

Viber® Mini Backpack

Operating Instructions

VMG-1750BP

**INTERNAL CONCRETE VIBRATOR
PORTABLE GASOLINE POWERED BACKPACK**



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SAFETY OPERATION INSTRUCTIONS

Your safety and the safety of the people around you are very important. Operating the Viber® model VMG-1750BP backpack concrete vibrator system in a safe manner is the duty of every user.

Certain sections of this manual will contain such key words as **DANGER, WARNING and CAUTION**. When you see any of these key words in the manual, please read the information following the key word very carefully.

DANGER

WARNING

DANGER, WARNING: Not obeying the instructions followed by these signal words may lead to death or injury of the operator or those around him.

CAUTION

CAUTION: Not obeying the instructions following this signal can lead to personal injury or damage to the equipment.

Before you use the VMG-1750BP please read through the entire set of operating instructions and the Robin owner's manual provided with each new unit. Both pieces of literature provide very important information about safety.

NOISE / SOUND

Hearing protection must be worn.

TABLE OF CONTENTS

I. INTRODUCTION

The Smart Parts™ System
Safety Precautions

II. ASSEMBLING YOUR INTERNAL CONCRETE VIBRATOR & QUICK DISCONNECT

III. OPERATION

IV. MOTOR MAINTENANCE

V. PARTS LIST

VI. PERFORMANCE SPECIFICATIONS

VII. TROUBLESHOOTING

VIII. Smart Parts™ SYSTEM RECOMMENDATIONS

I. INTRODUCTION

You have purchased a Viber® Gasoline Power Unit, the center of your Smart Parts™ Internal Concrete Vibrator system. The other system components include a Viber® vibrator head and a Viber® reversible flexible drive.

POWER UNIT+ FLEXIBLE DRIVE+ HEAD = Smart Parts™ SYSTEM

You build the right Smart Parts™ System for your application by choosing from the wide range of Viber® components including nine different power options, fourteen different flexible drives, and twenty different vibrator heads. These components all use identical fittings so that Viber® components are completely interchangeable. Any flexible drive can be used with any of the power units and any of the heads. See Section VIII for recommendations for selecting the best Viber® power unit, head and flex drive for your application.

When properly used, your Smart Parts™ system will effectively compact concrete to remove entrapped air, producing high quality concrete that is dense, strong, durable, and impermeable.

CAUTION**CHECK YOUR EQUIPMENT**

1. Inspect the vibrator system for damage. Never use a damaged vibrator.
2. Have all components of the vibrator system received proper maintenance?
VMG Gasoline Motors: Clean air filter every 25 hours and change engine oil after every 50 hours of operation. Refer to the Robin Owner's Manual for a complete maintenance schedule.
Flexible Shafts: Re-grease core after every 50 hours of use or if core rattles excessively.
Vibrator Head: Monitor bearings. Viber® heads require no lubrication.
3. Are all vibrator system connections tight? **Apply Teflon® tape to the casing threads, before attaching the head, to give a watertight connection.**
4. Do you have the proper fuel? Use unleaded gasoline with a pump octane rating of 86 or higher.
5. Check oil level in engine.

II. Assembling Your Internal Concrete Vibrator & Quick Disconnect

WARNING

Always be sure the gasoline power unit's ignition switch is in the "off" position before assembling or disassembling your system.

The VMG-1750BP Gasoline Power Unit comes fully assembled except for the throttle control. Mount the throttle control, using the two screws provided, to the holes located on the lower left side of the frame (when facing the backpack frame from the rear, engine side). Orient the control so the black knob points outward, FAST is at the top, and STOP is at the bottom.

All Viber® system components are interchangeable. All flexible drives (cores and casings) can be used to attach any head to any power unit. For optimum performance and wear consult your *Smart Parts™* SYSTEM GUIDE or the table in SECTION VI for the best combination of components.

WARNING

NEVER attempt to change flexible drives while the engine is running

1. Attach the flexible drive (casing with lubricated core installed) to the power unit. The VMG-1750BP comes with a quick disconnect for attaching flexible drives to the power unit. To attach a quick disconnect drive fitting to the flex drive, first apply a layer of Teflon® tape to the casing threads, add fitting and turn it clockwise to tighten. Use a small pipe wrench or channel locks to be sure the connection is tight. (If you do not have an assembled flex drive, the core must be lubricated before installing it in the casing. Run the core through a handful of Viber® Core Grease as it is inserted into the core. Attach the end of the casing, where the core was inserted, to the quick disconnect drive fitting.)
- 2.

2. Place the flexible drive with installed quick disconnect fitting up to the quick disconnect on the motor drive. Be sure the core engages in the motor drive. Turn the large hand nut counter clockwise until tight (hand nut has left hand threads to insure it will remain tight while operating the system).
3. Before attaching the head, check the length of core extending from the head end of the flex drive. If this length is greater than 2-3/4", twist the core while pushing it into the casing to make sure it is fully seated in the motor. If the exposed core is greater than 2-3/4" when it is fully seated in the motor it may bind and cause damage to the core, casing, or head. Do not use the system. Contact your dealer or Global Manufacturing at 1-800-551-3569.
4. To attach the head to the flex drive, be sure the core engages the drive coupling in the head. First apply two layers of Teflon® tape to the casing threads then tighten the head in a clockwise direction. Use a crescent wrench on the machined flats on the head and channel locks or a small pipe wrench on the casing fitting to make sure the connection is secure.



CAUTION

Do **NOT** leave out the Teflon® tape! It is required to provide a watertight seal between the various components of your vibrator system and prevents the connections from coming loose during operation. If Teflon® tape or a similar sealant is not used, the components can be damaged by water that penetrates this connection, or the components can come apart and be lost in the concrete.

5. Use only fresh unleaded gasoline with a pump octane rating of 86 or higher. Do not over fill tank.

WARNING

Always wear ear & eye protection, gloves and heavy boots when operating the backpack system

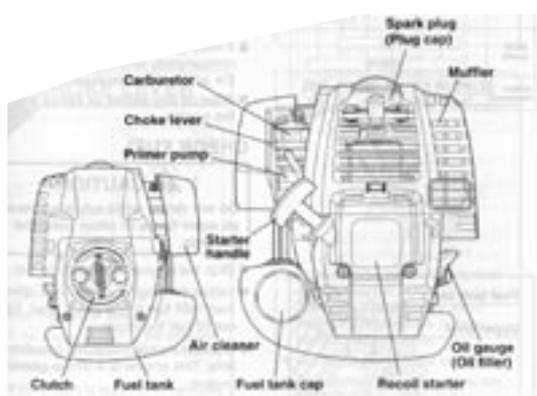
III. Operation

WARNING

Improperly maintaining the engine, or failing to correct a problem before operation, could cause malfunction in which you could be seriously injured.

Always perform an inspection and correct any problems found before starting engine.

Refer to the Robin Engine owner's manual supplied with your VMG-1750BP for engine maintenance schedules and detailed operating instructions.



WARNING

This unit creates carbon monoxide gas when operating. Carbon Monoxide is a colorless, odorless gas, which can cause injury or death.

Use only outdoors or where fresh air is constantly being introduced into the environment.

To start the VMG-1750BP Gasoline Power Unit:

1. Remove any accumulated dirt or debris, especially from around the muffler and recoil starter.
2. Check that all shields and covers are in place and all nuts, bolts, and screws are tight.
3. Inspect the throttle, engine kill switch, and swivel joint, where the engine is attached to the frame, to make sure they are in working order.
4. Check the engine oil level. Add oil if necessary.
5. Check the air filter. A dirty air filter will restrict airflow to the carburetor, reducing engine performance.
6. Be sure the tank is full with fresh unleaded gasoline with a pump octane rating of 86 or higher. Do not over fill the tank.
7. Place the VMG-1750BP on an elevated surface high enough to allow the operator to put on the unit easily after starting.
8. Pump the fuel bulb on the carburetor to ensure fuel is in the float bowl.
9. For a cold engine, move the choke lever to the CLOSED position. To restart a warm engine, leave the choke lever in the OPEN position.
10. Turn the red engine ignition switch to the ON position.
11. Place the throttle lever in the SLOW position.

CAUTION

Do **NOT** start the engine with the throttle lever in the FAST position. This will engage the vibrator head as soon as the engine starts. Running the vibrator head in air without regularly submersing it in the concrete will overheat the bearings.

12. Hold the VMG-1750BP unit in place with one hand. Pull the starter grip lightly until you feel resistance, then pull briskly. Return the starter grip SLOWLY to its initial position.

13. If the choke lever was moved to the CLOSED position to start the engine, gradually move it to the OPEN position as the engine warms up.

IMPORTANT

To stop the engine at any time, turn engine stop switch to “off”.

WARNING

When putting on the backpack, lift the unit by bending your knees. Do not lift with your back.

14. Place the VMG-1750BP unit on your back just as you would a backpack. Place your arms through the spaces between the straps and the frame. Buckle the chest strap. Adjust the shoulder and chest strap as needed.
15. You are now ready to vibrate concrete with your VMG-1750BP.
 - i. Use the black throttle lever on the left side of the frame to regulate the vibrator speed. Keep in mind, that when consolidating concrete, faster is not always better. The best performance might be obtained with the throttle lever in a position below FULL throttle.
 - ii. The VMG-1750BP is equipped with a centrifugal clutch. By moving the throttle to the SLOW position, the clutch will disengage allowing the vibrator head to stop. Do not leave the vibrator head running in air. **RUNNING THE VIBRATOR HEAD IN AIR WITHOUT REGULARLY SUBMERSING IT IN THE CONCRETE WILL OVERHEAT THE BEARINGS.** If the head is to be held out of the concrete, move the throttle lever to the SLOW position to prolong bearing life.
 - iii. To stop the engine at any time, simply move the throttle lever to the SLOW (fully down) position, and turn off Stop Switch.

WARNING

The backpack system must be worn on the operators back for it to function properly. Do not attempt to operate the vibrating head while the backpack is not being worn.

Follow the guidelines below when using your Viber® Internal Concrete Vibrator for consolidating concrete:

1. **DO NOT** leave the vibrator running in air. Totally submerge the vibrator head in the concrete. This cools the bearings. Running the vibrator in air without regularly submersing it in the concrete will overheat the bearings.
2. Avoid making sharp bends in the flexible shaft.
3. Make sure you can see the concrete surface. Use lighting if necessary.
4. Place the concrete in layers no deeper than the length of the vibrator head plus 4-6". Layers should not exceed 18-20", otherwise the weight of the concrete will prevent the entrapped air from escaping.
5. Keep the vibrator head at least 3-4" from the forms. It can damage them causing surface defects in the concrete.
6. Do not allow the vibrator head to touch reinforcements, such as rebar. Vibration can break the bond between the reinforcement and preceding layers of stiffened concrete.

7. Let the vibrator head penetrate to the bottom of the layer as quickly as possible under its own weight.
8. Keep the vibrator head vertical to minimize voids and enhance the release of entrapped air. For shallow flat slabs, lay the vibrator head horizontally and drag it through the concrete.
9. Withdraw the vibrator head slowly. Be sure concrete fills in behind leaving no hole. Do not attempt to “stir” the concrete.
10. Use repeated placements of the vibrator in a systematic pattern to be sure the entire surface has been vibrated. The area of action can be observed by noting how far from the vibrator head bubbles appear on the surface. Placements of the head should insure overlapping of the areas of action.
11. When compacting concrete placed on a previously compacted layer, push the vibrator 4-6” into the lower layer. Move the vibrator up & down for 5-15 seconds to “knit” the two layers together.
12. Avoid placing the concrete in “heaps”. If it is necessary to flatten a heap, insert the vibrator head around the perimeter of the heap using as many placements as necessary.
13. Consolidation is complete when no new bubbles come to the top, a glistening layer of mortar covers the concrete surface, and the “whine” of the motor indicates that the vibrator speed has leveled off.
14. Clean all vibrator parts immediately following each use.

IV. Motor Maintenance

Routine monthly maintenance is recommended unless the power unit is used for multiple shifts per day or in harsh environments (heavy dust, snow, sand, etc.). Refer to the Robin Engine Owner’s Manual provided with your VMG-1750BP for details on performing engine maintenance.

1. **Engine Oil (SAE10W-30, API SJ):** Check before each use. Change after the first 10 hours of use and every 50 hours thereafter. Change every 25 hours in high ambient temperatures.
2. **Air Filter:** Check before each use. Clean every 25 hours or more frequently if used in dusty areas.
3. **Spark Plug:** Clean and adjust gap every 25 hours. Replace every two years.
4. **Quick Disconnect:** Require no lubrication and no routine maintenance. To order additional quick disconnect drive fittings or for other replacement parts, contact your dealer or Global Manufacturing at 1-800-551-3569.

CAUTION

DO NOT place anything on top of the motor.

DO NOT stand on the backpack frame or engine.

ALWAYS store the unit with its engine upright and the base on a flat level surface.

Do not store the unit on its side. Oil or gasoline may leak as a result. Leaking oil or gasoline is toxic and a fire hazard.

For long-term storage, it is recommended that the gasoline tank be drained and the engine operated until the remaining fuel is consumed.

V. Parts List

Part #	Part Description
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M 913176/001 - 913176 - MOTOR - VMG 1750BP Q

- 295471 WASHER MOTOR MOUNT-VMG
- 333160 SCREW FHT 8-16 -3/4 TF
- 333370 SCREW PHP #10-24X5/8 TF
- 333475 SCREW M5 X 10MM LG .8MM PITCH
- 338514 WASHER WAVE 1.404 X 1.819
- 344530 COTTER PIN SS 5/32" X 1-1/2"
- 385216 O-RING BUNA 568-216
- 414912 QUICK DISCONNECT MOTOR FITTING VQDM
- 414913 QUICK DISCONNECT NUT VQDN
- 490709 SUBASSEMBLY MOTOR MOUNT-VMG-1750 BP
- 490722 ENGINE SUBARU 4-CYCLE 2.0 CU-IN 1.6 HP
- 490724 DRIVE ADAPTOR HOUSING VMG-1500 SUBARU
- 490729 DRIVE SHAFT ADAPTOR VMG-1500 SUBARU
- 490739 TRIGGER & CABLE ASSY-VMG-1500 SUBARU
- 490764 CLUTCH HOUSING KIT SUB.VMG-1500
- M 913176-1/001 - 490705 - SUBASSEMBLY BACKPAC
- 10 A2-V - ASSEMBLY-M
- 295475 BUSHING MOTOR MOUNT-VMG 1750
- 330007 BOLT HEX 1/4-20-3/4" GR8
- 330012 BOLT HEX 1/4-20-1-1/4" GR8
- 333370 SCREW PHP #10-24X5/8 TF
- 334204 NUT LOCK 1/4-20 NC PLATED
- 338104 WASHER LOCK 1/4" PLATED
- 338206 WASHER FLAT 1/4" PLATED
- 490314 BUMPERS PLASTIC 7/8 X 5/8"
- 490650 PLUG POLYETHYLENE BLK 3/4" SQ
- 490697 BACKPACK FRAME SUBARU
- 490699 BACKPACK HARNESS SUBARU



VI. Smart Parts™ System Recommendations

1		2	3
Application	Slump	Space Limitations	Head Diameter
Block Walls & Small Diameter Fills: Plastic and flowing concrete for very thin members & walls & confined places.	>3"	2.5" x 2.5"	7/8" VH-14
Thinnest Prestressed Sections: Plastic and flowing concrete for very thin members & walls & confined places.	>3"	3" x 3"	1" VH-16
Thin Prestressed Sections: Plastic concrete in thin walls, columns, beams, precast piles, thin slabs, and along construction joints.	3-5"	3.25" x 3.25"	1-1/4" VH-20
Thin Wall Sections & General Use: Plastic concrete in thin walls, columns, beams, precast piles, thin slabs, and along construction joints.	3-5"	3.5" x 3.5"	1-1/2" VH-24
			1-3/4" VH-28-PH Polly Head
General Use: Plastic & stiff plastic concrete in general construction such as walls, columns, beams, pre-stressed piles, and heavy slabs.	2-4"	3.75" x 3.75"	1-3/4" VH-28
			2" VH-32-PH Polly Head
Shallow Pours: Plastic & stiff plastic concrete in slabs and other shallow pours less than 12" thick.	2-4"	4" x 4"	2-1/8" VH-34-SP
			2-3/8" VH-38-SP Polly Head
ICF Applications: Plastic and flowing concrete for very thin members & walls & confined places where insulated concrete forms are used.	> 4"	2.5" x 2.5"	7/8" VH-14-LF

To select the proper head and drive length to use with the VMG 1750BP for your application refer to the table below:

- 1 - Find the description in column 1 that matches your application.
- 2 - Use column 2 to adjust for any size restrictions due to reinforcements, such as rebar, or other limiting structures.
- 3 - Column 3 gives the diameter of the vibrator head needed.

4	5								
	Flexible Drive Length (Feet)								
	1	3	5	7	10	14	21	28*	35*
VMG-1750 BP	7' or longer recommended			X	X	X	X	X	X
VMG-1750 BP	7' or longer recommended			X	X	X	X	X	X
VMG-1750 BP	7' or longer recommended			X	X	X	X	X	X
VMG-1750 BP	7' or longer recommended			X	X	X	X	not recommended	
VMG-1750 BP	7' or longer recommended			X	X	X	X	not recommended	
VMG-1750 BP	7' or longer recommended			X	X	X	X	not recommended	
VMG-1750 BP	7' or longer recommended			X	X	X	X	X	X

4 - Select the power unit desired from column 4. VMG-1750BP is a 1.6 hp backpack mounted gasoline engine. Electric and pneumatic power units are also available.

5 - Find the core and casing length desired in section 5. A small diameter (7/8") casing is available in all sizes for use with the 7/8" head.

* Note: 28' and 35' flex drives require coupling two shorter drives together. Flex drive couplers are available in both standard and small diameter models.

VII. Performance Specifications

Engine: 4-cycle, 2.04 cu.in., 1.6 hp Robin Overhead Valve Engine.

Fuel: Standard Unleaded Gasoline, 86 octane or higher. 0.17 US gal. Approximately 2 hours of use per tank of gasoline.

Oil: SAE 10W-30, API SF, 0.1 US qt.

Head Size: Will drive all size internal concrete vibrator heads up to 2-1/8" in diameter with any flexible drive length up to 21'.

Speed: Transmission provides drive speed of 9,000-11,000 rpm with any size vibrator head up to up to 1-3/4" in.

Other Features: The VMG-1750BP also provides the following features:

- Centrifugal Clutch allows the operator to stop the vibration simply by adjusting the throttle lever to the SLOW position. This prolongs vibrator head bearing life by preventing excess heat build up when the head is not submerged in the concrete.
- Throttle Control allows the operator to obtain the best speed of vibrator for the size of head and the type of concrete being worked. The unit can be used right hand or left hand as needed.
- Standard Quick Disconnect makes it simple to remove or attach the flexible drive without tools.
- Engine swivels 180° allowing the flexible drive to more easily push back behind the operator as it is pulled from the concrete. Motor remains "tight" so it does not move excessively as the operator changes positions.
- The Engine will operate in any position.

VIII. Troubleshooting

Call factory 1-800-551-3569