0.1 **Record of revisions**

Any revision of the present manual, except 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 Revision No. and the date will be shown on the bottom left hand of the page.

Rev .No.	Affected pages/ section	Description	Issue/ Date	LBA Approval Date	Inserted Date Signature
1	0.1, 0.3, 0.4, 1.4, 4.1, 4.5a, 5.8	Winglets at the 18 m wingtips TN873/10	22.01.98	5.03.98	
2	0.1, 0.5, 7.7	Manual revision TN873/27	Nov. 01	17.12.01	
3	0.1, 0.3-0.5, 2.10, 4.8, 4.9, 4.24, 7.1, 7.18	Manual revision TN800/45	July 2017	10.08. 2017	

0.2 List of effective pages

Section		page	issued	replaced	replaced
0		0.0	Sept. 97		
		0.1	/		
		0.2	/		
		0.3	Sept. 97	Jan. 98	July 17
		0.4	Nov. 96	Jan. 98	
		0.5	"		
		0.6	"		
1		1.1	"		
		1.2	Sept. 97		
		1.3	Nov. 96		
		1.4	"	Jan. 98	
		1.5	"		
		1.6	"		
2	App.	2.1	"		
	"	2.2	"		
	"	2.3	"		
	"	2.4	"		
	"	2.5	"		
	"	2.6	"		
	"	2.7	"		
	"	2.8	"		
	"	2.9	"		
	"	2.10	"	July 17	
	"	2.11	"		
	"	2.12	"		
3	"	3.1	"		
	"	3.2	"		
	"	3.3	"		
	"	3.4	"		
	"	3.5	"		
	"	3.6	"		
	"	3.7	"		
4	"	4.1	"	Jan. 98	
	"	4.2	"		
	"	4.3	"		
	"	4.4	"		
	"	4.5	"		
	"	4.5a	Jan. 98		
	"	4.6	Nov. 96		
	"	4.7	"		
	"	4.8	"	July 17	
	App.	4.9	"	July 17	

0.2 List of effective pages (cont.)

Section		page	issued	replaced	replaced
4	App.	4.10	Nov. 96		
	"	4.11	"		
	"	4.12	"		
	"	4.13	"		
	"	4.14	"		
	"	4.15	"		
	"	4.16	"		
	"	4.17	"		
	"	4.18	"		
	"	4.19	"		
	"	4.20	"		
	"	4.21	"		
	"	4.22	"		
	"	4.23	"		
	"	4.24	"	July 17	
	"	4.25	"		
	"	4.26	"		
5	"	5.1	"		
	"	5.2	"		
	"	5.3	"		
	"	5.4	"		
	"	5.5	"		
	"	5.6	"		
	App.	5.7	"		
		5.8	"	Jan.98	
		5.9	"		
		5.10	"		
		5.11	"		
		5.12	"		
6		6.1	"		
		6.2	"		
		6.3	"		
		6.4	"		
		6.5	"		
		6.6	"		
		6.7	"		
		6.8	"		
		6.9	"		
		6.10	"		

0.2 List of effective pages (cont.)

Section		page	issued	replaced	replaced
7	App.	7.1	Nov. 96	July 17	
		7.2	"		
		7.3	"		
		7.4	"		
		7.5	"		
		7.6	"		
		7.7	"	Nov. 01	
		7.8	"		
		7.9	"		
		7.10	"		
		7.11	"		
		7.12	"		
		7.13	"		
		7.14	"		
		7.15	"		
		7.16	"		
		7.17	"		
		7.18	"	July 17	
8		8.1	"		
		8.2	"		
		8.3	"		
		8.4	"		
		8.6	"		
		8.5	"		
		8.7	"		
9		9.1	"		

2.14 Aerotow, winch and autotow launching

2.14.1 **Weak links** max. 6800 N, 1500 lbs
recommended 6000 N ± 10% 1320 lbs ± 10%

2.14.2 **Length of the towing cable**
for aerotow 30-70 m (100 - 230 ft)
Material: hemp- or plastic fibres

2.14.3 **Max. towing speeds**

Aerotow	VT = 190 km/h, 103 kts
Winch- and autotow	VW = 150 km/h, 81 kts

2.14.4 **Tow Release**
The C.G. tow release (installed in front of the main wheel) is suitable for winch- auto launching and aerotow.
Caution: If an additional front hook is installed (below the instrument console) it is to be used only for aerotow.
Note: The front hook is mandatory for Australia.

2.15. Crosswinds
The demonstrated crosswind velocity is 15 km/h (8 kts) according to the airworthiness requirements.

2.16 Tyre Pressure

Main wheel	3.5 bar	51 psi
Tail wheel	2 bar	29 psi

2.17 Waterballast
Filling the water ballast is only allowed with a filling system which enables determination of the exact amount of ballast filled, e.g. water gauge or calibrated canisters.
Only symmetrical loading is allowed.
After filling, balance the wings by dumping enough water from the heavy wing, see 4.2.2.
Flight with leaking watertanks is prohibited, as this may result in asymmetrical loading condition.
Warning: Follow the loading chart, see sect. 6.8. The respective max. take off weights must not be exceeded.

2.18 Wing fuel tanks (Option)
Max. capacity 10 l (2.64 U.S. gal.) per wing.
Don't park the rigged glider with filled wing fuel tanks for extended periods!

b) check both hooks (if installed) 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 front strut can hinder the landing gear from locking over center the next time!
   b) check the tyre pressure (3.5 bar, 51 psi)!
   c) check wheel brake and cable for wear and function.

5. Left wing
   a) check locking of the wing tip
   b) check flaperon for excessive free play
   c) check drives on the flaperons for tight srewed connection
   d) 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 rearwards. If there is any water in the airbrake box this has to be removed.

6. Power plant checks
   Extend the powerplant via the manual switch.
   a) all screwed connections and their securing
   b) function of throttle, and propeller stopper
   c) ignition system incl. wires and the spark plug connector for tight fit
   d) Check toothed belt for wear and correct tension, sudden loss of tension indicates damage of the engine assembly
   e) engine retaining cable and its connections in the engine compartment and at the engine
   f) fuel lines, electrical wires, bowden cables and structural parts for wear and kinks.
   g) exhaust muffler, propeller mount, radiator, water pump and accessories for tight fit and any cracking. Check especially the cable which lifts the muffler during engine extension.
      To check the water pump, switch on the ignition. You should hear a buzz.
   h) apply strong forward pressure to the propeller mount to check if the bolted connection between the engine block and the propeller mount or any thing else is loose or damaged
   i) visual check of the propeller
   j) turn the propeller 1 revolution by hand listen for abnormal sounds which may indicate engine damage
   k) fuel level
   l) drain condensed water from the fuel tank. The drainer is located in the main wheel box on the rear wall on the right hand side.
   m) check the fuel filter for dirt or sludge.

6. n) Check the coolant level in the radiator by removing the radiator screw cap.Press down on cap for easier handling. The radiator must be filled completely. The coolant reservoir must be filled min. 1/2.
To block the coolant reservoir cap from coming open, adjust the hose clamp at the cap so that the clamp´s screwed connection touches the propeller mount.

Caution: The coolant level in the reservoir gives no indication whether the radiator is filled or not.

o) Check the coolant hoses visually for leaks and any defects of the outer surface.

7. Tail wheel
   a) Check for wear, free play and excessive dirt in the wheel box. Remove excessive dirt prior to take off!
   b) Check tyre pressure (2 bar, 29 psi)

8. Rear end of the fuselage
   a) Check the lower rudder hinge and the connection of the rudder cables for wear, free play and correct securing
   b) Check the bulkhead and fin trailing edge shear web for cracks or delamination.

9. Fin - horizontal tail
   a) Check the upper rudder hinge for wear and free play
   b) Check the elevator for free play and correct control hook up, look through the plexiglas window
   c) Check the securing of the front mounting bolt
   d) Check the horizontal tail for free play
   e) Check the TE or Multiprobe for correct insertion.

10. Right wing
    see detail 5.

11. Fuselage nose
    a) Check the ports for static pressure and pitot pressure for cleanliness
    b) If the sailplane has been parked in rain, you have to empty the static ports by sucking the water out of the ports.

Apply the controls in short periods.
It is not allowed to carry waterballast.

Caution:

1. At temperatures below -20°C (-4°F) there is the risk of cracking the gelcoat.
2. Attention must be paid to the fact that at higher altitudes the true airspeed is greater than the indicated airspeed. The max. speed VNE is reduced. See the following table:

Altitude in metres	0-2000	3000	4000	5000	6000
VNE IAS km/h	270	256	243	230	218

Altitude in ft.	0-6600	10000	13000	16000	20000
VNE IAS kts.	146	138	131	124	117

3. Dump the water ballast before you reach freezing altitude or descend to lower altitudes.
4. Do not fly below 0°C (32°F) when your glider is wet (e.g. after rain).
5. The antifreeze in the coolant of the engine is mixes normally for a lowest OAT of -20°C. For high altitude flights where lower temperatures may be expected you have to change the mixture for -40°C, see MM section 1.11.2.

4.5.10 **Flight in rain**

With light rain the stall speed and the sink rate increases slightly and the approach speed has to be increased.

With the engine running

In normal rain, the rate of climb will be reduced by 1/3. The cross country cruising speed will also be reduced by approx. 10 km/h (5 kts).
Take off in rain should only be done with a long enough airfield and attention given to safety. A take off should not be attempted in heavy rain.

4.5.11 **Cloud flying**

(only without waterballast and with the engine retracted)
Take care to fly smoothly and coordinated. It is prohibited to use a spin as a method for loosing altitude in the clouds. In case of emergency, pull out the dive brakes fully before exceeding a speed of 200 km/h and dive with max. 200 km/h (108 kts) to leave the cloud.

Section 7

7.16 **Miscellaneous equipment**

7.16.1 **Removable Ballast (Option)**

Three lead ballast weights Z11/1 up to Z11/3 each 2.25 kg (4.96 lbs) can be fixed at the two M6 inserts in front of the rudder pedals. Each weight compensates a pilot mass of 5 kg (11 lbs). The lead ballast weights are to be fixed with bolts M6 which must be min. 10 mm (.39 in.) longer than the thickness of the ballast weights.

7.16.2 **Oxygen system**

Oxygen bottle installation

Max. size of oxygen bottle is 4 l capacity with diameter 100 mm (3.94 in.).
The bottle must be fixed at its neck with a bracket Z 14.

Installation of the oxygen equipment

To ensure a safe installation ask for an installation instruction.
For the installation of the Dräger Höhenatmer E 20088 you will find an installation plan 6 EP 27 in the maintenance manual.

7.16.3 **ELT Emergency Locator Transmitter**

To ensure a safe installation ask for an installation instruction.
For the model ACK E-01 you will find an installation plan 8EP38 in the maintenance manual.

Caution: Concerning 7.16.2 and 7.16.3
The installation has to be accomplished by the aircraft manufacturer or by an approved service station and to be inspected and to be entered in the aircraft log book by a licensed inspector.

7.16.4 **Battery in baggage compartment with battery selector switch**

An additional battery Z73/4 (sealed lead acid) or Z73/3 (LiFePO) with holder Z72 or Z01/7 (sealed lead acid) or Z01/5 (LiFePO) with holder Z200 may be installed in the baggage compartment. In this case a battery selector switch must be installed in the instrument console.
Switch function:
up = internal battery
centre position = off
down = additional battery
Preferably the gliding computers and loggers shall be connected to this switch.
The battery fuse is installed at the battery, type G250V 5x20 4A fast.

Caution: It is not permissible to operate a LiFePO type battery in an electric circuit together with other batteries. If you want to install more than 1 battery a further selector switch to switch over from 1 battery to the other must be installed at a suitable place in the cockpit.