Electronic Field Service Procedure, SMPS

USAGE: To be performed first when a loss of average laser power is detected. Mechanical Field Service Procedure to follow.

PURPOSE: To recover lost output power through temperature tuning of the Doubler, Tripler, and Diode.

TOOLS: Digital Volt Meter (DVM), Small flat screw driver, Laser power meter.

STEP 1
Check Scan: (see figure 1)

Object: To ensure that there are no damaged areas of the crystals.

1. Remove two screws in the access panel on the Right side of the power supply. Panel door should flip down to expose test points. Test point functions are labeled on a sticker on the inside of the access panel. Locate the portion of the sticker that details the SCANNER CARD. The card will be mounted on top of the main power supply board.

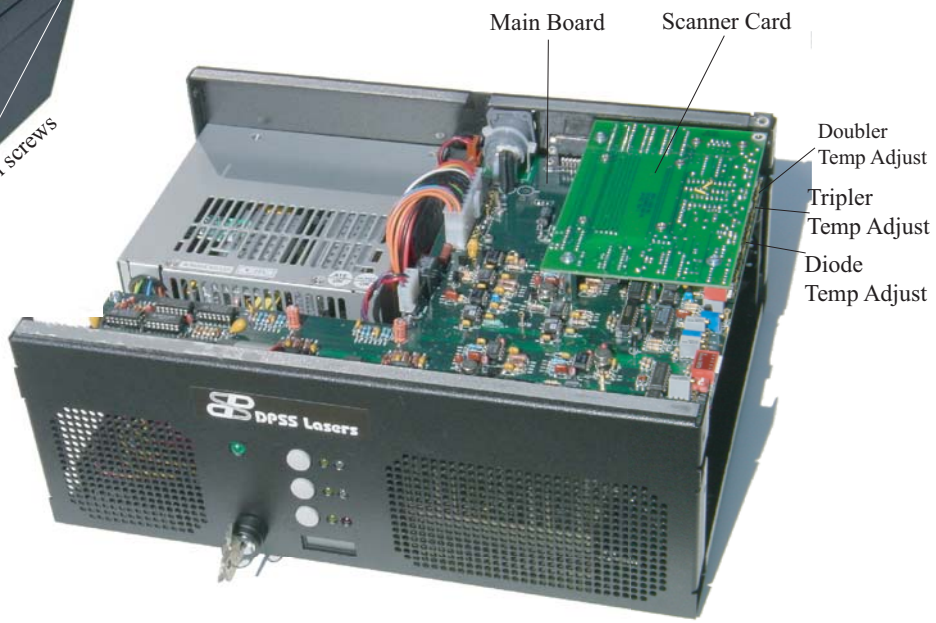
2. Connect a DVM on the scanner card between TP1 (GND) and TP2 (POS). You should read a value between 0.000 and 3.000VDC. This value gives the present location (in mm) of the scanner.

3. Remove all attenuators from the laser head and place a power meter in the output beam. Measure and record output power.

4. Locate the button marked STEP/SLEW on the SCANNER CARD. Press this button once and release. A red light should turn on next to the button and the value on the DVM should begin to change. Monitor the output power for 10 seconds.

5. At the end of 10 seconds, press the STEP/SLEW button and release. A green light should turn on next to the button. If the power did not change by more than 10% in 10 seconds, continue to STEP 2. If the power changed by more than 10% in 10 seconds, press STEP/SLEW button and watch power. When maximum power is observed, press STEP/SLEW button and contact your local service representative for more detailed instructions.

Figure 1



STEP 2
Tune Diode Temperature: (see figure 2)

Object: To get to point "C" on the curve for maximum power.

Note: The values shown in figure 2 are typical values. Lasers may vary.

1. Connect a DVM between TP1 (GND) and TP40 (Diode Temp Set). You might read approximately 2.850V. This corresponds to 28.5C.

2. Make a small change (+0.020V) to TP40 by adjusting R121.

Wait 1 minute for the temperature to stabilize and check power. If power remains constant (within 10% of starting value), then continue increasing TP40 in 0.020V increments (waiting 1 minute between changes) until power begins to drop and you reach point "B" If power has increased, you are near point "A" and should continue to increase TP40 in 0.020V increments until power reaches point "C".

If power decreases after the first adjustment, you are near point "B" and should begin decreasing TP40 in 0.020V increments until you reach point "C".

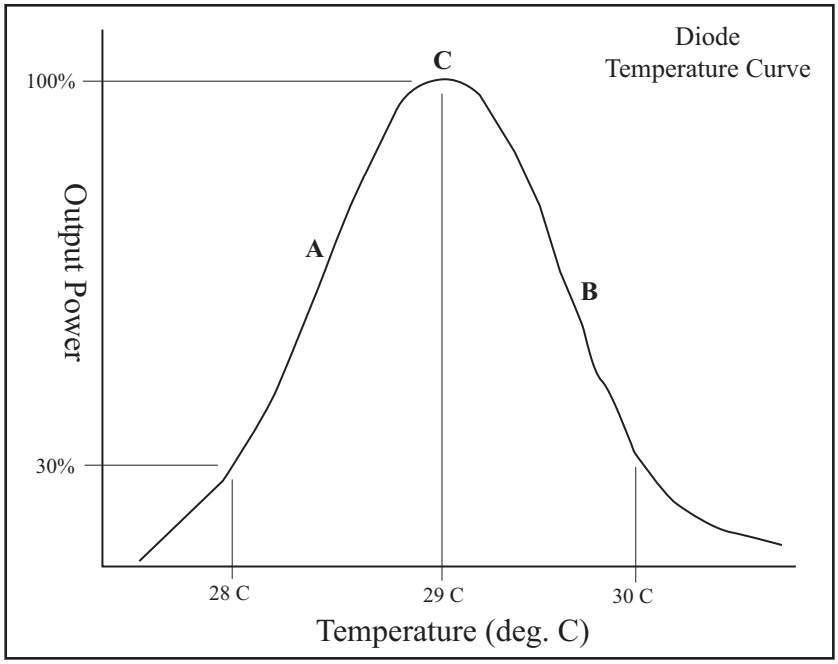


Figure 2

STEP 3
Tune Doubler Temperature: (see figure 3)

Object: To get to point "C" on the curve for maximum power.

Note: The values shown in figure 3 are typical values. Lasers may vary.

1. Connect a DVM between TP1 (GND) and TP50 (Doubler Temp Set). You should read approximately 2.500V. This corresponds to 25C.

2. Since you may be starting from either point "A" or point "B", make a small change (+0.020V) to TP50 by adjusting R151.

Wait 30 seconds for the temperature to stabilize and check power. If power has increased, you are at point "A" and should continue to increase TP50 in 0.020V increments (waiting 30 seconds between changes) until power reaches a maximum and then begins to drop.

If power decreases after the first adjustment, you are at point "B" and should begin decreasing TP50 in 0.020V increments (waiting 30 seconds between changes) until power reaches a maximum and then begins to drop again.

3. Make a final adjustment to set TP50 for maximum power at point "C".

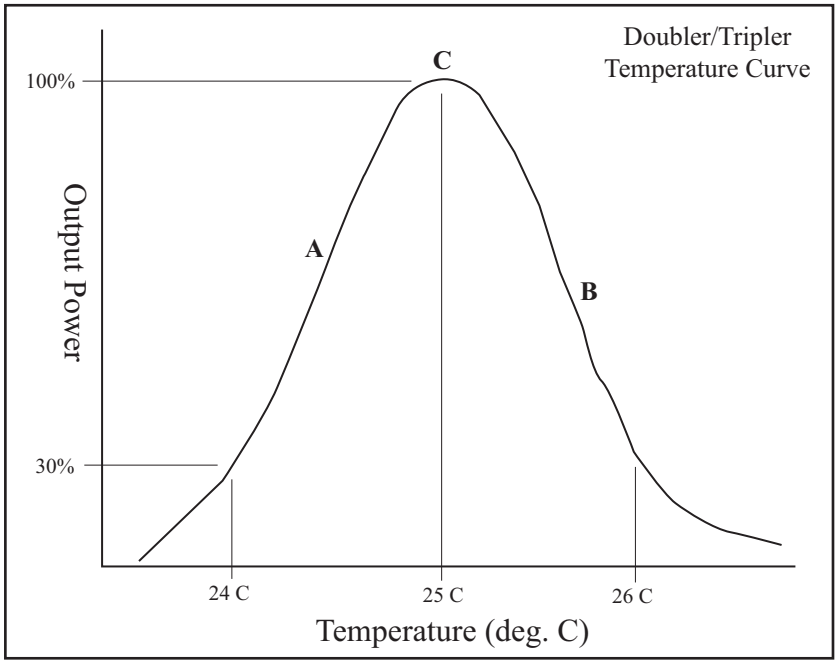


Figure 3

STEP 4
Tune Tripler Temperature: (see figure 3)

Object: To get to point "C" on the curve for maximum power.

Note: The values shown in figure 3 are typical values. Lasers may vary.

1. Connect a DVM between TP1 (GND) and TP60 (Tripler Temp Set). You should read approximately 2.500V. This corresponds to 25C.

2. Since you may be starting from either point "A" or point "B", make a small change (+0.020V) to TP60 by adjusting R191.

Wait 30 seconds for the temperature to stabilize and check power. If power has increased, you are at point "A" and should continue to increase TP60 in 0.020V increments (waiting 30 seconds between changes) until power reaches a maximum and then begins to drop.

If power decreases after the first adjustment, you are at point "B" and should begin decreasing TP60 in 0.020V increments (waiting 30 seconds between changes) until power reaches a maximum and then begins to drop again.

3. Make a final adjustment to set TP60 for maximum power at point "C".

DPSS Lasers Inc.
2525 Walsh Ave.
Santa Clara, CA 95051
Phone: (408) 988-4300
Fax: (408) 988-4305
Email: Sales@DPSS-Lasers.com
TechSupport@DPSS-Lasers.com
Web: www.DPSS-Lasers.com