



# **AcraDyne Gen III 3000 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) This tool is intended for indoor use only.

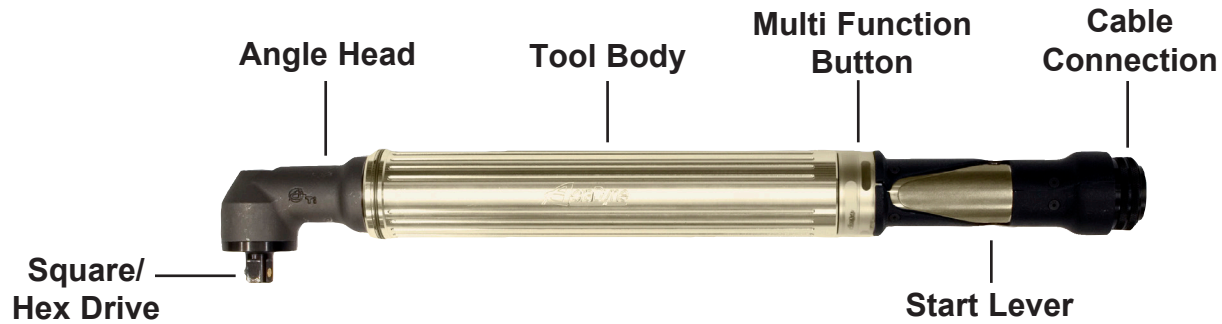
#### 3) PERSONAL SAFETY

- 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



**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.

**Make sure that power is not turned on at the controller before making any connections.** 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 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 meaning the tightening operation is

underway. Pressing the MFB will cause the tool to flash yellow and red LED lights. Pressing the MFB again will switch the tool back FWD mode and will indicate this with no LED lights turned on.

## 3. Start Lever Operation:

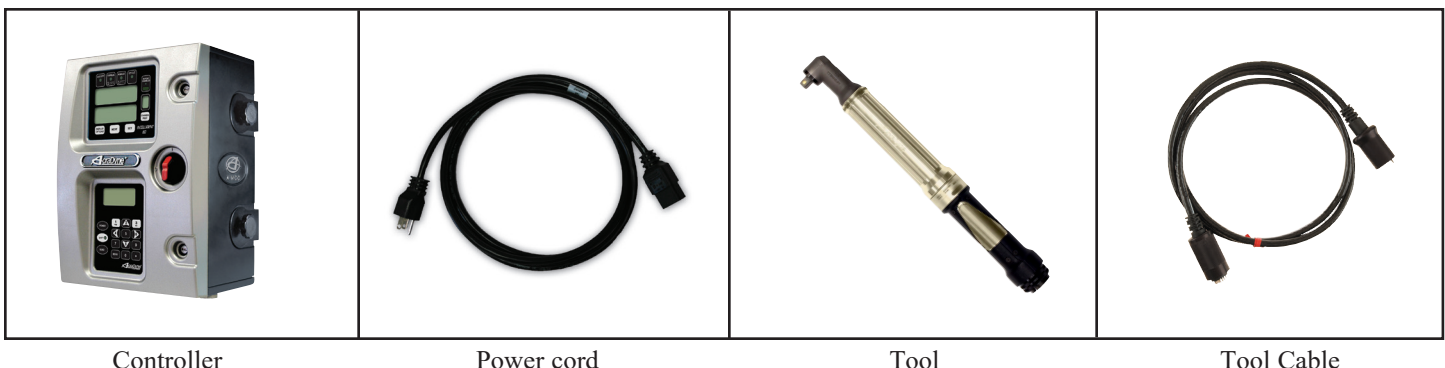
To start the tool, depress the start lever. Blue LED lights will be displayed while tightening a bolt. The tool will stop automatically when it senses its target torque value or if no torque is sensed in a specified time period. After a cycle is complete, the tool will display green LED lights for a success, or red LED lights for failure to reach torque/angle.

### Light Ring Light Assignment

The Buzzer and Multi-Function Button are programmable in the DSP Menu of ToolWare.

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 III 3000 SERIES ANGLE NUTRUNNERS

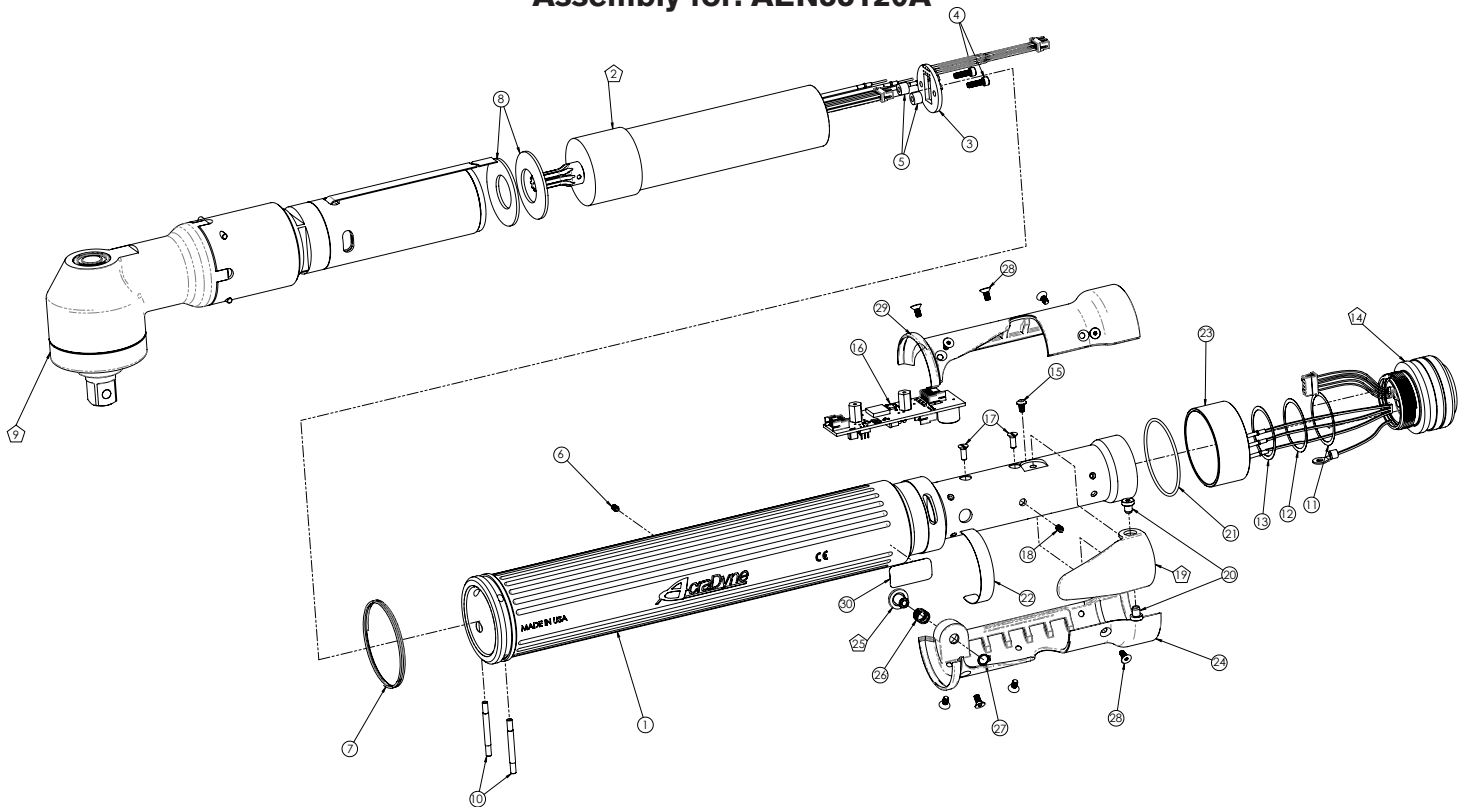
Assembly for: AEN33060A and AEN33090A



ITEM #	AEN 33060A	AEN 33090A	QTY.	PART #	DESCRIPTION
1	X	X	1	25057	NUTRUNNER HOUSING, G1-3K
2	X	X	1	25525	MOTOR ASSY, 9T, 3000 SERIES
3	X	X	1	25063	LED BOARD ASM.
4	X	X	2	25075	SCREW, SHC 4-40X.375, STEEL, BLACK OXIDE
5	X	X	2	25430	STAND-OFF, LED, 3000 SERIES
6	X	X	1	25073	SCREW, SET 4-40X.375, STEEL, BLACK OXIDE
7	X	X	1	25299	SPIRAL RETAINING RING
8	X	X	2	20058	BELLEVILLE WASHER
9	X	X	1	25417	GEAR TRAIN ASSY, ANGLE HEAD
			1	20146	
10	X	X	2	20201	RETAINING PIN --- 3000 SERIES
11	X	X	A/R	25271	SHIM. - .002
12	X	X	A/R	25272	SHIM. - .005
13	X	X	A/R	25273	SHIM. - .010
14	X	X	1	25418	TOOL CONNECTOR ASM GEN III TOOLS
15	X	X	1	25102	Screw, BHC4-40X.188, STEEL, BLACK OXIDE
16	X	X	1	25402	T.I.D. BOARD ASM. - GEN III
17	X	X	2	24934	FLAT HEAD CAP SCREW
18	X	X	1	25071	SPRING, LEVER
19	X	X	1	25074	LEVER ASSEMBLY
20	X	X	2	20061	SCREW, LEVER
21	X	X	1	25072	O-RING, LED LIGHT RING COVER
22	X	X	1	20534	3000 SERIAL/MODEL LABEL
23	X	X	1	25058	LIGHT RING COVER, LED
24	X	X	1	25060	HANDLE COVER, REV. BUTTON
25	X	X	1	24706	REV BUTTON SUB-ASSEMBLY
26	X	X	1	24683	SPRING, REV BUTTON
27	X	X	1	24679	RETAINING RNG
28	X	X	10	24940	SCREW, FHSC 4-40 X .25 LG., STEEL, BLACK OXIDE
29	X	X	1	25059	HANDLE COVER
30	X	X	1	22141	SAFETY LABEL

# GEN III 3000 SERIES ANGLE NUTRUNNERS

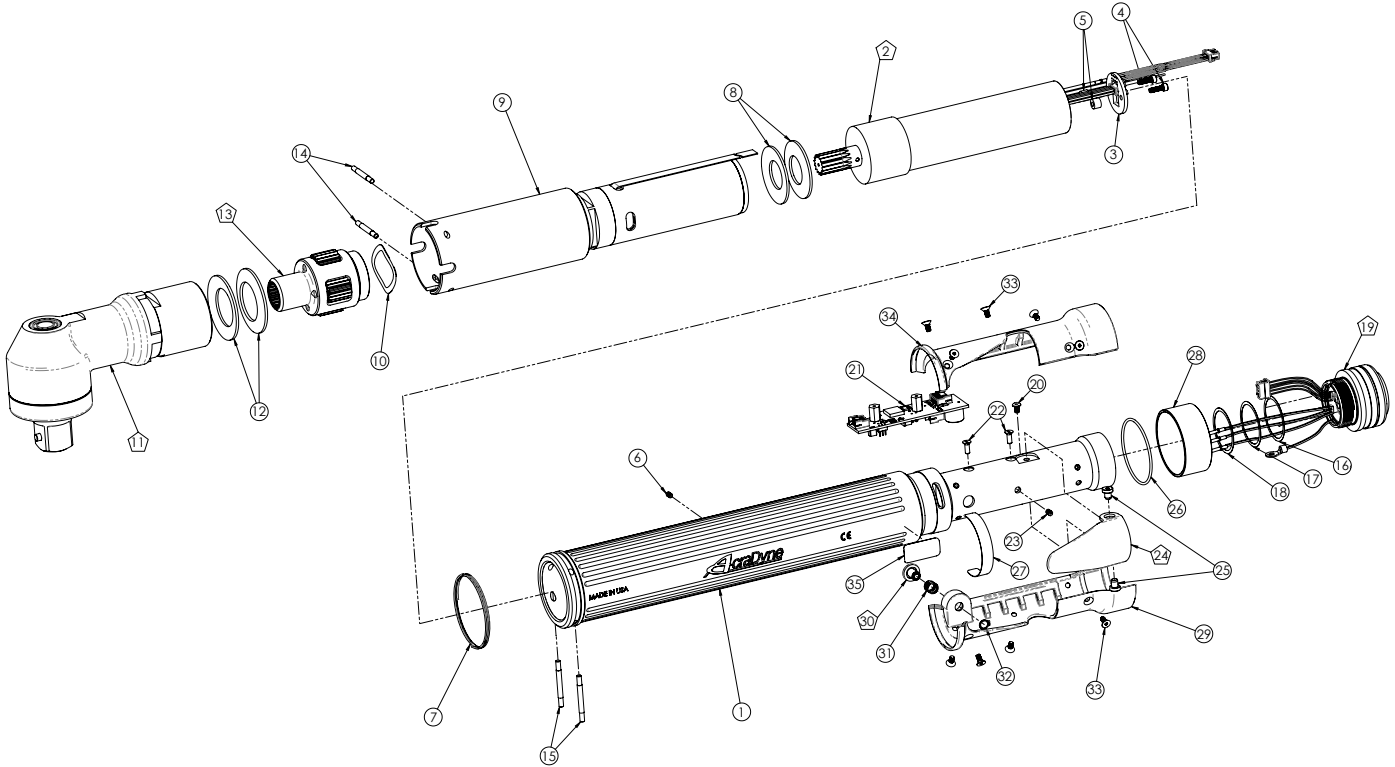
Assembly for: AEN33120A



ITEM #	AEN 33120A	QTY.	PART #	DESCRIPTION
1	X	1	25057	NUTRUNNER HOUSING, G1-3K
2	X	1	25525	MOTOR ASSY, 9T, 3000 SERIES
3	X	1	25063	LED BOARD ASM.
4	X	2	25075	SCREW, SHC 4-40X.375, STEEL, BLACK OXIDE
5	X	2	25430	STAND-OFF, LED, 3000 SERIES
6	X	1	25073	SCREW, SET 4-40X.375, STEEL, BLACK OXIDE
7	X	1	25299	SPIRAL RETAINING RING
8	X	2	20058	BELLEVILLE WASHER
9	X	1	24489	ANGLE HEAD/GEAR TRAIN ASM.
10	X	2	20201	RETAINING PIN --- 3000 SERIES
11	X	A/R	25271	SHIM. - .002
12	X	A/R	25272	SHIM. - .005
13	X	A/R	25273	SHIM. - .010
14	X	1	25418	TOOL CONNECTOR ASM GEN III TOOLS
15	X	1	25102	Screw, BHC4-40X.188, STEEL, BLACK OXIDE
16	X	1	25402	T.I.D. BOARD ASM. - GEN III
17	X	2	24934	FLAT HEAD CAP SCREW
18	X	1	25071	SPRING, LEVER
19	X	1	25074	LEVER ASSEMBLY
20	X	2	20061	SCREW, LEVER
21	X	1	25072	O-RING, LED LIGHT RING COVER
22	X	1	20534	3000 SERIAL/MODEL LABEL
23	X	1	25058	LIGHT RING COVER, LED
24	X	1	25060	HANDLE COVER, REV. BUTTON
25	X	1	24706	REV BUTTON SUB-ASSEMBLY
26	X	1	24683	SPRING, REV BUTTON
27	X	1	24679	RETAINING RING
28	X	10	24940	SCREW, FHSC 4-40 X .25 LG., STEEL, BLACK OXIDE
29	X	1	25059	HANDLE COVER
30	X	1	22141	SAFETY LABEL

# GEN III 3000 SERIES ANGLE NUTRUNNERS

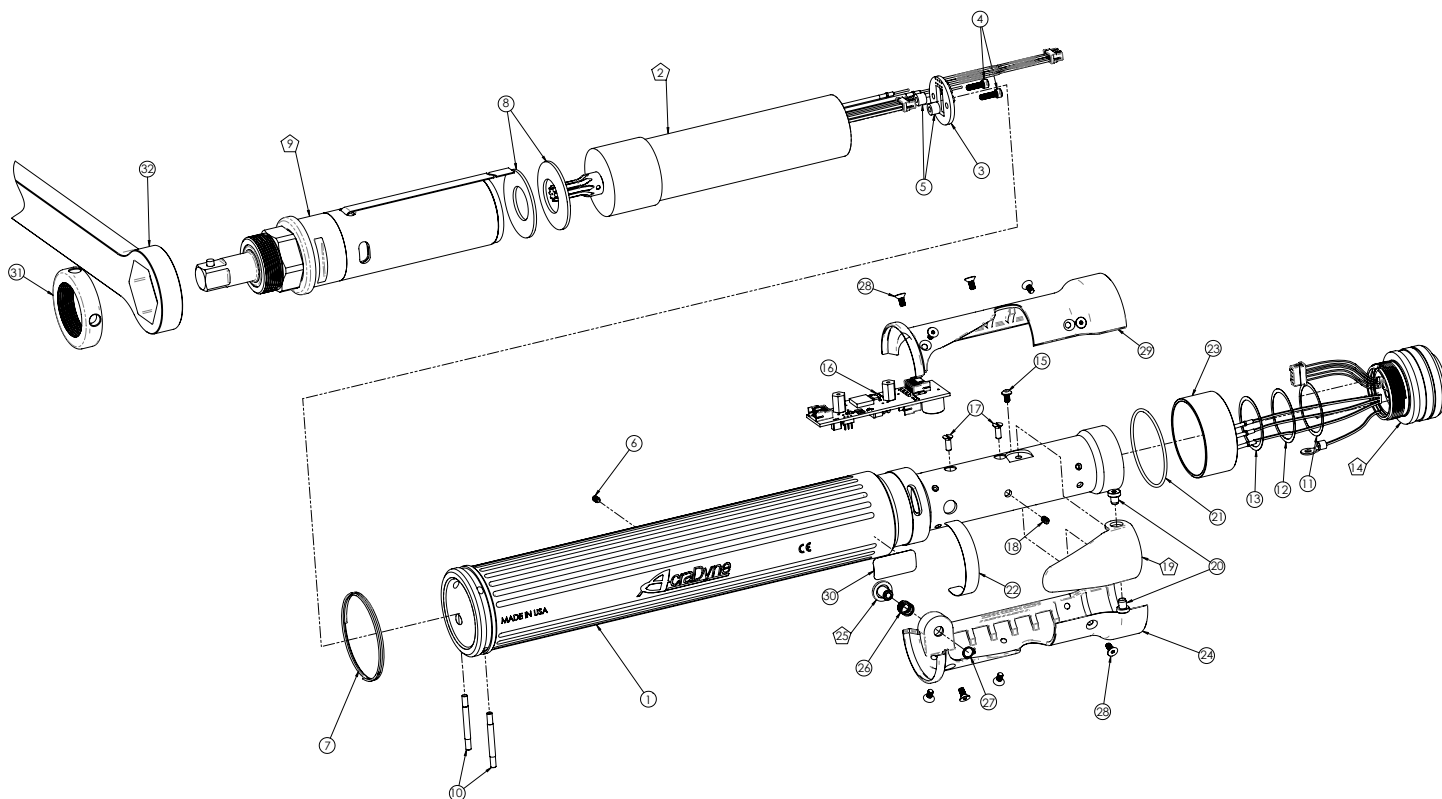
Assembly for: AEN33200A, AEN33300A and AEN33450A



ITEM #	AEN 33200A	AEN 33300A	AEN 33450A	QTY.	PART #	DESCRIPTION
1	X	X	X	1	25057	NUTRUNNER HOUSING, G1-3K
2	X	X	X	1	25530	MOTOR / ID BOARD ASSY, 15 T, 3000 SERIES
3	X	X	X	1	25063	LED BOARD ASM.
4	X	X	X	2	25075	SCREW, SHC 4-40X.375, STEEL, BLACK OXIDE
5	X	X	X	2	25430	STAND-OFF, LED, 3000 SERIES
6	X	X	X	1	25073	SCREW, SET 4-40X.375, STEEL, BLACK OXIDE
7	X	X	X	1	25299	SPIRAL RETAINING RING
8	X	X	X	2	20058	BELLEVILLE WASHER
9	X			1	21382	GEAR TRAIN ASSY, TRIPLE STEP, 13.94:1 RATIO
		X		1	21381	GEAR TRAIN ASM. (20.74:1)
			X	1	20921	GEAR TRAIN ASM. (30.87:1)
10	X	X	X	1	20912	WAVE SPRING --- 3000 SERIES
11	X	X	X	1	23461	ASSY, RIGHT ANGLE HEAD, 0.75 DRIVE, 200 NM
12	X	X	X	2	20911	BELLEVILLE WASHER
13	X	X	X	1	20924	ASSEMBLY, GEAR CARRIER, THIRD STAGE
14	X	X	X	2	20913	PIN, RETAINING
15	X	X	X	2	20201	RETAINING PIN --- 3000 SERIES
16	X	X	X	A/R	25271	SHIM. - .002
17	X	X	X	A/R	25272	SHIM. - .005
18	X	X	X	A/R	25273	SHIM. - .010
19	X	X	X	1	25418	TOOL CONNECTOR ASM GEN III TOOLS
20	X	X	X	1	25102	Screw, BHC4-40X.188, STEEL, BLACK OXIDE
21	X	X	X	1	25402	T.I.D. BOARD ASM. - GEN III
22	X	X	X	2	24934	FLAT HEAD CAP SCREW
23	X	X	X	1	25071	SPRING, LEVER
24	X	X	X	1	25074	LEVER ASSEMBLY
25	X	X	X	2	20061	SCREW, LEVER
26	X	X	X	1	25072	O-RING, LED LIGHT RING COVER
27	X	X	X	1	20534	3000 SERIAL/MODEL LABEL
28	X	X	X	1	25058	LIGHT RING COVER, LED
29	X	X	X	1	25060	HANDLE COVER, REV. BUTTON
30	X	X	X	1	24706	REV BUTTON SUB-ASSEMBLY
31	X	X	X	1	24683	SPRING, REV BUTTON
32	X	X	X	1	24679	RETAINING RNG
33	X	X	X	10	24940	SCREW, FHSC 4-40 X .25 LG., STEEL, BLACK OXIDE
34	X	X	X	1	25059	HANDLE COVER
35	X	X	X	1	22141	SAFETY LABEL

# GEN III 3000 SERIES IN-LINE NUTRUNNERS

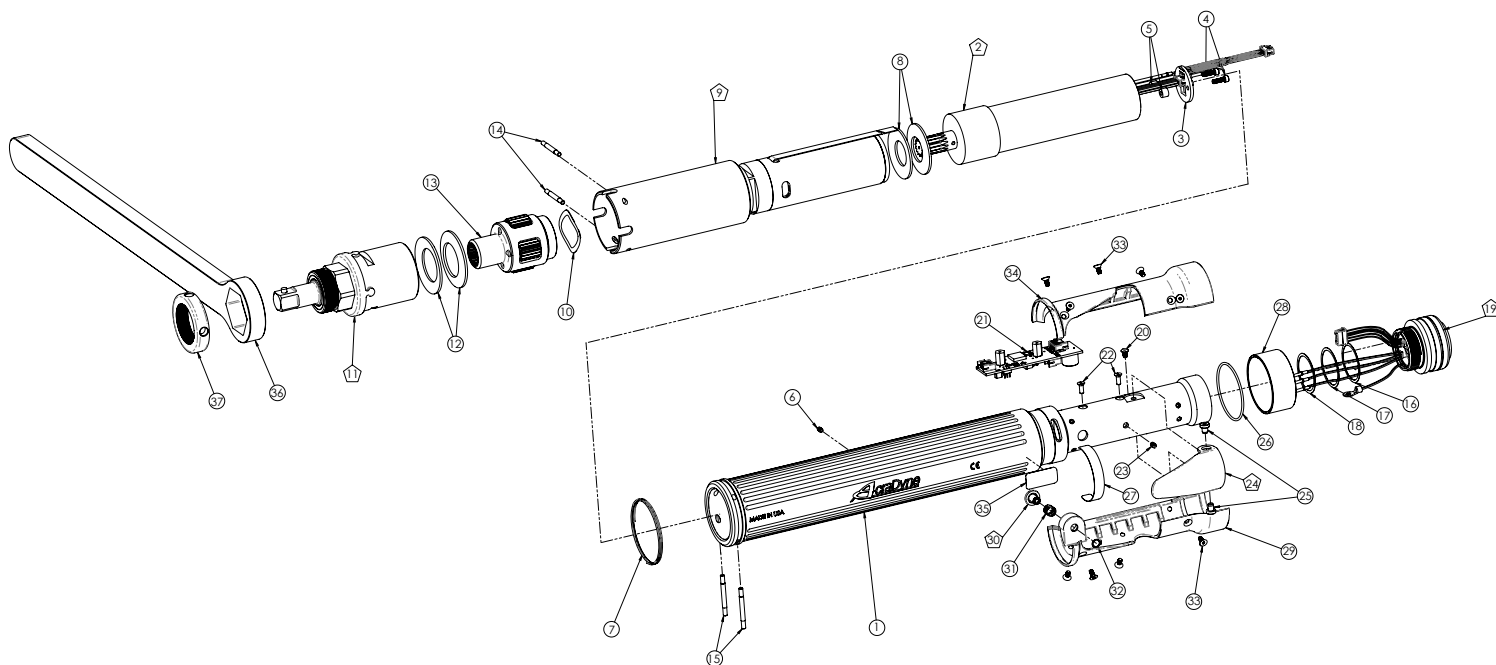
Assembly for: AES33040A and AES33060A



ITEM #	AES 33040A	AES 33060A	QTY.	PART #	DESCRIPTION
1	X	X	1	25057	NUTRUNNER HOUSING, G1-3K
2	X	X	1	25525	MOTOR ASSY, 9T, 3000 SERIES
3	X	X	1	25063	LED BOARD ASM.
4	X	X	2	25075	SCREW, SHC 4-40X.375, STEEL, BLACK OXIDE
5	X	X	2	25430	STAND-OFF, LED, 3000 SERIES
6	X	X	1	25073	SCREW, SET 4-40X.375, STEEL, BLACK OXIDE
7	X	X	1	25299	SPIRAL RETAINING RING
8	X	X	2	20058	BELLEVILLE WASHER
9	X	X	1	20129	INLINE GEAR TRAIN 1/2 DR. (20.74:1)
10	X	X	1	20128	INLINE GEAR TRAIN 1/2 DR. (30.87:1)
11	X	X	2	20201	RETAINING PIN --- 3000 SERIES
12	X	X	A/R	25271	SHIM. - .002
13	X	X	A/R	25272	SHIM. - .005
14	X	X	A/R	25273	SHIM. - .010
15	X	X	1	25418	TOOL CONNECTOR ASM GEN III TOOLS
16	X	X	1	25102	Screw, BHC4-40X.188, STEEL, BLACK OXIDE
17	X	X	1	25402	T.I.D. BOARD ASM. - GEN III
18	X	X	2	24934	FLAT HEAD CAP SCREW
19	X	X	1	25071	SPRING, LEVER
20	X	X	1	25074	LEVER ASSEMBLY
21	X	X	2	20061	SCREW, LEVER
22	X	X	1	25072	O-RING, LED LIGHT RING COVER
23	X	X	1	20534	3000 SERIAL/MODEL LABEL
24	X	X	1	25058	LIGHT RING COVER, LED
25	X	X	1	25060	HANDLE COVER, REV. BUTTON
26	X	X	1	24706	REV BUTTON SUB-ASSEMBLY
27	X	X	1	24683	SPRING, REV BUTTON
28	X	X	1	24679	RETAINING RNG
29	X	X	10	24940	SCREW, FHSC 4-40 X .25 LG., STEEL, BLACK OXIDE
30	X	X	1	25059	HANDLE COVER
31	X	X	1	22141	SAFETY LABEL
32	X	X	1	20455	FIXTURE NUT, INLINE --- 3000 SERIES
			1	20847	REACTION BAR

# GEN III 3000 SERIES IN-LINE NUTRUNNERS

Assembly for: AES33100A, AES33150A and AES33230A

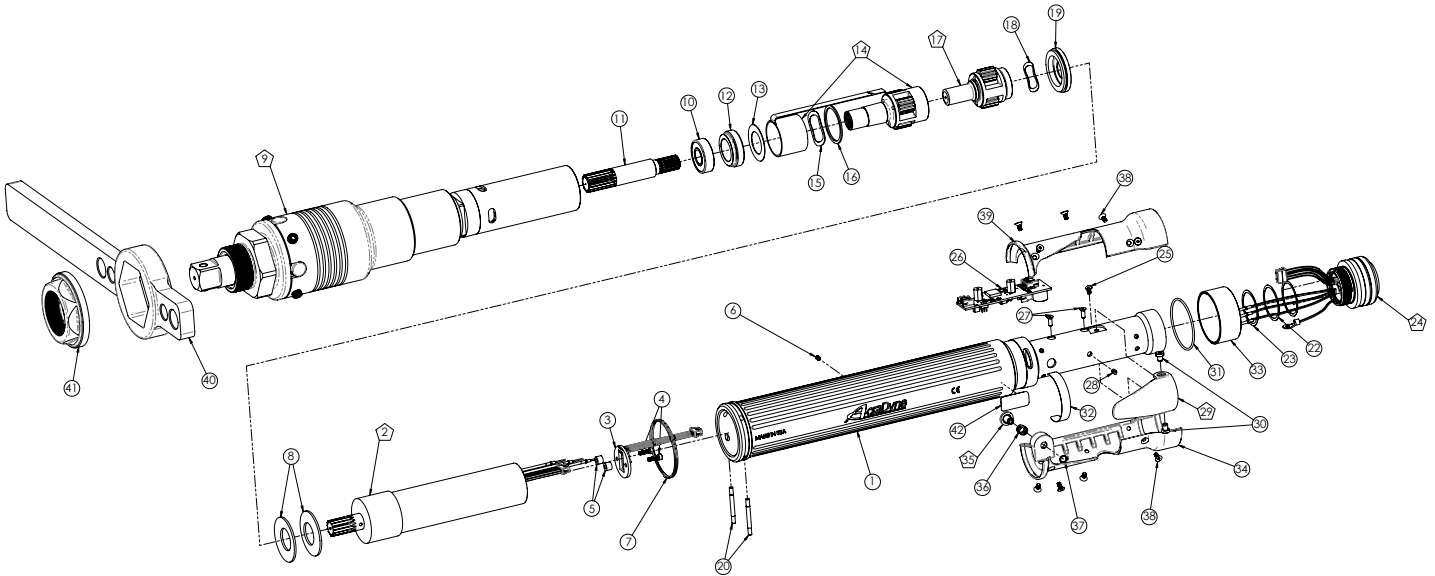


ITEM #	AES 33100A	AES 33150A	AES 33230A	QTY.	PART #	DESCRIPTION
1	X	X	X	1	25057	NUTRUNNER HOUSING, G1-3K
2	X	X	X	1	25530	MOTOR / ID BOARD ASSY, 15 T, 3000 SERIES
3	X	X	X	1	25063	LED BOARD ASM.
4	X	X	X	2	25075	SCREW, SHC 4-40X.375, STEEL, BLACK OXIDE
5	X	X	X	2	25430	STAND-OFF, LED, 3000 SERIES
6	X	X	X	1	25073	SCREW, SET 4-40X.375, STEEL, BLACK OXIDE
7	X	X	X	1	25299	SPIRAL RETAINING RING
8	X	X	X	2	20058	BELLEVILLE WASHER
9	X			1	21382	GEAR TRAIN ASSY, TRIPLE STEP, 13.94:1 RATIO
		X		1	21381	GEAR TRAIN ASM. (20.74:1)
			X			
10	X	X	X	1	20912	WAVE SPRING --- 3000 SERIES
11	X	X	X	1	20923	INLINE HEAD ASSY - 1/2 IN DRIVE
12	X	X	X	2	20911	BELLEVILLE WASHER
13	X	X	X	1	20924	ASSEMBLY, GEAR CARRIER, THIRD STAGE
14	X	X	X	2	20913	PIN, RETAINING
15	X	X	X	2	20201	RETAINING PIN --- 3000 SERIES
16	X	X	X	A/R	25271	SHIM. - .002
17	X	X	X	A/R	25272	SHIM. - .005
18	X	X	X	A/R	25273	SHIM. - .010
19	X	X	X	1	25418	TOOL CONNECTOR ASM GEN III TOOLS
20	X	X	X	1	25102	Screw, BHC4-40X.188, STEEL, BLACK OXIDE
21	X	X	X	1	25402	T.I.D. BOARD ASM. - GEN III
22	X	X	X	2	24934	FLAT HEAD CAP SCREW
23	X	X	X	1	25071	SPRING, LEVER
24	X	X	X	1	25074	LEVER ASSEMBLY
25	X	X	X	2	20061	SCREW, LEVER
26	X	X	X	1	25072	O-RING, LED LIGHT RING COVER
27	X	X	X	1	20534	3000 SERIAL/MODEL LABEL
28	X	X	X	1	25058	LIGHT RING COVER, LED
29	X	X	X	1	25060	HANDLE COVER, REV. BUTTON
30	X	X	X	1	24706	REV BUTTON SUB-ASSEMBLY
31	X	X	X	1	24683	SPRING, REV BUTTON
32	X	X	X	1	24679	RETAINING RNG
33	X	X	X	10	24940	SCREW, FHSC 4-40 X .25 LG., STEEL, BLACK OXIDE
34	X	X	X	1	25059	HANDLE COVER
35	X	X	X	1	22141	SAFETY LABEL
36	X	X	X	1	20847	REACTION BAR
37	X	X	X	1	20455	FIXTURE NUT, INLINE --- 3000 SERIES



# GEN III 3000 SERIES IN-LINE NUTRUNNERS

Assembly for: AES33400A and AES33600A



ITEM #	AES 33400A	AES 33600A	QTY.	PART #	DESCRIPTION
1	X	X	1	25057	NUTRUNNER HOUSING, G1-3K
2	X	X	1	25530	MOTOR / ID BOARD ASSY, 15 T, 3000 SERIES
3	X	X	1	25063	LED BOARD ASM.
4	X	X	2	25075	SCREW, SHC 4-40X.375, STEEL, BLACK OXIDE
5	X	X	2	25430	STAND-OFF, LED, 3000 SERIES
6	X	X	1	25073	SCREW, SET 4-40X.375, STEEL, BLACK OXIDE
7	X	X	1	25299	SPIRAL RETAINING RING
8	X	X	2	20058	BELLEVILLE WASHER
9	X		1	23790 AV	ASSY, GEARBOX, QUAD STAGE
		X	1	23790	ASSY, GEARBOX, QUAD STAGE
10	X	X	1	20049	BALL BEARING, 1.120 X .4720 IN
11	X	X	1	20916	TRANSFER SHAFT, TRIPLE STAGE, 14T --- 3000 SERIES
12	X	X	1	20017	PINION BEARING RETAINER --- 3000 SERIES
13	X	X	1	21816	MYLAR WASHER
14	X	X	1	21941	2ND STAGE CARRIER ASSY, 3.73:1, 28 NM
15	X	X	1	20143	WAVE SPRING WASHER
16	X	X	1	20057	SPIRAL LOCK RING
17	X	X	1	20086	1ST STAGE CARRIER ASSY, 3.73:1
18	X	X	1	20111	WAVE SPRING WASHER
19	X	X	1	20019	RETAINER, BEARING, 3000 SERIES
20	X	X	2	20201	RETAINING PIN --- 3000 SERIES
21	X	X	1	25271	SHIM. - .002
22	X	X	1	25272	SHIM. - .005
23	X	X	1	25273	SHIM. - .010
24	X	X	1	25418	TOOL CONNECTOR ASM GEN III TOOLS
25	X	X	1	25102	Screw, BHC4-40X.188, STEEL, BLACK OXIDE
26	X	X	1	25402	T.I.D. BOARD ASM. - GEN III
27	X	X	2	24934	FLAT HEAD CAP SCREW
28	X	X	1	25071	SPRING, LEVER
29	X	X	1	25074	LEVER ASSEMBLY
30	X	X	2	20061	SCREW, LEVER
31	X	X	1	25072	O-RING, LED LIGHT RING COVER
32	X	X	1	20534	3000 SERIAL/MODEL LABEL
33	X	X	1	25058	LIGHT RING COVER, LED
34	X	X	1	25060	HANDLE COVER, REV. BUTTON
35	X	X	1	24706	REV BUTTON SUB-ASSEMBLY
36	X	X	1	24683	SPRING, REV BUTTON
37	X	X	1	24679	RETAINING RNG
38	X	X	10	24940	SCREW, FHSC 4-40 X .25 LG., STEEL, BLACK OXIDE
39	X	X	1	25059	HANDLE COVER
40	X	X	1	23793	REACTION BAR
41	X	X	1	23792	RETAINING NUT, HEX
42	X	X	1	22141	SAFETY LABEL

# 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: 77 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 recommended maximum duty cycles not to exceed 25%. Note: actual maximum duty cycles are dependant upon several factors including: Ambient Temperature, Tool selection, Joint conditions, Fastening-parameter programming, and different applications and strategies. For optimum duty cycle determination, please contact your AcraDyne sales representative.

## Physical

- 5.50 lbs/2.49 kg - 9.70 lbs/4.39 kg

## Performance

- Torque range: 40 - 450 NM
  - Speed Range: 95 - 1240 RPM
- Note: Full speed 50% of rated for 3000 tools @ 120VAC.*

[illegible]



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