

## REFUELLING PROCEDURES

**Aim:** To learn how to safely refuel aircraft and equipment associated with gliding ops.

The majority of launch methods utilize engine powered devices; towplanes, winches and tow cars. When it comes to refueling these there are some simple procedures and considerations to be followed to ensure it is done safely and efficiently.

### General Considerations:

- Always plan to refuel well before running out of fuel as an engine failure during a launch could prove disastrous.
- The pilot / driver should warn the Duty Pilot or others of when they need to refuel so assistance can be provided as help in refueling will almost certainly cut down the time it takes, thereby minimizing any disruption to the launching.
- Do not allow smoking anywhere near refueling operations.
- Check that the correct fuel is available and used.
- Take the opportunity to carry out a check of other engine essentials like oil and water.
- Clean windscreens to aid vision.



A trailer mounted fuel supply

### Refuelling Towplanes:

- Position the towplane close enough for the refueling line to reach all tanks.
- Attach the bonding cable to a suitable point on the aircraft like the exhaust stub or undercarriage leg. This is done to earth all equipment to prevent possible sparking.
- Attach the bonding cable from the fuel nozzle to near the tank cap. Touch the nozzle on the cap prior to opening the tank cap. Again, this allows common earthing prior to cap removal and negates sparking from the static induced as the fuel flows into the tank
- When fuelling is complete, check that all fuel caps are securely replaced.
- Note down the fuel used on the fuel sheets.
- Push the towplane clear of the refueling point so no tight manoeuvring is required under power.



The towplane is positioned near the refueling trailer



These photos show the bonding cable that reeled from the tanker and attached to the aircraft; in this case, to the engine exhaust.



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**Refuelling From Drums:** There are occasions when it is necessary to refuel from drums. This is common when operating away from a main airfield. Some additional considerations include:

- Ensure a suitable pump assembly and filters are used.
- Worst case, use a chamois cloth as a filter as the fuel goes into the tank.
- Use a funnel to prevent spillage.
- Never completely drain a drum as there may be contamination in the bottom of the drum.

**Refuelling Winches and Towcars:** This equipment often requires refueling from portable supplies. “Fuel hygiene” is probably the most important thing to remember when refueling these. Following the guidelines above greatly reduces the chance of fuel contamination and subsequent launch failure.

Containers full of fuel are heavy; be mindful of this and get assistance with lifting and pouring to avoid injury and spillage.



A typical “wobble pump” hand pump system

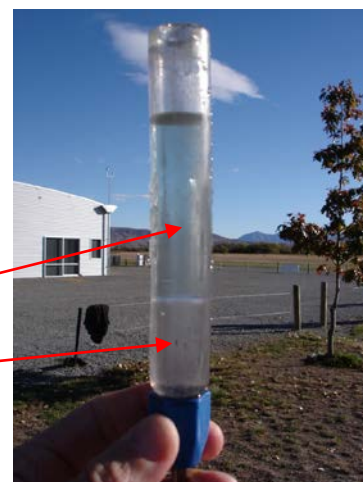


Hold the fuelling nozzle securely to prevent spillage

### Water Checks:

Water contamination in fuel can be disastrous as it has the potential to cause engine failure. A “water check” is usually done before the first flight of the day and can also be done after refueling. It is important that the aircraft is parked for at least 5 mins so the fuel settles and any water present actually separates and settles at the low point in the tanks; where the drains are located. A sample can then be taken to check for water.

This photo shows the slight difference in colour between fuel on top and water at the bottom of the water test tube



### Need To Know:

- What fuel and oils are used in launch equipment.
- How to complete bonding of an aircraft and fuelling system.
- Where and how to record what fuel quantity is uplifted.

### Further Reading:

- NZCAA Flight Safety Magazine, Issue 5 1998. Indepth look at aircraft refueling procedures.