**Takeoff**

Normal Takeoff

Follow the below procedure to perform a normal takeoff:

**Be sure takeoff area is clear and check final approach for inbound aircraft**

**Release brakes and line up for takeoff**

**Advance throttle smoothly and steadily to Takeoff Power (61 in.Hg MP at 3000 RPM)**

**Do not attempt to lift the tail too soon**, as this increases torque action. Pushing the stick forward unlocks the tail wheel, thereby making steering difficult. The best takeoff procedure is to **hold the tail down until sufficient speed for rudder control is attained** and then to **raise the tail slowly**. Slight rudder input may be necessary to control P-factor effects as the tail is lifted and stabilized for a takeoff attitude.

**Note, it is recommended that 61 in.Hg and 3000 RPM be used for all takeoffs and that this power setting be reached as quickly as possible** after the takeoff run is started. However, advance the throttle smoothly and never jam it forward, as torque effects appearing from a sudden onset of power will cause a loss of control of the aircraft.

**When a formation takeoff is performed, a lower power setting of about 55 in.Hg** may be used to allow the wingmen room for increased power over the leader in order to maintain their position.

**If rough engine occurs during the takeoff run, immediately throttle back 4 or 5 in.Hg manifold pressure to complete takeoff if conditions permit**. Throttling back tends to decrease the intensity of detonation or preignition and minimizes the chances of engine failure. If this condition occurs on takeoff, the spark plugs must be changed before the next flight.

**Avoid sudden bursts of power during takeoff! Make it smooth and steady**.

**Minimum-Run Takeoff**

To accomplish a minimum-run takeoff, **lower flaps 15 - 20°**. Keep the aircraft in a three-point attitude and allow it to fly itself off the ground in this position. As soon as airborne, allow airspeed to build up and **climb out when speed exceeds 100 mph**. **Retract landing gear when airspeed reaches a safe value. Raise flaps above 200 feet altitude**.

**Crosswind Takeoff**

The following procedure is recommended for a crosswind takeoff:

**Advance throttle to Takeoff Power (61 in.Hg at 3000 RPM)**

**Hold the tail down until** sufficient speed is attained to ensure positive rudder control. **Speed should be slightly greater than for normal takeoff**.

Apply sufficient aileron control to keep wings level or even to effect a slightly wing-low attitude into the wind.

Keep the aircraft firmly on the runway until speed is sufficient to make a smooth, clean break.

**After becoming airborne, crab**(to head partly into the wind to compensate for drift) into the wind  **enough to counteract drift**.

**After Takeoff**

Perform the following steps once a safe takeoff is accomplished:

**Raise the landing** gear by pulling the landing gear lever inward and up. Be sure the lever catches in the up position. **In a minimum-run takeoff, raise the flaps when altitude is at least 200 feet**, a sufficient airspeed has been attained and all obstacles have been cleared.

**Check coolant and oil temperatures, and oil pressure**.

**Do not apply brakes after takeoff to stop rotation of the wheels**, as brake disks may seize.

**After reaching an altitude of 500 feet, throttle back to 46” of manifold at 2700 RPM**.

**Re-trim the aircraft** for climbing attitude as necessary.

**Check all of your instruments** for proper function within normal parameters. In doing so, be sure to **check the ammeter** indicator showing proper charging form the generator. **Immediately after takeoff**, **the rate of charge should not exceed 100 amps**, **dropping back to the normal 50 amps or less after 5 minutes of operation**. If the charge does not reduce, turn the generator disconnect switch to OFF and return to the airfield. Also **check the hydraulic pressure to read approximately 1000 PSI** **after the landing gear has been retracted**.

**Optimum climb to altitude speed is approximately 170 mph**.