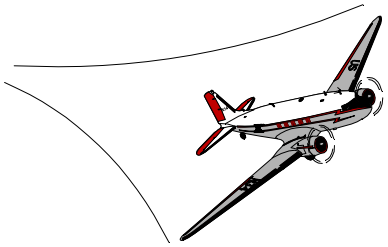
SPECIAL AIRWORTHINESS INFORMATION BULLETIN



U.S. Department of Transportation

Federal Aviation Administration

Aircraft Certification Service
Washington, DC

No. CE-02-35
June 20, 2002

We post SAIBs on the internet at "av-info.faa.gov"

This is information only. Recommendations are not mandatory.

This Special Airworthiness Information Bulletin (SAIB) provides safety information to Stemme Model S10-VT sailplane owners on the following:

Fire Protection – Preventive Actions for Enhanced Fire Protection

Background

The German Civil Airworthiness Authority, Luftfahrt-Bundesamt (LBA) issued Airworthiness Directive 2002-156 that requires:

- Modification of the Fuel System
- Inspection and Sealing of All Line Connections in the Engine Compartment
- Sealing of the Firewall and Cockpit

The FAA is currently conducting an assessment of foreign airworthiness directives that have been issued by the German Luftfahrt-Bundesamt (LBA) on the Model Stemme S10-VT sailplanes. We are currently assessing the need to issue a corresponding U.S. Airworthiness Directive (AD) for the Stemme S10-VT sailplanes. In the interim, we are using this SAIB to inform U.S. owners of the modifications Stemme GmbH & Company have developed. If an AD is determined to be appropriate, we will issue a Notice of Proposed Rulemaking.

Safety Issue

There was an occurrence of a Stemme S10-VT in-flight fire in July 2001. The exact cause that created the fire has been completely determined. Stemme has developed the additional fire protection measures as listed below.

Stemme GmbH & Co. has developed Service Bulletins A31-10-057, dated June 7, 2001, and A31-10-061, dated April 22, 2002, that address the specific design details of the modifications specified in the Background Section above. A copy of the Stemme Service Bulletins and Installation Instructions (A34-10-061E) are included for your information. Please note that the first two pages of Service Bulletin A31-10-057 and Installation Instructions A34-10-061E are in German language followed by the English language.

Recommendation

We highly recommend that you, an owner or operator of Stemme Model S110-VT sailplane, comply with the enclosed Service Bulletins.

For Technical Information Concerning These Safety Issues Contact
Stemme GmbH & Co. KG, Gustav-Meyer-Allee 25, D-13355 Berlin, Germany; Telephone 49.3341.3111.70; Facsimile 49.3341.3111.73.

Stemme USA, Inc., United States Dealer for Stemme GmbH & Co. KG, 1401 South Brentwood Blvd, Suite 760, Saint Louis, Missouri, 63144; Telephone (314) 721-5904; Facsimile (314) 726-5114.

For Further Information Contact
Mike Kiesov, Aerospace Engineer/Pilot, FAA, Small Airplane Directorate, 901 Locust, Kansas City, Missouri, 64106; telephone (816) 329-4144; Facsimile (816) 329-4090.

Diese Technische Mitteilung umfaßt auf den **Seiten 1 bis 2** die vom Luftfahrt-Bundesamt anerkannte deutsche Originalausgabe und von **Seite 3 bis 4** eine ins Englische übersetzte Version. Die Übersetzung erfolgte nach bestem Wissen und Verständnis.

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1 Gegenstand:

Cockpit-Abdicht-Maßnahmen

2 Betroffene Motorsegler:

Motorsegler STEMME S10, Baureihen S10, S10-V und S10-VT / LBA-Kennblatt Nr. 846 / FAA-Certificate: G58EU und G06CE.

Werknummer: alle

3 Dringlichkeit:

Keine. Optionale Nachrüstung möglich.

4 Vorgang, Anlaß:

Verbesserung der Abdichtung des Cockpits gegen warme Luft aus dem Motorraum, die durch den Ringspalt des Fernwellen-Brandschottdurchbruches kommen kann .

5 Maßnahmen:

5.1 Bauliche Änderungen am Motorsegler:

Einbau von Abdichtungen in folgenden Ausführungen:

Domrohrabdichtung	➔ in Form einer Gummilippendichtung zwischen Propellerinnenrohr und Domrohr sowie einer Schaumstoffabdichtung im Propellerrohr. Gewicht ca. 15 g
Kupplungsabdichtung	➔ Abdichtung des Spaltes zwischen Brandschott und Fliehkraftkupplung über ein feuerfestes Gewebe (Abmessungen modifiziert für Baureihen S10 und S10-V gemäß Bauabweichung A18-2001-003/02.a). Gewicht ca. 100 g Bei der Montage am Brandschott ist darauf zu achten, daß ein Luftspalt von 2- 5 mm zwischen Kupplung und Dichtring eingehalten wird. Ein direktes Anliegen des Dichtringes kann zum Einlaufen der Kupplung in das Dichtungsmaterial führen.

5.2 Änderungen in den Handbüchern:

5.2.1 Wartungshandbücher

Für alle deutschsprachigen Wartungshandbücher wurde eine Wartungsanweisung A35-10-057 „Cockpit-Abdicht-Maßnahmen, gültig für Baureihen S10, S10-V und S10-VT“ und für alle englischsprachigen Wartungshandbücher (JAA, FAA) eine Wartungsanweisung A35-10-057-E „Measures for Sealing of Cockpit, valid for models S10, S10-V and S10-VT“ herausgegeben.

6 Masse und Schwerpunktlage:

Nicht betroffen, da der Massenunterschied vernachlässigbar ist.

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:*
Montag		Dalldorff		07.06.2001	–		11.07.01

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7 Material:

Der vollständige Teilesatz zur Umrüstung kann unter Angabe der Nummer der Motorsegler-Werknummer und der vorliegenden TM (A31-10-057) bei der STEMME GmbH & Co. KG bestellt werden.

8 Benötigte Unterlagen:

Folgende Unterlagen werden für die Umrüstung und zur Nachprüfung benötigt und liegen dem Umrüstsatz bei:

Pos.	Unterlagen-Nr.	Unterlagenart	Unterlagentitel
1	A35-10-057	Wartungsanweisung	Cockpit-Abdicht-Maßnahmen

9 Durchführung und Bescheinigung :

Die Maßnahmen können von einer sachkundigen Person durchgeführt werden und ist von einer nach § 13 bzw. § 18 LuftGerPV dafür genehmigten Stelle zu bescheinigen. Allgemein sind die Vorschriften über die Führung der Betriebsaufzeichnungen gemäß § 15 LuftBO zu beachten.

(Ende)

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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.

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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1 Gegenstand

Vorbeugende Maßnahmen zur Verbesserung des Brandschutzes am Motorsegelflugzeug STEMME S10-VT.

2 Betroffene Motorsegler

Motorsegler STEMME S10, Baureihe S10-VT
LBA-Kennblatt Nr. 846 / FAA- TypeCertificate: G06CE.

Betroffene Werknummern: 11-002 bis 11-072

3 Dringlichkeit

Die mit dieser TM vorgeschriebenen Arbeiten sind innerhalb der nächsten 100h Flugstunden, spätestens jedoch bis zum 31. August 2002 durchzuführen.

4 Vorgang, Anlaß

Auf Grund eines im Fluge aufgetretenen Brandes im Motorraum, dessen Ursache bislang nicht eindeutig geklärt werden konnte, werden zusätzliche Maßnahmen zum Brandschutz für das Motorsegelflugzeug STEMME S10-VT eingeführt.

5 Maßnahmen

5.1 Modifikationen der Kraftstoffanlage

Mit dieser Technischen Mitteilung werden folgende Teile der Kraftstoffanlage modifiziert:

- Für alle Kraftstoffschläuche auf dem oberen Brandschott: Einbau von Abstandshaltern zwischen Kraftstoffschläuchen und Brandschott.
- Einbau von neuen, metallischen Wasserabscheidern vor dem Brandschott und damit Wegfall der dort eingebauten Kunststofffilter.
- Einbau eines metallischen Verzweigungsstücks in der Rücklaufleitung auf dem Brandschott anstelle des Kunststoffverteilers.
- Ummantelung aller Kraftstoffschläuche in unmittelbarer Motorraumnähe mittels strahlungsreflektierenden Hitzschutzschläuchen.
- Einbau von metallischen Schnelltrennstellen zwischen Flügel und Rumpf anstelle der Kunststoffschnelltrenner.

5.2 Inspektion und Abdichtung alle Schlauchverbindungen im Motorraum

- Zunächst werden alle Öl- und Kraftstoffschläuche im Motorraum auf festen Sitz hin kontrolliert.
- Anschließend wird der Sitz aller im Motorraum installierten Brandschutzschläuche um die Öl- und Kraftstoffschläuche herum überprüft. Alle Anschlüsse (i.d.R. Schellen) der Öl- und Kraftstoffschläuche müssen vollständig von Brandschutzschlauch überdeckt sein. Ist dies nicht der Fall, müssen die Brandschutzschläuche durch längere ersetzt werden. Alle eingebauten Brandschutzschläuche sind an beiden Enden mit Sicherungsdraht gegen Verschieben zu sichern.

5.3 Abdichtung der Spalte am Brandschott

- Alle vorhandenen Spalte zwischen dem Brandschott und dem Mittelrumpfrahmen und zwischen Brandschott und der vorderen Faserverbundstruktur werden mit feuerfester Dichtmasse abgedichtet.
- Zusätzlich werden die in der Technischen Mitteilung A31-10-057 eingeführten Maßnahmen zur Cockpitabdichtung zwangsweise eingeführt.

5.4 Änderungen in den Handbüchern

Keine.

6 Masse und Schwerpunktlage

Durch die beschrieben Maßnahmen erhöht sich die Leermasse des Flugzeuges um ca. 1,0 kg. Da sich alle Modifikationen annähernd im Schwerpunkt des Flugzeuges befinden, ändert sich die Leergewichtsschwerpunktlage nicht.

7 Material / Werkzeug

Das benötigte Material für die Modifikationen kann als Set bei der Firma Stemme AG – Flugplatzstrasse F2 Nr.7 – D-15344 Strausberg bezogen werden.

8 Benötigte Unterlagen

Für die Durchführung der beschriebenen Maßnahmen sind folgende Unterlagen notwendig:

Lfd.-Nr.	Dokumenten-Nr.	Dokumentenart	Bezeichnung
1	A34-10-061	Einbauanweisung	Zusätzliche Maßnahmen Brandschutz
2	A31-10-057	Technische Mitteilung	Cockpitabdichtung
3	A35-10-057	Wartungsanweisung	Cockpitabdichtung

9 Durchführung und Bescheinigung

Die Maßnahmen können von einer sachkundigen Person durchgeführt werden.

Die Maßnahmen sind von einer nach § 13 bzw. § 18 LuftGerPV dafür genehmigten Stelle zu bescheinigen. Allgemein sind die Vorschriften über die Führung der Betriebsaufzeichnungen gemäß § 15 LuftBO zu beachten.

(Ende)

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1 Subject

Preventive actions for enhanced fire protection for the powered sailplane STEMME S10-VT.

2 Affected Powered Sailplane

Powered Sailplane STEMME S10, model S10-VT
LBA-TCDS No. 846 / FAA-TCDS: G06CE.

affected serial numbers: 11-002 through 11-072

3 Time of compliance

The actions described in this SB must be performed within the next 100 flight hours, but not later than August 31., 2002.

4 Background Information

Additional measures for fire protection are to be introduced after an in-flight fire within the engine compartment of an S10-VT. The reason for this fire could not become clarified completely until now.

5 Actions

5.1 Modifications to the fuel system

According to the actions described in this SB the fuel system has to be modified as follows:

- For all fuel lines on top the upper fire wall: Installation of spacers between the fuel lines and the fire wall.
- Installation of new metal water separators in front of the forward fire wall instead of the old plastic inline fuel filters.
- Replacement of the plastic distributor in the fuel return line on top of the engine compartment by a metal distributor.
- Installation of drum covers of heat reflecting sleeves around all fuel lines near the engine compartment.
- Replacement of the plastic quick-connectors between the wing and the fuselage by a metal version

5.2 Inspection and sealing of all line connection in the engine compartment

- First check the tightening of all fuel and oil line connections in the engine compartment.
- Then check the proper fit of the fire sleeves protecting all fuel and oil lines. The connection area (i.e. clamps) must be completely covered by fire sleeves. If not, then the affected fire sleeves must be replaced by longer ones. All installed fire sleeves must be protected against movement by use of safety wires on both ends.

5.3 Sealing of fire wall

- All existing gaps between the fire wall and the steel frame as well as the fire wall and the forward composite structure must be sealed with fire protection lute.
- In addition, the actions described in the SB A31-10-057 become mandatory.

5.4 Modifications to the Manuals

None.

6 Mass and balance

The described actions will raise the empty weight by about 2.20 lb. (1,0 kg). The position of the empty centre of gravity is not modified for all modifications are close to the C.G.

7 Materials

A set of materials needed for the modifications can be ordered by the manufacturer Stemme AG - Flugplatzstrasse F2 Nr.7 - D-15344 Strausberg - Germany.

8 Associated documents

The following documents are required for realization:

No.	Document-No.	Type of document	Description
1	A34-10-061	Installation Instruction	Additional measures fire protection
2	A31-10-057	Service Bulletin	Cockpit sealing
3	A35-10-057	Maintenance Instruction	Cockpit sealing

9 Accomplishment and log entry

An authorised mechanic may carry out the actions described in this Service Bulletin. The completion of this SB 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)

0.1 Index

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	--.--.----	------	------

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 cook 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).

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 flatted with a wet finger. Use a mixture of washing-up liquid and water.

3.4 Installation of the cockpit sealing

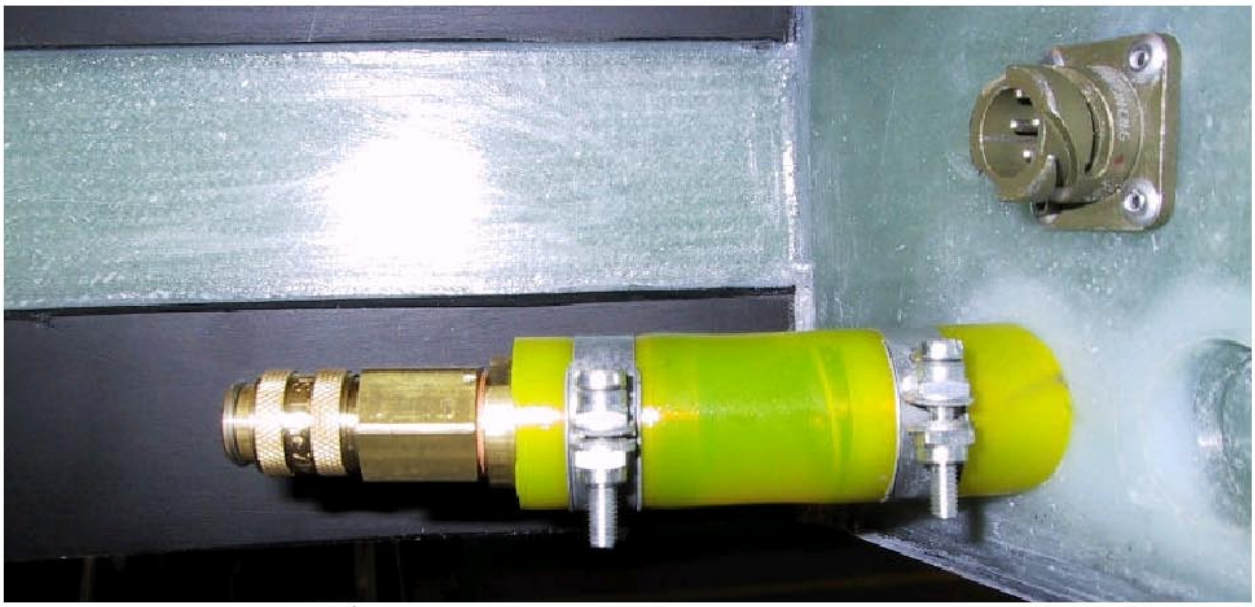
The installation of the cockpit sealing must be performed according to the Service Bulletin A31-10-057 “Cockpit sealing” and to the Maintenance Instruction A35-10-057 “Cockpit Sealing”.

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.

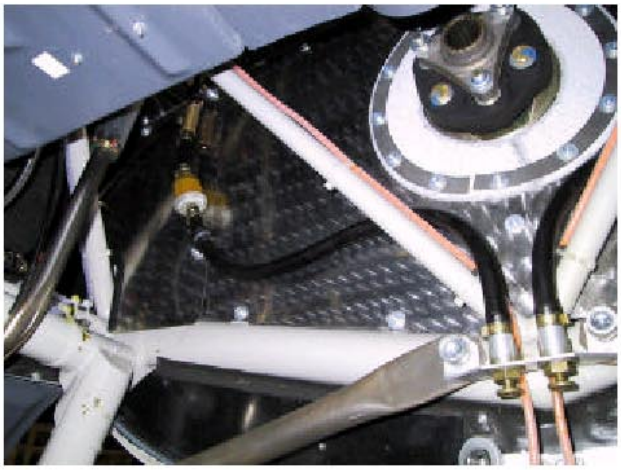
5 Picture annex

Center Wing

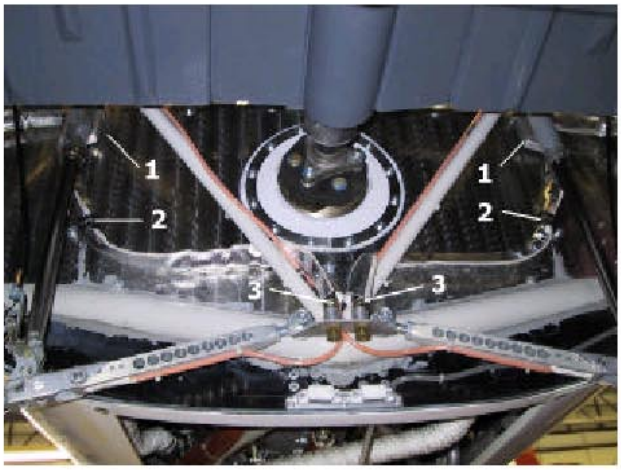


Picture 2-1 „Assembly on the Center Wing“

Modification in the fuselage area



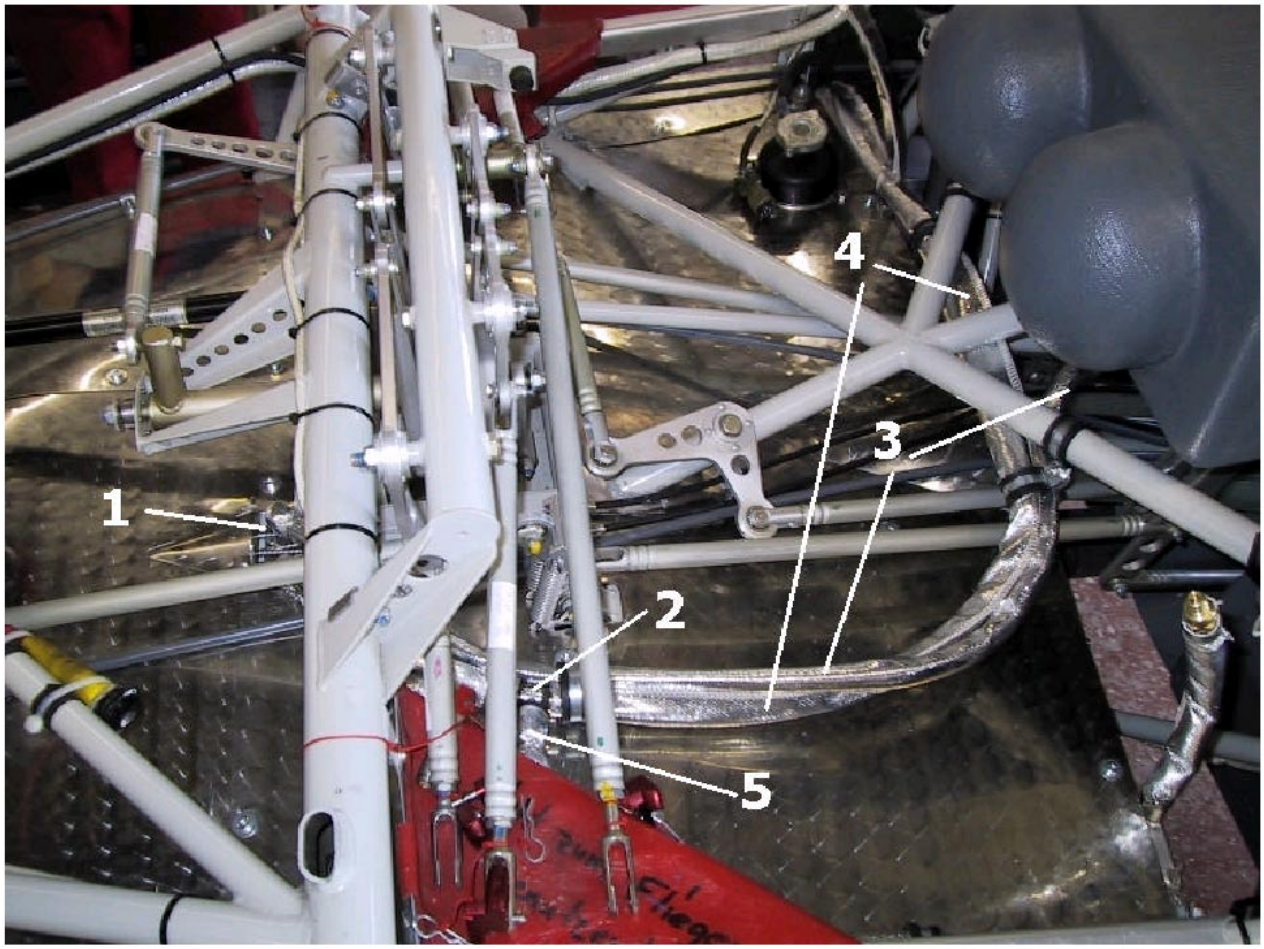
Picture 2-2 „Old serial standard“



Picture 2-3 „Standard after modification”

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

Between the fuel cock and return to the pumps



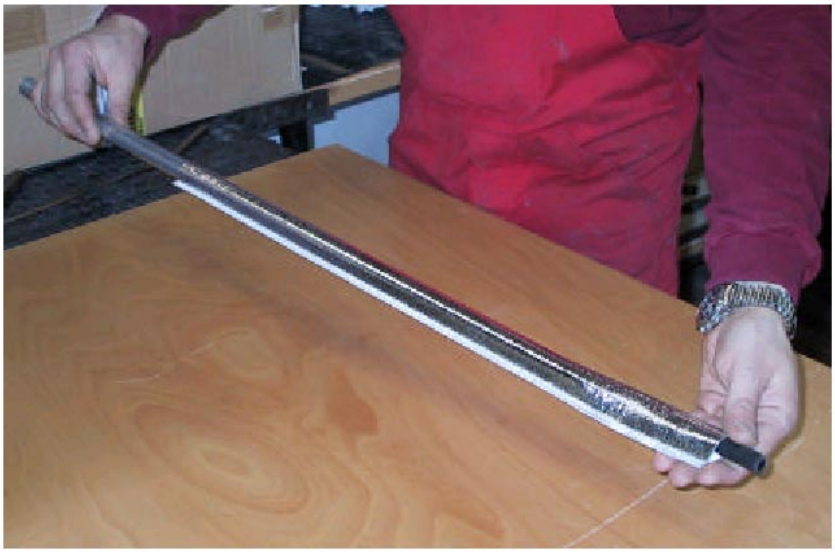
Picture 2-4 “Overview fuel system on top of the fire wall”

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

Installation of heat reflection sleeve

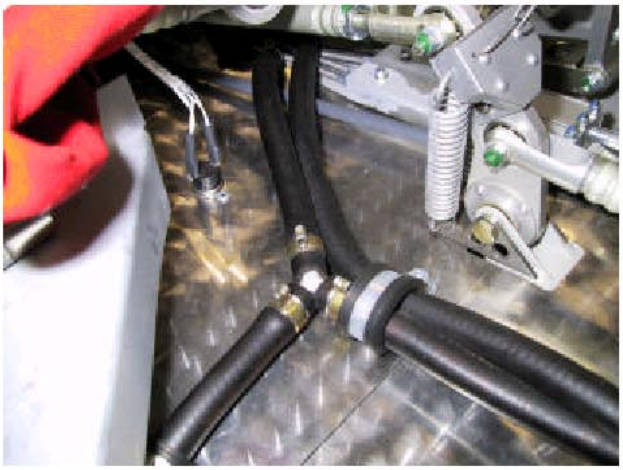
Picture 2-5

Picture 2-6



Picture 2-7

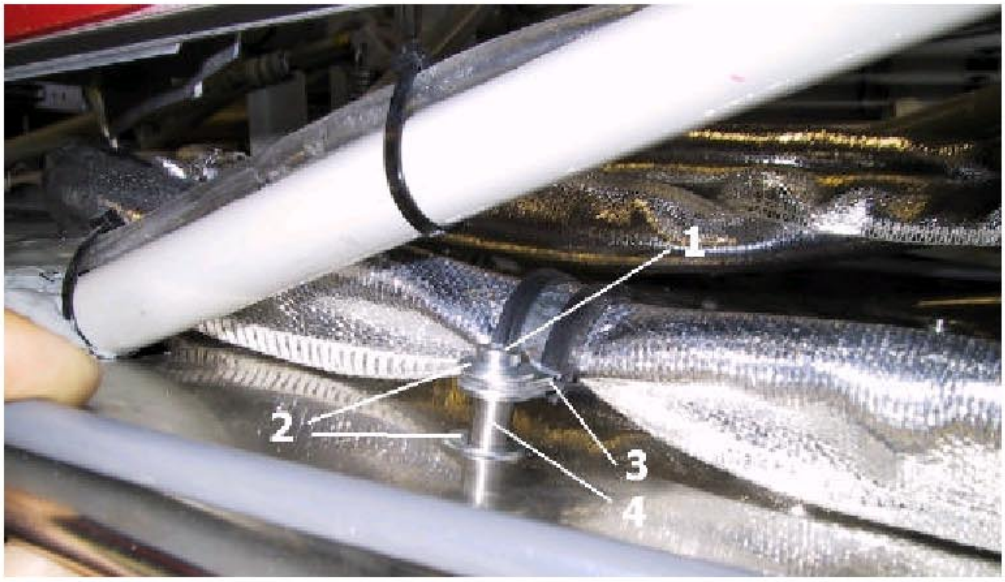
Replacement of the distributor



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

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)	---	