Cessna 172S Checklist

PREFLIGHT INSPECTION

CABIN

1. Pitot Tube Cover - REMOVE, check opening for blockage
2. Documents (AROW) - 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. Hand propped starts are prohibited by CAPR 60-1.

8. Master Switch - ON
9. Fuel Quantity Indicators - CHECK QUANTITY and ENSURE LOW FUEL ANNUNCIATORS (L LOW FUEL R) ARE EXTINGUISHED
10. Avionics Master Switch - ON
11. Avionics Cooling Fan - CHECK AUDIBLY FOR OPERATION
12. Avionics Master Switch – OFF
13. Static Pressure Alternate Source Valve – OFF
14. Annunciator Panel Switch - PLACE and HOLD IN TST POSITION and ensure all annunciators illuminate
15. Annunciator Panel Test Switch - RELEASE. Check that appropriate annunciators remain on
16. Fuel Selector Valve – BOTH
17. Fuel Shutoff Valve - ON (Push full in)
18. Flaps – EXTEND
19. Pitot Heat - ON (Carefully check that pitot tube is warm to touch within 30 seconds)
20. Pitot Heat – OFF
21. Master Switch – OFF
22. Baggage Door – CHECK, Lock with Key

EMPENNAGE

1. Rudder Gust Lock (if installed) - REMOVE
2. Tail Tie-Down - DISCONNECT
3. Control Surfaces - CHECK freedom of movement and security
4. Trim Tab - CHECK security
5. Antennas - CHECK for security of attachment and general condition

RIGHT WING Trailing Edge

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

RIGHT WING

1. Wing Tie-Down - DISCONNECT
2. Main Wheel Tire - CHECK for proper inflation and general condition
3. Fuel Tank Sump Quick Drain Valves - DRAIN small amount, check for water, sediment and proper fuel grade
4. Fuel Quantity - CHECK VISUALLY for desired level
5. Fuel Filler Cap – SECURE and VENT UNOBSTRUCTED

NOSE

1. Fuel Strainer Quick Drain Valve (bottom of fuselage) - DRAIN small amount, check for water, sediment and proper fuel grade
2. Engine Oil Dipstick/Filler Cap - CHECK oil level, then check dipstick/filler cap SECURE. Do not operate with less than 5 quarts. Fill to 8 quarts for extended flight
3. Engine Cooling Air Inlets - CLEAR of obstructions
4. Propeller and spinner - CHECK for nicks and security
5. Air Filter - CHECK for restrictions by dust
6. Nose wheel Strut and Tire - CHECK for proper inflation of strut and general condition of tire
7. Left Static Source Opening - CHECK for blockage

LEFT WING

1. Fuel Quantity - CHECK VISUALLY for desired level
2. Fuel Filler Cap - SECURE
3. Fuel Tank Sump Quick Drain Valves - DRAIN small amount, check for water, sediment and proper fuel grade
4. Main Wheel Tire - CHECK for proper inflation and general condition

LEFT WING Leading Edge

1. Fuel Tank Vent Opening - CHECK for blockage
2. Stall Warning Opening - CHECK for blockage
3. Wing Tie-Down - DISCONNECT
4. Landing/Taxi Lights - CHECK for condition and cleanliness of cover

LEFT WING Trailing Edge

1. Aileron - CHECK 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, Belts, Shoulder Harnesses - ADJUST and LOCK
4. Brakes - TEST and SET
5. Circuit Breakers - CHECK IN
6. Electrical Equipment, Autopilot (if installed) - 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
9. Fuel Shutoff Valve - ON (Push full in)
10. Avionics Circuit Breakers – CHECK IN

STARTING ENGINE (With Battery)

1. Throttle - OPEN 1/4 INCH
2. Mixture - IDLE CUT OFF
3. Propeller Area - CLEAR
4. Master Switch - ON
5. Auxiliary Fuel Pump Switch - ON
6. Mixture - ADVANCE until fuel flow starts to rise, then return to IDLE CUT OFF
7. Auxiliary Fuel Pump Switch – OFF

NOTE

If engine is warm, omit priming procedure of steps 5, 6 and 7 above

8. Ignition Switch - START (RELEASE when engine starts)
9. Mixture - ADVANCE smoothly to RICH when engine fires

NOTE

If engine floods, turn off auxiliary fuel pump, place mixture in idle cut off, open throttle 1/2 to full, and crank the engine. When engine fires, advance mixture to full rich and retard throttle promptly

10. Oil Pressure - CHECK
11. Navigation Lights and Flashing Beacon - ON as required
12. Avionics Master Switch – ON
13. Radios - ON
14. Flaps - RETRACT

STARTING ENGINE (With External Power)

1. Throttle - OPEN 1/4 INCH
2. Mixture - IDLE CUT OFF
3. Propeller Area - CLEAR
4. External Power - CONNECT to airplane receptacle
5. Master Switch - ON
6. Auxiliary Fuel Pump Switch - ON
7. Mixture - ADVANCE until fuel flow starts to rise, then return to IDLE CUT OFF
8. Auxiliary Fuel Pump Switch – OFF

NOTE

If engine is warm, omit priming procedure of steps 6, 7 and 8 above

9. Ignition Switch - START (RELEASE when engine starts)
10. Mixture - ADVANCE smoothly to RICH when engine fires

NOTE

If engine floods, turn off auxiliary fuel pump, place mixture in idle cut off, open throttle 1/2 t o full, and crank the engine. When engine fires, advance mixture to full rich and retard throttle promptly

11. Oil Pressure - CHECK
12. External Power - DISCONNECT from airplane receptacle
13. Fashing Beacon and Navigation Lights - ON as required
14. Avionics Master Switch - ON
15. Radios - ON
16. Flaps – RETRACT

BEFORE TAKEOFF

1. Parking Brake – SET
2. Passenger Seat Backs - MOST UPRIGHT POSITION
3. Seats and Seat Belts- CHECK SECURE
4. Cabin Doors - CLOSED and LOCKED
5. Flight Controls - FREE and CORRECT
6. Flight Instruments - CHECK and SET
7. Fuel Quantity - CHECK
8. Mixture - RICH
9. Fuel Selector Valve - RECHECK BOTH
10. Elevator Trim - SET for Takeoff
11. Throttle - 1800 RPM
    a. Magnetos - CHECK (RPM drop should not exceed 150 RPM on either magneto or 50 RPM differential between magnetos)
    b. Suction Gage – CHECK
    c. Engine Instruments and Ammeter - CHECK
12. Annunciator Panel - ENSURE no annunciators are illuminated
13. Throttle - CHECK IDLE
14. Throttle - 1000 RPM or LESS
15. Throttle Friction Lock - ADJUST
16. Strobe Lights - AS DESIRED
17. Radios and Avionics - SET
18. NAV/GPS Switch (if installed) - SET
19. Autopilot (if installed) - OFF
20. Wing Flaps - SET for Takeoff
21. Brakes - RELEASE

TAKEOFF

NORMAL TAKEOFF

1. Wing Flaps - 0^0-10^0
2. Throttle - FULL OPEN
3. Mixture – RICH (above 3000 feet, LEAN to obtain maximum RPM)
4. Elevator Control - LIFT NOSE WHEEL (at 55 KIAS)
5. Climb Speed – 70-80 KIAS

Short Field Takeoff

1. Wing Flaps - 10^0
2. Brakes - APPLY
3. Throttle - FULL OPEN
4. Mixture - RICH (Above 3000 feet, LEAN to obtain MAX RPM)
5. Brakes - RELEASE
6. Elevator Control - SLIGHTLY TAIL LOW
7. Climb Speed - 56 KIAS (Until all obstacles are cleared)

ENROUTE CLIMB

1. Airspeed - 70-85 KIAS
2. Throttle - FULL OPEN
3. Mixture - RICH (Above 3000 feet, LEAN to obtain MAX RPM)

CRUISE

1. Power - 2100-2700 RPM (no more than 75% is recommended)
2. Elevator Trim - Adjust
3. Mixture - LEAN

DESCENT

1. Power - AS DESIRED
2. Mixture - ADJUST for smooth operation (full rich for idle power)
3. Fuel Selector Valve - BOTH

BEFORE LANDING

1. Pilot and Passenger Seat Backs - MOST UPRIGHT POSITION
2. Seat and Seat Belts - SECURE and LOCKED
3. Fuel Selector - BOTH
4. Undercarriage - CHECK
5. Mixture - RICH
6. Landing/Taxi Lights - ON
7. Autopilot (if installed) - OFF

LANDING

Normal Landing

1. Airspeed - 65-75 KIAS (Flaps UP)
2. Wing Flaps - AS DESIRED (0^0-10^0 below 110 KIAS, 10^0-30^0 below 85 KIAS)
3. Airspeed – 60-70 KIAS (Flaps DOWN)
4. Touchdown - MAIN WHEELS FIRST
5. Landing Roll - LOWER NOSE WHEEL GENTLY
6. Braking - MINIMUM REQUIRED

Short Field Landing

1. Airspeed - 65-75 KIAS (Flaps UP)
2. Wing Flaps - FULL DOWN (30^0)
3. Airspeed - 61 KIAS (until flare)
4. Power - REDUCE to Idle after clearing obstacle)
5. Touchdown - MAIN WHEELS FIRST
6. Brakes - APPLY HEAVILY
7. Wing Flaps - RETRACT

Balked Landing

1. Throttle - FULL OPEN
2. Wing Flaps - Retract to 20°
3. Climb Speed - 60 KIAS
4. Wing Flaps - 10^0 (until obstacles are cleared).
   RETRACT (after reaching a safe altitude and 65 KIAS)

AFTER LANDING

1. Wing Flaps - UP

SECURING AIRPLANE

1. Parking brake - SET
2. Avionics Master Switch, Electrical Equipment, Autopilot (if installed) - OFF
3. Mixture - IDLE CUT-OFF (pull full out)
4. Ignition Switch – OFF
5. Master Switch - OFF
6. Control Lock - INSTALL
7. Fuel Selector Valve – LEFT or RIGHT

EMERGENCY CHECKLIST

ENGINE FAILURES

ENGINE FAILURE DURING TAKEOFF ROLL

1. **THROTTLE - IDLE**
2. **BRAKES - APPLY**
3. Wing Flaps - RETRACT
4. Mixture - IDLE CUT-OFF
5. Ignition Switch - OFF
6. Master Switch – OFF

ENGINE FAILURE IMMEDIATELY AFTER TAKEOFF

1. AIRSPEED - 70 KIAS (FLAPS UP)
   65 KIAS (FLAPS DOWN)
2. Mixture - IDLE CUT-OFF
3. Fuel Shutoff Valve - OFF (Pull full out)
4. Ignition Switch - OFF
5. Wing Flaps - AS REQUIRED
6. Master Switch - OFF
7. Cabin Door - UNLATCHED
8. Land - STRAIGHT AHEAD

ENGINE FAILURE DURING FLIGHT (RESTART PROCEDURES)

1. AIRSPEED - 68 KIAS
2. FUEL SHUTOFF VALVE - ON (PUSH FULL IN)
3. FUEL SELECTOR VALVE - BOTH
4. AUXILIARY FUEL PUMP SWITCH - ON
5. MIXTURE - RICH (IF RESTART HAS NOT OCCURRED)
6. Ignition Switch - BOTH (or START if propeller is stopped)

FORCED LANDINGS

EMERGENCY LANDING WITHOUT ENGINE POWER

1. Passenger Seat Backs - MOST UPRIGHT POSITION
2. Seat and Seat Belts - SECURE
3. AIRSPEED - 70 KIAS (Flaps UP)
   65 KIAS (Flaps DOWN)
4. Mixture - IDLE CUT-OFF
5. Fuel Shutoff Valve - OFF (Pull full out)
6. Ignition Switch - OFF
7. Wing Flaps - AS REQUIRED (30° recommended)
8. Master Switch - OFF (when landing is assured)
9. Doors - UNLATCH PRIOR TO TOUCHDOWN
10. Touchdown - SLIGHTLY TAIL LOW
11. Brakes - APPLY HEAVILY

PRECAUTIONARY LANDING WITH ENGINE POWER

1. Passenger Seat Backs - MOST UPRIGHT POSITION
2. Seat and Seat Belts - SECURE
3. Airspeed - 65 KIAS
4. Wing Flaps - 20°
5. Selected Field - FLY OVER, noting terrain and obstructions, then retract flaps upon reaching a safe altitude and airspeed
6. Avionics Master Switch and Electrical Switches - OFF
7. Wing Flaps - 30° (on final approach)
8. Airspeed - 65 KIAS
9. Master Switch - OFF
10. Doors - UNLATCH PRIOR TO TOUCHDOWN
11. Touchdown - SLIGHTLY TAIL LOW
12. Ignition Switch - OFF
13. Brakes - APPLY HEAVILY

DITCHING

1. Radio - TRANSMIT MAYDAY on 121.5, giving location and intentions and SQUAWK 7700
2. Heavy Objects (in baggage area) - SECURE or JETTISON
3. Passenger Seat Backs - MOST UPRIGHT POSITION
4. Seat and Seat Belts - SECURE
5. Wing Flaps - 20° to 30°
6. Power - ESTABLISH 300 FT/MIN DESCENT AT 55 KIAS

NOTE

If no power is available, approach at 70 KIAS with flaps up or at 65 KIAS with 10° Flaps

7. Approach - High Winds, Heavy Seas - INTO THE WIND
   Light Winds, Heavy Swells - PARALLEL TO SWELLS
8. Cabin Doors - UNLATCH
9. Touchdown - LEVEL ATTITUDE AT ESTABLISHED RATE OF DESCENT
10. Face - CUSHION at touchdown with folded coat
11. ELT - ACTIVATE
12. Airplane - EVACUATE through cabin doors. If necessary, open window and flood cabin to equalize pressure so doors can be opened
13. Life Vests and Raft – INFLATE WHEN CLEAR OF AIRPLANE

FIRES

DURING START ON GROUND

1. CRANKING - CONTINUE to get a start which would suck the flames and accumulated fuel into the engine.

If the engine starts:

2. Power - 1800 RPM for a few minutes
3. Engine - SHUTDOWN and inspect for damage

If engine fails to start:

4. THROTTLE - FULL OPEN
5. MIXTURE - IDLE CUT-OFF
6. CRANKING - CONTINUE
7. FUEL SHUTOFF VALVE - OFF (PULL FULL OUT)
8. AUXILIARY FUEL PUMP - OFF
9. Fire Extinguisher - ACTIVATE
10. Engine - SECURE
    a. Master Switch - OFF
    b. Ignition Switch - OFF
11. Parking Brake - RELEASE
12. Airplane - EVACUATE
13. Fire - EXTINGUISH using fire extinguisher, wool blanket, or dirt
14. Fire Damage – INSPECT

ENGINE FIRE IN FLIGHT

1. MIXTURE - IDLE CUT-OFF
2. FUEL SHUTOFF VALVE - OFF (PULL FULL OUT)
3. AUXILIARY FUEL PUMP - OFF
4. MASTER SWITCH - OFF
5. Cabin Heat and Air - OFF (except overhead vents)
6. Airspeed - 100 KIAS (If fire is not extinguished, increase glide speed to find an airspeed - within airspeed limitations – which will provide an incombustible mixture)
7. Forced Landing - EXECUTE (as described in Emergency Landing Without Engine Power)

ELECTRICAL FIRE IN FLIGHT

1. MASTER SWITCH - OFF
2. VENTS/CABIN AIR/HEAT - CLOSED
3. FIRE EXTINGUISHER – ACTIVATE
4. Avionics Master Switch - OFF
5. All Other Switches (except ignition switch) - OFF

WARNING

AFTER DISCHARGING FIRE EXTINGUISHER AND ASCERTAINING THAT FIRE HAS BEEN EXTINGUISHED, VENTILATE THE CABIN

6. Vents/Cabin Air/Cabin Heat – OPEN when it is ascertained that the fire is completely extinguished

If fire has been extinguished and electrical power is necessary for continuance of flight to nearest airport or landing area:

7. Master Switch - ON
8. Circuit Breakers - CHECK for faulty circuit, do not reset
9. Radio Switches - OFF
10. Avionics Master Switch - ON
11. Radio/Electrical Switches - ON one at a time, with delay after each until short circuit is localized

CABIN FIRE

1. MASTER SWITCH - OFF
2. VENTS/CABIN AIR/HEAT - CLOSED
3. FIRE EXTINGUISHER - ACTIVATE

WARNING

AFTER DISCHARGING FIRE EXTINGUISHER AND ASCERTAINING THAT FIRE HAS BEEN EXTINGUISHED, VENTILATE THE CABIN

4. Vents/Cabin Air/Cabin Heat – OPEN when it is ascertained that the fire is completely extinguished
5. Land the airplane as soon as possible to inspect for damage

WING FIRE

1. LANDING/TAXI LIGHT SWITCHES - OFF
2. NAVIGATION LIGHT SWITCH - OFF
3. STROBE LIGHT SWITCH - OFF
4. PITOT HEAT SWITCH - OFF

NOTE

Perform a sideslip to keep the flames away from the fuel tank and cabin. Land as soon as possible using flaps only as required for final approach and touchdown

ICING

INADVERTENT ICING ENCOUNTER

1. TURN PITOT HEAT SWITCH ON
2. TURN BACK OR CHANGE ALTITUDE to obtain an outside air temperature that is less conducive to icing
3. PULL CABIN HEAT CONTROL FULL OUT AND OPEN DEFROSTER OULETS to obtain maximum windshield defroster airflow. Adjust cabin air control to get maximum defroster heat and airflow
4. Watch for signs of engine-related icing conditions. An unexplained loss in engine speed could be caused by ice

blocking the air intake filter, or in extremely rare instances, ice completely blocking the fuel injection air reference tubes. Change the throttle position to obtain maximum RPM. This may require to either advancing or retarding the throttle, dependent on where ice has accumulated in the system. Adjust mixture, as required, for maximum RPM

5. Plan a landing at the nearest airport. With an extremely rapid ice build-up, select a suitable “off airport” landing site
6. With an ice accumulation of 1/4 inch or more on the wing leading edges, be prepared for significantly higher stall speed
7. Leave wing flaps retracted. With a severe ice build-up on the horizontal tail, the change in wing wake airflow direction caused by wing flap extension could result in a loss of elevator effectiveness
8. Open left window and, if practical, scrape ice from the portion of the windshield for visibility in the landing approach
9. Perform a landing approach using a forward slip, if necessary, for improved visibility
10. Approach at 65 to 75 KIAS depending upon the amount of the accumulation
11. Perform a landing in level attitude

STATIC SOURCE BLOCKAGE
(Erroneous Instrument Reading Suspected)

1. STATIC PRESSURE ALTERNATE SOURCE VALVE - PULL ON
2. Airspeed - Consult appropriate calibration tables in section 5

LANDING WITH A FLAT MAIN TIRE

1. Approach - NORMAL
2. Wing Flaps - 30°
3. Touchdown - GOOD TIRE FIRST, hold airplane off flat tire as long as possible with aileron control
4. Directional Control - MAINTAIN using brake on good wheel as required

LANDING WITH A FLAT NOSE TIRE

1. Approach - NORMAL
2. Flaps - As required
3. Touchdown - ON MAINS, hold nose wheel off the ground as long as possible
4. When nose wheel touches down, maintain full up elevator as airplane slows to stop

ELECTRICAL POWER SUPPLY SYSTEM MALFUNCTIONS

AMMETER SHOWS EXCESSIVE RATE OF CHARGE
(Full Scale Deflection)

1. Alternator - OFF

CAUTION

WITH THE ALTERNATOR SIDE OF THE MASTER SWITCH OFF, COMPASS DEVIATIONS OF AS MUCH AS 25^0 MAY OCCUR

2. Nonessential Electrical Equipment - OFF
3. Flight - TERMINATE as soon as practical

LOW-VOLTAGE ANNUNCIATOR (VOLTS)
ILLUMINATES DURING FLIGHT
(Ammeter Indicates Discharge)

NOTE

Illumination of “VOLTS” on the annunciator panel may occur during low RPM conditions with an electrical load on the system such as during a low RPM taxi. Under these conditions, the light will go out at higher RPM. The master switch need not be recycled since an overvoltage condition has not occurred to deactivate the alternator system

1. Avionics Master Switch - OFF
2. Alternator Circuit Breaker – CHECK IN
3. Master Switch - OFF (both sides)
4. Master Switch - ON
5. Low Voltage Annunciator - CHECK OFF
6. Avionics Master Switch - ON

If Low-Voltage Light illuminates again:

7. Alternator - OFF

CAUTION

WITH THE ALTERNATOR SIDE OF THE MASTER SWITCH OFF, COMPASS DEVIATIONS OF AS MUCH AS 25^0 MAY OCCUR

8. Nonessential Radio and Electrical Equipment - OFF
9. Flight - TERMINATE as soon as practical

VACCUM SYSTEM FAILURE

Left Vacuum or Right Vacuum Annunciator light (L VAC R) illuminates

CAUTION

IF VACCUM IS NOT WITHIN NORMAL OPERATING LIMITS, A FAILURE HAS OCCURRED IN THE VACCUM SYSTEM AND PARTIAL PANEL PROCEDURES MAY BE REQUIRED FOR CONTINUED FLIGHT

1. VACCUM GAUGE - CHECK to ensure vacuum within normal operating limits