

SUBJECT : Power plant - ignition unit

EFFECTIVITY : DG-400 serial no. 4-1 up to 4-285

ACCOMPLISHMENT : in case of exchanging electronic ignition boxes

REASON : The Bosch electronic boxes used so far with the Rotax 505 engine are no longer available. If exchanging an electronic box is necessary, the powerplant must be modified to Ducati electronic boxes.

INSTRUCTIONS : 1. Execution of Rotax technical bulletin 505-06 and installation of the electronic boxes and of the propellerbrake according to working instruction no. 1 for TN 826/27.

2. Exchange engine manual to "Manual for ROTAX-engine type 505 configuration without decompressor" 2nd edition January 1992.

3. Before putting the engine into service after the modification, execute TN 826/26 too.

MATERIAL : Working instruction No. 1 for TN 826/27
Manual for ROTAX-engine type 505 configuration without decompressor" 2nd edition January 1992

Material see list in working instruction no. 1

WEIGHT AND BALANCE : negligible


REMARKS : Instructions are to be executed by the manufacturer or by a licensed workshop and to be inspected and entered in the aircraft logs by a licensed inspector.

Bruchsal 4, August 20, 1992

LBA - approved:

The German original of this TN has been approved by the LBA under the date of 29. Sep. 1992 and is signed by Mr. Fendt. The translation into English has been done by best knowledge and judgement. In any case of doubt the German original is authoritative


Author: W. Dirks


Type certification inspector:

A. Lange

Modification of the powerplant - ignition unit to Ducati
 electronic boxes

1. Remove electronic boxes, mounting plate for boxes 4M9, propeller brake lever 4M16 and the securing plates for the spark plugs 4M34.

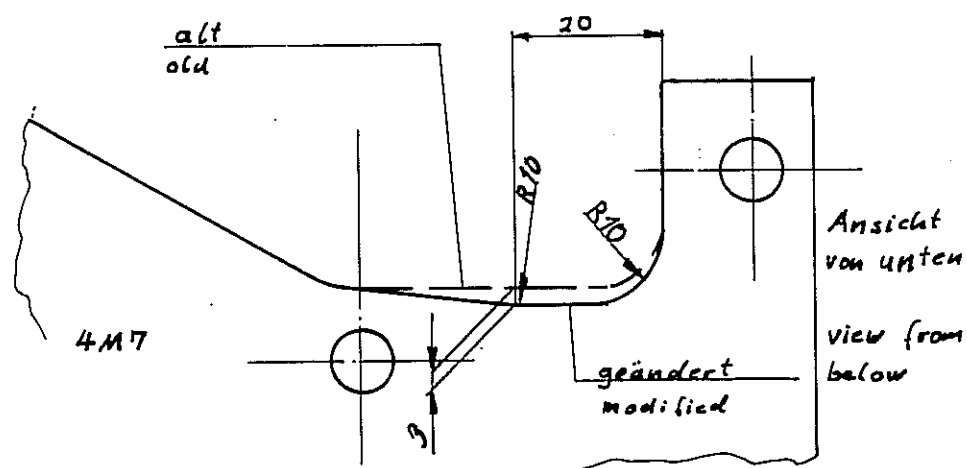
Caution: When removing the securing plates hold the cylinder-head nuts with a flat special spanner W33.
 Pull off the spark plug connectors and remove the spark plugs.

Note: The electronic boxes with ignition (high voltage) wires and spark plug connectors, the securing plates 4M34, the spark plugs and the securing plates for the plugs at the ignition boxes 4M33 will not be used any more.

2. Modify the ignition unit according to ROTAX technical bulletin 505-06.
 The ignition (high voltage) wires must have the following length see also drawing 4M77. If necessary shorten the wires after removing the spark plug connectors.

spark plug	length of wire (mm/in.)		cylinder
1	336	13.2	front
2	336	13.2	"
3	375	14.8	aft
4	315	12.4	"

3. Modify the lower mounting plate of the engine 4M7 in the region of the spark plug connector according to the sketch below. It is not necessary to paint this region after modification.



To execute this work the engine should be removed from the plate 4M7 and rotated 90° to the front.
 Please refer to sect. 4.12 of the DG-400 maintenance manual for this work.
 Protect the spindle drive against dirt.

4. Alternative A

- a) Modify mounting plate 4M9 according to drawing 4M9 change e issued March 31., 1992.
- b) Modify propeller brake according to drawing 4M75

Alternative B

Use a new mounting plate 4M72 for the electronic boxes and the propeller brake. Use new brake lever 4M74/1 with bushes 4M74/2 and 3.

5. Mount the electronic boxes and the propeller brake according to drawing 4M71.

6. Install the wiring according to drawing 4M77 and 4M78.
Caution: The ty-raps (4.8 x 186) marked with "a" in drawing 4M78 are securing the 4 plug connectors of the electronic boxes. The ty-raps must be tightened by hand as tight as possible, so that pulling apart of the connectors is prevented. Then fix the wiring with the other ty-raps. Secure the ignition (high voltage) wiring at the 2. and 4. cylinder head nut with bolts 4M76 and ty-raps according to drawings 4M71 and 4M78.

Note: Don't secure the bolts 4M76 with Loctite.
 Only secure with counternuts M8 DIN 936-8 zn.

7. The installation of the Ducatiboxes increases the dimensions of the unit a little.
 Check if during retraction the electronic boxes will interfere with the holder of the bowdencable 4R 38/1. If this happens, move the holder appr. 25 mm further outboard.

Please refer to maintenance manual DG-400 section 1.9.10. for tightening torques and securing methods.

Necessary material

Alternative A and B:

1 piece retrofit kit Rotax 965679	2	"	M8 DIN 936 - 8 zn
1 " 4M 73	2	"	M6 x 35 DIN 912 - 8.8 zn
1 " 4M 74/3	4	"	6.4 DIN 125 St zn
2 " 4M 76	2	"	M6 DIN 985 - 8 zn
3 " distance nut M8 x 49	2	"	Ty-raps 3,6 x 140
2 " 4,3 DIN 9021 St zn	7	"	Ty-raps 4,8 x 186
2 " M4 x 16 DIN 933 - 8.8 zn			

additional for Alternative A:


1 piece 4M 75/1
1 " 4M 75/2
1 " M4 x 10 DIN 933 - 8.8 zn
1 " 4,3 DIN 9021 St zn
1 " M4 DIN 985 - 8 zn


additional for Alternative B:

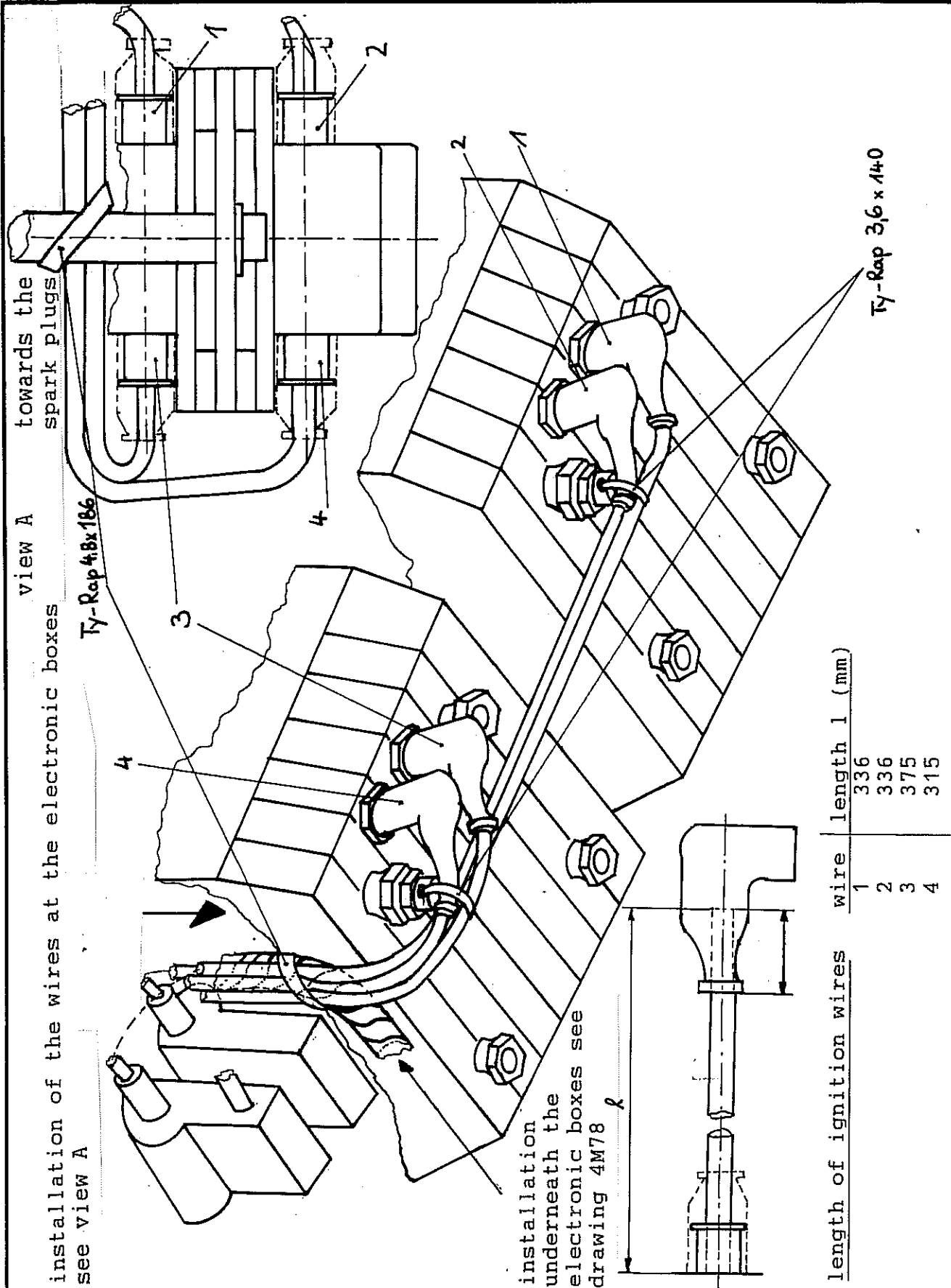
1 piece 4M 72
1 " 4M 74/1
1 " 4M 74/2

Enclosures: drawings 4M9, 4M71, 4M75, 4M77, 4M78

Bruchsal 4, 27.08.1992 / 24.09.1993

Author: W. Dirks 

Type certification inspector: A. Lange 



Ausg.	Änderung	AM	Tag	Name

<p>Gez. 31792 W. Kynast</p> <p>Gepr.</p> <p>Norm.</p> <p>Maßstab</p> <p>Maße ohne Toleranzang. nach:</p>	<p>Glaser-Dirks Flugzeugbau GmbH</p> <p>7520 Bruchsal 4 Im Schollengarten 19-20</p> <p>DG</p> <p>4 M77</p>
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Installation of the ignition (high voltage) wires (Ducati electronic boxes)

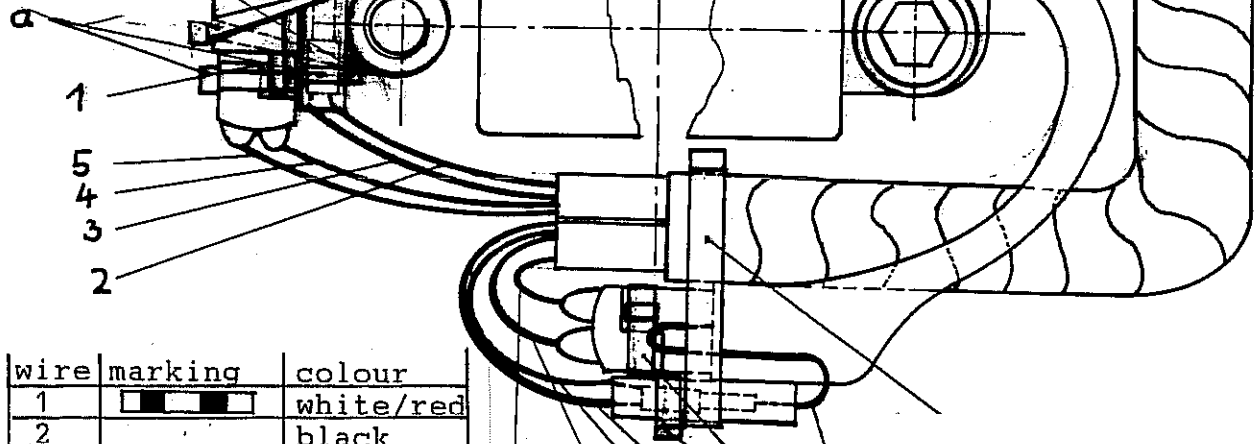
view from the rear

front electronic box

rear electronic box

towards engine/ignition unit

Ty-rap 4.8x186
around left lower
distance nut

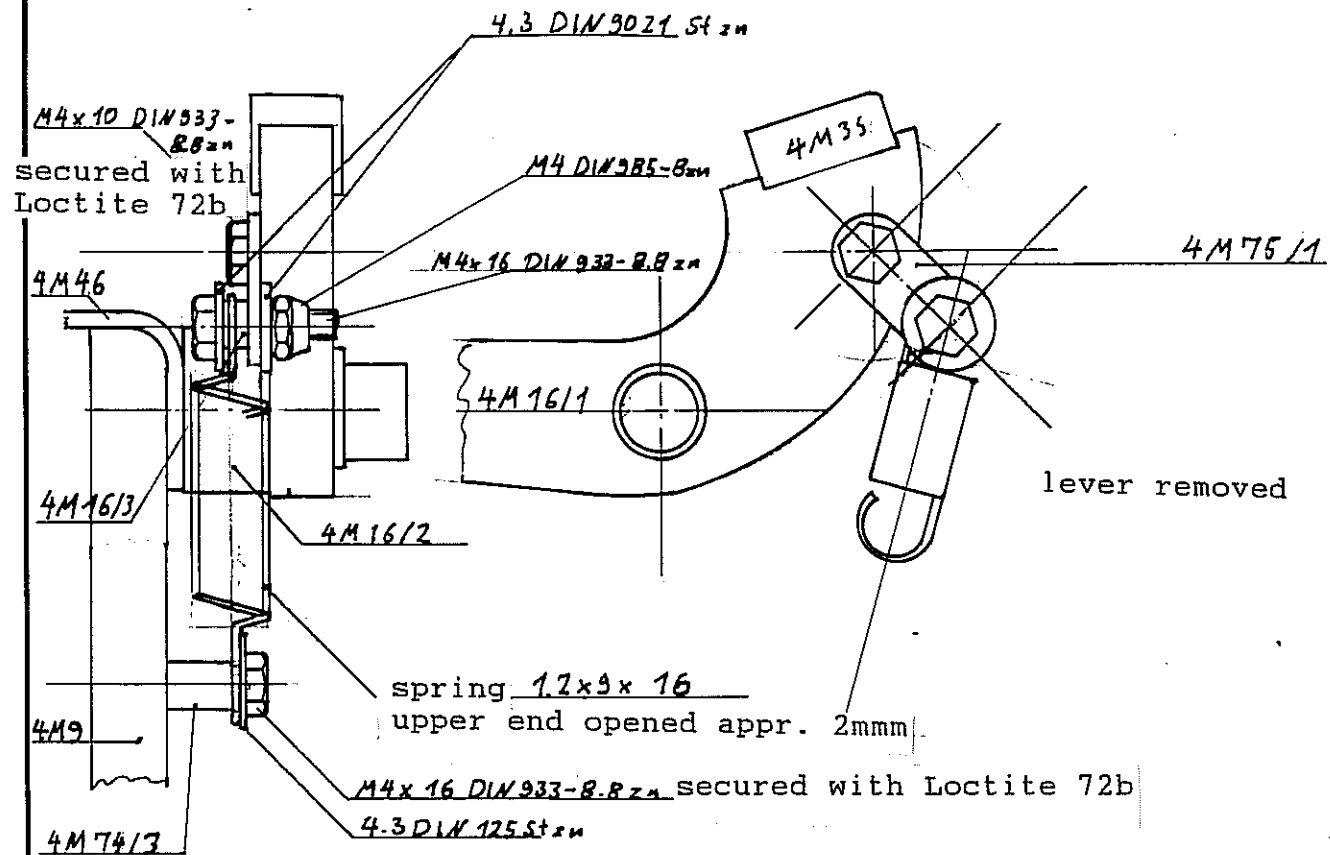


wire	marking	colour
1		white/red
2		black
3		white/red
4		red
5		brown
6		red
7		brown
8		black
9		white

Ty-rap 4.8x186 underneath
front electronic box

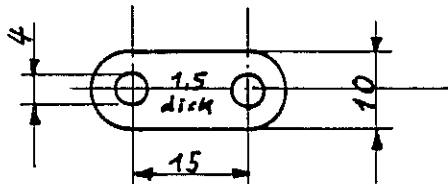
a : Ty-Rap 4.8 x 186

					<table border="1"> <tr> <td>Tag</td> <td>Name</td> </tr> <tr> <td>29.7.52</td> <td>W. Kynast</td> </tr> <tr> <td>Gepr.</td> <td></td> </tr> <tr> <td>Norm.</td> <td></td> </tr> <tr> <td>Meßstab</td> <td></td> </tr> </table>		Tag	Name	29.7.52	W. Kynast	Gepr.		Norm.		Meßstab		<p>Glaser-Dirks Flugzeugbau GmbH 7520 Bruchsal 4 Im Schollengarten 19-20</p>	
Tag	Name																	
29.7.52	W. Kynast																	
Gepr.																		
Norm.																		
Meßstab																		
					<p>Installation of the wiring (Ducati electronic boxes)</p>													
<p>Maße ohne Toleranz- ang. nach:</p>																		
Ausg.	Änderung	AM	Tag	Name														



additional parts
amount

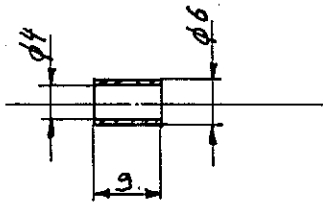
- 1 4M75/1
- 1 4M75/2
- 1 M4x10 DIN 933-8.8 zn
- 1 M4x16 DIN 933-8.8 zn
- 3 4.3 DIN 9021 St zn
- 1 M4 DIN 985-8 zn
- 1 4M74/3
- 1 4M9 modified to change e
(modification of the existing part)




Teil 1

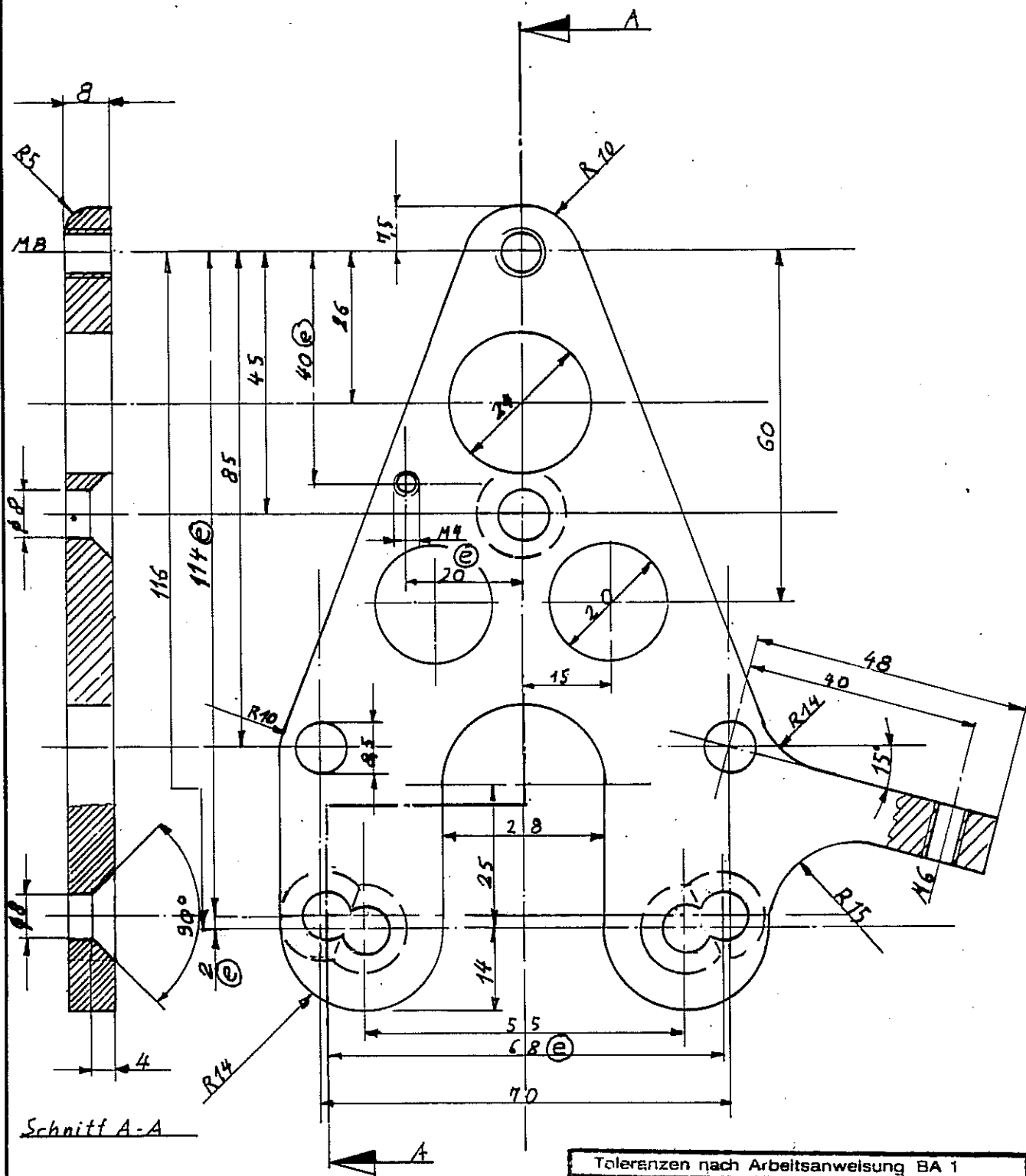
Toleranzen nach Arbeitsanweisung BA 1
Schweißen nach Arbeitsanweisung SA 1
Oberflächenschutz: cadmet chromatisiert
Werkstoff: 1.7734.4

oder 1.4571 X10CrNiMoTi1810 K120



4M74/3
Toleranzen nach Arbeitsanweisung BA 1
Schweißen nach Arbeitsanweisung SA 1
Oberflächenschutz: /
Werkstoff: Cu Zn 37 F45

		Tag	Name	Glaser-Dirks Flugzeugbau GmbH 7520 Bruchsal 4 Im Schollengarten 19-20
		Gez.	31.3.92 W. Dirks	
		Gepr.		
		Norm.		
		Maßstab	1:1	 4M75
		Maße ohne Toleranzang. nach:	Modification of the propellerbrake for Ducati electronic boxes	
		Ausg.	Änderung	
	AM	Tag	Name	

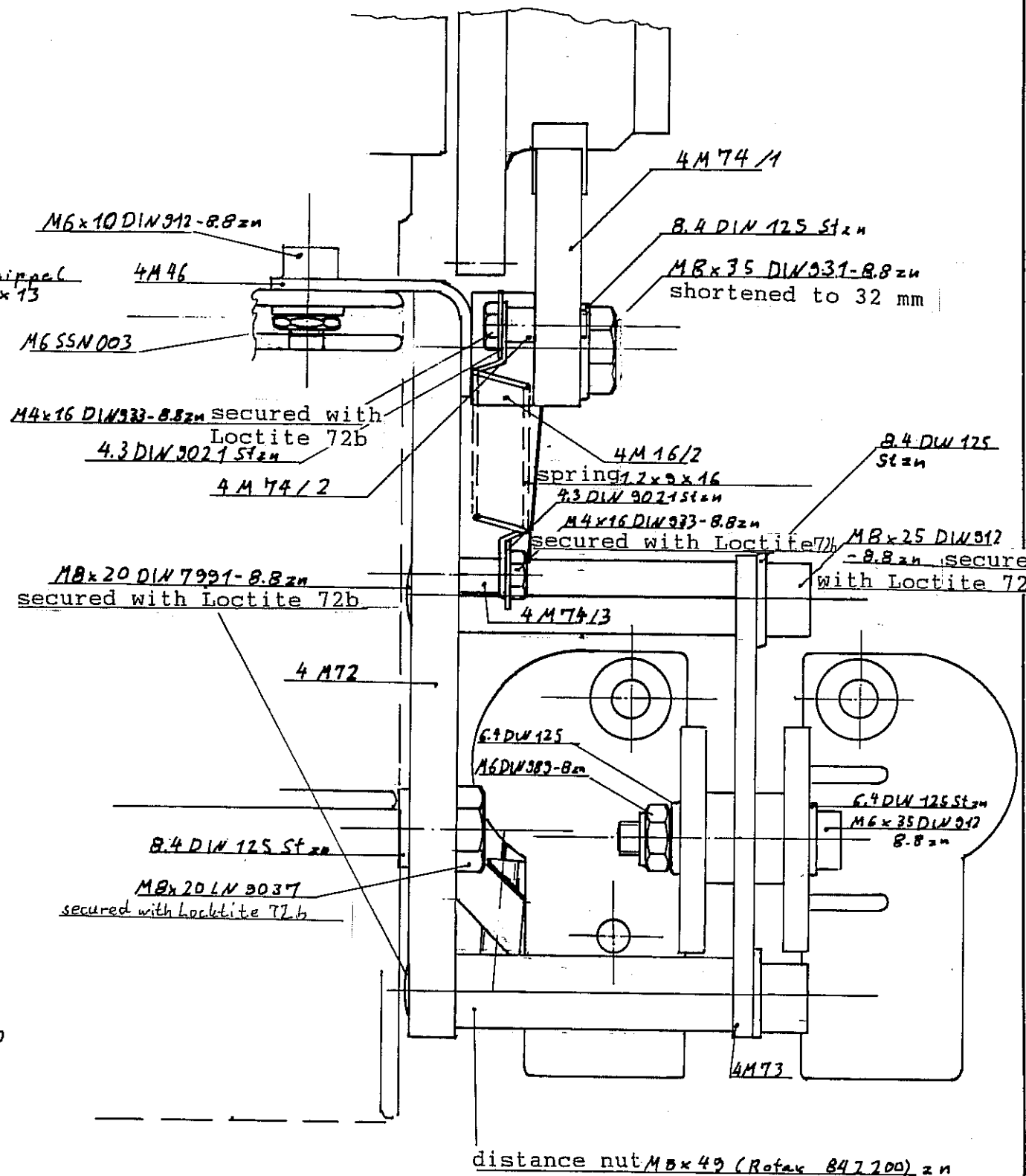
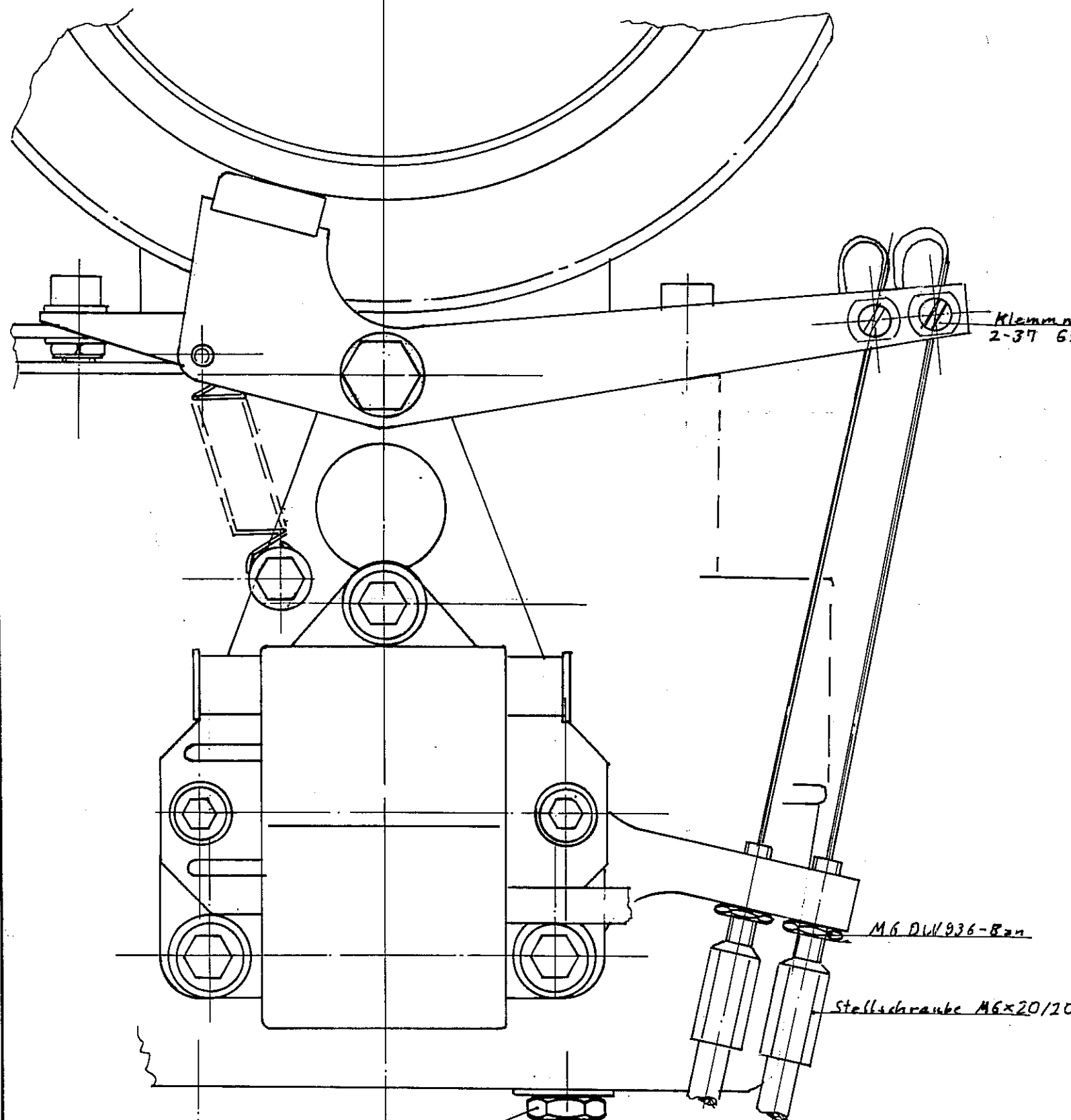


Toleranzen nach Arbeitsanweisung BA 1
 Schweißen nach Arbeitsanweisung SA 1
 Oberflächenschutz: eloxiert
 Werkstoff: Al Cu Mg 1-F40

Änderung	Änderung	Am	Tag	Name
e	Neugezeichnet			
e	Änderung für als Original Boxen	31.3.92		W. Dirks

Modell 1:1
 Made ohne Toleranzang. nach:
 Mounting plate for electronic boxes and propellerbrake modification to Ducati boxes

Glaser-Dirks
 Flugzeugbau GmbH
 7520 Bruchsal 4
 Im Schellengarten 19-20
GD
 419



M8 DIN 936-8.8zn
 4M76
 ignition (high voltage) wires
 TY-rap 3.6 x 140
 secure the ignition wires to 2. and 4. cylinderhead nut from the front

see also drawings 4M77 and 4M78

Note: When modifying older DG-400 from Bosch to Ducati boxes it is possible to modify the propellerbrake according to drawing 4M75 and part 4M9 according to drawing 4M9 change e issued 31.3.92.

					Tag	Name	Glaser-Dirks Flugzeugbau GmbH 7520 Bruchsal 4 Im Schollengarten 19-20 DG 4 M 71
					Gez.	3.9.92 W. Dirks	
					Bepr.		
					Norm		
					Maßstab	1:1	Assembly Electronic boxes and propellerbrake (Ducati electronic boxes)
					Maße ohne Toleranz- ang. nach:		
Ausg.	Änderung	Am	Tag	Name			