

Advantage ESC Certification Inspection Worksheet  
For Used Cat® Engines for Marine Revenue or Marine Yachting Applications  
Effective Date: January 1, 2024

See page 4 for conditions under which an Advantage Inspection is NOT required.

**INSPECTING DEALER INFORMATION**

Inspecting Dealer: \_\_\_\_\_ Dealer Code: \_\_\_\_\_  
Address: \_\_\_\_\_ City: \_\_\_\_\_  
State/Province: \_\_\_\_\_ Postal Code: \_\_\_\_\_ Country: \_\_\_\_\_

**INSPECTED ENGINE INFORMATION**

CAT ENGINE SERIAL NUMBER: \_\_\_\_\_ \*INSPECTION DATE: \_\_\_\_\_  
ENGINE SALES MODEL: \_\_\_\_\_ APPLICATION (must choose one):  
ORIGINAL DELIVERY DATE: \_\_\_\_\_ MARINE YACHTING PROPULSION:  
MARINE YACHTING AUXILIARY:  
CURRENT ENGINE HOURS: SMU: \_\_\_\_\_ \*ECM: \_\_\_\_\_ MARINE REVENUE PROPULSION:  
ADVANTAGE START DATE\*\*: \_\_\_\_\_ MARINE REVENUE AUXILIARY:  
ADVANTAGE START HOURS: SMU: \_\_\_\_\_ \*ECM: \_\_\_\_\_  
BOAT OR YACHT MANUFACTURER: \_\_\_\_\_

\*INSPECTION DATE is the date of the last day of inspection process  
\*\* Advantage start date is the INSPECTION DATE, except where delayed coverage start is selected.

**DEALERSHIP AND CUSTOMER ACKNOWLEDGEMENTS**

**INSPECTING DEALERSHIP ACKNOWLEDGEMENT:** I hereby certify that the appropriate certification procedure as specified in this form has been completed and the engine is eligible for the Advantage program. Only genuine Cat new or REMAN components were used during the repairs listed in the checklist portion of this worksheet. As an authorized Cat dealer, I have read and understand authorized Cat dealer's responsibilities with regard to the administration of Extended Service Coverage ("ESC") programs as found in the Global Dealer Administration Manual.

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 photos representing the condition of the unit are uploaded into SIMSi.
- 5) The completed inspection form and other test data required in the checklist must be uploaded into SIMSi prior to submitting the registration.

Name of lead technician in charge of this inspection: \_\_\_\_\_  
Dealership Service Manager Name (clearly printed): \_\_\_\_\_  
Dealership Service Manager Signature: \_\_\_\_\_ Date: \_\_\_\_\_

**CUSTOMER ACKNOWLEDGEMENT:** I acknowledge that the dealership has explained this Inspection Certificate to me. All problems discovered by this inspection have been repaired or replaced prior to the start of Advantage ESC and have been explained to me. The dealer has given me a copy of the Inspection Certificate Worksheet.

Customer Signature: \_\_\_\_\_ Date: \_\_\_\_\_

## INSPECTION PROCESS, COMMENTS AND REPAIR CHECKLIST

Check  
When  
Passed

**ITEM, COMPONENT OR PROCESS**

**EXPLAIN ACTION TAKEN / COMMENTS REQUIRED ON EVERY LINE!!**

**Visual/Walk Around & Records Review:**

- Walk around unit and clean up as needed.
- Review records to ensure all required maintenance items are current for age and use.
- Ladders and fire equipment present? Quantity?
- Safety jacks present? Quantity?
- Operational inspection of frequency and voltage.
- Operational test of radiator louvers / vents - clear obstructions.
- Operation inspection of control panel meters.
- Document any excessive noise in engine.
- Review "as-shipped" consist and identify designed to order components. List them here.
- Check for obsolete components no longer serviced to be excluded from coverage, unless upgrades are completed.
- Check SIMS and perform any PIPs or PSPs not completed.
- Are Operation & Maintenance Manuals present?
- Are noise attenuation / insulation materials secure?
- Is container / enclosure intact?

**Cooling System:**

- Document overall condition of radiator/heat exchanger.
- Perform lab test of coolant & upload results in SIMSi.
- Check and document entire cooling system for leaks.
- Head gasket (must not leak to pass).
- Jacket Water Pump (must not leak to pass).
- Separate circuit after cooler pump (must not leak to pass).
- Thermostatic valve (must work & not leak to pass).
- Thermostat housing (must not leak to pass).
- Perform bottle test (list volume / minimum).

**Fuel System:**

- Ensure Gas Fuel Regulator / Throttle function properly.
- Check fuel tank level alarms and shutdowns.
- Check all fuel lines for cracks, leaks, liability, support.
- Fuel transfer pump (must not leak to pass).
- All fuel supply return lines (must not leak to pass).
- Hand priming pump (must not leak to pass).
- Filter base(s) (must not leak to pass).
- Document fuel pressure at idle and rated RPM: \_\_\_\_\_ Idle RPM Fuel PSI: \_\_\_\_\_ Rated RPM Fuel PSI: \_\_\_\_\_

Verify fuel settings as set from factory or as noted in SIMS: \_\_\_\_\_

**Lubrication Systems: LEAKS IN THESE AREAS MUST BE FIXED TO PASS INSPECTION!!!**

- Document oil PSI after doing PM1 service below. \_\_\_\_\_ Idle RPM Oil PSI: \_\_\_\_\_ Rated RPM Oil PSI: \_\_\_\_\_
- Head to block joint (& spacer plate if applicable).
- Front / rear crank seals.
- Front cover and flywheel housing.
- All major castings (head, block, oil pan, etc.)
- Oil Cooler
- Turbocharger
- Measure and record blowby and correct as needed if not in spec.
- Service & check crankcase breather with engine running.

Engine Serial #: \_\_\_\_\_

## INSPECTION PROCESS, COMMENTS AND REPAIR CHECKLIST - continued

**Check  
When  
Passed**

**ITEM, COMPONENT OR PROCESS**

**EXPLAIN ACTION TAKEN / COMMENTS REQUIRED ON EVERY LINE!!**

**Electronics & Starting Systems:**

Use service tool to check FLS / FTS settings. FLS: \_\_\_\_\_ FTS: \_\_\_\_\_ Notes: \_\_\_\_\_  
 Perform cylinder cutout test with electronic service tool. \_\_\_\_\_  
 Record version of flash file and update as needed. \_\_\_\_\_  
 Upload ECM warranty download to SIMS. Clear faults. \_\_\_\_\_  
 Check battery, terminals, connections & cable. \_\_\_\_\_  
 Check battery cells' specific gravity, adjust as needed. \_\_\_\_\_  
 Record alternator charge rate at idle and rated RPM. \_\_\_\_\_ @ idle \_\_\_\_\_ @ rated

**Intake & Exhaust Systems:**

Check/repair air intake pipes, air filter & restriction gauge. \_\_\_\_\_  
 Measure and record valve recession/ perform valve lash if due per O&M. \_\_\_\_\_  
 Check and repair exhaust cracks, leaks or smoke w/engine running. \_\_\_\_\_  
 Check exhaust manifold for oil or fuel slobbering. \_\_\_\_\_  
 Check/repair exhaust manifold if any broken hardware. \_\_\_\_\_  
 Inspect turbo for excessive end play clearance. \_\_\_\_\_  
 Inspect turbo for any air leaks at seal. \_\_\_\_\_  
 Ensure waste gate functions properly. \_\_\_\_\_

**Engine lifetime review** - Review the lifetime totals and average load factor to confirm that the engine has been operated within the rating limits (Marine Yachting or Marine Revenue ratings). Refer to Caterpillar A&I Guidelines for Marine Engine Ratings for details.

**Review Service Records** - To confirm conformance with the Operation and Maintenance Manual, perform appropriate level of service based on hours or years to bring the engine in conformance. This includes items that should have been serviced at an earlier date. Replace all non-Cat filters and parts with genuine Cat parts.

**Perform Sea Trial Using Data Logger** - Engine must reach rated rpm during the sea trial and the Exhaust Back Pressure and Air Inlet Temperature must remain within limits for engine to qualify for this program. For mechanical engines, dealer must retain sea trial data for 24 months following inspection date.

**IF ENGINE FAILS TESTS OR INSPECTIONS, CORRECT PROBLEMS AND REPEAT THE TEST!**

**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 own 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). Approximately 15-30 minutes.

**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 pressure 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:

|   | <u>Idle</u> | <u>1000</u> | <u>1200</u> | <u>1400</u> | <u>1600</u> | <u>1800</u> | <u>2000</u> | <u>2200</u> | <u>2400</u> | <u>2600</u> | <u>2800</u> |
|---|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| 1. Steady state smoke level is acceptable (Y/N)     | _____       | _____       | _____       | _____       | _____       | _____       | _____       | _____       | _____       | _____       | _____       |
| 2. Smooth acceleration to the next higher rpm (Y/N) | _____       | _____       | _____       | _____       | _____       | _____       | _____       | _____       | _____       | _____       | _____       |
| 3. Exhaust back pressure (inches H2O)               | _____       | _____       | _____       | _____       | _____       | _____       | _____       | _____       | _____       | _____       | _____       |
| 4. Air inlet temperature at air cleaner.            | _____       | _____       | _____       | _____       | _____       | _____       | _____       | _____       | _____       | _____       | _____       |
| 5. Boat speed ( <u>knots</u> or <u>mph</u> )        | _____       | _____       | _____       | _____       | _____       | _____       | _____       | _____       | _____       | _____       | _____       |

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 engine 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.

B. Observe and record the following:

1. Is the acceleration smooth from idle to rated RPM? (Y/N)
2. Smoke level - is the FARC setting OK for both smoke and acceleration? (Y/N)
3. Did the engines reach full rated RPM? (Y/N)

Customer Signature Acknowledging Results: \_\_\_\_\_

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## INSPECTION PROCESS, COMMENTS AND REPAIR CHECKLIST - continued

Advantage inspection is NOT required if the covered product meets the following conditions at the time of registration or coverage upgrade/continuation:

- Currently enrolled in a New ESC
- Coverage level remains the same when moving from New ESC to ADV ESC

If Advantage Inspection is not required, please complete page 1 and attach pages 1 and 4 to Quote Plus as the Inspection Document.