SUPPLEMENT NO. 1

to the Flight Manual
for the Powered Sailplane

HK 36 TS

for the Use as Tow-Plane

Date of Issue: January 1996

Pages identified by "ACG-appr."in the List of Effective Pages are approved by:

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Date of Approval:	22. Mai 1996	

The powered sailplane is to be operated in compliance with the information and limitations contained herein.

0.1 RECORD OF REVISIONS

Rev. No.	Chap-ter(s)	Page(s)	Date of Revision	Approval	Date of Approval	Date Inserted	Signature
1	0, 4, 5, 6	9-1-2, 9-1-3, 9-1-9, 9-1-11, 9-1-12, 9-1-13	09-1996				
2	0, 4	9-1-2, 9-1-3, 9-1-9, 9-1-10	10-2011	Revision 2 of the AFM Supplement Doc. No. 3.01.06 to AFM Doc. No. 3.01.06 is approved with EASA Approval No. 10037909	05-01-2012		
3	all	all except cover page	25-03-2016	Revision 3 of the AFM Supplement Doc. No. 3.01.06 to AFM Doc. No. 3.01.06 is approved with EASA Approval No. 10069531.	05-04-2019		

0.2 LIST OF EFFECTIVE PAGES

Section	Pages	Date
0	9 - 1 - 1	Jan 1996
	9 - 1 - 2	Mar 2016
	9 - 1 - 3	Mar 2016
	9 - 1 - 4	Mar 2016
	9 - 1 - 5	Mar 2016
1	9 - 1 - 6	Mar 2016
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2	9 - 1 - 8 ACG-appr.	Mar 2016
	9 - 1 - 9 ACG-appr.	Mar 2016
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0.3 TABLE OF CONTENTS

SECTION 1
GENERAL

1.1 INTRODUCTION

| Pages 9-1-1 through 9-1-18 constitute Supplement No. 1 to the Flight Manual for the Powered Sailplane HK 36 TS and are valid only for the operation of the powered sailplane as a tow-plane.

1.2 CERTIFICATION BASIS

Tow-plane operation of this airplane has been approved in accordance with the draft of the LBA airworthiness requirements for tow-plane operation dated February 1971.

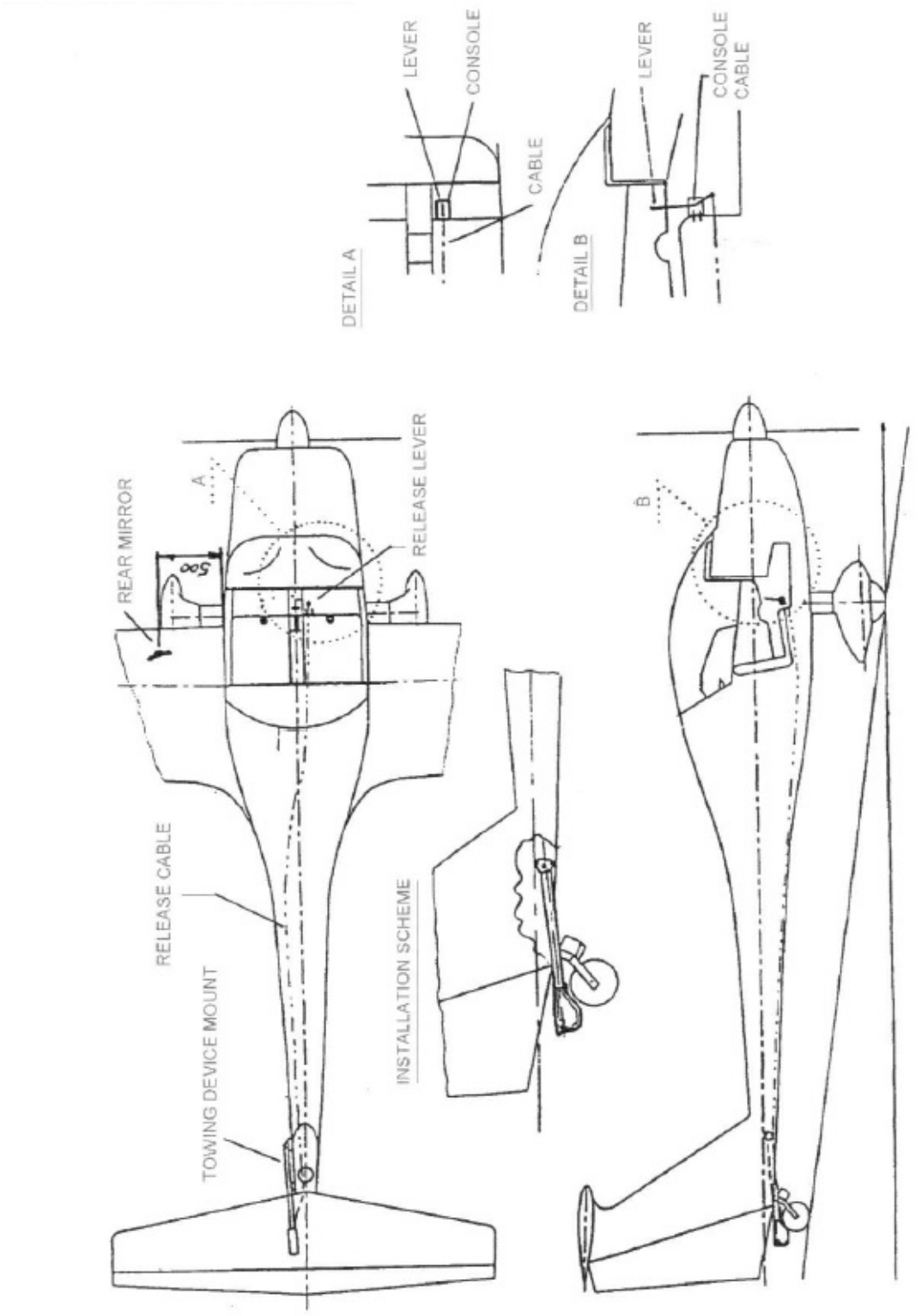
1.5 DESCRIPTIVE DATA

The towing device E 85, manufactured by Tost, is attached to the tail wheel assembly and fuselage tube by means of a steel fitting specially designed for the HK 36 TS. The tow-rope is released through a cable mechanism connected to a release lever in the cockpit.

For tow-plane operation, an additional rear mirror must be attached to the left wing using two
| camlocs (see three-view drawing, page 9-1-7).

| For tow-plane operation, the additional cooling baffle (OÄM 36-359) has to be installed, if the
| coolant temperature is indicated (MÄM 36-450). For cold weather operation of the airplane
| (below 0 °C / 32 °F OAT on ground), the additional cooling baffle must be removed.

1.6 THREE-VIEW DRAWING



SECTION 2
LIMITATIONS

2.2 AIRSPEED

NOTE

All airspeeds given in this Supplement are to be understood as indicated airspeeds (IAS).

The maximum permissible speed for tow-plane operation is 135 km/h (73 kts./84 mph) or the maximum permissible towing speed of the towed sailplane, whichever is less. The minimum permissible speed for the train is 90 km/h (49 kts./56 mph) or 1.2 times v_{S1} of the towed sailplane, whichever is higher.

2.6 MASS (WEIGHT)

Tow-plane operation:

The flight mass of the sailplane to be towed must not exceed 370 kg (816 lbs.). The maximum take-off mass of the tow-plane is 720 kg (1587 lbs.).

2.10 FLIGHT CREW

When used as a tow-plane, the HK 36 TS must be flown by a solo-pilot.

For instruction purposes, a flight crew of two is permissible, provided that the total mass of the train does not exceed 1090 kg (2403 lbs.).

2.14 OTHER LIMITATIONS

Banner-towing operation

The drag of the banner must not exceed 70 daN (157 lbs.) at an airspeed of 135 km/h (73 kts./84 mph).

Should no drag data be available, the banner must be tested in accordance with a test program agreed upon with the competent authority.

Low-drag banners with areas up to 40 m^2 (430 sq.ft.) have been tested.

| Cowling Configuration
|
| For tow-plane operation, the additional cooling baffle (OÄM 36-359) has to be installed, if the
| coolant temperature is indicated (MÄM 36-450). For cold weather operation of the airplane
| (below 0 °C / 32 °F OAT on ground), the additional cooling baffle must be removed.

SECTION 3
EMERGENCY PROCEDURES

3.7 ENGINE FAILURE

- Release tow-rope or advise sailplane pilot (via radio or by giving signs) to release.
- Proceed according to the Emergency Procedures in the main part of the HK 36 TS Flight Manual.

3.9 OTHER EMERGENCIES

Abnormal Position of Towed Sailplane

If maneuverability is no longer given due to an abnormal position of the towed sailplane, the tow-rope must be released immediately.

If the towed sailplane is apparently outside of a 60 degree cone behind the tow-plane (i.e. if the angle between the tow-rope and the longitudinal axis of the tow-plane exceeds 30 degrees), the tow-rope must be released immediately.

3.10 FAILURE OF THE RELEASE DEVICE ON THE SAILPLANE

Landing of the complete train is possible with the sailplane's air brakes fully extended and the rate of descent being controlled via the power setting of the tow-plane.

WARNING

During tow-plane operation, the air brakes of the tow-plane must not be extended!

SECTION 4

NORMAL PROCEDURES

4.3 DAILY INSPECTION

- Check towing device and release mechanism for excessive dirt and improper operation (release test).
- If installed, check tow rope caution light for improper operation.
- Check tow rope, connection rings and breaking piece for excessive wear, damage and improper arrangement.
- Check rear mirror for insecure attachment.
- Check removable release lever for towing device is properly mounted and secured (if installed).
- Check if cooling baffle (OÄM 36-359) is installed, when the coolant temperature is indicated (MÄM 36-450) and the OAT on ground is above 0 °C / 32 °F.

4.5 NORMAL PROCEDURES AND RECOMMENDED SPEEDS

4.5.2 TAKE-OFF AND CLIMB

CAUTION

When towing sailplanes with high wing loading, acceleration must be performed close to the ground, because the take-off speed of the sailplane may exceed the take-off speed of the tow-plane.

For maximum angle of climb, fly with 95 km/h (51 kts., 59 mph).

For maximum rate of climb, fly with 105 km/h (57 kts., 65 mph).

When towing sailplanes with high wing loading and/or in turbulent air, tow-speeds up to 120 km/h (65 kts., 75 mph) are recommended.

CAUTION

The banner is picked up in flight with a catch rope pulled behind the tow-plane. A suitable hook must be used (with turned back ends, see equipment list) to avoid getting caught on the ground.

4.5.5 LANDING

- Prior to landing, drop tow-rope or banner.
- Verify proper releasing (check caution light, if installed).
- Proceed according to Normal Procedures in main part of Airplane Flight Manual.

Landing with the tow-rope attached is only possible when the approach path is clear of any obstacles and with increased approach speed.

4.5.6 INSTALLATION AND REMOVAL OF RELEASE LEVER FOR TOWING DEVICE

(a) Installation of the Release Lever for the Towing Device (if installed)

- The handle of the release lever must be screwed into the lever tap in the release lever mechanism . The release lever must be secured using the Fokker Needle.

(b) Removal of the Release Lever for the Towing Device (if installed)

- The Fokker Needle must be removed from the release lever. The release lever is unscrewed from the lever tap in the release lever mechanism and should be stored with the Fokker Needle.

SECTION 5

PERFORMANCE

5.2 ACG-APPROVED DATA

5.2.3 TAKE-OFF PERFORMANCE

The following data does not include any safety reserve. It was determined under the following conditions:

- Maximum engine power
- Take-off mass (weight) of tow-plane: 720 kg (1587 lbs.)
- Take-off mass (weight) of sailplane: 370 kg (816 lbs.)
- Propeller setting: TAKE-OFF
- Lift-off speed: appr. 90 km/h (49 kts., 56 mph)
- Climb speed: appr. 97 km/h (52 kts., 60 mph)
- Level runway, short and dry grass
- No crosswind component
- Constant headwind component

s_1 = Take-off roll

s_2 = Take-off distance to clear a 15 m (50 ft.) obstacle

Headwind Component	OAT [° C] [° F]	Pressure altitude [m] / [ft.] Atmospheric pressure [hPa] = [mbar]							
		0 / 0 1013		400 / 1310 966		800 / 2620 921		1200 / 3940 877	
		s_1 [m] [ft.]	s_2 [m] [ft.]	s_1 [m] [ft.]	s_2 [m] [ft.]	s_1 [m] [ft.]	s_2 [m] [ft.]	s_1 [m] [ft.]	s_2 [m] [ft.]
0 km/h *0 kts.*	0 *32*	232 *761*	495 *1624*	262 *860*	553 *1814*	297 *974*	618 *2028*	338 *1109*	695 *2280*
	15 *59*	265 *869*	560 *1837*	302 *991*	626 *2054*	342 *1122*	702 *2303*	391 *1283*	792 *2598*
	30 *86*	304 *997*	631 *2070*	345 *1132*	708 *2323*	394 *1293*	796 *2612*	450 *1476*	900 *2953*
9 km/h *5 kts.*	0 *32*	181 *594*	417 *1368*	206 *676*	466 *1529*	235 *771*	524 *1719*	270 *886*	591 *1939*
	15 *59*	209 *686*	474 *1555*	239 *784*	530 *1739*	273 *896*	598 *1962*	313 *1027*	675 *2115*
	30 *86*	240 *787*	535 *1755*	275 *902*	602 *1975*	316 *1037*	679 *2228*	364 *1194*	770 *2526*

CAUTION

For a safe take-off, the available length of the runway must at least be equal to the take-off distance over a 15 m (50 ft.) obstacle (s_2).

5.3 ADDITIONAL INFORMATION

5.3.5 CLIMB PERFORMANCE

When towing a sailplane with a mass of 370 kg (816 lbs.), the maximum rate of climb is 2.3 meters per second (450 f.p.m.) at sea level in standard atmosphere.

SECTION 6
MASS (WEIGHT) AND BALANCE / EQUIPMENT LIST

6.1 INTRODUCTION

For the operation of the HK 36 TS as a tow-plane, the permissible empty mass CG range and the permissible CG range during flight remain unchanged. The loading restrictions under 2.6 and 2.10 of this Supplement no. 1 must be observed.

6.9 EQUIPMENT LIST

Additional Equipment for Tow-Plane Operation

1 Tost towing device E 85
1 Fitting, Dwg. No. 820-2550-00-00, Sheet 2
1 Release mechanism
1 Caution light (amber), if required by national regulations.
1 Cooling baffle (OÄM 36-359), when the coolant temperature is indicated (MÄM 36-450) and the OAT on ground is above 0 °C / 32 °F.

NOTE

The following equipment is not taken into account for CG determination, is however required for the respective kind of operation.

Sailplane Towing

1 Tow-rope[1)]
1 Pair of connection rings complying with LN 65091
1 Breaking piece on powered sailplane: ultimate load 300 daN (674 lbs.), green or 400 daN (899 lbs.), yellow
1 Rear mirror

1 Breaking piece on sailplane, if required by national regulations or by sailplane manufacturer; required ultimate load see national regulations

Banner Towing

1 Catch rope
1 Catch hook with turned back ends (Holland Aviation, part no. 1607, or equivalent).
1 Pair of connection rings complying with LN 65091
1 Breaking piece: Ultimate load 300 daN (674 lbs.), green
1 Rear mirror

CAUTION

The pilot must ensure that the proper breaking piece (see above) is installed in the tow-rope, as the airplane structure may be overstressed otherwise.

[1)] *Partial translation of the applicable airworthiness requirements (see paragraph 1.2 of this Supplement 1):*

2.8. Tow-Rope and Breaking Piece

Only plastic ropes may be used, e.g. polyamide, polyester, polypropylene, etc. in accordance with aeronautical standards, DIN standards or factory specifications, provided these standards (specifications) contain sufficient data and ensure delivery with continuous quality. The rope connections should be suitably covered to provide wear protection.

[...] In case of ropes with a higher ultimate load, a breaking piece with an adequate breaking load must be included in order to protect the tow-plane. At the permissible load on the rope, the strain of the rope should not exceed 30 %.

For sailplane towing, the rope length should be 40 to 60 meters [130 to 200 ft.], for banner towing it should be approximately 20 meters [65 ft.].

The holder of the tow-plane is responsible for selection, use, and maintenance of the tow-rope.

SECTION 7
POWERED SAILPLANE AND SYSTEMS DESCRIPTION

7.8 COCKPIT

The release lever for the towing device is colored yellow and is located to the right of the throttle quadrant. It should have a dead travel of approximately 10 millimeters (0.4 inches). By pulling on the lever, the rope is released.

The caution light (if required) is installed in the center section of the instrument panel. It is illuminated as long as the tow-rope is held by the towing device.

7.14 PLACARDS / INSCRIPTIONS

The following additional placards are installed for tow-plane operation of the HK 36 TS:

Next to the caution light for the tow-rope (if required): Tow-Rope

On the release lever: Tow-Rope Release

SECTION 8
POWERED SAILPLANE HANDLING, CARE AND MAINTENANCE

8.2 POWERED SAILPLANE INSPECTION PERIODS

8.2.1 INSPECTION PERIODS FOR THE TOWING DEVICE

At each 100 hour inspection, the system must be cleaned, lubricated, and checked for poor condition and improper operation.

The towing device must be overhauled every 4 years or after 2000 tows, whichever comes first.