9. SUPPLEMENTS

SECTION 9

9. SUPPLEMENTS

9.1 Introduction

This section contains the appropriate supplements necessary to safely and efficiently operate the airplane when equipped with various optional systems and equipment not provided with the standard airplane.

9.2 List of inserted supplements

Inst.	Date	Doc. No.	Title of inserted supplement
	June 01/11	HARMAOIUSS01	Transceiver KY97A
	June 01/11	HARMAOIUSS02	Intercom PM 1000
	June 01/11	HARMAOIUSS03	Transponder KT76A
✓	Nov 28/14	HARMAOIUSS04	Airplane description of S/N 2014 1717
	June 01/11	HARMAOIUSS05	GPS/COMM receiver KLX 135
✓	June 01/11	HARMAOIUSS06	Flight clock LC-2
	June 01/11	HARMAOIUSS07	Transceiver FILSER ATR 600
	June 01/11	HARMAOIUSS08	GPS/NAV/COMM receiver GARMIN GNS 430/430A
	June 01/11	HARMAOIUSS09	Transponder ATC GARMIN GTX 327
	June 01/11	HARMAOIUSS10	Intercom PCD7100-I (PS ENGINEERING INCORPORATED)
✓	June 01/11	HARMAOIUSS11	Rocket activated parachute rescue system Magnum Speed Soft 601
	June 01/11	HARMAOIUSS12	Horizon RCA 26
	June 01/11	HARMAOIUSS13	Float operation CZAW 1150
	June 01/11	HARMAOIUSS14	Horizon LUN 1202
	June 01/11	HARMAOIUSS15	Towing gear
✓	June 01/11	HARMAOIUSS16	Pitot tube heating
	June 01/11	HARMAOIUSS17	Emergency Locator Transmitter AK-450
-	-	HARMAOIUSS18	Not used
✓	June 01/11	HARMAOIUSS19	Stall warning system ACI type T1b
✓	June 01/11	HARMAOIUSS20	Night VFR operation
	June 01/11	HARMAOIUSS21	IFR operation
✓	June 11/14	HARMAOIUSS22	DYNON SKYVIEW SYSTEM

Inst.	Date	Doc. No.	Title of inserted supplement
	June 11/14	HARMAOIUSS23	VHF transceiver BECKER AR6201
	June 11/14	HARMAOIUSS24	ATC transponder BECKER BXP6401
✓	June 11/14	HARMAOIUSS25	PM3000 Intercom
✓	June 11/14	HARMAOIUSS26	VHF transceiver GARMIN SL30
✓	June 11/14	HARMAOIUSS27	GPS Receiver GARMIN AERA 500
✓	June 11/14	HARMAOIUSS28	Emergency Locator Transmitter AK-451
✓	June 11/14	HARMAOIUSS29	Auxiliary generator SD-20

9.3 Supplements inserted

SUPPLEMENT No. 4

AIRCRAFT DESCRIPTION

Registration mark: **N999VP**

Serial number: **2014 1717**

This Supplement must be contained in the Aircraft Operating Instructions during operation of the aircraft of S/N 2014 1717.

Information contained in this Supplement add or replace information from the standard Aircraft Operating Instructions in the further mentioned parts only.

Limitations, procedures and information not mentioned in this Supplement are contained in the standard Aircraft Operating Instructions.

RECORD OF REVISIONS

Rev. No.	Affected Pages	Description/Validity	Approved / Date	Incorporated by / Date

Section 1 - GENERAL

This Supplement adds information necessary for airplane operation with equipment installed in the aircraft **Harmony LSA** of S/N 2014 1717.

Section 2 - LIMITATIONS

2.6 MISCELLANEOUS INSTRUMENT MARKING

There are following instruments color marking on the EMS display:

Instrument	Units	Red arc	Green arc	Yellow arc	Red arc
		Lower limit	Normal operation range	Caution range	Upper limit
RPM indicator	RPM	-	1400 - 5500	5500 - 5800	5800
Oil temperature indicator	°F	-	190 - 230	120 - 190 230 - 266	266
Oil pressure indicator	PSI	12	29 - 73	12 - 29 73 - 102	102
Coolant temperature	°F	-	194 - 230	-	248
Fuel pressure indicator	PSI	2.2	-	-	5.8
Manifold air pressure	in.Hg	-	0 - 35	-	-
Exhaust gas temperature	°F	-	570 - 1620	-	1620
Voltmeter	V	10	12.4 - 15.1	10 - 12.4	15.1
Ammeter	A	-	-20 - 0	0 - 60	-

NOTE

Red arc is marked from lover (upper) limit up to scale start (end).

Sigh "-" means battery charging on the ammeter, sign "+" means battery discharging.

2.6 LIMITATION PLACARD

The nex placards have to be on left and right side of the canopy frame.

Section 3 - EMERGENCY PROCEDURES
Not affected

Section 4 - NORMAL PROCEDURES

4.4 Pre-flight check

18. Cockpit check
- Check the position of right and left pedal of rudder control – they have to be in the same position!

4.5 Normal procedures and checklist

4.5.1. Before engine starting

5a. Rudder pedals adjust — Setup the rudder pedals to one of three positions (Front, Middle or Rear)

WARNING

THE RUDDER MUST BE IN NEUTRAL POSITION BEFORE PEDALS ARE ADJUSTED! CHECK THAT THE RUDDER IS CENTERRED BEFORE ADJUSTING!

NOTE

The steps to adjust the pedals are:

1. *Assure the rudder is in the neutral position (centered),*
2. *Assure the space aft of the rudder pedals (where your feet are positioned in flight is clear, and no pressure is applied to the rudder pedals.*
3. *Pull lever, pedals will automatically move fully aft. Then release lever.*
4. *Place feet on the pedals, apply light even pressure on pedals while slightly engaging the lever. The pedals will start to move forward.*
5. *Release lever and continue to push pedals forward using light even pressure. The pedals will automatically lock in the nearest position.*
6. *Repeat steps 4 and 5 to move pedals to the desired position.*

5b. Rudder pedals movement free

WARNING

DO NOT ADJUST RUDDER PEDAL POSITION IN FLIGHT OR WITH ENGINE RUNNING!!!

4.5.2 Engine starting

CAUTION

AFTER ENGINE STARTING AND EFIS SWITCHING-ON IT IS NECESSARY TO MATCH EFIS ALTIMETER WITH ANALOG ALTIMETER (SEE EFIS MANUAL - SETUP - ALT ADJ).

Section 5 - PERFORMANCE - Not affected

Section 6 - WEIGHT AND BALANCE - Not affected

Section 7 - AIRPLANE AND SYSTEM DESCRIPTION

7.3 CONTROL

7.3.4 Rudder control

The rudder is controlled by foot pedals via a cable system.
Adjustable pedals are installed in in this aircraft, **Harmony LSA** S/N 2014 1717. They can be adjusted in three positions – front, middle or rear.
The steps to adjust the pedals are:

1. Assure the rudder is in the neutral position (centered),
2. Assure the space aft of the rudder pedals (where your feet are positioned in flight is clear, and no pressure is applied to the rudder pedals.
3. Pull lever, pedals will automatically move fully aft. Then release lever.
4. Place feet on the pedals, apply light even pressure on pedals while slightly engaging the lever. The pedals will start to move forward.
5. Release lever and continue to push pedals forward using light even pressure. The pedals will automatically lock in the nearest position.
6. Repeat steps 4 and 5 to move pedals to the desired position.

WARNING
THE RUDDER MUST BE IN NEUTRAL POSITION BEFORE PEDALS ARE ADJUSTED! CHECK THAT THE RUDDER IS CENTERRED BEFORE ADJUSTING!

WARNING
DO NOT ADJUST RUDDER PEDAL POSITION IN FLIGHT OR WITH ENGINE RUNNING!!!

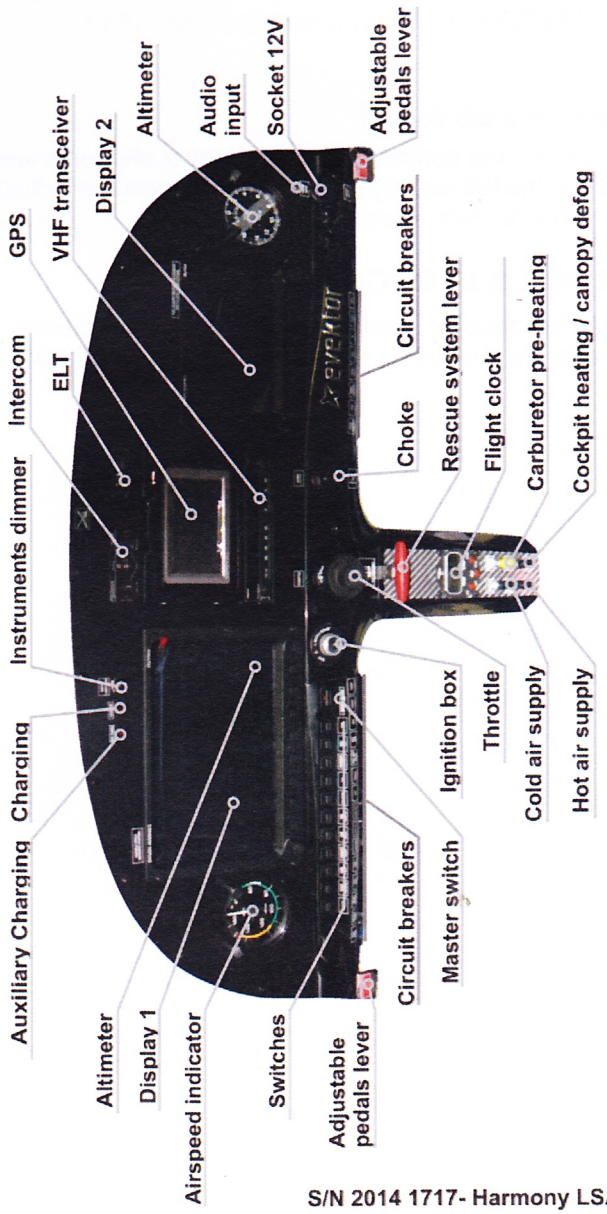
7.3.4 Elevator trim tab control

Elevator trim tab control is electric. Control elements are located on the top of the left and right stick. Trim tab position indicator is located on the instrument panel.

7.4 CONTROLS IN COCKPIT

Pos. 14 is cancelled. Elevator trim tab control is electric. Control elements are located on the top of the left and right stick.

7.5 INSTRUMENT PANEL



S/N 2014 1717- Harmony LSA

Switches from the left - See Instrument panel

Left side of the instrument panel:

SOCKET - if switched on, the socket is under electric power
PITOT HEATING - switches on/off the pitot heating
FUEL PUMP - switches on/off the fuel pump
COCKPIT LIGHT - switches on/off the cockpit light
LDG LIGHT - switches on/off the landing light
POS LIGHTS - switches on/off the position lights and instrument lighting
BEACONS - switches on/off the wing beacons
A/P - switches on/off the autopilot
AVIONICS SWITCH - switches on/off avionics
AUX. GEN - switches on/off the auxiliary generator
GEN - switches on/off the generator
MASTER SWITCH

Circuit breakers from the left - See Instrument panel

Left side of the instrument panel:

FUEL PUMP	circuit breaker of the fuel pump
COCKPIT LIGHT	circuit breaker of the cockpit light
INSTR. LIGHTING	circuit breaker of the instruments lighting
LDG LIGHT	circuit breaker of the landing light
POS LIGHTS	circuit breaker of the position lights
BEACONS	circuit breaker of the wing beacons
DISPLAY 2	circuit breaker of the DISPLAY 2
DISPLAY 1	circuit breaker of the DISPLAY 1
A/P	circuit breaker of the autopilot
SIGNAL	circuit breaker of the EMS alerting
AUX. GEN FIELD	circuit breaker of the auxiliary generator field
AUX. GEN	circuit breaker of the auxiliary generator
GEN	circuit breaker of the electric generator
CLOCK	circuit breaker of the flight clock
ACCU	circuit breaker of the accumulator

Right side of the instrument panel:

PITOT HEATING	circuit breaker of the pitot heating
TRIM	circuit breaker of the electric trim tab position control
STALL WARNING	circuit breaker of the stall warning system
COMM	circuit breaker of the VHF transceiver
NAV	circuit breaker of the navigation system
IC	circuit breaker of intercom
XPDR	circuit breaker of transponder
GPS	circuit breaker of GPS

7.5.1 Instruments

No. of installed	Instrument	Type
1	Altimeter	WINTER
1	Airspeed indicator	WINTER
1	Compass	NV2C-12V
1	Display 1	SKYVIEW 10"
1	Display 2	SKYVIEW 7"

NOTE

For EFIS operating instructions see manual delivered with instrument.

7.5.2 Navigation and communication equipment

No. of installed	Equipment	Type
1	VHF transceiver	SL 30
1	Intercom	PM3000
1	GPS	AERA 500
1	Flight clock	LC2
1	ELT	AK-451

NOTE

For operating instructions see manuals delivered with instruments.

7.11 POWER UNIT

7.11.3 Engine instruments

Engine instruments are integrated in the GARMIN SKYVIEW system.

NOTE

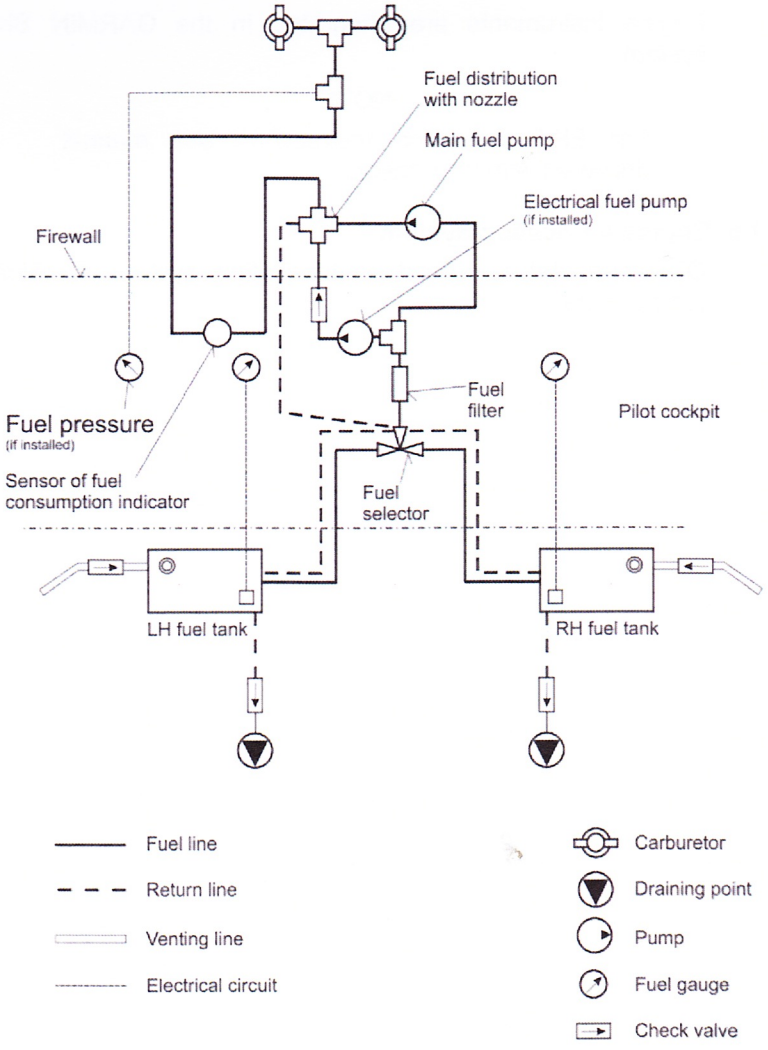
For EFIS operating instructions see manual delivered with instrument.

7.11.5 Engine lubrication system

Oil thermostat is added to lubrication system to stabilize oil temperature.

7.12 Fuel system

7.12.6 Scheme of fuel system



7.13 ELECTRICAL SYSTEM

The auxiliary generator SD 20 is installed in the aircraft **Harmony LSA** of S/N 2014 1717.

7.13.1 Lighting

The instruments internal lighting with dimmer and cockpit light are installed on this aircraft

7.15 SUPPLEMENTARY EQUIPMENT

7.15.3 Ventilation and heating system

The cockpit heating system is equipped with canopy defog system.

OTHER AIRPLANE EQUIPMENT

There is installed following equipment in the airplane:

- auxiliary electric fuel pump
- double brake system MATCO with parking brake
- stall warning system ACI T1-B
- electric trim tab control with control on the both sticks
- adjustable rudder control pedals
- position lights with beacons Whelen LED 90340
- landing light Whelen LED 71141
- aerodynamic wheel covers
- cap for oil level check on the upper engine cowling
- upholstered baggage compartment
- ballistic rescue system MAGNUM SPEED SOFT 601
- sun shield in the cockpit

Section 8 - AIRPLANE HANDLING, SERVICING AND MAINTENANCE
Not affected

The End

SUPPLEMENT No. 06

FLIGHT CLOCK
ASTROTECH LC-2

Registration mark: **N999VP**

Serial number: **2014 1717**

This Supplement must be contained in the Aircraft Operating Instructions if Flight Clock Astrotech LC-2 is installed on the airplane.

Information contained in this Supplement add or replace information from the standard Aircraft Operating Instructions in the further mentioned parts only.

Limitations, procedures and information not mentioned in this Supplement are contained in the standard Aircraft Operating Instructions.

RECORD OF REVISIONS

Rev. No.	Affected Pages	Description/Validity	Approved / Date	Incorpo-rated by / Date

Section 1 - GENERAL

This Supplement adds information which is necessary for operation of the airplane with the flight clock Astrotech LC-2, installed according to the approved documentation of airplane manufacturer.

Section 2 – LIMITATIONS

Not affected

Section 3 - EMERGENCY PROCEDURES

Not affected

Section 4 - NORMAL PROCEDURES

Mode Selection

Mode selection (flight clock or timer) is performed by **MODE** press button. The sign appears on the display above TIMER inscription in the timer mode.
The sign CLOCK appears on the display above CLOCK inscription in the clock mode (this sign does not appear on the display if time is indicated in 24-hour format).

Display Check

1. Switch the instrument to the timer mode (the sign on the display above TIMER inscription).
2. At the same time press buttons **SET** and **DT/AV**. Check whether all signs and marking appeared on the display.
3. After releasing both press buttons the instrument returns to the timer mode.

Timer Mode

1. Switch the instrument to the timer mode (the sign on the display above TIMER inscription).
2. Reset the timer by pressing the **RTS** button.
3. Start and stop counting by pressing the **ST/SP** button.

The timer mode starts time counting in minutes and seconds, while the colon between numbers is flashing at rate once per second. When time of 59 minutes and 59 seconds is reached, timer goes over to mode of hours and minutes counting (the colon between numbers is flashing at rate once per 10 seconds) till time of 23 hours and 59 minutes.

Clock Mode

Switch over the instrument to the clock mode (the sign on the display over CLOCK inscription). Colon is flashing between numbers once per 10 seconds on the display in the clock mode.
Date is indicated on the display at pressing **DT/AV** button in the clock mode.

Setting Date

1. Press down **SET** button.
2. Number of month starts flashing on the display.
3. By pressing **DT/AV** button set the number of month.
4. Press down the **SET** button.
5. Number of day starts flashing on the display.
6. Set the number of the day by pressing **DT/AV** button.
7. Press **SET** button to confirm date setting.

Time Setting

1. Press **SET** button.

NOTE

It is always necessary to perform date setting before time setting. If the date is set correctly, press the

SET button four times and then you can set time directly.

2. Hour number starts flashing on the display.
3. Set hours by pressing **DT/AV** button.
4. Press **SET** button.
5. Minute number on display starts flashing.
6. Set minutes by pressing **DT/AV** button.
7. Press **SET** button to confirm time setting.
8. Clock is activated after pressing down the **DT/AV** button.

NOTE

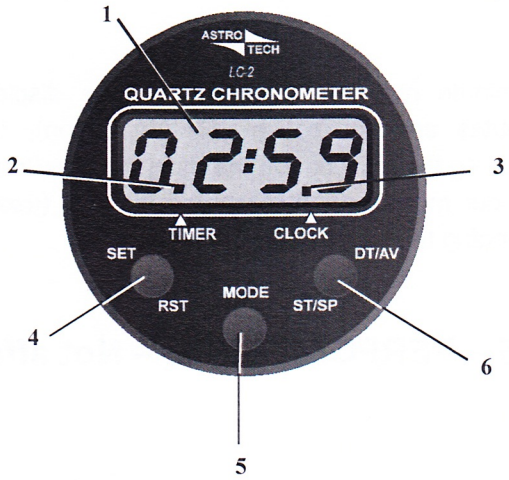
If minute number is flashing on the display (and minutes are not set by DT/AV button), then by pressing the SET button the instrument switches over to hour mode without changing minutes (use e.g. at changing time zone).

Section 5 – PERFORMANCE – Not affected

Section 6 - WEIGHT AND BALANCE - Not affected

Section 7 - AIRPLANE AND SYSTEM DESCRIPTION

The flight clock ASTROTECH LC-2 is installed in the airplane. The flight clock works in two modes - CLOCK and TIMER mode. Clock indicates time in 12 and 24 hours format, depending on setting the inner switch. Actual mode is signalized by the sign which appears on the display. If the clock indicates time in 24 hour format then no sign is indicated on the display in the clock mode.



1...Display
2...Timer mode sign
3...Clock mode sign
4...Button for setting (clock mode) / resetting (timer mode)
5...Button for mode selection
6...Button for setting date and time (clock mode) / starting and stopping timer

Figure 1 Flight clock LC-2

Section 8 - AIRPLANE HANDLING, SERVICING AND MAINTENANCE – Not affected

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SUPPLEMENT No. 11

PARACHUTE EMERGENCY RESCUE SYSTEM

MAGNUM SPEED SOFT 601

Registration mark: **N999VP**

Serial number: **2014 1717**

This Supplement must be contained in the Aircraft Operating Instructions if parachute emergency rescue system Magnum Speed Soft 601 is installed on the airplane in accordance with the approved airplane manufacturer documentation.

Information contained in this Supplement add or replace information from the standard Aircraft Operating Instructions in the further mentioned parts only.

Limitations, procedures and information not mentioned in this Supplement are contained in the standard Aircraft Operating Instructions.

RECORD OF REVISIONS

Rev. No.	Affected Pages	Description/Validity	Approved / Date	Incorporated by / Date

Section 1 - GENERAL

This Supplement adds information necessary for operation of the airplane with the parachute emergency rescue system Magnum Speed Soft 601 that is installed in accordance with the approved airplane manufacturer documentation.

Section 2 - LIMITATIONS

Minimum altitude to use system	650 ft
Maximum speed to use system	160 mph / 140 KIAS

Section 3 - EMERGENCY PROCEDURES

Using of the rescue system

The rescue system may be used under following (or similar) circumstances:

- collision with an other aircraft
- damage of the airplane structure
- loos of control of the airplane
- engine failure over an unlandable area
- health problems of the pilot prohibiting normal finishing of the flight

The activation of the system depends on the situation and the pilot`s estimation.

After you decide to use system:

- switch off engine by ignition box
- retighteen safety belts
- pull handle firmly
- protect face and body with your arms
- expect impact on the ground with vertical speed aprox. 1200 fpm
- leave airplane after touch down

Section 4 - NORMAL PROCEDURES

4.4 Pre-flight check

18. Cockpit - check

- transport safety lock of the rescue system lever — unlock and remove

4.5 Normal procedures and checklists

4.5.15 Airplane parking

4a. Rescue system lever — lock

Section 5 - PERFORMANCE - Not affected

Section 6 - WEIGHT AND BALANCE - Not affected

Section 7 - AIRPLANE AND SYSTEM DESCRIPTION

Parachute emergency rescue system Magnum Speed Soft 601 is installed on this airplane. It is intended to rescue pilot in case of emergency situation. It is located in upper part of the fuselage behind the fire wall. System is activated with a red lever which is located in the middle part of the instrument panel at the bottom. When lever is pulled, the rocket is activated. Rocket run out parachute to ensure airplane landing. Rescue system lever is locked by the lock with the red flag during airplane parking.

Section 8 - AIRPLANE HANDLING, SERVICING AND MAINTENANCE - Not affected

SUPPLEMENT No. 16

PITOT TUBE HEATING

Registration mark: **N999VP**

Serial number: **2014 1717**

This Supplement must be contained in the Aircraft Operating Instructions if pitot tube heating is installed on the airplane in accordance with the approved airplane manufacturer documentation.

Information contained in this Supplement add or replace information from the standard Aircraft Operating Instructions in the further mentioned parts only.

Limitations, procedures and information not mentioned in this Supplement are contained in the standard Aircraft Operating Instructions.

RECORD OF REVISIONS

Rev. No.	Affected Pages	Description/Validity	Approved / Date	Incorpo-rated by / Date

Section 1 - GENERAL

This Supplement adds information necessary for airplane operation with pitot tube heating that is installed according to the approved airplane manufacturer documentation.

Section 2 – LIMITATIONS

2. 17 Limitation placards

Maximum time to use pitot heating on the ground (to check system) 2 minutes

Section 3 - EMERGENCY PROCEDURES
Not affected

Section 4 - NORMAL PROCEDURES

4.4 Pre-flight check

2. Left wing - check

- Check pitot tube heating:

MASTER SWITCH ON

PITOT HEATING ciruit breaker check ON

PITOT HEATING switch ON

PITOT HEATING green light must light up. It indicates pitot heating power supply switching on only.
Check by hand touching if pitot tube temperature is raising.

PITOT HEATING switch OFF

PITOT HEATING green light must go out.

MASTER SWITCH OFF

4.5 Normal procedures and checklists

4.5.5 Before take-off

20. **PITOT HEATING** switch — ON

PITOT HEATING green light must light up.

4.5.14 After landing

6. **PITOT HEATING** switch — OFF

PITOT HEATING green light must go out.

NOTE

During ground manoeuvring in blustery wind conditions the SWS audio alarm may sound occasionally.

Section 5 – PERFORMANCE – Not affected

Section 6 - WEIGHT AND BALANCE - Not affected

Section 7 - AIRPLANE AND SYSTEM DESCRIPTION

7.15 Miscellaneous equipment

7.15.1 Pitot tube heating

Pitot tube heating is installed on this aircraft. Control elements are located on the instrument panel. Circuit breaker and switch PITOT HEATING are located at the lower part on the instrument panel left side, green light PITOT HEATING is located on the upper part at the middle of the instrument panel. Green light indicates pitot heating power supply switching on.

Section 8 - AIRPLANE HANDLING, SERVICING AND MAINTENANCE – Not affected

Intentionally left blank

SUPPLEMENT No. 19

STALL WARNING SYSTEM

ACI type T1b

Registration mark: **N999VP**

Serial number: **2014 1717**

This Supplement must be contained in the Aircraft Operating Instructions if Stall Warning System ACI type T1b is installed on the airplane in accordance with the approved airplane manufacturer documentation.

Information contained in this Supplement add or replace information from the standard Aircraft Operating Instructions in the further mentioned parts only.

Limitations, procedures and information not mentioned in this Supplement are contained in the standard Aircraft Operating Instructions.

RECORD OF REVISIONS

Rev. No.	Affected Pages	Description/Validity	Approved / Date	Incorpo-rated by / Date

Section 1 - GENERAL

This Supplement adds information necessary for airplane operation with stall warning system ACI type T1b that is installed according to the approved airplane manufacturer documentation.

Section 2 – LIMITATIONS

2. 17 Limitation placards

The following placard is added on the instrument panel:

Section 3 - EMERGENCY PROCEDURES

3.10.3 Stall warning system (SWS) audio signalization

When SWS audio alarm is heard:

1. Control stick — release or pull to increase airspeed, adjust engine power

SWS audio alarm must end.

Section 4 - NORMAL PROCEDURES

4.4 Pre-flight check

2. Left wing - check
   - stall speed vane condition and its free movement

12. Right wing - see 2. except the landing light (if installed), Pitot tube and stall speed vane
    - stall speed vane condition and its free movement

18. Cockpit check

- Perform stall warning system check:

MASTER SWITCH	ON
Stall speed vane (on the left wing)	lift
The audio alarm must sound when vane is lifted.	
Stall speed vane	release
MASTER SWITCH	OFF

NOTE

During ground maneuvering in blustery wind conditions the SWS audio alarm may sound occasionally.

Section 5 - PERFORMANCE

5.2.2 Stall speeds

If airplane speed is approximately 8 kts (9 mph) and less above stall speed the audible alarm is heard.

Section 6 - WEIGHT AND BALANCE - Not affected

Section 7 - AIRPLANE AND SYSTEM DESCRIPTION

7.15 Miscellaneous equipment

7.15.1 Stall warning system

Stall warning system ACI type T1b is installed on this airplane to warn pilot that airspeed is decreasing near to stall.

Stall speed vane (sensor) is located on the left wing, audible alarm box is located in the cockpit (behind the instrument panel).

Fig.1- Stall speed vane on the left wing

Section 8 - AIRPLANE HANDLING, SERVICING AND MAINTENANCE

8.2 Airplane inspection period

Lubricating points

Annually apply a drop of engine oil to each end of the stall warning system vane shaft on the left wing.

Intentionally left blank

SUPPLEMENT No. 20

NIGHT VFR OPERATION

Registration mark: **N999VP**

Serial number: **2014 1717**

This Supplement must be contained in the Aircraft Operating Instructions if aircraft is approved for operation according to night visual flight rules (NVFR).

Information contained in this Supplement add or replace information from the standard Aircraft Operating Instructions in the further mentioned parts only.

Limitations, procedures and information not mentioned in this Supplement are contained in the standard Aircraft Operating Instructions.

RECORD OF REVISIONS

Rev. No.	Affected Pages	Description/Validity	Approved / Date	Incorporated by / Date

Section 1 - GENERAL

This Supplement adds information necessary for airplane operation according to NVFR.

Section 2 – LIMITATIONS

2.12 Kinds of operation

The aircraft is approved for day / night VFR flights.

WARNING

NIGHT FLIGHTS ACCORDING TO VFR ARE APPROVED ONLY WHEN INSTRUMENTATION REQUIRED FOR SUCH FLIGHTS IS INSTALLED AND FLIGHT PERFORMED BY A PILOT WITH APPROPRIATE RATING! INTENTIONAL FLIGHTS UNDER ICING CONDITIONS ARE PROHIBITED.

Instruments and equipment for day / nigt flights according to VFR:

1 Airspeed indicator (the color marking according to par. 2.3. AOI)
1 Sensitive barometric altimeter
1 Magnetic compass
1 Engine speed indicator
1 Oil pressure indicator
1 Cylinder head temperature indicator
1 Oil temperature indicator
1 Fuel gauge indicator
1 Anticollision light system
1 Safety harness for every used seat
1 Emergency locator transmitter
1 Approved position lights
1 Landing light

CAUTION

ADDITIONAL EQUIPMENT NECESSARY FOR AIRCRAFT OPERATION IS GIVEN IN APPROPRIATE OPERATION REGULATION OF AIRCRAFT OPERATOR'S COUNTRY.

2. 17 Limitation placards

The following placard is located on the tilting canopy:

This Light Sport Aircraft has been approved only for day/night VFR flights under no icing conditions.

Aerobatics and intentional spins are prohibited!

AIRSPEED IAS	
Never exceed	146 kts
Manoeuvring	90 kts
Max. Flap Extended	70 kts
Stalling	37 kts

ENGINE SPEED	
Max. Take-off (max. 5 min.)	5800 rpm
Max. Continuous	5500 rpm
Idling	1400 rpm

Unusable quantity of fuel	0.5 Usgal

Section 3 - EMERGENCY PROCEDURES
Not affected

Section 4 - NORMAL PROCEDURES
Not affected

Section 5 – PERFORMANCE – Not affected

Section 6 - WEIGHT AND BALANCE - Not affected

Section 7 - AIRPLANE AND SYSTEM DESCRIPTION – Not affected

Section 8 - AIRPLANE HANDLING, SERVICING AND MAINTENANCE – Not affected

Intentionally left blank

SUPPLEMENT No. 22

DYNON SKYVIEW EFIS/EMS System with SV-D1000 and SV-D700 Displays

Registration mark: **N999VP**

Serial number: **2014 1717**

This Supplement must be contained in the Aircraft Operating Instructions if Dynon Skyview EFIS/EMS System with SV-D1000 and SV-D700 displays are installed on the airplane.

Information contained in this Supplement add or replace information from the standard Aircraft Operating Instructions in the further mentioned parts only.

Limitations, procedures and information not mentioned in this Supplement are contained in the standard Aircraft Operating Instructions.

RECORD OF REVISIONS

Rev. No.	Affected Pages	Description/Validity	Approved / Date	Incorporated by / Date

Section 1 - GENERAL

This supplement adds information which is necessary for operation of the SportStar RTC airplane with the following equipment installed in the airplane:

- Dual DYNON EFIS System with SV-D1000 display and SV-D700 display
- Dual DYNON AHRS System SV-ADAHRS-200, SV-ADAHRS-201
- DYNON EMS SV-EMS-220

For other equipment not mentioned in this supplement see standard AOI and other supplements to AOI.

Section 2 – LIMITATIONS

Kind of Operation – Minimum Equipment

If airplane is equipped with Dynon SkyView glass cockpit the following instruments and equipment are required for daylight flights according to VFR:

- Magnetic compass
- One safety harness for every used seat

On at least one of two SkyView's screens must be displayed representation of:

- Airspeed indicator
- Barometric adjusted sensitive altimeter
- Engine speed indicator
- Cylinder head temperature indicator
- Oil temperature indicator
- Oil pressure indicator
- Fuel indicator for each fuel tank

2. Wait if the unit boots up again.
3. Check the system after landing.

ADAHRS Failure

If data displayed on the EFIS displays is frozen or partially lost than the possible cause is failure of ADAHRS module.
Complete loss of ADAHRS data is announce by displaying "ADAHRS FAIL" message on the EFIS displays.

1. Reboot both EFIS displays:
   Buttons 1, 2 and 5 on the unit..... Press and hold simultaneously for more than three seconds

If ADHRS still does not provide the correct data:

2. Perform complete reset of SkyView units:
   Circuit breakers **DISPLAY 1** and **DISPLAY 2**.... PULL
   PWR OFF button at bottom of both displays..... PUSH
   Circuit breakers **DISPLAY 1** and **DISPLAY 2**.... PUSH

If ADHRS still does not provide the correct data:

3. Use backup instruments (airspeed indicator and altimeter, if installed) and refer to external GPS (if installed).
4. Check the system after landing.

Total Loss of Airspeed and/or Altitude Data on the DYNON SkyView's Displays

If backup instruments installed:
Use data from the backup instruments located on the left next to the SV-D1000 display.

If backup instruments not installed:
Use data from other installed instruments, i.e. ground speed and altitude data from GPS receiver. **Data from GPS use with caution!**

Section 4 - NORMAL PROCEDURES

CAUTION

BEFORE FLIGHT PILOT MUST BE FAMILIARIZED WITH DYNON SKYVIEW OPERATION AS DESCRIBED IN PILOT´S USER GUIDE – DOC. NO. 101321-009, REVISION J DATED MARCH 2012.

Switching ON
MASTER SWITCH ..... **ON**

The unit will be powered on and last used display layout will be loaded and displayed.

Switching OFF
MASTER SWITCH ..... **OFF**

Section 5 – PERFORMANCE – Not affected

Section 6 - WEIGHT AND BALANCE - Not affected

Section 7 - AIRPLANE AND SYSTEM DESCRIPTION

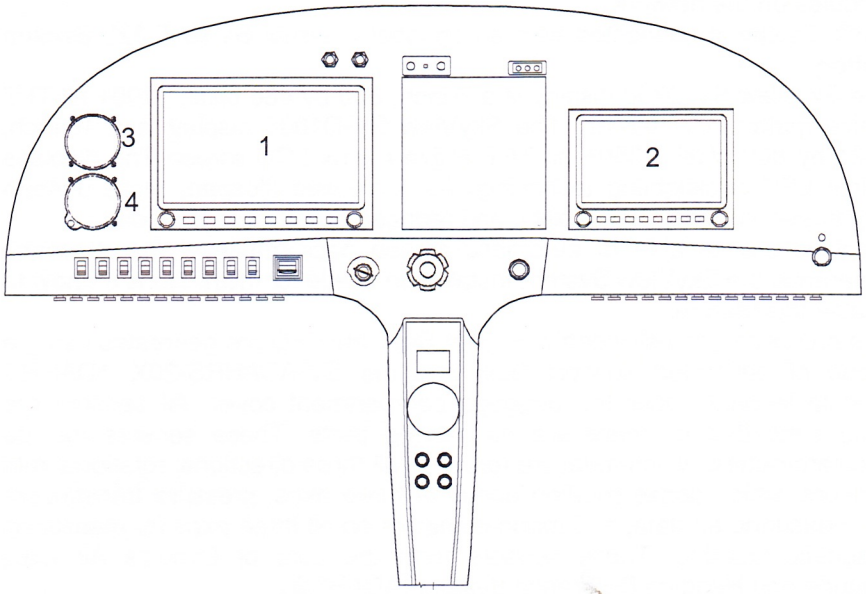
DYNON SKYVIEW EFIS Description

There are two DYNON SkyView EFIS units installed in the airplane.
D1000 and D700 displays can act as a Primary Flight Display (PFD) with Synthetic Vision, an Engine Monitoring System (EMS), and a Moving Map in a variety of customizable screen layouts. All data is sourced from other modules on the network.
Each display is connected with an optional external SV-BAT-320 Backup Battery.
The SkyView SV-D700 display is a 7-inch, 800 by 480 pixel, 1200+ nit TFT active matrix LCD screen. The SkyView SV-D1000 display is a 10-inch, 1024 by 800 pixel, 1350+ nit TFT active matrix LCD screen The displays utilize LED backlighting technology for increased lifespan, more uniform brightness, superior dimmability, and reduced power consumption.
Displays are capable of automatic screen backlight level management. Reference the SkyView System Installation Guide for instructions on how to enable this feature.
The primary flight instruments on your SkyView PFD are generated using a group of calibrated sensors built into the SV-ADAHRS-20X ADAHRS module located under the baggage compartment cover. All sensors are solid state–that is, there are no moving parts. These sensors include accelerometers, which measure forces in all three directions; rotational rate sensors, which sense rotation about all three axes; pressure transducers for measuring air data; and magnetometers on all three axes for measuring magnetic heading. These sensors form the core of Dynon's Air Data Attitude and Heading Reference System (ADAHRS).
The engine gauges on the SkyView Engine Page are generated from the data acquired by the SV-EMS-220 Engine Monitoring module and its sensors. This module can measure a variety of engine and environmental parameters such as RPM, manifold pressure, oil temperature and pressure, exhaust gas temperature (EGT), cylinder head temperature (CHT), fuel level, voltage, current, fuel pressure, fuel flow, coolant temperature, flap and trim potentiometers, external contacts, and general purpose temperature sensors.
The SV-BAT-320 backup battery is installed in the airplane for use with SkyView. It can power a typical SkyView display and most of its connected

modules for at least 60 minutes in the event of failure of the aircraft electrical system.

NOTE

Detailed description and operation of the Dynon SkyView system is described in Pilot's User Guide – Doc. No. 101321-009, Revision J dated March 2012.



1. SV-D1000 display
2. SV-D700 display
3. Backup airspeed indicator (optional)
4. Backup altimeter (optional)

Figure 1 – Instrument panel with Dynon SkyView EFIS/EMS System with SV-D1000 and SV-D700 displays installed

Section 8 - AIRPLANE HANDLING, SERVICING AND MAINTENANCE – Not affected

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SUPPLEMENT No. 25

PM3000 INTERCOM

Registration mark: **N999VP**

Serial number: **2014 1717**

This Supplement must be contained in the Aircraft Operating Instructions if if the PM3000 intercom is installed on the airplane.

Information contained in this Supplement add or replace information from the standard Aircraft Operating Instructions in the further mentioned parts only.

Limitations, procedures and information not mentioned in this Supplement are contained in the standard Aircraft Operating Instructions.

RECORD OF REVISIONS

Rev. No.	Affected Pages	Description/Validity	Approved / Date	Incorporated by / Date

Section 1 - GENERAL

This supplement adds information necessary for airplane operation with PM3000 intercom that is installed in the airplane in accordance with the approved airplane manufacturer documentation.

Section 2 – LIMITATIONS

Not affected

Section 3 - EMERGENCY PROCEDURES

Failure of Intercom Electrical Feeding

If electric current feeding of intercom is interrupted, then the installed relay interconnects pilot head set directly to VHF transceiver.

Section 4 - NORMAL PROCEDURES

Switching-on

Left knob..... SWITCH ON by turning clockwise and set volume

Right knob ..... by turning set the level of intercom switching

ISO Mode

Mode switch..... **ISO**

The pilot is isolated from the intercom and is connected only to the airplane VHF transceiver.

ALL Mode

Mode switch..... **ALL**

Pilot and other crew member can hear the airplane VHF transceiver and intercom.

Section 5 – PERFORMANCE – Not affected

Section 6 - WEIGHT AND BALANCE - Not affected

Section 7 - AIRPLANE AND SYSTEM DESCRIPTION – Not affected

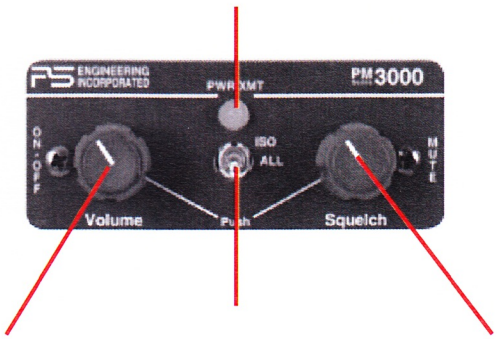
PM3000 is a voice-activated intercom that enables to interconnect up to 4 headsets. It is equipped with setting volume and level of switching the intercom. For transmitting via VHF transceiver it is necessary to press down and hold the button on the control stick.

PM3000 works in two modes:

ISO – pilot is disconnected from voice communication with the other crew member and is connected with VHF transceiver only.

ALL – both crew members are connected to transceiver receiving and can communicate with each other.

Green light indicates electric current feeding.
Red flashing light indicates transmitting.



Knob for switching and setting volume

Mode selector

Knob for setting of intercom switching

Figure 1 –PM3000 intercom

Section 8 - AIRPLANE HANDLING, SERVICING AND MAINTENANCE – Not affected

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SUPPLEMENT No. 27

GPS RECEIVER
GARMIN AREA 500

Registration mark: **N999VP**

Serial number: **2014 1717**

This Supplement must be contained in the Aircraft Operating Instructions if the GPS receiver Garmin Area 500 is installed on the airplane.

Information contained in this Supplement add or replace information from the standard Aircraft Operating Instructions in the further mentioned parts only.

Limitations, procedures and information not mentioned in this Supplement are contained in the standard Aircraft Operating Instructions.

RECORD OF REVISIONS

Rev. No.	Affected Pages	Description/Validity	Approved / Date	Incorporated by / Date

Section 1 - GENERAL

This supplement adds information which is necessary for operation of the HARMONY LSA airplane with the GPS receiver Garmin Area 500 installed in the airplane.

Section 2 – LIMITATIONS

1. The Garmin Area 500 must switched off during the engine starting.
2. Jeppesen Sanderson releases updated database every 28 days. Pilot using an out-of-date database do so entirely at their own risk.
3. The altitude calculated by the Garmin Area 500 never use for vertical navigation.
4. Never use the Garmin Area 500 as the only one navigation equipment.
5. If you use the Garmin Area 500 for navigation, the Pilot's Guide, doc. No. 190-01117-02 rev. A, publish date October 2009 or later valid version should be on the airplane aboard.

Section 3 - EMERGENCY PROCEDURES
Not affected

Section 4 - NORMAL PROCEDURES

Switching-on

AVIONICS MASTER switch.....**ON**

POWER push button on the GPS.....PRESS

You have to acknowledge database validity on the welcome screen.

NOTE

Detailed operating instructions are stated in the Pilot's Guide, doc. No. 190-01117-02 rev. A, publish date October 2009 or later valid version.

Section 5 – PERFORMANCE – Not affected

Section 6 - WEIGHT AND BALANCE - Not affected

Section 7 - AIRPLANE AND SYSTEM DESCRIPTION

The GPS receiver GARMIN Area 500 is installed in the airplane. Unit is located in the centre of the instrument panel. The GPS receiver is switched on/off by **POWER** push button located in the right top corner of the unit. The GPS receiver is controlled via the touch sensitive display and graphical user interface.

NOTE

Detailed operating instructions are stated in the Pilot's Guide, doc. No. 190-01117-02 rev. A, publish date October 2009 or later valid version.

Section 8 - AIRPLANE HANDLING, SERVICING AND MAINTENANCE – Not affected

SUPPLEMENT No. 27

EMERGENCY LOCATOR TRANSMITTER AK-451

Registration mark: **N999VP**

Serial number: **2014 1717**

This Supplement must be contained in the Aircraft Operating Instructions if the ELT AK-451 is installed on the airplane.

Information contained in this Supplement add or replace information from the standard Aircraft Operating Instructions in the further mentioned parts only.

Limitations, procedures and information not mentioned in this Supplement are contained in the standard Aircraft Operating Instructions.

RECORD OF REVISIONS

Rev. No.	Affected Pages	Description/Validity	Approved / Date	Incorporated by / Date

Section 1 - GENERAL

This Supplement adds information necessary for operation of the airplane with ELT AK-451 that is installed in accordance with the approved airplane manufacturer documentation..

Section 2 – LIMITATIONS

Not affected

Section 3 - EMERGENCY PROCEDURES

After Emergency Landing

NOTE

Carry out the following procedure in case of necessity.

1. Check if the emergency locator transmitter was switched on – green light on the remote control panel is flashing, buzzer is buzzing and radio station is receiving an audio signal on frequency of 121.5 MHz.
2. If the ELT was not switched on automatically – press the ON button on the remote control panel.
3. If the main antenna was damaged or if there is a danger of ELT damage, then:
   - Remove the ELT from the airplane and place it in a safe distance from the airplane.
   - Install the antenna

Set the **ON-OFF-ARM** switch to **ON** position

Section 4 - NORMAL PROCEDURES

Before Take-off

1. **ON-OFF-ARM** switch on ELT ..... **ARM**

After Landing

1. **ON-OFF-ARME** switch on ELT ..... **OFF**

ELT functional Check

NOTE

ELT check must be carried out once a month.

Carry out the check during the first 5 minutes of every hour and not longer than 5 seconds. Inform the ATC about the check.

1. Set the active frequency of 121.5 MHz on the board radio station.
2. Set the **ON-OFF-ARM** switch to ..... **ON** position

   After button pressing, the green signal light on the control panel ELT must flash two times (4 sec. off, 1 sec. on) and the buzzer tone must be activated in a synchronized way (4 sec. silence, 1 sec. sound) and it must be possible to hear uninterrupted sound signal in the headphones throughout the event.

3. Set **ON-OFF-ARM** switch on the ELT ..... to **ARM** position

   After pressing button the green signal light on the control panel of the ELT must be on for 4 sec. and at the same time it must be

possible to hear the buzzer tone.

4. Then the unit will be switched to the Self test mode which takes for 25 seconds. If the self test is successful the signal light isn't on and it is not possible to hear the buzzer tone.

5. Press the **RESET** button on the control panel of the ELT After pressing button the signal light must switch off and the buzzer tone must ´t be heard and it mustn't be possible to hear the sound signal in headphones received by radio station.

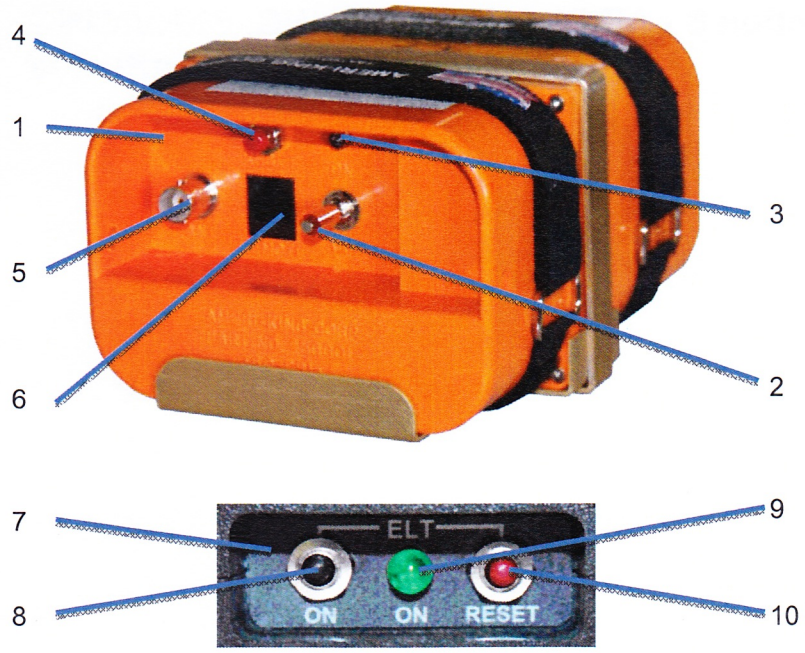
6. Press the **ON** button on the panel of ELT remote control After pressing button the green signal light on the ELT control panel must flash two times (4 sec. off, 1 sec. on) and the buzzer tone must be activated in a synchronized way (4 sec. silence, 1 sec. sound) and it must be possible to hear uninterrupted sound signal in the headphones throughout the event.
7. Press the **RESET** button on the panel of the ELT remote control After pressing button the signal light must be off and mustn't be possible to hear the buzzer tone and it mustn't be possible to hear the signal tone in the headphones received by radio station.

Section 5 – PERFORMANCE – Not affected

Section 6 - WEIGHT AND BALANCE - Not affected

Section 7 - AIRPLANE AND SYSTEM DESCRIPTION

The emergency location radio beacon AK-451 consists of the unit which is installed in the baggage compartment and the control panel which is installed on the instrument panel.
The ELT operates automatically (the switch on the unit in **ARM** position) when the ELT is activated by switch which reads aircraft acceleration in longitudinal direction. When the value of 3.5 ft/sec of airplane longitudinal acceleration is exceeded, the ELT unit is automatically activated and starts transmitting emergency radio signal at frequency of 121.5 and 243 MHz.
Manual activation of the ELT is possible either by pressing **ON** button on the control panel or by setting the switch on the unit to **ON** position.
The activated ELT can be switched off by pressing RESET button on the control panel or by setting the switch on the unit to OFF position.



1. ELT unit
2. ON – OFF – ARM switch
3. Signalling light
4. RESERT button
5. BNC connector for antenna
6. Connector for remote control cable
7. ELT remote control
8. ON button
9. ELT signalling light of switching
10. RESET button

Fig. 1 – Control panel and ELT unit

Section 8 - AIRPLANE HANDLING, SERVICING AND MAINTENANCE – Not affected

SUPPLEMENT No. 29

AUXILIARY GENERATOR SD-20

Registration mark: **N999VP**

Serial number: **2014 1717**

This Supplement must be contained in the Aircraft Operating Instructions if the SD-20 auxiliary generator is installed in the airplane.

Information contained in this Supplement add or replace information from the standard Aircraft Operating Instructions in the further mentioned parts only.

Limitations, procedures and information not mentioned in this Supplement are contained in the standard Aircraft Operating Instructions.

RECORD OF REVISIONS

Rev. No.	Affected Pages	Description/Validity	Approved / Date	Incorporated by / Date

Section 1 - GENERAL

This supplement adds information which is necessary for operation of the HARMONY LSA airplane with the SD-20 auxiliary generator installed in the airplane.

Section 2 – LIMITATIONS

Not affected

Section 3 - EMERGENCY PROCEDURES

Fire at Take-off

GEN switch..... **OFF**

AUX. GEN switch ..... **OFF**

Fire in Flight

GEN switch..... **OFF**

AUX. GEN switch ..... **OFF**

Emergency Landing

GEN switch..... **OFF**

AUX. GEN switch ..... **OFF**

Main Generator Failure

Failure of main generator is signalized by switching on the red signaling light **CHARGING** on the left side of the instrument panel.

1. **GEN** switch ..... **OFF** and then **ON**

If the red signaling light **CHARGING** is still on:

2. **GEN** switch ..... **OFF**

Decrease consumption of electric energy by switching off instruments and other electrical appliances which are not necessary for safety flight.

Auxiliary Generator Failure

Failure of the auxiliary generator is signalized by switching on the red signaling light **AUX. CHARG.** on the left side of the instrument panel.

1. **AUX. GEN** switch..... **OFF** and then **ON**

If the red signaling light **AUX. CHARG.** is still on:

2. **AUX. GEN** switch..... **OFF**

Decrease consumption of electric energy by switching off instruments and other electrical appliances which are not necessary for safety flight.

Section 4 - NORMAL PROCEDURES

Engine Starting

After engine has been started:

GEN switch..... **ON**

AUX. GEN switch ..... **ON**

Engine Shut-off

After engine has been shut-off:

AUX. GEN switch ..... **OFF**

GEN switch..... **OFF**

Section 5 – PERFORMANCE – Not affected

Section 6 - WEIGHT AND BALANCE - Not affected

Section 7 - AIRPLANE AND SYSTEM DESCRIPTION

The SD-20 is a high performance alternator that is mounted at the engine reductor flange. It is used as an auxiliary alternator and gives an output of 20 A at 3500 rpm. Auxiliary generator is switched on/off by **AUX. GEN** switch located on the lower left part of the instrument panel. There is also **AUX. GEN** circuit breaker located below the left part of the instrument panel.
The SD-20 is controlled by the LR3C-14 controller located at the firewall. The LR3C-14 combines three essential devices in one physical container:

1. It functions as a linear regulator.
2. It provides a vital safeguard for electrical system with a solid-state, over voltage protection system.
3. It contains a low-voltage detection circuit that illuminates a red warning light **AUX. CHARG.** Whenever bus voltage drops below 12.5 V.

In case of SD-20 installation in the airplane there is also a **GEN** switch installed on the lower left part of the instrument panel. The **GEN** switch switches off and on the main generator.

Section 8 - AIRPLANE HANDLING, SERVICING AND MAINTENANCE – Not affected

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