AMA Chapter #3798

Chino Valley Model Aviators
Official News

April 25, 2020 Volume 23 Issue 4 www. chinovalleymodelaviators.org

"To create an interest in, further the image of, and promote the hobby/sport of radio controlled aircraft"

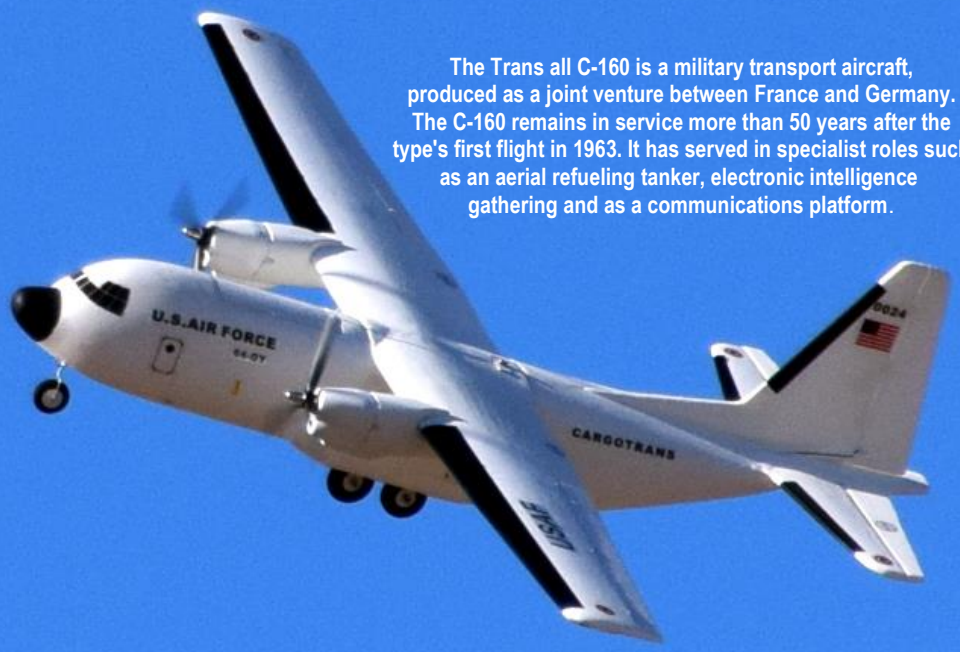
Inside this issue

Quote of the Month:

"Oh to speed, where there is space enough and air enough at last!"

Walt Whitman

Larry Parkers C-160 Cargo Transporter



The Trans all C-160 is a military transport aircraft, produced as a joint venture between France and Germany. The C-160 remains in service more than 50 years after the type's first flight in 1963. It has served in specialist roles such as an aerial refueling tanker, electronic intelligence gathering and as a communications platform.

Jack Potter's Foam EP Eagle

Bill Gilbert: CVMA President's Message

I hope this issue of the newsletter finds you all in good health! These are un-precedented times we are experiencing. As we all know by now, "social distancing" and self-quarantine is the new norm, which is hindering our flying. The springtime weather is also playing a role in hindering our flying activities, with strong winds kicking up early in the day, so flying groups have naturally been smaller ~6 or so. Easy to keep the requisite 6 foot distance.

Also, no large gatherings are recommended. As such, we do not have access to the Administration Bldg. meeting room until further notice. No March general meeting was held, and April's meeting looks to be in jeopardy as well. We need to practice this social distancing rigorously until the Chinese Virus is further under control.

Hopefully this social distancing will have the desired effect of "flattening the curve" of new C-19 cases, keep us healthy, and permit a quicker return to normalcy. Let's all do our part by following the guidelines set out by the various government agencies. Also if you can, support our local eateries with take-out or curb service to keep these small businesses alive, as they struggle with lack of customers.

Hopefully you are all keeping somewhat busy with builds, repairs, or even simming (using the simulator)! This will all pass, hopefully sooner than we expect. Keep that RC interest alive as good weather is just around the corner as well.

It's a good time to strengthen those family bonds too! Discover some new series on the tube, or catch up on reading, maybe even a hike on the less populated trails. Even catching up on jobs around the house that we all procrastinate on can be a rewarding sense of achievement with all this time on our hands.

Stay healthy and see you at the field!

Bill

CVMA Flight Instructors

- •Steve Shephard- Chief Flight Instructor
- •Al Marello-basic
- •Lloyd Oliver-basic
- •Riley Harley-basic
- •Jack Potter-gliders

New sign on Perkinsville Road.

What Plane is this Cockpit Photo From?

See Page Eleven

CVMA NEWSLETTER

AMA Chapter #3789
Published Monthly

President — *Bill Gilbert*

Vice President — *Doug McBride*

Treasurer — Harold Ellis

Secretary — *Bob Steffensen*

Safety Officer — *Rick Nichols*

At Large Member — *Dan Avilla*

At Large member—*Dennis O'Connor*

Newsletter Editor — *Bob Shanks*

"Say, fellas, how would you like to join the Air Force?"

2020 — MARK YOUR CALENDARS

May 9	Spring Fling, Fun Fly Swap Meet
June 6	E-Warbird Races
July 4	Pot Luck and Fun Fly
Aug. 8	Combat Wing Pylon Races
Sept. 19	Annual Steve Crow Memorial Fun Fly
Oct. 24	Annual Build & Fly Challenge
Dec. 4	Christmas Banquet

Field Clean Up as needed before events

Club Meetings:
Third Wednesday of Each Month—7 PM
Prescott Airport Executive Building.

BORN IN A BARN?

IF YOU ARE THE LAST ONE TO LEAVE THE FIELD:
PLEASE REMEMBER TO LOCK THE GATE.

SAFETY: ALWAYS A MAJOR ISSUE

Rick Nichols captured our members practicing "social distancing" above in the middle of this corona virus pandemic. Left to right is *Don Crowe, Steve Shephard, Steve Zingali* and *Shel Liebach*. Lots of separation.

The numbers at the field have been low considering our past and the number of members we have currently all due to the Corona Virus.

Of course our membership has a large number of us that are in that age range where we should be extra careful and not take anything for granted. As can be seen by the fact we did not have a March general membership meeting and most likely will not this month. The numbers of the Corona Virus are slowly increasing here in Arizona. At this writing we have been fortunate but again none of us should take this disease for granted.

So stay at home, work on that project you have put off, clean your shop, repair and consider getting involved in our race scheduled for June.

A total investment of $70 for the plane and electronics is outstanding thanks to the efforts of *Randy Meathrell* and *Steve Zingali*. Let's hope this pandemic settles down considerably by our race date of Saturday June 6.

The Safety Officer position came open so your editor offered to step up until we could find someone and then member *Rick Nichols* said he would take the position. Thanks Rick, we will vote on that whenever we can have another general membership meeting.

Seems in some areas of our country some are not heeding the experts advice on this pesky virus. Stay informed members, watch your favorite news broadcast but also double check information that you feel might directly impact you or your family. As a former analyst and instructor, your editor used to constantly remind students to "Verify, Verify and Verify". Use the Internet, check many sources since this virus has so many unknowns.

Your editor used to like visiting the Embry-Riddle library to check a variety of newspapers but since we stay at home for now, check multiple sources using the Internet.

Be Safe and Stay Healthy Members!

Club Members Flying Machines

Dave Bates EDF F-16

Member *Matt Butler* added a cool airplane to our field entry sign.

Photo at right is of the new Chino Valley "Old Home Manor" Sign, notice "Model Aviators" is listed at top right.

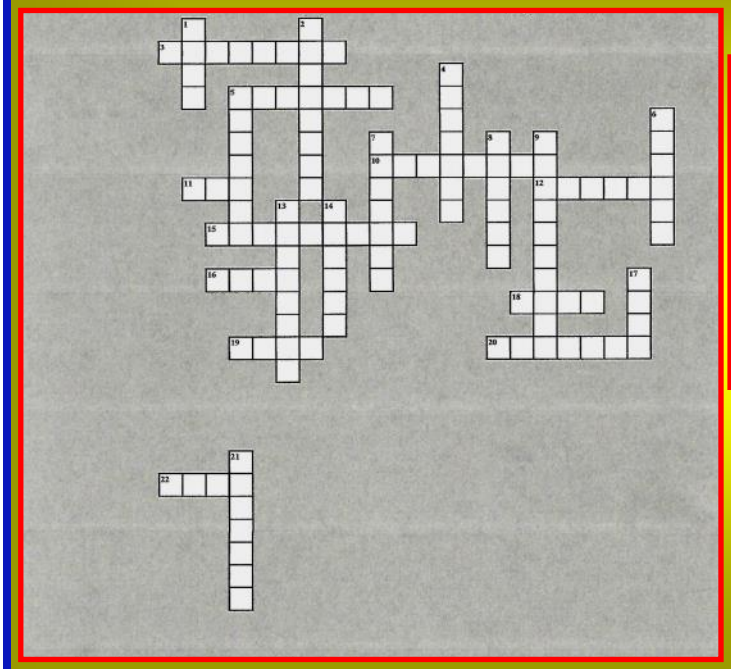
Rick Nichols' P-40 (racer for club's June 6 event) is shown on it's maiden flight.

Steve Zingali launches his foam profile OV-10. At left the OV-10 over-head and on a fly-by. The orange color is from the 2200 Mah battery for power.

Randy Meathrell at left was landing his Radian adjacent to the runway. He was brining it in straight at himself. The first attempt almost hit him so he went around and bought it into the dusty grass area at right, in front of him successfully the second time.

TRY YOUR LUCK: *A CVMA CROSSWORD PUZZLE*

Carol and Randy Meathrell came up with this easy and fun crossword puzzle that all of us should be able to figure out. Print out just his page and complete the puzzle with a pencil. Thanks Carol and Randy, very creative!



Across

3 Pitch
5 Creates roll
10 Height
11 Ducted fan
12 Vertical surface
15 Creates thrust
16 Oppossite of gravity
18 Kind of battery
19 Japanese fighter
20 Wild horse
22 Our club

Down

1 Don't sniff it
2 Monocoat
4 Earth sucks
5 Pilot
6 German J3 Cub
7 Electrical power
8 Landing Surface

Down

9 Stunts
13 Battle of Britain
14 No engine
17 Opposite of power
21 P-40

Answers on page nine.

Editor's Note:

Due to the Corona Virus we haven't held any club meetings for obvious reasons. If you fly, as a few of you have, keep practicing "social distancing". The number of flyers at the field has been low but it is good exercise and good for the mind to enjoy the outdoors and our great hobby.

This is a good time to use "Real Flight" and do some simulator flying, clean up your shop and repair some models or build. The races are coming up June 6. See Randy Meathrell (Rmeathrell @aol.com) and Steve Zingali (Steve.Zingali@gmail.com) if you decide to take part. Only $75: $40 for the foam airframe (Steve Zingali) and $35 for the electronics (Randy Meathrell).

Here's a shot of Rick Nichols P-40 racer, Randy Meathrell has his racer done and many are out there being built. Quite a number of club members picked their profile racer kits up one Tuesday recently. Randy has the electronics and Steve the foam kit. Quite a savings over buying the T-28 we used to race plus that model is no longer made anyway.

Why All Adversaries Should Fear America's Mighty B-21 Bomber When it Finally Becomes an Operational U.S. Aircraft!

by Kris Osborn

https://nationalinterest.org/blog/buzz/why-everyone-right-fear-americas-mighty-b-21-bomber-79161

Following a successful critical design review, which closely analyzed many of the aircraft's technologies, configurations and weapons, the Air Force has brought the program into its Engineering Manufacturing and Design phase - the point in the process where weapons and systems are built into the aircraft.

The Air Force is now building its first "test" aircraft of the new B-21 Raider stealth bomber aircraft engineered to elude the most advanced air defenses for decades to come and destroy high-value targets over enemy territory -- without being seen.

"We're closely monitoring the build of the additional test aircraft and associated software to support the first flight," Air Force Chief of Staff Gen. David Goldfein told an audience at an event hosted by the Mitchell Institute for Aerospace Studies.

As for the timing of the first flight and many of the acquisition specifics, they are not available simply because the program is largely secret, in an obvious effort to prevent enemies from getting a jump-start on how they may seek to counter the aircraft. Although few details are known, engineers, observers, program managers and Air Force flag officers are all very clear -- this new bomber will introduce stealth technology the likes of which the world has never seen.

Following a successful critical design review, which closely analyzed many of the aircraft's technologies, configurations and weapons, the Air Force has brought the program into its Engineering Manufacturing and Design phase - the point in the process where weapons and systems are built.

Much of the construction and prototyping likely involves subsystems, avionics and weapons integration, test aircraft manufacturing, of course, also includes engineering the stealth bomber's external configuration.

Building a stealth aircraft requires a deliberate, methodical process of engineering contours from the beginning. As engineers describe it, stealth has to be "built into" the design from inception. Every bolt, seam, curve, wing and weapon needs to be built within specific parameters so as to ensure the lowest possible radar signature. Stealth aircraft have a notable absence of sharp edges, protruding structures and other items potentially more visible to enemy radar. Bombers, in particular, are not only curved but also entirely horizontal, without vertical structures. This creates a scenario wherein a return electromagnetic ping, or radar signal, cannot obtain an actual rendering of the plane. The exterior is both smooth and curved, without visible seams binding portions of the fuselage. Weapons are carried internally; antennas and sensors are often built into parts of the fuselage itself so as to minimize detectable shapes on the aircraft.

The intent is to not only elude higher-frequency engagement radar, which allows air defenses to actually shoot an airplane, but also elude lower-frequency surveillance radar, which can simply detect an aircraft in the vicinity. In effect, the B-21 mission will be to fly into heavily defended enemy airspace, detect and destroy targets and leave without an enemy ever knowing they were there. Also, stealth aircraft such as the B-2 and B-21 bomber are built with an internal, or buried, engine to decrease the heat signature and various methods of controlling exhaust. One goal of stealth aircraft thermal management is to try to make the aircraft itself somewhat aligned with the temperature of the surrounding air so as not to create a heat differential for enemy sensors to detect.

Finally, the success of stealth relies upon a particular blend of materials used as coating for the exterior. These materials, the components of which are not publicly available, are described as radar-absorbent -- meaning a radar's electronic signal simply may not bounce off or return with an accurate picture. Some have said that properly completed stealth construction can make a stealth airplane appear like a bird or an insect to enemy radar.

On the topic of RCS, an interesting essay called "Radar and Laser Cross-Section Engineering," from the Aerospace Research Central, cites the emergence of new coating technologies, including "radar-absorbing materials and artificial metamaterials." (Text written by David Jenn, an author from the Naval Postgraduate School).

New stealth technology is being pursued with a sense of vigor, in light of rapid global modernization of new Russian and Chinese-built air defense technologies, some of which may make it harder for platforms such as the existing B-2 bomber to operate. Advances in computer processing, digital networking technology and targeting systems now enable some air defenses to detect even stealth aircraft with much greater effectiveness. However, the B-21, is being engineered with this specific challenge in mind -- to ensure a new generation of stealth will be able to penetrate air defenses for decades into the future.

The Strange Old Hanger at the Airport

A Short Story by
Bob Shanks

Driving out to the airport one sunny Saturday afternoon, Rick and fellow pilot Randy decided to explore the old hanger located in an unused area of the airport that dated back to the WWII era. Lots of stories were circulating about that old area as being haunted, the old base was gone but that old hanger was all that was left and undoubtedly saw virtually every type of WWII airplane in its heyday along with past airline travel. They postponed working on their planes hangered at the active end of the airport until they could adequately look inside this hanger to satisfy their curiosity. It had been boarded up for years with the ramp now overgrown in weeds coming up through cracks in the old concrete. Just getting to that area was a bit difficult so they parked and walked to the rather strange and sad looking old hanger.

They both thought that it was probably locked up but to their amazement one side door was unlocked. As they pushed the old jammed and warped door open clouds of dust billowed up as sunlight shined down through the old hanger door windows. It took a little time for their eyes to adjust to the semi darkness of this old aircraft home, the walls were probably filled with old stories of those by-gone days of aviation.

Looking around in the dimly lit hanger, power had been disconnected years ago, they found an old room labeled "Mission Ready Briefing" as the slowly opened the door it was as if the room had been left as it was, chairs, maps and podium all ready for the next training flight briefing. On the far wall was a picture of *Rod Serling* advertising the old television show from the 1950's. Someone had hung up "The Twilight Zone"! Somebody was probably trying to be funny adding to the spookiness of the old hanger and this briefing room!

Everything was covered with dust. As Randy and Rick looked around the bare light bulbs suddenly came on and the door slammed shut and could not be opened from the inside. *"Hey there's not suppose to be any power in this building"* was Randy's retort. The old "Twilight Zone" picture suddenly brightened, and the words "Terminal" lit up like a lighted billboard and the arrow started blinking as if to point to the "Terminal". Rick said, *"What Terminal, where?"* Randy looked in the direction of the arrow and muttered, *"I don't think I want to cross over into any twilight zone, let's get out of here!"* Over the closed door was also a small tattered sign that said, "This way to the terminal". A small strange yellow glow was emanating from under the door!

The two pilots high-tailed it to the exit door, struggling for a moment to open it but the door finally creaked opened and as they hurriedly left that strange room they glanced back at the door labeled "Terminal" but it was suddenly gone, it had disappeared and the lights where again off as before, only a bare wall was where they could've entered the... the "Twilight Zone Terminal".

But there had been a door on that back wall! Where had it gone? What was going on here? Neither pilot ever spoke about that strange encounter to anyone, never venturing to that side of the airport again!

All characters are fictional with no connection to the living or dead.

Viola Gentry - the First Woman to Fly Under the Brooklyn & Manhattan Bridges

By **Rebecca Maksel**

https://www.airspacemag.com/airspacemag/flying-cashier-180973963/

You could say Viola Gentry was a rebellious teen. In 1910, when she was just 16 years old, she had already run away from home to join the circus, gotten married, and divorced. Her parents sent her to live with her aunt and uncle in Jacksonville, Florida, in hopes it would rein her in. It was there, during a chaperoned trip to an ostrich farm, that Gentry found her calling. Amid all the ostrich-related activities and souvenirs, she met pilot George A. Gray, who was offering rides in his airplane. Gentry counted her pennies and climbed in for her first airplane ride.

For the next eight years, she cobbled together a livelihood working as a hotel receptionist and cashier. By 1920 she had made her way west, and was working at San Francisco's Grand Hotel. One July morning she learned that stunt pilot Ormer Locklear was shooting movie scenes for *The Skywayman*, and would land his airplane on the roof of the St. Francis Hotel. Gentry would write of Locklear's stunt years later in her self-published memoir, *Hangar Flying*. "[It] seemed very easy… If a man could do it, certainly a woman could. All she needed to do was learn to fly."

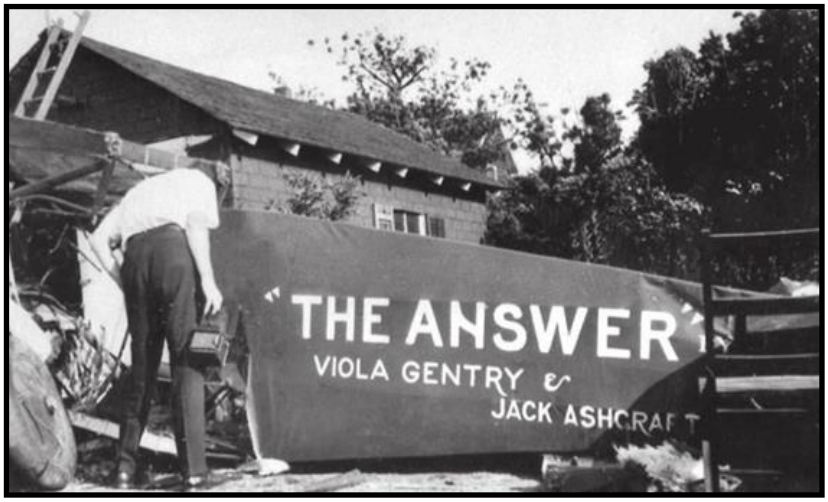
Gentry saved enough for a flight lesson, and headed to Crissy Field, where her instructor was Robert Fowler, the first person to fly across the United States from west to east. As Gentry's biographer Jennifer Bean Bower relates, Fowler was at first dismissive: "A woman should *not* fly, but should stay home, get married and raise a family." But Viola persisted, even though each flying lesson cost her the equivalent of three weeks' wages. (That alone set her apart from other early pilots, says historian Tom Parramore in Bower's book: "She was among the few blue-collar participants in a society of the gilded elite.")

Gentry felt the East Coast would provide more opportunities for a fledgling female aviator; she moved to New York, and soloed in a Curtiss JN-4 in 1925. The Fédération Aéronautique Internationale granted Gentry an aviator certificate in 1926. Knowing she had to perform a stunt to get noticed, on March 14, 1926 she rented a Curtiss Oriole, took off from Curtiss Field and zipped under both the Brooklyn and Manhattan bridges. She wasn't the first to do that—Wright Exhibition Team pilot Frank Coffyn had flown under the bridges in 1912—but she was very likely the first woman. Her stunt delighted the press, which immediately dubbed Gentry "the flying cashier."

Two years later she would set a solo endurance record, the first officially recorded for a female pilot. She was the first federally licensed female pilot from North Carolina, and one of the first nine in the country. By this time, Gentry was nationally known. In 1929 she was determined to establish a refueling endurance flight record. The time to beat had been set by the crew of the *Fort Worth*, a Ryan B-1 Brougham that had stayed aloft more than 172 hours. Gentry asked "Big Jack" Ashcraft, another well-known pilot of the day, to help her attempt the record. But tragedy struck. Due to dense fog, the refueling aircraft couldn't reach the duo's Cabinaire, and they couldn't see well enough to land. With Ashcraft at the controls, the airplane ran out of fuel and crashed. Ashcraft was killed instantly; Gentry was severely injured. She would spend the next 18 months in the Hospital for the Ruptured and Crippled in Manhattan.

After such a devastating crash, another pilot might have given up flying. But as Bower relates in her **biography**, Gentry eventually returned to aviation, although she always flew with another pilot to compensate for her injuries.

In 1960 and 1961 she competed in the All-Woman Transcontinental Air Race with **Myrtle "Kay" Thompson Cagle**, who would go on to become one of the so-called Mercury 13, the group of women who trained for spaceflight at the same time as the first U.S. astronauts, but never got a chance to launch into space.



The wreckage of Viola Gentry and Jack Ashcraft's aircraft, July 1929. (NASM-88-6086)

BALANCING LARGE RC AIRCRAFT

By Mark Lipp (jflipp@aol.com)

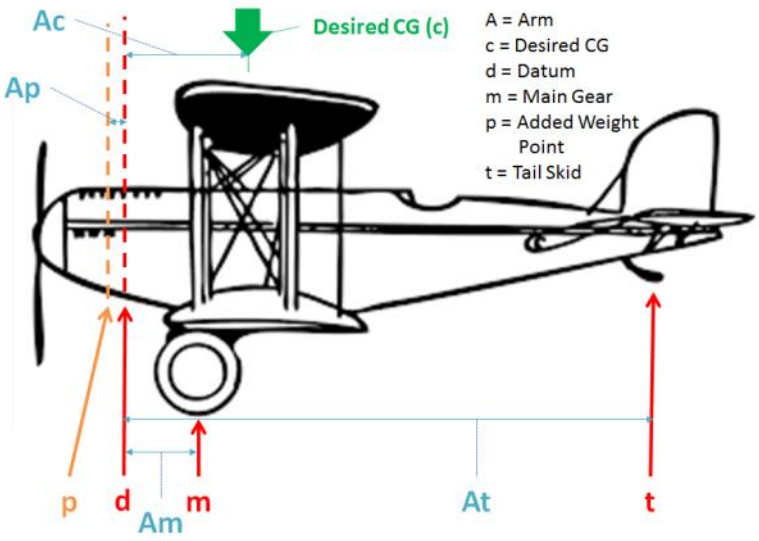
Calculating Weight Balance: For Large RC Model Aircraft

Once a model aircraft gets to a certain size, traditional methods of calculating weight and balance and confirming that the center of gravity (CG) is where it should be, such as suspending the model from two pivot points and balancing extra weights on the nose or tail, become difficult if not impossible.

This article describes a technique for calculating how much weight should be added at a chosen location to establish the correct CG. This technique is the same as that used for many full scale general aviation aircraft.

This is a greatly-shortened version of a larger document that describes in detail the theory behind and a step-by-step description of the technique. The full article and the accompanying Excel workbook will be available on the CVMA website.

The figure below defines various points and measurements that are used in the calculations. Even though a conventionally-geared aircraft (a tail dragger) is used in the figure and discussion, this technique can also be used for a tricycle geared aircraft. A complete description of each point and measurement on this diagram is included in the full article.

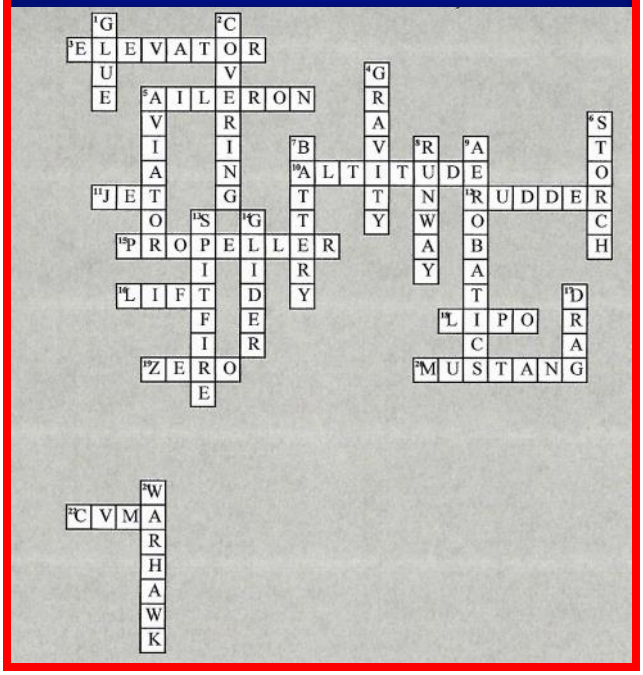


<u>The materials necessary to use this technique are</u>:

- **A.** The aircraft in its final, ready-for-flight configuration but with no fuel.
- **B.** The location of the desired CG. This is commonly found on the plans of the aircraft or described in the building instructions.
- **C.** A set of accurate scales that will measure up to the full weight of the aircraft. I use a set accurate to a tenth of an ounce that we also use in baking.
- **D.** Accurate measurements of several points on the aircraft.
- **E.** The Excel workbook that does the calculations. If you do not have Excel or want to manually calculate the results, the full article explains how to do this.
- **F.** Several 2x4s or other blocks to set the aircraft to the attitude of straight-and-level flight.

More on page 10

Crossword Puzzle Answers from Page Six



MORE ON MARK LIPP'S PROCEDURE ON BALANCING THAT LARGE MODEL…

The data used below are for a Balsa USA quarter scale Fokker D-VII with a Saito 180 engine.

1. Assemble the aircraft into its final ready-for-flight configuration. Do not add fuel because most model aircraft CG locations are set for when the aircraft is "dry".
2. Determine the location of the datum. This can be anywhere you choose (even in front of or behind the aircraft) on the longitudinal (nose to tail) axis of the aircraft. The front of the firewall, the main (or top) wing leading edge, or the main gear axle is commonly used. This is "d" in the figure above and is the location of the firewall for this discussion.
3. Determine the point at which you want to add weight. This is usually at the front of the firewall or somewhere in the nose of the aircraft. This is "p" in the figure above.
4. Block up the aircraft into its straight-and-level attitude.
5. Accurately determine the following from the plans or by actually measuring the aircraft. These arms are measured from the datum. Use positive numbers for arms to the rear of the datum and negative numbers for arms forward of the datum. The opposite will work, so long as you are consistent.
   a. Arm, in inches, of the desired CG (Ac).
   b. Arm, in inches, of the main gear axle. This will be zero if you choose the main gear axle as the datum (Am).
   c. Arm, in inches, of the tailskid or nose gear. If the datum is the firewall, this will most likely be negative for an aircraft with a nose gear (At).
   d. Arm, in inches, of the point at which you will be adding weight (Ap).
6. Enter the arm values (in inches) into the Excel workbook. The figure below shows the Excel cells into which these data are entered.

Desired CG Arm	6.75
Main Gear Arm	3.75
Tail Skid Arm	54.75
Added Weight Arm	0.80

7. Accurately weight the aircraft at the left and right main gear wheels and at the tailskid or nose gear. Weights are in ounces.
8. Enter the weights into the Excel workbook. The figure below shows the Excel cells into which these data are entered. Notice the slight differences in weight between the left and right main gear. This is not uncommon.

Left Main Gear Weight	138.00
Right Main Gear Weight	135.00
Tail Skid Weight	18.00

9. The Excel workbook will then calculate the results. The figure below shows how much added weight (if any) needs to be added at the point you choose. The distance by which the CG must be moved is informational and tells you how far off the actual CG of the aircraft is from the desired CG.

CG needs to be moved by 0.15 inches.
Add 7.5 oz. (0 lb./7 oz.) at the Added Weight Arm

10. If the weight to be added is negative, which means your aircraft is nose heavy, you can take either or both of the following actions:
    Move things around (such as moving the batteries towards the rear)
    Add weight to the tail of the aircraft (or some other place behind the desired CG)
11. If the weight to be added is larger than what you want, you can take any or all of the following actions:
    a. Move things around (such as moving batteries forward)
    b. Add weight as far forward in the nose as possible without compromising structural integrity
    c. Lighten the tail (I'm not sure how you would do this)
    d. Change the point at which you want to add weight by moving it forward. This changes the arm of the point at which weight is to be added (Ap), so you have to re-measure it.
12. If the weight to be added is within the range of what you want to add, then add the weight at point "p".
13. If you had to take any action described in the above steps, reweigh the airplane, enter the weights into the Excel workbook, and see what the new results are.

A tail heavy airplane usually flies once!

Name the Plane Cockpit: U-2S Dragon Lady

https://www.af.mil/About-Us/Fact-Sheets/Display/Article/104560/u-2stu-2s/

The U-2S is a single-seat, single-engine, high-altitude/near space reconnaissance and surveillance aircraft providing signals, imagery, and electronic measurements and signature intelligence, or MASINT. Long and narrow wings give the U-2 glider-like characteristics and allow it to quickly lift heavy sensor payloads to unmatched altitudes, keeping them there for extended periods of time. The U-2 is capable of gathering a variety of imagery, including multi-spectral electro-optic, infrared, and synthetic aperture radar products which can be stored or sent to ground exploitation centers. In addition, it also supports high-resolution, broad-area synoptic coverage provided by the optical bar camera producing traditional film products which are developed and analyzed after landing.

The U-2 also carries a signals intelligence payload. All intelligence products except for wet film can be transmitted in near real-time anywhere in the world via air-to-ground or air-to-satellite data links, rapidly providing critical information to combatant commanders. MASINT provides indications of recent activity in areas of interest and reveals efforts to conceal the placement or true nature of man-made objects.

Routinely flown at altitudes over 70,000 feet, the U-2 pilot must wear a full pressure suit similar to those worn by astronauts. The low-altitude handling characteristics of the aircraft and bicycle-type landing gear require precise control inputs during landing; forward visibility is also limited due to the extended aircraft nose and "taildragger" configuration. A second U-2 pilot normally "chases" each landing in a high-performance vehicle, assisting the pilot by providing radio inputs for altitude and runway alignment. These characteristics combine to earn the U-2 a widely accepted title as the most difficult aircraft in the world to fly.

The U-2 is powered by a lightweight , fuel efficient General Electric F118-101 engine, which negates the need for air refueling on long duration missions. The U-2S Block 10 electrical system upgrade replaced legacy wiring with advanced fiber-optic technology and lowered the overall electronic noise signature to provide a quieter platform for the newest generation of sensors.

The aircraft has the following sensor packages: electro-optical infrared camera, optical bar camera, advanced synthetic aperture radar, signals intelligence, and network-centric communication.

A U-2 Reliability and Maintainability Program provided a complete redesign of the cockpit with digital color multifunction displays and up-front avionics controls to replace the 1960s-vintage round dial gauges which were no longer supportable.

Background

Built in complete secrecy by Kelly Johnson and the Lockheed Skunk Works, the original U-2A first flew in August 1955. Early flights over the Soviet Union in the late 1950s provided the president and other U.S. decision makers with key intelligence on Soviet military capability. In October 1962, the U-2 photographed the buildup of Soviet offensive nuclear missiles in Cuba, touching off the Cuban Missile Crisis. In more recent times, the U-2 has provided intelligence during operations in Korea, the Balkans, Afghanistan, and Iraq. When requested, the U-2 also provides peacetime reconnaissance in support of disaster relief from floods, earthquakes, and forest fires as well as search and rescue operations.

The U-2R, first flown in 1967, was 40 percent larger and more capable than the original aircraft. A tactical reconnaissance version, the TR-1A, first flew in August 1981 and was structurally identical to the U-2R. The last U-2 and TR-1 aircraft were delivered in October 1989; in 1992 all TR-1s and U-2s were designated as U-2Rs. Since 1994, $1.7 billion has been invested to modernize the U-2 airframe and sensors. These upgrades also included the transition to the GE F118-101 engine which resulted in the re-designation of all Air Force U-2 aircraft to the U-2S.

U-2s are home based at the 9th Reconnaissance Wing, Beale Air Force Base, California, but are rotated to operational detachments worldwide. U-2 pilots are trained at Beale using five two-seat aircraft designated as TU-2S before deploying for operational missions.

General Characteristics

Primary function: high-altitude reconnaissance
Contractor: Lockheed Martin Aeronautics
Power plant: one General Electric F118-101 engine
Thrust: 17,000 pounds
Wingspan: 105 feet (32 meters)
Length: 63 feet (19.2 meters)
Height: 16 feet (4.8 meters)
Weight: 16,000 pounds
Maximum takeoff weight: 40,000 pounds
Fuel capacity: 2,950 gallons
Payload: 5,000 pounds
Speed: 410 mph
Range: more than 7,000 miles
Ceiling: above 70,000 feet
Crew: one (two in trainer models)
Unit cost: classified
Initial operating capability: 1956
Inventory: active force, 33 (5 two-seat trainers and two ER-2S operated by NASA)

U-2S Landing...very tricky.