



4-Stroke Gasoline Post Driver

Owner's Manual



⚠ WARNING: Read carefully and understand all ASSEMBLY AND OPERATION INSTRUCTIONS before operating. Failure to follow the safety rules and other basic safety precautions may result in serious personal injury.

Item# **5849337**

Thank you very much for choosing a Powerhorse product!

For future reference, please complete the owner's record below:

Serial Number/Lot Date Code (if applicable): _____

Purchase Date: _____

Save the receipt, warranty, and this manual. It is important that you read the entire manual to become familiar with this product before you begin using it.

This product is designed for certain applications only. Northern Tool and Equipment is not responsible for issues arising from modification or improper use of this product such as an application for which it was not designed. We strongly recommend that this product not be modified and/or used for any application other than that for which it was designed.

For technical questions, please call **1-800-222-5381**.

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Introduction

Congratulations on your investment in quality. Thank you for purchasing an Powerhorse gasoline post driver. We have worked to ensure that machine meets the highest standards for usability and durability.

This gasoline post driver with 30-lb. Driving head is a powerful, portable, self-contained post driving solution with commercial capabilities. Powered by a 1.18 HP 4-stroke engine that delivers 2200 beats per minute. The post driver comes with 3 sleeve includes 1.8inch, 2.2inch and 3.5inch adapter. The engine meets current EPA emission. Assembled and serviced in the USA. Not available for sale in California.

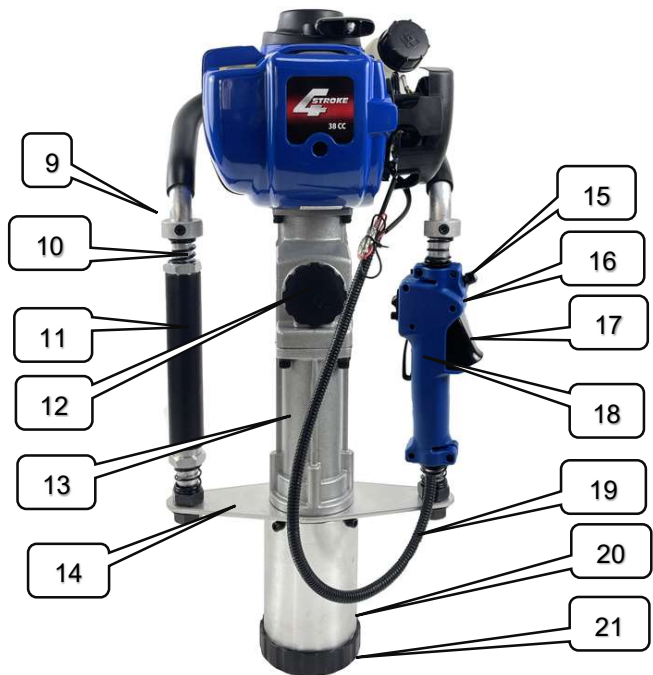
Read this entire manual before installation and use. Powerhorse reserves the right to change, alter or improve the product and this document at any time without prior notice

FEDERAL EMISSION INFORMATION

Powerhorse warrants to the retail purchaser, that this small, off-road engine was designed, built and equipped to conform at the time of manufacture to all applicable regulations of the U.S. Environmental Protection Agency (EPA) when applicable.

Feature

No.	Part Name	No.	Part Name	No.	Part Name
1	Oil Level Gauge	2	Handle	3	Starter
4	Gas Tank	5	Gas Cap	6	Choke Valve
7	Fuel Bubble	8	Air Filter	9	Positioning Sleeve
10	Dampening Spring	11	Handle Sleeve	12	Grease Cap
13	Hammer Case	14	Serial No. Location	15	Throttle Limit Screw
16	Combination Switch	17	Throttle Switch	18	Stop Switch
19	Throttle Cable	20	Piling Socket	21	Piling Socket Sleeve



Specifications

Property	Specification
Engine type	4-stroke, over herd valve, single cylinder forced air cooling
Fuel	unleaded gasoline or higher
Displacement	37.7cc
Max. Power and speed	1.0kw/6500r/min
Fuel tank capacity	0.17 us gal
Fuel consumption rate	0.15 US gal/hr
Impact Frequency	2100-2200 RPM
Starter system	Handle-pull start
Weight	27.7 lbs
Impact Energy	Up to 30 ft lbs

Safety Warnings

1. Always follow proper operation and maintenance instructions.
2. Always use approved Personal Protective Equipment (PPE). Operators and all other persons in the immediate working area must wear protective equipment as well. Noise emitted from the machine while working can reach above 100 decibels, which can also harm others in close proximity. We recommend the following personal protective equipment:
 - a. Class 4 (SLC80 = 22.4 dB) hearing protection or greater
 - b. Impact-resistant eye protection with side guards
 - c. Protective gloves
 - d. Protective boots
3. Always check fastening screws before use. If they are loose, tighten them.
4. Always check the spark plug before use. If it is exposed, it must be covered by a high-voltage cap. Check the flameout line and pipes for damage. If damaged, repair or change them before use.
5. Keep the handle clean and dry.
6. Do not add too much fuel. The fuel level should not exceed the neck of the fuel tank. If accidental overfilling occurs, pour fuel out until the fuel level is within the proper range within the fuel tank. There should not be any fuel on the surface of the machine. ALWAYS wipe your post driver clean after refueling. Only start the post driver after any excess fuel has evaporated completely.
7. After refueling, tighten the fuel lid. Be sure to check for fuel leaks or damage to the fuel tank. If damage is found, turn off the post driver immediately, and do not operate it until the damage is repaired.
8. Never use this post driver inside a building or unventilated area. The engine exhaust contains poisonous carbon monoxide gas that can build up to dangerous levels in closed areas. These fumes can cause unconsciousness or death.
9. Do not use the post driver in adverse weather conditions such as thunderstorms, heavy fog, or strong wind.
10. While operating the post driver, maintain good balance and operate the machine vertically. The operator should stand and operate this machine from the front.
11. Do not operate the post driver with one hand or turn the machine upside down horizontally. ALWAYS use two hands and correct posture when operating the driver.
12. When transporting the post driver, turn it off.

13. Never let your post driver run unattended, and keep unauthorized persons away from the operation area.
14. While operating the post driver, be sure the contact surface of the post is smooth and flat and the diameter of the post is within the limit of the post driver barrel (3.15”).
15. Avoid quick acceleration so you do not damage the machine.
16. During operation, be sure the muffler exhaust fumes are pointed away from others. The high- temperature exhaust gas can cause serious injury.
17. To avoid being burned, do not touch the muffler, engine cylinder, barrel, hammer case, gearbox, etc. after operation. These parts will be very hot and can cause serious injury.
18. Gasoline is highly flammable. Therefore, replenish fuel in a well-ventilated area. ALWAYS turn off the engine before refueling.
19. Store fuel in a proper area that is free from fire hazards.
20. Before transport, empty the fuel inside the fuel tank to avoid leakage.
21. Non-professional maintenance staff are prohibited from dismantling this post driver in order to avoid accidents, structural damage of parts, and /or shortened service life.

Preparations for use

Installing Inner Pile Head

If the inner pile head is not pressed on the shock at this time, you must slide the inner pile head inside the piling socket and match the small side with the shock. Tap the inner pile head a few times to make sure it is

connected to the shock. As you start using your machine, the inner pile head will press further on the shock and will not separate again without the use of tools.

Installing Piling Socket Sleeve

Before use, install the correct piling socket sleeve for your application as shown below:

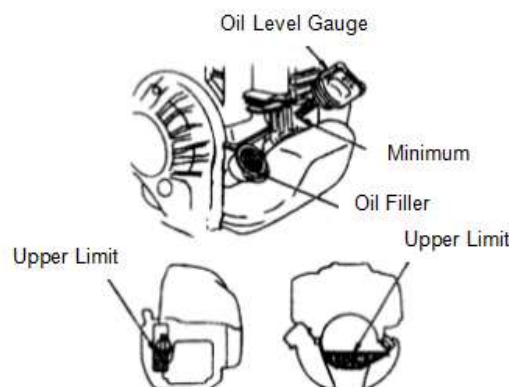


Adding Fuel

1. Always turn the engine off and allow adequate time for it to cool before refueling. Only use unleaded fuel with 86 octane or higher.
2. Never refuel your driver with the engine hot, running, or in an unventilated area. Fuel vapors are extremely flammable and can cause severe injury or death if ignited by a spark or excessive heat from a hot engine.
3. Do not add too much fuel. The fuel level should not exceed the neck of the filler fuel tank. If accidental overfilling occurs, pour fuel out until the fuel level is within the proper range within the fuel tank. There should not be any fuel on the surface of the machine. ALWAYS wipe your post driver clean after refueling. Only start the post driver after any excess fuel has evaporated completely.
4. After refueling, tighten the fuel tank lid.
5. This post driver uses pure gasoline as fuel. Do not use gasoline mixed with oil. This will result in poor starting performance and low function.

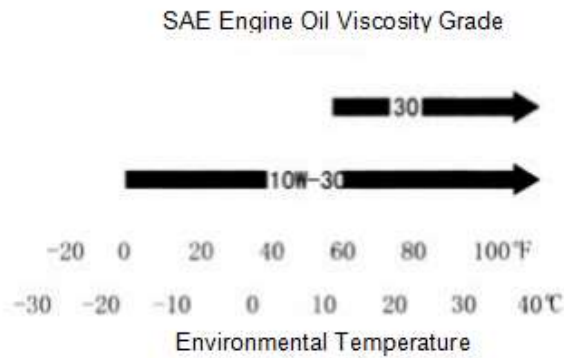
Adding Engine Oil

1. Before the first use, add engine oil. **THE OIL IS NOT FILLED WHEN THE POST DRIVER IS ASSEMBLED.** We suggests adding less than 60 to 80 ml , then checking. Add oil if required to fill to the bottom edge of the oil fill hole. **DO NOT OVERFILL.** Always place the driver in the horizontal position to check oil the level. Proper oil level is essential for the correct operation of the post driver. Overfilling the oil will result in loss of power and could cause permanent damage to your engine. Check the oil 2 hours after the first use, check the oil level every 8-10 hours.
2. To avoid damage to the engine, always check the engine oil before starting the driver. Be sure the engine oil level is adequate.
3. For every 10 hours of use, it is necessary to check the oil level.
4. To check the oil, place the driver horizontally. Unscrew the oil level gauge, and check the oil level as shown below. If the oil level is low, add oil. If the oil is dirty, change the oil.



The recommended environmental temperature range of the machine is 5° to 105° F. We recommend the use of SAE 10W-30 engine oil, which equals to API classification SJ.

See SAE Engine Oil Consistency Table below.



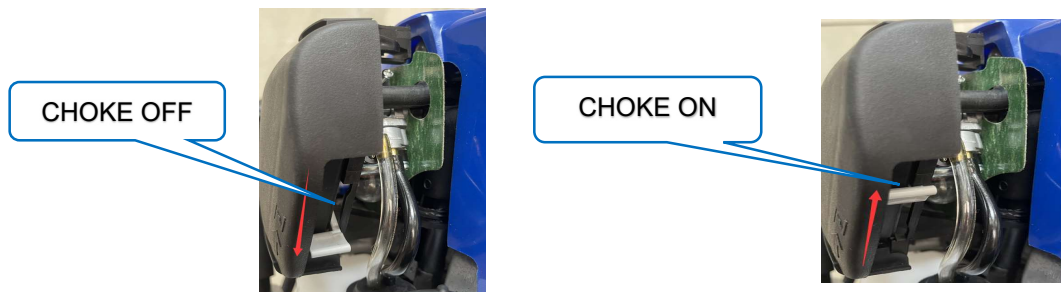
Checking the Air Filter

1. Remove the air filter cover, and check to see if the air filter is clean. If it is dirty, clean it.
2. After checking the air filter, reinstall the air filter cover.

Operation Instructions

Starting

1. BEFORE STARTING, the driver needs to be in the horizontal position for 5 minutes.
2. Before starting the post driver, press the transparent, semi-circle fuel bubble repeatedly until the carburetor is filled with fuel. If the engine is cool, place the choke lever to the "on" position.
3. Place one hand on the top engine cover with slight downward pressure. With your other hand, pull the starter rope about 20" quickly.
4. After the engine has started, place the choke lever completely to the "off" position. AFTER IDLING FOR 5 MINUTES, start normal work.
5. While the post driver is running, don't pull the starter rope. The high-speed rotating parts may damage the starter.



Operating

1. After the engine is started, ALLOW IT TO IDLE FOR 5 MINUTES BEFORE USE.
2. For a brand new driver, ONLY PERFORM LOW TO MEDIUM-SPEED WORK FOR THE FIRST 24 HOURS OF USE in order to break in the engine and prolong the life of the machine.
3. For a brand new driver, it may take 2 to 3 minutes of post driving for the machine to begin running at a normal performance level.
4. Do not operate the driver at a high speed when you are not driving posts.

Turning Off the Machine

1. Release the throttle trigger and ALLOW THE MACHINE TO IDLE FOR 3 TO 5 MINUTES. 2. Push the stop switch to the off position (see below).



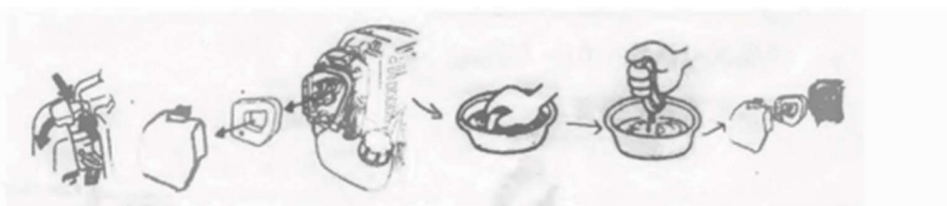
Service and Maintenance

Air Filter Maintenance

After the driver has been used for some time, dirt and dust particles can block the flow of air, which will result in reduced power and increased oil consumption. It is necessary to clean the air filter regularly. The cleaning cycle is usually every 3 months or every 25 hours of operation. When using the driver in extremely dusty environments, clean it every 10 hours or even every day.

Cleaning the Air Filter

1. Remove the air filter cover, and take out the air filter.
2. Put the air filter into water. Squeeze the water out of the filter and allow it to air dry.
3. Put it in clean oil and rub gently. Take it out and squeeze it dry.
4. After cleaning, assemble the air filter and the air filter cover.



Fuel Filter Maintenance

If the fuel filter is blocked, the post driver will have reduced speed and weaker impact energy.

1. Open the tank lid.
2. Remove the fuel filter from the fuel tank and clean it.
3. When cleaning the fuel filter, clean the fuel tank at the same time as shown below.



Carburetor Maintenance

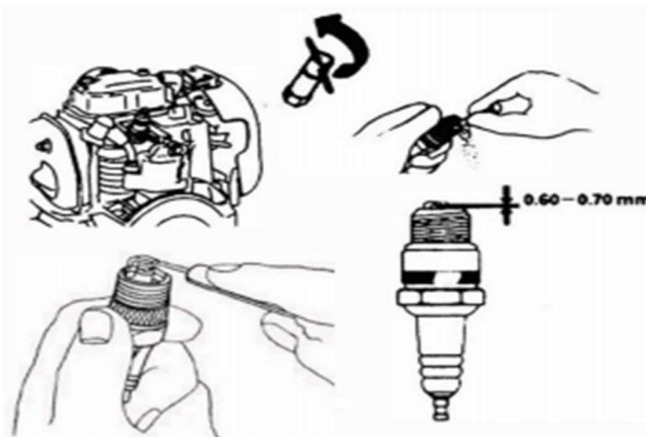
The fuel tank and the carburetor generally have residual fuel. Over time, the residual fuel can block up the fuel line causing the engine not to start. Therefore, when the machine is not used for more than one week, be sure to completely remove the fuel.

1. To drain fuel, remove the fuel inlet pipe and filter from the tank. Press the carburetor fuel bubble repeatedly until all fuel has been emptied from the lines and carburetor.
2. Empty out any fuel that has drained into the fuel tank, then place the fuel filter and line back inside the tank

Spark Plug Maintenance

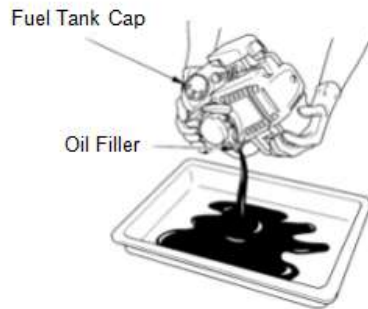
If the spark plug has too much carbon deposit, it will result in poor engine performance. It is necessary to regularly maintain and adjust the spark plug every year or every 100 hours of operation.

- 1: Remove the spark plug as shown
- 2: Remove carbon deposit.
- 3: Adjust to 0.6-0.7mm.
- 4: Replace the spark plug



Replacing Engine Oil

1. Dirty engine oil will result in reduced service life of moving engine parts. It is necessary to regularly replace engine oil and keep engine oil at proper levels.
2. Replace engine oil every 6 months or after 50 hours of operation.
3. Drain the oil when the engine is hot to guarantee that engine oil can be emptied quickly and completely.
4. Replacing engine oil:
 - a. Ensure that the cap of the fuel tank is screwed tight.
 - b. Place a proper container near the engine for storing waste engine oil.
 - c. Remove the engine oil gauge, lean the engine toward the engine oil filler, and discharge engine oil to the container as shown below.
 - d. Place the driver horizontally and add the recommended oil to the bottom edge of the oil filler. Adding the correct amount of engine oil.



The recommended environmental temperature range of the machine is 5° to 105° F. We recommend the use of SAE 10W-30 engine oil, which equals to API classification SJ.

Lubrication of Gearbox and Impact Parts

After 50 hours of use, open the gearbox cover, and add 75 Series Grease (no more than 50g) to the connecting rod to fully lubricate the machine as shown below. (The machine lay flat on the ground)



Maintenance Schedule

This schedule is based on operating the post driver under normal conditions. Under more strenuous conditions, such as a dusty environment or long work hours, the maintenance cycle should be adjusted accordingly.		Before Each Use	After Each Use or Every Day	After Filling Oil	Every Week	Every Month	If Temporary Failure	If Necessary
The Whole Machine	Outlook Check (state, tightness of screws)	√		√				
	Clean		√					
Control Handle/Stop Button	Function Check	√		√				
Air Filter	Clean				√			√
	Replace						√	
Fuel Filter	Check					√		
	Replace						√	
Fuel Tank/Fuel Tank Lid	Clean		√	√				
	Check	√		√				
	Tighten							√
Reduction Gearbox/Impact Cylinder	Clean					√		
	Add Grease							√
Muffler	Check					√		
	Remove Carbon Deposit							√
Cylinder Cooling Fin	Check					√		
	Clean							√
Spark Plug	Check/Adjust					√		
	Replace							√
Screw and Nut	Check	√		√				
	Tighten							√

Troubleshooting

Example 1: Difficulty starting the engine.

1. Make sure the choke lever is in the "on" position .
2. Remove the fuel in the tank, and replace it with fresh gasoline.
3. Press the fuel bubble 3-4 times.
4. Check to make sure the on/off switch is in the down position.
5. Check the fuel filter, the air filter and the spark plug .

Example 2: Difficulty starting after a sudden stop.

1. Check the fuel level.
2. Check to make sure the on/off switch is in the down position.
3. Check the fuel filter and spark plug.

Example 3: Engine lacks power.

1. Check the air filter and the spark plug .
2. Check the fuel lines and fuel filter .

Example 4: Post driver is not performing efficiently.

1. Be sure to hold 10-12 pounds of downward pressure while driving posts.
2. Try different throttle positions to find the best speed for your application.
Use the throttle limit screw to dial in the best throttle setting.
3. Check the driver impact grease level. 1-2 tablespoons max .
4. Check the condition of the O-rings.

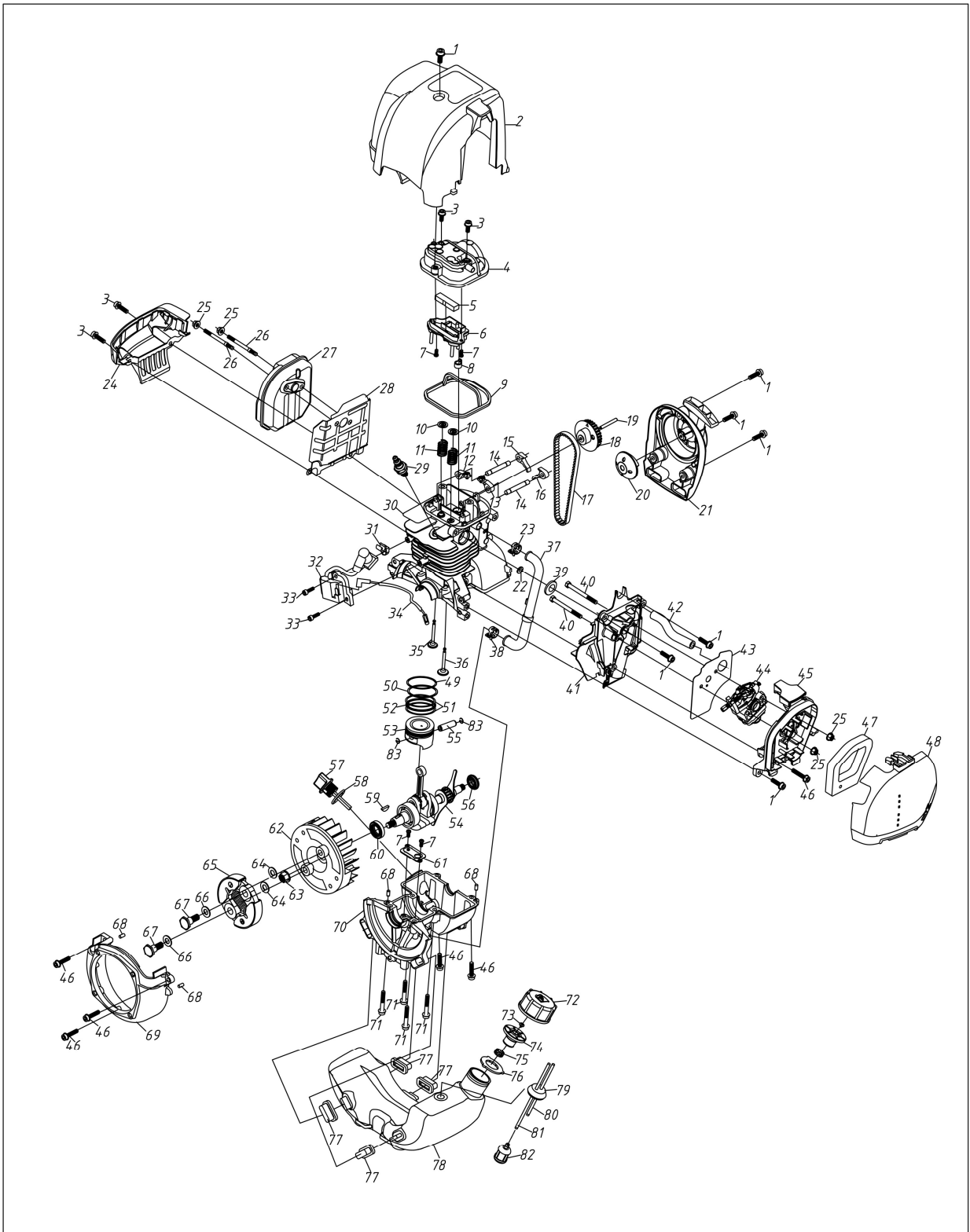
Example 5: The starter rope will not pull.

1. Make sure the driver has been in the horizontal position for at least 5 minutes.
2. Check the engine oil.
 - a. If low, add oil.
 - b. If too full, remove excess oil and follow the steps below.*If the driver was overfilled with oil, or engine was stored upside down for long periods of time, oil can seep into the combustion chamber and cause it to become hydrolocked. Follow the steps below to resolve this issue.
 - i. Remove the top cover from the engine.
 - ii. Remove the spark plug wire.
 - iii. Remove the spark plug.
 - iv. Place a small rag near the spark plug hole to catch any oil that may seep out.
 - v. Slowly pull the starter rope.
 - vi. Continue until all oil has been removed from the cylinder.

*WARNING: Oil may shoot from the spark plug hole as you pull the starter rope

Parts Breakdown

Quality engine parts explosion

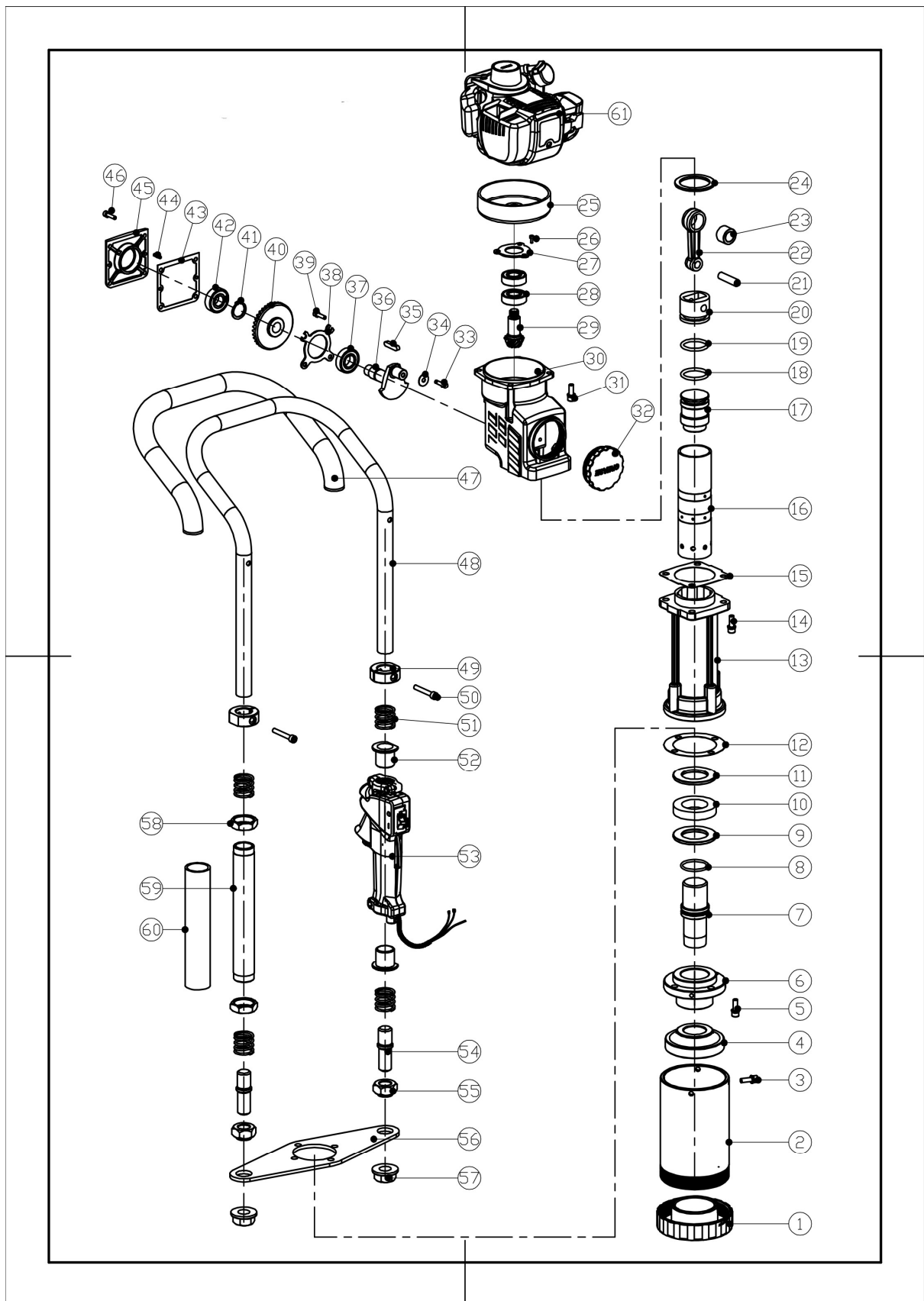


Quality engine parts list

Appendix. list of 140FA Gasoline Engine Parts

SER. NO.	PART NAME	QTY.	SER. NO.	PART NAME	QTY.	SER. NO.	PART NAME	QTY.
1	Screw M5×15	7	31	Fastener	1	61	Reed vavle	1
2	Cylinder cover	1	32	Ignition stator	1	62	Magneto rotor comp.	1
3	Screw M5×12	4	33	Screw M4X14	2	63	Nut M8	1
4	Cylinder valve cover	1	34	Stopping wire	1	64	Washer	2
5	Oil gas separator	1	35	Exhaust valve	1	65	Clutch	1
6	Inside cover	1	36	Inlet valve	1	66	Washer	2
7	Screw M4X8	4	37	Balancing pressure pipe	1	67	Screw pin	2
8	Rubber cushion	1	38	Holding-down clip	1	68	Pin B4X8	4
9	Rubber cushion	1	39	O-seal ring	1	69	Magneto cover	1
10	Valve spring seat	2	40	Screw M5×55	2	70	Crankcase	1
11	Valve spring	2	41	Admitting pipe	1	71	Screw M5×32	4
12	Exhaust valve rocker	1	42	Blast pipe	1	72	Fuel tank lid	1
13	Inlet valve rocker	1	43	Gasket	1	73	Air admission valve	1
14	Rocker pin	2	44	Carburetor	1	74	Inside cover	1
15	Exhaust rocker	1	45	Cleaner inside cover	1	75	Shell cover	1
16	Inlet rocker	1	46	Screw M5×22	6	76	Airproof gasket	1
17	Synchronous belt	1	47	Filter net	1	77	Rubber cushion	4
18	Cam wheel	1	48	Air filter cover	1	78	Fuel tank	1
19	Camshaft	1	49	NO1. piston ring	1	79	Plug	1
20	Start reel	1	50	NO2. piston ring	1	80	Fuel return pipe	1
21	Starter	1	51	Oil scraper ring	2	81	Fuel suction pipe	1
22	Admitting gasket	1	52	Liner ring	1	82	Filter	1
23	Holding-down clip	1	53	Piston	1	83	Ring	2
24	Muffler baffle-II	1	54	Crankshaft	1			
25	Nut M5	4	55	Piston pin	1			
26	Double-edged bolt	2	56	Oil seal	1			
27	Muffler	1	57	Oil scale	1			
28	Muffler baffle	1	58	O-seal ring 14×2.65	1			
29	Spark plug	1	59	Key 3X5X13	1			
30	Cylinder	1	60	Oil seal	1			

Gasoline Post driver explosion



Gasoline post driver part lists

No.	Name	Qty	No.	Name	Qty
1	Front cover	1	34	eccentric shaft plate (Φ25)	1
2	Front shroud	1	35	5X5X10 key	1
3	M6X16 hex. Socket screw	4	36	eccentric shaft	1
4	Hammer head	1	37	6003 bearing	1
5	M8X40 hex. Socket screw	4	38	Bearing plate	1
6	Iron head	1	39	M5X12 hex. Socket screw	4
7	Hammer lever	1	40	Gear	1
8	O ring Φ40XΦ3	1	41	Φ17 circlip	1
9	Damping gasket Φ61.6XΦ37X4	1	42	6202 bearing	1
10	Big damping gasket	1	43	Paper gasket	1
11	Gasket Φ61.6XΦ37X4	1	44	locating pin Φ4X8	1
12	Paper gasket	1	45	Upper cover	1
13	Cylinder case	1	46	M5X20 hex. Socket screw	4
14	M8X25 hex. Socket screw	4	47	flexible sleeve Φ22X600	1
15	Paper gasket	1	48	pipe handrail	1
16	Cylinder	1	49	Handrail lock block	4
17	hammer	1	50	M6X40 hex. Socket screw	2
18	Hammer ring Φ42.2XΦ34XΦ4.1	1	51	Spring	4
19	Piston ring Φ42.3XΦ33Φ4.65	1	52	Switch retaining sleeve	2
20	piston	1	53	Switch handle	1
21	Piston pin Φ10X40	1	54	Handrail connecting screw	2
22	Connecting rod	1	55	M18X1.5 nut	2
23	NK15/16 needle bearing	1	56	Armrest plate	1
24	Φ57XΦ43X3 ring	1	57	M18 nut	2
25	Passive disk	1	58	M29X1.5 nut	2
26	M5X12 hex. Socket screw	3	59	Handrail sleeve	1
27	3 hole pressure plate	1	60	flexible sleeve Φ30X185	1
29	bevel pinion	1	61	Engine	1
30	Gear box	1	37	6003 bearing	1
31	M6X25 hex. Socket screw	4	38	Bearing plate	1
32	Oil cap	1			
33	M6X18 hex. Socket screw	1			

Limited Warranty

Northern Tool and Equipment Company, Inc. ("We" or "Us") warrants to the original purchaser only ("You" or "Your") that the Powerhorse product purchased will be free from material defects in both materials and workmanship, normal wear and tear excepted, for a period of one year on the gasoline post driver and from date of purchase. The foregoing warranty is valid only if the installation and use of the product is strictly in accordance with product instructions. There are no other warranties, express or implied, including the warranty of merchantability or fitness for a particular purpose. If the product does not comply with this limited warranty, your sole and exclusive remedy is that We will, at our sole option and within a commercially reasonable time, either replace the product or product component without charge to You or refund the purchase price (less shipping). This limited warranty is not transferable.

Limitations on the Warranty

This limited warranty does not cover: (a) normal wear and tear; (b) damage through abuse, neglect, misuse, or as a result of any accident or in any other manner; (c) damage from misapplication, overloading, or improper installation; (d) improper maintenance and repair; and (e) product alteration in any manner by anyone other than Us, with the sole exception of alterations made pursuant to product instructions and in a workmanlike manner.

Obligations of Purchaser

You must retain Your product purchase receipt to verify date of purchase and that You are the original purchaser. To make a warranty claim, contact Us at 1-800-222-5381, identify the product by make and model number, and follow the claim instructions that will be provided. The product and the purchase receipt must be provided to Us in order to process Your warranty claim. Any returned product that is replaced or refunded by Us becomes our property. You will be responsible for return shipping costs or costs related to Your return visit to a retail store.

Remedy Limits

Product replacement or a refund of the purchase price is Your sole remedy under this limited warranty, or any other warranty related to the product. We shall not be liable for: service or labor charges or damage to Your property incurred in removing or replacing the product; any damages, including, without limitation, damages to tangible personal property or personal injury, related to Your improper use, installation, or maintenance of the product or product component; or any indirect, incidental or consequential damages of any kind for any reason.

Assumption of Risk

You acknowledge and agree that any use of the product for any purpose other than the specified use(s) stated in the product instructions is at Your own risk.

Governing Law

This limited warranty gives You specific legal rights, and You also may have other rights which vary from state to state. Some states do not allow limitations or exclusions on implied warranties or incidental or consequential damages, so the above limitations may not apply to You. This limited warranty is governed by the laws of the State of Minnesota, without regard to rules pertaining to conflicts of law. The state courts located in Dakota County; Minnesota shall have exclusive jurisdiction for any disputes relating to this warranty.

POWER@HORSE®

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