

How to adjust the GT15HZ carburettor

The adjustment range of a gasoline engine's carburettor is very narrow and the needle setting is very sensitive compared to a regular glow engine. A small mis-adjustment of needles often results in overheating and possible damage. The oil content of pre-mixed gasoline/oil fuel is also much less than glow fuel giving less tolerance to error.

Adjust the needles following the procedures below.

1) GT15HZ has two needles, High and Low.

The left needle is for Low, Right needle is for High, with the engine being mounted in the helicopter.
(See the picture below)



•Low needle :For adjustment from idle to hovering (it will slightly affect the general flying also)

•High needle :For adjustment from hovering to full power in flight.

2) Factory setting of the needles

Low needle : 1 + 1/4 turns from the fully closed position

High needle : 1 + 3/4 turns from the fully closed position

Note : This factory setting is very important. Please make sure that both of the needles are at the factory positions before starting the engine for the first time.

3) Starting the engine

Start the engine following the instruction manual procedures. Choke and prime it to make the start easier. Excessive priming floods the carburettor and can cause piston locking (hydraulic) with potential damage to the connecting rod.

Warming up after starting is necessary for gasoline engines, especially in cold winter weather.

Continue the warm-up run for 1-2 minutes on the ground with the main rotor slowly rotating before attempting to raise the rotor RPM and fly.

4) Take off after the warm-up run.

When the helicopter takes off, adjust the needles according to the scenarios shown below.

Scenario example 1) * Low needle adjustment is rich *

When you open the throttle to take off, the engine RPM don't increase with a lot of white smoke coming from the exhaust pipe.

Solution → Turn the Low needle very slightly (say 6 degrees) clockwise and try to take off again. Each adjustment should not be in excess of say 6 degrees. Gasoline engine carburettor needles are much more sensitive than glow.

Do not touch the High speed needle before completing Low needle adjustments.

When the situation doesn't improve, repeat the adjustment increment clockwise as before. Continue the same process until you can take off normally. Once the helicopter takes off, you do not have to close the Low needle any more. Excessive needle adjustment causes over-revving and raises the potential for engine damage.

Scenario 2) * When the Low needle is lean *

When the helicopter takes off, the engine runs at very high RPM (more than 1,500rpm at the main rotor), hesitates before picking up speed and smoke is low.

Solution → Turn the Low needle, say 30 degrees in the counterclockwise direction. Try to take off again. If the situation doesn't improve, turn Low needle 18–30 degrees counterclockwise again. Repeat this process until the engine doesn't over-rev as you rise into the hover.

***As mentioned in the manual, we recommend lowering the throttle curve to prevent the engine from over-revving.**

5) Start running-in, which is vitally important for gasoline engines.

After confirming stable hovering with the main rotor rotating at around 1,400 – 1,500rpm, start the running-in process, consuming 2–3 litres of fuel.

*** The further you continue running-in, the more happily the engine will run.**

6) Flying normally after running-in

After switching the flight mode, climb away for normal forward flight.

Adjust the High needle according to the scenarios below.

Scenario 1) * When the High needle is rich *

When the throttle is fully open, after switching the flight mode, the engine responds sluggishly to increase rpm and power.

Solution → Turn the High needle clockwise very slightly (5 degrees maximum) or less. Each needle turn must be less than say 6 degrees because the High needle is more sensitive than Low needle.

*** The maximum High needle turning adjustment must not exceed 30 degrees in total from the factory setting (1 + 3/4 turns from the fully closed position)**

To lean the needles excessively causes overheating as gasoline engines create higher temperatures than glow engines.

Scenario 2) * When the High needle is lean *

When the throttle is fully open after switching the flight mode, the engine responds sluggishly to increase rpm/power and smoke diminishes. The engine may try to quit running as well.

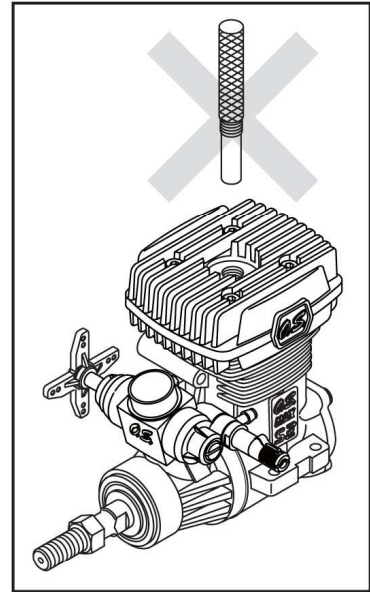
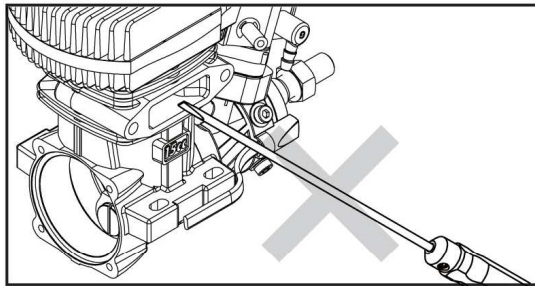
Solution → Turn the High needle counterclockwise 30–60 degrees. 60 degrees of turn maybe too much, but rich running does no harm. Continue rich running for a while.

A little turn of the High needle results in drastic change. Take your time to adjust it properly.

7) Gasoline engines have lower fuel consumption than glow engines because fuel flow during operation is very low. For this reason, the needle adjustment is very sensitive, but once the adjustment is set, it lasts longer. Please make the adjustments with patience, without turning the needles excessively each a time. If in doubt, always make a rich decision rather than a lean one, especially on hot days and flying sites at high altitude.

NOTE ON INSTALLING COOLING FAN AND CLUTCH

Do not use a tool which locks piston when installing a cooling-fan and clutch, or top of the piston may be damaged. Also, do not insert a screw driver or the similar into the exhaust port, or the piston and upper part of the cylinder liner may be damaged.



O.S.
GENUINE
TOOLS

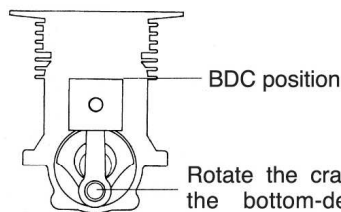
O.S. Crankshaft Clamp is a must to install cooling fan!!



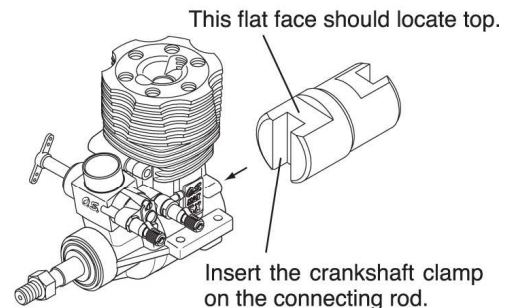
Locking piston by inserting a tool from plug hole or exhaust port when installing cooling fan and clutch may damage the engine.



This device facilitates the installation or removal of a cooling fan by temporarily locking the crankshaft so that it cannot rotate. Made of durable engineering plastic, it achieves this without risk of damaging any part of the engine such as crankcase, connecting rod, piston and crankshaft.



Rotate the crankshaft to the bottom-dead-center (BDC) position where the connecting rod lower end locates this position.



72530510 (exclusively for 91) and 71530520 (exclusively for 91/105) cannot be used with the GT15HZ. If they are used with the GT15HZ, piston skirt will be broken or damaged.

Code No.	Description	Engines to use
71530600	37SZ-H	37SZ-H (exclusively)
71530400	3246	32SX-H, 50SX-H, 55HZ
71530300	3261	32SX-H, 61SX-H, 61RX-H, 61LX-H, 61SF-H
71530500	7091	70SZ-H, 91SX-H
71530530	GT15HZ.105.91	GT15HZ, 91SZ,RZ-H, 91HZ/ 105HZ Series

Specifications are subject to alteration for improvement without notice.

O.S. ENGINE

URL : <http://www.os-engines.co.jp>

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