



जुलाई-2023

अंक : 04/2023-24

ई-टी.आर.ओ. दर्पण

नागपुर मंडल, मध्य रेल



जब तक जीवन है तब तक सीखते रहो, क्योंकि अनुभव ही सर्वश्रेष्ठ शिक्षक है।

प्रेरणास्रोत

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प्रधान मुख्य बिजली इंजीनियर
मध्य रेल, मुंबई

संरक्षक

श्री तुषार कान्त पाण्डेय

मण्डल रेल प्रबन्धक
मध्य रेल, नागपुर

मार्गदर्शक

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मध्य रेल, मुंबई

निर्देशन

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चालक प्रशिक्षक, नागपुर

9503012046

विशेष आकर्षण

- संदेश
- ALCO डीज़ल लोको दोष निवारण
- HPP डीज़ल लोको दोष निवारण

ALCO & HHP
डीज़ल लोको
विशेषांक



संदेश

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इस माह के “ई-टी.आर.ओ. दर्पण” में “ALCO एवं HPP डीज़ल लोकोमोटिव के दोष – निवारण” के बारे में विस्तृत जानकारी दी गई है। जिसे आप अच्छी तरह से समझ लें। यदि समझने में किसी भी तरह की कठिनाई हो या संशय हो तो आप अपना संशय अपने CLI या मुख्य लोको निरीक्षक (डीज़ल) से अवश्य दूर कर लें।

मुझे पूर्ण विश्वास है कि पत्रिका में दिए गए जानकारी से निश्चित ही आपको ALCO & HPP डीज़ल लोकोमोटिव चालन कुशलता में एवं दोष निवारण में गुणात्मक सुधार व सहायक सिद्ध होगा। संरक्षित एवं सुरक्षित परिचालन हेतु आपसभी को हार्दिक शुभकामनाएँ।

पवन कुमार जयंत

(पवन कुमार जयंत)

वरि.मं.वि.इंजी.(परि.)/नागपुर

दि : 16.08.2023

Diesel Locomotive Trouble Shooting

OSTA Tripping (ALCO LOCO) Over Speed Trip Assembly (OSTA)

It is located on engine right side free end.



It protects the engine from over speeding. On 8th notch the engine rpm is 1050. Due to any reason engine speed exceeds up to 1180 ± 20 rpm, OSTA will operate, fuel rack comes to zero and engine will shut down without any indication. Two handles are provided on OSTA, small is trip handle and biga is reset handle. To reset OSTA, pull reset handle gently.

Note -

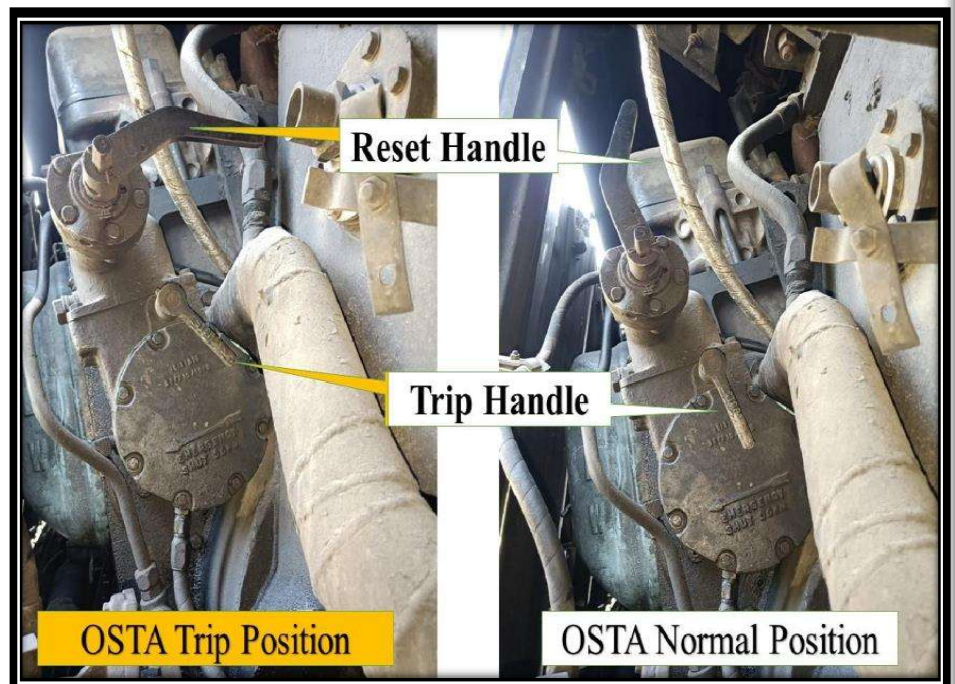
If OSTA trips on higher notches, work on lower notches. If OSTA trips repeatedly, check the wire connections of Techo generator and inform the power controller. Ensure that OSTA is reset before starting the engine and press the governor linkage.

Indications:

1. During cranking engine will not fire.
2. During running engine will shut down.

Message in Display:

No start - Mechanical OSTA Tripped, Reset before Start.

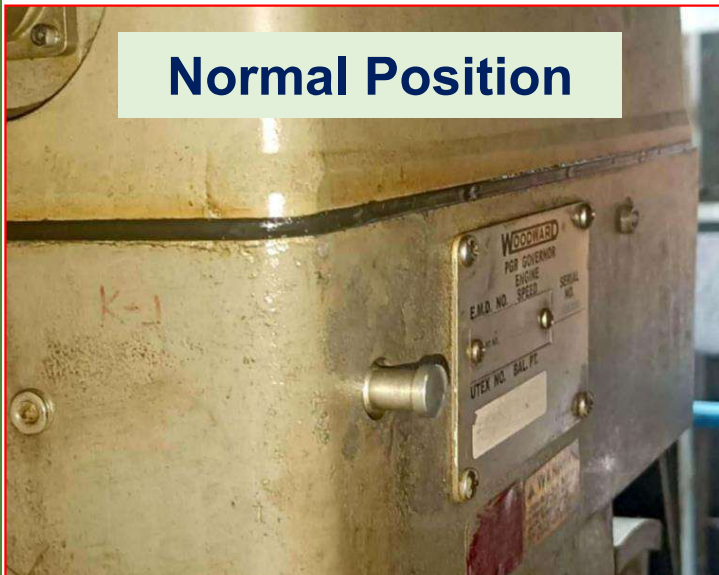


Plunger Tripping (LLOB) (ALCO LOCO)

LOW LUBE OIL BUTTON (LLOB):- WW governor fitted engine free end loco right side. OPS inside the governor itself when for any reason the lube oil pressure drops below 1.1kg/cm² then when the shutdown plunger of the governor comes out the engine shuts down with the indication of low lube oil and

The following message appears on the display - LLOB TRIP, RESET PLUNGER

Before resetting plunger check engine governor oil then reset LLOB & Re-crank the loco.



Normal Position



Trip Position

MCB in rear Loco of MU Position (ALCO LOCO)

1. **Location:-** Loco pilot cab on driver desk
2. While working with MU ALCO loco LP should ensure that MCB 1&2 are in "OFF" position in trailing loco.
3. If by mistake MCB 1&2 of rear loco remains in "ON" brakes.



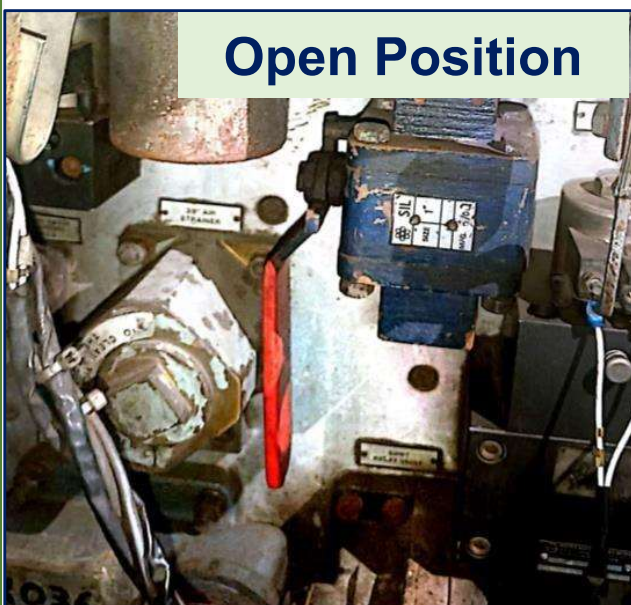
Trailing Loco MCB Position

MU COC Position (ALCO LOCO)

1. A9, SA9 Working control stand always open position. (Loco Pilot Cab –under the driver desk)
2. A9, SA9 All Non-Working control stand always closed position. (Loco Pilot Cab –under the driver desk)



3. BP Charging coc in Leading loco always open position. (Nose Compartment- on Pneumatic panel)
4. BP Charging coc in Trailing loco always Closed position (Nose Compartment- on Pneumatic panel)



MU COC Position (ALCO LOCO)

1. MU2B in Leading loco always Lead position. (Nose Compartment - on Pneumatic panel)
2. MU2B in Trailing loco always Trail position. (Nose Compartment - on Pneumatic panel)



Lead Position

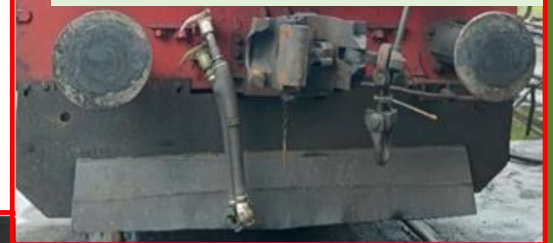


Trail Position

3. BP, FP Angle cock in between the loco should be open position. (Loco end side)
4. Add BP, Add FP cutout coc should be open position. (Under truck- Loco end side both)
5. MR Eq, BC Eq pipe couple in between the loco and cock open position. (Under truck- Loco end side both)
6. MR Eq, BC Eq , BP,FP coc should be closed in both outermost side. (Under truck- Loco end side both)

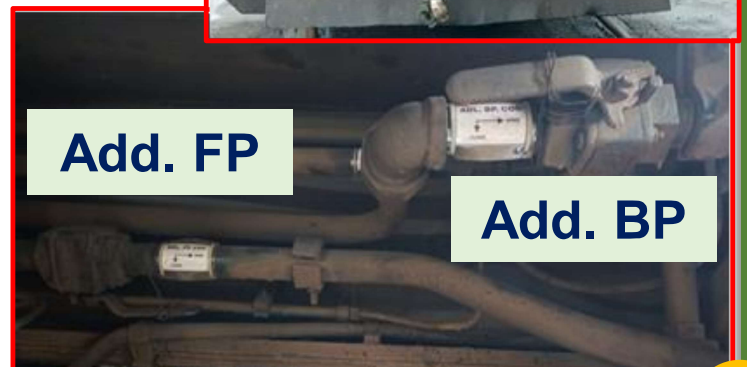


Loco Outermost Side



Add. FP

Add. BP



Plunger Tripping (HHP LOCO)

LOW LUBE OIL BUTTON (LLOB):-It is located on engine Accessory Room

Indications:

1. During cranking engine will not CRANK.
2. During running engine will shut down.

Message in Display:

Engine protection shut down – Low Oil Pressure.

Action to be Taken by LP:

1. Ascertain the reason, reset LLOB.
2. Ensure no any other safety device operated (EPD, HOD, OSTA)
3. Reset the plunger and re-crank the loco.

Trip Position



Normal Position



Low Water Pressure Button in EPD Tripping (HHP Loco)

Engine Protection Device (EPD):- It is located on engine Accessory Room

Indications:

1. During cranking engine gets hold and shut down automatically within 180 seconds.

Low Water Pressure Button in EPD Tripping (HHP Loco)

2. During running engine will shut down immediately if the engine speed is above third notch.
3. If engine speed is below third notch engine will shut down automatically within 180 seconds.

Message in Display:

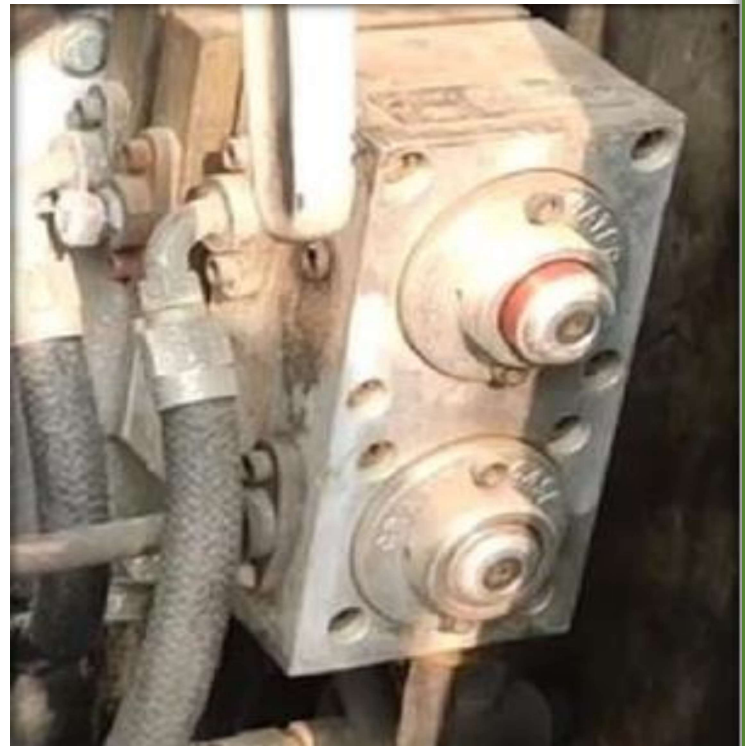
Normally no separate message. When it trips engine lube oil going to the LLOB are drained to lube oil sump, leads LLOB tripping and message generated for LLOB Trip.

Action to be Taken by LP:

1. Ascertain the reason, reset LLOB and Low Water Button.
2. Ensure Low Water Button test COC is in open then re-crank the loco.
3. If repeats inform shed.



LWP-EPD Normal Position



LWP-EPD Trip Position

Crankcase button in EPD Tripping (HHP Loco)

Engine Protection Device (EPD):- It is located on engine Accessory Room

Indications:

1. During cranking engine gets hold and shut down automatically within 180 seconds.
2. During running engine will shut down immediately if the engine speed is above third notch.
3. If engine speed is below third notch will shut down automatically within 180 seconds.

Message in Display:

Normally no separate message. When it trips engine lube oil going to the LLOB are drained, leads LLOB tripping and message generated for LLOB Trip.

Action to be Taken by LP:

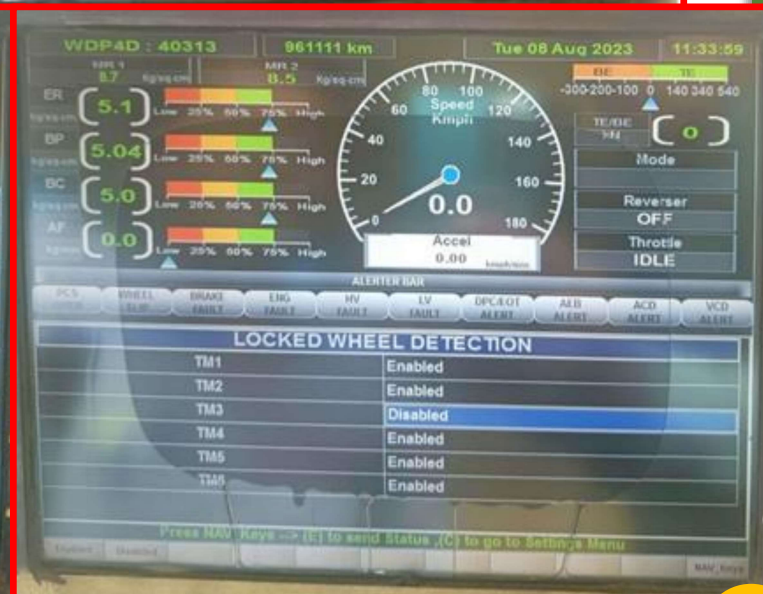
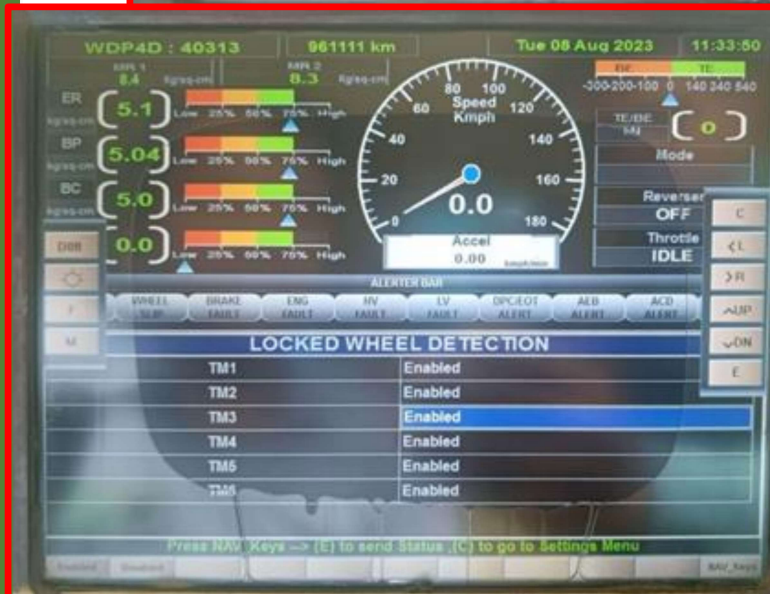
1. Do not crank the loco.
2. Immediately inform to shed.



CC-EPD Normal Position

TM Sensor isolation in case of Axle Lock (HHP loco)

1. Stop the train & Secured the control console.
2. Select Main Menu on Display Screen
3. Go to the Settings – select Locked Wheel Detection (press)
4. Select the defective sensor by ↑&↓Arrow key and Disable by Right →Arrow key
5. Press Enter (E) key to change sensor status.
6. Press C- to again main Menu.



L & T Switch Position & Use (HHP Loco)

Location:- L&T Switch Located on driver desk in Loco pilot cab.

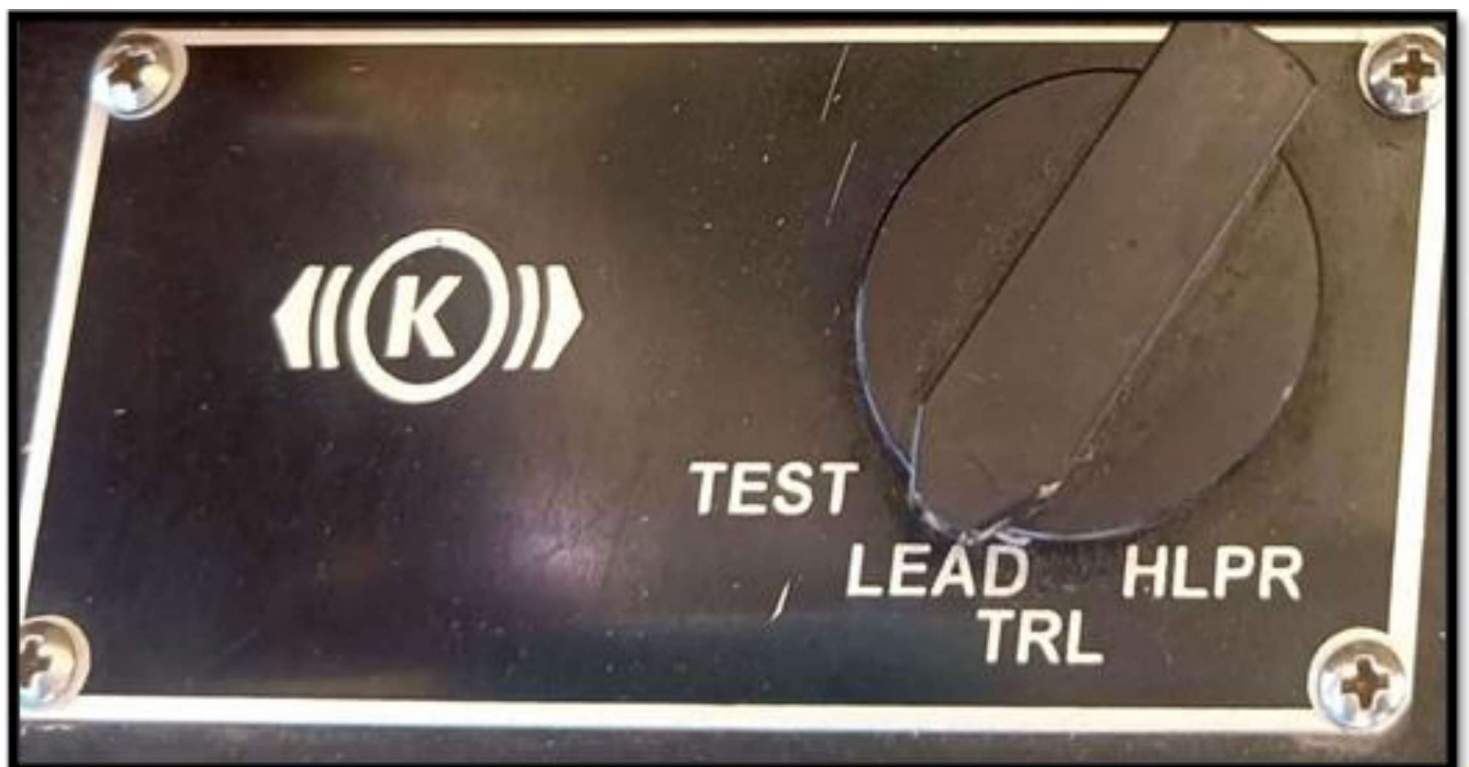
TEST:-

1. EQ Pressure is maintained to 5.2Kg/Cm². (Even if BP Pressure is 0)
2. BC Pressure builds up to 5.2 Kgcm². (Even if the DIR Brake handle is in Release condition.)

LEAD:- (Working Control Console) Auto Brake and Auto Brake and Independent Brake will work.

TRAIL:- (Non-Working Control Stand) Auto Brake will not work except in Emergency Position, and DIR Brake will not function.

HLPR:- Auto Brake will not work except in Emergency Position, and DIR Brake will be function Normally.



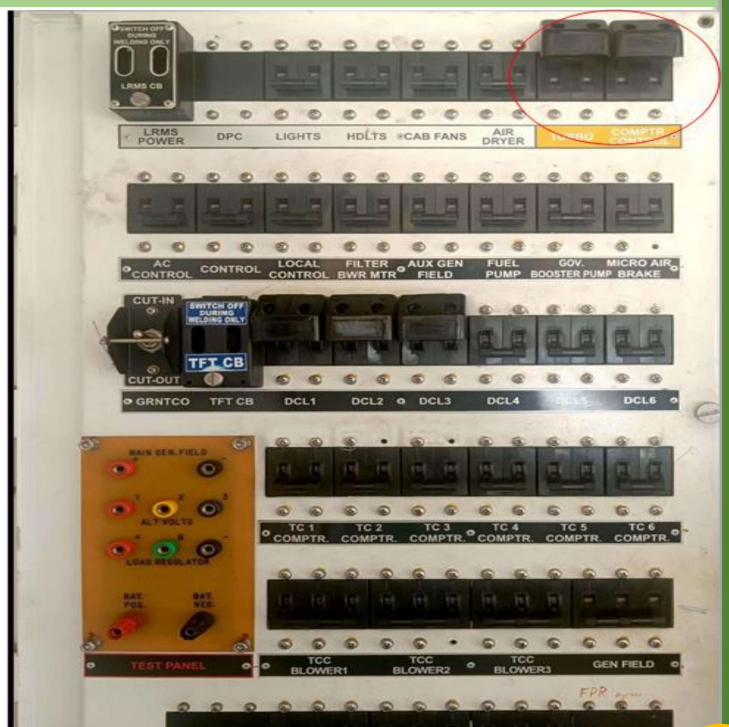
Recycle of TCC (HHP LOCO)

1. Stop the train & Secured the control console.
2. Switch OFF computer circuit breaker (Yellow Color) (ECC-1 Loco pilot cab)
3. Switch OFF concern TCC circuit breaker (ECC-1 Loco pilot cab)
4. Wait for 30 sec
5. Switch ON concern TCC circuit breaker (ECC-1 Loco pilot cab)
6. Switch ON computer circuit breaker (Yellow Color)) (ECC-1 Loco pilot cab)
7. Recover penalty.



Recycle of LCC (HHP LOCO)

1. Stop the train & Secured the control console.
2. Switch OFF computer circuit breaker (Yellow Color) (ECC-1 Loco pilot cab)
3. Wait for 30 sec
4. Switch ON computer circuit breaker (Yellow Color) (ECC-1 Loco pilot cab)
5. Recover penalty



GF Switch Position on Cab Changing (HHP Loco)

1. Stop the train & Secured the control console.
2. GF Switch ON in Active Cab (which is provide on control desk in loco pilot cab)
3. GF Switch OFF in Non-Active Cab (which is provide on control desk in loco pilot cab)

Note:- Single cab loco – GF Switch provide on Control console-2 in loco pilot cab

Active Cab

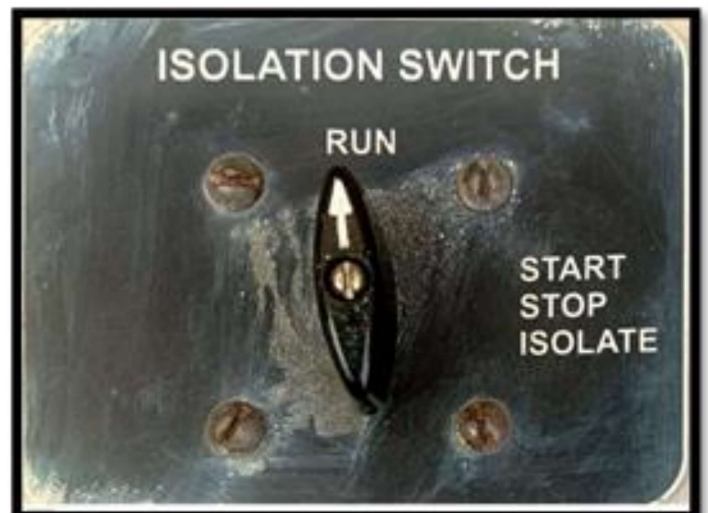


Non-active Cab



Load Meter not responding (Tractive Effort meter) (HHP Loco)

1. Isolation switch should be RUN position, (In Dual cab both Isolation switch should be RUN position) (ECP panel in Loco pilot cab)



Load Meter not responding (Tractive Effort meter) (HHP Loco)

- Any Fault message on Display, Troubleshooting accordingly.
- Any circuit breaker trip (ECC-1&2) (Loco pilot cab ECC-1 & (Under Truck –ECC-2)

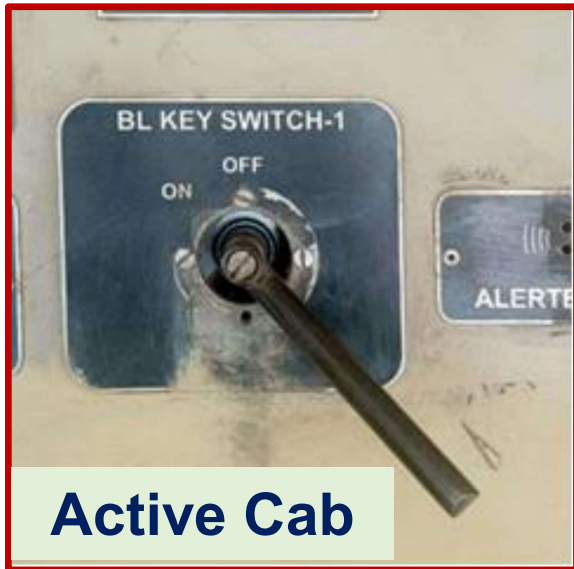


- ER & GF Slide switch ON position (In Dual Cab loco - Active cab ER & GF switch ON , Inactive cab must be OFF) (provide on control desk in loco pilot cab)
- GFCB circuit breaker ON position (In Dual Cab loco - Active cab GFCB ON , Inactive cab must be OFF) (provide on ECC-4 in loco pilot cab)



Load Meter not responding (Tractive Effort meter) (HHP Loco)

6. In Dual cab loco active cab BL key in ON position, Other cab must be OFF position (Single cab Locomotive BL key not provide) (provide on ECP panel in loco pilot cab)



7. Reverser handle should be F/R (loco pilot cab)
8. Open throttle loco should shows tractive effort meter



Radiator Fan Circuit Breaker (HHP Loco)

Location:-ECC-3- This cabinet is mounted on the right side locomotive. RFCB-1&2

While working a train with HHP loco, due to any reason if radiator fan circuit breaker tripped, then immediately operate throttle to 'IDLE' position. Stop the train at suitable location and reset circuit breaker as per proper procedure.

Resetting procedure of radiator fan circuit breaker:

1. Secure control console (TH-Idle, Rev.-Neutral, ER & GF-off, Isolation switch-Isolate).
2. Radiator fan circuit breaker provided in ECC3 compartment.
3. Operate tripped circuit breaker to 'OFF' and then operate to 'ON'.
4. Check water temperature, if more than 86°C then check fans are working.

Action to be taken by LP:-

Check Radiator fans working. Check for any RFCB tripping.

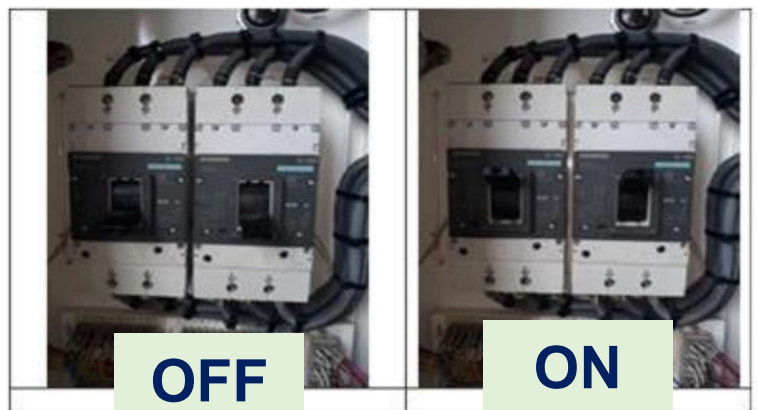
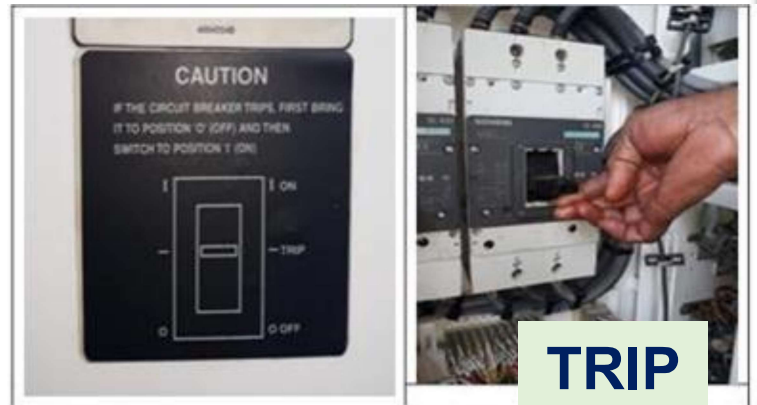
Check the faults related to fan contactors and

do self-tests of fan contactors.

How to reset circuit breaker:-

1. OFF the circuit breaker (press down proper off position)

Then move ON position (move up side ON position proper)



COC position in HHP LOCO (HHP Loco)

Single Cab Loco :-

All cock both end right side
(BC Eq, BP Add. coc, FP
Add coc, MR Eq,)



Single Cab Loco

Dual Cab Loco:-

Cab-1 side under
truck:- LP side BC Eq,
MR Eq.

ALP side BC Eq, BP
Add. coc, FP Add coc,
MR Eq.



Cab-1 ALP Side

Cab-2 side under truck:

LP side FP Add. coc, MR
Eq, BC Eq

ALP side BP Add. coc,
MR Eq, BC Eq



Cab-2 ALP Side

COC Position in HHP LOCO (HHP Loco)

Single Cab Loco:-

All cock both end right side
(BC Eq, BP Add. coc, FP
Add coc, MR Eq.)



Single Cab Loco

Dual cab Loco:-

Cab-1 side under truck:-

LP side BC Eq, MR Eq.

ALP side BC Eq, BP Add. coc, FP Add. coc, MR Eq.



Cab-1 LP Side



Cab-1 ALP Side

Cab-2 side under truck:-

LP side FP Add. coc, MR Eq, BC Eq ALP side BP Add.
coc, MR Eq, BC Eq.



Cab-2 LP Side



Cab-2 ALP Side