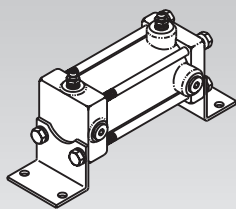




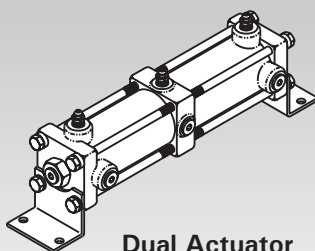
Supplemental Park Braking for Forklifts

*By Sean D. Ross
International Sales Manager
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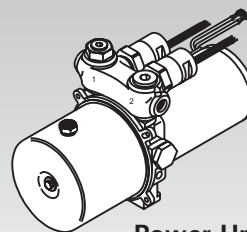
*As seen in
Industrial Vehicle Technology '96 Magazine
Materials Handling & Lift Truck Edition*



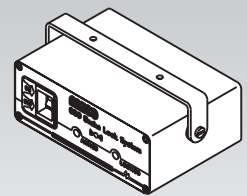
Single Actuator



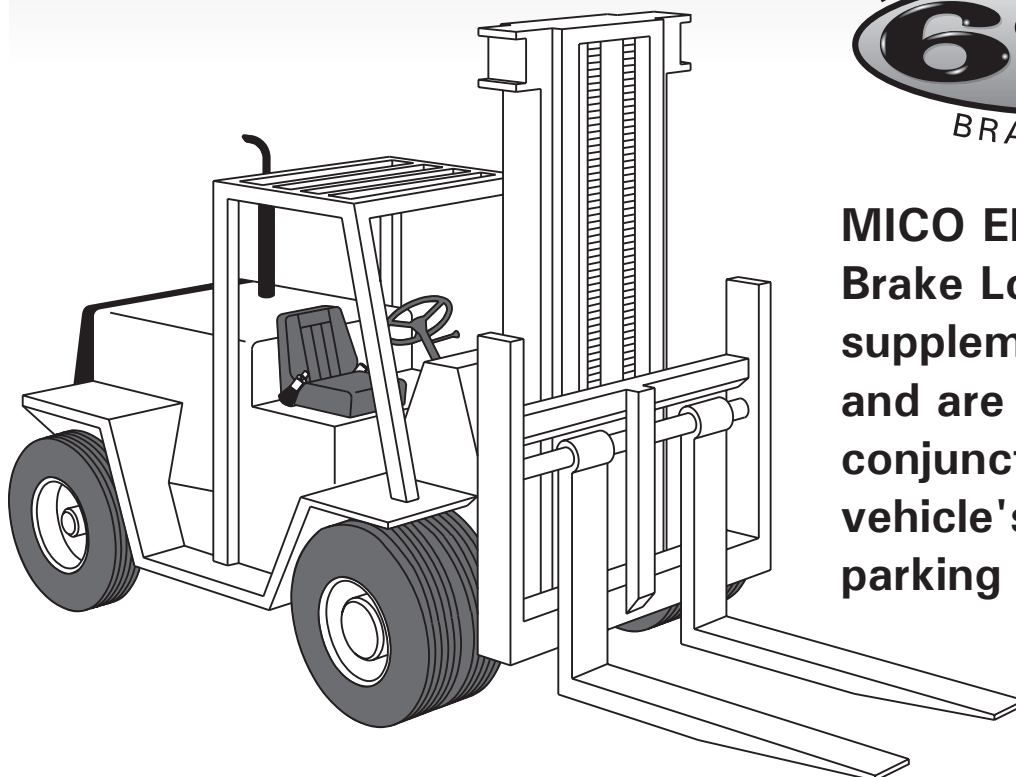
Dual Actuator



Power Unit



Control Module



**MICO Electrohydraulic
Brake Locks are for
supplemental parking
and are to be used in
conjunction with a
vehicle's mechanical
parking brake.**

Parking Made Secure

by Sean D. Ross

Safety is of paramount concern, and one element that is increasingly being incorporated into a number of materials handling vehicles is that of supplemental park braking. With fully automatic operation and a number of interlocks available, electrohydraulic brake locks provide safe and effective operation.

Electrohydraulic Brake Locks (EHBLs) provide safe, reliable supplemental park braking for fork-lift trucks and other vehicles in the material handling industry.

Hydraulic brake locks use a vehicle's service brake system for supplemental park braking and are used in a wide variety of applications, including fork-lift trucks, manlifts, utility vehicles and recreational vehicles, to name just a few.

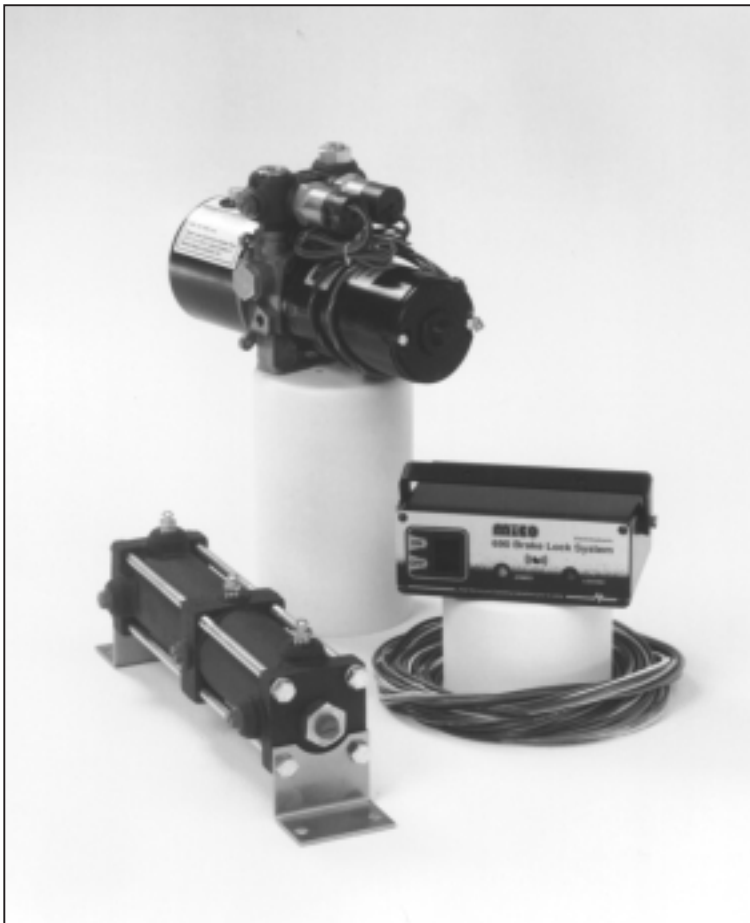
Hydraulic brake locks have been manufactured for over 40 years. The first designs consisted of two position manual directional control valves. With the valve in the

"lock" position the operator applies the service brake pedal to increase service brake pressure. This pressure is held in the service brakes by the control valve. An integral low pressure warning switch warns the operator when the service brake pressure drops below a pre-set value.

Since the development of the first hydraulic brake locks, there has been an increased demand for fully automatic operation and system interlocks. Electrohydraulic brake locks were developed to fill this demand.

These systems consist of a small high-speed hydraulic pump driven by a DC electric motor with two integral pressure switches to control pump cut-in and cut-out, a single hydraulic actuator for separation of the service brake and brake lock systems, and an electrical control module.

EHBLs are activated by depressing a recessed switch on the control module. The electric motor starts and the pump sends fluid to the single hydraulic actuator, pressurizing the service brakes. When the service brake pressure reaches a pre-set value, a pressure switch turns the electric motor off. If the service brake pressure decreases to a



MICO 690 Electrohydraulic Brake Lock System (shown with dual actuator)

pre-set value, a pressure switch turns the electric motor on again. An audible alarm indicates that the pump has energized. Hence, the EHBL system is fully automatic.

A useful feature of the EHBL is the interlock in the control module. There are many ways that the interlock feature can be used in fork-lift truck applications. Some examples follow.

SEAT/BRAKE INTERLOCK

A mechanical switch located under the seat can be used to automatically apply the EHBL and stop the vehicle when the operator

leaves the seat. The EHBL holds pressure to the service brakes for as long as the operator is off the seat.

GRADE CHECK INTERLOCK

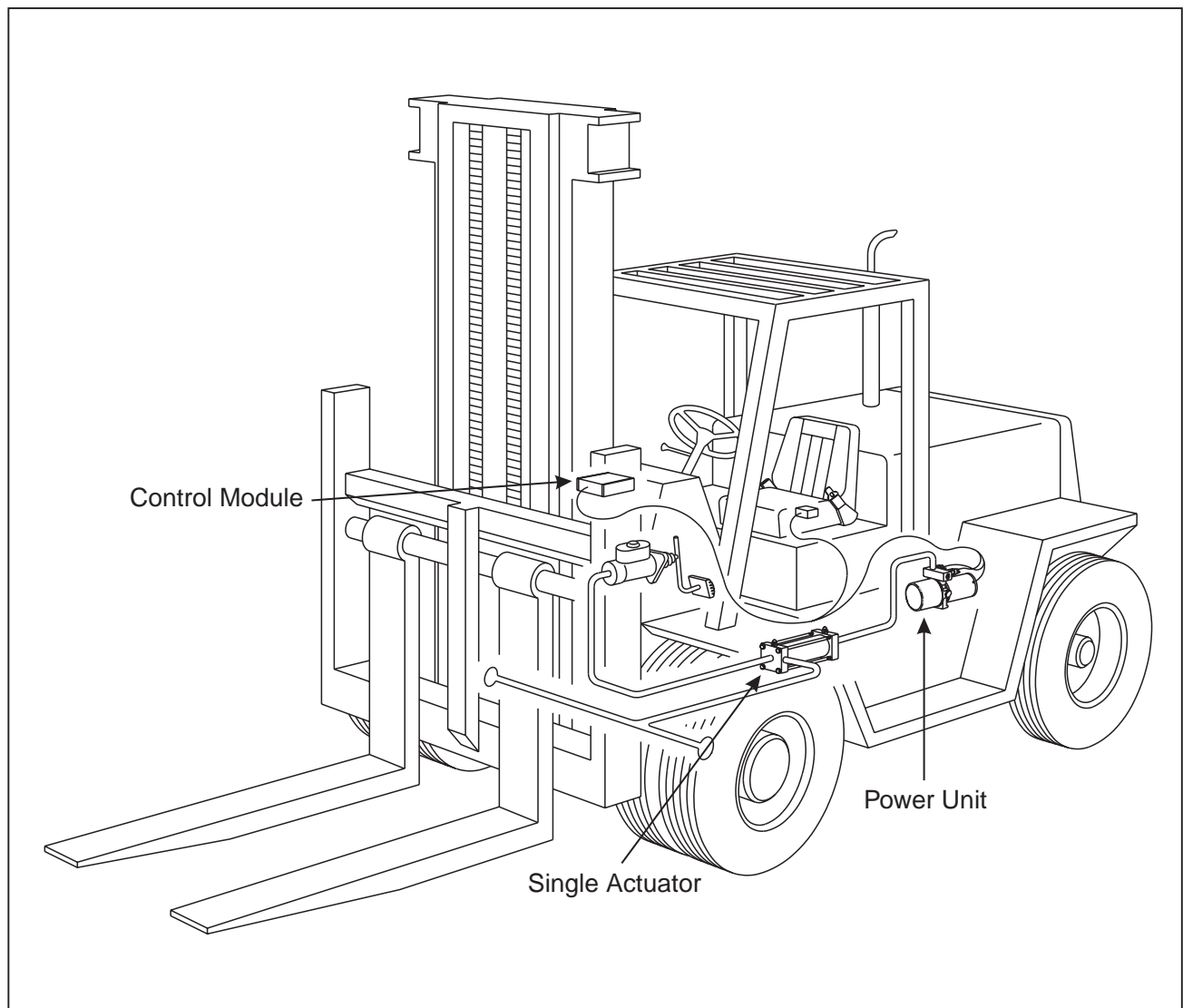
A level switch can be added to automatically apply the brake lock when the fork-lift truck tries to drive up an excessive grade (a major cause of lift truck accidents).

AUTHORIZATION INTERLOCK

A keypad can be added to require the operator to enter a code

before the brake lock will release, preventing unauthorized use of the fork-lift truck.

Fully automatic, easy to install and with a variety of interlock options, EHBLs are well suited for lift truck applications. ■



MICO 690 Electrohydraulic Brake Lock System with a seat/brake interlock installed on a fork-lift

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