

# LOW INERTIA SPRING SET – AIR RELEASE BRAKES

## INSTALLATION AND MAINTENANCE INSTRUCTIONS

FOR 8” THRU 60”



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## **INSTALLATION & MAINTENANCE INSTRUCTIONS**

### **I. INSTALLATION**

1. Slide hub (3) into correct position on shaft.
2. It is preferable that the hub (3) of the brake 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). This step is easily achieved by applying air to the brake so that the center plate (2) moves freely.
3. **If brake is to be mounted as an assembled unit**, slide the unit over the hub (3) ensuring that the teeth on the center plate (2) are properly engaged in the teeth of the hub (3).
4. Insert mounting bolts in ring (1) and tighten. (See Table 2, page 5 for torque values.) Connect air supply to brake using a flexible hose.
5. Although brakes are correctly set before leaving our factory, the clearance should be checked before being put into operation. (See limits in Table 1, page 5.)
6. Clearance can be checked by applying and releasing air to the brake and measuring the total axial movement of the airtube holding plate (8).
7. If clearance is incorrect, the removal or addition of shims (5) is required.
8. To modify shim thickness, unscrew all capscrews (14) by 2-3 turns only, then completely remove half of the capscrews so that half of the shim segments (5) may be removed. Add or remove shims, and replace capscrews. Repeat the procedure for the other half of shims (5). Tighten capscrews. (See Table 2, page 5 for torque values.)
9. **If the clutch/brake is to be mounted disassembled follow Part I, steps 1, 2, and Part IV.**
10. Slide ring (1) over hub (3), insert mounting bolts through ring (1) into mating surface and tighten bolts. (See Table 2, page 5 for torque values.)
11. Follow steps in Part IV.

### **II. LUBRICATION**

1. CLUTCH/BRAKE: No lubrication is required.

### **III. AIR SUPPLY CONTROLS**

1. Use flexible hose between control valve and brake.
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.

### **IV. REPLACEMENT OF FRICTION DISCS (4)**

1. Friction discs (4) should be replaced when the maximum clearance (see Table 1, page 5) has been reached and all shims have been removed.

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2. Disconnect air supply to clutch/brake. Remove capscrews (14). Do not remove the inner ring of capscrews (9)
3. Remove as a sub-assembly: airtube holding plate (8), airtube (7), airtube spring plate (6), engaging springs (13), and spring release plate (10).
4. Slide out friction discs (4) and center plates (2).
5. When friction discs (4) are replaced, also replace all engagement springs (13). If springs are fitted between the friction discs, ensure that the springs are correctly located in their counterbores.
6. Re-assemble in reverse order, using new discs. Check clearances and tighten capscrews. (See Table 2, page 5 for torque values.)

**V. REPLACEMENT OF AIRTUBE**

1. To replace airtube (7), disconnect air supply to brake. Disconnect flexible air hose on brake and remove quick release valves(12) / elbows from airtube connections.
2. If release springs (13) are fitted between the friction discs (4), wedge or clamp friction discs so that springs stay in place.
3. Remove capscrews (9). Do not remove the outer ring of capscrews (14). Remove airtube holding plate (8) and airtube (7). Discard old airtube and replace with new airtube. Re-assemble in reverse order. Torque capscrews (9). (See Table 2, page 5 for torque values.) With airtube deflated, check the distance between the airtube holding plate (8) and the airtube spring plate (6) and make sure this distance matches the dimension shown on the assembly drawing for the particular brake. If this distance needs to be adjusted, this can be done by adding or removing shims (11). Make sure that all engagement springs (13) are resting in their respective counterbores. Check operating clearance by following steps 6-8 in Part I

## **RECOMMENDED SPARES**

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 brake, 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 (4)**

Discs should be replaced when the maximum clearance, as stated in Table 1, page 5, has been Reached, after all shims have been removed. Discs should be kept clean, dry, free from oil or grease and stored flat to prevent warping.

**ENGAGEMENT SPRINGS (13)**

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

**AIRTUBE (7)**

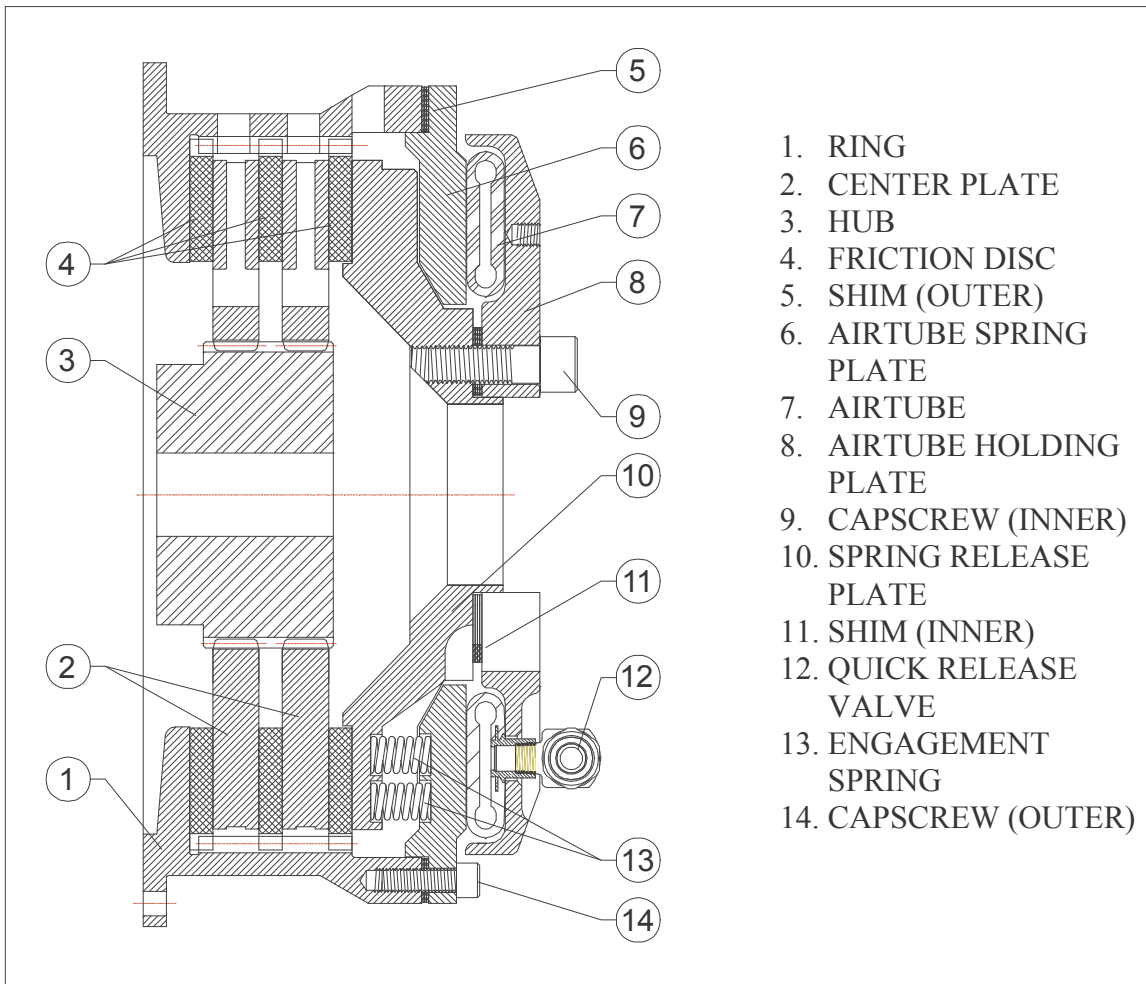
Failures may occasionally occur if the airtube becomes excessively hot, over-expanded or saturated by lubrication oil. Over-expansion is usually due to excessively worn friction linings. Store airtubes flat in a cool dry place.

**QUICK RELEASE VALVES (12)**

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.

**FIGURE 1**



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TABLE 1: OPERATING CLEARANCES FOR SPRING SET BRAKES

CLUTCH SIZE: INCHES	MINIMUM - MAXIMUM CLEARANCES					
	1 DISC UNITS		2 DISC UNITS		3 DISC UNITS	
	DIM: IN	DIM: mm	DIM: IN	DIM: mm	DIM: IN	DIM: mm
8, 11, 14	1/16 - 1/8	1.59 - 3.18	3/32 - 5/32	2.38 - 3.97	1/8 - 3/16	3.18 - 4.76
16, 18, 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
24,24H,27,30,30H,36	3/32 - 5/32	2.38 - 3.97	1/8 - 3/16	3.18 - 4.76	3/16 - 1/4	3.18 - 6.35
42,48	1/8 - 3/16	3.18 - 4.76	5/32 - 7/32	3.97 - 5.56	7/32 - 9/32	5.56 - 7.14
60	3/16 - 1/4	4.76 - 6.35	3/16 - 5/16	4.76 - 7.94	5/16 - 7/16	7.94 - 11.11

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

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						