

## Some engine tips for the Harris G80

[Where “the manual” is mentioned, this is the Rotax Repair Manual for the the 4-stroke engines 348, 504, etc.]

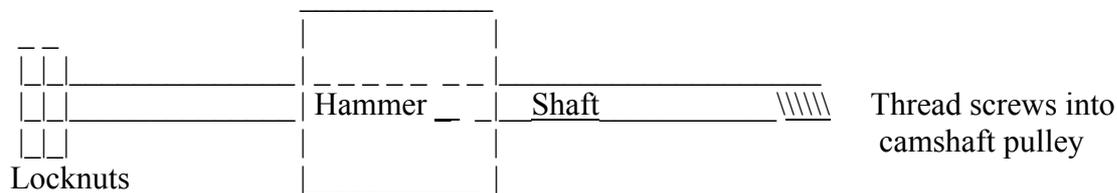
### Special Tools

To do any work on the engine, you will need a crankshaft locking screw, or "locating bolt, M8 x 30" as listed in the "Special Tools" section of the repair manual. This is simply a socket-headed bolt with a tapered end. The part number is 241 965, but I found that the one supplied under this number was too long, and I couldn't get it into the hole in the crankcase because the frame was in the way. I shortened the bolt by about 15mm to the required 30mm (including taper) when it just fitted. However, after being used a few times the end got blunted and it would not screw down far enough, as it is not threaded all the way to the head.

I then bought a hex-headed 40mm M8 set-screw (same as a bolt, but threaded for its full length), filed the head down to a round shape and hacksawed a slot for a screwdriver. Then I cut it down to 33mm and rounded off the end (it doesn't need to be an accurate taper). This seems to be OK, but there could be a much simpler way - by the looks of it, a 25mm set screw should fit, even with a hex head.

Whatever bolt or screw you use, be careful when fitting it. The frame gets in the way, so turn it by hand until you can get an allen key to fit properly without strain (a ball-ended allen key would be useful here). The same goes for the crankcase plug screw when you have finished. It would be a tragedy if the thread in the crankcase got damaged!

If ever you have to take the clutch cover off, this will involve removing both the upper and lower camshaft pulleys. Apart from a 24mm spanner, two special tools will be needed, one of which is part number 276 445, the puller for the timing (lower) pulley. This is straightforward, and shown on page 8 of the manual – but if the pulley has not been disturbed for years, removing it might not be easy! For the camshaft (upper) pulley, page 4 of the manual shows an extractor being used, which is part number 276 360 (items 16 – 21 on page 71). Allegedly, this is no longer available, having been replaced by a slide hammer, but I wasn't able to find one. The sketch shows what it looks like:



The threaded end is screwed into one of the two holes in the camshaft pulley, and the “hammer” is slid along the shaft until it hits the locknuts at the other end. Do this until the camshaft begins to move, then unscrew the tool and fit it in the other hole. Repeat until the camshaft comes away.

Remember to use Loctite when putting the pulleys back afterwards.

## **Rocker spindle removal**

A 10mm screw is needed to pull the rocker spindles out. Although it's shown on page 37 of the manual, it isn't immediately obvious – best to be prepared and have a 10mm screw ready before it's needed.

## **Clutch cover removal**

Basically, this involves removing the timing belt cover, the belt, the pulleys (see above) and all the screws securing the cover. Most of this is covered in the manual, and it can be done without draining the oil from the tank. It just needs the sump draining, as shown in the G80 Owner's Handbook on page 23. However, there is a trap for the unwary. One of the first things to do is to remove the left-hand footrest, then the kickstart and gear levers, which are held on by pinch bolts. What is not obvious is that there is a circlip on the shaft just behind the kickstart, and this will need removing with something thin and sharp – a scribe, for instance. If it is overlooked or forgotten, there will be a struggle when eventually it is time to remove the clutch cover, with a risk of damage to the oil seal.

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