DEUTSCHE

HYDRAPRO

SUPERIOR BRAKING POWER

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INTRODUCTION

Deutsche Hydrapro™ developed their Hydrapro Electric Over Hydraulic (EOH) Brake Actuator in conjunction with a global German hydraulic pump manufacturer with over 90 years experience of providing innovative hydraulic drive and control technologies.

The Deutsche Hydrapro braking unit has been designed with a high level of quality in mind for varying Australian road conditions. We are proud to introduce the Deutsche Hydrapro braking system to the Australian market.

Specific information on EOH braking system

The Deutsche Hydrapro EOH brake actuator's quality and simplicity gives you the necessary reliability required for a trailer braking system. It has superior response time that delivers shorter stopping distances, which provides the driver with confidence whilst towing.

Some of Hydrapro features include:

- Compact design measuring 257mm long, 152mm high, 90mm wide base / 44mm top;
- High powered DC Motor and quality pump with minimal moving parts for reliability;
- Large independently sealed fluid tank providing extra fluid reserves;

- Weather proof, anodised alloy case to protect components from the external elements and corrosion;
- Robust electronics board that has a protective coating for corrosion resistance;
- Competitive pricing, making the safer choice of a EOH braking system much easier; and
- 2 year warranty, giving you peace of mind.

All these features of the Hydrapro braking unit combine making it less susceptible to salt water, extreme temperatures, and poor road conditions and deliver superior braking power in harsh and corrosive environments.

The Hydrapro unit is a wise choice for an electric over hydraulic braking system and is well suited to all types of trailers, including single, tandem, triple axle boat trailers, caravans, and utility trailers. For more information please email us: deutschehydrapro@gmail.com

SERVICE MANUAL AND SPECIFICATIONS FOR THE DEUTSCHE HYDRAPRO ALPHA G1600, G1200, G1000 MODELS

CONTENTS

ACTUATOR INSTALLATION INSTRUCTIONS

This manual has been provided to guide you through the process of installing, operating, and maintaining your Electric Over Hydraulic (EOH) brake system actuator (Alpha G1600, G1200, and G1000) used for hydraulic brakes. This electrically powered unit has been designed and manufactured to give safe, reliable power to your hydraulic brakes.

Before proceeding, please refer to your brake manufacturer for proper operating pressures.

The Deutsche Hydrapro actuator is compatible with many electric brake controllers but the best performance will be achieved using a proportional, inertia type In-Cab controller. The non-proportional brake controllers are not suitable and can damage the brake actuator unit (It is important that when the tow vehicle is stationary the brake actuator is not constantly operating at full pressure).

Wiring Colours and Function
Black – 25-40 amp 12 volt supply from tow vehicle
Blue – Output from in-cab electronic brake controller
White – Ground must be directly connected to tow vehicle ground
Yellow – Cold side of breakaway switch
*Cold temperature (below 0 degrees F/ -18 C) applications require 40 amp.

“ATTENTION” This is a safety warning. It is used to alert you to potential injury hazards. Obey all safety messages that follow the “ATTENTION” safety warning to avoid possible injuries.

Please note this summary of important information before installation of a Deutsche Hydrapro brake actuator:

CORRECT INSTALLATION

The Deutsche Hydrapro brake actuator must be installed by a qualified individual. Please note that failure to correctly install and maintain this unit will cause it to malfunction, which could result in serious or fatal injuries as well as property damage.

BRAKE ACTUATOR MODELS

It is the responsibility of the installer to determine output pressure of the Deutsche Hydrapro brake actuator is correct and that the model selected is suitable for the trailer it is being installed on. If the trailer braking system is over pressurised, it can be damaged and malfunction.

PARKING BRAKE

Deutsche Hydrapro brake actuator does not provide a parking brake function. This brake actuator is designed as a secondary source of braking only, which supports the primary brake system of the tow vehicle. The Deutsche Hydrapro brake actuator is not designed to be used as a primary braking system for the towing vehicle.

IN-CAB BRAKE CONTROLLER

The Deutsche Hydrapro actuator is compatible with many In-Cab brake controllers but the best performance will be achieved using a proportional, inertia type

controller. The older, non-proportional controllers are not suitable and can damage the brake actuator unit. (It is important that when the tow vehicle is stationary the brake actuator is not constantly operating at full pressure). The list of compatible In-Cab controllers refer to your dealer or check the Deutsche Hydrapro websites.

EMERGENCY BREAKAWAY SYSTEM

An emergency breakaway system with battery back-up must be used in conjunction with the Deutsche Hydrapro braking actuator. The breakaway system must be functional and the battery back-up must be fully charged before the trailer can be towed.

WEATHER PROOF

The Deutsche Hydrapro system is weather proof. However, it should not be power washed or submerged in water. If the actuator is submerged or subjected to direct water spray when washing the trailer, it can cause the actuator to malfunction.

GETTING STARTED

The following materials are required to properly install the Deutsche Hydrapro unit. If your trailer is not already equipped with brake lines, you will need enough, 3/16” diameter, automotive brake line to connect the trailer brakes to the unit.

- One litre of DOT 3 or DOT 4 brake fluid (from a new sealed container)
- One emergency breakaway system - must include a 12 volt, 5 amp hour (minimum) battery.
- Wire (see Electrical Installation Requirements for correct wire size)

Location of the Deutsche Hydrapro actuator is at the discretion of the vehicle owner. When selecting the location, the following items should be considered:

ATTENTION

- It is crucial to mount the Deutsche Hydrapro unit in a position where it will not be immersed in water, failure to do so will void the manufacturer’s warranty in the event of water damage.
- Keep the wiring between the Deutsche Hydrapro unit as short as possible to avoid voltage drop. The shorter the wiring between the unit the lower the voltage drop.

- An emergency breakaway system must be located on the trailer so that the trailer breakaway cable can be easily attached to the towing vehicle.

The Deutsche Hydrapro actuator is powered from the electrical system of the tow vehicle. In order for the unit to function properly, it must have adequate electrical power (see Electrical Installation Requirements).

ATTENTION
The Deutsche Hydrapro actuator contains electronics that need to be protected. Drilling additional holes in the housing, welding on or near the unit may damage the actuator and render it unserviceable. This will void the manufacturer's warranty. Always remove the actuator unit from the trailer or caravan before doing any welding, repairs, or modifications.

Connect the trailer brake lines to the actuator unit as follows:

- Connect the brake line to the (3/16" inverted flare) adjustable hydraulic fitting, which screws into the actuator outlet port.
- The brake line must be compatible with DOT 3 and DOT 4 brake fluid.
- Fill the Deutsche Hydrapro unit with DOT 3 or DOT 4 brake fluid to the level with the bottom alloy filler neck.

ATTENTION
Always use new DOT 3 or DOT 4 brake fluid from a sealed container. Do not attempt to reuse old or dirty fluid. Do not overfill the unit, this can damage the surface finish. If spillage of the brake fluid occurs, wash off the spilled brake fluid immediately to prevent damage to surfaces. Avoid any physical contact with the brake fluid.

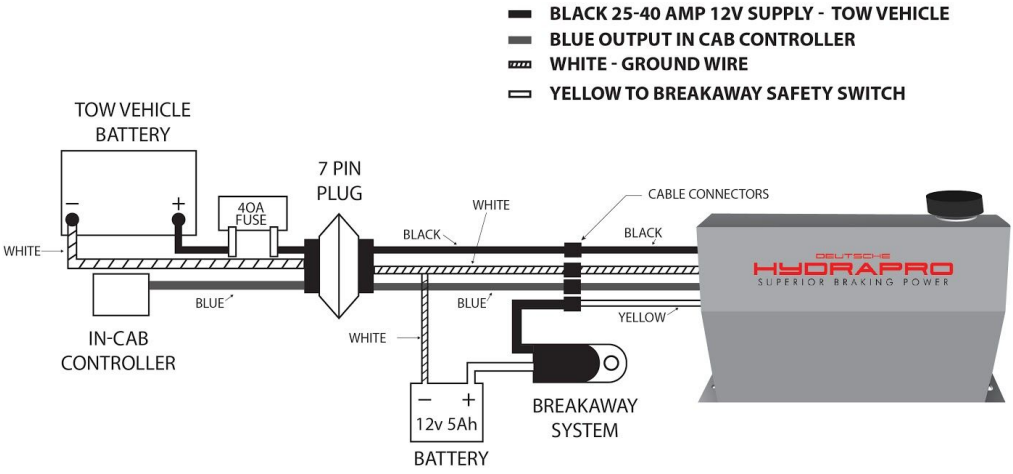
ELECTRICAL INSTALLATION REQUIREMENTS

Mount the emergency breakaway switch and emergency breakaway battery back-up on the trailer, as detailed in the instruction sheets provided with the emergency breakaway system.

ATTENTION
The use of undersized electrical cable will increase electrical resistance and will prevent the correct operation of this unit.

ACTUATOR COLOUR CODE AND DIAGRAM
BLACK - 25-40 amp 12 volt Supply from Tow Vehicle
BLUE - Output from in-Cab Electronic Brake Controller
WHITE - Trailer and Tow Vehicle Ground
YELLOW - Cold side of breakaway switch

WIRING DIAGRAM



Please note:

1. Cold temperatures require up to 40 amp (below 0 degrees F).
2. This wiring diagram is specific to the most common breakaway kits. However, there maybe different breakaway kits, which use other wiring configurations and color codes. Therefore, you will need to check the specific manufactures' specifications.

It is important that the Black Power and the White Ground wires from the tow vehicle to the actuator unit are the correct size (12 gage wire minimum) and properly terminated to a 25-40 amp circuit on the Vehicle. For best performance use 10 gage wire.

Temperatures below 0 degrees F (-18 degrees C) will require a 40 amp circuit.

The Blue wire from the In-Cab electronic brake controller is connected to the Blue wire on the actuator unit. The Yellow wire from the actuator unit is connected to the cold side of the trailer emergency breakaway switch.

To avoid damage to the electronics, the actuator unit's Blue wire and the Yellow wire should never be connected. Similarly, the Blue wire or the Yellow wire should never be grounded.

The Deutsche Hydrapro actuator is required to be used with an In-Cab Electronic brake controller. The unit will operate with a wide variety of In-Cab controllers but optimum performance is achieved with the use of proportional, inertia type electronic brake controllers.

The in-cab controller must have an output capacity of at least 5 amps for proper operation of the Deutsche Hydrapro actuator unit.

ATTENTION

It is the responsibility of the end user to ensure that their In-Cab electronic controller is compatible with the Deutsche Hydrapro actuator. Attempts are made to provide compatibility with most In-Cab controllers but some brands and models of In-Cab controllers may not be compatible with the Deutsche Hydrapro actuator unit.

The best performance for the Deutsche Hydrapro braking unit is achieved with a proportional, inertia type In-Cab controller. The older, non-proportional controllers are not suitable and can damage the brake actuator unit. (It is important that when the tow vehicle is

stationary the brake actuator is not constantly operating at full pressure). The list of compatible In-Cab controllers refer to your dealer or check the Deutsche Hydrapro websites.

To comply with standard requirements, an emergency breakaway system with battery back-up must be fitted to the trailer. The breakaway system's battery back-up needs to have a minimum capacity of 5 amp hours and be fully charged at all times.

The breakaway system's battery must be kept fully charged in order to function properly. Charging the battery directly from the tow vehicle must be done using the correct charging device included with the breakaway system.

TEST THE ELECTRIC HYDRAULIC OPERATION

- Attach the trailer to the towing vehicle. However, do not connect the trailer plug to the tow vehicle yet.
- Pull the breakaway switch. The Deutsche Hydrapro unit should run. If it does not run, check the breakaway battery and wiring system. Reset the breakaway switch to switch the brake actuator unit off.

When the Deutsche Hydrapro unit is running, the motor will generate a "hum" that changes pitch as the unit is pressurised.

- Now connect the trailer plug to the tow vehicle.
- Apply the In-Cab controller emergency manual activation button. The Deutsche Hydrapro unit should now run and pressurise.

ATTENTION

This test of the Deutsche Hydrapro actuator unit confirms that it is operating. However it may not be operating properly. Regular inspection, adjustment, and maintenance of the brakes are necessary to ensure proper brake operation.

BLEEDING THE BRAKES AND ADJUSTMENT

Please Note Before Starting:

- It is more efficient to bleed the brakes with two people working together, one to control the brake pressure and the other to release the brake bleeder valve.
- If your trailer is fitting with drum brakes it is important that the brake shoes have the correct clearances specified by the manufacturer. Failure to properly adjust drum brakes on trailers will result in slower braking response time.
- Make sure that the Deutsche Hydrapro unit does not run out of brake fluid. You should frequently check the level and top up the brake fluid throughout the bleeding procedure.

Follow Steps 1 to 8

1. Install plastic tubing onto the bleeding nipple of the brake cylinder or caliper at each wheel hub.
2. Immerse the free end of the plastic tube into a clean container partially filled with brake fluid.
3. Open the bleeding nipple on the wheel cylinder or caliper furthest from the Deutsche Hydrapro unit. If the tow vehicle has more than one axle, always start bleeding the wheel furthest from the Deutsche Hydrapro unit first.
4. To activate the Deutsche Hydrapro unit, turn the ignition switch on and use the emergency braking switch on the In-Cab controller or the breakaway switch fitting to the trailer to make it run. (Using the brake pedal in the tow vehicle will not work with most In-Car controllers when stationary).
5. Watch the free end of the bleeder hose for air bubbles escaping into the clear container. As soon as the bubbles stop, lock the bleeding nipple.
6. Turn off the Deutsche Hydrapro unit and remove plastic tubing from the bleeding nipple. The bleeding of the brake caliper or cylinder is now complete.
7. Refill the Deutsche Hydrapro unit with brake fluid.
8. Repeat this process with all the brakes at each wheel, always starting on the next furthest one from the Deutsche Hydrapro unit.

ATTENTION

It is recommended that the brake bleeding procedure is performed twice for new trailers fitted with disc brakes.

Please note that air trapped in the trailer brake line system will cause delayed braking performance.

TESTING AND ADJUSTMENT: ELECTRONIC CONTROLLER

- Adjust the gain setting on the In-Cab controller to a mid range setting
- Drive the tow vehicle with trailer at 15 to 20 kph
- Apply the brakes. If braking is too hard, adjust the gain setting on the In-Cab controller down to decrease the braking pressure; then retest. If braking is too soft, increase the gain setting on the In-Cab controller; and then retest.

Repeat this process until the braking pressure is set to the correct level.

ATTENTION

The correct pressure setting will vary depending on the weight of the load, weather and road conditions. Retest the braking performance each time the trailer is used. Failure to properly adjust the Deutsche Hydrapro actuator may result in poor braking performance and could result in serious or fatal injuries or property damage.

When using an In-Cab controller other than an inertia type, reduce the gain setting on the In-Cab controller when stopped in traffic for long periods of time. This will prevent the actuator from overheating and prevent possible damage to the electronics and or the electric motor in the actuator.

TROUBLESHOOTING GUIDE

The brake unit will not run or the brakes are slow to respond. To determine if the brake unit is functioning correctly, perform the following checks:

Step 1

- Ensure that the wiring is connected by conferring with the wiring diagram in the “Electrical Installation Requirements” section.
- Re-bleed the trailer brakes. If there is air in the trailer brake lines it can cause braking delay.
- If the trailer is equipped with drum brakes, re-adjust the drum brakes to the trailer manufacturer’s recommended tolerances.
- If trailer wiring is too small, it can cause slow response. (see section on Electrical Installation Requirements).
- Delayed braking response can be caused by undersized brake lines. The trailer brake lines must be at least 3/16” in diameter.
- Ensure the white ground wire is connected directly to the tow vehicle ground. Please note that the ground wire must be connected directly to the tow vehicle battery ground.

Step 2

- Now, disconnect all the wires from the Deutsche Hydrapro unit to the tow vehicle leaving just the blue, black, white, and yellow wires. It is important all other wires are disconnected to the tow vehicle, in order to successfully test the brake unit.
- Using a 12 volt battery, connect the white wire to the negative (-) terminal of the battery.
- Then connect the black wire to the positive (+) terminal of the battery.
- The motor should not run. If it runs, the unit could be faulty.

Step 3

- Leave the white wire connected to the negative (-) terminal of the battery.
- Connect the blue and black wires together to the positive (+) terminal of the battery.
- The motor should run and the unit should pressurise.
- If this does not occur, the unit may be faulty.

Step 4

- Leave the white wire connected to the negative (-) terminal of the battery.
- Connect only the yellow wire to the positive (+) terminal of the battery.

- The motor should run and the unit should pressurise.
- If this does not occur, the unit could be faulty.

If the unit checks out okay, reconnect the wires leading to the trailer plug and repeat steps 1 through 4 at the trailer plug. If you do not get the same results as before, the problem is the trailer wiring or the electronic in-cab brake controller.

Using the breakaway system to check a brake unit that is not operating correctly:

1. With a fully charged breakaway battery and trailer plug disconnected, pull the breakaway switch on the trailer.

a. If the unit runs and builds pressure, the breakaway system is functioning properly.

b. If the unit runs and builds pressure when the breakaway switch is pulled but will not function under normal operating conditions, the problem most likely is a faulty in-cab controller or defective wiring between the tow vehicle and Deutsche Hydrapro unit.

c. If the unit runs but will not build pressure when the breakaway switch is pulled, the Deutsche Hydrapro unit may be faulty.

d. If the unit does not run, measure the DC voltage between the white wire and the yellow wire. If the voltage is less than 12 volts,

either the battery hasn't enough charge, the breakaway switch or the breakaway wiring is at fault.

2. After completing the above steps, reset the breakaway switch and reconnect the trailer plug.
If the trailer brakes are too aggressive:

- reduce the gain setting on the in-cab brake controller.
- Check brake adjustment.

DEUTSCHE HYDRAPRO LIMITED WARRANTY

Deutsche Hydrapro warrants to the original purchaser that the Deutsche Hydrapro brake actuators (the unit) shall be free from defects in material and workmanship for a period of two (2) years from the date of first sale or to the first retail purchaser, of a trailer or other towed device to which the unit is fitted.

Any receipts, proof of purchase, or other documents obtained at the time of purchase from a dealer/distributor, should be retained. This warranty is not transferable.

The duration of any implied warranties including the implied warranties of merchantability and fitness for a particular purpose, are limited to the duration of the express warranties herein. Deutsche Hydrapro hereby excludes incidental and consequential

damages, including loss of time, inconvenience, loss of use, towing fees, telephone calls or cost of meals, for any breach of any express or implied warranties, including the implied warranties of merchantability and fitness for a particular purpose.

This warranty shall not extend to any unit, or any parts thereof that has been improperly installed contrary to the provided instructions, altered, tampered with, or the engineering and design of which have been changed in any way, nor will this warranty extend to any defects arising from abuse, misuse, accident, improper wiring, or negligence of an installer or the consumer. Please refer to the instruction manual included with the Deutsche Hydrapro unit.

If it is determined that the claim is valid, the unit will be repaired or replaced or a credit issued. If a claim is deemed invalid and the unit is found to work properly the unit will be returned to the submitter, freight collect, unless otherwise instructed.

This Warranty is not transferable from the original owner.

All enquiries regarding these warranties should be addressed to the original place of purchase. For further information please email: deutschehydrapro@gmail.com