**Retrofit automatic fuel cock DG-1000T**

**A Extend power plant and shut off the fuel cock.**

**B Disassemble engine doors and the engine door spring as explained in maintenance manual section 4.10.7.**
**Remove the rear baggage compartment wall.**

**C Disassemble fuel system holder from fuselage (drawing 10R78 issue e)**

1. Disassemble the holder from the engine bay wall.
2. Loosen the hose clamps and pull off fuel hoses marked **A** & **B** in the drawing and both lines running from the holder to the engine..
3. Remove the push button from the holder, to accomplish this pull off the yellow cap.
5. Disassemble the wires from the refuelling pump.
6. Disassemble the holder from the fuselage.

**D Conversion of fuel system-holder 10R77**

1. Disassembly: see drawing 10R78 old issue e.
   - Take fuel filter out of the pipe clip and remove the pipe clip from 10R77.
   - Loosen the hose clamps and pull off fuel hose marked **C** from hose connector marked **D** and T-connector (TS6).
   - Disconnect the refuelling pump from 10R77.
   - Screw out the hose connector marked D from 5R200/1.

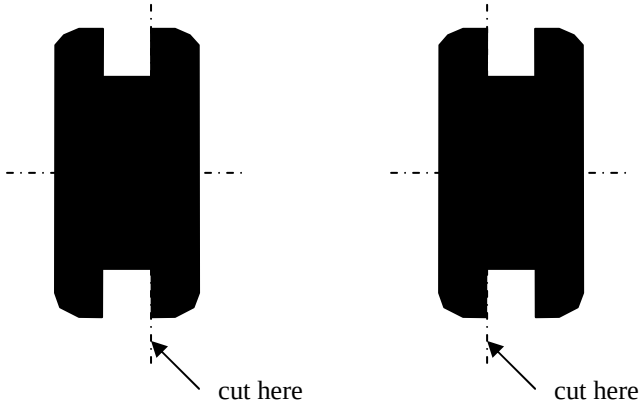
2. - Drill new holes into 10R77 marked with **c** in drawing 10R77 issue c.

3. Assembly: see drawing 10R78 issue f.
   - Wrap the thread of the elbow fitting marked **D** with Teflon-tape and screw it into 5R200/1.
   - Screw the preassembled fuel cock holder 10M64 to the holder 10R77, to accomplish this push the pipe 10M65/2 into the elbow-fitting **D,** tighten the cap-nut**.**
     Install a new fuel hose PU 6x1,5x9 110 mm long to the nipple marked **C** and to the T-fitting (TS6).
   - Fix the pipe-clip (for fuel-filter) in the new position on 10R77. The screw must be secured with Loctite243 and marked with securing-paint
   - Fix the refuelling-pump in the new position on 10R77. All screws must be secured with Loctite243 and marked with securing-paint.
   - Clip the fuel-filter in the pipe-clip.
   - Place the springs on the hoses according to drawing 10R78.

## E Assembling the new fuel-system-holder in the fuselage

1. - Drill hole dia. 12mm 30mm below the bend in the rear main bulkhead (see figure 1).
   - Install rubber bushings HV D17,5 in the hole. As the Bulkhead is too thick for one bushing, cut 2 rubber bushings (see sketch) and glue one on each side of the bulkhead into the hole with silicone (see figures 1 and 2).
   - Slip the fuel hose **B** through the new hole. If necessary remove Ty-raps in front of the rear main bulkhead, route the hose and fix again with new ty-raps.
   **Caution:** Make sure that no hose will be bent.

rubber bushings



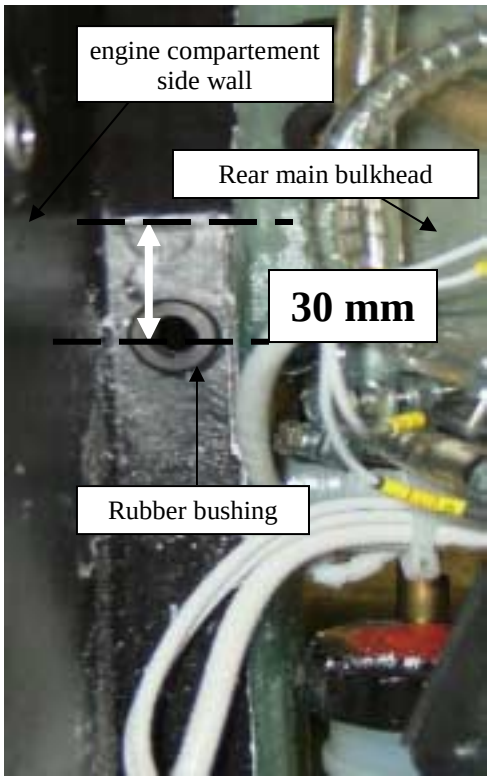




**figure 1** View in flight-direction from engine compartment to rear main bulkhead

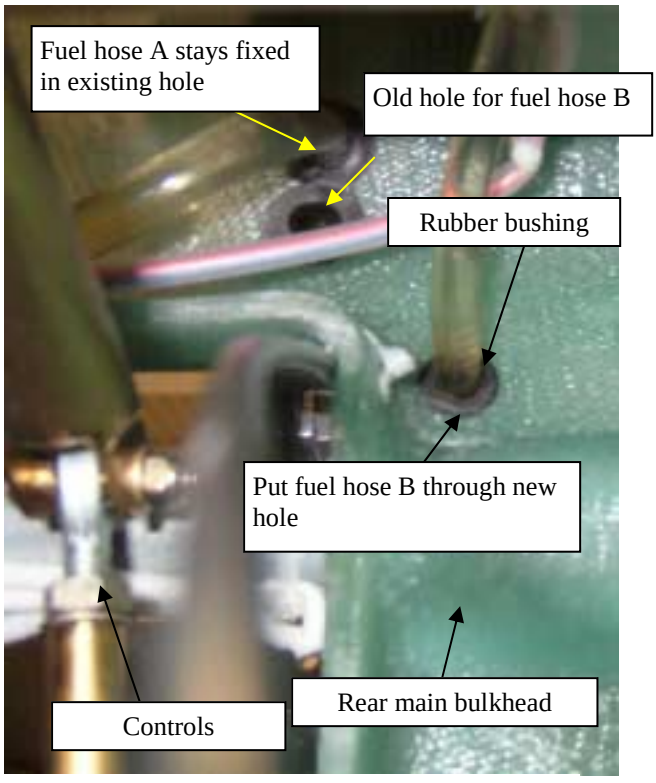



**figure 2** View against flight-direction from controls to rear main bulkhead

2. - Connect hoses marked **A** & **B** in drawing 10R78 to fuel cock and T-fitting according to drawing 10R78 issue f (a drop of oil may help when assembling the hose) (see figure 3).
   If the hoses are too short, remove the fuel-tank (see maintenance-manual DG-1000T section 4.10.3). You will find spare-hose behind the fuel-tank.

3. Mount the push-button to the holder 10R77 and push the yellow cap onto the button (see figure 3).

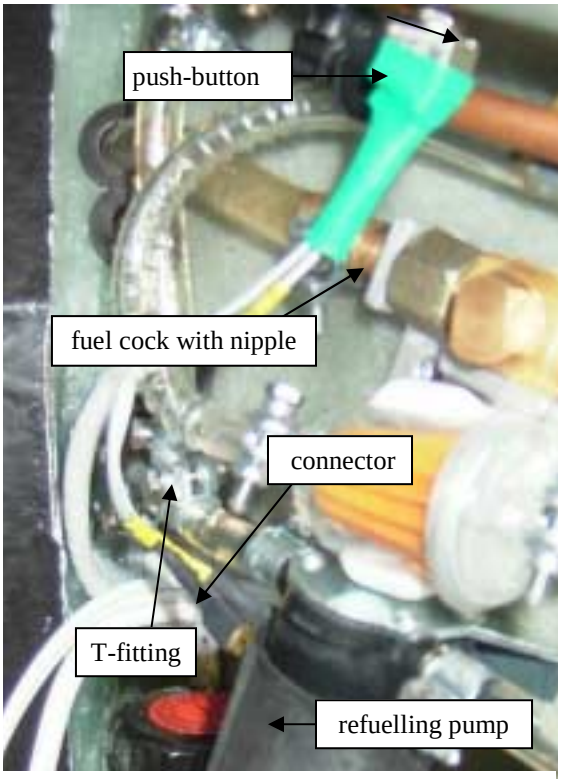



**Figure 3** View in flight-direction from engine compartment to rear main bulkhead

4. Connect the wire connectors to the refuelling-pump.
   Wire no. 17 to negative pole of the pump
   Wire no. 56 to the positive pole of the pump.
   Both poles are marked on the pump case.

5. Screw the holder 10R77 provisionally to the engine compartment side wall.

6. Mark the position of the hole for the support-bolt (M6x80) as shown in figures 5 & 6.

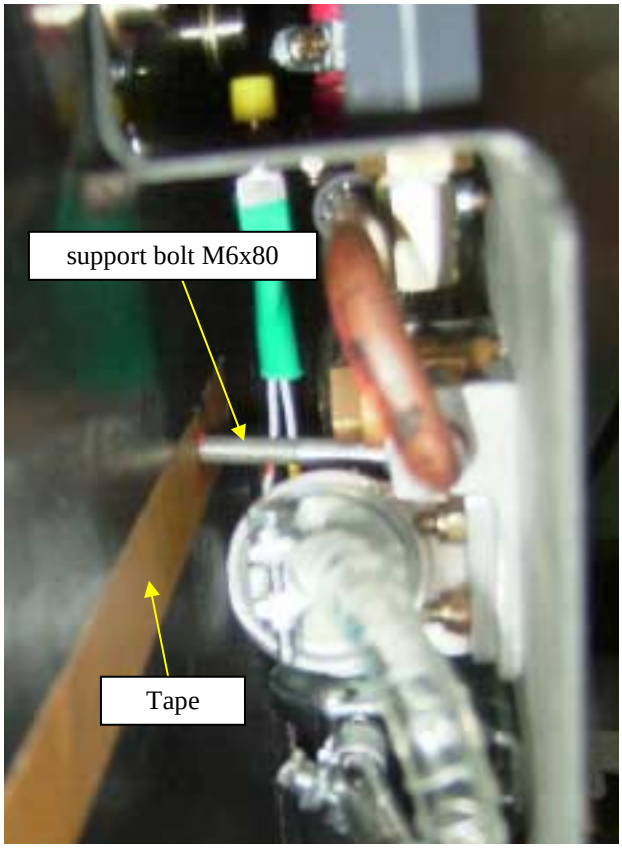



**Figure 5** View in flight-direction from engine compartment to rear main bulkhead

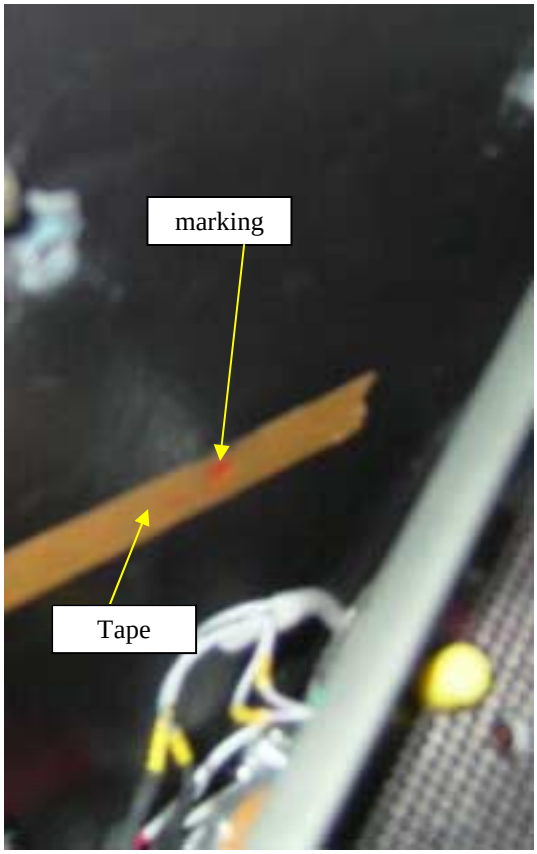



**Figure 6** View in flight-direction from engine compartment to rear main bulkhead

7. Remove the holder 10R77 again.

8. Drill a dia. 9mm hole through the top composite layer (sandwich) of the engine compartement side wall.
   Remove the foam core out with dia. 25 mm around the hole.
   Clean the hole with compressed air.
   Fill the hole with epoxy resin / hardener mixed with cotton-flocks.

9. When the resin is hardened, drill the 9mm hole completely through the panel and rivet a rivet-nut M6 into the hole. Before riveting sand the nut and apply a little epoxy resin/hardener to the nut.

10. Finally install the holder 10R77 (with 2xM6x20 & 1xM6x80 and support tube 10M65/2) as shown in drawing 10R78 issue f & drawing 10M60.
    All bolts must be secured with Loctite243 and marked with securing-paint.

## F Mounting the pushrod-holder to the engine mount

1. Retract the power-plant and be careful that no parts collide with others.
   Mount the push rod holder so that the space between the engine mount hinge axis and the bolt axis is 77mm (see drawing 10M60 and figure 7)
   All bolts must be secured with Loctite243 and marked with securing-paint.
   If necessary disassemble the pipe clamp (see figure 8) and pull the cable-harness in downward direction as far as necessary.
   Assemble the pipe clamp again, secure bolt with Loctite 243 and mark bolt with securing-paint (see figure 8).

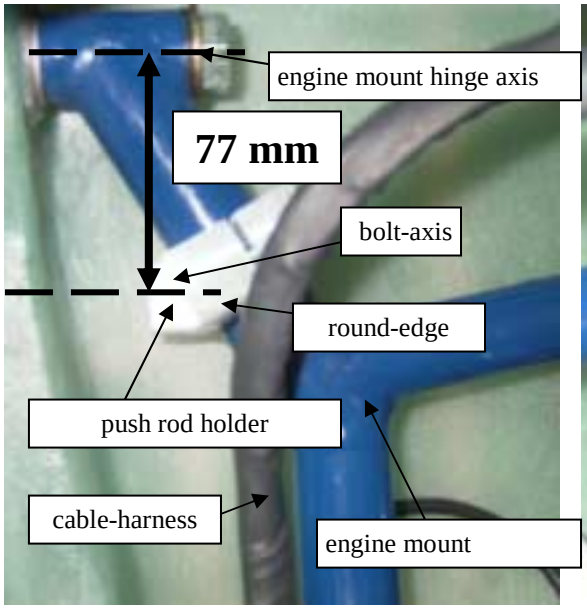



**figure 7** View in flight-direction from engine compartment to rear main bulkhead

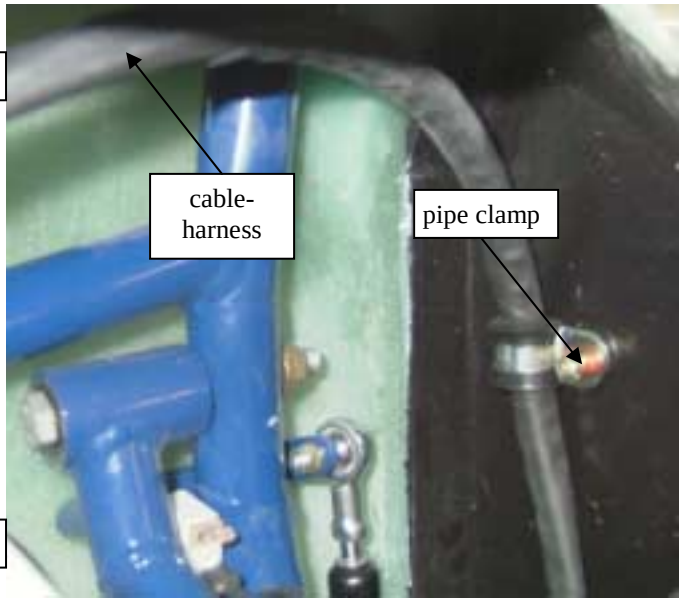



**Abbildung 8** View in flight-direction from engine compartment to rear main bulkhead

- Make sure that the cable-harness can't be crushed by the powerplant in its extended position (see figure 9), if necessary reposition the ty-raps.
- Make sure that the Bowden-cable will not be bent in extended and retracted positions of the powerplant.

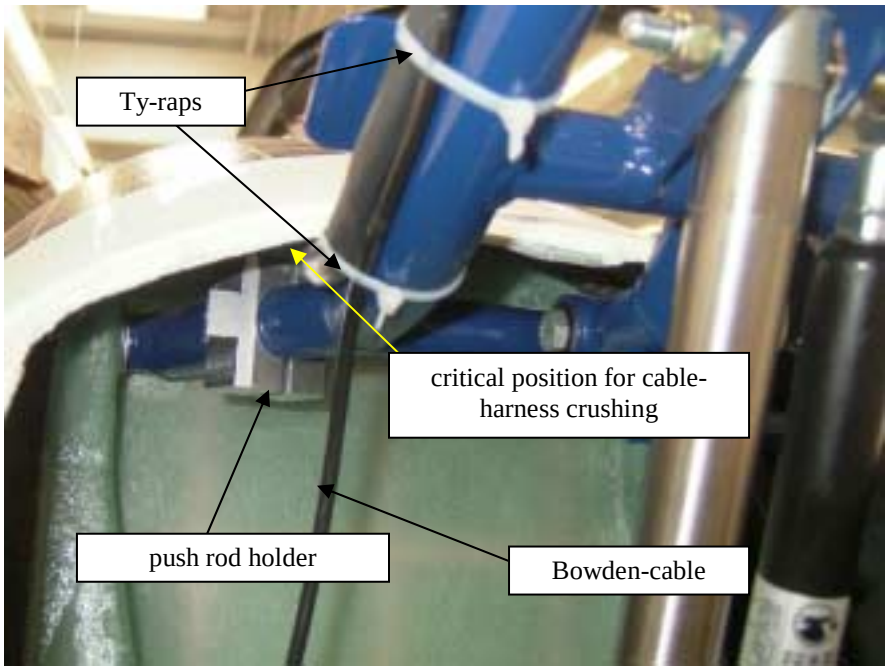



**figure 9** View in flight-direction from engine compartment to rear main bulkhead

## G Mounting and adjustment of the pushrod

1. - Retract the powerplant and screw the rod end to the push rodholder as shown in drawing 10M60.

2. - Extend the powerplant and attach the bell crank onto the fuel cock square head (see drawing 10M60 & figure 10).

3. - The fuel-cock is completely open in upper 45°-position (see figure 10).
   - Place the lever 9-10° below the full open position (see drawing 10M66).
   - Adjust the push rod so that the holes in the fork end and the bell crank are in line and push the clevis pin into the holes from the right to the left hand side
   - Tighten the counter nuts
   - Remove the clevis pin and pull off the bell crank.
     **Caution:** Don't rotate the fuel cock!
   - Assemble the fork end to the bell crank as shown in drawing 10M60.
   - Assemble the bell crank to the fuel cock.
   - Screw in the securing bolt with Loctite 243 and mark it with securing paint (see drawing 10M60)
   - Mark the counter nuts with securing paint.

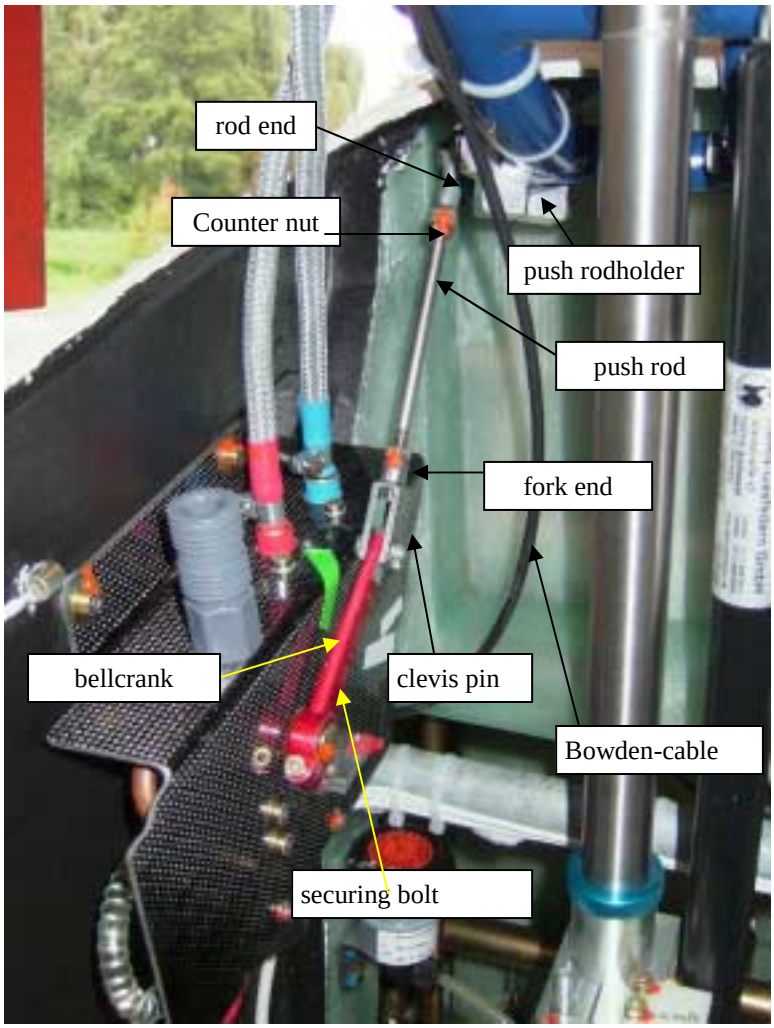



**Figure 10** View in flight-direction from engine compartment to rear main bulkhead

## H Modification of the fuel-hoses on the engine mount

1. - Extend the power plant
   - Remove the Ty-raps of the fuel-hose with blue markings (fuel excess line) (see figure 11) and remove the line.
     Remove the line with red markings running from the mechanical fuel pump to the holder in the fuselage.
   - Loosen the connector-bolt of the mechanical-fuel-pump.
   - Turn up the hose nipple about 30° (see figure 12).

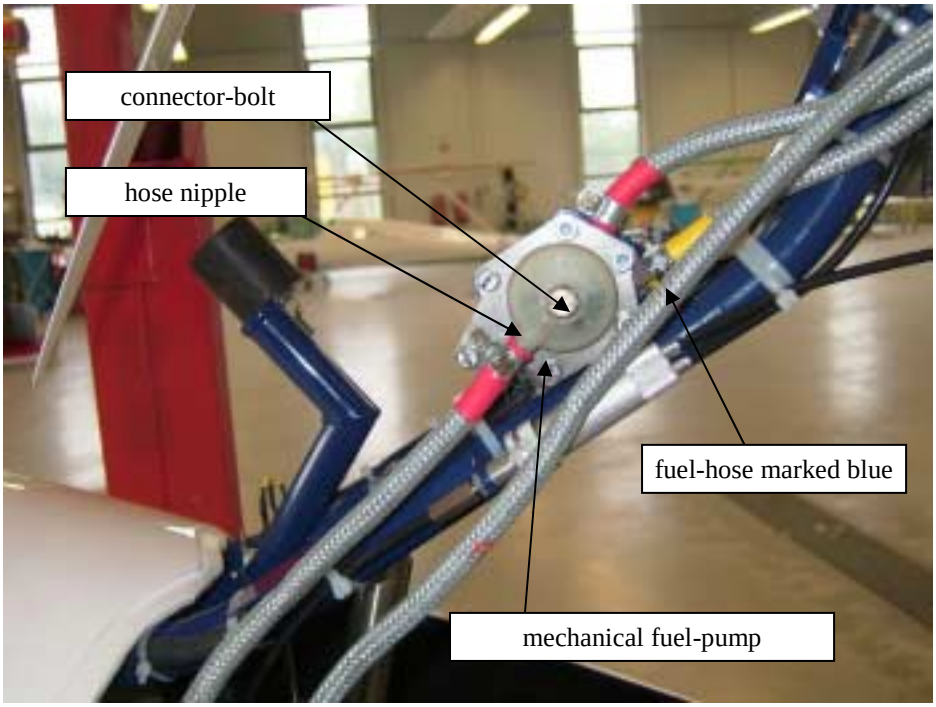



**Figure 11** View from left to right, with power plant extended
(prior to modification)

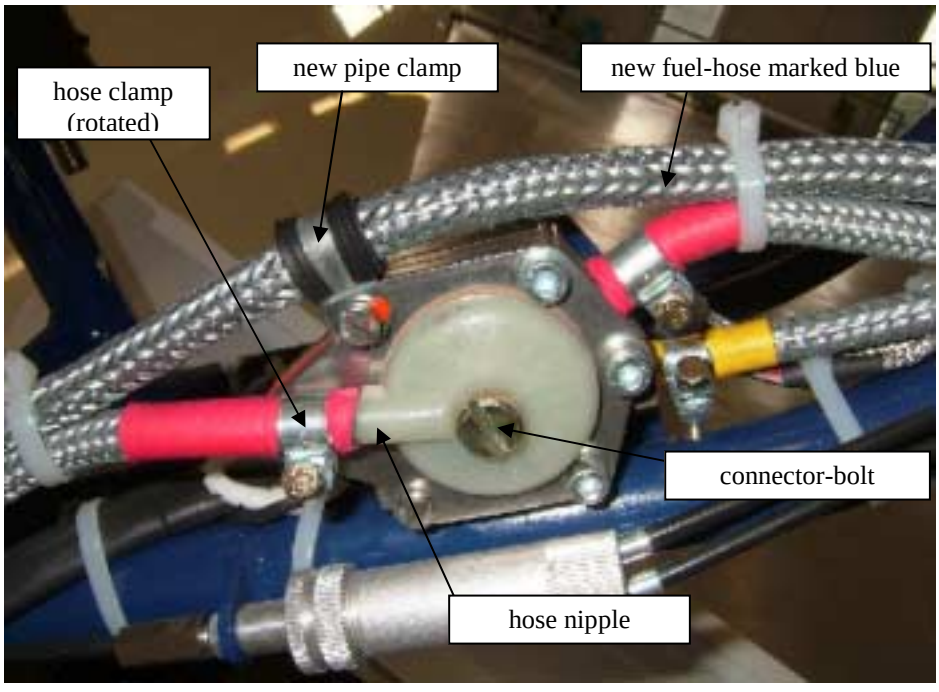



**Figure 12:** View from left to right, with power plant extended
(after modification)

2. a) Assemble a new fuel hose with red markings 370 mm long to the mechanical fuel pump and to the fitting marked with **C** in drawing 10R78 issue f on the holder in the fuselage Rotate the hose clamp of this fuel hose to the position as shown in figure 12
   b) Assemble a new fuel-hose with blue markings 660 mm long as shown in figure 12. To accomplish this remove the upper front mounting bolt of the mechanical fuel-pump. Install a pipe-clamp (size 10, with rubber-sleeve) with a bolt M5x30 DIN912-8.8zn to this position. Secure the bolt with Loctite 243 and mark it with securing-paint. Connect this hose to the other fitting on the holder in the fuselage and to the fuel distributor at the engine.

3. - Retract the power plant and check if the fuel hoses collide with the bell crank. If this is possible, fix the fuel hoses with additional Ty-raps to avoid a contact with the bell crank.
   **Caution:**
   - Don't tighten the Ty-raps too tightly, so as not to reducing the cross-section of the hoses.
   - Make sure that the fuel-hoses don't buckle.
   - Make sure that the hoses do not rub or get stuck during retraction and extension of the power-plant.

**I Install engine doors and the engine door spring as explained in maintenance manual section 4.10.7. Install the rear baggage compartment wall.**

**J Open the manual fuel-cock in the cockpit.**

**K a) Do a leak-test on the system with ignition on (fuel pump must run)**
**b) Refuel and check the system for any leakage.**

**L Perform a ground test run (never run the engine without the wings assembled!).**

drawings:

| **Drawing-no.** | **Description** |
|---|---|
| 10M60 | Automatic fuel cock DG-1000T, Installation retrofit |
| 10M64 | Assembly fuel cock with holder |
| 10M66 | Installation overview |
| 10R77 | Holder for fuel system, retrofit |
| 10R78 issue e (old) | Holder for fuel system assembly |
| 10R78 issue f (new) | Holder for fuel system assembly |

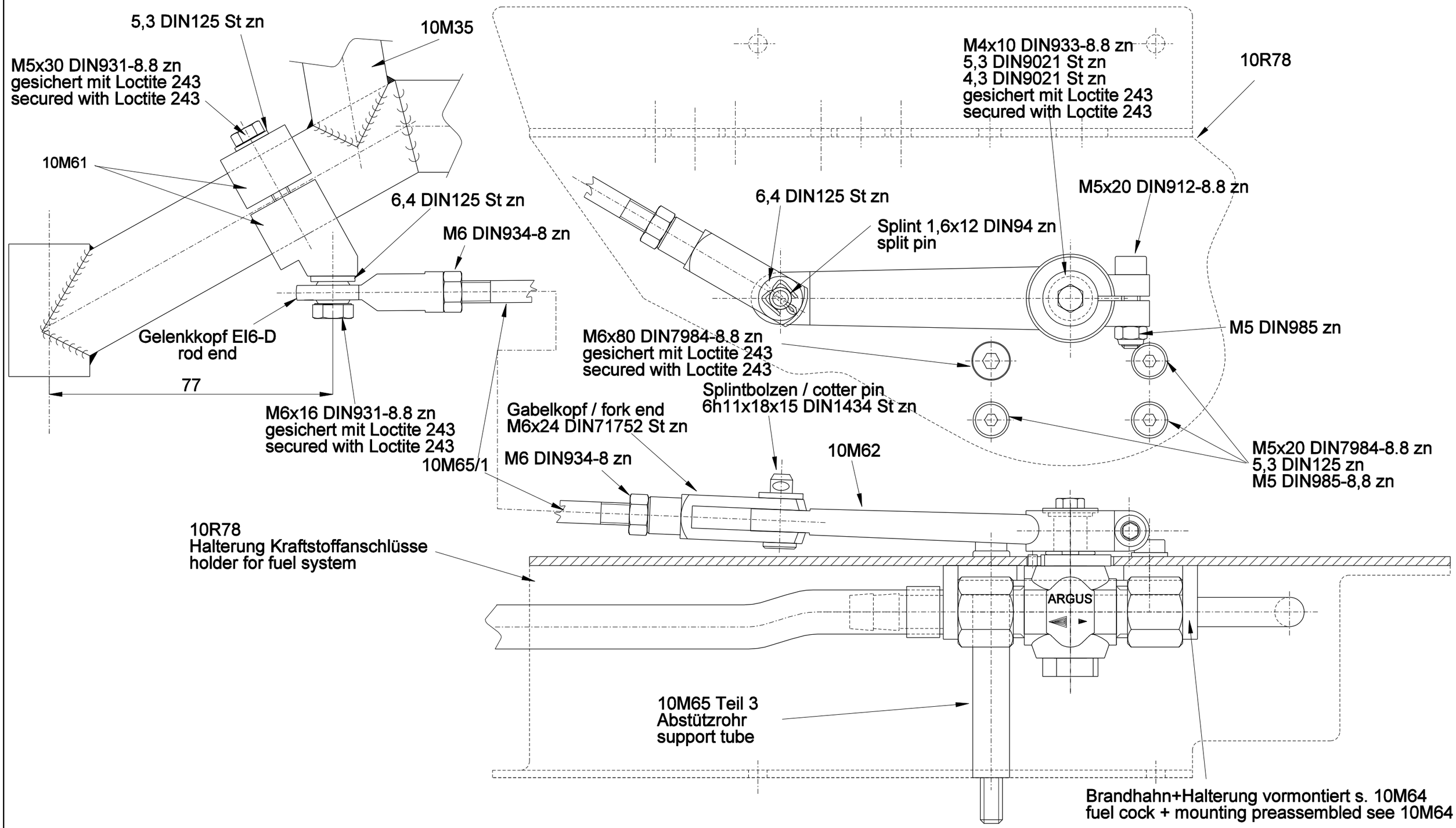
parts:

| **No.** | **Description** |
|---|---|
| 1 | Retrofit kit Automatic fuel cock DG-1000T part no. 39000155 |

consisting from: see next page

Retrofit kit Automatic fuel-cock DG-1000T part no. 39000155

| **Amount** | **Description** |
|---|---|
| 1 | 4,3 DIN9021 St Zn |
| 5 | 5,3 DIN125 St Zn |
| 1 | 5,3 DIN9021 St Zn |
| 2 | 6,4 DIN125 St Zn |
| 2 | 6,4 DIN9021-Zn |
| 1 | Bell crank 10M62 |
| 1 | Push rod 10M65/1 |
| 2 | rubber bushing HV D17,5 |
| 1 | Elbow-fitting EW 8x1 R 1/8“ |
| 1 | Fork end M6x24 DIN71752 |
| 1 | Rod end EI6-D |
| 1 | Push rod holder 10M61 |
| 1 | Fuel hose PU hydrolyse and microbe-resistant 6x1x8, 370 long with red markings (Heat-shrink tubing ½“ DERAY-I red) and Metal-mesh dia.8mm |
| 1 | Fuel hose PU hydrolye and microbe-resistant 6x1x8, 660 long with blue markings (Heat-shrink tubing ½“ DERAY-I blue) and Metal-mesh dia.8mm |
| 1 | M4x10 DIN933-8.8 Zn |
| 8 | M5 DIN985-8 Zn |
| 3 | M5x20 DIN 7984-8.8 Zn |
| 1 | M5x20 DIN7991-8.8 Zn |
| 1 | M5x20 DIN91-8.8 Zn |
| 2 | M5x30 DIN931-8.8 St Zn |
| 2 | M6 DIN934 |
| 1 | M6x16 DIN933-8.8 St Zn |
| 2 | M6x20 DIN7984-8.8 Zn |
| 1 | M6x80 DIN7984-8.8 Zn |
| 10 | Hose clamp S70/1 9/9 |
| 3 | Hose clamp S70/2 11/9 |
| 1 | Hose clamp S70/3 12/9 |
| 1 | Split pin 1,6x12 DIN94 Zn |
| 1 | Clevis pin 6h11x18x15 DIN1434 St z |
| 1 | Support tube 10M65 part 3 |
| 1 | Pipe clamp with rubber sleeve, DIN 3016 size 10, bandwidth 15 mm, |
| 1 | Bolt M5x30 DIN912-8.8zn |
| 1 | Preassembled fuel-cock holder 10M64 consisting of: |
| *1* | *Fuel cock 10M65 part 4* |
| *1* | *Fuel cock holder left 10M63/ 2* |
| *1* | *Fuel cock holder right 10M6/ 1* |
| *1* | *Fuel pipe 10M65 2* |
| *1* | *Nipple ¼ 9mm* |
| *1* | *Pipe olive 8mm* |
| *1* | *Ca -nut 7606060000* |
| *1* | *Ca -nut 8mm* |
| *1* | *Anti rotation locking device 10M63/3* |

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| Toleranzen nach Arbeitsanweisung BA 1 | | | | |
| Schweißen nach Arbeitsanweisung SA 1 | | | | |
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| Ausg. | Änderung | ÄM | Tag | Name |

| | Tag | Name |
|---|---|---|
| Gez. | 14.9.06 | Götz |
| Gepr. | | |
| Norm. | | |

Maßstab 1:1 :

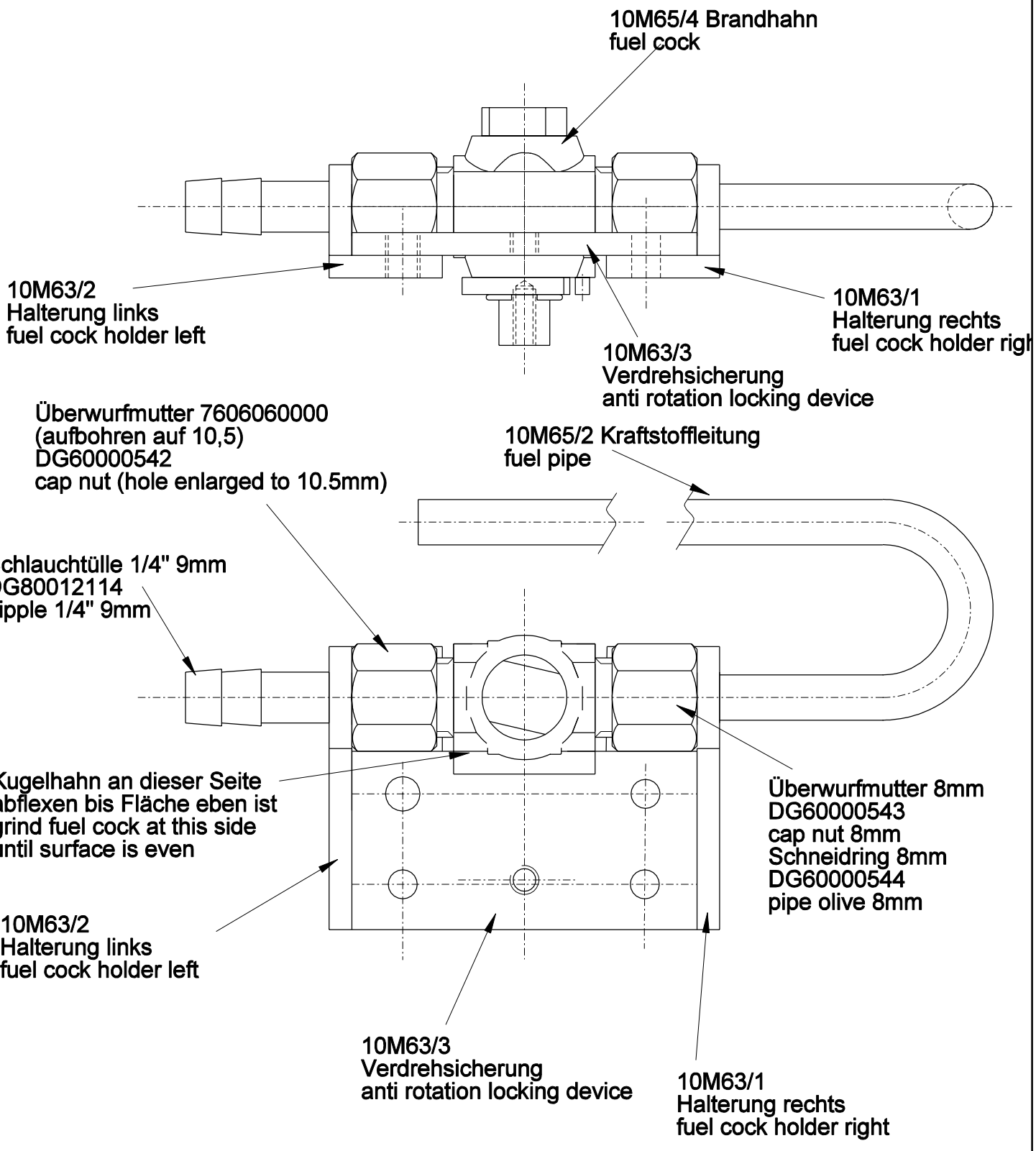
Maße ohne Toleranz-ang. nach:

automatischer Brandhahn DG-1000T
Einbau Nachrüstung
automatic fuel cock DG-1000T
installation retrofit

DG Flugzeugbau GmbH
76646 Bruchsal
Otto-Lilienthal-Weg 2

DG

10M60

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| | Tag | Name |
|---|---|---|
| Gez. | 1.9.06 | Götz |
| Gepr. | | |
| Norm. | | |

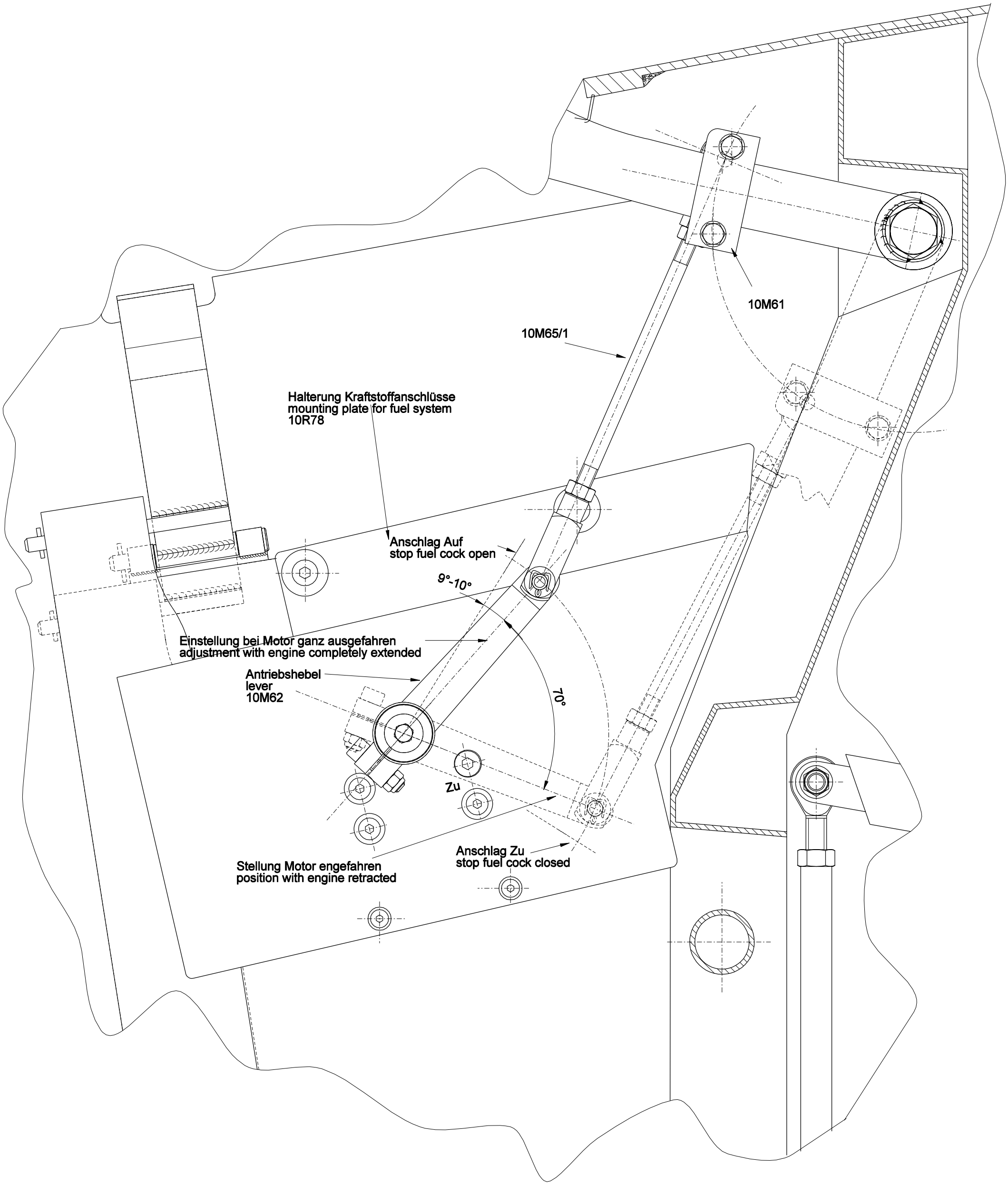
Maßstab 1:1

Maße ohne Toleranz-ang. nach:

# automatischer Brandhahn DG-1000T
## Zusammenbau der Hahnhalterung
## automatic fuel cock
## fuel cock holder assembly

DG Flugzeugbau GmbH
76646 Bruchsal
Otto-Lilienthal-Weg 2

10M64




| Toleranzen nach Arbeitsanweisung BA 1 | | | | |
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| Schweißen nach Arbeitsanweisung SA 1 | | | | |
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| Ausg. | Änderung | ÄM | Tag | Name |

| | Tag | Name |
|---|---|---|
| Gez. | 19.09.06 | Götz |
| Gepr. | | |
| Norm. | | |

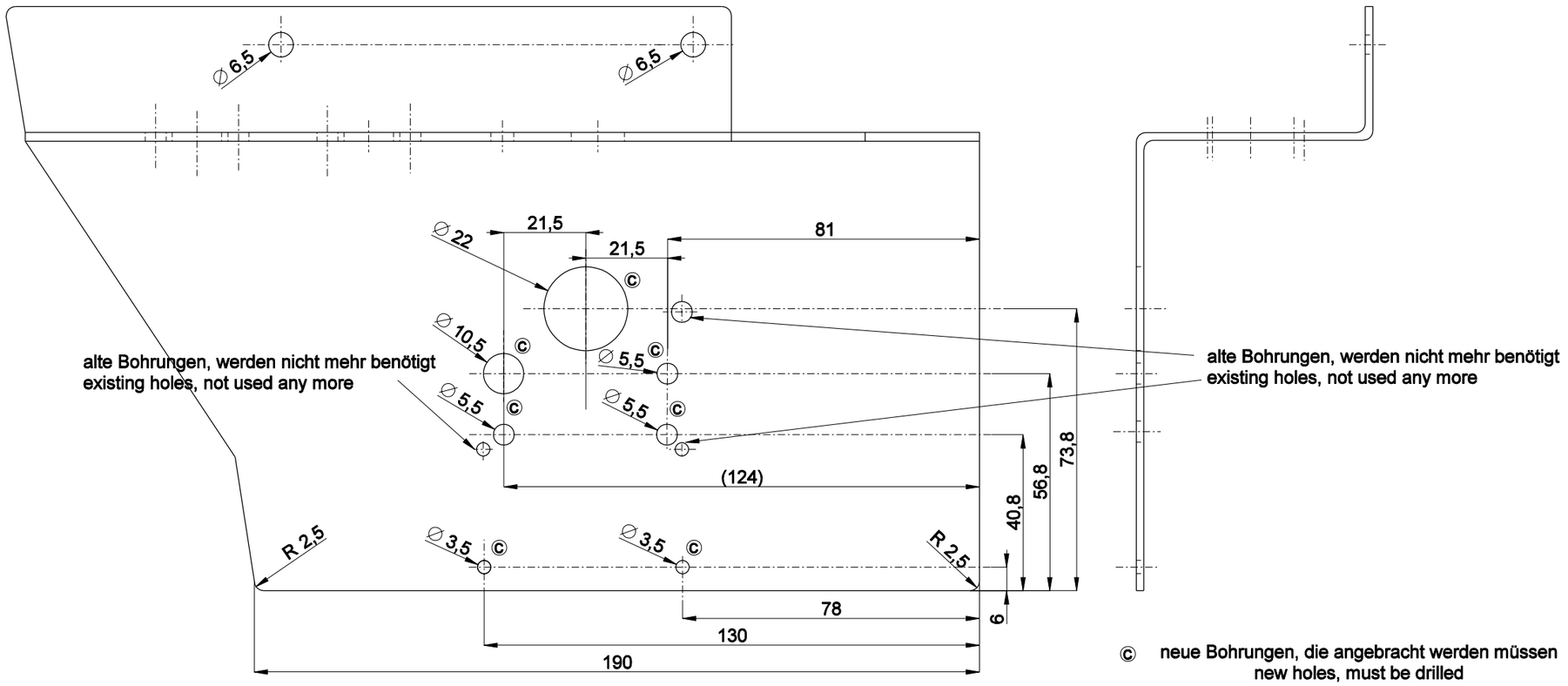
Maßstab 1:1

Maße ohne Toleranz-ang. nach:

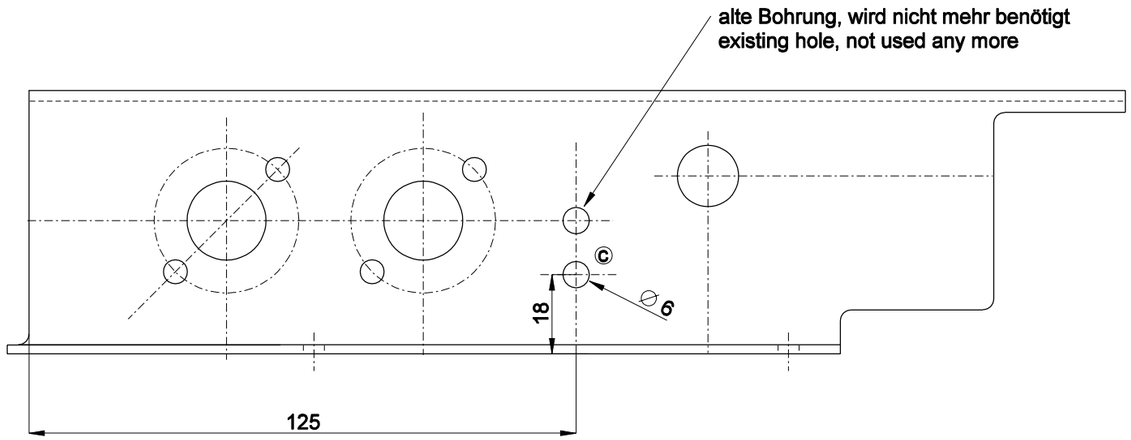
automatischer Brandhahn DG-1000T
Einbauübersicht Nachrüstung
automatic fuel cock DG.-1000T
installation retrofit

DG
Flugzeugbau GmbH
76646 Bruchsal
Otto-Lilienthal-Weg 2

10M66




© neue Bohrungen, die angebracht werden müssen
new holes, must be drilled




| | | | | |
|---|---|---|---|---|
| Toleranzen nach Arbeitsanweisung BA 1 | | | | |
| Schweißen nach Arbeitsanweisung SA 1 | | | | |
| c | Bohr. verändert | | 01.09.06 | Götz |
| b | Bohr. vergrößert | | 01.09.06 | Götz |
| a | Bohr. versetzt | | 03.10.05 | Ruppert |
| Ausg. | Änderung | ÄM | Tag | Name |

| | Tag | Name |
|---|---|---|
| Gez. | 24.02.05 | W. Dirks |
| Gepr. | | |
| Norm. | | |

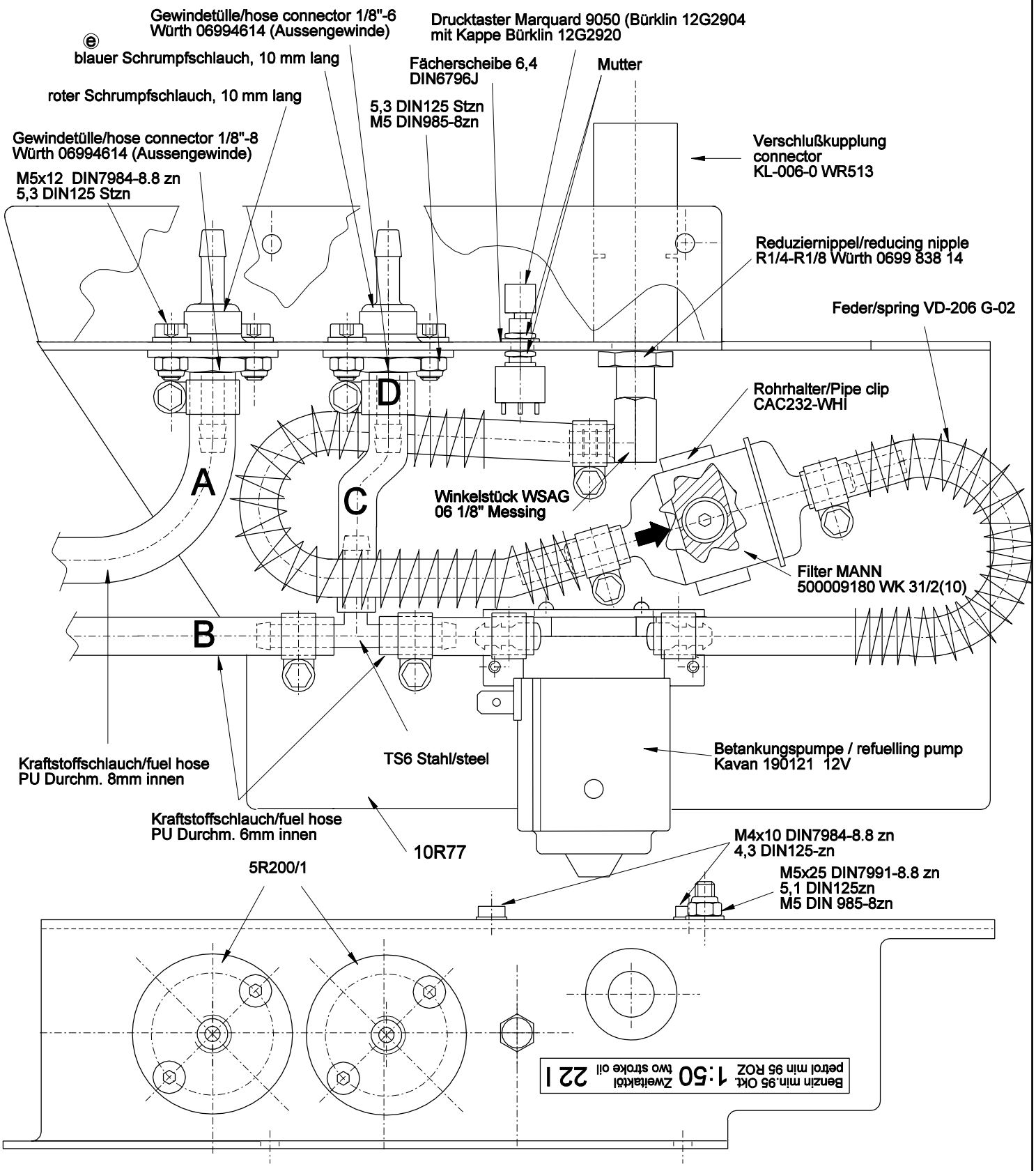
Maßstab 1:1

Maße ohne Toleranz-eng. nach:

Halterung für Kraftstoffanschlüsse
Änderung
holder for fuel system modification

DG Flugzeugbau GmbH
76646 Bruchsal
Otto-Lilienthal-Weg 2

10R77




Angaben für Schlauchschellen und Schlauchlängen s. Einbauplan 10EP51 d
Information for hose clamps and hose length see installation plan 10EP51

| Ausg. | Änderung | ÄM | Tag | Name |
|---|---|---|---|---|
| e | M5x12 statt M5x10 Scheibe, farben SS | | 03.08.06 | v.d. Bos |
| d | Div. Korrekturen | | 05.04.06 | v.d. Bos |
| c | 8mm Schlauch statt 6mm, Schrumpfschlauch gez. | | 15.11.05 | v.d. Bos |
| b | Neu gez., div. Änd. | | 05.10.05 | |
| a | Kupplung statt Nippel | | 21.03.05 | W. Dirks |

Toleranzen nach Arbeitsanweisung BA 1
Schweißen nach Arbeitsanweisung SA 1

| | Tag | Name |
|---|---|---|
| Gez. | 5.10.05 | F.Ruppert |
| Gepr. | | |
| Norm. | | |

Maßstab 1:1

Maße ohne Toleranz-ang. nach:

vor Nachrüstung
prior to retrofit

DG Flugzeugbau GmbH
76646 Bruchsal
Otto-Lilienthal-Weg 2

# Halterung Kraftstoffanschlüsse Zusammenbau
holder for fuel system assembly

10R78

Einschraub-Winkel-Verschraubung
EW 8x1 R1/8" Kunststoff 7805000021 /
elbow fitting

Drucktaster Marquard 9050 (Bürklin 12G2904)
mit Kappe Bürklin 12G2920 / push button

roter Schrumpfschlauch 10 mm lang
red heat shrink tubing 10 mm long

6,4 DIN6796 J

Mutter / nut

blauer Schrumpfschlauch, 10 mm lang
blue heat shrink tubing 10 mm long

5,3 DIN125 Stzn
M5 DIN985-8zn

Gewindetülle / hose connector 1/8"-6
Würth 06994614 (Aussengewinde)

Verschlußkupplung /
connector
KL-006-0 WR513

M5x12 DIN7984-8.8 zn
5,3 DIN125 Stzn

Reduziernippel / reducing nipple
R1/4-R1/8 Würth 0699 838 14

Winkelstück WSAG
06 1/8" Messing /
elbow fitting

Verschraubungen
siehe Zeichnung 10M60
screwed joints
see drawing 10M60

C

D

Brandhahnhalterung vormontiert
10M64 /
holder for fuel cock preassembled

Abstützrohr 10M65/3
siehe Zeichnung 10M60 /
supprt tube see drawing 10M60

10M65/2

M5x20 DIN7991-8.8 zn

A

Kraftstoffschlauch
PU Durchm. 8mm innen /
fuel hose PU inside dia. 8 mm

Filter MANN
500009180 WK 31/2(10)

B

Rohrhalter / Pipe clip
CAC232-WHI

Feder / spring D-122
60000299

Kraftstoffschlauch
PU Durchm. 6mm innen /
fuel hose PU inside dia. 6 mm

TS6 Stahl / steel

Betankungspumpe / refueling pump
Kavan 190121 12V

10R77

xxx= ab 10-78 und mit TM1000/9

M4x10 DIN7984-8.8 zn
4,3 DIN125-zn
gesichert mit Loctite 243
secured with Loctite 243

Zusammenbau
Antriebshebel
siehe 10M60

M4x10 DIN7984-8.8 zn
4,3 DIN125-zn
gesichert mit Loctite 243
secured with Loctite 243

Benzin min.95 Okt.
petrol min 95 ROZ 1:50 Zweitaktöl
two stroke oil 22 l

M6x20 DIN7984-8.8 zn
6.4 DIN9021-zn
gesichert mit Loctite 243
secured with Loctite 243

M6x20 DIN7984-8.8 zn
6.4 DIN9021-zn
gesichert mit Loctite 243
secured with Loctite 243

5R200/1

Angaben für Schlauchschellen und Schlauchlängen s. Einbauplan 10EP51
Information for hose clamps and hose length see installation plan 10EP51

| Ausg. | Änderung | ÄM | Tag | Name |
|---|---|---|---|---|
| f | Brandhahn komplett überarbeitet | xxx | 16.9.06 | Götz |
| e | M5x12 statt M5x10 Schelbe, Farben SS | | 03.08.06 | v. d. Ros |
| d | div. Korrekturen | | 05.04.06 | v. d. Ros |
| c | 8mm Schlauch statt 6mm Schrumpfschlauch gez. | | 15.11.05 | v. d. Ros |
| b | Neu gez., div. Änd. | | 05.10.05 | |
| a | Kupplung statt Nippel | | 21.03.05 | W.Dirks |

Toleranzen nach Arbeitsanweisung BA 1
Schweißen nach Arbeitsanweisung SA 1

| | Tag | Name |
|---|---|---|
| Gez. | 5.10.05 | F.Ruppert |
| Gepr. | | |
| Norm. | | |

Maßstab 1 : 1

Maße ohne Toleranz-ang. nach:

# Halterung für Kraftstoffanschlüsse
# Zusammenbau
# Holder for fuel system assembly

nach Nachrüstung Brandhahn
after retrofit fuel cock

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