

# ATT Tension Brakes

## Installation Instructions

P-221

819-0338



*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 AT Tension (ATT) brake you have purchased has been designed to provide long and trouble free service. It is a rugged and durable unit which is rebuildable with friction face replacement kits discussed in this service manual. The friction face replacement kit renews the friction surfaces.

This service manual includes instructions required for installation, repair on the shaft, and troubleshooting information, specifications, dimensions, an exploded view and parts lists. Please refer to the Table of Contents for section page numbers.

All installation and repair involving ATT brakes must be carried out in accordance with the procedures specified in the service manual. All stated or implied manufacturer warranties are voided if this product is not installed and serviced in accordance with these instructions.

## Other Tensioning Products

Warner Electric offers many tension control products in addition to the ATT line. Basic tension brakes and high performance modular tension brakes are available, as well as a complete line of electronic tension controls. These include a basic manual control, a load cell control, a closed loop

dancer control, and splicer controls. For more information on these and other products, please call or write:

Warner Electric  
 31 Industrial Park Road  
 New Hartford, CT 06057  
 Phone (815) 389-3771

Modular control systems for tension brakes are either manual adjust or closed loop types.



Simple tension control requires only a tension brake and this manual control.



Splicer control offers dual functions for two roll systems requiring simultaneous tensioning and holding.



Load cell control system automatically adjusts tension from load cell amplifier input.

Modular tension brakes are available in 10", 13", 15", and 20" diameters with single or dual friction discs and two to twelve magnets.

## Brake Installation

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

An accessory kit included with your brake contains a coil wire retainer and mounting hardware.

2. If used, install the Warner Electric conduit box in accordance with its furnished instructions.
3. Mount the magnet to the machine frame using the hardware in the accessory kit so that the magnet face is square with the armature shaft within .006 T.I.R. and the magnet mounting pilot diameter is concentric with the armature shaft within .010 T.I.R.

**This is important to assure proper function and unit life.**



4. Tighten the mounting screws to the machine frame to the appropriate torque for your size brake.

Size	Torque
25	12.5 ft.-lbs.
55	25 ft.-lbs.
115	25 ft.-lbs.



5. Slide the armature over the input hub.
6. Slide the hub onto the shaft and provide a 1/16" gap between the friction faces.



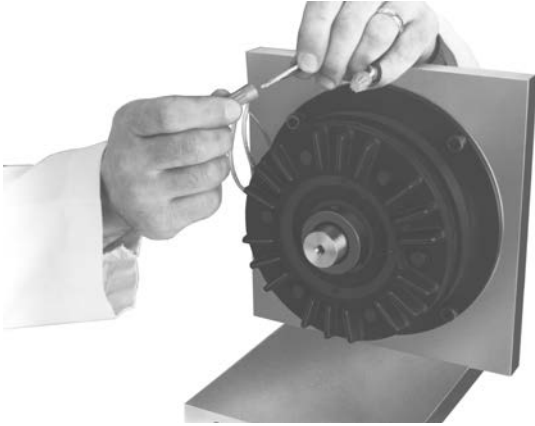
7. Tighten the set screws located in the hub to the appropriate torque for your size unit:

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



- When using a Warner Electric tension control, follow the connection diagram supplied with the control.

If a Warner Electric TCS-210, -220, -310, or 320 control is used, add a 68 ohm resistor across the sense circuit. Although the TCS series controls are recommended, a MCS control can be used with normal hook-up.



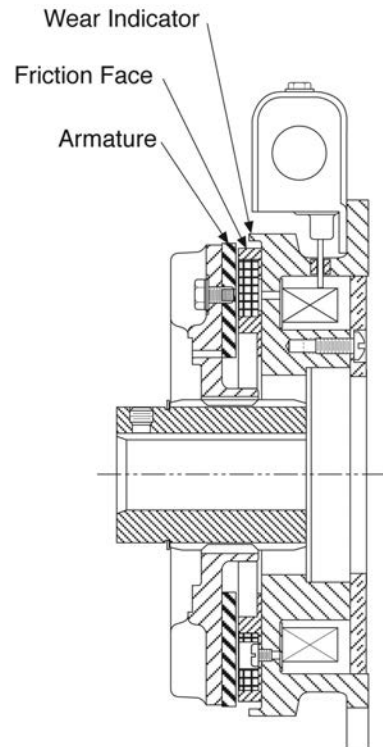
- Your ATT brake is now ready for its static test. Apply DC voltage to the coil through the brake control. The armature should pull against the friction material face.
- Run the brake under its operating load.
- Your ATT brake may not achieve its full torque until after a short "break-in" period. To break in the brake, cycle it on and off under full load at operating speed a minimum of ten times in quick succession.

Your ATT brake is now ready to run.

## Wear Indication

Your ATT brake should be visually inspected on a periodic basis to determine if the wearing surfaces warrant replacement. The friction face and armature should be replaced when the armature reaches the wear indicator on the magnet shell. If replacement is not made at this time, further use will wear into the screw heads making removal and replacement of the friction facing difficult.

The drawing below illustrates the area to be inspected.



When the friction surfaces are worn to this point, replace with the appropriate friction face replacement kit. All of the components needed to refurbish the wearing surfaces of your brake are provided in the replacement kit.

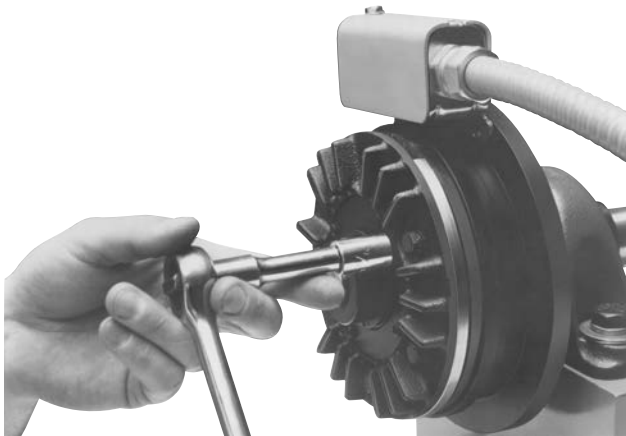
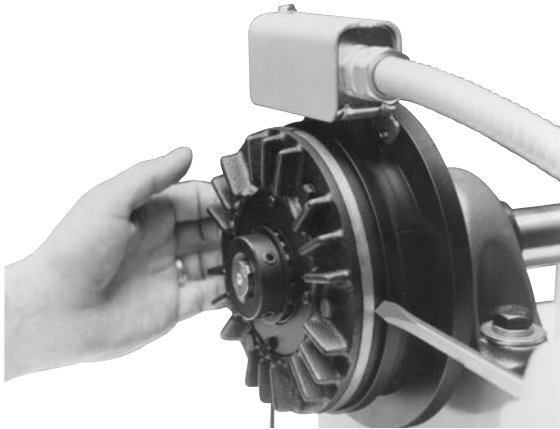
ATT-25	5161-101-008
ATT-55	5162-101-008
ATT-115	5163-101-008



## Complete Brake Repair—On The Shaft

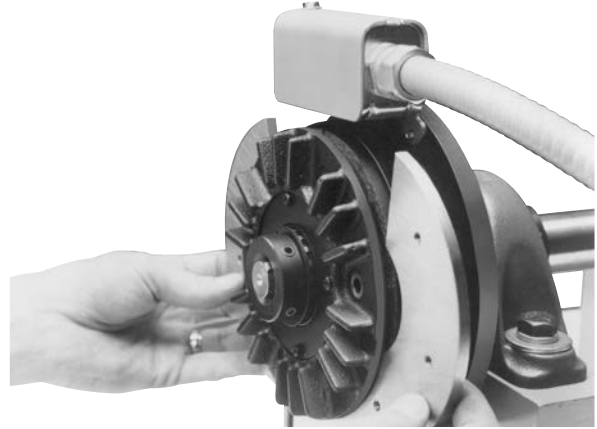
The new ATT design incorporates a rugged, durable design for long life and maximum heat dissipation. Easy-to-replace friction surfaces extend the design life for continued like-new performance. The ATT offers complete repair-on the shaft following ten easy steps. The repair can be completed utilizing the parts in the friction face replacement kit.

1. Move the brake armature away from the magnet for disassembly and reassembly.
2. Remove the hex head cap screws, washers and lockwashers to loosen the armature segments from the cast iron carrier.

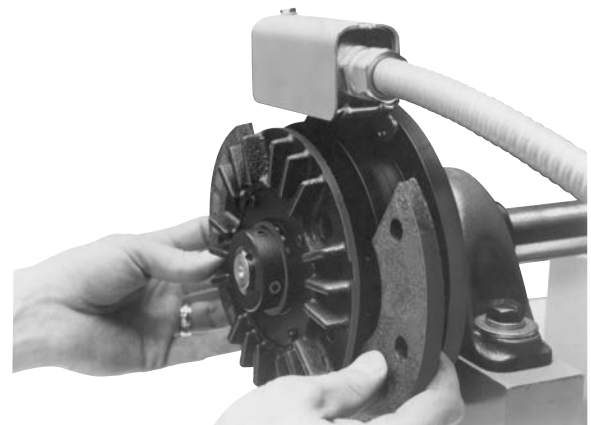
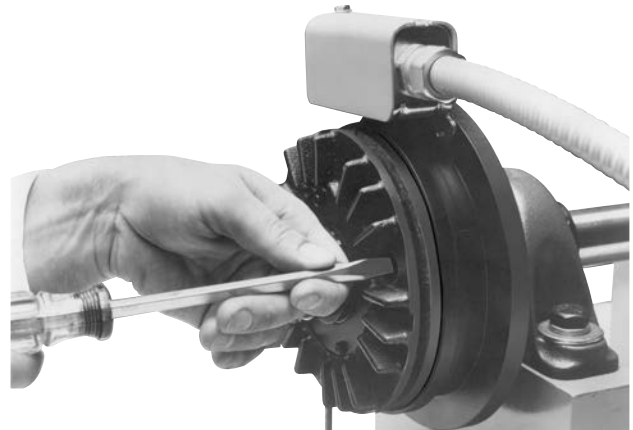


3. Lift out the two worn armature segments.
4. Remove the screws which attach the friction material segments to the brake magnet through the appropriate access holes.
5. Lift the worn friction material segments.

6. Insert two new friction material segments.



The recessed holes should be facing away from the magnet body.

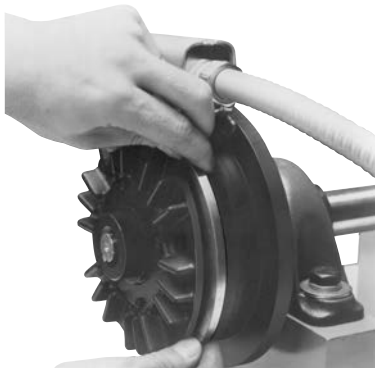
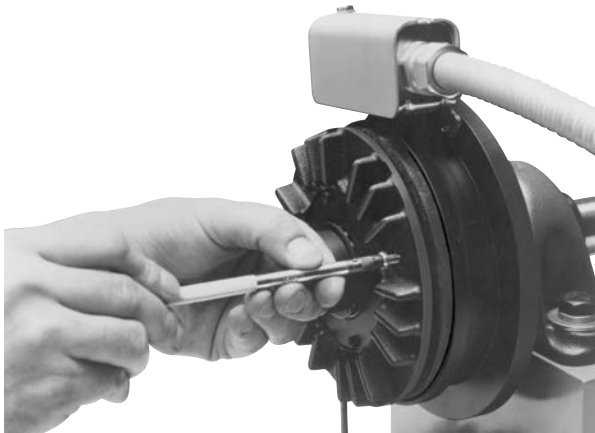


7. Attach the new friction material segments to the brake with the screws through the appropriate access holes. Apply one drop of Loctite (grade 290 or equivalent) to each screw.

**Note: Use only the screws included with the repair kit since any other screws may damage the unit. Tighten to 18 to 22 lb. in. torque.**

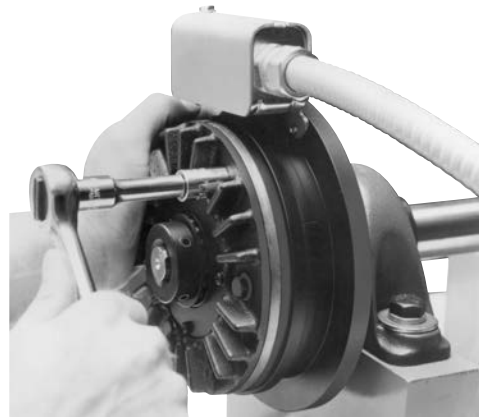


8. Insert the two new armature segments.
9. Attach the new armature segments to the cast iron carrier with hex cap screws, lockwashers and washers. Apply one drop of Loctite (grade 290 or equivalent) to each screw. Tighten to the appropriate torque for your size unit.



Size	Torque
ATT 25	29-35 in.-lbs.
ATT 55	60-84 in.-lbs.
ATT 115	60-84 in.-lbs.

10. Ensure there is a 1/16" gap between the friction faces.
11. Your ATT brake is now ready for its static test. Apply DC voltage to the coil through the brake control. The armature should pull against the friction material face with an audible "click".



12. Run the brake under its operating load.
13. Your ATT brake may not achieve its full torque until after a short "break-in" period. To break in the brake, cycle it on and off under full load at operating speed a minimum of ten times in quick succession.

Your ATT brake is now ready to run.

## ATT Brake Troubleshooting Guide

In performance problems are present after carefully following the instructions in this manual, use the following check list.

Symptom	Check
Brake armature will not move or engage when power is applied to the coil.	<ul style="list-style-type: none"> <li>• Coil Resistance Coil may be open. See Chart 1.</li> <li>• Power Supply Assure proper DC voltage is being delivered to the brake.</li> <li>• Airgap If greater than 3/32" gap around entire periphery, reset.</li> </ul>
Vibration	<ul style="list-style-type: none"> <li>• Runout Assure that shaft on which the clutch is mounted doesn't have excessive runout.</li> <li>• Shaft Engagement Assure adequate shaft length and diameter engagement in the hub.</li> </ul>
Low Tension	<ul style="list-style-type: none"> <li>• Power Supply Assure proper DC voltage is being delivered to the brake.</li> <li>• Adequate Burnishing Unit must be run and cycled a few times to achieve full rated torque.</li> <li>• Friction Surfaces Replacement may be required.</li> <li>• Installation of replacement friction material or armature segments may be incorrect and not allow full contact.</li> </ul>

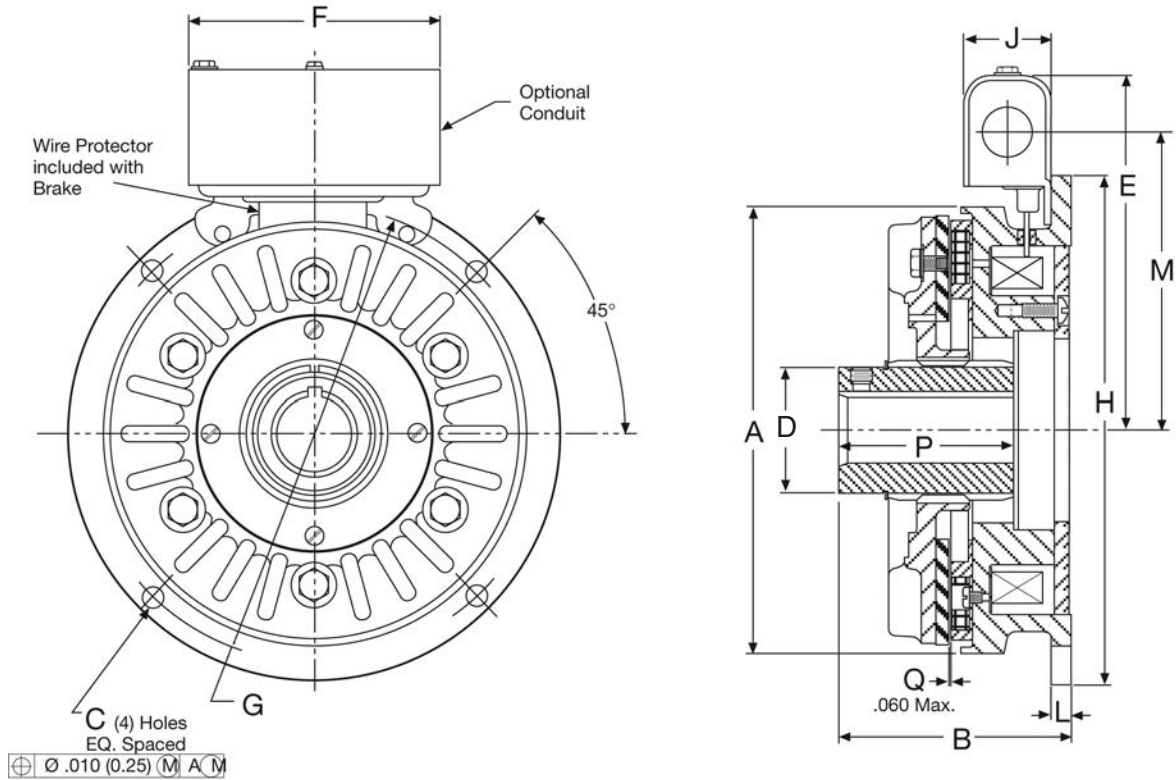
Clutch/Brake Size	Coil Voltage	Approx. Coil Resistance (Ohms)
25	24	20.6
25	90	290
55	24	19.6
55	90	230
115	24	16.5
115	90	182

Chart 1



# Electric Brakes and Clutches

## ATT Series – Advanced Technology Brakes and Clutches



Customer shall maintain:

1. Squareness of brake mounting face with armature hub shaft within .006 T.I.R.
2. Concentricity of brake mounting pilot diameter with armature hub shaft within .010 T.I.R.

### Shaft Bore and Keyway Dimensions

Model	Unit	Bore	Key
ATTB-25		.5025	(12.76) 1/8 Sq.
		.5005	
ATTB-25		.6275	(15.94) 3/16 Sq.
		.6255	
ATTB-25		.7525	(19.11) 3/16 Sq.
	ATTB-55	.7505	
ATTB-25		.8775	(22.29) 3/16 Sq.
	ATTB-55	.8755	

Model	Unit	Bore	Key
ATTB-55		1.0025	25.46 1/4 Sq.
		1.0005	
ATTB-55		1.1275	28.64 1/4 Sq.
ATTB-115		1.1255	28.59
ATTB-115		1.2525	31.81 1/4 Sq.
		1.2505	
ATTB-115		1.7775	34.99 5/16 Sq.
		1.3755	
ATTB-115		1.5025	38.16 3/8 Sq.
		1.5005	

Model	A Max. Dia.	B Max.	C Min. Dia.
ATTB-25	4.822 (122.48)	2.730 (69.34)	.264 (6.70)
ATTB-55	6.271 (159.28)	3.010 (77.97)	.330 (8.38)
ATTB-115	7.906 (200.81)	3.625 (12.07)	.330 (8.38)

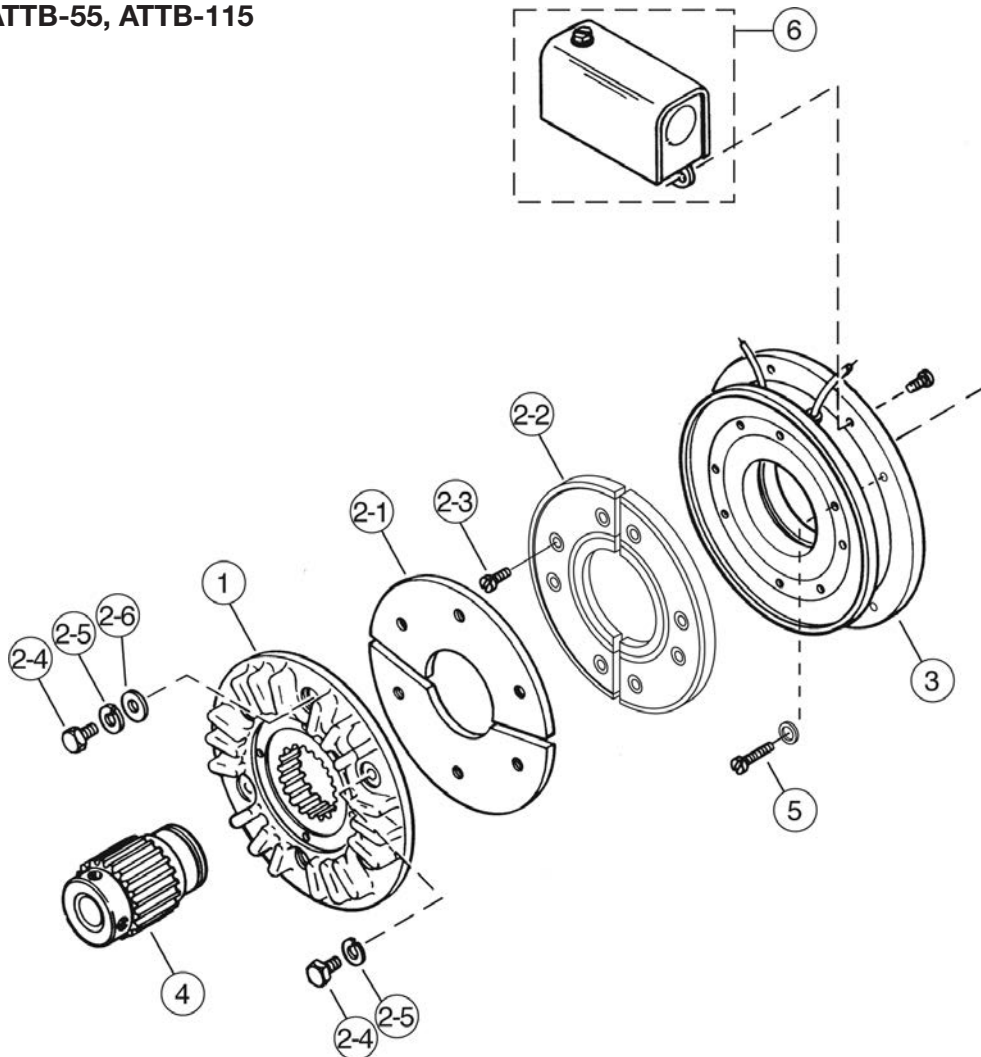
( ) denotes millimeters

Model	D Max.	E Nom.	F Max.	G Dia.	H Pilot Dia.	J Nom.	L Max.	M Nom.	P Max.
ATTB-25	1.347 (34.21)	4.748 (120.60)	3.767 (95.68)	5.250 (133.35)	5.625/5.623 (142.87/142.82)	1.544 (39.22)	.225 (5.71)	3.586 (91.08)	2.080 (52.83)
ATTB-55	1.770 (44.96)	5.37 (136.40)	3.767 (95.68)	6.875 (174.62)	7.373/7.375 (187.27/187.33)	1.544 (39.22)	.491 (12.47)	4.208 (106.88)	3.105 (78.87)
ATTB-115	2.152 (54.66)	6.278 (159.46)	3.767 (95.68)	8.500 (215.90)	9.000/8.998 (228.60/228.55)	1.544 (39.22)	.463 (11.76)	5.116 (129.95)	3.105 (78.87)

For replacement parts list and exploded view drawing, see page 10.

**Brake Assemblies and Part Numbers**  
**ATT Series – Advanced Technology Brakes**

**ATTB-25, ATTB-55, ATTB-115**



**Brake Assemblies**

<b>Unit Size</b>	<b>Voltage</b>	<b>Part No.</b>	<b>Unit Size</b>	<b>Voltage</b>	<b>Part No.</b>
ATTB-25-1/2	24	5191-6	ATTB-55-1	24	5192-8
ATTB-25-1/2	90	5191-10	ATTB-55-1	90	5192-12
ATTB-25-5/8	24	5191-7	ATTB-55-1-1/8	24	5192-9
ATTB-25-5/8	90	5191-11	ATTB-55-1-1/8	90	5192-13
ATTB-25-3/4	24	5191-8	ATTB-115-1-1/8	24	5193-6
ATTB-25-3/4	90	5191-12	ATTB-115-1-1/8	90	5193-10
ATTB-25-7/8	24	5191-9	ATTB-115-1-1/4	24	5193-7
ATTB-25-7/8	90	5191-13	ATTB-115-1-1/4	90	5193-11
ATTB-55-3/4	24	5192-6	ATTB-115-1-3/8	24	5193-8
ATTB-55-3/4	90	5192-10	ATTB-115-1-3/8	90	5193-12
ATTB-55-7/8	24	5192-7	ATTB-115-1-1/2	24	5193-9
ATTB-55-7/8	90	5192-11	ATTB-115-1-1/2	90	5193-13

## Part Numbers

Item No.	Description	ATTB-25		ATTB-55		ATTB-115	
		Qty.	Part No.	Qty.	Part No.	Qty.	Part No.
1	Armature Hub	1	540-0908	1	540-0851	1	540-0864
2-1	Armature	1	110-0220	1	110-0218	1	110-0223
2-2	Facing Assem.	1	5191-445-003	1	5192-445-003	1	5193-445-003
2-3	Screw	6	797-1389	8	797-1389	8	797-1389
2-4	Screw	4	797-1020	6	797-1387	6	797-1174
2-5	Lockwasher	–	–	6	950-0355	6	950-0355
2-6	Flatwasher	–	–	2	950-0023	2	950-0023
3	Magnet Assem.	1	–	1	–	1	–
	24 Volts D.C.	–	5191-631-007	–	5192-631-007	–	5193-631-014
	90 Volts D.C.	–	5191-631-008	–	5192-631-008	–	5193-631-015
4	Splined Hub	1	–	1	–	1	–
	1/2" Bore	–	5191-541-002	–	–	–	–
	5/8" Bore	–	5191-541-003	–	–	–	–
	3/4" Bore	–	5191-541-004	–	5192-541-002	–	–
	7/8" Bore	–	5191-541-005	–	5192-541-003	–	–
	1" Bore	–	–	–	5192-541-004	–	–
	1-1/8" Bore	–	–	–	5192-541-005	–	5193-541-002
	1-1/4" Bore	–	–	–	–	–	5193-541-003
	1-3/8" Bore	–	–	–	–	–	5193-541-004
	1-1/2" Bore	–	–	–	–	–	5193-541-005
5	Mtg. Acc'y.	1	5191-101-007	1	5192-101-007	1	5192-101-007
<b>Optional Accessory Items</b>							
6	Conduit Box	1	5162-101-002	1	5162-101-002	1	5162-101-002
<b>Kit Items</b>							
7	Friction Face Replacement Kit	1	5161-101-008	1	5162-101-008	1	5163-101-008
	(includes items 2-1, 2-2, 2-3, 2-4, 2-5, 2-6)						

# 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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