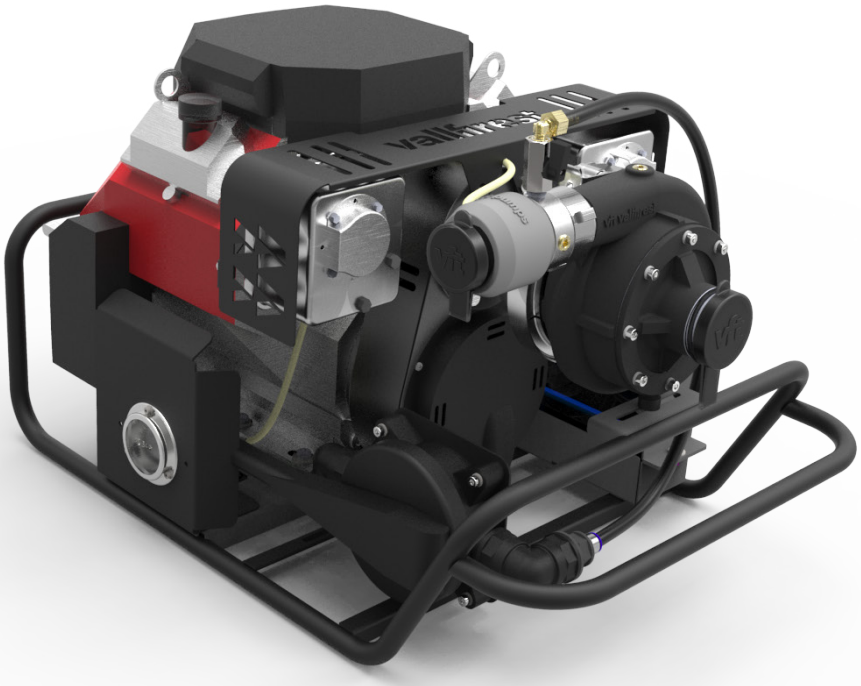
vallfirest
the wildfire company

User manual

Black Hawk
BH2-21 FIRE PUMP



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SAFETY SYMBOLS

This manual identifies potential hazards and includes safety messages identified by a safety warning symbol indicating a hazard that may cause serious injury or death if you don't follow the recommended precautions.
This manual uses two more words to highlight information:

IMPORTANT: special information worth full attention.
NOTE: highlighted general information.

1. INTRODUCTION

Read the manual before operating your BH2 motor pump to learn the necessary instructions for the use, servicing, and maintenance of the equipment. If you need technical assistance, parts, or additional information, please contact our customer service department.

customer.service@vallfirest.com | phone. (+34) 93 867 87 79.

This equipment is designed to operate under any external conditions of temperature, wind, and rain, but it must always be operated by qualified personnel with experience in wildland firefighting.

2. SAFETY INFORMATION

2.1. PRECAUTIONS

READ THE ENGINE MANUAL FIRST

Before continuing, read the manufacturer's manual for the engine. It has very important safety information you must read, understand and follow to protect yourself and the equipment from damages as well as specific information on how to adequately use and care for the engine.

NOTE The engine manual is included in the BH2 fire pump box along with this manual.

READ THIS MANUAL BEFORE OPERATING YOUR FIRE PUMP

Improper use of the VFT BH4-13 pump may cause serious injury and damage to the operator. All operators must be familiar with the device and its capabilities before trying to operate the equipment in an emergency situation.

2.2. WARNINGS

1. Always use protection for your eyes and ears as well as gloves to protect your hands when operating the fire pump.

2. Do not operate if you are mentally or physically fatigued.

3. Always inspect the hoses to prevent injury due to an explosion.

4. Use only pipes, hoses and accessories of the same or higher maximum pressure classification as the pump, as shown below, or in accordance with the maximum pressure for which the system was designed, whichever is lower.

5. Do not make any changes and/or modifications to the fire pump. Any modification of this kind not only voids the pump warranty but may make the unit hazardous for anyone operating the pump.

6. Do not operate the pump above the maximum nominal pressure.

7. Always operate the unit at a lower pressure than required for enhanced operator and equipment safety.

8. Slowly close the valves and use slow-close valves whenever possible to avoid any danger for other line operators.

9. Bleed all pressure from the system before doing any service work on the pump.

10. Never operate the pump in a closed or confined area. The exhaust fumes contain carbon monoxide which is toxic for humans. Avoid inhaling exhaust fumes.

11. Fill the fuel tank with care. Gas and diesel are inflammable and the fumes from the gas may explode. Refuel in a well-ventilated area with the engine off.

12. Stay alert and never touch any part of the exhaust system on the engine while the engine is running. Always wait long enough after stopping the unit to adequately cool the muffle and surrounding parts.

13. For safety reasons, do not pump corrosive or inflammable liquids such as gasoline or acids. Do not pump chemical solutions or caustic liquids such as used oil, wine or milk.

14. This fire pump is specifically intended for firefighting. A safety distance must be kept between the person operating the fire pump and everyone nearby. Do not use the fire pump for any purpose other than as specified in this manual.

15. Do not shoot water at any person with the fire pump as this could cause serious injury. It is not intended for recreation. It is only intended for professional use.

16. To operate the fire pump, make sure you have enough light either from the natural environment or artificial light outside the fire pump (minimum 5 Lux).

17. In the event of an accident, contact the official medica emergency service in your area.



2.3. PREVENTION EQUIPMENT DAMAGE

The following recommendations will help prevent damage to your equipment:

1. Rinse the pump with clean water if the pump has been used to pump salt water, dirty water with a high mineral content, water which contains residue or foam-injected water. Check to make sure all residue is removed before using the pump again.

2. Always vacuum water with a suction hose filter that prevents the entry of particles which can damage the pump.

3. Drain all the water from the pump, collectors and priming circuit. You can also pour a little anti-freeze into the pump and have it circulate through the pump and priming system.(see point 6.1.)

4. Set the engine heat up before using the unit at maximum performance. (see point 4.4.)

5. Always use lead-free gas at the octane recommended by the manufacturer. (see point 4.3.)

6. Pumps must not be operated without discharging water. Operate the pump so it does not overheat and cause damage to the inside.

7. Make sure to correctly fill the pump before starting it and avoid closing the water discharge when the pump is on.

8. Use replacement parts supplied by Vallfirest to avoid damage and/or loss of the warranty covering this product.

IMPORTANT ⚠
Always use aluminum thread protectors for pump impulsion and suction to prevent damage to the pump threads during hose connection and disconnection operations.

Do not operate the pump without water; prime the pump before starting the engine. Pumps must not be operated without water or without discharging water. Operate the pump so it does not overheat and cause damage to the seals or inside of the pump.

Check that the strainer foot valve does not touch the bottom of the water source and is not too close to the surface. This will prevent obstruction in the valve and air suction. Use a buoy to be sure of the hose suction depth.
Suctioning sand and other residue causes serious damages inside the pump. If a clean water source cannot be guaranteed, use an additional mesh filter for the strainer foot valve.

3. GENERAL DESCRIPTION

3.1. BH2-21 FIRE PUMP

The BH2 motor pump is part of the vft Black Hawk line of portable motor pumps. It combines a highly reliable HONDA GXH630 21HP OHV engine with the vft Speed Increaser and the VFT_2SP Pump, delivering excellent performance at medium pressures and high flow rates. This combination is capable of supporting long hose lays both in series and in parallel without loss of performance.

This Honda engine comes equipped with an easy-access air filter, a low oil level sensor, and a battery-powered electric start system.

It features a quick coupling system for the VFT_2SP pump, allowing for rapid replacement in case of failure.
It is compatible with other Vallfirest motor pumps and interchangeable with the VFT_3SP and VFT_4SP pumps (3- and 4-stage), enabling better spare parts inventory management.



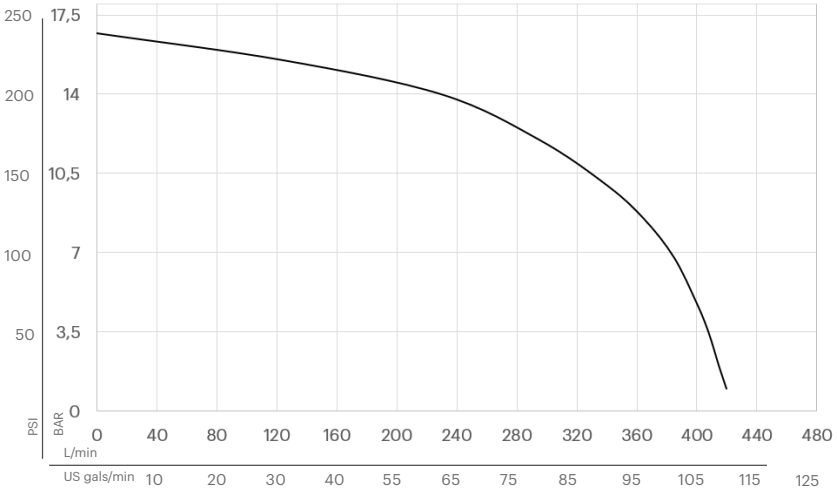
Noise Level: 100db

3.1. SPECIFICATIONS AND PERFORMANCE

BH2-21 General Specifications

Engine	Honda GXH630
Centrífugal Pump	VFT-2 stage
Weight	81kg (dry)
Dimensions	Length: 78 cm. I Width: 50 cm. I Height: 50





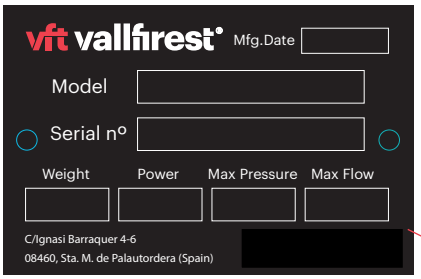
BH2-21 Performance Data

Maximum Flow Rate	432 l/min
Maximum Pressure	16.8 bar
Maximum Water Head (meters)	171 mH20

* Performance data are subject to change without prior notice.

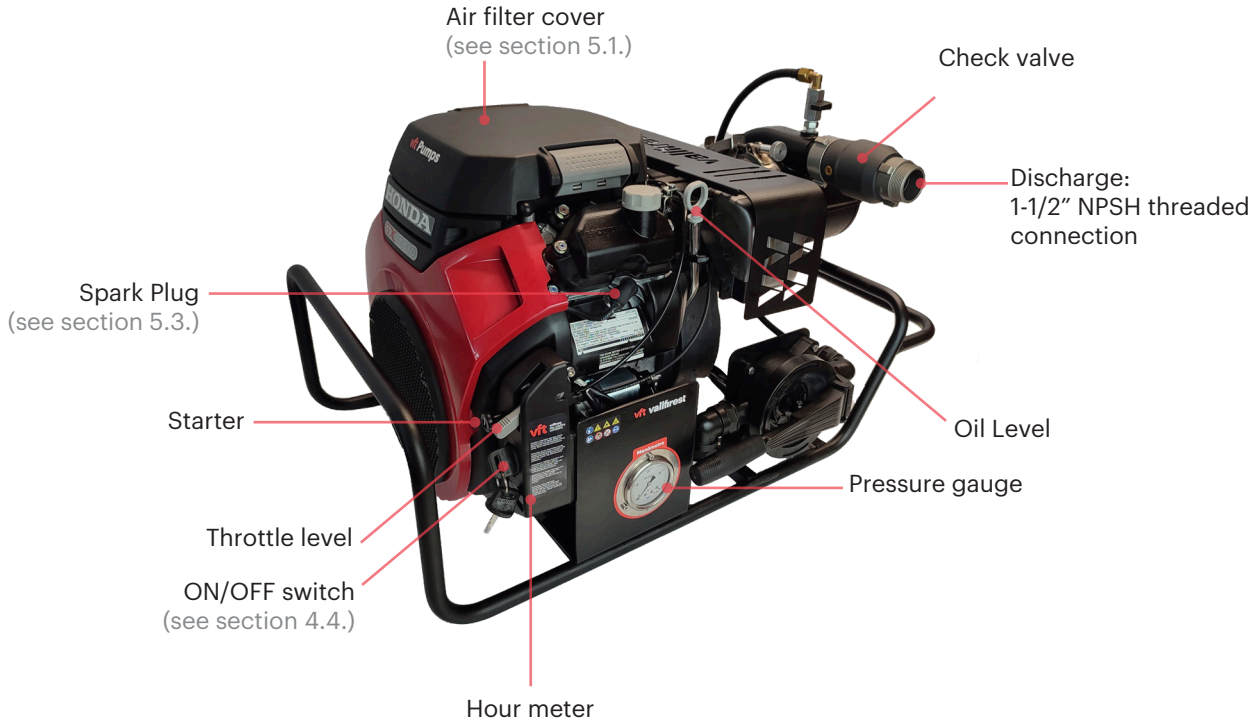
3.3. SERIAL NUMBER

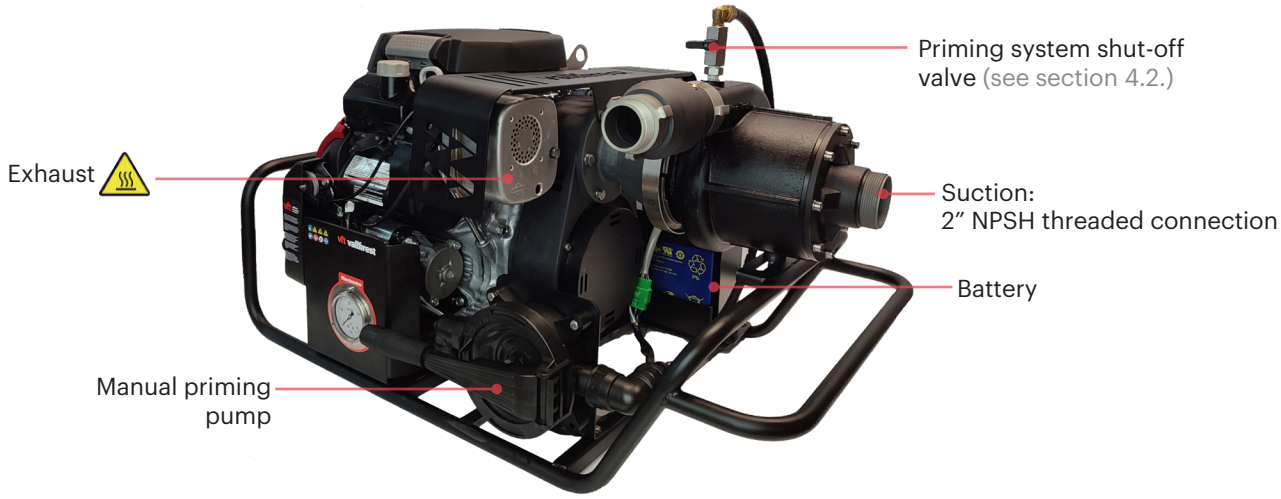
If you need technical assistance, parts, or additional information, please contact VALLFIREST Customer Service (customer.service@vallfirest.com // tel. +34 938 678 779), and have your product model and serial number ready.
The following image shows the location of the model and serial number on the product.





3.4. COMPONENT IDENTIFICATION





4. OPERATING INSTRUCTIONS

4.1. INITIAL CHECKS

Before using the motor pump, follow this verification procedure:

1. When you receive and unpack your BH2 motor pump, visually inspect the product and check for any damage. Contact your Vallfirest representative or Customer Service if you find any defects: customer.service@vallfirest.com | tel. (+34) 93 867 87 79.

2. Before first use, you must prepare the engine, which is shipped dry (without oil and fuel). For each subsequent use, you must check the following levels and top them up if necessary before operating:

- Engine fuel level.
- Engine oil level.

⚠ **IMPORTANT:** Check the oil level before starting the engine. Refer to the engine manual for the type of oil and filling instructions.

3. Check that all suction and discharge hoses are in good condition and free of leaks.

4. Inspect all safety features and ensure they are in good condition before using the pump. (see section 2.).

5. Each time you plan to use the motor pump, verify that no damage occurred during the previous use. Remember that damaged equipment can expose you to safety risks



NOTA: The engine manual is included in the packaging box of your BH2 motor pump, along with this manual.

4.2. PRIMING AND WATER SUCTION

⚠ **IMPORTANT**: DO NOT OPERATE THE PUMP WITHOUT WATER. ENSURE THE PUMP IS PRIMED BEFORE STARTING THE ENGINE.

1. Connect the foot valve with filter to the suction hose.

2. Fill the suction hose with water.

3. Ensure that the foot valve does not touch the bottom of the water source and is not too close to the surface. This will prevent valve obstruction and air suction.

4. Attach the suction hose to the pump and check that it is properly secured.

5. Open the priming system shut-off valve and pump until water flows out of the priming outlet.

6. Close the shut-off valve.

7. Connect the discharge hose.

IMPORTANT ⚠
Suction of sand and other debris can cause serious damage to the inside of the pump. If you cannot ensure a clean water source, use an additional mesh filter on the foot valve.

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4.3. FUEL FILLING

1. The fuel tank is external to the motor pump. (see section 4.6.1).

Use 86-octane gasoline or higher.
No oil mixture is required in the fuel tank.

3. When filling the fuel tank, make sure the engine is turned off.

4. If fuel is spilled, clean the entire unit, especially the spill area, and start the engine (dry and clean) away from the spill zone.

5. Use a funnel with a screen when filling to keep dirt out of the tank.

⚠ IMPORTANT
Gasoline is extremely flammable and explosive.
Perform these operations in a well-ventilated area with the engine turned off.
Do not smoke or create flames or sparks near the area where gasoline is stored or where refueling is taking place.

4.4. START-UP

4.4.1. Cold Start

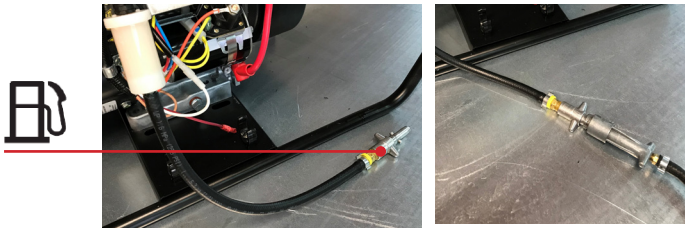
Refer to the FUEL FILLING instructions mentioned above. (See section 4.3.)

1. Connect the discharge hose to the pump.

2. Connect the suction hose.

3. Prime the pump (See Section 4.2.)

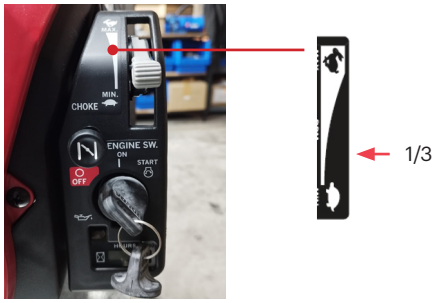
4. Connect the external fuel tank using the motor pump's quick connector.



5. Set the starter switch to the 'open' position.



6. Set the throttle lever to 1/3 of its travel.



7. Set the ignition switch to the 'ON' position.



8. Turn the start button to start the engine.



9. Once the engine has started, set the starter switch to the 'closed' position.



10. Allow the engine to warm up for a few minutes before increasing the speed.

⚠ IMPORTANT: Refer to the Honda engine manual for more information on start-up procedures.

4.4.2. Hot engine start

Follow the cold start instructions while keeping the starter in the closed position.

4.4.3. Other starting conditions

Refer to the Honda engine manual for more details on the start-up procedure. You can also refer to the troubleshooting section of the engine manual included in the motor pump packaging box.

4.5. ENGINE SHUTDOWN

1. Move the throttle to the idle position (lowest speed).

2. Maintain this speed for at least 1 minute to allow the engine to cool down.

3. Turn off the ignition by setting the ignition switch to "OFF."

4. Disconnect the quick connector from the fuel line.

5. After removing the suction hose and the discharge hose, drain the pump.

4.6. ENGINE PERFORMANCE AND SERVICE LIFE

Although this pumping unit is capable of delivering high performance for extended periods when required, it is recommended to operate it at reduced speed whenever possible, as this will extend the engine's service life.
For maximum engine longevity, operate the throttle between 25% and 75% of its travel.
The fuel consumption of your BH2-21 motor pump is 6.0 L/h.
Operating hours:

⚠ **IMPORTANT**: Combustion engines may experience a loss of performance when operating at very high altitudes. Consult the manufacturer for more information if needed.

- 12L tank: 2 hours (75% performance).
- 25L tank: 4 hours (75% performance).

NOTE: The operating hours are indicative; consumption may vary depending on external conditions.

Always use tanks certified under ISO 13591, as well as certified fuel lines.



4.7. CARBURETOR ADJUSTMENT

Refer to the engine manual for carburetor adjustments.

4.8. OPERATING CONDITIONS WITHOUT WATER DISCHARGE

Operating the pump without water discharge for extended periods (e.g., by choking the hose during nozzle changes or closing valves to add hoses) will cause overheating and potential pump damage. Turn off the pump engine during operations without water discharge for extended periods. Completely shut down the engine in case of cavitation or loss of priming.

Closing the valves or choking the hoses will generate high pressure in the system and increase the engine revolutions. Always move the throttle to the minimum position (slow) whenever possible for operations without water discharge.

⚠ **IMPORTANT**: DO NOT OPERATE THE PUMP WITHOUT WATER. ENSURE THE PUMP IS PRIMED BEFORE STARTING THE ENGINE.

4.9. OPERATING IN COLD WEATHER

The pump can operate in sub-zero temperatures if certain precautions are taken to prevent ice formation in the pump

1. After priming the pump, the unit should run at low speed for a short period to allow all components to warm up before continuing with the rest of the operations.

2. Unless you have a heater, drain the pump of all water if it is stopped for an extended period of time.
Disassemble the pump, tilt it, and manually rotate the shaft to ensure all water is drained from the inside.

3. You can pour some antifreeze and circulate it through the pump and priming system.

5. MAINTENANCE

5.1. AIR FILTER CLEANING

Under normal operating conditions, the air filter should be cleaned daily. However, under extremely dirty conditions, more frequent cleaning is recommended.
To clean the air filter: Release the latches on the cover and remove the nut that presses the air filter. Remove the foam filter. Clean it with a brush and then wash it with mineral alcohol until it appears clean. Squeeze to remove any remaining liquid. Reinstall it.

IMPORTANT ⚠
Dirt entering the engine through the carburetor is one of the main causes of engine wear; it is very important that the air filter is checked regularly.





5.2. ENGINE COOLING

This engine is air-cooled.
Keep the engine air intake grille free of dirt. Ensure that it is protected from being blocked by grass, leaves, branches, etc.



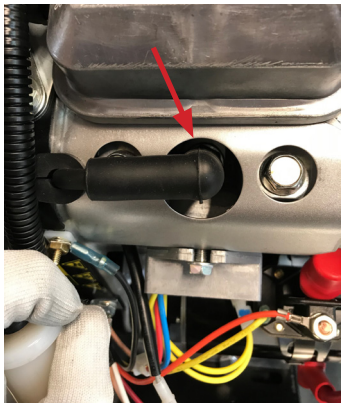
5.3. SPARK PLUG

Replace the spark plugs every 100 hours of operation or annually. A dirty, carbonized, or misadjusted spark plug will make starting difficult and impair engine performance.

NOTE: Refer to the Honda engine manual for spark plug replacements and other components.

NOTE: The engine manual is included in the packaging box of your BH2 motor pump, along with this manual.

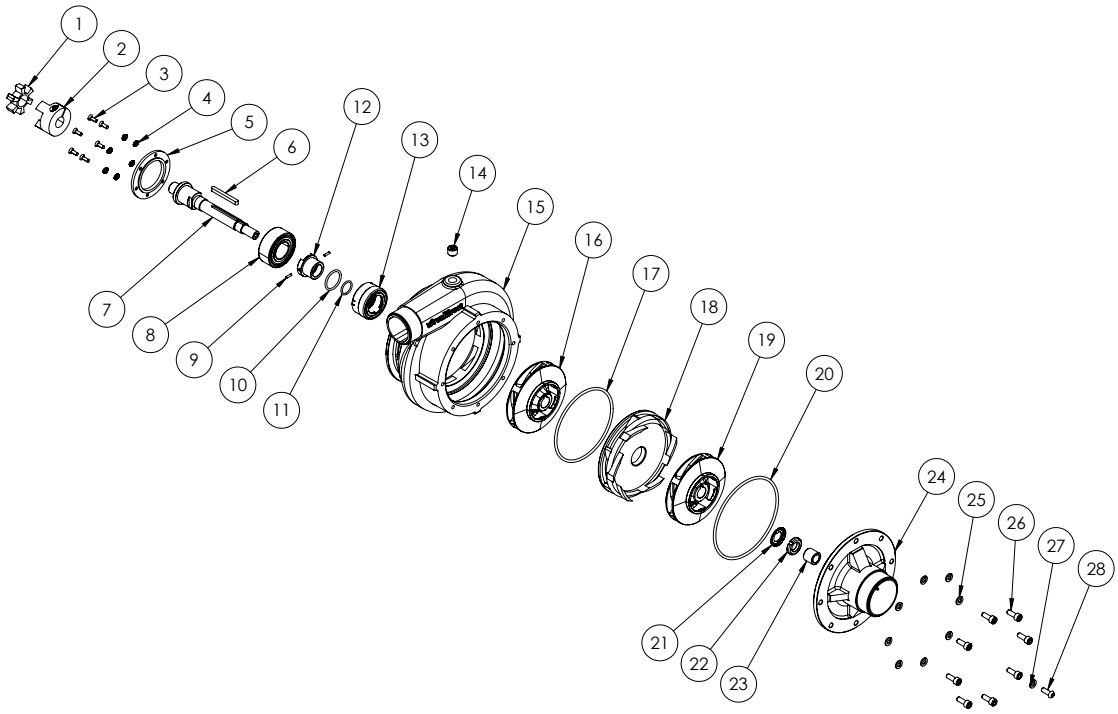
Original replacement reference: ZFR5F (NGK)
FR2A (NGK)



⚠ **IMPORTANT:** Refer to the Honda engine manual for more information on maintenance services.

5.4. INSTRUCTIONS FOR DISASSEMBLING THE PUMP

NOTA: Refer to section 8.2 for the reference of each component when ordering replacements.
Refer to section 5.5 for the special tools described in each operation.



⚠ **IMPORTANT:** Pump maintenance operations should only be performed by specialized personnel.

1. Remove the 6 screws (3) and take off the bearing cover (5).

2. Remove the screw (28) from the suction end of the shaft (7).

3. Remove the 8 screws (26) from the suction cover (24) and pull it out horizontally.

4. Using a small screwdriver (or puller), remove the tab of the safety washer (21) from the shaft nut (22).

5. Remove the shaft nut (22) (use the “nut tool” accessory) and remove the safety washer (21).

6. Remove the first turbine (19).

7. Press the shaft (7) through the pump:

a. Support the pump (use the "Pump body support" accessory).

b. Protect the small end of the shaft (use the "Shaft protector" accessory).

c. Press the shaft completely through (use the "Shaft disassembly tool" accessory).

The bearing (8) and the transmission bushing (12) should come out assembled with the shaft.

8. The internal components (16 and 18) can now be pressed from the opposite end:

Invert the pump (use the 'Pump body support' accessory).

Keep in mind that the internal parts must be guided during this operation (use the 'Impeller and distributor disassembly tool' accessory).

It is preferable to use a manual press, as it allows you to feel how the components pass through the inner contour of the pump body.

9. Remove the seal (13) by inverting the pump (use the 'Pump body support' accessory).

⚠ **IMPORTANT:** Failure to follow this procedure correctly may result in damage to the internal components of the pump.

Pressing from the inside of the pump body (use the 'Mechanical seal assembly tool' accessory).

NOTE 1: If the seal is to be reused, cushion it when it comes out of the body, as dropping it onto a hard surface may cause damage.

NOTE 2: When ordering spare parts, please specify the model and serial number. (See section 3.3.).

5.5. INSTRUCTIONS FOR ASSEMBLING THE PUMP

MAINTENANCE TOOL KIT

DVD3115-P010A - KM Nut Tool (1)



DVD3115-P020A - Shaft Protector (2)



DVD3115-P030A - Mechanical Seal Assembly Tool (3)



DVD3115-P040A - Impeller and Distributor Disassembly Tool (4)



DVD3115-P050A - Shaft Mounting Base (5)



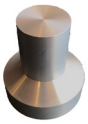
DVD3115-P060A - Pump Body Support (6)



DVD3115-P070A - Shaft Disassembly Tool (7)



DVD3115-P080A - Distributor Assembly Tool (8)



DVD3115-P100A - Seal Disassembly Tool (9)



DVD3115-P110A - Bearing Assembly Tool (10)



⚠ **IMPORTANT:** Check that there are no traces of sand or other debris on any part, as this could cause serious damage to the pump. Inspect all components for wear, damage, or corrosion and replace them as needed. Always use new O-rings.

1. Place the pump body (15) on a flat surface (use the 'Shaft Mounting Base' accessory) to protect the body from damage, then press the mechanical seal (13) into the body housing with the help of the press (use the 'Mechanical Seal Assembly Tool' accessory).

2a. Place the bearing (8) in position on the shaft (7) using the press (use the 'Bearing Assembly Tool' accessory).
2b. Install the transmission bushing (12) on the shaft with its O-rings (10 and 11). The faces of the transmission bushing must touch the inner track of the bearing and align with the flat faces of the shaft.

3. Press the shaft subassembly, fitting the bearing (8) into its housing in the pump body. Ensure the pins (9) of the transmission bushing fit into the grooves of the seal (use the 'Shaft Mounting Base' accessory). Install the bearing cover (5) with the 6 retaining screws and their washers (3 and 4).

4. Invert the pump and place the first impeller (16) on the shaft, ensuring it fits into the grooves of the transmission bushing.

5. Use grease to place the O-ring (17) in its groove in the distributor (18) and carefully install it over the impeller.

6. Place the second impeller (19) on the shaft, ensuring it couples with the previously installed impeller.

7. Place the safety washer (21) by hooking the tab into the groove of the shaft thread.

8. Place the locking nut (22) on the shaft and tighten it firmly until the slot in the nut aligns with one of the tabs on the safety washer (use the 'Nut Tool' accessory). Push the tab into the groove of the nut to secure it in place.

9. Install the O-ring (20) in the pump cover (24). Using the press, press the suction cover until it makes contact with the last distributor. A small gap between the pump body and the cover is normal.

10. Install the 8 safety washers and screws (25 and 26), and tighten them evenly by hand.

11. Install the screw (28) into the shaft thread (torque value 12 Nm).

12. Tighten the 8 screws on the cover (torque value 16 Nm).

13. Place the transmission coupling (2) on the opposite end of the pump shaft and tighten its screw (torque value 8 Nm).

6. STORAGE OF THE MOTOR PUMP

The following steps must be followed to prepare the motor pump for storage:

1. Disassemble and rinse the pump with clean water. Ensure that all debris is removed and drain all water from inside. Manually rotate the shaft to help expel the water.

2. Disconnect the fuel line.

3. Start the engine and let it run until it stops, just to allow all the fuel in the carburetor to be consumed and prevent the formation of deposits due to fuel evaporation.

4. Remove the spark plug and pour approximately 1/4 cup of engine oil into the cylinder. Replace the spark plug.

5. Pull the engine starter cord a couple of times to distribute the oil throughout the cylinder. This will coat the entire cylinder wall with oil and prevent the formation of oxides during the storage period."

⚠ **IMPORTANT:** Refer to the Honda engine manual for more information on its storage and maintenance.



6.1. WINTER STORAGE

1. Ensure that all ends, nozzles, and hoses of the pump are properly drained.

2. Disassemble the pump from the engine and rotate it in all directions to remove any water from the inside. Manually rotate the shaft to help expel the water.

3. Add one cup (1/4 liter) of antifreeze through the pump's discharge

4. Disconnect the fuel line. Start the engine until there is no fuel left in the carburetor.

5. Store the hoses in a dry place, free from rodents.

NOTE: The pump should be protected against freezing (see warranty).

7. TROUBLESHOOTING

CAUSE	RECOMMENDATION
ENGINE START FAILURE	
Choke key in “OFF”	Place in the “ON/RUN” position.
No fuel in the tank	Fill the fuel tank (see point 4.3.).
Closed fuel stopcock	Open the stopcock (see point 4.4.).
Obstructed fuel tank	Empty the tank, check and clean the built-in filter at the bottom.
Flooded engine	Turn the ignition key and try to start the engine until you hear the first explosions, then turn the key to stop (see point 4.4.).
Worn or dirty spark plug	Install the spark plug (see point 5.3.).
Broken spark plug (broken or cracked porcelain, broken electrodes).	Install the spark plug (see point 5.3.).
Wire from the magneto in poor conditions or disconnected from the spark plug	Replace the wire or connect it to the spark plug.
A lack of oil in the engine	Check the oil level. Check the engine manual.
Inoperative magneto (no spark)	Contact the manufacturer or nearest authorized representative.
ENGINE DIFFICULT TO START	
Water in the fuel	Drain the fuel and replace (see point 4.3.).
Weak spark in the spark plug	Contact the manufacturer or nearest authorized representative.
Flooded engine	If flooded after several attempts to start, follow the instructions indicated in the previous section (see point 4.4.).
THE ENGINE LOSES POWER	
Obstructed air filter	Clean the air filter (see point 5.1.).
Obstructed muffler	Clean all carbon from the muffler. Check the engine manual.
Poor compression	Contact the manufacturer or nearest authorized representative.
Obstructed fuel tank	Empty the tank, check and clean the built-in filter at the bottom.
THE ENGINE IS OVER-HEATING	
A lack of oil in the engine	Check the oil level. Check the engine manual.
Obstructed air flow	Clean the air inlet protective screen.
Obstructed or blocked pump	Remove the pump and make sure the shaft properly rotates manually.
Damaged cylinder or engine piston	Contact the nearest authorized representative.

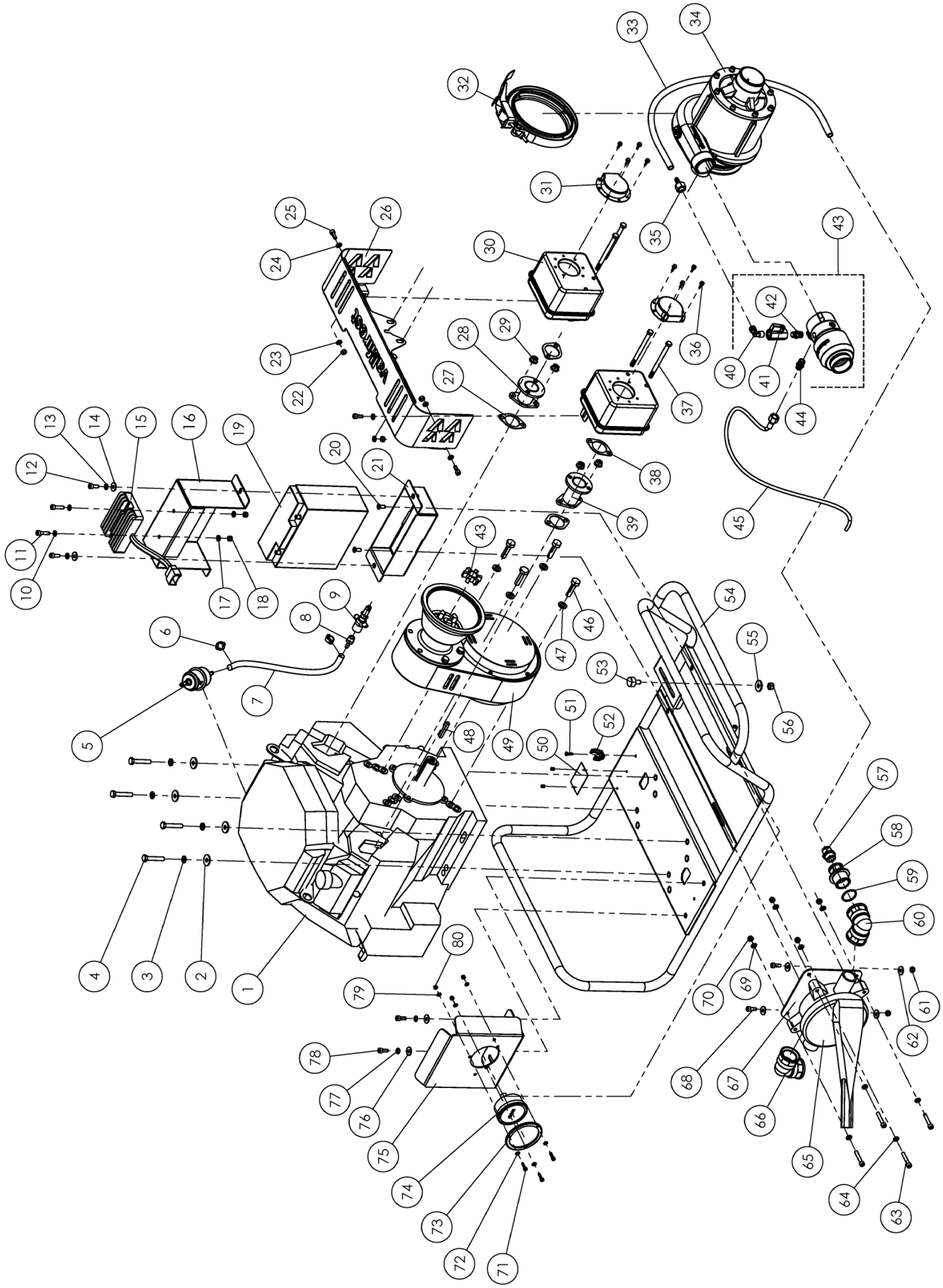
CAUSE	RECOMMENDATION
FAILURE IN THE PRESSURE GAUGE	
Obstructed pressure gauge line	Disassemble the pump duct from the pressure gauge and clean the circuit of any residue.
FAILURE IN THE PRIMING SYSTEM	
Anti-return valve to drive the obstructed pump	Disassemble and check the valve and proper spring operation. Check for leakage.
Leaks in the duct and connections for the priming system	Check the duct and conditions of the connections. Replace the Teflon on the threads.
Leakage in the system	Try to find the part with the problem by isolating each component in the system. Visually check whether there is any leaking in the suction hose. Check whether the aspiration suction hose is in good condition. Check whether the suction outlet/inlet is properly connected to the pump. Check if all valves are closed. Check the pump inlet/outlet thread connections.
PUMP PERFORMANCE PROBLEMS	
Obstruction	Make sure the hoses and valves are not obstructed by any residue. Remove any obstructions.
Pump power problems	Visually check the engine and make sure everything is in good conditions. Check the engine manual that came with the fire pump. Check the fire pump transmission coupling conditions. Replace the bearing or complete transmission coupling.
Air trapped in the suction line	Make sure NO part of the suction hose is higher than the pump inlet if the water source is lower than the pump.
Water restrictions in the pump inlet	Check the suction strainer foot valve. If full of dirt, clean. Make sure the water inlet is not blocked by residue. If the suction hose is not made by Vallfirest, make sure the diameter is not too restrictive for the water pump requirements.
Breakage or friction due to pump wear	Replace the pump. Repair the pump, replacing the damaged components (see point 5.4 and 5.5.).
PUMP CAVITATION	
Too much difference in height between the pump and water source	If the suction hose is not made by Vallfirest, check the inside diameter. Move the fire pump closer to the external water source.
Water temperature	Make sure the temperature of the water source is no lower than 35ºC.
Restrictions and obstructions	Check the depth of the water source. The filter must not be in contact with the bottom of the water source. Correct if necessary.

⚠**IMPORTANT:** Some operations indicated in this section must be done only by specialist personnel.

8. EXPLODED VIEW AND PARTS LIST

8.1. GENERAL EXPLODED VIEW

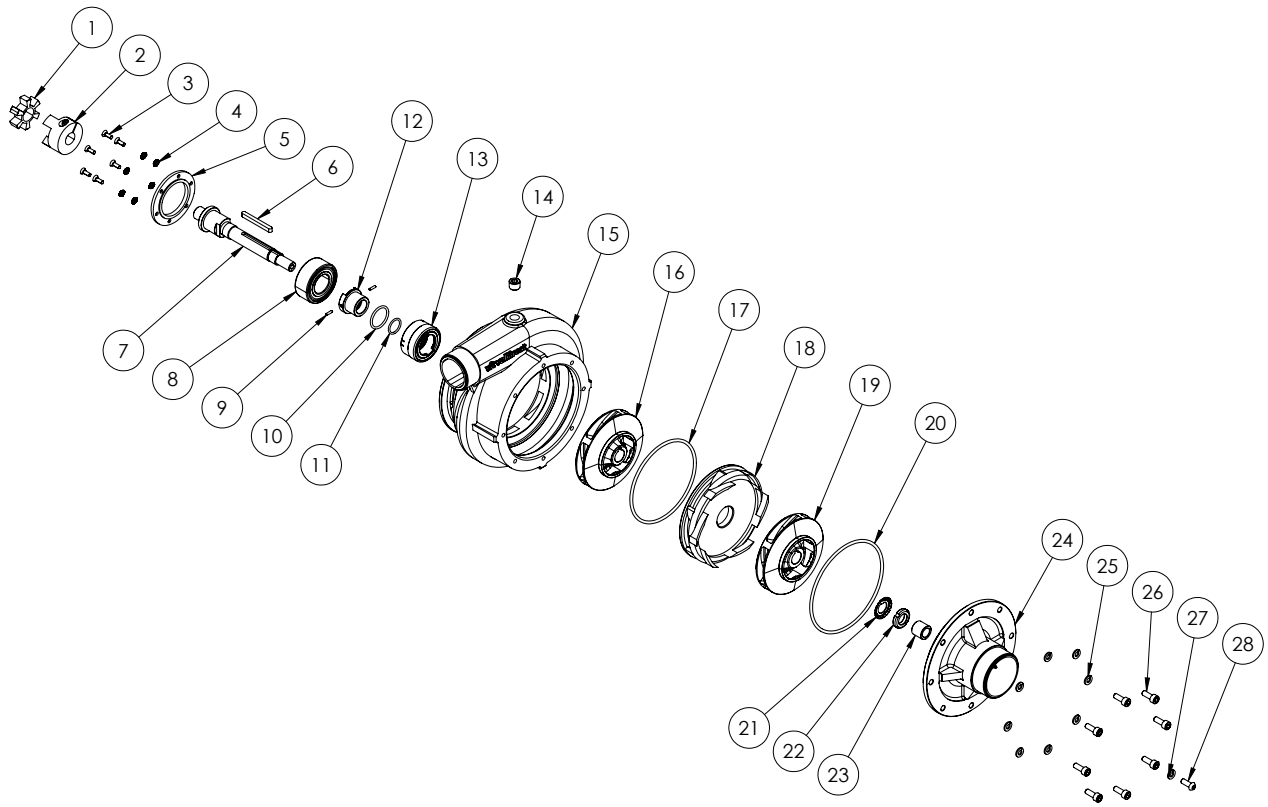
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Nº	REFERENCE	DESCRIPTION	QUANTITY
1	ZEZ2001-00005	Honda GX630 engine	1
2	ZEZ0205-00008	Flat washer DIN9021 (A2) - M8	4
3	ZEZ0209-00005	Grower washer DIN127-B (A2) - M8	4
4	ZEZ0201-00123	Hexagonal bolt DIN933 (A2) - M8x45	4
5	ZEZXXXX-XXXXX	Honda GX630 fuel filter	1
6	ZEZ0801-00001	Two-ear clamp DIN 2393C 13_15	2
7	DED6002-00002	Fuel line hose 1/4" (BH4-21)	1
8	DED6002-00008	Male fitting 1/4" BSPT - 1/4" Hose	1
9	DED6002-00005	Mercury male connector fuel line	1
10	ZEZ0204-00007	Flat washer DIN125 (A2) - M6	2
11	ZEZ0202-00105	Allen screw DIN 912 (A2) - M6x25	2
12	ZEZ0202-00103	Allen screw DIN 912 (A2) - M6x16	2
13	ZEZ0209-00004	Grower washer DIN127-B (A2) - M6	2
14	ZEZ0205-00007	Flat washer DIN9021 (A2) - M6	2
15	ZEZXXXX-XXXXX	Honda GX630 Voltage Regulator	1
16	DVD3440-P030A	BH4 Battery Protection	1
17	ZEZ0204-00007	Flat washer DIN125 (A2) - M6	2
18	ZEZ0207-00005	Hexagonal Locknut DIN985 (A2) - M6	2
19	ZEZ2301-00003	12V Honda GX630 Battery	1
20	ZEZ0203-00054	Countersunk Allen screw DIN7991 (A2) - M6x16	2
21	DVD3440-P040A	BH4 Battery Holder	1
22	ZEZ0206-00007	Hexagonal Nut DIN934 (A2) - M6	3
23	ZEZ0209-00004	Grower Washer DIN127-B (A2) - M6	3
24	ZEZ0204-00007	Flat Washer DIN125 (A2) - M6	3
25	ZEZ0202-00103	Allen Bolt DIN 912 (A2) - M6x16	3
26	DVD3443-P030A	Exhaust Protector BH4-23	1
27	ZEZXXXX-XXXXX	Honda GX630 Engine Exhaust Gasket	2
28	DVD3445-P020A	Left Collector BH4-21	1
29	ZEZXXXX-XXXXX	Hexagonal Flanged Nut M8 DIN6923 (A2) - Honda GX630	2
30	ZEZ2003-00104	Vanguard Single Exhaust	2
31	ZEZ2003-00105	Vanguard Single Exhaust Deflector	2
32	ZEZ3306-00003	VFT Pumps Clamp	1
33	ZEZ1202-00002	Push-Lok Hose BLK (BH4-21)	1
34	DVD3020-AAA0A	VFT 2-stage pump VFT_2SP	1
35	ZEZ1202-00004	T10 Terminal 1/4" Hose	1
36	ZEZ0109-00001	Hexagonal Self-Tapping Screw DIN7504K (ZINC) 4.2x13	8
37	ZEZ2003-00108	5/16 UNC Bolt Vanguard Single Exhaust	4
38	ZEZ2003-00107	Vanguard Single Exhaust Gasket	2
39	DVD3445-P010A	Right Collector BH4-21	1
40	ZEZ1202-00006	1/4" BSPT Elbow Fitting x Tube 10	1
41	ZEZ1202-00008	H-H Valve 1/4" BSP - Check Valve VFT Pumps	1
42	ZEZ2505-00032	M-M Coupling 1/4" BSPT x 1/4" BSP	1
43	DVD3113-00001	Check Valve	1
44	ZEZ2505-00032	M-M Coupling 1/4 BSPT x 1/4 BSP	1
45	DVD3445-P030A	Minimes tube assembly pressure gauge connection	1
46	ZEZ3309-00005	Hexagonal bolt 3/8-16 UNC .748	4
47	ZEZ0209-00006	Grower washer DIN127-B (A2) - M10	4
48	ZEZXXXX-XXXXX	Key 6.3x6.3x43 (Honda GX630)	1
49	DVD3050-AAA0A	Speed Increaser VFT Pumps	1
50	ZEZ3310-00027	Serial number plate VFT Pumps BH2-21 (CE)	1
51	ZEZ0203-00018	Countersunk Allen screw DIN7991 (A2) - M4x16	1
52	ZEZ3306-00004	19mm Clamp	1
53	ZEZ1503-00004	Silentblock M-T - M8 D25 H10	1
54	DVD3440-P010B	Tubular Base BH4	1

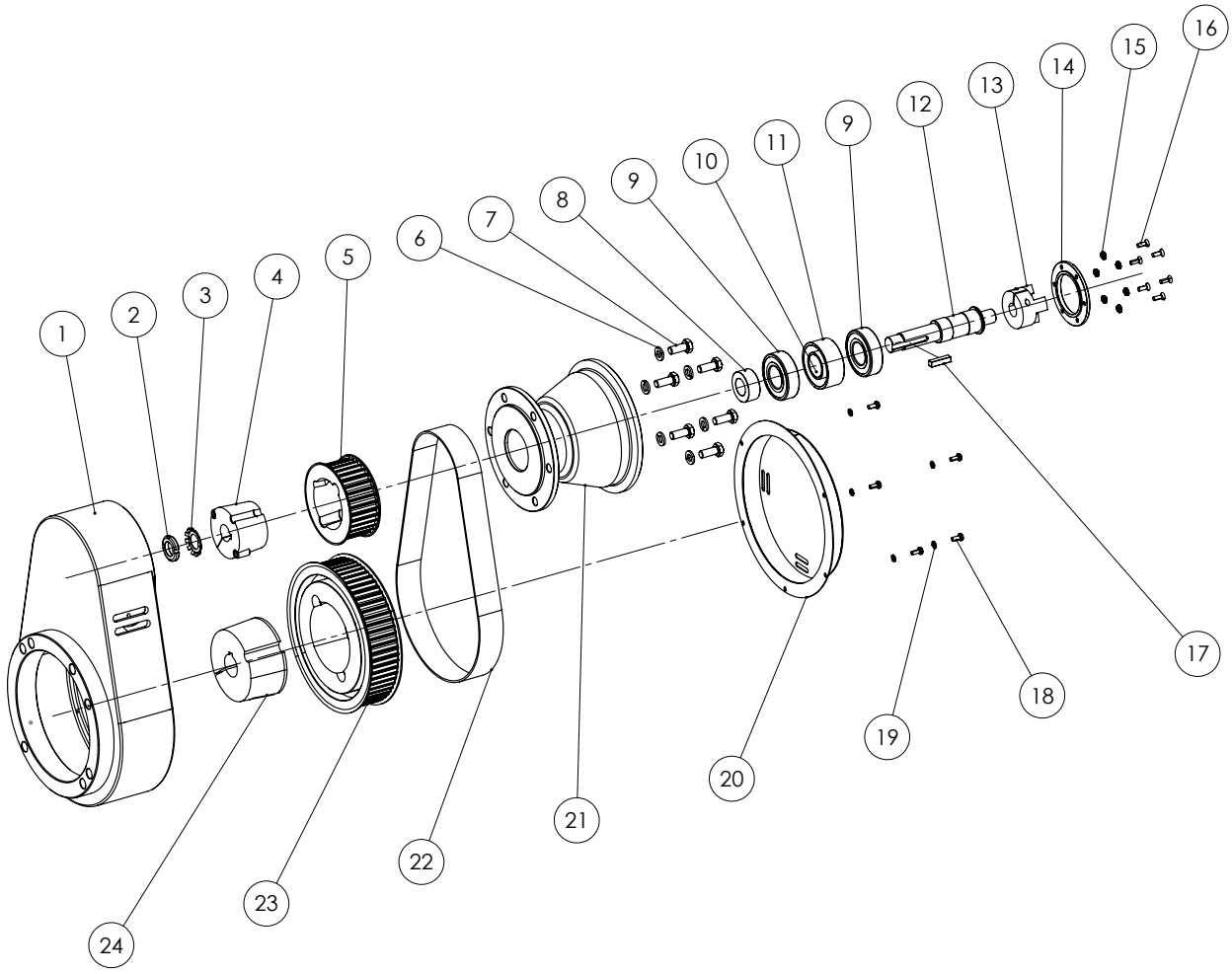
Nº	REFERENCE	DESCRIPTION	QUANTITY
55	ZEZ0205-00008	Flat washer DIN9021 (A2) - M8	1
56	ZEZ0207-00006	Hexagonal Locknut DIN985 (A2) - M8	1
57	ZEZ2802-00018	Straight Pneumatic Fitting - M 1/2" - 12mm Tube	1
58	ZEZ2411-00003	PP M-H Reducer - M1" x H 1/2" - ARAG 245 2042	1
59	ZEZ2419-00003	1" PP Threaded O-ring	1
60	ZEZ2406-00003	90° PP Elbow H-H 1" - ARAG 120 2044	1
61	ZEZ0207-00005	Hexagonal Locknut DIN985 (A2) - M6	2
62	ZEZ0205-00007	Flat washer DIN9021 (A2) - M6	4
63	ZEZ0202-00107	Allen Screw DIN 912 (A2) M6x35	4
64	ZEZ0204-00007	Flat washer DIN125 (A2) - M6	4
65	ZEZ1201-00001	Bilge pump	1
66	ZEZ2406-00003	90° PP Elbow H-H 1" - ARAG 120 2044	1
67	DVD3445-P050A	Priming pump support BH4-21	1
68	ZEZ0202-00103	Allen screw DIN 912 (A2) - M6x16	2
69	ZEZ0204-00007	Flat washer DIN125 (A2) - M6	4
70	ZEZ0207-00005	Hexagonal Locknut DIN985 (A2) - M6	4
71	ZEZ0202-00057	Allen screw DIN912 (A2) - M4x16	3
72	ZEZ0204-00005	Flat washer DIN125 (A2) - M4	3
73	ZEZ1607-00008	Outer ring horizontal pressure gauge panel D63	1
74	ZEZ1607-00002	Horizontal pressure gauge dual scale 1/4" PN40	1
75	DVD3445-P040A	Pressure gauge support BH4-21	1
76	ZEZ0205-00007	Flat washer DIN9021 (A2) - M6	2
77	ZEZ0209-00004	Grower washer DIN127-B (A2) - M6	2
78	ZEZ0202-00103	Allen screw DIN 912 (A2) - M6x16	2
79	ZEZ0204-00005	Flat washer DIN125 (A2) - M4	3
80	ZEZ0207-00003	Hexagonal Locknut DIN985 (A2) - M4	3

8.2. VFT_4SP PUMP BREAKDOWN



Nº	REFERENCE	DESCRIPTION	QUANTITY
1	ZEZ3308-00003.4	Transmission coupling elastomer EKL 20B HYTREL (white)	1
2	ZEZ3308-00003.2	Transmission coupling end EKL 20_B - 16mm diameter (pump)	1
3	ZEZ0225-00060	Countersunk Phillips screw DIN965 (A2) - M4x12	6
4	ZEZ0223-00005	V-Shape Serrated Washer DIN6798-V (A2) - M4	6
5	DVD3040-P070A	Bearing cover VFT_4SP pump	1
6	ZEZ3308-00012	Key 5x5x50 DIN6885-A (A2) (VFT_2SP)	1
7	DVD3020-P040A	VFT_2SP Pump Shaft	1
8	ZEZ3301-00002	Double row ball bearing 3205 A-2ZTN9_MT33	1
9	ZEZ1103-00001	Cylindrical pin DIN6325 - D2.5 L10	2
10	ZEZ0601-00005	O-ring 17x1.8	1
11	ZEZ0601-00006	O-ring 25x2.50	1
12	DVD3020-P080A	Transmission bushing pump shaft VFT_2SP	1
13	ZEZ3302-00002	Mechanical seal 4SP	1
14	ZEZ1328-00001	Brass plug 1/4 BSPT	1
15	DVD3020-P010A	VFT_2SP pump body	1
16	DVD3020-P025A	Rear impeller VFT_2SP pump	1
17	ZEZ0601-00007	O-ring 105x3.5	1
18	DVD3020-P035A	Rear distributor VFT_2SP pump	1
19	DVD3020-P020A	Front impeller VFT_2SP pump	1
20	ZEZ0601-00008	O-ring 110x3.50	1
21	ZEZ3309-00002	MB2 Washer (STAINLESS STEEL)	1
22	ZEZ3309-00001	KM2 Right-hand Nut (STAINLESS STEEL)	1
23	ZEZ3303-00002	Self-oil bearing A 12x18x20	1
24	DVD3020-P060A	VFT_2SP pump cover	1
25	ZEZ0209-00004	Grower washer DIN127-B (A2) - M6	8
26	ZEZ0202-00103	Allen screw DIN 912 (A2) - M6x16	8
27	ZEZ0209-00004	Grower washer DIN127-B (A2) - M6	1
28	ZEZ0215-00035	Round head Allen screw ISO7380 (A2) - M6 x 10	1

5.2. DESPIECE SPEED INCREASER VFT



Nº	REFERENCE	DESCRIPTION	QUANTITY
1	DVD3050-P010A	Increaser body	1
2	ZEZ3309-00003	KM3 Left-hand Nut	1
3	ZEZ3309-00004	MB3 Washer	1
4	ZEZ3308-00007	Taper Lock Bushing 1615-d19mm	1
5	ZEZ3308-00006	Toothed pulley 34-8M 30 TL-1615	1
6	ZEZ0209-00005	Grower washer DIN127-B (A2) - M8	6
7	ZEZ0201-00117	Hexagonal bolt DIN933 (A2) - M8x20	6
8	DVD3050-P070A	C-type spacer increaser	1
9	ZEZ3301-00003	Ball bearing 6205-2RS (sealed on both sides)	1
10	DVD3050-P050A	A-type spacer increaser	1
11	DVD3050-P060A	B-type spacer increaser	1
12	DVD3050-P040A	Increaser shaft	1
13	ZEZ3308-00003.1	EKL 20_B transmission coupling end – 15 mm diameter (motor)	1
14	DVD3050-P080A	Increaser bearing cover	1
15	ZEZ0223-00005	DIN 6798-V V-form serrated washer (A2) – M4	6
16	ZEZ0203-00018	DIN 7991 countersunk head Allen screw (A2) – M4 x 16	6
17	ZEZ3308-00009	6×6×25 mm key (Increaser)	1
18	ZEZ0216-00013	DIN 7985 Phillips pan head screw (A2) – M4x10	5
19	ZEZ0209-00002	DIN 127-B spring washer (A2) – M4	5
20	DVD3050-P030A	Increaser cover	1
21	DVD3050-P020A	Increaser bell	1
22	ZEZ3308-00004	8M 720 timing belt – 30 mm width	1
23	ZEZ3308-00005	64-8M 30 toothed pulley – TL-2517	1
24	ZEZ3308-00008	Taper Lock 2517-d1 tapered bushing	1

9. WARRANTY

9.1. COVER

Subject to the conditions, limitations and exceptions indicated below and in this manual, this warranty covers all material and manufacturing defects under normal conditions of use and service for the period established in the following table from the date of purchase.

Product	Time	Cover
with 2-stroke engine	1 year or 100 hours	Limited
with 4-stroke engine	2 years	Limited

9.2. SCOPE

Vallfirest Tecnologías Forestales will repair or replace any component at no cost deemed defective pursuant to the coverage defined above by any Vallfirest distributor or authorized representative. For repairs or replacements, the customer must pay the shipping costs to the Vallfirest distributor or representative. The customer must provide the necessary information to analyze the causes of the non-conformity.

9.3. EXCEPTIONS

This warranty does not cover parts or accessories not supplied by Vallfirest Tecnologías Forestales or damages from using such parts or accessories. This warranty will not be valid for the VFT BH4 fire pump when the pump has been used in a manner considered by Vallfirest as unusual or unapproved.
Moreover, this warranty will not be valid on any VFT BH4 fire pump when:

1. The engine has been used without oil or with an inappropriate fuel blend.

2. The engine has been modified or altered for a higher revolution.

3. Damage is observed due to overheating because the cylinder heat dissipators are very dirty or because dirt enters the engine.

4. It simply needs a little fine tuning or an adjustment of the carburetor, spark plugs or minor repair.

5. It has been incorrectly repaired which affected the quality or reliability of the BH4 fire pump.

6. It has been subjected to abnormal uses. This is observed when the engine operates poorly because of abnormal use or under adverse conditions which shorten the useful life of the engine.
The warranty coverage is not applicable to the engines where normal use has ended the useful life of a part.

7. The result of the owner not following the operating instructions described in this manual.

8. The appropriate procedures for winter storage were not followed.

9. When there are damages in the pump caused by water suction with residue such as sand, rocks, leaves and branches, etc.

10. When there are damages to the pump due to poor pump priming or operation without water or without discharging water.

Vallfirest Tecnologías Forestales will not be liable for any damages such as a loss of the use of the product, a loss of time, inconvenience, fuel costs, telephone, travel, transport or accommodation, losses or damages to personal items or loss of credit (loss of profit).

This is the only explicit or implicit warranty granted by Vallfirest Tecnologías Forestales applicable to the VFT BH4 fire pump and Vallfirest does not authorize any person, firm, company or representative to grant any warranty or assume any other liability on behalf of VFT Tecnologías Forestales.

NOTE: All the specifications are subject to change without notice.

If you need technical assistance, parts or additional information, please contact our customer service.

customer.service@vallfirest.com | Tel. (+34) 93 867 87 79.

Para más información **www.vallfirest.com**