0 Revisions

0.1 Record of revisions

Any revision of the present manual, except for actual weighing data, must be recorded in the following table and in case of approved sections endorsed by the responsible airworthiness authority.

The new or amended text in the revised page will be indicated by a black vertical line in the right hand margin, and the under lying document for the revision and the date will be shown on the bottom of the page.

Rev. No.	Affected Pages/section	Description	Issue Date	EASA Approval Date
1	Title, 0.1, 0.2, 0.4÷0.7, 1.5, 2.5, 2.7, 2.10, 2.11, 2.13, 2.14, 3.2, 4.7, 4.9 ÷4.11, 4.14, 4.15, 4.21, 4.24, 4.29, 4.33, 5.1, 5.4 ÷ 5.12, 6.1 ÷ 6.3, 6.5, 6.7, 6.9 ÷ 6.15, 7.2, 7.6, 7.9, 7.12, 7.25 ÷ 7.28, 7.30, 8.3	Manual revision TN1000/22	October 2012	10. Dec. 2012
2	0.2, 0.4 ÷ 0.6, 2.5, 2.6, 4.33, 7.19, 7.30	Manual revision TN1000/23	July 2014	7 August 2014
3	0.2, 0.4, 0.5, 4.15	Manual revision TN1000/27	July 2015	10. August 2015
4	0.1, 0.2, 0.4-0.6, 2.14, 4.10, 4.11, 4.12, 4.16, 6.6, 7.2, 7.30	Manual revision TN1000/32	July 2017	10.08.2017
5	0.2, 0.7, 9.1, 9.2, 9.4, 9.5	Manual rudder control TN1000/36	August 2018	25.11. 2018
6	Title, 0.1, 0.2, 0.4 - 0.6, 1.4, 1.6, 2.14, 4.3, 7.29	TN1000/45 Manual revision, optional 20 m wing tips with neo Winglets	October 2021	8th June 2022
7	0.2, 0.5 – 0.7, 4.10, 7.17, 8.7	TN1000/47 Spindle drive	October 2023	Approval under the authority of DOA Ref. EASA.21J.780

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0.2 List of effective pages (cont.)

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4	EASA-app.	4.1	October 2010	
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4		4.6	October 2010	
		4.7	October 2010	October 2012
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	"	4.9	October 2010	October 2012
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	"	4.11	October 2010	October 2012 July 2017
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	"	4.31	October 2010	
	"	4.32	October 2010	
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5	"	5.1	October 2010	October 2012
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l) Check the extension-retraction mechanism by operating it in both directions. The extension time should not exceed 10 seconds!
If TN1000/47 is carried out, the spindle drive moves slower and the extension time should not exceed 14 seconds!
Extend the engine halfway;
m) Check the brake fluid level, the reservoir is located left hand side above and behind the main-spar connection;
n) Check the fuel level by the DEI-NT.

3. C.G. Tow hook:-
   a) Check the ring muzzle of the C.G. hook for wear and function;
   b) Check for cleanliness and corrosion;

4. Main landing gear
   a) Check the struts, the gear box, the gear doors and the tyre for wear; dirt in the struts can hinder the landing gear from locking over centre the next time!;
   Check the tyre pressure: 3.0 bar – 43.5 psi;
   b) Check wheel brake and hose for wear and function;

5. Left wing:-
   a) Check locking of the outboard wing;
   b) Check the aileron for excessive free play;
   c) Check airbrake- and box and control rod for wear and free play. It must be possible to retract the airbrake, even if it is pressed backwards in direction of flight. If there is any water in the airbrake box this has to be removed;
   d) Check the locking of the rear wing attachment pin.

6. Powerplant
   Extend the powerplant via the manual switch (ignition off)
   a) Check the connection of spindle drive and gas strut to engine and fuselage. To accomplish this extend the engine only so far, that you still can see the connection to the engine mount. Check especially for cracks in the spindle drive fork.
   b) Check both bolts of the front engine mount, these bolts are responsible for the correct drive belt tension;

Note: The rear bolt takes over the loads of the drive belts, the front bolt acts as securing device in case the rear bolt fails.

   c) Check V-belts for wear and correct tension, sudden loss of tension indicates damage of the bolt see item b);
   d) Check ignition system incl. wires and the spark plug connectors for tight fit
   e) Fully extend the powerplant;
   f) Check the propeller mount for cracks, especially at the welding seams.

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7. "SpindleBrake" = With spindle drive motor on no power to its electric brake. Not applicable if TN1000/47 is carried out (spindle drive replacement).
8. "Prop. Sensor" = Proximity switch or wiring defective, or switch not correctly adjusted -> automatic extension-retraction will be switched off, as the propeller position for powerplant retraction can't be detected safely. The slip indication won't work any more "---". .
9. "EGT Sensor" = One or both EGT sensors or their wiring are defective.
10. "CHT Sensor" = Cylinder head temperature (coolant) sensor defective. With such an error the ECU will select 69°C as intake value. This value will be displayed on the DEI. The ECU will not shut down the engine. As no warning in case of excessive CHT will occur, the failure must be fixed prior to the next engine operation.
11. "Refuel Pump" = Refuelling pump or wiring defective, displayed only with refuelling pump switched on.
12. "Fuel Pump" = Fuel pump or wiring defective, with engine running switch over to the emergency system if necessary.
13. "OAT Sensor" = Outside air temperature sensor or its wiring are defective.
14. "CBox Comm." = Disturbed data transfer between DEI-NT and control unit. The DEI-NT receives no information about powerplant position, propeller position etc. With engine not running you may try to solve the problem by switching off and on the main switch. With engine running proceed with the powered flight. Retract the powerplant via the manual switch in case the automatic retraction doesn't work. Don't use the starter motor!
15. "Generator" = Generator doesn't charge. Generator, regulator or regulator fuse (in control unit) is defective.
16. "IntakAirTemp" = Intake air temperature sensor or wiring are defective. With such an error the ECU will select 20°C throttle as intake value. The ECU will not shut down the engine, but operation will not be optimal.
17. "Prop Brake" = Motor of the electric propeller brake (Option) or wiring defective. Message only if propeller brake activated in the set up menu.

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8.8 Power plant trouble shooting

1a) **Extension and retraction doesn't work**
Spindle drive motor, brake of this motor, DEI-NT, control unit or wiring could be defective. If TN1000/47 is carried out (spindle drive replacement), motor brake is not existing.

1b) **Automatic retraction doesn't work**
The propeller sensor (proximity switch) at the upper drive belt pulley or its wiring could be defective.
In case of loose contacts at the control unit, or broken wire or short circuit in the switch, the control unit switches over the retraction to the manual system and the DEI-NT displays the failure message "Prop.Sensor".

2. **Starter motor doesn't work**
Limit switch powerplant extended see maintenance manual section 1.13.5 does not work or starter motor or its wiring or control unit defective.
An indication for a defective control unit is the failure messages „CBox Comm" or „CBox OvrTemp".
Battery voltage too low: The starter motor control in the control unit will supply no electric power to the starter motor if the battery voltage is below 11 V prior to the starting attempt, the warning message "Low Battery" will be displayed in the DEI. Charge the battery.
Emergency procedure see flight manual 3.19.

3. **Engine doesn't reach ground test RPM**
   a. Dirt in the fuel filter, replace or clean the filter,
   b. Throttle butterfly valves doesn't open fully. Lubricate the Bowden cable or replace it if bent.
   c. Faulty ignition see item 5.
   d. Fuel lines clogged or kinked. Fuel filter clogged. Fuel pump defective. Check fuel pressure see maintenance manual sect. 3.6.1 item 3
   e. Air intake filter clogged, see MM section 3.6.1 item 5.
   f. EGT (exhaust gas temperature) too low. The adjustment must be done in the ECU and can only be performed by a service station trained and approved by DG Aviation.

4. **Loss of electrical power** see section 3.18.

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