The intended purpose of this catalog is to provide an understanding of how MICO components can be used in hydraulic and electrohydraulic brake systems. The systems and components shown in the illustrations and schematics may not be exact representations of actual machines.

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HYDRAULIC COMPONENTS & BRAKE SYSTEMS
Hydraulic Components and Brake Systems

Haul Truck example

- Dual Accumulator Charging Valve
- Hydraulic Accumulators (quantity 2)
- Hydraulic Accumulator Manifold
- Pressure Differential Switch
- Shuttle Valve Manifold
- Pressure Switch (brake light)
- Pressure Switch (transmission disconnect)
- Road Condition Valve Manifold
- Hydraulic Pump
- Pedal Actuated Tandem Modulating Valve
- Lever Actuated Single Modulating Valve
- Hydraulic Apply Caliper Disc Brake (quantity 8)
Haul Truck System Schematic

- Lever Actuated Single Modulating Valve
- Hydraulic Accumulator Manifold
- Shuttle Valve Manifold
- Pressure Differential Switch
- Pressure Switch (transmission disconnect)
- Pressure Switch (brake light)
- Road Condition Valve Manifold
- Dual Accumulator Charging Valve
- Pedal Actuated Tandem Modulating Valve
- Hydraulic Apply Caliper Disc Brakes (quantity 8)
- Bypass to Tank, Steering and/or Implements

Diagram includes various components such as shuttle valve, manifold, hydraulic apply, and modulating valves.
Hydraulic Components and Brake Systems
Articulated Dump Truck example

- Hydraulic Pump
- Pressure Switch (low pressure warning)
- Hydraulic Accumulators
- Pedal Actuated Tandem Modulating Valve (with pilot)
- Dual Accumulator Charging Valve with Relief Valve
- Electrohydraulic Brake Valve
- Brake Holding Electrical Switch
Pressure Switch (low pressure warning)

Park Brake Valve (with auto apply)

Hydraulic Accumulators

Hydraulic Pump

Pedal Actuated Tandem Modulating Valve

Hydraulic Apply Caliper Disc Brake (quantity 4)

Dual Accumulator Charging Valve

Spring Apply/ Hydraulic Release Caliper Disc Brake

Hydraulic Components and Brake Systems

Wheel Loader example
Wheel Loader System Schematic

- Park Brake Valve (with auto apply)
- Spring Apply/Hydraulic Release Caliper Disc Park Brake
- Hydraulic Apply Caliper Disc Service Brakes (quantity 4)
- Pedal Actuated Tandem Modulating Valve
- Bypass to Tank, Steering and/or Implements
- Dual Accumulator Charging Valve
- Pressure Switch (low pressure warning)
Hydraulic Components and Brake Systems

Backhoe Loader example

- Hydraulic Accumulators
- Hydraulic Pump
- Dual Accumulator Charging Valve
- Dual Power Brake Valve for Steering Assist
- Pressure Switch (low pressure warning)
Backhoe Loader System Schematic

- Dual Power Power Brake Valve
- Bypass to Tank, Steering or Implements
- Dual Accumulator Charging Valve
- Rear Brakes
- Pressure Switch (low pressure warning)
Hydraulic Components and Brake Systems
Motor Grader example

- Boosted Straight Bore Master Cylinder
- Main Hydraulic System Relief Valve
- Hydraulic Pump
- Modulating Valve
- Pedal Control Group
- System option
- Power Beyond Relief Valve
- Steering Valve
- Wheel Cylinder (quantity 4)
Hydraulic Components and Brake Systems
Logging Forwarder example

- Pressure Switch (low pressure warning)
- Hydraulic Accumulators
- Hydraulic Pump
- Dual Accumulator Charging Valve (with relief)
- Pedal Actuated Tandem Modulating Valve (with pilot)
- Pedal Actuated Single Modulating Valve
Logging Forwarder System Schematic

Pedal Actuated Single Modulating Valve

Pedal Actuated Tandem Modulating Valve (with pilot)

Dual Accumulator Charging Valve (with relief)

Pressure Switch (low pressure warning)

Bypass to Tank, Steering or Implements

To Brakes

AP

TP

AP

TP

SW

OPT

A2A1
Hydraulic Components and Brake Systems
Underground Loader example

- Single Accumulator Charging Valve
- Accumulator
- Hydraulic Pump
- Hydraulic System Relief Valve
- Lift/Tilt Cylinder Valve
- Reverse Modulating Valve
Hydraulic Components and Brake Systems

Agricultural Tractor example

- **Hydraulic Accumulators**
- **Hydraulic Pump**
- **Dual Accumulator Charging Valve** (with relief)
- **Pressure Switch** (low pressure warning)
- **Pedal Actuated Tandem Modulating Valve**
Agriculture Tractor System Schematic

- Pedal Actuated Tandem Modulating Valve
- Pressure Switch (low pressure warning)
- Dual Accumulator Charging Valve (with relief)
- Bypass to Tank, Steering or Implements
- To Rear Brakes
- To Front Brakes
C-Mount Multiple Disc Brake (modular design) (quantity 2)
Hydraulic Components and Brake Systems

Manlift example

A-Mount
Modular Brake

B-Mount
Compact Design Brake
(quantity 2)
Hydraulic Components and Brake Systems
Straddle Carrier example
Straddle Carrier System Schematic
Hydraulic Components and Brake Systems

Forklift example

Lift/Tilt Directional Control

Hydraulic Pump

Steering Valve

Flow Control Valve

Boosted Straight Bore Master Cylinder
Hydraulic Components and Brake Systems
Aircraft Tow Tractor example
Compact Wheel Mount Multiple Disc Brake (quantity 2)

Large Wheel Mount Multiple Disc Brake (motor input)
For heavier load applications
Haul Truck System Schematic
NOTE: A redundant method of powering the system is required. It is the machine manufactures responsibility to insure that a single point power failure does not result in non-functional brakes.
Wheel Loader System Schematic

NOTE: A redundant method of powering the system is required. It is the machine manufactures responsibility to insure that a single point power failure does not result in non-functional brakes.
Electrohydraulic Components and Brake Systems
Agricultural Tractor example

- Hydraulic Accumulators
- ABS Electronic Control Unit
- Dual Accumulator Charging Valve
- Keypad
- Pressure Transducer (quantity 2)
- Hydraulic Pump
- Wheel Speed Sensor (quantity 4)
- Single ABS Valve (quantity 4)
- Pedal Actuated Tandem Modulating Valve

Agricultural Tractor example
Agriculture Tractor System Schematic
Electrohydraulic Components and Brake Systems
Straddle Carrier example

NOTE: A redundant method of powering the system is required. It is the machine manufacturers responsibility to insure that a single point power failure does not result in non-functional brakes.
NOTE: A redundant method of powering the system is required. It is the machine manufactures responsibility to insure that a single point power failure does not result in non-functional brakes.
Electrohydraulic Components and Brake Systems

Forklift (with inching control) example

NOTE: A redundant method of powering the system is required. It is the machine manufactures responsibility to insure that a single point power failure does not result in non-functional brakes.
Forklift (with inching control) System Schematic

NOTE: A redundant method of powering the system is required. It is the machine manufacturer's responsibility to ensure that a single point power failure does not result in non-functional brakes.
Electrohydraulic Components and Brake Systems
Aircraft Tow Tractor example

- Dual Accumulator Charging Valve
- Pressure Switch (low pressure warning)
- Electrohydraulic Brake Valve (quantity 3)
- Hydraulic Pump
- Electronic Park Brake Lever (quantity 2)
- CAN Valve Driver (quantity 3)
- Electronic Pedal (quantity 2)
- Spring Apply/Hydraulic Release Caliper Disc Park Brake

NOTE: A redundant method of powering the system is required. It is the machine manufactures responsibility to insure that a single point power failure does not result in non-functional brakes.
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Rubber Tire Road Roller System Schematic

NOTE: A redundant method of powering the system is required. It is the machine manufacturer's responsibility to ensure that a single point power failure does not result in non-functional brakes.
ABS Electronic Control Unit

Keypad

Supplemental Parking Brake Switch

Park Brake Indicator Lamp

Electrohydraulic Components and Brake Systems

Street Sweeper example

Pressure Switch (low pressure warning)

Dual Accumulator Charging Valve

Hydraulic Pump

Wheel Speed Sensor (quantity 4)

Pressure Transducer (quantity 2)

Electrohydraulic Dual ABS Valve (quantity 2)

Hydraulic Accumulators

Pedal Actuated Tandem Modulating Valve

Electrohydraulic Dual ABS Valve

Pressure Differential Switch

Hydraulic Pump

Wheel Speed Sensor (quantity 4)

Pressure Transducer (quantity 2)
Electrohydraulic Components and Brake Systems
Armoured Personnel Carrier example

- Keypad
- Pressure Switch (brake lights)
- Pressure Transducer (quantity 2)
- ABS/TCS Electronic Control Unit (quantity 2)
- Wheel Speed Sensor (quantity 6)
- Hydraulic Accumulators
- Hydraulic Pump
- Electrohydraulic Brake Valve (quantity 6)
- Dual Accumulator Charging Valve (with relief and pressure switch)
- Electrohydraulic Safety Valve (quantity 2)
- Pedal Actuated Tandem Modulating Valve

Electrohydraulic Components and Brake Systems
Armoured Personnel Carrier example
Armoured Personnel Carrier System Schematic

Wheel Speed Sensor (quantity 6)

To Brakes

To Brakes

MICO Electrohydraulic Brake Valve (quantity 6)

Pressure Transducer

Pressure Switch (brake lights)

ABS/TCS Electronic Control Unit

Electrohydraulic Safety Valve

Electrohydraulic Brake Valve

Pressure Transducer

Wheel Speed Sensor

To Brakes

To Brakes

ABS/TCS Electronic Control Unit

To Brakes

To Brakes

To Brakes

To Brakes

To Brakes

Dual Accumulator Charging Valve (with relief and pressure switch)

Keypad

MICO Pedal Actuated Tandem Modulating Valve

Power Supply

(+/-) VDC

Armoured Personnel Carrier System Schematic

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