SIEMENS

To,
The Centre for Design & Development
Chittaranjan Locomotive Works
Chittaranjan, West Bengal- 713331

Fax
Mobile +91 9958274999
E-Mail Arvind-kumar.pandey@siemens.com
Your letter of
Our reference SMO/RS/CLW/040
Date 15.04.2024

Name Arvind Kumar Pandey
Department Execution (Rolling Stock)
Telephone +91 124 624 6448

Kind Attention: Shri. Pankaj Kumar (Dy.CEE/D&D/CLW/CRJ)
Subject: Request for permission to implement modifications in 10 passanger locomotives (BRC & LGD).

– **Reference:** 1) Siemens letter no- SMO/RS/Propulsion/Solution Testing-LGD dated 14.03.24
2) Siemens letter no- SMO/RS/Propulsion/Solution Testing-LGD dated 11.03.24

Dear Sir,

We were facing several issues with respect to the functionality of VCB and associated functioning of traction conveter in our propulsion systems. We had made a detailed study of the various reasons attributable to the above mentioned issues and made certain modifications on the software and hardware fronts in order to resolve the issues. These modifications are as follows:

1. New TCU test software with motor parameters
2. 2.05B CCU software
3. Hardware modification to address FC 40

We had made these modifications in the loco number 39273 of Lallguda shed and the performance of the locomotive was kept under observation. We are pleased to inform you that no fault has been recoreded in the locomotive since 12.04.2024 and we are confident that the issues have been addresed. In order to be absolutely certain of the same we require to implement these changes in a batch of 10 locomotives (BRC and LGD) and monitor the performnace for a period of 2 weeks before prolifirating to the entire fleet.

We request your kind permission to go ahead for the implementation of these modifications in 10 locomotives at BRC and LGD sheds (5 locomotives each).

Thanking you and assuring you of our most careful attention, we remain.

Yours faithfully,
Pandey Arvind Kumar
Digitally signed by Pandey Arvind Kumar
DN: cn=Pandey Arvind Kumar, c=DE, o=Siemens, email=arvind-kumar.pandey@siemens.com
Date: 2024.04.15 18:58:47 +05'30'

(Arvind Kumar Pandey)
Service Head
Rolling Stock Execution
Mo-91-9958274999

Copy-
Sr DEE/ELS/TRS/LGD :For your kind information please
Sr DEE/ELS/TRS/BRCY :For your kind information please

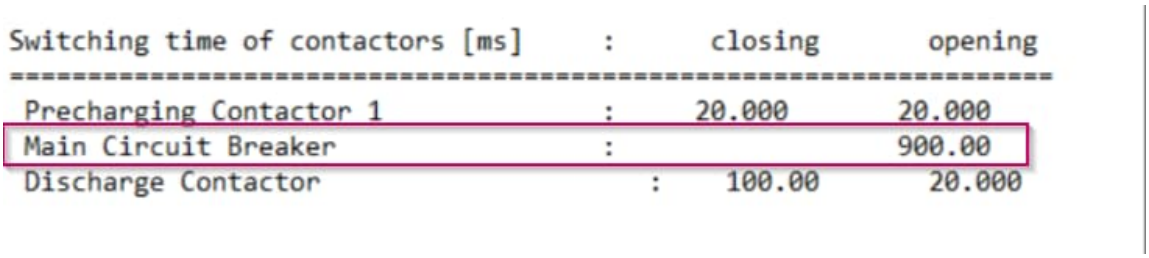
Annexure 1 – Details of Hardware modification

Annexure-1

Fault code 40 " Main circuit breaker: status is not plausible"

VCB opening time is monitored by ICU ‘s which is 400ms. During the simulation it was observed that if any of the ICU’s of both traction converter sees any error will immediately commands VCB to open, but still the VCB is in closing transition state. This was causing the VCB opening time beyond 400ms and PWI assuming VCB could not able to open due to some reason and PWI’s are taking protection by blocking the pulses and no traction was allowed there after till the TCU’s are reset.

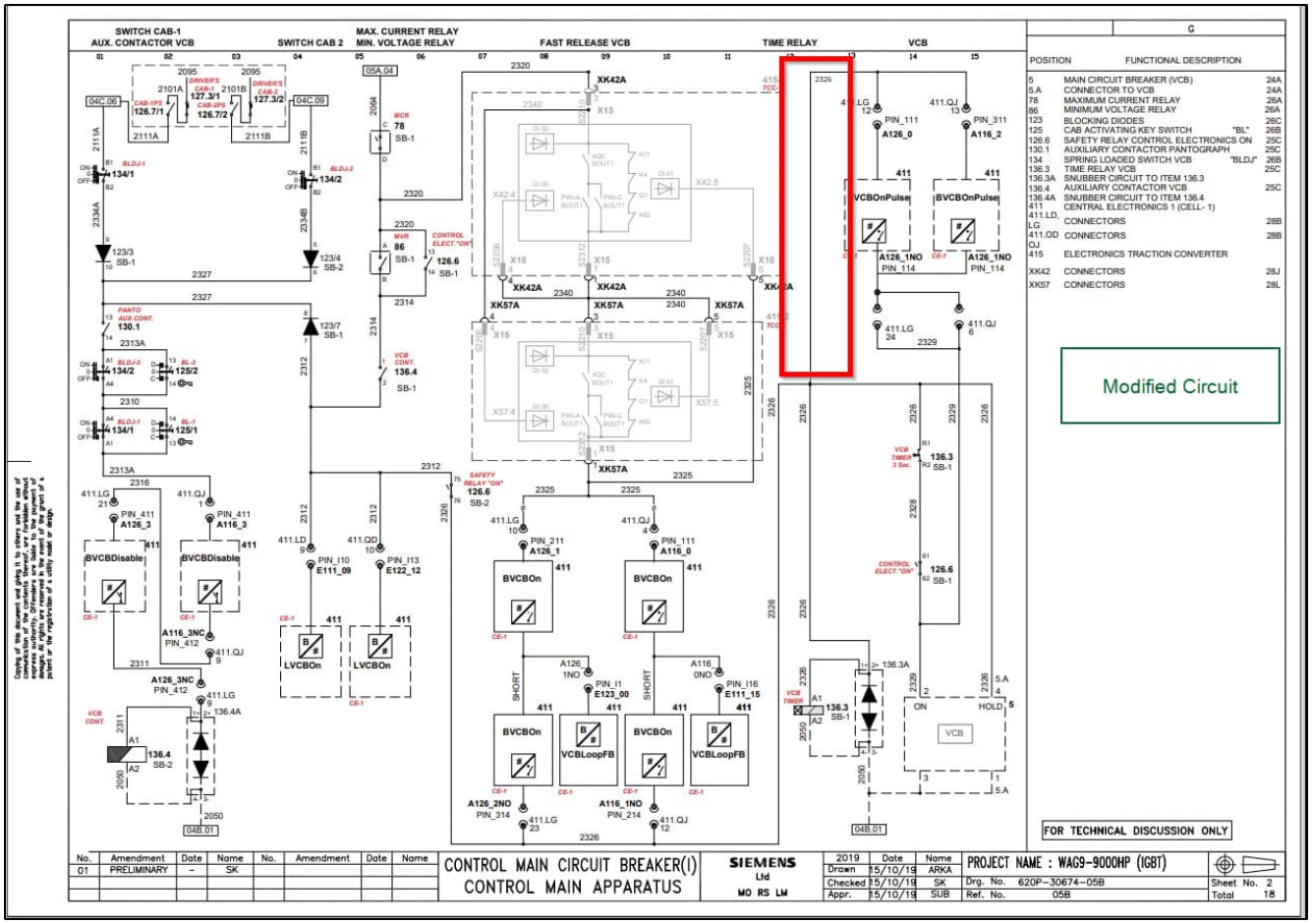
This was depending on the TCU’s whichever is seeing these phenomena use to get isolate and later gets back to normal operation by resetting the particular TCU.



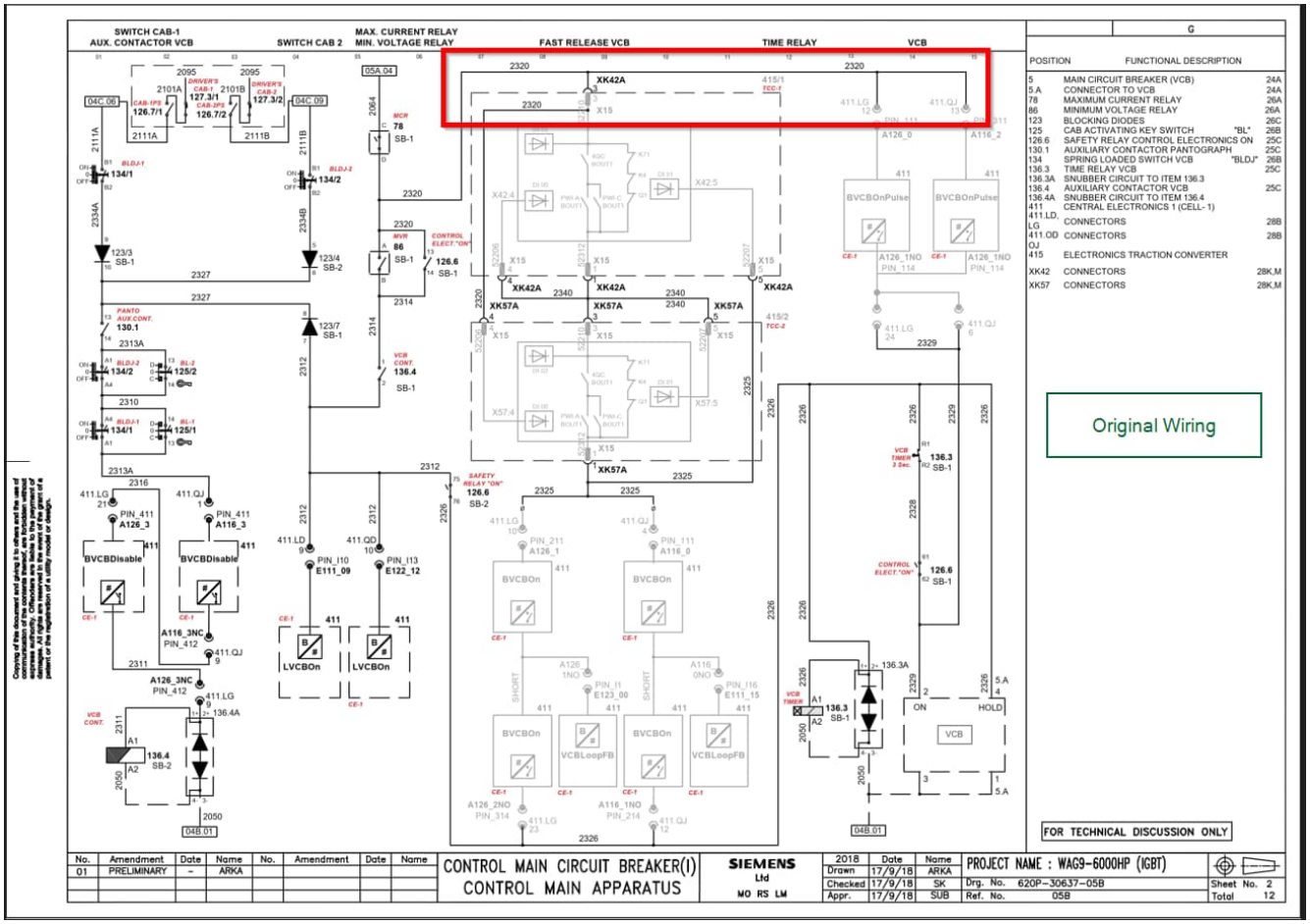
Switching time of contactors [ms]	:	closing	opening
Precharging Contactor 1	:	20.000	20.000
Main Circuit Breaker	:		900.00
Discharge Contactor	:	100.00	20.000

Above Picture shows during the simulation time were the opening time of Main Circuit breaker is more than 400ms

To synchronize the ICU 400ms below mentioned changes in wiring modification done. Common supply of BVCBON is given in BVCBONPULSE so that ON supply to VCB will also be get OFF if any ICU’s opens VCB with in 400ms. This will keep the opening time below 400ms and FC 40 will be not seen by TCU-MCU.

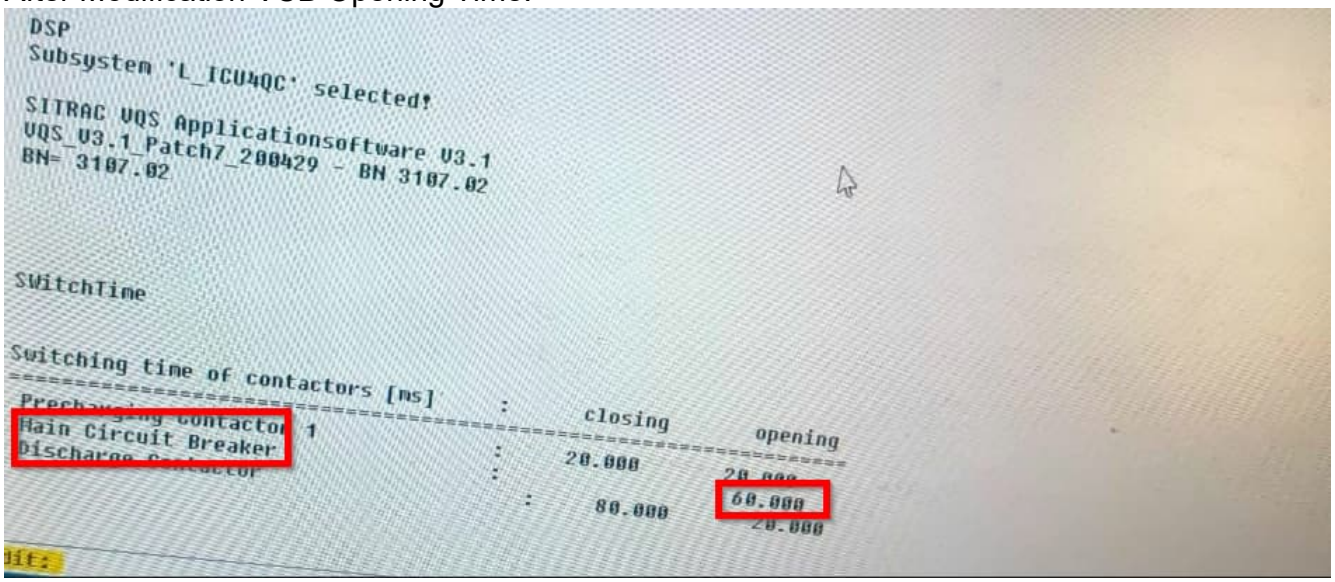


Modified Circuit Drawing in locomotive control circuit.



Original (existing) Wiring in locomotive control circuit.

After Modification VCB Opening Time.



Requirement’s for Modification.

	SB1 Back panel cable modification for BVCBOnPulse Do input for Existing loco in shed.			
Sr. no.	**Existing Cable ID**		**Existing location**	
1	2320-411.LG-12 / XF22S:03-37		XF22S:03-37	
2	2320-411.QJ-13 / XF22S:03-37		XF22S:03-37	
	New Cable ID for cable		**cable to remove From location**	**Cable to connect at**
1	2326-411.LG -12		LG-12 -XF22S:03-37	XF22S:03-58
2	2326-411.QJ -13		QJ-13 - XF22S:03-37	
	New cable to add		**from location**	**To location**
1	2326-411.LG -12		XF22S:03-58	XF22S.01-8
2	2326-411.QJ -13			XF22S.01-8
	Material required	quantity		
	0.5mm cable	2-3 m.		
	SB1 Back panel cable modification for BVCBOnPulse Do input for New Commissiooning Loco.			
	Existing Cable Ferrule		New Cable ferrule and location	
1	2320-411.LG-12 / XF22S:03-37		2326-411.LG-12 / XF22S.01-8	
2	2320-411.QJ-13 / XF22S:03-37		2326-411.QJ-13 / XF22S.01-8	