

Figure 15: G-tech is staged and ready to go

**Note:** If your G-tech continues to read “Staging...” for more than 1 second after the screen in Figure 14 appears, the accelerometers need to be re-calibrated. Press **ESC** to go back to the G-Window screen with the tachometer and refer to “Calibrating Accelerometers” on page 28 for details on this procedure.

To begin an acceleration run, press the throttle and accelerate your vehicle briskly off the line.

The G-tech will detect the forward acceleration and automatically start the E.T. clock. The blinking LED will go off once you have launched successfully.

**Note:** To avoid false starts, the G-tech requires a decent amount of “oomph” off the starting line, so don’t baby it! If your G-tech doesn’t start its E.T. clock, try launching your car with more force.

During the acceleration run, the horsepower, torque, and RPM indicators will be updated in real-time. The E.T. clock will continue to run as well.

As you move forward and pass certain milestones, the G-tech will automatically display them for you, as shown in Figure 16:

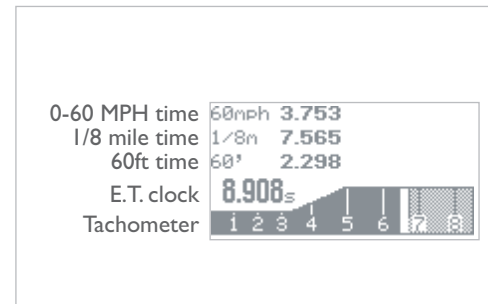


Figure 16: G-tech screen during a run

- **Tachometer** — indicates instantaneous vehicle RPMs

## Calibrating Accelerometers

The G-tech contains high-precision measuring instruments called accelerometers.

**Note:** In order to obtain accurate measurements, the accelerometers must be calibrated. Do not skip this procedure, as it is very important!

Do not perform the calibration with the engine running. A running engine causes vibrations in the vehicle that can affect your calibration results.

The accelerometer calibration procedure does not need to be done inside the vehicle. You may find the procedure easier if you do it indoors using the AC adapter to power your G-tech.

The accelerometer calibration procedure will generally go faster if you can rest the G-tech on a flat, level surface such as a table or a console. Generally, the faster the calibration goes, the better the results.

**Note:** If you do not have the G-tech oriented properly during calibration (i.e. upside down, rotated by 90 degrees, etc.), it will reject the calibration and display a message notifying you of this fact. Just re-attempt the calibration and pay close attention to the instructions on the display.

**Note:** The G-tech functions best when calibrated at 2 different temperatures that are as far apart as possible (page 35). If you attempt to perform a calibration and the G-tech determines that it has already been calibrated at (or near) the current temperature, it will “reject” your calibration attempt and notify you with a message on the display. If you get this message, let the G-tech warm up or cool down so that its temperature is significantly different than the current temperature, and try again.

Please follow the steps below to calibrate the G-tech's accelerometers.

- 1** Start in **Configuration Mode**.

```
Run Parameters
Vehicle Data
Calibration
Gtech Setup
Drag Strip Mode
```

- 2** Select "Calibration" and press **OK**.

```
Run Parameters
Vehicle Data
Calibration
Gtech Setup
Drag Strip Mode
```

- 3** Select "Accelerometers" and press **OK**.

```
Accelerometers
RPMs
Exit
```

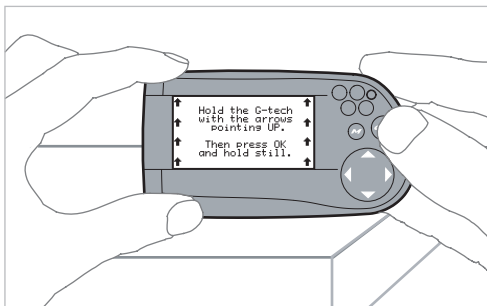
- 4** Select "Calibrate Axes" and press **OK**.


```
Calibrate Axes
X-Y-Z Gs Screen
Erase Calibration Data
Exit
```

- 5** You will see the following screen:

```
↑ Hold the G-tech ↑
↑ with the arrows ↑
↑ pointing UP. ↑
↑ Then press OK ↑
↑ and hold still. ↑
```

- 6 With the G-tech resting on a flat, level surface, orient it with the arrows pointing up to the sky as shown in the picture below.




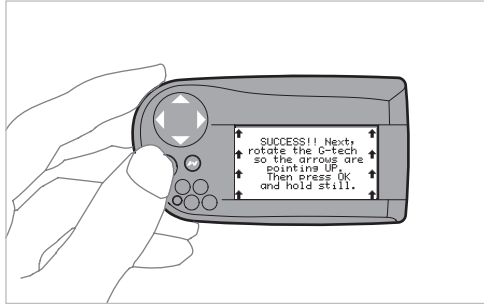
- 7 Hold the G-tech very still, and then press . The G-tech will automatically move on to the next step once it takes some measurements.

**Note:** If you are not holding the G-tech very still, you will see a blinking black bar on the display as shown below. If you see a display like this, you must hold the G-tech very steady until the black bar goes away.



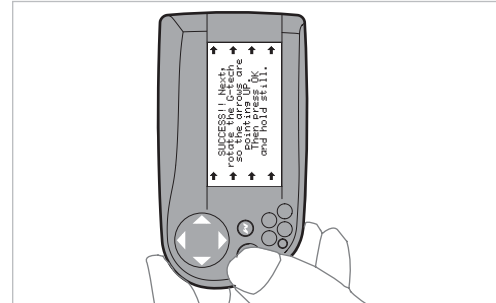
8

Next, orient the G-tech as shown and press .

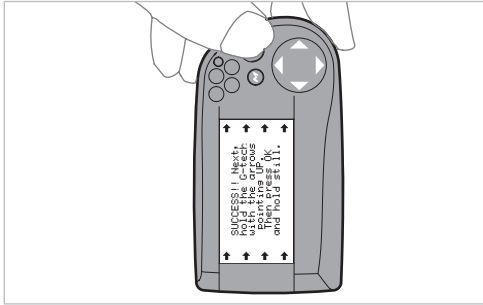



9

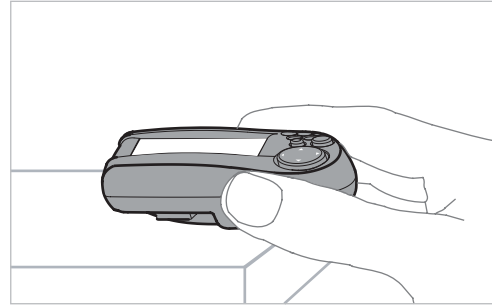
Next orient the G-tech as shown with the arrows pointing up, and press .




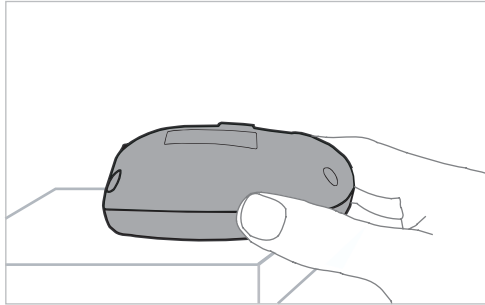
- 10** Again orient the G-tech as shown with the arrows pointing up, and press .




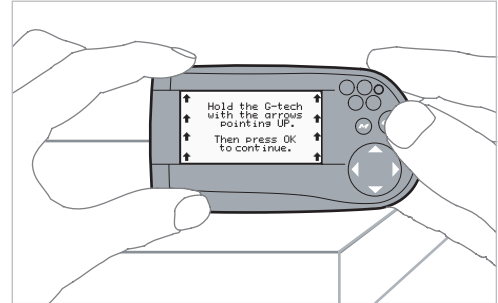
- 11** Lay the G-tech on a flat (horizontal) surface with the display facing up, as shown, and press .




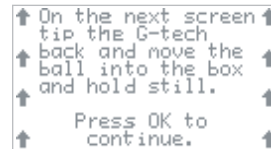
- 12** Orient the G-tech with the display facing down, as shown, and press .



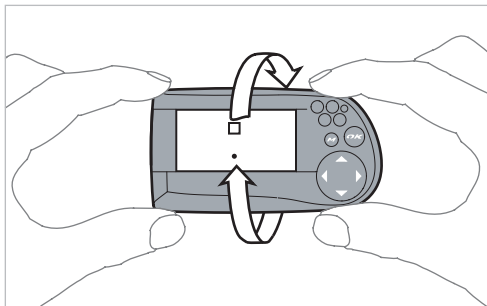
- 13** Now it is time for some final checks. Orient the G-tech as shown, read the screen, and press .



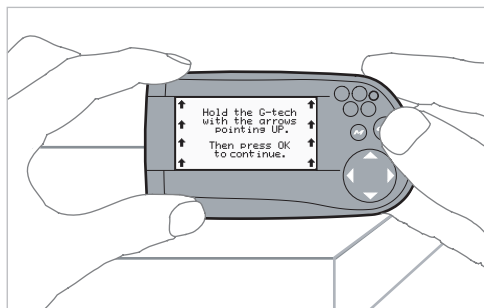
- 14** The following instruction screen will appear. Read it and then press .




- 15** Tilt the G-tech back as shown, so the ball rests in the box. The G-tech will automatically advance to the next calibration step when you have accomplished this.



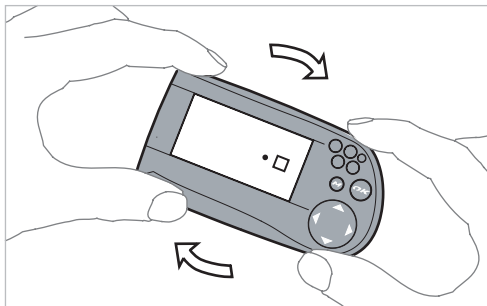
- 16** Re-orient the G-tech as shown and press .



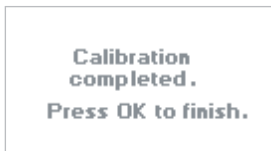
- 17** The following instruction screen will appear. Read it and then press .

```
↑ On the next screen ↑
rotate the G-tech ↑
↑ rotate clockwise to move ↑
the ball into the ↑
box. ↑
↑ Press OK to ↑
continue. ↑
```

- 18** Tilt the G-tech clockwise as shown so that the ball rests in the square.



- 19** This screen indicates that the calibration procedure is complete.



For more information on calibrating the accelerometers, please refer to “Accelerometer Tips” on page 142.

## Calibration & Temperature

The G-tech's accelerometers are sensitive to changes in temperature. Ideally, you will calibrate the G-tech at two different temperatures that are far apart. This helps the G-tech maintain accuracy across a wide range of temperatures.

To maintain accuracy, the G-tech monitors temperature with a built-in thermal sensor. When the G-tech detects that its current temperature is far from the calibration temperature, it displays a message as shown in Figure 8.

```
Two calibrations are
needed at different
temperatures for best
results. Please do a
calibration NOW. Go to
Configuration Mode,
choose Calibration,
then Accelerometers.
```

**Figure 8:** G-tech accelerometer calibration request

If this text automatically appears on your display, you should put the G-tech into **Configuration Mode** and then perform an accelerometer calibration (“Calibrating Accelerometers” on page 28).

## Accelerometer Tips

Hold the G-tech as still as possible during the accelerometer calibration procedure. You may find that it helps to rest the G-tech against something like a table or a wall during the procedure.

If you hold the G-tech in an incorrect orientation at any point during the accelerometer calibration procedure, the G-tech will notify you with a message on the screen.

A blinking black rectangle on the display during calibration indicates that the G-tech is seeing shaking/movement. Try to hold the G-tech as still as possible. If you cannot get the rectangle to go away, please call Tesla Technical Support at (310) 452-0030.

Ensure that you calibrate the accelerometers at two different times, as far apart in operating temperature as possible (p. 35). Our recommended calibration procedure for accelerometers is:

1. Put the G-tech into **Configuration Mode** and then power it off.

2. Let the G-tech sit powered off for at least 12 hours at room temperature.
3. Power on the G-tech and immediately perform a calibration (p. 28). This would be the “cold” calibration.
4. Leave the G-tech powered on for at least 1 hour so that it reaches full operating temperature.
5. Perform a second accelerometer calibration. This would be the “warm” calibration.

After performing the “cold” and “warm” calibrations, go to the G-tech’s X-Y-Z Gs screen (p. 143). While holding the G-tech very still, ensure that the “Mag” value is always between 0.995G and 1.005G, at all temperatures and orientations.

**Note:** The “Mag” value will always fluctuate a little due to vibrations, etc. As long as the displayed value is within this range, the calibration is fine.

If the “Mag” value is not always between 0.995G and 1.005G:

- Erase the accelerometer calibration data (p. 144)
- Re-calibrate your accelerometers at 2 different temperatures (p. 28, p. 35)

## X-Y-Z Gs Screen

If you suspect the G-tech is not measuring acceleration accurately, one useful thing to do is to view the "X-Y-Z Gs screen". This display shows you the current accelerometer readings measured by your G-tech.

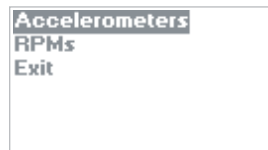
- 1 Start in **Configuration Mode**.



- 2 Select "Calibration" and press **OK**.



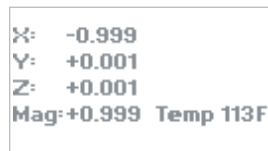
- 3 Select "Accelerometers" and press **OK**.



- 4 Select "X-Y-Z Gs Screen" and press **OK**.



- 5 The X-Y-Z Gs screen will appear:



Assuming you have performed two calibrations at two different temperatures, and the G-tech is held very still, the **Mag** reading should always be very close to +1.000. The closer the G-tech is to +1.000, the more accurate your measurements will be.

If the reading is greater than +1.005 or less than +0.995 you should erase the current calibration (p. 144) and then re-calibrate the accelerometers (p. 28).

The X, Y, and Z fields are provided for engineering support, and generally you will not need to look at them.

The current temperature inside the G-tech is also displayed, as this affects the accelerometers. It is provided primarily for engineering support.

## Erasing Accel. Calibration

Use the following procedure to erase the G-tech's accelerometer calibration data.

1 Start in **Configuration Mode**.



```
Run Parameters
Vehicle Data
Calibration
Gtech Setup
Drag Strip Mode
```

2 Select "Calibration" and press **OK**.



```
Run Parameters
Vehicle Data
Calibration
Gtech Setup
Drag Strip Mode
```

