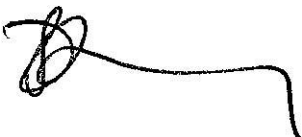
 <p>C4/1-13 THE GATEWAY, BROADMEADOWS VICTORIA 3047 PHONE +61 (0) 3 9359 9865, FAX +61 (0) 3 9359 1613. ABN: 82 433 264 489</p>	<p><b>AIRWORTHINESS DIRECTIVE</b> <b>THE GLIDING FEDERATION OF AUSTRALIA Inc</b></p> <p><b>GFA AD 305 Issue 2</b> <b>Date: 27 April 2023</b></p> <p>Note: This Airworthiness Directive is issued by the Gliding Federation of Australia</p>
<b>Type Certificate Holder</b>	Grob Aircraft SE
<b>Manufacturer(s)</b>	Burkhart Grob Luft-und Raumfahrt Gmbh & Co. GROB-Werke GmbH & Co.KG
<b>Types/Models Affected</b>	All G 109B Touring Motor Gliders
<b>Serial Numbers</b>	Serial numbers 6200 to 6434 inclusive.
<b>Subject</b>	Modifications, including rudder system damper, rudder hinge stiffening, and aileron control mass balance.
<b>Implementation</b>	<b>MANDATORY</b>
<b>Background</b>	<p>GFA AD 296, now cancelled, restricted the G 109B to a <math>V_{NE}</math> of 100 knots as a temporary flutter limitation.</p> <p>GFA AD 305 Issue 1 mandated the incorporation of GROB TM 817-20 (which forms part of this AD). This included rudder and aileron control system modifications which, when fully incorporated would allow AD 296 restriction to be lifted, returning the 109B to its normal operating speed limits.</p> <p>Subsequently, it was discovered that the rudder damper when fitted reduced rudder control and aircraft controllability in certain conditions.</p> <p>GFA AD 305 Issue 2 permits continued operation without the rudder damper assembly fitted with the limitation that the maximum airspeed is limited to 100 knots <math>V_{NE}</math>.</p> <p>The lifting of the 100 knot limitation may be authorised after successful completion of a flight test program approved by a CASR 21 Subpart M authorised person.</p>
<b>Documentation</b>	TM 817-20
<b>Required Action(s)</b>	<p>1. Grob TM 817-20 (enclosed) is to be fully incorporated by a holder of GFA Annual Inspector FRP maintenance authority with all FRP modification work carried out by a member endorsed FRP Major Repair (historically a holder of a DOA 1109 glider inspector</p>

	<p>certificate endorsed CofA FRP with all FRP modification work carried out by a person endorsed FRP Major Repairs). All work is to be carried out referencing Repair Instructions RI 817-20/1 (installation of the rudder damper assembly), RI 817-20/2 (installation of additional aileron mass balance) and RI 817-20/3 (stiffening of the upper and lower rudder suspension at the fuselage). Any logbook or maintenance release entry restricting VNE to 100 kts can be cleared.</p> <p>OR</p> <p>2. Grob TM 817-20 is to be partially incorporated except not fitting the rudder dampener assembly IAW RI 817-20/1 but comply with all other instructions. If the rudder dampener assembly has been previously fitted, the assembly can be removed by reverse engineering RI 817-20/1. Structure previously modified can remain.</p> <p>(a) An operational limitation placard must be placed on the instrument panel fully visible to the pilot stating 'Maximum Airspeed (IAS) 100 knots'. The placard may be fitted by the registered operator of the aircraft or by a holder of a GFA issued maintenance authority.</p> <div style="border: 1px solid black; padding: 5px; text-align: center;"> <p><b>Maximum Airspeed (I.A.S) 100 knots</b></p> </div> <p>(b) Raise a minor defect aircraft's in the maintenance release:</p> <p>"Rudder damper assembly not fitted, V<sub>NE</sub> limited to 100 knots".</p> <p>3. On completion, all work is to be detailed in the sailplanes logbook and entries signed by the appropriate inspector.</p> <p>4. The Maintenance Manual pages 1, 1a, 12, 12a, 12b, 12c, 13, 13a, 41f, 28 all dated 29/1/1986 are to be incorporated into the maintenance manual (as applicable).</p>
<b>Compliance, Compliance Time(s) and Frequency</b>	Compliance with this Airworthiness Directive is mandatory and compliance, including action taken pursuant to this Airworthiness Directive must be recorded in the aircraft logbook.
<b>Effect on Weight and Balance</b>	Before first flight after the installation of TM 817-20 components, the aircraft is to be weighed and new placards prepared by a holder of a GFA Weight and Balance Authority.
<b>Issuing Authority</b>	<p>Issued for and on behalf of <b>The Gliding Federation of Australia Inc.</b></p> <p><b>Signed:</b></p> <div style="text-align: center;">  </div> <p style="text-align: right;">Chief Technical Officer</p>
<b>Effective Date</b>	27/04/2023



Subject: Measures for improvement of the flutter behavior of the GROB G 109 B

Effectivity: Motorglider GROB G 109 B  
Serial-number: 6200 thru 6434  
- The following serial-numbers are excluded from realization of instruction 1: 6289, 6290, 6293, 6348, 6349  
- The following serial-numbers are excluded from realization of instruction 3: 6289, 6290, 6293, 6348, 6349, 6351, all serial numbers as of serial-number 6356.

Accomplishment: Instruction 1 thru instruction 3 not later than December 31, 1986.

Reason: In the course of type certification of the motorglider GROB G 109 B in Sweden it was found that at high speeds combined with very high aileron and/or rudder deflections, aileron flutter may be induced at a certain excitation frequency. Thereupon the Luftfahrt-Bundesamt issued Airworthiness Directive 85-218. The object of this Technical Information is the annulment of the Airworthiness Directive.

Instructions: In order to improve the flutter behavior of the G 109 B decisively, the following instructions must be carried out.

First instruction: Installation of a rudder damper according to Repair Instruction no. 817-20/1.

Second instruction: Installation of additional mass-balance in the ailerons according to Repair Instruction no. 817-20/2.

Third instruction: Stiffening of the upper and lower rudder suspension at the fuselage according to Repair Instruction no. 817-20/3.

The Repair Instructions 817-20/1/2/3 are component parts of the present Service Bulletin TM 817-20.

For the modification of the maintenance manual by the revision dated Jan. 29, 86, the following pages are to be exchanged.

Page 1 replaces issue dated Oct. 21, 1985  
Page 1a replaces issue dated Oct. 21, 1985  
Page 12 replaces issue dated Sep. 1, 1983  
Page 12a replaces issue dated Sep. 1, 1983



Page 12b new page  
Page 12c new page  
Page 13 replaces issue dated Jan. 15, 1985  
Page 13a new page  
Page 28 replaces issue dated Sep. 1, 1983  
Page 41f replaces issue dated Jan. 15, 1985

**Material:**Material for instruction 1:

- 1 Repair instruction no. 817-20/1 with drawing of damper-installation 109B-4380 IAW TM 817-20
- 1 Template for boring the holes in the stick mounting frame
- 10 Pages for maintenance manual G 109 B, revision no. 4, dated Jan. 29., 86
- 1 Damper unit, completely assembled
- 1 Disk 109B-4380.05
- 1 Lower mounting bracket 109B-4384.01
- 1 Hexagon nut M8 LN 9348
- 4 Hexagon nuts M5 LN 9348
- 4 Hexagon head screws M5 x 16 DIN 933 8.8 galvanized
- 4 Washers 5,3 LN 9025
- 1 Washer 8,5 DIN 9021

also for serial-no. 6200 thru 6339

- 1 Spiral spring 102-2000.33
- 1 Cable clamp H-NY 12 H 4300, company Bürklin with shrink tube Z 85 083, 11 mm long
- 1 Hexagon head screw M4 x 10 DIN 933 8.8 galvanized
- 1 Hexagon nut M4 LN 9348
- 1 Washer 4,3 LN 9025
- 1 Spring grommet 109B-5130

Material for instruction 2:

- 1 Repair instruction 817-20/2 with drawing aileron left/right 109B-1111/1112 IAW TM 817-20
- 2 Mass balance (lead dia. 12 mm, 4 parts each 360 mm length)
- 10 Roll pins 2 x 10 DIN 7344
- 2 Hexagon nuts M6 LN 9348
- 1 Piece of hard foam (Conticell 60 8 mm thick) 50 x 100 mm, covered on both sides diagonally with glass-cloth LN 8.4551.6 (Interglas 92125/)
- Glass-cloth, LN 8.4551.6 (Interglas 92125/) 500 x 1000 mm, diagonally cut

Material for instruction 3:

- 1 Repair instruction no. 817-20/3
- 3 Templates for the wood and glass-cloth
- 2 Plywood strips 20 x 3 x 140
- 2 Hexagon nuts M6 LN 9348
- Glass-cloth LN 8.4554.6 (Interglas 92140) 400 x 1000 mm

Also required:

- Resin Glycidäther 162 (BASF) 100 GT\*  
(previously Epikote 162, SHELL)
- Hardener Laromin C 260 (BASF) 38 GT\*
- Filler cotton flocks (type FL 1 f).

\*GT = parts

Weight and Balance: After execution of the repair, the new empty weight and empty weight center of gravity position are to be determined.

Remarks: Instruction 1 to 3 must be carried out by an authorized aviation workshop. The proper execution of the instructions has to be certified in the log-book by an authorized inspector, class 3.

Mattsies, Jan. 29, 1986

LBA-approved on:

signed i.A. Dipl.-Ing. R. Rischer



*H. Frieß*  
- 7. MRZ 1986

P.S.: In case you have sold your motorglider meanwhile, we ask you kindly to give this information immediately to the new owner and to let us know his address and serial-number.

The translation has been done by best knowledge and judgement. In any case or doubt, the German original is authoritative. The German original of this Technical Information has been approved by the LBA under the date of March 7, 1986 and is signed by H. Frieß.



## AIRWORTHINESS DIRECTIVE

- TYPE AFFECTED: Grob 109B Powered sailplanes  
Serial Nos. 6200 to 6434 inclusive.
- DETAILS: Modifications, including rudder system damper, rudder hinge stiffening, and aileron mass balance.
- BACKGROUND: GFA AD 296 restricted the G109B to a VNE of 100kts as a temporary flutter limitation.  
GROB TM 817-20 (which forms part of this AD) has been issued, outlining rudder and aileron control system modifications which, when fully incorporated will allow AD 296 restriction to be lifted, returning the 109B to its normal operational speed limits.
- ACTION REQUIRED: Before April 30th 1987  
Grob TM 817-20 is to be incorporated fully.
- IMPLEMENTATION:
1. TM 817-20 may be incorporated by holders of a DoA 1109 glider inspectors certificate endorsed "C. of A. FRP" with all FRP modification work to be carried out by a person endorsed "FRP Major repairs".
  2. On completion, but before the test flight, the sailplane is to be weighed and new placards prepared by the holder of a Do A 1109 glider inspectors certificate endorsed "Weighing and Weight and Balance".
  3. Logbook  
On completion all work is to be detailed in the sailplane's logbook and entries signed by the appropriate inspectors.
  4. Maintenance Manual  
Pages 1, 1a, 12, 12a, 12b, 12c, 13, 13a, 41f, 28 all dated 29/1/86 are to be incorporated into the maintenance manual.
- COMPLIANCE: The requirements of this Airworthiness Directive are mandatory. This Directive is issued pursuant to Air Navigation Regulations under the delegated authority of the Secretary of the Department of Aviation.

# Subject:

Measures for improvement of the flutter behavior of the GROB G 109 B

# Effectivity:

Motorglider GROB G 109 B  
Serial-number: 6200 thru 6434  
- The following serial-numbers are excluded from realization of instruction 1: 6289, 6290, 6293, 6348, 6349

# Accomplishment:

Instruction 1 thru instruction 3 not later than December 31, 1986.

# Reason:

In the course of type certification of the motorglider GROB G 109 B in Sweden it was found that at high speeds combined with very high aileron and/or rudder deflections, aileron flutter may be induced at a certain excitation frequency. Thereupon the Luftfahrt-Bundesamt issued Airworthiness Directive 85-218. The object of this Technical Information is the annulment of the Airworthiness Directive.

# Instructions:

In order to improve the flutter behavior of the G 109 B decisively, the following instructions must be carried out.

First instruction: Installation of a rudder damper according to Repair Instruction no. 817-20/1.

Second instruction: Installation of additional mass-balance in the ailerons according to Repair Instruction no. 817-20/2.

Third instruction: Stiffening of the upper and lower rudder suspension at the fuselage according to Repair Instruction no. 817-20/3.

The Repair Instructions 817-20/1/2/3 are component parts of the present Service Bulletin TM 817-20.

For the modification of the maintenance manual by the revision dated Jan. 29, 86, the following pages are to be exchanged.

Page 1 replaces issue dated Oct. 21, 1985  
Page 1a replaces issue dated Oct. 21, 1985  
Page 12 replaces issue dated Sep. 1, 1983  
Page 12a replaces issue dated Sep. 1, 1983

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# Material:

# Material for instruction 1:

- 1 Repair instruction no. 817-20/1 with drawing of damper-installation 109B-4380 IAW TM 817-20
- 1 Template for boring the holes in the stick mounting frame
- 10 Pages for maintenance manual G 109 B, revision no. 4, dated Jan. 29, 86
- 1 Damper unit, completely assembled
- 1 Disk 109B-4380.05
- 1 Lower mounting bracket 109B-4384.01
- 1 Hexagon nut M8 LN 9348
- 4 Hexagon nuts M5 LN 9348
- 4 Hexagon head screws M5 x 16 DIN 933 8.8 galvanized
- 4 Washers 5,3 LN 9025
- 1 Washer 8,5 DIN 9021

also for serial-no. 6200 thru 6339

- 1 Spiral spring 102-2000.33
- 1 Cable clamp H-NY 12 H 4300, company Bürklin with shrink tube Z 85 083, 11 mm long
- 1 Hexagon head screw M4 x 10 DIN 933 8.8 galvanized
- 1 Hexagon nut M4 LN 9348
- 1 Washer 4,3 LN 9025
- 1 Spring grommet 109B-5130

# Material for instruction 2:

- 1 Repair instruction 817-20/2 with drawing aileron left/right 109B-1111/1112 IAW TM 817-20
- 2 Mass balance (lead dia. 12 mm, 4 parts each 360 mm length)
- 10 Roll pins 2 x 10 DIN 7344
- 2 Hexagon nuts M6 LN 9348
- 1 Piece of hard foam (Conticell 60 8 mm thick) 50 x 100 mm, covered on both sides diagonally with glass-cloth LN 8.4551.6 (Interglas 92125/)
- Glass-cloth, LN 8.4551.6 (Interglas 92125/), 500 x 1000 mm, diagonally cut

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## Technical Information

TM 817-20

Motorglider

GROB G 109 B

Material for instruction 3:

- 1 Repair instruction no. 817-20/3
- 3 Templates for the wood and glass-cloth
- 2 Plywood strips 20 x 3 x 140
- 2 Hexagon nuts M6 LN 9348
- Glass-cloth LN 8.4554.6 (Interglas 92140) 400 x 1000 mm

Also required:

- Resin Glycidäther 162 (BASF) 100 GT\* (previously Epikote 162, SHELL)
- Hardener Laromin C 260 (BASF) 38 GT\*
- Filler cotton flocks (type FL 1 f).

\*GT = parts

Weight and Balance: After execution of the repair, the new empty weight and empty weight center of gravity position are to be determined.

Remarks: Instruction 1 to 3 must be carried out by an authorized aviation workshop. The proper execution of the instructions has to be certified in the log-book by an authorized inspector, class 3.

Matthes, Jan. 29, 1986

LBA-approved on:

signed i.A. Dipl.-Ing. R. Rischer




*[Signature]*  
- 7. März 1986


P.S.: In case you have sold your motorglider meanwhile, we ask you kindly to give this information immediately to the new owner and to let us know his address and serial-number.

The translation has been done by best knowledge and judgement. In any case or doubt, the German original is authoritative. The German original of this Technical Information has been approved by the LBA under the date of March 7, 1986 and is signed by H. Fries.

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	Repair Instruction No. 817-20/1 to TM 817-20		GROB G 109 B
<p>The Repair Instruction no. 817-20/1 pertains to the Technical Information TM 817-20 and includes the installation of a rudder damper in the rudder linkage of the G 109 B.</p> <p><b>Material:</b></p> <ul style="list-style-type: none"> <li>1 Repair Instruction no. 817-20/1 with drawing damper-installation 109B-4380 IAW TM 817-20</li> <li>1 Template for boring the holes in the stick mounting frame</li> <li>10 Pages for maintenance manual G 109 B, revision no. 4 dated Jan. 29, 86</li> <li>1 Damper unit completely assembled</li> <li>1 Disk 109B-4380.05</li> <li>1 Lower mounting bracket 109B-4384.01</li> <li>1 Hexagon nut M8 LN 9348</li> <li>4 Hexagon nuts M5 LN 9348</li> <li>4 Hexagon head screws M5 x 16 DIN 933 8.8 galvanized</li> <li>4 Washers 5,3 LN 9025</li> <li>1 Washer 8,5 DIN 9021</li> </ul> <p>Also for serial-no. 6200 thru 6339</p> <ul style="list-style-type: none"> <li>1 Spiral spring 102-2000.33</li> <li>1 Cable clamp H-NY 12 H 4300 company Bürklin with shrink tube Z 85 083 11 mm long</li> <li>1 Hexagon head screw M4 x 10 DIN 933 8.8 galvanized</li> <li>1 Hexagon nut M4 LN 9348</li> <li>1 Washer 4,3 LN 9025</li> <li>1 Spring grommet 109B-5130</li> </ul> <p><b>Tools:</b></p> <ul style="list-style-type: none"> <li>1 Set of screwdrivers (different widths)</li> <li>Metric wrenches, different widths (7mm - 13 mm)</li> <li>Sockets different widths (7 mm - 13 mm)</li> <li>1 Brush</li> <li>1 Electric drill (preferably angle drill)</li> <li>3 Drills: dia. 8,2, dia. 20, dia. 2.</li> </ul> <p><b>Operating Sequence:</b></p> <p>The "item numbers" of drawing 109B-4380 are indicated in parentheses.</p> <p><b>Note:</b></p> <p>It is recommended to commit the assembled state to memory before disassembly of any parts, or to make notes or sketches, in order to facilitate the reassembly. Also small parts, i.e. screws, should be marked exactly.</p>			
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	Repair Instruction No. 817-20/1 to TM 817-20		GROB G 109 B
<p>The installation of the damper will be facilitated by dis-assembling the right wing. Insure that the piston rod of the damper will not be damaged during the installation.</p> <ol style="list-style-type: none"> <li>1. Remove right seat.</li> <li>2. Remove the right ABS plastic cover over the stick mounting frame (4 countersunk screws M4 x 20 DIN 963 with finish washers).</li> <li>3. Locate and drill holes in the stick mounting frame per drawing 109B-4380. To properly locate the holes, cut out template 1 and paste to the stick mounting frame. Insure that the holes are drilled perpendicular to the stick mounting frame (see also fig. 1).</li> <li>4. Preserve holes with resin (Caution! Never use oily preservation agents).</li> <li>5. Mount damper at the stick mounting frame according to pictured drawing 109B-4380. The mounted damper unit is in figure 2. The stop nut (14), the cut disk (5) and the washer (11), included in the delivery, are to be used.</li> <li>6. Loosely connect the lower mounting bracket (4) to the piston rod mounting (3) with the hardware (7,9,12). With full rudder deflection to the right, locate the piston rod mounting unit (3,4) at the dimension shown in drawing 109B-4380 (<math>80 \pm 5</math> mm). Secure the mounting unit hardware (7,9,12). (See also fig. 2).</li> <li>7. <u>Note:</u> Only required for s/n 6200 thru 6339. Mount spiral spring to the airbrake cable according to fig. 3. For that purpose, drill a hole (dia. 2 mm) in the flange of the seat frame cut-out for attachment of the spiral spring (fig. 3). Insure sufficient edge clearance (<math>\geq 5</math> mm). Next the shrink tube should be cut and turned over the airbrake cable. Push the cable clamp over the shrink tube and secure with the spring grommet 109B-5130, hex head screw M4, stop nut M4, and washer 4.3. (Any previously installed spring in this application should be replaced with the above installation.)</li> <li>8. After assembly of the damper perform functional test. In doing so, pay attention to the following: <ul style="list-style-type: none"> <li>- The damper must not be used as rudder stop.</li> <li>- The damper must work without tension in each position of the rudder push rod.</li> <li>- The piston rod of the damper must not have any damages (scores, scratches, etc.).</li> <li>- To prevent jamming of the rudder at full deflection, the dimension (<math>80 \pm 5</math> mm) indicated in point 6 above <u>must</u> be observed.</li> </ul> </li> </ol>			
Datum	ersetzt Ausgabe vom	Bearbeitung	Seite 2



Repair Instruction No. 817-20/1  
to TM 817-20

GROB G 109 B

- 9. Assemble the right plastic cover of stick mounting frame.
- 10. Install right seat.

Mattsies, Jan. 29, 1988  
  
 signed i.A. Dipl. Ing. R. Rischer

Superseded

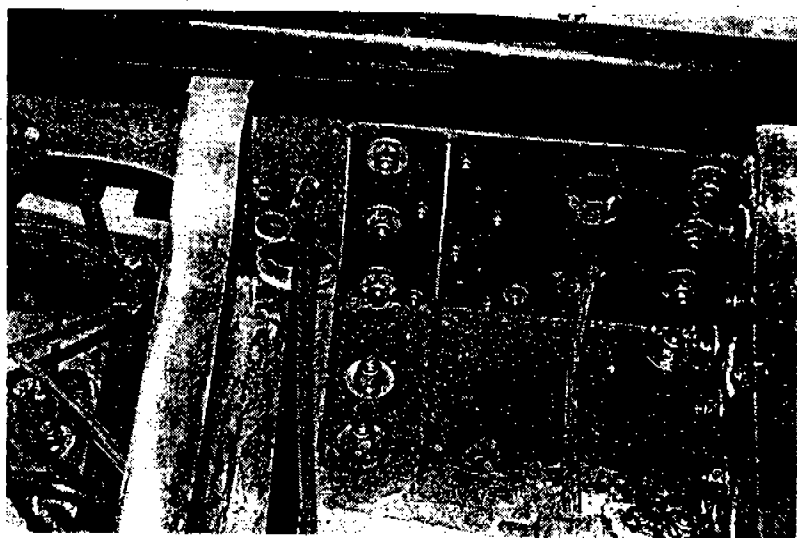


Abb. 1 (fig. 1)



Abb. 2  
(fig. 2)

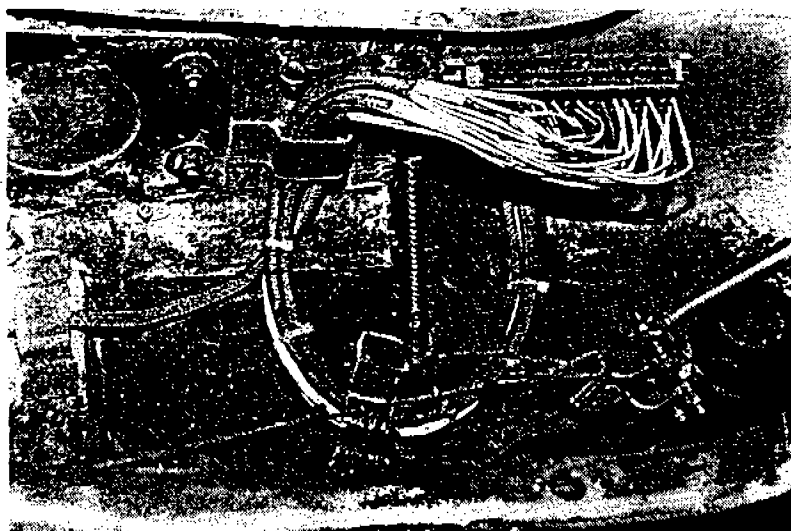
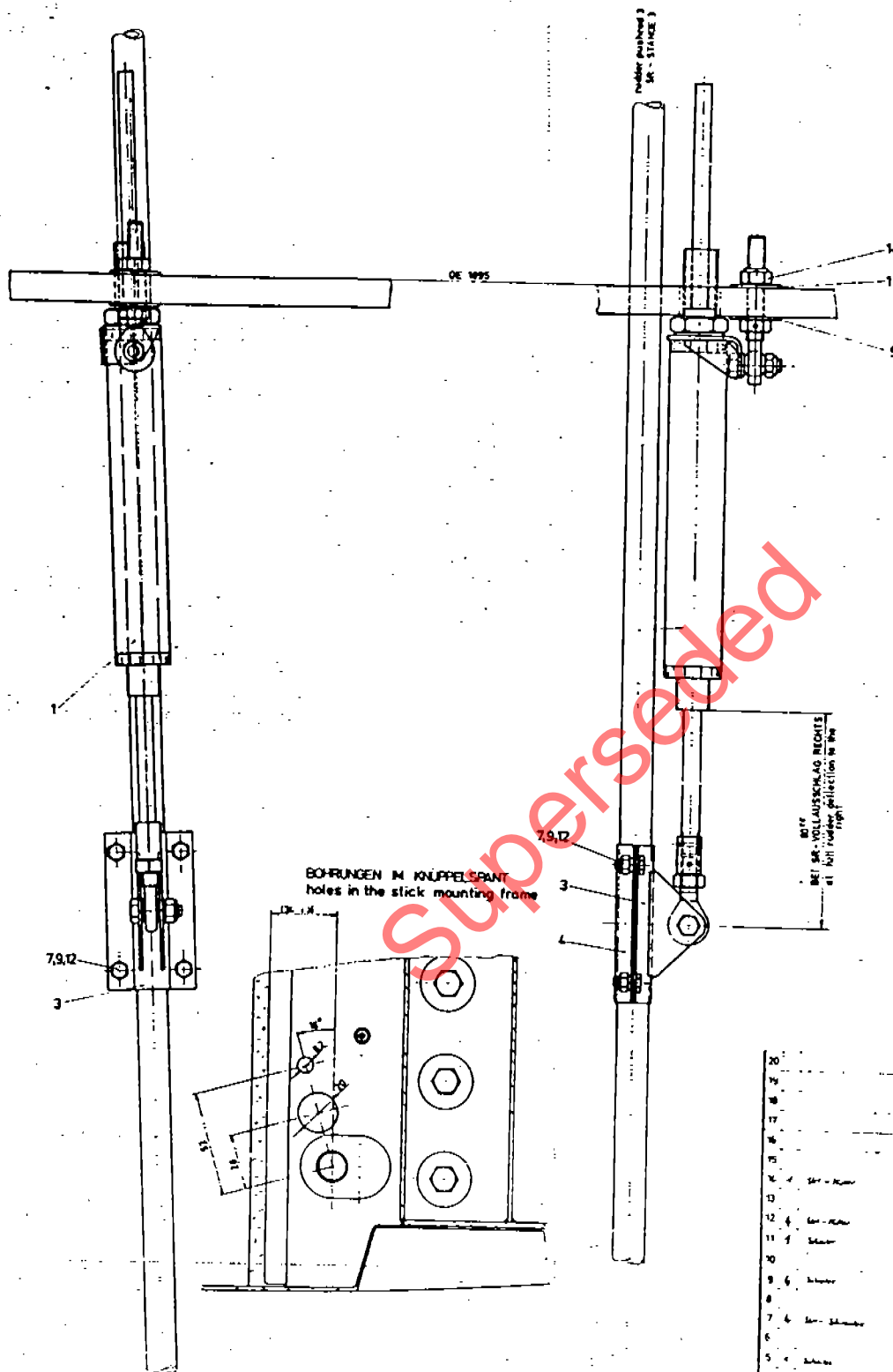


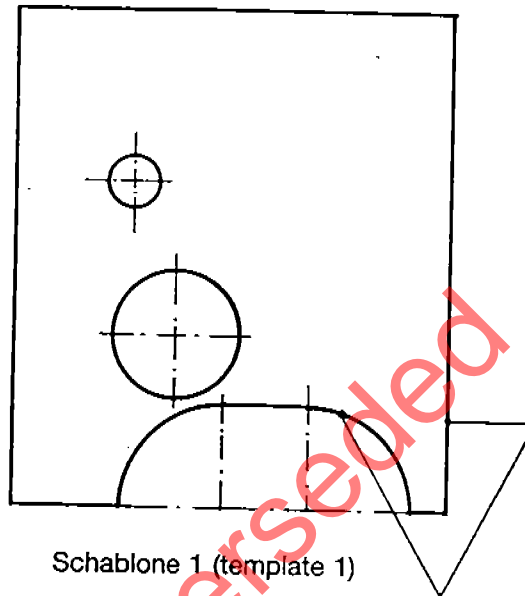
Abb. 3 (fig. 3)



AUSGENOMMEN WERK-NRN. 6289, 6290, 6293, 6348, 6349

[illegible]

**Bilderteil zur Arbeitsanleitung Nr. 817-20/1**  
(Pictures to repair instruction no. 817-20/1)



Schablone 1 (template 1)

Anlegekanten  
(guiding edges)



Repair Instruction No. 817-20/2

to TM 817-20

GROB G 109 B

The Repair Instruction no. 817-20/2 pertains to the Technical Information TM 817-20 and includes the installation of additional mass balance in the ailerons of the G 109 B.

Material:

- 1 Repair instruction 817-20/2 with drawing aileron left/right 109B-1111/1112 IAW TM 817-20
- 2 Mass balance (lead dia. 12 mm, 4 parts each 360 mm length)
- 10 Roll pins 2 x 10 DIN 7344
- 2 Hexagon nuts M6 LN 9348
- 1 Piece of hard foam (Conticell 60 8 mm thick) 50 x 100 mm, covered on both sides diagonally with glass-cloth LN 8.4551.6 (Interglas 92125 )
- Glass-cloth, LN 8.4551.6 (Interglas 92125 ) 500 x 1000 mm, diagonally cut up.

Tools:

- 2 Box wrenches (10 mm)
- 1 File
- 1 Screwdriver
- 1 Hammer
- 1 Punch, size 2
- Abrasive paper, coarse-grained (i.e. 80)
- 1 Electric drill (preferably angle drill)
- 1 Drill dia. 6

Operating Sequence:

The "item numbers" of drawing 109B-1111/1112 are indicated in parentheses.

Note:

(See note of Repair Instruction 817-20/1)

The installation of the additional mass balance in the ailerons of the G 109 B can be carried out in the rigged or derigged condition.

1. Put both wings on a supporting stand and secure with wedges (only if the motorglider is derigged).
2. Remove the adhesive tape from the aileron gap.
3. Deflect aileron upwards and remove the screw connection (hexagon head screw M6 x 24 LN 9037, hexagon nut M6 LN 9348, washer 6,4 LN 9025) between fork and rod end bearing of the aileron-push rod. On older motorgliders, the sheet metal (2) (see also drawing 109B-1111/1112) must be removed (2 countersunk screws M4 x 12 DIN 963-8.8 galvanized). The installation opening is on app. 1/4 of the span of the aileron.
4. Remove the five roll pins from the aileron hinges.


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vom


Bearbeitung

Seite

1

	Repair Instruction No. 817-20/2 to TM 817-20		GROB G 109 B
<ol style="list-style-type: none"> <li>5. Remove the aileron hinge pins (4 pieces 6f7 x 28 DIN 1434 galvanized, 1 piece 6f7 x 40 DIN 1434 galvanized) from the aileron bearings. Caution: Pins and aileron bearings belonging together must be marked. Likewise a note concerning the installation direction (pin installed from the right or from the left) should be made.</li> <li>6. Put aileron on supporting stands.</li> <li>7. Grind aileron horn in the region to be laminated on (see drawing 109B-1111/1112 and fig. 1 of pictures).</li> <li>8. Attach two lead rods (ea. 360 mm) (7) with thickened resin-hardener mixture (49) according to drawing 109B-1111/1112. If a screw head or nut from the existing mass balance (5, 10) hinders the attachment of the new lead rods, remove lead from the new rods in the corresponding location with a file. NOTE: In the parts list, the mass balance (7) is specified as lead rod 720 mm long. For reasons of packing, the rod was divided into two halves of 360 mm ea.</li> <li>9. Laminate additional mass balance with 2 layers of glass-cloth LN 8.4551.6 (Interglas no. 92125/) to the aileron horn (29) (see drawing 109B-1111/1112 view A).</li> <li>10. Make an additional stiffening rib (16) from the delivered hard foam piece. (Caution: There must be made 2 stiffening ribs from this hard foam piece - aileron left and right). The stiffening rib is to be fitted to the aileron horn at the indicated place according to drawing 109B-1111/1112. The stiffening rib is to be glassed into place on both sides, each with 2 layers of glass-cloth 92125 (24). After hardening, a drainage hole (see also fig. 1 of pictures) with a diameter of 6 mm must be installed.</li> <li>11. The points 2. thru 10. must be carried out for the second aileron, also.</li> <li>12. After hardening, the weight and the residual moment of both ailerons must be determined according to maintenance manual G 109 B, page 28 (new manual page dated Jan. 29, 86). In all cases, the indicated limiting values must be observed. (Residual moment 17,5 kgcm <math>\pm</math> 15 %, weight 9,5 kg <math>\pm</math> 15 %)</li> </ol> <p>If the residual moment is too high, it is possible to install additional lead at the indicated location (40,43); but only if the weight of the aileron does not yet exceed at the upper limit. The necessary material must be obtained from the manufacturer with information of measured aileron weight and residual moment.</p>			
Datum	ersetzt Ausgabe vom	Bearbeitung	Seite 2



	Repair Instruction No. 817-20/2 to TM 817-20		GROB G 109 B
<p>13. The mounting of the ailerons takes place in reverse sequence. The new stop nuts (M6) and roll pins, included in the delivery, are to be used.</p> <p>14. Function check of the aileron controls in the rigged condition. Insure free movement of the ailerons.</p> <p>Mattsies, Jan. 29, 1986</p> <p><i>R. Rischer</i> signed i.A. R. Rischer</p> <p style="color: red; font-size: 48px; transform: rotate(-30deg); opacity: 0.5;">Superseded</p>			
Datum	ersetzt Ausgabe vom	Bearbeitung	Seite 3



**Bilderteil zur Arbeitsanleitung Nr. 817-20/2**  
(Pictures to repair instruction no. 817-20/2)

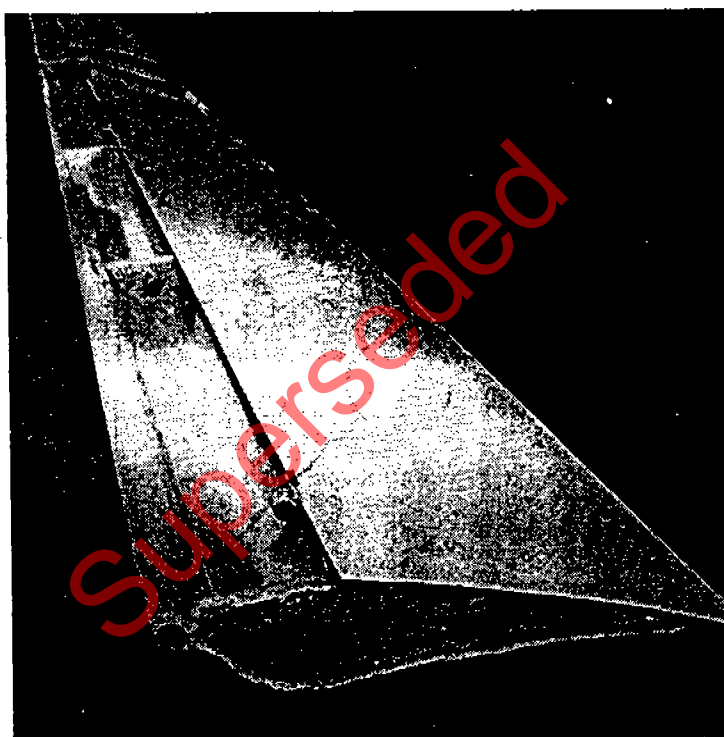
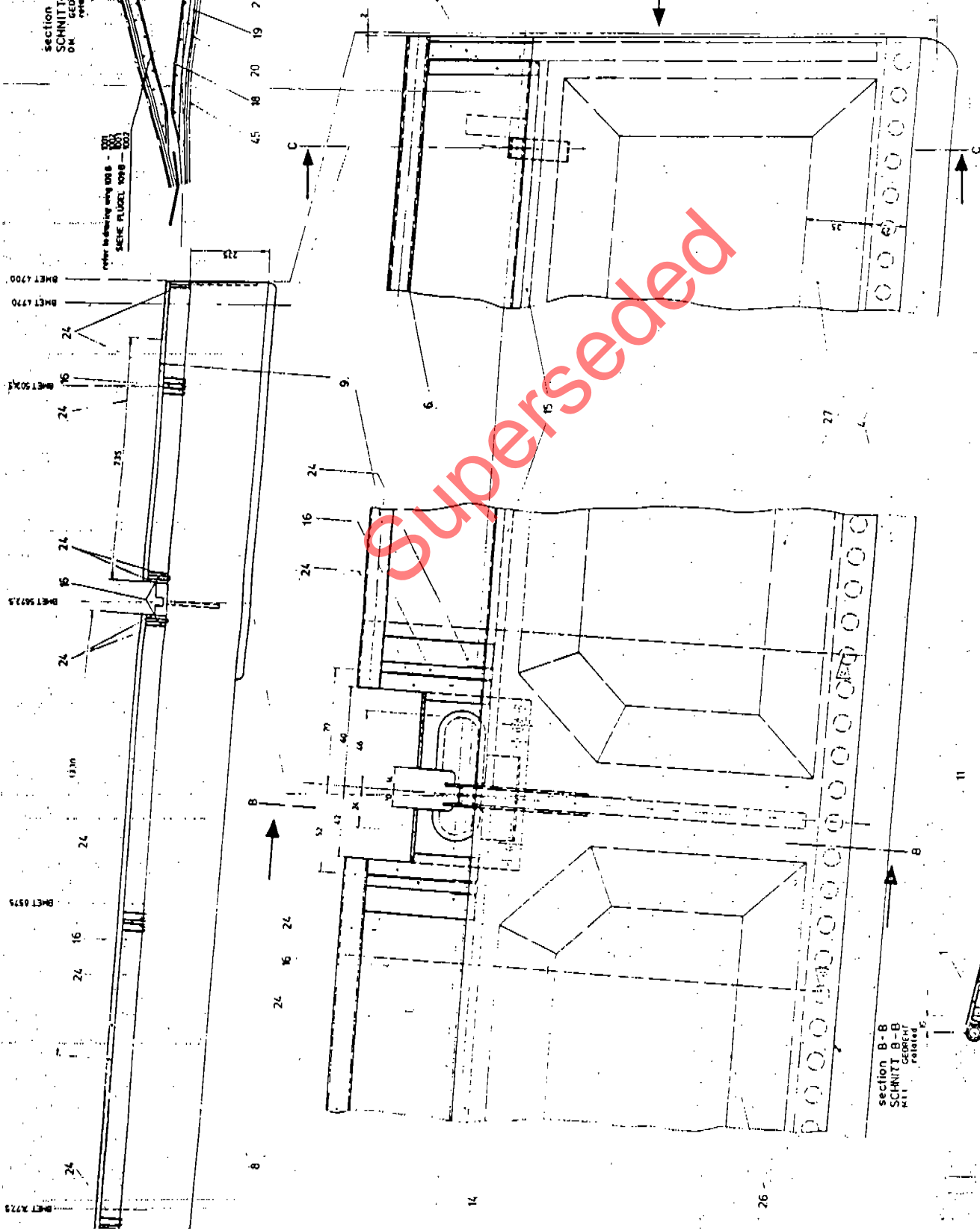


Abb. 1 (fig. 1)

section C-C  
SCHNITT C-C  
ON GEDREHT  
rotated

after to drawing wing 1098	101
SAEHE FLÜGEL 1098	102
	103




⚠ MATERIAL ZUR TM 017-20  
nur für TM 017-20


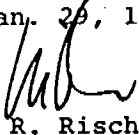
view D  
ANSICHT D  
mit  
GEORENT.  
erfolgt

section B-B  
SCHNITT B-B

[illegible]

	<p>Repair Instruction No. 817-20/3</p> <p>to TM 817-20</p>		<p>GROB G 109 B</p>
<p>The Repair Instruction no. 817-20/3 pertains to the Technical Information TM 817-20 and describes the stiffening of the upper and lower rudder suspension at the fuselage:</p> <p><b>Material:</b></p> <ul style="list-style-type: none"> <li>1 Repair instruction no. 817-20/3</li> <li>3 Templates for the wood and glass-cloth</li> <li>2 Plywood strips 20 x 3 x 140</li> <li>2 Hexagon nuts M6 LN 9348</li> <li>- Glass-cloth LN 8.4554.6 (Interglas 92140) 400 x 1000 mm</li> </ul> <p><b>Tools:</b></p> <ul style="list-style-type: none"> <li>1 Engineer's wrench 10 mm</li> <li>1 Socket 10 mm</li> <li>1 Allen wrench size 5 mm</li> <li>Abrasive paper coarse-grained (i.e. 80)</li> <li>1 Long nose plier</li> </ul> <p><b>Note:</b> (see note of Repair Instruction 817-20/1)</p> <ol style="list-style-type: none"> <li>1. Remove the adhesive tape from the rudder hinge line. Next, remove the hardware at the lower rudder hinge (internal wrenching cap screw M6 x 70 DIN 912, stop nut M6 LN 9348, washer 6,4 LN 9025). With the rudder at full left deflection and slightly aft, remove the rudder pushrod connection (hex head screw M6 x 30 LN 9037, stop nut M6 LN 9348, washer 6,4 LN 9025). The rudder can now be carefully lifted off of the top hinge pin and away from the fuselage. CAUTION: A/C with nav and/or strobe lighting must have their wiring disconnected upon rudder-removal. Insure that the wiring does not fall into the rudder.</li> <li>2. Grind the region to be stiffened. <ul style="list-style-type: none"> <li>- upper rudder bearing see fig. 1 (pictures)</li> <li>- lower rudder bearing see fig. 2 (pictures)</li> </ul> </li> <li>3. Cut the delivered glass-cloth to size by the aid of template 1 (valid for upper rudder bearing) and template 2 (valid for lower rudder bearing). Pay attention to the warp direction (see respective template). For upper and lower rudder bearing 3 layers of glass-cloth Interglas 92140 are required for each.</li> <li>4. Cut the plywood strips included in the delivery according to template 3.</li> <li>5. Fix plywood strips with thickened resin-hardener mixture at the assigned places (rudder bearing above and below) (see also fig. 1 and 2).</li> <li>6. Laminate glass-cloth according to fig. 1 and 2 over the plywood strips.</li> </ol>			
<p>Datum</p>	<p>ersetzt Ausgabe vom</p>	<p>Bearbeitung</p>	<p>Seite 1</p>

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	Repair Instruction No. 817-20/3 to TM 817-20		GROB G 109 B
<p>7. After hardening the mounting of the rudder takes place in reverse sequence. The new delivered stop nuts are to be used.</p> <p>8. Function check the rudder control. Insure free movement of the rudder. On motorgliders with installed nav and/or strobe lighting in the rudder, also a function check of these warning lights must be effected.</p> <p>Mattsies, Jan. 20, 1986</p> <p> signed i.A. R. Rischer</p> <p style="color: red; font-size: 48px; transform: rotate(-30deg); opacity: 0.5; position: absolute; top: 380px; left: 340px;">Superseded</p>			
Datum	ersetzt Ausgabe vom	Bearbeitung	Seite 2

(Pictures to repair instruction no. 817-20/3)



Abb. 1 (fig. 1)

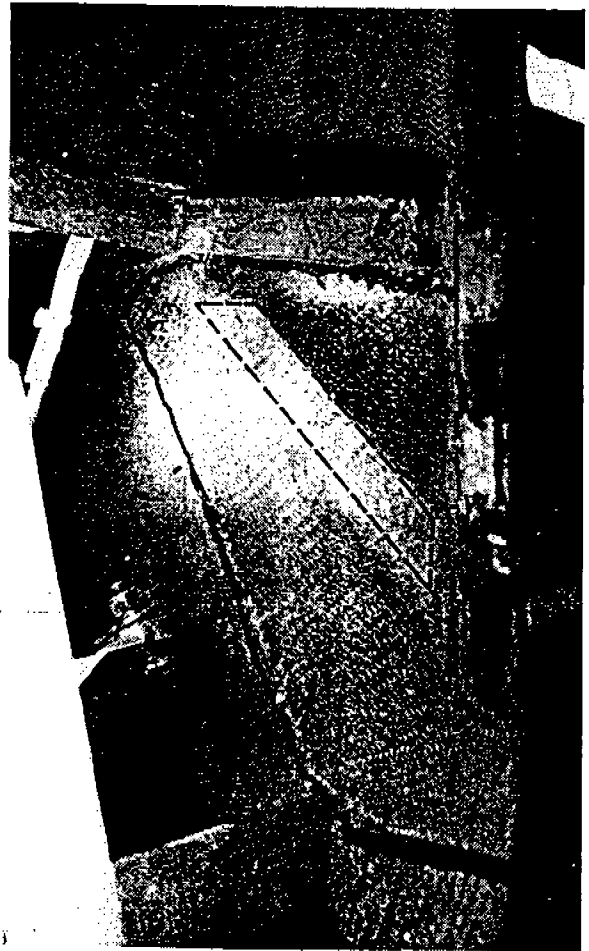
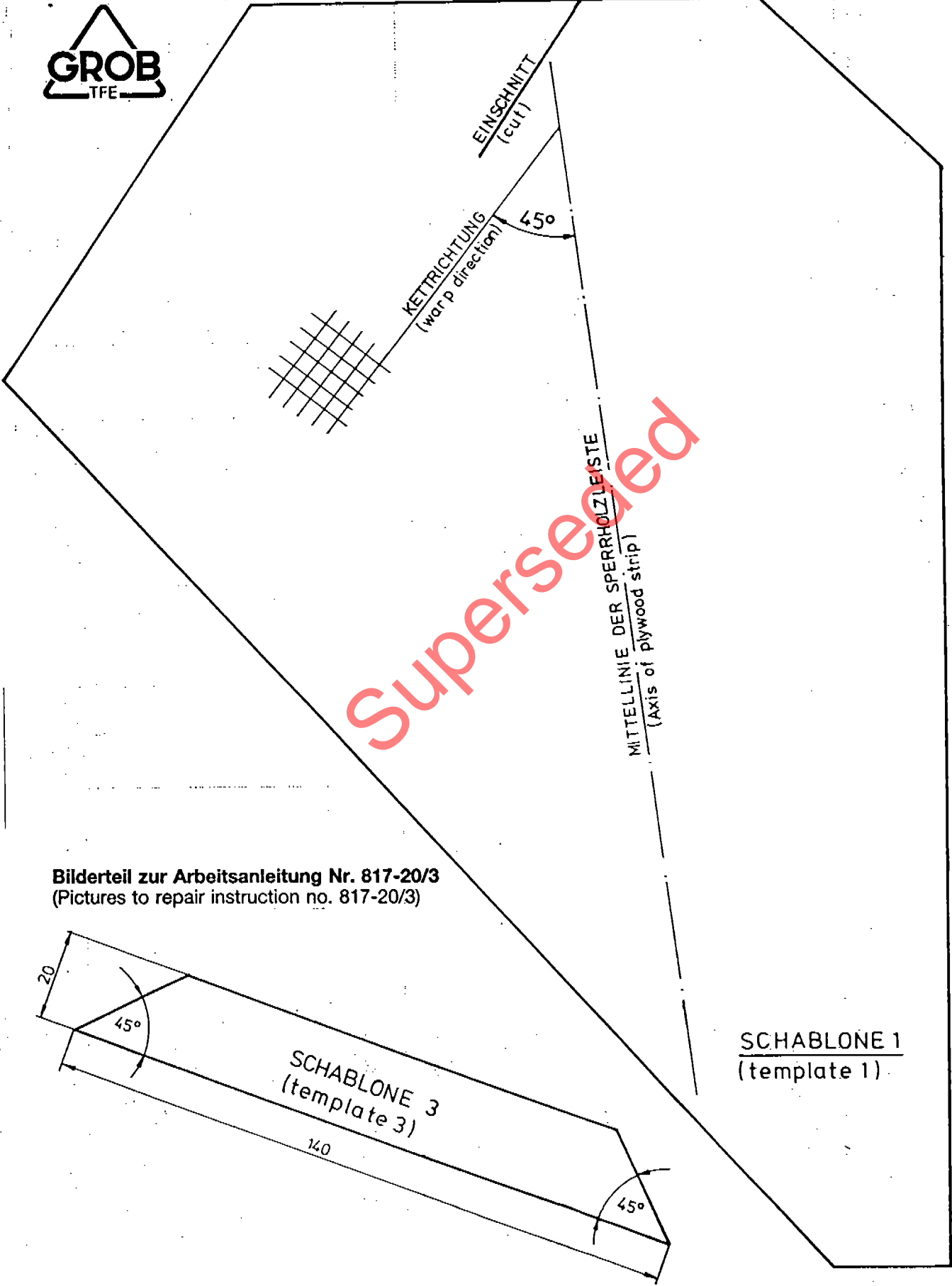
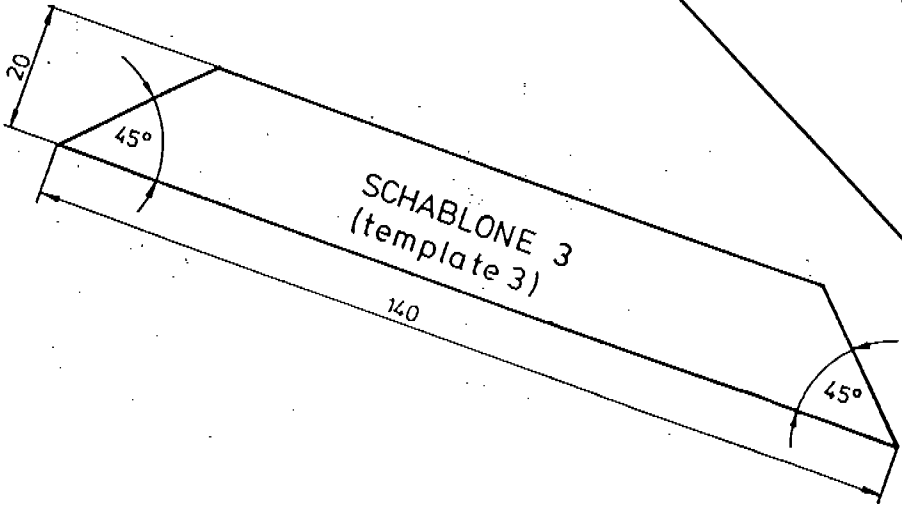


Abb. 2 (fig. 2)

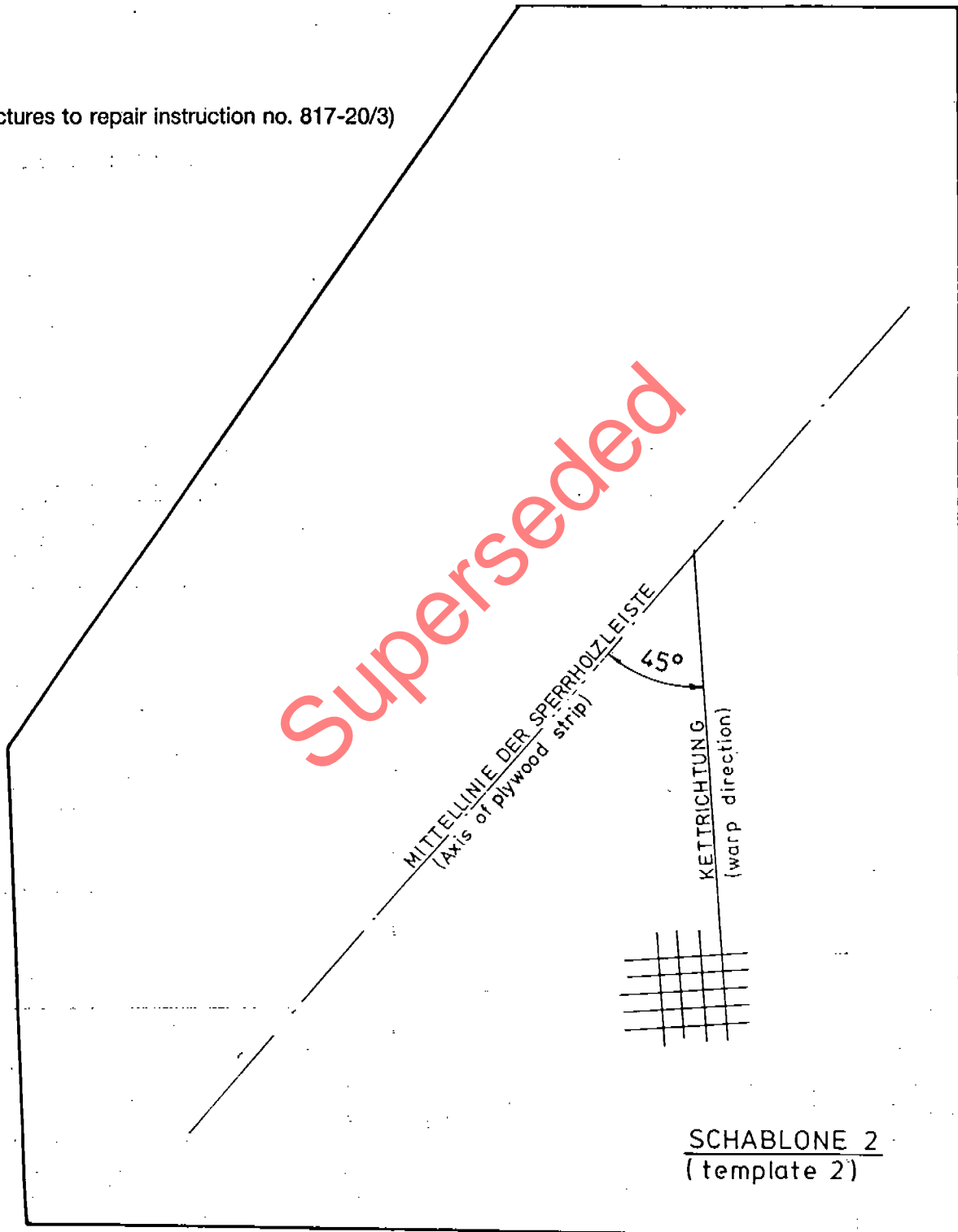


**Bilderteil zur Arbeitsanleitung Nr. 817-20/3**  
(Pictures to repair instruction no. 817-20/3)



**SCHABLONE 1**  
(template 1)

(Pictures to repair instruction no. 817-20/3)



SCHABLONE 2  
(template 2)