Jets Munt VT80

Mounted on the test stand, the VT80 looks very purposeful and well presented

Colin tests the latest turbine from Jets Munt and finds it ideal for the newcomer

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I had been looking forward to testing the new Jets Munt VT80 turbine since it had first been announced, as it appeared to be another significant step in the development of model turbines into an even more user-friendly power source. Model turbines have come a long way since the advent of the first commercially available engines in the early 1990s but they have still required a fair degree of care to carry out a full installation, not to mention the time it takes to neatly fit the various ancillary items into the model, and the space these can take up.

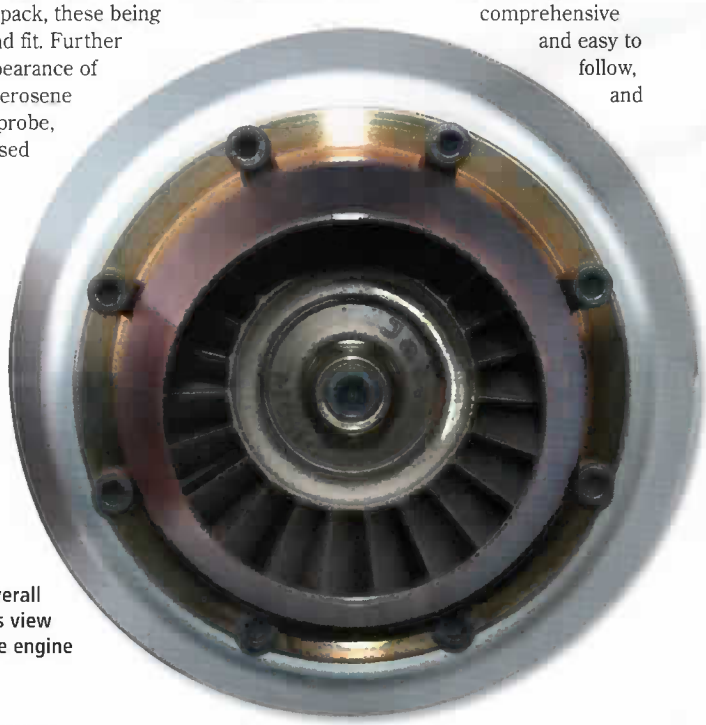
Until recently all model turbines had external ECU (Electronic Control Unit) and start/fuel valves, and these had all to be fitted into the airframe, making sure that all fuel lines and electrical leads were correctly and securely connected, any error resulting in at best a period of frustration and at worst a potential fire or crash.

All the Latest Ideas

The VT80 has been developed to incorporate as much as possible within the external casing of the engine, so the ECU start valve and fuel valve are all internally fitted, and of course this also eliminates the mass of wiring and tubing normally required to connect all these components to each other and to the turbine. The only separate parts now required are the fuel pump, filter and battery pack, these being quick and easy to connect and fit. Further aiding the clean external appearance of the engine are the internal kerosene igniter and the temperature probe, whilst the nicely black anodised front cover contrasts well against the main casing with its aluminium finish.

As per the previous engine from Jets Munt we have tested – the Merlin 140, the VT80 gives an immediate impression of quality and fitness for task, all the visible components being beautifully machined and finished. Matching the turbine itself, the fuel pump is also very small and neat, and has useful mounting tabs to simplify fitting into the airframe.

The English language instruction manual is comprehensive and easy to follow, and



Excellent machining and overall finish is very evident in this view of the rear of the engine

Complete VT80 package – compared to previous turbines the parts count is minimal

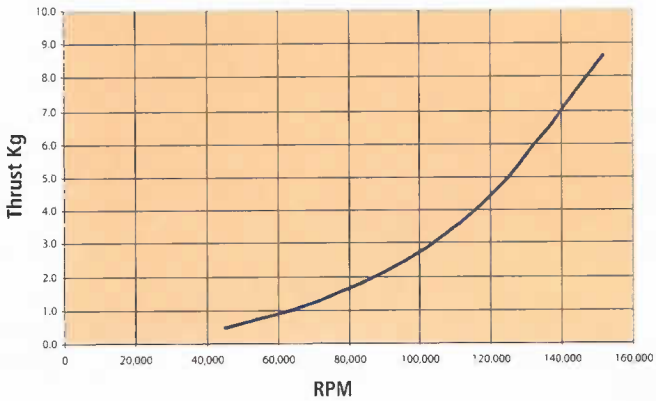
Connections to the VT80 are made via a single fuel line, one heavy-duty lead, and one servo type lead, the extra servo type connection is to enable HDT connection on the ground

TURBINE PACKAGE CONTENTS:

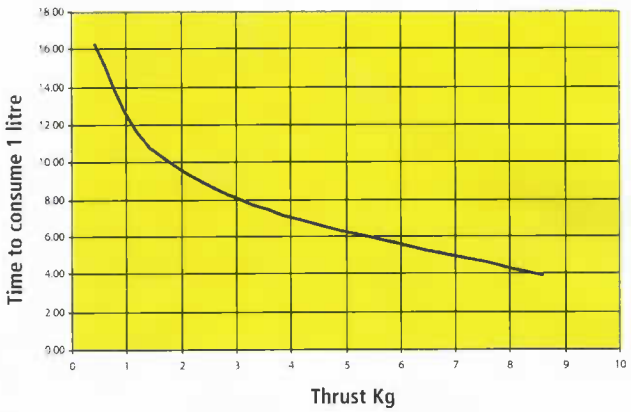
- Jets Munt VT80 Turbine
- Instruction Manual
- Fuel tubing
- Fuel pump
- HDT (Hand Data Terminal)
- Leads
- Fuel filter
- 'T' Shirt
- Decals

This very neat and small pump is supplied with the VT80, note the useful mounting tabs on the anodised cover

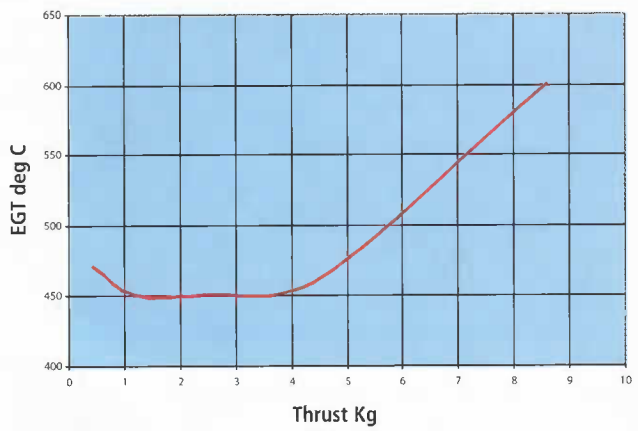
Graph 1
VT80 - Thrust/RPM



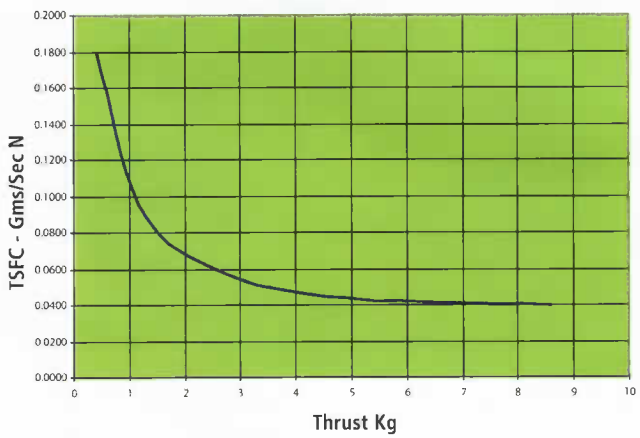
Graph 2
VT80 - Fuel endurance / Thrust



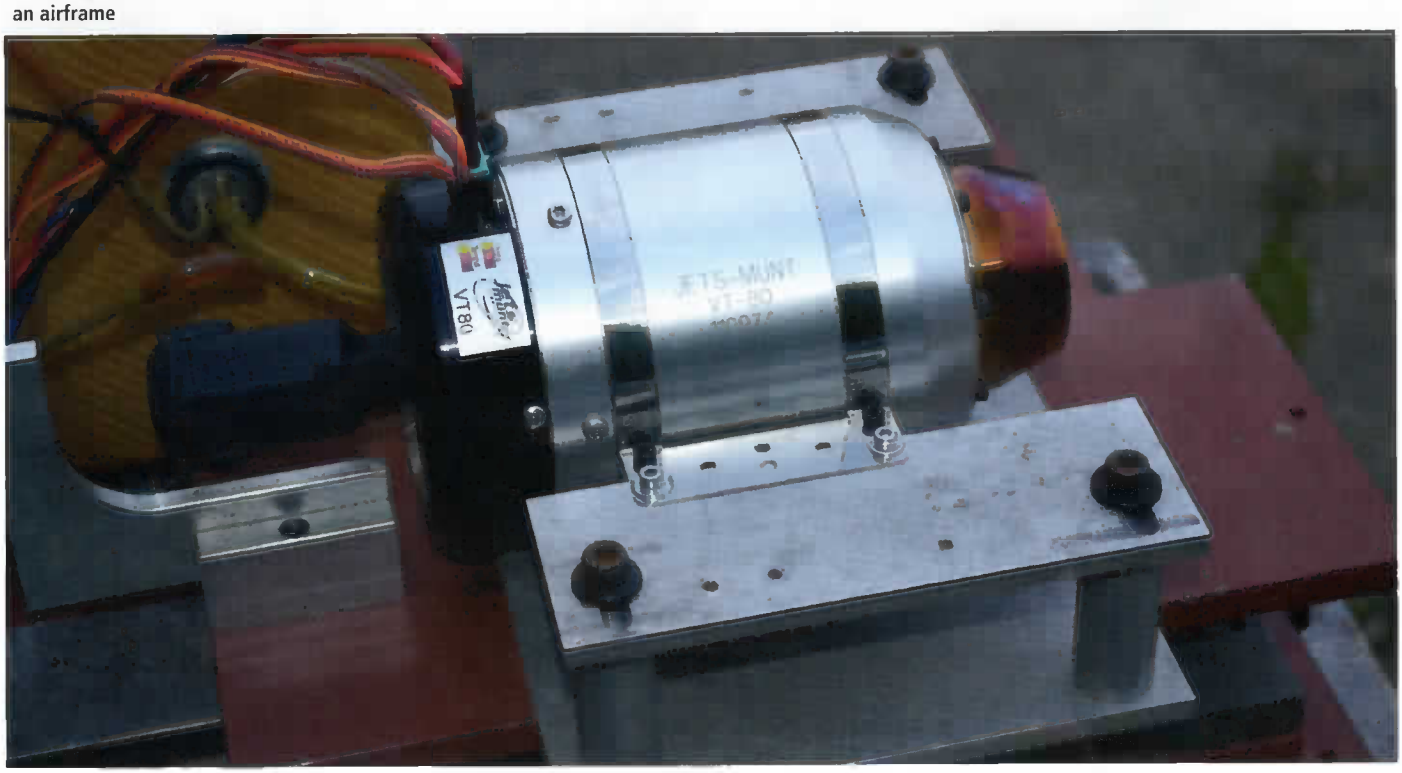
Graph 3
VT80 - EGT Deg C/Thrust



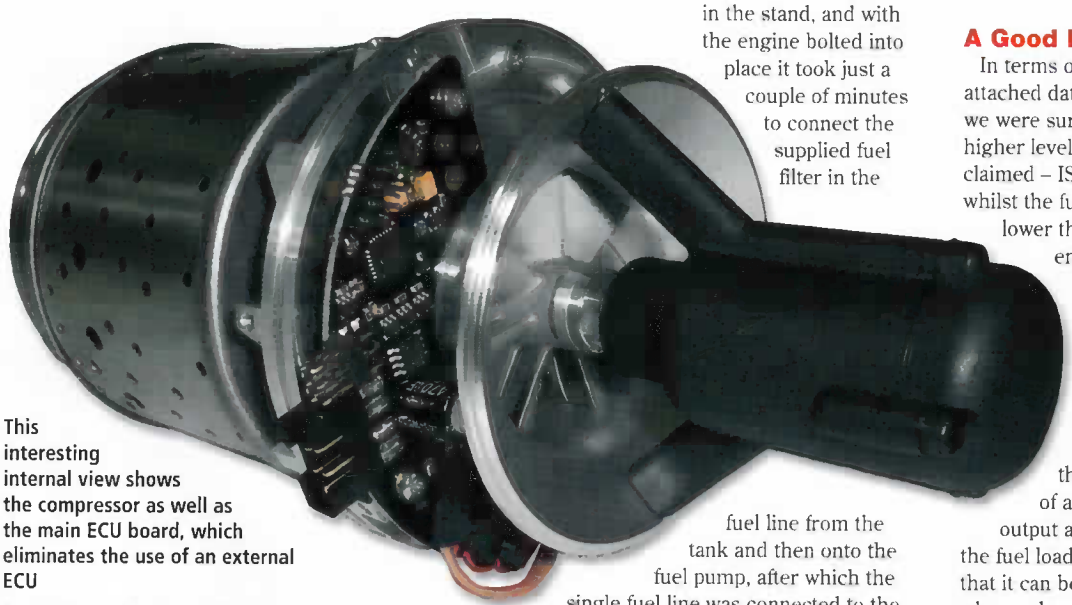
Graph 4
VT80 - TSFC/Thrust



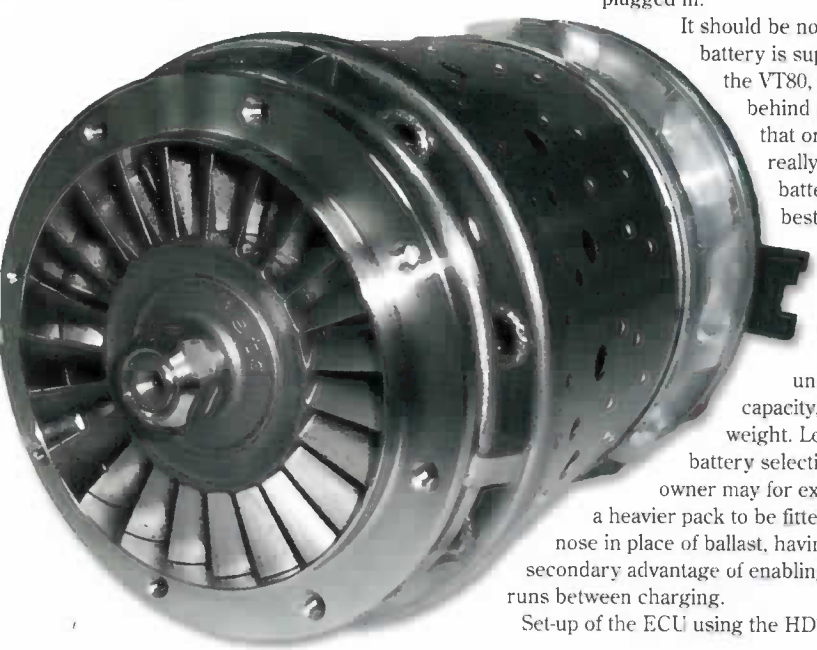
Installing the VT80 and its ancillary parts took far less time than any other engine I have so far tested, which will translate to a quick and easy fitment into an airframe



TEST RESULTS	
Idle rpm	45,000
Idle Thrust	4.5 Newtons (0.45 kg/1.0 lb)
Idle Temperature	470 degrees Centigrade
Maximum rpm	150,000
Maximum Thrust	84.4 Newtons (8.6 kg/18.9lb)
Maximum Thrust Temperature	600 degrees Centigrade
Fuel Consumption at Max Thrust	258 ml/min
Fuel Used	Kerosene
Lubricant	Aeroshell 500 turbine oil
Fuel/Oil Ratio	5% (20:1)
WEIGHTS	
Turbine (inc Mount)	1010 grams (2.22 lb)
Ancillaries (inc Battery)	310 grams (0.68 lb)
SIZES	
Length	217 mm (8.5")
Diameter	90.5 mm (3.6")



This interesting internal view shows the compressor as well as the main ECU board, which eliminates the use of an external ECU



Another candid view of the internals of the VT80, with the clean design and manufacture showing up well

makes the programming of the ECU and engine operation simplicity itself. One item supplied that did not get used was the Jets Munt 'T' shirt – UK winter temperatures of 8 degrees centigrade did not exactly encourage its wearing!

Time to Test

Installation in the test stand could not have been simpler, the pre-fitted turbine mounts had mounting holes that exactly matched a set of holes in the stand, and with the engine bolted into place it took just a couple of minutes to connect the supplied fuel filter in the fuel line from the tank and then onto the fuel pump, after which the single fuel line was connected to the engine, the power and Rx leads connected to the engine, and the battery plugged in.

It should be noted that no battery is supplied with the VT80, the logic behind this being that only the owner really knows what battery would be best for a specific installation, and that if a battery was supplied it may be unsuitable in capacity, type or weight. Leaving the battery selection to the owner may for example allow a heavier pack to be fitted into the nose in place of ballast, having a secondary advantage of enabling many more runs between charging.

Set-up of the ECU using the HDT is straightforward and the engine was soon ready for a first start, using a 7.4 V 2500 mAh LiPo battery pack. We had primed the fuel line, but not quite all the way up to the engine, so had anticipated the possibility of a failed start, particularly given the cold weather we had for testing, however the VT80 was completely unbothered by this and completed a fuss free start, remarkably taking only around 40 seconds to stabilise at idle and pass control to the radio.

With a very stable and smooth idling engine we were ready to start taking our test data, and we proceeded to run the engine throughout the power range. Noticeable was the stability of the engine at the various power levels, and the excellent response to the throttle stick. All the running was without problem, making noting of the data very simple – the engine really was very straightforward to operate.

A Good Performance

In terms of the engine's performance the attached data and graphs show this well, but we were surprised that the engine provided a higher level of thrust at full power than claimed – ISA corrected giving 84.4 Newtons, whilst the fuel consumption at full throttle was lower than Jets Munt state, making the engine extremely efficient. The acceleration was also truly excellent, being timed at around 3.8 seconds from idle to full power, the VT80 being the fastest accelerating engine I have tested so far, deceleration being equally fast.

With such a good performance the VT80 is suitable for a wide range of airframes, its relatively high power output and low weight, particularly when the fuel load is taken into account, meaning that it can be used in a compact airframe where a less powerful engine would previously have been used, or in a larger model that would previously have been fitted with a bigger and heavier engine.

Newcomers and Experts Alike!

In summary I have been absolutely delighted with the Jets Munt VT80 – this turbine really does appear to be a significant step forward in model turbines, being exceptionally user-friendly in both installation and operation, yet with an excellent performance across the board in terms of thrust, acceleration and fuel consumption.

Ideally suited to a newcomer to turbines, the VT80 is also very appealing to the experienced operator, given its ease of installation and overall combination of power with minimal thirst, and I look forward to future turbines from Jets Munt with the same design ethos, whilst being keen to see how other manufacturers react to this innovative new turbine.

Contacts
www.jets-munt.com