

Testing/validation of marine engines

Diesel engines used for marine purpose (both onboard and inboard) are assumed to be constant speed engines and require proper maintenance at regular time interval to improve the performance and operational life by performing different tests and certification procedures. The national standard presently available in India for testing of diesel engine is by BIS as specified under IS:1000(1980). Central Institute of Fisheries Technology is also issuing a third party certification for the performance rating of marine diesel engines by conducting test for the performance rating of diesel engines for marine use.

A validation method of 264 hours has been fixed for engines above 30Hp and 144 hours has been fixed for engines below 30 Hp. The validation consisted of 12 days continuous running of the engine and recording of various performance parameters every 30 minutes. The data is analyzed to find whether the performance of the engine satisfy the ongoing use pattern of engine onboard commercial fishing vessels.

Testing charges will be as per specification and type of engine.

The following procedure has been adopted for validation of engine by CIFT Cochin.

1. The engine for validation will be selected at random from those that are ready for shipping. The engine shall be fitted with all auxiliaries which are necessary for the continuous and repeated use.
2. The test facility (engine test bed) that is required for the validation shall be arranged by the manufacturer. The instrumentation, methods and means for recording the required measurements/readings shall be approved by CIFT prior to validation procedure. Calibration of the instruments shall be to the satisfaction of CIFT.
3. The engine shall be subjected to preliminary run prior to the validation procedure. The preliminary run procedure to be specified by the manufacturer shall be approved by CIFT. This procedure, in no way shall fall short of the standard commissioning procedure followed by the manufacturer onboard a fishing vessel.
4. The engine will be subjected to an initial performance test in which it is run continuously for eleven hours at rated full load at the rated speed to be followed immediately by one hour run at 10% overload at its rated speed. Governor check and fuel consumption assessment at various loads starting from no load to 10% overloading will be carried out after the performance test.
5. The engine is then subjected to endurance test at full load at the rated speed for 240 hours (above 30hp) in which the engine will be loaded 10% high at every twelfth hour. Endurance test of 120 hours (below 30hp) is acceptable. When the rated load exceeds 375kW, endurance test duration may be increased.
6. The performance of the engine is finally assessed after the endurance test, through eleven hour continuous run at rated full load at the rated speed to be followed immediately by one hour run at 10% overload at its rated speed. Final fuel consumption assessment at various loads will be carried out after the performance assessment.
7. If the engine stop or fail due to any reason during the tests, the validation procedure may be repeated either with the same engine or with a new one, as decided by CIFT
8. Once CIFT is satisfied with the performance of the engine, certificate will be issued to the effect that the engine is suitable for fishing vessel propulsion. The certificate will be initially issued for three years and may be re-approved every three years based on a 12 hour performance test.