



Darling Downs Soaring Club

Pawnee Flying Notes



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Flying the Pawnee 235

Since the Pawnee is a single seat aircraft it is essential that the pilot has sufficient time on type to feel comfortable before commencing towing operations.

Because of the high seating position and unusual aspect from the cockpit (the fuselage/nose line is lower and falls away) it takes a little practice to get to know the correct take-off and landing attitude.

During take off and level flight the aircraft appears to have a slight nose down attitude compared with most other taildraggers.

The take-off is achieved without significant raising of the tail and a good three-point landing is best achieved by trying to land on the main wheels only in a level attitude.

Daily inspection

Start with the cockpit. Check controls, trim, loose articles and anything that might have fallen into the fuselage. Switches off, check around the brakes and in forward fuselage.

Usual routine for the airframe, the tailplane stays must be tight,(check elevator and rudder end clearances) check the release. Check the fasteners and screws around the airframe, they tend to vibrate loose, (two shots of grease to tailwheel pivot & axel)

Clean the windscreen every day prior to commencing towing, there is a can of Mr Sheen in the refuelling shed. (twice a day if necessary)

Check the fuel. You must always start with a full tank, as the gauge is not accurate and the tank cannot be dipped. The fuel capacity of SWR is 128 litres and the fuel is always left on. The fuel selector is an emergency fuel shut off valve controlled by a T handle located on the right hand side of the cockpit.

The club fuel policy is to run to a maximum of **170 Tacho units** between re-fuelling after starting with a full tank, this equates to about 1 hour 45 minutes flying and about 50 minutes reserve.

Airmanship dictates that we verify our fuel use by other means:

- Use of the fuel gauge
- Monitor the number of tows. About 12 tows means you will be getting close to needing fuel. (this depends on the type of tow and height etc)

IF IN ANY DOUBT, REFUEL

It is club policy to refuel to a full tank prior to putting the tug away at the completion of the days flying, this also prevents condensation forming in a tank with less than full contents and leaving water in the fuel. There is one fuel drain only, located on the lower firewall.

Oil is checked and topped up through a separate hatch on top of the cowling, though the capacity is 12 quarts maintain the oil quantity at 9 quarts for normal operations.

Speeds and Limitations

| | |
|------------------------------|-------------------------------|
| Max rough air or manoeuvring | 108 knots |
| Flap limiting | 92 knots |
| Vne | 135 knots |
| Descent | 90-100 knots |
| Best rate of climb | 72 knots |
| Best angle of climb | 64 knots |
| Towing climb (minimum) | 65 knots |
| Glide | 65 knots |
| Approach | 65 knots |
| Stall | 50 knots |
| MTOW | 1315 kgs |
| Empty weight | 674 kgs |
| Fuel | 128 Litres/92kgs |
| Oil | 12 Quarts max. 9 Quarts norm. |
| Max Cross wind | 15 knots |
| Cruise (75%) | 90 knots @ 54 litres per hour |

Starting

Priming is not required, and only a couple of pumps on the throttle is usually adequate (1-3 on first start, dependent on ambient temperature, then 0-1 thereafter). Start on the left magneto only, with the throttle closed). After start, switch on both. As soon as the engine responds to the throttle and has satisfactory oil pressure the aircraft can be taxied and the runup can be done.

Runup at 1800 RPM and check the magnetos - ensure a drop of less than about 125RPM and recovery. The difference between magnetos should be within 50RPM. Applying carb heat should cause a drop of between 100 to 200 RPM with a full recovery as you go back to cold air.

Lycoming recommends that take off is OK as soon as the engine will respond to throttle movement regardless of cylinder head and oil temperatures. In practice this means that when the aircraft has been taxied out and the runup done it is ready for take off.

Take off

Ensure the trim is set as there are considerable loads on the stick if the trim is not set correctly. (Trim is set on a mark just after of centre trim).

Take **at least 2 seconds** to open the throttle. The crankshaft has self-adjusting counter weights that require slow and steady throttle movements, and some forward stick is used to lift the tail off the ground but not to excess.

Flaps are drag devices only and are not to be used for take off.

Climb

Climbs are **always at full power**, as the engine has a full power mixture enrichment jet that provides an over rich mixture to help with engine cooling. This is achieved in the last 10% of throttle movement.

(Minimum) Climb speed is 65knots (with 70 knots best for cooling) for gliders with water or heavy (e.g. Nimbus 4) (75 to 80 Knots may be required).

Max CHT is 260°C but in normal operations it does not go much above 200°C.(low towing speeds on hot days will easily exceed this temp)

Descent

After glider release:

- Close the cowl flap.
- Slowly reduce power (over at least 10 seconds) to 2000RPM and increase speed to 90-100 knots.

Landing

On base leg reduce power to approximately 1800RPM and allow speed to decay to below 92 knots and lower flaps.

Approach speed in still air is 60-65 knots,(during rough thermic conditions and strong winds, a 5 to 10 kt higher approach speed may be used) and a good three-point landing is best achieved by trying to land on the main wheels only in a level attitude. The aircraft is very forgiving for a taildragger and directional control is good with rudder only – so you do not have to ride the brakes! (heels on the floor, not on the brakes when landing, will reduce the risk of prop strike)

At Days End

Apart from the fuel requirements, the aircraft should be cleaned.

No rubbish left inside, All bugs cleaned from the leading edges of struts, wings, tailfeathers and Cowls, failure to do this will result in the rapid deterioration of the exterior.

If the aircraft requires washing , we have a wash broom, pressure cleaner and detergent sprayer.

Detergent must be thoroughly rinsed off and not allowed to dry, avoid using on screens.