Manufacturer	Cimco Marine AB	Manufacturer Code	CAB
Engine Family	JCABN02.0OXE	Model Year	2018
Regulation(s) Compliance Finding	Pass		
Certificate Number	N/A	Conditional Certificate	
Requested Certificate Type			
Certificate Issue Date	N/A	Certificate Effective Date	N/A
Certificate Revision Date	N/A	Certificate Revision Number	N/A
General Information			
Manufacturer Engine Family	OXE	CSI Type	Running Change
Alternate Trade Names	OAL	Corrype	Running Change
Branding Arrangements Description	n		
Manufacturer Type	Post-manufacture Marinizer	Engine Type	Commercial
Do your engine production			
volumes meet the small volume	V.	Locomotive Remanufacture	
threshold?	Yes	System Engine Family Name	
Is your engine on a formerly foreign vessel that is being			
reflagged as a U.S. vessel?	No		
Marine Combustion Type	Marine compression ignition (diesel)		
Running Change Type(s)	New ratings		
Running Change Type, (if other)			
Field Edits/Changes/Corrections			
125 and 175 HP Models Added			
Carryover test results from	Vas		
previous Engine Family:	Tes	Corryover Engine Femily Model	
Carryover Engine Family Name	GCABN02.00XE	Year	2016
What types of certificates are		Applicable Regulation (Certificate	
required for this engine family?	Certificate of Conformity Only	of Conformity)	Part 1042
Applicable Tier (Clean Air Act)	Tier 3	Applicable Tier (Annex VI)	
Has an EIAPP certificate already been issued for this engine family		Family name originally reported to IMS or Verify for which the	
for this or any prior model year?		EIAPP Certificate was issued	
Justification for requesting only a			
Certificate of Conformity	Domestic use only		
Justification for requesting only a	certificate of Conformity, (II Other)		
Justification for requesting only an EIAPP Certificate		Justification for Exemption from Clean Air Act Standards	
Justification for Exemption from C	AA Standards Description, (if Other	•)	
Instification(a) for selecting IMO		Family name of the identical	
Annex VI Tier II after Model Year		engine certified to IMO Annex VI	
2015		Tier III standards	
Are you electing to delay the			
standards as per the interim			
provisions?	No	Engine Category	Category 1
Special Compliance Provision	Not Applicable	Category 2 Displacement Range	
Maximum Engine Power (kW)	156	Displacement Per Cylinder (L)	0.4
		Are you combining engines that would otherwise be grouped into	
Power Density (kW/L)	80	separate engine families?	No
Rated Power (kW)	156	Maximum Test Speed (rpm)	4400
		Is this Engine Family used in	
Maximum In Use Sneed (rnm)	4400	mobile and/or stationary applications?	Mobile
Limited Application(s)	Other	-F. Lucanom.	
Limited Application Description. (i	f other)		
Standard configuration is variable spe	eed fixed pitch propeller used for recrea	ational and commercial applications T	here are no limits to application
Limited Application Enforcement 1	Description	and commercial approactions. I	and the manual to upplication.

Engine Family	JCABN02.00XE	Model Year	2018
Standard configuration is variable sp	eed fixed pitch propeller used for recre	ational and commercial applications. T	here are no limits to application.
Are you using the NOx Technical Code test procedure to generate test results for CO, NOx, and HC to meet Clean Air Act standards as allowed in Part 1042.501(g) for Category 3 engines?			
ABT and FEL Information			
Is this Engine Family participating in the Averaging, Banking, and Trading Program?	No		
Not to Exceed (NTE) Complian	ce Information		
NTE Operating Region Explanatio	n		
NTE compliance delayed for this mo to be less than 1000 units in 2018.	del year as small volume PM Marinize	ers - CFR40 Part 1042.145 (b) (2). Our	world wide engine sales are expected
Time-Weighted Carve Out Lim	ited NTE Testing Regions		
Are you petitioning EPA to limit			
NTE testing in a single defined region of speeds and loads for the only or parent rating (model)?	No		
Are you requesting approval for an NTE deficiency?	No		
Engine Description			
Engine Combustion Cycle	4 Stroke Compression Ignition		
Fuel Options	Single Fuel Engine		
Fuel #1			
Fuel	Distillate Diesel Fuel	Fuel, (if other)	
Fuel Metering System	Direct Injection (Common Rail)		
Useful Life			
Useful Life of Engine Family	10 years / 10,000 hrs		
Production Information			
Total Projected Sales	999		
Production Start Date	01/01/2018	Production End Date	12/31/2018
Manufacturing Plants building these Engines	Cimco Marine Head Office		
Agent for Service in U.S. Name	Mack Boring & Parts Co Scott Du B Cerullo	row, Cascade Engine Center LLC Tim	Sandeman, Laborde Products Chris
U.S. Test Facility	NEVS Powertrain Test Lab		
Remanufacture Information			
Original Engine Family Name			
Original Engine OEM			
Original Engine Configuration			
Remanufacture Kit Beginning Model Year Covered	N/A	Remanufacture Kit Ending Model Year Covered	N/A
Engine Description Comments			

Engine Family	JCABN02.00XE	Model Year	2018					
Manufacturers engine code OXE. Outboard engine configuration with engine mounted directly to gearbox and lower drive assembly interconnected by two oil lubricated toothed drive belts. In line four cylinder 2.0 L diesel, rated maximum speed 4400 rpm and 850 rpm idle. D.O.H.C operated four valves per cylinder valve system with hydraulic tappet adjustment. Volumetric compression ratio of 16.5:1 and open chamber combustion system. Closed cooling system with freshwater/Glycol mixture, centrifugal circulation pump and heat exchanger. Engine driven impeller raw water pump cooling of oil cooler, fuel cooler, after cooler, heat exchanger, exhaust manifold and riser. Exhaust exits through lower drive assembly close to the propeller. On engine air filter element, Garrett Variable Geometry Turbocharger with air to water intercooler (air charge cooler). Electronic fuel lift pump and engine mounted fuel filter. Bosch common rail fuel system controlled by Cimco Nira Electronic Control Module (ECM). ECM control of solenoid fuel injectors, fuel proportioning valve, fuel lift pump, glow plug cold start system and full control of turbocharger geometry. On Board Diagnostic (OBD) facility with warning and de-rate systems for safety and emission control systems. Closed positive crankcase ventilation system. No additional emission control components or systems.								
Emission Control Systems								
Are any ATDs used on this Engine Family?	No							
Are Non-ATDs used on this Engine Family?	No							
Will this Engine Family be produced using Delegated		Will the cost of the ATD components be included with the						
Assembly?	No	cost of the engine?						
List of Components covered under Delegated Assembly exemption								
Are any AECDs used on this Engine Family?	No							
Does this Engine Family have any Adjustable Parameters?	No							

-									
Engine Family		JCABN02.00XE		Model Year			2018		
Engine Configurat	ion(s)								
Engine Configuration	n #1								
Engine Configuration I Engine Application Cylinder Arrangement	Name	OXE 200 Variable Sp	eed - Proj	pulsion - Fixed I	Was this the engir rebuilt for baselin testing? Pitch Propeller	ne conf 1e emis	iguration sion		
		innine engin							
Number of Cylinders on this model	Bore (0.1 9999.9m	lmm- m)	Stroke (9999.9n	(0.1mm- 1m)	Displacement Per Cylinder (L)		Total Displ (L)	acement	Rated Power (kW)
4	83	Π	90.4		0.4		2.0	Ta Tlan	156
Rated Speed (rpm)	(N*m)	m Torque	Speed a Torque	(rpm)	(rpm)	peea :	Speed (rpn 4400	n Use 1)	Test Speed (N*m)
Maximum Engine Power (kW)	415 ximum Engine Lower Tolerance of /er (kW) Maximum Power (%		Upper 7 Maxim	Folerance of um Power (%)	Power Density (kW/L) Fuel Rate maximum (mm3/str		Fuel Rate a Maximum (mm3/strol	nt Torque se)	Fuel Rate at Rated Speed (mm3/stroke)
Mothod of Agnination	95	Turboohorg	77 ad		80		90		89
Number of aspiration d	levices on	1 urbocharg	eu		Asniration Device	e Confi	ourstion	Single	
Turbochargers		1			Aspiration Device	com,	guration	Shigie	
Thh		Toucheather	T						
Variable Geometry Turk	ocharger	Turbochar	ger Type	, (ii Other)					
Variable Geometry Turt	Joenarger								
Charge Air Cooler Typ)e	Liquid			Does this engine c variable valve tim	configu ning teo	ration use hnology?	No	
Is this engine configura equipped with a variab mechanism?	ition le valve lif	it No							
Number of inlet valves cylinder	per	2			Number of Exhau Cylinder	ıst Valv	ves Per	2	
Model Production Star	t Date	01/01/2018			Model Production	n End I	Date	12/31/201	8
Parts									
Part Name	Part Nar	ne, (if Other)	Part Nu	mber	Part Quantity	1	Usage Star	t Date	Usage End Date
Module			30-0116	-022	1	(01/01/2018		12/31/2018
Fuel Injectors			5556605	50	4		01/01/2018		12/31/2018
Fuel Injection Pump			5559778	37	1		01/01/2018		12/31/2018
Turbo Charger			30-0114	-395	1		01/01/2018		12/31/2018
Software Calibration			ECCV2	00-17502	1		01/01/2018		12/31/2018
Engine Configuration	n Standa	rds and FEL	Caps						
Certificate Type		Pollutant Na	ame	Standard Va	lue (g/kW-hr)	FEL (Cap (g/kW-	hr)	Rule Number
Certificate of Conform (Clean Air Act)	nity	Particulate M	atter	0	.15		0.15		94
Certificate of Conform (Clean Air Act)	nity	Nitrogen Oxid Hydrocarbo	es and ons	5	5.8		5.8		94
Certificate of Conform (Clean Air Act)	nity	Carbon Mono	oxide	5	5.0		N/A		26
Engine Configuration	n #2								
	1	OVE 127			Was this the engir rebuilt for baselin	ne conf 1e emis	ïguration sion		
Engine Configuration I	Name	UXE 125	and D.	nulsion E	testing?				
Engine Application Cylinder Arrangement		variable Sp	eeu - Proj e	puision - Fixed I	rich Propeller				

Engine Family		JCABN02.0	DOXE	Model Year			2018	
Number of Cylinders on this model	Bore (0.1 9999.9m	mm- n)	Stroke (0.1mm- 9999.9mm)	Displacement Pe Cylinder (L)	er	Total Displ (L)	lacement	Rated Power (kW)
4	83		90.4	0.4		2.0		102
Rated Speed (rpm)	Maximuı (N*m)	m Torque	Speed at Maximum Torque (rpm)	Maximum Test S (rpm)	Speed	Maximum In Use Speed (rpm)		Torque at Maximum Test Speed (N*m)
4100	376		2500	4400		4400		N/A
Maximum Engine Power (kW) 102	Lower To Maximur 95	olerance of m Power (%)	Upper Tolerance of Maximum Power (% 99	 Power Density (1 52 	kW/L)	Fuel Rate a Maximum (mm3/strol 91	at Torque ke)	Fuel Rate at Rated Speed (mm3/stroke) 63
Method of Aspiration		Turbocharg	ed					
Number of aspiration d	levices on	8						
this model		1		Aspiration Devic	ce Conf	iguration	Single	
Turbochargers								
Turbocharger Type		Turbochar	ger Type, (if Other)					
Variable Geometry Turb	ocharger							
Charge Air Cooler Tyn	e	Liquid		Does this engine variable valve ti	configu ming te	uration use chnology?	No	
Is this engine configura	tion	Liquid		variable varve in	uning te	chilology.	110	
equipped with a variable mechanism?	le valve lif	t No						
Number of inlet valves	per	2		Number of Exha	ust Val	lves Per	2	
cylinder Madal Duadrastian Start	4 Da4a	2		Cylinder Madal Duaduatia		Data	2	,
Model Production Star	t Date	10/25/2018		Model Productio	on Ena	Date	12/31/2018	5
Parts								
Part Name	Part Nan	ne, (if Other)	Part Number	Part Quantity		Usage Star	t Date	Usage End Date
Fuel Injectors			55566050	4		10/24/2018		12/31/2018
Electronic Control			30 0116 022	1		10/24/2018		12/31/2018
Fuel Injection Pump			55597787	1		10/24/2018		12/31/2018
Turbo Charger			30-0114-395	1		10/24/2018		12/31/2018
Software Calibration			ECCV125-17502	1		10/24/2018		12/31/2018
Engine Configuration	n Standar	ds and FEL	Caps					
Certificate Type		Pollutant Na	ame Standard	Value (g/kW-hr)	FEL	Cap (g/kW-	·hr)	Rule Number
Certificate of Conform (Clean Air Act)	nity	Particulate M	atter	0.15		0.15		94
Certificate of Conform (Clean Air Act)	nity	Nitrogen Oxide Hydrocarbo	es and ons	5.8		5.8		94
Certificate of Conform (Clean Air Act)	nity	Carbon Mono	oxide	5.0		N/A		26
Engine Configuration	n #3							
				Was this the eng	ine con	figuration		
Fngine Configuration N	Jame	OXF 150		rebuilt for baseli	ine emi	ssion		
Engine Application	unic	Variable Sp	eed - Propulsion - Fixe	d Pitch Propeller				
Cylinder Arrangement		Inline engin	le	·····				
		U						

Engine Family		JCABN02.0	00XE		Model Year			2018	
Number of Cylinders on this model	Bore (0.1) 9999.9mm	0.1mm- mm) Stroke (0.1mm- 9999.9mm)		Displacement P Cylinder (L)	er	Total Displa (L)	acement	Rated Power (kW)	
4	83	_	90.4		0.4	~ -	2.0		122
Rated Speed (rpm)	Maximum (N*m)	n Torque	Speed at 1 Torque (1	Maximum rpm)	Maximum Test (rpm)	Speed	Maximum I Speed (rpm	n Use)	Torque at Maximum Test Speed (N*m)
4100	380		2500		4400		4400 Evel Dete e		N/A
Maximum Engine Power (kW)	Lower To Maximun	olerance of n Power (%)	Upper To Maximun	olerance of n Power (%)	Power Density ((kW/L)	Maximum ((mm3/strok	l Forque e)	Fuel Rate at Rated Speed (mm3/stroke)
122 Mothod of Againstian	95	Turkeshara	99 ad		62		92		/5
Number of aspiration d	evices on	Turbocharg	eu						
this model		1			Aspiration Devi	ice Con	figuration	Single	
Turbochargers									
Turbocharger Type		Turbochar	ger Type, ((if Other)					
Variable Geometry Turb	ocharger								
					Doos this onging	o config	uration use		
Charge Air Cooler Typ	e	Liquid			variable valve ti	iming to	echnology?	No	
Is this engine configura equipped with a variable mechanism?	tion le valve lift	No							
Number of inlet valves	per	110			Number of Exh	aust Va	lves Per		
cylinder	_	2			Cylinder			2	
Model Production Star	t Date	01/01/2018			Model Producti	on End	Date	12/31/2018	
Parts									
Part Name	Part Nam	ne, (if Other)	Part Nun	ıber	Part Quantity		Usage Start	Date	Usage End Date
Electronic Control Module			30-0116-0)22	1		01/01/2018		12/31/2018
Turbo Charger			30-0114-3	895	1		01/01/2018		12/31/2018
Software Calibration			ECCV150)-17502	1		01/01/2018		12/31/2018
Fuel Injection Pump			55597787		1		01/01/2018		12/31/2018
Fuel Injectors			55566050		4		01/01/2018		12/31/2018
Engine Configuration	n Standar	ds and FEL	Caps						
Certificate Type		Pollutant Na	ame	Standard Va	alue (g/kW-hr)	FEL	Cap (g/kW-	nr)	Rule Number
Certificate of Conform (Clean Air Act)	nity	Particulate M	atter	().15		0.15		94
Certificate of Conform (Clean Air Act)	nity I	Nitrogen Oxide Hydrocarbo	es and ons		5.8		5.8		94
Certificate of Conform (Clean Air Act)	nity	Carbon Mono	oxide		5.0		N/A		26
Engine Configuration	n #4								
					Was this the eng	gine cor	ifiguration		
Engine Configuration N	Name	OXF 175			rebuilt for basel	line emi	ssion		
Engine Application	(unic	Variable Sp	eed - Propu	llsion - Fixed	Pitch Propeller				
Cylinder Arrangement		Inline engin	ie						
1									

Engine Family	JCABN02.00XE			Model Year	2	2018		
Number of Cylinders on this model	Bore (0.1n 9999.9mm	nm- ı)	Stroke (0.1mm- 9999.9mm)	Displacement Per Cylinder (L)	Total Displac (L)	cement	Rated Power (kW)	
4	83		90.4	0.4	2.0		137	
Rated Speed (rpm)	Maximum (N*m)	Torque	Speed at Maximum Torque (rpm)	Maximum Test Speed (rpm)	l Maximum Ir Speed (rpm)	n Use	Torque at Maximum Test Speed (N*m)	
4100	380		2500	4400	4400		N/A	
Maximum Engine Power (kW)	Lower To Maximum	lerance of Power (%)	Upper Tolerance of Maximum Power (%)	Power Density (kW/L	Fuel Rate at Maximum T .) (mm3/stroke	orque e)	Fuel Rate at Rated Speed (mm3/stroke)	
137	95		99	70	92		82	
Method of Aspiration		Turbocharg	ed					
Number of aspiration d this model	levices on	1		Aspiration Device Co	nfiguration	Single		
Turbochargers								
Turbocharger Type		Turbochar	ger Type, (if Other)					
Variable Geometry Turk	oocharger							
	U							
Charge Air Cooler Typ	e	Liquid		Does this engine confi variable valve timing	iguration use technology?	No		
Is this engine configura equipped with a variab mechanism?	ition le valve lift	No						
Number of inlet valves cylinder	per	2		Number of Exhaust V Cylinder	alves Per	2		
Model Production Star	t Date	10/23/2018		Model Production En	d Date	12/31/2018		
Parts								
Part Name	Part Nam	e. (if Other)	Part Number	Part Quantity	Usage Start]	Date	Usage End Date	
Software Calibration		-, (,	ECCV175-17502	1	10/24/2018		12/31/2018	
Fuel Injection Pump			55597787	1	10/24/2018		12/31/2018	
Fuel Injectors			55566050	4	10/24/2018		12/31/2018	
Turbo Charger			30-0114-395	1	10/24/2018		12/31/2018	
Electronic Control Module			30-0116-022	1	10/24/2018		12/31/2018	
Engine Configuration Standards and FEL Caps								
Certificate Type		Pollutant Na	ame Standard Va	alue (g/kW-hr) FE	L Cap (g/kW-h	r)	Rule Number	
Certificate of Conform (Clean Air Act)	nity	Particulate M	latter 0	.15	0.15		94	
Certificate of Conform (Clean Air Act)	nity N	litrogen Oxide Hydrocarbo	es and	5.8	5.8		94	
Certificate of Conform (Clean Air Act)	nity	Carbon Mono	oxide	5.0	N/A		26	

Engine Family		JCABN02.00XE		Model Year	odel Year 2018						
Durability Inf	Jurability Information										
DF Determinatio	n Method	Assigned by EPA	(Small Volume Ma	anufacturer or Pos	st-manufacture Marin	izer)					
Durability Eng	ine										
Durability Engin	e Family Name										
Durability Engin Name	e Configuration										
Durability Engin	e ID										
Durability Engin Accumulation	e Service	N/A	N/A								
Deterioration F	actors										
Pollutant Name Deterioration Factor Type Deterioration Factor Value											
Total Hy	drocarbon	Add	litive		0	0.04					
Particula	ate Matter	Add	litive		0.	.018					
Carbon I	Monoxide	Ado	litive		0.	.285					
Nitroge	n Oxides	Add	litive		0.	.034					
Test Informat	ion										
Certification To	est										
Certification To	est #1										
Test Data Type		Test data exists in	Verify for an engin	ne configuration i	n the Carryover Engi	ne Family					
Test Dataset ID N assigned)	Number (Verify-			Carryover Tes Number	t Dataset ID	GCABNM00014	49				
Certification Lo	evel Steady State	Test Result Det	ails								
Certificate Type	Pollutant Name	Standard Value (g/kW-hr)	FEL (g/kW-hr)	FEL Cap (g/kW-hr)	Baseline Standard Value (g/kW-hr)	Certification Emission Result (g/kW-hr)	Pass/Fail Indicator				
Certificate of Conformity (Clean Air Act)	Particulate Matter	0.15	N/A	0.40	N/A	0.15	Pass				
Certificate of Conformity (Clean Air Act)	Nitrogen Oxides	N/A	N/A	N/A	N/A	49					
Certificate of Conformity (Clean Air Act)	Hydrocarbons	N/A	N/A	N/A	N/A	0.06					
Certificate of Conformity	Nitrogen Oxides and	1 1/ 2 1	1.1/1	1 1 7 2 4	14/14	0.00					
(Clean Air Act)	Hydrocarbons	5.8	N/A	7.5	N/A	4.9	Pass				
Certificate of Conformity (Clean Air Act)	Carbon Monoxide	5.0	N/A	N/A	N/A	1.2	Pass				
Certificate of Conformity (Clean Air Act)	Carbon Dioxide	N/A	N/A	N/A	N/A	711					
Test Comments											