

Marine Generator Commissioning Checklist

A printable engineering checklist covering the five-stage commissioning workflow — Factory Acceptance Test, pre-shipment documentation, onboard installation verification, dock trials, and sea or shipboard trial — with class society sign-off rows applicable across ABS, DNV, Lloyd's Register, Bureau Veritas, and CCS. Based on ASO Genset marine delivery commissionings.

QUICK REFERENCE — Commissioning Framework

Marine generator commissioning is a structured project workflow. The class surveyor records satisfactory completion of the applicable machinery and electrical trials as part of the vessel's overall class certification process. For engines subject to MARPOL Annex VI Regulation 13, the EIAPP certificate is normally issued following engine pre-certification; onboard verification confirms continued conformity with the approved NOx Technical File. Class attendance at each stage depends on the applicable class rules, the certification scheme, the approved inspection and test plan, and the project specification.

1. Factory Acceptance Test (FAT)

- ☐ **Run-in test at rated load** — duration and acceptance limits per the approved FAT procedure, manufacturer limits, applicable class rules, and project specification.
- ☐ **Progressive load test at agreed load points** — typically 25 / 50 / 75 / 100% rated load (or as defined in approved procedure).
- ☐ **Sudden load application and rejection test** — voltage and frequency transient recovery against contractually specified ISO 8528 performance class.
- ☐ **Per-cylinder EGT verification** — cylinder-to-cylinder spread within OEM-published limits.
- ☐ **Sustained-load run for combustion stability** — duration and load level per the approved FAT procedure; helps clear light deposits from earlier no-load checks.
- ☐ **Insulation resistance, vibration, power-factor capability** — within manufacturer-specified limits and approved test conditions.
- ☐ **Paint, marinization, spare parts package, signed FAT report** — class surveyor signature where attendance applies; owner representative signature.

2. Pre-Shipment Documentation

- ☐ **Engine NOx Technical File** — per MARPOL Annex VI Regulation 13; generally for installed engines above 130 kW (excluding emergency-only engines).
- ☐ **EIAPP certificate** — normally issued following engine pre-certification by or on behalf of the flag Administration through a recognised organisation.
- ☐ **Engine type approval certificate, where required** — confirming the engine type and configuration fall within the approved scope.
- ☐ **Applicable product or works certificate** — class society individual-product certificate (title varies by society).
- ☐ **Recommended spare parts list and O&M manuals** — language(s) per flag state and vessel working language.
- ☐ **Commissioning report from FAT** — test data logs, photos, surveyor signature where attendance applies.

3. Onboard Installation Verification

- ☐ **Foundation and alignment verification** — skid level, foundation contact, permissible skid distortion, and coupling alignment where field verification is required.
- ☐ **Anti-vibration mount installation** — correct type and preload, no shim bridging.
- ☐ **Exhaust system routing** — pipe sizing, bellows, insulation per fire-safety class; backpressure within OEM spec.
- ☐ **Fuel and cooling system connections** — day tank, vent points, expansion tank, raw-water or remote radiator piping per approved arrangement.
- ☐ **Electrical bus tie + control panel + battery / starting system** — verified against single-line diagram.
- ☐ **Fire detection and suppression interface** — verify shutdowns, alarms, ventilation stops, fuel isolation, and cause-and-effect actions per approved fire-control philosophy.
- ☐ **SOLAS emergency switching** — for emergency gensets, auto-start signal from blackout detection verified.

4. Dock Trials

- ☐ **Cold start sequence** — start-up time per manufacturer specification and applicable class rules.
- ☐ **Progressive load test at agreed load points** — via shore load bank; voltage and frequency within contractually specified ISO 8528 performance class.
- ☐ **Sudden load application and rejection test** — transient recovery against approved test procedure.
- ☐ **Parallel synchronization and auto load sharing** — anti-islanding and reverse-power protection; PMS distributes load proportionally.
- ☐ **Blackout recovery test** — simulate main switchboard blackout; sequenced restart per vessel plan.
- ☐ **Emergency power source verification** — automatic starting and connection so emergency services are supplied within the SOLAS time limit (normally within 45 seconds where applicable).
- ☐ **EGT trend logging + fuel consumption baseline** — capture commissioning baseline for future audits.

5. Sea or Shipboard Trial

- ☐ **Load endurance test at rated load** — duration and load per approved test procedure, applicable class rules, and project specification.
- ☐ **Sudden load application and rejection test** — worst-case step changes (largest motor start or thruster); transient recovery within agreed ISO 8528 class.
- ☐ **Harmonic distortion measurement** — voltage and current distortion against approved power-quality specification, applicable class rules, and IEC 60533 or contractually specified standard.
- ☐ **Vibration measurement at manufacturer-specified locations** — within published limits.
- ☐ **NOx conformity verification** — where applicable, complete the approved onboard verification method, normally an Engine Parameter Check against the NOx Technical File.
- ☐ **Surveyor witness signatures** — on each required test data sheet; surveyor records satisfactory completion of applicable machinery and electrical trials.
- ☐ **Punch list resolution, owner sign-off, handover binder** — test reports, EIAPP, applicable product or works certificate, spare parts list, O&M manuals.

Class Society Sign-Off (Where Attendance Applies)

Class attendance at each stage depends on the applicable class rules, certification scheme, approved inspection and test plan, and project specification.

Class Society	Surveyor Name	Signature	Date
ABS			
DNV			
Lloyd's Register (LR)			
Bureau Veritas (BV)			
CCS			

Disclaimer: All checks in this checklist are typical industry observations. Specific requirements, durations, and acceptance limits vary by class society, flag state, vessel type, project specification, and current MARPOL Annex VI amendments. Always confirm against the latest class society guidance, the engine OEM's commissioning manual, and the approved inspection and test plan for the specific project. Type approval, individual product survey, and FAT attendance are distinct concepts and should not be conflated.

For full methodology, see: asogenset.com/marine-generator-commissioning-sea-trial-checklist/

Marine generator sizing: asogenset.com/marine-diesel-generator-sizing-guide/

Class society comparison: asogenset.com/abs-vs-dnv-vs-ccs-marine-generator-classification/

Wet stacking prevention: asogenset.com/marine-generator-wet-stacking-prevention-guide/

IMO Tier III compliance: asogenset.com/marine-generator-imo-tier-iii-compliance-guide/