SECTION 8

HANDLING AND SERVICING

8.1. INTRODUCTION

This Section describes the procedures for:
- parking and tie-down
- refueling, changing oil, filling the aircraft with engine oil, coolant and brake fluid
- protecting on the ground
- cleaning

8.2. PARKING, TIE-DOWN AND GROUND PROTECTION

The aircraft must be parked facing into the wind using the following procedure:
- Lock the parking brake
- Lock the elevator by running the safety harness around the sidestick handgrip and buckling it.
- Close and lock the canopy
- Cover the canopy with the proper white protecting cloth
- Tie down the aircraft with stakes and ropes. Attach the ropes to the wing strut and to the nose gear
- Lock the ailerons with the proper aileron locks supplied with the aircraft in the position shown in Fig. 8-1

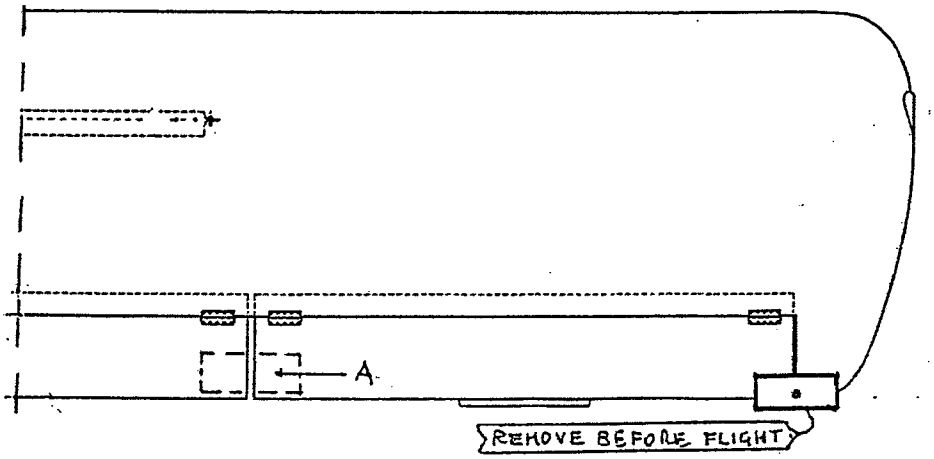

Fig. 8-1 - AILERON LOCK

NOTE

Never put the aileron lock in position A because, in case of flaps activation, the flaps and the ailerons will be damaged.

- Install the proper rudder gust-locks, supplied with the aircraft, in the rear rudder pedals as shown in Fig. 8-2.

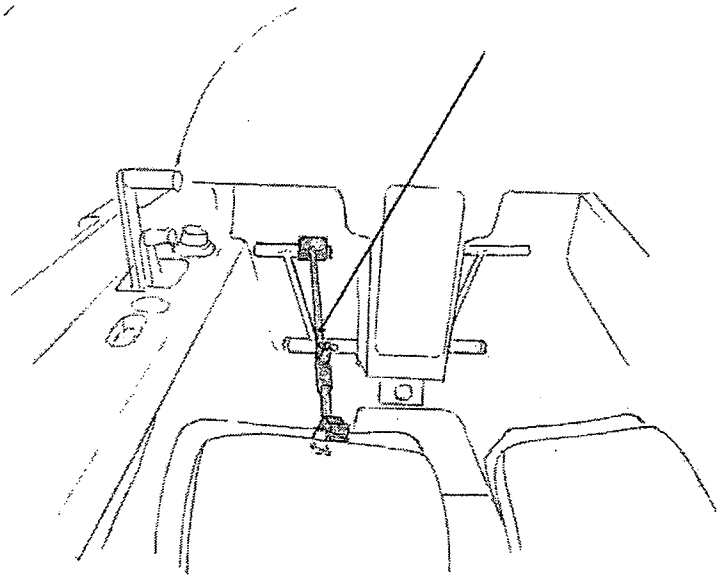

Fig. 8-2 - RUDDER LOCKS

- Cover the engine air intake with the optional cover when anticipating a long stay on the ground
- Insert the tailskid stand as shown in Fig. 8-3

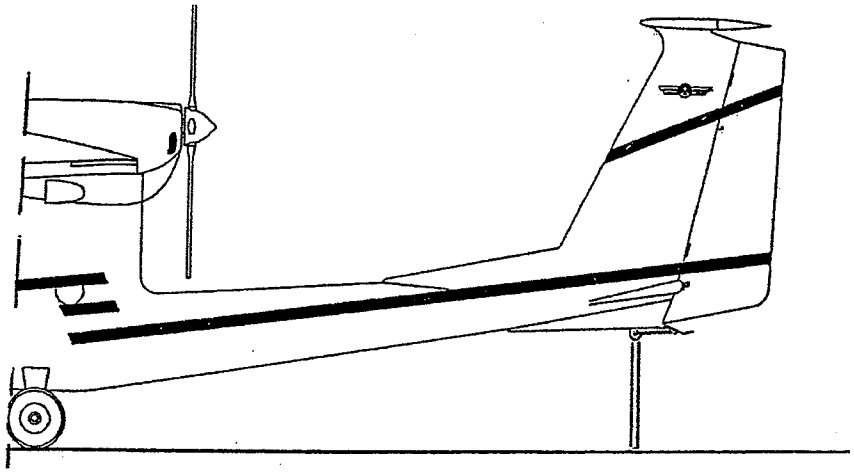

Fig. 8-3 - TAILSKID STAND

8.3. REFUELLING, LUBE, COOLANT AND BRAKE FLUID

8.3.1. REFUELLING

The engine mounted on this aircraft may be fed by unleaded automotive fuel (MOGAS MON 91 octane) and alternatively low lead aviation fuel (AVGAS 100LL). From the fuel tank the fuel goes to the carburetors after passing through the gascolator containing a filter. However only a properly filtered gasoline must be used. The control of purity of automotive gasoline by suppliers sometimes is not very accurate, therefore it is recommended to refuel the aircraft using a filtering funnel or other appropriate fuel filtering system. Fuel with more than 5% alcohol added must not be used.

NOTE

For more information on fuel selection, refer to Rotax Service Instruction SI-912-016 (latest revision)

Refuelling must be done as follows:

- connect the aircraft to the earth (ground) using a cable fastened to the specific point located on the rear side of the engine, where the ground symbol is displayed
- unscrew the fuel cap using the special tool supplied with the aircraft
- refill the aircraft using a filtering funnel
- replace the fuel cap properly.

CAUTION

After refuelling, always store the key to the fuel cap in an adequate location (e.g.: the compartment for small items in the cockpit floor).
Inadvertently leaving the key on the upper surface of the wing may cause it to strike the propeller when the engine is turned on.

NOTE

IT IS COMPULSORY: During refuelling a fire extinguisher or a pail of sea-sand must be placed near the aircraft.

IT IS FORBIDDEN: To smoke or have a open flame in a radius of 66 ft (30 m) from the point at which fuelling is practised.

IT IS ADVISED: To use proper containers, rubber pipes and/or proper equipment for fuelling, to prevent the formation of static sparks.

8.3.2. OIL SELECTION, OIL FILLING, OIL & FILTER change

The viscosity should be selected according to the oil temperature conditions.
Some examples of oils suitable in every temperature condition are shown in the following table:

Prg	Brand	Description	Specification	Viscosity	Fuel type
01	SHELL®	Advance VSX 4	API SG	SAE 10 W-40	Leaded or unleaded
02	MOBIL1®	Full synthetic	API SJ/CF	SAE 15 W-50	Unleaded only
03	VALVOLINE®	Dura blend synthetic	API SH	SAE 10 W-40	Leaded or unleaded

NOTE

For more information about oil selection refer to ROTAX Service Instruction SI-912-016 (latest revision)

Capacity Max 3.2 US qt (3 lt)
Min 2.1 US qt (2 lt)

Oil and filter must be changed, after the first 25 engine operating hours; every 100 operating hours.

CAUTION

Do not use aviation oil and oil additives.

Filling

With reference to Fig. 8-4, unscrew the oil cap/dipstick **(A)** and restore the maximum level by filling the reservoir.

Change

With reference to Fig. 8-4 and using only appropriate grade of automotive oil, proceed as follows:

- Open the engine baffle completely by placing the control lever on MAX COOLING;
- cut the tie-wrap hose clamp **(A)** to release the drain hose **(B)**;
- pull out the hose through the air intake **(C)**;
- remove the hose clamp and the plug on the end of the hose;
- empty the oil by draining it in a container and dispose properly;
- change the oil filter;
- replace the plug, and the hose clamp that retains the plug;
- replace the drain hose in the original position and secure with a tie wrap;
- fill the reservoir with 3 liters of new oil;
- start the engine to IDLE;
- check that the oil pressure reaches the normal pressure within 10 seconds.

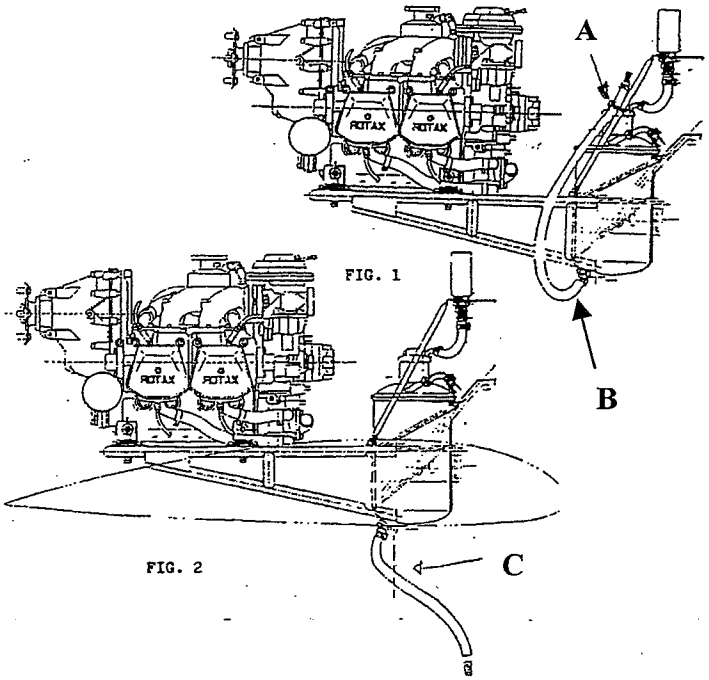

Fig. 8-4 - ENGINE OIL CHANGE AND COOLANT RESEVOIR

8.3.3. COOLANT

Use only EVANS NPG+ waterless coolant

WARNING
Do not add water or water-containing coolant to the system

Capacity	Max 2.4 US qt (2.3 lt)
	Min 2.3 US qt (2.2 lt)
Overflow or filler tank	Max 0.21 US qt (0.2 lt)
	Min 0.11 US qt (0.1 lt)

NOTE
For more information about coolant selection refer to ROTAX Service Bulletin SB-912-043 (latest revision)

The coolant level may be checked in the transparent reservoir located at the aft end of the engine (Point D in Fig. 8-4). If additional coolant is required, use only the proper engine coolant.

WARNING
Water or water-containing coolant must not be added in any case to the cooling system

NOTE

In case of an empty reservoir, the coolant level must be checked in the distribution tank on top of the engine.
Excessive overfilling of the reservoir can cause an overflow during operation.

8.3.4. BRAKE FLUID

Check every 100 hours/once a year the level of brake fluid and refill as required, using Esso Aviation Invaroil SJ13 AIR 3520 B H515 or equivalent, by unscrewing the Allen screw on top of the master brake cylinders.

8.4. CLEANING

It is very important to keep the aircraft clean as this reduces the chances of corrosion and simplifies inspection and maintenance.

- **Canopy and side windows**

  These are made of Plexiglas and must be carefully cleaned with soapy water and using a wet sponge to remove mud and encrusted dirt.
  Do not rub the Plexiglas with a dry cloth because it may scratch the canopy.
  After drying the canopy, lightly rub it with a cloth moistened with an antistatic fluid (DREWOQUASAR VIDEO or equivalent), then dry again.
  Oil or grease spots can be cleaned by lightly rubbing them with a cloth wet with Plexiglas polish (MEGUIR'S Inc - MIRROR GLAZE or equivalent).

CAUTION

Do not use gasoline, benzene, alcohol, acetone, paint solvents or sprays to clean the Plexiglas because they can cause serious damage.
If the aircraft is left under the sun, especially in the summer, remember to protect the canopy with appropriate light-color covers..

- **Fuselage**

  The fuselage must be cleaned with water and a neutral automotive detergent with a wet sponge. Dry with a soft cloth or chamois.

- **Landing gear**

  The main gear leaf springs, nose gear and tires must be cleaned with water and a neutral automotive detergent.

- **Wings and tailplane**

  The wing surfaces must be cleaned with water and a neutral detergent. The metal parts must be dried completely to prevent corrosion. To remove insects from the leading edge of wings use a wet sponge being very careful not to scratch the surface. Do the same for the struts.

  The tailplane must be cleaned in the same manner as the wing.

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SECTION 9

REQUIRED PLACARDS AND MARKINGS

9.1. AIRSPEED INDICATOR RANGE MARKINGS

9.2. OPERATING LIMITATIONS

9.3. POWERPLANT INSTRUMENTS MARKINGS

9.4. ADDITIONAL MARKINGS

9.1. AIRSPEED INDICATOR RANGE MARKINGS

MARKING	SPEED RANGE (KCAS)	SPEED RANGE (KIAS)	MEANING
WHITE ARC	40 – 67	38 - 67	Range of use of fully extended flaps
GREEN ARC	44 – 104	44 - 104	Normal range of use
YELLOW ARC	104 – 132	104 - 132	Speed range in smooth air
RED LINE	at 132	at 132	Speed limit never to be exceeded in any flight condition

9.2. OPERATING LIMITATIONS

Operating limitations are indicated by the following placard, displayed on the instrument panel or on the side console:

LIGHT SPORT AIRCRAFT

CHARACTERISTICS		**PERFORMANCE (at 1,320 lbs – 599 kg)**	
MAX TAKE-OFF WEIGHT	1,320 lbs (599 kg)	V_{NE}	132 KTS / 152 mph
MAX LANDING WEIGHT	1,320 lbs (599 kg)	V_{FE}	67 KTS / 77 mph
POWER	98 hp (5`) – 92.5 hp (max. cont.)	MAX HOR. SPEED s.l.(V_H)	110 KTS / 127 mph
RPM engine	5,800 (5') – 5,500 (max cont.)	MANOUV. Sp. s.l.	90 KTS / 104 mph
ENGINE TYPE	ROTAX 912 ULS2	STALL SPEED (30° flaps)	38 KTS / 44 mph
FUEL TYPE	- MOGAS MON 91 oct. or Avgas 100LL	RATE OF CLIMB, s.l. (at 65 kts)	1,100 ft/min
OIL TYPE	Automotive proper grade	CEILING	13,500 ft
MAX. USABLE FUEL	17.8 Gall. / 67.5 lt	TAKE OFF RUN (10° flaps)	470 ft / 143 m
"G" LIMIT FACTOR	+ 4.0 / - 2.0 (Flaps 0°)	LANDING RUN (30° flaps)	360 ft / 110 m
	+ 2.0 / 0 (Flaps 30°)	FUEL CONSUMPTION (cruise power 75% pwr)	4.9 gall/h (18.5 lt/h)
MAX BAGGAGE WEIGHT	66+33 lbs (45) kg	ENDURANCE (cruise pwr.)	3^h 40' (no reserve)

NO INTENTIONAL SPINS

9.3. POWERPLANT INSTRUMENTS MARKINGS

INDICATORS	RED LINE Min. Limit	GREEN ARC Normal usage	YELLOW ARC CAUTION	RED LINE Max. Limit
RPM Indicator	--	1,400 – 5,500	5,500 – 5,800	5,800
Oil temperature	120 °F (50 °C)	120 - 230 °F (50 – 110 °C)	230 - 266 ° F (110 – 130 °C)	266 °F (130 °C)
Cyl. heads temp.	140 °F (60 °C)	140 - 248 °F (60 – 120 °C)	248 - 266 °F (120 – 130 °C)	266 °F (130 °C)
Oil pressure	12 psi (0.8 bar)	29 – 72.5 psi (2 – 5 bar)	12 - 29 psi (0.8 – 2 bar) 72.5 - 102 psi (5 – 7 bar)	102 psi (7 bar)

9.4 ADDITIONAL MARKINGS

The limitation expressed in the following placards, mounted on the bulkhead behind the rear seat and on the floorboard behind the rear seat, must be complied with

**NO BAGGAGE
BEHIND OR BELOW
THE SEAT
IF PROPER CONTAINERS
ARE NOT INSTALLED**

**ACCESS BEHIND
SEAT AND CONTAINER OR
FRAME
ONLY FOR MAINTENANCE**

The following additional placard must also be displayed in the cockpit

This aircraft was manufactured in accordance with Light Sport Aircraft airworthiness standards and does not conform to standard category airworthiness requirements.

NOTE

For further placards refer to the Maintenance Manual.

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SECTION 10

SUPPLEMENTS

This section of the handbook contains Supplements to safely and efficiently operate the Sky Arrow 600 Sport when optional equipment or equipment for special operations, not included in the basic Airplane Flight Manual, are installed. When such equipment is installed, the corresponding supplements must be in the airplane for flight operations.

Data in a supplement adds to, supersedes or replaces similar data in the basic Airplane Flight Manual.

A Log of Supplements is shown below. The Log of Supplements lists all Supplements available for the Sky Arrow 600 Sport at the page revision date (lower left-hand corner of this page). A mark in the column "Inst." Indicates that the supplement is installed in this Manual.

LOG OF SUPPLEMENTS

Inst.	Doc. number	Title	Rev. no.	Rev. date
X	LS-14.03	Aircraft Flight Training Supplement	1	Febr. 20, 2006
	LS-14.01/S01	Kit for disabled pilots	1	Jan 15, 2007