

12-1/4" x 3-1/2" Electric Wheel Brake

Installation Instructions

A-216
819-0244



**Warner**[®]
Electric

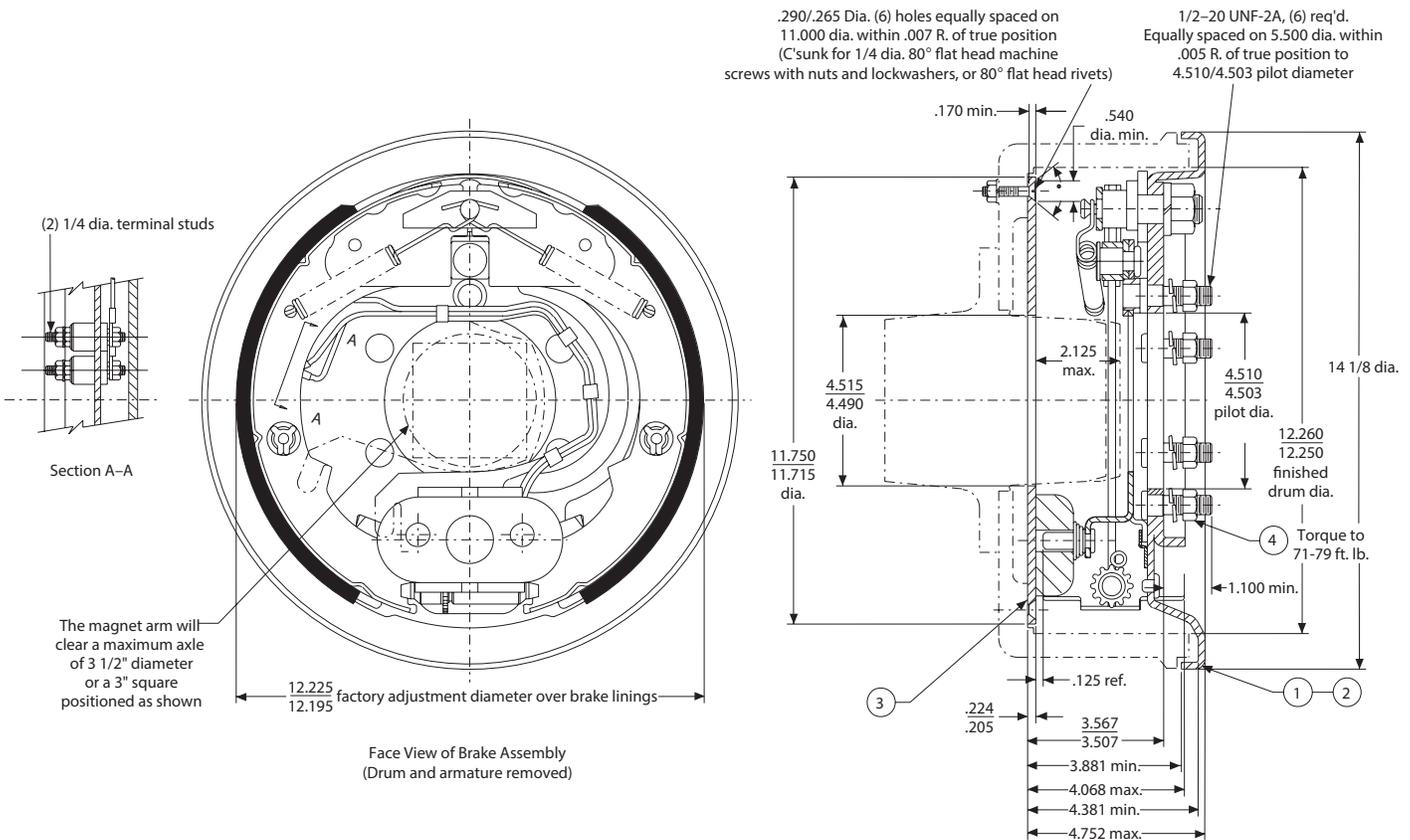
An **Altra Industrial Motion** Company

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

Dimensions when used with .224/.205 Armature, Warner Electric Part No. 110-0124



Right hand brake shown
Left hand brake opposite
Drawing No. I-26117

Technical Specifications

Brake Rating – 7,500 lbs. to 10,000 lbs. axle rated per pair. Based on an average retarding torque which will produce a minimum of 43.5% retardation, or 14 ft./sec.² deceleration from 20 mph initial velocity with 13.3 in. to 17.2 in. rolling radius tires, with 10.8 volts at the magnets.

Mounting – 6 holes on 5.5" B.C.

Electrical – 12 Volt D.C. system only

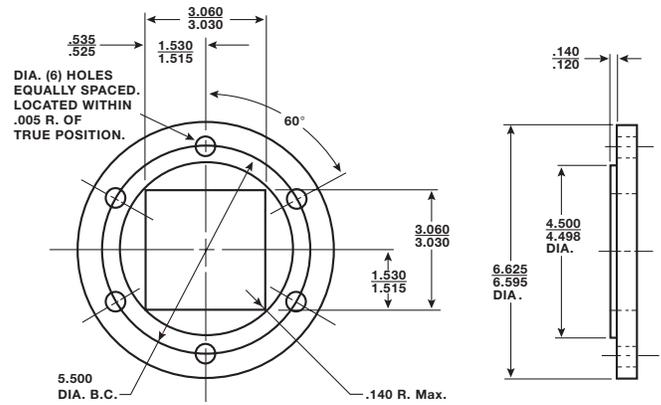
Lining Area – 90 sq. in.

Drum Swept Area – 135 sq. in.

Lining Thickness – 5/16" nominal

Assembly Weight – 25 lbs. per brake
7 lbs. per armature

Note: Use with armature type drum only.



Axle Flange

Flanges available from a factory source.

12-1/4" x 3-1/2" Utility Brake Installation Instructions

The performance of your Warner Electric 12-1/4" x 3-1/2" brake depends greatly on accurate installation. Since proper installation helps to assure long life and dependable performance, please follow these installation instructions carefully. Pay particular attention to drawing I-26117 on page 2 of the manual.

General Instructions

The Warner Electric 12-1/4" x 3-1/2" utility brake is designed for use with one-piece steel armature number 110-0124, mounted inside the brake drums.

For other possible combinations, please consult your Warner Electric sales representative or Warner Electric at 815-389-3771.

A. Preparing the Brake Mounting Surface

Before installing the brake, check the concentricity and squareness of the brake drum to the hub and spindle. To do this, mount the drum on the spindle according to the manufacturer's specifications.

The following tolerances must be held:

Drum friction surface concentric to spindle centerline within .015-inch T.I.R. (Total Indicator Reading).

Armature surface square to spindle within .020-inch T.I.R.

B. Installing on Axle Flanges

1. The axle flange on which the brake mounts must have a 4.500/4.498-inch pilot diameter.
2. This axle flange must be welded concentric to the spindle within .015-inch T.I.R. (measured at the pilot diameter). The axle must be square to the spindle within .010-inch T.I.R. (measured at the brake mounting surface). Refer to drawing I-26117.

C. Installing the Brake

Note: Brakes are designed as either right hand or left hand assemblies by the RH or LH marked on the outside of each backing plate. (See Figure 1). The arrow on Figure 1 indicates the direction of forward travel.



Figure 1 - Brake Designation

1. Mount the brake to the axle flange with the anchor pin at the top, the magnet at the bottom, and the curve of the actuating lever pointing toward the front of the trailer (see Figure 2).



Figure 2 - Mounting Position

2. Check to be sure that the brake backing plate mates properly to the axle flange pilot. The brake must be square with the spindle when bolted into place.

3. Tighten each of the six nuts with lockwashers to 71-79 ft.-lbs. torque. Tighten them alternately and evenly before applying full torque (see Figure 3). Note that the pivot pin also serves as a mounting stud. Retorque the nuts after 50 miles of driving and periodically thereafter.
4. After the brake has been mounted to the flange, operate the lever arm to assure that it moves freely.



Figure 3 - Tightening Nuts

D. Preparing the Brake Drum

Armature mounting holes are drilled in the brake drum as indicated on the dimensional drawing I-26117, page 2.

Warner Electric Armature P/N 110-0124
(.224/.205 thick)

- a. Fasten this one-piece steel armature inside the drum with (6) 1/4-inch diameter flat head machine screws with nuts and lockwashers (Step b) or (6) 80° flat head rivets (Step c).
- b. Fasten each machine screw with two nuts tightened against one another to prevent loosening. Peening the ends of the screws is recommended as an additional safeguard against loosening.

- c. Install the rivets according to the drum manufacturer's recommendations.
- d. Install the brake drum according to the manufacturer's recommendations.

E. Adjusting the Brake

1. New brakes come pre-adjusted from the factory and normally should not require additional adjustment **when mated with new drums**. The drum should, however, be checked for freedom of rotation after mounting. If dragging occurs, the brake must be readjusted.
2. Brakes should always be readjusted when they are installed with remachined drums. **Note: Brakes should never be installed in used drums without remachining the drum braking surface.**
3. Follow these instructions to adjust the brake:
 - a. Remove the adjuster plug located at the bottom of the brake and insert an adjusting tool (see Figure 4).



Figure 4 - Brake Adjustment

- b. With the wheel off the ground, expand the shoes until the brake drags significantly. The shoes are expanded by the upward motion of the adjusting tool which turns the adjusting nut.

- c. Back off the adjuster (downward motion of the adjusting tool) until the wheel turns freely, usually 4 to 5 notches on the adjusting nut.
- d. Replace the plug to keep out dirt and moisture.
- e. Brake readjustment is recommended after the first 500 miles of operation (when shoes and drums have been seated).

F. Installing the Trailer Brake Wiring

1. Wire the brakes in parallel according to the wiring diagram (Figure 5).
2. Use good quality, insulated, crimp-type connectors that fit 1/4-inch diameter terminals to attach the wires to the brake.
3. Remove the top nut, and check that the bottom nut remains tight.
4. Install one connector over each 1/4-inch stud terminal with a star washer under the connector. Lock into place with the top nut.

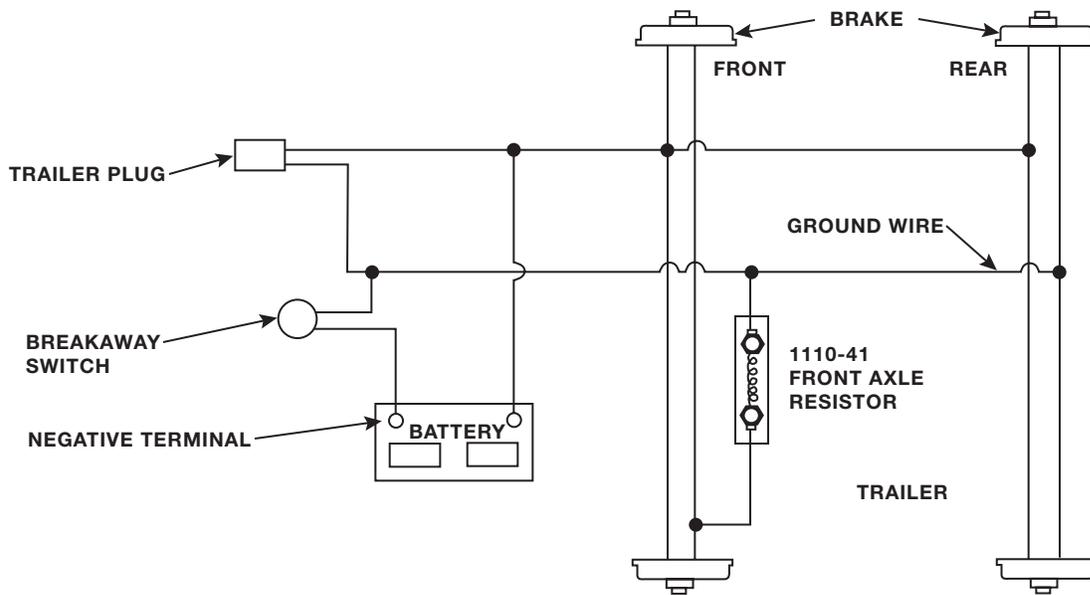


Figure 5 - Brake Wiring

Replacement Parts

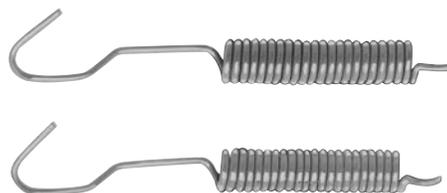
All wearable parts are replaceable with factory original components packed in convenient kits complete with instruction sheets. These kits are available through Warner Electric's Distributor Network.



Magnet Kit
Kit No. 1301-100-014



Shoes & Linings/Shoe Hold Down Spring Kit
Kit No. 1301-100-005



Shoe Return Spring Kit
Kit No. 1301-100-008



Armature Kit
Kit No. 1301-100-013



Terminal Accessory Kit
Kit No. 1301-100-011



Lever Arm Kit, L.H.
Kit No. 1301-100-016

Lever Arm Kit, R.H.
Kit No. 1301-100-015



Adjuster/Adjuster Spring Kit
Kit No. 1301-100-006



Mounting Accessory Kit
Kit No. 1301-100-003

Towing Products Required with Your 12-1/4" x 3-1/2" Brakes

The following section, "Towing Products Required with your 12-1/4" x 3-1/2" Brakes," describes associated controls and components necessary to complete your brake system installation. Please read it carefully.

Controller

Warner Electric has one controller available specifically for use with the 12-1/4" x 3-1/2" brake. The Utility Controller, Warner Electric part number 1300-76, is rated at 30 amps and 4, 6 or 8 brakes. This controller is designed to properly synchronize the towing vehicle and trailer brakes. Using other controllers may result in excessive trailer brake torque causing jerky braking and poor towing vehicle-to-vehicle braking synchronization.

Warner Electric's Utility Controller has an adjustment knob to control trailer brake torque. Labeled "More" (braking power) and "Less" (braking power), this adjustment does not affect maximum braking capacity of the trailer brakes. Because of the wide variety of towing vehicles encountered, balancing towing vehicle brakes and trailer brakes is necessary for smooth, synchronized stops. To achieve this, the controller adjustment should be set to provide a slight lead in trailer braking over towing vehicle braking. Turning the adjustment knob in the "More" direction will increase the trailer brake rate of application, while turning in the "Less" direction will decrease the trailer brake rate of application. When proper adjustment has been achieved, there should be no sensation of the trailer pushing or pulling the towing vehicle during a stop. When this setting has been reached, no further adjustment should be required. For operating with varying load weights, read the following section on "Load Control."

Load Control

The installation of 12-1/4" x 3-1/2" brakes on any trailer which will operate with loads less than rated capacity or with varying loads requires a load control, Warner Electric part number 1300-78, to be installed in the towing vehicle. The Warner Electric Load Control compensates for trailer load variations by limiting the maximum torque output of the brakes by adding dropping resistance in the electrical control line. When towing a trailer loaded to brake rated capacity, the Load Control must be set at maximum braking. When pulling an empty or partially loaded trailer, the Load Control must be set between maximum and minimum braking at a position just before the point at which trailer tire skidding occurs when actuating the hand control fully on. Failure to install and use the Warner Electric Load Control will result in excessive brake torque when stopping a trailer loaded to less than brake capacity.

Front Axle Resistor

The Warner Electric Front Axle Resistor, part number 1100-41, is designed to balance braking forces between front and rear axle on two-axle trailers. Utility trailers with tandem axle rocker arm suspension present a typical application. This suspension tends to transfer weight from the front axle to the rear axle during braking, allowing the front wheels to prematurely lock and skid. By automatically reducing the current flow, the Warner Electric Front Axle Resistor reduces front axle braking forces to improve brake balance, reduce tire wear, and minimize the wheel lock-up.

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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