THE SLOW ROLL

CHARTERED #921
Since DEC. 1974

President—Frank Moskowitz
Vice President—John Geyer
Treasurer—Oliver Henien
Secretary—Mike Peck
Editor—Bob Purdy

JUNE 2024

The Slow Roll is published by the Sun Valley Fliers by and for its membership to all others interested in the building and flying of radio control aircraft.

Inside this issue: **Cover Photo by Tony Quist showing Wayne Layne Rafael with twin turbines**
SVF CLUB ending 49 years as a charter club. December 2024 will make it 50 years.

MEETING AT FIELD JUNE 8, 8AM

JUNE 2024 SLOW ROLL PRESIDENTS LETTER

Welcome to the June 2024 Slow Roll.

Elections are over and for those of you that were not in attendance at the election meeting in May; the results are as follows with new officers and board members in red: Our club officers; **Frank Moskowitz – President**, **John Geyer – Vice President**, **Mike Peck – Secretary**, **Oliver Heinen – Treasurer**. Our Board Members; **Craig Guest**, **Jim Sprecker**, **Brian Rhodes**, **Dan Bott**, **Charlie Beverson, Jamie Edwards and our one new board member John Gerhardt.** The safety officer is still Ken Rhoads, and our IT person is still Bobby Santoro.

I thank all of you that took the time to vote. The Simply Voting platform made it super easy to vote for your candidates.

With regards to Ramada, we have paid for the final permit review which means it's the last review from the city. Two of the three reviewers have already approved so we are one reviewer away from final permitting. Fingers crossed.

Let us make this year a productive one for our club. Our goal is to increase our membership numbers so tell all your friends to come and visit. I always welcome comments so please feel free to call me anytime you want to chat about club related issues. You can always reach me at 602-809-4195. If I do not answer, please leave a message and I will get back with you. Can receive text messages on that number as well.

Our next meeting is **Saturday June 8th at 8:00 am.** We can beat the heat if we start at 8am. The location is our field. Join us for a club meeting and win a raffle prize. The 50/50 could make you very happy $$$. You never know what might happen, and you do not want to miss it.

Have fun out there!

Frank Moskowitz

President

Since December 1974

Sun Valley Fliers Club Meeting Minutes May 4, 2024

Officers Present: Vice-President John Geyer, Treasurer Oliver Heinen, Secretary Michael Peck

Board Members Present: Jim Sprecker, Brian Rhoads, and Val Roqueni.

Meeting Open: Vice-President Geyer called the meeting to order at 9:00 AM at the SVF field. President Frank was at a Department of Energy conference in Las Vegas.

Guests: None

New Members: None

New Solo Pilots: None

Secretary's Report: The minutes of the SVF club meeting of April 6, 2024, were approved as published.

Treasurer's Report: Oliver Heinen reported on the amount of funds in the club treasury, and they are sufficient to meet the club's recurring obligations and expenses for the next year.

Membership Director's Report: Tony Quist reported that we have 244 members signed up for 2024 to date. There are 103 adult members that renewed from last year, 18 new adult members, 93 senior members that renewed from last year, 3 new senior members, 18 junior members, 7 life members, and our newsletter editor. The membership director's report was approved without exception.

Safety Officer's Report: Kenny Rhoads reported that there was an incident at the field last week where a turbine model crashed and started a small fire in the brush. The fire department was contacted, but the fire was out prior to their arrival. Kenny reminded members that if they were not really qualified to fight a fire at the field, members should just call 911 as the club does not want to see any member get hurt trying to fight a fire at the field. Kenny gave a short training session on the three different types of fire extinguishers that could be used at the field, including dry chemical, carbon dioxide, and pressurized water. Members were cautioned in using the dry chemical type of extinguisher to stand upwind of the fire and to try not to get the dry chemical on themselves. If you do, wash it off yourself and your clothing as soon as possible. Kenny also mentioned that the best tool to use in fighting a fire in the brush is a shovel and soil. This is particularly true if the fire was caused by a ruptured Lipo battery.

IT Update: No report this month. Bobby Santoro has provided the election results which will be covered in new business.

Old Business:

1. Ramada permitting is still in progress. The club has been granted a Right of Way use permit from the County, but this will only be useful after the City of Phoenix grants us the construction permit. Our Civil Engineer, Steve Bargeloh, has sent everything to the City's Reviewer, including the new County permit, but we have not received the City of Phoenix permit yet.

New Business:

1. Vice-President Geyer reported the results of the 2024 election. There were 113 votes cast and all current Officers of the club were re-elected for another year. Of the six members running for three Board of Director positions, Charlie Beverson, Dan Bott, and John Gerhardt received enough votes to be elected for a two-year term. The Club thanks Todd Inskeep, Ben Gowell, and Tony Holden for stepping up and agreeing to be candidates for Board of Director positions.

2. Val Roqueni was thanked for his many past contributions to the Club as a member of the Board of Directors.

3. A motion was made from the floor to also recognize the work being done by our Treasurer, Oliver Heinen with a free club membership for each year he serves going forward. A straw vote of the present members approved sending this request to the Board of Directors.

4. A motion was made from the floor to have the Officers, or a representative from the Officers, contact a member of the Phoenix City Council to ask them if anything can be done to speed up the consideration of City Planning for a decision on our ramada construction project. The summer heat is coming, and it is detrimental to the health of our members to not have a shade ramada at the field. A straw vote of the present members (with two dissenting votes) approved sending this request to the Board of Directors.

5. A motion was made from the floor that our Safety Officer, Kenny Rhoads, provide two firefighting training sessions a year and that all club members be required to attend at least one session. This will be referred to the Board of Directors.

6. One of our members, Richard Bishop, donated a solar powered lighting system so the American flag at the field could be appropriately lit at night. Thank you, Richard!

7. There was an additional suggestion from the floor to move the monthly Club meeting time back to 8:00 AM, or perhaps earlier. This was referred to the Board of Directors.

50/50 Raffle: The $49 raffle prize was won by Nancy Sprecker, who donated the money back to the Club. Thank you, Nancy!

Meeting close: Motioned, seconded, and approved to close the meeting at 9:45 AM.

Respectfully submitted,

Michael Peck

SVF Secretary

Sun Valley Fliers Board of Directors Meeting Minutes –May 13, 2024

Club Officers Present:

- President Frank Moskowitz, Vice-President John Geyer, Treasurer Oliver Heinen, Secretary Mike Peck

Board Members Present:

- Charlie Beverson, Craig Guest, Dan Bott, Brian Rhoads, John Gerhardt, Jim Sprecker

Open: President Frank Moskowitz

1. The Zoom internet meeting was opened at 6:07 PM. President Frank welcomed new board member John Gerhardt.

Secretary's Report: Mike Peck

1. The March 4, 2024 Board of Directors meeting minutes were approved as published. The Secretary also noted that there were four separate items brought up at the May SVF Club meeting that the Board of Directors were asked by club members to address. Those items were:
    a. A motion was made from the floor to also recognize the work being done by our Treasurer, Oliver Heinen with a free club membership for each year he serves going forward. A straw vote of the present members approved sending this request to the Board of Directors.
    b. A motion was made from the floor to have the Officers, or a representative from the Officers, contact a member of the Phoenix City Council to ask them if anything can be done to speed up the consideration of City Planning for a decision on our ramada construction project. The summer heat is coming, and it is detrimental to the health of our members to not have a shade ramada at the field. A straw vote of the present members (with two dissenting votes) approved sending this request to the Board of Directors.
    c. A motion was made from the floor that our Safety Officer, Kenny Rhoads, provide two firefighting training sessions a year and that all club members be required to attend at least one session. This will be referred to the Board of Directors.
    d. There was an additional suggestion from the floor to move the monthly Club meeting time back to 8:00 AM, or perhaps earlier. This was referred to the Board of Directors.

Treasurer's Report: Oliver Heinen

1. The club treasury balance was reported by the Treasurer, and it is adequate for the club's recurring needs throughout this year.
2. Oliver asked who had the receipt for the cost of the Simply Voting internet election and was told that was being held by Bobby Santoro. Oliver agreed to contact Bobby to get the documentation of cost.
3. John Geyer reminded Oliver that he had volunteered to do the audit of the club financial records and needed to know when Oliver wanted to get together to do the audit. Oliver will coordinate with John.
4. The recommendation from the May Club meeting to compensate the Treasurer and any future treasurer for their hard work by not charging them dues was discussed. Oliver stated he didn't feel he wanted to have his dues paid for his work, and furthermore, he thought it was a poor idea to fund future treasurers' dues. He thanked the Club members and the Board for their consideration, but respectfully declined the offer.
5. The Treasurer's report was approved by acclamation.

Membership Director's Report: Tony Quist

1. Tony Quist reported that we have 244 members signed up for 2024 to date. There are 103 adult members that renewed from last year, 18 new adult members, 93 senior members that renewed from last year, 3 new senior members, 18 junior members, 7 life members, and our newsletter editor who receives a free membership. The membership director's report was approved. **Safety Officer's Report:** Ken Rhoads

1. There were no reported safety problems, but the Safety Officer did conduct a short safety briefing at the May Club meeting on the use of the different types of fire extinguishers and their uses, as well as discussing the use of a shovel and dirt to extinguish LIPO fires. Significant discussion ensued on the Club members suggestion to hold two safety

training classes per year and require all members to attend one and have the Club document their attendance annually. It was noted that Club meetings usually draw only 40-50 members per month, and this would be a recordkeeping problem. The Board eventually decided that a safety training video on the location of fire extinguishers and their use to be sent to all Club members was a better solution. Further discussion resulted in requiring an affirmation from each club member renewing or joining the club to check during the internet renewal/joining process that they had viewed the video and agreed to comply with the instructions on firefighting or to call 911. The Safety Officer will coordinate the video production.

2. For people wishing to refill Co2 or dry chemical fire extinguishers, Vinny DeFabio can get that accomplished. A BoD member suggested the Club should pay for it, but it was stated the turbine community could pay for their own extinguisher refills.

Information Technology Report: Bobby Santoro

1. No report. Bobby has been ill and the promised pictures have not been added to the website. President Frank noted Bobby was a night person, and if members had trouble contacting Bobby, they should contact Frank.

Old Business:

1. Ramada permitting – The Club recently paid the City of Phoenix for the permit reviewer fee. Nothing new about when we will get the permit.
2. Dan Bott and Brian Rhoads reported on the progress of the Rules Committee review of the Club rules. There will likely be no major changes to the Club rules, and there is 1 more meeting required to finalize their work. The rules needed are already available in our Rules documents and the SVF Bylaws document, however, the Board of Directors will need to vote on our existing procedures and rules to ratify those for enforcement action in the future. John Geyer has volunteered to work on that committee and needs to know when the final meeting will be called so that he can participate.
3. The 2024 elections have been completed. We sent out 231 ballots and had 113 total votes at 48.9% of the membership voting. That is about typical of all past elections. All existing Officers were reelected, and the votes for Board of Directors members resulted in Charlie Beverson and Dan Bott being reelected as incumbents, and John Gerhardt being elected as the new Board member from the list of six candidates.
4. The Board of Directors wishes to again thank Val Roqueni for his valuable service as a member of the Board of Directors, as well as the many things Val has done for the Sun Valley Fliers in the past.

New Business:

1. The request from the May Club meeting membership to hold Club meetings at 8:00 AM instead of at 9:00 AM due to the oncoming heat was approved.
2. The Board discussed the recommendation from the last Club meeting to pursue contacting our City Council member about exerting pressure on the City of Phoenix Commercial Planning Department
   to approve our permit application expeditiously. The Bod discussed this, but we have been warned by our Engineers not to try this option as it could result in an extended delay in the permitting process. The Board of Directors voted not to contact City politicians as a result.
3. Spencer Key has volunteered to personally provide sunscreen material to cover the old spectator cage that has been moved over the Helicopter ramada for shade, and that should be able to withstand future wind and give heat relief to the helicopter pilots in that location. Thank you, Spencer!
4. Brian Rhoads recommended to the Board that we should return to the practice of holding Board meetings in person rather than computer Zoom meetings. Some Board members stated it was unlikely that they would be able to participate in monthly meetings in person due to work/time constraints, while other members voiced support for the idea, stating that in person meetings allowed for better complete discussion of divergent points of view. Some other members stated it was hard to find locations for in person Board meetings that were sufficiently quiet to allow everyone to be heard. The result was that President Frank agreed to hold about two Board meetings per year in person, particularly when very important matters needed to be discussed.
5. Brian Rhoads also recommended that the Board of Directors establish a new goal for this year, involving having additional community involvement in our flying site operations and our field. Brian noted that single family housing was encroaching on our field both from the North and from the South, and that we needed to establish rapport with these newer homeowners that would result in raising the value of our activities to these homeowners and the City's

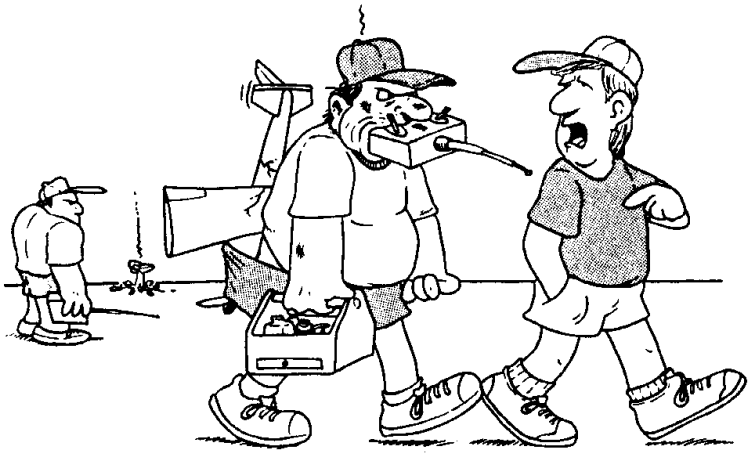
political community in general. The Board members' question was how can we do this and who will lead this effort? It was noted that Todd Inskeep had a personal interest in doing this and that was why he had run for a position on the Board of Directors. The Board approved contacting Todd about accepting a new position as Community Relations Director to see what ideas and actions Todd could provide to fulfill this very important role for the Club in the future. This item will be added to next month's Board meeting agenda for further discussion and planning following contact with Mr. Inskeep.

6. **The Next SVF Club Meeting, at the request of President Frank, will be held on Saturday, June 8th at 8:00 AM, instead of the usual first Saturday of the month**.

Adjournment: The meeting adjourned at 7:13 PM.

Respectfully submitted,

Michael Peck, Secretary



When a really big guy crashes his airplane, it's NOT a good idea to laugh.

"I won't be coming into the office today. I'll be out in the field doing research."

SVF Meeting May 4, 2024

SVFliers

SVF Meeting May 4, 2024

SVFliers

SVF PILOTS HALL OF PLANES

Charles Fred Wright

Attached are images of my just completed "Aleutian Zero". The Mitsubishi A6M-2 started out life as a Blackhorse Models 94" span ARF covered in traditional Zero scheme plastic pre-printed film covering. The plastic covering was stripped from the model and various structural changes made to the airframe. The majority of the airframe was recovered in 1.45 oz fiberglass cloth and epoxy surfacing resin. Open framework control surfaces were covered with lightweight dacron fabric with multiple coats of nitrate dope to seal and prime the fabric.

The entire airframe was painted with Automotive acrylic enamel with flattener to closely match the US Navy paint colors used in mid 1942. Callie Graphics supplied the simple star markings to match the real aircraft.

94" WS, 27lbs, Electric retracts & flaps, Power, 6000W Admiral electric, 24-10 prop, 160 Amp ESC,

12S Motor powered by 2X 5000MAH 6S 22.2 Volts,

The "Aleutian Zero" was a Mitsubishi A6M-2 recovered by the US Navy in mid 1942 on one of the Aleutian Islands shortly after the Battle of Midway. US Navy personnel in San Diego made structural repairs to the plane, which flipped on its back on landing, moderately damaging the plane and propeller. The captured plane was painted to match the mid 1942 Navy fighter paint scheme. No markings other than official US Military stars were applied to the repainted aircraft. The plane was used to compare combat maneuverability and overall flight performance with several front line Army and Navy fighters. Thanks Fred

SVF PILOTS HALL OF PLANES

Arthur Gambino

It’s all composite airframe that is manufactured by CARF

It has a twin in line Kolm 4 stroke 135cc, 270 degree engine

Sierra Retracts

Thanks Arthur

DEREK MICKO (Excellent Model builder)

Hi Bob, hope you are doing well. One of my designs- a park flyer Dornier Do-335, is published in the June Model Aviaton magazine. To discuss more about the model and article, I was on "Model Aviation Live" hosted by Jay Smith (MA magazine editor) Here is the link to the video:

https://www.youtube.com/live/vPE8vkFRzNk?si=sQjoeI-mx_k5Us-X

Model Aviation LIVE with Jay Smith - 5/17/24

This month, Jay is joined by Derek Micko, contributor for Model Aviation Magazine, who discusses his latest article for the magazine.Related Links:View the D...

www.youtube.com

Something that is kinda neat we discussed in addition to the details about the **Do-335**, but we also discussed a poll that we are running (in the magazine**) in choosing my next model design**. Here are the details from the article on the poll:

Choose one model from the following list and email your choice to Jay Smith at jays@modelaircraft.org The aircraft with the most votes will be selected on July 1, 2024.

- **United States** Chance Vought F4U-1/2, Corsair, Bell P-39 Aircobra
- **Great Britain** Hawker Sea Fury, Bolton Paul Defiant
- **France** Dewoitine D.520
- **Japan** Nakajima Ki-84 Hayate
- **Germany** Heinkel He 100
- **Soviet Union** Yakovlev Yak-3

https://www.modelaviation.com/Dornier-Do-335-Park-Flyer-Plan

Build the Dornier Do-335 Park Flyer

Add this seldom-modeled aircraft to your hangar By Derek Micko derekmicko3@hotmail.com Photos by the author The completed model is ready for flight. In the early part of 2020, I designed and built a 70-inch version of the Dornier Do 335 Pfeil. The model was featured in this magazine (see the "Sources" list for the link). The model flies well and has such distinctive lines that I wanted to design a more compact version.

www.modelaviation.com

What's Happening

NATIONAL MEMORIAL CEMETERY OF ARIZONA

Memorial Day 2024

Phoenix Stearman Guys—Missing Man

https://u.pcloud.link/publink/show?code=XZwj1B0ZGXQ0wv6EdN8bCXMGD3ARxpDjn8xX

SVF Field in view at 1:30 ***Thanks Nate***

NALL VIDEO

https://www.youtube.com/watch?v=6ax8M5aahLc&t=447s&ab_channel=RCVideoReviews

NALL VIDEO

https://www.youtube.com/watch?v=Kuu-twogWFE&t=39s&ab_channel=WillDavis

NALL VIDEO

https://www.youtube.com/watch?v=RD76eA3wwwA&t=66s&ab_channel=CrazyAces

Sun Valley Fliers

Barry and the Christen Eagle

Sun Valley Fliers

Turbine Jet Maintenance (or How to Prepare for the Next Big Event) By Craig Gottschang

R/C turbine jets are complex machines operated in a harsh environment of high speed/ high G flight, dirty runways and pit areas and sometimes less than perfect landings. As such they require more care and preventive maintenance than your average flying model. Failure to do so will at best result in a frustrating flying session as you deal with nuisance problems and at worst with the total loss of your model. There are enough challenges that we cannot control when flying jets that make it imperative to minimize the ones we can. In full scale aviation, this is known as "threat and error management". For these reasons it is good to have a maintenance routine or checklist prior to flying your turbine jet. I always try to accomplish the following items before packing up my jets and "stuff" and heading out for a jet event.

Batteries

Batteries are the life blood of our turbines and may be the single most important items to maintain to avoid catastrophic mishaps. Larger jets and smaller batteries have made it more practical to provide dual power sources for our receivers and servos but due to space limitations, many jets still have single receiver batteries and most have only a single battery to power the ECU. For this reason, it is critical to ensure all batteries are properly charged and in top condition prior to flight. Because of the number of batteries involved, not only for the receiver and ECU but also for smoke pumps and lights as well as for the transmitter and various support equipment you will need to start checking and charging batteries a few days before the event. Here are some specific suggestions:

- Fully charge and then cycle each of your nickel-cadmium and nickel-metal-hydride battery packs. This is a check and precaution that should be accomplished at least every two or three months and cycling before a big event is a good reminder in case you have not done it recently. If you discover a pack that will not charge at least at (or very close) to it's rated capacity, or has dropped significantly since last cycling, replace it now. Multiple cycles may restore some capacity but it is generally not worth the risk to fly with a suspect battery.

- Newer technology batteries such as Li-ion, Li-Poly, Li-Manganese, and Nanophosphate (A123) each have their own charging requirements and characteristics. You must be familiar with the battery type you are using and only use an approved charger. Most of these batteries are not normally cycled and you will need to determine their status with an ESV under a 1 amp load after charging and before each flight.

- Don't forget to charge/cycle your transmitter battery as well as batteries for your fuel pump, air pump, smoke pump, blower, field charging system and another support equipment you may have.

> *TIP: If you have difficulty remembering the number of cells, type and capacity of your various batteries (many of which are not readily visible) try this; use a fine tip marker and write the number of cells and capacity on the onboard connector used to charge the battery. Alternately, write the same information on a small strip of masking tape (or use a label maker and ¼" tape) and loop it around the lead or stick it close to the charge receptacle. Keeping a written record of battery cycling dates and results is also helpful.*

Landing Gear

No single system causes more problems at the flying field than the landing gear and door mechanisms. These components are subjected to a multitude of forces, even on the smoothest of flights, which can result in misalignment, loose parts, breakage, and general wear and tear. Regular inspection and maintenance are essential to avoid problems.

- Start by placing your model on a stand and cycling the gear. Observe that all gear and doors open and close without binding or friction. Gear should lock (over-center) both up and down and doors should be flush when closed. You may need to turn your model over to closely observe gear and door operation in all phases of movement. If anything is not perfect, trouble shoot the problem and make adjustments as necessary.

TIP: Air loads, G loads and dynamic (in flight) loading of the wings can change the geometry of the wing/fuselage structure enough to cause a gear system with marginal clearance to malfunction in flight. Try to allow some "margin for error" during ground testing and setup.

- While your model is upside down check for loose gear mount bolts, cracked/loose or damaged mounting blocks and/or flex plates, damaged/loose hinges, security of air cylinder actuator mounts and general condition of gear and door components. If the wheel well area is dirty, as they usually are from debris kicked up by the tires, clean them out and lube the appropriate rotating parts. Before flipping your airplane upright, verify that all air lines, brake lines and transiting servo leads are well secured and not in a position to foul or interfere with gear/door operation.

- Once satisfied that your gear and doors are functioning properly, it's time to charge your air system to normal max pressure (100 to 110 lbs) and check for leaks. The best way to do this is to leave the model undisturbed for an hour or two and then recheck the pressure. If you experience a loss of more than 5 to 10 lbs of pressure you will need to find the source of the leak and correct it. Check the gear both extended and retracted and you may find the leak only occurs in one direction. In any case it will help you narrow your search to the "up" side, "down" side or "supply" side (i.e. the lines, air tank(s) and components up stream of and including the air valves). You can further refine your search by using hemostats to clamp off individual components, for example; the nose gear, to isolate the leak.

TIP: If your system has held pressure since originally installed, a newly developed leak can often be traced to dried/worn plungers within the air cylinders or even the air valves. Refurbishing with an injection of light weight oil (such as BVM "Thin Lube") will often rejuvenate the internal "O" ring and reduce or eliminate the leak.

- The last items to check in the landing gear system are the wheels and brakes. These components always collect dirt and grit and you will need to remove each of the wheels and thoroughly clean the axels and inner hubs. Check for galling (roughness) or pitting of the axels and/or wheel bushings and use a fine file and 400 grit wet/dry sandpaper to bring them back to smooth condition. Lube the axels with a light weight bearing grease, such as Power Glide from Robart, prior to reassembly. Finally, check that your brakes are working properly and grip equally on both main wheels. You may need to apply a very thin wipe of Vaseline or lightweight oil to the inside wheel hub to prevent the brakes from grabbing too abruptly.

<u>Structure and Flight Controls</u>

No single malfunction is as rapid or catastrophic as the loss of a flight control or structural failure in flight. Due to the high speeds encountered during turbine jet flight any slop or looseness in the control system or wing/stab attachment can quickly lead to flutter and destruction of the airframe. For this reason it is imperative that these items be checked on a regular basis.

- Check each flight control surface, starting with the security of the servo and its associated mount. If this means removing a cover panel, then do so since you will need to check the tightness of all screws and bolts, including the screw holding the servo arm to the servo. Check that slop has not developed in the servo arm or control arm holes and the connecting clevises are properly safetied. Check that clevis jam nuts are tight and look for any corrosion on or around soldered components. Complete the inspection by

tugging firmly on each control surface to ensure that hinges are still secure. Don't forget to accomplish a similar inspection of your nose wheel steering servo and linkage.

- Carefully inspect your wing and stab attachment components for any sign of damage or unusual wear. Carbon fiber "blade" attachments must be free from large nicks, cut damage or delamanation. For components that you leave attached, such as horizontal or vertical stabilizers or even the wings, check the tightness and security of all attaching bolts, screws, set screws etc. As a final check, physically grip each structural component in turn (fixed and removable), and test for rigidity and lack of play. Any deficiencies discovered must be investigated and corrected.

- Finally, check all external and accessible internal areas for cracks, disfiguration, misalignment, heat blisters or any other physical irregularity. This check may be the only way to discover unsuspected or hidden damage from a hard landing, travel damage, pit damage or internal heating problems.

Turbine, Fuel System and Internal

One of the nice things about turbines is that they are relatively maintenance free and generally not prone to vibration induced problems. Nevertheless, there are some basic checks that should be performed on the turbine and associated support components.

- Check the security of the turbine mounting straps and mount attach bolts and insure the engine has not shifted position. If you have a bypass installed, check its mount attachment security as well. Also inspect the security of the tailpipe (if installed) at each attachment point. Remove the glow plug cap, check the tightness of the glow plug and reattach the cap. Check the alignment and security of the electric start motor and then insure all leads coming from the turbine (fuel, electrical, RPM, propane, air etc.) are bundled and routed clear of the intake area and free from obstruction.

- Next inspect the fuel system. The most obvious problem to check for is leaks and it may be necessary to fuel your system at least partially to insure that everything is absolutely dry. The most common cause of new leaks is cracks in the fuel tanks, normally along the seams where they are joined. These can be difficult to pinpoint and generally require the removal of the suspect tank in order to identify and repair the exact spot. Otherwise, just look for kinks or pinches in the fuel lines and verify that the fuel filter is clear of debris. If everything looks good it is generally not advisable to further disconnect or disassemble the fuel system as this will probably cause more problems than it reveals.

> *Tip: If you need to repair a leak in a fiberglass/Kevlar fuel cell, completely dry the tank and then flush with acetone. Next, apply some negative pressure (suction) to the tank and wick thin CA in and around the area of the leak. Follow up with a coating of BVM Aeropoxy or regular epoxy, allow to cure and your repair is finished!*

- Finally, perform an overall interior inspection to include your ECU tray, antenna routing, servo and electrical leads, air lines, fuel lines, propane lines etc. and all their associated connectors. Make sure that everything is in its place and secure from interference with each other and moving parts. Once again, it is not advisable to disconnect or disassemble any of the above unless you have reconfigured your installation or are attempting to correct a problem.

Conclusion

The recommendations in this article are not intended to be all inclusive or fool proof but they represent many of the "best practices" of jet modelers who have a track record of consistent success and own jets that have survived many seasons. Customize these suggestions into a routine of your own and learn from your experiences as well as from others. At all costs you must avoid the attitude of "It worked the last time I flew it so it will probably work today". That approach has lead to many accidents, of both models and full scale airplanes, that were completely avoidable if the pilot had followed a simple preventative routine.

SVF Doing What They Like Best

Wayne Laynes new Rafael with twin turbines.

Barrett Hochhaus'

Andronicus and his mom, Sarah

Rick Paquin's new F86

Sun Valley Fliers

Guess this group of SVF

Sun Valley Fliers

Magazine article by Barry Hinrichs and cover photo by him.

Thanks Barry

AERIAL ASSAULT The day Fortress Europe fell

Today the numbers involved in Operation Overlord are unthinkable: 6,000 bombers, more than 5,000 fighters, some 1,600 transport aircraft, and 2,500 gliders. All crammed into scores of airfields throughout Britain, but mainly in southern England. All were serviced, armed, and assigned aircrews, eager to take off on the day called "D."

BY BARRETT TILLMAN

Flying above the clouds, John T. Sessions' P-51B "Impatient Virgin?" comes in close for the camera. By June of 1944, the bubble-canopy D models began replacing B and C models, some of which received the bulged "Malcolm hood" seen here.

(Photo by John Dibbs/Facebook.com/theplanepicture)

On the continent, an operations officer from the 368th FG coordinates a ground support mission with Army officers.

In June 1944, the European War had dramatically reversed from four years previously. When Adolf Hitler's *Wehrmacht* conquered Western Europe in 10 weeks, Nazi Germany seemed unstoppable. But since the Battle of Britain in 1940 and the growing Allied bomber offensive, with German defeats in the Mediterranean and Russia, the grand alliance stood poised to pounce from Britain, across the English Channel, and liberate Occupied Europe.

That spring, the American public avidly followed the European Theater "ace race" as Thunderbolt and Mustang pilots vied for the highest score. The 4th Fighter Group competed with the 56th to produce the top gun, and by June 5, the highest scores were Capt. Robert S. Johnson, rotated Stateside with 27, Maj. Francis S. Gabreski with 22, and Capt. Don Gentile, also rotated, with 21.83. But the Fourth's public affairs officer had the wider view. Captain Grover Hall said, "After D-Day, a pilot with 90 planes won't be worth five column inches of print."

The Luftwaffe, though highly experienced, had felt the effect of prolonged air combat. After the fighter arm's glory days in the fall of 1943, when as many as 60 American bombers were hacked down at a time, the *Jagdwaffe's* ranks had been steadily depleted. While the Reich continued producing thousands of Bf 109s, Fw 190s and other fighters, pilot training and quality steadily declined. By the summer of 1944, Lt. Gen. Adolf Galland's day fighters sometimes incurred a ghastly attrition of 25 percent aircrews and 40 percent aircraft per month.

The Luftwaffe fought a four-front war: in the West, the East, the Mediterranean, and at home. When the crunch came in Normandy, perhaps 900 German aircraft were available in the West to oppose a crushing coalition numbering some 13,000 aircraft—a disparity of nearly 15 to 1.

Leading to D-Day

Under the Supreme Allied Commander, General Dwight Eisenhower, heading Allied expeditionary airpower was Air Chief Marshal Trafford Leigh-Mallory while Air Marshal Arthur Coningham led the RAF's tactical air arm.

The senior American airmen were General Carl Spaatz, commanding U.S. air forces in Europe, with Lt. Gen. Jimmy Doolittle of the Eighth and Maj. Gen. Elwood "Pete" Quesada with the Ninth. All were experienced professionals; Spaatz and Quesada had set an endurance record together in 1929.

The Fighter Aviation Engineering Ltd.'s restored P-47D "No Guts, No Glory!" soars above the English countryside as it may have 80 years ago during D-Day. The Jug was the heavy hitter of the ground support team with its eight .50 Brownings and heavy rocket and bomb loads.
(Photo by John Dibbs/Facebook.com/theplanepicture)

The buildup of forces necessary to invade Northwest Europe took a full year. The first priority was defeating the U-boats that preyed on vital Atlantic convoys from the New World to Britain. That campaign was largely won in May 1943, permitting delivery of men and materiel in ever-growing numbers.

Between June 1943 and June 1944, American strength in the UK grew enormously: from two army divisions to 17; from 24 aircraft groups to 101. The latter were divided between the strategic Eighth Air Force and the tactical Ninth, which would support the ground campaign and deliver airborne units behind enemy lines on the night before D-Day.

The Anglo-Americans conducted an extensive deception effort, both through actual operations and false intelligence, indicating that the landings would occur in the Pas de Calais, only 26 miles from the English coast. Consequently, the pre-invasion interdiction campaign focused on railroads and bridges both in the Calais area and in Normandy.

On a larger scale, Allied air commanders argued whether they would benefit more from bombing Axis petroleum production or transport routes. Both had merit, but Eisenhower favored the "transport plan" over the "oil plan." He reckoned—correctly—that interrupting enemy rail and road networks would hinder the Germans faster than the lengthy period necessary in reducing fuel.

In April, Allied heavy bombers turned most of their attention from strategic targets to the tactical realm, supporting the upcoming ground offensive. For instance, most of the rail bridges over the Seine River were destroyed by medium bombers, especially Ninth Air Force B-26s, preventing rapid German reinforcement of the landing zones.

In May 1944, the Eighth and Ninth Air Forces lost nearly 550 aircraft while the RAF wrote off nearly 1,000. But the momentum clearly belonged to the Allies, as Luftwaffe fighter chief Adolf Galland recalled, "The British and American tactical air forces, successfully extending their attempts to interrupt the bringing up of German reserves deep into France, made any move by daylight almost impossible. In June alone they destroyed 551 locomotives." He cited a report by the commander of a panzer division: "The Allies have total air supremacy. They bomb and shoot at anything which moves, even single vehicles and persons. Our territory is under constant observation. The feeling of being powerless against the enemy's aircraft has a paralyzing effect."

Meanwhile, the Royal Air Force reshuffled its tactical deck. While Bomber Command continued attacking German urban-industrial areas, Fighter Command was divided into Air Defense Great Britain, protecting English airspace, and Second Tactical Air Force with fighter-bombers and twin-engine types such as Mosquitos, Bostons (A-20s) and Mitchells (B-25s).

Time, weather, and tides drove the Allied schedule. The landings had to occur in early June or wait until month's end—a seeming eternity. Therefore, preparations went ahead.

The day of days

Some groups painted black and white "invasion stripes" on June 4 because originally D-Day was to be June 5. Yet everyone knew what was coming. At Debden north of London, Col. Don Blakeslee said he was prepared to lose the entire Fourth Group in defending the beach head. At 0230 on the 6th, at Chilbolton in Hampshire, Col. Gilbert Myers told his 368th Fighter Group Thunderbolt pilots and ground crews, "Men, the time we have been preparing for is here."

Actually, D-Day began the night of the 5th as nocturnal trains of transport planes towing gliders streamed south from the English coast, bound for the Norman darkness. But even before dawn, American and British fighters and bombers were airborne. A P-47 squadron commander recalled, "There were all kinds of aircraft; you almost had to put your hand out to turn. The barrage of gunfire from the Channel was terrific. We could see hundreds of flashes as the Navy laid down their barrage."Amid some 13,000 sorties in a fairly small area, collisions were inevitable. The 394th Bomb Group lost four Marauders in two midairs with only one survivor.

NO ONE WHO WAS ON THAT TRIP WILL EVER FORGET THE SPECTACLE OF INVASION SHIPS BELOW, AIRCRAFT BLOWING UP ON ALL SIDES, HUNDREDS OF GLIDERS AND PARACHUTES OF ALL COLORS ON THE GROUND. IT WAS A FITTING OPENING FOR THE COMING SHOW.

Aircrews gawked at the spectacle in the Channel. Lieutenant Clyde East, a 22-year-old recon pilot, recalled, "It would have been darn near impossible to get lost on our way to France. All we had to do was follow the endless string of ships in the Channel in support of the invasion. We entered France just south of the invasion beach, Utah, made it past all the parachutes and gliders on the ground and headed toward the Laval area, 125 miles inland." East and his wingman ambushed a flight of Fw 190s and left three burning.

East's mission represented the Allies' most under-rated asset: aerial reconnaissance. Low-level photography of Normandy had been underway for years but the combined staff ignored crucial imagery. Despite thousands of photos, Normandy's bocage, thick hedgerows, went unappreciated until GIs and Tommies confronted well-entrenched Germans just inland.

The 387th Bomb Group was prominent among the Marauder Men on D-Day, leading the wing attacking the area around Utah Beach. The 557th Squadron history recorded, "At 0130 hours the crews were awakened and told to go to briefing at 0230. At briefing they learned it was the day we had waited for, and amongst great cheering the briefing started.

"The weather was very bad, rain and low clouds predominated. As Major (Joe) Whitfield with the formation behind him approached Cherbourg Peninsula, he found the clouds down to 3,000 feet, and took his formation down to that altitude, 7,000 feet lower than they had ever bombed before and exposing them to all the small arms and light flak guns in the area. He crossed Barbleur just after 0600 and proceeded along the coast to the target, which was light flak guns and defended positions at Les Dunes de Verreville.

"All went well until they reached San Vast, then the flak came up, scads of it. Ships were falling all about but the formation kept on. From this time until the formation reached the western coast of the peninsula, they were subjected to flak, both heavy and light. The target was bombed successfully, and miraculously, every ship because of the brilliant leadership, came back to base safely, but not free of battle damage. No one who was on that trip will ever forget the spectacle of invasion ships below, aircraft blowing up on all sides, hundreds of gliders and parachutes of all colors on the ground. It was a fitting opening for the coming show."

Omaha Beach showing transport ships bringing fresh supplies and transport after the Normandy landings. Note the balloons over the area to help deter any Luftwaffe low-level strafing attacks.
(Photo courtesy of EN Archives Collection)

The invasion fleet included battleships, cruisers, and destroyers providing naval gunfire support for the ground troops. Among the airborne observers were U.S. naval aviators flying Spitfires as part of the fleet Gunfire Spotting Pool with nine British squadrons.

In the half hour before the landings, 1,365 heavy bombers attacked coastal defenses with nearly 2,800 tons of ordnance. But weather forced bombers to drop by radar with poor results. The north-south heading caused concern of “dropping short” prompting Ike’s 30-second delay, equaling a 1 1/2-mile miss inland. As Doolittle recalled, “Since the bombardiers had a definite bomb line and didn’t want to undershoot for fear of hitting our men, I suspect they added a fudge factor to their aiming points.”

When bombing by radar, some lead crews absorbed pathfinders from other units. Stephen Darlow’s “D-Day Bombers” contained such a description of Lt. John Howland, a “Gee” electronic-beam navigator in the 91st Bomb Group. The B-17s tracked over Gold Beach, Howland with his “eyes glued to the blips of the Gee box keeping us on course. H2X [‘Mickey’ radar] operator John Spierling gave range and ground speed data to the bombardier, who cranked the information into his Norden bombsight. Charlie Eager, our bombardier from the 381st BG, looked for a break in the clouds so he could take over visually. But it never came. Nevertheless, our training paid off. We had confidence the Gee Box course line was reasonably accurate, and our practice bombing had proved the ‘Mickey’ operation and bombardier could hit the beachline with good accuracy.”

The heavies were followed by 205 medium, light, and fighter-bombers. Later in the day, the heavies returned but encountered worse weather.

In round numbers, 1,700 of 2,700 Eighth Air Force bomber sorties were rated effective (64%) dropping 3,600 tons of ordnance. But 36% aborted due to weather. Mighty Eighth fighters flew 1,880 sorties: sweeps and escorts, day and night.

The Ninth Air Force logged 3,050 sorties and delivered two airborne divisions. Fighter-bomber effectiveness on the beaches was almost none. Inland it was significant, especially against transport.

VIII Fighter command launched 73 patrol and 34 fighter-bomber missions with very little contact. Allied fighter pilots only claimed 30 aerial victories while losing at least eight aircraft in combat. Hardest hit was the Fourth Fighter Group, which wrote off 10 Mustangs to all causes.

“Can't Get Started,” a 9th AF B-26B from the 323rd BG, drops its 2,000-pound ordnance load on a roadway interdiction mission near Torigini, France, post-invasion. First Lt. Dale E. Sanders and his crew were later shot down by a Me 262 in late April 1945 and held as POWs for a scant two weeks before V-E Day.

Douglas C-47 Skytrains dropping paratroopers over Arnhem on September 17, 1944.
(Photo courtesy of EN Archives)

A hastily applied set of invasion stripes contrast this RAF Gosfield-based A-20G from the 644th BS of the 410th BG as it overflies a small portion of the invasion fleet heading for the Normandy coast on D-Day.

"Joisey Bounce," a B-24D-25, was from the premier Liberator group in the ETO the 93rd BG. Soon re-named *Utah Man,* it was later lost in a mid-air over Bremen, Germany.

Overall D-Day losses were surprisingly slight from 13,000 sorties: 70 American aircraft and 33 British to all causes.

Contrary to legend, JG-26's Kommodore, Lt. Col. Josef "Pips" Priller, did not make the only aerial attack. He and his wingman made a pass at Sword Beach but other Luftwaffe planes followed. Throughout the day about 30 Junkers 88s attacked the British beaches in daylight with little effect, and about 70 Fw 190s and Bf 109s strafed the landing areas. Some 40 Luftwaffe planes were known lost to all causes.

On the night of the 6th-7th, the Germans flew about 175 sorties against Allied shipping. Through D+2 only five U.S. Navy vessels were sunk, none by air attack.

The Luftwaffe seldom launched more than 250 daily fighter sorties in the Normandy campaign. It was a losing effort. As Adolf Galland recalled, "Wherever our fighters appeared, the Americans hurled themselves at them. They went over to low-level attacks on our airfields. Nowhere were we safe; we had to skulk on our own bases. During takeoff, assembling, climbing, and approaching the bombers, once in contact, on our way back, during landing, and ever after that the American fighters attacked with overwhelming superiority."

THE LUFTWAFFE SELDOM LAUNCHED MORE THAN 250 DAILY FIGHTER SORTIES IN THE NORMANDY CAMPAIGN. IT WAS A LOSING EFFORT.

But despite control of the air, Allied losses mounted. It was no surprise, as the AAF and RAF flew against the most practiced antiaircraft gunners on earth. A Typhoon pilot, Charles Demoulin, wrote, "In Normandy the Germans had undisputed flak supremacy. It was estimated to be about 20,000 batteries, from 105mm, 88, 40, 37 down to 20mm. Hence, the odds in favor of the enemy stood at four to one against the number of Allied aircraft."

Consequently, throughout June, the Anglo-Americans lost more than 1,600 planes, almost equally divided between the AAF and RAF. Combined transport aircraft and miscellaneous losses were 47.

The Mighty Eighth lost more than 200 B-17s and B-24s during June, with the two U.S. air forces writing off 205 Thunderbolts. Some 160 Mustangs went down, and nearly 100 Lightnings. Considering the defenses and the operating conditions of A-20s and B-26s, medium bomber losses were light with 34 combined. (The Douglas A-26 Invader went operational in September.)

The month's RAF losses included 383 bombers, 178 Spitfires, 93 Typhoons, 45 Mosquitos, and 53 Mustangs or assorted types.

For the French, liberation came at a steep price. At least 25,000 civilians were killed from the pre-invasion bombing through the end of Normandy fighting in August. Army cartoonist Bill Mauldin captured the essence of the situation with two GIs surveying a ruined town, saying, "We sure liberated the hell out of this place!"

Meanwhile, advanced airfields sprang up across Normandy. Largely unheralded, but fervently appreciated by ground forces, were aviation engineer battalions that began arriving on D+11. Initially operating under IX Tactical Air Command with portions of three Ninth Air Force groups, the expeditionary air arm went to work supporting infantry and armored units against stiff German opposition. By the end of June, the engineers had about 15 fields operating with Thunderbolts and Typhoons for close air support, Mustangs and Spitfires for air defense, and C-47s providing resupply and casualty evacuation to England.

"A fighter bomber racecourse"

Allied air superiority grew into outright air supremacy, extending well beyond the front lines. Wide-ranging fighter bombers made road, rail, and barge traffic difficult throughout northern France, and often impossible.

Throughout Normandy, German forces spent daylight hours looking over their shoulders for aircraft, which inevitably bore stars or cockades. Black crosses were rare, prompting “Jabo jitters” after successive attacks by Allied fighter-bombers.

At the Soldat level, Germans said, “American planes are silver. English planes are camouflaged. Our planes are invisible!”

The Hawker Typhoon grew to near-legendary status in Normandy with “cab rank” tactics. Formations of “Tiffys” orbited on call to ground-based forward air controllers. Certainly the rugged Hawker airframe packed a punch with four 20mm cannon and eight 60-pound rocket projectiles.

Dubbed the “Eyes of the Eighth,” F-5s and Spit XI’s of the 7th Photo Group were operating around the clock in the summer of 1944 providing much needed aerial intelligence of tactical and strategic targets throughout the continental battlefield.

A New Zealand Typhoon pilot, Desmond Scott, wrote, “Whereas the Spitfire always behaved like a well-mannered thoroughbred on first acquaintance, the Typhoon always reminded me of a low-bred carthorse whose pedigree had received a sharp infusion of hot-headed sprinter’s blood.”

Despite its rugged airframe and powerful engine, the Typhoon sustained heavy casualties over Normandy. Some 37% were destroyed or damaged beyond repair, second among RAF aircraft only to the Mustang with nearly 44%.

In comparison, a P-47’s typical loadout was the eight .50 calibers, two 500-pound bombs, and/or six HVARs. But whatever the “Jabo” aircraft, its mission was the same: inflict maximum damage on German transport.

Lieutenant General Bodo Zimmermann of Army Group D said, “No road movement by day was possible under the air umbrella.”

A more colorful description came from Lt. Gen. Fritz Bayerlein of the elite Panzer Lehr division, who famously described the route to Normandy as “a fighter-bomber race course.” His division lost few panzers but many of his transport and support vehicles were destroyed by air attack.

Top aces from the 4th FG, Capt. Don Gentile (R) and his frequent wingman, First Lt. John Godfrey (L) pose with Gentile’s mount “Shangri-la” during the spring of 1944 at their home base at Debden.

Field Marshal Erwin Rommel would have agreed. On June 10 he informed Fuhrer headquarters, “Air superiority has a very grave effect on our movements. There’s simply no answer to it.” Five weeks later, Spitfires strafed his staff car, sending the Desert Fox to the hospital.

After the Normandy campaign, Allied analysts examined causes of German armor losses in Normandy:

65 percent by Allied tanks or anti-tank weapons

10 percent by aircraft

25 percent abandoned, broken down or out of fuel.

Of 223 Mk V Panthers destroyed in 1944, 14 were killed by aircraft (11 by rocket projectiles).

In the Falaise pocket during August, Typhoons claimed 222 armored vehicles but only 13 of the total 388 found destroyed were attributed to RPs, or 3 percent.

Nonetheless, Allied airmen owned Norman airspace. Not only did they hinder or destroy enemy communications, but they largely prevented Luftwaffe attacks on Anglo-American ground forces.

When Dwight Eisenhower went ashore in France he surveyed the massive logistics operation on the beaches. Ships, vehicles, and men were wide open to bombing, prompting his newly commissioned son John to offer, “You’d never get away with this without air supremacy.”

The general replied, “Without air supremacy I wouldn’t be here.”

TYPES	USAAF	RAF	ALLIES	LUFTWAFFE	RATIO
All Bombers	3,700	c. 2,300	6,000	400	15-1
Fighter/Recon	2,900	2,400	5,300	425	12-1
Transport *	1,200	475	1,675	65	25-1
Totals	7,800	5,175	13,000	890	15-1
D-Day sorties	8,700	3,500	12,200+	130-300	40-1

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D-DAY STATS THE WORLD IN JUNE 1944

JUNE 4

U.S. Fifth Army occupies Rome

JUNE 9

Soviet offensive in Finland

JUNE 13

First Buzz Bombs on London

JUNE 15

Marines land on Saipan in the Marianas

JUNE 19-20

Battle of the Philippine Sea

JUNE 22

British repulse Japanese at Imphal, India

JUNE 23

Soviet Bagration offensive on Central Front

D-DAY STATS AIRPOWER IN EUROPE 1944

FEBRUARY

“Big Week” by 8th and 15th Air Forces

MARCH

Discussion of Transport vs. Oil Plan

APRIL

French & German rail networks vs. CBO

MAY

Axis petroleum targeted

Luftwaffe fighters heavily attrited

EARLY JUNE

Widespread interdiction bombing in NW Europe

D-DAY AIR FORCES

D-DAY STATS LOSSES

USAAF: 70

25 P-51s

17 C-47s

10 P-47s

6 B-24s

5 A-20s

3 P-38s

2 B-26s

1 F-5

1 Spitfire

RAF: 33

14 Spitfires

11 Typhoons

3 Bostons

3 Mustangs

1 Mosquito

1 Halifax

Compiled from John Foreman's Over the Beaches.

ETO TOP 12 ACES JUNE 5, 1944

■

JUNE SVF Birth Day Boys

Caraway Robert Scot
Counce LOREN
Dolbow Jerry
Higuchi Yuri
Irwin George
Litt Richard
Newman Alex
Perkins Tom
Pfeifer Louis
Prichard Quinn
Resinger Keven
Roberts Keith
Simmons Jared
Sisti George
Vinet Richard

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