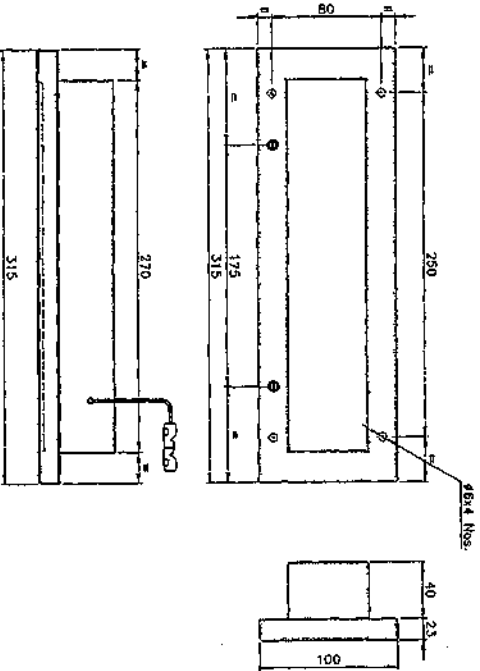
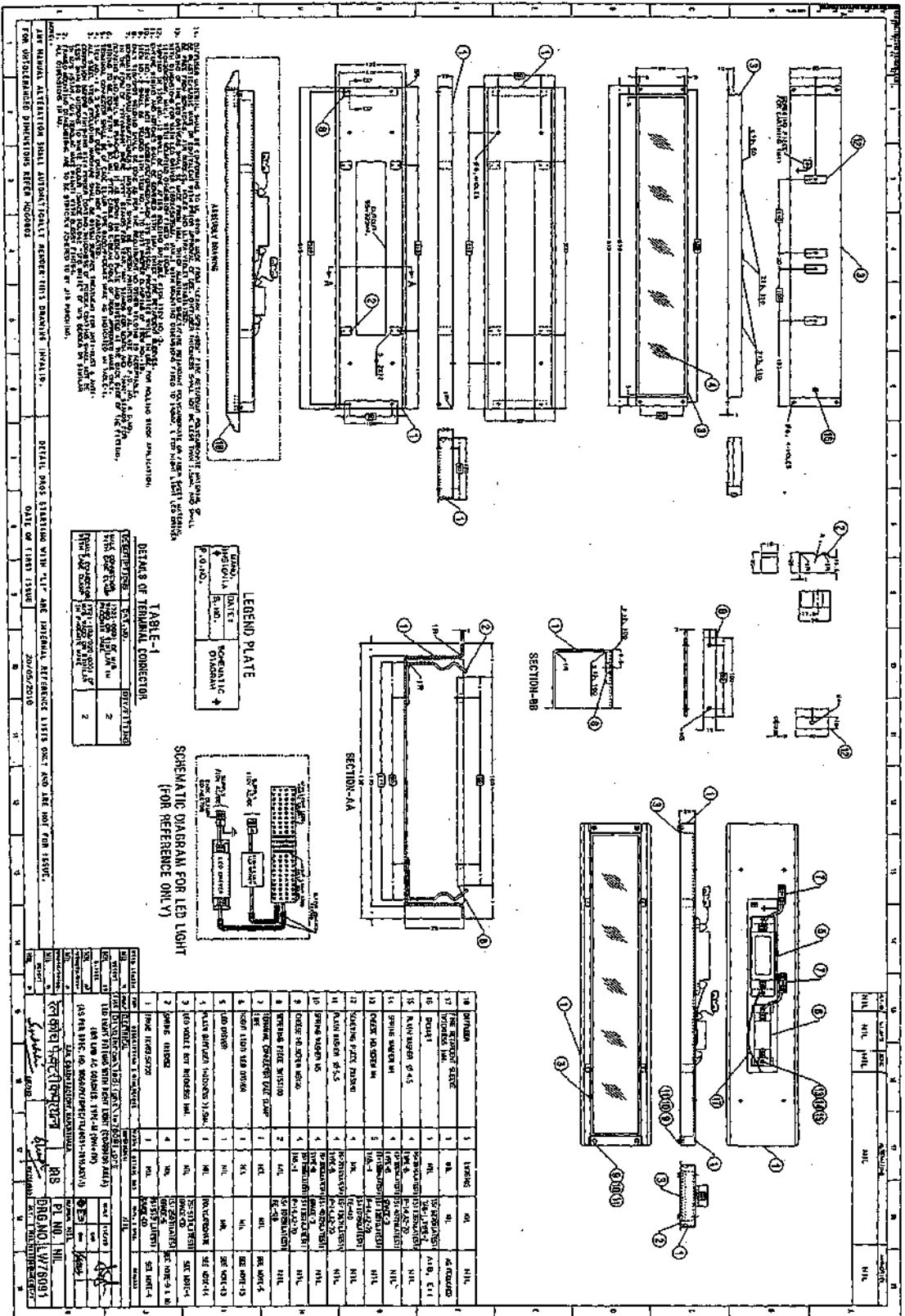


ICF/STD-7-6-048

ALTERATIONS



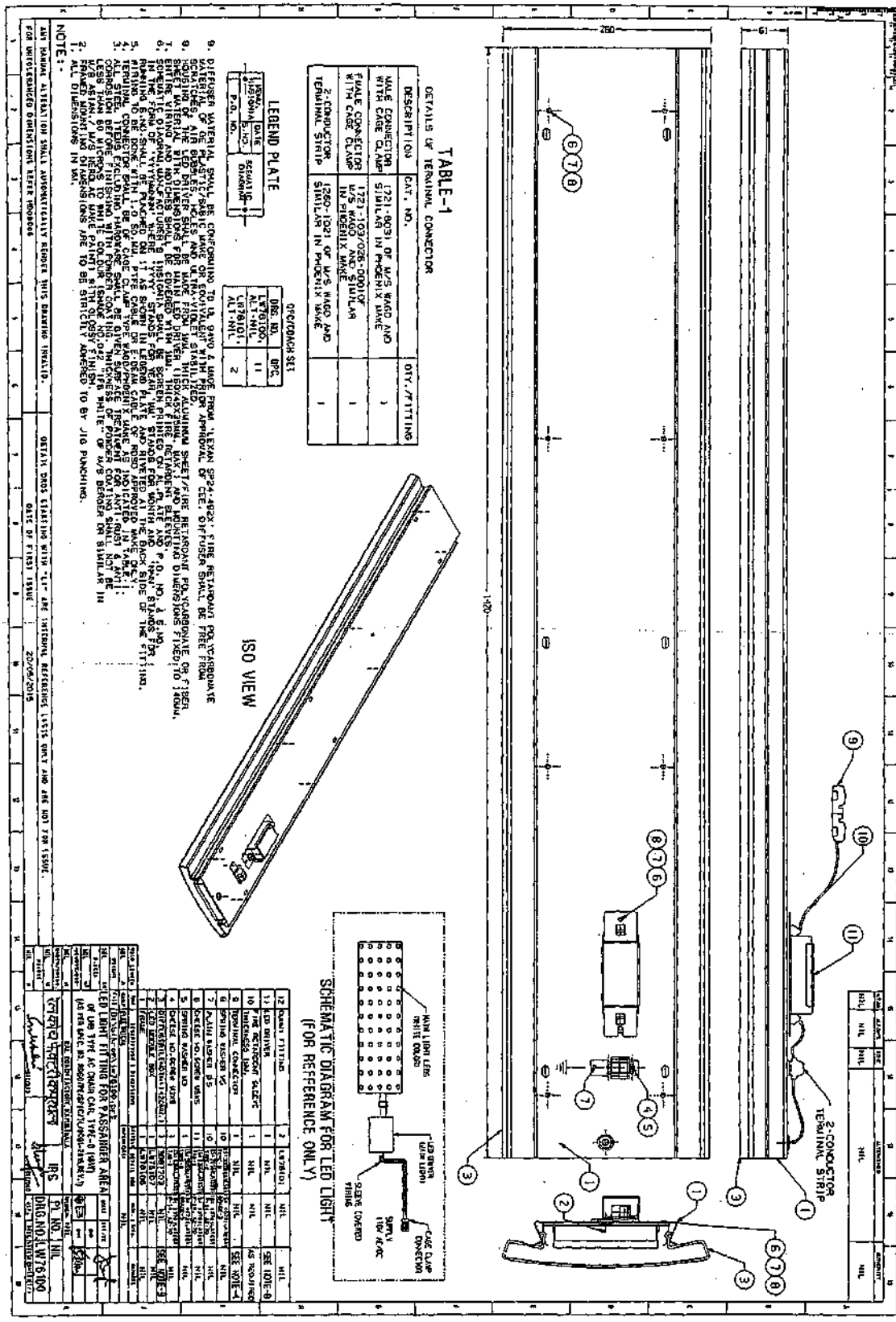
GROUP: 7-6		SUPERSEDED BY:	
LED LIGHT FITTING, TYPE-K (9W)		SCHEMATIC: <i>See above</i>	
FOR ENTRANCE DOORWAY AREA		DATE: <i>20-05-2016</i>	
(AS PER SPEC. NO. RDSO/SP/SEC/TL/0091-2016, REV. 1)		ALT.:	
CADD FILE: ED-CAD/140 7-6 048-00.DWG		DATE OF NEXT ALT. DATE OF NEXT EDRS	
DATA CODE NO. 140		DATE OF NEXT EDRS	
INDIAN RAILWAY STANDARDS		DATE OF NEXT EDRS	
SHEET 1 OF 1		DATE OF NEXT EDRS	
ICF/STD-7-6-048		DATE OF NEXT EDRS	



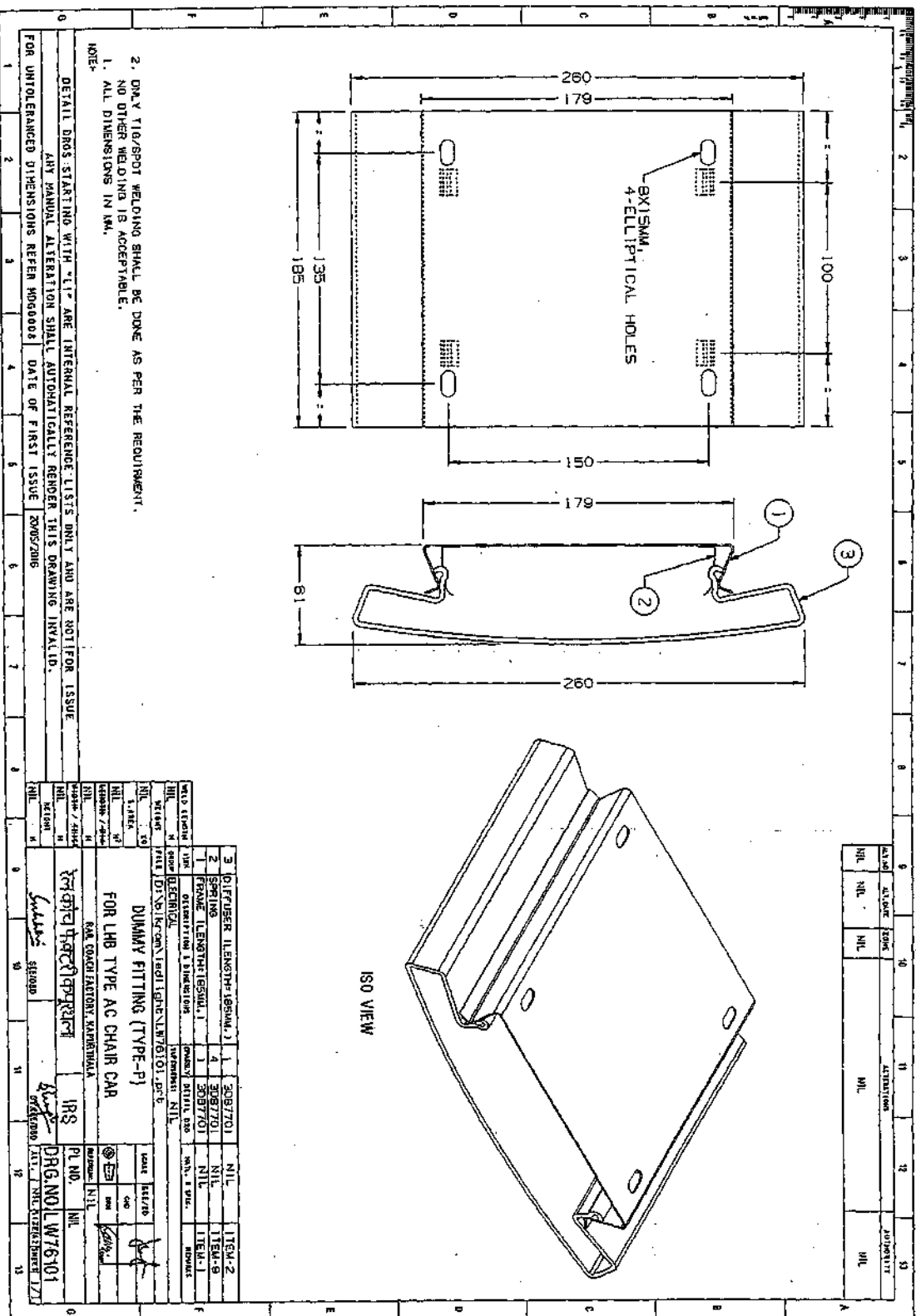
The drawing includes several views of a light fixture assembly, including a perspective view, a top view, a side view, and a cross-section view. The assembly consists of a main housing, a light source, and various mounting and support components. The drawing is labeled with various dimensions and part numbers.

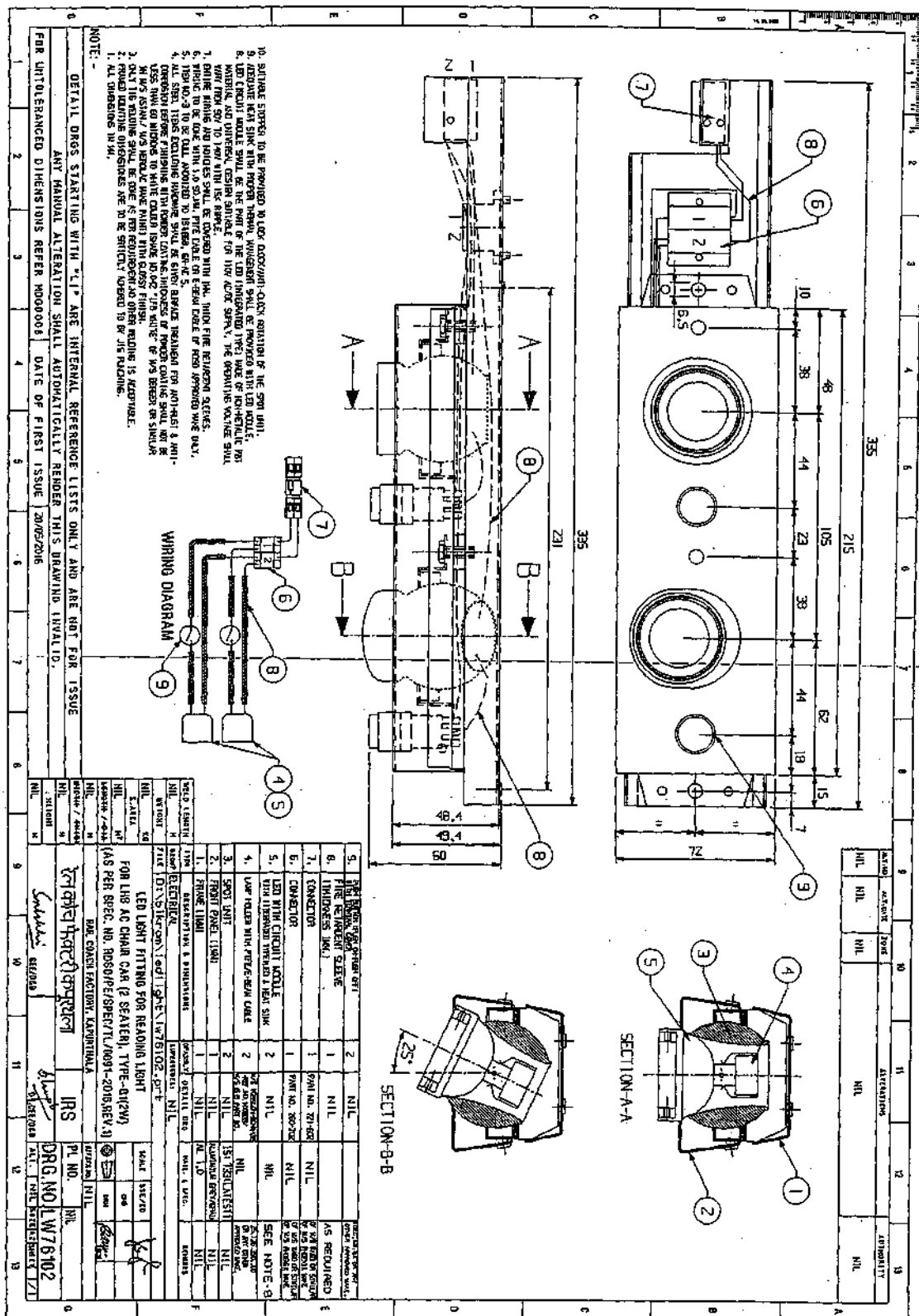
TABLE 1

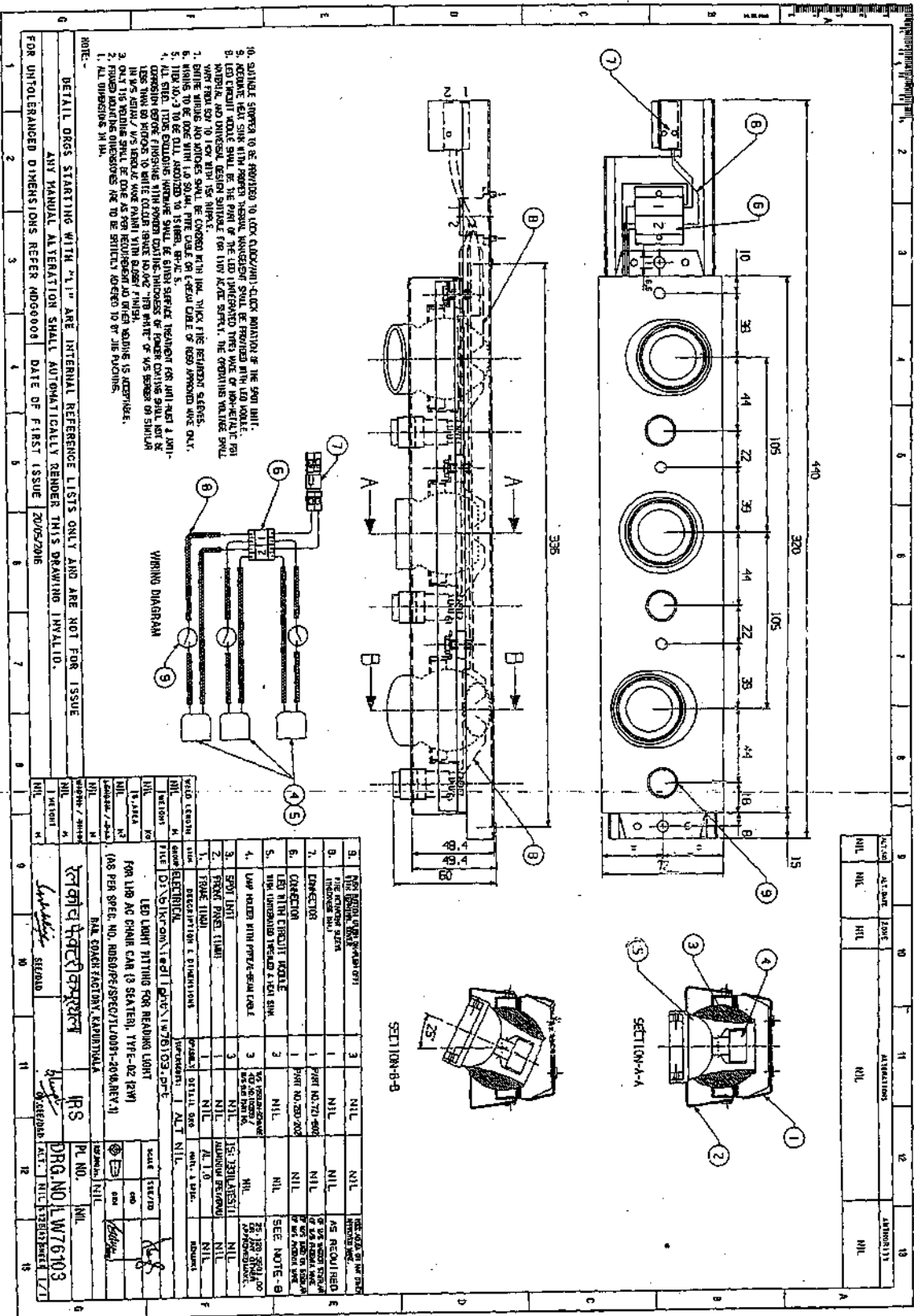
ITEM NO.	DESCRIPTION	QTY	UNIT
1	MAIN HOUSING	1	PC
2	LIGHT SOURCE	1	PC
3	MOUNTING BRACKET	1	PC
4	SCREW	4	PC
5	WASHER	4	PC
6	SPRING WASHER	4	PC
7	SCREW	4	PC
8	WASHER	4	PC
9	SPRING WASHER	4	PC
10	SCREW	4	PC
11	WASHER	4	PC
12	SPRING WASHER	4	PC
13	SCREW	4	PC
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99	SPRING WASHER	4	PC
100	SCREW	4	PC

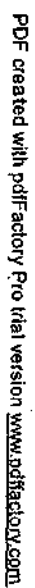


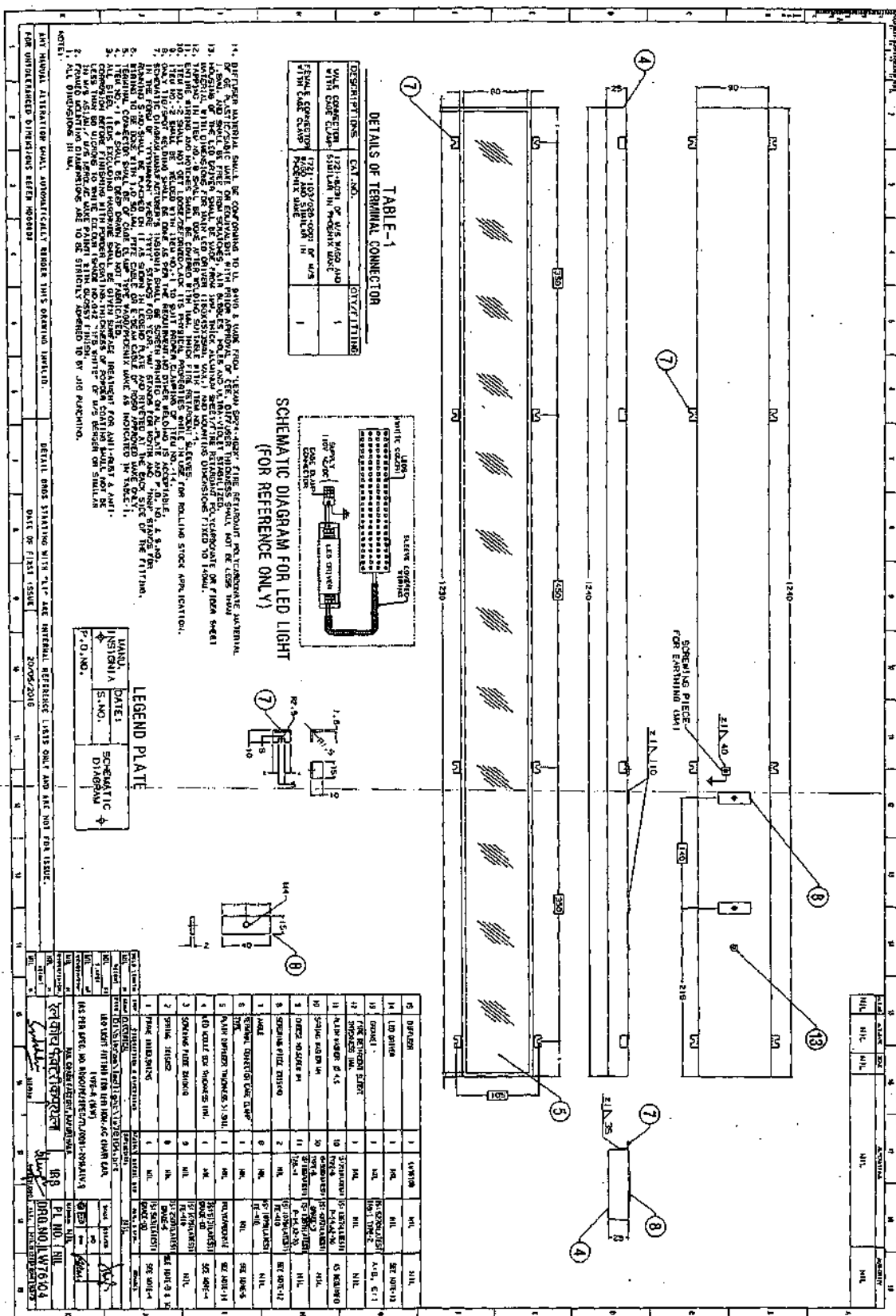
ANNEXURE -20



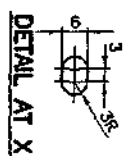
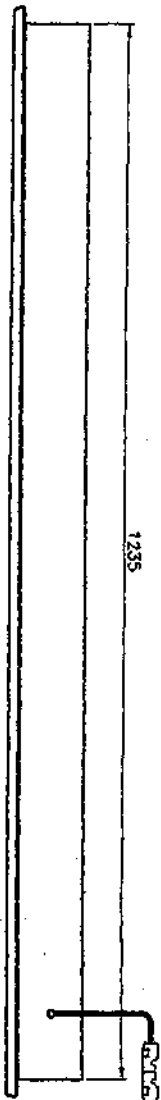
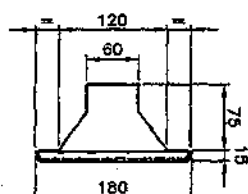
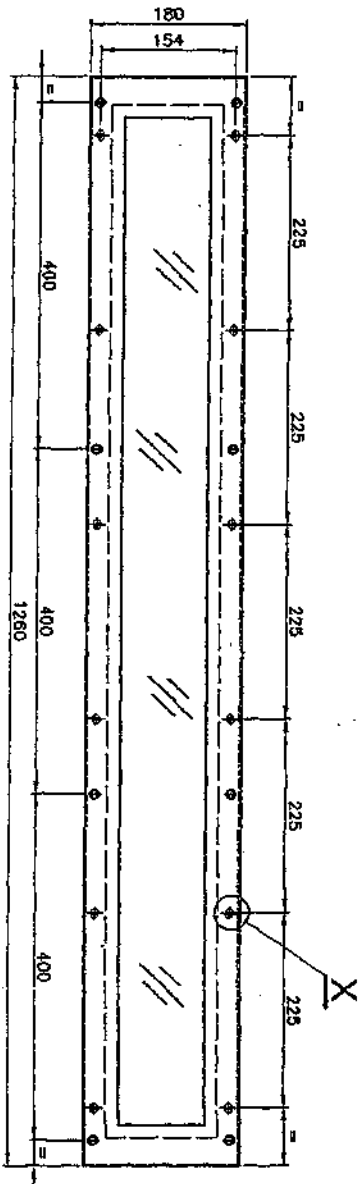




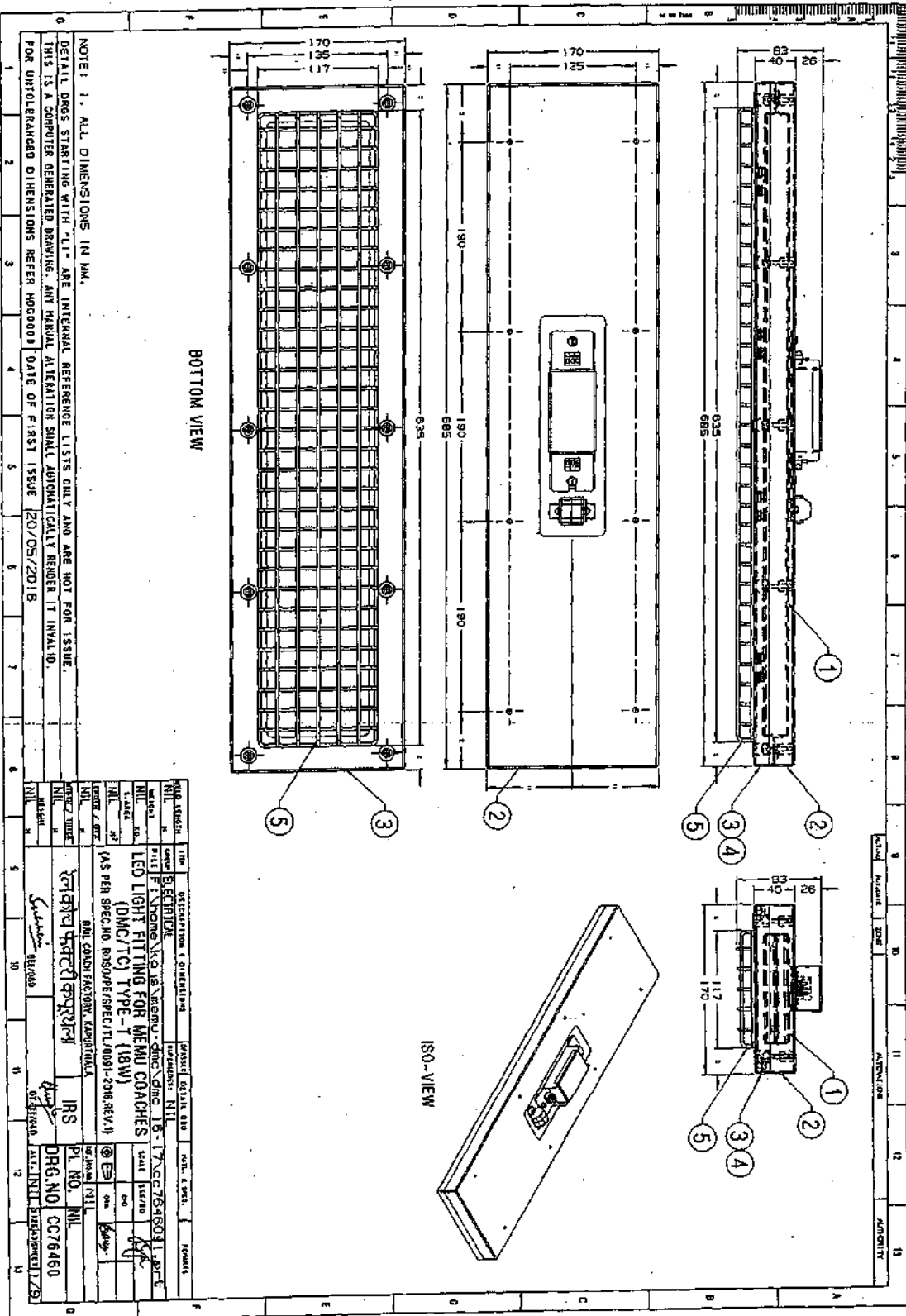


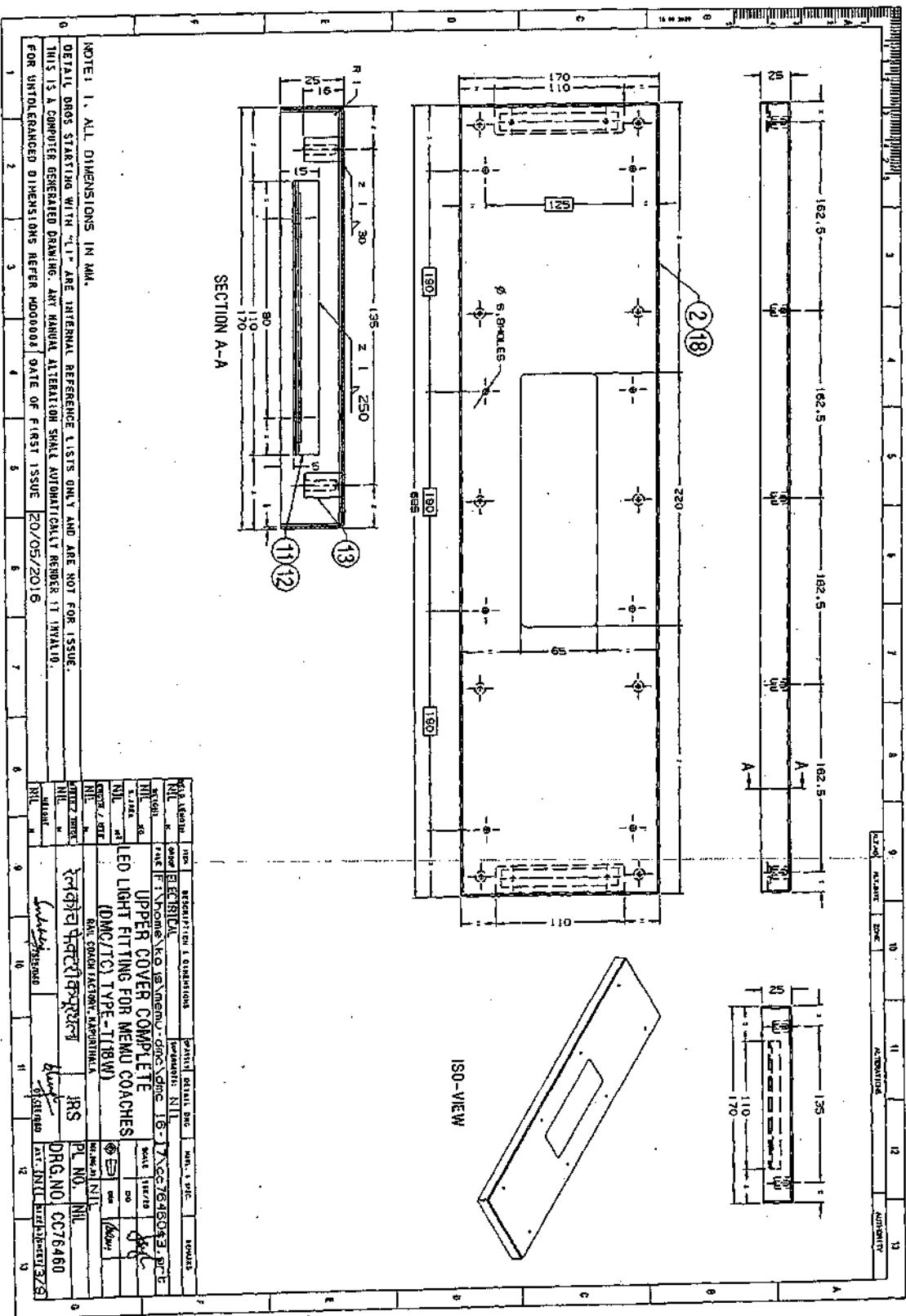


ICF/STD-7-6-047



GROUP: 7-6		SUPERSEDED BY:	
LED LIGHT FITTING, TYPE-S (18W)		SCALE: SEE/D	
FOR CONV. AC CHAIR CAR, EMU & DEMU COACHES		CHD.	
(AS PER SPEC. NO. RDSO/PE/SPEC/TU/0091-2016, REV.1)		ALT.	
CAD FILE: ED-CAD\140 7-6 047---00.DWG		DRN	
DATA CODE NO. 140		RAITHARAJA	
INDIAN RAILWAY STANDARDS		ALT	
SHEET 1 OF 1		INTEGRAL COACH FACTORY	
ICF/STD-7-6-047		CHENNAI - 38	
DATE OF LATEST ALT. DATE OF FIRST ISSUE		DATE OF FIRST ISSUE	
05-07-2016		05-07-2016	
D.Y. CEE/O		D.Y. CEE/O	
ALT.		ALT.	





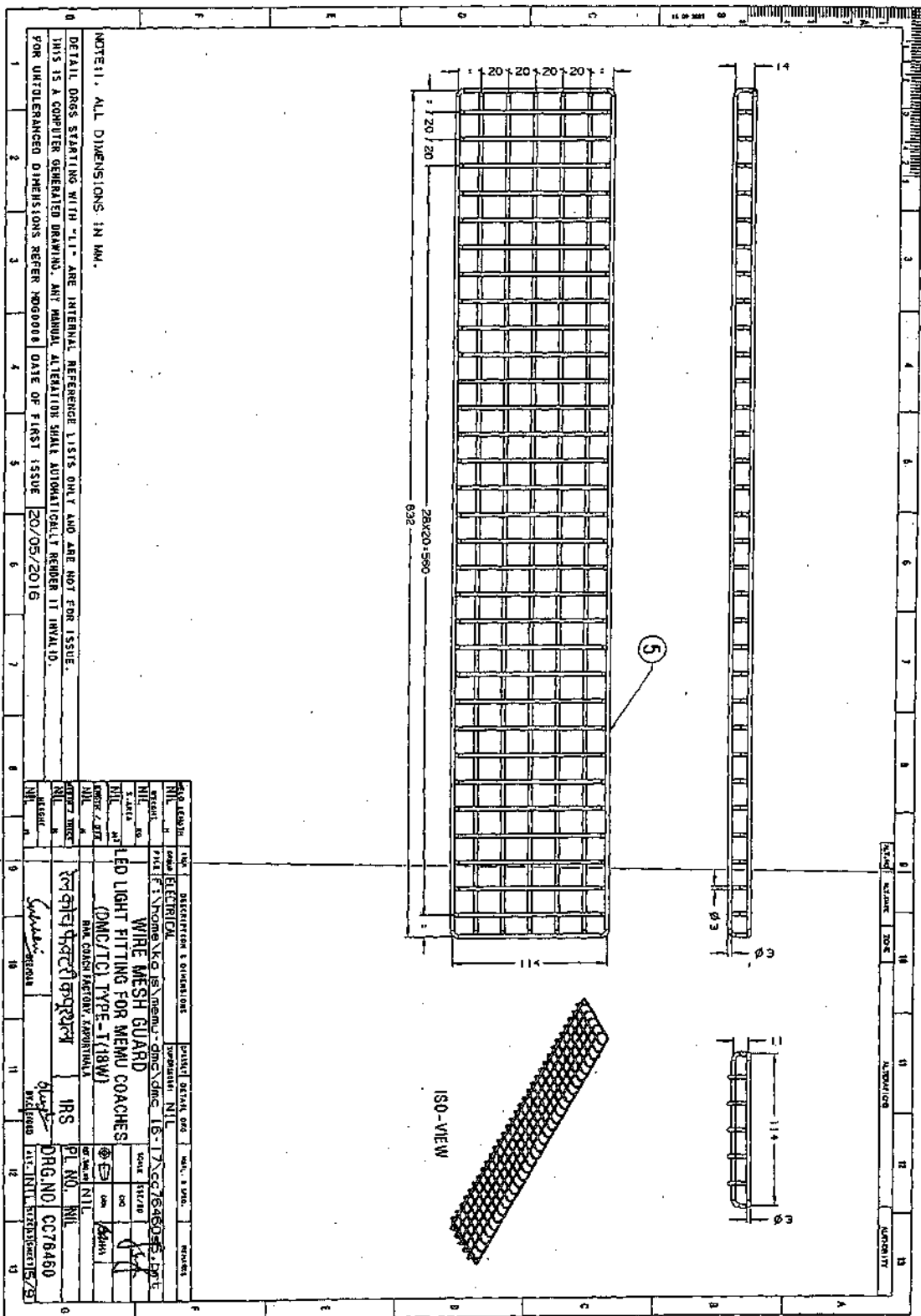
NOTE 1. ALL DIMENSIONS IN MM.

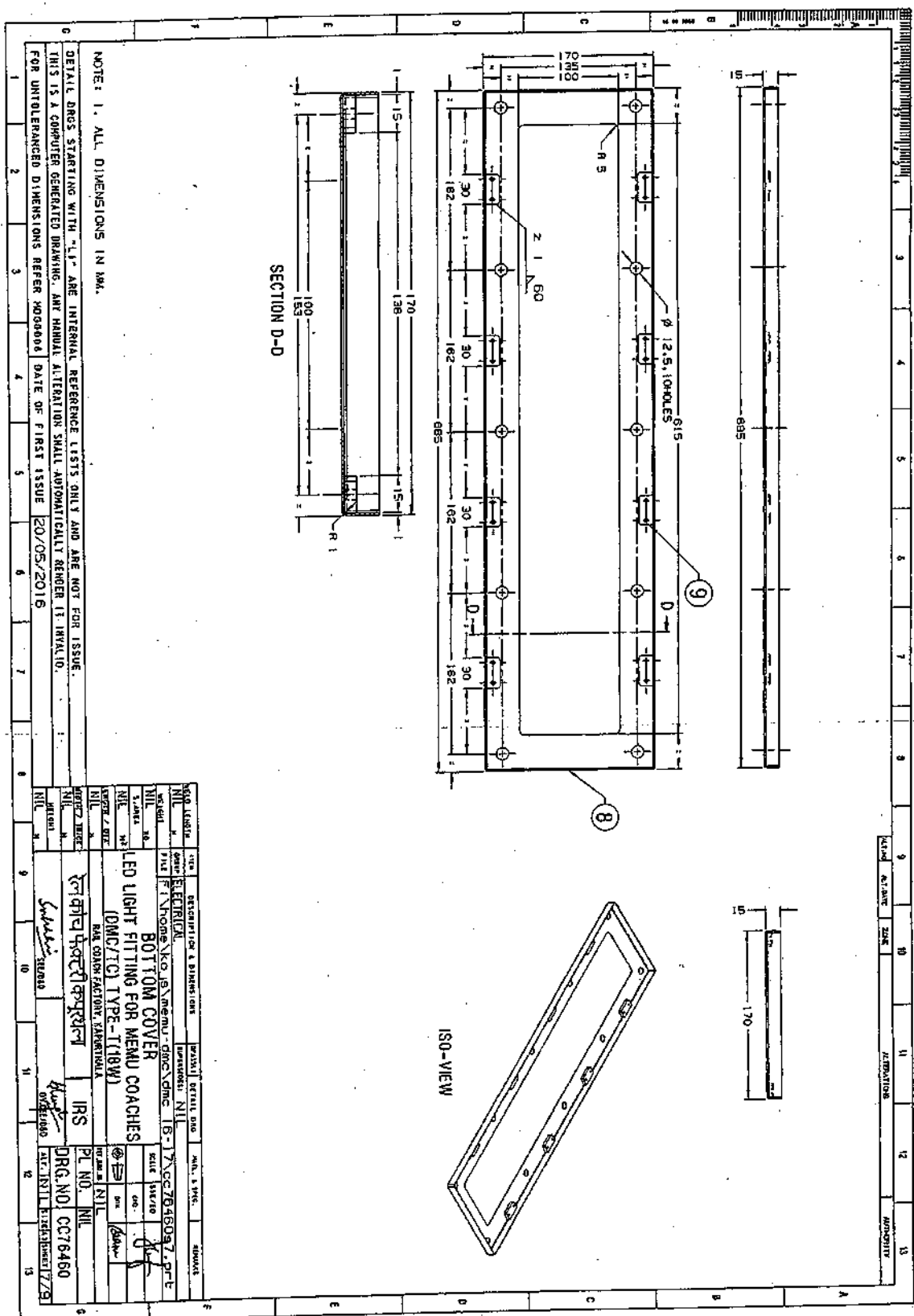
DETAIL DROG STARTING WITH "1" ARE INTERNAL REFERENCE LISTS ONLY AND ARE NOT FOR ISSUE.

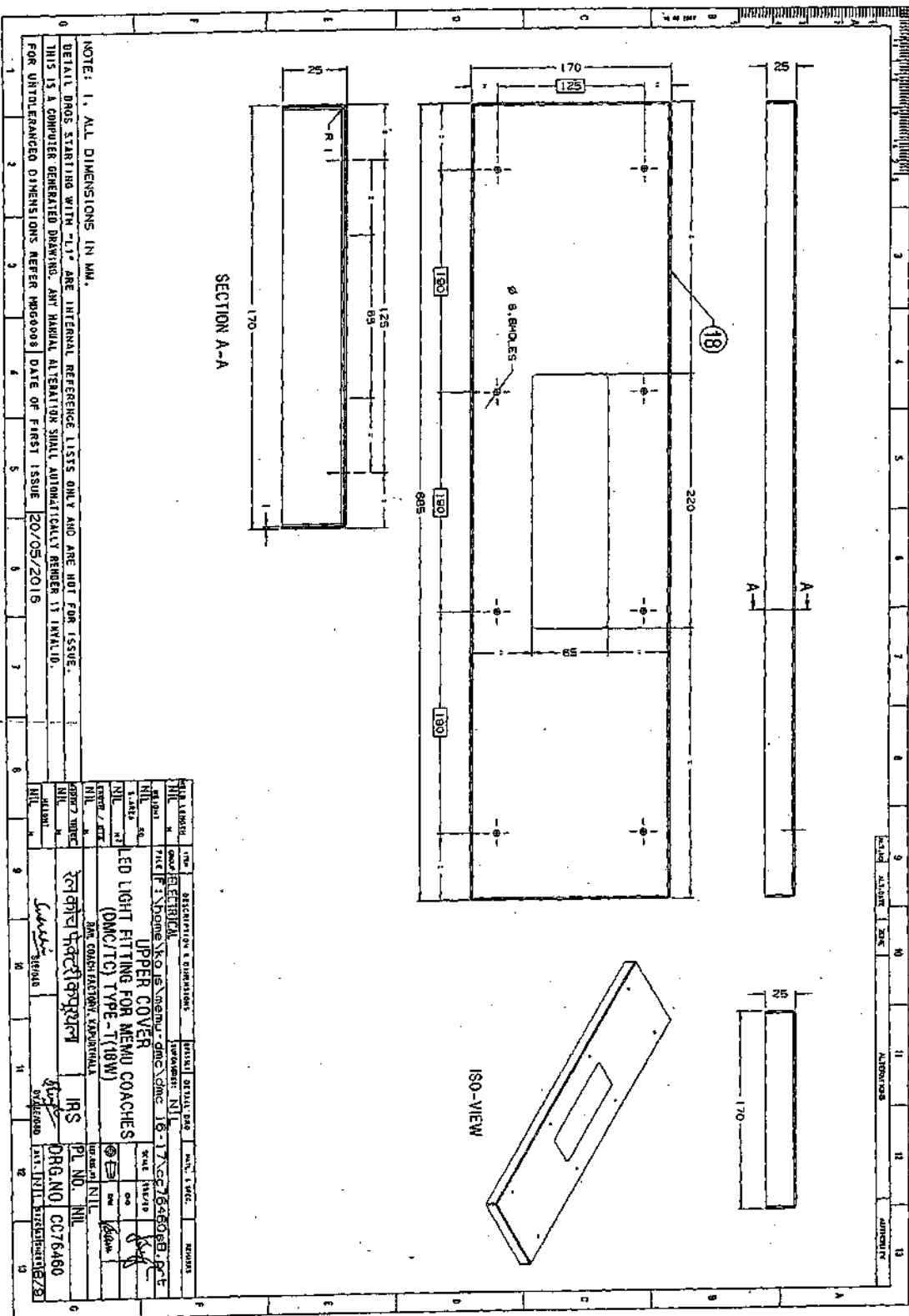
THIS IS A COMPUTER GENERATED DRAWING. ANY MANUAL ALTERATION SHALL AUTOMATICALLY RENDER IT INVALID.

FOR UNTOLERANCED DIMENSIONS REFER MOD0003 DATE OF FIRST ISSUE 20/05/2016

REV	DESCRIPTION	DATE	BY	CHKD	APPD	REMARKS
1	UPPER COVER COMPLETE	16-17	CC/76460	CC/76460	CC/76460	CC/76460
2	LED LIGHT FITTING FOR MEMO COACHES	18-19	CC/76460	CC/76460	CC/76460	CC/76460
3	(DMC/TC) TYPE-T18W	20-21	CC/76460	CC/76460	CC/76460	CC/76460
4	END CONSULTATION, APPROVAL	22-23	CC/76460	CC/76460	CC/76460	CC/76460
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137	PL NO.	288-289	CC/76460	CC/76460	CC/76460	CC/76460
138	PL NO.	290-291	CC/76460	CC/76460	CC/76460	CC/76460
139	PL NO.	292-293	CC/76460	CC/76460	CC/76460	CC/76460
140	PL NO.	294-295	CC/76460	CC/76460	CC/76460	CC/76460
141	PL NO.	296-297	CC/76460	CC/76460	CC/76460	CC/76460
142	PL NO.	298-299	CC/76460	CC/76460	CC/76460	CC/76460
143	PL NO.	300-301	CC/76460	CC/76460	CC/76460	CC/76460
144	PL NO.	302-303	CC/76460	CC/76460	CC/76460	CC/76460
145	PL NO.	304-305	CC/76460	CC/76460	CC/76460	CC/76460
146	PL NO.	306-307	CC/76460	CC/76460	CC/76460	CC/76460
147	PL NO.	308-309	CC/76460	CC/76460	CC/76460	CC/76460
148	PL NO.	310-311	CC/76460	CC/76460	CC/76460	CC/76460
149	PL NO.	312-313	CC/76460	CC/76460	CC/76460	CC/76460
150	PL NO.	314-315	CC/76460	CC/76460	CC/76460	CC/76460
151	PL NO.	316-317	CC/76460	CC/76460	CC/76460	CC/76460
152	PL NO.	318-319	CC/76460	CC/76460	CC/76460	CC/76460
153	PL NO.	320-321	CC/76460	CC/76460	CC/76460	CC/76460
154	PL NO.	322-323	CC/76460	CC/76460	CC/76460	CC/76460
155	PL NO.	324-325	CC/76460	CC/76460	CC/76460	CC/76460
156	PL NO.	326-327	CC/76460	CC/76460	CC/76460	CC/76460
157	PL NO.	328-329	CC/76460	CC/76460	CC/76460	CC/76460
158	PL NO.	330-331	CC/76460	CC/76460	CC/76460	CC/76460
159	PL NO.	3				







Technical drawing of a diffuser assembly, showing side, front, and detail views. The drawing includes dimensions and a table of specifications.

Side View: Shows the profile of the diffuser with dimensions 146, 620, and 148. A callout 1 points to the top edge.

Front View: Shows the diffuser with dimensions 146, 620, and 148. A callout 1 points to the top edge.

Detail View: Shows a cross-section of the diffuser with dimensions 146, 620, and 148. A callout 1 points to the top edge.

Table of Specifications:

ITEM NO.	DESCRIPTION	QTY	UNIT	REMARKS
1	DIFFUSER FOR COACHES	1	NO.	FOR COACHES
2	DIFFUSER FOR COACHES	1	NO.	FOR COACHES

Notes:

1. ALL DIMENSIONS IN MM.
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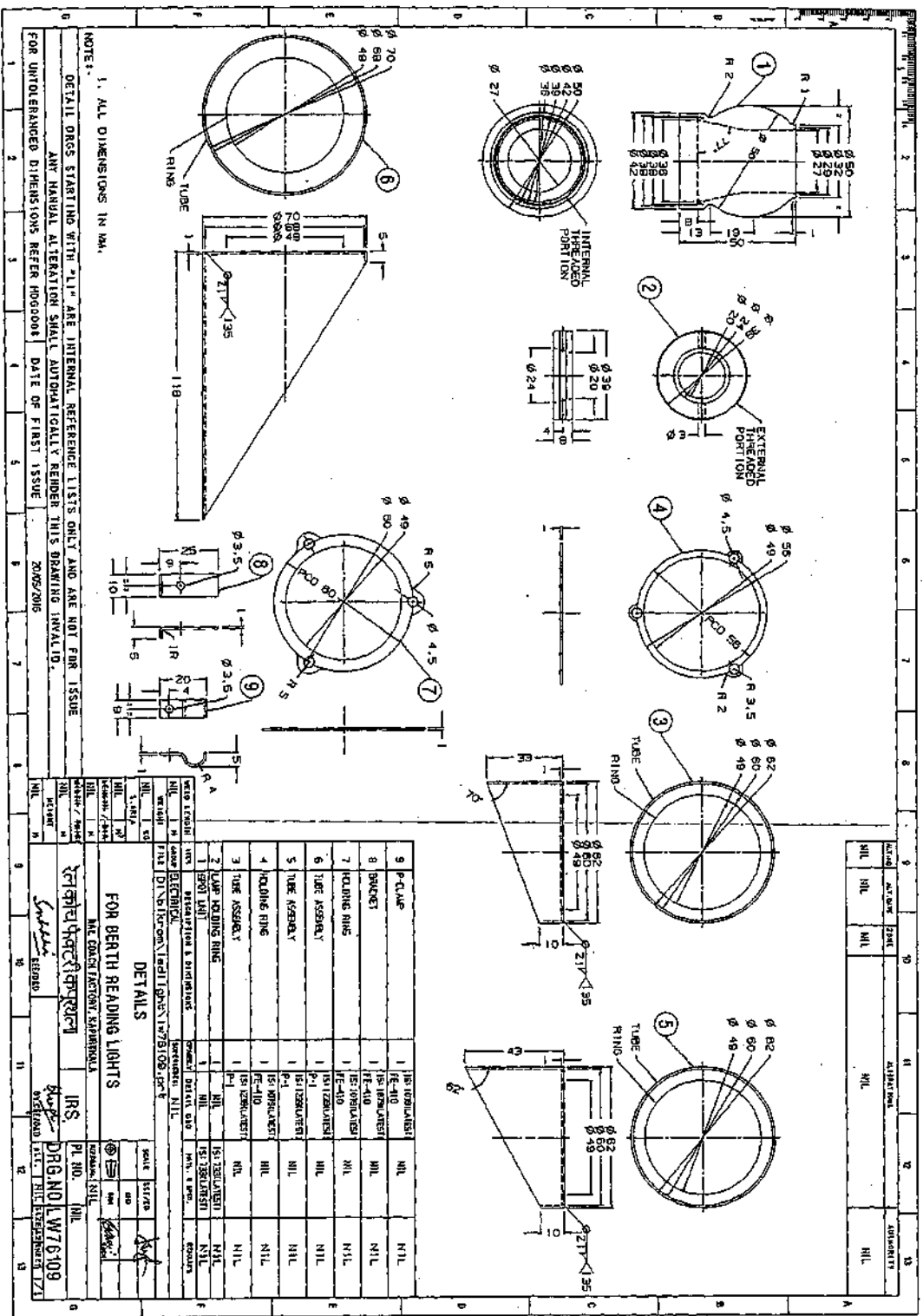
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ENLARGED VIEW OF ITEM-1

DETAIL AT - X

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NOTE: 1. ALL DIMENSIONS IN MM.

DETAIL DRGS STARTING WITH "1" ARE INTERNAL REFERENCE LISTS ONLY AND ARE NOT FOR ISSUE
ANY MANUAL ALTERATION SHALL AUTOMATICALLY RENDER THIS DRAWING INVALID.

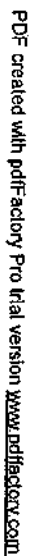
FOR UNTOLENCED DIMENSIONS REFER H000000 DATE OF FIRST ISSUE 2005/2006

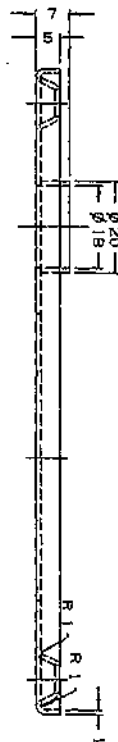
FOR BERTH READING LIGHTS

MR. CHANDRASEKHAR, ENGINEER

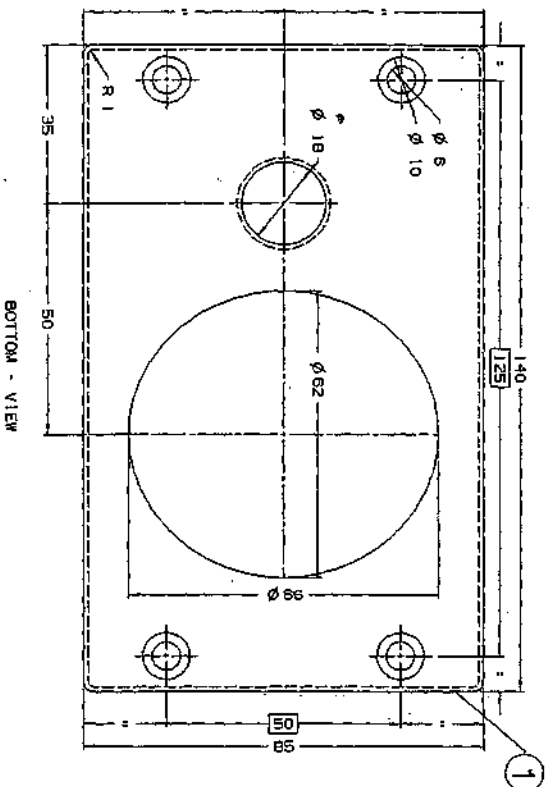
DRG NO. LW76108

PL. NO. 111





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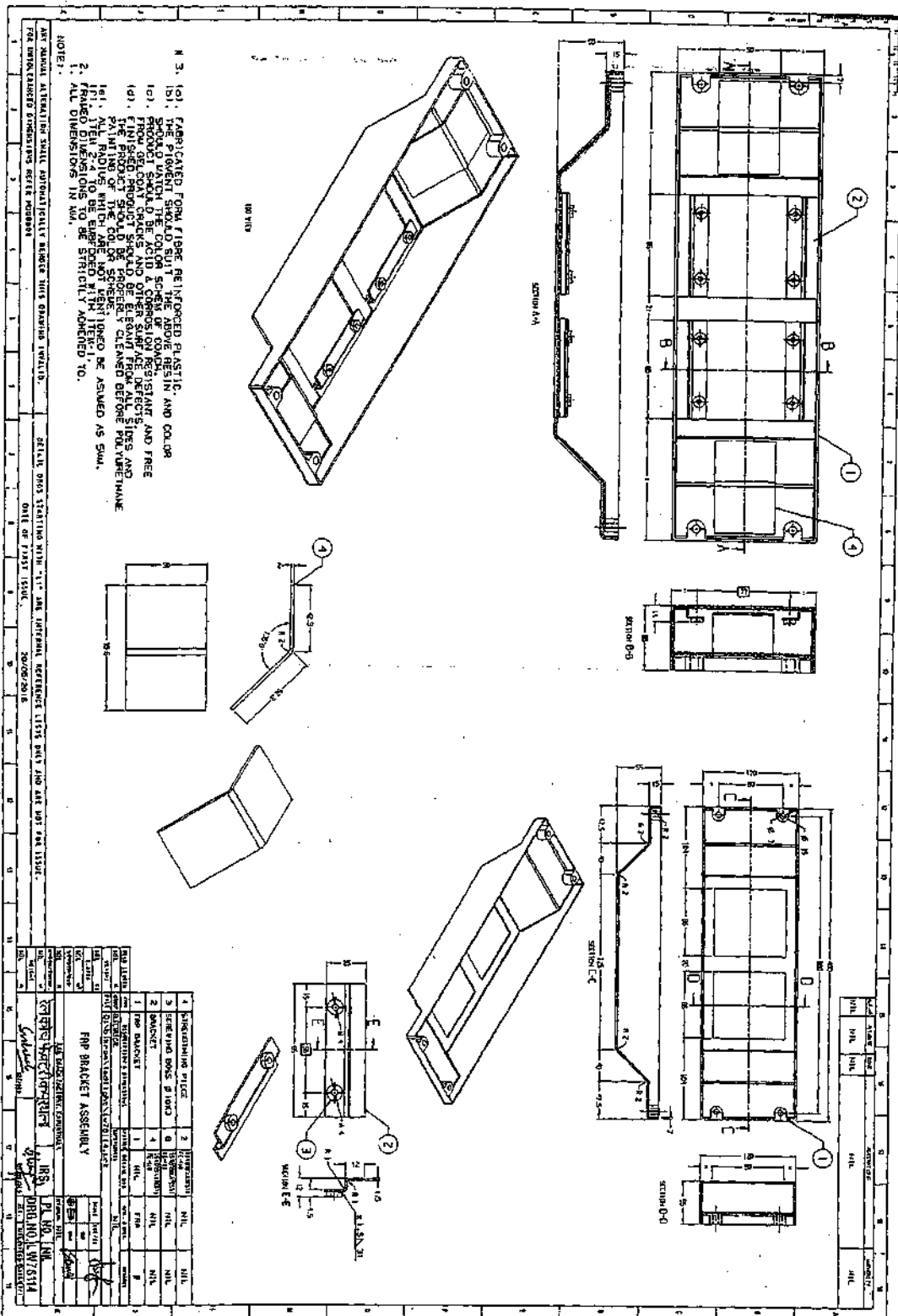


BOTTOM - VIEW

1. ITEM NO. -1 SHALL BE DEEP DRAIN AND NOT FABRICATED.
2. ALL DIMENSIONS IN MM.

NOTE:-
DETAILS ORS STARTING WITH "1" ARE INTERNAL REFERENCE LISTS ONLY AND ARE NOT FOR ISSUE.
THIS IS A COMPUTER GENERATED DRAWING. ANY MANUAL ALTERATION SHALL AUTOMATICALLY RENDER IT INVALID.
FOR UNCHANGED DIMENSIONS REFER MOD00001 DATE OF FIRST ISSUE 20/05/2016

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RCF Annexure-1 to RDSO Specification No. RDSO/PE/SPEC/TL/0091-2016, Rev-1

Following changes are incorporated in this annexure:-

Clause 6.12: Illumination Level:

The illumination level of different types of luminaire shall be as given below:-



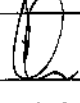
Sr. No.	Type of Luminaire	Vertical Distance of the Luminaire from the floor level	Vertical Distance of the Lux measurement plane from the floor level	Relative distance between light source and measurement plane	Average Illumination Level (Lux)	Colour of Illumination
1	Type-A	99"	0.84 mtrs	-	120	Cool day white
2	Type-B1,B2	99"	0.84 mtrs	-	80	Cool day white
3	Type-C	99"	0.84 mtrs	-	80	Cool day white
4	Type-D	-	-	1.5 mtrs	80	Cool day white
5	Type-E	-	-	From 10 mtrs Horizontal distance	Clear Visible	Blue
6	Type-F1/F2 / F3/ F4/F5	-	-	0.75 mtr	100	Cool day white
7	Type-G	-	-	From 10 mtrs Horizontal distance	Clear Visible	Cool day white
8	Type-H1/H2	-	-	From 10 mtrs Horizontal distance	Clear Visible	For H1: Red For H2: Green-Vacant Red-Occupied
9	Type-I	-	-	From 400 mtrs Horizontal distance	Clear Visible	Red
10	Type-J	99"	0.84 mtrs	-	80	Cool day white
11	Type-K	99"	0.84 mtrs	-	80	Cool day white
12	Type-L	99"	0.84 mtrs	-	120	Cool day white
13	Type-M	99"	0.84 mtrs	-	80	Cool day white
14	Type-N	99"	0.84 mtrs	-	80	Cool day white
15	Type-O	99"	0.84 mtrs	-	120	Cool day white
16	Type-P	-	-	-	-	-
17	Type-Q1/Q2	99"	1.2 mtrs	-	100	Cool day white
18	Type-R	99"	0.84 mtrs	-	120	Cool day white
19	Type-S	99"	0.84 mtrs	-	120	Cool day white
20	Type-T	99"	0.84 mtrs	-	120	Cool day white

Clause No. 1.3: May be amended as follows:

The over voltage trip shall be set between 200V to 205V AC RMS/DC and the luminaire shall switch on automatically as soon as the voltage comes below 200V but above the max. operating voltage in case of AC/DC i.e.

- 140V AC for Conventional/ LHB/3-phase EMU/DEMU/Kolkata Metro coaches
- 170 V AC for Conventional EMU/MEMU Coaches.

Type-H1/H2 Luminaires are rated at 24V DC, hence the cut-off voltage shall be set at 30-32V DC and shall withstand over-voltage upto 150V AC/DC to prevent the light fitting from damage in case of connections at higher voltages i.e. 110V AC/DC.

RDSO/PE/SPEC/TL/0091 2016, REV.1	1	1.8.19				1 OF 2
SPEC. NO	RCF ANNEXURE	DATE	SSE/CAD	SEE/D	Dy.CEE/D&D	PAGE

Clause 5.0: Construction: the clause may be amended as follows:

- a) The RCF/ICF drawings of various types of luminaries mentioned in the specification are listed in Annexure-3. The performance requirements of the complete luminaries shall have the uniformity level of at least 1:1.3 as per norms of UIC-555 as applicable and shall be recorded for reference in accordance with Annexure-1 for ACCN and SCN coaches. The detailed calculations for lux level, uniformity in distribution as per clause no 6.12 and 6.13 including the lux distribution curve/graph/spatial distribution shall be submitted. Deep drawn (not fabricated) housing of luminaries shall be made of 1.0mm thick steel sheet conforming to IS: 513 (DD) unless otherwise mentioned in the respective drawings. Any modification for the betterment of the luminaries shall be given due consideration by bringing out the advantages of the proposed design over the existing design and prior approval shall be taken from CEDE/RCF before implementation.

Clause No. 8.0 (vi): May be read as follows: .




The luminaire shall withstand at 250V DC/AC for 2 minutes except Type-H1/H2 which shall withstand at 150V AC/DC for 2 minutes.

Clause No. 8.0 (xii):

This shall be applicable for white LED's only.

ANNEXURE-3 : -may be amended as:




Sr. No.	Description	Type of Fitting	Drawing No.
6	LED Light fitting for Night Light with berth indication for AC and NAC coaches	Type-E (1W)	ICF/std/7-6-053-(2 sheets) For AC 2 tier - LW76403 For AC 3 tier - LE76408
7	LED Light fitting for Berth Reading Light (longitudinal) for LHB coaches	Type-F1 (2 W)	LW76093 alt 'a'
8	LED Light fitting for Berth Reading Light (Upper berth) for LHB coaches	Type-F2 (2 W)	LW76094 alt 'a'
9	LED Light fitting for Berth Reading Light (transverse lower berth - RHS) for LHB coaches	Type-F3 (2 W)	LW76095 alt 'a'
10	LED Light fitting for Berth Reading Light (transverse lower berth - LHS) for LHB coaches	Type-F4 (2 W)	LW76096 alt 'a'
13	LED Light fitting for toilet indication in LHB AC coaches	Type-H1 (1 W)	LW76097 alt 'a'
15	LED light fitting for Passenger Alarm chain indication	Type-I (3 W)	LW76098 alt 'a'
18	LED light fitting for Passenger area (Cabin) for LHB AC coaches	Type-L (18 W)	LW76090 alt 'a'
19	LED light fitting with night light (Corridor Area) for LHB AC coaches	Type-M (9+1 W)	LW76091 alt 'a'
20	LED light fitting for Doorway/Gangway area for LHB AC coaches	Type-N (9 W)	LW76099 alt 'a'
21	LED light fitting for LHB AC Chair Car	Type-O(18W)	LW76100 alt 'a'
23	LED Light fitting for Reading Light for LHB AC Chair Car (2 seater)	Type-Q1 (4W)	LW76102 alt 'a'
24	LED Light fitting for Reading Light for LHB AC Chair Car (3 seater)	Type-Q2 (6W)	LW76103 alt 'a'
27	LED Light fitting for MEMU coaches	Type-T (18W)	CC76460 alt. 'a'

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SPEC. NO	RCF ANNEXURE	DATE	SSE/CAD	SEE/D	Dy.CEE/D&D	PAGE

RCF Annexure-2 to RDSO Specification no. RDSO/PE/SPEC/TL/0091-2016, Rev-1

This RCF annexure is issued to Drg. No. CC76457, Alt-Nil for LED Light fitting for SLR coaches, Type-J (9W) as per specification no. RDSO/PE/SPEC/TL/0091-2016, Rev-1 to incorporate following changes for the inclusion of fire proof measures in the LED light fittings:-

1. Material of Frame, Cover and Diffuser cover (thickness 1 mm) shall be Stainless steel to grade SS-304 L/SS-304 S2 (Deep-drawn) instead of CRCA to IS-513 Grade-DD. The light fitting shall be supplied without paint and accordingly Note-3 deleted.
2. Material for Housing of LED Driver shall be Stainless steel to grade SS-304 L/SS-304 S2 instead of Aluminium/Fire retardant Polycarbonate material mentioned in Note-12. All components of PCB shall be embedded in fire retardant EP3 epoxy base.
3. The diffuser shall comprise of plain diffuser of toughened glass of thickness 3-4 mm of Saint-Gobain / Asahi India / Borosil or equivalent make (prior approval shall be taken from RCF/KXH) on the outside and polycarbonate sheet (as per Note-13 of the drawing) on the inside of the light fitting of thickness to achieve 80% transparency and complete diffusion of light so that light source/spot is not visible.
4. Wire mesh guard 3 mm G.I. Wire, Item No.-20 deleted.
5. Wire mesh guard 6 mm G.I. Wire, Item No.-21 shall be of SS-304 L/SS-304 S2 grade and height shall be reduced to 75 mm instead of 150mm.
6. All hardware's shall be of Stainless steel of TVS/Unbrako/LPS or equivalent approved make.
7. The driver and the cover shall be covered with SS sheet cover of 1 mm thickness and cable inlet shall be provided with fire proofing connectors/grommets.
8. Degree of protection of the light fitting shall be IP-54.

RDSO/PE/SPEC/TL/0091-2016, Rev-1, RCF Anx-1	2	22.11.2019				1 of 1
Spec. No.	RCF Annexure	Date	SSE/CAD	SEE/D	Dy.CEE/D&D	Page