My Balsa & Glass Workshop

1/15th Semi-Scale Douglas A-26 Invader Build Description

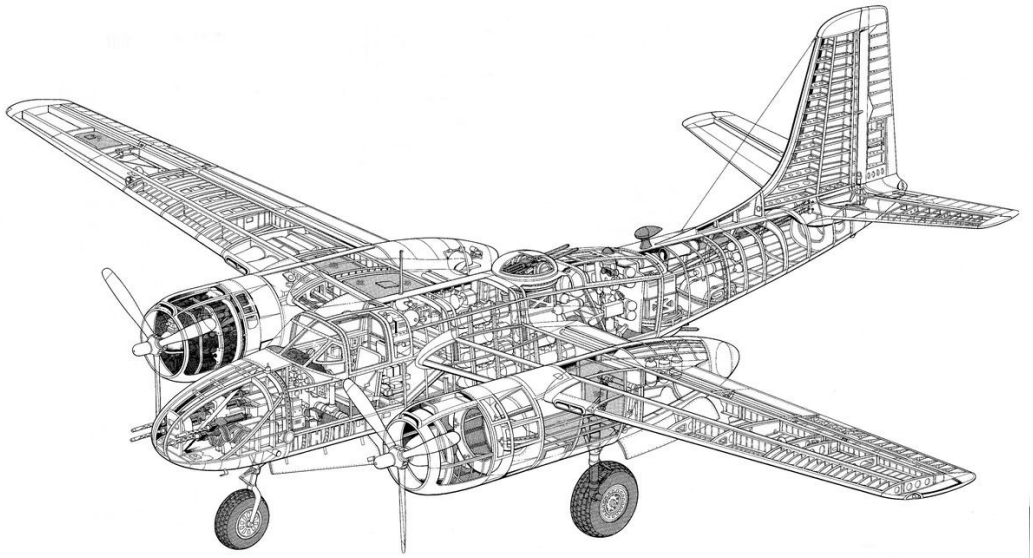
Updated as of 9 March 2026

Having completed my scratch build of a 1/15th Semi-Scale USAF OA-1K Skyraider II, I wanted to try and see what I could come up with in the way of a twin engine post WWII ground attack aircraft to add to my military collection. In doing research for my May 2026 "Build of the Month" Edition, I ended up selecting the Douglas A-26 Invader. After looking through and reading all the material for the BOTM Edition, I decided I would set off to try and develop a set of plans for a 1/15th Semi-Scale Douglas A-26 Invader, and then attempt a balsa scratch build as my next project.

First, a little history on the actual Douglas A-26 Invader. The Douglas A-26 Invader (designated B-26 between 1948 and 1965) is an American twin-engine light bomber and ground attack aircraft. Built by Douglas Aircraft Company during World War II, the Invader also saw service during several major Cold War conflicts. A limited number of highly modified United States Air Force aircraft served in Southeast Asia until 1969. Not only was it a fast aircraft capable of carrying a large bomb load, but it could also be fitted to produce a formidable ground-attack aircraft.

The Counter Invader was a highly modified version of the Douglas A-26 Invader, a World War II attack bomber. Redesignated B-26 in 1948, the Invader served again during the Korean War (1950-1953), mainly as a night intruder against North Korean supply lines. It was removed from service in 1958, but in 1961 the USAF recalled many Invaders for use as tactical bombers in Southeast Asia. Combat duty and two decades of wear took their toll, and in 1964 the B-26s again were removed from service.

In 1966 the old bomber was resurrected once more when the improved B-26K Counter Invader returned to Southeast Asia for ground-attack missions along the Ho Chi Minh Trail. Modified by *On Mark Engineering*, the B-26K had a rebuilt fuselage and tail, strengthened wings, improved engines, reversible propellers, wing-tip fuel tanks and other refinements. Redesignated A-26As, Counter Invaders remained in Southeast Asia until 1969 and retired from USAF service.



Figures 1 thru 5 – Douglas A-26 Invaders

Source of Images: https://en.wikipedia.org/wiki/Douglas_A-26_Invader and https://www.airvectors.net/ava26.html

Actual Douglas A-26 Invader Specifications:

Crew: 3
Wingspan: 70 ft (21 m)
Length: 50 ft (15 m)
Height: 18 ft 6 in (5.64 m)
Wing area: 540 sq ft (50 m2)
Airfoil: NACA 65-215
Empty weight: 22,370 lb (10,147 kg)
Gross weight: 27,600 lb (12,519 kg)
Max takeoff weight: 35,000 lb (15,876 kg)
Fuel capacity: 925 US gal (770 imp gal; 3,500 L) normal + optional 675 US gal (562 imp gal; 2,560 L) ferry tank in the bomb bay; Oil capacity 60 US gal (50 imp gal; 230 L) in two nacelle tanks
Powerplant: 2 × Pratt & Whitney R-2800-27, -71, or -79 Double Wasp 18-cylinder air-cooled two-row radial piston engines, 2,000 hp (1,500 kW) each for take-off

Propellers: 3-bladed Hamilton Standard Hydromatic, 12 ft 7 in (3.84 m) diameter constant-speed fully-feathering propellers

Maximum speed: 359 mph (578 km/h, 312 kn) at 16,700 ft (5,100 m) (normal rated power)

Cruise speed: 266 mph (428 km/h, 231 kn) at 5,000 ft (1,500 m) (62.5% rated power)

Range: 1,600 mi (2,600 km, 1,400 nmi) without ferry tank at 5,000 ft (1,500 m) at 206 mph (179 kn; 332 km/h)

Combat range: 700 mi (1,100 km, 610 nmi)

Ferry range: 3,000 mi (4,800 km, 2,600 nmi) with ferry tank at 5,000 ft (1,500 m) at 210 mph (180 kn; 340 km/h)

Service ceiling: 28,500 ft (8,700 m) ; 14,400 ft (4,400 m) on one engine

Armament:

Guns: 6 or 8 0.50 in (12.7 mm) M2 Browning machine guns in solid, "all purpose" nose: or 2 × 0.50 in (12.7 mm) M2 machine guns in glass "bombardier" nose

Up to 8 × 0.50 in (12.7 mm) M2 machine guns paired in four optional under wing pods: or 3 × 0.50 in (12.7 mm) M2 machine guns in each outer wing panel

2 × 0.50 in (12.7 mm) M2 machine guns in remote-controlled dorsal turret

2 × 0.50 in (12.7 mm) M2 machine guns in remote-controlled ventral turret

Rockets: Up to 10 × 5-inch (12.7 cm) HVAR rockets on "zero length" launch pylons, five under each outer wing panel

Bombs: Up to 6,000 lb (2,700 kg) capacity - 4,000 lb (1,800 kg) in the bomb bay plus 2,000 lb (910 kg) carried externally on underwing hardpoints

1/15th Semi-Scale A-26 Invader Plans Development

The A-26 Invader RC model designed by Dick Sarpolus that will be in my May 2026 BOTM Edition can be built from a set of plans and article which are available on the Outerzone A-26 Invader (oz10379) webpage. (https://outerzone.co.uk/plan_details.asp?ID=10379). I also found a larger (100" wing span, twin .45-.60 two-stroke engines) A-26 Invader RC model, designed by Gary Fuller, with a set of plans and RCM article at Aerofred (https://aerofred.com/details.php?image_id=99331) or Outerzone (https://outerzone.co.uk/plan_details.asp?ID=5882). I used these RC model plans, and my plans from previous scratch builds, as sources for my 1/15th scale plan design approach/details, material selection/sizing, etc.

I first needed to set up the sizing for my 1/15th scale plans. Using the 3-view drawing in Figure 6, I converted the full scale measurements to 1/15th scale for my RC model A-26 Intruder measurements.

Full Scale Wingspan: 70 ft (21.3 m)	1/15th scale – 56 in. (1,422 mm)
Full Scale Length: 50 ft 9in (15.47 m)	1/15th scale – 40.6 in. (1,031 mm)
Full Scale Height: 18 ft (5.49 m)	1/15th scale – 14.4 in. (366 mm)

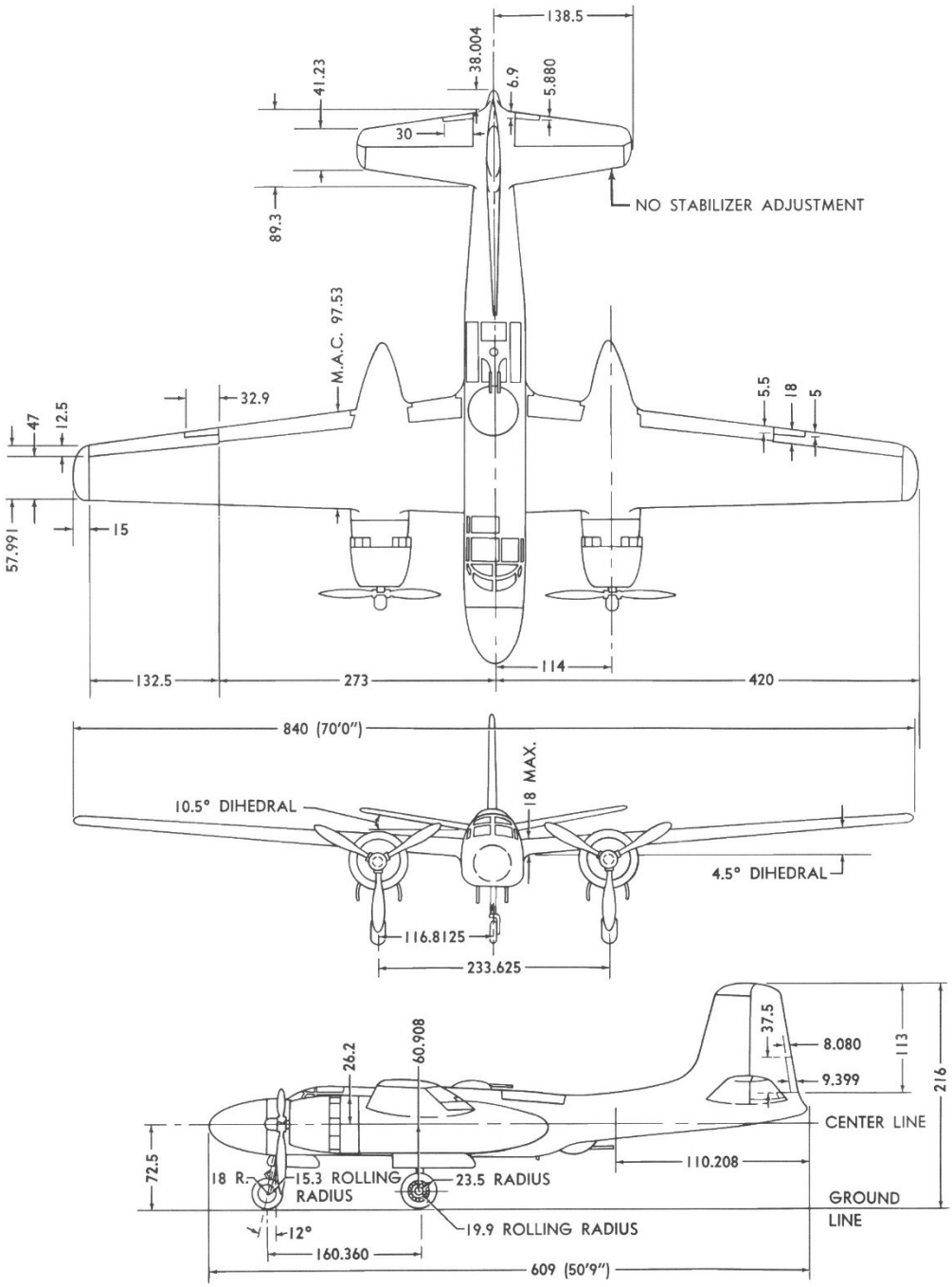


Figure 6 – Full-Scale Douglas A-26 Invader 3-View Drawing

Source of Image: https://en.wikipedia.org/wiki/Douglas_A-26_Invader

A-26 Invader Power System Selection

I'm going to make an initial assumption that the total weight (ready to fly) for my A-26 Invader will come out in the range of 2,500 – 2,800 grams (88-99 oz.). With this model being somewhere between a sport flyer and warbird flyer, I'm going to use another initial assumption that the power system will need to produce 125-150 watts/lb., or somewhere around 930 watts total.

I like using the performance data charts that can be found on the Innov8tive Design Website (https://innov8tivedesigns.com/). Using that and needing a total of 930 watts of power (or 465 watts for each motor), that puts the power system somewhere in the range of a .25 glow engine, or the BadAss 2814 Series of motors. The BadAss 2814-980Kv specifications state a Max Continuous Power (***with 3-cell Li-***

Po) of 510 watts (***each motor***) at Maximum Continuous Current of 46 amps. The 2814-980Kv motor performance data chart lists data for a Master Air Screw (MAS) 10x7 3-blade prop using a 3S battery pulling 28.0 amps and producing 1,492 grams (52.6 oz.) of thrust at 8,471 RPM. So, my BadAss Power System is comprised of the following components: - 2ea. Motors: BadAss 2814-980Kv Brushless; 2 ea. ESCs: BadAss Rebel V2 Series Brushless, 50A; 2ea. Batteries: BadAss 45C 3,300mah 3S LiPo; 2 ea. Props: MAS 9x7 3-Blade. This Power System will provide a total power of 2,984 grams (105.2 oz.), which should give approx. a 1:1 power to weight ratio.

Alright, with my initial RC model size and power system established, my next step was to start putting some *"pencil to paper"* and draw up some plans. With the days of using a ruler, pencil, and paper to make my model plans all now in the distant past, I start out this design exercise using my trusty 2D computer drawing program **"Back To The Drawing Board"** (https://drawingboardapp.com). I also plan to generate some 3D printed parts for this project, and once I get to that stage of the design I'll move over to my 3D computer program **Autodesk Fusion 360** (https://www.autodesk.com/products/fusion-360/personal). Autodesk offers a 100% free Fusion 360 license to Students and Hobbyists. I'm working with the free version using a Personal Use license.

My first step was to get an initial outline and measurements for each major component of my RC scale model. Using another 3-view drawing with sufficient details for modeling, I traced outlines for the fuselage, wing, nacelles, horizontal & vertical stabilizers (I call them tail feathers), and tires. This is shown below in Figure 7. The outlines were then copied into separate plan sheets for each major model component.

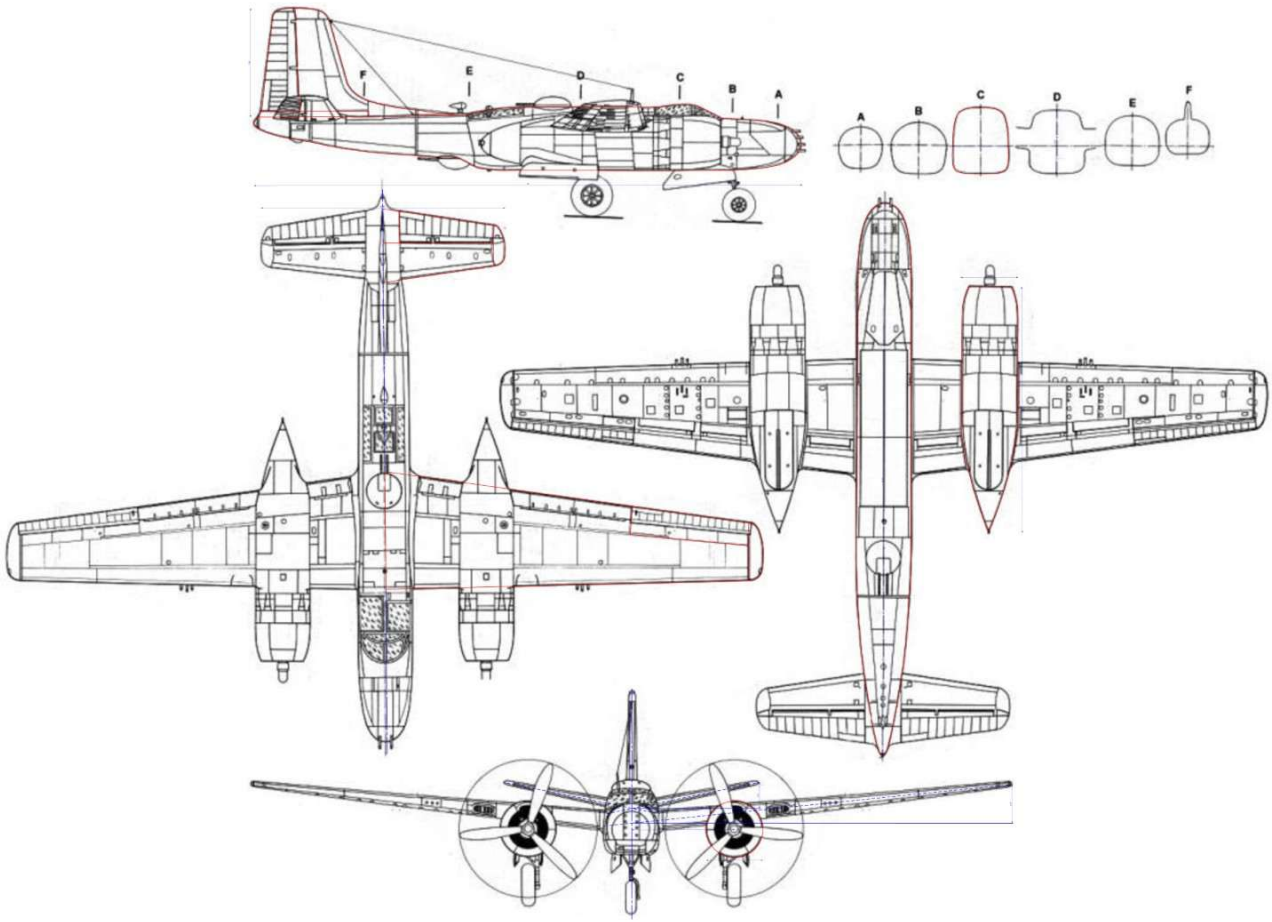


Figure 7 – Tracing Scale Model Components from a A-26 Invader 3-View Drawing

Source of Image: https://drawingdatabase.com/douglas-a-26-invader/

Now the real fun starts. As indicated earlier, I used other A-26 model plans and my ***"modified"*** model plans I have worked from for my other scratch builds (like the OA-1K Skyraider II) and started to lay out the various plans for my A-26 Intruder. Being the tail feathers were fairly simple; this is where I started my first plan sheet. After a few hours at my desktop computer keyboard/mouse each morning, the results of my efforts are displayed in Figure 8.

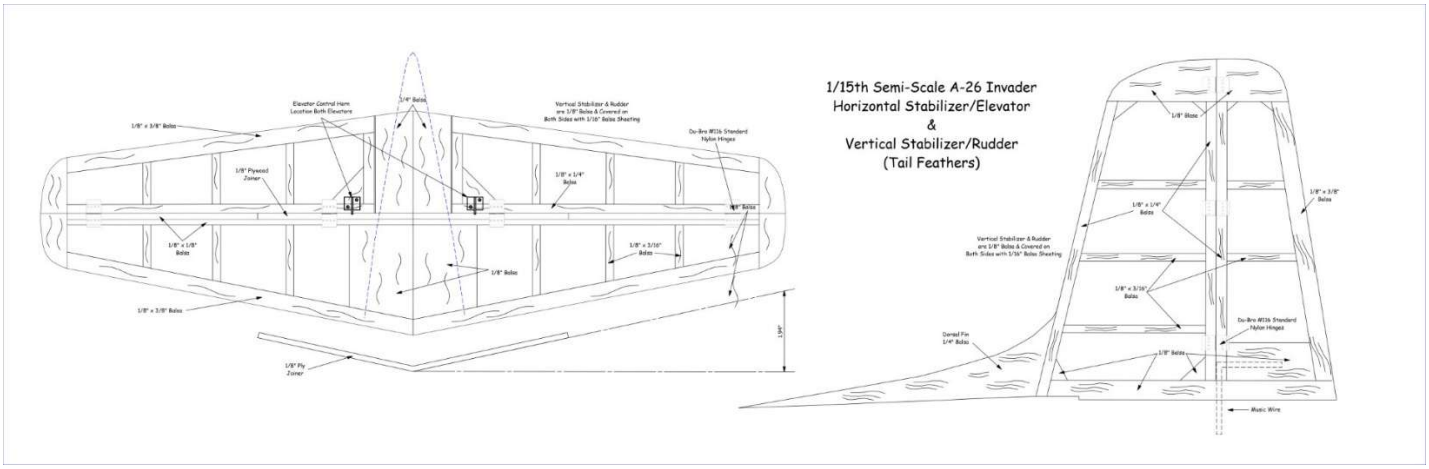


Figure 8 – A-26 Invader Tail Feathers Plan

Next was the fuselage. Since the other A-26 plans were all designed using nitro engines, and I wanted to use an electric power system, I first needed to decide where the various power system components would be placed. I debated over LiPo and ESCs in the fuselage versus in each nacelle, and after placing images of the components in each model component plan sheet, I decided a LiPo & ESC would go in each motor nacelle with access for LiPo installation from the bottom of the nacelle. With that finalized I pressed forward with the fuselage plan sheet. Here I debated using full balsa sheets versus narrow balsa strips to cover the outside of the fuselage formers, and my initial design used the full sheets approach. This then drives using fuselage formers that are basically rectangles with rounded corners and not a "*true representation*" of the actual A-26 fuselage shape, hence a "*semi-scale*" model design. Another debate was to use retractable gear versus the standard bent music wire landing gear arrangement. With my 1/15th Scale A-26 design being fairly small for a twin engine model, I elected not trying to squeeze retracts into the motor nacelles since they are already filled with the LiPo/ESCs.

Again, after **many** hours at my desktop computer keyboard/mouse each morning, the results for my ***initial fuselage plan*** are displayed below in Figures 9 & 10. As seen in the top plan, the wing/nacelles assembly is attached to the fuselage from above and held in place using forward/aft wing attachment bolts from below.

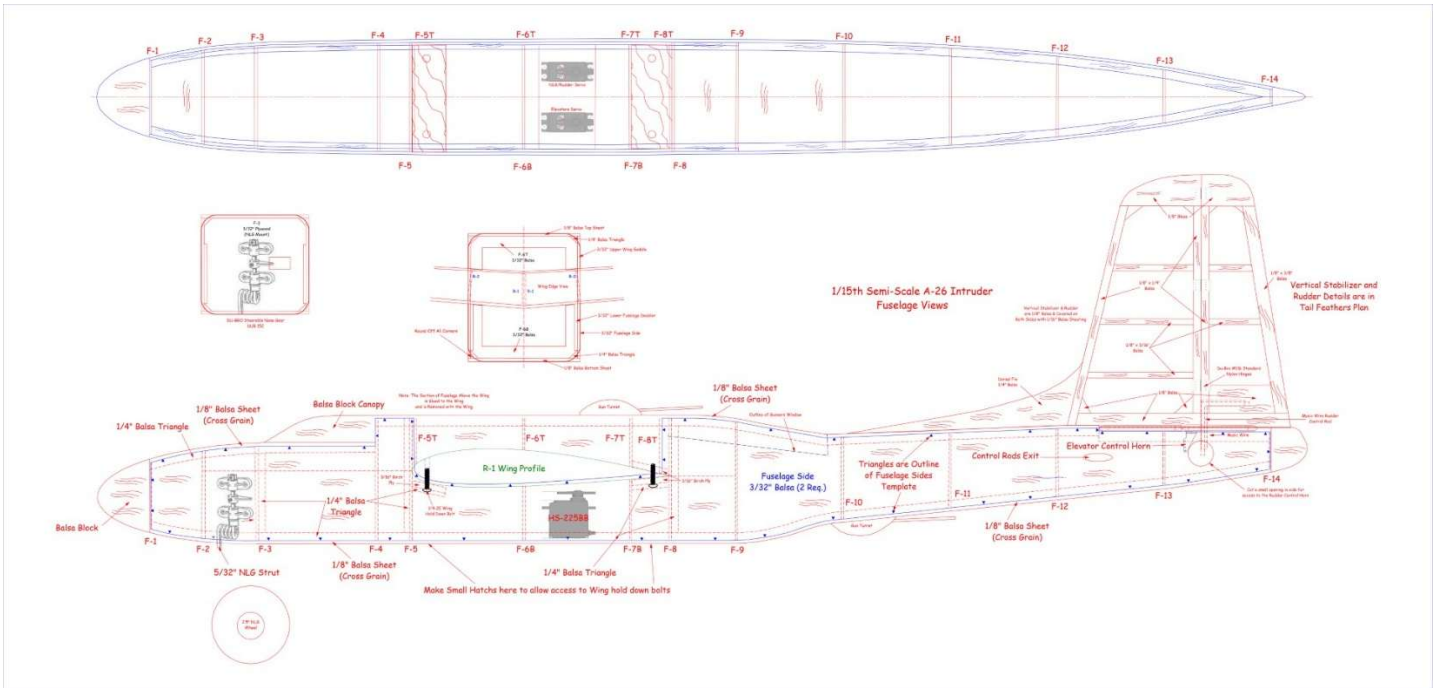


*Figure 9 – A-26 Invader **Initial** Fuselage Top & Side View Plan*

The fuselage plan cannot be finalized until the wing plan is finished. Because the A-26 wing has a triple taper (angled leading/trailing edges and a reduced thickness from root to tip), and a small dihedral, the rib profile at the wing centerline (R1) is different from the rib profile (R2) where the wing passes through the sides of the fuselage, and each are at different heights from the bottom of the fuselage (as seen in the fuselage cross section at F-6 in Figure 9). The A-26 RC model plans I found on the web did not seem to address these differences and used only the centerline wing profile in the plan as seen in Figure 9 above. All my fuselage templates in Figure 10 seen below were adjusted to try and match the fuselage wing pass through opening to that of wing rib profile R2, and at the correct height.

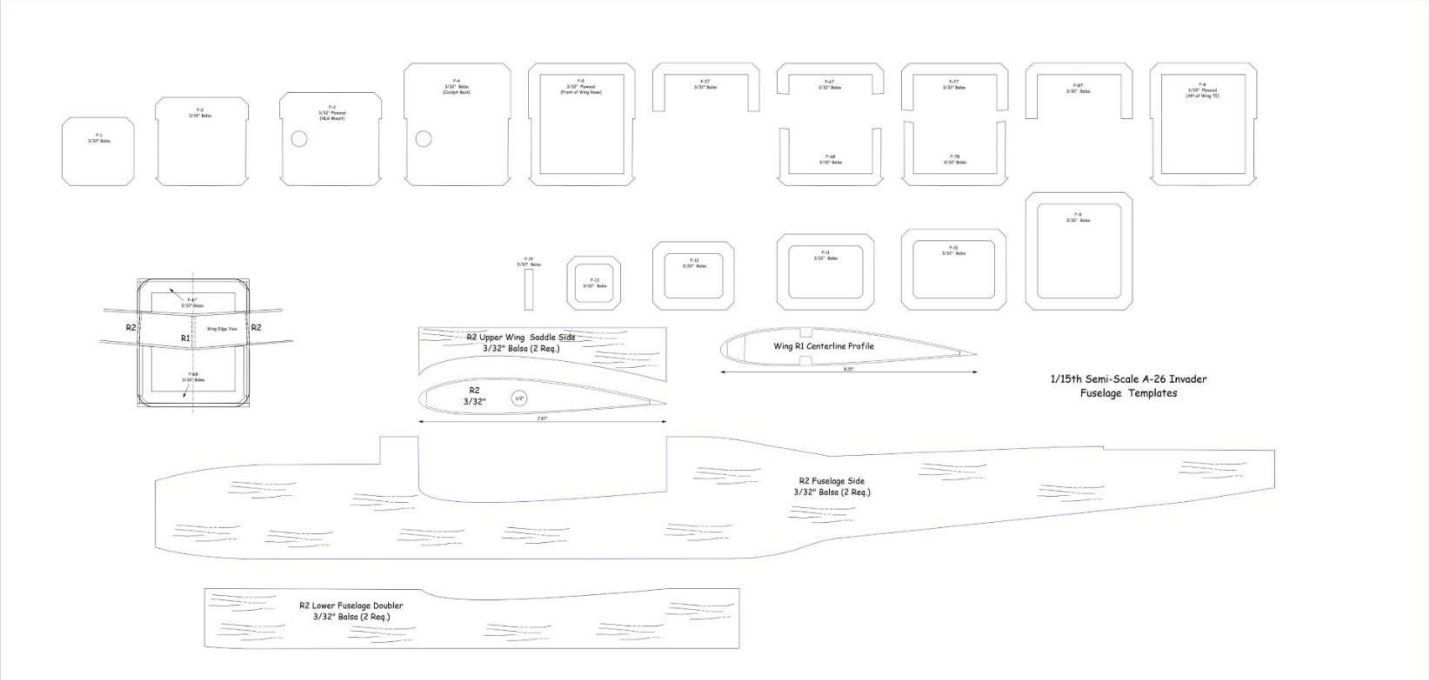


Figure 10 – A-26 Invader R2 Fuselage Templates Plan

With the fuselage plan nearly completed, I moved on to draw up a wing plan. Starting with the wing outline, measurements from the detailed 3-view drawings, some of the other A-26 plans wing design elements, review of my other scratch build plans, and **many hours** of working at my computer station, the results as of this moment are shown in Figure 11. The ailerons in the RC model are slightly larger than those on the actual A-26, but this adds some roll control to the model. I had considered putting flaps running from R5-R7 but elected to not add them to reduce the models weight. **Note** - I still have some more work to complete on this plan before I can call it finished.

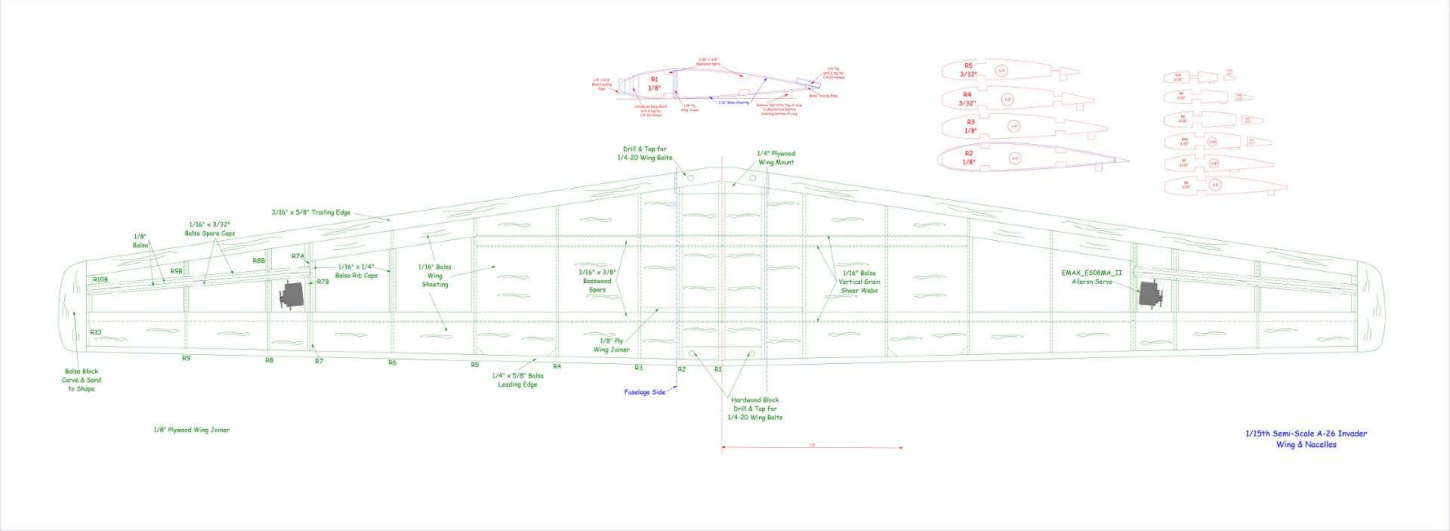


*Figure 10 – A-26 Invader **Draft** Wing Plan*

Stay tuned for more to come!!!

A-26 Invader RC Model Specifications

Aircraft Type: Semi-Scale Warbird
Flight Performance Category: General Twin-Engine Sport Scale
Scale: 1/15th
Wingspan: 56"
Wing Chord: 8.2" (centerline) – 3.75" (wing tip)
Total Wing Area: 316 in^2 (approx.)
Wing Location: Mid-Fuselage Wing
Airfoil: Semi-Symmetrical 1.25" (centerline) – 0.6" (wingtip)
Wing Platform: Triple Tapered *(only 2 wing ribs are the same size)*
Wing Dihedral: 1.55" at wingtip
Fuselage Length: 40"
Fuselage Width: 3.7"
Horizontal Stabilizer/Elevator Span: 17.8"
Horizontal Stabilizer/Elevator Chord: 5.4" (centerline) – 2.65" (stab tip)
Total Horizontal Stab/Elevator Area: 68.5 in^2 (approx.)
Horizontal Stabilizer/Rudder Dihedral: 2" at stab tips
Stabilizers Airfoil Sections: Both $\frac{1}{4}$" Flat
Vertical Stabilizer/Rudder Height: 7.25"
Vertical Stabilizer/Rudder Chord: 7.2" (base) – 4.25" (tip)
Total Vertical Stabilizer/Rudder Area: 39.6 in^2 (approx.)
Center of Gravity Location: **TBD**" aft of wing root leading edge
Required No. of Channels: 4 - Throttle, Rudder, Elevator, and Ailerons
Landing Gear: Tri-cycle Bent Music Wire Gear
Ready to Fly Weight: **TBD** oz.

A-26 Invader Materials and Parts List

Balsa & Plywood:

TBD	1/4" x 36" Balsa Triangle	fuselage & nacelle corners
TBD	1/4" x 3" x 36" Balsa Sheet	tail feather parts
TBD	l/8" x 3" x 36" Balsa Sheet	tail feather parts
2	3/32" x 4" x 36"Balsa Sheet	fuselage sides
TBD	3/32" x 3" x 36"Balsa Sheet	ribs, fuselage formers, sheeting
TBD	1/16" x 3" x 36" Balsa Sheet	wing and tail feathers sheeting
4	3/16" x 3/8" x 36" Basswood	wing spars
1	**3/16"?** x 12" x 12" Birch Plywood	nacelle firewalls
1	l/8" x 12" x 12" Birch Plywood	fuselage & nacelle formers
1	3/32" x 12" x 12" Birch Plywood	aileron servo plates
1	1/16" x 12" x 12" Birch Plywood	wing spars shear webbing
1	1" x 3" x 12" Balsa Block	fuselage & nacelle fillers

Flight Control System:

1	Spektrum AR610 6-Channel RC Sport Receiver	2.4GHz DSMX receiver
2	Hitch HS-225BB 27.7g Nylon Gear Analog Mini Servos	rudder & elevator servos
2	EMAX ES08MA II (12g) Metal Gear Servo	aileron servos
2	18" Servo Lead Extensions	aileron servo leads
2	10" Lead Extensions	ESC throttle leads
2	6" Lead Extensions	receiver to aileron servo leads
1	"Y" Harness	receiver to ESC leads

Electric Power System:

2 BadAss 2814-980Kv Brushless Motor, or E-flite Power 15 Brushless Outrunner Motor 950Kv EFLM4015A (https://www.amazon.com/flite-Power-Brushless-Outrunner-Motor/dp/B000ERG18O/), or E-flite Power 25 Brushless Outrunner Motor 870Kv EFLM4025A (https://www.amazon.com/flite-Power-Brushless-Outrunner-Motor/dp/B000C8KZSW/)

2 BadAss Rebel V2 Series Brushless 50A ESC, or 50A ESC 2-4S Electric Speed Controller 5v 3A BEC with XT60 & 3.5mm Bullet Plugs (https://www.amazon.com/Flycolor-Electric-Controller-Airplane-Brushless/dp/B09L5Z7GV7/?th=1)

2 BadAss 45C 3,300mah 3S LiPo Battery

2 MAS 10x7 3-Blade Propeller (1-CW & 1-CCW) (https://www.amazon.com/Master-Airscrew-Blade-Propeller-MAS0970T/dp/B07H961NYP?th=1)

3D Printing Materials:

Creality CR-PETG: Gray – Motor Nacelle Cowlings, Weapon Station Pylons/Rails, Munitions Models, MLG & NLG Strut Covers, Canopy, Gunner Turrets, air cooling scoops/vents/grills, and various antennas

Miscellaneous Items:

2	3" MLG Wheels	
1	2-1/2" NLG Wheel	
1	5/32"/4mm diam. x 36" Music Wire	MLG & NLG Struts
6	5/32"/4mm DU-BRO Nickel Plated Shaft & Wheel Collars	
1	5/32"/4mm DU-BRO Steerable NLG	
4	5/32"/4mm DU-BRO Nylon MLG Straps	
4	¼-20 DU-BRO Nylon Wing Bolts	
2	Du-Bro #129 Socket Head Bolt & Blind Nut Set	motor mount to N1 firewalls mounting
TBD	Du-Bro #116 Standard Nylon Hinges	elevator, rudder and aileron hinging
1	Du-Bro #500 36" Lazer Rod Pushrods	rudder/elevator control rods
2	Du-Bro #237 T-style Nylon Control Horns (2 each)	control surfaces rigging
2	Du-Bro #600 2-56 Spring Steel Kwik-Link Clevises	control surfaces rigging
2	Du-Bro #855 E/Z Links	ailerons rigging
2	6" 2-56 control rods	ailerons rigging
8	2-56 nuts	rudder, elevator, and ailerons rigging
TBD	#1 x 5/16" pan head screws	wing bolts hatch covers & wing servo mounting plates
1	2" x 12" VELCRO fastener tape	ESC and LiPo battery mounting
1	Hangar 9 Self Stick Weight 6 Oz	for CG balancing (if needed)

TBD	4x2mm Neodymium disc magnets	pylons & wing hardpoint attachment rails
1	8x11.5" 10mil clear plastic sheet	canopy windows??
1 bottle	Titebond Ultimate III wood glue	
1 bottle	Canopy glue??	
1 set	20 minute two-part epoxy	
1 sheet	220 & 320 grit sandpaper	initial & finish sanding
2	Rolls Of Ultracoat Light Gray Covering	