

Government of India
Ministry of Railways
Research, Designs & Standards Organisation
Manak Nagar, Lucknow - 226 011

Ref: EL/3.2.1.2/DC2

NOV,1980.

MODIFICATION SHEET NO RDSO/WAM4/94

**MATERIAL SPECIFICATION FOR CORE SUPPORTING STUDS OF
TRANSFORMER TYPE BOT 3460 BHEL MAKE**

1. OBJECT OF MODIFICATION

Six bolts are used for fixing the core with the transformer top cover. Railways have reported a few cases of breakage of these core-supporting bolts, near the welding of the nut with the bolt. Investigations have shown that this is due to use of bolts of non-weldable high tensile nickel-chromium-molybdenum steel to IS: 5517. The original manufacturers had specified weldable material bright steel bars. Bright steel bars. M/s BHEL have already changed the material to bright steel bars to IS: 4855 grade C-20 cold drawn. It is proposed to replace the bolts by those of material to IS: 4855 on existing loco transformers.

2. WORK TO BE CARRIED OUT

- 2.1** Whenever transformer core is lifted for periodical check, replace all the six core supporting bolts by new ones machined from bright steel bar to IS: 4855-1968 grade C-20 cold drawn. The properties of this material are as follows:

<u>CHEMICAL COMPOSITION</u>	<u>PERCENT</u>	
Element	Min.	Max.
Carbon	0.15	0.25
Silicon	0.05	0.35
Manganese	0.60	0.90
Sulphur	-	0.055
Phosphorous	-	0.055

MECHANICAL PROPERTIES

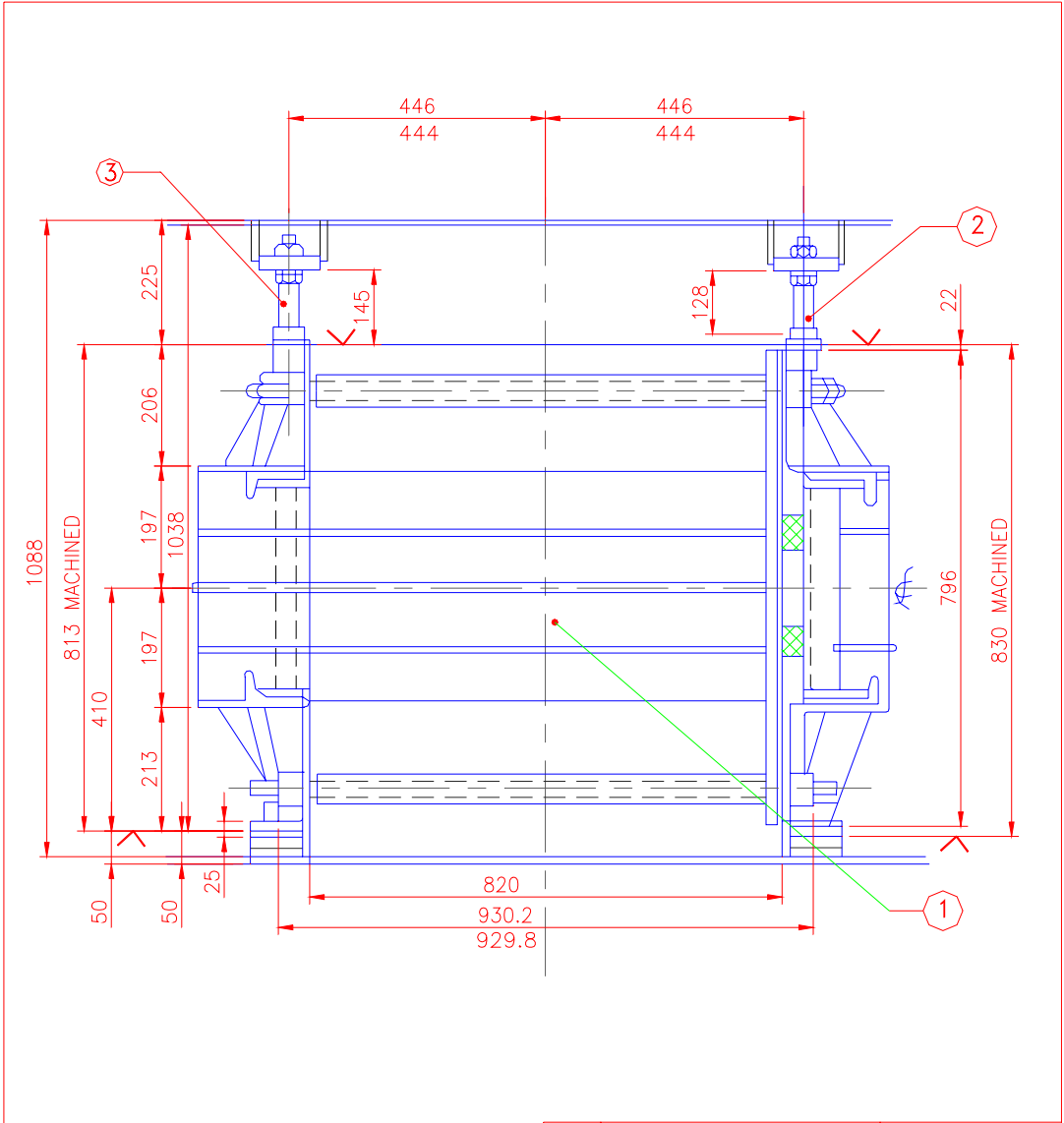
Tensile strength	44 - 60 Kg/mm ²
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- 2.2 Adjust the height so as to get the dimensions as indicated in sketch No. SK EL 3279 enclosed.
3. **APPLICATION TO CLASS OF LOCOMOTIVE**
All locos fitted with BOT 3460 transformers of BHEL make.
4. **MATERIAL REQUIRED**
Bolts machined from Bright steel bar to IS:4855-1968 grade C-20, cold drawn, obtainable from M/s Bharat heavy electricals Ltd., P.O. BHEL, Jhansi PIN 284 001.
5. **MATERIAL RENDERED SURPLUS**
Nil.
6. **REFERENCE**
BHEL plant purchase specification PS 10112-C.
7. **AGENCY FOR IMPLEMENTATION**
Railway sheds and workshops for existing locos.
8. **DISTRIBUTION**
As per list attached.

M. Chandra.

Encl: SK EL 3279.

(RAMESH CHANDRA)
for Director General/Elect.



					3	CORE SUPPORTING BOLTS 30 DIA-220 LONG	3	IS:4855-1968 BRIGHT STEEL
2 & 3	A	CORE SUPPORTING BOLTS 24 DIA INSTEAD OF 30 DIA		OCT. 84	2	CORE SUPPORTING BOLTS 30 DIA-250 LONG	3	IS:4855-1968 BRIGHT STEEL
				1	TRANSFORMER CORE	1	EXISTING	
PART No.	ALT. NO.	DESCRIPTION	SIG.	DATE	PART No.	DESCRIPTION	QTY.	MAT/- SPEC.
REF :- BHEL DRG.No.G-6100020				SCALE:-1:10		APPROVED:- Sd		
		CLEARANCES BETWEEN TRANSFORMER TANK CORE AND TANK COVER						
		RDSO.ELEC. DTE.			SKEL-3279			

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