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British Rail

Train Crew Manual

Diesel Mechanical Multiple Unit Trains (Except Class 126)

Drivers Static Duties

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PREPARATION DUTIES FOR DIESEL MULTIPLE UNIT TRAINS WITH MECHANICAL TRANSMISSION, EXCEPTING CLASS 126 (WHITE CIRCLE) CARS.

1. FULL PREPARATION DUTIES.

1.1 Before preparation.

Before taking over a D.M.U. train, each driver must have in his possession and retain throughout his turn:-

A control circuit key.

A door key.

An internal door key.

An A.W.S. change end key, if applicable.

1.2 In the leading driving compartment:-

1.2.1 Check that the parking brake is ON.

1.2.2 Check the outstanding entries in the Repair Book.

1.2.3 Check the emergency equipment in accordance with the Rule Book Section H. 3.2.

1.2.4 Check that the hand fire extinguishers are in position and that their seals are intact.

1.2.5 Check that the passenger control valves (where fitted) are in their operating positions.

1.2.6 Check that a brake valve handle and reversing handle are available in the receptacle, but DO NOT fit them to the controls at this stage. If not available see 1.6.2.6.

1.3 Insert and turn the control circuit key to ON.

1.4 Leave the driving compartment and commence the external preparation, checking for obvious defects whilst walking round the train. Check also that no cables or pipes are attached.

IMPORTANT: Lock the internal and external doors of all driving compartments behind the leading vehicle after carrying out the relevant preparation duties.

1.5 Proceed to the first engine on the train on the left hand (driver's) side then:-

1.5.1 Check the fuel in the adjacent tank.

1.5.2 Check the fire alarm bells by pressing the test button.
(Except Class 127 trains).

1.5.3 Pull the fuel injection pump manual control handle to the FULL FUEL position and hold it there.

1.5.4 Press the engine local start button and release it immediately the engine fires. If the engine does not fire within 5 seconds, release the button and pause 10 seconds before making a further attempt to start. If the engine does not start after three successive attempts, investigate the cause or inform the maintenance staff.

1.5.5 When the engine fires, ease the manual fuel control slightly, but keep the engine running at a fairly high speed for 15-30 seconds and then slowly reduce it to idling. Check that no fuel, water, air or exhaust leakages occur from the engine which has been started or from adjacent equipment.

1.6 Proceed towards the rear of the train.

1.6.1 At each engine repeat 1.5.1 to 1.5.5.

1.6.2 At each intermediate driving compartment:-

1.6.2.1 Check that the parking brake is OFF.

1.6.2.2 Check the emergency equipment in accordance with the Rule Book, Section H. 3.2.

1.6.2.3 Check that the hand fire extinguishers are in position and that their seals are intact.

1.6.2.4 Check that the passenger control valves (where fitted) are in their operating positions.

1.6.2.5 Check that the air pressure is increasing.

1.6.2.6 Check that the brake valve handle and reversing handle are NOT fitted to the controls. If the brake valve and reversing handles are not available in the leading driving compartment, remove them from the FIRST intermediate driving compartment and retain them. See 1.2.6.

- 1.6.2.7 Check that the A.W.S. switch is in the OFF position.
- 1.6.3 In the rear driving compartment:-
- 1.6.3.1 Repeat 1.6.2.1 to 1.6.2.7
- 1.6.3.2 Check the outstanding entries in the Repair Book.
- 1.6.3.3 Set the destination indicator and illuminate it.
- 1.6.3.4 Switch the tail light ON (where applicable).
- 1.7 Leave the rear driving compartment, pass round the end of the train checking that the air hose has its dummy plug fitted and the cock is closed, the vacuum hoses are seated on their dummy plugs and that the jumper cables are secured in their sockets. Proceed towards the front of the train. Repeat 1.5.1 to 1.5.5 for each engine until the front is reached. At the front, pass round the end and check the pipes and jumper cables as at the rear.
- 1.8 Enter the leading driving compartment and then:-
- 1.8.1 Stop all engines when the air pressure is above 60 p.s.i.
- 1.8.2 Fit the reversing handle and brake valve handle into their respective positions.
- 1.8.3 Select a direction of travel and check that the final drive indicator lights illuminate.
- 1.8.4 Restart all the engines as follows:-
- 1.8.4.1 With the direction of travel selected and the final drive indicator lights illuminated, depress the power controller handle and move it to the FULL POWER position.
- 1.8.4.2 Press one engine start button until the appropriate engine indicator lights illuminate.
Press the other engine start button until the other engine indicator lights illuminate.

DO NOT PRESS BOTH START BUTTONS AT THE SAME TIME.

If the engine(s) do not fire within 5 seconds, release the button and pause for 10 seconds before making another attempt. If the engine(s) do not fire after three successive attempts, investigate the cause, or inform the maintenance staff.

1.8.4.3 Return the power controller handle slowly to IDLING when the engines have fired.

1.8.5 Move the A.W.S. switch to the ON position, then press and release the re-set button to silence the horn.

1.8.6 Move the brake valve handle to OFF. With the power controller handle depressed, check that 21 in. Hg can be obtained on the brake pipe gauge and 28 in. Hg can be obtained on the release pipe gauge.

1.8.7 With the brake valve handle at OFF, release the power controller handle. Check that the brake pipe vacuum is destroyed by the driver's safety device.

1.8.8 With the power controller handle depressed and 21 in. Hg on the brake pipe gauge, move the brake valve handle to ON. Check that the brake pipe vacuum is destroyed.

1.8.9 Return the brake valve handle to OFF and keep the power controller handle depressed in order that the guard may carry out the brake continuity test.

1.8.10 Set the destination indicator and illuminate it.

1.8.11 Switch the marker lights on.

2. DUTIES WHEN TAKING OVER A TRAIN STABLED IN TRAFFIC WITH THE AIR PRESSURE IN THE MAIN RESERVOIR AT 60 P.S.I. OR ABOVE (SEE NOTE AT END).

2.1 The following duties must be carried out when a driver takes over a train in traffic which has been left unmanned for a period and in which the main reservoir air pressure is 60 p.s.i. or above.

2.2 In the leading driving compartment:-

2.2.1 Check that the parking brake is ON.

- 2.2.2 Check the outstanding entries in the Repair Book.
- 2.2.3 Check the emergency equipment in accordance with the Rule Book, Section H. 3.2.
- 2.2.4 Check that the hand fire extinguishers are in position and that their seals are intact.
- 2.2.5 Insert and turn the control circuit key to ON.
- 2.2.6 Fit the reversing handle.
- 2.2.7 With the direction of travel selected and the final drive indicator lights illuminated, depress the power controller handle and move it to the FULL POWER position.
- 2.2.8 Press one engine start button until the appropriate engine indicator lights illuminate.

Press the other engine start button until the other engine indicator lights illuminate.

DO NOT PRESS BOTH START BUTTONS AT THE SAME TIME.

If the engine(s) do not fire within 5 seconds, release the button and pause for 10 seconds before making another attempt. If the engine(s) do not fire after three successive attempts, investigate the cause or inform the maintenance staff.

- 2.2.9 Return the power controller handle slowly to IDLING when the engines have started.
 - 2.2.10 Remove the reversing handle.
- 2.3 Leave the driving compartment, proceed to the opposite end of the train, entering all intermediate driving compartments en route and check that the parking brakes are OFF.

Lock the internal and external doors of all driving compartments behind the leading vehicle.

2.4 In the rear driving compartment only:-

- 2.4.1 Check that the parking brake is OFF.
- 2.4.2 Set the destination indicator and illuminate it.
- 2.4.3 Switch the tail light ON (where applicable).
- 2.4.4 Check the outstanding entries in the Repair Book.
- 2.4.5 Check the emergency equipment in accordance with the Rule Book, Section H. 3.2.
- 2.4.6 Check that the hand fire extinguisher is in position and that the seal is intact.

2.5 Return to the leading driving compartment and then:-

- 2.5.1 Fit the reversing handle and brake valve handle into their respective positions.
- 2.5.2 Select a direction of travel and check that the final drive indicator lights illuminate.
- 2.5.3 Move the A.W.S. switch to the ON position, then press and release the re-set button to silence the horn.
- 2.5.4 Move the brake valve handle to OFF. With the power controller handle depressed, check that 21 in. Hg can be obtained on the brake pipe gauge and 28 in. Hg can be obtained on the release pipe gauge.
- 2.5.5 With the brake valve handle at OFF, release the power controller handle. Check that the brake pipe vacuum is destroyed by the driver's safety device.
- 2.5.6 With the power controller handle depressed and 21 in. Hg on the brake pipe gauge, move the brake valve handle to ON. Check that the brake pipe vacuum is destroyed.
- 2.5.7 Return the brake valve handle to OFF and keep the power controller handle depressed in order that the guard may carry out the brake continuity test.
- 2.5.8 Set the destination indicator and illuminate it.
- 2.5.9 Switch the marker lights on.

NOTE: If the air pressure is less than 60 p.s.i. when taking over, it is permissible to proceed as per 2.2.1 to 2.2.5, followed by 1.5.3 to 1.5.5 on any engines which are accessible. When returning to the driving compartment, the engines which are running must be stopped when the pressure has risen above 60 p.s.i. and the procedure from 2.2.6 onwards should then be applied.

3. DRIVER'S DUTIES WHEN ATTACHING A TRAIN IN SERVICE TO AN OUTSTABLED TRAIN.

The following duties must be carried out before a train in service is coupled to an outstabled train.

- 3.1 Bring the train which has been in service to a point 6 ft. away from the stabled train.
- 3.2 After receiving a hand signal from the shunter, make contact with the stabled train.
- 3.3 Compress the buffers and reduce the brake pipe vacuum to ZERO. Release pressure on the power controller handle and move the gear selector to NEUTRAL. Move the brake valve to OFF in order to destroy the high vacuum, then move it to LAP and remove the handle.
- 3.4 Select the next direction of travel, then turn the control circuit key to OFF and remove it, before the jumper cables are connected. Remove the reversing handle and switch off the A.W.S.
- 3.5 Switch off the destination indicator lights, marker lights and cab lights.

IMPORTANT: Lock the internal and external doors of all driving compartments behind the leading vehicle.

- 3.6 Leave the driving compartment and enter the adjacent driving compartment of the train which has been coupled.
 - 3.6.1 Check the outstanding entries in the Repair Book.
 - 3.6.2 Release the parking brake.
 - 3.6.3 Switch the tail light OFF (where applicable)

3.7 Release the parking brakes in all intermediate driving compartments.

3.8 In the rear driving compartment:-

3.8.1 Release the parking brake.

3.8.2 Set the destination indicator and illuminate it.

3.8.3 Check the outstanding entries in the Repair Book.

3.8.4 Check the emergency equipment in accordance with the Rule Book, Section H. 3.2.

3.8.5 Check that the hand fire extinguishers are in position and that their seals are intact.

3.9 If the next movement is forward, i.e. this now becomes the front driving compartment.

3.9.1 Insert and turn the control circuit key to ON.

3.9.2 Check the air pressure. Where this has risen to 60 p.s.i. or above, fit the reversing handle, select the FORWARD direction of travel and check that the final drive indicator lights illuminate.

3.9.3 Start the engines of the cars which have been coupled as shown in 1.8.4 to 1.8.9.

3.9.4 Switch the marker lights on.

NOTE: The engines of the original train are still running.

3.10 If the next movement is in the opposite direction e.g. away from a terminal point.

3.10.1 Switch the tail light ON (where applicable).

3.10.2 Leave the rear driving compartment with the windows closed and doors locked and proceed IMMEDIATELY to the opposite end of the train.

The engines must be stopped and the modifications to the rule book, Section H. 3.22 shown on Page 52 of the General Appendix must be carried out, if it is not intended to proceed immediately to the opposite end of the train.

With the exception of locations authorised in accordance with Section 9, it is not permissible to leave the immediate vicinity of a train in which the engines are running, unless there is a competent person in attendance.

3.10.3 Enter the front driving compartment, i.e. facing away from the terminal point.

3.10.4 Set the destination indicator and illuminate it.

3.10.5 Proceed as per 3.9.1. to 3.9.4.

4. DISPOSAL DUTIES

4.1 Apply the parking brake.

4.2 Switch off the driving compartment heater (where applicable).

4.3 If it is known that the next movement of the train will be in the opposite direction.

4.3.1 Move the reversing handle to the opposite direction of travel, if this is known. Check that the final drive indicator lights become momentarily extinguished and then re-illuminate,

4.3.2 Press the engine stop button until all the engine indicator lights are extinguished.

4.3.3 Turn the control circuit key to OFF and remove it.

4.4 Remove the reversing handle and brake valve handle and place them in the receptacle.

4.5 Move the A.W.S. change end switch to OFF.

4.6 Report all known defects in the Repair Book.

4.7 Switch off the marker lights, destination indicator lights and driving compartment lights.

4.8 **Leave the driving compartment with the internal and external doors locked, unless stabled within a maintenance depot.**

5. TAKING OVER IN SERVICE WITH THE ENGINES RUNNING.

IMPORTANT: Apply the parking brake if there is danger of the train moving when taking over.

- 5.1 In the driving compartment used by the previous driver.
 - 5.1.1 Insert and turn the control circuit key to ON.
 - 5.1.2 Select a direction of travel, if necessary, and check the indicator lights.
 - 5.1.3 Reset the destination indicator, if necessary and illuminate it if not already illuminated.
 - 5.1.4 Move the A.W.S. switch to ON, where necessary, then press and release the reset button.
 - 5.1.5 With the power controller handle depressed, move the brake valve handle to OFF. Check that 21 in. Hg can be obtained on the brake pipe gauge and 28 in. Hg can be obtained on the release pipe gauge.
 - 5.1.6 With the brake valve at LAP, release the power controller handle. Check that the brake pipe vacuum is destroyed by the driver's safety device.
 - 5.1.7 With the power controller handle depressed, apply the brake and lap the brake valve handle until ready to move.
- 5.2 The driver who is to assist with the detachment must, where applicable, switch ON the tail light of the front portion of the train. In the driving compartment of the detached rear portion of the train.
 - 5.2.1 Set the destination indicator and illuminate it.
 - 5.2.2 Switch the marker lights ON and the tail light OFF (where applicable).
 - 5.2.3 Insert and turn the control circuit key to ON.
 - 5.2.4 Fit the brake valve handle and reversing handle to the controls, select the direction of travel and check the indicator lights.
 - 5.2.5 Move the A.W.S. switch to ON and press and release the reset button.

- 5.2.6 With the power controller handle depressed, move the brake valve handle to OFF. Check that 21 in. Hg can be obtained on the brake pipe gauge and 28 in. Hg can be obtained on the release pipe gauge.
- 5.2.7 With the brake valve handle at LAP, release the power controller handle. Check that the brake pipe vacuum is destroyed by the driver's safety device.
- 5.2.8 With the power controller handle depressed and 21 in. Hg on the brake pipe gauge, move the brake valve handle to ON. Check that the brake pipe vacuum is destroyed.
- 5.2.9 Return the brake valve handle to OFF and keep the power controller handle depressed in order that the guard may carry out the brake continuity test.
- 5.2.10 With the power controller handle depressed, apply the brake and lap the brake valve handle until ready to move.

5.3 In the driving compartment at the opposite end to that used by the previous driver.

5.3.1 Check that the indicator panel lights are extinguished and that the buzzer will not sound. This will ensure that the previous driver has removed his reversing handle and control circuit key.

5.3.2 Proceed as per 5.2.1 to 5.2.10.

6. HANDING OVER IN SERVICE WITH THE ENGINES RUNNING.

6.1 When the next driver is to take over at the same end.

6.1.1 Move the brake valve handle to LAP, then release the power controller.

6.1.2 Turn the control circuit key to OFF and remove it.

6.1.3 Enter any defects in the Repair Book and inform the relieving driver of them.

6.2 When the next driver is to take over at the opposite end.

- 6.2.1 With the brakes applied, select the next direction of travel and check that the final drive indicators extinguish and then re-illuminate.
- 6.2.2 Turn the control circuit key to OFF and remove it.
- 6.2.3 Remove the brake valve handle and reversing handle and place them in the receptacle on 3 and 4-car units. On single and twin units these may be handed to the relieving driver.
- 6.2.4 Set the destination indicator and illuminate it.
- 6.2.5 Switch the marker lights OFF and the tail light ON (where applicable).
- 6.2.6 Move the A.W.S. change end switch to OFF.
- 6.2.7 Enter any defects in the Repair Book and, if possible, inform the relieving driver of them.
- 6.2.8 Lock the internal and off side doors.
- 6.2.9 Switch off all cab lights.
- 6.2.10 Leave the driving compartment and lock the nearside door.
With the exception of locations authorised in accordance with Section 9, the train must not be left with the engines running, unless the relieving driver has taken charge.

7. PROCEDURE WHEN A PORTION OF THE TRAIN HAS BEEN DETACHED.

- 7.1 When a portion of the train has been detached, before leaving with the remainder of the train proceed as follows:-
 - 7.1.1 Apply the parking brake, if necessary, to prevent movement.
 - 7.1.2 With the control circuit key at ON, a direction selected and 21 in. Hg on the brake pipe gauge, move the brake valve handle to LAP. Release the power controller handle and check that the brake pipe vacuum is destroyed by the driver's safety device.

8. CHANGING ENDS

- 8.1 With the brakes applied, select the next direction of travel and check that the final drive indicators extinguish and then re-illuminate.
- 8.2 Turn the control circuit key to OFF and remove it.
- 8.3 Remove the brake valve handle and reversing handle and place them in the receptacle on 3 and 4-car units.
- 8.4 Set the destination indicator and illuminate it.
- 8.5 Switch the marker lights OFF and the tail light ON (where applicable).
- 8.6 Move the A.W.S. change end switch to OFF.
- 8.7 Lock the internal driving compartment door.
- 8.8 Switch off all cab lights.

- 8.9 Leave the driving compartment with the windows closed and doors locked and proceed IMMEDIATELY to the opposite end of the train.

The engines must be stopped and the modifications to the Rule Book, Section H, 3.22 shown on Page 52 of the General Appendix must be carried out, if it is not intended to proceed immediately to the opposite end of the train.

With the exception of locations authorised in accordance with Section 9, it is not permissible to leave the immediate vicinity of a train in which the engines are running, unless there is a competent person in attendance.

- 8.10 At the opposite end of the train, in the driving compartment.
 - 8.10.1 Set the destination indicator and illuminate it.
 - 8.10.2 Switch the marker lights ON and the tail light OFF (where applicable).

- 8.10.3 Fit the brake valve handle and reversing handle to the controls and select the direction of travel.
- 8.10.4 Insert and turn the control circuit key to ON.
- 8.10.5 Move the A.W.S. switch to ON and press the reset button.
- 8.10.6 If the engines have been stopped, restart them from the driving compartment.

9. RUNNING OF DIESEL ENGINES

Diesel multiple unit trains must not be left in stations or on stabling roads with their engines running unless specially authorised. Every opportunity must be taken to stop the engines when in service.

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