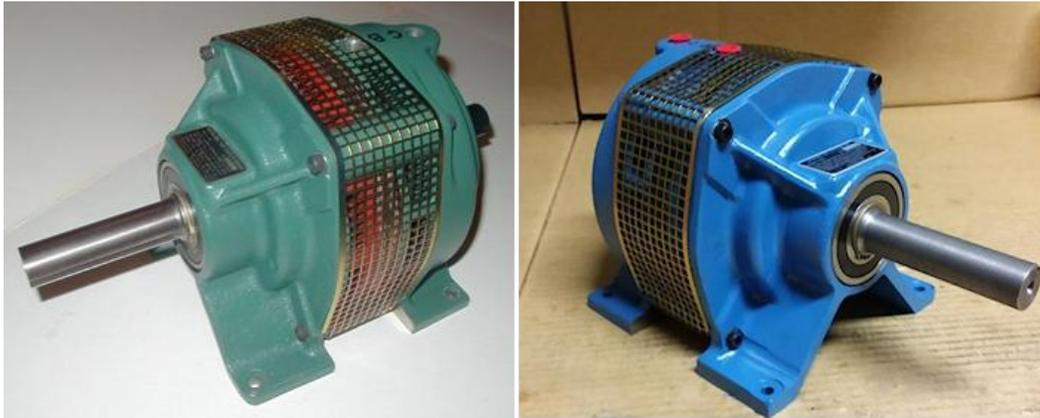


## Inter-Mec Model 1000 Air Clutch/Brake



### Specifications:

Unit is approximately 7 inches square, plus shaft extensions. The clutch and brake torques are approximately 1,000 lb. in. at 100 psi. The torque is proportional to input air pressure. There may be some variation in the torque with wear, temperature, moisture, etc. The clutch/brake is cooled by an internal fan using surrounding air. As a result, contact torque may be affected by airborne contaminants.

### Application:

This is an air actuated, air cooled, combination clutch/brake designed for general industrial applications designed to be used with any type of ¼ inch 4-way air valve. Frequent starts and stops which may cause overheating are not recommended.

### Operation:

A double acting pneumatic piston drives the single clutch/brake disk against an air cooled driving plate for clutching or against an air cooled braking surface for braking. All of the friction surfaces are air cooled by air drawn through the unit by an internal fan.

### Features:

1. Response is rapid.
2. Load acceleration and deceleration are controlled by air pressure. They may be independently controlled if desired.
3. Positive brake disengagement when clutching and vice versa.
4. Forced air cooling; air is drawn around the clutch and brake friction surfaces to dissipate heat and to minimize heat transfer to bearings.
5. Neither rotating unions, springs, nor diaphragms are used.
6. There are no adjustments. Clutch and brake forces don't change with wear.
7. Friction linings are visible so that possible failure can be anticipated.

### Inter-Mec Systems Manufacturing, Inc.

Mailing Address: PO Box 28, Fredonia, NY 14063

Shipping Address: 33 Curtis Place, Fredonia, NY 14063

Phone: (716) 785-6128 \* Fax: (716) 785-6126

Email: [information@inter-mec.com](mailto:information@inter-mec.com)

**Safety Requirements:**

1. Keep the fan guard in place during use.
2. Mount the unit out of reach, or install guards over rotating assemblies.

**Application Suggestions:**

1. The lowest required air pressure will give the longest thrust bearing life.
2. Rapid starting and stopping for short durations is not recommended.
3. Avoid rigid couplings. Flexible couplings allow for misalignment, expansion and contraction, and may increase bearing life.
4. These units are not designed for continuous slip applications.
5. Do not use the unit in an explosive atmosphere.
6. Avoid mounting the unit where friction surfaces might be contaminated with oil, water, dirt, etc.
7. Mount belts or chains as close to the bearing housing as possible. This will minimize the bearing and shaft stresses and offer the longest length of service for your application.
8. These units do not have the heat dissipating capacity of larger and heavier water or oil cooled clutch/brakes.

**Failure:**

Sooner or later it happens with all mechanical devices. Typical failure modes includes:

1. Wearing out of the friction surfaces
2. O-Ring failure, particularly of the larger dynamic O-Ring which must seal pressure alternately from both sides.
3. As a matter of convenience, the air posts are at the top of these units. Excessive oil or water in your air lines can build up in the units and cause sluggish operation.
4. The buildup of fibrous dirt between the piston and the brake ring can prevent proper clutch action.

**Repair:**

All repair parts are available from Inter-Mec. We can also repair/refurbish the units. Call (716) 785-6128 for details.

**Delivery:**

Our preferred carrier is UPS originating in Fredonia, NY.

**Inter-Mec Systems Manufacturing, Inc.**

Mailing Address: PO Box 28, Fredonia, NY 14063

Shipping Address: 33 Curtis Place, Fredonia, NY 14063

Phone: (716) 785-6128 \* Fax: (716) 785-6126

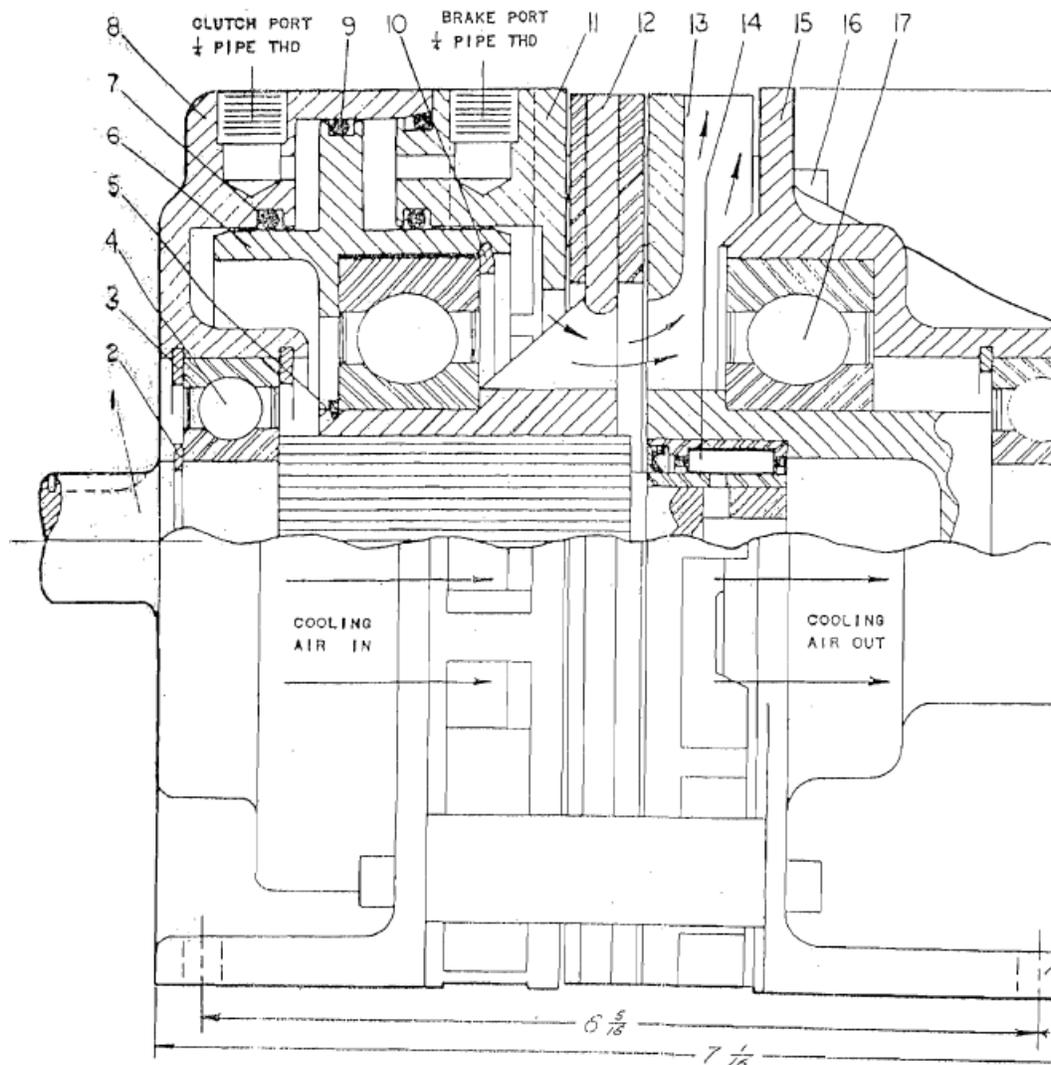
Email: [information@inter-mec.com](mailto:information@inter-mec.com)

## Troubleshooting

Cause of Failure / Symptoms	Remedy
Friction surface wears to point of failure	<p>Order a rebuild kit or have Inter-Mec reconditioning the unit for you. All ball bearings and O-Ring seals should be replaced at this time.</p> <p>Disk failure is easily preventable by monitoring disk wear by eye through the fan guard.</p>
O-Ring failure	Replace O-Rings, install a rebuild kit, or have Inter-Mec reconditioning the unit for you.
Input air contamination	<p>Check to see that the unit is not subject to contamination of the pressurized input air.</p> <p>Since the inputs are conveniently located at the top of the unit, excessive oil or water in your air lines can build up in the units and cause sluggish operation.</p>
Clutch/brake disk contamination	<p>Clean or replace clutch/brake disk, install a rebuild kit, or have Inter-Mec reconditioning the unit for you.</p> <p>Check to see that the unit is not subject to surrounding environmental contamination or liquid contamination of the clutch/brake disk.</p>

To order a repair kit or have Inter-Mec reconditioning the unit for you, visit <http://www.inter-mec.com/order.php> or call (716) 785-6128.

**Inter-Mec Systems Manufacturing, Inc.**  
Mailing Address: PO Box 28, Fredonia, NY 14063  
Shipping Address: 33 Curtis Place, Fredonia, NY 14063  
Phone: (716) 785-6128 \* Fax: (716) 785-6126  
Email: [information@inter-mec.com](mailto:information@inter-mec.com)



### Parts List:

- |                                    |   |
|------------------------------------|---|
| 1. Output Shaft, hardened          | 11. Brake Ring or Center Section          |
| 2. Retainer, 5100-118              | 12. Clutch/Brake Disk Assembly            |
| 3. Retainer, N5000-281             | 13. Driver and Cooling Fan or Input Shaft |
| 4. Ball Bearing, 6306 Sealed       | 14A. Needle Bearing Inner Race, MI 13     |
| 5. Retainer, 5160-193 for C/B Disk | 14B. Needle Bearing, MR 16 S              |
| 6. Piston, Hard Chromed            | 14C. Oil Seal, CR 9859                    |
| 7. O-Ring, 4 3/4 x 5, Buna N       | 15. Input End Housing with Tolerance Ring |
| 8. Housing, Output End             | 16. Cap Screw, .250-28 x .750             |
| 9. O-Ring, 6 1/4 x 6 1/2, Buna N   | 17. Ball Bearing, 6310 Sealed             |
| 10. Retainer, 5000-433 for Piston  | 18. Cover Screen, Zinc Plated (not shown) |

### Inter-Mec Systems Manufacturing, Inc.

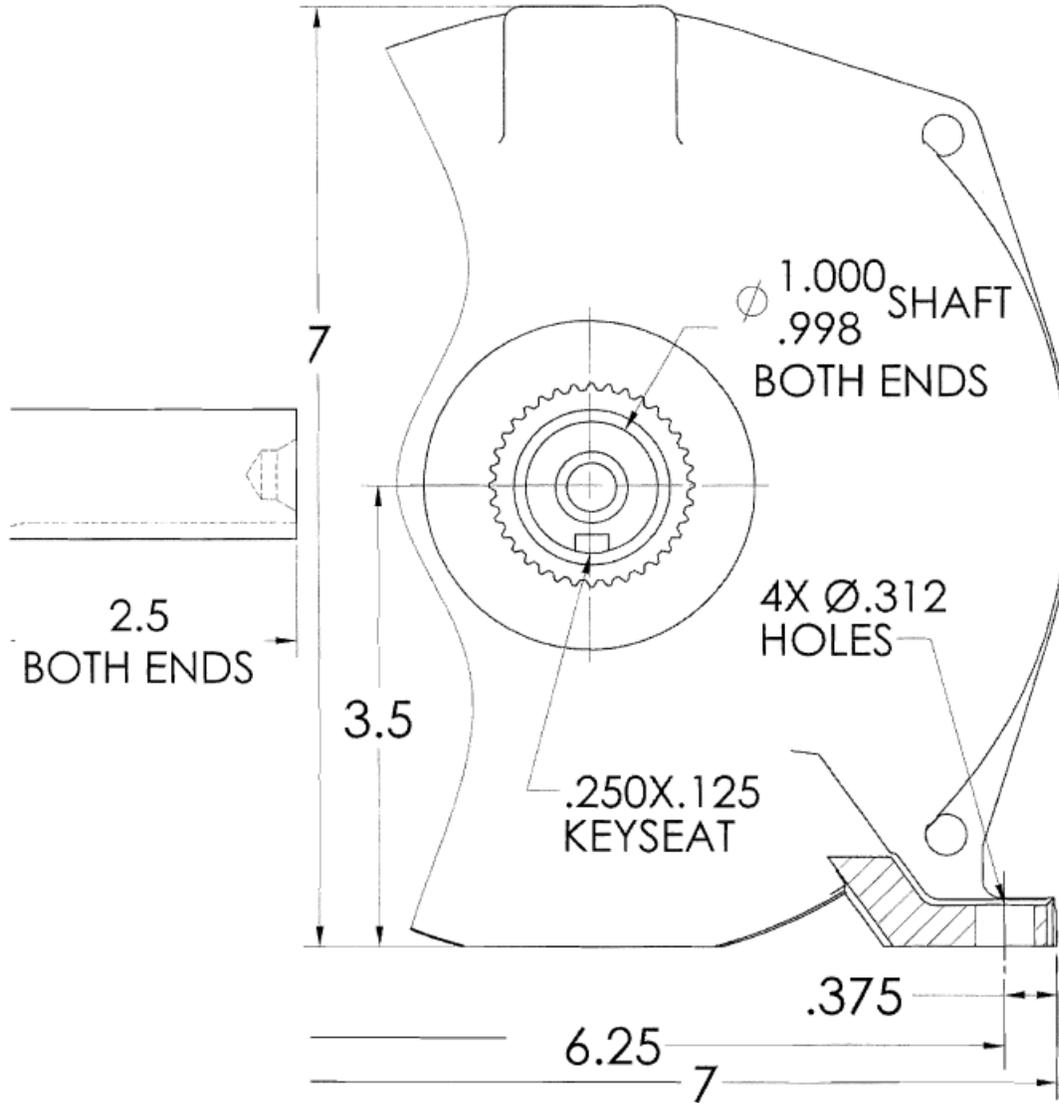
Mailing Address: PO Box 28, Fredonia, NY 14063

Shipping Address: 33 Curtis Place, Fredonia, NY 14063

Phone: (716) 785-6128 \* Fax: (716) 785-6126

Email: [information@inter-mec.com](mailto:information@inter-mec.com)

This drawing is exact size and may be used as a template:



**Inter-Mec Systems Manufacturing, Inc.**  
Mailing Address: PO Box 28, Fredonia, NY 14063  
Shipping Address: 33 Curtis Place, Fredonia, NY 14063  
Phone: (716) 785-6128 \* Fax: (716) 785-6126  
Email: [information@inter-mec.com](mailto:information@inter-mec.com)

## Repair Kit for Inter-Mec Model 1000 Air Clutch Brake

To order visit <http://www.inter-mec.com/order.php> or call (716) 785-6128.

### Contents:

2 #4 Bearings	3 #7 O-Rings (2 required)
2 #17 Bearings	3 #9 O-Rings (2 required)
1 #12 Clutch/Brake Disk with Retainer	1 #14C Oil Seal
1 Tube of Parker O-Ring Lubricant	

### Repair Suggestions:

Disassemble the unit into three sections:

1. Cylinder and output shaft assembly.
2. Input shaft and input housing assembly.
3. Piston/clutch/brake disk assembly and center housing.

Further disassemble the unit as required for cleaning or repair. You may wish to steam clean or wash the individual parts in a detergent solution or solvent, and dry and paint them. If you are pressed for time, wipe each part as clean as possible.

Replace the large ball thrust bearing in the input assembly. Replace the smaller bearing inside the spring tolerance ring. The spring tolerance ring around the smaller ball bearing allows for thermal expansion and contraction during normal operation. The tolerance ring also allows axial loads to be placed on the large thrust bearing rather than the smaller ball bearing. The roller (pilot) bearing inside the input shaft is difficult to pull and replace, experiences minimal load during normal operation, and should last the life of the unit. Pry out the needle bearing seal and press in a new one. Fill the input shaft cavity with Mobiltemp SHC32 synthetic lubricating grease or similar grease to maximize bearing life.

Replace thrust bearing inside the piston. Grease the inside of the piston and the outside of the bearing. This bearing is intentionally a loose fit in the piston. Make sure that the internal retaining ring, item 10, is seated properly in the piston groove so that the bearing can carry its thrust load in either direction. Be sure to grease the external surfaces of the piston and all the O-Ring grooves with O-Lube before installing new O-Rings. Press the O-Rings into place in the greased grooves and remove excess O-Lube to keep it from migrating onto the clutch or braking surfaces. Replace and grease the O-Ring in the Brake Ring, item 11. Check to make sure that the retainer on the clutch brake disk is properly seated in its groove, item 5.

Grease the cylinder where the piston O-Ring, item 9, rides on the cylinder and its O-Ring groove and press a new O-Ring into the groove. Grease the output shaft spline preferably with Dow Corning G-n Metal Assembly Paste or a similar molybdenum disulfide-type grease. Reassemble the unit keeping the clutch and braking surfaces clean and dry. Reinstall the cover screen.

### Inter-Mec Systems Manufacturing, Inc.

Mailing Address: PO Box 28, Fredonia, NY 14063

Shipping Address: 33 Curtis Place, Fredonia, NY 14063

Phone: (716) 785-6128 \* Fax: (716) 785-6126

Email: [information@inter-mec.com](mailto:information@inter-mec.com)