Procedure for the pre-operational checks of SSME Normanby Hall railway steam bay hydraulic lifting & transportation carriage

Proc. No O / 003 Set up signalling and rolling stock transfer beam (Bendy Beam) for operation

The procedures below must be carried out and recorded in the SSME day log, by a signature, to indicate this procedure has been satisfactorily carried out.

1. **By the Track Marshall & Assistant track Marshall or a person appointed by the track Marshall, on public running days.**

2. **At all other times by the signature of a member, authorised and competent to undertake these duties before any running is permitted to take place,**

Note: This procedure does not override or preclude measures that shall be conducted as specified in any other SSME Normanby Hall railway procedures concerned with the operation or maintenance of the railway.
Where a single locomotive or train is being operated, safe operating procedures will always be the responsibility of driver, for the site, locomotive, rolling stock and track system.

1. Verify and if not switch on the track electrical supplies in the clubhouse.
2. Mount on its pole and plug in the local switching control panel, positioning the trailing connecting cable out of the footpath in the area.
3. Take the covers of all the signals.
4. Remove all sensor covers that are located on top of the track.
5. Verify the 2 **RED** emergency stop push buttons are reset i.e., with their buttons out.
6. Switch on the signal system 230v isolator, whose switch 90^0 lever, red in colour, is located at the rear of the electrical marshalling cubicles.

Control system processor starting: -

a. The signal luminaires will flash between colours intermittently to prove the system is starting. All lights should set to **GREEN** when the signal processor has completed its starting sequence. A failure to set to green, on any signal, usually indicates a sensor fault exists, and this should be reported immediately for remedial attention.

b. The transfer system beacons will flash and their audible alarms will sound for approximately 30 seconds to verify they are operational.

c. The microprocessor controlling the signals and beam positioning system will then scan the beam position sensors to determine the beam starting position. This process will reset the process controller into the correct sequence according to the beams current position, preparing the beam in readiness for its next movement of position.

d. The indication lights on the local position controller will also flash alternatively then extinguish.

e. The system will now be available and ready for inspection.

The transporter beam (bendy beam) can be moved to its alternative position at this point if this is required to reset the signal system to main track normal running, signal 1 **GREEN.**

To operate the transporter beam:

1. Identify the two push buttons and indicator lamps on the local control panel.
   Attach as appendix
   Photo required
2. The 2 indicator LEDS should be illuminated.
3. Looking at the control panel directly from in front.
4. Press the left-hand push button
5. The beam visible & audible alarms should initiate.
6. Within 5 secs press and hold the right-hand button until both LEDS extinguish.
7. The beam locking bolt will now be moving to disengage from the locked position.
8. When the bolt is in the retracted position the transporter drive motor will start and commence moving the beam.
9. (The bolt unlocked position can be verified by observing the illuminates LED on the bolt rear sensor).
10. The transporter beam will move to the opposite location from when it started and come to rest when the position sensor detects the beam is in the correct position to allow the locking bolt to close.
11. The audible and visual alarms will continue to operate all through this process, until the locking bolt has closed and the sensor verifies it is in the locked position.
12. Note should a malfunction occur or to prevent damage and person unwanted personnel interaction pressing the emergency stop push button either by the control panel or at the beam lower end will remove beam motor and colt driving power. Pressing these push button will interfere or stop the control system, there restoration of power will control of the system back to the automatic control system.
13. If after restoration of power a fault remains active, the system should be switched of at the 230v isolator for the signal and beam drive system. Help should then be requested from the Track Marshalls & Superintendent.
14. To reverse the position of the transporter beam, carry out the same procedure again.

15. The control system will know where the beam is located and automatically reverse the drive protocols and sensing systems as required.

With the transporter beam set to main track, normal running position, all signals should reset to green.

Each signal should be proof tested for operation at least 2 times.

a. Note: This process can be interfered with if rolling stock has passed the sensor immediately after the transporter beam when travelling towards the tunnel. This signal prevents trains meeting each immediately after the transporter beam has move to the main track and a train is released, onto the track that has not passed over signal 1 set to **RED** sensor, therefore indicating the block section to the tunnel is occupied.

b. To reset signal 1 to green, operate the sensor after signal 2 which should reset the system, but then signal 2 will require resetting by operation of the sensor immediately before the carriage shed turntable.

Verify signal system is operating correctly prior to use: -

Note: - Signal system sensors can be of varying types: -

A. Optical infrared beam, mode of operation reflection off carriages initiates circuit switching. At present there is only one type of optical sensor in use.

B. Inductive triggered by magnetic material passing over the sensors. Several types of inductive sensors are in use, but all operate in a similar manner.

c. With signal 1 set to green pass a piece of magnetic material over the sensor in the track located just before the transporter beam, this should set signal 1 to RED.

d. Walk down to signal 2, pass a piece of magnetic material over the sensor in the track located just passed signal 2 and before the tunnel entrance.

e. This should set signal 2 to **GREEN.**

f. Signal 3 located at the exit from the bridge should set to **RED** by passing the hand in front of the optical sensor located below the track just after the signal.

g. Reset signal 3 to **GREEN** by passing a piece of magnetic material over the sensor in the track located adjacent to the tree and short bridge opposite the steaming bay.

h. Signal 4 located adjacent to the miniature signal box should be set to **RED** by passing the hand in front of the optical sensor located below the track on the curve after the signal.

i. Signal 4 should be set to **RED** by passing the hand in front of the optical sensor located below the track just after the sanitisation bay.

j. To set the sanitisation bay signal to amber press the push button located on the column in the sanitisation bay.

k. To set the sanitisation bay sensor to **RED** pass your hand in front of the sensor located by passing the hand in front of the optical sensor located below the track just after the sanitation bay signal.

l. The station release signal can be set to green by pressing one of the **GREEN** push buttons in the loading bay of the station.

m. The station release signal can be reset to **RED** by passing a piece of magnetic material over the sensor in the track located approximately 3 metres after the release signal post.

n. Finally, signal 1 verified to set to **RED** immediately the audible & visual alarms are initiated and before the transporter beam starts to move to the steaming bay rail position.

The signalling system and transporter beam operating system should now be ready for railway operation to commence.

The signal system should also be verified to operate correctly by the first train passing around the track.

Shut down the signal and transporter beam systems.

When all operation is finished, turn of the 230v isolator to the signal system.