

GLIDING FEDERATION OF AUSTRALIA

AIRWORTHINESS DIRECTIVE GLIDERS:

REF: GFA/AD 165 GENERAL 2.

GLIDER TYPES AFFECTED:

All gliders of Fibre reinforced plastic construction which may be operated with water ballast.

BACKGROUND:

Investigation into a number of gliders with known leaking water ballast tanks in the wings has shown that corrosion of main wing fittings has occurred as a result of water penetration by capillary action. The affect of such water penetration could have serious results on the structural integrity of the glider especially where Balsa wood is used as core material in sandwich structure.

REQUIRED ACTIONS:

1. For gliders fitted with removable water ballast bags in the wings, the ballast bags are to be withdrawn from the wings and checked for leaks. If leaks are detected the bags must either be repaired or replaced before water ballast may again be carried.
2. For gliders fitted with water ballast bags which are not removable or not readily removable, the bags may be tested for leaks as set out in the procedure in (4) below.
3. For gliders with integral water ballast tanks in the glider wings, the water-tightness of the water ballast may be checked by the procedure set out in (4) below or a modification of the procedure to satisfy specific features of specific types.
4. Test Procedure.
 - (a) Make up a special rubber plug to fit tightly in the wing tank inlet/outlet fitting or a fitting to match any special tank fitting.
 - (b) The special rubber plug or fitting is to be provided with an air inlet fitting and connection for an air pump and manometer. (see sketch).
 - (c) For gliders with integral tanks and or drain vents in the lower wing surface, the tanks will also have air vents which will need to be sealed. The method for sealing vents will be dependent on the type of vents in each particular glider type. Suitable soft rubber plugs inserted in the vent opening or soft rubber pad placed over the vent opening with a suitable weight to hold it in place are possible alternatives.
 - (d) Plugs and seals are to be coated with a soap and water solution.

- (e) Using a pump (the rubber bulb pump supplied for inflating seat cushions or a car or bicycle tyre pump would be suitable). Pump air into the water ballast tank until a pressure as indicated on the water tube manometer equivalent to 125 millimetres is reached. Do not apply any higher pressure than 125 mm water column.
- (f) If no valve is fitted in the air inflation line, clamp off the line to entrap the air under pressure in the wing tanks. Observe the water level difference in the water tube manometer. The level must remain unchanged for a period of not less than ten minutes.
- (g) Check for any bubbles in the soap solution around the plugs or vent seals to ensure this is not a cause of possible ballast tank leaks.
- (h) The ability to maintain a constant air pressure in the ballast tanks or bags may be taken as evidence of water-tightness whereas failure to maintain air pressure may be evidence of leaks around the inlet plug or vent seals as well as, or instead of the water ballast tanks or bags.

COMPLIANCE.

Gliders with known leaking ballast tanks or bags are not to be flown with water ballast until the tanks are repaired or an approved modification for fitting of ballast bags is incorporated or leaking ballast bags are repaired or replaced.

For other gliders in which water ballast is carried, testing for watertightness is to be carried out as above within twenty five hours time in service from the time of receipt of this directive.

For all gliders which carry water ballast, the test procedure set out in this directive is to be carried out as part of the G.F.A. Form 2 inspection.

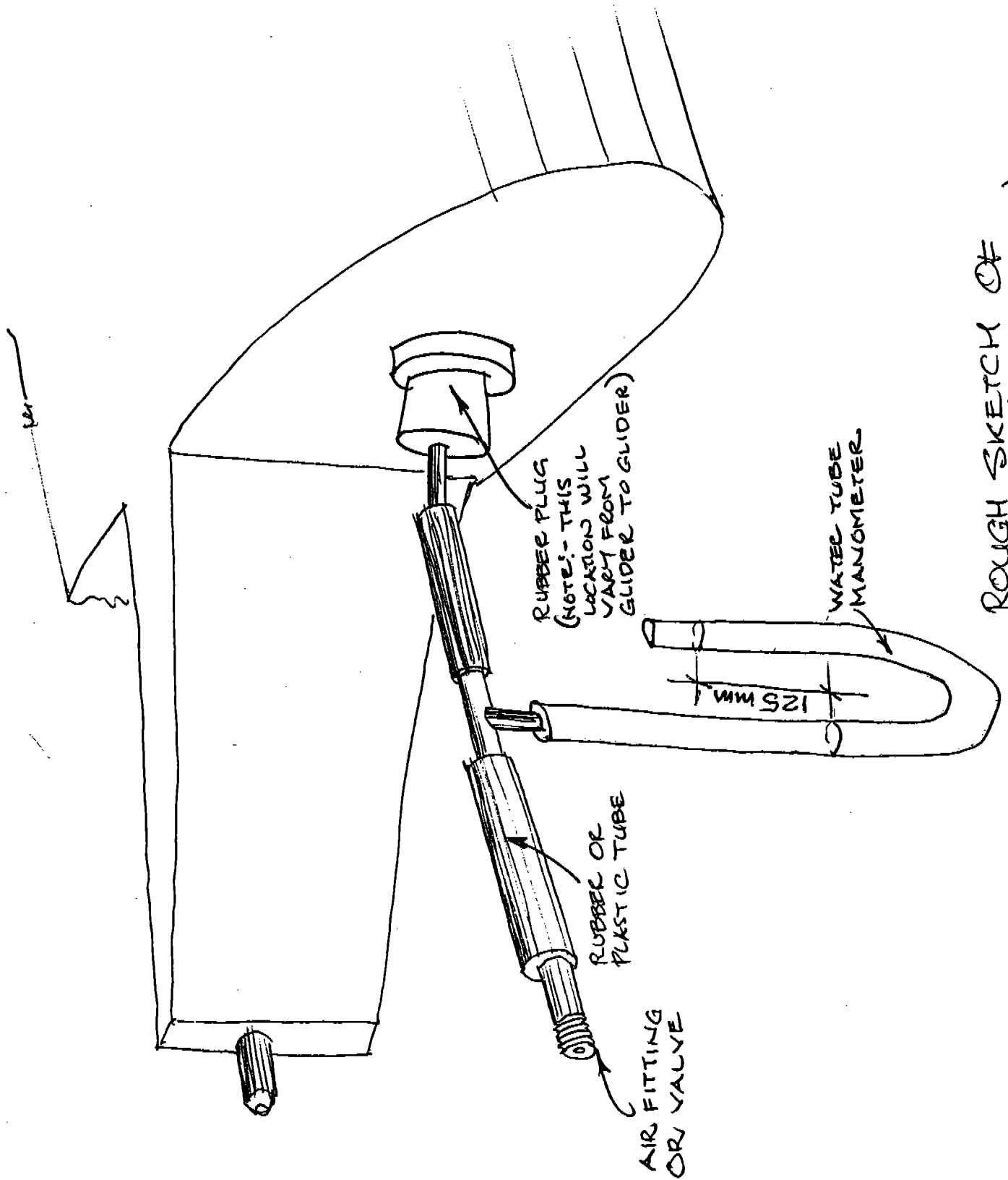
Compliance is mandatory.

This Directive is issued pursuant to Air Navigation Regulations under delegated authority from the Secretary of the Department of Transport.



DOUGLAS LYON
GLIDING FEDERATION OF AUSTRALIA
CHIEF TECHNICAL OFFICER AIRWORTHINESS

Date of issue: 19th December, 1979



ROUGH SKETCH OF
TEST RIG. (NOT TO SCALE).