



OVERHAUL EXTENDED SERVICE COVERAGE (ESC) CHECKLIST

Overhaul ESC Worksheet for Engine Only

Effective January 1, 2022

OVERHAULING DEALER INFORMATION

Authorized Dealer: _____ Dealer Code: _____ Country: _____
Address: _____ City: _____ State/Province: _____ Postal Code: _____

OVERHAUL ENGINE INFORMATION

Customer Name: _____ Engine Serial No. _____ Engine Model: _____
Original Delivery Date: _____ Overhaul ESC Start Date: _____
Start Hour Readings: SMU: _____ ECM: _____

ACTION BEING TAKEN AT THIS TIME (must choose one):

APPLICATION (must choose one):

- Immediate active Overhaul ESC registration
- Unit into inventory (see explanation below) Date: _____
- Unit out of inventory (see explanation below) Date: _____

- Marine: _____ Petroleum: _____
- Industrial: _____ Rail: _____

OVERHAULED ENGINES INTO AND OUT OF INVENTORY

In order for an overhauled engine to be put into inventory and be eligible for Overhaul ESC once it is put in use later, the following steps must be taken and be initialed by a representative of the authorized overhauling dealer:

- 1) Complete this entire form at the time of overhaul and register unit as Delayed Coverage Start.
- 2) Complete another copy of this form when the unit goes into service. Engine must be put into service within 12 months of overhaul or Overhaul ESC coverage begins.

Initials - When going into inventory/storage:

- 1) _____ - All Cat overhaul guidelines have been followed.
- 2) _____ - Engine hours are recorded on the Overhaul ESC registration form (above).
- 3) _____ - Engine is performance tested after overhaul and prior to being put into inventory.
- 4) _____ - Engine is stored according to 'Storage Procedure for Caterpillar Products' (refer to SEHS9031).

Initials - When taking unit out of inventory/storage:

- 1) _____ - Engine must be installed by Cat Dealer.
- 2) _____ - Engine must be pre-lubed before startup.
- 3) _____ - Labor charges for R & I engine at customer's expense.

DEALERSHIP AND CUSTOMER ACKNOWLEDGEMENTS

OVERHAULING DEALERSHIP ACKNOWLEDGEMENT: I hereby certify the Overhaul procedure, as specified in this form, has been completed and the engine is eligible for the Overhaul ESC program. Only genuine Caterpillar new or remanufactured components were used during the repairs listed in the check list portion of this worksheet. A copy of the Dealer Work Order is attached and available upon request during the life of this contract. As an authorized Caterpillar dealer, I have read and understand my responsibilities with regard to the administration of Extended Service Coverage I also acknowledge the following:

- 1) All operating controls function per manufacturer's specifications.
- 2) All safety devices function per manufacturer's specifications.
- 3) Comments made on this form describe the condition of the equipment.
- 4) Provide at least four digital photographs representing the condition of the unit are uploaded to SIMSi.
- 5) The completed overhaul checklist must be uploaded to SIMSi prior to registration.
- 6) I certify that all manufacturer guidelines were followed during the completion of this overhaul.

Name of lead technician in charge of this _____
please print

Dealership Service Manager Name: _____
please print

Dealership Service Manager Signature: _____ Date: _____

CUSTOMER ACKNOWLEDGEMENT: I acknowledge that the dealership has explained this Overhaul ESC checklist to me. All problems discovered during the process of this overhaul and covered by the Overhaul ESC program have been repaired or replaced. All other problems discovered have been explained to me. The dealer has given me a copy of this worksheet.

Customer Signature: _____ Date: _____

ENGINE OVERHAUL ESC CHECKLIST

TOP END OVERHAUL

REQUIRED REPLACEMENT

All components in the Required Replacement section must be replaced to be eligible for Basic Coverage. If a component was inspected and verified to have met Caterpillar guidelines for reuse, then it may be reused but the overhaul is only eligible for Platinum or Platinum Plus coverage. Optional individual component coverage's may be selected with the purchase of Basic Coverage, but the components must be replaced to be eligible.

Replaced: Component was replaced by a New or Reman during the overhaul.

Reused: Component was inspected and verified to have met Caterpillar guidelines for reuse. Reuse eligibility for Platinum and Platinum Plus coverage must follow the Caterpillar OMM guidelines.

Repaired: Component was repaired according to Caterpillar salvage guidelines.

Exception: The component is not within the consist of the product being overhauled.

Required Replacement Components	Replaced	Reused	Repaired	Exception	Comments/Action Taken
All Fluids and Filters					
Condensate Drain Valve - MARINE APPLICATION ONLY					
Fasteners/Gaskets/Seals Necessary to do Overhaul					
Fuel Nozzles (if equipped, Diesel Only)					
Fuel Priming Pump (C175 if equipped)					
Fuel Transfer Pump					
High Pressure Fuel Pump (3500 & C175)					
Injectors					
Seawater Aftercooler Core - MARINE APPLICATION ONLY					
Turbocharger Cartridge - RAIL 3500 ONLY					
Thermostat					
C175-16, Y3A Prefix Generator Coupling - RAIL APPLICATION ONLY					
Optional Individual Component Coverage	Replaced				
Turbocharger (complete)					
Cylinder Head					
Jacket Water Pump					

ENGINE OVERHAUL ESC CHECKLIST

TOP END OVERHAUL

REQUIRED INSPECTION

Any component not replaced must be within the specifications set forth in Caterpillar guidelines for reuse or salvage. Registration eligibility will be voided if any component, within this list or otherwise fails an inspection and is not repaired or replaced according to Caterpillar guidelines.

Replaced: Component was replaced by a New or Reman during the overhaul.

Reused: Component was inspected and verified to have met Caterpillar guidelines for reuse. Reuse eligibility for Platinum and Platinum Plus coverage must follow the Caterpillar OMM guidelines.

Repaired: Component was repaired according to Caterpillar salvage guidelines.

Exception: The component is not within the consist of the product being overhauled.

Required Inspection Components	Replaced	Reused	Repaired	Exception	Comments/Action Taken
Aftercooler - Jacket Water and Sea Water (<i>Marine Application Only</i>)					
Camshaft					
Camshaft Followers					
Connecting Rod Bearings (3500 series)					
Connecting Rods (3500 series)					
Counter Bore					
Crankshaft					
Cylinder Block / Deck					
Cylinder Heads & Assemblies					
Cylinder Liners					
Engine Control Module					
Engine Wiring Harness					
Exhaust Manifold					
Exhaust Manifold Bellows					
Exhaust Manifold Seals					
Exhaust Manifold Studs					
Fuel Pressure Regulating Valve					
Inlet Manifold Gaskets					
Inlet Manifold Housing					
Inlet Manifold Seals					
Low Pressure Fuel Pump (3500 & C175)					
Oil Cooler					
Oil Pump					
Oil Suction Screen					
Piston Pins					
Pistons					
Pre-Lube Pump					
Pushrods					
Rocker Arms					
Scavenge Oil Pump					
Spacer Plate					
Turbocharger (complete)					
Valve Cover / Base					
Water Pumps (Jacket Water and SCAC, if equipped)					

ENGINE OVERHAUL ESC CHECKLIST

MAJOR OVERHAUL

REQUIRED REPLACEMENT

All components in the Required Replacement section must be replaced to be eligible for Basic Coverage. If a component was inspected and verified to have met Caterpillar guidelines for reuse, then it may be reused but the overhaul is only eligible for Platinum or Platinum Plus coverage. Optional individual component coverage's may be selected with the purchase of Basic Coverage, but the components must be replaced to be eligible.

Replaced: Component was replaced by a New or Reman during the overhaul.

Reused: Component was inspected and verified to have met Caterpillar guidelines for reuse. Reuse eligibility for Platinum and Platinum Plus coverage must follow the Caterpillar OMM guidelines.

Repaired: Component was repaired according to Caterpillar salvage guidelines.

Exception: The component is not within the consist of the product being overhauled.

Required Replacement Components	Replaced	Reused	Repaired	Exception	Comments/Action Taken
All Fluids and Filters					
Condensate Drain Valve - MARINE APPLICATION ONLY					
Connecting Rod Bearings					
Crankshaft Seals					
Crankshaft Thrust Washers					
Crankshaft Vibration Damper					
Fasteners/Gaskets/Seals Necessary to do Overhaul					
Fuel Nozzles (if equipped)					
Fuel Priming Pump (C175 if equipped)					
Fuel Regulator (Gas Only)					
Fuel Transfer Pump					
Gear Train Bearings					
Gear Train Bushings					
High Pressure Fuel Pump (3500 & C175)					
Injectors					
Main Bearings					
Non-Metallic Fuel Lines					
Oil Temperature Regulators (if equipped)					
Piston Rings					
Rod Bearings					
Seawater Aftercooler Core - MARINE APPLICATION ONLY					
Aftercooler Core - RAIL 3500 ONLY					
Separate Circuit Temperature Regulator (Gas Only)					
Thermostat					
Thermostat					
C175-16, Y3A Prefix Generator Coupling - RAIL APPLICATION ONLY					
Optional Individual Component Coverage	Replaced				
Turbocharger (complete)					
Cylinder Head					
Jacket Water Pump					

ENGINE OVERHAUL ESC CHECKLIST

MAJOR OVERHAUL

REQUIRED INSPECTION

Any component not replaced must be within the specifications set forth in Caterpillar guidelines for reuse or salvage. Registration eligibility will be voided if any component, within this list or otherwise fails an inspection and is not repaired or replaced according to Caterpillar guidelines.

Replaced: Component was replaced by a New or Reman during the overhaul.

Reused: Component was inspected and verified to have met Caterpillar guidelines for reuse. Reuse eligibility for Platinum and Platinum Plus coverage must follow the Caterpillar OMM guidelines.

Repaired: Component was repaired according to Caterpillar salvage guidelines.

Exception: The component is not within the consist of the product being overhauled.

Required Inspection Components	Replaced	Reused	Repaired	Exception	Comments/Action Taken
Aftercooler - Jacket Water and Sea Water (Marine Application Only)					
Camshaft					
Camshaft Bearings					
Camshaft Follower/Lifter					
Camshaft Lifter Bracket (N/A 3500)					
Camshaft Thrust Washers					
Connecting Rods					
Counter Bore					
Crankshaft					
Cylinder Block / Deck					
Cylinder Head Assembly					
Cylinder Liners					
Engine Control Module					
Engine Mounts					
Engine Wiring Harness					
Exhaust Manifold					
Exhaust Manifold Bellows					
Exhaust Manifold Seals					
Exhaust Manifold Studs					
Flywheel					
Flywheel Housing					
Front Covers and Plate					
Front Gear Train					
Fuel Pressure Regulating Valve					

ENGINE OVERHAUL ESC CHECKLIST

MAJOR OVERHAUL

REQUIRED INSPECTION (CONT'D)

Any component not replaced must be within the specifications set forth in Caterpillar guidelines for reuse or salvage. Registration eligibility will be voided if any component, within this list or otherwise fails an inspection and is not repaired or replaced according to Caterpillar guidelines.

Replaced: Component was replaced by a New or Reman during the overhaul.

Reused: Component was inspected and verified to have met Caterpillar guidelines for reuse. Reuse eligibility for Platinum and Platinum Plus coverage must follow the Caterpillar OMM guidelines.

Repaired: Component was repaired according to Caterpillar salvage guidelines.

Exception: The component is not within the consist of the product being overhauled.

Required Inspection Components	Replaced	Reused	Repaired	Exception	Comments/Action Taken
Inlet Manifold Gaskets					
Inlet Manifold Housing					
Inlet Manifold Seals					
Low Pressure Fuel Pump (3500 & C175)					
Oil Cooler					
Oil Pan					
Oil Pump					
Oil Suction Screen					
Piston Pins					
Pistons					
Pre-lube Pump					
Pushrods					
Rear Gear Train					
Rocker Arms					
Scavenge Oil Pump					
Spacer Plate					
Turbocharger (complete)					
Valve Cover / Base					
Water Pumps (Jacket Water and SCAC if equipped)					

ENGINE OVERHAUL ESC CHECKLIST

TOP END AND MAJOR OVERHAUL

OPERATIONAL AND SAFETY REQUIREMENTS

In order to be eligible for coverage the overhauled product must pass all testing requirements listed below. In addition all necessary adjustments and service actions listed below must be completed. In the event manufacturer guidelines call for additional testing or adjustment activity not identified below, all must still be completed for eligibility.

Testing Required	Complete	Comments/Action Taken
Adjustment of High and Low Idle (Gas Only)		
Adjustment of Injection Timing & Rack (Diesel Only)		
Adjustment of Inlet and Exhaust Valve Lash (non-HLA)		
Check SIMS and Perform Any Applicable PIP/PSPs		
SOS Analysis and Required Actions Completed		
Check Instrument Panel Gauges		
Check Safety Shutoffs and/or Alarms		
Service Hour Meter		
Performance Check of the Engine		

Testing Required - MARINE APPLICATION ONLY

TESTING REQUIREMENTS: SEA TRIAL

SEA TRIAL PROCEDURE - Find a proper place to run the sea trial and bring the engines up to operating temperatures.

A. Run in smooth waters, if possible, for at least 15 minutes at a time in one direction. The longer you can run in one direction the better. If possible, run to a bridge or other large object if using a hand held GPS for boat speed. If windy, run with the wind and down wind for an average. If the engine is not up to operating temperature, run vessel at 60-75% of rated speed until water temperature stabilizes (using monitor ET).

STEADY STATE SEA-TRIAL - Stabilize engine at various RPM's and take data on Electronic Technician (ET) data logger.

A. Go to steady state sea trial data logger menu in ET. Complete general information portion of data logger to capture engine / vessel information. Start steady state data logger. Use the preset group for performance data. Take data starting at low idle and then go to 1000 rpm and take data every 200 rpm up to full throttle. Repeat the process if adverse conditions like wind, waves or currents force you to run in both directions and average the data. Remember to add manual data - exhaust temperature, exhaust back pressure and inlet air temperature at the air cleaner.

Exhaust Back Pressure - Back pressure must not exceed the limit listed in TMI during transient and steady state sea trial test and at rated rpm.

Back pressure must be equal to or less than the limit in TMI for engine to qualify for this coverage.

Air Inlet Temperature at air cleaner - The maximum allowable air inlet temperature at the air cleaner element is 120 Degrees F (49 degrees C) at full load / Wide Open Throttle and rated rpm.

B. Observe and record the following at each rpm step:

1. Steady state smoke level is acceptable	Yes	No	Idle
2. Smooth acceleration to the next higher rpm	Yes	No	Idle
3. Exhaust back pressure (inches H ₂ O)	Yes	No	Idle
4. Air inlet temperature at air cleaner	Yes	No	Idle
5. Boat speed (<u>knots</u> or <u>mph</u>)	Yes	No	Idle

C. Engine rpm at WOT (Wide Open Throttle): _____ Speed: _____

TRANSIENT SEA TRIAL - Record acceleration data using the Electronic Technician (ET) data logger.

A. Start the transient logger in ET. Use the preset group for performance. Log file comments if known such as vessel weight and fuel and water load. Start the test with the engines at low idle and in forward gear. Go immediately to full throttle. Record runs at different FARC settings, trim tabs up and down and if wind, current or waves are present, run various directions and average the data.

1. Is the acceleration smooth from idle to rated RPM?	Yes	No
2. Smoke level - is the FARC setting OK for both smoke and acceleration?	Yes	No
3. Did the engines reach full rated RPM?	Yes	No

Customer Signature Acknowledging Results: _____

Engine Serial #: _____