

List of Circuit Breakers

Location-LV cubicle

S.No.	CB Number	CB Name	Description
1	14Q01	CB. EBL1FSD	E-block-1 fire & smoke detection
2	14Q02	CB. EBL2FSD	E-block-2 fire & smoke detection
3	14Q03	CB. HVCFSD	High voltage cubicle fire & smoke detection
4	14Q04	CB.FSD Loop	Fire & smoke detection loop
5	14Q05	CB.SD	Smoke detector
6	23Q01	CB.15MinLIG	Interior lighting control
7	23Q02	CB. MACLIG_1	Machine room lighting-1
8	23Q03	CB. CABLIG	Cab lighting
9	23Q04	CB. MACLIG_2	Machine room lighting-2
10	23Q05	CB. Signal Box	Indicator panel
11	24Q01	CB. HVAC	Heating ventilation & air conditioning
12	41Q01	CB.CPL	Coupler
13	51Q01	CB. ZSEC_1	HV disconnection section-1
14	51Q02	CB. PANTO	Pantograph control
15	51Q03	CB.HHT	HHT isolation switch control
16	51Q04	CB. AUX CPR	Auxiliary compressor
17	51Q06	CB. ZSEC_2	HV disconnection section-2
18	51Q07	CB.BVR	Grounding device
19	52Q02	CB. BATVOLTAGE	Battery voltage
20	52Q03	CB.EFD	Earth fault detection
21	52Q04	CB.BA	Battery
22	52Q05	CB. BATCutOff	Battery start up
23	52Q06	CB. PERMANENT	Battery distribution
24	52Q07	CONTACTOR CONTROL CB_1	Workshop contactor control
25	52Q08	CB. DC Converter_2	24 v dc distribution
26	52Q09	CB. DC Converter_1	24 v dc distribution
27	52Q10	CB. LVCFANS_1	Low voltage cubicle fans
28	52Q11	CB.110VDCTL	Battery monitoring
29	52Q18	CB.110VDCTL	Battery distribution
30	52Q12	CB. LVCFANS_2	Low voltage cubicle fans
31	52Q13	CB. CREW FAN_1	Crew fan
32	52Q14	CB. CREW FAN_2	Crew fan

S.No.	CB Number	CB Name	Description
33	52Q15	CONTACTOR CONTROL CB_2	Workshop contactor control
34	52Q16	CB. Dehumidifier 1	Dehumidifier control
35	52Q17	CB. Dehumidifier 2	Dehumidifier control
36	54Q01	CB. CMPR	Compressor control
37	54Q02	CB. DRYER	Air dryer
38	61Q01	CB. TCUAUTH	Traction authorisation
39	61Q02	CB. TCU1_1	Electronic supply for e-block
40	61Q03	CB. TCU2_1	Electronic supply for e-block
41	61Q04	CB. TCU1_2	Electronic supply for e-block
42	61Q05	CB. TCU2_2	Electronic supply for e-block
43	61Q06	CB. VCBLoop	Main circuit breaker control_1
44	61Q08	CB.VCB	Main circuit breaker control_5
45	61Q09	CB. HARMONIC FILTER	Brio inputs
46	61Q10	CB.MC_1	Master controller
47	61Q11	CB.MC_2	Master controller
48	61Q13	CB. Zero Speed	Zero speed detection
49	62Q02	EB DETECTION CB	Emergency brake detection
50	62Q03	CB. EmBrValve	Emergency brake safety loop_1
51	62Q04	CB. Sub-valve	Brake substitution valve control
52	62Q05	CB. PARKBRAKE	Parking brake application/release
53	62Q06	CB.BCM	Power supply to BCM
54	62Q07	CB.UB	Unintentional brakes
55	63Q01	CB.SAN	Sanding
56	72Q01	TRS Circuit Breaker	TRS connection
57	72Q02	CRS1 Circuit Breaker	Ethernet switch connections
58	72Q03	CRS 2 Circuit Breaker	Ethernet switch connections crs 2
59	72Q04	CRS 3 Circuit Breaker	Ethernet switch connections crs 3
60	72Q05	BRIO 1 Circuit Breaker	Brio power connections
61	72Q06	BRIO 1 Distribution CB	Brio power connections
62	72Q07	BRIO 2 Circuit Breaker	Brio power connections
63	72Q08	BRIO 2 Distribution CB	Brio power connections
64	72Q09	BRIO 3 Circuit Breaker	Brio power connections
65	72Q10	BRIO 3 Distribution CB	Brio power connections
66	72Q11	BRIO 4 Circuit Breaker	Brio power connections
67	72Q12	BRIO 4 Distribution CB	Brio power connections

S.No.	CB Number	CB Name	Description
68	72Q13	BRIO 5 Circuit Breaker	Brio power connections
69	72Q14	BRIO 5 Distribution CB	Brio power connections
70	72Q15	BRIO 6 Circuit Breaker	Brio power connections
71	72Q16	BRIO 6 Distribution CB	Brio power connections
72	72Q17	BRIO 7 Circuit Breaker	Brio power connections
73	72Q18	BRIO 7 Distribution CB	Brio power connections
74	72Q19	BRIO 8 Circuit Breaker	Brio power connections
75	72Q20	BRIO 8 Distribution CB	Brio power connections
76	72Q21	DDU MCB	Power supplies for MPU and DDU
77	72Q22	MPU MCB	Power supplies for MPU and DDU
78	74Q01	CB.CAB	Cab start up
79	74Q03	CB.DIR	Direction control
80	74Q04	CB. BUZZER	Cab buzzer
81	74Q05	CB. LineInd	Line indicator
82	74Q06	SS CB	Speed sensing
83	79Q01	CB.EVR	Voice digitization module
84	91Q01	CB.ML1	Marker light control
85	91Q02	CB.ML2	Marker light control
86	91Q03	CB.TL1	Tail light control
87	91Q04	CB.TL2	Tail light control
88	91Q05	CB. HL	Front head light control
89	91Q06	CB.HL1	Front head light control
90	91Q07	CB.HL2	Front head light control
91	91Q08	CB. FLASHER_1	Flasher light control
92	91Q09	CB. FLASHER_2	Flashlight control
93	93Q01	CB.NET BOX	Net box
94	24Q02	CB. FLAP ACTUATOR	Machine room flaps control

Location-High Voltage Cubicle

S. No	CB Number	CB Name	Description
1	52Q500	CC-VT-SM1-PV	Machine room blower1 low speed circuit breaker
2	52Q501	CC-VT-SM1-GV	Machine room blower1 high speed circuit breaker
3	52Q502	CC-VT-SM2-PV	Machine room blower2 low speed circuit breaker
4	52Q503	CC-VT-SM2-GV	Machine room blower2 high speed circuit breaker
5	52Q518	CC-VT-PSM1	Punction blower 1 circuit breaker
6	52Q519	CC-VT-PSM2	Punction blower 2 circuit breaker
7	52Q511	CC1-BCH-AUX	Battery charger module 1 circuit breaker
8	52Q512	CC2-BCH-AUX	Battery charger module 2 circuit breaker
9	52Q506	CC-CLM	HVAC circuit breaker
10	52Q507	CC-CPR	Main compressor circuit breaker
11	52Q504	CC-PC-PUP	230v socket circuit breaker
12	52Q508	CC(DIFF)AUX	230v socket differential protection circuit breaker
13	52Q509	CC-DY1	Spare
14	52Q505	CC-DY2	Spare
15	52Q521	CC-QUAI	Workshop supply circuit breaker
16	51Q505	CC1-TF2-PP	Circuit breaker for catenary sensing circuit
17	51Q506	CC2-TF2-PP	Circuit breaker for catenary sensing circuit
18	51Q507	CC3-TF2-PP	Circuit breaker for catenary sensing circuit

Location-E Block

S.No.	CB Number	CB Name	Description
1	61Q240	CC-PH	Transformer oil pump supply circuit breaker
2	61Q241	CC-PE	E-block water pump circuit breaker
3	61Q200	CC-VT-BM-PV	E-block blower low speed circuit breaker
4	61Q201	CC-VT-BM-GV	E-block blower high speed circuit breaker
5	61Q210	CC-VT-M-PV	Traction motor blower low speed circuit breaker
6	61Q211	CC-VT-M-GV	Traction motor blower high speed circuit breaker
7	61Q501	CC(AL)TCU	Control Supply Circuit Breaker of TCU
8	61Q503	CC(ALS)TCU	Circuit Breaker for TCU Outputs

Note: All the CBs are will remain towards the upper position in normal operation condition (i.e. in “ON” condition) and will trip to downward position (i.e. OFF condition) due to its functionality when in abnormal condition.

To reset any CB when found tripped during Operation, please follow the instructions as follows

- § Locate the tripped CB (i.e. shifted to down from its normal position)
- § Switch ON the tripped CB (re cycle) and ensure it holds in normal position.
- § if it trips again immediately after it is switched ON, (re-cycled), don't attempt to switch it on(re-cycle) again as maintenance intervention is necessary.

CBs can be reset (re-cycled) only once by the Loco Pilot.

16. FAULT DIAGNOSTICS AND TROUBLE SHOOTING

Function	Description
AIR	Provide pneumatic energy
APC	Passengers counting
ATC	Automatic train control
BOG	Track (bogie)
BRK	Manage mechanical brake
CDD	Control & Diagnostic Display
CLM	Provide proper climate with HVAC
CPL	Enable flexible configuration or towing
DRS	Provide access by external door
DRV	DRV - Manage train modes and allow main control
DSF	Deadman
EAS	External Access Surveillance
EBR	Track brake
ESG	External lights signalling
FSD	Protect against fire
HVS	Provide high voltage energy
JRU	Juridical recorder Unit
LIG	Provide interior lighting
MAS	Maintenance Assistance
MVS	Provide energy for aux and batteries
PAI	Provide public address and info
SAN	Sanding
SFT	Safety train
TBS	Manage propulsion

S.N o.	IOS No.	Function °	Effect	Action to be taken
1.	IOS1401	FSD – Protect against fire	IOS1401: Fire detected in E-Block-1 of section-1.	Press Fire Ack push button and check for fire. If no fire present, reset CB 14Q01 in LVC of section-1 and continue. In case of presence of fire, activate fire extinguisher from CCR of section-1 and follow IR fire safety norms.
2.	IOS1402	FSD – Protect against fire	IOS1402: Frequent Fire detected in E-Block-1 of section-1.	Press Fire Ack push button and check for fire. If no fire- Bypass Fire Detection in CCR of section-1. Call TLC for corrective maintenance at end of trip. In case of fire, activate fire extinguisher from CCR of section-1 and follow IR fire safety norms.
3.	IOS1403	FSD – Protect against fire	IOS1403: Fire detected in E-Block-2 of section-1.	Press Fire Ack push button and check for fire. If no fire present, reset CB 14Q02 in LVC of section-1 and continue. In case of presence of fire, activate fire extinguisher from CCR of section-1 and follow IR fire safety norms.
4.	IOS1404	FSD – Protect against fire	IOS1404: Frequent Fire detected in E-Block-2 of section-1.	Press Fire Ack push button and check for fire. If no fire- Bypass Fire Detection in CCR of section-1. Call TLC for corrective maintenance at end of trip. In case of fire, activate fire extinguisher from CCR of section-1 and follow IR fire safety norms.
5.	IOS1405	FSD – Protect against fire	IOS1405: Fire detected in the HV cubicle of section 1.	Press Fire Ack push button and check for fire. If no fire present, reset CB 14Q03 in LVC of section-1 and continue. In case of presence of fire, activate fire extinguisher from CCR of section-1 and follow IR fire safety norms.
6.	IOS1406	FSD – Protect against fire	IOS1406: Frequent Fire detected in HV cubicle of section 1.	Press Fire Ack push button and check for fire. If no fire- Bypass Fire Detection in CCR of section-1. Call TLC for corrective maintenance at end of trip. In case of fire, activate fire extinguisher from CCR of section-1 and follow IR fire safety norms.
7.	IOS1407	FSD – Protect against fire	IOS1407: Fire detected in E-Block-1 of section-2.	Press Fire Ack push button and check for fire. If no fire present, reset CB 14Q01 in LVC of section-2 and continue. In case of presence of fire, activate fire extinguisher from CCR of section-2 and follow IR fire safety norms.

8.	IOS1408	FSD – Protect against fire	IOS1408: Frequent Fire detected in E-Block-1 of section-2.	Press Fire Ack push button and check for fire. If no fire- Bypass Fire Detection in CCR of section-2. Call TLC for corrective maintenance at end of trip. In case of fire, activate fire extinguisher from CCR of section-2 and follow IR fire safety norms.
9.	IOS1409	FSD – Protect against fire	IOS1409: Fire detected in E-Block-2 of section-2.	Press Fire Ack push button and check for fire. If no fire present, reset CB 14Q02 in LVC of section-2 and continue. In case of presence of fire, activate fire extinguisher from CCR of section-2 and follow IR fire safety norms.
10.	IOS1410	FSD – Protect against fire	IOS1410: Frequent Fire detected in E-Block-2 of section-2.	Press Fire Ack push button and check for fire. If no fire- Bypass Fire Detection in CCR of section-2. Call TLC for corrective maintenance at end of trip. In case of fire, activate fire extinguisher from CCR of section-2 and follow IR fire safety norms.
11.	IOS1411	FSD – Protect against fire	IOS1411: Fire detected in the HV cubicle of section 2.	Press Fire Ack push button and check for fire. If no fire present, reset CB 14Q03 in LVC of section-2 and continue. In case of presence of fire, activate fire extinguisher from CCR of section-2 and follow IR fire safety norms.
12.	IOS1412	FSD – Protect against fire	IOS1412: Frequent Fire detected in HV cubicle of section 2.	Press Fire Ack push button and check for fire. If no fire- Bypass Fire Detection in CCR of section-2. Call TLC for corrective maintenance at end of trip. In case of fire, activate fire extinguisher from CCR of section-2 and follow IR fire safety norms.
13.	IOS1413	FSD – Protect against fire	IOS1413: Fire Alarm Ack push button pressed for longer than 5 sec in section 1.	If this is unintended, then push button may have been stuck in the pressed state. As a result, Fire buzzer will no longer be available.
14.	IOS1414	FSD – Protect against fire	IOS1414: CB 14Q04 and/or 14Q05 for fire detection tripped in section-1.	Reset CB(s) 14Q04 and/or 14Q05 in LVC of section-1 before continuing further. Do not reset if CB has tripped frequently.
15.	IOS1415	FSD – Protect against fire	IOS1415: Fire Alarm Ack push button pressed for longer than 5 sec in section 2.	If this is unintended, then push button may have been stuck in the pressed state. As a result, Fire buzzer will no longer be available.

16.	IOS1416	FSD – Protect against fire	IOS1416: CB 14Q04 and/or 14Q05 for fire detection tripped in section 2.	Reset CB(s) 14Q04 and/or 14Q05 in LVC of section-2 before continuing the mission.
17.	IOS1417	FSD – Protect against fire	IOS1417: Smoke detected in either section.	Check machine room and cabs of both sections for presence of smoke. In case of no smoke, remove the faulty smoke detector (status LED continuous glowing) and continue. In case of presence of smoke, follow IR fire safety norms.
18.	IOS1418	FSD – Protect against fire	IOS1418: Loss of fire detection in E-Block-1 of section-1.	Fire in E-Block-1 of section-1 can no longer be detected due to TCMS communication loss. Call TLC for corrective maintenance at the end of trip.
19.	IOS1419	FSD – Protect against fire	IOS1419: Loss of fire detection in E-Block-1 of section-2.	Fire in E-Block-1 of section-2 can no longer be detected due to TCMS communication loss. Call TLC for corrective maintenance at the end of trip.
20.	IOS1420	FSD – Protect against fire	IOS1420: Loss of fire detection in E-Block-2 of section-1.	Fire in E-Block-2 of section-1 can no longer be detected due to TCMS communication loss. Call TLC for corrective maintenance at the end of trip.
21.	IOS1421	FSD – Protect against fire	IOS1421: Loss of fire detection in E-Block-2 of section-2.	Fire in E-Block-2 of section-2 can no longer be detected due to TCMS communication loss. Call TLC for corrective maintenance at the end of trip.
22.	IOS1422	FSD – Protect against fire	IOS1422: Loss of fire detection in HV cubicle of section 1.	Fire in HV cubicle of section-1 can no longer be detected due to TCMS communication loss. Call TLC for corrective maintenance at the end of trip.
23.	IOS1423	FSD – Protect against fire	IOS1423: Loss of fire detection in HV cubicle of section 2.	Fire in HV cubicle of section-2 can no longer be detected due to TCMS communication loss. Call TLC for corrective maintenance at the end of trip.
24.	IOS2401	CLM – Provide proper climate	IOS2401: CB 24Q01 for HVAC tripped in section 1.	Reset CB 24Q01 in LVC of section-1 to enable HVAC functionality.
25.	IOS2402	CLM – Provide proper climate	IOS2402: HVAC unavailable due to CB 24Q01 frequent tripping in section 1.	Do not reset CB and continue. HVAC needs corrective action during scheduled maintenance.
26.	IOS2403	CLM – Provide proper climate	IOS2403: CB 24Q01 for HVAC tripped in section 2.	Reset CB 24Q01 in LVC of section-2 to enable HVAC functionality.
27.	IOS2404	CLM – Provide proper climate	IOS2404: HVAC unavailable due to CB 24Q01 frequent tripping in section 2.	Do not reset CB and continue. HVAC needs corrective action during scheduled maintenance.

28.	IOS2405	CLM – Provide proper climate	IOS2405: Loss of Machine Room temperature in section-1.	No operational impact. Call TLC for corrective action during scheduled maintenance.
29.	IOS2406	CLM – Provide proper climate	IOS2406: Loss of Machine Room temperature in section-2.	No operational impact. Call TLC for corrective action during scheduled maintenance.
30.	IOS2409	CLM – Provide proper climate	IOS2409: End wall left hand side flaps cannot be closed automatically in section-1.	Close the flaps manually.
31.	IOS2410	CLM – Provide proper climate	IOS2410: End wall right hand side flaps cannot be closed automatically in section-1.	Close the flaps manually.
32.	IOS2411	CLM – Provide proper climate	IOS2411: Roof flaps cannot be closed automatically in section 1.	Close the flaps manually.
33.	IOS2413	CLM – Provide proper climate	IOS2413: End wall left hand side flaps cannot be opened automatically in section 1.	Open the flaps manually
34.	IOS2414	CLM – Provide proper climate	IOS2414: Roof flaps cannot be opened automatically in section 1.	Open the flaps manually.
35.	IOS2415	CLM – Provide proper climate	IOS2415: Loss of Machine Room humidity sensor in section 1.	No operational impact. Call TLC for corrective action during scheduled maintenance.
36.	IOS2416	CLM – Provide proper climate	IOS2416: Loss of Machine Room humidity sensor in section 2.	No operational impact. Call TLC for corrective action during scheduled maintenance.
37.	IOS2419	CLM – Provide proper climate	IOS2419: End wall left hand side flaps cannot be closed automatically in section 2.	Close the flaps manually.
38.	IOS2420	CLM – Provide proper climate	IOS2420: End wall right hand side flaps cannot be closed automatically in section 2.	Close the flaps manually.
39.	IOS2421	CLM – Provide proper climate	IOS2421: Roof flaps cannot be closed automatically in section 2.	Close the flaps manually.

40.	IOS2423	CLM – Provide proper climate	IOS2423: End wall left hand side flaps cannot be opened automatically in section 2.	Open the flaps manually.
41.	IOS2424	CLM – Provide proper climate	IOS2424: Roof flaps cannot be opened automatically in section 2.	Open the flaps manually.
42.	IOS2425	CLM – Provide proper climate	IOS2425: End wall right hand side flaps cannot be opened automatically in section 1.	Open the flaps manually.
43.	IOS4101	CPL – Manage Coupling	IOS4101: CB 41Q01 for coupling relay tripped in section 1.	Reset CB 41Q01 in LVC of section-1 and continue.
44.	IOS4102	CPL – Manage Coupling	IOS4102: CB 41Q01 for coupling relay tripped frequently in section 1.	Do not reset CB. Loss of coupling detection function. Loss of multiple unit functionality. No impact in functionality when in single locomotive configuration.
45.	IOS4103	CPL – Manage Coupling	IOS4103: CB 41Q01 for coupling relay tripped in section 2.	Reset CB 41Q01 in LVC of section-2 and continue.
46.	IOS4104	CPL – Manage Coupling	IOS4104: CB 41Q01 for coupling relay tripped frequently in section 2.	Do not reset CB. Loss of coupling detection function. Loss of multiple unit functionality. No impact in functionality when in single locomotive configuration.
47.	IOS4105	CPL – Manage Coupling	IOS4105: Section parting detected.	Check pneumatic and electric connection between two sections to confirm section parting. Follow IR locomotive parting norms if section parting is confirmed.
48.	IOS5101	HVS – High Voltage Systems	IOS5101: Critical failure in Emergency Panto Down function in section 1.	Switch to other pantograph using Panto Selector Switch in the CCR of active section. Call TLC for corrective maintenance at the end of trip.
49.	IOS5102	HVS – High Voltage Systems	IOS5102: Critical failure in Emergency Panto Down function in section 2.	Switch to other pantograph using Panto Selector Switch in the CCR of active section. Call TLC for corrective maintenance at the end of trip.

50.	IOS5103	HVS – High Voltage Systems	IOS5103: VCB open and pantograph of section-1 cannot be raised.	Loss of traction and braking effort in section 1. Put Panto Toggle Switch in BOTH position and run with 50% power till next station. Call TLC for corrective maintenance at next station.
51.	IOS5104	HVS – High Voltage Systems	IOS5104: VCB open and pantograph of section-2 cannot be raised.	Loss of traction and braking effort in section 2. Put Panto Toggle Switch in BOTH position and run with 50% power till next station. Call TLC for corrective maintenance at next station.
52.	IOS5105	HVS – High Voltage Systems	IOS5105: Critical failure in VCB of section 1.	Switch to other pantograph using Panto Selector Switch in the CCR of active section. Call TLC for corrective maintenance at the end of trip.
53.	IOS5106	HVS – High Voltage Systems	IOS5106: Critical failure in VCB of section 2.	Switch to other pantograph using Panto Selector Switch in the CCR of active section. Call TLC for corrective maintenance at the end of trip.
54.	IOS5107	HVS – High Voltage Systems	IOS5107: VCB opened due to traction system failure in section 1.	Loss of traction and braking effort in section 1. Put Panto Selector Switch in CCR of active section in BOTH position and raise pantograph to run with 50% power till next station. Call TLC for corrective maintenance at next station.
55.	IOS5108	HVS – High Voltage Systems	IOS5108: VCB opened due to traction system failure in section 2.	Loss of traction and braking effort in section 2. Put Panto Selector Switch in CCR of active section in BOTH position and raise pantograph to run with 50% power till next station. Call TLC for corrective maintenance at next station.
56.	IOS5109	HVS – High Voltage Systems	IOS5109: Pantograph of section-1 cannot be raised due to H(H-T) failure.	Loss of traction and braking effort in section 1. Call TLC for corrective maintenance at next station.
57.	IOS5110	HVS – High Voltage Systems	IOS5110: Pantograph of section-2 cannot be raised due to H(H-T) failure.	Loss of traction and braking effort in section 1. Call TLC for corrective maintenance at next station.
58.	IOS5111	HVS – High Voltage Systems	IOS5111: Unable to close H(H-T) in section-1.	Put Panto Selector Switch in CCR of active section in BOTH position and continue with both pantographs raised.
59.	IOS5112	HVS – High Voltage Systems	IOS5112: Unable to close H(H-T) in section-2.	Put Panto Selector Switch in CCR of active section in BOTH position and continue with both pantographs raised.

60.	IOS5113	HVS – High Voltage Systems	IOS5113: Unable to detect HV with the pantograph of section 1.	Check physically if the pantograph of section-1 is raised. If yes, there can be possible OHE fault. If no, select the pantograph of section-2 from the CCR of active section.
61.	IOS5114	HVS – High Voltage Systems	IOS5114: Unable to detect HV with the pantograph of section 2.	Check physically if the pantograph of section-2 is raised. If yes, there can be possible OHE fault. If no, select the pantograph of section-1 from the CCR of active section.
62.	IOS5115	HVS – High Voltage Systems	IOS5115: Failure of Panto Toggle Switch detected in active section.	Raise/Lower pantograph using DDU screen.
63.	IOS5116	HVS – High Voltage Systems	IOS5116: Failure of Panto Selector Switch detected in active section.	Select pantograph using DDU screen.
64.	IOS5120	HVS – High Voltage Systems	IOS5120: Panto cannot be raised as CB 51Q01 and/or 51Q06 tripped in both sections.	Reset CB 51Q01 and/or 51Q06 in the LV cubicle of both sections to raise pantograph.
65.	IOS5123	HVS – High Voltage Systems	IOS5123: Failure of HV inter car jumper detected.	Put Panto Selector Switch in CCR of active section in BOTH position and raise pantograph to run with 50% power till next station. Call TLC for corrective maintenance at next station.
66.	IOS5201	MVS – Medium Voltage Systems	IOS5201: CB 52Q16 and/or 52Q17 for Dehumidifier tripped in section 1.	Reset CB 52Q16 and/or 52Q17 in the LV cubicle of section-1 to enable Dehumidifier operation.
67.	IOS5202	MVS – Medium Voltage Systems	IOS5202: CB 52Q16 and/or 52Q17 for Dehumidifier tripped in section 2.	Reset CB 52Q16 and/or 52Q17 in the LV cubicle of section-2 to enable Dehumidifier operation.
68.	IOS5203	MVS – Medium Voltage Systems	IOS5203: Machine room blower 1 in section-1 Low speed fault.	Call TLC for corrective maintenance at the end of trip.
69.	IOS5204	MVS – Medium Voltage Systems	IOS5204: Machine room blower 1 in section-1 High speed fault.	Call TLC for corrective maintenance at the end of trip.
70.	IOS5205	MVS – Medium Voltage Systems	IOS5205: Machine room blower 2 in section-1 Low speed fault.	Call TLC for corrective maintenance at the end of trip.
71.	IOS5206	MVS – Medium Voltage Systems	IOS5206: Machine room blower 2 in section-1 High speed fault.	Call TLC for corrective maintenance at the end of trip.

72.	IOS5207	MVS – Medium Voltage Systems	IOS5207: Machine room blower 1 in section-2 Low speed fault.	Call TLC for corrective maintenance at the end of trip.
73.	IOS5208	MVS – Medium Voltage Systems	IOS5208: Machine room blower 1 in section-2 High speed fault.	Call TLC for corrective maintenance at the end of trip.
74.	IOS5209	MVS – Medium Voltage Systems	IOS5209: Machine room blower 2 in section-2 Low speed fault.	Call TLC for corrective maintenance at the end of trip.
75.	IOS5210	MVS – Medium Voltage Systems	IOS5210: Machine room blower 2 in section-2 High speed fault.	Call TLC for corrective maintenance at the end of trip.
76.	IOS5211	MVS – Medium Voltage Systems	IOS5211: CB 52Q511 and 52Q512 for Battery charger tripped in section 1.	Reset CB 52Q511 and 52Q512 in the HV cubicle of section-1 to enable Battery charger operation.
77.	IOS5212	MVS – Medium Voltage Systems	IOS5212: CB 52Q511 and 52Q512 for Battery charger tripped in section 2.	Reset CB 52Q511 and 52Q512 in the HV cubicle of section-2 to enable Battery charger operation.
78.	IOS5213	MVS – Medium Voltage Systems	IOS5213: CB 52Q10 and/or 52Q12 for LV Cubicle Fans tripped in section 1.	Reset CB 52Q10 and/or 52Q11 in LVC of section-1 to enable LV cubicle fan operation.
79.	IOS5214	MVS – Medium Voltage Systems	IOS5214: CB 52Q10 and/or 52Q12 for LV Cubicle Fans tripped in section 2.	Reset CB 52Q10 and/or 52Q11 in LVC of section-2 to enable LV cubicle fan operation.
80.	IOS5215	MVS – Medium Voltage Systems	IOS5215: CB 52Q11 for 110V DC permanent train line tripped in section 1.	Do not reset and continue. Call TLC for corrective maintenance at the end of trip.
81.	IOS5216	MVS – Medium Voltage Systems	IOS5216: CB 52Q11 for 110VDC permanent train line tripped in section 2.	Do not reset and continue. Call TLC for corrective maintenance at the end of trip.
82.	IOS5217	MVS – Medium Voltage Systems	IOS5217: CB 52Q07 for Workshop Contactor control tripped in section 1.	Reset CB 52Q07 in LVC of section-1 to enable workshop supply mode.
83.	IOS5218	MVS – Medium Voltage Systems	IOS5218: CB 52Q15 for Workshop Contactor control tripped in section 1.	Reset CB 52Q15 in LVC of section-1 to enable workshop supply mode.

84.	IOS5219	MVS – Medium Voltage Systems	IOS5219: CB 52Q07 for Workshop Contactor control tripped in section 2.	Reset CB 52Q07 in LVC of section-2 to enable workshop supply mode.
85.	IOS5220	MVS – Medium Voltage Systems	IOS5220: CB 52Q15 for Workshop Contactor control tripped in section 2.	Reset CB 52Q15 in LVC of section-2 to enable workshop supply mode.
86.	IOS5221	MVS – Medium Voltage Systems	IOS5221: CB 52Q506 for HVAC power supply tripped in section 1.	Reset CB 52Q506 in the HV cubicle of section-1 to enable HVAC operation.
87.	IOS5222	MVS – Medium Voltage Systems	IOS5222: CB 52Q506 for HVAC power supply tripped in section 2.	Reset CB 52Q506 in the HV cubicle of section-2 to enable HVAC operation.
88.	IOS5223	MVS – Medium Voltage Systems	IOS5223: 110V Earth Fault detected in section 1.	No operational impact. Call TLC for corrective maintenance at the end of trip.
89.	IOS5224	MVS – Medium Voltage Systems	IOS5224: 110V Earth Fault detected in section 2.	No operational impact. Call TLC for corrective maintenance at the end of trip.
90.	IOS5225	MVS – Medium Voltage Systems	IOS5225: Unintended energizing of Workshop contactor detected in section 1.	Possible false energisation of workshop contactor (C-QUAI). Check C-QUAI (52KC521) and replace if needed before entering into Maintenance Mode.
91.	IOS5226	MVS – Medium Voltage Systems	IOS5226: Unintended energizing of Workshop contactor detected in section 2.	Possible false energisation of workshop contactor (C-QUAI). Check C-QUAI (52KC521) and replace if needed before entering into Maintenance Mode.
92.	IOS5227	MVS – Medium Voltage Systems	IOS5227: CB 52Q02 for Battery Voltmeter tripped in section 1.	Reset CB 52Q02 in LVC of section-1 to enable battery voltmeter operation.
93.	IOS5228	MVS – Medium Voltage Systems	IOS5228: CB 52Q02 for Battery Voltmeter tripped in section 2.	Reset CB 52Q02 in LVC of section-2 to enable battery voltmeter operation.
94.	IOS5229	MVS – Medium Voltage Systems	IOS5229: Excess Battery Voltage (>130V) detected in section 1.	Disconnect the CC-BA from battery box of section-1.
95.	IOS5232	MVS – Medium Voltage Systems	IOS5232: CB 52Q04 for battery start up tripped in section 1.	Reset CB 52Q04 in LVC of section-1 to enable battery connect switch operation.

96.	IOS5233	MVS – Medium Voltage Systems	IOS5233: CB 52Q04 for battery start up tripped in section 2.	Reset CB 52Q04 in LVC of section-2 to enable battery connect switch operation.
97.	IOS5234	MVS – Medium Voltage Systems	IOS5234: Battery Start-up contactor failed to open in section 1.	Trip Battery Start Up CB 52Q18 in LVC of section-1 to disconnect 110V DC prepared line.
98.	IOS5235	MVS – Medium Voltage Systems	IOS5235: Battery Start-up contactor failed to open in section 2.	Trip Battery Start Up CB 52Q18 in LVC of section-2 to disconnect 110V DC prepared line.
99.	IOS5236	MVS – Medium Voltage Systems	IOS5236: Excess Battery Voltage (>130V) detected in section 2.	Disconnect the CC-BA from battery box of section-2.
100.	IOS5237	MVS – Medium Voltage Systems	IOS5237: Low Battery Voltage detected (<89V) in section 1.	Locomotive will shut down and cannot be restarted again if battery voltage drops below 82V.
101.	IOS5239	MVS – Medium Voltage Systems	IOS5239: Machine room blower 1 both speed failure in section 1.	50% degradation in machine room ventilation of section 1. Call TLC for corrective maintenance at the end of trip.
102.	IOS5240	MVS – Medium Voltage Systems	IOS5240: Machine room blower 2 both speed failure in section 1.	50% degradation in machine room ventilation of section 1. Call TLC for corrective maintenance at the end of trip.
103.	IOS5241	MVS – Medium Voltage Systems	IOS5241: Machine room blower 1 both speed failure in section 2.	50% degradation in machine room ventilation of section 2. Call TLC for corrective maintenance at the end of trip.
104.	IOS5242	MVS – Medium Voltage Systems	IOS5242: Machine room blower 2 both speed failure in section 2.	50% degradation in machine room ventilation of section 2. Call TLC for corrective maintenance at the end of trip.
105.	IOS5243	MVS – Medium Voltage Systems	IOS5243: Loss of 110V power supply in section 1. All traction and braking control lost in section 1.	Isolate Z01/1, Z01/2 cocks in section-1, EMER-COC (N55.05) cocks in both section's Brake Panel. Drive from section-2 with 50% traction, brakes with Panto Selector Switch in BOTH positions. Call TLC for corrective maintenance at next station.
106.	IOS5244	MVS – Medium Voltage Systems	IOS5244: Loss of 110V power supply in section-2 due to battery start-up failure.	Isolate Z01/1, Z01/2 cocks in section-2, EMER-COC (N55.05) cocks in both section's Brake Panel. Drive from section-1 with 50% traction, brakes with Panto Selector Switch in BOTH positions. Call TLC for corrective maintenance at next station.

107.	IOS5245	MVS – Medium Voltage Systems	IOS5245: Failure of Battery Connect Switch detected in active section.	Use DDU for locomotive shutdown operation.
108.	IOS5410	AIR – Provide Pneumatic Energy	IOS5410: Compressor cannot be shut down in section-1 due to contactor failure.	Trip compressor circuit breaker 54Q01 in LVC of section 1.
109.	IOS5411	AIR – Provide Pneumatic Energy	IOS5411: Compressor cannot be shut down in section-2 due to contactor failure.	Trip compressor circuit breaker 54Q01 in LVC of section 2.
110.	IOS5412	AIR – Provide Pneumatic Energy	IOS5412: Failure of Main Reservoir pressure sensor in section 1.	No operational impact. Call TLC for corrective action during scheduled maintenance.
111.	IOS5413	AIR – Provide Pneumatic Energy	IOS5413: Failure of Main Reservoir pressure sensor in section 2.	No operational impact. Call TLC for corrective action during scheduled maintenance.
112.	IOS6101	TBS – Provide propulsion & electrical brake	IOS6101: Zero Speed Relay erroneously energised in section 1.	No impact in locomotive operations. Call TLC for corrective maintenance at the end of trip.
113.	IOS6102	TBS – Provide propulsion & electrical brake	IOS6102: Loss of ED braking in both sections.	Put Zero Speed Bypass Switch in the CCR of active section in BYPASS position to restore ED brakes and continue. Call TLC for corrective maintenance at the end of trip.
114.	IOS6103	TBS – Provide propulsion & electrical brake	IOS6103: Failure of zero speed relay in non-active section.	No operational impact. Call TLC for corrective maintenance at the end of trip.
115.	IOS6104	TBS – Provide propulsion & electrical brake	IOS6104: Loss of ED braking in both sections.	Check CB 61Q13 in LVC both sections and if not tripped, Put Zero Speed Bypass Switch in the CCR of active section in BYPASS position to restore ED brakes and continue. Call TLC for corrective Maintenance at the end of trip.
116.	IOS6105	TBS – Provide propulsion & electrical brake	IOS6105: Error in Wheel Diameter inputs entry.	Re-enter the right diameter of wheels. Value should be between 1164mm-1250mm.
117.	IOS6106	TBS – Provide propulsion & electrical brake	IOS6106: Harmonic Filter Isolated.	No operational impact. Harmonic filter needs corrective action during scheduled maintenance.
118.	IOS6107	TBS – Provide propulsion & electrical brake	IOS6107: Non rotation of some of the Axles of the locomotive detected.	Stop and Inspect all the axles of the locomotive before continuing further.

119.	IOS6108	TBS – Provide propulsion & electrical brake	IOS6108: Excess ED generated by TCUs. ED effort limited to 400kN to ensure safety.	No operational impact. Call for TLC for corrective maintenance at the end of trip.
120.	IOS6109	TBS – Provide propulsion & electrical brake	IOS6109: Unintended Traction Authorisation.	Call for TLC for corrective maintenance at the end of trip.
121.	IOS6110	TBS – Provide propulsion & electrical brake	IOS6110: Zero Speed function failure due to TCU fault.	Call TLC for corrective maintenance at the end of trip.
122.	IOS6111	TBS – Provide propulsion & electrical brake	IOS6111: One Master Controller analogue channel failure.	No operational impact. Call TLC for corrective maintenance at the end of trip.
123.	IOS6112	TBS – Provide propulsion & electrical brake	IOS6112: Both the analogue channels of master controller are faulty in active section.	Put TBC Bypass switch in the CCR of active section in BYPASS position and use Virtual Master Controller on DDU to continue. Call TLC for corrective maintenance at the end of trip.
124.	IOS6113	TBS – Provide propulsion & electrical brake	IOS6113: Unable to close VCB due to failure in Overcurrent Protection 1 in section 1.	Loss of traction and braking effort in section 1. Put Panto Selector Switch in CCR of active section in BOTH position and raise pantograph to run with 50% power till next station. Call TLC for corrective maintenance at next station.
125.	IOS6114	TBS – Provide propulsion & electrical brake	IOS6114: Unable to close VCB due to failure in Overcurrent Protection 2 in section 1.	Loss of traction and braking effort in section 1. Put Panto Selector Switch in CCR of active section in BOTH position and raise pantograph to run with 50% power till next station. Call TLC for corrective maintenance at next station.
126.	IOS6115	TBS – Provide propulsion & electrical brake	IOS6115: CB 61Q01 for traction authorisation tripped frequently in active section.	Do not reset CB. Drive in reverse from other cab to clear the section. Call TLC for further assistance.
127.	IOS6116	TBS – Provide propulsion & electrical brake	IOS6116: Loss of Traction and ED brake in section 1.	Failure of traction authorisation relay in section 1. Loss of 50% Traction and ED effort. Call TLC for corrective maintenance at the end of trip.
128.	IOS6117	TBS – Provide propulsion & electrical brake	IOS6117: Loss of Traction and ED brake in section 2.	Failure of traction authorisation relay in section 2. Loss of 50% Traction and ED effort. Call TLC for corrective maintenance at the end of trip.

129.	IOS6118	TBS – Provide propulsion & electrical brake	IOS6118: Traction cannot be authorised due to master controller switch failure.	Put TBC Bypass switch in Bypass position and use Virtual Master Controller on DDU to continue. Call TLC for corrective maintenance at the end of trip.
130.	IOS6119	TBS – Provide propulsion & electrical brake	IOS6119: CB 61Q10 for Master controller tripped frequently in active section.	Do not reset CB. Master controller command from channel-2 is available. Call TLC for corrective maintenance at the end of trip.
131.	IOS6120	TBS – Provide propulsion & electrical brake	IOS6120: CB 61Q11 for Master controller tripped frequently in active section.	Do not reset CB. Master controller command from channel-1 is available. Call TLC for corrective maintenance at the end of trip.
132.	IOS6121	TBS – Provide propulsion & electrical brake	IOS6121: Zero Speed Relay erroneously energised in section 2.	No impact in locomotive operations. Call TLC for corrective maintenance at the end of trip.
133.	IOS6122	TBS – Provide propulsion & electrical brake	IOS6122: Unable to close VCB due to failure in Overcurrent Protection 1 in section 2.	Loss of traction and braking effort in section 2. Put Panto Selector Switch in CCR of active section in BOTH position and raise pantograph to run with 50% power till next station. Call TLC for corrective maintenance at next station.
134.	IOS6123	TBS – Provide propulsion & electrical brake	IOS6123: Unable to close VCB due to failure in Overcurrent Protection 2 in section 2.	Loss of traction and braking effort in section 2. Put Panto Selector Switch in CCR of active section in BOTH position and raise pantograph to run with 50% power till next station. Call TLC for corrective maintenance at next station.
135.	IOS6124	TBS – Provide propulsion & electrical brake	IOS6124: Failure of Constant Speed push button detected in active section.	Select constant speed mode using DDU screen.
136.	IOS6125	TBS – Provide propulsion & electrical brake	IOS6125: E-Block 11 isolated due to failure of its traction converter.	Loss of 12.5% traction and ED braking effort. Call TLC for corrective action during scheduled maintenance.
137.	IOS6126	TBS – Provide propulsion & electrical brake	IOS6126: E-Block 12 isolated due to failure of its traction converter.	Loss of 12.5% traction and ED braking effort. Call TLC for corrective action during scheduled maintenance.
138.	IOS6127	TBS – Provide propulsion & electrical brake	IOS6127: E-Block 21 isolated due to failure of its traction converter.	Loss of 12.5% traction and ED braking effort. Call TLC for corrective action during scheduled maintenance.

139.	IOS6128	TBS – Provide propulsion & electrical brake	IOS6128: E-Block 22 isolated due to failure of its traction converter.	Loss of 12.5% traction and ED braking effort. Call TLC for corrective action during scheduled maintenance.
140.	IOS6129	TBS – Provide propulsion & electrical brake	IOS6129: Traction motor overtemperature detected in axle 1 of bogie 1.	Drive the loco till next station and check traction motor and underframe for any abnormality. Call TLC for corrective action if needed.
141.	IOS6130	TBS – Provide propulsion & electrical brake	IOS6130: Traction motor overtemperature detected in axle 2 of bogie 1.	Drive the loco till next station and check traction motor and underframe for any abnormality. Call TLC for corrective action if needed.
142.	IOS6131	TBS – Provide propulsion & electrical brake	IOS6131: Traction motor overtemperature detected in axle 1 of bogie 2.	Drive the loco till next station and check traction motor and underframe for any abnormality. Call TLC for corrective action if needed.
143.	IOS6132	TBS – Provide propulsion & electrical brake	IOS6132: Traction motor overtemperature detected in axle 2 of bogie-2.	Drive the loco till next station and check traction motor and underframe for any abnormality. Call TLC for corrective action if needed.
144.	IOS6133	TBS – Provide propulsion & electrical brake	IOS6133: Traction motor overtemperature detected in axle 1 of bogie-3.	Drive the loco till next station and check traction motor and underframe for any abnormality. Call TLC for corrective action if needed.
145.	IOS6134	TBS – Provide propulsion & electrical brake	IOS6134: Traction motor overtemperature detected in axle 2 of bogie-3.	Drive the loco till next station and check traction motor and underframe for any abnormality. Call TLC for corrective action if needed.
146.	IOS6135	TBS – Provide propulsion & electrical brake	IOS6135: Traction motor overtemperature detected in axle 1 of bogie-4.	Drive the loco till next station and check traction motor and underframe for any abnormality. Call TLC for corrective action if needed.
147.	IOS6136	TBS – Provide propulsion & electrical brake	IOS6136: Traction motor overtemperature detected in axle 2 of bogie 4.	Drive the loco till next station and check traction motor and underframe for any abnormality. Call TLC for corrective action if needed.
148.	IOS6141	TBS – Provide propulsion & electrical brake	IOS6141: Electrical failure of 1 traction motor.	Loss of 12.5% traction and ED braking effort. Call TLC for corrective action during scheduled maintenance.
149.	IOS6142	TBS – Provide propulsion & electrical brake	IOS6142: E-Block 11 isolated due to failure of control electronics.	Loss of 12.5% traction and ED braking effort. Call TLC for corrective action during scheduled maintenance.
150.	IOS6143	TBS – Provide propulsion & electrical brake	IOS6143: E-Block 12 isolated due to failure of control electronics.	Loss of 12.5% traction and ED braking effort. Call TLC for corrective action during scheduled maintenance.

151.	IOS6144	TBS – Provide propulsion & electrical brake	IOS6144: E-Block 21 isolated due to failure of control electronics.	Loss of 12.5% traction and ED braking effort. Call TLC for corrective action during scheduled maintenance.
152.	IOS6145	TBS – Provide propulsion & electrical brake	IOS6145: E-Block 22 isolated due to failure of control electronics.	Loss of 12.5% traction and ED braking effort. Call TLC for corrective action during scheduled maintenance.
153.	IOS6152	TBS – Provide propulsion & electrical brake	IOS6152: Failure of Brake Pipe pressure sensor of E-Block 11.	No operational impact. Call TLC for corrective action during scheduled maintenance.
154.	IOS6153	TBS – Provide propulsion & electrical brake	IOS6153: Failure of Brake Pipe pressure sensor of E-Block 12.	No operational impact. Call TLC for corrective action during scheduled maintenance.
155.	IOS6154	TBS – Provide propulsion & electrical brake	IOS6154: Failure of Brake Pipe pressure sensor of E-Block 21.	No operational impact. Call TLC for corrective action during scheduled maintenance.
156.	IOS6155	TBS – Provide propulsion & electrical brake	IOS6155: Failure of Brake Pipe pressure sensor of E-Block 22.	No operational impact. Call TLC for corrective action during scheduled maintenance.
157.	IOS6160	TBS – Provide propulsion & electrical brake	IOS6160: Failure of ventilation blower of E-Block 11.	E-Block 11 would be isolated in case of over-temperature of its water loop. Call TLC for corrective action during scheduled maintenance.
158.	IOS6161	TBS – Provide propulsion & electrical brake	IOS6161: Failure of ventilation blower of E-Block 12.	E-Block 12 would be isolated in case of over-temperature of its water loop. Call TLC for corrective action during scheduled maintenance.
159.	IOS6162	TBS – Provide propulsion & electrical brake	IOS6162: Failure of ventilation blower of E-Block 21.	E-Block 21 would be isolated in case of over-temperature of its water loop. Call TLC for corrective action during scheduled maintenance.
160.	IOS6163	TBS – Provide propulsion & electrical brake	IOS6163: Failure of ventilation blower of E-Block 22.	E-Block 22 would be isolated in case of over-temperature of its water loop. Call TLC for corrective action during scheduled maintenance.
161.	IOS6164	TBS – Provide propulsion & electrical brake	IOS6164: Failure of traction motor blower of E-Block 11.	Traction motors of E-Block 11 would be isolated in case of over-temperature. Call TLC for corrective action during scheduled maintenance.
162.	IOS6165	TBS – Provide propulsion & electrical brake	IOS6165: Failure of traction motor blower of E-Block 12.	Traction motors of E-Block 12 would be isolated in case of over-temperature. Call TLC for corrective action during scheduled maintenance.

163.	IOS6166	TBS – Provide propulsion & electrical brake	IOS6166: Failure of traction motor blower of E-Block 21.	Traction motors of E-Block 21 would be isolated in case of over-temperature. Call TLC for corrective action during scheduled maintenance.
164.	IOS6167	TBS – Provide propulsion & electrical brake	IOS6167: Failure of traction motor blower of E-Block 22.	Traction motors of E-Block 22 would be isolated in case of over-temperature. Call TLC for corrective action during scheduled maintenance.
165.	IOS6168	TBS – Provide propulsion & electrical brake	IOS6168: Failure of water pump of E-Block 11.	E-Block 11 would be isolated in case of over-temperature of its water loop. Reset CC-PE (61Q241) in E-Block 11 in case tripped. If problem persists, call TLC for corrective action during scheduled maintenance.
166.	IOS6169	TBS – Provide propulsion & electrical brake	IOS6169: Failure of water pump of E-Block 12.	E-Block 12 would be isolated in case of over-temperature of its water loop. Reset CC-PE (61Q241) in E-Block 12 in case tripped. If problem persists, call TLC for corrective action during scheduled maintenance.
167.	IOS6170	TBS – Provide propulsion & electrical brake	IOS6170: Failure of water pump of E-Block 21.	E-Block 21 would be isolated in case of over-temperature of its water loop. Reset CC-PE (61Q241) in E-Block 21 in case tripped. If problem persists, call TLC for corrective action during scheduled maintenance.
168.	IOS6171	TBS – Provide propulsion & electrical brake	IOS6171: Failure of water pump of E-Block 22.	E-Block 22 would be isolated in case of over-temperature of its water loop. Reset CC-PE (61Q241) in E-Block 22 in case tripped. If problem persists, call TLC for corrective action during scheduled maintenance.
169.	IOS6172	TBS – Provide propulsion & electrical brake	IOS6172: Failure of Transformer Oil Pump-1 of section-1.	15% reduction in traction and braking effort. Reset CC-PH (61Q240) in E-Block 11 in case tripped. If problem persists, call TLC for corrective action during scheduled maintenance.
170.	IOS6173	TBS – Provide propulsion & electrical brake	IOS6173: Failure of Transformer Oil Pump-2 of section-1.	15% reduction in traction and braking effort. Reset CC-PH (61Q240) in E-Block 12 in case tripped. If problem persists, call TLC for corrective action during scheduled maintenance.
171.	IOS6174	TBS – Provide propulsion & electrical brake	IOS6174: Failure of Transformer Oil Pump-1 of section-2.	15% reduction in traction and braking effort. Reset CC-PH (61Q240) in E-Block 21 in case tripped. If problem persists, call TLC for corrective action during scheduled maintenance.

172.	IOS6175	TBS – Provide propulsion & electrical brake	IOS6175: Failure of Transformer Oil Pump-2 of section-2.	15% reduction in traction and braking effort. Reset CC-PH (61Q240) in E-Block 22 in case tripped. If problem persists, call TLC for corrective action during scheduled maintenance.
173.	IOS6176	TBS – Provide propulsion & electrical brake	IOS6176: VCB open due to transformer oil over-temperature detected in section 1.	VCB can be closed only when transformer oil temperature drops below 115deg C. Traction and Braking effort realized by the E-Blocks will be limited. Call TLC for corrective action during scheduled maintenance.
174.	IOS6177	TBS – Provide propulsion & electrical brake	IOS6177: VCB open due to transformer oil over-temperature detected in section 2.	VCB can be closed only when transformer oil temperature drops below 115deg C. Traction and Braking effort realized by the E-Blocks will be limited. Call TLC for corrective action during scheduled maintenance.
175.	IOS6178	TBS – Provide propulsion & electrical brake	IOS6178: VCB open due to transformer oil over-pressure valve triggered in section 1.	VCB can be closed only when transformer oil pressure drops below 0.8bar. Call TLC for corrective action during scheduled maintenance.
176.	IOS6179	TBS – Provide propulsion & electrical brake	IOS6179: VCB open due to transformer oil over-pressure valve triggered in section 2.	VCB can be closed only when transformer oil pressure drops below 0.8bar. Call TLC for corrective action during scheduled maintenance.
177.	IOS6180	TBS – Provide propulsion & electrical brake	IOS6180: CB 61Q06 for VCB Loop tripped in section 1.	Reset CB 61Q06 in LVC of section-1 to close VCB.
178.	IOS6181	TBS – Provide propulsion & electrical brake	IOS6181: CB 61Q06 for VCB Loop tripped in section 2.	Reset CB 61Q06 in LVC of section-2 to close VCB.
179.	IOS6201	BRK – Provide mechanical brake	IOS6201: CB 62Q03 tripped in section-1 leading to unintended EB application.	Reset CB 62Q03 in LVC of section-1 and reset EB as per EB reset procedure to continue further.
180.	IOS6202	BRK – Provide mechanical brake	IOS6202: EB applied due to CB 62Q03 frequent tripping in section 1.	Isolate EMER-COC (N55.05) cocks in the Brake Panels of both sections and continue. Do not attempt reset of CB. Call TLC for corrective maintenance at the end of trip.
181.	IOS6203	BRK – Provide mechanical brake	IOS6203: CB 62Q03 tripped in section-2 leading to unintended EB application.	Reset CB 62Q03 in LVC of section-2 and reset EB as per EB reset procedure to continue.

182.	IOS6204	BRK – Provide mechanical brake	IOS6204: EB applied due to CB 62Q03 frequent tripping in section 2.	Isolate EMER-COC (N55.05) cocks in the Brake Panels of both sections and continue. Do not attempt reset of CB. Call TLC for corrective maintenance at the end of trip.
183.	IOS6206	BRK – Provide mechanical brake	IOS6206: Loco movement with parking brake applied in section 1.	Release Parking Brake in section-1 to provide traction. If unable to release, isolate parking brakes manually from the brake cylinders. Inspect locomotive brake pads to confirm they are not damaged before continuing further.
184.	IOS6207	BRK – Provide mechanical brake	IOS6207: Loco movement with parking brake applied in section 2.	Release Parking Brake in section-2 to provide traction. If unable to release, isolate parking brakes manually from the brake cylinders. Inspect locomotive brake pads to confirm they are not damaged before continuing further.
185.	IOS6208	BRK – Provide mechanical brake	IOS6208: Traction authorisation disabled as parking brakes are applied in loco.	Release Parking Brake to enable traction authorisation. If unable to release, isolate parking brakes manually from the brake cylinders and continue.
186.	IOS6209	BRK – Provide mechanical brake	IOS6209: Simultaneous traction and pneumatic brake detected in section 1.	Unintended Pneumatic Brake applied in section 1. Isolate pneumatic brakes in section-1 using Z01/1, Z01/2 cocks in the Brake Panel and continue till end of trip with 50% braking effort. Call TLC for corrective maintenance at the end of trip.
187.	IOS6210	BRK – Provide mechanical brake	IOS6210: Simultaneous traction and pneumatic brake detected in section 2.	Unintended Pneumatic Brake applied in section 2. Isolate pneumatic brakes in section-2 using Z01/1, Z01/2 cocks in the Brake Panel and continue till end of trip with 50% braking effort. Call TLC for corrective maintenance at the end of trip.
188.	IOS6211	BRK – Provide mechanical brake	IOS6211: Simultaneous traction and pneumatic brake detected in both secs.	Stop and Inspect locomotive brake pads to confirm they are not damaged before releasing penalty brake.
189.	IOS6212	BRK – Provide mechanical brake	IOS6212: Simultaneous traction and pneumatic brake detected in bogie 1.	Isolate TCU11. Stop and Inspect locomotive brake pads to confirm they are not damaged before continuing further.

190.	IOS6213	BRK – Provide mechanical brake	IOS6213: Simultaneous traction and pneumatic brake detected in bogie 2.	Isolate TCU12. Stop and Inspect locomotive brake pads to confirm they are not damaged before continuing further.
191.	IOS6214	BRK – Provide mechanical brake	IOS6214: Simultaneous traction and pneumatic brake detected in bogie 3.	Isolate TCU21. Stop and Inspect locomotive brake pads to confirm they are not damaged before continuing further.
192.	IOS6215	BRK – Provide mechanical brake	IOS6215: Simultaneous traction and pneumatic brake detected in bogie 4.	Isolate TCU22. Stop and Inspect locomotive brake pads to confirm they are not damaged before continuing further.
193.	IOS6216	BRK – Provide mechanical brake	IOS6216: All Mechanical Brakes (except parking Brake) isolated on one of the bogies.	Call TLC for corrective maintenance at the end of trip.
194.	IOS6217	BRK – Provide mechanical brake	IOS6217: All Mechanical Brakes (except parking Brake) isolated on two of the bogies.	Call TLC for corrective maintenance at the end of trip.
195.	IOS6218	BRK – Provide mechanical brake	IOS6218: All Mechanical Brakes (except parking brake) isolated on >2 bogies.	Traction Authorisation withdrawn. Call TLC for rescue of locomotive.
196.	IOS6219	BRK – Provide mechanical brake	IOS6219: Traction inhibited as direct brake was applied at more than 10kph.	Avoid Traction while using Direct Brake at speed greater than 10kph.
197.	IOS6220	BRK – Provide mechanical brake	IOS6220: Auto Brakes not available in section 1.	Emergency Brake and Direct Brakes still available on all 4 bogies. Call TLC for corrective maintenance at the end of trip.
198.	IOS6221	BRK – Provide mechanical brake	IOS6221: Avoid Direct Brake and ED Braking simultaneously at speed more than 10kmph.	Avoid using ED brakes in light engine movement and avoid using Direct Brakes in train configuration.
199.	IOS6222	BRK – Provide mechanical brake	IOS6222: Electrical actuator of Emergency Brake (EMER-MV) is isolated.	Emergency Brake Push Button is isolated. Use EBV/ABV for applying Emergency Brake.
200.	IOS6223	BRK – Provide mechanical brake	IOS6223: Simultaneous ED and pneumatic brake detected in bogie 1.	Isolate TCU11. Stop and Inspect locomotive brake pads to confirm they are not damaged before continuing further.

201.	IOS6224	BRK – Provide mechanical brake	IOS6224: Simultaneous ED and pneumatic brake detected in bogie 2.	Isolate TCU12. Stop and Inspect locomotive brake pads to confirm they are not damaged before continuing further.
202.	IOS6225	BRK – Provide mechanical brake	IOS6225: Simultaneous ED and pneumatic brake detected in bogie 3.	Isolate TCU21. Stop and Inspect locomotive brake pads to confirm they are not damaged before continuing further.
203.	IOS6226	BRK – Provide mechanical brake	IOS6226: Simultaneous ED and pneumatic brake detected in bogie 4.	Isolate TCU22. Stop and Inspect locomotive brake pads to confirm they are not damaged before continuing further.
204.	IOS6227	BRK – Provide mechanical brake	IOS6227: Simultaneous ED and pneumatic brake detected in section 1.	Unintended Pneumatic Brake applied in section 1. Isolate pneumatic brakes in section-1 using Z01/1, Z01/2 cocks in the Brake Panel and continue till end of trip with 50% braking effort. Call TLC for corrective maintenance at the end of trip.
205.	IOS6228	BRK – Provide mechanical brake	IOS6228: Simultaneous ED and pneumatic brake detected in section 2.	Unintended Pneumatic Brake applied in section 2. Isolate pneumatic brakes in section-2 using Z01/1, Z01/2 cocks in the Brake Panel and continue till end of trip with 50% braking effort. Call TLC for corrective maintenance at the end of trip.
206.	IOS6229	BRK – Provide mechanical brake	IOS6229: Simultaneous ED and pneumatic brake detected in both sections.	Stop and Inspect locomotive brake pads to confirm they are not damaged before releasing penalty brake.
207.	IOS6230	BRK – Provide mechanical brake	IOS6230: CB 62Q02 for EB detection tripped in section 1.	TCU11 and TCU12 are isolated. Reset CB 62Q02 in LVC of section-1 to recover the TCUs.
208.	IOS6231	BRK – Provide mechanical brake	IOS6231: CB 62Q02 for EB detection tripped frequently in section 1.	Loss of TCU11 and TCU12. Do not reset CB and drive till next station with 50% power. Call TLC for corrective maintenance at the next station.
209.	IOS6232	BRK – Provide mechanical brake	IOS6232: CB 62Q02 for EB detection tripped in section 2.	TCU21 and TCU22 are isolated. Reset CB 62Q02 in LVC of section-1 to recover the TCUs.
210.	IOS6233	BRK – Provide mechanical brake	IOS6233: CB 62Q02 for EB detection tripped frequently in section 2.	Loss of TCU21 and TCU22. Do not reset CB and drive till next station with 50% power. Call TLC for corrective maintenance at the next station.

211.	IOS6234	BRK – Provide mechanical brake	IOS6234: Bail off pedal pressed continuously for more than 180 seconds.	Remove foot from Bail off pedal to reactivate Bail-Off function. Auto brakes will not be available in loco if the foot pedal is stuck.
212.	IOS6235	BRK – Provide mechanical brake	IOS6235: VCB opened and EB applied due to failure of brake control in section 1.	Isolate EMER-COC (N55.05) cocks in Brake Panels of both sections and put Panto Selector Switch in CCR of active section in BOTH position and raise pantograph to run with 50% power till next station. Call TLC for corrective maintenance at next station.
213.	IOS6236	BRK – Provide mechanical brake	IOS6236: VCB opened and EB applied due to failure of brake control in section 2.	Isolate EMER-COC (N55.05) cocks in Brake Panels of both sections and put Panto Selector Switch in CCR of active section in BOTH position and raise pantograph to run with 50% power till next station. Call TLC for corrective maintenance at next station.
214.	IOS6237	BRK – Provide mechanical brake	IOS6237: VCB opened due to a failure of BP Pressure switches in section 1.	Open CB 62Q02 in LVC of section-1 followed by isolation of TCU11 and TCU12 and reset emergency brake to continue with 50% traction. Call TLC for corrective maintenance at next station.
215.	IOS6238	BRK – Provide mechanical brake	IOS6238: VCB opened due to a failure of BP Pressure switches in section 2.	Open CB 62Q02 in LVC of section-2 followed by isolation of TCU21 and TCU22 and reset emergency brake to continue with 50% traction. Call TLC for corrective maintenance at next station.
216.	IOS6239	BRK – Provide mechanical brake	IOS6239: False Unintentional Brakes alarm in active section.	Open CB of Cab Buzzer 74Q04 in LVC of active section and continue. Call TLC for corrective maintenance at the end of trip.
217.	IOS6240	BRK – Provide mechanical brake	IOS6240: Failure of Unintentional Brakes alarm in active section.	Cab buzzer and indicator panel will not activate in case unintentional brakes are applied. Call TLC for corrective maintenance at the end of trip.
218.	IOS6241	BRK – Provide mechanical brake	IOS6241: Penalty Brake applied due to fault in EBV.	Operate PER valve in brake panel to activate backup mode and use backup brake controller. Call TLC for corrective maintenance at next station.

219.	IOS6242	BRK – Provide mechanical brake	IOS6242: Penalty Brake applied to due to fault in mode selector switch in EBV.	Do not operate EBV mode switch while in motion. In case of switch failure, operate PER valve in brake panel of active section to activate backup mode and use backup brake controller. Call TLC for corrective maintenance at next station.
220.	IOS6243	BRK – Provide mechanical brake	IOS6243: Penalty Brake applied due to EBV mode mismatch. No Traction Authorisation.	Keep EBV of active section in LEAD mode and EBV of non-active in TRAIL mode and continue. In case of EBV switch failure, activate backup brakes using PER valve in brake panel.
221.	IOS6244	BRK – Provide mechanical brake	IOS6244: EBV unavailable due to simultaneous activation of both BCM.	Trip CB 62Q06 in LVC of active section to restore the EBV and continue.
222.	IOS6245	BRK – Provide mechanical brake	IOS6245: BCM activation was unsuccessful in section 1.	BCM of section-2 is activated. Reset CB 62Q06 in LVC of section-1 in case tripped and continue.
223.	IOS6246	BRK – Provide mechanical brake	IOS6246: BCM activation was unsuccessful in section 2.	BCM of section-1 is activated. Reset CB 62Q06 in LVC of section-2 in case tripped and continue.
224.	IOS6247	BRK – Provide mechanical brake	IOS6247: Auto Brakes not available in section 2.	Emergency Brake and Direct Brakes still available on all 4 bogies. Call TLC for corrective maintenance at the end of trip.
225.	IOS6248	BRK – Provide mechanical brake	IOS6248: VCB open on traction due to failure of EB detection function in section 1.	Isolate TCU 12 and close VCB to continue. Call TLC for corrective maintenance at the end of trip.
226.	IOS6249	BRK – Provide mechanical brake	IOS6249: VCB open on traction due to failure of EB detection function in section 2.	Isolate TCU 21 and close VCB to continue. Call TLC for corrective maintenance at the end of trip.
227.	IOS6250	BRK – Provide mechanical brake	IOS6250: Brake Cylinder pressure not developed in one bogie.	25% loss of locomotive braking effort. Call TLC for corrective action during scheduled maintenance.
228.	IOS6251	BRK – Provide mechanical brake	IOS6251: Brake Cylinder pressure not developed in two bogies.	50% loss of locomotive braking effort. Call TLC for corrective maintenance at the end of trip.
229.	IOS6252	BRK – Provide mechanical brake	IOS6252: Brake Cylinder pressure not developed in three bogies.	Call TLC for loco withdrawal at next station.

230.	IOS6301	SAN – Provide sanding	IOS6301: Loss of Sanding foot pedal in active section.	Sanding function lost in active cab due to TCMS communication loss. Call TLC for corrective maintenance at the end of trip.
231.	IOS7201	TCN – Train Communication Network	IOS7201: Loss of MPU in section 1.	Reset CB 72Q22 in LVC of section-1 in case tripped and continue. If problem persists, call TLC for corrective action during scheduled maintenance.
232.	IOS7202	TCN – Train Communication Network	IOS7202: Loss of MPU in section 2.	Reset CB 72Q22 in LVC of section-2 in case tripped and continue. If problem persists, call TLC for corrective action during scheduled maintenance.
233.	IOS7203	TCN – Train Communication Network	IOS7203: Loss of BRIO-11 in section 1.	Lost Controls: Fire Detection Buzzer, Auto Flasher light control. Reset CB 72Q05 and/or 72Q06 in LVC of section-1 in case tripped. If problem persists, call TLC for corrective maintenance at the end of trip.
234.	IOS7204	TCN – Train Communication Network	IOS7204: Loss of BRIO-12 in section 1.	Lost Controls: Vigilance Alarm Buzzer, Vigilance Alarm light (indicator panel). Reset CB 72Q07 and/or 72Q08 in LVC of section-1 in case tripped. If problem persists, call TLC for corrective maintenance at the end of trip.
235.	IOS7205	TCN – Train Communication Network	IOS7205: Loss of BRIO-13 in section 1.	Lost Controls: Forward Sanding control. Reset CB 72Q09 and/or 72Q10 in LVC of section-1 in case tripped. If problem persists, call TLC for corrective maintenance at the end of trip.
236.	IOS7206	TCN – Train Communication Network	IOS7206: Loss of BRIO-14 in section 1.	Lost Controls: Reverse Sanding control, Catenary voltage display in Line Indicator. Reset CB 72Q11 and/or 72Q12 in LVC of section-1 in case tripped. If problem persists, call TLC for corrective maintenance at the end of trip.
237.	IOS7207	TCN – Train Communication Network	IOS7207: Loss of BRIO-15 in section-1.	Lost Controls: Aux compressor control, TE/BE display in Line Indicator, Harmonic Filter control. Reset CB 72Q13 and/or 72Q14 in LVC of section-1 in case tripped. If problem persists, call TLC for corrective maintenance at the end of trip.
238.	IOS7208	TCN – Train Communication Network	IOS7208: Loss of BRIO-16 in section-1.	Lost Controls: Aux compressor control, VCB blowing magnet valve. Reset CB 72Q15 and/or 72Q16 in LVC of section-1 in case tripped. If problem persists, call TLC for corrective maintenance at the end of trip.

239.	IOS7209	TCN – Train Communication Network	IOS7209: Loss of BRIO-17 in section-1.	Lost Controls: Transfer contactor, VCB open and Loco Parting lights (indicator panel), Flaps auto open. Reset CB 72Q17 and/or 72Q18 in LVC of section-1 in case tripped. If problem persists, call TLC for corrective maintenance at the end of trip.
240.	IOS7210	TCN – Train Communication Network	IOS7210: Loss of BRIO-18 in section-1.	Lost Controls: Flaps auto close, Headlight full mode DDU button. Reset CB 72Q19 and/or 72Q20 in LVC of section-1 in case tripped. If problem persists, call TLC for corrective maintenance at the end of trip.
241.	IOS7211	TCN – Train Communication Network	IOS7211: Loss of BRIO-21 in section-2.	Lost Controls: Fire Detection Buzzer, Auto Flasher light control. Reset CB 72Q05 and/or 72Q06 in LVC of section-2 in case tripped. If problem persists, call TLC for corrective maintenance at the end of trip.
242.	IOS7212	TCN – Train Communication Network	IOS7212: Loss of BRIO-22 in section-2.	Lost Controls: Vigilance Alarm Buzzer, Vigilance Alarm light (indicator panel). Reset CB 72Q07 and/or 72Q08 in LVC of section-2 in case tripped. If problem persists, call TLC for corrective maintenance at the end of trip.
243.	IOS7213	TCN – Train Communication Network	IOS7213: Loss of BRIO-23 in section-2.	Lost Controls: Forward Sanding control. Reset CB 72Q09 and/or 72Q10 in LVC of section-2 in case tripped. If problem persists, call TLC for corrective maintenance at the end of trip.
244.	IOS7204	TCN – Train Communication Network	IOS7204: Loss of BRIO-12 in section-1.	Lost Controls: Vigilance Alarm Buzzer, Vigilance Alarm light (indicator panel). Reset CB 72Q07 and/or 72Q08 in LVC of section-1 in case tripped. If problem persists, call TLC for corrective maintenance at the end of trip.
245.	IOS7214	TCN – Train Communication Network	IOS7214: Loss of BRIO-24 in section-2.	Lost Controls: Reverse Sanding control, Catenary voltage display in Line Indicator. Reset CB 72Q11 and/or 72Q12 in LVC of section-2 in case tripped. If problem persists, call TLC for corrective maintenance at the end of trip.

246.	IOS7215	TCN – Train Communication Network	IOS7215: Loss of BRIO-25 in section-2.	Lost Controls: Aux compressor control, TE/BE display in Line Indicator, Harmonic Filter control. Reset CB 72Q13 and/or 72Q14 in LVC of section-2 in case tripped. If problem persists, call TLC for corrective maintenance at the end of trip.
247.	IOS7216	TCN – Train Communication Network	IOS7216: Loss of BRIO-26 in section-2.	Lost Controls: Aux compressor control, VCB blowing magnet valve. Reset CB 72Q15 and/or 72Q16 in LVC of section-2 in case tripped. If problem persists, call TLC for corrective maintenance at the end of trip.
248.	IOS7217	TCN – Train Communication Network	IOS7217: Loss of BRIO-27 in section-2.	Lost Controls: Transfer contactor, VCB open and Loco Parting lights (indicator panel), Flaps auto open. Reset CB 72Q17 and/or 72Q18 in LVC of section-2 in case tripped. If problem persists, call TLC for corrective maintenance at the end of trip.
249.	IOS7218	TCN – Train Communication Network	IOS7218: Loss of BRIO-28 in section-2.	Lost Controls: Flaps auto close, Headlight full mode DDU button. Reset CB 72Q19 and/or 72Q20 in LVC of section-2 in case tripped. If problem persists, call TLC for corrective maintenance at the end of trip.
250.	IOS7219	TCN – Train Communication Network	IOS7219: Loss of TRS in section 1.	Reset CB 72Q01 in LVC of section-1 in case tripped and continue. If problem persists, call TLC for corrective action during scheduled maintenance.
251.	IOS7220	TCN – Train Communication Network	IOS7220: Loss of TRS in section 2.	Reset CB 72Q01 in LVC of section-2 in case tripped and continue. If problem persists, call TLC for corrective action during scheduled maintenance.
252.	IOS7221	TCN – Train Communication Network	IOS7221: Loss of CRS-11 in section-1.	Electronics connected to CRS-11 (BRIO11, MPU11, DDU11, Net box, VDM) are lost in section-1. Reset CB 72Q02 in LVC of section-1 in case tripped and continue. If problem persists, call TLC for corrective action during scheduled maintenance.
253.	IOS7222	TCN – Train Communication Network	IOS7222: Loss of CRS-12 in section-1.	Electronics connected to CRS-12 (BRIO12, BRIO13, BRIO15, BRIO17, TCU12) are lost in section-1. Reset CB 72Q03 in LVC of section-1 in case tripped and continue. If problem persists, call TLC for corrective action during scheduled maintenance.

254.	IOS7223	TCN – Train Communication Network	IOS7223: Loss of CRS-13 in section-1.	Electronics connected to CRS-13 (BRIO14, BRIO16, BRIO18, TCU11, BCU11) are lost in section-1. Reset CB 72Q04 in LVC of section-1 in case tripped and continue. If problem persists, call TLC for corrective action during scheduled maintenance.
255.	IOS7224	TCN – Train Communication Network	IOS7224: Loss of CRS-21 in section-2.	Electronics connected to CRS-21 (BRIO21, MPU21, DDU21, EVR) are lost in section-2. Reset CB 72Q02 in LVC of section-2 in case tripped and continue. If problem persists, call TLC for corrective action during scheduled maintenance.
256.	IOS7225	TCN – Train Communication Network	IOS7225: Loss of CRS-22 in section-2.	Electronics connected to CRS-22 (BRIO22, BRIO23, BRIO25, BRIO27, TCU22) are lost in section-2. Reset CB 72Q03 in LVC of section-2 in case tripped and continue. If problem persists, call TLC for corrective action during scheduled maintenance.
257.	IOS7226	TCN – Train Communication Network	IOS7226 Loss of CRS-23 in section-2.	Electronics connected to CRS-23 (BRIO24, BRIO26, BRIO28, TCU21, BCU21) are lost in section-2. Reset CB 72Q04 in LVC of section-2 in case tripped and continue. If problem persists, call TLC for corrective action during scheduled maintenance.
258.	IOS7401	DRV – Drive the train	IOS7401: Forward direction selection relay failed in section 1.	Locomotive can be run towards the direction of section-1 with 100% power or the direction of section-2 with 50% power. Call TLC for further assistance.
259.	IOS7402	DRV – Drive the train	IOS7402: Reverse direction selection relay failed in section 1.	Locomotive can be run towards the direction of section-2 with 100% power or the direction of section-1 with 50% power. Call TLC for further assistance.
260.	IOS7403	DRV – Drive the train	IOS7403: Direction selector switch contact stuck in forward position in section 1.	Locomotive can only be moved in forward direction from section 1. In case needed to move in other direction, trip 74Q03 in LVC of section-1 and use other cab to clear section as required. Call TLC for corrective maintenance at the end of trip.
261.	IOS7404	DRV – Drive the train	IOS7404: Direction selector switch contact stuck in reverse position in section 1.	Locomotive can only be moved in the reverse direction from section 1. In case needed to move in other direction, trip 74Q03 in LVC of section-1 and use other cab to clear section as required. Call TLC for corrective maintenance at the end of trip.

262.	IOS7405	DRV – Drive the train	IOS7405: Forward direction selection relay failed in section 2.	Locomotive can be run towards the direction of section-2 with 100% power or the direction of section-1 with 50% power. Call TLC for further assistance.
263.	IOS7408	DRV – Drive the train	IOS7408: Reverse direction selection relay failed in section 2.	Locomotive can be run towards the direction of section-1 with 100% power or the direction of section-2 with 50% power. Call TLC for further assistance.
264.	IOS7409	DRV – Drive the train	IOS7409: Direction selector switch contact stuck in forward position in section 2.	Locomotive can only be moved in the forward direction from section 2. In case needed to move in other direction, trip 74Q03 in LVC of section-2 and use other cab to clear section as required. Call TLC for corrective maintenance at the end of trip.
265.	IOS7410	DRV – Drive the train	IOS7410: Direction selector switch contact stuck in reverse position in section 2.	Locomotive can only be moved in the reverse direction from section 2. In case needed to move in other direction, trip 74Q03 in LVC of section-2 and use other cab to clear section as required. Call TLC for corrective maintenance at the end of trip.
266.	IOS7411	DRV – Drive the train	IOS7411: Cab Occupied Relay 1 erroneously de-energised in section 1.	Isolate EMER-COC (N55.05) cocks in the Brake Panels of both sections and continue. Call TLC for corrective maintenance at the end of trip.
267.	IOS7412	DRV – Drive the train	IOS7412: Cab Occupied Relay 3 erroneously de-energised in section 1.	No operational impact. Call TLC for corrective maintenance at the end of trip.
268.	IOS7413	DRV – Drive the train	IOS7413: Cab Occupied Relay 2 or 4 erroneously de-energised in section 1.	Parking Brake, Gauge lighting, and Indicator Panel will not work. Apply parking brake from other cab and use DDU as an alternative to gauges and indicator panel when needed. Call TLC for corrective maintenance at the end of trip.
269.	IOS7414	DRV – Drive the train	IOS7414: Cab Occupied Relay 1 erroneously de-energised in section 2.	Isolate EMER-COC (N55.05) cocks in the Brake Panels of both sections and continue. Call TLC for corrective maintenance at the end of trip.
270.	IOS7415	DRV – Drive the train	IOS7415: Cab Occupied Relay 3 erroneously de-energised in section 2.	No operational impact. Call TLC for corrective maintenance at the end of trip.

271.	IOS7416	DRV – Drive the train	IOS7416: Cab Occupied Relay 2 or 4 erroneously de-energised in section 2.	Parking Brake, Gauge lighting, and Indicator Panel will not work. Apply parking brake from other cab and use DDU as an alternative to gauges and indicator panel when needed. Call TLC for corrective maintenance at the end of trip.
272.	IOS7418	DRV – Drive the train	IOS7418: Penalty Brake applied due to TCMS communication loss of vigilance pedal.	Put VCD bypass switch in CCR of active section in BYPASS position. Call TLC for corrective maintenance at the end of trip.
273.	IOS7419	DRV – Drive the train	IOS7419: CB 74Q03 for Direction Selection tripped in active section.	Reset CB 74Q03 in LVC of active section to enable Direction Selection operation. In case tripped frequently, clear section by driving in reverse from other cab.
274.	IOS7421	DRV – Drive the train	IOS7421: Section-1 cannot be activated anymore due to cabin activation failure.	No impact if section-2 is being used. In case section-1 is required to be activated, drive in reverse from section-2 to clear section. Call TLC for corrective maintenance at the end of trip.
275.	IOS7422	DRV – Drive the train	IOS7422: Section-2 cannot be activated anymore due to cabin activation failure.	No impact if section-1 is being used. In case section-2 is required to be activated, drive in reverse from section-1 to clear section. Call TLC for corrective maintenance at the end of trip.
276.	IOS7423	DRV – Drive the train	IOS7423: CB 74Q04 for Cab Buzzer tripped frequently in active section.	Do not reset CB and continue. Buzzer functionality is no longer available in the active cab.
277.	IOS7425	DRV – Drive the train	IOS7425: Forward direction control function failure in section 1.	Locomotive can be run towards the direction of section-1 with 50% power or the direction of section-2 with 100% power. Call TLC for further assistance.
278.	IOS7426	DRV – Drive the train	IOS7426: Forward direction control function failure in section 2.	Locomotive can be run towards the direction of section-2 with 50% power or the direction of section-1 with 100% power. Call TLC for further assistance.
279.	IOS7427	DRV – Drive the train	IOS7427: Reverse direction control function failure in section 1.	Locomotive can be run towards the direction of section-2 with 50% power or the direction of section-1 with 100% power. Call TLC for further assistance.
280.	IOS7428	DRV – Drive the train	IOS7428: Reverse direction control function failure in section 2.	Locomotive can be run towards the direction of section-1 with 50% power or the direction of section-2 with 100% power. Call TLC for further assistance.

281.	IOS7429	DRV – Drive the train	IOS7429: Direction Selector Switch failed in section 1.	Locomotive cannot be run from section 1. Drive from section-2 to clear section. Call TLC for corrective maintenance at next station.
282.	IOS7430	DRV – Drive the train	IOS7430: Direction Selector Switch failed in section 2.	Locomotive cannot be run from section 2. Drive from section-1 to clear section. Call TLC for corrective maintenance at next station.
283.	IOS7431	DRV – Drive the train	IOS7431: Cab Occupied Relay 1 erroneously energised in section 1.	Isolate EMER-COC (N55.05) cocks in the Brake Panels of both sections and continue. Also, section-2 cannot be energised anymore. Call TLC for corrective maintenance at the end of trip.
284.	IOS7432	DRV – Drive the train	IOS7432: Cab Occupied Relay 3 erroneously energised in section 1.	No operational impact. Call TLC for corrective maintenance at the end of trip.
285.	IOS7433	DRV – Drive the train	IOS7433: Cab Occupied Relay 2 or 4 erroneously energised in section 1.	No operational impact. Call TLC for corrective maintenance at the end of trip.
286.	IOS7434	DRV – Drive the train	IOS7434: Cab Occupied Relay 1 erroneously energised in section 2.	Isolate EMER-COC (N55.05) cocks in the Brake Panels of both sections and continue. Also, section-1 cannot be energised anymore. Call TLC for corrective maintenance at the end of trip.
287.	IOS7435	DRV – Drive the train	IOS7435: Cab Occupied Relay 3 erroneously energised in section-2.	No operational impact. Call TLC for corrective maintenance at the end of trip.
288.	IOS7436	DRV – Drive the train	IOS7436: Cab Occupied Relay 2 or 4 erroneously energised in section 2.	No operational impact. Call TLC for corrective maintenance at the end of trip.
289.	IOS7437	DRV – Drive the train	IOS7437: Loss of Vigilance Bypass switch in active section.	Vigilance Bypass function lost in active cab due to TCMS communication loss. In case needed, isolate EMER-COC (N55.05) cocks in the Brake Panels of both sections and continue. Call TLC for corrective maintenance at the end of trip.
290.	IOS7901	JRU - Juridical recorder Unit	IOS7901: CB 79Q01 for Voice Recorder tripped in section 1.	Reset CB 79Q01 in LVC of section-1 to enable Voice Digitization Module operation.

291.	IOS7902	JRU - Juridical recorder Unit	IOS7902: CB 79Q01 for Event Recorder tripped in section 2.	Reset CB 79Q01 in LVC of section-2 to enable Event Recorder operation. Drive cautiously in case of frequent trip, as Event Recorder will not be available.
292.	IOS7903	JRU - Juridical recorder Unit	IOS7903: Loss of Speed Freeze Button in active section.	Speed Freeze function lost in active section due to TCMS communication loss. Call TLC for corrective maintenance at the end of trip.
293.	IOS9101	ESG – External lights signalling	IOS9101: CB 91Q08/09 for Flasher light tripped frequently in active section	Do not reset CB. Flasher light is no longer available from the active cab. Follow existing IR norms. Call TLC for corrective maintenance at next station.
294.	IOS9102	ESG – External lights signalling	IOS9102: Unable to activate Flasher Light from the active section.	Follow existing IR norms. Call TLC for corrective maintenance at the end of trip.
295.	IOS9103	ESG – External lights signalling	IOS9103: Unintentional activation of Flasher Light from the active section.	Open circuit breaker 91Q08 in LVC of active cab and continue. Follow existing IR norms. Call TLC for corrective maintenance at the end of trip.
296.	IOS9104	ESG – External lights signalling	IOS9104: CB 91Q05/06/07 for Headlight tripped frequently in active section.	Do not reset CB. Head light is no longer available from the active cab. Drive cautiously till next station. Call TLC for corrective maintenance at next station.
297.	IOS9105	ESG – External lights signalling	IOS9105: Unable to activate Headlight-Bright mode in active section.	Call TLC for corrective maintenance at the end of trip.
298.	IOS9106	ESG – External lights signalling	IOS9106: White Marker light not activated in ongoing direction.	Reset CB 91Q01 and/or 91Q02 in LVC of ongoing direction and turn ON Marker Light Switch-White in ongoing direction cab. Marker Light failed if IOS persists after the action. Call TLC for maintenance at the end of trip.
299.	IOS9108	ESG – External lights signalling	IOS9108: One of the Headlight Module failed in section 1.	50% degradation in headlight illumination. Call TLC for corrective maintenance at the end of trip.
300.	IOS9109	ESG – External lights signalling	IOS9109: One of the Headlight Module failed in section 2.	50% degradation in headlight illumination. Call TLC for corrective maintenance at the end of trip.

DISCLAIMER

This version of IOS list is version is subjected to modifications based on the software updates.