The following instructions are intended to assist the user in the installation of the COMPAS II Compaction Analyzing System for use on the MVH308DZ, MVH408DZ, and MVH508DZ reversible plate compactors. Please read all assembly instructions before installing the system kit.

PARTS
Verify that all parts are accounted for. See Figure 1 and Table 1.

Table 1. COMPAS II Compaction Analyzing System Kit

<table>
<thead>
<tr>
<th>Item</th>
<th>Part No.</th>
<th>Description</th>
<th>Qty.</th>
<th>Remarks</th>
</tr>
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<tr>
<td>1</td>
<td>CPAS308DZ</td>
<td>Kit, COMPAS II Compaction Analyzing System</td>
<td>1</td>
<td>Includes items 2–19</td>
</tr>
<tr>
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<td>CPAS408DZ</td>
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<td>CPAS508DZ</td>
<td>Kit, COMPAS II Compaction Analyzing System</td>
<td>1</td>
<td>Includes items 2–19</td>
</tr>
<tr>
<td>2</td>
<td>515450380</td>
<td>Lead Wire, Yellow</td>
<td>1</td>
<td></td>
</tr>
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<td>3</td>
<td>467310010</td>
<td>Compaction Sensor Panel, MVH-308</td>
<td>1</td>
<td>CPAS308DZ only</td>
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<td>1</td>
<td>CPAS408DZ only</td>
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<td>CPAS508DZ only</td>
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<td>6</td>
<td>001521030</td>
<td>Socket Head Bolt, 10 x 30</td>
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<tr>
<td>7</td>
<td>740426290</td>
<td>Spacer, 10.5 x 22 x 10</td>
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<tr>
<td>8</td>
<td>031110160</td>
<td>Flat Washer, M10</td>
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<td>9</td>
<td>030210250</td>
<td>Lock Washer, M10</td>
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<td>Fuse Holder</td>
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<td>11</td>
<td>467352040</td>
<td>Assy, Acceleration Sensor</td>
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<td>Wire Harness</td>
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<td>Cable Clamp, Ø8 for M8</td>
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<td>16</td>
<td>959021812</td>
<td>Spiral Tube</td>
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<td>17</td>
<td>506010070</td>
<td>Cable Tie</td>
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<td>18</td>
<td>920112220</td>
<td>Decal, High Pressure Wash Prohibited, English</td>
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<tr>
<td>19</td>
<td>N/A</td>
<td>Instructions, COMPAS II Installation</td>
<td>1</td>
<td></td>
</tr>
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</table>

REQUIRED TOOLS

- 10 mm, 13 mm, 17 mm, and 21 mm Socket or Wrench
- 13 mm Offset Wrench
- 4 mm, 5 mm, 6 mm, and 8 mm Hex Wrench
- Cable Tie Cutters
- Needle-Nose Pliers
- Loctite® 243™ and 263™ Thread Sealant
WORK SAFELY!

Only a qualified service technician with proper training should perform this installation. Follow all shop safety rules when performing this installation.

COMPACTOR SAFETY

⚠️ DANGER

NEVER operate the equipment in an explosive atmosphere or near combustible materials. An explosion or fire may result, causing severe bodily harm or even death.

⚠️ WARNING

NEVER disconnect any emergency or safety devices. These devices are intended for operator safety. Disconnection of these devices can cause severe injury, bodily harm or even death. Disconnection of any of these devices will void all warranties.

⚠️ CAUTION

NEVER lubricate components or attempt service on a running machine.

BATTERY SAFETY

⚠️ DANGER

DO NOT drop the battery. There is a possibility that the battery will explode.

DO NOT expose the battery to open flames, sparks, cigarettes, etc. The battery contains combustible gases and liquids. If these gases and liquids come into contact with a flame or spark, an explosion can occur.

⚠️ WARNING

ALWAYS wear safety glasses when handling the battery to avoid eye irritation. The battery contains acids that can cause serious injury to the eyes and skin.

ALWAYS wear well-insulated gloves when handling the battery.

If battery liquid (dilute sulfuric acid) comes into contact with clothing or skin, rinse clothing or skin immediately with plenty of water.

If battery liquid (dilute sulfuric acid) comes into contact with eyes, rinse eyes immediately with plenty of water and seek medical attention from the nearest hospital or doctor.

⚠️ CAUTION

ALWAYS disconnect the negative battery cable before performing service on the equipment.

ALWAYS keep battery cables in good working condition. Repair or replace all worn cables.

TRANSPORTING SAFETY

⚠️ CAUTION

NEVER allow any person or animal to stand underneath the equipment while it is being lifted.

NOTICE

Before lifting, ALWAYS make sure equipment parts (hook and vibration insulator) are undamaged, and no screws are loose or missing.

ALWAYS make sure the lifting bail (hook) of the equipment has been properly secured to the crane or other lifting device.

NEVER lift the equipment while the engine is running.

ALWAYS tighten the fuel tank cap securely and close the fuel cock to prevent fuel from spilling when lifting or transporting the equipment.

ALWAYS use adequate lifting cable (wire or rope) of sufficient strength.

ALWAYS use a single-point suspension hook and lift the equipment straight upward.

NEVER lift the equipment to unnecessary heights.

PREPARATION

1. Make sure the plate compactor is turned OFF and the engine is cool.

2. Place the plate compactor in an area free of dirt and debris, and make sure it is on secure, level ground. If possible, lift the compactor a few feet off the ground onto a flat, secure surface for easier access.
BATTERY DISCONNECTION AND REMOVAL

1. Release the two latches at the top of the rear cover (Figure 2), then pull the rear cover downward to open.

2. Loosen the four $8 \times 25$ mm bolts securing the air cleaner stay (Figure 3) to the frame.

3. Slide the air cleaner stay upward to access the battery, then tighten the four $8 \times 25$ mm bolts to secure the stay in place (Figure 3).

4. Remove the two 8 mm nylon nuts from the battery bolts securing the battery holder to the battery (Figure 3). Remove the battery holder and set the holder and fasteners aside.

5. Disconnect the negative (BLACK) battery cable, then disconnect the positive (RED) battery cable (Figure 4).

6. Tilt the battery backward and lift up on the handle to remove (Figure 4). MAKE SURE the battery terminals DO NOT touch the frame during removal.

ACCELERATION SENSOR INSTALLATION

1. Remove and discard the top two 10 mm bolts, lock washers, and flat washers securing the bearing cover to the vibrator (Figure 5). Leave the existing cable clamp on the hydraulic hose as shown.

2. Remove and discard the top left 10 mm bolt, lock washer, and flat washer securing the cylinder to the vibrator (Figure 5).
3. Using a 13 mm offset wrench, remove one 8 mm bolt and lock washer securing the vibrator cover to the vibrator (Figure 6). The bolt and washer are located just above the bearing cover to the left. Retain the bolt and lock washer for later.

4. Place a small cable clamp (P/N 959408920) onto the spiral tube (P/N 959021812) near the sensor end of the acceleration sensor assembly (P/N 467352040). See Figure 7.

5. Insert the existing 8 mm bolt that was removed earlier through the cable clamp (P/N 959408920) and existing lock washer. Reinstall the bolt at its original location and tighten securely. See Figure 7.

6. Apply Loctite® 243™ to the threads on the two 10 mm socket head bolts (P/N 001521030). See Figure 7.

7. Secure the acceleration sensor (P/N 467352040) to the vibrator with the two 10 mm socket head bolts (P/N 001521030) and lock washers (P/N 030210250). Torque the bolts to 54.2 ft-lb (73.6 N·m). See Figure 7.

8. Apply Loctite® 243™ to the threads on the 10 × 35 mm hex head bolt (P/N 001221035). See Figure 7.

9. Insert the 10 × 35 mm hex head bolt (P/N 001221035) through a lock washer (P/N 030210250), the flat washer (P/N 031110160), the existing cable clamp on the hydraulic hose, and the spacer (P/N 740426290). See Figure 7.

10. Secure the hydraulic hose to the bearing cover with the 10 × 35 mm hex head bolt (P/N 001221035). Torque the bolt to 54.2 ft-lb (73.6 N·m). See Figure 7.

11. Secure the acceleration sensor cable (P/N 467352040) to the hydraulic hose with two cable ties (P/N 506010070). See Figure 8.
SENSOR PANEL INSTALLATION

1. If necessary, release the two latches at the top of the rear cover (Figure 9), then pull the rear cover downward to open.

![Figure 9. Open Rear Cover](image)

2. Remove the four 6 mm bolts, nuts, and washers securing the rear cover panel to the rear cover, and set them aside (Figure 10). Discard the rear cover panel.

![Figure 10. Rear Cover Panel Removal](image)

3. Place the sensor panel backing (P/N 464350510) onto the back of the sensor panel (P/N 467310010 [MVH308DZ], P/N 468310010 [MVH408DZ], or P/N 469310010 [MVH508DZ]). See Figure 11.

![Figure 11. Sensor Panel Installation](image)

4. Place the sensor panel into the open space in the rear cover (Figure 11).

5. Place the large cable clamp (P/N 959408930) onto the two cables extending from the back of the sensor panel. See Figure 11.

6. Secure the sensor panel to the rear cover with the four 6 mm bolts, nuts, and washers that were removed earlier (Figure 11). **MAKE SURE** the cable clamp (P/N 959408930) is secured to the inside of the rear cover with a 6 mm bolt as shown.

7. Secure the sensor panel cables to the inside of the rear cover with a cable tie (P/N 506010070) and the self-adhesive cable tie mount (P/N 955409080). See Figure 11.
SENSOR CABLE CONNECTIONS

1. Route the acceleration sensor cable (P/N 467352040) through the inside of the plate compactor up toward the sensor panel (P/N 467310010 [MVH308DZ], P/N 468310010 [MVH408DZ], or P/N 469310010 [MVH508DZ]). See Figure 12.

   ![Figure 12. Sensor Cable Connections](image1)

   **Figure 12. Sensor Cable Connections**

2. Connect the free end of the acceleration sensor cable (P/N 467352040) to the female connector extending from the sensor panel. See Figure 12.

3. Connect the male connector extending from the sensor panel to the female connector on the wire harness (P/N 467352830). See Figure 12.

4. Connect the male end of the wire harness (P/N 467352830) to the female end of the fuse holder (P/N 467352850). See Figure 12.

ELECTRICAL WIRING AND ROUTING (MVH308DZ/MVH408DZ ONLY)

The following section describes how to connect and route the COMPAS II electrical wiring components for plate compactor models MVH308DZ and MVH408DZ only.

If installing the compaction sensor on an MVH508DZ compactor, skip this section and proceed to the ELECTRICAL WIRING AND ROUTING (MVH508DZ) section.

1. Cut and discard the cable ties from the existing wire harness (Figure 13).

   ![Figure 13. Existing Wiring Disconnection (MVH308DZ/MVH408DZ)](image2)

   **Figure 13. Existing Wiring Disconnection (MVH308DZ/MVH408DZ)**

2. Locate the electrical connector that has a red wire and a green wire on one end, and a black wire on the other end (Figure 13). Disconnect the red and green wires.
3. Connect the disconnected red and green wires to the female, 2-pin end of the yellow lead wire (P/N 515450380). See Figure 14.

4. Connect the free, male end of the yellow lead wire (P/N 515450380) to either of the open, female ports on the connector from which the red and green wires were just removed. See Figure 14.

5. Connect the free, male end of the fuse holder (P/N 467352850) to the remaining available port on the connector from which the red and green wires were just removed. See Figure 14.

6. Secure the sensor ground wire to the frame with the existing 10 × 40 mm socket head bolt shown in Figure 15.
7. Conceal the new wiring assembly inside the existing wire harness, and secure it with cable ties (P/N 506010070). See Figure 16.

8. Secure the fuse holder (P/N 467352850) to the existing wire harness with cable ties (P/N 506010070). See Figure 16.

9. Use any remaining cable ties (P/N 506010070) to further secure cables and wires as needed.

---

**ELECTRICAL WIRING AND ROUTING (MVH508DZ ONLY)**

The following section describes how to connect and route the COMPAS II electrical wiring components for plate compactor model MVH508DZ only.

If installing the compaction sensor on an MVH308DZ or MVH408DZ compactor, **skip this section** and proceed to the **FINAL ASSEMBLY** section.

1. Remove and set aside the four 14 x 35 mm bolts securing the front cover to the compactor (Figure 17). Remove the front cover and set it aside.

---

**Figure 16. Conceal and Secure Wiring (MVH308DZ/MVH408DZ)**

**Figure 17. Front Cover Removal (MVH508DZ)**
2. Remove and set aside the four 12 x 55 mm socket head bolts securing the side cover to the compactor (Figure 18). Remove the side cover and set it aside.

3. Remove and set aside the two 14 x 35 mm socket head bolts securing the front bumper to the compactor (Figure 19). Remove the front bumper and set it aside.

4. Remove and set aside the 6 mm bolt and two 5 mm socket head bolts securing the small electrical panel to the front of the unit (Figure 20).

5. Remove the hex head bolt securing the ground wire to the plate behind the electrical panel (Figure 21).

Figure 18. Side Cover Removal (MVH508DZ)

Figure 19. Front Bumper Removal (MVH508DZ)

Figure 20. Electrical Panel Bolt Removal (MVH508DZ)

Figure 21. Ground Wire Disconnection (MVH508DZ)
6. Cut and discard the cable ties securing the bundled electrical connectors to the back of the electrical panel (Figure 22). Remove the panel and set it aside.

7. Locate the electrical connector that has a red wire and a green wire on one side, and a black wire on the other side (Figure 23). Disconnect the red and green wires.

8. Connect the disconnected red and green wires to the female, 2-pin side of the yellow lead wire (P/N 515450380). See Figure 24.

9. Connect the free, male end of the yellow lead wire (P/N 515450380) to either of the open, female ports on the connector from which the red and green wires were just removed. See Figure 24.

10. Connect the free, male end of the fuse holder (P/N 467352850) to the remaining available port on the connector from which the red and green wires were just removed. See Figure 24.

11. Rebundle the wiring connectors and secure them to the back of the electrical panel with cable ties (P/N 506010070). See Figure 25.
12. Secure the electrical panel to the plate behind it with the 6 mm bolt and two 5 mm socket head bolts that were removed earlier (Figure 26). **MAKE SURE** the two existing wiring connectors are secured between the panel and the plate with the 5 mm socket head bolts as shown.

13. Route the sensor wire harness (P/N 467352830) along the right side of the unit as shown in Figure 27, and secure it to the existing wiring with cable ties.

14. Secure the sensor ground wire to the frame with the existing socket head bolt as shown in Figure 28.

15. Apply Loctite® 263™ to the male threads on the two 14 × 35 mm socket head bolts that were removed earlier from the front bumper (Figure 29).

16. Secure the front bumper to the compactor with the two 14 × 35 mm socket head bolts that were removed earlier (Figure 30). Torque the bolts to 130 ft-lb (76.6 N·m).
17. Apply Loctite® 243™ to the male threads on the four 12 × 55 mm socket head bolts that were removed earlier from the side cover (Figure 31).

18. Secure the side cover to the compactor with the four 12 × 55 mm socket head bolts that were removed earlier (Figure 32). Torque the bolts to 54.2 ft-lb (73.5 N·m).

19. Apply Loctite® 243™ to the male threads on the four 14 × 35 mm bolts that were removed earlier from the front cover (Figure 33).

20. Secure the front cover to the compactor with the four 14 × 35 mm bolts that were removed earlier (Figure 34). Torque the fastening bolts to 130.2 ft-lb (176.6 N·m).
**FINAL ASSEMBLY**

1. **MAKE SURE** the rear cover will close without pinching or cutting any wires, but leave the rear cover open at this time.

2. Reinstall the battery, **BE SURE** to connect the positive (RED) battery cable first, then connect the negative (BLACK) battery cable.

3. Loosen the four 8 × 25 mm bolts securing the air cleaner stay to the frame. Slide the air cleaner stay downward to its original position, then tighten the four bolts securely.

4. Close the rear cover and secure it with the two latches (Figure 35).

5. Carefully remove the backing from the High Pressure Wash Prohibited decal (P/N 920112220). See Figure 36.

6. Place the High Pressure Wash Prohibited decal (P/N 920112220) onto the top of the rear cover, just above the sensor panel (P/N 467310010 [MVH308DZ], P/N 468310010 [MVH408DZ], or P/N 469310010 [MVH508DZ]). **MAKE SURE** the decal is oriented straight and flat. See Figure 36.

**STARTUP**

**Electric Start**

1. Insert the key into the ignition switch.

2. Move the throttle lever to the **IDLE** position (Figure 37).
3. Turn the key clockwise to the **RUN** position (Figure 38). The buzzer will begin to sound.

![Figure 38. Ignition Switch (RUN)](image)

4. After “HA” is initially displayed on the tachometer/hour meter, the meter will change to display **cumulative time** (Figure 39).

![Figure 39. Tachometer/Hour Meter (Cumulative Time)](image)

5. Turn the key further clockwise to the **START** position (Figure 40). Once the engine starts, release the key. As the engine speed increases, the buzzer will stop.

![Figure 40. Ignition Switch (START)](image)

6. Once the engine starts running, the tachometer/hour meter will display **rotational speed** (RPM). See Figure 41.

![Figure 41. Tachometer/Hour Meter (Rotational Speed)](image)

7. Idle for 2 to 3 minutes to warm up the engine.

**Recoil Start**

1. Insert the key into the ignition switch.
2. Move the throttle lever to the **IDLE** position (Figure 42).

![Figure 42. Throttle Lever (IDLE)](image)

**CAUTION**

DO NOT hold the key in the **START** position for more than 5 seconds. If the engine does not start, move the key back to the **RUN** position, wait about 10 seconds, then try again to start.

NEVER turn the ignition switch to the **START** position while the engine is already running.
3. Turn the key **clockwise** to the **RUN** position (Figure 43). The buzzer will begin to sound.

![Figure 43. Ignition Switch (RUN)](image)

4. After “HA” is initially displayed on the tachometer/hour meter, the meter will change to display **cumulative time** (Figure 44).

![Figure 44. Tachometer/Hour Meter (Cumulative Time)](image)

5. Slowly pull the recoil starter grip (Figure 45) until resistance is felt, then pull briskly and smoothly to start the engine. Once the engine starts, **DO NOT** release the starter grip immediately. Allow the starter grip to recoil gently to its original position.

![Figure 45. Recoil Starter Grip](image)

6. Idle for 2 to 3 minutes to warm up the engine.

**TESTING**

1. When the plate compactor is started in **IDLE** mode, the green LED on the sensor panel (P/N 467310010 [MVH308DZ], P/N 468310010 [MVH408DZ], or P/N 469310010 [MVH508DZ]) will flash, and the red LED will turn on. See Figure 46.

![Figure 46. Sensor Panel Display (IDLE)](image)

2. As engine speed increases and compaction begins, the green LED will stop flashing and turn on (Figure 47). The red LED will turn off, and the first yellow LED (on the left) will turn on.

![Figure 47. Sensor Panel Display (Beginning Compaction)](image)

3. As compaction progresses, the rest of the yellow LEDs (2 through 8) will turn on. See Figure 48.

![Figure 48. Sensor Panel Display (Compaction Progression)](image)
4. When the compaction limit is reached, the red LED will turn on (Figure 49). This will only happen after all eight yellow LEDs have turned on.

\[\text{Figure 49. Sensor Panel Display (Compaction Limit)}\]

5. Once the red LED is lit, the machine cannot compact any further. If the compaction results are unsatisfactory, make sure the soil type, moisture content, lift, and number of passes are appropriate for this machine.

**TROUBLESHOOTING**

**Detection of Unstable or Soft Ground**

This plate compactor is **not suitable for use on unstable or soft ground** (soil containing high clay content). These ground conditions will cause the green and red LEDs to turn on (Figure 50), and the desired compaction results will be difficult to achieve. Check to make sure the soil to be compacted is prepared to specification before proceeding with the compaction process.

\[\text{Figure 50. Unstable or Soft Ground Detection}\]

**Detection of Vibrational Abnormality**

If the V-belt is tensioned incorrectly, improper engine rotational speed will prevent the compactor from achieving the appropriate vibrational frequency. When this occurs, the green LED will flash (Figure 51). Check engine speed and V-belt tension before proceeding with compaction.

\[\text{Figure 51. Vibrational Abnormality Detection}\]

**Detection of Electrical System Abnormalities**

**Sensor Cable Connection Failure (Between Acceleration Sensor and Sensor Panel)**

A connection failure between the acceleration sensor (P/N 467352040) and the sensor panel (P/N 467310010 [MVH308DZ], P/N 468310010 [MVH408DZ], or P/N 469310010 [MVH508DZ]) will cause the red and green LEDs to flash alternately as shown in Figure 52. Check the electrical connection between the sensor and the panel before proceeding with compaction.

\[\text{Figure 52. Sensor Cable Connection Failure}\]

**Power Cable Connection Failure (Between Battery and Sensor Panel)**

A connection failure between the battery and the sensor panel will prevent any LEDs from flashing or turning on when the plate compactor is started. If the panel LEDs remain unlit upon startup, check the electrical connection between the battery and the sensor panel before proceeding with compaction.
Figure 53. Compaction Sensor Wiring Diagram (Hatz Engine)
HERE’S HOW TO GET HELP
PLEASE HAVE THE MODEL AND SERIAL NUMBER ON-HAND WHEN CALLING

UNITED STATES

**Multiquip Corporate Office**
18910 Wilmington Ave.
Carson, CA 90746
Contact: mq@multiquip.com
Tel. (800) 421-1244
Fax (310) 537-3927

**MQ Parts Department**
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310-537-3700

**Service Department**
800-421-1244
310-537-3700

**Technical Assistance**
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Fax: 310-943-2238

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