SECTION 7

POWERED SAILPLANE & SYSTEMS DESCRIPTION

7.1 INTRODUCTION

This section provides description and operation of the powered sailplane and its systems. Refer to Section 9, Supplements, for details of optional systems and equipment.

7.2 AIRFRAME

7.2.1 WINGS

The GFRP/CFRP wings are manufactured in half-shell sandwich construction. The ailerons are made of CFRP and are attached to the wing by means of five hinges, also made of CFRP. Schempp-Hirth type air brakes are provided in the wings' upper surface. They may be extended at all speeds up to v_{NE}. The air brakes have oil dampers but must be locked. This is performed by pushing the lever to the forward stop overcoming the resistance occurring after the air brake is retracted. The air brake lever catches when the air brakes are extended half way.

The wings are connected to the fuselage with three bolts each.

The winglets are manufactured from CFRP and are attached to the wings with 2 threaded bolts each.

7.2.2 FUSELAGE

The GFRP fuselage is manufactured in half-shell sandwich construction. A fire-resistant fabric is sandwiched between a stainless steel barrier and the firewall. The main bulkhead is made of CFRP/GFRP.

The instrument panel is made of GFRP. The maximum permissible mass (weight) of the instrument panel including the instruments installed is 17 kg (37.5 lbs.).

7.2.3 TAIL PLANE

Rudder, elevator and horizontal stabilizer are manufactured in half-shell sandwich construction. The folded-top COM antenna and the Pitot tube mount are placed in the vertical stabilizer. The horizontal tail surfaces are attached with two bolts and a fastening screw.

7.3 FLIGHT CONTROLS

7.3.1 PRIMARY CONTROLS

Ailerons and elevator are driven by push-rods, the rudder is driven through control cables. Elevator control forces can be compensated by means of a spring trim system.

The aileron and air brake control systems are automatically connected when the wing is installed. However, the strobe and position lights (optional equipment) must be connected. The elevator control system must be connected by hand.

7.3.2 ELEVATOR TRIM SYSTEM

The green colored trim knob is located in the center console behind the throttle quadrant. To trim the airplane unlock the knob by pulling up, then move it to the desired position. The knob is spring-loaded and catches when it is released.

Knob forward = NOSE DOWN

7.3.3 RUDDER PEDAL ADJUST

NOTE

The rudder pedals must be adjusted on the ground!

The pedals are unlocked by pulling the black T-grip in front of the control stick.

Move forward: Push pedals forward with your heels while pulling the grip. Release the grip, let the pedals catch perceptibly.

Move rearward: Pull pedals rearward with the grip. Release the grip, use your feet to push the pedals forward until they catch.

7.4 AIR BRAKE SYSTEM

There is a blue air brake lever on either side panel. By pulling the lever rearward the air brakes are unlocked and extended.

The air brake lever catches when the air brakes are extended half way. This position can be overtraveled in either direction with slightly increased force.

To lock the air brakes the lever must be pushed to the forward stop overcoming the resistance occurring after the air brake is retracted.

WARNING

When exceeding the maximum admissible speed with the air brakes fixed in the half extended position v_{ABI}, the air brakes can be extended by aerodynamic forces.
The extension of the air brakes produces a nose down moment which is more intense at higher airspeeds.
At v_{NE}, the air brakes must be extended slowly in order to avoid too high negative acceleration.

7.5 LANDING GEAR SYSTEM

7.5.1 GENERAL

The landing gear consists of the two main wheels mounted to spring steel struts and a castering nose wheel. An elastomer damper provides resiliency for the nose wheel.

7.5.2 WHEEL BRAKE

The main wheels are equipped with hydraulically actuated disk brakes which are individually operated through toe-brakes.

7.5.3 PARKING BRAKE

The draw-button is located on the center console behind the trim knob. The parking brake is released when the button is in the inserted position.

To set the parking brake, draw the button to the stop and actuate the brake pedals a few times. To release the parking brake, step on the toe-brakes again in order to relieve the shut-off valve and push the button in.

CAUTION

Pushing the button in without stepping on the toe-brakes leads to an overstress of the operating circuit. Excessive wear may result.

7.6 SEATS AND SAFETY HARNESSES

The seat shells are removable in order to permit maintenance and inspection of the control system parts beneath. Jackets on the control sticks and on the air brake levers prevent foreign bodies from falling into the area of the control gear.

The seats are furnished with removable cushions. Parachutes with manual release can be used instead of the cushions. There is no fixture for the release cord of parachutes with automatic release. Therefore these parachutes cannot be used.

Each seat is provided with a four-part harness. To fasten the harness, the end pieces must be inserted into the lock. To open the harness, turn the twist handle on the lock.

7.7 BAGGAGE COMPARTMENT

The baggage compartment is located behind the backrest above the fuel tank. Baggage pieces should be distributed evenly over the compartment. For safety reasons, the baggage pieces must be tied down.

CAUTION

Before loading the baggage compartment, pay attention to the maximum useful load or, in case of solo flights, the minimum seat payload. Refer to the Mass and Balance Form and/or the Mass and Balance Diagram.

7.8.1 MODE SELECT SWITCH

When the mode select switch is in SOARING position only the COM equipment and the electric vertical speed indicator (optional) are supplied with battery power. All other electrical consumers are switched off.

7.8.2 INSTRUMENTS

The flight instruments are installed in the left hand section of the instrument panel. The power-plant instruments are installed in the right hand section.

7.8.3 CABIN HEAT AND CABIN AIR

The draw-button for the cabin heat is located in the center console under the instrument panel. Pull the button to turn the cabin heat on.

The cabin can be aerated through the swivelling nozzles on the side panels. The two sliding/knockout windows in the canopy can be opened for additional aerating.

7.8.4 CANOPY

Canopy lock

To close the canopy, pull shut with the black grips located on the front of the canopy frame. The canopy is locked by pushing forward the two red levers attached to the frame on either side. To open the canopy reverse the sequence.

CAUTION

Before starting the engine, close and lock the canopy!

Canopy jettison

By strongly swinging the red levers 180° rearward, the canopy is disconnected from the brackets. Then the pilot must place both hands above his head against the canopy and push it away in upward direction.

7.9 POWER-PLANT

7.9.1 ENGINE

Liquid-cooled 4 cylinder four stroke engine Rotax 912 A3. Crankshaft speeds in parentheses.

Displacement : 1.211 liters

Max. output power (5 min) : 59.6 kW (81 DIN-hp.) at 2550 RPM (5800 RPM)

Max. continuous power : 58 kW (79 DIN-hp.) at 2420 RPM (5500 RPM)

For further specifications refer to the Operator's Manual for the engine.

7.9.2 POWER PLANT CONTROLS

Carburetor heat, throttle control, and propeller speed control are combined in a unit (throttle quadrant) on the center console.

Carburetor heat: Small rectangular lever

Lever full rearward = CARBURETOR HEAT ON

The carburetor heat is normally OFF (lever fully forward)

Throttle control: Large round lever

Lever full forward = FULL THROTTLE

Propeller speed control: Black star shaped lever

Lever full forward = TAKE-OFF

Lever back to restriction = CRUISE

Lever full rearward = SOARING

The choke button (self-resetting) is installed in the center console under the instrument panel.

Choke button pulled = CHOKE ACTIVATED

7.9.3 COWL FLAP

For the operation of the manual cowl flap there is a T-grip on the center console next to the cabin heat button. To arrest the T-grip turn it 90° clockwise.

T-grip pulled = COWL FLAP CLOSED

The cowl flap is closed during soaring in order to reduce drag. At outside temperatures below 0 °C (32 °F), partial closing of the cowl flap avoids continuous operation with an oil temperature below 80 °C (176 °F).

NOTE

Continuous operation with oil temperatures below 80 °C (176 °F) may lead to increased accumulation of condensation, which can be recognized by white foam in the oil tank.

CAUTION

Leave the cowl flap at least half open while the engine is running in order to avoid overheating. Pay special attention to the engine temperatures.

7.9.4 PROPELLER & GOVERNOR

Propeller : mt-propeller MTV-21-A-C-F/CF175-05
hydraulically controlled constant speed propeller with feathered pitch

® Governor : Woodward A-210790 or McCauley DCFU290D17B/T1.

7.9.5 PROPELLER SPEED CONTROL

NOTE

The propeller speed control works differently from the usual systems in so far as hydraulic pressure is needed to *reduce* the blade pitch.

Small pitch is achieved by applying hydraulic pressure supplied by the governor. A spring moves the propeller to the feathered pitch position.

Propeller adjustment is done through the propeller speed control installed into the center console next to the throttle control. Pulling the control back to the cam (point where the resistance increases) causes an RPM reduction. The govemor keeps the selected RPM constant, independent of airspeed and throttle control position. If the engine power selected with the throttle control is not sufficient to maintain the selected RPM, the propeller blades will move to the lowest possible pitch (maximum RPM at this power setting).

If the propeller speed control is moved fully rearward over the cam (feathered pitch position) and the propeller speed is higher than 500 RPM, the blades will move into the feathered pitch position. At too low RPM's, claws controlled by centrifugal force extend and keep the blades in low pitch position. Thus it is impossible to feather the propeller at engine standstill. During flight the propeller keeps rotating due to windmilling, even with the ignition switched off. The propeller stops rotating only when it is feathered. Therefore a propeller brake is not required.

The propeller govemor is flanged to the engine. It is driven directly by the engine. The propeller control circuit is part of the engine oil circuit.

In case of defects in the oil system, the propeller is supplied with oil by the pressure accumulator and thus stays operative for at least two minutes without oil being supplied by the engine. As soon as the oil pressure in the pressure accumulator is used up, the propeller blades will move into the feathered pitch position.

CAUTION

The propeller speed control must not be moved over the cam to the feathered pitch position as long as the engine is running! Refer to the Normal Procedure described in paragraph 4.5.3.

7.10 FUEL SYSTEM

7.10.1 GENERAL

The aluminum tank is located behind the backrest beneath the baggage compartment. The standard version holds 54 liters (14.3 US gal.), the long range version 77 liters (20.3 US gal.) of usable fuel. At its lowest spot, the tank is connected to the drain on the bottom side of the fuselage.

The fuel passes through a finger filter before it reaches the electric fuel pump with integrated filter; from there it goes to the fuel shut-off valve, the engine-driven fuel pump and finally to the float chambers of the two carburetors.

7.10.2 FUEL SHUT-OFF VALVE

The fuel shut-off valve is located on the left side of the center console near the pilot's feet.

Tap in flight direction = valve OPEN

7.10.3 TANK DRAIN

To drain the tank sump, activate the spring loaded drain by pushing the brass tube in with a drain cup. The brass tube protrudes appr. 30 mm (1.2 in.) from the fuselage contour and is located on the left hand side of the fuselage bottom, approximately at the same station as the fuel filler.

7.10.4 FUEL QUANTITY INDICATOR

The fuel quantity indicator is adjusted for flight attitude. A slightly low indication is therefore possible on the ground.

7.11 ELECTRICAL SYSTEM

The master switch is a toggle type. The mode select switch is situated to the right of the master switch.

CAUTION

Starting the engine is only possible if the mode select switch is in POWER FLIGHT position.
In SOARING position, all electrical consumers except for the COM equipment and the electric vertical speed indicator (optional) are currentless.

The NAV and COM equipment is located in the center section of the instrument panel. The transmit button for the radio is integrated into the control stick. The radio loudspeaker is installed in the baggage compartment. A backrest-mounted connection set for two headsets is optional.

7.12 PITOT AND STATIC SYSTEM

Static pressure, total head and the pressure for the compensation of the vertical speed indicator are measured by means of a Pitot tube which is mounted to the vertical stabilizer. The tube is removable. A safe connection of the lines is established automatically when the Pitot tube is inserted to the stop in the mount.

The lowest spot of the Pitot and static lines is bridged by means of bypass lines. Water that might have entered the system can accumulate there. Removal of water must be done during scheduled inspections (refer to the Airplane Maintenance Manual).

7.13 MISCELLANEOUS EQUIPMENT

For the operation of additional avionics, refer to the manuals of the respective manufacturers.

7.14 PLACARDS . INSCRIPTIONS

The limitation placards are presented in paragraph 2.15. A list of all placards and inscriptions is included in the Airplane Maintenance Manual.

SECTION 8
POWERED SAILPLANE HANDLING, CARE AND MAINTENANCE

Page No.

8.1 INTRODUCTION

This section contains manufacturer's recommended procedures for proper ground handling and servicing of the powered sailplane. The Airplane Maintenance Manual identifies certain inspection and maintenance requirements which must be followed if the powered sailplane is to retain that new-plane performance and dependability. It is wise to adhere to the Lubrication Schedule and perform preventive maintenance based on climatic and flying conditions encountered.

8.2 POWERED SAILPLANE INSPECTION PERIODS

Inspections are scheduled every 100, 200 and 600 hours. The respective inspection checklists are prescribed in the Airplane Maintenance Manual, paragraph 3.1.

8.3 POWERED SAILPLANE ALTERATIONS OR REPAIRS

Alterations or repairs of the powered sailplane may only be carried out as prescribed in the Airplane Maintenance Manual and only by authorized personnel. In exceptional cases (e.g. ferry flights or test flights after maintenance), airplane operation without winglets, spinner, or wheel fairings is admissible.

8.4 GROUND HANDLING / ROAD TRANSPORT

For ground handling a draw tongue which is hooked to the nose wheel should be used. Road transport using a trailer is described in the Airplane Maintenance Manual, paragraph 1.2.

8.5 CLEANING AND CARE

It is recommendable to remove insects with water and sponge after the day's flying is ended.

CAUTION

Extreme dirt accumulation deteriorates flight performance!

Refer to the Airplane Maintenance Manual, paragraph 1.4, for further care measures.

SECTION 9

SUPPLEMENTS

At this time the following Supplements are available:

Supplement No. 1	Tow-Plane Operation
Supplement No. 3	Electrical Power Socket for Additional Equipment

Diamond AIRCRAFT

SUPPLEMENT NO. 1 TO THE AIRPLANE FLIGHT MANUAL FOR THE POWERED SAILPLANE HK 36 TC

TOW-PLANE OPERATION

Date of Issue: May 1996

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

Authority:	AUSTRO CONTROL GmbH Abteilung Flugtechnik Außenstelle Ost A-1300 Wien-Flugfeld, Hangar 2	
Signature:	Winkler	
Stamp:		
Date of Approval:	08. Jan. 1997	

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 Airplane Flight Manual.

0.1 RECORD OF REVISIONS

Rev. No.	Chap-ter(s)	Page(s)	Date of Revision	Approval	Date of Approval	Date Inserted	Signature
1	all	all except cover page	24-10-2011	Revision 1 of the AFM Supplement Doc. No. 3.01.10-E to AFM Doc. No. 3.01.10-E is approved with EASA Approval No. 10037909	05-01-2012		

0.2 LIST OF EFFECTIVE PAGES

Section	Pages	Date
0	9 - 1 - 1	May 1996
	9 - 1 - 2	May 1996
	9 - 1 - 3	May 1996
	9 - 1 - 4	May 1996
1	9 - 1 - 5	May 1996
	9 - 1 - 6	May 1996
2	9 - 1 - 7	May 1996
	9 - 1 - 8	May 1996
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6	9 - 1 - 15	May 1996
	9 - 1 - 16	May 1996
7	9 - 1 - 17	May 1996
8	9 - 1 - 18	May 1996

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 TC and are valid only for the operation of the powered sailplane as a tow-plane.

1.2 CERTIFICATION BASIS

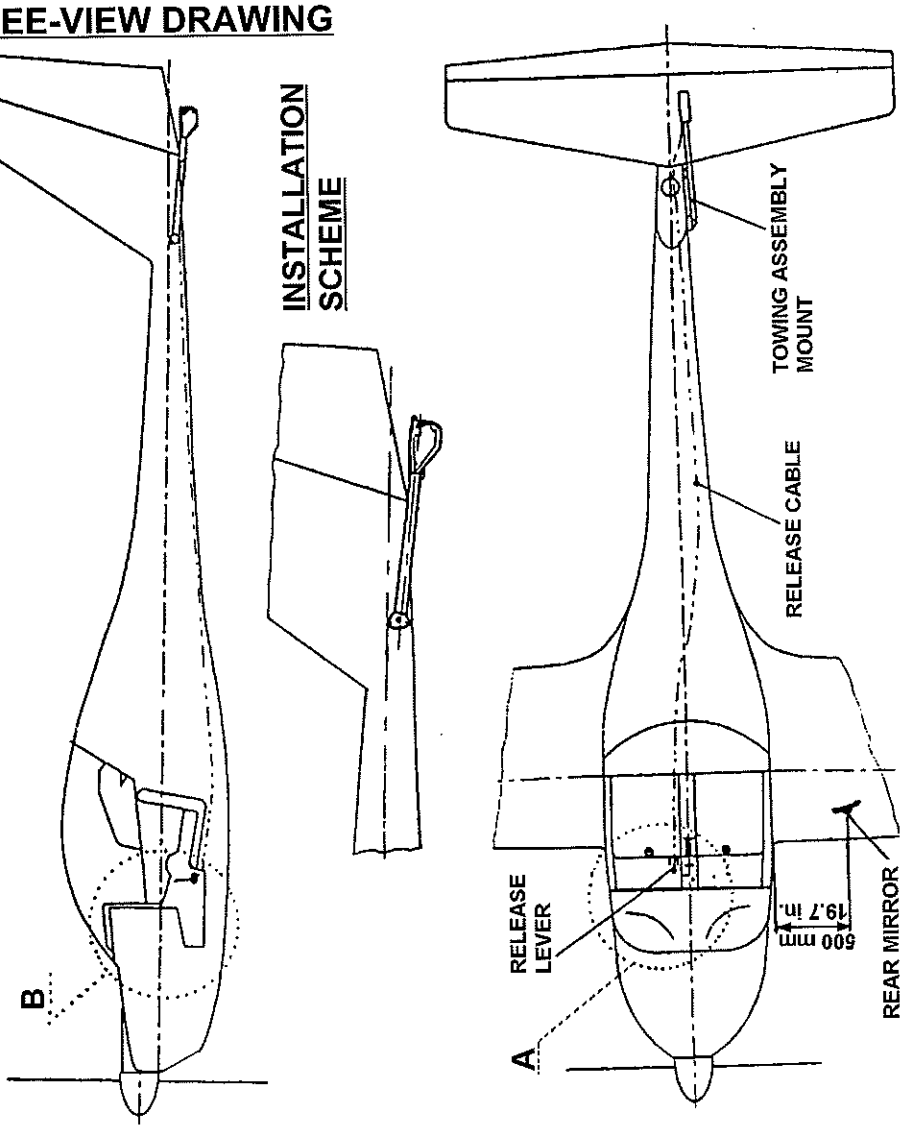
Tow-plane operation of this airplane has been approved in accordance with the draft of the LBA airworthiness requirements for tow-plane operation dated February 1971.

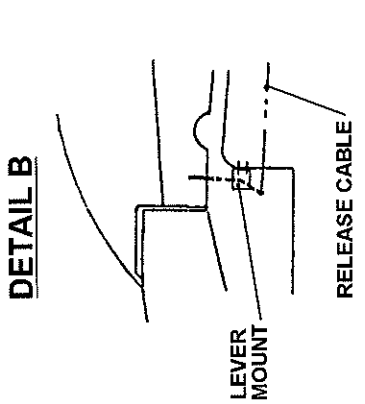
1.5 DESCRIPTIVE DATA

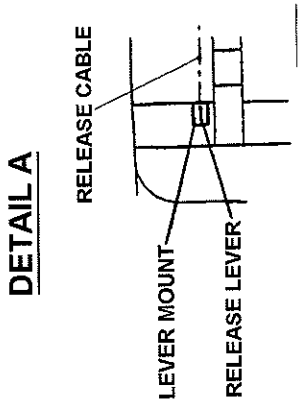
The towing device E 85, manufactured by Tost, is attached to the fuselage tube by means of a steel fitting specially designed for the HK 36 TC. The tow-rope is released through a cable mechanism connected to a release lever in the cockpit.

For tow-plane operation, an additional rear mirror must be attached to the left wing using two camlocs (see three-view drawing, page 9-1-6).

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)

For sailplane towing, 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 TC 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

For 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.

SECTION 3
EMERGENCY PROCEDURES

3.7 ENGINE FAILURE

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

1. Check towing device and release mechanism for excessive dirt and improper operation (perform release test).
2. If installed, check tow rope caution light for improper operation.
3. Check tow rope, connection rings and breaking piece for excessive wear, damage and improper arrangement.
4. Check rear mirror for insecure attachment.
5. Check removable release lever for towing device is properly mounted and secured (if installed).

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, adjust airspeed to 97 km/h (52 kts., 60 mph).

For maximum rate of climb, adjust airspeed to 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

1. Prior to landing, drop tow-rope or banner.
2. Verify proper releasing (check caution light, if installed).
3. 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

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).

s_1 = Take-off roll

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

Head-wind comp. [kts.]	OAT [° C]	Pressure altitude above MSL [m] / QFE [hPa]							
		0 / 1013		400 / 966		800 / 921		1200 / 877	
		s_1 [m]	s_2 [m]	s_1 [m]	s_2 [m]	s_1 [m]	s_2 [m]	s_1 [m]	s_2 [m]
0	0	272	451	309	504	351	564	401	633
	15	314	510	356	570	407	640	467	722
	30	359	575	410	645	470	726	542	822
5	0	217	377	248	422	285	476	327	535
	15	252	428	288	480	332	541	382	613
	30	290	485	334	546	385	617	446	701
10	0	169	310	194	349	224	394	259	445
	15	197	354	227	399	263	450	305	511
	30	230	402	265	455	307	515	358	587

Head-wind comp. [kts.]	OAT [° F]	Pressure altitude above MSL [ft.] / QFE [inHg]							
		0 / 29.9		1310 / 28.5		2620 / 27.2		3940 / 25.9	
		s_1 [ft.]	s_2 [ft.]	s_1 [ft.]	s_2 [ft.]	s_1 [ft.]	s_2 [ft.]	s_1 [ft.]	s_2 [ft.]
0	32	892	1480	1014	1654	1152	1850	1316	2077
	59	1030	1673	1168	1870	1335	2100	1532	2369
	86	1178	1886	1345	2116	1542	2382	1778	2697
5	32	712	1237	814	1385	935	1562	1073	1755
	59	827	1404	945	1575	1089	1775	1253	2011
	86	951	1591	1096	1791	1263	2024	1463	2300
10	32	554	1017	636	1145	735	1293	850	1460
	59	646	1161	745	1309	863	1476	1001	1677
	86	755	1319	869	1493	1007	1690	1175	1926

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 TC 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.

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 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 beside the airspeed indicator. 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 TC:

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.

Diamond AIRCRAFT

SUPPLEMENT NO. 3 TO THE

AIRPLANE FLIGHT MANUAL

FOR THE POWERED SAILPLANE

HK 36 TC

ELECTRICAL POWER SOCKET

FOR ADDITIONAL EQUIPMENT

Date of Issue: May 1996

The pages within this Supplement do not require approval.

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 Airplane Flight Manual.

DIAMOND AIRCRAFT INDUSTRIES GMBH
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0.1 LIST OF EFFECTIVE PAGES

Section	Pages	Date
0	9 - 3 - 1	May 1996
	9 - 3 - 2	May 1996
	9 - 3 - 3	May 1996
1, 2	9 - 3 - 4	May 1996
3, 4, 5	9 - 3 - 5	May 1996
6, 7	9 - 3 - 6	May 1996
8	9 - 3 - 7	May 1996

0.2 TABLE OF CONTENTS

SECTION 1
GENERAL

1.1 INTRODUCTION

Pages 9 - 3 - 1 to 9 - 3 - 7 constitute Supplement no. 3 to the Flight Manual for the powered sailplane HK 36 TC and are valid only for the operation of the powered sailplane with the additional electrical power socket fitted.

1.5 DESCRIPTIVE DATA

The electrical power socket is intended for the supply of various equipment only on the ground. This equipment must be provided with a cigarette ignitor type plug.

When not in use the socket must be closed with a cover.

SECTION 2
LIMITATIONS

The electrical power socket may only be used during ground operation because it cannot be ruled out that the additional equipment will affect the on board electronic equipment and avionics. During take-off, cruise and landing use of the socket is not permitted.

The socket is protected by a 2 Amps fuse.

SECTION 3
EMERGENCY PROCEDURES

[Omitted.]

SECTION 4
NORMAL PROCEDURES

[Omitted.]

SECTION 5
PERFORMANCE

[Omitted.]

SECTION 6
MASS (WEIGHT) AND BALANCE / EQUIPMENT LIST

6.9 EQUIPMENT LIST

Additional equipment required for the power socket

1 Socket
1 Wire harness with fuse
1 Cover

SECTION 7
POWERED SAILPLANE & SYSTEMS DESCRIPTION

7.11 ELECTRICAL SYSTEM

The power socket is supplied from electrical bus no. 2 (switch panel) via a fuse. The fuse is located behind the instrument panel and is therefore inaccessible during flight.

7.14 PLACARDS / INSCRIPTIONS

The following placard is installed next to the additional power socket:

Power connector should be used **only** on ground. Maximum load **2 A**

SECTION 8
POWERED SAILPLANE HANDLING, CARE AND MAINTENANCE

8.2 POWERED SAILPLANE INSPECTION PERIODS

8.2.1 INSPECTION PERIODS FOR THE ELECTRICAL POWER SOCKET

At each 100 hour inspection the system should be checked for improper operation.

Diamond AIRCRAFT

SUPPLEMENT NO. 6 TO THE AIRPLANE FLIGHT MANUAL FOR THE POWERED SAILPLANE HK 36 TC

OPERATION IN RUSSIA

Date of Issue: 20 May 1997

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

Authority:	AUSTRO CONTROL GmbH Abteilung 6 für Luftfahrzeuge und -gerät A-1030 Wien, Schnirchgasse 11	
Signature:		
Stamp:	AUSTRO CONTROL GmbH 440	
Date of Approval:	15. Juli 1997	

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 Airplane Flight Manual.

0.1 RECORD OF REVISIONS

Revision Number	Section	Pages	Date of Revision	Remarks of Approval	Date of ACG Approval	Date Inserted	Initials / Signature

0.2 LIST OF EFFECTIVE PAGES

Section	Pages	Date
0	9 - 6 - 1	20 May 1997
	9 - 6 - 2	20 May 1997
	9 - 6 - 3	20 May 1997
	9 - 6 - 4	20 May 1997
1	9 - 6 - 5	20 May 1997
2	ACG-appr. 9 - 6 - 6	20 May 1997
3	ACG-appr. 9 - 6 - 7	20 May 1997
4	ACG-appr. 9 - 6 - 8	20 May 1997
	ACG-appr. 9 - 6 - 9	20 May 1997
	ACG-appr. 9 - 6 - 10	20 May 1997
5	ACG-appr. 9 - 6 - 11	20 May 1997
6	9 - 6 - 12	20 May 1997
7	9 - 6 - 13	20 May 1997
	9 - 6 - 14	20 May 1997
8	9 - 6 - 15	20 May 1997

0.3 TABLE OF CONTENTS

SECTION 1

GENERAL

1.1 INTRODUCTION

Pages 9-6-1 through 9-6-15 constitute Supplement No. 6 to the Airplane Flight Manual for the Powered Sailplane HK 36 TC and are valid only for the operation of the Powered Sailplane in Russia.

Operation of the Powered Sailplane in Russia requires the Pilot to take notice of specific limitations and information. These are given in this Supplement.

1.2 CERTIFICATION BASIS

The HK 36 TC is certified in Russia in accordance with the "Airworthiness Criteria for Powered Gliders".

SECTION 2

LIMITATIONS

2.14 OTHER LIMITATIONS

Temperature range

The Powered Sailplane may only be operated in the following temperature range:

Minimum take-off temperature:	- 25 °C	OAT (on the ground)
Maximum take-off temperature:	+ 38 °C	OAT (on the ground)

Headwind and tailwind

Take-off and landing with headwind exceeding 10 meters per second are prohibited.

Take-off and landing with tailwind are prohibited.

Runways and taxiways

The use of unpaved runways and taxiways with a strength below 7 kg/cm^2 is prohibited.

CAUTION

Operation of the Powered Sailplane from snowed unpaved airfields as well as from paved runways covered with snow, slush or water is prohibited.

SECTION 3

EMERGENCY PROCEDURES

3.1 INTRODUCTION

The emergency procedures remain unchanged.

SECTION 4

NORMAL PROCEDURES

4.5 NORMAL PROCEDURES AND RECOMMENDED SPEEDS

4.5.1 LAUNCH/ENGINE STARTING, RUN UP & TAXIING PROCEDURES

The checklist in the main part of the Airplane Flight Manual is replaced by the following checklist:

1.	Rudder pedals	adjust
2.	Seat harnesses	fasten
3.	Canopy	closed & locked
4.	Fuel valve	OPEN
5.	Controls	free
6.	Air brakes	check operation; lock
7.	Parking brake	set
8.	Electrical consumers	OFF
9.	Master switch	ON
10.	Mode select switch	POWER FLIGHT
11.	Propeller speed control	TAKE-OFF
12.	Fuel quantity	check
13.	Cowl flap	OPEN
14.	Electric fuel pump	ON; verify red light extinguishes after build up of fuel pressure
15.	Throttle control	IDLE
16.	Choke	ON if engine is cold

WARNING

People must stay clear of the propeller danger zone!

17.	Ignition switch	turn clockwise to start engine
18.	Throttle control	adjust 1000 RPM

19. Oil pressure . . . . . must reach green range within 10 seconds

CAUTION

If the oil pressure is too low, turn off engine immediately!

NOTE

When the powered sailplane is parked for long periods, or the hydraulic pressure accumulator is emptied for any other reason, a loss of oil pressure may occur after oil pressure build up in the area of the oil pressure sensor. The reason for this is the filling process of the accumulator. The oil pressure indicator may drop to zero for a maximum of 15 seconds.

20. Choke . . . . . push forward as required

WARNING

If the engine is warm, the activated choke will considerably cut the engine output!

21. Electrical consumers . . . . . ON as required
22. Altimeter . . . . . set
23. Oil temperature . . . . . check

CAUTION

Before loading the engine, allow the oil temperature to rise to 50° C (122° F) with the cowl flap open at 1000 to 1500 RPM (taxiing is allowable).

24. Choke . . . . . OFF

25. Ignition circuits check:
    - Throttle control . . . . . adjust 1700 RPM
    - Ignition circuits . . . . . check; drop should be 50 to 150 RPM; difference between circuits 1 and 2 should not exceed 50 RPM.

CAUTION

If RPM drop is too high at low outside temperatures, repeat check with the carburetor heat ON.

26. Carburetor heat . . . . . check at 1700 RPM;
    drop should be approx. 20 RPM
    leave ON if outside air temperature is 5 °C or less
    turn OFF otherwise
27. Propeller check:
    - Throttle control . . . . . adjust 2000 RPM
    - Propeller speed control . . . . . CRUISE (pull back to cam before soaring position)
      wait until speed drops to approx. 1800 RPM
      reset to TAKE-OFF position

    Repeat procedure at least three times.

CAUTION

Without repeating the procedure it is not ensured that the pitch change mechanism is operative.

28. Power check:
    - Ignition switch . . . . . check if in BOTH position
    - Throttle control . . . . . FULL, RPM should be 2500 ± 50

29. Power plant instruments . . . . . check if in green range

SECTION 5

PERFORMANCE

5.1 INTRODUCTION

The performance data remains unchanged.

SECTION 6

MASS (WEIGHT) AND BALANCE / EQUIPMENT LIST

6.1 INTRODUCTION

The mass and balance data remain unchanged.

6.9 EQUIPMENT LIST

Equipment required for operation in Russia

The flight instruments listed in the Minimum Equipment List in the main part of the Airplane Flight Manual must be calibrated in metric units.

Operation in Russia requires the following additional equipment:

1 Attitude Gyro

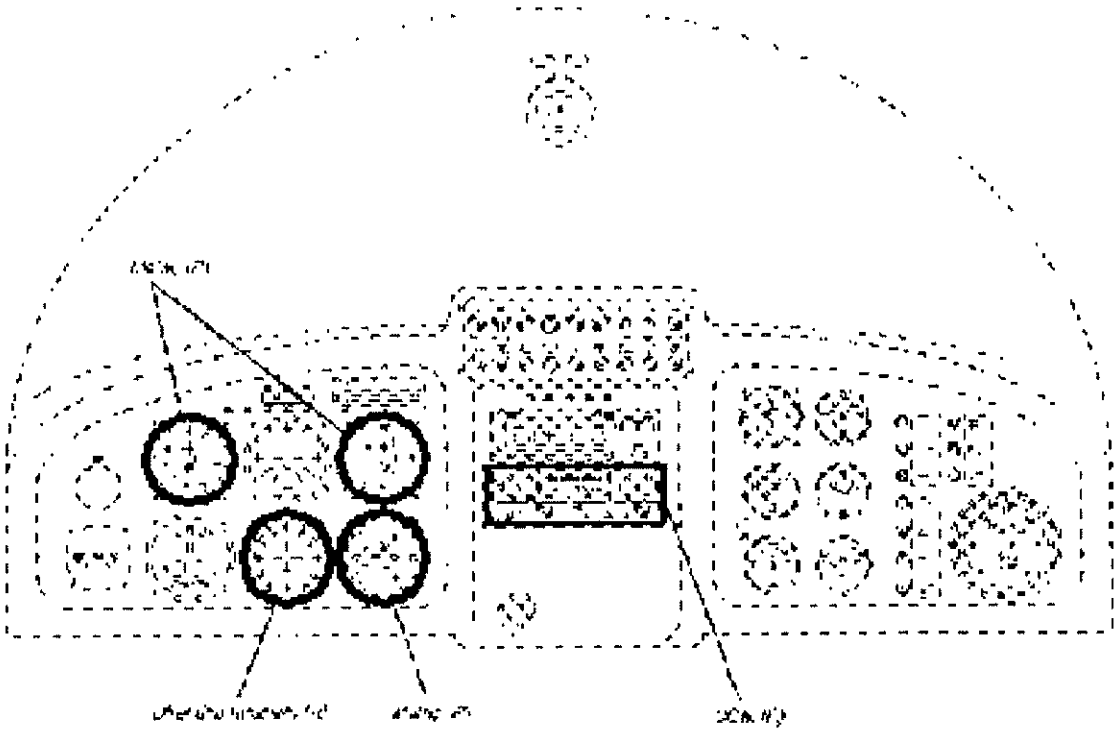
1 Direction Gyro

1 COM radio

SECTION 7
POWERED SAILPLANE AND SYSTEMS DESCRIPTION

7.8 COCKPIT

Cockpit layout for operation in Russia



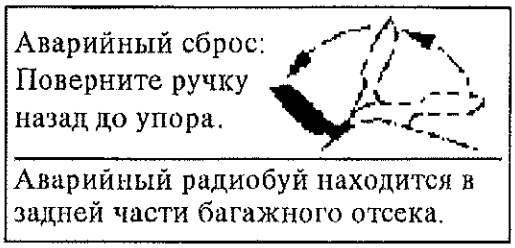
(R) .... required for operation in Russia

Placards

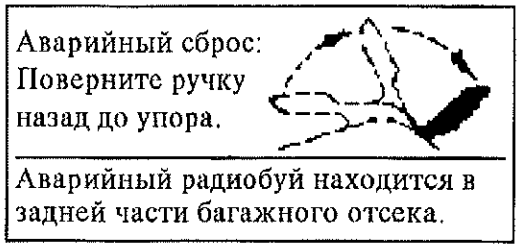
The placards remain unchanged except for the following:

(a) On the canopy frame:

behind left canopy release lever:



behind right canopy release lever:



(b) The following additional placard must be attached where it is well visible for both Pilots:

mm Hg	mbar	mm Hg	mbar
525	700	710	947
550	733	720	960
575	767	730	973
600	800	740	987
625	833	750	1000
650	867	755	1007
660	880	760	1013
670	893	765	1020
680	907	770	1027
690	920	775	1033
700	933	780	1040

SECTION 8

POWERED SAILPLANE HANDLING, CARE AND MAINTENANCE

8.2 POWERED SAILPLANE INSPECTION PERIODS

At every scheduled inspection, the vent bore in the fuel tank filler must be checked for blockage.

Diamond AIRCRAFT

SUPPLEMENT NO. 11

TO THE AIRPLANE FLIGHT MANUAL FOR THE POWERED SAILPLANE HK 36 TC

ADDITIONAL PERFORMANCE DATA

Doc. No. : **3.01.10-E**
Date of Issue : **10 Nov 1999**

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

Signature : Winkler

Authority : AUSTRO CONTROL GmbH

AUSTRO CONTROL GmbH
Abteilung Flugtechnik
Außenstelle Ost
A-1300 Wien-Flugfeld, Hangar 3

Stamp

Original date of approval : 12. Nov. 1999

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 Airplane Flight Manual.

0.1 RECORD OF REVISIONS

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0	9 - 11 - 1 9 - 11 - 2 9 - 11 - 3	10 Nov 1999 10 Nov 1999 10 Nov 1999
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5	ACG-appr. 9 - 11 - 6 9 - 11 - 7	10 Nov 1999 10 Nov 1999
6, 7	9 - 11 - 8	10 Nov 1999
8	9 - 11 - 9	10 Nov 1999

0.3 TABLE OF CONTENTS

SECTION 1
GENERAL

1.1 INTRODUCTION

Pages 9-11-0 through 9-11-9 constitute Supplement No. 11 to the Airplane Flight Manual for the powered sailplane HK 36 TC.
This Supplement provides additional performance data as required by national authorities.

SECTION 2
LIMITATIONS

2.1 GENERAL

Section 2 remains unchanged.

SECTION 3

EMERGENCY PROCEDURES

3.1 GENERAL

Section 3 remains unchanged.

SECTION 4

NORMAL PROCEDURES

4.1 GENERAL

Section 4 remains unchanged.

SECTION 5
PERFORMANCE

5.3 ADDITIONAL INFORMATION

5.2.8 LANDING PERFORMANCE

WARNING

The given data does not include any safety reserves. For a safe landing, the available length of the runway must at least be equal to the landing distance over a 15 m (50 ft.) obstacle (l_2).
Under unfavorable conditions such as rain, tailwind, wind shear, sloped field, wet grass, a bad maintenance condition of the airplane or deviation from the given procedures, the landing distance can become considerably extended.
Under very unfavorable conditions, a safe landing can become impossible.

The given data were determined under the following conditions:

- Maximum take-off mass (weight)
- Power: . . . . . Idle
- Propeller setting . . . . . TAKE-OFF
- Approach speed . . . . . appr. 105 km/h (57 kts. / 65 mph)
- Level, paved runway
- Brake flaps . . . . . fully extended

The landing performance at MSL under ISA conditions is:
195m (640 ft.) landing roll and
395m (1296 ft.) landing distance over a 15 m (50 ft.) obstacle.

The landing distances are contained in the following tables:

l_1 = Landing roll

l_2 = Landing distance over a 15 m (50 ft.) obstacle

OAT [°C]	Pressure altitude above MSL [m] / QFE [hPa]							
	0 / 1013		400 / 966		800 / 921		1200 / 877	
	s_1 [m]	s_2 [m]	s_1 [m]	s_2 [m]	s_1 [m]	s_2 [m]	s_1 [m]	s_2 [m]
0	185	375	194	393	203	411	213	432
15	195	395	205	414	214	434	225	456
30	205	415	216	435	225	457	237	489

OAT [°F]	Pressure altitude above MSL [ft.] / QFE [inHg]							
	0 / 29.9		1310 / 28.5		2620 / 27.2		3940 / 25.9	
	s_1 [ft.]	s_2 [ft.]	s_1 [ft.]	s_2 [ft.]	s_1 [ft.]	s_2 [ft.]	s_1 [ft.]	s_2 [ft.]
32	607	1230	636	1289	666	1348	699	1417
59	640	1296	673	1358	702	1424	738	1496
86	673	1362	709	1427	738	1499	778	1604

SECTION 6
MASS (WEIGHT) AND BALANCE / EQUIPMENT LIST

6.1 GENERAL

Section 6 remains unchanged.

SECTION 7
POWERED SAILPLANE AND SYSTEMS DESCRIPTION

7.1 GENERAL

Section 7 remains unchanged.

SECTION 8
POWERED SAILPLANE HANDLING, CARE AND MAINTENANCE

8.1 GENERAL

Section 8 remains unchanged.