



1980 CESSNA 172RG SYSTEMS SUMMARY- N5424V

ENGINE

Lycoming 4 cylinder O-360, 180 HP @ 2700 RPM, air cooled, direct drive, horizontally opposed, normally aspirated. Major accessories include starter, belt driven alternator, dual magnetos, and a vacuum pump. Oil capacity is 9 quarts maximum; 6 quarts minimum required for flight.

PROPELLER

McCauley, two blade, all metal, constant speed propeller. A propeller governor uses oil from the crankcase to control the RPM by changing the blade pitch for increased efficiency.

BRAKES

Single-disc, hydraulically-actuated discs on each landing gear provide braking. Two master cylinders, one behind each brake pedal on the pilot's side control each individual wheel. The co-pilot's brake pedals are mechanically linked to the pilots brake pedals.

FLAPS

The flaps are electrically operated single slot type. Flaps are extended or retracted by positioning the wing flap switch lever to the desired flap deflection position. The flap switch lever has stops at the 10°, 20° and 30° positions. A scale and pointer indicates the flap travel in degrees. Ten (10°) of flaps may be selected at 130 KIAS. Flap selection greater than 10° should not be made above 100 KIAS.

FUEL SYSTEM

Fuel is carried in two wing tanks with a total capacity of 66 gallons, of which 62 gallons is useable. Each tank is fitted with a fuel filler collar. The tank can be filled to the bottom of the collar with 24 gallons, total fuel is then 48 gallons of which 44 gallons is useable. The fuel selector valve is labeled with the total useable fuel. Fuel is gravity fed to the engine. The fuel selector valve has four positions: Both, Left, Right, Off. The fuel selector should be set to Both for all takeoffs and landings. Each fuel tank has one drain valve. The fuel system can be drained by pulling on the fuel strainer knob located under the access panel on the right side of the engine cowling.

ELECTRICAL SYSTEM

Electrical energy is supplied by a 28 volt direct current system powered by an engine driven 60 amp alternator. A 24 volt battery is located aft of the rear cabin wall. The ammeter indicates the charging rate, in amperes, of current supplied from the alternator to the battery. The ammeter will show a discharge when the alternator is not functioning or the electrical load exceeds the output capacity of the alternator. Electrical circuits are protected by circuit breakers mounted on the instrument panel.

LANDING GEAR

The landing gear is actuated by an electrically driven hydraulic power pack located behind the firewall between the pilot's and co-pilot's rudder pedals. To retract or extend the landing gear, pull outward on the gear lever and move it to the desired position. Normal operation of the gear should require 5 - 7 seconds to fully extend or retract. Two position indicator lights are located next to the gear handle. Press to test. The color should be **GREEN** for gear down, **AMBER** for gear up. An electrically operated squat switch, actuated by the nose gear, prevents inadvertent retraction whenever the nose strut is compressed by the weight of the airplane. A hand operated hydraulic pump, located between the front seats, is provided for manual extension of the landing gear in the event of a landing gear system failure.



1980 CESSNA 172RG RECOMMENDED PROCEDURES N5424V

STEEP POWER TURNS

Two 90° or one 180° turns. Set power to 22" MP & 2300 RPM and note the airspeed. Roll into a bank of 45° angle of bank. Begin applying back pressure and add 1" to 2" MP passing 30° angle of bank. Begin roll out 10° before assigned heading and relax back pressure, reduce power to 22" MP passing 30° angle of bank. Maintain a constant altitude, airspeed, and roll out on the assigned heading or landmark.

SLOW FLIGHT

Two 90° or one 180° clearing turns. Open the cowl flaps and reduce power to 15" MP. Below 100 KIAS, select 30° flaps. At an airspeed of 55 KIAS add power to approximately 20" MP. Maintain 55 KIAS with pitch control, altitude with power, and a constant heading with an emphasis on rudder control. To recover advance power to 23" MP, lower the nose, *slowly* select the flaps up in increments while accelerating to cruise. Adjust cowl flaps as necessary.

APPROACH TO LANDING STALL

Two 90° or one 180° clearing turns. Open the cowl flaps and reduce power to 15" MP, increase RPM to max and increase mixture to full rich. Below 140 KIAS lower the landing gear, and below 100 KIAS select 30° flaps. Establish the aircraft in a landing attitude. Hold this attitude by increasing elevator back pressure until obtaining stall buffet. To recover, decrease the pitch, select full power, 20° flaps and accelerate to V_x (67 KIAS) climb airspeed. Retract flaps to 10 degrees and retract the landing gear when a positive rate of climb is established and increase speed to V_y (84 KIAS). Retract the remaining flaps with a minimum altitude loss. Reduce power to cruise power setting.

TAKEOFF/DEPARTURE STALL

Two 90° or one 180° clearing turns. Open the cowl flaps and reduce power to 15" MP, increase RPM to max and mixture to full. Below 140 KIAS lower the landing gear. Slow to 80 KIAS and increase pitch to slightly higher than climb attitude, roll into 20° bank turn. Select a power setting of 22" MP & 2400 RPM and hold this attitude by increasing elevator back pressure until obtaining stall buffet. To recover, decrease pitch, select full power, accelerate to climb airspeed. Retract the landing gear when a positive rate of climb is established and increase speed to V_y (84 KIAS).

MAXIMUM PERFORMANCE TAKEOFF OVER AN OBSTACLE (SHORT FIELD)

Taxi into position using all available runway, hold the brakes, advance power smoothly to full MP and RPM, release brakes: Accelerate to 55 KIAS, rotate and climb at 63 KIAS. Retract gear when clear of the obstacle, or if no obstacle is present, when a positive rate of climb is established. After obstacle clearance, accelerate to V_y (84 KIAS), until sufficient altitude is reached, then accelerate to normal enroute climb of 85-95 KIAS.

SOFT FIELD TAKEOFF

Select 20° flaps, advance power smoothly to full MP and RPM while accelerating down the runway. If you wish to achieve the minimum takeoff run, do not use the brakes for steering if possible (do not stop as you come out onto the takeoff area, keep rolling and steadily increasing power while holding the yoke back to get the nosewheel off and steering with the rudder). Establish an attitude that will get the nose wheel 3-5" off the ground as you accelerate. Let the airplane fly itself into the air. Once airborne, remain in ground effect, lower nose and accelerate to V_x (67 KIAS), retract the landing gear. Remain in ground effect until reaching V_y (84 KIAS), and if the aircraft will climb out of ground effect, let it do so, then *slowly* retract the flaps.

This information is to be used as a guide only. It does not replace the pilot's responsibility to be familiar with and follow the procedures outlined in the aircraft's P.O.H. ©1998 Golden Wings, Inc. OCT 19, 1998

NORMAL LANDING

Set power to 22" MP with the landing gear down on the downwind . At the abeam position reduce power to 15"MP and select 10 degrees flaps slowing to 75 KIAS. Base leg select 20 degrees flaps, airspeed to 70 KIAS. On final, select full flaps and maintain 63 KIAS. TRIM. Make sure to have the airplane perfectly trimmed on final approach. In the landing flare, touch down on the mains, holding the nose wheel off until the elevator loses effectiveness. Remain off the brakes until after touchdown and use the brakes only as necessary for stopping. *When clear of runway perform after landing check list.*

SHORT FIELD LANDING

Set power to 22"MP with the landing gear down on the downwind. At the abeam position reduce powre to 15"MP and select 10° flaps slowing to 75 KIAS. Base leg select 20 degrees flaps, reduce airspeed to 70 KIAS. On final, select flaps to full. Maintain airspeed at 63 KIAS. TRIM. Make sure to have the airplane perfectly trimmed on final approach. When over the obstacle, or if reaching the runway is assured, reduce the power to idle, while simultaneously lowering the nose to maintain 63 KIAS. In the landing flare, touch down on the mains first, lower the nose to the runway, retract the flaps, hold back pressure on the yoke and apply maximum braking without skidding the tires. *When clear of runway perform after landing check list.*

SOFT FIELD LANDING

Set power to 22" MP with the landing gear down on the downwind . At the abeam position reduce power to 15" MP, and select 10° flaps slowing to 75 KIAS. Base leg select 20 degrees flaps and reduce airspeed to 70 KIAS. On final, set flaps to full and maintain 63 KIAS. TRIM. Make sure to have the airplane perfectly trimmed to the proper pitch attitude on final approach. In the landing flare use power as required, but insure you carry just a little power as you touch down to minimize touchdown speed. Pick a touchdown point, and attempt to hold the airplane off the runway as long as possible by landing on the mains while increasing back pressure until elevator losses its effectiveness, controlling nose wheel touchdown. Use no brakes, power should be reduced to idle after landing, during rollout, while holding the nosewheel off the ground until it cannot longer be held off with full aft elevator control. *When clear of runway perform after landing check list.*

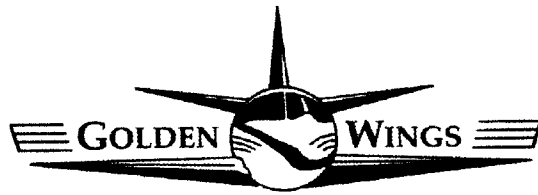
GO AROUND

Power to full MP and RPM, carburetor heat off, establish climb attitude, retract flaps to 20° immediately. While accelerating retract flaps to 10 degrees, retract landing gear. Retract remaining flaps, accelerate to normal climb speed and adjust power.

INSTRUMENT APPROACH POWER SETTINGS

ILS : 100 KIAS: 16" MP & 2300 RPM

NON-PRECISION: 100 KIAS: 13" MP & 2300 RPM



AIRCRAFT CHECK-OUT C-172RG N5424V

Aircraft Make and Model _____.
Engine Make and Model _____.
Rated Horsepower _____ BHP at _____ RPM
Propeller Type _____.
Maximum Gross Weight _____ LB. Maximum Weight in Baggage _____ LB.
Basic Empty Weight for N _____ is _____ LB.
Useful Load for N _____ is _____ LB.

Speeds

Vne _____ KIAS Vfe _____ KIAS Vr _____ KIAS
Vno _____ KIAS Vy _____ KIAS Vso _____ KIAS
Va _____ KIAS at _____ LB. Vx _____ KIAS Vsl _____ KIAS
Enroute Climb Speed _____ KIAS Vlo _____ KIAS Vle _____ KIAS
Final Approach Speed with Flaps Down _____ KIAS
Final Approach Speed with Flaps up _____ KIAS
Demonstrated Crosswind Component _____ KIAS
Best Glide Speed _____ KIAS

Fuel/Oil System

Number of Fuel Tanks _____.
Total Capacity of each Tank _____.
Total Usable Fuel _____ Gallons
Where are the fuel drains located? _____.
Fuel Grade and color _____.
Oil Capacity _____ Qt.
Minimum Oil Quantity for Flight _____ Qt.
Oil Type Used _____ 50 Wt.

Electrical System

_____ Volt Battery _____ Volt Alternator
If the ammeter is indicating a Discharge, what might this be indicative of?
1. _____ or
2. _____.
Where is the battery Located _____.
Where is the External Power Receptacle Located _____.

Landing Gear

1. What are the unsafe gear indications? _____
2. What is the procedure for emergency gear extension? _____

Power Setting and Engine Care

1. What is Climb Power Setting? _____ MP _____ RPM.
2. What is Cruise Power Setting? _____ MP _____ RPM.
3. During a descent from cruise altitude, the engine should be "stage cooled" at _____ inches of manifold per _____ minute (s).
4. What power setting should be established for entering the traffic pattern?
Approximate MP _____ and RPM _____.

5. Cowl Flaps should be OPEN/CLOSED.....

- _____ While Taxiing
- _____ During Climb to Altitude
- _____ During Cruise Flight
- _____ During Descent from Altitude
- _____ After Landing and Clear of Runway

Aircraft Performance

1. Complete the following Weight and Balance

Basic Empty Weight	_____ LB.	Moment	_____
Usable Fuel	_____ LB.	Moment	_____
Pilot and Front Passenger	_____ LB.	Moment	_____
Rear Passengers	_____ LB.	Moment	_____
Baggage	_____ LB.	Moment	_____

Total Weight _____ LB. divide by Total Moment _____ = _____ CG

2. Takeoff

Calculate the ground roll and total to clear a 50 foot obstacle takeoff distances at maximum gross weight, departing from a field elevation of 2500 feet. ATIS reports wind calm and temperature 20 degrees C.

3. Enroute:

Calculate the maximum endurance and fuel flow per hour at 7500 feet cruise altitude, using a cruise power setting of 21 inches MP and 2400 RPM.

What percentage BHP and TAS can you expect with this pressure and 2300 RPM?

4. Landing:

Calculate the ground roll and total to clear a 50 foot obstacle landing distance at maximum gross weight, sea level field elevation, standard temperature, wind calm.

5. What is the recommended short field approach airspeed and configuration? _____

6. What is the recommended soft field take off and landing procedure? _____

7. Describe the "Go Around" procedure: _____

Pilots Name _____

Date _____

Instructor _____



Golden Wings, Inc. Aircraft Checkout Form N5424V

Name _____
 Date Last Biennial _____ or Date Last Annual _____
 Date Last Medical _____ Class _____ Pilot Cert.# _____
 Hours PIC _____ Hours last 6 months _____ Pilot Ratings _____
 Aircraft Check Out (Date) _____ Type A/C _____ N _____

Phase I: Oral Operational Quiz Check if satisfactory

- Recent changes in FAR's _____
- Airspace, controlled and uncontrolled _____
- Airplane and equipment documents _____
- Airplane performance and proper operation of all installed equipment _____
- Airplane loading, weight and balance _____
- Preflight line check _____
- High Altitude operations (density altitude) _____

Phase II: Basic Piloting Technique

- Normal and crosswind takeoffs and landings _____
- Short field takeoff and landing over 50' obstacle _____
- Soft field takeoff and landing _____
- Flight at minimum controllable airspeeds _____
- Stalls from all normally anticipated flight attitudes _____
- Go-arounds _____
- 720° steep turns(45° bank minimum) _____
- Slips to a landing _____
- In-flight emergency procedures _____
- Simulated equipment failures _____
- Radio communication and navigation _____
- High Density Altitude Operations _____
- Other (specify) _____

Phase III: Instrument Flight

- Straight and level, shallow climbing and descending turns to given altitude heading _____
- Approaches (# _____, type _____), for IFR pilots _____
- Recovery from start of power-on spiral _____
- Recovery from the approach to a climbing stall _____
- High Density Altitude Flight Operations _____
- Emergency descents _____
- Other (specify) _____

Comments _____

Instructor Name _____ Signature _____

CFI No. _____ Expiration Date _____

Signature of pilot _____ Date _____

AIRCRAFT CHECK-OUT C-172RG N5424V ANSWER SHEET

Aircraft Make and Model Cessna 172 RG

Engine Make and Model LYCOMING 0-360 FIA6

Rated Horsepower 180 BHP at 2700 RPM

Propeller Type McCauley Constant Speed 2 blade

Hydraulically Activated

Maximum Gross Weight 2650 LB. Maximum Weight in Baggage 200 LB.

Basic Empty Weight for N5424V is 1673 LB. _

Useful Load for N 5424V is 977 LB.

Speeds

Vne 164 KIAS Vfe 100 KIAS

Vr 55 KIAS

Vno 145 KIAS Vy 67 KIAS

Vso 50 KIAS

Va 106 KIAS at 2650 LB. Vx 84

KIAS Vs1 54 KIAS

Enroute Climb Speed 90 - 100 KIAS

Final Approach Speed with Flaps Down 60 - 70 KIAS

Final Approach Speed with Flaps up 65 - 75 KIAS

Demonstrated Crosswind Component 15 KIAS

Best Glide Speed 65 KIAS

Fuel/Oil System

Number of Fuel Tanks 2

Total Capacity of each Tank 33 Gallons, 24 to the tabs

Total Usable Fuel 62 standard, 44 to the tabs Gallons

Where are the fuel drains located? _____

Fuel Grade and color 100LL blue

Oil Capacity 8 Qt.

Minimum Oil Quantity for Flight 4 Qt.

Oil Type Used detergent 50 wt.

Electrical System

28 Volt Battery 60 Volt Alternator
If the ammeter is indicating a Discharge, what might this be indicative of?

- The alternator is off line
_____ or
- The electrical load exceeds the capacity of the alternator
_____.

Where is the battery Located Aft of the baggage compartment

Where is the External Power Receptacle Located Behind a door on the left side fuselage aft of the baggage compartment door

Landing Gear

- What are the unsafe gear indications?

- What is the procedure for emergency gear extension?

Power Setting and Engine Care

- What is Climb Power Setting? 25" MP 2500 RPM.
- What is Cruise Power Setting? 23" MP 2400 RPM.
- During a descent from cruise altitude, the engine should be "stage cooled" at 1" inches of manifold per 1 minute (s).
- What power setting should be established for entering the traffic pattern?
Approximate MP 18" and RPM 2300.

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- Cowl Flaps should be **OPEN/CLOSED**.....
open While Taxiing
open During Climb to Altitude
closed During Cruise Flight
closed During Descent from Altitude
open After Landing and Clear of

Runway

Aircraft Performance

- Complete the following Weight and Balance

Basic Empty Weight	<u>1624</u> LB.	Moment
<u>61.6</u>		
Usable Fuel	<u>264</u> LB.	
Moment <u>12.7</u>		
Pilot and Front Passenger	<u>340</u> LB.	
Moment <u>12.6</u>		
Rear Passengers	<u>340</u> LB.	
Moment <u>24.8</u>		