



Eflite Habu 32 Turbine Conversion

Dave's Tips - Eflite Habu 32 Turbine Conversion

The Eflite Habu 32 EDF model makes a perfect conversion choice for micro turbine power. The nature of the model, designed for high speed and a reasonable flying weight, allows for the type of performance that can be expected with a JetCat P-20SE, with very few modifications.

Assembling the wings and tail can be completed as per the instruction manual.

The only modification we recommend is to file the flap control horns before bonding in position so that the clevis hole is 5mm behind the hinge line (Angled back slightly). As designed, the flap angle is limited because at 90 degrees flap the clevis pin would be on the wing lower surface and there would be no leverage to resist the airflow load on each flap.



If you are going to operate from rough grass it is a good idea to increase the main wheel size. We replaced the small main wheels with larger 51mm dia items. This involved removing the plastic wheel wells and cutting approximately 3mm of wood from around the wheel opening lower wing skin. Some of the wheel well light ply rib will also need trimming to clear the wheel.

The fuselage requires the greatest work.

The conversion is still relatively straight forward. First remove the battery plate and support formers.

The plate on the front former can be scored and carefully broken free, clean up the small amount of wood left over. The rear support former needs a little more care to avoid damaging the lower fuselage shell.

Our Habu 32 conversion keeps the flying weight to a minimum. The first conversion Motors & Rotors completed weighed 3.0kg without fuel.

The supplied tail pipe is single walled to keep weight and cost down and relies on the augmenter ring at the rear to remove heat from the fuselage. Keeping the inner pipe shorter than the outer ring by around 6mm will create a suction over the outside of the tail pipe tube. The augmenter ring can be from thin plywood, glass fibre, carbon fibre or thin metal sheet. We offer a stainless steel item for £4.98.

Simple hard wood blocks act as spacers at four 90 degree points, keeping the tailpipe centralised in the augmenter tube. Epoxy the wood spacers to the augmenter ring. The tail pipe simply rests on the four blocks. The augmenter is mounted in a wooden sub former tack glued in the fuselage rear 15mm inside the





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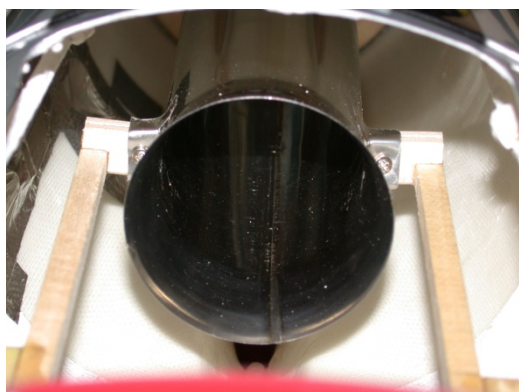
tail cone. Spot gluing is all that is required and this makes removal of the tail pipe easier, should it become necessary.

We recommend coating the tail area (up to the tailplane mounting former) with heat shield paint and a 100mm wide band around the fuselage centred at the front where the tail pipe ends. Ensure you also coat the elevator pushrod sleeves in this area.



Turbine mounting

A small amount of the EDF inlet ducting will require trimming to allow easy installation and removal of the turbine. Dremel a small half circle from the edge of the inlets, centralised where the two inlets join. Remove approximately 10mm of material at the deepest section of the D.



The Rudder servo could also do with some additional protection from heat. The simplest method is to glue a piece of scrap light ply to the rudder servo mount, which is large enough to cover the servo area.

The rudder servo lead should be routed out to one side of the fuselage (this takes it the furthest from the tail pipe) Cover the servo wire with self adhesive 50mm wide aluminium tape used on car exhausts.



The P-20 requires spacers gluing to the inside of the EDF fan unit rails to allow the JetCat mount fixing screw positions to be used. These spacers extend down the fuselage to provide the front tail pipe fixing point. With a JetCat P-20SE standard mount the turbine can mount directly on the DF rails (without packing) and the tail pipe is then centralised on the turbine tail cone.

The JetCat P-20 requires around 1.1m of fuel tubing between the pump and turbine to remove pump pulses. This tube can be coiled above the inlet ducts, the fuel and gas tube pass through the gap between the inlets.

The supplied 20oz fuel tank is attached to the fuselage bottom with heavy duty Velcro. Take the sheen off the tank body with glass paper. We placed our MAP Bubble Trap in the V of the inlets on top of the main fuel tank. The 2oz Bubble Trap is held in place using HD Velcro on the bottle cap.

The Habu 32 tends to come out tail heavy, so keep this in mind when you install the equipment. We used a larger 1600mAh ECU pack. Our model used the excellent Powerbox Digi switch with a 2s 1600mAh Li-Po Rx pack. Another alternative would be to use a 5cell NiMH Eneloop battery for the



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radio supply. It would be possible to remove the centre bridge on the nose former, allowing a battery to be positioned in the nose area.

The Habu 32 flight characteristics are very good. The elevator response is quite soft, so both take-off and landing flare requires a good pull. This is similar to the BVM Bandit! You can set control movements as the EDF instructions as an initial starting point, after you have flown it you can tailor the figures to suit your own preferred feel. With the modified flap horn it is possible to get more flap movement, this may require a little more down elevator to compensate. At full flap as stated the landing speed is very low, power will be required to the threshold of your landing strip.

Control movements I used:

- Aileron 10mm each way 20% expo
- Elevator 12mm up, 10mm down 30% up expo 35% down expo
- Rudder 22mm each way.
- Flap Take off 15mm flap. Landing 47mm with 1.5mm down elevator at full flap.

Update after many flights on the Habu 32 Turbine:

As the fuel tank sits in front of the balance point, we recommend balancing the Habu 32 with the header full and 10mm of fuel in the main tank. The balance point should start at 115mm back from the LE at this fuel level. Experienced pilots might wish to move it back 3mm more after test flying

Pictures on our web site www.motorsandrotors.com in the Jet kits Eflite section.