

BRITISH RAILWAYS



DRIVER'S MANUAL

**PREPARATION AND DISPOSAL
INSTRUCTIONS FOR DIESEL
LOCOMOTIVES**

**APPLICABLE TO CLASSES 20, 24, 25, 26, 27,
31, 37, 40, 44, 45, 46, 47 AND 50**

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**BR.33056/8
ISSUE 3**

PREPARATION AND DISPOSAL DUTIES

GENERAL

This booklet contains preparation and disposal instructions for classes 20, 24, 25, 26, 27, 31, 37, 40, 44, 45, 46, 47 and 50 locomotives fitted with vacuum, E.Q. and dual brakes. Additionally, instructions for immobilising these locomotives for standing periods of up to three hours are given, together with instructions for taking over a locomotive which has been immobilised without full disposal.

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PREPARATION DUTIES FOR SINGLE CLASS 20 LOCOMOTIVES WITH DUAL BRAKES

- 1. Enter the driving cab and check that the parking brake is applied**
- 2. External examination**
 - 2.1 At the driving end**
 - 2.1.1 Check that no red flags or NOT TO BE MOVED targets are displayed.**
 - 2.1.2 Check that all air hoses are secured on their dummy plugs or brackets and that their cocks are closed.**
 - 2.1.3 Check that the vacuum hose is secured on its dummy plug.**

- 2.1.4 Check that the jumper cable is secure and that the protective cap is fitted over the live socket.
- 2.1.5 Set the marker discs, if fitted and required.
- 2.2 Proceed in a clockwise direction round the locomotive.
 - 2.2.1 Check that there is sufficient sand in the sandboxes.
 - 2.2.2 Check that there are no cables or pipes attached.
 - 2.2.3 Remove any wheel scotches that are in position.
 - 2.2.4 Check that the glass is not broken over the fixed fire extinguisher external operating handles.
 - 2.2.5 Move the lighting changeover switch to BATTERY.
 - 2.2.6 Close the battery isolating switch.
 - 2.2.7 Check the fuel gauge.
 - 2.2.8 Check for obvious defects e.g. leakage of fuel, water etc. or obvious damage.
 - 2.2.9 Check that the air/vacuum relay valve (DV2) is not isolated.
 - 2.2.10 Check that the safety pins are removed from the fixed fire extinguishers.
 - 2.2.11 Set the marker discs or route indicator, as required.
 - 2.2.12 Leave the engine room with the side doors secure.
- 2.3 At the opposite end repeat 2.1.1 to 2.1.3 and set the marker discs, if fitted, as required.
- 2.4 Repeat 2.2.1 to 2.2.4 and 2.2.8 on the opposite side of the locomotive.

3. Enter the driving cab

- 3.1 Insert the master switch into the controls and move the master switch to E.O.
- 3.2 Start the engine. If it will not start, perform items 3.12 and 3.16.
- 3.3 Check that the automatic brake valves are at SHUT DOWN or NEUTRAL.
- 3.4 Check that the straight air brake valves are at OFF.
- 3.5 Check the detonator case and track circuit operating clips in accordance with the Rule Book, Section H, 3.2.
- 3.6 Check that the hand fire extinguisher is in position and that the seal is intact.
- 3.7 Check that the isolating handle of the A.W.S. switch is sealed in the up position and that the switch is in the OFF position.
- 3.8 Check that the glass is not broken over the fixed fire extinguisher operating handle.
- 3.9 Check the Repair Book
- 3.10 Turn the brake selector switch to AIR PASSENGER.
- 3.11 Test the fire alarm bells.
- 3.12 Check that the miniature circuit breakers are all ON (where fitted).
- 3.13 Check that the exhaustor switch is at ON.
- 3.14 Check that spare fuses are available.
- 3.15 Check that the cooker is switched OFF.
- 3.16 Check that the control cut-out switch is at ON.

- 3.17 When a pressure of at least 95 p.s.i. is registered on the main reservoir gauge, move the automatic brake valve on the engine room side to **RUNNING** and check that a pressure of 68-72 p.s.i. (70 p.s.i. nominal) is registered on the brake pipe gauge.
- 3.18 Move the automatic brake valve to **INITIAL** and check that the brake pipe pressure falls to 63-65 p.s.i.
- 3.19 Move the automatic brake valve in steps to **FULL SERVICE**. Check that the brake pipe pressure falls to 44-48 p.s.i. and that the brake cylinder pressure rises with each step, until it reaches a maximum at **FULL SERVICE**.
- 3.20 Move the automatic brake valve to **EMERGENCY**, check that the brake pipe pressure falls to zero and that the brake cylinder remains at its maximum.
- 3.21 Move the automatic brake valve to **RUNNING**.
- 3.22 Move the straight air brake valve to **ON** and check that the brake cylinder pressure rises to its maximum. Return the handle to **OFF**.
- 3.23 With the brake pipe pressure at 70 p.s.i. move the master switch to **FOR.** and without the D.S.D. pedal depressed, check that the brake pipe pressure commences to fall after a short period.
- 3.24 Move the automatic brake valve to **EMERGENCY** and, after pausing, to **NEUTRAL**.
- 3.25 Turn the brake selector switch to **VACUUM PASSENGER**.
- 3.26 Move the automatic brake valve on the rear facing desk to **RUNNING**. Check that the brake pipe pressure rises to 70 p.s.i. and that 21 in. Hg registers on the vacuum gauge.
- 3.27 Move the automatic brake valve to **INITIAL**, check that the brake pipe pressure falls to 63-65 p.s.i. and the vacuum falls to 16-19 in. Hg.

- 3.28 Move the automatic brake valve in steps to FULL SERVICE. Check that the brake pipe pressure falls to 44-48 p.s.i. and the brake cylinder pressure rises with each step until it reaches a maximum at FULL SERVICE. Check that the vacuum reduces to zero at FULL SERVICE.
- 3.29 Move the automatic brake valve to EMERGENCY, check that the brake pipe pressure falls to zero, the vacuum remains at zero and the brake cylinder pressure remains at its maximum.
- 3.30 Move the automatic brake valve to RUNNING.
- 3.31 Move the straight air brake valve to ON and check that the brake cylinder pressure rises to its maximum. Return the handle to OFF.
- 3.32 With the brake pipe pressure at 70 p.s.i., move the master switch to FOR., without the D.S.D. depressed, and check that the brake pipe pressure commences to fall after a short period.
- 3.33 Move the A.W.S. switch to ON, then press the reset button to silence the horn.
- 3.34 Apply the straight air brake and release the parking brake.
- 3.35 Open the radiator shutters.
- 3.36 Switch the tail light on as necessary.
- 3.37 Set the route indicator, as required.

PREPARATION DUTIES FOR SINGLE CLASS 20 LOCOMOTIVES WITH VACUUM OR E.Q. BRAKES

- 1. Enter the driving cab and check that the parking brake is applied
- 2. External examination
 - 2.1 At the driving end

- 2.1.1 Check that no red flags or 'NOT TO BE MOVED' targets are displayed.
- 2.1.2 Check that all air hoses are secure on their dummy plugs or brackets and that their cocks are closed.
- 2.1.3 Check that the vacuum hose is secure on its dummy plug.
- 2.1.4 Check that the jumper cable is secure and that the protective cap is fitted over the live socket.
- 2.1.5 Set the marker discs, if fitted and required.
- 2.2 Proceed in a clockwise direction round the locomotive
 - 2.2.1 Check that there is sufficient sand in the sandboxes.
 - 2.2.2 Check that there are no cables or pipes attached.
 - 2.2.3 Remove any wheel scotches that are in position.
 - 2.2.4 Check that the glass is not broken over the fixed fire extinguisher external operating handles.
 - 2.2.5 Move the lighting changeover switch to BATTERY.
 - 2.2.6 Close the battery isolating switch.
 - 2.2.7 Check the fuel gauge.
 - 2.2.8 Check for obvious defects, e.g. leakage of fuel, water etc. or obvious damage.
 - 2.2.9 Check that the safety pins are removed from the fixed fire extinguishers.
 - 2.2.10 Set the marker discs or route indicator, as required.
 - 2.2.11 Leave the engine room with the side doors secure.
- 2.3 At the opposite end repeat 2.1.1. to 2.1.3 and set the marker discs, if fitted, as required.

2.4 Repeat as necessary 2.2.1 to 2.2.4 and 2.2.8 on the opposite side of the locomotive.

3. Enter the driving cab

3.1 Insert the master key into the controls and move the master switch to E.O.

3.2 Start the engine. If it will not start, perform items 3.12 and 3.16.

3.3 Check that the automatic brake valves are at RUNNING or NEUTRAL.

3.4 Check that the straight air brake valves are at OFF.

3.5 Check the detonator case and track circuit operating clips in accordance with the Rule Book, Section H, 3.2.

3.6 Check that the hand fire extinguisher is in position and that the seal is intact.

3.7 Check that the isolating handle of the A.W.S. switch is sealed in the up position and that the switch is in the OFF position.

3.8 Check that the glass is not broken over the fixed fire extinguisher operating handle.

3.9 Check the Repair Book.

3.10 Move the brake selector switch to FITTED or BRAKED.

3.11 Test the fire alarm bells.

3.12 Check that the miniature circuit breakers are all ON (where fitted).

3.13 Check that the exhaustor switch is at ON.

3.14 Check that spare fuses are available.

3.15 Check that the cooker is switched OFF.

3.16 Check that the control cut-out switch is at ON.

- 3.17 When a pressure of at least 85 p.s.i. is registered on the main reservoir gauge and 21 in. Hg is registered on the vacuum gauge, move the automatic brake valve, on the engine room side, in steps to the FULL SERVICE position. Check that the vacuum falls to zero and that the brake cylinder pressure rises with each step until it attains a maximum.
- 3.18 Move the automatic brake valve to EMERGENCY and check that the vacuum remains at zero.
- 3.19 Move the automatic brake valve back to RUNNING.
- 3.20 Move the straight air brake valve to ON and check that the brake cylinder pressure rises to its maximum. Return the handle to OFF.
- 3.21 With the brake pipe vacuum at 21 in. Hg, move the master switch to FORWARD and without the D.S.D. pedal depressed, check that the brake pipe vacuum commences to fall to zero after a short period.
- 3.22 Move the automatic brake valve to RUNNING or NEUTRAL.
- 3.23 Repeat 3.17 to 3.21 at the rear facing driving position.
- 3.24 Move the A.W.S. switch to ON, then press the reset button to silence the horn.
- 3.25 Apply the straight air brake and release the parking brake.
- 3.26 Open the radiator shutters.
- 3.27 Switch on the tail light as necessary.
- 3.28 Set the route indicator, as required.

PREPARATION DUTIES FOR TWO CLASS 20 LOCOMOTIVES IN MULTIPLE WITH DUAL BRAKES.

- 1. Enter the driving cab by the left-hand door**
 - 1.1 Check that the parking brake is applied.
 - 1.2 Check that both automatic brake valves are at NEUTRAL.
 - 1.3 Check that both straight air brake valves are at OFF.
 - 1.4 Check the detonator case and track circuit operating clips in accordance with the Rule Book, Section H, 3.2.
 - 1.5 Check that the hand fire extinguisher is in position and that the seal is intact.
 - 1.6 Check that the isolating handle of the AWS switch is sealed in the up position and that the switch is in the OFF position.
 - 1.7 Check that the glass is not broken over the fixed fire extinguisher operating handle.
 - 1.8 Check the Repair Book.
 - 1.9 Turn the brake selector switch to AIR PASSENGER.
 - 1.10 Check that the miniature circuit breakers are all ON (where fitted).
 - 1.11 Check that the exhaustor switch is at ON.
 - 1.12 Check that spare fuses are available.
 - 1.13 Check that the cooker is switched OFF.
 - 1.14 Check that the control cut-out switch is at ON.
 - 1.15 Leave the driving cab by the left-hand door.

2. External Examination

2.1 At the driving end

- 2.1.1 Check that no red flags or 'NOT TO BE MOVED' targets are displayed.
- 2.1.2 Check that all air hoses are secure on their dummy plugs or brackets and that their cocks are closed.
- 2.1.3 Check that the vacuum hose is secured on its dummy plug.
- 2.1.4 Check that the jumper cable is secure and that the protective cap is fitted over the live socket.
- 2.1.5 Set the marker discs as appropriate.

2.2 Proceed in a clockwise direction round the locomotives, i.e. along the right-hand side in direction of travel.

- 2.2.1 Check that there is sufficient sand in the sandboxes.
- 2.2.2 Check that there are no cables or pipes attached.
- 2.2.3 Remove any wheel scotches that are in position.
- 2.2.4 Check that the glass is not broken over the fixed fire extinguisher external operating handles.
- 2.2.5 Move the lighting changeover switch to **BATTERY**.
- 2.2.6 Close the battery isolating switch.
- 2.2.7 Check the fuel gauge.
- 2.2.8 Check for obvious defects, e.g. leakage of fuel, water etc. or obvious damage.
- 2.2.9 Check that the air/vacuum relay valve (DV2) is not isolated.

2.2.10 Check that the safety pins are removed from the fixed fire extinguishers. Leave the engine room with the side door secure.

2.3 Check that the intermediate drawgear, air hoses, vacuum hoses, and a control jumper are coupled in accordance with the instructions in BR.33056/6. Check also that the necessary cocks are opened, that the unused pipes and cables are secure and the remaining cocks are closed.

2.4 Check the side of the rear locomotive, as per 2.2.1, to 2.2.4 and 2.2.8.

2.5 Check the end of the rear locomotive as per 2.1.1 to 2.1.5.

2.6 Check the opposite side of the rear locomotive as per 2.2.1 to 2.2.10.

3. Enter the rear driving cab

3.1 Insert the master key into the controls and move the master switch to E.O.

3.2 Start the engine. If it will not start, perform item 3.4.

3.3 Release the parking brake.

3.4 Repeat 1.1. to 1.14 but switch the exhauster off. Additionally, test the fire alarm bells.

3.5 When a pressure of at least 95 p.s.i. is registered on the main reservoir gauge, move the automatic brake valve on the rear facing desk to RUNNING and check that a pressure of 68-72 p.s.i. (70 p.s.i. nominal) is registered on the brake pipe gauge.

3.6 Move the automatic brake valve to INITIAL and check that the brake pipe pressure falls to 63-65 p.s.i.

3.7 Move the automatic brake valve in steps to FULL SERVICE. Check that the brake pipe pressure falls to 44-48 p.s.i. and that the brake cylinder pressure rises with each step, until it reaches a maximum at FULL SERVICE.

- 3.8 Move the automatic brake valve to EMERGENCY, check that the brake pipe pressure falls to zero and that the brake cylinder pressure remains at its maximum.
- 3.9 Move the automatic brake valve to RUNNING.
- 3.10 Move the straight air brake valve to ON and check that the brake cylinder pressure rises to its maximum. Return the handle to OFF.
- 3.11 With the brake pipe pressure at 70 p.s.i. move the master switch to FOR and without the D.S.D. pedal depressed, check that the brake pipe pressure commences to fall after a short period.
- 3.12 Move the automatic brake valve to EMERGENCY and after pausing, to NEUTRAL.
- 3.13 Turn the brake selector switch to VACUUM PASSENGER.
- 3.14 Move the master switch to OFF and remove the master key from the controller, leaving the engine running.
- 3.15 Open the radiator shutters.
- 3.16 Leave the cab with all doors and windows closed, the tail light switched on, as necessary and the engine running.
4. **Check the left-hand side of the leading locomotive, where applicable, as per 2.2.1 to 2.2.4 and 2.2.8.**
5. **Enter the driving cab**
 - 5.1 Turn the brake selector switch to VACUUM PASSENGER.
 - 5.2 Insert the master key into the controls and move the master switch to E.O.
 - 5.3 Move the automatic brake valve on the driving desk to RUNNING, check that the brake pipe pressure rises to 70 p.s.i. and that 21 in. Hg. is registered on the vacuum gauge.
 - 5.4 Move the automatic brake valve to INITIAL, check that the brake pipe pressure falls to 63-65 p.s.i. and the vacuum falls to 16-19 in. Hg.

- 5.5 Move the automatic brake valve in steps to FULL SERVICE. Check that the brake pipe pressure falls to 44-48 p.s.i. and that the brake cylinder pressure rises with each step until it attains a maximum at FULL SERVICE. Check that the vacuum is reduced to zero at FULL SERVICE.
- 5.6 Move the automatic brake valve to EMERGENCY, check that the brake pipe pressure falls to zero, the vacuum remains at zero and the brake cylinder pressure remains at its maximum.
- 5.7 Move the automatic brake valve to RUNNING.
- 5.8 Move the straight air brake valve to ON and check that the brake cylinder pressure rises to its maximum. Return the handle to OFF.
- 5.9 With the brake pipe pressure at 70 p.s.i., move the master switch to FOR, without the D.S.D. depressed, and check that the brake pipe pressure commences to fall after a short period.
- 5.10 Move the AWS switch to ON, then press the reset button to silence the horn.
- 5.11 Apply the straight air brake and release the parking brake.
- 5.12 Open the radiator shutters.
- 5.13 Set the route indicator.

PREPARATION DUTIES FOR TWO CLASS 20 LOCOMOTIVES IN MULTIPLE WITH VACUUM OR E.Q. BRAKES

- 1. Enter the driving cab by the left-hand door
 - 1.1 Check that the parking brake is applied.
 - 1.2 Check that both automatic brake valves are at NEUTRAL or RUNNING.

- 1.3 Check that both straight air brake valves are at OFF.
- 1.4 Check the detonator case and track circuit operating clips in accordance with the Rule Book, Section H, 3.2.
- 1.5 Check that the hand fire extinguisher is in position and that the seal is intact.
- 1.6 Check that the isolating handle of the AWS switch is sealed in the up position and that the switch is in the OFF position.
- 1.7 Check that the glass is not broken over the fixed fire extinguisher operating handle.
- 1.8 Check the Repair Book.
- 1.9 Turn the brake selector switch to BRAKED or FITTED.
- 1.10 Check that the miniature circuit breakers are all ON (where fitted).
- 1.11 Check that the exhaustor switch is at ON.
- 1.12 Check that spare fuses are available.
- 1.13 Check that the cooker is switched off.
- 1.14 Check that the control cut-out switch is at ON.
- 1.15 Leave the driving cab by the left-hand door.

2. External Examination

- 2.1 At the driving end
 - 2.1.1 Check that no red flags or 'NOT TO BE MOVED' targets are displayed.
 - 2.1.2 Check that the air hoses are secure on their dummy plugs or brackets and that their cocks are closed.
 - 2.1.3 Check that the vacuum hose is secured on its dummy plug.

- 2.1.4 Check that the jumper cable is secure and that the protective cap is fitted over the live socket.
- 2.1.5 Set the marker discs as appropriate.
- 2.2 Proceed in a clockwise direction round the locomotives, i.e. along the right-hand side in direction of travel.
 - 2.2.1 Check that there is sufficient sand in the sandboxes.
 - 2.2.2 Check that there are no cables or pipes attached.
 - 2.2.3 Remove any wheel scotches that are in position.
 - 2.2.4 Check that the glass is not broken over the fixed fire extinguisher external operating handles.
 - 2.2.5 Move the lighting changeover switch to BATTERY.
 - 2.2.6 Close the battery isolating switch.
 - 2.2.7 Check the fuel gauge.
 - 2.2.8 Check for obvious defects, e.g. leakage of fuel, water etc. or obvious damage.
 - 2.2.9 Check that the safety pins are removed from the fixed fire extinguishers. Leave the engine room with the side door secure.
- 2.3 Check that the intermediate drawgear, air hoses, vacuum hoses, and a control jumper are coupled in accordance with the instructions in BR.33056/6. Check also that the necessary cocks are opened, that the unused pipes and cables are secure and the remaining cocks are closed.
- 2.4 Check the side of the rear locomotive, as per 2.2.1 to 2.2.4 and 2.2.8.
- 2.5 Check the end of the rear locomotive as per 2.1.1. to 2.1.5.

- 2.6 Check the opposite side of the rear locomotive as per 2.2.1 to 2.2.9.
- 3. Enter the rear driving cab**
- 3.1 Insert the master key into the controls and move the master switch to E.O.
- 3.2 Start the engine. If it will not start, perform item 3.4.
- 3.3 Release the parking brake.
- 3.4 Repeat 1.1 to 1.14, but switch the exhauster off. Additionally, test the fire alarm bells.
- 3.5 When a pressure of at least 85 p.s.i. is registered on the main reservoir gauge and 21 in. Hg is registered on the vacuum gauge move the automatic brake valve handle on the rear facing desk, in steps to the FULL SERVICE position. Check that the vacuum falls to zero and that the brake cylinder pressure rises with each step until it attains a maximum.
- 3.6 Move the automatic brake valve to EMERGENCY and check that the vacuum remains at zero.
- 3.7 Move the automatic brake valve back to RUNNING.
- 3.8 Move the straight air brake valve to ON and check that the brake cylinder pressure rises to its maximum. Return the handle to OFF.
- 3.9 With the brake pipe vacuum at 21 in. Hg move the master switch to FORWARD and without the D.S.D. pedal depressed, check that the brake pipe vacuum commences to fall to zero after a short period .
- 3.10 Move the master switch to OFF and remove the master key from the controller, leaving the engine running.
- 3.11 Open the radiator shutters.
- 3.12 Leave the cab with all doors and windows closed and the tail light switched on, as necessary.

4. Check the left-hand side of the leading locomotive, where applicable, as per 2.2.1 to 2.2.4 and 2.2.8.
5. Enter the driving cab
 - 5.1 Insert the master switch into the controls and move the master switch to E.O.
 - 5.2 When 21 in. Hg is registered on the vacuum gauge, move the automatic brake valve on the driving desk in steps to the **FULL SERVICE** position. Check that the vacuum falls to zero and that the brake cylinder pressure rises with each step until it attains a maximum.
 - 5.3 Repeat 3.6 to 3.9.
 - 5.4 Move the AWS switch to ON, then press the reset button to silence the horn.
 - 5.5 Open the radiator shutters.
 - 5.6 Apply the straight air brake and release the parking brake.
 - 5.7 Set the route indicator.

PREPARATION DUTIES FOR SINGLE CLASS 25, 26, 27, 31, 37, 40, 45, 46, 47 and 50 LOCOMOTIVES WITH DUAL BRAKES

1. Enter the driving cab and check that the parking brake is applied. (SWITCH ON)
LIGHTS
2. External examination
 - 2.1 At the driving end
 - 2.1.1 Check that no red flags or 'NOT TO BE MOVED' targets are displayed.

- 2.1.2 Check that all air hoses are secured on their dummy plugs or brackets and that their cocks are closed.
- 2.1.3 Check that the heater hose is secured on its chain and that the cock is closed.
- 2.1.4 Check that the vacuum hose is seated on its dummy plug.
- 2.1.5 Check that the jumper cable(s) is/are secure and that the protective cap(s) is/are fitted over the live socket(s).
- 2.1.6 Set the marker discs, if fitted.
- 2.2 Proceed in a clockwise direction round the locomotive.
 - 2.2.1 Check that there is sufficient sand in the sandboxes.
 - 2.2.2 Check that there are no cables or pipes attached.
 - 2.2.3 Remove any wheel scotches that are in position, except class 40.
 - 2.2.4 Check that the glass is not broken over the fixed fire extinguisher external operating handles.
 - 2.2.5 Move the lighting changeover switch, to BATTERY.
 - 2.2.6 Close the battery isolating switch, where fitted externally.
 - 2.2.7 Check the main fuel gauge and boiler fuel gauge when fitted externally.

NOTE : On class 40 the battery isolating switch must be closed first.
 - 2.2.8 Check that the main fuel isolating cocks are open, where fitted externally and that the boiler fuel cock is open, where fitted externally and when required.

- 2.2.9 Check the boiler water tank gauge, where fitted externally.
- 2.2.10 Check for obvious defects, e.g. leakage of fuel, water etc. or obvious damage.
- 2.3 At the opposite end repeat 2.1.
- 2.4 Repeat 2.2.1 to 2.2.10 on the opposite side of the locomotive where applicable.
- 3. **Enter the driving cab**
 - 3.1 Check that the automatic brake valve is at SHUT DOWN or NEUTRAL
 - 3.2 Check that the straight air brake valve is at OFF.
 - 3.3 Check the detonator case and track circuit operating clips in accordance with the Rule Book, Section H, 3.2.
 - 3.4 Check that the hand fire extinguisher is in position and that the seal is intact.
 - 3.5 Check that the isolating handle of the A.W.S. switch is sealed in the up position and that the switch is in the OFF position.
 - 3.6 Check that the glass is not broken over the fixed fire extinguisher operating handle.
 - 3.7 Check the Repair Book if in this cab.
 - 3.8 When applicable to the driving cab or nose end
 - 3.8.1 Turn the brake selector switch to AIR PASSENGER.
 - 3.8.2 Check that the boiler main switch is at OFF, where fitted.
 - 3.8.3 Check that the miniature circuit breakers are all set at ON.
 - 3.8.4 Check that the exhaust switches are at ON.

- 3.8.5 Check that all other switches are in their normal positions.
- 3.8.6 Check that the Earth Fault Relay is not tripped.
- 3.8.7 Check that spare fuses are available.
- 3.8.8 Check the main fuel gauge and boiler water gauges.
- 3.8.9 Check that the safety pins are removed from the fixed fire extinguishers.
- 3.8.10 Check that the air/vacuum relay valve i.e. AV2, DV2 or VA-1 is not isolated.
- 3.8.11 Check that the cooker, hotplate etc., is not switched on.

4. Proceed to the non-driving cab through the engine room and boiler room, where applicable

- 4.1 Check the main fuel tank gauge and boiler fuel tank gauge, if fitted in the engine room or boiler room.
- 4.2 Check the coolant level in the radiator header tank.
- 4.3 Check that the cocks in the fuel supply to the engine are correctly set.
- 4.4 Check that the engine room stop button is OUT, where applicable on Brush equipment.
- 4.5 Check that the engine governor overriding lever is at the top of the quadrant on English Electric engines.
- 4.6 Check that the engine room side doors are locked or secured.
- 4.7 Close the battery isolating switch.
- 4.8 Perform any items from 3.8.1 to 3.8.11 which are applicable to the engine room.

5. Enter the non-driving cab

- 5.1 Insert the master key into the controls and move the master switch to E.O.
- 5.2 Start the engine. If it will not start, perform item 5.11.
- 5.3 Check that the automatic brake valve is at SHUT DOWN or NEUTRAL
- 5.4 Check that the straight air brake valve is at OFF.
- 5.5 Press the fire alarm test button. If not fitted in this cab, test the system when returning to the driving cab.
- 5.6 Check the detonator case and track circuit operating clips in accordance with the Rule Book, Section H, 3.2.
- 5.7 Check that the hand fire extinguisher is in position and that the seal is intact.
- 5.8 Check that the isolating handle of the A.W.S. switch is sealed in the up position and that the switch is in the OFF position.
- 5.9 Check that the glass is not broken over the fixed fire extinguisher operating handle.
- 5.10 Check the Repair Book if in this cab.
- 5.11 Perform any items from 3.8.1 to 3.8.11 which are applicable to this cab.
- 5.12 When a pressure of at least 95 p.s.i. has registered on the main reservoir gauge, move the automatic brake valve to RUNNING and check that ~~68-75 p.s.i.~~ (70 p.s.i. nominal) is registered on the brake pipe gauge.
- 5.13 Move the automatic brake valve to INITIAL and check that the brake pipe pressure falls to 63-65 p.s.i.

- 5.14 Move the automatic brake valve in steps to FULL SERVICE. Check that the brake pipe pressure falls to 44-48 p.s.i. and that the brake cylinder pressure rises with each step, until it reaches a maximum at FULL SERVICE. See NOTE at the end of this instruction.
- 5.15 Move the automatic brake valve to EMERGENCY, check that the brake pipe pressure falls to zero and that the brake cylinder pressure remains at its maximum
- 5.16 Move the automatic brake valve to RUNNING.
- 5.17 Move the straight air brake valve to ON and check that the brake cylinder pressure rises to its maximum. Return the handle to OFF.
- 5.18 With the brake pipe pressure at ⁷²70 p.s.i. move the master switch to FOR and without the D.S.D. pedal depressed, check that the brake pipe pressure commences to fall to zero after a short period.
- 5.19 Move the automatic brake valve to EMERGENCY and, after pausing, to SHUT DOWN or NEUTRAL.
- 5.20 Move the master switch to OFF and remove the master key from the controller, leaving the engine running. See NOTE at the end of item 6.2.3.
- 5.21 When situated in the non-driving cab
 - 5.21.1 Change the brake selector switch to VACUUM PASSENGER
 - 5.21.2 Check that the battery ammeter is not showing a discharge.
 - 5.21.3 Check that the fault panel indications are normal.
- 5.22 Release the parking brake.
- 5.23 Switch the tail light on, when applicable.
- 5.24 Check that the brake cylinder pressure is holding.
- 5.25 Switch the cab lights off.

6. Enter the engine room

6.1 Check the engine room for obvious defects, e.g. leakage of fuel, water, oil, exhaust gases, etc.

6.2 When situated in the engine room

6.2.1 Change the brake selector switch to VACUUM PASSENGER.

6.2.2 Check that the battery ammeter is not showing a discharge.

6.2.3 Check that the fault panel indications are normal.

NOTE : On class 31 and 46 locomotives, the fault panel indications are extinguished when the master switch is at OFF.

6.3 Ensure that all internal doors are closed.

6.4 Open the radiator shutters, where applicable.

7. Enter the driving cab

7.1 When situated in the driving cab

7.1.1 Change the brake selector switch to VACUUM PASSENGER.

7.1.2 Check that the battery ammeter is not showing a discharge.

7.1.3 Check that the fault panel indications are normal.

7.2 Insert the master key into the controls and move the master switch to E.O.

7.3 Move the A.W.S. switch to ON, then press the reset button to silence the horn.

7.4 Move the automatic brake valve to RUNNING, check that the brake pipe pressure rises to 70 p.s.i. and that 21 in. Hg registers on the vacuum gauge. 72½

- 7.5 Move the automatic brake valve to INITIAL, check that the brake pipe pressure falls to 63-65 p.s.i. and the vacuum falls to 16-19 in. Hg.
- 7.6 Move the automatic brake valve in steps to FULL SERVICE. Check that the brake pipe pressure falls to 44-48 p.s.i. and the brake cylinder pressure rises with each step until it reaches a maximum at FULL SERVICE. Check that the vacuum reduces to zero at FULL SERVICE.
- 7.7 Move the automatic brake valve to EMERGENCY, check that the brake pipe pressure falls to zero, the vacuum remains at zero and the brake cylinder pressure remains at its maximum.
- 7.8 Move the automatic brake valve to RUNNING.
- 7.9 Move the straight air brake valve to ON and check that the brake cylinder pressure rises to its maximum. Return the handle to OFF.
- 7.10 With the brake pipe pressure at ^{72 $\frac{1}{2}$} ~~70~~ p.s.i., move the master switch to FOR, without the D.S.D. depressed, and check that the brake pipe pressure commences to fall after a short period.
- 7.11 Apply the straight air brake and release the parking brake.
- 7.12 Press the Train Heat On button and check that the 'H' light becomes illuminated, then press the Train Heat Off button and check that the light becomes extinguished.
- 7.13 Check that the Current Limit Potentiometer, where fitted, is at FULL before moving.
- 7.14 Set the route indicator.
- 7.15 ON CLASS 40 ONLY : Remove any scotches that are in position.

NOTE : Some locomotives with Davies and Metcalfe braking equipment have modified proportionality, whereby the locomotive brake will not commence to apply until the vacuum is reduced to 15-17 in. Hg.

PREPARATION DUTIES FOR SINGLE CLASS 24, 25, 26, 27, 31, 37, 40, 44, 45, 46 and 47 LOCOMOTIVES WITH VACUUM OR E.Q. BRAKES

1. Enter the driving cab and check that the parking brake is applied.

2. External examination

2.1 At the driving end

2.1.1 Check that no red flags or 'NOT TO BE MOVED' targets are displayed.

2.1.2 Check that all air hoses are secured on their dummy plugs or brackets and that their cocks are closed.

2.1.3 Check that the heater hose is secured on its chain and that the cock is closed.

2.1.4 Check that the vacuum hose is seated on its dummy plug.

2.1.5 Check that the jumper cable is secure and that the protective cap is fitted over the live socket.

2.1.6 Set the marker discs if fitted.

2.2 Proceed in a clockwise direction round the locomotive.

2.2.1 Check that there is sufficient sand in the sandboxes.

2.2.2 Check that there are no cables or pipes attached.

2.2.3 Remove any wheel scotches that are in position, except class 40.

2.2.4 Check that the glass is not broken over the fixed fire extinguisher external operating handles.

2.2.5 Move the lighting changeover switch to BATTERY.

- 2.2.6 Close the battery isolating switch, where fitted externally.
- 2.2.7 Check the main fuel gauge and boiler fuel gauge where fitted externally.

NOTE : On class 40 the battery isolating switch must be closed first.

- 2.2.8 Check that the main fuel isolating cocks are open, where fitted externally and that the boiler fuel cock is open, where fitted externally and when required.
- 2.2.9 Check the boiler water tank gauge, where fitted externally.
- 2.2.10 Check for obvious defects, e.g. leakage of fuel, water, etc. or obvious damage.

- 2.3 At the opposite end repeat 2.1
- 2.4 Repeat 2.2.1 to 2.2.10 on the opposite side of the locomotive where applicable.

3. Enter the driving cab

- 3.1 Check that the automatic brake valve is at RUNNING.
- 3.2 Check that the straight air brake valve is at OFF.
- 3.3 Check the detonator case and track circuit operating clips in accordance with the Rule Book, Section H, 3.2.
- 3.4 Check that the hand fire extinguisher is in position and that the seal is intact.
- 3.5 Check that the isolating handle of the A.W.S. switch is sealed in the up position and that the switch is in the OFF position.
- 3.6 Check that the glass is not broken over the fixed fire extinguisher operating handle.

3.7 Check the Repair Book if in this cab.

3.8 When applicable to the driving cab or nose end

3.8.1 Move the GOODS/PASSENGER switch to FITTED, PASSENGER or BRAKED.

3.8.2 Check that the boiler main switch is at OFF, where fitted.

3.8.3 Check that the miniature circuit breakers are all set at ON.

3.8.4 Check that the exhausters switches are at ON.

3.8.5 Check that all other switches are in their normal positions.

3.8.6 Check that the Earth Fault Relay is not tripped.

3.8.7 Check that spare fuses are available.

3.8.8 Check the main fuel gauge and boiler water gauges.

3.8.9 Check that the safety pins are removed from the fixed fire extinguishers.

3.8.10 Check that the cooker, hotplate etc., is not switched on.

4. Proceed to the non-driving cab through the engine room and boiler room, where applicable

4.1 Check the main fuel tank gauge and boiler fuel tank gauge, if fitted in the engine room or boiler room.

4.2 Check the coolant level in the radiator header tank.

4.3 Check that the cocks in the fuel supply to the engine are correctly set.

4.4 Check that the engine room stop button is OUT, where applicable on Brush equipment.

- 4.5 Check that the engine governor overriding lever is at the top of the quadrant on English Electric engines.
- 4.6 Check that the engine room side doors are locked or secured.
- 4.7 Close the battery isolating switch.
- 4.8 Perform any items from 3.8.1 to 3.8.10 which are applicable to the engine room.

5. Enter the non-driving cab

- 5.1 Insert the master key into the controls and move the master switch to E.O.
- 5.2 Start the engine. If it will not start, perform item 5.11.
- 5.3 Check that the automatic brake valve is at RUNNING.
- 5.4 Check that the straight air brake valve is at OFF.
- 5.5 Press the fire alarm test button. If not fitted in this cab, test the system when returning to the driving cab.
- 5.6 Check the detonator case and track circuit operating clips in accordance with the Rule Book, Section H, 3.2.
- 5.7 Check that the hand fire extinguisher is in position and that the seal is intact.
- 5.8 Check that the isolating handle of the A.W.S. switch is sealed in the up position and that the switch is in the OFF position.
- 5.9 Check that the glass is not broken over the fixed fire extinguisher operating handle.
- 5.10 Check the Repair Book if in this cab.
- 5.11 Perform any items from 3.8.1 to 3.8.10 which are applicable to this cab.

- 5.12 When a pressure of at least 85 p.s.i. is registered on the main reservoir gauge and 21 in. Hg is registered on the vacuum gauge, move the automatic brake valve handle in steps to the **FULL SERVICE** position. Check that the vacuum falls to zero and that the brake cylinder pressure rises with each step until it attains a maximum. See NOTE at the end of this instruction.
- 5.13 Move the automatic brake valve to **EMERGENCY** and check that the vacuum remains at zero.
- 5.14 Move the automatic brake valve back to **RUNNING**.
- 5.15 Move the straight air brake valve to **ON** and check that the brake cylinder pressure rises to its maximum. Return the handle to **OFF**.
- 5.16 With the brake pipe vacuum at 21 in. Hg move the master switch to **FORWARD** and without the D.S.D. pedal depressed, check that the brake pipe vacuum commences to fall after a short period.
- 5.17 Move the master switch to **OFF** and remove the master key from the controller, leaving the engine running. See NOTE at the end of item 6.2.2.
- 5.18 When situated in the non-driving cab
 - 5.18.1 Check that the battery ammeter is not showing a discharge.
 - 5.18.2 Check that the fault panel indications are normal.
- 5.19 Release the parking brake.
- 5.20 Switch the tail light on, when applicable.
- 5.21 Check that the brake cylinder pressure is holding.
- 5.22 Switch the cab lights off.

6. Enter the engine room

6.1 Check the engine room for obvious defects, e.g. leakage of fuel, water, oil, exhaust gases, etc.

6.2 When situated in the engine room.

6.2.1 Check that the battery ammeter is not showing a discharge.

6.2.2 Check that the fault panel indications are normal.

NOTE : On class 31 and 46 locomotives, the fault panel indications are extinguished when the master switch is at OFF.

6.3 Ensure that all internal doors are closed.

6.4 Open the radiator shutters, where applicable.

7. Enter the driving cab

7.1 When situated in the driving cab

7.1.1 Check that the battery ammeter is not showing a discharge.

7.1.2 Check that the lights on the fault panel are dim and/or the indicator flags are normal.

7.2 Insert the master key into the controls and move the master switch to E.O.

7.3 Move the A.W.S. switch to ON, then press the reset button to silence the horn.

7.4 With the automatic brake valve at RUNNING, check that 21 in. Hg registers on the vacuum gauge.

7.5 Move the straight air brake valve to ON and check that the brake cylinder pressure rises to its maximum. Return the handle to OFF.

- 7.6 With 21 in. Hg registered on the vacuum gauge, move the automatic brake valve handle in steps to the **FULL SERVICE** position. Check that the vacuum falls to zero and that the brake cylinder pressure rises with each step until it attains a maximum. See **NOTE** at the end of this instruction.
- 7.7 Move the automatic brake valve to **EMERGENCY** and check that the vacuum remains at zero.
- 7.8 Move the automatic brake valve to **RUNNING** and allow the vacuum to rise to 21 in. Hg.
- 7.9 Move the master switch to **FORWARD** and without the **D.S.D.** pedal depressed, check that the brake pipe vacuum commences to fall after a short period.
- 7.10 Apply the straight air brake and release the parking brake.
- 7.11 Check that the current limit potentiometer, where fitted, is at **FULL** before moving.
- 7.12 Set the route indicator.
- 7.13 **ON CLASS 40 ONLY:** Remove any wheel scothces that are in position.
- 7.14 Set the route indicator.

NOTE : Some locomotives with Davies and Metcalfe braking equipment have modified proportionality, whereby the locomotive brake will not commence to apply until the vacuum is reduced to 15-17 in. Hg.

PREPARATION DUTIES FOR CLASS 25, 26, 27, 31, 37, 40 AND 50 LOCOMOTIVES WITH DUAL BRAKES IN MULTIPLE FORMATION (APPLICABLE TO A COMBINATION OF ANY TWO LOCOMOTIVES WITH THE SAME COUPLING CODE).

- 1. Enter the driving cab and check that the parking brake is applied.**
- 2. External examination**
 - 2.1 At the driving end**
 - 2.1.1** Check that no red flags or 'NOT TO BE MOVED' targets are displayed.
 - 2.1.2** Check that all air hoses are secured on their dummy plugs or brackets and that their cocks are closed.
 - 2.1.3** Check that the heater hose is secured on its chain and that the cock is closed.
 - 2.1.4** Check that the vacuum hose is secured on its dummy plug.
 - 2.1.5** Check that the jumper cable(s) is/are secure and that the protective cap(s) is/are fitted over the live socket(s).
 - 2.1.6** Set the marker discs if fitted.
 - 2.2** Proceed in a clockwise direction around the locomotives i.e. along the right hand side.
 - 2.2.1** Check that there is sufficient sand in the sandboxes.
 - 2.2.2** Check that there are no cables or pipes attached.
 - 2.2.3** Remove any wheel scotches that are in position, except class 40.
 - 2.2.4** Check that the glass is not broken over the fixed fire extinguisher external operating handles.

2.2.5 Move the lighting changeover switch to BATTERY.

2.2.6 Close the battery isolating switch, where fitted externally.

2.2.7 Check the main fuel gauge and boiler fuel gauge, where fitted externally.

NOTE : On class 40 the battery isolating switch must be closed first.

2.2.8 Check that the main fuel isolating cocks are open, where fitted externally and that the boiler fuel cock is open, where fitted externally and when required.

2.2.9 Check the boiler water tank gauge, where fitted externally and when required.

2.2.10 Check for obvious defects, e.g. leakage of fuel, water etc. or obvious damage.

2.3 Check the intermediate drawgear, air hoses, vacuum hoses control jumper, heating jumper and heating hoses are coupled in accordance with the instructions in BR.33056/6. Check also that the necessary cocks are opened, that the unused pipes and cables are secure and the remaining cocks are closed. See also 2.7.

2.4 Check the side of the rear locomotive as described in 2.2.1 to 2.2.10.

2.5 Check the rear end of the rear locomotive as described in 2.1.

2.6 Check the left hand side of the rear locomotives as described in 2.2.1 to 2.2.10.

2.7 Complete the checks on the intermediate couplings as described in 2.3.

2.8 Check the left hand side of the leading locomotive as described in 2.2.1 to 2.2.10.

3. Enter the driving cab

- 3.1 Check that the automatic brake valve is at SHUT DOWN or NEUTRAL
- 3.2 Check that the straight air brake valve is at OFF.
- 3.3 Check the detonator case and track circuit operating clips in accordance with the Rule Book, Section H, 3.2.
- 3.4 Check that the hand fire extinguisher is in position and that the seal is intact.
- 3.5 Check that the isolating handle of the A.W.S. switch is sealed in the up position and that the switch is in the OFF position.
- 3.6 Check that the glass is not broken over the fixed fire extinguisher operating handle.
- 3.7 Check the Repair Book if in this cab.
- 3.8 When applicable to the driving cab or nose end.
 - 3.8.1 Turn the brake selector switch to AIR PASSENGER.
 - 3.8.2 Check that the boiler main switch is at OFF, where fitted.
 - 3.8.3 Check that the miniature circuit breakers are all set at ON.
 - 3.8.4 Check that the exhausters switches are at ON.
 - 3.8.5 Check that all other switches are in their normal positions.
 - 3.8.6 Check that the Earth Fault Relay is not tripped.
 - 3.8.7 Check that spare fuses are available.
 - 3.8.8 Check the main fuel gauge and boiler water gauges.
 - 3.8.9 Check that the safety pins are removed from the fixed fire extinguisher.

3.8.10 Check that the air/vacuum relay valve i.e. AV2, DV2 or VA-1 is not isolated.

3.8.11 Check that the cooker, hotplate etc., is not switched on.

4. Proceed to the non-driving cab through the engine room and boiler room, where applicable.

4.1 Check the main fuel tank gauge and boiler fuel tank gauge, if fitted in the engine room or boiler room.

4.2 Check the coolant level in the radiator header tank

4.3 Check that the cocks in the fuel supply to the engine are correctly set.

4.4 Check that the engine room stop button is OUT, where applicable on Brush equipment.

4.5 Check that the engine governor overriding lever is at the top of the quadrant on English Electric engines.

4.6 Check that the engine room side doors are locked or secured.

4.7 Close the battery isolating switch.

4.8 Perform any items from 3.8.1 to 3.8.11 which are applicable to the engine room.

5. Enter the rear cab of the leading locomotive.

5.1 Check that the automatic brake is at SHUT DOWN or NEUTRAL.

5.2 Check that the straight air brake valve is at OFF.

5.3 Press the fire alarm test button. If not fitted in this cab, test the system at the opposite end.

5.4 Check the detonator case and track circuit operating clips in accordance with the Rule Book, Section H, 3.2.

- 5.5 Check that the hand fire extinguisher is in position and that the seal is intact.
- 5.6 Check that the isolating handle of the A.W.S. switch is sealed in the up position and that the switch is in the OFF position.
- 5.7 Check that the glass is not broken over the fixed fire extinguisher operating handle.
- 5.8 Check the Repair Book if in this cab.
- 5.9 Perform any items from 3.8.1 to 3.8.11 which are applicable to this cab.
- 5.10 Release the parking brake.
- 5.11 Check that the tail light and route indicator lights are extinguished.
- 5.12 Leave the rear cab of the leading locomotive.
- 6. Enter the leading cab of the rear locomotive.**
 - 6.1 Repeat 5.1 to 5.11 but switch the exhaust(s) off if fitted with cab switches.
- 7. Enter the engine room.**
 - 7.1 Repeat 4.1 to 4.8 but switch the exhaust(s) off if fitted with engine room switches.
- 8. Enter the rear cab of the rear locomotive**
 - 8.1 Switch the exhaust(s) off if fitted with cab switches.
 - 8.2 Insert the master key into the controls and move the master switch to E.O.
 - 8.3 Start the engines. If they will not start, perform item 8.11.
 - 8.4 Check that the automatic brake valve is at SHUT DOWN or NEUTRAL.

- 8.5 Check that the straight air brake valve is at OFF.
- 8.6 Press the fire alarm test button. If not fitted in this cab, test the system when returning to the driving cab.
- 8.7 Check the detonator case and track circuit operating clips in accordance with the Rule Book, Section H, 3.2.
- 8.8 Check that the hand fire extinguisher is in position and that the seal is intact.
- 8.9 Check that the isolating handle of the A.W.S. switch is sealed in the up position and that the switch is in the OFF position.
- 8.10 Check that the glass is not broken over the fixed fire extinguisher operating handle.
- 8.11 Check the Repair Book if in this cab.
- 8.12 Perform any items from 3.8.1 to 3.8.11 which are applicable to this cab.
- 8.13 When a pressure of at least 95 p.s.i. has registered on the main reservoir gauge, move the automatic brake valve to RUNNING and check that 68-72 p.s.i. (70 p.s.i. nominal) is registered on the brake pipe gauge.
- 8.14 Move the automatic brake valve to INITIAL and check that the brake pipe pressure falls to 63-65 p.s.i.
- 8.15 Move the automatic brake valve in steps to FULL SERVICE. Check that the brake pipe pressure falls to 44-48 p.s.i. and that the brake cylinder pressure rises with each step, until it reaches a maximum at FULL SERVICE. See NOTE at the end of this instruction.
- 8.16 Move the automatic brake valve to EMERGENCY, check that the brake pipe pressure falls to zero and that the brake cylinder pressure remains at its maximum.

- 8.17 Move the automatic brake valve to RUNNING.
- 8.18 Move the straight air brake valve to ON and check that the brake cylinder pressure rises to its maximum. Return the handle to OFF.
- 8.19 With the brake pipe pressure at 70 p.s.i. move the master switch to FOR. and without the D.S.D. pedal depressed, check that the brake pipe pressure commences to fall after a short period.
- 8.20 Move the automatic brake valve to EMERGENCY and, after pausing, to SHUT DOWN or NEUTRAL.
- 8.21 Move the master switch to OFF and remove the master key from the controller, leaving the engine running. See NOTE at the end of 9.2.3.
- 8.22 When situated in the non-driving cab
 - 8.22.1 Change the brake selector switch to VACUUM PASSENGER.
 - 8.22.2 Check that the battery ammeter is not showing a discharge.
 - 8.22.3 Check that the fault panel indications are normal.
- 8.23 Release the parking brake.
- 8.24 Switch the tail light on, when applicable.
- 8.25 Check that the brake cylinder pressure is holding.
- 8.26 Switch the cab lights off.

9. Enter the engine room

- 9.1 Check the engine room for obvious defects, e.g. leakage of fuel, water, oil, exhaust gases etc.
- 9.2 When situated in the engine room
 - 9.2.1 Change the brake selector switch to VACUUM PASSENGER.

9.2.2 Check that the battery ammeter is not showing a discharge.

9.2.3 Check that the fault panel indications are normal.

NOTE : On class 31 locomotives, the fault panel indications are extinguished when the master switch is at OFF.

9.3 Ensure that all internal doors are closed.

9.4 Open the radiator shutters where applicable.

10. Enter the leading cab of the rear locomotive. When applicable to this cab:-

10.1 Change the brake selector switch to VACUUM PASSENGER.

10.2 Check that the battery ammeter is not showing a discharge.

10.3 Check that the fault panel indications are normal.

10.4 Leave the leading cab of the rear locomotive with all doors and windows closed and the lights switched off.

ON CLASS 40 ONLY : Remove any scotches that are in position.

11. Enter the rear cab of the leading locomotive. When applicable to this cab:-

11.1 Repeat 10.1 to 10.4 then enter the engine room.

12. In the engine room

12.1 Repeat 9.1 to 9.4.

13. Enter the driving cab

13.1 When situated in the driving cab

13.1.1 Change the brake selector switch to VACUUM PASSENGER.

- 13.1.2 Check that the battery ammeter is not showing a discharge.
- 13.1.3 Check that the fault panel indications are normal.
- 13.2 Insert the master key into the controls and move the master switch to E.O.
- 13.3 Move the A.W.S. switch to ON, then press the reset button to silence the horn.
- 13.4 Move the automatic brake valve to RUNNING, check that the brake pipe pressure rises to 70 p.s.i. and that 21 in. Hg registers on the vacuum gauge.
- 13.5 Move the automatic brake valve to INITIAL, check that the brake pipe pressure falls to 63-65 p.s.i. and the vacuum falls to 16-19 in. Hg.
- 13.6 Move the automatic brake valve in steps to FULL SERVICE. Check that the brake pipe pressure falls to 44-48 p.s.i. and the brake cylinder pressure rises with each step until it reaches a maximum at FULL SERVICE. Check that the vacuum reduces to zero at FULL SERVICE.
- 13.7 Move the automatic brake valve to EMERGENCY, check that the brake pipe pressure falls to zero, the vacuum remains at zero and the brake cylinder pressure remains at its maximum.
- 13.8 Move the automatic brake valve to RUNNING.
- 13.9 Move the straight air brake valve to ON and check that the brake cylinder pressure rises to its maximum. Return the handle to OFF.
- 13.10 With the brake pipe pressure at 70 p.s.i., move the master switch to FOR., without the D.S.D. depressed, and check that the brake pipe pressure commences to fall after a short period.
- 13.11 Apply the straight air brake and release the parking brake.
- 13.12 Press the Train Heat On button and check that the 'H' light becomes illuminated, then press the Train Heat Off button and check that the light becomes extinguished.

13.13 Check that the Current Limit Potentiometer, where fitted, is at FULL before moving.

13.14 Set the route indicator.

NOTE : Some locomotives with Davies and Metcalfe braking equipment have modified proportionality, whereby the locomotive brake will not commence to apply until the vacuum is reduced to 15-17 in. Hg.

**PREPARATION DUTIES FOR CLASS 24, 25, 26, 27, 31, 37 and 40
LOCOMOTIVES WITH VACUUM OR E.Q. BRAKES IN MULTIPLE
FORMATION (APPLICABLE TO A COMBINATION OF ANY TWO OF THE
ABOVE LOCOMOTIVES)**

1. Enter the driving cab and check that the parking brake is applied.

2. External examination.

2.1 At the driving end

2.1.1 Check that no red flags or 'NOT TO BE MOVED' targets are displayed.

2.1.2 Check that all air hoses are secured on their dummy plugs or brackets and that their cocks are closed.

2.1.3 Check that the heater hose is secured on its chain and that the cock is closed.

2.1.4 Check that the vacuum hose is secured on its dummy plug.

2.1.5 Check that the jumper cable is secure and that the protective cap is fitted over the live socket.

2.1.6 Set the marker discs if fitted.

2.2 Proceed in a clockwise direction round the locomotives i.e. along the right hand side.

2.2.1 Check that there is sufficient sand in the sandboxes.

2.2.2 Check that there are no cables or pipes attached.

2.2.3 Remove any wheel scotches that are in position, except class 40.

2.2.4 Check that the glass is not broken over the fixed fire extinguisher external operating handles.

2.2.5 Move the lighting changeover switch, where fitted externally to BATTERY.

2.2.6 Close the battery isolating switch, where fitted externally.

2.2.7 Check the main fuel gauge and boiler fuel gauge, where fitted externally.

NOTE : On class 40 the battery isolating switch must be closed first.

2.2.8 Check that the main fuel isolating cocks are open, where fitted externally and that the boiler fuel cock is open where fitted externally and when required.

2.2.9 Check the boiler water tank gauge, where fitted externally and when required.

2.2.10 Check for obvious defects, e.g. leakage of fuel, water etc. or obvious damage.

2.3 Check that the intermediate drawgear, air hoses, vacuum hoses control jumper, and heating hose are coupled in accordance with the instructions in BR.33056/6. Check also that the necessary cocks are opened, that the unused pipes and cables are secure and the remaining cocks are closed. See also 2.7.

- 2.4 Check the side of the rear locomotive as described in 2.2.1 to 2.2.10.
- 2.5 Check the rear end of the rear locomotive as described in 2.1.
- 2.6 Check the left hand side of the rear locomotives as described in 2.2.1 to 2.2.10.
- 2.7 Complete the checks on the intermediate couplings as described in 2.3.
- 2.8 Check the left hand side of the leading locomotive as described in 2.2.1 to 2.2.10.

3. Enter the driving cab

- 3.1 Check that the automatic brake valve is at **RUNNING**.
- 3.2 Check that the straight air brake valve is at **OFF**.
- 3.3 Check the detonator case and track circuit operating clips in accordance with the Rule Book, Section H, 3.2.
- 3.4 Check that the hand fire extinguisher is in position and that the seal is intact.
- 3.5 Check that the isolating handle of the A.W.S. switch is sealed in the up position and that the switch is in the **OFF** position.
- 3.6 Check that the glass is not broken over the fixed fire extinguisher operating handle.
- 3.7 Check the Repair Book if in this cab.
- 3.8 When applicable to the driving cab or nose end
 - 3.8.1 Turn the brake selector switch to **FITTED, PASSENGER or BRAKED**.
 - 3.8.2 Check that the boiler main switch is at **OFF**, where fitted.

- 3.8.3 Check that the miniature circuit breakers are all set at ON.
- 3.8.4 Check that the exhauster switches are at ON.
- 3.8.5 Check that all other switches are in their normal positions.
- 3.8.6 Check that the Earth Fault Relay is not tripped.
- 3.8.7 Check that spare fuses are available.
- 3.8.8 Check the main fuel gauge and boiler water gauges.
- 3.8.9 Check that the safety pins are removed from the fixed fire extinguishers.
- 3.8.10 Check that the cooker, hotplate, etc., is not switched on.

4. Proceed to the non-driving cab through the engine room and boiler room, where applicable.

- 4.1 Check the main fuel tank gauge and boiler fuel tank gauge, if fitted in the engine room or boiler room.
- 4.2 Check the coolant level in the radiator header tank.
- 4.3 Check that the cocks in the fuel supply to the engine are correctly set.
- 4.4 Check that the engine room stop button is OUT, where applicable on Brush equipment.
- 4.5 Check that the engine governor overriding lever is at the top of the quadrant on English Electric engines.
- 4.6 Check that the engine room side doors are locked or secured.
- 4.7 Close the battery isolating switch.
- 4.8 Perform any items from 3.8.1 to 3.8.10 which are applicable to the engine room.

5. Enter the rear cab of the leading locomotive.

- 5.1 Check that the automatic brake is at RUNNING.
- 5.2 Check that the straight air brake valve is at OFF.
- 5.3 Press the fire alarm test button. If not fitted in this cab, test the system at the opposite end.
- 5.4 Check the detonator case and track circuit operating clips in accordance with the Rule Book, Section H, 3.2.
- 5.5 Check that the hand fire extinguisher is in position and that the seal is intact.
- 5.6 Check that the isolating handle of the A.W.S. switch is sealed in the UP position and that the switch is in the OFF position.
- 5.7 Check that the glass is not broken over the fixed fire extinguisher operating handle.
- 5.8 Check the Repair Book if in this cab.
- 5.9 Perform any items from 3.8.1 to 3.8.10 which are applicable to this cab.
- 5.10 Release the parking brake.
- 5.11 Check that the tail light and route indicator lights are extinguished.
- 5.12 Leave the rear cab of the leading locomotive.

6. Enter the leading cab of the rear locomotive

- 6.1 Repeat 5.1 to 5.11 but switch the exhausters(s) off if fitted with cab switches.

7. Enter the engine room

- 7.1 Repeat 4.1 to 4.8, but switch the exhaust(er)s off if fitted with engine room switches.

8. Enter the rear cab of the rear locomotive

- 8.1 Switch the exhaust(er)s off if fitted with cab switches.
- 8.2 Insert the master key into the controls and move the master switch to E.O.
- 8.3 Start the engines. If they will not start, perform item 8.11.
- 8.4 Check that the automatic brake valve is at RUNNING.
- 8.5 Check that the straight air brake valve is at OFF.
- 8.6 Press the fire alarm test button. If not fitted in this cab, test the system when returning to the driving cab.
- 8.7 Check the detonator case and track circuit operating clips in accordance with the Rule Book, Section H, 3.2.
- 8.8 Check that the hand fire extinguisher is in position and that the seal is intact.
- 8.9 Check that the isolating handle of the A.W.S. switch is sealed in the UP position and that the switch is in the OFF position.
- 8.10 Check that the glass is not broken over the fixed fire extinguisher operating handle.
- 8.11 Check the Repair Book if in this cab.
- 8.12 Perform any items from 3.8.1 to 3.8.10 which are applicable to this cab.

- 8.13 When a pressure of at least 85 p.s.i. is registered on the main reservoir gauge and 21 in. Hg is registered on the vacuum gauge, move the automatic brake valve handle in steps to the FULL SERVICE position. Check that the vacuum falls to zero and that the brake cylinder pressure rises with each step until it attains a maximum. See NOTE at the end of this instruction.
- 8.14 Move the automatic brake valve to EMERGENCY and check that the vacuum remains at zero.
- 8.15 Move the automatic brake valve back to RUNNING.
- 8.16 Move the straight air brake valve to ON and check that the brake cylinder pressure rises to its maximum. Return the handle to OFF.
- 8.17 With the brake pipe vacuum at 21 in. Hg move the master switch to FORWARD and without the D.S.D. pedal depressed, check that the brake pipe vacuum commences to fall to zero after a short period.
- 8.18 Move the master switch to OFF and remove the master key from the controller, leaving the engine running. See NOTE at the end of item 9.2.2.
- 8.19 When situated in the non-driving cab
- 8.19.1 Check that the battery ammeter is not showing a discharge.
- 8.19.2 Check that the fault panel indications are normal.
- 8.20 Release the parking brake.
- 8.21 Switch the tail light on, when applicable.
- 8.22 Check that the brake cylinder pressure is holding.
- 8.23 Switch the cab lights off.

9. Enter the engine room

9.1 Check the engine room for obvious defects, e.g. leakage of fuel, water, oil, exhaust gases etc.

9.2 When situated in the engine room

9.2.1 Check that the battery ammeter is not showing a discharge.

9.2.2 Check that the fault panel indications are normal.

NOTE : On class 31 locomotives, the fault panel indications are extinguished when the master switch is at OFF.

9.3 Ensure that all internal doors are closed.

9.4 Open the radiator shutters, where applicable.

10. Enter the leading cab of the rear locomotive. When applicable to this cab:-

10.1 Check that the battery ammeter is not showing a discharge.

10.2 Check that the fault panel indications are normal.

10.3 Leave the leading cab of the rear locomotive with all doors and windows closed and the lights switched off.

ON CLASS 40 ONLY : Remove any scotches that are in position.

11. Enter the rear cab of the leading locomotive. When applicable to this cab:-

11.1 Repeat 10.1 to 10.3 then enter the engine room.

12. In the engine room

12.1 Repeat 9.1 to 9.4.

13. Enter the driving cab

13.1 When situated in the driving cab

13.1.1 Check that the battery ammeter is not showing a discharge.

13.1.2 Check that the fault panel indications are normal.

13.2 Insert the master key into the controls and move the master switch to E.O.

13.3 Move the A.W.S. switch to ON, then press the reset button to silence the horn.

13.4 With the automatic brake valve at RUNNING, check that 21 in. Hg registers on the vacuum gauge.

13.5 Move the straight air brake valve to ON and check that the brake cylinder pressure rises to its maximum. Return the handle to OFF.

13.6 With 21 in. Hg registered on the vacuum gauge, move the automatic brake valve handle in steps to the FULL SERVICE position. Check that the vacuum falls to zero and that the brake cylinder pressure rises with each step until it attains a maximum. See NOTE at the end of this instruction.

13.7 Move the automatic brake valve to EMERGENCY and check that the vacuum remains at zero.

13.8 Move the automatic brake valve to RUNNING and allow the vacuum to rise to 21 in. Hg.

13.9 Move the master switch to FORWARD and without the D.S.D. pedal depressed, check that the brake pipe vacuum commences to fall after a short period.

13.10 Apply the straight air brake and release the parking brake.

13.11 Check that the current limit potentiometer, where fitted, is at FULL before moving.

13.12 Set the route indicator

NOTE : Some locomotives fitted with Davies and Metcalfe braking equipment have modified proportionality, whereby the locomotive brake will not commence to apply until the vacuum is reduced to 15-17 in. Hg.

DISPOSAL DUTIES FOR SINGLE CLASS 20, 24, 25, 26, 27, 31, 37, 40, 44, 45, 46, 47 AND 50 LOCOMOTIVES WITH VACUUM, E.Q. OR DUAL BRAKES.

1. Move the automatic brake valve to EMERGENCY and allow the brake pipe pressure and/or vacuum to fall to zero.
2. Move the master switch to OFF and remove the master key.
3. Apply the parking brake and straight air brake.
4. Move the A.W.S. switch to OFF.
5. Move the automatic brake valve to NEUTRAL or SHUT DOWN on dual braked locomotives or vacuum braked locomotives when this position is fitted.
6. Operate the vacuum release trigger, when applicable.
7. Enter the engine room.
8. Check for obvious defects.
9. In dual braked locomotives operate the air release valve to release all control air from the distributor.
10. In locomotives fitted with Davies & Metcalfe dual braked equipment, press the push button on the air/vacuum relay valve, i.e. DV2.

DISPOSAL DUTIES FOR MULTIPLE CLASS 20, 24, 25, 26, 27, 31, 37, 40 AND 50 LOCOMOTIVES WITH VACUUM, E.Q. OR DUAL BRAKES

1. In the leading locomotive, proceed as for a single unit, but stop the engine with the local stop button. Ensure that the button is pulled out on Brush equipment.
2. In the trailing locomotive proceed as for a single unit.

IMMOBILISING A CLASS 20, 24, 25, 26, 27, 31, 37, 40, 44, 45, 46, 47 OR 50 LOCOMOTIVE WITH VACUUM, E.Q. OR DUAL BRAKES FOR UP TO THREE HOURS STANDING TIME (See NOTE)

1. In the driving cab
 - 1.1 Apply the parking brake.
 - 1.2 Stop the Diesel engine.
 - 1.3 Move the master controller to OFF and remove the master key.
 - 1.4 Extinguish all lighting with the exception of marker lights or a tail light if these are required for safety reasons.
 - 1.5 Move the automatic brake valve to SHUT DOWN or NEUTRAL.
2. In the rear cab (not Class 20)
 - 2.1 Apply the parking brake.
 - 2.2 Extinguish all lighting with the exception of marker lights or a tail light if these are required for safety reasons.
3. In very cold weather, close the radiator shutters, where manually operated.
4. On Class 40 locomotives, place two scotches in order to prevent movement of the locomotive.

NOTE : When locomotives are used in multiple, carry out the above duties in the front cab of the leading locomotive and rear cab of the rear locomotive, where applicable. Use the remaining parking brakes on steep gradients.

TAKING OVER A LOCOMOTIVE WHICH HAS BEEN IMMOBILISED FOR UP TO THREE HOURS

1 In the driving cab

- 1.1 Insert the master key and move the master switch to E.O.
- 1.2 Start the engine.
- 1.3 Set the route indicator or switch the marker lights on.
- 1.4 Check that the automatic brake and D.S.D. operates.
- 1.5 Check the repair book if in this cab.

2. In the rear cab (not Class 20)

- 2.1 Release the parking brake.
- 2.2 Switch the tail light on as necessary.
- 2.3 Check the repair book if in this cab.

3 In the driving cab

- 3.1 Apply the straight air brake and release the parking brake.

- 4. Open the radiator shutters where applicable.
- 5. Remove any scotches that are in position.
- 6. Set the brake selector switch as necessary for the type of train to be worked.

NOTE : When locomotives are used in multiple, carry out the above duties in the front cab of the leading locomotive and rear cab of the rear locomotive, where applicable. Additionally check the parking brakes of all cabs.