



अंतर्राष्ट्रीय ऑटोमोटिव प्रौद्योगिकी केन्द्र
INTERNATIONAL CENTRE FOR AUTOMOTIVE TECHNOLOGY
[A Division of NATRiP Implementation Society (NATIS), Govt. of India]

C O S G 0627

Date : 13th December 2023

TYPE APPROVAL CERTIFICATE

Cert	Report	Specs	Drg	Total
05	10	131	14	160 pgs

FOR

Retro-fit Emission Control Devices (RECD) Compliance

1. Based on the verification of documents & trials conducted on RECD model "DOFF/OC: HCT/20:100/600" (Family designation C1-R5) for below mentioned manufacturer and It is certified that the following RECD model complies with the provisions of Type Approval of CPCB System Procedure for Retro-fit Emission Control Devices (RECD) Compliance to Diesel Power Generating Set Engines Up to Gross Mechanical Power 800 kW, as per NGT Order/report "Report filed in O.A. No. 681/2018 dated 6.08.2019".

Documental Reference		RECD Manufacturer		
Current Certificate		M/s Chakr Innovation Pvt. Ltd. Survey No. 236, Hissa No. 7 and Survey No. 237 Hinjewadi, Mulsi, Pune, Maharashtra - 411057 Plant : Hinjewadi, Pune		
RECD Family Designation		Engine Manufacturer		Tested Engine Model
C1-R5		M/s Mahindra Heavy Engines Limited		125KVA MECH CPCB II
RECD Model		Engine Cubic Capacity		Gross Engine Power
DOFF/OC: HCT/20:100/600		7200 cm ³		114.7 kW @ 1500 rpm
Engine Baseline emissions	CPCB Stage -II	Class of RECD	Class II	Engine Manufacturing Date
				April 2017
S. No.	Item Description	Parent RECD Type		
		Annexure-II		
		Annexure-III		




2. Validity of the Certificate

This Type Approval Certificate is valid for Genset engine CPCB Stage -II effective from 01.07.2014 to 30.06.2023.	a.	As per System and procedure for Emission Compliance of Retro-fit Emission Control Devices(RECD) for Diesel Power Generating Set Engines up to Gross Mechanical power 800kW as per NGT Order/report "Report filed in O.A. No. 681/2018 dated 06.08.2019 or until further amendment in the MoEFCC rule, whichever is earlier.
	b.	No change in specified RECD technical specification.

3. It is certified that the above RECD Model (Details listed in Annexure-II) comply with the emission limits for Retro-fit Emission Control Devices (RECD) to Diesel Power Generating Set Engines having Gross Mechanical Power 75kW to 114.7kW, as prescribed under the following rules, notified by Ministry of Environment, Forest and Climate Change (MoEFCC), Govt. of India:

Rule No.	Description	Date
CPCB-PCLS/12/2021-22	System and procedure for Emission Compliance of Retro-fit Emission Control Devices(RECD) for Diesel Power Generating Set Engines up to Gross Mechanical power 800kW as per NGT Order/report "Report filed in O.A. No. 681/2018 dated 6.08.2019	01.02.2022

4. COP : COP shall be completed by 30.06.2024 as per CPCB Procedure, for details refer COP Annexure-I.

AUTHORISED SIGNATORY		
 SITARAM KASHYAP DEPUTY GENERAL MANAGER		 SAURABH DALELA DIRECTOR
<small>M:\ChakrInnovation\PL\13\DOFF\OC:HCT\20\100\600\MachInnovation\PL\13\DOFF\OC:HCT\20\100\600\MachInnovation\PL\13</small>		<small>M:\ChakrInnovation\PL\13\DOFF\OC:HCT\20\100\600\MachInnovation\PL\13\DOFF\OC:HCT\20\100\600\MachInnovation\PL\13</small>
Page 1 of 5		

DISCLAIMER

1. ICAT issues "Type Approval Certificates" (TAC) for vehicles/ engines/gensets/ parts/ assemblies etc. based on the documents produced and/or prototype / vehicle(s) submitted by the applicant and testing thereof.
2. ICAT issues TAC in compliance to Motor Vehicle Act/ Central Motor Vehicle Rules/ Central Pollution Control Board rules and their provisions as amended from time to time or any other statutory orders under which ICAT is authorized. Other Rules/Acts are outside the purview/scope of the TAC.
3. Test(s) on prototype is/are carried out on the basis of standard procedures as notified under specific rules. Results of such tests are property of bearer of TAC. These results cannot be disclosed unless specifically ordered by Government, Court, etc.
4. The bearer of the TAC is under the obligation to ensure production strictly as per the provisions of the specific TAC.
5. ICAT is not responsible for testing each vehicles/components/parts/assemblies etc. for which TAC is issued. Further, ICAT is not responsible for ensuring manufacturing quality of the type approved vehicles/ components/ parts/ assemblies etc.
6. ICAT is no way responsible for any misuse or copying of any design/type/system in connection with entire vehicle/ components/parts and assemblies covered under the TAC.
7. Breach of any statutory provision of Indian laws or laws of other countries, will be sole responsibility of the bearer of the TAC and ICAT shall not be liable for any claims or damages. The bearer shall alone be liable for the same, and shall undertake to indemnify ICAT in this regard.
8. ICAT has the right, but not under obligation to initiate cancellation / withdrawal of the certificate issued, in case of any fraud, misrepresentation, when it surfaces and comes in the knowledge of ICAT.

The appropriate local court at Gurugram shall have the jurisdiction in respect of any dispute, claim or liability arising out of this certificate/report.

SECURITY FEATURES

This certificate has the following security features:

1. Ultraviolet (UV) printing : This certificate contains following the information printed in UV ink which can be read only under UV light:
 - a) Certificate number (below the certificate number on the top left side)
 - b) Signature of Director (bottom right side)
2. Pantograph (top right below the number of pages) : This box will appear only on original document
3. Watermark (diagonally in the background on full page) : The water mark consists of company name and model name
4. Micro text (horizontal line in signature boxes) : The thin hairline consists of company name and model name
5. Secure Mark (topmost right) : The QR code consists of company name, certificate number & date and model name



3

1 a)	CERTIFICATE FOR COMPLIANCE TO THE CENTRAL MOTOR VEHICLES RULES	Date: <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 25%;">Cert</td> <td style="width: 25%;">Table</td> <td style="width: 25%;">Dwg</td> <td style="width: 25%;">Total</td> </tr> <tr> <td align="center">11</td> <td align="center">11</td> <td align="center">11</td> <td align="center">11</td> </tr> </table>	Cert	Table	Dwg	Total	11	11	11	11
Cert	Table	Dwg	Total							
11	11	11	11							
1. In order to establish compliance to the provisions of CMVR, 1989, applicable as on date, documentary verification / necessary testing was carried out on the following base model & its variants, submitted by the vehicle manufacturer, related below:		2								
Documental Reference	Vehicle Manufacturer									
Equipment Certificate	XXXX									
Plant	XXXX									
Gasoline Engine Model / Type	Power	Capacity (cm ³)								
Engine Manufacturer										
Basic Model	Type & Category	Seating Capacity (incl. driver)								
ABC										
1a) Brief technical specifications (XXXXXX) of the base model & its variants as declared by the vehicle manufacturer are enclosed with this certificate. Detailed specifications (XXXXXXXX) of the base model & its variants are also separately issued to the vehicle manufacturer.										
2. It is certified that the above base model & its variants comply with the provisions of the CMVR, 1989, as amended upto date, including following requirements, (as detailed in ANNEXURE - I (A) & (B))										
Standards	Notification	Date								
Bharat Stage - VI (including OBD - II)										
		Applicable CMVR								
		115 (18) (i)								
Refer ANNEXURE - B										
3. This Certificate is issued as per CMV R. No. 126, to establish compliance with the Central Motor Vehicles Rules, 1989, and shall not be construed as a certificate of compliance to any rules other than those listed in ANNEXURE - I (A), (B) & (C). Compliance to these rules has been verified based on the use of specific components / parts / assemblies etc. details of which are given in the detailed specifications duly endorsed by ICAT, as mentioned in clause 1a above. It is the vehicle manufacturer's responsibility to ensure fitment of same components / parts / assemblies etc. before submission of the vehicle for registration.										

Please fill over for Certificate	
4	1 b)
NAME DESIGNATION	NAME DESIGNATION
	Page 1 of 1



C O S G 0627

Date : 13th December 2023

COP Annexure-I




Criteria*	COP Required
RECD Manufacturer/Importer/Retrofitter	RECDs fitted on engines of all ratings shall be subjected to the verification of CoP once for every 500 units per family or once a year, whichever is earlier Wherever applicable, RECDs fitted on engines of all ratings of engines shall be subjected to the verification of PCD once every CoP-year by PCD family (ies) representative RECD(s). Such demonstration is PCD family dependent and irrespective of combined volumes produced and sold under such family (ies)

* As Applicable

Annexure-II

S No	Item Description	Parent RECD Type
		Type 1
1	Manufacturing Plant address	M/s Chakr Innovation Private Limited, Survey No. 236 & 237, Hissa No.7, Taluka - Mulshi, Rajiv Gandhi Infotech Park, Hinjewadi Phase -1, Pune, Maharashtra - 411057
2	Manufacturer's trade name or mark	Chakr Innovation Private Limited
3	RECD family designation	C1-R5
4	RECD type/model designation	DOFF/OC: HCT/20:100/600
5	RECD Category (Domestic/Imported)	Domestic
6	Class of RECD	Class II
7	Type Identification of the RECD	Continuous
8	Location of type ID marking	Refer Specification no. CIPL/TA/C2-CS1800-R5 dtd. 28.11.2023 Clause no 1.8
9	Identifying part number(s) of the RECD	C1-CS1800-R5
10	Engine/ Engine-Family for which the RECD is intended (application range)	125KVA MECH CPCB II
11	PM Reduction Efficiency of the RECD	88.49%
12	Designed for fitment to an engine meeting the emissions requirements of (Regulation and Stage):	CPCB Stage -II

ICAT Ref No.	2023-1464; IOCS No: 171515
Base Engine Type Approval Certificate number	ARAI/MOEF/DGTA/MHEL-F17/2014-03-E2
Test Report Reference	CT0ES 0528 dt. 12/12/2023

AUTHORISED SIGNATORY		
		
SITARAM KASHYAP DEPUTY GENERAL MANAGER		SAURABH DALELA DEPUTY GENERAL MANAGER

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C O S G 0627





Date : 13th December 2023

Annexure-III

List of applicable engine(s) as per 771(E) dtd. 11.12.2013 and GSR 232(E) dtd. 31.03.2014 Phase II certified In -Use DG sets for corresponding RECD models of RECD Family.

S. No.	Manufacturer Name & Address	Engine Family	Engine Model	Rated Gross Mechanical Declared Power	Type Approval Certificate Number
1	Ashok Leyland Ltd. No.1, Sardar Patel Road, Guindy, Chennai - 600032	F25	AL4CTIDG3	78 kW	ARAI/MoEF/DGTA/ALL-F25/2014-02-E1 Dt. 26-07-2014
2			AL4CTIDG4	94 kW	
3			AL6DTIDG1	94 kW	
4			AL6DTIDG2	116 kW	
5		F50	AL6DTIDG6	116 kW	ARAI/MoEF/DGTA/ALL-F50/2022-19 Dt. 03-02-2022
6	Cooper Corporation Pvt. Ltd Plot no. M60-1, Engine Division Post-Kodoli, Addl. MIDC Satara, 415003	F10	3B5D1C85RW	85 kW	ARAI/MoEF/DGTA/CCPL-F10/2014-04- E1 Dt. 17-08-2015
7			4B5DIC113RW	113 kW	
8			3B5D1C75RW	75.5 kW	
9			4B5D1C100RW	100 kW	
10	Deutz Engines India Pvt. Ltd. 6, Ramabai Ambedkar Road, B Wing, 4th Floor, Heritage House, Pune 411001. Maharashtra, India	F4	TCD2013 L042V (D3UC100)	100.3 kW	ARAI/MoEF/DGTA/IMP/DEIPL-F4/2016- 04 Dt. 08-06-2016
11			TCD2013 L042V (D3UC85)	85.6 kW	
12	Greaves Cotton Ltd. Industrial Engines Unit, Plot No.J-2/A, MIDC Chikalthana, Aurangabad- 431210	F101	4G11TAG26	114 kW	ARAI/MoEF/DGTA/GCLP-F101/2015-10- E3 Dt. 18-08-2021
13			4G11TAG25	93 kW	
14		F81	3G11TAG26	74.5 kW	ARAI/MoEF/DGTA/GCLP-F81/2015-08- E2 Dt. 18-08-2021
15	Kirloskar Oil Engines Ltd. Khadki, Pune	F111	4R1040TA G1	74.8 kW	ARAI/MoEF/DGTA/KOEL-F111/2014-11 Dt. 22-03-2014
16		F123	6R1080TAG2	114.7 kW	ARAI/MoEF/DGTA/KOEL-F123/2019-26 Dt. 27-12-2019
17		F112	4K1080TAG2	114.7 kW	ARAI/MoEF/DGTA/KOEL-F112/2019-25- E1 Dt. 05-01-2021
18			4K1080TAG1	93.4 kW	
19			F113	6R1080TAD	114.7 kW
20	Mahindra & Mahindra Ltd. Implementation division, MIDC, Hingna Road, Nagpur - 440 016	F89	41125AGM-C2	74.5 kW	ARAI/MoEF/DGTA/M&M-F89/2019-20 Dt. 04-06-2019
21	Mahindra Heavy Engines Pvt. Ltd. Plot # A-1/1, Chakan Industrial Area, Phase-IV, Village Nigoje, Chakan, Taluka- Khed, Pune- 410501	F21	mPower61565G1	114.7 kW	ARAI/MoEF/DGTA/MHEL-F21/2016-05- E4 Dt. 13-11-2017
22		F17	mPower61565G	114.7 kW	ARAI/MoEF/DGTA/MHEL-F17/2014-03- E6 Dt. 17-12-2019
23			mPower41265G	93 kW	
24			mPower41565G	114.7 kW	
25		F17	125KVA MECH CPCB II	114.7 kW	ARAI/MOEF/DGTA/MHEL-F17/2014-03- E2
26	Tata Motors Limited Pimpri, Pune	F27	697 TC 52	93.5 kW	ARAI/MoEF/DGTA/TML/F27/2016-06-E1 Dt. 13-06-2019
27			697 TC 51	81.5 kW	

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 <small>2023/11/16 09:56:45 [132] 2023/11/16 09:56:45 [132] 2023/11/16 09:56:45 [132] 2023/11/16 09:56:45 [132] 2023/11/16 09:56:45 [132]</small> SITARAM KASHYAP DEPUTY GENERAL MANAGER	 INTERNATIONAL CENTRE FOR AUTOMOTIVE TECHNOLOGY MANESAR	 <small>2023/11/16 09:56:45 [132] 2023/11/16 09:56:45 [132] 2023/11/16 09:56:45 [132] 2023/11/16 09:56:45 [132] 2023/11/16 09:56:45 [132]</small> SAURABH DALELA DIRECTOR	 Page 3 of 5
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C O S G 0627

Date : 13th December 2023

Annexure-III Cont.

S. No.	Manufacturer Name & Address	Engine Family	Engine Model	Rated Gross Mechanical Declared Power	Type Approval Certificate Number
28	Tata Motors Limited Pimpri, Pune	F33	697 TC 10	115 kW	ARAI/MoEF/DGTA/TML/F33/2018-08-E1 Dt. 29-05-2019
29			697 TC 13	93.5 kW	
30			697 TC 14	81.5 kW	
31	Tata Cummins Pvt. Ltd. Telco Township, Jamshedpur, Jharkhand	F47	4BTAA3.9-G4	82 kW	ARAI/MoEF/DGTA/TCL-F47/2016-03 Dt. 29-12-2016
32		F49	6BTAA5.9-G13	119 kW	ARAI/MoEF/DGTA/TCL-F49/2019-08-E1 Dt. 26-09-2019
33	VE Commercial Vehicle Ltd. 102, Industrial area No-2, Pithampur- 454775, Dist-Dhar, Madhya Pradesh	F5	EE683 TCI 82.5KVA CPCB-II	77 kW	ARAI/MOEF/DGTA/VECV-F5/2014-02- E1 Dt. 03-11-2017
34		F7	EE694TCI 125KVA CPCB-II	115 kW	ARAI/MoEF/DGTA/VECV-F7/2017-10 Dt. 21-06-2017
35			EE694TCI 100KVA CPCB-II	95 kW	
36	EICHER TRACTORS (A Unit Of TAFE Motors & Tractors Ltd.) Itarana Road, Alwar- 301 001	F12	1751 ES	118 kW	ICAT/MOEFCC/DGTA/EICHER-F12/O- 0982 Dt. 28-05-2019
37		F14	1121ES	74.9 kW	ICAT/MoEFCC/DGTA/EICHER-F-14/N- 1814-E01 Dt. 08-07-20 20
38		F15	1401ES	94.3 kW	ICAT/MOEF/DGTA/EICHER-F-15/L- 0156 Dt. 10-02-2016
39		F18	1122ES	74.9 kW	ICAT/MOEFCC/DGTA/EICHER-F18/O- 2045 Dt. 25-11-2019
40		F19	1402ES	94.3 kW	ICAT/MOEFCC/DGTA/EICHER-F19/P- 0506 Dt. 19-03-2020
41	M/s. JCB India Ltd. 23/7, Mathura Road, Ballabgarh- 121 004, Haryana,India.	F7	JCB 448 TG-72	72 kW	ICAT/MOEF/DGTA/IMP/JCB-F7/J-0542 Dt. 20-06-2014
42		F8	JCB 448 TAG-92	92 kW	ICAT/MOEF/DGTA/IMP/JCB-F8/J-0543 Dt. 20-06-2014
43	M/s. Baudouin (Weifang) Power Co. Ltd. Add : No. 197A, Fushou East Street., High-new Technology, Industrial Development Zone, Weifang, Shandong, China.	F6	6M11G125/5E3	117 kW	ICAT/MoEFCC/DGTA/IMP/BWPCL-F6/N- 2136 Dt. 16-11-2018
44			4M11G825/5E3	85 kW	
45		4M06G6D3	4M06G6D2/3	96 kW	ICAT/MoEFCC/DGTA/IMP/BWPCL- 4M06G6D3/P-0879 Dt. 13-07-2020
46	4M07G6	4M07G6D2/3	120 kW	ICAT/MoEFCC/DGTA/IMP/BWPCL- 4M07G6/P-1729 Dt. 01-12-2020	
47	4M07G2	4M07G2D2/5	78 kW	ICAT/MoEFCC/DGTA/IMP/BWPCL- 4M07G2/P-1730 Dt. 01-12-2020	
48	M/s. Harison Generators Private Limited No. E-17, Focal Point, Industry Area, Patiala, Punjab-147 001	F-12ZLD	4K41LD	74 kW	ICAT/MoEFCC/DGTA/IMP/HGPL-F-12- ZLD/P-0791 Dt. 22-06-2020

AUTHORISED SIGNATORY

 SITARAM KASHYAP DEPUTY GENERAL MANAGER	 INTERNATIONAL CENTRE FOR AUTOMOTIVE TECHNOLOGY MANESAR • APJYOTI NAGAR INNOVATION • SERVICE • EXCELLENCE	 SAURABH DALELA DIRECTOR	 Page 4 of 5
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C O S G 0627

Date : 13th December 2023

Annexure-III Cont.					
S. No.	Manufacturer Name & Address	Engine Family	Engine Model	Rated Gross Mechanical Declared Power	Type Approval Certificate Number
49	M/s. Shandong Heavy Industry India Pvt. Ltd. Add: Survey No. 280/281, Hinjawadi Phase II, Village Mann, Taluka Mulshi, Pune - 411057, Maharashtra, India	F6	6M11G125/5E3	117 kW	ICAT/MoEFCC/DGTA/SHIPL-F6/N-2135 Dt. 16-11-2018
50			4M11G825/5E3	85 kW	
51		4M06G6D3	4M06G6D2/3	96 kW	ICAT/MoEFCC/DGTA/SHIPL-4M12G6D5/P-0883 Dt. 13-07-2020
52		4M07G6	4M07G6D2/3	120 kW	ICAT/MoEFCC/DGTA/SHIPL-4M07G6/P-1806 Dt. 14-12-2020
53		4M07G2	4M07G2D2/5	78 kW	ICAT/MoEFCC/DGTA/SHIPL-4M07G2/P-1807 Dt. 14-12-2020

Note: Engine details mentioned above are sourced from : www.cpcb.nic.in

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AUTHORISED SIGNATORY		
 SITARAM KASHYAP DEPUTY GENERAL MANAGER		 SAURABH DALELA DIRECTOR
		 Page 5 of 5

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