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डीजल रेल इंजन कारखाना
वाराणसी-२२१००४, भारत
INDIAN RAILWAYS (MINISTRY OF RAILWAYS)
DIESEL LOCOMOTIVE WORKS
VARANASI-221004, INDIA



No. dlw.m.65.262

Date: 25.03.2014

DESIGN BULLETIN

Design Bulletin No. – DB/02/2014/04

Subject : Re-calibration of 5000 Litres fuel tank used in HHP locomotives.

Background : Complaints received from Zonal Rlys

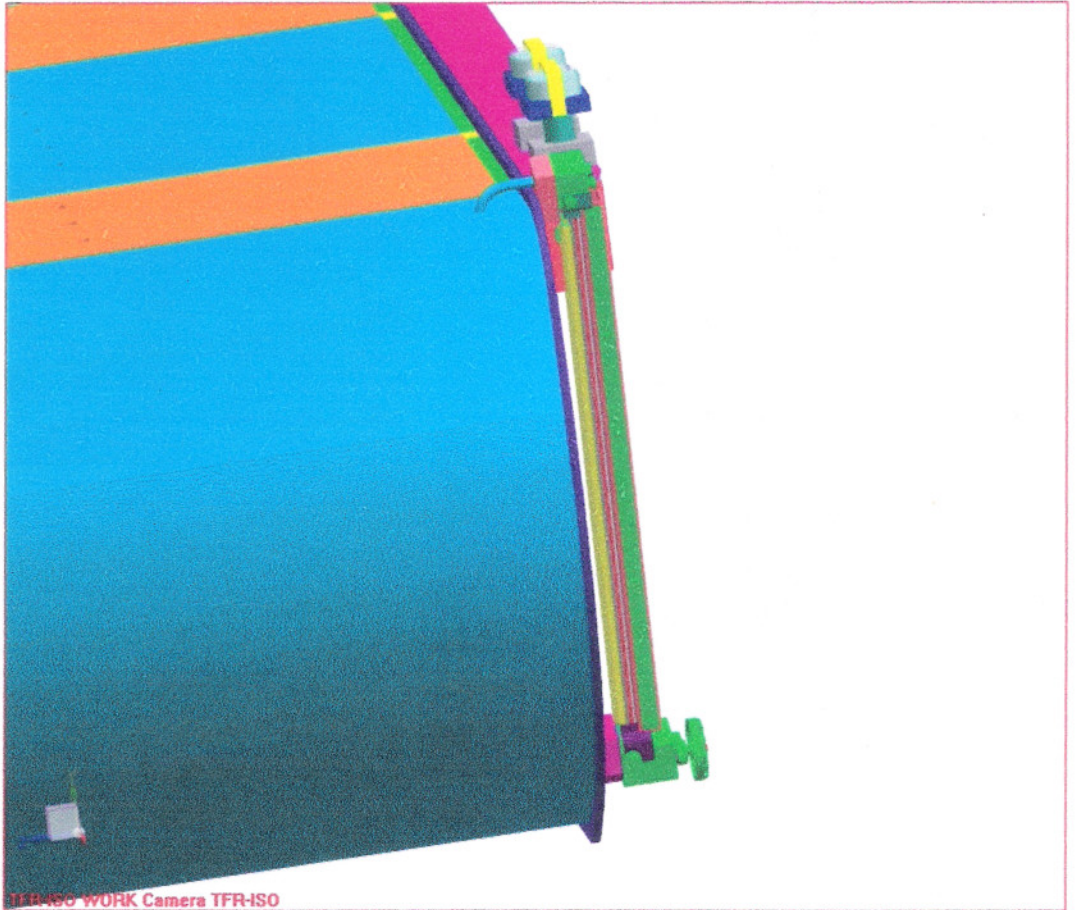
- References:**
- (i) CMPE(Dsl)/SC Rly's L.No. M.92/DSL/10/Vol-XI dated 26.02.2014
 - (ii) Sr.DME(D)/PA's L.No. PA/DM/Fuel gauge calibration/WDP4D dated 24.01.2014
 - (iii) Dy.CQAM/DLW's L.No. SSE/INSP/LOCO/20 dtd 25.02.2014

Objective : Zonal Rlys have reported of difference in the fuel oil readings in WDP4B/WDP4D locos between the loco glow rod gauge (plate calibration) and RCD Flow meter readings. The issue has been examined and this design bulletin details the action taken for correcting the reported deviation in the readings.

Investigation: The extent of deviation in the readings between the glow rod gauge (fuel gauge mounted on the fuel tank of the locomotive) and RCD meter readings were checked in DLW. Sample readings taken on two different WDP4D locos (P4D-266, 267) indicating the differential readings (shown as δ) as observed in DLW are as under:

RCD Flowmeter	δ (1)	δ (2)
1000 Ltrs	160 Ltrs	190 Ltrs
1500 Ltrs	125 Ltrs	165 Ltrs
2000 Ltrs	95 Ltrs	130 Ltrs
3000 Ltrs	25 Ltrs	60 Ltrs
3500 Ltrs	- 25 Ltrs	25 Ltrs
4000 Ltrs	- 60 Ltrs	- 20 Ltrs

Further, volumetric data analysis based on 3-D model of 5000 ltrs fuel tank (PL No. 17033718) with existing calibration chart (PL No. 11674258, Drg no. TPL-3276) was done and the difference was noticed between the actual volumetric variation with height and the readings indicated on the existing calibration chart fitted on the fuel tank. The variation was generally conforming to the actual deviation observed on the locomotives (as recorded at DLW).



Findings:

The calibration chart (PL No. 11674258) is also a child part of the fuel tank application drawing of WDM3D loco (PL No. 11531587). The fuel tank being used on WDM3D loco is of 5000 Litres capacity. Capacity of the fuel tank used in HHP passenger locos (WDP4B & WDP4D) is also 5000 L. However, while the maximum height of WDM3D fuel tank is 972 mm, that of WDP4B & WDP4D tank is 876 mm.

During investigation it was found that the calibration chart (PL No. 11674258) which is a child part of WDM3D fuel tank application drawing (PL No. 11531587) was also being used as a child part of HHP WDP4B/WDP4D fuel tank application assembly (i.e. with PL No. 17033718). Due to difference in cross-section of the fuel tanks used on WDM3D & WDP4B/WDP4D locos, the fuel level being displayed in the glow rod gauge of HHP fuel tanks was not matching with the actual top-up volume.

Corrective action:

Fuel tank application drawing (Drg No. 17033718) has been modified. The existing calibration chart (PL No. 11674258) has been replaced by new calibration chart (PL No. 17314306). The fuel tank application drawing (Drg no. 17033718) has been altered and the applicable Drg alteration is Drg no. 17033718 Alt-'a'.

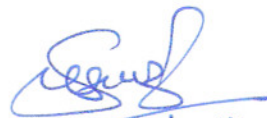
Applicability : WDP4B/WDP4D locomotives

Implementation :

CME(P),CQAM, CME(M), Dy.CME(Loco)

Circulation:

CME(P),CQAM, CME(M),Dy.CME(Loco)



28/3/2014

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