

Marine Propulsion Startup and Commissioning Checklist



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3500 - C280 Marine Propulsion Startup & Commissioning Checklist Cover Sheet

General

Selling Dealer: _____ Vessel builder: _____
Vessel Name: _____ OEM Model: _____
IMO Number: _____ Flag State: _____
Home Port: _____ Area of Operation: _____
Address: _____

Type of Sale: Retail ☐ Wholesale ☐ Repetitive ☐ One Time ☐

Vessel Data

Hull Type: Displacement ☐ Semi-Displacement ☐ Planing ☐
Length: _____ Waterline length: _____ Beam: _____
Design Draft: _____ Actual Draft: _____ Displacement: _____
Expected Hull Speed: _____ Hull exponent: _____
(Free Running, Knots)

Vessel Type

Pleasure Craft: Cruiser ☐ Sportfish ☐ Yacht ☐ Sailboat ☐ Other ☐
Tow Boat: River ☐ Intercostal ☐ Ocean ☐ Lower Mississippi ☐ Other ☐
Fishing: Trawler / Dragger ☐ Long Liner ☐ Gillnetter ☐ Trap Fishing ☐
Cargo: Bulk ☐ Container ☐ General ☐
Other: _____

Application Information

Maximum expected altitude operation: _____ Maximum / Minimum expected ambient air temp: _____
Engine installation angle & front/rear down?: _____ Maximum expected Sea Water Temp: _____
Maximum expected tilt angle in operation: _____ Expected average operation hrs. per year: _____
Anticipated Engine load factor: _____ Anticipated percent of idle operation: _____

Propulsion System

Propulsion Engine:
Model: _____ Rating: _____ ☐ bhp ☐ bkW
Rated speed: _____ Performance Rating: _____ Test Spec: _____
Eng. Feature code: _____ Performance Spec No.: _____
Engine S/N: _____
Major Attachments: _____
Position in Vessel: Port ☐ Center ☐ Starboard ☐ Other (Eng. No) ☐ _____
Torsional Vibration Yes ☐ Analyst: _____ Report No: _____
Analysis performed: No ☐

Marine Transmission

Manufacturer: _____ Model: _____ Serial No.: _____
Ratio: _____ Fwd: ☐ _____ Reverse: ☐ _____
Gear Oil Cooler
Specifications: _____

Coupling

Manufacturer: _____ Model: _____ Size: _____
Type: _____ Serial No.: _____

Propeller

Propeller Type: Fixed Pitch ☐ Controllable Pitch ☐ Surface Drive ☐ Jet Drive ☐
Manufacturer: _____ Model: _____ Material: _____
No. of Blades: _____ Diameter: _____ Pitch: _____

Cooling System

Type: ATAA ☐ Keel ☐ SWAC ☐ SCAC ☐ Central ☐
Type of Cooler: _____ Material: _____ Area: _____
Type Fan Drive: _____
Type of Coolant: ELC ☐ Conventional Glycol ☐ SCA/Water ☐ Other ☐
Brand: _____ % Concentration: _____
Sea Water Strainers: Brand: _____ Mesh Size: _____

Fuel System

Fuel Type: _____ Brand: _____ Sulfur Content (PPM): _____
Primary Fuel Filters: _____ Brand: _____ Mesh Size: _____
Other: Water Separator ☐ _____ Duplex Filters ☐ _____
Biodiel (%) ☐ _____
Tank Height above engine inlet (- if below): _____ m Lift Pump (if below): ☐
Fuel supply line inside diameter: _____ mm length: _____ m
Fuel return line inside diameter: _____ mm length: _____ m

Lubrication System

System options: Duplex Filters ☐ Centrifugal ☐ Pre-Lubrication ☐ Auxiliary Oil Sump ☐
Type of Oil Sump: deep ☐ shallow ☐ Capacity: _____ [ltr / US Gal]
Oil specification: _____ Oil filled to sump: _____ [ltr / US Gal]

Starting Systems

System options: Electric ☐ Pneumatic ☐ Hydraulic ☐
Starter Manufacturer: _____ Model: _____
Alternator Manuf.: _____ Model: _____ V _____ A
Battery Manuf.: _____ Model / Capacity: _____ CCA (0°C): _____ A
Number of Batteries: _____ Starting Cable Size: _____ Total length supply and return: _____ m
Starting Aids: Glow Plugs ☐
Ether Aid ☐
JW Heater ☐ Power: _____ W Voltage: _____ V
Inlet Air Heater ☐ Manufacturer _____ Type/Model: _____

Exhaust System

Type: _____ Dry ☐ Water Cooled (Wet) ☐ Lift Muffler (if wet) ☐ _____
Mufflers: _____ Aftertreatment: ☐ _____
Additional Information _____

PTO (If Installed)

PTO: _____ Manufacturer: _____ Model: _____
Rated Power: _____ Serial No.: _____ Location: _____

Throttle System

Type: _____ Cat MSCS ☐ Cat Three60 ☐ Other ☐
Manufacturer: _____ Model: _____ Signal: _____
Sync mode ☐ Slow vessel mode ☐ Trolling mode ☐

Vessel instrumentation

Number of Stations: _____ Type: _____
Location(s): _____

Mounting information

Type: _____ Flexible Mounts ☐ Steel Shims ☐ Poured Shims ☐ Hard Mounted ☐ Collision blocks ☐
Supplier of Flexible Mounts (if Equipped): _____ Model: _____
Brand / Type of Epoxy Resign: _____
Tilt angle: _____ Front up ☐ Front down ☐ Angle (Degrees): _____
to Left ☐ to Right ☐ Angle (Degrees): _____

Generator Set Specifications

Engine Serial #:	_____	Generator Set Serial #:	_____
Engine Arrangement #:	_____	Generator Serial #:	_____
Engine Model Group:	_____	Generator Arrangement #:	_____
Type of installation:	_____	Generator Model #:	_____
Rated Speed:	_____	Voltage:	_____
Low Idle:	_____	Frequency:	_____
High Idle:	_____	Amperage:	_____
Timing:	_____	Rating:	_____
Engine Derate:	_____	<i>Delegated final assembly</i>	_____
		<i>contract #:</i>	_____

Engine System Controls

Diesel Control Unit Type:	_____	DCU Serial #:	_____
Software Version:	_____	No of Remote Panels	_____
Type of Remote Panel(s)	_____		

Environmental Conditions

Ambient Temperature:	_____	Elevation:	_____
Engine Room Temp:	_____	Relative Humidity:	_____
Atmospheric Conditions:	_____		

Storage and Insulation (Genset)

Generator Dried for 48 Hours Before Start-up (See SEHS9124):

☐	Yes No N/A
--------------------------	------------

Visual Inspection Before Start-up -- Grease, Water, Debris, (Foreign Material):

☐	Yes No N/A
--------------------------	------------

Drying Method: _____

Installation and Load (Genset)

Neutral Grounding Systems:

☐	Yes No N/A
--------------------------	------------

Unit connected in parallel:

☐	Yes No N/A
--------------------------	------------

Enclosure Weather Tight:

☐	Yes No N/A
--------------------------	------------

Load Diagram Created & Saved:

☐	Yes No N/A
--------------------------	------------

Proper Ventilation:

☐	Yes No N/A
--------------------------	------------

Full Load Data Created & Saved:

☐	Yes No N/A
--------------------------	------------

Description of load:

Motor SKVA:

Motor Total HP:

UPS Manufacturer:

UPS Model Number/Size:

UPS Serial Number:

Automatic Transfer Switch (Genset)

Manufacturer:

Model number:

Serial number:

Verify voltage/amperage

☐	Yes No N/A
--------------------------	------------

Check for loose or missing hardware:

☐	Yes No N/A
--------------------------	------------

Verify phase rotation

☐	Yes No N/A
--------------------------	------------

All wires secure & check wire terminations:

☐	Yes No N/A
--------------------------	------------

Set all timers & exerciser

☐	Yes No N/A
--------------------------	------------

Test for proper operation:

☐	Yes No N/A
--------------------------	------------

Check for damage

☐	Yes No N/A
--------------------------	------------

☐	
--------------------------	--

Customer Authorization to Service / Test

Customer Rep. Signature:

Date:

Service Engineer Signature:

Date:

Attachments

Documents:

TVA ☐

Alignment Record ☐

Generator Insulation ☐

Ventilation Strategy ☐

CAT ET Status Report ☐

CAMPAR Report ☐

Vibration Results ☐

Sound Test Results ☐

Others: _____

Comments

Customer Acceptance

Customer Rep. Signature:

Date:

Service Engineer Signature:

Date:

CATERPILLAR 3500 - C280 MARINE PROPULSION START-UP & COMMISSIONING CHECKLIST

CAUTION! Only qualified personnel who have been trained to support the product should attempt to proceed with startup.

Note: Service Engineer must communicate with customer to understand site requirements for Personal Protective Equipment (PPE), Lockout and other safety procedures.

Pre Start-up check

1. Safety and Serviceability

1 Personal protective equipment worn	☐	Yes No N/A	13 Fire extinguisher present & charged	☐	Yes No N/A
2 Hot pipes are wrapped	☐	Yes No N/A	14 Fire suppression unlocked & operational	☐	Yes No N/A
3 All hoses, piping & wiring is/are secure	☐	Yes No N/A	15 Pipe work & services are color coded/labeled	☐	Yes No N/A
4 If the engine was prepared for long term storage, be sure that protections have been removed	☐	Yes No N/A	16 Emergency stop functional	☐	Yes No N/A
5 Engine is free of damage	☐	Yes No N/A	17 Sight glasses are visible	☐	Yes No N/A
6 Floors are clean no hazards	☐	Yes No N/A	18 Gauges are functional (oil, fuel, air, other...)	☐	Yes No N/A
7 Floor openings are covered	☐	Yes No N/A	19 Air/Fuel/Oil Filters are accessible	☐	Yes No N/A
8 Emergency hatch identified, functional ,and unobstructed	☐	Yes No N/A	20 Adequate access to fluid fill locations	☐	Yes No N/A
9 Engine is mounted with all holding bolts secure	☐	Yes No N/A	21 Engine is properly grounded (refer to REHS4634)	☐	Yes No N/A
10 Warning decals & plates are installed	☐	Yes No N/A	22 Air intake free of airborne debris	☐	Yes No N/A
11 All guards and heat shields are in place	☐	Yes No N/A	23 Reviewed OMM, Parts Manual, Warranty, SOS	☐	Yes No N/A
12 All safety shutdowns & warnings operational	☐	Yes No N/A	24 Has operator / Chief Engineer been trained on engine operation and maintenance	☐	Yes No N/A

References:

Notes:

2. Fuel System and Fuel Storage

1 Tank fuel level is verified	☐	Yes No N/A	6 Fuel shutoff valves present and operational	☐	Yes No N/A
2 Fuel transfer pump ready to operate	☐	Yes No N/A	7 Fuel filter primed	☐	Yes No N/A
3 Properly vented fuel tanks	☐	Yes No N/A	8 Fuel pressure alarms verified	☐	Yes No N/A
4 Fuel line sizing verified	☐	Yes No N/A	9 Correct valve installed in the return	☐	Yes No N/A
5 Check for fuel leaks	☐	Yes No N/A	10 take a fuel sample and send it to SOS	☐	Yes No N/A

References: LEGM4731, LEBW4976

Notes:

3. Lube System					
1 Jacket oil heater operational		Yes No N/A	7 Remove crankcase covers, plugs & tape		Yes No N/A
2 Oil sample taken (SOS baseline sample)		Yes No N/A	8 Check pre-lube installation		Yes No N/A
3 Crankcase breather / filters installed and routed properly		Yes No N/A	9 Check for leaks		Yes No N/A
4 Document quantity of oil filled to sump		Yes No N/A	10 Prelube pump working pressure meets specs		Yes No N/A
5 Oil meets specifications		Yes No N/A	11 check dip stick calibration.		Yes No N/A
6 Oil Level gauge (dip stick) calibrated (per OMM)		Yes No N/A	12 CAT DEO-ULS/ API CJ 4 oil sticker on all lube fill points		Yes No N/A
References: LEBW4957					
Notes:					

4. Alarm Verification					
1 Low water level		Yes No N/A	10 MCS engine safety device (Diesel Control Unit)		Yes No N/A
2 High Jacket Water temperature		Yes No N/A	11 Overspeed		Yes No N/A
3 Low Jacket Water temperature		Yes No N/A	12 Crank Terminate		Yes No N/A
4 Low oil pressure		Yes No N/A	13 High Exhaust temperature		Yes No N/A
5 Low oil level		Yes No N/A	14 Verify air supply and document in notes air pressure to Oil Mist Detector		Yes No N/A
6 Low Fuel Pressure		Yes No N/A	15 Oil Mist Detector Alarm functioning		Yes No N/A
7 High Fuel Pressure		Yes No N/A	16 Neutral safety switch functional		Yes No N/A
8 E-Stop function		Yes No N/A	17 Starter interlock functional		Yes No N/A
9 Jacket Water Pressure		Yes No N/A	18 Additional MCS alarm and protections demonstrated and verified by society surveyor		Yes No N/A
References:					
Notes:					

5. Governor Settings		
1 Copy saved of the ECM replacement file or other record governor settings saved		Yes No N/A
References:		
Notes:		

6. Intake System/Exhaust System					
1 Check for damage		Yes No N/A	8 Exhaust pipe properly supported and isolated		Yes No N/A
2 Remove air filter bags / covers		Yes No N/A	9 Exhaust bellows installed according to manf. Spec.		Yes No N/A
3 Check exhaust water drain pipe & valves		Yes No N/A	10 Emissions control unit installed & operational		Yes No N/A
4 Air intake condensate drain provided		Yes No N/A	11 Check for duct isolation		Yes No N/A
5 Air filter housing seal present & serviceable		Yes No N/A	12 Exhaust Temperature Port installed and accessible		Yes No N/A
6 Check for missing or loose hardware		Yes No N/A	13 Exhaust Backpressure Port installed and accessible		Yes No N/A
7 Pre-lube turbo charger		Yes No N/A			
References: LEBW4969, LEBW4970					
Notes:					

7. Engine Room Ventilation					
1 Check engine room ventilation		Yes No N/A	6 Engine room exhaust fans installed and functional		Yes No N/A
2 Combustion air ducted from outside		Yes No N/A	6a Engine room exhaust fan Diameter (mm)		mm
3 Ventilation Airflow Type per LEBW4971 (If other explain in Notes)		Type 1,2,3,4	6b Engine room exhaust fan Flow Rate per unit (CFM)		CFM
4 Engine room intake fans installed and functional		Yes No N/A	6c Number of exhaust fan units in engine room		Units
4a Engine room intake fan Diameter (mm)		mm	7 Exhaust fans adequately sized per LEBW4971		Yes No N/A
4b Engine room intake fan Flow Rate per unit (CFM)		CFM	8 Diagram of engine room ventilation attached		Yes No N/A
4c Number of intake fan units in engine room		Units	9 Pictures of engine room ventilation attached		Yes No N/A
5 If engine room provides combustion air, is the system sized to provide required air flow per LEBW4969		Yes No N/A			
References: Engine Room Design Considerations Guide, LEBW4971, LEBW4969					
Notes:					

8. Jacket Water & Space Heater					
1 Jacket water heater wiring and voltage correct		Yes No N/A			
2 Verify JWH valve position is open during usage		Yes No N/A			
3 110-240 V AC preheater grounding provided		Yes No N/A			
References:					
Notes:					

9. Starter & Battery					
1 Inspect starter wiring		Yes No N/A	9 Note starter cable length and size		Yes No N/A
2 Starter operational check		Yes No N/A	10 Proper electrolyte level & proper specific gravity		Yes No N/A
3 Cycle crank timer		Yes No N/A	11 Proper system voltage		Yes No N/A
4 Battery charging alternator operational check		Yes No N/A	12 Charging alternator guards in place & secure		Yes No N/A
5 Batteries connected properly		Yes No N/A	13 Charging alternator belts inspected and adjusted		Yes No N/A
6 Batteries isolated from floor		Yes No N/A	14 water drained from Starting air line		Yes No N/A
7 Batteries charged (deep cycle) before use		Yes No N/A	15 Verify no stray voltage on block (record results in notes)		Yes No N/A
8 Battery cables & racks properly installed		Yes No N/A	16 Verify no stray voltage to hull (record results in notes)		Yes No N/A

References: LEBM0001, LEBW4980

Notes:

10. Cooling System (Jacket Water and SCAC Systems)

1 Check for leaks	☐	Yes No N/A	7 High water temperature shutdown (see 4.2)	☐	Yes No N/A
2 Check coolant level	☐	Yes No N/A	8 Verify aux expansion tank(s) provide positive head *	☐	Yes No N/A
3 System pressurized	☐	Yes No N/A	9 Aux expansion tanks have sufficient expansion volume	☐	Yes No N/A
4 Record pressure cap part no.	☐	Yes No N/A	10 Verify aux expansion tank(s) shunt line is routed to pump inlet.	☐	Yes No N/A
5 Isolation valves & drain valves installed	☐	Yes No N/A	11 Verify engine circuits are properly vented and the vent lines route to top of aux expansion tanks	☐	Yes No N/A
6 Confirm type of coolant and record chemistry makeup including glycol % in Notes	☐	Yes No N/A	12 Verify engine is filled and vented properly	☐	Yes No N/A

References: Ref. EDS 50.5 9-87 Cooling System Field Test / SEBD0518-10 Know Your Cooling System / *LEGM4727

Notes:

11. Cooling System (Sea Water and SWAC Systems)

1 Check for leaks	☐	Yes No N/A	5 Record suction pipe diameter	☐	mm
2 Sea water strainers installed	☐	Yes No N/A	6 If zinc protected, verify zincs installed	☐	Yes No N/A
3 Sea water strainer mesh size	☐	mm	7 If electrically bonded, verify all components properly bonded	☐	Yes No N/A
4 Sea Valve (flanged gate or globe type) installed	☐	Yes No N/A		☐	

References: Ref. EDS 50.5 9-87 Cooling System Field Test / SEBD0518-10 Know Your Cooling System / *LEGM4727

Notes:

12. Mechanical

1 Package properly mounted	☐	Yes No N/A	4 Air shut-offs operational	☐	Yes No N/A
2 Hoses routed properly (no kinks, sharp bends...)	☐	Yes No N/A	5 Motorized dampers are operational	☐	Yes No N/A
3 Record vibration isolators serial numbers	☐	Yes No N/A		☐	

References:

Notes:

13. Main Engine - Control Panel					
1 Secure all wires		Yes No N/A	6 Verify remote panel control functionality		Yes No N/A
2 Check all wire terminations for tightness		Yes No N/A	5 Remote emergency stop(s) wired / functional		Yes No N/A
3 Energize controls		Yes No N/A	6 Verify settings (correct as needed)		Yes No N/A
4 Verify control panel(s) start/stop functionality		Yes No N/A	7 Check software & upload latest version		
5 Verify local panel control functionality		Yes No N/A			
References:					
Notes:					

14. Main Engine - Throttle System					
1 Secure all wires		Yes No N/A	5 Verify Throttle Sync		Yes No N/A
2 Check all wire terminations for tightness		Yes No N/A	6 Verify settings (correct as needed)		Yes No N/A
3 Energize controls		Yes No N/A	7 Check software & upload latest version		Yes No N/A
4 Check Ahead / Astern / Neutral functionality		Yes No N/A			
References:					
Notes:					

15. Coupling					
1 Verify coupling type and serial number		Yes No N/A	3 Alignment record attached		Yes No N/A
2 Alignment requirements met		Yes No N/A			
References:					
Notes:					

16. Engine Mounting System					
1 Verify flexible mount type and serial number		Yes No N/A			
2 Flexible mount central buffer clearance checked		Yes No N/A			
References:					
Notes:					

17. Coupling / Drive Train - Alignment

- 1 Check for loose or missing hardware
- 2 Record crankshaft end play

Yes No N/A

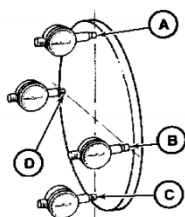
3 Record Crankshaft Deflection Cold

Yes No N/A

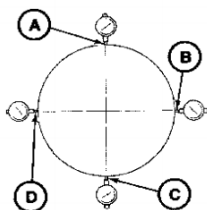
mm

4 Record Crankshaft Deflection Hot

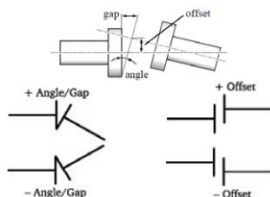
Yes No N/A

**Face Indicator Readings**

	Initial / Final (mm)
Location A:	/
Location B:	/
Location C:	/
Location D:	/

**Bore Indicator Readings**

	Initial / Final (mm)
Location A:	/
Location B:	/
Location C:	/
Location D:	/

**Laser Alignment Results**

	Initial / Final
Horizontal Gap/Angle:	/
Horizontal Offset:	/
Vertical Gap/Angle:	/
Vertical Offset:	/

Cold Crankshaft Deflection: Refer to reference documents for required cylinder journals to measure based on application

Cylinder	Unit	Measured	Cylinder	Unit	Measured
Cylinder Journal 1			Cylinder Journal 9		
Cylinder Journal 2			Cylinder Journal 10		
Cylinder Journal 3			Cylinder Journal 11		
Cylinder Journal 4			Cylinder Journal 12		
Cylinder Journal 5			Cylinder Journal 13		
Cylinder Journal 6			Cylinder Journal 14		
Cylinder Journal 7			Cylinder Journal 15		
Cylinder Journal 8			Cylinder Journal 16		

Hot Crankshaft Deflection: Refer to reference documents for required cylinder journals to measure based on application

Cylinder	Unit	Measured	Cylinder	Unit	Measured
Cylinder Journal 1			Cylinder Journal 9		
Cylinder Journal 2			Cylinder Journal 10		
Cylinder Journal 3			Cylinder Journal 11		
Cylinder Journal 4			Cylinder Journal 12		
Cylinder Journal 5			Cylinder Journal 13		
Cylinder Journal 6			Cylinder Journal 14		
Cylinder Journal 7			Cylinder Journal 15		
Cylinder Journal 8			Cylinder Journal 16		

References: REHS0423, SEBD9646 - 3600 procedure to check crank deflection**Notes:**

Start-up

1. Safety and Serviceability

1 Reviewed start-up procedure and Safety Information	☐	Yes No N/A	7 Start Engine	☐	Yes No N/A
2 Personal protection equipment worn	☐	Yes No N/A	8 Remote start/stop checked & operational	☐	Yes No N/A
3 Floors are clean / no hazards	☐	Yes No N/A	9 Emergency stop functional	☐	Yes No N/A
4 Floor openings are covered	☐	Yes No N/A		☐	
5 Gauges are functional (oil, fuel, air, other...)	☐	Yes No N/A		☐	
6 Adequate access to oil spill prevention equipment	☐	Yes No N/A		☐	

Notes:

2. Systems

1 Check for correct oil pressure	☐	Yes No N/A	7 Jacket water heater off when engine running	☐	Yes No N/A
2 Check for fuel or oil leaks	☐	Yes No N/A	8 Prelube pump off when engine running	☐	Yes No N/A
3 Oil level is correct	☐	Yes No N/A	9 All temperature and pressure gauges reading	☐	Yes No N/A
4 Check intake and exhaust systems for leaks	☐	Yes No N/A	10 take oil sample after 1st hr of running	☐	Yes No N/A
5 Expansion tank(s) appropriate level	☐	Yes No N/A		☐	Yes No N/A
6 Emissions control unit operational	☐	Yes No N/A		☐	Yes No N/A

Notes:

3. Alarm Verification

1 Low oil level	☐	Yes No N/A	4 Remote E-Stops	☐	Yes No N/A
2 Over speed	☐	Yes No N/A	5 Oil Mist Detector Alarm functioning	☐	Yes No N/A
3 E-Stop	☐	Yes No N/A	6 Additional MCS alarm and protections demonstrated and verified by society surveyor	☐	Yes No N/A

Notes:

4. Sea Trial

1 All fluid levels checked	☐	Yes No N/A	6 Install fuel flow meters	☐	Yes No N/A
2 Get vessel's load condition. Use nautical info form	☐	Yes No N/A	7 Engine at operating temperature	☐	Yes No N/A
3 Ask captain to log vessel speed every rpm step	☐	Yes No N/A	8 Sea trial conducted per Sea Trial Guide (LEBM0025)	☐	Yes No N/A
4 Measure API gravity and fuel Temp.	☐	Yes No N/A	9 Sea trial data loaded into CAMPAR and results attached	☐	Yes No N/A
5 Measure glycol protection Temp.	☐	Yes No N/A	10 safe ECM download	☐	Yes No N/A

References: LEBM0025

Notes:

Customer Acceptance

Customer Rep. Signature:

Date:

Service Engineer Signature:

Date:

1. Vibration Levels (optional)

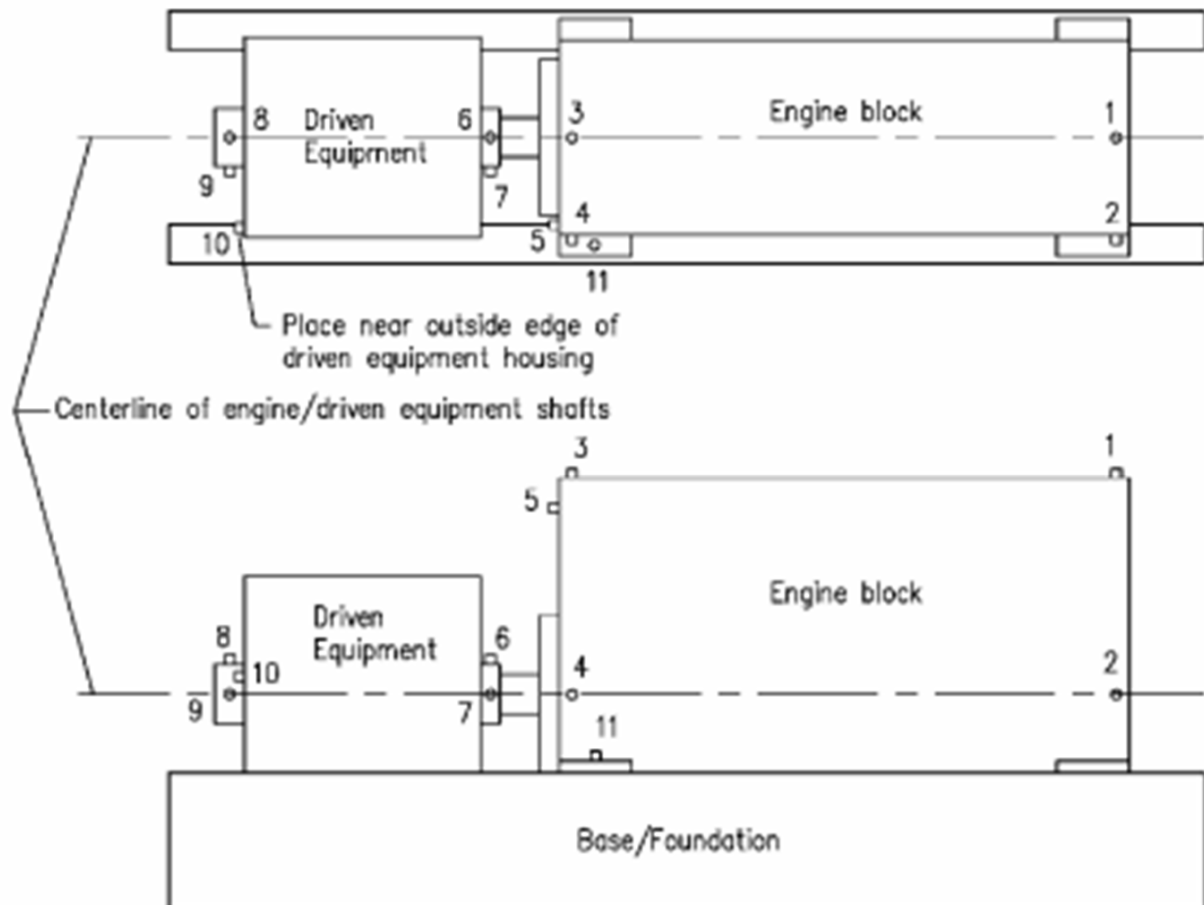
Vibration levels - use for all in-line 6 (e.g. C9, C15, C18, 3406, 3456C...) Built after 1/1/04.

Reference LEBW4972 Vibration

Engine speed:									
Location	1/2 Order Displacement	$\mu\text{m mil}$	1st Order Displacement	$\mu\text{m mil}$	Overall Displacement	$\mu\text{m mil}$	Overall Velocity	mm/sec	Comments
MP 1									
MP 2									
MP 3									
MP 4									
MP 5									
MP 6									
MP 7									
MP 8									
MP 9									
MP 10									
MP 11									

2. Particulars of Vibration Measurement Equipment

Manufacturer:			Type:	
Sensor:				
Measuring Indicator Set:				
Note: Terms are according to Caterpillar Vibration A&I guide LEBW4972				
Mechanical Connection				
Calibration Date				



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LEBM0039-00

