CEIA CMD POI

V2.04 - V2.06

(Metal Detector and Low Conductive Detector)

experiment.fix@arl.army.mil

FOR OFFICIAL USE ONLY

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GENERAL INFORMATION

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CMD

- **All items that the CMD will come with.**

COMPONENTS

SOFT CASE

GENERAL INFORMATION

Components

Soft Case With Shoulder Strap

GENERAL INFORMATION

Components

- Ni-MH Rechargeable Batteries

GENERAL INFORMATION

Components

Head Set With Vest Clip

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Metallic Test Piece

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Graphite Test Piece

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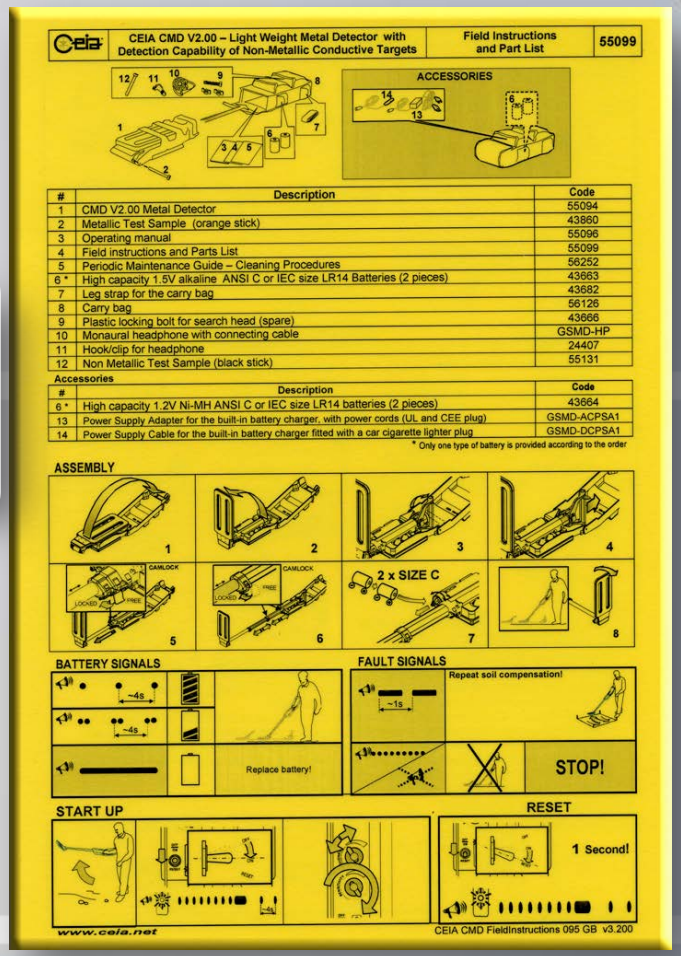
Field Instruction And Parts Lists



CEIA CMD V2.00 – Light Weight Metal Detector with Detection Capability of Non-Metallic Conductive Targets | Field Instructions and Part List | 55099

ACCESSORIES

#	Description	Code
1	CMD V2.00 Metal Detector	55094
2	Metallic Test Sample (orange stick)	43860
3	Operating manual	55096
4	Field instructions and Parts List	55099
5	Periodic Maintenance Guide – Cleaning Procedures	56252
6 *	High capacity 1.5V alkaline ANSI C or IEC size LR14 Batteries (2 pieces)	43663
7	Leg strap for the carry bag	43682
8	Carry bag	56126
9	Plastic locking bolt for search head (spare)	43666
10	Monaural headphone with connecting cable	GSMD-HP
11	Hook/clip for headphone	24407
12	Non Metallic Test Sample (black stick)	55131

Accessories

#	Description	Code
6 *	High capacity 1.2V Ni-MH ANSI C or IEC size LR14 batteries (2 pieces)	43664
13	Power Supply Adapter for the built-in battery charger, with power cords (UL and CEE plug)	GSMD-ACPSA1
14	Power Supply Cable for the built-in battery charger fitted with a car cigarette lighter plug	GSMD-DCPSA1

* Only one type of battery is provided according to the order

ASSEMBLY

BATTERY SIGNALS

Replace battery!

FAULT SIGNALS

Repeat soil compensation!

STOP!

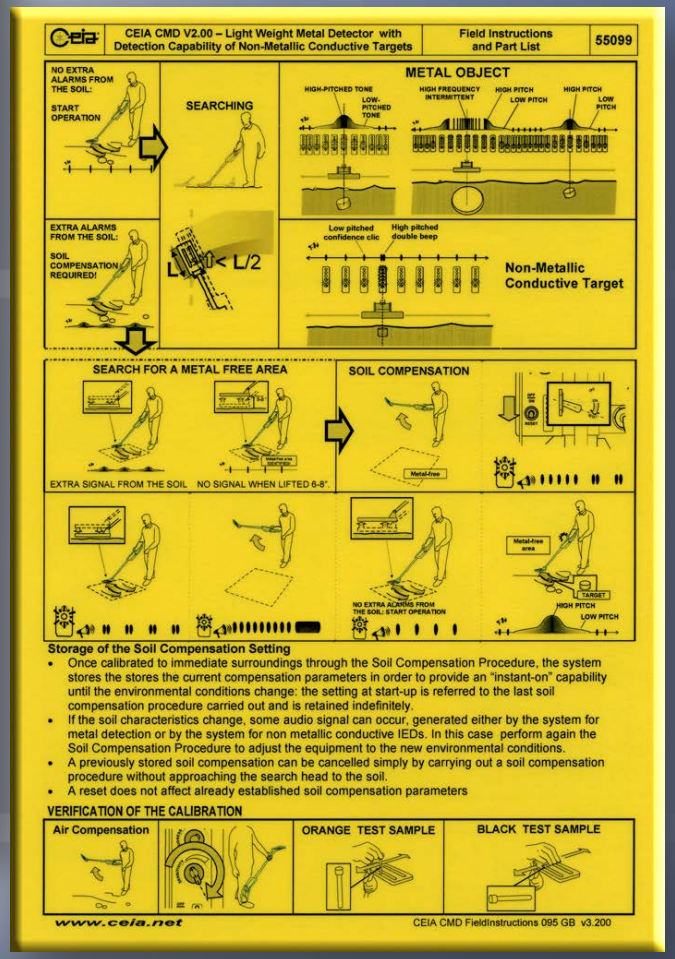
START UP

RESET

1 Second!

www.ceia.net

CEIA CMD FieldInstructions 095 GB v3.200



CEIA CMD V2.00 – Light Weight Metal Detector with Detection Capability of Non-Metallic Conductive Targets | Field Instructions and Part List | 55099

NO EXTRA ALARMS FROM THE SOIL: START OPERATION

SEARCHING

METAL OBJECT

HIGH-PITCHED TONE

LOW-PITCHED TONE

HIGH FREQUENCY INTERMITTENT

HIGH PITCH LOW PITCH

HIGH PITCH

LOW PITCH

EXTRA ALARMS FROM THE SOIL: SOIL COMPENSATION REQUIRED!

L/2 < L/2

Low pitched confidence clic

High pitched double beep

Non-Metallic Conductive Target

SEARCH FOR A METAL FREE AREA

SOIL COMPENSATION

EXTRA SIGNAL FROM THE SOIL

NO SIGNAL WHEN LIFTED 6-8".

Metal-free

Metal-free area

TARGET

HIGH PITCH

LOW PITCH

NO EXTRA ALARMS FROM THE SOIL: START OPERATION

Storage of the Soil Compensation Setting

- Once calibrated to immediate surroundings through the Soil Compensation Procedure, the system stores the stores the current compensation parameters in order to provide an "instant-on" capability until the environmental conditions change: the setting at start-up is referred to the last soil compensation procedure carried out and is retained indefinitely.
- If the soil characteristics change, some audio signal can occur, generated either by the system for metal detection or by the system for non metallic conductive IEDs. In this case perform again the Soil Compensation Procedure to adjust the equipment to the new environmental conditions.
- A previously stored soil compensation can be cancelled simply by carrying out a soil compensation procedure without approaching the search head to the soil.
- A reset does not affect already established soil compensation parameters

VERIFICATION OF THE CALIBRATION

Air Compensation

ORANGE TEST SAMPLE

BLACK TEST SAMPLE

www.ceia.net

CEIA CMD FieldInstructions 095 GB v3.200

GENERAL INFORMATION

Components

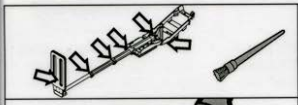
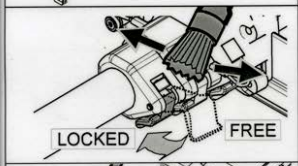
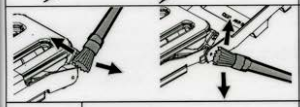
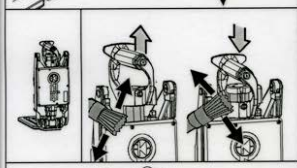
Periodic Maintenance Sheet

Periodic maintenance

- The unit itself does not require periodic maintenance, with the exception of the normal care (cleaning) of it at the end of operations.
- When using rechargeable batteries, it is necessary to maintain them periodically (refer to the relevant instructions, included in the Operator Manual).

Periodic Cleaning Procedure

In case the unit is used in presence of dust, sand or other possible heavy environmental conditions, before packing it, a deep cleaning is recommended, to prevent the moving parts from possible damages.

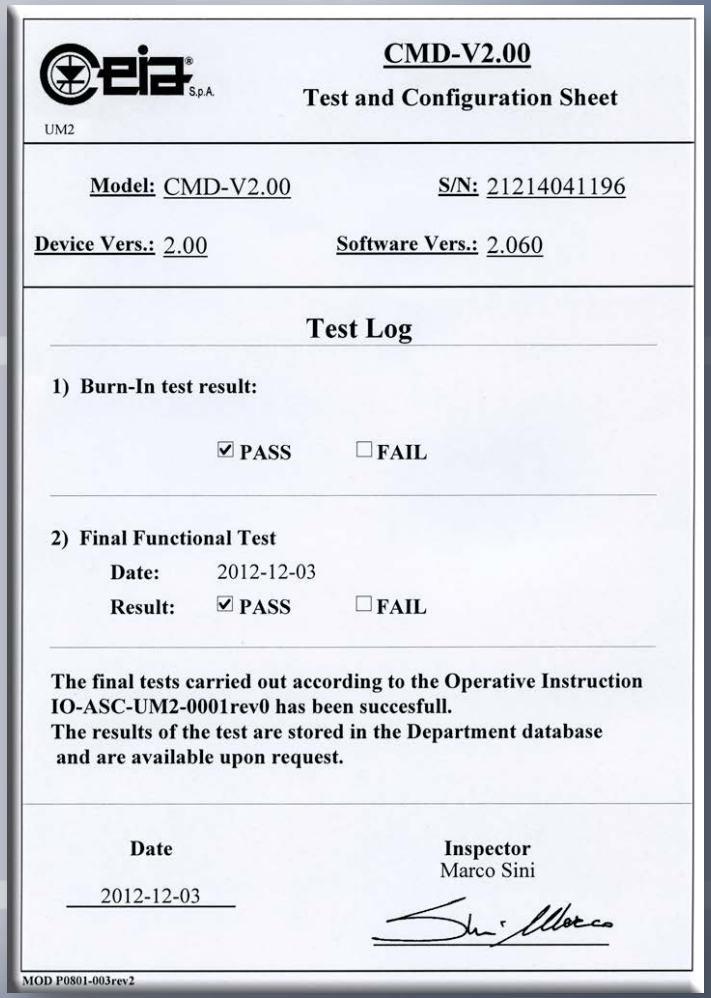
	**General cleaning**. Clean all moving parts of the unit deeply, using a brush.
	**Cleaning the camlocks**. Clean the telescopic pole deeply, using the brush. Open the levers and clean the camlocks, using the brush. Check that the camlocks can be operated correctly and without excessive force. If necessary, clean the camlocks again in both locked and free position.
	**Cleaning the arm support.** Clean the connection point of the arm support , both in closed and in open position, using the brush.
	**Cleaning the handle.** Collapse the telescopic pole and close the arm support, so as the handle can be operated easily. Clean the handle sliding zone in both collapsed and extended position, using the brush. Check that the handle can be collapsed/extended and rotated correctly without excessive force. If necessary, clean again with the handle in both collapsed and extended position.
	**Final general cleaning.** Clean the detector using a moist, non-abrasive cloth.

Do not wash the device with liquid detergents or chemical substances!

GENERAL INFORMATION

Components

Test And Configuration Sheet



CMD-V2.00

Test and Configuration Sheet

UM2

Model: CMD-V2.00 S/N: 21214041196

Device Vers.: 2.00 Software Vers.: 2.060

Test Log

1) Burn-In test result:

☑ PASS ☐ FAIL

2) Final Functional Test

Date: 2012-12-03

Result: ☑ PASS ☐ FAIL

The final tests carried out according to the Operative Instruction IO-ASC-UM2-0001rev0 has been succesfull.
The results of the test are stored in the Department database and are available upon request.

Date

2012-12-03

Inspector

Marco Sini

MOD P0801-003rev2

COMPONENTS

SPARE PARTS KIT

GENERAL INFORMATION

Components

Arm Support Replacement

GENERAL INFORMATION

Components

Display Cover Replacement

GENERAL INFORMATION

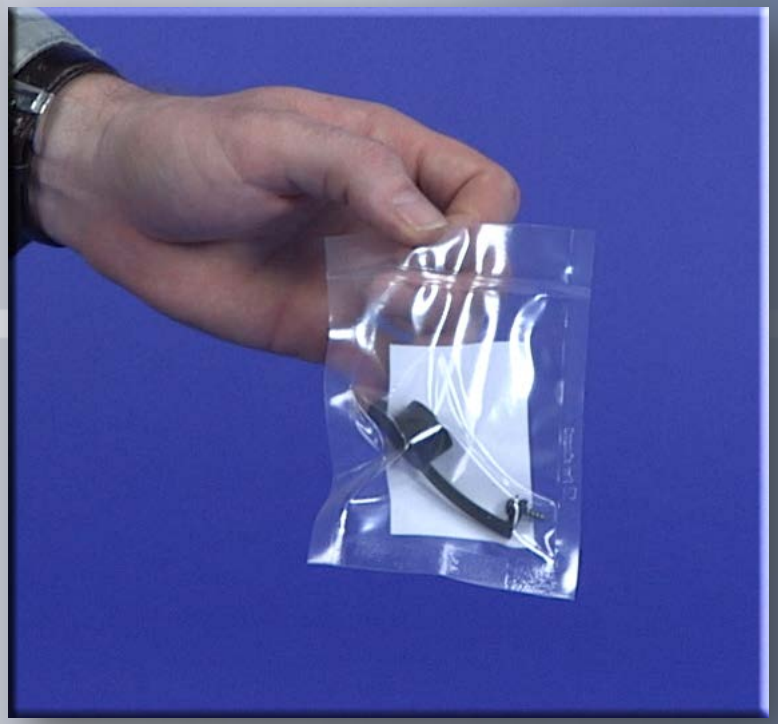
Components

Sensitivity / Volume Knob Replacement

GENERAL INFORMATION

Components

Connector Cover Replacement



GENERAL INFORMATION

Components

CMD Tool Kit

GENERAL INFORMATION

Components

Thread Lock

GENERAL INFORMATION

Components

Circular Brush

GENERAL INFORMATION

Components

Compass Wrench

GENERAL INFORMATION

Components

Interchangeable Handle With T-25 Bit

GENERAL INFORMATION

Components

T-10 Bit

MAJOR COMPONENTS

GENERAL INFORMATION

Major Components

1. Search Head
2. Telescopic Pole
3. Electronic Control Unit
4. Handle
5. Arm Support

GENERAL INFORMATION

Major Components

Search Head

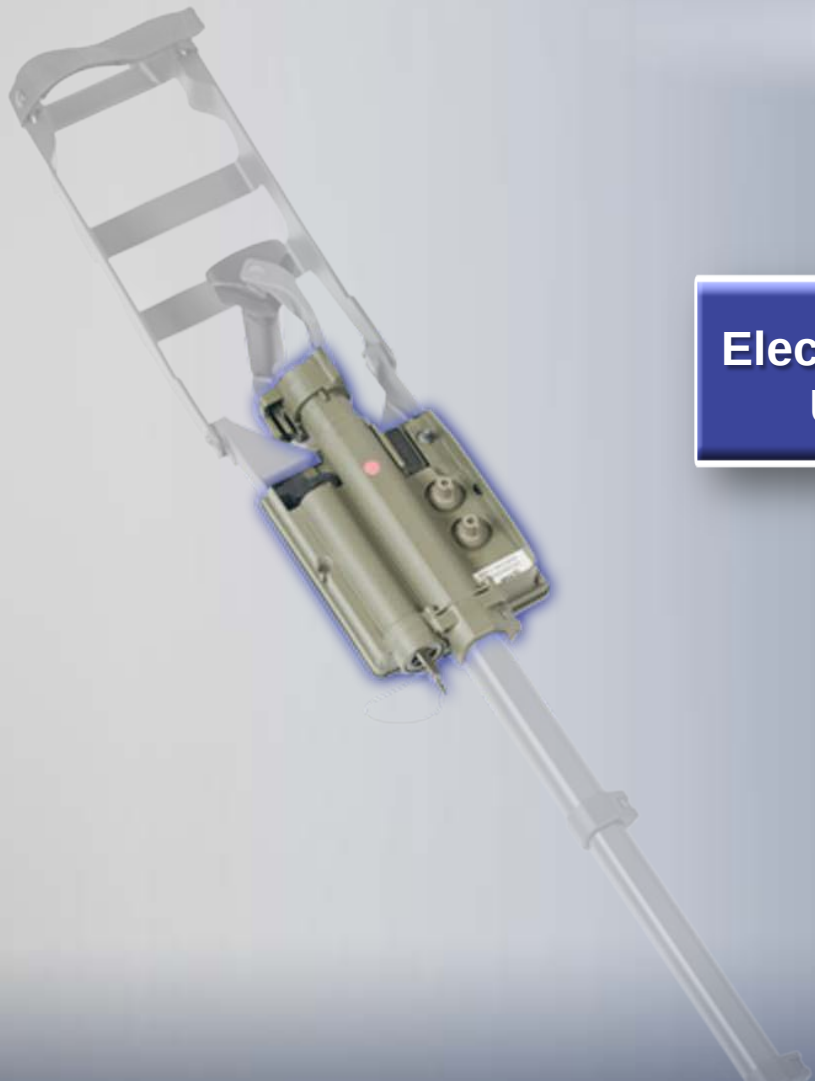
GENERAL INFORMATION

Major Components

Telescopic Pole

GENERAL INFORMATION

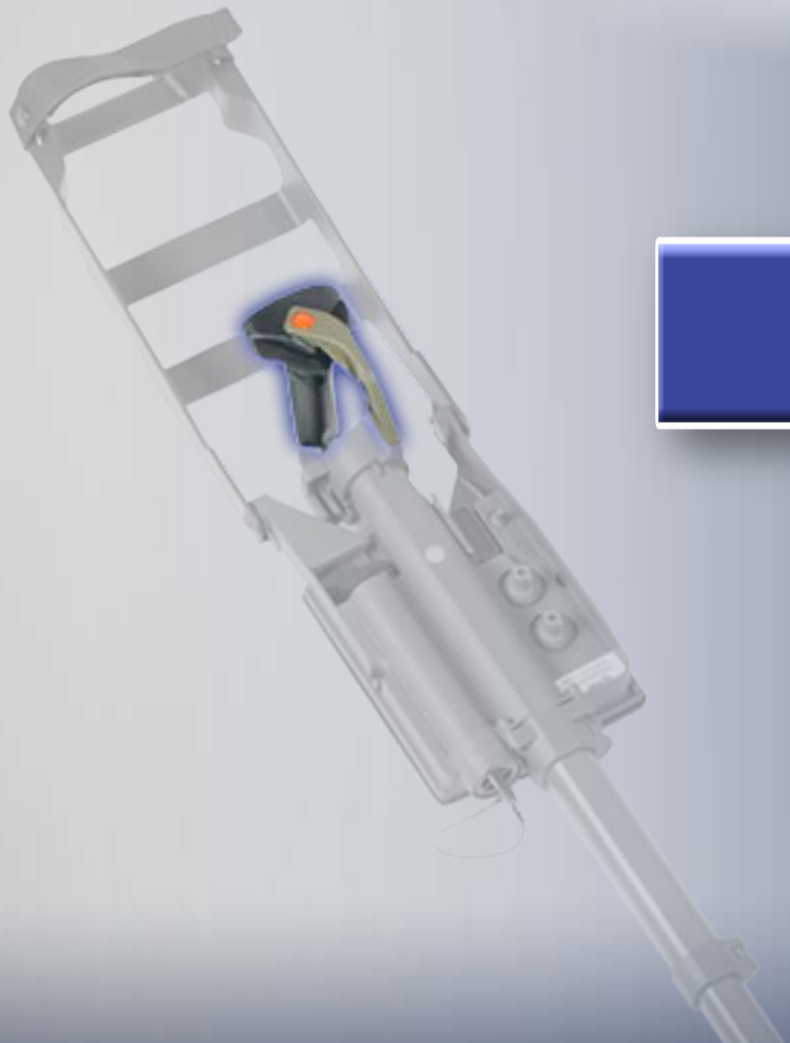
Major Components



Electronic Control Unit (ECU)

GENERAL INFORMATION

Major Components



Handle

GENERAL INFORMATION

Major Components

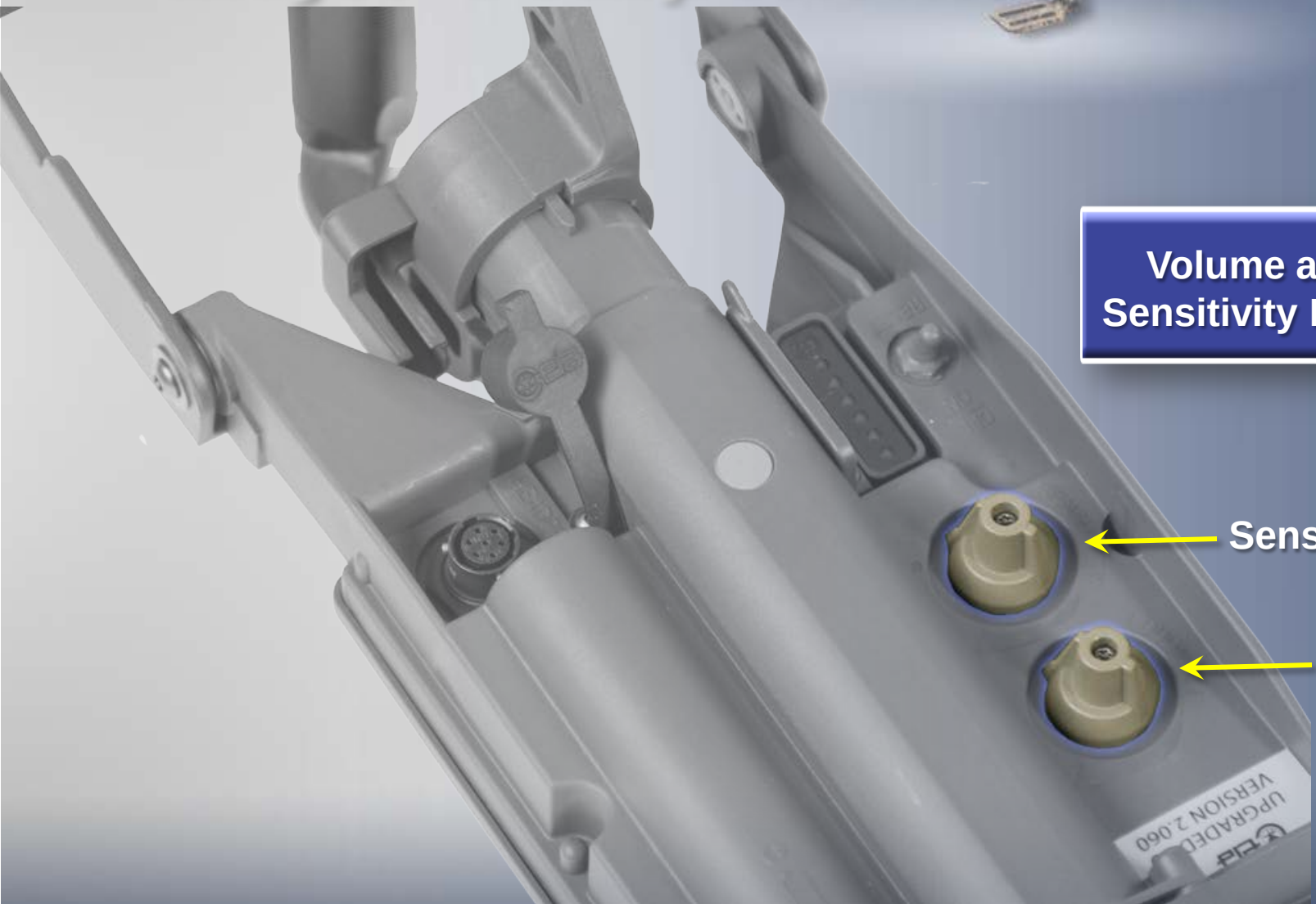
Arm Support

MAJOR COMPONENTS

ECU OVERVIEW

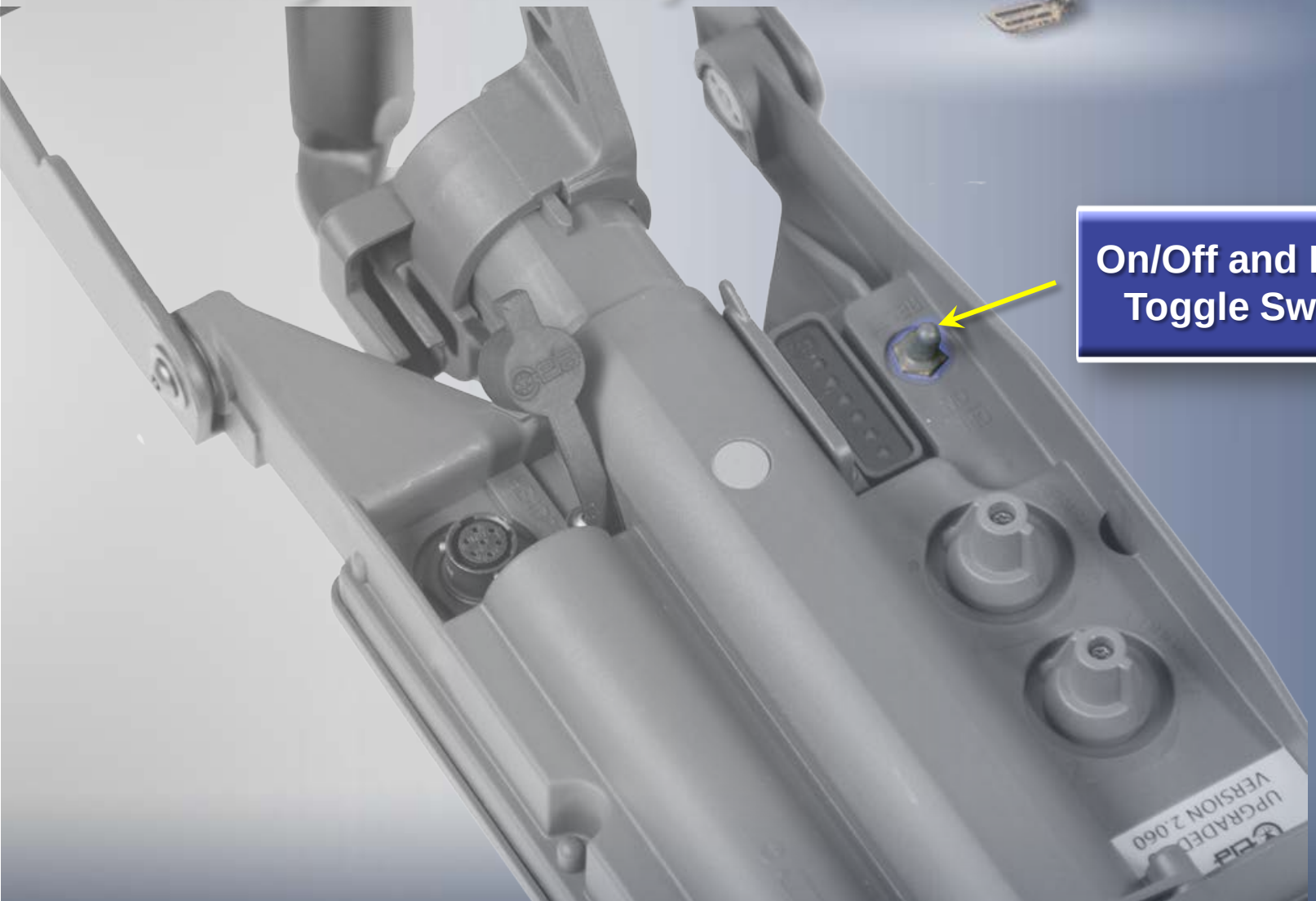
GENERAL INFORMATION

Major Components



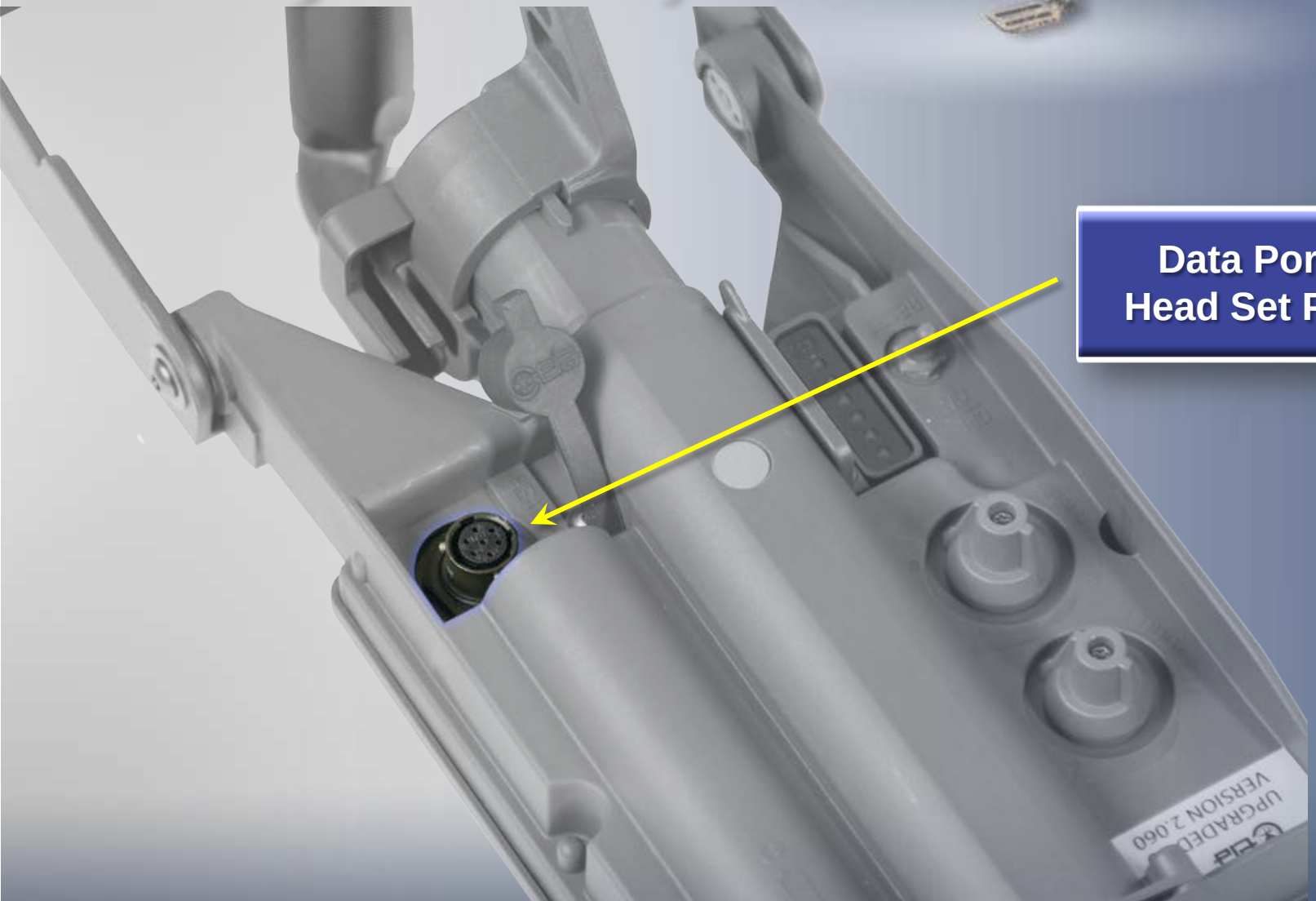
GENERAL INFORMATION

Major Components



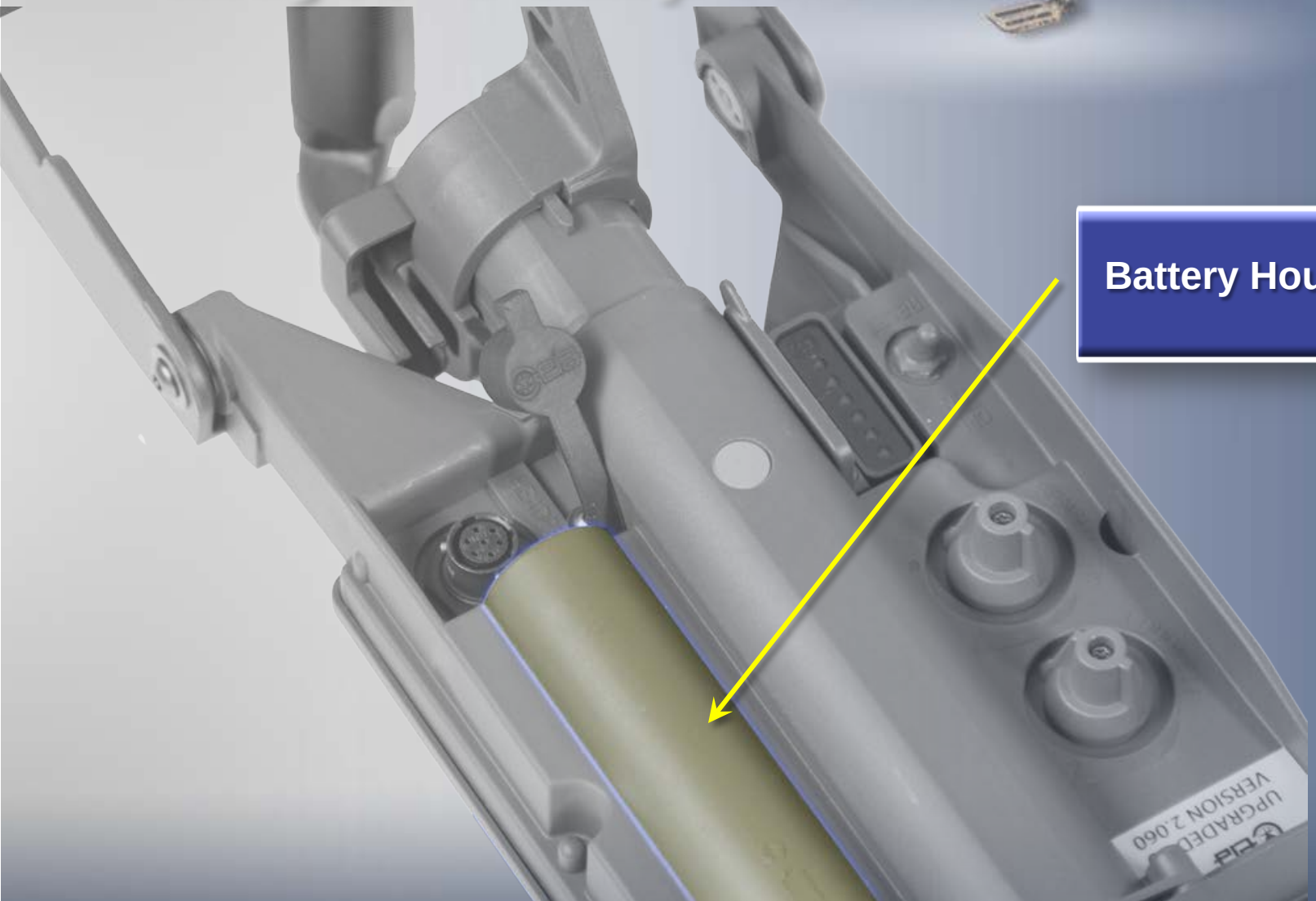
GENERAL INFORMATION

Major Components



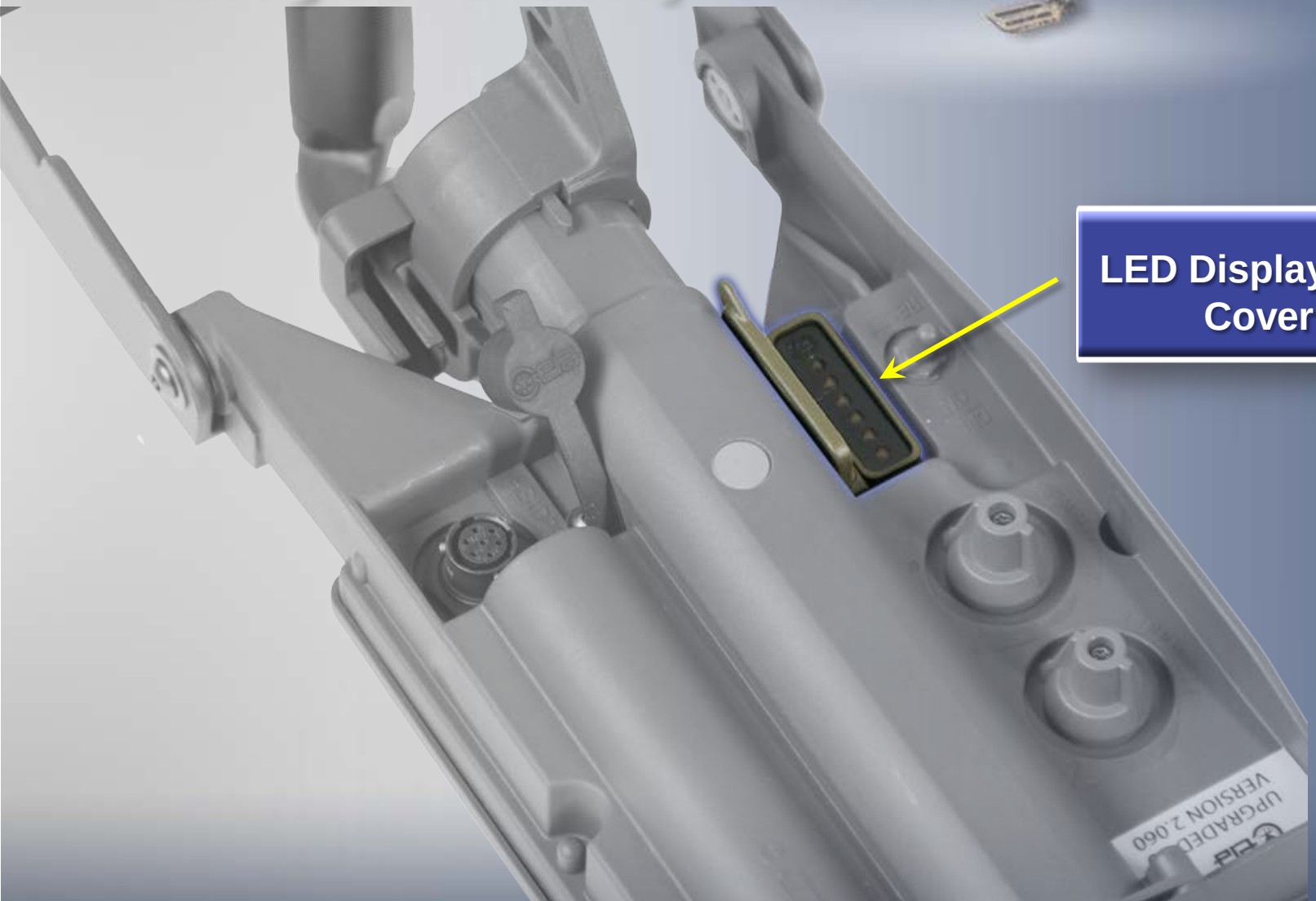
GENERAL INFORMATION

Major Components



GENERAL INFORMATION

Major Components



LED Display with Cover

Not preferred use while detecting magnetically influenced munitions

V 1.34 – Strictly a metal detector

V 2.0 - Metal detector and Low Conductive detector

V. 2.04 – Same as 2.0, except:

- **New Low Conductive Alert tone**
- **Sensitivity setting changed for Low Conductive**
- **Volume setting fully off**

V. 2.06 – Same as 2.0, except:

- **New Low Conductive Alert tone**
- **Sensitivity setting changed for Low Conductive**

GENERAL INFORMATION

Technical Data

Weight	4.67 lbs
Compact Length	16 inches
Extended Length	50 inches
Battery Type Alkaline	2 with 4-6 hours life
Battery Type Ni MH	2 with 6-8 hours life
Set-up Time	< 45 seconds
Water Proof	Up to 2 meters
Temp Range *	-51° F to 158° F

Higher or Lower Temperatures will reduce battery life

GENERAL INFORMATION

Capabilities

- Memory that stores soil compensation
- Low Conductive Sensor provides a distinctly different sound than the metal detection alert
- Sensitivity knob changes Metal Detector sensitivity as well as Low Conductive sensitivity
- Metal Detection is Static Detection
- Low Conductive is Dynamic Detection

GENERAL INFORMATION

Limitations

- Battery life in extreme heat or cold is reduced to half
- Excessive false positive of carbon detection if compensated over vegetation

Multiple detectors on the same channel, must have at least 18 meter dispersion

ECM: Minor interference is possible with some crew systems and with vehicle engines (alternators) when in close proximity

ASSEMBLEY

ASSEMBLY

Upacking From Soft Case

Full Deployment

ASSEMBLY

Upacking From Soft Case

ASSEMBLY

Upacking From Soft Case

OPERATING PROCEDURES

OPERATING PROCEDURES

Start Up Procedures

OPERATING PROCEDURES

Start Up Procedures

On Switch

OPERATING PROCEDURES

Start Up Procedures

Confidence Beep

- **Single Beep every 4 Seconds**

OPERATING PROCEDURES

Start Up Procedures

Low Battery
Two Beeps

- **Confidence beep will become two beeps when battery is low.**

OPERATING PROCEDURES

Start Up Procedures

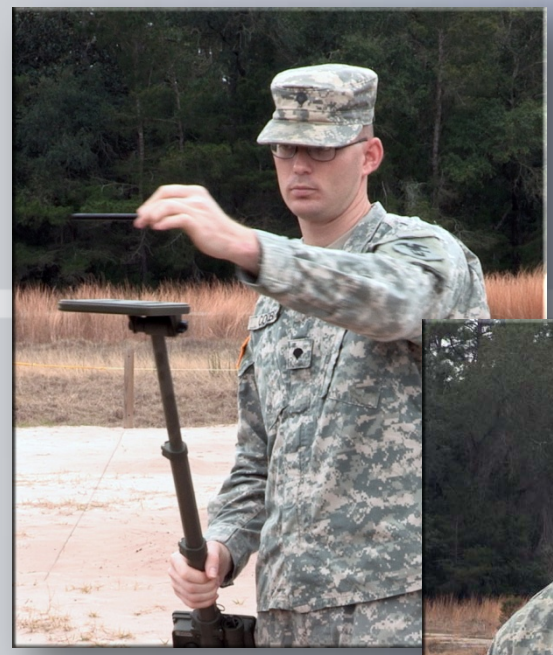
Metal Test Piece

- The metallic test piece is orange and needs to be perpendicular to the search head when using.

OPERATING PROCEDURES

Start Up Procedures

Low Conductivity Test Piece



- **The Low Conductivity test piece is black and needs to be parallel to the search head when using.**

OPERATING PROCEDURES

Start Up Procedures

Sensitivity Knob Vs Graphite Detection

- **The sensitivity knob will change the sensitivity of the metal and low conductive detection simultaneously.**
- **It is important to use both test pieces if sensitivity is reduced.**

OPERATING PROCEDURES

Start Up Procedures

False Detection Over Vegetation With Corrective Action

- **Vegetation can cause false detection on the low conductivity detection.**
- **To correct this conduct a ground balance over the vegetation that will be swept over.**

NOTE:

THIS WILL REDUCE DETECTION CAPABILITES FOR LOW CONDUCTIVIE TARGETS!

OPERATING PROCEDURES

Start Up Procedures

Quick Reset

- **Hold the On/Off toggle to the reset position until the CMD begins to beep rapidly.**

- **Once the CMD begins to beep rapidly release the toggle.**

CHANNEL SELECTION

CHANNEL SELECTION

- The CEIA has 5 operational channel (A,B,C,D,E). These will be represented by different colors.
- These channels will be represented by the last digit of the serial number.
- If more than 1 detector will be used ensure that the same channel is not being used.

Last figure of the serial number	Channel
1	A
2	B
3	C
4	D
5	E
6	A
7	B
8	C
9	D
0	E

CHANNEL SELECTION

- The channel will also be indicated by a colored dot on the front of the ECU.
- There will be 5 different colors.
- When selecting which CMDs to use DO NOT have the same color detectors.

GROUND BALANCE SEQUENCE

GROUND BALANCE SEQUENCE

- **Sensor Head up/away from ground.**

GROUND BALANCE SEQUENCE

- **Press & hold on/off reset to the reset position.**

GROUND BALANCE SEQUENCE

- **Will start to beep rapidly.**

GROUND BALANCE SEQUENCE

- **Hold toggle switch until slight pause is heard.**

GROUND BALANCE SEQUENCE

- **Release toggle switch.**

GROUND BALANCE SEQUENCE

- **Will continue to beep rapidly.**

GROUND BALANCE SEQUENCE

- **Once it stops beeping rapidly and begins to double beep, lower sensor head to the ground.**

GROUND BALANCE SEQUENCE

- Sweep side to side 1 to 2 inches off ground. This will take approximately 20 seconds.

GROUND BALANCE SEQUENCE

- **Will begin to beep rapidly again after about 20 seconds.**

GROUND BALANCE SEQUENCE

- **Raise sensor head up and away from ground.**

GROUND BALANCE SEQUENCE

- **Once rapid beep stops soil compensation complete.**

LOSS

Sweep Technique

LOSS

Sweep Technique

L → LANE COVERAGE

O → OPERATOR STANCE

S → SEARCH HEAD POSITION

S → SWEEP SPEED

Recommended sweep speed - One meter per second

DETECTION ALERTS

DETECTION ALERTS

Low Metallic Target

- The CEIA will produce a solid tone that will increase in pitch the closer to the center of the metal mass.

DETECTION ALERTS

High Metallic Target

- Over large metallic targets the CEIA will begin to beep rapidly when directly over the large metallic source.

DETECTION ALERTS

Low Conductive Target

- The low conductive detection will be two beeps when the sensor head passes over the target and is not a constant tone like the metal detection sound.

NOTE:
The sensor head needs to be moving for low conductivity detection.

DETECTION ALERTS

Multiple Targets Near Each Other

- **AP and Graphite**

- **The detector will signal that there is a low conductive target by beeping twice and when over the AP the detector will produce the metal detector tone.**

DETECTION ALERTS

Marking Procedures

- There are numerous marking procedures. Examples of some are:
  - Cross Method
  - Clover with Chips
  - Second Scale (Large targets)

AT ALL TIMES FOLLOW UNIT SOPs

DETECTION ALERTS

Water

- **The CMD can detect targets under water.**
- **A quick reset may be required when first submerging the sensor head.**

BATTERY CHARGER

BATTERY CHARGER

Power Supply

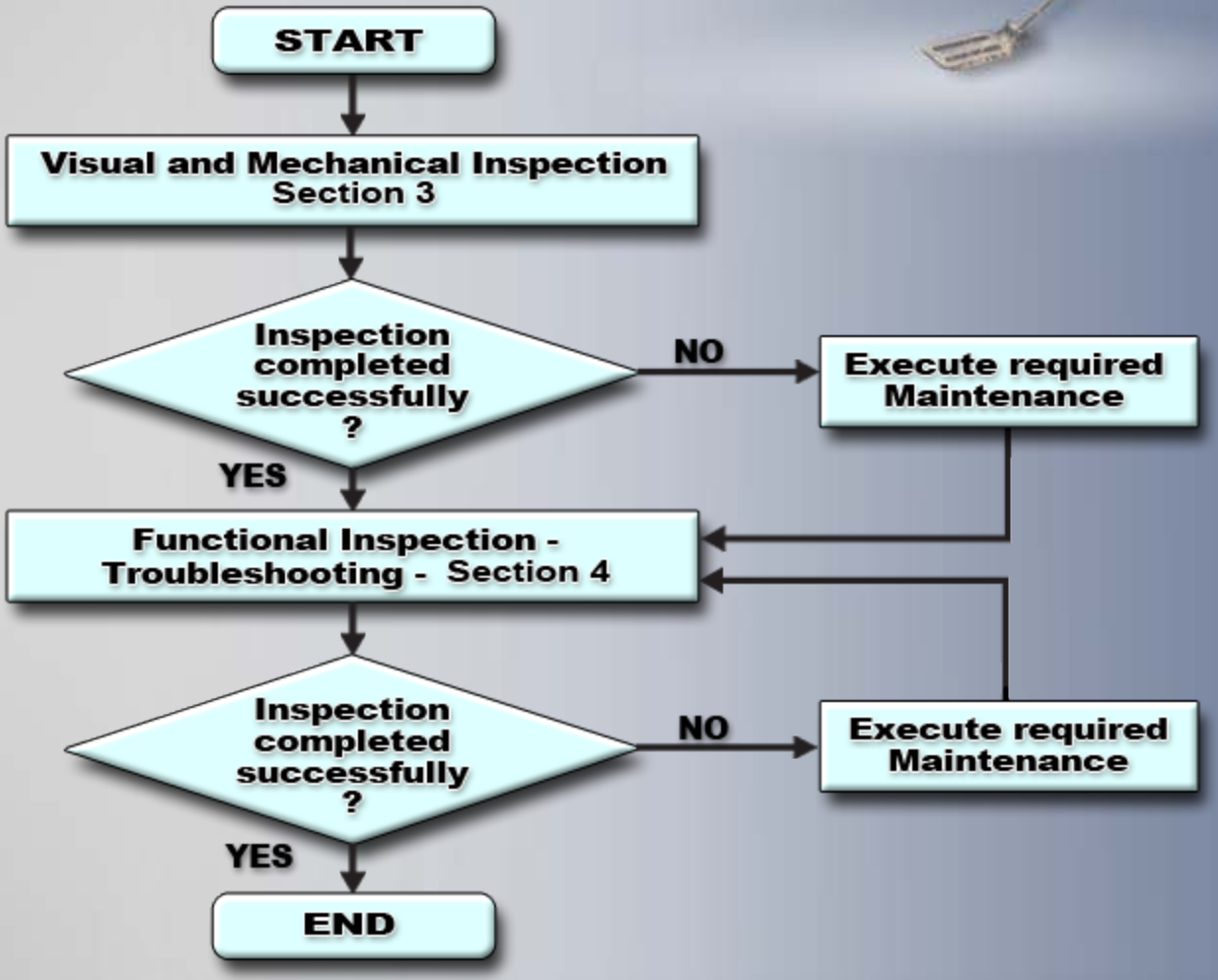
Insert into the data port on the ECU

European Plug

US and Vehicle Plug

MAINTENANCE

MAINTENANCE



SOFTWARE UPGRADE

SOFTWARE UPGRADE

STEP 1

Replace Batteries with new or fully recharged batteries.

SOFTWARE UPGRADE

STEP 2

Turn the Detector Off

SOFTWARE UPGRADE

STEP 3

Insert Key-Turn On with in 5 seconds.

SOFTWARE UPGRADE

STEP 4

The software key will blink Green and Red indicating that the key is compatible.

SOFTWARE UPGRADE

STEP 5

Detector Off

SOFTWARE UPGRADE

STEP 6

Wait 3 Sec Turn On

SOFTWARE UPGRADE

STEP 7

The key will Blink Red indicating the programming processes has started.

SOFTWARE UPGRADE

STEP 8

The key will Blink Green indicating the programming processes has completed.

SOFTWARE UPGRADE

STEP 9

Turn the detector off and remove key

SOFTWARE UPGRADE

- **When upgrading the CMD ALWAYS have the instructions present to ensure no errors are made.**

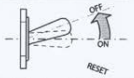
Ground Search Metal Detectors
GSMD-FPK • Field Programming Key
Page : 1/ 2

Instructions for Use

Step 1

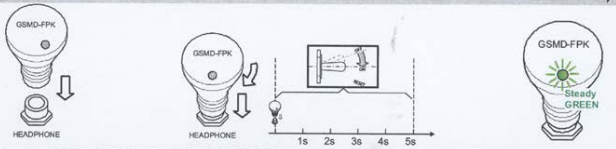
Use always new batteries or full charged rechargeable cells.

Step 2



Switch the Detector off.

Step 3



Plug the GSMD-FPK to the "HEADPHONE" connector of the Detector and switch the Detector on within 5 seconds. The status LED of the GSMD-FPK lights on in green.

Step 4

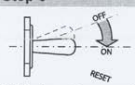
Alternate GREEN and RED

The status LED starts blinking in green and red: the Detector is compatible and the programming process can start.

Step 5

Switch the Detector off.

Step 6



Wait about 3 seconds and then turn the Detector on again.

Step 7

blinking RED

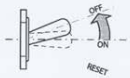
After a second the status LED starts blinking in red: the programming is in progress.

Step 8

blinking GREEN

When the status LED starts blinking in green, the programming has been completed successfully.

Step 9



Switch the Detector off.

Step 10 **END**

Remove the GSMD-FPK: ***the Detector is ready to operate.***

Ground Search Metal Detectors
GSMD-FPK • Field Programming Key
Page : 2/ 2

Troubleshooting

Symptom	Meaning	Action
Steady GREEN	**During Step 4**: the Detector has been switched on too late (more than five seconds after the GSMD-FPK insertion).	• Switch the Detector off. • Remove the GSMD-FPK. • Repeat the procedure.
Steady RED	**During Step 5**: the firmware stored in the GSMD-FPK is not compatible with the Detector.	• Switch the Detector off. • Remove the GSMD-FPK. • Repeat the procedure using a compatible GSMD-FPK.
Steady RED	 **During Step 8**: the programming process has been interrupted due to a power failure of the Detector. ***The Detector firmware has been partially updated!***	***IMPORTANT! The GSMD-FPK goes in recovery mode: this allows the update procedure to be resumed, carrying out the steps below.*** ***Do not try to update another Detector! This will reset the recovery mode, so impeding the completion of the procedure and leaving the Detector with partial firmware update unserviceable!***
 Status LED off.	**During Step 8**: the programming process has been interrupted due to GSMD-FPK disconnection. ***The Detector firmware has been partially updated!***	• Switch the Detector off. • Remove the GSMD-FPK. • Reconnect the GSMD-FPK. • Switch the Detector on again and wait: the procedure will resume automatically (after a few seconds the status LED will start blinking in red).

Specifications

Main features

- Direct connection to the HEADPHONE control unit output.
- Requires no external power source.
- Fully compatible to all CEIA Ground Search Detectors.
- Device Updating Time: ~ 3 min.
- Executes complete and accurate reprogramming of working memory and operational parameters.
- Verifies automatically equipment model and compatibility.

Technical Data

- Operative Temperature: -46° C to +70°C (-50.8°F to 158°F) .
- Storage Temperature: -55 to +85°C (-67°F to 179.6°F).
- Relative humidity: 0 to 95 % (without condensation).
- Weight: 27 g (1 oz).
- Overall dimensions: ø34mm x 31 mm (ø1.34 in x 1.22 in).

POINTS OF CONTACT

POINTS OF CONTACTS

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MAGTF Engineer Center
Marine Corps Engineer School
C-IED Chief
Explosives Hazards Branch
Camp Lejeune NC
910-440-7226

ADDITIONAL INFORMATION

JIEDDO
www.jieddo.dod.mil

Fusion Exchange (JKnIFE)
https://jknife.jieddo.dod.mil

JTF Paladin
http://paladin.coicafgahan.coic.smil.mil

COIC Tools
www.coic.smil.mil

RAPID
https://rapid.trancite.com