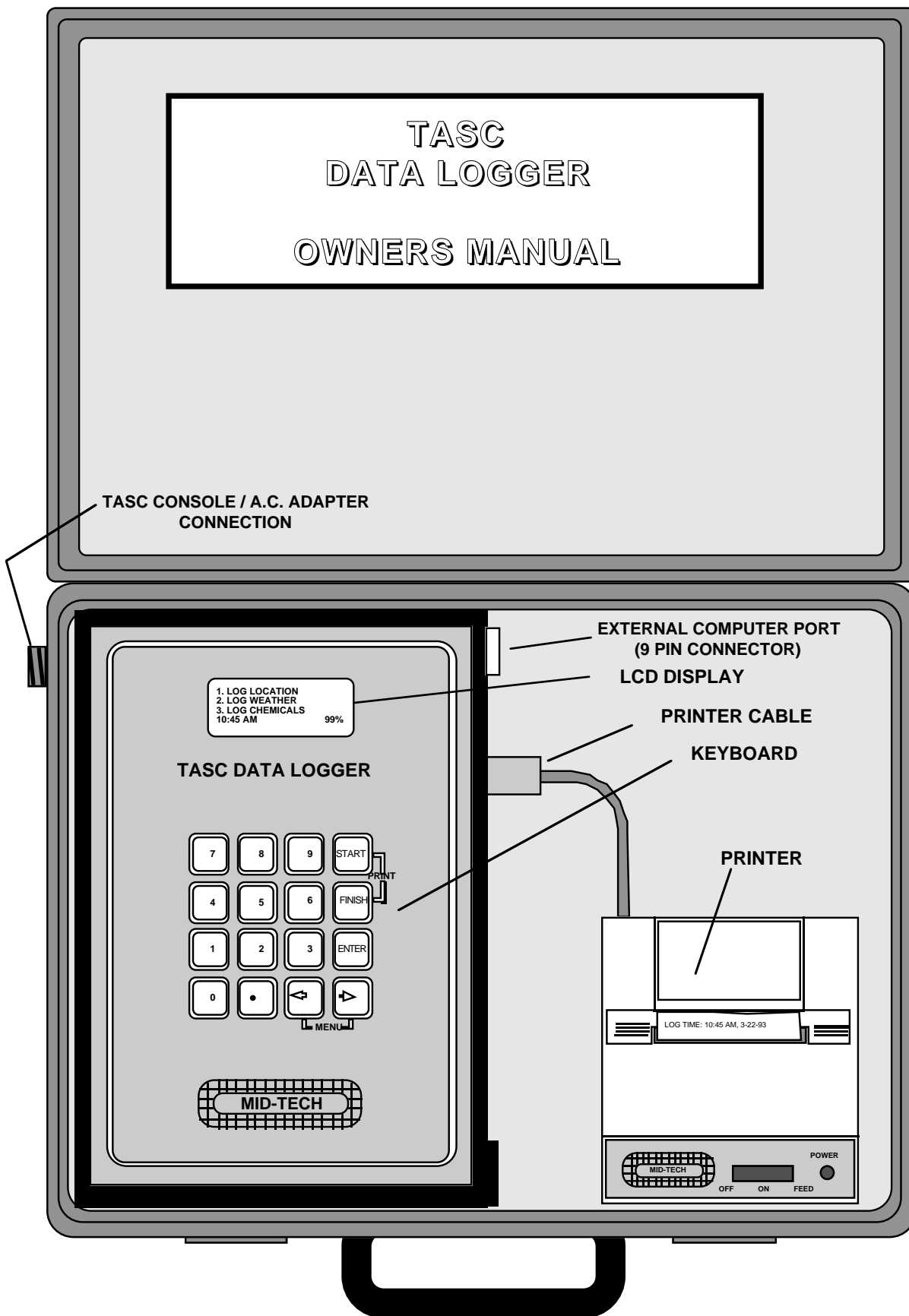


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# TASC DATA LOGGER OWNERS MANUAL

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# TASC DATA LOGGER OWNERS MANUAL CHANGE LOG

DATE	DATE CODE	DESCRIPTION
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**INTRODUCTION:**

The MIDWEST TECHNOLOGIES TASC DATA-LOGGER is a companion product to the MID-TECH TASC Injection Control System. It has been designed to combine user entered information pertaining to a chemical application with information obtained directly from the TASC Console.

This unit includes a keyboard with a 4 by 16 dot matrix LCD to display information and help guide the operator through each operation. It also includes a printer which will produce a printed tape record of information as it is being generated. The DATA-LOGGER includes sufficient memory to store data for downloading to a computer at a later time.

The DATA-LOGGER can be powered in two ways. When connected to the TASC, the DATA-LOGGER will power up as the TASC Console is turned on. It can also be powered from the small AC adapter (included) so that data can be transferred to a PC in an office environment.

The DATA-LOGGER uses non-volatile memory to store information. Once data are logged into the DATA-LOGGER memory, they will remain there until downloaded into a PC. The clock circuit in the DATA-LOGGER does use a rechargeable, circuit board mounted NiCad battery to maintain accurate time. Whenever the DATA-LOGGER is powered, from either power source, the battery is being recharged. A fully charged battery should maintain the clock circuit for over a year.

The DATA-LOGGER comes in a sealed, shock resistant case suitable for use in the field. However, it is recommended that it be stored in an office environment when not in use. It is also recommended that any stored or logged data be transferred to a PC at the earliest opportunity, to prevent loss of information due to electromagnetic disturbances which may alter the stored data.

**INITIALIZATION OF THE DATA-LOGGER:**

It is easiest to initialize the DATA-LOGGER in the office, where the unit can be powered by the small AC Adapter which is supplied with the unit. (SEE "USING THE AC-ADAPTER")

**PRINTER NOTE:** The printer has an internally generated test routine which can be initiated by holding down the feed switch while powering up. If this should happen inadvertently and you wish to stop the printer, simply turn the power switch "OFF", wait approximately 3 seconds, then turn it back "ON". This should stop the printer.

The DATA-LOGGER will power up and display "**OPERATOR # 0000**". This message will always appear with 0000 when the unit is first powered up. Each operator should be assigned a 4 digit number to be entered each time the console is powered up. Enter this number now.

Press enter and the display will advance to the **MAIN MENU** position which shows three options:

```
1.    LOG LOCATION
2.    LOG WEATHER
3.    LOG CHEMICALS
10:45 AM          99%
```

The display will also show the current time (lower left portion of the display) and the percentage of memory left (lower right). In the example above, the 99% message indicates that 99% of the total memory is still available (i.e. 1% has been used).

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To advance to additional functions, press the two arrow keys (labeled “**MENU**”) at the bottom right of the keypad. **NOTE:** Press both keys simultaneously and hold for approximately 1 second. This will call up the next screen and give the operator access to the following functions.

1. DOWNLOAD DATA
2. CLEAR DATA
3. OTHER OPTIONS
4. MAIN MENU

To select any of these options simply press the number indicated beside the required operation.

The **DOWNLOAD DATA** and **CLEAR DATA** operations will be covered later. **MAIN MENU** simply returns to the previous screen, and **OTHER OPTIONS** will advance to the next screen. Press 3 to advance to the next level of operation.

1. SET LOG MODE
2. SET DATE/TIME
3. START FORMAT
4. NEW HEADER

These four functions are associated with initial programming of the DATA-LOGGER and are not frequently accessed by the operators. The four functions are as follows:

1. **SET LOG MODE:** Allows the operator to select the cause for printing or recording data records.
2. **SET DATE/TIME:** Permits initialization of the Date/Clock chip.
3. **START FORMAT:** Selection of 1 of 4 Data formats. (Ag-Granular, Ag-Liquid, Roadside, or Lawn Care)
4. **NEW HEADER:** Allows for the building of a 5 line Alphanumeric header with 24 characters per line.

**ENTERING A NEW HEADER:**

Begin the **NEW HEADER** option by pressing 4, the display will show the first line of the header. If nothing has previously been entered, the beginning and ending characters will be located by arrows with 24 blanks in between. The cursor position is shown by a line at the bottom of the character panel.

The first line display will be shown as follows:

```
LINE NUMBER 1:
>_                                     <
```

With the cursor in position at the first character, any letter may be selected by pressing the right arrow key ( > ) or the left arrow key ( < ). This will cause the letters to scroll forward or backward through the alphabet, numbers and selected symbols. When the correct letter or symbol appears in the panel, press the “**ENTER**” key and the cursor will advance to the next character position. If an incorrect character is placed in the line, the character may be changed by advancing the cursor (ENTER key) past the last character of the line. The cursor will return to position 1 in Line 1. Then advance to the incorrect character and re-enter the correct character. Once line 1 is complete, advance to Line 2 by pressing the “**FINISH**” key, (Repeat for all 5 lines).

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The following characters may be selected pressing the “**ARROW**” keys to scroll (right or left) and locate the required character.

**, - . / 0 1 2 3 4 5 6 7 8 9 (space) ABCDEFGHIJKLMNOPQRSTUVWXYZ**

**NOTE:** The printer has a 24 character line width, while the LCD can only display 16 characters per line and must wrap around to the next line to show all 24 characters. If you prefer to center any of the information on the header simply enter an equal number of blank spaces at the beginning and end of the line.

**NOTE:** The Header will only be printed when the “**START**” print key is pressed.

**SETTING THE TIME/DATE CLOCK:**

To set the time clock on the DATA-LOGGER, start from the **MAIN MENU** screen showing the current time. Press both arrow keys (**MENU**) to call up the next screen.

1. DOWNLOAD DATA
2. CLEAR DATA
3. OTHER OPTIONS
4. MAIN MENU

Now press 3 to advance to the next screen.

1. SET LOG MODE
2. SET DATE/TIME
3. START FORMAT
4. NEW HEADER

Press 2 to access the **DATE/TIME** screen.

	MN DY YR
DATE:	03 29 96
	HR/MIN/SEC/
TIME:	16:25.30

The cursor will flash at the Month position. Enter the numerical month by pressing the proper number keys. For example, to change the date to April 24, 1996, press 0 & 4. The cursor will automatically advance to the next digit. Then press 2 & 4 to enter the Day of the Month. Since the display in the YEAR field is correct, just press the “**ENTER**” key. The cursor will move to the time field without changing or re-entering the 9 & 6. The time of day must be entered in Military or 24 hour time designation. For example, 4:30 PM would be entered as 16:30 or 1 , 6 , 3 & 0. Press “**ENTER**” to enter the Time and complete the initialization. The **MAIN MENU** screen will appear and the new time will be displayed in the lower left corner of the display.

1. LOG LOCATION
  2. LOG WEATHER
  3. LOG CHEMICALS
- 4:30 PM                      99%

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**SELECTING THE START FORMAT:**

This operation will generally only be done once unless the non-volatile memory of the DATA-LOGGER is disturbed or you convert your spraying operation to one of the other categories.

First begin by pressing the two "**ARROW**" keys (< >) at the same time to display the screen:

1. DOWNLOAD DATA
2. CLEAR DATA
3. OTHER OPTIONS
4. MAIN MENU

Press 3 to advance to the **OTHER OPTIONS** screen:

1. SET LOG MODE
2. SET DATE/TIME
3. START FORMAT
4. NEW HEADER

From this screen press 3 to display the optional starting formats which may be selected.\*\*

1. AG GRANULAR
2. AG LIQUID
3. ROADSIDE
4. LAWN CARE

**\*\* NOTE: Some early units contained only the AG LIQUID starting format. If you have one of those units, press ENTER to continue.**

Press the appropriate number key for the type of application to be utilized. When a number key (1 to 4) is pressed, the display will automatically return to the **MAIN MENU** screen.

1. LOG LOCATION
  2. LOG WEATHER
  3. LOG CHEMICALS
- 4:30 PM 99%

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**SETTING THE LOG MODE:**

The DATA-LOGGER has the ability to generate a printed log record of accumulated data. At the same time the DATA-LOGGER will store data in memory for downloading to a computer later.

**NOTE: THE DATA-LOGGER MUST BE CONNECTED TO THE TASC CONSOLE BEFORE THE TASC POWER IS TURNED ON, OTHERWISE THE TASC WILL NOT RECOGNIZE THE DATA-LOGGER IS AVAILABLE.**

To select the **SET LOG MODE** menu from the **MAIN MENU** hold down both "**ARROW**" keys, (< >).

1. DOWNLOAD DATA
2. CLEAR DATA
3. OTHER OPTIONS
4. MAIN MENU

Press 3 to advance to the **OTHER OPTIONS** screen.

1. SET LOG MODE
2. SET DATE/TIME
3. START FORMAT
4. NEW HEADER

Now press 1 to select the **SET LOG MODE** menu screen.

1. START/FINISH
2. NORMAL
3. PER MILE (S)
4. PER ACRE (S)

1. When the "**START/FINISH**" mode is selected data will be logged only when the operator presses the "**START**" print or "**FINISH**" print key.
2. When the "**NORMAL**" mode is selected, data will be stored and printed any time a switch associated with the TASC system is switched "**ON**" and "**OFF**".
3. When the "**PER MILE(S)**" mode is selected the display will show:

PER 00 MILES

The cursor will flash at the tens position. To set the log function to log data every mile enter in sequence 0 & 1. To set the log function to log data at the end of each 10 miles enter 1 & 0. Any value may be selected. When the desired number has been entered, press the "**ENTER**" key.

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The display will ask a question.

LOG TO PRINTER?

1. YES
2. NO

If the operator only wants to record data in memory and not on the printer, then he should press 2, (**NO**).

When either 1 or 2 is pressed, the display will return to the **MAIN MENU**.

4. When the "**PER ACRE(S)**" mode is selected the display will show:

PER 00 ACRES

The cursor will flash at the Tens position. To set the log function to log data every acre, enter in sequence 0 & 1. To set the log function to log data at the end of each 10 acres, enter 1 & 0. Any value may be selected. When the desired number is entered, press the "**ENTER**" key.

The display will ask a question.

LOG TO PRINTER?

1. YES
2. NO

If the operator only wants to record data in memory and not on the printer, then he should press 2, (**NO**).

When either 1 or 2 are pressed the display will return to the **MAIN MENU**.

**LOGGING LOCATIONS:**

Press 1 from the **MAIN MENU** to display the **LOG LOCATION** format. Enter the appropriate numbers for each line. The cursor may be moved left or right with the "**ARROW**" keys. When the correct number is displayed, press the "**ENTER**" key and the cursor will move to the starting point of the next line.

All entries will be numbers except the "**LANE**" field of the "**ROADSIDE**" format. The "**LANE**" field automatically goes to a letter designating the last direction of travel entered, (i.e. **N S E W**).

A new direction of travel or lane designation may be selected by using the "**ARROW**" keys to move the cursor to a new letter. As the cursor moves to a different letter, note that the direction indicated "**NORTH**", "**SOUTH**", "**EAST**", "**WEST**" will also change on the display.

Press the "**ENTER**" key after all information has been entered to return to the "**MAIN MENU**" screen.

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**LOGGING WEATHER DATA:**

Weather Data is logged manually by the operator. This information is printed out and/or logged into memory for that point in time only and must be changed (re-entered) as weather conditions change.

Press 2 from the **MAIN MENU** to display the **LOG WEATHER** screen.

1. SUNNY
2. PARTLY CLOUDY
3. CLOUDY

Enter the proper sky condition by pressing 1, 2, or 3.

The screen will advance to the additional weather data screen.

TEMPERATURE 000F  
WIND SPEED 00 MPH  
REL HUMIDITY 00%  
SOIL pH 0.0

Enter the correct value for each item and press the "**ENTER**" key to advance to the next data entry point.

Once the "**SOIL pH**" has been entered, the next screen will advance to "**WIND DIRECTION**".

WIND DIRECTION-  
N     NE     E     SE  
S     SW     W     NW

Use the arrow keys to move the cursor to proper letter code indicating the wind direction (North, North East, East, South East, South, South West, West, or North West) and press the "**ENTER**" key.

When this last line is complete and entered, the data will be printed out on the printer and/or logged to memory (DATA-LOGGER Models).

NOTE: THE WEATHER DATA IS AUTOMATICALLY CLEARED AFTER EACH ENTRY AND MUST BE RE-ENTERED BY THE OPERATOR WHENEVER CHANGES TO THESE CONDITIONS WARRANT DOING SO.

**LOGGING CHEMICALS:**

The TASC DATA-LOGGER can be used to record the chemicals being applied by each Chemical Injection Pump.

The **LOG CHEMICALS** feature is accessed from the **MAIN MENU** screen.

1. LOG LOCATION
  2. LOG WEATHER
  3. LOG CHEMICALS
- 10:45 AM                      99%

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Press 3 to select the **LOG CHEMICALS** screen.

ENTER CHEM CODES  
PUMP # 1 - 0 0  
PUMP # 2 - 0 0  
PUMP # 3 - 0 0

Enter the proper chemical code for each pump by using the digit keys on the keyboard. Press the "**ENTER**" key to advance to the next pump. Pressing the "**ENTER**" key after entering the code for PUMP #3 will advance to the next screen.

ENTER CHEM CODES  
PUMP # 4 - 00  
PUMP # 5 - 00  
PUMP # 6 - 00

Pressing the "**ENTER**" key after entering the code for PUMP #6 to return the screen to the **MAIN MENU**.

1. LOG LOCATION  
2. LOG WEATHER  
3. LOG CHEMICALS  
10:45 AM 99%

Users may wish to use existing chemical codes or produce their own reference chart for each chemical to be used with the system. If multiple tanks are used and there are less than 9 chemicals in the look up chart, you may want to use the first digit of the 2 digit chemical code as a tank designation.

For example: If chemical # 8 is being applied from tank #1 through pump #1, chemical # 9 is being applied from Tank # 3 through pump # 2, and chemical #2 is being applied from Tank #5 through pump #3, enter the following Chemical Codes.

ENTER CHEM CODES  
PUMP # 1 - 1 8  
PUMP # 2 - 3 9  
PUMP # 3 - 5 2

**DOWNLOADING DATA TO A "PC COMPUTER":**

If the amount of space left in memory gets down below 2%, the display will flash the following message:

**>>MEMORY IS LOW<<**

When the memory locations are completely full the display will show the following message:

**MEMORY IS FULL!  
>>DUMP DATA<<**

After this message is displayed the DATA-LOGGER will automatically dump all additional data to the printer. Downloading the data will generally be done in an office environment using the AC Adapter to power the Printer Module. The DATA-LOGGER will automatically turn on and print "Ready" when plugged in to the AC adapter. Turn the small printer "**OFF**". **NOTE:** If the small printer is left "**ON**", the module will try to print out the data being downloaded.

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Install the **DATA CAP** program on your PC if you have not already done so, (See software instructions supplied with the capture program). Connect the 9 pin cable to the serial port of the PC and the Printer Module.

**FOLLOW THE INSTRUCTIONS YOU RECEIVED WITH YOUR DATA CAP PROGRAM TO DOWNLOAD DATA INTO THE PC.**

The time required to dump the data will depend on the amount stored and the Baud Rate selected. Dumping, when the memory is full at the 2400 baud rate, will take approximately 15 minutes.

When the data dump is complete the DATA-LOGGER display will return to the **MAIN MENU**.

**CLEARING DATA:**

To clear the memory registers after the data has been downloaded, simply press the two "**ARROW**" keys to advance to the second menu screen.

1. DOWNLOAD DATA
2. CLEAR DATA
3. OTHER OPTIONS
4. MAIN MENU

Press 2 to select the **CLEAR DATA** option.

PRESS 9 TO ALLOW  
CLEARING MEMORY.

PRESS 0 FOR MENU

To escape without clearing the memory press 0 and the display will return to the **MAIN MENU**.

To complete the clearing of the memory press 9. The display will show the message "**CLEARING MEMORY**" and then return to the **MAIN MENU** screen when complete.

**USING THE AC ADAPTER:**

**NOTE: The small printer head should be turned OFF (via rocker switch) prior to using the AC Adaptor.**

Connect the AC Adapter to the TASC DATA-LOGGER prior to plugging the adapter into the outlet (120 volts, 60Hz).

The DATA-LOGGER will automatically turn **ON** and display "**OPERATOR # 0000**" on the LCD display. All features of the DATA-LOGGER/Printer are functional, except it will not print out data associated with the TASC Control Console, since it is not connected to the Control Console.

The small printer can now be turned **ON** and will print "**Ready**", indicating it is functional. If the printer does not operate properly, turn it **OFF** and wait approximately 3 sec. before turning it back on.

**NOTE: Always wait 3 seconds or more after turning the print head OFF before turning it back ON.**

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**REPLACING THE PRINTER RIBBON AND PAPER:**

An Epson Hx 20 cartridge ribbon is used in the Printer. When printing becomes faint or difficult to see, you should replace the cartridge.

**NOTE:** If the printer is used infrequently, the print impression sometimes becomes weak because the ribbon dries out. If the printed material is difficult to read and you suspect this is the cause of the problem, advance to a properly inked portion of the ribbon by pressing the **POWER** switch into the **TEST** position.

1. Installing the Cartridge Ribbon
  - a. Press the **POWER** switch into the **OFF** position.
  - b. Push down on the left side of print mechanism cover and remove cover.

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c. Push down on the right side of ribbon cartridge (marked "PUSH") and remove the cartridge.

d. Install cartridge. Be sure the ink cartridge is inserted firmly to prevent weak or irregular printing. The cartridge must be properly seated and aligned for best printing.

e. Turn the cartridge "knob" (marked by an arrow) clockwise to stretch the ribbon.

f. Replace the cover.

g. Replace the paper.

You may also insert the ribbon cartridge if there is already paper in the printer.

**NOTE:** If you get ribbon ink on the plastic case, wipe it off immediately. Once it dries, it is difficult to remove.

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2. Inserting the Paper Roll
  - a. Press the **POWER** switch to the **OFF** position.
  - b. Unroll several inches of the paper.
  
  - c. Cut a straight edge on the paper roll if it is jagged. This will facilitate the entry of the paper into the printer.
  - d. Slide the paper through the slot connecting the paper compartment and the printer compartment. You can slide it in about one quarter inch before it stops.
  
  - e. Press the **POWER** switch to the **ON** position and wait a few seconds.
  - f. While holding the paper in place, press the **POWER** switch to the **TEST** position. The Printer will activate, and a rubber roller will pull the paper into the printer compartment. Hold the switch in the **TEST** position until the paper emerges from the top of the printer mechanism.  
  
When an inch of paper has emerged from the top of the printer, release the **TEST** button.



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- d. Turn the paper roll so as to take up any slack in the paper feeding to the printer and replace the clear plastic cover. Make sure the roll of paper turns freely. If it does not turn freely, the paper will jam and will possibly damage the printer mechanism.

**TO REMOVE THE PAPER ROLL:**

First use the paper **TEST** switch to advance the paper about one inch beyond the paper cutter. Now lift the paper roll away from the printer housing. Cut the paper feeding into the printer with scissors. Try to make the cut as square as possible to facilitate the next reloading of paper. You may now pull the remaining paper through the printer mechanism. Be sure to pull the paper from the front (paper cutter side).

**WARNING! Pulling the paper out of the back of the printer will damage the print mechanism.**

**PRINTER SELF TEST:**

You can test the print head and ribbon **ONLY AFTER INSERTING PAPER. DO NOT TEST WITHOUT PAPER.** To perform the test follow these steps:

- a. Assure **ON/OFF** switch is in the **OFF** position, then apply power to the DATA-LOGGER.
- b. Depress the **ON/OFF** switch to the paper **TEST** position.
- c. Hold switch in paper **TEST** position until LED light goes on and printer starts to operate.
- d. Stop the Self Test by turning the **ON/OFF** switch to **OFF**. Wait about 3 seconds and depress the **ON/OFF** switch to **ON**. The printer is now ready.