

REPLICA

SEPTEMBER
OCTOBER
2003

Newsletter of the National Association of Scale Aeromodelers (NASA)

PRESIDENT'S NOTES

Due to a situation beyond my control, I haven't had the time to finish my notes for this issue. My mother has taken very ill and we're doing everything in our power to nurse her back to good health.

Look for my notes in the next edition of the Replica.

Stan Alexander
NASA President

DIGGYBACK HERO

Tomorrow morning they'll lay the remains of Glenn Rojohn to rest in the Peace Lutheran Cemetery in the little town of Greenock, Pa., just southeast of Pittsburgh. He was 81, and had been in the air conditioning and plumbing business in nearby McKeesport.

If you had seen him on the street he would probably have looked to you like so many other graying, bespectacled old World War II veterans whose names appear so often now on obituary pages. But like so many of them, though he seldom talked about it, he could have told you one hell of a story.

He won the Distinguished Flying Cross and the Purple Heart all in one fell swoop in the skies over Germany on December 31, 1944. Fell swoop indeed. Capt. Glenn Rojohn, of the 8th Air Force's 100th Bomb Group, was flying his B-17G Flying Fortress bomber on a raid over Hamburg. His formation had braved heavy flak to drop their bombs, then turned 180 degrees to head out over the North Sea.

They had finally turned northwest, headed back to England, when they were jumped by German fighters at 22,000 feet. The Messerschmitt Me-109s pressed their attack so closely that Capt. Rojohn could see the faces of the German pilots. He and other pilots fought to remain in formation so they could use each other's guns to defend the group.

Rojohn saw a B-17 ahead of him burst into flames and slide sickeningly toward the earth. He gunned his ship forward to fill in the gap. He felt a huge impact. The big bomber shuddered, felt suddenly very heavy and began losing altitude.

Rojohn grasped almost immediately that he had collided with another plane. A B-17 below him, piloted by Lt. William G. McNab, had slammed the top of its fuselage into the bottom of Rojohn's. The top turret gun of McNab's plane was now locked in the belly of Rojohn's plane and the ball turret in the belly of Rojohn's had smashed through the top of McNab's. The two bombers were almost perfectly aligned - the tail of the lower plane was slightly to the left of Rojohn's tailpiece.

They were stuck together, as a crewman later recalled, "like mating dragon flies." No one will ever know exactly how it happened. Perhaps both pilots had moved instinctively to fill the same gap in formation. Perhaps McNab's plane had hit an air pocket.

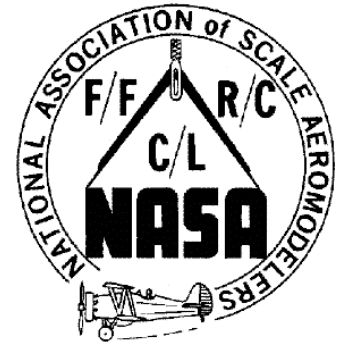
Three of the engines on the bottom plane were still running, as were all four of Rojohn's. The fourth engine on the lower bomber was on fire and the flames were spreading to the rest of the aircraft. The two were losing altitude quickly. Rojohn tried several times to gun his engines and break free of the other plane. The two were inextricably locked together.

Fearing a fire, Rojohn cuts his engines and rang the bailout bell. If his crew had any chance of parachuting, he had to keep the plane under control somehow. The ball turret, hanging below the belly of the B-17, was considered by many to be a death trap - the worst station on the bomber.

In this case, both ball turrets figured in a swift and terrible drama of life and death. Staff Sgt. Edward L. Woodall, Jr., in the ball turret of the lower bomber, had felt the impact of the collision above him and saw shards of metal drop past him. Worse, he realized both electrical and hydraulic power was gone.

Remembering escape drills, he grabbed the handcrank, released the clutch and cranked

...continued on page 2



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the turret and its guns until they were straight down, then turned and climbed out the back of the turret, up into the fuselage.

Once inside the plane's belly Woodall saw a chilling sight, the ball turret of the other bomber protruding through the top of the fuselage. In that turret, hopelessly trapped, was Staff Sgt. Joseph Russo. Several crew members on Rojohn's plane tried frantically to crank Russo's turret around so he could escape. But, jammed into the fuselage of the lower plane, the turret would not budge.

Aware of his plight, but possibly unaware that his voice was going out over the intercom of his plane, Sgt. Russo began reciting his Hail Marys. Up in the cockpit, Capt. Rojohn and his copilot, 2nd Lt. William G. Leek, Jr., had propped their feet against the instrument panel so they could pull back on their controls with all their strength, trying to prevent their plane from going into a spinning dive that would prevent the crew from jumping out.

Capt. Rojohn motioned left and the two managed to wheel the grotesque, collision-born hybrid of a plane back toward the German coast. Leek felt like he was intruding on Sgt. Russo as his prayers crackled over the radio, so he pulled off his flying helmet with its earphones.

Rojohn, immediately grasping that crew could not exit from the bottom of his plane, ordered his top turret gunner and his radio operator, Tech Sgts. Orville Elkin and Edward G. Neuhaus, to make their way to the back of the fuselage and out the waist door behind the left wing. Then he got his navigator, 2nd Lt. Robert

Washington, and his bombardier, Sgt. James Shirley to follow them. As Rojohn and Leek somehow held the

plane steady, these four men, as well as waist gunner Sgt. Roy Little and tail gunner Staff Sgt. Francis Chase were able to bail out.

Now the plane locked below them was aflame. Fire poured over Rojohn's left wing. He could feel the heat from the plane below and hear the sound of .50 caliber machine-gun ammunition "cooking off" in the flames. Capt. Rojohn ordered Lieut. Leek to bail out. Leek knew that without him helping keep the controls back, the plane would drop in a flaming spiral and the centrifugal force would prevent Rojohn from bailing. He refused the order.

Meanwhile, German soldiers and civilians on the ground that afternoon looked up in wonder. Some of them thought they were seeing a new Allied secret weapon - a strange eight-engined double bomber. But anti-aircraft gunners on the North Sea coastal island of Wangerooge had seen the collision. A German battery captain wrote in his logbook at 12:47 p.m.: "Two fortresses collided in a formation in the NE. The planes flew hooked together and flew 20 miles south. The two planes were unable to fight anymore. The crash could be awaited so I stopped the firing at these two planes."

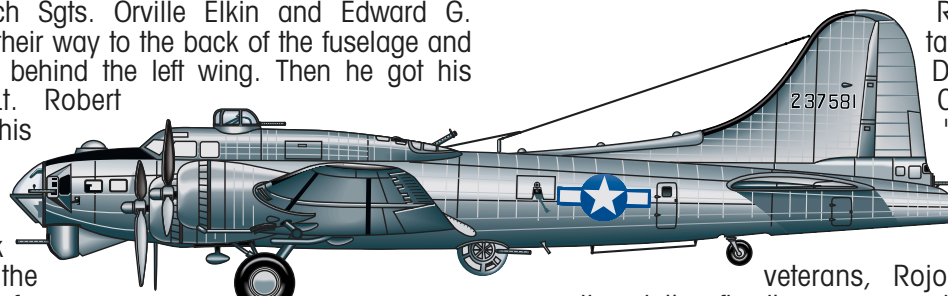
Suspended in his parachute in the cold December sky, Bob Washington watched with deadly fascination as the mated bombers, trailing black smoke, fell to earth about three miles away, their downward trip ending in an ugly boiling blossom of fire.

In the cockpit Rojohn and Leek held grimly to the controls trying to ride a falling rock. Leek tersely recalled, "The ground came up faster and faster. Praying was allowed. We gave it one last effort and slammed into the ground." The McNab plane on the bottom exploded, vaulting the other B-17 upward and forward. It hit the ground and slid along until its left wing slammed through a wooden building and the smoldering mass of aluminum came to a stop.

Rojohn and Leek were still seated in their cockpit. The nose of the plane was relatively intact, but everything from the B-17's massive wings back was destroyed. They looked at each other incredulously. Neither was badly injured.

Movies have nothing on reality. Still perhaps in shock, Leek crawled out through a huge hole behind the cockpit, felt for the familiar pack in his uniform pocket and pulled out a cigarette. He placed it in his mouth and was about to light it. Then he noticed a young German soldier pointing a rifle at him. The soldier looked scared and annoyed. He grabbed the cigarette out of Leek's mouth and pointed down to the gasoline pouring out over the wing from a ruptured fuel tank.

Two of the six men who parachuted from Rojohn's plane did not survive the jump. But the other four and, amazingly, four men from the other bomber, including ball turret gunner Woodall, survived. All were taken prisoner. Several of them were interrogated at length by the Germans until they were satisfied that what had crashed was not a new American secret weapon.



Rojohn, typically, didn't talk much about his Distinguished Flying Cross. Of Leek, he said, "In all fairness to my copilot, he's the reason I'm alive today."

Like so many veterans, Rojohn got back to life un sentimentally after the war, marrying and raising a son and daughter. For many years, though, he tried to link back up with Leek, going through government records to try to track him down. It took him 40 years, but in 1986, he found the number of Leek's mother, in Washington State. Yes, her son Bill was visiting from California. Would Rojohn like to speak with him? Two old men on a phone line, trying to pick up some familiar timbre of youth in each other's voice. One can imagine that first conversation between the two men who had shared that wild ride in the cockpit of a B-17.

A year later, the two were reunited at a reunion of the 100th Bomb Group in Long Beach, Calif. Bill Leek died the following year. Glenn Rojohn was the last survivor of the remarkable piggyback flight. He was like thousands upon thousands of men - soda jerks and lumberjacks, teachers and dentists, students and lawyers and service station attendants and store clerks and farm boys - who in the prime of their lives went to war in World War II. They sometimes did incredible things, endured awful things, and for the most part most of them pretty much kept it to themselves and just faded back into the fabric of civilian life.

Capt. Glenn Rojohn, AAF, died last Saturday after a long siege of illness. But he apparently faced that final battle with the same grim aplomb he displayed that remarkable day over Germany so long ago. Let us be thankful for such men.

Ralph Kinney Bennett

NEW TOP GUN CLASS



Top Gun is adding a new class for 2004 that should go a long way in promoting scale competition. Our new class essentially the same as AMA's Fun Scale.

The rules are simple. Any pilot with any type of AMA contest experience may apply for the invitation. There is NO Builder of the Model rule. That means you can bring a purchased airplane, a borrowed airplane or one that has competed in Top Gun in the past but is no longer eligible. Aircraft must have a scale color scheme.

NO ARFS, and No Dogs Allowed! This is for nice looking scale airplanes, the type that could actually compete in the Expert or Team Class. Proof of color scheme is required. 25 points awarded as a static score to all who provide proof of color scheme. This is the only static score possible. There is NO Static Judging! The static score will be added to the final Flight Score of each round. 3 or 4 rounds will be flown, one on Thursday, possibly 2 on Friday and then the Top 10 will fly a final round on Sunday. If 3 rounds are flown, the top 2 will be averaged for a final flight score. If 4 rounds are flown, we will average the top 3 flights.

All flying rules are the same as all other classes in Top Gun. For a rule book, go to FrankTiano.com, click on Top Gun, then download the rulebook.

Trophies, prizes and Cash will be awarded to the top 5 places. \$500 to first place. Entry fee will be the same as for other classes. Only ONE entry is allowed per person at Top Gun, so, if someone is flying in Expert, Team or Masters, they may not enter Open. If you fly in the Open class, you may not enter any of the other three classes.

After looking at almost 100 names for the new Top Gun class, similar to the AMA Fun Scale class, we have made a decision. Joe Denicola offered the name Pro-Am to indicate that this is a class welcoming the pro as well as a first timer.

As far as registration, we are happy to report the class is already full for 2004. If the new Pro-Am class is as successful as some think it will be, we will expand it in 2005 to host 50 pilots flying on Wednesday thru Friday with the top 16 flying off on Sunday.

On still another matter, we are looking at an all War Bird Fly-in, in Florida, sometime in late October 2004. This Fly-in will feature more than a dozen special awards, like Best Pre 1941 Fighter, Best WW 1, Best WW 2 Fighter, Best Bomber, Best Jet Fighter, Best Multi, Best Flight, Best Finish etc. We are trying to line up sponsors at the moment and will keep you all posted on the progress. The name of this all military aircraft event will be "Fighter Town".

Frank Tiano

NASA'S OFFICIAL MAGAZINE



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2003 Scale Masters Championships Results

Grand Champion

David Hayes Roanoke Rapids, NC Rockwell Thrush

Designer Class

	Pilot	From:	Aircraft:	Static Total	Top 3 Avg	Total
1	David Hayes	Roanoke Rapids, NC	Rockwell Thrush	97.25	92.417	189.667
2	Shailesh Patel	Eureka, CA	F86 Sabre Jet	97.25	91.750	189.000
3	Jeff Foley	Roanoke Rapids,	Bf-109e	96.50	92.500	189.000
4	Bob Patton	Saint Joseph, IL	T 28 C	95.00	91.750	186.750
5	Charles T Nelson	Berlin, MA	YKS 7 WACO Cabin	95.00	91.250	186.250
6	Hal Parenti	Westchester, IL	Ryan Fireball FR-1	96.25	89.250	185.500
7	Wayne Frederick	Santa Rosa, CA	Fokker D VIII	96.00	86.000	182.000
8	Tom Polapink	Centereach, NY	Pfalz DIIIa	95.25	86.500	181.750
9	Charles Baker	Union, MO	Rawdon T1	96.50	84.500	181.000
10	Dave Johnson	Vernon, CT	Seamans Schuckert D III	95.00	84.417	179.417
11	Nick Zirolri Sr.	Little Falls, NY	Stearman PT-17	94.00	78.583	172.583

Expert Class, 44 Entries (top 10 shown)

	Pilot	From:	Aircraft:	Static Total	Top 3 Avg	Total
1	Jeremy Fursman	Snoqualmie, WA	DeHavilland DH82-A	95.50	93.583	189.083
2	Kim Foster	Mansfield, OH	DH 94 Moth Minor	97.00	91.417	188.417
3	Kent Walters	Scottsdale, AZ	SBD-3 Douglas Dauntless	96.25	90.833	187.083
4	Joe Rafalowski	Fayetteville, GA	T-33	94.50	92.083	186.583
5	Dave Wigley	Smithtown, NY	Hawker Tempest MkV	96.00	88.750	184.750
6	Steve Ort	Seymour, IN	B25 Mitchell	94.75	89.333	184.083
7	Sean M Cassidy	Champaign, IL	F6F-5 Hellcat	95.75	88.000	183.750
8	Jeff Lovitt	Davis, CA	Kawasaki KI61 Tony	93.75	89.583	183.333
9	Dave Pinegar	Warren, MI	T-34A Beech Mento	90.25	92.917	183.167
10	Leo Spychalla	Watertown, WI	Spiffire MKXIV	92.00	90.000	182.000

Team Scale Class, 18 Entries (top 10 shown)

	Pilot/Builder	From:	Aircraft:	Static Total	Top 3 Avg	Total
1	Dave Pinegar George Maiorana	Warren, MI	TU-4 AEW	97.00	90.000	187.000
2	Scott Russell Wayne Siewert	Woodbury, MN	P-47D Thunderbolt	95.75	89.167	184.917
3	Eduardo D. Esteves Ronaldo Salles	Belo Horizonte, MG	Spacewalker	95.00	89.833	184.833
4	Jay Steward JackSteward	Phoenix, AZ	Neiuport 28c	95.25	88.417	183.667
5	Paul Haynes Steve Wilson	Redmond, OR	Nieuport	95.25	84.584	179.834
6	Curtis Kitteringham Ron Peterka	Escondido, CA	Stinson SR-9 "Gull Wing"	91.75	88.083	179.833
7	Brian O'Meara James Hammond Jr	Denver, CO	KI-61 Tony	93.00	86.750	179.750
8	Nil Patel Shailesh Patel	Eureka, CA	F4 Phantom	95.75	83.417	179.167
9	Wayne Frederick Vernon Altamirano	Santa Rosa, CA	Cessna 182 Skylane	95.00	83.583	178.583
10	Mike Gross Tony Kirchenko	Mastic Beach, NY	Stearman PT17	92.25	85.750	178.000

Best of Awards

Award	Donated by	Recipient	Aircraft	Award	Donated by	Recipient	Aircraft
Best Biplane	Kelly Christ	Jeremy Fursman	DeHavilland DH82-A	Best WWI	Proctor Enterprises	Dave Johnson	Seamans Schuckert D III
Best Built Up Kit	Marv Wade	Zach Spychalla	Spiffire FR Mk XIVE	Best WWII	Vel-Tye LLC	Reg Dell-Aquila	P - 38 L Engineering
Best Civilian	RC Hobbies	David Hayes	Rockwell Thrush	Achievement	Southern Alameda County Radio Controllers	Dave Pinegar	TU-4 AEW
Best Documentation	Bob Holman Plans	Al Kretz	Dauntless SBD-3	Harris Lee Lifetime Achievement Award	Scale Masters Association	Mike Winter	Sopwith Pip
Best Golden Age	Sanderson & Associates	Charles T Nelson	YKS 7 WACO Cabin	High Flight	One Eighth Air Force	Dave Pinegar	TU-4 AEW
Best Jet	Robart Manufacturing	Shailesh Patel	F86 Sabre Jet	High Static (Tie)	Westerville Model Assn.	David Hayes	Rockwell Thrush
Best Markings	Planes Plus	Dave Wigley	Hawker Tempest MkV	Most Realistic Flight Expert	Airtronics Radio Systems	William Wheeler	J-3 Cub
Best Military	Marv Wade	Shailesh Patel	F86 Sabre Jet	Most Realistic Flight Team	Airtronics Radio Systems	Curtis Kitteringham	Stinson SR-9 "Gull Wing"
Best Mission Award Expert	Airtronics Radio Systems	David Hayes	Rockwell Thrush	Pilots Choice	One Eighth Air Force	Shailesh Patel	F86 Sabre Jet
Best Mission Award Team	Airtronics Radio Systems	Curtis Kitteringham	Stinson SR-9 "Gull Wing"				
Best Scratch Built Aircraft	Capstone Hobbies	David Hayes	Rockwell Thrush				

Scale Scrapbook – 2003 Scale Masters Championships



ROCKWELL THRUSH
David Hayes, Roanoke Rapids, NC



FAIRCHILD M-62
Mike Barbee / Earl Muenze; Delaware, OH



SHOESTRING
Bud Roane, Melbourne, FL



BUCKER BUI33 JUNGMEISTER
Dorin Luck / Gary Allen, Henderson, KY



F-86 SABRE
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A number of important factors, such as wing area, wing loading, and tail volume percentage, make an airplane fly well; however, most airplanes can fly with many of these parameters out of norms.

The center of gravity (CG), on the other hand, is critical. If the CG is too far forward, the airplane will be very stable while flying, but as it slows down to land, more up elevator is required to hold the excess nose weight up until the elevator either runs out of travel or stalls. If the CG is too far aft, the airplane will be unstable and uncontrollable.

So, how do you figure out the CG? It's pretty easy, actually. Acceptable CG ranges for almost all airplanes is between 25-33% of the Mean Airfoil Chord (MAC) so the hardest part of figuring CG is the "mean" part. On an airplane with a constant chord wing, such as a Cub (see Figure 1), the MAC is easy to figure since the chord of the wing is constant. Just measure the back 25-33% of the chord from the leading edge and that's where the airplane should balance. If the chord is 10 inches, the airplane will be in balance if the CG is between 2.5 and 3.3 inches back from the leading edge.

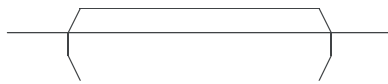


Figure 1

Not all wings have constant chords and that is where the "mean" part starts to get complicated. Figure 2 shows a wing with a leading edge taper so the chord at the root is considerably larger than the chord at the tip, causing the "mean" chord to be somewhere in between the two. To figure the MAC, measure back 25-33% at the root and mark it. Then measure 25-33% at the tip and mark that. Connect the two marks with a dotted line. Now, measure the wingspan from the center of the wing to the tip (include the part of the wing that is covered by the fuselage). Go half that distance to get the mean point on the wing. Do the same for the other side of the wing and draw a line between the two points. Now you have the balance point of the airplane. Notice that the balance point at the tip is nearly at the leading edge of the wing so it's critical that you mark where the balance point is. If you just measure back 25% from the leading edge at the tip, the airplane will be nose-heavy. Although Figure 2 only shows a tapered leading edge, this method also works with trailing edge taper and even wings with both leading and trailing edge taper.

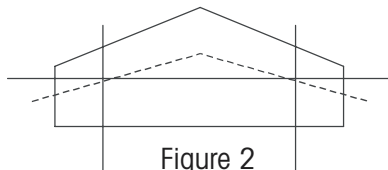


Figure 2

Figure 3 shows a wing with sweep, and once again, figuring the CG is a simple matter of finding the 25-33% point at the root and tip, then finding the point at half span and drawing a line between the two. Notice that the CG is well ahead of the tip leading edge and with more sweep, can actually be behind the root trailing edge. Once again, it's important that you know where on the wing you're going to balance the airplane.

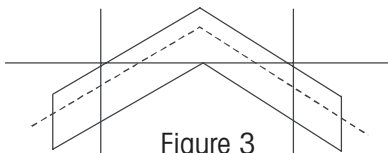


Figure 3

The most complex wing design you'll encounter is shown in the next diagram (Figure 4). This wing has a constant chord section, a tapered section, and sweep, so how do you figure the MAC? Interestingly enough, it's just as simple as any of the other types of wings. You find the MAC of the constant chord section and the MAC of the swept and tapered section. Then you find the mean point on the wing. The only thing that could get you in trouble here is forgetting to include the part of the wing covered by the fuselage. The sweep angle in Figures 3 and 4 is exactly the same, but you'll notice the CG line is further forward on the wing with a constant chord section. This is the effect of the constant chord area reducing the total area of the swept section.

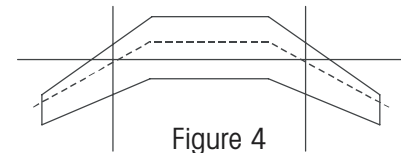


Figure 4

How does this work with a biplane and two wings? Once again, the answer is simple. Figure 5 shows the wings of a biplane (bottom and middle ovals) looking from the tips of the wings. To figure the MAC on a biplane, just consider both wings as a single wing for CG purposes and measure from the leading edge of the forward wing (usually the tip wing) to the leading edge of the aft wing. Consider the span to be a single wing (shown by the top oval in Figure 5). Then, use the 25-33% of that total as the CG location. Notice that the balance line is well aft of the 25% of the top wing and well forward of the 25% of the bottom wing.

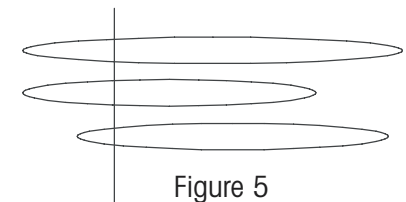


Figure 5

Only one wing type will not work with this system—a delta wing. This type of wing has considerable aft shift of the center of pressure so using this method will result in the CG being much too far forward. There must be some chord at the tip for this to work.

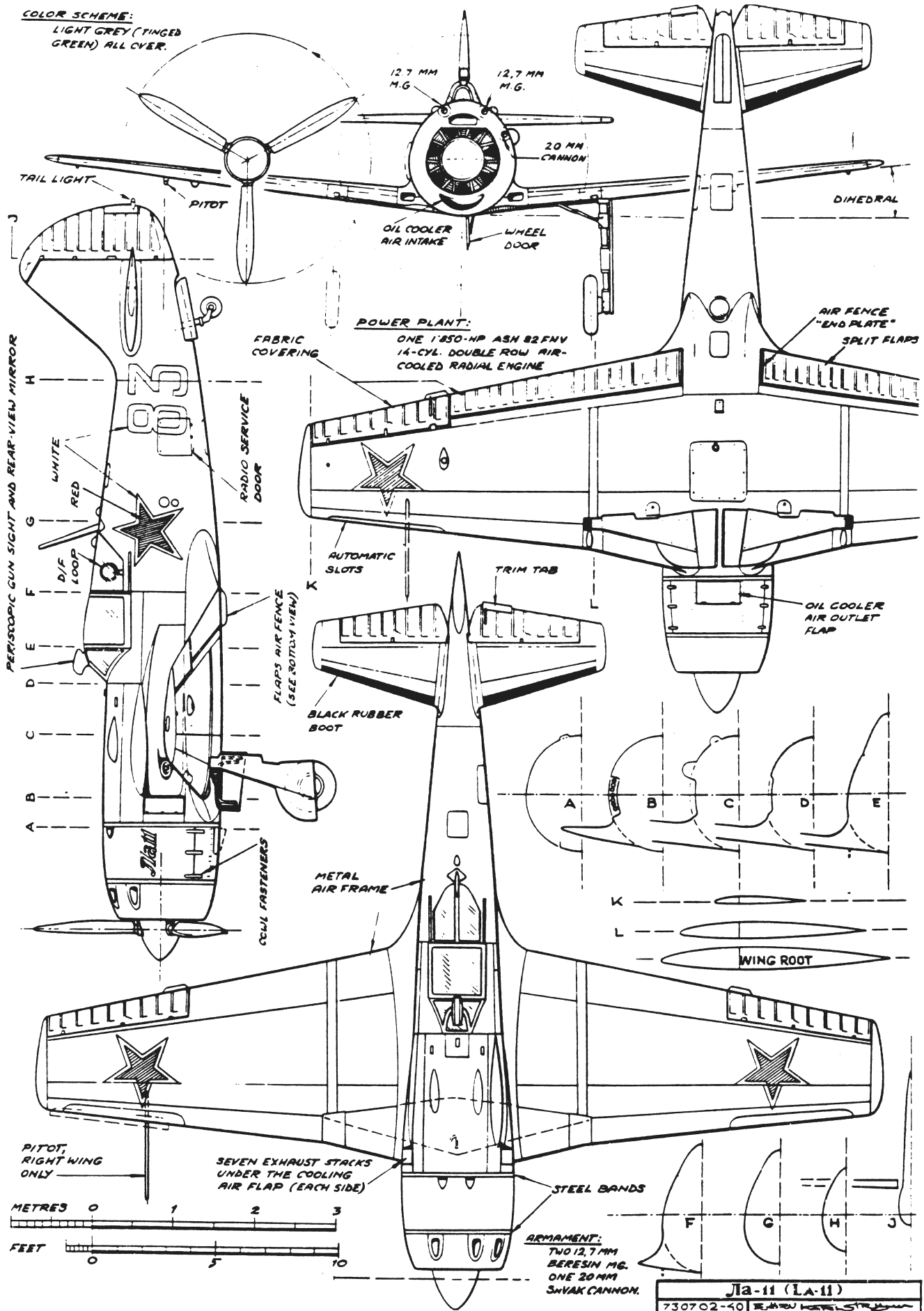
Jerry Neuberger

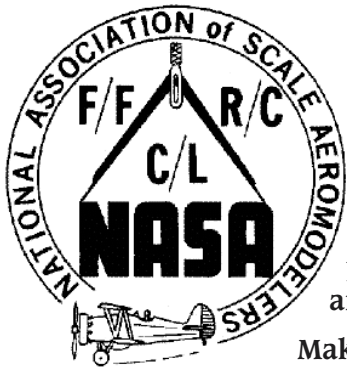
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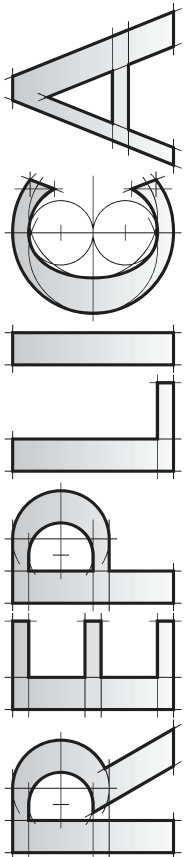
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