



AcraDyne

1000 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.

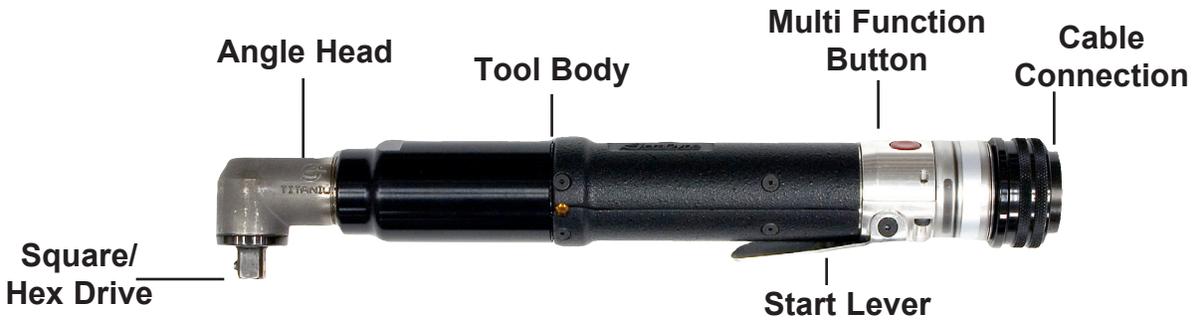
3) PERSONAL SAFETY

- 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.

OPERATIONS



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:



Controller

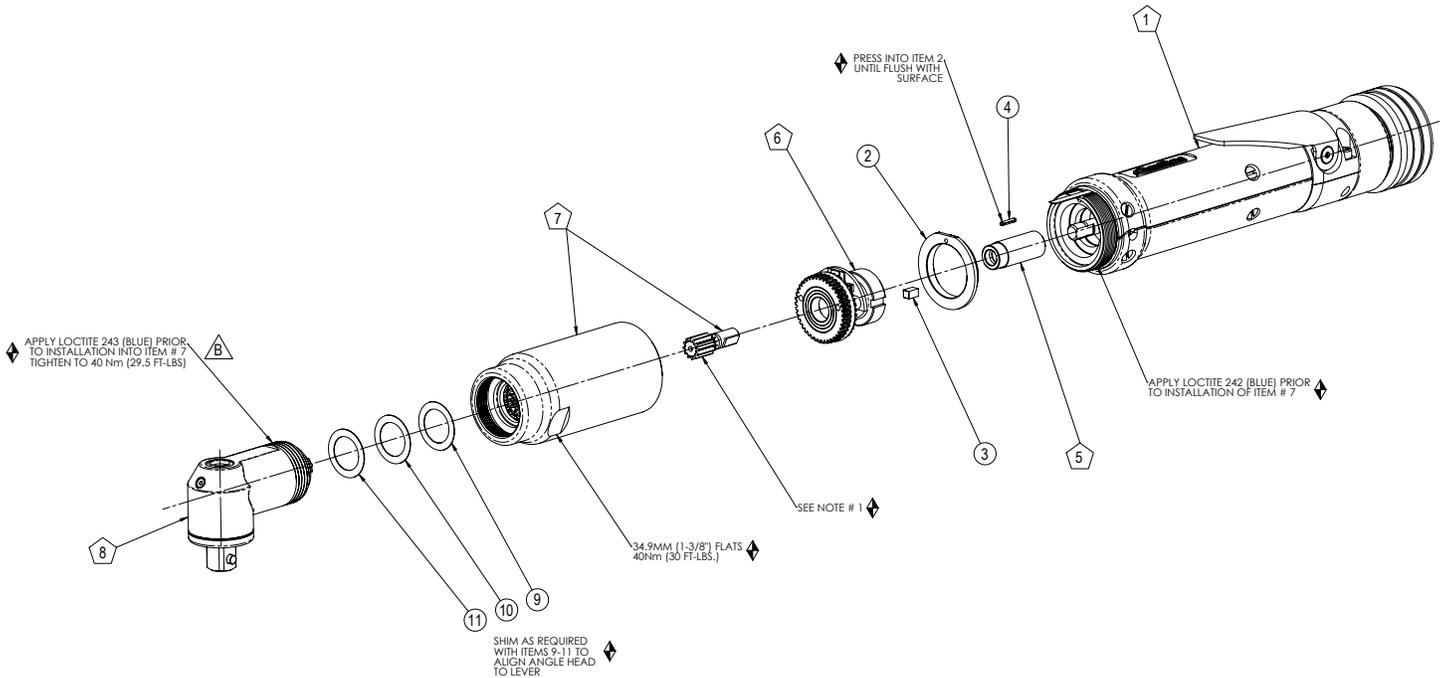
Power cord

Tool

Tool Cable

1000 SERIES ANGLE NUTRUNNERS

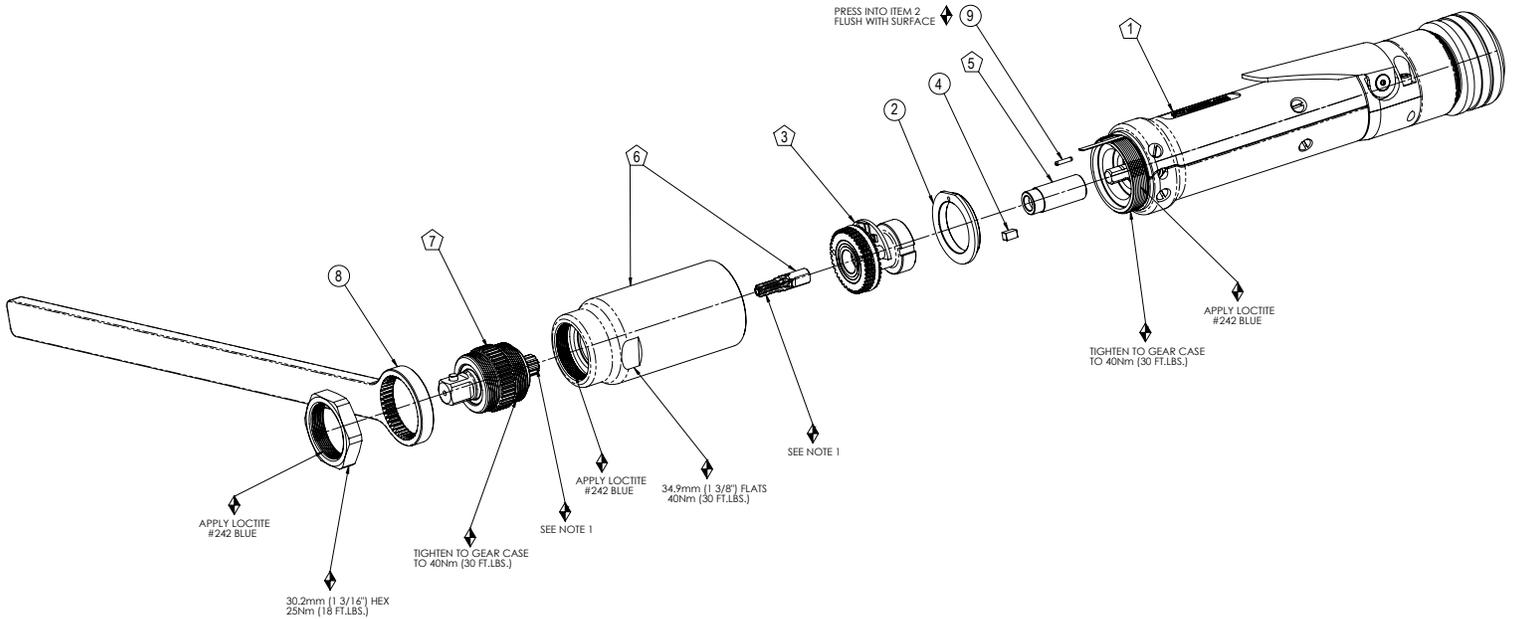
Assembly for: AEN4B12004A, AEN4C12008A, AEN4C12014A, AEN4C12018A, AEN4C12022A



ITEM#	AEN4B 12004A	AEN4C 12008A	AEN4C 12014A	AEN4C 12018A	AEN4C 12022A	QTY.	PART #	DESCRIPTION
1	X	X	X	X	X	1	24703	HANDLE ASSEMBLY- 1000 SERIES
2	X	X	X	X	X	1	24719	TRANSDUCER ADAPTOR
3	X	X	X	X	X	1	24729	KEY
4	X	X	X	X	X	1	24688	ROLL PIN, 1/16 x 5/16" LONG
5	X	X	X	X	X	1	24780	MOTOR COUPLER SUB-ASM.
6	X	X		X	X	1	24778	TRANSDUCER SUB-ASM., 8Nm
			X	X	X	1	24779	TRANSDUCER SUB-ASM., 20Nm
7	X					1	25531	ASSY, GEAR CASE, 4 Nm ANGLEHEAD
		X				1	24860	GEAR CASE SUB-ASM 6T
			X			1	24709	GEAR CASE SUB-ASM, 14T/14T
				X		1	24792	GEAR CASE SUB-ASM., 12T/12T
					X	1	24710	GEAR CASE SUB-ASM, 8T/14T
8	X					1	4A9116	ASSY, ANGLE HEAD, 4 Nm
		X	X	X	X	1	24890	ANGLE HEAD ASM, STUBBY, 3/8" SQ. DR.
9	X	X	X	X	X	A/R	24855	SHIM .1MM, 14MM ID X 20MM OD
10	X	X	X	X	X	A/R	24856	SHIM .2MM, 14MM ID X 20MM OD
11	X	X	X	X	X	A/R	24857	SHIM .3MM, 14MM ID X 20MM OD

1000 SERIES IN-LINE NUTRUNNERS

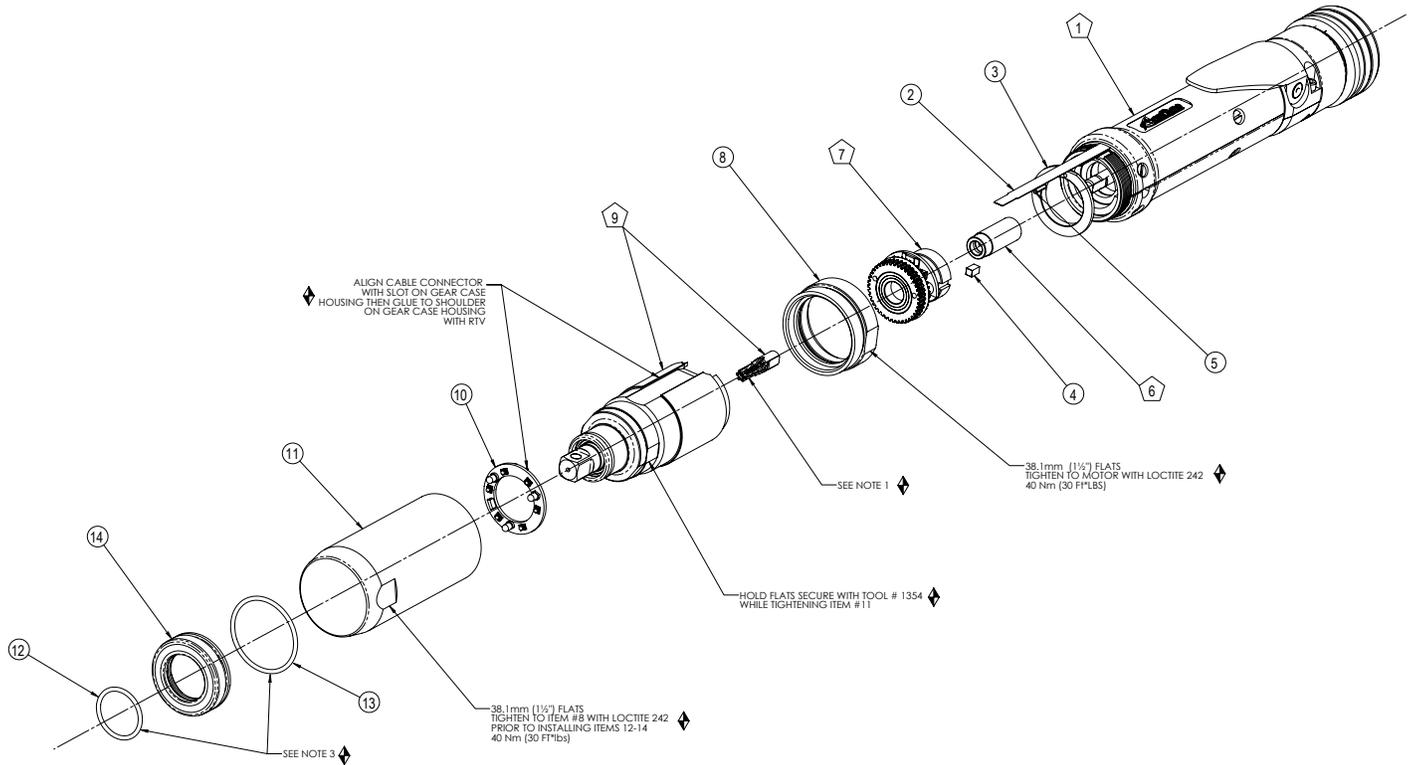
Assembly for: AES4A12003A, AES4A12006A, AES4A12011A, AES4A12014A, AES4A12018A, AES4A12022A



ITEM#	AES4A 12003A	AES4A 12006A	AES4A 12011A	AES4A 12014A	AES4A 12018A	AES4A 12022A	QTY.	PART #	DESCRIPTION
1	X	X	X	X	X	X	1	24703	HANDLE ASSEMBLY- 1000 SERIES
2	X	X	X	X	X	X	1	24719	TRANSDUCER ADAPTOR
3	X						1	24777	TRANSDUCER SUB-ASM., 3Nm
		X					1	24778	TRANSDUCER SUB-ASM., 8Nm
			X	X	X	X	1	24779	TRANSDUCER SUB-ASM., 20Nm
4	X	X	X	X	X	X	1	24729	KEY
5	X	X	X	X	X	X	1	24780	MOTOR COUPLER SUB-ASM.
6	X	X					1	24860	GEAR CASE SUB-ASM 6T
			X				1	24709	GEAR CASE SUB-ASM, 14T/14T
				X			1	24792	GEAR CASE SUB-ASM., 12T/12T
					X		1	24710	GEAR CASE SUB-ASM, 8T/14T
						X	1	24781	GEAR CASE ASM, 6T/14T
7	X	X	X	X	X	X	1	24896	STRAIGHT OUTPUT ASM, 1/4" HEX Q.C.
8			X	X	X	X	1	24696	REACTION BAR, ALUMINUM, 1000 SERIES
9	X	X	X	X	X	X	1	24688	ROLL PIN, 1/16 x 5/16" LONG

1000 SERIES PUSH-TO-START NUTRUNNERS

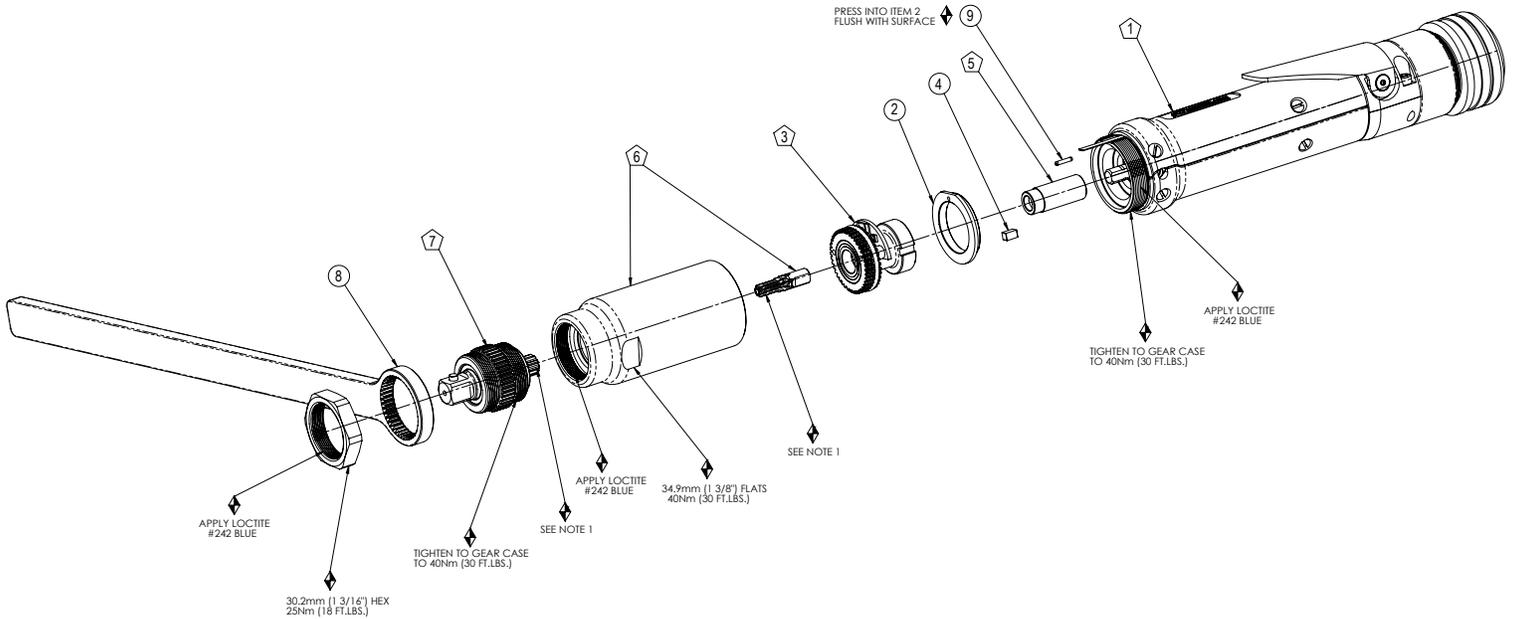
Assembly for: AEL4A12003A, AEL4A12006A, AEL4A12011A, AEL4A12014A, AEL4A12018A, AEL4A12022A



ITEM#	AEL4A 12003A	AEL4A 12006A	AEL4A 12011A	AEL4A 12014A	AEL4A 12018A	AEL4A 12022A	QTY.	PART #	DESCRIPTION
1	X	X	X	X	X	X	1	24703	HANDLE ASSEMBLY- 1000 SERIES
2	X	X	X	X	X	X	1	24762	PTS FLEX CIRCUIT
3	X	X	X	X	X	X	1	24719	TRANSDUCER ADAPTOR
4	X	X	X	X	X	X	1	24729	KEY
5	X	X	X	X	X	X	1	24688	ROLL PIN, 1/16 x 5/16" LONG
6	X	X	X	X	X	X	1	24780	MOTOR COUPLER SUB-ASM.
7	X	X					1	24778	TRANSDUCER SUB-ASM., 8Nm
			X	X	X	X	1	24779	TRANSDUCER SUB-ASM., 20Nm
8	X	X	X	X		X	1	25521	ADAPTER, PTS GEAR HOUSING
9	X	X					1	24786	GEAR CASE ASSEMBLY, P-T-S, S.S., 8
			X				1	24791	GEAR CASE ASSEMBLY, P-T-S, 14/14
				X			1	24807	GEAR CASE ASSY, P-T-S, D.S. 12/12
					X		1	24784	GEAR CASE ASM, P-T-S, 8/14
						X	1	24776	GEAR CASE ASM, P-T-S, 6T/14T
10	X	X	X	X	X	X	1	24566	P-T-S LIGHT RING ASM.
11	X	X					1	24744	P-T-S G.C. HSG COVER- S.S.
			X	X	X	X	1	24757	GEAR CASE HOUSING COVER, P-T-S, D.S.
12	X	X	X	X	X	X	1	25590	O-RING, Ø13/16 X Ø1/16
13	X	X	X	X	X	X	1	25591	O-RING, Ø1 1/4 X Ø1/16
14	X	X	X	X	X	X	1	24753	P-T-S LIGHT RING LENS

1000 SERIES FIXTURED NUTRUNNERS

Assembly for: AEF4A12003A, AEF4A12006A, AEF4A12011A, AEF4A12014A, AEF4A12018A, AEF4A12022A



ITEM#	AEF4A 12003A	AEF4A 12006A	AEF4A 12011A	AEF4A 12014A	AEF4A 12018A	AEF4A 12022A	QTY.	PART #	DESCRIPTION
1	X	X	X	X	X	X	1	24888	TID BOARD ASM
2	X	X	X	X	X	X	1	24913	CIRCUIT BOARD MOUNTING PLATE
3	X	X	X	X	X	X	2	24914	BHCS, #4-40 x .25 LG
4	X	X	X	X	X	X	1	24912	COVER, CIRCUIT BOARD
5	X	X	X	X	X	X	2	24917	BHCS, #4 x .38 LG TAP-TITE
6	X	X	X	X	X	X	1	24863	PISTON MOTOR ASM., 1000 SERIES
7	X	X	X	X	X	X	2	24930	SCREW, AMP BOARD
8	X	X	X	X	X	X	1	24886	CIRCUIT BOARD ASM - PISTON/ FIXTURED TOOLS
9	X	X	X	X	X	X	1	24873	LIGHT RING
10	X	X	X	X	X	X	1	24909	STRAIGHT ADAPTOR, PISTON TOOL CONNECTOR
11	X	X	X	X	X	X	1	24677	TOOL CONNECTOR ASSEMBLY
12	X	X	X	X	X	X	1	25419	SCREW, PHM 4-40 X .188 , STEEL, PLAIN
13	X	X	X	X	X	X	4	24933	FLAT HEAD CAP SCREW
14	X	X	X	X	X	X	1	24687	O-RING, LIGHT RING, LEVER
15	X	X					1	24860	GEAR CASE SUB-ASM 6T
			X				1	24709	GEAR CASE SUB-ASM, 14T/14T
				X			1	24792	GEAR CASE SUB-ASM., 12T/12T
					X		1	24710	GEAR CASE SUB-ASM, 8T/14T
						X	1	24781	GEAR CASE ASM, 6T/14T
16		X	X	X	X	X	1	24719	TRANSDUCER ADAPTOR
17		X	X	X	X	X	1	24688	ROLL PIN, 1/16 x 5/16" LONG
18		X	X	X	X	X	1	24729	KEY
19	X						1	24777	TRANSDUCER SUB-ASM., 3Nm
		X					1	24778	TRANSDUCER SUB-ASM., 8Nm
			X	X	X	X	1	24779	TRANSDUCER SUB-ASM., 20Nm
20	X	X	X	X	X	X	1	24780	MOTOR COUPLER SUB-ASM.
21	X	X	X	X	X	X	1	24918	RETRACTABLE OUTPUT SPINDLE ASM, 3/8 SQ
22	X	X	X	X	X	X	1	24924	MOUNTING FLANGE
23	X	X	X	X	X	X	2	24934	FLAT HEAD CAP SCREW
24	X	X	X	X	X	X	1	24686	RETAINING RING, LEVER LIGHT RING

ADJUSTING THE THROTTLE LEVER TO ANGLE HEAD LOCATION (REQUIRES OPTIONAL P/N 25444)

1. REMOVE THE ANGLE HEAD

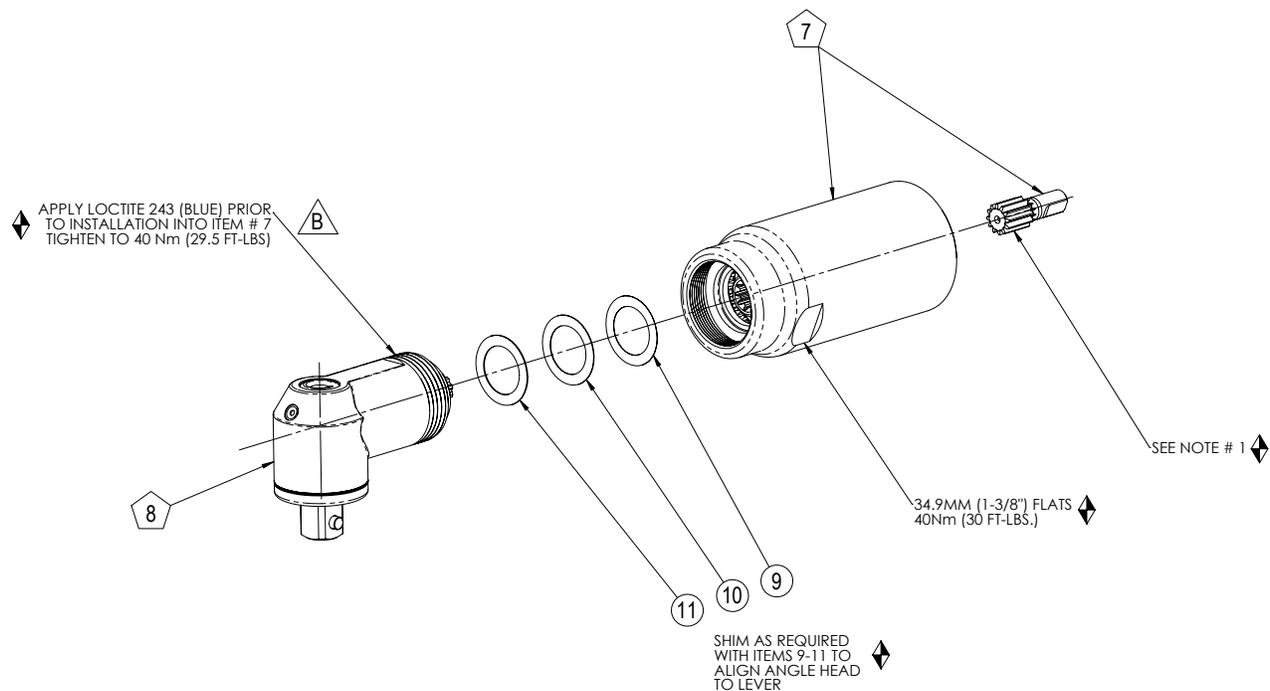
- 1.1. Hold the angle head and with a 1-3/8" crows foot loosen and remove the gear casing from the angle head.

2. INSTALL ADJUSTMENT SHIMS

- 2.1. Shim kit part number 25444 is needed for the 1000 series.
- 2.2. Add adjustment shims as needed to align the angle head with the throttle lever.

3. REINSTALL THE ANGLE HEAD

- 3.1. Apply Loctite 243 to the threads on the angle head.
- 3.2. Hold the angle head and tighten the gear casing to 40NM using the 1-3/8" crows foot.



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 recommended maximum duty cycles not to exceed 33%. 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

- 1.5 lbs/.68 kg - 2.6 lbs/1.18 kg

Performance

- Torque Range: 3 - 22 NM
- Speed Range: 560 - 2625 RPM



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