



Electric Braking System

Operating Instructions



This document will be required for all future references where you will install SIR make Electric Braking systems.



ALWAYS USE GENUINE SIR MAKE SPARE PARTS

Compliance Information

The Kit of parts is covered under CTA Number: **CTA-060556 (10" Electric brake assembly) and CTA-060557 (12" Electric brake assembly)**. Any deviation from the fitment instructions or change in parts from the kit supplied will not be covered under the CTA.

Operation of Electric Brakes – An Overview

Primary purpose of the brakes system is to apply appropriate brakes as and when required. SIR make electric brakes are like the brakes in your car, the difference being car uses hydraulic pressure and our electric brakes use electromagnet system. The brakes get activated instantly you press the brake paddle in the car. The brakes are controlled by a brake mounting controller in your car. More advance system is available where the brakes are controlled remotely. SIR make brakes comply to all those braking system available in the market.

The Electric braking system also allows the hand brake system when the trailer is stationery and not towed to a car.

Lastly, it is critical for the user to ensure that the car towing capacity and weight does not exceed the prescribed limits for the warranty to apply. Brake performance is proportional to the load of the towing vehicle and the trailer. If all of that is good, then SIR Electric brakes assembly will perform as per the requirements.

Mounting instructions **THE KEY FACTOR**

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This system is suitable for single axle trailers rated from 1.4 Ton ATM to ATM and tandem trailers rated from to 4.5 Ton. Pls note that there needs to be a suitable axle fitted with the braking system for rating the trailer to appropriate ATM. Sometimes, the braking capacity may be limited by the dimensions of the axle shaft. The braking system will only work appropriately if the other parts are of the appropriate load rating/ capacities.



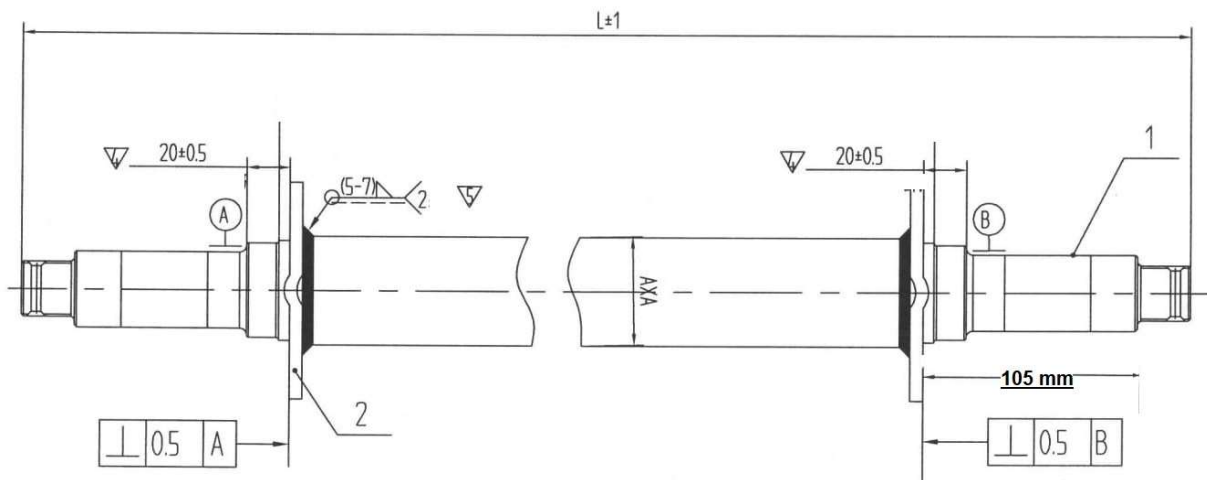
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Brakes Installation

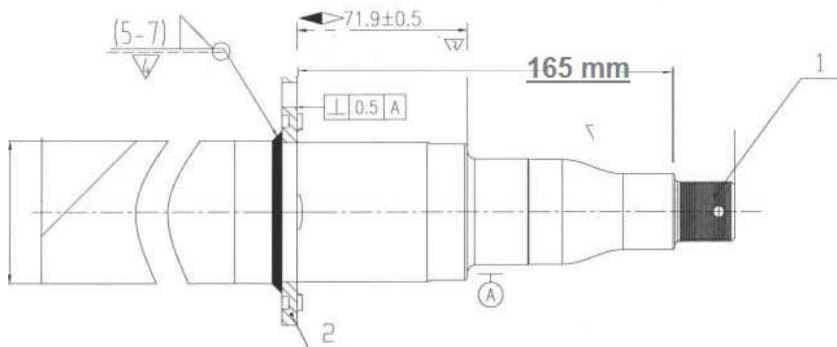
Check Brake Mounting Flange

To mount brakes to an axle, the axle must have brake flange welded to the axle. The 10" drum brakes fit standard 4-hole brake flanges and mount with 7/16" grade 5 or better bolts and lock nuts or lock washers. Our 12" drum brakes fit standard 5-hole brake flanges and mount with 3/8" grade 5 or better bolts and lock nuts or lock washers. The brake flange connected to the axle must be square and concentric with the axle spindle. Also, it is critical to ensure that brake flanges are welded at the exact distance as given below to ensure proper fitment. If the brake flange is not properly installed, it will contribute to rapid lining wear and improper brake action. If your axle does not have flanges pre-welded to the axle, see a qualified technician to weld the plates to your axles. Improper welding can weaken the axle causing severe problems.

PARALLEL/ SLIM LINE AXLE



2 TON AXLE



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Brakes Installation

Brakes are marked as "RIGHT" (RH) and "LEFT" (LH). The "LEFT" brake travels on the passenger's side of the trailer. Place the brake against brake flange with the adjustor wheel at the bottom. Secure with four 7/16" (grade 5) hex head bolts for the 10" brakes or five 3/8" (grade 5) hex head bolts for the 12" brakes. Use lock washers or lock nuts w/flat washers on the back side of the flange. Torque to 30 ft. lbs.

Installing Brake Drum

After the brakes have been correctly assembled to the brake flanges, TAKE NOTE which direction the spoon needs to be moved in order to open the star wheel, mount the brake drum to the spindle. Please ensure the drums are fitted with correct cups, bearings and seal that suits the axle shaft machining and is properly greased with the suitable automotive wheel bearing grease.

NOTE: For example, an SL (Slimline bearing) machined axle shaft should be fitted with suitable SL bearings and cups for proper movement. Also note that installing loose or tight bearings or bearings not supplied with the kit may cause critical issues with the working of the drum and lead to critical issues on the trailer.

If re-using drum and bearings, check for wear or pitting in the bearings and cup surfaces. Check drum for surface ware. Replace any parts that show wear. Pack the inside bearing with suitable wheel bearing grease. Force grease through and around the rollers. Place the bearing in the hub and install the grease seal flush with the end of the hub using an arbor press or soft mallet. The bearing seal should be lubricated before putting it on the brake drum. Remove excess grease.

Lubricate and install the outer bearing on spindle. Place thrust washer and new locking tab washer (if applicable) and castle nut on spindle. Turn the brake drum as you the tighten spindle nut. When a pronounced drag is felt in the bearings, back off the spindle nut one complete slot and install cotter pin or bend tab on locking tooth washer (if applicable) and dust cap.

Caution: Do not over pack hub with grease. Excessive grease may leak into brake drums causing brake failure.



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Initial Adjustment of Brakes.

- A.** Remove the rubber access hole plugs from the rear of the brake backing plate.
- B.** Inserting a brake spoon or flat screwdriver through the access hole(s), tighten the star adjuster while rotating the wheel in the forward direction. NOTE: Always spin drum in the forward direction as if the trailer was traveling forward on the road. Tighten the star adjuster until the wheel reaches a point where the brake shoes start to engage.
- C.** Loosen the star adjuster one click at a time while turning the drum in a forward rotation. Continue adjusting one click at a time until the wheel rotates with little effort.
- D.** Replace the rubber access hole plugs.
- E.** Repeat this procedure for all braking drums.



THE KEY FACTOR

Installation steps – Emergency Brake System

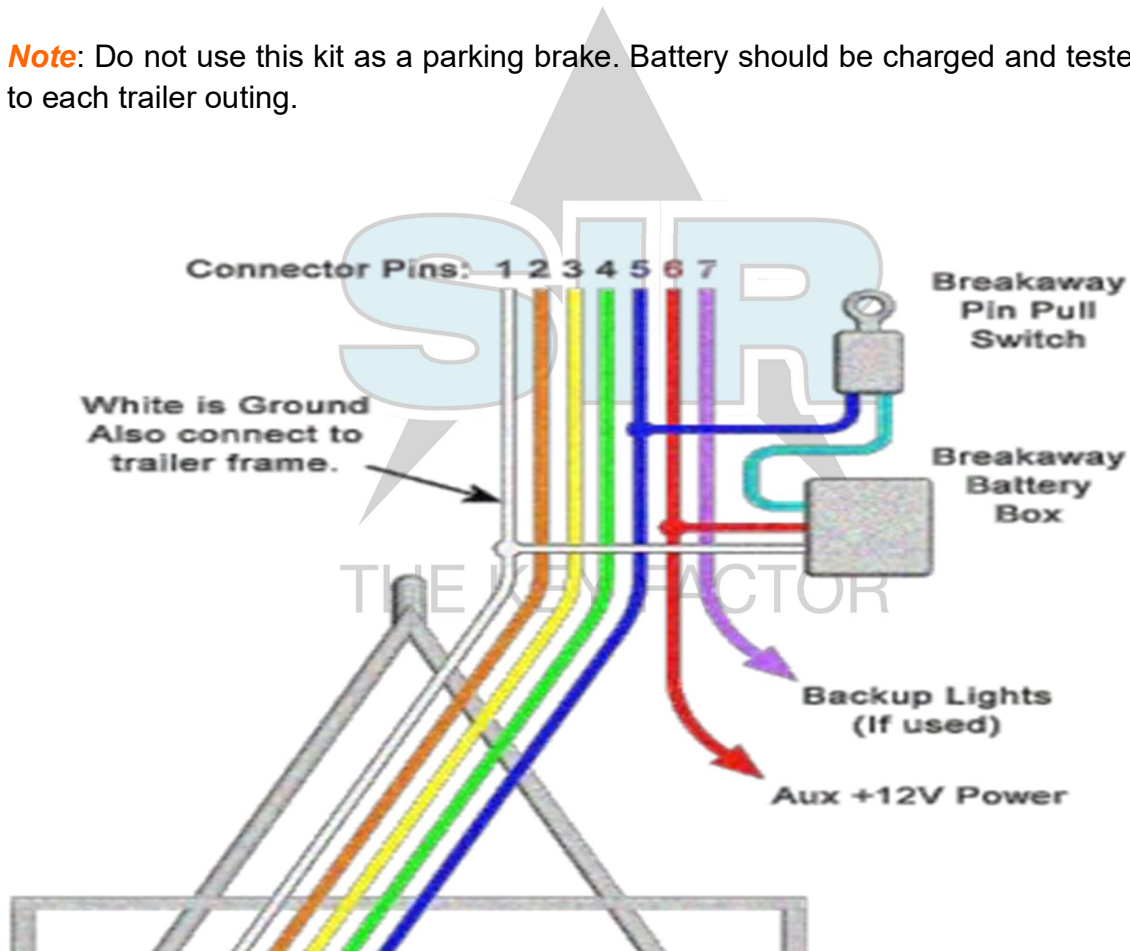
1. Locate secure surface on trailer to mount Break-Away Kit. Secure to the trailer using appropriate fasteners.
2. Locate secure surface on trailer to mount Break-Away Switch close to the coupling, ensuring that the provided cable can reach the towing vehicle. Secure to the trailer using appropriate fasteners.
3. Wire the break-away system to the below wire diagram.



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- a. Splice one blue wire of the Break-Away Switch to the electric brake wire coming from the trailer side connector (A - see diagram on next page).
- b. Connect other blue wire of Break-Away Switch to the blue wire (labelled "Brake") from the Break-Away box (B). (Note: Blue wires are interchangeable on the Break-Away Switch.)
- c. Splice white wire from Break-Away box to existing ground wire on trailer or ground directly to trailer frame (C).
- d. Splice black wire on Break-Away box to trailer 12-Volt auxiliary power lead (D). This will charge the Break-Away battery when vehicle is in use.
- e. Test unit by pulling firmly on cable of Break-Away Switch. Battery will activate brakes.

Note: Do not use this kit as a parking brake. Battery should be charged and tested prior to each trailer outing.



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Operation – Emergency Brake System

Before operating the trailer, the driver of the vehicle needs to check that the unit has a charge. The unit has a test button, if the button illuminates the light red or nothing, then the unit is low or flat. Connect the trailer plug to the tow vehicle to charge the unit. The battery should recharge in approximately 20mins.

Critical: Do not operate the trailer with a low or flat battery.

Test your Break-Away Kit before each outing as described in Step 3.e of the wiring instructions.

Once tested, the Break-Away Switch cable should be secured to the vehicle bumper or frame. The cable can be attached in many different ways. Two of the most common are: (1) Pull the pin out of the Break-Away Switch (Fig. 1) and route through safety chain pocket (Fig. 2), then through cable loop and reconnect pin. (2) Attach cable loop to a bumper clevis (Fig. 3). Do not loop the cable over hitch ball, cable may bounce off while the vehicle is moving.

Note: Plunger pin must be facing the rear of the vehicle directly behind where you secure the cable on your vehicle. Any other angle may cause Break-Away Switch failure.

Additional information – Emergency Brake System

- The trailer plug should be detached from the towing vehicle when using the push to test feature to test the Break-Away battery voltage level. Otherwise, you will be testing the towing vehicle's battery.
- If the trailer is plugged into a tow vehicle, the yellow "Charging" light will always be on.
- The LED assembly will only work with 12-volt batteries. The lower the battery voltage goes, the dimmer the LEDs will illuminate.

NOTE: When using drum or disc brakes on tandem axle trailers, both axles must be installed with brakes, Failure to install brakes on both axles will result in loss of braking performance, overheating of brakes & wheel hub, and significantly reduce brake pad life.



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Electric Drum Brake Trouble Shooting

Symptoms	Possible Cause
Noise or brake chatter.	Improper brake adjustment. Oil or grease on lining. Improperly adjusted or worn wheel bearing. Drum out of round. Dirt on drum or magnet surface. Dust in rivet holes. Lining glazed or worn. Scored drum. Loose backing plate. Weak or broken return springs.
Only one brake is activating.	Improper brake adjustment. (see brake adjustment) Improperly adjusted or worn wheel bearing. Drum out of round. Loose backing plate. Weak or broken shoe return spring. Glazed or worn lining. Loose lining. Bad connection at tow vehicle. Broken or disconnected wire. Bad magnet. Dirt or grease inside hub surface.
All brakes drag.	Faulty or improperly adjusted brake controller. Improperly wired brake connection. Mechanical resistance at actuator or shoes.



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Brakes do not apply.

Faulty brake controller.

Improperly adjusted brake controller.

Brake wires not connected to tow vehicle.

Bad Magnets.

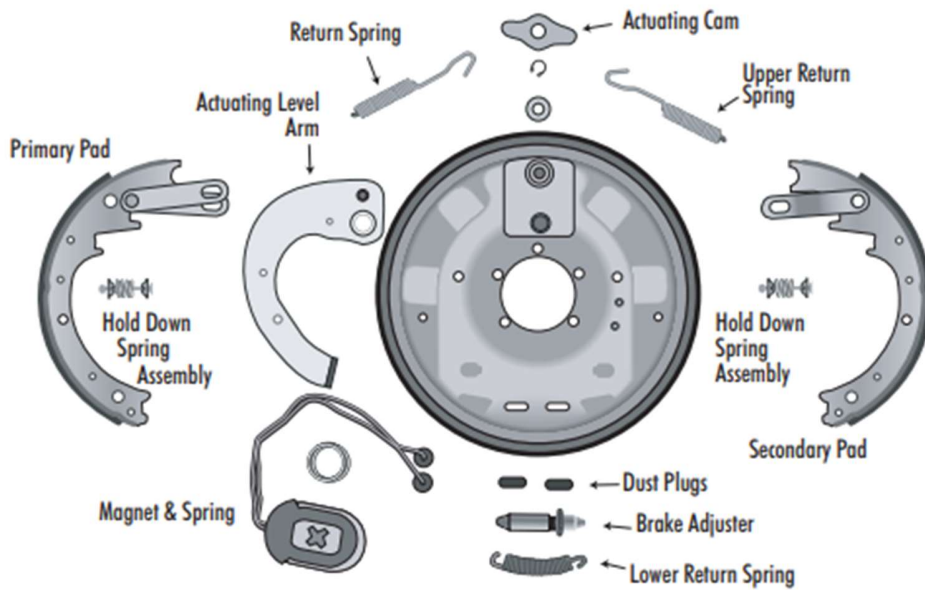
Improper brake adjustment.

Lining glazed or worn.

Dirt or grease inside hub surface.

Damaged wiring

Electric Drum Brake Replacement Parts/Kits



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