

Things to Consider

Custom Built Marine Auxiliary Packages

The following items are not by any means a comprehensive list of requirements. They are intended to get the vessel owner or operator thinking about what it will take to successfully install a marine auxiliary system. Depending upon the vessel, this can be a simple or complicated process. Much depends on what the engine will do, how long it will operate, what the duty cycle is and so on. Each of these headings does need consideration and we suggest that you consult individuals or firms with experience to assist you.

Power Output

Think about the average and maximum loading.

- What are the ratings of hydraulic pumps in pressure and flow?
- What loads are simultaneous?
- What loads never operate simultaneously?

While it is never a good idea to overload an auxiliary engine it is also harmful to operate an engine under prolonged light loading. Choosing the right power output is essential for satisfactory life.

Serviceability

Often, marine auxiliary engines are fitted into limited spaces, so be sure that all of the normal service points (e.g., filters, oil levels) are accessible. Can the valve cover be removed for valve set maintenance?

Cooling and Ventilation

What cooling system will be used?
Are hull modifications required?

Typically we do not recommend sharing cooling systems with any other engines so the auxiliary engine needs to have an adequate cooling system to handle its maximum loading in the highest ambient conditions. Cooling system degradation takes place over time so it is prudent to allow for this in the initial design.

Engines require cool air for efficient combustion. As well, heat is radiated from the engine and to a lesser extent, from the driven components. Fresh air needs to be provided to maintain a satisfactory engine room temperature under the warmest conditions that the vessel may encounter.

Noise and Vibration

This is very vessel specific. Acceptable noise and vibration levels are different on different vessel types. Sound is created by the exhaust system and it is also created by mechanical means. Advance planning for sound attenuation includes having sufficient space for a suitable exhaust system and, if required, for an enclosure.

Vibration isolators minimize both noise and vibration transmission to the hull. Reducing noise and vibration can make a vessel a much more pleasant place to work, sleep or play.

Torsional Compatibility

Auxiliary engines are often called upon to drive multiple items. Sometimes, for example, a generator may be run off the front of the crankshaft while a clutched or live hydraulic pump is driven from the flywheel end. It is important to know that these loads, in a worst case situation, cannot damage the engine. A torsional vibration analysis (TVA) provides theoretical modeling that assists in selecting couplings that will protect the engine from serious harm.