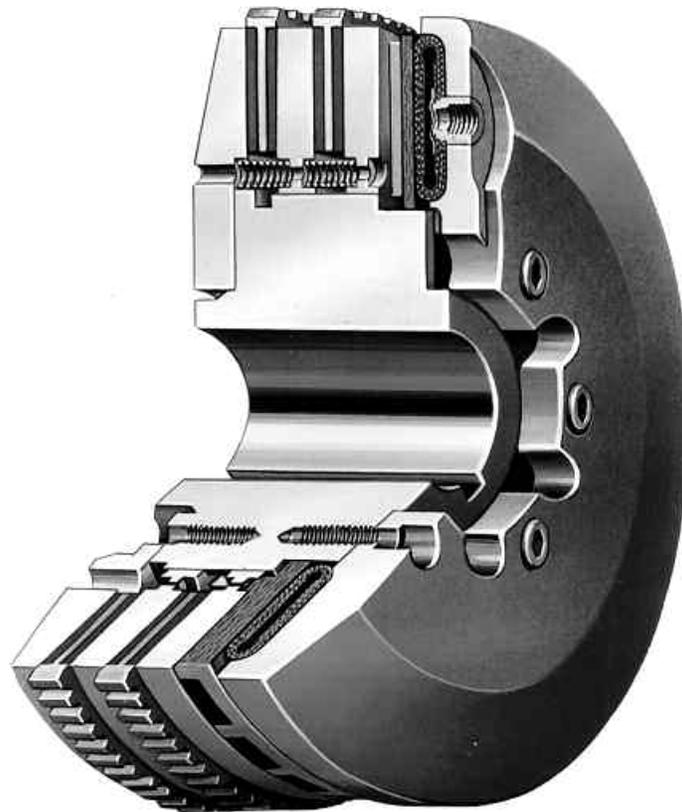


# Wichita Clutch Standard Ventilated Clutch Special Ventilated Clutch

P-286 (WC-58/59)

Service & Installation Instructions



 **Wichita**<sup>®</sup>  
Clutch

An Altra Industrial Motion Company

## Contents

Installation.....	2
W1 Shaft to Shaft Mounting .....	2
W2 Mid-Shaft Mounting .....	3
W3 Lubrication.....	3
W4 Air Supply Controls .....	3
W5 Maintenance and Instructions .....	3
Parts Description .....	4
W6 Recommended Spares.....	5
Clutch Alignment .....	6

**⚠ WARNING** All technical advice, recommendations, and information contained in this manual are intended for use by persons having skill, at their own risk, and the buyer or user of the equipment described herein hereby waives all claims against Warner Electric for results obtained or damages incurred from the use of seller's advice, recommendations or information contained herein. Buyer or user, as the case may be, will indemnify and hold harmless Warner Electric from and against all damages, costs and expenses resulting from the use of the advice, recommendations or information contained in this manual.

## Installation

### W1. Shaft to Shaft Mounting

1. If key (17) is used, place key in shaft and align keyways in shaft and hub. Slide/press hub (5) onto the shaft while in assembled unit.
2. The hub should be axially restrained by:
  - \* A stepped shaft and end plate or
  - \* A tapered key or
  - \* A set screw (18) fitted in the tapped hole provided in the hub
3. If a set screw is used, follow W1.4 to W1.6.
4. Remove capscrews (11), and slide airtube holding plate (ATHP), airtube (13), and pressure plate (9) along shaft until setscrew can be accessed.
5. Tighten set screw.

6. Slide ATHP back to hub, insure release springs (2) are seated correctly in their counterbores, and install capscrews. Torque capscrews to values shown in Table 2.
7. If key (20) is used, place key in shaft and align keyways in shaft and hub. Slide/press driving adapter (16) onto shaft. If a quick change driving ring (19) is used, it should be fastened to the driving adapter with capscrews (15) tightened to the proper torque shown in Table 2 before the adapter is slid/pressed onto shaft.
8. Maneuver shafts into their aligned positions. Slide driving ring over friction discs to ensure driving ring teeth are engaged with friction disc teeth.
9. Fasten driving ring to either driving adapter or quick change ring with capscrews (14) tightened to the proper torque shown in Table 2.
10. Connect air hose(s) (21) between airtube and shaft.
11. Fit roto coupling (22) into end of shaft and connect to air supply with a flexible hose. Check air pressure by installing pressure gauge in air line between roto coupling and air supply.
12. Proper clutch clearance is set at the factory, but clearance should always be checked as part of installation. Proper clearances are shown in Table 1. Clearance is checked by applying, then releasing, air pressure to the clutch and measuring the total axial movement of the pressure plate.
13. If clutch clearance does not fall within the limits shown in Table 1, add or remove shims (10) to achieve proper clearance. To add or remove shims, repeat instruction W1.4 to access shims. Adjust number of shims as required, ensuring that segmented shims are equally stacked around the hub, then repeat instruction W1.6.

14. Check parallel and angular misalignment using a dial indicator as shown in the “Clutch Alignment Instructions” on page 6 of these instructions.

## W2. Mid-Shaft Mounting (No Driving Adapter)

1. With pulley in correct position on the shaft, fasten driving ring (16) to pulley.
2. If key (17) is used, place key in shaft and align keyways in shaft and hub. Slide/press hub with clutch into correct position on shaft, ensuring driving ring teeth are engaged with friction disc teeth.
3. Follow instructions W1.2 through W1.6, then W1.10 through W1.14 .

## W3. Lubrication

### 1. Clutch

Although no lubrication is required, a very light film of molykote (or equivalent graphite grease) may be applied to gear teeth. Be careful not to get any lubricant on friction surfaces.

### 2. Roto-Coupling

Follow lubrication instructions supplied with Roto-coupling. In general, Roto-couplings with oil cups should be lubricated monthly with 4-5 drops of SAE #30 motor oil. Roto-couplings with grease fittings should be lubricated with a quality ball bearing grease. Inject only enough grease to replace dissipated grease. The micro-lapped sealing faces are lubricated by oil in the air system passing through the coupling. These faces should not be allowed to run dry.

Clutch Size Inches	Minimum Clearance			Clearance (Independent of Quantity of Discs) Inch
	One Disc Inch	Two Disc Inch	Three Disc Inch	
8,11	1/16 to 3/32	3/32 to 1/8	3/32 to 1/8	7/16
14,14H,16	1/16 to 3/32	3/32 to 1/8	5/32 to 1/8	1/2
18,18H,21	1/16 to 3/32	3/32 to 1/8	1/8 to 3/16	5/8
24,24H,27	3/32 to 1/8	1/8 to 5/32	5/32 to 3/16	5/8
30,30H,36,36H,42,48	3/32 to 1/8	1/8 to 5/32	3/16 to 1/4	3/4
60	1/8 to 3/16	3/16 to 1/4	1/4 to 5/16	1

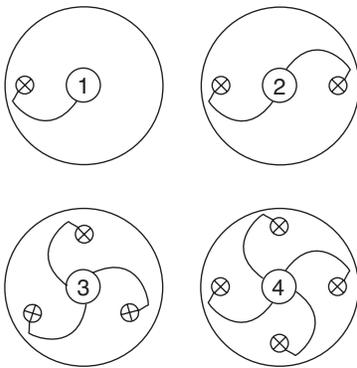
Follow instructions W 1.12 to measure clearance.

Table 1 Operating Guidelines

Dia. (in)		1/4	5/16	3/8	7/16	1/2	5/8	3/4	7/8	1	1-1/4	1-1/2	2
Torque	Capscrew	12	25	45	70	108	210	360	580	860	1750	3000	7400
	Hex Bolt	8	17	31	49	75	147	250	406	600	1200	2100	5100

## W4. Air Supply Controls

1. Use flexible hose between control valve and clutch/roto coupling.
2. When fast engagement/disengagement times are desired, use ample diameter piping and valves to ensure adequate airflow. Always use bends rather than elbows to reduce air flow restrictions. Keep air supply piping lengths to a minimum for reduced engagement/disengagement times.
3. Wichita Quick Release Valves (23) should be installed when minimized release time is required.



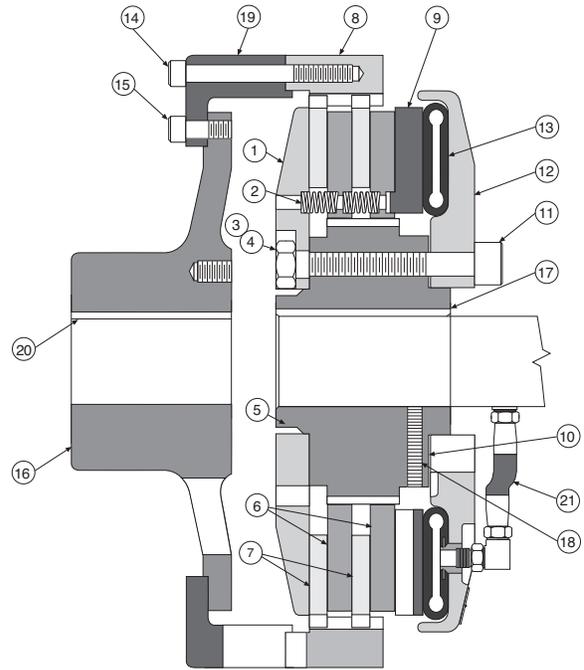
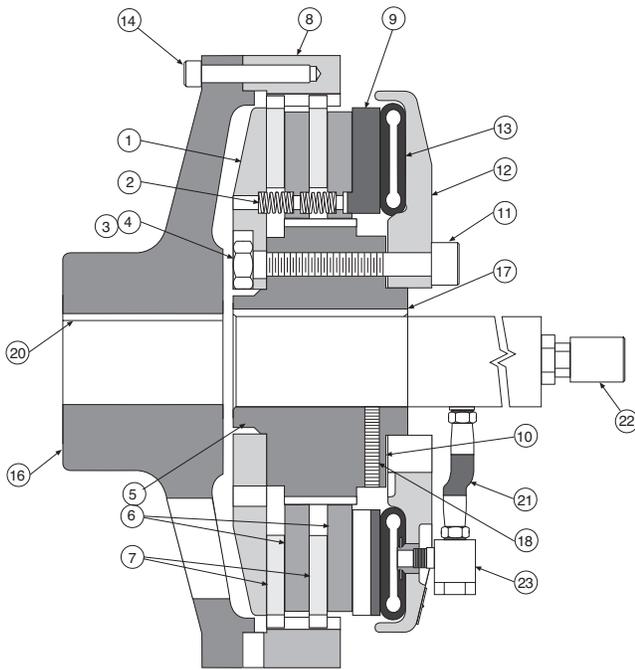
Number of Air Hose Connections: 1, 2, 3 or 4 depending on the application and unit size.

## W5. Maintenance Instructions

**⚠CAUTION** The clutch may be a balanced assembly if it has been specified for high RPM applications. A balanced clutch must ALWAYS be reassembled with all parts in the same orientation as when the clutch was balanced.

1. Replacement of Friction Discs
  - a. Friction discs (7) should be replaced when the maximum clearance shown in Table 1 has been exceeded and no further adjustment is possible with shims (10). Anytime friction discs are replaced, the metal friction surfaces should be inspected for wear. If the backplate (1), or centerplates (6) need resurfacing, a maximum total of .030" may be removed from each surface. This total is measured from each original factory thickness.

- b. If installation permits driving ring (8) to slide over ATHP (12), remove capscrews (14) and slide adapter.
- c. If a quick change ring (19) is installed, remove capscrews (15) and slide quick change ring and driving ring (8) over driving adapter (16).
- d. If W5.1.b and W5.1.c do not apply, slide driving ring (8) and driving adapter (16) away from clutch.
- e. If friction discs (7) are split in halves, remove old split discs and install new split discs. Split friction discs should only be installed in low RPM applications. Proceed to instruction W5.1.g .
- f. Remove hex head bolts (4) and slide backplate (1) away from clutch. Remove friction discs (7) and centerplates (6). Install new discs, new springs (2) and centerplates in reverse order, ensuring that release springs (2) are seated correctly in their counterbores. A rod may be inserted through the backplate, centerplates, and springs to aid assembly. Install bolts (4) using removable thread lock (3) and tighten to proper torque shown in Table 2.
- g. Follow instructions W1.12 and W1.13.
- h. Reinstall driving adapter/rings. Tighten capscrews to the proper torque shown in Table 2.



## Description of Numbers

- |                           |                       |
|---------------------------|-----------------------|
| 1. Backplate              | 13. Airtube           |
| 2. Release Spring         | 14. Capscrew          |
| 3. Thread Lock            | 15. Capscrew          |
| 4. Hex Head Bolt          | 16. Driving Adapter   |
| 5. Hub                    | 17. Key               |
| 6. Center Plate           | 18. Set Screw         |
| 7. Friction Disc          | 19. Quick Change Ring |
| 8. Driving Ring           | 20. Key               |
| 9. Pressure Plate         | 21. Air Hose          |
| 10. Shims                 | 22. Roto-Coupling     |
| 11. Capscrew              | 23. Quick Rease Valve |
| 12. Airtube Holding Plate |                       |

## 2. Replacement of Airtube

a. If shaft to shaft mounting is used, move either shaft out of alignment, disconnect airhose (21) from airtube (13), and remove clutch and hub from shaft. Remove airtube holding plate following instruction W1.4, then replace airtube. Reassemble clutch following W1.6 and install following W1.1 through W1.14.

b. If pulley or equivalent mounting is used, disconnect airhose (21) from airtube (13) and remove capscrews (11). Slide ATHP and old airtube off shaft. Replace airtube

and reassemble in reverse order and follow instructions W1.6 and W1.10.

c. If a quick change ring (19) and separate hub (5) and backplate (1) are on unit, the airtube may be replaced without moving either shaft. Remove capscrews (15) and slide driving rings over driving adapter (16). Disassemble clutch following W5.1f and withdraw parts between shafts. Replace airtube and reassemble in reverse order following W5.1f.

d. For clutch sizes 18" and larger, split airtubes are available for EMERGENCY replacement only. Use this type of airtube for temporary purposes only as use results in reduced torque capacity and reduced airtube life. Split air tubes must NOT be used in high RPM applications. Install the split tube following W1.4 and cut out the old airtube. Install the new airtube in accordance with W1.6. and W1.10 .

## W6. Recommended Spares

### 1. Stocking 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 and can be shipped from stock.

### 2. Parts Lists

Due to the many variations obtainable in a basic type and size of clutch, spare parts lists are issued for specific serial numbers. Any time you require information about your unit or place an order for parts from the factory, please furnish the serial number of the unit, which is located on the face of the airtube holding plate (10). For general guidance, the normal recommended spares are as follows:

#### a. Friction Discs (7)

Discs should be replaced when the maximum clearance, as stated in Table 1, has been reached, and no further adjustment is possible with shims.

Discs should be kept clean, dry, free from oil or grease, and stored flat to prevent warping.

#### b. Release Springs (7)

Release springs are to be renewed every time the friction discs are replaced.

#### c. Airtubes (13)

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

#### d. Quick Release Valves (23)

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 vice and remove end cap.

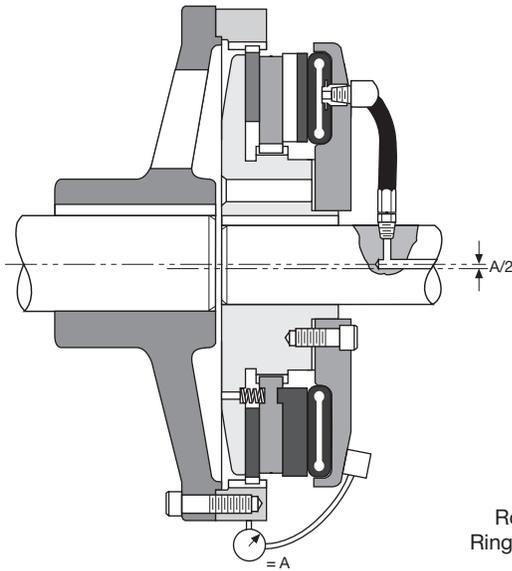
Do not attempt to remove end cap while valve is fitted to airtube as valve may break at thread neck. Keep complete replacement unit in stock.

#### e. Roto Coupling (22)

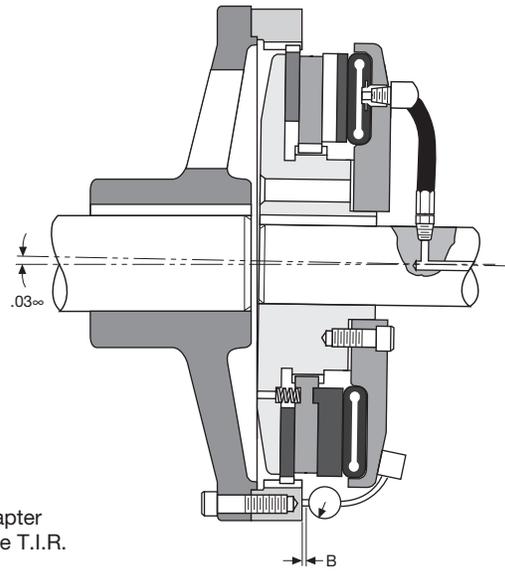
Roto couplings are sometimes damaged by an external blow or can wear prematurely if restrained by non-flexible hose connections. A replacement unit should be kept in stock.

# Clutch Alignment Instructions

Parallel Misalignment



Angular Misalignment



Rotate Driving Adapter Ring 360 to determine T.I.R.

Check to see if both clutch & driving adapter run square and true by indicating to the frame of machine.

If bearing clearance will not position shaft axially, then some method of positioning shaft will be necessary during alignment.

Dial indicator to be located as shown in drawing above and readings should not exceed limitation set in Table 3.

The readings under A and B are maximum deviations advisable for normal clutch running with no excessive wear on friction materials and no additional load on parts or machine bearings.

Consult general arrangement drawing of machine for initial cold offset setting of shafts to compensate for thermal expansion of gear case under running conditions.

Clutch Size	Parallel A = T.I.R.		Angular B = T.I.R.	
	MM	Inch	MM	Inch
6"	0.08	0.003	0.08	0.003
8"	0.10	0.004	0.10	0.004
11"	0.15	0.006	0.15	0.006
14"	0.18	0.007	0.18	0.007
16"	0.20	0.008	0.20	0.008
18"	0.23	0.009	0.23	0.009
21"	0.28	0.011	0.28	0.011
24"	0.30	0.012	0.30	0.012
24"H	0.30	0.012	0.30	0.012
27"	0.36	0.014	0.36	0.014
30"	0.38	0.015	0.38	0.015
30"H	0.38	0.015	0.38	0.015
36"	0.46	0.018	0.46	0.018
42"	0.53	0.021	0.53	0.021
48"	0.61	0.024	0.61	0.024
60"	0.76	0.030	0.76	0.030
72"	0.91	0.036	0.91	0.036
96"	1.14	0.045	1.14	0.045

## Warranty

Wichita Clutch warrants all new products leaving the factory against defects in workmanship and material for a period of two (2) years after shipment.

***Replacement parts are also warranted as follows: standard airtubes\* - 3 years, all other standard replacement parts - 2 years.*** Adjustment under this warranty will be made after verification of defect of the part of product by a factory representative. This warranty does not cover replacement or refurbishment of normal wear items unless such items are deemed by a factory representative to have flawed material or workmanship.

Liability under the warranty shall extend only to the replacement or correction of any defective part or product as determined by Wichita Clutch, and extends only to the initial purchaser and is not transferable or assignable without the prior consent of Wichita Clutch.

This warranty shall not apply to any product that has been repaired or altered without the manufacturer's knowledge and consent. This warranty also does not cover damage or defects resulting from neglect, improper installation, improper maintenance or operation, or accidents.

This warranty is made in lieu of other warranties, expressed or implied, including but not limited to warranties of merchantability or fitness for particular purpose, and there are no other warranties that extend beyond this expressed warranty. Wichita Clutch's obligation under this warranty is limited to repair or replacement of the defective part or product and in no event shall Wichita Clutch be liable for consequential, indirect, or incidental damages of any kind incurred by reason of the manufacture, sale or use of any defective product.

Wichita Clutch reserves the right to discontinue models or to change specifications at any time without notice. No discontinuance or change shall create any liability on the part of Wichita Clutch in respect to its products in the hands of customers or products on order not incorporating such changes even though delivered after any such change.

\* Split airtubes are not intended for permanent installation and therefore are not covered under this warranty agreement.

