15263 Wheeler Road Lagrange, Ohio 44050
caresse.piwinski@llfab.com
www.llfab.com

Bendix Advanced Air Brake Trainer Bill of Material

- sectioned air compressor with operable unloaders (compressor is sectioned and non-functional)
- Bendix AD-IS air dryer
- 2 steer axle type-24 brake chambers
- 1 Bendix Advanced ECU
- 1 Bendix steer axle sensor
- 1 Bendix yaw rate sensor
- 7 Bendix M-40 antilock modulators (2 on the steer, 2 on tandem axle, 1 trailer control, and 2 on the drive)
- 2 Bendix ATR-6 tractor relay valve
- 1 Bendix E8-P brake valve
- 1 MV-3 park control valve
- 1 simulated dash panel (4 warning lights, 1 computer diagnostic port, 1 ignition switch, 6 fuses, 2 switches (one for blink codes and 1 for off road simulation))
- 4 failure mode switch panels containing 54 failure mode switches
- 1 Bendix trailer control valve
- 1 Bendix electronic throttle pedal assembly
- 1 tractor primary air reservoir (rear system)
- 1 tractor secondary air reservoir (front system)
- 2 trailer reservoirs
- 1 Bendix TP-5 tractor protection valve
- 1 stop light switch
- 8 spring brake chambers
- 10 automatic slack adjusters
- 1 Bendix multi-channel trailer ABS modulator
- 1 Bendix trailer supply valve
- 4 tail lights
- 1 ABS trailer failure warning light
- 2 low pressure switches
- 1 low pressure warning light
- 1 low pressure warning buzzer

- 10 digital speed readouts
- 1 wheel speed reference simulator to transmission and engine simulation
- 25 reference air gauges
- All necessary brackets and fittings to complete the system

**Note: There is an option available to change the 6 digital speed readouts on the tractor only to 6 stepper motors with reluctor rings

General Information

Before Starting:

Make sure all electrical connections on the back of the display are properly connected and all switches are turned to the OFF position. Connect the matching color codes air lines on the front of the trainer. Connect the air supply to the rear of the trainer and plug in the 110 VAC power supply cord. Make sure the ignition switch is in the OFF position and then turn on the power supply.

Note: At times you may want to operate the trainer without the buzzer sounding. If you turn on the ignition key to the right "ON POSITION" the buzzer will be ON. Turning the key to the left "ACCESSORY POSITION" eliminated the buzzer only operation.

- Plug in a minimum of 135psi air supply into the connector on the back of the trainer
- Make sure all failure switches are turned down to the off position
- Open the air supply valve on the air compressor
- With the ignition key OFF turn the power supply on the back of the display to ON

Operation: This trainer is designed to operate similar to a driving vehicle

- Turn the ignition key to on. The ABS/ATC/ESP system will go through its start up cycle chuffing the modulators
- Step on the brake pedal to let the system know the stop light switch is operating. All failure lights on the dash panel should now be off
- Make a slight application of the electronic throttle pedal. The wheel speeds will now accelerate to 60MPH. Note: making a full pedal application will initiate a traction event
- Step and hold the brake valve pedal down slightly. This will create a drop in speed from 60MPH to 20MPH in 1 second thus simulating an ABS stop

To Create Failures

To create a failure select a failure switch from the back of the display and flip the switch to the on position. There are a few failures where the failure warning light on the dash panel will not come on. Example is a trailer warning light failure

For additional technical data on Bendix systems and valves, please visit www.bendix.com . All system and technical data can be found there

Antilock and Traction Control Operation

At each wheel end you will find 10 digital speed readouts protected with a green cover. Acceleration and deceleration speeds will be noted for each wheel. To begin acceleration, depress the throttle pedal to approximately 1/3 travel and hold until wheel speed begins. Wheel speed at all wheels will reach 60MPH.

Let the wheel speed stabilize for a few seconds and then depress the brake pedal. This will put the vehicle into a simulated stop on ice. Wheel speed will cycle and stop as if in an emergency ice situation.

For traction control, depress the throttle pedal to the full travel position. A traction event will start on the drive axle with the brakes cycling left to right. Once the vehicle begins to move, the traction event will drop out and the vehicle will accelerate to 60MPH. Depress the brake pedal again to cycle through an ABS event and bring the vehicle to a stop.

ABS/ATC Faults and Diagnostics

On the back of each steer, drive and trailer panel is a switch panel containing failure modes for the panel. For normal operation all switches should be flipped to the down or OFF position. Flipping a switch to the ON position creates a fault. When a fault is created, a warning light on the front of the dash panel will light. (Not all faults will turn the light on) If the light does not come on, it could be related to power and ground issues. To verify the system is working correctly turn all switches to off and reconfigure the system. Creating excessive faults at the same time may confuse the system and require a reconfiguration.