



Empowering you to work smarter

BreakFree® Cordless Vacuum Pump
NP2D/NP2DLM
NP4D/NP4DLM
NP6D/NP6DLM
User Manual



Failure to follow warnings could
result in death or serious injury.

**SAVE THIS MANUAL
FOR FUTURE REFERENCE**

BREAKFREE®
CORDLESS SERIES

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Warning:

Do not leave pump running unattended in a closed environment without adequate ventilation.

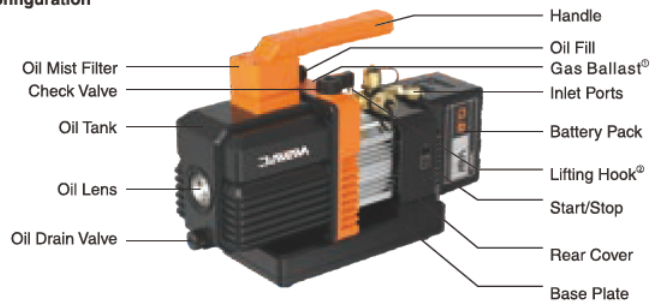


WEEE

(Do not dispose through typical waste streams)

I. PUMP CONFIGURATION, SPECIFICATION, FEATURES

Configuration



① Except NP2D, NP2DLM

② Except NP2D, NP2DLM

Specification

Model	Power	Flow Rate	Ultimate Vacuum	Motor Power	Oil Capacity	Net Weight	Inlet Port
NP2D	18V, 5Ah	2 CFM	23 Micron	1/6 HP	5.4 oz	7.7 lbs	1/4", 3/8"
NP2DLM	18V, 5Ah	2 CFM	23 Micron	1/6 HP	5.4 oz	8.4 lbs	1/4", 3/8"
NP4D	18V, 9Ah	4 CFM	15 Micron	1/2 HP	8.8 oz	13.9 lbs	1/4", 3/8", 1/2"
NP4DLM	18V, 9Ah	4 CFM	15 Micron	1/2 HP	8.8 oz	20 lbs	1/4", 3/8", 1/2"
NP6D	18V, 9Ah	6 CFM	15 Micron	1/2 HP	14.1 oz	19.1 lbs	1/4", 3/8", 1/2"
NP6DLM	18V, 9Ah	6 CFM	15 Micron	1/2 HP	14.1 oz	21.1 lbs	1/4", 3/8", 1/2"

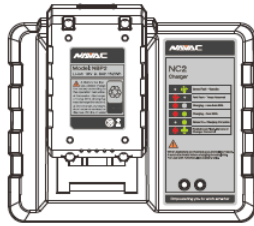
Features: Battery-powered vacuum pump for convenience, performance and reliability.

1. Brushless DC technology
2. Light and compact design
3. Dual stage with integrated pump structure
4. Backflow prevention check valve
5. Gas ballast, isolation valve, lifting hook (except NP2D, NP2DLM), oil mist filter included for extra convenience
6. A2L Compatible



II. CHARGER SPECIFICATION

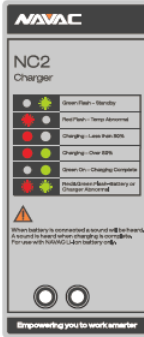
Item	Parameter
Model	NC2
Input Voltage	120V
Frequency	60Hz
Input Current	3.5A
Output Voltage	18V
Output Current	6A
Weight	1.5 lbs
Dimension	7.4"x6.1"x3.2"
Designated battery model	NB1
	NBP2
Battery type	Rechargeable Li-ion battery pack
Battery Specification	18V 5Ah 90Wh
	18V 9Ah 162Wh



Charger Operation

1. Charge indoors.
2. For use with NAVAC NB1, NBP2 battery pack only.
3. Connect charger AC supply cord to electric outlet and when disconnecting charger, first unplug the AC cord.
4. Push battery into port until it engages and locks in place.
5. A tone will play when charge starts or completes.
6. When charging is complete, press the lock and pull out the battery.
7. Indicator light is on during charging.

Light Indicator



IMPORTANT SAFETY INSTRUCTIONS - TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, CAREFULLY FOLLOW THESE INSTRUCTIONS

1. SAVE THESE INSTRUCTIONS – This manual contains important safety and operating instructions for battery charger Models NC2.
2. Before using battery charger, read all instructions and cautionary markings on battery charger, battery, and product using battery.
3. Do not expose charger to rain or water.
4. CAUTION – To reduce risk of injury, charge only NB1 or NBP2 type rechargeable batteries. Other types of batteries may burst causing personal injury and damage.
5. Charge only between 32°F(0°C) and 122°F(50°C).
6. Never charge a frozen battery.
7. Do not operate charger in a closed-in area or restrict ventilation in any way.
8. Never smoke or allow an open spark or flame in the vicinity of the battery.
9. Disconnect the power cord when not in use and position AC cords to reduce risk of damage by hood, door, or moving engine part.
10. Keep the charger clean.
11. This charger is intended for professional use only.

12. This charger should only be repaired by qualified individuals. Please contact NAVAC for charger service.
13. The charger is not to be used by persons (including children) who are required assistance, unless they have been given supervision or instruction.
14. Children being supervised not to play with the appliance.

III. PREPARATION

1. Before initial use, please charge battery to full capacity.
2. Unscrew the oil fill cap. Fill oil to the middle level of lens. Start the pump to run for 1 minute. Add oil if its level is low.

Note:

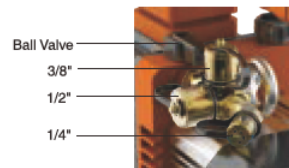
1. Fill oil slowly to prevent oil spill.
2. low oil level will affect performance. Too much oil will cause mist spray.



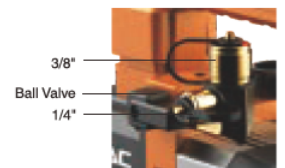
IV. OPERATION, MAINTENANCE

Pump Operation

1. Connect the vacuum pump to the system to be evacuated.
2. Open the ball valve.
3. Check the seal to ensure there is no leak.
4. After the evacuation work, stop pump and close the system valve.
5. Disconnect the hoses.
6. Cap the inlet ports to prevent particle from entering the pump.



NP4D/NP4DLM/NP6D/NP6DLM



NP2D/NP2DLM

Note:

1. Check the oil level before operation; if it is low, add oil.
2. When the battery voltage drops to a low voltage, it's 21V. When it lowers down to around 16V, it starts beep. It is suggested to close the valve on the vacuum or system to hold the vacuum once the alert begins. You will have 3 minutes to close the valves once the alert begins to beep before the battery runs out.

Warning

1. Don't run pump over 3 minutes when it's open to atmosphere.
2. Recover the refrigerant before evacuation.

Maintenance**1. Pump Oil**

Oil type and condition are important factors for the vacuum level. To get the best performance, it is recommended to use NAVAC pump oil.

Tip: Change oil immediately when it becomes cloudy or dirty.

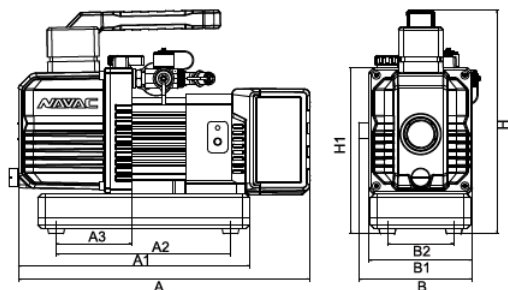
2. Oil Change

- 2.1 If pump is cold, run pump for 1 minute.

- 2.2 While the pump is running, open the inlet to allow the oil to exit the pump cylinder. Stop the pump, then open the oil drain valve. Dispose of the oil according to local regulations. Tilt the pump to drain any residual oil.

- 2.3 Screw back the oil drain valve.

- 2.4 Open the oil fill cap to fill oil.

V. Dimension (Unit: Inch)

Model	A	A1	A2	A3	B	B1	B2	H	H1
NP2D	—	7.7"	4.9"	2.8"	3.5"	2.2"	2.4"	7.6"	5.9"
NP2DLM	9.6"	7.7"	4.9"	2.8"	3.5"	2.2"	2.4"	7.6"	5.9"
NP4D	—	10.3"	7.4"	3.2"	4.8"	4.4"	2.8"	9.5"	7.1"
NP4DLM	12.8"	10.3"	7.4"	3.2"	4.8"	4.4"	2.8"	9.5"	7.1"
NP6D	—	11.8"	7.4"	3"	5"	4.3"	2.8"	10"	7.6"
NP6DLM	14"	11.8"	7.4"	3"	5"	4.3"	2.8"	10"	7.6"

VI. Troubleshooting

Malfunction	Possible Cause	Remedy
Low Vacuum	1. Secondary air inlet connection cap loose on the air inlet port.	Tighten the cap.
	2. Damaged rubber o-ring inside the secondary air inlet connection cap.	Replace the rubber o-ring.
	3. The volume of oil is insufficient.	Add oil to the center line of the oil display.
	4. Pump oil becomes opaque or absorbed too many impurities.	Replace with new oil.
	5. The pump's oil entry hole is clogged or the oil supply is insufficient.	Clean the oil entry hole, clean the oil filter.
	6. The pump connecting hoses, manifold or system has a leak.	Inspect the connecting hose gaskets and system, repair leaks.
	7. The pump selection is wrong.	Check the size of the container to be evacuated, recalculate and select an appropriate pump model.
	8. The pump has been used for too long, damage and wear to components caused increased gaps between parts.	Inspect and repair, or replace the pump.
Oil leak	1. Damaged oil seal.	Replace the oil seal.
	2. Loose or damaged oil box connections.	Tighten the connecting screws, replace O-rings.
	3. Pump was tipped over	Oil spilled into the handle and is leaking out the handle. Remove screws from handle, clean oil inside handle and dry out filterings.
Oil spray	1. Excessive oil volume.	Remove oil until the oil position line is reached.
	2. Inlet port pressure is excessively high for a long period.	Select an appropriate pump, increase the pumping speed.
Start-up problems	1. Oil temperature is too low.	Warm up the pump.
	2. Motor, power source or circuit board malfunctions.	Inspect and repair.
	3. Foreign objects entered the pump.	Inspect and remove.
	4. Voltage supply is excessively low or high.	Inspect the power source voltage.
	5. Overload trips.	After overload trip occurs, switch kept On. Remove battery, wait for approximately 30 seconds before inspecting and repairing.

Notes:

1. The pump is inverter driven and the motor has over-current / overload protection, please troubleshoot after overload resets.
2. If the above methods cannot resolve your problems, please contact your nearest distributor. We will do our best to provide you with a quick turnaround to keep you working.

Requirements For Warranty Coverage

Product warranty is provided for product quality problems for two years from date of sale. For warranty to be valid, the following conditions must be met:

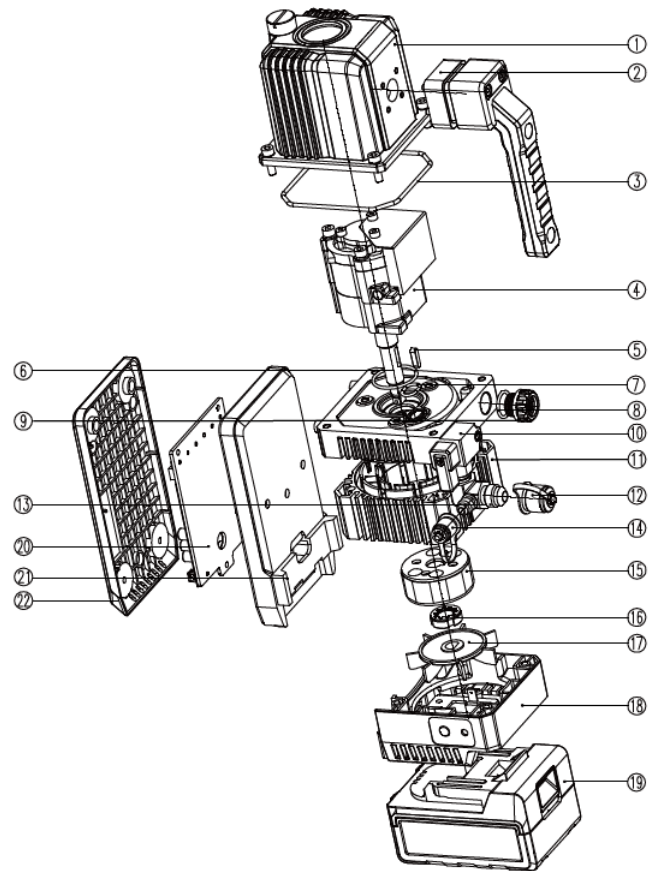
1. Products issues due to manufacturing defects confirmed by qualified agents.
2. Products which have not been maintained or dismantled by unauthorized parties.
3. Products that have been used in accordance with the User Manual. All maintenance services shall be performed during the warranty period.

Statement: Other than repairing the defective product, the manufacturer of this product will not be liable for any other costs, such as time spent in fixing the issue, refrigerant consumption, refrigerant disposal costs, as well as unauthorized transportation and labor costs.

VII. NP2D/NP2DLM REPAIR PARTS LIST

Ref No.	Part Name
1	Oil Tank
2	Handle
3	O-Ring
4	Pump Cylinder Assy
5	Flat Key
6	O-Ring
7	O-Ring
8	O-Ring
9	Oil Fill
10	Trestle
11	Motor Stator Assembly
12	Cap
13	Inlet Port
14	Cap
15	Rotor
16	Round Nuts
17	Fan
18	Rear Cover Assy
19	Battery Pack
20	Base Plate
21	Controller Assy
22	Cover Plate

VIII. NP2D/NP2DLM EXPLODED VIEW



IX. NP4D/NP4DLM/NP6D/NP6DLM REPAIR PARTS LIST

Ref No.	Part Name
1	Oil Tank
2	Handle
3	O-Ring
4	Pump Cylinder Assy
5	Trestle
6	O-Ring
7	Oil Fill
8	Inlet Port
9	Cap
10	Inlet Port
11	Rotor
12	Cap
13	Rear Cover
14	Fan
15	Rear Cover Assy
16	Battery Pack
17	bearing
18	Cap
19	Stator
20	Base Plate
21	Controller Assy
22	Cover Plate

X. NP4D/NP4DLM/NP6D/NP6DLM EXPLODED VIEW

