1.1 Glider and banner towing

1.1.1 General

A-22 airplane can be optionally equipped with E 85 tow release manufactured by Tost Flugzeuggerätebau company (http://www.tost.de) for towing of gliders or banners.

The tow release is attached to the tail fuselage on a special fitting. The tow release can be acuated by pulling the tow release handle (located near the flap extension lever) connected to the tow release lever with a control cable.

1.1.2 Operating information and limitations

1.1.2.1 Maximum take-off mass of the airplane

The mass of the airplane used for towing may not exceed 500 kg in order to comply with the miminum rate of climb of aero tow.

Glider towing must be performed with only one pilot in the tow plane!

1.1.2.2 Maximum take-off mass of the towed glider

The maximum take-off mass of the towed glider is3 limited by 700 kg.

1.1.2.3 Towing rope and weak link

Only tow ropes certified according to airworthiness codes, industrial codes or manufacturing codes, if furnishing enough information, must be used if constant quality is guaranteed. The cable connections should be protected by appropriate covers. The ultimate cable load must not be more than the cable load declared by the aircraft manufacturer. For cable with higher ultimate loads a weak link corresponding to the limit load of the aircraft and the towed glider must be used. The strength of the weak link should not be less than 200 daN and may not exceed 300 daN. Towing rope length should be from 40 to 60 m.

A clearly visible placard “Maximum weak link strength: 300daN” must be placed near the tow release.

1.1.2.4 Aero towing speeds

The minimum aero towing speed is equal to 95 km/h.

The best climb speed is equal to 105 km/h.

Aero towing speed may not be greater than the maximum permitted towing speed for the towed glider.

“Observe Tow Speed” placard must be placed next to the airspeed indicator.

1.1.2.5 Take-off distance and climb rate

The take-off distance to 15 m does not exceed 600 m in the following conditions:

- dry, even, short-cut grass strip;
- standard atmospheric conditions;
- flaps extended to 10°;
- glider with take-off mass not exceeding 700 kg.

Glider type	Glider TO mass, kg	TO distance to 15 m height	Best climb speed, km/h IAS	Climb rate, m/s	Time of climb to 360 m height
PW-5	360	< 522 m	103…105	1,9	3 min 07 sec
SZD-51.1 „Junior“	380	< 522 m		2,0	2 min 50 sec
SZD-48-3 „Jantar Standard 3“ (no water ballast)	390	< 550 m		2,0	3 min 15 sec

NOTE: High grass on the runway may increase the take-off distance by up to 25%, water drops and contamination on the wings (leading edge) – by 10-15%, high air temperature – by 5-10%.

1.1.3 Glider towing

- After glider is attached to the towing rope make sure that the tow release handle is in its foremost position, otherwise push it till stop;
- take-off with a glider attached shall be performed with the engine at take-off power (5 minutes maximum) in a usual manner (like without a glider);
- the take-off distance requirements are specified in section 1.1.2.5;
- in the beginning of the take-off run the inertia of the aero train is very high, but with gaining speed the acceleration increases. After lift-off accelerate the airplane to 100 km/h and start to climb;
- it is recommended to maintain the best climb speed of 105 km/h IAS;
- observe limitations.

WARNING: While approaching the ground with the towing rope beware of the obstacles that may catch the rope. Release the rope over the landing strip threshold before landing.

1.1.4 Banner towing

Banner towing can be performed using the same tow release used for glider towing. The attachment of the banner must ensure its safe release at any stage of flight.

- After banner is attached to the towing rope make sure that the tow release handle is in its foremost position, otherwise push it till stop;
- while taking-off with a banner take into consideration the length of the aero train (airplane and banner). Take-off shall be performed in a usual manner;
- avoid making abrupt changes in direction or altitude of flight while towing;
- before landing release the banner by pulling the release handle;
- observe the banner operation instructions, provided by its manufacturer.

WARNING: While approaching the ground with the banner beware of the obstacles that may catch the banner. Banner should be released at the height recommended by its manufacturer to avoid causing injuries to persons or damage to property by the free-falling banner.

1.1.5 Emergency situations

In emergency situation for immediate release of the towed glider or banner – pull the tow release hadle located near the flap extension lever.

1 Glider and banner towing system

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INSPECTION CHART

Part No.	Description	Interval	RCO	Instruction	TM	LC
A22.0.6725.00 A22.1.6725.00*	Tow release control cable	100 h	OC	20.1	L	TSP
014000	Tow release	100 h	2000 starts / 4 years	20.2	L	TSP

* — for airplanes with cockpit plastic ceiling panel

Instructions:

1.1 Inspect the tow release control cable from the release handle to the tow release lever. The cable must be is intact and free from corrosion (otherwise the cable must be replaced).

Check the tow release force on the release handle. If release the force has increased too much – check condition of the tow release control cable and grease the cable near its fearleads.

Recommended special tools: none.

Necessary parts/materials: none.

1.2 Clean, lubricate and check for proper operation the tow release. The tow release opening must be performed without jamming. If the jamming occurs it must be eliminated or release must be replaced for the one identical to that installed on the airplane.

Recommended special tools: none.

Necessary parts/materials: none.

NOTE: Releases are approved aeronautical parts. Their safety and operating life can be assured only by observing the maintenance intervals prescribed by EASA. Releases must be returned to the manufacturer for complete reconditioning after 10000 operations (approx. 2000 starts). Manufacturer recommends the **general overhaul after 4 years**. Due to environmental influence releases can corrode or become stiff and thus fail during operation.