

Gilson Mechanical Soil Compactor HM-580, HM-580F



HM-580

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SAFETY INSTRUCTIONS

Please read these instructions thoroughly to familiarize yourself with the operation of the HM-580 Mechanical Soil Compactor before attempting to run it.

The buyer is responsible for ensuring that users are properly trained, that they are aware of all of the information and instructions in this document, and that they are aware of the potential risks of operating the machine. The manufacturer will not be responsible for any damage to people and/or property caused by noncompliance with any instructions in this manual.

NOTE: These instructions are intended only as a guide for general operation of this device and should not be used in place of test protocol. Refer to current ASTM, AASHTO, or other governing specifications for complete and detailed test procedures.

- **ALWAYS** ensure the motor and other electrical components are properly configured for your intended use and available power source. HM-580 operates on 115V,60Hz and HM-580F operates on 230V,50Hz.
 - **ALWAYS** use a properly-wired, three-pronged plug, or otherwise ground the machine. Make sure the cord is located where no one will trip or get tangled in it.
 - **ALWAYS** check electrical wiring for loose connections and for pinched or frayed wiring.
 - **ALWAYS** disconnect and lock out power supply when the machine is not in use, especially before performing maintenance and repairs.
- ▲ **WARNING:** This machine operates on an electric current. Improper operation could result in electric shock, electrocution, or an explosion! Motors are NOT explosion-proof!
- ▲ **WARNING:** Do not wear loose clothing that might be caught in the machine and keep all body parts away from moving parts of the machine. **ALWAYS** wear safety glasses, hearing protection, and other personal protective equipment while operating, maintaining, or repairing this machine.
- ▲ **WARNING:** DO NOT operate the machine without having all guards and covers in place.
- ▲ **WARNING:** DO NOT perform tasks on the machine other than those for which it was designed. Only use the machine in the manner for which it was intended, as described in this instruction manual.



1.0 INTRODUCTION

This manual is a guide to the operation and maintenance of the Gilson HM-580 or HM-580F Mechanical Soil Compactor. The Mechanical Soil Compactor has been designed and manufactured to comply with current published ASTM and AASHTO compaction specifications. This manual does not attempt to replace the published standards, and it is recommended the operator refer to the most recent versions of ASTM, AASHTO, or other governing specifications for testing methods and procedures.

2.0 MACHINE SETUP

The HM-580 Mechanical Soil Compactors are shipped in new condition and packed to withstand normal shipping risks. The Purchaser is responsible for checking all packages for damage or loss before accepting any shipment.

If damage is evident from the outside of the packaging, notify the freight carrier at the time of delivery and before accepting the shipment. If damage is determined after the packaging is removed, contact both the freight carrier and Gilson immediately.

The machine must be bolted to the floor. Gilson recommends using vibration-resistant stud anchors for concrete, 3/8in (9.25mm) dia., 5in (127mm) long, and securing the machine in the four corners (see Fig. 2a).

NOTE: The HM-580 Mechanical Soil Compactor has been verified during production to meet applicable specifications. It is recommended that the Purchaser perform an in-house verification after the Compactor has been securely fastened to either the floor or a concrete pedestal.

See Section 8.0 for verification instructions.

2.1 Assembly

The Compactor comes fully assembled with the exception of the Human Machine Interface (HMI)/programmable digital controller, and the two-piece enclosure extension top.

Install the enclosure extension top on the top of the Compactor with the included 1/4–20, 3/8in (9.25mm) long SHB stainless screws. Line up the two pre-drilled holes on each half of the enclosure extension top with the pre-drilled holes on the top of the Compactor. Once each piece is in place, attach securely using the screws (see Figs. 2b and 2c).

Before installing the HMI unit, the height of the mounting bracket can be lowered from its initial position if desired. To lower the bracket, remove the four Allen head bolts and their respective nuts holding the bracket to the side of the Compactor. Insert a 5/32in Allen wrench into each bolt head, while simultaneously placing a 7/16in wrench on the respective nut on the inside of the cabinet. Loosen and remove the nuts and bolts one at a time. After removing three of the four bolts, care should be taken when removing the fourth to prevent the bracket from falling. Once the bracket is removed, reattach the four bolts to the Compactor, as they also act to secure the exterior cabinet to the frame.

Approximately 7in below the mounting bracket's initial position, there are four more Allen head bolts in the same pattern. Remove

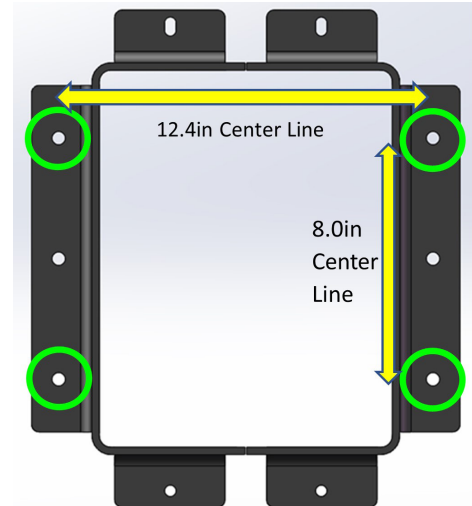


Fig. 2a: Floor Mount Bolt Pattern

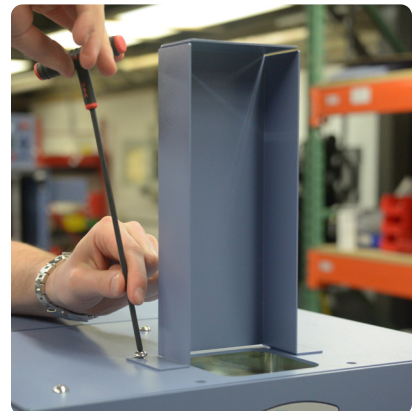


Fig. 2b: Mounting enclosure extension top to Compactor

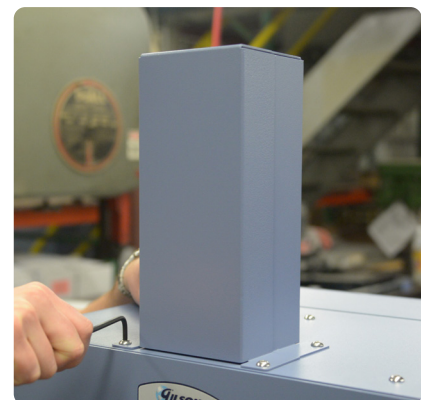


Fig. 2c: Tightening screws to secure

the bolts following the same steps as above, then place the mounting bracket in position and reattach the bolts. Once the mounting bracket is secure, the HMI unit can be attached. **NOTE:** It is recommended to make this adjustment before installing the HMI unit, or after removing it from the bracket to prevent damage.

The HMI/programmable digital controller is shipped separately to protect its electrical and programmable components. When attaching the system to the Compactor, complete the following steps:

- Remove the HMI system from the packaging and insert the threaded studs on the back into the pre-drilled holes on the bracket. Hold the HMI unit in place and place a 1/4in (6.35mm) flat washer and 1/4–20 nyloc nut on each of the threaded studs. Using a 7/16in (11mm) open-end wrench or ratchet wrench, tighten the nuts to ensure the unit is secured to the bracket (see Fig. 2d).
- Once the HMI system is secured to the bracket, connect the electrical cables from the HMI to the appropriate receptacles on the machine (see Section 2.2).



Fig. 2d: Tightening nuts

2.2 Electrical Connection

- **HMI Power Cable:** yellow cable, connected from the bottom right receptacle on the control box (see Fig. 2e) to the left receptacle on the back of the HMI (see Fig. 2f).
- **Communication Cable:** black cable, connected from the top left receptacle on the control box (see Fig. 2e) to the right receptacle on the back of the HMI (see Fig. 2f).
- **Main Power Input:** black cord, found on the far right of the control box, and is where the machine is plugged into the power source (see Fig. 2e).

NOTE: On the lower left-hand corner of the HMI/programmable digital controller there is a toggle switch that controls the power to the unit. Pushing the top of the switch powers the Compactor on and pushing the bottom of the switch will turn the Compactor off. It is best to leave this switch in the off position when the compactor is not in use.

NOTE: If the Compactor is plugged in and the power switch is in the on position, but the HMI/programmable digital controller does not power up, the fuse may need to be replaced. See Section 10.3 for instructions on removing and replacing the fuse.

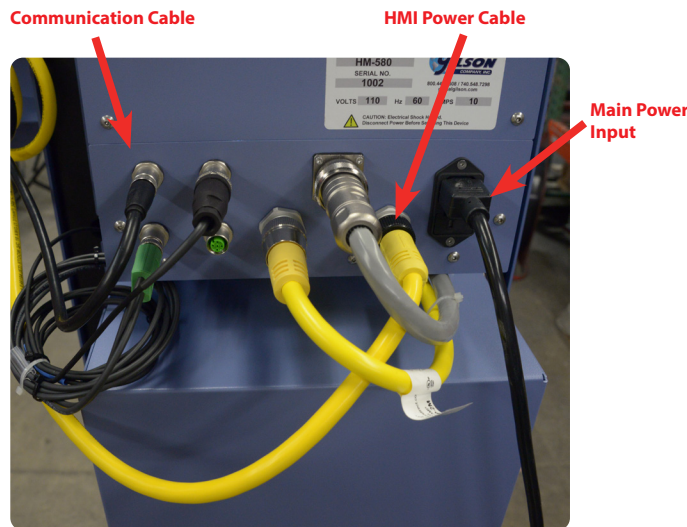


Fig. 2e: Cable connections on back of control box

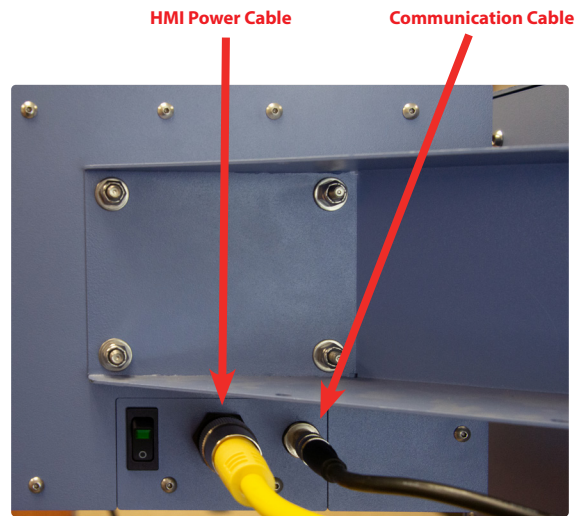


Fig. 2f: Cable connections on back of HMI unit

3.0 HAMMER ASSEMBLY

The HM-580 includes all the components required for creating two hammer assemblies, including a universal hammer body, round hammer face, sector hammer face, and surcharge weight. The round face is used with a 4in (102mm) compaction mold, and the sector face is used with a 6in (152mm) compaction, CBR, or LBR mold. The Mechanical Compactor hammer is delivered with the round face attached.

There are three vertical guide bars that ensure the hammer hits in the same spot, and two guide bar support blocks that lock the front guide bar in place. The front guide bar and support blocks must be removed when switching the hammer from standard to modified compaction test assemblies, and vice versa.

Hammer Lifting Mechanism

A 1/3hp electric motor is fitted to a worm gearbox which drives an endless chain. The carriage slides vertically on two rigid steel guide bars and is designed to lift and release the hammer from the selected 12 or 18in (305 or 457mm) drop height.

3.1 Hammer Safety Arm

When changing the mold or adding material for the next lift, the yellow hammer safety arm should be engaged. This helps prevent the hammer from falling unintentionally and keeps it out of the technician's way during the adding or scarifying of the sample. To engage the arm, manually lift the hammer up and swing the safety arm into the "safe" position (see Fig. 3a), then lower the hammer assembly onto the arm. When ready to continue with testing, lift the hammer, swing the safety arm into the "test" position, and gently place the hammer onto the soil (see Fig. 3b).

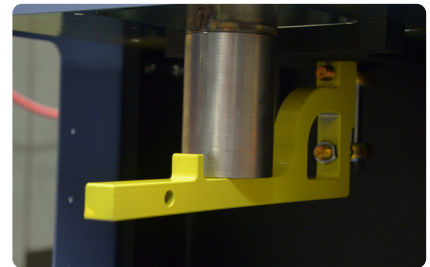


Fig. 3a: Hammer safety arm in "safe" position

3.2 Guide Bar Support Block Installation/Removal

The machine will be shipped with the guide bar support blocks already installed (see Fig 3c). The blocks must be removed in order to install the hammer.

To remove the guide bar support blocks, use a 3/16in (4.8mm) Allen wrench to loosen and remove the two bolts holding the blocks in place (see Fig. 3d). Once the bolts are removed, the blocks can be taken out (see Fig. 3e).

To reinstall the support blocks, line up the notched edge of each block with the front guide bar, then replace and tighten the bolts (see Figs. 3d and 3e).

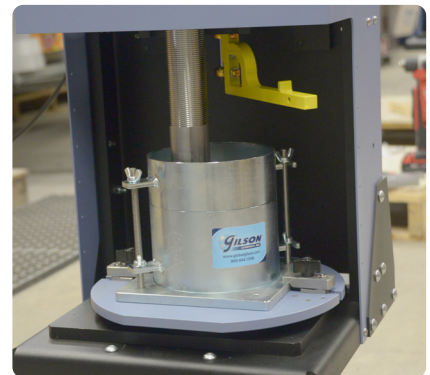


Fig. 3b: Hammer safety arm in "test" position

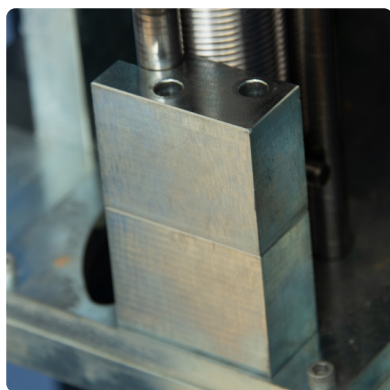
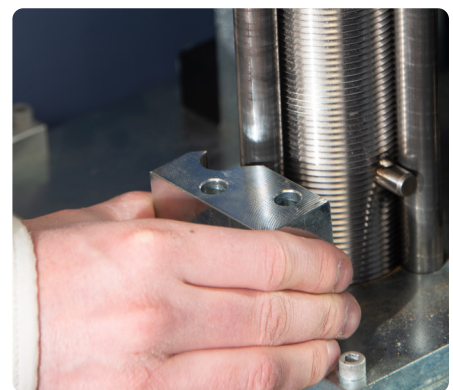
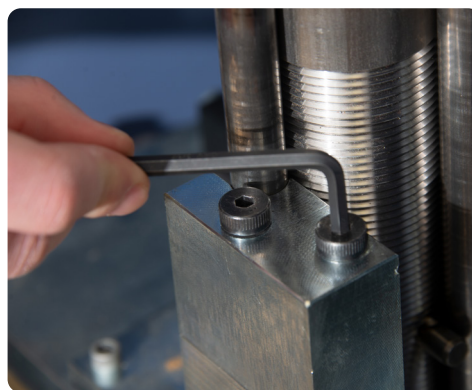


Fig. 3c: Guide bar support blocks



Figs. 3d, 3e: Support blocks removal/installation

3.3 Surcharge Weight Installation/Removal

The Mechanical Soil Compactor hammer is shipped with the standard 5.5lb (2.5kg) cap and round face used for standard compaction testing installed. A 4.5lb (1.8kg) surcharge weight can be added, which allows for the hammer weight to be adjusted to 10lb (4.5kg) for modified compaction testing. To adjust between 5.5lb (2.5kg) and 10lb (4.5kg) hammer assembly weights, remove the guide bar blocks and lift the front guide bar up and over into the designated holding slot at the top of the guide bar cage (see Figs. 3d, 3e, 3f, and 3g). Lift out the hammer assembly and remove the two socket head cap screws on the outer edge of the cap using a 9/64in (3.8mm) Allen wrench, then remove the top cap.

Once the standard cap has been removed, slide the surcharge weight into the body of the hammer. The slot in the surcharge weight is slightly offset and must be lined up correctly with the anti-rotation pin that extends through the body of the hammer. Secure the surcharge weight to the hammer body with the same two socket screws that held the standard cap in place (see Figs. 3h and 3i).

To reinstall the standard (5.5lb/2.5kg) cap, reverse the procedure described above.

NOTE: The standard 5.5lb (2.5kg) and modified 10lb (4.5kg) caps are visually different, allowing the operator to easily recognize if the surcharge weight is present and to quickly verify that the hammer assembly meets the required weight specifications according to the test procedure.

The front guide bar and guide bar blocks must be reinstalled after installing or removing the surcharge weight so that the compaction hammer drops consistently in the same place and uniform coverage during the compaction process is achieved.

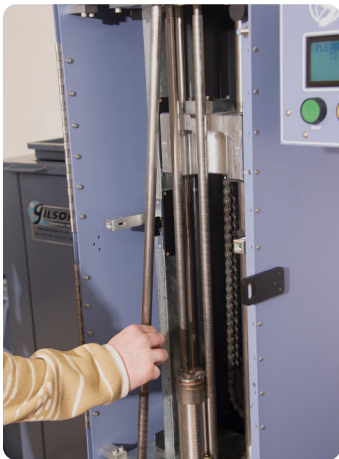
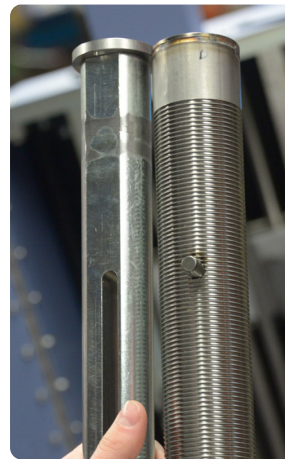


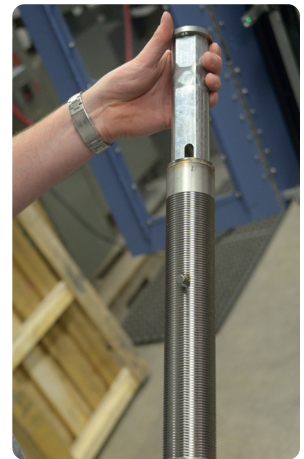
Fig. 3f: Moving front guide bar



Fig. 3g: Bar in holding slot



Figs. 3h, 3i: Surcharge weight installation/removal



3.4 Round and Sector Faces

The assembly of the hammer is the same for both the round and sector faces, so either face can be switched out easily. To switch between the round and sector faces, lower the assembly onto the turntable, remove the four 1/4-20, 7/16in (11mm) long socket head cap screws that attach the hammer face to the hammer body (see Fig. 3j), and remove the hammer face from the hammer body (see Fig. 3k). Switch to the desired hammer face and reinstall the four 1/4-20, 7/16in (11mm) long socket head cap screws (see Figs. 3l and 3m).



Figs. 3j, 3k: Removing the round face

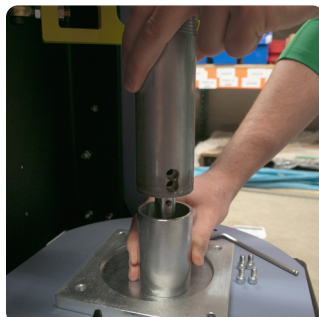


Fig. 3l, 3m: Attaching sector face

NOTE: It is recommended that the compaction mold base be used to rest the hammer assembly on. This will prevent the centering pin on the turntable from damaging the hammer face.

4.0 DROP HEIGHT ENGAGEMENT

The Compactor is shipped with the drop height set to 12in (305mm). See Section 4.1 for switching the drop height from 12 to 18in (305 to 457mm).

NOTE: When selecting a test to perform, the required drop height will be listed. The Compactor will not automatically adjust to the listed drop height, so care should be taken to verify the correct drop height is engaged.

4.1 18in (457mm) Drop Height Engagement

To switch the drop height from 12 to 18in (305 to 457mm), turn the two black knobs located about halfway up the cam plates counterclockwise until the tension releases. Then, turn clockwise 1/4 of a turn.

4.2 12in (305mm) Drop Height Engagement

To switch the drop height from 18 to 12in (457 to 305mm), turn the two black knobs located about halfway up the cam plates clockwise until they will not turn further.



Fig. 4a: Switching the drop height

5.0 ANGLE OF ROTATION AND ADJUSTMENT

The angle of rotation, or indexing angle, is set at 29° for pre-programmed ASTM and AASHTO parameters. This angle is programmed at 29° to allow consistent compactive effort to each lift based on the number of blows required for each lift (either 25 or 56).

This can be changed for custom test parameters so that a user can compact samples for special situations, i.e., to meet a specific unit weight or for a research-type project.

6.0 MOLDS

The HM-580 includes one HMA-110 4in (102mm) mold and one HMA-116 6in (152mm) mold. Both are mounted on the machine in the same way. Locate the centering pin on the turntable and line up the hole on the bottom of the mold with that pin. Once the mold is in place, slide the mold clamps over the edge of the mold base and tighten the clamps to secure the mold (see Fig. 6a).



Fig. 6a: Mounting the mold to the machine

7.0 HUMAN MACHINE INTERFACE (HMI) /PROGRAMMABLE DIGITAL CONTROLLER

This section describes the operation of the HM-580 HMI system. Reading and understanding the information here will ensure trouble-free operation of the unit during testing procedures.

If necessary, the Human Machine Interface (HMI) / programmable digital controller can be removed and/or transferred from one machine to another and the information on the controller will be maintained.

Below the HMI's screen, there are three buttons: the green "Start" button, yellow "Pause" button, and red "Stop/Reset" button. Pressing the "Start" button will prompt the carriage to travel down and lift the hammer to the specified drop height before dropping the hammer onto the soil sample. The "Start" button will need to be pressed again after the programmed number of blows is completed in order to begin the next lift. Pressing the "Pause" button acts as a pause request. The Compactor will make sure the hammer crosses the laser beam before pausing the current test. Pressing the "Stop/Reset" button during a test will cause the carriage to stop lifting and dropping the hammer. Pressing the "Stop/Reset" button at the end of the test will prompt the Compactor to clear the current testing parameters, readying the Compactor to be programmed for a new test. To the right of the screen are the four arrow buttons, "Back" and "Enter" buttons, and the E-Stop.

Use the four arrow buttons to toggle through the available preset test parameters.

E-STOP: The E-Stop, or Emergency Stop, button will immediately stop the current test when pushed. When the E-Stop is engaged, the current test information will not be stored, as pushing the E-Stop button renders the test invalid. If custom test information was entered for the test, those parameters will be saved.

When the machine is turned on, the HMI / programmable digital controller will display a booting screen, and then the Main Menu with the options: "ASTM", "AASHTO", "CUSTOM", "OTHER", "INFO", and "HOMING".

- **ASTM:** Selecting this option will display a list of ASTM standards. Choose a standard using the arrow and "Enter" buttons, and the testing parameters will be displayed on the screen. Push the green "Start" button to begin the chosen test.
- **AASHTO:** Selecting this option will display a list of AASHTO standards. Choose a standard using the arrow and "Enter" buttons, and the testing parameters will be displayed on the screen. Push the green "Start" button to begin the chosen test.
- **OTHER:** Selecting this option will bring up the options to run Florida FM 5-515 or single drop tests. Single drop tests are useful when using the lead deformation process described in D2168.
- **CUSTOM:** Selecting this option allows the technician to program their own testing parameters, including the number of lifts and blows, mold size (4in/102mm or 6in/152mm), indexing angle, drop height (12in/305mm or 18in/457mm), hammer weight (5.5lb/2.5kg or 10lb/4.5kg), and hammer face (round or sector).
- **INFO:** Selecting this option will display the current program version, run time, and the number of total blows.
- **HOMING:** Selecting this option moves the turntable back to the starting position, lining up the mold for the next test.



Fig. 7a: HMI / Programmable Digital Controller



Fig. 7b: HMI / Programmable Digital Controller Arrow Buttons

8.0 VERIFICATION

Prior to shipment, the HM-580 Mechanical Soil Compactor system and components were verified. This process included:

- measuring the mass of the hammer with each face (round and sector)
- measuring the mass of the surcharge weight
- measuring the drop heights from both 12 and 18in
- measuring deformation of the lead cylinders as outlined in D2168 to compare mechanical and manual methods

It is recommended the Mechanical Soil Compactor system be reverified after setup is complete.

- Measuring the mass of the hammer with each face and the surcharge weight can be done with a laboratory balance with a capacity exceeding 5,000g and a readability of 0.1g.
- Measuring the drop height can be achieved by placing a compaction mold base plate on the turntable of the Mechanical Compactor and adding a rubber pad on top. Install the hammer with the round face attached and allow it to rest on the rubber pad. Place the black indicator ring on the front guide bar and lower it to rest on the top cap of the hammer. Now, set the unit to either the 12 or 18in drop height using the black knobs on the cam plates (see Section 4.0 for drop height adjustment). After closing the cabinet doors, use the HMI/programmable digital controller to select “Other” and then “Single Drop”. Push “Start”, and a single pickup and drop will be completed. Open the cabinet doors and measure the height between the top of the hammer cap and the bottom of the black indicator ring. Set the drop height to the height not tested, either 12 or 18in and repeat the process.
- The impact energy verification can be achieved by following ASTM D2168 and comparing the deformation of a lead cylinder when dropping the hammer from either 12 or 18in, with both the manual and mechanical compactors and verifying that the deformation results are within 2% of each other. The Mechanical Soil Compactor Calibration Kit can be ordered as HMA-120 at globalgilson.com.

NOTE: If either the 12 or 18in drop height exceeds the allowable range of ± 0.05 in (457.2 \pm 1.3mm) according to the governing specifications, please contact Gilson Technical Support at 800.444.1508 or techsupport@gilsonco.com for instructions on making the proper adjustments.

9.0 OPERATION (PERFORMING A COMPACTION TEST)

9.1 Performing a Compaction Test with a 6in (152mm) Mold

When using a 6in (152mm) mold, the sector hammer face must be used to assure consistent and uniform compaction is applied to the entire area of the soil sample (see Section 3.4). Using the HMI/programmable digital controller, select the desired test specification from the ASTM or AASHTO lists, or program custom test parameters in the drop-down menu.

- **Verify the required drop height engagement is consistent with the selected ASTM, AASHTO, or custom test parameters** (see Sections 4.1 and 4.2 if an adjustment is necessary).
- **Verify the hammer weight is consistent with the selected ASTM, AASHTO, or custom test parameters** (see Section 3.3 if an adjustment is necessary).

Lift the hammer from the turntable, swing the safety arm into the “safe” position, and lower the hammer onto the safety arm. Place the mold, collar, and base into position, slide the mold clamps over the edge of the mold base, and tighten the clamps to secure the mold to the turntable. Add the first layer of soil in the mold and roughly level. Lift the hammer off of the safety arm, swing the safety arm into the “test” position, and gently place the hammer onto the top of the first lift.

***NOTE:** Some users may prefer to add the collar prior to the final lift.

Press the green “Start” button on the HMI/programmable digital controller and the carriage will travel down and lift the hammer to its specified drop height before dropping the hammer onto the soil sample. This process will be repeated until the specified number of blows, or hammer drops, are completed. The HMI/programmable digital controller will display the number of blows, or hammer drops, as well as the current layer, or lift number, throughout the test.

After compacting each soil layer, lift the hammer out of the mold, swing the safety arm into the “safe” position, and allow the hammer to rest on the arm, Add an additional layer of soil into the mold and roughly level. Lift the hammer off of the safety arm, swing the arm back to the “test” position, gently lower the hammer onto the top of the new lift of soil, and press the green “Start” button to begin compacting the next lift. Continue until all lifts have been compacted. After the final lift

of soil has been completed, the screen will display “Sample Complete” on the right side of the screen and will prompt the technician to push the “Reset” button. Lift the hammer from the turntable, swing the safety arm into the “safe” position, lower the hammer onto the safety arm, and remove the mold and compacted soil sample from the turntable. Eject the soil sample from the mold to procure a sample to determine moisture content and other desired testing if necessary.

9.2 Performing a Compaction Test with a 4in (102mm) Mold

The hammer is shipped with the round face installed. (See Section 3.4 for switching between round and sector faces.) Please note, when using 4in (102mm) molds the round hammer face must be used. Failure to do so could damage the sector face and the top of the collar or mold). Using the HMI / programmable digital controller, select the desired test specification from the ASTM or AASHTO lists, or program custom test parameters in the drop-down menu.

- **Verify the required drop height engagement is consistent with the selected ASTM, AASHTO, or custom test parameter** (see Sections 4.1 and 4.2 if an adjustment is necessary).
- **Verify the hammer weight is consistent with the selected ASTM, AASHTO, or custom test parameters** (see Section 3.3 if an adjustment is necessary).

Lift the hammer from the turntable, swing the safety arm into the “safe” position, and lower the hammer onto the safety arm. Place the mold, *collar, and base into position, slide the mold clamps over the edge of the mold base, and tighten the clamps to secure the mold to the turntable. Add the first layer of soil in the mold and roughly level. Lift the hammer off of the safety arm, swing the safety arm into the “test” position, and gently place the hammer onto the top of the first lift.

***NOTE:** Some users may prefer to add the collar prior to the final lift.

Press the green “Start” button on the HMI/programmable digital controller and the carriage will travel down and lift the hammer to its specified drop height before dropping the hammer onto the soil sample. This process will be repeated until the specified number of blows, or hammer drops, are completed. The HMI/programmable digital controller will display the number of blows, or hammer drops, as well as the current layer, or lift number, throughout the test.

After compacting each soil layer, lift the hammer out of the mold, swing the safety arm into the “safe” position, and allow the hammer to rest on the arm. Add an additional layer of soil into the mold and roughly level. Lift the hammer off of the safety arm, swing the arm back to the “test” position, gently lower the hammer onto the top of the new lift of soil, and press the green “Start” button to begin compacting the next lift. Continue until all lifts have been compacted. After the final lift of soil has been completed, the screen will display “Sample Complete” on the right side of the screen and will prompt the technician to push the “Reset” button. Lift the hammer from the turntable, swing the safety arm into the “safe” position, lower the hammer onto the safety arm, and remove the mold and compacted soil sample from the turntable. Eject the soil sample from the mold to procure a sample to determine moisture content and other desired testing if necessary.

10.0 MAINTENANCE

10.1 Chain Adjustment

Chain should have roughly 1/8in (3.2mm) side-to-side play. Chain tension should be checked every three months. Should the chain need to be adjusted, complete the following steps:

- Remove the top two bolts on each side of the back cover and loosen the bottom bolt on each side. Lift and pull the cover away from the machine for access to the chain tensioner (see Figs. 10a and 10b).
- Loosen the four bolts on the face of the plate covering the idle assembly (see Fig. 10c).



Fig. 10a: Remove bolts for chain adjustment



Fig. 10b: Removing cover for chain adjustment

- Tighten or loosen the tensioning bolt on the top of the plate depending on how the chain needs to be adjusted. Turn clockwise to tighten the chain and counterclockwise to loosen it (see Fig. 10d).
- Make sure the chain has roughly 1/8in (3.2mm) side-to-side play, then retighten the bolts on the face of the plate covering the idle assembly, replace the cover, and replace/tighten the bolts to secure it.

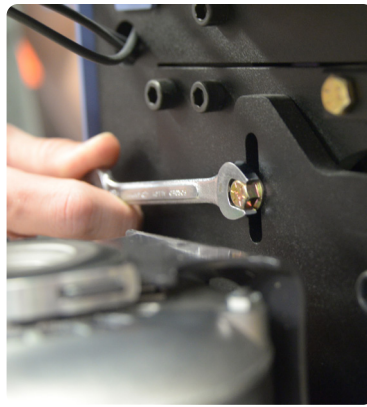


Fig. 10c: Loosening the bolts on the face of the plate

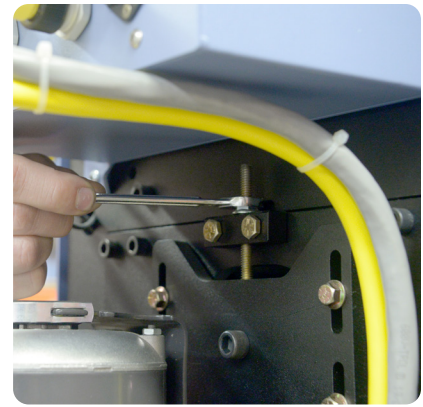


Fig. 10d: Chain adjustment

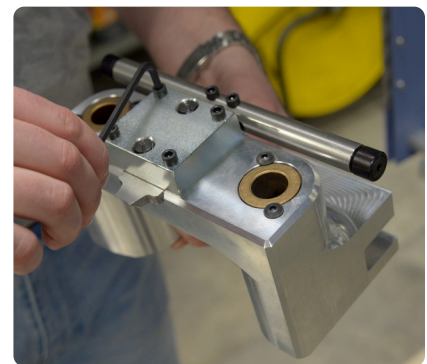
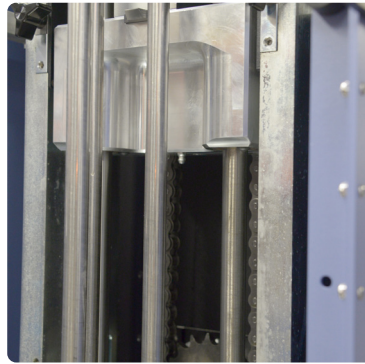
10.2 Carriage and Lift Plate Greasing

Check the grease levels in the grease port once a month, or after every 1,000 samples, whichever comes first. Run the machine without the hammer and stop when the carriage is near the top. Locate the grease port and insert new grease (see Fig. 10e).

Also check the lift plate once a month, or after every 1,000 samples, whichever comes first. Run the machine without the hammer, stopping when the carriage is near the bottom.

Locate the lift plate, loosen the bolts in the four corners, and remove the plate. If the lift plate needs to be regreased, clean the plate and then reapply new grease. Return the plate to its position and replace and tighten the four bolts (see Fig. 10f).

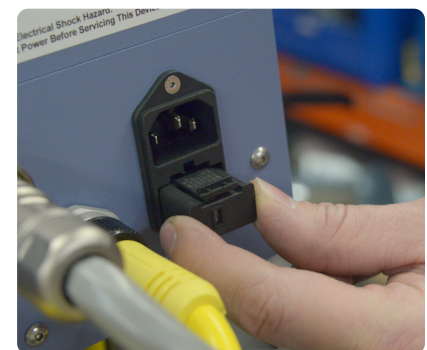
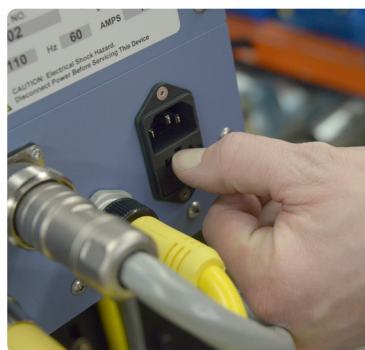
The drive chain can be relubricated as needed. A spray lubricant, such as Liquid Wrench, should be used.



Figs. 10e, 10f: Carriage and Lift Plate greasing

10.3 Replacing the Fuse

If the Compactor is plugged in and the power switch is in the on position, but the HMI/programmable digital controller does not power up, check the fuse for damage. To check the fuse, unplug the power cord from both the machine and the wall outlet, then press down on the tab located under the power outlet on the Compactor and remove the fuse (see Fig. 10g). Remove the fuse and replace it with one from the included pack, reinsert the fuse into the power supply, then plug the power cord back in (see Fig. 10h).



Figs. 10g, 10h: Replacing the fuse

11.0 TECHNICAL SUPPORT

Contact Gilson Technical Support for assistance with operation, maintenance, or repair of the HM-580 Mechanical Soil Compactor.

- Telephone: 800-444-1508
- Email: techsupport@gilsonco.com
- Web: globalgilson.com