

SKID-STEER FORESTRY DISC

60"(1524MM) FORESTRY DISC HEAD

DOC #15-1358

SERIAL #30114+

WARRANTY + SERVICE 888.960.0364
PARTS 888.960.0361



DIAMONDMOWERS.COM

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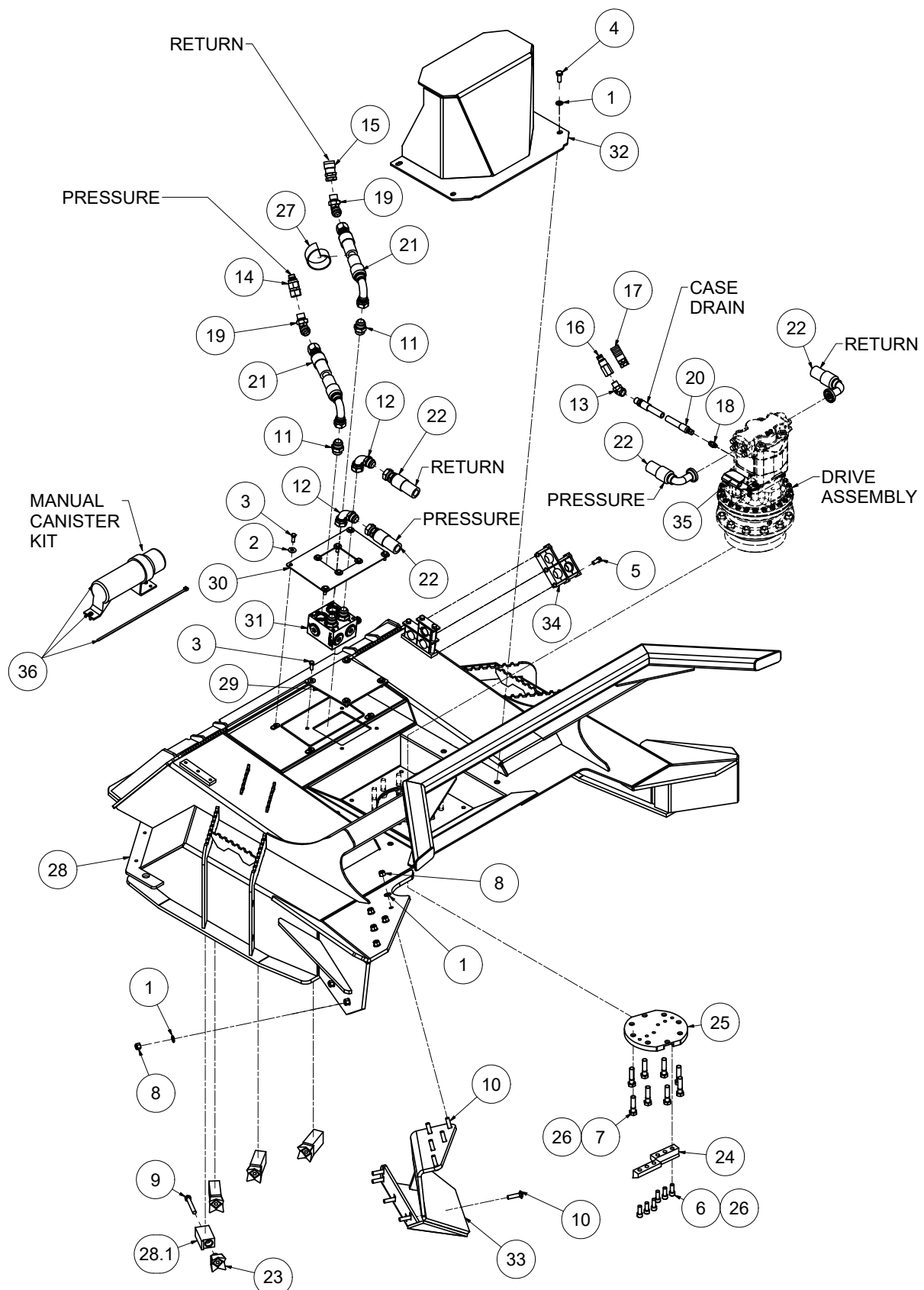
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FORESTRY HEADS

FORESTRY DISC HEAD

DECK ASSEMBLY - GEAR MOTOR



* NOT SHOWN

**** CRITICAL TORQUE VALUES **MUST** BE FOLLOWED.**

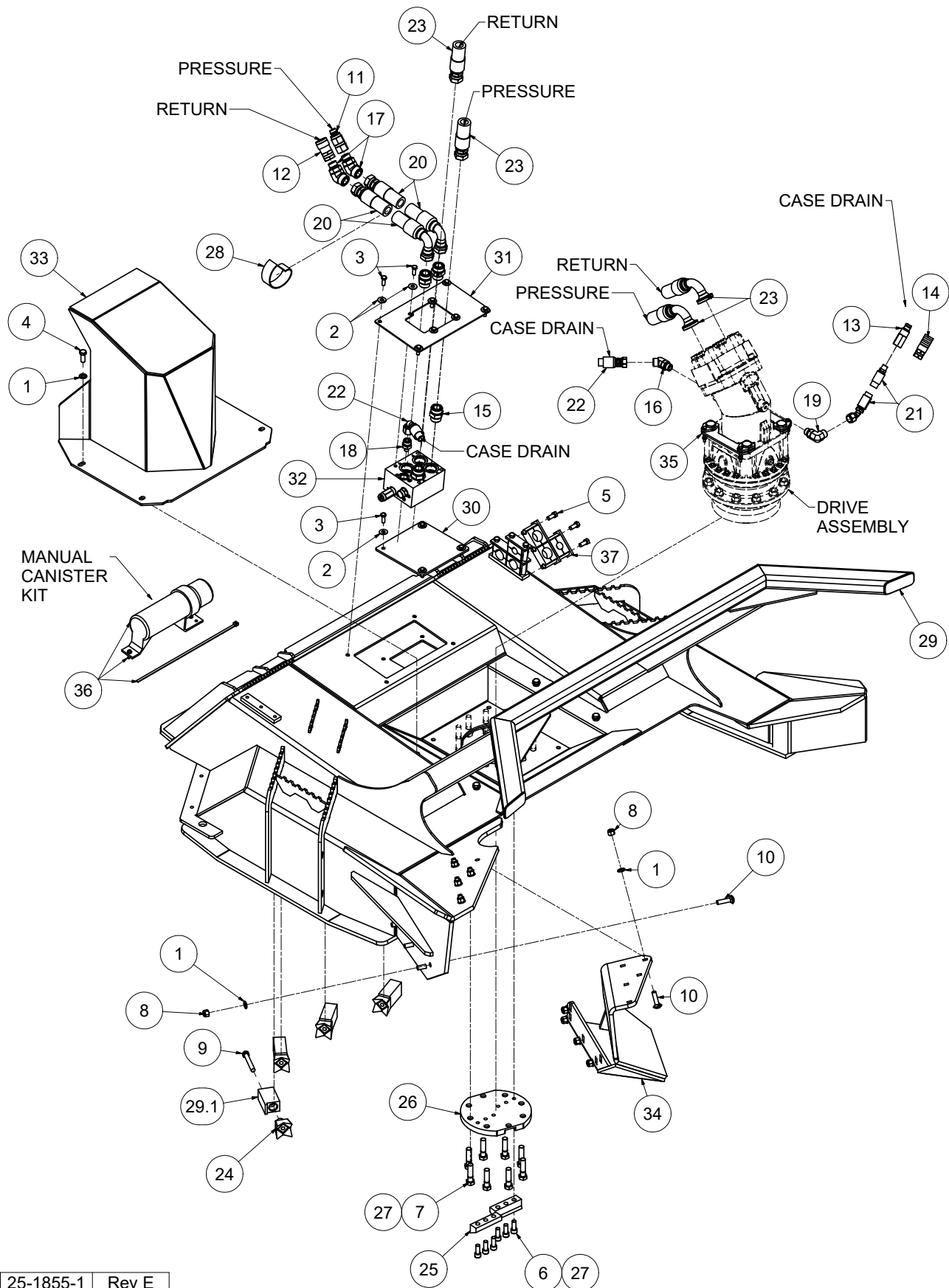
25-1854-1	Rev E
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FORESTRY DISC HEAD

DECK ASSEMBLY - GEAR MOTOR

REF#	PARTS DESCRIPTION	REQ	PART#	TORQUE (ft-lbs)
1	1/2 X 1.062 GR 8 SAE FLAT WASHER, YELLOW ZINC	14	11-0042	
2	3/8 THRU-HARDENED FLAT WASHER, YELLOW ZINC	12	11-0092	
3	3/8-16 X 1 GR 5 HEX CAP, ZINC	12	11-0532	31
4	1/2-13 X 1-1/4 GR 5 HEX CAP, ZINC	4	11-0570	75
5	7/16-14 X 1 GR 5, HEX CAP, ZINC	6	11-0584	49
6	1/2-13 X 1-1/4 ASTM A574 SOCKET CAP, BLACK OXIDE	6	11-0965	124
7	5/8-11 X 2-1/2 GR 8 HEX CAP, YELLOW ZINC	8	11-0971	**212
8	1/2-13 GR 8 NYLOCK NUT, ZINC	10	11-1072	
9	1/2-20 X 3-1/2 GR 8 HEX CAP, YELLOW ZINC	4	11-1628	120
10	1/2-13 x 2 GR 8 CARRIAGE BOLT, YELLOW ZINC	10	11-2226	
11	1MOR X 1MJIC, ADAPTER	4	21-1005	
12	1MJIC X 1FJIC-90DEG, FITTING 3-3/4	2	21-1258	
13	1/2MP X 1/2FP ADAPTER 45 DEG	1	21-1290	
14	1/2" MALE QUICK COUPLER X 3/4" SAE, FLAT FACE, NO SPILL	1	21-1559	
15	1/2" FEMALE QUICK COUPLER X 3/4" SAE, FLAT FACE, NO SPILL	1	21-1560	
16	3/8" MALE QUICK COUPLER, FLAT FACE, NO SPILL	1	21-1561	
17	3/8" FEMALE QUICK COUPLER, FLAT FACE, NO SPILL	1	21-1562	
18	ADAPTER, 1/4MOR X 3/8MJIC	1	21-1597	
19	1MJIC-45DEG X 3/4M-OR, FITTING	2	21-1654	
20	HOSE 3/8 X 106 (3/8FJIC X 1/2MP) KEVLAR	1	21-4613	
21	HOSE 1 X 91 (1FJIC X 1FJIC-90DEG)	2	21-4645	
22	HOSE 1 X 29 (#20FLG-90 X 1FJIC)	2	21-4646	
23	FOUR-POINT HARDENED STEEL TOOTH	4	22-0019	
24	FBC, CENTER PLANER	2	24-0192	
25	BOLT PROTECTOR, FBS, D3 SPINDLE	1	24-0224	
26	LOCTITE 262, .017 OZ (RED)	1	24-0382	
27	HOSEGUARD 3" SPIRAL / 54"	1	24-0390	
28	DECK (FBS 60 GEN 4)	1	25-0247	
28.1	DECK TOOTH HOLDER	4	90-7076	
29	60 SKID FBC ACCESS PORT COVER	1	31-0455	
30	MANIFOLD CUTOUT ACCESS PLATE	1	31-0740	
31	MANIFOLD, ANTI-CAVITATION, 3050 PSI RELIEF	1	39-0123	
32	MOTOR GUARD, D3 FBS	1	41-1461	
33	FBS 60 GEN 4 CHUTE	1	41-1888	
34	1" HOSE CLAMP KIT WITH TOP CLAMP, NO BASE	2	44-0351	
35	MOTOR HARDWARE LOCK KIT	1	44-0916	
36	MANUAL CANISTER KIT	1	44-0953	
	OPTIONAL HOSES			
*	HOSE, 1 X 91, 4000 PSI (1FJIC X 1FJIC-90DEG) KEVLAR	1	21-4723	
*	HOSE, 1 X 29, 4000 PSI (#20FLG-90DEG X 1FJIC) KEVLAR	1	21-4724	

DECK ASSEMBLY - PISTON MOTOR



25-1855-1 Rev E

FORESTRY DISC HEAD

DECK ASSEMBLY - PISTON MOTOR

REF#	PARTS DESCRIPTION	REQ	PART#	TORQUE ft-lbs
1	1/2 X 1.062 GR 8 SAE FLAT WASHER, YELLOW ZINC	14	11-0042	
2	3/8 THRU-HARDENED FLAT WASHER, YELLOW ZINC	12	11-0092	
3	3/8-16 X 1 GR 5 HEX CAP, ZINC	12	11-0532	31
4	1/2-13 X 1-1/4 GR 5 HEX CAP, ZINC	4	11-0570	75
5	7/16-14 X 1 GR 5, HEX CAP, ZINC	6	11-0584	49
6	1/2-13 X 1-1/4 ASTM A574 SOCKET CAP, BLACK OXIDE	6	11-0965	124
7	5/8-11 X 2-1/2 GR 8 HEX CAP, YELLOW ZINC	8	11-0971	**212
8	1/2-13 GR 8 NYLOCK NUT, ZINC	10	11-1072	**106
9	1/2-20 X 3-1/2 GR 8 HEX CAP, YELLOW ZINC	4	11-1628	120
10	1/2-13 x 2 GR 8 CARRIAGE BOLT, YELLOW ZINC	10	11-2226	
11	1/2" MALE QUICK COUPLER X 3/4" SAE, FLAT FACE, NO SPILL	1	21-1559	
12	1/2" FEMALE Q COUPLER X 3/4" SAE, FLAT FACE, NO SPILL	1	21-1560	
13	3/8" MALE QUICK COUPLER, FLAT FACE, NO SPILL	1	21-1561	
14	3/8" FEMALE QUICK COUPLER, FLAT FACE, NO SPILL	1	21-1562	
15	-16 MOR X -16 MOFS	4	21-1675	
16	ELBOW, -10 ADJ MOR X -10MFS, 45 DEG	1	21-1688	
17	ELBOW, -12 ADJ MOR X -16 MFS, 45 DEG	2	21-1689	
18	-10 MOFS X -10 MORB	1	21-1705	
19	ELBOW, -10 ADJ MOR X -10 MOFS, 90 DEG	1	21-1708	
20	HOSE, 1 X 88, 4000 PSI (-16 FFS X -16 FFS 90 DEG) KEVLAR	2	21-4616	
21	HOSE, 5/8 X 118 (-10 FFS 45 DEG X -8 MP) KEVLAR	1	21-4618	
22	HOSE, 5/8 X 25 (-10 FFS 90 DEG X -10 FFS) KEVLAR	1	21-4636	
23	HOSE 1 X 17.25 4000 PSI (-20CD 62FLG 90DEG X-16 FFS) KEVLAR	2	21-4792	
24	FOUR-POINT HARDENED STEEL TOOTH	4	22-0019	
25	FBC, CENTER PLANER	2	24-0192	
26	BOLT PROTECTOR, FBS, D3 SPINDLE	1	24-0224	
27	LOCTITE 262, .017 OZ (RED)	1	24-0382	
28	HOSEGUARD 3" SPIRAL / 54"	1	24-0390	
29	FBS 60 GEN 4	1	25-0247	
29.1	DECK TOOTH HOLDER	4	90-7076	
30	60 SKID FBC ACCESS PORT COVER	1	31-0455	
31	MANIFOLD CUTOUT ACCESS PLATE	1	31-0748	
32	ANTI CAVITATION-FLUSHING MANIFOLD, ATTACHMENT	1	39-0126	
33	MOTOR GUARD, D3 FBS, PISTON	1	41-1729	
34	FBS 60 GEN 4 CHUTE	1	41-1888	
35	MOTOR LOCKING HARDWARE KIT	1	44-0865	
36	MANUAL CANISTER KIT	1	44-0953	
37	1" 4000 PSI HOSE CLAMP HIT WITH 5/8" TOP CLAMP, NO BASE	2	44-0957	
	OPTIONAL HOSES			
*	HOSE, 1 X 91, 4000 PSI (1FJIC X 1FJIC-90DEG) KEVLAR	1	21-4723	
*	HOSE, 1 X 29, 4000 PSI (#20FLG-90DEG X 1FJIC) KEVLAR	1	21-4724	

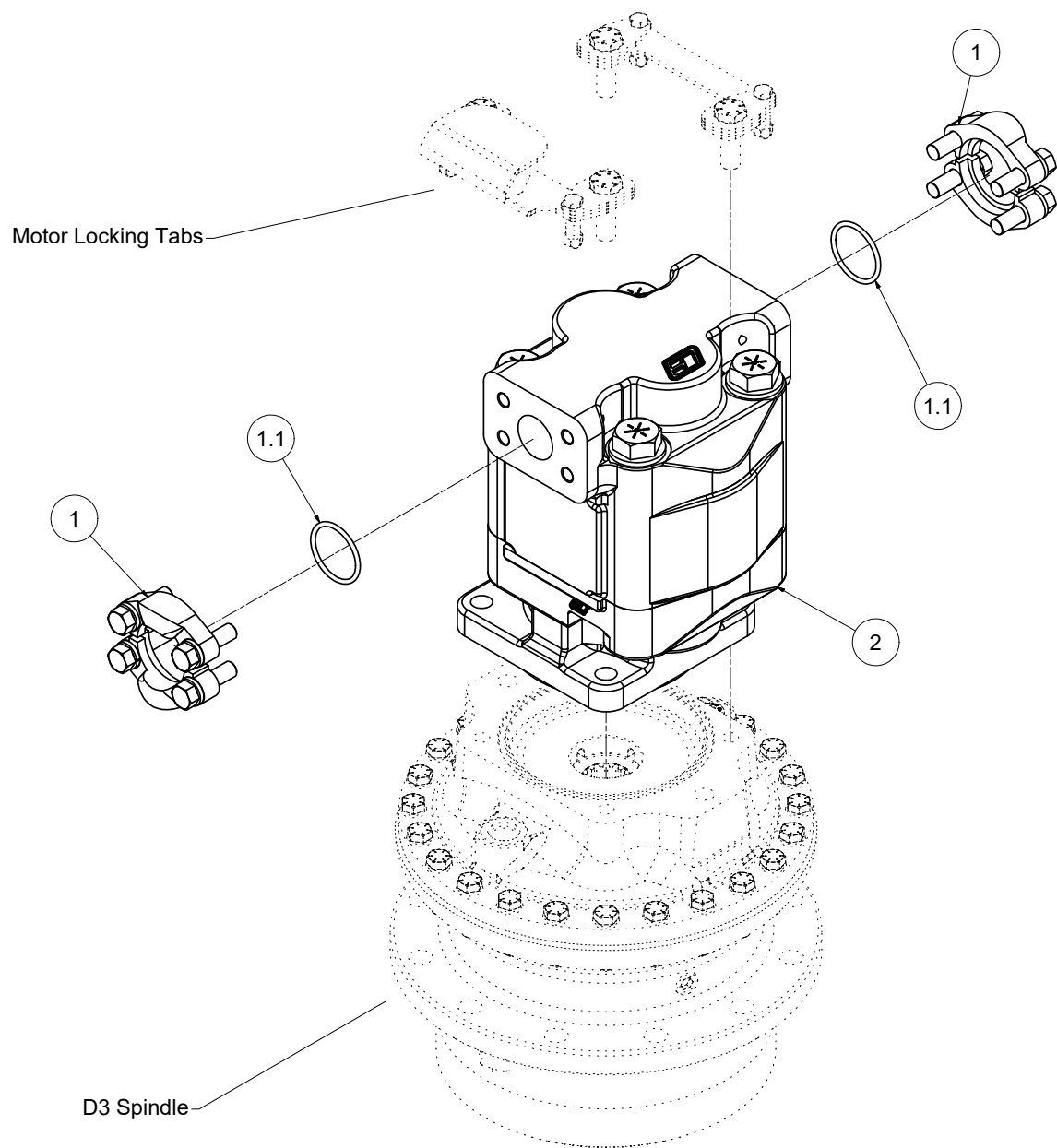
* NOT SHOWN

** CRITICAL TORQUE VALUES **MUST** BE FOLLOWED.

25-1855-1 Rev E

FORESTRY DISC HEAD

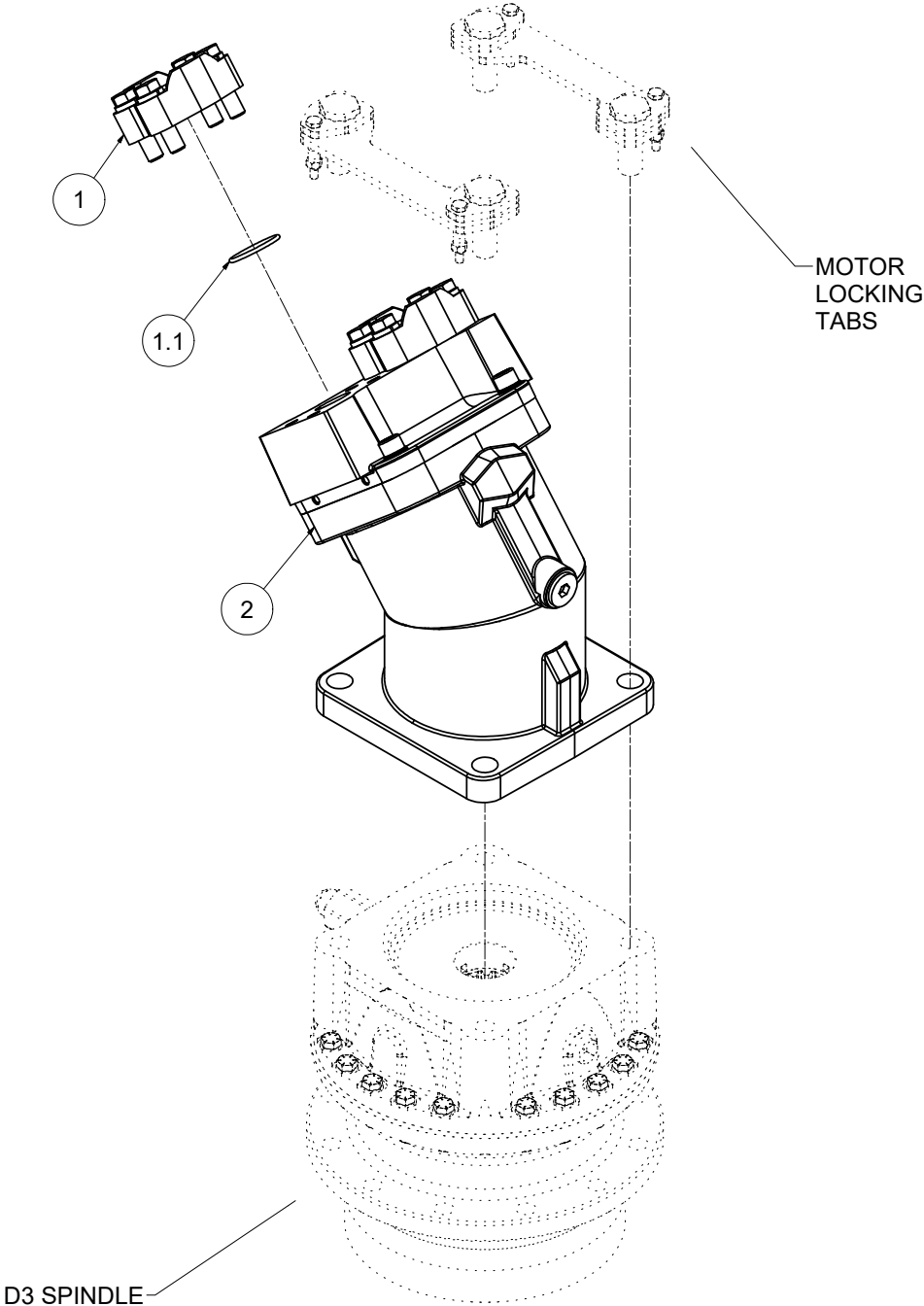
MOTOR - DECK SUBASSEMBLY, GEAR MOTOR



REF#	PARTS DESCRIPTION	REQ	PART#	TORQUE (ft-lbs)
1	#20 FLANGE KIT	2	21-2105	49
1.1	O-RING, #20 FLANGE	2	33-0013	
2	MOTOR	1		
	SKID LOADER 48"			
	M365 1-1/2 GEAR 14 SPLINE MOTOR		30-0515	
	23-29 GPM (87-110 LPM)			
	M365, 1-3/4" GEAR, 1-1/4 14 SPLINE SHAFT, HD HOUSING		30-0520	
	30-37 GPM (114-140 LPM)			
	SKID LOADER 60"			
	M365, 2-1/4" GEAR, 1-1/4 14 SPLINE SHAFT, HD HOUSING		30-0524	
	32-45 GPM (121-170 LPM)			

FORESTRY DISC HEAD

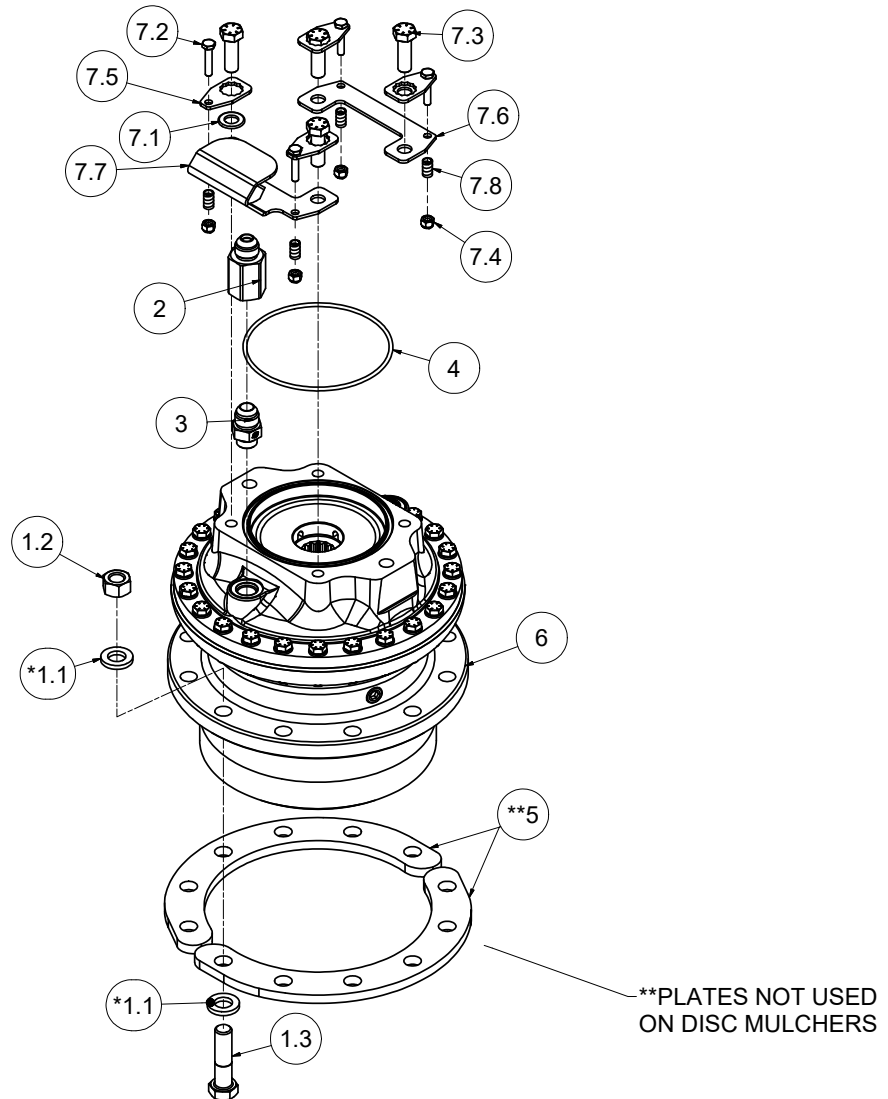
MOTOR - DECK SUBASSEMBLY, PISTON MOTOR



REF#	PARTS DESCRIPTION	REQ	PART#	TORQUE (ft-lbs)
1	#20 FLANGE KIT, CODE 62	2	21-1678	106
1.1	O-RING, #20 FLANGE	1	33-0013	
2	MA125 FIXED DISPL. BENT AXIS PISTON MOTOR 32-45 GPM (122-170 LPM)	1	30-0553	

FORESTRY DISC HEAD

SPINDLE - DECK SUBASSEMBLY, GEAR MOTOR



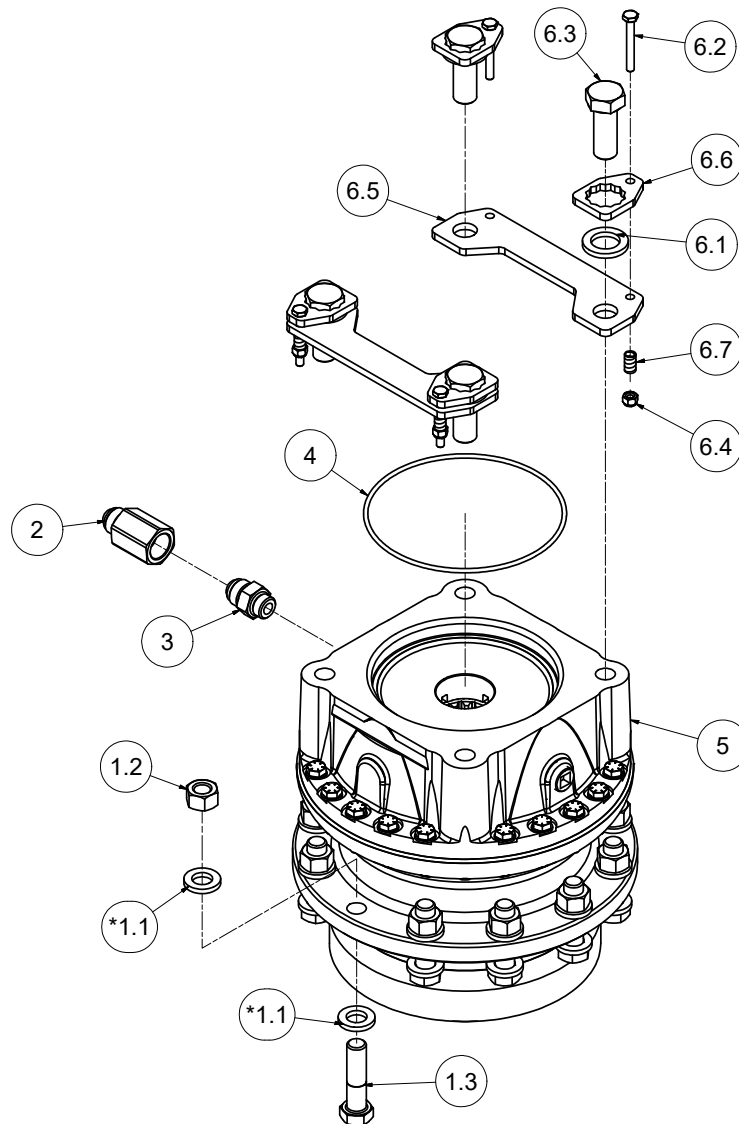
REF#	PARTS DESCRIPTION	REQ	PART#
1	BOLT KIT - 1/2" SPINDLE (FBS/DBR) SHELL	1	11-3624
*1.1	M16 DIN EN 14399 THRU-HARDENED FW, ECOGUARD	24	11-0102
1.2	5/8-11 GR 8 HEX NUT, ECOGUARD	12	11-1166
1.3	5/8-11 X 2.5 GR 8 HEX CAP, ECOGUARD	12	11-2233
2	JEMTEC D3 SPINDLE RELIEF VALVE	1	21-1653
3	5/8MJIC X 1/2MORB	1	21-1706
4	O-RING, D3 SPINDLE	1	24-0305
**5	LOWER BOLT PLATE, D3	2	31-0893
6	SPINDLE-D3 DIRECT DRIVE SAE C	1	35-0204
7	MOTOR HARDWARE LOCK KIT	1	44-0916
7.1	1/2 X 1.062 GR 8 SAE FLAT WASHER, YELLOW ZINC	4	11-0042
7.2	1/4-20 X 1-1/4 GR 5 HEX CAP, ZINC	4	11-0702
7.3	1/2-13 X 1-1/2 GR 8 HEX CAP SCREW, YELLOW ZINC	4	11-0972
7.4	1/4-20 GR 5 NYLOCK NUT, ZINC	4	11-1022
7.5	MOTOR BOLT LOCK TAB	4	31-0503
7.6	V3LOCK BOTTOM	1	31-0504
7.7	MOTOR LOCKING BASE WITH PRV PROTECTION	1	31-0824
7.8	BOLT LOCKING TAB SPRING	4	36-0013

* NOTE: FLAT SIDE OF WASHERS TOWARDS HARDWARE.
CHAMFER SIDE TOWARDS SPINDLE & DECK.

35-0204-1 Rev 000

FORESTRY DISC HEAD

SPINDLE - DECK SUBASSEMBLY, PISTON MOTOR



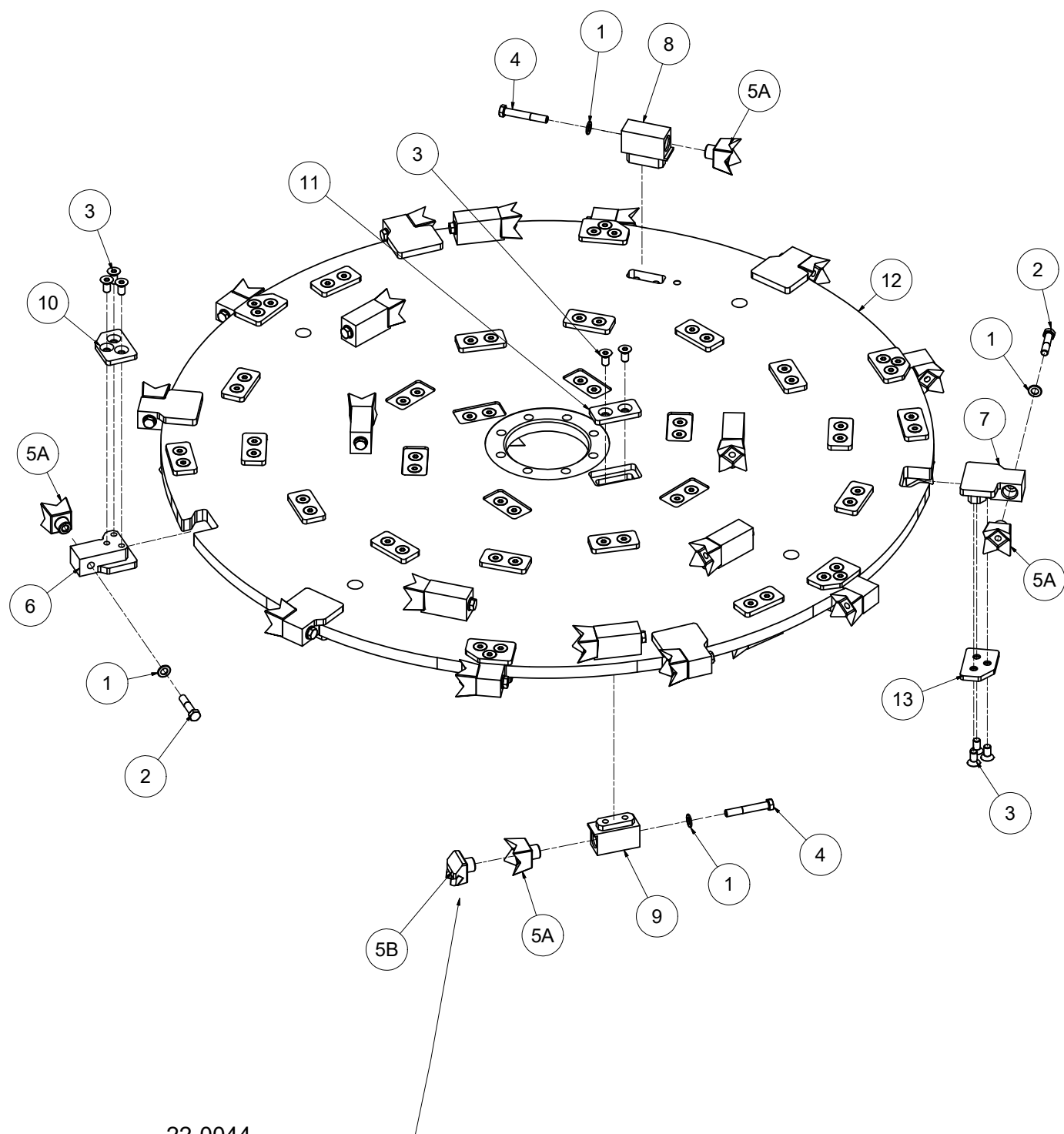
REF#	PARTS DESCRIPTION	REQ	PART#	TORQUE (ft-lbs)
1	BOLT KIT - 1/2" SPINDLE (FBS/DBR) SHELL	1	11-3624	
*1.1	M16 DIN EN 14399 THRU-HARDENED FLAT WASHER, ECOGUARD	24	11-0102	
1.2	5/8-11 GR 8 HEX NUT, ECOGUARD	12	11-1166	
1.3	5/8-11 X 2.5 GR 8 HEX CAP, ECOGUARD	12	11-2233	150
2	JEMTEC D3 SPINDLE RELIEF VALVE	1	21-1653	
3	5/8MJIC X 1/2MORB	1	21-1706	
4	O-RING SAE D	1	33-0098	
5	D3 SPINDLE, DIRECT DRIVE, SAE D 4 BOLT BASE, SAE D	1	35-0107	
6	MOTOR LOCKING HARDWARE KIT	1	44-0865	
6.1	3/4 SAE GR 8 FLAT WASHER, YELLOW	4	11-0039	
6.2	1/4-20 X 2 GR 5 HEX CAP, ZINC	4	11-0590	8.4
6.3	3/4-10 X 2 GR 8 HEX CAP, YELLOW ZINC	4	11-0751	376
6.4	1/4-20 GR 5 NYLOCK NUT, ZINC	4	11-1022	
6.5	MOTOR BOLT LOCK BASE, SAE D	2	31-0759	
6.6	MOTOR BOLT LOCK TAB, SAE D	4	31-0760	
6.7	BOLT LOCKING TAB SPRING	4	36-0013	

* NOTE: FLAT SIDE OF WASHERS TOWARDS HARDWARE.
CHAMFER SIDE TOWARDS SPINDLE & DECK.

35-0107-1 Rev 000

FORESTRY DISC HEAD

CUTTING HEAD - DECK SUBASSEMBLY



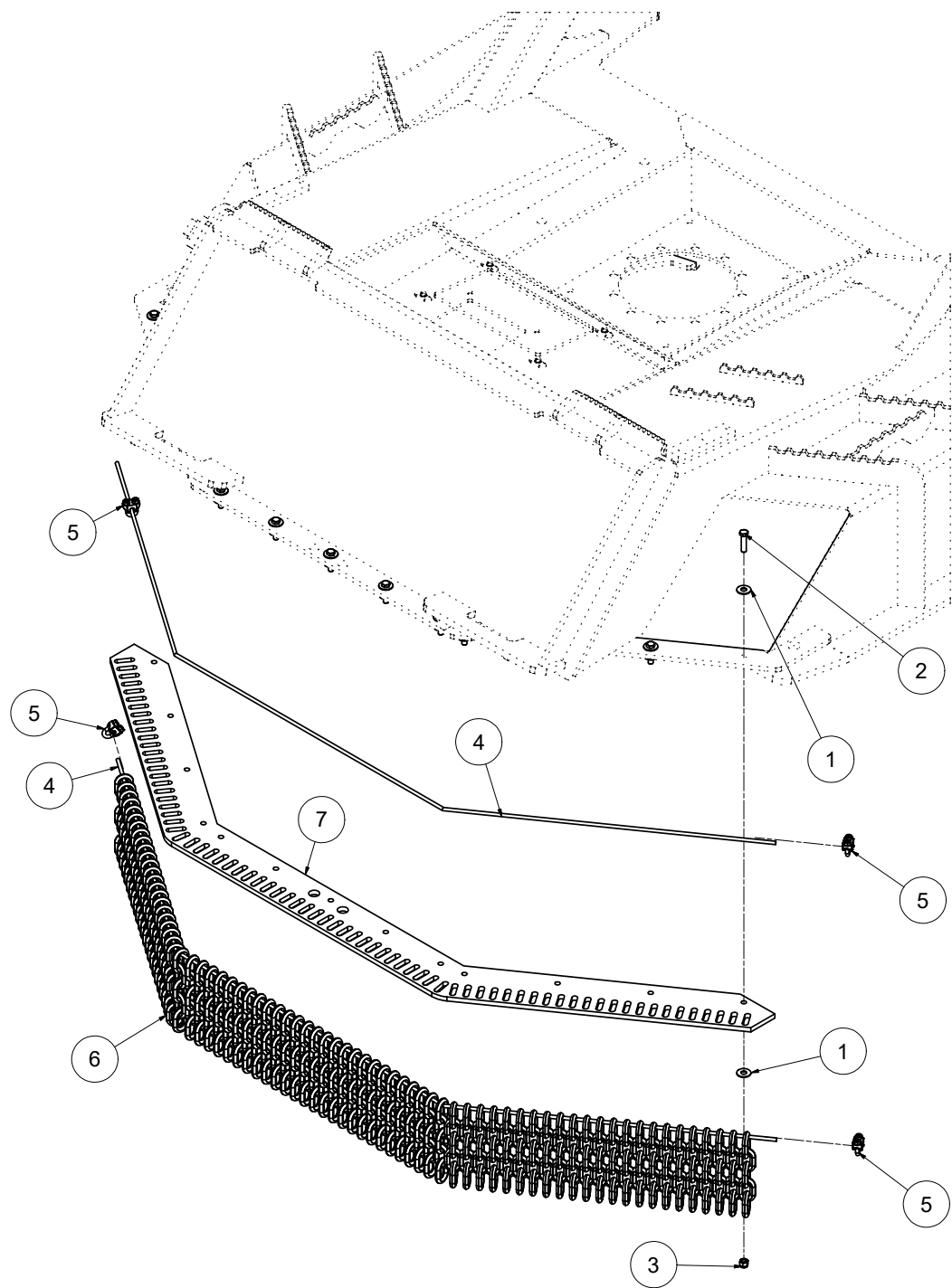
22-0044
OPTION ONLY
AVAILABLE ON
BOTTOM OF DISK

FORESTRY DISC HEAD

CUTTING HEAD - DECK SUBASSEMBLY

REF#	PARTS DESCRIPTION	REQ	PART#	TORQUE (ft-lbs)
1	1/2 X 1.062 GR 8 SAE FLAT WASHER, YELLOW ZINC	44	11-0042	
2	1/2 X 2-1/4 H.S. NF HEX CAP	12	11-0660	120
3	1/2-13 X 1 ASTM F835 FLAT SOCKET CAP, BLACK OXIDE, PRE-APPLIED THREADLOCKER PATCH	100	11-1167	110
4	1/2-20 X 3-1/4 GR 8 HEX CAP, YELLOW ZINC	32	11-1666	120
5A	FOUR-POINT HARDENED STEEL TOOTH	44	22-0019	
5B	TWIN MAUL™ CARBIDE TOOTH	22	22-0044	
6	OUTER TOOTH HOLDER	6	90-7054	
7	OUTER TOOTH HOLDER CC	6	90-7070	
8	MIDDLE TOOTH HOLDER W-O COUNTERSINK	24	90-7073	
9	INNER TOOTH HOLDER W-O COUNTERSINK	8	90-7074	
10	OUTER TOOTH HOLDER COVER	6	P24-0270-12	
11	COVER	32	P24-0270-13	
12	D3 DISH BLANK W-EXISTING PATTERN	1	P24-0283-11	
13	OUTER TOOTH COVER	6	P24-0310-12	
	TOOTH KIT - 20 TEETH, NO HARDWARE	1	44-0830	
	FOUR-POINT HARDENED STEEL TOOTH	20	22-0019	
	TOOTH KIT - 50 TEETH, NO HARDWARE	1	44-0831	
	FOUR-POINT HARDENED STEEL TOOTH	50	22-0019	
	OUTER TOOTH HOLDER KIT	1	44-0835	
	1/2-13 X 1 ASTM F835 FLAT SOCKET CAP, BLACK OXIDE, PRE-APPLIED THREADLOCKER PATCH	3	11-1167	110
	OUTER TOOTH HOLDER - BOLT ON	1	90-7054	
	OUTER TOOTH HOLDER COVER	1	P24-0270-12	
	MIDDLE TOOTH HOLDER KIT	1	44-0862	
	1/2-13 X 1 ASTM F835 FLAT SOCKET CAP, BLACK OXIDE, PRE-APPLIED THREADLOCKER PATCH	2	11-1167	110
	MIDDLE TOOTH HOLDER W-O COUNTERSINK	1	90-7073	
	COVER	1	P24-0270-13	
	INNER TOOTH HOLDER KIT	1	44-0863	
	1/2-13 X 1 ASTM F835 FLAT SOCKET CAP, BLACK OXIDE, PRE-APPLIED THREADLOCKER PATCH	2	11-1167	110
	INNER TOOTH HOLDER W-O COUNTERSINK	1	90-7074	
	COVER	1	P24-0270-13	
	TOOTH KIT - FOUR-POINT FBS060	1	44-0861	
	1/2 X 2-1/4 H.S. NF HEX CAP	12	11-0660	120
	1/2-20 X 3-1/4 GR 8 HEX CAP, YELLOW ZINC	36	11-1666	120
	1/2 X 1.062 GR 8 SAE FLAT WASHER, YELLOW ZINC	48	11-0042	
	FOUR-POINT HARDENED STEEL TOOTH	48	22-0019	
	TOOTH KIT - TWIN MAUL™ FBS060	1	44-0945	
	1/2 X 1.062 GR 8 SAE FLAT WASHER, YELLOW ZINC	22	11-0042	
	1/2-20 X 3-1/4 GR 8 HEX CAP, YELLOW ZINC	22	11-1666	120
	TWIN MAUL™ CARBIDE TOOTH	22	22-0044	
	TOOTH HOLDER KIT, OUTER TOP	1	44-0960	
	1/2-13 X 1 ASTM F835 FLAT SOCKET CAP, BLACK OXIDE, PRE-APPLIED THREADLOCKER PATCH	3	11-1167	
	OUTER TOOTH HOLDER CC	1	90-7070	
	OUTER TOOTH COVER	1	P24-0310-12	

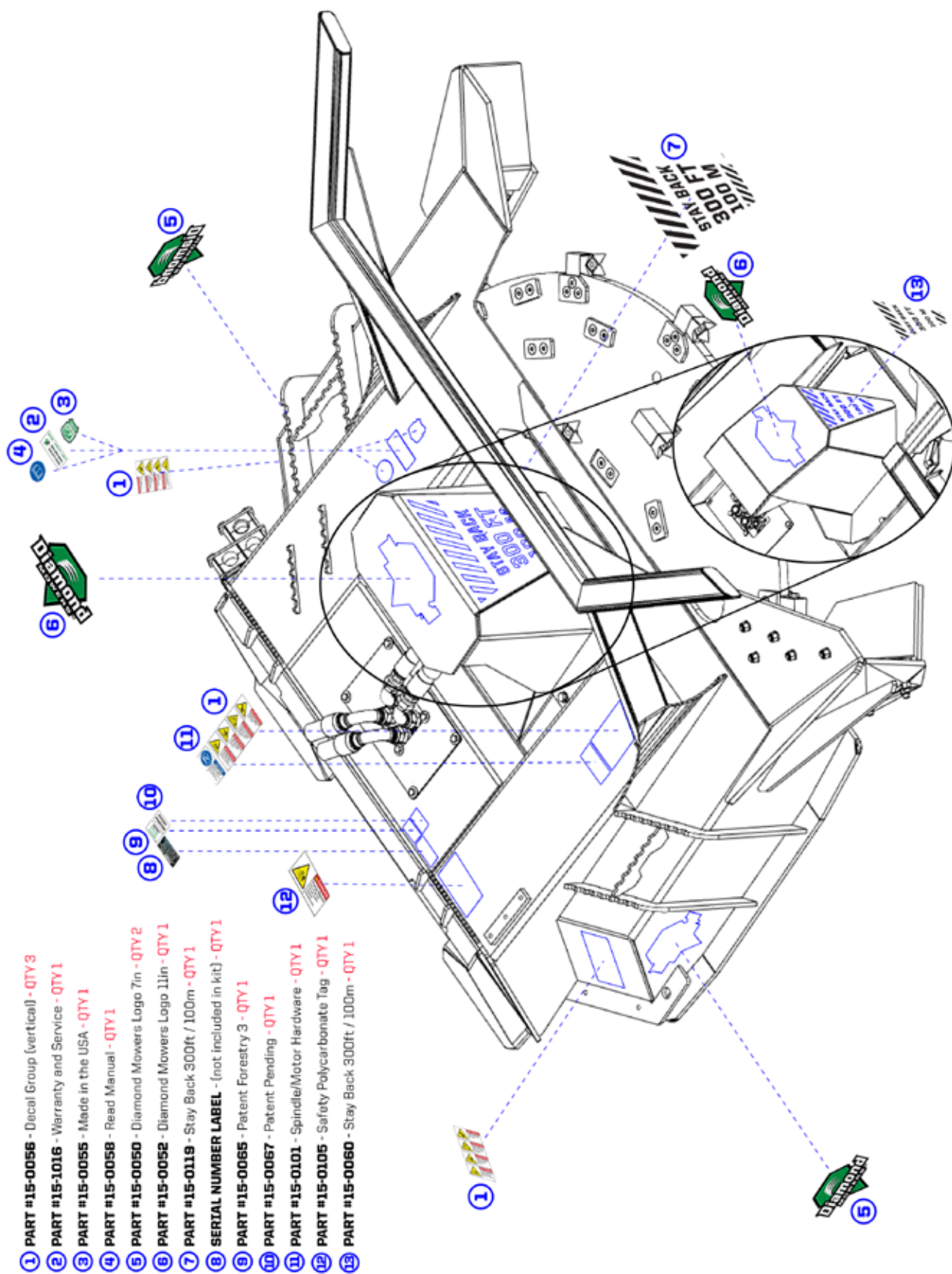
CHAIN GUARD ASSEMBLY



REF#	PARTS DESCRIPTION	REQ	PART#	TORQUE (ft-lbs)
1	3/8 THRU-HARDENED FLAT WASHER, YELLOW ZINC	26	11-0092	
2	3/8-16 X 1-1/2 GR 5 HEX CAP, ZINC	13	11-0529	31
3	3/8-16 GR 2 NYLOCK NUT, ZINC	13	11-1024	
4	1/4" GALVANIZED CABLE 7,000 LBS TENSILE STR (SOLD/FT)	13	12-0032	
5	1/4" WIRE ROPE CLAMP	4	12-0033	
6	3/8" CHAIN - 5 LINKS	74	12-0047	
7	FBS CHAIN GUARD	1	31-0753	

DECAL ASSEMBLY

0820090

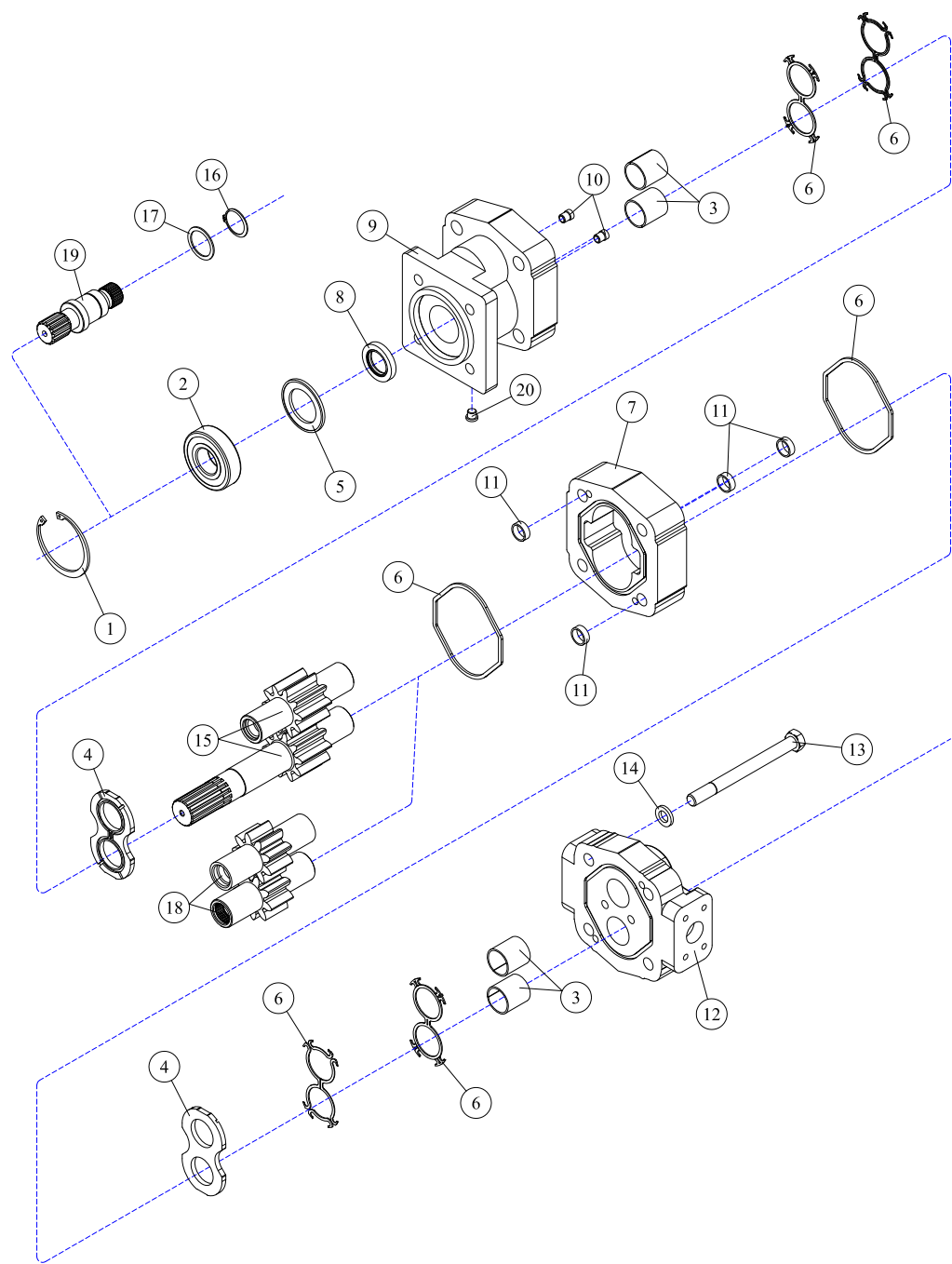




DECK ASSEMBLIES

DECK ASSEMBLIES

MOTOR ASSEMBLY - 30-0524



REF#	PARTS DESCRIPTION	REQ	PART #
1	SNAP RING	1	30-1009
2	OUTBOARD BEARING	1	30-1010
3	BUSHING	4	30-1011
4	THRUST PLATE	2	30-1012
5	SEAL RETAINER	1	30-1017
6	M365 SEAL KIT	Avail	30-1021
7	2-1/4" M365 GEAR HOUSING	1	30-1026
8	SHAFT SEAL		
	150 PSI (included in M365 seal kit)	1	30-1210
	500 PSI	1	30-1156
9	SHAFT END COVER	1	30-1086
10	CHECK ASSEMBLY	2	30-1087
11	ALIGNMENT BUSHING	4	30-1090

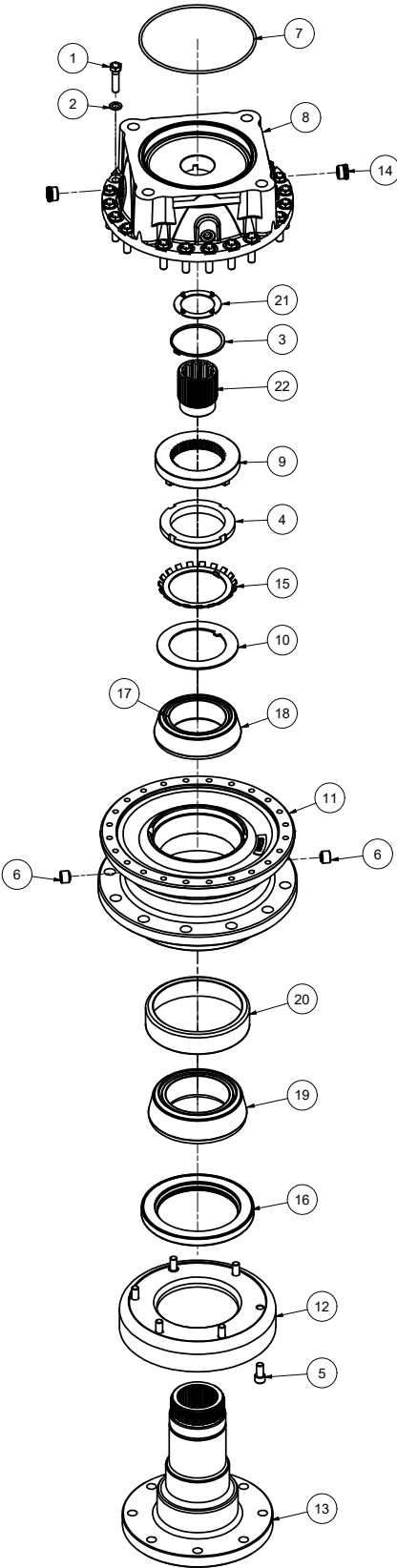
REF#	PARTS DESCRIPTION	REQ	PART #
12	PORT END COVER	1	30-1091
13	STUD	4	Call
14	WASHER	4	30-1093
	GEAR SET OPTION A:		
15	2-1/4" GEAR SET	1	30-1165
	GEAR SET OPTION B:		
16	RETAINING RING	1	30-1019
17	WASHER	1	30-1020
18	2-1/4" GEAR SET	1	30-1025
19	CONTINENTAL SHAFT, SPLINED	1	30-1144
20	PLUG	1	30-1096
*	SEAL APPLICATOR TOOL (not shown)	Avail	30-1048

SPINDLE ASSEMBLY - 35-0107

REF#	PARTS DESCRIPTION	REQ	PART#	TORQUE (ft-lbs)	TORQUE (Nm)
1	BOLT-HEX HEAD, FOR D3 SPINDLE	20	11-1611	45	60
2	FLAT WASHER, FOR D3 SPINDLE	20	11-1612		
3	RETAINING RING, FOR D3 SPINDLE	1	11-1613		
4	LOCKNUT, FOR D3 SPINDLE	1	11-1614		
5	SOCKET HEAD CAPSCREW, FOR D3 SPINDLE	6	11-1616		
6	PIPE PLUG TO HUB MAGNETIC	2	21-1611		
7	O-RING SAE D	1	33-0098		
8	D3 SPINDLE CAP,D BASE	1	35-0095		
9	KEEPER PLATE, D3 SPINDLE	1	35-0098		
10	BOTTOM THRUST WASHER, D3 SPINDLE	1	35-0099		
11	HUB	1	35-0100		
12	GUARD	1	35-0102		
13	OUTPUT SHAFT, D3 SPINDLE	1	35-0103		
14	D3 SPINDLE SAE C TOP PORT PLUGS	1	35-0200		
	SEAL KIT		33-0078		
15	LOCK-WASHER, FOR D3 SPINDLE	1			
16	OIL-SEAL, D3 SPINDLE	1			
*	SEALANT	1			
	BEARING AND SEAL KIT		33-0079		
15	LOCK-WASHER, FOR D3 SPINDLE	1			
16	OIL-SEAL, D3 SPINDLE	1			
17	TOP BEARING-CONE, FOR D3 SPINDLE	1			
18	TOP BEARING-CUP, FOR D3 SPINDLE	1			
19	BOTTOM BEARING-CONE, FOR D3 SPINDLE	1			
20	BOTTOM BEARING-CUP, FOR D3 SPINDLE	1			
*	SEALANT	1			
	D3 SPINDLE REPLACEMENT INSERT KIT		33-0080		
21	TOP THRUST WASHER, D3 SPINDLE	1			
22	COUPLING, D3 SPINDLE, SAE D SPLINE	1			

* NOT SHOWN

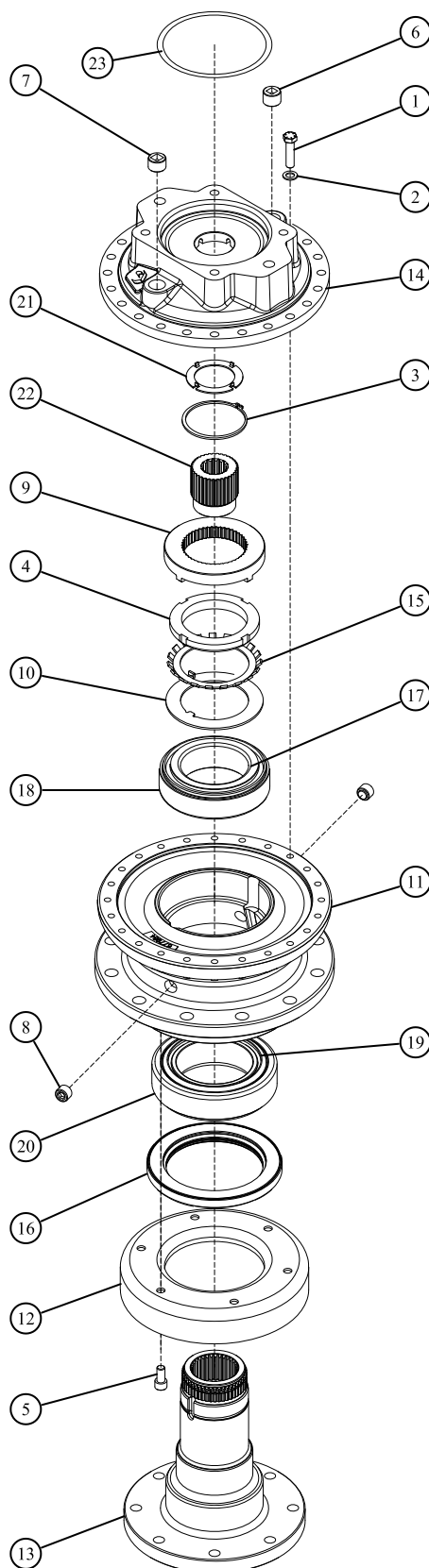
35-0107 Rev 000



DECK ASSEMBLIES

SPINDLE ASSEMBLY - 35-0204

REF#	PARTS DESCRIPTION	REQ	PART #
1	BOLT-HEX HEAD	24	11-1611
2	WASHER-FLAT	24	11-1612
3	RING-RETAINING	1	11-1613
4	NUT-LOCK	1	11-1614
5	SCREW-SKT HD CAP	6	11-1616
6	PLUG (TO COVER) (MAGNETIC)	1	35-0200
7	PLUG (TO COVER) (NON-MAGNETIC)	1	35-0202
8	PIPE PLUG (TO HUB) (MAGNETIC)	2	21-1611
9	PLATE-KEEPER	1	35-0098
10	WASHER-THRUST (BOTTOM)	1	35-0099
11	HUB	1	35-0100
12	GUARD	1	35-0102
13	SHAFT-OUTPUT	1	35-0103
14	COVER		
	C COVER (STANDARD)	1	35-0199
	D COVER (OPTIONAL)	1	35-0109
	SEAL KIT		33-0078
15	WASHER-LOCK	1	
16	SEAL-OIL	1	
	SEALANT		
	BEARING AND SEAL KIT		33-0079
17	BEARING-CONE (TOP)	1	
18	BEARING-CUP (TOP)	1	
19	BEARING-CONE (BOTTOM)	1	
20	BEARING-CUP (BOTTOM)	1	
15	WASHER-LOCK	1	
16	OIL SEAL	1	
	SEALANT	1	
	D3 SPINDLE REPLACEMENT INSERT KIT		33-0080
21	WASHER-THRUST (TOP)	1	
22	COUPLING	1	
	SEALANT		
23	O-RING, D3 SPINDLE	1	24-0305



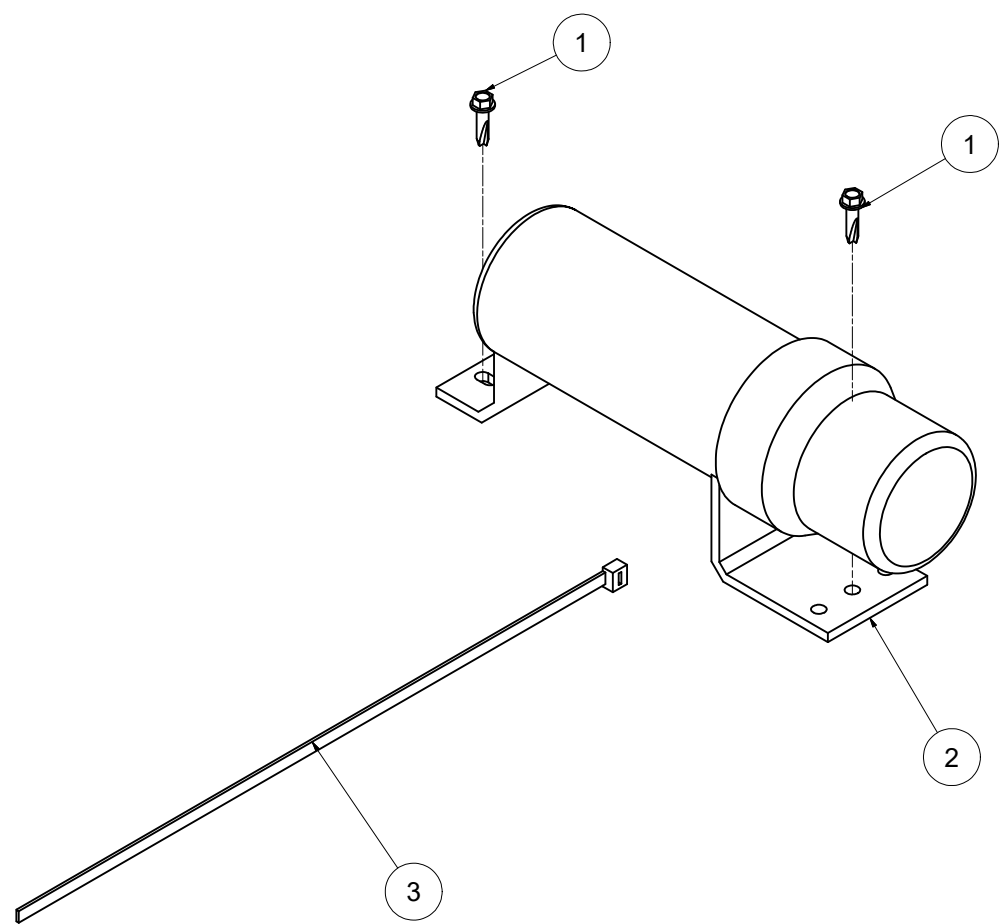
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MISCELLANEOUS ASSEMBLIES

MISCELLANEOUS ASSEMBLIES

MANUAL CANISTER ASSEMBLY



REF#	PARTS DESCRIPTION	REQ	PART#	TORQUE (ft-lbs)
1	1/4-14 X 1" TEKS SCREW, HEX WASHER HEAD	2	11-1173	
2	LARGE MANUAL CANISTER, 12" X 3.25"	1	24-0397	
3	17" ZIP TIE, UV RESISTANT	1	24-0396	



APPENDIX

O-RINGS - S.A.E.

ORING (AS568) BOSS FITTINGS [KIT PART# 33-0122] SAE SIZES

STANDARD ORING PART #	HYDRAULIC SIZE	ORING ID SAE (IN)	ORING WIDTH SAE (IN)	ORING MATERIAL
902	-2	0.24	0.06	90-durometer Nitrile
903	-3	0.30	0.06	90-durometer Nitrile
904	-4	0.35	0.07	90-durometer Nitrile
905	-5	0.41	0.07	90-durometer Nitrile
906	-6	0.47	0.08	90-durometer Nitrile
908	-8	0.64	0.09	90-durometer Nitrile
910	-10	0.76	0.1	90-durometer Nitrile
912	-12	0.92	0.12	90-durometer Nitrile
914	-14	1.05	0.12	90-durometer Nitrile
916	-16	1.17	0.12	90-durometer Nitrile
920	-20	1.48	0.12	90-durometer Nitrile
924	-24	1.72	0.12	90-durometer Nitrile
932	-32	2.34	0.12	90-durometer Nitrile

ORING (AS568) FLAT SEAL FITTINGS [KIT PART# 33-0123] SAE SIZES & METRIC SIZES

STANDARD ORING PART #	HYDRAULIC SIZE	END SIZE		ORING ID		ORING WIDTH		ORING MATERIAL
		SAE (IN)	METRIC (MM)	SAE (IN)	METRIC (MM)	SAE (IN)	METRIC (MM)	
011	-4	1/4	6	0.30	7.70	0.07	1.78	90-durometer Nitrile
012	-6	3/8	8, 10	0.36	9.30	0.07	1.78	90-durometer Nitrile
014	-8	1/2	12	0.49	12.40	0.07	1.78	90-durometer Nitrile
016	-10	5/8	14, 15, 16	0.61	15.60	0.07	1.78	90-durometer Nitrile
018	-12	3/4	18, 20	0.74	18.80	0.07	1.78	90-durometer Nitrile
020	-14	7/8	22	0.86	21.80	0.07	1.78	90-durometer Nitrile
021	-16	1	25	0.93	23.50	0.07	1.78	90-durometer Nitrile
025	-20	1 1/4	28, 30, 32	1.18	29.90	0.07	1.78	90-durometer Nitrile
029	-24	1 1/2	35, 38	1.49	37.80	0.07	1.78	90-durometer Nitrile
135	-32	2	50	1.93	49.00	0.10	2.54	90-durometer Nitrile

S.A.E. TORQUE SPECIFICATIONS

Nominal Dia.	threads per inch	Tensile Stress Area		ASTM A307 Grade A				SAE J429 Grade 5				SAE J429 Grade 8				FNL Grade 9		
			Clamp Load	Tightening Torque			Clamp Load	Tightening Torque			Clamp Load	Tightening Torque			Clamp Load	Tightening Torque		
			(Lbs.)	K = 0.15	K = 0.17	K = 0.20	(Lbs.)	K = 0.15	K = 0.17	K = 0.20	(Lbs.)	K = 0.15	K = 0.17	K = 0.20	(Lbs.)	K = 0.15	K = 0.17	K = 0.20
(in.)		(sq. in.)																
Unified Coarse Thread Series																		
1/4	20	0.0318	859	32 in-lbs	37 in-lbs	43 in-lbs	2029	76 in-lbs	86 in-lbs	101 in-lbs	2864	107 in-lbs	122 in-lbs	143 in-lbs	3357	126 in-lbs	143 in-lbs	168 in-lbs
5/16	18	0.0524	1416	66	75	88	3342	157	178	209	4719	221	251	295	5531	259	294	346
3/8	16	0.0775	2092	10 ft-lbs	11 ft-lbs	13 ft-lbs	4940	23 ft-lbs	26 ft-lbs	31 ft-lbs	6974	33 ft-lbs	37 ft-lbs	44 ft-lbs	8174	38 ft-lbs	43 ft-lbs	51 ft-lbs
7/16	14	0.1063	2870	16	18	21	6777	37	42	49	9568	52	59	70	11214	61	70	82
1/2	13	0.1419	3831	24	27	32	9046	57	64	75	12771	80	90	106	14969	94	106	125
9/16	12	0.1819	4912	35	39	46	11599	82	92	109	16375	115	130	154	19193	135	153	180
5/8	11	0.2260	6102	48	54	64	14408	113	128	150	20340	159	180	212	23840	186	211	248
3/4	10	0.3345	9030	85	96	113	21322	200	227	267	30101	282	320	376	35281	331	375	441
7/8	9	0.4617	12467	136	155	182	29436	322	365	429	41556	455	515	606	48707	533	604	710
1	8	0.6057	16355	204	232	273	38616	483	547	644	54517	681	772	909	63899	799	905	1065
1 1/4	7	0.9691	26166	409	463	545	53786	840	952	1121	87220	1363	1545	1817	102229	1597	1810	2130
1 1/2	6	1.4053	37942	711	806	949	77991	1462	1657	1950	126473	2371	2688	3162	148237	2779	3150	3706
Fine Thread Series																		
1/4	28	0.0364	982	37 in-lbs	42 in-lbs	49 in-lbs	2319	87 in-lbs	99 in-lbs	116 in-lbs	3274	123 in-lbs	139 in-lbs	164 in-lbs	3837	144 in-lbs	163 in-lbs	192 in-lbs
5/16	24	0.0581	1568	73	83	98	3702	174	197	231	5226	245	278	327	6125	287	325	383
3/8	24	0.0878	2371	11 ft-lbs	13 ft-lbs	15 ft-lbs	5599	26 ft-lbs	30 ft-lbs	35 ft-lbs	7905	37 ft-lbs	42 ft-lbs	49 ft-lbs	9265	43 ft-lbs	49 ft-lbs	58 ft-lbs
7/16	20	0.1187	3205	18	20	23	7568	41	47	55	10684	58	66	78	12523	68	78	91
1/2	20	0.1600	4319	27	31	36	10197	64	72	85	14396	90	102	120	16873	105	120	141
9/16	18	0.2030	5480	39	44	51	12940	91	103	121	18268	128	146	171	21412	151	171	201
5/8	18	0.2560	6911	54	61	72	16317	127	144	170	23036	180	204	240	27000	211	239	281
3/4	16	0.3730	10070	94	107	126	23776	223	253	297	33566	315	357	420	39343	369	418	492
7/8	14	0.5095	13756	150	171	201	32479	355	403	474	45853	502	568	669	53743	588	666	784
1	14	0.6799	18357	229	260	306	43343	542	614	722	61190	765	867	1020	71720	896	1016	1195
1 1/4	12	1.0729	28970	453	513	604	59548	930	1055	1241	96565	1509	1710	2012	113182	1768	2004	2358
1 1/2	12	1.5810	42688	800	907	1067	87747	1645	1865	2194	142292	2668	3024	3557	166778	3127	3544	4169

The torque values can only be achieved if nut (or tapped hole) has a proof load greater than or equal to the bolt's minimum ultimate tensile strength.

Clamp load calculated as 75% of the proof load when specified by the standard. ASTM A307 utilized 75% of 36,000 PSI.

Torque values for 1/4 and 5/16-in series are in inch-pounds. All other torque values are in foot-pounds.

Torque values calculated from formula $T = KDF$, where

$K = 0.15$ for "lubricated" conditions

$K = 0.17$ for zinc plated and dry conditions; we have also found various forms of customer applied thread lockers to have a similar K value.

$K = 0.20$ for plain and dry conditions

D = Nominal Diameter

F = Clamp Load

Note: When using Zinc Plated (lubricated with wax) Top Lock Nuts, the K value can vary between 0.12-0.16

METRIC TORQUE SPECIFICATIONS

Nominal Dia. (mm)	Pitch	4.6 Class 4.6				8.8 Class 8.8				10.9 Class 10.9				12.9 Class 12.9			
		Tightening Torque				Tightening Torque				Tightening Torque				Tightening Torque			
		Clamp Load (lbs)	Lubricated (ft-lbs)	Zinc Plated (ft-lbs)	Plain&Dry (ft-lbs)	Clamp Load (lbs)	Lubricated (ft-lbs)	Zinc Plated (ft-lbs)	Plain&Dry (ft-lbs)	Clamp Load (lbs)	Lubricated (ft-lbs)	Zinc Plated (ft-lbs)	Plain&Dry (ft-lbs)	Clamp Load (lbs)	Lubricated (ft-lbs)	As-Received (ft-lbs)	Plain&Dry (ft-lbs)
4	0.7	333	0.7	0.7	0.9	858	1.7	1.9	2.3	1228	2.4	2.7	3.2	1436	2.8	3.2	3.8
5	0.8	538	1.3	1.5	1.8	1387	3.4	3.9	4.5	1985	4.9	5.5	6.5	2319	5.7	6.5	7.6
6	1	763	2.3	2.6	3.0	1968	5.8	6.6	7.7	2816	8.3	9.4	11.1	3291	9.7	11.0	13.0
7	1	1095	3.8	4.3	5.0	2822	9.7	11.0	13.0	4039	13.9	15.8	18.5	4720	16.3	18.4	21.7
8	1.25	1389	5.5	6.2	7.3	3580	14.1	16.0	18.8	5123	20.2	22.9	26.9	5987	23.6	26.7	31.4
10	1.5	2200	10.8	12.3	14.4	5671	27.9	31.6	37.2	8115	39.9	45.2	53.2	9484	46.7	52.9	62.2
12	1.75	3197	18.9	21.4	25.2	8240	48.7	55.1	64.9	11792	69.6	78.9	92.8	13781	81.4	92.2	108.5
14	2	4379	30.2	34.2	40.2	11289	77.8	88.1	103.7	16154	111.3	126.1	148.4	18879	130.0	147.4	173.4
16	2	5943	47	53	62	15320	121	137	161	21924	173	196	230	25622	202	229	269
18	2.5	7301	65	73	86	18822	167	189	222	26934	239	270	318	31477	279	316	372
20	2.5	9286	91	104	122	23938	236	267	314	34256	337	382	449	40034	394	446	525
22	2.5	11509	125	141	166	29669	321	364	428	42457	460	521	613	49619	537	609	716
24	3	13372	158	179	211	34471	407	461	543	49329	582	660	777	57649	681	771	908
27	3	17428	232	262	309	44924	597	676	796	64288	854	968	1139	75132	998	1131	1331
30	3.5	21266	314	356	419	54819	809	917	1079	78448	1158	1312	1544	91680	1353	1534	1804
33	3.5	26310	427	484	570	67821	1101	1248	1468	97055	1576	1786	2101	113425	1842	2087	2455
36	4	30982	549	622	732	79866	1415	1603	1886	114291	2024	2294	2699	133569	2366	2681	3154

The torque values can only be achieved if nut (or tapped hole) has a proof load greater than or equal to the bolt's minimum ultimate tensile strength.

Clamp loads estimated as 75% of proof load for specified bolts.

Torque values listed in foot-pounds.

Torque values calculated from formula $T = KDF$ where; $K = 0.15$ for "lubricated" condition, $K = 0.17$ for zinc plated and dry condition (or as-received for the 12.9), $K = 0.20$ for plain and dry condition

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