



GFA AIRWORTHINESS DIRECTIVE

TYPE AFFECTED: Stemme S-10VT, serial numbers 11-002 to 11-072.

SUBJECT: Preventative actions for enhanced fire protection.

BACKGROUND: Following an in-flight fire in the engine compartment of an S-10VT, additional measure for fire protection are to be introduced.

DOCUMENTATION: Luftfahrt-Bundesamt (LBA) Airworthiness Directive No 2002-156 and Stemme Service Bulletins Nos A31-10-057 Amendment Index 01a and A31-10-061 Amendment Index 01b form part of this AD.

ACTION REQUIRED: Modification of the fuel system, inspection and sealing of all line connections in the engine compartment, sealing of the firewall and sealing of the cockpit area where the firewall opens up around the drive shaft, all in accordance with the above-mentioned LBA AD and factory Service Bulletins.

WEIGHT AND BALANCE: Not affected.

IMPLEMENTATION: Within the next 100 flight hours, but in any case not later than 31 August 2002.

COMPLIANCE: The requirements of this GFA Airworthiness Directive are mandatory. This Directive is issued pursuant to the Rules and Regulations of the Gliding Federation of Australia.

SIGNED:

SENIOR TECHNICAL OFFICER AIRWORTHINESS

For and on behalf of:

THE GLIDING FEDERATION
OF AUSTRALIA



**Airworthiness
Directive
2002-156**

Luftfahrt-Bundesamt
Airworthiness Directive Section
Hermann-Blenk-Str. 26
38108 Braunschweig
Federal Republic of Germany

Stemme

Effective Date: June 13, 2002

Affected:

Kind of aeronautical product:	Powered Sailplane
Manufacturer:	Stemme, Strausberg, Germany
Type:	Stemme S 10
Models affected:	Stemme S 10-VT
Serial numbers affected:	11-002 up to 11-072
German Type Certificate No.:	848

Subject:

Fire protection - preventive actions for enhanced fire protection

Reason:

Additional measures for fire protection are to be introduced after an in-flight fire within the engine compartment of an S 10-VT. The reason for this fire could not become clarified completely until now.

Action:

Modification of the fuel system, inspection and sealing of all line connection in the engine compartment, sealing of the fire wall and sealing of the cockpit (area of the fire wall opening gap around the drive shaft). Action to be accomplished in accordance with the Technical Notes of the manufacturer.

Compliance:

Actions must be accomplished within the next 100 flight hours but not later than August 31, 2002.

Technical publication of the manufacturer:

STEMME Service Bulletin No. A31-10-061 Amendment Index 01.a dated April 22, 2002 and Service Bulletin No. A31-10-057 Amendment Index 01.a dated June 07, 2001 which becomes herewith part of this AD and may be obtained from Messrs.:

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Holders of affected aircraft registered in Germany have to observe the following:

Action has to be accomplished by the owner of the aircraft or an approved service station and to be checked and entered in the log book by a licensed inspector.

As a result of the a.m. deficiencies, the airworthiness of the aircraft is affected to such an extent that after the expiry of the a.m. dates the aircraft may be operated only after proper accomplishment of the prescribed actions. In the interest of aviation safety outweighing the interest of the receiver in a postponement of the prescribed actions, the immediate compliance with this AD is to be directed.

An appeal to this notice may be raised within a period of one month following notification. Appeals are to be raised with the Luftfahrt-Bundesamt, Hermann-Blenk-Str. 26, 38108 Braunschweig, in writing or for the purpose of drawing up minutes.

Enquiries regarding this Airworthiness Directive should be referred to Mr. Olaf Schneider, Airworthiness Directive Section at the above address, fax-no. 0049 531/2355-720. Please note, that in case of any difficulty, reference should be made to the German issue!

LTA's / AD's and Technical Notes are published on the Internet at <http://www.lba.de>

STEMME F & D Design Org.	Service Bulletin	Document Number: A31-10-057
	Measures for Sealing of Cockpit	Am.-Index: 01.a
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This Service Bulletin provides from page 1 to 2 the original version in German, approved by the Luftfahrt-Bundesamt, and from page 3 to 4 a translated version in English. The translation has been performed to the best of our knowledge and judgement.

1 Subject:

Measures for Sealing of Cockpit

2 Affected Powered Sailplane:

Type STEMME S10, models S10, S10-V and S10-VT / LBA Type Certificate No. 846, FAA Type Certificate: G58EU and G06CE.

Serial numbers: all

3 Time of compliance:

None. An optional retrofitting is possible.

4 Background Information:

Improvement of cockpit sealing against warm air coming out of engine compartment via the fire wall opening gap around the drive shaft.

5 Actions:

5.1 Constructional Modifications to the Aircraft:

Installation of the following seals:

- Propeller Dome Tube Seal → rubber lip seal between inner tube of propeller and dome tube as well as a seal by foam material within the dome tube.
Weight: about 15 g (0.5 OZ)
- Flywheel Clutch Seal → sealing of the gap between fire wall and flywheel clutch by a gasket made of fire-proof fabric (dimensions modified for models S10 and S10-V by constructional deviation A18-2001-003/02.a).
Weight: about 100 g (3.5 OZ)
- Take care during mounting to the fire wall that a gap of 2–5 mm (.08"–.2") between clutch and gasket still remains. A direct contact of the gasket and the clutch may cause sign of wear to the fabric material.

5.2 Modifications to the Manuals:

5.2.1 Maintenance Manual

A Maintenance Instruction A35-10-057 "Cockpit-Abdicht-Maßnahmen, gültig für Baureihen S10, S10-V und S10-VT" has been issued for all German-language manuals and a Maintenance Instruction A35-10-057-E "Measures for Sealing of Cockpit, valid for models S10, S10-V and S10-VT" for all English-language manuals (JAA, FAA).

6 Mass and balance:

Not affected because the mass difference is negligible.

7 Material:

The entire set of parts for re-equipping may be ordered from STEMME GmbH & Co. KG stating the S/N of the powered glider and the number (A31-10-057) of the present Service Bulletin.

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8 Associated documents:

The following documents are required for re-equipping and checking and they are included in the re-equipping set:

Item	document number	type of document	title of document
1	A35-10-057	Maintenance Instruction	Measures for Sealing of Cockpit

9 Accomplishment and log entry:

An authorised mechanic may carry out the actions described in this Service Bulletin and must be checked and entered in the airplane's log book by a licensed inspector. The regulations on the keeping of service records must be adhered to.

(End)

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	Additional Measures Fire Protection	Amend.-Index: 01.b
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1 General

This Installation Instruction describes the actions that are introduced by Service Bulletin A31-10-061 "Additional Measures Fire Protection".

2 Documents, Materials and Tools

2.1 Documents

The following documents are required for the modification:

Pos.	Document-No.	Document Type	Document Title
1	A31-10-061	Service Bulletin	Additional Measures Fire Protection
2	A31-10-057	Service Bulletin	Cockpit sealing
3	A35-10-057	Maintenance Instruction	Cockpit sealing

2.2 Materials

The consumables which are required for the modification are included in the modification set. All parts are listed in the part list in the annex to this installation instruction.

2.3 Tools

The following tools are required for the retrofitting:

Pos.	Designation
1	Standard metrical mechanic's toolkit
2	Pressing tool for one ear clamp
3	Light metal tube 39.4in. x 0.79in. x 0.03 in. (1000 x 20 x 1mm) - included in the modification set

erstellt: prepared by:	Kurzzeichen Signed	MPL geprüft: checked by airworthiness dpt.:	Kurzzeichen Signed	Datum: Date:	Ersetzt Ausg. vom Supersedes issue of:	LBA anerkannt LBA approved	Datum: Date:
Ellwanger		Dalldorff		22.04.2002	—, —, —	—	—

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3 Actions

3.1 Preparatory actions

Before you can start the aircraft must be de-rigged according to the Flight Manual S10-VT, chapter 4.2.

3.2 Fuel System

3.2.1 Center Wing

Before the modification can be performed both center wing fuel tanks must be emptied completely. For this the existing fuel line between the center wing and the water separator (i.e. inline paper filter in plastic casing) should be disassembled. By use of the gray quick-connector installed on this fuel line the fuel can now be filled from the fuel tanks into a suitable fuel reservoir (i.e. in a fuel can).

Warning: There is an increased risk of fire during this work. Make sure that there is sufficient ventilation for the workshop and carefully ground the wing (i.e. the filler cap of the corresponding fuel tank) **and** the fuel can.

Thereafter open the clamps on the inner root rib and remove the complete hose including the quick-connector. The coarse filter inside of this hose must be removed, cleaned and finally placed in the corresponding pre-assembly of the modification set. The assembly must now be adapted to the inner wing and than tightened by use of clamps (M448, see picture 2-1)

3.2.2 Modification in the fuselage area

The fuel system will be modified in two steps:

- fuel system before the electrical pumps (between wing connection and pumps, incl. drainer)
- fuel system between the fuel cock and back to the electrical pumps

3.2.2.1 Between wing connection and the fuel pumps

Disassemble both sides of the fuel system between the wing connection and the fine filter (metal mash filter) before the fuel pump.

For this, unscrew the previously used water separator (paper filter), disconnect the fuel hose on the inline fine filter (metal mash filter) and disconnect the fuel hose directly on the drainer (see pic. 2-2).

Note: These disassembled parts of the fuel system **will not be used again.**

Now install the left and right hand pre-assemblies of the modification set (new water separator with fuel hoses, quick-connector and heat reflecting sleeves). Connect the fuel hoses to the inline fine filter (metal mash version) and the drainer with the provided one ear clamps (see pic. 2-3).

3.2.2.2 Between the fuel cock and the fuel pumps

This section describes all fuel hoses on the top of the fire wall up to the breakthrough through the fire wall. (see pic. 2-4)

Note: All these fuel hoses **will be used again.**

Each fuel hose will be modified after removal of it's corresponding one ear clamps. The heat reflecting sleeves must be tailored to the equal length of their corresponding fuel hoses plus 0.8 in. (2 cm) additional length.

The heat reflecting sleeve will be assembled by use of a light metal tube. Slide the sleeve over the tube (see pic. 2-5), than place the fuel hose inside (see pic. 2-6), now grab the heat reflecting sleeve together with the fuel hose and remove the light metal tube between them (see pic. 2-7).

Assemble all fuel lines with the provided one ear clamps. Thereafter fix the heat reflection sleeves with safety wire against shifting.

Replace the Y-type plastic distributor in the return line of the engine by a metal Y-type distributor (M573) (see pic 2-9).

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Install spacers on all suspension points of the fuel lines on the top of the fire wall. Remove the old clamps and replace them by new ones (10M-160), together with longer allen screws (D6912) and spacers (see pic. 2-10).

Warning: Do not try to install spacers in the wheel well on the forward side of the fire wall. There might not be enough space to ensure proper movement for the spindle of the gear actuation.

3.2.2.3 Engine compartment

Check the fuel lines and their connections between the breakthrough through the fire wall and the pressure regulator of the engine. In addition check all oil lines which are installed in the engine compartment.

Check the positioning of the fire sleeves. The clamps must be completely covered by the fire sleeves. If not, the fire sleeves must be replaced by longer ones.

Fix the fire sleeves with safety wire against shifting.

3.3 Fire wall sealing with fire protection lute

All gaps between the fire wall and structural parts of the aircraft (i.e. steel frame and forward composite structure) must be sealed with fire protection lute. Remove the black edge protection covers around the tubes of the steel frame from the metal sheets of the fire wall and all old sealing lute. If required the fire protection lute must be applied in multiple steps. The modification set includes different metal sheets in case that the gaps are too big. They can be fixed with fire protection lute before the remaining gap is sealed with lute.

Note: The fire protection lute can be flattened with a wet finger. Use a mixture of washing-up liquid and water.

3.4 Installation of the cockpit sealing

The installation of the cockpit sealing must be performed according to the Service Bulletin A31-10-057 "Cockpit sealing" and to the Maintenance Instruction A35-10-057 "Cockpit Sealing".

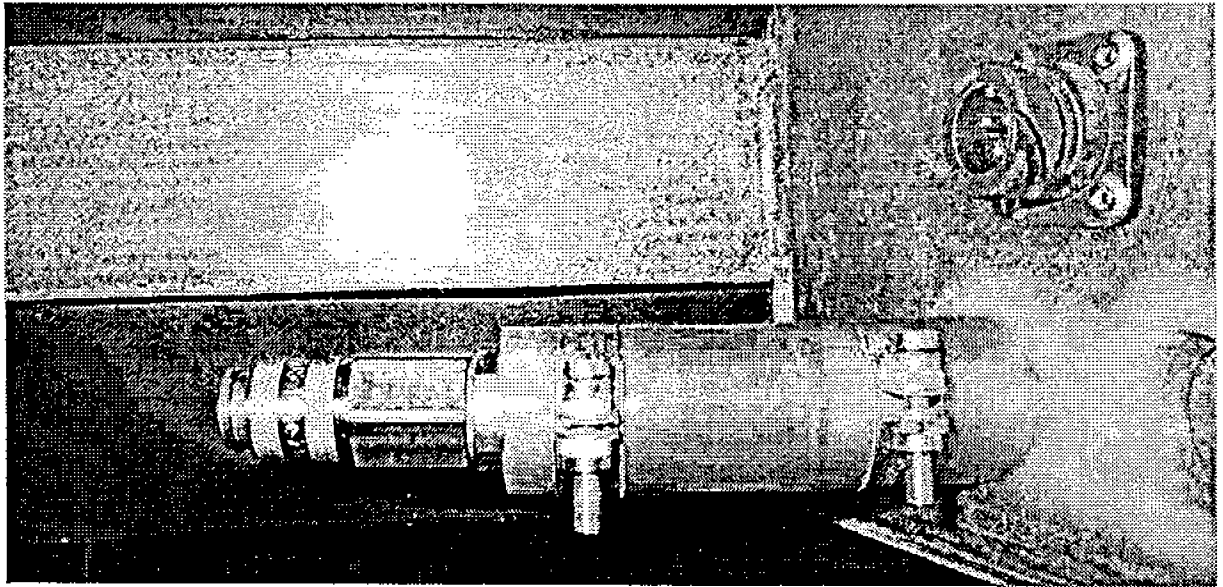
4 Rigging and functional test

After realization of all the actions the aircraft can be rigged again. An engine check run is to be performed.

5 Picture annex

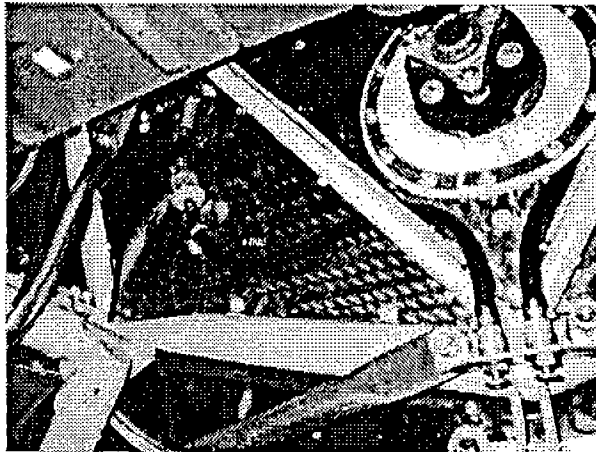
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Center Wing

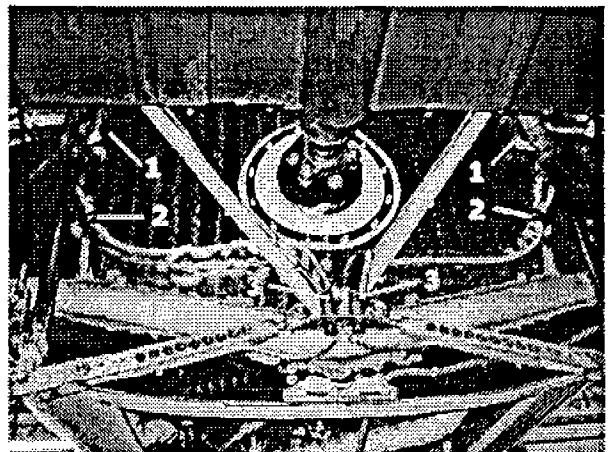


Picture 2-1 „Assembly on the Center Wing“

Modification in the fuselage area



Picture 2-2 „Old serial standard“

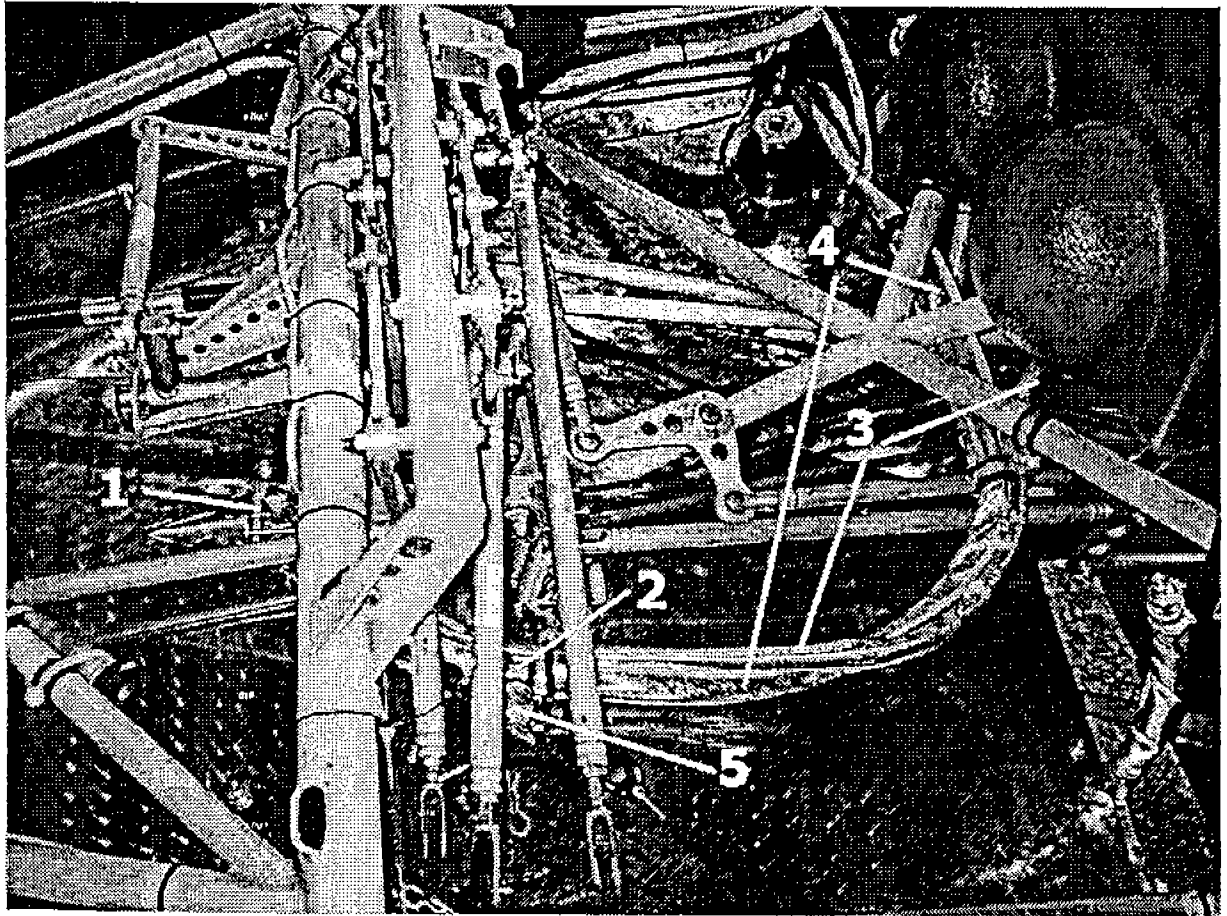


Picture 2-3 „Standard after modification“

Pos.-No.	Description
1	Water separator
2	Mounting clamp
3	One ear clamp on the drainer

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Between the fuel cock and return to the pumps



Picture 2-4 "Overview fuel system on top of the fire wall"

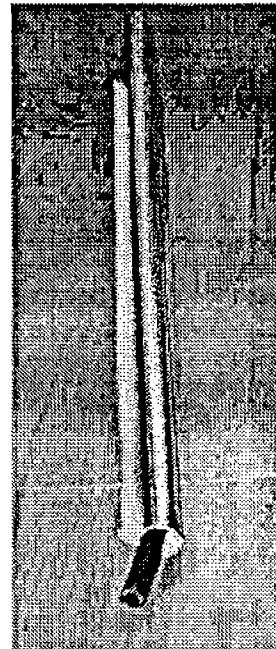
Pos.-No.	Description
1	Fitting on the fire wall
2	Distributor in the return line
3	Hose from the fuel cock to the fitting
4	Return line, left
5	Return line, right

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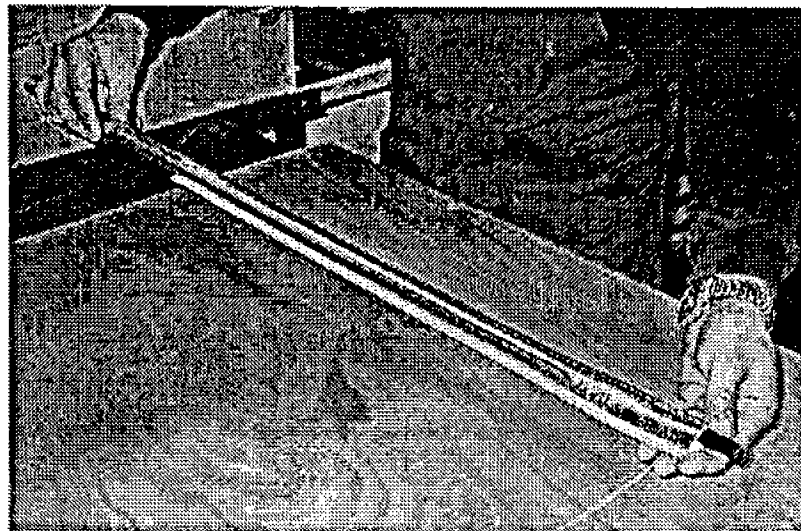
Installation of heat reflection sleeve



Picture 2-5



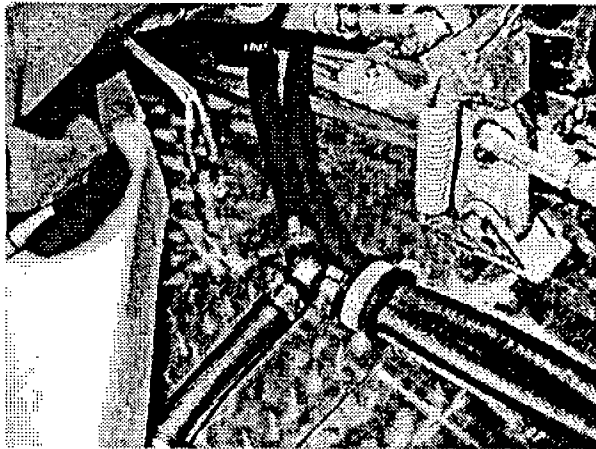
Picture 2-6



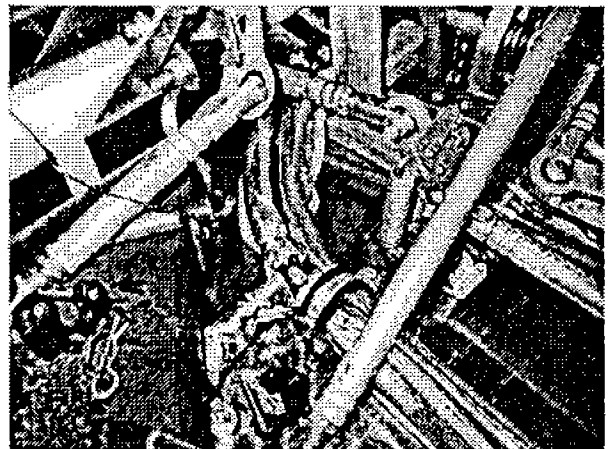
Picture 2-7

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Replacement of the distributor

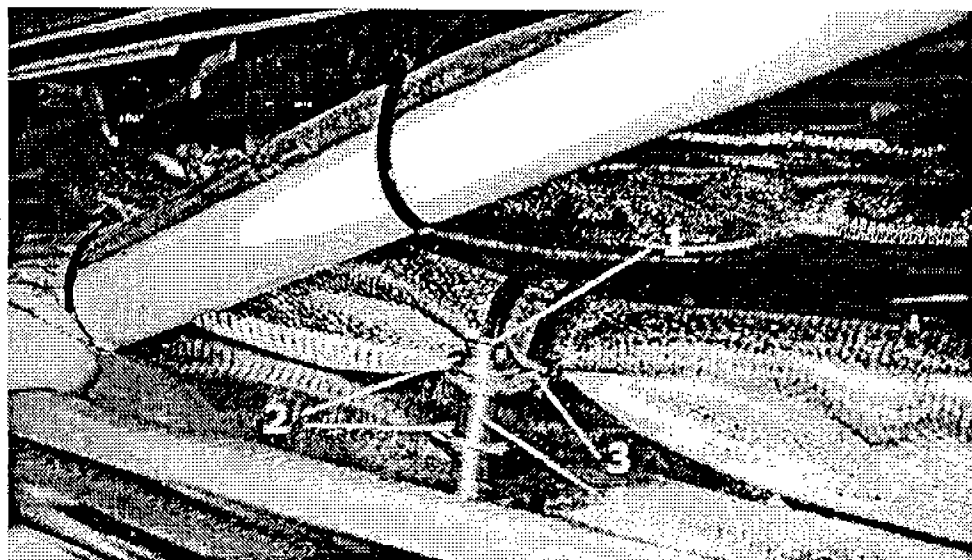


Picture 2-8 „Old serial standard“



Picture 2-9 „Metal distributor“

Spacer on the fuel line



Pos.-No.	Description
1	Allen screw (D 6912)
2	Washer (D 9021)
3	Mounting clamp 20/15
4	Socket 10AB-76

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Part list

Pos.	Quantity	Description	Stemme Part-no.	Note
Center Wing				
1.1	1	modification set Wing left (pre-assembled with quick connector, connecting piece, gasket, hose Tygon-F4040A, clamp)		
1.2	1	modification set Wing left (pre-assembled with quick connector, connecting piece, gasket, hose Tygon-F4040A, clamp)		
1.3	2	hose clamp	M448	
Wing-Fuselage				
2.1	1	modification set Wing-Fuselage left (pre-assembled with quick connector, water separator, hoses, heat reflection sleeves)		
2.2	1	modification set Wing-Fuselage right (pre-assembled with quick connector, water separator, hoses, heat reflection sleeves)		
2.3	2	one ear clamp (15,5)	M476	drainer
2.4	2	one ear clamp (14,5)	10M-181	inline fuel filter
Between fuel cock and pumps				
3.1	4	socket	10AB-76	spacer
3.2	16	one ear clamp (14,5)	10M-181	
3.3	4	allen screw M5x25	D6912-05025	spacer
3.4	3	allen screw M6x20	D6912-05020	suspension on the frame tubes
3.5	3	hex nut M6-8	D985-06	
3.6	8	washer DIN 9021	D9021-05-N	
3.7	1 m	safety wire 0.8	L9024-0.8	
3.8	9	mounting clamp 20/15	10M-160	
3.9	1	metal distributor	M 573	
3.10	4 m	heat reflection sleeve	HZ-KSL038	
Fire Wall				
3.11	350 ml	fire protection lute (cartridge)	A 319	
3.12	8	metal plate for adaptation	11AM-SW	
3.13	3	metal plate for adaptation	11AM-SX	
3.14	1	metal plate for adaptation	11AM-SY	
3.15	1	metal plate for adaptation	11AM-SZ	
4	1	light metal tube 39.4 in x 0.79 in. x 0.03 in. (1000mm x 20mm x 1mm)	---	