

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 and Tripler

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

Refer to Figure 1 below. Remove screws at the panel on the right side of the Power Supply to expose diagnostic test points along the board edge.

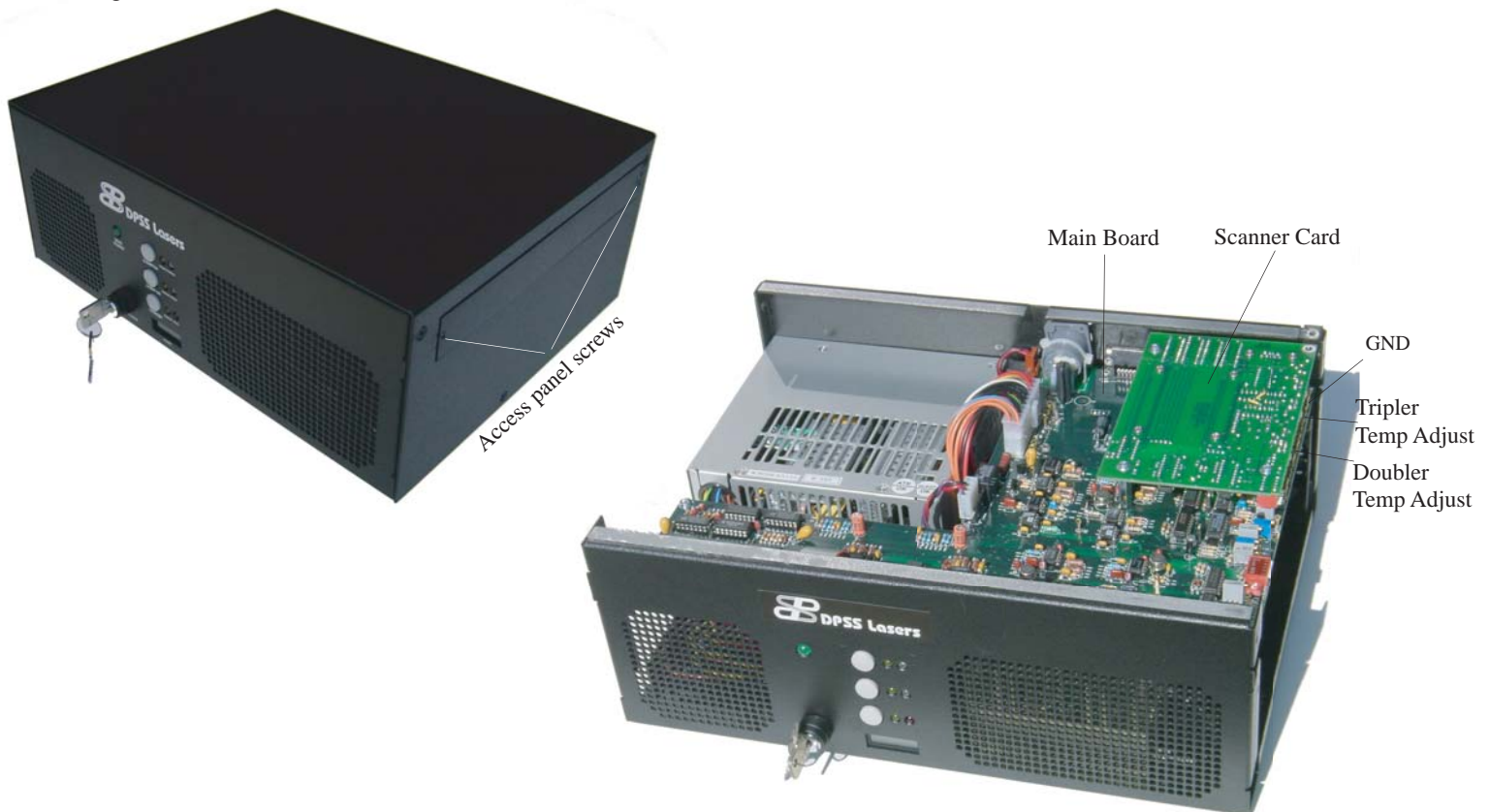


Figure 1

STEP 1

Warm-up:

CAUTION: THIS WILL CAUSE THE LASER TO EMIT HIGH POWER UV PULSES. TAKE APPROPRIATE SAFETY MEASURES (see User Manual for more information) WHEN WORKING AROUND HIGH POWER LASER EMISSIONS.

1. Place your power meter sensor in the beam path as close to the laser head (ahead of other optics) as practically possible.
2. Turn the key switch ON.
3. Press the LASER ON button.
3. Allow the laser to warm up for at least 30 minutes.
5. Press the Q-SW ENABLE button.
6. Measure and make a note of your starting power.

STEP 2

Tune Doubler 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 TP50 (Doubler Temp Set). You might read approximately 2.510 V. This corresponds to 25.10 C.
2. Since you may be starting from either point "A" or point "B", make a small change (+0.020 V) 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 0.020 V 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 0.020 V increments (waiting 30 seconds between changes) until power reaches a maximum and then begins to drop again.

Maximum power and greatest long-term stability will be achieved at point "C".

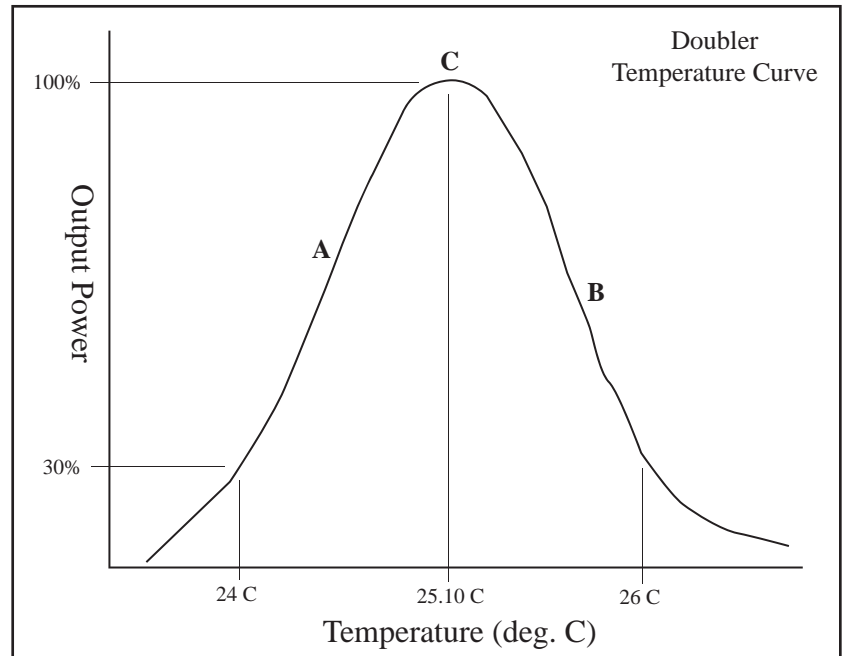


Figure 2

STEP 3

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 might read approximately 2.520 V. This corresponds to 25.20 C.
2. Since you may be starting from either point "A" or point "B", make a small change (+0.020 V) 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 0.020 V 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 0.020 V increments (waiting 30 seconds between changes) until power reaches a maximum and then begins to drop again.

Maximum power and greatest long-term stability will be achieved at point "C".

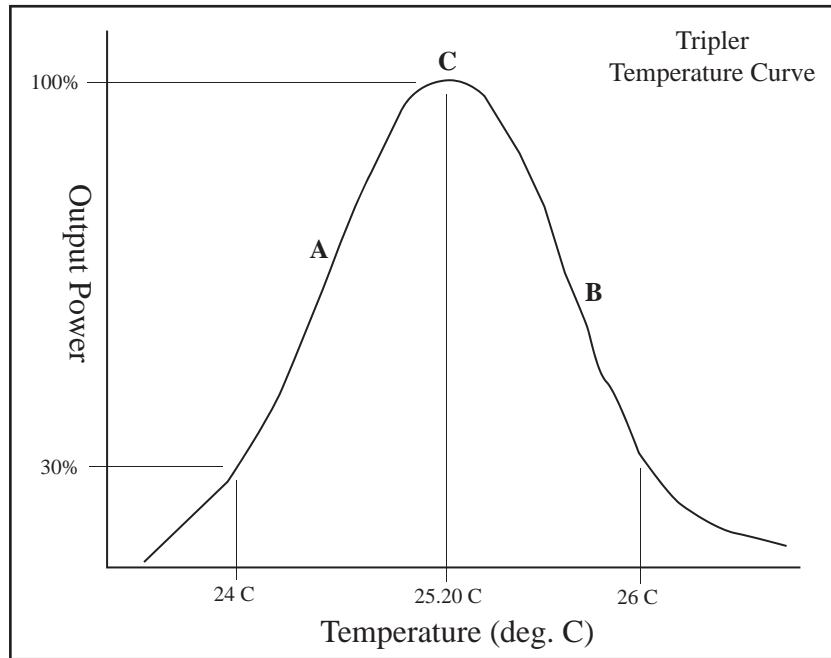


Figure 3



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