



AcraDyne Gen IV 2000 Series Nutrunners Operations Manual



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INTRODUCTION

Thank you for purchasing this AcraDyne DC electric assembly tool, one of the lightest and fastest DC electric assembly tools on the market. When used with the AcraDyne iEC tool controller, this tool will provide excellent productivity, ergonomics, reliability and quality on a wide range of industrial assembly applications.

Safety Information

SAVE THESE INSTRUCTIONS

1) WORK AREA

- a) Keep work area clean and well lit. Cluttered and dark areas invite accidents.
- b) Do not operate power tools in explosive atmospheres, such as 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 the 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 of outdoor use reduces the risk of electric shock
- f) It is not recommended to use AcraDyne controllers or tools outside or to use an extension cord to connect the controller to a power source.

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 safety equipment. Always wear eye protection. Safety equipment such as dust mask, non-skid safety shoes, hard hat, or hearing protection used for appropriate conditions will reduce personal injuries. If the maximum duty cycle of the attached tool is exceeded or the tool temperature exceeds 50° C., then the operator should wear protective hand wear (gloves).
- c) Avoid accidental starting. Ensure the switch is in the off-position before plugging in. Carrying power tools with your finger on the switch or plugging in 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 these devices 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) This product is designed to be used in combination with the AcraDyne iEC DC tool controller for intermittent hand-held or fixtured assembly processes.

OPERATION



Make sure that power is not turned on at the controller before making any connections to tool.

1. Connect tool cable to the iEC controller and the tool:
The tool cable has curved alignment tabs and slots built into the connectors at each end to ensure proper alignment and connection with the tool and controller.

Align the female connector on the cable with the male connector on the tool and insert the cable onto the tool, then slide the connector nut onto the threads on the cable and turn clockwise until hand-tight.

Align the male connector tab on the other end of the tool cable with the female slot on the controller and insert the cable into the connector, then slide the metal outer cover onto the connection threads on the controller and turn clockwise until hand-tight.

2. Multifunction Button Operation:

The tool will flash all LED lights three times when power is first turned on at the controller. After the controller finishes initializing and displays a target torque value, the multifunction button (MFB) is used to toggle the tool from clockwise mode (FWD) to counter-clockwise operation mode (REV). The MFB is the small button opposite the trigger. **The MFB is user configurable in the controller software so this applies to factory default settings only.**

The tool will initially start in clockwise mode and will have no LED lights turned on. If the trigger is pressed, the tool will turn on the blue LED once In Cycle Torque is reached meaning the tightening operation is underway. Pressing the

MFB will cause all tool LED lights to flash. Pressing the MFB again will switch the tool back FWD mode and will indicate this with no LED lights turned on. (**Factory default setting**)

3. Start Lever Operation:

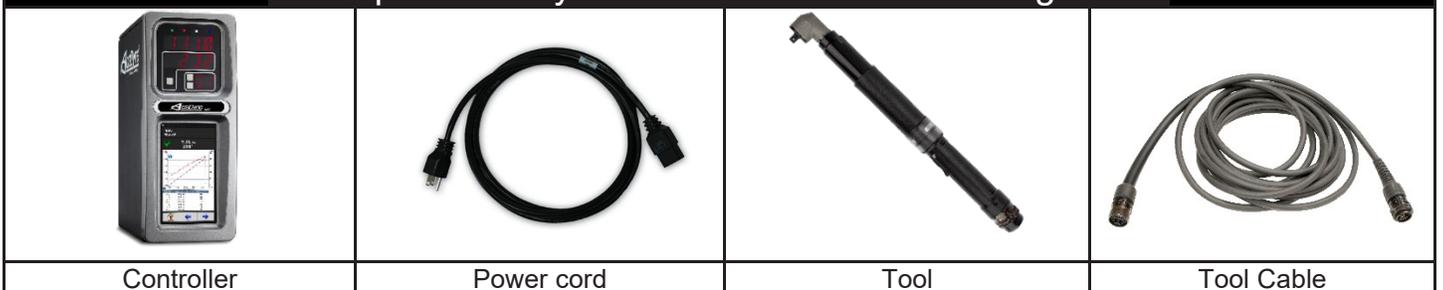
To start the tool, depress the start lever. Blue LED lights will be displayed while tightening a bolt once In Cycle Torque is reached. The tool will stop automatically when it senses its target torque value or if no torque is sensed in a specified time period. After a cycle is complete, the tool will display green LED lights for a success, or red LED lights for failure to reach torque/angle. Previous cycle result will remain lit until a new cycle is started and surpasses In Cycle Torque setting.

Light Ring Light Assignment

The Buzzer and Multi-Function Button are configurable in the Tool Controller Software.

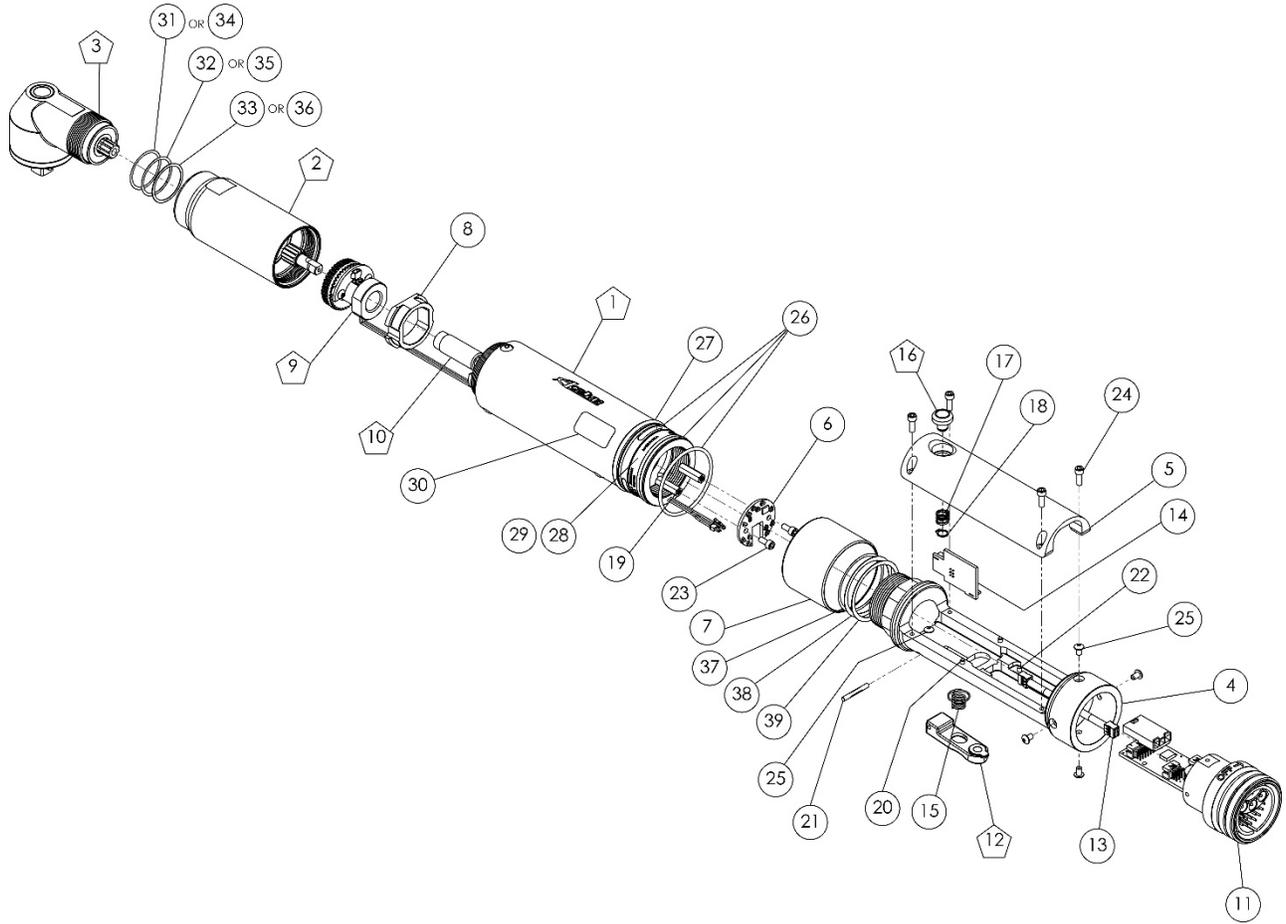
Light Color	Meaning
Green Solid	OK
Red Flashing	Torque Low
Red Solid	Torque High
Yellow Flashing	Angle Low
Yellow Solid	Angle High
Blue Solid	Tool In-Cycle/Tool Armed
Blue Flashing	P-Set Change thru MFB
All On Flashing	Tool in Disassembly
Buzzer	Bad Assembly/Tool in Disassembly/Power Up

A complete tool system consists of the following items:



GEN 4 2000 SERIES ANGLE NUTRUNNERS

Assembly for: AEN4C22014B, AEN4C22024B, AEN4F22029B, AEN4F22036B, AEN4F22043B, AEN4F22055B

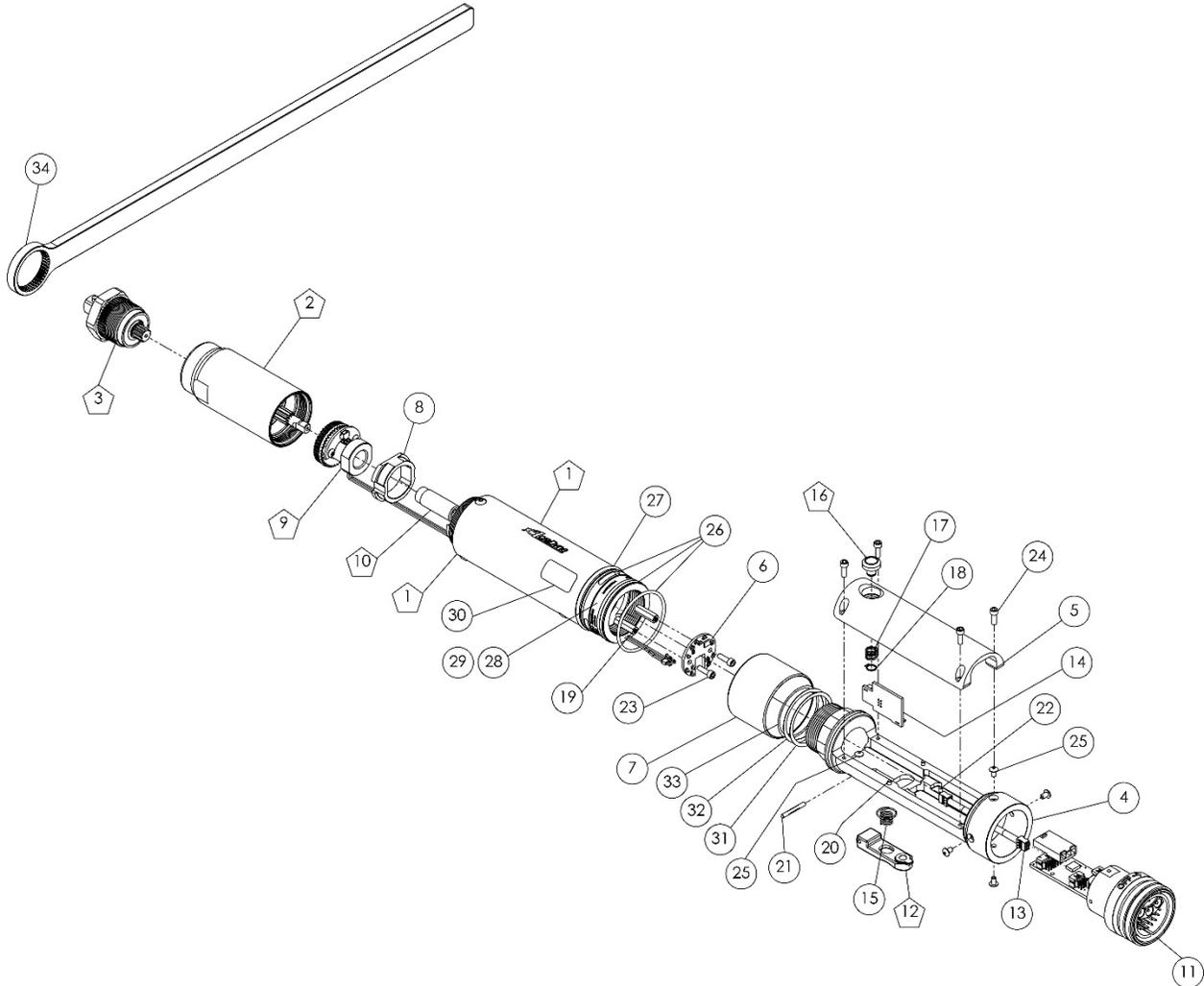


Item #	Part #	Description	Qty
1	31056	Motor Asm. 2000 B Series	1
2	24860	Gear Case Sub Asm. for AEN4C22014B	1
	24709	Gear Case Sub Asm. for AEN4C22024B	1
	24901	Gear Case Sub Asm. for AEN4F22029B	1
	24894	Gear Case Sub Asm. for AEN4F22036B	1
	24902	Gear Case Sub Asm. for AEN4F22043B	1
	24904	Gear Case Sub Asm. for AEN4F22055B	1
3	24698	Straight Output Asm., 3/8" Sq. Dr., 2000 Series	1
4	28754	Lever Handle	1
5	29186	Lever Handle Cover	1
6	30966	LED Board Asm. i2C	1
7	29198	LED Cover, Large Dia.	1
8	25763	Transducer Adapter	1
9	31048.001	Transducer Sub Asm. for AEN4C22014B	1
	31048.003	Transducer Sub Asm. for AEN4C22024B	1
	31048.004	Transducer Sub Asm. for AEN4F22029B	1
	31045.001	Transducer Sub Asm. for AEN4F22036B	1
	31045.003	Transducer Sub Asm. for AEN4F22043B	1
	31045.005	Transducer Sub Asm. for AEN4F22055B	1
10	24780	Transducer Sub-Asm.	1
11	28767	Tool Conn. Asm.	1
12	29189	Trigger Sub Asm.	1
13	29202	Trigger Cable Asm., 6 pin - 6 pin	1
14	29191	Trigger/Mfg. Board Asm., 2000 Series, Gen 4	1
15	20132	Throttle Spring	1
16	25557	Rev Button Sub-Asm.	1
17	24683	Spring, Rev Button	11
18	24679	Retaining Ring	1
19	29207	Standoff, F-F, 4-40 x 5/8, 3/16 hex, AL	2
20	31061	Dowel Pin, 3/32 x 1/4, Steel	2

Item #	Part #	Description	Qty
21	31051	Dowel Pin, .094 x .75, Grooved, Steel, Zinc Plated	1
22	29184	Dowel Pin, .094 x .25, Plastic	2
23	25075	Screw, SHC 4-40 x .375, Steel, Black Oxide	2
24	26078	Screw, SHC 4-40 x 5/16, Black Oxide	4
25	25745	Screw, BHSC 4-40 Steel, Black Oxide	5
26	27204	O-Ring, Outer Clutch Plate	3
27	26720	O-Ring, Light Ring	1
28	20534	2000 Serial/Model Label	1
29 (not shown)	25471	Label SN# Cover, .25 x 4"	1
30	22141	Safety Label	1
31	21091	Shim, Pinion Shaft, .002 --- 2000 Series AEN4F22029B, AEN4F22036B, AEN4F22043B, & AEN4F22055B models	1
32	21092	Shim, Pinion Shaft, .005 --- 2000 Series AEN4F22029B, AEN4F22036B, AEN4F22043B, & AEN4F22055B models	1
33	21093	Shim, Pinion Shaft, .010 --- 2000 Series AEN4F22029B, AEN4F22036B, AEN4F22043B, & AEN4F22055B models	1
34	24855	Shim, .1 mm, Angle Head for AEN4C22014B & AEN4C22024B models	1
35	24856	Shim, .2 mm, Angle Head for AEN4C22014B & AEN4C22024B models	1
36	24857	Shim, .3 mm, Angle Head for AEN4C22014B & AEN4C22024B models	1
37	23741	Shim, Output, .002 in, 40 Nm	A/R
38	21022	Shim, Blank Output Shaft, 0.005 thk	A/R
39	21021	Shim, Blank Output Shaft, 0.010 thk	A/R
40 (not shown)	28257	Cable Tie, 1.65 mm x 71 mm	A/R

GEN 4 2000 SERIES INLINE NUTRUNNERS

Assembly for: AES4A22020B, AES4A22025B, AES4A22030B, AES4A22035B, AES4A22040B



Item #	Part #	Description	Qty
1	31056	Motor Asm., 2000 B Series	1
2	24901	Gear Case Sub-Asm. for AES4A22020B	1
	24894	Gear Case Sub-Asm. for AES4A22025B	1
	24902	Gear Case Sub-Asm. for AES4A22030B	1
	24903	Gear Case Sub-Asm. for AES4A22035B	1
	2904	Gear Case Sub-Asm. for AES4A22040B	1
3	24698	Straight Output Asm., 3/8" Sq. Dr., 2000 Series	1
4	28754	Lever Handle	1
5	29186	Cover, Lever Handle	1
6	30966	LED Board Asm., I2C	1
7	29198	LED Cover, Large Dia.	1
8	25763	Transducer Adaptor	1
9	31048.005	Transducer Sub-Asm. for AES4A22020B	1
	31045.002	Transducer Sub-Asm. for AES4A22025B	1
	31045.004	Transducer Sub-Asm. for AES4A22030B	1
	31045.005	Transducer Sub-Asm. for AES4A22035B	1
	31045.006	Transducer Sub-Asm. for AES4A22040B	1
10	24780	Motor Coupler Sub-Asm.	1
11	28767	Tool Conn. Asm.	1
12	29189	Trigger Sub-Asm.	1
13	29202	Trigger Cable Asm., 6 Pin - 6 Pin	1
14	29191	Trigger/Mfg Board Asm., 2000-Series, Gen 4	1
15	20132	Throttle Spring	1

Item #	Part #	Description	Qty
16	25557	Rev Button Sub-Assembly	1
17	24683	Spring, Rev Button	1
18	24679	Retaining Ring	1
19	29207	Standoff, F-F, 4-40 x 5/8, 3/16 Hex, Al	2
20	31061	Dowel Pin, 3/32 x 1/4, Steel	2
21	31051	Dowel Pin, .094 x .75, Grooved, Steel, Zinc Plated	1
22	29184	Dowel Pin, .094 X .25, Plastic	2
23	25075	Screw, SHC 4-40 x .375, Steel, Black Oxide	2
24	26078	Screw, SHC 4-40 X 5/16, Black Oxide	4
25	25745	Screw, BHSC 4-40 Steel, Black Oxide	5
26	27204	O-Ring, Outer Clutch Plate	3
27	26720	O-Ring, Light Ring	1
28	20534	2000 Serial/Model Label	1
29 (not shown)	25471	Label SN# Cover, .25 x 4"	1
30	22141	Safety Label	1
31	21021	Shim, Blank Output Shaft, 0.010 Tk	A/R
32	21022	Shim, Blank Output Shaft, 0.005 Thk	A/R
33	23741	Shim, Output, .002 in, 40 Nm	A/R
34	24697	Reaction Bar, Steel, 2000 Series	1
35 (not shown)	28257	CABLE TIE, 1.65mm x 71mm	A/R

SPECIFICATIONS

Environmental

- Operating Temperature: 0°C to 32°C
- Storage Temperature: 0°C to 65°C
- Humidity:
 - 5% to 90% RH, Non-Condensing, for temperatures 0°C to 40°C
 - 5% to 60% RH, Non-Condensing, for temperatures 0°C to 65°C
- Maximum Altitude of Operation: 3000m
- Maximum decibel level: 73 dB(A)

Electrical

- Motor Type: BLDC
 - Motor Phase Voltage: 160 Volts Pulse DC @ Controller Supply Voltage of 120 RMS, or 320 Volts Pulse DC @ Controller Supply Voltage of 230 RMS
- Duty Cycle: The nutrunner tools are intended for intermittent operation with a recommended maximum duty cycle of 25% at 80% of maximum torque capacity on a standard B-joint application. Note: Actual maximum duty cycles are dependent upon several factors, including ambient temperature, tool selection, joint conditions, fastener length, and tool programming strategies. For optimum duty cycle determinations, please contact your AcraDyne sales representative.

Physical

- 2.7 lbs/1.2 kg – 3.2 lbs/1.5 kg

Performance

- Torque range: 14 – 55 Nm
- Speed Range: 394 – 1,750 RPM



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