

## AIRWORTHINESS ADVICE NOTICE

**TYPE AFFECTED:** All sailplanes, powered sailplanes and power assisted sailplanes fitted with tow cable release mechanisms.

**SUBJECT:**

- (1) Weak link strengths and identification standards.
- (2) Weak link placarding - Sailplanes.
- (3) Tug placarding - External.
- (4) Types of acceptable weak links.
- (5) Types of sailplanes and their certified weak link strengths.
- (6) Types of Release mechanisms and corresponding tow ring pairs. .

**BACKGROUND:**

- (1) G.F.A has always required that sailplanes be protected from overload during launching by means of a weak link in the tow cable.
- (2) All sailplanes as part of their certification have weak link strengths specified by their designers and are written into their Type Certificate Data Sheet, making weak links a legal requirement in normal operations.
- (3) Because the majority of the sailplanes imported into Australia originate from Germany and arrive placarded to European weak link requirements, which are also written into their data sheets and Flight/Maintenance manuals, the European standard for weak links has been adopted as the Australian standard.
- (4) GFA Manual of Standard Procedures MOSP 2 (Operations) mandates the use of weak links. This AN supplements the information in MOSP 2.
- (5) GFA requires that releases in Australia be one of three types, "Ottfur", "Tost", or the standard Blanik nose release. Other releases may be used if they meet all the criteria set out in the GFA Manual of Standard Procedures (MOSP) and have GFA approval.
- (6) This AN has been prepared to clearly state weak link strength ranges, their identification coding and acceptable types. It also states the criteria for the tow-ring pairs that must be used with the compatible release mechanism. This AN. should therefore act as a ready reference for both inspectors and operators who wish to clarify any aspect of Weak link and Release

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management.

**EXAMPLE 1: Extract from ASK21 TCDS.**

"6. Weak links:  
Ultimate Strength:  
- for winch and auto-tow launching max.  $1000 \pm 100$  daN  
- for aero-tow max.  $600 \pm 60$  daN"

**REQUIREMENTS:**

**1. WEAKLINK STRENGTHS AND IDENTIFICATION STANDARDS**

The following chart shows the range of weaklink strengths, the weaklink identification number and identification colour.

Code Number	Colour (Tost Standard)	Breaking Load daN
1	Black	$1000 \pm 100$
2	Brown	$850 \pm 85$
3	Red	$750 \pm 75$
4	Blue	$600 \pm 60$
5	White	$500 \pm 50$
6	Yellow	$400 \pm 40$
7	Green	$300 \pm 30$

**TABLE 1: Weak Standards**

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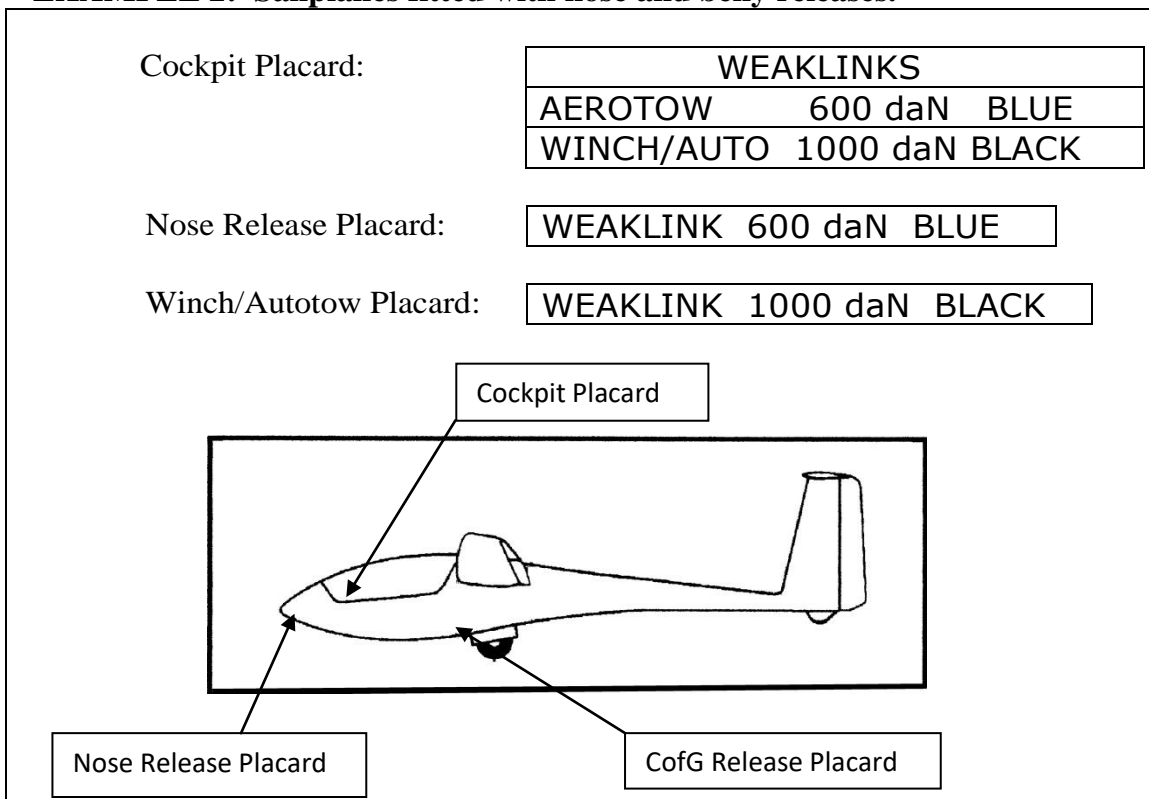
## 2. WEAKLINK PLACARDING - SAILPLANES

It is essential, to support the philosophy of weaklink protection, that both the pilot and ground crew can readily determine the specified weaklink for each sailplane. This requires:

- a. Cockpit placards visible to the pilot, and
- b. External placards visible to ground crew.

Placards must be readily visible, of a size that make them easily readable, and with both the maximum allowable breaking strength and colour code displayed on the placard. External placards should be reasonably adjacent to the releases.

### EXAMPLE 2: Sailplanes fitted with nose and belly releases.



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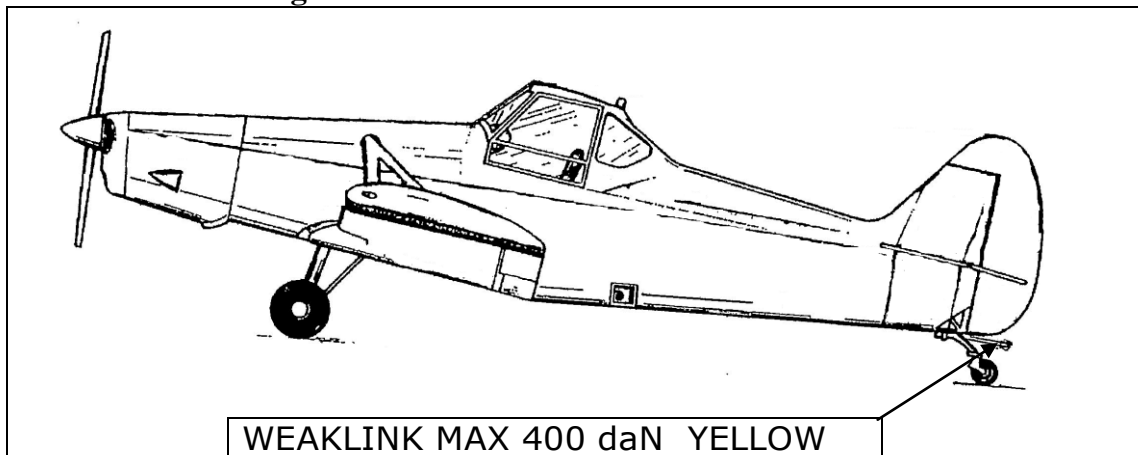
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### 3. WEAKLINK PLACARDING - TUGS

Tugs will be rated for various weaklink strengths depending on structural and performance limitations. Therefore a placard adjacent to or on the release is needed. Tug weaklink limits are written into the tug Flight Manual supplement.

#### EXAMPLE 3: Tug Weaklink Placard



### 4. TYPES OF ACCEPTABLE WEAKLINKS

Weaklinks fall into two categories:

- a. Professionally produced, proprietary products (eg TOST), and
- b. Non-Commercial - ie Club or individual manufactured weak links.

**TOST.** GFA recommends and stocks TOST weaklinks. TOST also makes a protective sleeve to minimise damage when the weaklink assembly contacts the ground; these are also available from the GFA shop. The TOST system provides for the use of a duplicate weaklink with slotted holes that normally carries no load but will assume the load if the primary weaklink fails. This arrangement provides backup for fatigue failure of the primary link. (Note that the dual link system is not mandatory, and is probably of little benefit for winch launching.)

**NON-COMMERCIAL.** Over the years a wide variety of weaklink types has been made at the Club level. The overriding issue is that these must be guaranteed to break within the range of breaking loads shown in Table 1 (above). Evidence of batch testing to provide this guarantee should be maintained by the manufacturer.

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