RL20 Tuning quick reference guide (use in conjunction with main RL20 manual and PC interface).

Where RL20 is fitted to a well set up helicopter, adjustment of the responsivity to avoid hunting at light loads is all that is required. This guide gives a more comprehensive test sequence to optimise the engine/governor/collective system of a glow or petrol (gas) helicopter. For further information see also **"RL20 advanced guide".**

Flight test: Engage governor at desired headspeed*. Fly a series of full collective climbs followed by sustained steep descents lasting perhaps 4 or 5 seconds. Fly the tests as near as possible at constant range to aid assessment of engine speeds by ear (avoiding Doppler effects).

Using the table: Where there are multiple problems (e.g. hunting and underspeed in climb) rectify the problems in the order they appear in the table (i.e. hunting first). Also check the possible causes in the order they appear in this table (e.g. check idle mixture before adjusting Minimum Control Point).

RESULT	POSSIBLE CAUSE	ACTION
Engine hunts	Responsivity too high or Integral Gain too high**	If responsivity above half then reduce responsivity. If responsivity below half then reduce Integral Gain by 10%
Engine overspeeds throughout sustained descent.	Idle mixture too lean	Richen idle mixture
	Minimum Control Point too high**	Reduce Minimum Control Point by 5%
Engine falters at start of climb	Idle mixture too rich	Lean idle mixture
	Minimum Control Point too low**	Increase Minimum Control Point by 5%
Engine underspeeds throughout sustained climb	Main needle mixture too rich	Lean main needle
	Max. collective pitch too high	Reduce maximum collective pitch by 0.5 degree***
Engine speed OK in climb but climb rate poor	Max. collective pitch too low	Increase collective pitch by 0.5 degree***
Excessive rev up at top of climbs or excessive dip at the end of descents.	Responsivity too low or Integral Gain too low**	If responsivity below half then increase responsivity. If responsivity above half then increase Integral Gain by 10%
	Servo too slow	If servo slower than 0.15s/60 degrees then replace

* Where multiple headspeeds are used make tests at each speed and adjust the appropriate parameter for the Mode in use at that speed setting.
** Parameter accessed via PC interface.
*** Negative collective pitch may also require equal change (or apply separate inverted flight test).