

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

No. EL/3.2.30/CG

Dated : 16.3.1984

**SPECIAL MAINTENANCE INSTRUCTIONS NO.  
RDSO/ELRS/SMI/113**

**LIST OF VARIOUS TORQUE VALUES AND ASSEMBLY TOOLS/ADAPTERS  
USED AT VARIOUS LOCATIONS IN TAP CHANGER NO. 32 TYPE AND AIR  
BLAST CIRCUIT BREAKERS (DJ) DBTF 30 i 250 TYPE OF HBB MAKE**

**1. Object :**

Railways have reported a few cases of malfunctioning of tap changer and DJ. Investigation has shown that in number of cases, the failures are mainly due to any of the following reasons --

- i) Improper tightness of nuts, bolts and screws; and
- ii) Misalignment.

**2. Instructions :**

In addition to the special maintenance instructions SMI no 62 and 90 dated 5.2.80 and 15.9.82 respectively issued by RDSO, ensure that the following parts are tightened with the torque values specified as under -

**Tap Changer**

<u>Selector</u>	<u>Part No</u>	<u>Torque value range in mkg.</u>
(i) Hexagonal bolts on selector housing with mounting frame.	1203	3.5
(ii) Terminal nut	1207	1.4 to 1.5
(iii) Special hexagonal bolt for fixing insulating ring inner and outer	1221	0.5 to 0.6
(iv) Special nut and conical nut	1214 & 1217	2.5 $\pm$ 0.5
(v) Hex. socket head bolts of bevel gear	1409	1.5

**Load Switch (CGR)**

vi)	M6 socket head screw/Hex. bolt	2318	$1.2 \pm 0.1$
	M8 socket head screw/hex. bolt	2318	$2 \pm 0.1$

**Air Blast Circuit Breaker (DJ)**

i)	Hex. nut for resistor assembly	7172	4.5
ii)	Nuts on receiver for tightening press ring	2021 & 2023	1.2 to 1.5

**Note** - Torque wrenches of suitable torque range may be procured from any standard manufacturer/supplier. However details of Britool (made in England) torque wrenches of the following types are given as for your reference and guidance

Type	Range
A) EVT 1200 A	3-14 kg m.
B) AVT 300A	0.5 - 3.4 kg m.
<b>Supplier's address :</b>	Britool Products marketed James Neill Ltd. England.
<b>Indian Agent :</b>	M/s Tool Centre Industrial House, 51-53 Nagdevi Crosslane, Bombay 400 003.
<b>Reference :</b>	Page 5 item 2.1.7 of Record Note of discussions held between HBB, CLW and Railways at Baroda in Aug. 83 circulated vide this office letter of even No. dated 24.9.83.

**Assembly Tools :**

Different types of assembly tools adapters used in tap changer assembly are shown in sketch No. SK EL 3704 & 3705. These can be procured with the help of the above sketches.

3. **Periodicity :** Sheds - AOH/IOH earlier in case found loose or reassembly done.  
Workshops - POH

**4. Instruction Drawing :**

RDSO SK EL 3704 & 3705

**5. Application of class of locos/EMUs :**

Locos fitted with No. 32 tap changers of HBB make  
Locos/EMU fitted with circular type DBTF 30 i 250

6. **Agency of implementation :**

All electric loco sheds and repair shops of Railways.

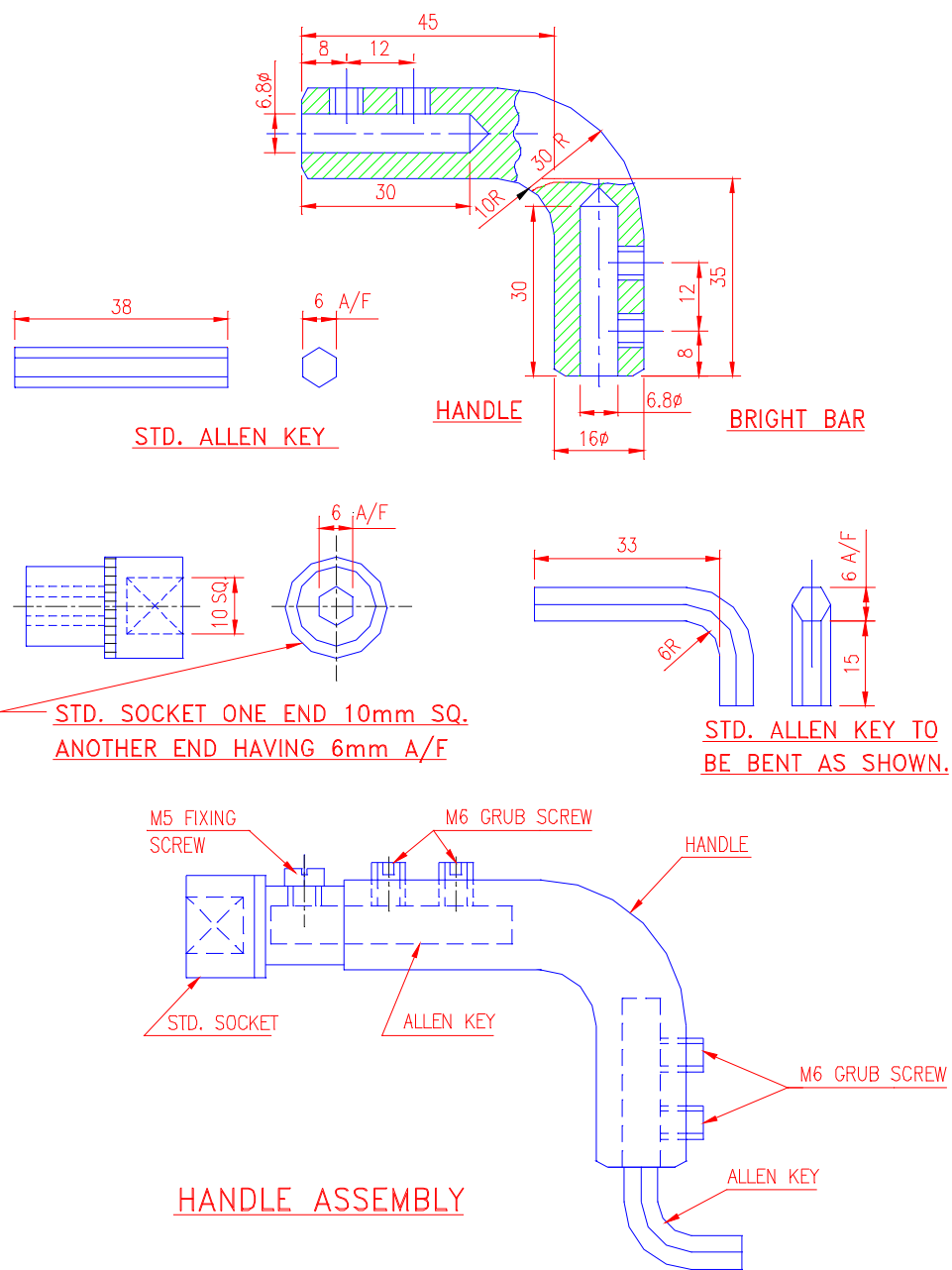
All EMU Car sheds.

7. **Distribution :**

As per list attached.



(K. Vishwakumar)  
for Director General (Elec.)



REF :- HBB SKETCH  
DATED 12-8-83

SCALE:- 1:1

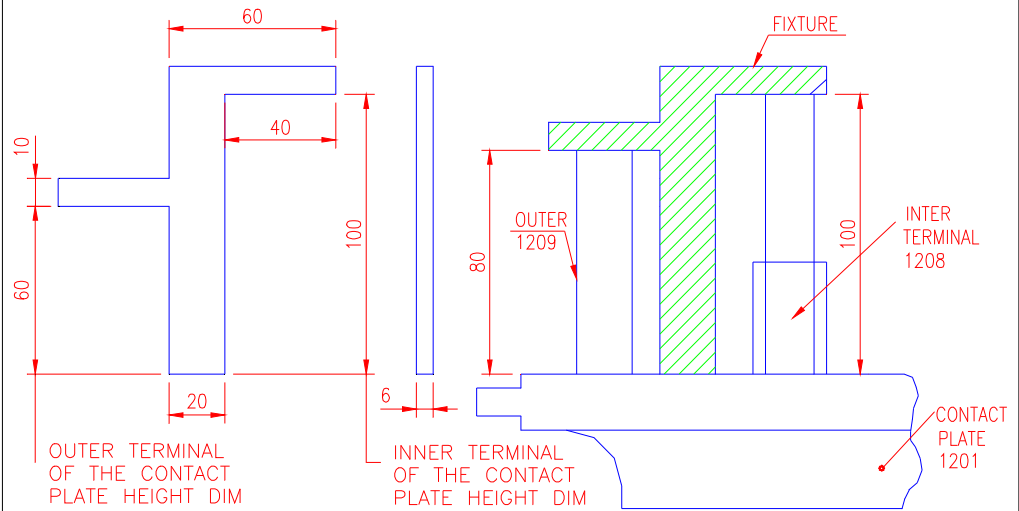
APPROVED:-

SPECIAL HANDLE WITH TENSION ELEMENT  
FOR TIGHTNING THE BEVEL GEAR ON SHAFT

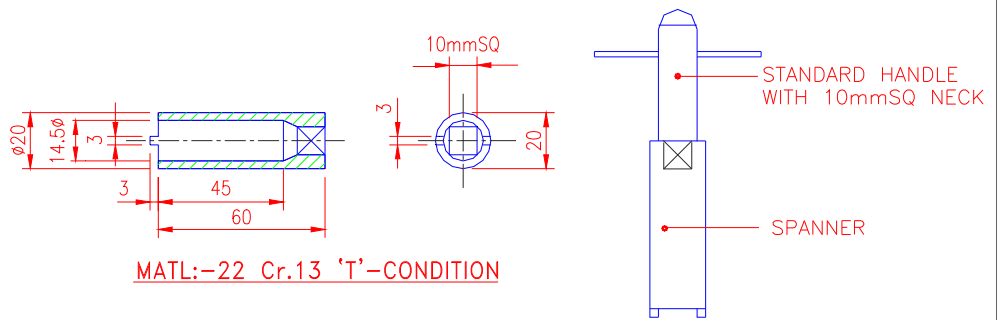
RDSO.ELEC. DTE.

SKEL-3704

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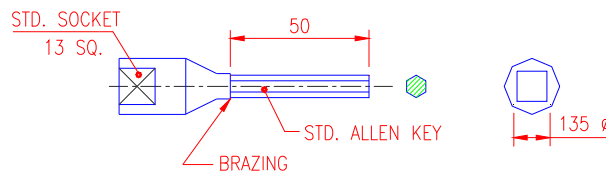


MATL:-St.32-0



MATL:-22 Cr.13 'T'-CONDITION

SPANNER FIXTURE FOR CONICAL NUT 1217 TIGHTNING PURPOSE



SPECIAL ALLEN KEY FOR DIFFT. SIZE OF SOCKET HEAD SCREW TIGHTNING PURPOSE

NOTE:-

STD. ALLEN KEYS 5,6,8,10mm SIZES ARE TO BE CUT TO A LENGTH OF 50mm & BRAZED WITH STD. SOCKET FOR DIFFT. SOCKET HD. SCREWS FOR TIGHTNING PURPOSE.

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REF.	HBB SKETCH DATED 12-8-83	SCALE: 1:5	APPROVED
DIFFERENT TYPES OF ASSEMBLY. TOOLS USED IN TAP CHANGER ASSEMBLY. SHOP			
R.D.S.O. ELEC. DTE.		SK. EL. 3705	

