

INDUSTRIAL CLUTCH PARTS
Telephone: 01663 734627, Web: www.icpltd.co.uk

POWER GRIP

DISC CLUTCHES AND BRAKES

**INSTALLATION AND
MAINTENANCE
INSTRUCTIONS**

FOR 8" THRU 60"

WPT 
POWER TRANSMISSION
C O R P O R A T I O N



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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 along the shaft.
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.

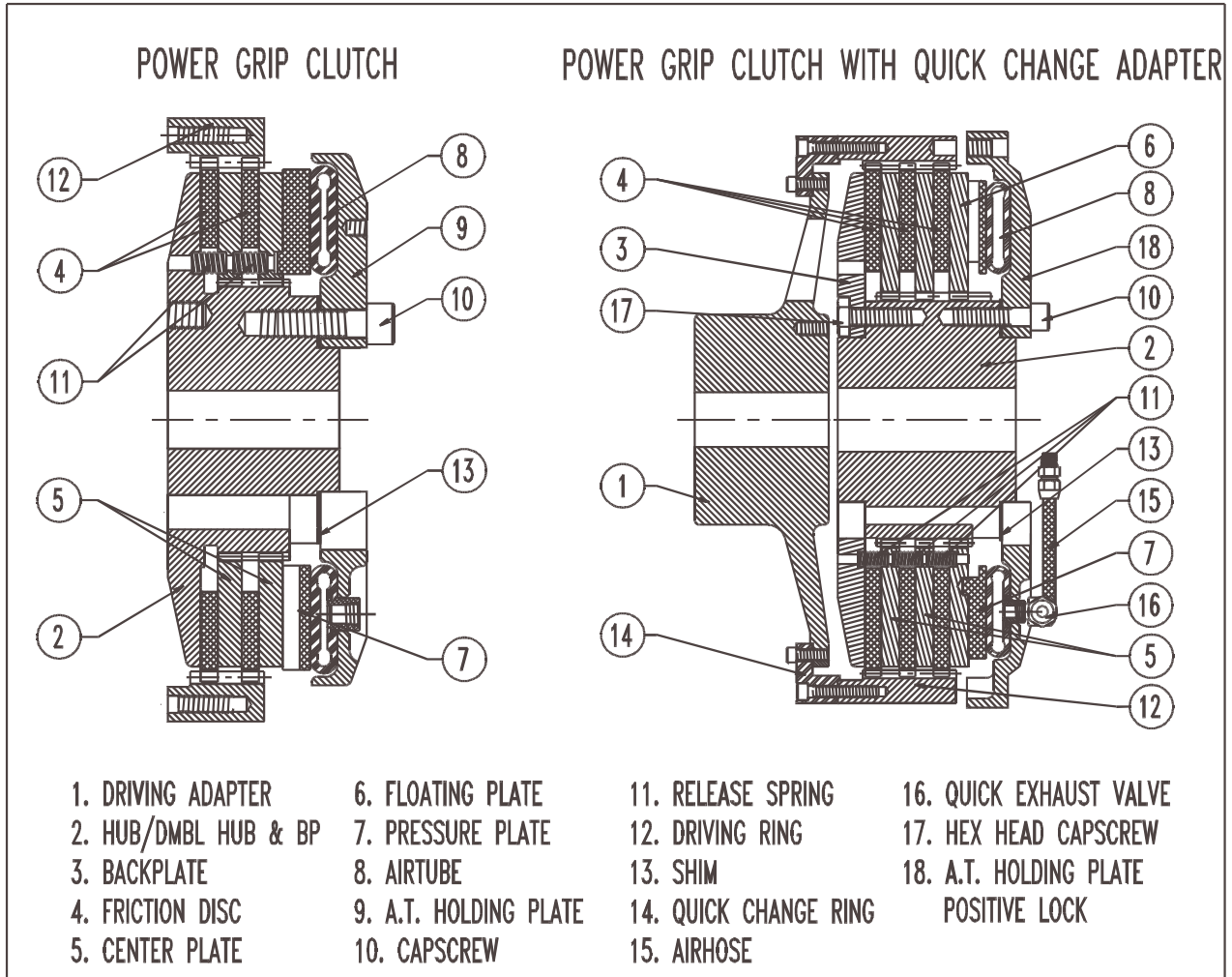


TABLE 1: OPERATING CLEARANCES FOR POWER GRIP CLUTCHES

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,	1/16 - 3/32	1.59 - 2.35	3/32 - 1/8	2.38 - 3.18	3/32 - 1/8	2.38 - 3.18	5/16	7.93
11,14,14H 16,18	1/16 - 3/32	1.59 - 2.35	3/32 - 1/8	2.38 - 3.18	3/32 - 1/8	2.38 - 3.18	7/16	11.11
18H	1/16 - 3/32	1.59 - 2.35	3/32 - 1/8	2.38 - 3.18	1/8 - 3/16	3.18 - 4.76	7/16	11.11
21,24,24H,27	3/32 - 1/8	2.38 - 3.18	1/8 - 5/32	3.18 - 3.97	5/32 - 3/16	3.97 - 4.76	1/2	12.70
30,30H,36,	3/32 - 1/8	2.38 - 3.18	1/8 - 5/32	3.18 - 3.97	3/16 - 1/4	4.76 - 6.35	1/2	12.70
42,48	3/32 - 1/8	2.38 - 3.18	1/8 - 5/32	3.18 - 3.97	3/16 - 1/4	4.76 - 6.35	5/8	15.88
60	1/8 - 3/16	3.18 - 4.76	3/16 - 1/4	4.76 - 6.35	1/4 - 5/16	6.35 - 7.94	3/4	19.05

TABLE 2: TORQUE VALUES FOR SOCKET HEAD AND HEX HEAD CAPSCREWS

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BOLT SIZE IN INCHES	SOCKET HEAD CAP SCREWS			HEX HEAD CAP SCREWS - GR 8			HEX HEAD CAP SCREWS - GR 5		
	LB - FT	LB - IN	Nm	LB - FT	LB - IN	Nm	LB - FT	LB - IN	Nm
1/4	13	150	17	8	100	11	6	71	8
5/16	23	305	34	17	200	23	12	142	16
3/8	45	545	62	30	360	41	22	260	29
7/16	70	840	95	48	570	64	34	410	46
1/2	108	1300	147	83	990	112	53	636	72
9/16	155	1860	210	107	1285	145	74	890	101
5/8	211	2530	286	143	1714	194	104	1250	141
3/4	367	4400	497	256	3070	347	183	2200	249
7/8	583	7000	791	417	5000	565	298	3570	403
1	867	10400	1175	625	7500	848	440	5280	597
1 - 1/8	1242	14900	1684				553	6640	750
1 - 1/4	1750	21000	2374				775	9300	1051
1 - 3/8	2317	27800	3142				1012	12140	1372
1 - 1/2	3042	36500	4125				1350	16200	1831
1 - 3/4	4950	59400	6714						
2	7492	89900	10161						