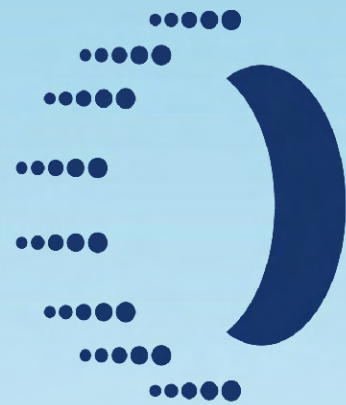
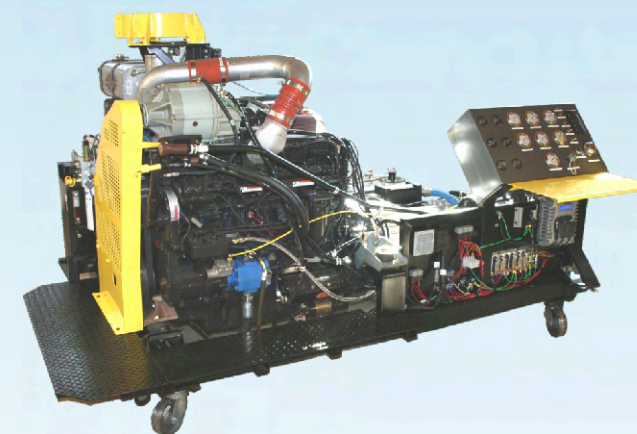
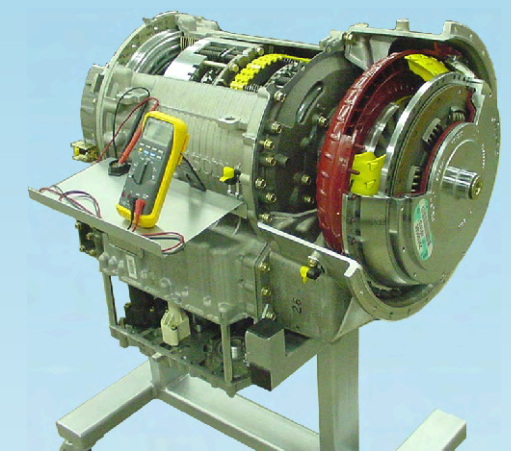


**CUSTOM TRAINING AIDS, LLC**



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**Custom Training Aids, LLC** was established in 2000 by Brian Markey. Brian is a mechanical instructor with over 34 years experience in the mechanical and training profession. He created the company after recognizing the need that technical colleges and government agency training instructors had for a quality, professional, and functional training tool to demonstrate the operation of mechanical systems without bringing operational trucks and buses into the classroom environment.

Each training aid and instructional program is custom designed to meet individual training requirements. Students benefit the most from training programs and equipment designed around individual company buses and trucks..

**Custom Training Aids, LLC** instructional programs are designed without the influence of vendors who commonly tailor their training programs around selling their products, not around the goal of creating a useful teaching tool.

As mechanical systems become more complex, it is often difficult to find highly trained mechanics capable of troubleshooting, repairing, and servicing these often misunderstood systems. In today's highly competitive business environment, it has become necessary to operate and maintain equipment while reducing cost. Labor is often considered to be the largest expenditure in a fleets operation.

Our expertise in training will result in a more efficient mechanical staff, reduce operating costs, and reduce downtime due to mis-diagnosed equipment. All of our products are designed to support the Automotive Service Excellence (ASE) transit bus, truck testing, and skills certification program.

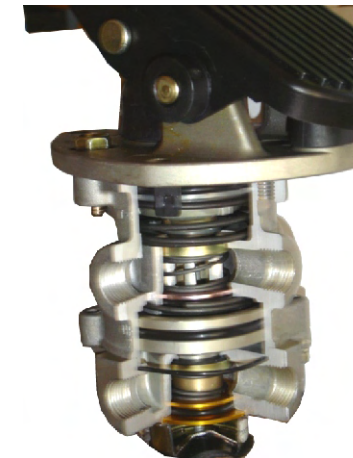
For those companies who require more than just the training aids, specialized training programs are available that are designed to meet specific training needs. Our instructors will arrive at training centers or maintenance facilities and provide the highest quality of instruction possible. Our programs are performed during non-peak service hours. All of our instructors are current in their discipline, providing patient and concise training, even in the most difficult environments.

Tired of vendors supplying mechanics with a sales pitch on how great their products are? We are ready to step in and teach mechanics how to properly fix equipment, thus allowing trucks and buses to get back on the road. We are waiting to help.

*Brian Markey*

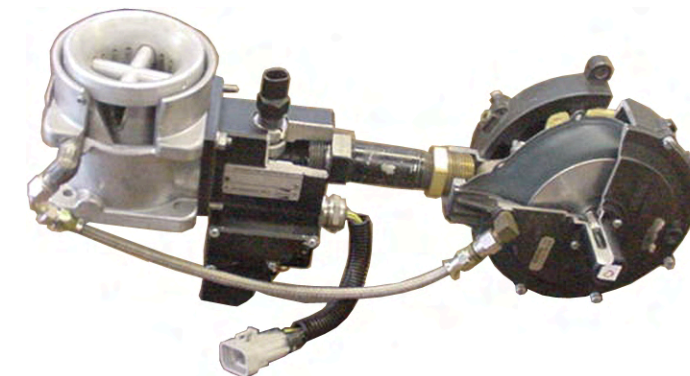


## Brake Application Valve Cutaway



Brake application valve cutaway showing internal components and subsystems. Brake valve and all other component cutaway displays provide instructor and students with a hands on approach to mechanical training and the ability to visualize component subsystems and their operation.

## Compressed Natural Gas Fuel Mixer and Regulator Cut-Away



Compressed natural gas fuel mixer and regulator cutaway allows instructor to discuss fuel system operation and component relationship. Students can be shown how fuel pressure regulation, air/fuel mixing, and heat transfer are performed without the need for live equipment which often does not support easy student viewing.

Training cutaway displays are available for all mechanical components. Electrical testing and mechanical operation of these components is available where practical. Our designers will work to fabricate a custom cutaway to suit individual training needs.



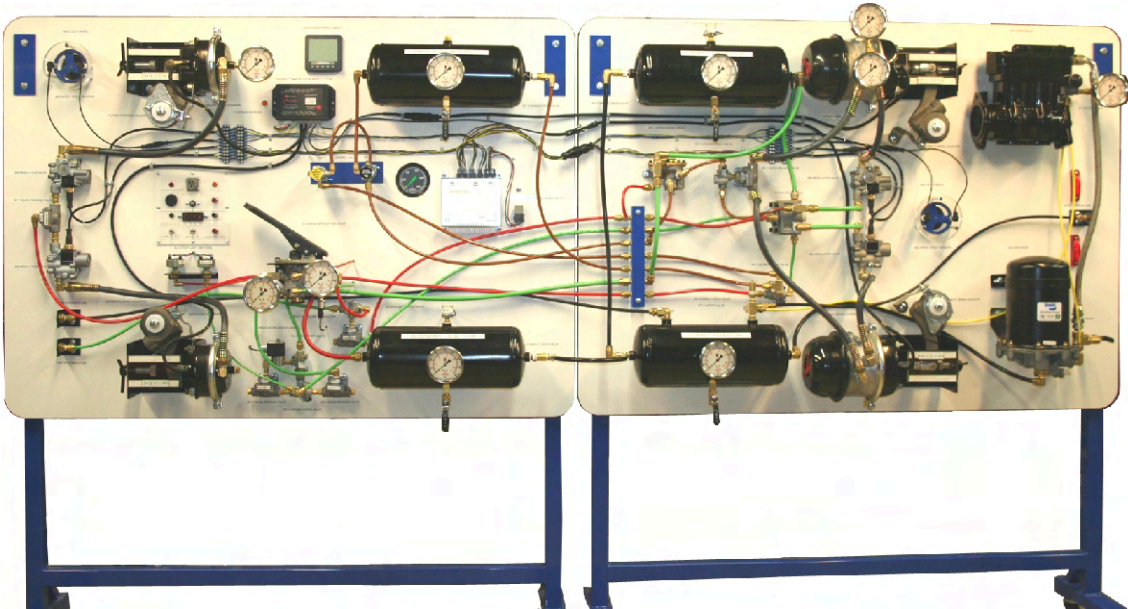


**Bus Destination Sign Training Display**



Display allows instructor to train on the operation, troubleshooting, and maintenance of bus destination signs. Bus operators can also be instructed on code entry and silent alarm operation in a classroom environment. Maintenance staff can test new sign programs without the need to remove an operational bus from service.

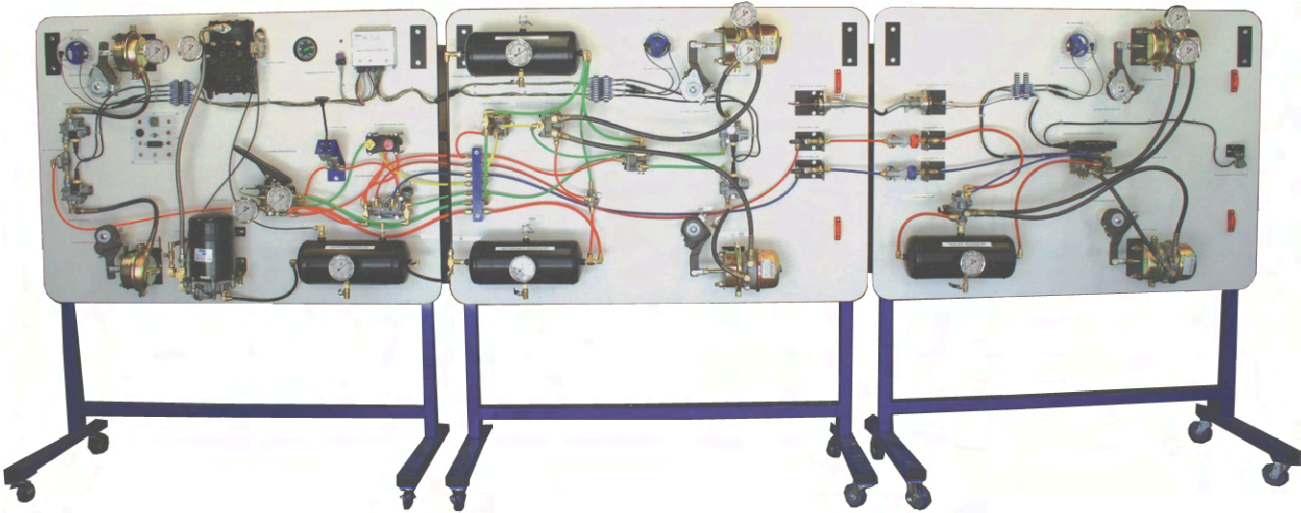
**Communication System Training Display**



**Transit Bus 5 Cam Air Brake System with ABS and Electronic E-Stroke Sensing System**

ABS equipped air brake training display board comes equipped with all brake system parts and components normally found on heavy duty vehicles. Air brake troubleshooting, repair, and maintenance can be demonstrated on this brake training board without the need for live equipment that does not often allow easy access to the system being instructed upon. Air brake supply, control, and foundation subsystems are displayed for easy student understanding. Electronic Brake Stroke Sensing System is available as an option on any brake training board.

A total of 26 defect switches are located on the rear of the brake display board. This includes a total of 20 ABS related defects and 6 support system defects. These allow the instructor to easily create commonly found electrical defects with the flip of a switch, including the low air warning buzzer to reduce noise during classroom training. Air systems come standard with Parker Prestomatic air fittings which allow the instructor to easily remove air lines for student testing. Air brake training display boards are custom designed to suit individual needs based upon air system schematic and subsystem components.

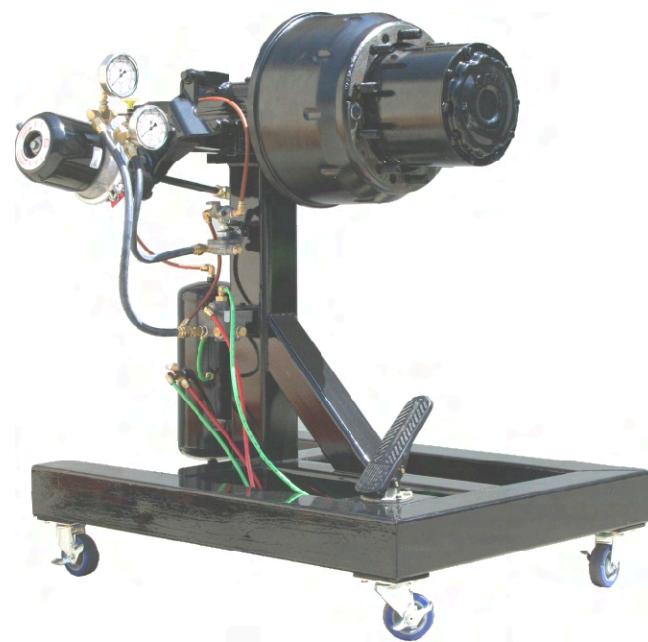


**Tractor Trailer 5-Cam Air Brake System with ABS**





### MAN Drive Axle Foundation Brake Stand



### Meritor Planetary Drive Axle Foundation Brake Stand



S-Cam Foundation brake stand is a fully functioning axle wheel end brake training aid. Easy access to all brake parts is available without the burden of chassis components and the bus body obstructing the students view. Instructor can train on foundation brake reline procedures, service, parking brake operation, and brake inspection. Service and parking brake operation are provided through foot, relay, and parking brake valves. ABS wheel speed sensor output voltage and sine wave test strip allow easy demonstration of sensor testing with a digital volt ohm meter. Drive axle can be rotated by an axle shaft mounted crank that can easily be turned to rotate the wheel end. Students can develop a better understanding of this misunderstood and confusing drive axle configuration.



### MAN Steer Axle Foundation Brake Stand

### Wabasco Diesel Fueled Coolant Heater Training Display



Wabasco diesel fueled coolant heater operation, troubleshooting, and repair can be shown in the classroom. Students have easy access to the complete Wabasco coolant heater for easy disassembly and parts inspection for requalification and assembly. Coolant heater maintenance can be demonstrated to show ease of service.

### Hydraulic Cooling Fan Component Test Bench and Training Module



Hydraulic cooling fan component test bench and training module provides instructor with a multipurpose training tool that allows students to develop their hydraulic system troubleshooting skills and bench test hydraulic fan motors and pumps. Hydraulic test bench is equipped with pressure gauge, flow meter, and quick disconnect fittings, to minimize the loss of hydraulic oil during motor and pump removal. Test bench is manufactured to mirror vehicle hydraulic cooling system with control valves, reservoir, and filter to provide a realistic training environment. Hydraulic pumps and motors can be tested using this bench to determine if they are in satisfactory condition for use.





## Bus Exit Door Training Module



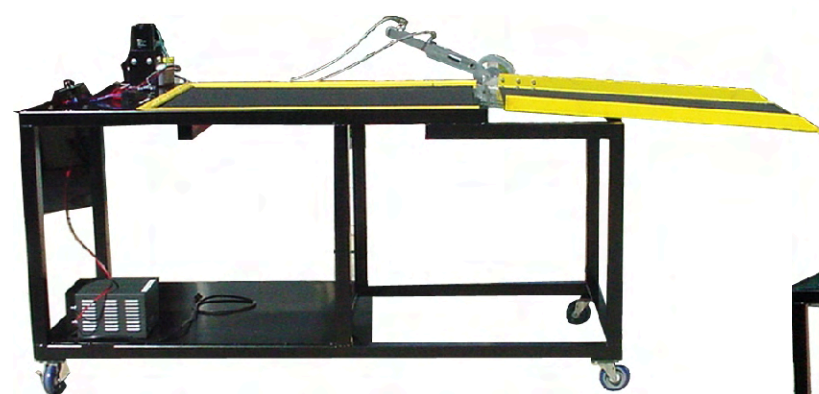
**Interior View**



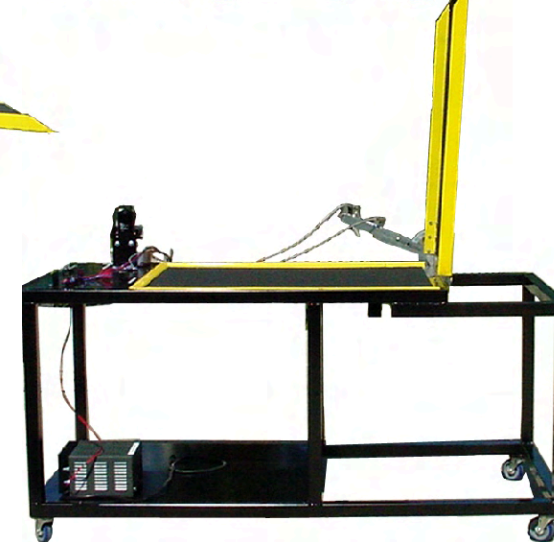
**Exterior View**

Bus door systems often requires a high degree of maintenance, repair, and adjustment. Instructor and students are provided easy access to all door system parts including: sensitive edges, linkage, motor, and electrical components. As a result mechanics are provided with a better understanding of the complete door system operation.

## Accessible Service Ramp Training Display



**Deployed Position**

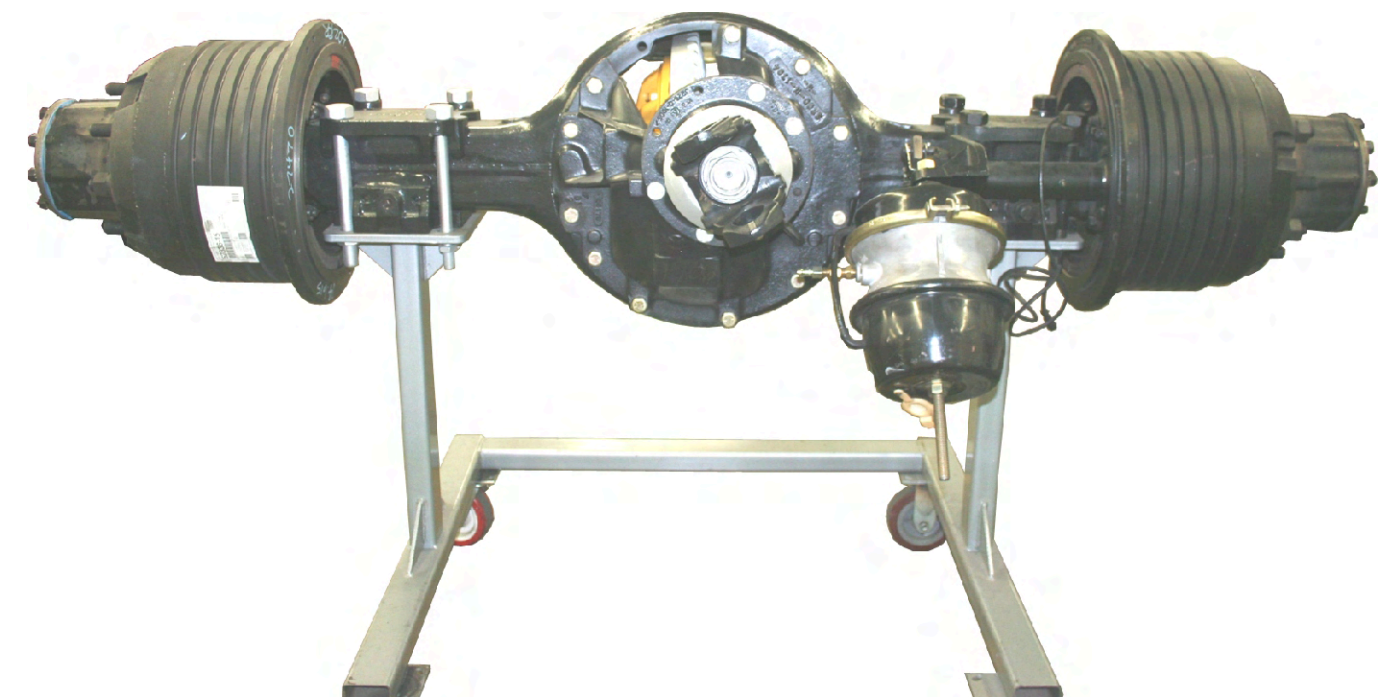


**Being Deployed**

Federal, state, and local laws and regulations often require buses to be placed out of service until the accessible service ramp or lift is serviced or repaired. Accessible service ramp and lift maintenance can be labor intensive and often mis-diagnosed. The accessible service ramp training display is a fully operational ramp that allows the instructor to train on troubleshooting, repair, and maintenance in the classroom.



## Heavy Duty Drive Axle with Cutaway Differential



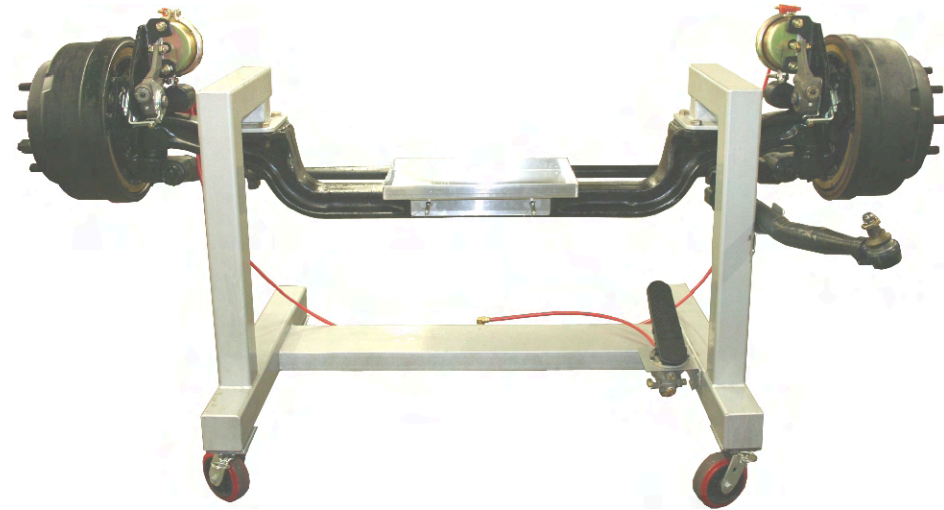
Heavy duty drive axle with cutaway differential and 2 different types of S-Cam brakes allow instructor to train on foundation brake troubleshooting, repair and rebuild on separate braking systems. This eliminates the need for multiple axles when training mechanics fleets with multiple types of brakes. Differential operation and parts identification can also be shown. This includes a view of internal gearing operation not commonly available to the student.

## Heavy Duty Differential Cutaway



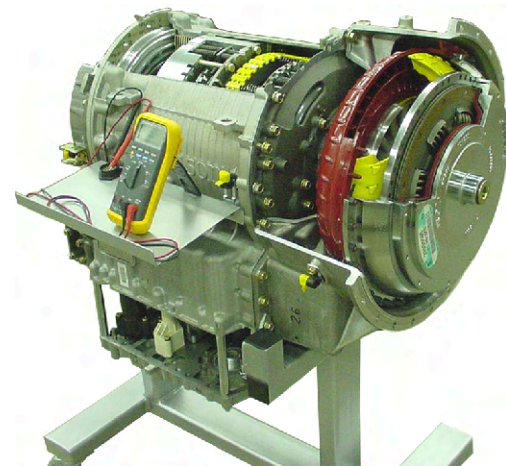


## Heavy Duty Steer Axle with S-Cam Brakes and Steering Components



Instructor can provide training on both foundation brake and steering components, troubleshooting, repair and rebuild. Students benefit from parts and component identification, location, and operation without the necessity of using live equipment which commonly does not provide an unobstructed view. Students can be shown parts replacement, adjustment, and testing in a classroom environment.

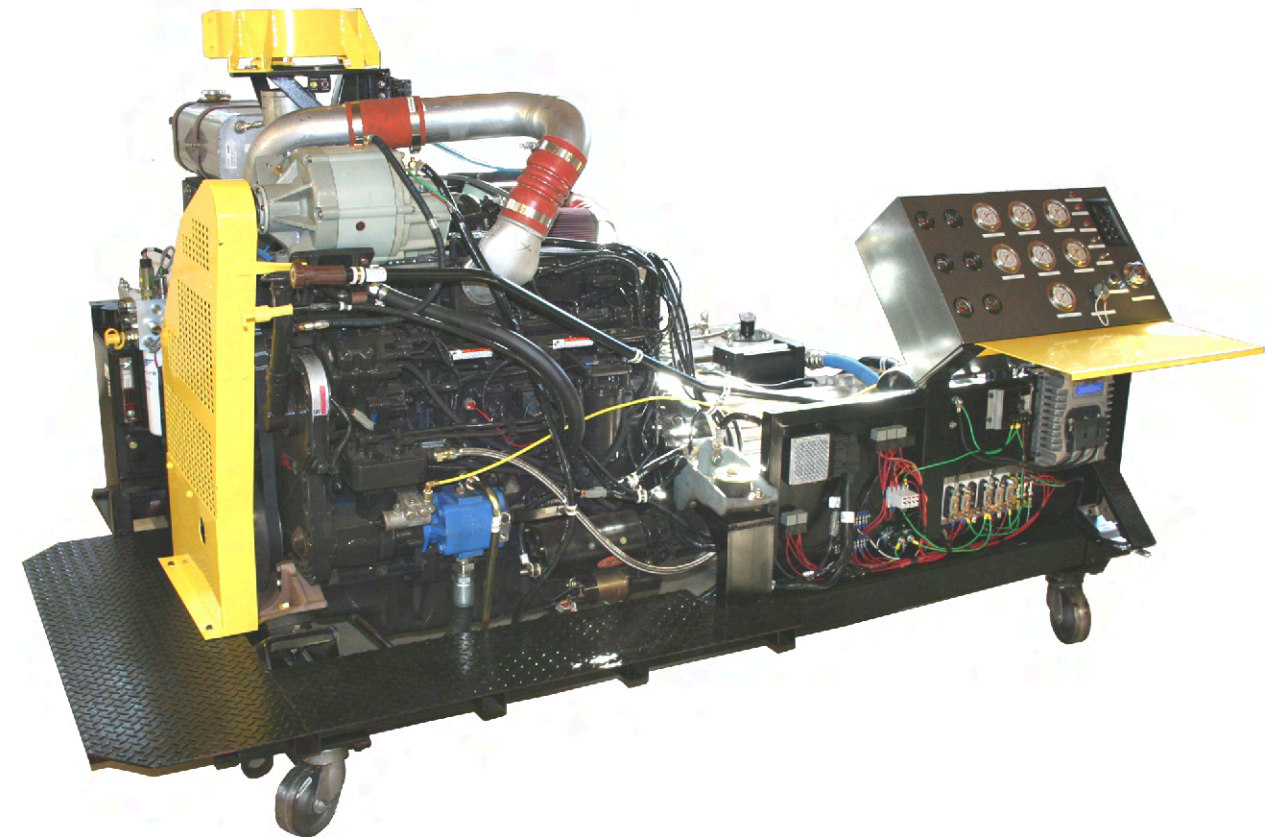
## Allison B-500 Automatic Transmission Cut-Away Training Display



Allison B-500 automatic transmission cutaway allows instructor to show internal components and their relationship to other transmission parts and systems. Parts are color coded to match manufacturer's literature color coding. Instructor and students can easily relate manufacturer's literature during both hands on and lecture training. Transmission electrical components can easily be tested with a digital volt ohm meter to demonstrate both electrical testing techniques and development of baseline data. Clutch operation can be demonstrated with shop supplied air pressure through access port on transmission underside. Component service and replacement can be demonstrated.



## Cummins Engine Allison Transmission Training and Troubleshooting Power Plant Module



Power plant module is a self contained engine/transmission training aid that can be operated for extended periods of time. Starting and charging systems allow instructor to repeatedly start and run the engine. Cooling and exhaust system will allow extended operation without the concern of overheating. Power plant provides instructor with the opportunity to train on all aspects of engine and transmission operation, diagnostics, adjustments, repair and preventative maintenance.

## Power Plant Module Control Console



Control panel is equipped with all necessary gauges to display engine temperature, oil pressure, charging voltage, fuel level and air pressure. Transmission main, clutch and retarder pressures are also displayed. Transmission shift selector, engine run and start switches, warning lights and diagnostic plug are conveniently located on the display panel. Engine throttle is fully functional allowing engine to be accelerated through all transmission gear ranges.

