

| Work Instruction – Analogue T121 Transmitter Replacement | | WO No. | |
|---|-----------------|--|----------------------------|
| | | Date: | |
| Scope: | | | |
| Team Leader: | | TC Type: T121 Track Circuit | |
| Activity: Analogue T121 Transmitter to Digital ET200 Transmitter Like for Like Renewal | | | |
| References: PR S 47114, PR S 47115 Section 6, PR S 40008, PR S 40009, PR S 40010, PR S 40011, PR S 40025, MN S 41357, GL S 43001 | | | |
| Activity No. | Task No. | Work Description | Completed Name/Sign |
| APPARATUS INSPECTION & PREPARATION | | | |
| 1 | 1A | Prior to the equipment replacement, the following measurements are to be taken (unless transmitter has failed), for the track circuit affected and recorded in the provided track circuit history card. Tx Input voltage, Tx TU Input, Rx input, measurement across 1 ohm resistor (Unoccupied), Rx Gain Setting, and Rx PS voltage. | |
| | 1B | Correlate wiring including a wire and null count on the existing power supply and mark on the attached circuit book sheets. If any discrepancy is found, note down in the space provided below and contact Signal Engineer. DEFECT(S): | |
| 2 | 2A | Conduct an apparatus inspection on the new transmitter and ensure it is of the correct type and configuration in accordance with the equipment requirement. | |
| | 2B | Document the disconnection list and attach it to the work instruction. | |
| SAFeworking & Disconnection from Interlocking | | | |
| 3 | 3A | Ensure the track circuit is booked out of use in accordance with <i>PR S 40008 Securing Signalling Apparatus Out of Use.</i> | |
| | 3B | Disconnect the track circuit in accordance with <i>PR S 40009 Disconnection of Signalling Apparatus.</i> | |
| | 3C | Disconnect the power supply by removing the associated fuse and terminal and confirm with a multimeter. | |
| DISCONNECTION, REMOVAL AND INSTALLATION | | | |
| 4 | 4A | Confirm the track circuit relay is de-energised and then remove the wiring from the existing transmitter and keep the beads intact. | |
| | 4B | Carefully dismount the existing transmitter from the rack and mount the new digital type. | |
| | 4C | Re-terminate the wires on the new digital transmitter according to the wire beads and previously marked up circuit book sheets. Ensure all wires are terminated firmly and correctly. Bell test the re-terminated wires and mark up on attached circuit book sheets. | |
| | 4D | Perform a final apparatus inspection on the newly replaced equipment and all associated wiring. | |

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| ADJUSTMENT AND CERTIFICATION (TRACK CIRCUIT) | | | |
| 5 | 5A | Conduct a wire and null count on the new transmitter. Record on circuit diagram. | |
| | 5B | Power the track circuit up and check the track circuit relay is energised and ensure a warbling tone can be heard from the new transmitter. | |
| | 5C | Confirm that the “Power”, “Internal” and “Load” LEDs on the transmitter are all green. | |
| | 5D | Measure the value across the 1 ohm resistor on the receiver when the track is unoccupied and ensure the GAIN x measured value is close to 400 mV. Refer – MN S 41357 | |
| | 5E | Conduct a Drop Shunt test at the receiver end 2 metres outside the tuned loop. The drop shunt reading should be as close as possible to 1 ohm. Compare to readings on THC. If required, make adjustments on receiver sensitivity setting. Refer – MN S 41357 | |
| | 5F | Conduct a Fix Shunt test at all extremities and record the values required on the track circuit history card. | |
| | 5G | Perform all tests and record all Track History card parameters. Compare the values obtained with the previous values and are in line with the normally expected values. Assess the need for readjustment and repeat procedures 5B, 5C, 5D, 5E, 5F and 5G if required. Record the final values on the provided track circuit history cards. | |
| 6 | 6A | Check with the signaller the affected track circuits are operational. | |
| | 6B | Book the affected track circuits back into use. | |

Note:

All the above values shall be measured by using a type approved and calibrated frequency selective meter where required. Values shall be recorded on testing record sheets/cards provided.

I certify, Track
Circuit: _____

at _____ location, has been inspected, tested and certified fit for service.

Print Name

Position

Signature

Date

OFFICIAL