

Borders Gliding Club

Pawnee PA25-235

G-CTUG

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, (check the tailwheel bolts pivot & axle)

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 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.

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

- 1 Use of the fuel gauge
- 2 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	124 mph	108 knots
Flap limiting	106 mph	92 knots
Vne	156 mph	135 knots
Descent	104-115 mph	90-100 knots
Best rate of climb	83 mph	72 knots
Best angle of climb	73 mph	64 knots
Towing climb (minimum)	75 mph	65 knots
Glide	75 mph	65 knots
Approach	75 mph	65 knots
Stall	58 mph	50 knots
Max Cross wind	17 mph	15 knots
Cruise (75%)	105 mph @ 54 litres per hour	90 knots @ 54 litres per hour
MTOW	1315 kgs	
Empty weight	674 kgs	
Fuel	128 Litres/92kgs	
Oil	12 Quarts max. 9 Quarts norm.	

Starting

Please note. Do not try and run up to full revs with the brakes on as the tug will lift its tail and risks a prop strike ! MAX RUN UP 1800 RPM

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 75 mph (for gliders with water or heavy gliders (e.g. Nimbus 4) this can be increased to up to 85 mph.

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:

- 1 Slowly reduce power (over at least 10 seconds) to 2000RPM and increase speed to 104 - 115 mph.

Landing

On base leg reduce power to approximately 1800RPM and allow speed to decay to below 106 mph and lower flaps.

Approach speed in still air is 68-75 mph, (during rough thermic conditions and strong winds, a 10 mph 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 stalling speed is 58 mph with full flaps.

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 pressure cleaner. Lets look after this one please...