



**TECHNICAL MANUAL  
ULTRASONIC TEST SET  
MODEL 42A12/1**

**January 5, 2009  
REV 00**

SEACOM DIVISION, DUKANE CORPORATION  
ST. CHARLES, ILLINOIS 60174  
PHONE: 630-762-4050 FAX: 630-762-4049  
DOCUMENT NO. 03-TM-0060 ©

**E-MAIL: [seacom@dukcorp.com](mailto:seacom@dukcorp.com) INTERNET: [www.dukcorp.com](http://www.dukcorp.com)**

# Table of Contents

<b>SECTION I.....</b>	<b>3</b>
<b>GENERAL INFORMATION .....</b>	<b>3</b>
<b>1.1. INTRODUCTION .....</b>	<b>3</b>
<b>1.2. GENERAL DESCRIPTION .....</b>	<b>3</b>
<b>SECTION II .....</b>	<b>4</b>
<b>OPERATION .....</b>	<b>4</b>
<b>2.1 OPERATION .....</b>	<b>4</b>
<b>SECTION III .....</b>	<b>6</b>
<b>MAINTENANCE .....</b>	<b>6</b>
<b>3.1 TEST SET CALIBRATION .....</b>	<b>6</b>
<b>3.2. BATTERY LIFE .....</b>	<b>6</b>
<b>3.3. BATTERY REPLACEMENT .....</b>	<b>6</b>
<b>SECTION IV .....</b>	<b>7</b>
<b>WARRANTY TEST SETS .....</b>	<b>7</b>

## **SECTION I**

### **GENERAL INFORMATION**

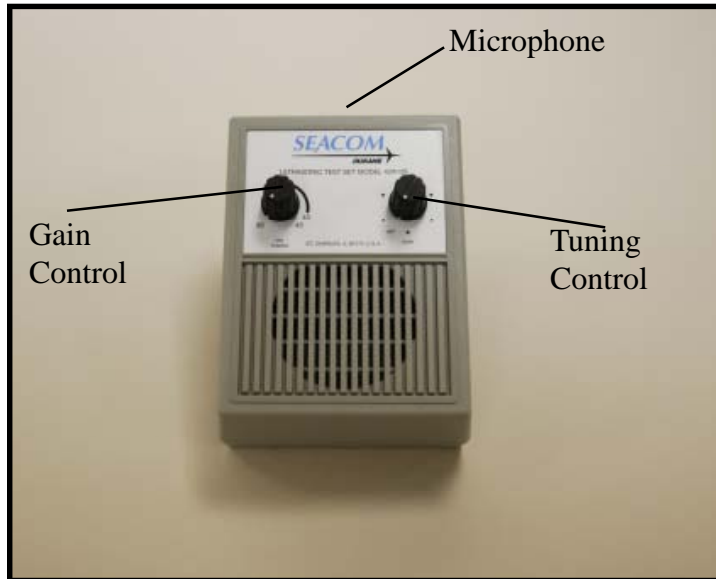
#### **1.1. INTRODUCTION**

1.1.1. GENERAL. This manual contains the description, operation and maintenance of the 42A12/1 Ultrasonic Test Set manufactured by Dukane Corporation, Seacom Division, 2900 Dukane Drive, St. Charles, Illinois 60174. See Figure 1.1.

1.1.2. SYMBOLS AND ABBREVIATIONS. All symbols and abbreviations used in this manual are in accordance with the ANSI Y14.15 and MIL-STD-12, respectively.

#### **1.2. GENERAL DESCRIPTION**

1.2.1. FUNCTION. The 42A12/1 is a battery operated heterodyne type receiver tunable over the ultrasonic frequency range of 30 to 45 kHz. The test set was designed primarily as a self-contained, hand-held operational tester for testing underwater acoustic beacons. Utilizing the internal microphone and loudspeaker, the test set can perform an operational test on a beacon without removing the beacon from its mount on the aircraft.



*Figure 1 Ultrasonic Test Set Model 42A12/1*

## **SECTION II OPERATION**

### **2.1 OPERATION**

- A. Turn the GAIN control to a fully clockwise position. A pronounced background noise should be present. Lack of noise may indicate a dead battery. Should this occur, replace battery before resuming operational testing. See Maintenance Section 3.2.
- B. Set the TUNING control to approximately midscale. Rubbing fingers in front of microphone should produce a rushing noise from speaker.

C. Actuate a beacon under test by immersing the water switch in tap water, or by shorting the water switch terminal to the case by means of a shorting tab. The beacon need not be removed from its mount on the aircraft to perform operational testing.

D. Set the GAIN control at a comfortable listening level.

E. Point the MICROPHONE of the test set towards the water switch end of the beacon for best results. If the beacon is mounted, position the test set for maximum unobstructed signal. Beacon operation will be indicated by an audible pulsing tone.

**NOTE**

**TO CONSERVE BATTERY LIFE, GAIN  
CONTROL SHOULD BE SET TO OFF  
POSITION WHEN TEST SET IS NOT IN  
USE.**

## **SECTION III MAINTENANCE**

### **3.1 TEST SET CALIBRATION**

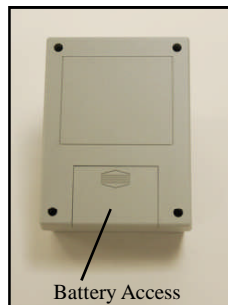
Annual calibration is required, contact factory for instructions.

### **3.2. BATTERY LIFE**

With intermittent usage, battery operating life will be approximately 30 to 40 hours depending on the type of and manufacturer of the battery. In any event, battery should be replaced when its load voltage has dropped to 7 volts (Test Set turned ON and GAIN control set to minimum).

### **3.3. BATTERY REPLACEMENT**

Any 9 Volt Alkaline battery may be used, but longer service will be obtained by the use of premium batteries such as NEDA Type 1604A. The battery is accessible in the test set by removing the cover located on the back of the test set housing. A snap type connector facilitates the changing of the battery and prevents reversal of polarity, for additional safety, always turn GAIN control knob to OFF position before changing battery change.



***Figure 2 Battery Access***

## **SECTION IV**

### **WARRANTY TEST SETS**

Dukane Corporation warrants that the Test Set (referred to as the unit) will be free from defects in materials and workmanship, when used under normal operating conditions as determined solely by Dukane Corporation, for a period of one (1) year from the date of shipment from Dukane Corporation.

As the sole remedy for breach of the foregoing warranty, Dukane Corporation shall repair or replace, at Dukane Corporation's option, any unit, component or part thereof found defective or nonconforming within said one (1) year period from the date of shipment. Customer shall give Dukane Corporation notice of any defect or nonconformity and, if so instructed by Dukane Corporation, customer shall, at its expense, ship the unit, component or part to Dukane Corporation. If Dukane Corporation determines that the unit, component or part is actually defective or nonconforming, it shall, at its expense, ship a new or a rebuilt unit, component or part to the customer. The customer shall be responsible to perform, at its own expense, any necessary installation work related to any defective or nonworking unit, component or part. The functionality and operational aspects of the unit is determined by the unit operating within the specifications and is dependent of proper maintenance as required to be performed by the customer.

Dukane Corporation shall not be liable for any expense or damages resulting from interruptions in the operation of the unit.

Dukane Corporation shall not be liable for the cost of any repairs undertaken by the customer or any third party without Dukane Corporation prior written authorization.

Dukane Corporation shall not be liable for any incidental, special consequential or exemplary damages arising out of the installation, use, testing, servicing or maintenance of any unit, component or part. This warranty is given in lieu of all other warranties, express or implied, included the warranties of merchantability or fitness for a particular purpose.

Dukane Corporation's total liability under this warranty is limited to the remanufacture or replacement of the unit, component or part.