

Advanced Technology AT Clutches

P-217-1
819-0372

Installation Instructions



 **Warner**[®]
Electric

An Altra Industrial Motion Company

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⚠ WARNING Failure to follow these instructions may result in product damage, equipment damage, and serious or fatal injury to personnel.

Introduction

The Warner Electric Advanced Technology (AT) clutch you have purchased has been designed to provide long and trouble-free service. It is a rugged and durable unit which is rebuildable with both friction face replacement and complete clutch rebuild kits offered in this service manual. The friction face replacement kit renews the friction surfaces, while the complete clutch rebuild kits includes new bearings, Autogap™ components and hardware in addition to the friction faces.

This service manual includes instructions required for installation, as troubleshooting information, specifications.

For friction material replacement refer to manual 819-0341.

For complete rebuilt refer to manual 819-0324.

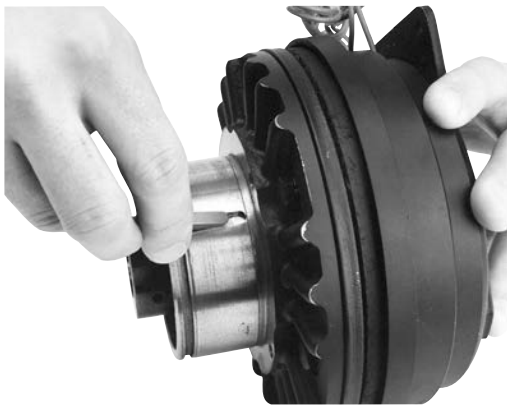
Installation of AT clutches must be carried out in accordance with the procedures specified in the installation manual. All stated or implied manufacturer warranties are voided if this product is not installed in accordance with these instructions.

Clutch Installation

1. Remove your AT Clutch from its shipping carton and inspect it thoroughly to ensure that it has arrived in good condition.

An accessory kit included with your clutch contains a key, retaining ring, and coil wire retainer. In addition, you may have ordered the optional sheave or timing belt pulley and field restraining strap.

Two methods for fastening pulleys and sheaves are offered. For key mounting, follow the instructions in 2. below; for through bolt mounting, go to instruction 3.



2. Key and Snap Ring Mounting

- a. Install the factory ordered sheave or pulley by first inserting the factory furnished key into its keyway in the clutch hub. Position the sheave or pulley so it will fit onto the hub, aligning the keyway with the key. Be sure to keep the tapped pulley removal holes accessible.



Note: For high cycle rate applications with potential pulley misalignment, apply Loctite to the I.D. of the pulley to eliminate the possibility of keyway wear.

- b. Gently tap the sheave or pulley until it seats against the hub shoulder.

Note: Do not force the pulley or sheave onto the hub if it will not go. Check alignment to assure it is going on evenly. Check for burrs or ridges on the shaft and remove any which may be present with a file.

- c. Install the furnished retaining ring with retaining ring pliers. Ensure that the retaining ring is fully seated around its periphery.



CAUTION When installing this or other retaining rings, be sure to hold the ring with one hand so it will not spring away should the pliers lose their grip on the ring. Always wear safety glasses when installing or removing retaining rings.

3. Through Bolt Mounting

Note: This method is suitable for pulleys and sheaves with adequate radial wall thickness to accommodate through holes.

- a. Drill holes through the pulley or sheave to match the tapped holes on the hub shoulder of the clutch. The correct bolt pattern can be found on page 7.
- b. Align the through holes in the sheave or pulley with the tapped holes on the hub shoulder and gently tap until it seats against the shoulder.

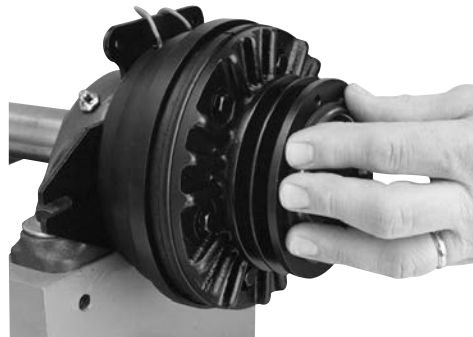
Note: Installing the keyway and snap ring are not necessary if the sheave or pulley is held in place by the through bolt method.

- c. Secure the pulley with capscrews, using lockwashers or Loctite to assure thread retention.
4. If used, install the Warner Electric conduit box or conduit box/CBC-100 control combination in accordance with instructions furnished with the conduit box.
5. The Warner Electric patented Autogap™ automatically adjusts the proper operating gap between the armature and friction face for the life of these components. The proper gap is approximately .050". If the armature and friction face have moved during shipment, reset the Autogap by pushing the friction face against the armature. Release. The Armature will spring back about .050" and the proper gap is set.



6. Place the AT clutch onto its shaft, making sure it is properly positioned over the shaft key. If the clutch is to be mounted vertically, it must be mounted with the armature fins down, or improper operation will result.

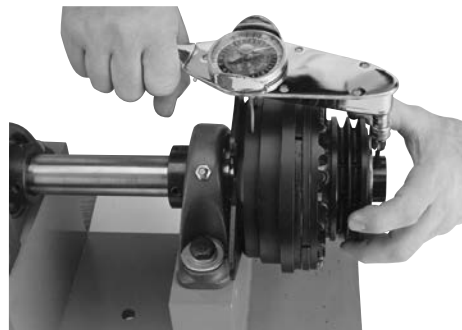
Note: The Warner Electric special furnished key must be used with ATC-25-7/8" bore units.



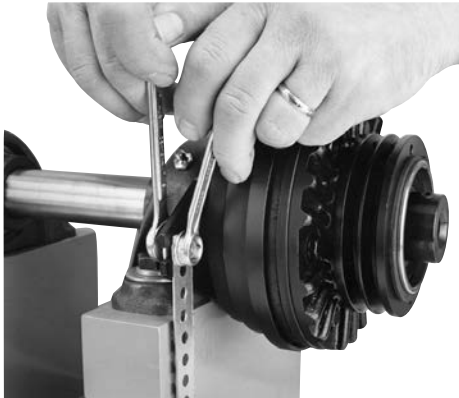
7. Tighten the hub setscrews into the shaft to the appropriate torque for your size unit:

Size	Torque
25	80 in.-lbs.
55	160 in.-lbs.
115	275 in.-lbs.
205	275 in.-lbs.
305	620 in.-lbs.

Assure proper alignment of driving and driven sheave, pulley or sprocket before tightening the set screws.



8. Install the field restraining arm.
Note: The field must retain a degree of movement freedom to compensate for bearing and shaft alignment tolerances.



9. Attach the wires to the DC power source, using wire nuts or other approved connecting devices. Either wire can be connected to the + or - of the voltage source. If a CBC-100 or other Warner Electric control is used as the power source, follow the connection diagram supplied with the control. Assure that the voltage rating of the clutch is the same as the output rating of the power source.



10. Your AT clutch is now ready for its static test. Apply DC voltage to the clutch coil through the clutch control. The armature should pull against the friction material face with an audible "click."
11. Install the drive belt or chain.
12. Run the clutch under its operating load.
13. Your AT clutch may not achieve its full

torque until after a short "break-in" period. To break in the clutch, cycle it on and off under full load at operating speed a minimum of ten times in quick succession.

Your AT clutch is now ready to run.

Note: Depending on application break in period may be longer due to load and rpm, and require more cycles.

AT Clutch Troubleshooting Guide

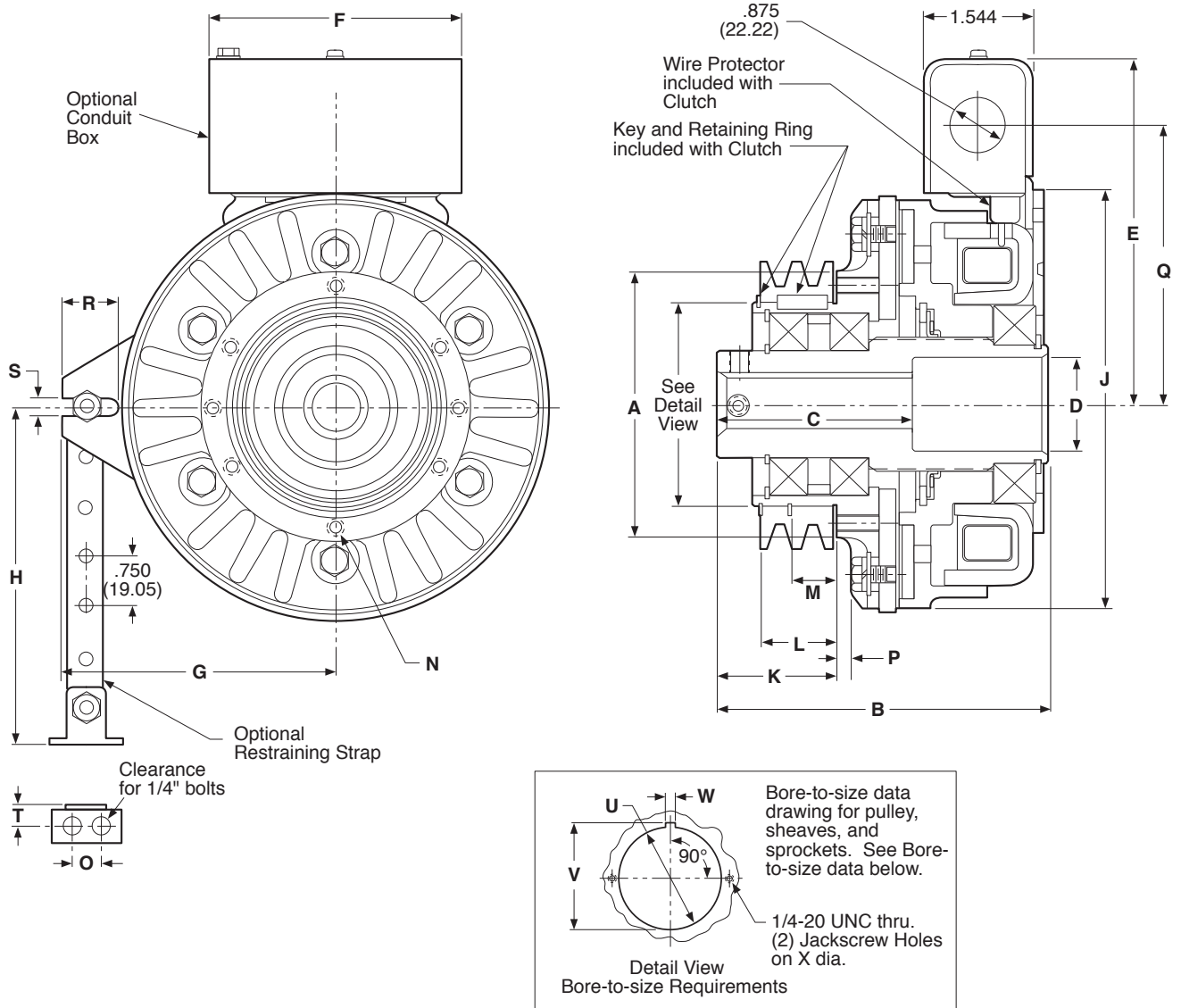
If performance problems are present after carefully following the instructions in this manual, use the following checklist.

Symptom	Check
Problem Clutch Rotor will not move or engage when power is applied to the coil	Possible Cause <ul style="list-style-type: none"> • Coil Resistance Coil may be open. See Chart 1. • Power Supply Assure proper DC voltage is being delivered to the clutch. • Airgap If greater than .050" around entire periphery, reset Autogap. • Autogap Assure that clutch rotor is free to move on hub spline and releases approximately .050" when pressure is removed.
Vibration	<ul style="list-style-type: none"> • Runout Assure that shaft on which the clutch is mounted doesn't have excessive runout. • Shaft Engagement Assure adequate shaft length and diameter engagement in the hub.
Excessive Start or Stop Times	<ul style="list-style-type: none"> • Power Supply Assure proper DC voltage is being delivered to the clutch. • Adequate Burnishing Unit must be run and cycled a few times to achieve full rated torque. • Friction Surfaces Replacement may be required. • Friction Surfaces Installation of replacement friction material or armature segments may be incorrect and not allow full contact.

Clutch/Brake Size	Coil Voltage	Approx. Coil Resistance (Ohms)	
		Coil Voltage	Approx. Coil Resistance
25	6	1.4	20.2
	90	290	
55	6	1.2	19.6
	90	230	
115	6	1.0	16.5
	90	180	
205	6	1.02	13.2
	90	169	
305	6	1.05	14.4
	90	183	

Chart 1

Dimensions



Specifications

Model Size	Voltage DC	Unit	Inertia*-WR ² (lb.ft. ²)	Max. RPM	Weight (lbs.)	Static Torque (lb.ft.)	Dynamic Torque @ 1800 RPM
25	6	Clutch	.048	3600	8	25	12 lb. ft.
	24		.048	3600	8	25	12 lb. ft.
	90		.048	3600	8	25	12 lb. ft.
55	6	Clutch	.173	3600	18	55	20 lb. ft.
	24		.173	3600	18	55	20 lb. ft.
	90		.173	3600	18	55	20 lb. ft.
115	6	Clutch	.483	3600	28	115	30 lb. ft.
	24		.483	3600	28	115	30 lb. ft.
	90		.483	3600	28	115	30 lb. ft.

inches (mm)

Model	A Max. Dia.	B Max.	C Nom.	D Nom. Dia.	E Max.	F Max.	G Max.	H Max.	J Max. Dia.	K Max.	L Nom.	M Max.	T Nom.
25	3.60 (91.44)	4.39 (111.51)	2.375 (60.33)	1.080 (27.43)	4.748 (120.60)	3.767 (95.68)	3.282 (83.36)	5.11 (129.79)	4.822 (122.49)	1.68 (42.67)	1.003/991 (25.48/25.17)	.715/.703 (18.16/17.86)	.375 (9.53)
55	3.95 (100.33)	4.935 (125.35)	2.925 (74.30)	1.40 (35.56)	5.182 (131.62)	3.767 (95.682)	4.032 (102.412)	5.11 (129.792)	6.275 (159.39)	1.817 (46.152)	1.113/1.101 (28.27/27.97)	-	.375 (9.53)
115	5.254 (133.452)	5.977 (151.822)	3.102 (78.792)	1.86 (47.242)	6.089 (154.662)	3.767 (95.682)	4.246 (107.852)	10.11 (256.792)	7.906 (200.812)	2.467 (62.662)	1.539/1.523 (39.09/38.68)	-	.375 (9.53)

Model	No. of Holes	N Thread Size	Max. Depth	Bolt Circle	O Nom.	P Nom.	Q Nom.	R Min.	S Min.
25	3	1/4-20	.500	3.00	.500 (12.7)	.036 (0.91)	3.586 (91.10)	.752 (19.08)	.279 (7.09)
55	4	1/4-20	.635	3.50	.500 (12.7)	.081 (2.06)	4.156 (105.56)	.722 (18.34)	.265 (6.73)
115	4	5/16-18	.830	4.75	.500 (12.7)	.237 (6.02)	4.927 (125.15)	.504 (12.80)	.265 (6.73)

Bore to Size Data

inches (mm)

Model	U Bore Dia.	V Keyway Height	W Keyway Width	X Bolt Circle
25	2.502/2.500 (63.55/63.50)	2.601/2.591 (66.06/65.81)	.1905/.1855 (4.84/4.79)	3.00 (76.20)
55	3.002/3.000 (76.25/76.20)	3.099/3.089 (78.71/78.46)	.1905/.1885 (4.84/4.79)	3.50 (88.90)
115	4.002/4.000 (101.65/101.60)	4.127/4.117 (104.83/104.57)	.378/.376 (9.60/9.55)	4.50 (114.30)

Bore Size and Keyways

Size	Unit Bore		Key
ATC-25	.5025	12.76	1/8 Sq.
	.5005	12.71	
	.6275	15.94	3/16 Sq.
	.6255	15.89	
ATC-25	.7525	19.11	3/16 Sq.
ATC-55	.7505	19.06	
ATC-25	.8775	22.29	3/16 Sq.
ATC-55	.8755	22.24	
ATC-55	1.0025	25.46	1/4 Sq.
	1.0005	25.41	
ATC-55	1.1275	28.64	1/4 Sq.
ATC-115	1.1255	28.59	
ATC-115	1.2525	31.81	1/4 Sq.
	1.2505	31.76	
	1.3775	34.99	5/16 Sq.
	1.3755	34.94	
	1.5025	38.16	3/8 Sq.
	1.5005	38.11	

Warranty

Warner Electric LLC warrants that it will repair or replace (whichever it deems advisable) any product manufactured and sold by it which proves to be defective in material or workmanship within a period of one (1) year from the date of original purchase for consumer, commercial or industrial use.

This warranty extends only to the original purchaser and is not transferable or assignable without Warner Electric LLC's prior consent.

Warranty service can be obtained in the U.S.A. by returning any defective product, transportation charges prepaid, to the appropriate Warner Electric LLC factory. Additional warranty information may be obtained by writing the Customer Satisfaction Department, Warner Electric LLC, 449 Gardner Street, South Beloit, Illinois 61080, or by calling 815-389-3771.

A purchase receipt or other proof of original purchase will be required before warranty service is rendered. If found defective under the terms of this warranty, repair or replacement will be made, without charge, together with a refund for transportation costs. If found not to be defective, you will be notified and, with your consent, the item will be repaired or replaced and returned to you at your expense.

This warranty covers normal use and does not cover damage or defect which results from alteration, accident, neglect, or improper installation, operation, or maintenance.

Some states do not allow limitation on how long an implied warranty lasts, so the above limitation may not apply to you.

Warner Electric LLC's obligation under this warranty is limited to the repair or replacement of the defective product and in no event shall Warner Electric LLC be liable for consequential, indirect, or incidental damages of any kind incurred by reason of the manufacture, sale or use of any defective product. Warner Electric LLC neither assumes nor authorizes any other person to give any other warranty or to assume any other obligation or liability on its behalf.

WITH RESPECT TO CONSUMER USE OF THE PRODUCT, ANY IMPLIED WARRANTIES WHICH THE CONSUMER MAY HAVE ARE LIMITED IN DURATION TO ONE YEAR FROM THE DATE OF ORIGINAL CONSUMER PURCHASE. WITH RESPECT TO COMMERCIAL AND INDUSTRIAL USES OF THE PRODUCT, THE FOREGOING WARRANTY IS IN LIEU OF AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESSED OR IMPLIED BY OPERATION OF LAW OR OTHERWISE, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS.

Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you. This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

Changes in Dimensions and Specifications

All dimensions and specifications shown in Warner Electric catalogs are subject to change without notice. Weights do not include weight of boxing for shipment. Certified prints will be furnished without charge on request to Warner Electric.



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