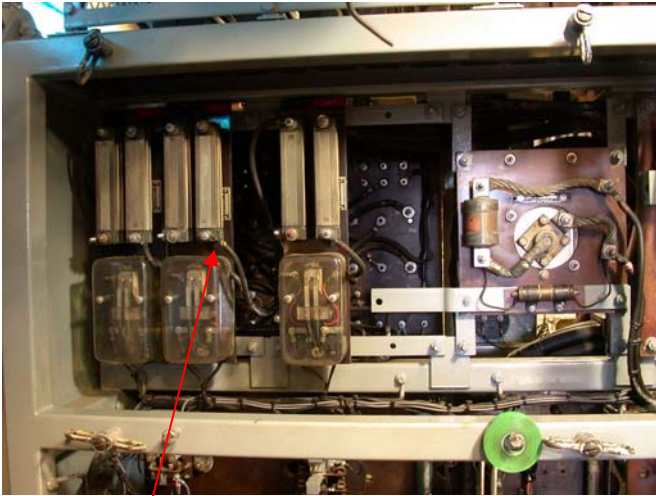


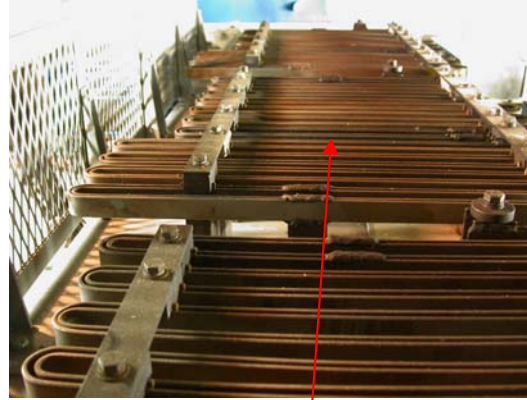
## Class 40 Control Cubicle—Principle Components

### Class 40 Control Cubicle—Number 2 cab side



#### Wheel Slip Detectors.

Each pair of traction motors are monitored for voltage differences. Such a difference indicates wheel slip, and a small relay is energised. This illuminates a warning light on the drivers desk.



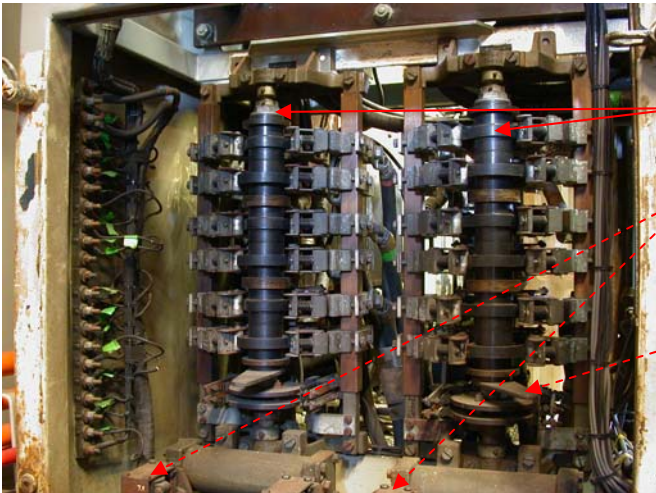
#### Field Divert Contactors & Resistors.

To give the engine a useable power and speed range, electrical equipment needs to operate in 'ranges' controlled by 'field diversion'. As speed increases, the diverts are energised in turn. This adds a large resistor into the electrical supply making the power unit work harder. The resistors are on the top of the control cubicle, behind a protective 'fence'. As speed increases, the power output naturally falls until the next divert is switched in—this starts the process again. In effect these are the locomotives gears. All diesel electric locomotives have field diversion equipment of one design or another.



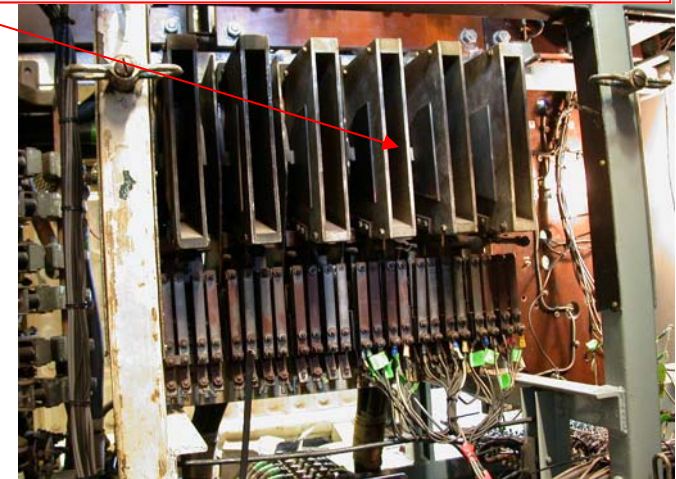
#### Traction Motor Contactors

Each traction motor has its own contactor, which switches it on and off. These contactors to allow individual motors to be isolated in the case of a fault. 40118 was modified to use only three contactors, with each contactor controlling a pair of motors.



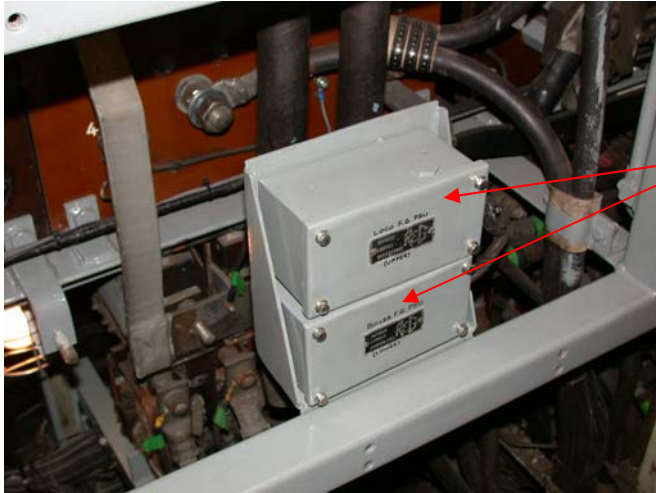
#### Reverser Contactors.

Two air operated contactor banks. If the drivers reverser handle is moved, two of the four small electrically operated air valves are energised. This allows compressed air to move the reversers—one operates in the 'forward' direction, the other in 'reverse'. The contactors have a handle for manual operation, or isolation.



## Class 40 Control Cubicle—Principle Components

### Class 40 Control Cubicle—Power Unit side



#### Fuel Gauge Power Supply

The main fuel tank and the boiler fuel tank each has its own fuel gauge. These are electrically operated, taking their signal from a 'floating' sensor within the fuel tank. These two units supply the power to the sensors and fuel gauges.

#### Brake Selector Switch

The engine can operate both vacuum and air brakes on trains. This switch selects the type of brake to be operated. Moving the switch will also switch on the vacuum exhausters, or main air compressor depending on brake type. The switch also selects passenger or goods train—this determines how quickly the brakes can be applied—important with heavy, loosely coupled freight trains.

#### Battery Charge Ammeter

This gauge shows if the batteries are being charged, or discharged. If the engine is running, and the batteries are constantly discharging then it is likely that a fault exists.



#### Voltage Lower Relay

This relay is energised as power requirements change. In one position, it allows the load regulator to give more power from the engine, in the other it decreases the load regulator position. This in turn decreases the power unit output. If there is a fault (40118 had a fault) in this relay will stop the loco operating correctly.

#### Fault Lights

The drivers desk contains one red fault light—this can mean one of four different faults. These lights give more information on the type of fault.

#### Fuse Board

Main collection of locomotives fuses (all removed in this photo)

#### Compressor Changeover

If the locomotive has a faulty compressor, then this switch allows the locomotive to use one compressor only—it transfers all functions to the one remaining compressor.

