

BVM PNP F-16 C

1/6 Scale

GO FLY GOLD



Length: 96.5", Wing Span: 65.5" with Missile Rails

Weight: 30-31lbs Dry

Fuel Capacity: 3.3L, Smoke Capacity: 2.2 L

CONSTRUCTION AND OPERATING MANUAL

Version 2 April 2024

Vne 175 MPH

Limit Thrust to 34 lbs

**Equipped with HV Servos and should not be operated below 7.2 volts
CCU Pressure should be 75 PSI MAX**

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BVM 2024

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INTRODUCTION

Thank you for purchasing the BVM F-16 PNP. This model represents the latest in manufacturing technology and completion for the R/C jet enthusiast. The factory has expertly crafted and thoroughly inspected all aspects of the model. Only a small amount of work is required to complete the assembly of your F-16.

This manual contains instructions for safety, operation, and maintenance. It is essential to read and follow all of the instructions and warnings in the manual. Please read the entire manual to become familiar with the processes and procedures before you begin to assemble your aircraft.

DISCLAIMER

Bob Violett Models Inc. assumes no liability for the operation and use of these products. The owner and operator of these products should have the necessary experience and exercise common sense. Said owner and operator must have a valid Academy of Model Aeronautics license.

This is a sophisticated jet model aircraft. It must be operated with caution and common sense and requires some basic mechanical ability. Failure to operate this product in a safe and responsible manner could result in injury or damage to the product or other property.

Notice: Do not use incompatible components or alter this product in any way outside of the instructions provided by BVM, Inc. The BVM F-16 has been designed and flight tested around 140N class engines. Damage to the aircraft may result from exceeding this thrust limitation (34 lbs).

Recommended Accessories

You may have some of these products in your shop, but if not, refer to this list.

- 1/6 scale pilot figure
- BVM UAT
- Spektrum 12120 Power Safe Receiver
- 2 x 7.4v Batteries 3000 mAh each.
- 140N engine of your choice.
- Demon Cortex Gyro
- Airpower Afterburner Ring – 110mm
- LED Light Controller 4 Channel
- Cortex USB PC Adapter



Required Tools

- 3mm long driver Part
- Metric Allen wrench set
- 9/64" Long Ball Driver Part

List of Adhesives/Lubricants

- BVM Qt Poxy BVM # 9580
- Zap-A-Goo # PT12
- Pacer Z-42 # PT42
- Super O-Lube BVM #5779
- Axle Super Lube BVM #5784
- BVM Heat Shield # PA-MA-1940



Available Options

#K9000-40 Complete Ordnance Set - painted

(includes - 2-Wing Tanks w/Pylons, 1-Center Tank w/Pylon, 2-AIM-7 Sparrow w/Pylon, 2-AIM-120 AMRAAM w/Pylon, and 2-AIM-9 Sidewinder)

#K9000-42 Sidewinder missiles for wing tips (2) - painted

#V-WB 1/6 JET PILOT 1/6th Pilot



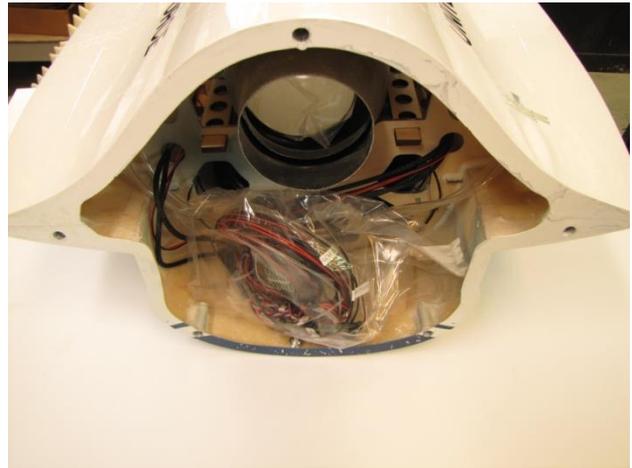
Unpacking

Carefully remove items from the box. Open each package and inspect for shipping damage. After reading this entire manual, get familiar with the major kit components.

Note: Damaged parts must be reported to BVM within 7 days of receiving your kit.

Become familiar with the work completed at the factory. It is important that you inspect and approve this work now. It is much easier to make changes before the fuselage is assembled.

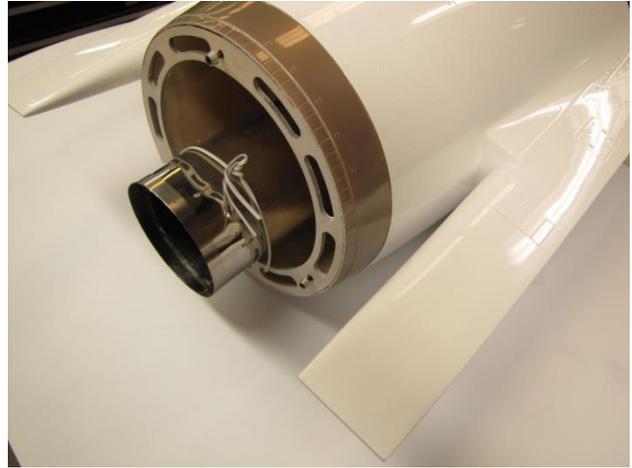
- Un-wrap the rear fuse wires and tubing.



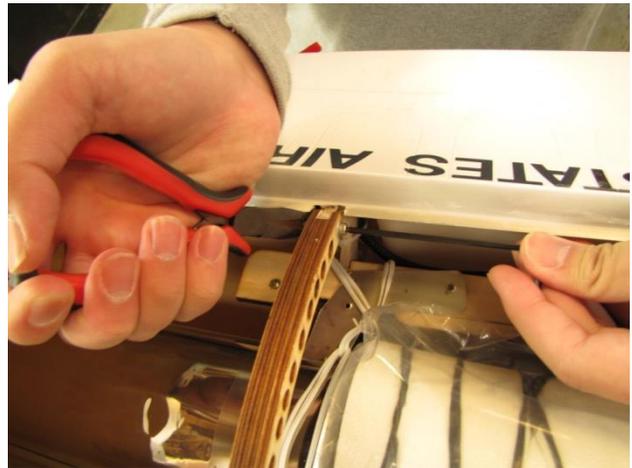
- Remove the inlet extension and the carbon bypass.



- Remove the rear wire tie securing the tail pipe.



- Remove the crossover brace using a 2.5mm hex wrench and pliers.



- Remove the wire tie securing the tail pipe.



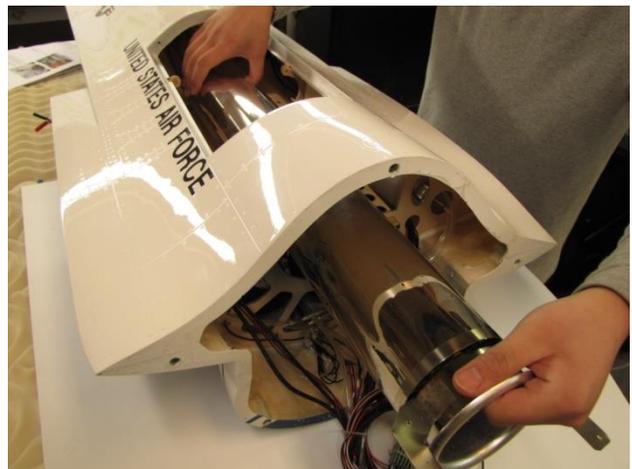
The Instruction photos show the early style tailpipe. The newer tailpipes have a larger bell like this one shown here.



- Remove the Smoke Tube and set aside for installation later.

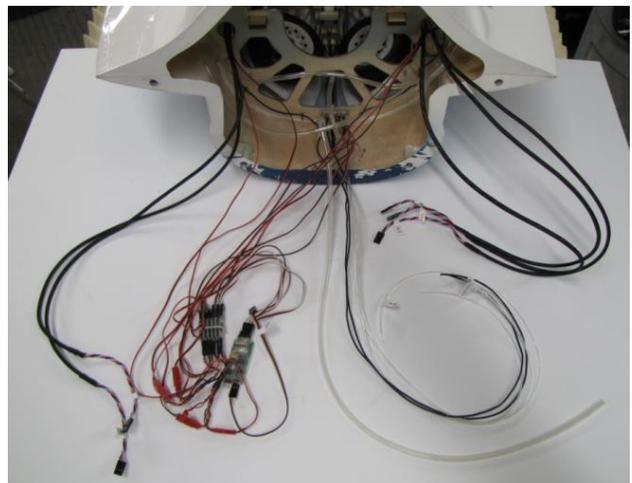


- Remove the tailpipe and set aside for installation later.



Joining front fuse to rear fuse

- Arrange servo wires, fuel line, light system, and airline neatly into groups. Keeping an organized installation can help diagnose problems down the road.
- Check fuel tank installation and initial plumbing. Blow through the main supply line. It should not be blocked or restrictive to either tank.



- Remove the (3) 4mm x 10mm bolts using a 3mm Allen wrench.



- Apply Vaseline to the alignment pins to aid assembly.



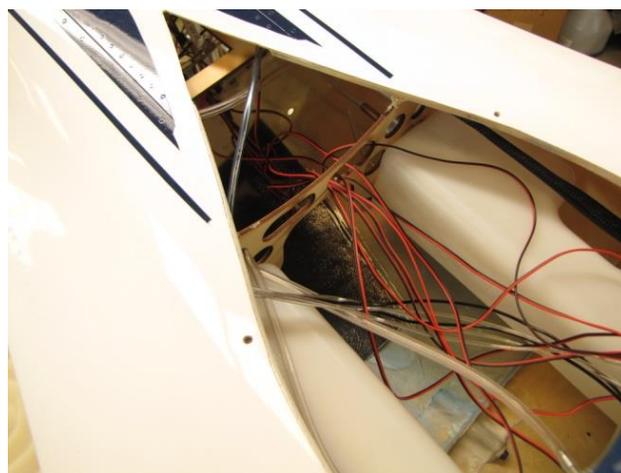
- Assemble the upper front fuse onto the rear fuse. A second set of hands is helpful to guide assemblies into position.



- Apply Pacer Z-42 Blue Thread Locker to the (3) bolts.
- Use a long 3mm hex driver to secure the upper front fuse.



- Route wires, fuel line, and air lines as shown; they will be bundled and connected later.

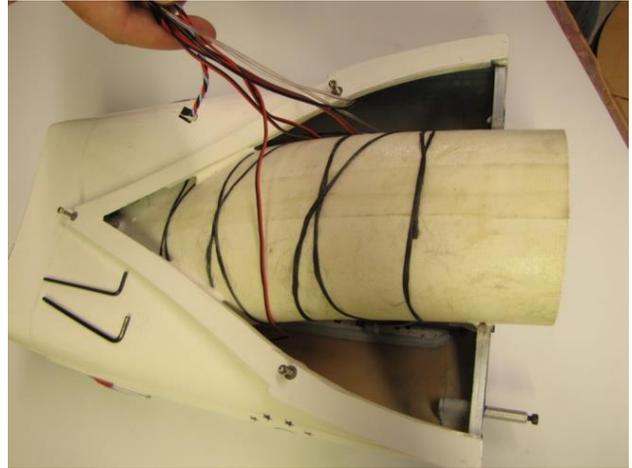


- Connect the Smoke Tank Vent hose to the aircraft's right-side vent.

Front of main fuselage shown.



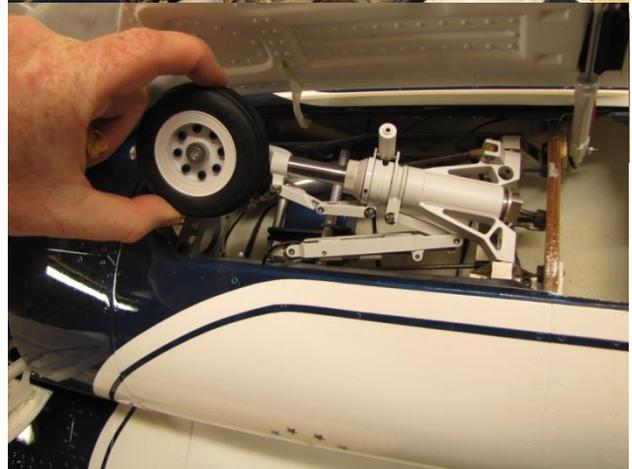
- Remove the (2) 4mm x 10mm bolts using a 3mm Allen wrench and the (3) 3mm x 16mm bolts with 3mm washers using a 2.5mm hex wrench.



- Assemble the lower front fuse to the rear fuse.



- Lower main landing gear by opening the gear doors and removing wire ties, the landing gear will push out and lock. Confirm the locking cylinder engaged.

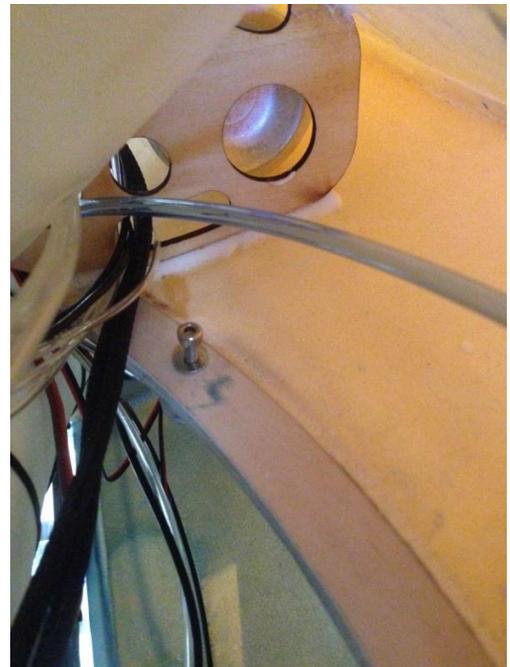


- ❑ Lower the nose landing gear by opening the gear door and gently pulling the nose gear down. Confirm the locking cylinder engaged.
- ❑ Set the aircraft upright on its landing gear.

- ❑ Apply Pacer Z-42 Blue Thread Lock to the (2) 4mm bolts and install to secure the lower front fuse to the aft fuse. Use the 3mm long wrench.



- ❑ Install the (3) 3mm x 16mm bolts to secure the upper fuse to the lower fuse. A standard 2.5mm hex wrench can be used. The smoke tanks will need to be shifted to gain access to these bolts.



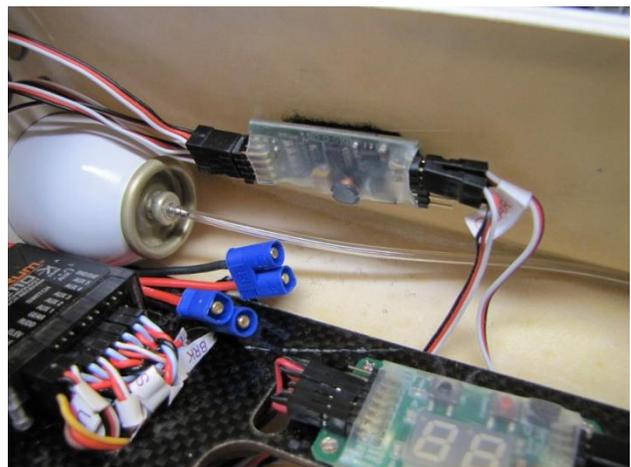
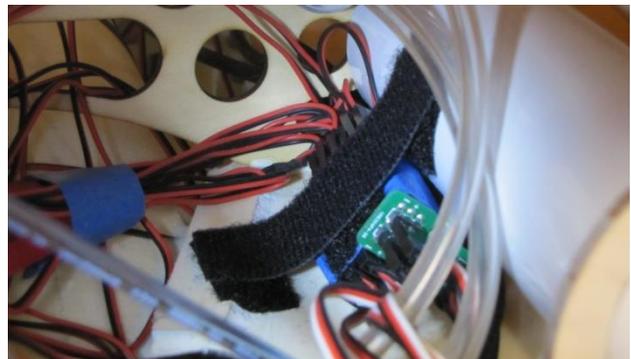
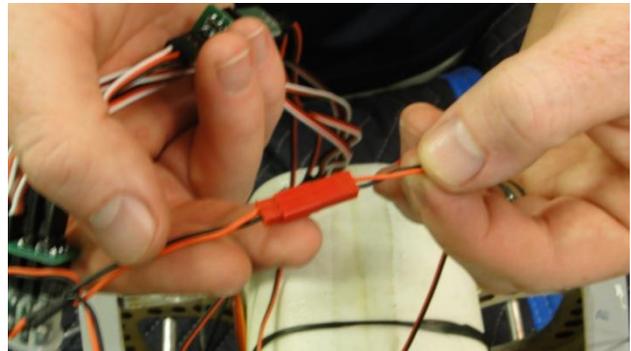
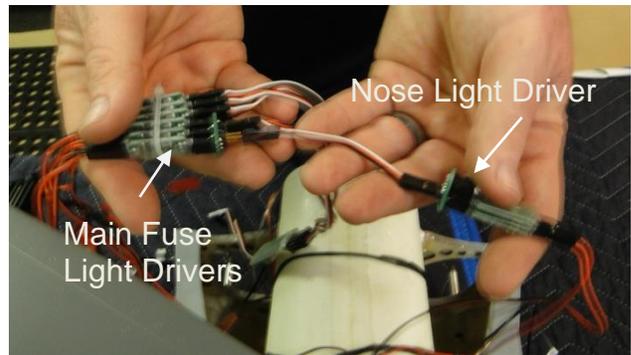
Light Connections (Original Style)

- ❑ Connect the nose section Light Driver board to the main bundle of Light Driver boards.
- ❑ Connect the Red connector for the nose gear landing light.
- ❑ Verify the polarity of connections before applying power.
- ❑ The Light Driver boards are connected to the front nose section lights; they have been bundled with masking tape and secured with Velcro.
- ❑ Use sticky back Velcro to secure the Light Controller to the side of the fuselage.

Note: The light controller has a plug labeled “LED” that plugs into the light channel on the RX. A second wire labeled “GEAR” connects to the landing gear sequencer. This allows the landing lights to turn off when the gear is up.

Note: “Thro” input is not used. There should be one set of open pins on the output side of the light controller, these are unused.

The light channel coming from the RX has three positions, Off, NAV Only, and NAV and Landing lights.



Central Control Unit Instructions

(New Style Controller- Introduced July 2015)

A) ON/OFF (Power Switch): Hold this button down to turn on the power.

Caution: even if power is turned off, the LED remains on which indicates power is connected to this controller. Make sure to always disconnect the Receiver Battery after a day of flying; otherwise the battery will be exhausted by this control unit!



NOTE: The **BATT** connection is only used for set up and testing the Black Box when no Receiver Battery is connected. It is not intended to be used in normal operation.

B) Manual button

B-1) Long press- Holding this button down will retract the gear.

NOTE: this function only works when the transmitter is not connected. This is very useful for bench operation, etc.

B-2) Short press- Tap this button to turn the landing gear Failsafe on or off. When it's turned on, failsafe (F/S) LED is green and height is displayed in screen.

Example: When the screen displays 002, the height setting is at 2 meters. Press again to turn off this function. Screen reads "OFF".

NOTE: Refer to "C-4" to change this value.

The landing gear failsafe is a method of protecting your airplane from an accidental retract of the gear while it is sitting on the ground below the setting (ex: 002: below 2 meters). If the plane is sitting on the ground and a retract command is given, the gear will not retract. If you want to bypass this feature, toggle the F/S off by tapping the "Manual" button, this will turn the F/S LED red.

C) Setup button

C-1) Short press- Tap this button and the screen will display "PSI", Voltage ("V") and "RPM". The corresponding LED of each function will be on when it is displayed.

C-2) Long press- Holding this button down when "PSI" is displayed will enter the "Pressure Loss Protection Setup". This feature will deploy the landing gear in the event of a leak. Increase the feature by 10PSI with each press, max. is 60PSI. Hold the "SETUP" button down and the setting will be saved. Press the "SETUP" button and "V" will be displayed.

C-3) Long press- Holding this button when “V” is displayed will enter the “gear door time-lapse setup”. Increase 1 second with each press, max setting is 15s.

Function: The gear door time lapse setting indicates to the nose wheel steering servo when to be on or off. When gear is up, the nose wheel steering servo is not active. When gear is down, nose wheel steering servo is active.

This procedure is on a time-lapse. The lapsed time is $N-3$ seconds. N is lapsed time of the gear door. When it's set up at 8 seconds, the recovery time of nose wheel is $8-3=5$ seconds. Control recovers in 5 seconds after sending gear down command. Change the time-lapse of nose wheel by changing time-lapse of gear door. Hold the “SETUP” button down and the setting will be saved. Press the “SETUP” button and “RPM” will be displayed.

C-4) Long press this button when “RPM” is displayed to enter the height setting for the Landing Gear Failsafe (F/S) setup. If the airplane is below your height setting, the landing gear will not retract to protect your airplane from an accidental retract of the landing gear. The minimum setting is “002” which means 2 meters, max is “010” which means 10 meters. Hold the “SETUP” button down to save the setting and exit the menu or it will automatically exit in 5 seconds.

LED's Definition

Blue LED: Corresponds to the landing gear.

ON: Landing gear is deployed.

OFF: Landing gear is retracted.

FLASHING: Sequencer is not receiving transmitter signal or the gear switch is not in the correct position. Turn on or check the transmitter, make sure switch is in the correct position to eliminate the flashing.

IMPORTANT! : When the blue LED is on, make sure the landing gear is deployed! This is how the controller identifies the status of gear. Failure to do so will result in the landing gear retracting when Pressure Loss Protection is commanded. If the direction of gear down and corresponding gear door is incorrect, reverse it by switching the polarity of the appropriate gear and door 2-wire connections.

Red LED: Corresponds to PSI.

FLASHING: “Pressure Loss Protection” feature has been commanded. The landing gear will deploy automatically; the “Manual” button or transmitter switch will become deactivated and will not work. The pressure will have to be raised to a pressure higher than the previously set value (**Refer to C-2**). Resetting the value to “000” will eliminate the flashing.

Green LED: corresponds to Landing gear Fail-Safe (F/S).

When this function is on (Green LED), height protection is activated. If the airplane is sitting ground level while a retracting command is sent from transmitter, the controller will not execute this command until the plane flies up to an altitude of set value. If you need to test your landing gear on the ground, short press the manual button

(Refer to B-2) to turn this function off. When the LED is red, the function is deactivated.)

Servo Wire Ports

Nose OUT- Steering servo connects to this port.

Nose IN- Connects to the steering channel of your receiver.

Air brake- Air brake outlets: Not used

Brake-Landing gear brakes: Connects to the brake channel of your receiver.

Light-Light control outlets- Connects to the light channel of your receiver.

Gear- Connects to the Gear channel of your receiver.

NOTE: A 3-step switch needs to be defined for the lights. First step- navigation lights on; second step-gear lights on. Third step is all lights off.

LED outlets

Both are for the light system. Refer to page (17)

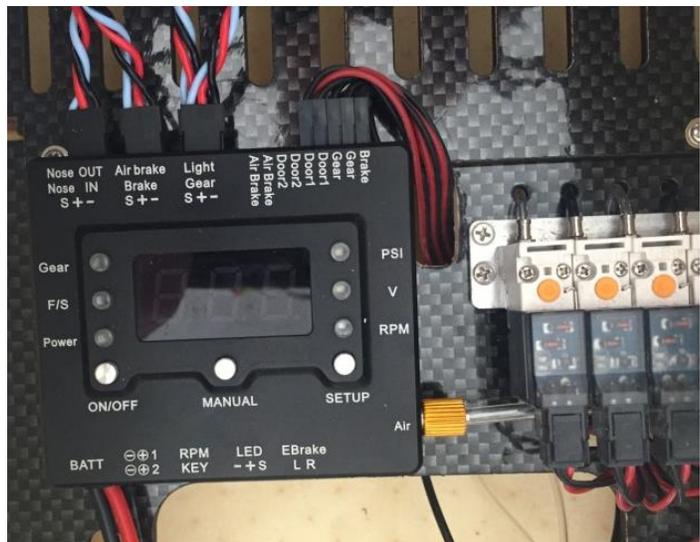
Light Connections (New Style Controller-July 2015)

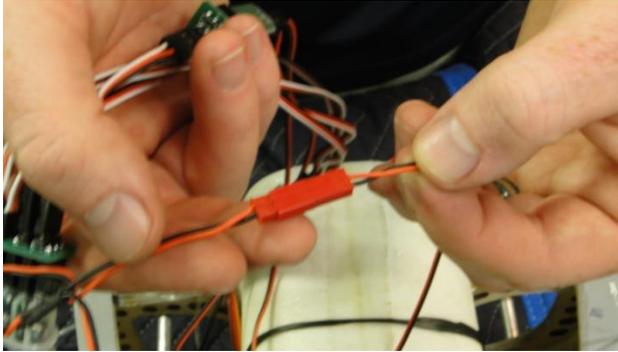
If your F-16 has the Central Control Unit Shown here, follow the “new style” instructions accordingly. A schematic of the light wiring and Light Control Modules is included (Page 17).

Note: The lights receive power through all leads from the RX to the Central Control Unit (Nose IN, Brake, Light, Gear)

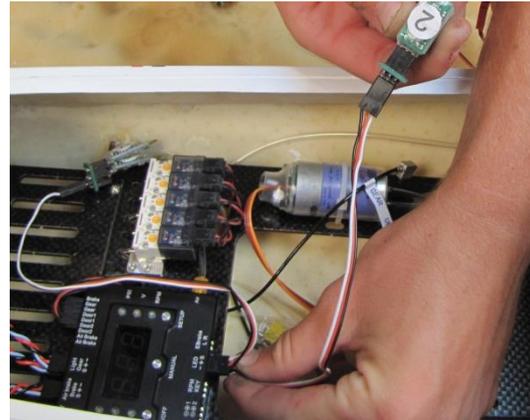
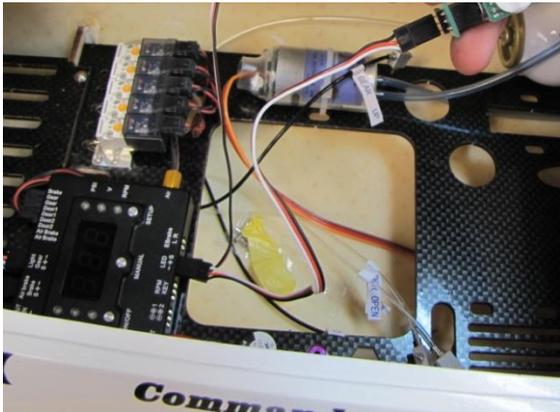
An optional battery can supply power through the “BATT” lead.

NOTE: Verify the polarity of all connections before applying power.



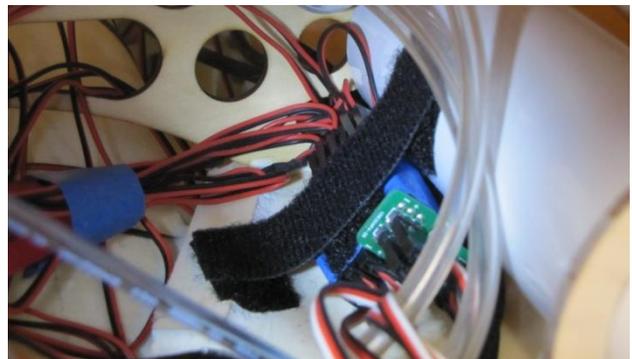


- Connect the Red connector for the nose gear landing light. All 3 landing lights should be connected to the “tri-harness”.



- There are (2) three wire servo leads coming off of the light controller modules, plug the servo leads into the “LED” port in the central controller as shown. Make sure the polarity is correct. Both the top and bottom ports are sending out the same signal and voltage.

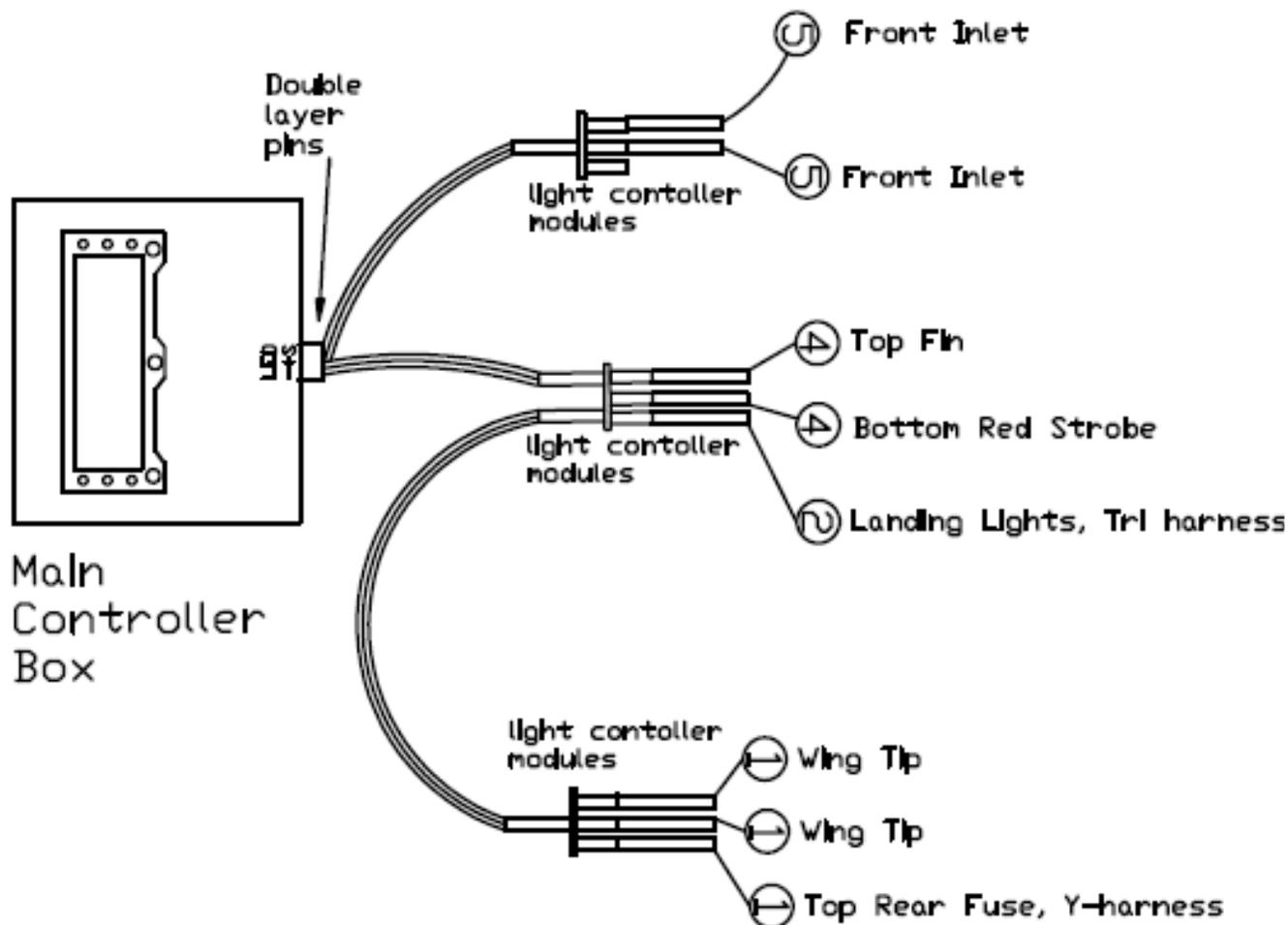
- The Light Modules are all connected; they have been bundled with masking tape and secured with Velcro.



- The “GEAR” wire coming from the main controller goes to your Receivers gear channel. The “LED” wire coming from the main controller goes to your Receivers channel of your choice, this will be the channel to control your lights. The “LED” channel coming from the RX has three positions, Off, NAV Only, and NAV and Landing lights.



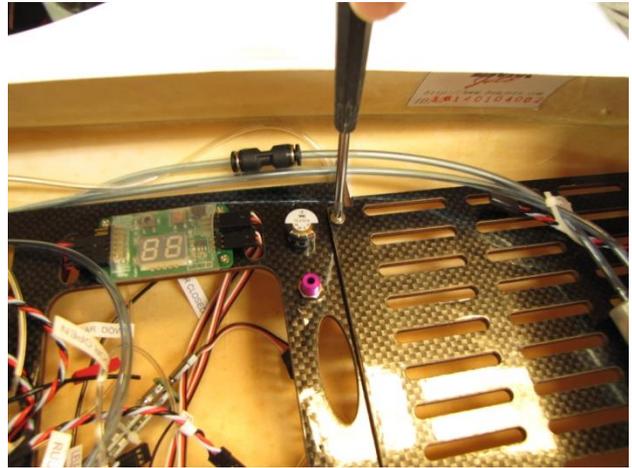
F-16 Light Schematic



Front Radio Compartment

Routing Air Lines and Servo wires

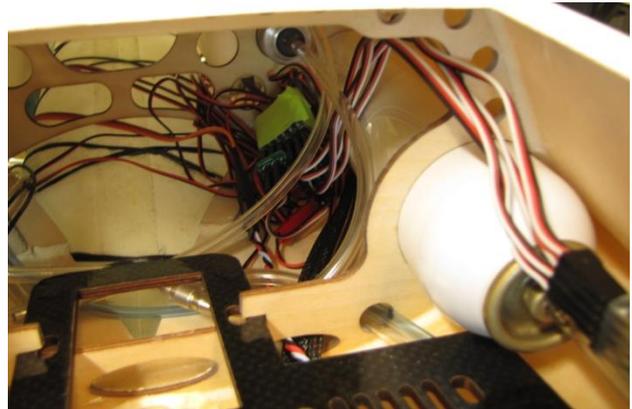
- ❑ Remove the front battery tray by removing the two Phillips heads screws.



- ❑ Slide the main equipment tray forward about 2" to allow wires and air lines to be organized and run through various openings.



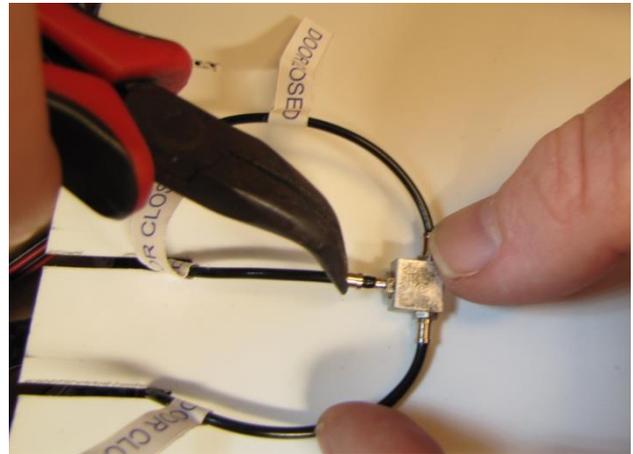
- ❑ Route Wires and air lines neatly through slots and holes; then slide the tray back in place.



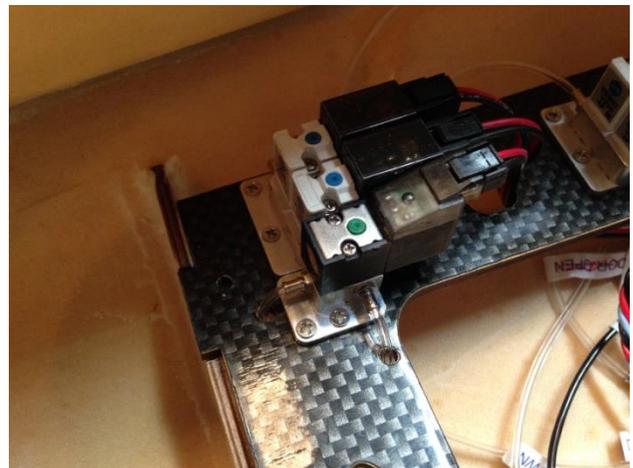
Connect the airlines to the appropriate aluminum “t” blocks. Slide the chrome collar over the tube; slide the tube onto the fitting, slide the collar over the fitting to secure. Do not allow the tubing to slide too far over the barb. Match the labels; Door Closed, Door Open, Gear Up, Gear Down.

Important! Do not use wire cutters to grab the collar, they will crush and damage the fitting.

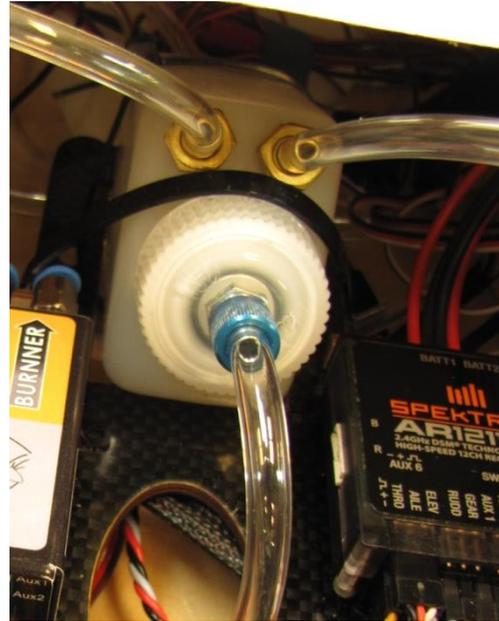
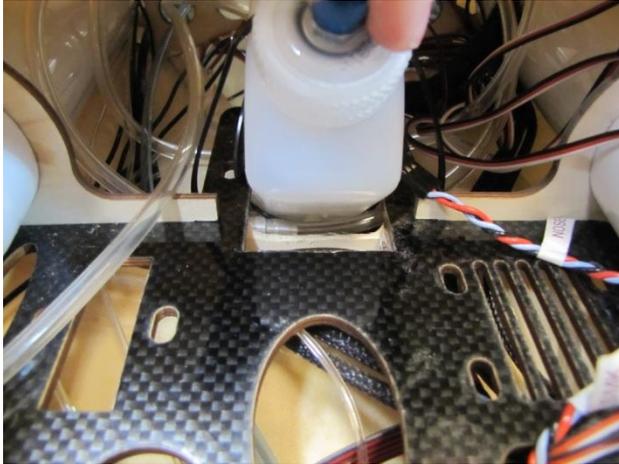
Hint: Warm the tubing with a heat gun to help the collar slide over the tubing.



- Route the brake line through the hole on the tray and connect it to the open fitting on the brake valve.



Mount the BVM UAT



- Insert the UAT into the opening provided. Two zip ties are used to secure. The rear zip tie goes through the holes and holds the aft end from rising, while the front zip tie wraps around the board, just aft of the bulkhead.

Note: early models will need about 1/8" of material trimmed from the ply bulkhead.

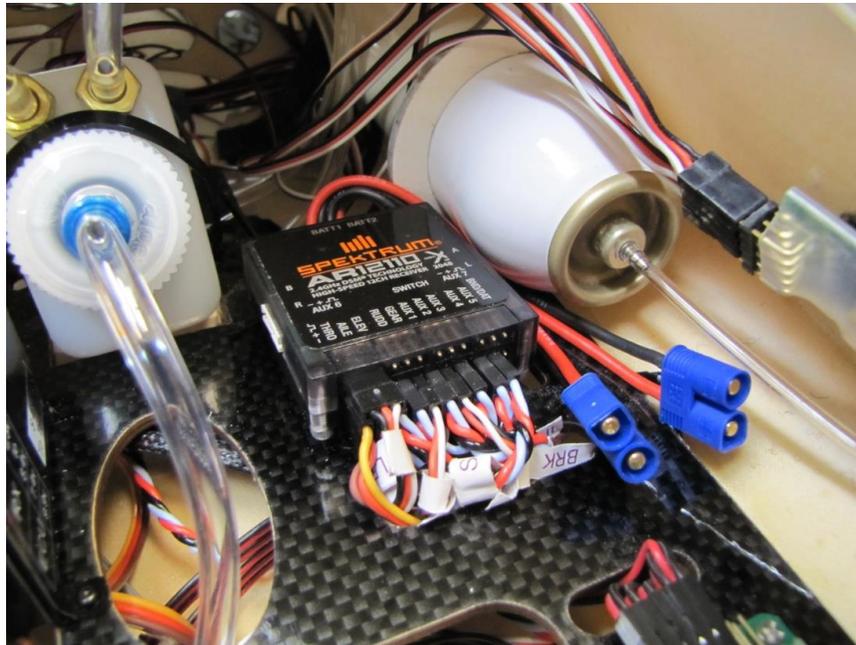
Mount RX Batteries

- Use sticky back Velcro and Velcro strap to mount the batteries as shown.
- Keep batteries forward to clear cockpit tub. It may be necessary to remove and discard the front tray if thicker batteries are used.

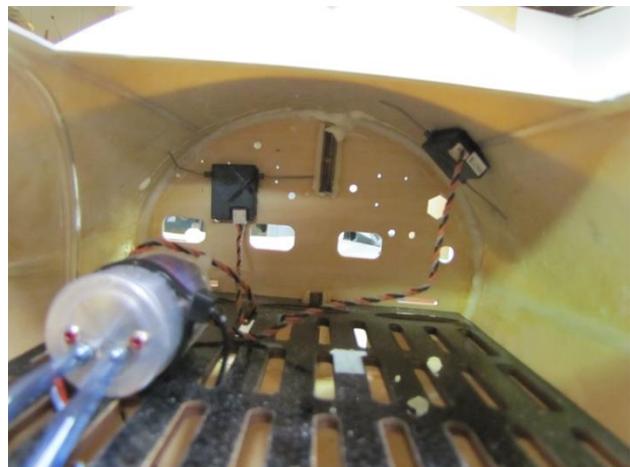


Mount RX

- Use sticky back Velcro to mount the RX as shown. Mount Remote Receivers in various positions, follow the recommendations for your particular receiver.



- Here are two of the four Spektrum remote receivers mounted in the nose with Velcro.



Installing Tail Pipe

- Slightly bend the mounting tabs to allow the tailpipe to fit through the rear former of the fuselage.



- Insert the pipe and carefully slide it forward.
- The pipe must be pulled forward enough to install the tail cone.



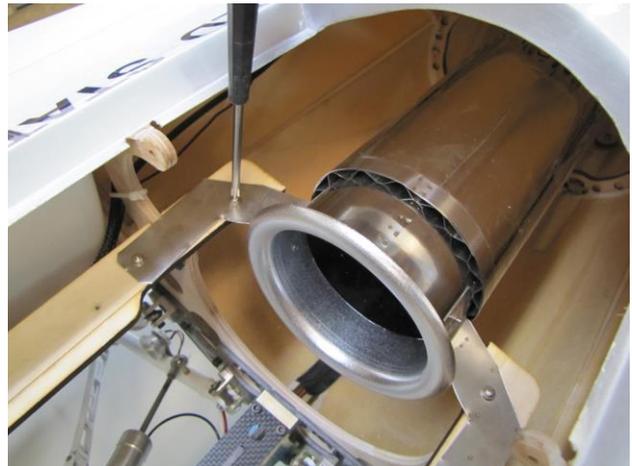
- Install the tail cone over the three bolts and twist to lock.



- Snug the three bolts using a 2.5mm ball wrench.
- Slide the tail pipe aft to rest on the support ring, it is a snug fit.



- Install the four tailpipe retaining wood screws.

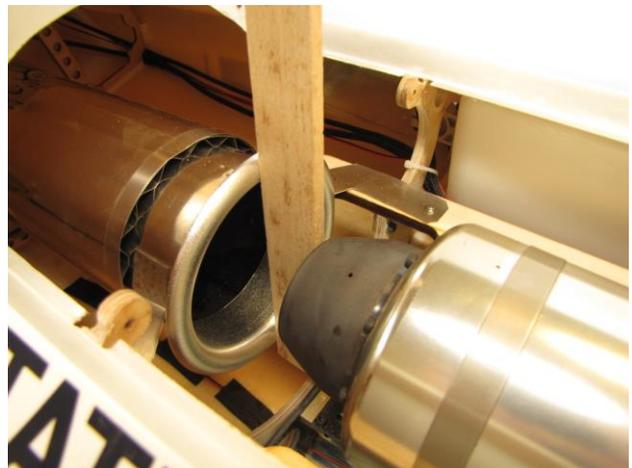


Installing Engine

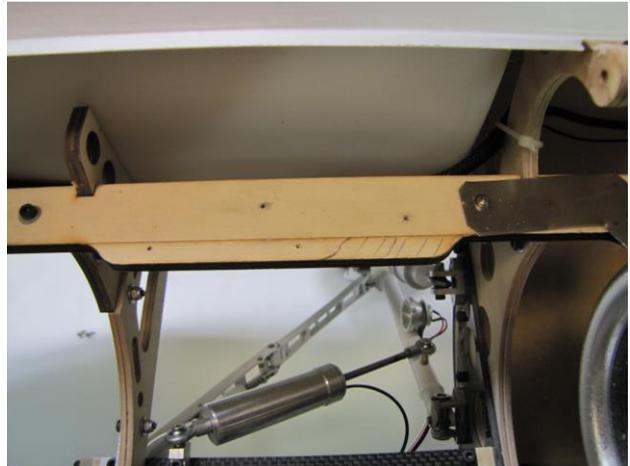
Jet Central Cheetah with Bypass

- Position the engine forward from the bellmouth opening using scrap wood or some measuring device. The Jet Central Cheetah is 1" as shown. Consult your engine's manual for dimensions.

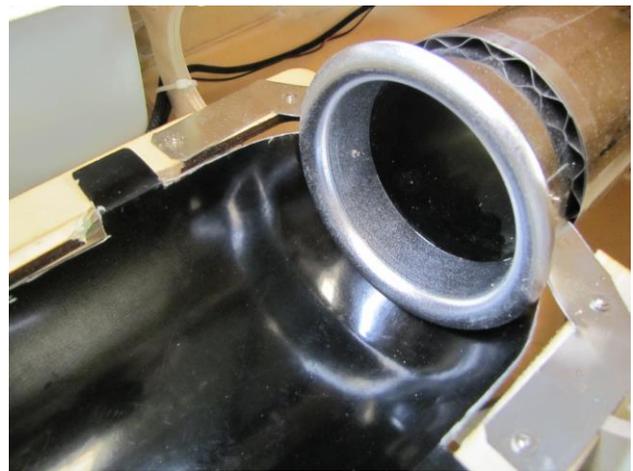
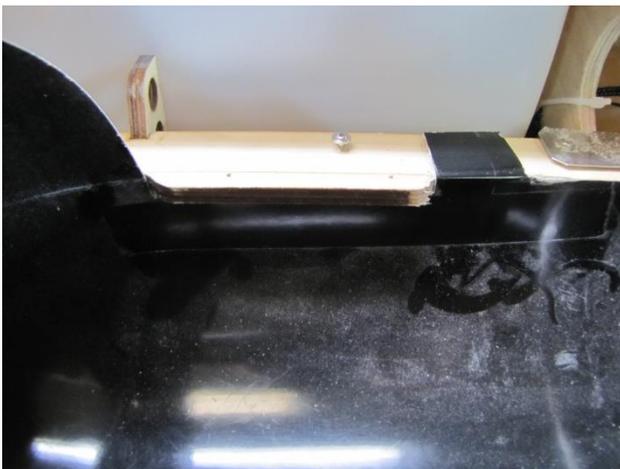
NOTE: On the newer style tailpipe. Measure from the end of the tailpipe, at the pipe/bell junction.



- Mark the mounting holes.
- In the case of the Cheetah install, material will need to be removed from the engine rails as marked. See photos on following pages.

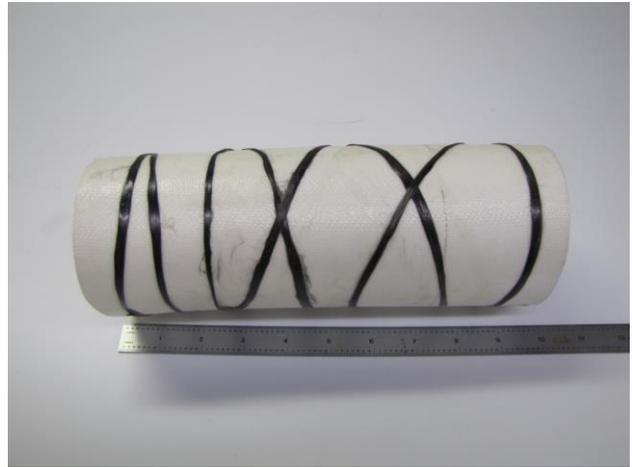


- Use a Dremel wheel to remove the material marked with Blue Masking Tape. The dimension shown is 3.25". A vertical cut of .375" will be made to clear the plywood mounting rails.
- Test fit the lower bypass to the pipe and engine mounting rails.



- Trim the inlet extension to fit. The final length was 6.875" on this model. Measure twice, cut once applies here.

Note: Some inlet ducts have an extra layer of fiberglass cloth and do not require carbon cord wrap.



- Lexan scissors can be used to trim close, then sand smooth.



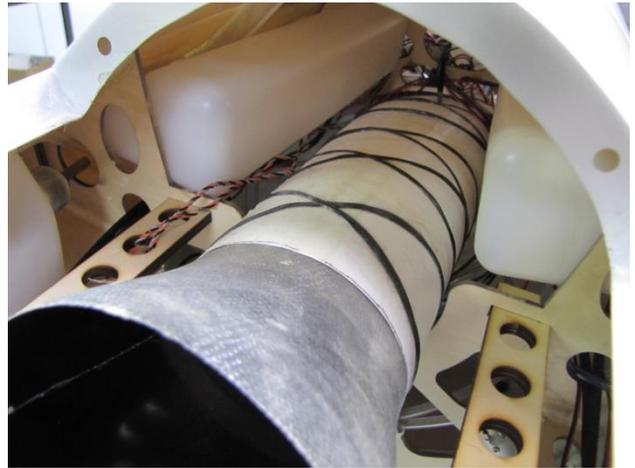
- Trial fit the lower bypass with the inlet extension in place.



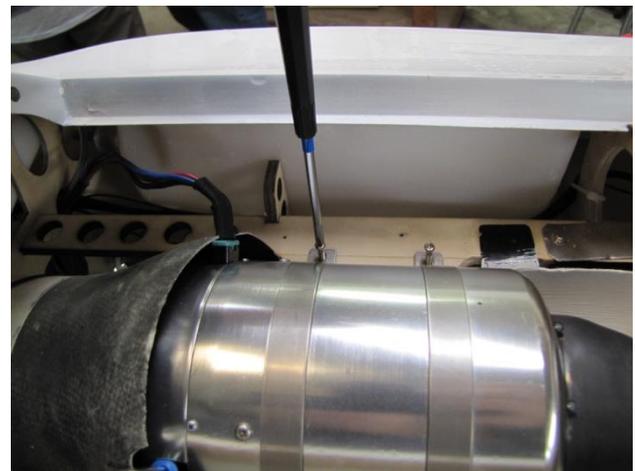
- Trim off a small amount until the inlet extension and bypass fit together. Use a sharpie to draw a straight line around the tube.



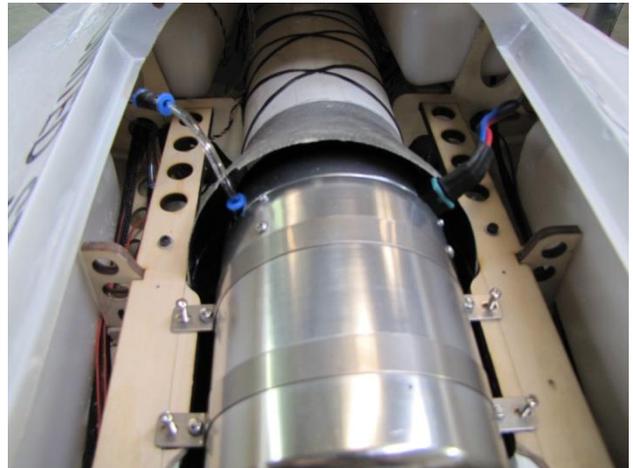
- Another view of the inlet extension installed with the bypass.



- Temporarily install the engine with 3mm x 15mm wood screws.



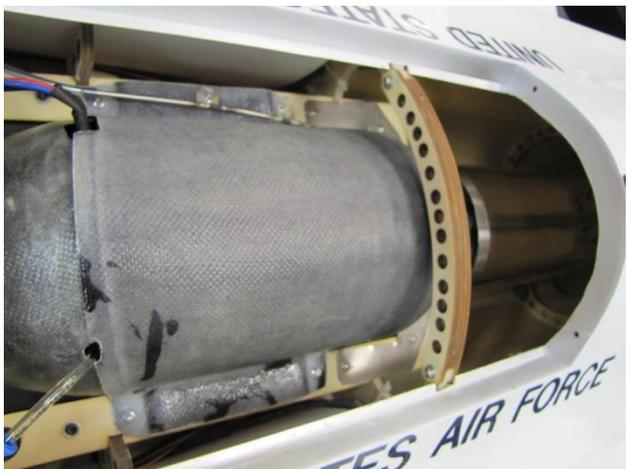
- Route the fuel and electrical connections to the engine.



- Make openings in the bypass and cover for the fuel and electrical connections.



- Use 4 servo mounting screws to secure the bypass cover to the engine mounting rails. (smoke tube and cross brace are shown installed)

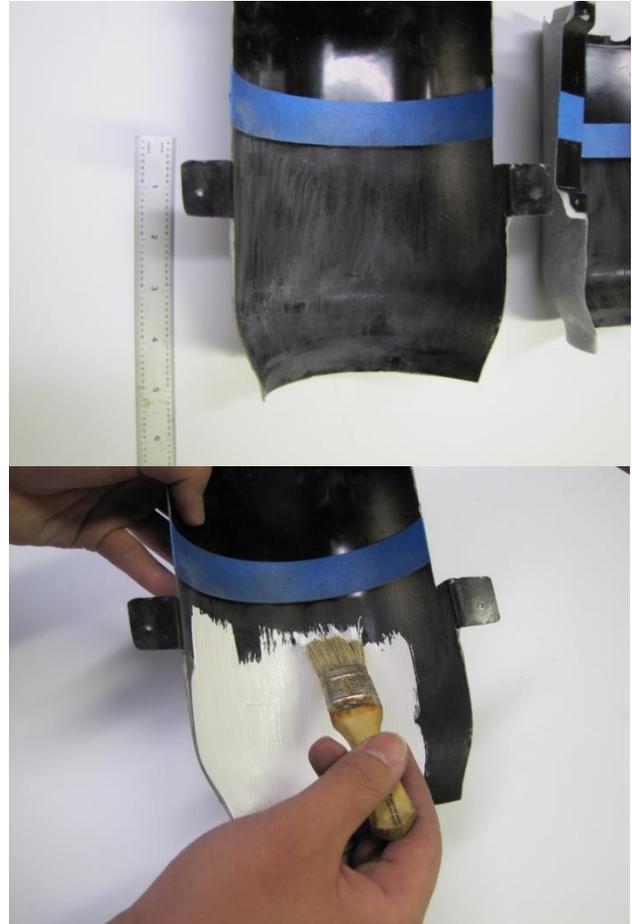


Bypass Heat shield

Remove the bypass again, mask off the rear 5" of the top and bottom. Scuff and clean the surface with 80 grit and alcohol.

Apply three coats of BVM Heat shield as described on the can.

Once dry, reinstall the bypass and engine.



Installing Smoke tube

- Make a slight bend in the smoke tube using two pliers.



- Shown again with the bypass cover removed.
- A small hole in the cover allows the smoke tube to enter the side of the bypass.



- Aim the outlet of the smoke tube down the center of the tail pipe. The long smoke tube reduces the chance of igniting the smoke oil.



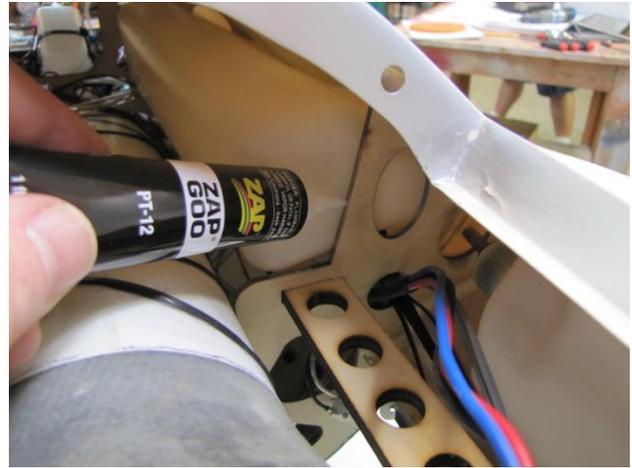
- Use one of the bypass mounting screws to secure the smoke tube.
- Use a long 1/16" drill to make the second hole for the smoke tube mount.
- Connect the smoke line from the pump.



- Reinstall the fuselage crossover brace.



- Use Zap-A-Goo to secure the smoke tank to the bulkhead as shown. This prevents the tanks from moving yet allows them to be removed.



- Use Zap-A-Goo to secure the inlet extension to the bulkhead as shown. A dab on either side is sufficient.



Install engine accessories

Jet Central Cheetah with Power Pack ECU

- Mount the Power Pack in the location shown. The ECU battery was mounted in the forward battery tray.



Jet Cat P-140 Option

- The Jet Cat P-140RX was mounted per the Jet Cat manual.
- Accessories were located as shown below.



King Tech K-140 Option

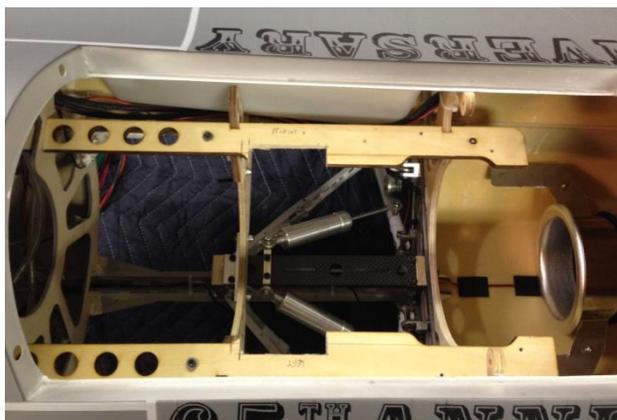
- The KingTech K-140 was mounted per the KingTech manual.



- Plywood rails were notched as shown to clear the KingTech engine mount.

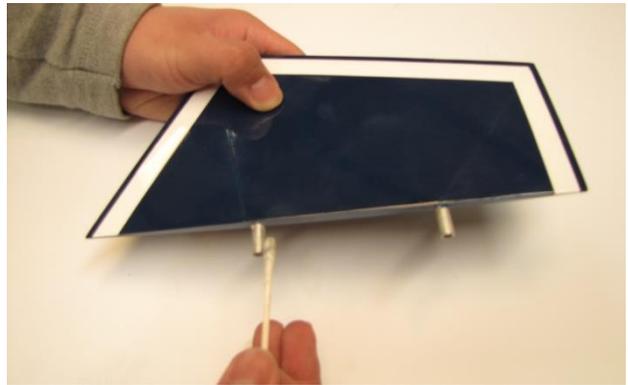


- Locate engine accessories in the forward compartment.

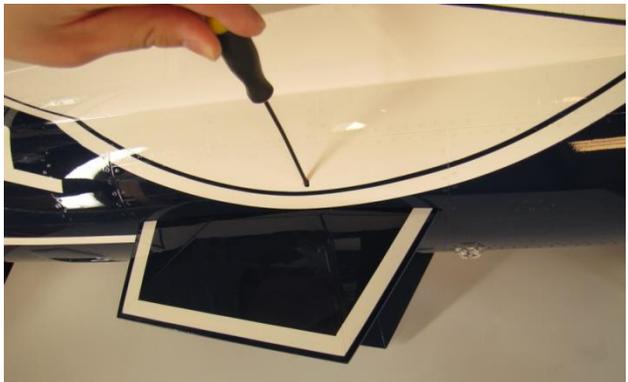


Installing Ventral Fins

- Apply Vaseline to the aluminum studs.



- Gently install the ventral fins, a rocking motion may help. Use a 3/32 hex driver to snug the internal clamp that retains the fins.

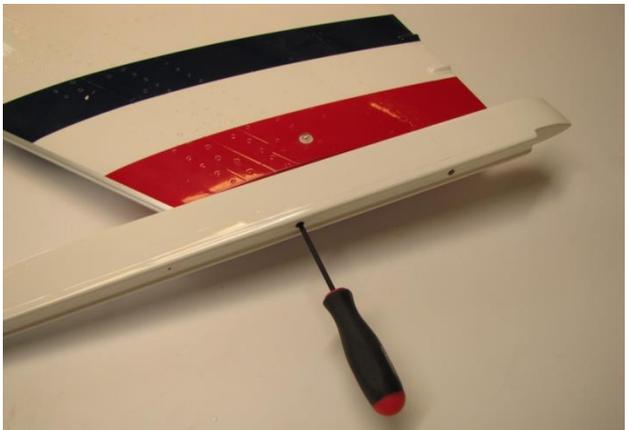


Attaching tip rails/missiles

- Install the missile rail over the pre installed bolts, then slide the rail aft.



- Use a 2.5mm ball driver to snug the bolts.



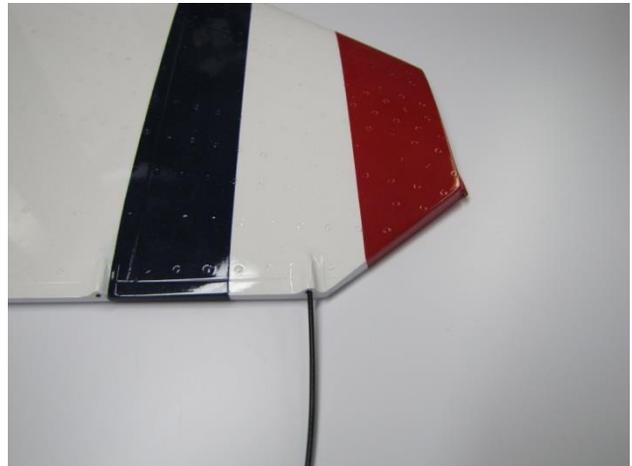
Static Wicks

Static wicks can be added to enhance the scale appearance of your F-16. Use the supplied 20" Black plastic-coated cable. The same procedure can be used to create static wicks for the stabilizers, wings, and rudder.

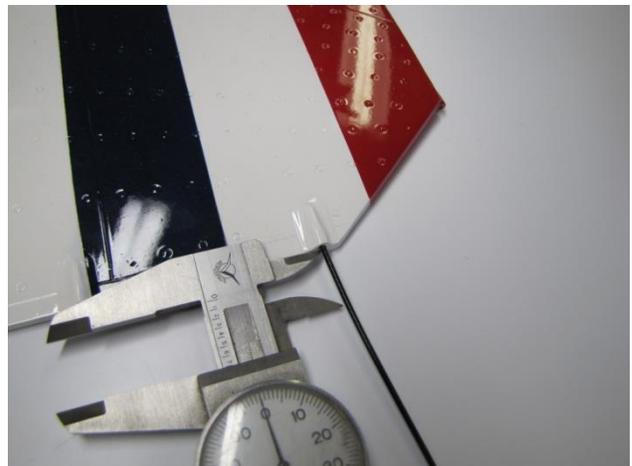
- Open the pre-drilled holes using a 0.070" drill. Use a pin vice to control the drill bit. 1/4"-3/8" of insertion is required.



- Insert the black plastic-coated cable until it bottoms.



- Measure .7" from the edge of the control surface. Mark the cable at this location.



- Cut the cable on the mark and then strip 1/8" of the black plastic to expose the cable.



- Insert the finished static wick, a drop of glue may be required to secure if the hole is too loose.
- Repeat this section for each location.



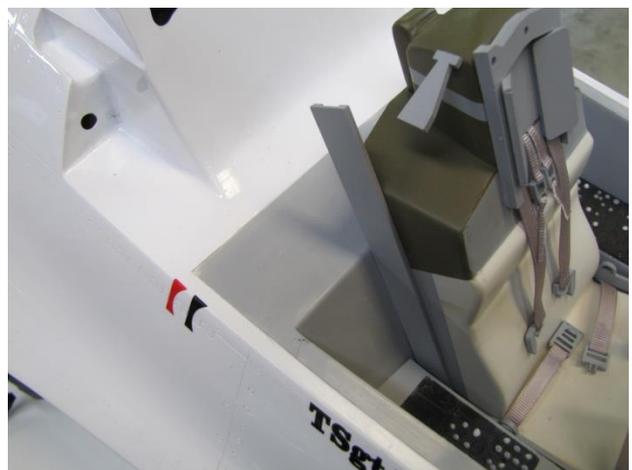
Cockpit/Pilot

- Secure the pilot to the seat using Zap-A-Goo. A 1/6th scale Jet Pilot is used.

See www.ShopBVMJets.com for options.

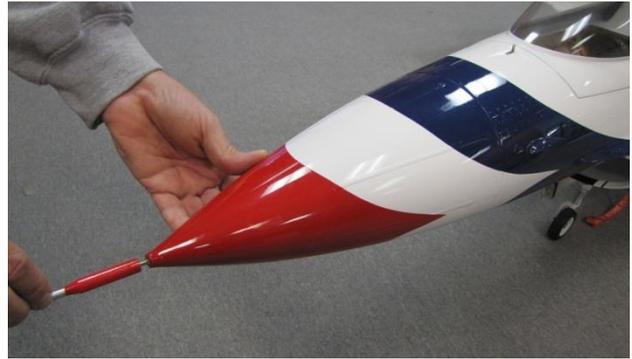
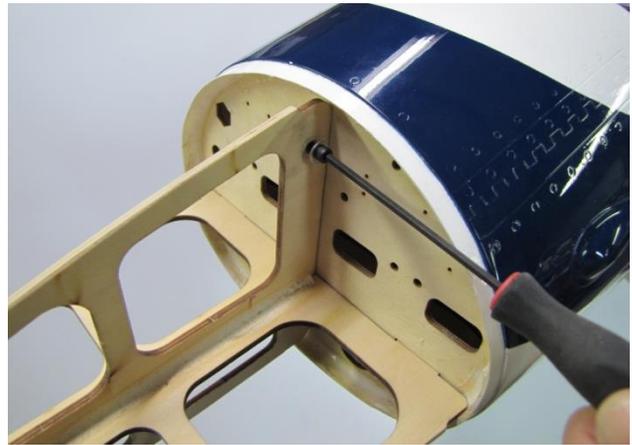


- A small amount of sanding may be necessary for the cockpit tub to fit perfectly in the recessed flange of the fuse opening.



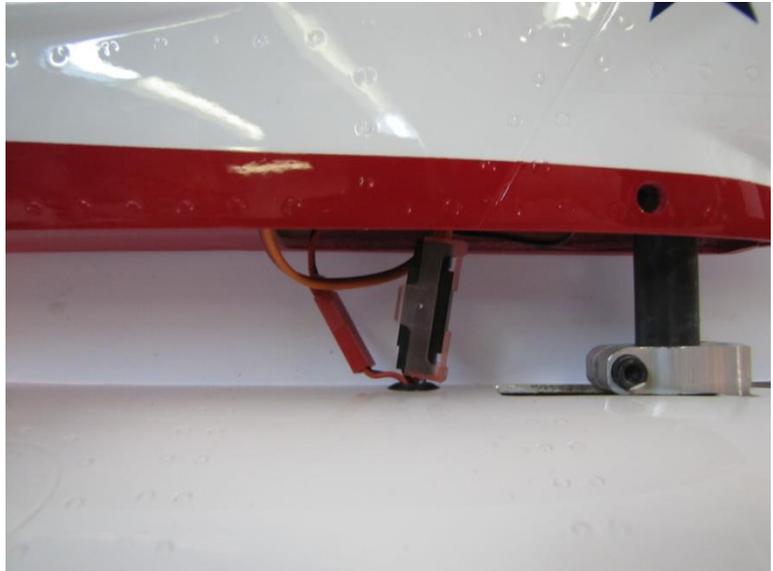
Nose cone formers and nose cone

- Remove the bolts and washers from the nose of the aircraft.
 - Assemble the plywood nose formers to the fuselage as shown.
 - Install assembly onto the fuselage, align the holes and insert the tabs.
 - Reinstall the bolts and washers.
-
- Install the nose cone by aligning paint lines and twisting on the pitot probe to secure. Do not over tighten.



Installing Fin

- Apply a small amount of Lube to the front aluminum pin, this will aid in installation and removal.
- Connect Rudder servo connection and install a BVM servo clip to secure.
- Connect Fin strobe light connection.
- Insert wires into the fin while installing onto the fuselage.
- Tighten front and rear clamp bolts.



Important! The clamping bolts have “E” clips on the ends of the bolts to prevent the bolt from falling out during transportation. Do not continue to loosen the bolt once you feel the resistance of the “E” clip, you will damage and loose the “E” clip. This is the same on Fin, Stab and Wing mounts.

Installing Stabs

- Remove the 4 screws from the access panels on the bottom of the aircraft.



- Install the stabilizer.

See "C" Weight Addendum at the end of this manual.

See also Page 42 for template application.



- With the radio on, center the stabilizer. Use the heavy paper template as a guide for centering. Tighten clamping bolts using a 9/64" hex driver.
- Reinstall the cover with screws and repeat for opposite side.



Installing wings

- Connect Aileron servo connection and install a BVM servo clip to secure.
- Connect NAV light connection.
- Insert wires into the wing while installing onto the fuselage.
- Tighten front and rear clamp bolts using a 9/64" hex driver.



Painting Rudder Linkage

- An easy cosmetic improvement for your F-16 is to brush paint the external rudder linkage. Use the appropriate color and small brush. Avoid getting too much paint on the ball linkages. Moving the rudder before paint dries will keep the ball/socket system functional.



Lubing the brakes

Note: The main wheel brakes are activated by a simple on/off control.

Sufficient lubrication applied to the wheel drum and the brake “o” ring allows smooth, straight stops. At 60+ flights, the prototype model’s tires show little wear.

- ❑ Remove the wheel by removing the axel bolt using a 2.0mm hex wrench.

Important: Do not lose the Nylon washers.

- ❑ Apply a generous amount of Super O-Ring lube to the wheel drum surface.

- ❑ Apply Super Lube BVM #5784 into the wheel bushings.

- ❑ Reinstall the axel bolt and washer. Use a drop of Z-42 on the threads to prevent loosening.



Smoke Pump

A single connection to the receiver is all that is required for operation. The pump draws power from the receiver so a proper receiver with adequate power distribution is required. Our prototypes use the Spektrum SPM12120 Power Safe receiver. The speed of the pump is variable based on the travel adjustment on the radio. BVM uses a simple on/off switch to turn smoke on and off. The “on” travel adjustment is reduced to 65%. This allows a nice smoke trail without wasting smoke fluid.

Note: A special “Y” cable is available if you prefer to use a second battery for the smoke pump. A 7.4 2 cell lipo is recommended.

Connections from left to right as pictured:
“To RX”, “Batt Input”, “To Smoke Pump”



Air System Electronics (Original Style)

For the newer style controller, refer to page

The aircraft is fitted with high quality electronic air actuation valves. These valves are controlled by the sequencer board shown. The sequencer features a digital display that displays the air pressure (bar) in the system. A low pressure failsafe is set to extend the gear if the pressure falls below 3 bar in flight. The sequencer comes pre-programmed with sequencing delay. See the section titled “Landing Gear/Door /Brake Sequencer Instructions” if adjustments are required. The set of two valves are connected to the gear doors, open and closed. The set of three are connected to the landing gear; Brakes, gear Up, and gear Down. The brake valve is non-proportional, either on or off. Use BVM Super O-Lube on the main wheel brake drums to prevent skidding. See the section titled “Lubing the Brakes” for instructions.

Fill the Air system to 110 psi before each flight.



Landing Gear/Door /Brake Sequencer Instructions (Original Style)



Lights Control
 Brake (Top Pins)
 Gear (Bottom Pins)

Valve Outputs
 Brake
 Gear Down
 Gear Up
 Door1 Open **Mode 1**
 Door1 Close
 Door2 Open **Mode 2**
 Door2 Close

Manual Gear Button Setup Button

This extremely simple sequencer includes 2 modes of gear/doors sequence, and brake and landing light control. The sequencer features push button programming operation for sequence timing and low pressure failsafe protection.

Door Modes:

F-16 uses Mode 1 only; aircraft with complex landing gear systems will use both modes.

Mode 1 (Doors Stay Open)	Mode 2 (Doors Close w/ Gear Down)
Gear Up: gear up→door close	Gear Up: door open→gear up→door close
Gear Down: door open→gear down	Gear Down: door open→gear down→door close

Black Button:

Pressure/Voltage Display: Press black button to toggle between Pressure and Voltage. Values will display on LCD display.

Low Pressure Failsafe Adjustment: Hold the black button when Pressure is displayed to enter the “low pressure failsafe” set up. Increasing 0.2 bar for each press (we recommend 3 bar), maximum 5 bar. Value will restart when toggled over 5 bar.

Gear/Door Timing Adjustment: Hold the black button when Voltage is displayed to enter sequence timing setup. Increasing 1 second for each press, maximum 16 seconds, program will restart when over 16 seconds. The value sets only the time between “gear retraction and door closing” and “gear extension and door closing”.

Red Button: (never used)

Red button: Manual gear up/down button when radio is off but system powered (no signal detected), and inoperative when radio is on or low pressure safe mode is activated. A battery could be connected, during aircraft setup, to the Gear input to power the system without a radio system connected. This button will not be used by 99% of users.

LEDs:

Blue LED: The blue LED displays the commanded landing gear position from the receiver. When the blue LED is “on”, the gear is down; while the blue LED is off the gear is up. The blue LED will flash when no signal or incorrect gear switch position is received from the radio when the system is turned on.

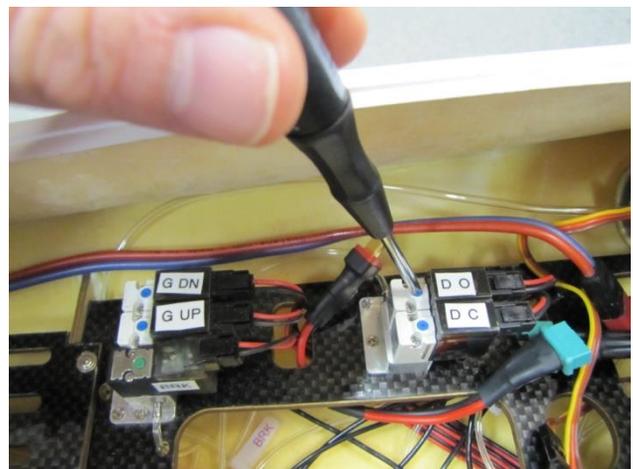
Notice: When the landing gear is down, the blue LED must be on; this is the default gear down signal for system. Otherwise the landing gear will be commanded “up” when low pressure safe mode is activated. Verify your landing gear is extended when pressure is below the failsafe value.

Red LED: The red LED indicates for pressure warning, LED will flash when low pressure safe mode is activated. Re-pressurize the air system above the safe pressure to resume operation.

Green LED: The green LED indicates receiver voltage is displayed on LCD screen.

Operating air valves with power off

The electronic valves can be operated manually by depressing the small blue buttons on the valves that correspond to the action desired. Label your valves for easy reference.

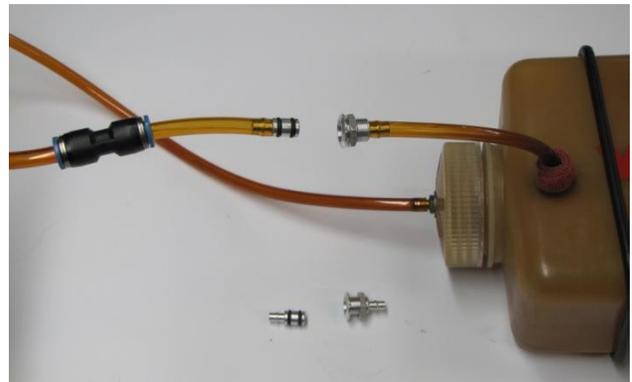


Flush Mount Vent and Overflow System

- A flush mounted vent system is used on both the fuel and smoke systems. A magnetic vent plug with red “Remove Before Flight” tag and BVM Overflow/Taxi tank conversion fittings are provided.



- Install the fittings to your overflow/taxi tank. Use an overflow tank while fueling to prevent spillage and to ensure fuel tanks are full before flight.



Use BVM Overflow tank Part #BVM6037

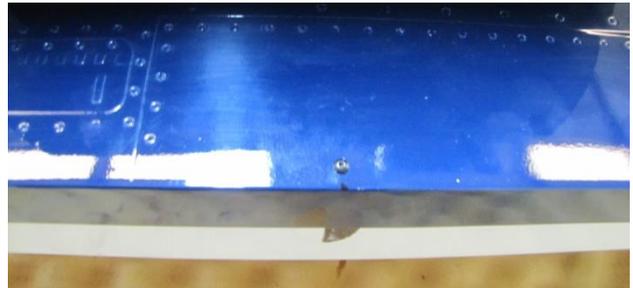
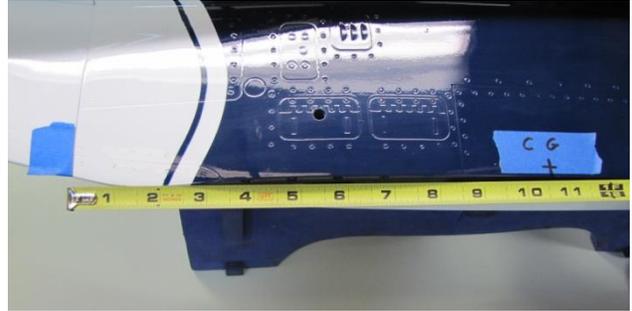
Below, the overflow/taxi tank is connected (left) and the vent plug is installed (right).



Center of Gravity

- Measure aft of the front/rear fuselage break 10.5". Drill a 1/16" hole in the fuselage skin 1/4" inboard from the wing root and install a #2 button head screw on each side. The root of the fuselage also has the GC location marked with a pen. This location is very forgiving; there is no need to move it forward. The second BVM demo plane is set slightly aft per pilot's choice.

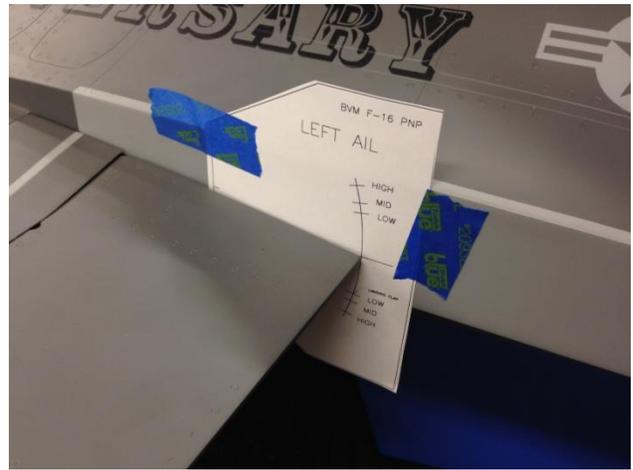
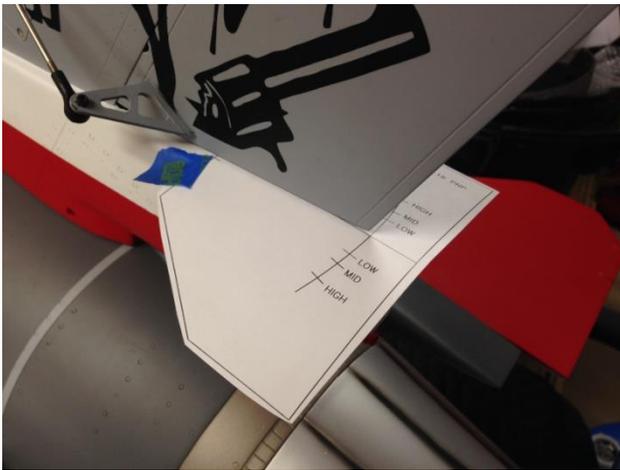
Balance the model fully assembled, empty fuel tanks, gear down, and a full UAT. With the correct CG, the model should balance level.



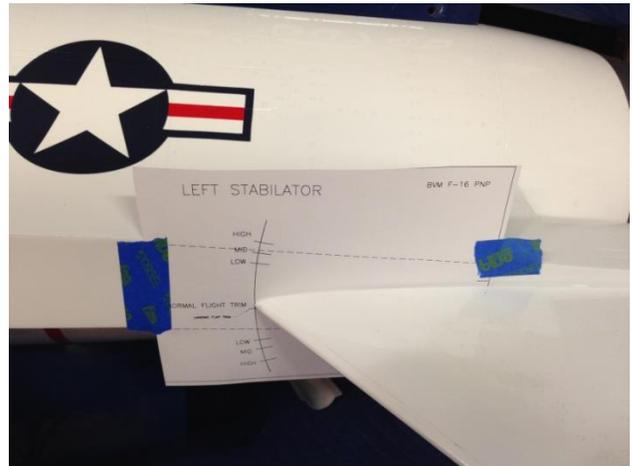
Control Surface Deflections and Expo Settings

Control	High Rate	Expo	Medium Rate	Expo	Low Rate	Expo
Stabilator (measured at the L.E.)	Up 1-5/8" Down 1-1/2"	Up 17% Down 21%	Up 1-1/4" Down 1-1/4"	Up 18% Down 22%	Up 1" Down 1"	Up 8% Down 12%
Aileron (measured at the Root)	+/- 1-3/8"	10% / 10%	+/- 1-1/16"	10% / 10%	+/- 7/8"	10% / 10%
Rudder (measured at the Bot.)	+/- 1-1/8"	10% / 10%	+/- 3/4"	8% / 8%	+/- 1/2"	0% / 0%

Note: The BVM Demo plane is setup using the following Expo percentages. Positive values are used on Spektrum and JR radios, Futaba uses negative.



- Cut the templates from the last two pages of the manual. Use the heavy paper templates to setup control deflections. Triple rates have been tested. Align the “tick marks” and dashed lines to locate the template onto the fuselage, use tape to secure.



Connecting RX wires

The wires are labeled from the factory. If you are using the DX18, the program is available from BVM. Follow the chart below to connect the servos.

DX18 Connection Chart						
RX Port	Throttle	Aileron	Elevator	Rudder	Gear	Aux1
Surface	Throttle	Right Ail	Right Elev	Rudder	Gear Seq.	Left Ail
RX Port	Aux2	Aux3	Aux4	Aux5	Aux6	Aux7
Surface	Brakes	Nose Steering	Left Elev	Smoke	Lights	Open

DX18 and DX18QQ Transmitter File

The BVM Demo models are setup on Spektrum DX18 transmitters. The file, if requested, has all the mixes, rates, expos, and settings done for you. Setting the sub trim and travel adjustment must be accomplished by the modeler for the specific aircraft. Each aircraft is tested at the factory using a similar program.

Important!!! Check the directions of all flight controls before each flight.

Switch/Lever/Trimmer	Channel	Output
Switch A	Channel 5/Gear	Landing Gear, Down is Down
Switch B	X+1/Channel 11/Aux 6	Lights, Down is off, Up is on
Switch C	Elevator Rates	Up (0) is High
Switch D	Flaperons, Ail and Aux 1	Up is Normal flight Mid is flaperon down w/ up elevator mix Down is "Taileron Mix"- for high-alpha
Button I	Throttle Cut	Throttle Cut
L. Trim	Steering Trim/Aux 3	Down for Right Steering Trim Up for Left Steering Trim
Switch F	Aileron Rates	Up (0) is High
Switch G	Rudder Rates	Down/Away (0) is High
Switch H	Aux 5/Smoke	Down (0) Smoke off Up (1) Smoke on
Right Lever	Aux 2/Brakes	Up/Away – Brakes off Down/Pulled – Brakes on

First Flight Profile

Flight Time

The BVM demo model's transmitter timers are set for 7 min. On the first flight, land several minutes early to check fuel consumption. Adjust the flight timer accordingly.

Taxi Test/Engine Run Up

A taxi test should include a radio range check with the engine running at various power levels. Check that the wheel brakes are adequate, and the stopping action is without skidding or pulling left or right. Be sure to shake the aircraft and push fore and aft with the engine at half power, this will help remove any trapped air bubbles in the fuel system.

Takeoff

Begin the takeoff roll by slowly advancing the throttle. Maintain runway center while holding about 1/2 stick up elevator; the F-16 will rotate when it is ready. If there is a cross wind, hold a small amount of aileron into the wind, be prepared with opposite rudder. The aircraft does not need flaperons, we suggest making your first flights "clean wing".

Trim

Once in the air, find a nice cruise speed to set the trims. The aircraft should fly straight and level when "hands off". When the landing gear come down, a few clicks of up trim will be needed. This can be mixed in or use flight modes to trim automatically.

Practice Approaches

Save several minutes at the end of your first flight to practice approaches and go arounds. It is beneficial to become familiar with the low-speed handling of the aircraft.

Landing

Landing is like most jets, "power on" during the approach. The F-16 does not stall easily, it is best to land nose high, touching on the main wheels first.

The majority of the first flight should be spent trimming and practicing for the first landing. Save the aerobatics and air show stuff for later flights.

RX Battery Consumption

The average flight using the lights the entire flight consumes 500 mAh. We recommend two flights and recharge. Use this data to calculate how many flights you can achieve from your system. The use of the smoke pump will consume more mAh per flight. 3000 mAh combined capacity is the minimum BVM recommended.

BVM is synonymous with “Success Jets.” It is very important to us that you are successful with our products. This extensive manual reflects our sincerity. As always, your comments and suggestions on BVM products are appreciated.

Pilot’s Notes:

Stabilator Counter Balance Addendum

Note: Very early prototype models have flown dozens of flights with no stab "C" balance and have had no flutter issues.

Adding this 2oz lead rod to the stab L.E. broadens the speed range of the F-16.

- Use a Perma-Grit RF-6c to start the hole in the stab root rib at the L.E. Use a Perma-Grit RF-5f to enlarge the hole sufficiently to accept the 3/8" lead rod.



- Prior to inserting the rod into the stab, drill a 5/64" hole about 3/8" deep into one end of the lead rod. Partially insert a servo mounting screw that will serve as a handle to maneuver the rod while gluing it into the stab.



- Apply BVM Qt Poxy into the stab opening and onto the rod.



- Insert the rod as shown. Wipe away any excess glue with alcohol. After the glue sets, remove the screw.



- Apply polyester putty, before it totally cures, trim excess with a razor. Touch-up paint with the appropriate Model Master paint and brush.

