NOTE: This checklist must be printed in dual-sided mode and folded in half with staples in the middle (in a book format), for the pages and checklists to be in proper order.

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1980 Piper Turbo Arrow IV – Normal & Emergency Checklists

NOTE

Visually check airplane for general condition during walk-around inspection. In cold weather, remove even small accumulations of frost, ice or snow from wing, tail control surfaces, and air intakes. Also, make sure that control surfaces contain no internal accumulation of ice or debris. Prior to flight, check that pitot heat mast is warm to touch within 30 seconds of battery and pitot heat switches on. If a night flight is planned, check operation of all lights, and make sure a flashlight is available. Prior to engine start, pull the airplane's main wheels over the tie-down cable, ***checking for excessively bald tire spots or exposed cord***, and check the surrounding area for debris which may be drawn into or blown about by the propeller. If necessary, position the airplane to avoid creating a hazard to buildings, vehicles or persons by the propeller blast.

WARNING

When conducting an engine start using an external power source, treat the propeller as if the ignition switch were on. Do not stand, or 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.

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PREFLIGHT CHECK

COCKPIT

1. Documents (A.R.O.W.)/Hobbs/Tach/Squawks--CHECK
2. Pilot's Operating Handbook and **Checkout Binder** --IN AIRPLANE
3. Control Wheel Lock (Yoke/rudder lock)--REMOVE & STOW
4. Ignition Switch--OFF
5. Mixture Lever--IDLE CUTOFF
6. **Avionics Master & Electrical Switches** (except anti-collision light)--**OFF**
7. Landing Gear Switch--DOWN
8. Circuit Breakers—CHECK IN
9. **Autopilot--OFF**
10. **Master Switch—ON (Battery side only)**
11. Annunciator Panel--CHECK
12. Instrument Lighting Rheostat—CHECK OFF (for day operations)
13. Landing Gear Position Indicator Lights--3 GREEN
14. Fuel Quantity Indicators--CHECK
15. Anti-Collision and Landing Lights--ON / CHECK
16. For IFR Flights—CHECK PITOT HEAT
17. ***For Night Flights – CHECK Navigation Lights and all Interior Lights***
18. Stall Warning System—CHECK; lift stall tab & listen for stall warning horn
19. **Master Switch—OFF**
20. Flaps—EXTEND
21. Fuel Selector Valve--SET TO DESIRED TANK
22. Static Pressure Alternate Air Source Valve-CHECK OFF (parallel to panel)
23. Static Pressure Line Drains (Below pilot's seat on left)—PUSH for 3 Secs

RIGHT WING Trailing Edge

1. Flap--CHECK for security and damage
2. Aileron--CHECK freedom of movement, proper response & security

RIGHT WING

1. Surface Condition—CLEAR of Ice, Frost, or Snow
2. Wing Tip and Lights--CHECK
3. Wing Tie-Down—DISCONNECT
4. Fuel System Vent--CLEAR
5. Fuel Sample--CHECK for water, sediment, proper fuel grade & color
6. Landing Gear shock Strut--CHECK proper inflation (approx 2.5")
7. Hydraulic Lines and Landing Gear Cylinders--CHECK FOR LEAKS
8. Main Wheel/Tire--CHECK brakes, tire condition/inflation, chock removed
9. Fuel Quantity--CHECK VISUALLY desired level, SECURE CAP
10. Cabin Vent—CHECK

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PROPELLER OVERSPEED

1. Throttle--RETARD
2. Oil Pressure--CHECK
3. Propeller Control—SET LOWER RPM.....If controllable
4. Airspeed--REDUCE
5. Throttle--AS REQUIRED BELOW 2575 RPM
6. Problem Not Resolved--LAND AS SOON AS PRACTICABLE

SPINS

1. Throttle--IDLE
2. Rudder--FULL OPPOSITE TO DIRECTION OF ROTATION
3. Control Wheel--FULL FORWARD
4. Rudder--NEUTRAL When Rotation Stops
5. Control Wheel—PULL BACK smoothly to regain level flight

OPEN DOOR

An open door will not affect the normal flight characteristics, and a normal landing can be made. An open door will trail in a slightly open position and airspeed will be reduced slightly.

To close the door in flight:

1. Slow the airplane to 85 KIAS
2. Cabin Vents—CLOSE, Storm Window--OPEN
3. If Upper Latch is Open--LATCH...If lower latch is open - open top latch, push door further open then close rapidly. Latch top latch.

NOTE

A slip in the direction of the open door will assist in the latching procedure

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IF GEAR STILL DOES NOT CHECK DOWN

12. RECYCLE Gear Lever through UP position then DOWN again

NOTE:

If all electrical power has been lost, the gear must be extended using the above procedure. The landing gear position lights will be inoperative

HIGH OIL TEMPERATURE

1. Set lowest PROP RPM & THROTTLE possible for safe flight speeds
2. Conduct higher airspeed descent with minimum power, as terrain allows
3. LAND AS SOON AS PRACTICABLE to investigate

LOSS OF OIL PRESSURE

PARTIAL LOSS

1. Usually Signifies a Malfunction of the Oil Regulating System
2. LAND AS SOON AS POSSIBLE

COMPLETE LOSS OF OIL PRESSURE

1. THE ENGINE MAY STOP SUDDENLY
2. PROCEED--Toward Nearest Airport
3. MAINTAIN ALTITUDE--Until a Dead Stick Landing Could Be Made
4. CHECK OTHER GAUGES-- For indications of actual oil pressure loss (high temperature, oil smoke, etc)
5. NOTIFY ATC/FSS Of Your Situation
6. CONSIDER—An Off Airport Landing while power is still available
7. If Engine Stops-- Perform POWER OFF LANDING

LOSS OF FUEL FLOW

1. Electric Fuel Pump-- unlatch, HIGH
2. Mixture Control--ENRICH (Forward)

LANDING WITH A FLAT MAIN TIRE

1. Approach--NORMAL
2. Touchdown--GOOD TIRE first, hold plane off flat tire as long as possible

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NOSE

1. Windshield--CHECK FOR Cleanliness, Cracks & Deep Scratches
2. Engine Area--CHECK for fuel or oil leaks, general condition
3. Engine Oil Level--CHECK, do not operate with less than 4 quarts. Fill to 6 quarts for extended flight, DIPSTICK SECURE & FILLER CAP SEATED
4. Cowling--CHECK FOR SECURITY
5. Engine Air Inlet Covers—REMOVE & STOW, CHECK for Obstructions
6. Cowl Scoop Area--CHECK Baffles, Baffle Seals, Belt Tension
7. Propeller and Spinner--CHECK for nicks and security
8. Landing Light--CHECK condition and cleanliness
9. Nose Wheel Strut--CHECK PROPER INFLATION (Approx 2.75")
10. Nose Wheel Tire--CHECK proper inflation and wear
11. Hydraulic Lines and Gear Cylinder--CHECK for leaks
12. Fuel Strainer--DRAIN before first flight of the day and after each refueling. CHECK THAT STRAINER DRAIN CLOSES
13. Chocks--REMOVE

LEFT WING

1. Surface Condition—CLEAR of Ice, Frost, or Snow
2. Cabin Vent--CHECK
3. Fuel Quantity--CHECK VISUALLY desired level, SECURE CAP
4. Landing Gear shock Strut--CHECK proper inflation (approx 2.5")
5. Hydraulic Lines and Landing Gear Cylinders--CHECK FOR LEAKS
6. Main Wheel/Tire--CHECK brakes, tire condition/inflation, chock removed
7. Fuel Sample--CHECK for water, sediment, proper fuel grade & color
8. Fuel System Vent--CLEAR
9. Wing Tie-Down--DISCONNECT
10. Pitot Tube Mast--CHECK PITOT OPENING & DRAIN FOR BLOCKAGES
11. Wing Tip and Lights—CHECK

LEFT WING Trailing Edge

1. Aileron--CHECK freedom of movement, proper response & security
2. Flap--CHECK for security and damage

EMPENNAGE

1. Antennas and Fuselage Skin--CHECK CONDITION / SECURITY
2. Static Port Openings—CHECK FOR BLOCKAGES
3. Fresh Air Inlet & Surfaces—CLEAR of Ice, Snow, and Frost
4. Stabilator and Trim Tab--CHECK
5. Tail Tie-Down--DISCONNECT

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6. Control Surfaces--CHECK freedom of movement and security
7. Position Lt, Anti-Collision Lt, and Antennas--CHECK Security
8. Tow Bar and Aircraft Covers--STOW
9. Baggage Compartment--SECURE BAGGAGE & LOCK DOOR

NORMAL PROCEDURES

SPEEDS FOR NORMAL OPERATION

Unless otherwise noted, the following speeds are based on a gross weight of 2,900 pounds under standard conditions at sea level. However, to achieve the performance specified in Section 5 for takeoff distance, the speed appropriate to the particular weight must be used.

KIAS

Takeoff, Flaps Up:
Normal Rotation / Take-off.....70-77
Short Field Takeoff, Flaps 25°, Speed at 50 Feet.....60-68
Enroute Climb, Flaps Up, Gear Up:.....105
Best Rate of Climb, Gear Up, Flaps Up…….....97
Best Rate of Climb, Gear Down, Flaps Up.....79
Best Angle of Climb, Gear Up, Flaps Up.....79
Best Angle of Climb, Gear Down, Flaps Up.....73
Landing Approach:
Final Approach Speed, Flaps 40°.....75
Short Field approach, Flaps 40°.....72-75, Wgt dependant
Balked Landing:
Maximum Power, Flaps 25°.....65
Maximum Recommended Turbulent Air Penetration Speed:
2900 Lbs.....124
Max Flaps Extended Speed…….108
Max Landing Gear Extension Speed.....133
Max Landing Gear Retraction Speed.....111
Maximum Demonstrated Crosswind Velocity:.....17

BEFORE STARTING ENGINE

1. Surrounding Area--CHECK FOR PERSONNEL AND HAZARDS; ENSURE CHOCKS & TOW BAR REMOVED. PULL AIRCRAFT OUT PAST TIE-DOWN AND ENOUGH TO AVOID EXCESSIVE PROPWASH ON OTHER AIRCRAFT
2. Preflight Inspection--COMPLETE

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ALTERNATOR FAILURE

(Ammeter Reads Zero, Alternator Annuciator Light On, or Voltmeter Reads Less than 13 – 14.5 Volts)

1. Landing Light or Pitot Heat--ON...Observe Ammeter...No Increase Implies Alternator Failure
2. Electrical Load--REDUCE
3. Avionics Master Switch--OFF
4. Alternator Circuit Breaker--CHECK IN
5. Alternator Switch--OFF (for 3 seconds)--ON
6. Low Voltage Light--CHECK OFF (and Voltage indicates over 13-14V)
7. Avionics Master Switch--ON

If Annunciator Light Remains ON, or Ammeter Reads Zero

8. Alternator—OFF
9. Non-essential Radio and Electrical Equipment--OFF
10. Flight--TERMINATE as soon as practical

NOTE:

If battery is fully discharged, the gear will have to be lowered using the EMERGENCY LANDING GEAR EXTENSION procedure

EMERGENCY LANDING GEAR EXTENSION

1. Master Switch—CHECK ON
2. Circuit Breakers—CHECK IN
3. Panel Lights--OFF (daytime, can mask gear indication lights)
4. Gear Indicator Bulbs—CHECK by switching bulbs to troubleshoot source of problem

IF GEAR DOES NOT CHECK DOWN AND LOCKED

5. Airspeed—BELOW 88 KIAS
6. Landing Gear Selector--DOWN

IF GEAR STILL FAILS TO LOCK DOWN

7. Emergency Gear Lever--EMERGENCY DOWN Position

IF MAIN GEAR STILL FAILS TO LOCK DOWN

8. YAW abruptly SIDE TO SIDE with rudder

IF THE NOSE GEAR WILL NOT LOCK DOWN

9. SLOW TO LOWEST SAFE AIRSPEED WITH FLAPS EXTENDED
10. Landing Gear Selector—CHECK DOWN
11. Pitch aircraft abruptly up & down – careful not to place aircraft in a stall condition

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NOTE

Perform a side slip to keep flames away from fuel tank and cabin, and land as soon as possible using flaps only as required on final approach.

ICING

INADVERTENT ICING ENCOUNTER

1. Pitot Heat--ON
2. Turn back 180° or change altitude to obtain an outside temperature that is less conducive to icing
3. Select cabin heat control and defrost control full on to obtain maximum windshield defroster airflow.
4. Open the throttle to increase engine speed and minimize ice build-up on propeller blades
5. Plan a landing at the nearest airport. With an extremely rapid ice build-up, select a suitable "off airport" landing site if necessary.
6. With an ice accumulation of 1/4 inch or more on the wing leading edges, be prepared for a significantly higher stall speed.
7. Leave wing flaps retracted. With a severe build-up on the horizontal tail, the change in wing wake airflow direction caused by wing flap extension could result in loss of elevator effectiveness.
8. Open pilot's side window and, if practical, scrape ice from a portion of the windshield for visibility in the landing approach
9. Perform approach using a forward slip if necessary for improved visibility
10. Approach at 90-100 KIAS depending upon the amount of ice accumulation
11. Perform a landing in a level attitude

STATIC SOURCE BLOCKAGE

(Erroneous Instrument Reading Suspected)

1. Alternate Static Source Valve--ON (Parallel to aircraft longitudinal axis)
2. Pilot's side window - OPEN

CAUTION: ALTIMETER AND AIRSPEED READINGS WILL NOT BE AS ACCURATE AS WITH THE NORMAL STATIC SOURCE

ELECTRICAL POWER SUPPLY SYSTEM MALFUNCTIONS

AMMETER SHOWS EXCESSIVE RATE OF CHARGE

1. Alternator--OFF
2. Alternator Circuit Breaker--CHECK
3. Nonessential Electrical Equipment--OFF
4. Flight--TERMINATE as soon as practical

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3. Seats--ADJUST AND LOCK
4. Seat Belts and Shoulder Harnesses--ADJUST and LOCK
5. Passengers--BRIEFED
6. Fuel Selector Valve--DESIRED TANK
7. Anti-Collision Lights – Recheck ON
8. Avionics Master Switches, Autopilot and Electrical Equipment--OFF
9. Prop Control--FULL INCREASE (forward)
10. Landing Gear Handle--DOWN
11. Brakes--TEST and SET, Parking Brake--ON
12. Circuit Breakers—RE-CHECK IN
13. Flaps--RETRACT

NORMAL START: STARTING ENGINE – COLD (Standard Engine Primer System Installed)

NOTE - IF AIRCRAFT HAS FLOWN RECENTLY AND ENGINE IS STILL WARM, GO TO HOT START PROCEDURE

1. Throttle--OPEN ½" to 1"
2. Prop Control—FULL FWD
3. Mixture—SET for Current PA & Temp (Approx 1/2 – 2/3 forward at APA)
4. Master Switch—ON (Both BATT & ALTERNATOR Switches)
5. Electric Fuel Pump--OFF
6. Primer Button—PRESS for 3-4 seconds & verify flow on Fuel Flow Gauge
7. Propeller Area--CLEAR
8. Ignition Switch--START
9. When Engine Fires—ADJUST Throttle to 900-1100 RPM

NOTE:

If temp is below 20° F: Use engine pre-heater per club policy, turn Electric Fuel Pump to LOW for 1-3 minutes before and during start, set mixture to FULL RICH, exercise Throttle to full and then back to 1" open, and tap Primer button as necessary during engine cranking.

9. Oil Pressure—CHECK, if no pressure in 30 sec, STOP ENGINE
10. Alternator Output & Gyro Vacuum --CHECK
11. Avionics Master Switch--ON
12. Radios --SET & CHECK OPERATION Before Movement
13. Clearance / Taxi Instructions—OBTAIN
14. Transponder – SET CODE & SQUAWK STBY
15. Electrical & NAV Equipment--ON & SET as required
16. Autopilot—TEST (If use is intended) and then OFF

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STARTING ENGINE – HOT
(Standard Engine Primer System Installed)

1. Throttle--OPEN 1/2”
2. Master Switch--ON
3. Electric Fuel Pump—OFF
4. Primer Button—PRESS for 6-8 seconds as necessary to suppress vapors
4. Mixture--RICH
5. Ignition Switch--START
6. When Engine Fires-- ADJUST Throttle to 900-1100 RPM
7. Mixture--SET for Current PA & Temp (Approx 1/2 – 2/3 forward at APA)
8. Oil Pressure--CHECK if no pressure in 30 sec, STOP ENGINE
9. Continue with Normal Starting Procedure

STARTING - FLOODED ENGINE
(Standard Engine Primer System Installed)

1. Throttle--OPEN FULL
2. Master Switch--ON
3. Electric Fuel Pump--OFF
4. Mixture Control--IDLE CUT-OFF
5. Ignition Switch--START
6. When Engine Fires—ADVANCE MIXTURE SLOWLY; PROMPTLY ADJUST THROTTLE to 900-1100 RPM
7. Oil Pressure--CHECK if no pressure in 30 sec, STOP ENGINE
8. Continue with Normal Starting Procedure

STARTING WITH EXTERNAL POWER

1. Master Switch & ALL Electrical Equipment--OFF
2. Connect POSITIVE (+) Lead of Piper External Power (PEP) Kit jumper cable to POSITIVE (+) Terminal of External 12 volt battery, and NEGATIVE (-) Lead to NEGATIVE (-) Terminal of battery
3. Insert plug of PEP jumper cable into socket on aircraft fuselage
4. Proceed with NORMAL Start Technique, THROTTLE at lowest setting
5. After engine has started, Remove External Power Jumper Plug
6. Master Switch—ON, Check Oil Pressure & and Voltmeter for Approx 14V

NOTE

DO NOT ATTEMPT FLIGHT IF THERE IS NO ALTERNATOR OUTPUT

7. Continue with Normal Starting Procedure

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ENGINE FIRE IN FLIGHT

1. Fuel Selector Valve--OFF
2. Throttle--CLOSE
3. Mixture--IDLE CUT-OFF
4. Heater--OFF (In all cases of fire)
5. Defroster--OFF (In all cases of fire)
6. If terrain permits--LAND IMMEDIATELY

ELECTRICAL FIRE IN FLIGHT (Smoke in Cabin)

1. Master Switch--OFF
2. Manual Vents--OPEN
3. Heat, Defrost, & Blower Motor--OFF
4. Fire Extinguisher—ACTIVATE

WARNING

After discharging an extinguisher in a closed cabin, ventilate the cabin

If fire appears out and electrical power is necessary for continued flight:

5. Master Switch--ON
6. Circuit Breakers--CHECK for faulty circuit, do not reset
7. Radio Switches--OFF
8. Avionics Power Switch--ON
9. Radios / Electrical Switches—ON one at a time, with delay after each until short circuit is located
10. Vents / Cabin Air / Pilot’s Window--OPEN when it is ascertained that fire is completely extinguished

CABIN FIRE

1. Master Switch--OFF
2. Vents / Cabin Air / Heat--CLOSED (to avoid drafts)
3. Fire Extinguisher--ACTIVATE (if available)

WARNING

After discharging an extinguisher in a closed cabin, ventilate the cabin

4. Land the airplane as soon as possible to inspect for damage

WING FIRE

1. Navigation Light Switch--OFF
2. Pitot Heat Switch (if installed) --OFF
3. Anti-Collision Light Switch (if installed) -- OFF

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DITCHING

1. Radio--TRANSMIT MAYDAY on 121.5 MHz , giving location and intentions and SQUAWK 7700
2. Heavy Objects --SECURE OR JETTISON
3. Landing Gear—UP
4. Approach--High Winds, Heavy Seas--INTO THE WIND
Light Winds, Heavy Swells--PARALLEL TO SWELLS
5. Wing Flaps--40° recommended
6. Power--ESTABLISH 300 FPM DESCENT AT 75 KIAS

NOTE
If no power is available, approach at 80 KIAS (flaps up)
or 75 KIAS with 10° flaps

7. Cabin Door--UNLATCH
8. Touchdown--LEVEL ATTITUDE AT ESTABLISHED RATE OF DESCENT
9. Face--CUSHION at touchdown with folded coat
10. Airplane--EVACUATE through cabin door. If necessary, open storm window and flood cabin to equalize pressure so door can be opened.
11. Life Vests and Raft—INFLATE

FIRE DURING START ON GROUND

If Engine Fails to Start:
1. Mixture--IDLE CUT-OFF
2. Throttle--OPEN
3. Starter—CONTINUE CRANKING (to pull fire into engine)
If fire continues to spread:
4. Engine—SECURE
    a. Master Switch--OFF
    b. Ignition Switch--OFF
    c. Mixture--IDLE CUT-OFF
    d. Fuel Selector Valve--OFF
5. Aircraft cabin - EVACUATE
6. Fire--EXTINGUISH using fire extinguisher, wool blanket or dirt
7. Fire Damage--INSPECT, repair damage or replace damaged components or wiring before conducting another flight
If Engine Starts:
8. Power—1800-2000 RPM for a few minutes
9. Engine--SHUT DOWN and inspect for damage

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TAXI CHECK

1. Taxi Area—CLEAR & REQUEST TAXI or announce intentions
2. For IFR Flight: GPS Database Currency & VOR 30-day accuracy – CHECK
3. Set Fuel Flow Indicator as necessary
4. Maintain 1000-1200 RPM for all ground operations and LEAN MIXTURE to optimum RPM during taxi.
5. Brakes--CHECK during initial movement
6. Nose Wheel Steering—CHECK
7. Magnetic Compass, Directional Gyro, Turn Coordinator—CHECK

AIRCRAFT RUN-UP CHECK

1. Parking Brake--SET
2. Seat Backs--ERECT
3. Seats, Seat Belts, Shoulder Harnesses--CHECK SECURE
4. Cabin Doors and Windows--CLOSED and LOCKED
5. Flight Controls--FREE and CORRECT
6. Flight Instruments / Altimeter--SET (Attitude Ind, Dir Gyro, Etc.)
7. Elevator and Rudder Trim--SET FOR TAKEOFF
8. Alternator Function—CHECK (Check VOLTS 14V ± 1.0V)
9. Fuel Quantity--CHECK
10. Fuel Selector Valve—SWITCH to test both tanks, then set desired tank
11. Mixture--SET, ***Full Rich below 5000 feet***
12. Propeller Control--FULL INCREASE (High RPM)
13. Electric Fuel Pump--OFF
14. Throttle—1800 - 2000 RPM
    a. Magnetos--CHECK (RPM drop should not exceed 150 RPM on either magneto or 50 RPM differential between magnetos)
    b. Oil Pressure & Temp—CHECK (Temp should be ≥ 100° F)
    c. Vacuum Gauge--CHECK (4.8" – 5.1" Hg)
    d. Propeller Control--CHECK (Cycle 3 times - not more than 300-400 RPM drop, Then Set to High RPM)
    e. Fuel Flow—CHECK
    f. Annunciator Panel—PRESS-TO-TEST
15. Throttle—IDLE CHECK, then ADJUST to 1,000 RPM, and re-lean mixture
16. Throttle Friction Lock—ADJUST
17. Flaps--EXERCISED AND SET
18. Autopilot – CHECK OFF
19. Navigation Lights and Strobes—CHECK ON as required
20. Transponder --SQUAWK ALTITUDE
21. Cabin Door--RE-CHECK Closed and LATCHED, Pump Seal as Desired
22. Landing Light—ON

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LINE-UP CHECK

1. Taxi into position – Check runway final approach for conflicting Traffic
2. Compass and Directional Gyro Heading—CHECK
3. Mixture—***FULL RICH***
4. Electric Fuel Pump—OFF, unless required to suppress vaporization
5. Brakes—RELEASE

TAKEOFF

NORMAL TAKEOFF

1. Wing Flaps--0°
2. Throttle—ADVANCE SMOOTHLY TOWARD 35-37" MP, DO NOT OVERBOOST ENGINE
3. Elevator Control--LIFT NOSE WHEEL (at 70-77 KIAS)
4. Climb Speed--79 KIAS (Gear Down); 97 KIAS (Gear Up)
5. Landing Gear--UP < 111 KIAS and after runway is no longer usable

SHORT FIELD TAKEOFF

1. Wing Flaps--25°
2. Brakes—HOLD
3. Throttle—SET ***to achieve 41" MP during T/O roll; do not allow overboost condition during the roll due to "ram-air"effect.***
4. Mixture—***FULL RICH for best power and engine cooling***
5. Brakes--RELEASE
6. Elevator Control--SLIGHTLY TAIL LOW, Rotate at 53-64 KIAS, Depending on aircraft weight
7. Initial Climb Speed-60-68 KIAS, depending on aircraft weight
8. Upon Positive Rate of Climb, Gear—UP, Accelerate to 79 KIAS (until all obstacles are cleared)
9. Accelerate to 97 KIAS, Slowly RETRACT FLAPS

SOFT FIELD TAKEOFF

1. Flaps--25°
2. Lift off at lowest possible airspeed, Accelerate to 60-68 KIAS
3. Landing Gear--UP at a safe altitude
4. After Clearing Obstacle—97 KIAS, Retract Flaps Slowly

ENROUTE CLIMB

1. Airspeed—105 – 110 KIAS, for best engine cooling and visibility

NOTE

If a maximum performance climb is necessary, use speeds shown in the Rate of Climb chart in Section 9

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DETERMINE IF GEAR UP OR GEAR DOWN LANDING IS REQUIRED:

GEAR DOWN LANDING

1. Gear--DOWN When Committed to Landing
2. Throttle--CLOSED
3. Master and Ignition Switches--OFF
4. Flaps--AS DESIRED
5. Fuel Selector Valve--OFF
6. Mixture--IDLE CUTOFF
7. Seat Belts--TIGHTEN
8. Door--UNLATCH PRIOR TO TOUCHDOWN
9. Touchdown--SLIGHTLY TAIL LOW, Lowest Possible Speed
10. Brakes--APPLY HEAVILY

GEAR UP LANDING

1. Gear Lever—UP
2. Flaps--AS DESIRED
3. Throttle--CLOSED
4. Master and Ignition Switches--OFF
5. Fuel Selector Valve--OFF
6. Mixture--IDLE CUTOFF
7. Seat Belts--TIGHTEN
8. Door--UNLATCH PRIOR TO TOUCHDOWN
9. Touchdown--LOWEST POSSIBLE AIRSPEED

PRECAUTIONARY LANDING WITH ENGINE POWER

1. Airspeed—97 KIAS
2. Wing Flaps 25°
3. Selected Field—FLY OVER
4. Radios and Electrical Switches--OFF
5. Landing Gear – DOWN when landing assured, VERIFY 3 GREEN
6. Wing Flaps--40° (on final approach)
7. Airspeed—75 KIAS
8. Master Switch--OFF
9. Doors--UNLATCH PRIOR TO TOUCHDOWN
10. Touchdown--SLIGHTLY TAIL LOW
11. Ignition Switch--OFF
12. Brakes--APPLY HEAVILY

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If continuing to roll off runway surface:
4. Mixture--IDLE CUTOFF
5. Ignition Switch--OFF
6. Master Switch--OFF

ENGINE FAILURE IMMEDIATELY AFTER TAKEOFF

IF SUFFICIENT RUNWAY REMAINS:
1. Landing Gear--DOWN
2. LAND STRAIGHT AHEAD

IF AREA AHEAD IS ROUGH OR OBSTACLES MUST BE CLEARED:
3. Landing Gear--UP

IF THERE IS SUFFICIENT ALTITUDE TO ATTEMPT A RESTART:
4. Maintain Safe Airspeed
5. Fuel Selector--SWITCH TO ANOTHER TANK WITH FUEL
6. Electric Fuel Pump—unlatch, HIGH
7. Mixture—RICH

ENGINE POWER LOSS IN FLIGHT

1. Airspeed—97 KIAS
2. Landing Gear--UP, Flaps--UP
3. Fuel Selector Valve--SWITCH to tank containing fuel
4. Electric Fuel Pump-- unlatch, HIGH
5. Mixture--RICH
6. Engine Gauges--CHECK to determine cause of power loss
7. If NO FUEL FLOW, check tank selector ON a tank with fuel

WHEN POWER IS RESTORED:

8. Electric Fuel Pump--OFF

IF THE ABOVE STEPS DO NOT RESTORE POWER: **PREPARE FOR AN EMERGENCY LANDING (SEE POWER OFF LANDING)**

IF TIME PERMITS

1. Radio--TRANSMIT "MAYDAY" CALL 121.5 MHz
2. Transponder--7700
3. Master Switch--ON
4. Ignition Switch--"L" then "R" then "BOTH"
5. Throttle and Mixture--TRY DIFFERENT SETTINGS
6. Fuel Selector--TRY A DIFFERENT TANK

FORCED LANDINGS

POWER OFF LANDING

1. Airspeed--TRIM FOR BEST GLIDE 97 KIAS (flaps UP)

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2. Throttle--Reduce to 33" Hg
3. Propeller—2,400-2,450 RPM
4. Electric Fuel Pump—LOW, if required for vaporization suppression
5. Mixture—***MAINTAIN FULL RICH DURING CLIMB.*** Do not exceed 1,650° F TIT on GEM603 Gauge

CRUISE

1. Power--SET (Approximately 75% is recommended, Set per Power Table)
2. Propeller RPM—SET 2,400 RPM Max
3. Elevator and Rudder Trim (if installed)—ADJUST
4. Autopilot—SET, if desired after aircraft is manually trimmed out
5. Mixture-- LEAN for smooth operation above 5000 feet, use EGT and set 75-100° rich of peak temperature
6. Electric Fuel Pump--LOW
7. Fuel Selector—SWITCH TO FULLEST TANK, AS DESIRED
8. Electric Fuel Pump--OFF, unless required at higher altitudes or temperatures
9. Engine Gauges--CHECK
10. Directional Gyro--CHECK / SET

DESCENT

1. Electric Fuel Pump--LOW
2. Fuel Selector Valve--DESIRED TANK
3. Mixture—Enrich gradually for higher power descents, or maintain more lean for low power descents to ensure smooth operation
4. Power--AS DESIRED, avoid shock cooling with idle descents (recommended to reduce 2" MP per minute of descent)
5. Propeller RPM--AS DESIRED

BEFORE LANDING (G.U.M.P.S.A.)

1. Seat Backs--ERECT
2. Seats, Seat Belts, Shoulder Harnesses—SECURE
3. **Electric Fuel Pump – LOW**
4. **Fuel Selector Valve--PROPER TANK**
5. **Electric Fuel Pump—OFF**, unless required to suppress vapors at high temps
6. **Mixture--SET**, Full Rich below 5000 feet
7. **Propeller**—SET full forward
8. **Landing Light--ON**
9. **Landing Gear—DOWN, VERIFY 3 GREEN** (133 KIAS max)
10. Wing Flaps--AS DESIRED below 108 KIAS
11. **Autopilot—OFF**

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LANDING

NORMAL LANDING

1. Wing Flaps--AS DESIRED below 108 KIAS
2. Airspeed—75 KIAS (flaps down)
3. Touchdown--MAIN WHEELS FIRST
4. Landing Roll-Out--LOWER NOSE WHEEL VERY SLOWLY
5. Braking--MINIMUM REQUIRED

SHORT FIELD LANDING

1. Wing Flaps--FULL DOWN (40°)
2. Airspeed—72-75 KIAS (until flare)
3. Propeller—FULL FWD
4. Power—REDUCE slowly toward idle after clearing obstacle
5. Touchdown--MAIN WHEELS FIRST, holding nose wheel off as long as possible to maximize aerodynamic braking
6. Brakes--APPLY FIRMLY
7. Wing Flaps—RETRACT

BALKED LANDING

1. Throttle—***ADVANCE TOWARD 41" MP, DO NOT OVERBOOST***
2. Wing Flaps--25° IMMEDIATELY
3. Climb Speed--65 KIAS
4. Wing Flaps--25° until obstacles are cleared. RETRACT after reaching a safe altitude

AFTER LANDING

1. Wing Flaps--UP
2. Electric Fuel Pump—VERIFY OFF
3. Transponder -- SQUAWK STBY
4. Landing Light--AS REQUIRED
5. Radio Call--TAXI INSTRUCTIONS
6. Mixture—LEAN for taxi
7. Unnecessary Electrical Equipment —OFF
8. Door Seal—RELEASE AIR PRESSURE

PARKING & SECURING AIRPLANE

1. Avionics Master Switch--OFF
2. Pitot Heat & Lights--OFF
3. Throttle—SET to 1,700 RPM, lean to Max RPM for 15 secs, then set to Idle
4. Mixture--IDLE CUT-OFF

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5. Ignition Switch—Momentarily to START position (to clear any carbon fouling), then OFF. REMOVE KEYS and PLACE in Checkout Binder
6. Master Switch—OFF (Both)
7. Parking Brake—SET as required
8. Fuel Selector –**SET to RIGHT OR LEFT**
9. Hobbs time, Tach, and Squawks--RECORD
10. Control Wheel Lock (Yoke/rudder lock)—***INSTALL SECURELY***
11. Clean Cabin, Store Belts, Lock doors, & Replace Covers --CHECK
12. Chock Airplane--CHECK
13. Tie down Tail, then secure Wing tie-downs--CHECK
14. Log Aircraft back in—CHECK. Note Squawks, fuel, oil, flight time.
15. Keys—TURN IN, Order Fuel Refill as required

EMERGENCY PROCEDURES

AIRSPEEDS FOR EMERGENCY OPERATION

Engine Failure After Takeoff: KIAS
Wing Flaps Up.....80
Wing Flaps Down.....75
Maneuvering Speed:
At 2900 Lbs.....124
At 1891 Lbs……97
Maximum Glide (Flaps UP, Gear UP): At 2900 Lbs..……97
Precautionary Landing With Engine Power.....75
Landing Without Engine Power:
Wing Flaps Up.....80
Wing Flaps Down.....75
Emergency Gear Extension.....88
Stall Speed (Clean Configuration)…….66
Stall Speed (Landing Configuration)…….61

EMERGENCY OPERATIONS CHECKLISTS

ENGINE FAILURES

ENGINE FAILURE DURING TAKEOFF RUN

1. Throttle--IDLE
2. Brakes--APPLY HEAVILY
3. Wing Flaps--RETRACT