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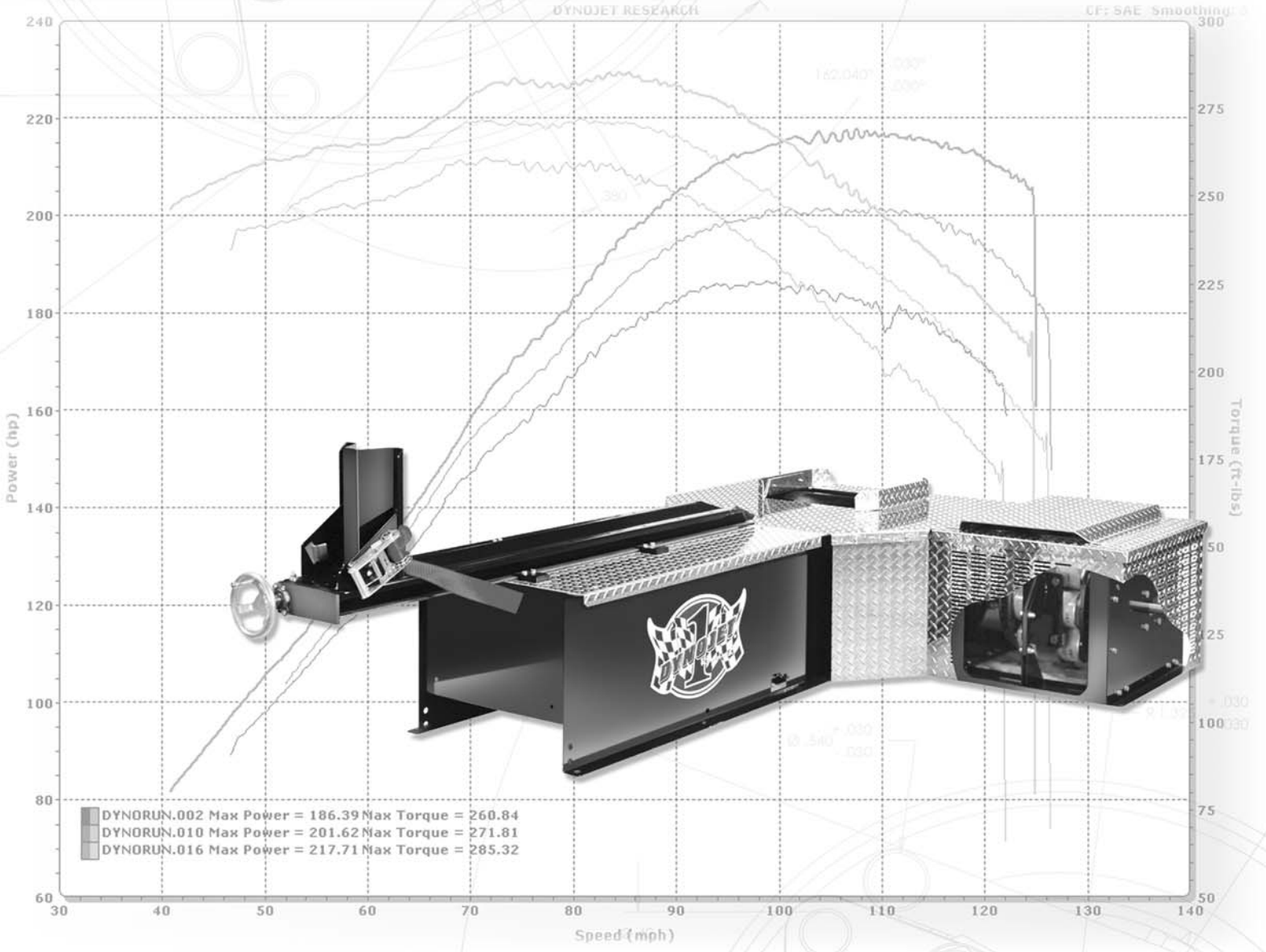

Torque Module Installation and User Guide

For Model 250 Motorcycle Dynamometers

P/N 98295104.04

Torque Module Installation and User Guide for Model 250 Motorcycle Dynamometers.

Dynojet Research, Inc., 2191 Mendenhall Drive, North Las Vegas, Nevada 89031, USA.

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CHAPTER

1

TORQUE MODULE INSTALLATION

This document provides instructions for installing and using the Torque Module on the model 250 dynamometer (dyno) with WinPEP 7. Appendix A includes instructions for using the Torque Module with WinPEP 6. To ensure safety and accuracy in the procedures, perform the procedures as they are described.

This chapter will walk you through installing the Torque Module, installing the load cell, and assembling the calibration arm.

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Last Updated: 03-09-05

This chapter is divided into the following categories:

INTRODUCTION

The Torque Module, when added to Dynojet's market leading inertia dynamometer, results in a complete vehicle performance test.

CONVENTIONS USED IN THIS MANUAL

The conventions used in this manual are designed to protect both the user and the equipment.

example of convention	description
	The Caution icon indicates a potential hazard to the dynamometer equipment. Follow all procedures exactly as they are described and use care when performing all procedures.
	The Warning icon indicates potential harm to the person performing a procedure and/or the dynamometer equipment.
Bold	Highlights items you can select on in the software interface, including buttons and menus.
➤	The arrow indicates a menu choice. For example, "select **File ➤Open**" means "select the **File** menu, then select the **Open** choice on the **File** menu."

TECHNICAL SUPPORT

For assistance, please contact Dynojet Technical Support at 1-800-992-3525, or write to Dynojet at 2191 Mendenhall Drive, North Las Vegas, NV 89081.

Visit us on the World Wide Web at www.dynojet.com where Dynojet provides state of the art technical support, on-line shopping, 3D visualizations, and press releases about our latest product line.

TORQUE MODULE INSTALLATION

This section describes how to install the Torque Module.

PARTS LIST

The following table lists all of the parts included in the Torque Module Installation kit. Check your kit against the parts listed to make sure you have received all of the parts. If any part is missing, contact Dynojet Technical Support.

part number	description	quantity
36708100	Nut, 1/2"-13, Nylock-Hex	2
36801640	Bolt, 1/2-13 x 2", Hex	2
36933100	Washer, 7/16", Flat	4
66114002 or 66104001	Torque Module Sub-Assembly or Torque Module High Resolution Sub-Assembly	1
76950500	Cable, Load Cell	1
DM150-034	5/8" Cable Clamp	3
73422230	3/8" Cable Clamp	1
DM150-020-005	1/4"-20 Crush Nut	3
The following parts are included in the calibration arm assembly p/n 63920002:		
35430899	Weight, 25 LB	4
22105040	Weight Support Pin	1
32904480	Pin, Cotter, 1/8 x 1-1/2"	1
36488100	Nut, 3/8"-16, Nylock	3
36584070	Bolt, 3/8-16 x 2.5", Hex	3
63920001	Calibration Arm, Main Bar Assembly	1
63920003	Calibration Arm Extension Assembly	1
DM150-002-007	5/16" Flat Washers	6
The following parts are also used in the eddy current brake retrofit kit p/n 73920002:		
DM150-002-007	5/16" Flat Washers	2
61329301	Load Cell Bracket	1
36583270	Bolt, 3/8-16 x 2", Hex	1
36488100	Nut, 3/8"-16, Nylock	1
22461002	Sleeve, 3/8" ID x 1/2" OD	1
21227106	Spacer, Calibration Bar-Retro	1

INSTALLING THE TORQUE MODULE

1 Turn off the main power switch on the CPU Module on the dyno electronics and unplug the power cord.

2 Remove the dust cover from the existing top module.

Figure 1-1: Remove Dust Cover

3 Loosen the top right screw on the back of the existing top module.

4 Plug the Torque Module into the existing top module. Place the dust cover, removed in step 2, on the Torque Module.

5 Secure the grounding strap on the back of the Torque Module to the existing top module.

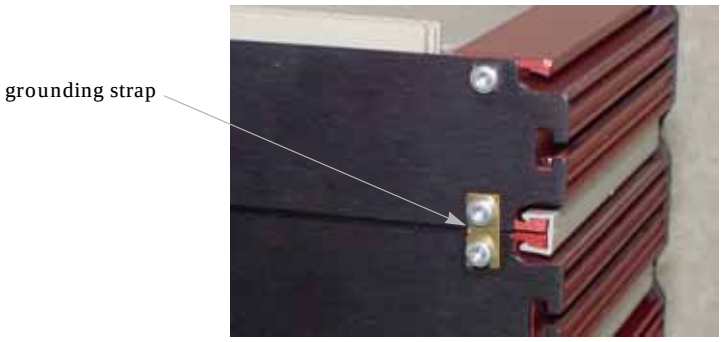

Figure 1-2: Secure Grounding Strap

6 Secure the Torque Module to the dyno electronics with the plastic tie straps (one on each side).

7 Attach the 9-pin connector on the load cell cable to the front of the Torque Module and tighten down the screws.

8 Attach the power cord to the dyno electronics and turn the power switch on.

The green LED light on the Torque Module should now be on.

Figure 1-3: Attach Torque Module and Load Cell Cable

LOAD CELL INSTALLATION

This section describes how to remove the hood, install the load cell, and replace the hood.

REMOVING THE HOOD

1 Disconnect all power to the dyno.

2 Remove the four bolts securing the eddy current brake cover and set aside.

Note: You may want to place the four bolts you just removed back into the hood to prevent misplacement.

3 Remove the two bolts securing the hood clamps to the brake and set aside.

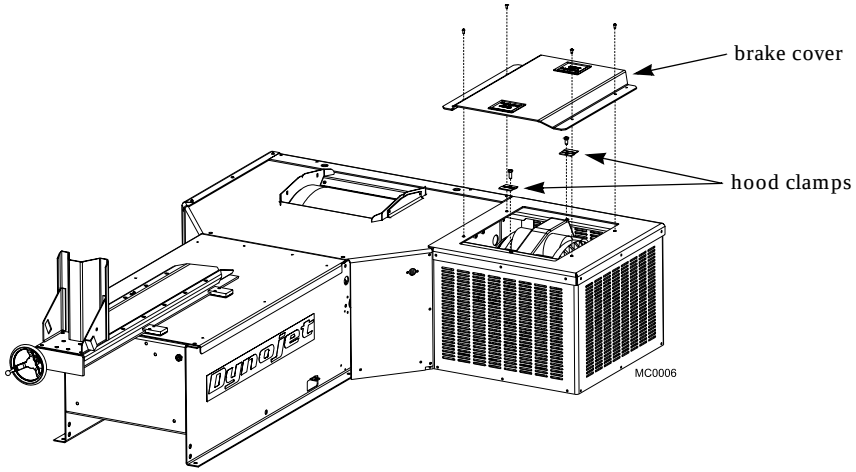

Figure 1-4: Remove the Brake Cover and Hood Clamps

4 Remove the four bolts securing the hood to the dyno and prop up the hood.

5 Disconnect the wires to the key switch if present.

6 Disconnect all battery wires.

7 Remove the hood from the dyno and set aside.

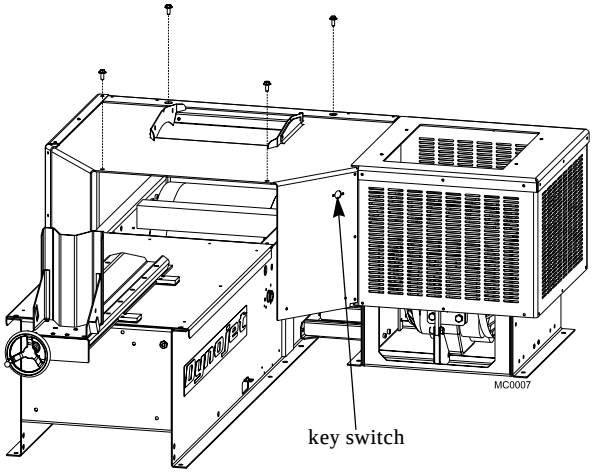

Figure 1-5: Remove the Hood

INSTALLING THE LOAD CELL

1 Remove the two bolts securing the existing bar on the eddy current brake and remove the bar.

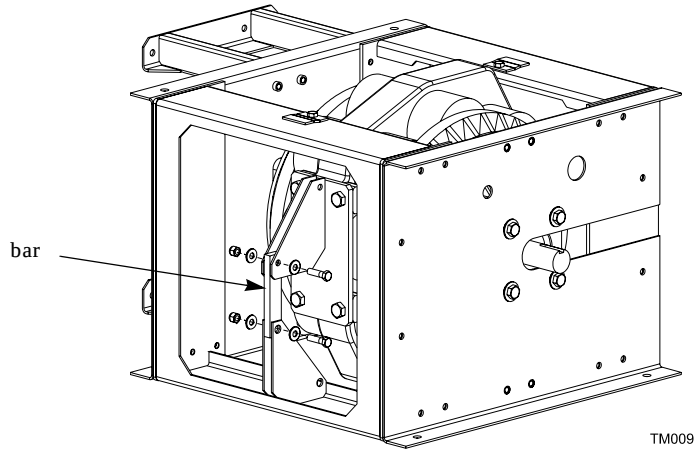

Figure 1-6: Remove the Bar

2 Install the mounting bracket.

Note: If you already have the newer style bracket attached to your eddy current brake, skip this step and continue with step 3.

2a Remove the four bolts securing the existing mounting bracket and set aside.

2b Install the new mounting bracket using the four bolts you just removed.

2c Torque the bolts to 100 ft.-lbs.

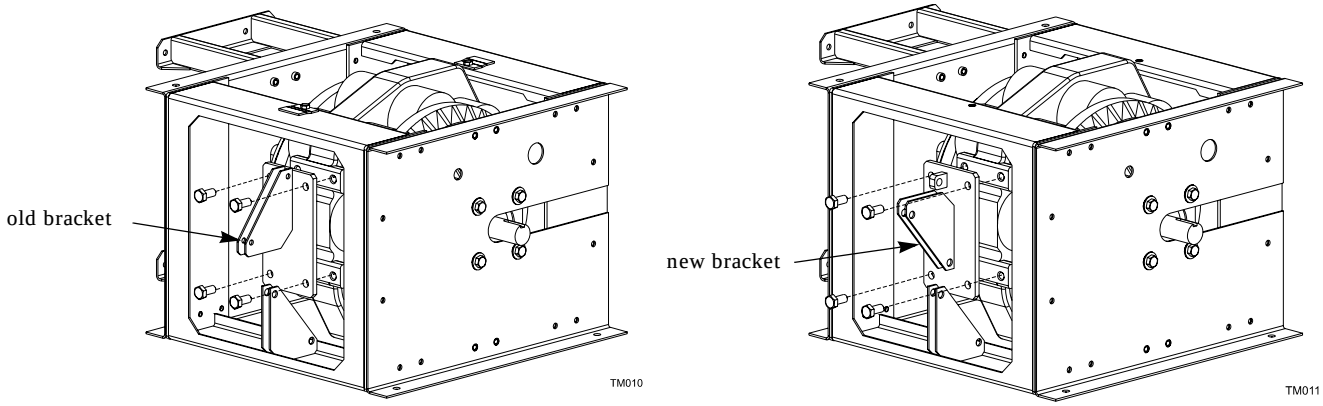

Figure 1-7: Install the Mounting Bracket

3 Install the load cell.

3a Orient the load cell so the cable faces the dynamometer and the printing on the load cell is right side up.

3b Secure the load cell to the mounting bracket and the bracket welded to the frame using two 1/2-13 x 2-inch bolts, four 7/16-inch flat washers, and two 1/2-13-inch nylock nuts.

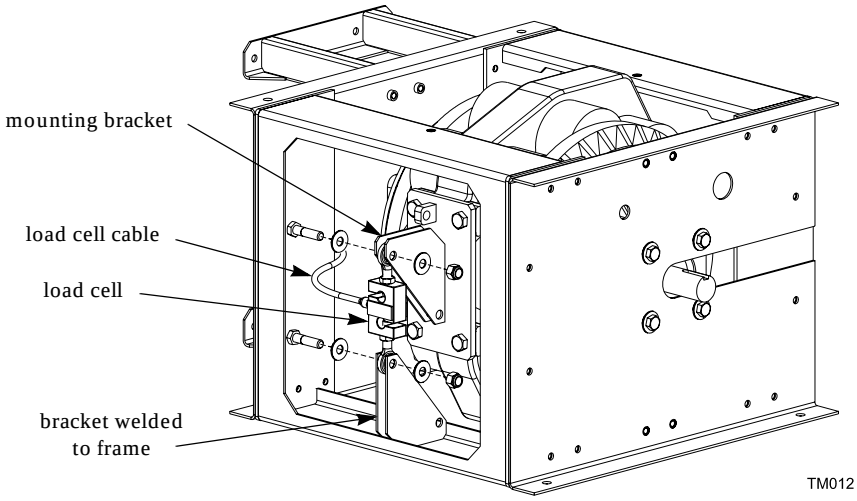

Figure 1-8: Install the Load Cell

Note: Older versions of the eddy current brake frame will require you to install the sleeve into the load cell. You must also use a 3/8-16 x 2-inch bolt and 3/8-16-inch nylock nut for the lower hole.

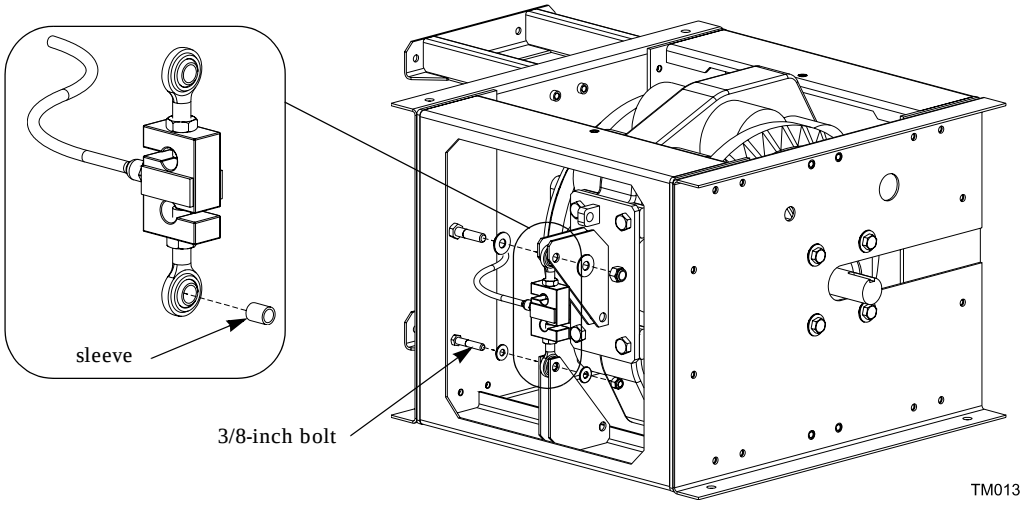

Figure 1-9: Install the Load Cell on Older Brake Models

4 Route the load cell cable.

4a Make sure the load cell cable is clear of any power cables or hot or rotating objects.

4b Secure the load cell cable to the three existing bolts underneath the aluminum top using three 5/8-inch cable clamps and 1/4-inch lock nuts.

Figure 1-10: Secure the Load Cell Cable to the Dyno

4c Remove the bolt on the brake and place a 3/8-inch cable clamp on the bolt.

4d Run the load cell cable through the clamp and tighten the bolt.

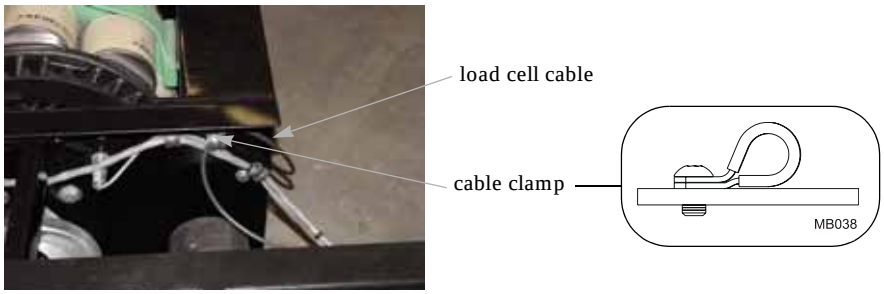

Figure 1-11: Secure the Load Cell Cable to the Brake

REPLACING THE HOOD

1 Replace the hood on the dyno leaving it propped up. Secure the key switch, if present, and connect the battery.

2 Lower and secure the hood using the four bolts you removed earlier.

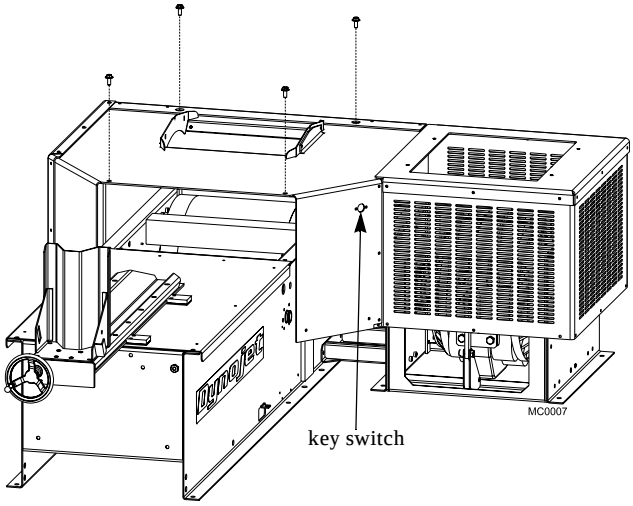

Figure 1-12: Replace the Hood

3 Secure the hood clamps to the brake using the two bolts you removed earlier.

4 Replace the brake cover and secure using the four bolts you removed earlier.

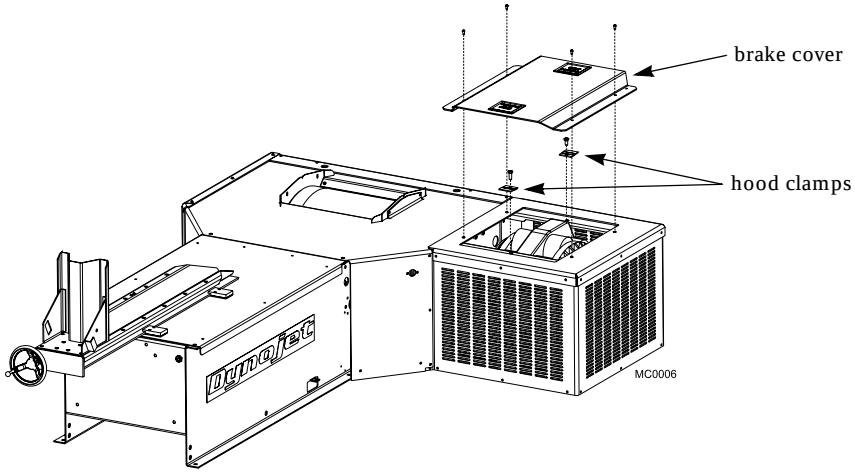

Figure 1-13: Replace the Brake Cover and Hood Clamps

CALIBRATION ARM ASSEMBLY

Dynojet recommends you use the calibration arm with the extension unless space constraints in your dyno room do not allow you to

1 Place the extension on the main arm and secure using a 3/8-16 x 2.5-inch bolt, 5/16-inch flat washer, and a 3/8-16 nylock nut. Be sure to insert the bolt from the bottom.

2 Insert two 3/8-16 x 2.5-inch cross bolts with four 5/16-inch flat washers and secure with two 3/8-16 nylock nuts.

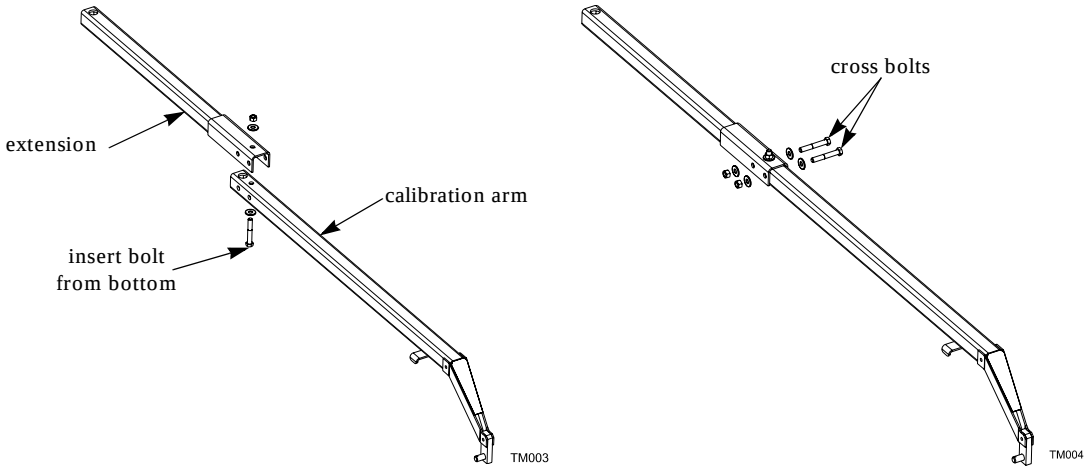

Figure 1-14: Assemble the Calibration Arm

CHAPTER

2

USING THE TORQUE MODULE

This chapter provides instructions for using the Torque Module with WinPEP 7. Appendix A includes instructions for using the Torque Module with WinPEP 6. To ensure safety and accuracy in the procedures, perform the procedures as they are described.

TORQUE CELL CALIBRATION

The Torque Module must be calibrated prior to use. Follow the directions on the screen exactly. Failure to perform the directions accurately will result in improper torque values.

1 Verify you are in the MakeRun screen.

2 Verify you are connected to the dyno electronics.

Note: For more information on connecting to the dyno electronics, refer to the WinPEP 7 User Guide (on your WinPEP CD or at www.dynojet.com/manuals.shtml) or the WinPEP 7 Online Help.

3 Select **Tools ➤MakeRun Options ➤Torque Cell Calibration**.

Note: Before proceeding, be sure the eddy current brake is free and clear of any obstructions. There should not be anything resting on the eddy current brake or the dynamometer drum during this procedure.

4 Click **Next** to perform the Zero Calibration.

The Calibration window will appear. The hardware is now zeroing out the torque cell. If the unit does not calibrate, recheck the setup and retry.

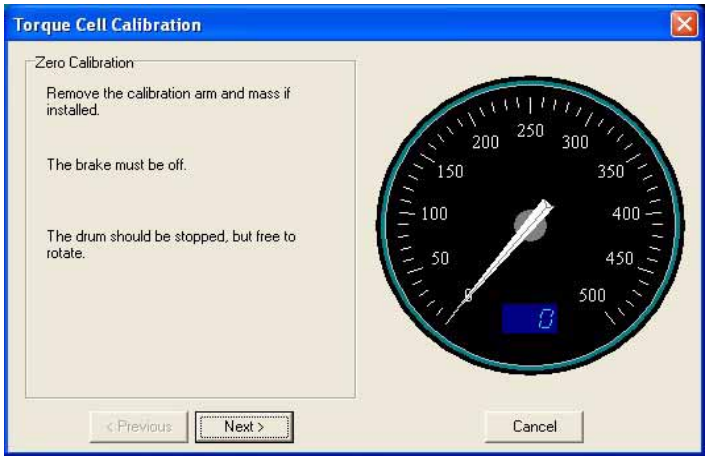

Figure 2-1: Zero Calibration Window

Once the Zero Calibration is complete, the Calibration Mass window will appear.

5 Enter the Torque Module calibration value. Refer to Figure 2-3.

Note: You must perform this step the first time you calibrate the load cell.

Or

If you are only performing a Zero Calibration, click **Finish**.

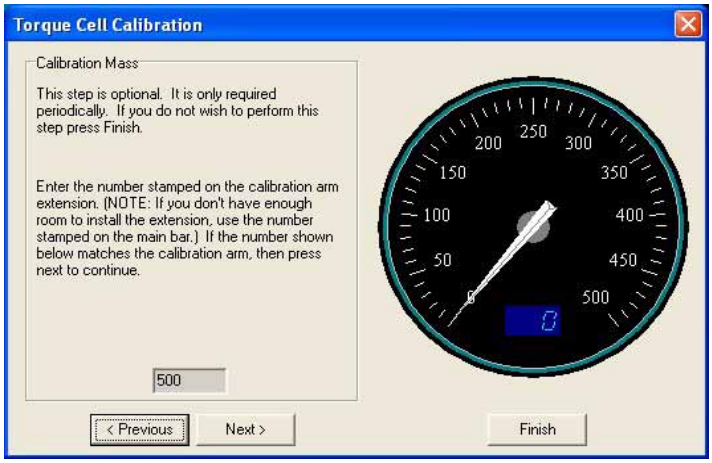

Figure 2-2: Calibration Mass Window

Enter the calibration number stamped on the calibration arm extension. If you do not have enough room to install the extension, use the number stamped on the main bar.

Note: Dynojet recommends you use the calibration arm with the extension unless space constraints in your dyno room do not allow you to.

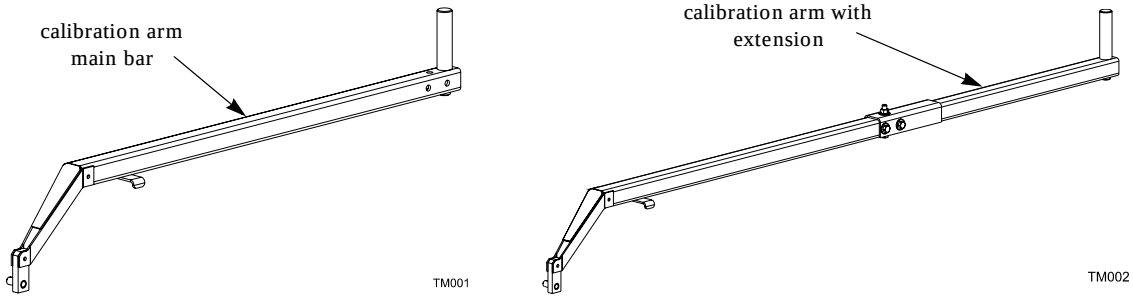

Figure 2-3: Calibration Arm

6 Click **Next** to continue.

The Span Calibration window will appear.

7 Install the calibration arm and weights. Refer to step 8 and Figure 2-5 on page 2-5.

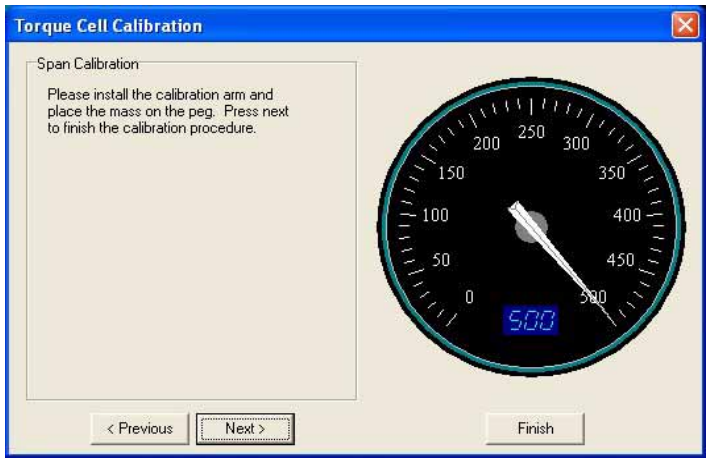

Figure 2-4: Span Calibration Window

8 Install the calibration arm and weights.

8a Insert the stud on the end of the calibration arm into the bracket on the mounting plate on the front of the eddy current brake.

8b Insert the cotter pin in the small hole on the stud. This will secure the calibration arm during the calibration process.

Note: If the calibration arm is not level, you will need to use the spacer included.

8c Place the weight support pin in the end of the calibration arm.

8d Gently place the weights on the calibration arm.

CAUTION

The calibration weights are very heavy. The weights must be set on the arm gently or you will damage the load cell.

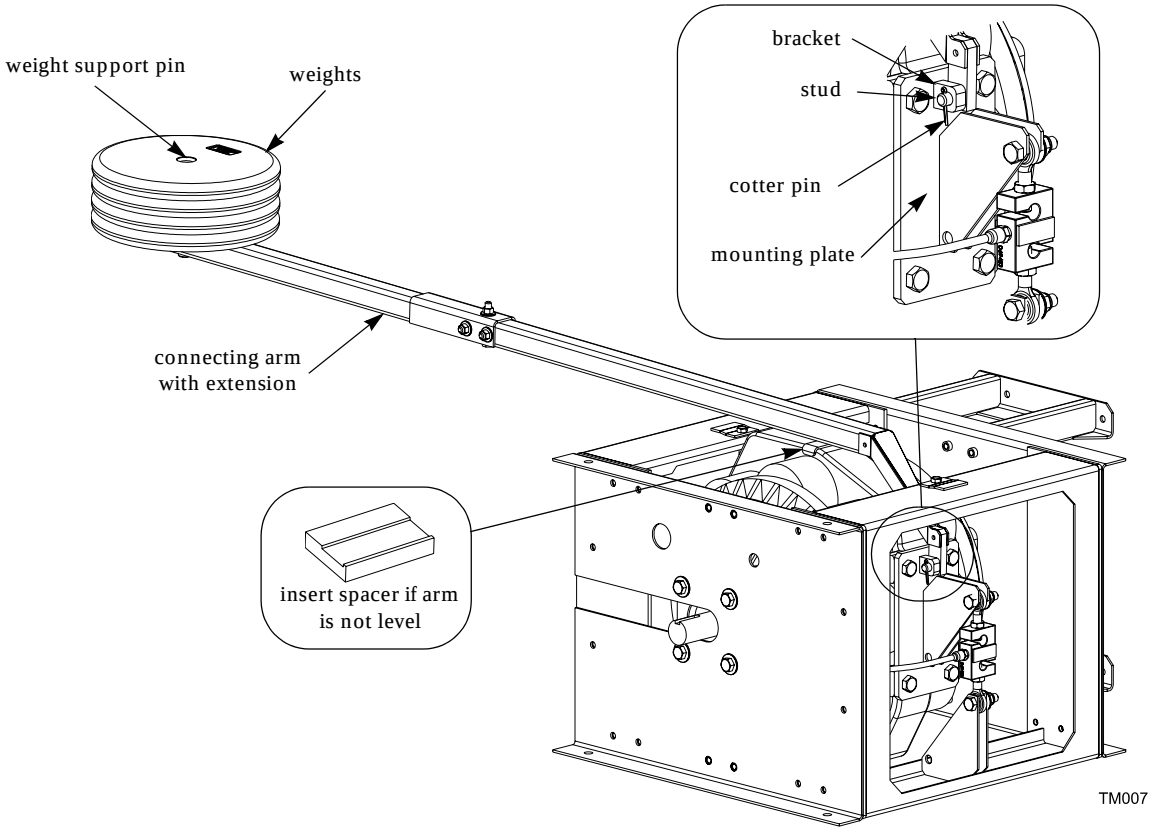

Figure 2-5: Install Calibration Arm and Weights

While installing the calibration weights, you should notice the Torque Gauge on the DynoTrac Window moving from 0 to about 500 foot-pounds.

Note: The Torque Gauge may or may not be in this range. If the torque cell has been previously calibrated incorrectly or has not been calibrated for a while, the gauge may show values out of this range until calibration is complete.

Note: Let the torque gauge needle stabilize before clicking **Next**.

9 From the Span Calibration window (Figure 2-4), click **Next** to continue.

Note: At this point, the value on the gauge should match the value on the calibration arm.

10 Remove the calibration arm and weights and click **Finish**.

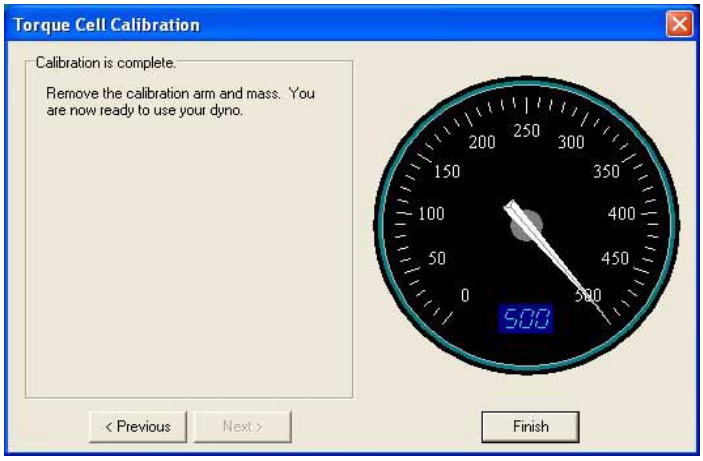

Figure 2-6: Calibration Is Complete Window

APPENDIX

A

THE TORQUE MODULE AND WINPEP 6

This appendix provides instructions for using the Torque Module with WinPEP 6. To ensure safety and accuracy in the procedures, perform the procedures as they are described.

TORQUE MODULE CALIBRATION

After initial calibration, the Torque Module should be Zero Calibrated approximately every thirty hours of use.

Before proceeding, be sure the eddy current brake (retarder) is free and clear of any obstructions. There should not be anything resting on the eddy current brake or the dynamometer drum during this procedure.

1 Launch WinPEP and click the DynoTrac icon.

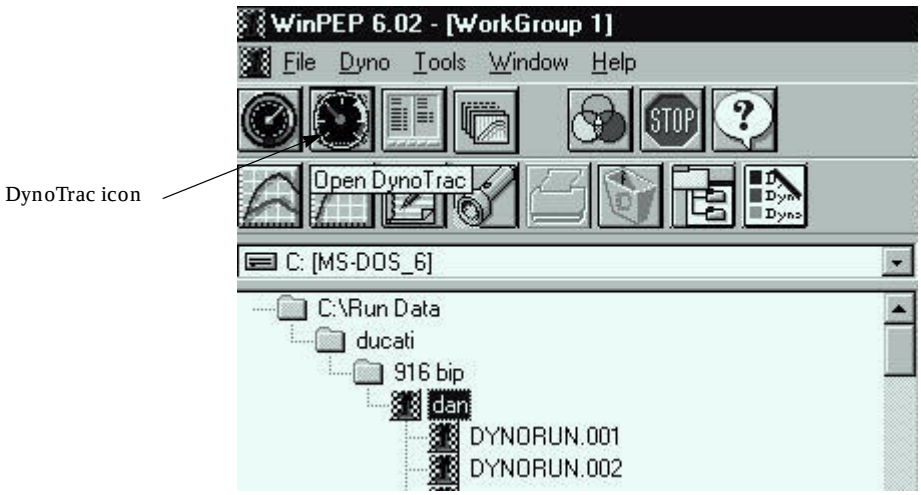

Figure A-1: Launch WinPEP

The DynoTrac window will appear.

2 Select **Options ➤Display ➤Eng Torque** from the main menu. The gauge needs to display “Eng Torque” and not “Braking”.

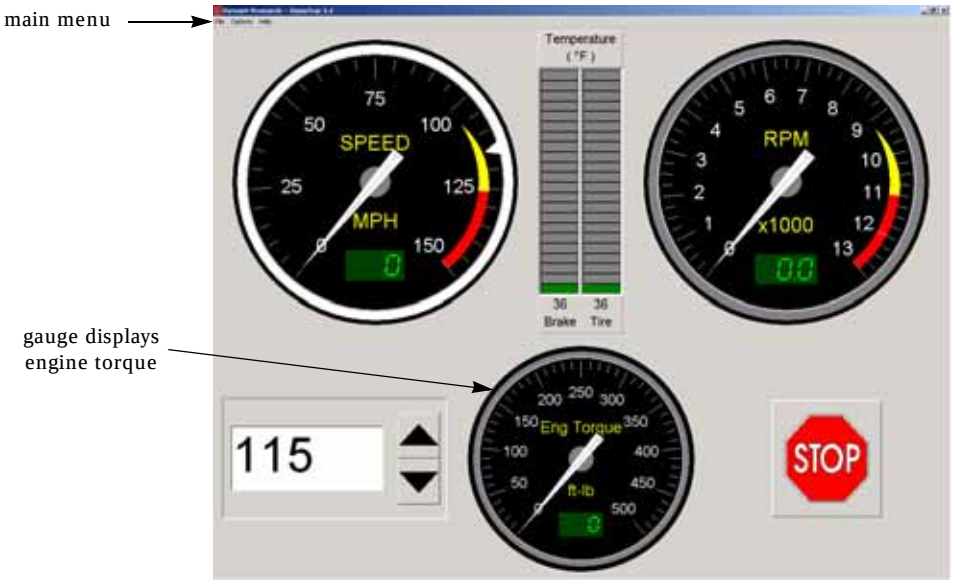

Figure A-2: DynoTrac Window

3 Select **Options ➤Calibrate**.

Note: Before proceeding, be sure the eddy current brake is free and clear of any obstructions. There should not be anything resting on the eddy current brake or the dynamometer drum during this procedure.

4 Enter the Torque Module calibration value.

4a Enter the calibration number stamped on the calibration arm extension. If you do not have enough room to install the extension, use the number stamped on the main bar.

Note: Dynojet recommends you use the calibration arm with the extension unless space constraints in your dyno room do not allow you to.

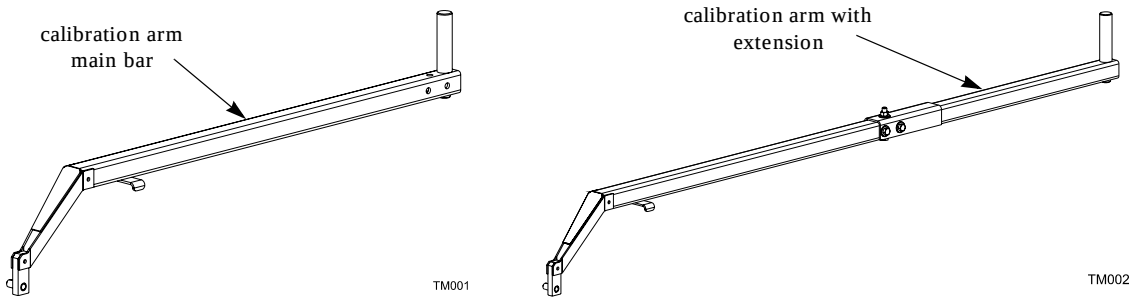

Figure A-3: Calibration Arm

Note: Follow the directions on the screen exactly. Failure to perform the directions accurately will result in improper torque values.

5 Click **Next** to continue.

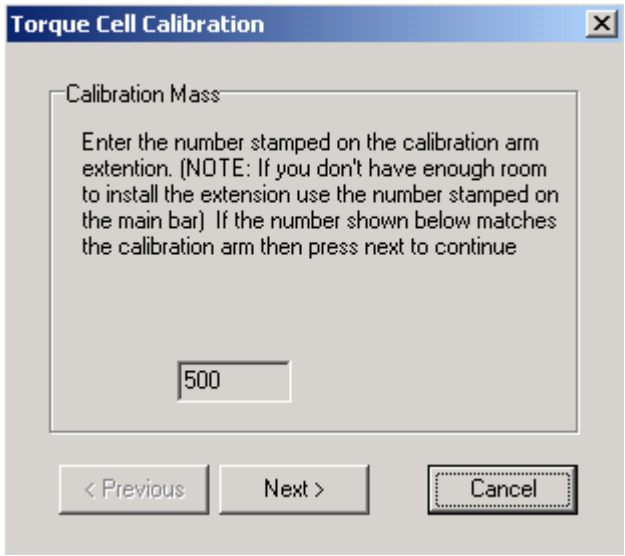

Figure A-4: Calibration Mass Window

The Zero Calibration is now being performed.

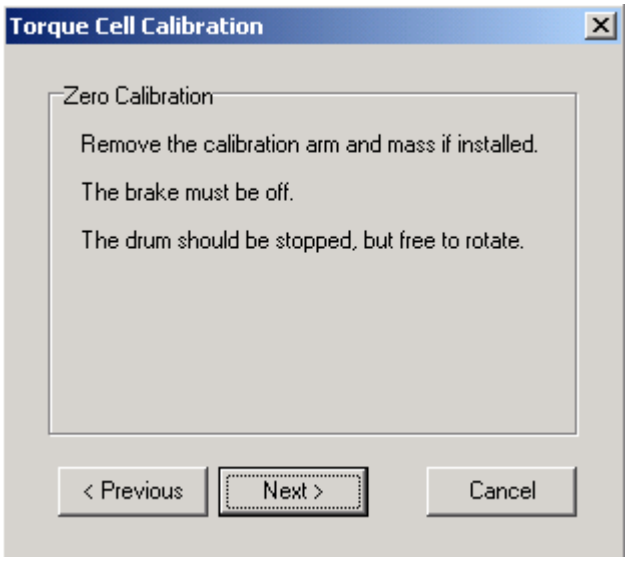

Figure A-5: Zero Calibration Window

The Span Calibration window will appear.

6 Install the calibration arm and weights. Refer to step 7 and Figure A-7 on page A-5.
Note: You must perform this step the first time you calibrate the load cell.

Or

If you are only performing a Zero Calibration, click **Cancel**.

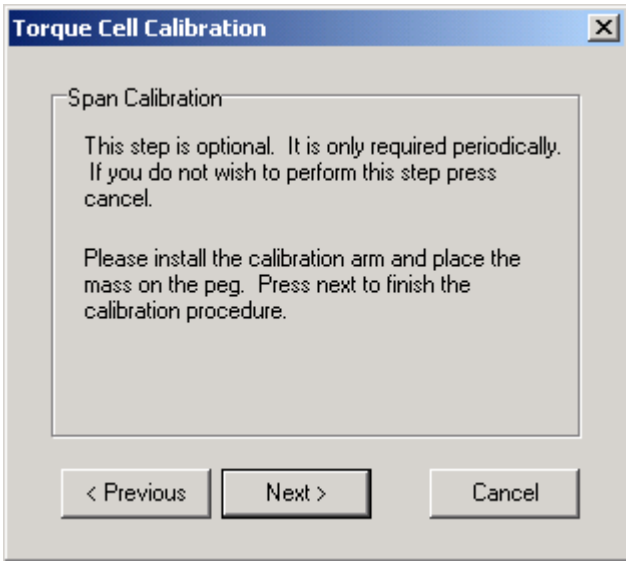

Figure A-6: Span Calibration Window

7 Install the calibration arm and weights.

7a Insert the stud on the end of the calibration arm into the bracket on the mounting plate on the front of the eddy current brake.

7b Insert the cotter pin in the small hole on the stud. This will secure the calibration arm during the calibration process.

Note: If the calibration arm is not level, you will need to use the spacer included.

7c Place the weight support pin in the end of the calibration arm.

7d Gently place the weights on the calibration arm.

CAUTION

The calibration weights are very heavy. The weights must be set on the arm gently or you will damage the load cell.

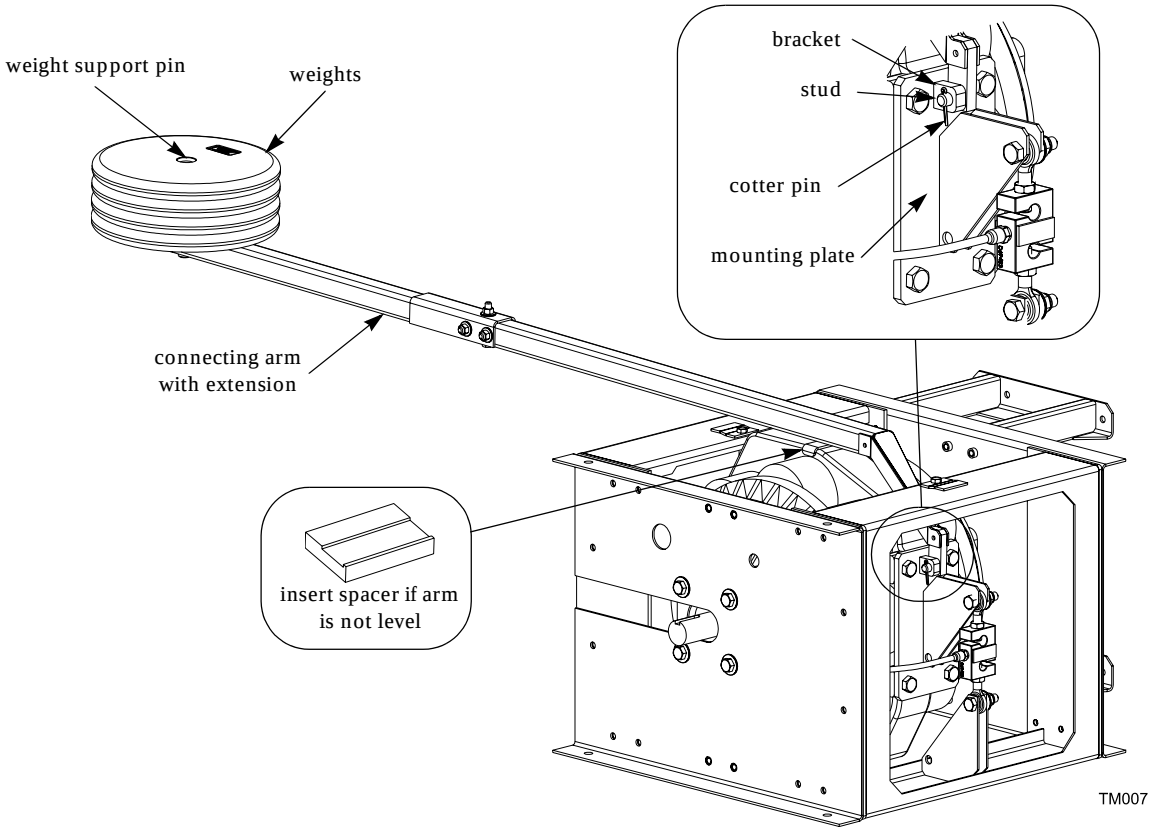

Figure A-7: Install Calibration Arm and Weights

While installing the calibration weights, you should notice the Torque Gauge on the DynoTrac Window moving from 0 to about 500 ft.-lbs. The gauge is for display purposes only and may not read correctly. The gauge remains uncalibrated until the calibration process is complete.

Note: Let the torque gauge needle stabilize before clicking **Next**.

Figure A-8: Torque Gauge

8 From the Span Calibration window (Figure A-6), click **Next** to continue.

9 Remove the calibration arm and weights and click **Finish**.

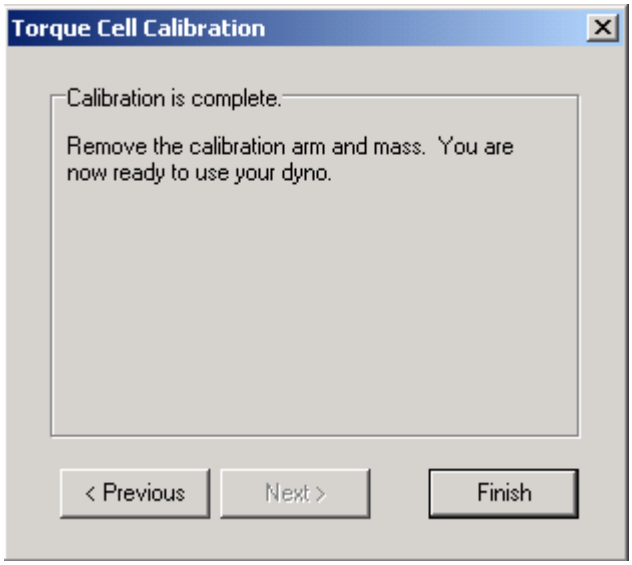

Figure A-9: Calibration Is Complete Window

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