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Service Note

98-014 Rev B
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CHANGING THE OPTICAL PICKUP IN THE M300

I. SCOPE:

This service note describes a retrofit which will improve the performance of the optical pickup (wheel position detector) when a new part is installed in the analyzer. This retrofit can be installed with existing optical pickups and will improve their performance as well.

If you are not replacing the optical pickup, you will not need to purchase the KIT000043. Instead, you will need to obtain a 10.0K Ohm, ¼ Watt resistor and possibly a 124 Ohm, ¼ Watt resistor. You will also need a copy of API Service Note 96-010, which explains how to align the optical pickup. Please contact API Customer Service to obtain a copy of Service Note 96-010.

In all cases, this retrofit must be used only on wheels which have a black paper installed under the metal mask. If you analyzer has serial # 230 or lower, it is recommended that you contact API Customer Service to determine if your analyzer has the black paper installed.

This retrofit will produce a more robust signal from the optical pickup, which will be more tolerable of small misalignments. This will help prevent having to align the optical pickup in the field.

II. PARTS:

API Part # KIT000043
API Service Note #96-010

III. TOOLS:

Soldering equipment
Needle-nose pliers
Diagonal cutters
#2 Phillips head screwdriver

IV. PROCEDURE:

A. Remove power and cover from analyzer.
B. If you are not installing a new optical pickup, but merely performing the resistor retrofit, skip to step F.

C. In order to change the optical pickup, you will have to rotate the bench (1/4 turn counterclockwise as you are looking from the front) such that the motor at the rear of the bench is pointing up. This is done as follows:

1. Remove the 4 screws, which secure the bench rubber feet to the chassis. These are located under the chassis.
2. Slowly start to rotate the bench. As you do so, you will find various tie wraps, hold downs and ground wires, which will have to be cut/disconnected in order to rotate the bench. You will need the motor power and the heaters and thermistors to stay connected. Due to design and layout changes we have made, it is impossible to give a step by step instruction for this.

D. Once the bench is lying on its side, you can access the optical pickup on the underside of the bench. A pair of screws holds the optical pickup and alignment block in place. Remove the screws, unplug the pickup and remove it.

E. Install the new optical pickup onto the bench. Leave the bench on its side until the end of this procedure.

F. Loosen the thumbscrew and pivot the card hold-down bar off of the synch/demod card.

G. Remove the synch/demod card.

H. Locate R46, R47 and R48 (on the left side of the synch/demod card, near the top). R46 should be a jumper and R47 and R48 should not have a resistor installed. If this is not the case, you will have to remove R46 and install a jumper. You will also need to remove R47 and R48.

I. Locate R50 on the synch/demod card. It should be a 124 Ohm resistor. You can verify this by direct measurement with an Ohmmeter or by looking for the number "1240" on the resistor. If the resistor has stripes, it may be the wrong resistor. Again, this can be verified by direct measurement. If this resistor is not 124 Ohms, you will have to replace it with the 124 Ohm resistor included in the KIT.

J. On the solder side of the board, you will find a resistor soldered to pins 3 and 8 of U12. This is the resistor to replace with the 10.0K Ohm from the KIT.

K. Remove solder from both leads of the resistor.

L. Solder the 10.0K Ohm resistor from the KIT across pins 3 and 8 of U12.

M. Install the synch/demod card into the analyzer.

N. Power up the analyzer and allow it to warm up for 1 hour.

O. Follow the procedure described in Service Note # 96-010, included in the KIT, to verify the optical pickup signal. **Note:** If you need to adjust the optical pickup while following Service Note # 96-010, you will need to turn the bench on its side if you haven't already done so, which is done by following step C above.

P. Turn the bench to its normal position if it is on its side by reversing step C above. Secure the bench to the chassis by installing the 4 screws into the rubber shock mounts.

Q. Leak check the analyzer and allow to run for 1 hour before proceeding with calibration.

If you have questions regarding this procedure or any API equipment, please contact an API Customer Service representative.