



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

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Date : 6th November 2023

TYPE-APPROVAL CERTIFICATE

FOR

Retro-fit Emission Control Devices (RECD) Compliance

Cert	Report	Specs	Drg	Total
09	19	218	25	271 pgs

1. Based on the verification of documents & trials conducted on RECD model "Chakr Shield 2.0 C2-CS1800-R10-V2" (Family designation C2-R10) 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-R10		M/s Kirloskar Oil Engines Ltd.		DV10	
RECD Model			Engine Cubic Capacity		Gross Engine Power
Chakr Shield 2.0 C2-CS1800-R10-V2			19900 cm ³		448 kW @ 1500 rpm
Engine Baseline emissions	CPCB Stage -I	Class of RECD	Class II	Engine Manufacturing Date	June 2010
S. No.	Item Description	Parent RECD Type	RECD types within the RECD family (If applicable)		
Annexure-II					
RECD suitable for Phase II 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 01.07.2004 to 30.06.2014.	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 **294 kW to 448 kW**, 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				
				
M\iCat\Innovation\Pvt.Ltd.Chair\Shahd2.0C3-CS1800-R 10-V2M\ChairInnovation\Pvt.Ltd.Chair\Shahd2.0C3-CS1800-R 10-V2M\ChairInno		M\iCat\Innovation\Pvt.Ltd.Chair\Shahd2.0C3-CS1800-R 10-V2M\ChairInnovation\Pvt.Ltd.Chair\Shahd2.0C3-CS1800-R 10-V2M\ChairInno		
SITARAM KASHYAP DEPUTY GENERAL MANAGER		SAURABH DALELA DIRECTOR		Page 1 of 9

Office Address : Centre-I : Plot No.-26, Sector-3, HSIIDC, IMT-Manesar, Gurugram-122050. Haryana (India)

Centre-II : Plot No.-01, Sector-M-11, HSIIDC, IMT-Manesar, Gurugram-122051, Haryana (India)

Phone : 0124-4586111, Fax : +91-124-2290005, E-mail: team@icat.in, Website : www.icat.in

(An ISO 9001, ISO 14001 and ISO 45001 certified, scope wise NABL accredited and BIS recognised Test House)

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

CERTIFICATE				Date :	
FOR COMPLIANCE TO THE CENTRAL MOTOR VEHICLES RULES				Cert	Table T, 11
				Dwg	Total
1 a)				2	
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, manufactured by the vehicle manufacturer (as detailed below):					
Documental Reference		Vehicle Manufacturer			
Current certificate		XXXX			
Plant		Plant			
Gasoline Engine Model / Type		Power	Capacity (cc)	Engine Manufacturer	
Base Model		Type & Category	Seating Capacity (incl driver)	GVW (kg)	
ABC					
1a. Brief technical specifications (XXXXXX) of the base model & its variants as certified by the vehicle manufacturer are enclosed with this certificate. Detailed specifications (XXXXXX, XXXXXX) of the base model & its variants are also separately listed 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 up-to-date, including following requirements (as detailed at ANNEXURE - I, II & III)					
Standards		Notification	Date	Effective From	Applicable CMVR
Bharat Stage - VI (including DBD - I)					115 (18) (i)
Refer ANNEXURE - II					
3. This Certificate is issued as per CMV Rule 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, II, III & IV. 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 above. It is the vehicle manufacturer's responsibility to ensure correct of specific components / parts / assemblies etc. before submission of the vehicle for registration.					
AUTHORISED SIGNATORY		Please fill in over for Certificate			
4		1 b)		4	
NAME DESIGNATION		NAME DESIGNATION		Page 1 of 1	



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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	RECD types within the RECD family (if applicable)					
		Type 1	Type 2	Type 3	Type 4	Type 5	Type 6	
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-R10						
4	RECD type/model designation	Chakr Shield 2.0 C2-CS1800-R10-V2	Chakr Shield 2.0 C2-CS1800-R9-V1	Chakr Shield 2.0 C2-CS1800-R9-V2	Chakr Shield 2.0 C2-CS1800-R9-V3	Chakr Shield 2.0 C2-CS1800-R9-V4	Chakr Shield 2.0 C2-CS1800-R9-V1.2	
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-R10 dtd. 02.11.2023 Clause no 1.8						
9	Identifying part number(s) of the RECD	C2-CS1800-R10-V2						
10	Engine/ Engine Family for which the RECD is intended (application range)	DV10						
11	PM Reduction Efficiency of the RECD	77.12%						
12	Designed for fitment to an engine meeting the emissions requirements of (Regulation and Stage):	CPCB Stage-I						

ICAT Ref No. 2023-1054; IOCS No: 169247

Base Engine Type Approval Certificate number ARA/MOEF/DGTA/KOEL-F23/2007-047

Test Report Reference CT0ES 0488 dt. 03/11/2023

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Annexure-II Cont.

S No	Item Description	RECD types within the RECD family (if applicable)						
		Type 7	Type 8	Type 9	Type 10	Type 11	Type 12	Type 13
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-R10						
4	RECD type/model designation	Chakr Shield 2.0 C2-CS1800-R9-V1.3	Chakr Shield 2.0 C2-CS1800-R9-V1.4	Chakr Shield 2.0 C2-CS1800-R9-V2.2	Chakr Shield 2.0 C2-CS1800-R9-V2.3	Chakr Shield 2.0 C2-CS1800-R9-V2.4	Chakr Shield 2.0 C2-CS1800-R10-V1	Chakr Shield 2.0 C2-CS1800-R10-V3
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-R10 dtd. 02.11.2023 Clause no 1.8						
9	Identifying part number(s) of the RECD	C2-CS1800-R10-V2						
10	Engine/ Engine-Family for which the RECD is intended (application range)	DV10						
11	PM Reduction Efficiency of the RECD	77.12%						
12	Designed for fitment to an engine meeting the emissions requirements of (Regulation and Stage):	CPCB Stage -I						
S No	Item Description	RECD types within the RECD family (if applicable)						
		Type 14	Type 15	Type 16	Type 17	Type 18	Type 19	Type 20
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-R10						
4	RECD type/model designation	Chakr Shield 2.0 C2-CS1800-R10-V4	Chakr Shield 2.0 C2-CS1800-R10-V1.2	Chakr Shield 2.0 C2-CS1800-R10-V1.3	Chakr Shield 2.0 C2-CS1800-R10-V1.4	Chakr Shield 2.0 C2-CS1800-R10-V2.2	Chakr Shield 2.0 C2-CS1800-R10-V2.3	Chakr Shield 2.0 C2-CS1800-R10-V2.4
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-R10 dtd. 02.11.2023 Clause no 1.8						
9	Identifying part number(s) of the RECD	C2-CS1800-R10-V2						
10	Engine/ Engine-Family for which the RECD is intended (application range)	DV10						
11	PM Reduction Efficiency of the RECD	77.12%						
12	Designed for fitment to an engine meeting the emissions requirements of (Regulation and Stage):	CPCB Stage -I						
AUTHORISED SIGNATORY								
 SITARAM KASHYAP DEPUTY GENERAL MANAGER		 INTERNATIONAL CENTRE FOR AUTOMOTIVE TECHNOLOGY MANESAR • 150001			 SAURABH DALELA DIRECTOR		 Page 3 of 9	



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Annexure-III

List of applicable engine(s) as per GSR 371(E) dtd. 17.05.2002, GSR 520(E) dtd. 01.07.2003 and GSR 448(E) dtd. 12.07.2004 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	Greaves Cotton Ltd Pune	F13	TBD3V12	333.18 kW	ARAI/MOEF/DGTA/GCLP-F13/2003-40 dt. 31-12-2003
2			TBD3V12 MK1	356.7 kW	
3	Cummins India Ltd. Pune	F13	KTA19-G4-I	447.2 kW	ARAI/MOEF/DGTA/CIL-F13/2004-07 dt. 26-02-2004
4			KTA19-F3-I	403 kW	
5			KTA19-F5-I	366 kW	
6	Kirloskar Oil Engines Ltd. Khadi, Pune	F10	6KL12TASRI	284 kW	ARAI/MOEF/DGTA/KOEL-F10/2004-026 dt. 24-06-2004
7		F9	8K15TASRI	414 kW	ARAI/MOEF/DGTA/KOEL-F9/2004-027 dt. 02-08-2004
8			8K15TA	363 kW	
9			10K18TA	443 kW	
10	HPL Hosur	F3	3406DITA-GS-2	351 kW	ARAI/MOEF/DGTA/HPL-F3/2004-031 dt. 28-07-2004
11			3406DITA-GP-2	319 kW	
12			3406DITA-GS-1	322 kW	
13			3406DITA-GP-1	292 kW	
14		F4	3412DITA-GP-1	449 kW	ARAI/MOEF/DGTA/HPL-F4/2004-032 dt. 28-07-2004
15	Kirloskar Oil Engines Ltd. Khadi, Pune	F11	6SL8800TA	310 kW	ARAI/MOEF/DGTA/KOEL-F11/2004-052 dt. 29-10-2004
16	Cummins India Ltd. Pune	F20	NTA-855-G2-I	283.4 kW	ARAI/MOEF/DGTA/CIL-F20/2004-058 dt. 27-11-2004
17		F21	NTA-855-G1-I	283.4 kW	ARAI/MOEF/DGTA/CIL-F21/2004-059 dt. 27-11-2004
18		F22	NTA-855-G-I	283.4 kW	ARAI/MOEF/DGTA/CIL-F22/2004-060 dt. 27-11-2004
19	Greaves Cotton Ltd. Pune	F16	TBD4V8	292.73 kW	ARAI/MOEF/DGTA/GCLP-F16/2004-065 dt. 15-11-2004
20			TBD4V12	444 kW	
21			TBD4V12	444 kW	
22	Volvo Bengalore	F2	TAD1242GE(P)	351.9 kW	ARAI/MOEF/DGTA/VOLVO-F2/2005-04 dt. 03-03-2005
23	Greaves Cotton Ltd. Pune	F18	TBD3V12 MK-I	356.7 kW	ARAI/MOEF/DGTA/GCLP-F18/2005-05 dt. 31-03-2005
24	DEIPL	F1	BF8M1015CP	448 kW	ARAI-RCN/MOEF/DGTA/IMP/DEIPL-F1/2005-09 dt. 31-03-2005

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Annexure-III Cont.

S. No.	Manufacturer Name & Address	Engine Family	Engine Model	Rated Gross Mechanical Declared Power	Type Approval Certificate Number
25	Greaves Cotton Ltd.	F19	TBD3V12P(P)	379 kW	ARAI/MOEF/DGTA/GCLP-F19/2005-10 dt. 17-06-2005
26	Pune		TBD3V12(V)	333.18 kW	
27	Volvo Bangalore	F3	TAB941GE	280 kW	ARAI/MOEF/DGTA/VOLVO-F3/2005-17 dt. 03-03-2005
28	BEML Mysore	F5	BSA6D140G5	327 kW	ARAI/MOEF/DGTA/BEML-F5/2005-19 dt. 01-06-2005
29			BSA6D140G3	309 kW	
30			BSA6D140G4	314 kW	
31	Greaves Cotton Ltd. Pune	F12	TBD2V12MKI	291.258 kW	ARAI/MOEF/DGTA/GCLP-F12/2005-24 dt. 05-09-2005
32			TBD2V12MKIIP	291.258 kW	
33			F21	TBD2V12P	320.4 kW
34	Cummins India Ltd. Pune	F24	NTA-855-G4-I	325 kW	ARAI/MOEF/DGTA/CIL-F24/2006-004 dt. 08-05-2004
35			NTA-14-G3-I	336 kW	ARAI/MOEF/DGTA/CIL-F25/2006-005 dt. 08-05-2006
36			NTA-14-RG2-I	336 kW	
37	FG Wilson	F2	2806CE16TPG1	444.6 kW	ARAI/MOEF/DGTA/FGW-F2/2006-006 dt. 23-03-2006
38			2806CE16TPG2	432.6 kW	
39	HPL Hosur	F3	3406 DITA GS-2	351 kW	ARAI/MOEF/DGTA/HPL-F1/2006-017 dt. 07-06-2006
40			3406 DITA GP-1	292 kW	
41			3406 DITA GS-1	322 kW	
42			3406 DITA GP-2	319 kW	
43		F4	3412DITA-GS-1	449 kW	ARAI/MOEF/DGTA/HPL-F4/2006-018 dt. 18-08-2006
44	CPIPL Hosur	F3	3406 DITA GS-2	351 kW	ARAI/MOEF/DGTA/CPIPL-F3/2007-004 dt. 02-12-2007
45			3406 DITA GP-1	292 kW	
46			3406 DITA GS-1	322 kW	
47			3406 DITA GP-2	319 kW	
48		F6	C-18-GP-1	452 kW	ARAI/MOEF/DGTA/CPIPL-F6/2007-007 dt. 02-12-2007
49		F4	3412 DITA GP-1	449 kW	ARAI/MOEF/DGTA/CPIPL-F4/2007-005 dt. 02-12-2007
50	Greaves Cotton Ltd. Chinchwad, Pune	F21	TBD2V12P	320.4 kW	ARAI/MOEF/DGTA/GCLP-F21/2007-019 dt. 07-09-2007
51			TBD2V12MK II	291.258 kW	
52			TBD2V12MK IIP	291.258 kW	
53		F22	TBD4V8	292.7 kW	ARAI/MOEF/DGTA/GCLP-F22/2007-024 dt. 07-02-2007
54			TBD4V12	444 kW	
55	TBD4IV12		444 kW		
56	Kiruskar Oil Engines Khadki, Pune	F23	DV10	448 kW	ARAI/MOEF/DGTA/KOEL-F23/2007-047 dt. 24-08-2007
57			DV8	380 kW	

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Annexure-III Cont.					
S. No.	Manufacturer Name & Address	Engine Family	Engine Model	Rated Gross Mechanical Declared Power	Type Approval Certificate Number
58	Cummins India Ltd. Pune	F8	NTA-14-G1	283 kW	ARAI/MOEF/DGTA/CIL-F8/2007-026 dt. 07-09-2007
59			NTA-14-RG1	283 kW	
60			NTA-14-G3	336 kW	
61			NTA-14-RG3	336 kW	
62		F20	NTA-855-G2-I	283 kW	ARAI/MOEF/DGTA/CIL-F20/2007-029 dt. 07-09-2007
63	Cummins India Ltd. Pune	F16	KTA19-G4	448 kW	ARAI/MOEF/DGTA/CIL-F16/2007-053 dt. 31-08-2007
64			KTA19-G3-I	403 kW	
65			KTA19-RG3	403 kW	
66			KTA19-G5-I	366 kW	
67			KTA19-G5-E	366 kW	
68		F27	QXS-15-G8	444 kW	ARAI/MOEF/DGTA/CIL-F27/2007-067 dt. 20-11-2007
69	Caterpillar India Pvt. Ltd.	F3	3406 DITA-GP-1	292 kW	ARAI/MOEF/DGTA/CIPL-F3/2008-019 dt. 21-05-2008
70			3406 DITA-GS-1	322 kW	
71			3406 DITA-GP-2	319 kW	
72		F4	3412 DITA-GP-1	449 kW	ARAI/MOEF/DGTA/CIPL-F4/2008-020 dt. 21-05-2008
73		F6	C-18-GP-1	452 kW	ARAI/MOEF/DGTA/CIPL-F6/2008-022 dt. 21-05-2008
74	Shanghai Diesel Engine Co. Ltd. 2636 JunGong Road, Shanghai, China	F2	G128ZLD11	280 kW	ARAI/MOEF/DGTA/IMP/SDEC-F2/2009-017 dt. 27-05-2009
75	Mahindra & Mahindra Ltd. Kandivli, Mumbai	F25	64205GC	280 kW	ARAI/MOEF/DGTA/IMP/M&M-F25/2009-019 dt. 27-05-2009
76	Shanghai Diesel Engine Co. Ltd. 2636 JunGong Road, Shanghai, China	F4	12V135AZLD	339 kW	ARAI/MOEF/IMP/DGTA/SDEC/F4/2010-004 dt. 16-02-2010
77		F5	12V135BZLD2	459 kW	ARAI/MOEF/IMP/DGTA/SDEC/F5/2010-005 dt. 16-02-2010
78		F6	12V135AZD	300 kW	ARAI/MOEF/IMP/DGTA/SDEC/F6/2010-006 dt. 16-02-2010
79	Kirloskar Electric Co. Ltd. Gokul Road, Hubli-580030, Karnataka	F23	12VKK135IAZLD	339 kW	ARAI/MOEF/DGTA/KECL-F23/2010-007 dt. 16-02-2010
80	Volvo India Pvt. Litavarekere Post, Hosakote Taluk, Mited, Yalacchahally, Bangalore	F7	TAD1344GE	354 kW	ARAI/MOEF/DGTA/IMP/VOLVO-F7/2010-73 dt. 28-06-2010
AUTHORISED SIGNATORY					
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Annexure-III Cont.					
S. No.	Manufacturer Name & Address	Engine Family	Engine Model	Rated Gross Mechanical Declared Power	Type Approval Certificate Number
81	Caterpillar Inc. 100 NE Adams, Peoria, IL, USA.	F1	C-15GP-1	445 kW	ARAI/MOEF/DGTA/IMP/CIUSA/F1/2010-011 dt. 16-02-2010
82			C-15-GS-2	463 kW	
83			C-15-GP-2	409.5 kW	
84			C15-GS-3	416 kW	
85			C15-GP-3	369 kW	
86			C15-GS-4	388 kW	
87			C15-GP-4	342 kW	
88			C15-GS-5	375 kW	
89			C15-GP-5	331 kW	
90	Mahindra & Mahindra Ltd. Akurli Road, Kandivali (E), Mumbai-400101	F31	12V5105GC	339 kW	ARAI/MOEF/DGTA/IMP/M&M-F31/2010-074 dt. 05-07-2010
91		F30	12V6905GC	459 kW	ARAI/MOEF/DGTA/IMP/M&M-F30/2010-075 dt. 05-07-2010
92	Greaves Cotton Ltd. (D.E.U.), Chinchwad, Pune-19	F30	TBD3V8MK-II	291.3 kW	ARAI/MOEF/DGTA/GCLP-F30/2010-078 dt. 09-08-2010
93	Doosan Infracore Co. Ltd. 7-11, Hwasu-dong, Dong-gu, Incheon, Korea	F2	P158LE IN01	363 kW	ARAI/MOEF/DGTA/IMP/DICL-F2/2010-079 dt. 03-08-2010
94			P158LE IN02	414 kW	
95			P180LE IN01	443 kW	
96	Volvo India Pvt. Limited Yalacahalli, Tavarekere Post, Hosakote, Bangalore	F18	TAD 1343 GE	325 kW	ARAI/MOEF/DGTA/IMP/VOLVO-F8/2010-83 dt. 19-08-2010
97			TAD 1342 GE	303 kW	
98	MTU Friedrichshafen GmbH, Nussdorferstrasse 88662 Überlingen Germany	F3	8V1600 G10F	325 kW	ARAI/MoEF/IMP/DGTA/MTU-F3/2010-098 dt. 10-01-2011
99			8V1600 G20F	358 kW	
100			8V1600 G70F	358 kW	
101			8V1600 G80F	301 kW	
102			10V1600 G10F	407 kW	
103			10V1600 G20F	448 kW	
104			10V1600 G70F	448 kW	
105		F4	6R1600 G80F	301 kW	ARAI/MoEF/IMP/DGTA/MTU-F4/2010-099 dt. 10-01-2011
106	Kirtoskar Oil Engines Ltd. Khadki, Pune-411003	F23	DV10	448 kW	ARAI/MoEF/DGTA/KOELK-F23/2010-101 dt. 03-02-2011
107			DV8	360 kW	
108			DV8SR1	294 kW	
109			DV8SR1	294 kW	
110		F36	DV10SR1	460 kW	ARAI/MoEF/DGTA/KOELK-F36/2010-102 dt. 17-01-2011

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Annexure-III Cont.					
S. No.	Manufacturer Name & Address	Engine Family	Engine Model	Rated Gross Mechanical Declared Power	Type Approval Certificate Number
111	AB VOLVO PENTA SE40508, GOTHENBURG, SWEDEN	F9	TAD1641GE	430 kW	ARAI/MOEF/DGTA/IMP/VOLVO-F9/2011-16 dt. 02-05-2011
112	DEUTZ AG Otto Str. 1, D-51149, Cologne, Germany	F10	BF6M1015CP	365 kW	ARAI/MoEF/DGTA/IMP/DEU-F10/2011-034 dt. 27-07-2011
113		F11	BF6M1015CP	459 kW	
114			BF6M1015C	418 kW	
115			BF6M1015C	345 kW	
116	Kirloskar Oil Engine Limited Khadi, Pune.	F23	DV8SR1	294 kW	ARAI/MoEF/DGTA/KOELK-F23/2010-101-E1 dt. 19-10-2011
117			DV8	360 kW	
118			DV10	346 kW	
119			DV8SR2	448 kW	
120	Greaves Cotton Ltd. (D.E.U.), Chinchwad, Pune	F22	TBD4V8	292.73 kW	ARAI/MOEF/DGTA/GCLP-F22/2007-24 dt. 02-07-2007
121			TBD4V12	444 kW	
122		F22	TBD4V12	444 kW	ARAI/MoEF/DGTA/GCLP-F22/2012-011 dt. 11-05-2012
123			TBD4I V12 kW	444 kW	
124	MTU India Pvt. Ltd. 159/1, Tathewade, Pune-Mumbai Highway, Pune 411033	F3	8V1600G10F	325 kW	ARAI/MoEF/IMP/DGTA/MTU-F3/2010-098-E2 dt. 31-05-2012
125			8V1600G20F	358 kW	
126			8V1600G70F	358 kW	
127			8V1600G80F	394 kW	
128			10V1600G10F	407 kW	
129			10V1600G20F	448 kW	
130			10V1600G70F	448 kW	
131	Kirloskar Oil Engines Ltd. Khadi, Pune	F10	DV6ITA SRI	284 kW	ARAI/MOEF/DGTA/IMP/KOEL-F10/2004-026-E2 dt. 18-06-2012
132	Cummins India Ltd. Kothrud, Pune 411038	F31	QSN14-G3	396 kW	ARAI/MoEF/DGTA-II/CILP-F31/2012-024 dt. 03-10-2012
133			QSN14-G1	334kW	
134			QSN14-G2	363kW	
135			QSN14-G4	319kW	
136			QSN14-G5	346kW	
137		F32	QSL9-G7	300 kW	ARAI/MoEF/DGTA-II/CILP-F32/2012-029 dt. 27-11-2012
138	Deutz AG Germany Ottostrasse 1, D-51149 Koln (Porz-Eil) /Germany	F10	BF6M1015CP	365 kW	ARAI/MoEF/DGTA-II/IMP/DEU-F10/2013-39 dt. 09-05-2013
139			BF6M1015C	459 kW	
140			BF6M1015C	314 kW	
141			BF6M1015C	345 kW	
142			BF6M1015C	418 kW	

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Annexure-III Cont.					
S. No.	Manufacturer Name & Address	Engine Family	Engine Model	Rated Gross Mechanical Declared Power	Type Approval Certificate Number
143	MTU India Pvt. Ltd. 159/1, Tathawade, Pune-Mumbai Highway, Pune 411033	F6	10V1600G10F	407 kW	ARAI/MoEF/DGTA-II/IMP/MTU-F6/2013-35 dt. 30-04-2013
144			10V1600G20F	448 kW	
145			10V1600G70F	448 kW	
146			8V1600G10F	325 kW	
147			8V1600G20F	358 kW	
148			8V1600G70F	358 kW	
149			8V1600G80F	394 kW	
150		F5	6R1600G80F	301 kW	ARAI/MoEF/DGTA-II/IMP/MTU-F5/2013-34 dt. 30-04-2013
151	Caterpillar Inc. 100 NE Adams, Peoria, IL, USA, 61629	F2	C15-2GP-1	454 kW	ARAI/MoEF/DGTA-II/IMP/CIUSA-F2/2013-40 dt. 21-05-2013
152	Ashok Leyland Ltd. Chennai	F28	ALV8TA G1	291.3 kW	ARAI/MoEF/DGTA/ALL-F28/2013-060 dt. 23-10-2013
153		F29	ALV12TA G1	356 kW	ARAI/MoEF/DGTA/ALL-F29/2013-061 dt. 23-10-2013
154		F30	ALV12TA G2	444 kW	ARAI/MoEF/DGTA/ALL-F30/2013-062 dt. 23-10-2013
155	AB VOLVO PENTA SE40508, GOTHENBURG, SWEDEN	F11	TAD1651GE	441 kW	ARAI/MoEF/DGTA-II/IMP/VOLVO-F11/2013-65 dt. 13-12-2013
156		F13	TAD1355GE	369 kW	ARAI/MoEF/DGTA-II/IMP/VOLVO-F13/2013-67 dt. 13-12-2013
157			TAD1351GE	286 kW	
158			TAD1352GE	325 kW	
159			TAD1354GE	339 kW	
160	Caterpillar Inc. 100 NE Adams, Peoria, IL, USA.	F11	C13-2GP-1	387 kW	ARAI/MoEF/DGTA-II/IMP/CIUSA-F11/2013-68 dt. 01-11-2013
161	Cummins India Ltd. Pune	F16	KTA-19-G8	447.4 kW	ARAI/MoEF/DGTA/CIL-F16/2007-053 dt. 31-08-2007
162	Perkins Engines Company Ltd. England	F2	2506C-E15TAG2	434 kW	ARAI/MoEF/DGTA/IMP/PEL-F2/2009-044 dt. 2009

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

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