

<u>SPEEDS (KIAS)</u> (C172R)	<u>PREFLIGHT (CONT.)</u>
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	<u>EXTERIOR INSPECTION</u>
Vne.....163	<u>Aft Fuselage</u>
Va (max gross).....99	Baggage Door.....LOCKED
Va (2,100 lbs).....92	Fuselage.....CHECK
Va (1,600 lbs).....82	<u>Empennage</u>
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
<u>PREFLIGHT</u>	<u>Right Wing</u>
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	<u>Nose</u>
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

<u>EXTERIOR INSP. (CONT.)</u>	<u>ENGINE START</u>
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
<u>Left Wing</u>	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)
<u>PRE-ENGINE START</u>	Nav. Lights (as required).....ON
Preflight.....COMPLETE	
Pax. Briefing.....COMPLETE	<u>FLOODED START</u>
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)	<u>TAXI</u>
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 1st
 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

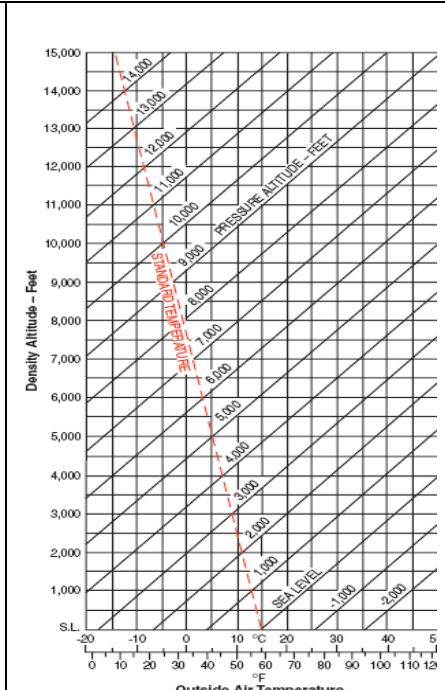
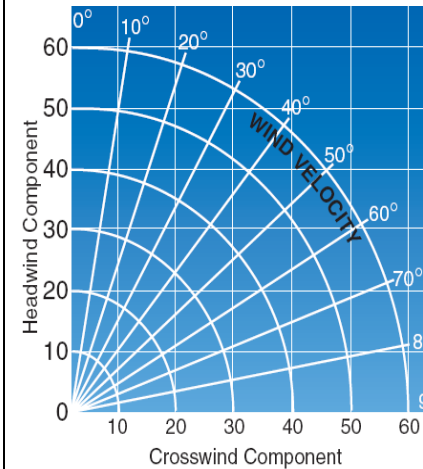
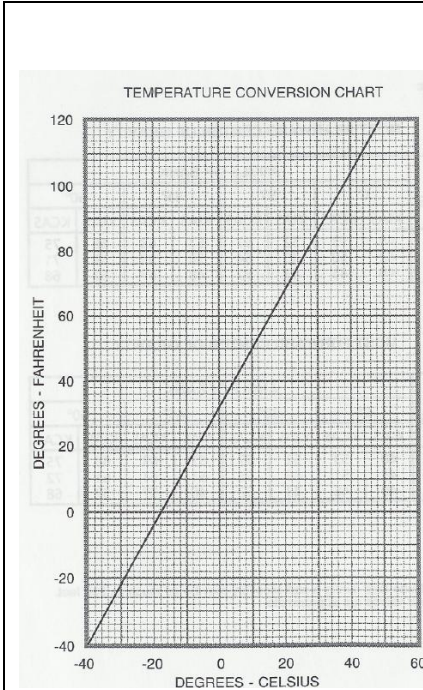
AMMETER SHOWS EXCESS RATE OF CHARGE

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	