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भारत सरकार - रेल मंत्रालय
अनुसंधान अभिवृद्धि और मानक संगठन
लखनऊ - २२६०११
Government of India - Ministry of
Railways
Research, Designs & Standards
Organisation, LUCKNOW - 226011

EL/3.2.100

Dated: 22.3.2007

SPECIAL MAINTENANCE INSTRUCTION No.RDSO/2007/EL/SMI/0243Rev. ('0')

1.0 Title:

Special Maintenance Instructions for Fixtures and Gauges for Brush holders and BHRR Assemblies of Traction Motors type TAO-659 and HS-15250A of Electric Locomotives.

2.0 Brief History:

Railways have been reporting problems on quality of brush holders and Brush Holder Revolving Rings (BHRRs) of traction motors due to non-conformity of vital dimensions of these components at manufacturing and machining stage. Some of the approved sources of Brush holders and BHRRs are using fixtures and gauges for ensuring proper dimensions at their quality control stage. These were studied and it has been decided to standardize these fixtures/gauges through issue of SMI for use by all approved sources of brush holders and BHRRs as well as sheds and shops carrying out overhauling of these components.

3.0 Object:

To minimize quality related failures on account of improper dimensions of brush holders and BHRR components; certain Jigs and fixtures need to be maintained with manufacturers, contractors doing rehabilitation on works contract, Railway Work shops and Electric Loco sheds. This SMI covers list of Jigs and fixtures for Quality Control of Brush Holders, Insulators & BHRR of Traction Motors.

4.0 Modified instructions :

4.1 The following gauges and fixtures should be procured/manufactured by the implementing agencies for use on BHRRs of Hitachi (HS15250A) TMs:

**Table for Fixtures & Gauges for Brush Holder & BHRR of Hitachi TM
(HS-15250A)**

S.N.	Gauge/Fixture Code	Gauge & Fixture Description	RDSO Drg. No.
1.	H-1	Go- Gauge (L X W) for Big & Small pockets	SKEL-4708

4.2 The following gauges and fixtures should be procured/manufactured by the implementing agencies for use on BHRRs of TAO659 TMs:

Table for Fixtures & Gauges for Brush Holder & BHRR of TAO-659 TM

S.N.	Fixture Code	Gauge & Fixture Description	RDSO Drg. No.
1.	T-1	Go- Gauge (LXW) for Big & Small pockets	SKEL-4713
2.	T-2	No-GO Gauge (L) for Big & Small pockets	SKEL-4713
3.	T-3	No-Go Gauge (W) for Big & Small Pockets	SKEL-4713
4.	T-4	Combined gauge for BH Brush Pocket	SKEL-4714
5.	T-5	Brush Holder Pocket to mounting Serration Inspection Fixture (Sheet 1/3)	SKEL-4715 (In 3 sheets)

4.3 Sources:

The gauges/fixtures can be sourced from any reputed manufacturer of gauges/fixtures as per the drawings issued with this SMI.

4.4 Method of use:

The method of use of the gauges is self explanatory in most cases. Wherever required, instructions for use have also been mentioned in relevant drawings.

5.0 Application to:

Brush Holder & Brush Holder Revolving Ring Assembly of Traction Motors type TAO-659 & HS-15250A

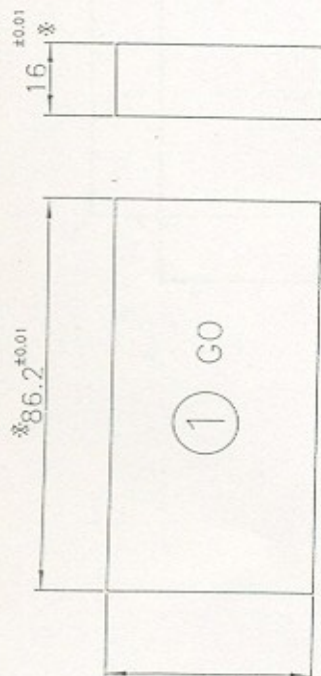
6.0 Agency of Implementation:

- All sheds, POH shops** for use during overhauling of Brush Holder & BHRR to facilitate the test checks/ inspection of incoming material received from trade.
- CLW:** for quality checks on incoming material procured from trade and for use during manufacture of BHRR if applicable.
- Manufacturers:** All Brush Holder & BHRR manufacturers should include these Jigs & Fixtures in their QAP and offer for inspection by respective inspecting agencies.

7.0 Periodicity of Implementation:

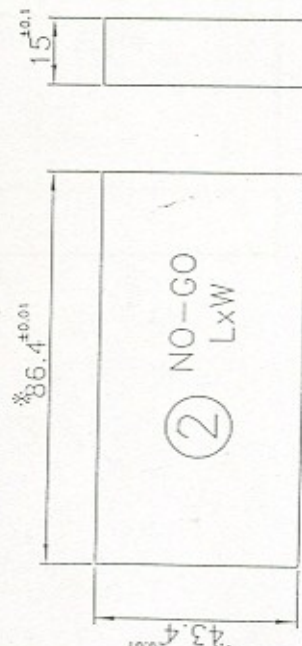
- During the acceptance test/ inspection of Brush Holders and BHRR of Traction Motors Type TAO-659 & HS-15250A
- During overhauling of BHRRs at the sheds/shops.

Handwritten signature and date:
23/3/2007



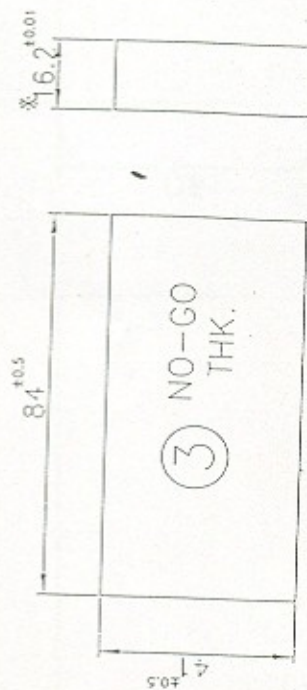
GO GAUGE FOR(LxW) FOR BIG POCKET & SMALL POCKET

Gauge Code: T-1



NO-GO GAUGE FOR (L) FOR BIG & SMALL POCKET.

GUAGE CODE: T-2



NO-GO GAUGE FOR (W) FOR BIG & SMALL POCKET.

Gauge Code: T-3

NOTE: 1] 1x45° CHAMFER AT ALL SHARP CORNERS

2] KEEP SUFFICIENT GRINDING ALLOWANCE WHILE MACHINING.
3] MATERIAL: O.H.N.S

4] HARDEN+TEMP 53-55HRC.

X. KEEP SUFFICIENT GRINDING ALLOWANCE

Ref. No.	PART No	DESCRIPTION	DETAIL DRG. No.	No. / LOCS	MATL.	SPEC.			
REF:			SCALE: NTS		APPD. BY:				

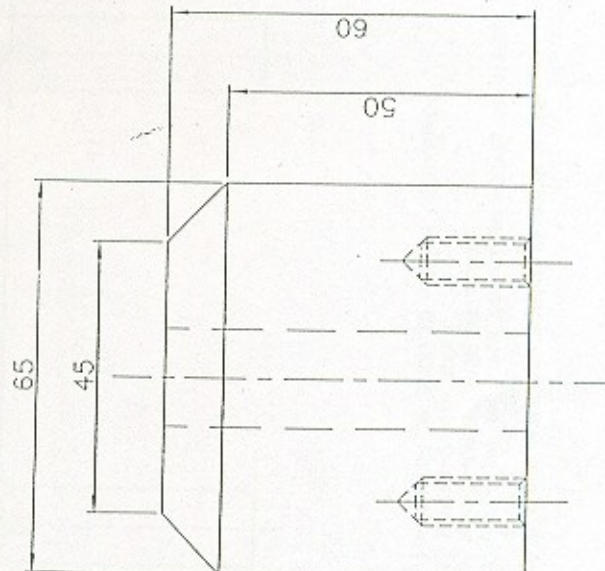
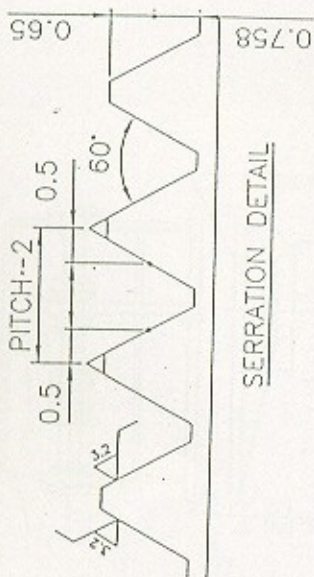
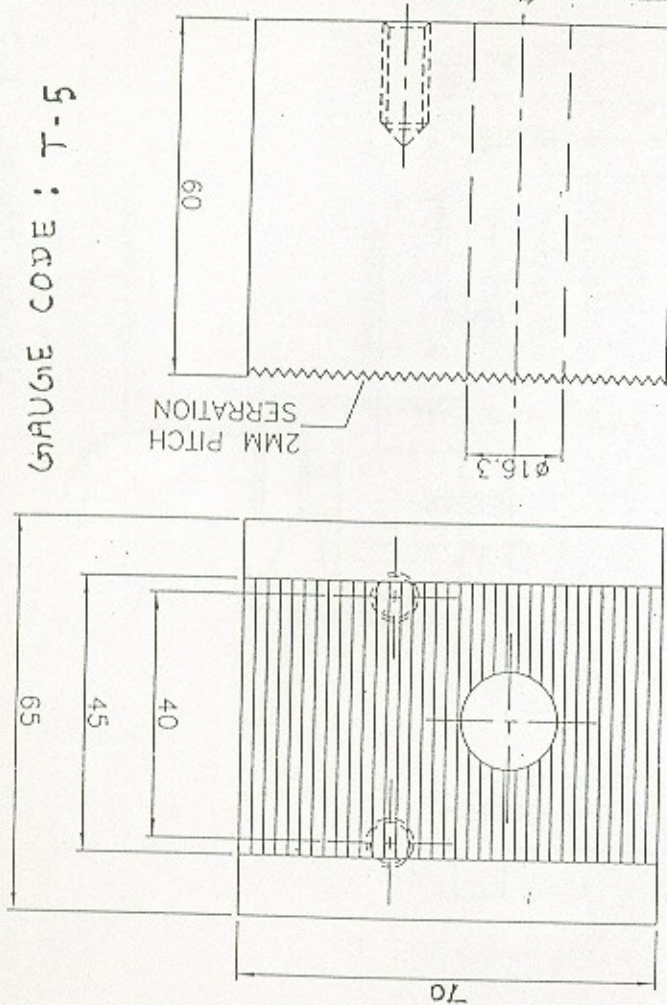
GO & NO GO GAUGE FOR TAO-
659 TM BRUSH HOLDER
BRUSH POCKET

RDSO ELEC.DTE.

SKEL-4713

SUPERSEDED BY

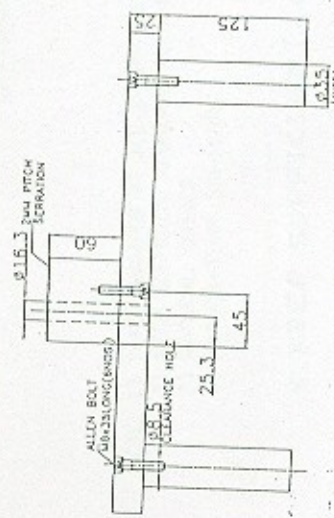
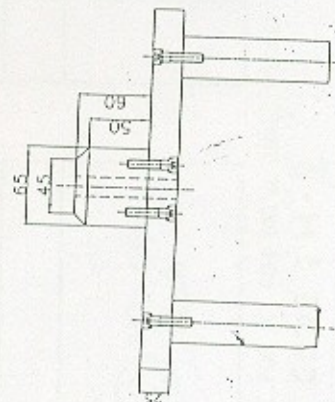
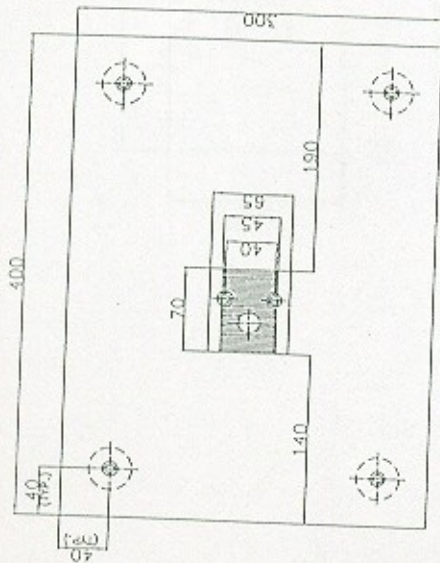
GAUGE CODE: T-5



REF. No.	PART No.	DESCRIPTION	DETAIL DRG. No.	No./Loco	MATL.	SPEC.
REF:			SCALE: NTS	APPD. BY:		
BRUSH HOLDER POCKET TO MOUNTING SERRATION INSPECTION FIXTURE FOR TM TYPE TAO-655			FIRST ISSUED			
			SUPERSEDES			
RDSO ELEC. DTE.			SKEL-4715 (ALT. 0)			
			SUPERSEDED BY			

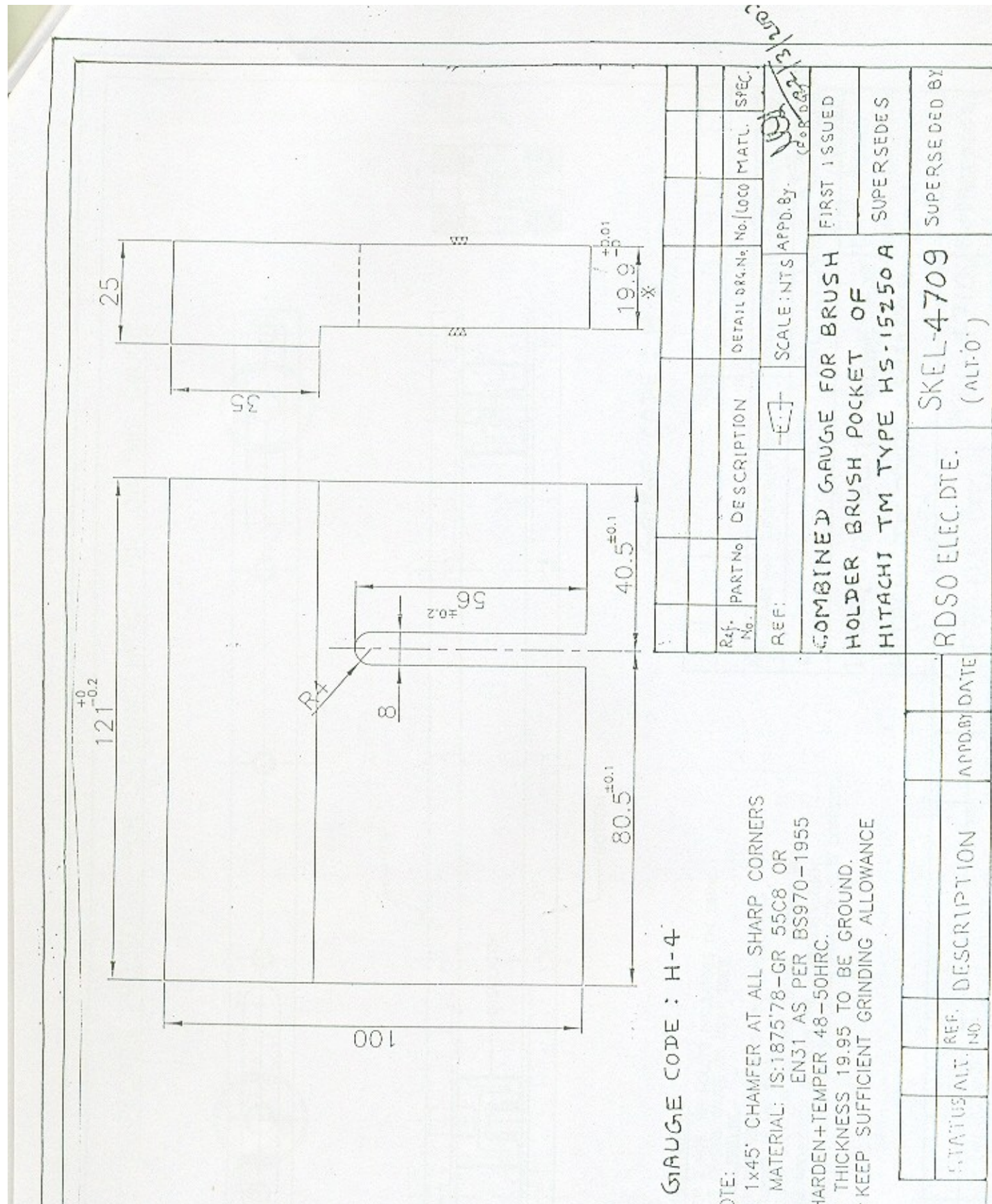
STATUS	ALT. NO.	DESCRIPTION	APPD. BY	DATE

GAUGE CODE: T-5

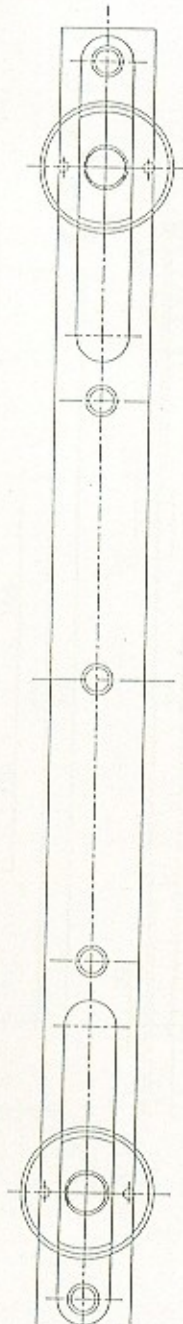


Ref. No.	PART No.	DESCRIPTION	DETAIL DRG. No.	LOC.	MATL.	SPEC.
REF:			SCALE: INTS	APPD. BY:		
BRUSH HOLDER POCKET TO MOUNTING SERRATION INSPECTION FIXTURE FOR TM TYPE TAO-659			FIRST ISSUED			
RDSO ELEC.DTE.			SUPERSEDES			
SKEL-4715 (ALT-0)			SUPERSEDED BY			

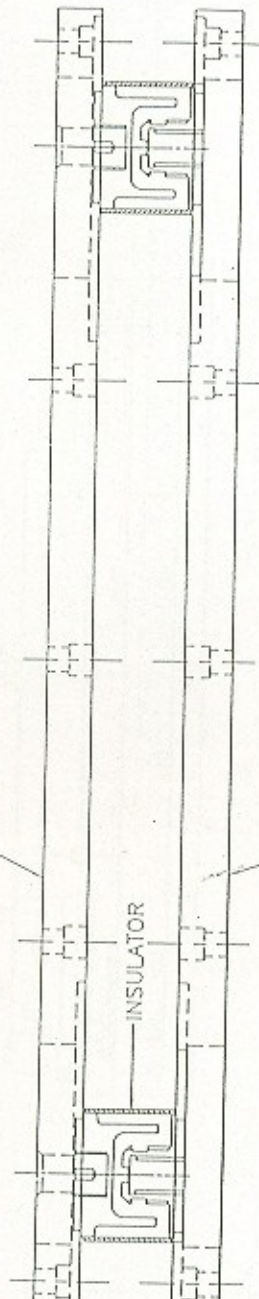
STATUS	ALT. NO.	DESCRIPTION	APPD. BY	DATE



INSPECTION PROCEDURE FOR CHECKING HITACHI BH. ON THIS GAUGE.

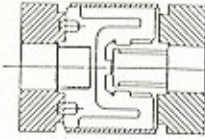


TOP



INSULATOR

BOTTOM



GAUGE CODE : H-5

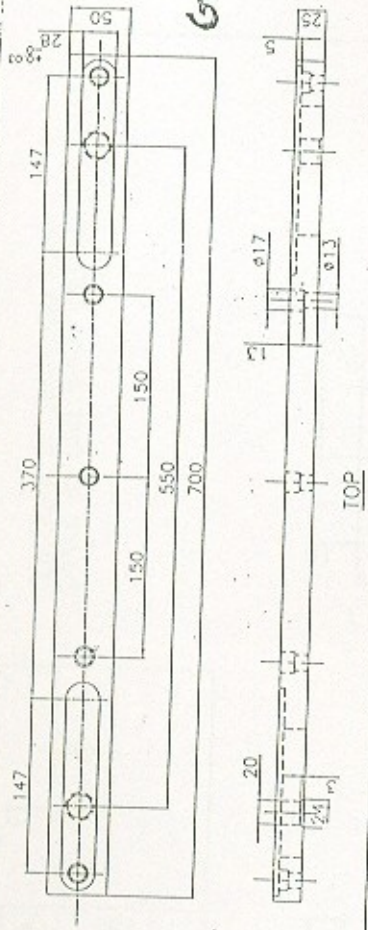
SIDE FIXTURE -
EP 2 NOS. BH HOLDER INSULATORS ON 28MM
OT OF THE GAUGE ON BOTH SIDES.
SIDE FIXTURE -
EP TOP SIDE FIXTURE ON BOTH INSULATORS
CHECKING 28 MM SLOT.
28MM SLOTS ON TOP SIDE FIXTURE MATCHES WITH
16MM PROJECTION OF BOTH THE INSULATORS THEN
CENTRE LINE OF INSULATORS (28MM PROJECTION) IS CORRECT.

REF. No.	PART No	DESCRIPTION	DETAIL DRG. No.	No. LOCO	MATL.	SPEC.
REF:			SCALE: NTS	APPD. By.		

INSULATOR SLOT GAUGE FOR HITACHI TM TYPE HS-15250A		FIRST ISSUED
RDSO ELEC. DTE.		SUPERSEDES
SKEL-4710 (ALT. 0)		SUPERSEDED BY

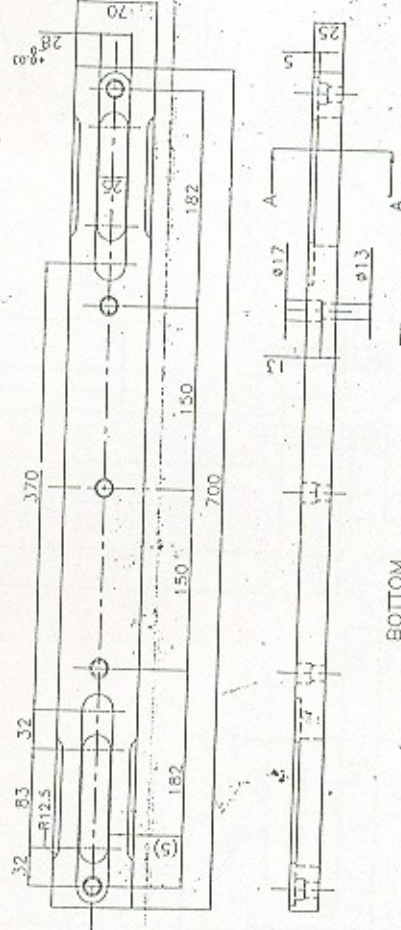
STATUS	ALT. NO.	DESCRIPTION	APPD. BY	DATE

07
NG
24
1.100

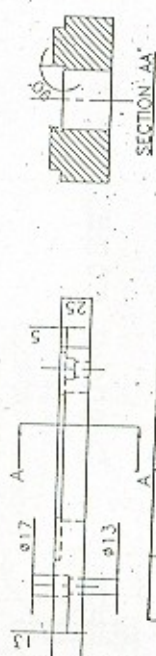


GAUGE CODE: H-5

TOP



BOTTOM



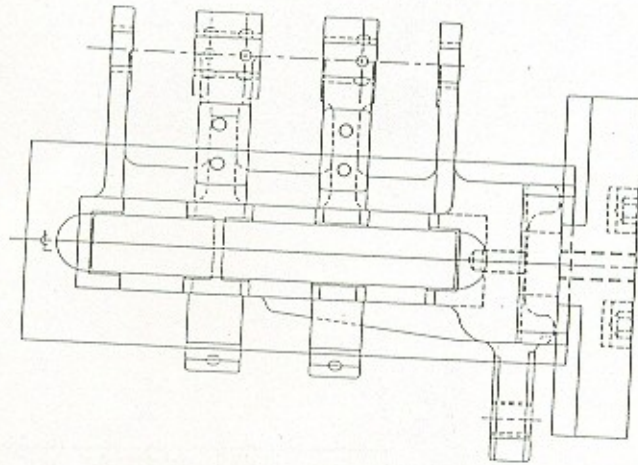
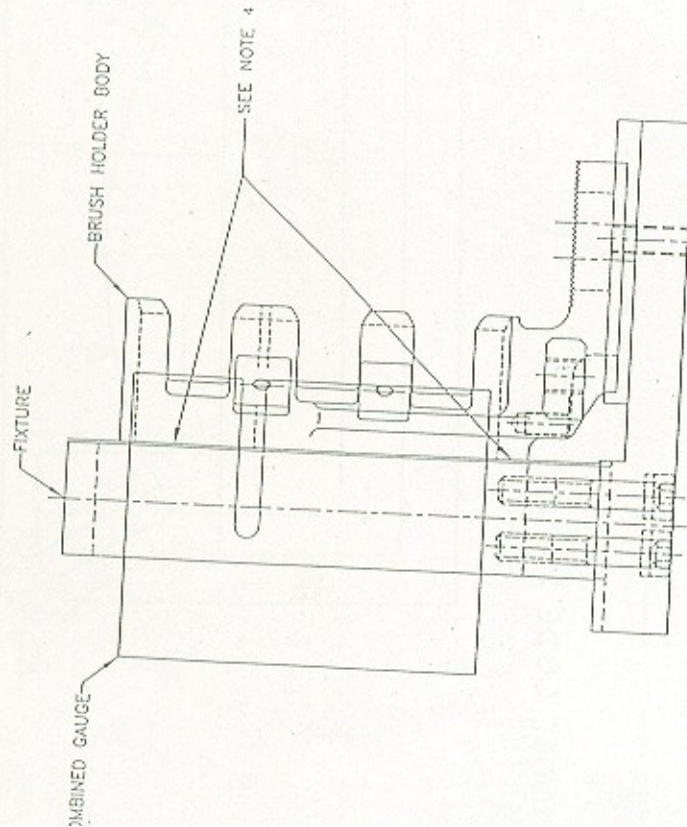
SECTION AA

This fixture is used to check Centre line & angular accuracy of mounting projections.

Ref. No.	PART NO	DESCRIPTION	DETAIL DRG. No.	No. LOCO	MATL.	SPEC.
REF:			SCALE: NTS	APPD. BY:		
INSULATOR SLOT GAUGE FOR			FIRST ISSUED			
HITACHI TM TYPE HS-15250A			SUPERSEDES			
RDSO ELEC. DTE.			SKEL-4710 (ALT-0')			
			SUPERSEDED BY			

STATUS	ALT.	REF. NO.	DESCRIPTION	APPD. BY	DATE

GAUGE CODE : H-6



- 1) FIX BH ON 28MM PROJECTION.
 2) FIX SERRATED WASHER (AS PER RDSO DRG. SKEL-4445) ON BH SERRATED SURFACE.
 3) PUT PLAIN WASHER ON SERRATED WASHER & TIGHTEN WITH M10 BOLT KEEPING A GAP OF 2MM BTN. BH POCKET FACE & FIXTURE.
 4) CHECK 90° OF BRUSH HOLDER BY INSERTING APPROPRIATE FILLER GAUGE BTN. BH & FIXTURE AT TOP & BTM.
 5) USE COMBINED GAUGE NUMBER : H-6 TO CHECK CENTRE LINE OF BH. POCKET & 28MM SLOT.

Ref. No.	PART No	DESCRIPTION	DETAIL DRG. No	No. / LOGO	MATL. SPEC.
REF:			SCALE: NTS	APPD. BY: <i>[Signature]</i>	
INSPECTION FIXTURE FOR BRUSH HOLDER OF HITACHI TM TYPE HS-15250A			FIRST ISSUED		
RDSO ELEC. DTE.			SUPERSEDES		
SKEL-4711 (ALT. 0')			SUPERSEDED BY		

[illegible]

RD50 ELEC.DTE.	SKEL-4712 (ALT-0)	SUPERSEDED BY
		SUPERSEDES