BRAKE OPERATING SYSTEMS

Override Systems – Indirect
Up to 2500kg

Override brakes are indirect systems, inertia–activated and operated by the weight of the towed trailer, compressing a coiled spring in the tow coupling; applying the brakes proportionate to the degree of spring compression. Available as mechanical disc, hydraulic disc and hydraulic drum types.

PROS
- **easily towable by multiple vehicles;**
- **inexpensive and reliable;**
- **low maintenance.**

CONS
- **braking not operable in reverse;**
- **reversing not possible without first deactivating this system at the tow coupling or fitting a reversing solenoid auto back–up valve (see page 34).**

Electric Systems – Indirect
Up to 2500kg

Used with electric drum brakes. A trailer-mounted brake controller is preset to match the load carried on the trailer. Braking provided is proportionate to the load setting on the controller (see page 31).

PROS
- **easily towable by multiple vehicles, (by using the CM MagBrake multi–volt controller the trailer can be towed by any 12V or 24V vehicle includes mechanical parking brake;**

CONS
- **braking not as progressive as direct electric brake systems;**
- **higher maintenance drum brakes.**

Electric Systems – Direct
2501kg - 3500kg

Used with electric drum brakes, this is the most economical to fit of all the direct braking systems. It is regulated by a dash–mounted in–cab controller which includes an emergency brake override function and load settings to accurately match braking output with the weight of the load carried. This system is also easily mated to an emergency breakaway brake system required by law when exceeding 2500kg MTM (Maximum Towed Mass).

PROS
- **accurate, proportional brake control;**
- **includes mechanical parking brake;**
- **easily connected to breakaway system.**

CONS
- **dedicated tow vehicles required;**
- **higher maintenance drum brakes.**

Electric/Hydraulic – Hydrastar XL – Direct
2501kg - 3500kg

This system has the advantages of direct electric brakes and, allied with the ruggedness and efficiency of hydraulic disc brakes, is an effective direct braking system (page 27). It is regulated by an in-cab controller which plugs into the cigarette lighter socket. This controller includes load settings and emergency overide function, it sends signals superimposed over the existing tail lamp circuit to the on-trailer XL. The controller is easily transferable to other tow vehicles and gives the benefits of direct and proportionate brakes while still allowing multiple tow vehicles. Multi–volt converter available for use behind 12V and 24V vehicles.

PROS
- **allows multiple tow vehicles;**
- **allows use of hydraulic disc brakes from 2501kg to 3500kg;**
- **includes breakaway brake system;**
- **accurate, proportional brake control**
- **braking provided in reverse.**

CONS
- **addition of mechanical parking brake;**
- **required over 2500kg.**

Electric/Hydraulic – Hydrastar HBA12 – Direct
2501kg - 3500kg

This system is similar to the Hydrastar XL (above) but is regulated by a dash–mounted, load–adjustable in–cab controller. It allows the use of hydraulic disc brakes but with the benefit of proportionate and accurate braking control. Is especially suited where a dedicated tow vehicle/trailer combination is acceptable. Listed on page 24.

PROS
- **allows use of hydraulic disc brakes from 2501kg to 3500kg;**
- **includes breakaway brake system;**
- **accurate, proportional brake control;**
- **braking provided in reverse.**

CONS
- **dedicated tow vehicles required;**
- **addition of mechanical parking brake; required over 2500kg.**