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ASP

Series 3 4 Stroke

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Instructions, Recommendations and Warranty

Thank you for purchasing an ASP 'Series 3' engine. The following are useful guidelines – ***P*L*E*A*S*E* read them**.

On engines with just one crankcase breather, fit a small (2") piece of fuel tube and leave open to the atmosphere. On the engines with a second nipple on the carburettor intake manifold the piece of tube joins the two nipples to create a closed loop.

Running in & General care; We recommend running in as follows: Use an engine test stand, or similar device, mounted on a firm surface, at a good working height. Whilst you *may* run the engine in on the ground in a model - you risk allowing dirt, grit, grass or any other ground level nasty object, into the carb - and therefore into the engine…. ruining it, before your first flight!! Time spent on a careful running in process will pay back dividends later with improved reliability and longer engine life.

The first thing to do is to fit a good quality 4 stroke plug, such as the ASP 'MP' or O.S. 'F' - particularly recommended for the 1.20/1.80 FS. Open the main needle 2-2½ turns. Choke the carb (via choke or via finger!) and draw fuel through by turning the prop 6-8 times. Set the carb barrel at approx. ¼ open and start. We recommend the use of 'chicken fingers' or 'starter sticks' for hand starting – although you may need to use a 12v starter initially. Run through at this carb setting (very rich, really '4-stroking'), so as to 'bed in' and lubricate all the parts for 10-12 minutes, stop and allow the engine to cool and just check the tightness of the head and backplate bolts and tighten where necessary. Run again at approx. ½ throttle, again with a rich mixture (occasionally leaning out until the engine runs at higher rpm - then richening back). Say 2 minutes rich, 1 min. leaner etc for 12-15 minutes, stop and allow to cool. Run again still with a rich mixture at ¾ throttle (repeating the occasional leaner higher rpm run) for 12-15 minutes stop and allow to cool. From this point onwards - set the carb fully open (yes, fully open) and run the engine at this setting (repeating the occasional leaner higher rpm run). **Ensuring that you can still feel unused oil on your finger tips**, exiting the silencer. (This is particularly important if you are running in on a tuned pipe). This allows the engine to get to operating temperature and rpm high enough to allow the piston ring to 'run-in' against the liner, whilst still ensuring sufficient lubrication. Allow the engine to cool between runs. Gradually lean the mixture over the next few tanks until the engine is happy operating at all throttle settings from tick over to full rpm.. Following running in, allow the engine to cool, take off rocker cover, check tappets (re-set if necessary) and just check the tightness of all the bolts and backplate bolts and tighten if necessary.

If your engine does ingest any dirt, do not attempt to run the engine until it has been thoroughly cleaned inside and out. If you are not sure how to do this, get an experienced modeller to help (but follow the warranty terms) or return the engine to Just Engines.
Always use a good 'after run' oil after flying (or when storing) to ensure you prevent premature bearing wear from nitro and to stop rust forming inside the engine.

Fuel and Lubrication; ASPs are all 'timed' to operate on nitro; 5% for Aero and 5-10% for Heli. ASP engines are not 'fussy' as to fuel or oil type - but we do recommend a good commercial fuel with 18-20% oil for 2 strokes – we **strongly recommend** that some portion of the oil in a 2 stroke fuel be castor oil, you can add it yourself if necessary but good fuel mixes are commercially available and Model Technics do list the contents of their fuels on their web site. We recommend 15-18% oil for 4 strokes, too much oil, particularly too much castor oil can be detrimental to 4 strokes and can affect the performance of the engine. **The use of the wrong fuel is by far the biggest reason for engine 'problems'** and disappointing performance. – PLEASE check with your supplier (or via the manufactures web site) the oil and nitro contents of the fuel you intend to buy/use. Beware of fuels where the percentages are quoted by weight rather than by volume.

Mounting the engine (and silencer); It is very important that you mount your engine correctly and securely for running in. Position the fuel tank as close as possible to the engine (distances over approx. 30cm will require a pump) - preferably with the centre line of the tank being in the same horizontal plane as the centre line of the carb.. ASP engines will generally require some kind of fuel pressure, usually provided by silencer or pipe pressure. Ensure the fuel and pressure lines are of good quality 3/32nd or 1/8th and that you pressure test the tank, to ensure that it doesn't leak. Silencer/Manifold.

Carburettor adjustment; A tip for a twin needle carb is to paint (or cut/file) a marker on the main needle, to improve the visibility of its position. The general starting place for the needle valve is 2-2½ turns and leave the low speed/bottom end screw at its factory setting. If you get stuck with the idle needle setting a good test is to attach fuel tube onto the carb and blow into it – with the throttle at an 'idle setting' (say 1/8th open), you should be able to hear a little hiss of air escaping into the carb. If you can't… open the bottom end screw until you can!
Once run in - adjust the main needle so that the engine operates (normally with the nose of the model held 'skywards') at full rpm without faltering. Once (and only once) the main needle has been set, should you attempt to adjust the low speed ('bottom end') setting. Low Speed setting: Close the carb until the idle speed you require is achieved. Then fully open the carb to full rpm. If the engine cuts, the engine is normally too 'lean' at the bottom end. Open the bottom end (¼ of a turn at a time), by turning it anticlockwise. Repeat the process - but allow a few seconds at full power and at idle, before opening the throttle, to test the

setting. This allows the fuel flow to 'normalise' and be as close to that encountered, when flying the aircraft. If the engine coughs and splutters it's way to full power, the engine is too 'rich' at the bottom end. Close the bottom end (¼ of a turn at a time), by turning it clockwise. Do this until adequate transition between idle and full power is achieved.

Plugs; ASP engines are not fussy on plugs the 4 strokes will work best with a OS 'F', ASP 'MP' or Super Cat. On the 1.20-1.80 FS – the OS 'F' is best.

Props; Clearly some experimentation will be needed, to get the prop that works best for the model with the required performance (rpm or torque) etc.., but the following is provided as a guideline (or good starting position).

Eng.	Run-in	Sport Use (good start point)			Eng.	Run-in	Sport Use (good start point)		
.30	9x4	9x4 - 10x5 (9x6)			**.80**	12x7	11x8 - 14x6 (13x7)		
.52	11x4	10x6 - 13x4 (11x6)			**.91**	13x7	12x8 - 14x8 (13x8 or 14x6)		
.61	11x6	10x8 - 13x6 (12x4)			**1.20**	15x8	14x10 - 18x6 (16x6 or 16x8)		
.70	12x6	11x7- 13x8 (13x6)			**1.60**	16x8	15x10 - 18x10 (16x8 or 18x6)		
					1.80	17x8	16x10 - 18x8 (17x8 or 18x6)		

Just Engines' two year limited warranty; Your ASP 'Series 3' glow engine when purchased from Just Engines is guaranteed to be free from defects in materials and workmanship for a period of **two years.** Consumable items like glow plugs are not covered and bearings are covered for 6 months from the date of purchase when returned for services accompanied by proof of purchase in the form of the engine's original date marked box. Crash damage or problems caused by improper use are specifically not covered under this warranty. Damage caused by customer disassembly, other than removal on of the backplate and the removal of the rocker cover tappet adjustment will void this warranty. Damage caused by the use of improper or substandard fuel or lubricants, use of improper accessories (e.g. propellers, glow plugs etc.) or any use of the engine other than its specific intended use, will void this warranty. Filling the engine with any liquid lubricant (eg After Run, 3in1, WD40 etc..) prior to returning it to Just Engines for a warranty claim will automatically void your warranty. (This is because it will be impossible to diagnose any faults, and improve the product long term). If your engine should require warranty (or servicing work), please return it (in the engine's original date marked box) (Recorded or Registered post recommended) to our servicing facility (address overleaf), together with a note including the problem and the fuel, plug and prop being used (for factory paperwork) and to allow us to match your setup when testing.

Notes; **Four strokes**; tappets set @ .1mm, (check these on average every 2-3 months). Timing is with piston @ TDC and camshaft timing dot in line with pushrods (check this on re-assembly of engine, if you've serviced it yourself). We also recommend using a few drops of oil on the rocker gear periodically.

Caution; Model engines develop a great deal of heat and power and can cause serious injury and property damage. Treat with care and respect – always get help from an experienced modeller and take all the necessary safety precautions. You and you alone are responsible for the safe operation of your engine

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http://www.youtube.com/channel/UCiAKlt9gWQdrRJXw-1Lu68A

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