

PROGRESS RAIL SERVICES PR43C

LINE HAUL LOCOMOTIVE

Quick Start Guide PR43-015B-00

4300 HP - 6 Axle Locomotive
CCB-26 Air Brakes



LOCOMOTIVE OPERATION

The PR43C is operated in a conventional manner using the controls on the AAR Control Stand. This Quick Start Guide is not all inclusive. Consult the Operator's Manual and/or Progress Rail Services if additional information is needed.

ENGINE STARTING

- 1: Open the Knife switch.
- 2: All circuit breakers with nameplates having black-backgrounds and white-lettering are set to ON (lever up). These are located in the Electrical Control Cabinet upper middle left compartment.
- 3: The Emergency Fuel Cutoff (EFCO) switch must be OFF (resetting the EFCO circuit will be required if the EFCO switch was used to stop the engine).
- 4: The Reverser must be in NEUTRAL (centered).
- 5: The Power Throttle must be in IDLE (far right stop).
- 6: Close the Knife Switch.
- 7: Press the Green Start Button on the Engine Control Panel.
- 8: An audible alarm will sound for 5 seconds before starting the engine(s).

SECOND ENGINE STARTING

The PR43C has a C175 engine and a C18 engine. Depending upon ambient conditions, one or both engines may start during the initial startup of the locomotive. Depending upon the power required, one or both engines may be running or shutdown at any time. The alarm will sound before any engine starts if the ground speed is zero. If the locomotive is moving or loading, the alarm will not sound when the 2nd engine starts.

AESS - AUTOMATIC ENGINE STARTING/STOPPING

AESS is the automatic handling of engine starting and stopping based on specific criteria to maintain locomotive readiness.

CONDITIONS FOR ENGINE SHUTDOWN OPERATION

The AESS function will shutdown the engine if all of the following are met:

- Throttle handle is in the IDLE position
- The Reverser handle is in the centered (NEUTRAL) position
- The locomotive speed is zero

AESS will monitor conditions to ensure that engine coolant temp is above a certain point, batteries are charged, main air reservoir is charged, brake pipe pressure is charged, and the air compressor does not need to run. If all of these conditions are met, then AESS will shutdown the engine and continue to monitor these systems.

WARNING: WHEN THE AESS ENABLE LIGHT IS ON, THE ENGINE MAY AUTOMATICALLY START OR STOP AT ANY TIME. WHEN AESS HAS SHUTDOWN THE ENGINE, AN AUDIBLE ALARM WILL SOUND EVERY 5 MINUTES TO INDICATE AN AUTOMATIC RESTART IS POSSIBLE. THE ALARM WILL SOUND FOR 5 SECONDS BEFORE THE ENGINE(S) IS RESTARTED.

CONDITIONS FOR ENGINE STARTUP OPERATION

If the AESS system has previously shutdown the engine and is monitoring the locomotive, then the AESS function will startup the engine if any of the following occur:

- Throttle handle is moved out of the IDLE position
- The Reverser handle is moved out of the centered (NEUTRAL) position
- The locomotive begins to move – speed is detected
- Engine coolant too cold, batteries need recharged, air pressure is needed
- AESS time limit expires

An Audible Warning is sounded for 5 seconds before the engine is about to start. The AESS then energizes the starter.

EMERGENCY ENGINE STOP

The engine can be shutdown by pressing any Emergency Fuel Cutoff (EFCO) button. When the engine is ready to start again, the EFCO button must be reset to the normal operation position (EFCO off) to allow the engine to run normally.

CONTROL STAND WARNING LIGHTS

PCS OPEN - The PCS OPEN light is lit whenever the air brake system initiates an Emergency or Penalty Brake Application. The engine is reduced to idle and power or dynamic braking will be interrupted.

SAND - Is illuminated whenever the "Lead Truck Sand" Switch is in the ON position or may flash when the control system is automatically sanding.

WHEEL SLIP -The Wheel Slip light is lit when a major slip of one of the wheels has been detected, a slipped pinion has been detected or another unit in a multi-unit (MU) consist is sending the warning through the trainline connection.

BRAKE WARNING – Indicates excessive braking current when operating in dynamic brake mode. Immediately reduce braking strength to prevent equipment damage.

ENGINE CONTROL PANEL WARNING LIGHTS

GRND RELAY - Illuminated when a High Voltage AC or DC ground fault has been detected. The Alarm Bell will ring for 5 seconds and the Ground Relay will be automatically reset. This will happen two times and on the third time within 1 hour the Ground Relay will lock out and the Alarm Bell will ring continuously until the Ground Reset Push button is depressed and the Ground Relay is reset.

FAULT - Indicates a fault condition has occurred in the traction control system. The proper maintenance personnel must be notified.

NO AUX POWER – On when the companion alternator is not generating power. May be due to a dead engine or tripped GEN FIELD circuit breaker. Battery is not charging.

AIR COMP FAULT - Air compressor fault, temperature warning, or shutdown occurred.

C175 or C18 FAULT (ENGINE FAULT) – An engine warning limit has been exceeded; the light & alarm bell are active. Engine power will automatically be reduced if required.

CCB26 AIR BRAKE

There are six detents providing the wing functions for the EBV Automatic Brake function Figure 1.

REL (Release): Pushing the handle to the far left stop "REL" allows the brake equipment to charge and then release the brakes of the locomotive.

MIN (Minimum Reduction): Pulling the handle to its first detent "MIN" allows 7psi to the brakes for minimum braking effort.

The **SERVICE ZONE** is where the locomotive will proportionately increase the braking effort by reducing air pressure to the brakes. This zone is from "MIN" to "FS". FS (Full Service): Pulling the handle further to its second detent "FS" allows for FULL SERVICE braking.

SUP (Suppression): Pulling the handle to the third detent is the "SUP" Suppression function. SUP suppresses the applications: OVERSPEED control and SAFETY control (also known as PENALTY). If a penalty application is activated the SUP position will allow the penalty applications to be reset.

HO (Handle Off): Pulling the handle to the fourth detent "HO" allows the locomotive to go into trail-in-consist or dead-in-train service.

EMER (Emergency): Pulling the handle through all the detents to the right most stop is the "EMER" or Emergency position. This will activate the EMERGENCY BRAKING function and can be used to reset after any penalty and/or EMER braking occurrence.

The **Independent Brake** handle is directly below the automatic brake handle. It is not detented yet allows for a full range of continuous braking positions and has three primary movements: far LEFT, far RIGHT and DEPRESSED.

REL (Release): Pushing the handle to the far left stop is the "REL" position. This releases the brakes of the locomotive only if the AUTO BRAKE handle is in the REL position, also.

NOTE: Like the Service Zone (in the AUTO BRAKE above) the Application Zone is located between REL and FULL stops on the Independent Brake. As the handle is pulled through this zone the braking effort is increased.

- FULL: When the handle is pulled to the far right stop "FULL" braking effort is applied.
- BAIL-OFF: If the IND BRAKE handle is depressed, this action will release all of the locomotive(s) brakes including any locomotives connected in consist. Hold the handle down for 6 seconds for each locomotive in consist to release those brakes. Should the handle be depressed while in the Application Zone, the BAIL-OFF is restricted to the wherever the IND BRAKE handle is set. Any Automatic Brake function is released to the setting of the IND BRAKE handle.

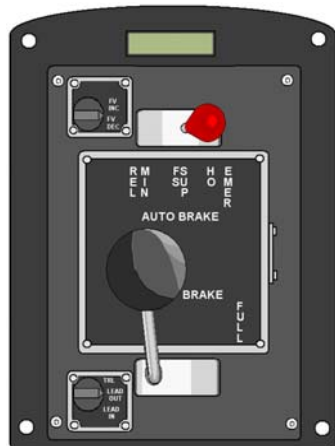


Figure 1 CCB26 Control

DEAD IN TRAIN/DEAD IN CONSIST – PR43C SUPPLEMENT

1. **DEAD-IN-TRAIN** - When locomotives with CCB Electronic air brake systems are to be towed as "Dead in train", the following arrangements must be observed:

Before turning off control power:

- Throttle shall be in IDLE
- Auto Handle - should be in "HO"
- Ind Handle - should be in "REL"
- Mode Switch should be placed in "TRL"

Next:

- The knife switch must be opened
- Air Brake circuit breaker shall be OPEN
- The only air hose to be connected is the Brake Pipe
- The "Dead Engine Regulator" should be "CUT IN".
- Main Reservoir must be fully vented of all air pressure.
- End cocks should be opened to vent MU (13 and 20) pipes.

For **DEAD IN TRAIN situations** (if possible before shipment) place a temporary placard in the cab stating:

"LOCOMOTIVE IS DEAD IN TRAIN- LEAVE IN TRAIL- LEAVE AUTO HANDLE IN HO"

The Dead Engine Regulator will now control the locomotive brakes in a strictly pneumatic "backup" mode, and essentially makes the locomotive act as a freight car. If MU cables are connected, they have no effect on air brake operation.

Note: The simple way to tell if the dead engine Regulator is correctly positioned, is to look and see if the handle is in the position where it can be sealed with a wire to a hole provided in the metal block, which is in the normal "OUT" (electronic) position, and for "dead in tow" it should be set to "IN".

Locomotive may have a label close to the valve marked "Normal" for the "Out" position and "Dead in Train" for the "In" position.

2. **FOR DEAD IN CONSIST:** (i.e. other locomotives in the consist on either side of locomotive in transit are still functional):

- Battery Knife switch shall be OPEN
- Air Brake circuit breaker shall be OPEN
- Auto Handle - should be in "HO"
- Ind Handle - should be in "REL"
- The dead engine regulator shall be in the "OUT" or "NORMAL" position, brakes will operate in pneumatic backup.
- All MU cables, brake pipe and MU hoses shall be connected with all end cocks open unless the locomotive is the last unit of the consist.

For Dead in consist situations, if possible before shipment place a temporary placard in the cab stating:

"LOCOMOTIVE IS DEAD IN CONSIST- LEAVE IN TRAIL- LEAVE AUTO HANDLE IN HO"