



भारत सरकार, रेल मंत्रालय
अनुसंधान अभिकल्प और मानक संगठन,
मानकनगर, लखनऊ-226011
Government of India, Ministry of Railways
Research, Designs & Standards Organisation
Manak Nagar, Lucknow - 226011

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संख्या/No.TI/OHE/GA/19

दिनांक/Dated 20.01.2020

Principal Chief Electrical Engineer & CAO

- | | |
|--|---|
| (i) Central Railway, Station Building, Mumbai CST - 400 001. | (ii) Eastern Railway, Fairlie Place, Kolkata-700 001. |
| (iii) East Central Railway, Hajipur-844 101. | (iv) East Coast Railway, Bhubaneshwar-751 023. |
| (v) Northern Railway, Baroda House, New Delhi - 110 001. | (vi) North Central Railway, Allahabad-211 015. |
| (vii) North Eastern Railway, Gorakhpur-273 012. | (viii) North Frontier Railway, Malegaon - 781 011. |
| (ix) North Western Railway, Jaipur - 302 017. | (x) Southern Railway, Park Town, Chennai- 600 003. |
| (xi) South Central Railway, Railnilayam, Secunderabad-500 371. | (xii) South Eastern Railway, Garden Reach, Kolkata-700 043. |
| (xiii) South East Central, Railway, Bilaspur-495 004. | (xiv) South West Railway, DRM's Office, Hubli-580 028. |
| (xv) Western Railway, Church gate, Mumbai-400 020. | (xvi) West Central Railway, Jabalpur- 482 001. |
| (xvii) Central Organisation for Railway Electrification, Nawab Yusuf Road, Allahabad-211001. | |

Sub:SMI No TI/MI/0059for"Prevention of bird faults and melting/flashing of Catenary wire under suspension clamp".

Ref: (i) As per decision of 31st MSG.

(ii) PCEE's SR letter No. E.220/Policy dated 03.10.2019.

Please find enclosed herewith a copy of Special Maintenance Instruction no TI/MI/059 for "Prevention of bird faults and melting/flashing of Catenary wire under suspension clamp" for your kind information and necessary action please.

(Bhardwaj Chaudhary)

Director Traction Installation-2
For Director General (TI)]

Encl-Copy of SMI (total 5 pages).

Copy to-ED/EEM Railway Board, Rail Bhavan New Delhi-110001
-for Kind information.

Government of India, Ministry of Railways
Research Designs & Standards Organisation, Manak Nagar, Lucknow – 226011

1. TITLE:

- (i) Provision of Anti-bird disc for prevention of bird fault in composite and porcelain insulator (Stay tube Insulator, Bracket tube insulator and 9 ton insulator).
- (ii) Provision of Packing saddle (RI No. 1174) with Catenary Suspension clamp (RI No.1160) as given in modified drawing of suspension clamp (drawing No. RE/33/P/1160 Rev K) to Prevent Catenary Strand Melting/Parting.

2. BACKGROUND:

- (i) Railways are reporting flashing and breakage/parting of Insulator, due to bird fault. In severe cases insulator failure and in-turn traffic disruption may take place. This problem takes place due to perching of the bird on the insulator resulting into short circuit between live part and earth.
- (ii) Zonal Railways are reporting melting/Parting of Catenary strand inside the Catenary suspension clamp due to frequent tripping and passing of fault current through the poor connection of catenary and suspension clamp. During earth fault, the fault current passes from catenary wire to suspension clamp and further to the bracket/ stay tube.

3. OBJECTIVE:

- (i) It is proposed to provide anti-bird disc on ST, BT & 9-ton Insulator at vulnerable locations to prevent shorting of live part and earth by bird. This anti-bird disc will also act as deterrent for bird to perch on the insulator due to spikes provided on the outer periphery of the disc.
- (ii) To reduce the concentrated force on Catenary wire below 'U' bolt to prevent melting/cutting of the Catenary strand inside the suspension clamp.

4. INSTRUCTIONS:

- 4.1 (a)** Anti bird disc shall be provided on insulator end fitting of 25 kV side of composite and porcelain insulators (ST, BT & 9 ton) to avoid bird fault.
- (b)** The disc shall be provided on metal cap of composite insulator and in between first shed and metal cap in porcelain insulator.
- (c)** The details are available in the drawing of Anti bird disc drg no. TI/DRG/OHE/Anti-Bird Disc/00001/00/01 (sh-1 & sh-2).
- (d)** The Photographs of Anti Bird Disc arrangement is attached as Annexure-I.
- 4.2** Packing saddle (RI No. 1174) with Catenary Suspension clamp (RI No.1160) as given in modified drawing of suspension clamp (drawing No. RE/33/P/1160 Rev K) should be provided (attached as Annexure-II).

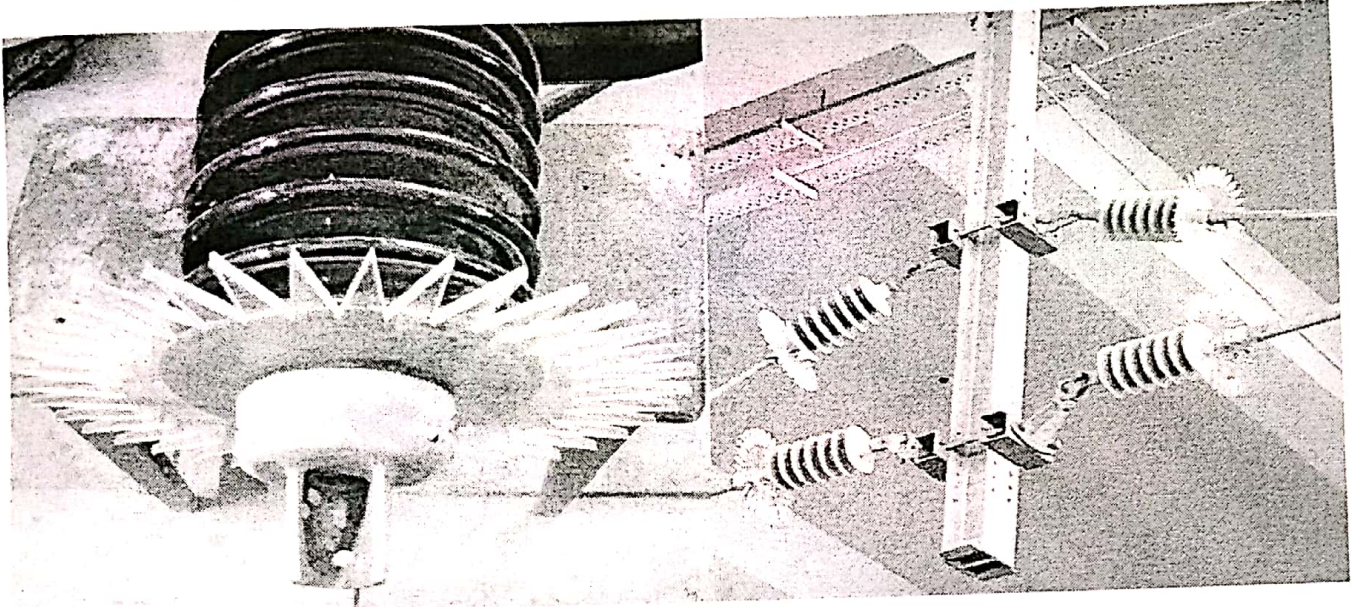
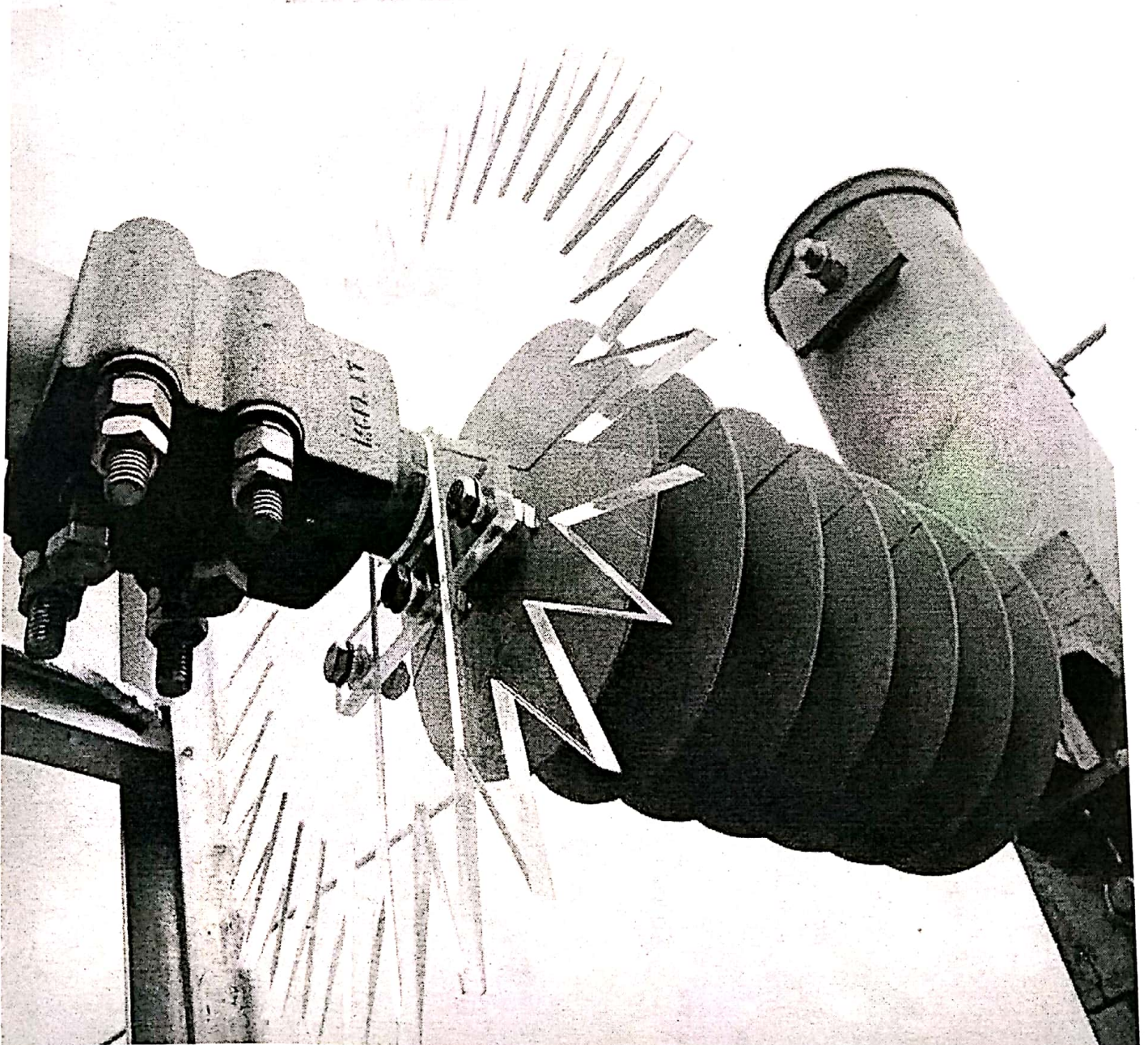
5. AGENCY FOR IMPLEMENTATION:

Anti bird disc arrangements will be provided on identified Bird/tripping Prone Locations/Sections as approved by PCEE.

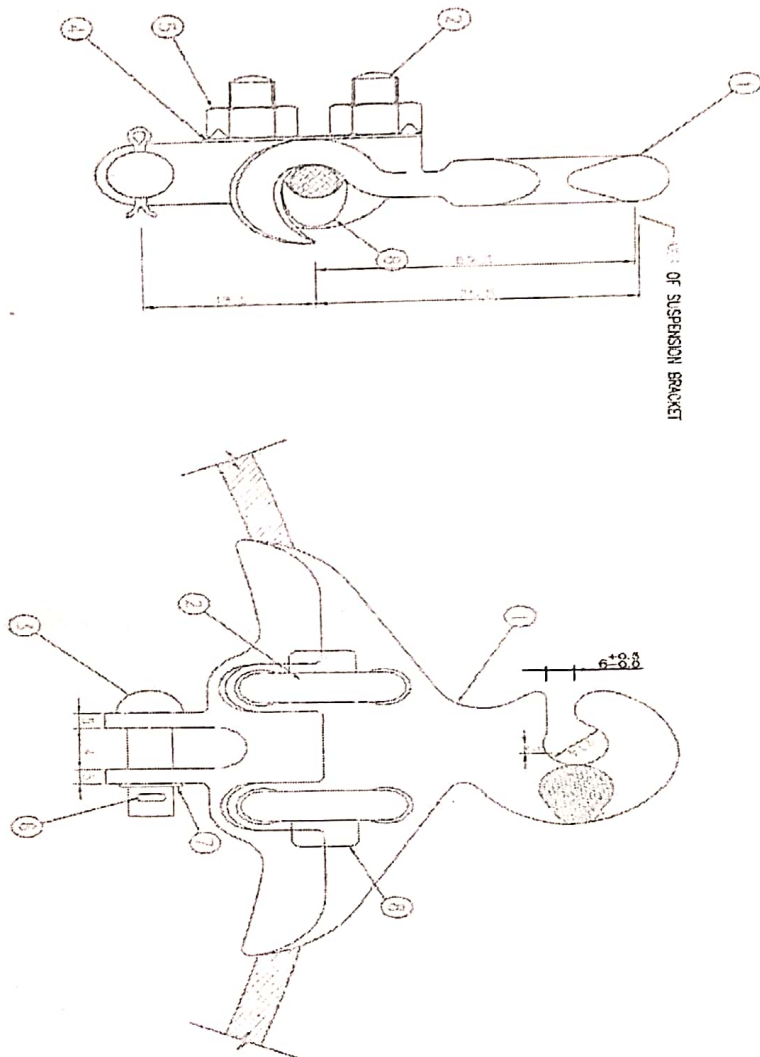
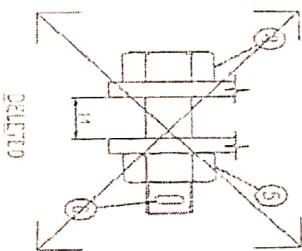
6. MAINTENANCE OF RECORDS:

Railways are advised to keep record of the locations where above arrangement has been provided to know the efficacy of the proposed system. It is also advised to send feedback on the same every six months regarding the effectiveness of the proposed system.

Photographs of arrangements of Anti-Bird Disc and Insulator



Annexure-2



REF No.	DESCRIPTION	PART No.	MATERIAL	SPECIFICATION	Approved by	No. Off
1	SUSPENSION CLAMP BODY	1161	ALUMINIUM BRONZE	IS:3091		1
2	'U' BOLT $\phi 10$ mm	1162-5	STAINLESS STEEL	EN/OHE/18		2
3	PIN $\phi 10$ mm/35mm	161-S				1
4	SUSPENSION CLAMP LOCK PLATE	1163	ANNEALED COPPER	IS:1897		2
5	NUT	10N	STAINLESS STEEL	EN/OHE/18		4
6	SPLIT PIN 2.5x20mm		ANNEALED COPPER	IS:549		1
7	PUNCHED WASHER A12		PHOSPHOR BRONZE	EN/OHE/18		1
8	PACKING SADDLE	1174	HALF HARD COPPER	IS:1897		1

NOTES:-

1. ALL DIMENSIONS IN mm.
2. TO BE USED FOR SUSPENSION OF:-
CATENARY(S5)($\phi 10$ mm).

SUSPENSION CLAMP

DE/OHE RE	1.2.66
AE/OHE RE	1.2.66

REF:-

IDENTIFICATION No:- 1160

DATE

WRO

NATURE OF WRO

INITIAL

RAILWAY ELECTRIFICATION

DATE

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NATURE OF WRO

INITIAL

RAILWAY ELECTRIFICATION

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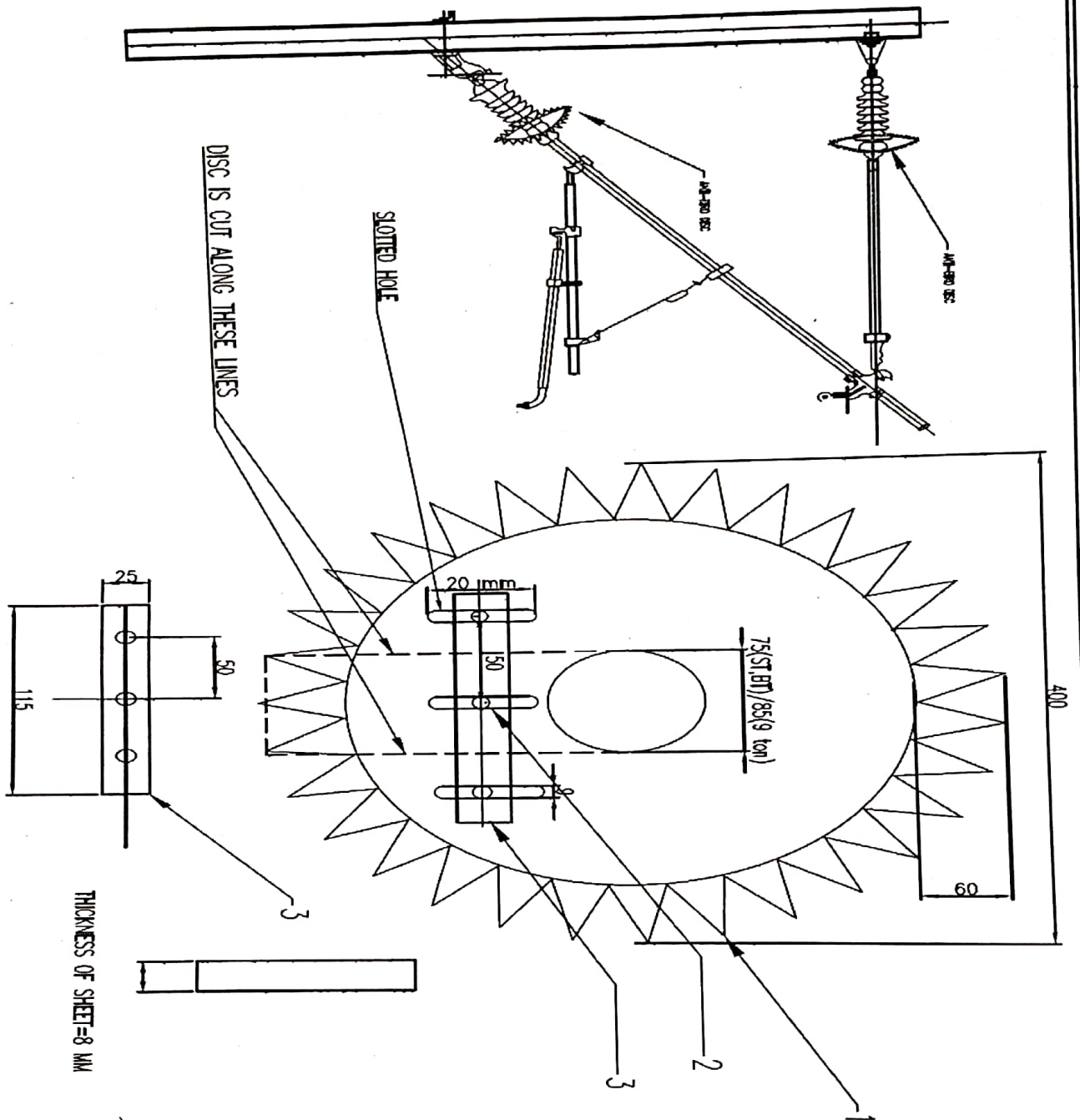
DATE

WRO

NATURE OF WRO

INITIAL

RAILWAY ELECTRIFICATION



REF	DESCRIPTION	MATERIAL SPECIFICATION	NO. OF
1	ANTI-BIRD DISC	ASTM-A492-16	1
2	NUT/BOLT 30x8	M/SFC/ONE/FASTENERS/0/20 (Rev.1) 6/5	
3	ANTI-BIRD DISC PLATE	ASTM-A492-16	1
	SPRING WASHER AND WASHER	M/SFC/ONE/FASTENERS/0/20 (Rev.1) 5/6	

NOTE-

1. ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE STATED.
2. THE MATERIAL SHALL BE OF CAST ACRYLIC SHEET OF CATEGORY A2 AS PER ASTM D-4802-16 OR SUPERIOR MATERIAL.
3. ALL THE FASTENERS SHALL BE OF STAINLESS STEEL AND SHALL CONFORM TO GRADE A4-50 PROPERTY CLASS

THIS DRAWING IS THE PROPERTY OF THE COMPANY AND IS NOT TO BE REPRODUCED OR USED IN ANY MANNER WITHOUT THE WRITTEN PERMISSION OF THE COMPANY.

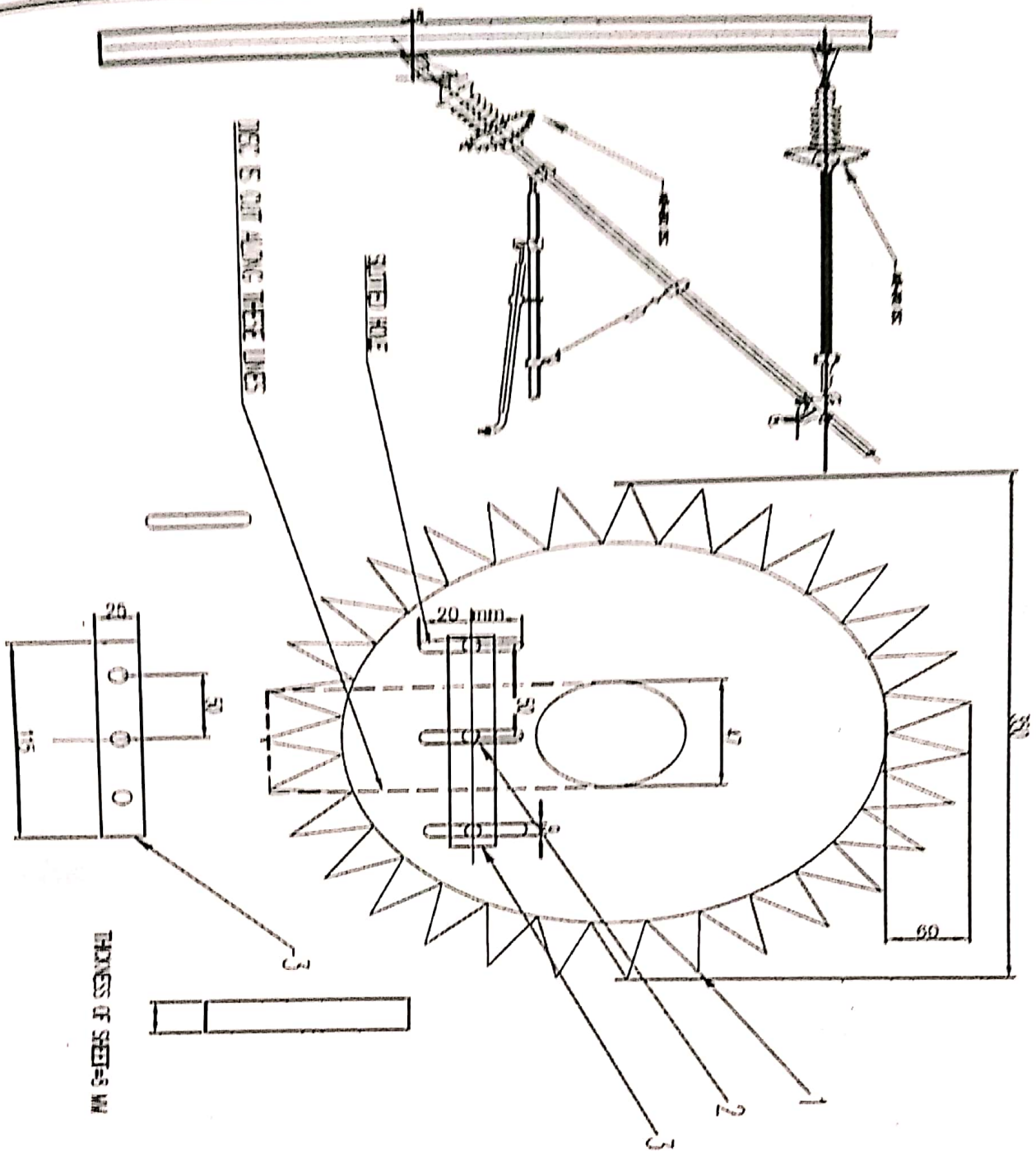
ANTI-BIRD DISC
(FOR PORCELAIN
ST.BT, 9 ton(INSULATORS))

011/20
2011/20

R. D. S. O.

DATE: 0000/19/0

1



NO	DESCRIPTION	MATERIAL SPECIFICATION	NO. OF
1	ANTI-BIRD DISC	ASTM-A601-16	1
2	W/OUT SOLS	W/OUT SOLS/FASTENERS/PLATE (mm-1) 6/3	6/3
3	ANTI-BIRD DISC	ASTM-A601-16	1
4	SPRING VASER	W/OUT SOLS/FASTENERS/PLATE (mm-1) 3/3	3/3

NOTE-

1. ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE STATED.
2. THE MATERIAL SHALL BE OF CAST ACRYLIC SHEET OF CATEGORY A2 AS PER ASTM D-4802-16 OR SUPERIOR MATERIAL.
3. ALL THE FASTENERS SHALL BE OF STAINLESS STEEL AND SHALL CONFORM TO GRADE A4-50 PROPERTY CLASS

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**ANTI-BIRD DISC
(FOR COMPOSITE
ST.BT, 9-Ton INSULATORS)**

R. D. S. O.

20/1/20

NO	DATE	REVISION	BY	CHKD	APPD
1	20/01/20	1	R.D.S.O.		
2	20/01/20	2	R.D.S.O.		