टेलीफोन/Tele : 2451200 (PBX)
2450115 (DID)
फैक्स/Fax : 91-0522-2458500

भारत सरकार - रेल मंत्रालय
अनुसंधान अभिकल्प और मानक संगठन
लखनऊ - 226 011
Government of India - Ministry of Railways
Research Designs & Standards Organisation
Lucknow-226 011

AN ISO 9001 CERTIFIED ORGANISATION

No. SV.AS.ML Dated: 29.10.2009

The General Manager (Engineering),

i. Northern Railway, Baroda House, New Delhi-110 001
ii. Western Railway, Churchgate, Mumbai-400020
iii. Central Railway, CSTM, Mumbai - 400 001
iv. Eastern Railway, Fairly Place, Kolkata- 700 001
v. Southern Railway, Park Town, Chennai - 600 003
vi. Northeast Frontier Railway, Maligaon, Guwahati- 781 011
vii. North Eastern Railway, Gorakhpur-273 001
viii South Eastern Railway, Garden Reach, Kolkata-700 043
ix. South Central Railway, Secunderabad-500 071
x. West Central Railway, Jabalpur-482 001
xi South East Central Railway, Bilaspur-495 004
xii South Western Railway, Hubli-580023
xiii East Coast Railway, Railway Complex, Bhubaneshwar-751 023
xiv East Central Railway, Hajipur-844 101
xv North Western Railway, Jaipur-302 006
xvi North Central Railway, Allahabad-211 001

Sub:- Final Speed Certificate for operation of LHB coaches fitted with pneumatic suspension at the secondary stage on Fiat bogies on track maintained to standards laid down in C&M-I Vol-I.

1. Railway Board had approved fitment of air springs on LHB coaches vide their letter no.2007/M(C)/137/7 dated 29.11.07, subject to the clearance of respective coaches in oscillation trials.

1.1 In order to assess the riding quality and stability of LHB coaches fitted with pneumatic suspension at the secondary stage on Fiat bogies, detailed oscillation trials were carried out using one AC-II, one AC Hot Buffet Car and one Generator Car. These were selected as they are provided with different primary suspension springs, the secondary air springs being the same for all. Trials were carried out from tare to full axle load condition on track maintained to standards laid down in C&M-I Vol-I upto a maximum test speed of 180 kmph on PWL-AGC section of North Central Railway. The results of these oscillation trials of LHB coaches fitted with pneumatic suspension at the secondary stage on Fiat bogies are contained in RDSO Trial Reports mentioned below:

S. No.	Trial Report	Suspension Type			Type of Coach	Trials Done under	
		Primary Spring Drg.No.	Group	Secondary Spring		Min. Load	Max. Load
(i)	MT-961/ 02.04.2009	1267412 (inner) 1267411 (outer)	1	Air Springs as per RDSO STR-CK508	Hot Buffet Car	40.8 t	50.8 t
(ii)	MT-962/ 02.04.2009	1277143 (inner) 1267411 (outer)	2		AC-II Tier	44.5 t	52.5 t
(iii)	MT-963/ 01.05.2009	1277143 (inner) 1277142 (outer)	3		Generator Car	53.6 t	58.6 t

The above indicate that LHB Coaches with pneumatic suspension exhibit satisfactory riding upto a test speed of 180 kmph on straight and station yard and upto 100 kmph on 2° curve.

2. On the basis of the above it is certified that the following LHB variants provided with pneumatic suspension at secondary stage are fit for operation upto maximum speed of 160 kmph on track maintained to standards laid down in RDSO's report no. C&M-I, Vol.I to the conditions given below:

.

S.No.	LHB_Fiat Variants	Suspension Group	Tare Weight	Gross Weight	Traffic Code	Layout No.
1.	Generator Car	3	53.6	56.652	LWLRRM	11012
2.	AC-I CC	1	41.37	48.73	LWFZAC	10112
3.	AC-II CC	1	41.03	50.3	LWCZAC	10113
4.	AC-I Sleeper	1	43.3	45.22	LWFAC	LA90018
5.	AC-3 Tier (EOG)	2	45.6	51.36	LWACCN	LE90009
6.	AC-2 Tier (EOG)	2	44.5	48.82	LWAACW	LW90023
7.	AC Hot Buffet Car	1	40.8	42.24	LWCBAC	LH90001

2.1 Track

2.1.1 The track shall be to a minimum standard of 60 kg (90 UTS) rails on sleeper to M+7 density and depth of ballast cushion below sleepers of 300 mm which may consist of at least 150 mm clean ballast and the rest in caked condition on compacted and stable formation and maintained to the standards as recommended in RDSO's Report no. C&M-I Vol.I. In this connection, the instructions for maintenance of track of high speed routes circulated to the Railways under RDSO's D.O. no. CRA/509 dated 7.7.1971 and approved by Railway Board vide their letter no. 71/W6/HS/8 dated 27-8-71 and no. 71/W6/HS/1 dated 21.10.71.

2.1.2 For track maintained to lower standard than that mentioned above, the Chief Engineer shall decide the lower maximum permissible speed on the basis of maintenance condition. In this connection, Railway Board's letter No. 65/WDO/SR/26 dated 19/20-10-1966 may be seen. When the Chief Engineer considers that the road bed is not compacted or there is improper drainage, he may suitably restrict the maximum permissible speed depending upon the local conditions.

2.1.3 The maximum permissible speed on curve shall be decided on the basis of existing provision of the Indian Railway Permanent Way Manual, second reprint 2004.

2.1.4 (i) Replacement of existing loose heel switches with fixed heel curved switches laid on PSC sleeper layout with CMS crossings with adequate arrangements to ensure designed geometry of turnouts. Turnouts with TWS shall be preferred on such routes.

(ii) Preferably improved SEJ should be provided on such routes.

2.1.5 Improvement on track geometry parameters on the route of operation of the coaches /trains to be carried put.

2.1.6 The curves will have to be suitably realigned and proper transition length to be provided.

2.1.7 Action to be taken for relocation /modification of Engineering signals in consultation with respective S&T and OHE department of Zonal Railways.

2.1.8 Concerned Railway will arrange for providing fencing throughout, to prevent unauthorized pedestrian /cattle crossings.

2.1.9 COCR above 120 kmph to be conducted as per Policy Circular no.6

2.1.10 EBD trial may also be ensured at your end, if necessary

2.1.11 All level crossing shall be manned. The gates shall be provided with frills.

2.2 Bridges

2.2.1 The clearance refers to bridges with standard design of girders, slabs, pipe culverts, piers and abutments etc. issued by RDSO for BGML, RBG and MBG-1987 standard loadings. However the bearings of span 78.8m (effective) designed for BGML standard loading as per RDSO's drawing no.BA-11154 should be strengthened by providing two additional anchor bolts.

2.2.2 Superstructures & bearings of non-standard spans including Arches and sub-structures of all bridges are to be examined under the directions of the Chief Bridge Engineer concern and certified safe by him in terms of current IRS Bridge Rules, Steel Bridge Code, Concrete Bridge Code, Arch Bridge Code, Bridge Sub-Structures and Foundation Code, etc. read with up to date correction slips.

2.2.3 Specific restrictions are applicable which are indicated in relevant Speed Certificates of hauling locomotives issued by RDSO.

2.2.4 The clearance is subject to the following parameters of LHB Coach fitted with pneumatic suspension at secondary stage:-

(i) Maximum axle load = 16.25 t
(ii) Max. C.G. Height from Rail Level = not exceeding 1830mm.

2.2.5 Zonal Railways to certify adequacy of existing bridges for permitting rolling stock based on physical condition of bridges by keeping them under observations considered necessary by the Chief Bridge Engineer of Railway.

2.2.6 Location of bridges on which speed restrictions are imposed shall be notified by the Railways and incorporated in the working timetable.

2.3 Signaling

2.3.1 Provisions of GR, SR, SEM & all extant instructions issued from time to time shall be complied with.

2.3.2 On the sections where EBD of more than 1 km is to be catered for, second distant signal or automatic signalling should be available failing which suitable speed restriction is to be imposed.

2.4 Traction Installation

2.4.1 <u>Applicable for 25 kv AC Traction area</u>

In 25 kV a.c. traction area, the CEE of the concerned Railway shall have to ensure that the minimum height of contact wire and electrical clearances as stipulated in provision of Chapter-V and V-A, Electric Traction “Schedule of Dimension of 1676 mm gauge (BG) revised 2004” is not violated and strictly followed to ensure its safe running.

2.4.1 Applicable for DC Traction area

For the dc OHE, the conditions for operation shall be specified by CEE of the concerned Railway.

2.5 Rolling Stock

Before initiating the operation of the coach, CME of the concerned Railway will certify the track worthiness and safety of the rolling stocks. He will also ensure proper maintenance of the rolling stock.

2.6 General

2.6.1 All the permanent and temporary speed restrictions in force and those that may be imposed from time to time due to track, bridges, curves, signaling and interlocking etc. shall be observed.

2.6.2 The profile of LHB Coach infringes with clause no.13(b),16,17,19(b), 20(b), 21(b), 22, and 31, 32(b) of chapter IV(A) of B.G. schedule of dimension, 1973 reprint. These infringements of LHB coach have been condoned by Railway Board vide their letter no.2002/CEDO/SR/13 dated10.12.2002.

Encl: (i) LHB Layouts as below:

S.N.	LHB Variants	Layout No.
1.	Generator Car	11012.0.01.000.001
2.	AC-I CC	10112.0.01.000.001
3.	AC-II CC	10113.0.01.000.001
4.	AC-I (EOG)	LA90018
5.	AC-3 Tier (EOG)	LE90009
6.	AC-2 Tier (EOG)	LW90023
7.	AC Hot Buffet Car	LH90001

(ii) Railway Board's Condonation letter no. 2002/CEDO/SR/13 dated10.12.2002.

(D.K. Agarwal)
Executive Director Standards (Motive Power)

Copy:- **1. The Secretary(Mech./Engg.), Railway Board, Rail Bhawan, New Delhi-110001**

2. The General Manager(Mech.,Optg. and S&T)
i. Northern Railway, Baroda House, New Delhi-110 001
ii. Western Railway, Churchgate, Mumbai-400020
iii. Central Railway, CSTM, Mumbai – 400 001
iv. Eastern Railway, Fairly Place, Kolkata- 700 001
v Southern Railway, Park Town, Chennai – 600 003
vi. Northeast Frontier Railway, Maligaon, Guwahati- 781 011
vii North Eastern Railway, Gorakhpur-273 001
viii South Eastern Railway, Garden Reach, Kolkata-700 043

ix. South Central Railway, Secunderabad-500 071
x West Central Railway, Jabalpur-482 001
xi South East Central Railway, Bilaspur-495 004
xii South Western Railway, Hubli-580023
xiii East Coast Railway, Railway Complex, Bhubaneshwar-751 023
xiv East Central Railway, Hajipur-844 101
xv North Western Railway, Jaipur-302 006
xvi North Central Railway, Allahabad-211 001

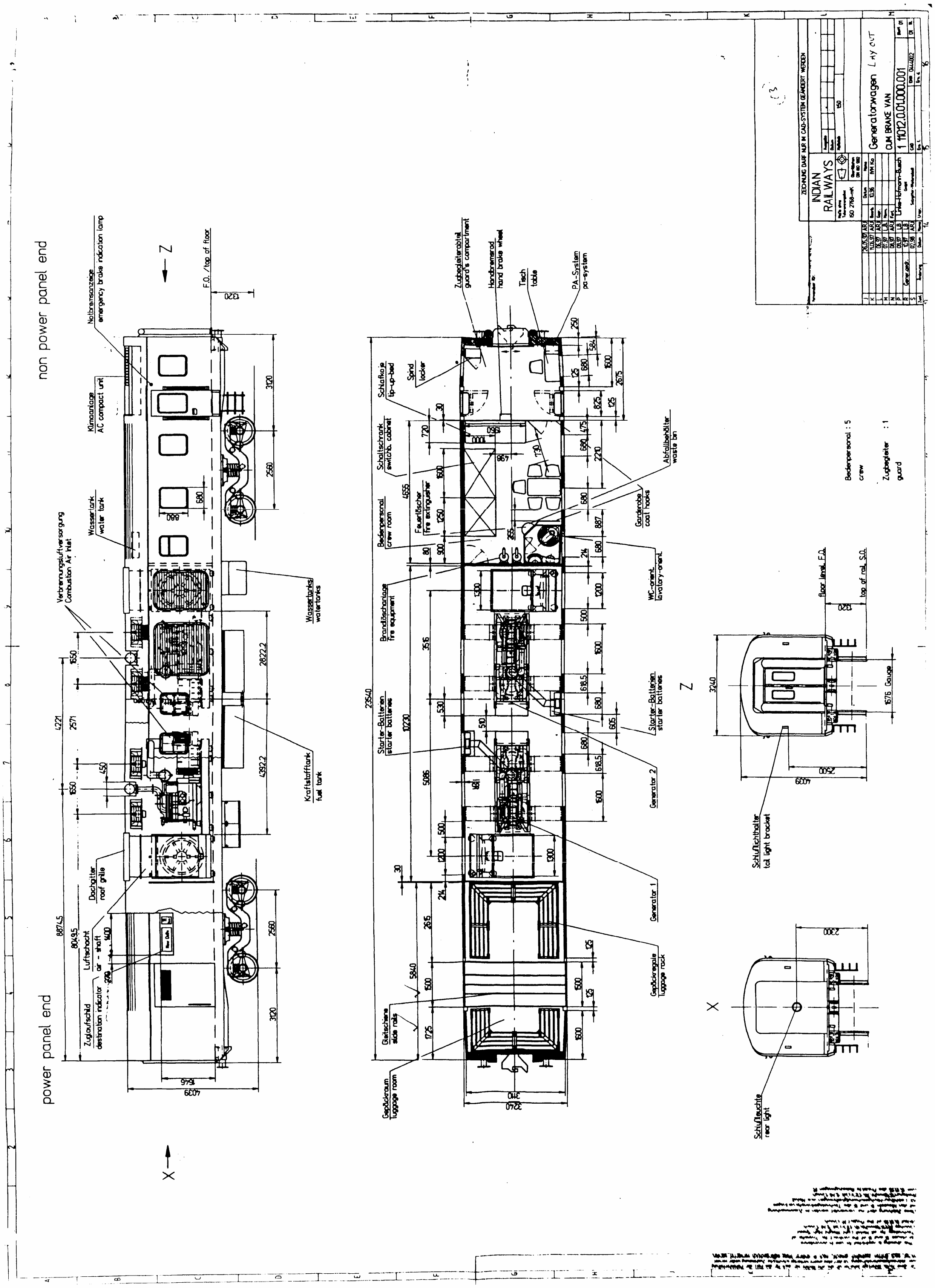
3. Managing Director, Konkan Railway Corporation,
Belapur Bhavan, Navi Mumbai- 400 014

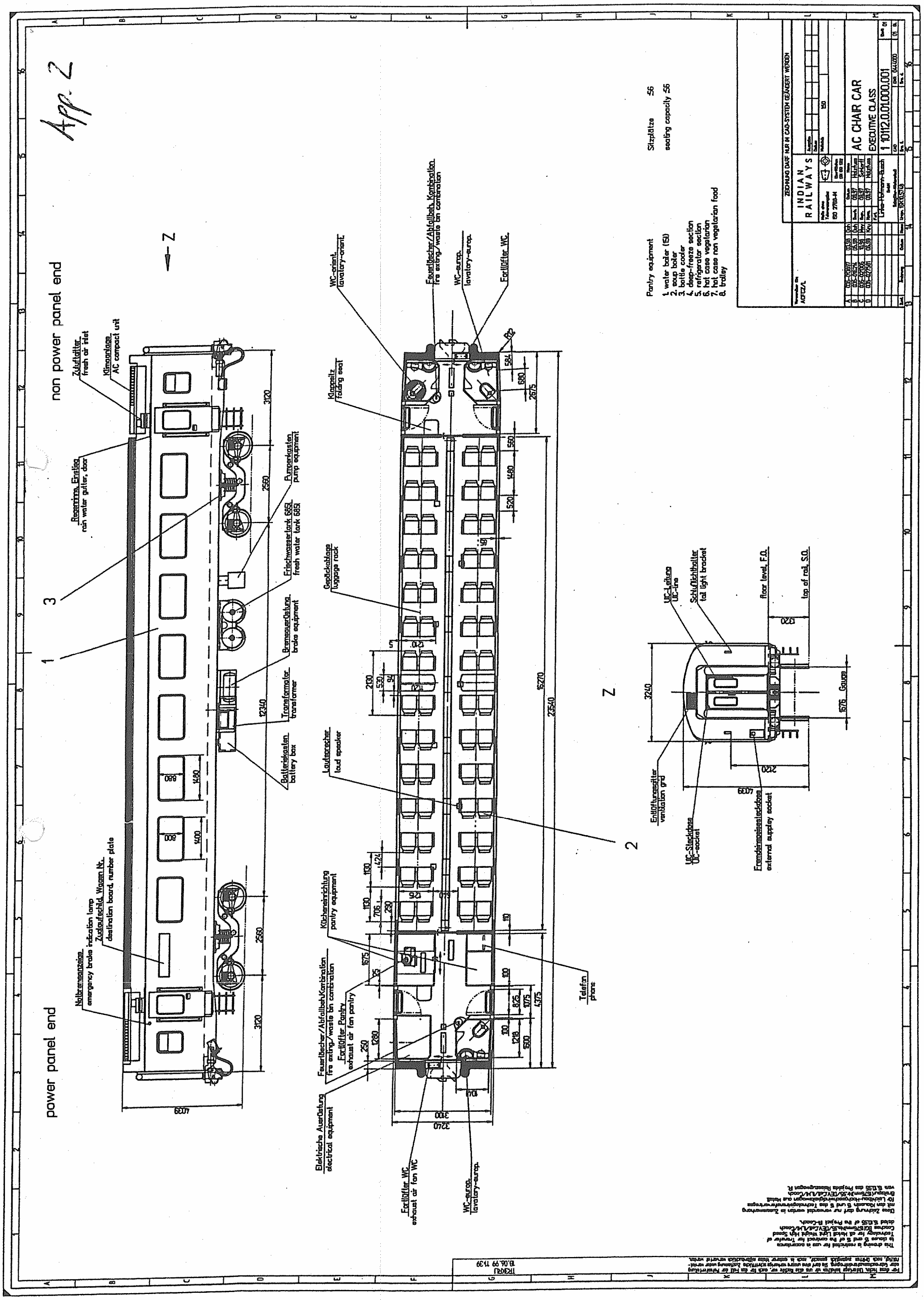
Encl: (i) LHB Layouts as below:

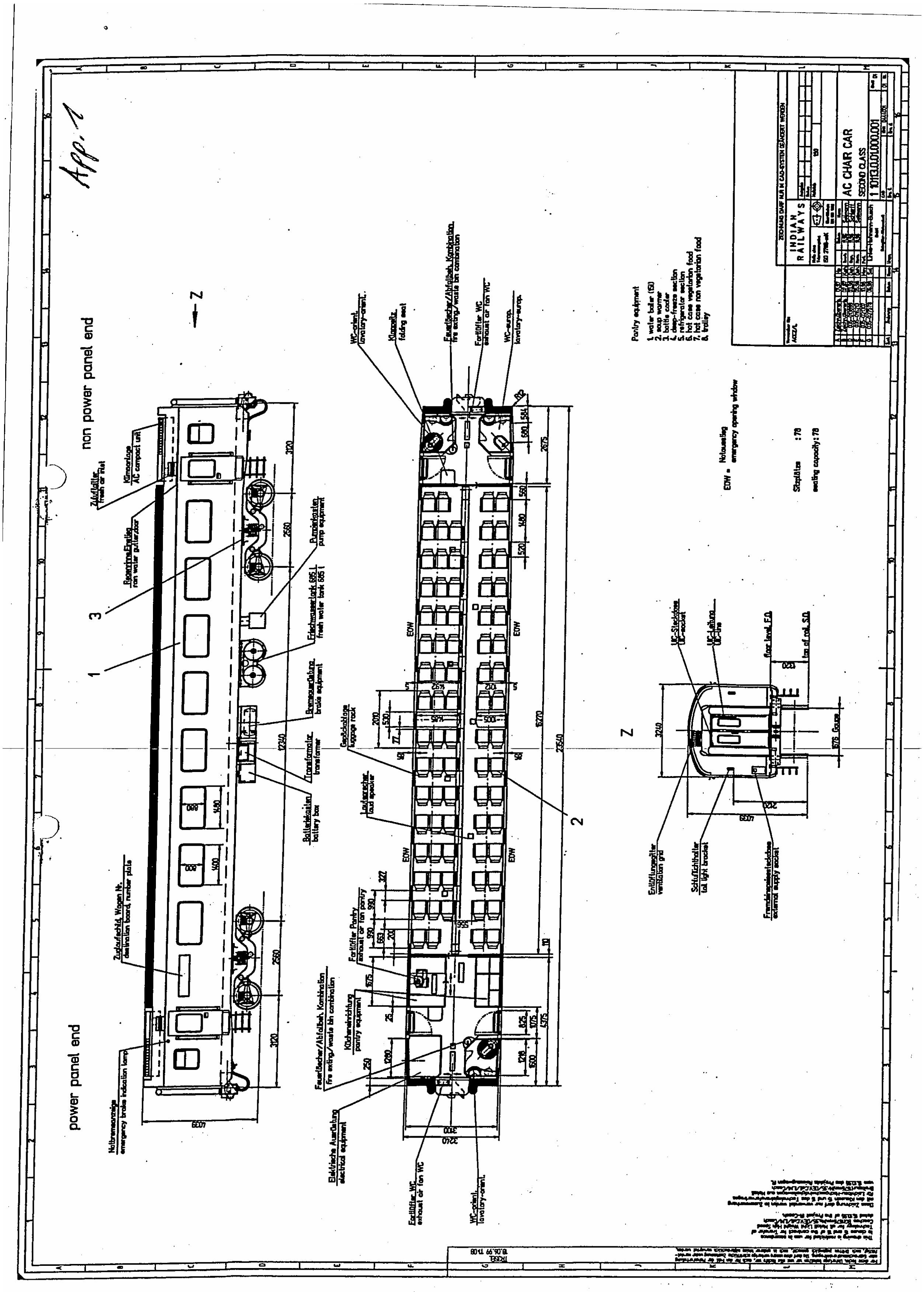
S.N.	LHB Variants	Layout No.
1.	Generator Car	11012.0.01.000.001
2.	AC-I CC	10112.0.01.000.001
3.	AC-II CC	10113.0.01.000.001
4.	AC-I (EOG)	LA90018
5.	AC-3 Tier (EOG)	LE90009
6.	AC-2 Tier (EOG)	LW90023
7.	AC Hot Buffet Car	LH90001

(ii) Railway Board's Condonation letter no. 2002/CEDO/SR/13 dated10.12.2002.

(D.K. Agarwal)
Executive Director Standards (Motive Power)


non power panel end
power panel end
INDIAN RAILWAYS
Generatorwagen
Kraftstofftank
fuel tank
Generator 1
Generator 2
Gepäckregale
luggage rack


App. 2
non power panel end
power panel end
Pantry equipment
1. water boiler (51)
2. soup boiler
3. bottle cooler
4. deep-freeze section
5. refrigerator section
6. hot case vegetarian
7. hot case non vegetarian food
8. trolley
Sitzplätze 56
seating capacity 56
INDIAN RAILWAYS
AC CHAIR CAR
EXECUTIVE CLASS
1.10112.0.01.000.001


App. 1
non power panel end
power panel end
INDIAN RAILWAYS
AC CHAR CAR
SECOND CLASS
Pantry equipment
1. water boiler (50)
2. soup warmer
3. bottle cooler
4. deep-freeze section
5. refrigerator section
6. hot case vegetarian food
7. hot case non vegetarian food
8. trolley
EDW = Notausstieg emergency opening window
Sitzplätze : 78
seating capacity : 78