

Primary Brake Spline Drive Armature PB-825, PB-1000, PB-1225, PB-1525

P-209
819-0517

Installation Instructions



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⚠ WARNING Follow the installation instructions in this manual carefully to ensure safe, reliable operation. All stated or implied manufacturer warranties are voided if this product is not installed in accordance with these instructions.

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



PB-825



PB-1225

**Primary Brake Heavy Duty
 Spline Drive Armature
 PB-825 PB-1000 PB-1225 PB-1525**

The illustration drawings, parts lists, and exploded views for these units can be found beginning on page 10.

A. Installing the Conduit Box

Install the conduit box on the magnet. Instructions for this procedure can be found on page 6.

B. Mounting the Magnet

The brake magnet is mounted to a stationary machine member by a flange. Extreme care must be taken in selecting the location for the mounting of the magnet. Proper positioning is very important for the unit to function correctly.

1. A pilot diameter on the mounting surface is essential to hold the magnet within the required tolerances. (See Figure 1.)

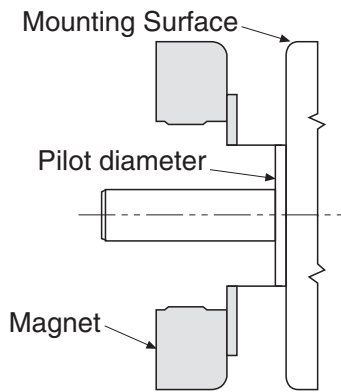


Figure 1

2. A machined pilot diameter is provided on the magnet mounting flange (refer to illustration drawings page 11) to aid in the proper positioning of the magnet.

3. Once the mounting surface has been prepared, the magnet is bolted in place with capscrews and lockwashers. (See Figure 2.)



Figure 2

4. Use a dial indicator to check the unit for concentricity and squareness to the shaft. The unit should be concentric within .010 T.I.R. and square within .006 T.I.R. (See Figure 3.)



Figure 3

C. Assembling the Armature and Hub

The heavy duty units contain spline drive armatures and hubs. The armatures are shipped with a built-in autogap spring accessory. This device automatically maintains a gap of about 1/32-inch between the armature and magnet faces for the life of the unit.

These units are shipped with the armature, splined armature adapter, and autogap already assembled. The splined hub, retainer ring, and bushing are shipped as separate parts.

Follow these instructions to assemble the armature and splined hub:

Step 1

Place the armature-splined adapter assembly on a flat surface with the segmented side up.

Step 2

Push the splined hub, with the retainer ring groove down, through the autogap spring and splined armature adapter. (See Figure 4.)

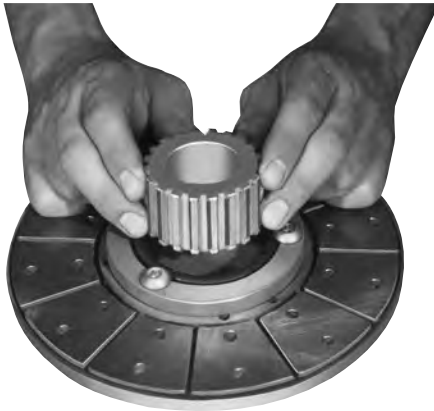


Figure 4

Step 3

Turn the armature-adapter assembly over, and insert the retainer ring in the groove. (See Figure 5.)



Figure 5

Step 4

Slide the armature-adapter assembly up against the retainer ring.

Step 5

Insert the bushing into the retainer ring side of the splined hub. The clearance holes in the bushing flange should line up with the tapped holes in the splined hub. (See Figure 6.)



Figure 6

D. Mounting the Armature and Hub Assembly

1. Slide the complete armature and hub assembly onto the shaft until the armature face touches the magnet face. (See Figure 7.)



Figure 7

2. Tighten the bushing capscrews, taking a few turns at a time on each capscrew. As the capscrews are tightened, the armature will back away slightly from the magnet. There should be a clearance of 1/16" between the armature and magnet when the capscrews are completely tight. (See Figure 8.)
3. When the bushing is secure on the shaft, push the armature against the magnet face. When the armature is released, it will spring back about 1/32". The gap will be automatically maintained for the life of the unit. (See Figures 9 & 10.)



Figure 8



Figure 9

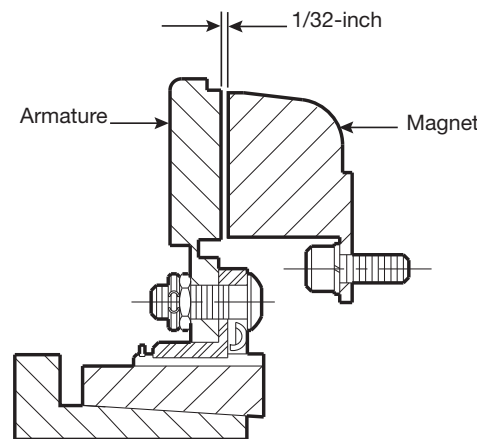


Figure 10

Coil Data

| Unit Size | PB-825 | | | PB-1000 | | | PB-1225 | | | PB-1525 | | |
|------------------------------|--------|------|-------|---------|------|-------|---------|------|-------|---------|------|-------|
| Voltage — DC | 6 | 24 | 90 | 6 | 24 | 90 | 6 | 24 | 90 | 6 | 24 | 90 |
| Resistance @ 20°C — Ohms | 1.27 | 20.4 | 223.3 | 1.23 | 19.7 | 248.7 | 1.33 | 22.3 | 261.7 | 1.45 | 19.8 | 258.4 |
| Current — Amperes | 4.74 | 1.18 | .4 | 4.87 | 1.22 | .36 | 4.5 | 1.08 | .34 | 4.13 | 1.21 | .35 |
| Watts | 28 | 28 | 36 | 29 | 29 | 33 | 27 | 26 | 31 | 25 | 29 | 31 |
| Coil Build-up — Milliseconds | 170 | 170 | 170 | 205 | 220 | 235 | 300 | 320 | 350 | 470 | 490 | 512 |
| Coil Decay — Milliseconds | 70 | 75 | 80 | 70 | 75 | 80 | 190 | 190 | 190 | 200 | 170 | 140 |

Burnishing and Maintenance

Burnishing

Intimate metal to metal contact is essential between the armature and the metal rings (poles) of the magnet or rotor. Warner Electric clutches and brakes leave the factory with the friction material slightly undercut to assure good initial contact.

Normally, the desired wearing-in process occurs naturally as the surfaces slip upon engagement. The time for wear-in, which is necessary to obtain the ultimate torque of the unit, will vary depending on speed, load, or cycle duty.

If maximum torque is required immediately after installation, the unit should be burnished by slipping the friction surfaces together at reduced voltage. It is recommended that the burnishings be done right on the application, if at all possible.

Burnishing at high speed will result in a smoother wear-in pattern and reduce the time for burnishing. The voltage should be set at approximately 30% or 40% of the rated value.

The unit should be cycled on and off to allow sufficient time between slip cycles to prevent overheating.

When a Warner Electric brake or clutch is properly assembled and installed, no further servicing, lubrication, or maintenance should be required throughout the life of the unit.

Maintenance

Wear Pattern: Wear grooves appear on the armature and magnet surfaces. This is a normal wear condition, and does not impair functioning of the unit. Normally, the magnet and armature, as a mating pair, will wear at the same rate. It is the usual recommendation that both components be replaced at the same time.

Remachining the face of a worn armature is not recommended. If a replacement armature is to be used with a used magnet, it is necessary to remachine the worn magnet face. In refacing a magnet: (1) machine only enough material to clean up the complete face of the magnet; (2) hold the face within .005" of parallel with the mounting plate; and (3) undercut the molded facing material .002" - .004" below the metal poles.

Heat: Excessive heat and high operating temperatures are causes of rapid wear. Units, therefore, should be ventilated as efficiently as possible, especially if the application requires fast, repetitive cycle operation.

Foreign Materials: If units are used on machinery where fine, abrasive dust, chips or grit are dispelled into the atmosphere, shielding of the brake may be necessary if maximum life is to be obtained.

Where units are used near gear boxes or transmissions requiring frequent lubrication, means should be provided to protect the friction surfaces from oil and grease to prevent serious loss of torque.

Oil and grease accidentally reaching the friction surfaces may be removed by wiping with a rag dampened with a suitable cleaner, which leaves no residue. In performing this operation, do not drench the friction material.

If the friction materials have been saturated with oil or grease, no amount of cleaning will be completely effective. Once such a unit has been placed back in service, heat will cause the oil to boil to the surface, resulting in further torque loss.

Torque Loss: If a brake or clutch slips or loses torque completely, the initial check should be the input voltage to the magnet as follows:

90-Volt Series: Connect a DC voltmeter with a range of 0-100 or more directly across the magnet terminals. With the power on and the potentiometer turned up, a normal reading is 90 volts, although 85 to 95 is satisfactory. The reading should drop as the potentiometer control is adjusted counterclockwise.

24-Volt Series: Use a DC voltmeter with a range of 0-30 volts or more. A normal reading is approximately 22-26 volts.

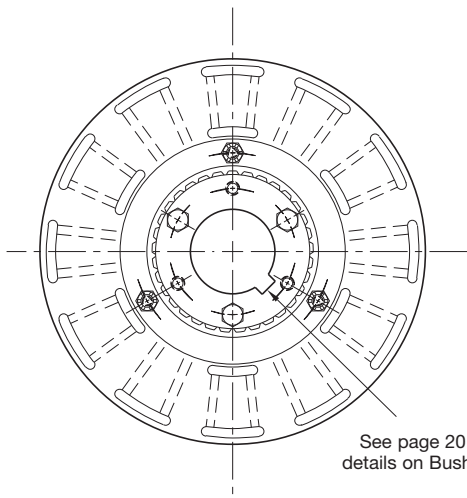
6-Volt Series: Use a DC voltmeter of approximately 0-15 volt range. A normal reading is from 5.5 to 6.5 volts.

The above checks normally are sufficient. Further checks may be made as follows: a low range ammeter, when connected in series with one magnet lead, will normally indicate approximately .40 amperes for the 90 volt units, 1.0 ampere for the 24 volt, and 3.5 amperes for the 6 volt series. These readings are with the power on and the potentiometer control in the maximum position.

Ohmmeter checks should be made with the power off and the circuit open (to be certain, disconnect one lead to the magnet). Average resistance for the 90 volt series is 220 ohms; for the 24 volt, 20 ohms; and for the 6 volt series, 1.5 ohms. A very high or infinite resistance reading would indicate an open coil.

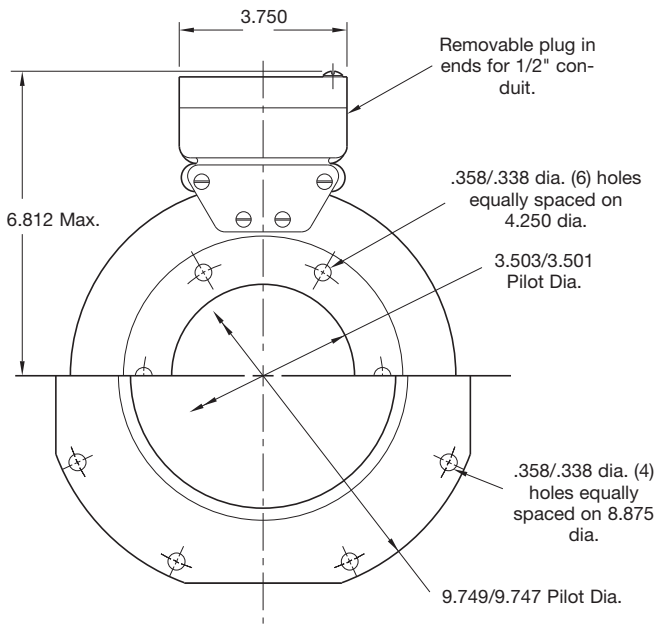
If the above checks indicate that the proper voltage and current is being supplied to the magnet, mechanical parts should be checked to assure that they are in good operating condition and properly installed.

PB-825 Brake-Heavy Duty

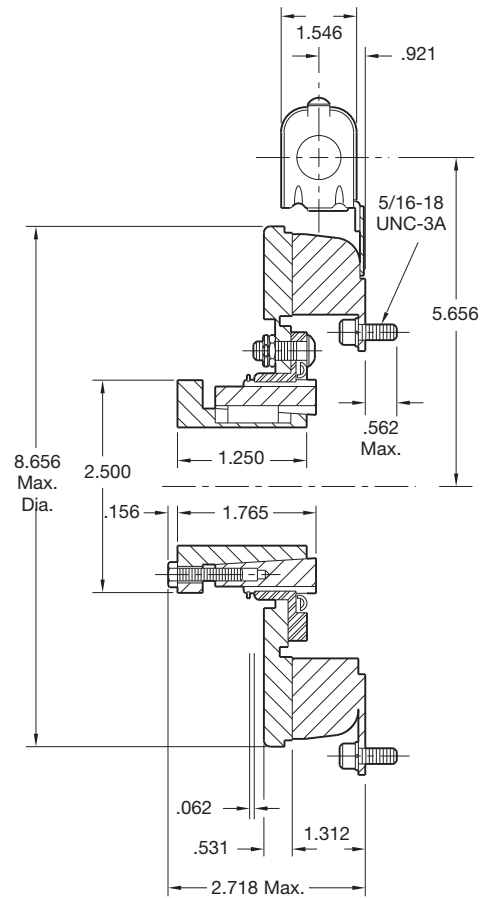


See page 20 for details on Bushings.

Armature View



**Magnet View
(Inside & Outside Mounted)**



| | |
|------------------|----------------|
| Shaft Size | .500 – 1.500 |
| Static Torque | 125 lb. ft. |
| Maximum Speed | 4,000 rpm |
| Standard Voltage | D.C. 6, 24, 90 |

* Mounting holes are within .010 of true position relative to pilot diameter.

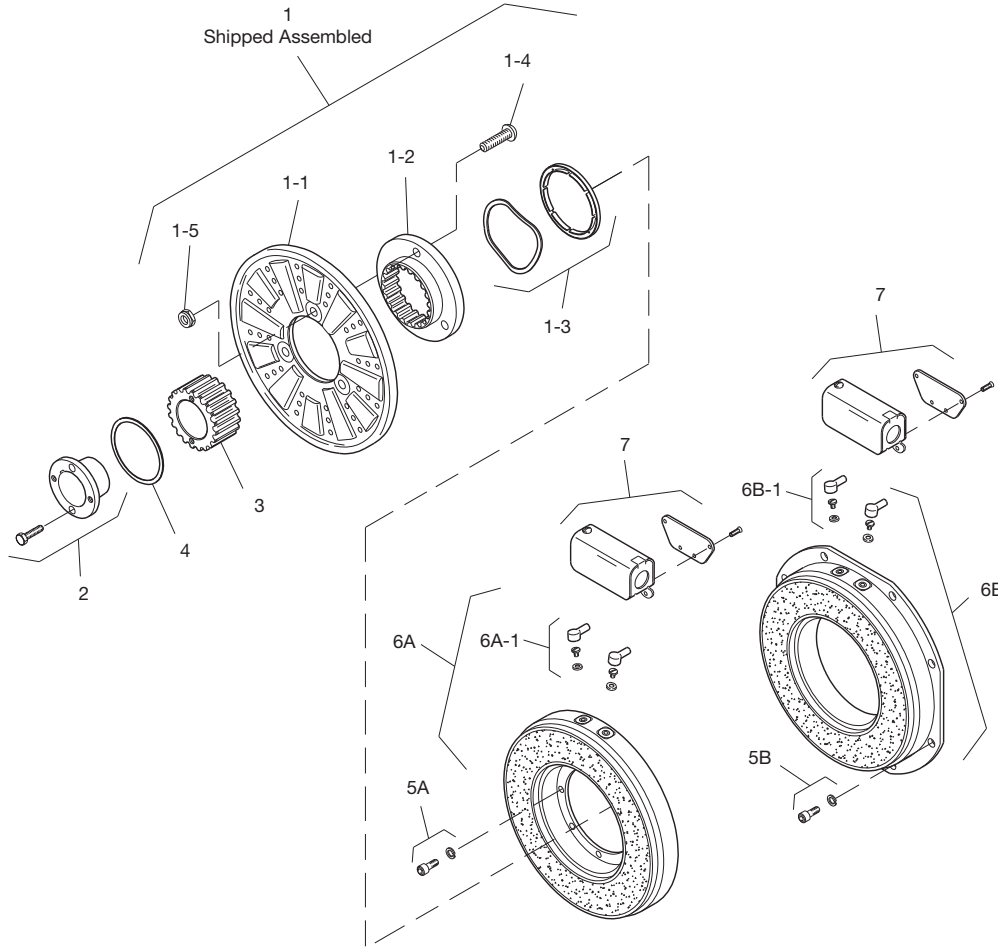
Customer Shall Maintain:

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



PB-825 Brake-Heavy Duty

Drawing I-25567



| Item | Description | PB-825, H.D. Part Number | Qty. |
|------|---------------------------|--------------------------|------|
| 1 | Armature Assembly | 5321-111-001 | 1 |
| 1-1 | Armature | 5321-111-022 | 1 |
| 1-2 | Splined Adapter | 104-0008 | 1 |
| 1-3 | Autogap Accessory | 5321-101-006 | 1 |
| 1-4 | Screw | 797-0272 | 3 |
| 1-5 | Locknut | 661-0004 | 3 |
| 2 | Bushing | | |
| | 1/2" to 1-1/2" Bore | 180-0002 to 180-0018* | 1 |
| | 3/4" to 2-11/16" Bore | | |
| 3 | Splined Hub | 540-0057 | 1 |
| 4 | Retainer Ring | 748-0006 | 1 |
| 5A | Mounting Accessory - I.M. | 5321-101-001 | 1 |
| 5B | Mounting Accessory - O.M. | 5321-101-002 | 1 |
| 6A | Magnet - Inside Mounted | | 1 |
| | 6 Volt | 5311-631-002 | |
| | 24 Volt | 5311-631-003 | |
| | 90 Volt | 5311-631-004 | |
| | †90 Volt LK Facing | 5311-631-011 | |
| 6A-1 | Terminal Accessory | 5311-101-001 | 1 |
| 6B | Magnet - Outside Mounted | | 1 |
| | 6 Volt | 5311-631-007 | |
| | 24 Volt | 5311-631-009 | |
| | 90 Volt | 5311-631-008 | |
| | †90 Volt LK Facing | 5311-631-012 | |

| Item | Description | PB-825, H.D. Part Number | Qty. |
|------|--------------------|--------------------------|------|
| 6B-1 | Terminal Accessory | 5311-101-001 | 1 |
| 7 | Conduit Box | 5200-101-011 | 1 |

*See page 20 for specific part numbers. †Optional LK facing available.

How to Order:

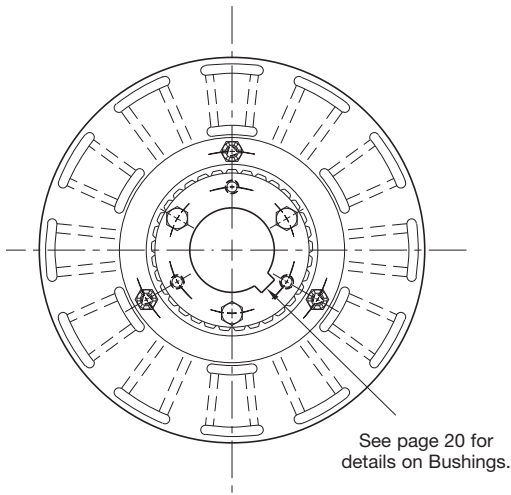
1. Specify Bore Size for Item 2.
2. Specify Inside Mounted for Items 5A and 6A or Outside Mounted for Items 5B and 6B.
3. Specify Voltage for Item 6A or 6B.
4. See P-1234 for Power Supplies.

Example:

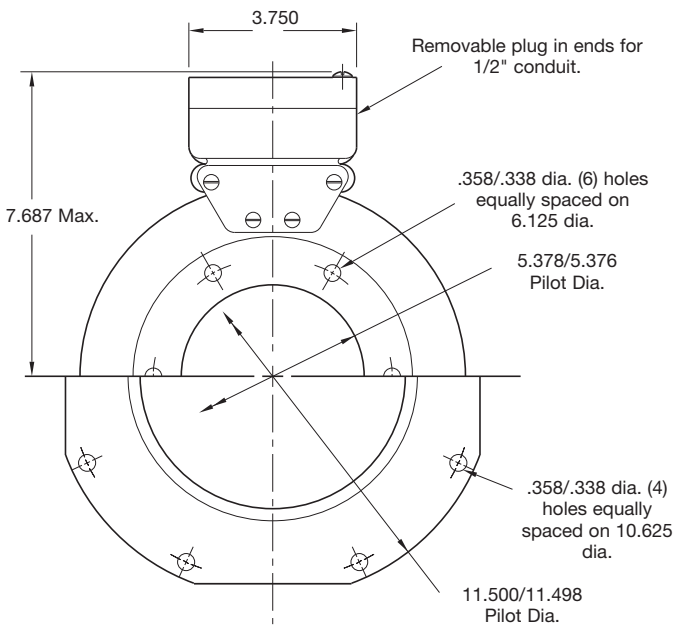
PB-825 Brake per I-25567 - 90 Volt, 1" Bore, Inside Mounted

These units, when used in conjunction with the correct Warner Electric conduit box, meet the standards of UL508 and are listed under guide card #NMTR, file #59164. These units are CSA certified under file #LR11543.

PB-1000 Brake-Heavy Duty



Armature View

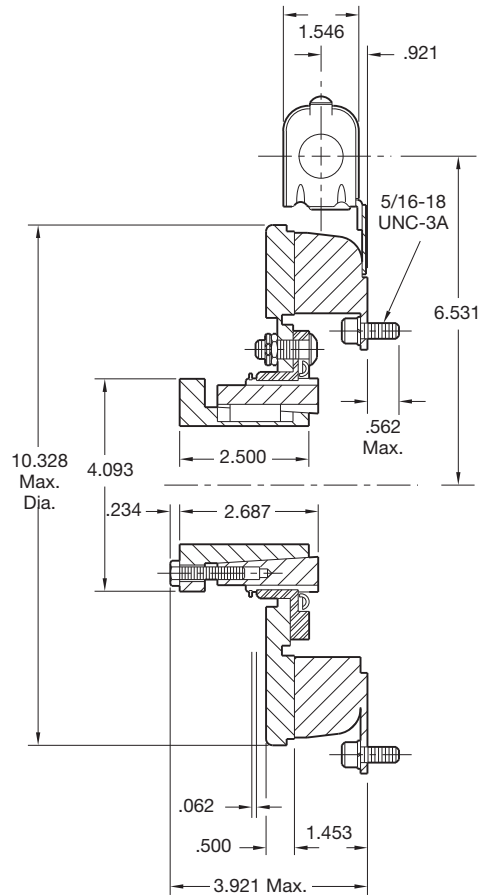


**Magnet View
(Inside & Outside Mounted)**

* Mounting holes are within .010 of true position relative to pilot diameter.

Customer Shall Maintain:

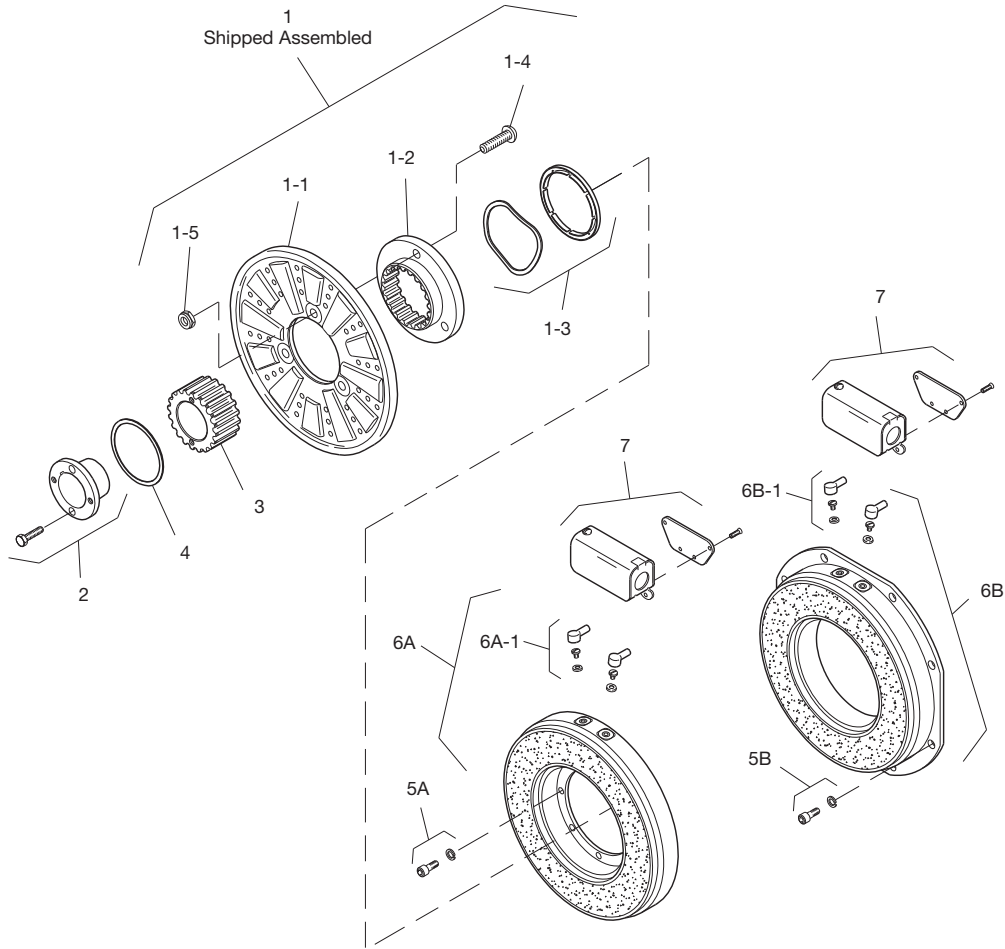
1. Squareness of magnet mounting face with armature shaft within .006 T.I.R.
2. Concentricity of magnet mounting pilot diameter with armature shaft within .010 T.I.R.



| | |
|------------------|----------------|
| Shaft Size | .750 – 2.687 |
| Static Torque | 240 lb. ft. |
| Maximum Speed | 3,600 rpm |
| Standard Voltage | D.C. 6, 24, 90 |

PB-1000 Brake—Heavy Duty

Drawing I-25587



| PB-1000, H.D. | | | |
|---------------|---------------------------|-----------------------|------|
| Item | Description | Part Number | Qty. |
| 1 | Armature Assembly | 5322-111-002 | 1 |
| 1-1 | Armature | 5322-111-036 | 1 |
| 1-2 | Splined Adapter | 104-0009 | 1 |
| 1-3 | Autogap Accessory | 5322-101-004 | 1 |
| 1-4 | Screw | 797-0272 | 3 |
| 1-5 | Locknut | 661-0004 | 3 |
| 2 | Bushing | | |
| | 1/2" to 1-1/2" Bore | | |
| | 3/4" to 2-11/16" Bore | 180-0026 to 180-0056* | 1 |
| 3 | Splined Hub | 540-0062 | 1 |
| 4 | Retainer Ring | 748-0007 | 1 |
| 5A | Mounting Accessory - I.M. | 5321-101-001 | 1 |
| 5B | Mounting Accessory - O.M. | 5321-101-002 | 1 |
| 6A | Magnet - Inside Mounted | | 1 |
| | 6 Volt | 5312-631-004 | |
| | 24 Volt | 5312-631-005 | |
| | 90 Volt | 5312-631-006 | |
| | †90 Volt LK Facing | 5312-631-001 | |
| 6A-1 | Terminal Accessory | 5311-101-001 | 1 |
| 6B | Magnet - Outside Mounted | | 1 |
| | 6 Volt | 5312-631-011 | |
| | 24 Volt | 5312-631-013 | |
| | 90 Volt | 5312-631-012 | |
| | †90 Volt LK Facing | 5312-631-002 | |

| PB-1000, H.D. | | | |
|---------------|--------------------|--------------|------|
| Item | Description | Part Number | Qty. |
| 6B-1 | Terminal Accessory | 5311-101-001 | 1 |
| 7 | Conduit Box | 5200-101-011 | 1 |

*See page 20 for specific part numbers. †Optional LK facing available.

How to Order:

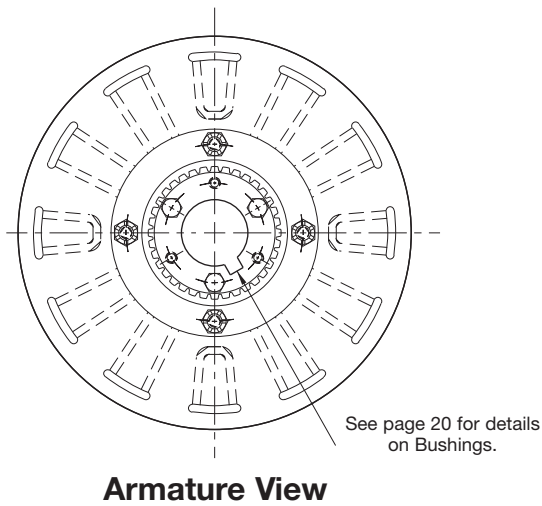
1. Specify Bore Size for Item 2.
2. Specify Inside Mounted for Items 5A and 6A or Outside Mounted for Items 5B and 6B.
3. Specify Voltage for Item 6A or 6B.
4. See P-1234 for Power Supplies.

Example:

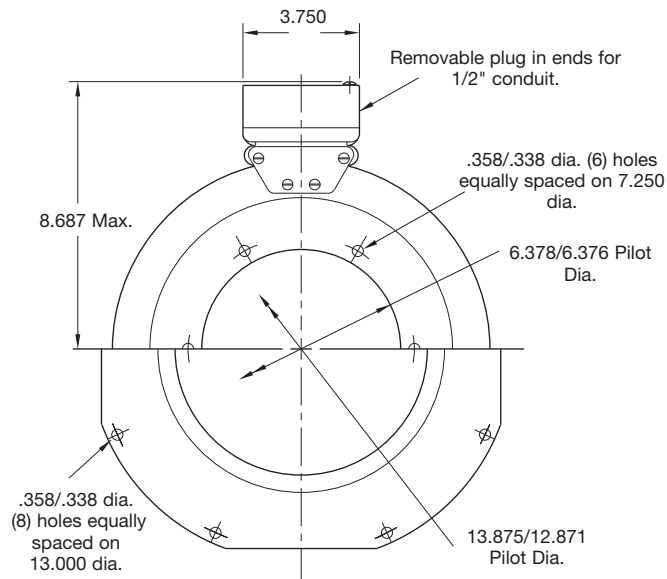
PB-1000 Brake per I-25587 - 90 Volt, 1-1/2" Bore, Inside Mounted

These units, when used in conjunction with the correct Warner Electric conduit box, meet the standards of UL508 and are listed under guide card #NMTR, file #59164. These units are CSA certified under file #LR11543.

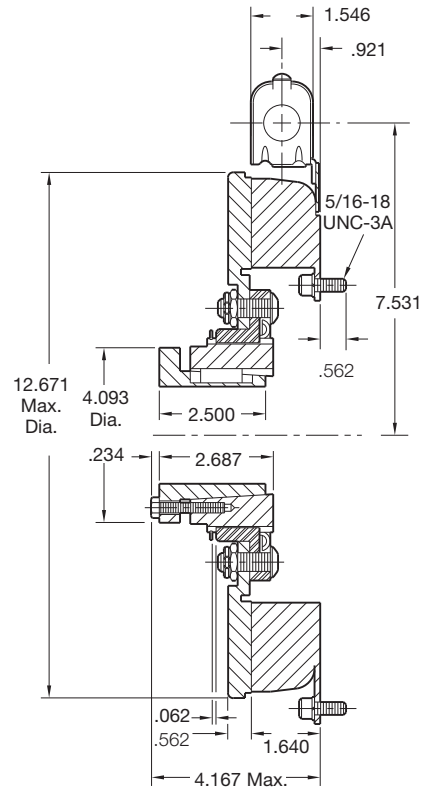
PB-1225 Brake-Heavy Duty



Armature View



Magnet View



| | |
|------------------|----------------|
| Shaft Size | .750 – 2.687 |
| Static Torque | 465 lb. ft. |
| Maximum Speed | 3,000 rpm |
| Standard Voltage | D.C. 6, 24, 90 |

* Mounting holes are within .010 of true position relative to pilot diameter.

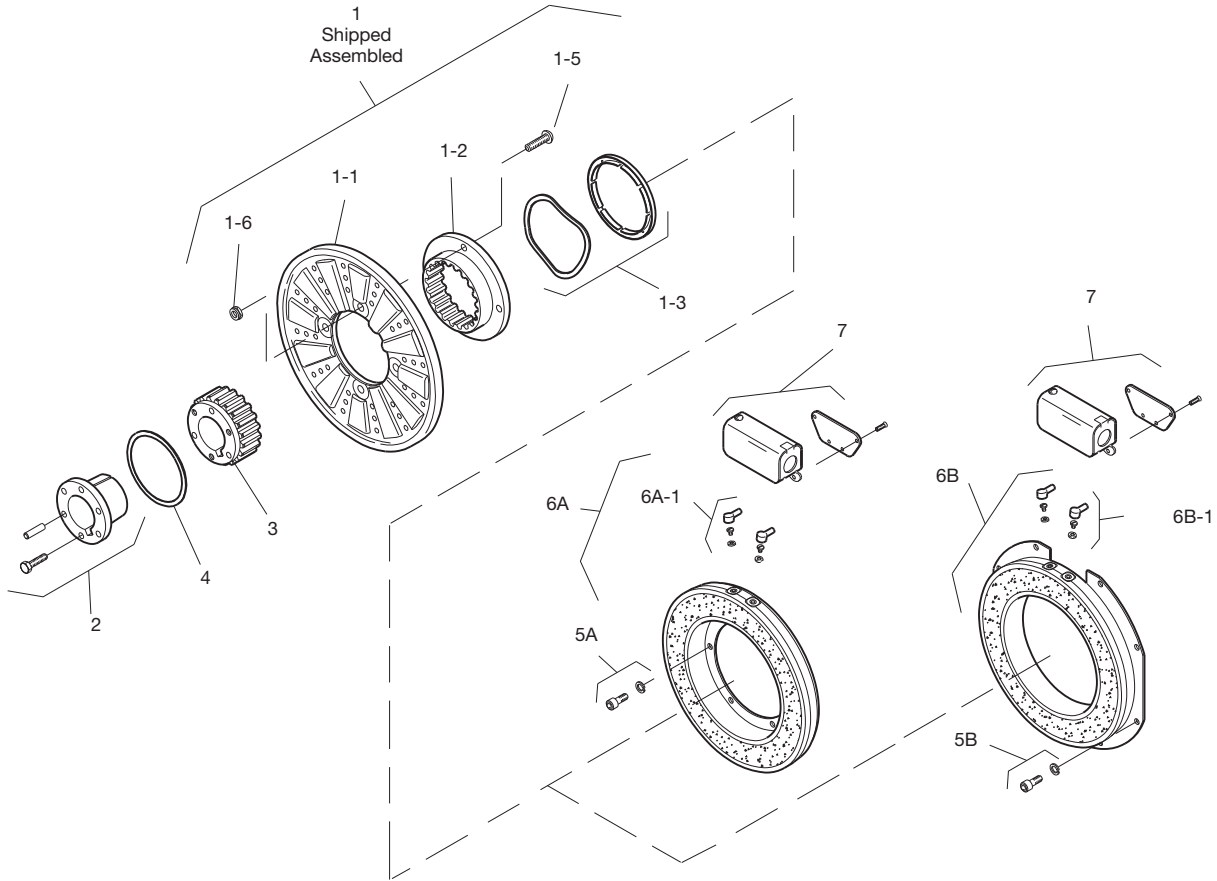
Customer Shall Maintain:

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



PB-1225 Brake-Heavy Duty

Drawing I-25607



| Item | Description | PB-1225, H.D. Part Number | Qty. |
|------|----------------------------|---------------------------|------|
| 1 | Armature & Splined Adapter | 5323-111-001 | 1 |
| 1-1 | Armature | 5323-111-034 | 1 |
| 1-2 | Splined Adapter | 104-0010 | 1 |
| 1-3 | Autogap Accessory | 5323-101-002 | 1 |
| 1-4 | Retainer Plate | | |
| 1-5 | Screw | 797-0281 | 4 |
| 1-6 | Locknut | 661-0005 | 4 |
| 2 | Bushing | | |
| | 3/4" to 2-5/8" Bore | 180-0226 to 180-0057* | 1 |
| 3 | Splined Hub | 540-0064 | 1 |
| 4 | Retainer Ring | 748-0005 | 1 |
| 5A | Mounting Accessory - I.M. | 5321-101-001 | 1 |
| 5B | Mounting Accessory - O.M. | 5321-101-002 | 2 |
| 6A | Magnet - Inside Mounted | | 1 |
| | 6 Volt | 5313-631-005 | |
| | 24 Volt | 5313-631-006 | |
| | 90 Volt | 5313-631-007 | |
| | †90 Volt | 5313-631-001 | |
| 6A-1 | Terminal Accessory | 5311-101-001 | 1 |
| 6B | Magnet - Outside Mounted | | 1 |
| | 6 Volt | 5313-631-010 | |
| | 24 Volt | 5313-631-012 | |
| | 90 Volt | 5313-631-011 | |
| | †90 Volt | 5313-631-002 | |

| Item | Description | PB-1225, H.D. Part Number | Qty. |
|------|--------------------|---------------------------|------|
| 6B-1 | Terminal Accessory | 5311-101-001 | 1 |
| 7 | Conduit Box | 5200-101-011 | 1 |

*See page 20 for specific part numbers. †Optional LK facing available.

How to Order:

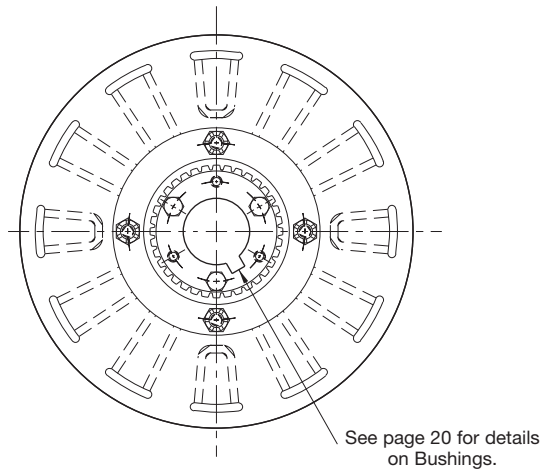
1. Specify Bore Size for Item 2.
2. Specify Inside Mounted for Items 5A and 6A or Outside Mounted for Items 5B and 6B.
3. Specify Voltage for Item 6A or 6B.
4. See P-1234 for Power Supplies.

Example:

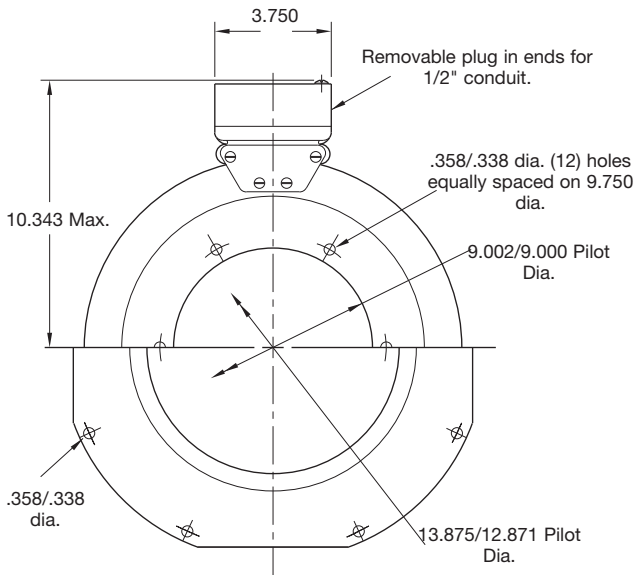
PB-1225 Clutch per I-25607 - 90 Volt, 1-1/2" Bore, Inside Mounted

These units, when used in conjunction with the correct Warner Electric conduit box, meet the standards of UL508 and are listed under guide card #NMTR, file #59164. These units are CSA certified under file #LR11543.

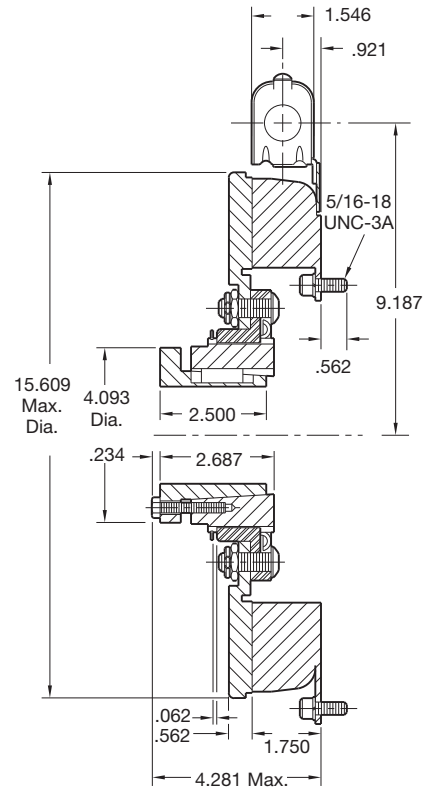
PB-1525 Brake-Heavy Duty



Armature View



Magnet View



| | |
|------------------|----------------|
| Shaft Size | .750 – 2.687 |
| Static Torque | 700 lb. ft. |
| Maximum Speed | 2,000 rpm |
| Standard Voltage | D.C. 6, 24, 90 |

* Mounting holes are within .010 of true position relative to pilot diameter.

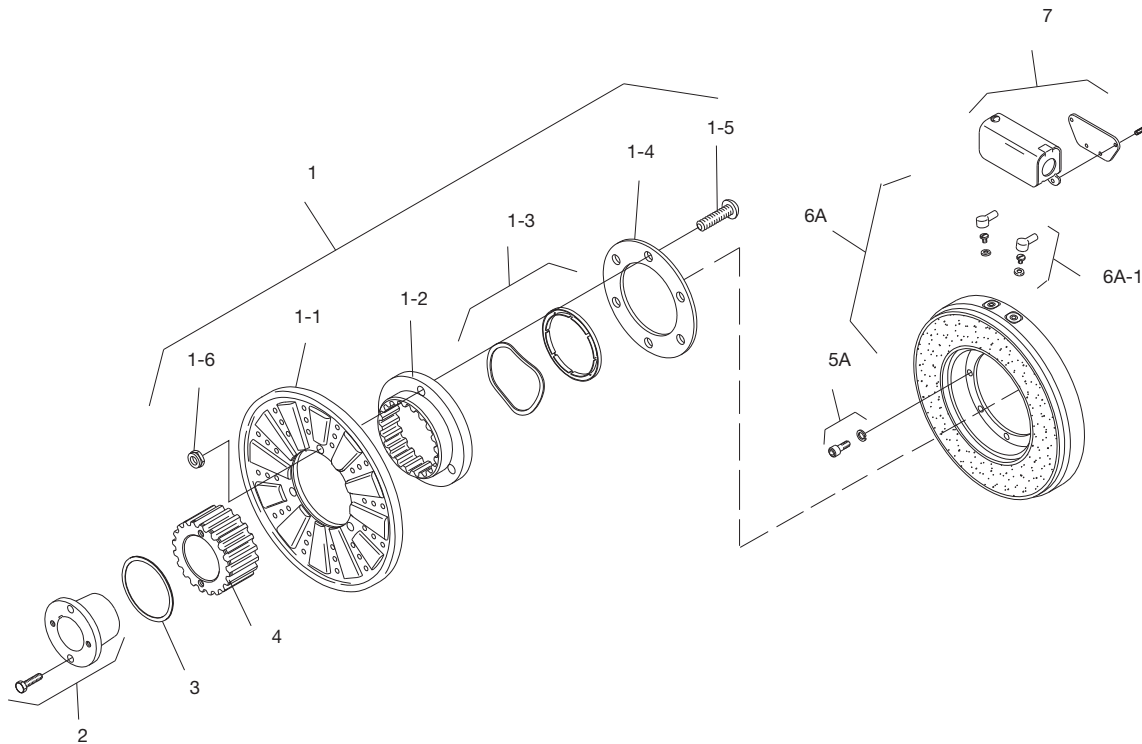
Customer Shall Maintain:

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



PB-1525 Brake-Heavy Duty

Drawing I-25634



| Item | Description | PB-1525, H.D. Part Number | Qty. |
|------|----------------------------|------------------------------|------|
| 1 | Armature & Splined Adapter | 5324-111-001 | 1 |
| 1-1 | Armature | 5324-111-034 | 1 |
| 1-2 | Splined Adapter | 104-0011 | 1 |
| 1-3 | Autogap Accessory | 5323-101-002 | 1 |
| 1-4 | Retainer Plate | 686-0003 | 1 |
| 1-5 | Screw | 797-0272 | 8 |
| 1-6 | Locknut | 661-0004 | 8 |
| 2 | Bushing | | |
| | 3/4" to 2-5/8" Bore | 180-0026 to 180-0057* | 1 |
| 3 | Splined Hub | 540-0064 | 1 |
| 4 | Retainer Ring | 748-0005 | 1 |
| 5A | Mounting Accessory - I.M. | 5321-101-001 | 2 |
| 5B | Mounting Accessory - O.M. | | |
| 6A | Magnet - Inside Mounted | | 1 |
| | 6 Volt | 5314-631-004 | |
| | 24 Volt | 5314-631-006 | |
| | 90 Volt | 5314-631-005 | |
| | †90 Volt | 5314-631-001 | |
| 6A-1 | Terminal Accessory | 5311-101-001 | 1 |
| 6B | Magnet - Outside Mounted | | |
| 6B-1 | Terminal Accessory | | |
| 7 | Conduit Box | 5200-101-011 | 1 |

*See page 20 for specific part numbers. †Optional LK facing available.

How to Order:

1. Specify Bore Size for Item 2.
2. Specify Inside Mounted for Items 5A and 6A or Outside Mounted for Items 5B and 6B.
3. Specify Voltage for Item 6A or 6B.
4. See P-1234 for Power Supplies.

Example:

PB-1525 Clutch per I-25634 - 90 Volt, 1-3/4" Bore

These units, when used in conjunction with the correct Warner Electric conduit box, meet the standards of UL508 and are listed under guide card #NMTR, file #59164. These units are CSA certified under file #LR11543.

Bushing Part Numbers Browning Bushing

| Shaft Size | Keyway Size | Bushing Number | |
|------------|-------------|-----------------|----------|
| | | Warner Electric | Browning |
| 1/2 | 1/8 x 1/16 | 180-0002 | H-1 |
| 9/16 | 1/8 x 1/6 | 180-0003 | |
| 5/8 | 3/16 x 3/32 | 180-0004 | |
| 11/16 | 3/16 x 3/32 | 180-0005 | |
| 3/4 | 3/16 x 3/32 | 180-0006 | |
| 13/16 | 3/16 x 3/32 | 180-0007 | |
| 7/8 | 3/16 x 3/32 | 180-0008 | |
| 15/16 | 1/4 x 1/8 | 180-0009 | |
| 1 | 1/4 x 1/8 | 180-0010 | |
| 1-1/6 | 1/4 x 1/8 | 180-0011 | |
| 1-1/8 | 1/4 x 1/8 | 180-0012 | |
| 1-3/16 | 1/4 x 1/8 | 180-0013 | |
| 1-1/4 | 1/4 x 3/16 | 180-0014 | |
| 1-5/16 | 5/16 x 7/32 | 180-0015 | |
| 1-3/8 | 5/16 x 7/32 | 180-0016 | |
| 1-7/16 | 3/8 x 1/4 | 180-0017 | H-2 |
| 1-1/2 | 3/8 x 7/32 | 180-0018 | |
| 3/4 | 1/2 x 3/8 | 180-0026 | |
| 13/16 | 1/2 x 3/8 | 180-0027 | QI-1 |
| 7/8 | 1/2 x 3/8 | 180-0028 | |
| 15/16 | 1/2 x 3/8 | 180-0029 | |
| 1 | 1/2 x 3/8 | 180-0030 | |
| 1-1/16 | 1/2 x 3/8 | 180-0031 | |
| 1-1/8 | 1/2 x 3/8 | 180-0032 | |
| 1-3/16 | 1/2 x 3/8 | 180-0033 | |
| 1-1/4 | 1/2 x 3/8 | 180-0034 | |
| 1-5/16 | 1/2 x 3/8 | 180-0035 | |
| 1-3/8 | 1/2 x 3/8 | 180-0036 | |
| 1-7/16 | 1/2 x 3/8 | 180-0037 | |
| 1-1/2 | 1/2 x 3/8 | 180-0038 | |
| 1-9/16 | 1/2 x 3/8 | 180-0039 | |
| 1-5/8 | 1/2 x 3/8 | 180-0040 | |
| 1-11/16 | 1/2 x 3/8 | 180-0041 | |
| 1-3/4 | 1/2 x 3/8 | 180-0042 | |
| 1-13/16 | 1/2 x 3/8 | 180-0043 | |
| 1-7/8 | 1/2 x 3/8 | 180-0044 | |
| 1-15/16 | 1/2 x 3/8 | 180-0045 | |
| 2 | 1/2 x 3/8 | 180-0046 | QI-2 |
| 2-1/16 | 1/2 x 3/8 | 180-0047 | |
| 2-1/8 | 1/2 x 3/4 | 180-0048 | |
| 2-3/16 | 1/2 x 23/32 | 180-0049 | |
| 2-1/4 | 1/2 x 11/16 | 180-0050 | |
| 2-5/16 | 5/8 x 5/16 | 180-0051 | |
| 2-3/8 | 5/8 x 5/16 | 180-0052 | |
| 2-7/16 | 5/8 x 5/16 | 180-0053 | |
| 2-1/2 | 5/8 x 5/16 | 180-0054 | |
| 2-9/16 | 5/8 x 5/16 | 180-0055 | |
| 2-5/8 | 5/8 x 5/16 | 180-0056 | |
| 2-11/16 | 5/8 x 5/16 | 180-0057 | |

Dodge Bushing

| Shaft Size | Keyway Size | Bushing Number | | |
|------------|-------------|-----------------|-------|------|
| | | Warner Electric | Dodge | |
| 1/2 | 1/8 x 1/16 | 180-0101 | 1210 | |
| 9/16 | 1/8 x 1/16 | 180-0102 | | |
| 5/8 | 3/16 x 3/32 | 180-0103 | | |
| 11/16 | 3/16 x 3/32 | 180-0104 | | |
| 3/4 | 3/16 x 3/32 | 180-0105 | | |
| 13/16 | 3/16 x 3/32 | 180-0106 | | |
| 7/8 | 3/16 x 3/32 | 180-0107 | | |
| 5/16 | 1/4 x 1/8 | 180-0108 | | |
| 1 | 1/4 x 1/8 | 180-0109 | | |
| 1-1/16 | 1/4 x 1/8 | 180-0110 | | |
| 1-1/8 | 1/4 x 1/8 | 180-0111 | | |
| 1-3/16 | 1/4 x 1/8 | 180-0112 | | |
| 1-1/4 | 1/4 x 1/8 | 180-0113 | | |
| 1/2 | 1/8 x 1/16 | 180-0116 | | 1215 |
| 9/16 | 1/8 x 1/16 | 180-0117 | | |
| 5/8 | 3/16 x 3/32 | 180-0118 | | |
| 11/16 | 3/16 x 3/32 | 180-0119 | | |
| 3/4 | 3/16 x 3/32 | 180-0120 | | |
| 13/16 | 3/16 x 3/32 | 180-0121 | | |
| 7/8 | 3/16 x 3/32 | 180-0122 | | |
| 15/16 | 1/4 x 1/8 | 180-0123 | | |
| 1 | 1/4 x 1/8 | 180-0124 | | |
| 1-1/16 | 1/4 x 1/8 | 180-0125 | | |
| 1-1/8 | 1/4 x 1/8 | 180-0126 | | |
| 1-3/16 | 1/4 x 1/8 | 180-0127 | | |
| 1-1/4 | 1/4 x 1/8 | 180-0128 | | |
| 1/2 | 1/8 x 1/16 | 180-0131 | 1615 | |
| 9/16 | 1/8 x 1/16 | 180-0132 | | |
| 5/8 | 3/16 x 3/32 | 180-0133 | | |
| 11/16 | 3/16 x 3/32 | 180-0134 | | |
| 3/4 | 3/16 x 3/32 | 180-0135 | | |
| 13/16 | 3/16 x 3/32 | 180-0136 | | |
| 7/8 | 3/16 x 3/32 | 180-0137 | | |
| 15/16 | 1/4 x 1/8 | 180-0138 | | |
| 1 | 1/4 x 1/8 | 180-0139 | | |
| 1-1/16 | 1/4 x 1/8 | 180-0140 | | |
| 1-1/8 | 1/4 x 1/8 | 180-0141 | | |
| 1-3/16 | 1/4 x 1/8 | 180-0142 | | |
| 1-1/4 | 1/4 x 1/8 | 180-0143 | | |
| 1-5/16 | 5/16 x 5/32 | 180-0144 | | |
| 1-3/8 | 5/16 x 5/32 | 180-0145 | | |
| 1-7/16 | 3/8 x 3/16 | 180-0146 | | |
| 1-1/2 | 3/8 x 3/16 | 180-0147 | | |
| 1-9/16 | 3/8 x 3/16 | 180-0148 | | |
| 1-5/8 | 3/8 x 3/16 | 180-0149 | | |
| 1/2 | 1/8 x 1/16 | 180-0155 | 2012 | |
| 9/16 | 1/8 x 1/16 | 180-0156 | | |
| 5/8 | 3/16 x 3/32 | 180-0157 | | |
| 11/16 | 3/16 x 3/32 | 180-0158 | | |
| 3/4 | 3/16 x 3/32 | 180-0159 | | |
| 13/16 | 3/16 x 3/32 | 180-0160 | | |
| 7/8 | 3/16 x 3/32 | 180-0161 | | |
| 15/16 | 1/4 x 1/8 | 180-0162 | | |
| 1 | 1/4 x 1/8 | 180-0163 | | |
| 1-1/16 | 1/4 x 1/8 | 180-0164 | | |
| 1-1/8 | 1/4 x 1/8 | 180-0165 | | |
| 1-3/16 | 1/4 x 1/8 | 180-0166 | | |
| 1-1/4 | 1/4 x 1/8 | 180-0167 | | |

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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