

SHG 110

Troubleshooting guide

WARNING

This troubleshooting guide represents only a coarse outline of the steps necessary to get the laser system back to its specification. It does only complement, not replace the user manual.

Before taking any of the following steps the user must familiarize himself with the hazards involved when maintaining a laser source. **READ AND FOLLOW THE SAFETY INSTRUCTIONS AND WARNINGS** in the user manual carefully before you proceed. TOPTICA cannot be held liable for injuries and / or damage caused by improper use of its lasers. If you feel unsure, please contact TOPTICA's service department first. Proceed at your own risk!

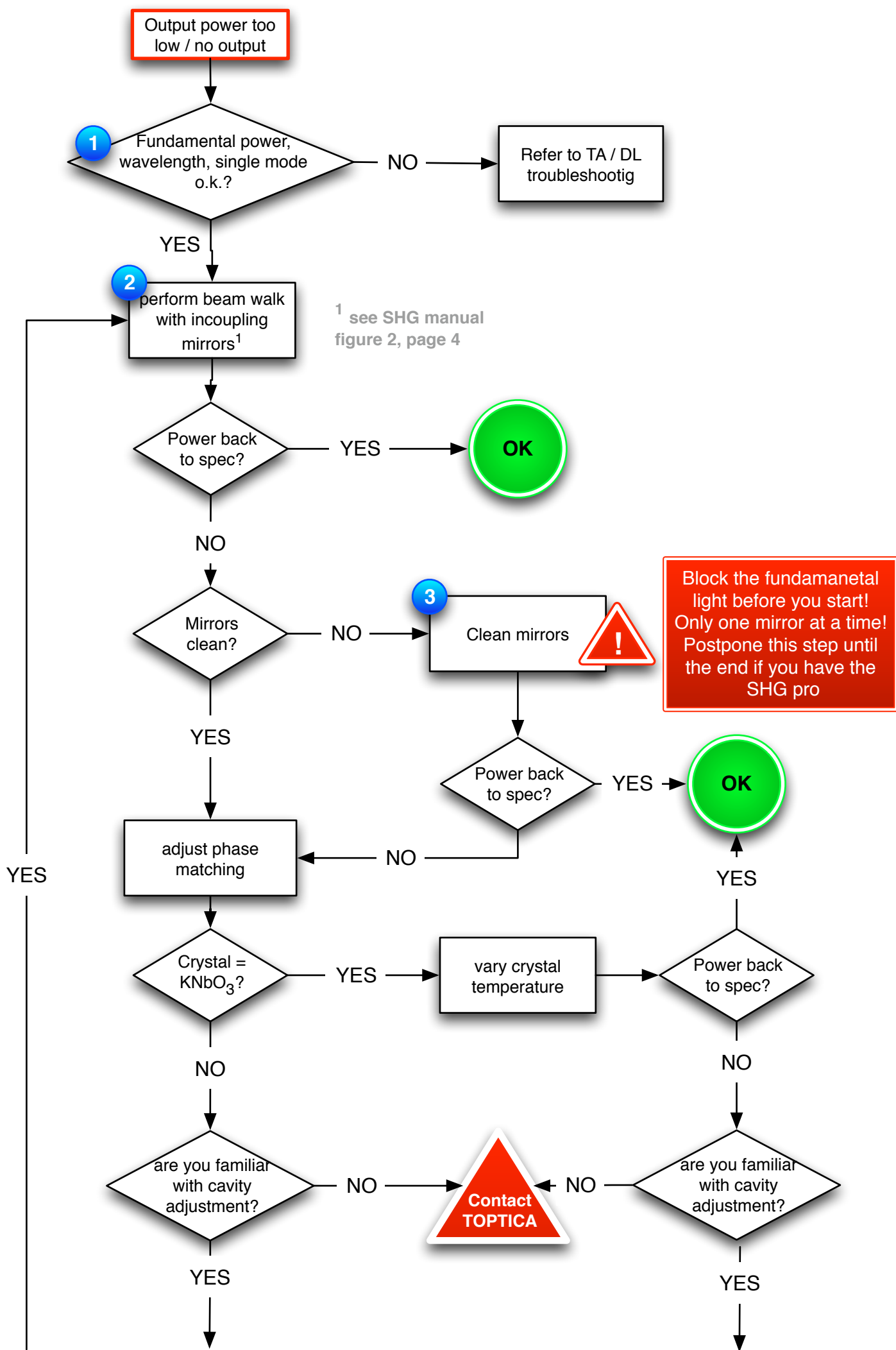
NOTE

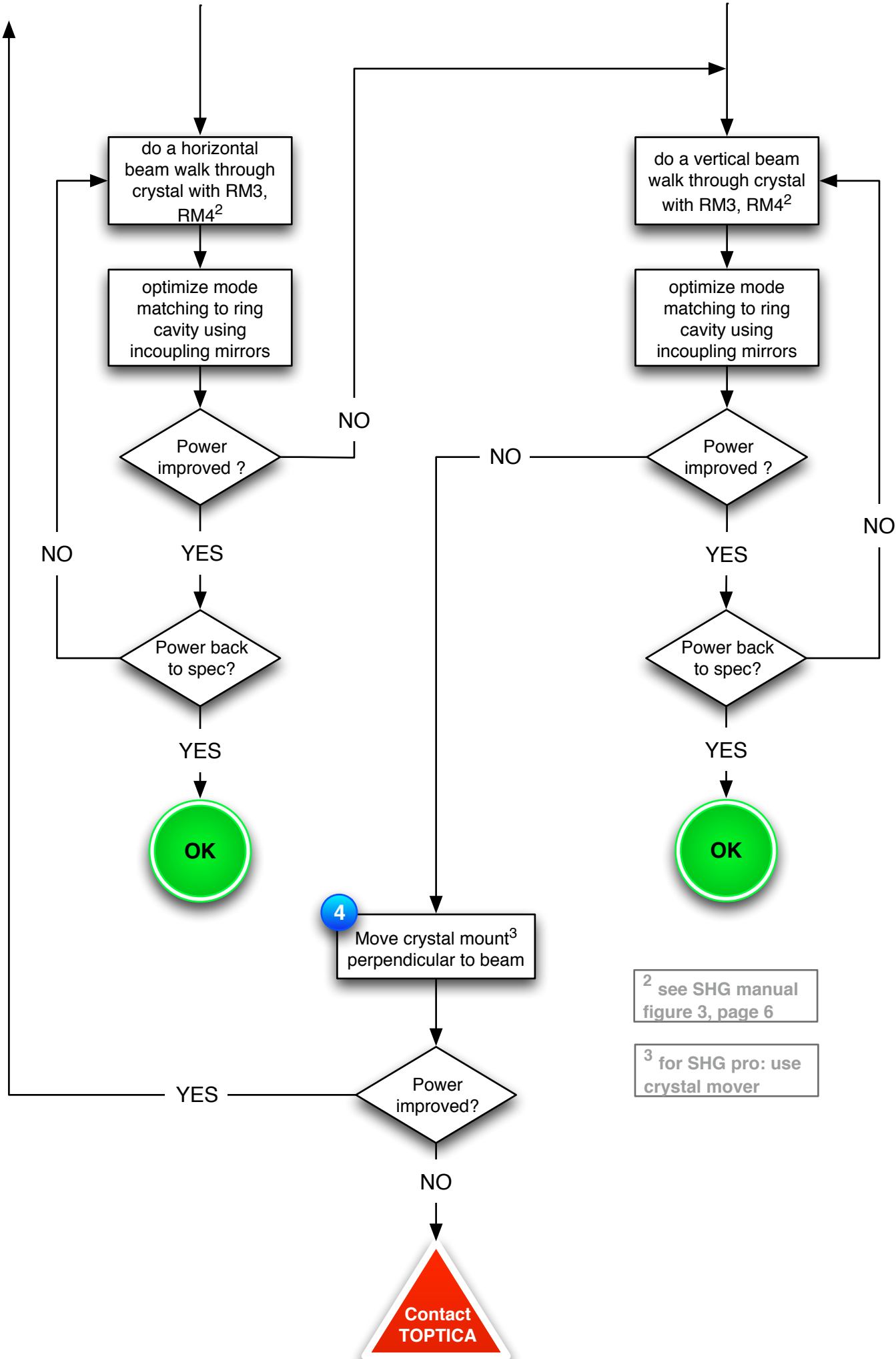
The references given in this guide are valid for the SHG user manual, issue August 2005. Other (especially older) versions of the manual have a different structure or may not contain all the information. Please contact us if you wish to receive a printed copy of the most recent manual.



There are many parameters that can be tweaked in order to achieve improved performance of the SHG module. In order not to get lost in parameter space it is important to follow the following rule: If the performance of the SHG gets worse during the course of adjusting a parameter, keep adjusting the same parameter until you are back at the point where you started!

Never continue to adjust without signal. If you have lost the signal increase the sensitivity, e.g. amplifier gain or zoom into the oscilloscope trace. Then undo the most recent change.





1

The power deviation should be $< 10\%$. TA-SHG owners: improve coupling into the TA by optimizing the intensity of the frequency-doubled light!
The spectrum can be checked by either scanning the cavity or with a scanning FPI.

2

Tip / tilt mirrors by pressing with your fingers against the mount to find direction for improvement. This usually gives a good indication for proper alignment

3

Clean only one mirror at a time! Before cleaning, note the power. Keep cleaning until the power is at least as large as it was before! Only then proceed to the next mirror.

4

If the lock is lost switch to scan to find the position where the cavity is closed and a resonance peak can be observed.