

PROJECT SHEET

Emma

“Emma” is the undisputed flagship of the Halvorsen fleet, after her launch on 12 June 1976 for Mr. Arthur Nelson.

She was the last “big boat” built at Ryde historic ship yard

She was without doubt the most impressive cruiser in Australia and certainly turned more than a few heads when travelling at her full speed of 22 kn.

The old twin V 12 MTU diesels gave a combined horsepower of 2700 hp. 41 years later she still looks modern and beautiful and her original owners still pamper her.

After learning that the port engine had failed and it was not repairable, we started to discuss the option of a re power.

The owner wished to replace both engines and generators while keeping the vessel as original and untouched as possible

Every time you board Emma you notice the delicate and impeccable condition of the interior and you instantly notice and appreciate the craftsmanship ship that built this vessel.





On first inspection and measure up of the engine room things were tight.

The engine room access soft patch is located between the engines and the next challenge was the marble u-shaped galley bench top directly above the soft patch.







The old V12 MTU would require all exhaust manifolds and cylinder heads to be removed giving us a safe clearance to fit out the access shaft. But firstly, both old gensets will have to be positioned on engines under soft patch.





Old engine removal

Well this certainly attracted a lot of attention in the Sydney City Yard as the crane rolled in.

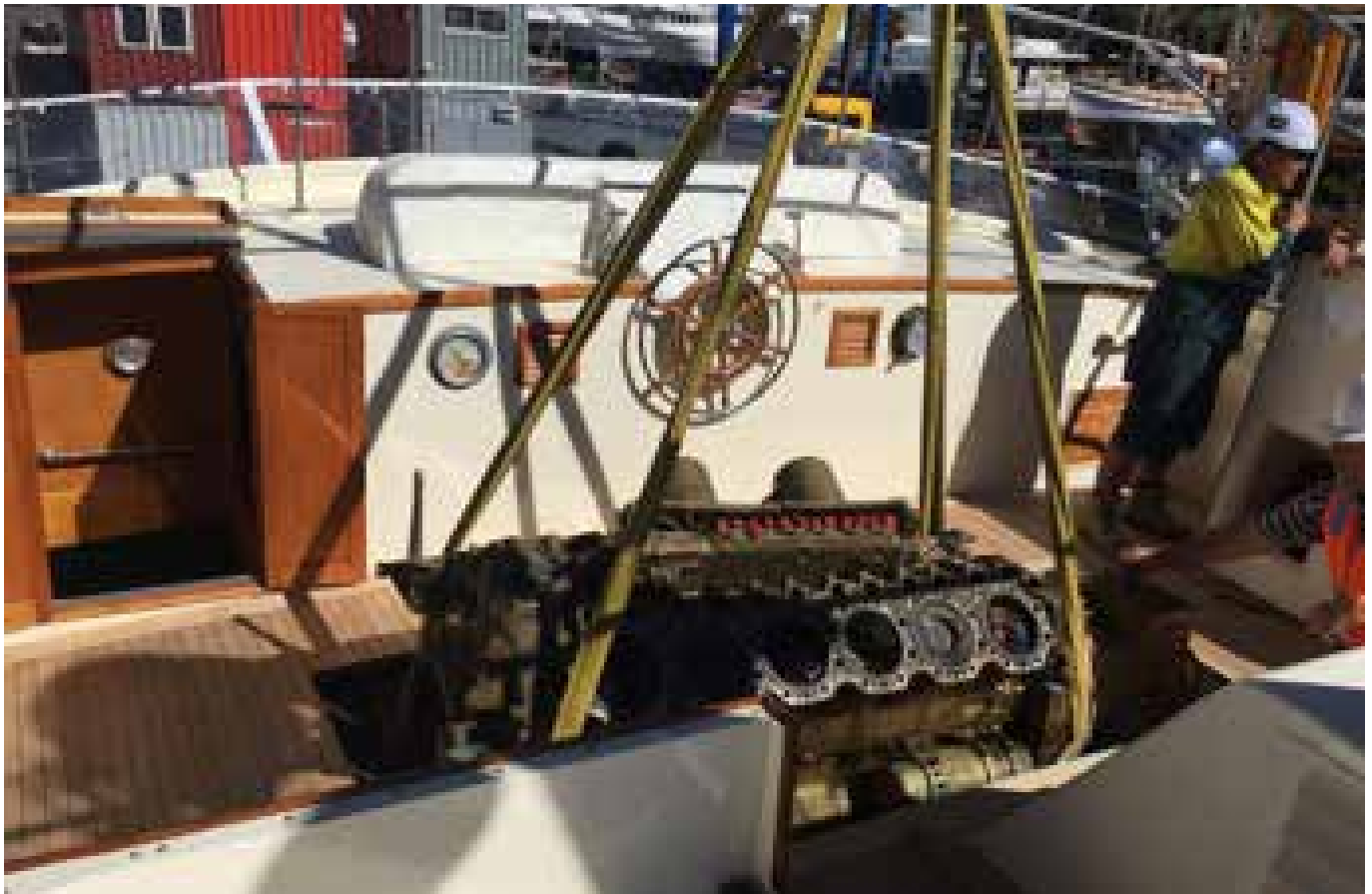
There were many critics with the belief that the engines could not be removed. There were a few old boys who worked in Harvison yard and were involved in the build of this vessel, and of course the owners and caretakers of the vessel.

It was like we were performing a heart transplant on someone while they were awake, with an audience, so, no need to say the pressure was on.

Old generators and engines were removed without a hitch, it a very successful day with no damage to the vessel.







New engine selection and install

The selection of the new main engines was complex as lots of factors had to be taken into account.

The engine weight affects the trim of the vessel so it is critical to get this correct. The vessel was originally designed to accommodate the weight of the old V12 MTU engines.

All engine & generator options were delivered to Naval Architects. The approval to install two MAN V8 1200HP @ 2300rpm in front of ZF665 transmissions, complemented with two new Veem propellers, and two Onan generators 33kva on the starboard side and 17kva on the port side

On initial measure up of the MAN V8, it would not fit through the soft patch & galley unless the exhaust manifolds and turbo were removed. This meant damaging the beautiful paint work and disturbing the original factory build which is always the last resort.

We established the only possible way to install the engine was to hang the engine vertically and lower the engines into vessel through the restricted openings, then reposition the engines horizontally to lower them onto the engine bearers. We set to work designing an engineering a lifting frame that would not add to the width of the engines and would be strong enough to support the engine and transmission through all angles of rotation.

Once manufactured the frame was tested in the controlled and safe environment of the workshop.





With our method now proven and tested in the safety of a controlled environment, it was time for the real thing. Once again, a crane is booked and vessel is positioned and prepped for engine install.



And here we go.





With mm's to spare we lowered the engine into the vessel.







Success, the first engine is in with no damage to the vessel or engine.

Just need to perfect the engine beds to achieve correct engine alignment. We moved the first engine from side to side and get both port and starboard beds perfect before the second engine was installed. This also gave our fabricators room to weld all in position.



Perfect engine alignment achieved on both sides. We are ready for the second engine to be lowered into position.





Both engines in position and mounted to the vessel bearers and prop shaft. Now for the connection of the raw water, fuel system, electrics and exhaust.







On the installation of engine instruments and controls we kept the dash as original and authentic to the vessel design as possible, so the modern aspect did not look out of place.



With all the hard work, long hours and different trade co-ordination the vessel is ready for sea trials.



Start-up test run (manual input on the bridge)

manded RPM	1/min.	900	1200	1400	1600	1800	1950	2150	Rated	Max
Measurement	hh:mm:ss	23:46:52	23:52:38	23:59:09	00:05:31	00:12:32	00:18:10	00:25:45	00:33:47	00:0
pt	1/min	894,4	1208,5	1405,3	1611,1	1800,9	1982,8	2159,4	2303,8	2371
b	1/min	894,0	1207,2	1406,5	1609,2	1803,2	1988,9	2161,9	2304,3	2388
	kn	8,4	11,1	12,2	13,5	15,8	16,8	18,2	20,5	21,5
mp, outside	°C	10	10	10	10	10	10	10	10	10
ter temp.	°C	14	14	14	14	14	14	14	14	14
angle while working	°	2	2	1,8	1,8	1,7	1,8	1,7	1,7	1,7
air filter	°C	22	22	22	25	25,5	26	26,2	27	
manded RPM	1/min.	900	1200	1400	1600	1800	1950	2150	Rated	Max
U		18	18	18	18	17	18	19	20	
U		22	22	22	26	26	26	27,5	30,5	

ed manually by the MAN technician

Deactivated commissioning sensor

With engines and generators running the owners were amazed and commented “there is no smoke” and “It’s very quiet, are they both running?”

The vessel performed as expected and we achieved the calculated speed 22kn

It ran extremely smooth and even we were surprised. The amount of give and harmonic dampening that a timber crafted vessel offers is amazing.