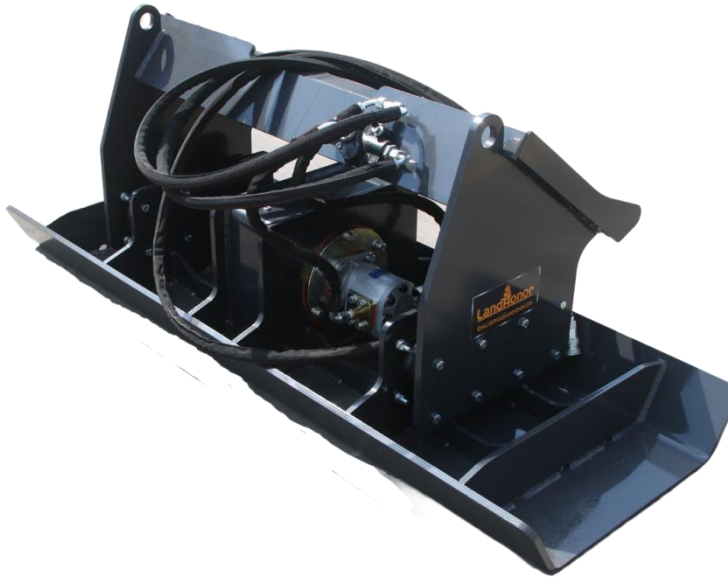
PRODUCT MANUAL

V2023.9.25

SKID STEER VIBRATORY PLATE COMPACTOR MANUAL

Model: VPC-11-72W



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Content

Ⅰ. GENERAL SAFETY PRECAUTIONS

Read and follow all safety precautions in this manual. Improper installation, operation or maintenance of the Allied equipment could result in serious or fatal injury. Only qualified personnel may operate and service the equipment.

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 understood this manual.

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 the support material is solid, not decayed, warped, twisted, or tapered. Lower the booms to the ground level or on blocks. Lower the booms and attachments to the ground before leaving the cab or operator's station.

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.

Know your equipment's capabilities, dimensions and operations before operating it. Visually inspect your equipment before use, and never operate equipment that is not in proper working order with all safety devices intact. Check all hardware to assure 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 and hard to read.

Before operating the Vibratory Plate Compactor，Block off work area from bystanders, 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.

Before exiting the prime mover, lower the plate to the ground, turn off the prime mover's engine, remove the key and apply the brakes.

Do not drive close to ditches, excavations, etc., cave in could result. Do not smoke when refueling the prime mover. Allow room in the gas tank for expansion. Wipe up any spilled fuel. Secure cap tightly when done.

Before performing maintenance, lower the attachment to the ground, turn off the engine, remove the key and apply the brakes. Never perform any work on the attachment unless you are authorized and qualified to do so. Always read the operator’s service manual before any repair is made. After completing maintenance or repair, check that the attachment is operating correctly. If it is 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.

Never make hydraulic repairs while the system is under pressure. Serious personal injury or death could result. Never work under

a raised attachment.

MANDATORY SAFETY PRECAUTIONS

Before cleaning, lubricating, or servicing this unit, the following MANDATORY SAFETY SHUTDOWN PRECAUTIONS should always be followed:

1. Move the drive control of the host machine to the neutral position and idle engine down.
2. Shut off the hydraulic system of the compaction plate.
3. Position the compaction plate so that it rests completely on the ground or floor.
4. Engage the host machine's hand brake.
5. With the host machine's throttle in the slow idle position, shut the engine off and remove the ignition key.
6. Relieve the hydraulic pressure by moving the auxiliary hydraulic flow control levers in both directions.

ONLY when you have taken these precautions can you be sure it is safe to proceed. Failure to follow the above procedures could lead to death or serious bodily injury!

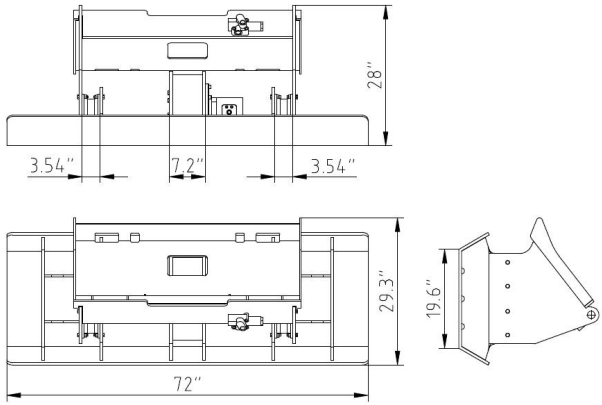
WARNING! HIGH PRESSURE FLUID
PART #40151

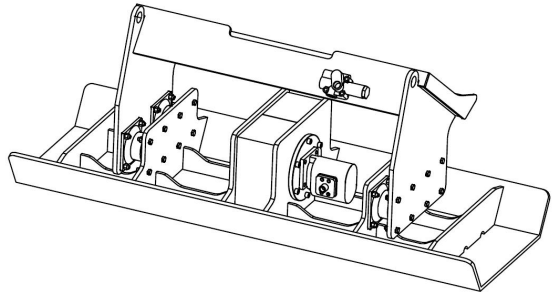
Keep hands and feet away from under frame. Failure to do so could result in bodily injury.

To prevent serious injury or death from pinching:

- Keep all persons and objects clear while any part of this machine is in motion.

Ⅱ. External dimensions of Vibratory Plate Compactor





Ⅲ. Vibratory Plate Compactor Specifications

No.	Item	Parameter	Remark
1	Overall wide	72"	ZVR72
2	Overall Length	29.3"	
3	Overall height	28"	
4	Base Plate Dimensions	19.6"x72"	Area 9.7 sq ft
5	Vibrating Speed (VPM)	2000	
6	Excitation Frequency	33.3	
7	Dynamic force (lbs)	9040	
8	Max Hydraulic Flow (GPM)	25	
9	constant flow valve output flow (GPM)	16	
10	Motor displacement	1.95 cu inch/r （Gear motor）	Torque 59.7 b-ft
11	Hydraulic pressure (psi)	2300-3000	
12	Constant Current Valve Set Pressure	3000	Relief Type
13	Damper Mass （diameter x length）	3.94"x3.54"	Rubber height 70
14	Deep groove ball bearing (mm)	6313-2RZ （d xDxT=65x140x33）	
15	Deep groove ball bearing (mm)	6309-2RZ （dxDxT=45x100x25）	
16	Weight of Lubricating Oil (lbs)	4.4-6.6	
17	Machine weight (lbs)	990	

Ⅳ. Installation

The Vibratory Plate Compactor is designed to be easy to use and maintain. They are operated by the auxiliary hydraulics of the loader. The Vibratory Plate Compactor mount to the toolbar / quick attach mechanism for easy mounting.

WARNING: DO NOT operate the Vibratory Plate Compactor on a high flow hydraulic system (32 GPM Maximum). Damage to the hydraulic motor will occur.

HOSE CONNECTION

Install the Vibratory Plate Compactor. Connect the power and return hoses to the auxiliary hydraulic couplers on the loader.

IMPORTANT: All hose routings should be check for kinks or pinching. Reroute if necessary.

DETACHING

On firm, level ground. Lower the lift arms against the frame and place the Vibratory Plate Compactor on the ground. Move the control levers back and forth to relieve pressure in the line. Disconnect the couplers.

NOTE: Connect couplers together or install dust caps and plugs to prevent contaminants from entering the hydraulic system.

NOTE: Frequent lubrication of the grease fittings with a multi-purpose grease will greatly increase the life of the product.

Ⅴ.OPERATING INSTRUCTIONS

The plate must be attached to a host machine equipped to provide the necessary hydraulics and operational controls.

ATTACHING TO AND DETACHING FROM A HOST

Drive the skid steer loader, install the connection hanger of the ZVC72 vibrating hammer onto the lifting arm and connect the quick coupling.

PREPARATORY WORK

The vibratory hammer can be used for compacting soil, sand, gravel and asphalt, etc., start the engine of the loader to ensure that the vibratory hammer touches the ground. Increase engine speed, increase the frequency of vibration compaction, when compacting the ground, loader should be driven forward or backward.

STARTING C0MPACTING THE GROUND

Slowly lower the plate onto the surface to be compacted with the engine of the host machine at the required speed until the weight of the plate rests on the ground.Continue to exert down pressure rolling , to assure sufficient pressure for stable operation.

NOTE: Applying excess down pressure does not mean that the material will be compacted any faster. To ensure loader stability and maximum efficiency，the front wheels of the skid steer can be raised 2-3 inches.

There are three factors that govern the extent to which soil/material can be compacted:

1. The type of soil or material and its compactability.
2. The moisture content of the soil or material being compacted
3. The type of compacting effort, which in this case is vibration, not pressing or ramming.

Vibratory machines are distinguished by their low amplitude (vertical distance travelled) and their high frequency of blows per minute (2000 rpm eccentric shaft rotation.) Each rotation of the eccentric shaft generates a stress wave which travels into the ground. This vibration sets the soil particles in motion. The soil breaks down and the particles are rearranged. As the particles rearrange themselves, they force out the air and moisture trapped between them and fill the voids.

ENDING THE COMPACTION OPERATION

Stop advancing the plate. Idle host machine engine, tum the plate off, and raise the plate off the working area.

CAUTION: When using compaction plates, periodic observation must be made of the transmission oil temperature indicator on the host machine. Hydraulic oil may overheat. If the indicator comes on, shut off the plate and allow the host machine to idle until the hydraulic temperature falls below 180°F. Damage to machine may occur if these instructions are not followed.

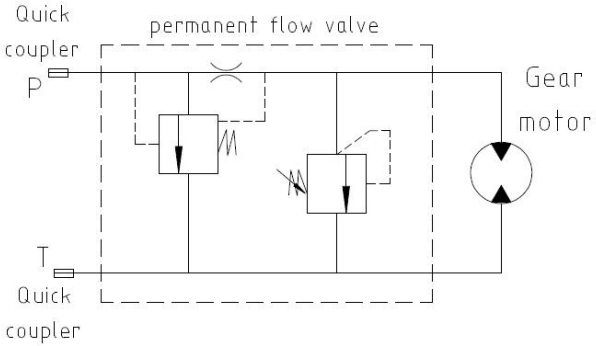
Ⅵ.MAINTENANCE AND SERVICE

CAUTION: NEVER attempt to do any maintenance to the compaction plate while it is running.

1. At the start of each day, check over the plate for any wear or tear on the rubber isolators.
2. Check the gearbox oil level daily by removing the oil level plug. If the oil level is low, add good quality gear oil to proper level. Make sure the plug is replaced and tightened.
3. Using the correct size wrenches, retighten any loose hardware.
4. Inspect for any loose hydraulic fittings or damaged hoses; retighten or replace as required.

Ⅶ.HYDRAULIC PRINCIPLE DIAGRAM

The main shaft of the Vibratory Plate Compactor is driven by a gear motor, and a constant current valve is installed in the oil circuit. When the input flow rate does not exceed 32GPM, the output flow is always 16GPM, and the pressure rate does not exceed 3000psi, which effectively protects the service life of the motor and stabilizes the vibration frequency of the plate at the required parameters.



Ⅷ.TROUBLESHOOTING

Problem	Possible Cause	Potentially effective solutions
No operation	Insufficient oil pressure or flow.	Check hydraulic supply system. Correct as required.
	Failed bearings.	Inspect and replace bearings.
	Broken motor shaft or worn splines.	Inspect and replace worn parts.
Erratic operation	Erratic oil pressure or flow.	Check hydraulic supply system. Correct as required.
	Failed spring mount.	Inspect and replace failed mount.
Operation with excessive noise or vibration	Failed bearing.	Inspect and replace bearings.
	Loose bolts or mounting hardware.	Inspect,tighten and replace worn parts.
Operation stalls under load	Pressure relief too low	Check hydraulic supply system. Correct as required.
	Failed bearing.	Inspect and replace bearings.
	Motor worn or motor seals failed.	Inspect and replace motor.

Operation smooth, but at reduced speed	Flow too low.	Check carrier output.
		If motor or flow regulator valve was replaced,please check that the motor and valve are properly matched.

Ⅸ.BOLT TORQUE SPECIFICATIONS

GENERAL TORQUE SPECIFICATION TABLES

Use the following tables to determine bolt torque specifications where specific torques are not given. Always use grade 5 or better when replacing bolts.

METRIC BOLT TORQUE SPECIFICATIONS

The following torque values apply to metric bolt head identification marks as per grade. Hardware that is unplated and either dry or lubricated with engine oil. Reduce torque by 15% when using hardware that has extreme pressure lubricants, plating or hard washer applications.

Ⓐ Diameter & Thread Pitch (Millimeters)	Wrench Size	COARSE THREAD				FINE THREAD				Ⓐ Diameter & Thread Pitch (Millimeters)
		MARKING ON HEAD				MARKING ON HEAD				
		Metric 8.8		Metric 10.9		Metric 8.8		Metric 10.9		
		N-m	lbs-ft	N-m	lbs-ft	N-m	lbs-ft	N-m	lbs-ft	
6 x 1.0	10 mm	8	6	11	8	8	6	11	8	6 x 1.0
8 x 1.25	13 mm	20	15	27	20	21	16	29	22	8 x 1.0
10 x 1.5	16 mm	39	29	54	40	41	30	57	42	10 x 1.25
12 x 1.75	18 mm	68	50	94	70	75	55	103	76	12 x 1.25
14 x 2.0	21 mm	109	80	151	111	118	87	163	120	14 x 1.5
16 x 2.0	24 mm	169	125	234	173	181	133	250	184	16 x 1.5
18 x 2.5	27 mm	234	172	323	239	263	194	363	268	18 x 1.5
20 x 2.5	30 mm	330	244	457	337	367	270	507	374	20 x 1.5
22 x 2.5	34 mm	451	332	623	460	495	365	684	505	22 x 1.5
24 x 3.0	36 mm	571	421	790	583	623	459	861	635	24 x 2.0
30 x 3.0	46 mm	1175	867	1626	1199	1258	928	1740	1283	30 x 2.0

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