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Tech TALK

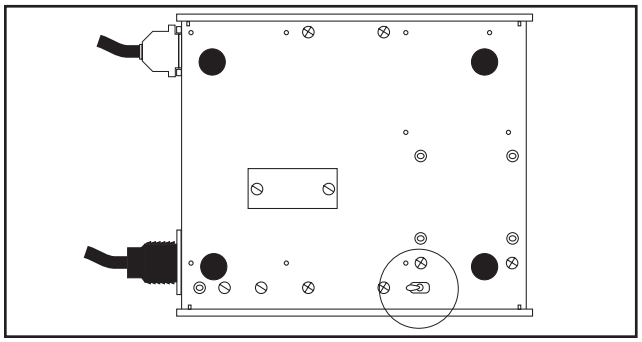
A TECHNICAL PRODUCT PUBLICATION

Troubleshooting the SP2000 Printer

In this edition of Tech Talk, we'll discuss some helpful service and maintenance tips for the popular SP2000 Ticket Printer.

WHY CAN'T I PROGRAM MY TIME AND DATE?

To prevent accidental changes, there is a toggle switch on the bottom of the printer which locks out access to the SET programming switch. This switch is directly below the SET switch. Slide this toggle switch to the rear, and programming the time and date is possible. After setting the time and date, return this switch to the forward position to prevent changes.



SET Switch Lockout on SP2000 Bottom Plate

HOW CAN I GET CLEAR CARBON COPIES?

WO-8 and later EPROM versions (after Sept. '88) offer a switch setting (SW3-5) which allows the print head to double strike the paper. This feature should help with heavy copies and old carbons which cause problems with readability. To upgrade your pre-1988 printer, call us and we'll send the required EPROM.

WHY CAN'T I GET MY PRINTER TO PRINT THE WAY I WANT IT TO?

Find out if the application requires a continuous or demand output. If using a continuous output, the printer must be in the Weight Extraction Mode. With a demand output, the printer can be in either Weight Extraction Mode or Enhanced Output Mode.

Do you want to initiate the print command from the indicator or printer? The print command can be initiated by the printer or by most indicators. For information on sending a print command from the indicator, see your indicator manual. When doing demand prints from the printer, print lines must be used. These lines must be connected to a print-configured digital input on the indicator. When using 20 mA, pins 11 and 7 initiate print. Pins 11 and 13 are used with RS-232.

Is the print location of the Time & Date important? Time & Date is printed in Weight Extraction Mode in a set location. In the Enhanced Output Mode, Time & Date can be adjusted to print either before or after the serial string. The location is controlled by the dip switch selections on the SW-1 switch bank. Pins 4 and 5 should also be jumpered together for any serial interface, as recommended in the SP2000 manual.

MY PRINTER IS INOPERABLE. WHY CAN'T I GET IT TO PRINT?

A) Do you need RS-232 or 20mA operation to match the indicator's selected serial communication format? The SP2000 is pre-configured (at jumper J4) for RS-232 format at the factory.

B) If 20 mA operation is needed, do you have the 20mA option installed?

C) Make sure wires are assigned to the proper port. 20mA requires pins 9 (+) and 10 (-). RS-232 requires pins 3 (RXD) and 7 (SIG GND).

D) Do you have jumper J4 (located next to U2 on the SP2000 Main Circuit Board) in the proper position? Jumper the front and center pins for RS-232, or the rear and center pins for 20mA format.

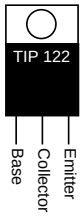
E) Is the baud rate set properly? Check SW-2 switch bank for appropriate baud rate. We recommend 1200 baud if the indicator is using a continuous-mode CC (Consolidated Controls) serial data format.

THE PRINTHEAD WILL NOT STRIKE ALL OF THE DOTS (ONE OR MORE PINS NOT FIRING).

The problem is nearly always caused by a bad printhead that was damaged by a failed driver transistor. The printhead must be replaced, but the bad transistor(s) must be replaced first, or the new printhead will be similarly damaged almost immediately.

First, remove the main board, turn it over to the solder

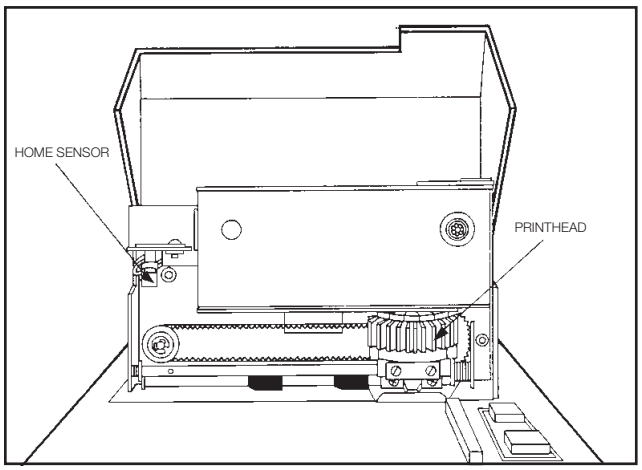
side, and check the head driver transistors (Q3 - Q11) with an ohmmeter or diode checker. Look for shorts between the emitter and collector leads of the transistors Q3 - Q11. Any shorted driver transistors should be replaced. The printhead can then be replaced, which should solve the problem.



WHY DOES THE PRINTHEAD STICK ON ONE SIDE AND CHATTER?

This problem is usually caused by one of four possible problems: 1) a dirty print mechanism, 2) a mechanical adjustment of head travel or "homing", 3) a timing belt misalignment, or 4) a badly worn drive motor.

1) Rough operation and head sticking is most often caused simply by lack of proper cleaning. It is important to keep the printer as clean as possible. The most critical part to keep clean is the printhead shaft. The shaft should be cleaned and lubed 2-3 times per year with Lubri-plate, IBM #22, Radio Shack's Lube Gel, or an equivalent.



SP2000 Service Items

2) Head travel alignment is performed on all units at the factory. But if the print assembly has been dismantled for belt, head carriage, or home sensor replacement, the alignment procedure must be repeated. The head stalling or chattering at either end of its travel may indicate a misaligned printhead. The goal of the alignment procedure is to center the travel of the head on the shaft so that there is equal amount of end play at either end when the head is at rest.

   There are two adjustments involved in centering the head travel. The first adjustment is the home sensor, an optical switch mounted on a small metal plate located in the upper left-hand portion of the print mechanism. See the above diagram for the home sensor location. The plate is attached to the mechanism with two screws and is slotted to allow side-to-side adjustment of the sensor. By moving this sensor, the point at which the head stops on the left can be changed. This, in turn, changes the point at which the head stops on the right. Experience has shown that the best position for this sensor is where the left edge of the sensor plate meets the left edge of the cutout in the mechanism. Often, this is the only adjustment required.

3) However, if the operation is still rough, the timing belt may require adjustment. The timing belt travels around two pulleys--the left pulley is the idler pulley, and the right one is the drive pulley. Loosen the idler pulley so that the belt goes slack and then slip the belt over one tooth on the drive pulley. If this doesn't produce satisfactory results, try to move the belt over one more tooth on the drive pulley in the same direction as before. This can be repeated up to four times. If this doesn't solve the problem of the head chattering on one side, try the home sensor adjustment again.

4) Occasionally, a worn drive motor may be causing the problem. There is no easy and reliable way to test the motor, nor will it necessarily show any obvious symptoms of undue wear. At our service center, we will replace the drive motor only if all the above procedures have not solved the sticking or chattering problem.

THE PRINTING SEEMS FAINT. HOW LONG SHOULD THE PRINT RIBBONS LAST?

Ribbon replacement is at the user's discretion. The ribbons are rated for approximately 500,000 characters, depending upon font size used and cleanliness.

This "Tech Talk" bulletin addresses nearly all of the "popular" questions that we hear from the field regarding the SP2000 operation and performance. However, if you become stumped by a particularly tough problem, we want to hear from you on our Direct Access Service Line: 715-234-2003. Any questions or suggestions regarding our products are always welcomed.

RICE LAKE WEIGHING SYSTEMS
Service Department
Rice Lake Weighing Systems
715-234-2003