

5519A-04

S E R V I C E N O T E

Supersedes:
none

5519A Laser Head

Serial Numbers: US41110201 to US4522xxxxx

New Receiver Board Adjustment

Parts Required: see test equipment below

ADMINISTRATIVE INFORMATION

SERVICE NOTE CLASSIFICATION:

INFORMATION ONLY

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ADDITIONAL INFORMATION:

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Situation:

The procedure in the 5519A/B Service Manual part number 05519-90006 does not have the adjustment procedure for the new Receiver Board.

Solution/Action:

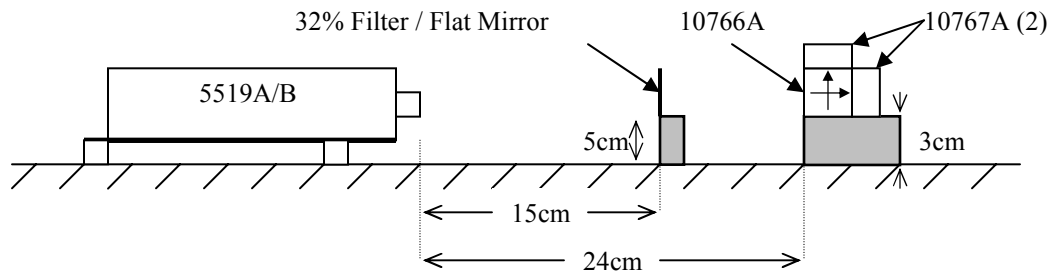
When adjusting the new revised Receiver Board, please use the procedure below. The adjustment procedure in the manual is for the old revision Receiver Board.

Agilent 5519A/B Receiver Gain Adjustment

This adjustment sets the 5519A/B Laser Head receiver gain so that the SIGNAL indicator illuminates when the returned laser beam power is 8.5% of the laser output power. This also corresponds to 10% of the signal returned from a typical Agilent 10767A Retro-reflector.

Test Equipment:

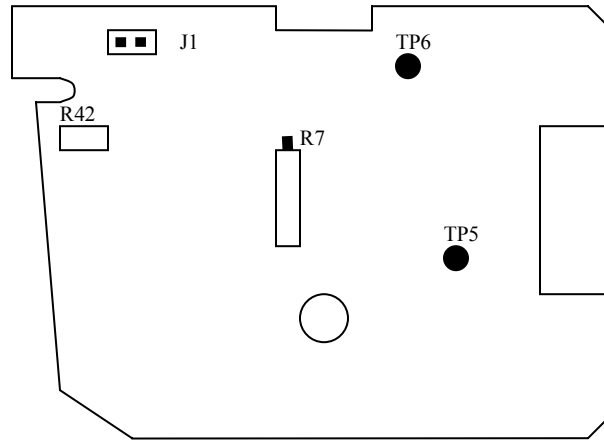
Optical Filter (32% transmission, ND, 50mm X 50mm)	Edmund Optics T48-094	Qty. 1
Flat Mirror	Agilent 10773A	Qty. 1
Retro-reflector	Agilent 10767A	Qty. 2
Interferometer	Agilent 10766A	Qty. 1
Digital Multi-meter	Agilent 34401A	Qty. 1

Setup:

Position the laser and optical components as illustrated above in a linear path. The heights of the optics supports are approximate, fine tuning to the setup can be achieved by adjusting the height of the laser. The 32% Filter and the Flat Mirror are to be interchangeable.

Receiver Gain Calibration Procedure, OTHER Mode:

1. Begin with the laser cover removed and the laser powered ON and locked.
2. Set the laser turret to OTHER and both turret shutters to the largest aperture.
3. Position the 32% filter in the beam path. Observe that the beam passes through the filter at two separate points.
4. Tune the position of the laser to shine the entire reflected laser beam into the laser's return aperture for OTHER mode (the lower aperture).
5. Adjust the angle of the 32% filter while observing the laser apertures. Faint beam spots that are retro-reflections from the optics should be positioned away from the laser's apertures.
6. Connect the digital multi-meter to the receiver board at TP6 (ACOM) and TP5 (Signal Strength).



05519-68002 Receiver Board

7. Adjust R7 clockwise until the “SIGNAL” LED is OFF
8. Block the beam between the laser head and the retro-reflector.
9. Verify that the Signal Strength voltage at TP5 is between 0.004V and 0.006V.
10. Unblock the beam.
11. Adjust R7 counter-clockwise until the “SIGNAL” LED is ON.
12. Verify that the Signal Strength voltage at TP5 is 0.105V to 0.115V.
13. Block then unblock the beam between the laser head and the retro-reflector, if the “SIGNAL” LED does not turn OFF and return to ON then repeat steps 10 & 11.

Receiver Gain Calibration Procedure, STRAIGHT Mode:

1. Set the laser turret to STRAIGHT and both turret shutters to the largest aperture.
2. Remove the 32% filter from the beam path.
3. Insert the flat mirror in place of the 32% filter.
4. Tune the position of the laser to completely shine ALL of the laser beam into the laser’s return aperture for STRAIGHT mode (the upper aperture).
5. Adjust R42 to produce a Signal Strength voltage at TP5 between 1.275V and 1.285V.

Gain Switch Test:

1. Move multi-meter probe from TP5 to connector J1-2 (purple wire).
2. Verify that the meter reads ~0VDC.
3. Rotate the laser turret to OTHER mode.
4. Verify that the meter reads > 6VDC.
5. Repeat this test switching between the two modes to confirm switching.

This concludes the scope of this receiver gain calibration procedure. Remove the multi-meter probes and power OFF the laser to replace the cover.