
SUPPLEMENT 8



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

28 V ELECTRICAL SYSTEM

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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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SECTION 1

GENERAL

1.1 INTRODUCTION

Pages 9-8-1 through 9-8-20 constitute Supplement No. 8 to the Airplane Flight Manual for the Powered Sailplane HK 36 TTC-ECO, Doc. No. 3.01.25-E and are valid only when the Powered Sailplane is equipped with the 28 V electrical system.

This system is intended to supply power to additional equipment (particularly measuring equipment). A detailed description of the system is given in Section 7.

CAUTION

Installation of additional equipment (e.g. measuring equipment) must be carried out in accordance with Chapter 8.3.

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SECTION 2

LIMITATIONS

2.1 INTRODUCTION

The limitations remain unchanged.

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SECTION 3

EMERGENCY PROCEDURES

3.1 INTRODUCTION

Some emergency procedures given in the main part of the manual require additional consideration of the 28 V system.

3.7 ENGINE FAILURE

3.7.1 ENGINE FAILURE DURING TAKE-OFF

In addition to the standard procedure:

28 V electrical system OFF

3.7.2 ENGINE FAILURE DURING FLIGHT

In addition to the standard procedure:

28 V electrical system OFF

3.7.3 ENGINE RESTART WITH A DISCHARGED BATTERY (DURING FLIGHT)

In addition to the standard procedure:

28 V electrical system OFF

3.7.4 PROPELLER STUCK IN FEATHERED POSITION

In addition to the standard procedure:

28 V electrical system OFF

3.7.12 GENERATOR WARNING LIGHT (RED) CONTINUOUSLY ILLUMINATED

In addition to the standard procedure:

28 V electrical system OFF

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3.8 FIRE

3.8.1 FIRE ON GROUND

In addition to the standard procedure:

28 V electrical system OFF

3.8.2 FIRE DURING TAKE-OFF

In addition to the standard procedure:

28 V electrical system OFF

3.8.3 FIRE DURING FLIGHT

In addition to the standard procedure:

28 V electrical system OFF

3.9 OTHER EMERGENCIES

3.9.3 EMERGENCY LANDING

In addition to the standard procedure:

28 V electrical system OFF

3.9.4 EMERGENCY LANDING ON WATER

In addition to the standard procedure:

28 V electrical system OFF

CAUTION

When encountering failure or malfunction of an electric or electronic system which is necessary for the safe conduction of flight, switch off the 28 V electrical system.

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SECTION 4

NORMAL PROCEDURES

4.3 DAILY INSPECTION

Additional inspection of the 28 V electrical system:

1. Master switch 28 V system ON
2. All circuit breakers pressed in
3. Additional equipment check
4. Master switch 28 V system OFF
5. Power sockets beneath seats check

CAUTION

Any additional equipment (e.g. measuring equipment) in accordance with Section 8 must be checked during the daily inspection.

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SECTION 5

PERFORMANCE

5.1 INTRODUCTION

Even when the maximum current is drawn from the 28 V system, the 28 V generator requires so little engine power that there is no measurable influence onto flight performance.

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SECTION 6

MASS (WEIGHT) & BALANCE / EQUIPMENT LIST

6.1 INTRODUCTION

Mass (weight) and center of gravity limitations remain unchanged.

6.8 MASS (WEIGHT) / C.G. ENVELOPES

The 28 V electrical system is part of the airplane equipment. Its mass (weight) is therefore included in the empty mass (weight) which is recorded in the Mass and Balance Form, along with the corresponding center of gravity (CG).

CAUTION

Additional equipment (e.g. measuring equipment) must be treated as useful load for the determination of the flight mass (weight) and the corresponding CG. The required data (mass and location) is recorded in the Additional Equipment List (Chapter 6.9 of this Supplement).

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6.9 EQUIPMENT LIST / ADDITIONAL INSTRUMENTS

The Additional Equipment List is a register of all additional equipment (e.g. measuring equipment) that is installed. It contains the following information:

- Consecutive number
- Description of equipment
- Serial number of equipment
- Mass (weight) of equipment
- Location of installation of equipment (lever arm)
- Mass moment of equipment (mass multiplied by lever arm)

CAUTION

Wires and hoses that are installed must also be recorded. Installation of additional equipment must be carried out in accordance with Chapter 8.3.

NOTE

Lever arms for different locations are given in the Airplane Flight Manual, Chapter 6.7.

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Additional Equipment List		S/N:	Date:		Page:
		Call sign:	Signature:		/
No.	Description Manufacturer	Serial Number	Mass [kg]	Lever arm [mm]	Moment [kg mm]

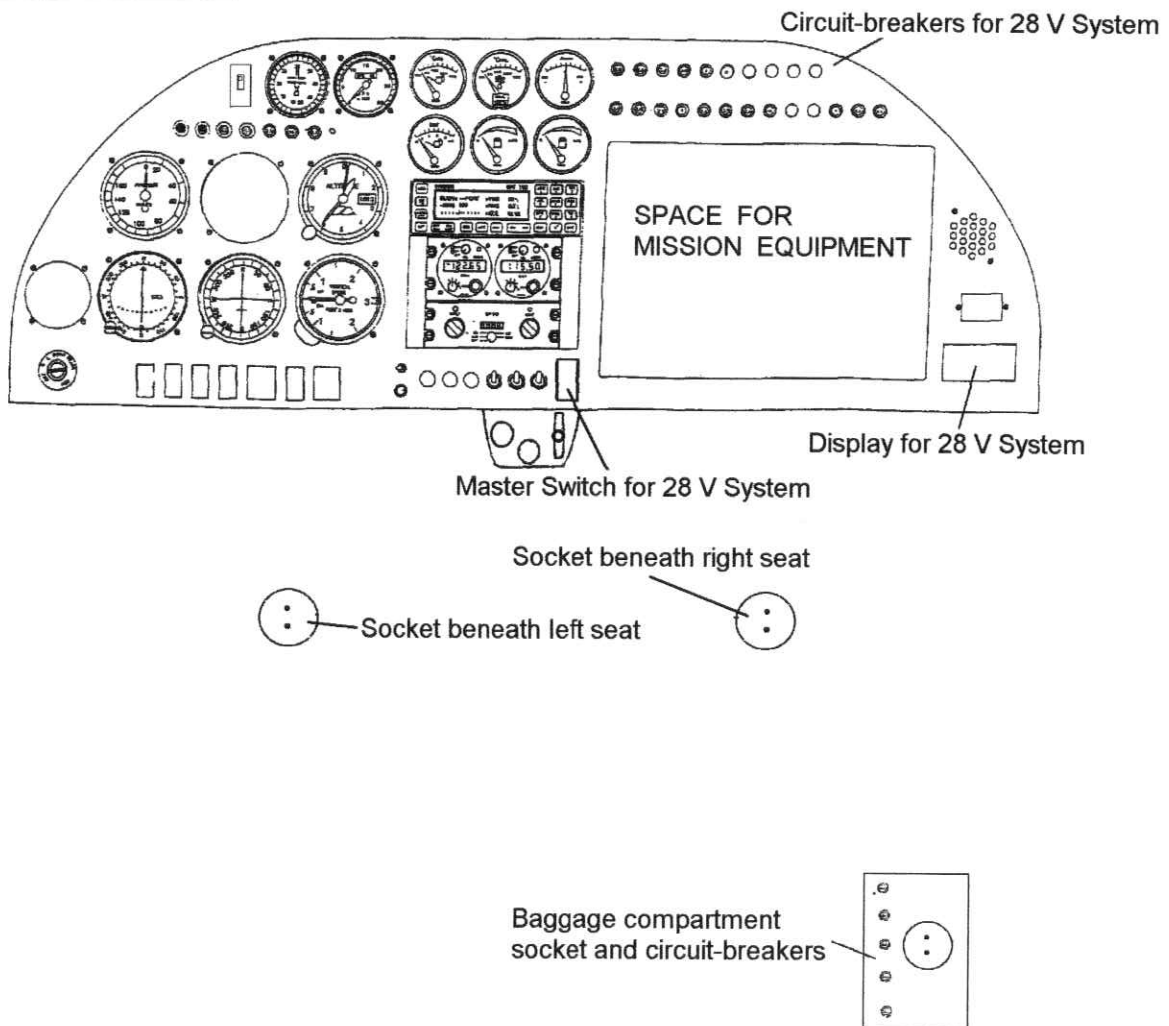
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SECTION 7

POWERED SAILPLANE & SYSTEMS

DESCRIPTION

7.8 COCKPIT



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7.11 ELECTRICAL SYSTEM

General

The 28 V electrical system is a completely independent electrical power system and consists of its own generator, wiring, bus, circuit breakers, etc. The system is intended for the operation of additional equipment (e.g. measuring equipment). Room for such equipment is provided in the underwing containers (pods), in the enlarged baggage compartment, etc.

CAUTION

Installation of additional equipment (e.g. measuring equipment) must be carried out in accordance with Chapter 8.3.

Controlling and monitoring

The 28 V system is controlled and monitored through switches, circuit breakers and a digital display which are located on the instrument panel and on the right hand side of the baggage compartment.

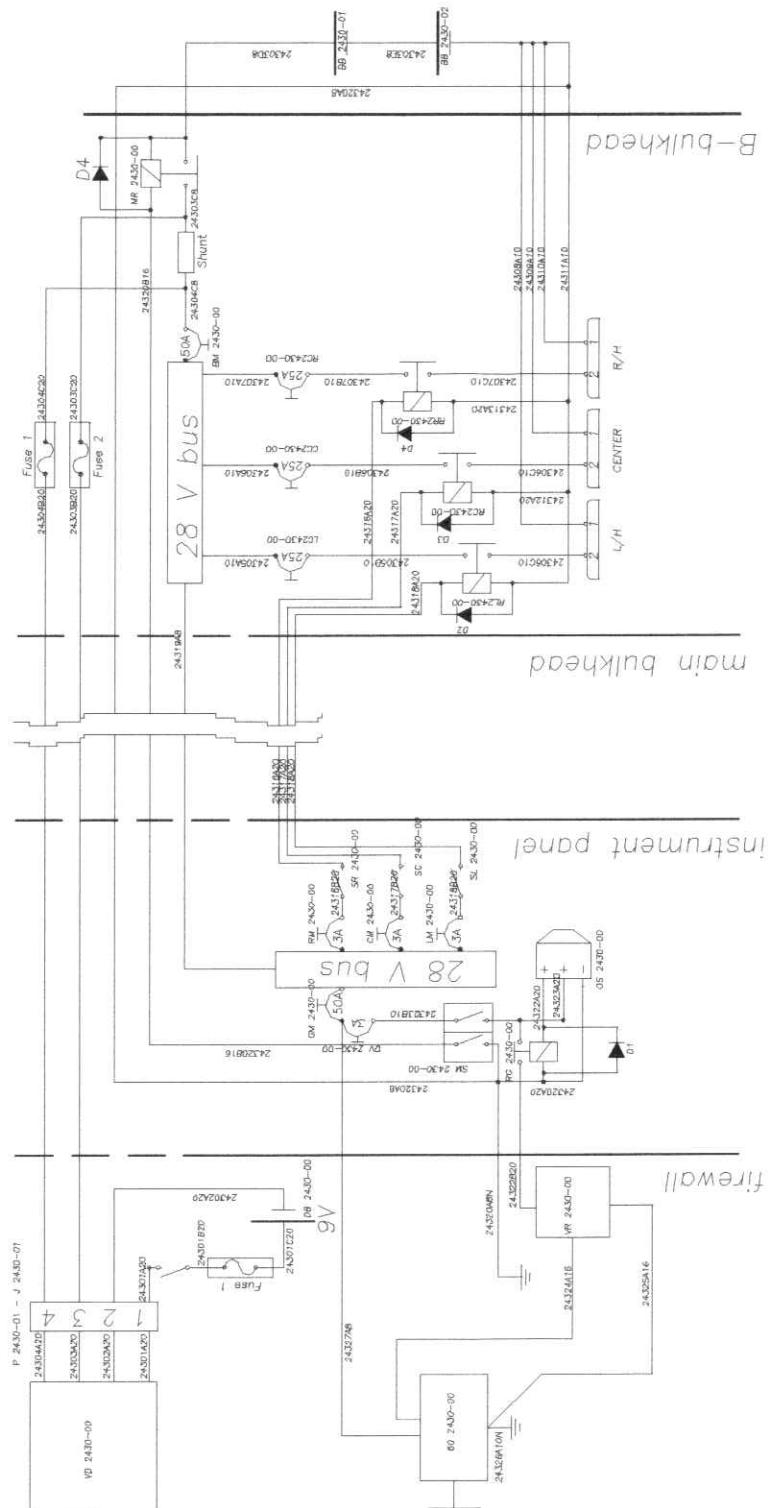
Power outlets

There are three electrical power outlets for the supply of additional equipment: one is located beneath each of the two seats and one in the baggage compartment. The maximum permissible current intensity for each power socket is 25 Ampères.

Generator

Manufacturer and model : Electrosystems, Model No. ES-4040
Nominal voltage : 28 V
Nominal current intensity : 40 Ampères at 8000 RPM (engine speed: 5800 RPM)
RPM range : 2180 to 8000 RPM (engine speed: 1580 to 5800 RPM)
Mass (including regulator) : 4.98 kg (11.0 lbs.)

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wiring diagram 28 V system

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7.13 MISCELLANEOUS EQUIPMENT

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

7.14 PLACARDS / INSCRIPTIONS

Components of the 28 V system are marked with the following placards:

On the right hand lower side of the instrument panel next to the Ammeter

<p>Amps 28 V System</p>

On the instrument panel next to the switches:

<p>28 VDC Electric System</p> <p>ON ON ON</p>	<p>Gen./Bat.</p>
<p>left center right</p> <p>28 V Sockets</p>	<p>Master</p>

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On the right hand side of the instrument panel next to the circuit breakers:

28 VDC Electric System				
Gener.	Gener. control	Bus Relays		
		left	center	right

On the right hand side of the baggage compartment next to the circuit breakers:

28 V Battery	28 V Sockets		
	left	center	right

Next to the 28 V sockets (left, center, right)

28 V max. 25 A

CAUTION

When installing additional equipment (measuring equipment) in accordance with Section 8, additional placards may become necessary.

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SECTION 8

HANDLING, CARE & MAINTENANCE

8.2 INSPECTION PERIODS FOR THE POWERED SAILPLANE

Every 100 hours the following inspection items must be carried out on the 28 V electrical system:

1. Check 28 V system for malfunction.
2. Check 28 V generator (engine compartment) for insecure attachment; check driving belt for excessive wear and insufficient tension.
3. Check 28 V relays (baggage compartment, beneath right hand sidewall) and batteries (aft of B-bulkhead) for looseness and damage.
4. Check wiring, connectors and sockets in engine compartment, instrument panel, beneath seats and in baggage compartment for heat damage and chafing. Check wire attachments and connectors for looseness by slightly pulling by hand.

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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):

- * Location of installation see Airplane Flight Manual and Supplement 7, Chapter 6.7
- * Maximum admissible
mass (weight) see Airplane Flight Manual and Supplement 7, Chapter 6.7
- * Requirements for the installation
of additional equipment see Airplane Flight Manual and Supplement 7, Chapter 6.7

CAUTION

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

- * 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).

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- * 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; 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.

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* 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

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