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1- MAGNET ENCLOSURE DISPLAY TEST

This test provides a quick method of testing the displays and control panels on the Open*Speed* magnet enclosure by using diagnostics run from the Operator Workspace.

Note

Due to the table being able to swing, there is a possibility that moving the table in towards the posts could cause harm to a patient. Therefore, there are three added button signals that have been incorporated into the code: NOT AT PIVOT*, PINCH*, and COLLISION*. However, due to the reverse logic of these signals, these conditions must be simulated for the diagnostics to be run properly.

1. Return cradle to Home position.

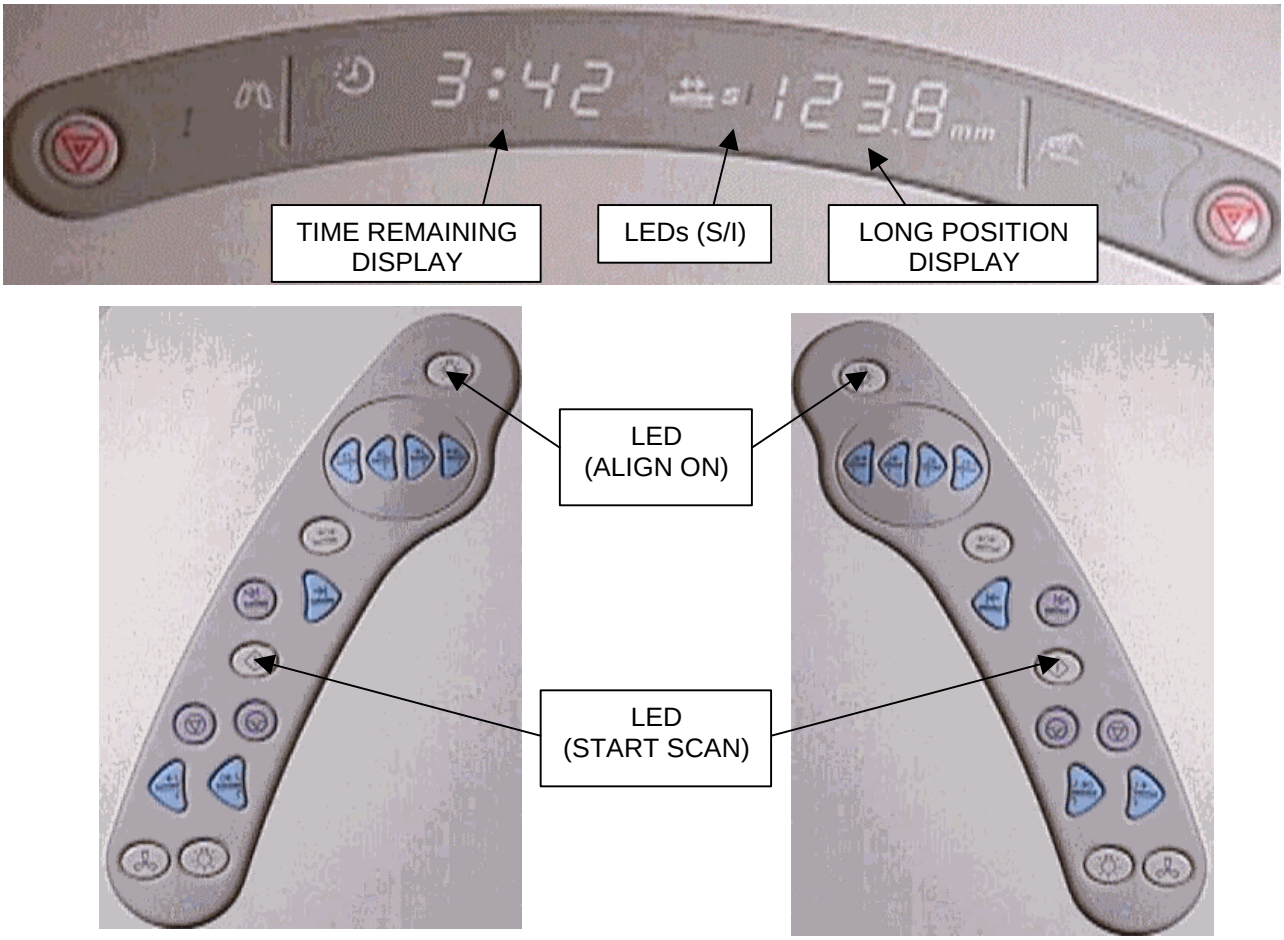
2. To simulate the added conditions, use the following procedure:

   1) center the table laterally at 0 degree pivot
   2) advance the cradle into the bore until it is between the posts
   3) pivot the table a few degrees left or right until it is out of the valid 0 deg position and the Long Position Display flashes "8888"
   4) move the table laterally to a position that would cause collision, i.e. >90mm and the display flashes "[[]]"
   5) crank the table laterally further until it bumps the pinch sensors

3. On the Service Desktop Manager, select **[Diagnostics]**, then **[Start…]**.

4. When the Diagnostics window appears, select **[IPG]**, **[Manual…]**, **[Mag Encl Displays]**, then **[Run Diags]**. The first time diagnostics run, the TPS/IPG immediately resets.

5. After TPS/IPG reset completes, the Magnet Enclosure Display Test runs. The magnet enclosure displays go blank, and then light all indicators for several seconds. The display blanks again, and then cycles each LED sequentially on and off for all indicators and LEDs shown in Illustration 1-1.



DISPLAY TEST INDICATORS (OPEN*SPEED*)
ILLUSTRATION 1-1

6. Verify all LEDs turn on, and that no LED remains on all the time during the test.

7. Verify that the coil present LEDs on the side of the table toggle between different colors: red, yellow, and green.

8. Select **[Stop Diags]** to end the test, then **[Close]**. Deselect **[Mag Encl Displays]** and proceed to Section 2 - Magnet Enclosure Button Test, or select **[Quit]** to exit diagnostics.

2- MAGNET ENCLOSURE BUTTON TEST

CAUTION

Possible equipment shutdown. Do not press the top, outer (E-Stop) buttons on the Display Panel during this test. The *Emergency Stop* buttons are not disabled during the test, and will shut down all cabinets that provide power to the magnet room.

This test verifies the proper operation of the Operator Control pushbuttons on the magnet enclosure. When this test is run, the functions that are normally executed when the Operator Control buttons are pushed are not executed. Instead, a number corresponding to the button number is displayed on the Longitudinal Position display for each button pressed (see Note under Illustration 2-1 for exceptions).

Also, the Scan Time Remaining display increments as buttons are pressed, providing a means of verifying operation of the switch debounce function. Proper operation of a switch debounce function is indicated by the Scan Time Remaining display incrementing one count each time the switch is pressed and released.

There are two failure modes for Button Test: an open switch, and a shorted switch. An open switch displays no code when pressed; a shorted switch causes the incorrect code to be displayed. In the case of a shorted switch, the incorrect code displayed indicates which switch is shorted. For example, if Start Scan is pressed, and the code displayed is "02," the Lights On switch is shorted.

Note

Due to the table being able to swing, there is a possibility that moving the table in towards the posts could cause harm to a patient. Therefore, there are three added button signals that have been incorporated into the code: NOT AT PIVOT*, PINCH*, and COLLISION*. However, due to the reverse logic of these signals, these conditions must be simulated for the diagnostics to be run properly.

1. If the IPG Manual menu is already displayed, then go to step 2. Otherwise, on the Service Desktop Manager, select **[Diagnostics]**, then **[Start…]**. When the Diagnostics window appears, select **[IPG],** then **[Manual]**.

2. To simulate the added conditions, use the following procedure:

   1) center the table laterally at 0 degree pivot
   2) advance the cradle into the bore until it is between the posts
   3) pivot the table a few degrees left or right until it is out of the valid 0 deg position and the Long Position Display flashes "8888"
   4) move the table laterally to a position that would cause collision, i.e. >90mm and the display flashes "[[]]"
   5) crank the table laterally further until it bumps the pinch sensors

3. Select **[Mag Encl Buttons]**, then **[Run Diags]**. The first time diagnostics run, the TPS/IPG immediately resets.

5. After TPS/IPG Reset, the Button Test runs. The magnet enclosure display goes blank, and nothing visible happens until the Operator Control buttons are pressed.

Important!

Do not press Emergency Stop button – Pressing the top, outer buttons (see Illustration 2-1) does not provide a display reading. Pressing these buttons causes the display to become blank as Emergency Stop shuts down power to the magnet enclosure.

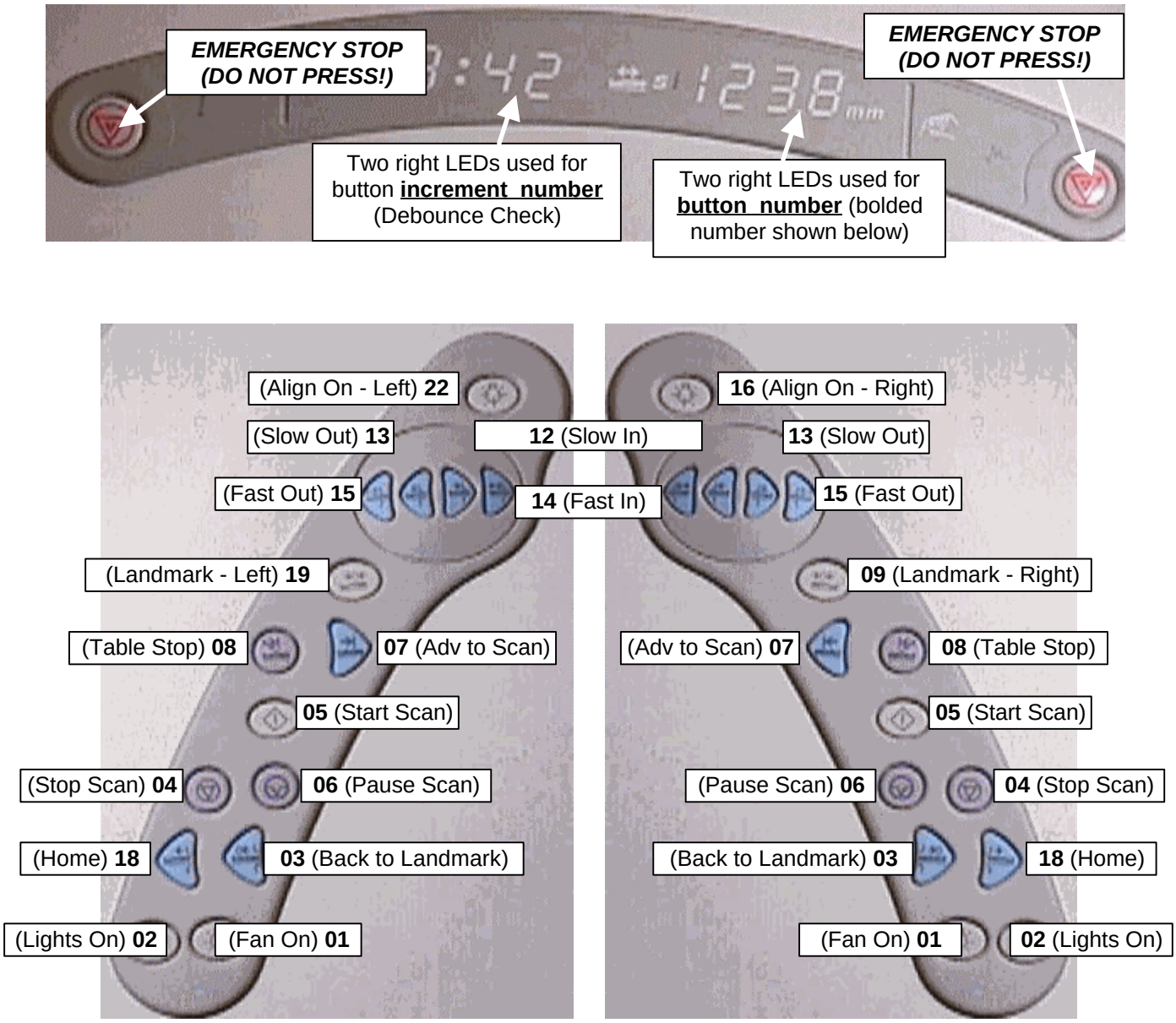
5. Press each button and verify the code displayed on the Scan Time Remaining display corresponds to the button numbers shown in Illustration 2-1. Verify the Scan Time Remaining display increments as buttons are pressed.

   The following signals do not have a specific button to be pressed, but each has a specific code:

   - TABLE AT CENTER – 10
   - NO PINCH – 11
   - NO COLLISION – 17
   - LEFT COIL PRESENT – 20
   - RIGHT COIL PRESENT - 21

   Note

   If there is no coil present, then the display will not increment the number of buttons pressed.



BUTTONS/DISPLAY CODES (OPEN*SPEED*)
ILLUSTRATION 2-1

Note

Landmark and Align On button codes are different - The Landmark and Align On buttons on the Left Operator Control are on a different circuit than the corresponding buttons on the Right Operator Control. The Longitudinal Position display shows a different number code, depending on whether the button is on the left or right.

6. Select **[Stop Diags]** to end the test, then **[Close]**. Deselect **[Mag Encl Buttons]** and proceed to Section 3 – Cradle Motion Test, or select **[Quit]** to exit diagnostics.

3- CRADLE MOTION TEST

This test moves the cradle into the magnet bore, and then returns it to its starting position. When this test is run, the cradle is automatically moved into the magnet bore a maximum distance of 500 mm, then is returned to its starting position. Any error messages generated during this test are stored in the Error Message Log.

If the cradle starts in the Home position, it is moved about 100 mm into the magnet bore, is paused there, then is advanced a maximum of 500 mm into the bore, then is returned close to the 100 mm position.

If the cradle starts in a position beyond 1700 mm into the bore (max. Is 1160 for LCC), it is automatically returned to the Home position, then is advanced a maximum of 500 mm into the bore, then is returned close to the 100 mm position.

CAUTION

Possible personal injury and/or equipment damage. Obstructions or personnel in cradle path may cause personal injury or equipment damage. Verify that magnet bore is clear of personnel and equipment before starting Cradle Motion Test.

1. If the IPG Manual menu is already displayed, then go to step 2. Otherwise, on the Service Desktop Manager, select **[Diagnostics]**, then **[Start…]**. When the Diagnostics window appears, select **[IPG]**, then **[Manual]**.

2. Select **[Table Motion]**, then **[Run Diags]**. The first time diagnostics run, the TPS/IPG immediately resets.

3. After TPS/IPG Reset, the Cradle Motion Test runs.

4. Verify that cradle moves properly (as described above), and that magnet enclosure cradle position display increments, or decrements, corresponding to cradle travel into or out of magnet bore.

5. Select **[Stop Diags]** to end the test, then **[Close]**. Select **[Quit]** to exit diagnostics.

REVISION HISTORY

REV	DATE	AUTHOR	PRIMARY REASONS FOR CHANGE
A	Mar 16, 2000	K. Laughlin-Parker	Initial version procedure for OpenSpeed Enclosure.