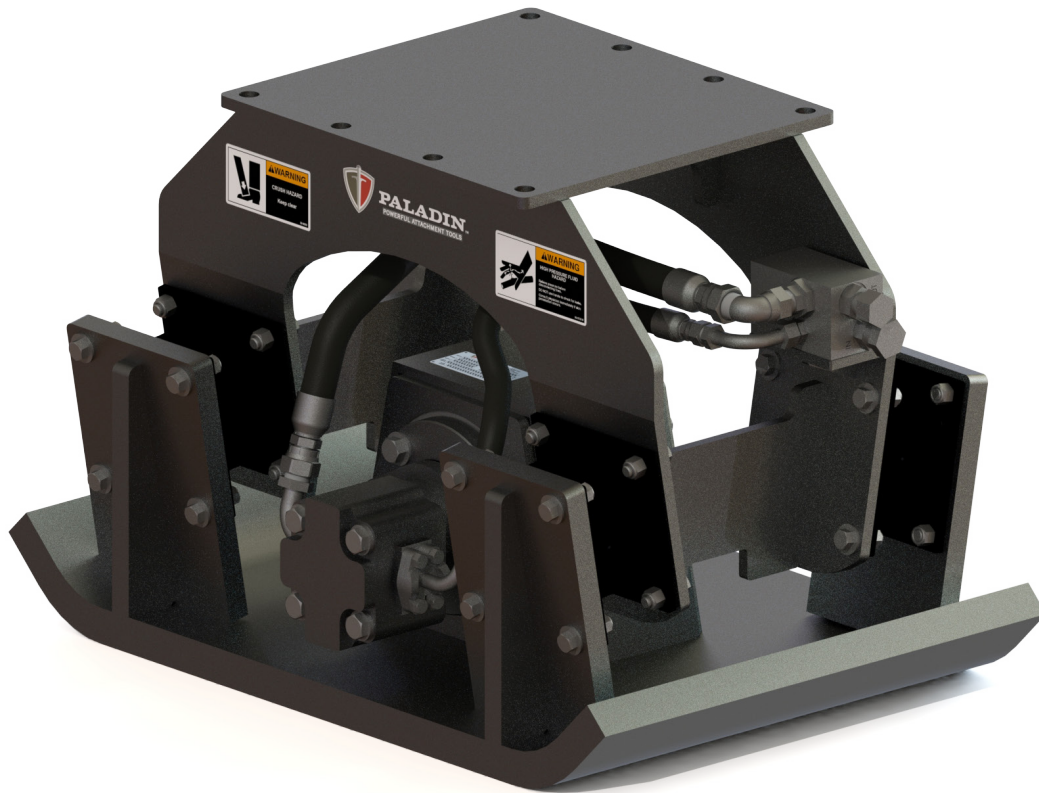




**PALADIN™**  
POWERFUL ATTACHMENT TOOLS

## OPERATOR'S MANUAL

# STRIKEFORCE™ PLATE COMPACTOR TPC250, TPC350, TPC1000, TPC2K, TPC4K, TPC10K



SERIAL NUMBER: \_\_\_\_\_

MODEL NUMBER: \_\_\_\_\_

Manual Number: 51-4761  
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Rev. 2



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# PREFACE

## GENERAL COMMENTS

Congratulations on the purchase of your new PALADIN product! This product was carefully designed and manufactured to give you many years of dependable service. Only minor maintenance (such as cleaning and lubricating) is required to keep it in top working condition. Be sure to observe all maintenance procedures and safety precautions in this manual and on any safety decals located on the product and on any equipment on which the attachment is mounted.

This manual has been designed to help you do a better, safer job. Read this manual carefully and become familiar with its contents.

**WARNING!**  **Never let anyone operate this unit without reading the "Safety Precautions" and "Operating Instructions" sections of this manual. Always choose hard, level ground to park the vehicle on and set the brake so the unit cannot roll.**

Unless noted otherwise, right and left sides are determined from the operator's control position when facing the attachment.

**NOTE:** The illustrations and data used in this manual were current (according to the information available to us) at the time of printing, however, we reserve the right to redesign and change the attachment as may be necessary without notification.

## BEFORE OPERATION

The primary responsibility for safety with this equipment falls to the operator. Make sure the equipment is operated only by trained individuals that have read and understand this manual. If there is any portion of this manual or function you do not understand, contact your local authorized dealer or the manufacturer. Keep this manual available for reference. Provide this manual to any new owners and/or operators.

## SAFETY ALERT SYMBOL



This is the "Safety Alert Symbol" used by this industry. This symbol is used to warn of possible injury. Be sure to read all warnings carefully. They are included for your safety and for the safety of others working with you.

## SERVICE

Use only manufacturer replacement parts. Substitute parts may not meet the required standards.

Record the model and serial number of your unit on the cover of this manual. The parts department needs this information to insure that you receive the correct parts.

## SOUND AND VIBRATION

Sound pressure levels and vibration data for this attachment are influenced by many different parameters; some items are listed below (not inclusive):

- prime mover type, age condition, with or without cab enclosure and configuration
- operator training, behavior and stress level
- job site organization, working material condition and environment

Based on the uncertainty of the prime mover, operator and job site it is not possible to get precise prime mover and operator sound pressure levels or vibration levels for this attachment.

**NOTE:** A list of all Paladin Patents can be found at <http://www.paladinattachments.com/patents.asp>.

## SAFETY STATEMENTS



THIS SYMBOL BY ITSELF OR WITH A WARNING WORD THROUGHOUT THIS MANUAL IS USED TO CALL YOUR ATTENTION TO INSTRUCTIONS INVOLVING YOUR PERSONAL SAFETY OR THE SAFETY OF OTHERS. FAILURE TO FOLLOW THESE INSTRUCTIONS CAN RESULT IN INJURY OR DEATH.



### **DANGER**

THIS SIGNAL WORD INDICATES A HAZARDOUS SITUATION WHICH, IF NOT AVOIDED, WILL RESULT IN DEATH OR SERIOUS INJURY.



### **WARNING**

THIS SIGNAL WORD INDICATES A HAZARDOUS SITUATION WHICH, IF NOT AVOIDED, COULD RESULT IN DEATH OR SERIOUS INJURY.



### **CAUTION**

THIS SIGNAL WORD INDICATES A HAZARDOUS SITUATION WHICH, IF NOT AVOIDED, COULD RESULT IN MINOR OR MODERATE INJURY.

### **NOTICE**

NOTICE IS USED TO ADDRESS PRACTICES NOT RELATED TO PHYSICAL INJURY.

## GENERAL SAFETY PRECAUTIONS

### **WARNING!**

#### **READ MANUAL PRIOR TO INSTALLATION**



Improper installation, operation, or maintenance of this equipment could result in serious injury or death. Operators and maintenance personnel should read this manual, as well as all manuals related to this equipment and the prime mover thoroughly before beginning installation, operation, or maintenance. **FOLLOW ALL SAFETY INSTRUCTIONS IN THIS MANUAL AND THE PRIME MOVER'S MANUAL(S).**



#### **READ AND UNDERSTAND ALL SAFETY STATEMENTS**

Read all safety decals and safety statements in all manuals prior to operating or working on this equipment. Know and obey all OSHA regulations, local laws, and other professional guidelines for your operation. Know and follow good work practices when assembling, maintaining, repairing, mounting, removing, or operating this equipment.



#### **KNOW YOUR EQUIPMENT**

Know your equipment's capabilities, dimensions, and operations before operating. Visually inspect your equipment before you start, and never operate equipment that is not in proper working order with all safety devices intact. Check all hardware to ensure it is tight. Make certain that all locking pins, latches, and connection devices are properly installed and secured. Remove and replace any damaged, fatigued, or excessively worn parts. Make certain all safety decals are in place and are legible. Keep decals clean, and replace them if they become worn or hard to read.

## GENERAL SAFETY PRECAUTIONS

### WARNING!



#### PROTECT AGAINST FLYING DEBRIS

Always wear proper safety glasses, goggles, or a face shield when driving pins in or out, or when any operation causes dust, flying debris, or any other hazardous material.

### WARNING!



#### LOWER OR SUPPORT RAISED EQUIPMENT

Do not work under raised booms without supporting them. Do not use support material made of concrete blocks, logs, buckets, barrels, or any other material that could suddenly collapse or shift positions. Make sure support material is solid, not decayed, warped, twisted, or tapered. Lower booms to ground level or on blocks. Lower booms and attachments to the ground before leaving the cab or operator's station.

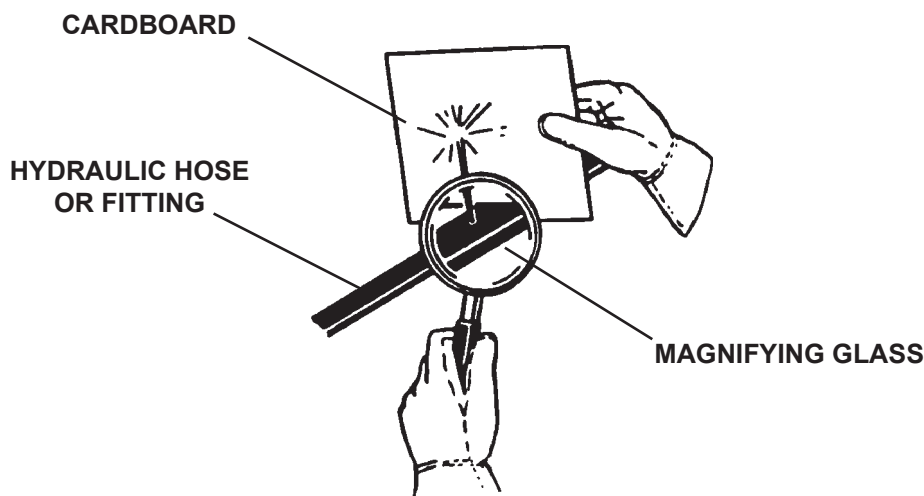
### WARNING!



#### USE CARE WITH HYDRAULIC FLUID PRESSURE

Hydraulic fluid under pressure can penetrate the skin and cause serious injury or death. Hydraulic leaks under pressure may not be visible. Before connecting or disconnecting hydraulic hoses, read your prime mover's operator's manual for detailed instructions on connecting and disconnecting hydraulic hoses or fittings.

- Keep unprotected body parts, such as face, eyes, and arms as far away as possible from a suspected leak. Flesh injected with hydraulic fluid may develop gangrene or other permanent disabilities.
- If injured by injected fluid, see a doctor at once. If your doctor is not familiar with this type of injury, ask him to research it immediately to determine proper treatment.
- Wear safety glasses, protective clothing, and use a piece of cardboard or wood when searching for hydraulic leaks. **DO NOT USE YOUR HANDS!** **SEE ILLUSTRATION.**



## GENERAL SAFETY PRECAUTIONS

### WARNING!



#### DO NOT MODIFY MACHINE OR ATTACHMENTS

Modifications may weaken the integrity of the attachment and may impair the function, safety, life, and performance of the attachment. When making repairs, use only the manufacturer's genuine parts, following authorized instructions. Other parts may be substandard in fit and quality. Never modify any ROPS (Roll Over Protective Structure) or FOPS (Falling Object Protective Structure) equipment or device. Any modifications must be authorized in writing by the manufacturer.

### WARNING!



#### SAFELY MAINTAIN AND REPAIR EQUIPMENT

- Do not wear loose clothing or any accessories that can catch in moving parts. If you have long hair, cover or secure it so that it does not become entangled in the equipment.
- Work on a level surface in a well-lit area.
- Use properly grounded electrical outlets and tools.
- Use the correct tools for the job at hand. Make sure they are in good condition for the task required.
- Wear the protective equipment specified by the tool manufacturer.



#### SAFELY OPERATE EQUIPMENT

Do not operate equipment until you are completely trained by a qualified operator in how to use the controls, know its capabilities, dimensions, and all safety requirements. See your machine's manual for these instructions.

- Keep all step plates, grab bars, pedals, and controls free of dirt, grease, debris, and oil.
- Never allow anyone to be around the equipment when it is operating.
- Do not allow riders on the attachment or the prime mover.
- Do not operate the equipment from anywhere other than the correct operator's position.
- Never leave equipment unattended with the engine running, or with this attachment in a raised position.
- Do not alter or remove any safety feature from the prime mover or this attachment.
- Know your work site safety rules as well as traffic rules and flow. When in doubt on any safety issue, contact your supervisor or safety coordinator for an explanation.

### WARNING!



#### CALIFORNIA PROPOSITION 65 WARNING

This product may contain a chemical known to the state of California to cause cancer, or birth defects or other reproductive harm. [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)



## EQUIPMENT SAFETY PRECAUTIONS

### WARNING!



#### KNOW WHERE UTILITIES ARE

Observe overhead electrical and other utility lines. Be sure equipment will clear them. When digging, call your local utilities for location of buried utility lines, gas, water, and sewer, as well as any other hazard you may encounter.

### WARNING!



#### EXPOSURE TO RESPIRABLE CRYSTALLINE SILICA DUST ALONG WITH OTHER HAZARDOUS DUSTS MAY CAUSE SERIOUS OR FATAL RESPIRATORY DISEASE.

It is recommended to use dust suppression, dust collection and if necessary personal protective equipment during the operation of any attachment that may cause high levels of dust.

### WARNING!



#### REMOVE PAINT BEFORE WELDING OR HEATING

Hazardous fumes/dust can be generated when paint is heated by welding, soldering or using a torch. Do all work outside or in a well ventilated area, and dispose of paint and solvent properly. Remove paint before welding or heating.

When sanding or grinding paint, avoid breathing the dust. Wear an approved respirator. If you use solvent or paint stripper, remove stripper with soap and water before welding. Remove solvent or paint stripper containers and other flammable material from area. Allow fumes to disperse at least 15 minutes before welding or heating.

### WARNING!



#### END OF LIFE DISPOSAL

At the completion of the useful life of the unit, drain all fluids and dismantle by separating the different materials (rubber, steel, plastic, etc.). Follow all federal, state and local regulations for recycling and disposal of the fluid and components.



#### OPERATING THE ATTACHMENT

- Block off work area from bystanders, livestock, etc. Flying debris can cause severe injury or death.
- Let others know when and where you will be working. Make sure no one is behind the equipment or around the equipment when in operation. Never allow anyone to approach the compactor when in operation.
- The prime mover must be equipped with an operator enclosure that will provide a safe operating environment whenever driving material or objects that may intrude into the operator's station.
- Do not exceed rated operating capacity of prime mover.
- Operate only from the operator's station.
- When operating on slopes, drive up and down, not across. Avoid steep hillside operation, which could cause the prime mover to overturn.
- Reduce speed when driving over rough terrain, on a slope, or turning, to avoid overturning the vehicle.
- Never lift, move, or swing a load or attachment over anyone.
- Do not lift loads in excess of the capacity of the prime mover. Lifting capacity decreases as the load is moved further away from the unit.
- When operating in trenches and excavations, properly shore the excavation to avoid a cave in.
- The compactor should not be used as a parking brake to immobilize your prime mover or used in any way to assist in moving your prime mover. Follow the instructions in your prime mover operator's manual before leaving the operator's station

# EQUIPMENT SAFETY PRECAUTIONS



## OPERATING THE ATTACHMENT (Continued)

- When using compactor with a quick coupler, operator should check total working weight, including weight of the coupler. Always make sure coupler is securely locked on attachment before use.
- An operator must not use drugs or alcohol, which can change his or her alertness or coordination. An operator taking prescription or over-the-counter drugs should seek medical advice on whether or not he or she can safely operate equipment.
- Do not attempt to support driven material.
- Do not use the compactor in applications where a bearing load is specified.
- Before exiting the prime mover, lower the attachment to the ground, apply the brakes, turn off the prime mover's engine and remove the key.



## TRANSPORTING THE ATTACHMENT

- Travel only with the attachment in a safe transport position to prevent uncontrolled movement. Drive slowly over rough terrain and slopes.
- When transporting on a trailer secure attachment at recommended tie down locations using tie down accessories that are capable of maintaining attachment stability.
- When driving on public roads use safety lights, reflectors, Slow Moving Vehicle signs etc., to prevent accidents. Check local government regulations that may affect you.
- Do not drive close to ditches, excavations, etc., as a cave-in could result.
- Do not smoke when refueling the prime mover. Allow room in the fuel tank for expansion. Wipe up any spilled fuel. Secure cap tightly when done.



## MAINTAINING THE ATTACHMENT

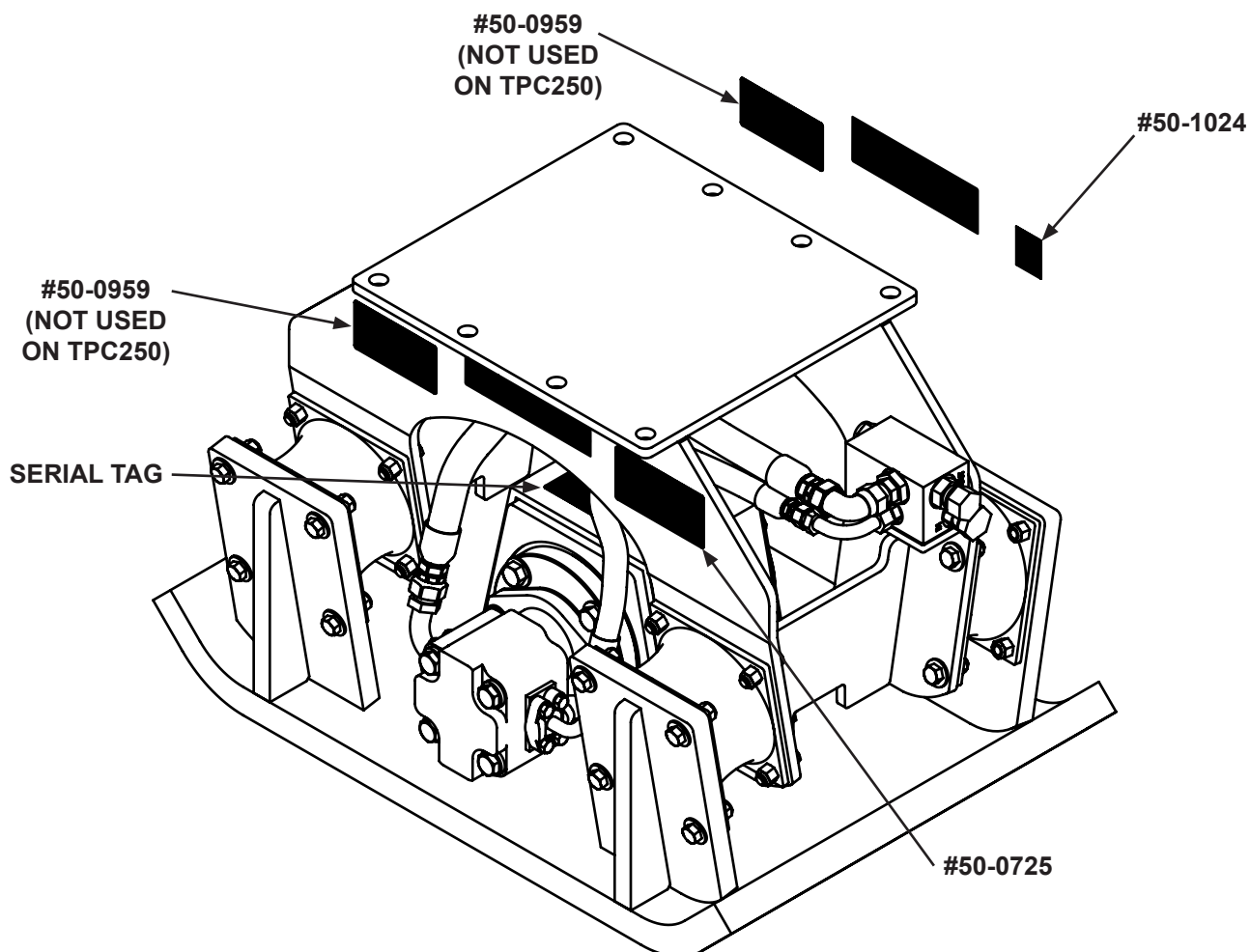
- Before performing maintenance (unless otherwise specified), lower the attachment to the ground, apply the brakes, turn off the engine and remove key.
- Never perform any work on the attachment unless you are authorized and qualified to do so. Always read the operator service manuals before any repair is made. After completing maintenance or repair, check for correct functioning of the attachment. If not functioning properly, always tag "DO NOT OPERATE" until all problems are corrected.
- Worn, damaged, or illegible safety decals must be replaced. New safety decals can be ordered from your local dealer or the manufacturer.
- Never make hydraulic repairs while the system is under pressure. Serious personal injury or death could result.
- Never work under a raised attachment.

## DECALS

### DECAL PLACEMENT

#### GENERAL INFORMATION

The following diagram(s) show the location of the decals used on your attachment. The decals are identified by their part numbers, with reductions of the actual decals shown on the following pages. Use this information to order replacements for lost or damaged decals. Be sure to read all the decals before operating attachment. They contain information you need to know for both safety and product longevity.



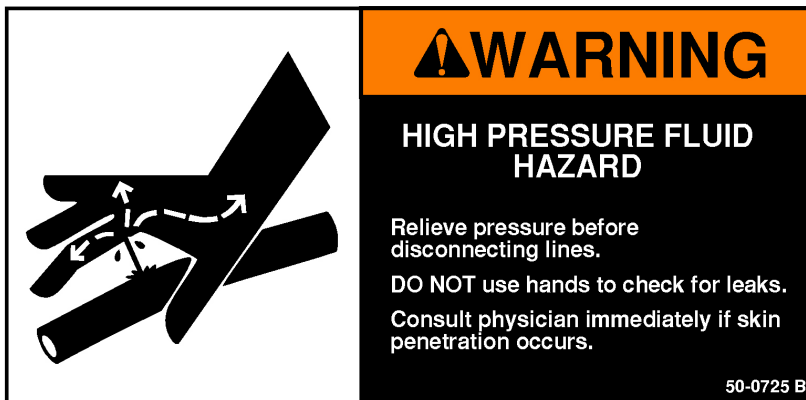
**IMPORTANT:** Keep all safety decals clean and legible. Replace all missing, illegible or damaged safety decals. When replacing parts with safety decals attached, the safety decals must also be replaced.

**REPLACING SAFETY DECALS:** Clean the area of application with nonflammable solvent, then wash the same area with soap and water. Allow surface to fully dry. Remove the backing from the safety decal, exposing the adhesive surface. Apply the safety decal to the position shown in the diagram above and smooth out any bubbles.

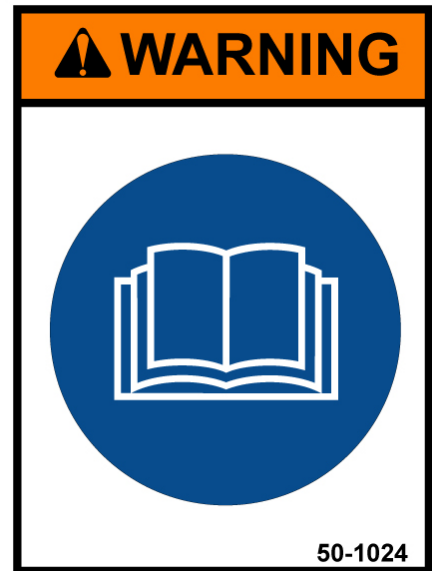
## DECALS



#50-0959 WARNING! CRUSH HAZARD



#50-0725 WARNING! HIGH PRESSURE FLUID HAZARD



#50-1024 WARNING! READ THE MANUAL BEFORE OPERATING

**NOTE: CONTACT YOUR LOCAL DEALER FOR MODEL NUMBER AND LOGO DECALS**

# INSTALLATION

## GENERAL INFORMATION

PALADIN hydraulic compactors are designed to be easy to use and maintain. They are operated by the prime mover's auxiliary hydraulics. Due to the various different prime movers that this attachment can be mounted on, the compactor is shipped without hydraulic hoses. These hoses can be purchased from your local dealer.

**WARNING!**  **The prime mover must be equipped with an operator enclosure that will provide a safe operating environment whenever working with material or objects that may intrude into the operator's station.**

## HOSE REQUIREMENTS:

Power and return hoses must be purchased from your dealer to install the compactor onto your prime mover. The hoses must be long enough not to bind or pinch during operation and the power and return hoses must be rated for the maximum hydraulic pressure of your prime mover's hydraulic system. Hose diameter should be such to prevent pressure drop on the oil entering the attachment and backpressure on the oil returning to the prime mover. See Specifications section of this manual for size requirements for pressure and return lines.

## INSTALLING TO PRIME MOVER

1. Remove any attachment from the front of the prime mover.
2. Following all standard safety practices and the instructions for installing an attachment in your prime mover operator's manual, install the attachment onto your prime mover.

**WARNING!**  **To Avoid Serious Personal Injury, make sure the attachment is securely latched to the attachment mechanism of your unit. Failure to do so could result in separation of the attachment from the unit.**

3. Lower the unit to the ground and relieve pressure to the auxiliary hydraulic lines. Compactor should be positioned so the valve block is facing the prime mover.
4. Following the safety shut down procedure for your prime mover, shut down and exit the prime mover.
5. After making sure that the hydraulic lines are free from any foreign material or contaminants, connect to the auxiliary hydraulic system of your prime mover.
6. Following the standard start up procedure for your prime mover, start the prime mover and run the attachment to purge any air from the system. Check for proper hydraulic connection, hose routing and hose length.
7. Attachment installation is complete.

## FUNCTIONAL TEST

Always perform a functional test before operation to ensure that the system is operating within the required specifications.

1. Position the attachment on the ground.
2. Ensure that the hydraulic lines and connections are tight.
3. Briefly switch on the compactor and exert a light pressure on it.
4. Check the hydraulic lines for any problems.

**NOTICE!** *Immediately switch off the attachment if oil leakage is detected or other defects occur.*

# INSTALLATION

## LOW TEMPERATURE WARM-UP PROCEDURE

In cold weather the shock isolator mounts can become stiff. In severe weather, where the ambient temperature is below freezing for extended periods they can become brittle. Therefore, it is required to perform the following warm-up procedure before operating in low temperatures.

**IMPORTANT: Failure to follow the warm-up procedure will void warranty.**

1. After starting the prime mover, warm the hydraulic system until the hydraulic lines are warm to the touch.
2. With the prime mover at idle, place the compactor flat on the ground and apply a slight down pressure to keep the compactor in place.
3. Turn compactor on and let the prime mover run for at least one minute before putting into operation.

**NOTICE! DO NOT place a downwards load on the compactor during this procedure.**

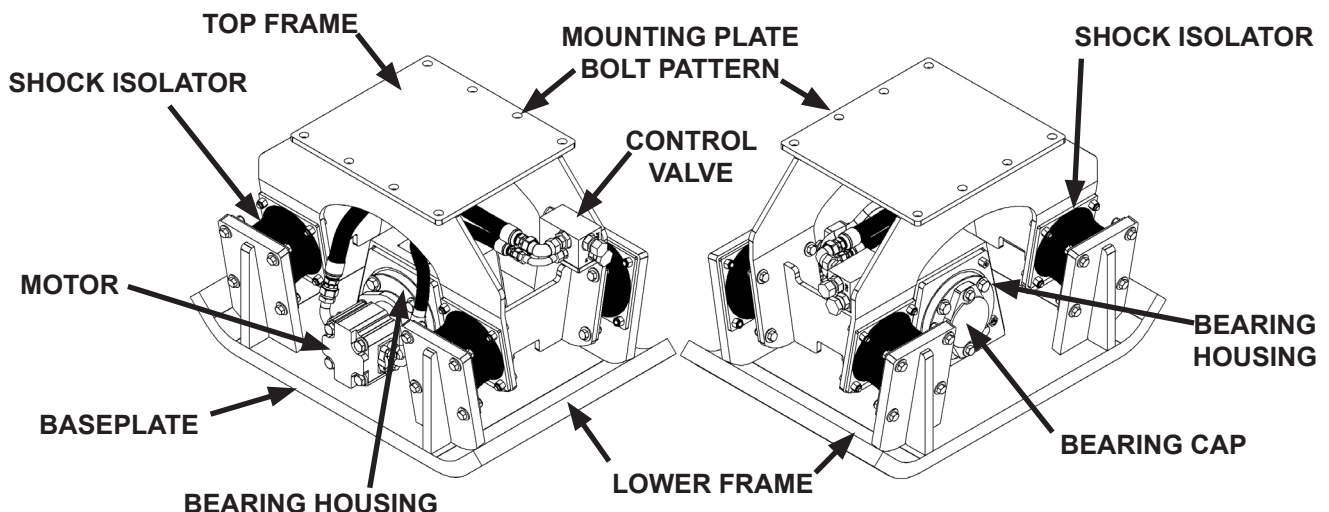
**NOTICE! DO NOT suspend the compactor in the air during the warm-up procedure. When the ambient air temperatures are below freezing, suspending the compactor without following the warm-up procedure first, may cause the shock isolator mounts to crack.**

## DETACHING FROM PRIME MOVER

1. Before exiting the prime mover, lower attachment to the ground, apply the brakes, turn off the prime mover's engine and remove the key.
2. Follow prime mover operator's manuals to relieve pressure in the hydraulic lines.
3. Disconnect hydraulic lines and install dust caps and plugs to prevent contaminants from entering the hydraulic system. Store hoses on attachment and off the ground.
4. Follow your prime mover operator's manual for detaching (removing) an attachment.

## NOMENCLATURE

Throughout this manual, reference is made to various compactor components. Study the following diagrams to acquaint your self with the various names of these components. This knowledge will be helpful when reading through this manual or when ordering service parts.



# OPERATION

## INTENDED USE

The Paladin TPC Plate Compactors are designed to provide a combination of impulse force and frequency for any applications that require surface compaction such as road construction and repair, embankment preparation, utility and waste drain excavation as well as specials needs in sheet, post and plate driving for soil stabilization. Use in any other way is considered contrary to the intended use.

## GENERAL INFORMATION

The hydraulic compactor attaches to the attachment mounting mechanism of your prime mover. Due to this arrangement, thorough knowledge of your prime mover is necessary for machine operation. Read and understand your prime mover's operator's manual before attempting to use the compactor.

Before operating the compactor, check the Specifications section of this manual for correct size of prime mover, hydraulic flow and pressure requirements.

***NOTICE! Operating the compactor on a prime mover that exceeds the specifications listed for that model will void warranty.***

The following instructions are very important to the proper performance of the compactor and obtaining your required compaction density for your job at hand.

***NOTICE! The baseplate should not be held with full down pressure for more than 5-10 seconds a time.***

## SOIL TESTING

Compaction density is based on soil samples of a set moisture content and soil composition. Changing weather conditions can alter moisture content and may make meeting specifications impossible.

The vibration frequency of the compactors has been chosen to give maximum efficiency in granular soils using lifts (depth of the loose fill being compacted) of 2 to 4 feet. Soil compacts from the bottom of the lift to the surface. It is imperative that frequent and reliable tests be conducted during compacting to determine the maximum lift that can be used and still provide the required density. Lifts in excess of the established test results should not be used if the required density is to be achieved and maintained.

While there are various laboratory and field tests for determining soil composition and moisture, it may not always be possible to have accurate test data before starting a job. In this instance it is beneficial to recognize the soil type and moisture content by the following visual tests.

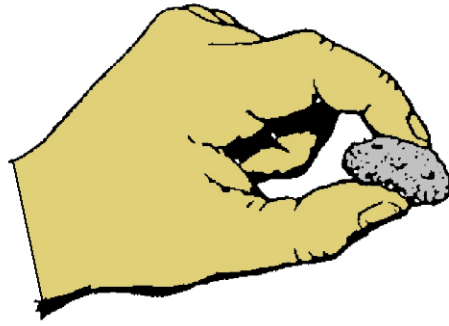
### **Moisture Content**

1. Pack a soil sample by hand into the shape/size of a golf ball.
2. Place the sample between the index finger and thumb. Squeeze gently. See Figure #1



## OPERATION

FIGURE #1



3. If the material shatters into fairly uniform pieces, the soil is close to the optimum moisture.
4. If the material “weeps” in your hand or does not break but flattens out, the soil contains too much moisture.
5. If you cannot form into a ball or it is difficult to obtain a ball it is probably too dry and moisture may need to be added.

### Soil Type

1. Roll a sample by hand into a thick roll about 1/8” in diameter. See Figure #2

FIGURE #2



2. If there is no problem rolling the material into this shape the soil is usually clay and extra care must be taken when attempting to compact.
3. If the material cannot be rolled into a 1/8” diameter roll, it usually indicates less clay which is more desirable for compacting.

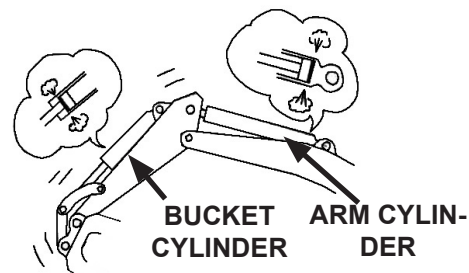
## COMPACTING

The hydraulic compactor uses force to drive water and air out of the material being compacted. How compacted the material can get depends on the following characteristics:

- **Water Saturation** The amount of water within the material.
- **Material Size and Shape** The more uniform the material shape and size the less compacted it can be.
- **Compaction Depth** The further down from the recommended compaction action the less compaction occurs.

**NOTICE!** Do not operate the compactor with the arm and bucket cylinders in the fully extended or fully retracted position. Doing so may cause damage to the cylinders.

**NOTICE!** Remove any accumulated dirt and debris on the compactor before operating.



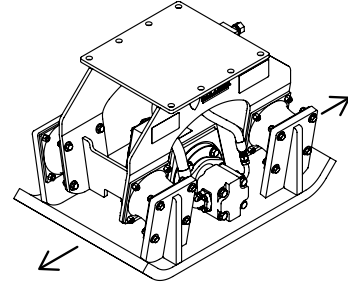


# OPERATION

## OPERATION

It is recommended to try the compactor on a short test distance to determine the suitable layer depth and to find out how long the compactor has to work on an area to achieve the compaction required.

1. Place the baseplate of the compactor flat on the ground. (It is recommended to begin operation next to a bank, footing or previously compacted area.)
2. Begin hydraulic flow to the compactor to start the vibrating action.
3. Exert slight down pressure and move slowly along a straight line.



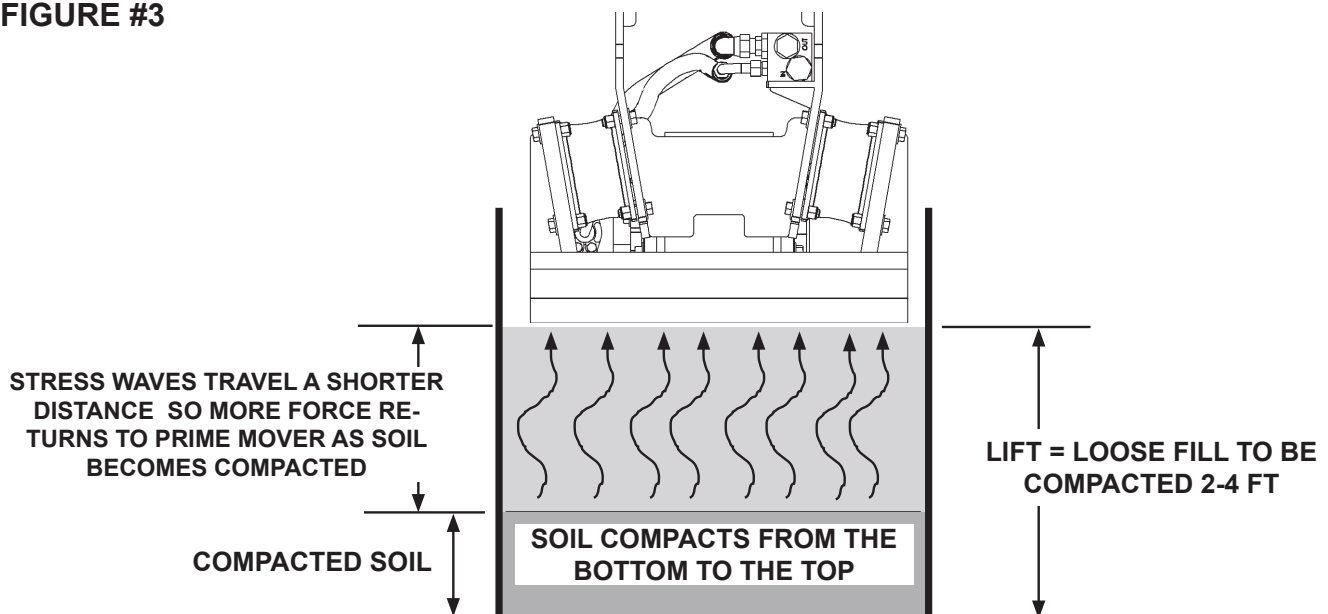
**NOTE: Exerting excessive down pressure with the prime mover does NOT improve compaction. In fact, additional time or pressure in one area may loosen soil previously compacted. Do not increase downwards pressure.**

4. Turn the compactor OFF, lift and reposition.
5. Repeat steps #1 - #4. Work as much area as possible from one position and overlap each compacted section slightly.

**NOTE: If required you can repeat the process on a section that has already been compacted.**

**IMPORTANT: When the maximum compaction has been reached, a slight increase in vibration will be felt by the operator. This increase in vibration is in no way harmful to the prime move and is an indication that the soil will not compress any further. The vibration frequency has been chosen to give maximum efficiency in granular soils using lifts (depth of the loose fill being compacted) of 2 to 4 feet. Soil compacts from the bottom of the lift to the surface, therefore as the soil becomes compacted, these stress waves have a shorter distance to travel and more force returns to the prime mover which increases the vibration. See Figure #3**

**FIGURE #3**



## OPERATION

**NOTE:** Placing a running compactor on a hard surface without down pressure will cause the compactor and the prime mover to vibrate excessively. Applying slight down pressure transmits the vibration to the soil/ground whereas, neutral pressure will rattle and vibrate the whole prime mover.

**WARNING!** Do not move or lift objects with the compactor. Equipment damage or severe personal injury or death could occur.



### COMPACTING TRENCHES

The closer the width of the trench is to the width of the compactor, the higher the delivered compaction effort.

**WARNING!** Ground vibrations may collapse trench walls resulting in severe personal injury or death from falls into open excavations. Erect barriers around open excavations to maintain control of work zone.



### COMPACTING ON SLOPES

When working on a slope, place the fill material at one end and allow it to seek its own angle of repose. Compaction should begin on this angle near the top of the slope. Stop the compactor before lifting it off the ground to reposition at the top of the slope. All fill material is backfilled to this angle and the compactor is worked up and down the slope.

### DRIVING

The compactor can be used for driving objects such as sheeting, H & I beams, soldier piles and guard rail posts into any material except solid rock or soil with high clay content.

**WARNING!** To prevent serious injury or death: Do not attempt to manually support driven material.

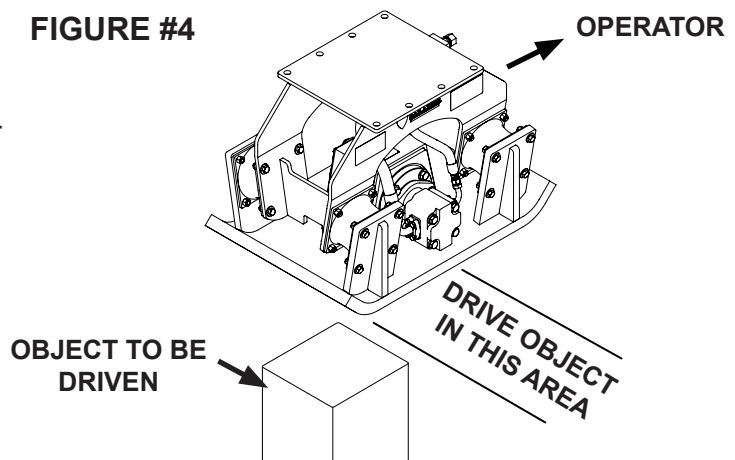


**WARNING!** The prime mover must be equipped with an operator enclosure that will provide a safe operating environment whenever working with material or objects that may intrude into the operator's station.



**FIGURE #4**

1. Place the front 1/3 of the compactor (away from operator) on the top of the object to be driven. See Figure #4



## OPERATION

2. Begin hydraulic flow to the compactor to start the vibrating action.
3. Exert slight down pressure which will impact a “slap” onto the object and cause the driving action
4. Apply an even downward pressure but do not compress the shock mounts fully.

**NOTICE!** *Applying too much down pressure will make the compactor difficult to control and may cause damage to the equipment and/or object being driven.*

**WARNING!** Forces generated when driving with a vibratory device preclude the calculation of “bearing loads” for a piling or sheet of material. Do not use the compactor in applications where a bearing load is specified.

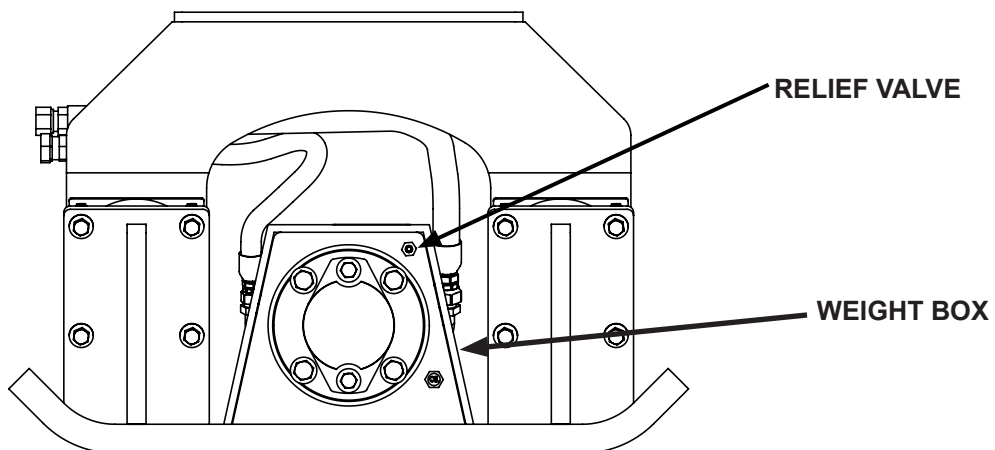


## UNDERWATER OPERATION

The hydraulic compactor can be operated underwater when the proper precautions have been taken. Material compaction is not effective in submerged operations. Underwater operating is primarily used for driving objects into the ground.

1. Remove relief valve from weight box and install a .38” NPT plug (using Teflon tape) to prevent water from mixing with the hydraulic oil in the weight box. See Figure #5

**FIGURE #5**



## STORAGE:

- Clean the unit thoroughly, removing all mud, dirt, and grease.
- Inspect for visible signs of wear, breakage, or damage. Order any parts required and make the necessary repairs to avoid delays upon removal from storage.
- Tighten loose nuts, capscrews and hydraulic connections.
- Seal hydraulic system from contaminants and secure all hydraulic hoses off the ground to help prevent damage.
- Replace decals that are damaged or in unreadable condition.
- Store unit in a dry and protected place. Leaving the unit outside will materially shorten its life.

## OPERATION

### Additional Precautions for Long Term Storage :

- Touch up all unpainted surfaces with paint to prevent rust.

### REMOVAL FROM STORAGE:

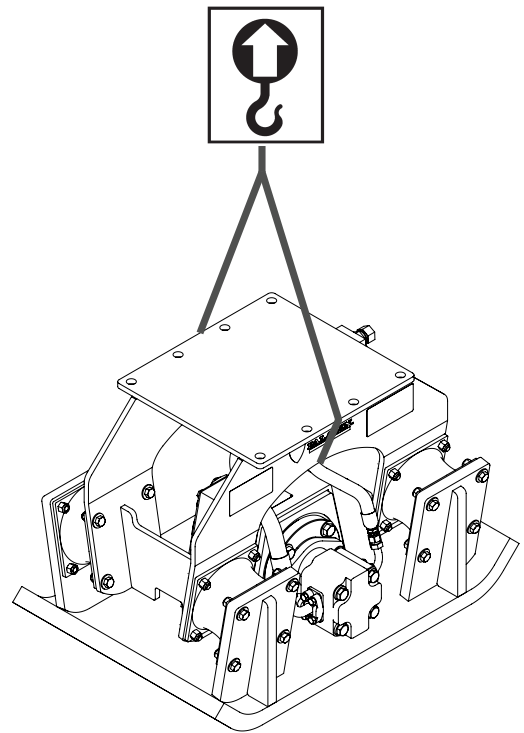
- Wash unit and replace any damage and/or missing parts.
- Perform regular maintenance.
- Check shock isolators for damage and replace if necessary.
- Check hydraulic hoses for damage and replace as necessary.

### LIFT POINTS

Lifting points are identified by lifting decals where required. Lifting at other points than specified is unsafe and can damage attachment. Do not attach lifting accessories around cylinders or in any way that may damage hoses or hydraulic components. See Diagram

- Attach lifting accessories to unit at any recommended lifting points.
- Bring lifting accessories together to a central lifting point.
- Lift gradually, maintaining the equilibrium of the unit.

**WARNING!** Use lifting accessories (chains, slings, ropes, shackles and etc.) that are capable of supporting the size and weight of your attachment. Secure all lifting accessories in such a way to prevent unintended disengagement. Failure to do so could result in the attachment falling and causing serious personal injury or death.

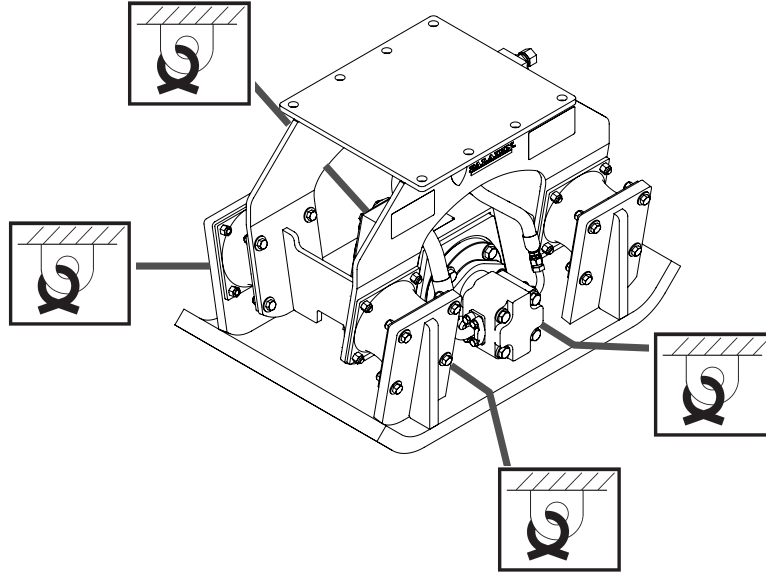



### TIE DOWN POINTS

Securing to trailer at other points than specified is unsafe and can damage attachment. Do not attach tie down accessories around cylinders or in any way that may damage hoses or hydraulic components. See Diagram

- Attach tie down accessories to unit at any recommended tie down points.
- Check unit stability before transporting.

## OPERATION



**WARNING!**  Verify that all tie down accessories (chains, slings, ropes, shackles and etc.) are capable of maintaining attachment stability during transporting and are attached in such a way to prevent unintended disengagement or shifting of the unit. Failure to do so could result in serious personal injury or death.

## TRANSPORTING

Follow all local government regulations that may apply along with recommended tie down points and any equipment safety precautions at the front of this handbook when transporting your attachment.

# LUBRICATION

## LUBRICATION POINTS

Due to the enclosed oil bath system on the StrikeForce TPC Plate Compactors, lubrication has been kept to a minimum. We recommend checking the oil level monthly (unless a leak is detected) and changing the oil in the weight box every 6 months (or whenever the bearings or mass weight assembly is replaced).

## CHECKING OIL:

To check the oil level: Remove the oil plug with the unit sitting on a flat surface. Oil should be up to the plug. Add if required.

## CHANGING OIL:

To change oil: Remove the oil plug from the side of the unit and drain the oil by either tipping the unit onto its side over a container to collect the used oil, or use an oil pump to remove the oil.

**IMPORTANT: Follow all federal, state and local regulations for recycling and disposal of the oil.**

The oil weight is dependent on the ambient temperature. The compactors are shipped from the factory with 10W-30W motor oil. (See Oil Requirements below for your unit.)

TPC250	=	1.5 qt (1.4 liter)
TPC350	=	1.5 qt (1.4 liter)
TPC1000	=	2.5 qt (2.4 liter)
TPC2K	=	3.0 qt (2.8 liter)
TPC4K	=	3.5 qt (3.3 liter)
TPC10K	=	6.0 qt (5.7 liter)

## OIL CLEANLINESS REQUIREMENTS

***NOTICE! All hydraulic fluid shall be filtered before use in this product to obtain the ISO cleanliness standard of 17-14 or better, unless explicitly specified otherwise.***

# MAINTENANCE AND SERVICE

## GENERAL INFORMATION

Regular maintenance is the key to long equipment life and safe operation. Maintenance requirements have been reduced to an absolute minimum. However, it is very important that these maintenance functions be performed as described below.

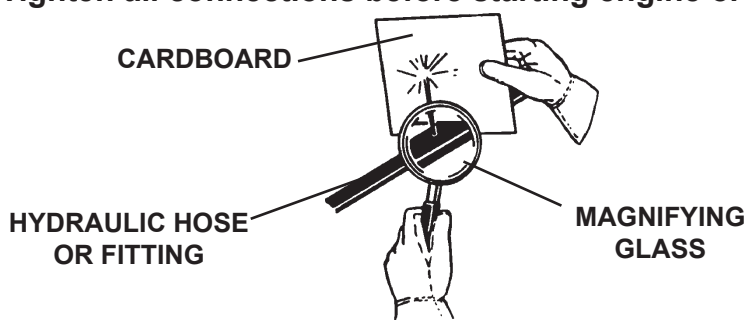
Procedure	Daily	Monthly	Semi-Annually	See Prime Mover Manual
Replace any missing bolts or nuts with approved replacement parts.	✓			
Check shock isolators for wear and replace as necessary.	✓			
Check hydraulic system for leaks and tighten as necessary. Check for damage and replace as needed.	✓			
Check for missing or loose hardware. Replace or tighten if necessary. See Bolt Torque Specifications.	✓			
Visually inspect the machine for worn parts or cracked welds, and repair as necessary.	✓			
Check oil level on the attachment. See Lubrication Section.		✓		
Change oil in the attachment,. See Lubrication Section.			✓	
Check prime mover hydraulic system to ensure an adequate level and cleanliness of hydraulic oil.				✓

**WARNING!** Escaping hydraulic / diesel fluid under pressure can penetrate the skin causing serious injury. Fluid escaping from a very small hole can be almost invisible. Use a piece of cardboard or wood, rather than hands to search for suspected leaks.



Keep unprotected body parts, such as face, eyes, and arms as far away as possible from a suspected leak. Flesh injected with hydraulic fluid may develop gangrene or other permanent disabilities. If injured by injected fluid, see a doctor at once.

Stop the engine and relieve pressure before connecting or disconnecting lines. Tighten all connections before starting engine or pressurizing lines.



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# MAINTENANCE AND SERVICE

## REPLACING SHOCK ISOLATORS

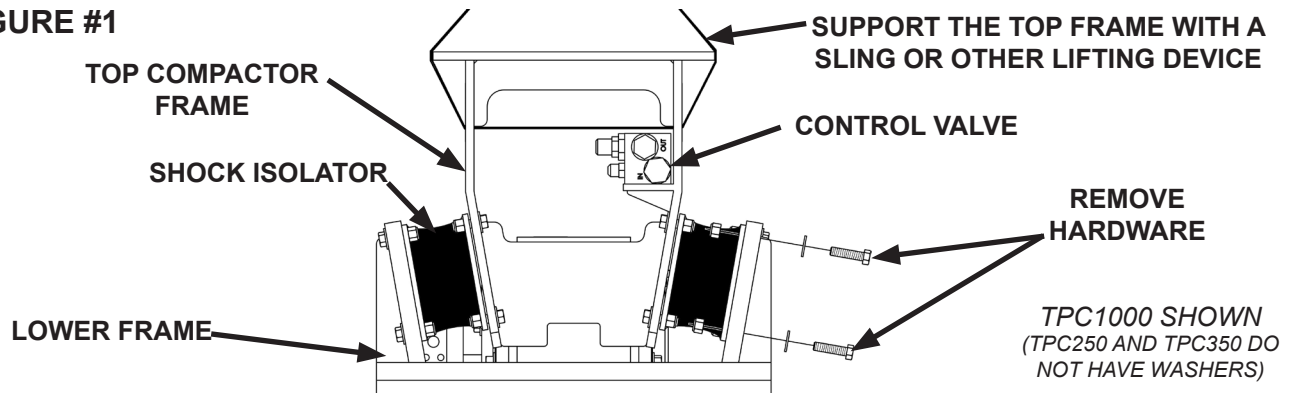
Over time the rubber shock isolators will begin to fatigue. Continued operation after fatigue has set in can lead to damage of the equipment. Replace the shock isolators when they begin to fatigue.

**NOTICE! Do not operate the compactor if cracks are found on the rubber shock isolators. Replace cracked isolator(s) before use.**

1. Disconnect hydraulic hoses from the control valve.
2. Using a sling or other lifting device, support the top compactor frame to keep it from dropping when disconnected from the lower frame (compaction plate).
3. Remove hardware from the lower frame and shock isolators. See Figure #1

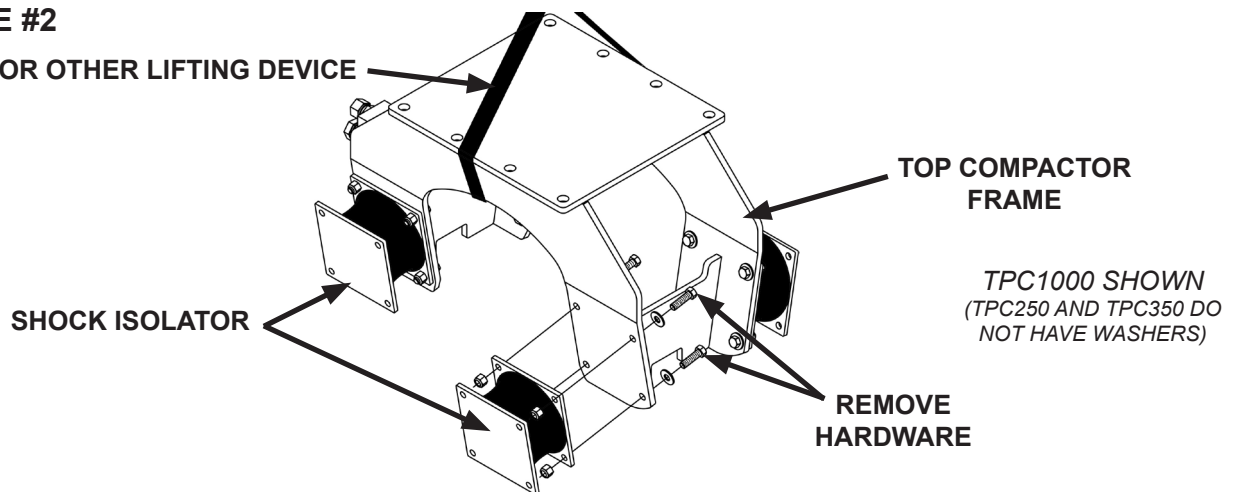
**NOTE: Washers are not included on the TPC250 and TPC350.**

**FIGURE #1**



4. Lift off the top compactor frame, separating it from the lower frame.
5. Support the top compactor frame off the ground and remove hardware between the shock isolators and the frame. See Figure #2

**FIGURE #2**



6. Install new shock isolators onto the top compactor frame with the grade 5 hardware provided. Torque to specifications listed in the parts manual for your compactor.
7. Lift the top compactor frame and align the shock isolators with the lower frame.
8. Attach compactor plate to shock isolators using the grade 5 hardware provided. Torque to specifications listed in the parts manual for your compactor.
9. Reconnect the hydraulic hoses between the motor and valve.



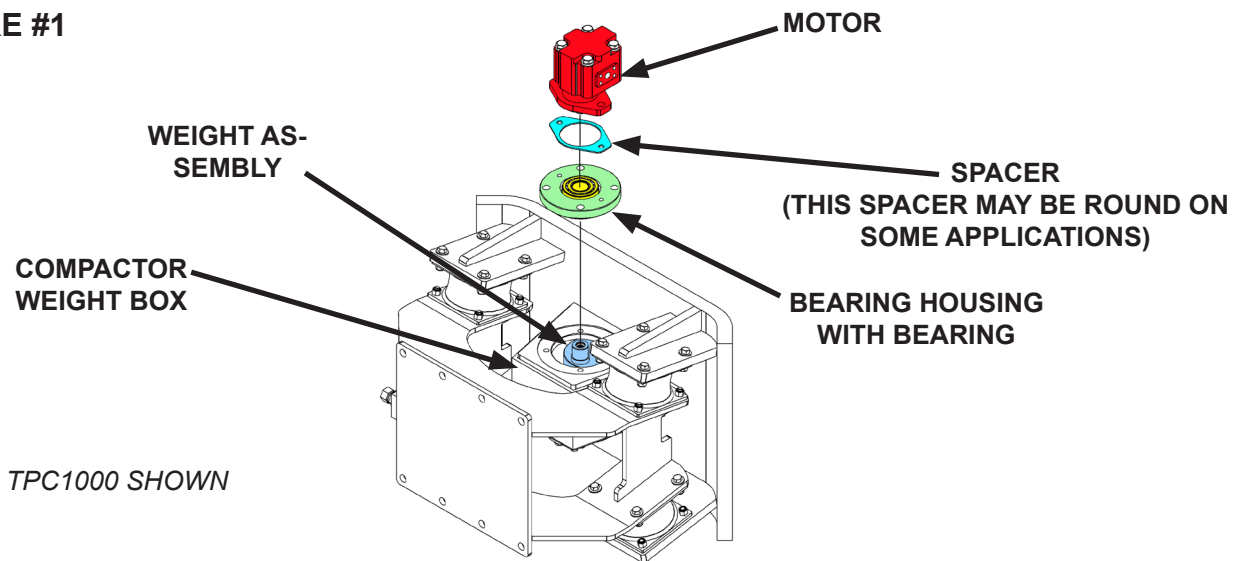
# MAINTENANCE AND SERVICE

## REPLACING BEARINGS

When replacing a bearing we recommend replacing both bearings, seals and changing the oil.

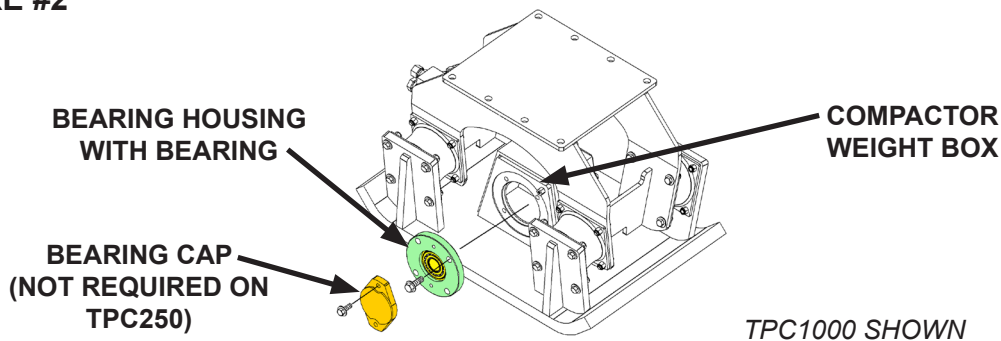
1. Using a sling or other lifting device, place the compactor on its side with the motor up.
2. Disconnect the hydraulic hoses from the motor and unbolt the motor from the bearing housing. See Figure #1
3. Remove the motor and spacer. See Figure #1
4. Unbolt the bearing housing from the weight box on the compactor and remove the housing with bearing and seals. See Figure #1
5. Lift out the weight assembly. See Figure #1

**FIGURE #1**



6. Set the compactor back upright (on the baseplate). See Figure #2
7. Remove the bearing cap (if so equipped) and bearing housing with bearing and seals from the opposite side. See Figure #2

**FIGURE #2**

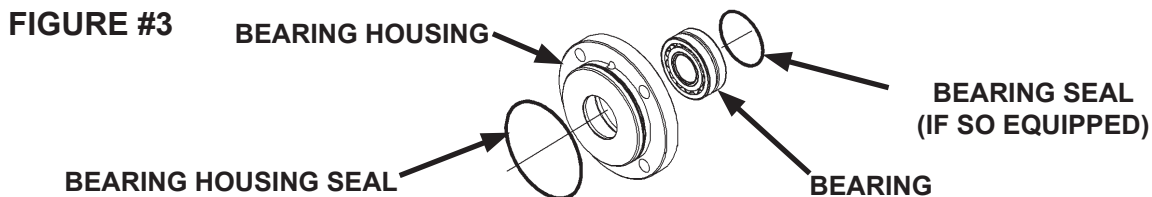


8. Remove the seals and bearings from both bearing housings. Inspect the bearing housing for damage and replace if necessary.
9. Drain all of the oil and clean the inside of the weight box removing any foreign material.

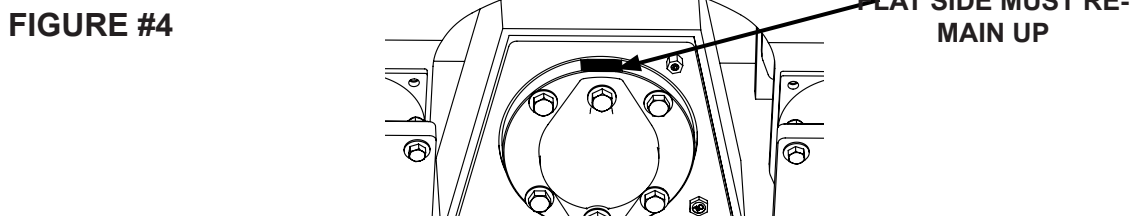
## MAINTENANCE AND SERVICE

**IMPORTANT:** Remove all oil and contaminants from the inside of all threaded holes, the outside of any capscrews including the oil fill plug. Check to make sure any teflon tape or other contaminants has not dropped into the weight box during the cleaning process. Foreign material in the hydraulic system may damage valve, motors and pumps

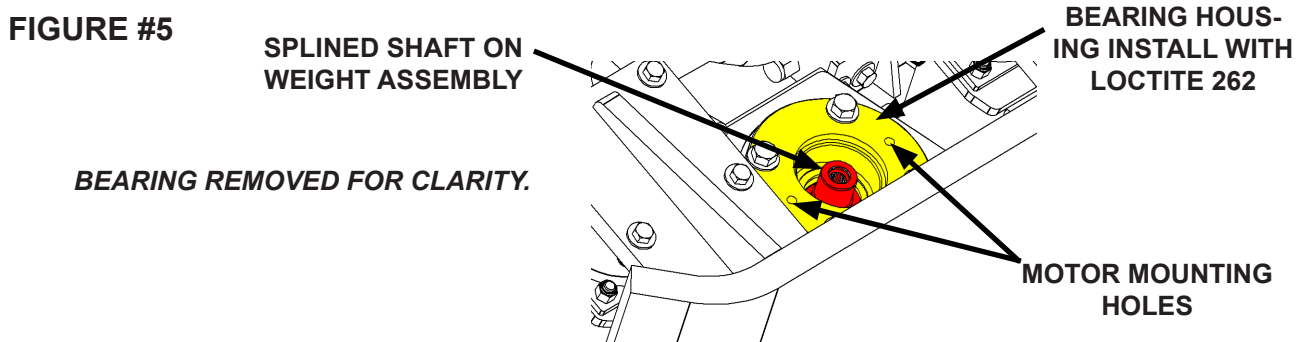
10. Apply grease to the new bearings to protect them during initial start up. Press the new bearing into the housing and install the bearing seals. See Figure #3



**NOTICE!** The bearing housing has a flat side on the exterior, this side must be positioned on the top. See Figure #4



11. Install the bearing cap (if so equipped) onto the bearing housing and install the housing onto the right side of the weight box. (Same side as the control box.) Install the capscrews using loctite 242 and torque to specifications listed in the parts manual for your compactor.
12. Using a sling or other lifting device, place the compactor on its side with the bearing cap and housing down.
13. Gently place the weight assembly into the weight box with the splined side of the shaft up and aligning the shaft with the bearing on the bottom. **NOTE: The weight assembly is heavy and slippery and the opening in the weight box is small. Use extreme caution during installation.**
14. Install the bearing housing seal onto the bearing housing and press the new bearing into the housing. Install the housing onto the weight box positioning the splined shaft of the weight assembly through the bearing and with the motor mounting holes horizontal on the compactor with the flat side of the housing exterior on the top. Install the capscrews using loctite 242 and torque to specifications listed in the parts manual for your compactor. See Figure #5



## MAINTENANCE AND SERVICE

15. Install the remaining bearing seal.
16. Install the spacer and hydraulic motor onto the bearing housing using loctite 242 and torque capscrews to specifications listed in the parts manual for your compactor.
17. Set the compactor upright (on the baseplate) and remove the oil fill plug.
18. Fill the weight box with the oil up to the fill plug. See Lubrication Section for approximate amount.
19. Apply teflon tape to the threads on the oil fill plug and reinstall the plug into the weight box. Be careful when tightening the oil fill plug that any sealant used does not enter the hydraulic system. Foreign material in the hydraulic system may damage valve, motors and pumps.

### MOTOR REPLACEMENT

1. Tag and disconnect hydraulic hoses from the motor.
2. Unbolt the motor from the bearing housing.
3. Slide the motor out of the bearing assembly taking note of the motor orientation.
4. Install new motor onto bearing housing in the same orientation.
5. Connect hydraulic hoses.

### MOTOR SHAFT SEAL REPLACEMENT

**IMPORTANT: Replacing internal motor seals will void warranty.**

1. Tag and disconnect hydraulic hoses from the motor.
2. Unbolt the motor from the bearing housing.
3. Slide the motor out of the bearing assembly.
4. Replace the motor shaft seal.
5. Bolt the motor to the bearing housing.
6. Connect hydraulic hoses.

## TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	POSSIBLE SOLUTION
<b>MOTOR FOR COMPACTOR WILL NOT OPERATE</b>	Auxiliary hydraulics control on prime mover is activated in the wrong position.	Refer to Prime Mover operator's manual.
	Hoses from compactor to Prime Mover incorrectly connected.	Refer to Prime Mover operator's manual.
	Obstruction in hydraulic line.	Check hose routing.
		Remove obstruction and replace if necessary.
	Motor failure.	Check for leaks and replace motor if necessary.
	System Flow Valve not operating or adjusted correctly.	Adjust hydraulic flow to compactor.
		Perform flow and pressure test on circuit and attachment.
	Seized bearings.	Replace bearings and perform flow & pressure tests.
<b>LOW VIBRATION FREQUENCY</b>	Insufficient oil flow from Prime Mover.	Check compatibility between compactor hydraulic flow requirements and Prime Mover.
		Increase throttle.
	Hydraulic motor damaged or seals blown.	Check for leaks and replace motor if necessary.
	Prime Mover hydraulic filter is dirty.	Refer to Prime Mover operator's manual.
	Manifold block failure.	Replace manifold block.
<b>OIL LEAKS FROM THE MOTOR</b>	Motor seals damaged.	Replace motor shaft seal or motor if necessary.
	Seals on hydraulic fitting damaged.	Replace hydraulic fitting.
	Hydraulic fittings loose or damaged.	Tighten or replace as required.
	Hydraulic lines loose or damaged.	Tighten or replace as required.

## TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	POSSIBLE SOLUTION
<b>RAPID BEARING FAILURE</b>	Lack of lubrication.	Check oil level in weight box.
	Bearing seizure.	Replace bearings.
	Over-speeding.	Manifold block failure. Replace manifold block.
		Adjust hydraulic flow to compactor.
		Perform flow and pressure test on circuit and attachment.
<b>RAPID SHOCK MOUNT FAILURE</b>	Excessive downward pressure.	Relieve pressure to attachments. Compress shock mounts no more than 2-2.50" (51-64mm).
	Prime mover too large for compactor.	
	Cold weather operation.	Follow Low Temperature Warm-up procedure.
	Over-speeding.	Manifold block failure. Replace manifold block.
		Adjust hydraulic flow to compactor.
		Perform flow and pressure test on circuit and attachment.
<b>FAILURE TO ACHIEVE REQUIRED COMPACTION SPECIFICATIONS</b>	Over-speeding or under-speeding of compactor.	Adjust hydraulic flow to compactor.
		Perform flow and pressure test on circuit and attachment.
	Moisture/soil content incorrect for specified density.	Correct condition of soil, or compaction specifications are not reasonable for conditions.
<b>COMPACTOR MAKES A LOUD BANGING NOISE</b>	Prime mover is putting too much downward pressure on compactor.	Lift arm up slightly.
	Shock Isolators are wearing out.	Replace shock isolators.

# BOLT TORQUE SPECIFICATION

## GENERAL TORQUE SPECIFICATION TABLES


Use the following charts when determining bolt torque specifications, when special torques are not given. Always use grade 5 or better when replacing bolts.

## SAE BOLT TORQUE SPECIFICATIONS




**Note:** The following torque values are for use with extreme pressure lubricants, plating or hard washer applications. Increase torque 15% when using hardware that is unplated and either dry or lubricated with engine oil.

Bolt Size		SAE GRADE 5 TORQUE				SAE GRADE 8 TORQUE				Bolt head identification marks as per grade. NOTE: Manufacturing Marks Will Vary
		Ft-lbs		Newton-Meter		Ft-lbs		Newton-Meter		
Inches	mm	UNC	UNF	UNC	UNF	UNC	UNF	UNC	UNF	
1/4	6,35	8	9	11	12	10	13	14	18	
5/16	7,94	14	17	19	23	20	25	27	34	
3/8	9,53	30	36	41	49	38	46	52	62	
7/16	11,11	46	54	62	73	60	71	81	96	
1/2	12,70	68	82	92	111	94	112	127	152	
9/16	14,29	94	112	127	152	136	163	184	221	
5/8	15,88	128	153	174	207	187	224	254	304	
3/4	19,05	230	275	312	373	323	395	438	536	
7/8	22,23	340	408	461	553	510	612	691	830	
1	25,40	493	592	668	803	765	918	1037	1245	
1-1/8	25,58	680	748	922	1014	1088	1224	1475	1660	
1-1/4	31,75	952	1054	1291	1429	1547	1700	2097	2305	
1-3/8	34,93	1241	1428	1683	1936	2023	2312	2743	3135	
1-1/2	38,10	1649	1870	2236	2535	2686	3026	3642	4103	




Grade 2



Grade 5






Grade 8



## METRIC BOLT TORQUE SPECIFICATIONS

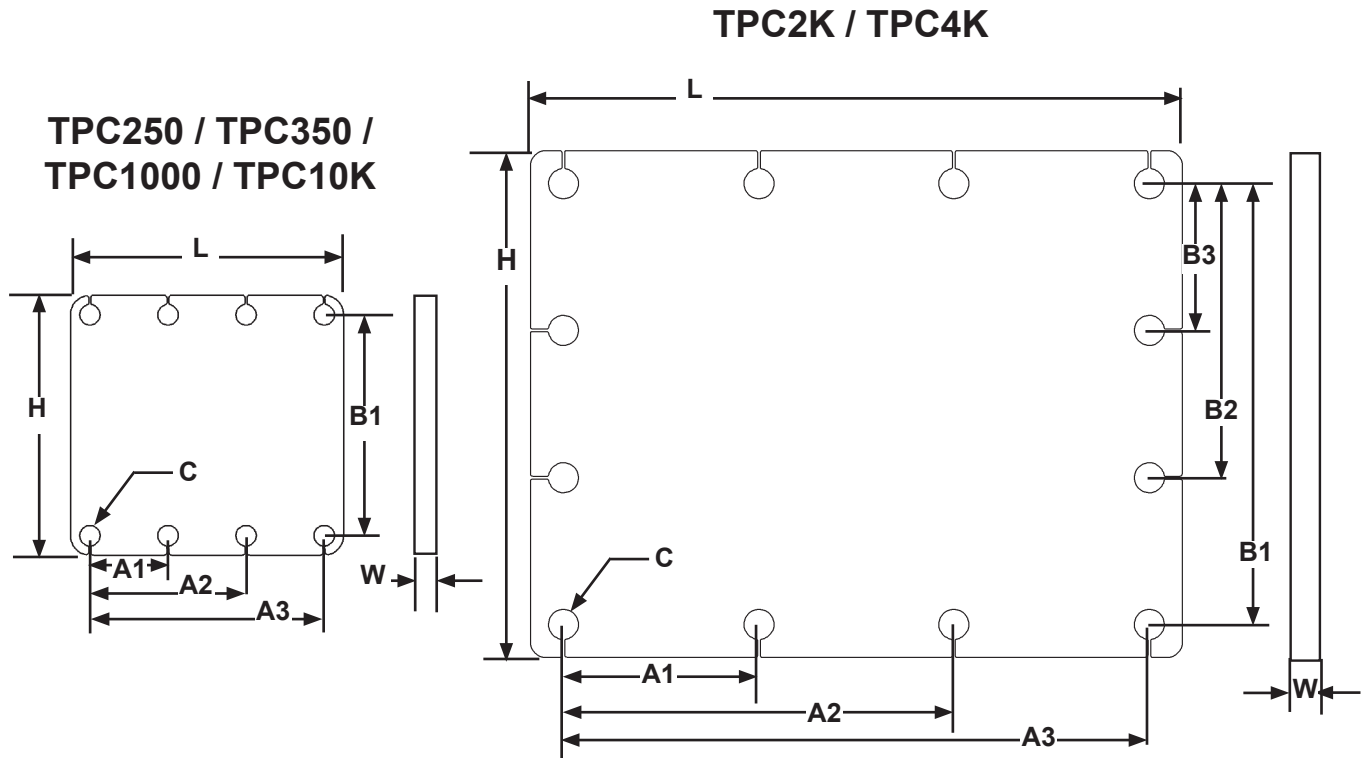
**NOTE:** The following torque values are for use with metric hardware that is unplated and either dry or lubricated with engine oil. Reduce torque 15% when using hardware that has extreme pressure lubricants, plating or hard washer applications.

Bolt head identification marks as per grade.		
		

Bolt Size	Grade No.	Pitch (mm)	Ft-lbs	Newton-Meter	Pitch (mm)	Ft-lbs	Newton-Meter
M6	5.6	1,0	3.6-5.8	4,9-7,9	-	-	-
	8.8		5.8-4	7,9-12,7		-	-
	10.9		7.2-10	9,8-13,6		-	-
M8	5.6	1,25	7.2-14	9,8-19	1,0	12-17	16,3-23
	8.8		17-22	23-29,8		19-27	25,7-36,6
	10.9		20-26	27,1-35,2		22-31	29,8-42
M10	5.6	1,5	20-25	27,1-33,9	1,25	20-29	27,1-39,3
	8.8		34-40	46,1-54,2		35-47	47,4-63,7
	10.9		38-46	51,5-62,3		40-52	54,2-70,5
M12	5.6	1,75	28-34	37,9-46,1	1,25	31-41	42-55,6
	8.8		51-59	69,1-79,9		56-68	75,9-92,1
	10.9		57-66	77,2-89,4		62-75	84-101,6
M14	5.6	2,0	49-56	66,4-75,9	1,5	52-64	70,5-86,7
	8.8		81-93	109,8-126		90-106	122-143,6
	10.9		96-109	130,1-147,7		107-124	145-168
M16	5.6	2,0	67-77	90,8-104,3	1,5	69-83	93,5-112,5
	8.8		116-130	157,2-176,2		120-138	162,6-187
	10.9		129-145	174,8-196,5		140-158	189,7-214,1
M18	5.6	2,0	88-100	119,2-136	1,5	100-117	136-158,5
	8.8		150-168	203,3-227,6		177-199	239,8-269,6
	10.9		175-194	237,1-262,9		202-231	273,7-313
M20	5.6	2,5	108-130	146,3-176,2	1,5	132-150	178,9-203,3
	8.8		186-205	252-277,8		206-242	279,1-327,9
	10.9		213-249	288,6-337,4		246-289	333,3-391,6

# SPECIFICATIONS

## MOUNTING PLATE BOLT PATTERNS



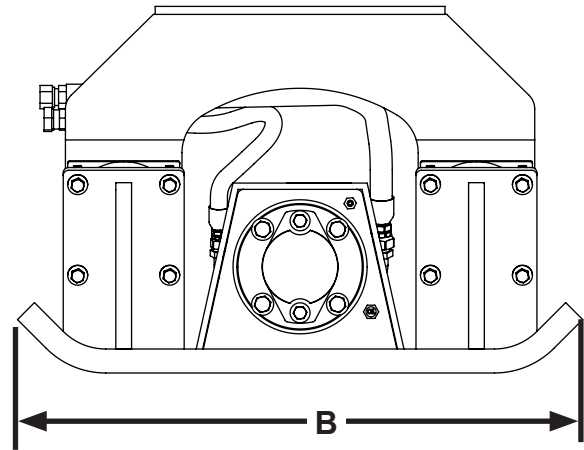
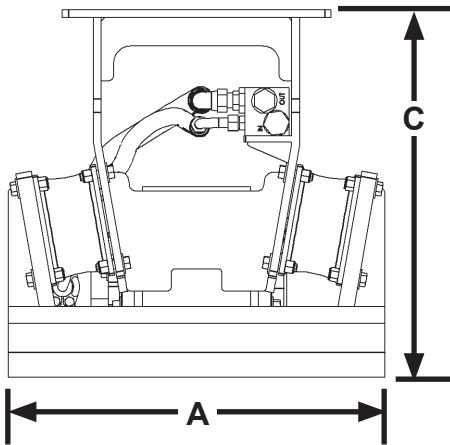
	TPC250	TPC350	TPC1000
<b>H x W x L</b>	10.47 X .50 X 11.02 (266.0 X 12.7 X 280.0)	12.99 X .75 X 12.99 (330.0 X 19.1 X 330.0)	16.78 X .75 X 18.13 (426.2 X 19.1 X 460.4)
<b>A1</b>	3.15 (80.0)	3.82 (97.0)	5.43 (138.0)
<b>A2</b>	6.30 (160.0)	7.60 (193.0)	10.87 (276.0)
<b>A3</b>	9.45 (240.0)	11.42 (290.0)	16.30 (414.0)
<b>B1</b>	8.90 (226.0)	11.42 (290.0)	14.96 (380.0)
<b>B2</b>	NA	NA	NA
<b>B3</b>	NA	NA	NA
<b>C</b>	.83 (21.0) 8X	.83 (21.0) 8X	.83 (21.0) 8X

	TPC2K	TPC4K	TPC10K
<b>H x W x L</b>	19.69 X 1.00 X 23.23 (500.0 X 25.4 X 590.0)	22.44 X 1.25 X 29.53 (570.0 X 31.8 X 750.0)	31.10 X 1.50 X 24.61 (790.0 X 38.1 X 625.0)
<b>A1</b>	7.01 (178.0)	8.98 (228.0)	6.99 (177.5)
<b>A2</b>	14.02 (356.0)	17.95 (456.0)	14.08 (357.5)
<b>A3</b>	21.02 (534.0)	26.93 (684.0)	21.06 (535.00)
<b>B1</b>	5.83 (148.0)	6.61 (168.0)	31.10 (790.0)
<b>B2</b>	11.65 (296.0)	13.23 (336.0)	NA
<b>B3</b>	17.48 (444.0)	19.84 (504.0)	NA
<b>C</b>	1.06 (27.0) 12X	1.06 (27.0) 12X	1.53 (39.0) 8X

in. (mm)

# SPECIFICATIONS

TPC1000 SHOWN



SPECIFICATIONS AND DESIGN ARE SUBJECT TO CHANGE WITHOUT NOTICE AND WITHOUT LIABILITY THEREFOR.

DESCRIPTION	UNIT	TPC250	TPC350	TPC1000	TPC2K	TPC4K	TPC10K
<b>A. Overall Width</b>	inch (cm)	11.75 (30)	18.75 (48)	23.50 (60)	24.00 (61)	25.50 (65)	33.00 (84)
<b>B. Overall Length</b>	inch (cm)	30.00 (75)	26.00 (66)	35.00 (89)	38.00 (97)	38.50 (98)	49.50 (126)
<b>C. Over all Height (without mount)</b>	inch (cm)	18.84 (47.9)	19.15 (48.6)	22.91 (58.2)	24.50 (62.2)	29.53 (75.0)	34.55 (87.8)
<b>Shipping Weight (without mount)</b>	lbs (kg)	305 (138)	473 (215)	891 (404)	1007 (457)	1553 (704)	2620 (1188)
<b>Recommended Flow</b>	gpm (lpm)	9-25 (34-95)	12-25 (45-95)	12-25 (45-95)	24-40 (91-151)	28-60 (106-227)	40-70 (151-265)
<b>Maximum Back Pressure</b>	psi (bar)	250 (17.2)	250 (17.2)	250 (17.2)	250 (17.2)	250 (17.2)	250 (17.2)
<b>Vibrations Per Minute (VPM)</b>	vpm	2000	2000	2000	2000	2100	2100
<b>Compaction Area</b>	in^2 cm^2	353 (2274)	488 (3145)	823 (5306)	912 (5884)	982 (6334)	1634 (10539)
<b>Impulse Force</b>	lbs (kg)	2500 (1134)	3400 (1542)	6400 (2903)	8000 (3629)	11350 (5148)	22000 (9979)
<b>Carrier Weight - Minimum</b>	lbs (kg)	5000 (2268)	5000 (2268)	9000 (4082)	12000 (5443)	16000 (7258)	50000 (22680)
<b>Carrier Weight - Maximum</b>	lbs (kg)	10000 (4536)	14000 (6350)	28000 (12701)	40000 (18144)	50000 (22680)	130000 (58968)
<b>Inlet - Minimum Hose Size</b>	inch (mm)	.50 (13)	.50 (13)	.75 (50)	.75 (50)	.75 (50)	.75 (50)
<b>Outlet - Minimum Hose Size</b>	inch (mm)	.50 (13)	.50 (13)	.75 (50)	.75 (50)	.75 (50)	.75 (50)



# SPECIFICATIONS

## FLOW TEST PROCEDURES

The correct performance of this procedure will verify if the auxiliary circuit of the prime mover is adequate to properly operate the attachment. This procedure is generic in form. It is the end users responsibility to ensure that this procedure will work with his specific type of equipment. If an adequate flow meter is not available contact your PALADIN Hydraulic Distributor for assistance.

### TEST PROCEDURE

1. With the auxiliary circuit (or kit) completely installed connect the flow meter between the tool inlet and outlet hoses.

**Note: always use the hoses that are supplied for the attachment and make sure the machine hydraulic oil is between 90 to 120 °F. this will assure correct readings and adjustments.**

2. With the machine setting at the mode that's going to be used to operate the attachment record the GPM \_\_\_\_\_ .

Locate the correct flow for the attachment in the manual under the specification section. Adjust the machine to the correct GPM.

**NOTE : If possible, always set the machine to the highest GPM output mode. This will prevent the Operator from over flowing the attachments.**

3. Once the correct GPM flow is achieved fully open the restrictor on the flow meter.
4. With the machine in the attachment mode set in step 2 record the back pressure. At this point the pressure reading on the pressure gauge is the back pressure in the circuit. This pressure must not exceed 200 psi/13.5bar. Excessive back pressure will slow the attachments operation and lead to premature seal failures and over heating.

**Record the back pressure \_\_\_\_\_ psi.**

5. Close the restrictor valve on the flow meter until the attachment relief starts to crack or open. The relief valve opens when the flow rate (GPM), indicated on the flow meter begins to decline rapidly. Locate the tools operating system relief pressure in the specification section in the manual. Adjust attachment relief to specification.

**NOTE: The relief valve pressure must be greater than the operating pressure of the attachment and three times the back pressure. Never use the relief valve to control the flow rate in the circuit. Cracking pressure means the loss of 4 or more GPM.**

**Record the relief cracking pressure \_\_\_\_\_ psi.**

### Example:

Operation pressure of a compactor is 2700 psi. Back pressure is 150 psi. A good rule to follow when setting the relief, multiply the back pressure by 3 then add this number to the operation pressure of the attachment.

Operating Pressure                      2700 psi

Back pressure                              450 psi

Operating pressure of the tool      3150 psi

The relief valve setting must be greater than the estimated operating pressure of the tool. If the setting is lower, damage to the circuit may occur. Excess heat will be generated in the circuit which will damage the attachment and prime mover.

# SPECIFICATIONS

## HEAT LOAD TEST

With the installation kit properly installed and adjusted per the above procedure, conduct the heat load test as follows.

1. Connect the flow meter between the tool inlet and outlet hoses.
2. With the carrier set in the attachment mode, restrict the flow meter until a pressure of 1000 psi is achieved. This pressure must be maintained throughout the heat test.

**NOTE: Closing of the restrictor may be required as the temperature increases.**

Monitor the oil temperature from the flow meter until no change is noted. Record the time required for oil to stabilize. Record the surrounding temperature (ambient temperature). Record the time required to stabilize \_\_\_\_\_ minutes.

**Record the stabilized oil temperature \_\_\_\_\_ °F.**

## TROUBLESHOOTING

If adequate pump flow is available from the prime mover pump(s) but it is not getting to the attachment, consult your service representative and review the following:

1. Attachment valve(s) are not actuating. Check all electrical connections that are part of attachment kit.
2. Ensure proper voltage to the valve(s).
3. Ensure the REG port of the valve is not blocked.
4. Check that the prime mover's main relief is set to the manufacturers recommendation and that this value is equal or greater than the attachment circuit relief.
5. If the valve will not turn off, check the drain (tank) line of valve to ensure the pressure is 50 psi or less.

## PARTS

In order to provide you with the most UP-TO-DATE part information, all parts for this attachment have been moved to our website at [www.paladinattachments.com/Manuals](http://www.paladinattachments.com/Manuals). Please use these diagrams and parts lists to locate replacement parts.

When servicing your attachment, remember to use only original manufacturer replacement parts. Substitute parts may not meet the standards required for safe, dependable operation.

To facilitate parts ordering when contacting the factory, please have the product control number (PCN or C/N) or model and serial number of your product ready to ensure that you receive the correct parts for your specific attachment.

The product control number, model and serial number for your attachment should be recorded in the space provided on the cover of this manual. This information may be obtained from the serial number identification plate located on your attachment.

**NOTE: Most daily and emergency parts orders (in stock) received by 10:30 A.M. (Eastern Standard Time) will be shipped UPS Ground the same day received. UPS Next Day orders must be received by 1:30 PM (Eastern Standard Time.)**

### SERVICE DEPARTMENT

(734) 996-9116

(800) 456-7100

### For Fax and E-mail Orders

PLC\_Sales@paladinattachments.com

(734) 996-9014

## WARRANTY

In order to provide you with the most UP-TO-DATE Warranty information, Paladin Warranty Statement and Warranty Procedures along with Warranty Registration and Claim Forms have been moved to our website at [www.paladinattachments.com](http://www.paladinattachments.com).