

**RAM Aviation** Piper Tomahawk

**SPEEDS (KTS)**

Vso.....	49
Vs1.....	52
Vr.....	50-60
Vx .....	61
Vy .....	70
Vfe.....	89
Vno.....	110
Vne.....	138
Va (1670#).....	103
Va (1277#).....	90
Best Glide.....	70
Max. Demon. X-Wind.....	15
Approach (Flaps DN).....	70
Short Field Approach.....	65
Enroute Climb.....	80
Max Gross Weight.....	1670
Basic Empty Weight.....	1166
Useful Load.....	504
Cruise Speed.....	100
Fuel Consumption.....	6.5

**PREFLIGHT**

Weather.....	CHECK
Weight & Balance.....	COMPLETE
Documents (AROW).....	CHECK
Inspection/AD status.....	CHECK
Hobbs.....	RECORD
Electrical/Radios.....	OFF
Ignition.....	OFF
Master.....	ON
Fuel Quantity.....	CHECK
Fuel Pump.....	ON/LISTEN/OFF
Turn Coordinator.....	AUDIBLE
Flaps.....	EXTEND
Lights/Stall Horn.....	ON/INSPECT
Lights.....	OFF
Master.....	OFF

**EXTERIOR INSPECTION**

Left Wing	
Flap & Aileron.....	CHECK
Leading Edge.....	CHECK
Pitot Mast.....	CHECK
Tie Down.....	REMOVE
Fuel Quantity.....	CHECK
Fuel Tank Vent.....	CHECK
Fuel Sump.....	CHECK
Strut/Tire/Brake.....	CHECK
Nose	
Windshield/Cowling.....	CHECK
Brake Res.....	CHECK
Fuel Sump.....	CHECK
Prop/Spinner.....	CHECK
Air Inlet.....	CHECK
Alternator Belt.....	CHECK
Nose Strut/Tire.....	CHECK
Cowling.....	CHECK
Oil Quantity (5-6 qts).....	CHECK
Windshield/Cowling.....	CHECK
Right Wing	
Strut/Tire/Brake.....	CHECK
Fuel Sump.....	CHECK
Fuel Quantity.....	CHECK
Tie Down.....	REMOVE
Fuel Tank Vent.....	CHECK
Aileron & Flap.....	CHECK
Aft Fuselage & Empennage	
Fuselage.....	CHECK
Antennas.....	CHECK
Static Source.....	CHECK
Horizontal Stabilizer.....	CHECK
Vertical Stabilizer.....	CHECK
Tie Down.....	REMOVE
Static Source.....	CHECK

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**BEFORE ENGINE START**

Preflight Inspection.....	COMPLETE
Passenger Briefing.....	COMPLETE
Seats and Belts.....	SECURE

**ENGINE START**

Parking Brake.....	SET
Circuit Breakers.....	CHECK IN
Electrical Equipment.....	OFF
Avionics Master.....	OFF
Fuel Selector.....	FULLEST TANK
Throttle.....	1/4' OPEN
Mixture.....	RICH
Prime.....	AS REQUIRED
Master.....	ON
Anti-Collision Lights.....	ON
Propeller Area.....	CLEAR
Starter.....	ENGAGE
Throttle.....	1000 RPM
Oil Pressure.....	CHECK
Mixture.....	LEAN for taxi
Ammeter.....	CHECK

**BEFORE TAXI CHECK**

Radios/Avionics.....	ON
Atis/Awos/Asos.....	CHECK
Transponder.....	ALT
Flaps.....	RETRACT
Parking Brake.....	RELEASE
Brakes.....	TEST
Instrument Taxi.....	CHECK

**RUNUP CHECK**

Parking Brake.....	SET
Seats/Belts.....	SECURE
Doors/Windows.....	CLOSED
	AND LOCKED
Controls.....	FREE & CORRECT
Trim.....	SET
Mixture.....	RICH
Throttle.....	1800 RPM
Oil Pressure/Temp.....	CHECK
Mixture..Rich or SET for Altitude	
Magnetos.....	CHECK
	Max drop 175 RPM
	Max differential 50 RPM
Carb Heat.....	CHECK
Suction.....	.5" hg +/- 1" hg
Ammeter/Alt.....	CHECK
Instruments.....	CHECK and SET
Throttle.....	IDLE CHECK
Throttle.....	1000 RPM
Radios and Avionics.....	SET
Parking Brake.....	RELEASE

**BEFORE TAKEOFF CHECK**

Fuel Pump.....	ON
Landing Light.....	ON
Mixture.....	RICH/AS REQ.
Fuel Selector.....	FULLEST TANK
Carb Heat.....	OFF
Flaps (as required).....	SET
Transponder.....	ALT
CHT.....	Min.250
Departure Brief....	Get Card/Brief

**BEFORE CROSSING HOLD SHORT**

CLEAR RWY.....	LEFT/RIGHT
Time Up.....	START

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**NORMAL TAKEOFF**

Throttle.....Full OPEN  
 Engine Instruments.....CHECK  
 Rotate.....50-55 KTS  
 Climb.....70 KTS

**SHORT-FIELD TAKEOFF**

Flaps.....21°  
 Brakes.....APPLY  
 Throttle.....Full OPEN  
 Engine Instruments.....CHECK  
 Brakes.....RELEASE  
 Rotate.....40-45 KTS  
 Climb.....61 KTS  
 (until clear of obstacle)  
 Climb.....70 KTS  
 Flaps.....RETRACT

**SOFT FIELD TAKEOFF**

Flaps.....21°  
 Elevator.....Full AFT  
 Throttle.....Full OPEN  
 Ltoff.....Slowest Poss. Airspeed  
 Accelerate while in ground effect  
 Climb.....70 KTS  
 Flaps.....RETRACT

**CLIMB CHECK (1000AGL)**

Pitch.....80 KTS  
 Mixture.....SET  
 Fuel Pump.....OFF  
 Fuel Pressure.....VERIFY  
 Landing Light.....OFF  
 Check CHT.....Below 380

**CRUISE CHECK**

Throttle.....SET  
 Mixture.....RICH BELOW 4000  
 Mixture.....LEAN ABOVE 4000  
 Find Peak.....SET 100 RICH  
 Engine Gauges.....CHK/CHT 380  
 Trim.....SET  
 Heading Indicator.....SET

**DESCENT CHECK**

Power.....AS DESIRED  
 Fuel Pump.....ON  
 Fuel Pressure.....VERIFY  
 Landing Light.....ON  
 Mixture.....RICH  
 Fuel Selector.....FULLEST TANK  
 Seats/Belts.....SECURE

**FINAL LANDING CHECK**

Airspeed.....70 KTS  
 Mixture.....RICH

**PRE-MANEUVER CHECK**

Clearing Turns.....DO  
 Fuel Pump/Press.....ON/CHECK  
 Landing Light.....ON  
 Mixture.....RICH  
 Fuel Selector.....FULLEST TANK  
 Power.....AS REQUIRED  
 Emergency Field.....Pick

**RAM Aviation** Piper Tomahawk

**NORMAL LANDING**

Airspeed.....70 (Flaps DN)  
 Crosswind.....INPUT

**SOFT FIELD LANDING**

Airspeed.....70 KTS  
 Flaps.....Down (40°)  
 Touchdown.....MAINS first  
 Add power to keep nose-wheel  
 off the ground, hold elevator aft  
 Brakes.....MINIMAL

**SHORT-FIELD LANDING**

Airspeed.....65 KTS  
 Flaps.....Down (40°)  
 Power.....IDLE  
 Touchdown.....MAINS first  
 Flaps.....RETRACT  
 Brakes.....APPLY  
 Elevator.....FULL AFT

**GO-AROUND**

Throttle.....FULL POWER  
 Pitch.....LEVEL  
 Flaps.....RETRACT to 21°  
 Climb.....70 KTS  
 Flaps.....RETRACT  
 Offset.....RIGHT/LEFT

**AFTER LANDING CHECK**

Flaps.....RETRACT  
 Trim.....ADJUST  
 Transponder.....ALT  
 Fuel Pump.....OFF  
 Landing Light.....OFF  
 Mixture.....LEAN for TAXI

**SHUTDOWN**

Throttle.....1000 RPM  
 Electrical Switches(Gray).....OFF  
 Avionics Master.....OFF  
 Transponder.....OFF  
 Mixture.....IDLE cutoff  
 Ignition.....OFF  
 Master Switch (Red).....OFF  
 Hobbs.....RECORD  
 Trash.....REMOVE  
 Control Lock.....INSTALL  
 Doors/Windows.....LOCKED  
 Tie-Downs.....SECURE  
 Covers.....INSTALL  
 Flight Plan.....CLOSE

**HOT START**

Parking Brake.....SET  
 Throttle.....FULL OPEN  
 Master.....ON  
 Fuel Pump.....OFF  
 Mixture.....IDLE CUT OFF  
 Ignition.....ENGAGE

\*When engine fires, advance  
 mixture and retard throttle\*

**FLOODED START**

Parking Brake.....SET  
 Throttle.....FULL OPEN  
 Master.....ON  
 Fuel Pump.....OFF  
 Mixture.....IDLE  
 Starter.....ENGAGE

\*When engine fires, advance  
 mixture and retard throttle\*

## Departure/Emergency Brief

We are departing RWY \_\_\_\_

- a. For a Straight Out/ Crosswind/ Downwind Departure.

**OR**

- b. Remaining in the Traffic Pattern.

Engine Loss prior to rotation (55KIAS): Throttle to idle and brake on remaining runway.

Engine Loss after rotation and below 1000 feet: Pitch and maintain 70 KIAS and head for our landing site, which is \_\_\_\_\_.

Engine Loss above 1000 feet: Pitch and maintain 70 KIAS and return to RWY \_\_\_\_ or a landing site, which is \_\_\_\_.

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**EMERGENCY PROCEDURES  
ENGINE FAILURE DURING  
TAKEOFF**

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

**ENGINE FAILURE AFTER  
TAKEOFF**

Airspeed.....70 KTS  
Mixture.....IDLE CUTOFF  
Ignition.....OFF  
Master.....OFF  
Cabin Door.....UNLATCH  
Land.....STRAIGHT AHEAD

**ENGINE FAILURE DURING  
FLIGHT (RESTART)**

Airspeed/Trim.....70 KTS  
Landing Site.....LOCATE  
Fuel Selector.....FULLEST TANK  
Fuel Pump.....ON  
Mixture.....RICH  
Carb Heat.....ON  
Ignition.....L,R, BOTH  
Engine Gauges.....CHECK

**\*IF POWER IS RESTORED\***

Carb Heat.....OFF  
Fuel Pump.....OFF

**\*IF POWER IS NOT RESTORED  
PREPARE FOR FORCED  
LANDING\***

**EMERGENCY PROCEDURES  
EMERGENCY LANDING  
WITHOUT POWER**

Seat Backs.....UPRIGHT  
Seats/Belts.....SECURE  
Airspeed.....70 KTS  
Mixture.....IDLE CUTOFF  
Ignition.....OFF  
Fuel Selector.....OFF  
Master.....OFF  
Flaps.....AS REQUIRED  
Doors.....UNLATCH  
Touchdown.....TAIL LOW

**PROPELLER OVERSPEED**

Throttle.....RETARD  
Oil Pressure.....CHECK  
Airspeed.....REDUCE  
Throttle.....AS REQUIRED  
TO REMAIN BELOW 2700 RPM  
Flaps.....AS REQUIRED

**ROUGH ENGINE / ENGINE OUT**

Pitch for Best Glide.....70KTS  
Trim.....70KTS  
Landing Site.....HEAD FOR  
FLOW:  
MAGS.....L/R/BOTH  
Fuel Pump.....ON  
Carb Heat.....ON  
Fuel Valve.....SWITCH  
Mixture.....RICH  
Primer.....LOCKED  
Squawk.....7700  
Talk.....121.50  
Crack.....DOORS

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**EXCESSIVE LOAD ON  
ALTERNATOR GAUGE**

Alternator.....ON  
Battery Switch.....OFF  
Non-Essential Equipment.....OFF  
**\*IF LOADS ARE NOT REDUCED\***  
Alternator.....OFF  
Battery Switch.....AS REQUIRED  
Terminate flight as soon as  
Practical.

**FIRE DURING ENGINE START**

Cranking.....CONTINUE  
Mixture.....IDLE CUTOFF  
Throttle.....FULL OPEN  
Fuel Pump.....OFF  
Fuel Selector.....OFF  
**\*IF ENGINE FAILS TO START\***  
Cranking.....CONTINUE  
Fire Extinguisher.....OBTAIN  
Master.....OFF  
Ignition.....OFF  
**ABANDON IF FIRE CONTINUES**

**EMERGENCY PROCEDURES  
ENGINE FIRE IN FLIGHT**

Fuel Selector.....OFF  
Throttle.....CLOSED  
Mixture.....IDLE CUTOFF  
Fuel Pump.....OFF  
Heater/Defroster.....OFF  
Airspeed.....70 KTS  
Power OFF landing.....EXECUTE

**ELECTRICAL FIRE**

Master.....OFF  
Vents.....OPEN  
Heat.....OFF  
Fire Extinguisher.....ACTIVATE  
*If fire is out and electrical is  
necessary for flight*  
Master.....ON  
Circuit Breakers.....CHECK  
*do not reset!*  
Radios.....OFF  
Avionics Master.....ON  
Radios/Electrical.....ON, one at a  
time

**ALTERNATOR FAILURE**

Electrical Equipment.....OFF  
Alt. Switch.....OFF for 30 secs.  
Circuit Breaker.....CHECK/RESET  
Alternator Switch.....ON  
Alternator Gauge.....CHECK  
Electrical Equipment.....ON

**\*IF AMMETER RETURNS TO  
ZERO\***

Alternator.....OFF  
Non-Essential Equipment.....OFF  
Flight.....TERMINATE