AZ CAF AIR BASE

“Stearman” Training Program

N-47964 Boeing Model 75 – B75N1 (S/N 75-7540)

Navy N2S-3 (Army Air Corps PT-17)

Note: changes from Rev 10g!

What follows is the background information for the Boeing Model 75 “Stearman.”Lloyd Stearman was the original designer and builder of the pre-model 70‘s. However, Lloyd Stearman was not involved in the design of the model 75 albeit they are all called “Stearman.” The official name is “Kaydet.” A Boeing design team designed the model 75. All model 75‘s were produced at the Wichita plant. The first was a model 75 then A-75 to E-75 but there were no“C” or “D” models. Sorry, I can’t answer that question.

The CAF’s **964** is a **B75N1** and was originally built for the Navy in **1943** as a **N2S-3** which meant it was equipped with the Continental R-670-4. The current engine is the civilian version of the -4. 964s operates with an W-670-6N producing 220 horse power.
964 is certified in the Aerobatic Category.

Post-war civil requirements for surplus military Stearman's is covered by Aircraft Specification **A-743.** This document lists all the approved equipment allowed on a standard category Stearman and the items that must have been removed, replaced or modified when the military surplus Stearman was first licensed as a civilian airplane. Over the years there have been many models and STC's for the Stearman Series. The Stearman makes an outstanding and fun civilian aircraft. The owner/pilots enjoy fly-ins, air-shows, formation flying and a variety of activities.

CAF STEARMAN PILOT MINIMUMS:

FAA Commercial Certificate; current FAA Class II Medical; 500 hours as ASEL PIC. 50 Flight hours in the last three years; logged in tail wheel aircraft. A transition letter from CAF Headquarters is required before training begins.

GROUND SCHOOL:

The AZ Wing requires **ALL Stearman pilots to attend a one-day transition ground school. Additionally, the CAF Tailwheel ground school is an annual requirement.**

Subjects covered: POH: including Limitations; aerodynamics; systems; engine and propeller operation; tail-wheel flying procedures and CAF regulations.

Written Examination covers all subjects.

FLIGHT TRAINING:

Following the ground-school when you are ready, **and** present your **TRANSITION LETTER,** you will fly with a qualified CAF Stearman Instructor/Check (IP) Pilot until the 10 hour dual requirement is complete or until proficiency is attained. Previous Stearman dual training would mean, perhaps, less than 10 hours dual may be waived. Training to proficiency is required regardless.

Keep in mind that **each** CAF Stearman flight is subject to Operations Officer (written, email or verbal) unless it is a revenue flight scheduled through the Ride Coordinator. Additionally, Training flights should be coordinated with the Training Officer.

First, we will brief the day's mission.

Second, we will fly as briefed.

Third, we will accomplish a post-flight de-brief.

First Instructional Flight:

SID*: Student will be assigned either the front or rear seat for the first flight. The instructor may decide it is the trainee's best interest to occupy the front seat for the first flight. This will eliminate the trainee's extra duties of radio communications. Again, SID.

Pre Flight, Starting, Taxiing, Take-Off (may initially include reduced power takeoffs [power controlled by the instructor] and take-offs with only half the runway width available). Again, SID

NOTE: **NO** three-point take-offs during the training process except for instructor demonstrations as instructional tool (at runways in excess of 6000').

***SID = Subject to Instructor Discretion Maneuvers:**

Arguably, **the best FLIGHT training maneuver in the Stearman** is to hold the aircraft nose on a geographical point, in level flight, while rolling the bank back and forth to 60 degrees of bank. These are commonly, **although incorrectly**, called Dutch Rolls.**

Slow-Flight, Stalls, Steep Turns (45° and 60°bank), three point Stall Landings. The Instructor will be watching the trainee to ascertain he is not using aileron input during the stall, but correctly using rudder input.

** **technically, DUTCH ROLL is a phenomenon that occurs occasionally in swept-wing aircraft due to an out of phase roll/ yaw combination mostly due to where the swept wings are located. Some early model Lear Jets have experienced this phenomena as well.**

Second (and subsequent) Instructional Flights:

Instructor will determine which seat Trainee shall occupy.

Note: No two students learn at the same rate. This is subjective and at the discretion of the instructor (SID).

Maneuvers: SID:

Instructor will insure the Trainee has experience with NORMAL - CROSS-WIND - BALKED LANDINGS - STALL (THREE-POINT) LANDINGS and WHEEL LANDINGS.

NOTE: a minimum of 50 takeoffs and landings required (prior to course completion)

WITH IP ON BOARD:

ON LONG RUNWAY – PERFORM WHEEL LANDINGS

CONSIDER TAKEOFF AND WHEEL LANDING PRACTICE USING THE FOLLOWING (IP on board):

MEMORIZE SIGHT PICTURE

LIFT ONE WHEEL, THEN THE OTHER

PRACTICE ABORTS TAIL DOWN

TAIL UP (after proficient with tail down aborts)

LANDING:

NOTE: The CAF considers any tail-winds in any tail-wheel aircraft an emergency! It is best to ask for a runway change or divert to another airport.

NO quarterly tail-wind landings EMERGENCY ONLY!

NO tail-wind landings i EMERGENCY ONLY!

Regardless of Stearman experience:

BEST TO AVOID ANY TAILWIND/QUARTERLY TAILWIND

15 kt. cross-wind maximum (DUAL & high time pilots).

NO TOUCH AND GO LANDINGS AND TAKE-OFF'S IN THE STEARMAN!

INSTRUCTORS WILL ENSURE THAT EACH TRAINING LANDING IS A STOP AND TAXI-BACK (OR STOP AND GO at runways longer than 8000 ft).

NOTE: Instructor will insure the Trainee has experience with at least one Take-Off and Landing with FULL FUEL and 60 LBS in the baggage compartment. (**Not to exceed 2950 pounds Gross Weight**).

Any pilot in the aft seat weighing fewer than 175 pounds should carry an additional 25-35 pounds in the baggage bin. This will reduce potential tail-wheel shimmy due to forward CG.

THE OVERALL GOAL OF THE CHECKOUT PROGRAM RESULTS IN TRAINING TO PROFICIENCY IN ALL ASPECTS.

CURRENCY REQUIREMENTS:

INITIAL TRAINING: includes 10 hrs and 50 landings **minimum**.

Stearman PICs **with less than one-year experience or having fewer than 25 hours experience** are required to undergo:

1. 90 Day Progress Checks with an instructor for first 12 months after training program competed.

2. ALL Stearman pilots are required to maintain takeoff/landing currency within 30 Days. (Minimum: 3 Take-Offs and Landings to a full stop).

3. If a Stearman PIC's currency lapses, he/she will be required to fly 3 Take-Off s and Landings to a full stop with a qualified Instructor.

4. If a Stearman PIC's currency lapses in excess of 90 days, he/she will be required to complete the **entire** 602 Proficiency Flight.

The manifest must be signed by both trainee AND IP!

A Stearman Training Form must be completed following all training events.

Following initial training completion a flight check by another IP is required along with an completed form 602. (NEW)

Passengers: For any PIC, at any time, **ANY** passenger, without exception, is required to sign a **Hold Harmless agreement** in the form of the manifest.

Stearman PIC's are required to have logged a minimum of 25 hours AND 50 landings in the Stearman prior to being qualified to fly Revenue Flights.

Stearman Specifications:

Gross weight: 2950 lb. Maximum (Note: Military used 2726.7 lb.)
Baggage 60 lb..

Fuel: 46 gal. (gravity feed, 4-7 gal not available in flight)

Oil: 4.4 gal. capacity (operationally use: 3.5 to 4.0 gal
Aeroshell W120
Power Off Stall Speed at max GW: 55 mph (48 kts)

Power On Stall Speed at max GW: 51 mph (44 kts)

Do not exceed speed: 186 mph (163 kts)

Fuel consumption: 12-13 gal./hour (15-16 gph for aerobatics)

Normal Cruise Speed: 95 mph (83 kts)
Endurance: 3.4 hours (approx.)
most pilots plan 2 to 2.5 hrs

Maximum Range: 300 sm (260 nm, no reserve,
most pilots plan 200 sm) Service Ceiling: Maximum 13,300 ft.

Initial Rate of Climb: 800 ft./min.

ACROBATIC MANEUVERS:

NOTE: NO AEROBATICS UNTIL TRAINED BY CAF IP!

Spins

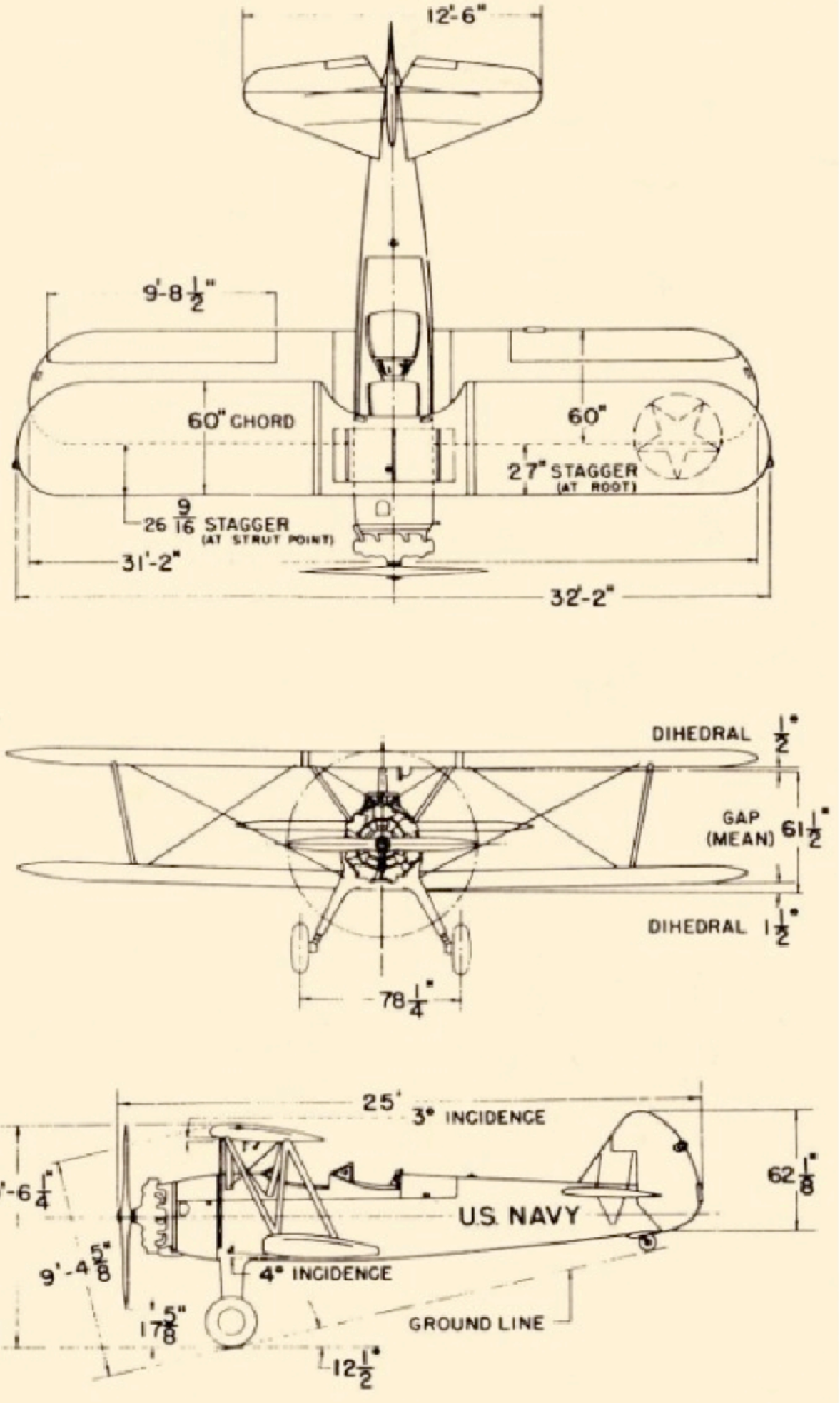
Inside Loops

Hammerhead Stalls

Slow Rolls (under 124 mph/108 kts)

NOT CAF approved:

Snap Rolls-Inverted Flight-Inverted Spins


12'-6"
9'-8 1/2"
60" CHORD
60"
27" STAGGER
(AT ROOT)
26 9/16 STAGGER
(AT STRUT POINT)
31'-2"
32'-2"
DIHEDRAL 1/2°
GAP
(MEAN) 61 1/2"
DIHEDRAL 1 1/2°
78 1/4"
25'
3° INCIDENCE
9'-6 1/4"
9'-4 5/8"
4° INCIDENCE
17 5/8"
GROUND LINE
12 1/2"
62 1/8"
U.S. NAVY

Boeing Model 75 Military Designation / Engine

75 PT-13	Lycoming R-680-5
A75 PT-13A	Lycoming R-680-7
A75 PT-13B	Lycoming R-680-11
A75B4 N/A to Venezuela	
A75J1 PT-18	Jacobs R-755
A75L3 and A75L5	N/A to various foreign countries
A75N1 PT-17	Continental R-670-4 & -5
A75N1 N2S-1	Continental R-670-4
A75N1 N2S-2	Lycoming R-680-8
A75N1 N2S-4	Continental R-670-4 & -5
B75 N2S-2	Lycoming R-680-8
B75N1 N2S-3	Continental R-670-4
(N-47964) (S/N: 75-7540)	
D75N1 PT-27 to Canada - Continental R-670	
E75 PT-13D/N2S-5	Lycoming R-680-17

Engine note: It was required that all Continental R-670 engines, when transferred to civilian use, be re-designated and have the engine identification plate changed to show the civilian designation.

Continental Engines Military Designation Civilian Designation
R-670-5 W670-6A R670-4, -11A,

N-47964 **(S/N** 75-7540**)** Continental **W670-6N** is installed.

Airframe Airworthiness Directives:

The Boeing/Stearman Model 75 has had five Airworthiness Directives issued for it. Only two of these apply to the stock airplane while the other three apply to agricultural duster/ sprayer airplanes.

A.D. 46-24-01

Due to inadequate drainage forward of the ailerons, water drain holes must be drilled in the dural angle forming the lower rear edge of the wing at the aileron gap.

A.D. 50-06-02

Upon initial certification as a civilian aircraft and at each subsequent annual inspection the fuel tank in the center section must be removed and the spars inspected for moisture damage. The drain holes must be ascertained to be open.

Repeated removal of the fuel tank is not required if after the initial inspection of the center section the gap between the fuel tank and the upper surface of the center section is sealed by doping on fabric to prevent moisture from entering the fuel tank compartment.

Propeller A.D.s: A.D. 54-12-02

McCauley steel blade propeller Models 41D5926 and D-1093. Each 100 hours of operation a magnetic (magna-flux) inspection of hub and blade shanks for cracks must be completed. Aircraft tachometer must be placarded **"Avoid continuous operations at 1500 to 1650 rpm."**

NOTE: 964 is occasionally equipped with an MT wood propeller.

NO AD associated with this propeller.

NOTES: Review the POH. There are two extra POH's in the Ops Officer's office. You might want to copy one. (Note: there are two POH manuals in the aircraft. One is located in the storage bag on the right side of the aft cockpit. A spare is located in the baggage bin).

PREFLIGHT:

SECURE PERMISSION to fly from the Ops Officer and Ride Coordinator! Mandatory for personal flights!! Additionally, coordinate with the Training Officer when training is involved. Airbase Arizona Calendar use is a new change and is required!!

Start with filling out the log book in Maintenance office. Fill out the manifest (located in the Ride Coordinator's station.

IP will demonstrate proper N2S preflight. NOTE: Log Book remains in the maintenance office unless operating remotely.

Walk around the aircraft – check overall condition of the aircraft. Visually check tire inflation. MAKE CERTAIN WHEELS ARE PROPERLY CHALKED!

Remove oil bottle from Curtis valve under engine. Stow in plastic bag in baggage compartment or remember where you left it! Be CERTAIN to snap-close the Curtis valve!!

Specifics: CAUTION:

Check front cockpit for belts/headset/bag secure (solo flight) If flying with CAF PAX – Brief passenger on ingress/ egress LEFT side using rubber walk-way and upper wing hand-holds.

Make sure passenger is briefed with Hooker Harness properly secured (5 point hook-up).

Brief PAX on use of Intercom with mike close to mouth. Black button on stick: intercom – Red button: ATC.

Show PAX fire bottle location and explain release of bottle from the secure holder.

When assisting passenger ingress: **Do NOT** to put knee pressure on the side of the fuselage as this is known to "pop" the tape along the stringer there. It will dent the stringer as well!

Also, the "suit case" handles (lower aft fuselage) are for pulling **NOT** pushing for the same reason!!

Mag switch OFF

All Switches on electrical panel **off** except the Strobe Light/Nav Light switch left in up or on position.

Check TXPDR (leave on per new FAA directive)

Fuel valve ON Control lock OFF

Check: Oil – Smoke Oil – Fuel – Prop

(Pin attachment on aft control stick for ailerons and elevators only)
(External rudder lock and/or aileron lock if installed).

FAA Airworthiness, Registration, Insurance, & Weight/ Balance

Check on board (Aft cockpit right side).

OIL: 3.5 to 4 Gal (Max capacity 4.4 gal) (Cap secure)
BE SURE TO CHECK CURTIS VALVE IS CLOSED (snapped down) WHEN YOU REMOVE THE OIL RECOVERY BOTTLE!

Fill smoke oil tank to 1/2 full unless X-C then full.

FUEL: unless going X-Country operate at 1/2 to 3/4 full. Tank holds 46 gal max. (approximately 40 gal usable)

McCauley prop: **check the clevis pin** for movement & cotter pin secure (should have some wiggle)

MT prop: check hub bolts – general prop condition.

Pull thru 10 blades. (Note: I have found that normally the propeller stops at a point where, later, pulling the prop thru 10 blades prevents the Continental's lower cylinders exhaust valve opening which allows oil to seep out the "weep" holes at the bottom of the lower cylinder exhaust stacks). "Technique."

TIRES

16 PSI recommended in the POH (sod runways) (**964's** tires set for **25 psi (CHANGE)** for better wear and handling on hard surface runways)

Dzus fasteners: secure all panels plus baggage hatch.

Check Primer SECURE!

6 shots cold engine / 4 shots warm engine

VERIFY THE PRIMER KNOB IS LOCKED! Fire hazard if not secure!

(Primer control knob arrow pointed down – observe ground crew pull and verify locked)

Seat adjustment UP/DOWN & **SECURE**

Rudder Pedal adjustment FORE/AFT & secure

Mixture Full Rich (Except for taxiing do not lean below 5000' MSL – as stated in the original POH
recommended 3000' MSL with 73 octane fuel. We use 100 LL and have found it preferred to lean above 5000.' However, this is technique based upon experience.) Enrichment valve discussed later…

Carb Heat Cold

STARTING:

When **prop is clear** and ready to start Raise Red guarded switch on electrical panel to allow starter switch to be moved UP.

Two pumps on throttle with throttle cracked 1/4" to 1/2" open THEN **as the prop turns.** After 3-4 blades turn magneto switch to both.
Mag switch to BOTH unless hand propping is necessary - then RIGHT Mag only to reduce chance of kick-back.

ENGINE RUNNING:

Oil Pressure in Green Arc within 30 seconds.

Stay below 1000 RPM until Oil Temperature is above 20 deg. **LEAN mixture** until engine sounds/feels rough then slightly move mixture control ahead by 1/4".

Note: Front cockpit oil temp gauge lags. **ALWAYS Go by aft gauge**.
Alternator switch, Strobe Light switch, Radio Master switch ON.
Close Red guarded starter switch.

Transponder ON - ALT. (Recent change in the AIM).

RADIOS: IP Will explain use of each radio during initial cockpit pre-flight

TAXI:

Brake check!

Slow ground speed - Use **45°** "S" turns for visibility.

NOTE: "S" Turn so you **do not lean-out to see** down the taxi-way.
As soon as you see the yellow line and no obstacles turn the other direction. 45° works fine to visually keep a view ahead on the taxi-way.

NO BRAKES unless idle power!

NOTE: To prevent carbon build-up on the bottom spark plugs, be sure to use lean mixture while taxiing. Here's what BRAND NEW SPARK PLUGS look like with less than an hour flight time since installation BY TAXIING FULL RICH:

4 Cyl Bottom front plug

#2 Cyl Top front plug

Note the darker carbon build-up even on the facing edge…

RUN-UP:

Oil temp above 20 deg. C for > 1000 RPM RPM - 1400 for Mag

Mixture Rich for run-up and take-off!

Check (125 RPM drop max - 25 RPM drop min)

Flight Controls Free - **Full** & **Correct** (visually check each) Trim set 1/4" Nose Up (full travel = 270 deg.)

Instruments - Check "**in-the-green**!"

Non-Formation Flight: Strobes On – Transponder ALT TXPDR – 1200 unless otherwise directed by ATC.

TAKE-OFF:

NOTE: The N2S-3 originally had a tail-wheel lock – 964 has been modified to the over-center / kick free type

CARB HEAT Cold

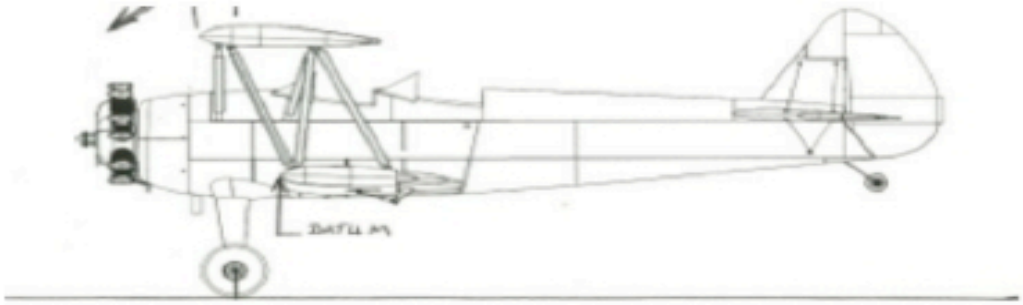
HEELS ON FLOOR (bottom of the rudder pedals). BRAKES ARE LAST RESORT! The center-line is your friend! Smoothly add power to Throttle Full Forward.

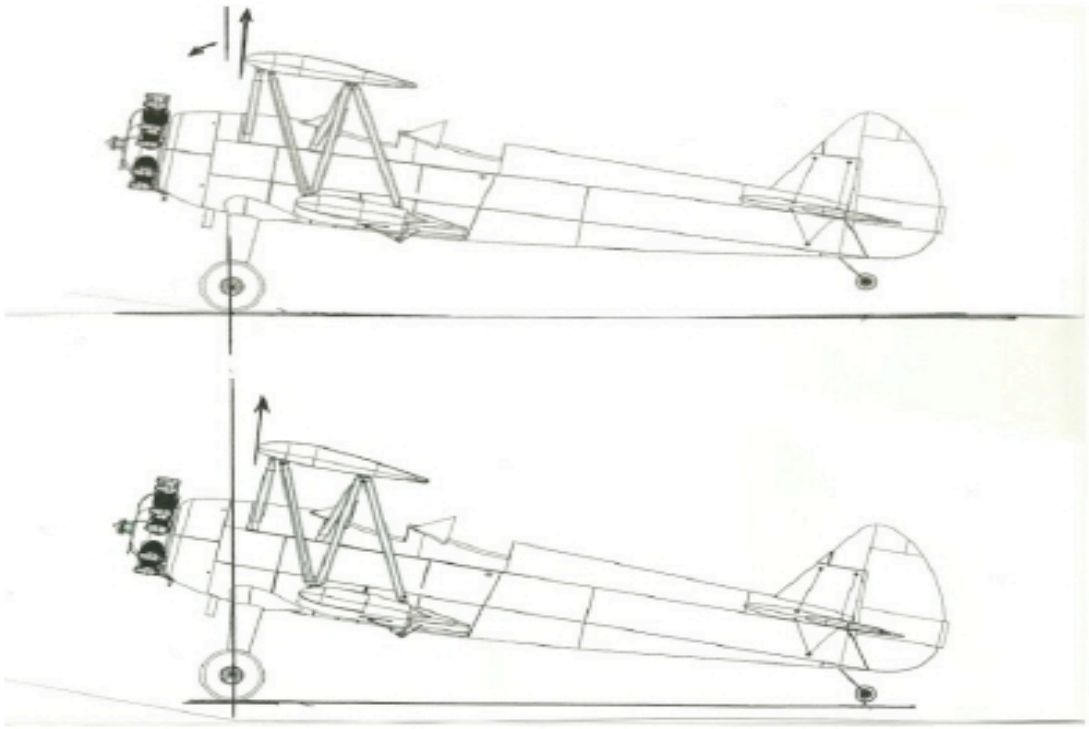
RELAX control stick – do not force tail up prematurely.When the tail wheel starts to unstick, hold the tail wheel just off the surface. DO NOT raise the tail up more than 4" to 6" per graphic below.

You will feel the stick pressure lighten and the tail will want to come up with an increase in speed – ease back with slight back-stick pressure – maintain tail-low – the airplane will fly off naturally.

Below: graphic shows the Stearman profile with the tail too high – the tail just right – and the profile when static with the struts compressed.

While it is natural to want the tail up/nose down for over-the-nose visibility it can bit you in the butt! Until you have over a thousand hours in the airplane get used to using your peripheral vision for runway alignment! Your IP will show you how to develop the proper sight picture for landing and takeoff





Upper depiction: TAIL **TOO HIGH**

Center depiction: TAIL LOW **(GOOD)**

Bottom depiction: TAIL AT THREE-POINT ATTITUDE

It is VERY important to understand the need for peripheral vision during take-off and landing

CLIMB:

Keep pitch attitude low initially and accelerate. Accelerate to a good climb speed of 80 IAS. 75 – 85 is OK. Less than 75 inhibits engine cooling and reduces visibility ahead.

Interestingly the climb rate is nearly the same once stabilized on speed of either 75 or 80. 80 IAS provides good over-the-nose visibility both in climb and approach mode.

KEEP YOUR HEAD ON A SWIVLE!

Passing thru 500' ease the throttle back 1/4 inch (fuel enrichment valve). **No RPM change**. This will save gas and not affect engine cooling.

Normal MAX RPM = 2075

NOTE: With the McCauley propeller installed: NO continuous RPM between **1500-1650** (prop vibration). YELLOW ARC on tach. Change RPM if you see noticeable vibration on flying wires!

No RPM restriction (up to 2075 RPM) with the MT propeller installed.

CRUISE:

1850 RPM

MAX RPM in a dive = 2280 (NOT CONTINUOUS) **CAF LIMITATION**

No fuel pressure gauge is installed – however fuel pressure is approximately 1.5 to 2 PSI (Gravity system)

Fuel burn varies between 12.8 GPH to 20.8 GPH depending upon RPM and Altitude. For practical purposes use 13 GPH for X-C planning...

Oil pressure = 70-90 PSI normally.
Oil temperature = 60-70 deg. C.

KEEP HEAD ON A SWIVLE!!

CONSIDERABLE student training @ KFFZ!

APPROACH:

75 - 80 IAS (I like 80 for better over-the-nose- approach visibility)
Check Carb Heat Cold (unless conditions dictate otherwise)

(ENGINE OUT Glide Speed = 65 IAS)

LANDING:

Over the approach end of the runway 70-75 IAS

HEELS ON FLOOR - FEET OFF BRAKES

REMIND Front Seat PAX - FEET BACK AWAY FROM RUDDER PEDALS

LOSS OF CONTROL/GROUND LOOP

SEVERAL instances with the AZCAF Stearman were not ground loops. Rather, they were runway excursions resulting in lower right wing damage when the wing struck a dirt mound in the process of re-entering the runway.

During the second instance, the airplane suffered additional side-load damage to both the right main gear assembly and the tailwheel assembly.

However, the Stearman does have a reputation for easily encountering a ground loop. Actually, the aircraft does what it was designed to do!!

Your job is to defeat the tendency of the airplane to deviate from your intended track on takeoff or landing.

In almost all cases during takeoff, the cause of the left swerve was **gyroscopic precession**, not torque. Gyroscopic precession is proportional to the rate of pitch change during transition from a three-point attitude to a tail up attitude. Pilots sometimes raise the tail too rapidly in an effort to see the runway over the aircraft nose. Gyroscopic precession yaws the nose to the left with great enthusiasm! At that point, the pilot may have a great view of the runway out the right side of the cockpit. Pilots who accept the lack of visibility over the nose, until the tail has been raised very gradually, do not have problems with gyroscopic precession. In fact, with no crosswind, a knowledgeable and skillful pilot can maintain runway heading during takeoff by varying the rate of pitch change and with almost no rudder pedal input at all. If the tail is raised slowly enough, the normal right rudder input may yaw, slightly, the nose to the right. Raising the tail a little more rapidly will compensate and yaw the nose to left. Overall, the BEST

rate that the tail is raised is as aforementioned and mandatory in the Model 75 “Stearman.”

Use of ailerons is not helpful in these situations. Aileron use when rudder is required causes ADVERSE YAW. In a GROUND LOOP situation, ailerons do NOT help. All that happens is you get to pay for a $3600.00 aileron. The last wing was $18,000.00. Hence, the CAF’s desire to increase the training profile for the Boeing Model 75s...

Aerodynamics can be made simple if you understand some of the complexities. In the aforementioned explanation, where the statement states that ailerons are not helpful, it is important to visualize what happens when you make an aileron input “naturally.” It is simply just in our nature to want to assist, a necessary correction to our flight and ground path, with aileron. **DON’T!!**

If the swerve occurs opposite aileron is a hinderance. If aileron is used it should be in the direction of the swerve NOT opposite. “...**AILERONS**: **steer into the direction of the ground loop!!**”

RUDDER is your friend!

Visualize what happens to the wing when aileron input is made. The dynamics are that you change the wing chord such that ailerons are deflected differentially, left up and right down; or left down and right up. This we all know, and it is second nature to try to correct adverse trajectories with improper aileron input.

The rising wing generates increased lift which causes increased induced drag. The descending wing generates reduced lift which causes reduced induced drag. The difference in drag on each wing produces the adverse yaw. There is also often an additional adverse yaw contribution from a difference in profile drag between the up-aileron and down-aileron.

I remember my fluid dynamics class at ASU where the smoke in the wind tunnel produced an amazing visual for this phenomena. Sorry, but you will have to visualize what this is all about and then try to remember it the next time the Stearman tries to take you to the weeds..

DETECT any small deviation quickly and immediately respond with small – precise – aggressive correction.

DO NOT OVER-CONTROL: Use finesse. Many ground loop accidents occur in the opposite direction of the initial deviation. Think “happy feet” not “stomping feet!”

DO NOT BRAKE UNLESS LAST RESORT!

Some aircraft such as our SNJ are stable using brakes with the tail up. The C-45 and C-47 are as well... NOT so with the STEARMAN! **STICK FULL BACK** ADD POWER to blow the rudder a bit if needed. ALWAYS remember: NO penalty in GOING AROUND

HELICAL PROPWASH!

The prop-wash effect occurs immediately and prominently on the takeoff run as the RPM comes up and at low airspeeds

where the fin and rudder aren't yet of much help. The tail wheel is effective, so keeping it down until you get more airflow over the rudder helps.

The helical propwash is still there and acting on the rudder and fin at all attitudes and airspeeds. At cruise, the fin and rudder are positioned with a cant so that it just offsets the left turning pressure of the helical propwash.

At High RPM and low airspeeds such as takeoff and climbout, right rudder is required. At lower RPM and higher airspeeds, such as descending, there is too much right fin correction and some left rudder is required.

Well there it is!!! It's the Helical Propwash that causes all that left turning force on a Stearman takeoff!!

A great reference available on the internet is a book written by John S. Denker titled "How it Flies" It can be found at the following web address:

Http://www.monmouth.com/~jsd/how/htm

It covers all aspects of aerodynamics in easy to understand and colorful language. I recommend it highly.

DRIFT! If you can prevent DRIFT on takeoff or landing BINGO! You WIN!

& the Stearman loses!

TAXIING:

Slow. Taxi with "S" turns – Minimize brake use. **NO BRAKES** unless needed to maintain directional control.

SPEED: No faster than a tall man can walk!

SHUT-DOWN:

30 – 40 seconds at 1000 RPM for oil scavenge, (last flight) Fuel Valve OFF, 500 – 600 RPM: Magneto SW OFF/ON grounding Mag check. Then move the mixture control to idle cutoff; Magneto Switch "OFF" after propeller stops rotating. Master SW OFF

along with all switches on the electrical panel OFF **except** for the Strobe Light switch (leave UP or ON).

Make note of the HOBBS meter time. Note the fuel on board and the oil level for the logbook.

NOTE: Prior to deplaning, turn the front fuel valve a bit more to the right to prevent fuel dripping from the carburetor.

After exiting the aircraft: Install oil bottle and open the Curtis Valve. Once oil has stopped draining, pour this oil back into the oil tank.

DO NOT re-use breather bottle oil from small plastic bottle attached to lower left gear strut. REMOVE-RINSE- REPLACE when breather bottle is half-full. Secure with zip-tie.

POST FLIGHT:

Complete Log Book, Log Book is to remain in Maintenance office.* Notify maintenance of any squawks.

* Exception: Point to Point away from AZ Air Base.

Please wipe oil from BOTH outside AND inside the cowling. Wipe insect residue from wings/gear leg/tail. **IMPORTANT:** Please wipe the top of the gear struts to reduce abrasion to seals.

Check Oil: Oil dip-stick is spring loaded. To secure, push in then twist to the Ensure both cap tabs are catching the tank orifice.

TIRE PRESSURE:

25 psi (16 psi was recommended early on when operating out of grass fields with knobby tires). 25 psi for extended wear and performance on hard surface runways. 964's tail wheel tire is presently solid rubber.

FUEL: Unless flying cross-country, re-fuel to between 1/2 & 3/4 full. Half full = 23 gal. Three Quarters full = 34 gal.

OIL: Operate between 3.5 & 4 gal. **Aeroshell 120W**.

Smoke Oil: Unless cross-country - maintain smoke oil at 1/2 full which helps reduce seepage from oil cap.

Note: Oil & Smoke Oil source in 55 gal. (drums in oil- room).

Be sure to pay for your time. HOURLY RATE POSTED BY OPS OFFICER! Note check number or credit card on log page.

NOTE: When pushing by hand DO NOT push on leading edge surfaces! It leaves dents! Push using the "N" struts!
REMEMBER: Switch off the electrical tug after using.

NOTE: The TUG might creep.
Switch OFF when not in actual use!

DO NOT LEAVE TAILWHEEL TOW BAR ATTACHED TO THE AIRCRAFT. The weight of the airplane will put "dents" in the tailwheel tire. This will result in rough taxing and shimmy.

Plug in Tug chord to wall outlet. Make sure the switch is in the "OFF" position. The e-TUG has an automatic battery maintaining device. The batteries are expensive! KEEP THE TUG PLUGGED!

Call me if you have any questions...

FLY SAFE !

Blue Skies & Tailwinds…

[redacted]

[redacted]

REV2017: 1MAR2017