

PARTS BOOK

SKID-STEER ROTARY HEAD

84"(2134MM) ROTARY HEAD

SERIAL #25181+

WARRANTY + SERVICE 888.960.0364
PARTS 888.960.0361



DIAMONDMOWERS.COM

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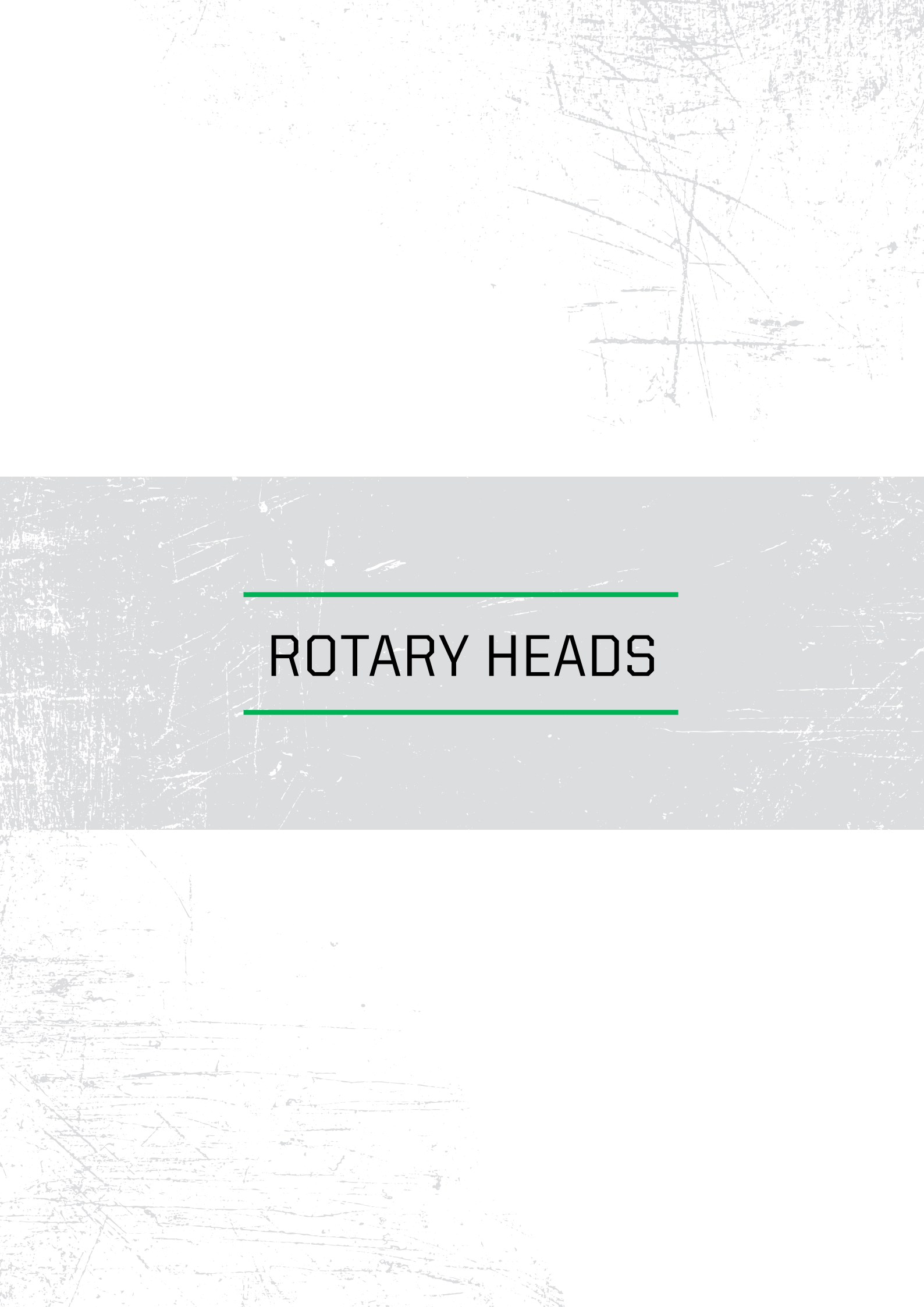
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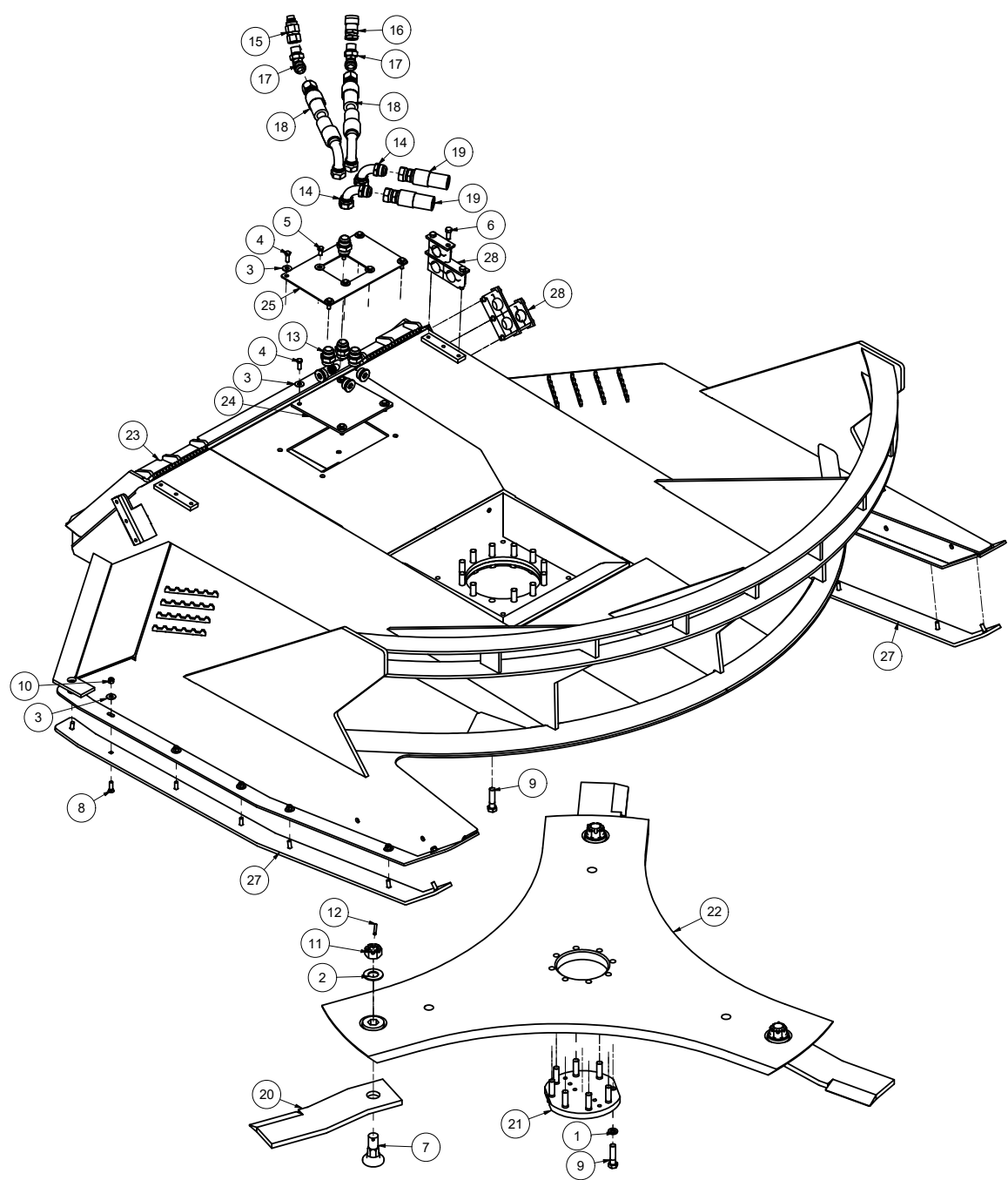
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ROTARY HEADS

DECK ASSEMBLY - GEAR MOTOR



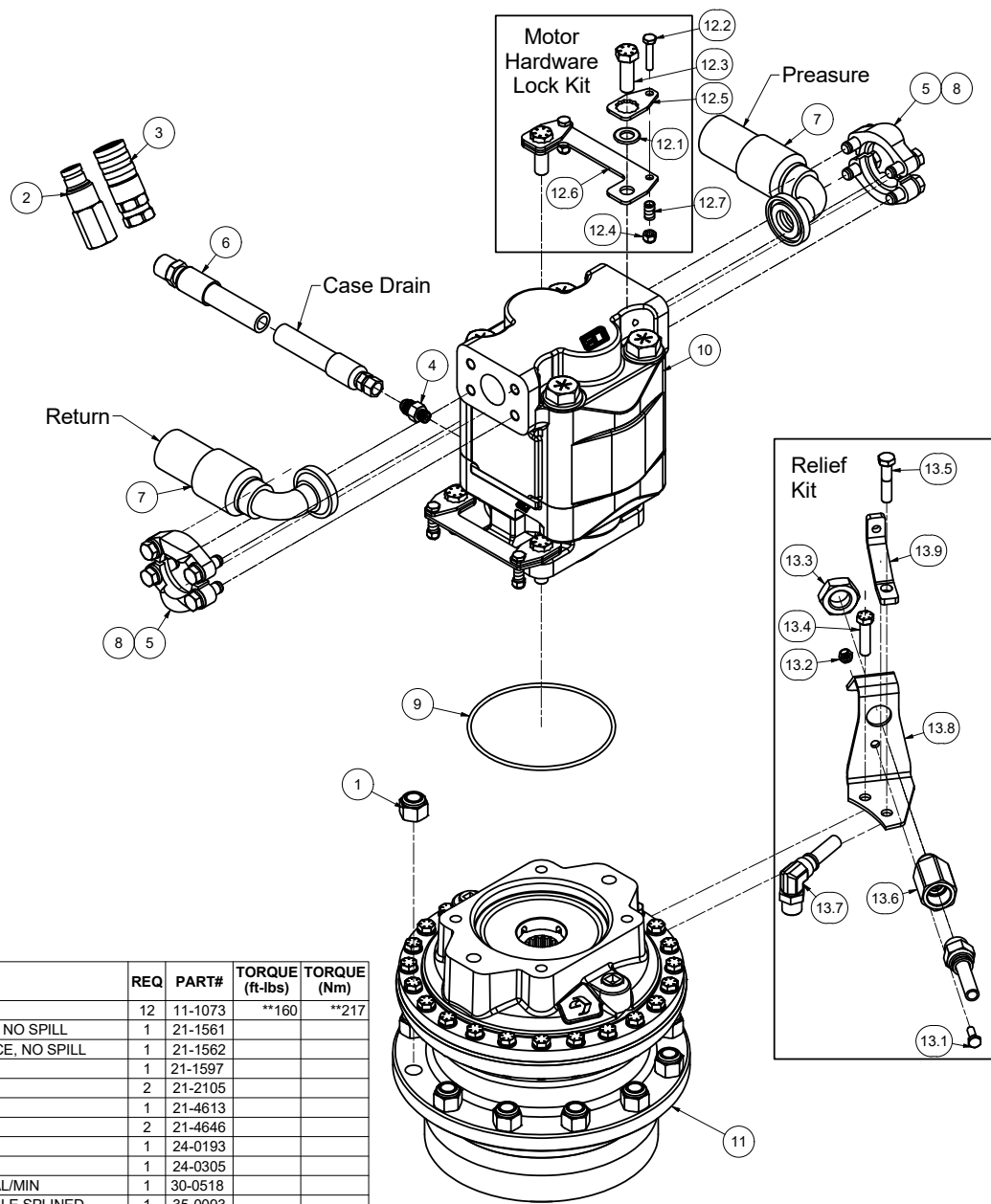
REF#	PARTS DESCRIPTION	REQ	PART#	TORQUE lubricated ft-lbs	TORQUE lubricated Nm
1	5/8" LOCK WASHER GR 8	8	11-0043		
2	1-1/8" SAE FLAT WASHER GR 8	3	11-0057		
3	3/8" FLAT WASHER GR 8	26	11-0092		
4	3/8 X 1 NC HEX CAP	8	11-0532	23	31
5	3/8 X 3/4 NC HEX CAPSCREW	4	11-0545	31	42
6	7/16 X 1 NC HEX CAP	6	11-0584	50	67
7	D3 BLADE BOLT	3	11-0759		
8	3/8" X 1-1/4" NC PLOW BOLT	14	11-0804		
9	5/8" X 2-1/2" NC HEX CAP, GR 8	20	11-0971	**159	**215
10	3/8" NC NYLOCK NUT	14	11-1024	23	31
11	1-1/8"-12 NF SLOTTED HEX NUT GR 8	3	11-1050	400	543
12	ROLL PIN, 1/4" X 2"	3	11-2005		
13	1" MOR X 1" MJIC, ADAPTER	4	21-1005		
14	1 MJIC X 1 FJIC-90DEG, FITTING 3-3/4"	2	21-1258		
15	1/2" MALE QUICK COUPLER X 3/4" SAE, FLAT FACE, NO SPILL	1	21-1559		
16	1/2" FEMALE QUICK COUPLER X 3/4" SAE, FLAT FACE, NO SPILL	1	21-1560		

25-1704-1 Rev A

REF#	PARTS DESCRIPTION	REQ	PART#	TORQUE lubricated ft-lbs	TORQUE lubricated Nm
17	1 MJIC-45DEG X 3/4M-OR, FITTING	2	21-1654		
18	HOSE 1 X 91 (1 FJIC X 1 FJIC-90DEG)	2	21-4645		
19	HOSE 1 X 29 (#20 FLG-90 X 1 FJIC)	2	21-4646		
20	BRUSH BLADE - 5/8"	3	22-0006		
21	BOLT PROTECTOR, FBS, D3 SPINDLE	1	24-0224		
22	84" D3 DISK	1	24-0301		
23	84 D3 DLR	1	25-0231		
24	60 SKID FBC ACCESS PORT COVER	1	31-0455		
25	MANIFOLD CUTOUT ACCESS PLATE	1	31-0740		
26	MANIFOLD, ANTI-CAVITATION, 2800 PSI RELIEF	1	39-0122		
27	84" SKID LOADER, SHOE	2	42-0043		
28	1" HOSE CLAMP KIT WITH TOP CLAMP, NO BASE	2	44-0351		
OPTIONAL QUICK COUPLERS					
	5/8 MALE QUICK COUPLER, FLAT FACE				
	5/8 FEMALE QUICK COUPLER, FLAT FACE				
	3/4 MALE QUICK COUPLER, FLAT FACE				
	3/4 FEMALE QUICK COUPLER, FLAT FACE				

ROTARY HEAD

DRIVE ASSEMBLY - GEAR MOTOR, 32-416PM(122-155LPM)



REF#	PARTS DESCRIPTION	REQ	PART#	TORQUE (ft-lbs)	TORQUE (Nm)
1	5/8" NC NYLOCK NUT, GR. 8	12	11-1073	**160	**217
2	3/8" MALE QUICK COUPLER, FLAT FACE, NO SPILL	1	21-1561		
3	3/8" FEMALE QUICK COUPLER, FLAT FACE, NO SPILL	1	21-1562		
4	ADAPER.25MOR X .375MJIC	1	21-1597		
5	#20 FLANGE KIT	2	21-2105		
6	HOSE .375 X 106 (.375FJIC X .5MP)	1	21-4613		
7	HOSE 1 X 29 (#20FLG-90 X 1FJIC)	2	21-4646		
8	LOCTITE 263 RED, .017 OZ	1	24-0193		
9	O-RING, D3 SPINDLE	1	24-0305		
10	M365 MOTOR 2.5 GEAR SET SP 42-46 GAL/MIN	1	30-0518		
11	D3 SPINDLE, DIRECT DRIVE, REMOVEABLE SPLINED	1	35-0093		
12	MOTOR HARDWARE LOCK KIT	1	44-0803		
12.1	1/2 SAE FLAT WASHER GR 8, YELLOW ZINC	4	11-0042		
12.2	1/4 X 1-1/4 NC HEX CAP	4	11-0702	6	9
12.3	1/2-13 X 1-1/2 GR 8 HEX CAP SCREW, YELLOW ZINC	4	11-0972	**80	**108
12.4	1/4 NC NYLOCK NUT	4	11-1022		
12.5	MOTOR BOLT LOCK TAB	4	31-0503		
12.6	MOTOR BOLT LOCK BASE	2	31-0504		
12.7	BOLT LOCKING TAB SPRING	4	36-0013		
13	RELIEF KIT, D3 SPINDLE	1	44-0854		
13.1	1/4 X 3/4 NC HEX CAP	1	11-0588	6	9
13.2	1/4 NC NYLOCK NUT	1	11-1022		
13.3	7/8 UNF JAM NUT	1	11-1159		
13.4	3/8-16 X 1-1/2 GR 5 YELLOW ZINC	1	11-2150	23	31
13.5	3/8-16 X 1-3/4 GR 5 YELLOW ZINC	1	11-2194	23	31
13.6	RELIEF VALVE, D3 SPINDLE	1	21-1653		
13.7	HOSE 1/2 X 8 (5/8MJIC X 1/2MP-90DEG SWIVEL)	1	21-2419		
13.8	D3 RELIEF VALVE MOUNT BRKT YELLOW ZINC PLATED	1	31-0688		
13.9	PRV BRACKET STIFFENER	1	31-0802		
OPTIONAL QUICK COUPLERS					
	5/8 MALE QUICK COUPLER, FLAT FACE		21-1574		
	5/8 FEMALE QUICK COUPLER, FLAT FACE		21-1575		
	3/4 MALE QUICK COUPLER, FLAT FACE		21-1576		
	3/4 FEMALE QUICK COUPLER, FLAT FACE		21-1577		

** CRITICAL TORQUE VALUES MUST BE FOLLOWED.

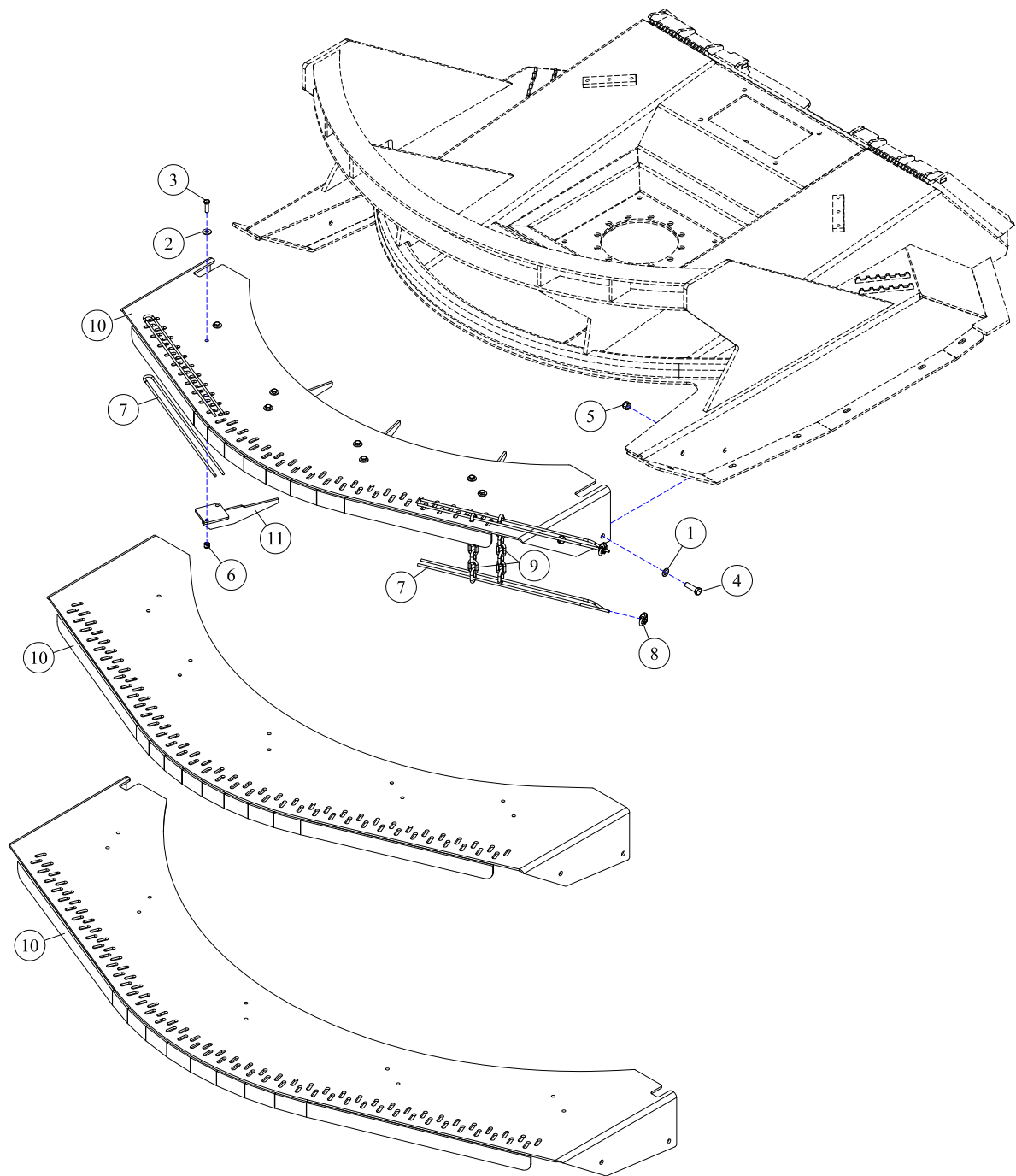
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DECK ASSEMBLY - PISTON MOTOR

ROTARY HEAD

DRIVE ASSEMBLY - PISTON MOTOR, 32-416PM(122-155LPM)

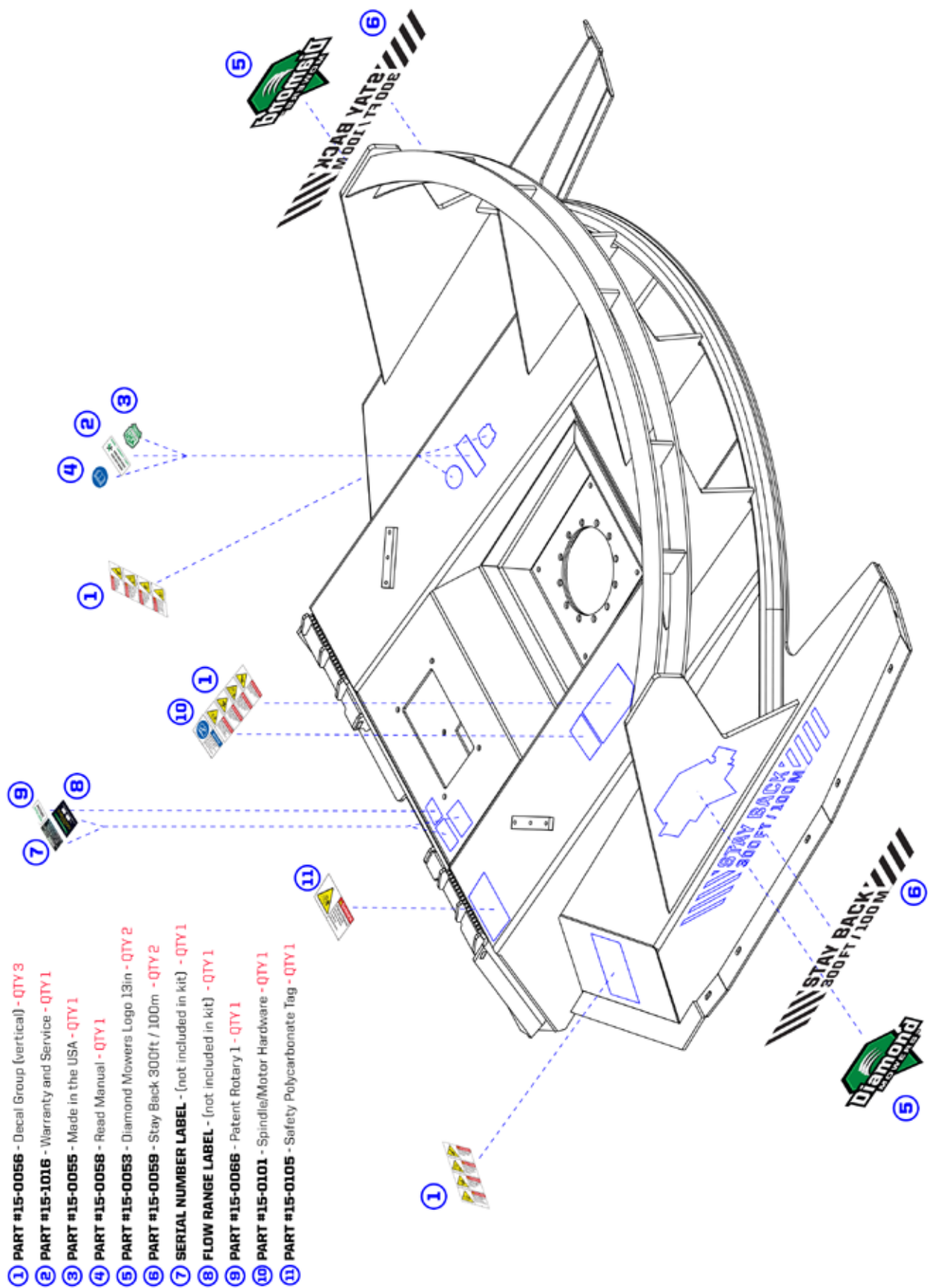
CHAIN CURTAIN ATTACHMENT ASSEMBLY



REF#	PARTS DESCRIPTION	REQ	PART #
1	1/2 SAE FLAT WASHER GR8	4	11-0042
2	3/8 SAE FLAT WASHER GR8		11-0090
	On 60" DLR	8	
	On 72" DLR	10	
	On 84" DLR	10	
3	3/8 X 1-1/4 NC HEX CAPSCREW		11-0533
	On 60" DLR	8	
	On 72" DLR	10	
	On 84" DLR	10	
4	1/2 X 1-3/4 NC HEX CAPSCREW	4	11-0535
5	1/2 NC NYLOCK NUT	4	11-1018
6	3/8 NC NYLOCK NUT		11-1024
	On 60" DLR	8	
	On 72" DLR	10	
	On 84" DLR	10	

REF#	PARTS DESCRIPTION	REQ	PART #
7	1/4 GALVANIZED CABLE (SOLD PER FOOT)		12-0032
	On 60" DLR	22	
	On 72" DLR	26	
	On 84" DLR	30	
8	1/4 WIRE ROPE CLAMP	2	12-0033
9	5/16 ZINC CHAIN - 7 LINKS GRADE 30		12-0036
	On 60" DLR	59	
	On 72" DLR	73	
	On 84" DLR	85	
10	CHAIN GUARD		
	D3 DLR CHAIN GUARD 60"	1	41-1636
	D3 DLR CHAIN GUARD 72"	1	41-1635
	D3 DLR CHAIN GUARD 84"	1	41-1637
11	BOLT ON CHAIN GUARD RIB		41-1653
	On 60" DLR	4	
	On 72" DLR	5	
	On 84" DLR	5	

DECAL ASSEMBLY

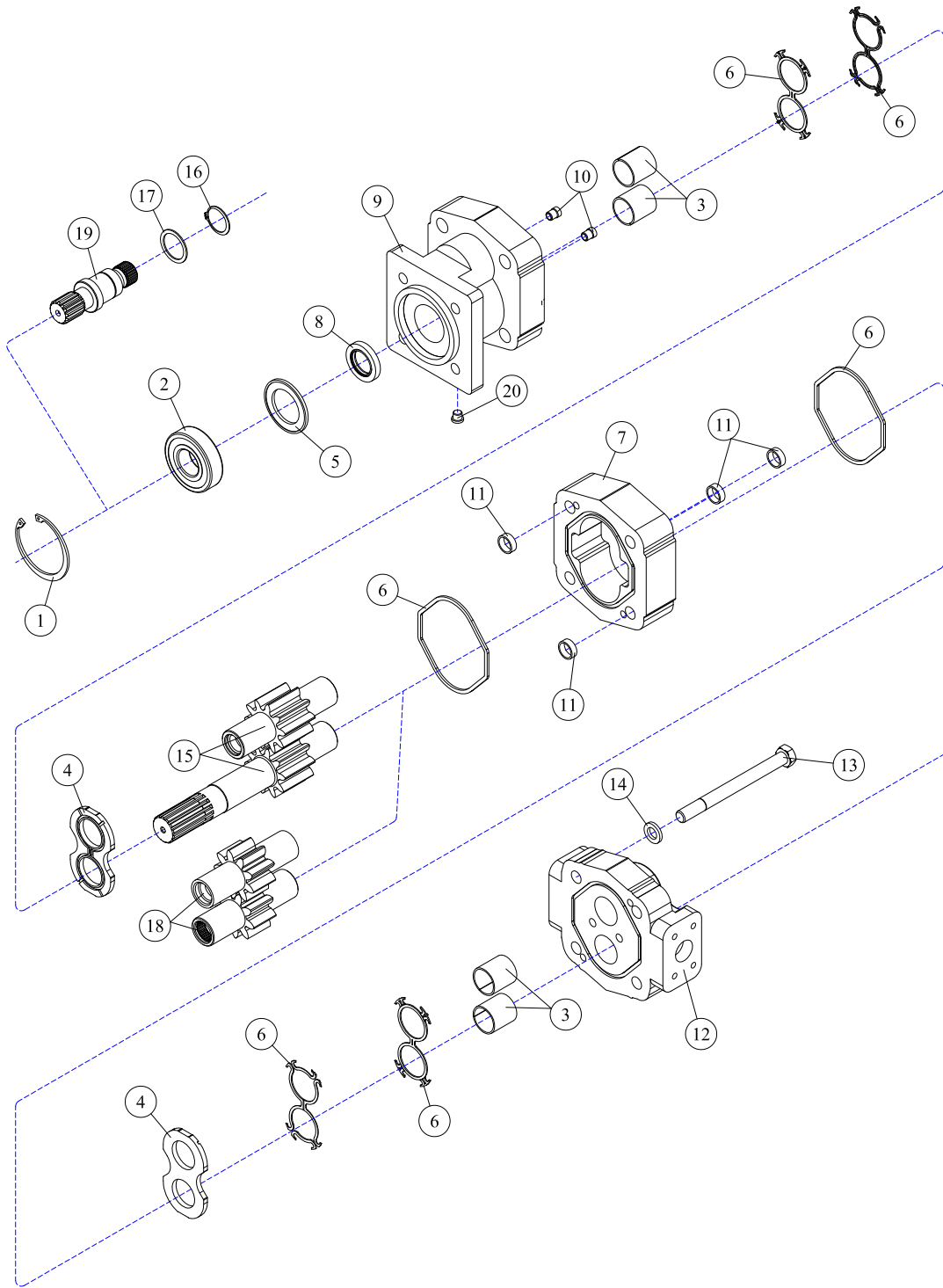




DECK ASSEMBLIES

DECK ASSEMBLIES

MOTOR ASSEMBLY - 30-0518



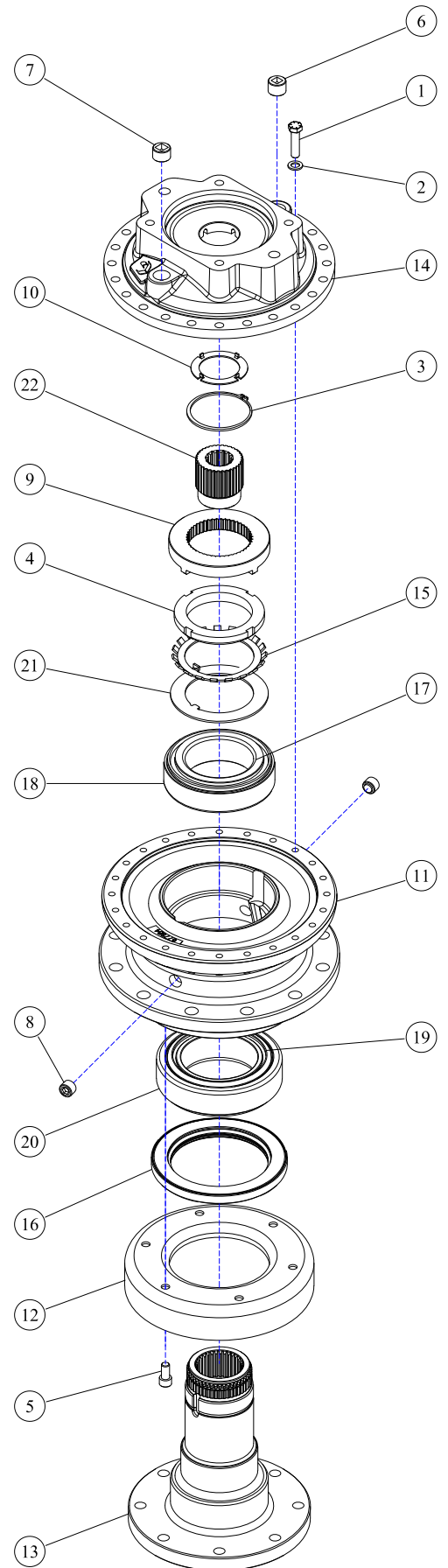
REF#	PARTS DESCRIPTION	REQ	PART #
1	SNAP RING	1	30-1009
2	OUTBOARD BEARING	1	30-1010
3	BUSHING	4	30-1011
4	THRUST PLATE	2	30-1012
5	SEAL RETAINER	1	30-1017
6	M365 SEAL KIT	Avail	30-1021
7	2-1/2" M365 GEAR HOUSING	1	30-1137
8	SHAFT SEAL		
	150 PSI (included in M365 seal kit)	1	30-1210
	500 PSI	1	30-1156
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	30-1334
14	WASHER	4	30-1093
	GEAR SET OPTION A:		
15	2-1/2" GEAR SET	1	30-1170
	GEAR SET OPTION B:		
16	RETAINING RING	1	30-1019
17	WASHER	1	30-1020
18	2-1/2" GEAR SET	1	30-1136
19	CONTINENTAL SHAFT, SPLINED	1	30-1144
20	PLUG	1	30-1096
*	SEAL APPLICATOR TOOL (not shown)	Avail	30-1048

DECK ASSEMBLIES

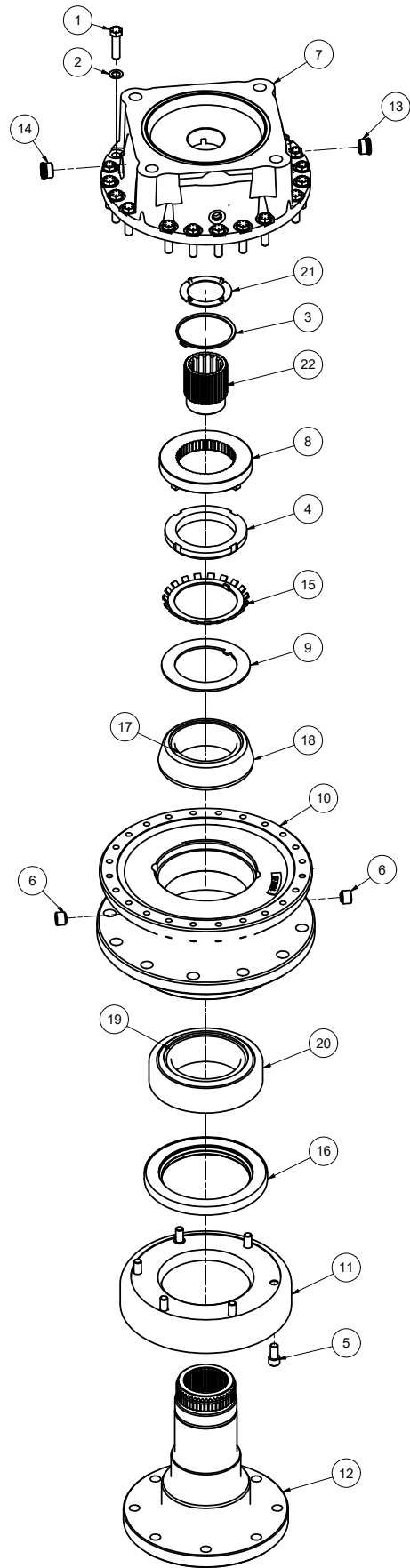
SPINDLE ASSEMBLY - 35-0093

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	PIPE PLUG (TO COVER) (MAGNETIC)	1	21-1609
7	PIPE PLUG (TO COVER) (NON-MAGNETIC)	1	21-1610
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 BASE (STANDARD)	1	35-0094
	D BASE (OPTIONAL)	1	35-0095
	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		



DECK ASSEMBLIES

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	D3 SPINDLE CAP,D BASE	1	35-0095		
8	KEEPER PLATE, D3 SPINDLE	1	35-0098		
9	BOTTOM THRUST WASHER, D3 SPINDLE	1	35-0099		
10	HUB	1	35-0100		
11	GUARD	1	35-0102		
12	OUTPUT SHAFT, D3 SPINDLE	1	35-0103		
13	D3 SPINDLE SAE C TOP PORT PLUGS	1	35-0200		
14	PORT PLUG-.75 -16 UNF-2A	1	35-0202		
	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			

NOTE: THE ABOVE SPECIFIED TORQUE VALUES **MUST** BE FOLLOWED.

DECK ASSEMBLIES

VALVE ASSEMBLY - 39-0123



APPENDIX

S.A.E. TORQUE SPECIFICATIONS



Torque-Tension Relationship for A307A, Grade 5, 8 & 9 Bolts

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 (Lbs.)	Tightening Torque			Clamp Load (Lbs.)	Tightening Torque			Clamp Load (Lbs.)	Tightening Torque			Clamp Load (Lbs.)	Tightening Torque														
				K = 0.15	K = 0.17	K = 0.20		K = 0.15	K = 0.17	K = 0.20		K = 0.15	K = 0.17	K = 0.20		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	168 in-lbs	168 in-lbs	168 in-lbs	168 in-lbs	168 in-lbs	168 in-lbs	168 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	346	346	346	346	346	346	346	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	51 ft-lbs	51 ft-lbs	51 ft-lbs	51 ft-lbs	51 ft-lbs	51 ft-lbs	51 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	82	82	82	82	82	82	82	82				
1/2	13	0.1419	3831	24	27	32	9046	57	64	75	12771	80	90	106	14969	94	106	125	125	125	125	125	125	125	125	125				
9/16	12	0.1819	4912	35	39	46	11599	82	92	109	16375	115	130	154	19193	135	153	180	180	180	180	180	180	180	180	180				
5/8	11	0.2260	6102	48	54	64	14408	113	128	150	20340	159	180	212	23840	186	211	248	248	248	248	248	248	248	248	248				
3/4	10	0.3345	9030	85	96	113	21322	200	227	267	30101	282	320	376	35281	331	375	441	441	441	441	441	441	441	441	441				
7/8	9	0.4617	12467	136	155	182	29436	322	365	429	41556	455	515	606	48707	533	604	710	710	710	710	710	710	710	710	710				
1	8	0.6057	16355	204	232	273	38616	483	547	644	54517	681	772	909	63899	799	905	1065	1065	1065	1065	1065	1065	1065	1065	1065				
1 1/4	7	0.9691	26166	409	463	545	53786	840	952	1121	87220	1363	1545	1817	102229	1597	1810	2130	2130	2130	2130	2130	2130	2130	2130	2130				
1 1/2	6	1.4053	37942	711	806	949	77991	1462	1657	1950	126473	2371	2688	3162	148237	2779	3150	3706	3706	3706	3706	3706	3706	3706	3706	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	192 in-lbs	192 in-lbs	192 in-lbs	192 in-lbs	192 in-lbs	192 in-lbs	192 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	383	383	383	383	383	383	383	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	58 ft-lbs	58 ft-lbs	58 ft-lbs	58 ft-lbs	58 ft-lbs	58 ft-lbs	58 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	91	91	91	91	91	91	91	91				
1/2	20	0.1600	4319	27	31	36	10197	64	72	85	14396	90	102	120	16873	105	120	141	141	141	141	141	141	141	141	141				
9/16	18	0.2030	5480	39	44	51	12940	91	103	121	18268	128	146	171	21412	151	171	201	201	201	201	201	201	201	201	201				
5/8	18	0.2560	6911	54	61	72	16317	127	144	170	23036	180	204	240	27000	211	239	281	281	281	281	281	281	281	281	281				
3/4	16	0.3730	10070	94	107	126	23776	223	253	297	33566	315	357	420	39343	369	418	492	492	492	492	492	492	492	492	492				
7/8	14	0.5095	13756	150	171	201	32479	355	403	474	45853	502	568	669	53743	588	666	784	784	784	784	784	784	784	784	784				
1	14	0.6799	18357	229	260	306	43343	542	614	722	61190	765	867	1020	71720	896	1016	1195	1195	1195	1195	1195	1195	1195	1195	1195				
1 1/4	12	1.0729	28970	453	513	604	59548	930	1055	1241	96565	1509	1710	2012	113182	1768	2004	2358	2358	2358	2358	2358	2358	2358	2358	2358				
1 1/2	12	1.5810	42688	800	907	1067	87747	1645	1865	2194	142292	2668	3024	3557	166778	3127	3544	4169	4169	4169	4169	4169	4169	4169	4169	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

Caution: All material included in this chart is advisory only, and its use by anyone is voluntary. In developing this information, Fastenal has made a determined effort to present its contents accurately.

Extreme caution should be used when using a formula for torque/tension relationships. Torque is only an indirect indication of tension. Under/over tightening of fasteners can result in costly equipment failure or personal injury.



METRIC TORQUE SPECIFICATIONS



Torque-Tension Relationship for Metric Fasteners

Nominal Dia. (mm)	Pitch	4.6 Class 4.6				8.8 Class 8.8				10.9 Class 10.9				12.9 Class 12.9			
		Clamp Load (lbs)	Tightening Torque			Clamp Load (lbs)	Tightening Torque			Clamp Load (lbs)	Tightening Torque			Clamp Load (lbs)	Tightening Torque		
			Lubricated (ft-lbs)	Zinc Plated (ft-lbs)	Plain&Dry (ft-lbs)		Lubricated (ft-lbs)	Zinc Plated (ft-lbs)	Plain&Dry (ft-lbs)		Lubricated (ft-lbs)	Zinc Plated (ft-lbs)	Plain&Dry (ft-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

Caution: All material included in this chart is advisory only, and its use by anyone is voluntary. In developing this information, Fastenal has made a determined effort to present its contents accurately. Extreme caution should be used when using a formula for torque/tension relationships. Torque is only an indirect indication of tension. Under/over tightening of fasteners can result in costly equipment failure or personal injury.



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