

Ditch Witch®


JT1210

ISSUE NO. 03PL-05/17

For Replacement Copy Order **P/N 053-458**

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FRAME COMPONENTS

HOSE TRACK AND COVER

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	355-583	1	HOSE TRACK	
	355-585		16" TRACK REPAIR SECTION	
	355-731		EASYOUT PIN	SET OF 12
2.	105-823	12	FLG LK BOLT (5/16-NC X 3/4")	
3.	106-386	12	FLG LOCKNUT (5/16-NC)	
4.	105-214	2	SCREW (#10-24 X 1/2", SELF TAP)	
5.	353-174	2	CLIP	
6.	343-086	2	CABLE SUPPORT	
7.	344-660	1	HOSE COVER	

FOOTNOTES

INNER ROLLER

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

NOT SHOWN:

FOOTNOTES:

NOTE:

STABILIZER

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	106-338	2	SCREW (M16-2.00 X 30MM)	
2.	105-247	2	SCREW (M12-1.75 X 35MM)	
3.	115-483	2	EXTERNAL KLIP RING (1-1/4")	
4.	125-415	6	BRONZE BUSHING	
5.	125-772	2	COMPOSITION BUSHING	
6.	125-771	2	COMPOSITION BUSHING	
7.	151-045	2	CYL (2.50" X 1.250" X 8.000")	
8.	181-982	2	TAPERED INSERT (1.250")	
9.	181-974	2	TAPERED INSERT (1.500")	
10.	355-878	1	REAR STABILIZER ARM	
11.	183-766	2	TAPERED PIN (31.75MM X 90MM)	
12.	356-710	2	TAPERED PIN (38.1MM X 124MM)	
13.	183-819	1	PIN	
14.	344-501	-	FRAME	

FOOTNOTES

HYDRAULICS

ROTATION HYDRAULICS

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	514-035	1	CONNECTOR (10S-10090-040)	
2.	154-288	1	CONNECTOR (10S-10090)	
3.	154-339	1	CONNECTOR (04N-040)	
4.	114-016	1	PIPE ELBOW (1/4-NPT)	
5.	217-551	1	PRESSURE GAUGE	
6.	154-963	1	HOSE (040FX45-24"-3000)	
7.	515-386	2	HOSE (100FX90S-208"-3000)	
8.	154-410	1	CONNECTOR (040-04090)	
9.	154-308	2	CONNECTOR (100-12S)	
10.	154-278	1	CONNECTOR (04S-040)	
11.	515-385	1	HOSE (040FX45-135"-3000)	
12.	117-710	1	ABRASION SLEEVE (2.38" X 210")	
13.	158-881	1	HYDRAULIC MOTOR	
	500-711		SEAL REPAIR KIT	
	500-758		SHAFT SEAL REPAIR KIT	
14.	154-220	1	CONNECTOR (040-06S)	
15.	515-189	1	HOSE (040FX90-88"-3000)	

NOT SHOWN:

FOOTNOTES:

NOTE:

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

AUXILIARY PUMP & HYDRAULICS

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	515-102	2	HOSE (080-080-82"-3000)	
2.	154-833	1	HOSE (080-08090S-24"-3000)	
3.	115-934	1	HOSE SLEEVE (1.75" X 100")	
4.	155-255	1	BK SLIP-ON COUPLER (16S-16H)	
5.	154-188	1	SLIP-ON COUPLER (16S-16H90)	ENDS WITH S/N JT1210
	155-146	1	SLIP-ON COUPLER (12S-16H90)	ENDS WITH S/N JT2511 BEGINS WITH S/N JT1210 BEGINS WITH S/N JT2511
6.	154-322	1	CONNECTOR (10S-08090)	
7.	154-234	1	CONNECTOR (12S-080)	
8.	154-266	1	UNION RUN TEE (080FX-080-080)	
9.	154-299	1	RUN TEE (08S-080-080)	
10.	154-418	1	UNION (080F-08SM90)	
11.	158-681	1	AUXILIARY RELIEF VALVE	
	500-756		SEAL REPAIR KIT	
12.	116-460	AR	BULK HOSE (1" ID)	
13.	110-133	2	WORM CLAMP (1-1/16"-1-15/16")	
14.	158-330	1	HYDRAULIC PUMP	ENDS WITH S/N JT1210 ENDS WITH S/N JT2511
	500-470	-	SEAL REPAIR KIT	
	158-009	1	HYDRAULIC PUMP	BEGINS WITH S/N JT1210 BEGINS WITH S/N JT2511

NOT SHOWN:

FOOTNOTES:

NOTE:

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

STABILIZER HYDRAULICS

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	154-220	2	CONNECTOR (06S-040)	
2.	515-099	2	HOSE (040-040-72"-3000)	
3.	154-250	2	CONNECTOR (040-06S45)	
4.	155-623	1	CHECK VALVE	
5.	154-346	2	BRANCH TEE (060-060-06S)	
6.	154-342	4	CONNECTOR (06S90-060)	
7.	156-059	4	LINE	
8.	158-674	-	CONTROL VALVE	
	500-845	-	LEVER (M8 X 145MM)	
	500-846	-	LEVER (M8 X 165MM)	
9.	151-045	2	HYDRAULIC CYLINDER	
10.	115-935	1	ABRASION SLEEVE (1.75" X 70")	

NOT SHOWN:

FOOTNOTES:

NOTE:

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

FLUID SYSTEMS

WATER PUMP DRIVE

1500 PSI

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	105-003	6	FLG LOCKNUT (5/16 NC)	
2.	105-065	2	LOCKNUT (1/2-NC)	
3.	105-076	2	BOLT (1/2-NC X 3")	
4.	105-829	2	FLG LK BOLT (1/2-NC X 1")	
5.	105-831	2	FLG LK BOLT (1/2-NC X 1-1/2")	
6.	105-833	2	FLG LOCKNUT (1/2-NC)	
7.	105-873	6	FLG LK BOLT (5/16-NC X 1")	
8.	158-321	1	WATER/MUD PUMP (HYD)	
	158-362	1	DRILLING FLUID PUMP	SEE FOOTNOTE 1 & 2
9.	105-828	2	FLG LK BOLT (1/2-NC X 3/4")	
10.	182-137	1	DOUBLE UNIVERSAL JOINT	
11.	355-151	1	MUD PUMP MOUNT	
	363-468	1	MUD PUMP MOUNT	
	343-173	1	MUD PUMP MOUNT	
12.	355-152	1	U-JOINT GUARD	
	358-199	1	U-JOINT GUARD	
13.	105-702	2	SET SCREW (3/8-NC X 3/8")	
14.	165-944	1	KEY (1/4" SQ. X 1-3/4" LG)	

FOOTNOTES

- USE S.A.E. 30 OIL, 2 TO 2-1/2 PINTS
- FOR FIELD REPLACEMENT OF 158-321 THE FOLLOWING PARTS NEED TO BE ORDERED:
 - 158-362 1 FLUID PUMP (WATER/MUD)
 - 343-173 1 MUD PUMP MOUNT
 - 358-199 1 GUARD

POWER AND CONTROL CONNECTIONS WITHOUT HOSE REEL

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	343-174	1	PUMP MOUNT	
2.	154-714	1	HOSE (120 - 22.5" - 2250)	
3.	215-976	1	UMBILICAL HARNESS	
4.	154-286	1	CONNECTOR (120 - 16S90)	
5.	154-281	2	CONNECTOR (16S - 160)	
6.	515-445	1	HOSE (160FX90M-137"-3000)	
7.	515-446	1	HOSE (160FX-144"-3000)	
8.	514-131	3	CONNECTOR (16S - 16S)	
9.	159-259	2	QDC ADAPTER (16 - 16SF)	
10.	159-361	5	QDC BODY (16 - 16SF)	
11.	159-362	5	QDC ADAPTER (16 - 16SF)	
12.	159-260	1	QDC BODY (16 - 16SF)	
	190-771	1	SEAL KIT	
13.	215-979	1	UMBILICAL HARNESS - 50'	
14.	154-307	2	CONNECTOR (080 - 16S)	
15.	154-753	1	HOSE (080FX - 600" - 3000)	
16.	154-367	8	CONNECTOR (120 - 16S)	
17.	154-765	4	HOSE (120FX - 300" - 4000)	
18.	115-769	2	ABRASION SLEEVE (2.38" X 300")	
19.	159-364	3	DUST CAP	
20.	159-363	3	DUST CAP	

FOOTNOTES

ELECTRICAL SCHEMATIC

JT1210/PP70A

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
31A	GRA		NOT USED	
32				
33	BLU		REMOTE DRILL FLUID ADJUST "5V" SUPPLY	
33A	BLU		FLUID ADJUST POT "A" (UMB CABLE)	
34	LT GRN		DRILL FLUID ADJUST POT TO PWM DRILL FLUID CONTROL	
34A	GRN		FLUID ADJUST POT "B" (UMB CABLE)	
35	BLK/WHT		PWM DRL FLUID CONTROL & FLUID CONT BYPASS SWITCH TO FLUID CONT	
SOLENOID				
35A	BLK		FLUID SWITCH MAX (UMB CABLE)	
35B	WHT/BLK		FLUID SWITCH TO UMBILICAL CONN	
36	GRN/BLU		FLUID FLOW ADJUST POT TO MUD SHUTOFF RALEY	
37	GRA		THROTTLE PULL RELAY TO THROTTLE SOL	
38	YEL/BLK		THROTTLE SWITCH TO THROTTLE SOLENOID & TIMER	
39	BLU/YEL		THROTTLE SOL DELAY TIMER TO THROTTLE PULL RELAY	
40	BRN/YEL		REMOTE THROTTLE RELAY TO UMB CONN	
40A	PUR		REMOTE THROTTLE (UMB CABLE)	
40B	ORG/BLK		REMOTE THROTTLE TO UMB CABLE	
40C	YEL/BLK		THROTTLE SWITCH TO SOLENOID, TIMER, & UMBILICAL	
40D	YEL		REMOTE TROTTLE SWITCH CIRCUIT	
41	BRN ESS		BOX TO CURRENT COIL X3	
42	SHIELD		BDX TO CURRBENT COIL X2	
43	BLU		BOX TO CURRENT COIL X1	
44	BRN		ESS TO LOCAL ALARM	
45	BLK/YEL		FLUID SWITCH TO FLUID POT	
46	WHT		MUD SHUTOFF RELAY TO MUD SHUTOFF SWITCH	
47	BRN		ESS BOX TO LOCAL ALARM	
48	ORG/BLK		ESS START SHUTDOWN RELAY TO ESS	
49	TAN/WHT		START CO RELAY (A8) TO START CUTOUT DELAY	
50	GRN/BLU		START CO RELAY (A8) TO DIODE ANODE	
51	GRA/ORG		START RELAY (B1) TO START CUTOUT DELAY	
52	RED/BLK		START FUSE TO START RELAY	
53	ORG/RED		REMOTE ENABLE RELAY TO REMOTE START RELAY	
54	BLU		LATCH RELEASE RELAY TO KILL RELAY	
55	ORG/BLU		KILL RELAY TO OIL PRESS FUEL RLY TO TEMP FUEL SHUTOFF RELAY	
56	ORG/BLU		OIL PRESS FUEL RELAY TO TEMP FUEL RELAY	
57	ORG/GRN		TEMP FUEL RLY TO FUEL SOLENOID & HOURMETER	

FOOTNOTES

SIGNAL CABLES

BEGINS WITH S/N 2N1401

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	217-041	-	STROBE LIGHT	
2.	214-175	1	STROBE PIGTAIL HARNESS	
3.	214-275	-	CARRIAGE CABLE HARNESS	
4.	214-429	-	CONTROL MODULE	
5.	216-032	1	VOLTAGE LIMITER	
6.	215-799	1	VOLTAGE STAKE	
7.	214-287	1	CURRENT COIL CABLE	OBSOLETE
8.	216-023	-	CURRENT TRANSFORMER	OBSOLETE SEE FOOTNOTE 1.

NOT SHOWN:

FOOTNOTES:

1. REF 8 OBSOLETE. 216-023 REPLACED WITH 101-148.

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HYDRAULIC STAKE DRIVER

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	343-177		HYDRAULIC STAKE DRIVER	INCL REF NO.'S 1 THRU 8
1.	514-141	2	CONNECTOR (06N-080)	
2.	115-961	1	ABRASION SLEEVE (2.07" X 200")	
3.	110-030	4	CABLE TIE	
4.	515-215	2	HOSE (080FX-197"-3000)	
5.	159-030	1	QDC ADAPTER (08-08SF)	
6.	159-029	1	QDC BODY (08-08SF)	
7.	154-233	2	CONNECTOR (08S-080)	
8.	355-268	1	HYDRAULIC STAKE DRIVER	
	500-716		SEAL REPAIR KIT	

FOOTNOTES

PIPE AND ACCESORIES

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	355-835	1	PIPE RACK	INCL REF NO.'S 2 THRU 5, 8, 14 AND 15
2.	105-047	2	LOCKNUT (3/8-NC)	
3.	110-161	4	CHAIN	32.4" LONG
4.	110-289	6	ANCHOR SHACKLE (5/16")	
5.	110-368	2	SNAPPER PIN (3/8")	
6.	110-858	AR	THD PROTECTION CAP	(1.41"-6-FM-API,DS)
7.	356-207	AR	THD PROTECTION PLUG	(1.41"-6-M-API)
8.	110-516	2	OBLONG LINK (1-1/2" ID)	
9.	256-653	1	TOOL JOINT COMPOUND (2.5 GAL)	
10.	259-155	1	PIPE WRENCH	
11.	259-199	1	COMPOUND BRUSH (#6)	
12.	116-515	1	ROD WIPER	
13.	359-486	AR	9.8' DRILL PIPE, PSOD= 1.625	(1.41"-6-M X FM-API, L) STEERING RADIUS = 100 FT
	359-485	AR	9.8' DRILL PIPE, PSOD= 1.625	(1.41"-6-M X FM-API) STEERING RADIUS = 100 FT
14.	105-031	2	BOLT (3/8-NC X 1")	
15.	355-842	2	LOCK BAR	
16.	259-375	1	OPEN END WRENCH (1.65")	

NOT SHOWN:

FOOTNOTES:

NOTE:

PITCH BEACON

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	358-882		PITCH BEACON ASSEMBLY	INCL REF NO.'S 1 THRU 12 & 15 (155-290). SEE FOOTNOTE 1
	355-818		PITCH BEACON ASSEMBLY	SEE FOOTNOTE 2
	358-883		PITCH BEACON ASSEMBLY	INCL NO.'S 1 THRU 11 & 13 & 15 (155-290), USE ON JT2511 & 2320. SEE FN1
	358-343		PITCH BEACON ASSEMBLY	SEE FOOTNOTE 2
	358-894		BEACON TUBE ASSEMBLY	INCL REF NO.'S 6, 9, 10, AND 11
	355-752		BEACON TUBE ASSEMBLY	
1.	358-825	1	DRILL HEAD (2 1/2")	
	355-682	1	DRILL HEAD (2-1/2")	
2.	155-074	1	PLUG (08S, ALN)	
3.	117-020	1	COMPRESSION SPRING	
4.	125-084	1	BALL (1/2")	
5.	106-641	1	DOWEL PIN (1/4" X 1")	
6.	358-881	1	BEACON TUBE	
	355-681	1	BEACON TUBE	
7.	106-323	4	BOLT (3/8-NC X 5/8", ALN)	
8.	259-198	1	ALLEN WRENCH (5/16" HEX)	
9.	157-101	2	O-RING (031 D70)	
10.	157-117	2	BACKUP O-RING (PARBAK)	
11.	184-555	1	PITCH BEACON SLEEVE	
12.	357-635	1	END CAP (DRILL PIPE)	
	355-330	1	END CAP (DRILL PIPE)	
13.	358-824	1	END CAP (DRILL PIPE)	USE ON JT2511-2320
	358-311	1	END CAP (DRILL PIPE)	
14.	184-474	1	SLEEVE	OLD STYLE PITCH BEACON
15.	155-238	AR	FLUID NOZZLE (04)	
	155-239	AR	FLUID NOZZLE (05)	
	155-290	AR	FLUID NOZZLE (06)	
	155-292	AR	FLUID NOZZLE (08)	

NOT SHOWN:

FOOTNOTES:

- ASSEMBLIES 358-882 AND 358-883 REQ. TWO (259-358) 2.25" WRENCHES AND TWO (259-300) CHEATER PIPES. SEE TRANSMITTER HOUSING PAGE FOR COMPONENTS.
- OLD STYLE ASSEMBLIES 355-818 AND 358-343 REQ. ONE (259-289) 2.02" WRENCH AND ONE (259-358) 2.25" WRENCH ,NOT SHOWN.

NOTE:

WING CUTTERS

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	355-277	1	4" BACKREAMER	
2.	355-350	1	4" SWEPT WING BACKREAMER	
3.	355-631	1	WING CUTTER (101.6MM)	
4.	355-278	1	6" BACKREAMER	
5.	355-352	1	6" SWEPT WING BACKREAMER	
6.	355-632	1	WING CUTTER (152.4MM)	
7.	355-279	1	8" BACKREAMER	
8.	355-354	1	8" SWEPT WING BACKREAMER	
9.	355-633	1	WING CUTTER (203.2MM)	
10.	355-672	1	WING CUTTER (254MM)	
11.	106-403	AR	SETSCREW (.029 DRIFICE)	
	106-404		SETSCREW (.042 DRIFICE)	
	106-405		SETSCREW (.062 DRIFICE)	
	105-701		SETSCREW (5/16"-NC X 3/8")	
12.	115-158	AR	PLUG (06N, SQ)	
13.	358-443	1	4/40 PRECUTTER	
	368-354	1	PRECUTTER	USED ON JT820, JT920 & JT1210
			(1.41-6M X 1.41-6 FM API)	

FOOTNOTES

HEAVY DUTY SWIVEL

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	355-624	1	HEAVY DUTY SWIVEL ASS'Y	INCL REF NO.'S 1 THRU 12, 14 THRU 17
	355-625	1	HEAVY DUTY HEX SWIVEL ASS'Y	INCL REF NO.'S 1 THRU 13, 15 THRU 17
1.	355-421	1	SWIVEL SHAFT	
2.	355-422	1	SEAL COLLAR	
3.	157-602	1	INTERNAL SEAL (2.750")	OBSOLETE, SEE FOOTNOTES 1 & 4
4.	355-420	1	SWIVEL BODY	
5.	125-296	2	BEARING RACE (3.5")	SEE FOOTNOTE 1
6.	125-317	2	TAPERED ROLLER BEARING (1.750")	SEE FOOTNOTE 1
7.	184-341	1	SHOULDER BUSHING	
8.	105-435	1	TANG LOCKWASHER (1.583")	
9.	105-434	1	THRUST LOCKNUT (1.563-NEF)	
10.	355-423	1	ADAPTOR	
11.	355-424	1	LOCK RING	
12.	106-456	1	JAM NUT (2-1/8-NC)	
13.	355-361	1	HEX SWIVEL CAP	
14.	355-411	1	SWIVEL ADAPTOR	SEE FOOTNOTE 3
15.	105-707	1	SET SCREW (1/4-NF X 3/8",KNRL)	SEE FOOTNOTE 2
16.	259-314	1	3.25" WRENCH	
17.	259-315	1	4.00" WRENCH	

NOT SHOWN:

FOOTNOTES:

1. PACK BEARINGS AND SEALS WITH MPG GREASE BEFORE ASSMEBLY. FLOOD WITH GREASE AFTER ASSEMBLY. GREASE BEFORE EVERY BORE.
2. TO LUBRICATE REMOVE REF NO 15 SET SCREW AND INSTALL 115-003 ZREK. REINSTALL SET SCREW.
3. USE WITH OLD STYLE HEAD FITTINGS.
4. INSTALL SEAL WITH PART NUMBER POINTED AWAY FROM BEARINGS.

NOTE:

FLUTED CONES

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	355-620		4.5" FLUTED CONE (HARD FACED)	
2.	355-610		6.5" FLUTED CONE (HARD FACED)	
3.	355-618		8.5" FLUTED CONE (HARD FACED)	
4.	355-667		10.5" FLUTED CONE (HARD FACED)	
5.	106-403	AR	SET SCREW (.029 ORIFICE)	
	106-404	AR	SET SCREW (.042 ORIFICE)	
	106-405	AR	SET SCREW (.062 ORIFICE)	
	105-701	AR	SET SCREW (5/16-NC X 3/8")	

FOOTNOTES

2.75" 87 NON-MAGNETIC BEACON HOUSING

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	<u>368-273</u>		87 2.75 BEACON HOUSING ASS'Y SS	INCL REF NO.'S 1 THRU 13
1.	259-198	1	ALLEN WRENCH (5/16")	
2.	368-295	1	PLUG PULLER	
3.	106-139	1	STUD BOLT (M10-1.50 X 42MM)	
4.	369-113		PLUG	SEE FOOTNOTE 2
	357-112		PLUG	SEE FOOTNOTE 3
5.	500-077	1	O-RING (127 D70)	
6.	<u>368-272</u>	1	87-2.75 BEACON HOUSING SS	
7.	105-581	1	ROLL PIN (1/2" X 7/8")	
8.	117-020	1	COMPRESSION SPRING	
9.	159-461	1	BEACON BUDDY (08S)	203 DEGREE MELTING POINT
10.	125-084	1	DETENT BALL (1/2")	
11.	149-201	1	NOZZLE (.100 1/4 NPT TC)	SEE FOOTNOTE 1
12.	369-132	2	ISOLATOR (END LOAD)	
13.	106-080	7	SCREW (M10-1.5 X 20MM, SOC)	

NOT SHOWN:

FOOTNOTES:

1. SEE NOZZLE PAGE 4-I.0 FOR OPTIONS (I-4').
2. USE WITH SPECIAL CYLINDRICAL 87B BEACON ISOLATORS.
3. USE WITH STANDARD ROUND 87B BEACON ISOLATORS.

NOTE:

20,000# SWIVEL

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	368-635		20K SWIVEL ASS'Y W/EYE	INCL REF NO.'S 1 THRU 17 SEE FOOTNOTE 1
	368-634		20K SWIVEL ASS'Y	INCL REF NO.'S 2 THRU 15 SEE FOOTNOTES 1, 5 & 7
	369-712		20K SWIVEL ASS'Y	INCL REF NO.'S 2 THRU 15 SEE FOOTNOTES 1, 7 & 12
	400-112		20K SWIVEL WITH PIN	INCL REF NO.'S 5 THRU 15 & 19 SEE FOOTNOTES 1 & 13
	400-236		20K SWIVEL ASSEMBLY W/BOX	INCL REF NO.'S 5 THRU 15 & 18 SEE FOOTNOTES 1
1.	359-266	1	SWIVEL EYE	FITS 2510, 2511, 2320 & 860 AXLES (356-375) SEE FOOTNOTE 8
	368-633	1	20K SWIVEL EYE	FITS 2510, 2511, 2320 & 860 AXLES (356-375) SEE FOOTNOTE 7 & 11
2.	106-418	1	SHLD BOLT (3/4" X 3.49", 5/8-NC)	
	107-172	1	SHLD BOLT (7/8" X 2.31", 5/8-NC)	
	106-899	1	SHLD BOLT (1" X 3.062", 3/4-NC)	
3.	105-357	1	LOCKNUT (5/8-NC)	
	105-372	1	LOCKNUT (3/4-NC)	
4.	357-479	1	SWIVEL END CAP	LOCKTITE END CAP DURING ASSEMBLY, SEE FOOTNOTE 6
	368-632	1	20K SWIVEL END CAP	LOCKTITE END CAP DURING ASSEMBLY, SEE FOOTNOTE 5
	369-711	1	20K SWIVEL END CAP	LOCKTITE END CAP DURING ASSEMBLY, SEE FOOTNOTE 12
5.	105-349	1	CASTLE NUT (1-NF)	
6.	106-928	1	WASHER (1-3/4")	
7.	125-050	3	BALL BEARING (1.378")	SEE FOOTNOTE 4
8.	125-111	1	BALL BEARING (1.378")	SEE FOOTNOTE 3
9.	157-671	2	INTERNAL SEAL (1.625")	SEE FOOTNOTE 2
10.	357-475	1	SWIVEL HOUSING	
	368-631	1	SWIVEL HOUSING	USES SET SCREW
11.	106-927	1	WASHER (1.500", FELT)	DIRT EXCLUSION RING
12.	359-193	1	SWIVEL SHAFT	SEE FOOTNOTE 7
13.	115-003	1	ZERK (1/4-NF, STR)	
14.	105-510	1	ROLL PIN (1/4" X 1-1/2")	
15.	105-712	1	SET SCREW (1/4-NC X 1/4", CUP)	
16.	106-329	16	SCREW (M8-1.25 X 50MM)	
17.	105-091	16	LOCK WASHER (5/16")	
18.	369-087	1	20K MODULAR SWIVEL END CAP	LOCKTITE END CAP DURING ASSEMBLY
19.	400-109	1	20K SWIVEL PIN	

NOT SHOWN:

FOOTNOTES:

- LUBRICATE WITH A HIGH TEMP, EXTREME PRESSURE, WATER REPELLENT, LITHIUM COMPATIBLE GREASE DURING ASSEMBLY & AFTER EVERY BORE.
- INSTALL SEALS WITH LIP FACING AWAY FROM BEARINGS.
- INSTALL BEARING WITH SEALED SIDE OF BEARING FACING SWIVEL EYE.
- INSTALL BEARINGS WITH RACE FILLING SLOTS FACING SWIVEL EYE.
- CLEVIS WIDTH = 1-1/4"; BOLT DIA = 7/8"
- CLEVIS WIDTH = 1-3/8"; BOLT DIA = 3/4"
- EYE WIDTH = 1-1/8"; EYE DIA = 15/16"
- EYE WIDTH = 1.30"; EYE DIA = 13/16"
- SEE "ANCHOR SHACKLES" PAGE 6-I.O FOR ANCHOR SHACKLE OPTIONS.
- SEE "NOZZLES" PAGE 4-I.O FOR NOZZLE OPTIONS (7/16").
- 7/16-20 NE NOZZLE THREAD
- CLEVIS WIDTH = 1-1/2"; BOLT DIA = 1.0"
- MODULARMATIC ADAPTERS MUST BE FULLY TORQUED USING SCRIBE LINE METHOD.

NOTE:

ID0140029

PIPE PULLER

.625" - 1.250"

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	368-290	1	PIPE PULLER (.625" TO 1.250")	INCL REF NO.'S 2 AND 3
2.	107-113	1	NUT (#12-24)	
3.	107-114	1	EYE BOLT (#12-24 X 1-1/2")	

NOT SHOWN:

FOOTNOTES:

NOTE:

DRILLING FLUID HOSE REEL

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	344-031	1	HOSE REEL ASSEMBLY	OBSOLETE
2.	159-304	1	1" 90 SUPER SWIVEL JOINT	OBSOLETE
	500-823	1	SEAL REPAIR KIT	
3.	155-284	1	CONNECTOR (120-16N)	
4.	515-418	1	HYD HOSE (120FX45M-1800"-2250)	
5.	154-367	1	CONNECTOR (120-16S-STR)	
6.	159-259	1	QDC ADAPTER (16-16SF)	
7.	343-175	1	HOSE RETAINER	
8.	515-431	1	HYD HOSE (120FX-210"-3000)	
9.	107-053	4	SCREW (5/16" X 1-1/4", LAG)	

NOT SHOWN:

FOOTNOTES:

NOTE:

FRONT COWLING

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	105-832	6	FLG LOCKNUT (1/4-NC)	
2.	195-656	2	MOUNTING CLAMP (6-1/2")	
3.	105-826	4	FLG LOCK BOLT (3/8-NC X 1")	
4.	105-845	4	FLG LOCKNUT (3/8-NC)	
5.	110-529	2	SNAP-ON CLAMP (2.536" TO 2.881")	
6.	195-816	1	AIR FILTER PARTS ASS'Y	
	195-817		ELEMENT, PRIMARY	
	195-818		ELEMENT (SAFETY)	
7.	110-367	1	WORM CLAMP (3.250" TO 4.125")	
8.	116-192	1	BULK HOSE (7/64", SOLD PER 1")	
9.	116-528	1	AIR INTAKE HOSE	
10.	116-457	1	AIR INTAKE HOSE	
11.	115-852	1	COOLER MOUNT INSULATION	
12.	115-791	2	FRONT COWLING LINER	
13.	351-762	1	FRONT COWLING	
14.	115-399	AR	BULK STRIP (3/4", SOLD PER 1")	USE 4 @ 2-1/2"
15.	351-760	2	COOLER BRACKET	
16.	105-819	6	FLG LK BOLT (1/4-NC X 1")	
17.	105-823	4	FLG BOLT (5/16-NC X 3/4")	
18.	116-283	2	WASHER (.531", RUBBER)	
19.	105-826	2	FLG LOCK BOLT (3/8-NC X 1")	
20.	115-803	1	FRONT GRILLE LINER	
21.	351-749	1	OIL COOLER SHROUD	
22.	105-826	4	FLG LOCK BOLT (3/8-NC X 1")	
23.	105-834	4	FLG LOCKNUT (3/8-NC)	
24.	115-249	1	STREET ELBOW (02N-02NF90)	
25.	115-150	1	REDUCER (12N-04NF)	
26.	360-396	1	OIL COOLER	
27.	105-137	4	CLIP NUT (5/16-NC)	
28.	351-646	1	ACCESS PANEL	
29.	181-972	1	BUSHING	

NOTE:

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

ENGINE MOUNT AND COVERS

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	106-119	8	SCREW (M14-2 X 30MM)	SEE FOOTNOTE 2
2.	105-834	8	FLG LOCKNUT (3/8-NC)	
3.	313-054	1	ENGINE SUPPORT (RIGHT REAR)	ENDS WITH S/N
	313-141	1	RIGHT REAR ENGINE MOUNT	SEE FOOTNOTE 1. BEGINS WITH S/N
4.	116-141	4	SHOCK MOUNT	
5.	105-827	8	FLG LK BOLT (3/8-NC X 1-1/4")	
6.	313-053	1	ENGINE SUPPORT (LEFT REAR)	ENDS WITH S/N
	313-140	1	LEFT REAR ENGINE MOUNT	SEE FOOTNOTE 1. BEGINS WITH S/N
7.	351-776	1	MOTOR SOLENOID MOUNT	
8.	313-051	1	ENGINE SUPPORT (LEFT FRONT)	ENDS WITH S/N
	313-138	1	LEFT FRONT ENGINE MOUNT	SEE FOOTNOTE 1. BEGINS WITH S/N
9.	105-076	4	BOLT (1/2-NC X 3")	SEE FOOTNOTE 3
10.	105-884	8	WASHER (1/2")	
11.	105-833	1	FLG LOCKNUT (1/2-NC)	
12.	312-149	1	BATTERY STRAP	
13.	312-136	1	BATTERY HOLD DOWN	
14.	105-832	2	FLG LOCKNUT (1/4-NC)	
15.	106-598	8	FLATWASHER (9/16-M14) HARDENED	

FOOTNOTES

1. NO PAINT AREA; CLEAN PAINT OFF OF ENGINE BLOCK AND MOUNTS BEFORE BOLTING MOUNTS TO BLOCK. TAP OUT MOUNTING HOLES (M14 X 2.0) TO REMOVE PAINT; CLEAN THREADS WITH SAFETY SOLVENT; DRY WITH COMPRESSED AIR.
2. ALL ENGINE MOUNTING BOLTS, TORQUE 100 FOOT POUNDS.
3. LOCTITE 4 MOUNT TO FRAME BOLTS.

AIR COOLING BOOT

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	195-880	1	WORM CLAMP (8.0" TO 8.8")	
2.	116-454	1	COOLING AIR BOOT	
3.	110-253	6	PDP RIVET (3/16" X 1/2")	
4.	106-205	3	WASHER (.191")	
5.	351-780	1	COOLING SUPPORT RING	

FOOTNOTES

TP18-1 FRAME

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	105-081	6	BOLT (3/8-NC X 3-1/4")	
2.	105-117	4	WASHER (5/16")	
3.	105-221	8	SCREW (#14-10 X 1-1/2")	
4.	105-282	4	BOLT (1/2-NC X 1-1/4")	
5.	105-814	6	FLG LOCKNUT (3/8-NC)	
6.	105-096	6	WASHER (3/8")	
7.	105-831	8	FLG LK BOLT (1/2-NC X 1-1/2")	
8.	105-833	16	FLG LOCKNUT (1/2-NC)	
9.	110-289	1	ANCHOR SHACKLE (5/16")	
10.	340-752	1	DECK RETAINER	
11.	105-071	2	WASHER (1/2")	
12.	110-116	1	CHAIN (5/16" X 51.5")	
13.	183-846	1	PIN (16MM X 84MM)	
14.	340-757	2	RAMP	
15.	326-599	8	WOOD PLANK (2" X 8" X 79")	
	326-600	14	WOOD PLANK (2" X 10" X 79")	
16.	340-753	2	RAMP CHANNEL	
17.	340-747	AR	MOUNT	
18.	340-744	AR	MOUNT	
19.	110-050	1	CHAIN BOOMER (5/16" TO 3/8")	
20.	340-201	2	BOARD RETAINER	
21.	105-826	6	BOLT (3/8-NC X 1")	
22.	106-550	6	NUTSERT (M10-1.50)	
23.	110-033	1	SPRING CLIP PIN (1/8" X 1/2")	
24.	105-384	12	WASHER (3/4")	
25.	105-300	4	BOLT (1/2-NC X 3-1/4")	
26.	343-074	1	RIGHT RAMP	SHOWN
	343-073	1	LEFT RAMP	
27.	105-279	10	CARRIAGE BOLT (1/2-NC X 3")	
28.	105-059	12	WASHER (7/16")	
29.	110-128	2	SPRING CLIP PIN (5/32" X 1")	
30.	343-089	1	STOW BAR	
31.	110-032	1	SNAPPER PIN (5/16" X 2-1/2")	
32.	343-082	1	ANCHOR MOUNT	
33.	183-899	1	PIN	

FOOTNOTES

ELECTRIC BRAKE

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	163-074		LEFT ELECTRIC BRAKE	INCL REF NO.'S 1 THRU 10, & 12
	163-075		RIGHT ELECTRIC BRAKE	INCL REF NO.'S 1 THRU 10, & 12
1.	163-076	1	BRAKE SHOE KIT (PAIR)	
2.	163-077	1	MAGNET KIT	
3.	163-067	1	LEFT ADJUSTER	
	163-068	1	RIGHT ADJUSTER	
4.	106-446	4	NUT (1/2-NC, GD 8)	
5.	163-140	1	BIAS LEVER	
6.	163-141	1	AUTO ADJUST LEVER (RIGHT)	
	163-142	1	AUTO ADJUST LEVER (LEFT)	
7.	163-143	1	AUTO ADJUST CABLE	
8.	117-036	1	ADJUSTER SPRING	
9.	117-037	1	RETRACTOR SPRING	
10.	163-144	1	CABLE PULLEY	
11.	163-145	1	DUST COVER	
12.	163-118	1	MAGNET ARM (LEFT)	
	163-119	1	MAGNET ARM (RIGHT)	

FOOTNOTES

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