Diamond AIRCRAFT

SUPPLEMENT 12

TO THE AIRPLANE FLIGHT MANUAL FOR THE POWERED SAILPLANE HK 36 TTC-ECO

OPERATION WITH CAMERA AND UNDERWING CONTAINER

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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 Airplane Flight Manual.

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0.2 TABLE OF CONTENTS

SECTION 1
GENERAL

1.1 INTRODUCTION

Pages 9-12-0 through 9-12-40 constitute Supplement No. 12 to the Airplane Flight Manual for the Powered Sailplane HK 36 TTC-ECO, Doc. No. 3.01.25-E and are valid only for the operation of the Powered Sailplane carrying underwing camera and container (at increased take-off mass)

1.2 CERTIFICATION BASIS

Operation of the Powered Sailplane carrying underwing camera and container at increased take-off mass (weight) has been approved within the framework of the Austrian type certification in compliance with national operational requirements, CRI - A8, „Aerial Photography".
Cerain points deverge from JAR-22 requirements. This will be noted in each particular case.

1.4 ABBREVATIONS / EXPLANATIONS

pod	underwing container
RH	right hand
LH	left hand

1.5 DESCRIPTIVE DATA

Max. wing loading : 60.78 kg/m² (12.45 lbs./s1.ft.)

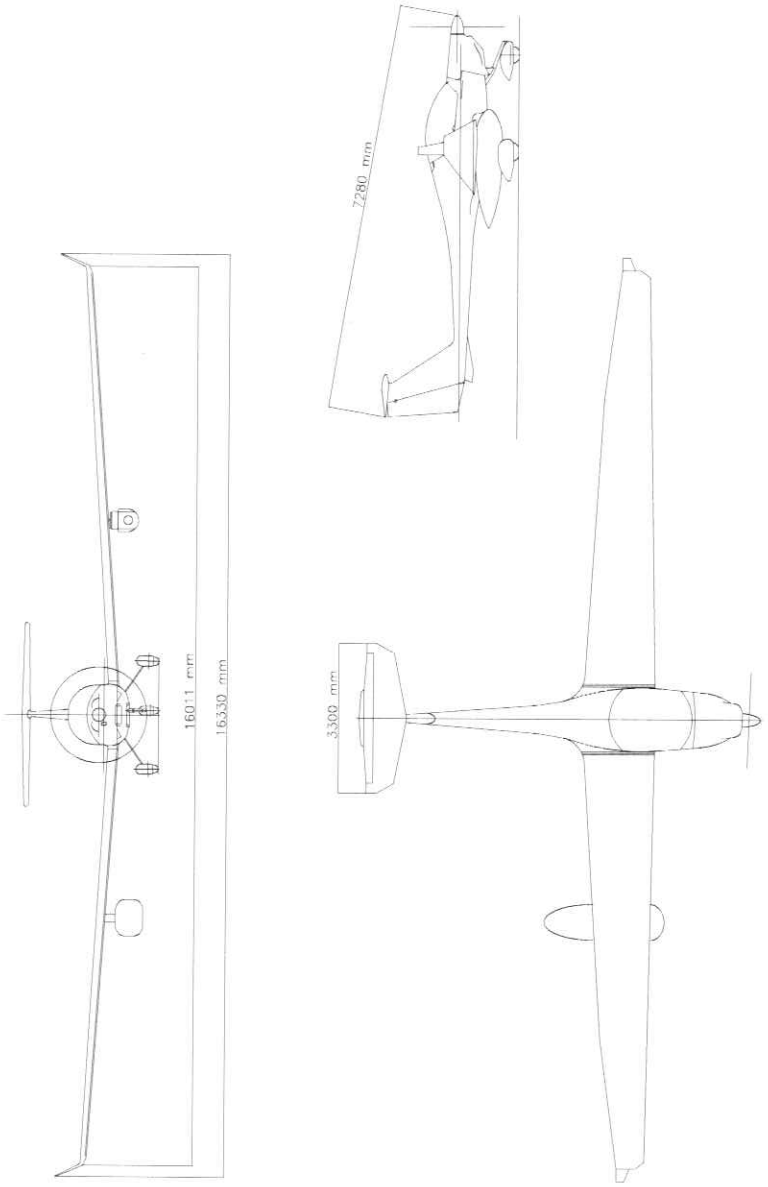
RH Pod dimensions

Length	: 1.650 m (5.41 ft.)
Width	: 0.500 m (1.64 ft.)
Height	: 0.480 m (1.57 ft.)

Position of RH pod in y-direction
(distance from center lane) : + 3.385 m (+11.11 ft.)

Position of LH camera in y-direction
(distance from center line) : - 3.385 m (- 11.11 ft.)

1.6 THREE-VIEW DRAWING



SECTION 2

LIMITATIONS

2.3 AIRSPEED INDICTOR MARKINGS

During flights with increased maximum take-off mass (weight) the following speeds are affected. On the airspeed indicator, the speeds for the standard maximum take-off mass (770 kg) are shown by the markings outside the arc. The speeds for increased maximum take-off mass (930 kg) are shown by the markings inside the arc. The lower limit of the normal operating range at 770 kg is indicated by the bottom of the green and white hatch. The lower limit of the normal operating range at 930 kg is indicated by the top of the green and white hatch.

Marking	**Value of Range (IAS) kts**		**Significance**
	770 kg	930 kg	
green arc	46-113	51-113	Normal operating range. Lower limit is 1.1_{vs1} at max. flight mass (weight) and most forward CG. Upper limit is rough air speed v_{RA}.
blue line	59	65	Best rate-of-climb speed v_y.
yellow triangle	57	63	Approach speed at max. flight mass (weight).

2.6 MASS (WEIGHT)

Maximum take-off mass (max. T/O weight) : 930 kg (2050 lbs.)

NOTE

A maximum take-off mass of 930 kg (max T/O weight of 2050 lbs.) does not comply with the maximum take-off mass specified in JAR-22.

Maximum landing mass : 930 kg (2050 lbs.)
Maximum mass of all non-lifting parts : 650 kg (1433 lbs.)
Maximum useful load in baggage compartment : 30 kg (66 lbs.)
Maximum mass of pod or camera : 55 kg (121 lbs.) EACH
Maximum useful load (including fuel and pod/camera) : see Chapter 6.6
Maximum useful load in fuselage : see chapter 6.6
Maximum useful load on seat : 110 kg (243 lbs.)

WARNING

Exceeding the mass limits (weight limits) can lead to overstressing of the airplane and to a degradation of flying characteristics and flight performance.

2.9 MANEUVERING LOAD FACTORS

Table of maximum permissible load factors:

	at v_A	at v_{NE}
positive	4.4	4.0
negative	-2.2	-1.5

WARNING

Exceeding the maximum permissible load factors may overstress the airplane.

NOTE

The maximum permissible load factors do not comply with the maximum permissible load factors required by JAR-22.

2.11 KINDS OF OPERATION

The HK 36 TTC-ECO is certified for VFR operation. The scope of the approved kinds of operation is defined in detail in the national special certification.

IFR, flights in clouds and aerobatics are not permitted.

SECTION 3

EMERGENCY PROCEDURES

3.1 INTRODUCTION

Some emergency procedures given in the main part of the manual require additional consideration with the addition of the camera / underwing container operations.

3.9 OTHER EMERGENCIES

3.9.3 EMERGENCY LANDING

In addition to the standard procedure:

WARNING

Camera and optional retractable antenna (if fitted), monitor and camera controls must be in the stowed position prior to landing

SECTION 4

NORMAL PROCEDURES

4.1 INTRODUCTION

The following section includes checklists as well as operational procedures for the operation with RH underwing container and LH camera.

4.2 RIGGING AND DE-RIGGING

For the attachment of the RH pod and LH camera two sockets are mounted in tandem in direction of flight in each wing. They are situated at the outboard end of the air brakes forward of the air brake case.

Installation of RH underwing container (pod)

(1) Insert mounting frame into sockets from below, oriented such that the longer bar is at the rear. Fasten mounting frame with self-locking nuts (size M8) from above, using a torque of 8 to 16 Nm (10.8 to 21.7 ft.lbs.).

(2) Cover the hollows for the screws on the upper surface of the wing with adhesive tape.

(3) Attach the right hand fairing (the larger one) to the frame using the four camlocs.

(4) Attach the left hand fairing to the frame using the four camlocs.

(5) Close the remaining camlocs which link both fairings to each other.

WARNING

The airplane must not be operated with only one pod and no camera mounted, or with only the camera mounted.

Removal of RH underwing container (pod)

To remove the pod, reverse the installation procedure. After removal, cover all openings in upper and lower surface of each wing with adhesive tape.

Installation of camera

(1) Insert mounting frame into sockets from below, oriented such that the longer bar is at the rear. Fasten mounting frame with self locking nuts (size M8) from above, using a torque of 8 to 16 Nm (10.8 to 21.7 ft. lbs.).

(2) Cover the hollows for the screws on the upper surface of the wing with adhesive tape. Attach the fairing around the mount, secure with screw.

Removal of underwing camera

To remove the camera, reverse the installation procedure. After removal, cover all openings in upper and lower surface of each wing with adhesive tape.

4.3 DAILY INSPECTION

- Check LH camera and RH pod for obvious damage, insecure attachment, open camlocs, and insecure hardware.
- Check camera and optional retractable antenna (if fitted) are in the stowed position
- Check tape covers over LH and RH pod mounting sockets for damage and looseness.

4.4 PRE-FLIGHT INSPECTION

- Check that additional equipment is correctly stowed and fixed.
- Check that additional equipment does not interfere with control system.
- Check C.G. position is within limits.

4.5 NORMAL PROCEDURES AND RECOMMENDED SPEEDS

4.5.1 STARTING ENGINE, RUN UP & TAXIING PROCEDURES

33. Camera, optional retractable antenna (if fitted), monitor and camera controls must be in the stowed position.

4.5.2 TAKE-OFF AND CLIMB

6. Rotate at a speed of at least 100 km/h (54 kts. / 62 mph). Airplane will lift-off on its own at about 105 km/h (57 kts. / 65 mph).
7. Minimum climb speed is 105 km/h (57 kts. / 65 mph). Monitor oil pressure, oil temperature and cylinder head temperature which must stay within the green range.

Best angle-of-climb speed : 105 km/h (57 kts. / 65 mph)

Best rate-of-climb speed : 120 km/h (65 kts. / 75 mph)

Figures apply to maximum take-off mass (T/O weight).

4.5.3 IN-FLIGHT ENGINE STOP

3. Maintain an airspeed of approximately 110 km/h (59 kts./68 mph).

NOTE

At airspeeds below 110 km/h (59 kts. / 68 mph), the windmilling propeller RPM becomes very low or the propeller stops. However, the propeller will only feather at a sufficient RPM (above 2000 engine RPM).

4.5.5 APPROACH AND LANDING

WARNING

Camera, optional retractable antenna (if fitted), monitor and camera controls must be in the stowed position prior to landing

CAUTION

Due to the special operational conditions, landing in soaring configuration is not permitted.

Power-on Landing

9. Approach speed.....115 km/h (62 kts. / 71 mph) during final approach.

NOTE

Conditions such as strong headwind, danger of wind shear, turbolence, or wet wings require a higher approach speed.

Balked landing

Perform climb with at least 105 km/h (57 kts. / 65 mph). Monitor oil pressure, oil temperature, and cylinder head temperature, which must stay within the green range.

SECTION 5

PERFORMANCE

5.1 INTRODUCTION

Section 5 provides data for the airplane carrying underwing LH camera and RH pod at the maximum take-off mass of 930 kg (max T/O weight of 2050 lbs.). It includes ACG approved data regarding airspeed indicator system calibration, stall speeds and take-off performance, as well as data and additional information which do not require approval.

The performance data are for a powered sailplane and power-plant in good condition, with wheel fairings, winglets and spinner installed and using average piloting techniques.

The specified airspeeds must be understood as IAS. The performance data has been evaluated using the normal procedures described in Section 4.

NOTE

A poor maintenance condition of the airplane and unfavorable external circumstances (high temperature, rain) can considerably deteriorate the specified performance values.

5.2 ACG-APPROVED DATA

5.2.1 AIRSPEED INDICATOR SYSTEM CALIBRATION

Airspeed indicator system calibration remains unchanged.

5.2.2 STALL SPEEDS

Air brakes retracted : v_{S0} = 87 km/h (47 kts. / 54 mph)

Air brakes extended : v_{S1} = 95 km/h (51 kts. / 59 mph)

NOTE

Conditions such as turbulence, wet wings, banked flight, or high load factors increase the stall speeds.

NOTE

The stall speeds do not comply with the stall speeds required by JAR-22.

5.2.3 TAKE-OFF PERFORMANCE

Conditions:
- Outside air temperature: 15 °C (59 °F)
- Atmospheric pressure: 1013 hPa (1013 mbar / 29.92 inHg)
- Wind: calm
- Full throttle
- Maximum take-off mass (max. take-off weight)
- Propeller setting : TAKE-OFF
- Rotation at : approximately 100 km/h (54 kts. / 62 mph)
- Lift-off speed: approximately 105 km/h (57 kts. / 65 mph)
- Speed during climb : approximately 110 km/h (59 kts. / 68 mph)
- Level runway, asphalt surface

Take-off roll : 232 m (761 ft.)

Take-off distance to clear a 15 m (50 ft.) obstacle : 337 m (1106 ft.)

NOTE

For take-off distances under circumstances different from those described above, refer to the charts in Article 4.3.3.

WARNING

The take-off distances give here contain no safety margins. Poor maintenance condition of the airplane, deviation from the procedures prescribed in this manual and unfavorable external conditions (rain, crosswind, wind shear, uneven terrain and, in particular, long grass) can considerably extend the take-off distance.

5.3 ADDITIONAL INFORMATION

5.3.1 DEMONSTRATED CROSSWIND COMPONENT

Demonstrated crosswind component remains unchanged.

5.3.2 GLIDE PERFORMANCE AND FLIGHT POLAR

Minimum rate of descent : 1.7 m/s at 105 km/h (335 ft./min at 57 kts. / 65 mph)

Best glide ratio : 1:17 at 120 km/h (65 kts. / 75 mph)

NOTE

These figures are valid for maximum flight mass (max. gross weight) with winglets, wheel fairings and spinner installed ant the propeller feathered.

NOTE

The minimum rate of descent does not comply with the minimum rate of descent required by JAR-22

5.3.3 TAKE-OFF CHARTS

Conditions:

- Full throttle
- Maximum take-off mass (max. take-off weight)
- Propeller setting : TAKE-OFF
- Rotation at : approximately 100 km/h (54 kts. / 62 mph)
- Lift-off speed: approximately 105 km/h (57 kts. / 65 mph)
- Speed during climb : approximately 110 km/h (59 kts. / 68 mph)
- Level runway, asphalt surface

s_1 ...take-off roll

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

Head-wind	OAT		Pressure altitude above MSL QFE							
			0 m / 0 ft. 1013 hPa		400 m / 1310 ft. 966 hPa		800 m / 2620 ft. 921 hPa		1200 m / 3940 ft. 877 hPa	
			s_1	s_2	s_1	s_2	s_1	s_2	s_1	s_2
[kts.]	[°C]	[°F]	[m]	[m]	[m]	[m]	[m]	[m]	[m]	[m]
0	0	32	200	291	221	322	245	355	271	394
	15	59	232	337	257	373	283	411	314	456
	30	86	266	386	295	428	325	472	359	522
5	0	32	133	207	147	229	162	253	180	280
	15	59	154	240	171	265	188	292	208	324
	30	86	176	275	196	304	216	336	239	371
10	0	32	79	136	88	151	97	167	108	185
	15	59	92	158	102	175	112	193	124	214
	30	86	105	181	117	201	129	221	142	245

NOTE

Divide distances in meters [m] by 0.3048 to obtain feet [ft.].

WARNING

A grass surface will extend the take-off distances by at least 20 %, depending on its characteristics (softness, grass length). The take-off distances given here contain no safety margins. Poor maintenance condition of the airplane, deviation from the procedures prescribed in this manual and unfavorable external conditions (rain, crosswind, wind shear, uneven terrain and, in particular, long grass) can considerably extend the take-off distance.

5.3.4 NOISE DATA

The evaluation of noise emission was carried out according to the Noise Regulations of ICAO, Annex 16.

According to Chapter 10 : 62.2 dB(A)

5.3.5 CLIMB PERFORMANCE

Conditions:
- Sea level
- Power setting: 34 inHg at 5500 RPM
- Maximum flight mass (max. gross weight)
- Airspeed: v_y = 120 km/h (65 kts. / 75 mph)

Max. rate of climb: 4.70 m/s (925 ft./min)

5.3.7 FUEL CONSUMPTION, CRUISING SPEED, ENDURANCE

NOTE

The endurance data shown below applies to full wing tanks. The reserve that is available when the wing tanks are emptied is given in parentheses. It results from the fuel in the central fuel reservoir (about 9 liters / 2.4 US gal.). When determining range, attention must be paid to the influence of wind, as well as safety reserves.

Conditions:
- Flight in still air
- ISA conditions
- Airplane in good maintenance condition and correctly adjusted

Power	Manif. press	Engine speed	Fuel consumption		True airspeed v_{TAS} at altitude			Endurance 2 * 55 l Tank (+ reserve)
					1000 m 3300 ft.	2000 m 6600 ft.	3000 m 9800 ft.	
[% max. cont. power]	[inHg]	[RPM]	[l/h]	[US gal./hr.]	[km/h] [kts. / mph]			[h:min] ([min])
115	38	5800	33	8.7	-	-	-	-
100	34	5450	27	7.1	209 113/130	213 115/132	217 117/135	3:56 (17)
90	32	5300	24	6.3	203 110/126	206 111/128	209 113/130	4:25 (20)
75	30	5050	20	5.3	190 103/118	193 104/120	196 106/122	5:18 (24)
60	28	4800	17	4.5	178 96/111	180 97/112	181 98/112	6:14 (28)

NOTE

As a simplified rule for reducing power below the maximum continuous power, manifold pressure (throttle control) should be reduced by approximately 2 in Hg per 250 RPM engine speed reduction (propeller speed control).

SECTION 6

MASS (WEIGHT) & BALANCE / EQUIPMENT LIST

6.1 INTRODUCTION

Section 6 describes the range of loading in which the HK 36 TTC-ECO carrying underwing LH camera and RH pod will be operated safely.

WARNING

Exceeding the maximum mass (maximum gross weight) can lead to overstressing of the airplane. Falling short of the minimum useful load on the seats will impair controllability and stability.

6.4 BASIC EMPTY MASS (WEIGHT) CENTER OF GRAVITY

The empty mass (empty weight) CG limitations are defined in the Airplane Maintenance Manual.

Camera, pod and other installed role equipment are not included in the empty mass. They must be treated as useful load for mass and CG calculations.

6.5 MAXIMUM MASS (WEIGHT) OF ALL NON-LIFTING PARTS

The maximum mass (weight) of all non-lifting parts is 650 kg (1433 lbs.). A list of all non-lifting parts is included in the Airplane Maintenance Manual.

NOTE

Due to the design of the HK 36 TTC-ECO, the mass (weight) of all non-lifting parts will not be exceeded as long as the total mass (total weight) minus the mass (weight) of camera and pod does not exceed 850 kg (1874 lbs.).

6.7 USEFUL LOAD

Trim weights

The difference in mass (weight) between the LH camera and the RH loaded pod must not exceed 5 kg (11 lbs.). Otherwise the difference in mass must be compensated using trim weights.

Maximum mass (weight) of camera and pod

The maximum mass (weight) of the camera or pod is 55 kg (121 lbs.). The center of gravity of the pod shall lie below the rear frame bar. When this requirement is met, the lever arm shown below is valid.

Lever arm

Useful load in pod/camera : 359 mm (14.13 in.)

Loading of pod

Angle brackets with mounting holes are fixed to the bar frame for the installation of equipment.

Installation of equipment must be accomplished in such a way that is able to withstand the following load factors with adequate safety:

positive	: 4.4
negative	: - 2.2
sideward	: 1.5

CAUTION

Installation of additional equipment (e.g. measuring equipment) is explained in Supplement 8 to the Airplane Flight Manual.

6.8 MASS / C.G. ENVELOPES

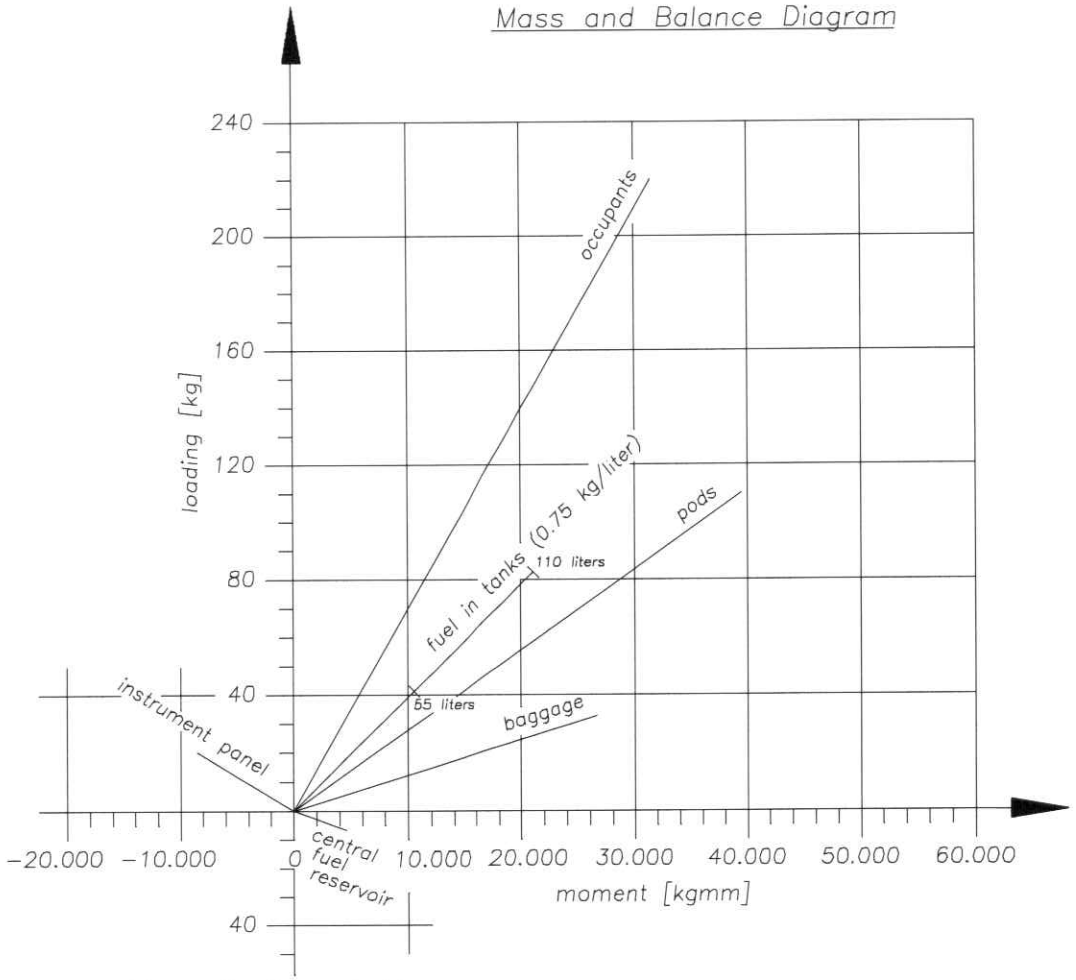
The following table is a supplement to the Mass and Balance Form. It enables the pilot to verify whether a loading configuration is permissible as regards maximum useful load, minimum useful load on the seats, and CG position.

Calculation of Loading Configuration	**HK 36 TTC-ECO (example)**		**Your HK 36 TTC-ECO**	
	Mass [kg]	**Moment [kgmm]**	**Mass [kg]**	**Moment [kgmm]**
1. empty mass (taken from Mass and Balance Form)	590	218532		
2. occupants lever arm: 143 mm	155.5	22237		
3. baggage lever arm: 824 mm	20	16480		
4. additional equipment in instrument panel Lever arm: -421 mm	3.75	-1579		
5. pod lever arm: 359 mm	49	17591		
6. Camera lever arm: 359 mm	44	15796		
7. total mass & total moment with empty fuel tanks (add lines 1 through 5)	862.25	289057		
8. 9 liters of fuel in central fuel reservoir (mass density: 0.75 kg/l) lever arm: 680 mm	6.75	4590		
9. 28 liters of usable fuel (mass density: 0.75 kg/l) lever arm: 255 mm	21	5355		
10. Total mass & total moment with fuel tanks filled (add lines 6 through 8)	890	299002		

NOTE

Divide weights in pounds (lbs.) by 2.2046 to obtain kilograms (kg). Multiply lever arms in inches (in.) by 25.4 to obtain millimeters (mm). Also refer to the main part of the Airplane Flight Manual, Article 1.4.2 PHYSICAL UNITS.

Mass and Balance Diagram

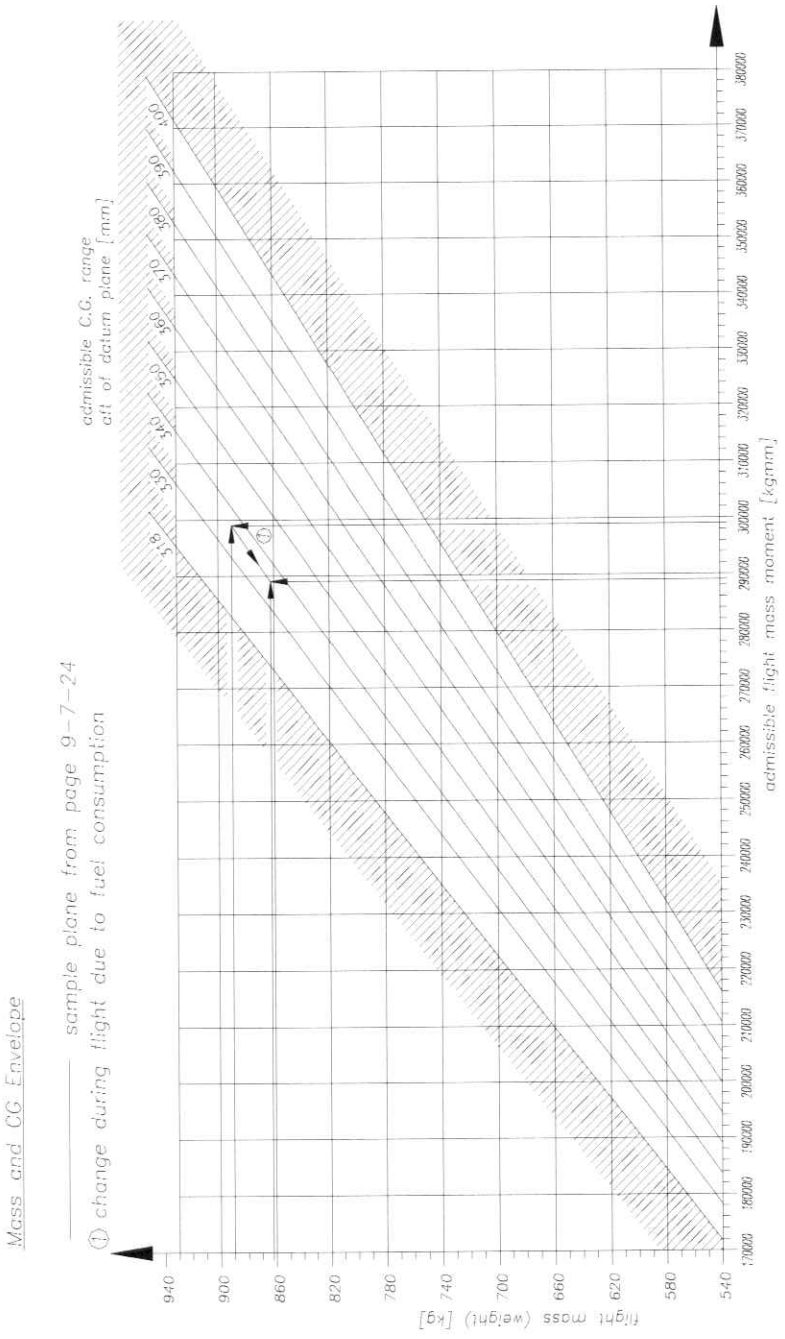


Example from table

occupants: 143.5 kg
9 liters in central fuel reservoir: 6.75 kg
28 liters in tanks (0.75 kg/liter): 21 kg
pods: 105 kg

Result:

loading moment, occupants: 20521 kgmm
loading moment, central fuel reservoir: 4590 kgmm
loading moment, tanks: 5355 kgmm
loading moment, pods: 37695 kgmm


Mass and CG Envelope
sample plane from page 9-7-24
① change during flight due to fuel consumption
admissible C.G. range
alt of datum plane [mm]
admissible flight mass moment [kgmm]
flight mass (weight) [kg]

SECTION 7

POWERED SAILPLANE & SYSTEMS DESCRIPTION

7.1 INTRODUCTION

Section 7 provides a description of the Powered Sailplane carrying underwing LH camera and RH pod and their systems, together with notes for the user:

7.2 AIRFRAME

7.2.1 WINGS

In each wing there are two mounting points for mounting either a pod or camera in tandem arrangement. Two inspection holes in the lower wing skin allow access to the cable conduit. One hole is located between the two mounting points, the other one lies next to it on the inboard side. Hoses and electrical wiring can be routed from the cockpit to the mounting through the cable conduit.

The cable conduit ends at the wing's root rib. It is accessible after removing the seat shell.

7.8 COCKPIT

Room for installation of additional equipment

To the right of the instrument panel there is room reserved for the installation of additional equipment. There is also room for additional equipment on rails in the baggage area. Provision is made for cable routing on the right side of the cockpit.

CAUTION

Installation of additional equipment (e.g. measuring equipment) is explained in Supplement 8 to the Airplane Flight Manual.

The right hand flight controls (control stick, rudder pedals and airbrake lever) may be optionally removed.

7.13 MISCELLANEOUS EQUIPMENT

For handling and operation of additional equipment installed refer to the manuals of the respective manufacturers.

7.14 PLACARDS / INSCRIPTIONS

In addition to the placards listed in the Airplane Maintenance Manual, the following placards are required:

On the pod:

Maximum total mass of pod: 55 kg (121 lbs.) Center of gravity below rear frame bar.

Within pilot`s field of vision:

CAUTION
Before operating at increased T/O mass (T/O weight), check mass and balance according to Airplane Flight Manual! Note increase in stall speed, best rate-of-climb speed and approach speed!

SECTION 8

POWERED SAILPLANE HANDLING, CARE AND MAINTENANCE

8.2 POWERED SAILPLANE INSPECTION PERIODS

At each 100-hour inspection:

- Inspect the camera and pod attachment points in wing structure for damage and excessive wear.
- Inspect rack in baggage compartment including fixtures for equipment.
- Inspect right hand rack, beside instrument panel.
- Inspect attachment points of antennas for damage and excessive wear.

8.3 POWERED SAILPLANE ALTERATIONS AND REPAIRS

Alterations or repairs of the powered sailplane may be carried out only by authorized personnel and only as prescribed in the Airplane Maintenance Manual.

The following rules which are not included in the Airplane Maintenance Manual must be adhered to when installing additional equipment (e.g. measuring equipment):

8.3.1 EXTERNALLY MOUNTED EQUIPMENT

All externally mounted equipment must be suitable for the following load factors, with adequate safety:

positive : 4.4

negative :-2.2

sideward : 1.5

All externally mounted equipment must be suitable for flight up to 141 KIAS.

Underwing-Mounted Equipment

- Location of installation — Use mounts provided under LH and RH wings ±3.385 m (±11.11 ft) from centerline
- Maximum installed weight — 55 kg per wing (including mounting pins)
- Lateral balance — Maximum difference side to side must not exceed 5 kg.
- Projection below wing — Must not project beyond 610 mm (24 in) below wing in stowed configuration (take-off & landing)
- Maximum frontal area — 0.22 m^2 (341 in^2) on each wing
- C.G. location — C.G. must be located between forward and aft mounts

Externally-Mounted Antennas

- Location of installation — Use mounts provided on center of belly aft of main landing gear
- Maximum installed weight — 10 kg
- Projection below belly — Must not project beyond 325 mm (12.8 in) below belly in stowed configuration (take-off & landing)
- Maximum frontal area — 0.083 m^2 (129 in^2)
- C.G. location — C.G. must be located between forward and aft mounts

External Video Cameras (POV)

- Location of installation — Use mounts provided on LH wing tip and on vertical stabilizer
- Maximum installed weight — 3 kg
- Maximum frontal area — LH wing tip 0.01 m^2 (16 in^2). Vertical stabilizer 0.003 m^2 (4.7 in^2).

Check Flight

A check flight must be performed for each configuration of externally mounted equipment to ensure that the aircraft can be trimmed, and to make the necessary trim adjustments.

Trim: The following must be demonstrated with all external equipment in their stowed position and the airbrakes retracted.

Lateral trim: It must be demonstrated at $1.4V_{s1}$ = 60 KIAS that the aircraft is capable of being so trimmed that there is no tendency to turn or bank when the aileron control is released and the rudder control held fixed in neutral position.

Directional trim: It must be demonstrated at $1.4V_{s1}$ = 60 KIAS that the aircraft is capable of being so trimmed that there is no tendency to yaw when the rudder control is released and the aileron control held fixed in neutral position.

Longitudinal trim: It must be demonstrated that the aircraft is capable of maintaining longitudinal trim in a maximum power climb at V_Y = 65 KIAS, and in cruise speeds between 65 and 100 KIAS.

Vibration and buffeting:

It must be demonstrated that the aircraft is free from excessive vibration and buffeting at all speeds up to V_{NE} = 141 KIAS. This must be demonstrated at 10 knot airspeed increments from 80 knots to V_{NE}, with the external equipment in the stowed position.

Trim Adjustment

To adjust directional trim, removed rudder trim-tab, firmly secure tab in soft jaw vice, bend tab approximately 5° for every 1/8 ball out.

To adjust lateral trim in case of light left rolling tendency: Open counternut of push-pull-rod (PPR) to left aileron horn at the side of the horn. Open bolt PPR-Horn and turn the rod end bearing a half turn out (counter clock wise) so that the zero position of the left aileron is more to the upside. Re-assemble control system.

If the half turn at the left aileron is not enough, turn the right aileron rod end bearing a half turn in (clockwise).

To adjust lateral trim in case of light right rolling tendency, reverse direction of adjustment.

When finished the adjustment of the ailerons check the maximum deflection of the ailerons in accordance to the adjustment table. If the maximum deflection is no longer within the limits adjust the center position of the control stick. Refer to the maintenance manual for more information.

8.3.2 INTERNALLY MOUNTED EQUIPMENT

All internally mounted equipment must be suitable for the following load factors, with adequate safety:

positive	: 5.7
negative	:-3.7
forward	: 9.0
sideward	: 1.5

Baggage Area

- Location of installation — Use adjustable mounting rails provided. Equipment must not block access to fire extinguisher or ELT. No loose baggage may be carried unless baggage net is installed.
- Maximum installed weight — 30 kg (including mounting equipment other than rails provided)
- C.G. location — C.G. must be located between the rail centerlines in plan view, and less than 210 mm (8.3 in) above the top of the lateral rails

RH Side of Cockpit

- Location of installation — Use mounting plates, rails, and sliding tray provided. Equipment must not block egress in stowed position.
- Maximum installed weight — 13 kg

CAUTION

Other locations of installation, masses (weights) or kinds of installation require consultation of the manufacturer and separate approval.

8.3.3 GENERAL

- All inspection panels must remain accessible.
- Additional equipment (e.g. measuring equipment) must be clearly identifiable to the pilot as such equipment.
- Additional equipment (e.g. measuring equipment) should only be supplied with power by the 28 V system.
- Additional equipment (e.g. measuring equipment) must be suitable for the operating conditions expected in service regarding altitude, temperature, and humidity.
- Additional equipment (e.g. measuring equipment) must not emit toxic substances.
- It must be ensured that emitted heat will not impair or damage the corresponding equipment, adjacent equipment, or structural members (max. 54 °C / 129 °F).
- Electric wires must meet an adequate standard (e.g. MIL-W-22759-16).
- Electric wires must have a cross-sectional area that is adequate for their load.
- Electric circuits which are not designed for 25 Amps require additional protection corresponding to their design load.
- Plug-type connectors must not open inadvertently due to vibration or high load factors;1 open connectors must not result in short-circuit.
- Electrical continuity must be provided between additional equipment (e.g. measuring equipment) and electrical ground.
- Wires must be routed through the provided conduits (see Airplane Flight Manual and Supplement 8).
- Wires must not interfere with parts of the control system under any circumstances, even if a wire becomes loose.

- Wires must be routed such as to prevent chafing.
- After installation work, a check for loose or foreign objects must be carried out.
- The empty mass CG must be checked for compliance with the CG limitations in accordance with the Airplane Maintenance Manual.
- Each item of additional equipment (e.g. measuring equipment) must be checked for interference (EMI-tests) with the following systems:
  - altimeter
  - airspeed indicator
  - fuel quantity indicators
  - engine instruments
  - warning and caution lights
  - magnetic compass
  - ignition circuit 1
  - ignition circuit 2
  - turbo control unit (TCU)
  - fuel main pump
  - fuel booster pump
  - voltage regulator
  - COM equipment
  - NAV equipment
  - transponder (XPDR)
  - other equipment of the airplane