



# AIRWORTHINESS ADVICE NOTICE

CFA/AN 58

BRASOV 2

Issue 1

Date 30.7.1982

Sheet 1 of 5

TYPES AFFECTED:

All IS28B2 gliders

SUBJECT:

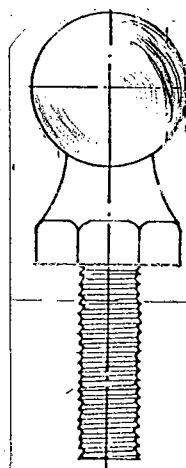
Miscellaneous reported defects.

BACKGROUND:

This A.N. briefly outlines reported defects, Australian and overseas, that the owner/operator/inspector should be aware of but are not considered to warrant mandatory airworthiness Directive action.

DEFECT No. 1 -

BALL COUPLING FAILURE



One reported incident of a ball snapping in the thread just below the head caused loss of divebrake control during a pilot's pre-flight check.

All ball couplings to be lubricated and inspected to AD 177.

Balls must be tightened down with the underside of head in full contact with the surface to avoid bending the threaded section.

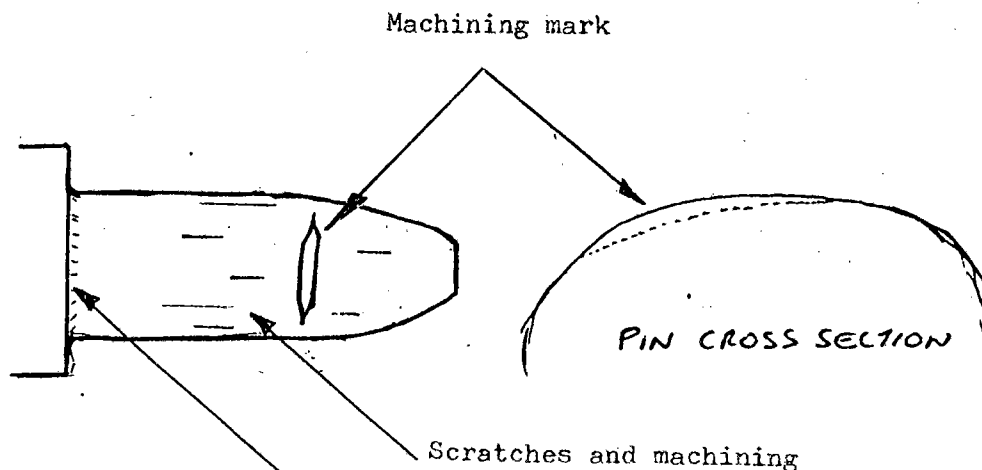
FAILURE IN  
THE THREAD

DEFECT No. 2 -

WING ROOT LOCATING PINS - CRACKS

Badly machined wing root locating pins have appeared to be cracked. Under magnification and dyecheck proven to be scores or scratches. If the scoring extends into the radiused area at the root of the pin, cracking may develop with time.

Pins should be checked at Form 2 inspections.



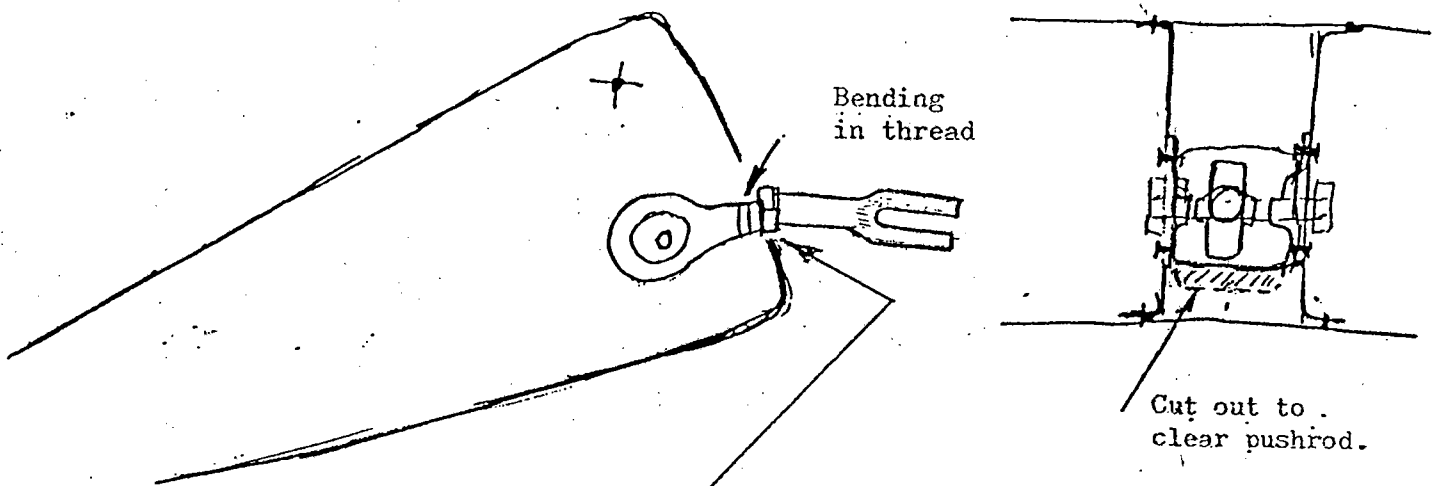
Any defects in the radiused area need to be inspected in more detail.

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### DEFECT No. 3      PUSH ROD BENDING/CRACKING

Most IS28B2s end up with the short push rod linking the aileron to the bellcrank measuring 95mm with the ailerons moving through their correct travel. In 4 cases reported the pushrod has interfered with the aileron leading edge cutout and bent rod has resulted.

Ensuring that control systems are free of interference is part of a C. of A. inspectors responsibility, therefore this defect should never have occurred.



AILERON FULLY DOWN

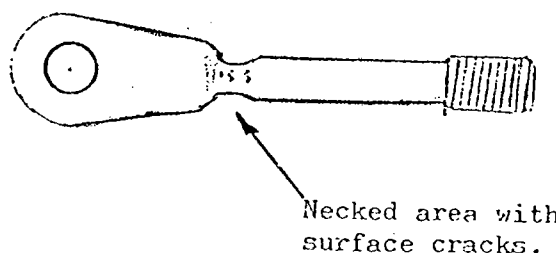
Bending will occur if aileron leading edge is not relieved after adjustment of push rods on some gliders.

### DEFECT No. 4      RIGGING OF DIVEBRAKE & WHEEL BRAKE

An accident involving an overshoot highlighted the possibility of rigging the wheelbrake such that it restricts the dive brake travel excessively. (Not all IS82B2s have interconnection). The dive brake extension can be restricted by over 50mm, to achieve good wheel brake operation, with some loss in dive brake effectiveness. Any operators who wish to fit a separate wheelbrake should discuss it with the GFA CTO/A. A suitable modification would obviously allow both systems to perform more effectively.

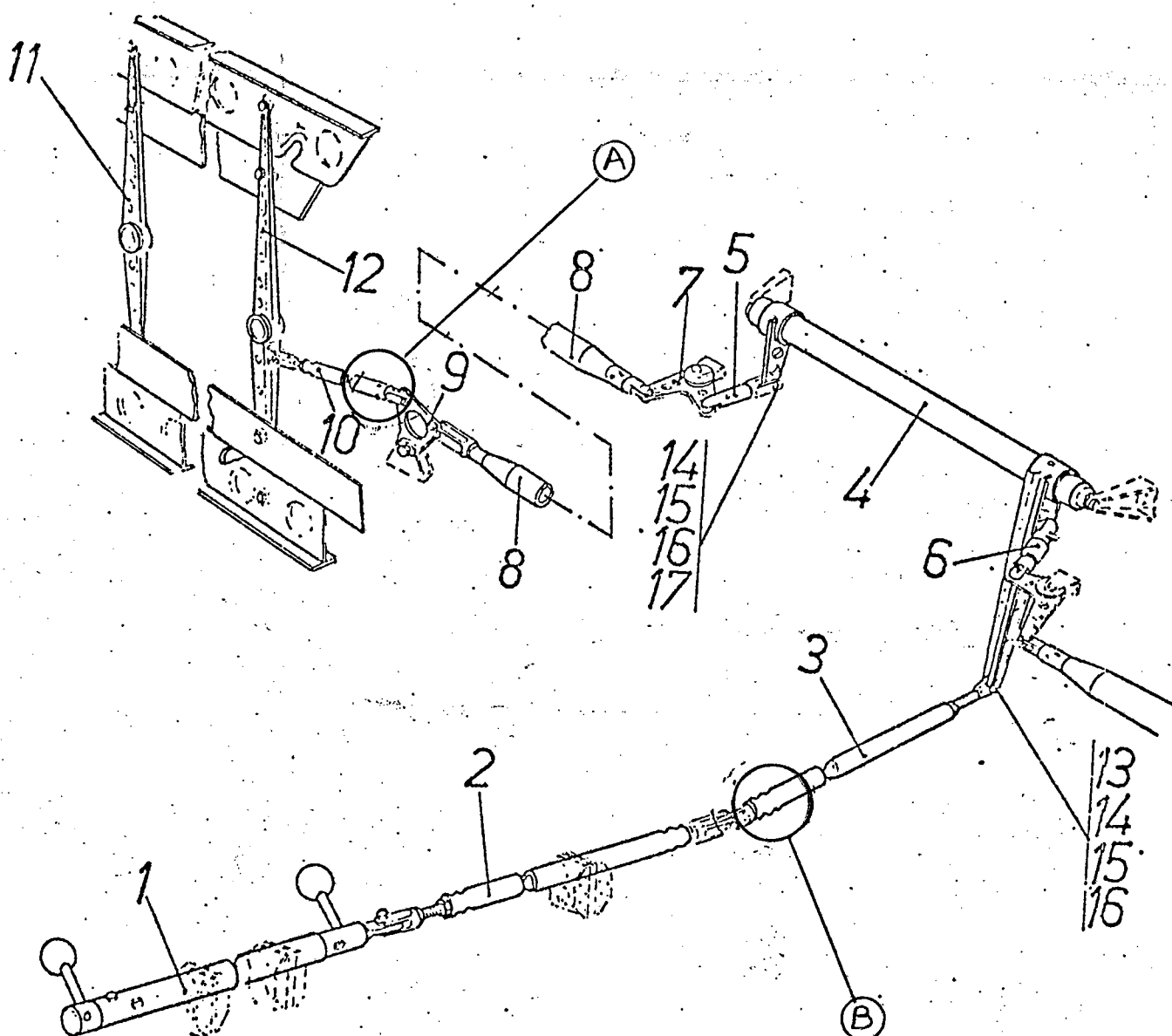
### DEFECT No. 5      POOR TURNBUCKLE FORK MANUFACTURE

A turnbuckle fork was removed from a control cable because of "necking" of the shaft, as illustrated, during manufacture. The "necked" area showed small surface cracks which may have led eventually to failure of the fitting.



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DEFECT No. 6. AIRBRAKE SYSTEM ROD ENDS



The rod ends at (a) and (b) are crimped. These have been found loose in service and rectified by drilling, reaming and through bolting with AN3 or similar bolt and locknut. Interference of bolt heads and nuts must be checked through full movement of the airbrake control system. Some serial numbers may have been bolted in production.

DEFECT No. 7 AILERON SYSTEM "OVERCENTREING"

Many operators have experienced a tendency for the ailerons to become heavy and feel as if the system is moving "overcentre", overpowering the pilot to some extent. Most prevalent during aerotow and in rough air.

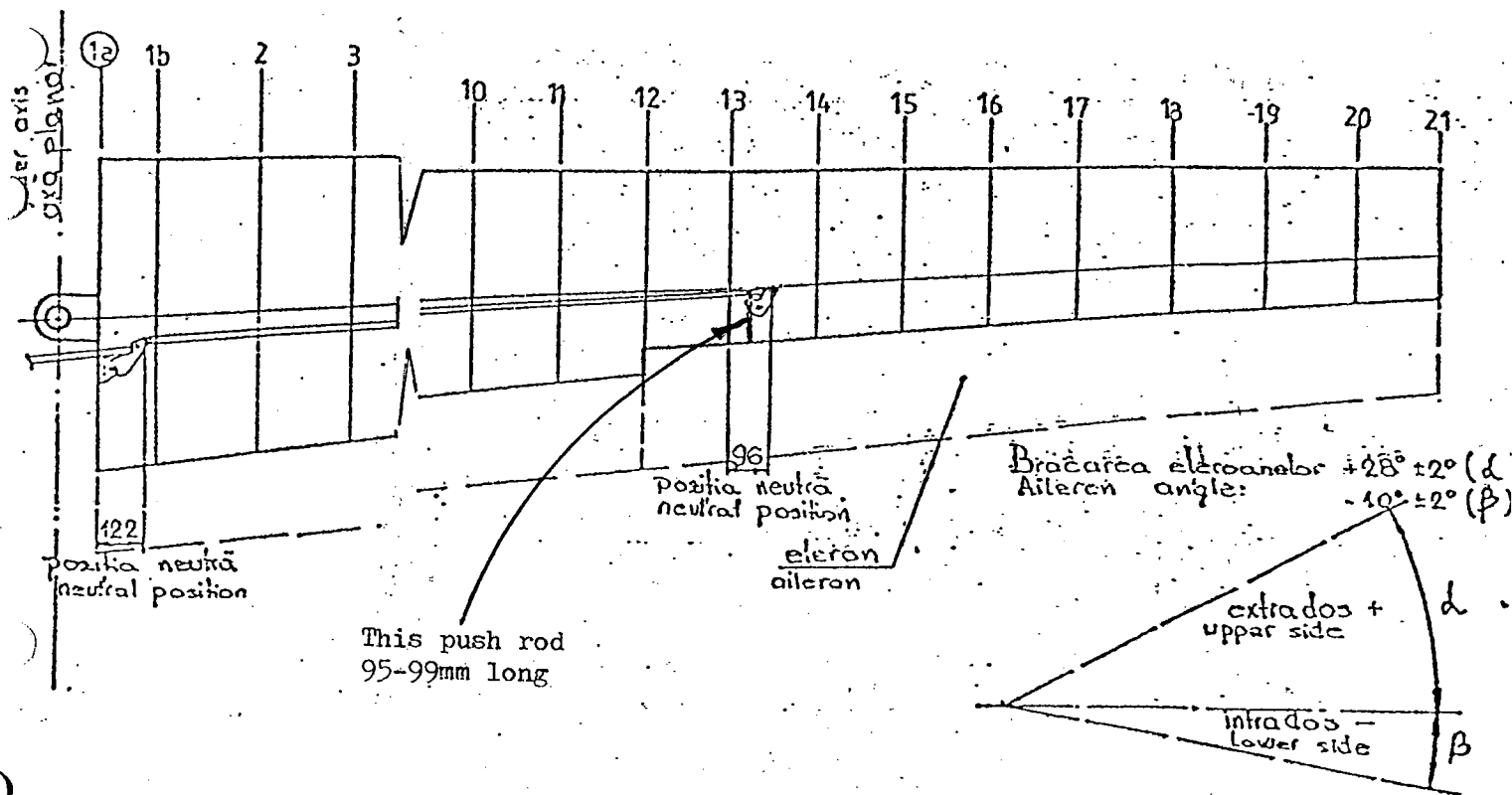
Causes of this unpleasant control feel are many and varied:-

- (1) Breaking of the stringing holding the fabric to the underside of the aileron ribs. This will have an aerodynamic out of balance, particularly where only part of one aileron comes free. Where all of the fabric on both ailerons hangs free it does not appear to have an adverse feel.

DEFECT No. 7 (contd)

A common method of rectification is to apply an alloy strip, the width of the rib flange, over the outside of the fabric and pop rivet through strip fabric and rib.

(2) The diagram supplied in AD 198 was wrong as supplied by the factory (Twice). The link joining the aileron to the bellcrank has been found by field experience to measure 95-99mm with the correct aileron travels, not 105 as proposed by the factory. It seems likely that individual sailplanes will show variations in these dimensions.



(3) The rear control column connects under the left side cockpit floor, via a short push pull rod to an alloy plate bellcrank which redirects the control circuit rearwards.

The short push rod has a fork end fitting, into which the bellcrank fits. We have found substantial interference on some gliders between the fork and bellcrank, which required machining of a 45° chamfer on one edge of the bellcrank to clear the fork. This removed most of the adverse feel present in those sailplanes.

DEFECT No. 8 AIRBRAKES JAMMING OPEN

At 5000 hours total time one early model IS28 was found to have substantial wear in the fibre guide block located on the lefthand side of the fuselage frame (#3) between the two cockpits. The fibre block has one hole for the flap drive, one hole for the airbrake drive. Wear in the fibre allows the two rods to come closer together than intended, resulting in bolt heads interfering with each other and jamming of the airbrakes in the open position.

DEFECT No. 9PREMATURE OPENING OF CANOPY

A number of incidents of canopies opening on final have occurred. This is most likely due to the pilot's hand hitting the canopy latch while functioning the airbrakes. Some operators have modified the canopy latch as a precaution.

DEFECT No. 10FRACTURE OF DIVEBRAKE HANDLE

Two reports of fractures occurring at the base of the divebrake handle (the bit the pilot hangs onto). This has been on aircraft fitted with brake/wheel brake inter-connection, the fracture being attributed to high hand loads arising while using the wheel brake. Repair using a short steel sleeve at the junction of the handle and the rod to provide more weld area and metal thickness.

DEFECT No. 11FAILURE OF FLAP DRIVE BALL COUPLING

The ball located at the end of the flap which picks up the drive from the fuselage has snapped in the thread on one IS28. The failure was due to fatigue cracking of the component. Unless otherwise directed by GFA/AD this component should be replaced at intervals not exceeding 500 hours.

Also, referring to Defect No. 1, the ball unit must be properly screwed down to the shoulder to reduce bending on the thread. Enlargement to the next size ball is strongly recommended.

DEFECT No. 12FAILURE TO RELEASE

We have several reports of interference between the front cockpit rudder pedal adjustment mechanism and the aerotow release. With the adjustment fully forward it is possible for the release mechanism to be blocked sufficiently to prevent release of the tow rope.

The solution adopted and recommended is to file away the material at the base of the yoke at the offending point of interference. This can be with a  $\frac{1}{4}$ " diameter fine file in situ. The material of the threaded base of the yoke is not a hardened steel so it files easily. A clearance in the worst case of  $\frac{1}{8}$ " should be created.

