0 General

0.1 Manual amendments

No.	Page	Description	Date
1	0.0, 0.1, 0.3 ÷ 0.7, 0.9, 0.12 ÷ 0.14, 1.2, 1.5, 1.8 ÷ 1.12, 1.20, 1.24, 1.31, 1.33, 1.34, 2.1 ÷ 2.4, 2.6, 3.1 ÷ 3.7, 4.6 ÷ 4.8, 4.11, 4.12, 4.19 ÷ 4.24, 4.26, 4.27, 4.29, 4.30, 6.1, 6.4, 7.2, 8.1 ÷ 8.4, diagrams 2, 3, 7, 15, 16, 23, add drawing W59, 10E202 issue C (only with coolant pump Pierburg)	Manual revision Alternative for coolant pump TN1000/22	October 2012
2	0.1, 0.3, 0.6, 0.11, 0.13, 0.14, 1.3, 1.4, 1.10, 8.2, 8.3, 8.5	Manual revision TN1000/23	July 2014
3	0.1, 0.3- 0.6, 1.11, 1.28, 3.8, 4.12, 8.2, 8.3, diagram 16	Fuel pressure regulator Manual revision TN1000/27	July 2015
4	0.1, 0.4 ÷ 0.7, 3.7, 4.25, 7.1, 7.2, 8.3, diagram 2, 10E202, Inspection instruction No. 1 for TN1000/30	Inspections drive mount Manual revision TN1000/30	March 2016

List of effective pages (cont.)

Section	page	issued	replaced	replaced	replaced
	1.24	October 2010	October 2012		
	1.25	"			
	1.26	"			
	1.27	"			
	1.28	"	July 2015		
	1.29	October 2010			
	1.30	"			
	1.31	"	October 2012		
	1.32	"			
	1.33	"	October 2012		
	1.34	"	October 2012		
	1.35	"			
2	2.1	October 2010	October 2012		
	2.2	"	October 2012		
	2.3	"	October 2012		
	2.4	"	October 2012		
	2.5	"			
	2.6	"	October 2012		
3	3.1	October 2010	October 2012		
	3.2	"	October 2012		
	3.3	"	October 2012		
	3.4	"	October 2012		
	3.5	"	October 2012		
	3.6	"	October 2012		
	3.7	"	October 2012	March 2016	
	3.8	"	July 2015		

List of effective pages (cont.)

Section	page	issued	replaced	replaced	replaced
4	4.1	October 2010			
	4.2	"			
	4.3	"			
	4.4	"			
	4.5	"			
	4.6	"	October 2012		
	4.7	"	October 2012		
	4.8	"	October 2012		
	4.9	"			
	4.10	"			
	4.11	"	October 2012		
	4.12	"	October 2012	July 2015	
	4.13	"			
	4.14	"			
	4.15	"			
	4.16	"			
	4.17	"			
	4.18	"			
	4.19	"	October 2012		
	4.20	"	October 2012		
	4.21	"	October 2012		
	4.22	"	October 2012		
	4.23	"	October 2012		
	4.24	"	October 2012		
	4.25	"	March 2016		
	4.26	"	October 2012		
	4.27	"	October 2012		
	4.28	"			
	4.29	"	October 2012		
	4.30	"	October 2012		
	4.31	"			
	4.32	"			
	4.33	"			
	4.34	"			
5	5.1	October 2010			
	5.2	"			
6	6.1	October 010	October 2012		
	6.2	"	October 2012		
	6.3	"			
	6.4	"	October 2012		

List of effective pages (cont.)

Section	page	issued	replaced	replaced	replaced
7	7.1	October 2010	March 2016		
	7.2	October 2012	March 2016		
8	8.1	October 2010	October 2012		
	8.2	"	October 2012	July 2014	July 2015
	8.3	"	October 2012	July 2014	July 2015
		March 2016			
	8.4	"	October 2012		
	8.5	July 2014			
9	9.1	October 2010			
	9.2	"			
	9.3	"			
	9.4	"			
	9.5	"			
	9.6	"			

Diagram	issued	replaced	replaced	replaced	replaced
1	October 10				
2	October 10	October 2012	March 2016		
3	June 05	October 2012			
4	Nov. 01				
5	October 10				
6	October 10				
7	October 10	October 2012			
8	October 10				
9	October 10				
10	October 10				
11	October 10				
12	October 10				
13	October 10				
14	October 10				
15	October 10	October 2012			
16	October 10	October 2012	July 2015		
17	October 10				
18	October 10				
19	October 10				
20	October 10				
21	October 10				
22	October 10				
23	October 10	October 2012			
24	October 10				
25	October 10				
26	October 10				
27	October 10				

List of effective pages (cont.)

Enclosures		issued	replaced	replaced
5EP31	Installation plan Dräger oxygen system	5.02.90		
10E4	Wiring plan electrically operated main landing gear	28.09.10		
10E202	Wiring plan DINA1 (in aircraft log)	29.07.10	28.09.12 issue C With coolant pump Pierburg	22.01.15 issue G with fuel pressure regulator Bosch
5V18	Tool for airbrake adjustment	14.10.94		
W51	Hook spanner for upper drive belt pulley bearings	20.11.96		
W59	Test adapter	18.06.02		
W66	Tool to check drive belt tension	17.09.10		
Z181	Installation of aerial for transponder in vertical fin DG-1000	18.04.08		
Z193	406 MHZ ELT antenna BD3 installation 2-seaters	4.11.09		
SI 67/07	Service Info Ballast box in the fin / foam rubber rings	5.11.2007		
/	Inspection instruction No. 1 for TN1000/30	March 2016		

16) Check and grease the starter motor gear shaft (don't grease the starter motor gear) Check starter motor for tight mounting. There should be no excessive radial free play of the starter motor gear axle. With too much free play the starter must be exchanged.

17) Clean the starter ring gear and check for damage.

18) Remove the fairings which protect the drive belts. Check the drive belts for wear If a drive belt shows signs of wear all drive belts must be replaced.
Check and correct tension (see sect. 4.10.2).
Check if drive belt operating time is exceeded see section 0.4.
Check the rollers which guide the drive belts for tight fit to their mounting brackets and for easy turning. If there is any significant friction in their bearings, the rollers have to be replaced.
Check the complete drive mount for cracks according to Inspection instruction No. 1 for TN1000/30.
Re-install the drive belt fairings, secure screws with Loctite 243.

19) Clean the spindle drive. Check the connections of the spindle drive to fuselage and powerplant.

20) Check the time taken to retract and to extend the power plant. If it takes longer than described under sect. 1.13.2 the gas strut has to be replaced.

21) Check the engine retaining cable for wear and kinks.
Check the engine position with the retaining cable fully tensioned according to sect. 1.13.3. If the cable is too long it has to be adjusted at the adjustment screw in the rear end of the engine bay.

22) Check the main bearings of the upper pulley for any free play.

23) Check the tension of the propeller bolts: remove the lockwire, loosen the propeller bolts and retorque them with a torque wrench, torque value see section 1.12.9. Secure again with lockwire according to section 4.10.6.

24) Check the propeller blades for any damage.

25) Check all electric cables and connectors. Check the terminals especially of the starter positive and earth wire for cracks.

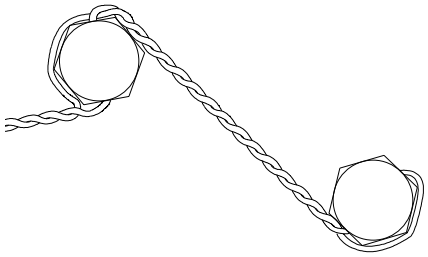
Note: The critical spots may be covered by heat shrink tubing.

26) Check the whole electrical system wiring, ensure all equipment is secure and all connections are OK. Check proper functioning of all systems and fuses/circuit breakers.

27) Reinstall the engine bay doors. Check all the hinges on the engine compartment doors for proper fit and any cracks, tears etc. Check if hinge pins are secured properly.
Check the engine door control system.

4.10.6 Securing the propeller bolts and the bolts of the rear engine mount

1. Use lockwire with min. 0.8 mm (0.03 in.) diameter.
2. Secure the propeller bolts as follows:
   a) Slide the wire through the hole in the bolthead and bend it around the head. The wire should run tangential to the bolthead so that it secures the bolt clockwise to tighten it. Direct the end of the wire which was laid around the head underneath the wire which runs through the hole.
   b) Twist both ends of the wire clockwise up to the other bolthead. Slide the upper wire through the hole in the bolthead and bend the other wire around the head. Twist with max. 8 rotations per inch.
   c) Direct the end of the wire which was laid around the head underneath the wire which runs through the hole. Twist the ends anticlockwise min. 3 max. 8 rotation. Cut off the surplus and bend the end to prevent injuries.



Caution. Don't damage the lock wire. Also minor scratches or removal of the galvanisation have to be considered as damage.

7 List of special tools etc.

A Special tool with 6 mm thread (W38/2) to operate the tailplane locking pin and for the locking pins of the rear wing suspension.

B Special tool W36 (or a suitable pin with 6mm diameter) for derigging of the outboard wings and for the cover plate of the ballast box in the fin.

C Tool for airbrake adjustment: 5V17 and rod according to drawing 5V18.

D Open-end wrenches

1/4" = 6,35 mm	SW 12	SW 19
SW 7	SW 13	SW 22
SW 8	SW 14	
SW 9	SW 17	
SW 10	11/16" = 18 mm	

E 22 mm socket and ratchet (for tensioning the drive belts)

F Allen key wrench
3 mm, 4 mm, 5 mm, 6 mm, 7 mm, 8 mm, 10 mm and 12 mm

G Wrenches for slotted nuts (hook spanner) according to drawing W51 (encl.) (for the bearings of the upper drive belt pulley)

H Spring balance max. reading 50 N (11 lbs.) (to determine control surface moments)

I Spring balance max. reading 100 N (22 lbs.) (to determine the over-centre locking moment of the airbrakes)

J Nicopress tool 64 – CGMP (to produce cable connections)

K For filling the wing ballast tanks (Option): Hose with outside dia. 25 mm (1 in.), 1 m (3.2 ft.) long.

L Refuelling hose for fuselage fuel tank Z155/2

M Torque wrench Torque range 0 - 150 Nm (o - 110 ft lb) with socket wrench 19 mm (for assembly of the drive belt pulley and the magneto housing of the generator)

N Torque wrench range 0 - 50 Nm (0 - 370 ft lb) with socket wrenches 10, 13, 17, 19 mm and 21 mm (13/16 in.) for sparkplugs and Allen key inserts 3, 4, 5, 10 mm

O Wrench for spark plugs 21 mm (13/16 in.)

P Spring balance max. reading 200 N (44 lbs.) for measuring belt tension

Q Crimp tool for clamps XO for 6mm bungee (bungee for retaining cable)

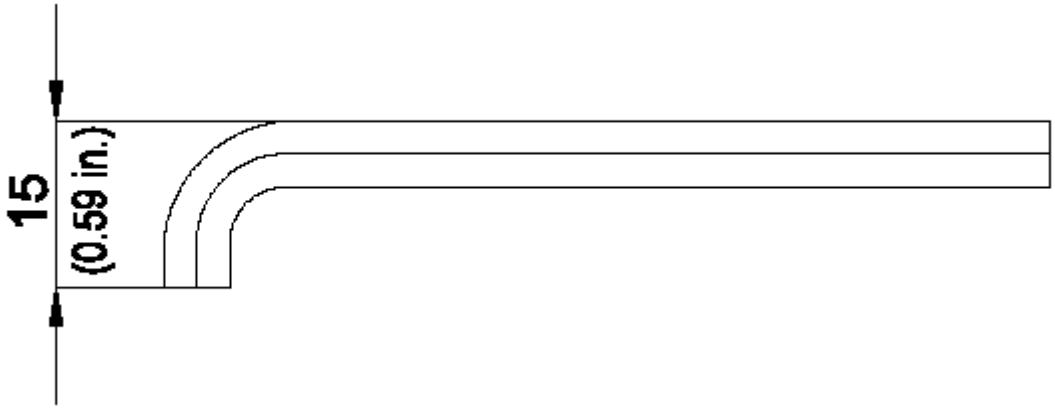
R Crimp tool for hose clamps OETIKER 14100083 (especially at the coolant hoses)

S Manometer 0 - 6 bar fuel resistant with hose 3 m long and hose connector GES8/M10x1 (to measure the fuel pressure during the 25h inspection)

T Hose connector GES8/M10x1 with hose 2 m long (for emptying the cooling system)

U Solo engine tool set incl. puller assembly for lower drive belt pulley incl. flange bolt and puller assembly for magneto housing

V Shortened Allen key wrench see sketch (for removing the lower bolts of the exhaust manifold)



60507526 Fuel hose 15 x 23 mm fabric braided (at fuel pump)
30092051 Metal braiding inner dia. 8 mm

60000377 Copper sealing ring 10x14x0,8 DIN 7603 A for service port

8.1.2.4 Parts for the electrical system

60510899 Main battery: Odyssey PC625 12V/17Ah
41076003 DEI-NT- DG-1000M
41076004 DEI-NT-DG-1000M second unit (rear cockpit)
41076005 Control unit-NT-DG-1000M
41076006 Engine control unit ECU Trijekt-Plus T101 Solo No. 23 00 886
41076007 Controler for emergency system Solo No. 23 00 896

41075210 Engine speed sensor (normal system+emergency system) Bosch 0261210147 assembled with wiring and plugs
60510836 Throttle valve sensor: Bosch 0 280 122 201
60510837 Probe for coolant temperature Bosch 0 281 002 209
60510669 Intake air sensor Epcos B57881S212F
41075204 Proximity switch ready assembled with wiring and plug
41075211 Voltage converter 10E211 for coolant pump Pierburg

60510834 Ignition coil Solo No. 23 00 883

60510832 Regulator Ducati 34407011
60504044 Voltage reducing module for generator/regulator
60510202 Condensor for generator/regulator 100.000µF/40V

60510464 Limit-switch engine retracted and engine extended 164-574, alternatively SI2010-B2T20YR30,5m
60510506 Manual extension-retraction switch MTG 106 G
60510465 Black cap for switch MTG206S
60510483 Switch for emergency engine control: APEM 5636 MA
60510466 Red cap for APEM 5636 MA

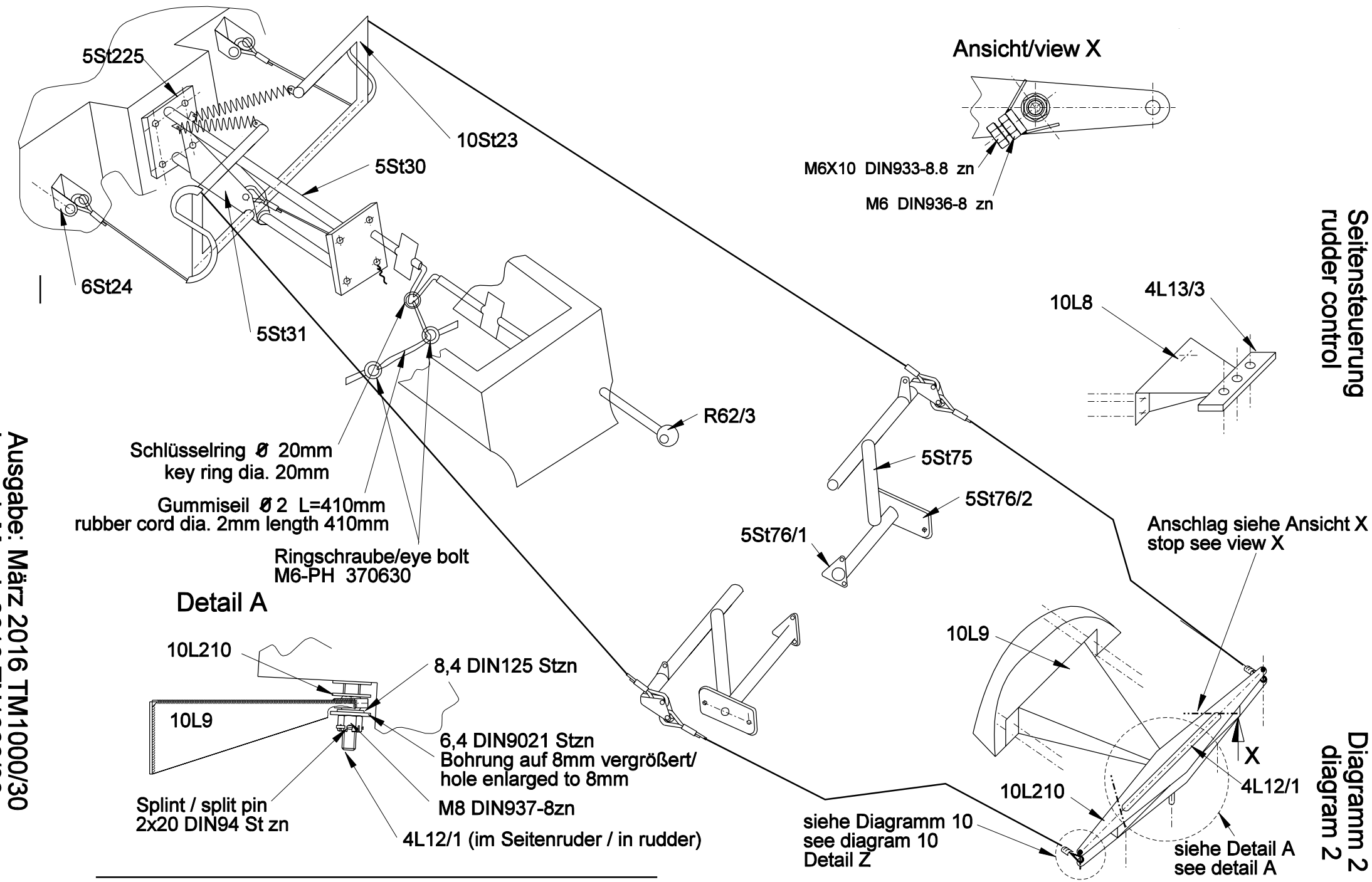
60510859 Key switch 3 Pos, 2 Pol KL09-1908KA with wiring (Master switch)
60510362 Switch STA 106 E (selector intern-extern)
60510372 Press-button DJET 07.17502.21 for starter
60510375 Press-button 12G2904 for refuelling pump

60510385 Circuit breaker ETA 2A
60510386 Circuit breaker ETA 3A
60510437 Fuse 01191017003 80 A for battery

60510796 Socket BSB 12 (in main bulkhead)
60510797 Plug BSK12 for socket BSB 12

From ser. No. 10-225 on:

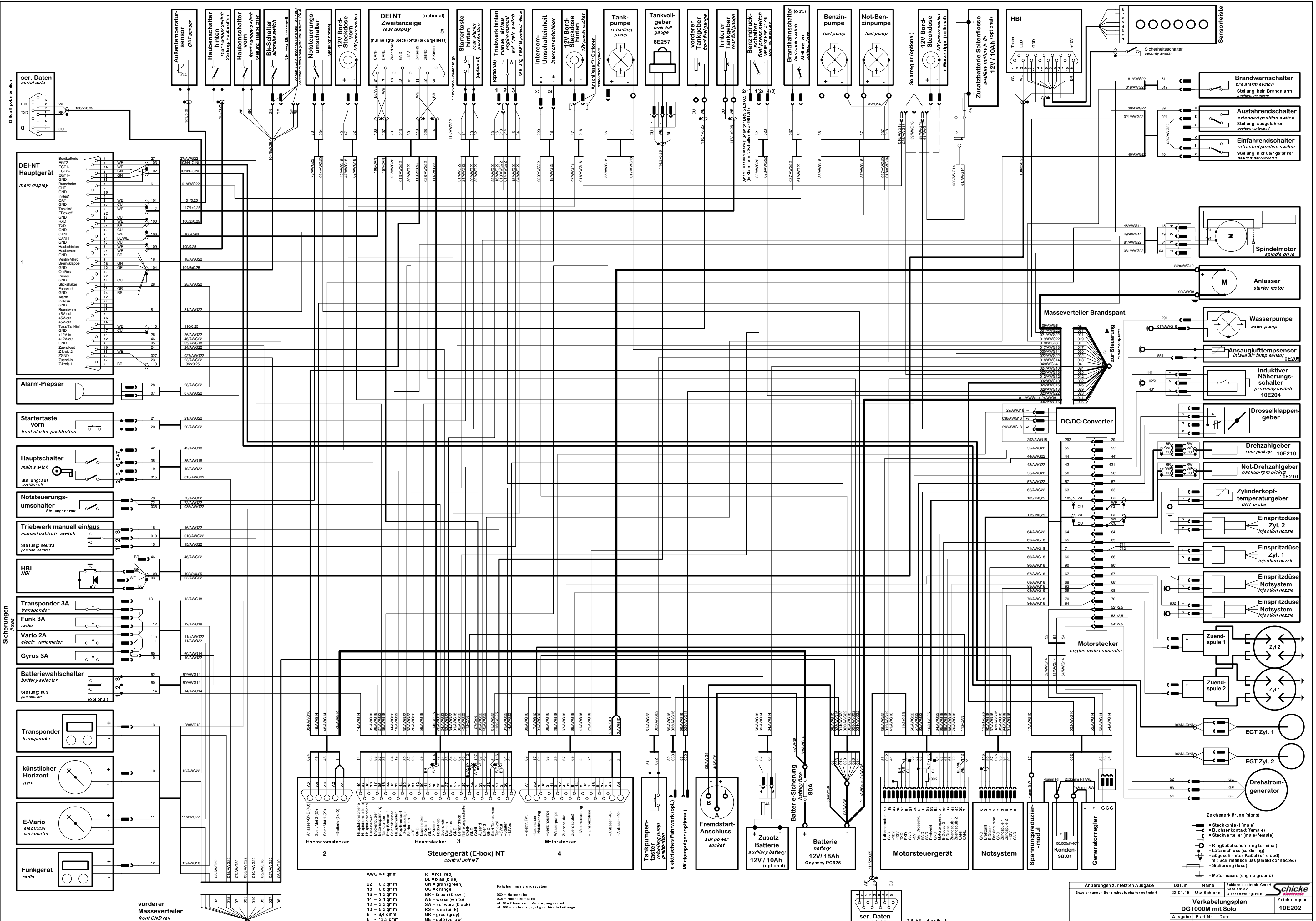
60510880 Socket XLR 3-pole NC3FD-LX-BAG
60510881 Plug XLR 3-pole NC3MX-BAG (for socket XLR



Seitensteuerung
rudder control

Diagramm 2
diagram 2

Ausgabe: März 2016 TM1000/30
issued: March 2016 TN1000/30

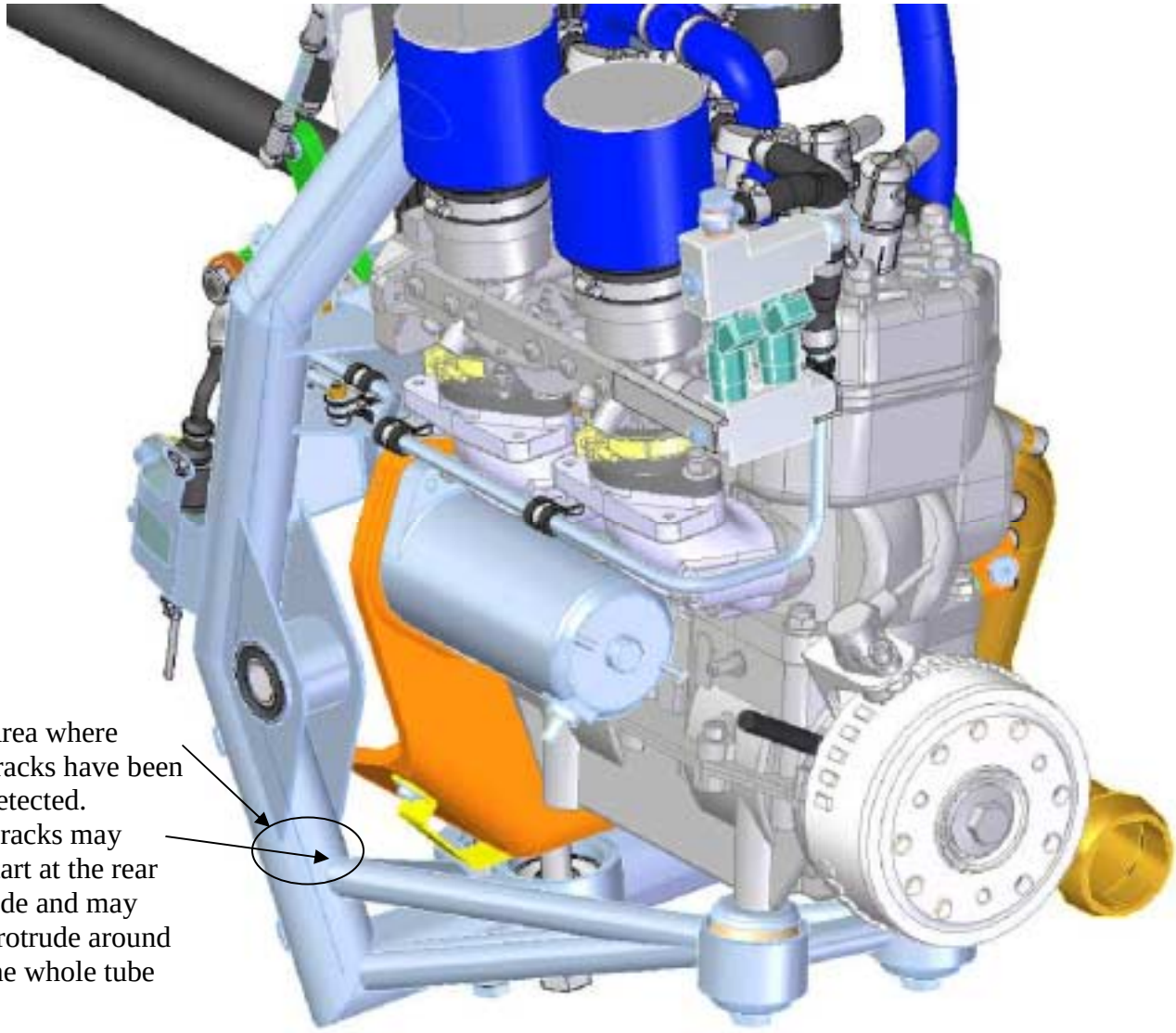


ser. Daten serial data
D-Sub-9-pol. männlich
DEI-NT Hauptgerät main display
Außentemperatursensor OAT sensor
Haubenschalter hinten rear canopy switch
Haubenschalter vorn front canopy switch
Bk-Schalter airbrake switch
Notsteuerungsumschalter
12V Bordsteckdose vorn 12V power socket
DEI NT Zweitanzeige rear display (optional)
Startertaste hinten rear starter pushbutton (optional)
Triebwerk hinten manuell ein/aus engine manual ext./retr. switch
Intercom-Umschalteinheit intercom switchbox
12V Bordsteckdose hinten 12V power socket
Anschlüsse für Optionen connectors for options
Tankpumpe refuelling pump
Tankvollgeber tank full gauge 8E257
vorderer Tankgeber front fuelgauge
hinterer Tankgeber rear fuelgauge
Benzindruckschalter fuel press switch
Brandhahnschalter (opt.) fuel cock switch
Benzinpumpe fuel pump
Not-Benzinpumpe fuel pump
Solarregler (optional)
12V Bordsteckdose 12V power socket in Wurzelrippe (optional)
Zusatzbatterie Seitenflosse auxiliary battery in fin 12V / 10Ah (optional)
HBI
Sensorleiste
Sicherheitsschalter security switch
Brandwarnschalter fire alarm switch Stellung: kein Brandalarm position: no alarm
Ausfahrendschalter extended position switch Stellung: ausgefahren position: extended
Einfahrendschalter retracted position switch Stellung: nicht eingefahren position: not retracted
Spindelmotor spindle drive
Anlasser starter motor
Masseverteiler Brandspant
zur Steuerung to control system
Wasserpumpe water pump
Ansauglufttempsensor intake air temp sensor 10E209
induktiver Näherungsschalter proximity switch 10E204
DC/DC-Converter
Drosselklappengeber
Drehzahlgeber rpm pickup 10E210
Not-Drehzahlgeber backup-rpm pickup 10E210
Zylinderkopftemperaturgeber CHT probe
Einspritzdüse Zyl. 2 injection nozzle
Einspritzdüse Zyl. 1 injection nozzle
Einspritzdüse Notsystem injection nozzle
Einspritzdüse Notsystem injection nozzle
Motorstecker engine main connector
Zuendspule 1
Zuendspule 2
Zyl 2
Zyl 1
EGT Zyl. 1
EGT Zyl. 2
Drehstromgenerator
Alarm-Piepser
Startertaste vorn front starter pushbutton
Hauptschalter main switch Stellung: aus position: off
Notsteuerungsumschalter Stellung: normal
Triebwerk manuell ein/aus manual ext./retr. switch Stellung: neutral position: neutral
HBI
Sicherungen fuses
Transponder 3A transponder
Funk 3A radio
Vario 2A electr. variometer
Gyros 3A
Batteriewahlschalter battery selector Stellung: aus position: off (optional)
Transponder transponder
künstlicher Horizont gyro
E-Vario electrical variometer
Funkgerät radio
vorderer Masseverteiler front GND rail
Hochstromstecker 2
Steuergerät (E-box) NT control unit NT
Hauptstecker 3
Motorstecker 4
Tankpumpentaster refuelling pump pushbutton
elektrisches Fahrwerk (opt.)
Mückenputzer (optional)
Fremdstart-Anschluss aux power socket
Zusatz-Batterie auxiliary battery 12V / 10Ah (optional)
Batterie-Sicherung battery fuse 80A
Batterie battery 12V/ 18Ah Odyssey PC625
Motorsteuergerät
Notsystem
Spannungsreduziermodul
Kondensator
Generatorregler
ser. Daten serial data
D-Sub-9-pol. weiblich
AWG <-> qmm
22 ~ 0,3 qmm
18 ~ 0,8 qmm
16 ~ 1,3 qmm
14 ~ 2,1 qmm
12 ~ 3,3 qmm
10 ~ 5,3 qmm
8 ~ 8,4 qmm
6 ~ 13,3 qmm
4 ~ 21,2 qmm
RT = rot (red)
BL = blau (blue)
GN = grün (green)
OG = orange
BR = braun (brown)
WE = weiss (white)
SW = schwarz (black)
RS = rosa (pink)
GR = grau (grey)
GE = gelb (yellow)
CU = Schirm (Shield)
Kabelnummerierungssystem:
0XX = Massekabel
0..9 = Hochstromkabel
ab 10 = Steuer- und Versorgungskabel
ab 100 = mehradrige, abgeschirmte Leitungen
Zeichenerklärung (signs):
= Steckkontakt (male)
= Buchsenkontakt (female)
= Steckverteiler (male+female)
= Ringkabelschuh (ring terminal)
= Lötanschluss (soldering)
= abgeschirmtes Kabel (shielded) mit Schirmanschluss (shield connected)
= Sicherung (fuse)
= Motormasse (engine ground)
Änderungen zur letzten Ausgabe | Datum | Name
- Bezeichnungen Benzindruckschalter geändert | 22.01.15 | Utz Schicke
Schicke electronic GmbH Kanalstr. 32 D-75356 Weingarten
Schicke electronic
Verkabelungsplan DG1000M mit Solo
Zeichnungsnr. 10E202
Ausgabe G | Blatt-Nr. 1 v. 1 | Datei DG1000M_17.sch

DG Flugzeugbau GmbH Inspection instruction No. 1 for TN1000/30
DG-1000M drive mount

A. Checks according to TN1000/23. These checks must only be performed in case TN1000/23 instruction 2 (installation of stiffeners) has not been performed so far. Check during each daily inspection and during the 25 h inspection.

1. Extend the powerplant. Use a powerful torch to look at the left hand side to find the area shown in the picture below. Check for any cracks. Touch this area also with your fingers to find a crack.
2. It is nearly impossible to look and touch the right hand side with the engine extended, so retract the engine and stop before the engine doors close.
   Check the front (now upper side) of the left hand tube again and check also the right hand side. Touch around the tube with your fingers to find any crack on the lower side.
3. In case you find cracks don't operate the engine any more.



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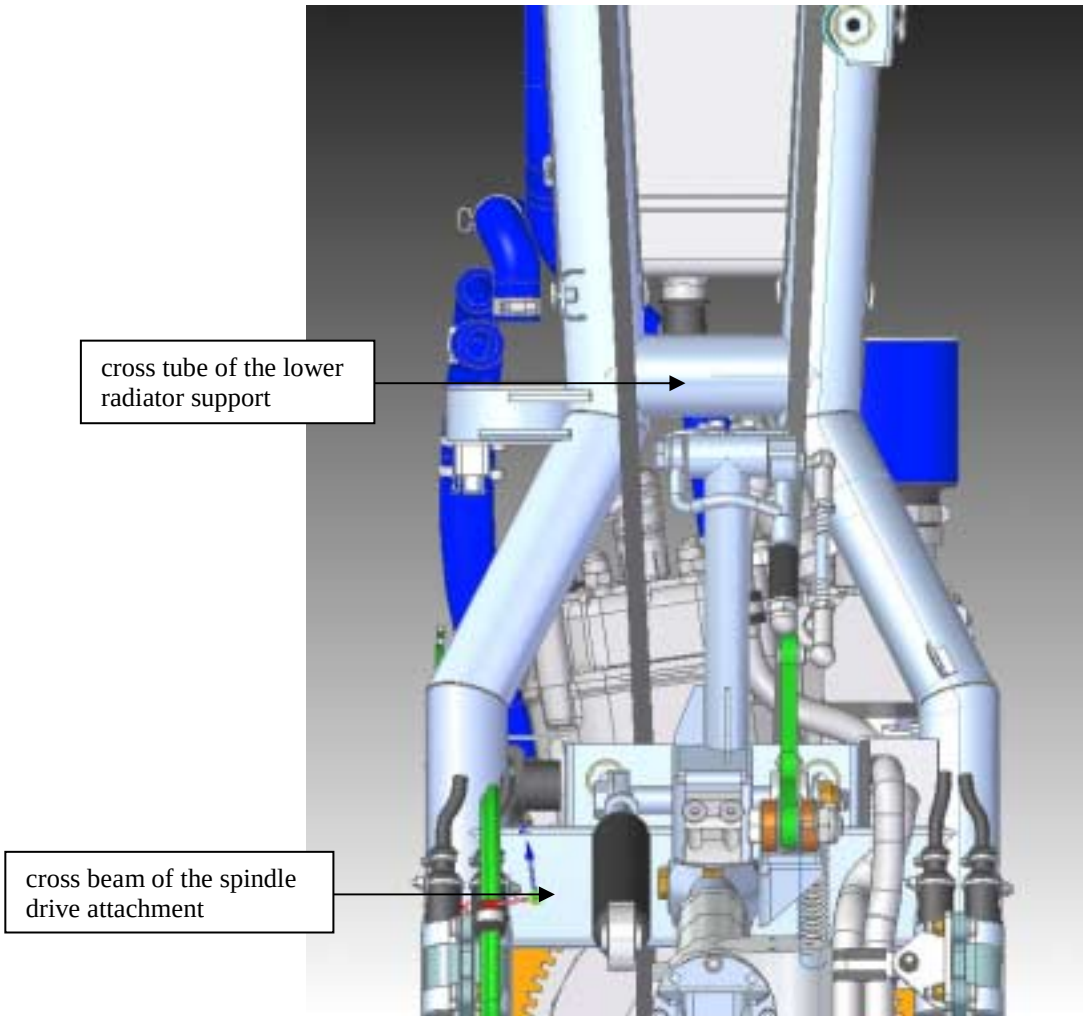
Issued: March 2016

B. Checks for cracks at other areas of the drive mount. Check during each daily inspection and during the 25 h inspection.

1. Extend the power plant half-way, so that the front of the drive mount is completely visible.
2. Check the complete drive mount for cracks.
   Especially check the right main tube in the area between the cross beams of the spindle drive and the cross tube of the lower radiator suspension for cracks, both the front as well as the rear parts. The area around the upper cross tube is partly covered by the drive belt cover. Checks of this areassee C.
3. Then check the left main tube between the two cross bars for cracks.
4. In case you find cracks don't operate the engine any more.



C. Checks for cracks in the areas of the drive mount covered by the drive belt fairings. Check every 5 engine hours and during the 25 h inspection.

1. In addition to the checks see B remove the drive belt fairings and check all areas visible now.
2. Re-install drive belt fairings. Secure screws with Loctite 243.

Caution: In case cracks are found according to TN1000/30 the drive mount must be exchanged against a mount of the new design prior to next engine use.

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