

<b><u>SPEEDS (KIAS)</u></b> <b>(C172R)</b>	<b><u>PREFLIGHT (CONT.)</u></b>
Vso.....33	Avionics Master.....OFF
Vs.....44	Flaps.....EXTEND
Vr.....55	Lights.....ON/INSPECT/OFF
Vx (sea level).....60	Alt. Static Source.....OFF
Vx (10,000 ft.).....65	Annunciator Panel.....TEST
Vy (sea level).....79	Fuel Selector.....BOTH
Vy (10,000 ft.).....71	Fuel Shutoff.....ON
Vfe (10° flaps).....110	Master Switch.....OFF
Vfe (10° to 30° flaps).....85	
Vno.....129	<b><u>EXTERIOR INSPECTION</u></b>
Vne.....163	<b><u>Aft Fuselage</u></b>
Va (max gross).....99	Baggage Door.....LOCKED
Va (2,100 lbs).....92	Fuselage.....CHECK
Va (1,600 lbs).....82	<b><u>Empennage</u></b>
Best Glide (flaps UP).....65	Horiz. Stabilizer.....CHECK
Best Glide (flaps DN).....60	Elevator.....CHECK
Max. Demon. X-Wind.....15	Tail Tie-Down.....REMOVE
Approach (Flaps UP).....65-75	Trim Tab.....CHECK
Approach (Flaps DN).....60-70	Rudder.....CHECK
Enroute Climb.....70-85	Antennas.....CHECK
	Horiz. Stabilizer.....CHECK
<b><u>PREFLIGHT</u></b>	<b><u>Right Wing</u></b>
Weather.....CHECK	Flap.....CHECK
Weight & Balance..COMPLETE	Aileron.....CHECK
Documents (AROW)....CHECK	Tie Down.....REMOVE
Inspection/AD status....CHECK	Leading Edge.....CHECK
Fire Extinguisher.....CHARGED	Fuel Sumps (5).....CHECK
Hobbs/Tach.....CHECK	Main Wheel.....CHECK
Control Lock.....REMOVE	Fuel Quantity.....CHECK
Ignition.....OFF	Fuel Filler Cap.....SECURE
Avionics Master.....OFF	<b><u>Nose</u></b>
Master Switch.....ON	Windscreen.....CLEAN
Fuel Quantity.....CHECK	Fuel Sumps (3).....CHECK
Turn Coordinator.....AUDIBLE	Oil Quantity.....CHECK
Avionics Master.....ON	(8 qt. cap. 6 qt. min.)
Avionics Cooling Fan...CHECK	Cooling Inlets.....CHECK
	Prop. & Spinner.....CHECK

<b><u>EXTERIOR INSP. (CONT.)</u></b>	<b><u>ENGINE START</u></b>
Air Filter.....CHECK	Throttle.....OPEN ¼ INCH
Alternator Belt.....SECURE	Mixture.....IDLE CUTOFF
Nose Wheel Strut/Tire...CHECK	Master Switch.....ON
Static Source.....CHECK	Beacon.....ON
<b><u>Left Wing</u></b>	Fuel Pump.....ON
Fuel Quantity.....CHECK	Mixture.....RICH
Fuel Filler Cap.....SECURE	Until 3-5 GPH, then IDLE
Fuel Sumps (5).....CHECK	Fuel Pump.....OFF
Main Wheel.....CHECK	Propeller Area.....CLEAR
Pitot Tube.....CHECK	Ignition.....START
Fuel Tank Vent.....CHECK	Mixture.....RICH
Stall Warning.....CLEAR	When engine starts
Tie Down.....REMOVE	Throttle.....1000 RPM
Leading Edge.....CHECK	Oil Pressure.....CHECK
Left Aileron.....CHECK	Mixture.....LEAN for TAXI
Left Flap.....CHECK	(set throttle to 1200 RPM, lean
	to obtain max RPM increase)
<b><u>PRE-ENGINE START</u></b>	Nav. Lights (as required).....ON
Preflight.....COMPLETE	
Pax. Briefing.....COMPLETE	<b><u>FLOODED START</u></b>
Seats/Belts.....SECURE	Fuel Pump.....OFF
Cabin Doors.....SECURE	Mixture.....IDLE CUTOFF
Parking Brake.....SET	Throttle.....OPEN ½ to FULL
Circuit Breakers.....CHECK IN	Starter.....ENGAGE
Electrical Equipment.....OFF	*When engine fire, advance
Avionics Master.....OFF	mixture and retard throttle*
Fuel Selector Valve.....BOTH	
Fuel Shutoff Valve.....ON (IN)	<b><u>TAXI</u></b>
Avionics Circuit Breakers.....IN	Avionics Master.....ON
	Radios.....ON
	Transponder.....STBY
	ATIS/Clearance.....OBTAIN
	Flaps.....RETRACT
	Parking Brake.....RELEASE
	Brakes.....TEST
	Instruments.....CHECK

**RUNUP**

Parking Brake.....SET  
 Seats/Belts.....SECURE  
 Doors/Windows.....CLOSED  
                                   AND LOCKED  
 Controls.....FREE & CORRECT  
 Fuel Quantity.....CHECK  
 Mixture.....RICH  
 Fuel Selector Valve.....BOTH  
 Throttle.....1800 RPM  
 Mixture.....SET for altitude  
 Magnetos.....CHECK  
                                   Max drop 150 RPM  
                                   Max differential 50 RPM  
 Vacuum Gauge.....CHECK  
 Engine Instruments.....CHECK  
 Ammeter.....CHECK  
 Annunciator Panel.....TEST  
 Throttle.....IDLE then 1000 RPM  
 Flight Instruments.....CHECK  
                                   and SET  
 Throttle Friction Lock...ADJUST  
 Radios and Avionics.....SET  
 Autopilot.....OFF  
 Electric Trim.....CHECK  
 Trim.....SET for TAKEOFF  
 Brakes.....RELEASE

**PRE-TAKEOFF**

Flaps (as required).....SET  
 Transponder.....ALT  
 Landing Light....AS REQUIRED  
 Strobe Lights....AS REQUIRED  
*Avoid using strobe lights while taxiing in the vicinity of other aircraft, or during night flight through clouds, fog, or haze*  
 Emerg. Procedures.....REVIEW

**NORMAL TAKEOFF**

Flaps.....0°-10°  
 Throttle.....Full OPEN  
 Engine Instruments.....CHECK  
 Rotate.....55 KIAS  
 Climb.....70-80 KIAS  
 Flaps.....RETRACT

**SHORT-FIELD TAKEOFF**

Flaps.....10°  
 Brakes.....APPLY  
 Throttle.....Full OPEN  
 Engine Instruments.....CHECK  
 Brakes.....RELEASE  
 Elevator....SLIGHTLY TAIL LOW  
 Rotate.....55 KIAS  
 Climb....57 KIAS, clear obstacle  
 Flaps.....RETRACT  
                                   when clear of obstacle

**CRUISE**

Power.....2000-2400 RPM  
 Mixture.....LEAN  
 Landing Light.....OFF  
 Trim.....ADJUST

**DESCENT**

Power.....AS DESIRED  
 Mixture.....ENRICH  
 Altimeter.....SET  
 Fuel Selector.....BOTH  
 Flaps.....AS DESIRED

**BEFORE LANDING**

Seat Backs.....UPRIGHT  
 Seats/Belts.....SECURE  
 Fuel Selector.....BOTH  
 Mixture.....SET  
 Landing Light.....ON (as req.)  
 Autopilot.....OFF

**NORMAL LANDING**

Airspeed.....65-75 (Flaps UP)  
 Flaps.....AS DESIRED  
 Airspeed.....60-70 (Flaps DN)  
 Touchdown.....MAINS first  
 Landing Roll.....LOWER NOSE  
                                   GENTLY

**SHORT FIELD LANDING**

Airspeed.....65-75 (Flaps UP)  
 Flaps.....DOWN (30°)  
 Airspeed.....62 KIAS  
 Power.....IDLE  
                                   after clearing obstacle  
 Touchdown.....MAINS first  
 Brakes.....APPLY HEAVILY  
 Flaps.....RETRACT

**GO-AROUND**

Throttle.....FULL OPEN  
 Flaps.....RETRACT to 20°  
 Climb.....55 KIAS  
 Flaps.....RETRACT to 10°  
                                   until obstacles are cleared  
 Flaps.....RETRACT  
                                   after reaching safe altitude and  
                                   60 KIAS

**AFTER LANDING**

Flaps.....RETRACT  
 Transponder.....STBY  
 Landing Light.....OFF  
 Strobe Lights.....OFF  
 Mixture.....LEAN for taxi

**SHUTDOWN**

Throttle.....IDLE  
 Electrical Equipment.....OFF  
 Autopilot.....OFF  
 Avionics Master.....OFF  
 Mixture.....IDLE cutoff  
 Ignition.....OFF  
 Master Switch.....OFF  
 Beacon.....OFF  
 Control Lock.....INSTALL  
 Fuel Selector Valve.....L or R  
                                   to prevent cross feeding  
 Hobbs/Flight Ticket.....RECORD  
 Trash.....REMOVE  
 Doors/Windows.....LOCKED  
 Tie-Downs.....SECURE  
 Flight Plan.....CLOSED

**EMERGENCY PROCEDURES****ENGINE FAILURE DURING TAKEOFF ROLL**

Throttle.....**IDLE**  
 Brakes.....**APPLY**  
 Flaps.....RETRACT  
 Mixture.....IDLE CUTOFF  
 Ignition.....OFF  
 Master Switch.....OFF

**ENGINE FAILURE AFTER TAKEOFF**

Airspeed....**65 KTS (Flaps UP)**  
                   **60 KTS (Flaps DN)**  
 Mixture.....IDLE CUTOFF  
 Fuel Shutoff Valve.....OFF  
 Ignition.....OFF  
 Master Switch.....OFF  
 Cabin Door.....UNLATCH  
 Land.....STRAIGHT AHEAD

**ENGINE FAILURE DURING FLIGHT (RESTART)**

Airspeed.....**65 KTS**  
 Landing Site.....**IDENTIFY**  
 Fuel Shutoff Valve.....**ON (IN)**  
 Fuel Selector Valve.....**BOTH**  
 Auxiliary Fuel Pump.....**ON**  
 Mixture.....**RICH**  
 Ignition.....**BOTH** or **START**  
                   if propeller has stopped  
 Auxiliary Fuel Pump.....OFF

**EMERGENCY PROCEDURES****EMERGENCY LANDING WITHOUT POWER**

Airspeed.....65 KIAS (Flaps UP)  
                   60 KIAS (Flaps DN)  
 Landing Site.....IDENTIFY  
 Seat Backs.....UPRIGHT  
 Seats/Belts.....SECURE  
 Mixture.....IDLE CUTOFF  
 Fuel Shutoff Valve.....OFF  
 Ignition.....OFF  
 Flaps.....AS REQUIRED  
 Master Switch.....OFF  
 Doors.....UNLATCH  
 Touchdown.....TAIL LOW  
 Brakes.....APPLY HEAVILY

**PRECAUTIONARY LANDING WITH POWER**

Seat Backs.....UPRIGHT  
 Seats/Belts.....SECURE  
 Airspeed.....60 KIAS  
 Flaps.....20°  
 Selected Field.....OVERFLY  
                                   note terrain  
 Avionics Master.....OFF  
 Flaps.....30° on final  
 Airspeed.....60 KIAS  
 Master Switch.....OFF  
 Doors.....UNLATCH  
 Touchdown.....TAIL LOW  
 Ignition.....OFF  
 Mixture.....IDLE CUTOFF  
 Brakes.....APPLY HEAVILY

**EMERGENCY PROCEDURES****DITCHING**

Radio.....MAYDAY 121.5  
 Transponder.....7700  
 Heavy Objects.....SECURE  
                                   or JETTISON  
 Seat Backs.....UPRIGHT  
 Seats/Belts.....SECURE  
 Flaps.....20° to 30°  
 Power...300 ft/min DESCENT at  
 55 KIAS or 65 KIAS w/no power  
 Approach.....  
   High Winds/Seas...INTO WIND  
   Light Winds/Seas...PARALLEL  
 Touchdown..LEVEL ATTITUDE  
 Face.....CUSHION  
 ELT.....ACTIVATE  
 Airplane.....EVACUATE

**ELECTRICAL FIRE**

Master Switch.....OFF  
 Vents/Air/Heat.....CLOSED  
 Fire Extinguisher...ACTIVATE  
 Avionics Master.....OFF  
 All other electrical.....OFF  
 Vents/Cabin Air/Heat.....OPEN  
   when fire is completely out  
   *If fire is out and electrical is  
   necessary for flight*  
 Master Switch.....ON  
 Circuit Breakers.....CHECK  
                                   do not reset!  
 Radios.....OFF  
 Avionics Master.....ON  
 Radios/Electrical.....ON  
                                   one at a time

**EMERGENCY PROCEDURES****FIRE DURING ENGINE START**

**Cranking.....CONTINUE**  
 If Engine Starts:  
   Power.....1700 RPM  
   Engine.....SHUTDOWN  
 If Engine Fails to Start:  
   **Throttle.....FULL OPEN**  
   **Mixture.....IDLE CUTOFF**  
   **Cranking.....CONTINUE**  
   **Fuel Shutoff.....OFF**  
   **Aux. Fuel Pump.....OFF**  
   Fire Extinguisher.....OBTAIN  
   Engine.....SECURE  
   Master.....OFF  
   Ignition.....OFF  
   Parking Brake.....RELEASE  
   Airplane.....EVACUATE  
   Fire.....EXTINGUISH

**ENGINE FIRE IN FLIGHT**

Mixture.....IDLE CUTOFF  
 Fuel Shutoff Valve.....OFF  
 Auxiliary Fuel Pump.....OFF  
 Master Switch.....OFF  
 Cabin Heat & Air.....OFF  
 Airspeed.....100 KIAS  
 Forced Landing.....EXECUTE

**CABIN FIRE**

Master Switch.....OFF  
 Vents/Air/Heat.....CLOSED  
 Fire Extinguisher...ACTIVATE  
 Cabin.....VENTILATE  
 Land.....ASAP

**EMERGENCY PROCEDURES**

**WING FIRE**

Landing/Taxi Lights.....OFF  
 Navigation Lights.....OFF  
 Strobe Lights.....OFF  
 Pitot Heat Switch.....OFF

Perform a sideslip to keep flames away from the fuel tank and cabin

Land.....ASAP

**LANDING WITH FLAT MAIN TIRE**

Approach.....NORMAL  
 Wing Flaps.....30°  
 Touchdown.....GOOD MAIN 1<sup>st</sup>  
 Maintain directional control using brake on good wheel

**LANDING WITH FLAT NOSE TIRE**

Approach.....NORMAL  
 Flaps.....AS REQUIRED  
 Touchdown.....ON MAINS  
 Hold nosewheel off the ground as long as possible  
 Elevator.....FULL UP  
 When nosewheel touches down

**EMERGENCY PROCEDURES**

**LOW VOLTAGE ANNUNCIATOR**

Low voltage illumination may occur during low RPM conditions such as taxi

Avionics Master.....OFF  
 Alt. Circuit Breaker.....CHECK IN  
 Master Switch.....OFF  
 Master Switch.....ON  
 Low Volt. Annun.....CHECK OFF  
 Avionics Master.....ON

**\*IF ANNUNCIATOR ILLUMINATES AGAIN\***  
 Alternator.....OFF  
 Nonessential Equip.....OFF  
 Flight.....TERMINATE  
 As soon as practical

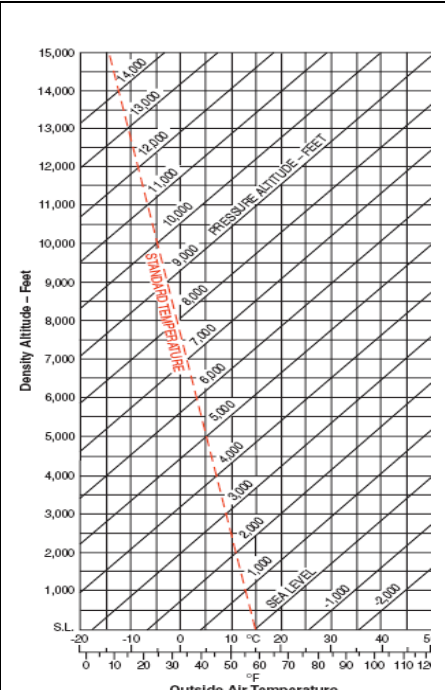
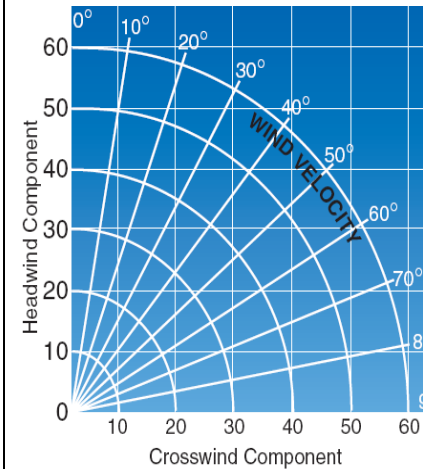
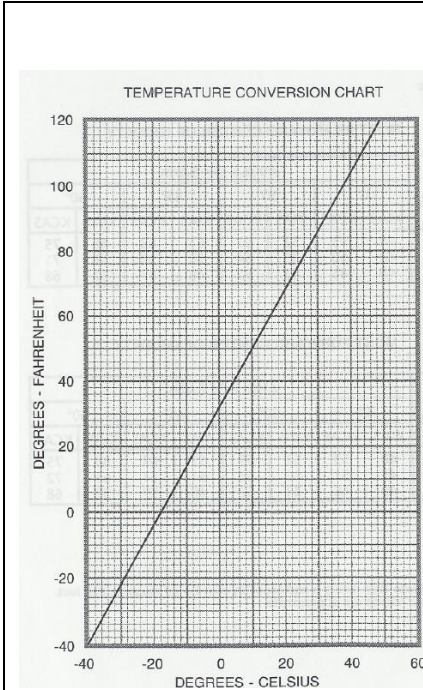
**AMMETER SHOWS EXCESS RATE OF CHARGE**

Alternator.....OFF  
**With the alternator side of the master switch off, compass deviations of as much as 25° may occur**

Nonessential Equip.....OFF  
 Flight.....TERMINATE  
 As soon as practical

**VACUUM SYSTEM FAILURE**

**If vacuum is not within normal limits, a failure has occurred and partial panel procedures may be required**



**ATC Light Gun Signals**

COLOR	ON THE GROUND	IN THE AIR
Green	Cleared For Takeoff	Cleared To Land
Steady Green	Cleared For Taxi	Return For Landing (to be followed by steady green)
Red	Stop	Give Way To Other Aircraft and Continue Circling
Red-Red	Taxi Clear Of The Runway	Airport Unsafe, Do Not Land
White-White	Return To Starting Point	Not Applicable
Red-Green-Green	Exercise Extreme Caution	