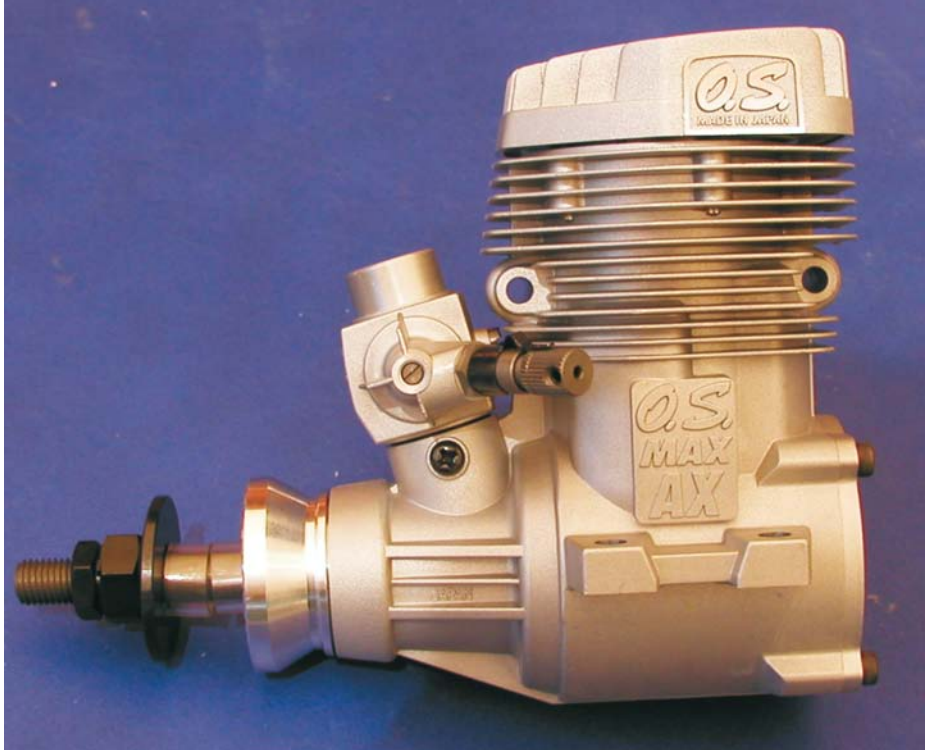
Product Review

OS 120 AX engine

by

Stephen Green



The human sense of smell can be a very powerful memory trigger and in years gone by the air in hobby shops was full of various model aeroplane smells. Spruce pine, balsa cement, nitrate dope, methanol and oil all made a pleasant contribution to the atmosphere and the most wonderful aroma of all came from the ether wafting from a can of diesel fuel.

Smart marketers would often leave a small can diesel fuel open all day, these days you would probably end up on charges. Another sweet aroma was the more subtle combination of light weight machine oil and wax paper mixed with cast iron. Still legal today and although the wax paper and cast iron have long gone but that wonderful smell wafts out when you open the box and take a brand new engine out of the plastic.

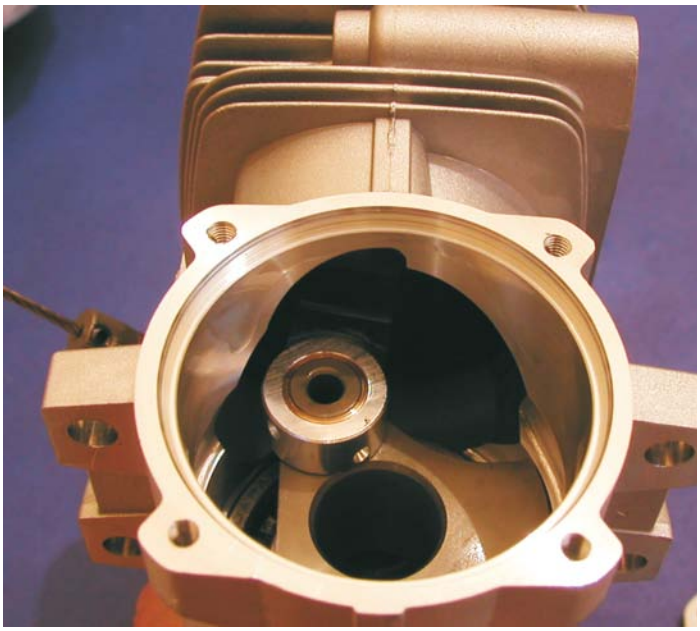
For some time there has been a gap in OS range between the 108 and the fabulous 160 and the 120AX is long overdue addition. Twenty cc has developed into the defacto “must have” for aerobatic and scale models. Big models are certainly easier to fly than small ones and and the 120 size models are still practical to handle and store. A wide selection of 120 aircraft types are also now available and they also serve as a stepping stone for those aiming for larger aircraft. If your interests extend to man versus manufactured machinery the OS 120AX is also eminently suitable for 1/6th scale AT6 Texan racing.

Having been a very satisfied owner of many OS engine products, but nothing too recent, from a marketing point of view I was especially interested in the AX engine, made in Japan, would compete against the tide of less expensive products manufactured across Asia. Okay you don’t get the groovy OS tool kit anymore but you do get an OS glo plug.

I am not a metallurgist and my technical knowledge of engines is pretty much limited to the piston goes up and down and the crankshaft goes round and round. I do know how engines work and what is required to make them operate reliably but the internals are of little interest to me, just like my car engine. The most important factors to me are is it easy to start, have a reliable idle, does it have any grunt and are spares available if i thumb it into the ground?

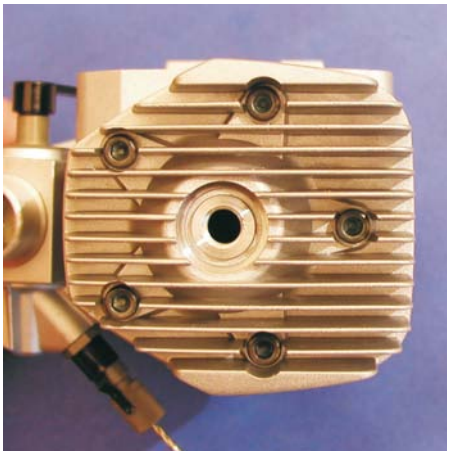
My first impression of the engine was the castings and machining are still works of art. The instruction booklet is very good and although this engine is not aimed at the novice and entry level market they spell out some basic information very clearly. For example the majority of modellers I have ever met never fiddle with the idle mixture, often they have been told not to.

The AX instructions state the engine is factory set slightly rich on 15% nitro fuel. The bulk of fuel sales in this country are 5-10% nitro so the factory setting will be even richer. The book also has some basic



The castings are a work of art. Long gone are the days of checking inside a new engine for schwarf but I couldn’t resist and had to look inside.

Greater cooling area at the rear of the cylinder head is good news inside an engine cowling.



operating tips that make setting up the engine easier. How many times has your engine stopped when the plug heat was removed? One such suggestion is leaving the glo plug clip connected until a rich idle setting is sorted out. The information on glo plugs is excellent, very informative.

The days of removing the backplate to check for swarf are also long gone but I couldn't resist, I wanted to look inside. Equipped with twin ball races, Schnurle porting and a twin needle carburettor, standard items today and this engine has a piston ring instead of the usual ABC piston and liner setup in most smaller two strokes. The only thing I can report that you couldn't get from the OS website is there are two oil holes in the bottom end of the conrod which by the way has the usual bronze bush at either end. Of course the whole thing is as clean as a whistle inside. The head also features a greater percentage of cooling area toward the rear which reflects the design brief accounted for the fact the engine is most likely to be operated inside an engine cowling. Years ago in the days of soft aluminium cylinder heads a bronze bush for the glo plug was required, but that's another blast from the past. Alloys are quite tough today so the chance of stripping the thread is minimal.

The carburettor has a few user friendly features. Big props hurt more than small props therefore the main needle valve is angle rearward away from the front and a bowden cable extension is included. The idle needle screw is designed to make it easy to see and locate a screw driver on top, making in cowl adjustments easier. The throttle arm is well clear of the crankcase so straight linkages are easy to achieve and being plastic, metal to metal contact is not an issue. One less thing to bother with during installation. Whilst on that subject may I suggest removing the woodruff key from the front of the crankshaft until you are ready to bolt on the prop, it is easy to misplace it.

The 120 AX can be ordered with or without muffler and it is refreshing to see the OS Power Box muffler is designed for in line and in cowl use, aka Pitts style. At last, you can use the factory muffler in a scale model. The engine was installed in a CM Pro AT6 Texan but unfortunately the OS muffler did not clear the reccessed firwall so it was run with a new Bisson 120 AX muffler.

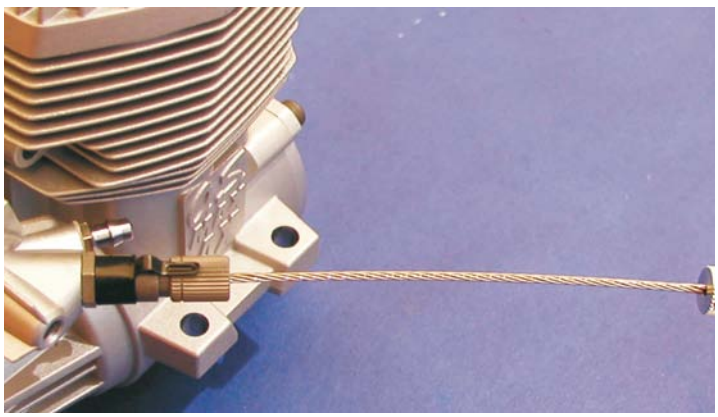
Cranking it up.

The tank filled with 10% Glomax and after a few seconds on the electric starter the fuel found it's way into the carburettor and the engine fired. A brief warm up and the tap was opened then I wound the needle

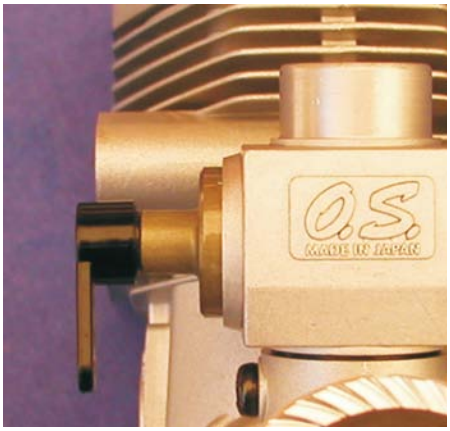
The front bearing is sealed and the prop driver is easy to remove thanks to the woodruff key.

in a bit it as it was runningvery rich. After a minute I peaked the needle for a few seconds and the tachomter read 9,000 rpm on a 14.5x12.5 Bolly which seemed on the money. After throttling back to set the idle speed and cut off the model was packed up to go to the field. OS was right about the idle, the setting was rich but the engine would idle reliably at 2,200 rpm right from the first start. I would think under 2000 rpm would be a cinch with a leaner mixture.

The only props I had at my disposal were high pitch racing types, a 14.5x 12.5 prop is a lot of load for a brand new engine which is why I flew around for five minutes then landed and repeated that exercise another three times. That is my variation of the instructions which suggest a rich setting then peaking it for a few seconds every



The main needle valve is angled away from the prop and the flexible extension is included. The idle need is on the same side and is easily accessible and on the other side, the throttle arm clears the crankcase.



Tucked away inside a Texan cowl is a hot environment.

For inline and in cowl use is the optional OS Powerbox muffler

minute or if you are like me and just want to run it in while in the air do as the book says and avoid large looping manouvres. Use the time to practise some rolls and if this engine is going into a Texan I would suggest reducing the initial load with ten inches of pitch..

Okay you Texan racers, it does have some grunt and after two five minute flights a 15x11 Bolly peaked at 10,100 RPM static. Setting 9,600 it would run flat out for four minutes before it started protesting which is par for the course, stuck way down in the bowels of a Texan Cowl. With that prop four minutes at that

The real test for any engine is of course up in the air and I am very happy how the CM Pro Texan performs.

RPM adds up to a very competitive combination and this is still a brand new engine with ten minutes of time. Another interesting prop is the 14.5x12.5 Bolly which the AX turns at 9,200. Although that was 10 % nitro my gut feeling there are a few more hundred rpm after a few more runs or about the same on 5%. nitromethtane.

Peaked flat out at 10,110 RPM on a Bolly 15x11.

Brand new and ticking over reliably at 2,200 rpm.

Summary

Not worrying about the engine makes flying more enjoyable and lets face it, it can take a little time to become comfortable with any new engine but just like any OS product I have ever run, you simply bolt it in the plane and go flying. The engine starts easily and idles reliably right from the first time and I was booming my Texan around an imaginary pylon course six metres up on the first flight. To make life easy a drilled OS engine mount is available as is a remote needle valve if you are chasing scale realism. The engine is very broad on the needle which indictates the timing is not too wild , good for pulling big prop.

Thanks to a ninety degree adapter the optional baffled muffler is designed for noise sensitive areas and it suits both inline and in cowl installations. A contemporary design, the engine looks good and it is a shame to hide those wonderful castings inside a cowl.

If you are looking for an engine to go into a simple sport model or a scale ARF you might be surprised at the price as I was. Although I have long since given up equating value for money to a dollar figure but for those wanting a quality engine up the front of an aerobatic or scale model be it ARF or a traditional labour of love this engine is most certainly worth your consideration.

The OS 120AX is distributed to hobby shops by Model Engines Aust. Tel 03 8793 5555. www.modelengines.com.au