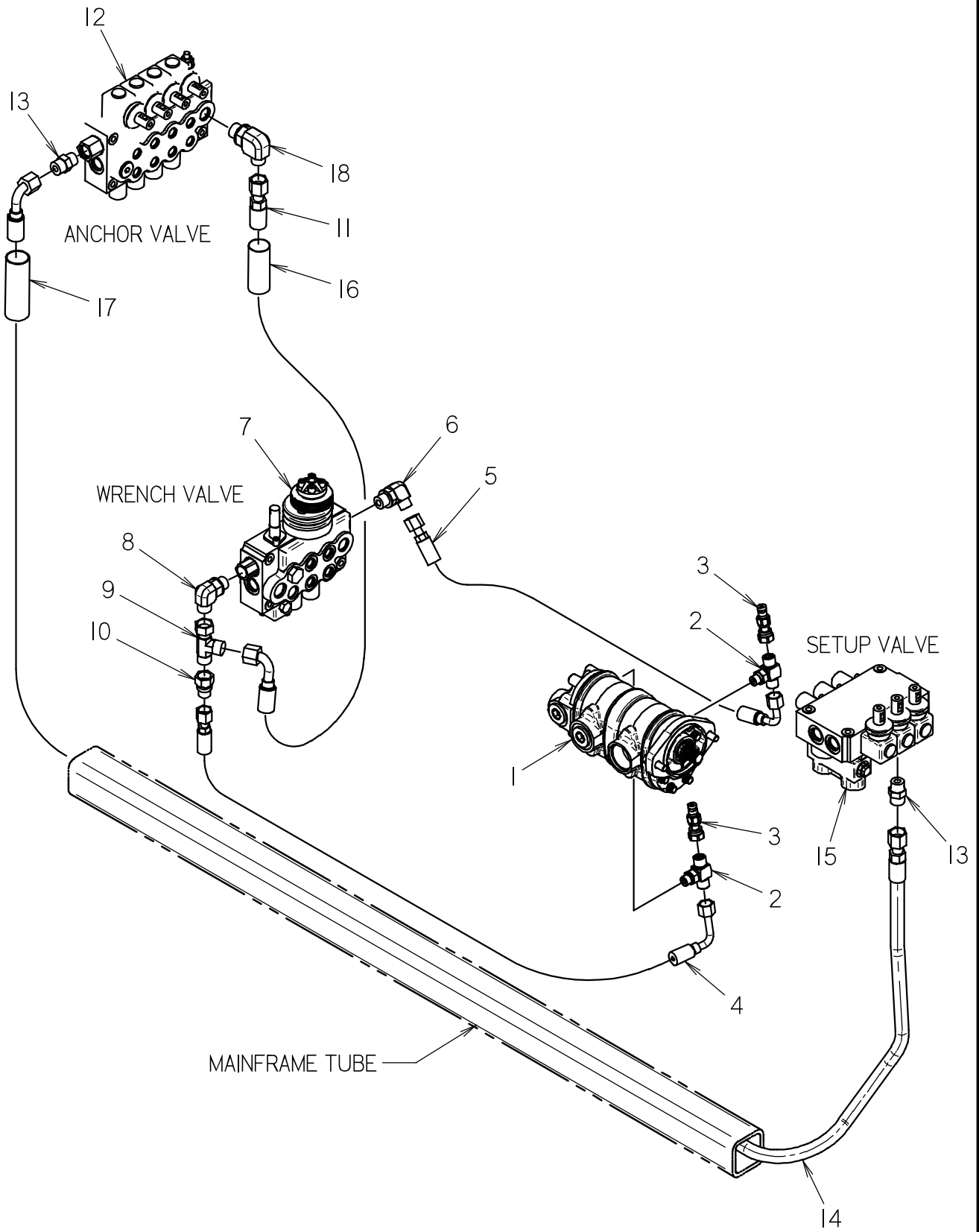
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1	150-2319	1	HYD CONTROL VALVE	
2	150-3014	1	GEROLER MOTOR, 15.26 CIR	
3	150-3152	1	BLOCKING VALVE, 2W, 2P, NC	
4	154-284	1	CONNECTOR (08S-08045)	
5	154-233	2	CONNECTOR (08S-080)	
6	150-3261	1	HOSE (080FX-72"-3000)	
7	150-3114	1	HOSE (080FX90L-72"-3000)	
8	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

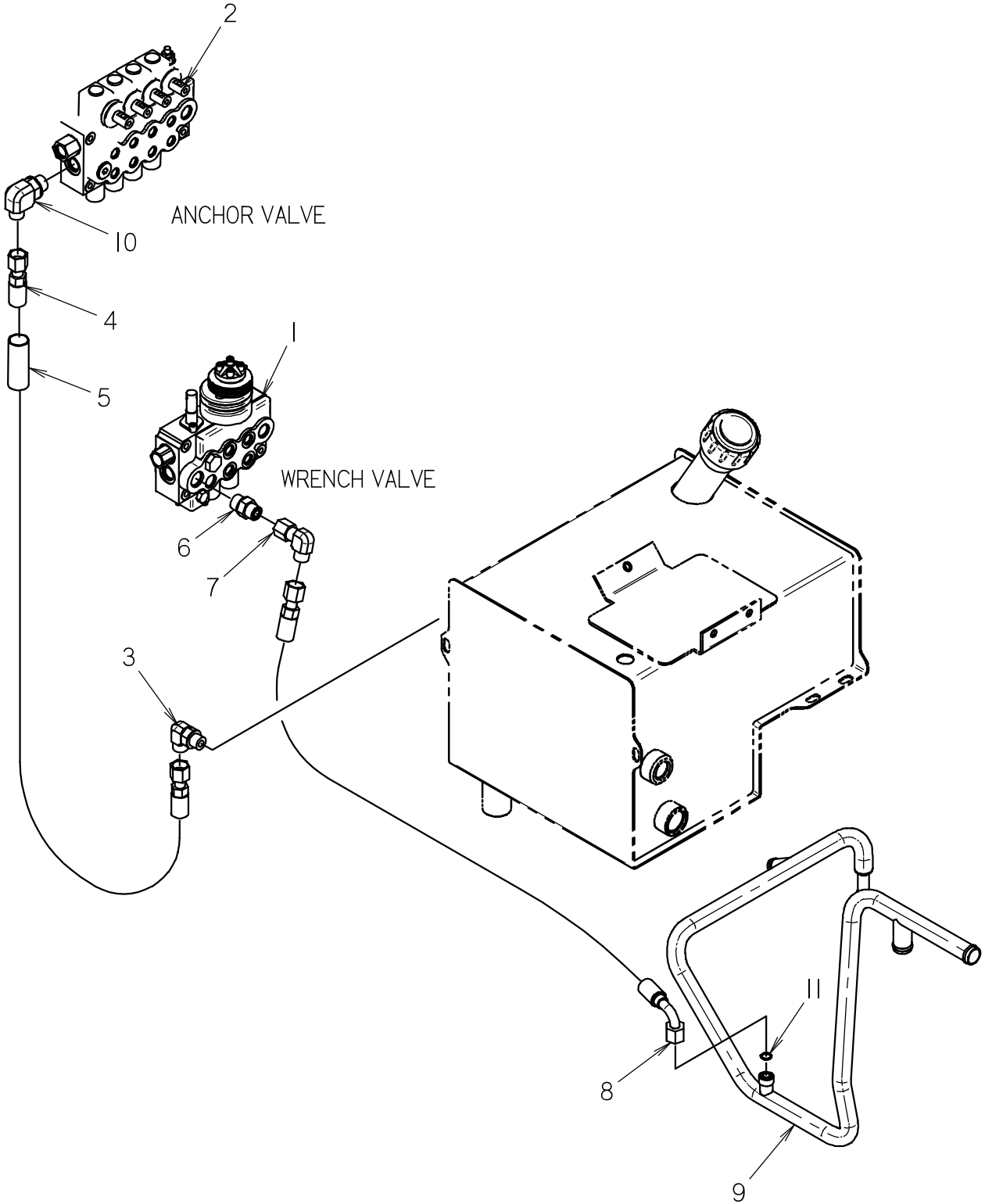
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1	150-2972	1	TRIPLE GEAR PUMP	
2	154-346	2	BRANCH TEE (06S-060-060)	
3	159-157	2	QDC ADAPTER (02-060F)	
4	150-1998	1	HOSE (060FX90L-38"-3000)	
5	157-822	1	HOSE (060FX90M-30"-3000)	
6	154-227	1	CONNECTOR (060-08S90)	
7	150-3258	1	DIRECTIONAL VALVE, SD5, 3 SPOOL	
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)	

NOT SHOWN:

FOOTNOTES:

NOTE:

WRENCH/ANCHOR VALVE RETURN



WRENCH/ANCHOR VALVE RETURN

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
I	I50-3258	I	DIRECTIONAL VALVE, SD5, 3 SPOOL	
2	I57-24I	I	HYD CONTROL VALVE (4-SPOOL)	
3	I54-235	I	CONNECTOR (08S-08090)	
4	I54-662	I	HOSE (080FX-98"-3000)	
5	I17-213	I	ABRASION SLEEVE (I.00" X 96")	
6	I54-279	I	CONNECTOR (080-I0S)	
7	I54-256	I	UNION (080-080FX90)	
8	I50-3122	I	HOSE (080FX90S-45"-3000)	
9	I50-3050	I	HYD LINE (-I6)	
10	I54-322	I	CONNECTOR (080-I0S90)	
II	I57-039	I	O-RING (0I4 D90)	

NOT SHOWN:

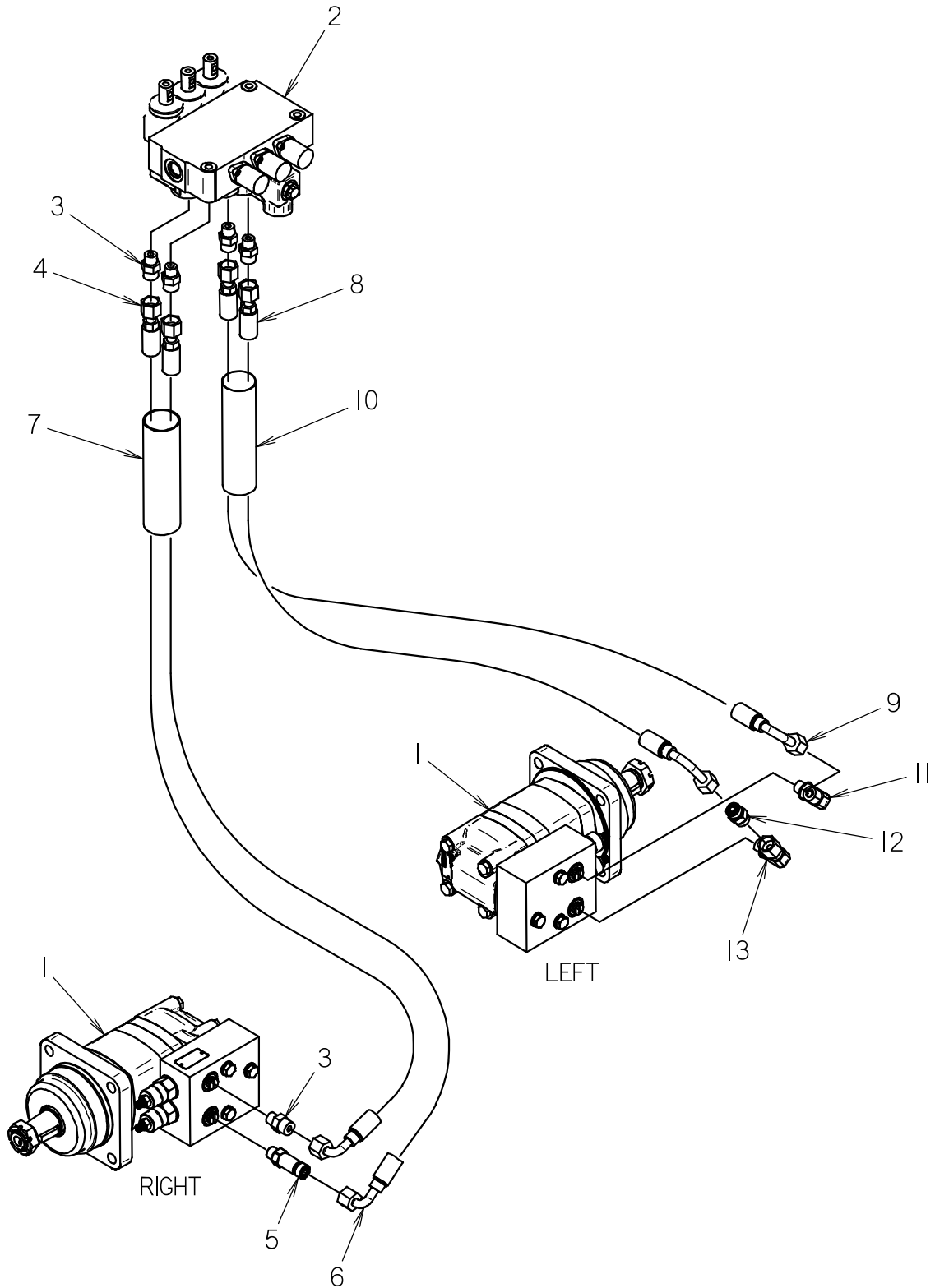
FOOTNOTES:

NOTE:

0I

ID0224285

GROUND DRIVE HYDRAULICS



GROUND DRIVE HYDRAULICS

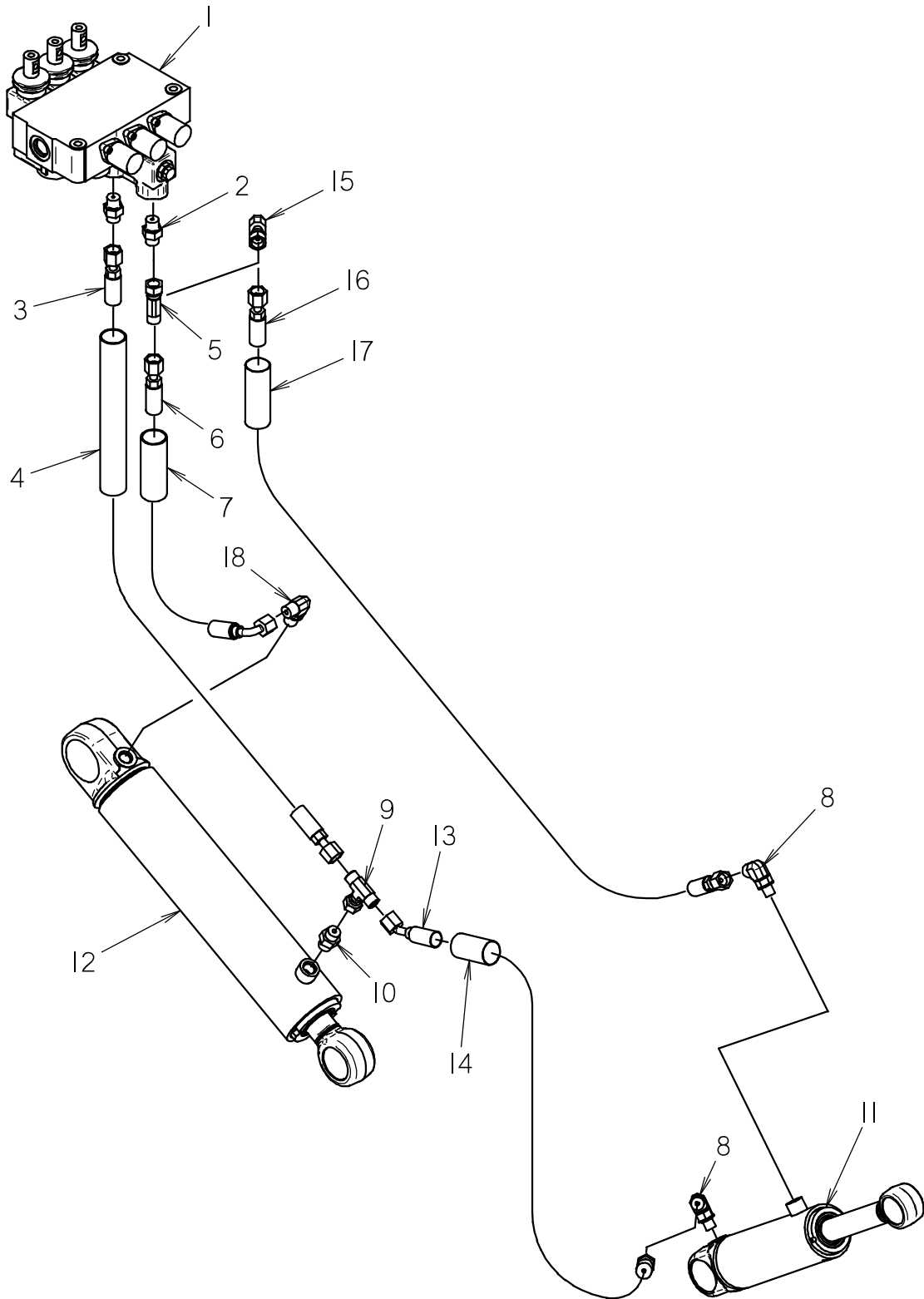
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1	I58-965	2	HYD MOTOR W/ COUNTER BALANCE	
2	I50-2994	1	HYD CONTROL VALVE	
3	I54-221	5	CONNECTOR (06S-060)	
4	I50-3118	1	HOSE (060FX90S-68"-3000)	
5	I56-174	1	CONNECTOR (06S-060 LG)	
6	I50-3118	1	HOSE (060FX90S-68"-3000)	
7	I15-938	1	ABRASION SLEEVE (1.59" X 66")	
8	I50-3120	1	HOSE (060FX90L-55"-3000)	
9	I50-3119	1	HOSE (060FX90M-55"-3000)	
10	I17-657	1	ABRASION SLEEVE (1.59" X 54")	
11	I54-342	1	CONNECTOR (06S-06090)	
12	I54-413	1	CONNECTOR (060-060)	
13	I54-343	1	UNION (06S-060FX90)	

NOT SHOWN:

FOOTNOTES:

NOTE:

STABILIZER/TILT HYDRAULICS



STABILIZER/TILT HYDRAULICS

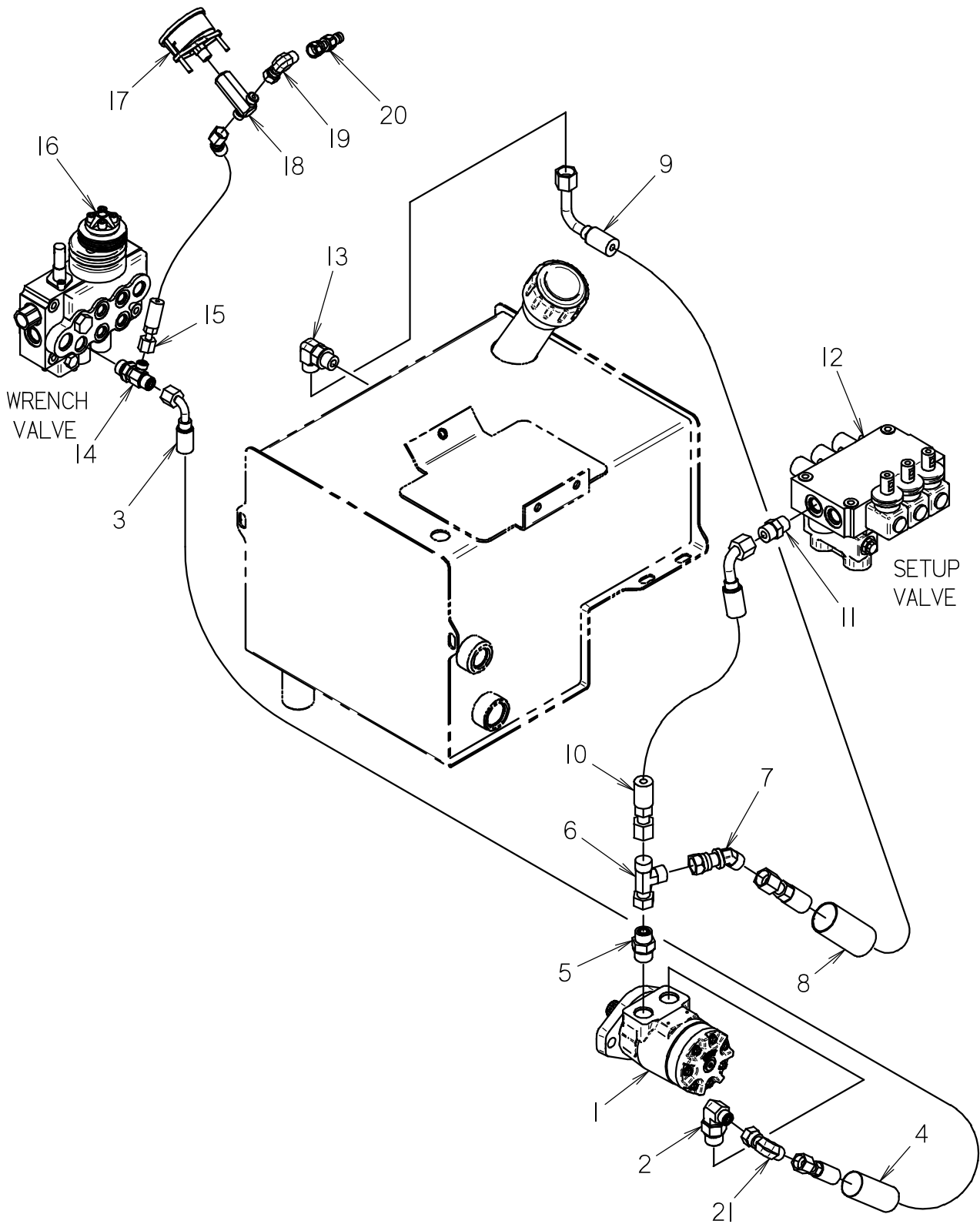
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1	150-2994	1	HYD CONTROL VALVE	
2	514-018	2	CONNECTOR (040-06S. ORF)	
3	154-669	1	HOSE (040FX-50"-3000)	
4	117-416	1	ABRASION SLEEVE (1.00" X 50")	
5	154-265	1	UNION RUN TEE (040FX-040-040)	
6	154-728	1	HOSE (040FX90S-36"-3000)	
7	117-718	1	ABRASION SLEEVE (1" X 36")	
8	154-252	2	CONNECTOR (04S-04090)	
9	154-379	1	UN BR TEE (040FX-040-040)	
10	154-220	1	CONNECTOR (040-06S)	
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 (040FX45-46"-3000)	
14	117-612	1	ABRASION SLEEVE (1.00" X 46")	
15	154-255	1	UNION (040-040FX90)	
16	515-170	1	HOSE (040FX-86"-3000)	
17	117-398	1	ABRASION SLEEVE (1.00" X 86")	
18	154-226	1	CONNECTOR (040-06S90)	

NOT SHOWN:

FOOTNOTES:

NOTE:

DRILLING FLUID MOTOR HYDRAULICS



DRILLING FLUID MOTOR HYDRAULICS

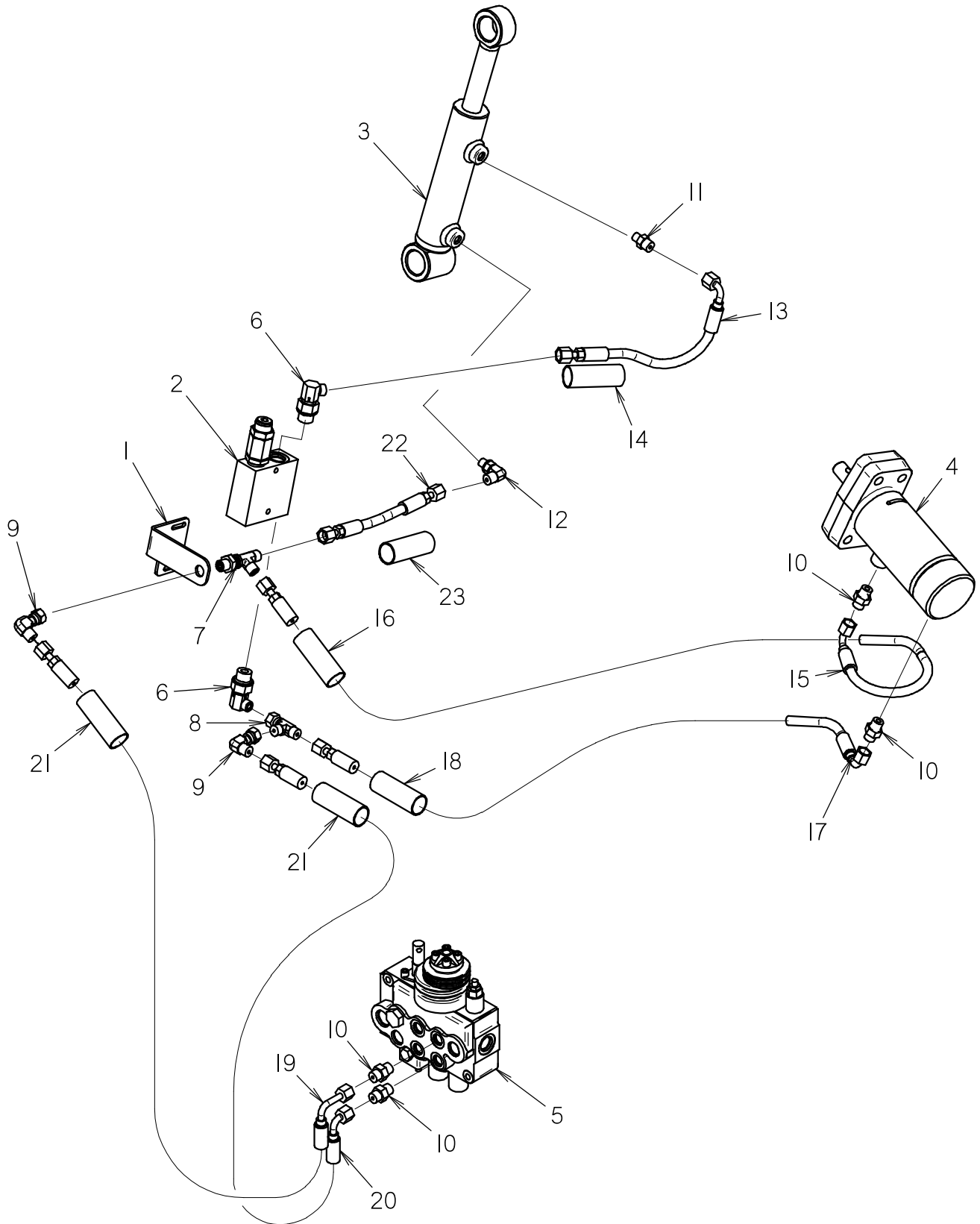
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1	I58-469	1	GEAR MOTOR (3.0 CUIREV)	
2	I54-421	1	CONNECTOR (060-10S90)	
3	I54-954	1	HOSE (060FX90S-70"-3000)	
4	I17-690	1	ABRASION SLEEVE (1.25" X 58")	
5	I54-279	1	CONNECTOR (080-10S)	
6	I54-266	1	UNION RUN TEE (080FX-080-080)	
7	I50-1789	1	CONNECTOR (080-080FX45)	
8	I17-392	1	ABRASION SLEEVE (1.25" X 60")	
9	I50-3114	1	HOSE (080FX90L-72"-3000)	
10	515-196	1	HOSE (080FX90S-17"-3000)	
11	I54-233	1	CONNECTOR (08S-080)	
12	I50-2994	1	HYD CONTROL VALVE	
13	I54-235	1	CONNECTOR (08S-08090)	
14	I53-422	1	TEE (08S-060-040)	
15	515-072	1	HOSE (040FX45-16"-3000)	
16	I50-3258	1	DIRECTIONAL VALVE, SD5, 3 SPOOL	
17	217-577	1	3000 PSI PRESSURE GAUGE	
18	I56-974	1	BRANCH TEE (040-040-04N)	
19	I54-255	1	UNION (040-040FX90)	
20	I59-156	1	QDC ADA TER (02-040F)	
21	I54-228	1	UNION (060-060FX90)	

NOT SHOWN:

FOOTNOTES:

NOTE:

ROTATING WRENCH HYDRAULICS



ROTATING WRENCH HYDRAULICS

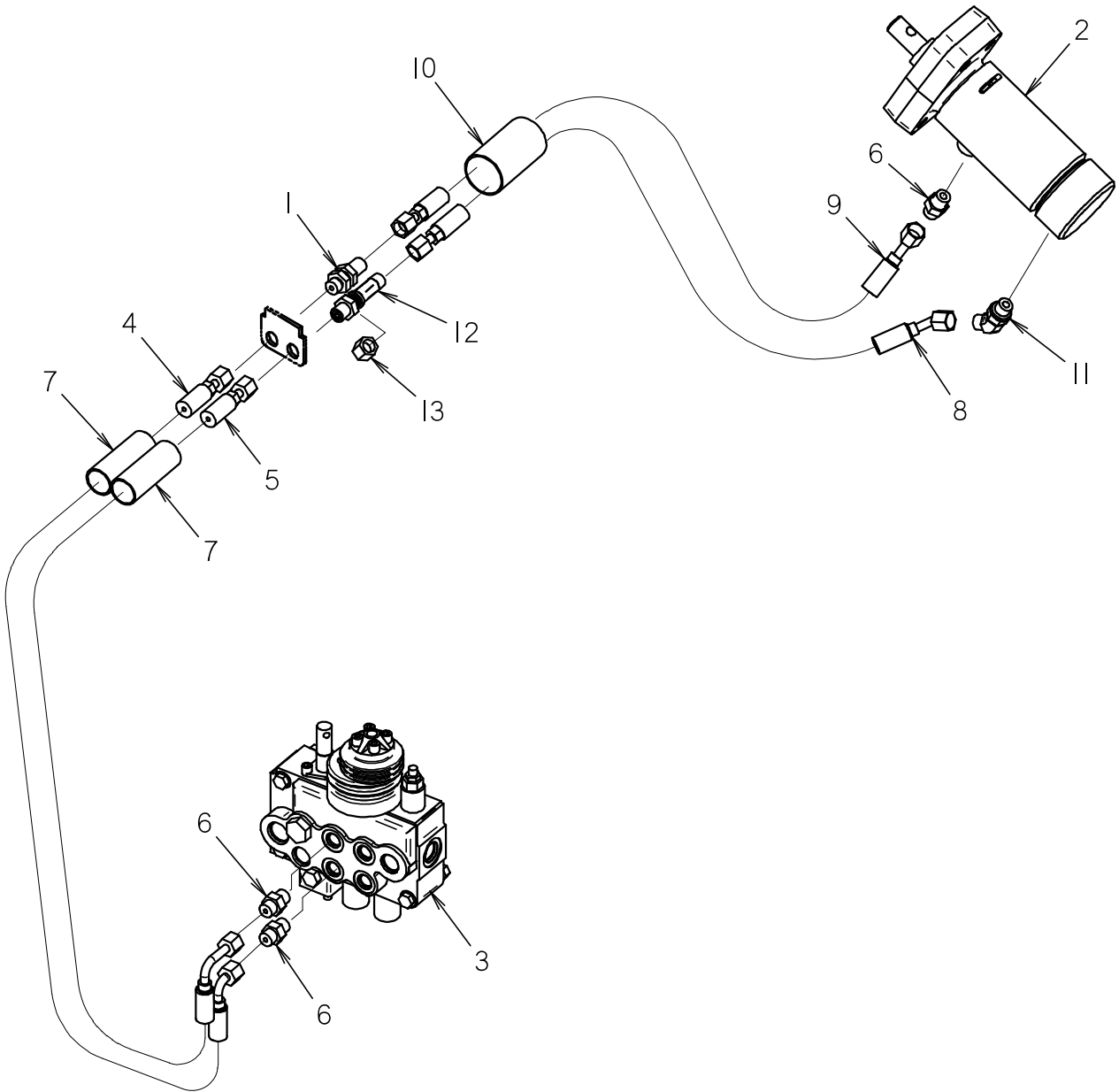
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1	300-8168	1	BULKHEAD BRACKET	
2	157-249	1	SEQUENCE VALVE	
3	150-2975	1	CYLINDER (1.5 X 1.0 X 4.0)	
4	150-2784	1	CYL (2.5 X 1.25 X 2.0)	
5	150-3258	1	DIRECTIONAL VALVE, SD5, 3 SPOOL	
6	154-276	2	CONNECTOR (040-08S90)	
7	154-424	1	BK RUN TEE (040-040-040BK)	
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

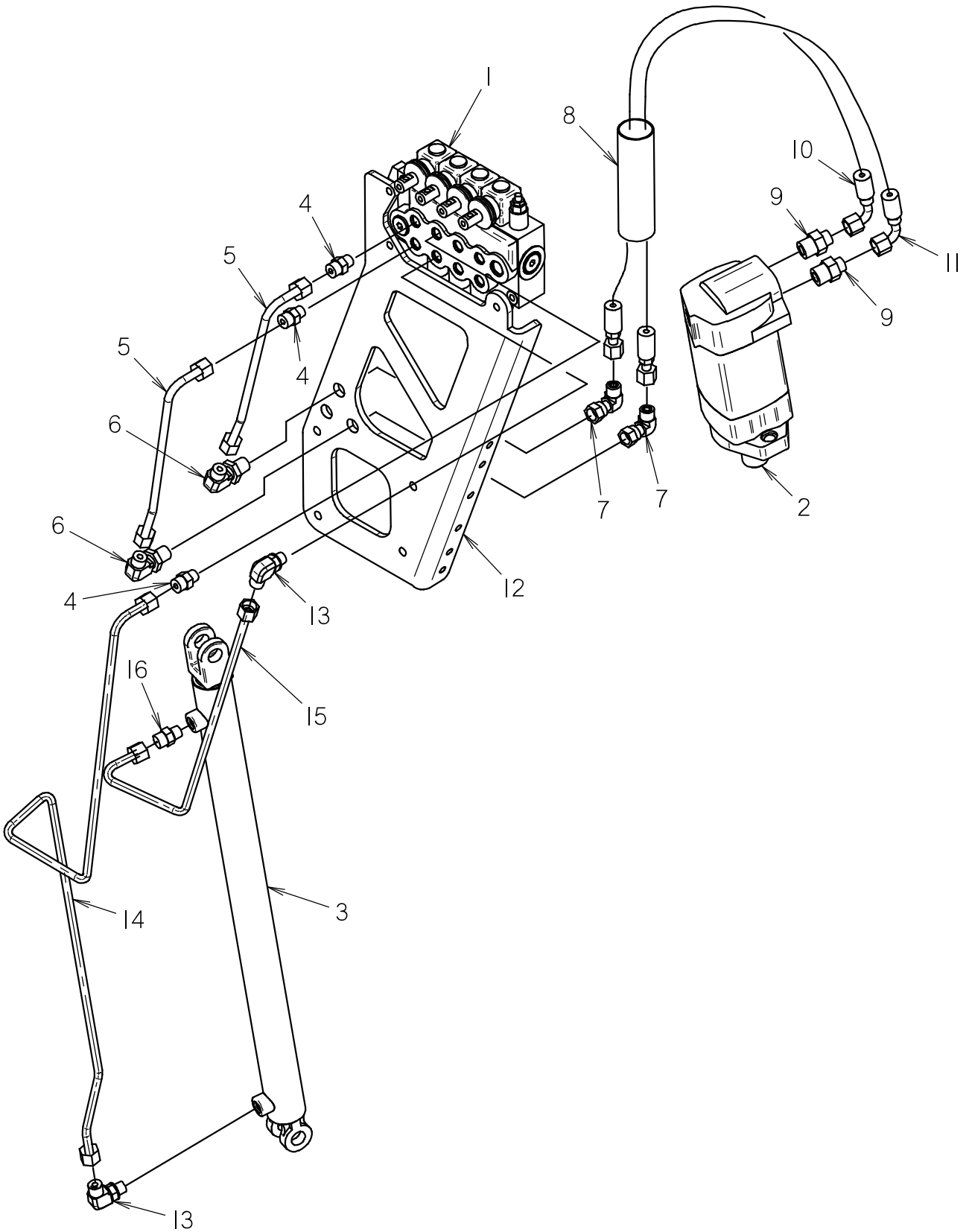
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1	I54-275	1	BK CONNECTOR (040-040BK)	
2	I50-2784	1	CYL (2.5 X 1.25 X 2.0)	
3	I50-3258	1	DIRECTIONAL VALVE, SD5, 3 SPOOL	
4	515-093	1	HOSE (040FX90S-42"-3000)	
5	I53-298	1	HOSE (040FX90L-42"-3000)	
6	I54-220	3	CONNECTOR (040-06S)	
7	117-717	2	ABRASION SLEEVE (1.00" X 40")	
8	I54-934	1	HOSE (040FX45-18"-3000)	
9	I54-934	1	HOSE (040FX45-18"-3000)	
10	117-706	1	ABRASION SLEEVE (1.59" X 17")	
11	I54-250	1	CONNECTOR (040-06S45)	
12	I54-424	1	BK RUN TEE (040-040-040BK)	
13	I54-296	1	CAP (040F)	

NOT SHOWN:

FOOTNOTES:

NOTE:

LEFT ANCHOR HYDRAULICS



LEFT ANCHOR HYDRAULICS

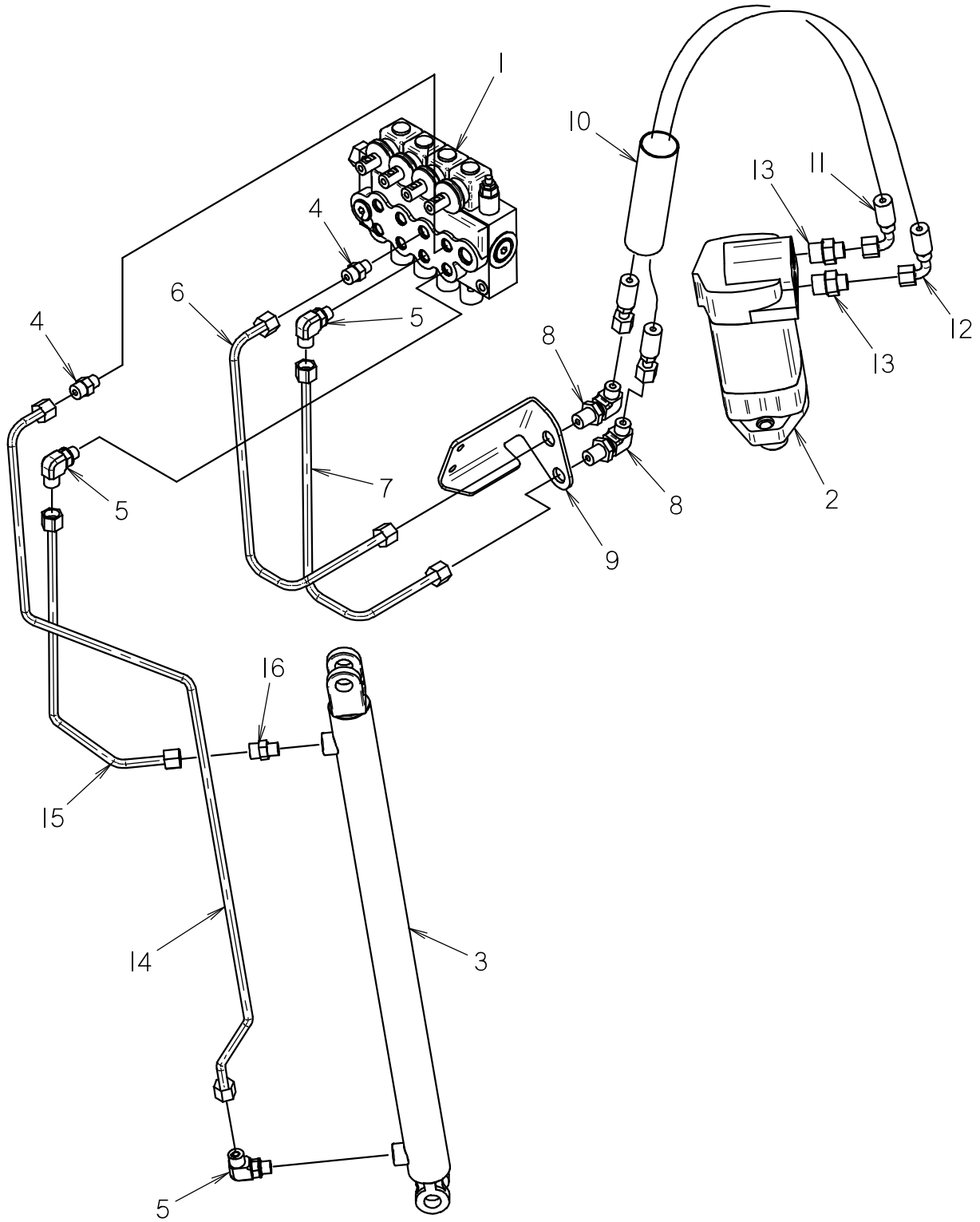
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1	157-241	1	HYD CONTROL VALVE (4-SPOOL)	
2	158-700	1	HYD MOTOR	
3	151-214	1	HYD CYL	
4	154-221	3	CONNECTOR (06S-060)	
5	150-2333	2	HYD LINE (-06)	
6	154-229	2	BK CONNECTOR (060-06090BK)	
7	154-228	2	UNION (060-060FX90)	
8	117-679	1	ABRASION SLEEVE (1.59" X 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

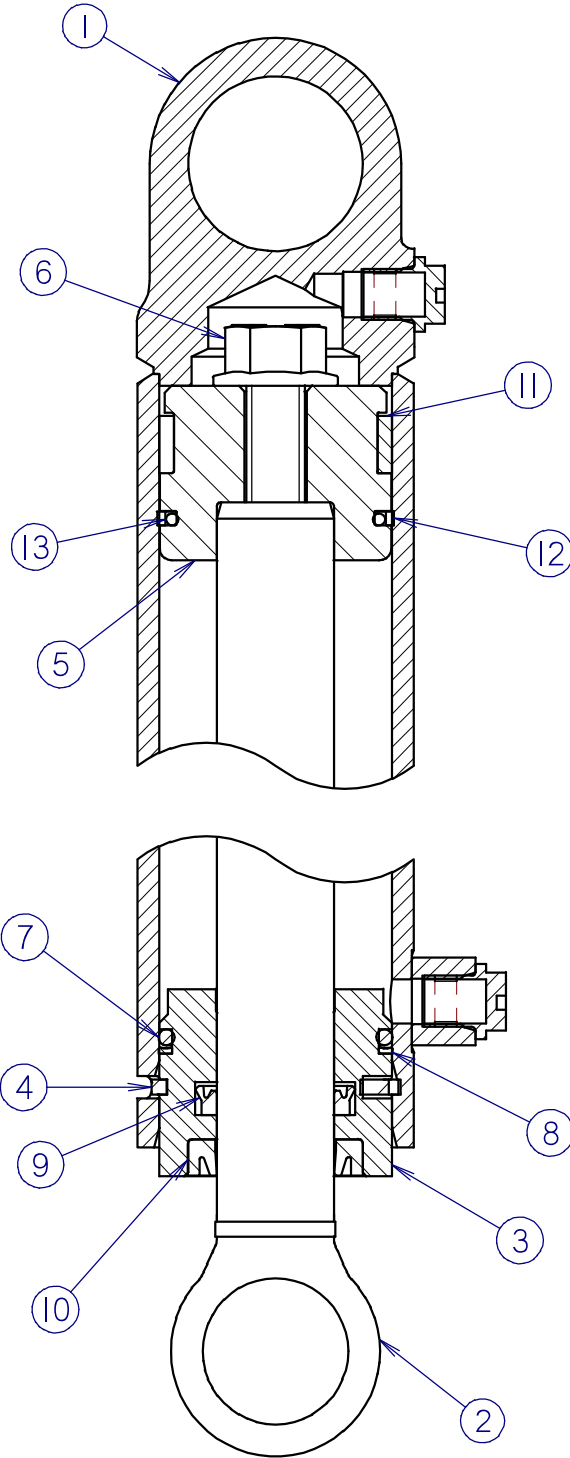
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1	157-241	1	HYD CONTROL VALVE (4-SPOOL)	
2	158-700	1	HYD MOTOR	
3	151-214	1	HYD CYL	
4	154-221	2	CONNECTOR (06S-060)	
5	154-342	3	CONNECTOR (06S-06090)	
6	150-3085	1	HYD LINE (-06)	
7	150-3083	1	HYD LINE (-06)	
8	154-229	2	BK CONNECTOR (060-06090BK)	
9	300-9721	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)	

NOT SHOWN:

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:

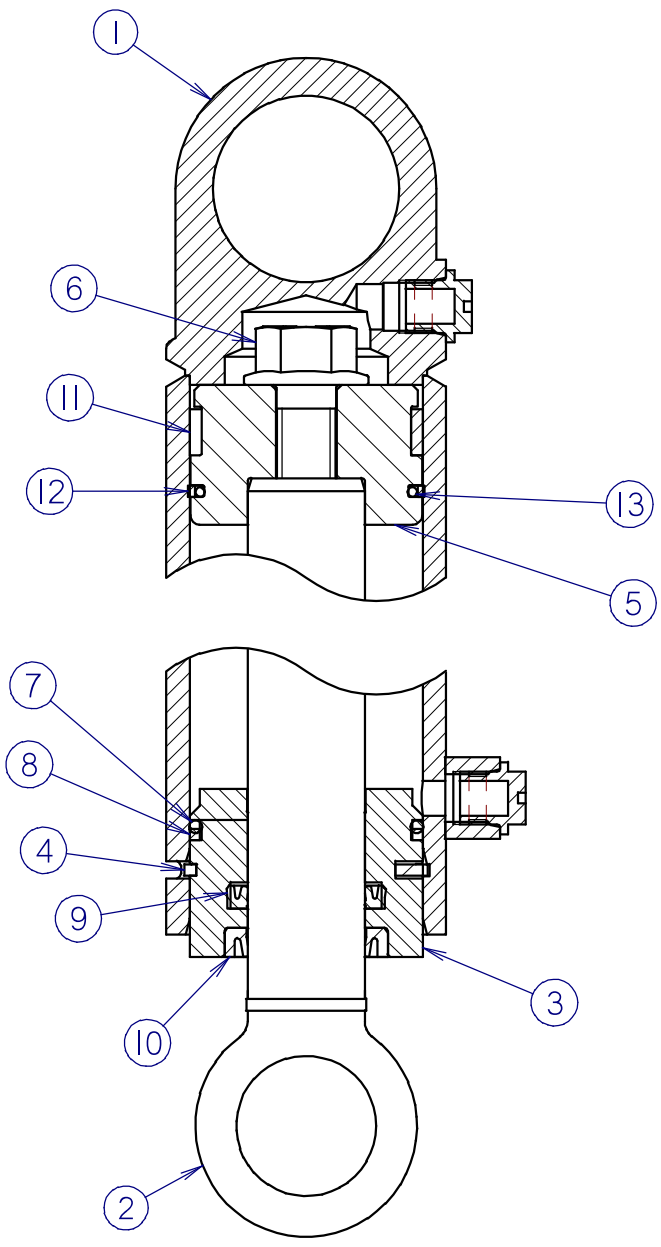
259-100	U-SEAL INSTALLER (1" - 1.499")
259-235	1.00 ROD WIPER TOOL
259-239	WIPER/SEAL INSTALLER (2")
259-241	PISTON INSTALLER (2")
259-188	CYL HEAD SPANNER - TWO PIN

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:

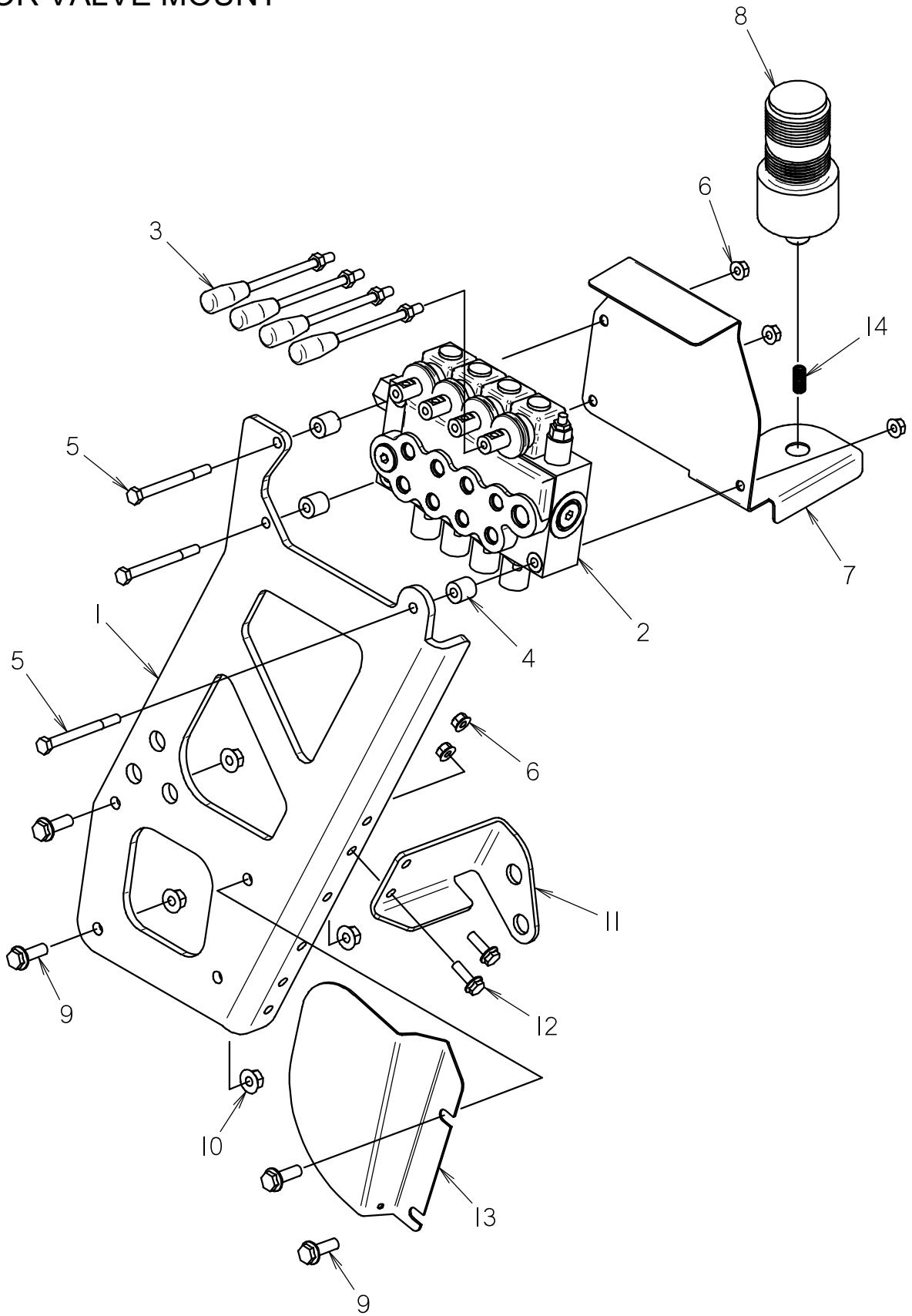
- REF. #1 & #2 ARE SPECIFIC TO EACH CYLINDER, REF #3 THRU #13 ARE COMMON FOR ALL THE ABOVE LISTED CYLINDERS.
- SEAL REPAIR KIT P/N: 190-166
- APPLY LOCTITE 277 OR EQUIVALENT, TORQUE TO 180-200 FT-LBS

NOTE:

NOTES:

ANCHOR SYSTEMS

ANCHOR VALVE MOUNT



ANCHOR VALVE MOUNT

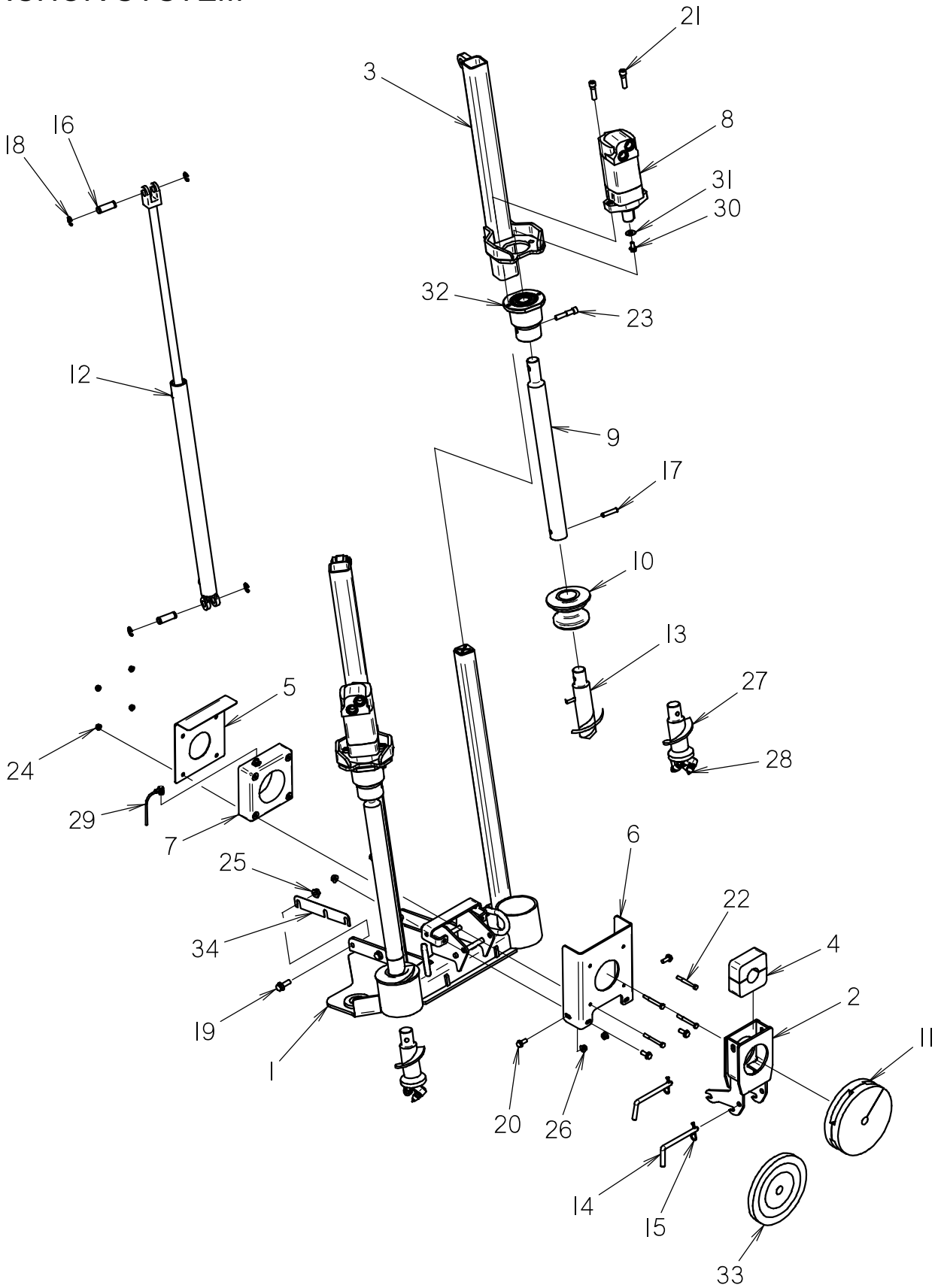
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1	300-8122	1	MOUNT PLATE	
2	157-241	1	HYD CONTROL VALVE (4-SPOOL)	
3	500-908	4	LEVER (M8-1.25, BLACK)	
4	179-501	3	SPACER	
5	107-078	3	SCREW (M8-1.25 X 90MM)	
6	106-386	5	FLG LOCKNUT (M8-1.25)	
7	319-330	1	LIGHT MOUNT	
8	217-297	1	STROBE LIGHT (GREEN)	
9	106-383	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 (.25")	

NOT SHOWN:

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 (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,SER)	
20	106-724	4	FLG SCREW (M10-1.50 X 25MM)	
21	106-707	4	SCREW (M12-1.75 X 45MM, SOCI)	
22	105-292	4	SCREW (M8-1.25 X 75MM)	
23	106-771	2	SCREW (M12-1.75 X 60MM, SOCI)	
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:

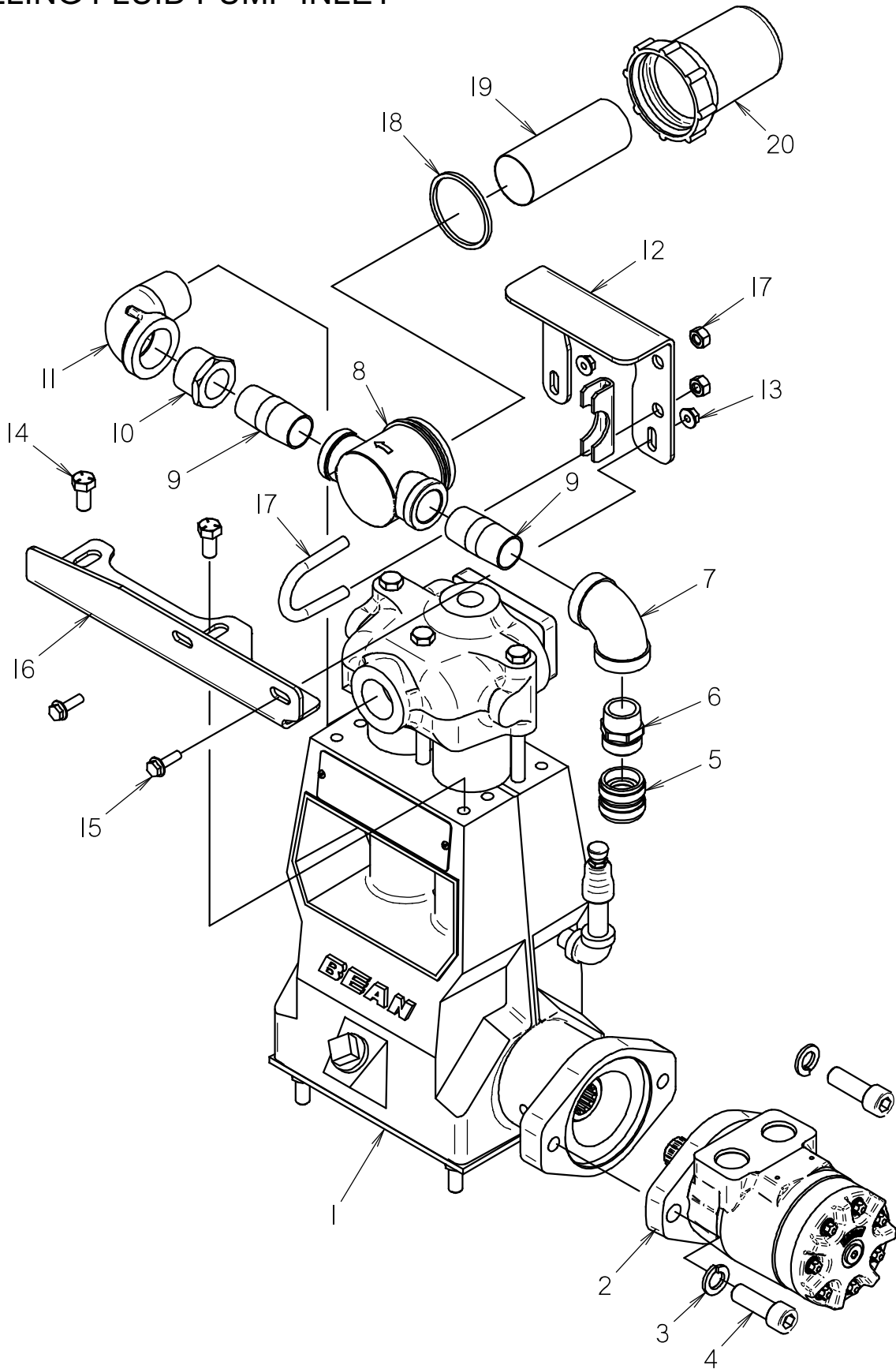
FOOTNOTES:

NOTE:

NOTES:

FLUID SYSTEMS

DRILLING FLUID PUMP INLET



DRILLING FLUID PUMP INLET

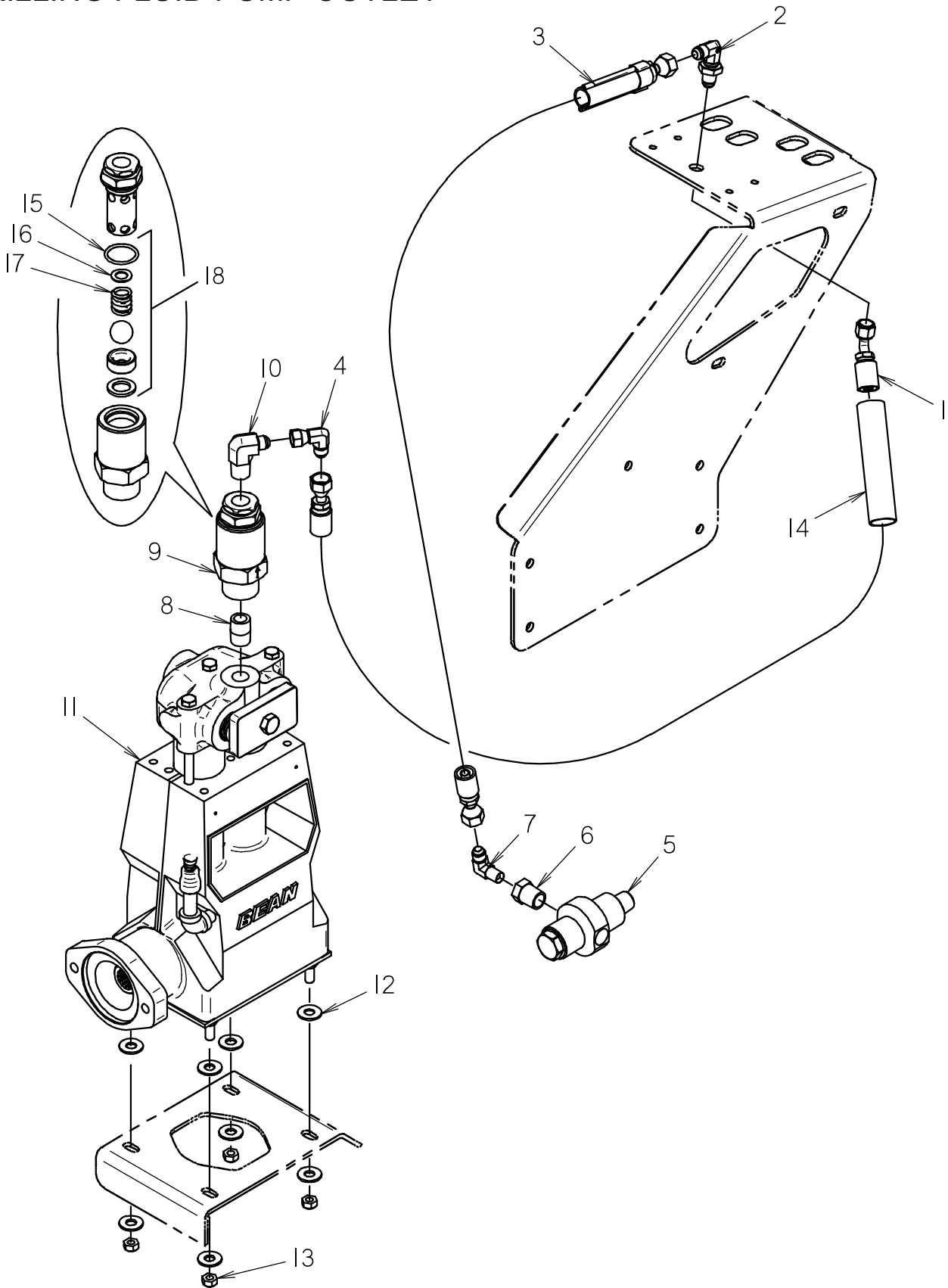
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1	158-057	1	DRILLING FLUID PUMP	
2	158-469	1	GEAR MOTOR (3.0 CU/REV)	
3	105-070	2	LOCK WASHER (1/2")	
4	106-204	2	BOLT (1/2 - NC X 1.50", SOCI)	
5	156-968	1	CONNECTOR (12GF-12GF)	
6	115-449	1	REDUCER (12N-12G, BRASS)	
7	114-013	1	ELBOW (12NF90)	
8	153-133	1	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

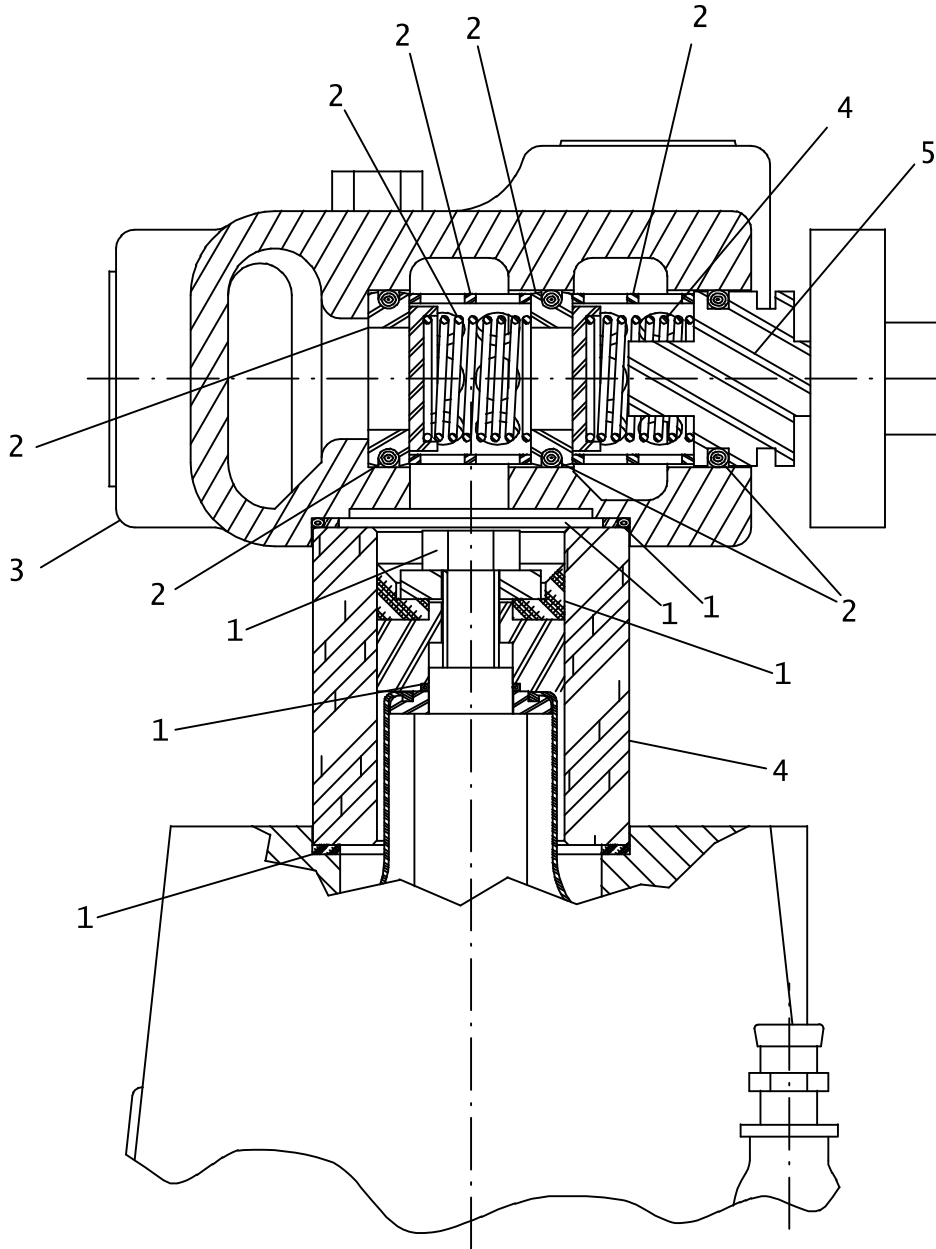
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1	I50-3115	1	HOSE (06JFX45-92"-2250)	
2	I54-024	1	BK CONNECTOR (06J90)	
3	I50-3116	1	HOSE (06JFX-71"-2250-WS)	
4	I54-044	1	UNION (06J-06JFX90)	
5	I50-2678	1	WATER SWIVEL (L-08N)	
6	514-085	1	REDUCER (08N-06NF)	
7	I54-056	1	CONNECTOR (06N-06J90)	
8	I15-148	1	ALL THREAD (08N)	
9	I49-324	1	FLOW CHECK (08NF-08NF/64PSI)	
10	I50-2332	1	CONNECTOR (08N-06J90)	
11	I58-057	1	DRILLING FLUID PUMP	
12	I07-368	8	WASHER (3/8" HARDENED)	
13	I05-047	4	LOCKNUT (3/8-NC)	
14	I05-1051	1	ABRASION SLEEVE (1.00 X 92")	
15	I55-748	1	O-RING (916 D90)	
16	I10-096	1	MACHINERY BUSHING (1/2")	NOT REQUIRED WITH INITIAL I90-963 REPAIR KIT INSTALLATION
17	I59-326	1	COMPRESSION SPRING	
18	I90-963	-	REPAIR KIT	INCLUDES REF NO'S 15,16 & 17

NOT SHOWN:

FOOTNOTES:

NOTE:

DRILLING FLUID PUMP



DRILLING FLUID PUMP

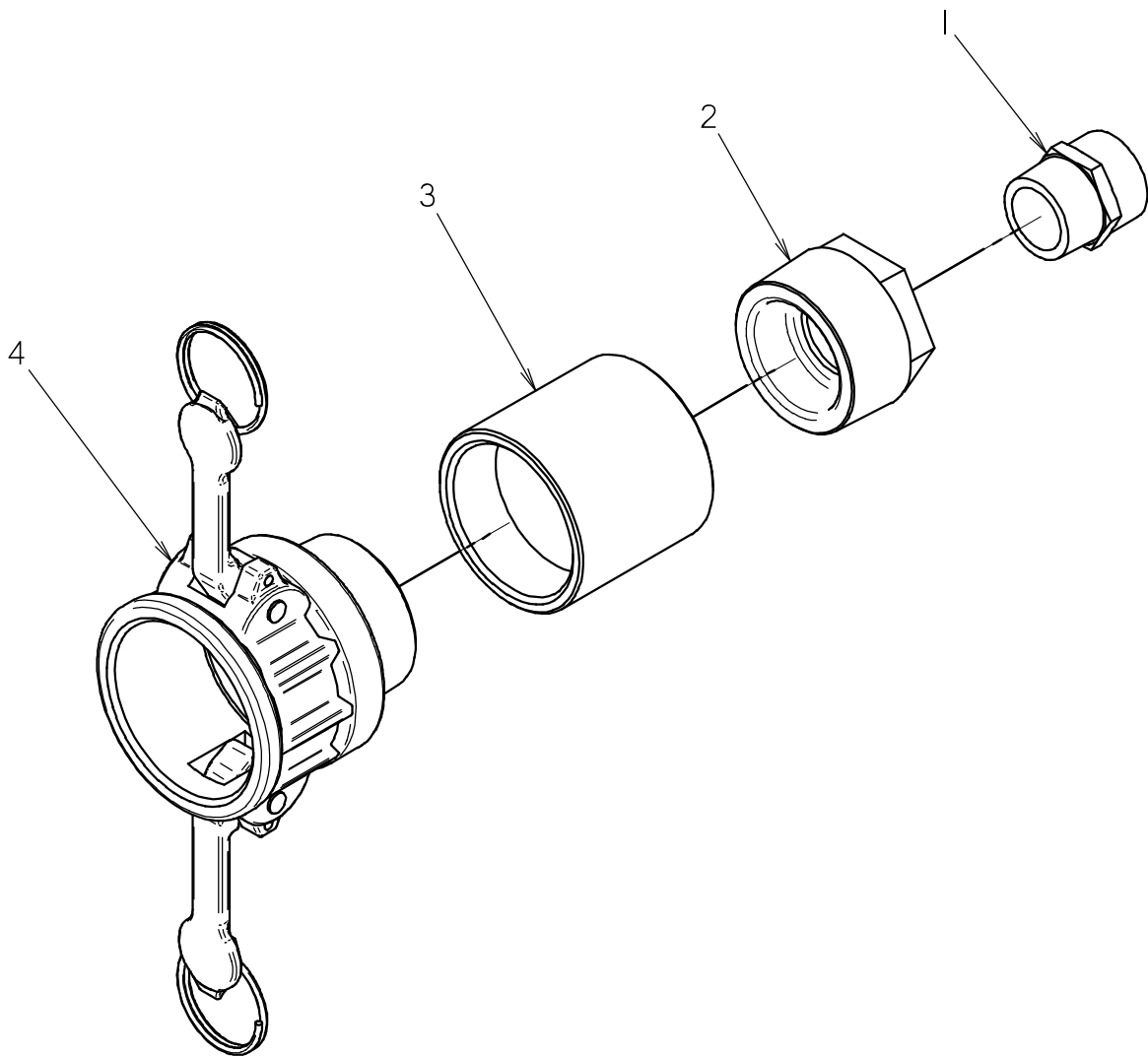
REF PART NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	158-057	1	DRILLING FLUID PUMP	
	197-087	-	REBUILT 158-057 FLUID PUMP	
1.	190-933	-	PACKING REPAIR KIT	
2.	190-815	-	VALVE REPAIR KIT	
3.	499-015	1	VALVE CHAMBER/FLUID CYLINDER	
4.	500-903	2	CLINDER, CERAMIC	
5.	499-086	2	VALVE COVER	

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)	

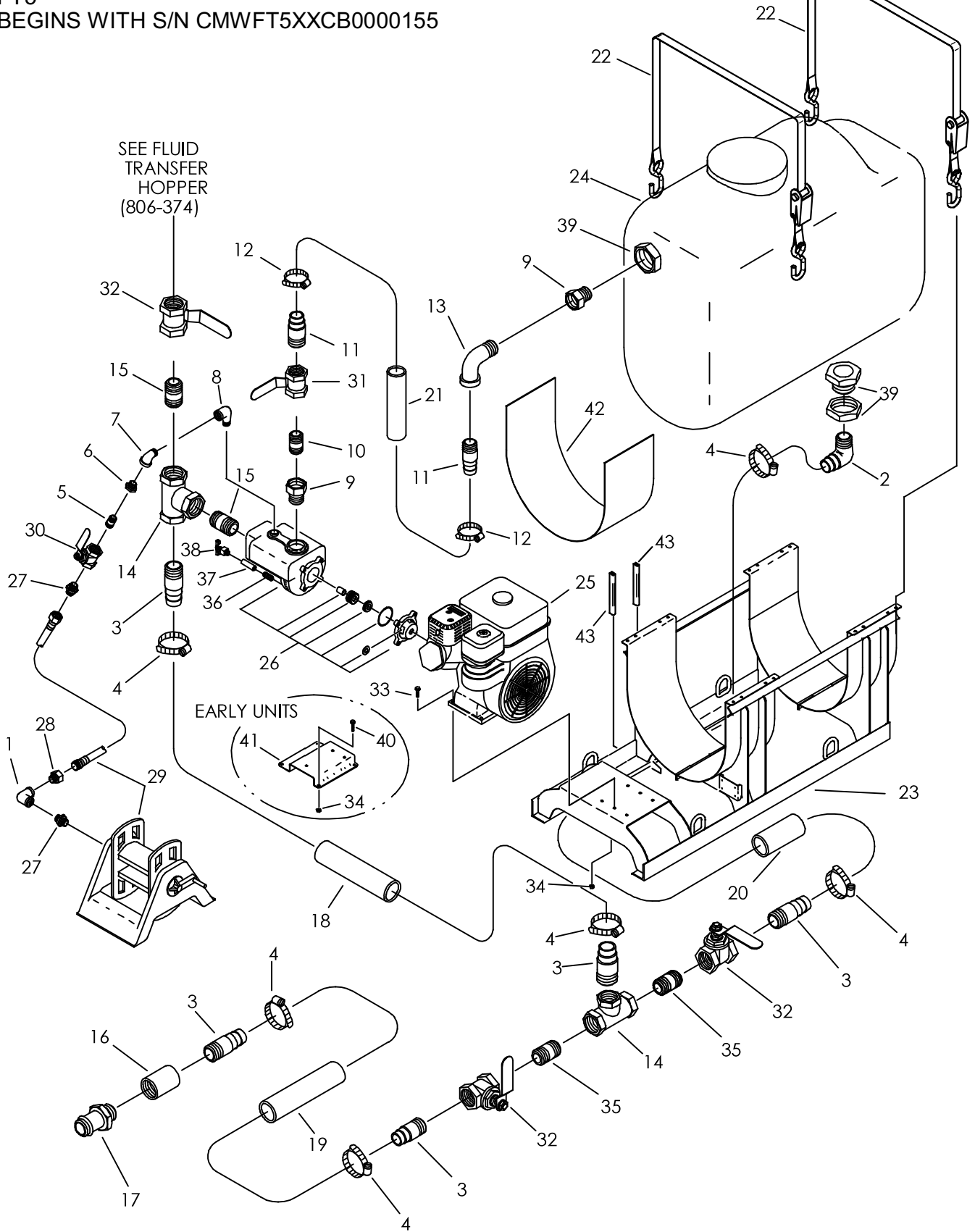
NOT SHOWN:

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-12NH)	NOT INCLUDED WITH SYSTEM
29.	NA	1	WATER HOSE & HOSE REEL	NOT INCLUDED WITH SYSTEM

NOT SHOWN:

FOOTNOTES:

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

NOTE:

**FLUID TRANSFER SYSTEM
FT5
BEGINS WITH S/N CMWFT5XXCB0000155**

REF NO.	PART 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:

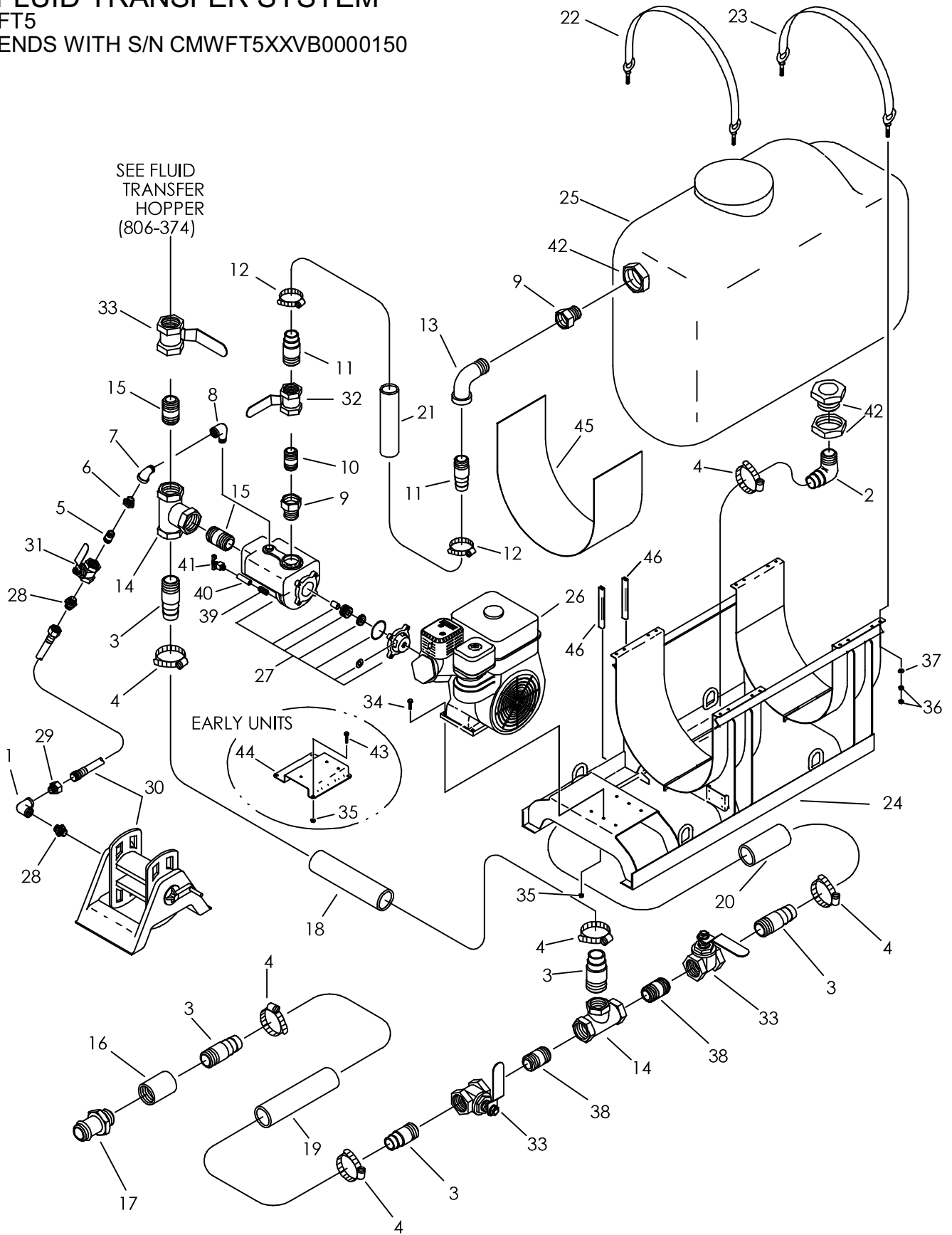
- 3. NOT REQUIRED PARTS.
- 4. HOLES MAY REQUIRE MODIFICATION FOR NEW FITTINGS.

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-12NH)	NOT INCLUDED WITH SYSTEM
30.	NA	1	WATER HOSE & HOSE REEL	NOT INCLUDED WITH SYSTEM

NOT SHOWN:

FOOTNOTES:

- USE 1 @ 8". EARLY UNITS WITH ORIGINAL SKID USE 1 @ 10"
- 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:

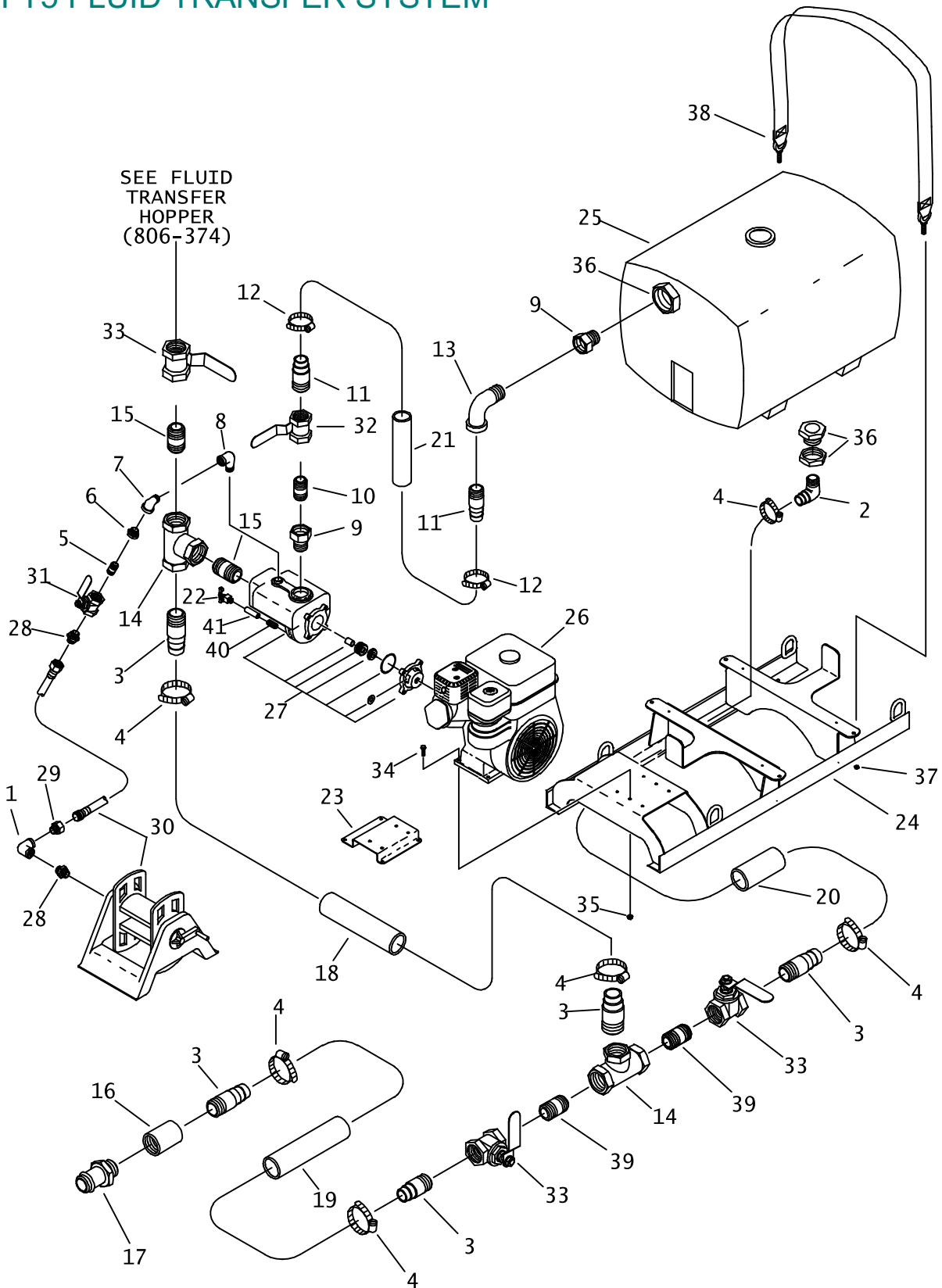
FOOTNOTES:

- 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)	
	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:

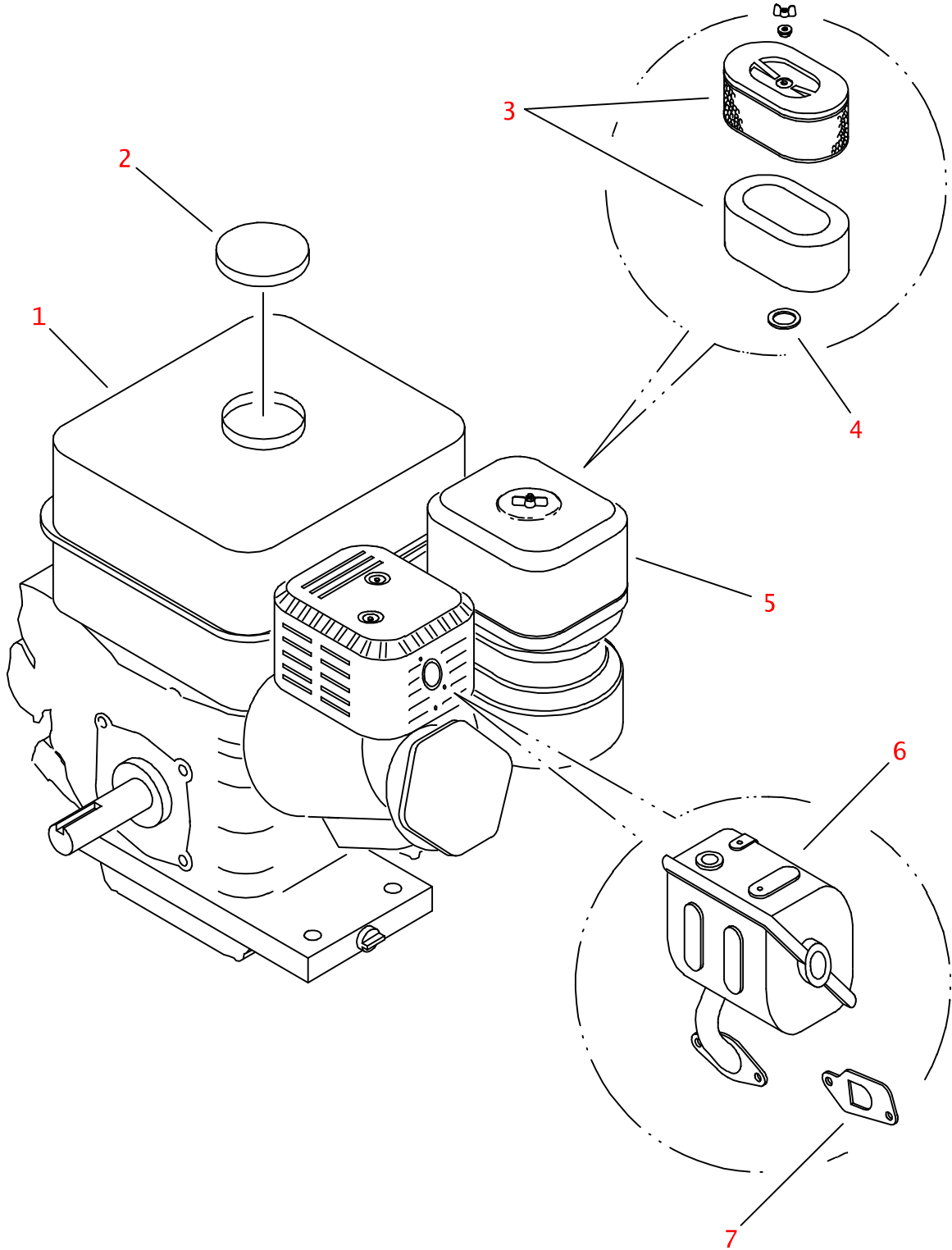
FOOTNOTES:

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

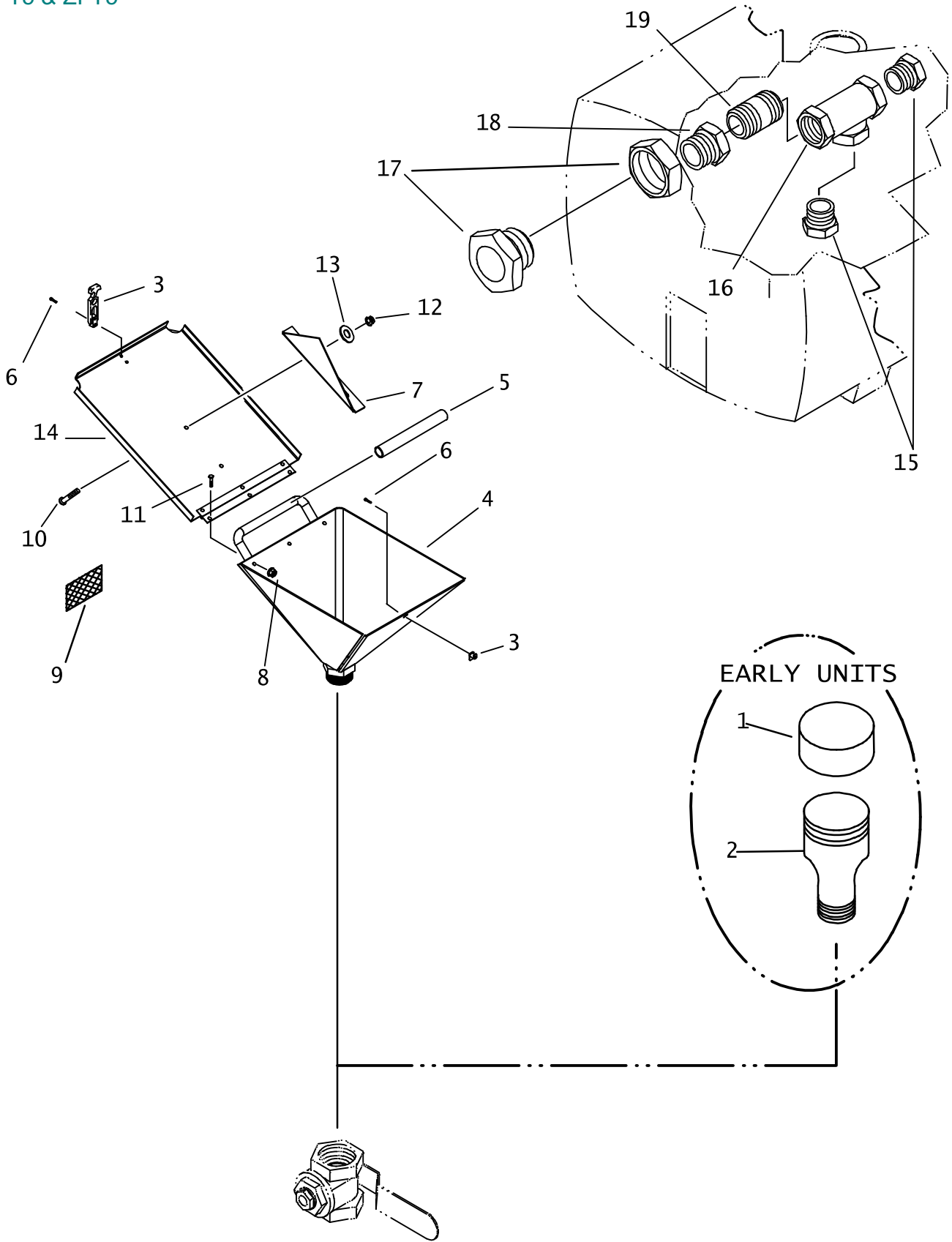
NOT SHOWN:

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:

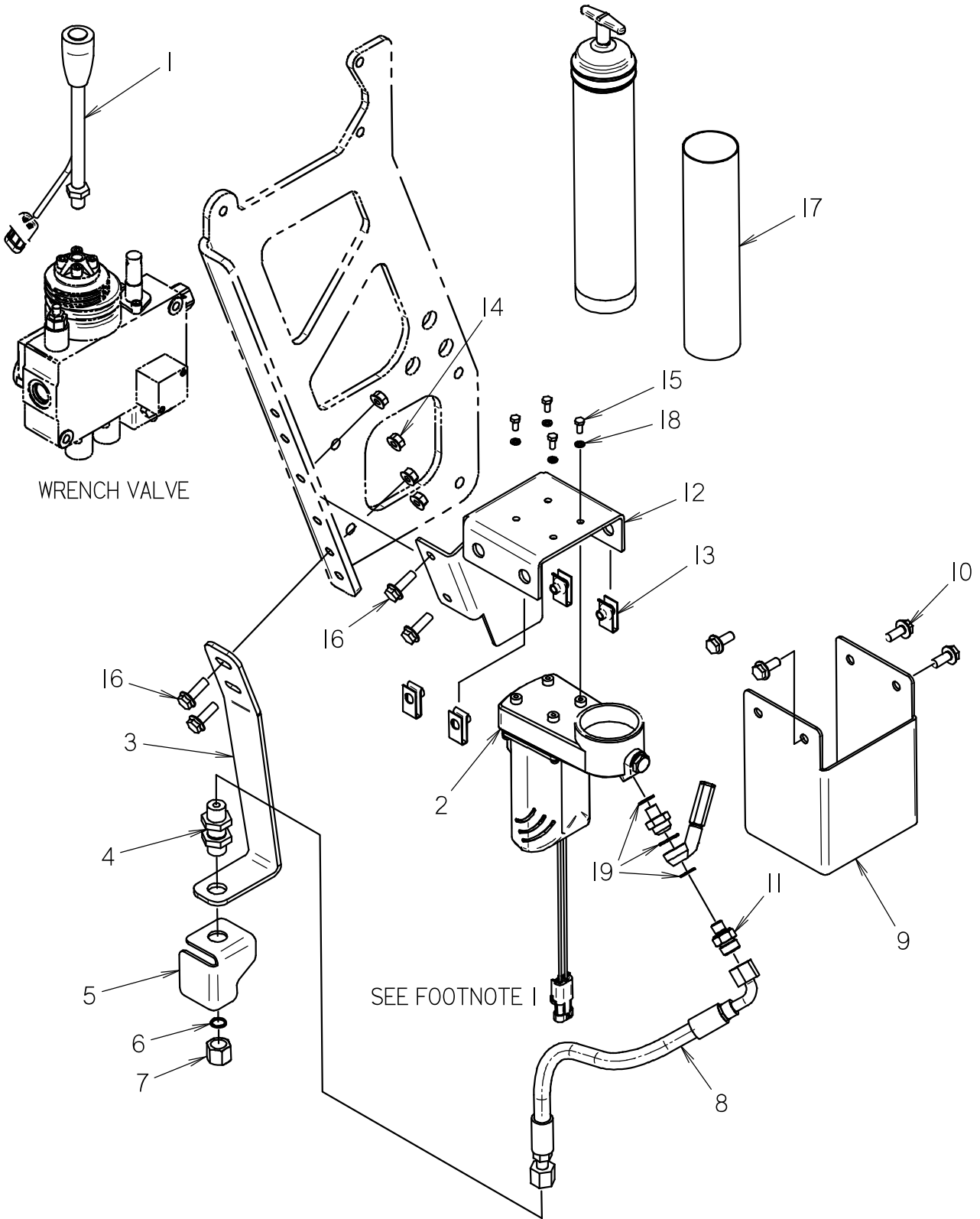
FOOTNOTES:

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 I-19
I	301-1967	I	LEVER W/ SWITCH	
2	301-1966	I	ELECTRIC GREASER ASSEMBLY	INCLUDES GREASE TUBE ASSEMBLY
3	300-9212	I	NOZZLE MOUNTING BRACKET	
4	514-163	I	BK CONNECTOR (060-060BK)	
5	301-1696	I	GREASE SHIELD	
6	105-890	I	SEAL WASHER (7/16")	
7	149-221	I	NOZZLE	
8	154-737	I	HOSE (060FX90S-17"-3000)	153-585 HEATED HOSE
9	300-9210	I	COVER	
10	106-991	4	FLG LK SCREW (M8-1.25 X 20MM)	
11	150-2718	I	CONNECTOR (7/16"-060)	
12	300-9209	I	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	I	GREASE (1/4 OZ CARTRIDGE)	256-026 GREASE (1/4OZ CARTRIDGE, ARCTIC GRADE)
18	106-429	4	LOCK WASHER (M5)	
19	500-2113	I	GASKET KIT	

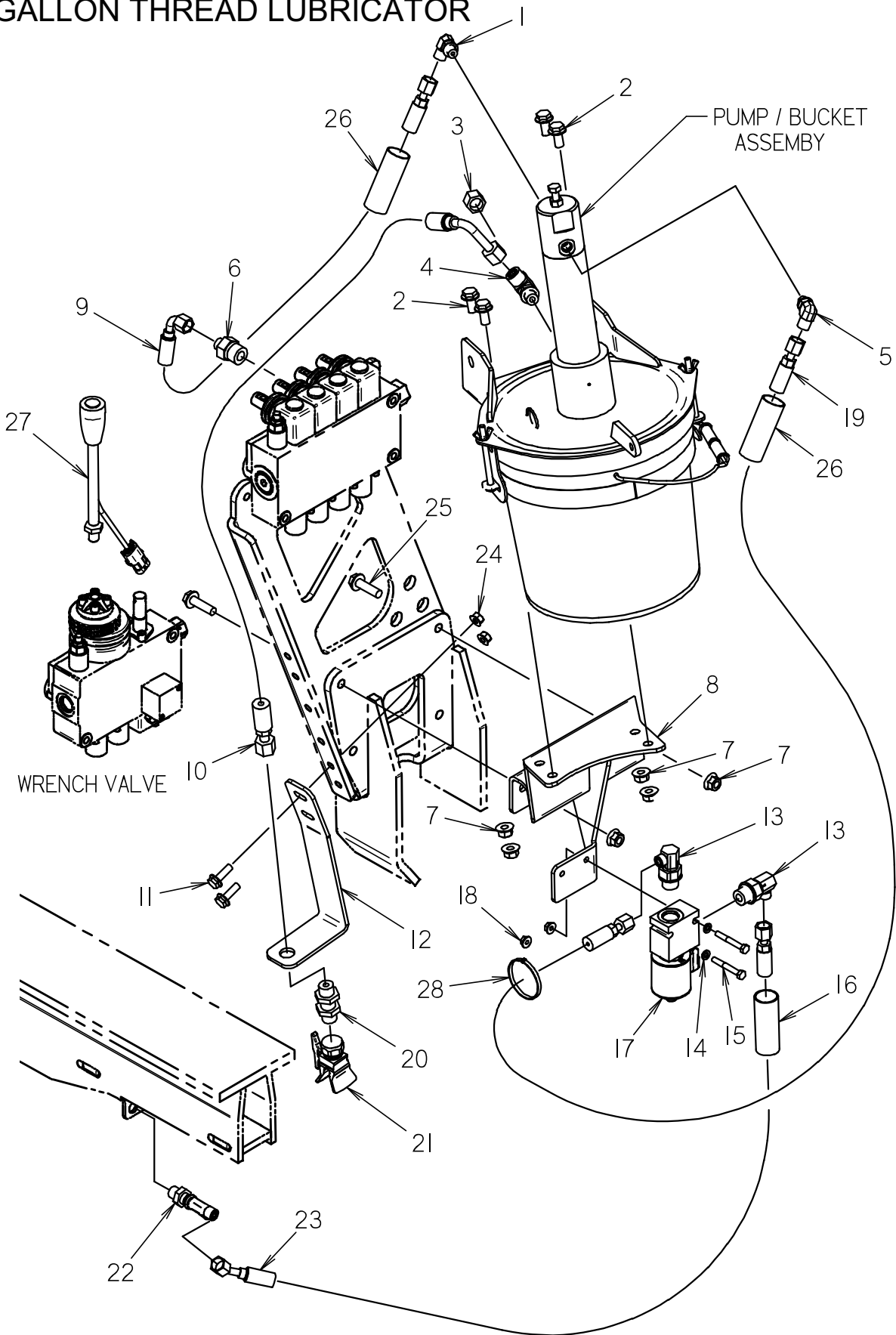
NOT SHOWN:

FOOTNOTES:

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

NOTE:

2 GALLON THREAD LUBRICATOR



2 GALLON THREAD LUBRICATOR

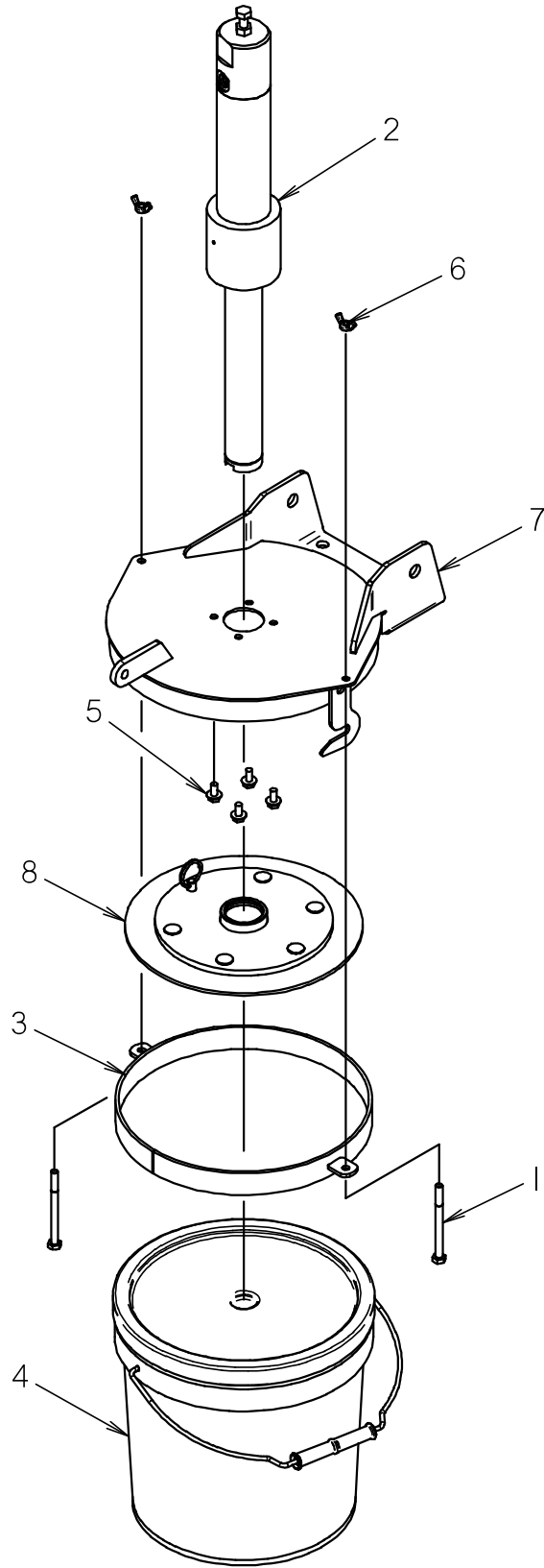
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	190-1726		2 GAL LUBRICATOR KIT	INCLUDES REFERENCE NUMBERS 1-28
1	154-252	1	CONNECTOR (04S-04090)	
2	106-382	4	FLG LK SCREW (M10-1.50 X 20MM)	
3	154-326	1	CAP (060F)	
4	154-345	1	RUN TEE (06S-060-060)	
5	154-401	1	CONNECTOR (04S-04090, ORF)	
6	153-969	1	HYDRAULIC 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:

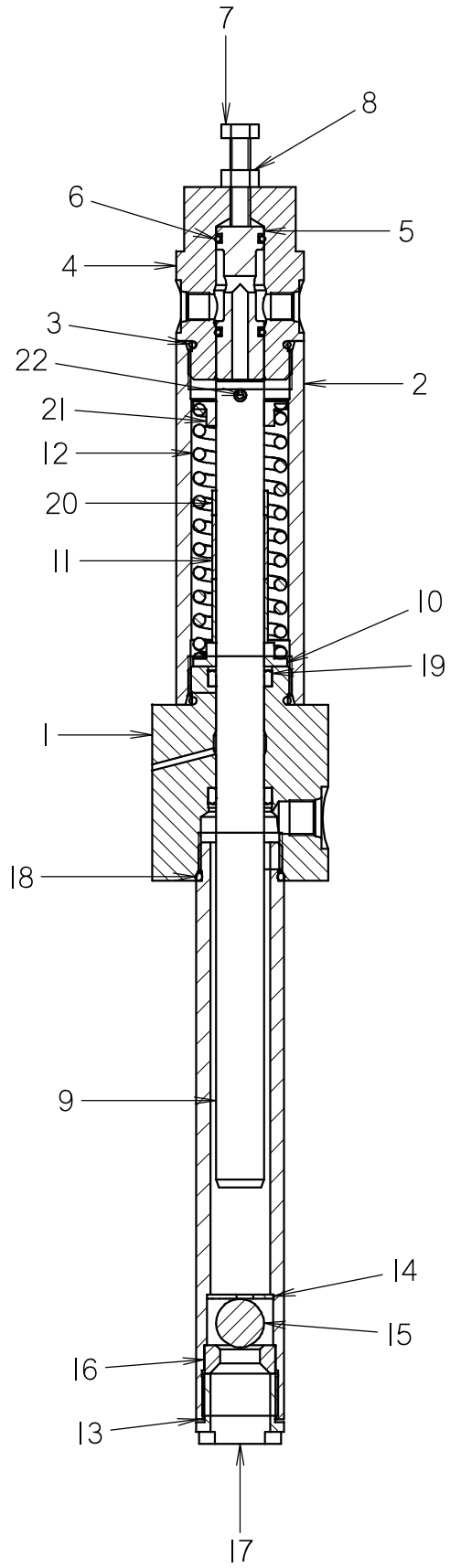
FOOTNOTES:

NOTE:

01

ID0275277

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 I
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 I
22	105-525	1	ROLL PIN (3/16" X 1-1/4")	SEE FOOTNOTE I

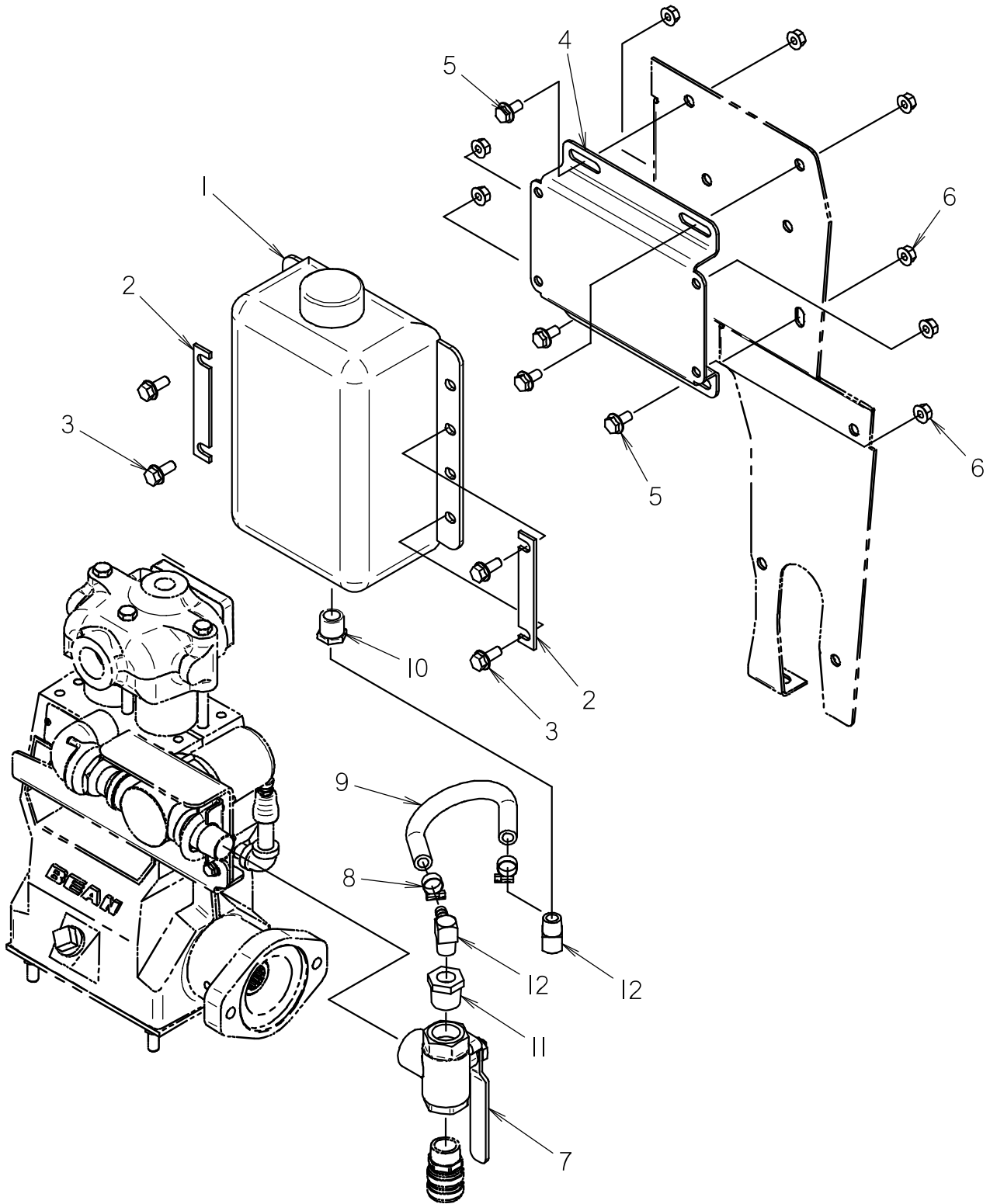
NOT SHOWN:

FOOTNOTES:

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

NOTE:

ANTIFREEZE KIT



ANTIFREEZE KIT

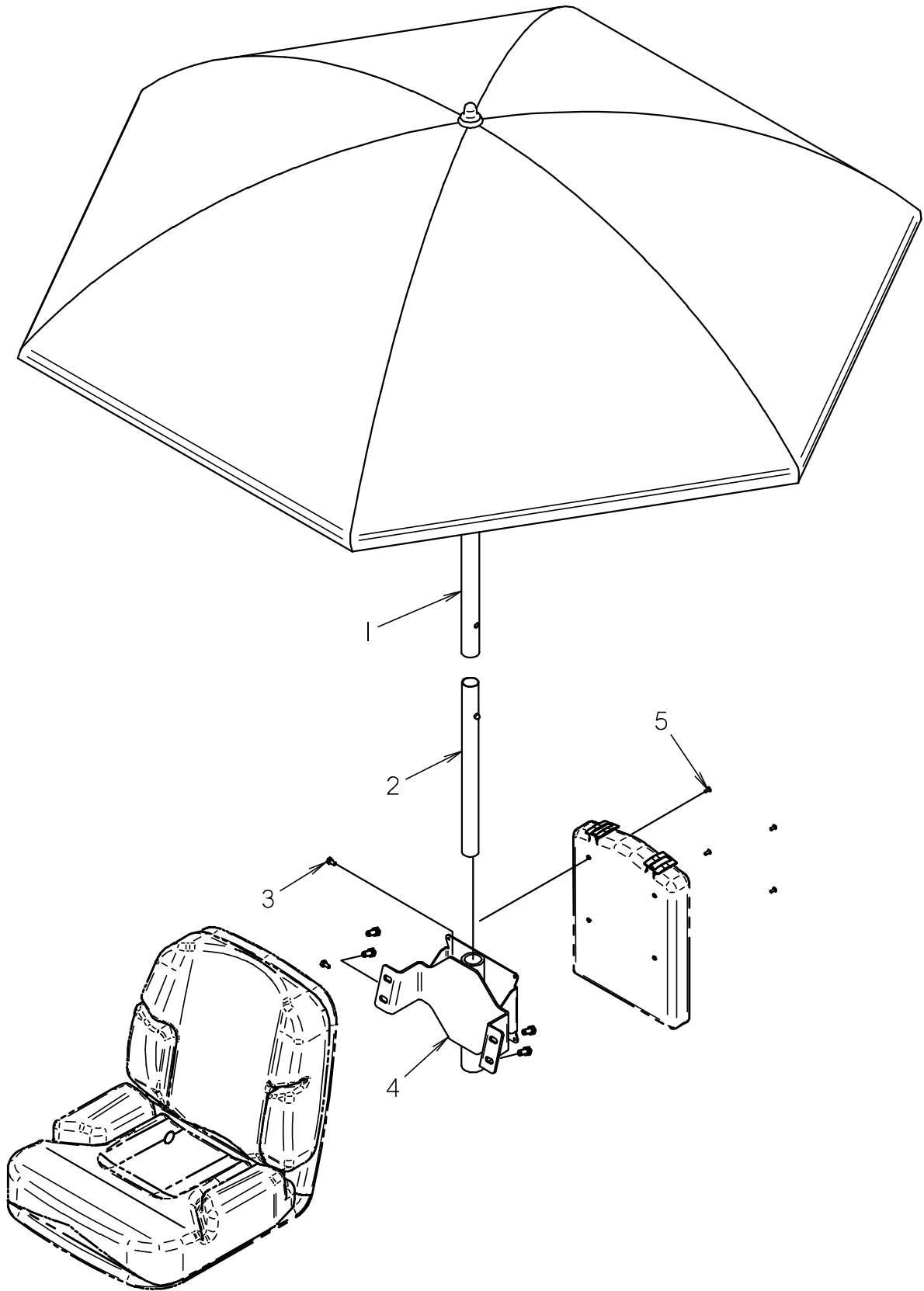
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	190-1662	-	ANTIFREEZE KIT	INCLUDES REFERENCE NUMBERS 1-12
1	149-382	1	WATER TANK (1 GAL.)	
2	305-579	2	MOUNT BAR	
3	106-162	4	FLG SCREW (M8-1.25 X 20MM, GD8)	
4	300-9231	1	TANK MOUNT	
5	106-380	4	FLG LK SCREW (M8-1.25 X 16MM)	
6	106-386	8	FLG LOCKNUT (M8-1.25)	
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)	

NOT SHOWN:

FOOTNOTES:

NOTE:

UMBRELLA KIT



UMBRELLA KIT

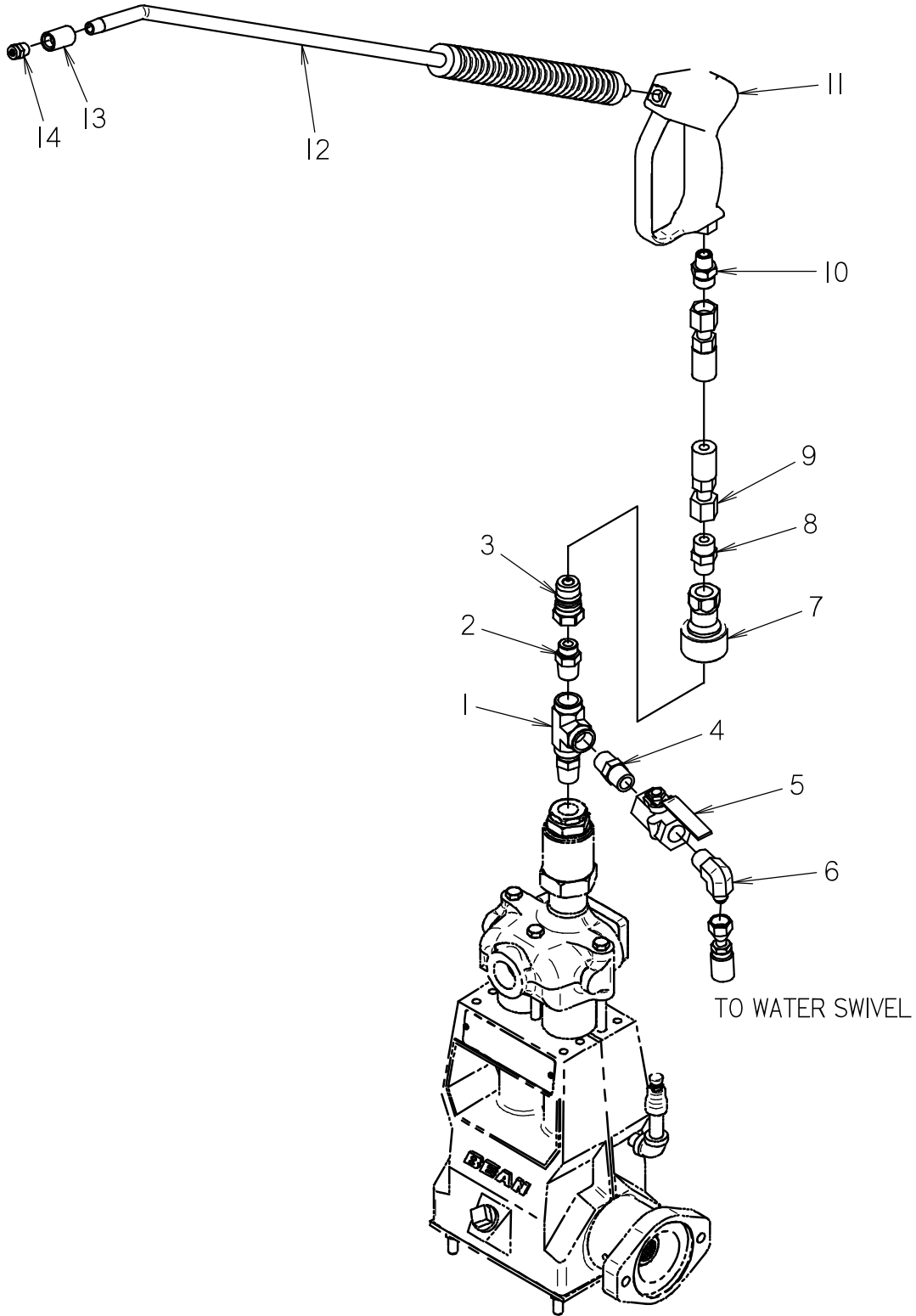
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	190-1731		UMBRELLA KIT	INCLUDES REFERENCE NUMBERS 1-5
1	344-0001	1	UMBRELLA	INCLUDES REFERENCE NUMBER 2
2	500-1962	1	UMBRELLA POLE (16")	
3	105-174	2	BOLT (1/4-NC X 1/2")	
4	301-2607	1	UMBRELLA MOUNT	
5	110-560	4	POP RIVET (3/16" X 1/2", ALUM)	

NOT SHOWN:

FOOTNOTES:

NOTE:

WASH WAND KIT



WASH WAND KIT

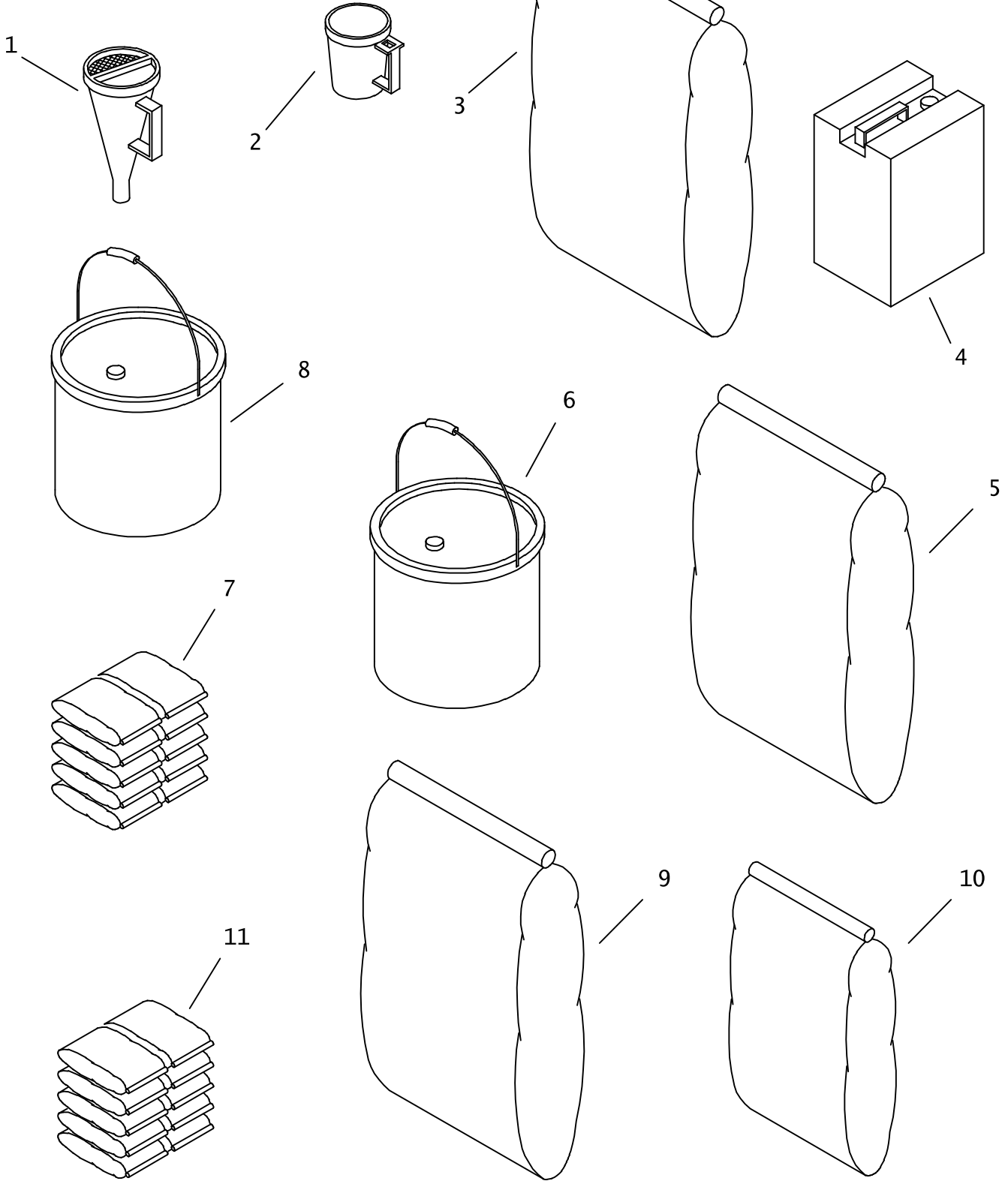
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	190-1670	-	WASH WAND KIT	INCLUDES REFERENCE NUMBERS 1-14
1	514-241	1	TEE (08N-08N-08N)	
2	514-240	1	CONNECTOR (08N-08S)	
3	159-089	1	QDC ADAPTER (08-08SF)	
4	155-210	1	CONNECTOR (08N-08N)	
5	158-579	1	SHUT-OFF (08NF-08NF)	
6	150-2332	1	CONNECTOR (08N-06J90)	
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
Model:		
JT5 - FT5 Parts Manual		053-2354
JT5 Operators Manual		053-2380
FT5 Operators Manual		054-058
Engine:		
Kubota Parts Manual195-1188.....		053-1338
Kubota Operators Manual195-1188 ...		053-1337
Kubota Service (Shop) Manual195-1188 ...		055-051
WATER TRANSFER SYSTEM OPTION: FT5		
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

Engine:		
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
WATER TRANSFER SYSTEM OPTION: FT5		
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
Hydraulic:		
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



Parts Manual Change Request

(Please print clearly)

Date: _____ Dealer No. (required): _____

Your Name: _____ Position: _____

Phone: _____ Fax: _____ E-mail: _____

Publication Information:

Parts Manual No.: _____ - _____ Model: _____

Illustration Part No.:	Manual Page No.:
1. _____ - _____	1. _____
2. _____ - _____	2. _____
3. _____ - _____	3. _____

Nature of Change Request:

- Text
- Graphics
- Missing Information

Describe change requested (if possible, include copy of publication page with changes marked.):

Please fax completed form to
Parts Manual Department (580) 572-3525

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

**A Note To
Ditch Witch
Equipment Owners:**

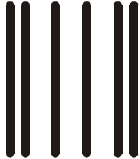
If your equipment was purchased through a Ditch Witch dealer, there is no need to read further.

However, if you purchased from any other source, please fill out the form on the reverse side and return it to us.

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

Thanks for using Ditch Witch equipment.

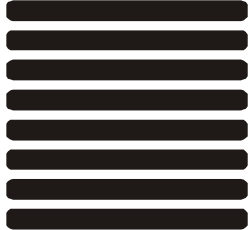
(Please Fold Along This Line And Seal At Bottom With Tape)



**NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES**

BUSINESS REPLY MAIL
FIRST CLASS PERMIT NO 23 PERRY OKLAHOMA

POSTAGE WILL BE PAID BY



**The Charles Machine Works, Inc.
P.O. Box 66
Perry, Oklahoma 73077-9989**



Ditch Witch® Registration Card

Please Type or Print All Information

Purchaser's Company Name

Attention

Street Address or P.O. Box

City County

State Zip Nation

()

Phone Number With Area Code

Model S rial Number

Attachments/Accessories Serial Numbers

Attachments/Accessories Serial Numbers

Attachments/Accessories Serial Numbers

Name of Ditch Witch Dealership

Your Signature