



# OWNER'S MANUAL

## 20V Lithium-ion Cordless Grease Gun

670AN6

February 2022

### Description

The 670AN6 20V Lithium-ion Cordless Grease Gun is designed to dispense petroleum-based greases (NLGI 1/ NLGI 2) for general lubrication applications. A 120cm long high-pressure whip hose, heavy-duty grease coupler, charger and moulded carrying case are included. This gun has a two speed electronic transmission. The gun is equipped with a backlit Liquid Crystal Display (LCD) which features a battery level gauge, cartridge grease level gauge, grease meter and a loss of prime and stall indicator warnings. A built-in LED flashlight is also included.

The gun uses an electric motor with three stages of gear reduction. A crank and yoke mechanism drives a reciprocating piston pump. The motor is powered by a rechargeable 20V/4.0Ah Lithium-ion battery pack. A 20V 2.5Ah backup battery is also supplied.

The gun is designed for 3-way loading: cartridge, suction, and loader pump (requires optional loader fitting 322610). The gun is spring-primed and includes an air bleed valve to aid priming.



### Optional Accessories

Shoulder Strap	Mobile Battery Charger (12Vdc - 24Vdc Input)	Loader Fitting
339812	343289	322610

### Specifications

Grease Cylinder Capacity <sup>1</sup>		Hose Assembly				Weight (empty)		Maximum Pressure	
Bulk	Cartridge Size	Pressure Rating		Length					
Grams	Grams	psi	bar	Inches	Cms	Lbs	Kg	psi	bar
600	450	10,000	690	47	120	6.3	2.9	10,000	690

<sup>1</sup>Applicable for Models -A, -B, -C and -D

Cartridges per Battery Charge <sup>1, 2</sup>		Flow Rate <sup>2</sup>				Meter Accuracy <sup>2, 3</sup>		Meter Range	
20V, 4.0Ah Battery		High Speed		Low Speed					
High Speed	Low Speed	oz/min	g/min	oz/min	g/min	High Speed	Low Speed	Ounces	Grams
31	34.7	6	170	4	113	±3%	±4%	0.0 to 999	0 to 999

Sound pressure (LpA) 69.5 dB(A), uncertainty (K) 3 dB(A)

Acoustic power (LwA) 80.5 dB(A), uncertainty (K) 3 dB(A)

Vibration emission value (ah) 0.6 m/s<sup>2</sup>, uncertainty (K) 1.5 m/s<sup>2</sup>

<sup>1</sup>Applicable for Models -A, -B, -C and -D.

<sup>2</sup>NLGI 2 EP Lithium grease (specific gravity 0.92) at 24°C (75° F) dispensed through included hose assembly with grease coupler and against 150psi (10bar) added pressure (simulates grease fitting with ball check).

<sup>3</sup>Meter accuracy is valid for use with NLGI 2 EP Lithium grease (specific gravity 0.92) at 24°C (75° F).



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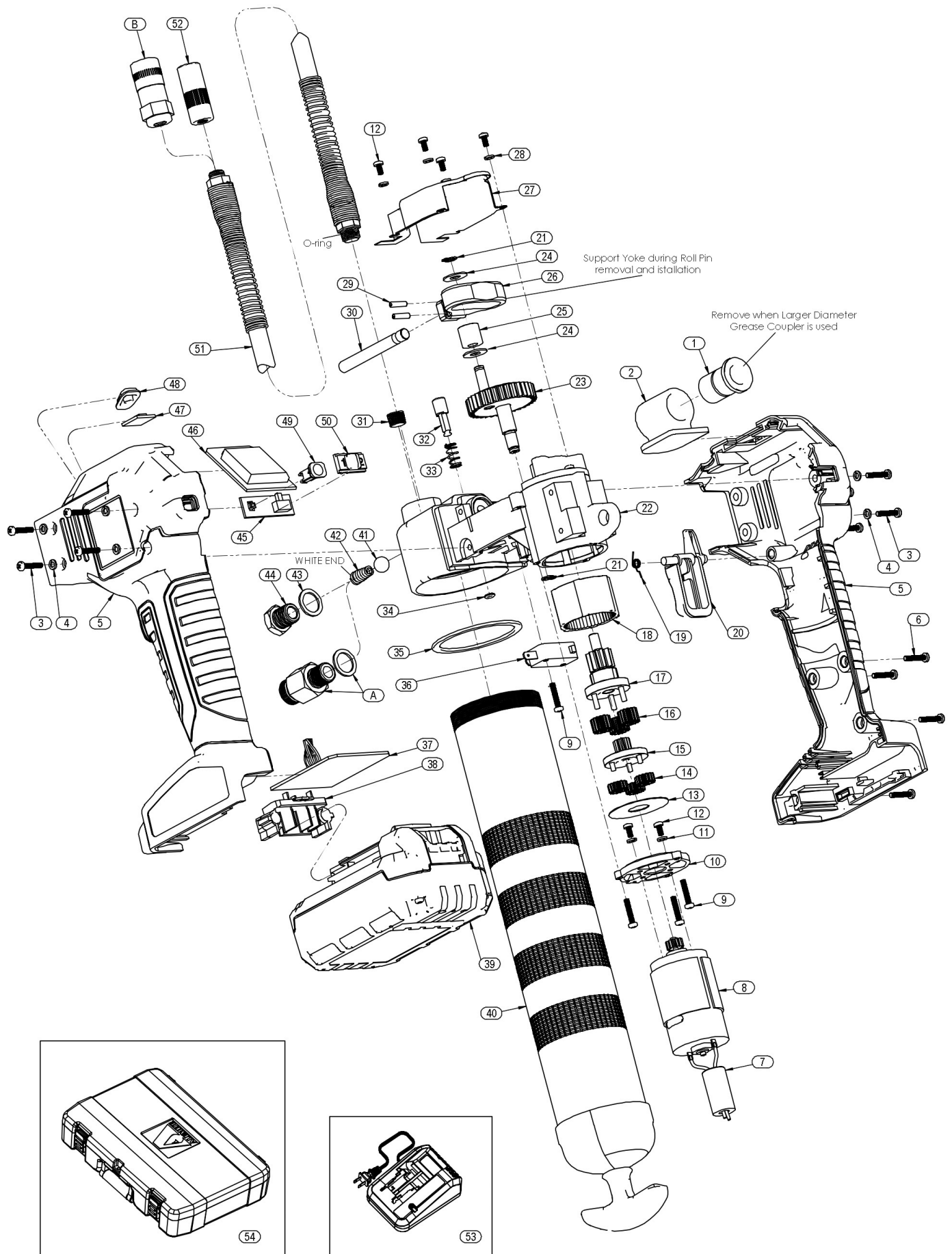
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# Parts and Drawing Breakdown for the 670AN6



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Item No.	Part No.	Description	Qty	Repair Kits					Notes
				393795-23 Ball Check Kit	393757 Bleed Valve Kit	393795-24 PCB Kit*	393795-25 LCD & LED Kit*	393795-26 Head Kit*	
1		Insert, Coupler (Rubber)	1						
2		Holster	1						
3		Screw, Machine	8						
4		Washer, Lock	8						
5	393795-22*	Housing	1						Models 597-A, -B, -C, -D
	393795-28	SA Handle (Australia)	1						Models 597-E, -F
6		Screw, Tapping	4						
7		Magnet, Ring	1						Models 597-C, -D, -E, -F Only
8	393795-21*	Motor Assembly (with Sun Gear)	1						
9		Screw, M3 x 16	4						
10		Mount, Motor	1						
11		Washer, Lock	2						
12		Screw, M3 x 6	6						
13		Washer	1						
14		Gear, Planet (First Stage)	3						
15		Gear, Sun (Second Stage)	1						
16		Gear, Planet (Second Stage)	3						
17		Gear, Output Pinion	1						
18		Gear, Internal	1						
19		Spring, Trigger	1						
20		Trigger	1						
21		Ring, Retaining	2					•	
22		Head & Bearing Assembly	1					•	
23		Gear Assembly, Output	1						
24		Washer, 0.24" ID x 0.67" OD	2						
25		Bearing, Roller	1						
26		Yoke	1						
27		Cover, Head	1						
28		Washer, M3 Lock	4						
29		Pin, Roll	2					•	
30		Piston	1					•	
31		Plug	1						
32		Valve, Bleed	1		•				
33		Spring, Bleed Valve	1		•				
34		O-Ring	1		•				
35	336523	Gasket	1						
36		Switch	1			•			
37		PCB	1			•			
38		Battery Connector	1			•			
39***	343291	Battery, 20V, 2.5Ah	1						Models 597-F
39	343521	Battery, 20V, 4.0Ah	1						Models 597-A, -C, -E, -F***
			2						Models 597-B, -D
40	339820	Cylinder Assembly, Grease	1						Models 597-A, -B, -C, -D

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				393795-23 Ball Check Kit	393757 Bleed Valve Kit	393795-24 PCB Kit*	393795-25 LCD & LED Kit*	393795-26 Head Kit*	
41		Ball, Check, 3/8" Diameter	1	•					
42		Spring, Check	1	•					
43		Gasket (Copper)	1	•				•	
44		Plug, Check	1	•					
45		Board, Slide Switch & Reset Button	1				•		
46		LCD	1				•		
47		LED, Flashlight	1				•		
48		Lens, Flashlight	1						
49		Cover, Reset Button	1						
50		Cover, Slide Switch	1						
51	340067	Hose Assembly, Grease	1						Never Substitute
52	308730	Coupler, Grease	1						Never Substitute**
53	343500	North American Charger, Battery (120V AC / 60Hz)	1						Models 597-A, -B
	343501	EU Charger, Battery (230V AC / 50Hz)							Models 597-C, -D
	343523	Australian Charger, Battery (230V AC / 50Hz)							Models 597-E, -F
54		Case, Carrying	1						
Optional									
A	340338	Relief Valve with Gasket							
B	6304-B	Coupler, Grease							
Part numbers left blank are not available separately. *Replacement of these items by someone other than an authorized Alemite Service Center voids the warranty. **Only substitute with 6304-B. ***Indicates change.									

## Intended use

These grease guns have been exclusively designed to pump and dispense lubricant using battery power. Do not exceed the maximum specification ratings.

## Safety instructions

### General power tool safety warnings

#### WARNING

Read all safety warnings and instructions. Failure to follow the warnings and instructions 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.

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# General Safety Rules

## 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. **Power tool plugs must match outlet. Never modify the plug in any way.** Do not use any adapter plugs with earthed (grounded) power tools. Unmodified plugs and matching outlets will reduce risk of electric shock.
- b. **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.
- c. **Do not expose power tools to rain or wet conditions.** Water entering a power tool will increase the risk of electric shock.
- d. **Do not abuse the cord.** Never use the cord for carrying, pulling or unplugging the power tool. Keep cord away from heat, oil, sharp edges or moving parts. Damaged or entangled cords increase the risk of electric shock.
- e. **When operating a power tool outdoors, use an extension cord suitable for outdoor use.** Use of a cord suitable for outdoor use reduces the risk of electric shock.
- f. **If operating a power tool in a damp location is unavoidable, use a Residual Current Device (RCD) protected supply.** Use of an RCD reduces 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, nonskid 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.

## 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 the battery pack 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.** 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.

## 5. Battery tool use and care

- a. **Recharge only with the battery 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.
- b. **Use power tools only with specifically designated battery packs.** Use of any other battery packs may create risk of injury and fire.
- c. **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.

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## Specific Safety

Always wear eye protection. Grease injection injuries are a very serious injury. Hold the hose only in the area of the spring guard. Avoid accidental starting. Be sure switch is not depressed when inserting battery pack. Replace the hose at the first sign of wear, kink or damage to the outside jacket.

Do not bend the hose so that it becomes kinked.

Do not overreach. Keep proper footing and balance at all times. Proper footing and balance enable better control of the tool in unexpected situations.

Use safety equipment. Always wear eye protection.

Dust mask, non-skid safety shoes, hard hat or hearing protection must be used for appropriate conditions.

The gun uses lubricants that may be flammable and poisonous if ingested. Do not use gun near open flame or other fire hazards.

Greases are often marketed as high temperature because it must maintain their lubricating properties in hot areas, but the lubricants may be flammable if the temperature is too high. Please read all warnings on lubricants before using this gun. Do not use flammable greases with this grease gun.

### WARNING

Do not use any hose not approved by Alemite. Extreme pressure may cause nozzle extension or whip hose to burst.

Replace hose at first sign of wear, kinks, or damage to outside jacket.

Follow whip hose instructions and warnings. Failure to comply may result in serious injury or death.

### WARNING

Grease gun can develop high pressure. Use safety glasses and gloves for protection during operation. Keep hands clear of exposed rubber portion of hose.

## Residual risks

Additional residual risks may arise when using the tool which may not be included in the enclosed safety warnings. These risks can arise from misuse, prolonged use, etc.

Even with the application of the relevant safety regulations and the implementation of safety devices, certain residual risks can not be avoided. These include:

- Injuries caused by touching any rotating/ moving parts.
- Injuries caused when changing any parts, blades or accessories.
- Injuries caused by prolonged use of a tool. When using any tool for prolonged periods ensure you take regular breaks.

- Impairment of hearing.
- Health hazards caused by breathing dust developed when using your tool (example: working with wood, especially oak, beech and MDF).

### WARNING

Vibration emission value during actual use of power tool can differ from declared value depending on ways in which the tool is used. Vibration level may increase above level stated.

## Vibration

The declared vibration emission values stated in the technical data and the declaration of conformity have been measured in accordance with a standard test method provided by EN 60745 and may be used for comparing one tool with another. The declared vibration emission value may also be used in a preliminary assessment of exposure.

When assessing vibration exposure to determine safety measures required by 2002/44/EC to protect persons regularly using power tools in employment, an estimation of vibration exposure should consider the actual conditions of use and the way the tool is used, including taking account of all parts of the operating cycle such as the times when the tool is switched off and when it is running idle in addition to the trigger time.

## Labels on tool

The following symbols are shown on the tool.



### WARNING

Do not use tool before reading instruction manual to reduce risk of injury.

## Maintenance

The grease gun has been designed to operate over a long period of time with a minimum of maintenance. Continuous satisfactory operation depends upon proper tool care and regular cleaning.

Your charger does not require any maintenance apart from regular cleaning.

### WARNING

Do not perform maintenance on tool with battery installed.

Do not clean charger with it plugged in.

**NOTE:** Regularly clean ventilation slots in tool and charger using a soft brush or dry cloth.

Regularly clean motor housing using a damp cloth. Do not use any abrasive or solvent-based cleaner.

Regularly open chuck and tap it to remove any dust.

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## Protecting the environment

Should you find one day that your Alemite product needs replacement, or if it is of no further use to you, do not dispose of it with household waste. Make this product available for separate collection.

Local regulations may provide for separate collection of electrical products from the household, at municipal waste sites or by the retailer when you purchase a new product.



**NOTE:** Separate collection. Do not dispose of with normal household waste.



**NOTE:** Separate collection of used products and packaging allows materials to be recycled and used again.

Reuse of recycled materials helps prevent environmental pollution and reduces the demand for raw materials.



**NOTE:** Run battery down completely and remove from tool.

NiCd, NiMH and Li-Ion batteries are recyclable. Take to any authorized repair agent or local recycling.



**NOTE:** Do not expose battery to fire.

### **⚠ DANGER**

Do not expose battery to spark or flame.

Battery liquid may burn.

Do not splash or immerse in water or other liquids. This may cause premature cell failure.

Failure to comply may result in serious injury or death.

### **⚠ DANGER**

Never attempt to open battery pack for any reason. If plastic housing of battery pack breaks or cracks, return to a service center for recycling.

Failure to comply may result in serious injury or death.

### **⚠ CAUTION**

Do not charge battery packs with any other charger.

Do not charge any other type of battery with the battery charger. Other types of batteries may burst.

Do not clean charger with it plugged into electrical outlet.

Failure to comply may result in serious personal injury.

## Safety instructions for battery and charger

### Save these instructions

This manual contains important safety and operating instruction for the battery charger.

### **⚠ DANGER**

Do not probe with conductive objects.

Do not charge damaged battery. Replace immediately.

Risk of Electric Shock 120 V AC or 230 V AC present at charger terminals.

Failure to comply may result in serious injury or death.

### Batteries

- Never attempt to open for any reason.
- Do not expose the battery to water.
- Do not store in locations where the temperature may exceed 105 °F (40 °C) such as outside sheds or metal buildings in the summer.
- Charge only at ambient temperatures between 50 and 104 °F (10 and 40 °C).
- Charge only using the charger provided with the tool.
- When disposing of batteries, follow the instructions given in the section "Protecting the environment".



**NOTE:** Do not attempt to charge damaged batteries.

### Charger

- Before using a battery charger, read all instructions and cautionary markings on battery charger, battery pack, and product using battery.
- Do not expose charger to rain, snow or frost.
- Do not abuse cord. Never carry charger by cord or pull on it to disconnect from receptacle. Pull by plug rather than cord when disconnecting charger. Have damaged or worn power cord and strain reliever replaced immediately. Do not attempt to repair power cord.
- Locate cord so that it will not be stepped on, tripped over, or otherwise subjected to damage or stress.
- Do not use an extension cord unless absolutely necessary. Use of improper extension cord could result in a risk of fire and electric shock.
- Do not operate charger if it has received a sharp blow, been dropped, or otherwise damaged in any way, take it to a qualified service center.
- Do not disassemble charger or battery pack. Take it to a qualified service center when service or repair is required. Incorrect reassembly may result in risk of electrical shock or fire.
- Unplug charger from outlet before attempting any cleaning to reduce risk of electric shock.

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- Charge the battery pack in a well ventilated place; do not cover the charger and battery with anything while charging.
- Do not store the charger or battery packs in locations where the temperature may reach or exceed 122 °F (50 °C) such as a metal tool shed, or a car in the summer. High temperatures can lead to deterioration of the storage battery.
- Do not charge battery pack when the temperature is below 40 °F (5 °C) or above 105 °F (40 °C). This is very important for proper operation.
- Do not incinerate battery pack. It can explode in a fire.
- Do not charge battery in damp or wet locations.
- Do not short across the terminals of the battery pack. Extremely high temperatures could cause personal injury or fire.
- This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities or lack of experience and knowledge.
- The battery pack contains rechargeable, lithium-ion batteries. Batteries must be recycled or disposed of properly. Drop off expended battery packs at your local replacement battery retailer, or your recycling center.



**NOTE:** The charger is intended for indoor use only.



**NOTE:** Read the instruction manual before use.



**NOTE:** Charger is double insulated and no ground wire is required. Check that the mains voltage corresponds to the voltage on rating plate. Never attempt to replace the charger unit with a regular mains plug.

## Electrical Safety

If the supply cord is damaged, it must be replaced by the manufacturer or an authorized Alemite Service Center in order to avoid a hazard.

## Loading the Grease Gun

**NOTE:** Refer to **Figure 2** for component identification on the following procedures.

### Cartridge Loading

1. Unscrew Grease Cylinder (**40**) from the gun.
2. Pull the follower rod and engage the groove in the follower rod with the slot in the Grease Cylinder cap.
3. Remove the plastic cap from the cartridge.
4. Apply a film of grease to the exposed inside surface of the cartridge.

NOTE: This is only necessary for a virgin gun.

5. Insert the cartridge into the Grease Cylinder.
  - Remove the tabbed seal from the cartridge.
6. Screw the Grease Cylinder onto the gun.
7. Disengage the follower rod from slot in the Grease Cylinder cap.
  - Push the follower rod into the Grease Cylinder.

### Suction Loading

1. Unscrew Grease Cylinder (**40**) from gun.
2. Insert the head of the Grease Cylinder below the surface of the grease.
3. Slowly pull the follower rod outward from the Grease Cylinder cap until the groove is visible.
4. Engage the groove in the follower rod with the slot in the Grease Cylinder's cap.
5. Screw the Grease Cylinder onto the gun.
6. Disengage the follower rod from the slot in the Grease Cylinder cap.
  - Push the follower rod into the Grease Cylinder.

### Loader Pump



#### WARNING

The gun can be equipped with an optional low-pressure Loader Fitting 322610. Do not substitute with a high-pressure grease fitting. Personal injury can occur due to excessive pressure.

The use of a grease fitting will void the warranty.

**CAUTION:** The Loader Fitting on the gun must mate with the loader coupler. The pump may not operate if the components are not compatible.

1. Pull the follower rod and engage the follower by rotating the rod.
2. Seat the Loader Fitting into the loader coupler.
  - Push down to hold the coupler valve open.
3. Operate the pump and view the movement of the follower rod.
4. Discontinue pump operation once the groove on the follower rod is visible.
5. Disengage follower rod from follower and push into the Grease Cylinder.

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## Priming the Gun

In most cases the gun will prime simply by operating the Trigger several times. Should grease fail to appear, air must be bled.

### Force Prime

This process manually assists air within the gun to be bled at the Bleed Valve.

1. Pull the follower rod and engage the follower by rotating the rod.
2. Depress Bleed Valve (32) and at the same time push on the follower rod.

Once the air is eliminated, operate the gun several times.

Once grease appears, disengage the follower rod from the follower and push into the Grease Cylinder.

### Check Valve Contamination

Should the gun fail to prime; the outlet check may be held open. Remove Plug (44), clean Ball (41), and the Ball seat of Head (21).

## Gun Operation

Battery (39) is intentionally shipped with a low charge. Charge the Battery prior to use.

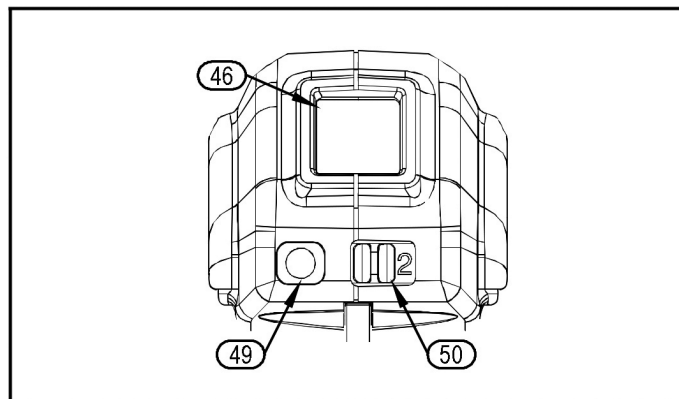
- Refer to the Battery Charger Operation section for details.

**CAUTION:** The gun is equipped with software to protect the motor. When a blocked bearing, line, or grease fitting causes the gun to stall, the software will cut power to the motor and the LCD will illuminate with solid red LED backlight. If this situation occurs, release the trigger immediately.

For maximum motor life, avoid operating at stall.

### Speed Selection

The gun is equipped with a two speed electronic transmission to provide a high and low flow rate, refer to Specifications for performance at each speed. The gun is in high speed when "2" is shown on the slide switch (50), see figure for illustration. Maximum pressure can be achieved in both High (2) and Low Speed (1). See **Figure 3**.



**Figure 3** – LCD Display, Speed Selection and Reset Button

### LCD Functions

The Liquid Crystal Display (46) features an electronic grease meter, grease level gauge, and battery level indicator. To turn the LCD ON, tap the reset button (49) one time. See **Figure 3**.

To enter reset mode, press and hold the reset button. After 2 seconds the digits of the grease meter begin to flash, unit of measure (oz/g).

Releasing the reset button when grease meter digits is flashing will reset the meter to zero, releasing the button while the grease cylinder level segments are flashing will restore the gauge to full, and releasing the button while the unit of measure is flashing will change unit of measure.

### Stall Indication

During stall condition (in the case of a clogged fitting or line) the gun will stop pumping grease and the LCD display will be illuminated with Red backlight. If this condition occurs, release trigger immediately. Inspect, clean, and/or fix the grease passage before trying to dispense grease into the system.

### Loss of Prime Indication

Loss of prime occurs when there is an air pocket in the grease or when the grease cylinder is empty. When this occurs the LCD screen will flash Red to indicate that the gun is not pumping grease. During loss of prime the grease meter does not count empty piston strokes.

### Flashlight

To turn the flashlight ON, tap the reset button one time. If the LCD screen is not already ON, two taps of the reset button would be required to turn the flashlight ON.

To turn the flashlight OFF, simply tap the reset button one time. The flashlight will automatically turn OFF after 20 seconds unless the trigger is operated to dispense grease. If trigger is pressed to operate the gun, the light will remain ON until 20 seconds after the trigger is released.

# Battery and Charger Safety Rules

This manual contains important safety and operating instructions for Battery part number 343521 and Battery Chargers 343500, 343501 and 343523.

## ⚠ WARNING

Before using the Battery Charger read all instructions and cautionary markings on Battery Charger (53), Battery (39), and products using the Battery.

An extension cord should not be used unless absolutely necessary. Use of an improper extension cord could result in a risk of fire and electric shock. If an extension cord must be used, make sure it is 18- gauge. Check to ensure that the pins on the plug of the extension cord are the same number, size, and shape as those of the plug on the Charger. Make sure that the extension cord is properly wired and in good electrical condition.

Do not incinerate the Battery, even if it is severely damaged or completely worn out. The Battery may explode in fire.

If the supply cord is damaged it must be replaced by the manufacturer, it's service agent or similarly qualified persons in order to avoid a hazard.

## ⚠ CAUTION

- Do not expose the Charger to rain, snow, or frost.
- Make sure the cord is located so that it will not be stepped on, tripped over, or otherwise subjected to damage or stress.
- Do not operate the Charger with damaged cord or plug. Replace immediately.
- Do not operate the Charger if it has received a sharp blow, been dropped, or otherwise damaged in any way.
- Do not disassemble the Charger.
- The Charger is designed to operate on standard household electrical power. Do not attempt to use it on any other voltage.
- Consecutive charging may cause overheating. If you need to recharge the Battery consecutively, wait for about 15 minutes to allow the Charger to cool.
- Do not insert foreign material into the slot for the Battery in the Charger stand.
- Do not disassemble the Battery.
- Do not store the gun and Battery assembly in locations where the temperature may reach or exceed 104°F (40°C).
- Do not short-circuit the Battery.
- Do not place the Charger in an area of extreme heat or cold. It works best at normal room temperature.

# Battery Charger Operation

Charge the Battery only with the Charger provided or optional mobile charger 343289. Make sure power circuit voltage is same as that shown on the charger specifications plate. Ensure the Battery properly engages with the charger's contacts.

The Battery will become slightly warm to the touch while charging. This is normal and does not indicate a problem.

## Leaving the Battery in the Charger

The Battery can be left connected in the Charger with the green LED glowing indefinitely. The Charger will keep the Battery fresh and fully charged. The Charger features an automatic tune-up mode which equals or balances the individual cells within the Battery to enable it to function at peak capacity. Batteries should be tuned-up weekly or whenever the Battery no longer delivers the same amount of work. To use the automatic tune-up mode, place the Battery in the Charger for a minimum of 8 hours.

## Function of Red and Green Lights

When the charger is powered on, the Green light will flash one time.

LED Light	Description
Green Light Flashing ■ ■ ■ ■ ■	Charging.
Green Light On ■ ■ ■ ■ ■	Battery is fully charged.
Red Light Flashing at 4HZ ■ ■ ■ ■ ■	Bad Battery condition. The Charger has the ability to detect a weak or damaged battery. If this LED function occurs, do not continue to charge the Battery. Return it to a service center or a collection site for recycling.
Red Light Flashing at 1HZ/5HZ ■ ■ ■ ■ ■	Hot/Cold Battery. When the Charger detects that a Battery is excessively hot or cold, charging is suspended until the Battery has normalized. Once battery is at a temperature between to 40° F (4° C) and 104° F (40° C), the charger automatically switches to Charging mode. Battery overheating could be attributed to: <ul style="list-style-type: none"><li>• Long continuous running</li><li>• Hot ambient temperature</li><li>• One or more cells are damaged</li></ul>

Table 4 – Charging status