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Introduction

Thank you for your purchase of an AcraDyne® HT Series Electric Transducerized Nutrunner. These Nutrunners deliver true, traceable Torque and Angle tightening events with data recording abilities delivered by the AcraDyne Controllers they connect to.

Safety Information

CAUTION – DO NOT USE THE ACRADYNE® HT NUTRUNNING SYSTEM WITHOUT FULLY READING THIS MANUAL AND HAVING A COMPLETE UNDERSTANDING OF THE CORRECT USAGE OF A HIGH TORQUE DELIVERING TOOL AND ANY ASSOCIATED REACTION BARS/ACCESSORIES.

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. Damaged or entangled cords increase the risk of electric shock.
e) This tool is intended for indoor use only.

3) PERSONAL SAFETY

INDICATES CAUTION IS REQUIRED. FAILURE TO EXERCISE CAUTION AND CORRECT OPERATING TECHNIQUE CAN RESULT IN SERIOUS PERSONAL INJURY, LOSS OF LIMB OR DEATH.

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 no 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.
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 Nutrunners are intended for intermittent operation with recommended duty cycles not to exceed 30%. Note: Actual maximum duty cycles are dependent upon several factors including: Ambient Temperature, Tool Selection, Joint Conditions, Operating Parameter Set Programming and Operator Handling. For optimum Duty Cycle determination, please contact your authorized AcraDyne® Product Representative.
- Motor Speed Setting Guidelines - AcraDyne ToolWare software, when used with an AcraDyne DC controller, offers a wide range of programming options. An experienced, trained person should be responsible for the setup of these options. Tool Speeds should be set taking into consideration the maximum RPM output of the given tool in use. Tools with Maximum Rated RPM below 30 should not be run at speeds less than 100%. Tools with Maximum Rated RPM above 30 may be run at speeds less than 100% according to specific application demands.

Physical

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*Under development
Add “A” to part numbers for fixed gearcase models. Add “B” to part numbers for clutched gearcase models.
A complete tool system consists of the following items:

<table>
<thead>
<tr>
<th>Controller</th>
<th>Power cord</th>
<th>Tool</th>
<th>Tool Cable</th>
<th>Reaction Bar*</th>
</tr>
</thead>
</table>

**Operation**

**CAUTION IS REQUIRED. FAILURE TO EXERCISE CAUTION AND CORRECT OPERATING TECHNIQUE CAN RESULT IN SERIOUS PERSONAL INJURY, LOSS OF LIMB OR DEATH.**

AcraDyne® HT Series Nutrunners are a part of a complete system including Controller, Tool Cable and Tool. Specific instructions on setup, programming and features are described in greater detail within the AcraDyne® Controller Manuals and ToolWare software manuals that are provided with those components.

1. **Connect the 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 to FWD mode and will indicate this with no LED lights turned on.

3. **Trigger Button Operation:**
To start the tool, press 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.
AcraDyne® HT Nutrunning Systems deliver high amounts of torque to an application in a continuous drive manner. As is the nature with all tool systems that function in this manner, high amounts of torque reaction will occur. AcraDyne® HT systems work with Reaction Bars that engage the tool with a secure spline and when used correctly counteract the natural torque reaction in use by pressing against a part detail or adjacent nut/bolt.

**IT IS ESSENTIAL THAT THESE FORCES ARE UNDERSTOOD COMPLETELY BY THE OPERATOR AND THAT THE REACTION BARS HAVE BEEN CHOSEN WITH THE APPLICATION'S SPECIFIC GEOMETRY IN MIND.**

**ACRADYNE® OFFERS A RANGE OF REACTION BARS FROM STOCK AND WILL DESIGN SPECIFIC REACTION BARS TO SUIT SPECIFIC APPLICATIONS UPON REQUEST.**

**IT IS THE USER'S RESPONSIBILITY TO ENSURE THAT THE CORRECT REACTION BAR OR TOOL HOLDING FIXTURE IS IN PLACE PRIOR TO USE OF THE ACRADYNE® HT SERIES NUTRUNNER.**

**Reaction Bar Guidelines**

**CAUTION IS REQUIRED. FAILURE TO EXERCISE CAUTION AND CORRECT OPERATING TECHNIQUE CAN RESULT IN SERIOUS PERSONAL INJURY, LOSS OF LIMB OR DEATH.**

The guidelines offered below are only guidelines. Should there be any doubt as to the integrity of a proposed reaction strategy, it is strongly advised to consult with an AcraDyne® authorized representative prior to executing strategy.

The figure shows a safe reaction window for reaction bars. Reaction force is equal to the point being applied. The magnitude of the reaction force is dependent upon the perpendicular distance between the point of reaction and the centerline of the gearbox. In other words, the greater the distance the lower force experienced. For this reason, the point of reaction should be kept as far away from the centerline of the tool gearbox as possible.

### Sockets

**CAUTION IS REQUIRED. FAILURE TO EXERCISE CAUTION AND CORRECT OPERATING TECHNIQUE CAN RESULT IN SERIOUS PERSONAL INJURY, LOSS OF LIMB OR DEATH.**

Only Impact Grade, Industrial Sockets should be used with AcraDyne® HT Series Nutrunners. Mechanic-grade chrome sockets are not to be used as they do not have sufficient structural strength required to deliver the higher torque loads that an AcraDyne® HT Series Nutrunner is capable of delivering. In addition, the use of Socket Extensions of any length are strongly discouraged as they also will experience failure to an extent where tool damage or operator injury may occur.
Pinch Point

**CAUTION IS REQUIRED. FAILURE TO EXERCISE CAUTION AND CORRECT OPERATING TECHNIQUE CAN RESULT IN SERIOUS PERSONAL INJURY, LOSS OF LIMB OR DEATH.**

The nature of a Reaction Bar in any continuous drive tool is to press against an object to counteract Torque Reaction as the tool is delivering Torque.

**THE OPERATOR MUST TAKE GREAT CARE TO KEEP BODY PARTS OR FOREIGN MATTER CLEAR OF THE AREA BETWEEN THE REACTION BAR AND THE SURFACE IT IS REACTING AGAINST. ANY BODY PART OR FOREIGN MATTER RESIDING IN A SPACE BETWEEN THE REACTION BAR AND THE SURFACE IT WILL REACT AGAINST WILL ENCOUNTER SIGNIFICANT FORCES THAT CAN CAUSE INJURY, LOSS OF LIMB OR DEATH.**

Clutched Models

An optional feature on AcraDyne® HT Series Nutrunners is a locking clutch that allows the gearcase 270 degrees of rotation in relation to the motor/handle assembly. This feature is useful in positioning the reaction bar against the workpiece prior to the tightening event.

To maximize the effectiveness of this feature:

- Begin with the AcraDyne® HT Series Nutrunner disconnected from any controller.
- Pull the Spring Loaded Clutch Knob to enable the gearcase to swivel freely.
- Rotate the gearcase until the word “STOP” that is inscribed in the cover plate is in line with the tool handle.
- Release the Spring Loaded Clutch Knob.
- Install the appropriate Reaction Bar onto the Spline detail in such a manner that the Reacting point of the bar is inline with the handle of the tool.
- Secure the Reaction Bar to the tool with either the Retention Plate and 4 screws or the Circlip provided.
- Reconnect the AcraDyne® HT Series Nutrunner to an AcraDyne® Controller and prepare for use.

When ready to begin tightening:

- Pull the Spring Loaded Clutch Knob away from the tool body.
- Swivel the reaction bar into position minimizing or ideally eliminating any gap between the Reaction Bar and the Reaction Surface of the application.
- Release the Spring Loaded Clutch Knob and the clutch will lock the gearcase into position prior to tightening.
- Complete the tightening event.
CABLES
Newly designed cable and connectors for excellent ergonomics, maximum-quality signal transfer and full CE compliance.

<table>
<thead>
<tr>
<th>MODEL</th>
<th>LENGTH</th>
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<tr>
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<td>10 meter</td>
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BREAKAWAY CABLE CONNECTOR
Ensures disconnect of cable should stress in excess of 40 lbs occur.

REACTION BARS
Each tool includes a standard spline-attachment reaction device. Custom reaction devices are also available; contact your AIMCO sales representative for more details.

ACCESSORIES
Custom accessories are available for your application; contact your AIMCO sales representative for more details.

Recommended Maintenance
Any service or preventative maintenance must be done by a trained technician or AcraDyne Authorized Service Center.

- The tool gear train should be cleaned, inspected and re-greased every 50,000 tightening cycles.
- Parts should be inspected for wear and any worn parts should be replaced.
- In addition to this service, it is recommended that the tool should have its calibration checked at least annually or every 50,000 tightening cycles, whichever comes first.
NEW TOOL AND ACCESSORY WARRANTY

Any new tool or accessory branded with the AIMCO, Uryu, AcraDyne or Eagle Industries name, and purchased from AIMCO, or through one of its authorized distributors or agents, is warranted to the original buyer against defects in materials and workmanship for a period of one (1) year* from date of delivery. Under the terms of this warranty, AIMCO will repair or replace any product or accessory warranted hereunder and returned freight prepaid proving to AIMCO’s satisfaction to be defective as a result of workmanship or materials. In order to qualify for this warranty, written notice to AIMCO must be given immediately upon discovery of such defect, at which time AIMCO will issue an authorization to return the tool. The defective item must be promptly returned to an authorized AIMCO service center with all freight charges prepaid.

REPAIRED TOOL WARRANTY

Once a tool is beyond the new product warranty period as detailed above, AIMCO repairs are subject to the following warranty periods: pneumatic tools: 90 days; electric tools and Acra-Feed: 90 days; battery tools: 30 days; DC Electric tools: 90 days.

EXCLUSION FROM WARRANTY

This warranty is valid only on products purchased from AIMCO, or thru its authorized distributors or agents. AIMCO shall have no obligation pursuant to the AIMCO Warranty with respect to any tools or accessories which in AIMCO’s sole judgment have been altered, damaged, misused, abused, badly worn, lost or improperly maintained. This Warranty is null and void if the customer, or any other person other than an authorized representative of AIMCO, has made any attempt to service or modify the tool or accessory prior to its return to AIMCO under this Warranty.

The warranty provision with respect to each such product may be amended by AIMCO from time to time in its sole discretion. The liability of AIMCO hereunder shall be limited to replacing or repairing, at its option, any products which are returned freight prepaid to AIMCO and which AIMCO determines to be defective as described above or, at AIMCO’s option, refunding the purchase price of such products.

AIMCO reserves the right to make periodic changes in construction or tool design at any time. AIMCO specifically reserves the right to make these changes without incurring any obligation or incorporating such changes or updates in tools or parts previously distributed.

THE AIMCO WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, AND AIMCO EXPRESSLY DISCLAIMS ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. THIS WARRANTY SETS FORTH THE SOLE AND EXCLUSIVE REMEDY IN CONTRACT, TORT, STRICT LIABILITY, OR OTHERWISE.

THIS WARRANTY IS THE ONLY WARRANTY MADE BY AIMCO WITH RESPECT TO THE GOODS DELIVERED HEREUNDER, AND MAY BE MODIFIED OR AMENDED ONLY BY A WRITTEN INSTRUMENT SIGNED BY A DULLY AUTHORIZED OFFICER OF AIMCO.

LIMITATION OF LIABILITY

AIMCO/EAGLE DISCLAIMS ALL IMPLIED WARRANTIES, INCLUDING WITHOUT LIMITATION THE IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. AIMCO/EAGLE’S LIABILITY PURSUANT TO WARRANTY OF THE PRODUCTS COVERED HEREUNDER IS LIMITED TO REFUND OF THE PURCHASE PRICE. IN NO EVENT SHALL AIMCO/EAGLE BE LIABLE FOR COSTS OF PROCUREMENT OF SUBSTITUTE GOODS BY THE BUYER. IN NO EVENT SHALL AIMCO/EAGLE BE LIABLE FOR ANY SPECIAL, CONSEQUENTIAL, INCIDENTAL OR OTHER DAMAGES (INCLUDING WITHOUT LIMITATION, LOSS OF PROFIT) WHETHER OR NOT AIMCO/EAGLE HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH LOSS, HOWEVER CAUSED; WHETHER FOR BREACH OR REPUDIATION OF CONTRACT, BREACH OF WARRANTY, NEGLIGENCE OR OTHERWISE. THIS EXCLUSION ALSO INCLUDES ANY LIABILITY WHICH MAY ARISE OUT OF THIRD PARTY CLAIMS AGAINST BUYER. THE ESSENTIAL PURPOSE OF THIS PROVISION IS TO LIMIT THE POTENTIAL LIABILITY OF AIMCO/EAGLE ARISING OUT OF THIS AGREEMENT AND/OR SALE.

Note: The AIMCO Warranty confers specific legal rights, however some states or jurisdictions may not allow certain exclusions or limitations within this warranty.

* All warranty periods addressed herein are determined using a standard shift, eight-hour work day.