

**Cessna 172**

**N7321T**

**CHECKLIST**

**SPEEDS (MPH)**

Vso. \_\_\_

Vs. \_\_\_

Vr \_\_\_

Vx \_\_\_

Vy. \_\_\_

Vfe… \_\_\_

Vno. \_\_\_

Vne. \_\_\_

Va (2450 lbs). \_\_\_

Va (2200 lbs). \_\_\_

Va (1950 lbs). \_\_\_

Best Glide. \_\_\_

Max. Demon. X-Wind. \_\_\_

Approach (Flaps DN). \_\_\_

Enroute Climb. \_\_\_

# PREFLIGHT

Weather CHECK

Weight & Balance. COMPLETE

Documents (AROW) CHECK

Inspection/AD status. CHECK

Fire Extinguisher CHARGED

Hobbs/Tach CHECK

Electrical/Radios… OFF

Ignition OFF

Master ON

Fuel Quantity. CHECK

Turn Coordinator AUDIBLE

Flaps… EXTEND

Lights. ON/INSPECT

Master OFF

**Right Wing**

# EXTERIOR INSPECTION

Flaps & Aileron CHECK

Leading Edge. CHECK

Tie Down REMOVE

Fuel Quantity… CHECK

Fuel Tank Vent CHECK

Fuel Sump CHECK

Strut/Tire/Brake… CHECK

#### Nose

Windshield/Cowling. CHECK Oil Quantity (6-8 qt)… CHECK

Prop/Spinner CHECK

Air Inlet CHECK

Alternator Belt CHECK

Nose Strut/Tire… CHECK

Cowling… CHECK

Fuel Sump CHECK

#### Left Wing

Strut/Tire/Brake. CHECK

Fuel Sump CHECK Fuel Quantity… CHECK

Tie Down REMOVE

Pitot Tube… CHECK

Static Source… CHECK

Fuel Tank Vent CHECK

Stall Warning Vane… CHECK

Flap & Aileron CHECK

#### Aft Fuselage & Empennage

Fuselage CHECK Antennas… CHECK

Horizontal Stabilizer. CHECK

Vertical Stabilizer… CHECK

Tie Down REMOVE

Baggage Door SECURE

### PRE-ENGINE START

Preflight Inspection COMPLETE

Passenger Briefing. COMPLETE

Seats and Belts. SECURE

### ENGINE START

Parking Brake. SET

Circuit Breakers. CHECK IN

Avionics Master OFF

Electrical Equipment. OFF

Fuel Selector FULLEST TANK

Carburetor Heat COLD

Prime. 2 TIMES (3 or 4 TIMES IF COLD)

Throttle. OPEN 1/4 INCH

Master ON

Beacon ON

Fuel Pump ON (3-4 SEC)

Mixture… RICH

Magnitos… BOTH

Propeller Area… CLEAR

Ignition ENGAGE

Throttle… 1000 RPM Oil

Pressure CHECK

### \*STOP ENGINE IF NO PRESSURE IN 30 SEC\*

Mixture… LEAN for taxi Fuel

Pump VERIFY OFF

Fuel Pressure VERIFY

Ammeter CHECK

### HOT START

Throttle. OPEN ½ INCH

Master ON

Avionics Master OFF

Electrical Equipment. OFF

Fuel Pump ON (3-4 SEC)

Mixture. RICH

Magnitos… BOTH

Ignition ENGAGE

Throttle… 1000 RPM

Oil Pressure… Check

### \*STOP ENGINE IF NO PRESSURE IN 30 SEC\* FLOODED START

Throttle. FULL OPEN

Master ON

Avionics Master OFF

Electrical Equipment. OFF

Fuel Pump OFF

Mixture. IDLE CUTOFF

Starter ENGAGE

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

Throttle… 1000 RPM Oil Pressure… Check

### \*STOP ENGINE IF NO PRESSURE IN 30 SEC\*

**TAXI**

Avionics Master ON

Radios/Avionics. SET

ATIS/AWOS… OBTAIN

Transponder STBY

Flaps. RETRACT

Taxi Clearance… OBTAIN(If req.)

Parking Brake. RELEASE

Brakes. TEST

Instruments. CHECK

### RUNUP

Parking Brake. SET

Seats/Belts. SECURE

Doors/Windows SECURE

Controls. FREE & CORRECT

Trim… SET

Fuel Quantity. CHECK

Mixture. RICH

Fuel Selector FULLEST TANK

Throttle..................................... .(MAX RPM, LEAN) 2000 RPM

Oil Pressure/Temp CHECK

Mixture. SET for Altitude

Magnetos. CHECK

Propeller……………………………………………………………………..EXERCISE

Fuel Pump ON (3-4 SEC) Suction 5” hg +/- 1” hg

Ammeter CHECK

Carb Heat ON (Verify Drop in RMP)

Throttle. IDLE

Carb Heat COLD

Radios and Avionics. SET

Flight Instruments. CHECK and SET

Brakes. RELEASE

### PRE-TAKEOFF

Emerg. Procedures… REVIEW

Fuel Selector…………………………………………………………………….BOTH

Flaps (as required). SET

Transponder ALT

Lights. AS REQUIRED

Doors/Windows SECURED

Seatbelts… FASTEN

### NORMAL TAKEOFF

Carb Heat COLD

Throttle. Full OPEN

Propeller……………………………………………………………………HIGH RPM

Mixture… RICH (or set for Altitude)

Engine Instruments. CHECK

Rotate. ..60-65 MPH

Climb 80 MPH

Flaps… VERIFY UP

Propeller……………………………………………..25” Hg (at safe altitude)

### SHORT-FIELD TAKEOFF

Flaps. 25°

Carburetor Heat OFF

Brakes. APPLY

Mixture… RICH (or set for altitude)

Throttle. Full OPEN

Propeller…………………………………………………………………..HIGH RPM

Engine Instruments. CHECK

Brakes. RELEASE

Rotate. ..55-60 MPH

Climb 74 MPH

***Until clear of obstacle***

Climb 80 MPH Flaps. RETRACT (Slowly)

Propeller……………………………………………..25” Hg (at safe altitude)

### SOFT FIELD TAKEOFF

(OBSTACLE CLEARANCE)

Flaps. 25°

Carburetor Heat OFF

Mixture… RICH (or set for altitude)

Elevator Full AFT

Throttle. Slowly Full OPEN

Propeller…………………………………………………………………..HIGH RPM

Liftoff Slowest Possible Airspeed

***Accelerate while in ground effect***

Climb 74 MPH ***Until clear of obstacle*** Climb 85 MPH

Flaps. RETRACT

 Propeller……………………………………………..25” Hg (at safe altitude)

### CRUISE CLIMB

Throttle FULL

Prop……………………………………………………………………………….25” Hg

Climb 100 MPH

Mixture. LEAN

Fuel Pressure VERIFY

Engine Gauges. CHECK

Landing Light OFF

Trim. SET

Heading Indicator SET

### CRUISE

Throttle. SET(75% OR LESS)

Mixture. LEAN

Fuel Selector DESIRED TANK

Fuel Pressure VERIFY

Engine Gauges. CHECK

Landing Light OFF

Trim. SET

Heading Indicator SET

### DESCENT

Power AS DESIRED

Carburetor Heat AS REQD.

Mixture. ADJUST

Altimeter SET

Fuel Selector FULLEST TANK

### AT PATTERN ALTITUDE

Power 2500 RPM

Manifold …………18”

Airspeed 80 MPH

### BEFORE LANDING

*“GUMPSS”*

Fuel Selector ……………BOTH

Undercarriage… GEAR DOWN

Mixture… RICH

Power SET (As desired)

Carb Heat ON

Landing Light ON

Seat Backs. UPRIGHT

Seats/Belts. SECURE

### DOWNWIND

Power 2500 RPM

Manifold …………18”

Airspeed 80 MPH

Trim… SET

### ABEAM LANDING POINT

Throttle ……………REDUCE

Propeller ………..HIGH RPM

Flaps… 10º

Airspeed MAINTAIN 80 MPH

Decent BEGIN (80 MPH)

#### 45º FROM LANDING POINT

Turn Base… Max 30º bank

Power ADJUST AS NEEDED

### BASE

Airspeed 70 MPH

Flaps… 25º

Power ADJUST AS NEEDED

Final Approach CHECK FOR TRAFFIC

### FINAL NORMAL LANDING

Airspeed 70 MPH

**\*\* IN GUSTY CONDITIONS INCREASE APPOACH BY ½ GUST FACTOR\*\***

Flaps… 25º

Power ADJUST AS NEEDED

### SHORT FIELD LANDING

Airspeed 65 MPH

FLAPS 40º

Power ADJUST AS NEEDED

SHORT FINAL AIRSPEED 60 MPH

At Flare… POWER TO IDLE

Touchdown +200ft -0ft of aiming point

Brakes… APPLY HEAVILY

***\*\*\*\*AVOID LOCKING BRAKES\*\*\*\****

Yoke… FULL AFT

### SOFT FIELD LANDING

Airspeed 70 MPH

FLAPS… 40º

Power REDUCE FOR FLARE

Power add 100-200 just prior to touchdown

Touchdown HOLD NOSE OFF AND POWER TO IDLE

Brakes… MINIMAL

Taxi… HOLD BACK PRESSURE, KEEP MOVING

### AFTER LANDING

***CLEAR OF RUNWAY***

Flaps… RETRACT

Carb Heat COLD

Lights… MINIMAL

Mixture… LEAN For Taxi (if needed)

Transponder STBY

### ENGINE SHUTDOWN

*\*\*\*To prevent Shock Cooling, It may be necessary to run the engine at 1200 RPM for approximately 1 min.\*\*\**

Avionics Master Switch OFF

Throttle IDLE

Magnetos OFF then BACK TO BOTH (check grounding)

Throttle …1200-1400 RPM

Mixture… IDLE CUTOFF

*After Engine Stops*

Magneto Switch OFF

Master Switch OFF

Airplane… SECURE

## EMERGENCY PROCEDURES

**ENGINE FAILURE DURING TAKEOFF ROLL**

Throttle… IDLE

Brakes… APPLY

Flaps… RETRACT

Mixture… IDLE CUTOFF

Ignition OFF

Master OFF

**ENGINE FAILURE AFTER TAKEOFF (RESTART)**

Airspeed 80 MPH Fuel Selector OPPOSITE TANK

Mixture… FULL RICH

Carburetor Heat ON

Fuel Pump… ON

**ENGINE FAILURE DURING FLIGHT (RESTART)**

Airspeed 80 MPH

Landing Site LOCATE

Fuel Selector ………………..BOTH

Fuel Pump… ON

Carburetor Heat ON

Mixture… FULL RICH

Ignition L,R, BOTH

Primer… IN and LOCKED

Engine Gauges CHECK

Throttle/Mixture VARIOUS settings

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

Carburetor Heat OFF

Fuel Pump. OFF

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

***DECLARE EMERGENCY ON 121.5 OR LAST FREQUENCY (TALKING TO ATC)***

## EMERGENCY PROCEDURES

**EMERGENCY LANDING WITHOUT POWER**

Seat Backs UPRIGHT

Seats/Belts SECURE

Airspeed 80 MPH

Mixture… IDLE CUTOFF

Ignition OFF

Fuel Selector OFF

Master OFF

Flaps… AS REQUIRED

Doors… UNLATCH

Touchdown… TAIL LOW

**SPIN RECOVERY**

Throttle. IDLE Ailerons. NEUTRALIZE

Rudder FULL OPPOSITE DIRECTION OF SPIN

Yoke BRISK FORWARD

Controls. HOLD UNTIL ROTATION STOPS

Recover. AS ROTATION STOPS

**ENGINE FIRE IN FLIGHT**

Fuel Selector OFF

Throttle. CLOSED

Mixture. IDLE CUTOFF

Ignition OFF

Fuel Pump. OFF

Heater/Defroster/Air OFF

Airspeed INCREASE

Power OFF landing EXECUTE

## EMERGENCY PROCEDURES

**FIRE DURING ENGINE START**

Cranking CONTINUE

**\*IF ENGINE STARTS\***

Throttle. 1800 RPM Mixture… IDLE CUTOFF

Fuel Pump. OFF

Fuel Selector OFF

Master OFF

Ignition OFF

**SHUTDOWN AND INSPECT**

**\*IF ENGINE FAILS TO START\***

Cranking. CONTINUE Fire Extinguisher OBTAIN

Master OFF

Ignition OFF

**ABANDON IF FIRE CONTINUES**

**ELECTRICAL FIRE**

Master OFF

Vents. OPEN

Heat/Cabin Air OFF

Fire Extinguisher ACTIVATE

*If fire is out and electrical is necessary for flight*

Master ON Circuit Breakers… CHECK

\*\*\*DO NOT RESET\*\*\* Radios… OFF

Radios… ON, one at a time

## EMERGENCY PROCEDURES

**EXCESSIVE LOAD ON ALTERNATOR GAUGE**

Alternator ON

Battery Switch. OFF

Non-Essential Equip. OFF

**\*IF LOADS ARE NOT REDUCED\***

Alternator OFF Battery Switch. AS REQD.

***Terminate flight as soon as practical***

**ALTERNATOR FAILURE**

Electrical Equipment OFF

Alternator Switch… OFF

Circuit Breakers… CHECK/RESET

Alternator Switch. ON

Alternator Gauge. CHECK

Electrical Equipment ON

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

Alternator OFF Non-Essential Equip… OFF

Flight… TERMINATE

# Before Maneuver Check

Seat belts… Fasten

Fuel Pump ON

Fuel selector valve Fullest tank

Mixture Rich (or For Altitude)

Carburetor heat Off

Ignition switch Verify Both

Master switch Verify On

Primer Locked

Landing Light ON

\*\*\*\*If multiple, prolonged maneuvers are being performed, mixture may be leaned to prevent spark plug fouling and provide best power at higher altitudes\*\*\*\*

#### Clearing turns

Complete 90 degrees turn to the left, and 90 degrees turn to the right. Depend on the airspace and terrain, right turn may be the first. Watch the blind spot on the left, right, behind and below checking for traffic and terrain hazards. Bank should be 15 to 20 degrees.

### \*\*MUST BE PERFORMED PRIOR TO EVERY MANEUVER\*\*

#### Slow Flight

**Entry**

1. Throttle-1500 RPM, maintain altitude.
2. Airspeed- 85mph-Flap 10

-80mph-Flap 25

- 75mph-Flap 40

1. Airspeed -55mph-2000 RPM

#### Climb

Apply full power. Adjust pitch to maintain the airspeed. Add right rudder to maintain the heading. For level off, reduce power necessary to maintain the altitude. Adjust pitch to maintain the airspeed.

#### Descent

Reduce power as necessary. Adjust pitch to maintain the airspeed. Reduce right rudder to maintain the heading.

For level off, add power necessary to maintain the altitude. Adjust pitch to maintain the airspeed. Add right rudder to compensate the left turning tendency.

#### Turn

Use 10 degrees bank. For the right turn, you need to use more right rudder because of the left turning tendency.

On the other hand, the left turn does not require much left rudder. Just reduce right rudder a little bit.

#### Recovery

1. Throttle-Full, maintain the altitude.
2. Carburetor heat-Off, Flap-25
3. Airspeed 75mph-Flap 10
4. Airspeed 85mph-Flap Up
5. Airspeed 90-100mpph-Throttle Cruise Return to cruise flight.

-Use trim

#### Power Off Stall

**Entry**

1. Throttle-1500 RPM

*Maintain altitude*

1. Airspeed-85mph-Flap 10

-80mph-Flap 25

-75mph-Flap 40

1. Start descend at 75mph
2. Throttle-Idle Increase back pressure to keep altitude to reach stall.

*If you do this too gentle, it will not stall because the airflow over the elevator is too slow to create enough tail down force to cause stall*.

#### Recovery

1. Release back pressure.

You don’t need to push nose down too steep.

1. Throttle-Full, Maintain level flight attitude.

*Don’t look inside the cockpit. Your right hand is already on the throttle. Just move it forward. Look horizon and cowling. Adjust control pressure to establish level flight attitude.*

1. Flap-25

*After retract the flap to 25, return your right hand on the throttle. Wait for the airspeed to increase as you maintain level flight attitude.*

1. Airspeed 74mph (Vx), Climb attitude

*Look at horizon and the cowling to establish normal climb attitude. And wait*.

1. Positive climb-Flap 10

*Avoid pitch change caused by flap retraction.*

1. Airspeed 85mph (Vy)-Flap Up
2. Level off, Airspeed 90-100 mph-Throttle Cruise

#### Power On Stall

**Entry**

1. Throttle-1500 RPM

Maintain altitude

1. Airspeed 70mph-Throttle Full, Climb attitude (slightly higher than normal climb attitude)

*No need to pull nose up very high. If the nose is too high, it will drop a lot and lose excessive altitude*

*after stall. To avoid this, maintain the pitch slightly higher than normal climb attitude at which airspeed*

*is decreasing gradually(about 15 degrees up). Add back pressure to keep this pitch attitude constant*

*as airspeed decrease. Look at the horizon on the both side of the cowling to judge your attitude.*

*Also, add right rudder as airspeed goes down to keep coordinate.*

#### Recovery

1. Release back pressure
2. Maintain level flight attitude.

*Release back pressure gently to return to the level pitch. Wait for the airspeed to increase.*

1. Airspeed 74mph(Vx), Climb attitude
2. Positive climb-Airspeed 85mph(Vy)-Level off.

*Since the power on stall is the simulation of the departure stall, the altitude you begin this maneuver is the airport elevation. During recovery, you shouldn’t go below the original altitude. If you do so, that means you crash on the ground. You should finish this maneuver at higher altitude than you begin.*

1. Airspeed 90-100mph-Throttle Cruise

#### Power On Stall (Turning)

**Entry**

1. Throttle-1500 RPM

Maintain altitude

1. Airspeed 70mph-Throttle Full, Carb heat-Off, Climb attitude with 20 degrees bank into desired

direction(slightly higher than normal climb attitude)

#### Recovery

1. Maintain level flight attitude
2. Airspeed 74mphVx), Climb attitude
3. Positive climb
4. Airspeed 85mph(Vy)-Level off
5. Airspeed 90-100mph-Throttle Cruise

#### Accelerated Stall (Commercial pilot)

**Entry**

1. Throttle-1,500 RPM

*Maintain altitude*

1. 45 degrees bank coordinated turn
2. Increase back pressure to reach stall

#### Recovery at Buffet

1. Release back pressure
2. Increase power to cruise
3. Bank-Zero.
4. Return to level flight

#### Secondly Stall (demonstrated-CFI only)

**Entry**

1. Throttle-1500RPM

*Maintain altitude*

Airspeed -85kt-Flap 10

-75kt-Flap 25

-65kt-Flap 40

1. Start descend at 65kt
2. Throttle-idle. Increase back pressure to keep altitude to reach stall.
3. Stall indication, release back pressure.
4. Increase back pressure abruptly.

#### Recovery

1. Release back pressure.

*You don’t need to push nose down too steep.*

1. Throttle-Full, Maintain level flight attitude.

*Don’t look inside the cockpit. Your right hand is already on the throttle. Just move it forward. Look horizon and cowling. Adjust control pressure to establish level flight attitude.*

1. Flap-25

*After retract the flap to 25, return your right hand on the throttle.*

*Wait for the airspeed to increase as you maintain level flight attitude.*

1. Airspeed 66kt (Vx), Climb attitude

*Look at horizon and the cowling to establish normal climb attitude. And wait*.

1. Positive climb-Landing gear-Up, Flap 10

*Avoid pitch change caused by flap retraction.*

1. Airspeed 75kt (Vy)-Flap Up
2. Level off, Airspeed 80kt-Throttle- Cruise,

#### Elevator Trim Stall (demonstrated-CFI only)

**Entry**

1. Throttle-1500RPM

*Maintain altitude*

Airspeed

\*85kt-Flap 10

\*75kt-Flap 25

\*65kt-Flap 40

1. Start descend at 65kt
2. Set trim for pitch up
3. Throttle-Full, simulating go-around.

#### Recovery

1. Apply forward pressure for level pitch attitude.

*You don’t need to push nose down too steep.*

1. Flap-25

*After retract the flap to 25, return your right hand on the throttle. Wait for the airspeed to increase as you maintain level flight attitude.*

1. Airspeed 66kt (Vx), Climb attitude

*Look at horizon and the cowling to establish normal climb attitude. And wait.*

1. Positive climb-Landing gear-Up, Flap 10

*Avoid pitch change caused by flap retraction.*

1. Airspeed 75kt (Vy)-Flap Up
2. Level off, Airspeed 80kt-Throttle- Cruise

#### Crossed Control Stall (demonstrated- CFI only)

**Entry**

1. Throttle-Idle

Maintain altitude

1. Start descend at 70kt
2. Enter turn
* Increase rudder input in the direction of turn.
* Use opposite aileron to decrease bank.
* Increase back pressure to keep altitude to reach stall.

#### Recovery

1. Release back pressure.

You don’t need to push nose down too steep.

1. Throttle-Full, Maintain level flight attitude.

Don’t look inside the cockpit. Your right hand is already

on the throttle. Just move it forward. Look horizon and cowling. Adjust control pressure to establish level flight attitude.

1. Carb heat-Off
2. Airspeed 66kt (Vx), Climb attitude

Look at horizon and the cowling to establish normal climb attitude. And wait.

1. Positive climb
2. Climb at 75kt (Vy)
3. Level off, Airspeed 80kt, Throttle-Cruise,

#### Steep Turn

1. Set up
	* Thottle-2200RPM”
	* Airspeed-90-95mph
2. Enter turn with aileron and rudder.
3. When the bank>30
	* Apply back pressure to keep altitude,
	* Add power to keep airspeed
4. When the bank=45(Private)/50(Commercial), counter aileron to keep bank constant
5. 20 degree before target heading,
	* Start roll out with aileron and rudder
	* Release back pressure
	* Return to level flight attitude
	* Thottle-2200RPM”
6. For Commercial, reverse the course to the other direction immediately.



#### Airport Communications

|  |  |
| --- | --- |
| CTAF/UNICOM: | 122.8 |
| WX AWOS-3: | 118.05 (806-258-7283) |
| AMARILLO APPROACH: | 119.5 |
| ALBUQUERQUE ARTCC APPROACH: | 121.15 |
| AMARILLO DEPARTURE: | 119.5 |
| ALBUQUERQUE ARTCC DEPARTURE: | 121.15 |

APCH/DEP SERVICE PROVIDED BY ALBUQUERQUE ARTCC ON FREQS 127.85/285.475 (AMARILLO RCAG) WHEN AMARILLO APCH CTL CLOSED.

**Nearby radio navigation aids**

|  |  |  |  |
| --- | --- | --- | --- |
| **VOR radial/distance** | **VOR name** | **Freq** | **Var** |
| [TXO](https://www.airnav.com/cgi-bin/navaid-info?id=TXO&type=VORTAC&name=TEXICO) r038/33.5 | TEXICO VORTAC | 112.20 | 11E |
| [PNH](https://www.airnav.com/cgi-bin/navaid-info?id=PNH&type=VORTAC&name=PANHANDLE) r226/38.1 | PANHANDLE VORTAC | 116.60 | 08E |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **NDB name** | **Hdg/Dist** | **Freq** | **Var** | **ID** |  |
| [HEREFORD](https://www.airnav.com/cgi-bin/navaid-info?type=NDB&id=HRX&name=HEREFORD) | at field | 341 | 09E | HRX | .... .-. -..- |

### GROUND REFERENCE MANUVERS

1. Set up
	* Thottle-2200RPM”
	* Airspeed-90-95mph
2. Altitude 600-1000ft agl (800ft is optimal)
3. Emergency Landing Site-Selected
4. Enter maneuver on Downwind (45 to downwind on Rectangular Course)
5. Maintain Airspeed +-10mph, +-100ft
6. Exit on Downwind