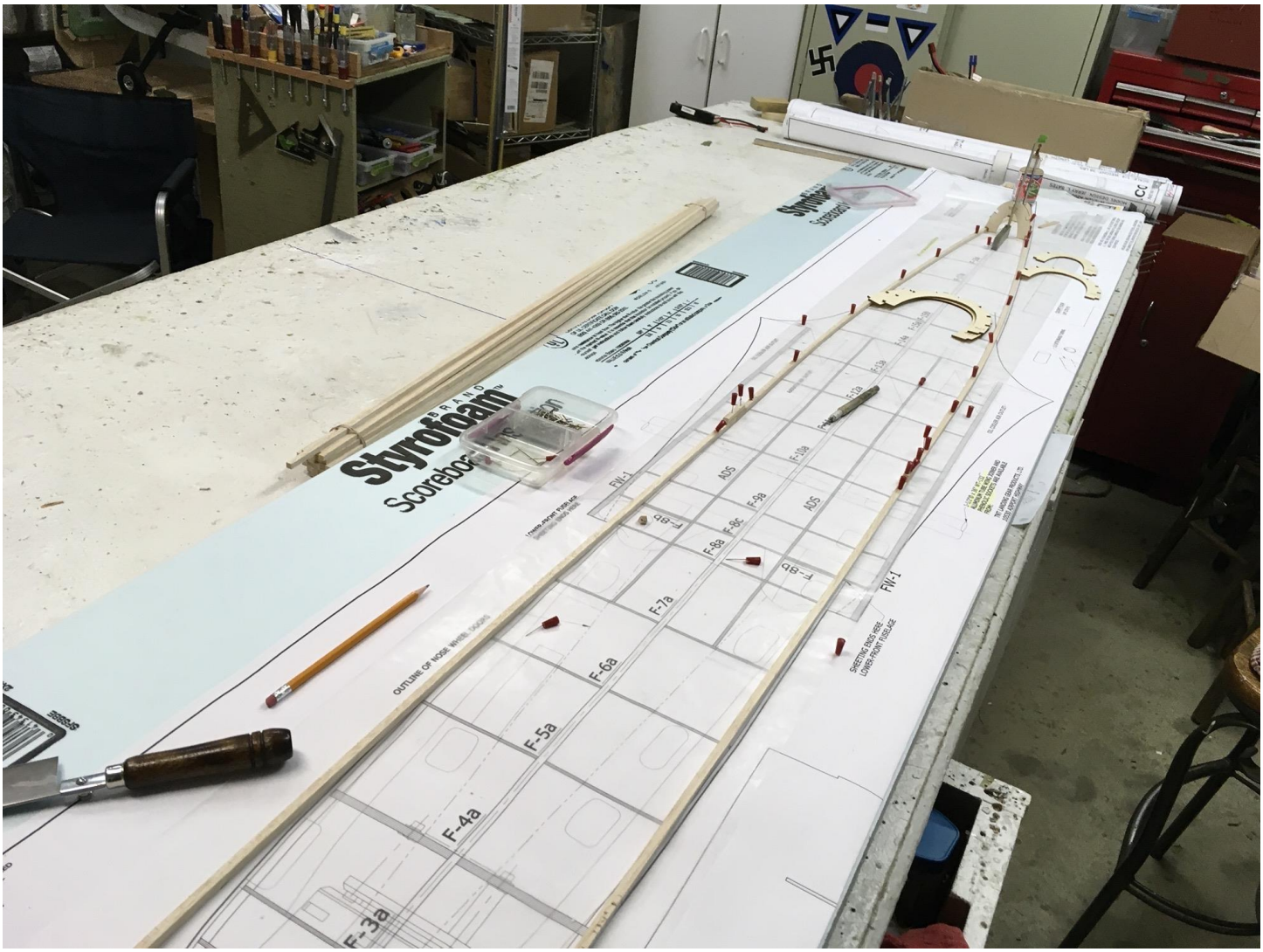
# ¼ Scale P-39 Build. 2

**Paul Fleming and Jim Lake**
**12/24/2021**

Now that we have determined the final design for the Torque Plate and the internal frames have been modified I can start building the fuselage. I had ordered the kit from Lasercut USA, these guys do first rate work. Their packages arrived neatly packed and packaged to prevent shipping damage. Earlier I had laid each fuselage frames plan sheet and proceeded to inventory and package in the top and bottom halves by order of assembly. Using one gallon freezer bags to keep related parts together. I ended up with about 25 bags of parts.

This kit is designed to have the fuselage built in an upper and lower half. I decided to build the bottom half first since 90 percent of the modifications are going to take place in that part of the airplane and it would be a while before we even needed to think about the top.

My building board is a 36” x 96” x 2” thick sheet of insulating foam. I folded the plans in half, covered the fuselage outline with waxed paper and started pinning down the ¼” x ¼” balsa stringers.




This fuselage splits and identifies top and bottom of each individually numbered frame. Example F-1 and F-1a, everything that has a letter after the number is on the bottom half of the fuselage. It is a very simple easy to follow method.

For assembly I am using Super Phatic alipahayic glue. It dries fairly quickly, claims to produce tougher joints then cyano. It comes in 50ml bottles with a nice metal applicator needle. I have been using it for years, but it is not as fast as cyano and it is about half the price.

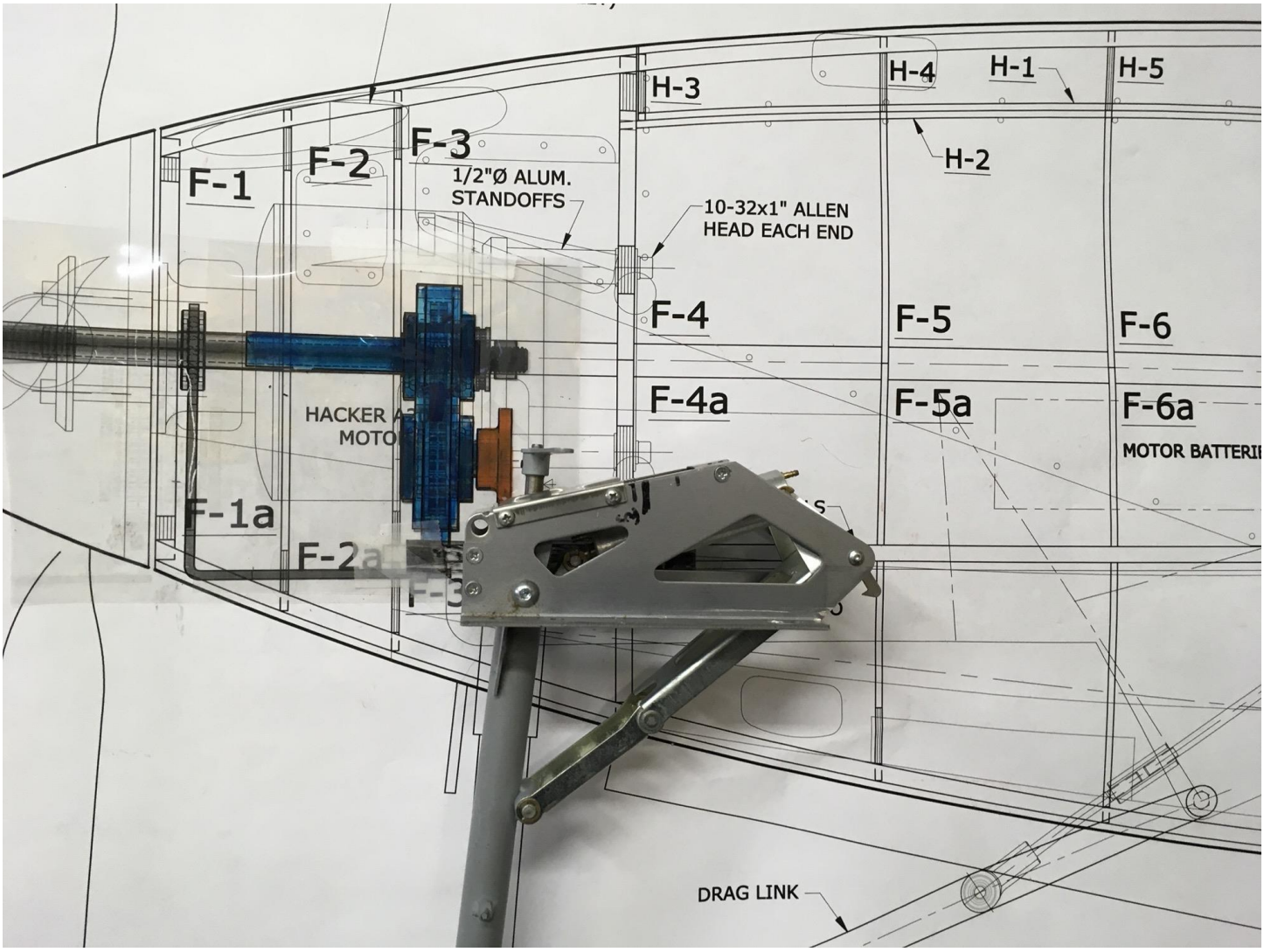

What I really like about this kit is how well everything fits together. Everything appears to line up like it is supposed to.

This airplane has some very sharp contours to follow and the ¼ square balsa stringers will break when forced. Also the stringers want to return to their original shape and the stress of several doing so can cause the fuselage to twist and distort. The simple solution is to stress relieve them by several half depth cross cuts. I made a simple cutting jig from scraps. My stringers are ¼” and I wanted to cut only half way through so I used a 1/8” scrap as my cutting stop.

I tried cutting both inside and outside of the curve. I think cutting inside worked best. It is my intention to apply some glue to cuts later.

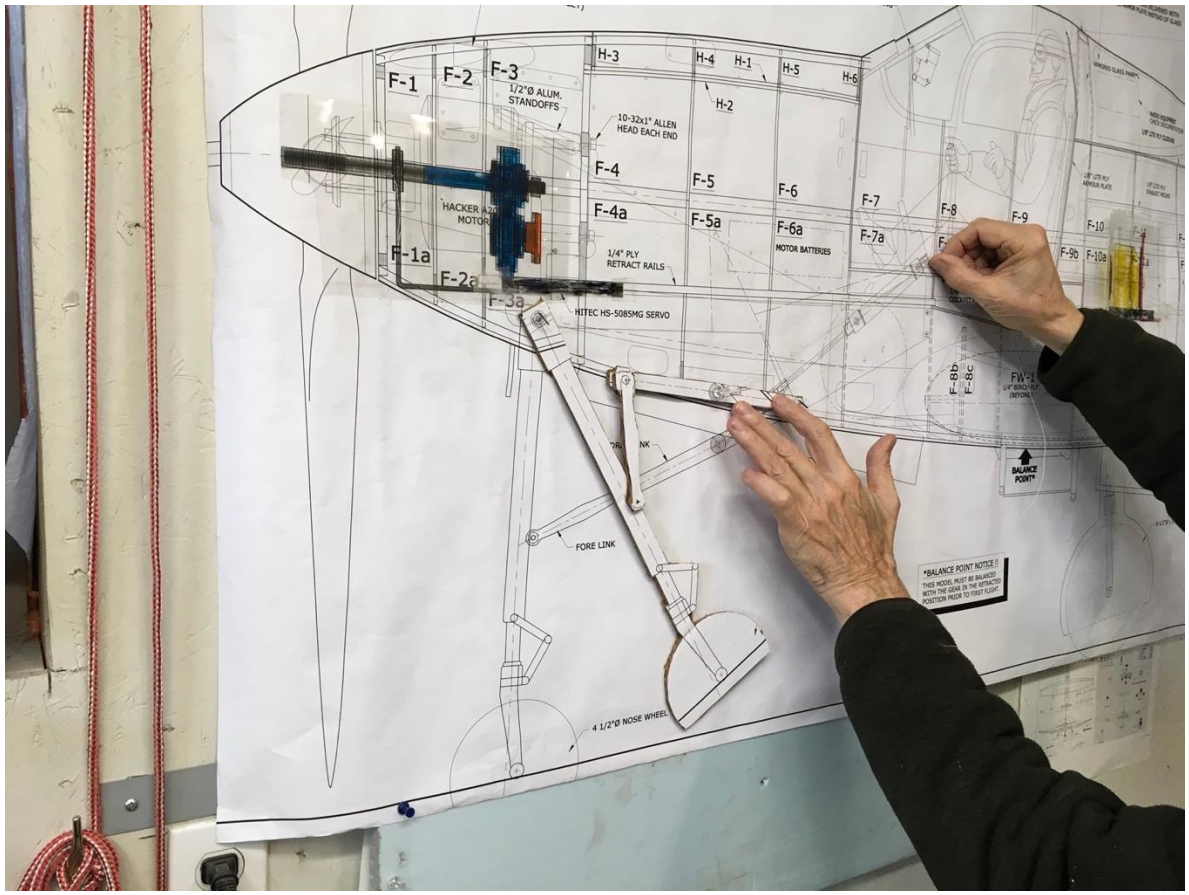
It is important the stress induced by the stringers not lift the bottom plate off the building board.

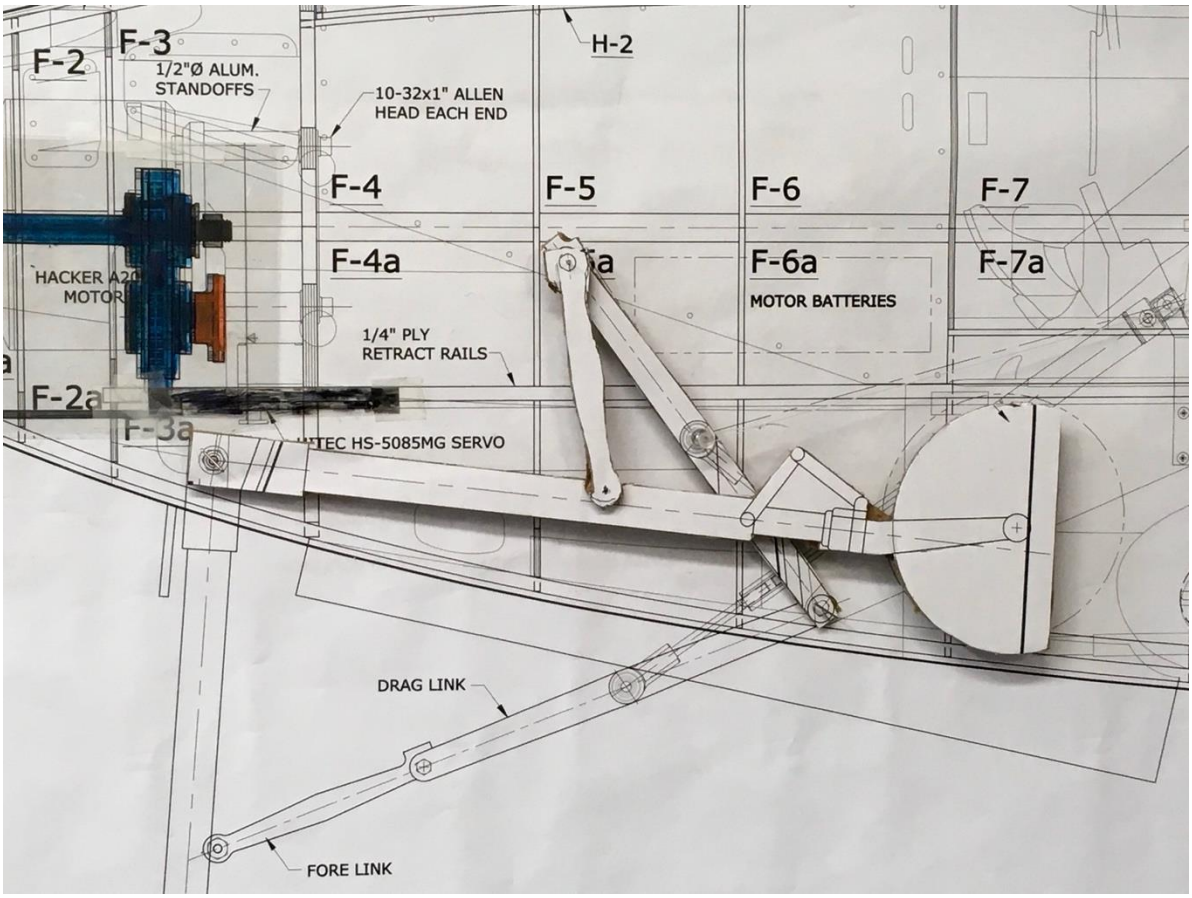
While sitting in the shop looking at the plans on the wall I realized we had a problem with the Robart landing gear. We had a serious space conflict with the Torque Plate, drive shaft and steering.




Since the actuator and steering arm were simply not going to work we decided to mount the nose gear to the bottom of the Torque Plate. How to pivot the gear leg up and steer via cables were easy. Building pieces to make this work were straight forward enough, but how are we going to get it to move. The plans show a type of gear retraction parts. I think this might be a Century Jet Unit. As shone nose gear installed which roughly duplicated the way Bell Aircraft did it.

Jim made a cardboard template of the gear parts shown and we determined the way the Century Jet gear retracted there would be space conflicts with the Torque Plate and other issues we didn’t want to work around. The easiest way is to design and build our own gear.


F-1
F-2
F-3
1/2"Ø ALUM. STANDOFFS
10-32x1" ALLEN HEAD EACH END
H-3
H-4
H-1
H-5
H-6
H-2
F-4
F-5
F-6
F-7
F-8
F-9
F-10
F-1a
F-2a
F-3a
F-4a
F-5a
F-6a
F-7a
MOTOR BATTERIES
1/4" PLY RETRACT RAILS
HITEC HS-5085MG SERVO
FORE LINK
4 1/2"Ø NOSE WHEEL
BALANCE POINT
*BALANCE POINT NOTICE !


F-2
F-3
1/2"Ø ALUM. STANDOFFS
10-32x1" ALLEN HEAD EACH END
H-2
F-4
F-5
F-6
F-7
F-4a
F-6a
F-7a
MOTOR BATTERIES
1/4" PLY RETRACT RAILS
F-2a
F-3a
HITEC HS-5085MG SERVO
DRAG LINK
FORE LINK

The template idea worked very well we changed pivot points, part lengths, actuator locations until we understood each issue and resolved them. One of the things that was helpful in understanding Bell's nose gear was an installation and repair manual. When you can see the shape of the actual parts that can solve many problems. I subscribe to Air Corps Library https://app.aircorpslibrary.com where you can read or download all manner of manuals on almost all US WW II airplanes.

Last entry 12/24/2012

# Merry Christmas Everyone