



POWER GRIP

DISC CLUTCHES AND BRAKES

INSTALLATION AND MAINTENANCE INSTRUCTIONS

FOR 8" THRU 60"

WPT Power Corporation
1600 Fisher Road - Wichita Falls, TX 76305
P.O. Box 8148 - Wichita Falls, TX 76307
Ph. 940-761-1971 Fax 940-761-1989
www.WPTpower.com



INSTALLATION & MAINTENANCE INSTRUCTIONS

I. INSTALLATION FOR SHAFT-TO-SHAFT MOUNTING

1. Slide hub of the clutch on the shaft.
2. It is preferable that the hub of the clutch be axially restrained. This may be achieved by using a stepped shaft and an end plate, a taper key or a set screw fitted in a tapped hole in the hub.
3. If the set screw is used, access to this is obtained by following step 4 thru step 6 of Part I.
4. Remove capscrews and slide airtube holding plate, airtube and pressure plate al
5. Tighten set screw.
6. Re-assemble pressure plate, airtube and airtube holding plate on to clutch and torque capscrews. (See torque values in Table 2 on page 6.) When replacing airtube holding plate ensure that release springs are resting correctly in their counterbores.
7. Slide driving adapter on to shaft with driving ring loosely attached (if quick change ring is used be sure that this is fixed to driving adapter before the adapter is mounted on shaft).
8. Maneuver shafts into their correct relative position ensuring that the teeth of the friction discs are registered in the teeth of the driving ring.
9. Tighten capscrews. (See torque values in Table 2 on page 6.)
10. Connect air hoses between airtube and shaft.
11. Fit roto-coupling into shaft and connect to air supply by means of a flexible hose. To check supply pressure, place pressure gauge in air line next to roto-coupling.
12. Although clutches are correctly set before shipping from our factory, they should be checked for proper clearance before placing into operation - (see operating clearances in Table 1 on page 6.) Clearance may be checked by applying and releasing air to the clutch and measuring the total axial movement of the pressure plate. If clearance is incorrect follow Part I, step 4, add or remove shim (shims can be split into halves), then follow Part I, step 6.
13. Check parallel and angular misalignment using a dial test indicator (clock gauge). See WIM-OC-004 for alignment instructions.

II. INSTALLATION FOR MID-SHAFT MOUNTING

1. With pulley in correct position on the shaft, mount driving ring on to pulley (or equivalent).
2. Slide main body of clutch into correct position on the shaft, ensuring that the teeth of the friction discs are registered in the teeth of the driving ring.
3. Carry out steps 2 thru 6 and 10 thru 13 of Part I.

III. LUBRICATION

1. CLUTCH: No lubrication is required.

2. **ROTO-COUPLING (12):** Normally no lubrication is required. Rotating air unions which are equipped with grease fittings or oil cups require periodic lubrication, and in this instance any good bearing oil (depending on type of nipple, grease) can be used, but care should be taken not to over lubricate.

IV. AIR SUPPLY CONTROLS

1. Use flexible hose between control valve and clutch.
2. When fast engagement/disengagement is required, use ample diameter pipe and valves and always use bends rather than elbows to ensure good airflow. Keep length of pipe as short as possible to gain filling time.

V. REPLACEMENT OF FRICTION DISCS

1. Friction discs should be replaced when the maximum clearance (see Table 1 on page 6) has been reached.
2. If the driving ring will slide over the airtube holding plate, remove bolts and withdraw driving ring over the airtube holding plate.
3. If the friction discs are in halves, remove from the clutch. Where continuous circle discs have been installed, it will be necessary to break them in two pieces to enable removal. Place new friction discs (in halves) into Clutch. If new friction discs have been supplied as a continuous circle, they should be diametrically split by means of a hacksaw. Before sawing, mark each side of saw cut so that relative mating faces are correctly positioned in clutch.
4. Replace driving ring and torque bolts. Check clearances in Table 1, page 6, and Part 1, step 12, page 2.
5. If a Quick Change ring has been supplied, remove bolts and withdraw quick change ring and torque bolts. Check clearance in Table 1, page 6.
6. If step 2 and step 5 do not apply, withdraw driving ring away from clutch.

VI. REPLACEMENT OF AIRTUBE

1. If **shaft-to-shaft mounting** is used, move either shaft out of position, disconnect air hose from airtube and remove clutch from its shaft.
2. Remove bolts and remove airtube holding plate. Remove old airtube and replace with new airtube.
3. Reassemble as explained in Part I, steps 1 thru 10, page 2. Check clearance (Table 1, page 6 and Part 1, step 12, page 2). Check angular and parallel misalignment. See WIM-OC-004 for alignment instructions.
4. If **pulley (or equivalent) mounting** is used, remove air hose and bolts. Withdraw airtube holding plate together with airtube from the shaft.
5. Install new airtube and reassemble in reverse order. (When replacing airtube holding plate ensure that release springs are resting correctly in their counterbores.) Check clearances (Table 1, page 6 and Part I, step 12, page 2). Check angular and parallel misalignment. See WIM-OC-004 for alignment instructions.
6. Torque capscrews. See Table 2, page 6 for torque values.
7. For clutch sizes 11" and larger, split airtubes are available for emergency replacement only. Use

this type of airtube only when absolutely necessary. The flex life of continuous airtubes is greater than that of split airtubes and approximately 10% of the torque capacity is lost when split airtubes are used. If using split airtube, move airtube holding plate away from clutch and cut old airtube. Fit new airtube (see Part VI, steps 4 thru 6, page 3 & 4).

8. If Quick Change ring and demountable backplate are supplied, the airtube can be replaced without moving either shaft.
9. Remove bolts and slide driving ring over driving adapter.
10. Remove bolts and withdraw backplate between the shafts.
11. Disconnect air hose and withdraw friction discs, center plates, pressure plate, and airtube between the shafts. Renew airtube and reassemble in reverse order.
12. Check that release springs are correctly seated in their counterbores. Tighten all bolts (see torque values in Table 2, page 6). Check clearance (see Table 1, page 6 and Part I, step 12, page 2).

RECOMMENDED SPARES

VII.

Recommended spares should be held by customer to greatly reduce costly “down time”, with the exception of the airtubes, which have a limited shelf life. The airtubes may deteriorate faster on the shelf than in service. These are normally stock items at the factory or local distributor and can be shipped from stock.

Due to the many variations obtainable in a basic type and size of clutch, spare parts lists are issued against specific serial numbers. Anytime you require information about your unit or place an order for parts from the factory or your distributor, please furnish the serial number of the unit which is located on the face of the airtube holding plate. For general guidance, the normal recommended spares are listed below.

FRICITION DISCS (see #4, page 5)

Discs should be replaced when the maximum clearance, as stated in Table 1, page 6, has been reached. Discs should be kept clean, dry, free from oil or grease and stored flat to prevent warping.

RELEASE SPRINGS (see #11, page 5)

It is strongly recommended that release springs are renewed every time the friction discs are replaced.

AIRTUBE (see #8 page 5)

Failures may occasionally occur if the airtube becomes excessively hot, over-expanded or saturated by lubrication oil. Over-expansion is usually due to excessively worn friction linings. Store airtubes flat in a cool dry place.

QUICK RELEASE VALVES (see #16, page 5)

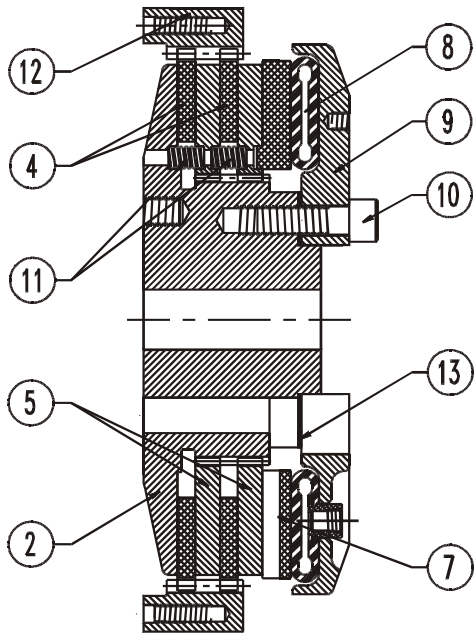
If the quick release valves are fitted, they should be dismantled and cleaned about every 6 months.

To dismantle: Hold valve body with spanner and disconnect air hose. Unscrew valve from airtube. Place body of valve in a vise and remove end cap. **DO NOT** attempt to remove the end cap while valve is fitted to airtube as valve may break at thread neck. Keep complete replacement unit in stock.

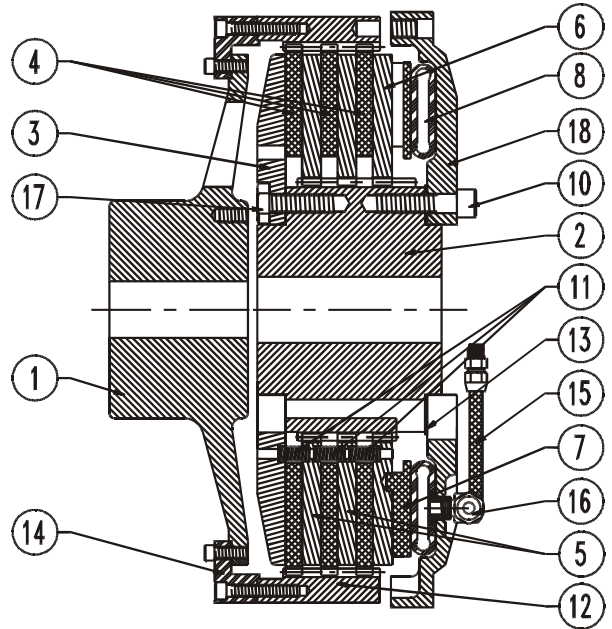
ROTO-COUPLING

Roto-couplings are sometimes damaged by an external blow or can wear out prematurely if restrained by non-flexible hose connections. It is recommended that a replacement unit be kept in stock.

POWER GRIP CLUTCH



POWER GRIP CLUTCH WITH QUICK CHANGE ADAPTER



- | | | | |
|----------------------|-----------------------|-----------------------|-------------------------|
| 1. DRIVING ADAPTER | 6. FLOATING PLATE | 11. RELEASE SPRING | 16. QUICK EXHAUST VALVE |
| 2. HUB/DMBL HUB & BP | 7. PRESSURE PLATE | 12. DRIVING RING | 17. HEX HEAD CAPSCREW |
| 3. BACKPLATE | 8. AIRTUBE | 13. SHIM | 18. A.T. HOLDING PLATE |
| 4. FRICTION DISC | 9. A.T. HOLDING PLATE | 14. QUICK CHANGE RING | POSITIVE LOCK |
| 5. CENTER PLATE | 10. CAPSCREW | 15. AIRHOSE | |

TABLE 1: OPERATING CLEARANCES FOR POWER GRIP CLUTCHES

CLUTCH SIZE: INCHES	MINIMUM – MAXIMUM CLEARANCES						TOTAL MAXIMUM CLEARANCE ALLOWED (INDEPENDENT OF QUANTITY OF DISC)	
	1 DISC UNITS		2 DISC UNITS		3 DISC UNITS		DIMENSION:	DIMENSION:
	DIM: IN	DIM: mm	DIM: IN	DIM: mm	DIM: IN	DIM: mm	INCH	MILLIMETER
8,11,14,14H,16	1/16 - 1/8	1.59 - 3.18	3/32 - 5/32	2.38 - 3.97	1/8 - 5/32	3.18 - 3.97	7/16	11.11
18,18H,21	1/16 - 1/8	1.59 - 3.18	3/32 - 5/32	2.38 - 3.97	1/8 - 3/16	3.18 - 4.76	7/16	11.11
24,24H,27	3/32 - 5/32	2.38 - 3.97	1/8 - 3/16	3.18 - 4.76	5/32 - 7/32	3.97 - 5.56	1/2	12.70
30,30H,36	3/32 - 5/32	2.38 - 3.97	1/8 - 3/16	3.18 - 4.76	3/16 - 1/4	4.76 - 6.35	1/2	12.70
42,48	1/8 - 3/16	3.18 - 4.76	5/32 - 7/32	3.97 - 5.56	3/16 - 1/4	4.76 - 6.35	5/8	15.88
60	1/8 - 1/4	3.18 - 6.35	3/16 - 5/16	4.76 - 7.94	1/4 - 3/8	6.35 - 9.53	3/4	19.05

TABLE 2: TORQUE VALUES FOR BOLTS

TORQUE VALUES FOR SOCKET HEAD AND HEX HEAD CAPSCREWS						
SOCKET HEAD CAP SCREWS						
BOLT SIZE INCHES	As Received			Lubricated**		
	lbf-ft	lbf-in	N-m	lbf-ft	lbf-in	N-m
1/4	13	150	17	10	120	13
5/16	23	305	34	18	244	27
3/8	45	545	62	36	436	49
7/16	70	840	95	56	672	76
1/2	108	1300	147	86	1040	117
9/16	155	1860	210	124	1488	168
5/8	211	2530	286	168	2024	228
3/4	367	4400	497	293	3520	397
7/8	583	7000	791	466	5600	632
1	867	10400	1175	693	8320	940
1 1/8	1242	14900	1684	993	11920	1347
1 1/4	1750	21000	2374	1400	16800	1899
1 3/8	2317	27800	3142	1853	22240	2513
1 1/2	3042	36500	4125	2433	29200	3300
1 3/4	4950	59400	6714	3960	47520	5371
2	7492	89900	10161	5993	71920	8128
HEX HEAD CAP SCREWS - Grade 8						
BOLT SIZE INCHES	As Received			Lubricated**		
	lbf-ft	lbf-in	N-m	lbf-ft	lbf-in	N-m
1/4	8	100	11	6	80	9
5/16	17	200	23	13	160	18
3/8	30	360	41	24	288	32
7/16	48	570	64	38	456	51
1/2	83	990	112	66	792	89
9/16	107	1285	145	85	1028	116
5/8	143	1714	194	114	1371	155
3/4	256	3070	347	204	2456	277
7/8	417	5000	565	333	4000	452
1	625	7500	848	500	6000	678
HEX HEAD CAP SCREWS - Grade 5						
BOLT SIZE INCHES	As Received			Lubricated**		
	lbf-ft	lbf-in	N-m	lbf-ft	lbf-in	N-m
1/4	6	71	8	5	56	6
5/16	12	142	16	9	113	12
3/8	22	260	29	17	208	23
7/16	34	410	46	27	328	36
1/2	53	636	72	42	508	57
9/16	74	890	101	59	712	80
5/8	104	1250	141	83	1000	112
3/4	183	2200	249	146	1760	199
7/8	298	3570	403	238	2856	322
1	440	5280	597	352	4224	477
1 1/8	553	6640	750	442	5312	600
1 1/4	775	9300	1051	620	7440	840
1 3/8	1012	12140	1372	809	9712	1097
1 1/2	1350	16200	1831	1080	12960	1464

** NOTE: For Loctite use lubricated values