



Slow Idle

Andrew Norton

Tohatsu MFS6C

Tohatsu's four stroke 6 has evolved through subtle changes, reports **Andrew Norton**...

First released on the Aussie market in 2000 as the MFS6A, the current 6C model incorporates changes such as an upfront gearshift, much longer tiller arm, larger capacity anode and easier engine oil changing. But the concept of a compact and very fuel efficient engine that suits flat-bottomed punts to 3.7 m remains unchanged.

As with its 6A and 6B predecessors, the 6C has a simple pushrod OHV powerhead with gear-driven camshaft and pressure lubrication, in line with its direct Suzuki DF6 and Yamaha F6C competition. However it's the only one of the three to have an oil pressure warning light that's also visible in strong sunlight. The 6C still has six trim positions with one shallow water drive setting and the rpm limiter is set at 6250 compared to 6000 for the DF6 and F6C.

Apart from the upfront gearshift the MFS6C has a new upper cowl design that combines contemporary hard angles and soft curves, making the engine seem smaller than the DF6, even though the cowl is almost the same size. Combined with the relatively deep gear ratio and larger lower unit that allows bigger props to be swung, the MFS6C is very well proportioned.

FWF PERFORMANCE

Engine	MFS6C	DF6	F6C
DST km/hr	4.3	4.3	5.0
Rpm	1300	1200	1300
L/hr	0.16	0.20	0.20
km/L	26.9	21.5	25.0
L/100 km	3.7	4.7	4.0
Min plane km/hr	22.8	22.4	21.4
Rpm	5100	5000	4700
WOT km/hr	28.3	28.0	29.7
Rpm	5740	5690	5570
L/hr	2.2	2.6	2.2
km/L	12.9	10.8	13.5
L/100 km	7.8	9.3	7.4

"Loop" averaging 7.5 km/hr with 10 percent WOT and 40 percent DST operation

L/hr	0.52	0.58	0.58
km/L	14.4	12.9	12.9
L/100 km	6.9	7.8	7.8

However a glaring omission is the absence of an aft carry handle, meaning the 6C needs two hands for carrying whereas the DF6 and F6C can be carried easily with one hand.

Unlike the DF6 and F6C the MFS6C is still only available with a remote fuel tank, although the 1.1 litre integral tank in the F6C is really too small for extended runs. Only the 1.5 litre integral tank in the DF6 is large enough to be useful.

Emissions compliance

The OEDA "3 Star" rated MFS6C has combined Hydrocarbon and Oxides of Nitrogen emissions of 24.3 g per kilowatt hour, 30 per cent greater than the DF6. The Carbon Monoxide emissions of 468.9 gr/kW/hr are 70 per cent higher, probably a result of the older powerhead design.

On the water

In June, Lakeside Marine, the national Tohatsu distributor, lent me a brand new MFS6C for direct comparison with its DF6 and F6C competition.

Mounted on my 2003 flat-bottomed Sea Jay 3.4 Punt, the loan engine was carefully run in according to Tohatsu's recommendations before performance trials commenced and over a one-month period a total of 12 hours were clocked up.

The total test load was two adults and fishing tackle raising the displacement to 290 kg to provide identical test conditions to the F6C I borrowed last year and the DF6 I've now been testing for almost nine years. The standard eight inch pitch semi-weedless prop was used, whereas the F6C had the standard eight-inch to suit its 2.08:1 gear ratio and the DF6 a seven inch prop to allow for its relatively tall 1.92:1 ratio.

The loan engine was operated on standard non-ethanol ULP and synthetic-fortified Shell Helix SAE 10W30 "Eco 10" oil for the entire evaluation period, but if you intend operating the 6C for extended trolling periods straight after the break-in period then a mineral-based oil should be used to prevent possible cylinder bore glazing. The 6C normally started third pull cold

(despite the cross linked choke and throttle) and first hot, though as with the 6A I borrowed in 2000 some oil smoke always appeared on cold starting.

The effective thermostat warmed the engine quickly from cold during the bitter winter test days. The upfront gearshift made maneuvering much easier than the competitions' side shifts but annoyingly, to tilt the engine to set shallow water drive the engine must be in forward gear. However, the long tiller arm gave a very relaxed "driving" position whereas the F6C's tiller arm is just too short, especially for most small tinnies nowadays that have only two box thwarts with the aft thwart positioned well ahead of the transom.

When trolling, vibration levels were lower than both the DF6 and F6C, with midrange levels on par with the DF6 and lower than the F6C.

Surprisingly at WOT the MFS6C was faster than the DF6, most likely due to having a prop pitch greater than diameter, which is needed for maximum efficiency when planing.

Maintenance and servicing

As there is no integral fuel tank powerhead; access is excellent and the large diameter oil filler cap/dipstick is very easy to reach. However I question the logical of placing the inline fuel filter between the fuel pump and carburetor and relying on just the fuel tank pickup screen to prevent debris from reaching the fuel pump.

Lakeside Marine recently changed the servicing requirements for all Tohatus and the intervals are now ten hours or two months for the first service then every 50 hours or 12 months. As the oil sump has such a small capacity for a four stroke six, I recommend changing the engine oil every 50 hours to prevent deterioration through dilution and sludging during extended DST periods. The sump oil drain is located beneath the lower cowl and very easy to reach, especially compared to the DF6's drain plug.

On completion of testing with a total of 7.5 per cent WOT operation and averaging 0.66 L/hr the fuel/

oil ratio was 1127:1, lower than the DF6 for the same period of testing but higher than the F6C.

After a total of ten hours of saltwater leg/lower unit immersion no corrosion was apparent anywhere on the MFS6C.

The final word

Tohatsu Marine Corporation has done a very good job of improving its 6A and 6B models to make the 6C a very user-friendly outboard for anglers. Overall it uses ten per cent less fuel than the direct competition while returning comparable WOT performance.

All it needs is an aft carry handle and it could well be my number one choice amongst the four stroke sixes!



FWF SPECIFICATIONS

Engine type: Crossflow OHV 4-stroke
Cylinders/valves: 1/2
Prop hp at rpm: 5.9 at 5500
WOT rpm range: 5000 to 6000
Piston displacement (cc): 123
Bore x stroke (mm): 59 x 45
Ignition system: CD with electronic advance
Charging circuit (amps): Opt 5
Break-in period: 10 hours
Fuel delivery: One single barrel carburetor
Fuel type: Non-E10 ULP 91 or PULP 95 RON
Fuel capacity (L): 12 plastic remote tank
Oil type: FCW SAE 10W30/40
Oil capacity (L): 0.45
Gear ratio: 2.15:1
Transom height (ins): 15
Dry weight (kg): 25.6
Rec. retail: \$1851
Spare prop: \$140
Servicing costs* Year One: \$300 Year Two etc: \$150

*As per manufacturer's recommended schedule excluding parts. All prices current at time of writing. Loan MFS6C from Lakeside Marine, 02 4392 6110, servicing prices from Bill's Outboards and More, 02 4936 1013.

