EVIDENT

NORTEC 700
Eddy Current Flaw Detector
User's Manual

Models:
N700
N700D
N700i

10-051302-01EN — Rev. 2
May 2026

This instruction manual contains essential information on how to use this product safely and effectively. Before using this product, thoroughly review this instruction manual. Use the product as instructed.
Keep this instruction manual in a safe, accessible location.

Wabtec Inspection Technologies, Inc., 48 Woerd Avenue, Waltham, MA 02453, USA

This document was prepared with particular attention to usage to ensure the accuracy of the information contained therein, and corresponds to the version of the product manufactured prior to the date appearing on the title page. There could, however, be some differences between the manual and the product if the product was modified thereafter.

The information contained in this document is subject to change without notice.

Part number: 10-051302-01EN
Rev. 2
May 2026

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List of Abbreviations

EFUP	environment-friendly use period
LED	light-emitting diode

Important Information — Please Read Before Use

NOTE

Not all of the safety and regulatory markings explained in this section appear on the device. This chapter is a superset of all possible markings, and explains them all in case some are displayed.

Intended Use

The NORTEC 700 is designed to perform nondestructive inspections on industrial and commercial materials.

WARNING

Do not use the NORTEC 700 for any purpose other than its intended use. It must never be used to inspect or examine human or animal body parts.

Instruction Manual

This instruction manual contains essential information on how to use this product safely and effectively. Before using this product, thoroughly review this instruction manual. Use the product as instructed. Keep this instruction manual in a safe, accessible location.

IMPORTANT

Some of the details of components illustrated in this manual may differ from the components installed on your device. However, the operating principles remain the same.

Device Compatibility

Only use this device with the approved ancillary equipment provided by Evident. Equipment provided by Evident and approved for use with this device is described later in this manual.

CAUTION

Always use equipment and accessories that meet Evident specifications. Using incompatible equipment could cause equipment malfunction and/or damage, or human injury.

Repair and Modification

This device contains some user-serviceable parts. For details on how to service all user-serviceable parts, refer to “Maintenance and Troubleshooting” on page 219.

Safety Symbols

The following safety symbols might appear on the instrument and in the instruction manual:

 General warning symbol

This symbol is used to alert the user to potential hazards. All safety messages that follow this symbol shall be obeyed to avoid possible harm or material damage.

 Shock hazard caution symbol

This symbol is used to alert the user to potential electric shock hazards. All safety messages that follow this symbol shall be obeyed to avoid possible harm.

 Direct current (DC) symbol

This symbol is used to alert the user to use of direct current (DC) in the device. All safety messages that follow this symbol shall be obeyed to avoid possible harm.

Safety Signal Words

The following safety symbols might appear in the documentation of the device:

 **DANGER**

The DANGER signal word indicates an imminently hazardous situation. It calls attention to a procedure, practice, or the like, which, if not correctly performed or adhered to, will result in death or serious personal injury. Do not proceed beyond a DANGER signal word until the indicated conditions are fully understood and met.

WARNING

The WARNING signal word indicates a potentially hazardous situation. It calls attention to a procedure, practice, or the like, which, if not correctly performed or adhered to, could result in death or serious personal injury. Do not proceed beyond a WARNING signal word until the indicated conditions are fully understood and met.

CAUTION

The CAUTION signal word indicates a potentially hazardous situation. It calls attention to an operating procedure, practice, or the like, which, if not correctly performed or adhered to, may result in minor or moderate personal injury, material damage, particularly to the product, destruction of part or all of the product, or loss of data. Do not proceed beyond a CAUTION signal word until the indicated conditions are fully understood and met.

Note Signal Words

The following note signal words could appear in the documentation of the device:

IMPORTANT

The IMPORTANT signal word calls attention to a note that provides important information, or information essential to the completion of a task.

NOTE

The NOTE signal word calls attention to an operating procedure, practice, or the like, which requires special attention. A note also denotes related parenthetical information that is useful, but not imperative.

TIP

The TIP signal word calls attention to a type of note that helps you apply the techniques and procedures described in the manual to your specific needs, or provides hints on how to effectively use the capabilities of the product.

Safety

Before turning on the device, verify that the correct safety precautions have been taken (see the following warnings). In addition, note the external markings on the device, which are described under “Safety Symbols.”

Warnings

WARNING

General Warnings

- Carefully read the instructions contained in this instruction manual prior to turning on the device.
- Keep this instruction manual in a safe place for further reference.
- Follow the installation and operation procedures.
- It is imperative to respect the safety warnings on the device and in this instruction manual.
- If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment could be impaired.
- Do not install substitute parts or perform any unauthorized modification to the device.
- Service instructions, when applicable, are for trained service personnel. To avoid the risk of electric shock, do not perform any work on the device unless qualified to do so. For any problem or question regarding this device, contact Evident or an authorized Evident representative.
- Do not touch the connectors directly by hand. Otherwise, a malfunction or electric shock may result.
- Do not allow metallic or foreign objects to enter the device through connectors or any other openings. Otherwise, a malfunction or electric shock may result.

WARNING

Electrical Warning

The device must only be connected to a power source corresponding to the type indicated on the rating label.

CAUTION

If a non-approved power supply cord not dedicated to Evident products is used, Evident will not be able to ensure the electrical safety of the equipment.

Battery Precautions

CAUTION

- Before disposing of a battery, check your local laws, rules, and regulations, and follow them accordingly.
- Transportation of lithium-ion batteries is regulated by the United Nations under the United Nations Recommendations on the Transport of Dangerous Goods. It is expected that governments, intergovernmental organizations, and other international organizations shall conform to the principles laid down in these regulations, thus contributing to worldwide harmonization in this field. These international organizations include the International Civil Aviation organization (ICAO), the International Air Transport Association (IATA), the International Maritime Organization (IMO), the US Department of Transportation (USDOT), Transport Canada (TC), and others. Please contact the transporter and confirm current regulations before transportation of lithium-ion batteries.
- Do not open, crush, or perforate batteries; doing so could cause injury.
- Do not incinerate batteries. Keep batteries away from fire and other sources of extreme heat. Exposing batteries to extreme heat (over 80°C) could result in an explosion or personal injury.
- Do not drop, hit, or otherwise abuse a battery, as doing so could expose the cell contents, which are corrosive and explosive.

- Do not short-circuit the battery terminals. A short circuit could cause injury and severe damage to a battery making it unusable.
- Do not expose a battery to moisture or rain; doing so could cause an electric shock.
- Only use the NORTEC 700 unit or an external charger approved by Evident to charge the batteries.
- Only use batteries supplied by Evident.
- Do not store batteries that have less than 40% remaining charge. Recharge batteries to between 40% and 80% capacity before storing them.
- During storage, keep the battery charge between 40% and 80%.
- Do not leave batteries in the NORTEC 700 unit during instrument storage.

Equipment Disposal

Before disposing of the NORTEC 700, check your local laws, rules, and regulations, and follow them accordingly.

BC (Battery Charger - California, USA Community)

The BC marking indicates that this product has been tested and complies with the Appliance Efficiency Regulations as stated in the California Code of Regulations Title 20, Sections 1601 through 1608 for Battery Charger Systems. The internal battery charger within this device has been tested and certified pursuant to the California Energy Commission's (CEC) requirements; this device is listed on the online CEC's (T20) database.

CE (European Conformity)

This device complies with the requirements of directive 2014/30/EU concerning electromagnetic compatibility, directive 2014/35/EU concerning low voltage, directive 2014/53/EU concerning health, safety, electromagnetic compatibility, and use of the radio spectrum, and directive 2015/863 which amends 2011/65/EU concerning restriction of hazardous substance (RoHS). The CE marking is a declaration that this product conforms to all the applicable directives of the European Community.

UKCA (United Kingdom)

This device complies with the requirements of the Electromagnetic Compatibility Regulations 2016, radio equipment regulations 2017 concerning health, safety, electromagnetic compatibility, and use of the radio spectrum, the Electrical Equipment (Safety) Regulations 2016, and the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012. The UKCA marking indicates compliance with the above regulations.

RCM (Australia)

The regulatory compliance mark (RCM) label indicates that the product complies with all applicable standards, and has been registered with the Australian Communications and Media Authority (ACMA) for placement on the Australian market.

WEEE Directive

In accordance with European Directive 2012/19/EU on Waste Electrical and Electronic Equipment (WEEE), this symbol indicates that the product must not be disposed of as unsorted municipal waste, but should be collected separately. Refer to your local distributor for return and/or collection systems available in your country.

China RoHS

China RoHS is the term used by industry generally to describe legislation implemented by the Ministry of Information Industry (MII) in the People's Republic of China for the control of pollution by electronic information products (EIP).

The China RoHS mark indicates the product's Environment-Friendly Use Period (EFUP). The EFUP is defined as the number of years for which listed controlled substances will not leak or chemically deteriorate while in the product. The EFUP for the NORTEC 700 has been determined to be 15 years.

Note: The Environment-Friendly Use Period (EFUP) is not meant to be interpreted as the period assuring functionality and product performance.

电器电子产品有害物质限制使用标志

本标志是根据“电器电子产品有害物质限制使用管理办法”以及“电子电气产品有害物质限制使用标识要求”的规定，适用于在中国销售的电器电子产品上的电器电子产品有害物质使用限制标志。

（注意）电器电子产品有害物质限制使用标志内的数字为在正常的使用条件下有害物质等不泄漏的期限，不是保证产品功能性能的期间。

产品中有害物质的名称及含量

部件名称		有害物质									
		铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr(Ⅵ))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)	邻苯二甲酸二（2-乙基己基）酯 (DEHP)	邻苯二甲酸苄丁酯 (BBP)	邻苯二甲酸二丁酯 (DBP)	邻苯二甲酸二异丁酯 (DIPBP)
主体	机构部件	×	○	○	○	○	○	○	○	○	○
	光学部件	×	○	○	○	○	○	○	○	○	○
	电气部件	×	○	○	○	○	○	○	○	○	○
附件		×	○	○	○	○	○	○	○	○	○

本表格依据 SJ/T 11364 的规定编制。
○：表示该有害物质在该部件所有均质材料中的含量均在 GB/T26572 规定的限量要求以下。
×：表示该有害物质至少在该部件的某一均质材料中的含量超出 GB/T26572 规定的限量要求。

Korea Communications Commission (KCC)

Seller and user shall be noticed that this equipment is suitable for electromagnetic equipment for office work (class A) and it can be used outside the home. This device complies with the EMC requirements of Korea.

The Equipment Management Number for the device is the following: OYN-Nortec700, and can be confirmed at the National Radio Research Institute website at https://www.rra.go.kr/selform/OYN-Nortec700.

판매자와 사용자는 이 장비가 다음에 적합하다는 것을 알아야 합니다 .
사무용 전자기기 (A 급) 로 사용이 가능합니다 .
집 밖에서 . 이 장치는 EMC 요구 사항을 준수합니다 .
한국 .

해당 기기의 장비관리번호는 OYN-Nortec700 이며 , 국립전파연구원 홈페이지 https://www.rra.go.kr/selform/OYN-Nortec700 에서 확인하실 수 있습니다 .

KC (South Korea Community)

This device complies with the requirements of KS C 9610-6-2 and KS C 9610-6-4 concerning electromagnetic compatibility. The KCC marking indicates compliance with the above standards.

EMC Directive Compliance

This equipment generates and uses radio-frequency energy and, if not installed and used properly (that is, in strict accordance with the manufacturer's instructions), may cause interference. The NORTEC 700 has been tested and found to comply with the limits for an industrial device in accordance with the specifications of the EMC directive.

FCC (USA) Compliance

NOTE

This product has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the product is operated in a commercial environment. This product generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instruction manual, might cause harmful interference to radio communications. Operation of this product in a residential area is likely to cause harmful interference, in which case you will be required to correct the interference at your own expense.

WARNING

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the product.

WARNING

In environments subject to strong electromagnetic noise, some auxiliary functions may be temporarily affected. During those rare events, the measurement functionality and accuracy remains unaffected.

FCC Supplier's Declaration of Conformity

Hereby declares that the product,

Product name: Eddy Current Flaw Detector
Model: NORTEC 700

Conforms to the following specifications:

FCC Part 15, Subpart B, Section 15.107 and Section 15.109.

Supplementary information:

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference.
(2) This device must accept any interference received, including interference that may cause undesired operation.

Responsible party name:

Wabtec Inspection Technologies, Inc.

Address:

48 Woerd Avenue, Waltham, MA 02453, USA

Phone number:

+1 781-419-3900

ICES-001 (Canada) Compliance

This Class A digital apparatus complies with Canadian ICES-001.

Cet appareil numérique de la classe A est conforme à la norme NMB-001 du Canada.

Radio Frequency Regulatory Compliance

Table 1 on page 21 contains the regulatory compliance declarations for radio frequency information for every country and region.

IMPORTANT

This information is only applicable if the wireless functions are enabled in each specific country.

For wireless specifications, see Table 34 on page 233. For instructions on how to access the regulatory e-labels on your NORTEC 700, refer to "Accessing the Regulatory e-Labels" on page 29.

Table 1 Radio Frequency Regulatory Compliance

Country/Region	Mark	Declaration
USA	See e-label for FCC ID	This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment and meets the FCC radio frequency (RF) exposure guidelines in KDB Publication 447498. The FCC ID marking indicates compliance and certification with the above FCC guidelines. If this device is to be operated in the 5.15~5.25 GHz frequency range, it is restricted to indoor environments only.

Table 1 Radio Frequency Regulatory Compliance *(continued)*

Country/Region	Mark	Declaration
Canada	See e-label for IC number	This device contains radio transmitters and has been designed, manufactured and tested to comply with the Innovation, Science and Economic Development (ISED) Canada guidelines for RF exposure and Specific Absorption Rate pursuant to RSS-102. The IC number marking indicates compliance and certification with the above ISED guidelines. This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operations of this device. Cet appareil contient des émetteurs radio et a été conçu, fabriqué et testé conformément aux directives d'Innovation, Sciences et Développement économique Canada (ISDE) relatives à l'exposition aux radiofréquences et au débit d'absorption spécifique, conformément à la norme RSS-102. Le numéro d'identification IC indique la conformité et la certification selon les directives d'ISDE mentionnées ci-dessus. Cet appareil est conforme aux normes RSS exemptes de licence d'Industrie Canada. L'utilisation est assujettie aux deux conditions suivantes: (1) cet appareil ne peut pas causer d'interférences, et (2) cet appareil doit accepter des interférences, y compris des interférences qui peuvent causer des opérations non désirées de l'appareil.

Table 1 Radio Frequency Regulatory Compliance *(continued)*

Country/Region	Mark	Declaration
UK	UKCA	This device complies with the requirements of the Electromagnetic Compatibility Regulations 2016, the Electrical Equipment (Safety) Regulations 2016, the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012, and the Radio Equipment Regulations 2017. The UKCA marking indicates compliance with the above regulations.
EU	CE	This device complies with the requirements of directive 2014/30/EU concerning electromagnetic compatibility, directive 2014/35/EU concerning low voltage, directive 2015/863 which amends 2011/65/EU concerning restriction of hazardous substances (RoHS), and directive 2014/53/EU concerning radio equipment (RED). The CE marking indicates compliance with the above directives.
Australia and New Zealand	R-NZ	The regulatory compliance mark (RCM) label indicates that the product complies with all applicable standards, and has been registered with the Australian Communications and Media Authority (ACMA) and the New Zealand Radio Spectrum Management (RSM) for placement on the Australian and New Zealand markets. In addition, this device complies with the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) radiofrequency electromagnetic energy (RF EME) human exposure limits.

Table 1 Radio Frequency Regulatory Compliance *(continued)*

Country/Region	Mark	Declaration
Brazil		Este produto é homologado pela ANATEL de acordo com os procedimentos regulamentados para avaliação da conformidade de produtos de telecomunicações e atende aos requisitos técnicos aplicáveis, incluindo os limites de exposição do Índice de Absorção Específica para campos elétricos, magnéticos e de radiofrequência eletromagnéticos. Este equipamento não tem direito a proteção contra interferência prejudicial e não pode causar interferência a sistemas devidamente autorizados. Para mais informções, consulte o site da ANATEL - https://www.gov.br/anatel/pt-br
Chile	N/A	This device contains radio transmitters and has been designed, manufactured and tested to meet the requirements of the Subsecretaría de Telecomunicaciones (SUBTEL).
China	See e-label for CMIIT ID	This device contains a radio transmitter and has been designed, manufactured and tested to meet the requirements of the State Radio Regulations of China (SRRC). The Chinese Ministry of Industry and Information Technology (CMIIT) ID number indicates compliance with the above requirements.
Hong Kong	N/A	This device contains radio transmitters and has been designed, manufactured and tested to meet the US Federal Communications Commission (FCC) and European Union (EU) guidelines for RF exposure and Specific Absorption Rate.
India	N/A	This device contains radio transmitters and has been designed, manufactured and tested to meet the US Federal Communications Commission (FCC) and European Union (EU) guidelines for RF exposure and Specific Absorption Rate. Thus, this device has received an Equipment Type Approval (ETA) certificate from the Wireless Planning & Coordination (WPC) Wing department.

Table 1 Radio Frequency Regulatory Compliance *(continued)*

Country/Region	Mark	Declaration
Indonesia	 See e-label for QR code, certificate number and certificate holder's registration number.	This device contains radio transmitters and has been designed, manufactured and tested to meet the requirements of the Direktorat Jenderal Sumber Daya Dan Perangkat Pos Dan Informatika (SDPPI). The QR code, Certificate numbers, Certificate Holder's Registration number, and warning sign indicates compliance with the SDPPI.
Israel	N/A	This device contains radio transmitters and has been designed, manufactured and tested to meet the requirements of the Ministry of Communication (MOC). It is prohibited to perform operations on the device that could alter the wireless features of the device, including software changes, replacement of an original antenna or adding the option of connecting to an external antenna, without obtaining approval from the Ministry of Communications, due to fear of employee interference. The device is prohibited to operate outside the building, due to fear of wireless interference.
Japan		This device contains radio transmitters and has been designed, manufactured and tested to meet Radio Act requirements for RF exposure and Specific Absorption Rate. The GITEKI (Technical Conformity Mark) indicates compliance and certification with the above Radio Act requirements. 当該機器には電波法に基づく、技術基準適合証明等を受けた特定無線設備を装着している

Table 1 Radio Frequency Regulatory Compliance *(continued)*

Country/Region	Mark	Declaration
Korea		This device complies with the electromagnetic compatability (EMC) and Radiofrequency (RF) requirements of Korea. See e-label for radio mark.
Kuwait	N/A	This device contains radio transmitters and has been designed, manufactured and tested to meet the requirements of the Communication and Information Technology Regulatory Authority (CITRA).
Malaysia		This device contains radio transmitters and has been designed, manufactured and tested to meet the requirements of the Malaysian Communications And Multimedia Commission (MCMC).
Mexico	See e-label for IFETEL/IFT number	This device contains radio transmitters and has been designed, manufactured and tested to meet the requirements of the Instituto Federal de Telecomunicaciones (IFETEL) and the The Normas Oficiales Mexicanas (NOM) The IFETEL/IFT number shows compliance with Mexico requirements.
Mexico (Safety)		The operation of this equipment is subject to the following two conditions: (1) this equipment or device may not cause harmful interference, and (2) this equipment or device must accept any interference received, including interference that may cause undesired operation. La operación de este equipo está sujeta a las siguientes dos condiciones: (1) es posible que este equipo o dispositivo no cause interferencia perjudicial y (2) este equipo o dispositivo debe aceptar cualquier interferencia, incluyendo la que pueda causar su operación no deseada.

Table 1 Radio Frequency Regulatory Compliance *(continued)*

Country/Region	Mark	Declaration
Pakistan		This device contains radio transmitters and has been designed, manufactured and tested to meet the requirements of the Pakistan Telecommunication Authority (PTA). The PTA marking indicates compliance with the above requirements.
Peru	N/A	This device contains radio transmitters and has been designed, manufactured and tested to meet the requirements of the Ministerio de Transporte y Comunicaciones (MTC).
Singapore		This device contains radio transmitters and has been designed, manufactured and tested to meet the requirements of the Infocomm Media Development Authority (IMDA). The IMDA marking indicates compliance with the above requirements.
Saudi Arabia	N/A	This device contains radio transmitters and has been designed, manufactured and tested to meet the requirements of the Communications and Information Technology Commission (CITC).
South Africa		This device contains radio transmitters and has been designed, manufactured and tested to meet the requirements of the Independent Communications Authority of South Africa (ICASA). The ICASA marking indicates compliance with the above requirements.

Table 1 Radio Frequency Regulatory Compliance *(continued)*

Country/Region	Mark	Declaration
Taiwan		This device contains radio transmitters and has been designed, manufactured and tested to meet the requirements of the National Communications Commission (NCC). The NCC certification indicates compliance with the above requirements. 取得審驗證明之低功率射頻器材，非經核准，公司、商號或使用者均不得擅自變更頻率、加大功率或變更原設計之特性及功能。低功率射頻器材之使用不得影響飛航安全及干擾合法通信；經發現有干擾現象時，應立即停用，並改善至無干擾時方得繼續使用。前述合法通信，指依電信管理法規定作業之無線電通信。低功率射頻器材須忍受合法通信或工業、科學及醫?用電波輻射性電機設備之干擾。 應避免影響附近雷達系統之操作。 高增益指向性天線只得應用於固定式點對點系統
Thailand		This device contains radio transmitters and has been designed, manufactured and tested to meet the requirements of the National Broadcasting and Telecommunications Commission (NBTC). The NBTC marking indicates compliance with the above requirements. This radiocommunication equipment is exempted to possess license, user license, or radiocommunication station license as per NBTC notification regarding radiocommunication equipment and radiocommunication station has been exempted for license according to radio communication act B.E.2498.
United Arab Emirates		This device contains radio transmitters and has been designed, manufactured and tested to meet the requirements of the Telecommunications and Digital Government Regulatory Authority (TDRA).

Table 1 Radio Frequency Regulatory Compliance *(continued)*

Country/Region	Mark	Declaration
Vietnam		This device contains radio transmitters and has been designed, manufactured and tested to meet the requirements of the Vietnam Telecommunications Authority (VNTA).

Accessing the Regulatory e-Labels

All of the regulatory markings and notices are located in the e-label screen.

To access the e-labels

1. Press the System control key.
2. Choose the **About** menu.
3. Choose **Regulatory**.

Packing and Return Shipping

If the NORTEC 700 is not returned in its transport case, it could be damaged during shipping. Evident reserves the right to void the warranty on instruments damaged while in transit if they are shipped without their transport case. Prior to returning any units, contact Customer Service to obtain the required RMA number(s) and any important shipping information.

Follow the steps below to return your NORTEC 700:

1. Pack the NORTEC 700 back into the transport case that it came in, using the original packing materials.
2. Include the RMA in the case, and reference the RMA number in your shipping documents.
3. Close the transport case, and do at least one of the following:
   - Secure the case with plastic zip ties.
   - Pack the transport case within another box.

Regulations for Shipping Products with Lithium-Ion Batteries

IMPORTANT

When shipping a Li-ion battery or batteries, be sure to follow all local transportation regulations.

WARNING

Damaged batteries cannot be shipped through normal routes — DO NOT ship damaged batteries to Evident. Contact your local sales representative or material disposal professionals.

Warranty Information

Evident guarantees your Evident product to be free from defects in materials and workmanship for a specific period, and in accordance with conditions specified in the Terms and Conditions available at https://ims.evidentscientific.com/legal/terms-and-conditions.

The Evident warranty only covers equipment that has been used in a proper manner, as described in this instruction manual, and that has not been subjected to excessive abuse, attempted unauthorized repair, or modification.

Inspect materials thoroughly on receipt for evidence of external or internal damage that might have occurred during shipment. Immediately notify the carrier making the delivery of any damage, because the carrier is normally liable for damage during shipment. Retain packing materials, waybills, and other shipping documentation needed in order to file a damage claim. After notifying the carrier, contact Evident for assistance with the damage claim and equipment replacement, if necessary.

This instruction manual explains the proper operation of your Evident product. The information contained herein is intended solely as a teaching aid, and shall not be used in any particular application without independent testing and/or verification by the operator or the supervisor. Such independent verification of procedures becomes

increasingly important as the criticality of the application increases. For this reason, Evident makes no warranty, expressed or implied, that the techniques, examples, or procedures described herein are consistent with industry standards, nor that they meet the requirements of any particular application.

Evident reserves the right to modify any product without incurring the responsibility for modifying previously manufactured products.

Technical Support

Evident is firmly committed to providing the highest level of customer service and product support. If you experience any difficulties when using our product, or if it fails to operate as described in the documentation, first consult the user's manual, and then, if you are still in need of assistance, contact our After-Sales Service. To locate the nearest service center, visit the Service Centers page at https://ims.evidentscientific.com/en/support.

Introduction

This user's manual provides operating instructions for the Evident NORTEC 700 instrument, which uses eddy currents to detect surface flaws in various types of metals. The information in this manual is organized to explain the technology, safety details, hardware, and software.

NOTE

Practical inspection examples are available online at http://ims.evidentscientific.com to help the user become familiar with the instrument's capabilities.

Features and Layout

The NORTEC 700 is available in 3 models: N700, N700D, and N700i (see Figure i-1 on page 34). Each model provides the same basic layout, described in Figure i-2 on page 34 and Figure i-3 on page 35 for the front and back of the device.

Feature	N700	N700D	N700i
Conductivity	√	√	√
Single Frequency	√	√	√
Weld	√	√	√
Dual Frequency		√	√
Rotary Scanner		√	√
Layer detection			√
Eddy Current Array			√

Figure i-1 The NORTEC 700 models and features

Figure i-2 The NORTEC 700 instrument front view

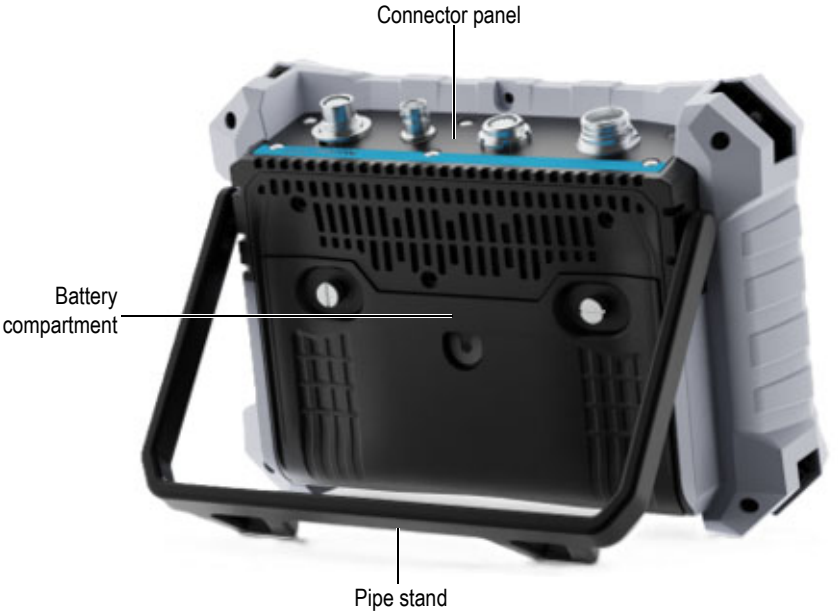


Figure i-3 The NORTEC 700 instrument back view

Access Door Components

The NORTEC 700 access door (See Figure i-2 on page 34) provides access to the power supply connector, and the peripheral port for communication, Internet, additional screens, or a keyboard (See Figure i-4 on page 36).

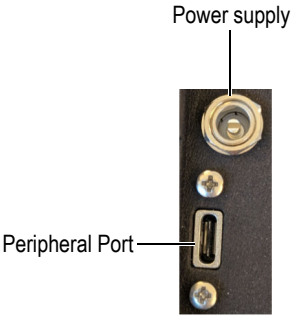


Figure i-4 The NORTEC 700 access door detail

Connector Panel Components

The NORTEC 700 connector panel (see Figure i-3 on page 35) provides access to the following scanner connectors: 16-pin LEMO, BNC, I/O, ECA(see Figure i-5 on page 36).

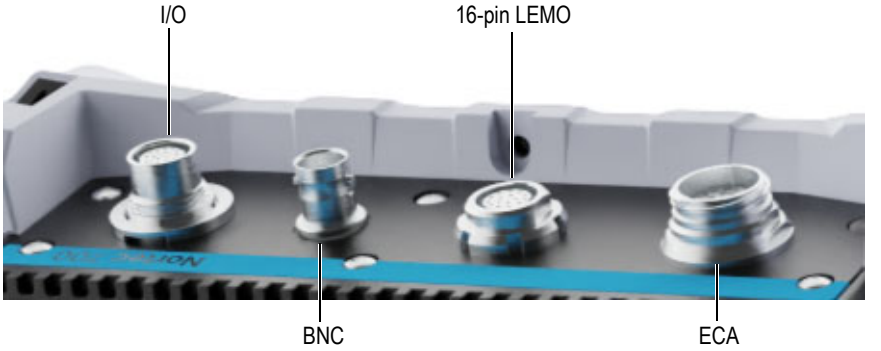


Figure i-5 The NORTEC 700 connector panel detail

1. Instrument Overview

This chapter provides a brief overview of the Evident NORTEC 700 eddy current flaw detector, and includes the principle of operation, accessories, and all common operational requirements.

1.1 Operating Principle

The NORTEC 700 is a small, lightweight flaw detector designed to make fast, accurate, and repeatable measurements on conductive materials such as aluminum, copper, stainless steel, steel, and titanium.

The NORTEC 700 uses electromagnetic induction to detect flaws in conductive materials. Electromagnetic induction is achieved with a coil that carries a current and that is placed in proximity to the test material. The alternating current in the coil generates a changing magnetic field that interacts with the test material and causes eddy currents. Variations in the phase and magnitude of these eddy currents are monitored. Variations in the electrical conductivity or magnetic permeability of the test object, or the presence of any flaws, will cause a change in eddy current and a corresponding change in the phase and amplitude of the measured current.

Eddy current testing can detect very small cracks in or near the surface of non-ferrous material, and it is also useful for making electrical conductivity and coating thickness measurements. The surfaces being tested need minimal preparation.

1.2 Optional Accessories and Parts

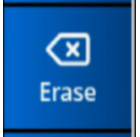
A list of optional accessories available from Evident can be found in “Specifications” on page 231.

1.3 Navigation and Control

The basic navigation and control functions are access through the direct access keys, the control knob, and the touch screen (see Figure i-2 on page 34).

1.3.1 Using the Direct Access Keys

Table 2 Direct Access Keys

Keys	Function	Description
	Balancing	Initialize the instrument screen to zero.
	Data Erase	Erase the instrument screen.
	Main Parameters	Access the main inspection parameters.
	Display Mode	Switch between the 5 preset displays.
	Snapshot	Capture the screen, parameters used, and inspection video (linked to buffer time).
	Freeze Mode	Freeze the current signal and fine-tune the setting, or analyze the signal.

1.3.2 Using the Control Knob

Table 3 Control Knob

Knob Function	Action	Example/Description
	1. Navigate through the parameters.	
	2. Push the knob to select.	
	3. Adjust the parameter.	
	4. Push the knob to accept the value.	
	5. Repeat steps 1 through4 as necessary.	Apply the same process for every parameter to be adjusted. Select the arrows  in the ribbon to move to another parameter.
	6. Push the knob to close the ribbon.	Select the X  and push the knob to close the ribbon.

1.3.3 Using the Touch Screen

Table 4 Touch Screen

Knob Function	Action	Example/Description
	1. Tap the parameter or menu.	
	2. Adjust the parameter with the knob.	
	3. Push the knob (or move to another parameter) to accept the value.	

1.3.4 Navigating the Menus (ECT/ECA)

Table 5 Navigating Menus — ECT/ECA

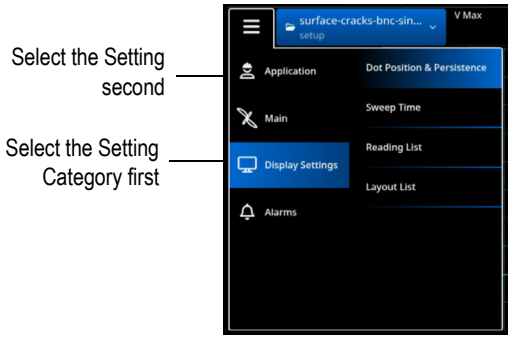
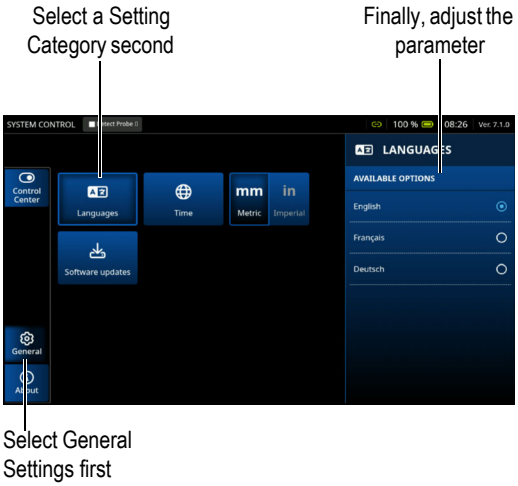
Action	Purpose	Example/Description
 or 	1. Select the Menu drop-down.	Use the Direct Access button or tap the touch screen.
 or 	2. Select the parameter to be adjusted.	Use the knob to adjust and click, or tap the touch screen. 

Table 5 Navigating Menus — ECT/ECA *(continued)*

Action	Purpose	Example/Description
 or 	3. Adjust the parameter.	Use the knob (see “Using the Control Knob” on page 39) or the touch screen (see “Using the Touch Screen” on page 40) to adjust the value of the parameter.

1.3.5 Navigating the Menus (System Control)

Table 6 Navigating Menus — System Control

Action	Purpose	Example/Description
	1. Select the System Control button.	Use the Direct Access button.
	2. Select the parameter to be adjusted.	Use the touch screen. 
	3. Exit the System Control menu.	Use the Direct Access button.

2. Using the Instrument

This chapter explains how to use the NORTEC 700 instrument for inspections and conductivity measurements and provides details on the instrument alarms.

The application examples in this chapter have been prepared to help you rapidly obtain the best results for the most common NORTEC 700 applications. Although it may be possible to obtain equivalent results using different methods, it is recommended that you follow these examples to most efficiently learn how to take full advantage of the instrument's numerous features. This minimizes the required number of steps and operations. The example procedures are also a good starting point if you need to write any inspection procedures based on the NORTEC 700.

The application examples presented here are not intended to replace any original equipment manufacturer (OEM) inspection procedures for your specific applications. Instead, they are intended to help you benefit from the numerous features available on the NORTEC 700. This facilitates the configuration of commonly used Eddy current applications and provides you with self-guided training. You must ALWAYS closely follow your own OEM procedures.

Certain Evident probes, scanners (Bolt Hole) or Probes (Conductivity) use PowerLink technology. To fully benefit from the NORTEC 700 instrument's pre-programmed features, it is recommended that you choose an application from the **Application Selection** menu.

3. Common NORTEC 700 Applications

The following sections contain example procedures for commonly used applications.

3.1 Detecting Surface-Breaking Cracks

This is a general purpose procedure for all NORTEC 700 models using a BNC connector.

TIP

If using a PowerLink enabled probe and cable, most configuration is completed automatically.

3.1.1 Materials Required

Table 8 on page 54 lists the products required for this procedure.

Table 7 Equipment Required for Surface Breaking Cracks

Classification	Equipment
Instrument	 **Figure 3-1 NORTEC 700X**
Probe (Frequency 200kHz-1MHz)	 **Figure 3-2 MP905-60FX200K-1M (U8616235)**
Cable	 **Figure 3-3 Cable 9102894 BNC to Microdot (U8800041)**

Table 7 Equipment Required for Surface Breaking Cracks *(continued)*

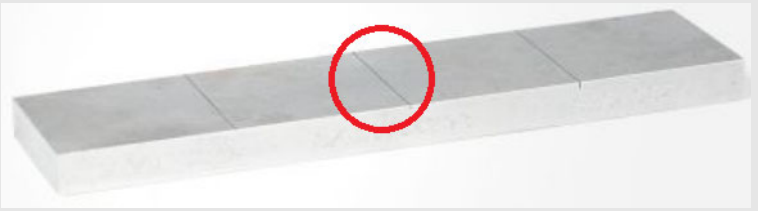
Classification	Equipment
Reference Standard (0.02 in. deep defect used for reference)	

Figure 3-4 SRS-0824A (U8860536)

3.1.2 Configure the Surface Crack Application

Complete the following steps to configure the **Surface Crack** application.

1. Press the **Application** function to access the **General** menu .
2. Select **Presets** Presets.
3. Select **Surface Cracks** Surface Cracks.
4. Select the desired configuration and press **Confirm** (See Figure 3-5 on page 49).

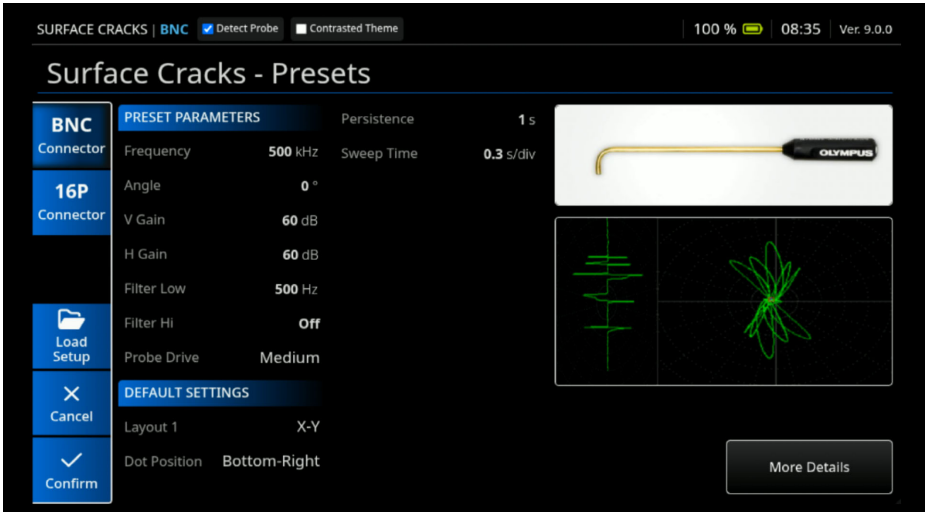


Figure 3-5 Select Surface Crack Preset

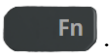
5. Select **View** and set the **X-Y Persistence Max** to **On** (See Figure 3-6 on page 50).

Figure 3-6 Set X-Y Persistence Max to On

6. Close the **View** menu.

3.1.3 Calibrate the Signal

Complete the following steps to calibrate the signal.

1. Put the probe in contact with a flawless area of the reference standard.
2. Press **Fn** 

.
3. Press **Auto-Lift** (See Figure 3-7 on page 51).

Figure 3-7 Auto-Lift Selected

4. Confirm the **Lift-Off** signal is set to the left horizontal position. If necessary, fine tune the signal using the **Angle** setting.
5. Scan the 0,02 in. (0.5 mm) deep EDM Notch, and press **Freeze** (See Figure 3-8 on page 51).

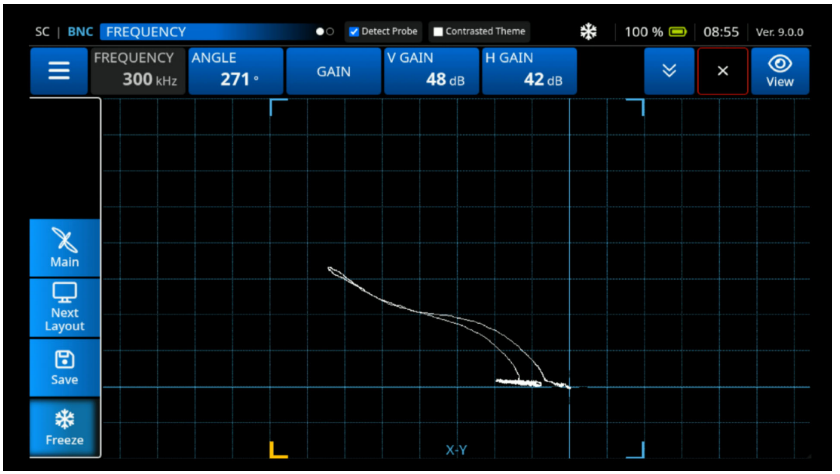


Figure 3-8 Pressing Freeze

6. Adjust the **Gain** to set the signal to **50% FSH** (See Figure 3-9 on page 52).

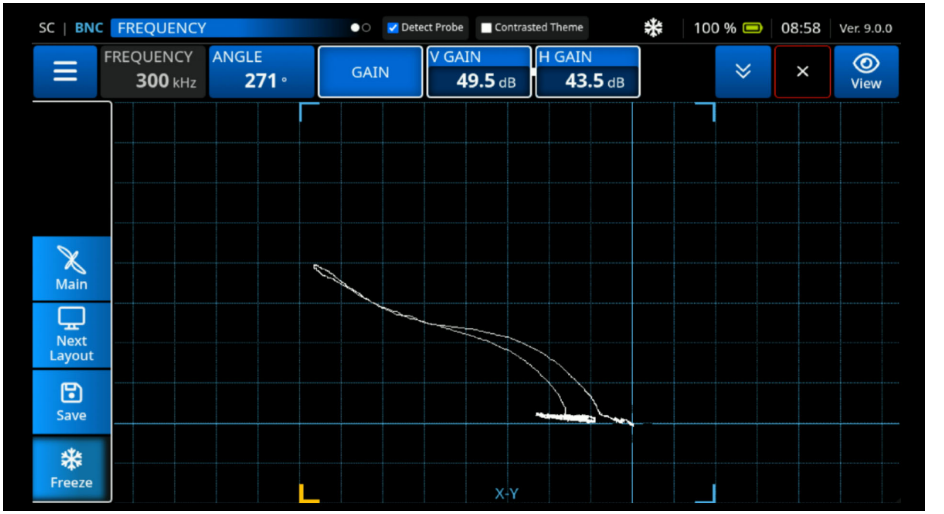


Figure 3-9 Adjusting the Gain

7. Press **Freeze** again to return to live mode.
8. Place the probe on the flawless area of the reference standard.
9. Scan the three EDM Notches to confirm good sensitivity detection (See Figure 3-10 on page 53).

Figure 3-10 Check Sensitivity Detection

3.1.4 Inspection Tips

Table 8 on page 54 provides inspection tips relevant to this procedure.

Table 8 Surface Breaking Cracks Inspection Tips

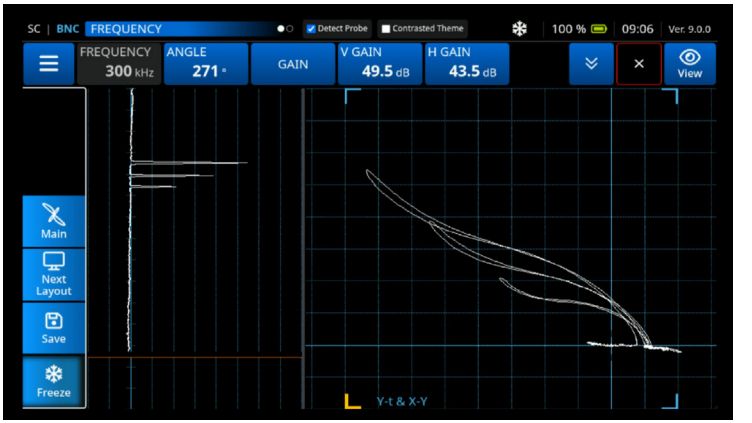
Inspection Tip	Details
Next Layout	Press **Next Layout** to change the layout view.  **Figure 3-11 Next Layout Tip**

Table 8 Surface Breaking Cracks Inspection Tips *(continued)*

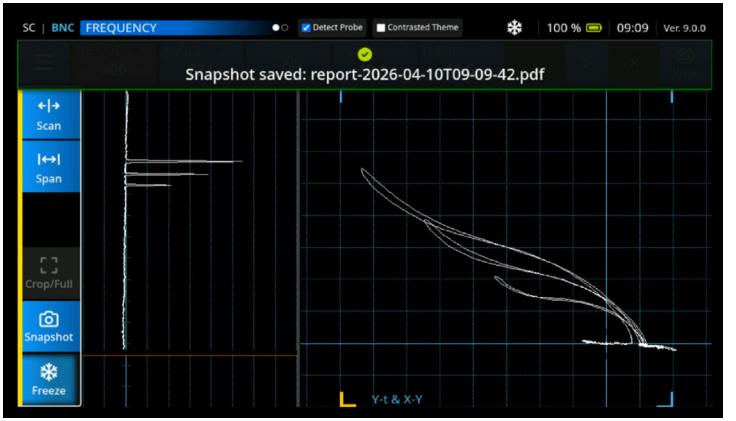
Inspection Tip	Details
Taking a Snapshot	To take a Snapshot in Freeze mode, press FN followed by Snapshot.  **Figure 3-12 Snapshot Function Tip** View the Snapshot file in **File Manager**.  **Figure 3-13 Snapshot File Location**

Table 8 Surface Breaking Cracks Inspection Tips *(continued)*

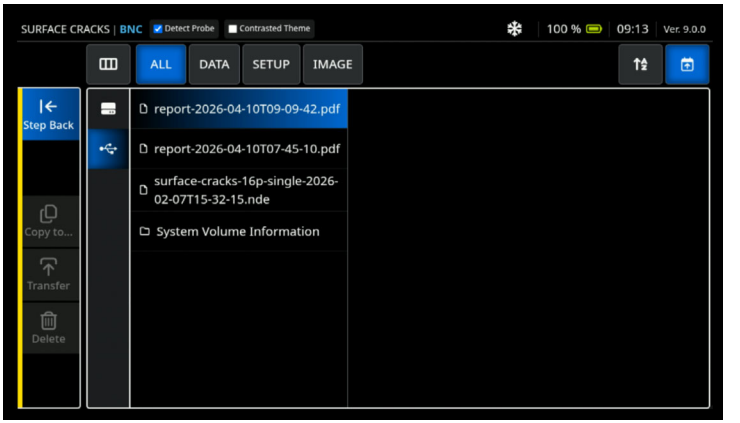
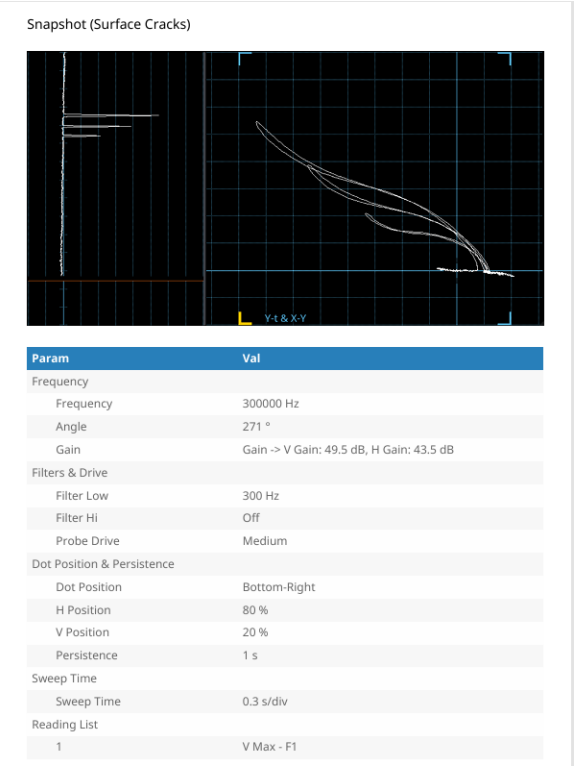
Inspection Tip	Details
Extracting a Snapshot File	To extract the Snapshot from **File Manager**, complete the following steps. 1. Connect a USB stick to the NORTEC 700. 2. Select the **Snapshot** report. 3. Press **FN**. 4. Select **Copy To...** (See Figure 3-14 on page 56).  **Figure 3-14 Select Copy To** 5. Select the USB stick. 6. Press **Confirm**. 7. Press **FN** followed by **Close** to close the **File Manager**.

Table 8 Surface Breaking Cracks Inspection Tips *(continued)*

Inspection Tip	Details
Snapshot PDF Example	

Param	Val
Frequency	
Frequency	300000 Hz
Angle	271 °
Gain	Gain -> V Gain: 49.5 dB, H Gain: 43.5 dB
Filters & Drive	
Filter Low	300 Hz
Filter Hi	Off
Probe Drive	Medium
Dot Position & Persistence	
Dot Position	Bottom-Right
H Position	80 %
V Position	20 %
Persistence	1 s
Sweep Time	
Sweep Time	0.3 s/div
Reading List	
1	V Max - F1

Figure 3-15 Snapshot PDF File

Table 8 Surface Breaking Cracks Inspection Tips *(continued)*

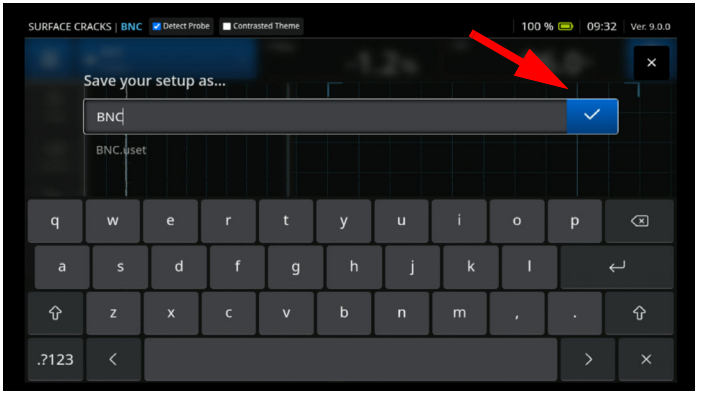
Inspection Tip	Details
Save the Setup	To save a setup, complete the following steps. 1. Press the drop-down menu. 2. Select **Save Setup As** (See Figure 3-16 on page 58).  **Figure 3-16 Save Setup As** 3. Name the setup file, and press the **Accept** check-mark icon (See Figure 3-17 on page 58).  **Figure 3-17 Name the Setup File**

Table 8 Surface Breaking Cracks Inspection Tips *(continued)*

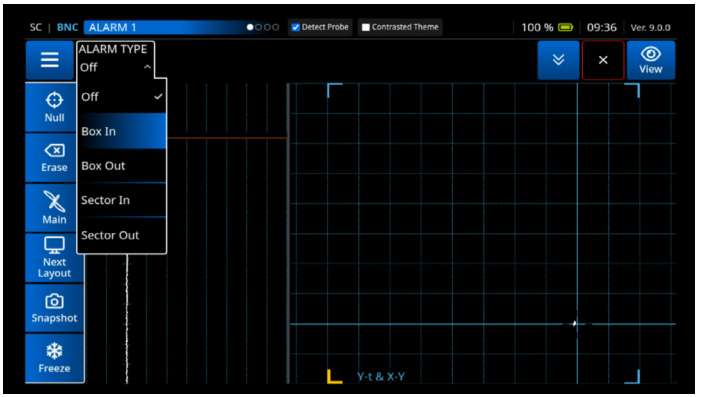
Inspection Tip	Details
Set an Alarm	To set an alarm, complete the following steps. 1. Press the **General** menu icon. 2. Select **Alarms**. 3. Select **Alarm 1** (See Figure 3-18 on page 59).  **Figure 3-18 Set Alarm 1** 4. Select the **Alarm Type** (See Figure 3-19 on page 59).  **Figure 3-19 Set Alarm Type**

Table 8 Surface Breaking Cracks Inspection Tips *(continued)*

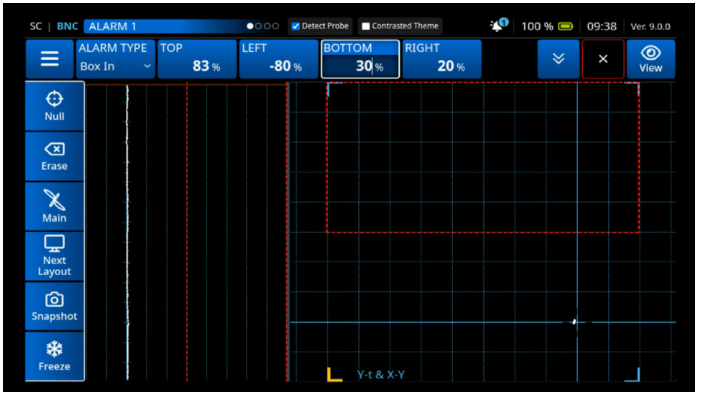
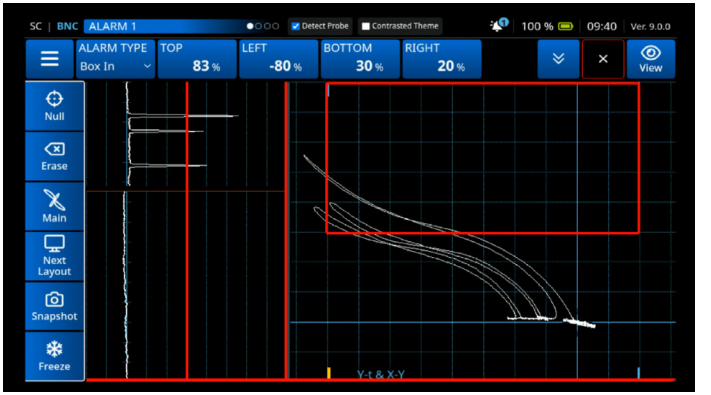
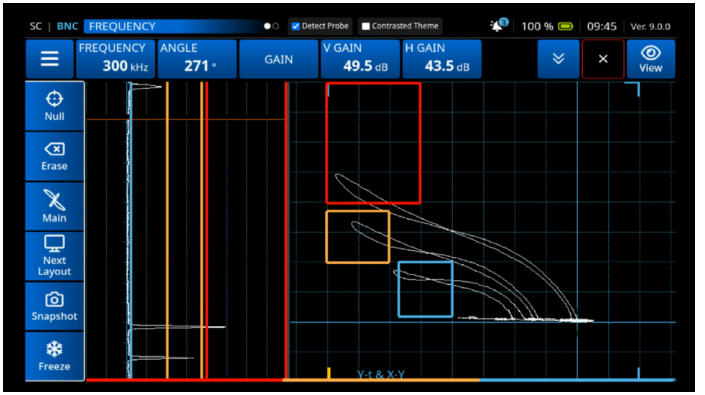
Inspection Tip	Details
Set an Alarm (Continued)	5. Define the alarm region (See Figure 3-20 on page 60).  **Figure 3-20 Define the Alarm Region** 6. Scan the reference standard EDM Notches to test the alarm detection (See Figure 3-21 on page 60).  **Figure 3-21 Test the Alarm**

Table 8 Surface Breaking Cracks Inspection Tips *(continued)*

Inspection Tip	Details
Additional Alarm Tips	• You can also set the **Dwell Time** and **Horn** in **Global Settings**. • Up to three alarms can be set at any time (See Figure 3-22 on page 61). • You can adjust alarms in **Freeze** mode (except **Dwell Time** and **Horn** alarms).  **Figure 3-22 Three Alarms Set**

3.2 Detecting Surface-Breaking Cracks - Ferromagnetic Weld

This is a general purpose procedure for all NORTEC 700 models for ferromagnetic weld materials.

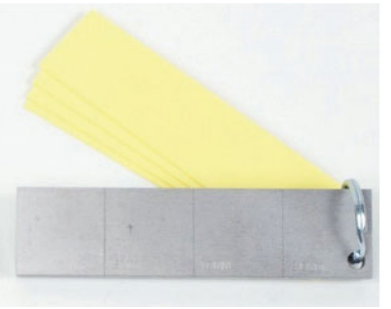
3.2.1 Materials Required

Table 9 on page 62 lists the products required for this procedure.

Table 9 Ferromagnetic Weld Equipment

Classification	Equipment
Instrument	 **Figure 3-23 NORTEC 700X**
Weld Probe (Frequency 100kHz-600kHz straight probe, 5.0 mm (0.196 in.) tip radius, 6.09 cm (2.4 in.) overall length, 7-pin LEMO	 **Figure 3-24 WLD-5-63/7L (U8629270)**
Cable	CL/SC/6 16P to 7P LEMO 6 FT. (U8800073)

Table 9 Ferromagnetic Weld Equipment *(continued)*

Classification	Equipment
Reference Standard (Weld surface reference standard with certificate traceable to NIST. Steel with EDM notch depths of 0.5 mm, 1.0 mm and 2.0 mm)	 **Figure 3-25 SRSM-51020S-WLD (U8860571)**

3.2.2 Configure the Weld Application

Complete the following steps to configure the **Weld** application.

1. Press the **Application** function to access the **General** menu .
2. Select **Presets** .
3. Select **Weld** .

TIP

If PowerLink enabled, weld presets appear when the probe is connected.

---

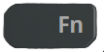
4. Select the **Weld** configuration .
5. Press **Confirm** .

3.2.3 Calibrate the Signal

Complete the following steps to calibrate the signal.

1. Place the probe between two notches on the reference standard, positioning the longest face of the probe perpendicular to the notches (See Figure 3-26 on page 64).

Figure 3-26 Position Ferromagnetic Probe

2. Press **Fn** 

.
3. Press **Auto-Lift** 

.
4. Lift the probe when required 

.
5. Confirm the lift off setting (See Figure 3-27 on page 65).

Figure 3-27 Confirm the Lift Off Setting

6. Adjust the **Sensitivity Setting** by orienting the longest face of the probe perpendicular to the notches and scanning the 1.0 mm (0.04 in.) notch, and press **Freeze** (See Figure 3-28 on page 65).

Figure 3-28 Adjusting the Sensitivity Setting

7. Using the **Angle** setting and the knob, adjust the EDM notch signal into a vertical position (See Figure 3-29 on page 66).

Figure 3-29 Adjust the Angle Setting

8. Using the **Gain** setting and the knob, adjust the EDM notch signal in vertical amplitude set at 80% FSH (See Figure 3-30 on page 66).

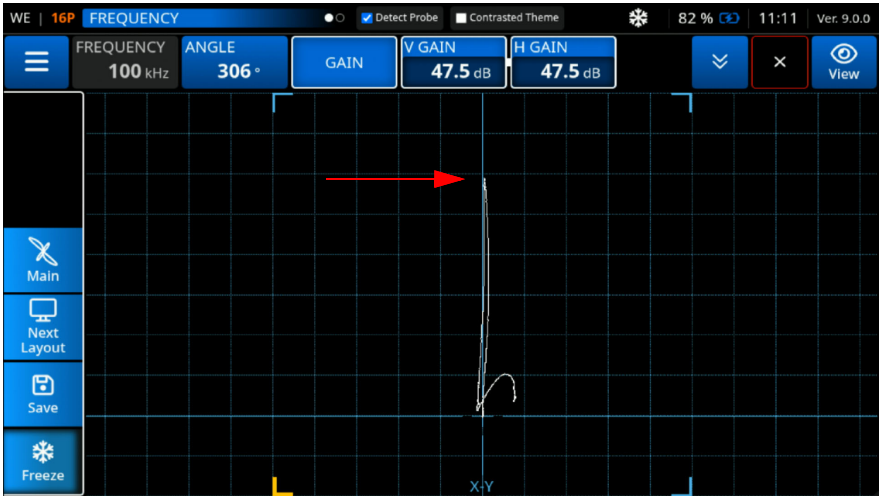


Figure 3-30 Adjust the Gain Setting

9. Press **Freeze** to return to live mode.
10. Validate the settings by placing the probe on the flawless area of the reference standard and press **Null**.
11. Scan the three EDM notches on the reference sample and press **Freeze**.
12. Confirm the quality of the sensitivity setting, fine tuning the Angle and Gain further is required (See Figure 3-31 on page 67).

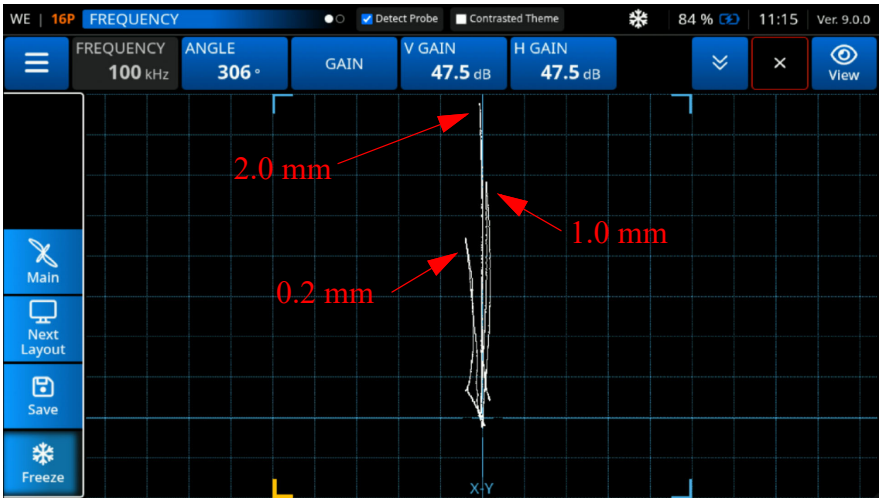


Figure 3-31 Confirm the Settings

3.2.4 Inspection Tips

Table 10 on page 68 provides inspection tips relevant to this procedure.

Table 10 Ferromagnetic Weld Inspection Tips

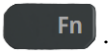
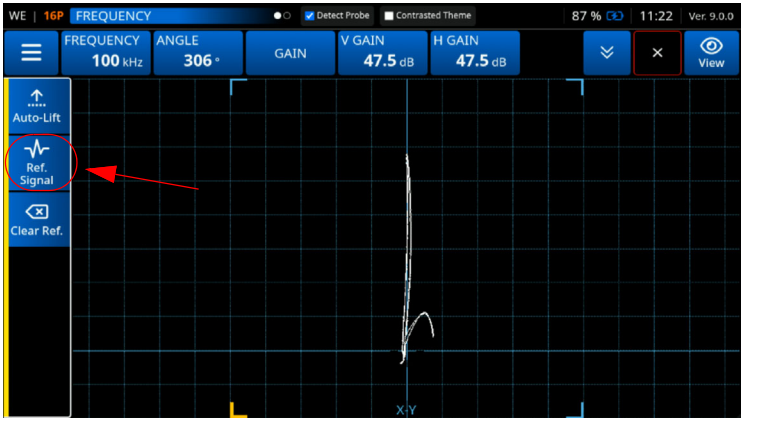
Inspection Tip	Details
Reference Signal	1. In live mode with **Persistence** set to **Max**, record the signal you expect to use as a reference. 2. Press **Fn**  . 3. Press **Ref Signal** (See Figure 3-32 on page 68).  **Figure 3-32 Press Ref Signal**

Table 10 Ferromagnetic Weld Inspection Tips *(continued)*

Inspection Tip	Details
Reference Signal (Continued)	4. Press **Fn** and **Erase** to see the reference signal (See Figure 3-33 on page 69).  **Figure 3-33 See the Ref Signal** 5. To clear the reference signal, press **Fn** and **Clear Ref**.

Table 10 Ferromagnetic Weld Inspection Tips *(continued)*

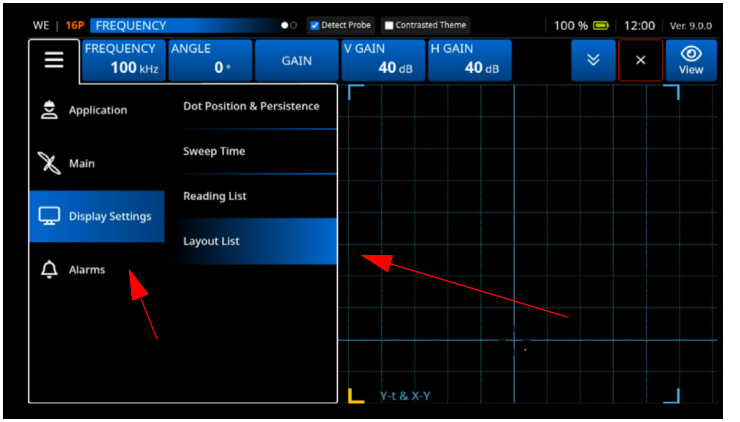
Inspection Tip	Details
Layout Selection	To select a layout process, complete the following steps. 1. Access the **General** menu ☰. 2. Select **Display Settings** and **Layout List** (See Figure 3-34 on page 70)  **Figure 3-34 Select Layout List**

Table 10 Ferromagnetic Weld Inspection Tips *(continued)*

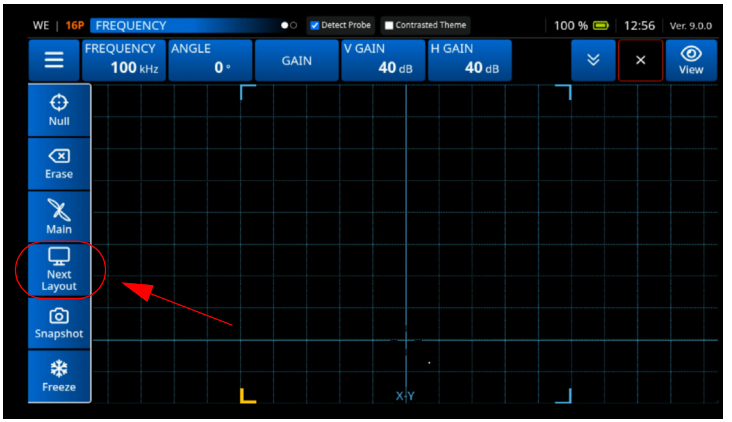
Inspection Tip	Details
Layout Selection (Continued)	3. Select the layout from the drop-down list (See Figure 3-35 on page 71).  **Figure 3-35 Select Layout** 4. To toggle the selected layout list, press **Next Layout** (See Figure 3-36 on page 71).  **Figure 3-36 Press Next Layout**

Table 10 Ferromagnetic Weld Inspection Tips *(continued)*

Inspection Tip	Details
Reading List	To select a reading list, complete the following steps. 1. Access the **General** menu ☰. 2. Select **Display Settings** and **Reading List** (See Figure 3-34 on page 70)

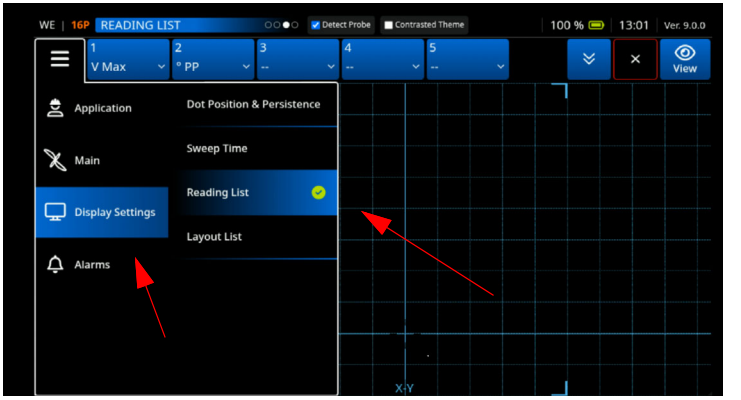


Figure 3-37 Select Reading List

3. To see the readings (up to five), close the upper ribbon (See Figure 3-38 on page 72).

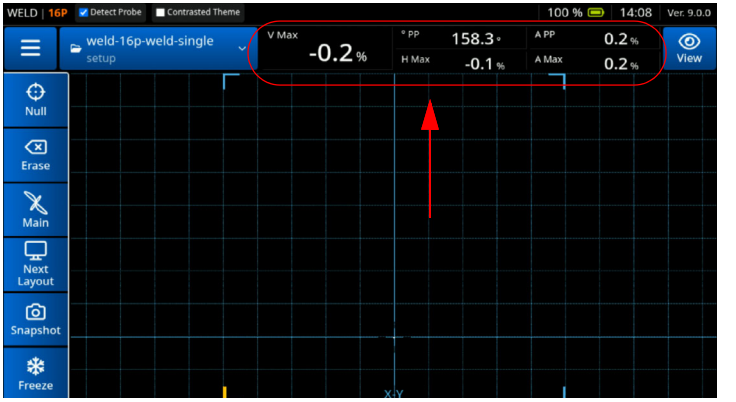


Figure 3-38 View Readings

3.3 Evaluating Paint Coating - Ferromagnetic Materials

This is a general purpose procedure for all NORTEC 700 models for evaluating the paint coatings on ferromagnetic materials.

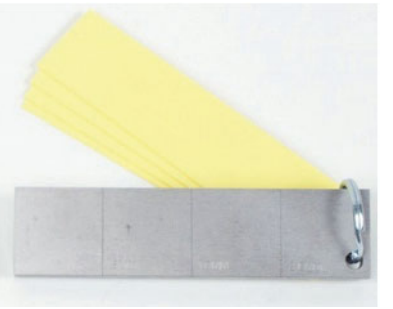
3.3.1 Materials Required

Table 11 on page 73 lists the products required for this procedure.

Table 11 Paint Coatings - Ferromagnetic Material Equipment

Classification	Equipment
Instrument	 **Figure 3-39 NORTEC 700X**
Probe (Frequency 5kHz-250kHz Paint Thickness Probe, 6.35 mm (0.25 in.) tip diameter, 10.1 cm (4.0 in.) overall length, 4-pin LEMO conne	 **Figure 3-40 NEC-2236 (U8629270)**
Cable	CN16-4F-6 16P TO 4P LEMO 6FT (U8800275))

Table 11 Paint Coatings - Ferromagnetic Material Equipment *(continued)*

Classification	Equipment
Reference Standard (Weld surface reference standard with certificate traceable to NIST. Steel with EDM notch depths of 0.5 mm, 1.0 mm and 2.0 mm)	 **Figure 3-41 SRSM-51020S-WLD (U8860571)**

3.3.2 Configure the Paint Coating Evaluation Application

Complete the following steps to configure the **Paint Coating Evaluation** application.

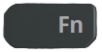
1. Press the **Application** function to access the **General** menu ≡.
2. Select **Presets** Presets.
3. Select **Weld** Weld Y.
4. Select the **Paint Coating** configuration Paint Coating.
5. Press **Confirm** Confirm.

3.3.3 Calibrate the Signal

Complete the following steps to calibrate the signal.

1. Place the probe between two notches on the reference standard, without any shims (See Figure 3-42 on page 75).

Figure 3-42 Position Paint Probe

2. Press **Fn** 

.
3. Press **Auto-Lift** 

.
4. Lift the probe when required 

.
5. Confirm the lift off setting (See Figure 3-43 on page 76).

Figure 3-43 Confirm the Lift Off Setting

6. Select **View** and set the **X-Y Persistence Max** to **On** (See Figure 3-44 on page 76).

Figure 3-44 Set X-Y Persistence Max to On

3.3.4 Adjust The Sensitivity

Complete the following steps to adjust the sensitivity.

1. Adjust the sensitivity setting by placing the entire stack of shims (four 0.5 mm or two 2.0 mm shims) on the reference standard (See Figure 3-45 on page 77).

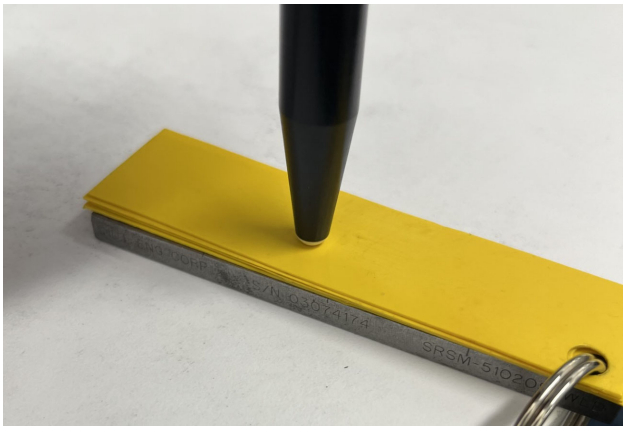


Figure 3-45 Place the Shims

2. Using the **Gain** setting and the knob, adjust the signal until the dot reaches the limit of the left side of the 10x10 grid (0% horizontal) (See Figure 3-46 on page 78).

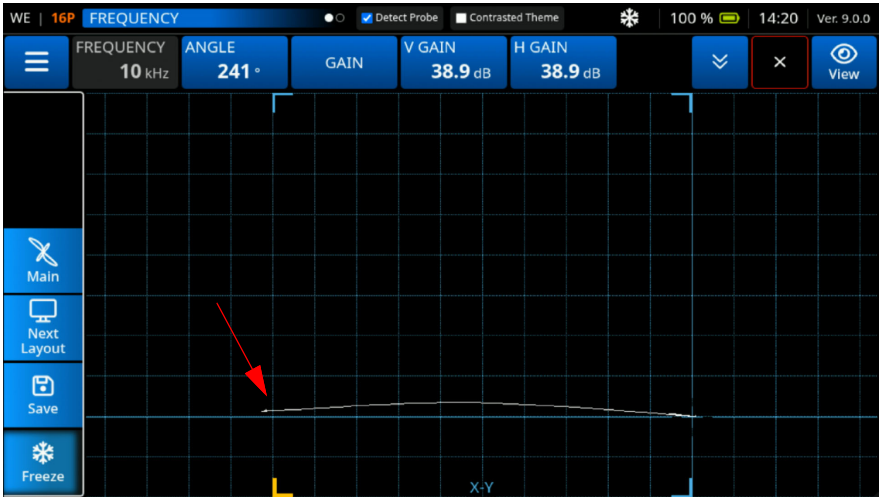


Figure 3-46 Adjust the Gain Setting

3. Access the **General** menu ≡.
4. Select **Display Settings** and **Dot Position & Persistence** (See Figure 3-47 on page 78).

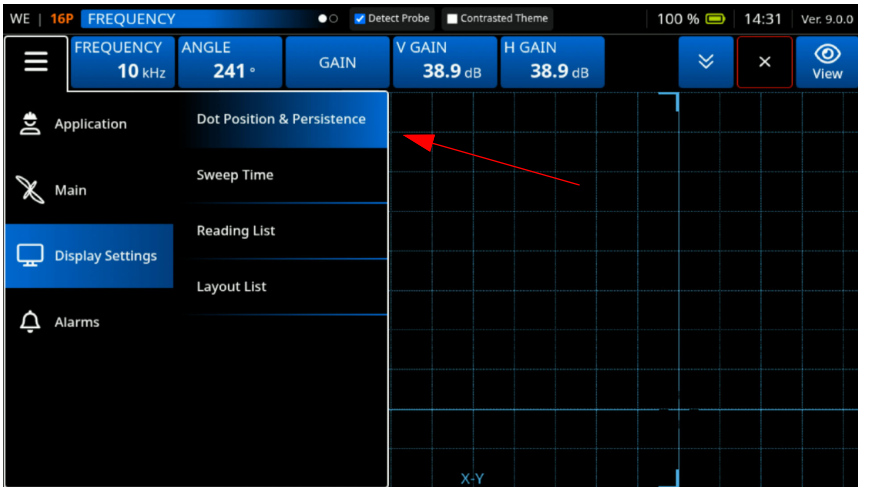


Figure 3-47 Select Dot Position & Persistence

5. Keeping the probe firmly in position on the 2.0 mm thick shim stack, increase the **V Position** to **100%** and decrease it back to **20%**. The 2.0 mm thick stack recording is shown in the form of the vertical mark (See Figure 3-48 on page 79).

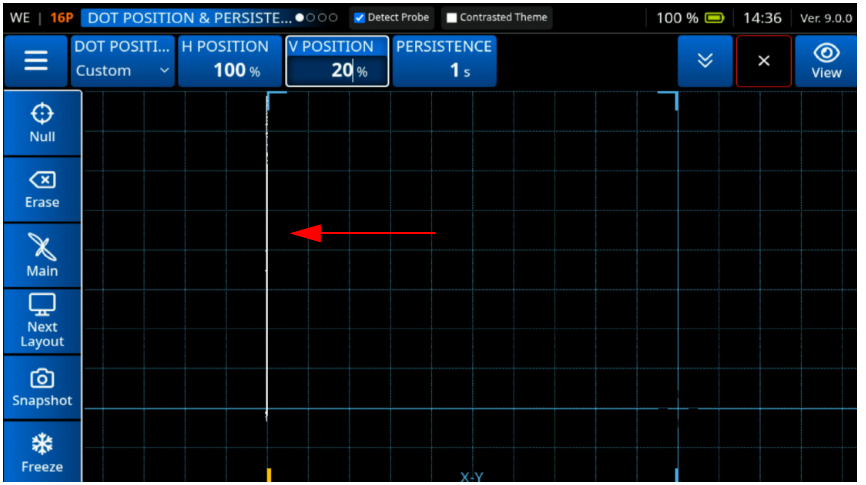


Figure 3-48 Adjust V Positon

6. Repeat the measurement process for each thickness removing one shim each time (for four shims, that includes 1.5 mm, 1.0 mm, and 0.5 mm) to obtain the full recording (See Figure 3-49 on page 80).

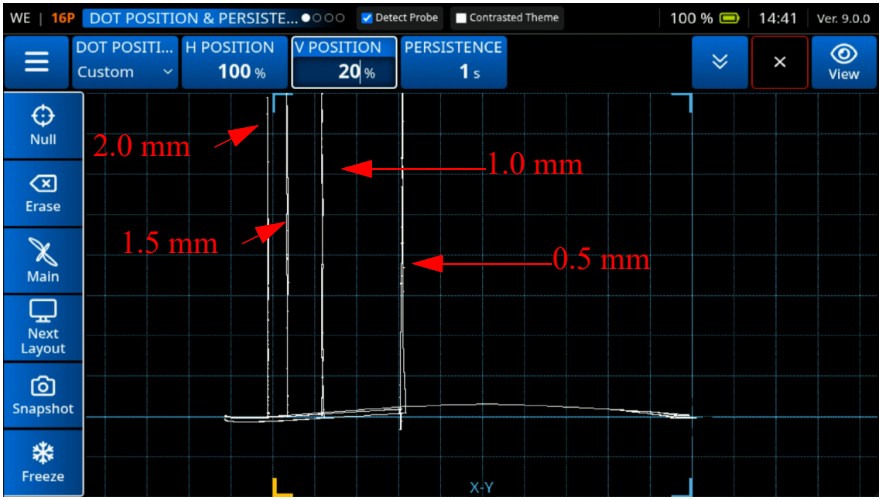


Figure 3-49 Obtain Full Recording

7. Once complete, press **Fn** and **Ref Signal** (See Figure 3-50 on page 80).

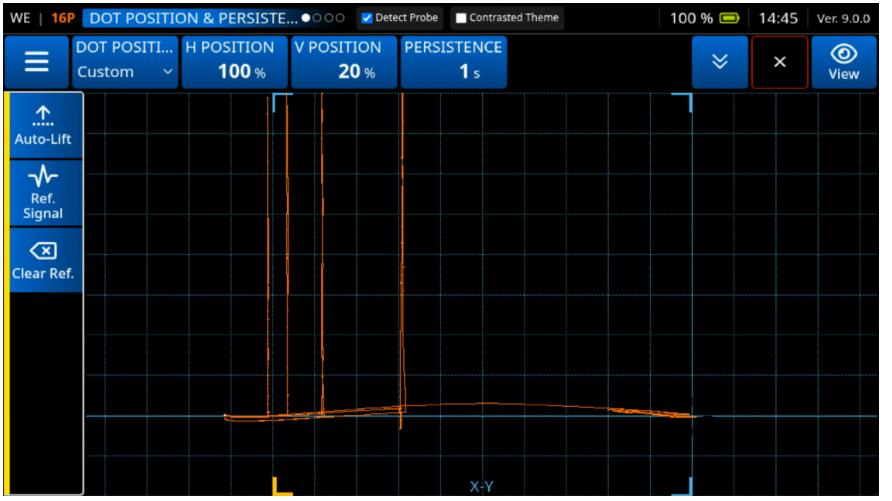


Figure 3-50 Press Ref Signal

3.3.5 Validate The Settings

Complete the following steps to validate your settings.

1. Set the **V Position** to **50%** and press **Erase** (See Figure 3-51 on page 81).

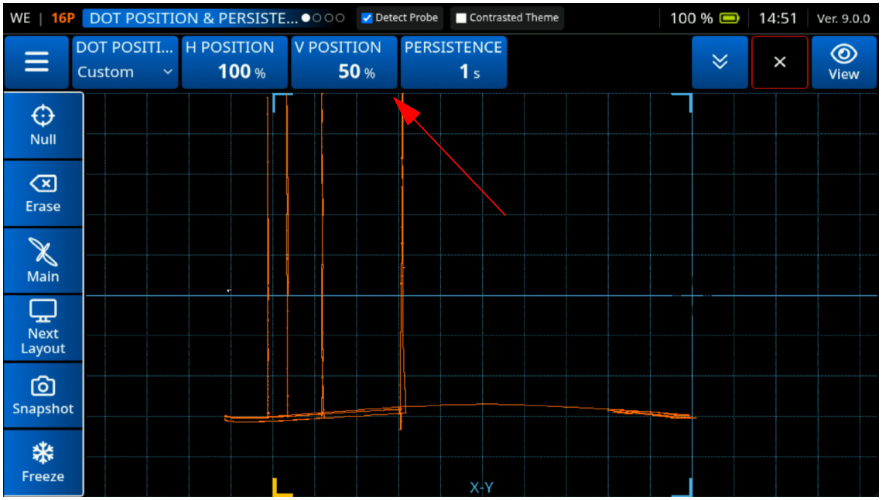


Figure 3-51 Set 50% V Position

2. Evaluate your subsequent paint thickness reading using the vertical reference marks. Use the **V Position** setting to more clearly visualize the paint coating for comparison with reference marks (See Figure 3-52 on page 82).

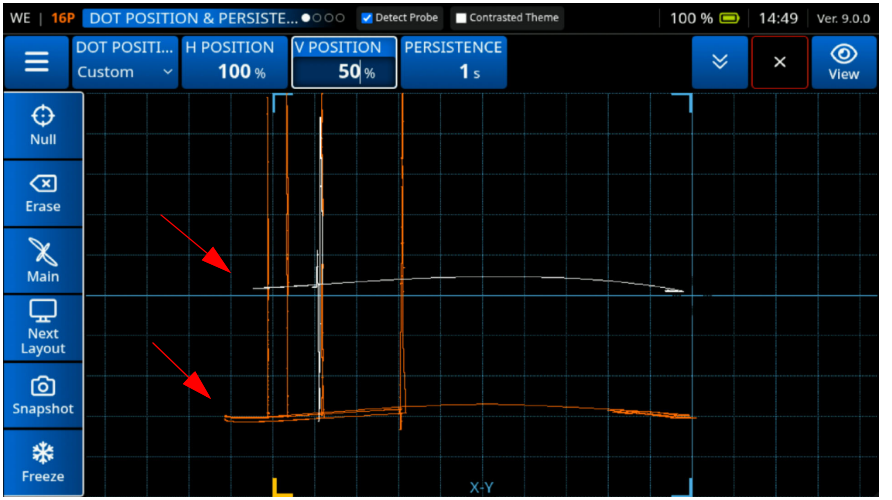


Figure 3-52 Validate the Settings

3.4 Detecting Sub-Surface Corrosion - Aluminum Layer Stack

This is a general purpose procedure for all NORTEC 700 models for detecting sub-surface corrosion in aluminum layer stacks.

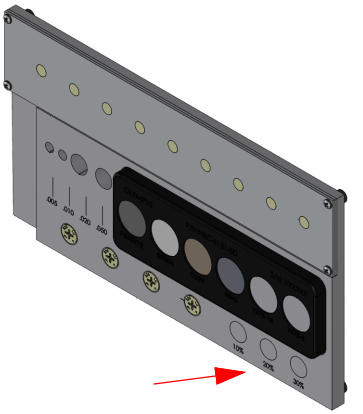
3.4.1 Materials Required

Table 12 on page 83 lists the products required for this procedure.

Table 12 Sub-Surface Corrosion Equipment

Classification	Equipment
Instrument	 **Figure 3-53 NORTEC 700X**
Surface Probe (Frequency 500Hz-60kHz standard reflection detachable surface probe, 11.2 mm (0.44 in.) equivalent to APBK/10.5/S, SPO-2025, Triax Fischer/LEMO connector	 **Figure 3-54 SR/500Hz-60kHz-/.44 (U8623007)**
Cable	SPO-6687 16P to Triax Fischer 6 FT. (U8800538)

Table 12 Sub-Surface Corrosion Equipment *(continued)*

Classification	Equipment
Reference Standard	 **Figure 3-55 NEC-6151-SD (U8861706)**

3.4.2 Configure the Sub-Surface Corrosion Detection Application

Complete the following steps to configure the **Sub-Surface Corrosion Detection** application.

1. Press the **Application** function to access the **General** menu ≡.
2. Select **Application** Application.

TIP

If using a PowerLink enabled cable, the application is automatically displayed on the NORTEC 700 screen,

---

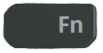
3. Select **Sub Surface** Sub Surface.
4. Select the **Corrosion-Cracks** configuration Corrosion Cracks.
5. Press **Confirm** Confirm.

3.4.3 Calibrate the Signal

Complete the following steps to calibrate the signal.

1. Set the inspection frequency to 2kHz.
2. Place the probe directly in contact with a flawless area of the reference standard (See Figure 3-56 on page 85).

Figure 3-56 Position Surface Probe

3. Press **Fn** 

.
4. Press **Auto-Lift** 

.
5. Lift the probe when required 

.
6. Confirm the lift off setting (See Figure 3-57 on page 86).

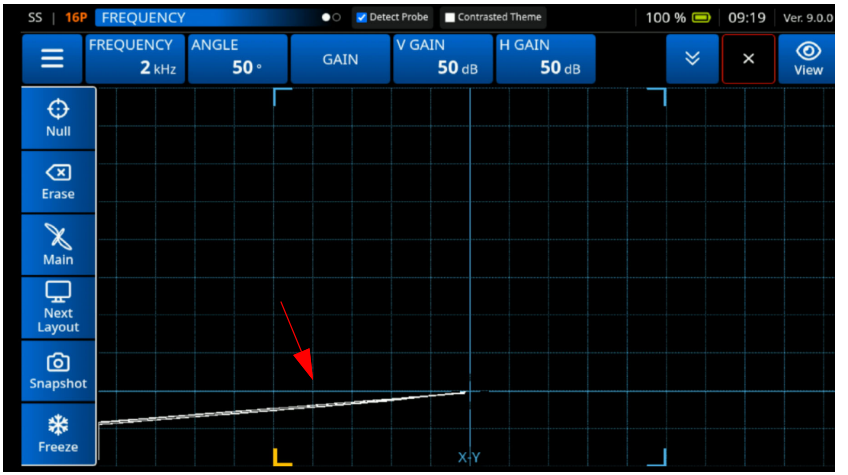


Figure 3-57 Confirm the Lift Off Setting

7. Scan the three corrosion spots and press **Freeze** (See Figure 3-58 on page 86).

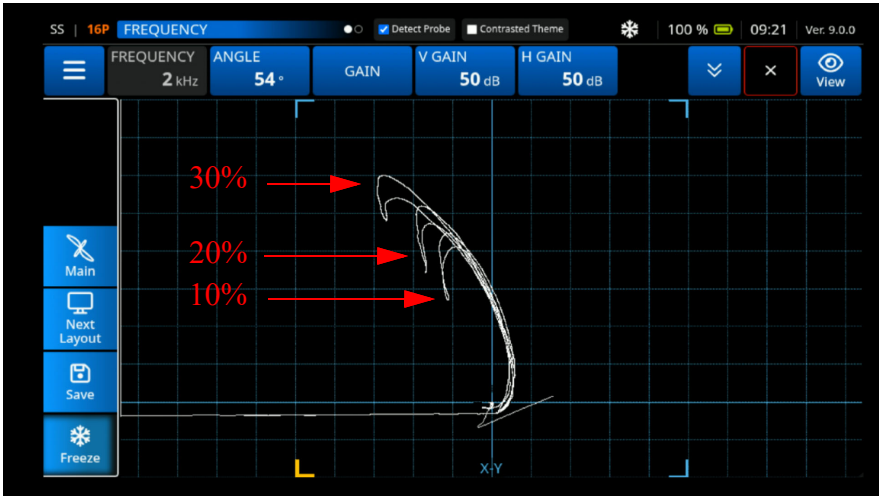


Figure 3-58 Adjusting the Sensitivity Setting

8. Using the **Gain** setting and the knob, adjust the 30% corrosion spot signal at **100% FSH** (See Figure 3-59 on page 87).

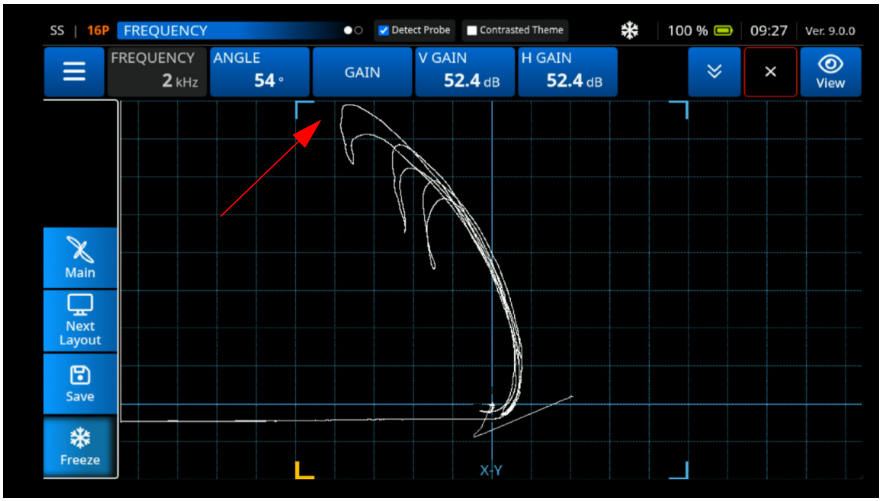


Figure 3-59 Adjust the Gain Setting

9. Using the **Angle** setting and the knob, fine-tune the lift off signal to reach the left horizontal position.
10. Press **Freeze** to return to live mode.

3.4.4 Inspection Tips

Table 13 on page 88 provides inspection tips relevant to this procedure.

Table 13 Corrosion Spot Inspection Tips

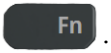
Inspection Tip	Details
Reference Signal	1. In live mode with **Persistence** set to **Max**, record the signal you expect to use as a reference. 2. Press **Fn**  . 3. Press **Ref Signal** (See Figure 3-60 on page 88).  **Figure 3-60 Press Ref Signal**

Table 13 Corrosion Spot Inspection Tips *(continued)*

Inspection Tip	Details
Reference Signal (Continued)	4. Press **Fn** and **Erase** to see the reference signal (See Figure 3-61 on page 89).  **Figure 3-61 See the Ref Signal** 5. To clear the reference signal, press **Fn** and **Clear Ref**.

Table 13 Corrosion Spot Inspection Tips *(continued)*

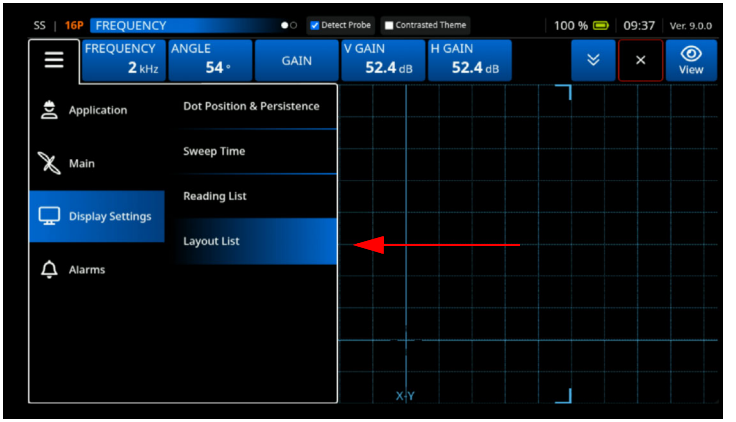
Inspection Tip	Details
Layout Selection	To select a layout process, complete the following steps. 1. Access the **General** menu ☰. 2. Select **Display Settings** and **Layout List** (See Figure 3-62 on page 90)  **Figure 3-62 Select Layout List**

Table 13 Corrosion Spot Inspection Tips *(continued)*

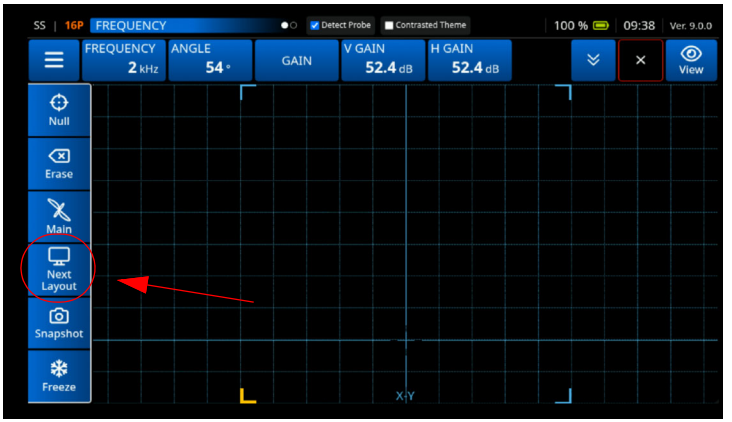
Inspection Tip	Details
Layout Selection (Continued)	3. Select the layout from the drop-down list (See Figure 3-63 on page 91).  **Figure 3-63 Select Layout** 4. To toggle the selected layout list, press **Next Layout** (See Figure 3-64 on page 91).  **Figure 3-64 Press Next Layout**

Table 13 Corrosion Spot Inspection Tips *(continued)*

Inspection Tip	Details
Reading List	To select a reading list, complete the following steps. 1. Access the **General** menu ☰. 2. Select **Display Settings** and **Reading List** (See Figure 3-65 on page 92)

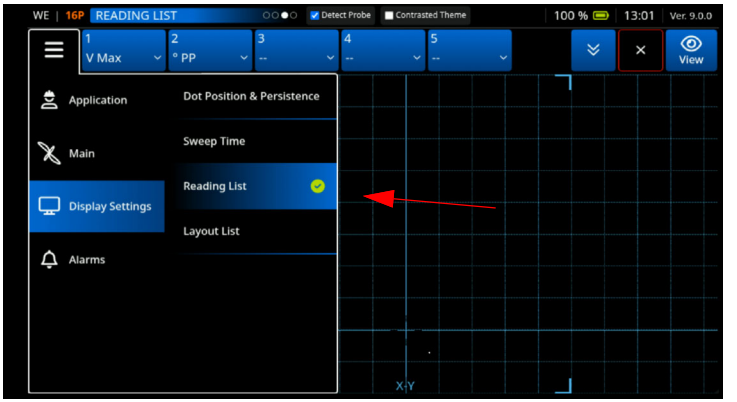


Figure 3-65 Select Reading List

3. To see the readings (up to five), close the upper ribbon (See Figure 3-66 on page 92).

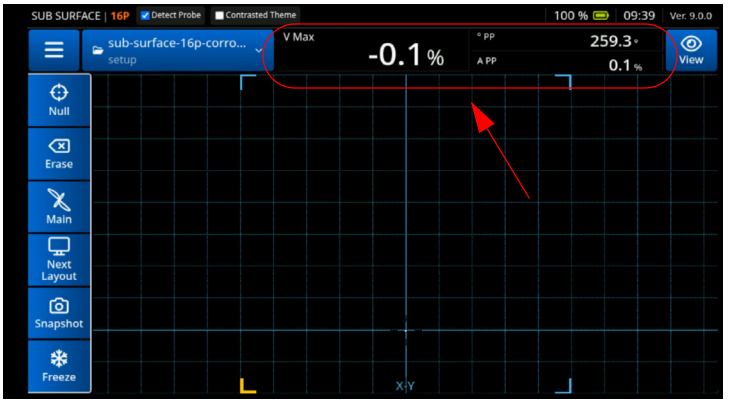


Figure 3-66 View Readings

3.5 Detecting Sub-Surface Cracks - Aluminum Layer Stack

This is a general purpose procedure for all NORTEC 700 models for detecting sub-surface cracks at very low frequency in aluminum layer stacks.

3.5.1 Materials Required

Table 14 on page 93 lists the products required for this procedure.

Table 14 Sub-Surface Cracks Equipment

Classification	Equipment
Instrument	 **Figure 3-67 NORTEC 700X**

Table 14 Sub-Surface Cracks Equipment *(continued)*

Classification	Equipment
Reflection Ring Probe (Frequency 50Hz-3kHz, 12.7 mm (0.50 in.) ID x 25.4 mm (1.0 in.) OD, Triax Fischer/LEMO connector	 **Figure 3-68 RR0110-5-TF (U8636011)**
Cable	SPO-6687 16P to Triax Fischer 6 FT. (U8800538)
Reference Standard	 **Figure 3-69 RSTD-10137 (U8863219)**

3.5.2 Configure the Sub-Surface Crack Application

Complete the following steps to configure the **Sub-Surface Crack** application.

1. Press the **Application** function to access the **General** menu .
2. Select **Application** Application.
3. Select **Sub Surface** Sub Surface .
4. Select the **Corrosion-Cracks** configuration Corrosion Cracks.
5. Press **Confirm** Confirm.

3.5.3 Calibrate the Signal

Complete the following steps to calibrate the signal.

1. Set the inspection frequency to 220Hz.
2. Place the probe directly on the good fastener on the reference standard (See Figure 3-70 on page 95).

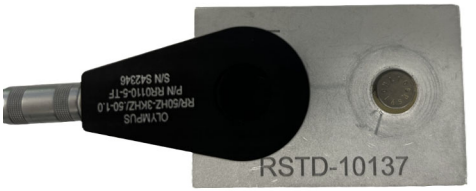
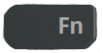


Figure 3-70 Position Surface Probe

3. Press **Fn** 

.
4. Press **Auto-Lift** 

.
5. Lift the probe when required 

.
6. Confirm the lift off setting (See Figure 3-71 on page 96).

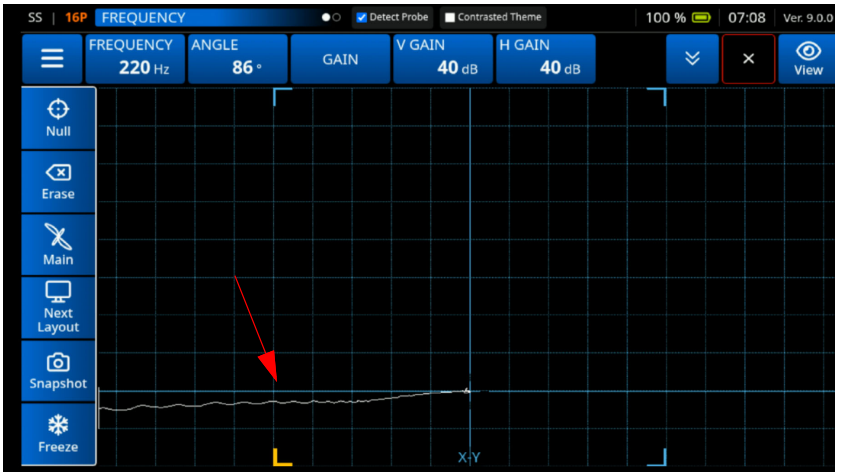


Figure 3-71 Confirm the Lift Off Setting

7. Place the probe on the cracked fastener and press **Freeze** (See Figure 3-72 on page 96).

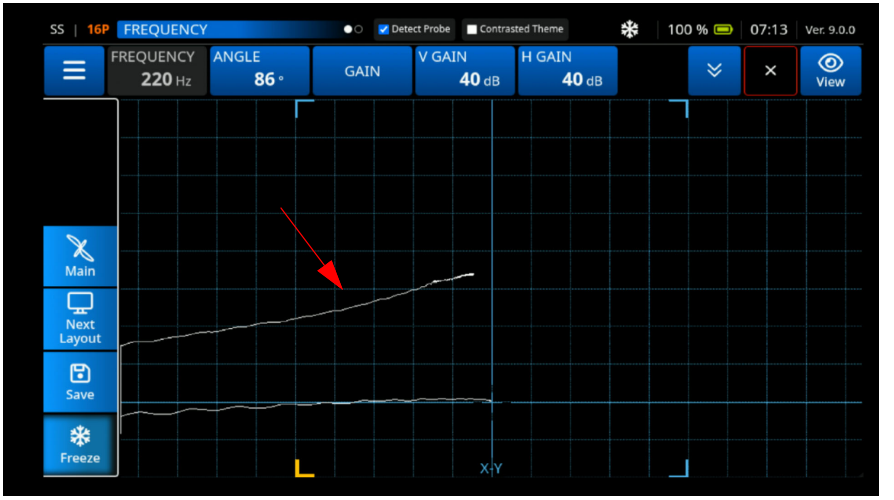


Figure 3-72 Adjusting the Sensitivity Setting

8. Using the **V Gain** setting and the knob, adjust the cracked fastener signal at **80% FSH** (See Figure 3-73 on page 97).

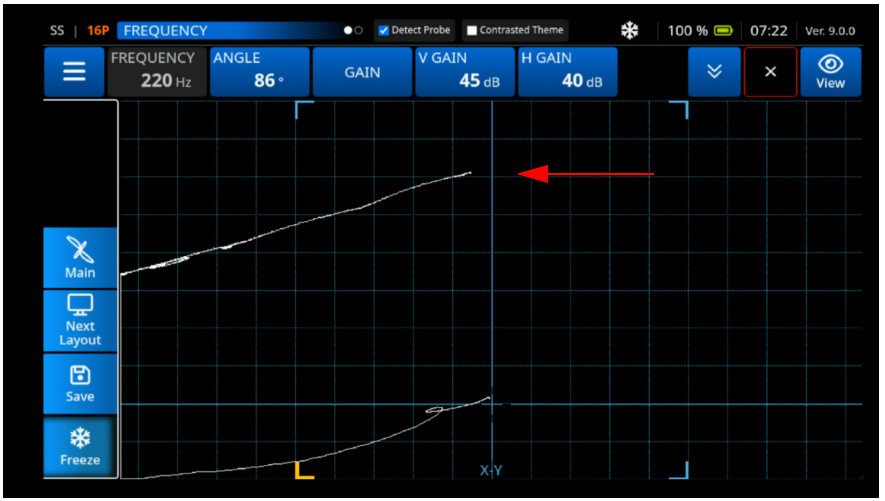


Figure 3-73 Adjust the V Gain Setting

9. Using the **Angle** setting and the knob, fine-tune the lift off signal to reach the left horizontal position (See Figure 3-74 on page 97).

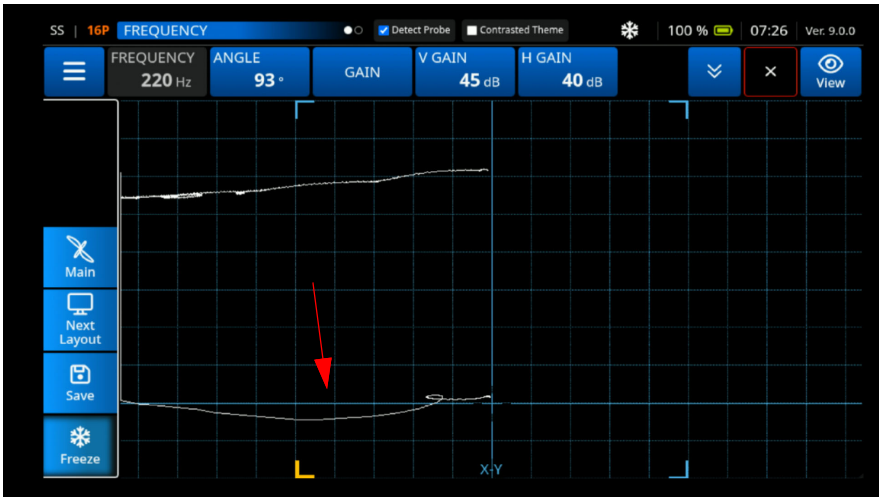


Figure 3-74 Adjust the Angle Setting

10. Press **Freeze** to return to live mode.

3.5.4 Adjust the Alarms

Complete the following steps to adjust the alarms.

1. Press the **Application** function to access the **General** menu .
2. Select **Alarms**.
3. Select **Alarm 1** (See Figure 3-75 on page 98).

Figure 3-75 Select Alarm 1

4. Select the **Box In** alarm type and define the box (See Figure 3-76 on page 99).

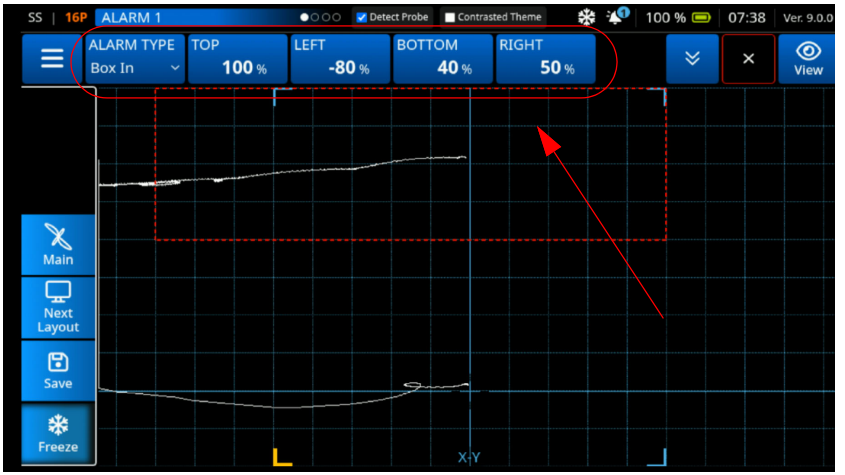


Figure 3-76 Select Box In Alarm Type

5. Press **Freeze** to return to live mode.

3.5.5 Validate the Settings

Complete the following steps to validate the settings.

1. Place the probe on the pristine fastener and the cracked fastener on the reference standard. Confirm the good setting and the **Alarm 1** detection (See Figure 3-77 on page 100).

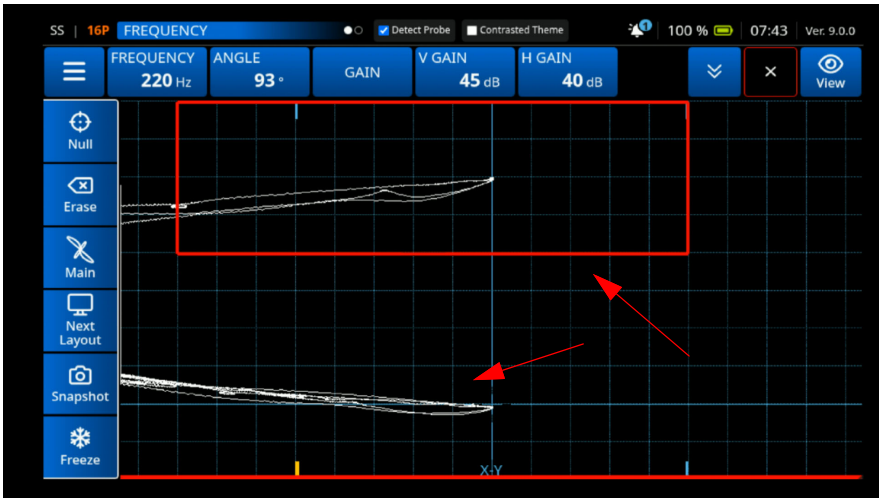


Figure 3-77 Confirm the Settings

2. To adjust the alarm **Dwell Time** or the **Horn**, access the **Alarms Global Settings** menu (See Figure 3-78 on page 100).

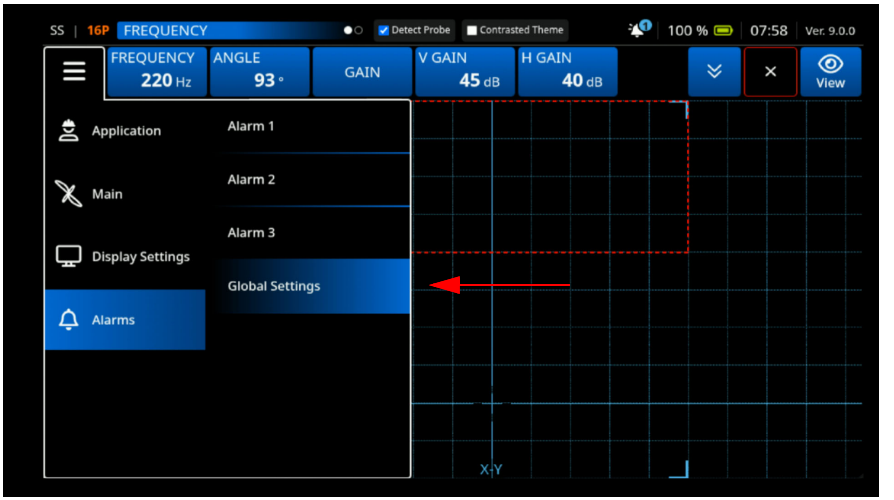


Figure 3-78 Adjust the Alarms Global Settings

3. Adjust the values for the alarm **Dwell Time** and the **Horn** (See Figure 3-79 on page 101).

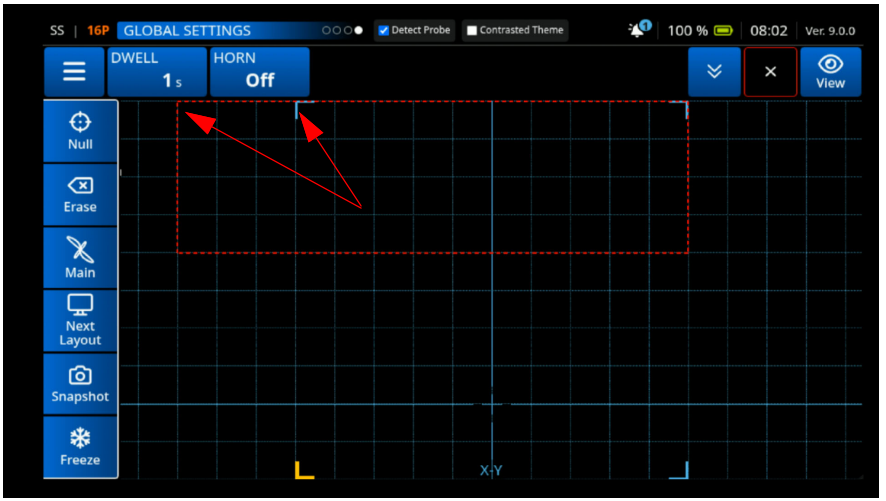


Figure 3-79 Adjust the Dwell Time and Horn

3.5.6 Inspection Tips

Table 15 on page 102 provides inspection tips relevant to this procedure.

Table 15 Sub-Surface Crack Inspection Tips

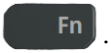
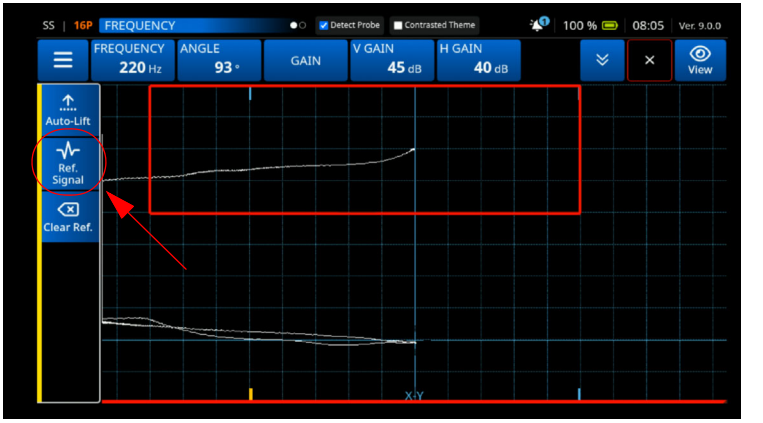
Inspection Tip	Details
Reference Signal	1. In live mode with **Persistence** set to **Max**, record the signal you expect to use as a reference. 2. Press **Fn**  . 3. Press **Ref Signal** (See Figure 3-80 on page 102).  **Figure 3-80 Press Ref Signal**

Table 15 Sub-Surface Crack Inspection Tips *(continued)*

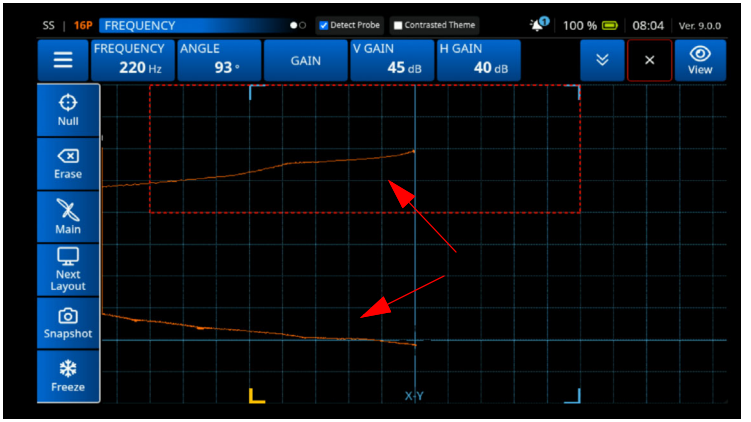
Inspection Tip	Details
Reference Signal (Continued)	4. Press **Fn** and **Erase** to see the reference signal (See Figure 3-81 on page 103).  **Figure 3-81 See the Ref Signal** 5. To clear the reference signal, press **Fn** and **Clear Ref**.

Table 15 Sub-Surface Crack Inspection Tips *(continued)*

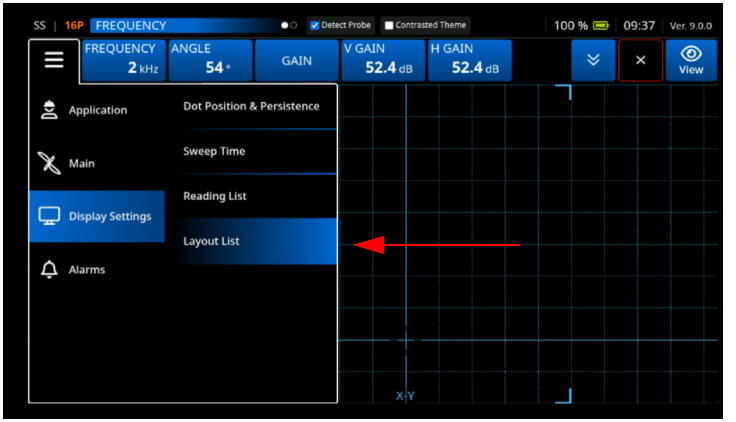
Inspection Tip	Details
Layout Selection	To select a layout process, complete the following steps. 1. Access the **General** menu ☰. 2. Select **Display Settings** and **Layout List** (See Figure 3-82 on page 104)  **Figure 3-82 Select Layout List**

Table 15 Sub-Surface Crack Inspection Tips *(continued)*

Inspection Tip	Details
Layout Selection (Continued)	3. Select the layout from the drop-down list (See Figure 3-83 on page 105).

Figure 3-83 Select Layout

4. To toggle the selected layout list, press **Next Layout** (See Figure 3-84 on page 105).

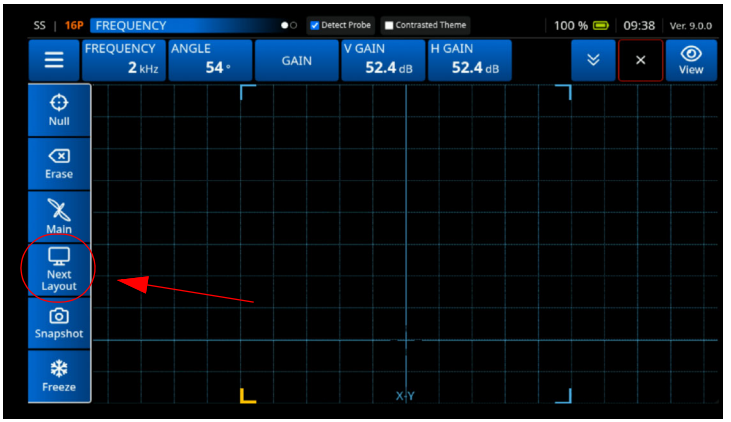


Figure 3-84 Press Next Layout

Table 15 Sub-Surface Crack Inspection Tips *(continued)*

Inspection Tip	Details
Reading List	To select a reading list, complete the following steps. 1. Access the **General** menu ☰. 2. Select **Display Settings** and **Reading List** (See Figure 3-85 on page 106)

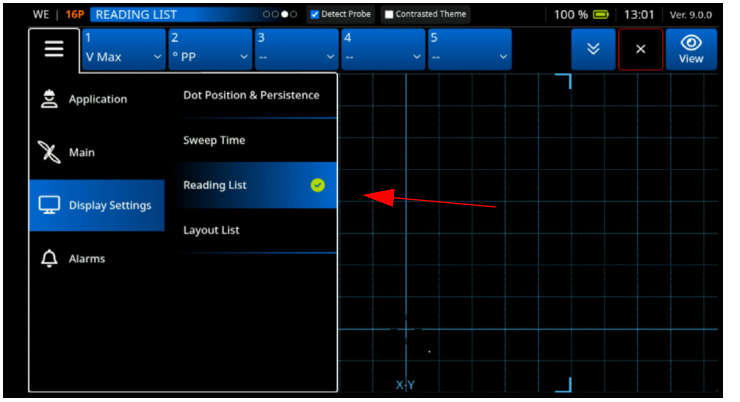


Figure 3-85 Select Reading List

3. To see the readings (up to five), close the upper ribbon (See Figure 3-86 on page 106).

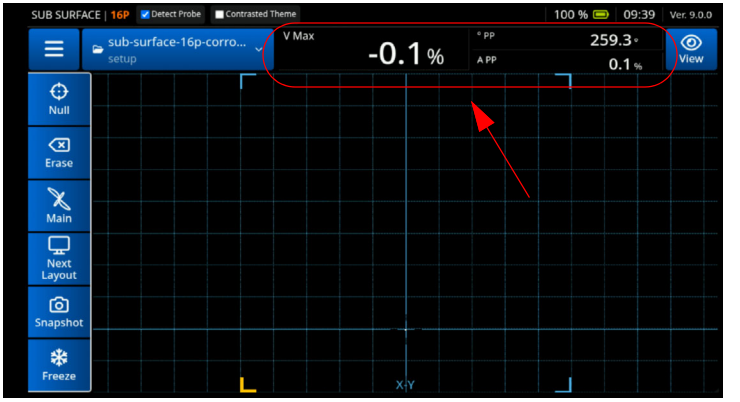


Figure 3-86 View Readings

3.6 Detecting Sub-Surface Cracks - Dual Frequency

This is a general purpose procedure for all NORTEC 700 models for detecting sub-surface cracks using dual frequency in Lap Splice with Anodized and Alodine Rivets in aluminum layer stacks.

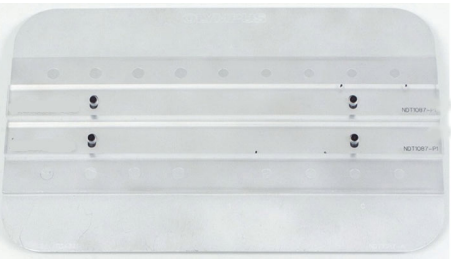
3.6.1 Materials Required

Table 16 on page 107 lists the products required for this procedure.

Table 16 Sub-Surface Cracks Dual Frequency Equipment

Classification	Equipment
Instrument	 **Figure 3-87 NORTEC 700X**

Table 16 Sub-Surface Cracks Dual Frequency Equipment *(continued)*

Classification	Equipment
Low Frequency Sliding Probe (Frequency 50Hz-50kHz, Reflection Coil configuration, 40.6 mm (1.60 in.) x 25.4 mm (1.0 in.) x 25.4 mm (1.0 in.), Triax Fischer/LEMO connector	 **Figure 3-88 NEC-4039 (U8633039)**
Cable	SPO-6687 16P to Triax Fischer 6 FT. (U8800538)
Reference Standard	 **Figure 3-89 NDT1097-4 (U8860779)** NDT1097-4 (U8860779) and plastic guides for alodine reference standard NDT1087-P1 (U8860784)

3.6.2 Configure the Sub-Surface Crack Dual Frequency Application

Complete the following steps to configure the **Sub-Surface Crack Dual Frequency** application.

1. Press the **Application** function to access the **General** menu ≡.
2. Select **Application** Application.

3. Select **Sub Surface** 

.

4. Select the **Rivet Lines** configuration 

.

5. Select **Dual Frequency** 

.

6. Press **Confirm** 

.

3.6.3 Prepare for the Inspection

To prepare for the inspection, adjust the plastic guides along the fastener rows on the Alodine reference standard so that the sliding probe will be centered over the fasteners when sliding over the fastener row (See Figure 3-90 on page 109).

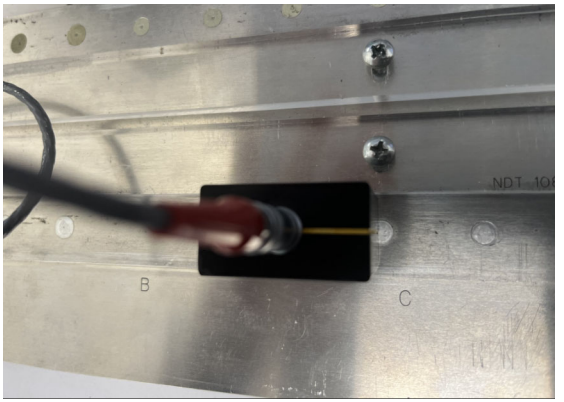


Figure 3-90 Position Plastic Guides

IMPORTANT

Ensure the guides are properly adjusted for both fastener rows. Failure to properly center the probe will lead to a very difficult calibration and possibly an unusable setup.

3.6.4 Calibrate the Signal

Complete the following steps to calibrate the signal.

1. Press **View** and **All Settings** (See Figure 3-91 on page 110).

Figure 3-91 View All Settings

2. Verify that all of the required parameters (See Figure 3-91 on page 110) are set by default, and press **Done** to return to live mode.
3. Position the probe between the two end rivets at **Position A** in the reference standard and press **Null** (See Figure 3-92 on page 111).

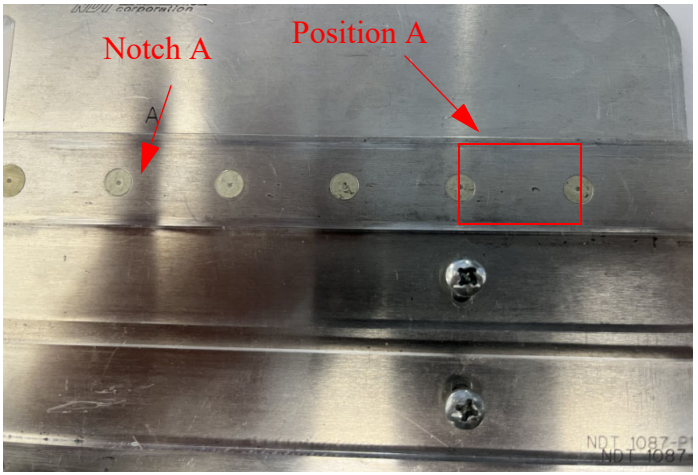


Figure 3-92 Position the Probe

4. Scan the first fastener and press **Freeze** (See Figure 3-93 on page 111).

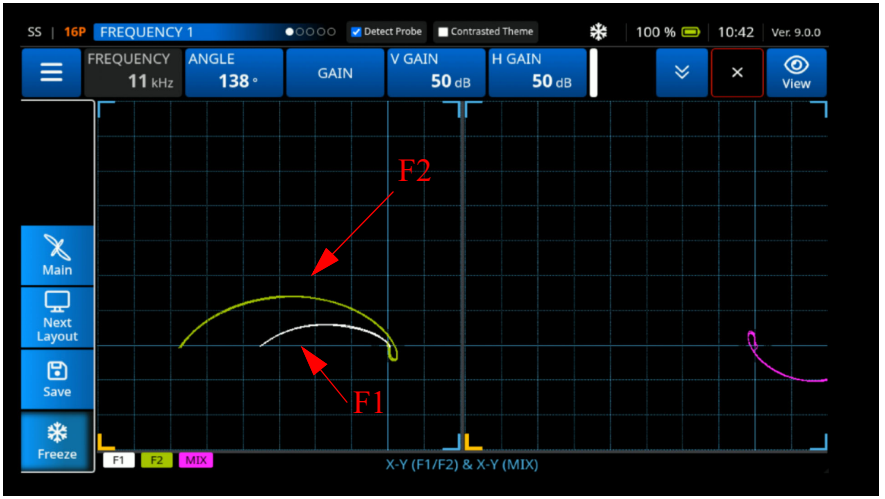


Figure 3-93 Adjusting the F1 & F2 Signals

5. Using the **Gain** and the **Angle** settings and the knob, adjust the F1 signal to reach **2 Vertical** divisions and **6 Horizontal** divisions (See Figure 3-94 on page 112).

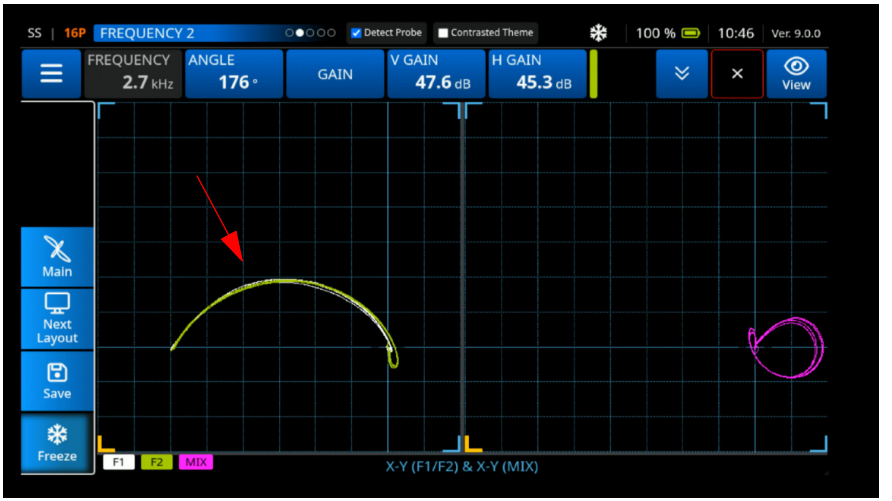


Figure 3-94 Adjust the Gain and Angle Settings

6. Press **Main** to reach the **F2 Setting**.
7. Using the **Gain** and the **Angle** settings and the knob, adjust the F2 signal to reach **2 Vertical** divisions and **6 Horizontal** divisions (See Figure 3-94 on page 112).
8. Press **Main** until you locate the **Mix** setting.
9. Using the **Angle** setting and the knob, turn the **Mix** signal 180° (See Figure 3-95 on page 113).

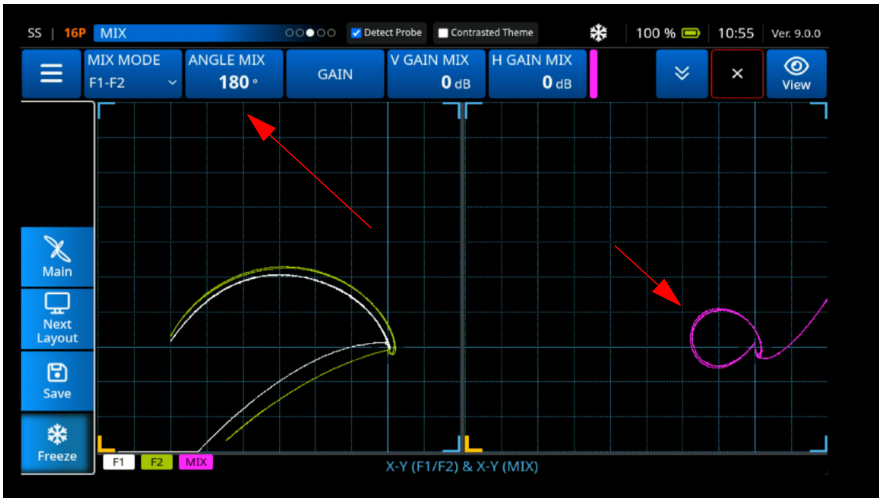


Figure 3-95 Adjust the Mix Signal Setting

10. Press **Freeze** to return to live mode.

3.6.5 Adjust the Sensitivity

To adjust the sensitivity, complete the following steps.

1. Position the probe between the two lower rivets at **Position B** in the reference standard and press **Null** (See Figure 3-96 on page 114).

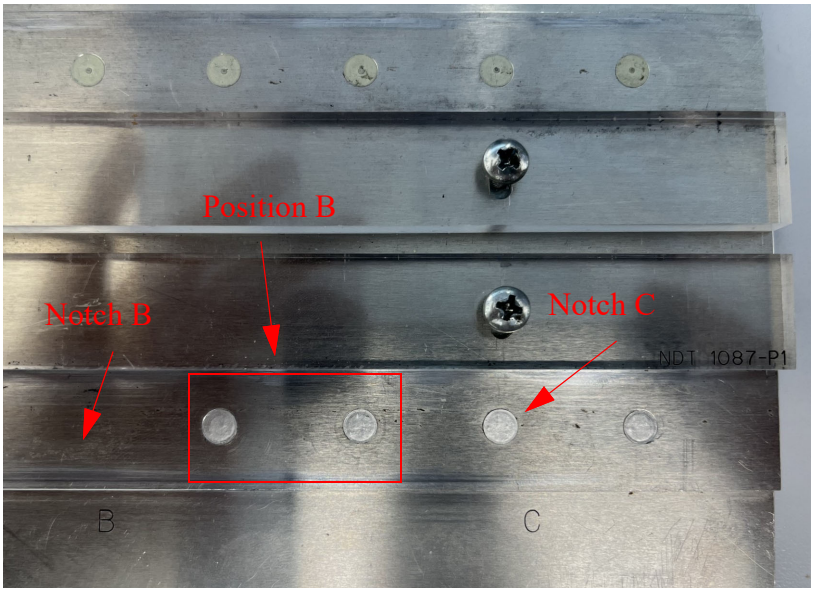


Figure 3-96 Position the Probe

2. Scan **Notch B** (See Figure 3-96 on page 114) and press **Freeze** (See Figure 3-97 on page 114).

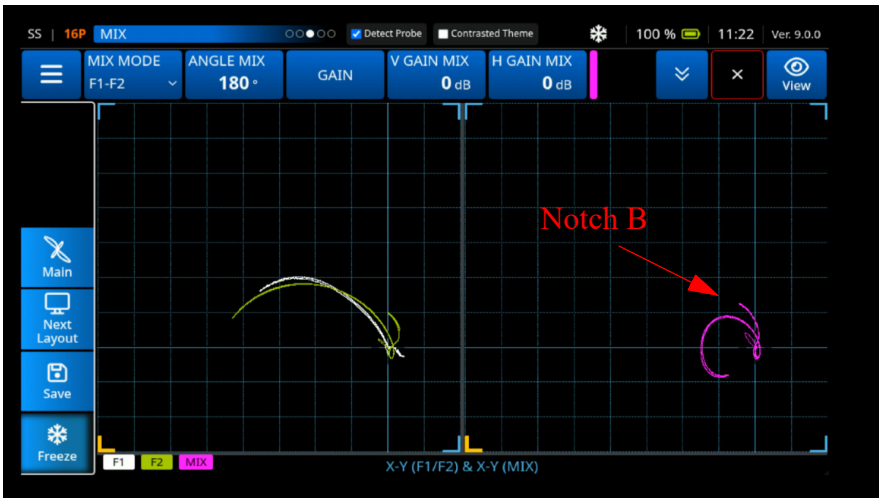


Figure 3-97 Adjusting the F1 & F2 Signals

3. Using the **V Gain Mix** setting and the knob, adjust the **Notch B** signal to reach **4 Vertical** divisions (See Figure 3-98 on page 115).

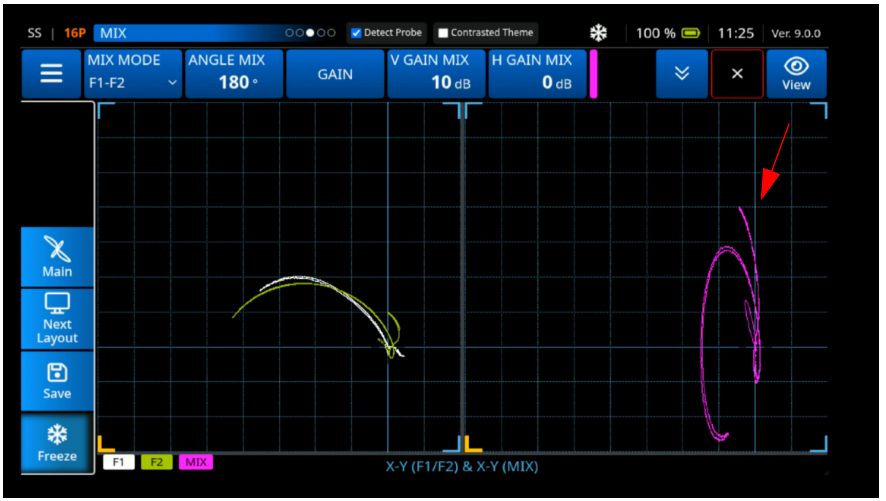


Figure 3-98 Adjust the V Gain Mix Settings

4. Press the **Freeze** button to return to live mode.
5. Return the probe to **Position A** and press **Null** (See Figure 3-92 on page 111).
6. Scan from **Position A** to **Notch A** and press **Freeze** (See Figure 3-99 on page 115).

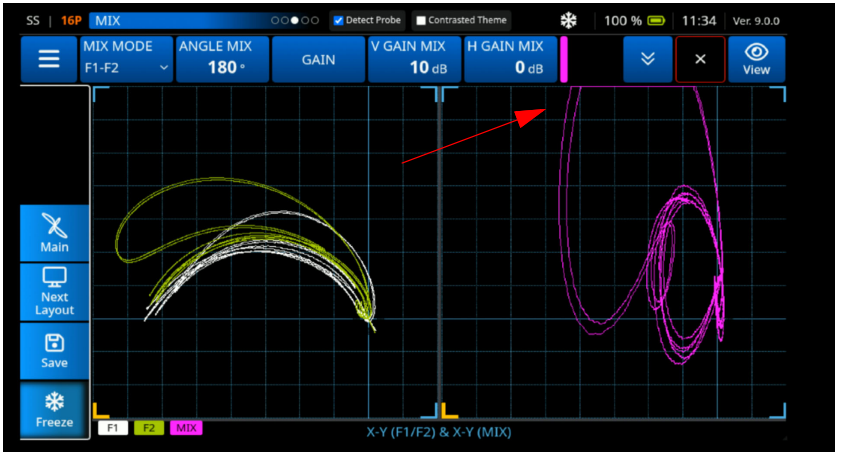


Figure 3-99 Adjust the Mix Signal Setting

7. Using the **Angle Mix** setting and the knob, adjust the **Notch A** signal to reach **7 Vertical** divisions (See Figure 3-100 on page 116).

Figure 3-100 Adjust the Angle Mix Settings

8. Press **Freeze** to return to live mode.

3.6.6 Validate the Sensitivity

Complete the following steps to validate the sensitivity.

1. Press **Next Layout** to reach **Y(t) & X-Y(MIX)** view.
2. Place the probe at **Position B** and press **Null**.
3. Scan over **Notch C** (See Figure 3-96 on page 114).
4. Verify that **Notch C** amplitude is close to **7 Vertical** divisions (See Figure 3-101 on page 117).

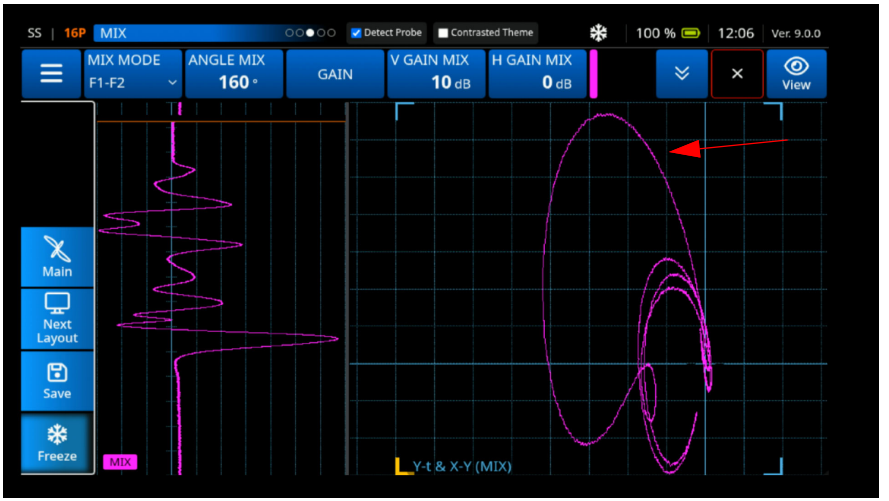


Figure 3-101 Confirm Notch C Amplitude

5. Place the probe at **Position A** and press **Null**.
6. Scan from **Position A** to **Notch A**.
7. Verify that **Notch A** amplitude is close to **7 Vertical** divisions (See Figure 3-102 on page 117).

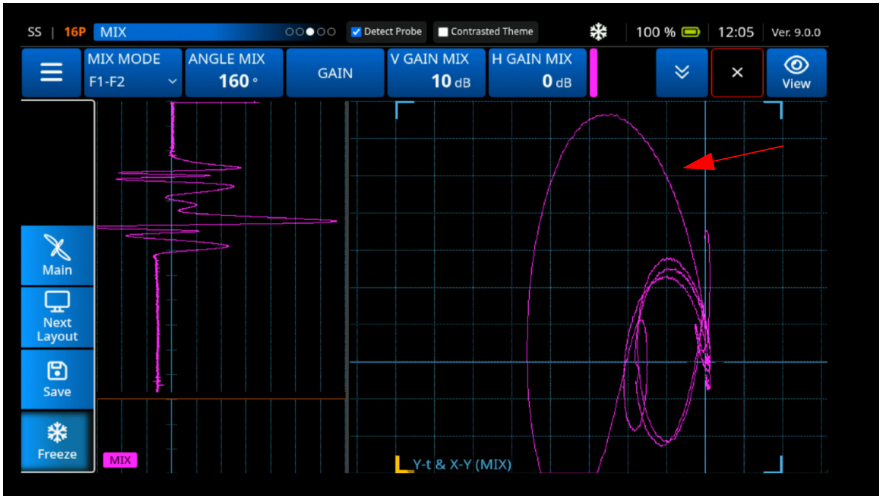


Figure 3-102 Confirm Notch A Amplitude

3.6.7 Inspection Tips

Table 17 on page 118 provides inspection tips relevant to this procedure.

Table 17 Sub-Surface Crack Dual Frequency Inspection Tips

Inspection Tip	Details
Set an Alarm Box	To set an alarm box, complete the following steps. 1. Press the **Application** function to access the **General** menu . 2. Select **Alarms**. 3. Select **Alarm 1** (See Figure 3-103 on page 118).  **Figure 3-103 Select Alarm 1**

Table 17 Sub-Surface Crack Dual Frequency Inspection Tips *(continued)*

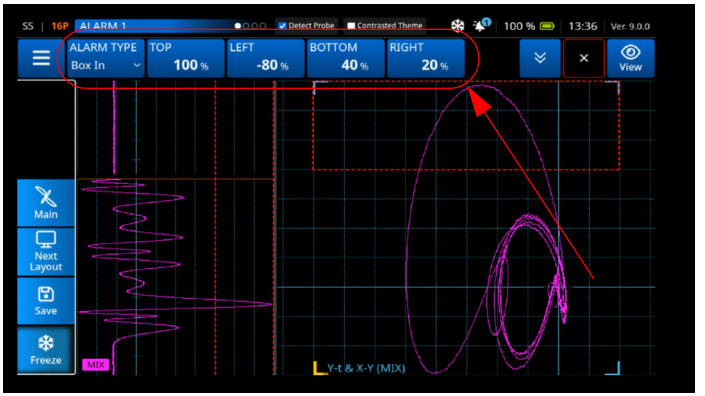
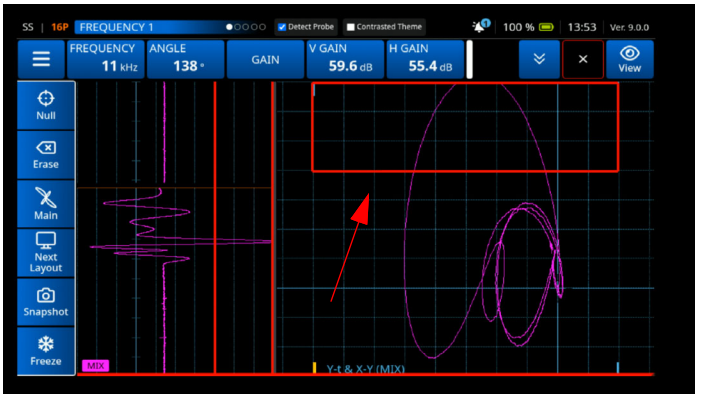
Inspection Tip	Details
Set an Alarm Box (Continued)	4. Select the **Box In** alarm type and define the box (See Figure 3-104 on page 119).  **Figure 3-104 Select Box In Alarm Type** 5. Press **Freeze** to return to live mode. 6. Scan over **Notch A** and **Notch C** to confirm **Alarm Box 1** detection (See Figure 3-105 on page 119).  **Figure 3-105 Confirm Box 1 Alarm Detected**

Table 17 Sub-Surface Crack Dual Frequency Inspection Tips *(continued)*

Inspection Tip	Details
Layout Selection	To select a layout process, complete the following steps. 1. Access the **General** menu . 2. Select **Display Settings** and **Layout List** (See Figure 3-106 on page 120)  **Figure 3-106 Select Layout List**

Table 17 Sub-Surface Crack Dual Frequency Inspection Tips *(continued)*

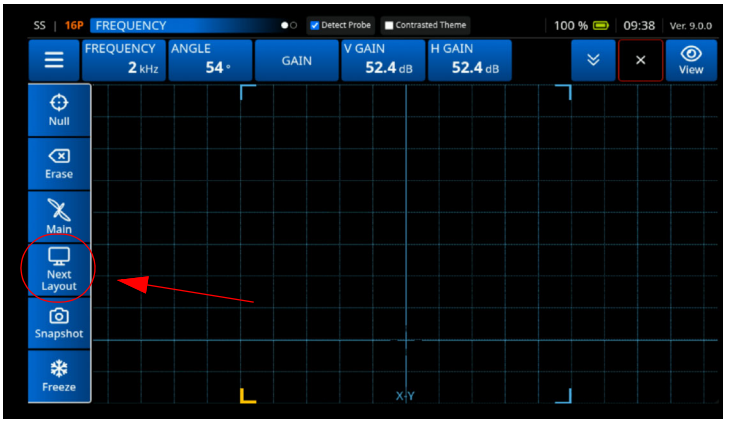
Inspection Tip	Details
Layout Selection (Continued)	3. Select the layout from the drop-down list (See Figure 3-107 on page 121).  **Figure 3-107 Select Layout** 4. To toggle the selected layout list, press **Next Layout** (See Figure 3-108 on page 121).  **Figure 3-108 Press Next Layout**

Table 17 Sub-Surface Crack Dual Frequency Inspection Tips *(continued)*

Inspection Tip	Details
Reading List	To select a reading list, complete the following steps. 1. Access the **General** menu ☰. 2. Select **Display Settings** and **Reading List** (See Figure 3-109 on page 122)

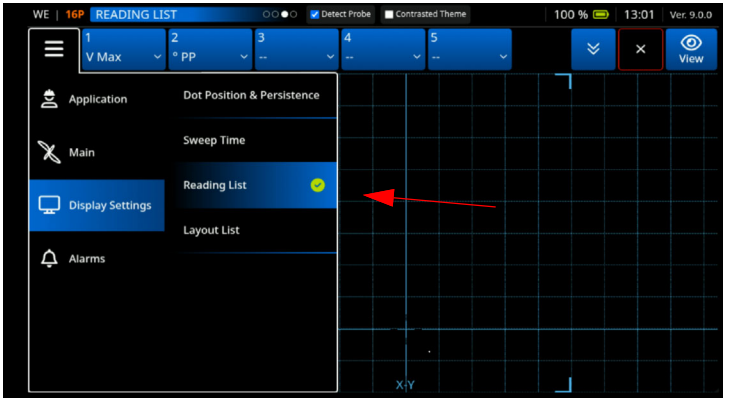


Figure 3-109 Select Reading List

3. To see the readings (up to five), close the upper ribbon (See Figure 3-86 on page 106).

Figure 3-110 View Readings

4. Eddy Current Array (ECA) Applications

The following sections contain example procedures for ECA applications.

4.1 Detecting Open Surface Cracks - Aluminum Alloy

This is a procedure for all NORTEC 700 models using ECA to detect surface breaking cracks in aluminum alloy.

4.1.1 Materials Required

Table 18 on page 124 lists the products required for this procedure.

Table 18 Surface Breaking Cracks Equipment

Classification	Equipment
Instrument	 **Figure 4-1 NORTEC 700i**
Probe	 **Figure 4-2 SURF-025-008-300k03M-DP-A**
Cable	1213913 (22P-22P)

Table 18 Surface Breaking Cracks Equipment *(continued)*

Classification	Equipment
Reference Standard	 **Figure 4-3 MESX031 (U8780151)**

4.1.2 Calibrate the Signal

Complete the following steps to calibrate the signal.

1. Connect the NORTEC 700i to the probe with the designated cable (See Table 18 on page 124).
2. Press **Confirm** to launch the SURF-026-008-300k03M-AB-A base use case (See Figure 4-4 on page 126).

Figure 4-4 Surface Cracks Presets with ECA

3. Press the **General** menu button ☰.
4. Select **Display Settings**.
5. Select **Color Palette**.
6. Select **Green** (See Figure 4-5 on page 127).

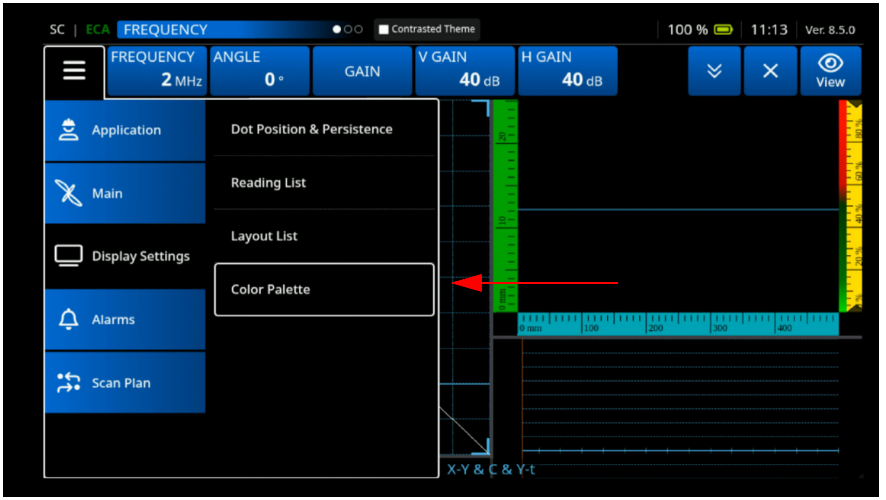


Figure 4-5 Select Color Palette Green

7. Position the probe in the flawless **Position A** of the reference standard (See Figure 4-6 on page 127).

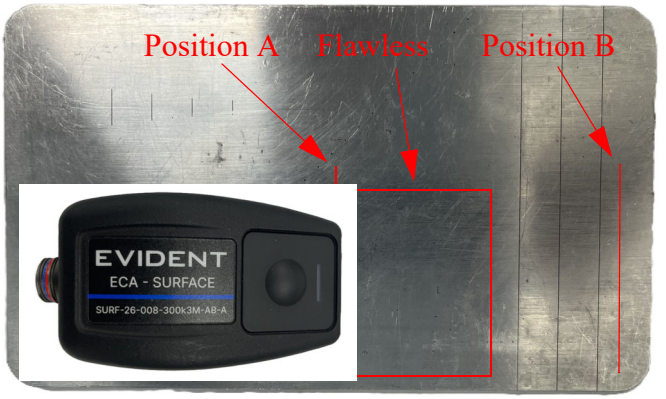
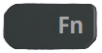


Figure 4-6 Position Surface Probe

8. Press **Fn** 

.

9. Press **Auto-Lift** 

.
10. Using the live **XY** plan, tilt the probe to confirm the lift off signal adjustment to the left horizontal position (See Figure 4-7 on page 128).

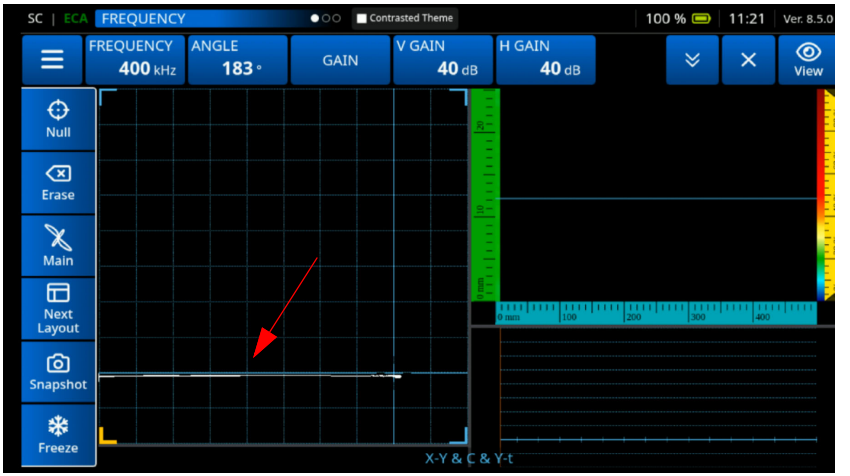


Figure 4-7 Confirm the Lift Off Setting

11. Place the probe just before the three EDM notches in the reference standard, and scan back and forth over the notches (See Figure 4-8 on page 128).

Figure 4-8 Adjusting the Defect Amplitude

12. Using the live impedance, **V Gain** setting, and the knob, adjust the 0.5 mm deep defect at **50% FSH** (See Figure 4-9 on page 129).

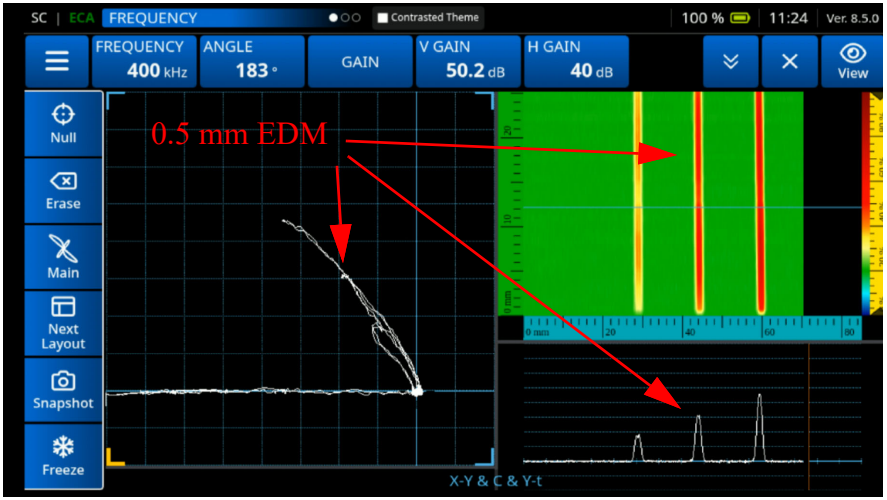


Figure 4-9 Adjust the V Gain Setting

4.1.3 Inspection Tips

Table 19 on page 130 provides inspection tips relevant to this procedure.

Table 19 ECA Surface Crack Inspection Tips

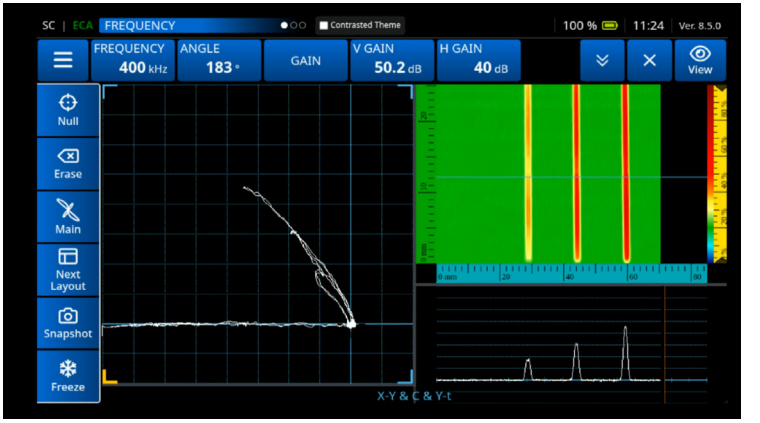
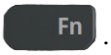
Inspection Tip	Details
Setting with Cursors	1. Move the probe back and forth over the three EDM notches in the reference standard and press **Freeze** (See Figure 4-8 on page 128 and Figure 4-10 on page 130).  2. Press **Fn**  .

Figure 4-10 Press Freeze

Table 19 ECA Surface Crack Inspection Tips *(continued)*

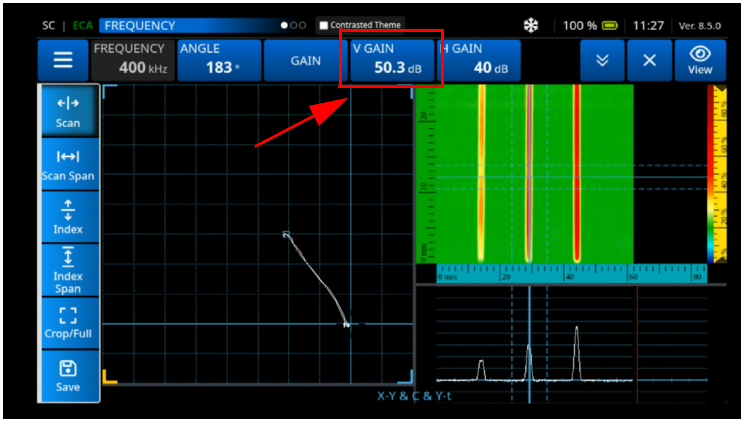
Inspection Tip	Details
Setting with Cursors (Continued)	3. Use the **Scan** cursor and select the 0.5 mm deep notch. 4. Adjust the **Gain** to set the signal at **50% FSH** (See Figure 4-11 on page 131).  **Figure 4-11 Select 0.5 mm Notch and Adjust Gain** 5. Press **Freeze** to return to live mode.

Table 19 ECA Surface Crack Inspection Tips *(continued)*

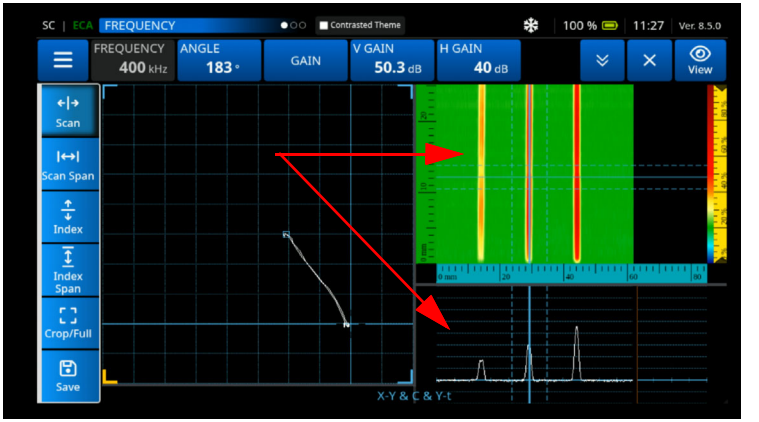
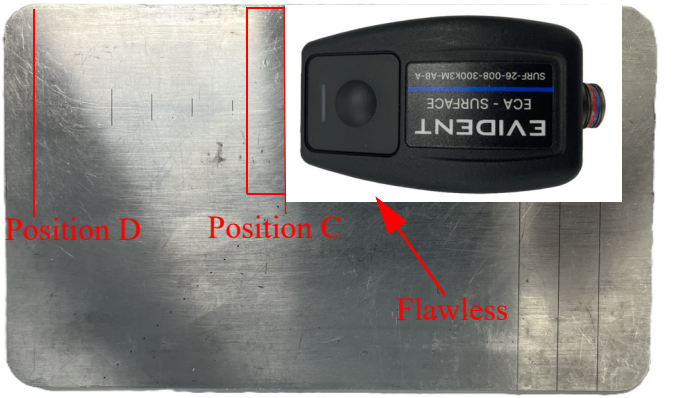
Inspection Tip	Details
Setting with Cursors (Continued)	6. Scan the three EDM notches again to confirm the signal (See Figure 4-12 on page 132).  **Figure 4-12 Confirm the Signal**
Verify Sensitivity	To check the sensitivity, complete the following steps. 1. Place the probe on the reference standard at **Position C** (See Figure 4-13 on page 132)  **Figure 4-13 Probe at Position C**

Table 19 ECA Surface Crack Inspection Tips *(continued)*

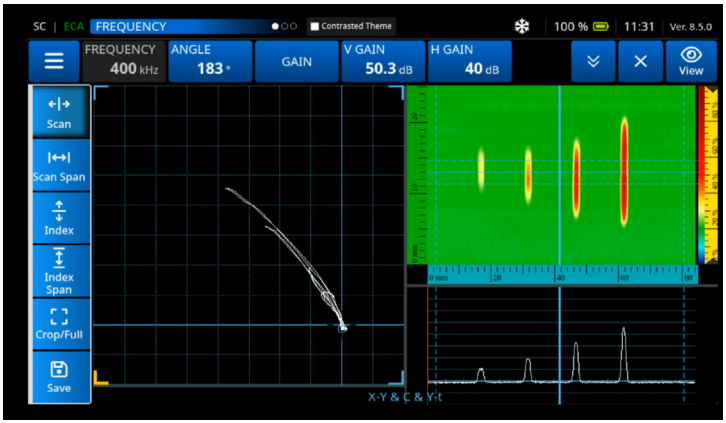
Inspection Tip	Details
Verify Sensitivity (Continued)	2. Press **Null**. 3. Scan from **Position C** to **Position D** covering all four EDM notches. 4. Press **Freeze**. 5. Press **Fn** Fn . 6. Using the **Index**, **Scan**, and **Span** cursors select the four EDM notches. 7. Press **Crop/Full** to a zoom on the C-Scan (See Figure 4-14 on page 133).  **Figure 4-14 Zoom C-Scan** 8. Press **Crop/Full** to return to normal view.

Table 19 ECA Surface Crack Inspection Tips *(continued)*

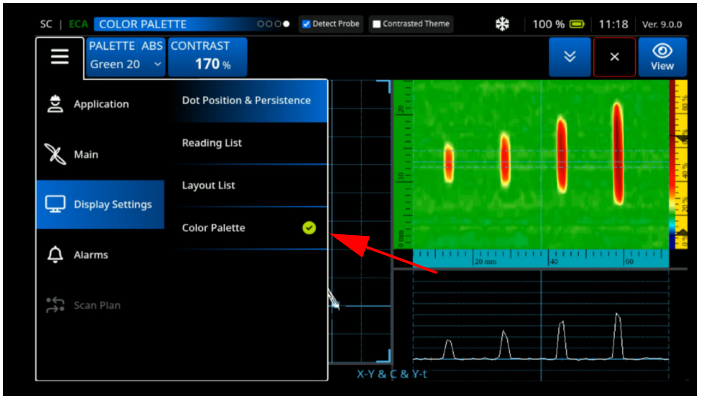
Inspection Tip	Details
Change the Color Palette	To change the color palette, complete the following steps. 1. Access the **General** menu ☰. 2. Select **Display Settings** and **Color Palette** (See Figure 4-15 on page 134)  **Figure 4-15 Access Color Palette List**

Table 19 ECA Surface Crack Inspection Tips *(continued)*

Inspection Tip	Details
Change the Color Palette (Continued)	3. Select a color palette according to the **Dot Position** (Use 20 for 80/20, and 50 for 50/50) (See Figure 4-16 on page 135).

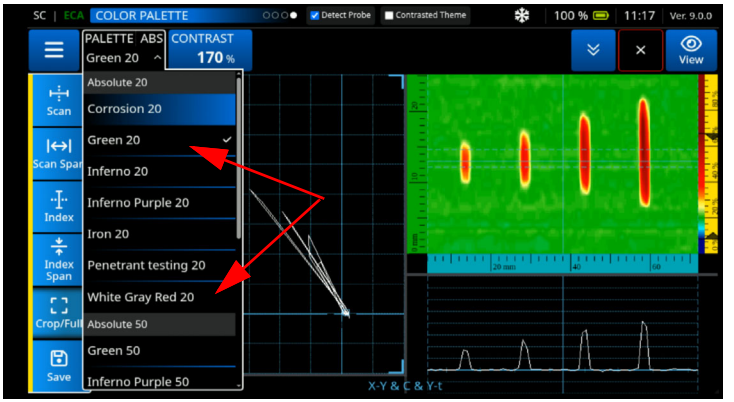


Figure 4-16 Select Color Palette

4. Select a color palette that best suits your application (such as Corrosion).
5. Adjust the **Contrast** to increase the defect visibility on the C-Scan (See Figure 4-17 on page 135).

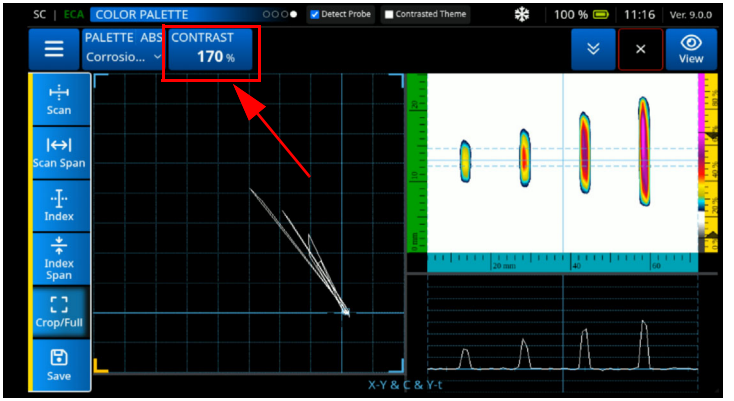
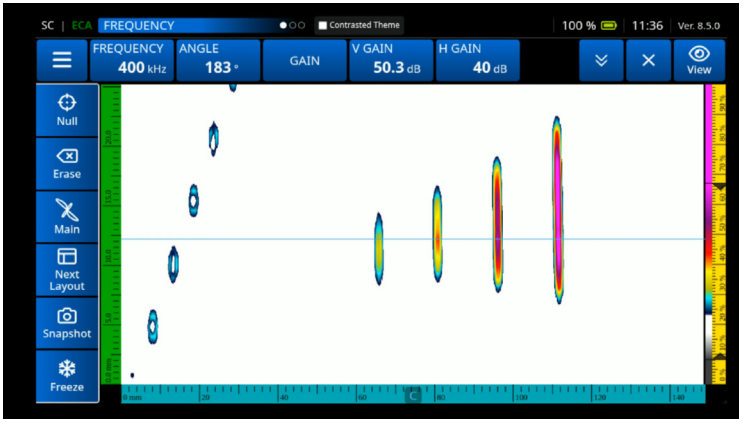


Figure 4-17 Adjust Contrast

Table 19 ECA Surface Crack Inspection Tips *(continued)*

Inspection Tip	Details
Indication Detection	To adjust the indication detection, complete the following steps. 1. Place the probe in the flawless area of the reference standard (See Figure 4-18 on page 136).  **Figure 4-18 Place the Probe** 2. Press **Null**. 3. Press **Next Layout** until you reach the **Full C-Scan** view.

Table 19 ECA Surface Crack Inspection Tips *(continued)*

Inspection Tip	Details
Indication Detection (Continued)	4. Scan the full length of the references standard (See Figure 4-19 on page 137).  **Figure 4-19 View Results**

4.2 Detecting Open Surface Cracks - Aluminum Alloy w/Lap Joint

This is a procedure for all NORTEC 700 models using ECA to detect surface breaking cracks in aluminum alloy along lap joints.

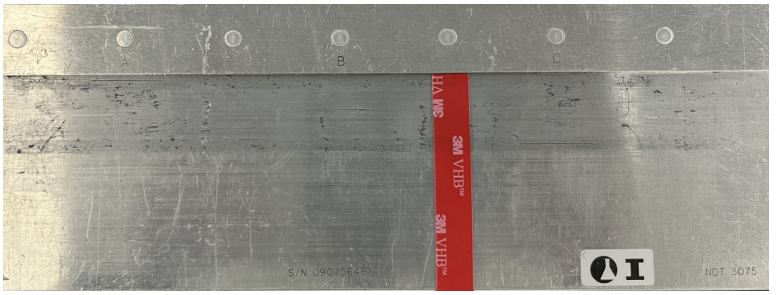
4.2.1 Materials Required

Table 20 on page 138 lists the products required for this procedure.

Table 20 Surface Cracks w/Lap Joint Equipment

Classification	Equipment
Instrument	 **Figure 4-20 NORTEC 700i**
Probe	 **Figure 4-21 SURF-025-008-300k03M-DP-A**
Cable	1213913 (22P-22P)

Table 20 Surface Cracks w/Lap Joint Equipment *(continued)*

Classification	Equipment
Reference Standard	 **Figure 4-22 NDT 3075 (U8860825)**

4.2.2 Calibrate the Signal

Complete the following steps to calibrate the signal.

1. Connect the NORTEC 700i to the probe with the designated cable (See Table 20 on page 138).
2. Press **Confirm** to launch the SURF-026-008-300k03M-DP-A base use case (See Figure 4-23 on page 139).

Figure 4-23 Surface Cracks Presets with ECA

3. Position the probe in the flawless **Position A** of the reference standard (See Figure 4-24 on page 140).

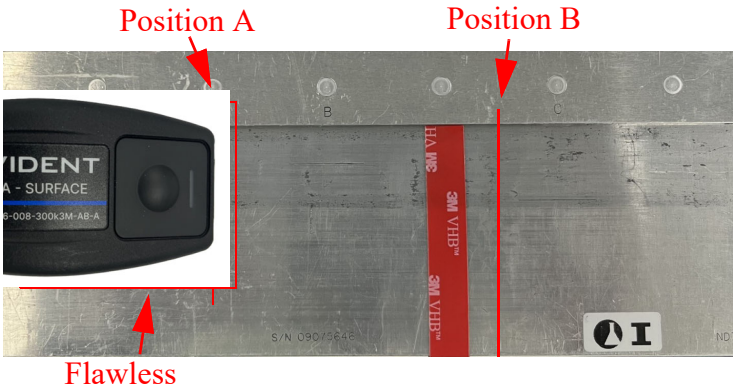
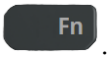


Figure 4-24 Position Surface Probe

4. Scan from **Position A** to **Position B** over the taper strip and press **Freeze** (See Figure 4-25 on page 140).

Figure 4-25 Confirm the Lift Off Setting

5. Press **Fn** 

.

6. Using the **Scan** and **Scan Span** cursors, select the edge of the **Lift Off** signal (See Figure 4-26 on page 141).

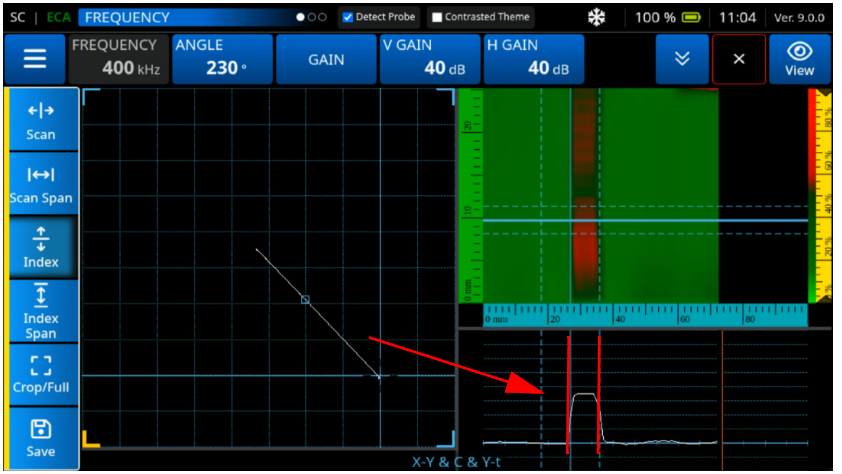
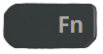


Figure 4-26 Confirm the Lift Off Edges

7. Press **Fn** 

.
8. Press **Normalize** (See Figure 4-27 on page 141).

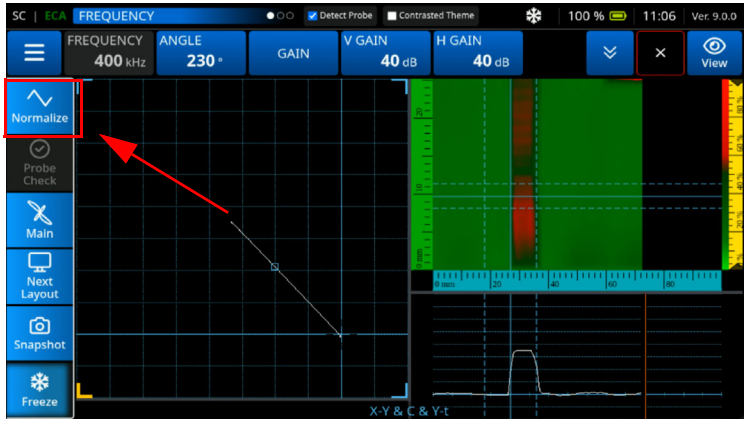


Figure 4-27 Press Normalize

9. Check the **Gain** and **Phase** adjusted values and press **Done** to confirm normalization, or **Cancel** to abort (See Figure 4-28 on page 142).

Figure 4-28 Check the Gain and Phase Values

10. Using **Angle** set the lift off signal to the left horizontal position (See Figure 4-29 on page 142).

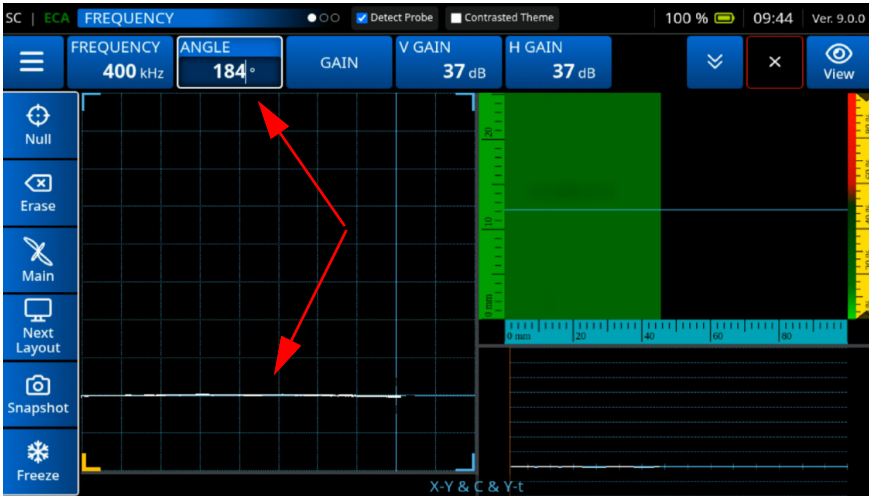
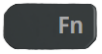


Figure 4-29 Set Lift Off Signal with Angle

11. Press **Fn** 

.
12. Using the **Index**, **Scan**, and **Scan Span** cursors, select the EDM notch signal (See Figure 4-30 on page 143).

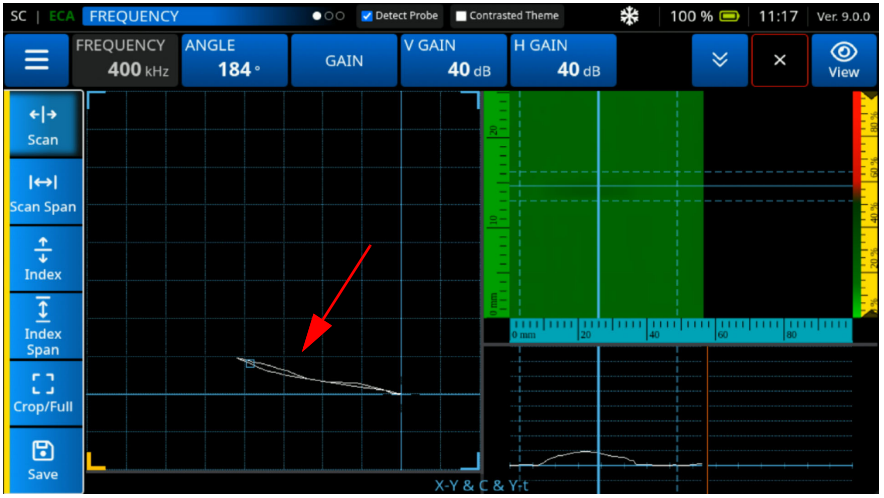


Figure 4-30 Select the EDM Notch Signal

13. Adjust the **Gain** until you reach a **Full Horizontal Screen** deviation on the XY plane representation (See Figure 4-31 on page 144).

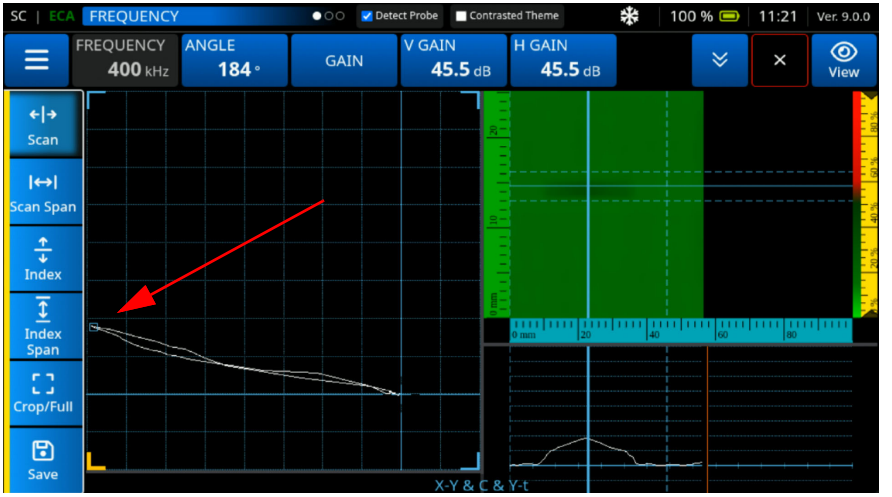


Figure 4-31 Adjust the Gain

14. Using the live impedance and **V Gain**, add +10 dB (See Figure 4-32 on page 144).

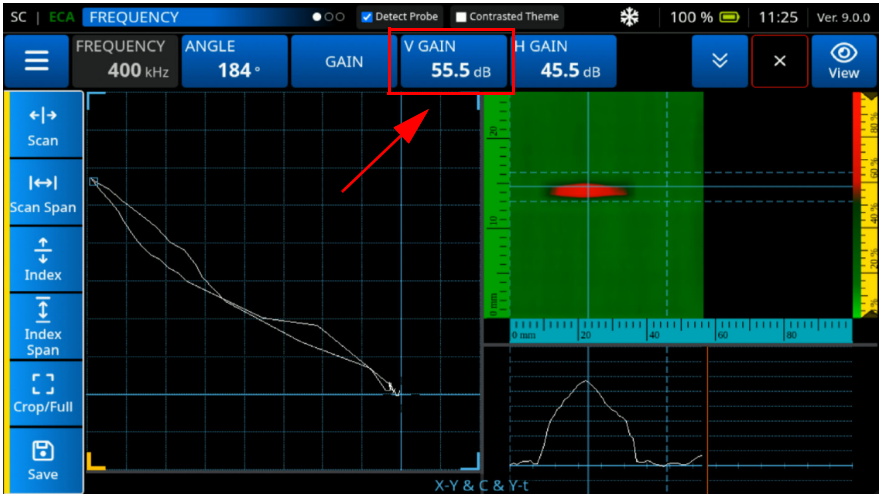


Figure 4-32 Adding +10 dB

15. Press **Freeze** to return to live mode.

16. Position the probe in the flawless **Position A** of the reference standard (See Figure 4-33 on page 145).

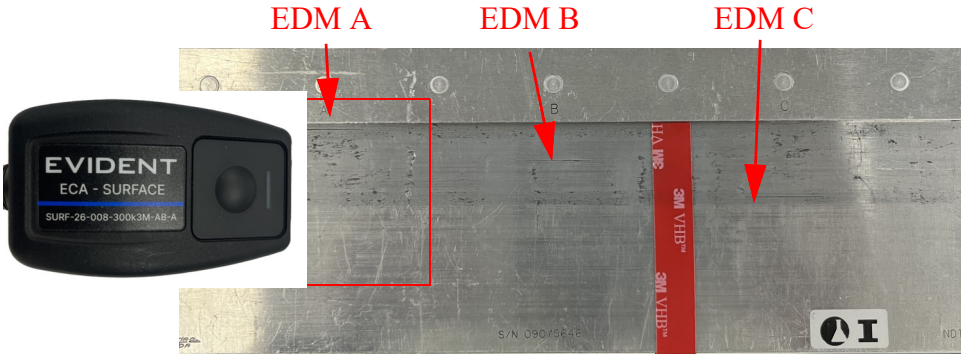


Figure 4-33 Position Surface Probe

17. Confirm good detection of all three EDM notches (See Figure 4-34 on page 145).

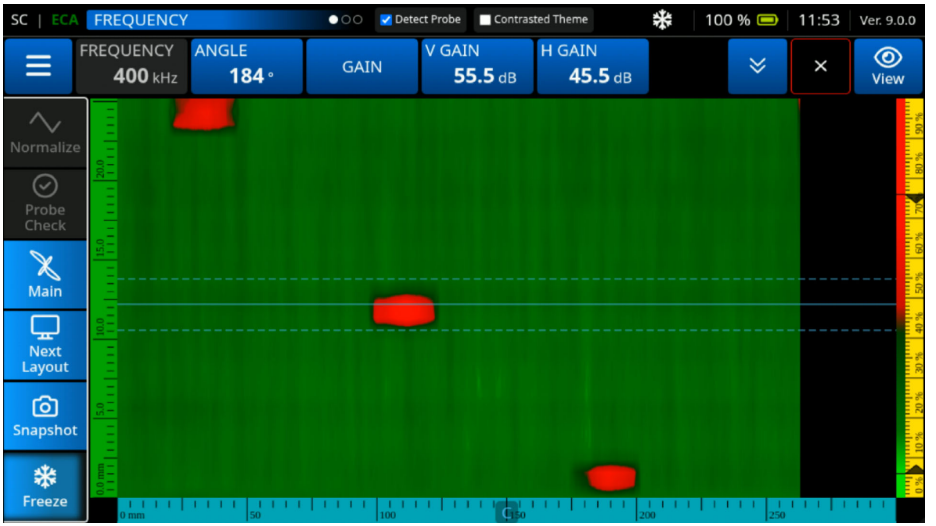


Figure 4-34 Confirm EDM Detection

4.2.3 Inspection Tips

Table 21 on page 146 provides inspection tips relevant to this procedure.

Table 21 ECA Surface Crack w/Lap Joint Inspection Tips

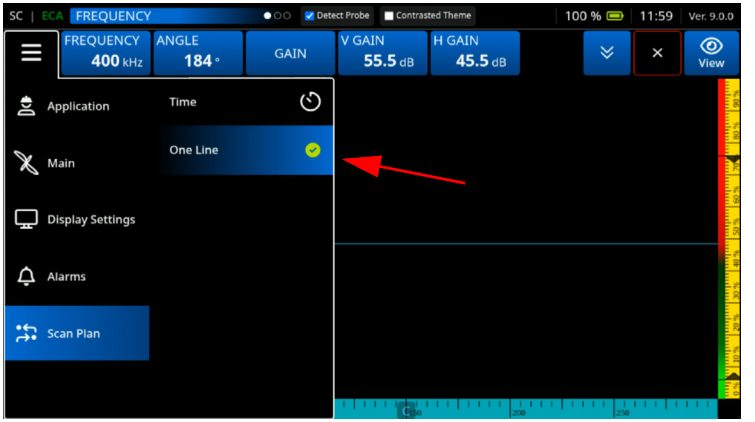
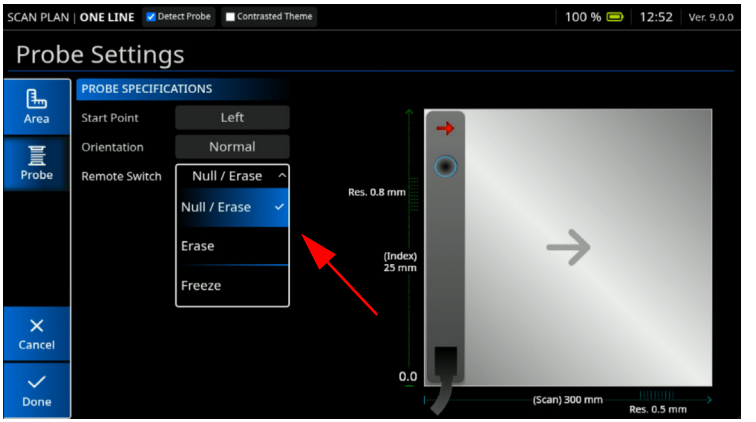
Inspection Tip	Details
Define the Inspection Area	To define the inspection area, complete the following steps. 1. Press the **General** menu button ☰. 2. Select **Scan Plan**. 3. Select **One Line Scan** (See Figure 4-35 on page 146).  **Figure 4-35 Select One Line Scan** 4. Select **Scan** and change the scan length to your preferred value (See Figure 4-36 on page 147).

Table 21 ECA Surface Crack w/Lap Joint Inspection Tips *(continued)*

Inspection Tip	Details
Define the Inspection Area (Continued)	5. Select **Scan Resolution** and set the resolution to your preferred value (See Figure 4-36 on page 147).  **Figure 4-36 Set the Scan Resolution**

Table 21 ECA Surface Crack w/Lap Joint Inspection Tips *(continued)*

Inspection Tip	Details
Define the Probe Remote Switch Function	To define the probe remote switch function, complete the following steps. 1. Press the **General** menu button ☰. 2. Select **Scan Plan**. 3. Select **Probe.** 4. Define a remote function for the probe (See Figure 4-37 on page 148).  **Figure 4-37 Define Remote Probe Function** 5. Press **Done** to confirm, or **Cancel** to abort.

4.3 Detecting Sub-Surface Corrosion - Aluminum Alloy Stack

This is a procedure for all NORTEC 700 models using ECA to detect sub-surface corrosion in an aluminum alloy layer stack.

IMPORTANT

The examples refer to a reference sample with EDM notches. Parameters may differ depending on the equipment used (such as a different probe) and the material inspected.

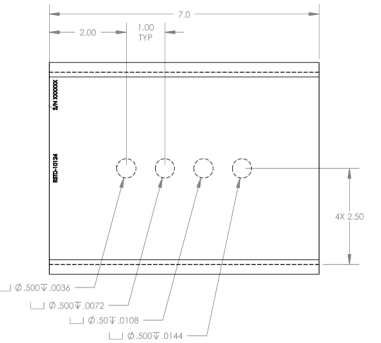
4.3.1 Materials Required

Table 22 on page 149 lists the products required for this procedure.

Table 22 Sub-Surface Corrosion Equipment

Classification	Equipment
Instrument	 **Figure 4-38 NORTEC 700i**

Table 22 Sub-Surface Corrosion Equipment *(continued)*

Classification	Equipment
Probe	 **Figure 4-39 SUBS-64-020-1k50k-DP-L**
Cable	1213913 (22P-22P)
Reference Standard	 **Figure 4-40 RSTD-10124 (U8863081)**

4.3.2 Calibrate the Signal

Complete the following steps to calibrate the signal.

1. Connect the NORTEC 700i to the probe with the designated cable (See Table 22 on page 149).
2. Press **Confirm** to launch the SUBS-64-020-1k50k-DP-L base use case (See Figure 4-41 on page 151).

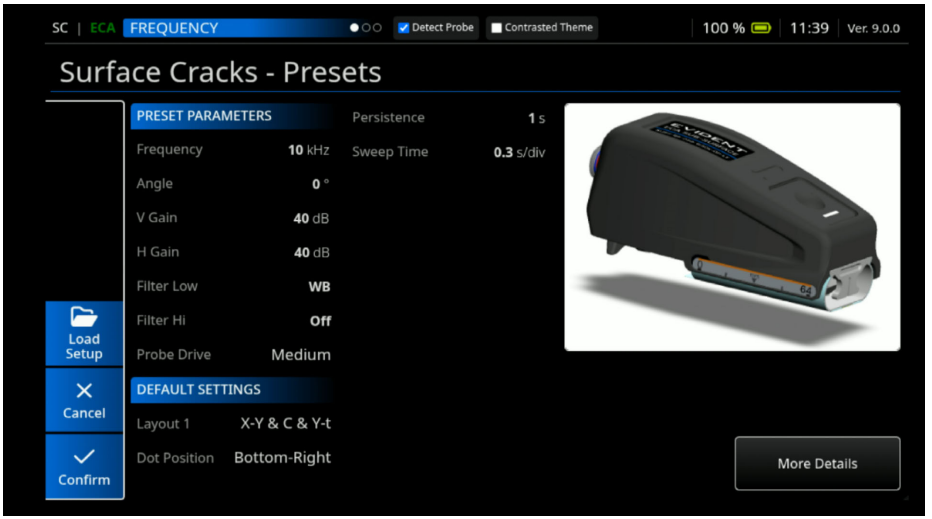


Figure 4-41 Sub-Surface Corrosion Presets with ECA

3. Set the inspection **Frequency** to **20 kHz**.
4. Press the **General** menu button .
5. Select **Display Settings**.
6. Select **Color Palette** (See Figure 4-42 on page 151).

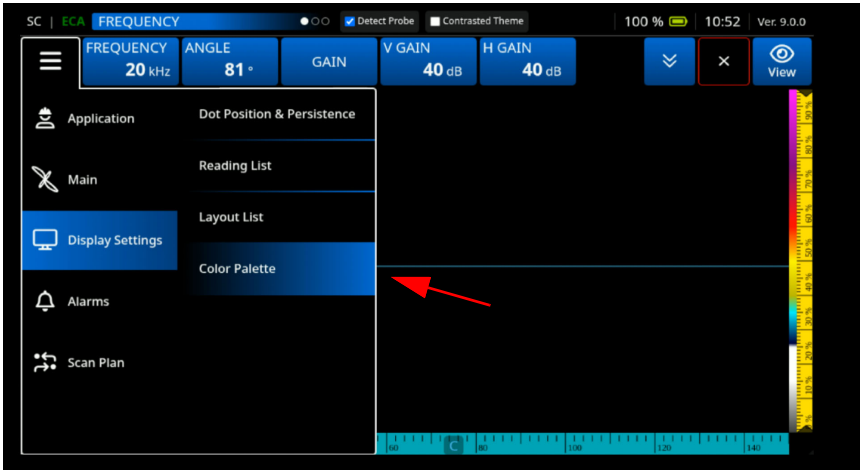


Figure 4-42 Select Color Palette

7. Select the **Corrosion** color palette (See Figure 4-43 on page 152).

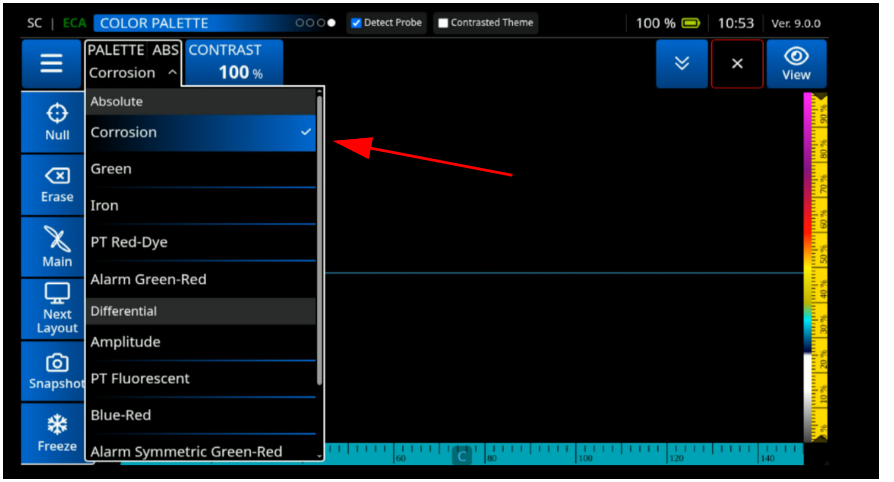


Figure 4-43 Select Corrosion Color Palette

8. Place the probe on the flawless area of the reference standard (See Figure 4-44 on page 152).

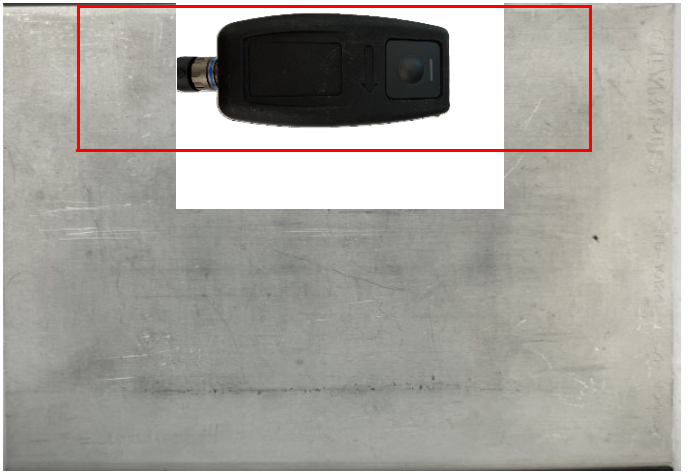
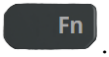


Figure 4-44 Confirm the Lift Off Setting

9. Press **Fn** 

.

10. Press **Auto-Lift** 

(See Figure 4-45 on page 153).

Figure 4-45 Press Auto-Lift

11. Using the live XY plan, tilt the probe to confirm a good lift-off signal. Adjust the **Angle** to fine-tune the signal (See Figure 4-46 on page 153).

Figure 4-46 Lift Off Signal

12. Position the probe at the left edge of the reference standard (See Figure 4-47 on page 154).

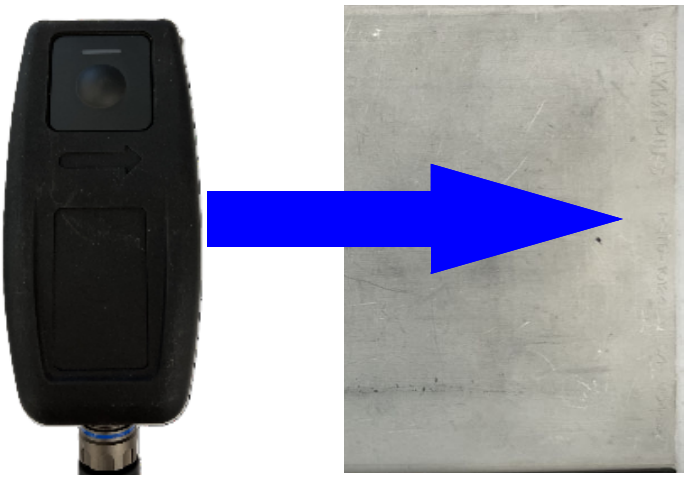


Figure 4-47 Position the Probe

13. Scan from the left edge to the right edge of the reference standard (See Figure 4-47 on page 154) and press **Freeze** (See Figure 4-48 on page 154).

Figure 4-48 Press Freeze

14. Using live impedance and **Gain**, set the deepest corrosion spot as **80% FSH** (See Figure 4-30 on page 143).

Figure 4-49 Set Deepest Corrosion to 80% FSH

15. Press **Freeze** to return to live mode.

4.3.3 Confirm the Calibration Setup

Complete the following steps to confirm the calibration setup.

1. Press **Next Layout** until you reach the **Full C-Scan** layout.
2. Position the probe at the left edge of the reference standard (See Figure 4-47 on page 154).
3. Press **Null**.
4. Scan across the reference standard and confirm that you acquire good readings (See Figure 4-50 on page 156).

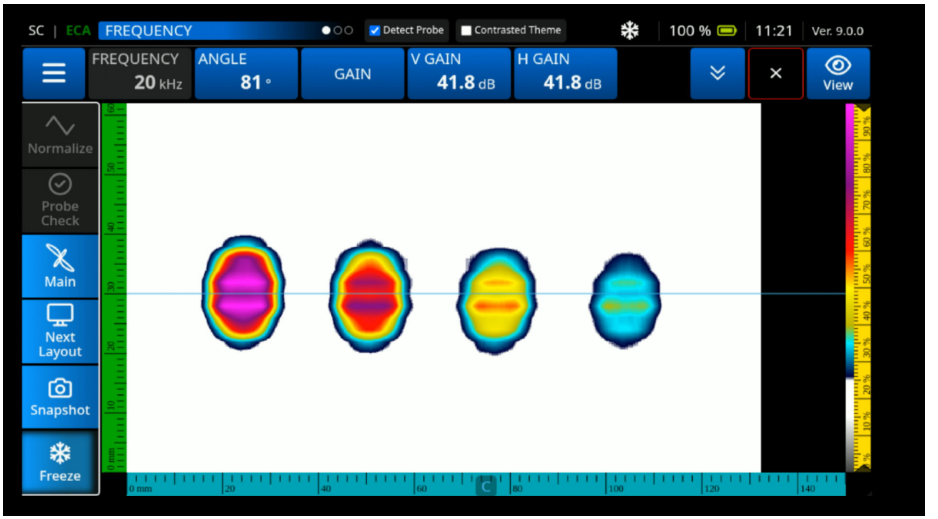


Figure 4-50 Confirm the Readings

4.3.4 Inspection Tips

Table 21 on page 146 provides inspection tips relevant to this procedure.

Table 23 ECA Sub-Surface Corrosion Inspection Tips

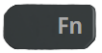
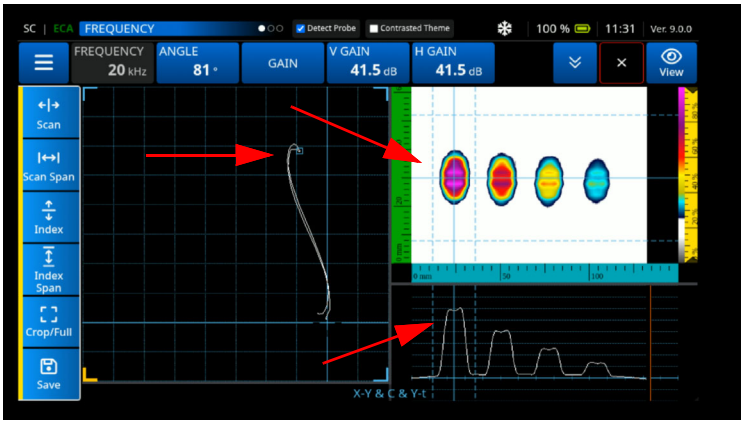
Inspection Tip	Details
Configuration Using Cursors	To configure the settings using the cursors, complete the following steps. 1. Position the probe at the left edge of the reference standard (See Figure 4-47 on page 154). 2. Scan from the left side to the right side, and press **Freeze**. 3. Press **Fn**  . 4. Using the **Index** and **Scan** cursors, select the deepest corrosion spot (See Figure 4-51 on page 157).  **Figure 4-51 Select Deepest Corrosion Spot** 5. Adjust the **Gain** to set the deepest corrosion spot as **80% FSH**. 6. Press **Freeze** to return to live mode.

Table 23 ECA Sub-Surface Corrosion Inspection Tips *(continued)*

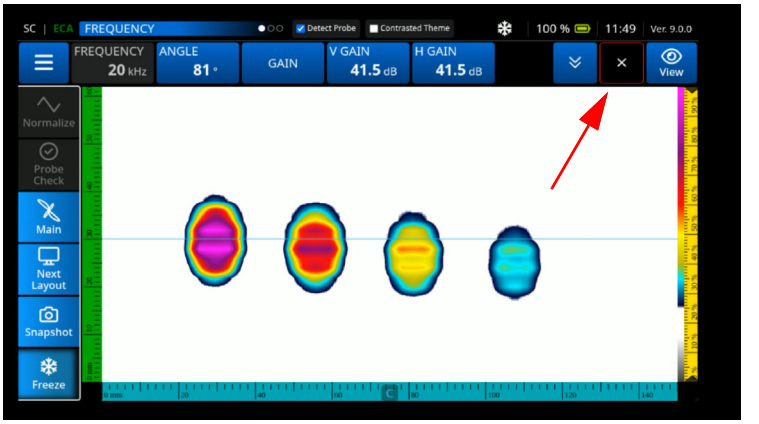
Inspection Tip	Details
Defect Sizing	To configure the defect sizing, complete the following steps. 1. Position the probe at the left edge of the reference standard (See Figure 4-47 on page 154). 2. Scan from the left side to the right side, and press **Freeze**. 3. Press the **Close** icon to close the upper ribbon (See Figure 4-52 on page 158).  **Figure 4-52 Close the Upper Ribbon**

Table 23 ECA Sub-Surface Corrosion Inspection Tips *(continued)*

Inspection Tip	Details
Defect Sizing (Continued)	4. Using the **Index** and **Scan** cursors, identify the defect to be sized (place the cursors in the middle of the defect). The Scan and Index readings define the position on the C-Scan (See Figure 4-53 on page 159).

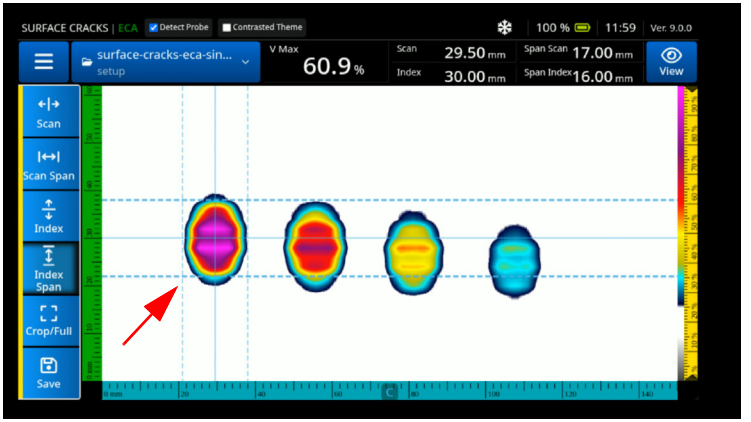
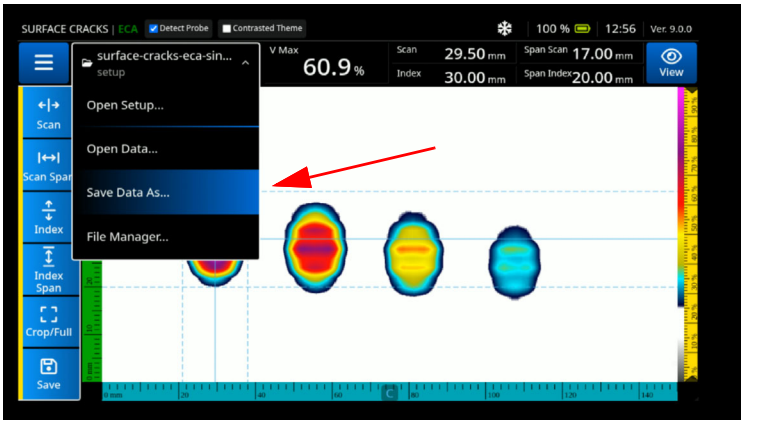
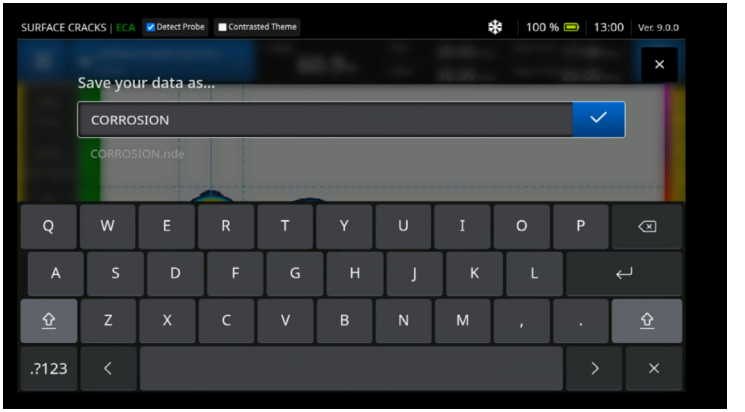


Figure 4-53 Defect Location on C-Scan

Table 23 ECA Sub-Surface Corrosion Inspection Tips *(continued)*

Inspection Tip	Details
Save Data	To save data, complete the following steps. 1. Open the drop-down menu and select **Save Data As** (See Figure 4-52 on page 158).  **Figure 4-54 Select Save Data As** 2. Name the data file and press **Valid** (See Figure 4-55 on page 160) then press **Freeze** to return to live mode.  **Figure 4-55 Name the Data File**

4.4 Detecting Sub-Surface Cracks Around Fasteners - Aluminum Alloy

This is a procedure for all NORTEC 700 models using ECA to detect sub-surface cracks around fasteners in an aluminum alloy sample.

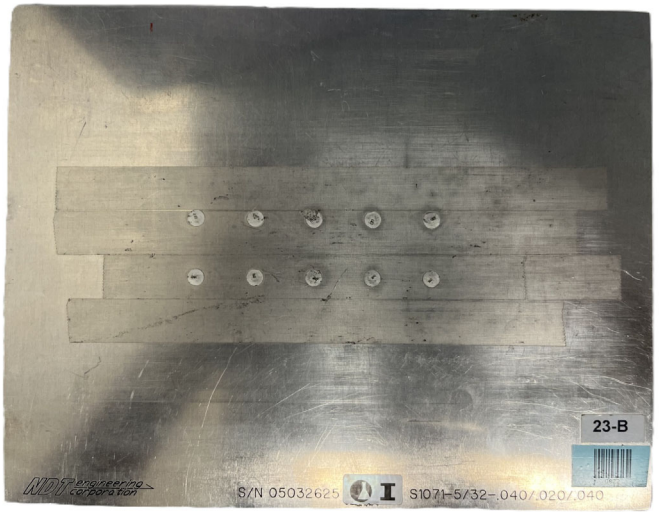
4.4.1 Materials Required

Table 24 on page 161 lists the products required for this procedure.

Table 24 Sub-Surface Cracks Around Fasteners Equipment

Classification	Equipment
Instrument	 **Figure 4-56 NORTEC 700i**

Table 24 Sub-Surface Cracks Around Fasteners Equipment *(continued)*

Classification	Equipment
Probe	 **Figure 4-57 SUBS-64-020-1k50k-DP-L**
Cable	1213913 (22P-22P)
Reference Standard	 **Figure 4-58 S1071-5/32-.040/.020/.040 (U8863081)**

4.4.2 Calibrate the Signal

Complete the following steps to calibrate the signal.

1. Connect the NORTEC 700i to the probe with the designated cable (See Table 24 on page 161).

2. Press **Confirm** to launch the SUBS-64-020-1k50k-DP-L base use case (See Figure 4-59 on page 163).

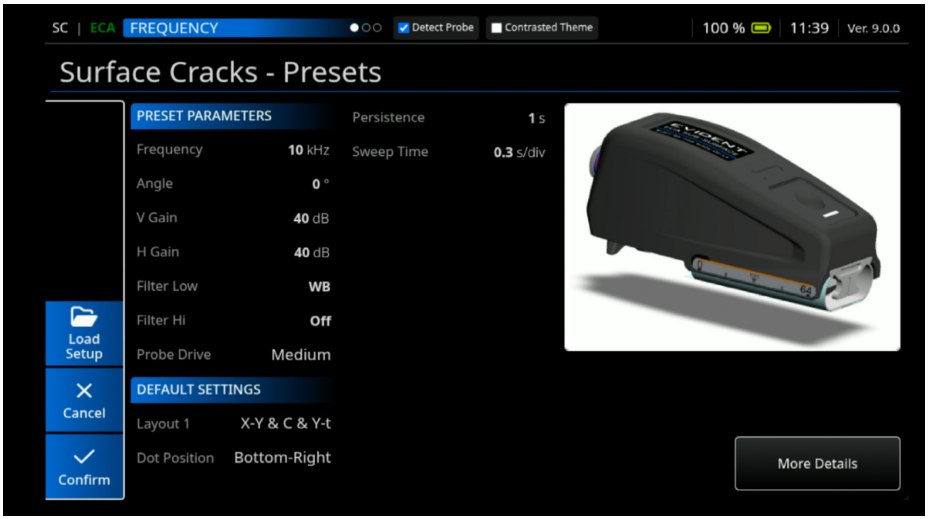


Figure 4-59 Sub-Surface Cracks Presets with ECA

3. Set the inspection **Frequency** to **4.8 kHz**.
4. Position the probe on the flawless area of the reference standard and press **Null** (See Figure 4-60 on page 164).

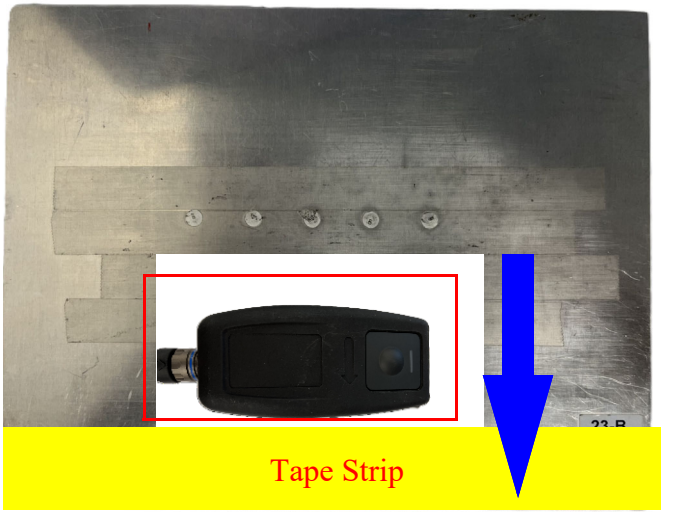


Figure 4-60 Position the Probe

5. Scan across the tape strip and press **Freeze** (See Figure 4-61 on page 164).

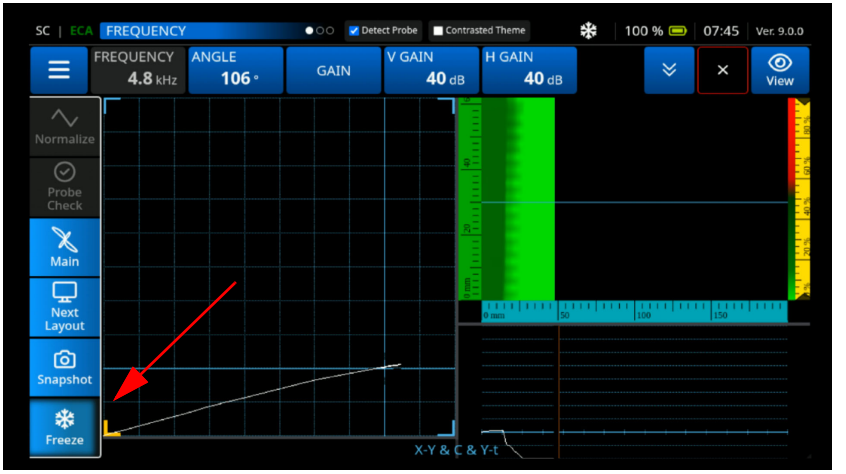
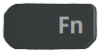


Figure 4-61 Press Freeze

6. Press **Fn** 

.
7. Using the **Scan** and **Scan Span** cursors, select the edge of the lift-off signal (See Figure 4-62 on page 165).

IMPORTANT

Scan Span uses a large amount of data to create a good normalization process.

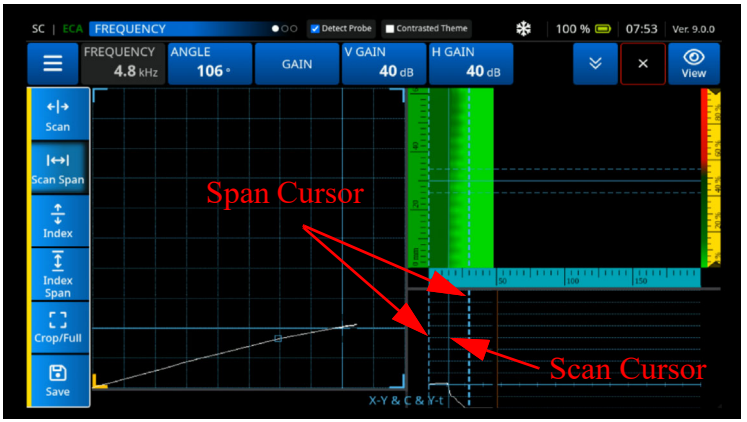
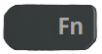


Figure 4-62 Lift Off Signal

8. Press **Fn** 

to **Normalize** (See Figure 4-63 on page 166).

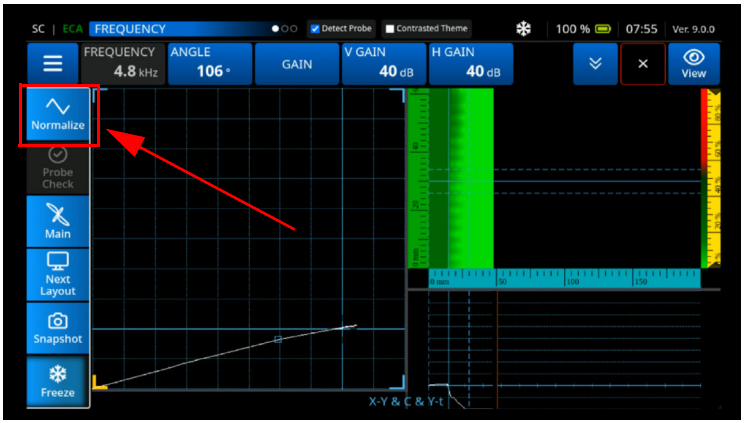


Figure 4-63 Normalize

9. Check the coherence of the normalization process and press **Done** to validate, or **Cancel** to abort (See Figure 4-64 on page 166).

Figure 4-64 Validate Normalization

10. Verify the normalization process icon appears in the upper ribbon (See Figure 4-47 on page 154).

IMPORTANT

If **Frequency** or **Probe Drive** values are changed, the normalization process is invalidated and deleted. The normalization process report is automatically saved in the capture file of the file manager.

Figure 4-65 Normalization Icon

11. Press **Freeze** to return to live mode.
12. Position the probe on the flawless area of the reference standard and press **Null** (See Figure 4-66 on page 168).

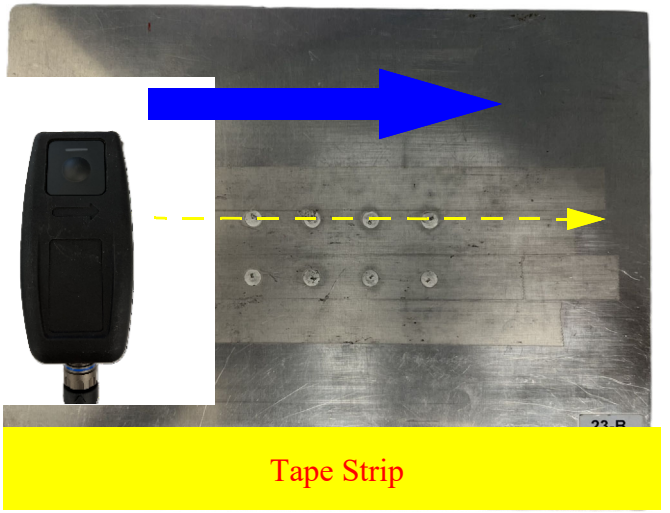


Figure 4-66 Position the Probe

13. Scan along the flawless rivet line and press **Freeze** (See Figure 4-67 on page 168).

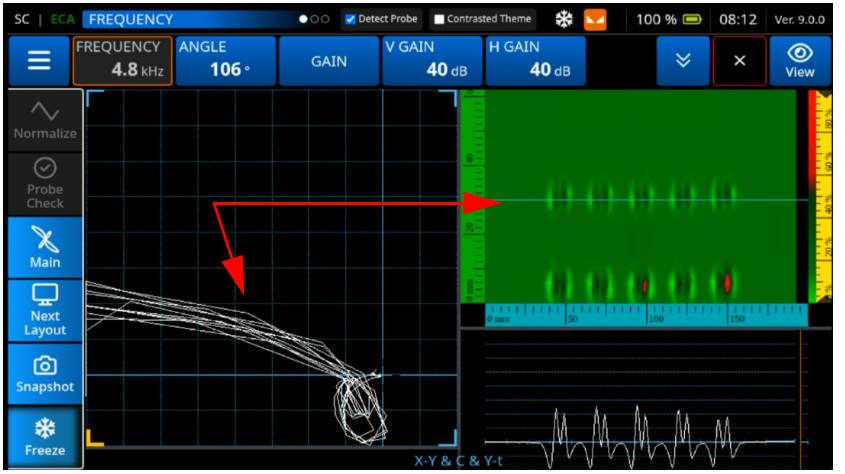


Figure 4-67 Press Freeze

14. Using the **Index** cursor, select the channel corresponding to the flawless rivet line.

15. Using the **Gain** setting, lower the gain until you obtain a rivet signal set at the horizontal (**Phase** adjustment may be required) and 8 divisions without signal saturation (See Figure 4-68 on page 169).

Figure 4-68 Lower Gain to Adjust Signal

16. Using the **V Gain**, set the signal to 2 vertical divisions (See Figure 4-69 on page 169).

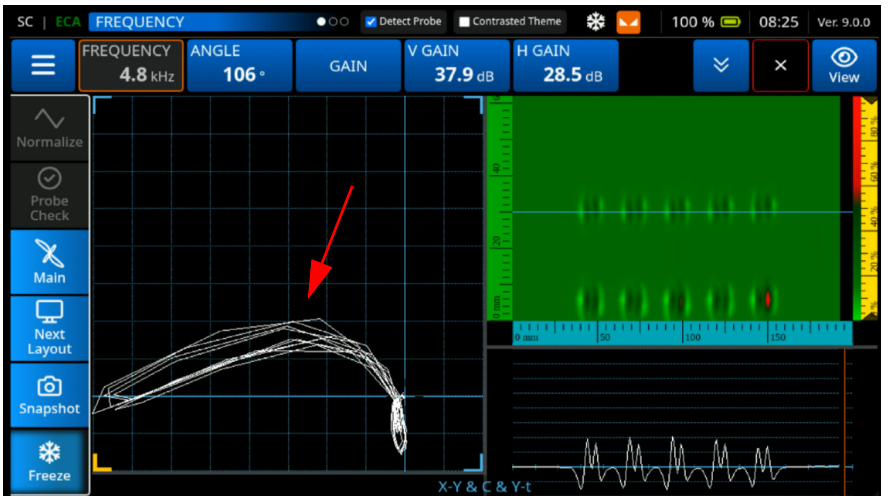


Figure 4-69 Adjust V Gain

17. Press **Freeze** to return to live mode.
18. Position the probe on the flawless area of the reference standard and press **Null** (See Figure 4-70 on page 170).

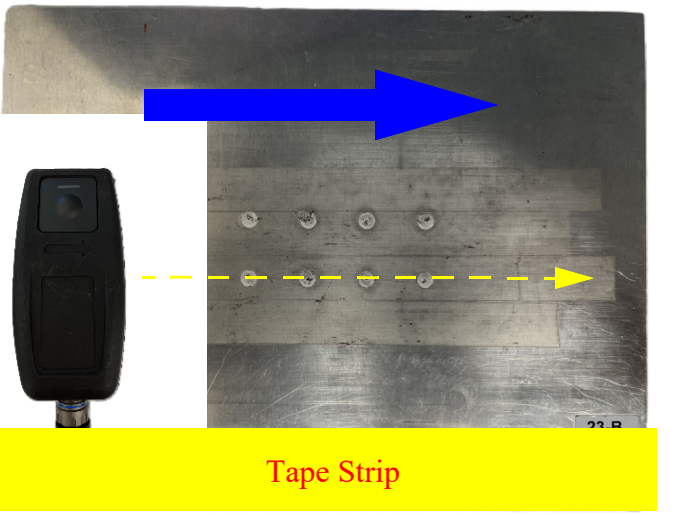


Figure 4-70 Position the Probe

19. Scan along the cracked rivet line and press **Freeze** (See Figure 4-71 on page 170).

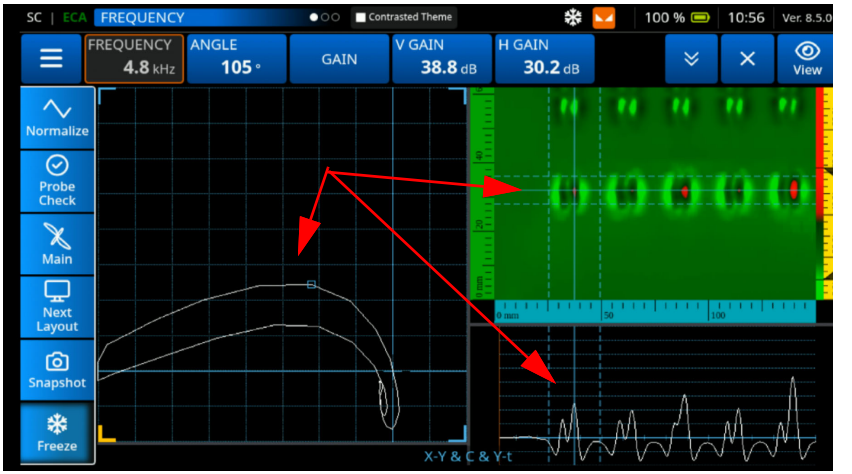


Figure 4-71 Press Freeze

20. Using the **Index** cursor, select the channel corresponding to the cracked rivet line.
21. Set the **Scan** and **Scan Span** cursors to select the first cracked rivet.
22. Press the **General** menu button .
23. Select **Display Settings**.
24. Select **Color Palette** (See Figure 4-72 on page 171).

Figure 4-72 Select Color Palette

25. Using the **Contrast** setting, adjust the red color to see the crack on the C-Scan (See Figure 4-73 on page 172).

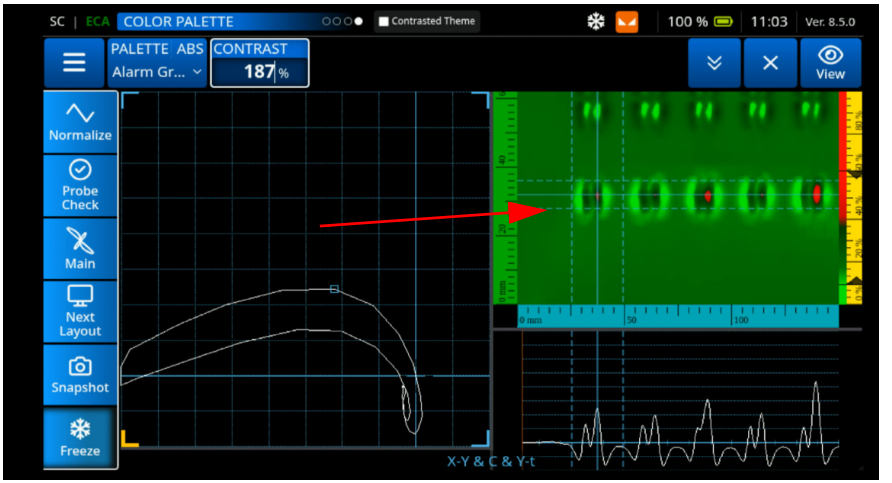


Figure 4-73 Adjust Red Contrast

26. Press **Freeze** to return to live mode.

4.4.3 Confirm the Calibration Setup

Complete the following steps to confirm the calibration setup.

1. Press **Next Layout** until you reach the **Full C-Scan** layout.
2. Position the probe at the left edge of the reference standard such that you can scan both rows of rivets at the same time (See Figure 4-66 on page 168).
3. Press **Null**.
4. Scan across the rivet lines and confirm that you acquire good readings (See Figure 4-74 on page 173).

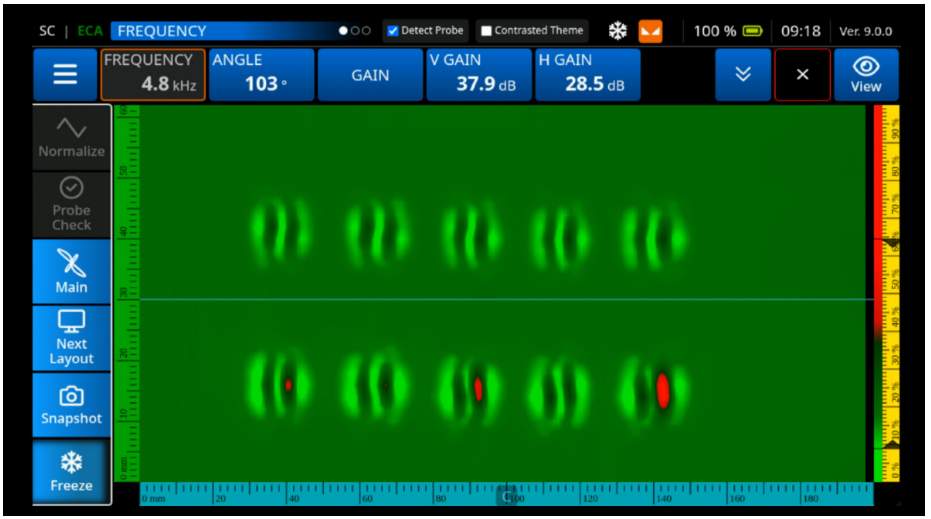


Figure 4-74 Confirm the Readings

4.4.4 Inspection Tips

Table 25 on page 174 provides inspection tips relevant to this procedure.

Table 25 ECA Sub-Surface Cracks w/Rivets Inspection Tips

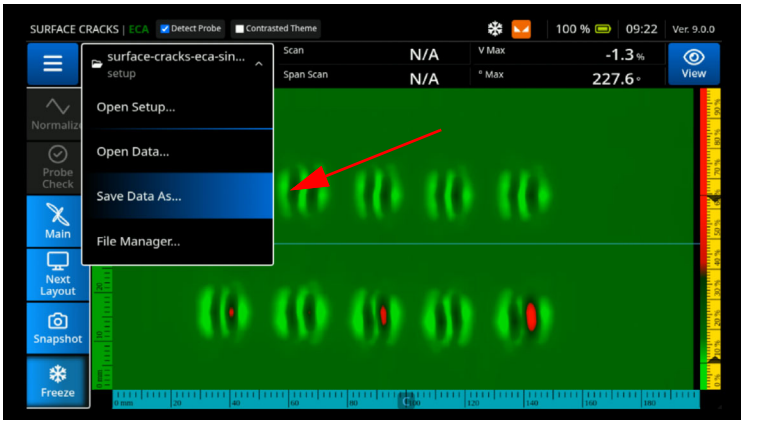
Inspection Tip	Details
Save Data	To save data, complete the following steps. 1. Open the drop-down menu and select **Save Data As** (See Figure 4-75 on page 174).  **Figure 4-75 Select Save Data As**

Table 25 ECA Sub-Surface Cracks w/Rivets Inspection Tips *(continued)*

Inspection Tip	Details
Save Data (Continued)	2. Name the data file and press **Valid** (See Figure 4-76 on page 175) then press **Freeze** to return to live mode.

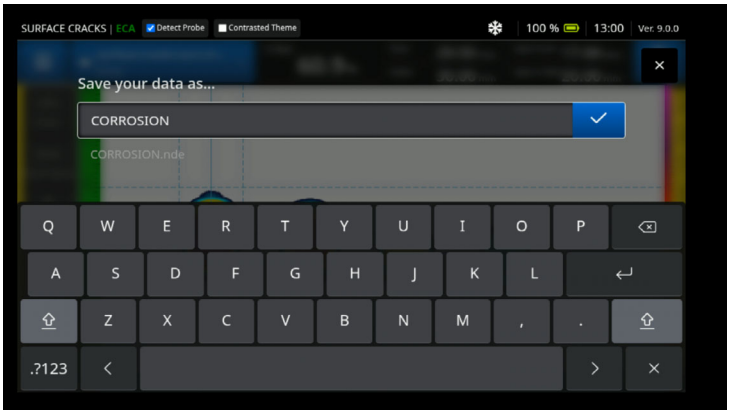


Figure 4-76 Name the Data File

Table 25 ECA Sub-Surface Cracks w/Rivets Inspection Tips *(continued)*

Inspection Tip	Details
Estimate Indication Size w/Cursors	To estimate the indication size using the cursors, complete the following steps. 1. In Freeze mode use the Index cursor to select the channel detecting the defect (See Figure 4-77 on page 176).  2. Using the **Scan** cursor, select the defect to be estimated. 3. Using the **Scan Span** cursor, select the two strip chart signal extremities corresponding to the defect length.

Figure 4-77 Select Channel

Table 25 ECA Sub-Surface Cracks w/Rivets Inspection Tips *(continued)*

Inspection Tip	Details
Estimate Indication Size w/Cursors (Continued)	4. The defect length is shown in the **Scan Span Reading** (See Figure 4-78 on page 177).  **Figure 4-78 Scan Span Reading**

4.5 Detecting Surface Cracks Around Fasteners - Aluminum Alloy

This is a procedure for all NORTEC 700 models using ECA to detect surface cracks around outboard skin fasteners on an aluminum alloy sample.

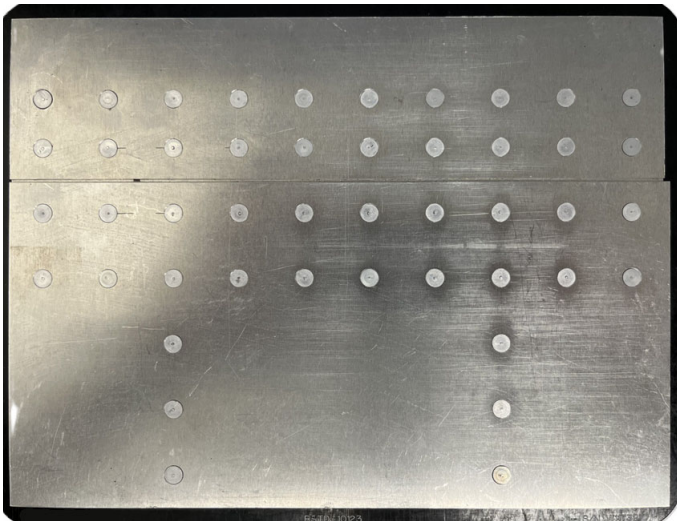
4.5.1 Materials Required

Table 26 on page 178 lists the products required for this procedure.

Table 26 Surface Cracks Around Fasteners Equipment

Classification	Equipment
Instrument	 **Figure 4-79 NORTEC 700i**
Probe	 **Figure 4-80 SURF-025-008-300k03M-AB-A**
Cable	1213913 (22P-22P)

Table 26 Surface Cracks Around Fasteners Equipment *(continued)*

Classification	Equipment
Reference Standard	 **Figure 4-81 RSTD-10123 (U8863080)**

4.5.2 Calibrate the Signal

Complete the following steps to calibrate the signal.

1. Connect the NORTEC 700i to the probe with the designated cable (See Table 26 on page 178).
2. Press **Confirm** to launch the SURF-026-008-300k03M-AB-A base use case (See Figure 4-82 on page 180).

Figure 4-82 Surface Cracks Presets with ECA

3. Press the **General** menu button .
4. Select **Display Settings**.
5. Select **Color Palette a**nd then select the **Corrosion** palette.(See Figure 4-83 on page 180).

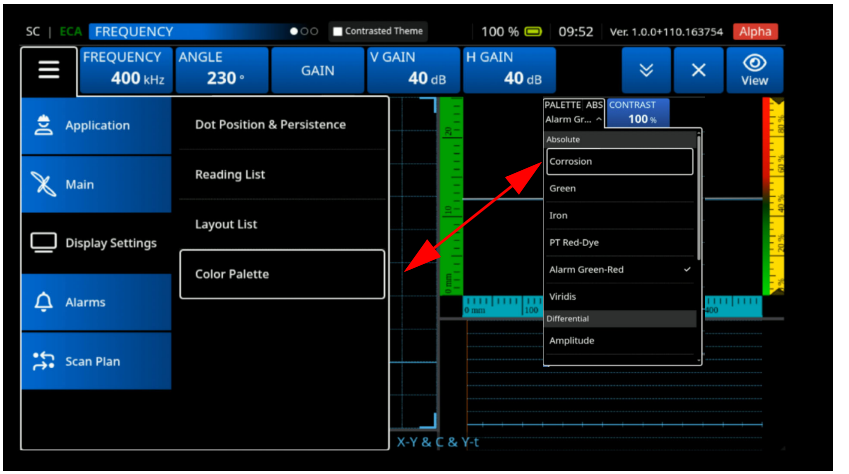


Figure 4-83 Select Color Palette

6. Position the probe on the flawless area of the reference standard (See Figure 4-84 on page 181).

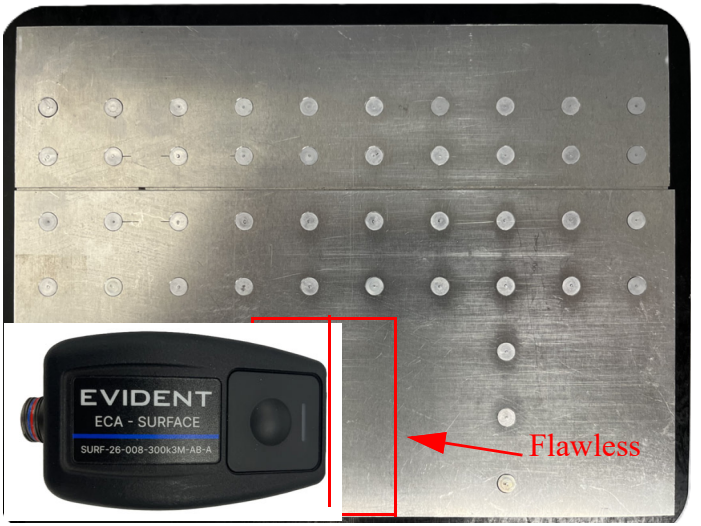
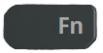


Figure 4-84 Position the Probe

7. Press **Fn** 

.

8. Press **Auto-Lift** 

(See Figure 4-85 on page 182).

Figure 4-85 Press Auto-Lift

9. Using the live **XY** plan, tilt the probe to confirm good lift-off signal in the left horizontal position (See Figure 4-86 on page 182).

Figure 4-86 Lift Off Signal

10. Position the probe on the row of fasteners on the reference standard (See Figure 4-87 on page 183).

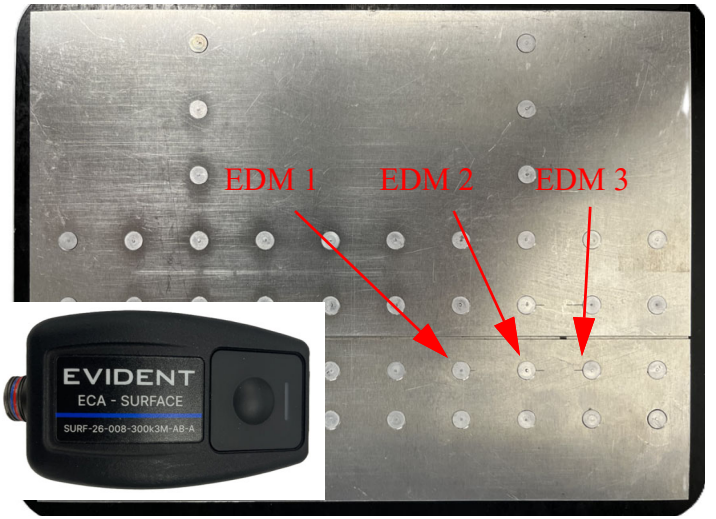


Figure 4-87 Position the Probe

11. Scan along the fasteners to the other side of the reference standard.
12. Press **Freeze**.
13. Using the **Scan** and **Index** cursors, select the flawless fastener signal.
14. Using the **Gain** setting, set the flawless fastener signal at **40% FSH** (See Figure 4-88 on page 183).

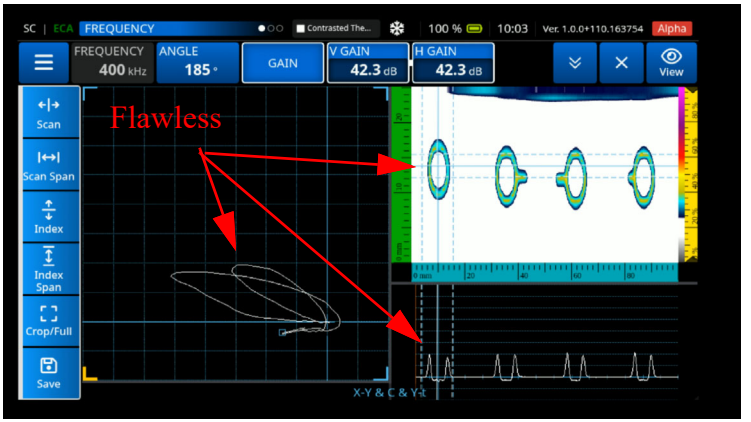


Figure 4-88 Set Fastener Signal to 40% FSH

15. Using the **Scan** and **Index** cursors, select the cracked fastener signal (See Figure 4-89 on page 184).

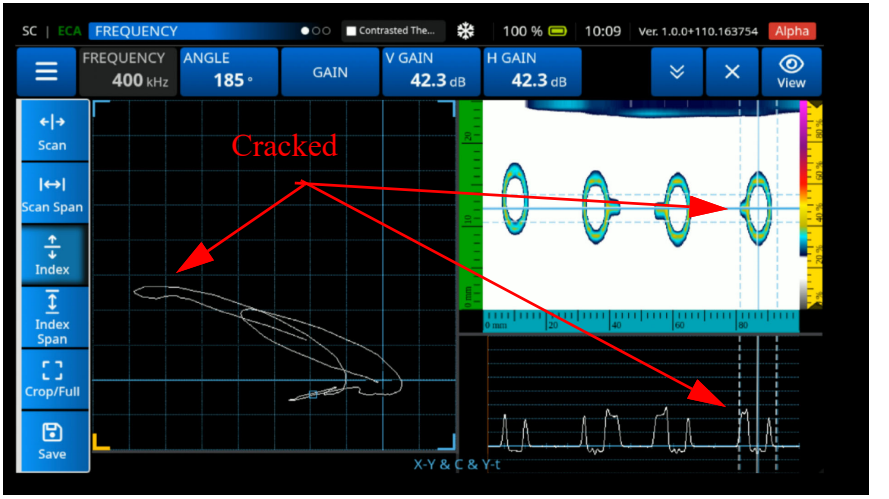


Figure 4-89 Select Cracked Fastener

16. Using the **V Gain** setting, set the cracked fastener signal to **50% FSH** (See Figure 4-90 on page 184).

Figure 4-90 Set V Gain for Cracked Fastener

17. Press the **General** menu button ☰.
18. Select **Display Settings**.
19. Select **Color Palette a**nd then select the **Corrosion** palette (See Figure 4-91 on page 185).

Figure 4-91 Select Corrosion Palette

20. Using **Contrast**, adjust the fastener signal on the C-Scan to obtain a red (around 40%) (See Figure 4-92 on page 185).

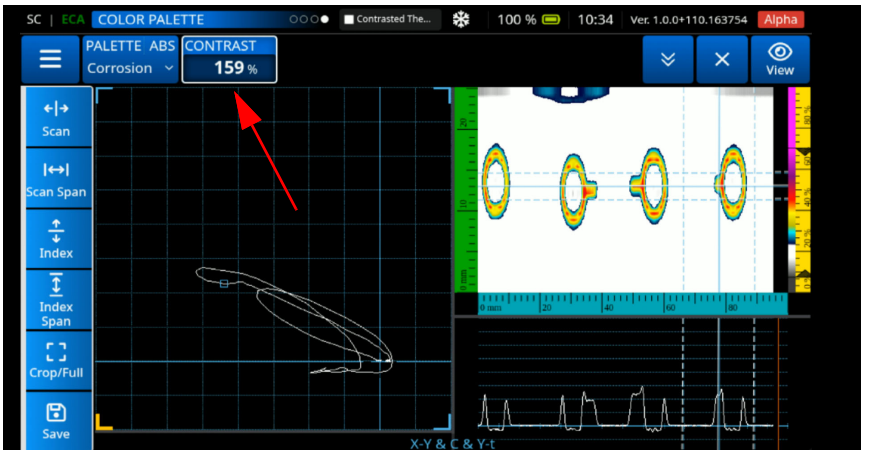


Figure 4-92 Adjust Contrast to Red

21. Press **Freeze** to return to live mode.
22. Press **Next Layout** until you reach the **Full C-Scan** view.
23. Scan the line of fasteners to confirm a good reading (See Figure 4-93 on page 186).

Figure 4-93 Scan the Fasteners

4.5.3 Inspection Tips

Table 27 on page 187 provides inspection tips relevant to this procedure.

Table 27 ECA Surface Cracks w/Fasteners Inspection Tips

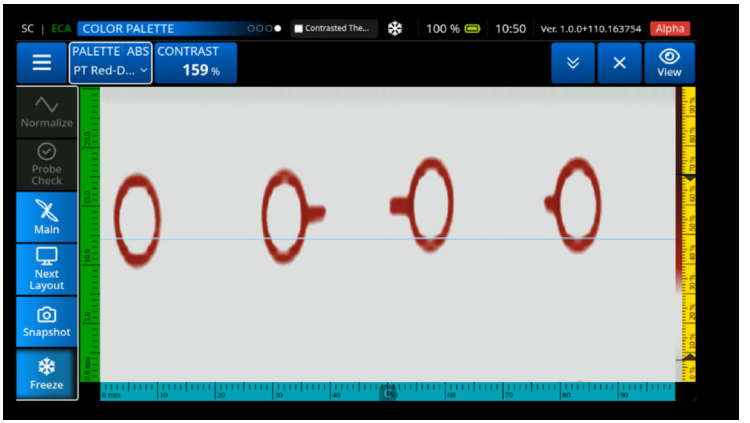
Inspection Tip	Details
Select the Right Color Palette	To select the right color palette, complete the following steps. 1. Press the **General** menu button ☰. 2. Select **Display Settings**. 3. Select **Color Palette a**nd then select the **Corrosion** palette. 4. Select the color palette you prefer (Red Dye shown) (See Figure 4-94 on page 187).  **Figure 4-94 Select Color Palette**

Table 27 ECA Surface Cracks w/Fasteners Inspection Tips *(continued)*

Inspection Tip	Details
Change the Scan Length	To select the right color palette, complete the following steps. 1. Press the **General** menu button ☰. 2. Select **Scan Plan**. 3. Select **One Line** (See Figure 4-95 on page 188).  **Figure 4-95 Select One Line**

Table 27 ECA Surface Cracks w/Fasteners Inspection Tips *(continued)*

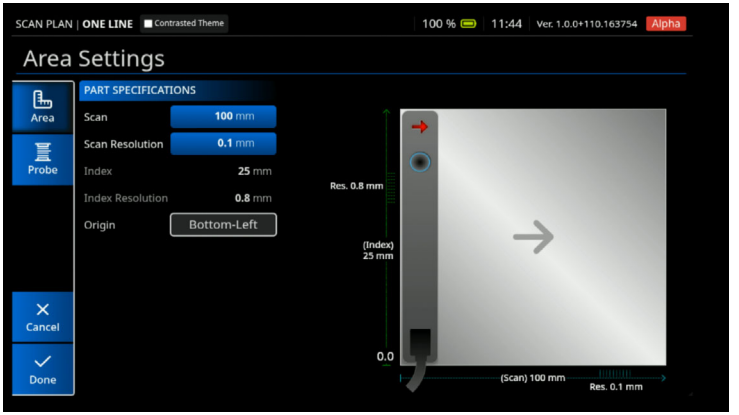
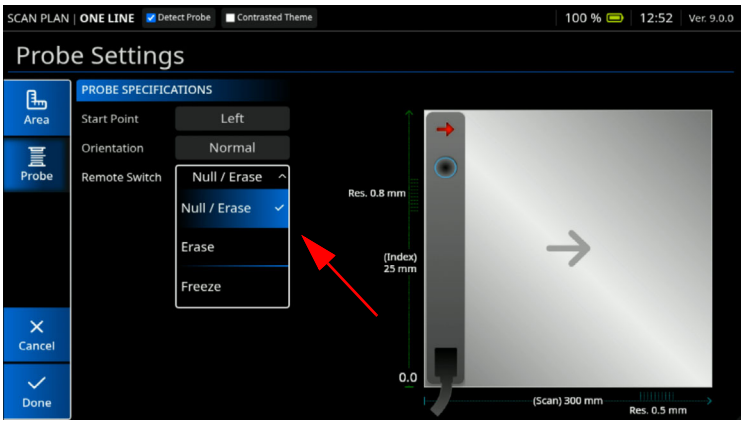
Inspection Tip	Details
Change the Scan Length (Continued)	4. In the **Area Settings**, set the **Scan Length** and **Scan Resolution** (See Figure 4-96 on page 189).  **Figure 4-96 Define Length and Resolution** 5. Press **Done** to validate the settings.

Table 27 ECA Surface Cracks w/Fasteners Inspection Tips *(continued)*

Inspection Tip	Details
Define the Probe Remote Switch Function	To define the probe remote switch function, complete the following steps. 1. Press the **General** menu button ☰. 2. Select **Scan Plan**. 3. Select **One Line**. 4. Select **Probe.** 5. Define a remote function for the probe (See Figure 4-97 on page 190).  **Figure 4-97 Define Remote Probe Function** 6. Press **Done** to confirm, or **Cancel** to abort.

5. NORTEC 700 Bolt Hole Inspection

The following sections contain information for inspecting bolt holes using the NORTEC 700..

5.1 Bolt Hole Inspection 6 Figure - Aluminum Alloy

This is a bolt hole inspection procedure in an aluminum allow layer stack.

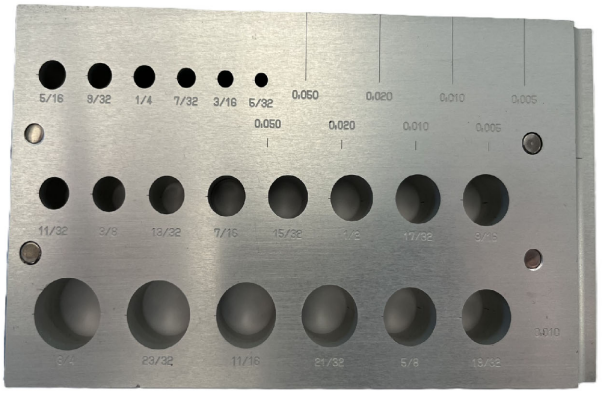
5.1.1 Materials Required

Table 28 on page 192 lists the products required for this procedure.

Table 28 Bolt Hole Inspection Equipment

Classification	Equipment
Instrument	 **Figure 5-1 NORTEC 700i**
Bolt Hole Probe Self-adjusting, Universal with "Bell" backshell Rotary Hole Probe 11.11 mm (0.437 in.) diameter, Self Expanding 2 in. (50.8 mm) working length. Operating frequency 200 kHz -3 MHz, Fischer 4 Pin connector, reflection differential coil configuration	 **Figure 5-2 SUB 28-32 (U8600488)**

Table 28 Bolt Hole Inspection Equipment *(continued)*

Classification	Equipment
Minimite Scanner Kit PowerLink MiniMite compatible scanner & Cable (Fischer) Includes: Minimite Scanner with Fischer Connector (9020266), Scanner Cable.	 **Figure 5-3** MiniMite Scanner **(**U8750012**)**
Reference Standard 7/16-inch hole	 **Figure 5-4 NRK-3AL (U8860523)**

5.1.2 Calibrate the Signal

Complete the following steps to calibrate the signal.

1. Connect the NORTEC 700i to the Minimite with the designated cable (See Table 28 on page 192). The Bolt Hole use case is activated via the Powerlink function.

2. Select the **Figure 6** application preset 

and press **Confirm** 

. The Figure 6 configuration launches ready to use (See Figure 5-5 on page 195).

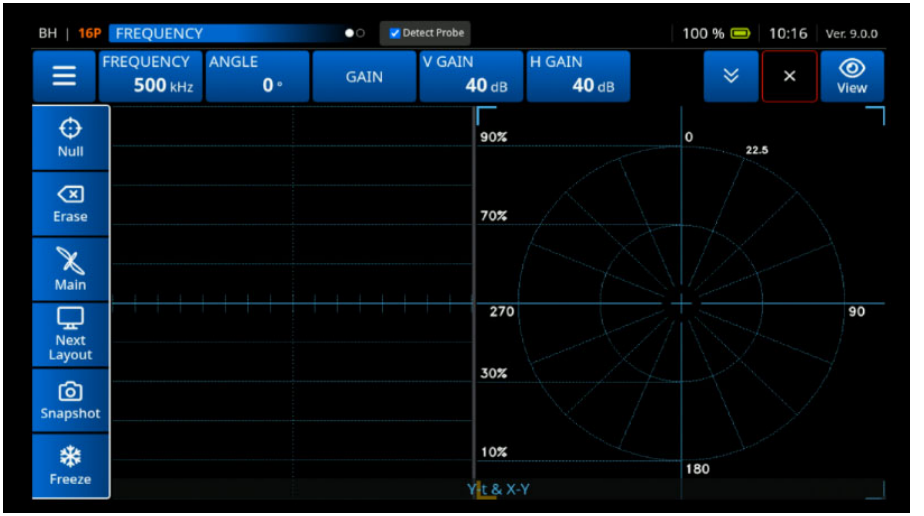


Figure 5-5 Bolt Hole Figure 6 Application Preset

3. Review the Figure 6 Inspection Parameters, which are already preset.(See Figure 5-6 on page 195).

Figure 5-6 Figure 6 Inspection Parameters

4. Start the Minimite and place the probe into the first layer of the 7/16-inch hole and press **Freeze** (See Figure 5-7 on page 196).

Figure 5-7 Position the Probe

5. Using the **Angle** and **Gain** settings, adjust the EDM notch signal to reach a vertical phase on the **XY** plan and **100% FSH** on the **Y(t)** view (See Figure 5-8 on page 197).

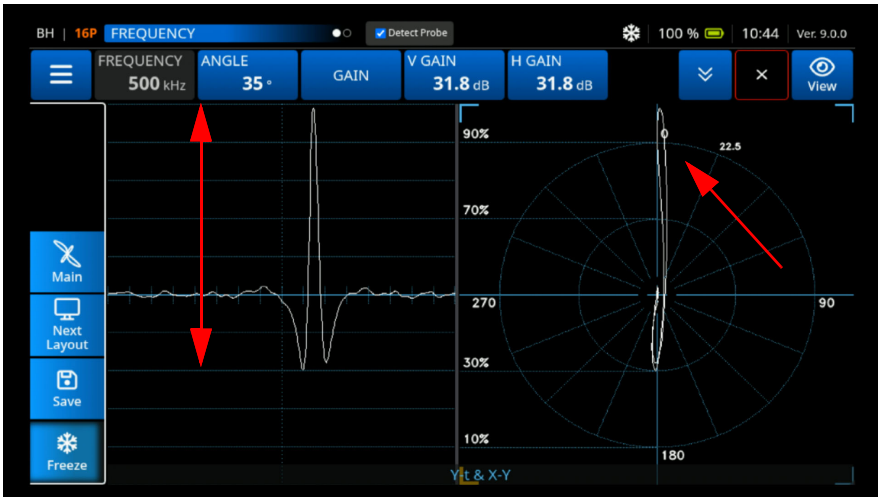


Figure 5-8 Adjust Angle and Gain

6. Press **Freeze** to return to live mode.
7. Start the Minimite and place the probe into the first layer of the 7/16-inch hole and press **Freeze** (See Figure 5-7 on page 196).
8. Set the **Sync Angle** to obtain a centered signal on the **Y(t)** view (See Figure 5-9 on page 197).

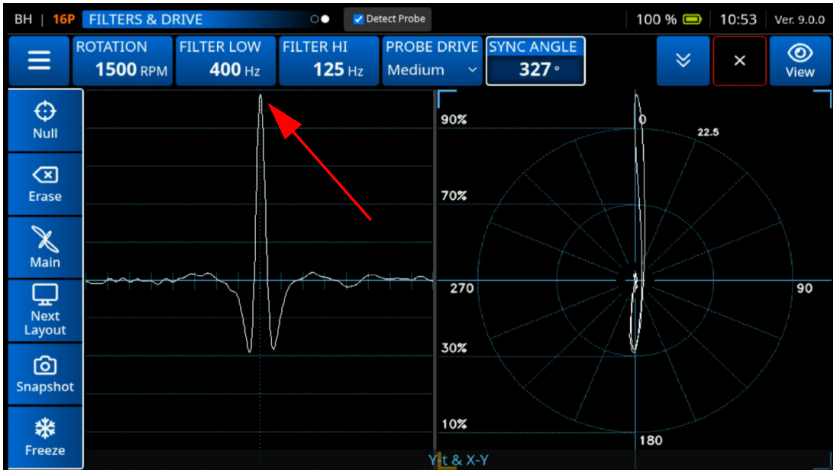


Figure 5-9 Set the Sync Angle

9. Add +6dB to the **Gain**.

5.1.3 Inspection Tips

Table 29 on page 198 provides inspection tips relevant to this procedure.

Table 29 Bolt Hole Inspection Tips

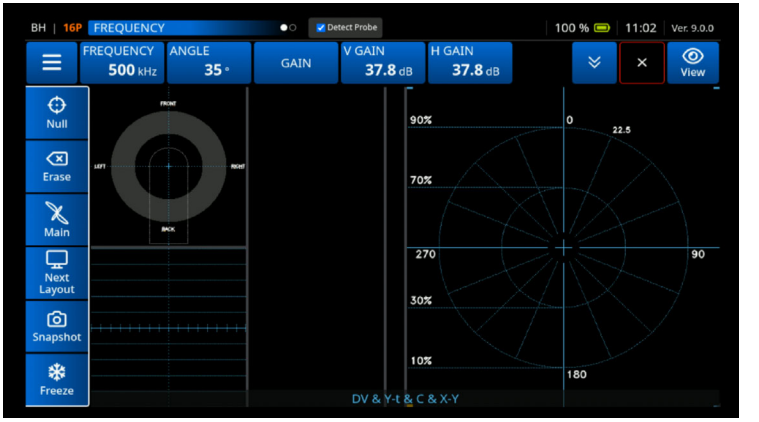
Inspection Tip	Details
Next Layout	To select the alternate layout, complete the following steps. 1. Press **Next Layout** until you reach the **DV & Y-t & C & XY** view (See Figure 5-10 on page 198).  **Figure 5-10 DV & Y-t & C & XY View**

Table 29 Bolt Hole Inspection Tips *(continued)*

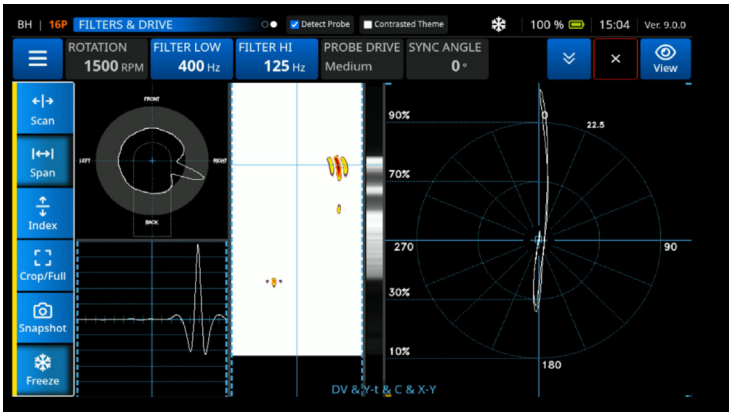
Inspection Tip	Details
Bolt Hole Acquisition	To view a bolt hole acquisition, complete the following steps. 1. Holding the probe in the air, press **Null**. 2. Scan the entire length of the 7/16-inch hole and press **Freeze** (See Figure 5-11 on page 199).  **Figure 5-11 Bolt Hole Acquisition**

Table 29 Bolt Hole Inspection Tips *(continued)*

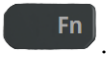
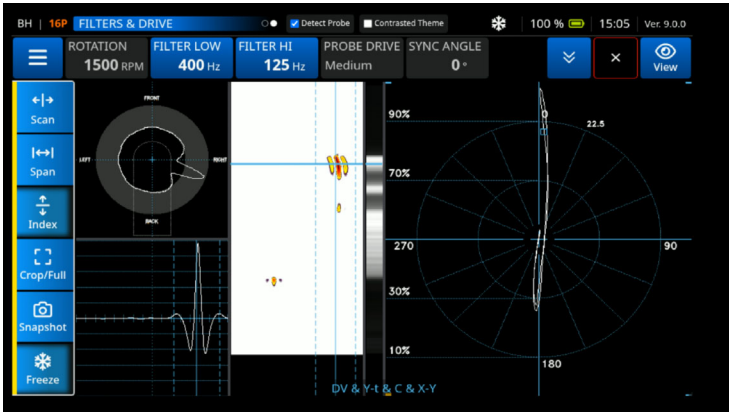
Inspection Tip	Details
Indication Selection	To select the indication, complete the following steps. 1. Press **Fn**  . 2. Using the **Index** cursor and the knob, select one of the two indications on the C-Scan (See Figure 5-12 on page 200).  **Figure 5-12 Select Indication**

Table 29 Bolt Hole Inspection Tips *(continued)*

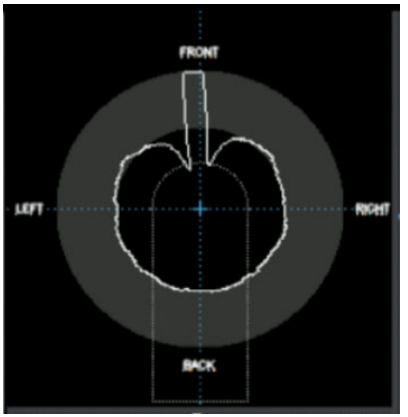
Inspection Tip	Details
Indication Analysis	To analyze the indication, complete the following steps. 1. The Defect view shows the position in the bolt hole according to the scanner orientation (See Figure 5-13 on page 201).  **Figure 5-13 Bolt Hole Defect View Orientation**

Table 29 Bolt Hole Inspection Tips *(continued)*

Inspection Tip	Details
Indication Analysis (Continued)	2. The C-Scan provides the position on the strip chart and the layer with the defect (See Figure 5-14 on page 202).

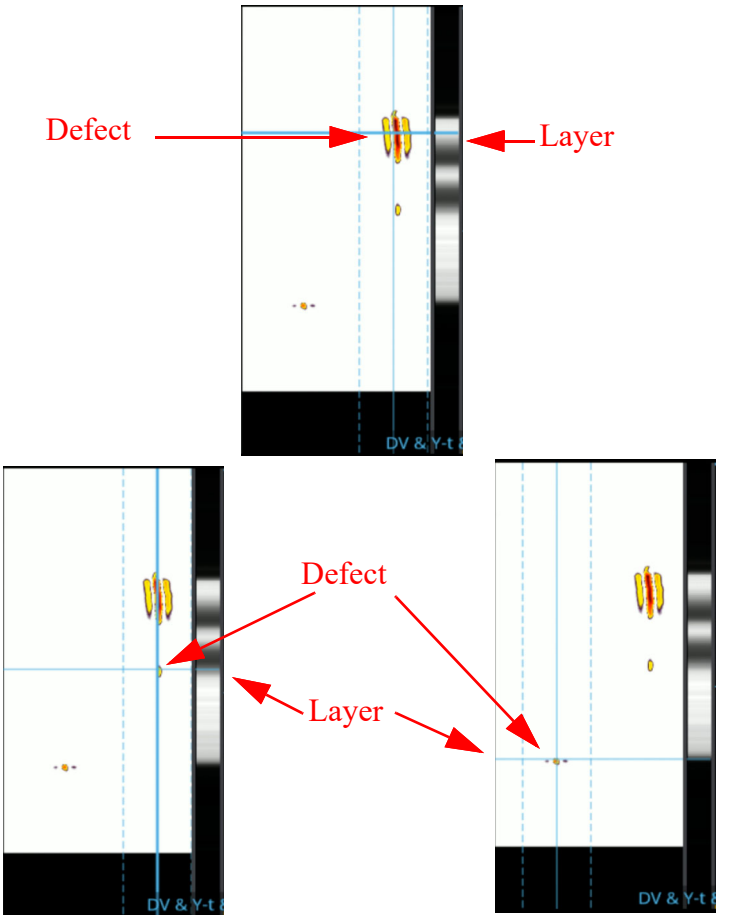


Figure 5-14 Bolt Hole C-Scan Orientation

Table 29 Bolt Hole Inspection Tips *(continued)*

Inspection Tip	Details
Indication Analysis (Continued)	3. The XY view shows the defect in phase and amplitude (See Figure 5-15 on page 203).

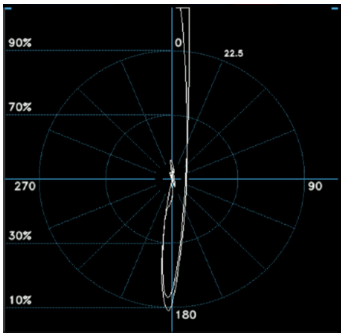


Figure 5-15 Bolt Hole XY View Orientation

6. NORTEC 700 Conductivity Measurement

The following sections contain information for measuring conductivity and nonconductive coating thickness using the NORTEC 700..

6.1 Measuring Conductivity and Nonconductive Coating Thickness

This is a conductivity measurement procedure.

6.1.1 Materials Required

Table 30 on page 206 lists the products required for this procedure.

Table 30 Conductivity Inspection Equipment

Classification	Equipment
Instrument	 **Figure 6-1 NORTEC 700X**
Conductivity Probe	The conductivity probe (U8690027) has the following properties: (See Figure 6-2 on page 207) • 60 kHz • Right Angle • 20 mm Tip Diameter • 25.4 mm (1.00 in.) Length
Cable	The cable is linked to the probe (See Figure 6-2 on page 207).

Table 30 Conductivity Inspection Equipment *(continued)*

Classification	Equipment
Reference Standard Conductivity standard block with 2 coupons (29.85% and 59.39%) and two 4 mil shim samples: 0.1mm (0.004 in.) thick (U8840160)	 **Figure 6-2 Conductivity Block (U8880111)/Probe (U8690027)**

6.1.2 Load the Presets

Complete the following steps to load the presets for conductivity.

1. Connect the NORTEC 700X to the probe (See Table 30 on page 206). The Conductivity use case is activated automatically.
2. Press **Calibrate** to move to calibration, or Load Setup to load a predefined setup file (See Figure 6-3 on page 208).

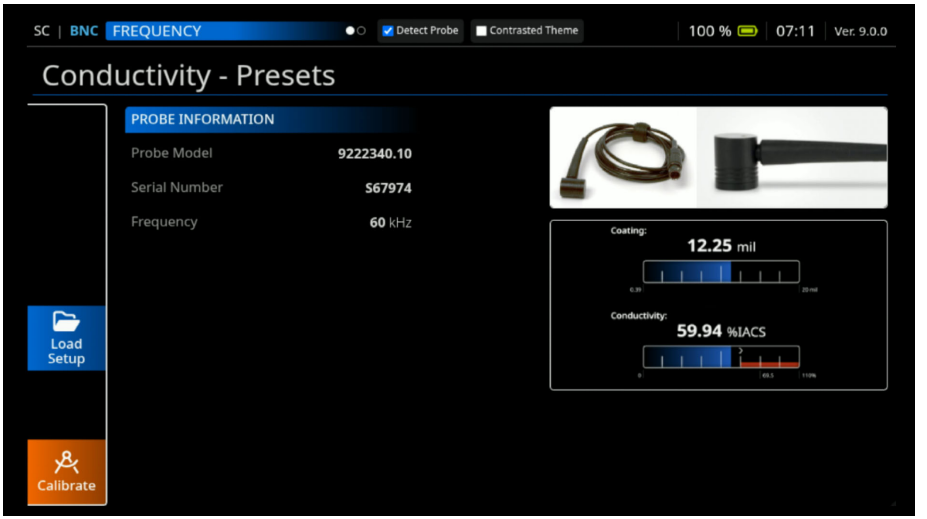


Figure 6-3 Conductivity Presets

6.1.3 Calibrate the Signal

Complete the following steps to calibrate the signal for conductivity.

1. Select the **Unit** to be used for the conductivity measurement.
2. Define the **CAL1** and **CAL2** conductivity reference values used for the calibration.
3. Define the **Unit** and **Shim** to be used for the calibration (See Figure 6-4 on page 209).

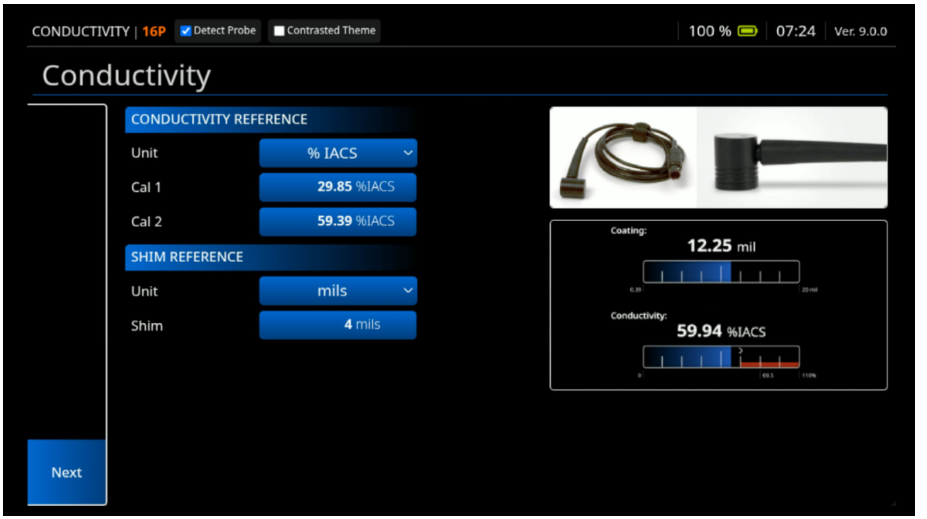


Figure 6-4 Conductivity Unit and Shim

4. Press **Next** to start the calibration process.
5. Follow the instructions as presented on the display (See Figure 6-5 on page 210).
   a) Place the probe on the lowest IACS percentage standard without the shim. Record the value by pressing **Store** or using the knob.
   b) Place the probe on the highest IACS percentage standard without the shim. Record the value by pressing **Store** or using the knob.
   c) Place the probe on the lowest IACS percentage standard with the 4-mil shim. Record the value by pressing **Store** or using the knob.
   d) Place the probe on the highest IACS percentage standard with the 4-mil shim. Record the value by pressing **Store** or using the knob.

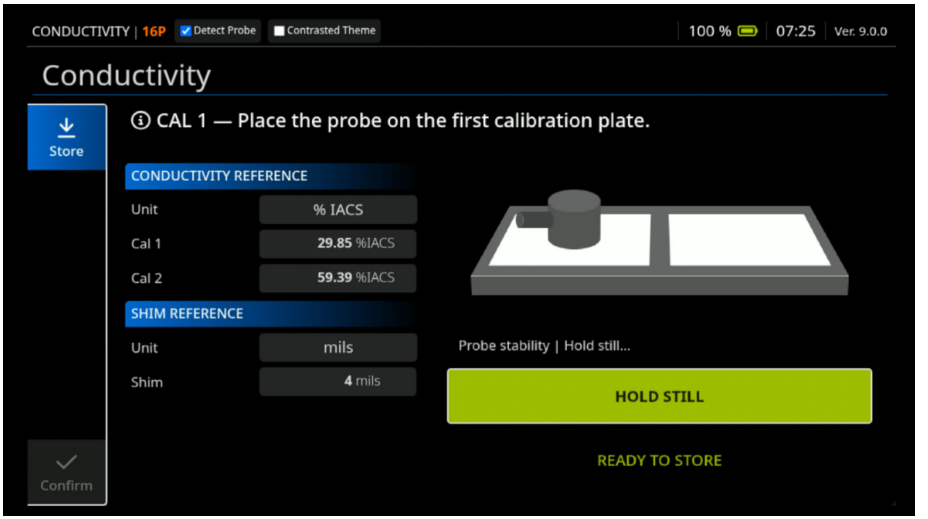


Figure 6-5 Calibrating Conductivity

6. When calibration is complete, press **Confirm** to accept or **Restart** to redo the calibration (See Figure 6-6 on page 210).

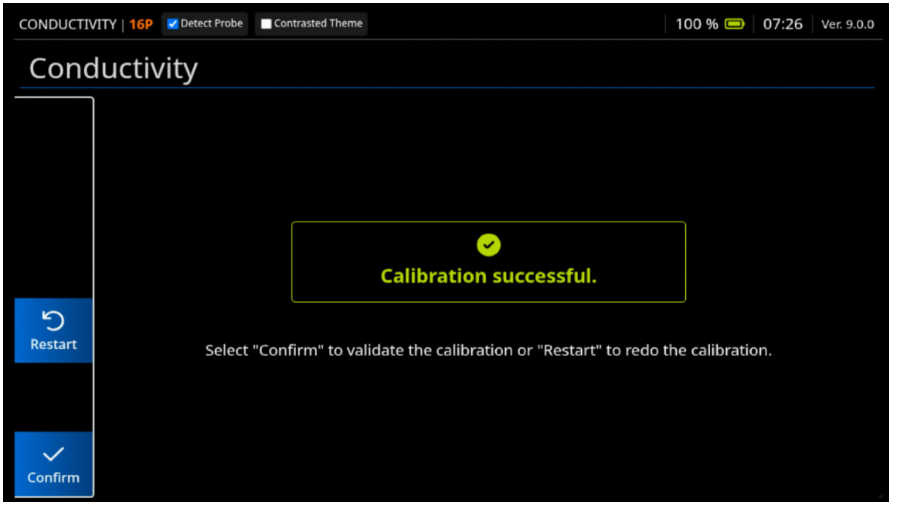


Figure 6-6 Calibration Complete

7. Begin your measurements (See Figure 6-7 on page 211).

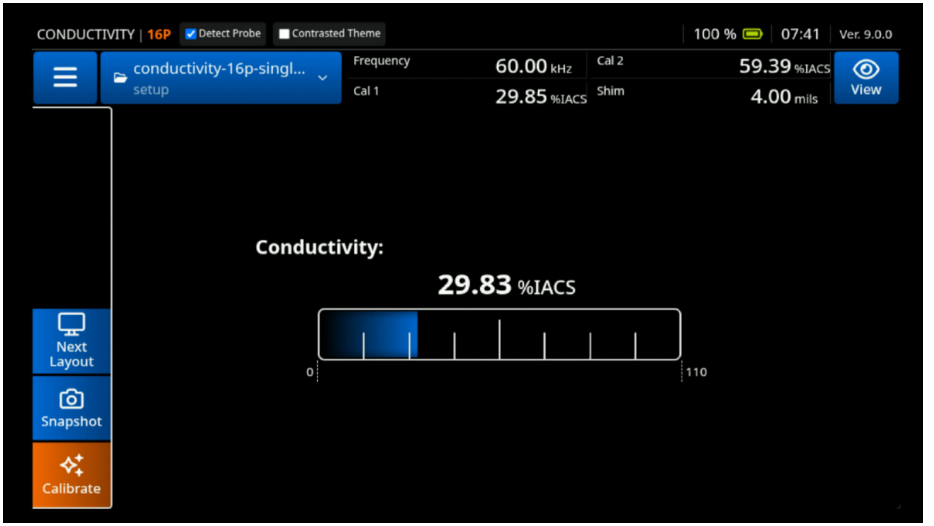


Figure 6-7 Calibrated NORTEC 700X Ready

6.1.4 Inspection Tips

Table 31 on page 212 provides inspection tips relevant to this procedure.

Table 31 Conductivity Measurement Tips

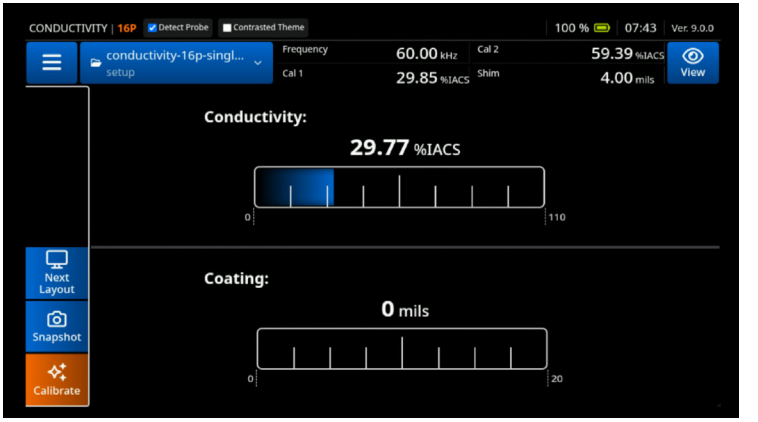
Inspection Tip	Details
Next Layout	Press **Next Layout** to change the layout view.(See Figure 6-8 on page 212).  **Figure 6-8 Change Layout View**

Table 31 Conductivity Measurement Tips *(continued)*

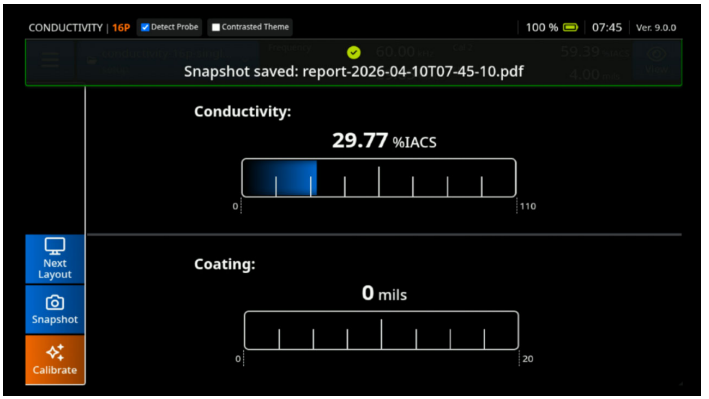
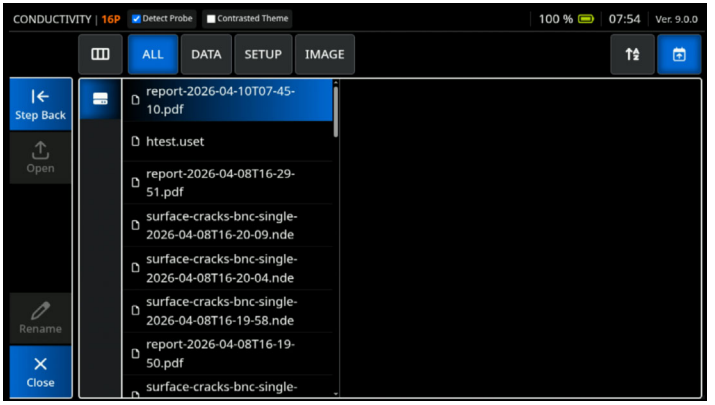
Inspection Tip	Details
Snapshot Function	To use the Snapshot function, complete the following steps. 1. Press **Snapshot** to capture the live measurement (See Figure 6-9 on page 213).  **Figure 6-9 Press Snapshot** 2. The system saves a report with the snapshot and all parameters to the **File Manager** (See Figure 6-10 on page 213).  **Figure 6-10 Report Saved**

Table 31 Conductivity Measurement Tips *(continued)*

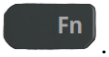
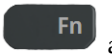
Inspection Tip	Details
Extract a Snapshot	To extract a Snapshot, complete the following steps. 1. Connect a USB stick to the NORTEC 700X. 2. Select the snapshot report. 3. Press **Fn**  . 4. Select **Copy To**. 5. Select the USB stick. 6. Press **Confirm**. The report is saved to the USB stick. 7. Press **Fn**  and **Close** to close the **File Manager**.

Table 31 Conductivity Measurement Tips *(continued)*

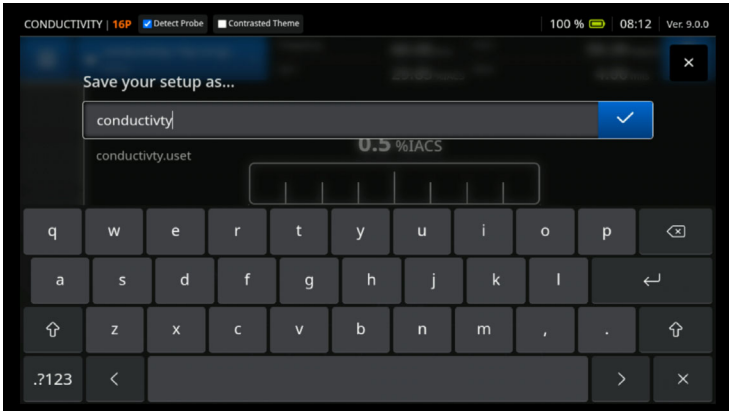
Inspection Tip	Details
Save Setup	To save the setup, complete the following steps. 1. Access the drop-down menu. 2. Select **Save Setup As** (See Figure 6-11 on page 215).  **Figure 6-11 Save Setup As** 3. Name the setup file and press **Valid** to confirm the save (See Figure 6-12 on page 215).  **Figure 6-12 Name Setup File**

Table 31 Conductivity Measurement Tips *(continued)*

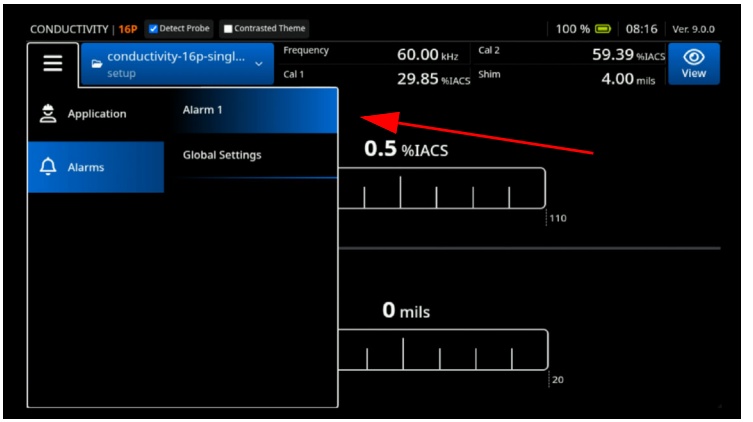
Inspection Tip	Details
Set Alarm	To set an alarm, complete the following steps. 1. Press the **General** menu button ☰. 2. Select **Alarms**. 3. Select **Alarm 1** (See Figure 6-13 on page 216).  **Figure 6-13 Select Alarm 1**

Table 31 Conductivity Measurement Tips *(continued)*

Inspection Tip	Details
Set Alarm (Continued)	4. Select the **Alarm Type** expected: — **Threshold** to define a marker and alarm condition (See Figure 6-14 on page 217).

Figure 6-14 Threshold Alarm

— **Material Sorting** to define two markers and alarm condition (See Figure 6-15 on page 217).

Figure 6-15 Material Sorting Alarm

7. Maintenance and Troubleshooting

The NORTEC 700 eddy current flaw detector is an industrial quality electronic instrument that requires very little maintenance. Most troubleshooting and maintenance procedures may be performed by the user. However, if problems persist, contact Evident for technical assistance.

7.1 Preventative Maintenance

The NORTEC 700 does not have many moving parts; it therefore only requires minimal preventative maintenance. The following sections detail these maintenance procedures.

To keep the Nortec700 in proper working order:

- Keep the unit's fan clean by removing any dust that has accumulated. You can remove the cover and use compressed air to blow dust from the unit.
- Immediately change any damaged or malfunctioning, fan components.
- Replace the touchscreen protector if it is overly dirty or damaged.

7.2 Lithium-Ion Battery

Under normal operating conditions, the NORTEC 700 can operate on battery power for at least 8 hours between charges (for standard operation). As the battery power depletes, the percentage of remaining battery life is displayed on the battery indicator. When the battery charge becomes insufficient, the NORTEC 700 automatically turns off to prevent damage to the battery. Recharge the battery using the charger and power cord supplied with the unit.

Disposing of Batteries

Batteries must be properly disposed of, in compliance with local regulations (see “Important Information — Please Read Before Use” on page 9).

7.2.1 Battery Compartment

The NORTEC 700 battery compartment cover allows you to quickly access the battery without the need for tools. Two thumb screws on the battery compartment cover secure it to the instrument case and ensure the compartment is sealed.

The battery compartment cover also has a small hole in the bottom center area that is covered on the inside by an environmentally sealed membrane vent. This vent is a safety feature that is required in the event that the instrument battery fails and emits gas. This vent must not be punctured.

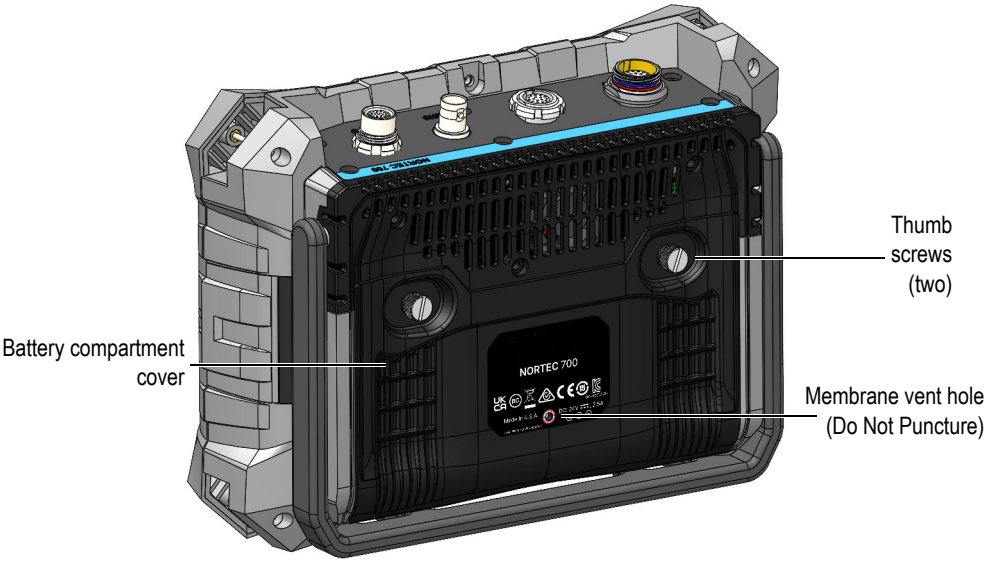


Figure 7-1 The battery compartment

The NORTEC 700 accepts one rechargeable lithium-ion battery pack (Evident P/N: 600-BAT-L-2 [U8760058]) that can be recharged inside the instrument or on the optional external charging base (Evident P/N: EPXT-EC-X [U8767043]).

WARNING

If the NORTEC 700 is to be used with a rechargeable battery, only use the Evident battery, P/N: 600-BAT-L-2 [U8760058]. Using any other type of battery might cause an explosion and injury.

7.2.2 Lithium-Ion Battery

The NORTEC 700 is normally used as a portable instrument powered by the lithium-ion battery and recharged via the charger/adapter (both are supplied with the NORTEC 700). When properly maintained, and when the instrument is operated under typical inspection conditions, the lithium-ion battery should provide between 8 and 10 hours of continuous operation if a rotating scanner is not connected. If an Evident rotating scanner is connected, the NORTEC 700 should provide between 6 and 8 hours of continuous operation.

IMPORTANT

The lithium-ion battery is not fully charged when the instrument is shipped. You must charge the battery for two to three hours before using battery power to operate the instrument.

Charging the Battery

The charger/adapter indicator light (battery charge LED) is red while the battery is charging, and turns green when the battery is fully charged. The approximate recharge time is two hours to three hours.

To install or replace the lithium-ion battery

1. Unfold the instrument stand (see Figure 7-2 on page 222).
2. At the back of the instrument, loosen the two thumb screws securing the battery compartment cover.
3. Remove the battery compartment cover.
4. Remove the battery and/or install the new battery in the battery compartment.

5. Check the cover gasket to make sure it is clean and in good condition.
6. Install the battery compartment cover at the back of the instrument, and then tighten the two thumb screws to complete the installation.

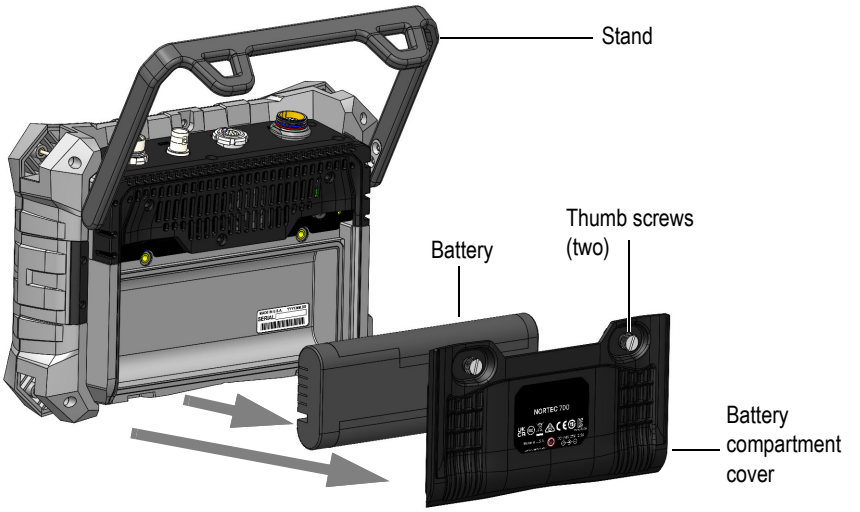


Figure 7-2 Removing the lithium-ion battery

7.3 Error Messages

The NORTEC 700 instrument may display error messages or indicate potential problems. If problems persist, contact Evident or your local sales and service representative for technical assistance.

No probe

When a probe is connected to the NORTEC 700 and this message appears, a failure in the identification circuit for the probe occurred. This problem is typically caused by a connection failure in the probe cable. Verify that the cable is connected to both the instrument and the probe, and that the cable is not damaged. Replace the cable (if a substitute cable is available), turn the instrument off, and then turn it back on.

Host is off-line

The NORTEC 700 is configured to send data through the peripheral port, but the NORTEC 700 fails to receive the correct "ready" (DSR) signal from the external datalogger. Verify the following:

- External device is powered on.
- External device is set to "serial" or "I/O" mode and is not malfunctioning.
- Appropriate data logging software is running (if the receiving device is a PC).
- Interface cable is securely fastened at both ends.
- Cable is compatible with the equipment and not damaged.

NOTE

The serial communication parameters MUST match those of the external device.

No data or garbled data received by external datalogger/host

If the NORTEC 700 is configured for serial mode, verify that the Comport parameters in the communication menu of the NORTEC 700 and external datalogger agree. Often, an incorrect Baud Rate is the problem.

7.4 Instrument Cleaning

Clean the unit's external surfaces as needed. This section provides the appropriate procedure for cleaning the instrument.

CAUTION

Do not use abrasive products or powerful solvents, which could damage the unit.

7.4.1 Cleaning the Case

To clean the case, complete the following steps.

1. Make sure that the NORTEC 700 is turned off and the power cord is disconnected.
2. Disconnect all cables and connectors.

3. Make sure that the battery compartment door is closed correctly.
    - To restore the instrument's original finish, clean the casing with a soft cloth.
    - To remove persistent stains, use a damp cloth with a mild, soapy solution. Do not use abrasive products or powerful solvents, which could damage the finish

After you have finished cleaning the case, and the connector protectors are removed, make sure that the connectors are dry before connecting anything to them. If they are wet, carefully dry them, or let them air dry

7.4.2 Cleaning the Screen and Screen Protector

Never use abrasive products or powerful solvents to clean the NORTEC 700 touchscreen and screen protector. Clean the touchscreen and screen protector using a damp cloth moistened with a standard, evaporating glass cleaner. If necessary, remove any paper-towel residue with a soft-bristle brush

7.4.3 Cleaning or Changing the Fan

If the cooling fan is dirty or functioning incorrectly, the NORTEC 700 may overheat. To clean or change the fan, complete the following steps.

1. Check for presence of dust or dirt in the fan openings and carefully blow it away using compressed air in any direction from the exterior of the enclosure (maximum pressure 207 kPa [30 psi]).
2. If it is difficult to clean from the exterior of the enclosure, or if the fan appears to need servicing, remove the fan cover. If necessary, also remove the fan.
3. Carefully clean the part surfaces with compressed air or a soft dry cloth.

If the fan is damaged or malfunctioning, replace the fan cover sub-assembly (See "Replacing the Fan Cover Sub-Assembly" on page 225).

7.5 Probe Care and Diagnostics

The probe is reliable and durable as long as it is carefully handled:

- Do not drop the probe on hard surfaces.
- Do not hit the probe with any objects.

The user may perform tests from the keypad to aid in localizing a suspected instrument problem, or simply to check functionality.

7.6 Safe and Proper Probe Connection

To safely and properly connect a probe:

- Ensure the probe and device connectors are clean.
- Identify the device connector that fits the probe cable.
- The connector function is noted right beside the connector.
- Connect the probe cable and ensure the connector is secure.

IMPORTANT

Do not use tools to mate or unmate connectors.
Do not overtighten.

7.7 Replacing the Fan Cover Sub-Assembly

The fan cover sub-assembly has an integrated fan unit (PN 10-053984-00). To replace the fan cover sub-assembly, complete the following steps.

1. Remove the two M3x6mm screws (PN 10-055967-00) and one M3x14mm screw (PN 10-055968-00) shown in Figure 7-3 on page 226 with a Phillips head screwdriver.
2. Remove the fan cover sub-assembly from the unit.
3. Install the new fan cover sub-assembly onto the unit.
4. Secure the fan cover sub-assembly with the screws removed in step 1.

Figure 7-3 Replacing the fan cover sub-assembly

7.8 Service Considerations

Except as expressly noted in this document, do not service any Evident product yourself. Opening or removing the external housings may expose you to electric shock and subject the instrument to mechanical damage, and it also voids the warranty.

IMPORTANT

Any required servicing must be performed by Evident or one of its authorized service representatives. Failure to observe this condition could result in voiding of the warranty.

7.9 Electrical Precautions

The following list of guidelines is essential for safe electrical operation of the NORTEC 700:

- Install the battery into the NORTEC 700 carefully. Do not damage the connections.
- Use the correct battery or AC power adaptor for the NORTEC 700.
- Do not overload the electrical outlet, power strip, or convenience receptacle.
- Do not exceed 80% of the branch circuit rating.

7.10 Cables and Cords

The NORTEC 700 is delivered with one AC power adaptor (standard).

The AC power adaptor has a standard IEC 3 conductor power cord that includes a safety grounding plug. The power cord and plug are chosen in compliance with local electrical codes and standards.

Safe and proper handling of cables and cords

- Connect the power cords to a properly grounded and easily accessible power outlet.
- Do not defeat or bypass the ground conductor.
- Install all cords in accordance with applicable regulations.

7.11 Replacing the Touchscreen Protector

This section explains how to replace the touchscreen protector. To replace the touchscreen protector, complete the following steps.

1. Remove any dust or dirt on the touchscreen (dust and dirt cause bubbles to appear on the protective film). See “Instrument Cleaning” on page 223.

TIP

Use a can of compressed air to blow away any dust particles that may be on the touchscreen and screen protector.

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2. Remove the label on the new protector marked No. 1 and peel away the protective film. Avoid touching the back of the screen protector after the protective film on the back is peeled away. Doing so will leave a trace of your finger prints
3. Align the protector into the correct position on the screen, and slowly install the screen protector working from one side to the other, pushing out any bubbles as you work.
4. Remove the label marked No. 2 and peel away the film on the front. Provided that there is no dust trapped underneath, all small bubbles will dissipate within 48 hours.

7.12 Troubleshooting

This section proposes some possible solutions to problems you may experience during operation of the NORTEC 700 (see Table 32 on page 229). If these measures do not restore the NORTEC 700 to full functionality, please contact Evident After-Sales Service. When contacting a service center, please provide the instrument model, serial number, current software version, and a brief description of your issue. The instrument information can be found in the “About Device” screen.

Table 32 Troubleshooting guide

Problem	Possible solutions
The NORTEC 700 does not turn on.	Ensure the battery is securely installed and sufficiently charged. OR Try using the AC power adaptor to power the NORTEC 700.

Appendix A: Specifications

This appendix outlines the specifications for the NORTEC 700 (see Table 33 on page 231).

Table 33 NORTEC 700 Specifications

	Specifications
Housing Dimensions (W×H×D)	230.7 mm × 166.9 mm × 71.9 mm (9.1in. × 6.6in. × 2.8in.)
Weight	1.79kg (3.95 lb), including lithium-ion battery
Indoor/Outdoor Use	Suitable for indoor and outdoor usage.
Display Type	7-inch TFT LCD (thin-film-transistor liquid crystal display)
Display Dimensions (W×H, Diagonal)	154.2 mm × 85.9 mm, 177.8 mm (6.1in. × 3.4in., 7.0in.)
Power (DC-IN voltage)	24 VDC (60 W)
DC Connector	Circular, 2.5 mm pin adapter, center-positive
DC Supply External (suggested charger model)	EP-MCA-X, where X is the power cord model (Table 36 on page 234) AC power supply: PAA060M 60W
AC Adapter Power Requirements	Input voltage = 90-260 VAC Input current = 1.7/0.85 @ 90/180 VAC AC frequency = 50/60 Hz Efficiency ≥ 80% Output voltage = 24 VDC Output current = 2.5 ADC
Battery Model and Type	600-BAT-L-2 (Li-ion) [U8760058]
Battery Quantity	1
Battery Size (H×L×W)	22.3 mm × 214.6 mm × 58.9 mm (0.9in. × 8.5in. × 2.4in.)

Table 33 NORTEC 700 Specifications *(continued)*

	Specifications
Battery Storage	-20 °C to 50 °C (-4 °F to 122 °F) at 80% relative humidity
Battery Charge Time	2-3 hours
Battery Life	Over 8 hours for standard operations, and 6-8 hours when operating the rotating scanner or ECA inspection.
Operating Temperature	-10 °C to 50 °C (14 °F to 122 °F)
Storage Temperature	-20 °C to 50 °C (-4 °F to 122 °F) at 80% non-condensing relative humidity [with batteries] -20 °C to 70 °C (-4 °F to 158 °F) at 80% non-condensing relative humidity [without batteries]
Altitude	2000 meters
Drop Test	MIL-STD-810H, Method 516.8 Procedure IV, 26 drops, (packaged & unpackaged for shipment) – Transit Drop
Shock Test	MIL-STD-810H, Method 516.8 Procedure I, 6 cycles each axis, 15G, 11 ms half sine shock testing
Vibration Test	MIL-STD-810H, Method 514.8, Procedure I, Annex C, Figure 514.8C-5, general exposure: 1 hour each axis vibration test
IP Rating	Rated IP65
Wet Location	Suitable for wet location.
Pollution Degree	Degree 2
Operating System	Embedded Linux
Peripheral interface	(1) Peripheral port (supports USB, display port over USB alternate mode, Ethernet over USB with external adapter [not included])
Wi-Fi®	Ezurio ST60-2230C-U (omnify PN 10-046144-00), supports dual band 2x2 802.11ac/a/b/g/n WLAN (actual performance is a function of the environment)
Bluetooth	Ezurio ST60-2230C-U (omnify PN 10-046144-00), supports Bluetooth 5.1 (actual performance is a function of the environment)
External Fan	Evident 10-052128-00 (IP54 rated), user-replaceable PN 10-053984-00
Data Storage	64 GB internal storage
Inputs/Outputs	19-pin I/O port (female): Refer to Table 35 on page 233 for the pinout information.

Table 34 Network Standards and Specifications

Wireless Characteristic	Specifications
Network standard	IEEE 802.11a, 802.11b, 802.11e, 802.11g, 802.11h, 802.11i, 802.11n, 802.11r, 802.11ac
Bluetooth	Bluetooth 5.1
Transmission frequency range	2.4-5.925 GHz
Frequency bands & maximum RF power	2.4 to 2.485 GHz – 11 dBm for Bluetooth 2.4 to 2.485 GHz – 7 dBm for Bluetooth Low Energy 2.4 to 2.472 GHz – 18 dBm per band for WiFi 5.15 to 5.925 GHz – 18 dBm per band for Wi-Fi
Modulation types	BPSK, QPSK, CCK, 16-QAM, 64-QAM, and 256-QAM

Table 35 NORTEC 700 Input/Output Pinouts

Pin	Pin Name	Direction	Current	Level	Description
1	RTN	-	N/A	N/A	Ground Return
2	ENC1_PHA_CLK	IN	N/A	5v Logic	Encoder 1, Phase A or Clock
3	ENC1_PHB_DIR	IN	N/A	5v Logic	Encoder 1, Phase B or Direction
4	ENC2_PHA_CLK	IN	N/A	5v Logic	Encoder 2, Phase A or Clock
5	ENC2_PHB_DIR	IN	N/A	5v Logic	Encoder 2, Phase B or Direction
6	IO_BUGGY_DETECT_IN	IN	N/A	5v Logic	Hot Plug Detect for IO Buggy Accessory (active low)
7	IO_ERASE_IN	IN	N/A	5v Logic	Input to trigger Erase (active low)
8	RTN	-	N/A	N/A	Ground Return
9	PWR_5V0D	OUT	1A	5v	Digital 5v power supply
10	ALARM3	OUT	±25mA	5v Logic	Alarm 3 output
11	RESERVED	OUT	±25mA	5v Logic	Reserved, do not connect
12	HEARTBEAT_OUT	OUT	±25mA	5v Logic	Heartbeat output

Table 35 NORTEC 700 Input/Output Pinouts*(continued)*

Pin	Pin Name	Direction	Current	Level	Description
13	RTN	-	N/A	N/A	Ground Return
14	RESERVED	IN	±25mA	5v Logic	Reserved, do not connect
15	REMOTE_PWR	IN	N/A	5v Logic	Power on/off pulse (active low)
16	IO_NULL_IN	IN	N/A	5v Logic	Input to trigger Null (active low)
17	RESERVED	IN	N/A	5v Logic	Reserved, do not connect
18	ALARM1	OUT	±25mA	5v Logic	Alarm 1 output
19	ALARM2	OUT	±25mA	5v Logic	Alarm 2 output

Table 36 NORTEC 700 standard accessories

Part Number	Description	Notes
10-041262-01MU	Leaflet	
600-BAT-L-2	Battery, Smart Li-Ion 10.8V 6.9AH w/Label	
10-039784-00	700 series instrument screen protector	
10-039773-00	700 series transport case	
USBMAN-N700	NORTEC 700 full manuals USB key (all languages)	
9122083.03	Lemo ECT probe series cable, 1.8m (6ft) length	
10-051673-00	ECA probe series cable, 2.5m (8.2ft) Length	Only available with NORTEC 700 i model
10-059969-00	N700 Getting Started Graphic Card	
EP-MCA-A	Charger/adapter (DC supply) with configured power cord - Australian	
EP-MCA-B	Charger/adapter (DC supply) with configured power cord - Brazilian	
EP-MCA-C	Charger/adapter (DC supply) with configured power cord - Chinese	
EP-MCA-D	Charger/adapter (DC supply) with configured power cord - Danish	
EP-MCA-E	Charger/adapter (DC supply) with configured power cord - European	

Table 36 NORTEC 700 standard accessories

Part Number	Description	Notes
EP-MCA-I	Charger/adapter (DC supply) with configured power cord - Italian	
EP-MCA-J	Charger/adapter (DC supply) with configured power cord - Japanese	
EP-MCA-K	Charger/adapter (DC supply) with configured power cord - UK	
EP-MCA-P	Charger/adapter (DC supply) with configured power cord - Pakistan	
EP-MCA-S	Charger/adapter (DC supply) with configured power cord - South Korean	
EP-MCA-U	Charger/adapter (DC supply) with configured power cord - USA and Canada	

Table 37 NORTEC 700 optional accessories

Part Number	Description	Notes
9122083.03	Lemo ECT probe series cable, 1.8m (6ft) length	
9122244	16P LEMO to LEMO/Fischer Triax Cable (SPO-6472, CN16-TF-6) BRIDGE	
9122305	EMC version of CL/SC/6 PowerLink Cable 16P to 7P Lemo (military) POWERLINK	
SPO-6687	16P LEMO to LEMO/Fischer Triax Cable (CRN16-TF-6) REFLECTION	
SPO-6396	16P LEMO to dual single pin microdot Cable (SPO-6396) BRIDGE	
9230374	16P LEMO to dual single pin microdot Cable (SPO-6396) REFLECTION	
9122267	16P LEMO to 4P Fischer Cable (CRN16-4F-6) REFLECTION	
CN16-TF-6	16P LEMO to 4P Fischer Cable (CRN16-4F-6) BRIDGE	
CN16-4L-6	16P LEMO to 4P LEMO Weld Probe Cable BRIDGE	
CN16-2M-6	16P LEMO to 2P Microdot Cable BRIDGE	

Table 37 NORTEC 700 optional accessories

Part Number	Description	Notes
9230844	16P LEMO to dual BNC connectors, 6 inches (15.2cm) long (SPO-6599) BRIDGE	
CBN-TF-6	BNC to LEMO/Fischer Triax Cable BRIDGE	
9122200	12P LEMO to LEMO/Fischer Triax Cable (CH22-TF-6) BRIDGE	
9122207	12P LEMO to LEMO/Fischer Triax Cable (CRH22-TF-6) REFLECTION	
9744738	MiniMite Fischer scanner kit, includes: MiniMite scanner with Fischer connector (P/N 9020266), scanner cable to connect to Nortec 500, 600 and 2000 series instruments, storage/shipping case, operating manual and calibration certificate. NSN: 6635-01-500-5491	
9744739	MiniMite LEMO scanner kit, includes: MiniMite scanner with LEMO connector (P/N 9020268), scanner cable to connect to Nortec 500, 600 and 2000 series instruments, storage/shipping case, operating manual and calibration certificate. NSN: 6635-01-509-4085	
10-039950-00	Spitfire 3000 LEMO rotation bore hole scanner kit. Includes scanner, 2.3m cable linking to Nortec instrument, mounting system with rail, quick release attachment and ergonomic handle. Packaged in carrying case	
10-041612-00	Spitfire 3000 Fischer rotation bore hole scanner kit. Includes scanner, 2.3m cable linking to Nortec instrument, mounting system with rail, quick release attachment and ergonomic handle. Packaged in carrying case	
9122090	Scanner cable, 8-foot (2.4m) length, MiniMite (LEMO and Fischer versions), RA 2000, Spitfire and PS-5AL to Nortec 500, 600 and 2000 series instruments. (Requires modification to PS-5 [stainless steel version])	

Table 37 NORTEC 700 optional accessories

Part Number	Description	Notes
9122360	Adaptor/cable, 8-foot (2.4m) for GE minidrive rotary scanner to Nortec 500, 600 and 2000 series instruments	
CBAS-10744	Adaptor/cable, for Rohmann MR3, SR1, MR3HF and MR3MF rotary scanners to NORTEC 600 series instruments	
RARA-U	4 pin Fischer probes (Example: SUB, SPO-5965, SEU series) to MiniMite LEMO or RA2000 rotary scanners	
RAU-RA	4 pin LEMO probes (Example: RA, SPO-3564 series) to MiniMite Fischer or Spitfire 2000 rotary scanners	
10-039776-00	FLAP IO N700	Replacement Part
10-040548-00	Adjustment Knob w/D-Spring	Replacement Part
10-039772-00	Kick stand frame N700	Replacement Part
EPXT-EC-A	Desktop battery charger - Australia	
EPXT-EC-B	Desktop battery charger - Brazilian	
EPXT-EC-C	Desktop battery charger - Chinese	
EPXT-EC-D	Desktop battery charger - Danish	
EPXT-EC-E	Desktop battery charger - European	
EPXT-EC-I	Desktop battery charger - Italian	
EPXT-EC-J	Desktop battery charger - Japanese	
EPXT-EC-K	Desktop battery charger - UK	
EPXT-EC-P	Desktop battery charger - Pakistan	
EPXT-EC-S	Desktop battery charger - South Korean	
EPXT-EC-U	Desktop battery charger - US and Canada	
600-BAT-AA	NORTEC 700 battery holder	
600-BAT-L-2	NORTEC 700 rechargeable Li-ion battery (73 Wh)	Replacement part
10-053984-00	NORTEC 700 cooling fan module	Replacement part
10-040642-00	NORTEC 700 battery door module	Replacement part
441-172-01LF	NORTEC 700 hand strap	Replacement part

Table 38 NORTEC 700 probes list

Part Number	PN for Typical Part	Notes
ECA probe series	10-060972-00 10-048049-00 10-048050-00	
Lemo ECT probe series	9222164	
BNC ECT probe series	MP-60	
IO cable series	10-052355-00	

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