

DER JET MODELS

Der Jet Cougar

by Frank Tiano



The JET CENTRAL SUPER EAGLE

It's been a while since I have owned a turbine. I relinquished all my earlier jet stuff when I realized I had to travel almost an hour and a half to make a flight. After being out of the loop for a while it was a pleasant surprise to find the Super Eagle was such a sweetheart to start. The motor pumps out 30 pounds

of thrust at 128,000 rpm and produces just 1.1 pounds of thrust at idle speed. The complete package, with starter, weighs 3.4 pounds. It measures 4.37 inches in diameter, 11.8 inches long and consumes 9.1 ounces of jet fuel per minute at full throttle. This motor has the fastest spool up or acceleration time I have seen to date. It does have a typical lag in throttle response, but it seems to almost not be there at all. The Super Eagle retails for \$3,295, a bargain actually. For those who are interested, Jet Central has just released their heavy duty "Mammoth," a motor producing 48 pounds of thrust. You can find more about it, the Super Eagle, and other engines as well, at JetCentral.Com.



The Super Eagle nestles comfortably in place, just ahead of the supplied tail pipe. All the bulkheads are pre-installed at the factory, just drill holes for the motor mounts and you're done!



All put together, adjusting the nose gear trim for straight taxiing, heading for the main runway. Brilliant scheme is so easy to see, great reference on a dim day.

The Cougar is steady as a rock in all ways. Because of fuel tank location, it does require just one or two clicks of up trim initially but half way through the flight the trim is removed. I made several flybys for Sean's camera using about 25 degrees of wing flaps, I was amazed at how slow this bird will fly and hang right in there!

SPECS

PLANE: Grumman F9F-8 Cougar
MANUFACTURER: Der Jet Models
DISTRIBUTOR: Jet Central Turbines
TYPE: Scale Warbird
FOR: Experienced builders and pilots
WINGSPAN: 70 in.
LENGTH: 84 in.
HEIGHT: 29 in.
WEIGHT: 34 Lbs.
RADIO: 12 Channels required. Flown with Futaba 14MZ TX, 12 servos and R6014HS Receiver
ENGINE: Jet Central Super Eagle
FUEL: K-1 Kerosene or Jet Fuel



Three of the four color schemes available on the Der Jet Cougar. Custom painted schemes are available as well. My test scheme is in the middle.

ONBOARD BATTERIES: 1 Duralite 5200 Lithium Ion for the engine ECU, 2600 x2 for receiver

PRICE: \$3,200 plus shipping

COMPONENTS NEEDED TO COMPLETE: Radio, 13 assorted servos, BVM UAT, BVM Smooth Stop Brake Valve, Batteries. One Air Power EU5U Retract Valve Optional, but advised.

SUMMARY

This jet not only performs well, it is sooooo good looking. The design is a welcome departure from modern day, featureless, aircraft. It is refreshing to see that a model company manufacturing outside the USA has grasped the concept of "the complete package." There is nothing worse than settling in for a day of building only to find two hours into it that you need some obscure piece of hardware to continue working, and the hobby shop is an hour away.

Der Jet may sound German, but it is in fact a Chinese company. Many of us have come to expect products made in Germany to be of unquestionable quality. If this is what Der Jet had in mind when picking their company name, it fits. The Cougar is exceptional in many ways and above average in most. It is just the right size for easy transport, is offered in several striking color schemes and is one of the most complete packages I have seen to date. Other than a turbine, electrical components and adhesives, everything you need to put this cat together is in the box. Impressive.

The paint work is very well done. You'll also notice there are a minimal number of airframe parts and the hardware packages contain unusually attractive pieces. Their manual is available online, taking maybe 12 minutes to print a 47-page copy, complete with color photos.

The model has some interesting features. The flaps and landing



The only thing added to the stock cockpit interior is this pilot figure. All that detail is right out of the box.

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gear doors have “live” hinges. Heavy duty linkages are included and you can opt for a sliding canopy, operating tail hook and operational speed brakes. The landing gear package contains three units; wheels and tires, door cylinders, air tubing and a mess of little blue control valves. The gear appears to be robust and very well made. There is ample (but not extra) room for all electronic components. It has a large five-liter fuel tank and the entire nose section in front of the canopy is quickly removable to expose some of the electronic gear.

Assembling the Cougar requires relatively few tools and supplies. You’ll need various screwdrivers and Allen wrenches, an electric drill and bits, a Dremel tool with a House of Balsa Tuff Grind cut-off disk, a 4-40 and 6-32 tap, pliers, some BVM Aeropoxy, ZAP CA, Zap a Gap and Kicker. If you work carefully, you will not need sandpaper, primer or paint! If you work really carefully, you will assemble things once. The manual shows photos for most procedures. Work carefully. You will not be able to throw this thing together

AIRBORNE

I live in an area that welcomes model aircraft activity but will not allow turbine models. I had no choice but to pack up the Cougar and my support group and travel to the nearest field that embraces turbines, the great Sarasota RC Club field, a mere 75 minutes from my shop. I hadn’t flown there in over a year and was warmly greeted by several members with a handshake and a “heads up” that there were new guidelines to adhere to as the field’s flight pattern had been reduced somewhat. I was secretly concerned that the Cougar would easily accelerate outside the field parameters and I would be getting a loud reminder that I was off course. We did a pre-flight inspection, fired up the Super Eagle, set the flaps to the recommended takeoff position—20 degrees, wing flaps only—and lined up on the centerline. I set the brakes, spooled up, released the brakes and slowly accelerated, holding in lots of “up” elevator. After about 250 feet or so the Cougar got light on its gear and gently lifted off. During the first left turn I retracted the flaps, dialed in a click of up trim and started to enjoy the flight. This first flight was a non-event and it was easy to keep the airplane in the circuit. Sean Curry manned the camera and I was pleasantly surprised at how slowly I could maneuver the Cougar into any position he wanted for a photo pass. There is no maneuver that you are capable of performing that the Cougar won’t allow you to do.

Eventually I was advised to stop having fun and land! Eric Clapp, Jet Central’s owner, suggested I dial in full flaps of 45 degrees for landing, incorporating the huge flaps in the fuselage, keep the throttle up and come in with power. Actually, after a couple of dummy passes I found that the Cougar didn’t need quite the power he recommended and settled in very comfortably at what I call a normal power setting. The airplane is, in a word, SWEET. What a shame that there isn’t a field closer to me to fly it at, I’d be there twice a week!



side, color coded air lines to track down a leak should it happen. Right: The main gear wheel well is pretty large. There is plenty of clearance to mount the door cylinders and route their air hoses.



This is looking into the lower fuselage area, near the nose gear retract. Air tanks to each

overnight! I spent somewhere close to 120 hours assembling the Cougar.



RADIO INSTALLATION

The complex radio installation has many linkages to assemble and hook up. Der Jet recommends a 12-channel radio and I don’t see how you could manage without one! My Futaba 14 MZ made installation far less stressful and allowed me to use separate channels for flaps and ailerons. The manual calls for one channel each on the throttle, elevator, ailerons, rudder, wing flaps, fuselage flaps, wheel brakes, steering, speed brakes, tail hook and sliding canopy. That’s all 12 channels and you will need some mixing devices, like a Futaba Mixer or JR Matchbox for ailerons, elevators and flaps. I chose not to use the sliding canopy or the tail hook which freed up two channels and let me program independent control of the flaps, ailerons and elevators.

TIPS FOR SUCCESS

The overall quality of the fiberglass work is excellent. The paint job is also very well done, but really needs a clear coat, which I am told they are now adding. The few parts that must be fitted go together with ease, except the tail cone. I gently massaged the edges of the cone so that it fit snugly. The landing gear is durable and works smoothly, on par with anything I have seen to date. Most of the kit hardware is good, though I did change a few screws and bolts to American stuff. I also think that the fuse-



This is Dave Phillips’ Cougar, sporting a pretty grey scheme, just after liftoff. If you look carefully you can see the up elevator travel.

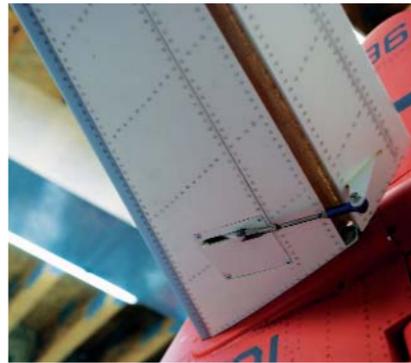
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lage shell could be a little thicker for increased durability.

I'm told the few things I found objectionable are being addressed, and should be corrected by the time you read this. Besides some screws being too soft, there were no hard points incorporated in any control surface requiring a control horn. They suggested dumping in a glob of adhesive and gluing the horn to the skin. I took the time to Dremel out a rectangle of each control surface skin and epoxied in a hard wood block to anchor the control horns.

The air cylinders in the retract gear are excellent, but the miniature ones used for the landing gear doors and air brakes were not. I had 50-percent leakers and some of the nipples actually broke while slipping the air tubing over them! The air brake doors would not work properly with the small stock air cylinders so we replaced them with stronger, and larger, BVM units and they have worked perfectly since. I also replaced the kit supplied main retract air valve with an Air Power valve available from Dream Works, added a BVM Smooth Stop brake valve and a BVM UAT as the header fuel tank to insure there would be no air bubbles making their way to the turbine. My only other complaint is that the cockpit tub, while attractive and well done, is made from plastic that is way too light. It cracked and tore at just the hint of applying any pressure while attempting to maneuver it into the fuselage. I'm guessing the basic shell is made from .010 ABS but at least .030 material should be considered.

Watch out for incompatibility of the hardware supplied with U.S. hardware found at your hobby shop. Also, have your



Small, but powerful, Futaba BLS-153 servos control each elevator. These put out just under 100 ounces from a mini sized case. Because of the fuel tank being mounted forward, the Cougar takes off a bit nose heavy, so more than the usual amount of up elevator is required.

servos handy so you can adjust the openings before gluing the mounts permanently in place. The manual suggests a particular JR servo for elevator operation. It requires a small but strong servo to fit in the stab with a very short piece of linkage to the elevator. I chose the new Futaba BLS 153, a mini servo that puts out almost 100 ounces of torque, and it fit perfectly!

The supplied air tubing had a smaller inside diameter than I am used to, and while it fit the tiny nipples on the door cylinders better than the US made tubing, it did not fit well on some other fittings. When we replaced those air brake cylinders with BVM units, we went back to the US air tubing. Be certain to run pieces of string or light wire in the wings to help route your servo extension cables. There may not be a clear passage pre-made for them.

In any jet model you should not skimp on servo size and performance. Jets acceler-



Lewis Patton and his recently completed Cougar in the newest, blue scheme. With so many schemes available, the chances of someone else showing up with one just like yours are substantially reduced.

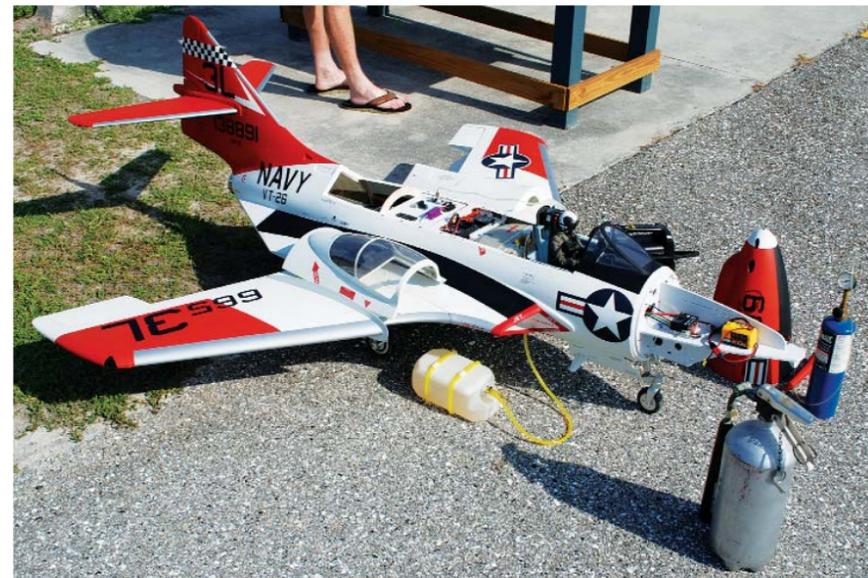
ate quickly and typically cruise at speeds almost double that of a prop warbird. Use heavy duty linkages and servo output arms. Use a thread locker on any threaded metal part. Use nothing but the best batteries. Duralite has a great selection of batteries and chargers, known to be among the very best available today. They also make the Power Box, a servo management system and something brand new and very interesting called "The Cockpit" which unfortunately, was not available at the time I built the Cougar. You can read about The Cockpit in its own sidebar. I sure enjoyed becoming familiar with Duralite products in this jet and suggest that you consider them for your next project.

Most model aircraft, especially those that cost something close to a one week vacation in Paris, fly well, and the Cougar is no exception. Other than a little confrontation with the main gear door cylinders and some component rearranging, I have to say that the assembly went smoothly. Remember, even though this bird comes "built" and has a smart paint job, you still need to do a lot of equipment installation. To speak of the equipment for a moment, if I were allowed only one word to describe the Futaba equipment used, it would be "reliable," and the one word for the Jet Central Eagle turbine would be "surprisingly awesome" ...oops, that's two words ain't it?

THE BOTTOM LINE

I looked at several imported ARFs at Florida Jets this year, some very expensive, and the quality of workmanship on the Der Jet model was in line with any of the higher priced models and quite better than many in its own price class. Its performance is second to none and its appearance is incredible. So overall, I find it to be a great package. If you are accustomed to a prop fighter of 80 inches or greater, you'd feel right at home with this bird!

If you're ready to step out of a sport jet or want to step up to something a little more impressive in a scale jet, this Der Jet Cougar just may have your name on the shipping label! I'd go for it.



So here she is, sitting on the ground just after fueling. Top hatches pop back into place in a jiffy. The entire nose is covered by the cone with a twist and lock motion. Quick and clever.

Duralite Power Box, "The Cockpit"

It is aimed at the serious jet and scale modeler, and has some revolutionary features.

- High resolution LED display with 128x64 pixels
- Menu driven settings
- 11 channels plus one for door sequencing
- Pulse amplifiers for all 12 channels, 21 servo's
- Multitasking door sequencer
- 4 matching channels, 2 servos each total of 8 adjustable servos
- Redundant regulated output voltage
- Connectors for downlink systems
- Transfer of voltages and capacities in real time to transmitter display
- Separate voltage measurements for both batteries
- Rest capacity display for both batteries



- Output voltage selectable to either 5.9V or 7.4V

- Minimum voltage display for each battery
- Large heat sink for extreme loads
- Regulator monitoring
- 3 battery types selectable
- Elimination of reverse voltages from servo's (isolation)

The screen is menu driven. You can set options by the use of the switch. It is multi tasking so many different door and gear options can be selected.

One glance at the screen will tell you the voltage remaining and the capacity remaining as well as the "time on" of the batteries.

The Cockpit will also be able to transmit, with the use of the RS232 and I²C receivers, the battery status direct in real time to your transmitter screen. (There will be new trans-

mitters available in the future that will enable you to take advantage of this cool feature). You can see the voltages and the capacity at a glance while your plane is in the air.

The regulators are redundant and designed for high loads with selectable voltage output for 5.9 or 7.4 volts. As with all Power Boxes, there is a pulse amplifier for all 21 servos to pick up signal strength and isolation to the receiver from the servos to protect your signal integrity while in the air.

Item measures approx. 1 x 3 5/8 x 2 7/8-inch.

Links
Bob Violett Models, www.bvmjets.com, (407) 327-6333

Der Jet, distributed by Jet Central Turbines, www.jetcentral.com, (941) 423-9931

Duralite Flight Systems, www.duralitebatteries.com, (877) 744-3685

Futaba, distributed exclusively by Great Planes Model Distributors, www.futaba-rc.com, (800) 682-8948

Micro Fasteners, www.microfasteners.com, (800) 892-6917

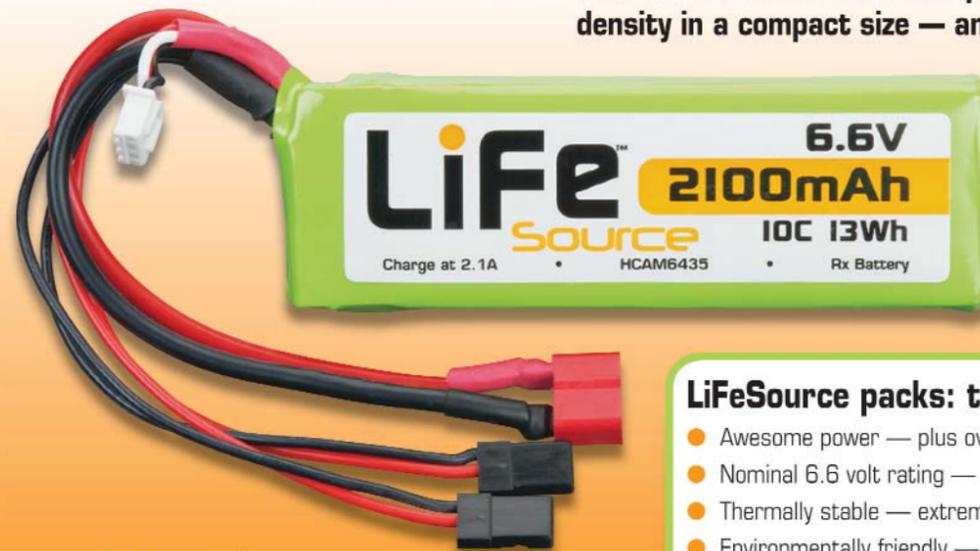
ZAP and Z-Poxy are manufactured by Pacer Technology, www.zapglue.com

For more information, please see our source guide on page 121.

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