



[National Automotive Board (NAB)]

C O T G 0136

Date : 06th June 2024

TYPE APPROVAL CERTIFICATE

Cert	Report	Specs	Drg	Total
06	10	129	14	159 pgs

FOR

Retro-fit Emission Control Devices (RECD) Compliance

1. Based on the verification of documents & trials conducted on RECD model "C2-CS1800-R8" (Family designation C2-R8) 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, Taluka Mulshi, Pune, Maharashtra - 411057 Plant : Hinjewadi, Pune			
RECD Family Designation		Engine Manufacturer		Tested Engine Model	
C2-R8		M/s Kirloskar Oil Engine Limited		DV8TA G1	
RECD Model			Engine Cubic Capacity		Gross Engine Power
C2-CS1800-R8			15928 cm ³		294.2 kW @ 1500 rpm
Engine Baseline emissions	CPCB Stage -II	Class of RECD	Class II	Engine Manufacturing Date	
				May 2017	
S. No.	Item Description		Parent RECD Type		
			Annexure-II		
	RECD suitable for Phase I Certified Diesel Generator engine / engine families		Annexure-III		





2. Validity of the Certificate

This Type Approval Certificate is valid for Genset engine CPCB Stage -I 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 114.5kW to 293.7kW, 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 30.06.2025 as per CPCB Procedure, for details refer COP Annexure-I.

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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	C2-R8
4	RECD type/model designation	C2-CS1800-R8
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-R8 dtd. 15.05.2024 Clause no 1.8
9	Identifying part number(s) of the RECD	C2-CS1800-R8-V2.3
10	Engine/ Engine-Family for which the RECD is intended (application range)	DV8TA G1
11	PM Reduction Efficiency of the RECD	79.39%
12	Designed for fitment to an engine meeting the emissions requirements of (Regulation and Stage):	CPCB Stage -II

ICAT Ref No. 2023-2271; IOCS No: 173349

Base Engine Type Approval Certificate number ARAI/MoEF/DGTA/KOEL-F115/2014-01

Test Report Reference CT0ET 0221 dt. 22/05/2024

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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 - 6000032	F25	AL6DTIDG4	147 kW	ARAI/MoEF/DGTA/ALL-F25/2014-02-E1, Dt. 26-06-2014
2			AL6DTIDG2	116 kW	
3			AL6DTIDG3	130 kW	
4		F40	AL8NTIDG6	223 kW	ARAI/MoEF/DGTA/ALL-F40/2015-11-E1, Dt. 02-08-2016
5			AL8NTIDG5	180 kW	
6		F50	AL6DTIDG6	116 kW	ARAI/MoEF/DGTA/ALL-F50/2022-19 Dt. 03-02-2022
7	Baudouin (Weifang) Power Co. Ltd. No. 197A, Fushou East Street., High-new Technology, Industrial Development Zone, Weifang, Shandong, China.	F11	6M19G320/5E3	290 kW	ICAT/MoEFCC/DGTA/SHIPL-F11/N-2137, Dt. 16-11-2018
8		F12	6M16G250/5E3	240 kW	ICAT/MoEFCC/DGTA/IMP/BWPCL-F12/N-2145, Dt. 19-11-2018
9		F6	6M11G140/5E3	129 kW	ICAT/MoEFCC/DGTA/IMP/BWPCL-F6/N-2136, Dt. 16-11-2018
10		6M12G	6M12G6D2/5	235 kW	ICAT/MoEFCC/DGTA/IMP/BWPCL-6M12G/P-0840, Dt. 06-07-2020
11		6M16G	6M16G4D2/5	290 kW	ICAT/MoEFCC/DGTA/IMP/BWPCL-6M16G/P-0838, Dt. 06-07-2020
12		6M11G	6M11G2D2/5	143 kW	ICAT/MoEFCC/DGTA/IMP/BWPCL-6M11G/P-0836, Dt. 06-07-2020
13		4M12G6D5	4M12G6D2/5	125 kW	ICAT/MoEFCC/DGTA/IMP/BWPCL-4M12G6D5/P-0884, Dt. 13-07-2020
14		4M07G6	4M07G6D2/3	120 kW	ICAT/MoEFCC/DGTA/IMP/BWPCL-4M07G6/P-1729, Dt. 01-12-2020
15	Cooper Corporation Pvt. Ltd Plot no. M60-1, Engine Division Post- Kodoli, Addl. MIDC Satara, 415003	F14	6G5D1C228W	228 kW	ARAI/MoEF/DGTA/CCPL-F14/2017-07 Dt. 18-08-2017
16		F10	6B5D1C190RW	190 kW	ARAI/MoEF/DGTA/CCPL-F10/2014-04-E1 Dt. 17-08-2015
17			4B5DIC113RW	113 kW	
18			6B5D1C150RW	150 kW	
19			6B5D1C170RW	170 kW	
20	Cummins India Limited Cummins India Office Campus Tower A, 5th Floor Survey No. 21, Balewadi, Pune 411045	F50	QSL9 G15	298 kW	ARAI/MoEF/DGTA/CILP-F50/2017-27-E3, Dt. 04-01-2019
21			QSL9 G16	249 kW	
22	F56	6L8.9TAAG-4	250 kW	ARAI/MoEF/DGTA/CILP-F56/2015-25-E2, Dt. 07-02-2018	

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S. No.	Manufacturer Name & Address	Engine Family	Engine Model	Rated Gross Mechanical Declared Power	Type Approval Certificate Number
23	Deutz Engines India Pvt. Ltd. 6, Ramabai Ambedkar Road, B Wing, 4th Floor, Heritage House, Pune 411001. Maharashtra, India	F1	TCD2013L064V	250.7 kW	ARAI/MoEF/DGTA/IMP/DEIPL-F1/2015-01, Dt. 11-09-2015
24		F4	TCD2013 L062V (D3UC151)	151 kW	ARAI/MoEF/DGTA/IMP/DEIPL-F4/2016-04 Dt. 08-06-2016
25			TCD2013 L062V (D3UC130)	130.6 kW	
26	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
27	Greaves Cotton Ltd. Industrial Engines Unit, Plot No.J-2/A, MIDC Chikalthana, Aurangabad-431210	F321	D3V8TAG21	284 kW	ARAI/MoEF/DGTA/GCLP-F321/2016-13-E1, Dt. 18-08-2021
28		F500	12V14TAG21	284 kW	ARAI/MoEF/DGTA/GCLP-F500/2014-01-E4 ,Dt. 18-08-2021
29		F101	4G11TAG26	114 kW	ARAI/MoEF/DGTA/GCLP-F101/2015-10-E3, Dt. 18-08-2021
30		F201	6G11TAG29	178.8 kW	ARAI/MoEF/DGTA/GCLP-F201/2015-11-E2 Dt. 18-08-2021
31			6G11TAG28	163 kW	
32			6G11TAG27	144.5 kW	
33		F251	D3V6TAG21	227 kW	ARAI/MoEF/DGTA/GCLP-F251/2015-12-E1, Dt. 18-08-2021
34		F161	6G11TAG26	144.5 kW	ARAI/MoEF/DGTA/GCLP-F161/2017-14-E2, Dt. 18-08-2021
35	JCB India Ltd. 23/7, Mathura Road, Ballabgarh-	F9	JCB 448 TCAG-121	121 kW	ICAT/MOEF/DGTA/JC B - F9/K-0463 Dt. 15-06-2015
36	Kirtoskar Oil Engines Ltd. Khadki, Pune	F114	6SL1500TA G3	228 kW	ARAI/MoEF/DGTA/KOEL-F114/2014-14-E1, Dt. 09-02-2016
37			6SL1500TA G2	183 kW	
38		F115	DV8TA G1	294.2 kW	ARAI/MoEF/DGTA/KOEL-F115/2014-01-E1, Dt. 11-09-2019
39		F115	DV8TA G1	292.2 kW	ARAI/MoEF/DGTA/KOEL-F115/2014-01
40		F123	6R1080TA G2	114.7 kW	ARAI/MoEF/DGTA/KOEL-F123/2019-26, Dt. 27-12-2019
41		F124	6R1080ETA G1	183.8KW	ARAI/MoEF/DGTA/KOEL-F124/2018-24, Dt. 30-07-2019
42		F112	4K1080TA G2	114.7 kW	ARAI/MoEF/DGTA/KOEL-F112/2019-25-E1, Dt. 05-01-2021
43		F113	6K 1080TA G2	147 kW	ARAI/MoEF/DGTA/KOEL-F113/2014-13, Dt. 22-03-2014

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S. No.	Manufacturer Name & Address	Engine Family	Engine Model	Rated Gross Mechanical Declared Power	Type Approval Certificate Number
44	Kirloskar Oil Engines Ltd. Khadki, Pune	F113	6K 1080TA G2	147 kW	ARAI/MoEF/DGTA/KOEL-F113/2014-13-E4 Dt. 01-06-2021
45			6R1080TAD	114.7 kW	
46			6R1080TA G1	128.7 kW	
47	Mahindra Heavy Engines Pvt. Ltd. Plot # A-1/1, Chakan Industrial Area, Phase-IV, Village Nigoje, Chakan, Taluka- Khed, Pune- 410501	F21	mPower62485G	182 kW	ARAI/MoEF/DGTA/MHEL-F21/2016-05-E4 Dt. 13-11-2017
48			mPower62235G	164 kW	
49			mPower61995G1	146.5 kW	
50		mPower61565G1	114.7 kW	ARAI/MoEF/DGTA/MHEL-F23/2017-06 Dt. 27-06-2017	
51	F23	mPower 63905G	287 kW		
52		mPower 63655G	269 kW		
53		F17	mPower 63405G	250 kW	ARAI/MoEF/DGTA/MHEL- F17/2014-03-E6 Dt. 17-12-2019
54			mPower 63105G	228 kW	
55			mPower61995G	146.5 kW	
56			mPower61565G	114.7 kW	ARAI/MoEF/DGTA/MHEPL-F17/2014-03-03
57			mPower41565G	114.7 kW	
58		F17	125 KVA MECH CPCB II	114.7 kW	ARAI/MoEF/DGTA/MHEL- F17/2014-03-E2,Dt. 08-09-2016
59		F17	125 KVA MECH CPCB II	114.7 kW	ARAI/MoEF/DGTA/MHEL- F17/2014-03-E2,Dt. 08-09-2016
60	Scania Commercial Vehicles India Pvt. Ltd. Plot No.63 (part),64 66,88- 97, Narsapur, KIADB Industrial Area, Achhatahahalli Village, Narsapur Hobli, Kolar Taluk, District Kolar, Kamataka, PIN-563 130	F1	DC09 071A 226	226 kW	ARAI/MoEF/DGTA/IMP/SCANIA-F1/2015-01-E1 Dt. 25-07-2017
61			DC09 071A 248	248 kW	
62			DC09 071A 267	267 kW	
63			DC09 071A 289	289 kW	
64	Shandong Heavy Industry India Pvt. Ltd. Survey No. 280/281, Hinjawadi Phase II, Village Mann, Taluka Mulshi, Pune - 411057, Maharashtra, India	6M16G	6M16G4D2/5	290 kW	ICAT/MoEFCC/DGTA/ IMP/BWPCL-6M16G/P-0838,Dt. 06-07-2020
65		6M11G	6M11G2D2/5	143 kW	ICAT/MoEFCC/DGTA/IMP/BWPCL-6M11G/P-0836,Dt. 06-07-2020
66		4M12G6D5	4M12G6D2/5	125 kW	ICAT/MoEFCC/DGTA/IMP/BWPCL-4M12G6D5/P-0884,DL 13-07-2020
67		4M076G	4M07G6D2/3	120 kW	ICAT/MoEFCC/DGTA/IMP/BWPCL-4M07G6/P-1729,Dt. 01-12-2020
68		F11	6M19G320/5E3	290 kW	ICAT/MoEFCC/DGTA/SHIPL-F11/N-2137 ,Dt. 16-11-2018
69		F12	6M16G250/5E3	240 kW	ICAT/MoEFCC/DGTA/IMP/BWPCL-F12/N-2145,DL 19-11-2018

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S. No.	Manufacturer Name & Address	Engine Family	Engine Model	Rated Gross Mechanical Declared Power	Type Approval Certificate Number
70	Shandong Heavy Industry India Pvt. Ltd. Survey No. 280/281, Hinjawadi Phase II, Village Mann, Taluka Mulshi, Pune - 411057, Maharashtra, India	F6	6M11G140/5E3	129 kW	ICAT/MoEFCC/DGTA/SHIPL-F6/N-2135, Dt. 16-11-2018
71		6M12G	6M12G6D2/5	235 kW	ICAT/MoEFCC/DGTA/SHIPL-6M12G/P-0839, Dt. 06-07-2020
72		6M16G	6M16G4D2/5	290 kW	ICAT/MoEFCC/DGTA/SHIPL-6M16G/P-0837, Dt. 06-07-2020
73		6M11G	6M11G2D2/5	143 kW	ICAT/MoEFCC/DGTA/SHIPL-6M11G/P-0835, Dt. 06-07-2020
74		4M12G6D5	4M12G6D2/5	124 kW	ICAT/MoEFCC/DGTA/ SHIPL-4M06G6D3/P-0880, Dt. 13-07-2020
75		4M07G6	4M07G6D2/3	120 kW	ICAT/MoEFCC/DGTA/SHIPL-4M07G6/P-1808 ,Dt. 14-12-2020
76	Tata Motors Limited Pimpri, Pune	F33	697 TC 10	115 kW	ARAI/MoEF/DGTA/TML/-F33/2018-08-E1, Dt. 29-05-2019
77		F40	QSB 5.9-G2	154 kW	ARAI/MoEF/DGTA/TCL-F40/2017-07 Dt. 23-09-2017
78			QSB 5.9-G1	137 kW	
79		F49	6BTAA5.9-G13	119 kW	ARAI/MoEF/DGTA/TCL-F49/2019-08-E1, Dt. 26-09-2019
80		F55	QSB 6.7-G16	209 kW	ARAI/MoEF/DGTA/TCL-F55/2019-09-E1 Dt. 21-05-2021
81			QSB 6.7-G14	174 kW	
82			QSB 6.7-G15	191 kW	
83			QSB 6.7-G17	229 kW	
84		VE Commercial Vehicle Ltd. 102, Industrial area No-2, Pithampur-454775, Dist-Dhar, Madhya Pradesh	F7	EE694TCI 125KVA CPCB-II	115 kW
85		F12	EE694 TCI 160KVA CPCB-II	148 kW	ARAI/MoEF/DGTA/VECV-F12/2016-09 Dt. 26-08-2016
86	Volvo India Private Limited Volvo Penta. Yalachahally, Tavarekere Post, Hosakote TQ, Bangalore, Kamataka-562 122	F13	TAD1351GE	286 kW	ARAI/MoEF/DGTA/IMP/VOLVO-F13/2014-03-E1, Dt. 30-06-2015
87		F14	TAD754GE	219 kW	ARAI/MoEF/DGTA/IMP/VOLVO-F14/2014-04-E1, Dt. 30-06-2015

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

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