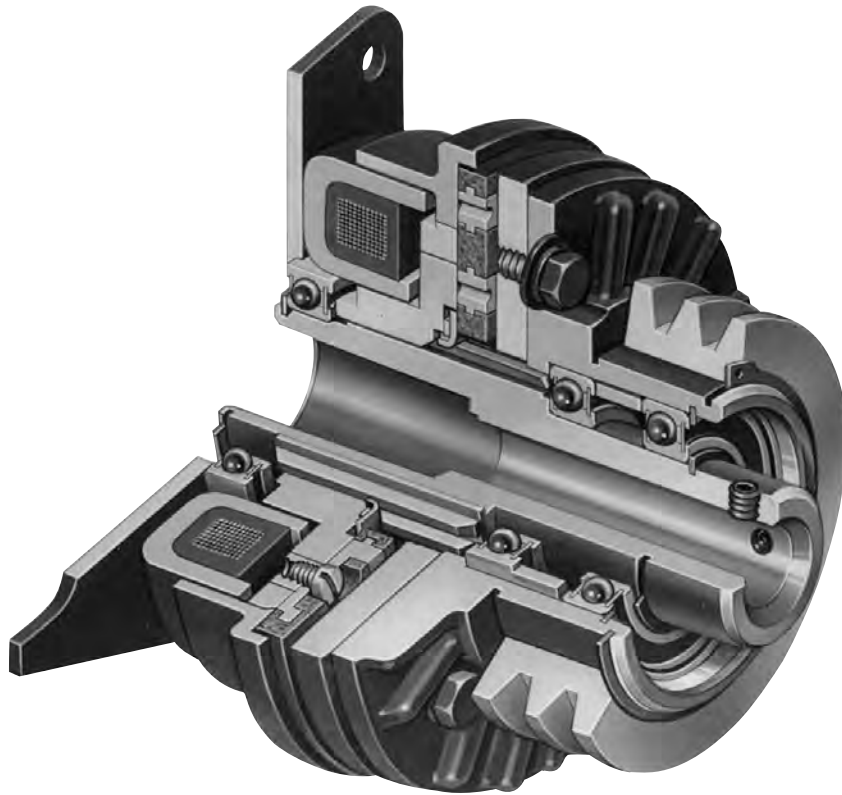


# AT Clutch – Major Service Sizes 25, 55, 115

P-1404  
819-0324

Installation Instructions



## Contents

Introduction ..... 2  
Warranty..... back cover

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

### AT Clutch – Major Service

A major rebuild of an AT clutch can be accomplished by following these instructions to replace the parts furnished in the appropriate Warner Electric clutch rebuild kit. Part numbers and component descriptions for these kits are found on page 11 of this manual. Item numbers in these instructions refer to clutch components shown on page 10, exploded view. Proceed as follows:

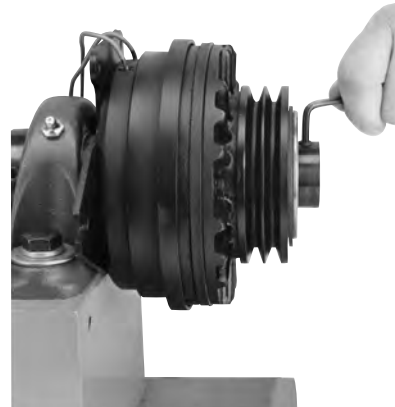
1. Turn off all power to the clutch.
2. Disconnect the coil wires from the incoming control unit wires.



3. Disconnect the field anti-rotation pin or field restraining arm (Item 16).



4. Loosen the setscrews (Item 6) which hold the clutch to its shaft.



5. Remove the clutch from its shaft by pulling and/or gently tapping the hub with a hammer and drift.

**Note:** Do not hit the outer portion of the clutch outboard of the hub as this may severely damage it.



6. Remove the retainer ring (Item 11).

**⚠ CAUTION** When removing this or other retaining rings, be sure to hold the retaining ring with one hand so it will not spring away and endanger personnel and property should the pliers lose their grip on the ring. Safety glasses should always be worn when installing or removing retaining rings.



- Remove the field assembly (Item 10) and bearing (Item 9) by locating and supporting on the rotor outer diameter (Item 8) and pressing on the hub (Item 6).



- Remove the bearing (Item 9) from the field assembly (Item 10) by pressing on the inner race while supporting the field assembly on its face.

**Note:** Use caution to avoid damaging the epoxy covering the coil.



- Press the new bearing (Item 9) into the field assembly by pressing on the bearing outer race. **Do not press on the bearing inner race or damage to the bearing will result, making it unusable.**



- Remove the rotor assembly (Item 8) from the hub (Item 6).



- Remove the screws (item 8-5) which retain the friction disc segments (item 8-1).



- Lift the friction disc segments (item 8-1) off the rotor, exposing the Autogap assembly.



13. Install replacement Autogap components as follows: Remove plate (item 8-2-size 115 only), and detent ring (item 8-3) to expose wave spring (item 8-4). Remove and replace wave spring (item 8-4). Reinstall the detent ring and plate (items 8-3 and 8-2). **Note:** The detent ring lip must point away from the friction disc. Install the wave spring with its split 180° from the split in the detent ring.



14. Clean all foreign matter from rotor mounting surface. Install the new friction disc segments (Item 8-1) with new screws (Item 8-5) included with the kit. **Note:** Use only the screws included with the kit as any others may damage the clutch.



Apply a drop of Loctite grade AA or equivalent to each screw prior to installation.  
Tighten each screw to 18-22 in. lb. torque.



15. Remove the snap ring (Item 3) from the armature hub assembly.

**CAUTION** When installing or removing this or other retaining rings, be sure to hold the ring with one hand so it will not spring away, endangering personnel and property should the pliers lose their grip on the ring. Safety glasses should always be worn when installing or removing retaining rings.



Remove the pulley, sheave, or sprocket if it interferes with removing the cap screws (Item 7-2).



16. Disassemble the armature hub assembly by removing cap screws (Item 7-2), lock washers (Item 7-3) and armature segment (Item 7-1).



Remove the set screws.



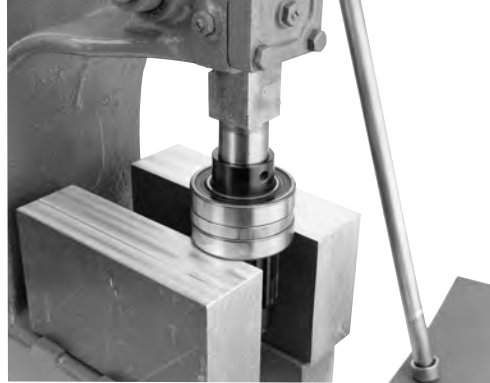
Remove the external and internal retaining rings (Items 2 and 3) from the splined hub (Item 6) and the armature hub (Item 1).



17. Locate and support on the sheave end of the assembly near the fins and press on the field end of the splined hub (Item 6).



To remove the hub and bearing assembly, remove the bearings (Item 4) and spacer (Item 5) from the hub (Item 6) by pressing them off.



Proceed with reassembly per the following instructions:

**Note:** It is imperative that all bearings be installed exactly as instructed to avoid damage to the bearings.

Apply one drop of Loctite grade AA or equivalent to each cap screw thread prior to installation.



Install the new armature segments (Item 7-1) supplied in the kit onto the armature hub, (Item 1) using cap screws and washers (Items 7-2, 7-3 and 7-4).





Tighten the cap screws to the appropriate torque for your size unit:

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



18. Install the inner adapter bearing (Item 4) onto the hub, (Item 6) **by pressing on the inner race of the bearing**. With the end of the hub supported as shown in Figure 1, press the bearing until its inner race locates against the hub shoulder.

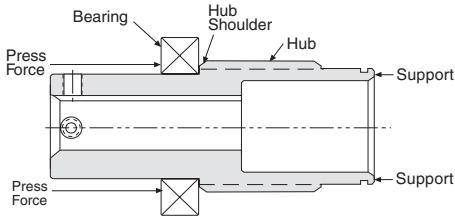


Figure 1

19. Press the hub and bearing into the Adapter Assembly until the outer race of the bearing locates against the shoulder of the adapter hub. Note that the **force is to be exerted on the outer race**. Support the armature face as shown in Figure 2.

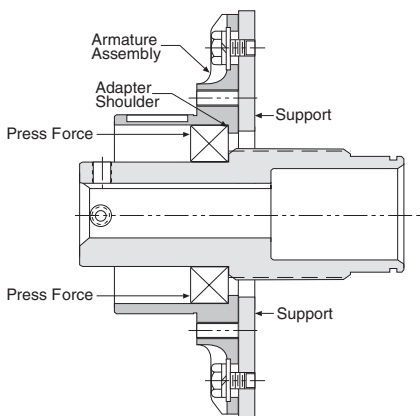


Figure 2

20. Install the spacer (Item 5) as shown in Figure 3.

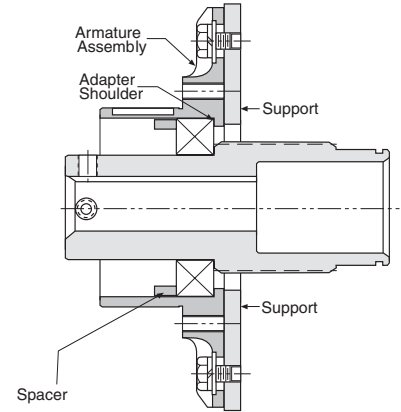


Figure 3

21. Press the outer bearing (Item 4) into place by applying force evenly against the bearing outer and inner races simultaneously while supporting the armature face. Continue pressing until the outer race firmly locates against the spacer. See Figure 4.

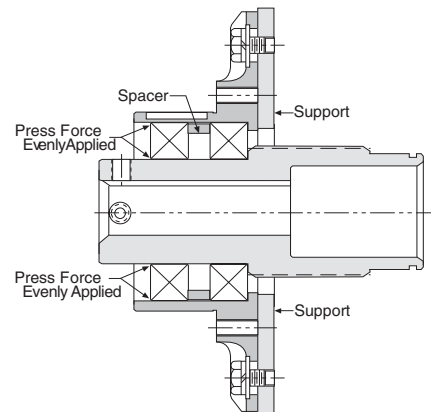


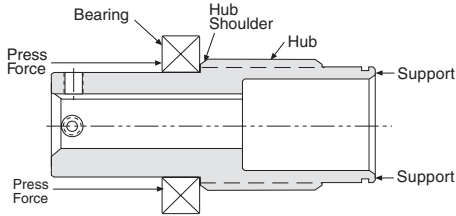
Figure 4

22. Install the external and internal retaining rings (Items 2 and 3) adjacent to the outer bearing. (See Figure 5)



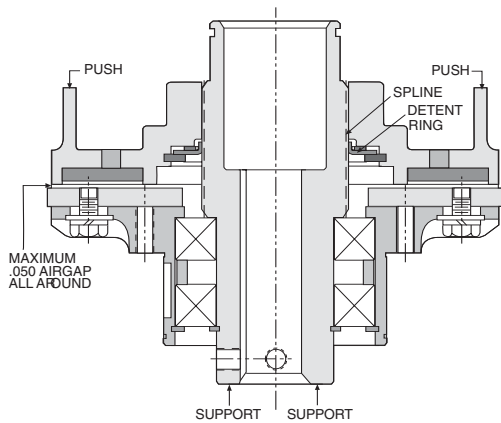
Figure 5

**Note:** The Armature Assembly must rotate freely on the hub. Inspect to insure that the inner bearing is still firmly located against the hub shoulder as previously shown in (Figure 1). When inspecting, place unit firmly on flat surface with exposed hub end up.



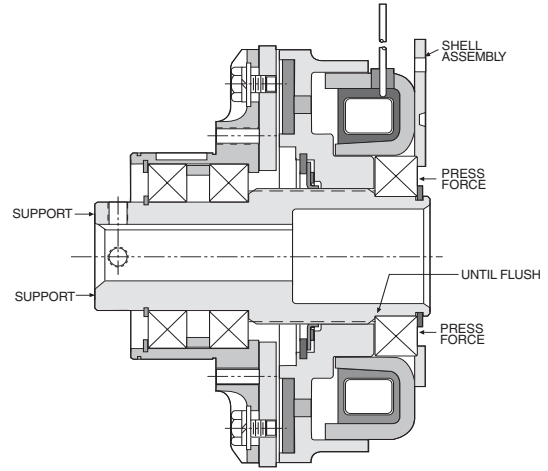
**Figure 1**

23. Install the rotor assembly onto the hub (Item 6) making sure that the spline teeth are aligned. When the Autogap detent ring (item 8-3) contacts the spline outside diameter, press **by hand** evenly on the rotor until the friction disc contacts the armature. Release pressure. Support as shown. The rotor will spring back approximately .050". The Autogap is now set. When the hub is rotated by hand, the armature and the friction disc must not touch. (See Figure 6)



**Figure 6**

24. Press the field assembly onto the hub by **pushing the inner race of the bearing** while supporting on the hub. Apply force until the inner race of the bearing is located flush against the shoulder adjacent to the spline. (See Figure 7)



**Figure 7**

Install the retaining ring (Item 11) on the hub with snap ring pliers.

Rotate the hub. No interference between the shell and rotor is allowable.

**CAUTION** When installing or removing this or other retaining rings, be sure to hold the ring with one hand so it will not spring away, endangering personnel and property, should the pliers lose their grip on the ring. Safety glasses should always be worn when installing or removing retaining rings.



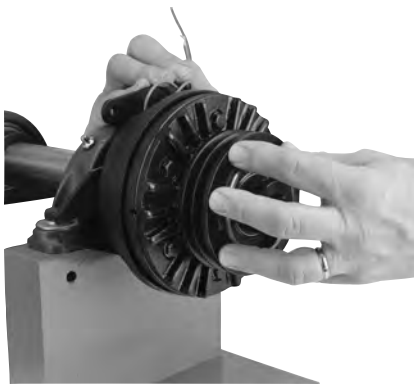
25. Reinstall the sheave, pulley, or sprocket, and key.



Reinstall the sheave retainer ring and conduit box, if used. Refer to the conduit box installation instructions.



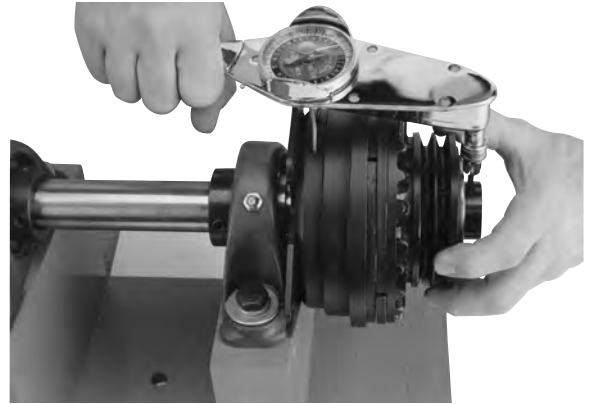
26. Reinstall the clutch assembly on the shaft, placing the key in its keyway.



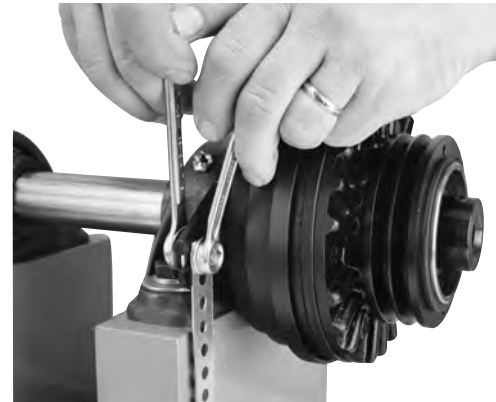
27. Tighten the hub set screws onto the key to the appropriate torque for your size unit:

| Size | Torque       |
|------|--------------|
| 25   | 80 in.-lbs.  |
| 55   | 160 in.-lbs. |
| 115  | 275 in.-lbs  |
| 205  | 275 in.-lbs. |
| 305  | 670 in.-lbs. |

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



28. Secure the field by its pin or restraining arm accessory to avoid rotation.



29. Reconnect the wires.

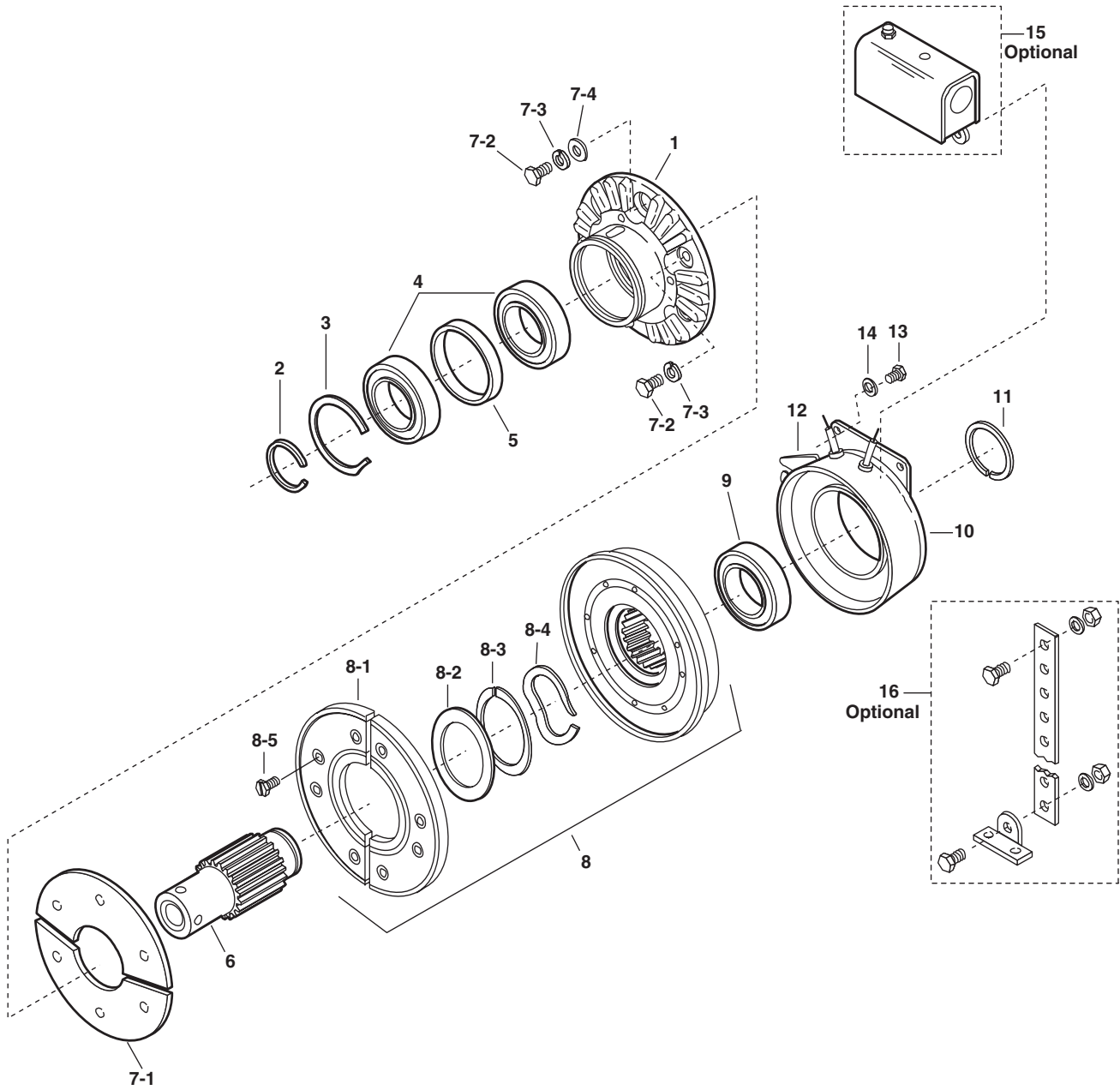


30. Your AT clutch is now ready for its static test. Apply DC voltage to the clutch coil through the clutch control. The armature should pull against the friction material face with an audible "click".



31. Install the drive belt or chain.
32. Run the clutch under its operating load.
33. 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.



**Component Parts**

| Item                                       | Description  | ATC-55       |      | ATC-115      |      | Part No.     | Qty. |
|--|--|--------------|------|--------------|------|--------------|------|
|  |  | Part No.     | Qty. | Part No.     | Qty. |              |      |
| 1  | Armature Hub   | 540-0907     | 1    | 540-0852     | 1    | 540-0863     | 1    |
| 2  | Retaining Ring   | 748-0732     | 1    | 748-0726     | 1    | 748-0737     | 1    |
| 3  | Retaining Ring   | 748-0731     | 1    | 748-0728     | 1    | 748-0736     | 1    |
| 4  | Bearing  | 166-0278     | 2    | 166-0277     | 2    | 166-0279     | 2    |
| 5  | Spacer   | 807-0119     | 1    | 807-1061     | 1    | 807-1063     | 1    |
| 6  | Splined Hub  |              | 1    |              | 1    |              | 1    |
|  | 1/2" Bore  | 540-0910     |      |              |      |              |      |
|  | 5/8" Bore  | 540-0911     |      |              |      |              |      |
|  | 3/4" Bore  | 540-0912     |      | 540-1501     |      |              |      |
|  | 7/8" Bore  | 540-0913     |      | 540-1502     |      |              |      |
|  | 1" Bore  |              |      | 540-1503     |      |              |      |
|  | 1-1/8" Bore  |              |      | 540-1504     |      | 540-0857     |      |
|  | 1-1/4" Bore  |              |      |              |      | 540-0858     |      |
|  | 1-3/8" Bore  |              |      |              |      | 540-0859     |      |
|  | 1-1/2" Bore  |              |      |              |      | 540-0860     |      |
| *7-1                                       | Armature   | 110-0220     | 1    | 110-0218     | 1    | 110-0223     | 1    |
| *7-2                                       | Screw  | 797-1519     | 4    | 797-1462     | 6    | 797-1463     | 6    |
| *7-3                                       | Lockwasher   | 950-0436     | 4    | 950-0355     | 6    | 950-0355     | 6    |
| *7-4                                       | Flatwasher   |              |      | 950-0023     | 2    | 950-0023     | 2    |
| *8   | Rotor  | 5161-751-001 | 1    | 5162-751-001 | 1    | 5163-751-001 | 1    |
| 8-1  | Facing Assembly  | 5161-445-003 | 1    | 5162-445-003 | 1    | 5163-445-003 | 1    |
| 8-2  | Retainer Plate   |              |      |              |      | 686-0108     | 1    |
| 8-3  | Detent Ring  | 748-2031     | 1    | 748-2038     | 1    | 748-2020     | 1    |
| 8-4  | Wave Spring  | 808-0404     | 1    | 808-0401     | 1    | 808-0384     | 2    |
| 8-5  | Machine Screw  | 797-1389     | 8    | 797-1389     | 8    | 797-1389     | 8    |
| *9   | Bearing  | 166-0283     | 1    | 166-0284     | 1    | 166-0279     | 1    |
| 10   | Field Assembly   |              | 1    |              | 1    |              | 1    |
|  | 6 volts DC   | 5161-451-002 |      | 5162-451-002 |      | 5163-451-002 |      |
|  | 90 volts DC  | 5161-451-003 |      | 5162-451-003 |      | 5163-451-003 |      |
|  | 24 volts DC  | 5161-451-004 |      | 5162-451-004 |      | 5163-451-004 |      |
| *11  | Retainer Ring  | 748-0018     | 1    | 748-0727     | 1    | 748-0737     | 1    |
| 12   | Adapter  |              |      |              |      | 104-0300     | 2    |
| 13   | Screw  |              |      |              |      | 797-1396     | 4    |
| 14   | Lockwasher   |              |      |              |      | 950-0102     | 4    |
| <b>Optional Accessory Items</b>            |  |              |      |              |      |              |      |
| 15   | Conduit box 100-1  | 5162-101-002 | 1    | 5162-101-002 | 1    | 5162-101-002 | 1    |
| 16   | Restraining Arm Assembly   | 5162-101-004 | 1    | 5162-101-004 | 1    | 5163-101-004 | 1    |
| <b>Kit Items</b>                           |  |              |      |              |      |              |      |
|  | * Clutch Rebuild Kit<br>(includes items 7-1, 7-2, 7-3, 7-4, 8, 9, 11)<br>Note: In some versions of this product, item 8 consists of a one (1) piece rotor. | 5161-101-011 | 1    | 5162-101-011 | 1    | 5163-101-011 | 1    |
|  | Friction Face Replacement Kit<br>For Clutches with Replaceable Friction Face Only  | 5161-101-007 |      | 5162-101-007 |      | 5163-101-007 |      |
| <b>Mounting Accessory Kits (not shown)</b> |  |              |      |              |      |              |      |
| 1  | 1/2" Bore - 3/4" Bore  | 5161-101-001 |      |              |      |              |      |
| 1-1  | Ring Retainer Ext.   | 748-0734     | 1    |              |      |              |      |
| 1-2  | Wire Retainer  | 742-0027     | 1    |              |      |              |      |
| 1-3  | Key  | 590-0104     | 1    |              |      |              |      |
| 1-4  | Setscrew   | 797-1393     | 2    |              |      |              |      |
| 1  | 7/8" Bore  | 5161-101-002 |      |              |      |              |      |
| 1-1  | Ring Retainer Ext.   | 748-0734     | 1    |              |      |              |      |
| 1-2  | Wire Retainer  | 742-0027     | 1    |              |      |              |      |
| 1-3  | Key  | 590-0104     | 1    |              |      |              |      |
| 1-4  | Collar and Setscrew  | 266-0031     | 1    |              |      |              |      |
| 1  | 3/4" Bore - 1" Bore  |              |      | 5162-101-001 |      |              |      |
| 1-1  | Ring Retainer Ext.   |              |      | 748-0725     | 1    |              |      |
| 1-2  | Wire Retainer  |              |      | 742-0026     | 1    |              |      |
| 1-3  | Key  |              |      | 590-0103     | 1    |              |      |
| 1-4  | Setscrew   |              |      | 797-1386     | 2    |              |      |
| 1  | 1-1/8" Bore  |              |      | 5162-101-010 |      |              |      |
| 1-1  | Ring Retainer Ext.   |              |      | 748-0725     | 1    |              |      |
| 1-2  | Wire Retainer  |              |      | 742-0026     | 1    |              |      |
| 1-3  | Key  |              |      | 590-0103     | 1    |              |      |
| 1-4  | Setscrew   |              |      | 797-1077     | 2    |              |      |
| 1-5  | Collar   |              |      | 266-0032     | 1    |              |      |
| 1  | All bore sizes   |              |      |              |      | 5163-101-001 |      |
| 1-1  | Ring Retainer Ext.   |              |      |              |      | 748-0738     | 1    |
| 1-2  | Wire Retainer  |              |      |              |      | 742-0026     | 1    |
| 1-3  | Key  |              |      |              |      | 590-0105     | 1    |
| 1-4  | Setscrew   |              |      |              |      | 797-1395     |      |

## 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.

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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.

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