Owner's Manual & Safety Instructions

Save This Manual Keep this manual for the safety warnings and precautions, assembly, operating, inspection, maintenance and cleaning procedures. Write the product's serial number in the back of the manual near the assembly diagram (or month and year of purchase if product has no number). Keep this manual and the receipt in a safe and dry place for future reference. 21i

Bauer™

21507-BR

BRUSHLESS

20V BRUSHLESS 1/2" MUD MIXER



Visit our website at: http://www.harborfreight.com
Email our technical support at: productsupport@harborfreight.com

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When unpacking, make sure that the product is intact and undamaged. If any parts are missing or broken, please call 1-888-866-5797 as soon as possible.

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Diagrams within this manual may not be drawn proportionally. Due to continuing improvements, actual product may differ slightly from the product described herein. Tools required for assembly and service may not be included.

⚠WARNING

Read this material before using this product. Failure to do so can result in serious injury. SAVE THIS MANUAL.

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WARNING SYMBOLS AND DEFINITIONS	
⚠	This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.
⚠ DANGER	Indicates a hazardous situation which, if not avoided, will result in death or serious injury.
⚠ WARNING	Indicates a hazardous situation which, if not avoided, could result in death or serious injury.
⚠ CAUTION	Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.
NOTICE CAUTION	Addresses practices not related to personal injury.

IMPORTANT SAFETY INFORMATION

General Power Tool Safety Warnings

⚠ WARNING

Read all safety warnings, instructions, illustrations and specifications provided with this power tool.
Failure to follow all instructions listed below may result in electric shock, fire and/or serious injury.

Save all warnings and instructions for future reference.

The term "power tool" in the warnings refers to your mains-operated (corded) power tool or battery-operated (cordless) power tool.

1. **Work area safety**
   a. **Keep work area clean and well lit.** *Cluttered or dark areas invite accidents.*
   b. **Do not operate power tools in explosive atmospheres, such as in the presence of flammable liquids, gases or dust.** *Power tools create sparks which may ignite the dust or fumes.*
   c. **Keep children and bystanders away while operating a power tool.** *Distractions can cause you to lose control.*

2. **Electrical safety**

   a. **Avoid body contact with earthed or grounded surfaces, such as pipes, radiators, ranges and refrigerators.** *There is an increased risk of electric shock if your body is earthed or grounded.*

   b. **Do not expose power tools to rain or wet conditions.** *Water entering a power tool will increase the risk of electric shock.*

3. **Personal safety**

   a. **Stay alert, watch what you are doing and use common sense when operating a power tool. Do not use a power tool while you are tired or under the influence of drugs, alcohol or medication.** *A moment of inattention while operating power tools may result in serious personal injury.*

   b. **Use personal protective equipment. Always wear eye protection.** *Protective equipment such as dust mask, non-skid safety shoes, hard hat, or hearing protection used for appropriate conditions will reduce personal injuries.*

   c. **Prevent unintentional starting. Ensure the switch is in the off-position before connecting to power source and/or battery pack, picking up or carrying the tool.** *Carrying power tools with your finger on the switch or energizing power tools that have the switch on invites accidents.*

   d. **Remove any adjusting key or wrench before turning the power tool on.** *A wrench or a key left attached to a rotating part of the power tool may result in personal injury.*

   e. **Do not overreach. Keep proper footing and balance at all times.** *This enables better control of the power tool in unexpected situations.*

   f. **Dress properly. Do not wear loose clothing or jewelry. Keep your hair, clothing and gloves away from moving parts.** *Loose clothes, jewelry or long hair can be caught in moving parts.*

   g. **If devices are provided for the connection of dust extraction and collection facilities, ensure these are connected and properly used.** *Use of dust collection can reduce dust-related hazards.*

   h. **Do not let familiarity gained from frequent use of tools allow you to become complacent and ignore tool safety principles.** *A careless action can cause severe injury within a fraction of a second.*

   i. Only use safety equipment that has been approved by an appropriate standards agency. Unapproved safety equipment may not provide adequate protection. Eye protection must be ANSI-approved and breathing protection must be NIOSH-approved for the specific hazards in the work area.

   j. Do not leave the tool unattended when the Battery Pack is connected. Turn off the tool, and remove the Battery Pack before leaving.

   k. This product is not a toy. Keep it out of reach of children.

   l. People with pacemakers should consult their physician(s) before use. Electromagnetic fields in close proximity to heart pacemaker could cause pacemaker interference or pacemaker failure.

   m. The warnings, precautions, and instructions discussed in this instruction manual cannot cover all possible conditions and situations that may occur. It must be understood by the operator that common sense and caution are factors which cannot be built into this product, but must be supplied by the operator.

4. **Power tool use and care**

   a. **Do not force the power tool. Use the correct power tool for your application.** *The correct power tool will do the job better and safer at the rate for which it was designed.*

   b. **Do not use the power tool if the switch does not turn it on and off.** *Any power tool that cannot be controlled with the switch is dangerous and must be repaired.*

   c. **Disconnect the plug from the power source and/or remove the battery pack, if detachable, from the power tool before making any adjustments, changing accessories, or storing power tools.** *Such preventive safety measures reduce the risk of starting the power tool accidentally.*

   d. **Store idle power tools out of the reach of children and do not allow persons unfamiliar with the power tool or these instructions to operate the power tool.** *Power tools are dangerous in the hands of untrained users.*

   e. **Maintain power tools and accessories. Check for misalignment or binding of moving parts, breakage of parts and any other condition that may affect the power tool's operation. If damaged, have the power tool repaired before use.** *Many accidents are caused by poorly maintained power tools.*

   f. **Keep cutting tools sharp and clean.** *Properly maintained cutting tools with sharp cutting edges are less likely to bind and are easier to control.*

   g. **Use the power tool, accessories and tool bits etc. in accordance with these instructions, taking into account the working conditions and the work to be performed.** *Use of the power tool for operations different from those intended could result in a hazardous situation.*

   h. **Keep handles and grasping surfaces dry, clean and free from oil and grease.** *Slippery handles and grasping surfaces do not allow for safe handling and control of the tool in unexpected situations.*

5. **Service**
   a. **Have your power tool serviced by a qualified repair person using only identical replacement parts.** *This will ensure that the safety of the power tool is maintained.*
   b. Maintain labels and nameplates on the tool. These carry important safety information. If unreadable or missing, contact Harbor Freight Tools for a replacement.

6. **Mixer safety instructions**
   a. **Hold the tool with both hands at the intended handles.** *Loss of control can cause personal injury.*
   b. **Ensure sufficient ventilation when mixing flammable materials to avoid a hazardous atmosphere.** *Developing vapor may be inhaled or be ignited by the sparks the power tool produces.*
   c. **Do not mix food.** *Power tools and their accessories are not designed for processing food.*
   d. **Keep the cord away from the working area.** *The cord may be entangled by the mixer basket.*
   e. **Ensure that the mixing container is placed in a firm and secure position.** *A container that is not properly secured may move unexpectedly.*
   f. **Ensure that no liquid splashes against the housing of the power tool.** *Liquid that has penetrated the power tool can cause damage and lead to electric shock.*
   g. **Follow the instructions and warnings for the material to be mixed.** *Material to be mixed may be harmful.*
   h. **If the power tool falls into the material to be mixed, unplug the tool Immediately and have the power tool checked by a qualified repair person.** *Reaching into the bucket with the tool still plugged in can lead to electric shock.*
   i. **Do not reach Into the mixing container with your hands or insert any other objects into it while mixing.** *Contact with the mixer basket may lead to serious personal injury.*
   j. **Start up and run down the tool In the mixing container only.** *The mixer basket may bend or spin in an uncontrolled manner.*

7. **Battery tool use and care**
   a. **Prevent unintentional starting.** *Ensure the switch is in the off-position before connecting to battery pack, picking up or carrying the power tool. Carrying the power tool with your finger on the switch or energizing power tool that have the switch on invites accidents.*
   b. **Disconnect the battery pack from the power tool before making any adjustments, changing accessories, or storing power tool.** *Such preventive safety measures reduce the risk of starting the power tool accidentally.*
   c. **Recharge only with the charger specified by the manufacturer.** *A charger that is suitable for one type of battery pack may create a risk of fire when used with another battery pack.*
   d. **Use power tools only with specifically designated battery packs.** *Use of any other battery packs may create a risk of injury and fire.*
   e. **When battery pack is not in use, keep it away from other metal objects, like paper clips, coins, keys, nails, screws or other small metal objects, that can make a connection from one terminal to another.** *Shorting the battery terminals together may cause burns or a fire.*
   f. **Under abusive conditions, liquid may be ejected from the battery; avoid contact.** *If contact accidentally occurs, flush with water. If liquid contacts eyes, additionally seek medical help. Liquid ejected from the battery may cause irritation or burns.*
   g. **Do not use a battery pack or power tool that is damaged or modified.** *Damaged or modified batteries may exhibit unpredictable behavior resulting in fire, explosion or risk of injury.*
   h. **Do not expose a battery pack or power tool to fire or excessive temperature.** *Exposure to fire or temperature above 265°F may cause explosion.*
   i. **Follow all charging instructions and do not charge the battery pack or power tool outside of the temperature range specified in the instructions.** *Charging improperly or at temperatures outside of the specified range may damage the battery and increase the risk of fire.*
   j. **Have servicing performed by a qualified repair person using only identical replacement parts.** *This will ensure that the safety of the product is maintained.*
   k. **Do not modify or attempt to repair the power tool or the battery pack except as indicated in the instructions for use and care.**
   l.  The battery Charger gets hot during use. The Charger's heat can build up to unsafe levels and create a fire hazard if it does not receive adequate ventilation, due to an electrical fault, or if it is used in a hot environment. Do not place the Charger on a flammable surface. Do not obstruct any vents on the Charger. **Especially avoid placing the Charger on carpets and rugs; they are not only flammable, but they also obstruct vents under the Charger.** Place the Charger on a stable, solid, nonflammable surface (such as a stable metal workbench or concrete floor) at least 1 foot away from all flammable objects, such as drapes or walls. Keep a fire extinguisher and a smoke detector in the area. Frequently monitor the Charger and Battery Pack while charging.

8. **Lithium Battery Safety Warnings**



LITHIUM BATTERIES STORE A LARGE AMOUNT OF ENERGY AND WILL VENT FIRE OR EXPLODE IF MISTREATED:

a. **Keep Battery Pack dry.**

b. **DO NOT DO ANY OF THE FOLLOWING TO THE BATTERY PACK:**
   - **Open,**
   - **Drop,**
   - **Short-circuit,**
   - **Puncture,**
   - **Incinerate, or**
   - **Expose to temperatures greater than 265°F.**

c. Charge Battery Pack only according to its Charger's instructions.

d. Inspect Battery Pack before every use; do not use or charge if damaged.

Grounding

⚠WARNING



TO PREVENT ELECTRIC SHOCK AND DEATH FROM INCORRECT GROUNDING: Check with a qualified electrician if you are in doubt as to whether the outlet is properly grounded. Do not modify the power cord plug provided with the charger. Do not use the charger if the power cord or plug is damaged. If damaged, have it repaired by a service facility before use. If the plug will not fit the outlet, have a proper outlet installed by a qualified electrician.

Extension Cords

Note: Extension cords must not be used with this item's Charger.

Symbology

	Double Insulated
V	Volts
~	Alternating Current
A	Amperes
n_0 xxxx/min.	No Load Revolutions per Minute (RPM)
	WARNING marking concerning Risk of Eye Injury. Wear ANSI-approved safety goggles with side shields.

	Read the manual before set-up and/or use.
	WARNING marking concerning Risk of Fire. Do not cover Charger ventilation ducts. Charge on fireproof surface only.
	WARNING marking concerning Risk of Electric Shock. Properly connect Charger's power cord to appropriate outlet.
	WARNING marking concerning Risk of Explosion. Do not puncture, short, or open battery packs and do not charge damaged battery packs.

Specifications

Battery Pack	Bauer 20V Li-Ion 64816 (sold separately)
Charger	Bauer 20V Li-Ion 63947 (sold separately)
Battery Type	Li-ion
No Load Spread	nǫ: 0-420/0-720/min
Chuck Size	1/2″ (Ø13mm)

Setup - Before Use:

Read the ENTIRE IMPORTANT SAFETY INFORMATION section at the beginning of this manual including all text under subheadings therein before set up or use of this product.

Note: For additional information regarding the parts listed in the following pages, refer to *Parts List and Diagram* on page 14.

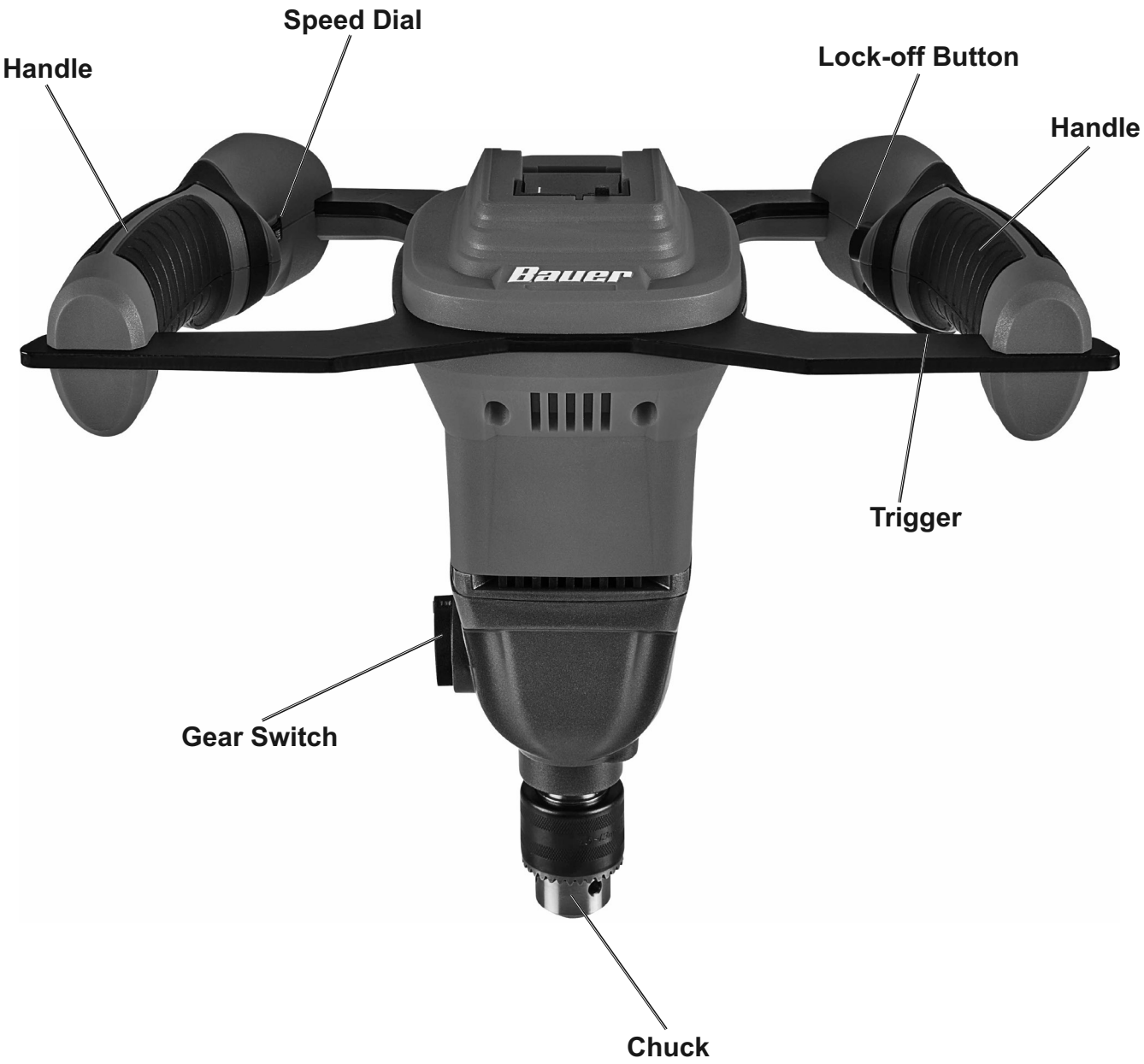
Attach Mixing Paddle

1. Insert Mixing Paddle (not included) into Drill Chuck.
2. Insert Chuck Key into the Chuck and turn clockwise to tighten securely.
3. To remove Mixing Paddle, proceed in reverse order.

Power Supply Requirements

Use 20VDC Battery Pack.

Functions


Handle
Speed Dial
Lock-off Button
Handle
Trigger
Gear Switch
Chuck

Read the ENTIRE IMPORTANT SAFETY INFORMATION section at the beginning of this manual including all text under subheadings therein before set up or use of this product.

Tool Set Up

⚠WARNING

TO PREVENT SERIOUS INJURY FROM ACCIDENTAL OPERATION:
Make sure that the Trigger is in the off-position and unplug battery from tool before performing any procedure in this section.

Battery Charging

Charge battery after unpacking and before using this tool. Follow instructions included with battery charger (sold separately).

Setting the Gear

1. Select an operating speed depending on the material being mixed.
   a. Use Gear 1 for heavy materials and when beginning to mix.
   b. Use Gear 2 for lighter materials, and as the material becomes smoother after partial mixing.

Gear Switch



Adjusting the Speed

Turn the Speed Dial on the Handle from 1 (lowest) to Max (highest).

Work Area Set Up

1. Designate a work area that is clean and well lit. The work area must not allow access by children or pets to prevent distraction and injury.
2. There must not be objects, such as utility lines, nearby that will present a hazard while working.

General Instructions for Use

Operation

WARNING! TO PREVENT SERIOUS INJURY: Release trigger if tools shut down. Press Trigger again to restart.

1. Make sure Trigger is in off-position, then attach Battery Pack.
2. Place a bucket (not included) on a flat, level surface.

NOTE: Refer to the material manufacturer's instructions for proper mixing instructions.

3. Pour the material into the bucket.
4. Set Gear and Speed.
5. Hold onto grips of both Handles without engaging Trigger.
6. Put Mixing Paddle into bucket.
7. Push Lock-off Button, then squeeze trigger to start tool.

Note: Tool will not start unless Lock-off Button is pressed before squeezing Trigger. Do not overload tool. If tool bogs down, release Trigger.

8. When material has been mixed, release Trigger. Wait for tool to come to a complete stop and remove Mixing Paddle from material.

Cleaning

1. Immediately after use, clean the Mixing Paddle.
   a. If material is water-based, fill clean bucket with water, put Mixing Paddle into bucket and squeeze Trigger.
   b. If material is oil-based, wipe off Mixing Paddle with a clean towel, then wipe off with a clean cloth moistened with mineral spirits.
2. Dry the Mixing Paddle with a clean cloth.
3. To prevent accidents, turn off the tool and remove its Battery Pack after use.
4. Spray the paddle with light oil to prevent rust while in storage, then store the tool indoors out of children's reach.

Procedures not specifically explained in this manual must be performed only by a qualified technician.

⚠WARNING

TO PREVENT SERIOUS INJURY FROM ACCIDENTAL OPERATION:
Make sure that the Trigger is in the off-position and remove its Battery Pack before performing any procedure in this section.

TO PREVENT SERIOUS INJURY FROM TOOL FAILURE:
Do not use damaged equipment. If abnormal noise or vibration occurs, have the problem corrected before further use.

Cleaning, Maintenance, and Lubrication

1. **BEFORE EACH USE,** inspect the general condition of the tool. Check for:
   - leaking, swollen, or cracked battery pack,
   - loose hardware,
   - misalignment or binding of moving parts,
   - cracked or broken parts, and
   - any other condition that may affect its safe operation.
2. **IMMEDIATELY AFTER USE, clean the Mixing Paddle according to Cleaning on page 11.** Spray the paddle with light oil to prevent rust while in storage. Then store the tool indoors out of children's reach.
3. Li-Ion BATTERY MUST BE RECYCLED OR DISPOSED OF PROPERLY.
   Do not short, incinerate or open battery.
4. Disconnect battery pack and store battery pack, charger, and tool in dry, indoor area out of reach of children and away from metal objects (i.e., paperclips, coins) to prevent shorting.

Troubleshooting

Problem	Possible Causes	Likely Solutions
Tool will not start.	1. Battery Pack not properly connected.	1. Remove Battery Pack, make sure there are no obstructions, reinsert the Battery Pack according to its shape (it should only fit one way), and press firmly until the Battery Pack locks in place.
	2. Battery Pack not properly charged.	2. Make sure Charger is connected and operating properly. Give enough time for Battery Pack to recharge properly.
	3. Battery Pack burnt-out.	3. Dispose of old Battery Pack properly or recycle. Replace Battery Pack.
	4. Internal damage or wear.	4. Have technician service tool.
Mixing Paddle wobbles.	Chuck loose.	Tighten the Chuck.
Unsatisfactory mixing results.	Tool speed too fast or too slow.	Check with material manufacturer's recommendations for proper mixing speed. Then adjust Gear Switch and/or Speed Dial to proper tool mixing speed.
Tool operates slowly.	Material too thick.	Thin out material.
Excessive noise or rattling.	Internal damage or wear.	Have technician service tool.
Overheating.	1. Forcing tool to work too fast.	1. Allow tool to work at its own rate.
	2. Blocked motor housing vents.	2. Wear ANSI-approved safety goggles and NIOSH-approved dust mask/respirator while blowing dust out of motor using compressed air.

Follow all safety precautions whenever diagnosing or servicing the tool.
Disconnect Battery Pack and Charger power supply before service.

PLEASE READ THE FOLLOWING CAREFULLY

THE MANUFACTURER AND/OR DISTRIBUTOR HAS PROVIDED THE PARTS LIST AND ASSEMBLY DIAGRAM IN THIS MANUAL AS A REFERENCE TOOL ONLY. NEITHER THE MANUFACTURER OR DISTRIBUTOR MAKES ANY REPRESENTATION OR WARRANTY OF ANY KIND TO THE BUYER THAT HE OR SHE IS QUALIFIED TO MAKE ANY REPAIRS TO THE PRODUCT, OR THAT HE OR SHE IS QUALIFIED TO REPLACE ANY PARTS OF THE PRODUCT. IN FACT, THE MANUFACTURER AND/OR DISTRIBUTOR EXPRESSLY STATES THAT ALL REPAIRS AND PARTS REPLACEMENTS SHOULD BE UNDERTAKEN BY CERTIFIED AND LICENSED TECHNICIANS, AND NOT BY THE BUYER. THE BUYER ASSUMES ALL RISK AND LIABILITY ARISING OUT OF HIS OR HER REPAIRS TO THE ORIGINAL PRODUCT OR REPLACEMENT PARTS THERETO, OR ARISING OUT OF HIS OR HER INSTALLATION OF REPLACEMENT PARTS THERETO.

Parts List

Part	Description	Qty
1	Output Shaft	1
2	Key	1
3	Oil Seal	1
4	Screw ST5×50	4
5	Head Housing	1
6	Screw ST3×12	1
7	Gear Switch	1
8	Spring	1
9	Steel Ball	1
10	Bearing 6002z22RS	1
11	Shaft Ring Ø32	1
12	Big Gear	1
13	Shaft Ring Ø13	1
14	Needle Bearing HK0810	2
15	Needle Bearing HK1010	2
16	Counter Drive Shaft	1
17	Two Gang Gear	1
18	Shift Dial	1
19	Shift Fork A	1
20	Shift Fork Spring	2
21	Gear Guide	1
22	Shift Fork B	1
23	Main Driving Shaft	1
24	Diagonal Gear	1
25	608 Bearing	1
26	Gasket	1
27	Middle Cover	1
28	O Ring	1
29	Rotor Spring	1

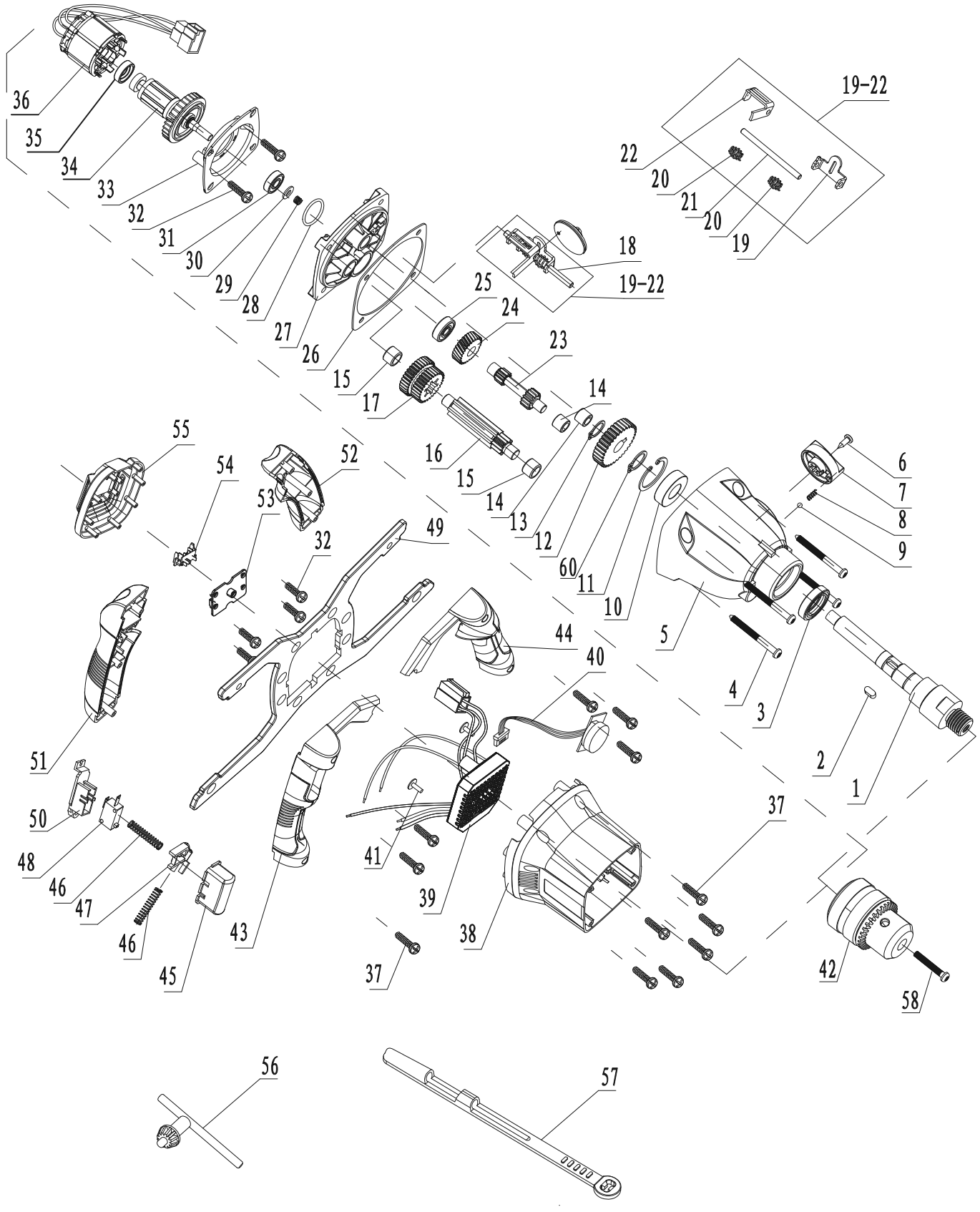
Part	Description	Qty
30	Seal Pad	1
31	609RS Bearing	1
32	Screw ST4×12-F	7
33	Fan Shroud	1
34	Brushless Rotor	1
35	Bearing Sleeve 607	1
36	Brushless Stator	1
37	Screw ST4×16-F	12
38	Housing	1
39	Brushless Controller	1
40	Speed Controller	1
41	Screw ST4×12	2
42	Chuck	1
43	Right Bottom Handle	1
44	Left Bottom Handle	1
45	Trigger	1
46	Spring Ø0.8	2
47	Lock-off Button	1
48	Microswitch	1
49	Handle Frame	1
50	Switch Base	1
51	Right Top Handle	1
52	Left Top Handle	1
53	Contact Plate Holder Press Plate	1
54	Battery Pack Plug-In	1
55	Back Cover	1
56	Chuck Key	1
57	Key Sleeve	1
58	Screw 5×25	1

Record Product's Serial Number Here:_____

Note: If product has no serial number, record month and year of purchase instead.

Note: Some parts are listed and shown for illustration purposes only, and are not available individually as replacement parts. Specify UPC 193175432971 when ordering parts.

Assembly Diagram



Limited 90 Day Warranty

Harbor Freight Tools Co. makes every effort to assure that its products meet high quality and durability standards, and warrants to the original purchaser that this product is free from defects in materials and workmanship for the period of 90 days from the date of purchase. This warranty does not apply to damage due directly or indirectly, to misuse, abuse, negligence or accidents, repairs or alterations outside our facilities, criminal activity, improper installation, normal wear and tear, or to lack of maintenance. We shall in no event be liable for death, injuries to persons or property, or for incidental, contingent, special or consequential damages arising from the use of our product. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation of exclusion may not apply to you. THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS.

To take advantage of this warranty, the product or part must be returned to us with transportation charges prepaid. Proof of purchase date and an explanation of the complaint must accompany the merchandise. If our inspection verifies the defect, we will either repair or replace the product at our election or we may elect to refund the purchase price if we cannot readily and quickly provide you with a replacement. We will return repaired products at our expense, but if we determine there is no defect, or that the defect resulted from causes not within the scope of our warranty, then you must bear the cost of returning the product.

This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

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