

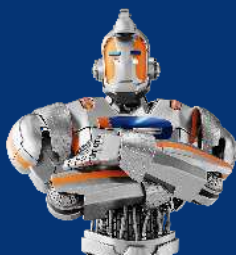
hygo³

3500kg

Installation Guide

3.5T Hydraulic Braking System

Keeping Local trailer manufactures competitive with EU trailer imports.



Handbrake & Breakaway System

A stand-alone cable brake system provides a parkbrake function that doubles as an emergency brake that activates in the event of a tow vehicle separation. The lever on the Hygo3 is mounted separate from the coupling body allowing more custom options.

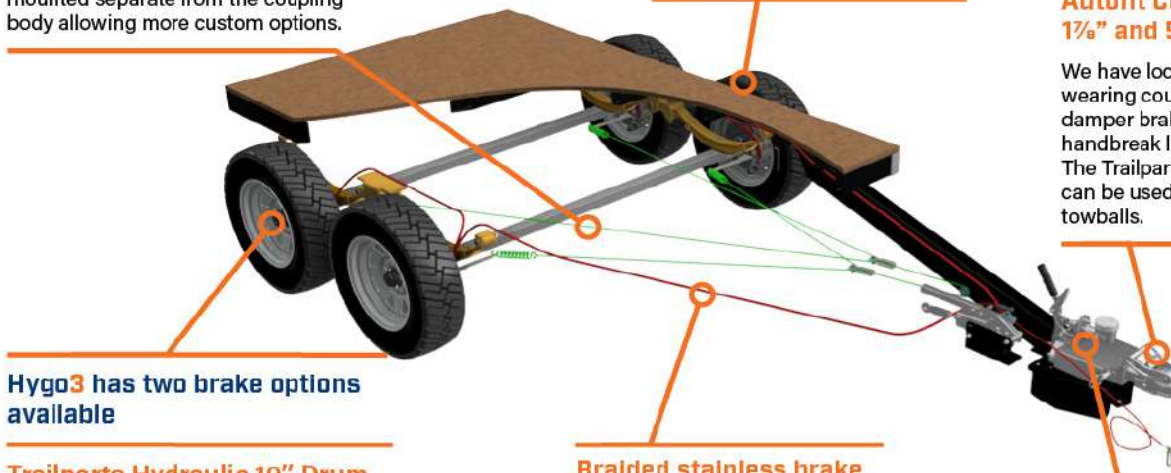
Wheel Specification

Testing and certification of the Trailparts Hygo3 system use tyres that are 195mm wide. Wheel diameters between 525mm (195/50R13C) and 675mm (195R14) can be used.



Autofit Coupling to fit both 1 1/2" and 50mm

We have locally engineered robust hard wearing couplings. These have dual damper braking action and a separate handbrake lever, breakaway function. The Trailparts™ Autofit coupling head can be used on both 1 1/2" and 50mm towballs.



Hygo3 has two brake options available

Trailparts Hydraulic 10" Drum

These brakes are highly effective while being a very economic brake option.

Trailparts Patriot Disc with 230mm Vented Rotor

High performance is available, when these disc brakes are fitted. The excess of performance available means minimal wear, and they are self adjusting. They also have an inbuilt park brake lever function.

Braided stainless brake hose system

Banjo braided stainless brake lines are specified throughout.

The Banjo brake hoses are incredibly fast to fit, and can be done with simple tools and nonspecialized labour.

High performance hydraulic brakes

Hygo3 couplings feature a Trailparts 1" bore master cylinder fitted with Autoback reversing solenoid. Allowing easy reversing as required by EU laws.

CONTENTS

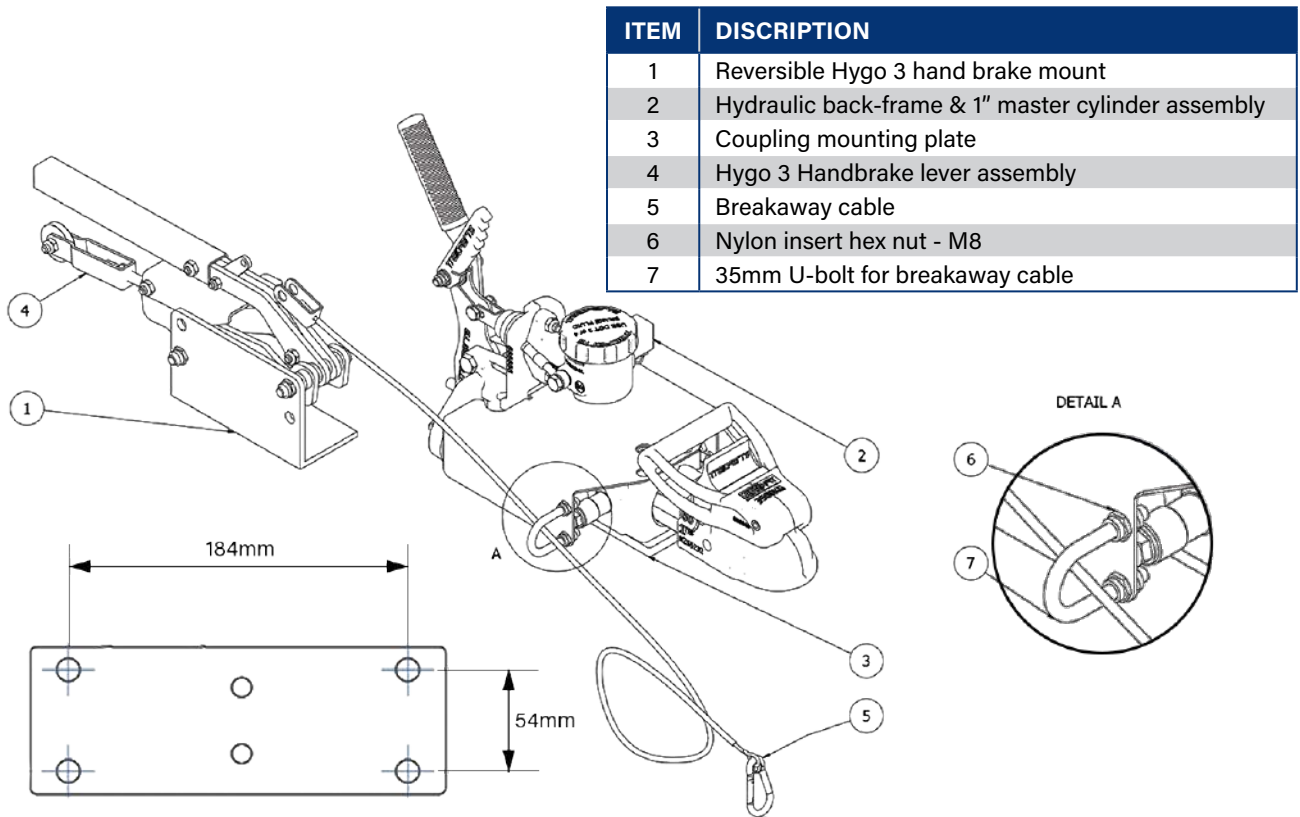
The Trailparts Hygo3 is a cost effective, multi-vehicle capable, trailer brake system that is suitable for trailers up to 3500kg in New Zealand when installed according to this guide.

Page 3	Coupling Mount
Page 4	Handbrake Mount
Page 5	Hydraulic Line Installation
Page 6	Brake Bleeding
Page 7 - 8	Brake Cable Installation Hydraulic Drum Brake
Page 9 - 10	Brake Cable Installation Patriot Disc Brake
Page 11	Coupling Operation



COUPLING/HANDBRAKE MOUNT

⚠ The coupling and handbrake lever are critical safety items, the mounting instructions below must be followed completely.



Installing a coupling to a trailer can seem like a simple task. Trailparts have a few tips and recommendations to ensure you and your load reach your destination safely. The Hygo3 coupling has the same hole mount pattern as standard 2500kg override couplings - **54mm x 184mm**.

Positioning the coupling is important to the trailers structural integrity and connection strength. The coupling body must be positioned so that the likelihood of inadvertent damage to any component while in use is minimized. To meet compliance the positioning of the handbrake / breakaway lever in relation to the coupling is important (**see page 4**)

Greasing / Lubrication

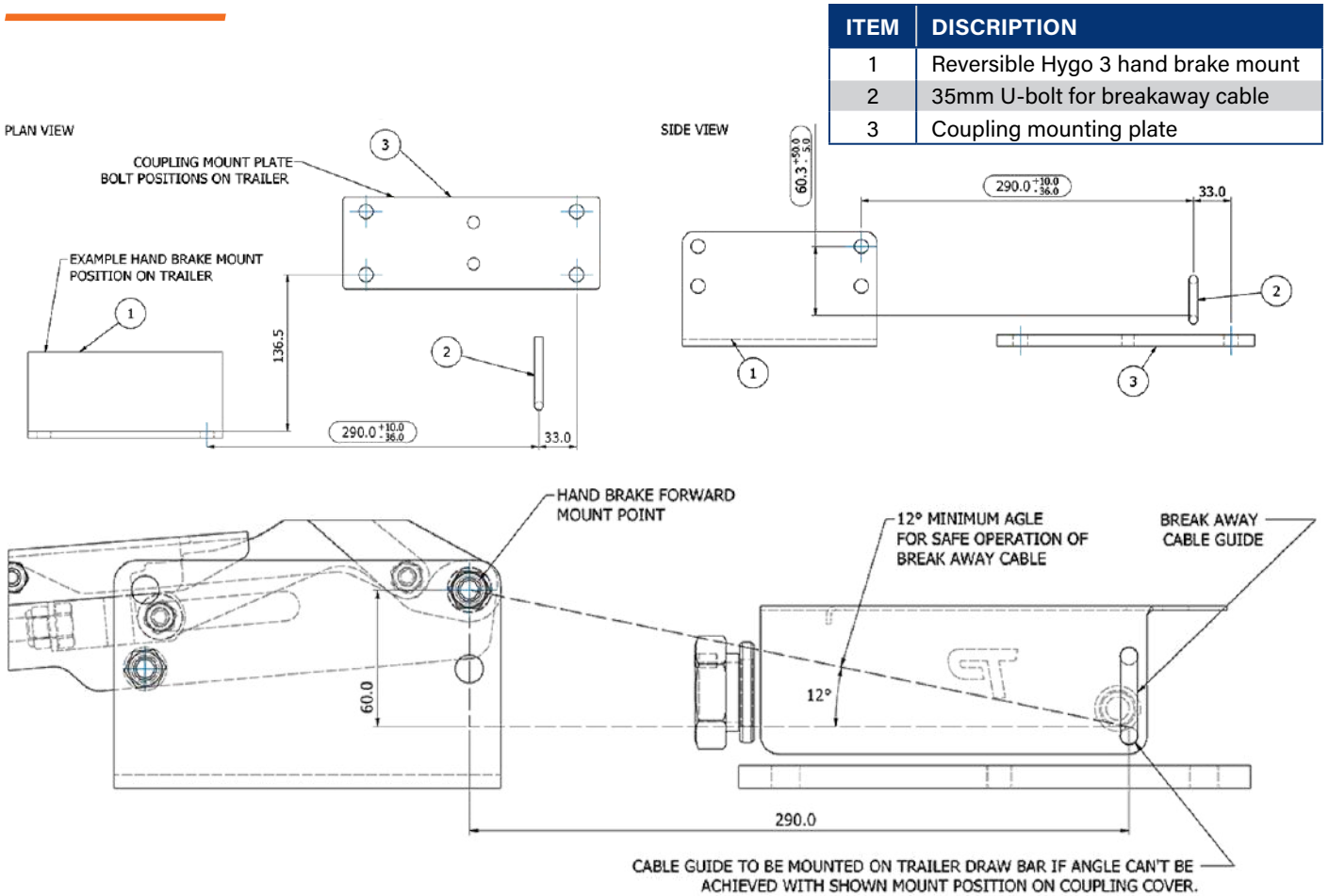
Properly greased couplings are the key to long life and safe use!

- Tow ball connections should be greased because metal on metal causes screeching noises and premature wear. If the towball or inner coupling surface (tongue) wear becomes extreme the coupling can dislodge itself from the tow vehicle while in travel.
- The coupling should be greased on the actuator load bearing surfaces using the grease nipples located on the coupling body regularly, depending on use.

Coupling mount torques;

- Grade 8.8 M12 zinc plated bolts and locknuts. 75ft/lb 100Nm
- Grade 10.9 M12 zinc plated bolts and locknuts. 90ft/lb 120Nm

HANDBRAKE MOUNT LOCATION IMPORTANT FOR CERTIFICATION



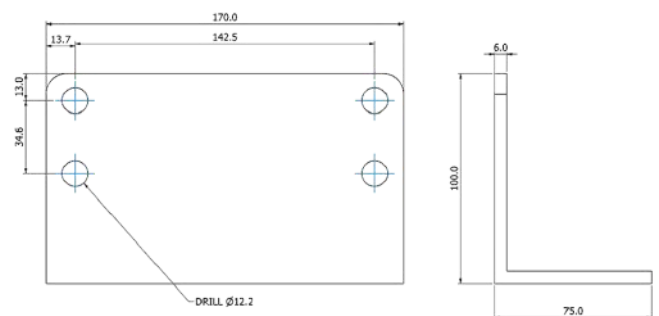
The cable guide, is only to be used if the minimum 12 degree angle can be maintained for correct hand brake operation. Failure to mount these parts correctly will void the warranty and violate the braking system certification as the break away cable may not function correctly when used.

The break away cable guide can be positioned either side of the coupling or mounted to the trailer drawbar to acheive the 12 degree angle. See the above diagram for the Trailparts reccomended mount position dimensions.

Lever Mount Plate

Trailparts have designed a reversible mounting bracket to suit the new Hygo 3 handbrake lever. This design can be customised or built in to your trailer plans.

Note: The hole positions are important for handbrake lever position and will ensure correct operation.



HYDRAULIC LINES INSTALLATION

On Trailparts axles, drum brakes will be pre-adjusted and ready for installation of brakelines.

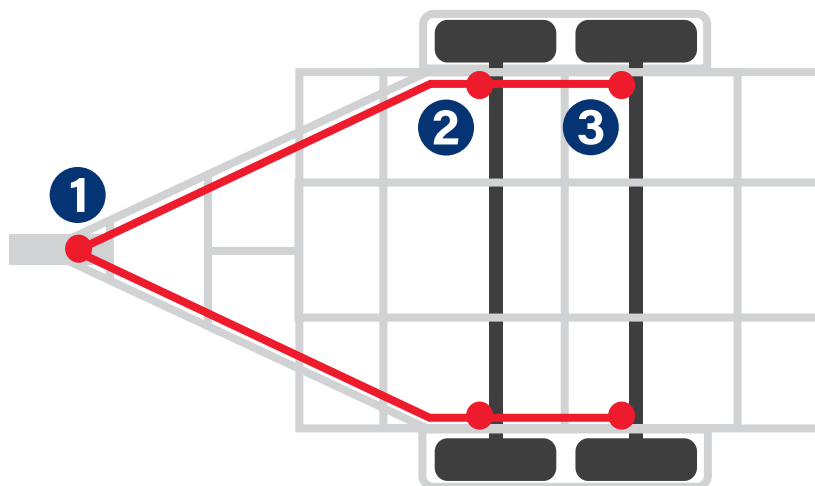
The Hygo3 brake system is designed to use Banjo Banjo stainless steel braided lines throughout, although other fixed lines such as steel and cupro-nickel are acceptable alternatives. Banjo Banjo braided lines are resistant to damage, and are fast and easy to install.

Lines can be run inside chassis members if desired. If mounted externally, always fix the lines firmly to the trailer chassis using sleeved stainless or nylon P-clips.

MOUNTING BRAKE LINES

1. Trailparts recommend the line routing as shown in diagram below

- Avoid unnecessary loops of line. Standard lines are stocked in increments of 1m lengths, but custom hoses are available to assist in optimizing brake line design.
- Routing lines can be done in other ways, using T-pieces or similar line splitters. This can be at the discretion of the installer, but the rule of thumb is that less line and fewer bleed points in one line is better.



Trailparts recommend fitting a hose to each side of the trailer directly from the master cylinder using a double banjo bolt.



Run the brake line from the master cylinder into the front caliper along with the next hose to the rear caliper/brake using a double banjo bolt.



Run the line from the front brake to the rear one, and close the circuit using a single banjo bolt.

Note: Run lines into the bottom port in the caliper, leaving the bleed screw at the top.

BRAKE BLEEDING

If available, we recommend bleeding the brakes with an automotive style vacuum bleeder. If not, use the master cylinder handbrake to distribute fluid throughout the system. Please remember to remove the master cylinder handbrake after bleeding the system.

The process of bleeding brakes will vary according to how the brakelines are installed. As a guide, follow this process;

1. Fill the system with Dot 3 or 4 brake fluid.
2. Before bleeding begins, begin with the reversing solenoid, and release any air from that internal circuit by activating it 3-4 times.
3. Pump or pull fluid through each bleed point, eliminating air bubbles before moving to the next.
 - **TIP:** tapping the caliper or brake with a hammer can assist with the movement of air bubbles significantly.
 - **TIP:** elevating the brakes above the level of the master cylinder will help the flow of air bubbles to the bleeding point.
4. Close each bleed port securely as it is finished



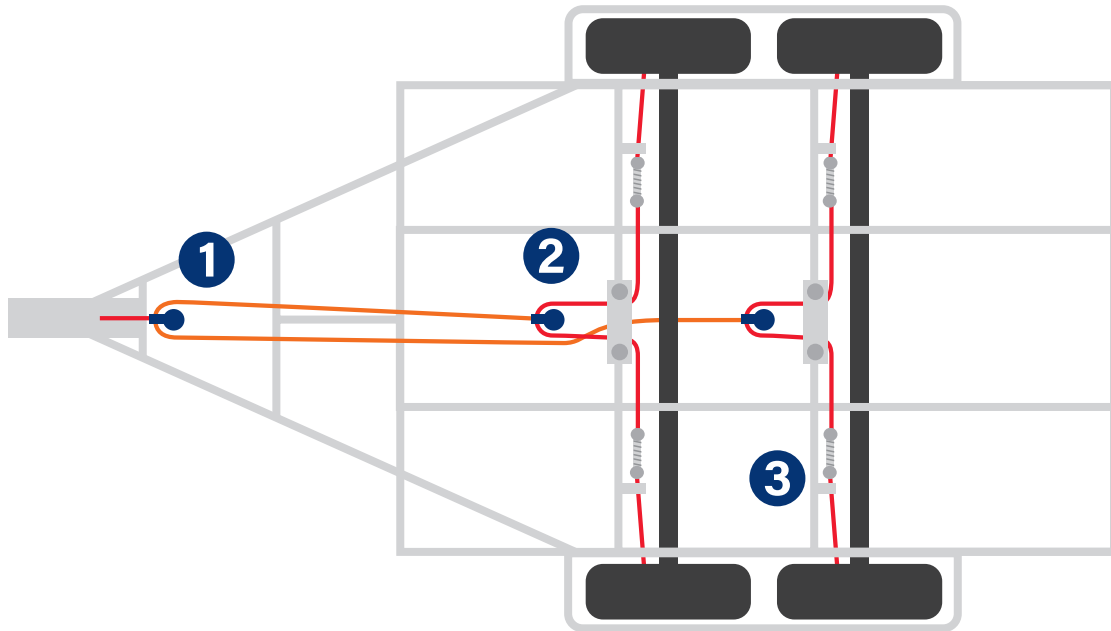
TIP: Trailparts stock a range of accessories to assist in the running of brake lines.



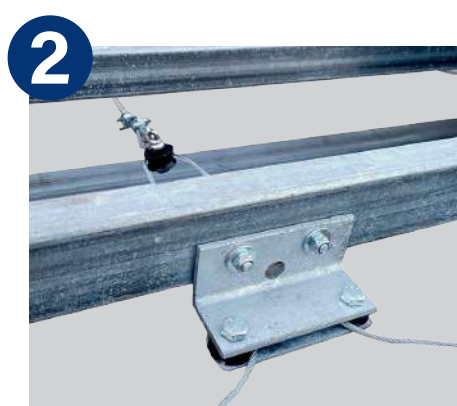
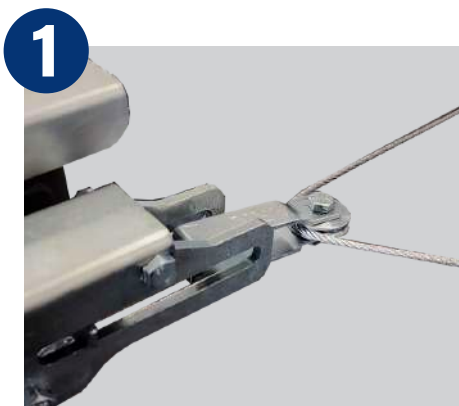
BRAKE CABLE INSTALLATION

The Hygo MkII system requires a mechanical parking brake. This can be used to securely park the trailer, but importantly, it doubles as the emergency brake function which will apply the trailer brakes if the trailer separates from the towing vehicle.

HYGO3 - HYDRAULIC DRUM BRAKES



Hygo3 drum braked axles are supplied fitted with a Bowden cable fitted to facilitate installation. While cables from these to the coupling-mounted brake lever can be run in different ways successfully, Trailparts recommends the centre pull routing and setup as shown in diagram above.



BRAKE CABLE INSTALLATION - CONT.

Manufacturers may wish to route cables pulling forward. This is an acceptable solution, but in order to comply with the requirements in the Hygo3 certification, these three features following must be fitted;

1. Tension Spring:

- A tension spring (supplied) is fitted to the cable in front of the Bowden cable at each brake. This ensures that the handbrake always has the correct tension throughout its life. It must be within the first loop described in the following;

2. Equalizing Left/Right:

- Each brake cable must have equal cable tension on it. This can be achieved by routing the cable in a loop between the left and right drum on each axle, then adding a pulley as an equalizer to the loop, which can then be pulled forward.

Note: Each cable loop must be formed with two cable clamps.

3. Equalizing Front/Back:

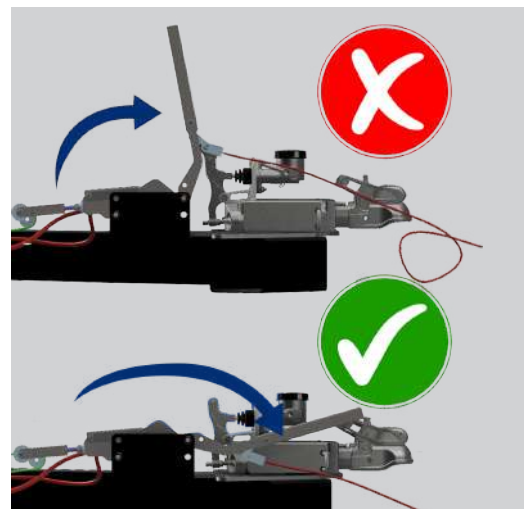
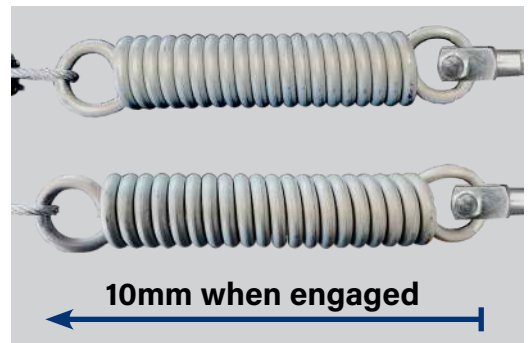
- The front and back axles are then equalised. Run a cable from each axle equalizing pulley going in a loop around a third pulley again at the coupling.

Note: Each cable loop must be formed with two cable clamps.

Adjusting the Hygo3 Drum Brake cable system

Cables should be relaxed without being slack. When the system is complete and the handbrake is applied (see image on right), an indication of correct cable tension is that the tension springs at each wheel should have elongated by 10mm over the closed length.

Note: Brake cables may require support brackets or additional spring supports if their weight is causing brakes to engage when slack.



FINAL CHECKS

- ☑ Check coupling mount bolts are torqued to specifications.
- ☑ Ensure brake lines are free of kinks or chafing points, and are securely mounted.
- ☑ Check cables will pull freely, and that the handbrake applies firmly and with the tension spring elongated by 10mm. (When engaging handbrake, lever should be pulled to its full limit in a horizontal position)

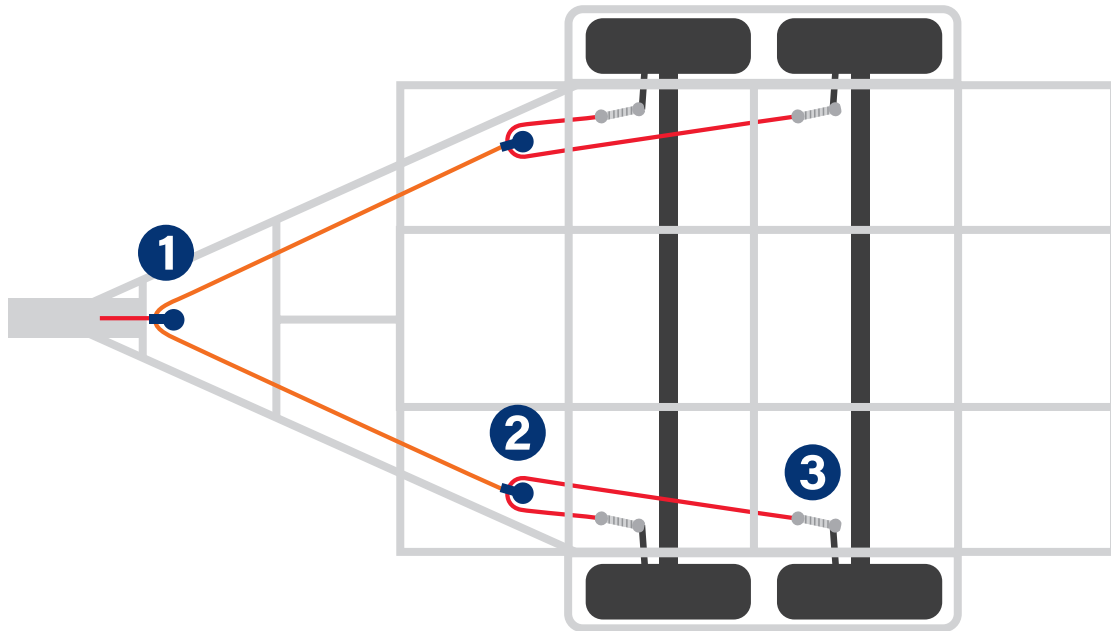


BRAKE CABLE INSTALLATION

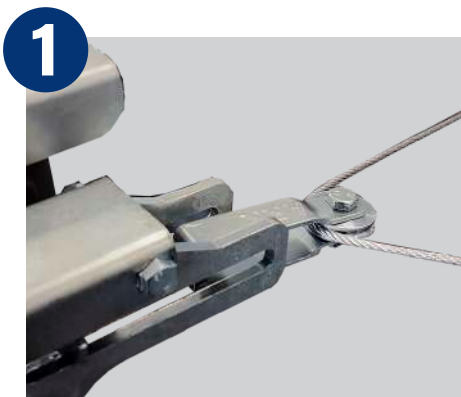
The Hygo3 system requires a mechanical parking brake. This can be used to securely park the trailer, but importantly, it doubles as the emergency brake function which will apply the trailer brakes if the trailer separates from the towing vehicle.

Note: Wheel chocks are recommended to be used at all times in addition to the handbrake.

HYGO3 - PATRIOT DISC BRAKES



Patriot disc braked axles require a forward or centre pull cable configuration, as shown in the diagram following. On axles built by Trailparts, the caliper is mounted at about the 10 o'clock / 2 o'clock position so that the handbrake lever is angling up and towards the chassis for easier routing.



BRAKE CABLE INSTALLATION - CONT.

Each braked wheel must be equalized to the others, as follows;

1. Tension Spring:

- A tension spring (supplied) is fitted to the cable from each brake, and we recommend fixing this directly to the brake lever. This ensures that the handbrake always has the correct tension throughout its life.

2. Equalizing Front/Back:

- Each brake lever must have equal cable tension on it, which can be achieved by routing the cable in a loop between the front and rear axle, then adding a pulley as an equalizer to the loop, which can then be pulled forward. One for the left hubs and one for the right.

Note: Each cable loop must be formed with two cable clamps.

3. Equalizing Left/Right:

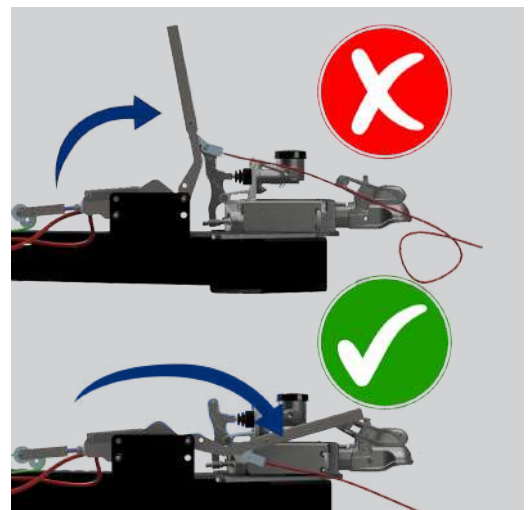
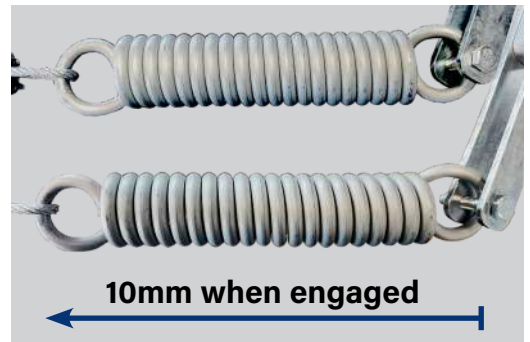
- The whole cable brake system is equalized together by running a loop from each side's equalizing pulley forward and through the adjuster pulley located at the coupling.

Note: Each cable loop must be formed with two cable clamps.

Adjusting the Hygo3 Patriot Disc Brake cable system

Cables need to be relaxed enough so that suspension movement when loaded does not cause them to engage. When the system is complete and the handbrake is applied (see image on right), an indication of correct cable tension is that the tension springs at each wheel should have elongated by 10mm over the closed length.

Note: Brake cables may require support brackets or additional spring supports if their weight is causing brakes to engage when slack.



FINAL CHECKS

- ☑ Check coupling mount bolts are torqued to specifications.
- ☑ Ensure brake lines are free of kinks or chafing points, and are securely mounted.
- ☑ Check cables will pull freely, and that the handbrake applies firmly and with the tension spring elongated by 10mm. (When engaging handbrake, lever should be pulled to its full limit in a horizontal position)

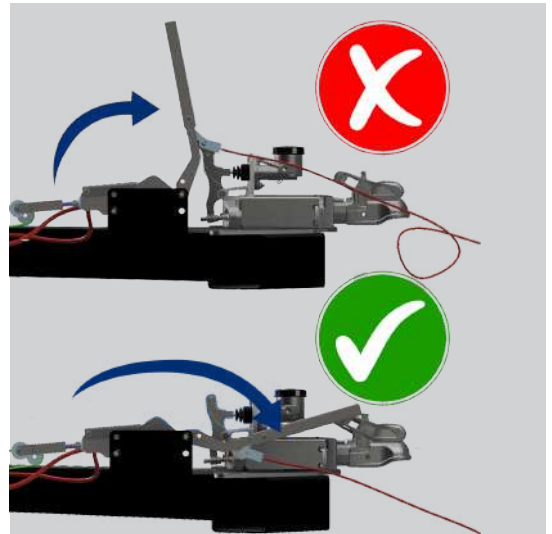


HYGO MKII COUPLING OPERATION

PARK BRAKE

Trailparts Hygo3 is using an over center handbrake lever.

- When manually engaging the hand brake. Ensure the lever arm is pulled forward until it reaches its limit. The arm should be in a horizontal.



BREAKAWAY LANYARD

A stand-alone cable brake system provides a parkbrake function that doubles as an emergency brake that activates in the event of a tow vehicle separation.

- Always insure the lanyard is attached to the tow vehicle in place of or in addition to the safety chains.



MASTER CYLINDER HANDBRAKE

As part of the Hygo3 exemption compliance the handbrake lever on the master cylinder backframe must be removed from the system after the brakes have been successfully bled.

Please keep the handle for future brake bleeding.

