 <p>KLEINMOTOREN GMBH Postfach 60 01 52 D 71050 Sindelfingen, Germany Email : aircraft@solo-germany.com www.solo-germany.com</p>	Manual for Engine 2350 B	
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1. Description

- Two-cylinder in-line, 2 cycle Otto engine
- Air-cooled
- Fuel-oil-mix lubrication
- 2 Diaphragm carburetors with internal fuel pump (Walbro)
- Electronic magneto ignition
- Belt driven propeller drive
- Electric starter 12 V, 400 W
- Generator 12V, 180W

2. Technical Data

Displacement	430 cm ³ , Bore 70 mm, Stroke 56 mm
Compression	10 : 1
Ignition	Flywheel SOLO, Coil Prüfrefx, Bosch or PVL
Sparkplugs	BOSCH W5AC, Champion L82C, sparkplug-gap 0,5 mm with sparkplug-cap 5kΩ
Carburetors	Walbro
Rotational direction	counterclockwise, in flight direction
Starter	SJCE Type 102
Fuel	Unleaded fuel, min. 95 ROZ or AVGAS 100LL plus 2-stroke-oil
Lubrication	Fuel-oil-mix 1:40 (2,5%), oil with the specification JASO FC or JASO FD, recommended CASTROL ACT>EVO
Mass	26 kg
Belt drive	Reduction ratio 1 : 2,1
Fuel filter	Micronic fuel filter Type 00610 Purolator

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3. Performance data and limits


Take-off power	17 kW (23 HP) at 6300 RPM
Max. continuous power	17 kW (23 HP) at 6300 RPM
Max. engine RPM	6500 RPM
Recommended cruise RPM	5500 RPM
Idle speed	2000 RPM
Max. cylinder head temperature	275 °C
Fuel consumption	100% continuous power 8.5 l/h Cruise at 5300 RPM 7.7 l/h

4. Operating instructions

A prerequisite for the correct operation of the engine is the observance and compliance with the following information:

Prior to starting the engine	Has daily inspection been carried out? Check throttle control lever for easy movement and if the throttle shutters reaches "Full" position. Turn Ignition off. Turn propeller by hand and check at the same time if unusual engine noise occur or if the engine is difficult to crank.
Starting the engine	Open fuel-valve. Move lever to half throttle. Main switch to "ON". Fuel pump "ON". Check to see if no one is in the area of the propeller. Lock brakes. Activate the choke. Push starter button until engine runs. Open the choke. Do not warm engine up.
Takeoff	Quickly give full throttle. Check cylinder head temperature during climb. Limits shall not be exceeded.
Engine shut-down	Prior to shut down the engine, operate the engine in idle for 1 minute to allow the engine to cool down. Then switch off the ignition and close the fuel valve.
Starting the engine in flight.	Follow the instructions "Starting the engine" above but don't activate the choke.


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5. Service Instructions

Reduction gear	Except the described belt check no further action is required.																																														
Daily Pre-flight inspection	Check movement of throttle control lever and choke system. Check exterior condition of the engine, belt-drive and engine mounts. Check sparkplug wires.																																														
Inspection after 25 hours of operation or once a year	Replace spark plugs Visual inspection of the entire engine. Check flow of fuel filter Check fuel lines Check screws for tight fit Check control cables Check electrical wires and connectors Clean engine Lubricate starter gear. Check belt tension. Apply test pressure of 120 N to the center of the drive belt between the pulleys and measure the displacement of the belt. The displacement should be 5 mm. If required, loosen retainer screws on propeller shaft and tighten by rotating the eccentric shaft.																																														
Inspection after 200 hours of operation	Overhaul by the manufacturer																																														
Engine preservation and storage	If an engine will not be used for a period of more than 2 months, measures to preserve the engine should be taken. Drain fuel tank and fuel system. Inject 5 ml 2-stroke oil into both carburetors and crank engine manually. Close opening of the air-box.																																														
Torques	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 60%;">Sparkplugs</td> <td style="width: 20%;"></td> <td style="width: 20%; text-align: right;">20 Nm</td> </tr> <tr> <td>Hub on Crankshaft M12 x 1 Left hand</td> <td></td> <td style="text-align: right;">50 Nm</td> </tr> <tr> <td>Nuts Cylinder head M6</td> <td></td> <td style="text-align: right;">12 Nm</td> </tr> <tr> <td>Nuts Cylinder head M8</td> <td></td> <td style="text-align: right;">20 Nm</td> </tr> <tr> <td>other bolts and nuts:</td> <td></td> <td></td> </tr> <tr> <td></td> <td style="text-align: right;">M4</td> <td style="text-align: right;">3 Nm</td> </tr> <tr> <td></td> <td style="text-align: right;">M6</td> <td style="text-align: right;">10 Nm</td> </tr> <tr> <td></td> <td style="text-align: right;">M8</td> <td style="text-align: right;">23 Nm</td> </tr> <tr> <td>Slotted head bolts and corresponding nuts</td> <td></td> <td></td> </tr> <tr> <td></td> <td style="text-align: right;">M3</td> <td style="text-align: right;">0,9 Nm</td> </tr> <tr> <td></td> <td style="text-align: right;">M4</td> <td style="text-align: right;">2 Nm</td> </tr> <tr> <td></td> <td style="text-align: right;">M5</td> <td style="text-align: right;">4 Nm</td> </tr> <tr> <td>Cylinder base screws (expansion screws)</td> <td></td> <td></td> </tr> <tr> <td></td> <td style="text-align: right;">M8</td> <td style="text-align: right;">13 Nm</td> </tr> <tr> <td>Generator on crankshaft</td> <td style="text-align: right;">M10 Left hand</td> <td style="text-align: right;">40 Nm</td> </tr> </table>		Sparkplugs		20 Nm	Hub on Crankshaft M12 x 1 Left hand		50 Nm	Nuts Cylinder head M6		12 Nm	Nuts Cylinder head M8		20 Nm	other bolts and nuts:				M4	3 Nm		M6	10 Nm		M8	23 Nm	Slotted head bolts and corresponding nuts				M3	0,9 Nm		M4	2 Nm		M5	4 Nm	Cylinder base screws (expansion screws)				M8	13 Nm	Generator on crankshaft	M10 Left hand	40 Nm
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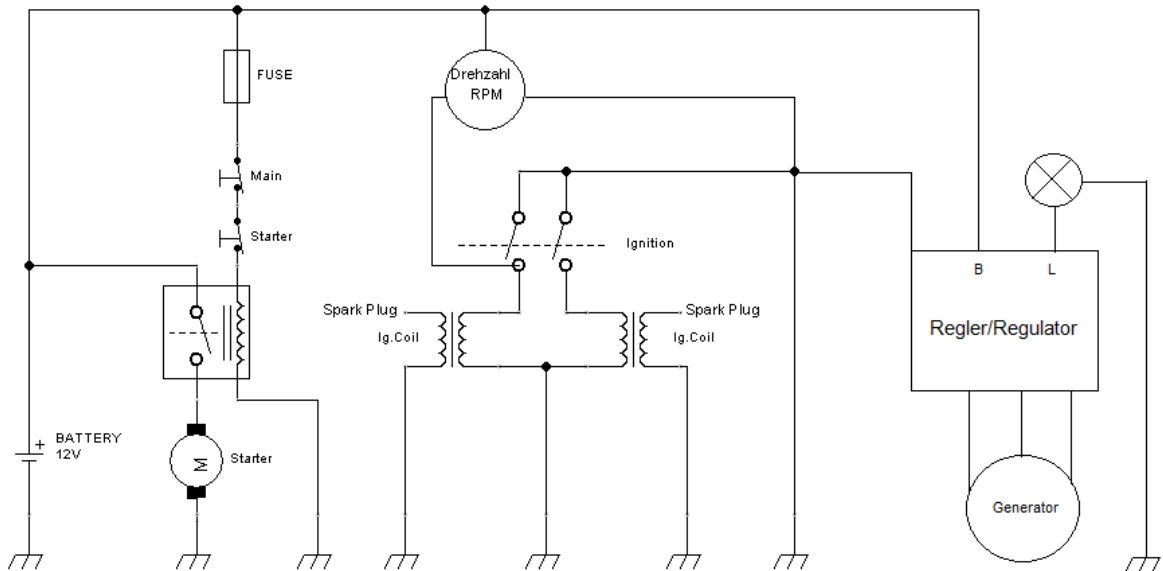
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6.Trouble shooting

Engine does not start	
Insufficient fuel supply	Check fuel supply lines to carburetors. Check if fuel pump works properly. Check fuel filter. Check if the choke closes completely.
No spark on one sparkplug	Defective spark plug or ignition coil. Wires have short circuit to ground.
No spark on both sparkplugs	Cranking RPM too low - caused by weak battery. Wires have short circuit to ground.
Engine flooded	Continue starting at full throttle. Continue starting with full throttle, choke open
Engine gets hot	
Wrong carburetor adjustment	Adjust carburetors. Basic setting: Low speed needle 1/2 turn open High speed needle 1/2 turn open Adjust idle screw to an idle speed of 2000 RPM.
Insufficient fuel supply	Check fuel pump, Replace fuel filter and check fuel lines.
Engine does not reach enough power	
Insufficient fuel supply	Check fuel pump, Replace fuel filter and check fuel lines.
Wrong carburetor adjustment	See above
Choke closed	Check choke
Defective sparkplug	Replace sparkplugs

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7. Wiring diagram



8. Engine performance chart

