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Hello Swamp Foxes, Welcome to the October 2020 Newsletter.

I hope everyone is keeping well and in good health, Hopefully still building.

I have many in various stages of build, the weather is so much better for using my airbrush now, so no excuses to getting some completed.

I checked with the Library and they are open for loaning books, you walk in ask for a title and staff go away and retrieve it and that is it as far as library business.

Hang in there, stay safe and.....

Keep on Building

From the Front Office…

Howdy, all!

This month's meeting is scheduled. The 4-1-1:

Topic: IPMS/Mid-Carolina October 2020 meeting Time: Oct 21, 2020 06:00 PM Eastern Time (US and Canada) Join Zoom Meeting https://us02web.zoom.us/j/84317994455?pwd=NnUwMldqYzl2NlZiU1R5eXF4Y04yZz09 Meeting ID: 843 1799 4455 Passcode: 543268

In reference to my question last month (Do we want to try and host a show next year?), I have received exactly TWO responses. Please think about it and respond before 15 October. We really need to get moving now in case the Armory won't be available to us in June. I need to hear from all of you on this subject. I know that the situation with COVID-19 is still uncertain, but we still need to at least lay some groundwork. If COVID prevents us for again hosting a show, we should still be prepared.

I have contacted the library, and their meeting room bookings remain suspended until further notice. They cannot tell me when that might be, so we'll continue our monthly meetings on Zoom until such time that we can meet in person again.

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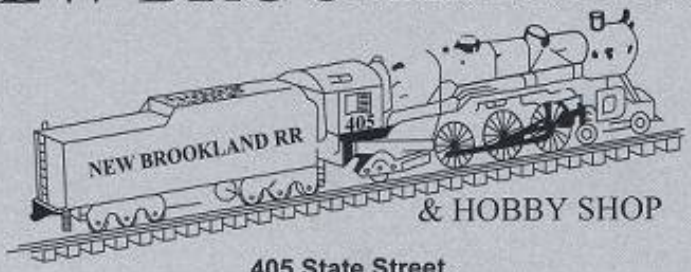

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Phantom Phacts

Ralph Nardone

"Never forget that, at the most, the teacher can give you fifteen percent of the art. The rest you have to get for yourself through practice and hard work. I can show you the path but I cannot walk it for you." -- Kung Fu Master Tan Soh Tin

The Short Form Scale Modeler's Guide to the F-4 Phantom II

MCDONNELL XF4H-1 (US NAVY)

I've embarked on several F-4 projects lately. When I started talking about my plans with some folks, I got a lot of questions about the F-4 in general. Every question I answered spawned three more questions. Since there have been dozens (literally!) of volumes written about the F-4, this short guide will serve only to point you in the right direction for your F-4 project. You are encouraged to use this as a stepping stone for your own research.

Origins and Other Geek Stuff

The McDonnell Douglas F-4 Phantom II (initially the McDonnell XF4H-1) was originally designed as the XAH-1, a single seat attack fighter for the U.S. Navy. A development of their earlier F3H Demon, the McDonnell Aircraft Company started with an enlarged twin-engine aircraft based on the F3H Demon—Wright J65's or General Electric J79's were the proposed powerplants. At the time, the Navy passed—they had the F9F Cougar and F8U Cutlass fighters, and were starting to use the Douglas A4D Skyhawk in the ground attack role.

McDonnell redesigned the airplane to be a supersonic fleet defense interceptor. They chose the J79 afterburning turbojet engines to propel the aircraft. A second crew member was added, McDonnell correctly surmising that the extra crew member would help shoulder some of the information load that came with modern military aviation. The Navy ordered two prototypes on 25 July 1955, and the first flight of the XF4H-1 was on 27 May 1958.

Initially, the type was to be named “Satan” or “Mithras”, keeping with the company’s penchant for using the names of supernatural apparitions for their airplanes (previous examples being the XF-85 Goblin, FH Phantom, F2H Banshee, and F3H Demon). The proposed names were passed over in favor of “Phantom II”. When the type initially entered USAF service as the F-110A, it was named “Spectre”, but the name was short-lived. In 1962, the type was designated F-4 Phantom II under the Tri-Service Designation system. The USAF’s F-110A became the F-4C after the initial XF4H-1 and F4H-1F’s became F-4A and the later F4H-1’s became the F-4B.

5,195 examples were produced, including 138 license-built aircraft in Japan. They were used by Australia (24 new F-4E’s on lease while problems with the F-111C were being ironed out), Egypt (ex-USAF F-4E), Germany (new F-4F and RF-4E), Greece (new and ex-USAF F-4E and new RF-4E), Iran (new F-4D, F-4E, and RF-4E), Israel (new and ex-USAF F-4E and new RF-4E), Japan (new F-4EJ, including 138 built by Mitsubishi Heavy Industries, and new RF-4E), South Korea (ex-USAF F-4D and new and ex-USAF F-4E), Spain (ex-USAF F-4C and RF-4C), Turkey (new and ex-USAF F-4E and new RF-4E), and the United Kingdom (new F-4K/FG.1, F-4M/FGR.2, and ex-USN/USMC F-4J).

The last St. Louis-built F-4 (an F-4E bound for South Korea) rolled out of McDonnell’s plant in 1979; the last ever Phantom II built (an F-4EJ) came off the Mitsubishi Heavy Industries production line in 1981. Some are still in limited use today. How’s that for longevity?

The Phantom Phamily

F-4A: A retroactive post-1962 designation for the XF4H-1/F4H-1F prototypes.
F-4B: Initial production model for the USN/USMC, formerly the F4H-1.
F-4C: Minimum change F-4B for the USAF with 11.5” wide main gear and bulged wing.
F-4D: F-4C with improved air-to-ground capability.
F-4E: Added internal M61A1 Vulcan cannon in an elongated nose for the USAF.
F-4EJ: Lightweight F-4E with simpler avionics for the Japanese Air Self Defense Force.
F-4EJ Kai: Updated F-4EJ with new avionics and structural upgrades.
F-4F: Lightweight F-4E for Germany with slatted wings. No AIM-7 Sparrow capability.
F-4F ICE: Updated F-4F with AIM-120 AMRAAM capability.
F-4G (USN): Converted F-4B with datalink carrier autolanding system.
F-4G (USAF): F-4E modified for the SEAD (“Wild Weasel”) mission (“Wild Weasel V”).
F-4J: “Navalized” F-4C with the wider wheels/tires and updated avionics.
F-4K: RR Spey-powered F-4J built for the Royal Navy, designated FG.1.
F-4M: RR Spey-powered F-4J built for the Royal Air Force, designated FGR.2.
F-4N: Updated F-4B’s with new avionics and structural changes.
F-4S: Updated F-4J with new avionics and a slatted wing similar that of the F-4E.
RF-4B: “Navalized” RF-4C for the USMC. Most retained thin wheels/wing of the F-4B.
RF-4C: Reconnaissance version of the F-4C for the USAF.
RF-4E: Export RF-4 variant; hard-wing F-4E with RF-4C nose.
RF-4EJ Kai: JASDF recon versions, two distinct aircraft configurations. See notes.

The Chart of Phantom Pheatures

The major visible distinguishing features of the Phantom subtypes are the main landing gear, the wing, the stabilators, the afterburners, the nose, and aerial refueling method.

Main Landing Gear: The F-4B, N, and RF-4B used a 7.7" wide main landing gear wheel and tire. All other F-4 subtypes used an 11.5" wide main wheel and tire, necessitating the addition of a bulge in the inboard wing over and under the main landing gear wells and on the doors. The F-4B/N and RF-4B wing was known as thin wing airplanes, the rest were called thick- or bulged wing airplanes. The nose gear struts were different between the ship-based (F-4B/N, RF-4B, F-4J/S, and the FG.1) and land-based versions. The U.S. ship-based versions could extend 20 inches for launch, while the FG.1 strut could extend 40 inches.

Wing: Initially, the wing had leading and trailing edge flaps, and was called the "Hard" wing. Beginning with the Block 48 F-4E's, the leading edge flaps were deleted and leading edge slats replaced them. Earlier surviving F-4E's were retrofitted. A similar (but not identical!) slatted wing was installed on the F-4S, a conversion of the F-4J.

Stabilators: The first production stabilators had a solid, cambered leading edge. The stabilators later received a cambered leading edge with aerodynamic slots that increased pitch authority in the low-speed regimes. Initially installed on the F-4J as part of an approach speed lift improvement program, the slotted stabilator was used on all further shipboard versions as well as some of the land-based Phantoms.

Afterburners: The F-4B/N, RF-4B, RF-4C, and F-4C/D used short exhaust nozzles (J79-GE-8 and -15 engines). All other J79 powered F-4's used a longer exhaust (J79-GE-10 and -17). The British Phantoms (FG.1 and FGR.2) used the Rolls Royce Spey (RB.168 Mk.202) turbofan engine, and had a larger exhaust nozzle that was smooth on the outside.

Nose: The F-4B/N, F-4C/D, F-4J/S, and the British Phantoms had a short nose housing a radar unit. The F-4B/N and F-4C/D had a fairing for an infrared sensor under the nose. This fairing was deleted on the F-4J/S and British versions.

The F-4E/EJ/F had an elongated radar nose with an under slung General Electric M61A1 Vulcan rotary 20mm cannon and 640 rounds of ammunition. There was a gun gas purge scoop in front of the windscreen that was open on the ground and whenever the gun was fired. The USAF F-4G had the gun removed and a sensor fairing installed where the gun's muzzle was located as part of the Suppression of Enemy Air Defense (SEAD, or "Wild Weasel") avionics package.

The reconnaissance variants had an elongated nose full of cameras and other equipment. There were two common designs for the recon nose—an earlier, flat bottomed angular nose and later, a curved bottom nose. Consult photographs of the airplane you are interested in to determine which was fitted to that airplane.

The environmental control system inlets on the long nose and reconnaissance airplanes were different from those on the short nose F-4's, the earlier ones being smaller and more symmetrical.

Aerial refueling method: The USAF versions and their derivatives had a high-speed flying boom refueling receptacle on the spine; all others had a Probe and Drogue aerial refueling system with a retractable refueling probe on the right hand side of the forward fuselage.

Type *(Initial Operator)*	**MLG**	**Wing**	**Stab**	**Exhaust**	**Nose**	**Refuel**
XF4H-1/F-4A *(USN)*[1]	7.7”	Hard	Unslotted[1]	Short	Short[1]	Probe
F-4B *(USN/USMC)*	7.7”	Hard	Unslotted[2]	Short	Short, IR	Probe
RF-4B *(USMC)*	7.7”[3]	Hard	Slotted	Short	Recon	Probe
F-4C *(USAF)*	11.5”	Hard	Unslotted	Short	Short, IR[4]	Boom
RF-4C *(USAF)*	11.5”	Hard	Unslotted	Short	Recon[5]	Boom
F-4D *(USAF)*	11.5”	Hard	Unslotted	Short	Short, IR[4]	Boom
F-4E *(USAF)*	11.5”	Hard[6]	Slotted[7]	Long	Long	Boom[8]
F-4EJ *(JASDF)*[9]	11.5”	Hard	Slotted	Long	Long	None[9]
F-4EJ Kai* *(JASDF)*[10]	11.5”	Hard	Slotted	Long	Long	None
RF-4E *(Luftwaffe)*	11.5”	Hard[11]	Slotted	Long	Recon	Boom
RF-4EJ Kai* *(JASDF)*[12]	11.5”	Hard	Slotted	Long	Long	Boom
F-4F *(Luftwaffe)*[13]	11.5”	Slatted	Unslotted	Long	Long	None[13]
F-4G* *(USN)*[14]	7.7”	Slatted	Unslotted	Short	Short, IR	Probe
F-4G* *(USAF)*[14]	11.5”	Slatted	Slotted	Long	Long	Boom
F-4J *(USN/USMC)*	11.5”	Hard[15]	Slotted	Long[16]	Short[16]	Probe
F-4J(UK)* *(RAF)*[17]	11.5”	Hard	Slotted	Long	Short	Probe
F-4K *(RN)* (as FG.1)[18]	11.5”	Hard	Slotted	Spey	Short[19]	Probe
F-4M *(RAF)* (as FGR.2)	11.5”	Hard	Unslotted	Spey	Short[19]	Probe
F-4N* *(USN/USMC)*[20]	7.7”	Hard	Slotted	Short	Short, IR	Probe
F-4S* *(USN/USMC)*[21]	11.5”	Slatted	Slotted	Long	Short	Probe

* = Conversion, no new airframes built

Keyed Notes:

1. The XF4H-1 aircraft had different inlets, intake ramps, stabilators, and noses than the production variants. Additionally, the early airframes had a flatter canopy profile.
2. Some F-4B’s would be retrofitted with the slotted stabilator late in their service life.
3. The last 10 production RF-4B’s had the wider 11.5” main landing gear and thick wing. The last three had the rounded reconnaissance nose.
4. The IR sensor was not fitted to the F-4C or F-4D, but the empty fairing remained.
5. Consult photographs to determine which nose was fitted to a particular airplane.
6. The F-4E received slatted wings with a thicker lower wing skin from Block 48. Earlier surviving F-4E’s (except the Thunderbirds aircraft) were retrofitted with the slatted wing and a lower wing skin stiffener called a “belly strap”.
7. In 1972, F-4E stabilators had an arrowhead-shaped doubler installed mid-span. Later, all surviving USAF F-4’s received this modification. Photos exist of USN F-4’s with these, but it was the exception rather than the norm.

8. Some Israeli F-4E's had a locally fabricated refueling probe fitted.
9. The F-4EJ was a lightweight version of the F-4E with simpler avionics and no aerial refueling equipment built for the Japan Air Self Defense Force. All but 2 of the 140 were built in Japan by Mitsubishi Heavy Industries.
10. The F-4EJ Kai was an updated F-4EJ, with structural modifications and new avionics. The biggest visual cue is a series of external stiffeners on the radome.
11. The RF-4E is basically a hard-wing, slotted stabilator F-4E fitted with an RF-4C nose. The last two production blocks of the RF-4E for Greece and Turkey had the slatted wing.
12. There are two distinct aircraft called RF-4EJ Kai. The first is an upgraded RF-4E; the latter is an F-4EJ (non-Kai) modified to carry reconnaissance pods.
13. The F-4F was a lightweight version of the F-4E built for the West German Luftwaffe. It lacked aerial refueling and AIM-7 Sparrow capability. The ICE (Increased Combat Effectivity) program in 1989 upgraded 110 of these aircraft with AIM-120 capability and other improvements including high-speed boom aerial refueling.
14. The original F-4G's were USN F-4B's equipped with experimental automatic carrier landing systems. Once the test period was over, they were converted back to F-4B's, although some of the equipment remained installed. The later USAF aircraft designated F-4G were converted F-4E's optimized for the Wild Weasel mission under Program WILD WEASEL V.
15. The F-4J had the inboard flap deleted as part of the approach speed lift improvement program that also added the slotted stabilators. This also added a feature where the ailerons were drooped 16.5° when the landing gear and flaps were extended.
16. The first F-4J's were delivered without radar—ballast was installed instead. They also had the J79-GE-8 engines featuring the shorter exhaust nozzles. The airplanes went to the Blue Angels and would retain the -8 engines for their service life.
17. The F-4J(UK) airplanes were 15 ex-USN/USMC F-4J's bought by the Royal Air Force in 1984. These were taken through the same SLEP that converted F-4J's to F-4S's with the exception of the slatted wing. American avionics were removed and British avionics were installed.
18. The FG.1 had a double-extendable nose strut for takeoffs from the shorter decks of the British carrier HMS Ark Royal. Along with that, a stabilator trim indication quadrant was painted on the left side of the tail for the deck crew to tell if the takeoff trim was set correctly. As these airplanes transferred to the RAF, this was generally removed, but the double-extendable nose strut remained.
19. The F-4K and F-4M (FG.1 and FGR.2) were aircraft based on the U.S. Navy's F-4J but built with Rolls Royce Spey afterburning turbofan engines. As a result, the inlets were wider, the aft fuselage was wider and deeper, and the exhausts were different. Many would have the belly strap installed at some point in their service life.
20. The F-4N was an updated F-4B with the aerodynamic approach speed lift improvements of the F-4J and updated avionics. The inboard leading edge flap was deactivated and locked closed.
21. The F-4S was an upgraded F-4J with updated avionics, a slatted wing and a belly strap similar to that of the early F-4E's was installed, and other minor changes such as low intensity formation ("slime") lights. The outboard slats were not identical to the USAF versions.

Additional Notes, Ephemera, Useless Trivia, and Other Geek Stuff

The ship-based Phantoms (F-4B/N, F-4J/S, RF-4B, and the FG.1/FGR.2) did not have flight controls in

the rear cockpit. There was a pedestal with a radar controller joystick located where a control stick would be. The right side of the cockpit was a vertical panel—there was no console on the left side of the rear cockpit of the ship-based Phantoms because that area is where the refueling probe well is located. The console on the left side was abbreviated compared to the land-based F-4's, too.

Some F-4C's (in the 1966-1967 time frame) did not have the IR fairing under the radome, these "dorkless" radomes were installed while the original radomes were being modified with the AN/APR-25 RHAW system antennas on the empty IR fairing. Check your references!

Late in their service lives, the USN/USMC F-4's received an AN/ALQ-126 Defensive ECM system featuring antenna fairings on the inlet shoulders, under the inlets and under the wings (the B/N inlet fairing cable guides were about twice the length of those on the F-4J/S). The shoulder fairings remained on the F-4J(UK) but were empty.

Ship-based versions had catapult bridle hooks installed in shallow depressions under the forward fuselage at the wing leading edge. The land-based versions did not, and a flat panel covered the area. The F-4J(UK) had the hooks removed but the depressions remained.

The ship-based airplanes received up-rated main landing gear struts installed. In the case of the USN/USMC aircraft, the main struts had a long-stroke oleo; the British struts were capable of landing at higher gross weights. A rounded rectangular clearance blister was installed on top of the wing over the pivot points as a result. USAF airplanes (and their derivatives) did not have this small blister.

Block 48 and newer F-4E's were TISEO (Target Instrument System, Electro-Optical) capable. The Northrop AN/ASX-1 TISEO consisted of a cylindrical fairing on the inboard left wing root that housed a camera used to visually acquire and track targets. The image was displayed on the WSO's radar display. TISEO could also be retrofitted to earlier aircraft.

There were two styles of gun muzzle fairing for the F-4E—the first was a short fairing that caused gun gas ingestion problems for the engines. A longer unit, called MIDAS 4, was the definitive muzzle fairing and became standard with the Block 48 airplanes.

Late in life, some F-4E's, F-4G's, and RF-4C's received the ARN-101 digital avionics modification. The visual indication was a trapezoidal antenna on the spine of the airplane.

There was a difference in inboard wing pylons. The ship-board variants (as well as early F-4C's, RF-4B's, and most RF-4C's) used LAU-17/A's with adapters; USAF used a MAU-12 rack in the weapons pylon. You can tell one from another easily—the LAU-17/A has a straight leading edge while the MAU-12 pylon has a curved leading edge. Either could be fitted with a pair of Aero 3A Sidewinder rail adapters on the sides of the launcher/pylon.

There were several types of 370-gallon underwing tanks made by McDonnell, Sargent Fletcher, and Royal Jet. The Sargent Fletcher was the prevalent type used—it can be identified by the single flange on the left side of the tank at the five o'clock position (when viewed from the front).

Royal Jet's 600-gallon centerline tank could be distinguished by the angled sway brackets aft and the

nose-down attitude when fitted. Later, the USAF (but not the USN/USMC) would adapt the 600-gallon tank used by the F-15 for use on the F-4 centerline station. It had a single sway bracket aft and was mounted level. It also had less of a drag penalty.

Other variants you might see mentioned in your travels:

EF-4B and EF-4J: ECM aircraft used for training.
EF-4C and EF-4D: Early SEAD fits under Program WILD WEASEL IV.
F-4 "Agile Eagle": Testbeds to explore the use of maneuvering slats for the F-15; the information gained led to the slatted wing modifications for the F-4.
F-4E(S): Three Israeli hard-wing F-4E's with an elongated nose housing a General Dynamics HIAC-1 LOROP (LOng Range Oblique Photography) camera with a 66-inch focal length lens for high-speed, high altitude reconnaissance. Offshoot of the PEACE JACK program.
F-4(FBW)/F-4 PACT/F-4 CCV: The YRF-4C reconfigured for (variously) fly-by-wire and canard controlled vehicle testing.
DF-4J: Drone controller aircraft.
F-4X: Highly modified with new inlets, water injection (pre-compression cooling or PCC) conformal tanks, and elongated nose housing the HIAC-1. Remarkable because the HIAC-1 had previously only been flown aboard USAF RB-57D's and in bulky centerline pods on RF-4C's. Part of the PEACE JACK program.
Super Phantom: Proposed Boeing-led upgrade to replace the J79's with PW1120 afterburning turbofans, under-fuselage conformal fuel tank, and new avionics. Some of these changes were also projected to be used by the Kurnass 2000 program in Israel, but were not.
Kurnass 2000: Israel modified some of their F-4E's with new avionics and capability to use the Rafael Popeye (aka the AGM-142) standoff missile. Some of this same technology would be used to update some of the Turkish F-4E's as well.
QF-4B/QRF-4C/QF-4E/QF-4G/QF-4N/QF-4S: Aircraft converted to remotely piloted target drones.

The PEACE JACK, F-4X, and Super Phantom programs were designed to increase the altitude and speed performance of the F-4, and were cancelled because they would either draw sales away from new aircraft (primarily the McAir F-15 and F/A-18) or allow other nations to have reconnaissance capabilities approaching that of the Lockheed SR-71 Blackbird.

So, what about kits?

Choosing the "best" model kit of any subject is a minefield. As with all things related to plastic models, one's opinion of the "best" kit of any subject can be highly subjective due to several factors, not the least being price, ease of assembly, and the level and fidelity of detail included. Because of that, I'll attempt only to tell you about the kits. What you see is either a collection of what I've collected via as many reviews of a particular kit that I can find or personal experience. I'll let you decide which one is the "best" for your personal needs…

For more information on release dates, timelines, and re-boxings, the best resource to use is Scalemates.

1/32 Scale

Tamiya's lineup of large-scale Phantoms is good, but not totally great. Starting in 1995 with an F-4C/D, they have also made the F-4J and a hard-wing F-4E. They represented several maintenance panels as raised panels, and these stand a little bit too proud of the surface, so a touch of sanding is warranted if this bothers you. The exhausts are also a touch too small, so you might want to secure replacements. The gun-nose kits include both muzzle fairings.

Starting in 1995, Revell also made new-tool kits of the RF-4E, F-4F, RF-4C, F-4E, and an F-4G. The newer Revell kits are almost as good as the Tamiya kits--almost. Revell's F-4E/F nose is a bit skinny and too pointy (you'll see this claim again), the nose strut is anemic, and the cockpit detail is not as good as that of the Tamiya kit. Revell's long nose versions include a slatted wing.

There is a big difference in price, too—Revell's kits initially retailed for $30 while Tamiya's MSRP was around $100. Only you can decide if the extra dough spent is worth it.

If you want a thin-wing Phantom in 1/32 scale, there have been a few aftermarket conversions available from Real Model, GT Resin, and Cutting Edge.

Revell had kits of the F-4J and F-4E (also released as an RF-4E, F-4F, and RF-4B) in the 1970's and are best left to the collectors and nostalgia folks.

1/48 scale

The most recent kits of the F-4 are the Zoukei-Mura kits initially released in 2016. There's been some grousing online about an incorrect contour in the aft fuselage at the exhausts, and they aren't cheap ($75 a pop from most retailers). But they have been deemed superb kits by all who have built them, and they do represent the state-of-the-art in injection molding. They've done the F-4C/D and F-4J/S so far, and their new F-4E kits are just starting to hit the streets, and early word says the aft fuselage on the F-4E has been corrected. Z-M has indicated that they want to complete the series, so stay tuned.

Hasegawa's 1/48 scale Phantom Phamily started hitting the hobby shop shelves in 1982, at the exorbitant (for the time—I remember hearing the wailing and crying!) price of $20 American. Initially, the kits featured raised panel lines, but through the years, the earlier raised panel line kits (save for the F-4B/N and F-4C/D) have been revised to feature recessed panel lines. The biggest drawbacks are fiddly fit around the intakes (a common ailment of all Phantom kits) and the lack of underwing stores included in the kits. You'll want to dip into your spares box or purchase aftermarket weapons sets. So far, they are the only manufacturer to produce the entire F-4 series in this scale--Hasegawa offers all of the subtypes, including the slatted-wing F-4E/F and the Spey-powered FG.1 and FGR.2. .

Academy's short-nose (F-4B/N, F-4C/D, and F-4J so far) kits that were released in 2012 aren't bad—in fact, some folks like them over the Z-M and Hasegawa kits. A few reviews say the nose and tail near the stabilators have minor shape problems and that the canopy center bridge is too wide, but it certainly looks like a Phantom when completed. The ECS scoops have shape issues, too; fortunately there are aftermarket fixes for this. The shape around the aft fuselage at the engine exhausts is

deemed to be better than that of the Z-M kit. Starting in 2014, Eduard re-released the Academy F-4B, F-4C, F-4J, and F-4N plastic in their Limited Edition series with resin ("Brassin") and etched detail parts with decals designed by Furball Aero Design and printed by Cartograph.

In 1979, Monogram issued an F-4C/D kit, followed in 1981 by a "Black Bunny" F-4J of VX-4. They have the dreaded "raised panel line" affliction that so many modelers consider deal-breakers, the USAF kits are closer to an F-4C than to an F-4D, and the cockpit isn't quite correct for the Navy F-4J, but all in all, they were good value for the dollar. Monogram's take on the intakes is quite different than the other manufacturers, and it is either the best thing since bottled beer or the worst thing since New Coke, depending on personal circumstances. The cockpit detailing in these kits is typical Monogram—the instrument panels and consoles feature relief molded details, and the seats feature all the straps and face curtain handles. In a word, they are superb. Many a modeler has "borrowed" a Monogram cockpit to detail other kits…

ESCI made 1/48 scale kits as F-4B/J, F-4E/F, and F-4C/D that came out 1980. While not as detailed as the Monogram kits from about the same time, they can be made into super models without a lot of work, although there are some problems. For instance, the F-4B/J kit only has the thick wing and slotted stabilators, most likely because the decal options included the striking color scheme for "Vandy 76", Bureau Number 153088, the VX-4 Bicentennial airplane, which was a conglomeration of an F-4J airframe, an F-4B nose, and—something ESCI missed completely—experimental fixed leading edge maneuvering slats on the wing. The F-4E/F lacks the slatted wing (meaning you can't build an F-4F from the kit). Like their smaller F-4E, this one was the best until Hasegawa's materialized a few years later—shape-wise, it was better than the Fujimi and Revell kits that preceded it. The F-4C/D kits were a nice alternative to the Monogram kits—they were only a few bucks more and had recessed panel details. The cockpits are rather simple, but they are passable under a closed canopy and sitting on a shelf or in a display case. Italeri has reissued some of them, too, and you'll see them at shows for cheap.

In addition to these kits, there are a few others in 1/48 scale:

Testors kitted the RF-4C/E and F-4E/F/G in 1980. Their RF-4C/E didn't have the forward Sparrow well fairings, the F-4G had some cockpit issues, and overall the detailing generally wasn't very good. Italeri reissues these kits from time to time. The one thing the long nose kit had going for it is the inclusion of the slatted wing, and back in the day this was the only way to get a Photo Phantom.

Aurora (no surprise) was one of the first to market with a kit of the then-F4H-1 in 1961—it is typically Aurora, and best left to the collectors.

As mentioned in the ESCI commentary, Fujimi (in 1971, also released under the Bachmann/Fujimi and AHM/Fujimi labels) and Revell (1977) each had an F-4E (Revell's being a slatted wing airplane), but the Revell kit had shape issues (skinny, pointy nose, canopy looks squashed) and the Fujimi kit was closer to 1/50 scale.

Perhaps the most ambitious kit I can recall of the Phantom was made initially in 1965 by Marusan, and it was later released by UPC, Fuji, Sunny, and, finally, Entex Industries. It too was in 1/50 scale, and included full interior details (including the engines and fuselage fuel cells), but these were not

optional parts—you had to use them or re-engineer a lot of the kit. The box advertised that you could build it as a B, C, or E version—but regardless of what the box said, it wasn't accurate for any of them. Even if you accept the off scale, the quality of the kit was lacking (that's being kind—"crude" is more like it), as there were knockout pin marks and short shots galore. I received one of the Entex Industries issues as a Christmas present in the late 1970's. It was so full of bad parts that I wound up cannibalizing whatever I could from the kit over the years, eventually tossing the remnants in the garbage when the family moved in 1989. The only thing that kit had going for it was the illustration on the box: "Old Nick 201" from VF-111. What kid could resist a shark-mouthed F-4?

1/72 scale

Right now (October 2020), the best F-4 *families* of Phantom kits in this scale remain the Hasegawa and Fujimi kits. Hasegawa does them all except the Spey-engined FG.1 and FGR.2. Fujimi does them all, including the Spey Phantoms. I mention this simply because some folks like continuity, and different manufacturers do things, well, differently. If you want uniformity in your collection, these are the kits to use.

Hasegawa's new tool F-4 kits, which debuted in 1990, have a better cockpit than Fujimi, but neither manufacturer is stellar in that regard—the Hasegawa tub fits a lot better, which is what puts them in the top slot for me (their RF-4B and RF-4C also have more detail to the camera bays). The seats are basic, so you can either detail them yourself with strips of paper or tape and some wire. Likewise, all the consoles and instrument panels are represented by decals.

Fujimi's kits came on the scene in 1984, and the biggest complaint was the ill-fitting cockpit tubs, an issue partially corrected in later issues. The first issues only included a multi-part open canopy; later issues had only a one-piece closed canopy. At some point, both canopies were included in some kits. The control sticks are too long, and the instrument panels sit too far forward. The same comments about Hasegawa's cockpit detailing also apply to the Fujimi kits.

Academy released their 1/72 scale F-4J in 2015 in their MCP (Multi-Colored Plastic) line. They are a hybrid between a press fit and a glue kit—indeed; they suggest you secure the parts with glue. Honestly, the cockpit tubs are more detailed than either Hasegawa's or Fujimi's! Whether they extend the line or not remains to be seen.

Monogram shrunk down their 1/48 scale F-4C/D and F-4J kits to 1/72 scale and issued them beginning in 1985. The same comments I made for their 1/48 scale kits apply here, too. At one point, they were reissued by Accurate Miniatures.

In 1982, ESCI produced a 1/72 scale line of F-4's, including an F-4C/J, F-4E/F, F-4S, and an RF-4C/RF-4E kit. Like their bigger brothers, the F-4C/J is neither/nor, but an attractive model can be built from it—the cockpit is more USAF than USN, and the kit offers the slotted stabilators that were not used on the F-4C or F-4D. The F-4E was "it" in this scale before the advent of the Hasegawa and Fujimi kits. If you're more interested in color schemes than in absolute nut/bolt/rivet accuracy, these might just be the ticket. Like their larger brethren, they are still generally available in a variety of boxes, most recently Italeri.

Starting in 1997, Revell AG/Revell GmbH (aka "Revell of Germany") produced a series of long-nose

Phantoms, including the RF-4E. Some of the comments I've read state that the nose is too skinny/pointy, just like most of Revell's—past and present--Phantoms. The few I've seen built seem to bear that out.

Airfix recently (2017 and 2019) released two Spey Phantom kits, an FG.1 and an FGR.2. While nice, they have some curious omissions. But they have a more accurate shape than Fujimi's, and the aftermarket has catered to those who want to fix the goofs that Airfix made.

FineMolds has announced a new tool kit of the F-4EJ and F-4EJ Kai that looks inviting, and should be useable (with a little work) as a hard-wing F-4E, as well. Perhaps they will also make a slatted wing kit, and eventually follow Z-M's lead and give us a state-of-the art series of Phantoms in 1/72 scale. Hey, a guy can dream…

There are others out there in 1/72 scale, but they really aren't worth the time and effort:

In 1965, both Revell and Airfix offered 1/72 scale kits, and neither is very good, even looking at them as products of their time. They have been released as pretty much every variant, with very few changes being made to the actual plastic.

Matchbox did a Spey Phantom kit (as an F-4K/M) in 1975, and to their credit it wasn't simply a re-boxed F-4J with roundels (as were the Revell, Airfix, and early Hasegawa kits), it actually represented a Spey-powered airplane. But it was typical Matchbox—heavy panel lines and soft details. From a shape/proportion standpoint, they were better than the Fujimi kits, but the practice bleeding you'd need to do to bring the rest of the kit up to Fujimi specs isn't worth the effort, especially with the new Airfix kits available.

Testors followed their 1/48 scale Phantoms with similar versions in 1/72 scale in 1981, and the comments I made about the 1/48 scale kits also apply to the smaller kits.

Hasegawa had older kits of both short and long nose F-4 kits in the early 1970's, and the F-4E was by far the better of the two. The short-nose kits had some serious shape issues around the inlets, cockpits, and radome, so back in the day the best way to get a short nose F-4 was to mate the nose from a Revell or Airfix kit to a Hasegawa long nose fuselage and wing, and add the appropriate details parts (exhaust nozzles, pylons, etc.) and decals. Interestingly, the older Hasegawa kits (particularly the F-4E) have been reissued up until 2010 or so, so you really need to check your scorecard before you purchase a Hasegawa 1/72 F-4.

References? You want references?

Here are some of the better references on the F-4 (again, judged either by experience or peer review):

The Detail and Scale series, Volume 1 (F-4C/D), Volume 7 (F-4E/G), Volume 12 (USN F-4's), and Volume 43 (Updated F-4C/D) are decent references to use for the American F-4 variants, but they are, with the exception of Volume 43, a bit dated. They include a Modeler's Section with kit reviews as well as nicely done 3-view drawings.

For the USAF variants, there is The Modern Phantom Guide: The F-4 Phantom Exposed by Jake Melampy. It is currently out of print.

Daco Publications has the Uncovering the US Navy Q/F-4B/J/N/S Phantoms book, and if you're building a Navy F-4 and need a reference, well, this is it.

Another good reference is Aerospace Publishing's McDonnell F-4 Phantom: Spirit in the Skies. A lot of text, a comprehensive listing of Phantom operators through the years, and, in the variants section, there are small drawings that illustrate the differences between the various subtypes of the F-4. Initially published in 1992, a later revision was published in 2002.

Finally, there is the six-volume (and counting?) Phantom series from Double Ugly!, an associate of AIRdocs Publishing. They're available from Shop of Phantoms or on Amazon.

Online, there are a few sources, too. For USN/USMC Phantoms, there are few better than Tommy Thomason's Tailspin Topics site. For a lot of miscellaneous data from a former Phantom Phixer, there is The Phantom Phacts site. Also, the Reference Section on the Box Art Den website features quite a few reference sources for the Phantom. Most are dated, but there are some (Aeroguide, Aerofax) that stand the test of time.

Incidentally, if you haven't yet checked out Scalemates and The Box Art Den sites, you owe it to yourselves to do so. Both sites are treasure troves of information on models, model box art, and references.

As you start to dive into all things Phantom, you'll start to realize just how great an airplane it was. Designed as a fleet defense interceptor, it performed that mission, the ground attack, and electronic warfare roles equally as well. The fact that most NATO allies flew the F-4 in some guise or another at some point in time indicates the type's usefulness.

As I said in the opening of this article, what you have just read represents a grain of sand on the beach as far as the F-4 is concerned. There's a whole world of more technical information out there—go discover it!

by Mariusz Gasior

THE ROAD TO BRITAIN

On 1 September 1939 the German Army, supported by the Air Force (Luftwaffe) and Navy (Kriegsmarine) invaded Poland from three sides. Polish defences, already strained under a powerful and innovative German assault, collapsed shortly after the Soviets launched their own invasion from the east on 17 September. Polish forces fought with distinction, but Poland was crushed by the two invaders in five weeks.

After their defeat, tens of thousands of Polish servicemen made their way to France to continue the struggle against a common enemy. The Polish Air Force (PAF) was recreated and established on French soil following a number of agreements between the French government and the Polish government-in-exile. Despite suffering a crushing defeat, Polish airmen maintained excellent morale and relished the opportunity to fight the Germans again.

In April 1940 the PAF was comprised of three fighter wings and one close reconnaissance wing, each with two squadrons. The combat experience and fighting ability of the Polish pilots was largely ignored by the French. Training was generally inadequate and conducted on obsolete equipment. Polish pilots were rarely deployed to combat units. During the German invasion of France in May and June 1940, only 174 Polish airmen, or 10% of the available strength, were used in combat. Despite these difficulties, the Polish airmen distinguished themselves during the French campaign, scoring 52 confirmed, 3 probables and 6 damaged enemy aircraft.

POLISH PILOTS ON BRITISH SOIL

The first Polish pilots reached Britain on 8 December 1939, arriving in Eastchurch in Kent after their departure from France two days earlier. More large transports followed in two-week intervals, and by early June 1940 a total of 2,164 air personnel had arrived in Britain and been assigned to various squadrons. France's capitulation on 25 June 1940 forced the Polish Armed Forces, alongside other Allied troops, to withdraw their units to Britain. A further 6,220 Polish air personnel would reach Britain by the end of July 1940, increasing the total of Polish airmen on British soil to 8,384 men. Exhausted servicemen, tired of being defeated by the Germans, looked upon Britain with great anticipation and named it 'The Island of the Last Hope'.

(© IWM CH 1533) A group of pilots of No. 303 (Polish) Fighter Squadron RAF standing by one of their Hawker Hurricane Mark Is at RAF Leconfield in Yorkshire, 24 October 1940. Picture from left to right are: Pilot Officer Miroslaw Feric, Flying Officer Bogdan Grzeszczak, Pilot officer Jan Zumbach, Flying Officer Zdzislaw Henneberg and Flight Lieutenant John Kent, a Canadian who commanded 'A' Flight of the Squadron at the time.

On their part the British, like the French before them, accepted as truth the German propaganda about Polish ineptitude in resisting the German-Soviet invasion and were doubtful about the flying skills of the Polish pilots. Flight Lieutenant John A Kent, who was posted to No. 303 (Polish) Fighter Squadron during the Battle of Britain, summed it up in his memoirs:

'All I knew about the Polish Air Force was that it had only lasted about three days against the Luftwaffe, and I had no reason to suppose that they would shine any more brightly operating from England'.

(© IWM HU 4044) Types of aircraft used by the PAF during the invasion of Poland, including a PZL.37 'Los' medium bomber of the 1st Air Regiment with row of PZL P.11 fighter planes of the 111th and 112th Fighter Escadrilles in the background, photographed at Okecie airfield near Warsaw in early 1939. No. 303 Squadron carried on the 11th Escadrille's traditions.

NOS. 302 AND 303 (POLISH) SQUADRONS ESTABLISHED

Meanwhile for Britain the situation was becoming desperate. Over the course of the summer of 1940, RAF Fighter Command was engaged in a series of desperate actions against the Luftwaffe. Many experienced British pilots were killed, wounded or simply exhausted. There were not enough trained pilots and there was insufficient time to train those available for combat. The Poles, from the very beginning, had shown their eagerness to fight and the RAF's attitude towards them became more accommodating. Two Anglo-Polish Agreements were signed, one on 11 June and one on 5 August 1940, which formed the independent Polish Air Force and envisaged the formation of fighter, bomber and army cooperation squadrons. In July and August, two of the first Polish fighter squadrons, Nos. 302 and 303, were established.

Once the agreements were in force, the first task was to get the Polish pilots trained on a completely new type of aircraft. The Poles had to be taught practically everything from scratch, including how to measure speed in miles instead of kilometres and fuel in gallons instead of litres. They had to learn to push the throttle forward to accelerate, not backwards as it was set in Polish aircraft. Another problem for them was flying aircraft with retractable landing gears - many pilots landed with the wheels still up. Pilot Officer Wladyslaw Rozycki of No. 238 Squadron RAF expressed how difficult the training procedure could be:

'This day a very sorry and unpleasant thing happened to me. I have damaged a machine, for the first time in my eleven years of flying! Even more painful, as it happened on foreign soil'.

(© IWM HU 106347) General Wladyslaw Sikorski, Commander-in-Chief of the Polish Armed Forces, inspects Polish airmen during their training in France, 15 April 1940.

Language lessons became a top priority as most of the Polish pilots did not know a single word of English. Communication between British and Polish officers had to be carried out in French. The RAF also came up with a way to teach the 'newcomers' British tactics. Pilots of Nos. 302 and 303 Squadrons were ordered to ride tricycles - all equipped with radio, speed indicators and compasses - around airfields in flying formations. The Poles, combat experienced and eager to fight, did not take that kind of approach very lightly. Pilot Officer Jan Zumbach wrote in his memoirs:

'The British wasting so much of our time with their childish exercises, when all of us had already won their wings'.

It soon became clear to the British that the Poles were extremely skilled pilots. In July 1940 the first Polish fighter pilots joined RAF Squadrons. Flying Officer Antoni Ostowicz and Flight Lieutenant Wilhelm Pankratz were posted to No. 145 Squadron RAF on 16 July. Three days later Flying Officer Ostowicz scored the first Polish kill in the Battle of Britain by sharing a He 111 over Brighton. Unfortunately he was also the first Polish pilot to die in the battle, shot down by Messerschmitt Bf 109s south of Swanage on 11 August. Finally the Poles joined the battle against the Germans on equal terms.

(© IWM CH 1531) Flying Officer Zdzislaw Henneberg, Flight Lieutenant John Kent and Flying officer Marian Pisarek, all from No. 3030 Fighter Squadron, stand by one of the Squadron's Hurricanes at RAF Leconfield on 24 October 1940.

POLISH PILOTS DURING THE BATTLE OF BRITAIN

A total of 145 experienced and battle-hardened Polish airmen fought in the Battle of Britain - 79 airmen in various RAF squadrons, 32 in No. 302 (Polish) Fighter Squadron and 34 in No. 303 (Polish) Fighter Squadron.

On 13 August Hermann Göring launched the Luftwaffe's all-out air assault on Britain. This day, called Adlertag ('Eagle Day') was the first day of the Germans' Adlerangriff ('Attack of the Eagles') operation. For the next few months, the RAF and the Luftwaffe would engage in a series of intense air battles as the Germans sought to destroy RAF Fighter Command and secure control of the skies over England ahead of their planned invasion

(© IWM CH 1537) Pilot Officers Jan Zumbach (left) and Miroslaw Feric, two aces of no. 303 Squadron, play with the Squadron's puppy mascot at RAF Leconfield on 24 October 1940.

Polish pilots in RAF squadrons played a substantial part in all operations against the Luftwaffe in increasing numbers. One of the finest examples of their work was a remarkable feat accomplished by Sergeant Antoni Glowacki of No. 501 Squadron RAF, who on 24 August claimed five enemy bombers, which were shot down in three combat sorties over one day. He was one of only three pilots who achieved 'Ace-in-a-Day' status during the battle and recalls the day's actions in his memoirs:

'Suddenly a Defiant with a Messerschmitt 109 on its tail flashed across my path between me and the Junkers. I am now firing at the Messerschmitt and see my bursts sink into its fuselage and wings. He is hit and goes down closely behind the Defiant, which trails black smoke. Both aircraft crash into the sea below'.

SUCCESS OF NO. 302 SQUADRON

No. 302 was the first Polish squadron to be declared operational and entered battle on 15 August. Operationally it belonged to 12 Group and its task was to relieve squadrons of 11 Group when necessary. The Squadron intercepted its first enemy aircraft on 20 August. The encounter ended with a Junkers Ju 88 bomber shot down by the British unit commander, Squadron Leader William Satchell. Other pilots in the squadron would distinguish themselves during the climactic combat over London on 18 September, when the squadron shot down nine enemy aircraft and scored a further three probables and one damaged. The Squadron's overall score during the Battle of Britain was 18 2/3 enemy planes destroyed, 12 probables and one damaged.

(© IWM HU 106461) Portrait of Flying Officer Antoni 'Tony' Glowacki, who shot down five enemy planes in one day on 24 August 1940 while in service with No. 501 Fighter Squadron RAF. At the time this photograph was taken, 13 April 1943, he was serving with No. 308 (Polish) Fighter Squadron.

Meanwhile, the pilots of No. 303 (Polish) Fighter Squadron were awaiting action with growing desperation. Most of them were experienced veterans of the Polish and French campaigns. After weeks of training on bicycles at RAF Northolt, the pilots finally got a chance to prove themselves in combat. On 30 August six of the unit's Hurricanes took off on a routine interception exercise to carry out a mock attack on six Blenheim bombers in the St. Albans area.
One of the pilots, Flying Officer Ludwik Paszkiewicz, describes the action in an official report:

'After a while we noticed ahead a number of aircraft carrying out various evaluations… I reported it the Commanding Officer, S/Ldr [Squadron Leader] Kellett, by the R/T [Radio Telephone] and, as he did not seem to reply, I opened up the throttle and went in the direction of the enemy…Then I noticed, at my own altitude, a bomber with twin rudders – probably a Dornier – turning in my direction…Then I aimed at the fuselage and opened fire from about 200 yards, later transferring it to the port engine, which I set on fire…The Dornier…dived and then hit the ground without pulling out of the dive and burst into flames. I have been firing at an enemy aircraft for the first time in my life'.

On his return to Northolt, Flying Officer Paszkiewicz was reprimanded for breaking discipline and congratulated on his and the squadron's first victory. The next day the squadron was declared fully operational and posted to No. 11 Group. This episode was immortalised in the famous "Repeat, please" scene in the classic 1969 film, Battle of Britain.

(© IWM HU 106457) Pilots of No. 303 Fighter Squadron rest in front of a dispersal hut at RAF Northold in September 1940. From left are: Pilot Officer Witold 'Tolo' Lokuciewski (leaning on the chair); Flight Lieutenant Witold Urbanowicz (seated in the chair in the foreground); Zygmunt Wodecki, the squadron doctor (in a dark uniform); Sergeant Josef Frantisek (in the back, face partially covered); Flight Lieutenant John Kent; Flying Officer Ludwik Paszkiewicz.

303 SQUADRON - THE HIGHEST SCORING UNIT IN THE BATTLE OF BRITAIN

In the following weeks the squadron achieved a truly astonishing score of 126 enemy planes, as well as 13 probables and 9 damaged, claiming the title of the best scoring unit of the Battle of Britain. One of their extraordinary feats was shooting down 14 enemy planes, plus four probables, in one sortie over London on 7 September - the first day of the Blitz- without a single loss on their side.

(© IWM HU 106456) Portrait of Sergeant Josef Frantisek, the Czech fighter ace who served with No. 303 Fighter Squadron and was the highest scoring pilot of the Battle of Britain. He is credited with 17 confirmed kills and 1 probable.

POLISH CASUALTIES IN THE BATTLE OF BRITAIN

In the Battle of Britain, Polish pilots serving in all RAF squadrons achieved a remarkable score of 203.5 destroyed, 35 probables and 36 damaged. Other sources give 131 kills as there is generally variation in figures for claimed 'kills' - the entire RAF score was lowered from 2,692 to 1,733 aircraft destroyed due to the discrepancy between British and German official figures.

Such a feat could not be achieved without a price. Twenty-nine Polish pilots, including Ludwik Paszkiewicz and Josef Frantisek, lost their lives in combat against the Luftwaffe during the Battle of Britain.

Commander-in-Chief of Fighter Command, Air Chief Marshal Sir Hugh Dowding, who once was so reluctant to allow Polish pilots into battle, summarised their contribution in probably the most telling way:

'Had it not been for the magnificent work of the Polish squadrons and their unsurpassed gallantry, I hesitate to say that the outcome of battle would have been the same'.

(© IWM CH 1840) The first four Polish recipients of the Distinguished Flying Cross of No. 303 Fighter Squadron wear their awards after a presentation ceremony by Air Marshal Sholto Douglas at Leconfield,15 December 1940. Left to right are: Flying Officer Witold Urbanowicz, Pilot Officer Jan Zumbach, Pilot Officer Miroslaw Feric and Flying Officer Zdzislaw Henneberg.

AFTER THE BATTLE

Polish fighter pilots became instant celebrities with all classes of British society. International journalists flocked to airfields to write about their exploits, waiters refused to take payments for their meals in restaurants, bar owners paid for their drinks and bus conductors allowed them free journeys. Quentin Reynolds, one of the war's most well-known American war correspondents, dubbed Polish airmen 'the real Glamor Boys of England' in *Collier's Weekly*, an apt reflection of the 'hero worship' attitude the British had towards them.

After the Battle of Britain the Polish Air Force continued to serve alongside the RAF until the last day of the war. By early 1941 the PAF listed 13 units – eight fighter, four bomber and one reconnaissance squadron. In 1943 and 1944 a further two observation squadrons were formed. Polish airmen in these squadrons participated in practically all RAF operations in the European theatre of the war. Their contribution to the war against Nazi Germany was significant, although achieved at a very heavy price. The 1,903 personnel killed are today commemorated on the Polish War Memorial at RAF Northolt.

After the war, some of the Polish airmen settled in Britain and continued their service in the RAF,

mostly as flight instructors. Others decided to return to Poland, by then under Soviet occupation. This often had very serious consequences. The Communist regime, distrustful towards ex-servicemen of the Polish Armed Forces in the West, barred them from flying in the PAF and in numerous cases imprisoned them on trumped up charges of espionage. One of the most drastic cases is that of Wing Commander Stanislaw Skalski, the top Polish scorer of the entire war, who spent eight years in prison after initially being sentenced to death. It was not until Stalin's death in 1953 that most of the airmen were able to regain their ranks and serve again in the Polish Air Force.

(© IWM HU 128081) The Poles' reputation for gallantry towards women became so famous that some British pilots pretended to be Polish. Collier's Weekly published a supposedly successful pickup line devised by one of the RAF pilots: 'I am a Polish aviator. Please have a drink with me. I am very lonely'. Wing Commander Tadeusz Sawicz of the 3rd Polish Fighter Wing is photographed here with his bride, Mrs Diana Hughes, after their wedding at Corpus Christi Church on Maiden Lane, Covent Garden, London on 24 August 1944.

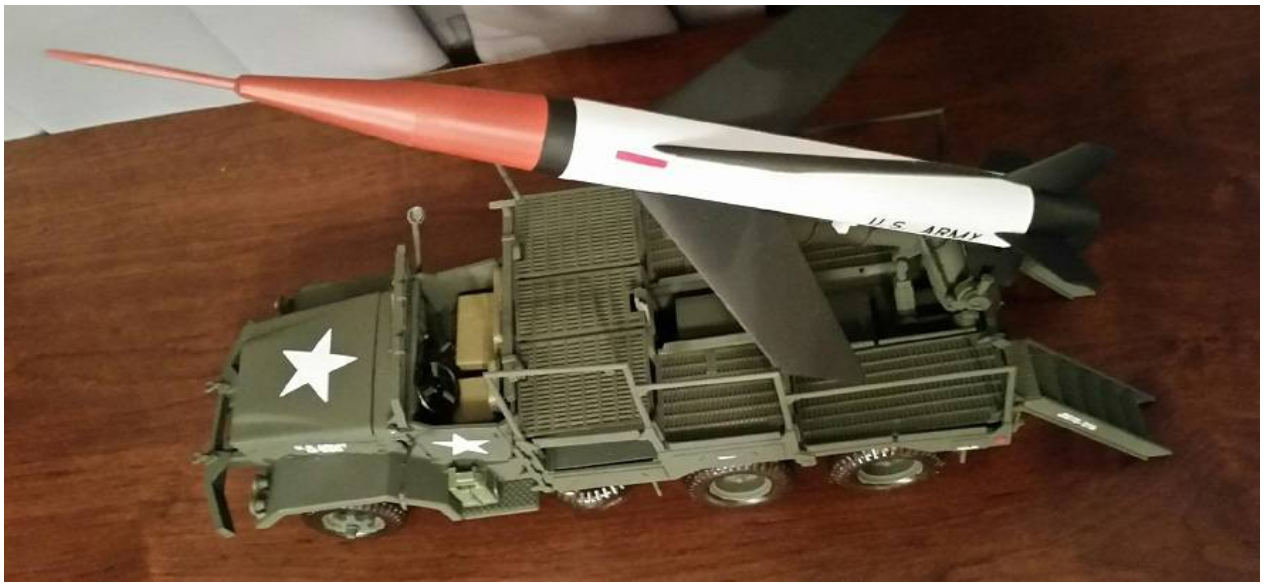
Link to the IWM site and the article, much more on there with regards the Battle of Britain.

https://www.iwm.org.uk/history/the-polish-pilots-who-flew-in-the-battle-of-britain

Credit to this all goes to the IWM and the author Mariusz Gasior

I just felt it needed to be shared, John Currie

Members Builds and Works in Progress during Self Isolation



Norm Foote – Renwal Blueprint – 1/32 scale Lacrosse missile.


Ben Zabriskie – Hasegawa – 1/72 scale F9F-8 chopped and sanded to a F9F-6 Cougar.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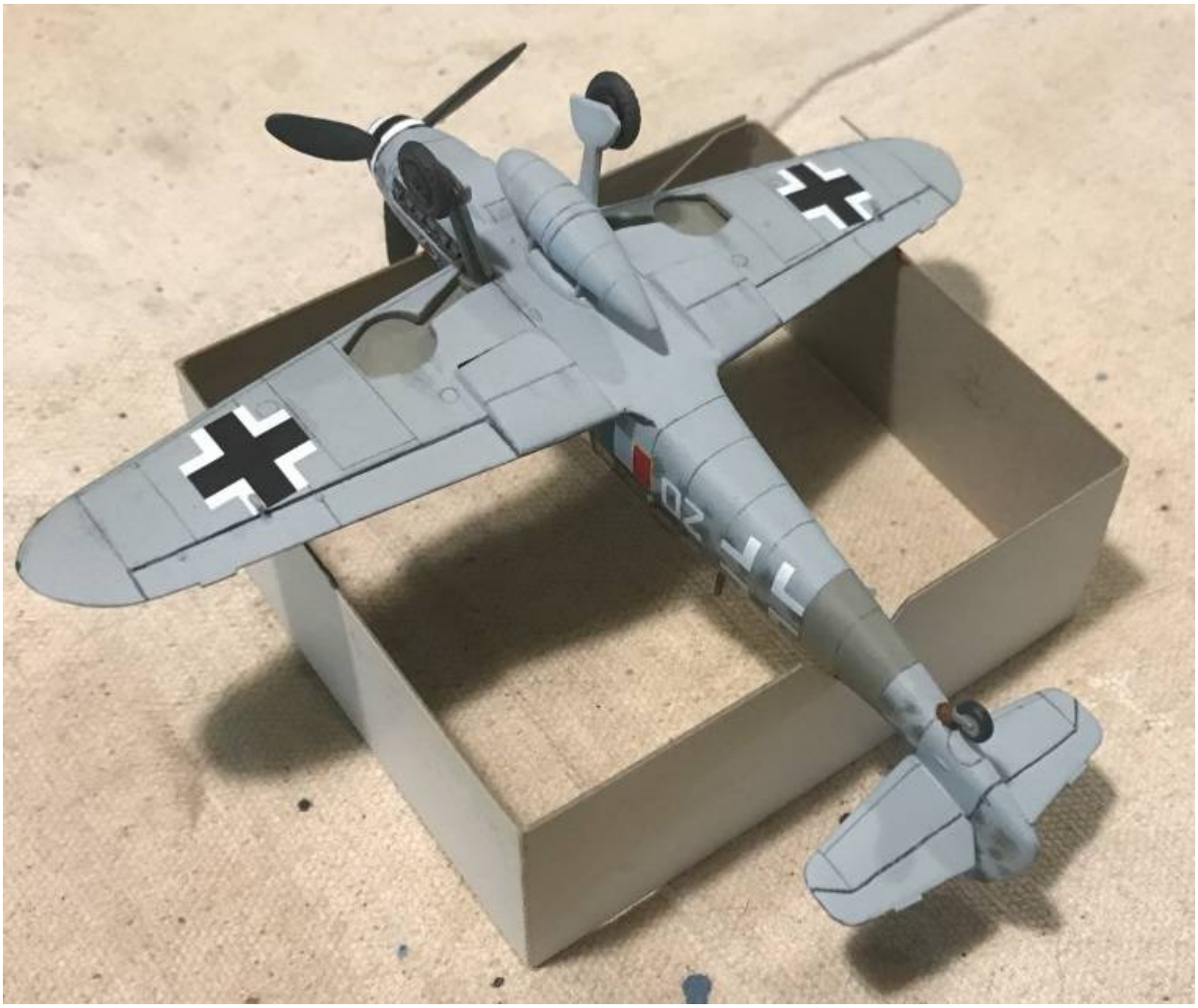
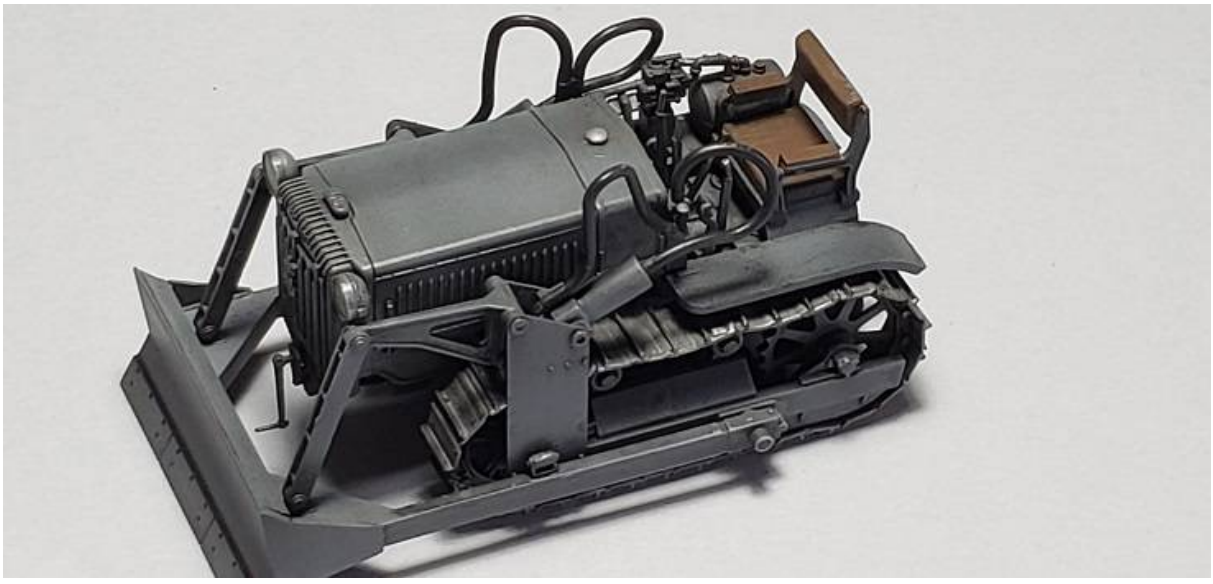
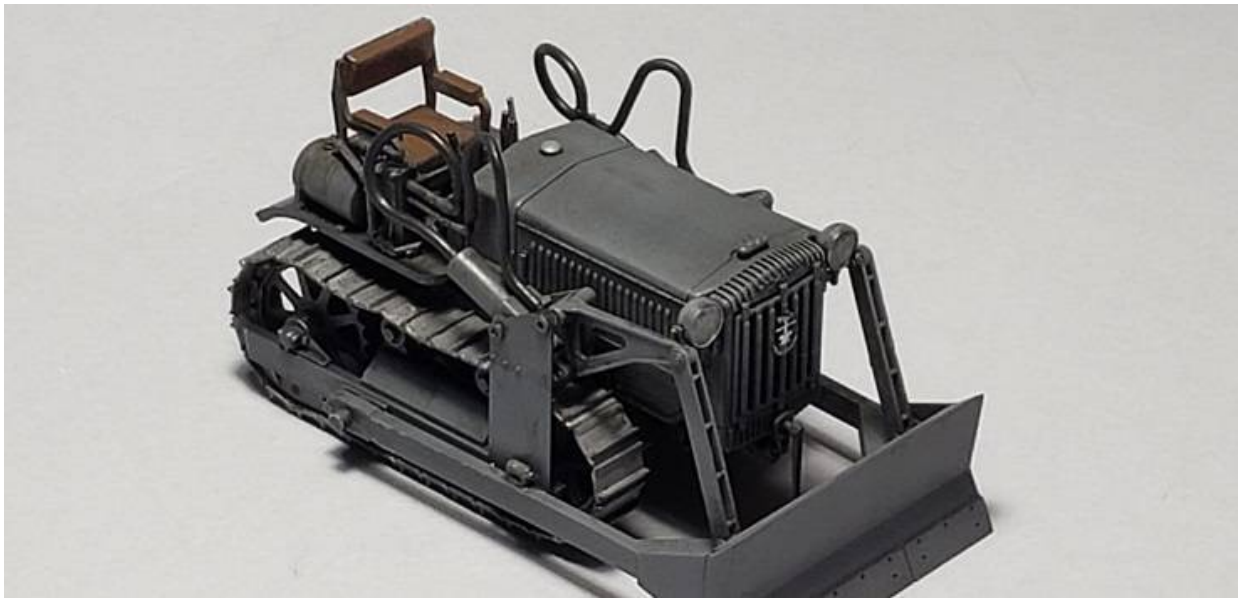
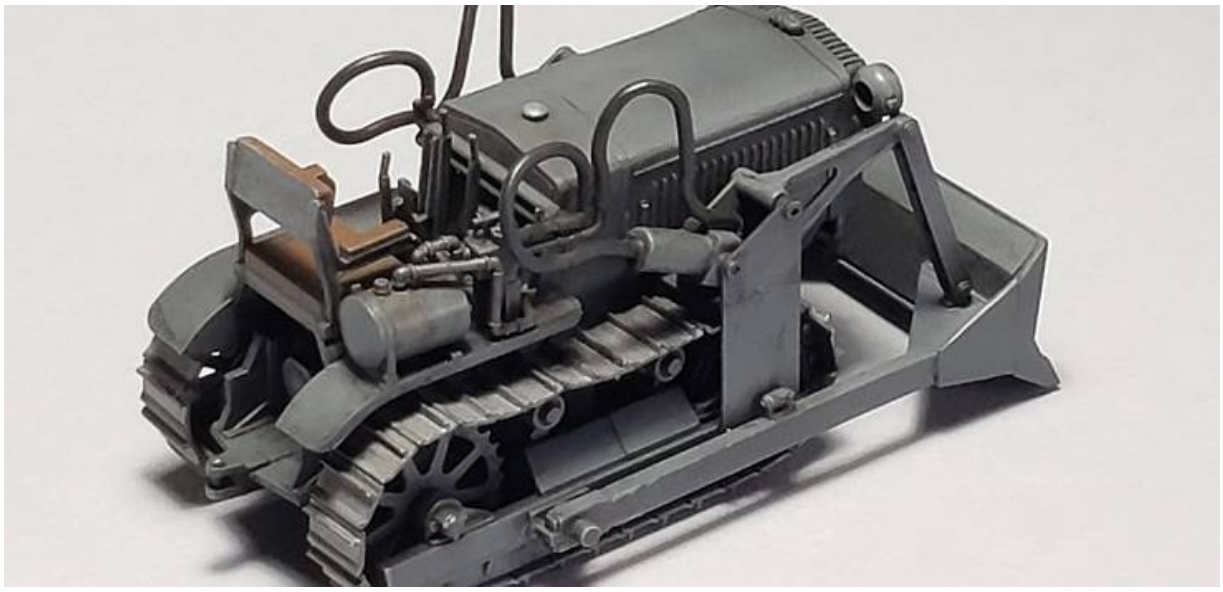


Darby Erd – Hobbycraft – 1/72 scale Bf 109 G-12 2-seat trainer in Italian service.







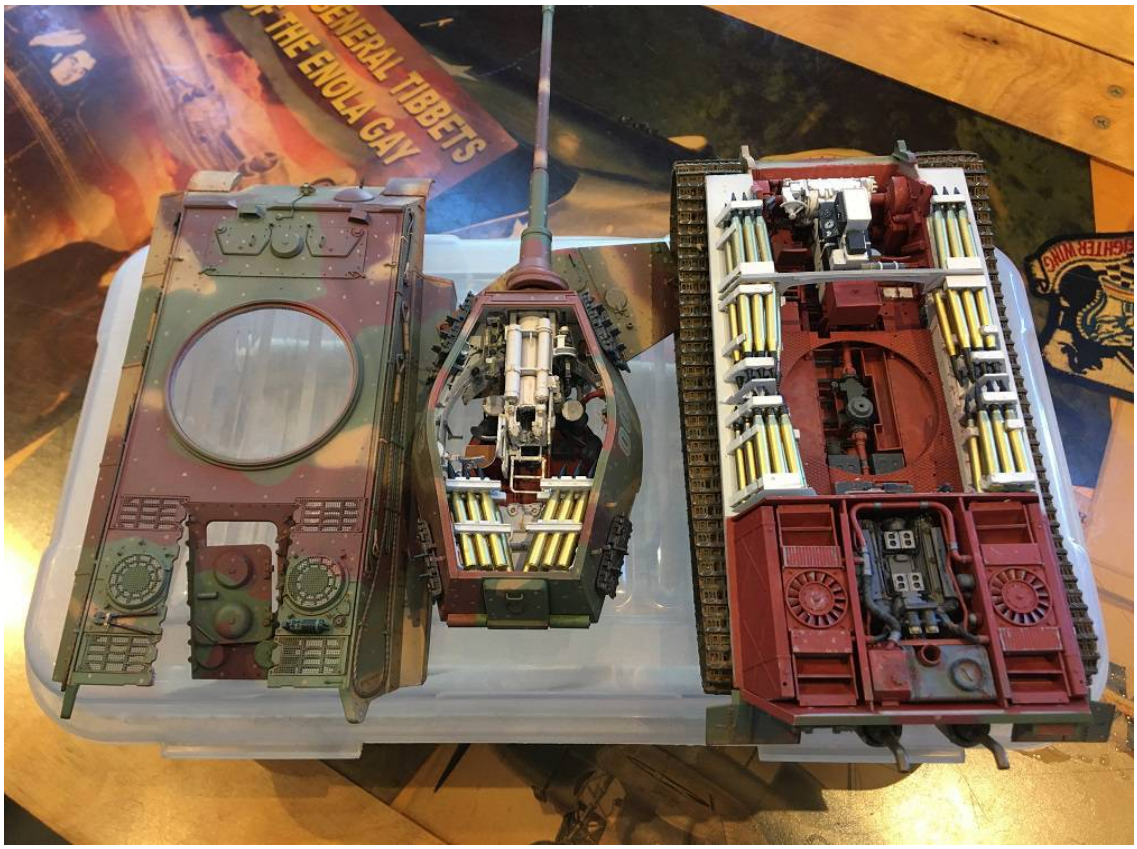
Zach Chapman – Tamiya – 1/48 scale Komatsu bulldozer.


W2 X


W2 X
EJ705

Zach Chapman – Eduard - 1/48 scale Hawker Tempest.

John Currie – Trumpeter – 1/350 scale Tribal class destoyers HMS Eskimo and HMS Sikh.

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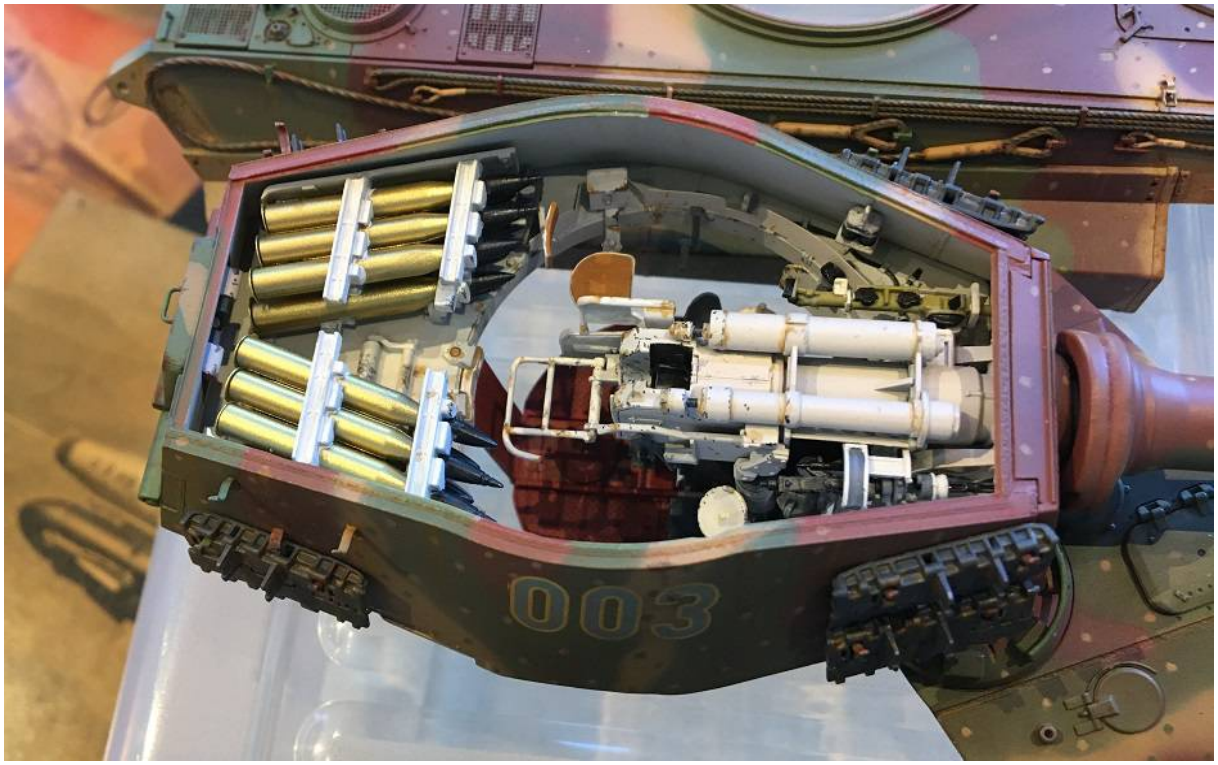

003

Tom Wingate – Takom – 1/35 scale King Tiger with full interior and Henshel turret (WIP).

Michael Carra – Hasegawa – 1/72 scale M3 Stewart.

Michael Carra – ARMORFAST – 1/72 scale M10 and M18 Hellcat.

Mike Martucci – Cobra 289 1963.

Mike Martucci – Testors/Burago – 1/24 scale Ford AC Cobra 427.

Pics of the Month

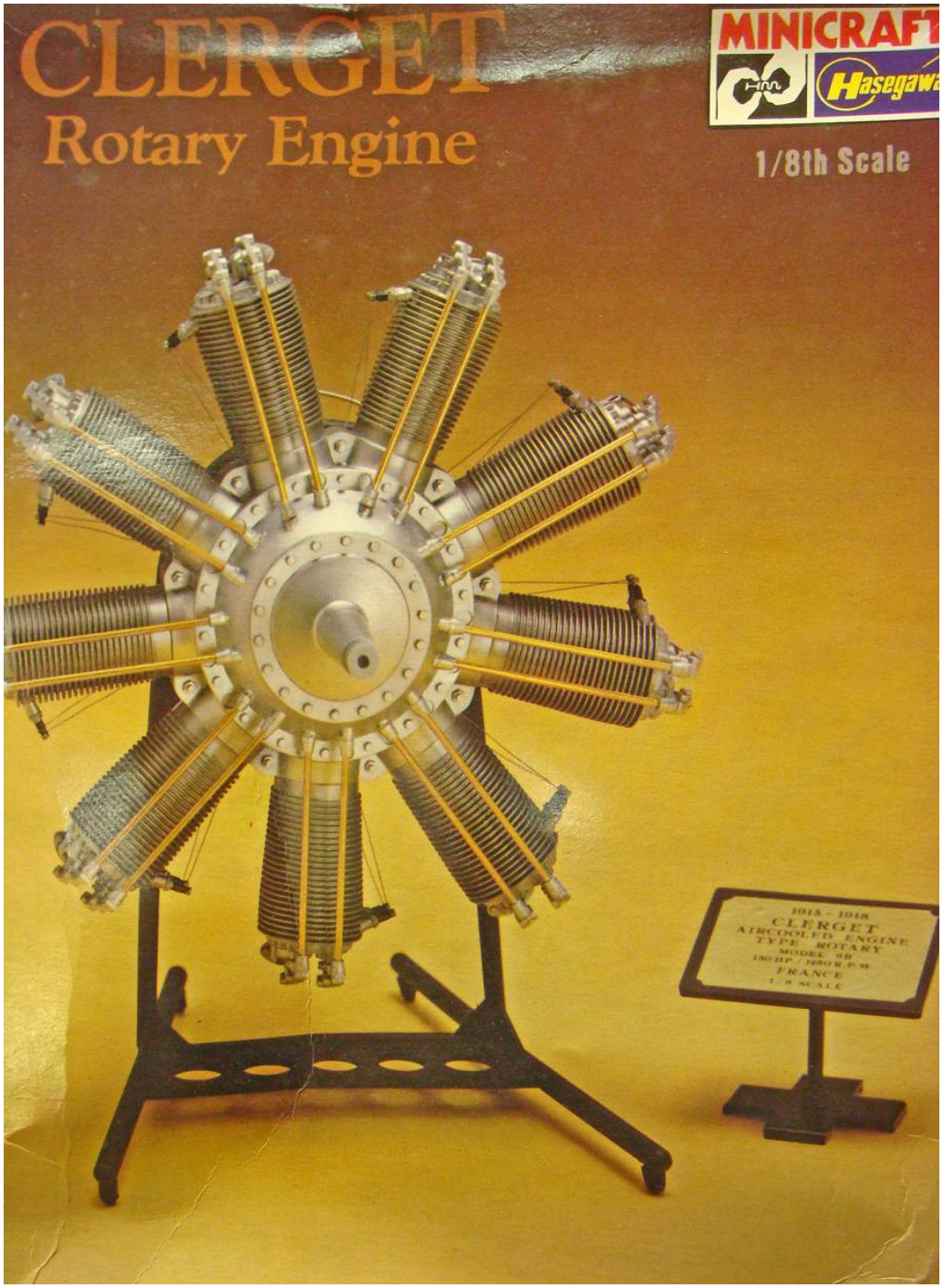
Rick Broome recently visited family, Rick spent some time with his Great Grandson Noah.

Here is Noah and his first build a Ford Mustang, Way to go Noah, Well done, Looks Great.

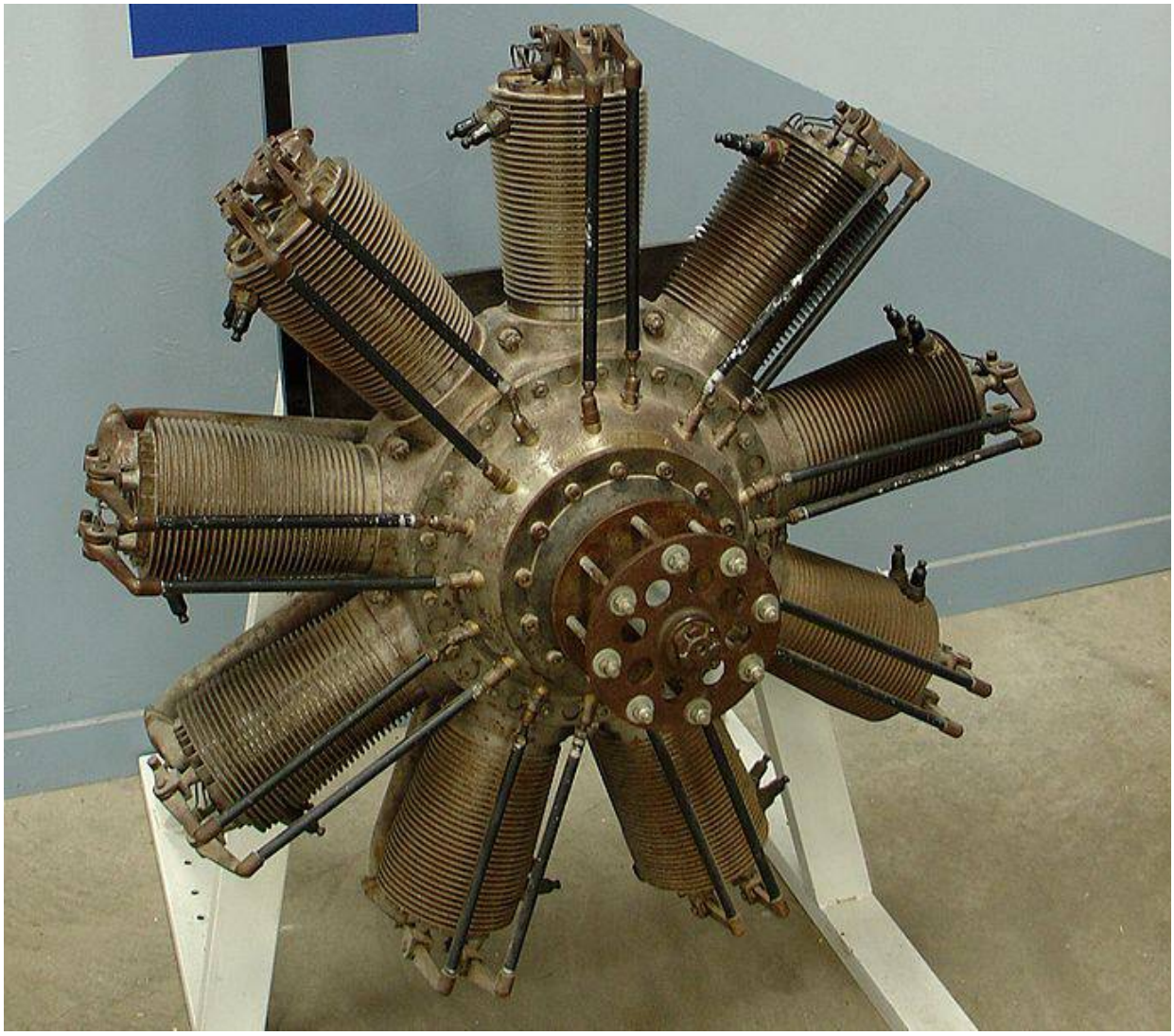
Lets have a deep look at Mike Roofs 1/8th Clerget 9B Rotary Engine build

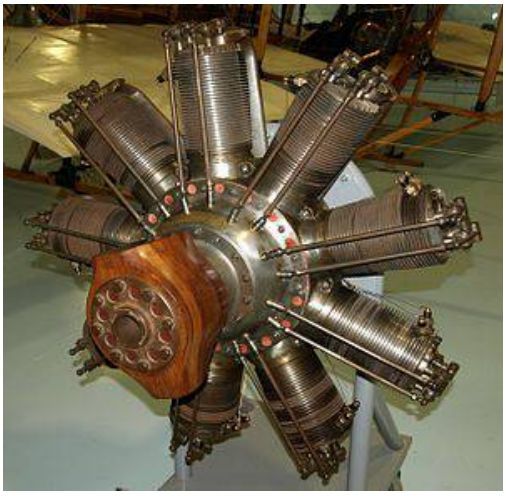
I say build, but not sure what it is, well a Masterpiece is what it is becoming. More can be seen in the Sept 2020 newsletter.

The initial kit Mike started with

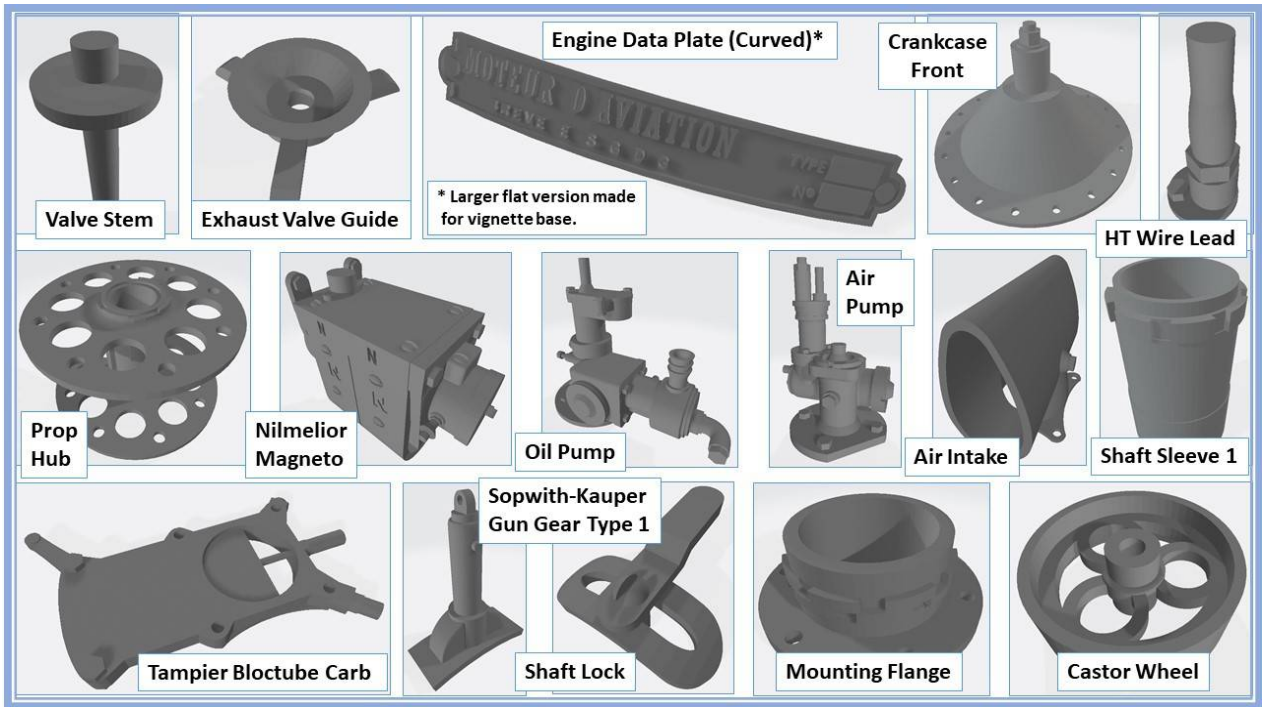


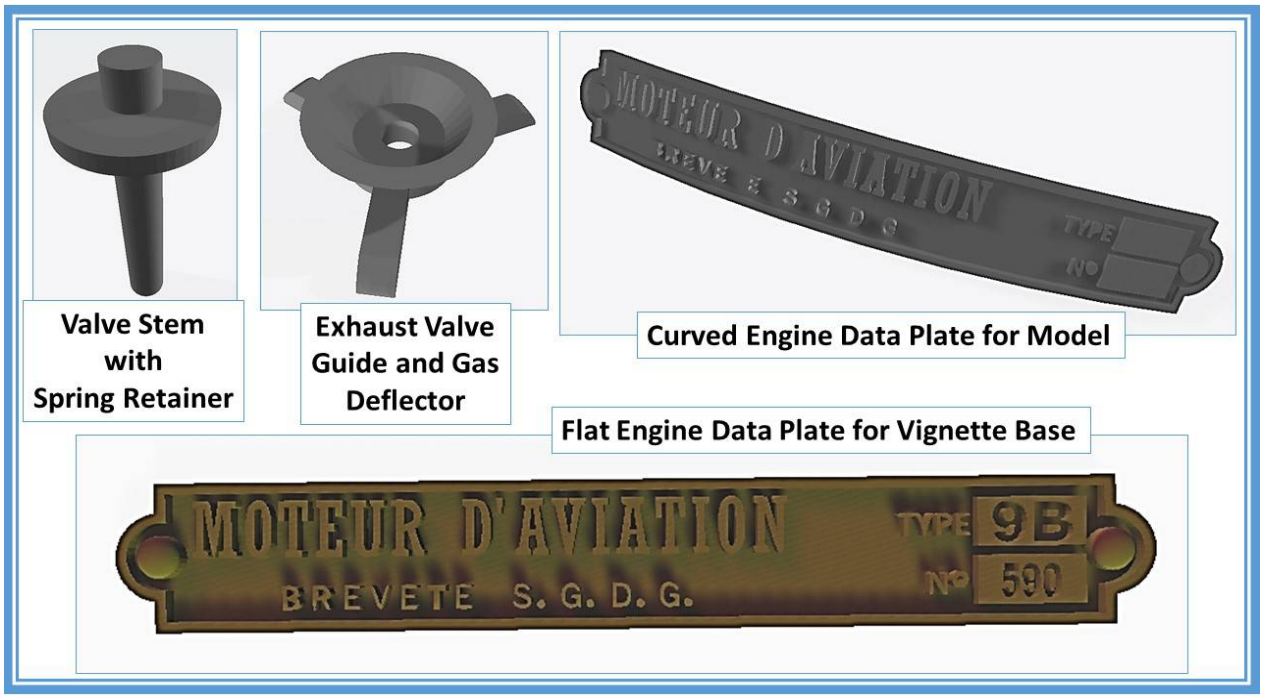
A Museum Piece, Clerget 9B

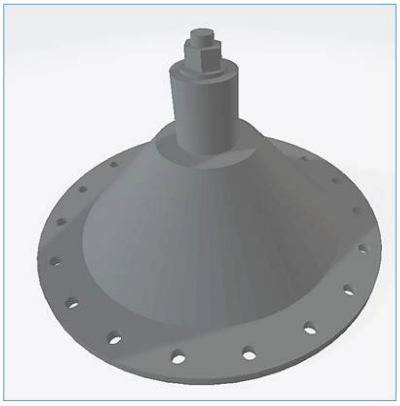




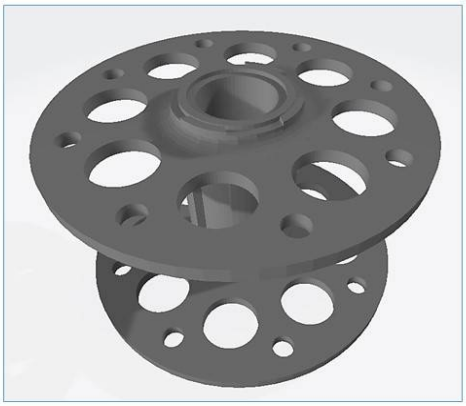
3D renderings of parts Mike has designed and Printed



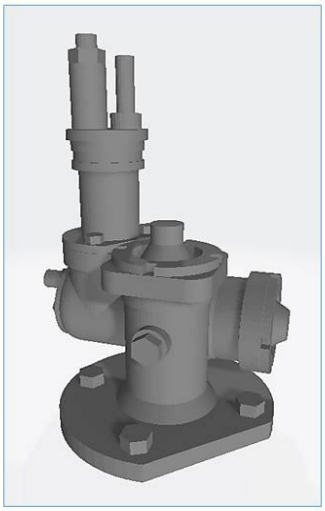




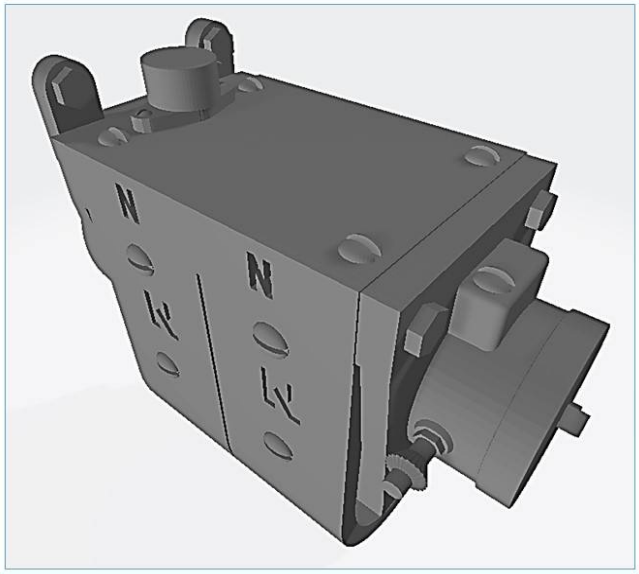
Crankcase Front Plate
with
Prop Mounting Shaft



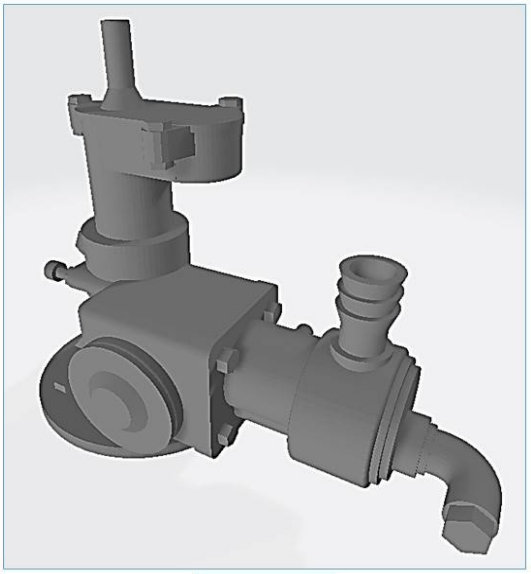
Propeller Hub



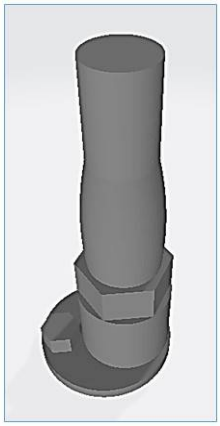
Air Pump



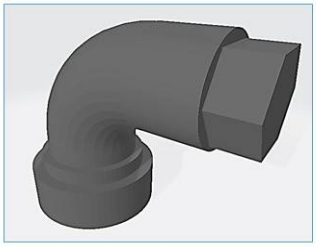
Nilmelior High Tension Direct Ignition Magneto



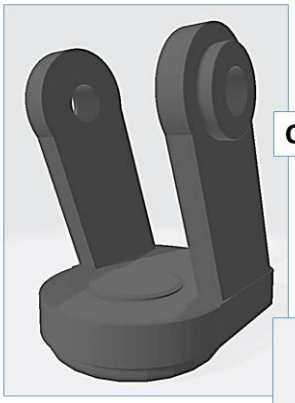
Oil Pump



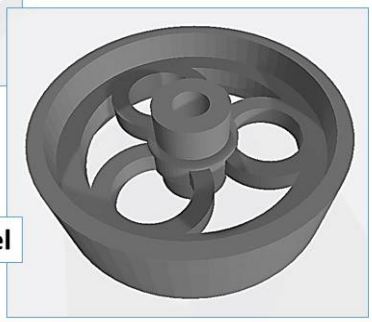
High Tension Ignition Wire Lead



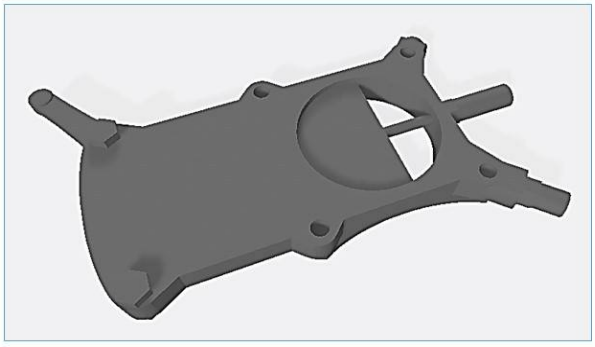
Oil Line Connector



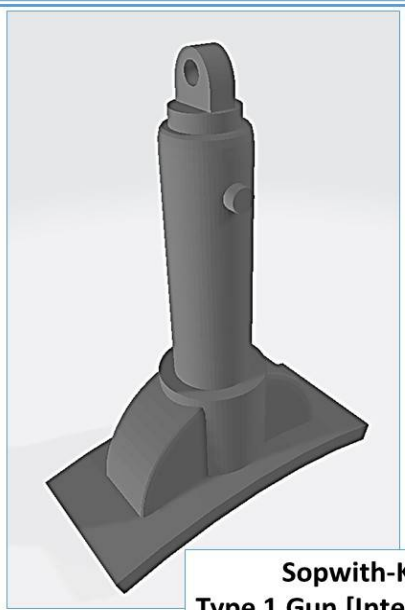
Castor Wheel Mount



Castor Wheel

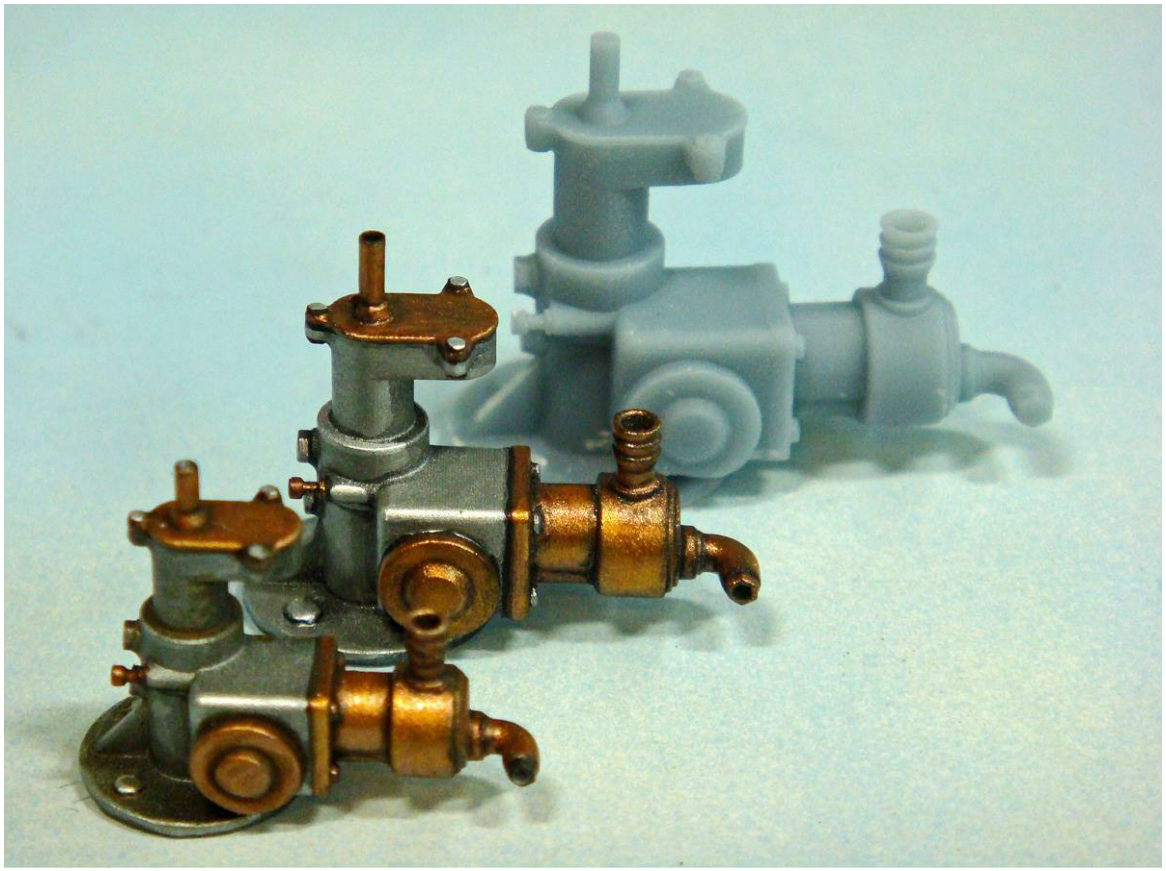


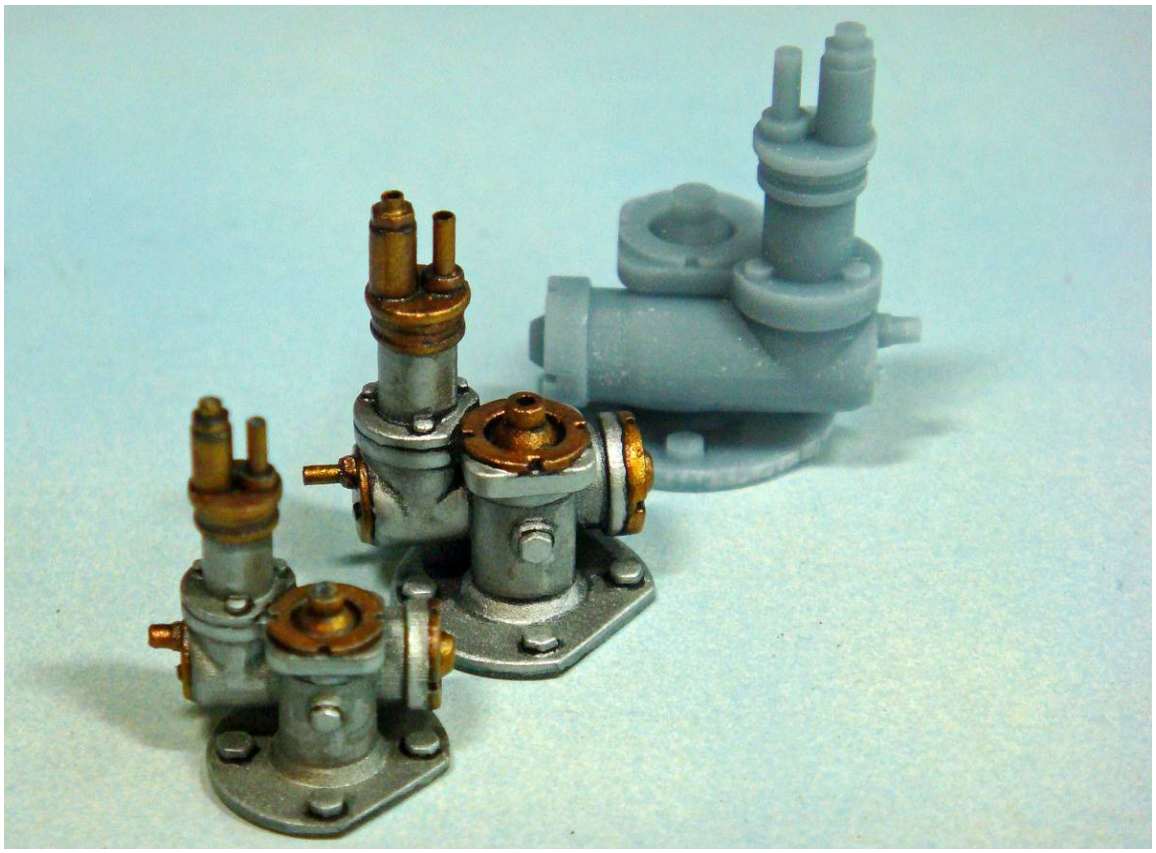
[Rene] Tampier Bloctube Carburetor

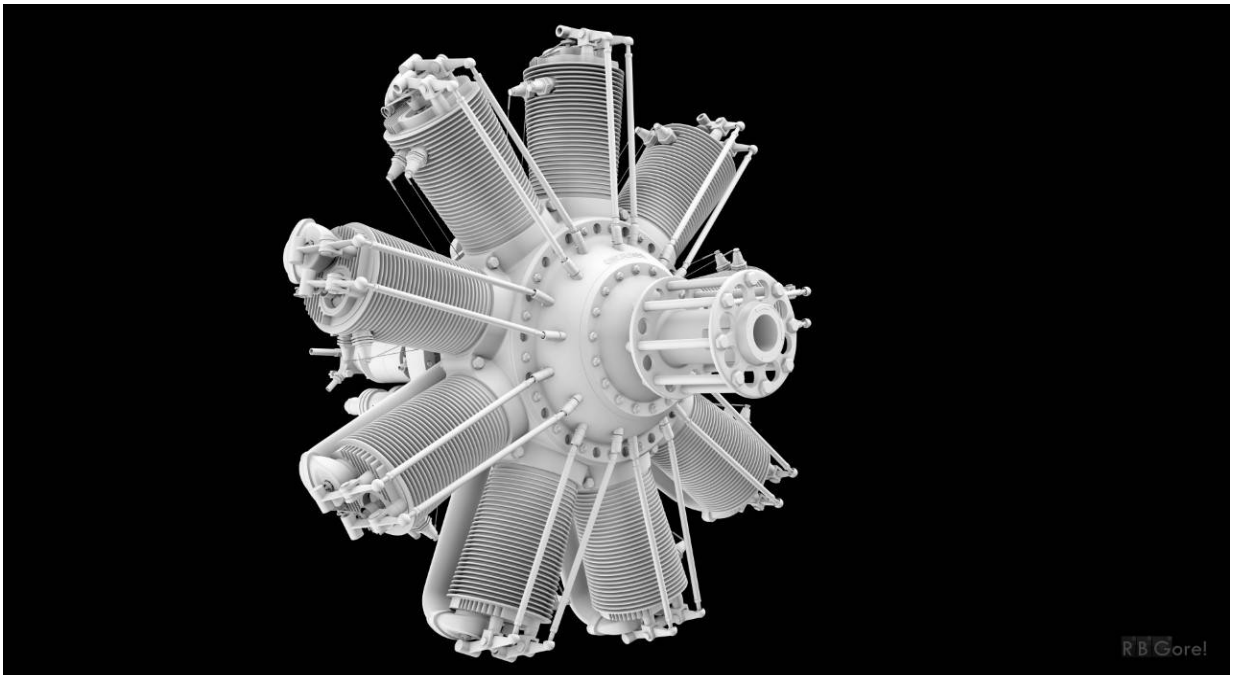


Sopwith-Kauper Type 1 Gun [Interrupter] Gear


Carburetor / Engine Mounting Flange
Accessory Case Engine Shaft Sleeve
Shaft Sleeve Lock
Carburetor Air Intake







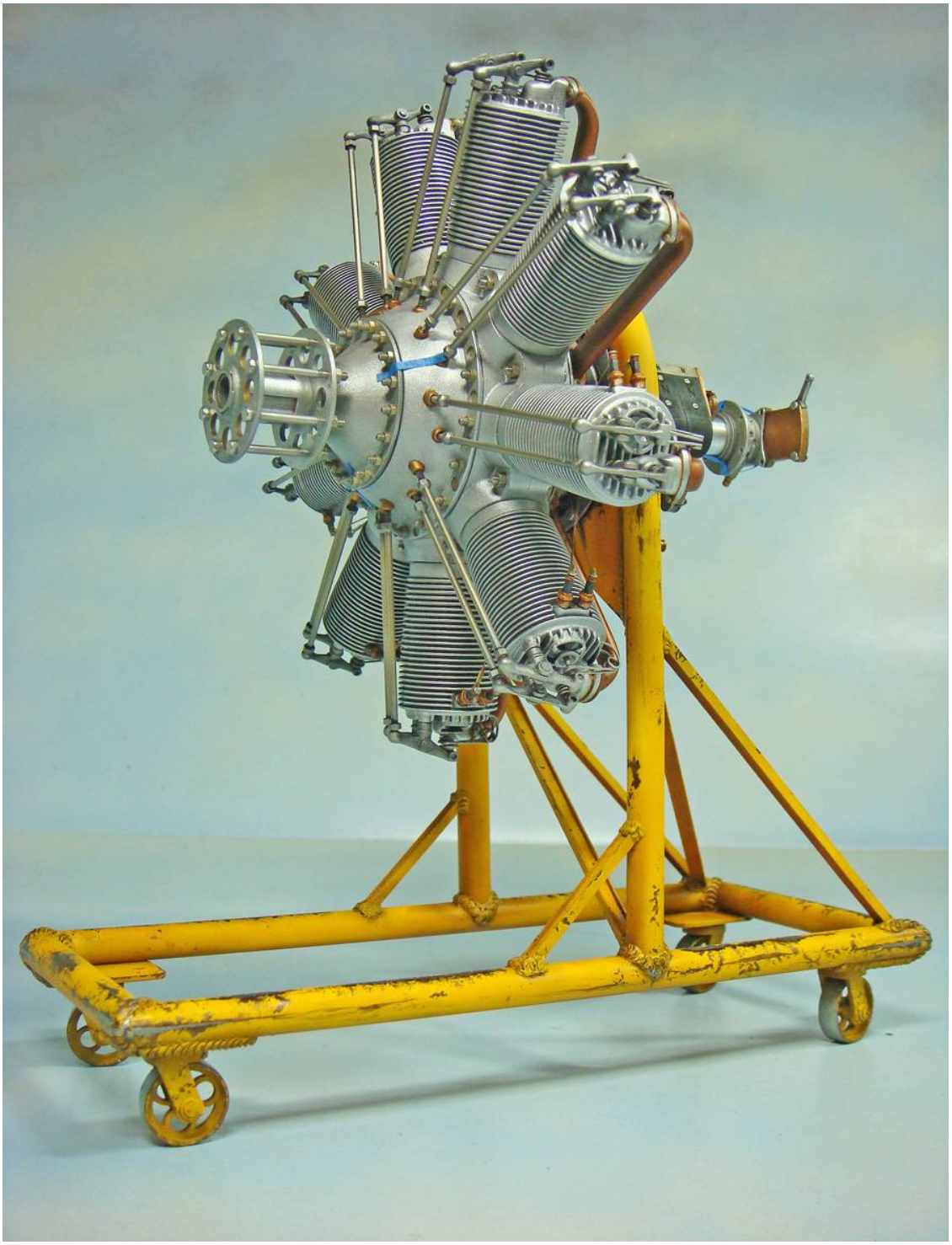
3D render by 3D artist, Richard-Bryce Gore

The Stand

This left me totally speechless.

Mikes words below.

The new engine stand is scratch built out of mostly Evergreen styrene tube, sheet and structural shape stock. The curved vertical support tube was heat formed by submerging the styrene tube in boiling water and then wrapping it around a small metal can. The castor wheels were designed in CAD and 3D printed. They have styrene rod and punched disks for the axel pins along with bent brass wire cotter pins. The weld beads are made with two-part Aves epoxy putty.



The model is still in-progress, and the overall photos show just the progress up to that point. I'll have some new photos of the finished engine ready for the next club Zoom meeting. Right now I'm working on the base / vignette

A Little Teaser

Well thats all folks

John