
SUPPLEMENT NO. 9
to the Flight Manual
for the Powered Sailplane
HK 36 TC with ROTAX 912 S3

OPERATION WITH
TOW-ROPE RETRACTION DEVICE

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This powered sailplane must be operated in compliance with the information and limitations contained herein.

Prior to operating the powered sailplane, the pilot must take notice of all the information contained in this Flight Manual.

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1. GENERAL

1.1 INTRODUCTION

% These pages constitute Supplement No. 9 to the "Flight Manual for the Powered
% Sailplane HK 36 TC with ROTAX 912 S3" and are valid only for the operation of the
% powered sailplane with tow-rope retraction device in combination with the standard
% towing device and the corresponding Flight Manual Supplement No. 1.

Translation of this Supplement has been done by best knowledge and judgement. In any case, the original document in the German language is authoritative.

1.4 EXPLANATIONS

Sailplane In this Supplement, this term is used to denote the towed sailplane or the towed powered sailplane.

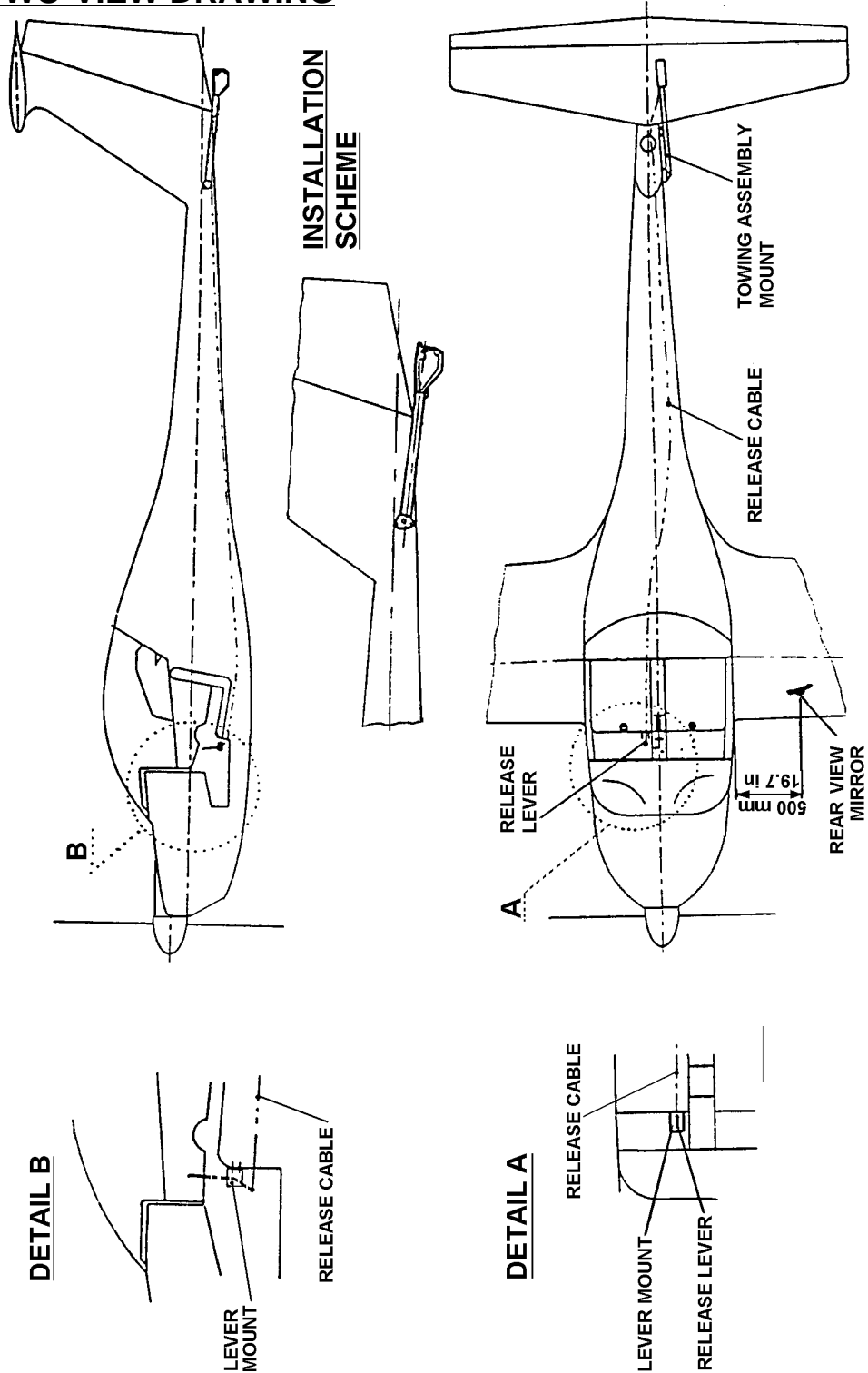
1.6 DESCRIPTIVE DATA

The tow-rope retraction device is installed in the baggage compartment of the powered sailplane. The device allows the retraction of the tow-rope during flight, after the towed sailplane has been released.

The powered sailplane can land immediately without dropping the tow-rope.

The tow-rope may be detached with the cable cutting mechanism in critical moments of flight.

1.7 TWO-VIEW DRAWING



2. OPERATING LIMITATIONS

2.6 MASS (WEIGHT)

During towing operation with the use of the tow-rope retraction device no baggage may be carried in the baggage compartment.

2.12 MINIMUM EQUIPMENT LIST

Additional equipment for tow-plane operation with tow-rope retraction device

- 1 Tow-rope winch and mount
- 1 Tow-rope guide tube
- 1 Cutting mechanism
- 1 Tow-rope at a length of 30 to 50 m (98 to 164 ft) made of PVC or polyamide, max. diameter 6.3 mm (0.25 in), with green marking in accordance with DAI-WI No. 27
- 1 Aluminum stop-egg
- 1 End-piece, silicone protection tube, breaking-piece (with ultimate load of 300 daN / 674 lbf) and ring-couple

2.15 OTHER LIMITATIONS

2.15.1 SAILPLANE TOWING

Operation of tow-rope retraction device and standard towing device at the same time is not permitted, i.e., only one system may be in use at a time, while the other one must be secured against possible use.

2.15.2 BANNER TOWING

Banner towing is not permitted with the tow-rope retraction device.

2.16 LIMITATION PLACARDS

Placard	Place	Remark
<p style="text-align: center;">WARNING</p> <p><u>Operation with the Tow-Rope Retraction Device</u></p> <p>The release cable must be connected with the cable of the cutting mechanism (of the tow-rope retraction device).</p> <p>The standard towing coupling must be secured against use by wire.</p> <p><u>Operation with the Release Mechanism</u></p> <p>The release cable must be connected with the standard towing coupling.</p> <p>The ring couple of the tow-rope retraction device must be secured at the cutting lever with a wire against pulling out.</p>	<p>on towing device mount</p>	
<p style="text-align: center;">During towing operation with use of the Tow-Rope Retraction Device no baggage may be carried.</p>	<p>on cover of winch drum</p>	

3. EMERGENCY PROCEDURES

3.7 ENGINE FAILURE

- * In case of engine failure during tow-flight, advise sailplane pilot (via radio or by giving signs) to release, or cut tow-rope.

CAUTION

In case of emergency pull the yellow/red release handle of the cutting mechanism (also release handle of standard towing device) abruptly all the way to the stop.

- % * Proceed according to the Emergency Procedures in the main part of the Flight Manual.
%

3.9 OTHER EMERGENCIES

3.9.1 ABNORMAL POSITION OF TOWED SAILPLANE

- * If maneuverability is no longer ensured, due to an abnormal position of the towed sailplane, the tow-rope must be cut immediately.
- * If the towed sailplane is apparently outside of a 60° cone behind the tow-plane (i.e., if the angle between the tow-rope and the longitudinal axis of the tow-plane exceeds 30°), the tow-rope must be cut immediately.

WARNING

The critical configuration is usually the one in which the sailplane climbs above the tow-plane during take-off and climb, especially when using a tow-rope connector located at the CG of the sailplane.

3.10 MALFUNCTION OF THE TOW-ROPE RETRACTION DEVICE

If the tow-rope is not retractable during flight, it should be cut above the airfield whilst still in flight. Landings with tow-rope not retracted shall only be performed if an approach sector totally clear of obstacles is available and only at an increased approach speed.

If a knot is tied in the rope, as may happen in very few cases, the rope will be retracted just up to the knot. In such cases land as advised above and undo the knot.

In order to avoid knots being tied, the pilot of the towed sailplane must not release when the rope is under high load.

3.11 MALFUNCTIONS DURING TAXIING

During taxiing verify with help of the rear-view mirror that the tow-rope is totally retracted. Otherwise activate the tow-rope retraction winch by pressing the rocker-switch and retract the tow-rope completely. Not complying to this advice may lead to damage of the tow-plane's tail.

4. NORMAL PROCEDURES

4.4 PREFLIGHT INSPECTION

- * Check system for insecure mounting and loose connections.
- * Verify that the winch drum is free to turn without any interference in its movement.
- * Check stop-egg for looseness.
- * Verify that cutting mechanism is connected to release cable.
- * Check movement of the cutting knife for interference, by applying a slight pressure by hand.
- * Check mouth piece for damage.
- * Pull out tow-rope completely and check for damage, especially around the end piece.
- * Check breaking piece.
- * At cold outside air temperatures check for frozen tow-rope.
- * Verify that rear view mirror is correctly adjusted.

4.5 NORMAL PROCEDURES AND RECOMMENDED SPEEDS

4.5.2 TAKE-OFF AND CLIMB

The tow-plane is positioned in front of the sailplane to be towed. The tow-rope must be pulled to the sailplane and attached to the towing coupling. The tow-plane pilot must tauten the tow-rope until the stop-egg is noticed to reach the stop-egg detent. Then the green marking of the tow-rope is visible.

CAUTION

The tow-plane pilot must only start towing after the stop-egg has reached the stop-egg detent. The green marking of the tow-rope must be visible.

4.5.5 APPROACH AND LANDING

1. After the sailplane has released, press the rocker-switch for the tow-rope retraction winch and retract the tow-rope. Illumination of the red warning light inside the rocker-switch indicates operation of the winch.
2. In the rear-view mirror mounted on the left-hand wing observe of the retraction of the tow-rope. When the end-piece with the breaking-piece is retracted, the winch will stop operating automatically.
3. By looking in the rear-view mirror verify the complete retraction of the tow-rope.
- % 4. Perform landing approach as given in the main part of the Flight Manual. In case the tow-rope is not completely retracted, it should be cut during flight above the airfield. Landings with the tow-rope not retracted shall only be performed if an approach sector totally clear of obstacles is available and only at an increased approach speed.

NOTE

During retraction of the tow-rope it is recommended not to exceed an airspeed of 170 km/h (92 kts / 106 mph). This is in order to avoid early termination of the winch-operation.

5. PERFORMANCE

The data given in Supplement No. 1 remains valid.

6. MASS (WEIGHT) AND BALANCE

6.1 INTRODUCTION

% For the operation of the powered sailplane as a tow-plane the powered sailplane must be weighed in order to determine the empty mass (weight) and the corresponding center of gravity.

7. POWERED SAILPLANE AND SYSTEMS DESCRIPTION

7.0 TOW-ROPE RETRACTION DEVICE

The tow-rope retraction device is connected to the electrical system through the automatic circuit breaker. The retraction device is therefore not operative during normal % operation of the powered sailplane.

The tow-rope retraction device consists of two sections:

Cutting Mechanism

The cutting mechanism is screwed to the standard towing coupling with an adapter. Tensile forces acting in the tow-rope during towing are released by the stop-egg onto the stop-egg detent and further to the existing towing-device mount. The stop-egg detent is an inner part of the cutting-mechanism located forward of the cutting-knife. The stop-egg is fixed onto the tow-rope and removes any tensile forces from the tow-rope winch.

The release lever for the standard towing device is also used for the actuation of the cutting mechanism.

Electrically Powered Tow-Rope Winch

The electrically powered winch (installed in the baggage compartment) is activated by a rocker switch (on/off switch with integrated thermal circuit protector). A red warning light inside the switch indicates operation of the winch. When the rope's endpiece is swallowed by the mouth piece the winch switches off automatically. 50 meters (164 ft) of tow-rope is the maximum usable length accommodated by the winch-drum. The tow-rope runs in the tow-rope guide tube which leads from the winch-drum to the cutting mechanism.

The rear-view mirror is mounted on the leading edge of the left-hand wing with two camlocs. The mirror is positioned as to give a view of the tow-rope.

7.11 ELECTRICAL SYSTEM

The winch rocker-switch with its integrated automatic circuit breaker is located on the cockpit's left-hand side. Winch-operation is stopped automatically by the automatic circuit breaker.

7.14 PLACARDS / INSCRIPTIONS

7.14.1 LIMITATION PLACARDS

Limitation placards are contained in this Supplement in Section 2.16 LIMITATION PLACARDS.

7.14.2 PLACARDS FOR COCKPIT CONTROLS

Placard	Place	Remark
Towing Coupling / Cutting Mechanism	on the release lever	in addition on the release lever: 4 red rings, 10 mm (0.4 in) wide in intervals of 20 mm (0.8 in), starting at the top

7.14.3 PLACARDS FOR ELECTRICAL EQUIPMENT

Placard	Place	Remark
Tow-Rope Retraction Device	next to rocker switch of tow-rope retraction device	

8. POWERED SAILPLANE HANDLING, CARE AND MAINTENANCE

8.2 POWERED SAILPLANE INSPECTION PERIODS

8.2.2 INSPECTION PERIODS FOR THE TOWING DEVICE

% At each 100 hour inspection of the powered sailplane, the retraction device must be checked for poor condition and malfunction and the cutting mechanism must be cleaned and lubricated.

The following steps must be accomplished:

- * Verify proper operation of cutting-mechanism by activation with tow-rope fully retracted.
- * Disassemble cutting-mechanism and inspect knife for good blade and check for damage.
- * Clean inside of cutting-mechanism.
- * Clean tow-rope guide tube and check for chafing or abrasion.
- * For re-assembly of the cutting-knife the engraved arrow must point aft. Do not overtighten castle nut and secure it with split-pin.
- * Lubricate all moving parts.
- * Check spring of (red) cutting-lever.
- * Check safety clutch for malfunction: if holding load is not between 70 and 90 N (15.7 and 20.2 lbf), have safety clutch adjusted by manufacturer. Holding load shall be measured on the rope directly at the winch drum.
- * Check the load needed to pull out the tow-rope: if it is greater than 120 N (27 lbf), check system for excessive wear of tow-rope guide and replace damaged parts.
- * Check winch drum for insecure mounting and damage.
- * Re-install ring couple according to DAI-WI No. 27 at the end of the tow-rope.
- * Check electrical connections.

The TBO of the tow-rope retraction device is 4 years or 2000 tows, whichever comes first.

After 2000 tows a new tow-rope must be installed. If the tow-rope is in a poor condition, a new one must be installed even earlier.