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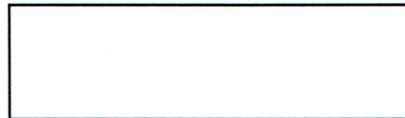
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MANDATORY SERVICE BULLETIN

IS-28M2/GR/CO-02



APPROVED BY : ROMANIAN CIVIL AIRWORTHINESS AUTHORITY

with no. 1694/17.02.2000

PRODUCT : IS-28M2/GR MOTOR GLIDER

SUBJECT : REPLACEMENT OF FUEL SYSTEM HOSES, IN VIEW OF
USING THE UNLEADED GASOLINES AS PER EN 228

COMPLIANCE : MODIFICATION RECORD CARDS 28M2.07.1176, 28M2.07.1178
and 28M2.07.1186



1. PLANNING INFORMATION

1.A. APPLICABILITY

This Service Bulletin shall be applied to the IS-28M2/GR motor gliders S/N 75 and 77.

1.B. REASON

Use of unleaded gasolines as per EN 228, recommended by the manufacturer of the ROTAX 912 A3 engine.

1.C. DESCRIPTION

- Dismount all the OST type hoses of the fuel system and replace them with DIN type hoses with identic mounting system.
- Strip off the inscription near the fuelling orifice on the fuselage and remake it by specifying the new types of gasolines to be used.

1.D. ACCOMPLISHMENT

The application of this Service Bulletin is the user's responsibility for the two specified motor gliders.

IAR-SA delivers the necessary materials.

To the other motor gliders the modification is applied during manufacturing.

1.E. MATERIAL-COST AND AVAILABILITY

The materials necessary to apply the Service Bulletin are delivered by IAR-SA.

These materials are:

<i>Item in Appendix</i>	<i>MATERIAL</i>	<i>DESCRIPTION</i>	<i>PART NUMBER</i>	<i>REMARKS</i>
1	DIN 73379-E9x3-K	Fuel tank ventilation hose	28M2.F10.0002.37 L = 800mm	
2	DIN 73379-E9x3-K	Fuelling orifice overflow hose	28M2.F10.0002.38 L = 1100mm	
3	DIN 73379-E7,5x3-K	Quick tank drain hose	28M2.F10.0217.28 L = 350mm	
4	DIN 73379-E6x3-K	Fuel return hose	28M2.F10.0002.93 L = 1000mm	
5	DIN 73379-E7,5x3-K	Fuelling hose in firewall-engine area	46A.52.0010.20 L = 1100mm	Fire protection provided L = 1090mm
6	DIN 73379-E6x3-K	Distributor fuelling hose on engine	46A.52.0010.21 L = 650mm	Fire protection provided L = 640mm



<i>Item in Appendix</i>	<i>MATERIAL</i>	<i>DESCRIPTION</i>	<i>PART NUMBER</i>	<i>REMARKS</i>
7	DIN 73379-E6x3-K	Right carburettor fuelling hose.	46A.52.0010.22 L = 350mm	Fire protection provided L = 340mm
8	DIN 73379-E6x3-K	Left carburettor fuelling hose	46A.52.0010.23 L = 520mm	Fire protection provided L = 510mm
9	DIN 73379-E6x3-K	Fuel return hose in engine-firewall area	46A.52.0010.24 L = 720mm	Fire protection provided L = 710mm
10	DIN 73379-E6x3-K	Manifold pressure indicator hose from engine to filter	46A.52.0010.31 L = 620mm	If the manifold pressure indicator is provided (optional)
11	DIN 73379-E6x3-K	Manifold pressure indicator hose from firewall to indicator	46A.52.0010.35 L = 600mm	If the manifold pressure indicator is provided (optional)
12	DIN 73379-E6x3-K	Manifold pressure indicator hose from filter to firewall	46A.52.0010.30 L = 230mm	If the manifold pressure indicator is provided (optional)

- Tightening clamps – to be kept for reuse;
- NIA 317-11 placards with part number and expiry date specified (calendar week, year and quality check stamp) – 12 pcs, fixed on each hose delivered;
- Nitro thinner 210 STAS 3122-85- 0.5 litres;
- Nitro enamel 2408 (orange) NTR-306/82 – 0.5 litres;
- Lock wire 0.8 mm.dia. 1/2 T STAS 10011-75 – 1m ;

1.F. TOOLING

- Motor glider tool kit;
- Painting gun or brush ;

1.G. WEIGHT AND BALANCE

Not affected.

1.H. REFERENCES

Modification Record Cards 28M2.07.1176, 28M2.07.1178 and 28M2.07.1186

1.I. DOCUMENTS AFFECTED

Flight Manual, issue August 1997 – amendment 2/ July 1998.

Maintenance Manual – issue August 1997 – amendment 1/ July 1998.



2. ACCOMPLISHMENT INDICATIONS

2.A. WORK PREPARATION

To replace the hose in the fuselage area, dismount the tank (see APPENDIX 1 page 1/3). For this purpose, remove the baggage compartment cover, removing the five screws; dismount the two fixing straps of the tank; remove the metal braid attached to the tank lug located on the top side of the tank with screw, washer and nut. Dismount the hose item 4 –untighten the clamp and remove the hose from the fuel return nozzle located on tank; dismount the tank item 1 – untighten the clamp and remove the hose from the ventilation nozzle located on tank. Untighten the two clamps from the fuelling orifice and free the sleeve. To disengage the fuelling pipe, dismount the plug union from the tank outlet union; dismount the adjustable union from the fuelling pipe. Dismount the hose item 3 from the tank lower side – untighten the clamp and remove the hose from the tank nozzle.

To replace the hoses in the engine compartment, the engine cowls must be removed. For this purpose, dismount the upper cowl, by opening the 10 closing axles located on the cowl and the 5 closing axles located on firewall (turnstiles).

To inscript the types of gasolines to be used, the old inscription near the fuelling orifice must be stripped off with the thinner delivered by IAR.

2.B. APPLICATION

2.B.1. Dismounting of the OST type hoses

The hoses are identified according to the drawings of APPENDIX 1, page 1/3,2/3 and 3/3.

- Page 1/3 fuselage area – for both motor gliders (S/N 75 and 77);
- Page 2/3 engine compartment – for S/N 75;
- Page 3/3 engine compartment – for S/N 77;

The hoses are dismounted by untightening the clamps and removing the hose from nozzle.

This operation is carried out for the hoses 1,2,3,4 in fuselage area, hoses 5,6,7,8,9,10,12 in engine compartment and hose 11 under instrument panel. After removal, the clamps shall be mounted on the new hoses.

2.B.2. Mounting of DIN type hoses

Using the same attachment clamps at ends, mount the DIN type hoses received, following the operations described for dismounting, but in reverse order.

In the fuselage area, carry out the tank mounting, following also the dismounting operations but, in reverse order. Lock wire the plug union of the fuelling pipe and the turnbuckles of the tank fixing straps.

In engine compartment, the hoses shall be also fixed in the supporting clamps on their route.



The numbering (order) of the hoses included in the table coincides with their position in the drawings of APPENDIX 1.

After carrying out and checking these operations, close the cover of the baggage compartment and the upper cowl.

2.B.3. Gasoline type inscription

On the right side of the fuelling orifice, the following inscription shall be made:

- For IS-28M2/GR, S/N 75:

TANK STELLENBENZIN BLEIFREI MIN. 92 OCT. ODER AVGAS 100LL

- For IS-28M2/GR, S/N 77:

UNLEADED GASOLINE MIN. RON 92 or AVGAS 100LL

The writing shall be vertical with letters of 10mm. high. The paint shall be orange nitro enamel.

The text is included also in the Flight Manual, para. 2.13 and in the Maintenance Manual, para. 11.8.

2.C. APPLICATION

Normal servicing, according to the Flight Manual and Maintenance Manual.

3. MATERIAL INFORMATION

3.A. MATERIAL LIST

- a) DIN 73379-E9x3-K hose;
 - b) DIN 73379-E7,5x3-K hose;
 - c) DIN 73379-E6x3-K hose;
 - d) AE 102/524-AS 1072-9 AEROQUIP fire protection;
 - e) NIA 317-11 placards- 12 pcs.
 - f) 210 STAS 3122-85 nitro thinner- 0.5 litri;
 - g) 2408 NTR 306/82 orange nitro enamel- 0.5 l;
 - h) Lock wire 0.8 mm.dia. 1/2 T, STAS 10011-75 - 1m;
- } The dimensions and part numbers of the hoses are shown to point 1.E

3.B. MODIFICATION LIST

- Replacement of the OST type hoses with DIN type hoses;
- Gasoline type inscription near the fuelling orifice;

3.C. SUPPLY INDICATIONS

IAR - SA. delivers the materials necessary to apply this Service Bulletin.

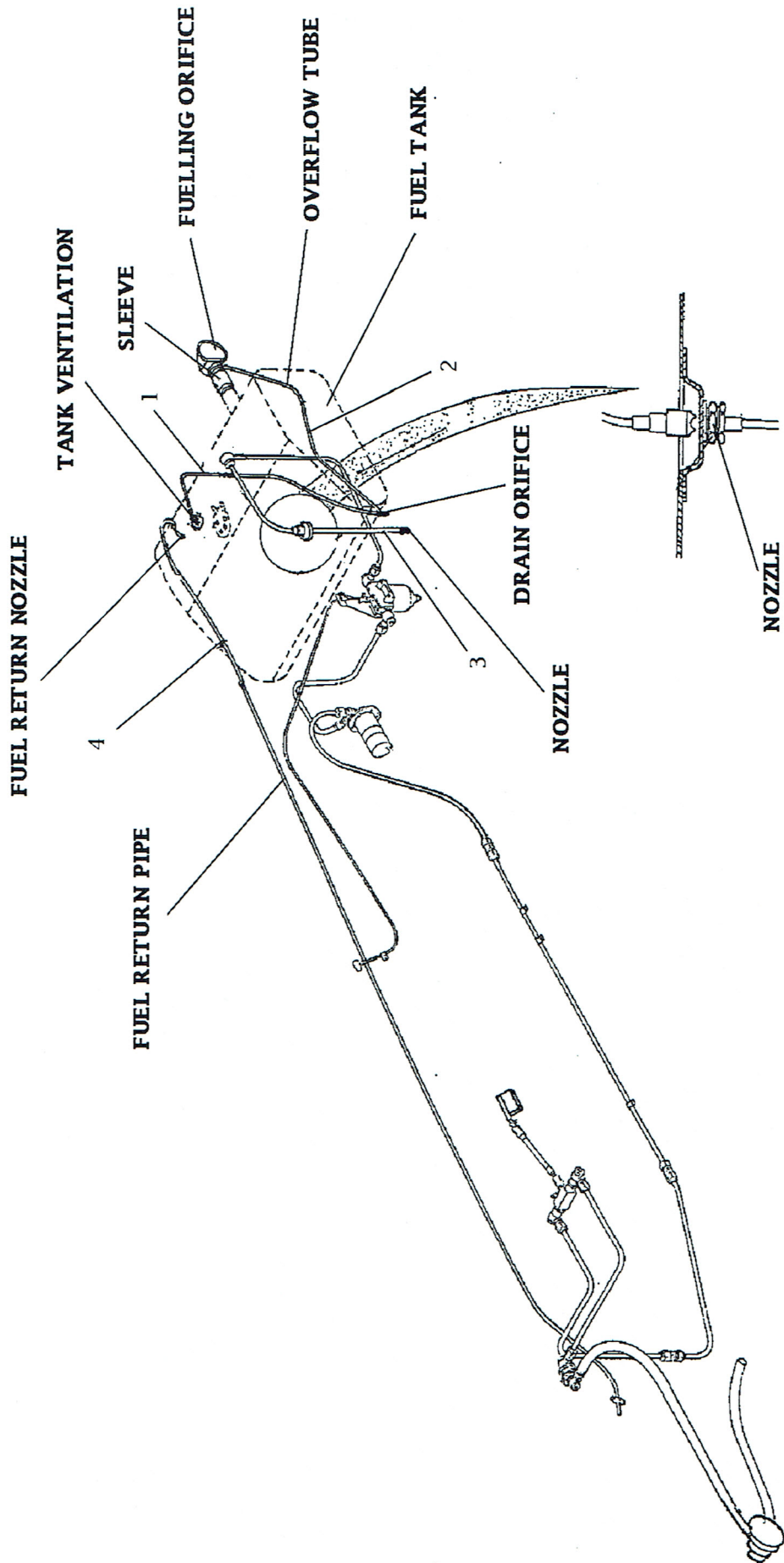


4. IDENTIFICATION

The application of this Service Bulletin shall be recorded in the motor glider log book. Appendix 1 is enclosed to this Service Bulletin.

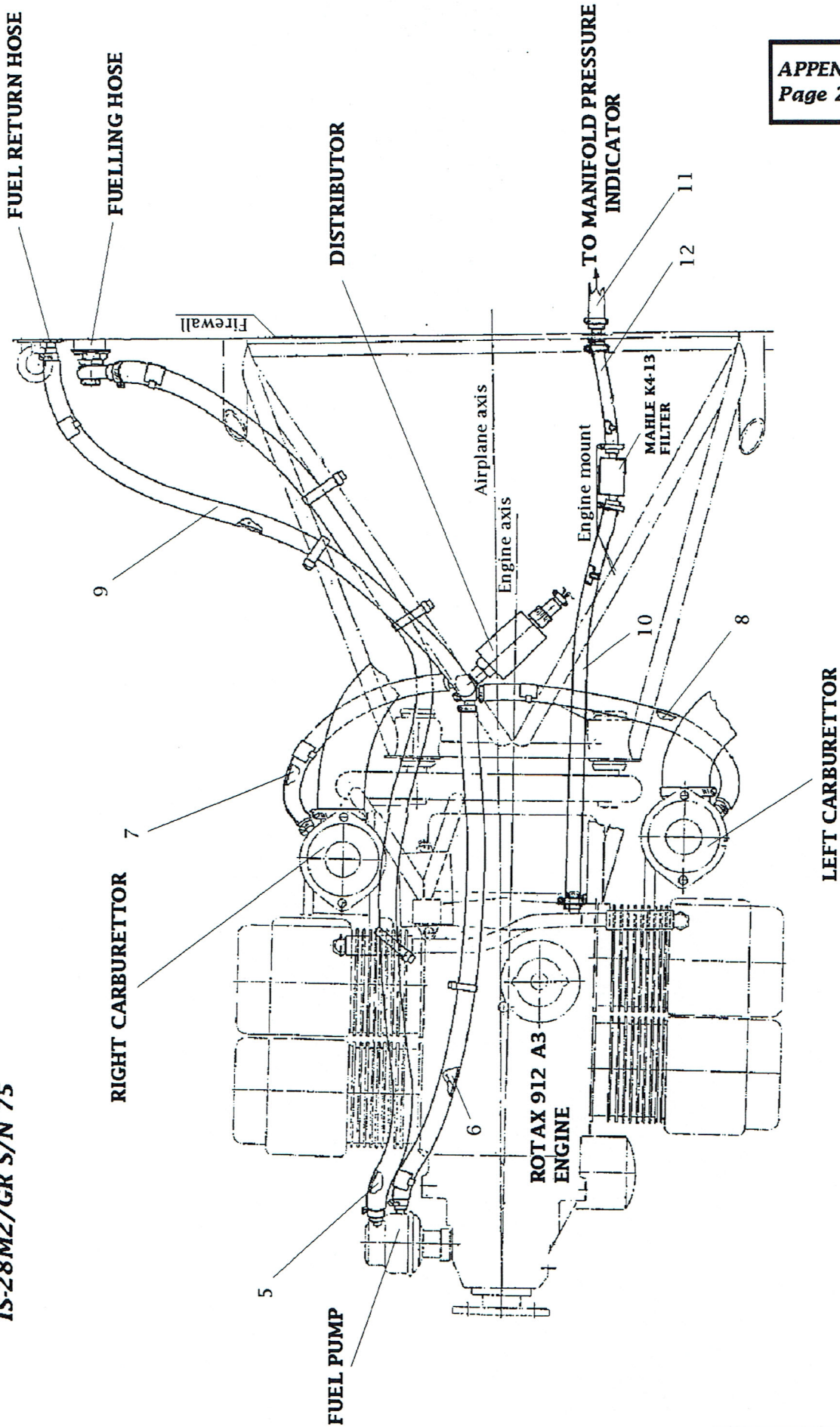
5. APPENDICES

- Appendix 1 (page.1/3,2/3,3/3);
- Flight Manual – issue August 1997 – amendment 2/July 1998;
- Maintenance Manual – issue August 1997 – amendment 1/July 1998;

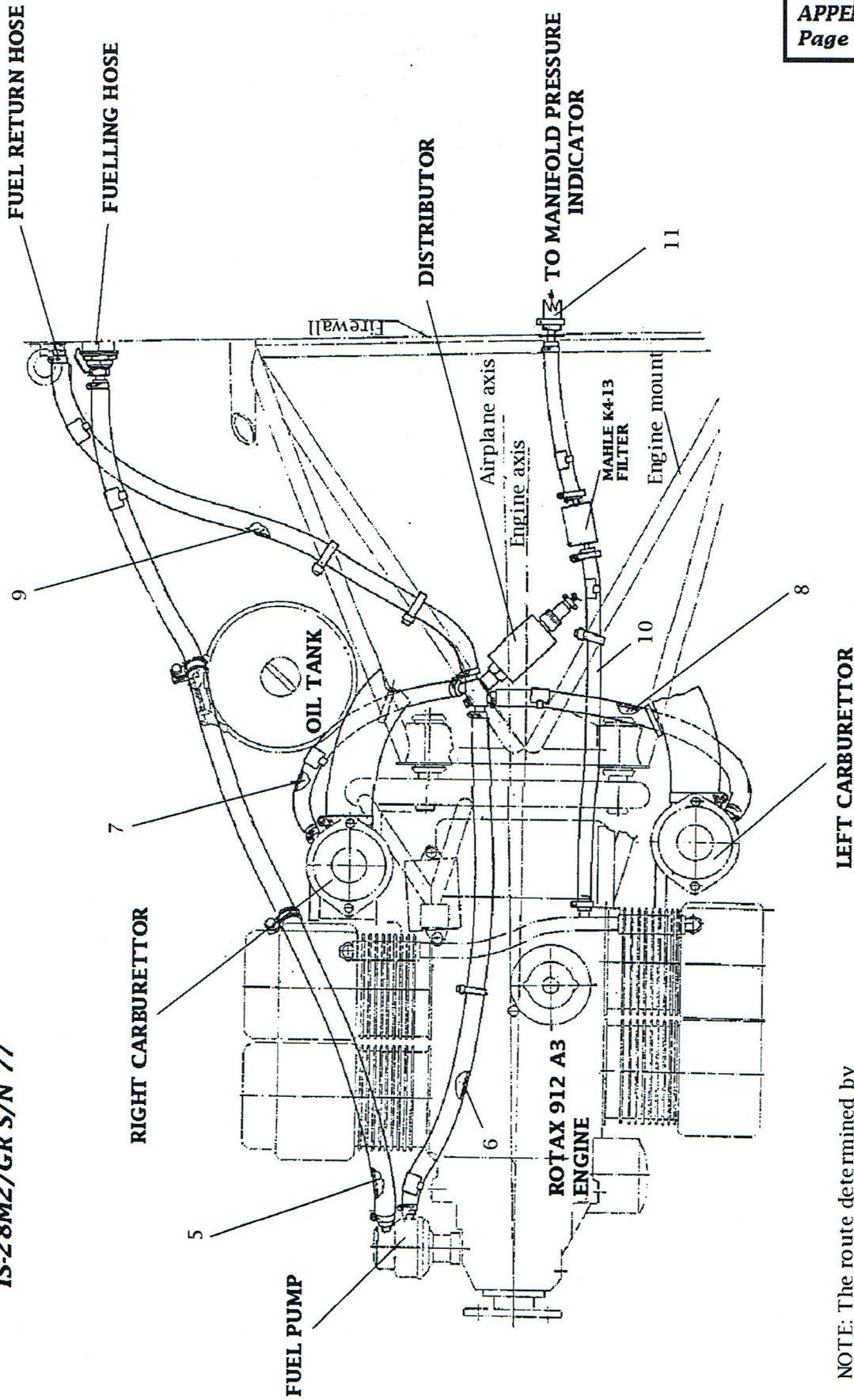


**FUEL SYSTEM
FUSELAGE AREA
IS-28M2/GR**

**FUEL SYSTEM
ENGINE AREA
IS-28M2/GR S/N 75**



**FUEL SYSTEM
ENGINE AREA
IS-28M2/GR S/N 77**





LIST OF EFFECTIVE PAGES

Section	Page	Date of issue	Section	Page	Date of issue
0	(i)	JULY 1998	5	5.11.	AUGUST 1997
	(ii)	JULY 1998		5.12.	AUGUST 1997
	(iii)	AUGUST 1997		5.13.	AUGUST 1997
1	1.1.	AUGUST 1997		5.14.	AUGUST 1997
	1.2.	AUGUST 1997		5.15.	AUGUST 1997
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	1.12.	AUGUST 1997		5.25.	AUGUST 1997
	1.13.	AUGUST 1997	6	6.1.	AUGUST 1997
	1.14.	AUGUST 1997		6.2.	AUGUST 1997
	1.15.	AUGUST 1997		6.3.	AUGUST 1997
	1.16.	AUGUST 1997		6.4.	AUGUST 1997
	1.17.	AUGUST 1997		6.5.	AUGUST 1997
	1.18.	AUGUST 1997		6.6.	AUGUST 1997
	1.19.	AUGUST 1997		6.7.	AUGUST 1997
	1.20.	AUGUST 1997	7	7.1.	AUGUST 1997
	1.21.	AUGUST 1997		7.2.	AUGUST 1997
	1.22.	AUGUST 1997		7.3.	AUGUST 1997
	1.23.	AUGUST 1997	8	8.1.	AUGUST 1997
	1.24.	AUGUST 1997		8.2.	AUGUST 1997
2	2.1.	AUGUST 1997		8.3.	AUGUST 1997
	2.2.	AUGUST 1997		8.4.	AUGUST 1997
	2.3.	AUGUST 1997		8.5.	AUGUST 1997
3	3.1.	AUGUST 1997		8.6.	AUGUST 1997
	3.2.	AUGUST 1997		8.7.	AUGUST 1997
	3.3.	AUGUST 1997		8.8.	AUGUST 1997
	3.4.	AUGUST 1997		8.9.	AUGUST 1997
	3.5.	AUGUST 1997		8.10.	AUGUST 1997
	3.6.	AUGUST 1997		8.11.	AUGUST 1997
4	4.1.	AUGUST 1997		8.12.	AUGUST 1997
	4.2.	AUGUST 1997		8.13.	AUGUST 1997
	4.3.	JULY 1998	9	9.1.	AUGUST 1997
	4.4.	AUGUST 1997		9.2.	AUGUST 1997
5	5.1.	AUGUST 1997	10	10.1.	AUGUST 1997
	5.2.	AUGUST 1997		10.2.	AUGUST 1997
	5.3.	AUGUST 1997	11	11.1.	AUGUST 1997
	5.4.	AUGUST 1997		11.2.	AUGUST 1997
	5.5.	AUGUST 1997		11.3.	AUGUST 1997
	5.6.	AUGUST 1997		11.4.	AUGUST 1997
	5.7.	AUGUST 1997		11.5.	AUGUST 1997
	5.8.	AUGUST 1997		11.6.	AUGUST 1997
	5.9.	AUGUST 1997		11.7.	AUGUST 1997
	5.10.	AUGUST 1997		11.8.	JULY 1998

4.2. FUEL DRAINING

For fuel draining there is a rubber hose provided with a metal part in the motor glider kit. The metal part is introduced in the hole under the motor glider bottom side; by rotating it, the tank draining valve is opened.

The tank shall be drained before the periodical inspections of the motor glider or upon the motor glider hangaring for performing the maintenance works.

If the fuel quantity indicator needle stays within the blue arc area (above the "55 l" marking), showing the water presence in the fuel tank, the following operations shall be carried out :

- check if the circuit-breakers and master switch are disconnected ;
- drain the fuel strainer;
- drain the fuel tank;
- remove the fuel tank inspection cover;
- tap the upper side of the fuel tank (to produce vibration), near the attachment flange of the fuel gauge transducer, until the indicator needle reverts to "0".

4.3. FUEL USED

The fuel used shall be : unleaded fuel min. RON 92 (EN 228/1993) or AVGAS 100LL. | 1

4.4. OIL SUPPLY

For oil supply, open the inspection cover on the engine upper cowling, allowing the access to the oil tank.

The oil type is chosen in accordance with the indications of the Flight Manual and Rotax Operator's Manual (para. - "Cold weather operation"), Rotax Service Buletine 912-13 and Service Information 18UL 97-D/E. | 1

The periodicity of oil change is mentioned in Section 5, heading 5.6. and 5.8.

Oil Change

For oil change, proceed as follows :

- keep the engine in idling condition for 2 min.;
- drain the oil while the engine is warm;
- change the oil filter at each oil change, dismount the used filter and check for chips presence ;
- check the magnetic plug for chips;
- fill with oil (3.7 l are necessary, including the oil in the oil filter);
- check oil level. The level mark "max." must not be exceeded.

Venting of suction line

Proceed as follows :

- block oil return hose from oil sump to oil tank ;
- inject compressed air (max. 3 bar) for about 30 sec. into venting line of oil tank, thus forcing the oil from the tank to the pump.



b) INSCRIPTIONS

- near landing gear wheels 2.6 bar
- near tail wheel 2.6 bar
- on aileron and rudder..... DO NOT PUSH
- on flap DO NOT STEP
- on elevator and stabilizer NO HANDLING
- over tail wheel, on fuselage..... LIFT HERE
- on rear fuselage cone
(behind tail wheel) NO HANDLING
- near fuel plug UNLEADED GASOLINE
MIN. RON 92
OR AVGAS -100 LL
55 l
- on inspection cover for oil tank,
located on engine upper cowling CAR TYPE
ENGINE OIL
MAX. 3,7 l
- near compass compass trimming
graphic
- levelling points
- lifting points

1

2.4. POWER PLANT, FUEL AND OIL

Engine manufacturer: BOMBARDIER ROTAX G.M.B.H. MOTORENFABRIK

Engine model: ROTAX 912 A3

Maximum power: - take-off (max.5 min) 80 HP
 - continuous 78 HP

Maximum R.P.M.: - take-off (max.5 min) 5,800 U/min
 - continuous 5,500 U/min

Maximum cylinder head temperature 150° C

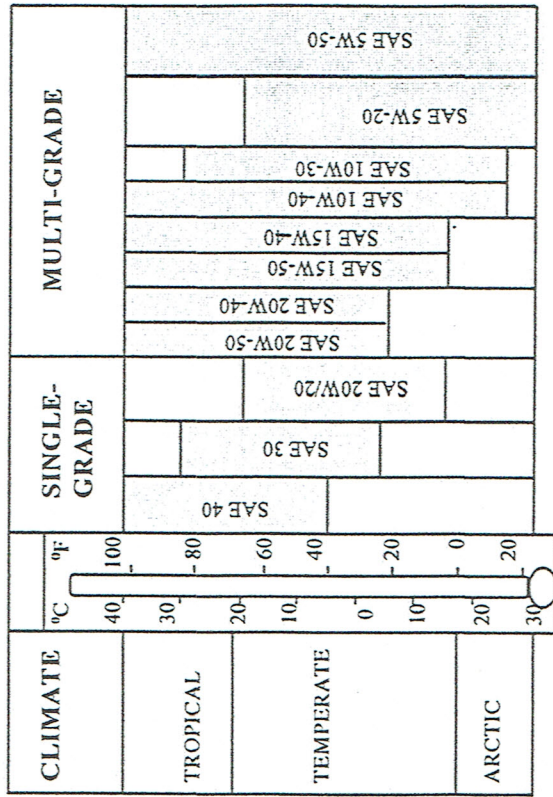
Maximum oil temperature..... 140° C

Oil pressure: - minimum 1.5 bar
 - maximum 5.0 bar
 - normal 4.0 bar

Fuel: unleaded fuel min. RON 92 (EN 228/1993) or AVGAS 100 LL | 2

Oil type: Use only oils for car engines marked by "SF" or "SG" according to the API system. The fully synthetic oils are not recommended for use (as per Rotax Service Bulletin no. 912-13 and Service Information 18 UL 97-D/E). | 2

The oils with additives for gearing may be also used (oils for 4-stroke, motorcycle engine), preferably those with GL4 or GL5 specification.
 NO OTHER OIL ADDITIVE SHALL BE USED.



Inscriptions:

- near landing gear wheels2,6 bar
- near tail wheel2,6 bar
- on aileron and rudder.....DO NOT PUSH
- on flap.....DO NOT STEP
- on elevator and stabilizer.....NO HANDLING
- over tail wheel, on fuselage.....LIFT HERE
- on rear fuselage cone (behind tail wheel).....NO HANDLING
- near fuel plug.....UNLEADED GASOLINE
 MIN. RON 92
 OR AVGAS 100 LL
 55 I

- on inspection cover for oil tank, located on engine upper cowling.....CAR TYPE
 ENGINE OIL
 MAX. 3,7 I

- near compasscompass trimming graphic
- levelling points
- lifting points