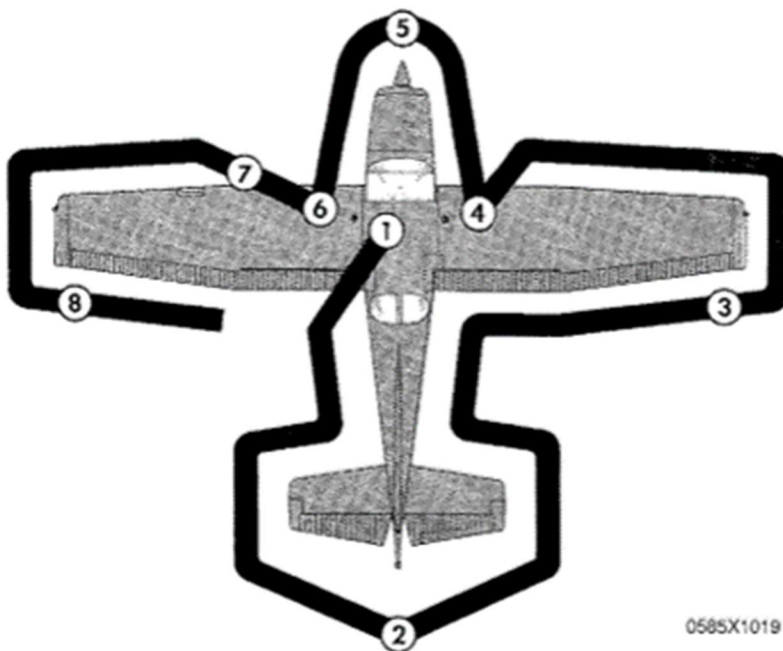


# CHECKLIST / N61571 / C-172M

CONTAINS STANDARD CHECKLIST PLUS ADDITIONAL ITEMS FROM THESE SUPPLEMENTS:

1. S-TEC 40 2 AXIS AUTOPILOT
2. Garmin GTX 345 Transponder with ADS-B
3. Garmin 430W GPS
4. SureFly Ignition Module (replacement for left magneto)
5. Air Plains 2550 Pound Gross Weight Increase
6. Precise Flight Standby Vacuum System
7. Flint Aero Auxiliary Fuel Tanks

BLUE CHANGE BAR USED TO IDENTIFY THE ADDITIONAL CHECKLIST ITEMS



- Go to [www.PilotCraig.com](http://www.PilotCraig.com) for electronic copy.
- CHECK [www.PilotCraig.com](http://www.PilotCraig.com) FOR UPDATED CHECKLIST AFTER ANY NEW EQUIPMENT IS INSTALLED.

Consult POH checklist, amplified procedures, and supplements for all available information. **Do not rely solely on this checklist.**

**AIRSPEEDS BELOW ARE IN MPH and (KNOTS) USE INSIDE WINDOW OF AIRSPEED INDICATOR FOR KNOTS**



**AIRSPEEDS FOR NORMAL OPERATION**

Unless otherwise noted, the following speeds are based on a maximum weight of 2550 pounds and may be used for any lesser weight.

Takeoff:	<u>MPH IAS</u>	<u>(KIAS)</u>
Normal Climb Out.....	86-98	(75-85)
Short Field Takeoff, Flaps 10°, Speed at 50 Feet...	66	(57)
Enroute Climb, Flaps Up:		
Normal, Sea Level.....	86-98	(75-85)
Normal, 10,000 Feet.....	81-92	(70-80)
Best Rate-of-Climb, Sea Level.....	84	(73)
Best Rate-of-Climb, 10,000 Feet.....	86	(75)
Best Angle-of-Climb, Sea Level.....	71	(62)
Landing Approach:		
Normal Approach, Flaps Up.....	75-86	(65-75)
Normal Approach, Flaps 30°.....	69-81	(60-70)
Balked Landing (Go-Around)		
Maximum Power, Flaps 20° .....	69	(60)
Maximum Recommended Turbulent Air Penetration Speed:		
2550 Lbs.....	112	(97)
2150 Lbs.....	109	(95)
1750 Lbs.....	98	(85)
Maximum Demonstrated Crosswind Velocity:		
Takeoff or Landing.....	NONE PUBLISHED	

# **PREFLIGHT INSPECTION**

## **1) CABIN**

1. Pitot Tube Cover – REMOVE. Check for pitot blockage.
2. Pilot's Operating Handbook - AVAILABLE IN THE AIRPLANE.
3. Airplane Weight and Balance – CHECKED.
4. Parking Brake – SET.
5. Control Wheel Lock – REMOVE.
6. Ignition Switch – OFF.
7. Avionics Master Switch – OFF.

### **WARNING**

**WHEN TURNING ON THE MASTER SWITCH, USING AN EXTERNAL POWER SOURCE, OR PULLING THE PROPELLER THROUGH BY HAND, TREAT THE PROPELLER AS IF THE IGNITION SWITCH WERE ON. DO NOT STAND, NOR ALLOW ANYONE ELSE TO STAND, WITHIN THE ARC OF THE PROPELLER, SINCE A LOOSE OR BROKEN WIRE OR A COMPONENT MALFUNCTION COULD CAUSE THE PROPELLER TO ROTATE.**

8. Master Switch – ON.
9. Fuel Quantity Indicators – CHECK QUANTITY (main and aux).
10. Aux fuel tank transfer pump switches – ON (separately), listen for operation then OFF.
11. Avionics Master Switch – ON.
12. Avionics Cooling Fan – CHECK AUDIBLY FOR OPERATION.
13. Avionics Master Switch – OFF.
14. Standby Vac Knob Cycle – OUT (ON) then IN (OFF).
15. Fuel Selector Valve – BOTH.
16. Flaps – EXTEND.
17. Pitot Heat – ON (Carefully check that pitot tube is warm to touch within 30 seconds).
18. Pitot Heat – OFF.
19. Master Switch – OFF.

20. Elevator Trim – SET for takeoff.
21. Baggage Door – CHECK, lock with key.

## 2) EMPENNAGE

1. Left Side Autopilot Static Source Opening – CHECK for blockage.
2. Rudder Gust Lock (if installed) – REMOVE.
3. Tail Tie-Down – DISCONNECT.
4. Control Surfaces – CHECK freedom of movement and security.
5. Trim Tab – CHECK security.
6. Antennas – CHECK for security of attachment and general condition.
7. Right Side Autopilot Static Source Opening – CHECK for blockage.

## 3) RIGHT WING Trailing Edge

1. Aileron – Check freedom of movement and security.
2. Flap – CHECK for security and condition.

## 4) RIGHT WING

1. Wing Tie-Down – DISCONNECT.
2. Main Wheel Tire – CHECK for proper inflation and general condition (weather checks, tread depth and wear, etc...).
3. Fuel Tank Sump Quick Drain Valves (2 total, 1 under main tank and 1 under aux tank) – DRAIN sample of fuel (using sampler cup) from sump to check for water, sediment, and proper fuel grade before each flight and after each refueling. If water is observed, take further samples until clear and then gently rock wings and lower tail to the ground to move any additional contaminants to the sampling points. Take repeated samples until **all** contamination has been removed. If contaminants are still present, refer to WARNING below and do not fly airplane.
4. Aux Fuel Tank Vent Opening – CHECK for blockage.

## WARNING

**IF, AFTER REPEATED SAMPLING, EVIDENCE OF CONTAMINATION STILL EXISTS, THE AIRPLANE SHOULD NOT BE FLOWN. TANKS SHOULD BE DRAINED AND SYSTEM PURGED BY QUALIFIED MAINTENANCE PERSONNEL. ALL EVIDENCE OF CONTAMINATION MUST BE REMOVED BEFORE FURTHER FLIGHT.**

- 4. Fuel Quantity – CHECK VISUALLY for desired level (main and aux tank).
- 5. Fuel Filler Caps (main and aux) – SECURE.

### 5) NOSE

1. (1 fuel drain) Fuel Strainer (Knob located inside oil filler door) – Pull out for about four seconds to clear fuel strainer of possible water and sediment (have fuel cup ready to catch with one hand and pull knob with the other). Check strainer drain closed. If water is observed, the fuel system may contain additional water, and further draining of the system at the strainer, fuel tank sumps, and fuel selector valve drain plug will be necessary. If contaminants are still present, refer to WARNING above and do not fly the airplane.
2. Engine Oil Dipstick/Filler Cap – CHECK oil level, then check dipstick/filler cap SECURE. **Do not operate with less than five quarts.** Fill to eight quarts for extended flights.
3. Engine Cooling Air Inlets – CLEAR of obstructions.
4. Propeller and Spinner – CHECK for nicks and security.
5. Landing/Taxi Light(s) – CHECK for condition and cleanliness.
6. Air Filter – CHECK for restrictions by dust or other foreign matter.
7. Nose Wheel Strut and Tire – CHECK for proper inflation of strut and general condition (weather checks, tread depth and wear, etc...) of tire.
8. Left Static Source Opening – CHECK for blockage.

## 6) LEFT WING

1. Fuel Quantity – CHECK VISUALLY for desired level (main and aux tank).
2. Fuel Filler Caps (main and aux) – SECURE.
3. Fuel Tank Sump Quick Drain Valves (2 total, 1 under main tank and 1 under aux tank) – DRAIN sample of fuel (using sampler cup) from sump to check for water, sediment, and proper fuel grade before each flight and after each refueling. If water is observed, take further samples until clear and then gently rock wings and lower tail to the ground to move any additional contaminants to the sampling points. Take repeated samples until **all** contamination has been removed. If contaminants are still present, refer to WARNING (previous page) and do not fly airplane.
4. Aux Fuel Tank Vent Opening – CHECK for blockage.
5. Main Wheel Tire – CHECK for proper inflation and general condition (weather checks, tread depth and wear, etc...).

## 7) LEFT WING Leading Edge

1. Fuel Tank Vent Opening – CHECK for blockage.
2. Stall Warning Opening – CHECK for blockage. To check the system, place a clean handkerchief over the vent opening and apply suction; a sound from the warning horn will confirm system operation.
3. Wing Tie-Down – DISCONNECT.

## 8) LEFT WING Trailing Edge

1. Aileron – CHECK for freedom of movement and security.
2. Flap – CHECK for security and condition.

## BEFORE STARTING ENGINE

1. Preflight Inspection – COMPLETE.
2. Passenger Briefing – COMPLETE.
3. Seats and Seat Belts – ADJUST and LOCK.
4. Brakes – TEST and SET.
5. Circuit Breakers – CHECK IN.
6. Electrical Equipment – OFF.

## CAUTION

**THE AVIONICS MASTER SWITCH MUST BE OFF DURING ENGINE START TO PREVENT POSSIBLE DAMAGE TO AVIONICS.**

7. Avionics Master Switch – OFF.
8. Fuel Selector Valve – BOTH.

### **STARTING ENGINE (With Battery)**

1. Mixture – RICH.
2. Carburetor Heat – COLD.
3. Prime – AS REQUIRED (2 to 6 strokes; none if engine is warm).  
Close and lock primer.
4. Throttle – OPEN 1/8 INCH.
5. Master Switch – ON.
6. Flashing Beacon – ON.
7. Propeller Area – CLEAR.
8. Ignition Switch – START (release when engine starts).
9. Oil Pressure – CHECK.
10. Navigation Lights – ON as required.
11. Avionics Master Switch – ON.
12. Radios – ON.
13. Flaps – Retract.
14. Garmin GTX 345 Transponder
  - a. GTX Mode – VERIFY ALT.
  - b. NO 1090ES TX – CONSIDERED.
  - c. If applicable, Bluetooth pair to iPad.
15. Garmin 430W GPS
  - a. Database – REVIEW EFFECTIVE DATES.
  - b. Self Test – VERIFY OUTPUTS TO NAV INDICATORS.
  - c. Self Text – GPS Remote Annunciator.
16. Pre-Taxi Radios and Avionics – SET.

### **STARTING ENGINE (With External Power Refer to POH)**

## BEFORE TAKEOFF

1. Parking Brake – SET.
2. Passenger Seat Backs – MOST UPRIGHT POSITION.
3. Seats and Seat Belts – CHECK SECURE.
4. Cabin Doors and Window – CLOSED and LOCKED.
5. Flight Controls – FREE and CORRECT.
6. Flight Instruments – CHECK and SET.
7. Fuel Quantity – CHECK.
- 8. Aux fuel tank transfer pump switches – Verify OFF.
9. Mixture – RICH.
10. Fuel Selector Valve – RECHECK BOTH.
11. Throttle – 1700 RPM.
  - a. Magneto (RIGHT IGNITION SWITCH) – CHECK (125 RPM max drop).
  - b. SureFly (LEFT IGNITION SWITCH) – CHECK (50-100 RPM drop).
  - c. Carburetor Heat – CHECK (for RPM drop).
  - d. Suction Gage – CHECK.
  - e. Engine Instruments and Ammeter – CHECK.
12. Throttle – CHECK IDLE.
- 13. Standby Vac Knob – OUT (ON), check vacuum gauge (rise).
- 14. Standby Vac Knob – IN (OFF), check vacuum gage (previous indication).
15. Throttle – 1000 RPM or LESS.
16. Throttle Friction Lock – ADJUST.
17. Strobe Lights – AS DESIRED.
18. Pre-Takeoff Radios and Avionics – SET.
19. Elevator Trim – SET for takeoff manually.
20. Wing Flaps – SET for takeoff (0°-10°).
- 21. Garmin GTX 345 Transponder
  - a. 1090ES TX CTL – VERIFY ON.
  - b. NO 1090ES TX – EXTINGUISHED.
- 22. Garmin 430W GPS
  - a. System Messages and Annunciators – CONSIDERED.



## 23. S-TEC Autopilot Mandatory Pre-Flight Test.

- a. AP Master Switch – Move to TEST position.
  - i. Observe all lights and annunciators illuminate.
  - ii. Observe the following light sequence of the trim indicators:  
(Sequence requires 9 seconds)
    1. Initially both trim UP & DN lights are illuminated.
    2. Up light extinguishes momentarily and relights.
    3. DN light then extinguishes and will remain off.
- b. AP Master Switch – Move to ON position, observe ready (RDY) light illuminates. Autopilot can be engaged and disengaged repeatedly without repeating the test sequence until electrical power is removed. Once power is interrupted the test must be reconducted to get a ready indication. If the ready light does not illuminate after the test a failure to pass the test is indicated and the system will require service. NOTE: ALTITUDE MODE CANNOT BE ENGAGED UNLESS POWER IS ON FOR MORE THAN 15 SECONDS.
- c. Depress ON-OFF Switch – STB Annunciator illuminates. Rotate turn knob left and right, observe control wheel moves in corresponding direction. Center turn knob.
- d. Set D.G. and place bug under lubber line, push turn knob to engage HDG mode. Observe HDG annunciator. Move HDG bug left and right, observe proper control wheel motion.
- e. Overpower Test – (THIS DOES NOT TAKE MUCH FORCE OR MOVEMENT TO ACCOMPLISH – *Thanks*). 😊 Grasp control wheel and overpower roll servo left and right. Overpower action should be smooth with no noise or jerky feel. If unusual sounds or excessive play is detected, have the servo installation inspected prior to flight.
- f. Radio Check
  - i. Turn on NAV Radio, with valid NAV signal, engage NAV Mode and move VOR OBS so that VOR needle moves left and right – control wheel should follow the direction of needle movement.

- ii. Select REV Mode – the control wheel should rotate in opposite direction of the NAV needle.
- iii. Select APR Mode – the control wheel should again follow radio needle movement and with more authority than produced by NAV Mode.
- g. Move control wheel to level flight position – Engage ALT Mode. Move control wheel fore and aft to overpower pitch servo clutch. Overpower action should be smooth with no noise or jerky feel. If unusual sounds or excessive play is detected, have the servo installation inspected prior to flight.
- h. Trim Check - Manually apply back pressure to control wheel for 2-3 seconds – observe the DN trim light illuminates. Apply forward pressure to the control wheel for 2-3 seconds, observe the UP trim light illuminates. Move the control wheel to center – observe both UP/DN lights extinguish.
- i. Hold control wheel and depress ON-OFF Switch (or use yoke AP DISC switch) – note that roll and pitch servo release. Move control wheel to confirm roll and pitch motions are free, with no control restriction or binding.

24. Elevator Trim – Confirm SET for takeoff.

25. Brakes – RELEASE.

## **TAKEOFF**

### **NORMAL TAKEOFF**

1. Wing Flaps – 0°.
2. Carburetor Heat – COLD.
3. Throttle – FULL OPEN.
4. Mixture – RICH (above 3000 feet, LEAN to obtain maximum RPM).
5. Elevator Control – LIFT NOSE WHEEL at 60 MPH (52 KIAS)
6. Climb Speed – 86-98 MPH (75-85 KIAS).

## SHORT FIELD TAKEOFF

1. Wing Flaps -- 10°.
2. Carburetor Heat – COLD.
3. Brakes – APPLY.
4. Throttle – FULL OPEN.
5. Mixture – RICH (above 3000 feet, LEAN to obtain maximum RPM).
6. Brakes – RELEASE.
7. Elevator Control – SLIGHTLY TAIL LOW.
8. Climb Speed – 66 MPH (57 KIAS) (until all obstacles are cleared).
9. Wing Flaps – RETRACT.

## ENROUTE CLIMB

1. Airspeed – 86-98 MPH (75-85 KIAS).
2. Throttle – FULL OPEN.
3. Mixture – RICH (above 3000 feet, LEAN to obtain maximum RPM).

## CRUISE

1. Power – 2100-2700 RPM (No more than 75% is recommended).
2. Elevator Trim – ADJUST.
3. Mixture – LEAN.
4. If fuel planning requires the use of the aux fuel tanks:
  - a. Do not transfer until burning approx. 15 gallons from each main tank
  - b. Turn applicable aux fuel tank transfer switch on, when tank indicates empty, turn off.

## DESCENT

1. Power – AS DESIRED.
2. Mixture – ADJUST for smooth operation (full rich for idle power).
3. Carburetor Heat – AS REQUIRED (to prevent carburetor icing).
4. Altimeter – SET.
5. Fuel Selector Valve – BOTH.
6. Wing Flaps – AS DESIRED below 100 MPH (87 KIAS).

## **BEFORE LANDING**

1. Pilot and Passenger Seat Backs – MOST UPRIGHT POSITION.
2. Seats and Seat Belts – SECURED and LOCKED.
3. Fuel Selector Valve – BOTH.
4. Mixture – RICH.
5. Carburetor Heat – APPLY FULL HEAT BEFORE CLOSING THROTTLE.
- 6. Aux Fuel Tank Transfer Switches – OFF.
7. Landing/Taxi Lights – ON.
- 8. AP DISC – PRESS to disengage AP.

## **LANDING**

### **NORMAL LANDING**

- 1. Airspeed – 75-86 MPH (65-75 KIAS) (flaps up).
2. Wing Flaps – AS DESIRED below 100 MPH (87 KIAS).
- 3. Airspeed – 69-81 MPH (60-70 KIAS) (flaps down).
4. Touchdown – MAIN WHEELS FIRST.
5. Landing Roll – LOWER NOSE WHEEL GENTLY.
6. Braking – MINIMUM REQUIRED.

### **BALKED LANDING (GO AROUND)**

1. Throttle – FULL OPEN.
2. Carburetor Heat – COLD.
3. Wing Flaps – Retract to 20°.
- 4. Climb Speed – 69 MPH (60 KIAS).
5. Wing Flaps – RETRACT (slowly).

## **AFTER LANDING**

1. WING FLAPS – UP.
2. Carburetor Heat – COLD.

## **SECURING AIRPLANE**

1. Parking Brake – SET.
2. Electrical Equipment, Autopilot – OFF.
3. Avionics Master Switch – OFF.
4. Mixture – IDLE CUTOFF (pulled full out).
5. Ignition Switch – OFF.
6. Master Switch – OFF.
7. Control Lock – INSTALL.
8. Fuel Selector Valve – LEFT or RIGHT to prevent cross feeding.

PENDING - DO NOT USE