

MTB II Modular Tension Brakes

Installation Instructions

P-259-1-WE
819-0342



 **Warner**[®]
Electric

An **Altra Industrial Motion** Company

Introduction

The instructions on this sheet cover installation of all replacement components available for modular tension brakes. These instructions are divided into sections as designated by the introductory headlines. Please check these headings to locate the proper instruction for the replacement components being installed. Friction components, the most frequently replaced items, are found near the end of these instructions.

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

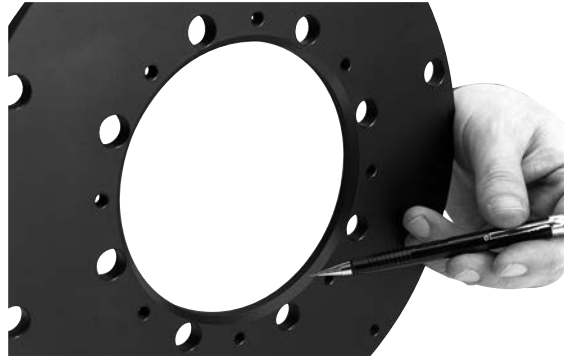
Contents

| | |
|-----------------------------------------------------|----|
| Assembling Armature to Armature Carrier | 2 |
| Installing the Armature Assembly | 3 |
| Tapered Bushing Carrier | 3 |
| Straight Bore Carrier | 3 |
| Mounting the Magnets | 3 |
| Adjusting the Armature Assembly | 4 |
| Control Connection | 5 |
| Servicing Friction Surfaces | 5 |
| Rebuild Procedure | 5 |
| Removal of the Armatures | 5 |
| Replacement of Friction Pads | 6 |
| Assemble and Install the Armature Assembly | 6 |
| Wear-In | 6 |
| Modification of Straight Bore Armature Carriers . . | 6 |
| Bulk Head Mounting Brackets | 7 |
| Direct Mounting | 8 |
| Universal Mounting | 9 |
| Brake Assemblies and Part Numbers | 10 |

Assembling the Armature to the Armature Carrier

The beveled edge on the inside diameter of the armature is to be assembled facing the armature carrier. Tighten all screws to 7-9 ft. lbs. torque. (Figure 1)

Figure 1



Using the screws and lockwashers provided with the armature(s), mount the armature(s) to the armature carrier. If a single armature is used, mount it on the appropriate side of the hub. Be sure to allow easy access to the tapered bushing. (Figure 2)

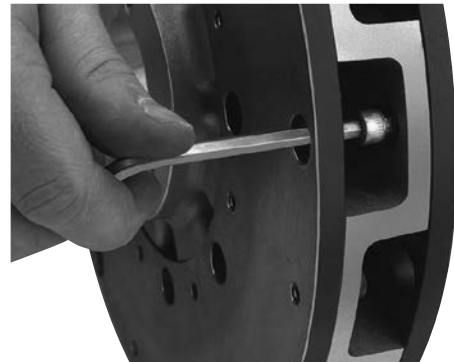


Figure 2

Installing the Armature Assembly

Insert the tapered bushing loosely into the armature assembly and start the capscrews with their lockwashers. (Figure 3)

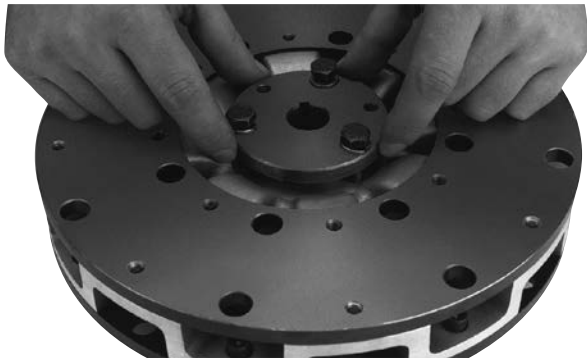


Figure 3

Tapered Bushing Carrier

Install the key in the machine shaft keyway. (Figure 4)



Figure 4

Slide the armature carrier assembly onto the shaft to the approximate position required for operation. **Do not tighten the bushing yet** since final positioning will be required later. (Figure 5)



Figure 5

Straight Bore Carrier

The armature carrier may be ordered with a range of standard straight bores suitable for various standard mounting products. Custom bores are also available to adapt to special devices. Consult the factory for information on modifications.

Mounting the Magnets

If mounting brackets are used, mount the brackets to the machine frame using the holes prepared earlier. (Figure 6)



Figure 6

If a Warner magnet carrier is used, place the carrier on a horizontal surface with the pins facing up. (Figure 7)



Figure 7

If the magnets are to be free mounted, mount the pins as required according to the free mount layout. Place the magnets on the pins with the lead wires outboard. (Figure 8)



Figure 8

Bolt the magnet carriers directly to the mounting bracket with furnished capscrews and lockwashers. (Figure 9)

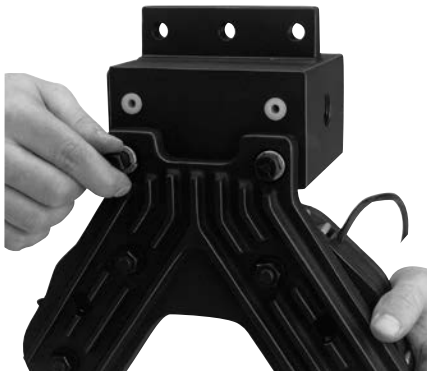


Figure 9

Note: If the universal mounting bracket is used AND the armature assembly has 2 armatures, the furnished spacers must be installed between the magnet carriers and bracket. Tighten all magnet carrier mounting bolts securely. (Figure 10)



Figure 10

Adjusting the Armature Assembly

For an armature assembly with a single armature face, position the armature assembly so the space between the back of the magnet and the magnet carrier assembly is approximately 1/4". (Figure 11)

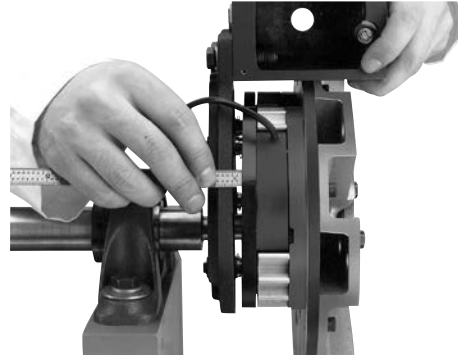


Figure 11

For a dual armature assembly, position armature assembly for approximately equal space behind the magnets on each side. (Figure 12)



Figure 12

Tighten the armature assembly to the shaft. The maximum axial runout on either face is to be less than .015 T.I.R. (Figure 13)

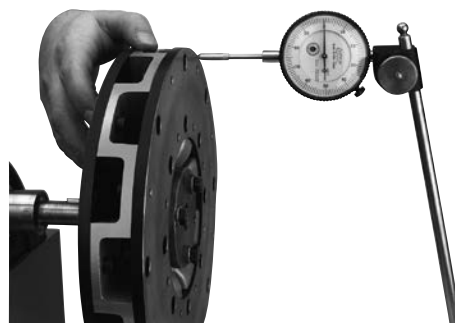


Figure 13

If the bore on the aluminum carrier has been modified, the radial runout of the aluminum carrier is not to exceed .008 inches. (Figure 14)

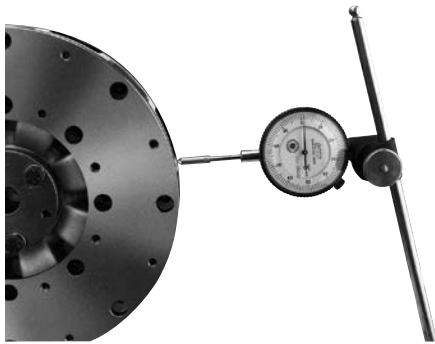


Figure 14

Control Connection

⚠ WARNING Contact with live wires can cause injury or death. Be sure all power is turned off before starting the connection process.

Wire the magnets to the control in accordance with the instructions included with the control. Warner Electric offers several different systems ranging from a simple manual control through a roll follower system to several types of closed loop systems. For more information, ask for catalog P-771. (Figure 15)

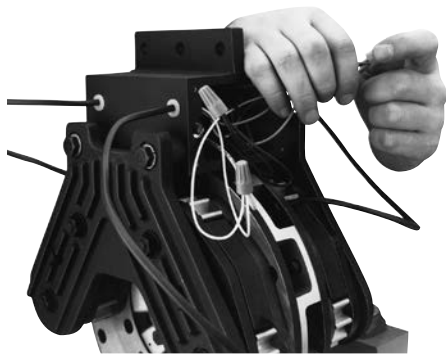


Figure 15

Servicing Modular Tension Brake Friction Surfaces Magnet Inspection

Each magnet is supplied with visual wear indicators. When the magnet is worn to these indicators, pad replacement is required. (Figure 16)

If the magnet is supplied with an electronic wear indicator, a signal will be sent to the control to indicate replacement is required.

Both the visual and electronic wear indicators are preset to indicate replacement at 85 percent wear out, allowing 15 percent more life for planned maintenance.

A used armature should not be resurfaced nor turned over to be used on the other side.



Figure 16

Rebuild Procedure

Note: When disconnecting and reconnecting leads to the magnet, the input power must be shut off to the control system.

Removal of the Armatures

If required, remove the armature assembly from the shaft.

Remove the brackets and magnet carriers to gain access to the armature(s). Remove the armature face(s) with the armature in place, if possible. If machine framework or components prevent face(s) removal, the entire armature assembly may have to be separated from the brake hub and removed from the machine to access the face(s).

Since the armature and magnet faces are the only tension brake components which sustain wear, replaceable faces are offered for both, to maximize brake life. The following instructions deal with wear assessment and friction face replacement.

Replacement of Friction Pads

Remove the old pads from the magnets. (Figure 17)

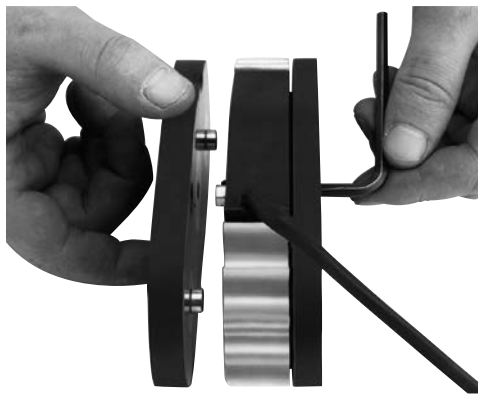


Figure 17

If the magnets are supplied with electronic wear indicators, replace the hexagon brass contacts (Warner Electric part no. 274-1029) on each magnet. Tighten to 6-8 in. lb. torque. Attach the new pads to the magnets. Tighten each screw to 7-9 ft. lbs. torque. (Figure 18)



Figure 18

Assemble and Install the Armature Assembly

Follow the previous instructions for assembly and installation of the armature assembly.

Wear-In

Replacement of the friction faces will require a new wear-in period as the pads seat themselves on the armature.

With a closed-loop control system, such as dancer or load cell control, no changes in torque will be apparent during wear-in. The control system will compensate for any variations.

With a manual control system, however, an unburnished brake will produce only about 75% of its fully burnished torque. If full torque is required at start-up, the brake should have a preburnish period to fully seat the magnets on the armature to provide full torque. If this is not possible, several torque adjustment settings will be required during the initial hours of on line operation. Burnishing is the process of mating the friction surfaces of a brake that is mounted and ready for service.

Modification of Straight Bore Armature Carriers

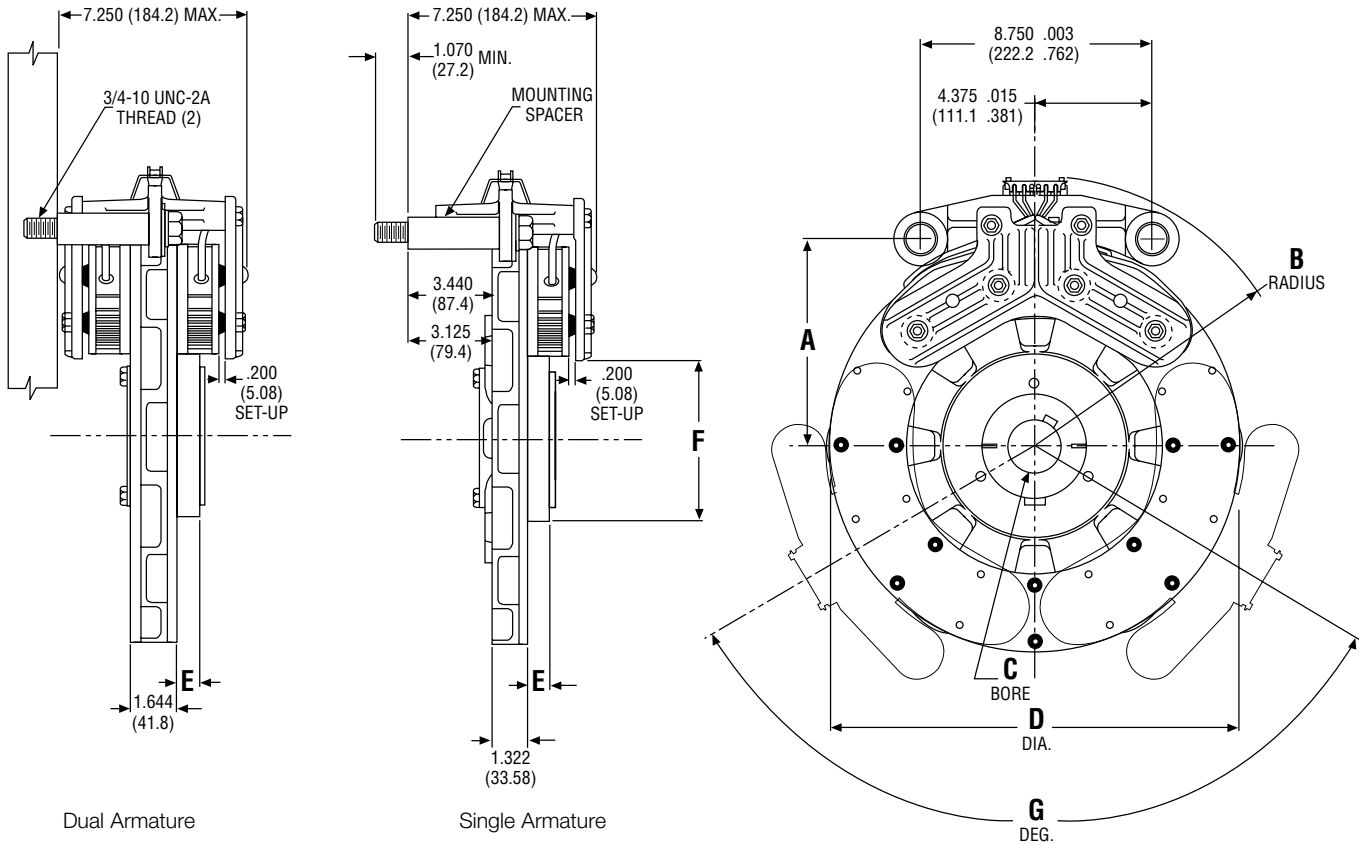
The straight bore armature carrier may be modified to accept a variety of mountings.

If a modification to the armature is required, the modified assembly must meet the following requirements. With the armature assembly fully installed on the shaft:

1. Maximum radial runout of the aluminum carrier is .008"
2. Maximum axial runout on either face is .015" T.I.R.

Dimensions

Modular Tension Brake Bulk Head Mounting Brackets



Dual Armature

Single Armature

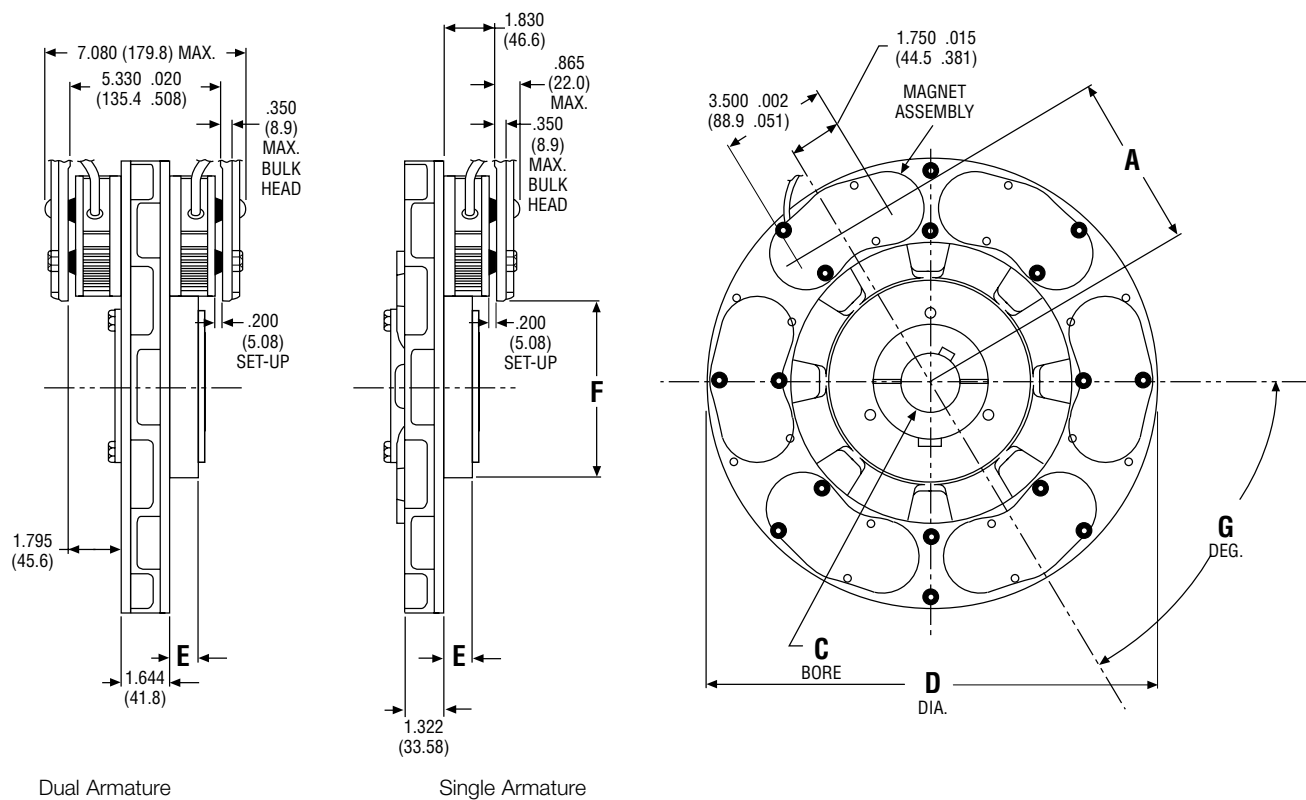
inch (metric)

All Dimensions Nominal unless specified

| Armature Size | A | B Max. | C BORE | | D Max. | E Max. | F Max. | G Degree |
|---------------|--------------------------------|-------------------|------------------|----------------------------|-------------------|-----------------|------------------|--------------|
| | | | Stock* | Bushing | | | | |
| 10" | 5.260 ± .020 (133.6 ± 0.5) | 7.750 (196.9) | 1.750 (44.45) | .500–1.750 (14.0–42.0) | 10.020 (254.5) | .479 (12.2) | 3.55 (88.9) | 180 |
| 13" | 6.822 ± .020 (173.3 ± 0.5) | 9.300 (236.2) | 3.375 (85.73) | 1.125–3.750 (28.0–95.0) | 13.520 (343.4) | 1.219 (31.0) | 5.687 (144.4) | 108 & 144 |
| 15" | 7.760 ± .020 (197.1 ± 0.5) | 10.230 (259.9) | 3.375 (85.73) | 1.125–3.750 (28.0–95.0) | 15.325 (389.3) | 1.219 (31.0) | 6.875 (174.6) | 120 |
| 20" | 10.250 ± .020 (260.4 ± 0.5) | 12.500 (317.5) | — — | 2.375–5.500 — | 20.020 (508.5) | 2.720 (69.1) | 4.380 (111.3) | — |

* Stock bore is straight bore for use with Trantorque bushing.

Modular Tension Brake-Direct Mounting



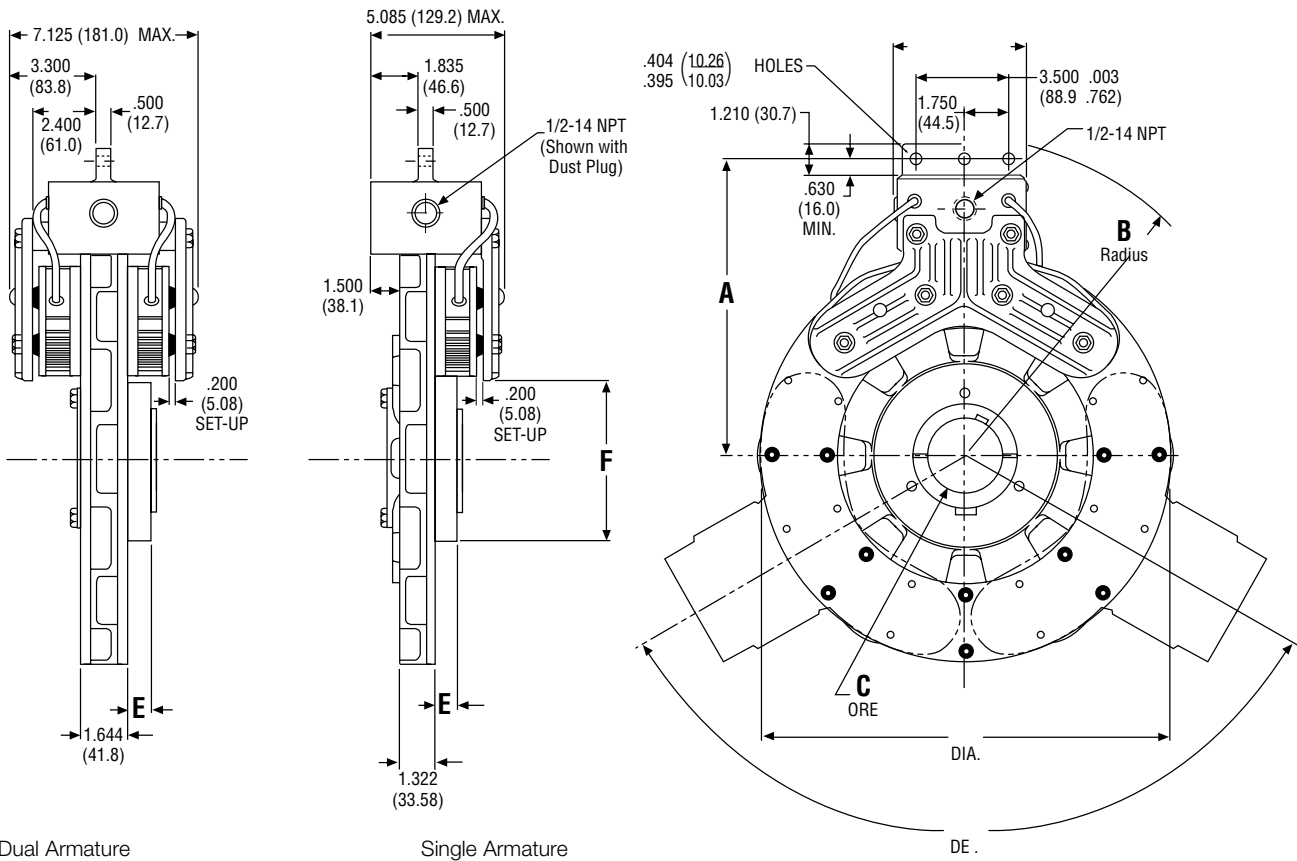
inch (metric)

All Dimensions Nominal unless specified

| Armature Size | A | B Max. | C BORE | | D Max. | E Max. | F Max. | G Degree |
|---------------|-------------------------------|--------------|------------------|----------------------------|-------------------|-----------------|------------------|----------|
| | | | Stock* | Bushing | | | | |
| 10" | 3.350 ± .020 (85.1 ± 0.5) | N/A (N/A) | 1.750 (44.45) | .500–1.750 (14.0–42.0) | 10.020 (254.5) | .479 (12.2) | 3.550 (88.9) | 120 |
| 13" | 5.215 ± .020 (132.5 ± 0.5) | N/A (N/A) | 3.375 (85.73) | 1.125–3.750 (28.0–95.0) | 13.520 (343.4) | 1.219 (31.0) | 5.687 (144.4) | 72 |
| 15" | 5.850 ± .020 (148.6 ± 0.5) | N/A (N/A) | 3.375 (85.73) | 1.125–3.750 (28.0–95.0) | 15.325 (389.3) | 1.219 (31.0) | 6.875 (174.6) | 60 |
| 20" | 8.125 ± .040 (206.4 ± 1.0) | N/A (N/A) | — — | 2.375–5.500 — | 20.020 (508.5) | 2.720 (69.1) | — — | — |

* Stock bore is straight bore for use with Trantorque bushing.

Modular Tension Brake–Universal Mounting Brackets



Dual Armature

Single Armature

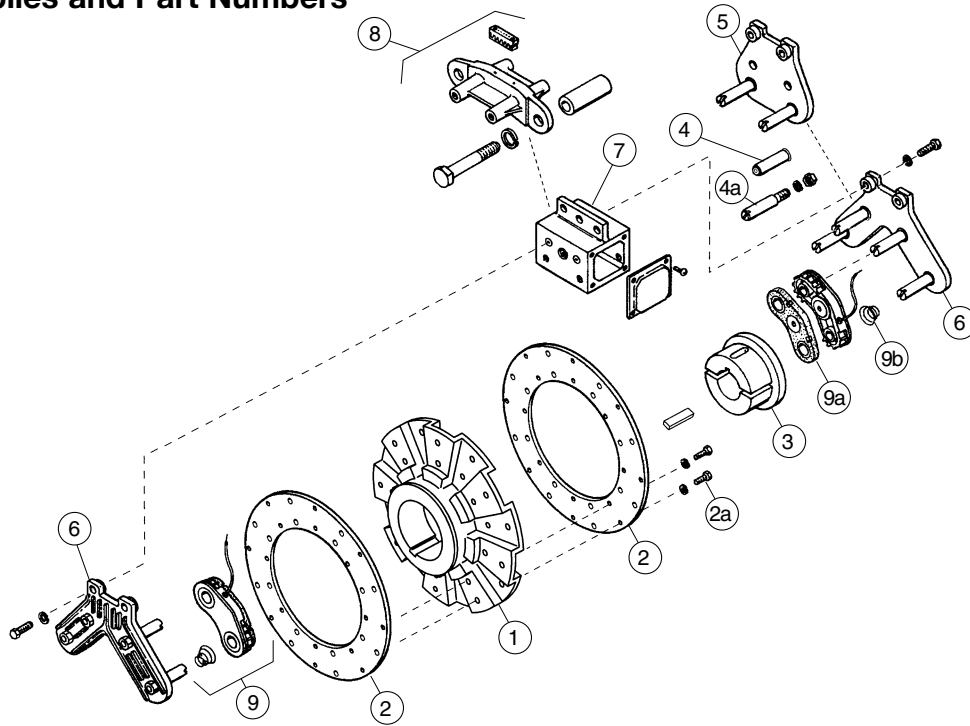
inch (metric)

All Dimensions Nominal unless specified

| Armature Size | A | B Max. | C BORE | | D Max. | E Max. | F Max. | G Degree |
|---------------|--------------------------------|-------------------|------------------|----------------------------|-------------------|-----------------|------------------|--------------|
| | | | Stock* | Bushing | | | | |
| 10" | 8.625 ± .020 (219.0 ± 0.5) | 9.500 (241.3) | 1.750 (44.45) | .500–1.750 (14.0–42.0) | 10.020 (254.5) | .479 (12.2) | 3.550 (88.9) | 180 |
| 13" | 10.187 ± .020 (258.7 ± 0.5) | 11.000 (279.4) | 3.375 (85.73) | 1.125–3.750 (28.0–95.0) | 13.520 (343.4) | 1.219 (31.0) | 5.687 (144.4) | 108 & 144 |
| 15" | 11.125 ± .020 (282.6 ± 0.5) | 12.000 (304.8) | 3.375 (85.73) | 1.125–3.750 (28.0–95.0) | 15.325 (389.3) | 1.219 (31.0) | 6.875 (174.6) | 120 |
| 20" | 13.470 ± .020 (340.4 ± 0.5) | 14.250 (362.0) | — — | 2.375–5.500 — | 20.020 (508.5) | 2.720 (69.1) | 4.380 (111.3) | — |

* Stock bore is straight bore for use with Trantorque bushing.

Brake Assemblies and Part Numbers MTB II



Part Numbers

| Item | Description | 10" Armature | 13" Armature | 15" Armature | 20" Armature |
|-------------------------|-------------------------------------------------------------------------------|-----------------------------------------|--------------|--------------|--------------|
| 1 | Armature Carrier (Bushing Enters from Flush Side of Carrier as Shown) | 295-0021 | 295-0023 | 295-0019 | - |
| | Armature Carrier Reverse Taper (Bushing Enters from Extended Side of Carrier) | 295-0031 | 295-0030 | 295-0029 | - |
| | Armature Carrier (Straight Bore) | 295-0026 | 295-0027 | 295-0028 | - |
| 2 | Armature (Replaceable Face) | 5216-101-025 | 5216-101-026 | 5216-101-024 | - |
| 2a | Armature Mounting Accessory (included with Armature) | 5216-101-023 | 5216-101-023 | 5216-101-023 | - |
| 3 | Bushing (Customer Supplied) Taper Bore | Browning P1 | Browning R1 | Browning R1 | - |
| | Straight Bore | Use Trantorque. Consult Warner Electric | | | |
| 4 | Female Pin Kit (includes 2 Pins) | 5216-101-030 | 5216-101-030 | 5216-101-030 | 5216-101-030 |
| 4a | Male Pin Kit (includes 32 Pins with Nuts and Lockwashers) | 5216-101-029 | 5216-101-029 | 5216-101-029 | 5216-101-029 |
| Magnet Carriers | | | | | |
| 5 | Single Magnet Carrier Assembly | 5216-295-004 | 5216-295-004 | 5216-295-004 | 5216-295-004 |
| 6 | Dual Magnet Carrier Assembly | 5216-295-005 | 5216-295-006 | 5216-295-007 | 5216-295-007 |
| Carrier Brackets | | | | | |
| 7 | Universal Mounting Bracket, Series 10-0, 13-0, & 20-0 (2) | 5216-101-020 | 5216-101-020 | 5216-101-020 | 5216-101-020 |
| | Universal Mounting Bracket, Series 10-10, 13-13, & 20-20 (2) | 5216-101-021 | 5216-101-021 | 5216-101-021 | 5216-101-021 |
| 8 | Bulk Head Mounting Bracket (3) | 5216-101-022 | 5216-101-022 | 5216-101-022 | 5216-101-022 |
| Magnets | | | | | |
| 9 | Magnet Assembly, Standard | 5216-631-010 | 5216-631-010 | 5216-631-010 | 5216-631-010 |
| | Magnet Assembly, HICO | 5216-631-013 | 5216-631-013 | 5216-631-013 | 5216-631-013 |
| 9a | Friction Pad, Standard (Replacement Part Only) | 5216-101-028 | 5216-101-028 | 5216-101-028 | 5216-101-028 |
| | Friction Pad, HICO | 5216-631-031 | 5216-631-031 | 5216-631-031 | 5216-631-031 |
| 9b | Preload Spring (1) (Included with Magnets) | 808-0008 | 808-0008 | 808-0008 | 808-0008 |
| 10 | Magnet Assembly with Wear Indicator | 5216-631-009 | 5216-631-009 | 5216-631-009 | 5216-631-009 |
| 10a | Friction Pad with Wear Indicator (Replacement Part Only) | 5216-101-027 | 5216-101-027 | 5216-101-027 | 5216-101-027 |

(1) Two of each required for each brake magnet.

(2) Includes magnet carrier (4 & 5) mounting hardware.

(3) Includes magnet mounting hardware, bracket mounting bolts and spacers.

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Warranty

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