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**Manual**  
for the  
**Engine SOLO type 2350 D**

Serial - no. ....  
Manufactured .....

Aircraft type .....  
Registration no. ....  
Owner .....

Log of revisions

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## Manual for Engine 2350 D

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## 1. Description of construction

- In-line-two-cylinder-two-stroke engine
- Air-cooling
- mixture control via two diaphragm carburetors
- CDI ignition
- Propeller mounted on belt drive
- No engine starter
- Crank-case-pressure operated fuel pump

## 2. Technical data

Engine displacement	430 ccm, bore 70 mm, stroke 56 mm
Compression ratio	12 : 1
Ignition	Magneto SOLO, ignition coil Ducati
Spark plugs	BOSCH W 5 AC or Champion L82 C, Gap 0,5 mm. Thread M 14X1,25 mm. In combination with spark- plug-cap (23 00 701, R=5kOhm)
Carburetor	Solo, metering-device WALBRO
Fuel pump	Bing or Mikuni
Direction of rotation	Counterclockwise, in flight direction
Fuel	Two-stroke mix (gas/ oil), premium gas or AVGAS 100LL
Mixture	Fuel-oil-mix 1:40 (2,5%), oil with the specification JASO FC or JASO FD, recommended CASTROL ACT>EVO
Weight	Approx. 23,5 kg, complete with muffler, without propeller
belt drive	Ratio 1 : 1,56
fuel filter	Karcoma Typ 99.106/8-100

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### 3. Operational data and limitations

Max. power	22 kW at 6 500 1/min
Max. RPM	6600 1/min
Recommended RPM	6250 1/min
Low idle RPM	not available – no throttle control
cyl. head temp.	275°C max (measured under spark plug)
fuel consump. at cruise	Approx 3,7 US gal./hr (14 l/h)

### 4. Operating manual

In order to have best engine performance available, it is absolutely necessary to follow the following instructions:

- Before starting the engine
  - Daily check done?
  - Check fuel level in tank
  - Airbled fuel lines.  
To do this operate electric fuel pump and use a pin and push through the small hole in the carburetor cover until fuel is injected. Listen if fuel is injected.
  
- Start engine according to the instructions in the flight manual of the aircraft.
  - Fuel Valve                      OPEN
  - ignition switch                ON
  - Decompression                OPEN, until engine revs are stable.
  
- Stop engine according to the instructions in the flight manual of the aircraft.
  - Ignition switch                OFF
  - Fuel Valve                        CLOSED

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## 5. Maintenance manual / operating time limits

- **Before each flight** check the following with ignition in “Off” position :  
With decompression valves in open position engine should crank over by hand very easily and without any internal mechanical noise, with valves closed engine turn over should be difficult. Visual inspection of the outside condition of engine, exhaust system, belt drive and mounting elements.
- **Every 12 months or 25 operating hours**, whatever comes first, check the following points in addition to the daily checks:
  - fuel lines
  - All wiring, exhaust system and spark plugs
  - Clean the engine
  - Disassemble, wash and check the decompression – valves
  - Check belt tension. Apply a test load of 120N right angled in the middle of the belt drive. Measure the displacement of the belt. It should be 4mm. If necessary open the clamping screws of the propeller axle and tighten the belt by rotating the propeller axle. Secure the screws with Loctite 243.
- **Special examination after 200 operating hours.** This check has to be done by the manufacturer.
- **After 15 years each** Change the roller bearings of the upper pulley
- **After 50 hours of operation:** Change eccentric axle in the reduction gear
- **Special examination after shock - loading.** This check has to be carried out by the manufacturer or an approved facility.
- **Conservation and storage:**  
If an engine is not used for 2 months or more the engine must be treated as follows:
  - Empty fuel system
  - Inject approx. 5 ccm of 2-stroke oil into each inlet manifold. Turn the engine over by hand 10 times. Make sure, ignition is in “Off” position and decompression valves are open.
  - Cover intake and exhaust openings.
- **Torques**

Spark plug		20 Nm	14,5 ft. lbs.
Decompression valves		20 Nm	14,5 ft. lbs.
Hub (on crankshaft)	M12 x 1 (left hand)	50 Nm	36 ft. lbs.
Cylinder head nut (SW9)	M6	12 Nm	8,5 ft. lbs.
Cylinder head nut (SW12)	M8	20 Nm	14,5 ft. lbs.
Hex. Head bolts and allen head bolts or nuts or same	M4	3 Nm	2 ft. lbs.
	M6	10 Nm	7 ft. lbs.
	M8	23 Nm	16,5 ft. lbs.
Slotted screws and nuts	M3	0,9 Nm	0,6 ft. lbs.
Slotted screws	M4	2 Nm	1,5 ft. lbs.
	M5	4 Nm	3 ft. lbs.
Cylinderbase screws (Tension Screws)	M8	13 Nm	9,5 ft. lbs.

➤ **Fuel/ Air Mixture control**

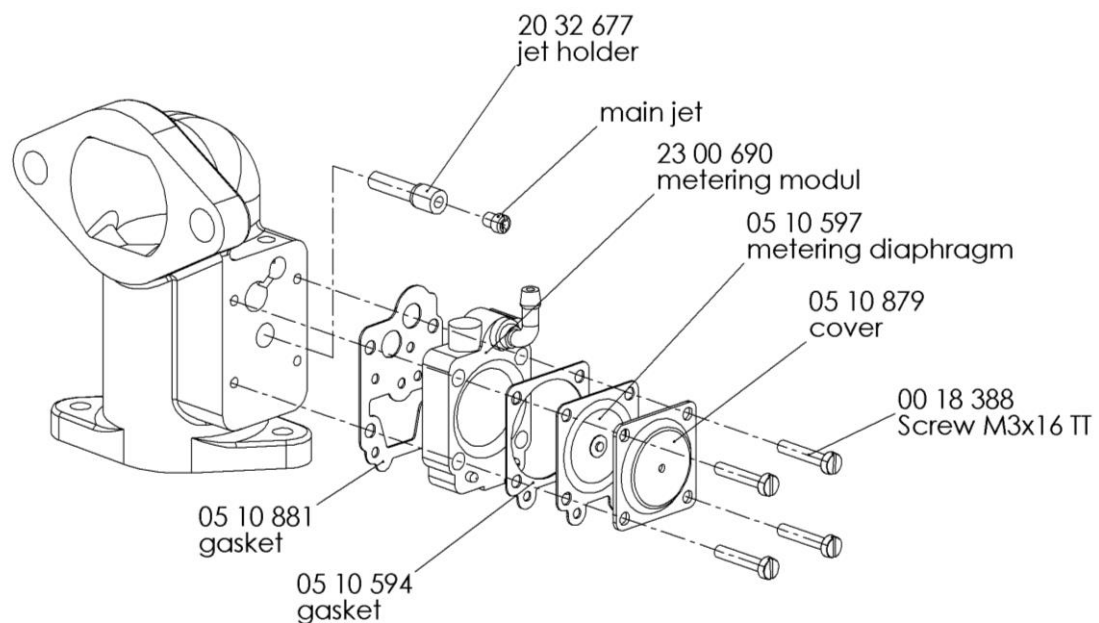
The fuel supply to the engine is controlled by a jet each and was optimized by the manufacturer. Changes or corrections of jets should be approved by the manufacturer.


➤ **Main fuel jets**

- Front                      HD 114            1. Cylinder in cooling air
- Rear                        HD 116            2. Cylinder in cooling air

➤ **Changing or cleaning of the main fuel jets.**

While changing or cleaning the jets pay attention to the correct order of the installation of the seals and the diaphragm.



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## 6. Engine trouble shooting

- **Engine will not start :**
  - Wrong timing of ignition      Spark plug cables can be mixed up
  - No fuel.      Check the fuel lines to the carburetors and the fuel pump.
  - No spark      Short-cut of wiring to ground – check wires
  - No spark on one of the spark plugs      Connection to ground is poor - check wires
  - Defective spark plug.
  
- **Engine flooded :**
  - Ignition “OFF”
  - Open decompression valves and turn engine over several times.
  - Clean spark plugs
  
- **Engine overheated :**
  - Not enough fuel.
  - Engine very dirty.
  - Defective spark plugs.
  
- **Engine does not reach max. RPM :**
  - Not enough fuel.      Check the fuel lines, fuel pump and fuel filter.
  - Defective spark plugs.      Replace spark plugs
  - Decompression      Clean valves
  - valves are leaking.
  - Pulse hose to      Check or replace
  - fuel pump is blocked.
  - Defective carburetor unit.      Change diaphragm and control module.

## 7. Installation instructions

Mount the propeller to the hub of the engine. Tighten all nuts according to the torque list in the manual of the propeller.

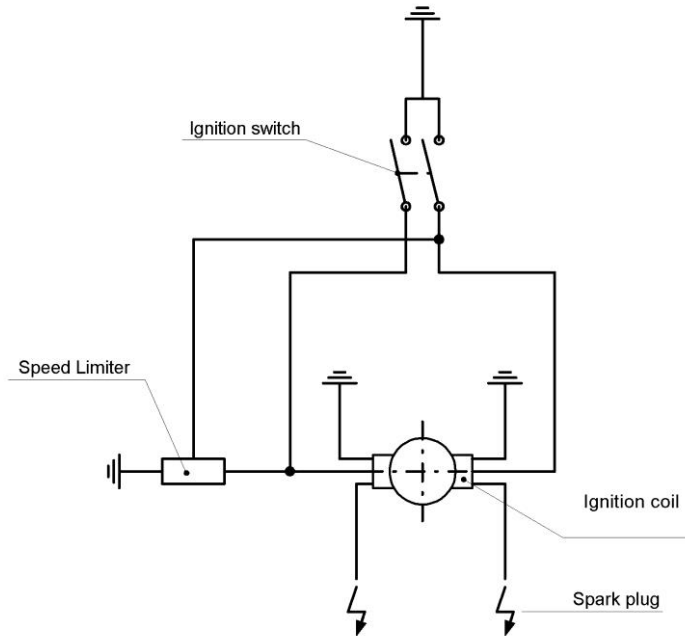
Mount engine on the 4 mounting points according to the manual of the aircraft.

Connect the fuel lines in according to the manual of the aircraft.

Connect all wires according to the manual of the aircraft.

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## 8. Wiring diagram



## 9. Power curve

