

Manual amendments

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- 2b). **Removal of the relief valve:** Loosen the 2 screws and lift off the cover plate with the valve membrane and the rubber sealing. Now check the chamber behind the main nozzle for any dirt.
3. **Removal of the idle nozzle:** Turn in the tommy screw first to note the number of turns and the actual position of the lever (1 turn). Then turn out the tommy screw.
4. **Reassembling:** Turn in the tommy screws completely and then turn them out to the noted positions. Secure the lever of the main nozzle tommy screw again with 1/2" heat shrink tubing. Be careful not to exchange the valve membrane and the rubber sealing of the relief valve. The membrane is to be positioned inbetween the rubber and the metal cover plate. Use Loctite 72 b (672) to secure the screws of the carburettor cover. All measures should be executed carefully and cleanly.
5. **Carburettor setting**
Adjust the idle RPM by the idle adjustment screw to appr. 2500 RPM with warm engine. Note: With optional EGT probes the setting of the carburettor main nozzles can be controlled by the EGT values. Set the nozzles to EGT values of $610^{\circ}\text{C} \pm 10^{\circ}\text{C}$ on the ground at full power with the engine warmed up. This value is valid with the fine adjustment screw open and for the hotter of both cylinders at 100m above MSL. If the adjustment is to be done at a higher altitude 2.5°C must be deducted from the EGT value per 100m altitude.

6. Intake air filter

An airfilter is mounted on each carburettor. Operation without air filter is prohibited except for conservation of the engine see engine manual section 5.

1.13.8 Fuel injection (primer)

The engine is equipped with a fuel injection system for engine start (primer) instead of a choke butterfly valve. The electric injection valve 5 M 43 is positioned on the engine close to the carburettor. The injection pressure is provided by the electric fuel pump. Via a switch in the instrument panel the primer can be switched off or to automatic operation. With automatic operation the DEI controls the amount of fuel injected in correlation to the coolant temperature. With a cold engine the full amount will be injected and injection continues for a certain time to prevent the cold engine from stopping.

1.14.3 Control Unit

This aluminum box is located in the relay compartment. The control unit incorporates the following functions:

1. Control of the extension-retraction procedure: The extension-retraction relays are also mounted inside the unit.
2. Regulator
3. Startermotor control: The starter motor is actuated by a power electronic, no relays. This applies to the normal engine start (ignition on) and also the slow turning of the propeller into retraction position (ignition off). Activation via the starter button.
4. Resettable fuses for the following circuits are installed in the control unit: proximity switch, fuel pump and coolant pump (for both when powered by the generator, otherwise protected via the DEI circuit breaker)

Warning: With the connector plug removed from the control unit, it is dangerous to switch on the master switch.

Caution: When you plug in the connector plug, check by pulling at the plug, that the locking devices at both sides have engaged. Then secure the locking devices with a ty-rap 4.8 x 360 mm.

1.14.4 Generator - Regulator

The generator is located in the ring gear housing and is incorporated with the ignition/ timing sensors. It is connected to a voltage regulator and can provide a maximum charging current of 10 Amp. The regulator is located in the control unit
see 1.14.3. The generator supplies electrical power to the fuel and water pumps, even with the master switch off.

1.14.5 Master Switch

The aircraft is supplied with a master switch and an engine master switch. The engine master switch supplies in on position electrical power to all engine controls and to the socket for the external electric fuel pump system.

1.14.6 Engine elapsed - time indicator

The engine time indicator is incorporated in the DEI and is connected directly to the regulator and therefore only counts the pure engine running time.

1.14.7 Electric pumps

Fuel pump and coolant pump are switched on and off by the ignition switch and receive power from the batteries (protection via the DEI circuit breaker) and with the engine running directly from the generator (protection via one resettable fuse for each pump in the control unit)

4.2 Replacement of control circuit cables

The following cable connections are approved:

3.2 mm dia. control cable construction 7x19 with Nicopress-sleeves 28-3-M Copper and tool No. 51-M850 or 63-V-XPM or 64-CGMP where the M groove is to be used. The above applies to the rudder cables, the tow release cable and the engine retaining cable.

The cable for the rudder pedal adjustment is 1.6 mm dia. control cable construction 7x7 with Nicopress-sleeves 28-1C Copper and the C groove for tool 64-CGMP should be used. The same type of cable is used for the control cables of throttle and manual propeller brake in Bowden outers with 2.6 mm inside diameter

Attachment of the Nicopress sleeves should only be done using the respective tool. All the procedures and checks noted by the tool manufacturers should be followed.

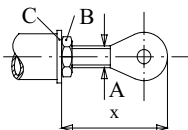
Please refer to aircraft inspection and repair FAA AC 43.13-1 A.

Note: Control cables according to MIL-W-83420 I/A (was MIL-W-1511A) or ISO 2020 (was LN 9374) should be used.

Note: For the electric propellerbrake a Bowdencable 1.5 mm 19 x 0.31 with Bowden outer with Teflon liner 2.5 mm inside diameter should be used instead of the material mentioned above.

4.3 Adjustment and servicing of the control circuit

- a) In all cases, new self locking nuts DIN 985-8.8 zn or LN 9348 should be used.
- b) Bolts which are not secured with locking nuts have to be secured with Loctite 243. Before installing the bolt clean the thread and the inside thread see section 4.8. Apply only 1 drop of Loctite on the bolt thread. Too much Loctite may cause damage when you try to loosen the bolt again.
- c) With all adjustment work, it should be ensured that the rod ends are not screwed out too far from the pushrod - see sketch below for allowable max. distances for the two sizes used.



A	max. of x	
	mm	inch
M 6	36	1.4
M 8	60	2.36

Note: All lock nuts (B) are secured by a spring washer (C) DIN 6798 I. Be careful not to loose that washer!

5. Weight and balance

Method of weighing your aircraft:

1. Assemble the glider completely with gear down.
2. Place scales under the tailwheel.
3. The fuselage must be levelled so that the top of the aft fuselage boom has a tail-down slope of 1000 : 37.
4. Empty water ballast tanks and the fuel tank.
5. Read weight of tail wheel: W 2
6. Be certain the wings are level and hold so that no load is brought up.
7. Measure the distance between perpendiculars through points a and b.(See figure, next page).

Note: The distance a may change with different masses due to deflection of the landing gear.

Note: The total mass M may be determined by determining the weight W1 (M= W1+W2) or by determining and adding the weights of all single components.

Using the empty mass and the values determined above, calculate the C.G. as follows:

C.G. empty XSE: $XSE = W2E \cdot b / ME + a$

ME = empty mass
 W2E = load on tailwheel (empty)

The empty weight includes all accessories but excludes pilot and parachute. Remove loose objects from the cockpit.

C.G. in flight XSF: $XSF = W2F \cdot b / MF + a$

MF = flight mass
 W2F = load on tailwheel (flight mass)

The flight mass includes empty weight items plus pilot, parachute, and all items needed in flight (barograph, camera, cushions, etc.). In addition, the rudder pedals and seat back should be adjusted as in flight.

8. Partlist

In this list you will find only parts of the power-plant and the electrical system.

Please find the part no's of the controlsystem parts and of the metal fittings of the powerplant in the following diagrams.

Parts for the powerplant (engine Mid West AE 50T)

a) necessary for the 25 hours inspection

60510808 Spark plugs: NGK JR 10 A
electrode gap 0.5 mm
Remove the screw caps.
60507570 fuel filter: Entrata IN

b) Spare parts

60510807 Spark plug connector NGK LZ-FH
60500127 Nut for spring coupling M 8 for exhaust
muffler (Rotax 842330)
60500128 Spring for spring coupling M 8
(Rotax 239628)
60502500 Starter motor: DENSO 128 000-1671 12 V
or DENSO 12 000-1679 12 V
60500141 Airfilter 42
60504012 Drive belt Poly Chain PC 8MGT 2400-536
59332050 front bearing for upper pulley 32205B
59320320 rear " " " " 320132X
52200054 securing washer 20 DIN 462 for upper
pulley front bearing
30002028 special grease for upper pulley bearings
SKF LGMT3
39001025 Exchange kit nuts and bolts for 400 h
overhaul
60000183 Gas spring for extension-retraction drive
B1 B1Z-3-250-383/900N or /750N
60000182 Gas strut for muffler frame
E1 E1-76-040-130/150N
60507560 Electric fuel pump Facet 40105
60001201 Electric water pump Webasto U4810 modified
60504051 Radiator KTM 0095
40871990 Extension-retraction spindledrive type
Magnetic GST 2011-200-01
or
60505000 Extension-retraction spindledrive type
Stross ELT 10

8.2 Parts for the electrical system

60510891 Battery HDS 6120 6V 12Ah equipped with
screw - terminals
40876050 DEI MC801
40876030 Control unit 8E103 (including relays and
regulator)
60510555 Ignition electronic boxes IGN 0295
60510440 Fuse 5 x 20 0.2A mt for "
60510556 Ignition coil SEM 10079000 P17
60510463 Limit-switch engine retracted 164-56401
modified by soldering a plate to the
actuator
60510464 Limit-switch engine extended and propeller
aligning position 164-503
60510476 Manual extension-retraction switch
APR 20-647H
60510475 Switch to switch over from normal to
emergency extension-retraction
APR 20-646H
60510813 Master switch Bosch 0341001001
60510812 Key for master switch Bosch 0341001001
60510478 Engine master switch 631 H-2 15A
60510370 Starter button SECME 07 17801 21
60510392 Circuit breaker Klixon 7277-2-10A
for spindledrive Magnetic GST 2011
60510391 Circuit breaker Klixon 7277-2-15A
for spindledrive Stross ELT 10
60510385 Circuit breaker ETA 2A
60510386 Circuit breaker ETA 3A
60510387 Circuit breaker ETA 4A
60510384 Circuit breaker ETA 5A
60510388 Circuit breaker ETA 10A
60510436 Fuse 535257 60 A for batteries

60510550 Proximity switch Insor INCT 1212
60510796 Socket BSB 12 (in main bulkhead)
60510785 plug BSK12 for socket BSB 12