

AIRWORTHINESS ADVICE NOTICE

TYPE AFFECTED: All Gliders fitted with TOST releases
SUBJECT: Identification of TOST main springs.

BACKGROUND: There are several different patterns of main springs used in TOST releases. Ordering of replacement springs must be done by TOST Part Number to ensure the correct spring is supplied. This document provides guidance on the spring type fitted to each of the various TOST releases currently in service in Australia.

TOST RELEASES:

1. General Description.

There are three main types of TOST Release. These are identified by a letter that defines the release type and a number that (in most cases) indicates the year of introduction to service of the type. Where a subsequent variation to the type is released to service it is identified with a "dash" number appended to the year of introduction of the parent type. The three types (series) of TOST releases are:

- a. **"E" Series.** Releases without back-release mechanism. The current model is **E85**.
There is also a small size, light weight variant **"E22"**.
- b. **"G" Series.** Releases with back-release mechanism. The current model is **G88**.
- c. **"S" Series** Special Releases for lightweight gliders. These require side cable deflectors fitted to the aircraft to ensure correct operation at extreme lateral cable angles. (S72, SH72 and Piccolo)

SIGNED:



GFA CHIEF TECHNICAL OFFICER

For and on behalf of:

**THE GLIDING FEDERATION
OF AUSTRALIA**

Within these generic types there are a couple of additional variants that are discussed below.

- 1.1 SZD Releases. Some gliders of Polish origin are fitted with SZD releases which appear to be a copy of the early TOST releases (ie with welded cases). The TOST main spring is compatible with these but there are other differences. These releases are clearly stamped "SZD".

2. Development History

- 2.1 The "E" series development sequence was:

BUG -> E72 -> E75 -> E85 -> E88

These are interchangeable with external dimensions and mountings compatible. The E72 and earlier types had a welded case whilst the later model feature a cast casing.

This series has a maximum cable force allowed of 1170 daN

The E22 lightweight release has a max cable force allowed of 685 daN.

- 2.2 The "G" series development sequence was:

UNIVERAL -> KK -> G72 -> G73 -> G88

Again they are interchangeable. Like the E series they have a welded case up to G72 and cast case from G73 onwards.

This series has a maximum cable force allowed of 1410 daN.

- 2.3 The "S" series are a later development for lighter gliders. Note that they require fitment of side cable deflectors to the glider.

These releases have a maximum cable force allowed of 490 daN.

3. Spare Parts Ordering

- 3.1 GFA has been approved by TOST to service TOST releases. This is a privilege that is unique to Australia. As a result GFA is required to control the supply of spare parts to GFA members only. For this reason parts are not advertised on the GFA website, nor are they available through the GFA Store. Any request for parts must go direct to the GFA office. If unacceptable wear is observed on parts not stocked by GFA, the release should be returned to TOST for factory rebuild.

Note that TOST will not provide spare parts directly to users. They can only be purchased through the GFA office.

3.2 "E" Series Main Springs:

There are two variants, the difference being the shape of the quadrant on which the spring and actuating arm are mounted.

- a. The standard "E" series release with a semi-circular quadrant uses the PNo 991061 (Approx 180° spring). (See Fig 1 below)
- b. The E75/1-79 has a cut down quadrant and requires the PNo 991062 return spring. (Spring arms are about 120° apart). (See Fig 1 below).

3.2.1 E22 Light Weight Nose Release:

The E22 release does not have a conventional quadrant but uses the PNo 991061 return spring. (This is the only release version that uses the 180° spring with a smaller quadrant.)

The E22 is limited to use on gliders with maximum all-up weight of 700kg. (See Fig 1 below)

3.3 "G" Series Main Springs:

Again there are two variants, the difference being the shape of the quadrant on which the spring and actuating arm are mounted.

- a. The standard "G" series release has a semi-circular quadrant and uses PNo 991061 return spring.(Spring arms are a bit less than 180° apart. (See Fig 2 below).
- b. The G88/1-83 has a cut down quadrant of approximately 90° arc. It requires the PNo 991066 return spring. (Spring arms are about 90° apart). (See Fig 2 below).

3.4 "S" Series Main Springs.

The "S" Series special light weight releases are limited to gliders with maximum all-up weight of 500kg. There are two variants:

- a. S72. Fitted with a standard 180° quadrant and uses the PNo 991061 (180°) spring. (See Fig 3 below)
- b. SH72. Fitted with a 90° quadrant and a PNo 991066 (90°) return spring. (See Fig 3 below).

3.5 Back Release Cage Spring (Fitted to "G" series releases).

The back release spring fitted to the "G" series releases is spring PNo 991067 and is easily recognised as it is made of 1.5 mm dia spring wire whilst all of the main springs are made from 2 mm dia spring wire. If ordering a back-release return spring the pivot bush should also be replaced as it is swaged into position and must be damaged to remove it. It is recommended that the release be sent to one of the GFA Approved Maintenance Organisations rather than replacing this spring locally. (See Fig 4 below).

4.0 Major Repair or Overhaul of TOST Releases.

Should you need maintenance deeper than main spring replacement it is recommended that the release be sent to a GFA Approved Maintenance Organisation or directly to TOST for overhaul.

To contact TOST for factory re-build/overhaul of releases,
Google: [Tost Flugzeuggerätebau – München](#)

5.0 Lubrication.

TOST recommend the cleaning and lubrication of releases and release components with CRC, WD40 or similar products. Do not leave the release coated with oil or grease; this would result in the collection of dust and grit and promote wear.

6. TOST Releases - Figures

Photographs/Diagrams of the various releases and their corresponding main springs follow.

Figure 1 - "E" Series Releases

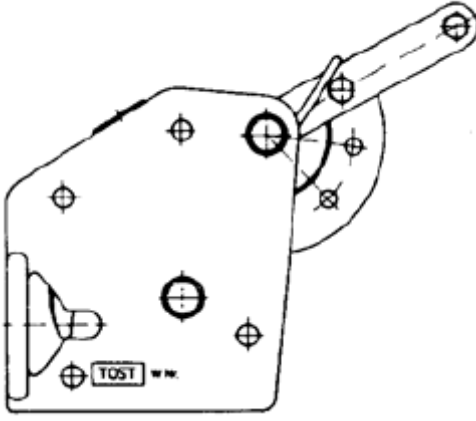

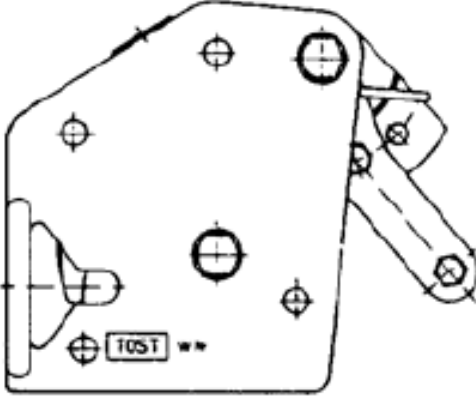

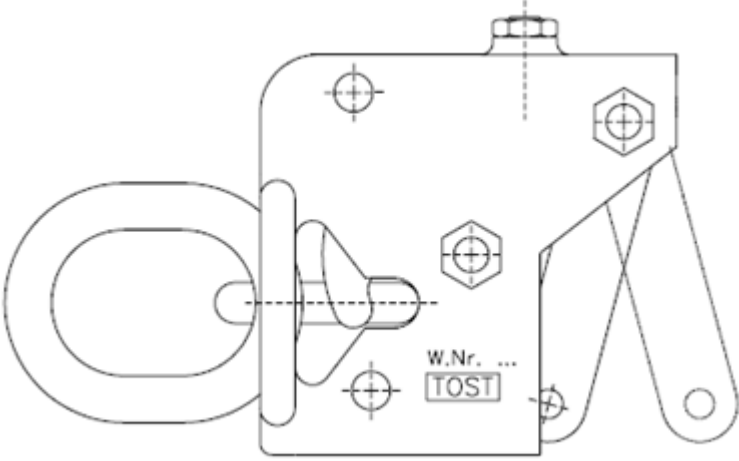

Release Diagram	Main Spring
	<p>E xx</p> <p>Note 180° quadrant</p>  <p>PNo 991061</p>
	<p>E xx/1-79</p> <p>Note cut down quadrant</p>  <p>PNo 991062</p>
	<p>E 22</p> <p>Note lack of quadrant.</p>  <p>PNo 991061</p>

Figure 2 - "G" Series Releases

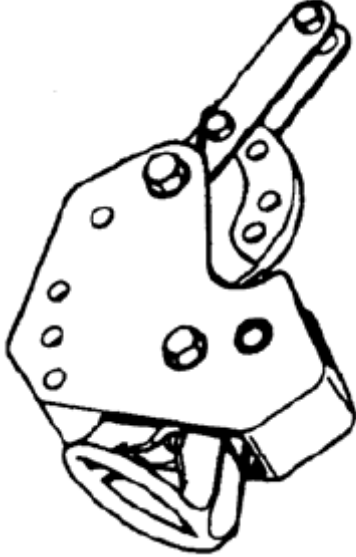

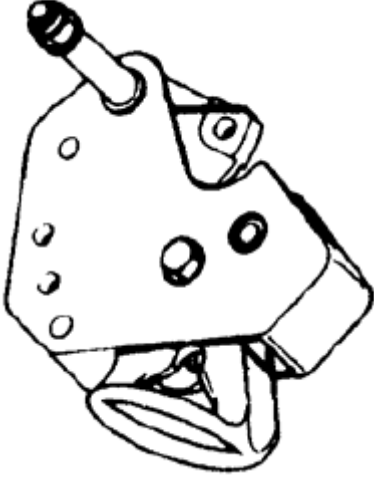

Release Diagram	Main Spring
 <p>A technical line drawing of a release mechanism. It features a main body with several circular holes, a central pivot point, and a long, thin rod extending upwards and to the right. The rod is attached to a curved component that forms part of the release mechanism.</p>	<p>G xx</p> <p>Note 180° quadrant</p>  <p>PN0 991061</p> <p>A photograph of a metal spring with a 180-degree quadrant. It consists of a long, thin rod that is bent into a single loop. The rod extends from the left, forms a loop on the right, and then extends back to the left.</p>
 <p>A technical line drawing of a release mechanism, similar to the one above but with a different rod orientation. The rod extends upwards and to the left, forming a 90-degree quadrant.</p>	<p>G xx / 1-83</p> <p>Note 90° quadrant</p>  <p>PN0 991066</p> <p>A photograph of a metal spring with a 90-degree quadrant. It consists of a long, thin rod that is bent into a loop. The rod extends from the left, forms a loop on the right, and then extends downwards.</p>

Figure 3 - "S" Series Releases





Release Diagram	Main Spring
 A photograph of a metal release component, likely made of aluminum, with a 180-degree quadrant. It features several circular holes and two blue-colored fasteners. A red watermark 'W300' is visible on the surface.	<p>S 72</p> <p>Note 180° quadrant</p>  A photograph of a brass-colored metal spring with a 180-degree quadrant. The spring is coiled and has two long, straight legs extending from the ends. <p>PNo 991061</p>
 A photograph of a metal release component, likely made of steel, with a 90-degree quadrant. It has several circular holes and is stamped with the text '10ST 10045 SH'. The component is shown against a light blue background.	<p>SH 72</p> <p>Note 90° quadrant</p>  A photograph of a brass-colored metal spring with a 90-degree quadrant. The spring is coiled and has two long, straight legs extending from the ends. <p>PNo 991066</p>

Figure 4 - Back Release Cage Return Spring

