dart star® SPECTRUM

by medalist

Diagnostic

dart star®

DART STAR® SPECTRUM
DIAGNOSTIC

DIAGNOSTIC MODE

Dart Star® Spectrum has been programmed with the capabilities to find most common hardware problems that may occur during the lifetime of the dart board. Such things as **matrix** problems, **player button** problems and/or **sensor** problems can be discovered by simply using the Diagnostic tools provided as part of the **Spectrum** software.

To access the **Spectrum** Operator Setup feature, follow these simple steps: (1) turn **Off** the **power**; (2) open the front door; (3) set **Dip Switch** number one to the **On** position; (4) connect all **External Devices**, if applicable; and finally, (5) turn the **power On**. The flashing highlight bar, henceforth referred to as the **Cursor**, is currently on the GAME SETUP menu item. To move the cursor from one menu item to another, press and release the red player change button, henceforth referred to as (**PC**), until the cursor is on the desired menu item. Flashing buttons indicate **active buttons**. Pressing any non-flashing button will have **NO** effect.

To access the **Diagnostic Mode Menu**, from the **Program Mode Main Menu**, press (PC) until the cursor is on the DIAGNOSTICS menu item, and press any flashing yellow player button. This will bring up the **Diagnostic Mode Menu** on the video monitor. To return to the **Program Mode Main Menu** without performing any of the available **tests**, move the cursor to the MAIN MENU item and press any flashing yellow player button; otherwise go to the appropriate **diagnostic** in this section and perform the desired test.

To return to the **Game Category Main Menu**, do the following: (1)turn **Off** the **power**; (2)open the front door; (3)set **Dip Switch** number one to the **Off** position; and finally, (4)turn the **power On**.

Any major failure of any kind should be recorded by the operator and reported to MEDALIST SERVICE.
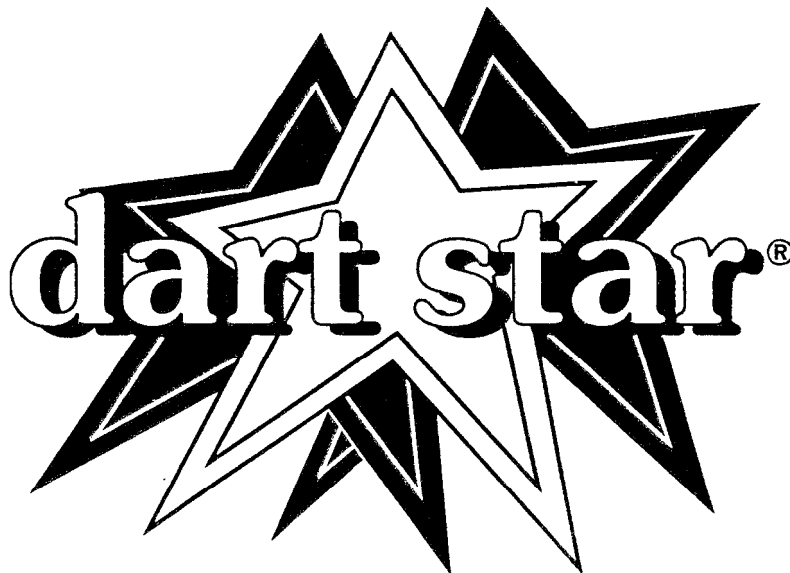
DIAGNOSTIC (continued)
DIAGNOSTIC MODE

MATRIX

Tests every segment of the **target** to ensure that the **matrix** is reading the segments correctly (e.g., a single "5" will be displayed as SINGLE-5), and ensures that there are no **stuck segments**.

To access the **Spectrum** Operator Setup feature, follow these simple steps: (1) turn **Off** the **power**; (2) open the front door; (3) set **Dip Switch** number one to the **On** position; (4) connect all **External Devices**, if applicable; and finally, (5) turn the **power On**. The flashing highlight bar, henceforth referred to as the **Cursor**, is currently on the GAME SETUP menu item. To move the cursor from one menu item to another, press and release the red player change button, henceforth referred to as (**PC**), until the cursor is on the desired menu item. Flashing buttons indicate **active buttons**. Pressing any non-flashing button will have **NO** effect.

To run the **Matrix Test**, from the **Program Mode Main Menu**, press (PC) until the cursor is on the DIAGNOSTICS menu item, and press any flashing yellow player button. This will bring up the **Diagnostic Mode Menu** on the video monitor. To return to the **Program Mode Main Menu** without any changes being made, move the cursor to the MAIN MENU item and press any flashing yellow player button; otherwise move the cursor to the MATRIX menu item, and press any flashing yellow player button to bring up the **Matrix Test Display** on the video monitor. The **Matrix Test Display** is a black screen with the message, PRESS PLAYER CHANGE WHEN COMPLETED, on a blue background at the top of the display. This message explains how to QUIT the **Matrix Test** at any time before, during, or after the **Matrix Test** has been chosen and/or performed by the operator. Start the **Matrix Test** by simply pressing the segment and/or segments to be tested and watching the **Matrix Test Display**. Every segment that gets pressed, when read correctly by **dart star® SPECTRUM**, will have the appropriate response displayed on the **Matrix Test Display** (e.g., a single "5" will be displayed as SINGLE-5, and a triple "20" will be displayed as TRIPLE-20).

dart star®

SPECTRUM

## by medalist

DIAGNOSTIC (continued)

DIAGNOSTIC MODE

BUTTONS & LIGHTS

All **buttons** on the **dart star® SPECTRUM** (e.g., player buttons) can be tested individually for these two (2) conditions: (1) the **light** inside the specified button is working (e.g., when the button is ON, the light is ON); and (2) when the specified button is pressed, **dart star® SPECTRUM** sees that the specified button has been pressed and changes the ON/OFF indicator accordingly, as shown on the video monitor, next to the specified button being tested.

To access the **Spectrum** Operator Setup feature, follow these simple steps: (1) turn **Off** the **power**; (2) open the front door; (3) set **Dip Switch** number one to the **On** position; (4) connect all **External Devices**, if applicable; and finally, (5) turn the **power On**. The flashing highlight bar, henceforth referred to as the **Cursor**, is currently on the GAME SETUP menu item. To move the cursor from one menu item to another, press and release the red player change button, henceforth referred to as (**PC**), until the cursor is on the desired menu item. Flashing buttons indicate **active buttons**. Pressing any non-flashing button will have **NO** effect.

To run the **Buttons & Lights Test**, from the **Program Mode Main Menu**, press (PC) until the cursor is on the DIAGNOSTICS menu item and press any flashing yellow player button. This will bring up the **Diagnostic Mode Menu** on the video monitor. To return to the **Program Mode Main Menu** without any changes being made, move the cursor to the MAIN MENU item and press any flashing yellow player button; otherwise move the cursor to the BUTTONS & LIGHTS menu item and press any flashing yellow player button to bring up the **Buttons & Lights Test Display** on the video monitor. To return to the **Diagnostic Mode Menu**, press any target segment. The following **Example** explains in detail how to **test** a specified button and/or all buttons:
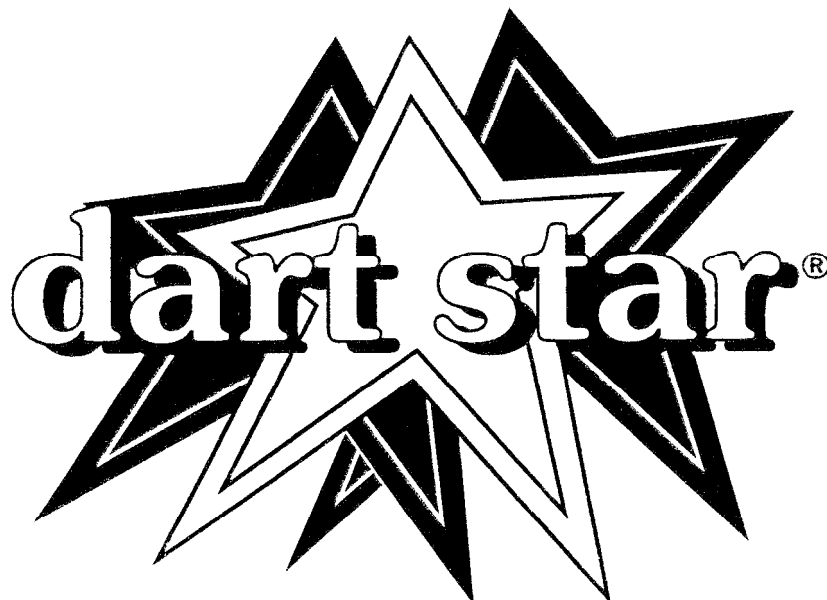
DIAGNOSTIC (continued)

DIAGNOSTIC MODE
BUTTONS & LIGHTS (continued)

Example: To **test** (P1), simply press (P1); if the **light** was **on** and the **Buttons & Lights Test Display** showed (P1), ON, then the **light** will turn **off** and the **Buttons & Lights Test Display** will show (P1), OFF.

NOTE: When bringing up the **Buttons & Lights Test Display** for the first time, all buttons should be lit and all the buttons on the **Buttons & Lights Test Display** should show ON. If any button is not initially lit, make sure the buttons are plugged into the **Spectrum Logic Board** by following these simple steps:

1. Turn **OFF** the **power**.

2. Open the front door.

3. The buttons plug into the **Spectrum Logic Board** via an eleven pin header connector.

   NOTE: The **header connector** for the **buttons/lights** is located at the bottom of the **Spectrum Logic Board**, just to the right of the large **power connector**, with the label, "BUTTONS/LIGHTS", just below the connector.

4. If the buttons are plugged in; check all connections to the buttons and replace any burned out light bulbs.

5. If the buttons are not plugged in, locate the eleven pin plug with the multi-colored wire combination and plug it into the "BUTTONS/LIGHTS" connector on the **Spectrum Logic Board**, making sure the (**black**) wire is facing right.

6. Close the front door.

7. Turn **ON** the **power**.

8. Retest.

DIAGNOSTIC (continued)

DIAGNOSTIC MODE

COIN/BILL LATCHES

Both **Coin Latches** and **Bill Acceptor**, if applicable, will be tested for: (1) proper operation of all latches (i.e., mechanically, no stuck latches); and (2) **dart star® SPECTRUM** is counting every **coin drop** and/or counting every **bill** inserted into the bill acceptor, if applicable.

To access the **Spectrum** Operator Setup feature, follow these simple steps: (1) turn **Off** the **power**; (2) open the front door; (3) set **Dip Switch** number one to the **On** position; (4) connect all **External Devices**, if applicable; and finally, (5) turn the **power On**. The flashing highlight bar, henceforth referred to as the **Cursor**, is currently on the GAME SETUP menu item. To move the cursor from one menu item to another, press and release the red player change button, henceforth referred to as (**PC**), until the cursor is on the desired menu item. Flashing buttons indicate **active buttons**. Pressing any non-flashing button will have **NO** effect.

To test the **Coin Latches** and/or **Bill Acceptor**, from the **Program Mode Main Menu**, press (**PC**) until the cursor is on the DIAGNOSTICS menu item and press any flashing yellow player button. This will bring up the **Diagnostic Mode Menu** on the video monitor. To return to the **Program Mode Main Menu** without any changes being made, move the cursor to the MAIN MENU item and press any flashing yellow player button; otherwise move the cursor to the COIN/BILL LATCHES menu item and press any flashing yellow player button to bring up the **Coin/Bill Latches Test Display** on the video monitor. To test a specific **coin latch** and/or **bill acceptor**, follow the instructions in the **Examples** on the following pages corresponding to the coin latch and/or bill acceptor to be tested.

dart star®

SPECTRUM

by medalist

DIAGNOSTIC (continued)

DIAGNOSTIC MODE
COIN/BILL LATCHES (continued)

LEFT COIN LATCH

To **test** the **left coin latch**, simply drop a coin into the **left coin slot** and three (3) things should happen: (1) the **counter**, next to the message, LEFT COIN LATCH:, located at the top left corner of the video monitor just below the title, COIN/BILL LATCHES, will be **highlighted** and will increment by one, for each coin dropped; (2) the **coin drop sound** will be heard; and (3) the **Coin/Bill Latch Test Display** will be re-drawn showing the message, ZERO LEFT with a line drawn to P1. To set the **counter** back to zero (0), press (P1), ZERO LEFT. To return to the **Diagnostic Mode Menu**, press (PC), EXIT. If the number next to the message, LEFT COIN LATCH:, does not increment, make sure the **coin latches connector** is plugged into the **Spectrum Logic Board** by following these simple steps:

1. Turn **OFF** the **power**.

2. Open the front door.

3. The **coin latches** plug into the **Spectrum Logic Board** via a three (3) pin header connector.

   NOTE: The **header connector** for the **coin latches** is the first three (3) pin connector located at the bottom right corner of the **Spectrum Logic Board**; just to the left of the **VGA video connector**, with the label "CN/UP" just below the coin latches connector.

4. If the **coin latches** are plugged in; check all connections to the latches and/or call Medalist Service.

5. If the **coin latches** are not plugged in, locate the three (3) pin plug with the red, black/ red, black/white wire combination and plug it into the "CN/UP" connector on the **Spectrum Logic Board**, making sure the (**red**) wire is to the left, (**red/black**) wire is always in the middle, and the (**black/white**) wire is facing right.

6. Close the front door.

7. Turn **ON** the **power**.

8. Retest.

DIAGNOSTIC (continued)

DIAGNOSTIC MODE
COIN/BILL LATCHES (continued)

RIGHT COIN LATCH

To **test** the **right coin latch**, simply drop a coin into the **right coin slot** and three (3) things should happen: (1) the **counter**, next to the message, RIGHT COIN LATCH:, located at the top left corner of the video monitor just below the title, LEFT COIN LATCH, will be highlighted and will increment by one, for each coin dropped; (2) the **coin drop sound** will be heard; and (3) the **Coin/Bill Latch Test Display** will be re-drawn showing the message, ZERO RIGHT with a line drawn to P2. To set the **counter** back to zero (0), press (P2), ZERO RIGHT. To return to the **Diagnostic Mode Menu**, press (PC), EXIT. If the number next to the message, RIGHT COIN LATCH:, does not increment, make sure the **coin latches connector** is plugged into the **Spectrum Logic Board** by following these simple steps:

1. Turn **OFF** the **power**.

2. Open the front door.

3. The **coin latches** plug into the **Spectrum Logic Board** via a three (3) pin header connector.

    NOTE: The **header connector** for the **coin latches** is the first three (3) pin connector located at the bottom right corner of the **Spectrum Logic Board**; just to the left of the **VGA video connector**, with the label "CN/UP" just below the coin latches connector.

4. If the **coin latches** are plugged in; check all connections to the latches and/or call Medalist Service.

5. If the **coin latches** are not plugged in, locate the three (3) pin plug with the red, black/red, black/white wire combination and plug it into the "CN/UP" connector on the **Spectrum** Logic Board making sure the (**red**) wire is to the left, (**red/black**) wire is always in the middle, and the (**black/white**) wire is facing right.

6. Close the front door.

7. Turn **ON** the **power**.

8. Retest.

DIAGNOSTIC (continued)

BILL ACCEPTOR LATCH

To **test** the **bill acceptor latch**, simply insert a bill into the **bill acceptor** and two (3) things should happen: (1) the **counter**, next to the message, BILL ACCEPTOR LATCH:, located at the top left corner of the video monitor just below the title, RIGHT COIN LATCH, will be highlighted and will increment by the number of **pulses** generated when a bill has been inserted (e.g., $1.00 = 4 pulses); (2) the **bill acceptor sound** will be heard; and (3) the **Coin/Bill Latch Test Display** will be re-drawn showing the message, ZERO BILL with a line drawn to P3. To set the **counter** back to zero (0), press (P3), ZERO RIGHT. To return to the **Diagnostic Mode Menu**, press (PC), EXIT. If the number next to the message, BILL ACCEPTOR LATCH:, does not increment, make sure the **bill latch connector** is plugged into the **Spectrum Logic Board** by following these simple steps:

1. Turn **OFF** the **power**.

2. Open the front door.

3. The **bill acceptor latch** plugs into the **Spectrum Logic Board** via an two (2) pin header connector.

   NOTE: The **header connector** for the **coin latches** is the first two (2) pin connector located at the bottom right corner of the **Spectrum Logic Board**; just to the left of the **vibration sensor connector** (V/SNS), with the label "B/AC" just below the bill latch connector.

4. If the **bill acceptor latch** is plugged in; check all connections to the latches and/or call Medalist Service.

5. If the **bill acceptor latch** is not plugged in, locate the two (2) pin plug with the black and white wire combination and plug it into the "B/AC" connector on the **Spectrum Logic Board** making sure the (**black**) wire is facing left, (ground).

6. Close the front door.

7. Turn **ON** the **power**.

8. Retest.

DIAGNOSTIC MODE

AUDIO/VIDEO

The **Audio Test** (sound) has two purposes: (1) test the **audio** circuitry on the **Spectrum** Logic Board (i.e., no sound indicates a possible speaker failure or bad connection to the **Spectrum** Logic Board); and (2) adjust the volume on the **Spectrum** Logic Board.

The **Video Test** will be used to determine if the video monitor is working properly as to: (1) **brightness**; (2) all **colors** are available and clear; and (3) all **horizontal** and **vertical** lines are straight and clear.

To access the **Spectrum** Operator Setup feature, follow these simple steps: (1) turn **Off** the **power**; (2) open the front door; (3) set **Dip Switch** number one to the **On** position; (4) connect all **External Devices**, if applicable; and finally, (5) turn the **power On**. The flashing highlight bar, henceforth referred to as the **Cursor**, is currently on the GAME SETUP menu item. To move the cursor from one menu item to another, press and release the red player change button, henceforth referred to as (**PC**), until the cursor is on the desired menu item. Flashing buttons indicate **active buttons**. Pressing any non-flashing button will have **NO** effect.

To **test** the **audio/video**, from the **Program Mode Main Menu**, press (PC) until the cursor is on the DIAGNOSTICS menu item and press any flashing yellow player button. This will bring up the **Diagnostic Mode Menu** on the video monitor. To return to the **Program Mode Main Menu** without any changes being made, move the cursor to the MAIN MENU item and press any flashing yellow player button; otherwise move the cursor to the AUDIO/VIDEO menu item and press any flashing yellow player button to bring up the **Audio/Video Test Display** on the video monitor.

dart star®

SPECTRUM

by medalist

DIAGNOSTIC (continued)

DIAGNOSTIC MODE
AUDIO/VIDEO (continued)

RUN AUDIO TEST

Tests the **audio circuitry** of the **Spectrum** Logic Board. From the **Audio/Video Test Display**, press (P1), RUN AUDIO TEST. A series of **sounds** (e.g., spoiler, coin drop, white horse, and cricket mark) should be heard; if not, perform the following and re-test:

1. Turn **OFF** the **power**.

2. Open the front door.

3. The **speakers** plug into the **Spectrum** Logic Board via an two (2) pin header connector.

    NOTE: The **header connector** for the **speakers** is the first two (2) pin connector located at the bottom of the **Spectrum Logic Board**; just to the left of the **power connector**, which is located toward the center of the Spectrum **Logic Board**. The **speaker connector** is labelled "SPKR".

4. If the **speakers** are plugged in; check all connections to the speakers and/or call Medalist Service.

5. If the **speakers** are not plugged in, locate the two (2) pin plug with the standard speaker wire and plug it into the "SPKR" connector on the **Spectrum** Logic Board.

6. Close the front door.

7. Turn **ON** the **power**.

8. Retest.

To return to the **Diagnostic Mode Menu**, press (PC), EXIT.

DIAGNOSTIC (continued)
DIAGNOSTIC MODE
AUDIO/VIDEO (continued)

RUN VIDEO TEST

Tests the **video monitor**. From the **Audio/Video Test Display**, press (P2), RUN VIDEO TEST, and the **Video Test Display** will be shown on the video monitor. To return to the **Audio/Video Test Display**, press any target segment. There are five (5) different video tests. Each test generally has two (2) purposes; (1) to determine if there is a problem with a certain area of the video monitor's circuitry; and (2) to adjust the video monitor **horizontally**, **vertically** and/or **colors**.

CROSS HATCH

Tests the **horizontal** and **vertical** circuitry of the video monitor. Press (P1), CROSS HATCH, and a series of white horizontal and vertical lines in a grid pattern will be displayed on the video monitor. To return to the **Video Test Display**, press any flashing button. Use this test to ensure the following:

    1.   Background color is black.

    2.   Horizontal lines are straight and clear.

    3.   Vertical lines are straight and clear.

COLOR BAR

Tests the **color** circuitry of the video monitor. Press (P2), COLOR BAR, and a series of vertical color bars will be displayed on the video monitor. To return to the **Video Test Display**, press any flashing button. Use this test to ensure the following:

    1.   Color is correct ("RED" is red, etc.)

    2.   Color bars are vertical.

    3.   Colors are bright and clear (e.g., no bleeding of one color into another).

BLACK SCREEN

Tests the **background color** (black), of the video monitor. Press (P3), BLACK SCREEN, and a black box within a white box will be displayed on the video monitor. To return to the **Video Test Display**, press any flashing button. Use this test to ensure the following:

    1.   Outer border is **white** in color and **square** in shape (i.e., no other color can be seen around the edges).

    2.   Inner box is **black** in color and **square** in shape (i.e., no other colors, and box edges **do not** curve or bend).

DIAGNOSTIC (continued)

DIAGNOSTIC MODE
AUDIO/VIDEO (continued)

WHITE SCREEN

Tests the entire video monitor using a single color, WHITE, that fills the entire screen. Press (P4), WHITE SCREEN, and a **white** box will appear. To return to the **Video Test Display**, press any flashing button. Use this test to ensure the following:

1.   Color is bright, clear, correct and all **white**.

2.   The entire screen is **filled**.

3.   No other colors can be seen

CAUTION: LEAVING THE WHITE SCREEN ON FOR AN EXTENDED PERIOD OF TIME MAY CAUSE **SEVERE** DAMAGE TO THE VIDEO MONITOR.

BORDER

This is not a test, in that it is used mainly for aligning both the horizontal and vertical edges of the video monitor. Press (PC), BORDER, and thin **white** lines in the form of a **rectangle** will be displayed on the video monitor. The square represents the outermost edge of the **video monitor display area**; therefore, if the square cannot be clearly seen from the **throw line**, the video monitor has not been properly aligned. To return to the **Video Test Display**, press any flashing button. Use this test to ensure the following:

1.   The lines form a perfect rectangle

2.   The color of the lines are **white**.

3.   No other colors or lines are present.

4.   Background color is **black**.

SENSOR

There is one (1) **sensor**: **Auto Player Change**. This test will be used to see if the **sensor** is working and to adjust the sensitivity level.

To access the **Spectrum** Operator Setup feature, follow these simple steps: (1) turn **Off** the **power**; (2) open the front door; (3) set **Dip Switch** number one to the **On** position; (4) connect all **External Devices**, if applicable; and finally, (5) turn the **power On**. The flashing highlight bar, henceforth referred to as the **Cursor**, is currently on the GAME SETUP menu item. To move the cursor from one menu item to another, press and release the red player change button, henceforth referred to as (**PC**), until the cursor is on the desired menu item. Flashing buttons indicate **active buttons**. Pressing any non-flashing button will have **NO** effect.

To run the **Sensor Test**, from the **Program Mode Main Menu**, press (PC) until the cursor is on the DIAGNOSTICS menu item, and press any flashing yellow player button. This will bring up the **Diagnostic Mode Menu** on the video monitor. To return to the **Program Mode Main Menu** without any changes being made, move the cursor to the MAIN MENU item and press any flashing yellow player button; otherwise move the cursor to the SENSORS menu item and press any flashing yellow player button to bring up the **Sensors Test Display** on the video monitor. To return to the **Diagnostic Mode Menu**, press (PC), EXIT. To test the **sensor**, follow the instructions on the following page.
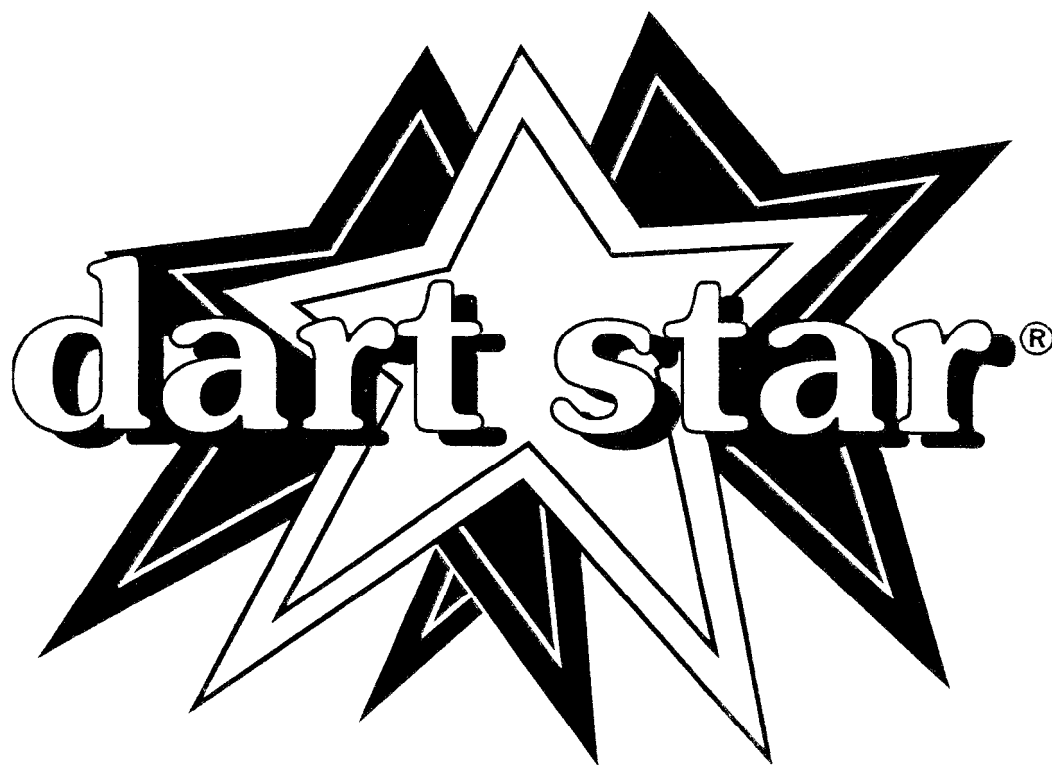
DIAGNOSTIC (continued)

DIAGNOSTIC MODE
SENSOR (continued)

AUTO PLAYER CHANGE

To test the **Auto Player Change,** from the **Sensor Test Display,** walk toward the dart board from the **throw line** while observing the video monitor. When the **motion detector** detects any movement, the highlighted word, ON, will replace the non-highlighted word, OFF, next to the message, AUTO PLAYER CHANGE:, located at the top left corner, under the title MISS DART DETECTOR: OFF, of the video monitor. The highlighted word, ON, will appear for only a brief moment before the non-highlighted word, OFF, is displayed. If the highlighted word, ON, does not appear, make sure the **motion detector** is plugged in the **Spectrum Logic Board** by following these simple steps:

a. Turn OFF the **power.**

b. Open the front door.

c. The **motion detector** plugs into the Spectrum **Logic Board** via a three (3) pin header connector.

NOTE: The **header connector** for the **motion detector** is the fifth connector located at the bottom right corner of the Spectrum **Logic Board,** just to the left of the **VGA video connector,** with the label, "M/SNS", just below the connector.

d. If the **motion detector** is not plugged in; locate the three (3) pin plug with the red, black, blue wire combination and plug it into the "M/SNS" connector on the Spectrum **Logic Board,** making sure the **red** wire is to the left, the **black** wire is always in the middle, and the **blue** wire is facing right.

e. Close the front door.

f. Turn ON the **power.**

If the **motion detector** is plugged in; then the sensitivity level may need adjusting. To adjust the sensitivity, do the following:

a. Open the front door.

b. Locate the **motion detector,** see **NOTE** below.

c. Remove the black rubber dust cover from the adjustment slot.

d. Use a small, thin straight slot screwdriver to turn the adjusting screw.

e. Close the front door and retest.

NOTE: The **motion detector** is located on the inside of the front door on the bottom of the cabinet between two (2) silver tie down screws. It is the black plastic box with the black rubber dust cover and the three (3) wries (red, black, and blue) coming out from the bottom of the box.

ATTENTION: IT IS RECOMMENDED THAT THE SENSOR BE ADJUSTED TO DETECT ALL MOTION FROM ONE TO TWO FEET IN FRONT OF THE **SPECTRUM** DART BOARD.

DIAGNOSTIC MODE

LOGIC BOARD

The **Logic Board Diagnostic** is used for providing key information to Medalist Service when strategic parts of the **Spectrum** Logic Board appear to have **failed** (e.g., memory and/or communication ports). The only test the operator may perform is the **Dip Switch Test**.

To access the **Spectrum** Operator Setup feature, follow these simple steps: (1) turn **Off** the **power**; (2) open the front door; (3) set **Dip Switch** number one to the **On** position; (4) connect all **External Devices**, if applicable; and finally, (5) turn the **power On**. The flashing highlight bar, henceforth referred to as the **Cursor**, is currently on the GAME SETUP menu item. To move the cursor from one menu item to another, press and release the red player change button, henceforth referred to as (**PC**), until the cursor is on the desired menu item. Flashing buttons indicate **active buttons**. Pressing any non-flashing button will have **NO** effect.

To run the **Logic Board Test**, from the **Program Mode Main Menu**, press (PC) until the cursor is on the DIAGNOSTICS menu item and press any flashing yellow player button. This will bring up the **Diagnostic Mode Menu** on the video monitor. To return to the **Program Mode Main Menu** without any changes being made, move the cursor to the MAIN MENU item and press any flashing yellow player button; otherwise move the cursor to the LOGIC BOARD menu item and press any flashing yellow player button to bring up the **Logic Board Test Display** on the video monitor. To return to the **Diagnostic Mode Menu**, press (PC), EXIT. The **Logic Board Test Display** contains several pieces of information and a **Dip Switch Test**.

AVAILABLE MEMORY:

The number, xxK, next to the message, AVAILABLE MEMORY: xxK, represents the total amount of **memory** left in **Kilobytes**. Typically, the higher the number the better..

AUX PORT:

This is an **8-Bit Input/Output Port**. Currently, this **port** is not used; therefore the word NO should always appear next to the message AUX PORT:
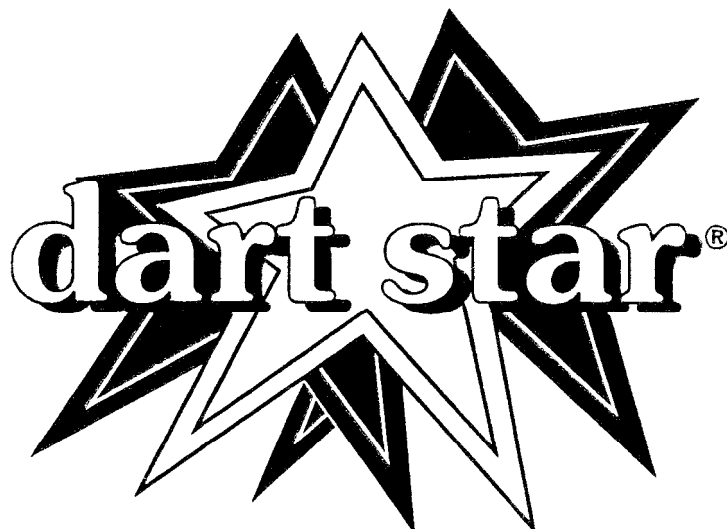
DIAGNOSTIC (continued)

DIAGNOSTIC MODE
LOGIC BOARD (continued)

COMM PORTS:

Spectrum has been designed to handle multiple **RS-232 Serial Communication Ports**. The versatility of these **ports** allow the operator to communicate with any **external device** that has a similar type of **serial port** (e.g., printer, network). The word NONE will appear next to the message COMM PORTS: when no **ports** are connected; otherwise, a number (2, 3, 5...) will be displayed showing the operator the total number of **active communication ports**.

PRINTER PORT:

The **Spectrum Logic Board** was designed to handle a **printer port** via a Multi-I/O controller card, which allows the operator to connect a printer to the **Spectrum Logic Board** to print a **hard copy** of any one or all of the available **reports**. When nothing is connected to the **printer port**, the word NO will appear next to the message PRINTER PORT:.

DIP SWITCH:

This test will read and display the eight (8) setting **Dip Switch** located on the left edge, toward the middle, of the **Spectrum Logic Board**. The test will not only display the current settings, but will also show any changes in the settings (e.g., turn **on** all switches) by exiting and then re-entering the **Logic Board Test Display**.