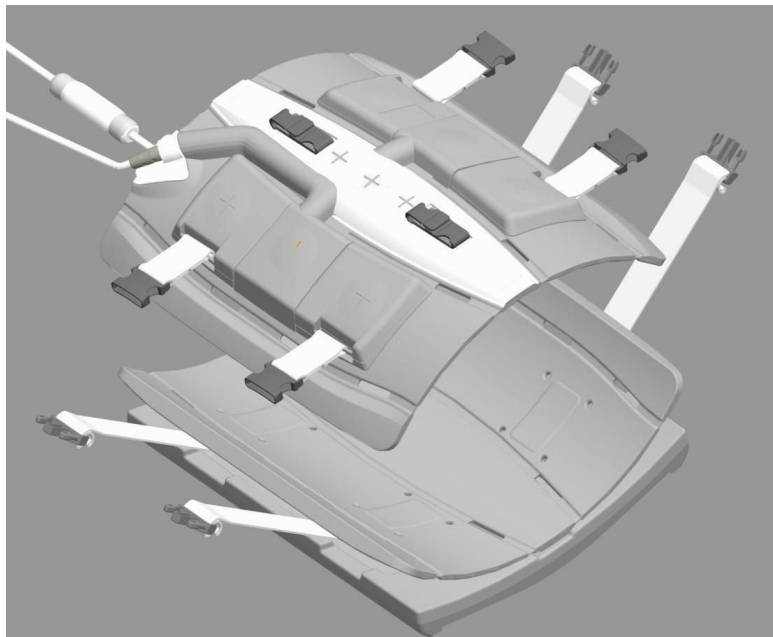


GE Healthcare

Discovery 3.0T 32 CH Body Array Coil

Operator Manual
5391483-1EN



Operator Manual for the
Discovery 3.0T 32 CH Body Array Coil

Part Number 5391483-1EN
Rev 1 (10/2012)



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Medical Device Directive

This product conforms with the requirements of council directive 93/42/EEC concerning medical devices when they bear the following CE Mark of Conformity:



EU Authorized Representative:

GE Medical Systems S.C.S.
Quality Assurance Manager
283 rue de la Minière
78530 BUC France
Telephone: +33 1 30 70 40 40

Manufacturer:

GE Healthcare Coils
1515 Danner Drive
Aurora, Ohio 44202-9273 USA



United States federal law restricts the sale, distribution and use of this device to, or on the order of, a physician.

CAUTION:



This symbol indicates that the waste of electrical and electronic equipment must not be disposed as unsorted municipal waste and must be collected separately. Contact an authorized representative of the manufacturer for information concerning the decommissioning of your equipment.



CAUTION:

Intended use for the Discovery 3.0T 32 CH Body Array Coil

The Discovery 3.0T 32 CH Body Array Coil is a receive-only RF coil designed for use with 3.0T MRI systems manufactured by GE Healthcare. The indications for use include chest, cardiac, abdomen, torso, pelvis, prostate, hips, and long bone imaging. The nucleus detected is hydrogen.

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Chapter 1

Introduction and Coil Specifications

Introduction

This manual describes the safety precautions, features, use, and care of the Discovery 3.0T 32 Channel Body Array that is compatible with GE 3.0T scanners with P-connector style ports. Please review this manual thoroughly before using the device for imaging. Refer to your MR system manual in conjunction with this manual.



Figure 1-1 Photograph of a P-connector

NOTE: Throughout this manual, the letters CH are used as an abbreviation of the word Channel.

If you have questions or comments on this manual, or need assistance with the use of this product, please contact a GE Healthcare representative.

NOTE: This manual should be kept with the equipment and available at all times. It is important to periodically review the procedures and safety precautions. **All users must read and understand the contents of this manual before attempting to use this product.**

Use of Symbols

Coil users should understand the following symbols used for caution and warning explanations:



Indicates a hazard that may cause a minor injury or property damage if instructions are not followed.

CAUTION:

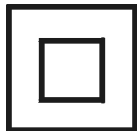



Indicates a hazard that may cause severe personal injury, death, or substantial property damage if instructions are not followed.

WARNING:

Coil Classification

Table 1-1 Classification of the Discovery 3.0T 32 CH Body Array Coil

Symbol	Classification
	Class II equipment
	Type BF applied part

- Suitable for continuous operation.
- The IP Rating for the coil is IPX0. Ordinary equipment. Not rated against water ingress protection.
- Non-sterile device
- Equipment not suitable for use in the presence of a flammable anaesthetic mixture with air or with oxygen or nitrous oxide.
- The voltage rating of the coil is 10 VDC maximum.

All inside surfaces of the Discovery 3.0T 32 CH Body Array Coil can have either direct or indirect contact with the patient. See Figures 1-2 and 1-5. The Anterior Outside surface can have casual contact with the patient. See Figure 1-3.

The non-Velcro top side surface of the Body Array ASSET pad will have either direct or indirect contact with the patient. See Figure 1-4. The Patient Head Pad and the Body Pad top surfaces can have either direct or indirect contact with the patient. See Figure 1-5.



Figure 1-2 Inside surface of Anterior Coil



Figure 1-3 Outside surface of Anterior Coil



Figure 1-4 Non-Velcro Top Surface of ASSET Pad

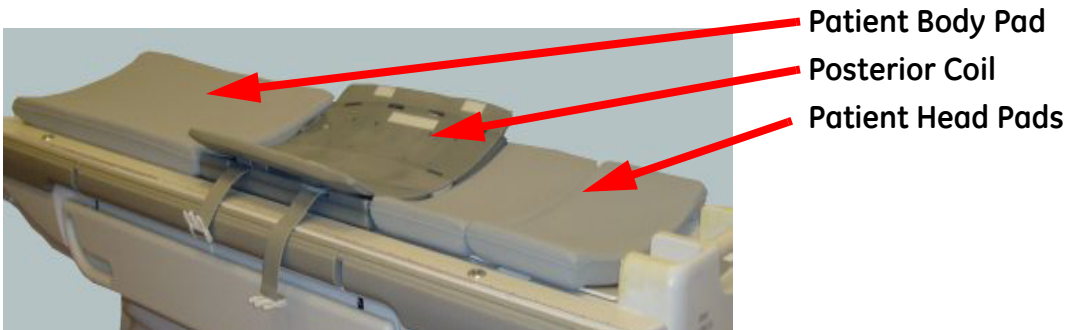


Figure 1-5 Inside surface of Posterior Coil and Top surface of Patient Head and Body Pads

Symbol and Label Definition

Table 1-2 Symbol and Label Definitions for the Discovery 3.0T Body Array Coil









Symbol	Classification
	Manufacturer
	Date of Manufacture
	Consult Accompanying Documents
	Consult Accompanying Documents
	Serial Number
	Part Number
	Do not loop the cable warning label
	Surface may be hot

Table 1-2 Symbol and Label Definitions for the Discovery 3.0T Body Array Coil (Continued)





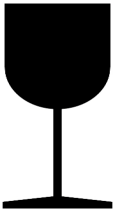

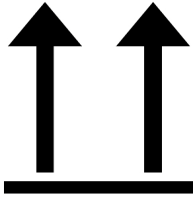
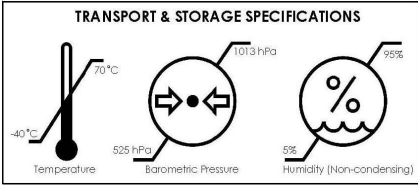
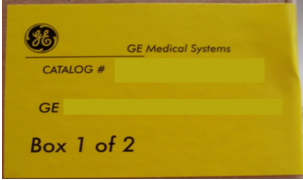
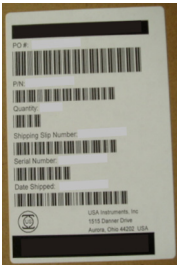

Symbol	Classification
	<p>This symbol indicates that the waste of electrical and electronic equipment must not be disposed as unsorted municipal waste and must be collected separately. Contact an authorized representative of the manufacturer for information concerning the decommissioning of your equipment.</p>
	<p>P-Connector locked symbol. Connector is locked in place and ready for scanning.</p>
	<p>P-Connector unlocked symbol. Connector is not locked in place. Do not scan until the connector is locked.</p>
	<p>Packaging CE label</p>
	<p>Fragile - Do not drop or handle package roughly</p>
	<p>Keep the packaging out of the rain. Keep packaging dry.</p>

Table 1-2 Symbol and Label Definitions for the Discovery 3.0T Body Array Coil (Continued)

Symbol	Classification
	<p>This end up - The arrow points to the side of the package that is to remain facing up.</p>
	<p>Transportation and storage specifications label</p>
	<p>Shipping content label. Identifies the catalog number, GE part number and the number of boxes in the shipment.</p>
	<p>Identifies contents, purchase order number, part number, quantity, shipping slip number, serial number and date shipped.</p>
	<p>Shipping label. Identifies manufacturer, purchase order number, serial number, ship date, part numbers and number of boxes in the shipment.</p>

Discovery 3.0T 32 CH Body Array Coil Shipping Contents

Table 1-3 Box 1 - Discovery 3.0T 32 CH Body Array Coil Shipping Contents:

Part Name	Part Number	Qty.
Discovery 3.0T 32 CH Body Array Coil (includes posterior component with nest pad)	5391469 (posterior with nest pad)	1

Table 1-4 Box 2 - Discovery 3.0T 32 CH Body Array Coil Shipping Contents:

Part Name	Part Number	Qty.
Discovery 3.0T 32 CH Body Array Coil (includes anterior component with tethers)	5391469 (anterior with tethers)	1

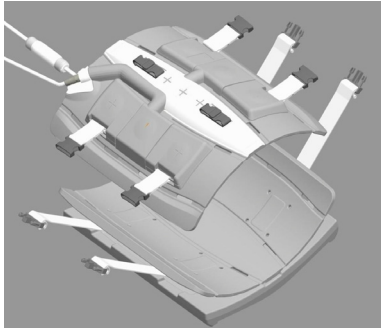
Table 1-5 Box 3 - Discovery 3.0T 32 CH Body Array Coil Shipping Contents:

Part Name	Part Number	Qty.
Phantom Positioner Assembly	5400426	1

Table 1-6 Box 4 - Discovery 3.0T 32 CH Body Array Coil Shipping Contents:

Part Name	Part Number	Qty.
Patient Head Pad	5404916	2
Patient Body Pad, 16CH Body Array	5404921	1
Operator Manual Packet	5391483-500	1
ASSET Imaging Pads	5406615	2
System Cable Guide	5392791	3
Cable Management Pad	5455908	2

Coil Description



The Discovery 3.0T 32 CH Body Array Coil is a receive-only coil designed to provide optimum signal-to noise ratio and uniform coverage of the chest, cardiac, abdomen, torso, pelvis, prostate, hips, and long bone. The coils are padded with a soft material designed to maximize patient comfort.

There are 2 components to the Discovery 3.0T 32 CH Body Array Coil: the anterior component and the posterior component. The posterior component is attached to the nest pad and should remain attached during scanning. The anterior component should always be positioned on top of the patient. It is not designed to bear weight. Four straps

immobilize the anterior component on the patient.

The Discovery 3.0T 32 CH Body Array Coil comes with P- connectors that are compatible with 3.0T GE scanners with P-connector style ports.

The Discovery 3.0T 32 CH Body Array Coil is designed to be used by a Registered MRI Technologist. The Registered MRI Technologist will operate the scanner from the control room. If the patient is claustrophobic another MRI Technologist or clinical staff member may stay in the magnet room with the patient.

Coil Components

Table 1-7 3.0T Body Array Coil Components

Component Name	Component Picture
Posterior Coil with Nest Pad	
Anterior Coil	

Table 1-7 3.0T Body Array Coil Components (Continued)

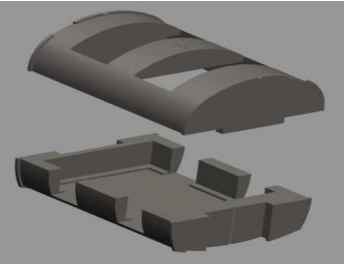


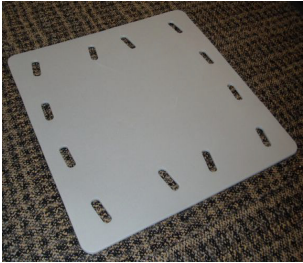
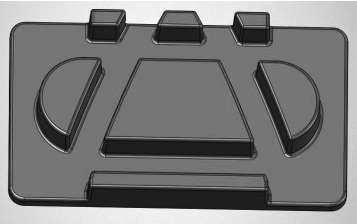

Component Name	Component Picture
Phantom Positioner	
Patient Body Pad	
Patient Head Pad	
ASSET Imaging Pad	

Table 1-7 3.0T Body Array Coil Components (Continued)

Component Name	Component Picture
Cable Management Pad	
System Cable Guide	

Coil Specifications

Table 1-8 3.0T Body Array Coil Specifications

Field Strength	Model	Part Number	Frequency
3.0T	Discovery 3.0T 32 CH Body Array Coil (includes the anterior and posterior components)	5391469 (5391468 - Anterior component, 5392802 - Posterior component)	127.73 MHz

Coil Dimensions and Weight

NOTE: Store the coil in an area that exceeds the dimensions of the coil

Table 1-9 Coil Dimensions for the Discovery 3.0T 32 CH Body Array Coil

Coil Component	Dimension	Weight
Anterior	56.5cm Wide x 56.5cm Long x 4.0cm High (22.24in Wide x 22.24in Long x 1.57in High)	4.1 Kg (9.0 lb)
Posterior (dimensions include the nest pad)	56.5cm Wide x 56.5cm Long x 6.0cm High (22.24in Wide x 22.24in Long x 2.36in High)	5.5 Kg (12.0 lb)

Coil Installation and Service

Coil installation and configuration should be completed by a GE Service Representative. Please contact a GE Service Representative for detailed coil installation and configuration information. GE Field Engineer shall consult the appropriate service manual or service method CD for installation instructions.

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Chapter 2

Safety

Patient safety and comfort are the primary concerns during the scanning procedure. Always follow proper safety, operating and maintenance procedures to ensure that the patient is not exposed to electrical or mechanical hazards that may cause injuries.

Route cables through the center of the magnet bore. Routing cable near the sides of the bore increases the likelihood of cable heating from induced currents. Place cables under the pads whenever possible.

Keep the length of the cable in the bore to a minimum. When possible, avoid bending the cable 180 degrees. Route cables out of the bore in the most direct way possible, without looping or coiling.

Ensure that the patient is comfortably positioned.

Monitor the patient periodically. If the patient reports heating, burning or tingling sensations, **STOP THE SCAN IMMEDIATELY.**

Patient Safety



WARNING:

Patient burn risk. Do not cross or loop coil cables. Do not loop RF receive coil cables and ECG leads.



WARNING:

Do not allow the coil cable to come into contact with the skin of the patient. Use a thermal resistant material or pad to keep the cable from touching the patient. Failure to do so may result in patient burns.



WARNING:

RF can cause localized heating at contact points between adjacent body parts when a loop is formed. Such localized heating can result in a tingling sensation, discomfort, or burns. This could occur when a patient's hands are touching or when a female patient's breasts are compressed to her chest. Use pads between body parts to avoid creating a loop with adjacent body parts.



WARNING:

Do not use accessories (e.g. pads or straps) that have not been specifically tested and approved for use in the MR environment. Use only GE recommended accessories. Use of non-approved accessories may result in patient burns or injuries or image degradation. Even auxiliary devices labeled as compatible with MR equipment are capable of causing injury if the manufacturer's instructions are not followed.



WARNING:

RF can cause localized heating at contact points between the patient and the bore resulting in discomfort or burns. Place appropriate non-conductive padding between the patient and the bore wherever a portion of the body may come into contact with the magnet opening.



WARNING:

Closed loops formed by clasped hands or crossed arms, legs or feet may cause burns to the patient. Do not allow the patient to cross or loop their hands, arms, legs or feet. Use pads as necessary to separate limbs.



WARNING:

Always place appropriate non-conductive padding between the surface coil and the skin of the patient to prevent burn injuries.



WARNING:

Prior to patient placement in the coil, assure that any breached or compromised patient skin surfaces that come in contact with the coil have been adequately bandaged or covered.



To avoid injuring the patient or damaging the coil, watch carefully as the table moves into the bore. Stop advancing the table if the patient or any part of the coil comes into contact with the bore.

CAUTION:

Equipment Safety

All personnel using this coil must be instructed in its proper use. Personnel must observe all warnings and cautions appearing in this Manual.



WARNING:

Auxiliary equipment (e.g. gating equipment, vital signs monitoring systems and RF coils) that has not been specifically tested and approved may result in burns or other injuries to the patient. Such equipment may also interfere with proper operation of this coil. Only use equipment approved for the MR environment.



WARNING:

This coil is not suitable for use in the presence of a flammable anesthetic mixture with air or with oxygen or nitrous oxide.



WARNING:

Patient burns may result from RF coupling of this device with other devices remaining in the magnet. Remove any unused accessory device, coil, or cable from the magnet before using this coil. The 3.0T HNU (part number 5338925), with or without the NCU (part number 5338938), of the 3.0T Head, Neck and Spine Array is the only coil tested for safe use with the Discovery 3.0T 32 CH Body Array. In this configuration, the Discovery 3.0T 32 CH Body Array must plug into Ports 3 & 4 (foot-end ports.)



WARNING:

Route cables through the center of the magnet bore. Place cables under the pads when possible. Routing cables near the sides of the bore increases the likelihood of cable heating (from induced currents).



Looped cables may cause RF coupling and degrade the scan performance of the coil. Do not cross or loop cables.



CAUTION:

Electrical and Mechanical Safety



Electric shock hazard. This coil consists of electrical and mechanical components. Tampering with the coil by untrained personnel can be hazardous to the patients and equipment. Only properly trained and qualified personnel should service the coil.

WARNING:



Use only coils, cables and accessories that are in good condition. Before using the coil, visually check each coil component, cable and accessory to ensure that there is no external damage. If any coil component, cable or accessory is suspected of not being in good condition, discontinue use and contact a GE Service Engineer.

WARNING:



Electric shock hazard. No user serviceable parts. Refer service to qualified service personnel.

WARNING:

Label locations on the Coil

The serial number label is located on the cover of each coil component. This label specifies date of manufacture, place of manufacture, part number and revision. This label also has several symbols that are defined in this manual that will help the user better understand the specifics of the coil.



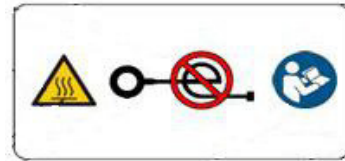
CAUTION:

The labels to the right are the locked and unlocked symbols located on the P-connector. Plug the P-connector into the system P-port with the red unlocked symbol showing. Then, turn the grey knob clockwise until the green locked symbol is showing. The coil is ready for scanning when the green locked symbol is visible.



WARNING:

The label to the right is located on the cable of the coil. It instructs the user to not cross or loop coil cables. The cable may become hot to the touch if the cable is looped.



Modifications

Any changes or modifications to this coil must be approved and performed by GE Healthcare prior to installation.

Emergency Procedures and Incident Reporting

If a patient requires emergency assistance:

- Stop the scan if one is in progress.
- Remove the patient from the scan room if medical treatment is needed.
- Please refer to MR Safety chapter in your MR system operator manual or refer to the MR Safety Guide, part #2381696, if you received one with your system, for patient emergency procedures.

In the unlikely event that a coil creates smoke, sparks or makes an unusually loud noise:

- Contact GE Healthcare to report the incident.
- Do not use the coil until a GE Service Representative inspects the coil and indicates it is safe to use.

Users should immediately report to GE Healthcare any incidents or injuries that result from coil operation involving a patient, operator, or maintenance employee.

If an accident occurs as a result of coil operation, do not operate the equipment until an authorized investigation has been conducted.



CAUTION:

Users should place a service call any time the coil is dropped or mishandled. A GE Service Representative should inspect the coil after it has been dropped or mishandled to ensure the coil is safe to use.

MR Safety Information

Please refer to MR Safety chapter in your MR system operator manual or refer to the MR Safety Guide, part #2381696, if you received one with your system. The MR Safety documentation describes the safety information you and the physicians must understand thoroughly before you begin to use the MR system. If you need additional training, seek assistance from qualified GE Healthcare personnel.

This equipment is intended for use by qualified personnel only.

This manual should be kept with the equipment and be readily available at all times. It is important for you to periodically review the procedures and safety precautions. **It is important for you to read and understand the contents of this manual before attempting to use this product.**

Chapter 3

Coil and Patient Setup

Lifting and Transporting the Coil

- Pick up the anterior and posterior components by firmly gripping them on both sides.
- Do not carry the coil components by the system cables.
- The tethers on the top of the anterior component are to be used to secure the cable to the coil when moving the anterior coil. See Figures 3-1 and 3-2.

NOTE: The coil should not be stored with the cable secured with the tethers. The cable will leave indentations in the foam if the coil is stored with the cable resting on the foam of the coil.



To avoid damaging the coil, do not use the tethers as handles. Do not carry any of the coil components by the cable.

CAUTION:

Tethers

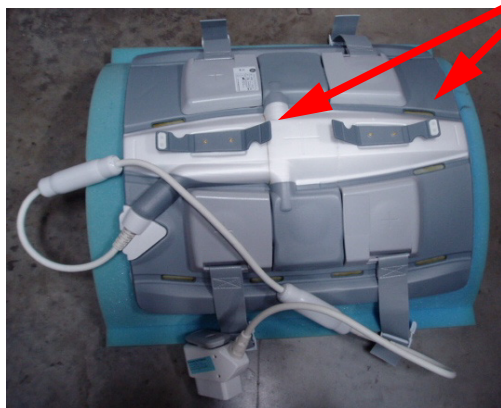


Figure 3-1 Anterior component with the tethers open

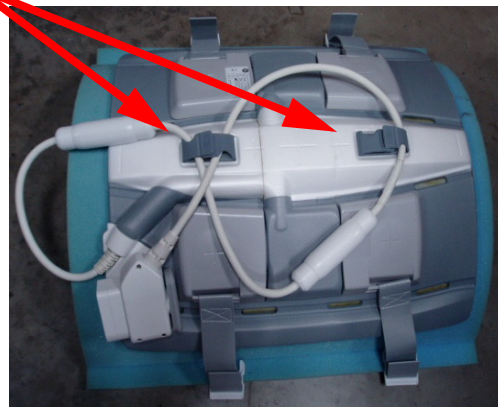


Figure 3-2 Anterior component with the tethers holding the anterior cable

Coil Mode Configurations

To optimize image quality using the Discovery 3.0T 32 CH Body Array Coil, focus on the configuration, patient positioning and FOV (Field of View) selection. Select a coil mode appropriate for the anatomy of interest and the desired FOV. Improper use of the coil is the major cause of image artifacts.

Table 3-1 Modes of Operation for the Discovery 3.0T 32 CH Body Array Coil

Modes of Operation	FOV (S-I)	Landmark name and position (See Figure 3-3)	Best Use
32Body Up Ant	26cm	Up2	Cardiac
32Body Full	48cm	Center	Abdomen, Torso, Bilateral Long Bones
32Body Up Half	26cm	Up2	Chest, Cardiac, Male and Female Pelvis, Hips
32Body Low Half	26cm	Low2	Male and Female Pelvis, Hips
32Body Upper 3	36cm	Up3	Chest, Cardiac, Abdomen, Pelvis, Hips
32Body Lower 3	36cm	Low3	Abdomen, Pelvis, Hips
32Body RT Bone	48cm	Center	Right Long Bones
32Body LT Bone	48cm	Center	Left Long Bones
32Body RT Hip	26cm	Low2	Right Hip
32Body LT Hip	26cm	Low2	Left Hip
32Body Prostate	26cm	Low2	Prostate

Coil Landmarks

Center on the landmarks corresponding to the anatomical region of interest.

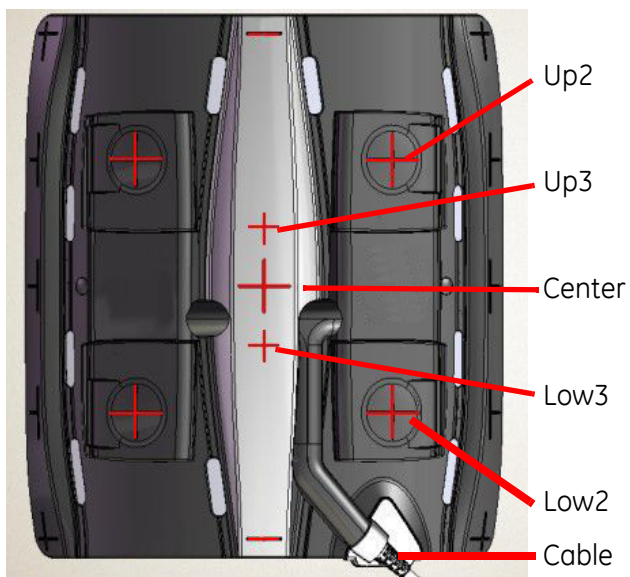


Figure 3-3 Landmark Definition

Nomenclature for coil configuration modes are relative to the cable exit, which is located at the lower portion of the coil.

Coil Element Distribution

In the following table the dark red squares represent the active elements for the listed mode and the blue line and arrow represent the landmark position.

Table 3-2 Coil Element Distribution

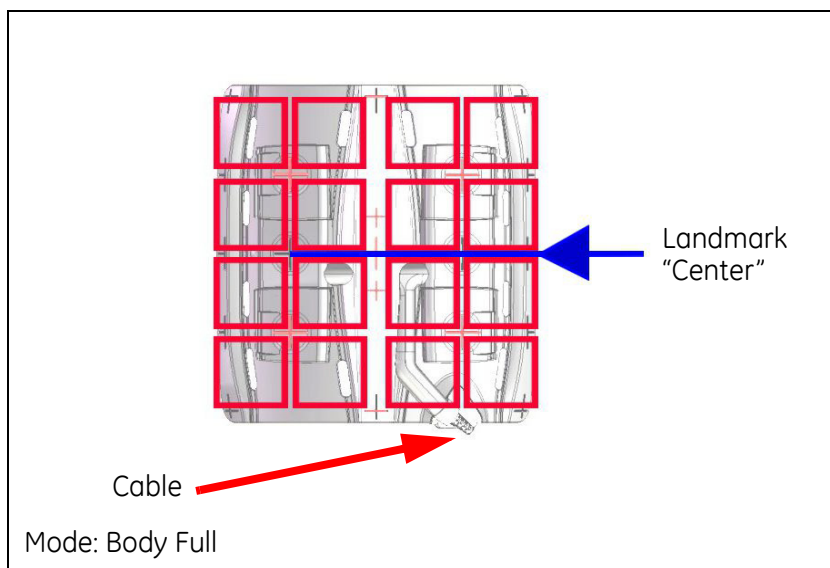


Table 3-2 Coil Element Distribution (Continued)

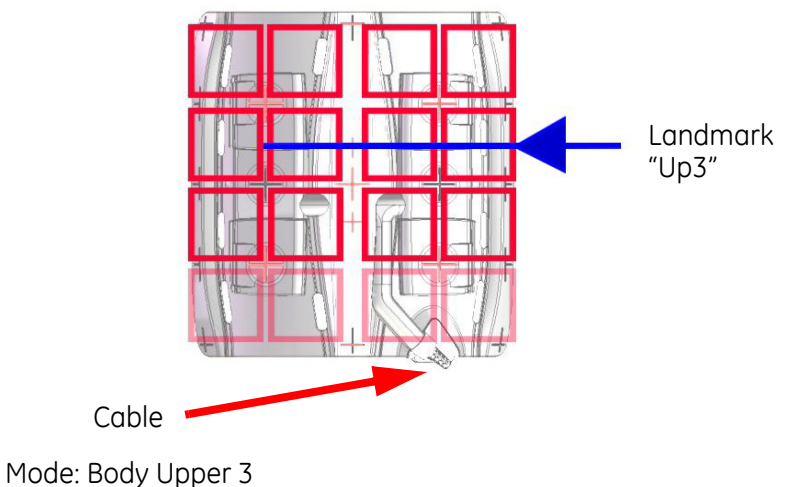
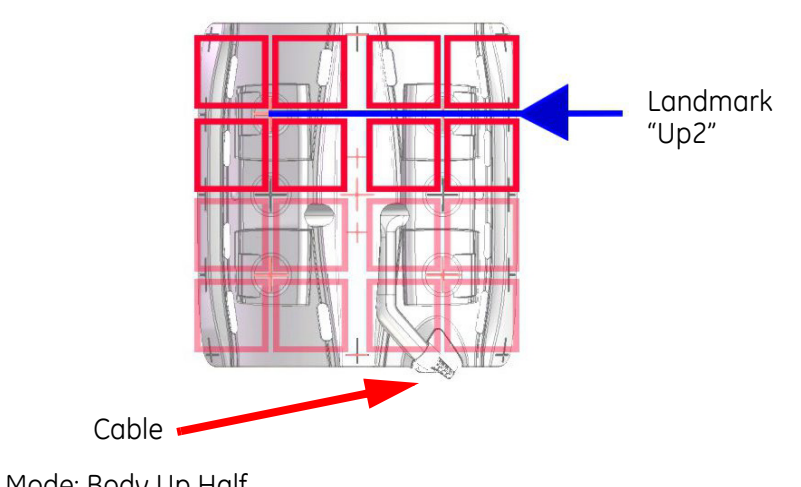
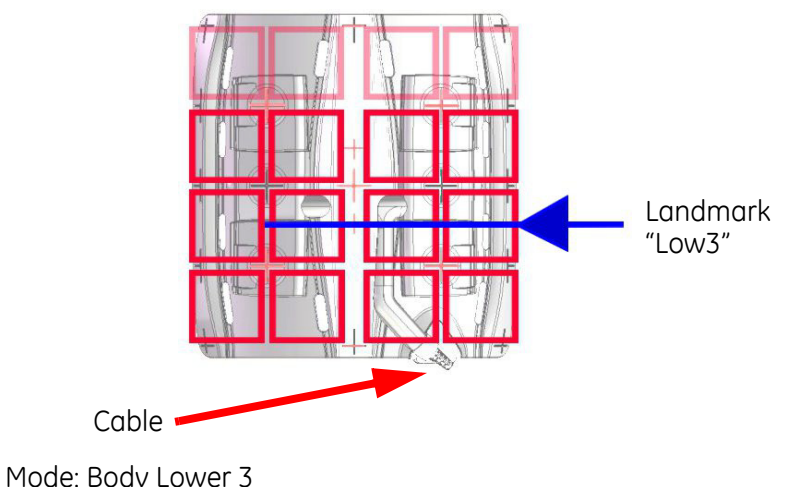
 <p>Cable</p> <p>Mode: Body Upper 3</p>
 <p>Cable</p> <p>Mode: Body Up Half</p>
 <p>Cable</p> <p>Mode: Body Lower 3</p>

Table 3-2 Coil Element Distribution (Continued)

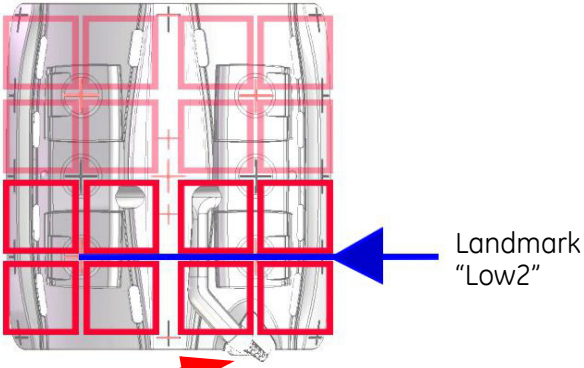
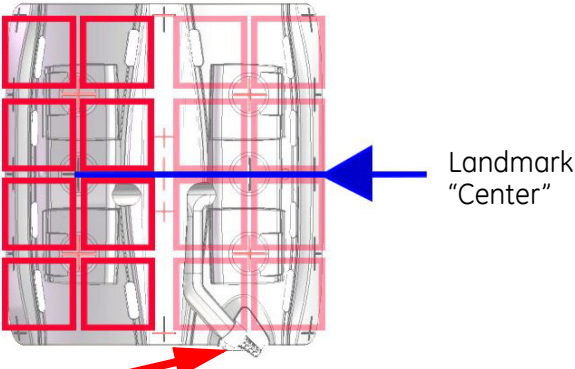
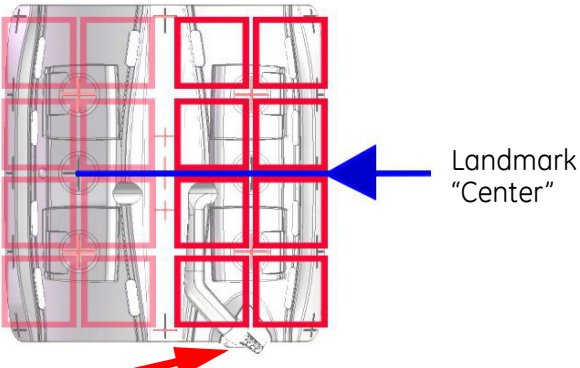
 <p>Cable</p> <p>Mode: Body Low Half</p>
 <p>Cable</p> <p>Mode: Body RT Bone</p>
 <p>Cable</p> <p>Mode: Body LT Bone</p>

Table 3-2 Coil Element Distribution (Continued)

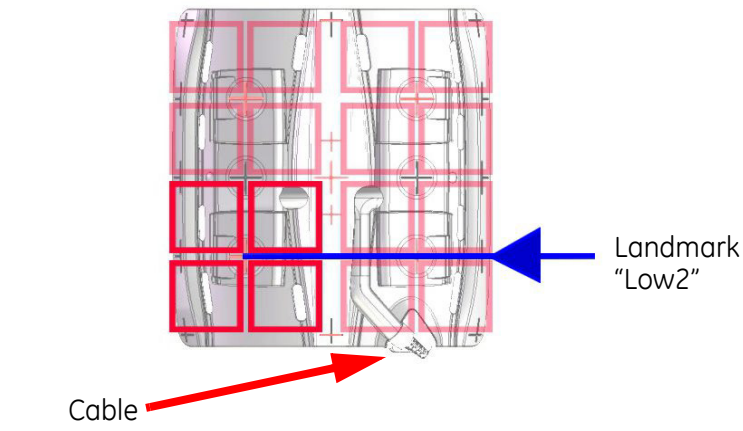
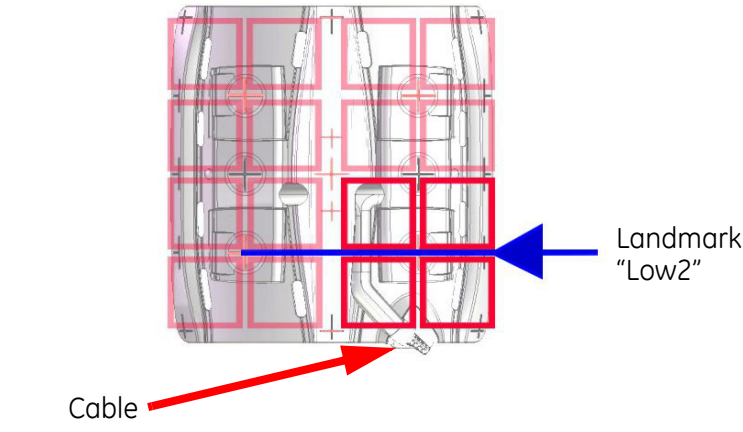
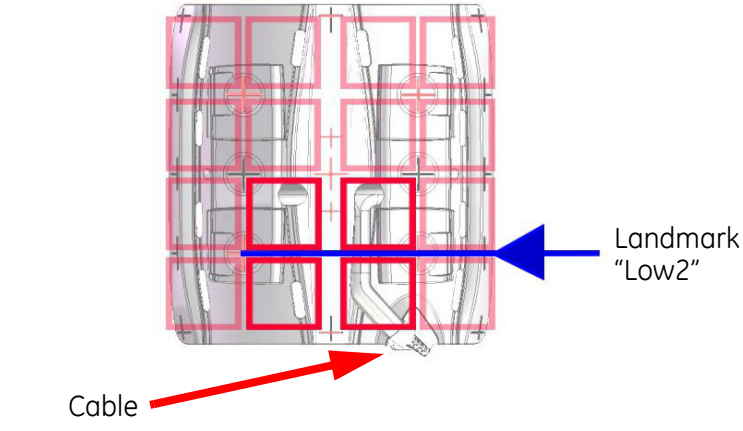
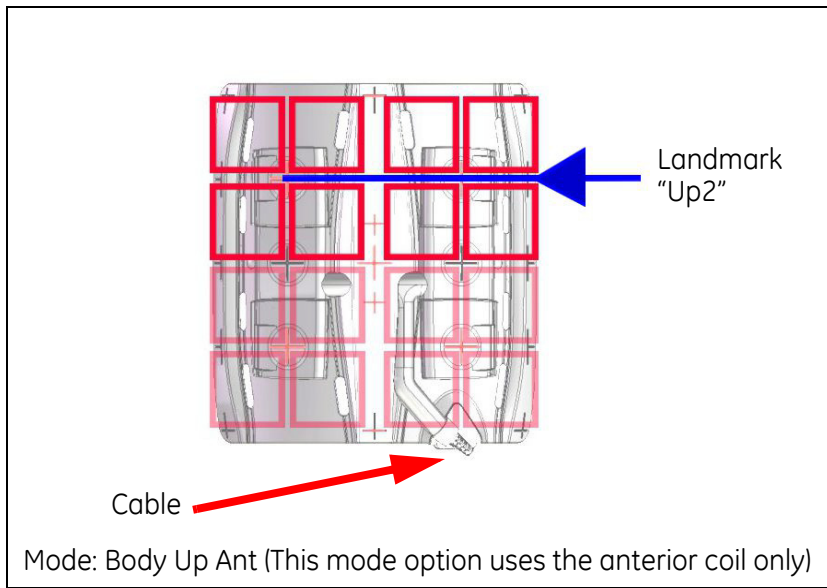
 <p>Cable</p> <p>Landmark "Low2"</p> <p>Mode: Body RT Hip</p>
 <p>Cable</p> <p>Landmark "Low2"</p> <p>Mode: Body LT Hip</p>
 <p>Cable</p> <p>Landmark "Low2"</p> <p>Mode: Body Prostate</p>

Table 3-2 Coil Element Distribution (Continued)



Positioning the Patient and Coil



WARNING:

Patient burns may result from RF coupling of this device with other devices remaining in the magnet. Remove any unused accessory device, coil, or cable from the magnet before using this coil. The 3.0T HNU (part number 5338925), with or without the NCU (part number 5338938), of the 3.0T Head, Neck and Spine Array is the only coil tested for safe use with the Discovery 3.0T 32 CH Body Array. In this configuration, the Discovery 3.0T 32 CH Body Array must plug into Ports 3 & 4 (foot-end ports.)



WARNING:

Patient burn risk. Do not cross or loop coil cables. Do not allow any cable to touch the patient. Use a thermal-resistant material or pad to prevent cables from touching the patient.



Table 3-3 Positioning the patient and coil on the scan table:





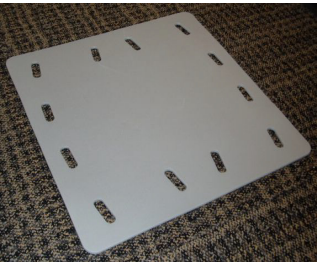
Visual	Description
 <p data-bbox="203 674 511 730">Posterior component with nest pad on patient table</p>	<ol data-bbox="597 348 1312 443" style="list-style-type: none"> 1. Place the posterior component with nest pad on the table as shown. Direct the cable exit towards either the magnet or foot-end of the table. <div data-bbox="597 472 1312 741">  <p data-bbox="597 541 1312 741">CAUTION: The nest pad should remain attached to the Posterior component while in use. Removal of the nest pad and placement of the posterior component directly on the system table may cause damage to the coil components and failure of the coil.</p> </div>
 <p data-bbox="203 1031 511 1087">Posterior component and Body Pad</p>	<ol data-bbox="597 762 1312 978" style="list-style-type: none"> 2. Ensure that the straps hang loosely over the side of the table. 3. Place the Patient Body Pad and the Patient Head Pad adjacent to the Posterior component to form a flat patient surface. The channels underneath the pads aid in safely managing the system cables.
 <p data-bbox="203 1339 544 1396">Posterior component with Body Pad and two Head pads</p>	<ol data-bbox="597 999 1182 1056" style="list-style-type: none"> 4. Place ASSET Imaging Pad over the posterior component (if desired).
 <p data-bbox="203 1724 539 1768">Optional ASSET Imaging Pad</p>	

Table 3-3 Positioning the patient and coil on the scan table: (Continued)






Visual	Description
 <p>Patient positioned on posterior component</p>  <p>Patient positioned on posterior component - close up</p>	<p>5. Position the patient on the posterior component with the region of interest centered on the posterior component of the coil.</p> <p>NOTE: Head first or feet first orientation is achievable for most patients and exams with the Discovery 3.0T 32 CH Body Array Coil.</p> <p>6. Attach the ASSET Imaging pad to the underside of Anterior component (if desired).</p>
 <p>WARNING:</p>	<p>Patient burn risk. Closed loops by crossed hands or arms may cause burns to the patient. Do not allow the patient to cross or loop their hands or arms. Use pads as necessary to separate limbs.</p>
 <p>Patient with arms up</p>  <p>Patient with arms at sides</p>	<p>7. Position the anterior component of the coil over the anatomical region of interest. The patient may be positioned with arms up or at the sides.</p> <p>NOTE: Align the edges of the anterior and posterior components so that they are parallel with one another.</p> <p>8. Fasten the straps for a snug and comfortable fit.</p> <p>9. Provide earplugs to the patient after all instructions have been given.</p>

Table 3-3 Positioning the patient and coil on the scan table: (Continued)


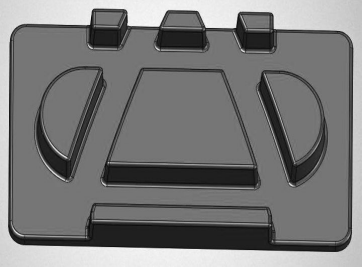

Visual	Description
 <p>WARNING:</p>	<p>The Cable Management Pad, Head Pad, Body Pad, and System Cable Guides aid in safely managing the coil cables. In order to prevent looping and to prevent cables from touching the patient, always use the pads and cable guides to manage excess lengths of cable. Failure to use these cable accessories may cause patient burns and/or coil cable heating.</p>
 <p>Cable Management Pad</p>	<p>10. To prevent cable loops, use the Cable Management Pad and System Cable Guides in order to route the cable to the connector ports. Please see Steps 11 to 13 for using the Cable Management Pad with the Discovery 3.0T 32CH Body Array Coil.</p>
	<p>Using the Cable Management Pad with the Discovery 3.0T 32Ch Body Array Coil</p> <p>NOTE: The following Cable Management Pad instructions are for when the Body Array Coil is positioned close to the connector ports that are to be used. This will result in the maximum amount of excess cable. When the coil is being used in configurations that require more distance from the connector ports, please use a combination of the Cable Management Pad, System Cable Guides and/ or system pads to keep the cables from looping, from touching the patient and as far away from the bore wall as possible.</p> <p>11. Place the Cable Management Pad on the LPCA (Low Profile Carriage Assembly). Route the posterior cable in the Cable Management Pad as shown in the photograph to the left.</p>

Table 3-3 Positioning the patient and coil on the scan table: (Continued)





Visual	Description
	<ol style="list-style-type: none"><li data-bbox="695 306 1409 432">12. Place the second Cable Management Pad on top of the first Cable Management Pad. Route the anterior cable in the second Cable Management Pad as shown in the photographs to the left.<li data-bbox="695 453 1409 642">13. Use a System Cable Guide in order to keep the anterior cable from touching the posterior cable. The arrow in the photograph to the left shows one possible location where the anterior and posterior cables may require the use of a System Cable Guide to keep the two cables separated.

Table 3-3 Positioning the patient and coil on the scan table: (Continued)

Visual	Description
 <p>Photograph of a P-connector</p>  <p>P-connector with red unlocked symbol</p>  <p>P-connector with green locked symbol</p>	<p>14. For the Discovery 3.0T 32 CH Body Array with P-connectors, plug the P-connectors into the system P-ports with the red unlocked symbol showing. After the P-connector is plugged into the system P-port, turn the grey knob on the P-connector clockwise until the green locked symbol is showing. The coil is ready for scanning when the green locked symbol is visible.</p> <ul style="list-style-type: none"> • The coil cables should always be routed as directly as possible to the connector ports. The cables must not form loops. <p>15. Landmark to the region of interest (refer to the Coil Landmarks section) and advance to scan.</p>



WARNING:

Depending on how the coil and patient are situated on the table, there may not be enough slack in the cable to allow the table to be lowered when the coil is plugged in. Attempting to lower the table with insufficient slack in the cable may cause coil damage.

Using the Discovery 3.0T 32 CH Body Array with the 3.0T HNS Coil Head Neck Unit (HNU) or the HNU and the Neck Chest Unit (NCU)

To improve workflow, the Discovery 3.0T 32 CH Body Array may co-reside in the magnet with the 3.0T HNU, part number 5338925, with or without the NCU, part number 5338938. The HNU part number 5338925 includes the posterior component, anterior component and adapter bridge.

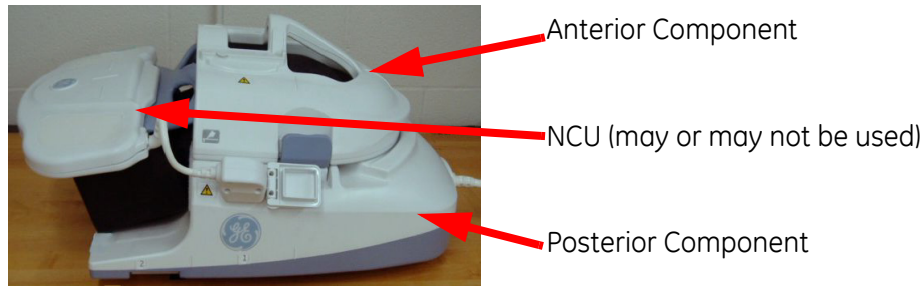


Figure 3-4 HNU with Anterior and NCU

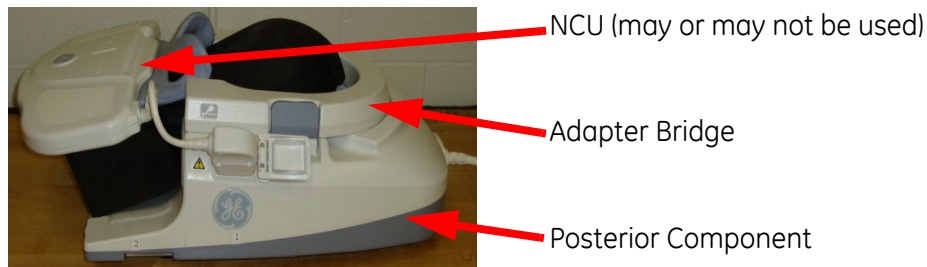


Figure 3-5 HNU with Adapter Block and NCU



WARNING:

The 3.0T HNU (part number 5338925), with or without the NCU (part number 5338938), of the 3.0T Head, Neck and Spine Array is the only coil tested for safe use with the Discovery 3.0T 32 CH Body Array. Do not attempt to use any other coil in conjunction with the Discovery 3.0T 32 CH Body Array. RF coupling and patient burns may result if any other coil is used simultaneously with the Discovery 3.0T 32 CH Body Array. In this configuration, the Discovery 3.0T 32CH Body Array must plug into Ports 3 & 4 (foot-end ports.)

1. Place the HNU only (without the TL section) at the magnet end of the table, and plug it into the system port at the LPCA.
2. Place the Posterior Body Array component adjacent to the HNU coil so that the system cable exits towards the foot-end of the table.
3. Use the ASSET Imaging Pad to help form a flat patient surface. See figures 3-6 and 3-7.

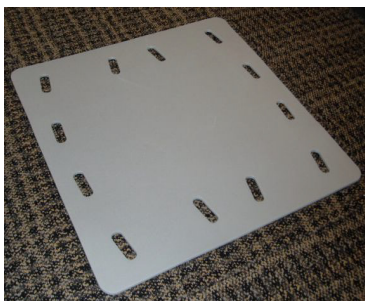


Figure 3-6 ASSET Imaging Pad

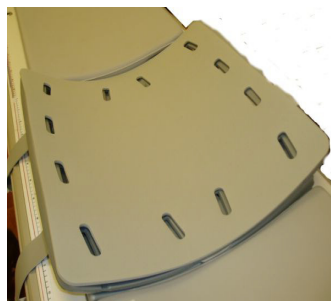


Figure 3-7 ASSET Imaging Pad on the Body Array Posterior

4. Assist the patient onto the coils in the Head-first Supine orientation, ensuring that the patient's shoulders are snug against the HNU.
 5. Place the Anterior Array component of the Body Array coil on the patient, ensuring that the Anterior Array cable exits towards the foot-end of the table. Check to make sure that the Anterior and Posterior Arrays are aligned parallel to one another.
 6. Use the four straps to secure the Body Array Anterior to the Body Array Posterior, ensuring a snug fit.
 7. Plug the Body Array into the Foot-end Ports (Ports 3 & 4).
 8. Manage any excess cable lengths using the Cable Management Accessories outlined in Table 3-3.
 9. Place the HNU Anterior component or the HNU Adapter block on the HNU Posterior component.
- NOTE:** The NCU may be used with either the HNU Anterior component or the HNU Adapter block depending on the configuration desired.
10. If desired place the NCU on the patient so that the neck portion fits snugly against the patient's chin. Plug the NCU connector into the HNU Posterior component.
 11. Landmark on the coil you plan to scan with first, and advance to scan.
 12. Use the existing coil configuration modes for each coil; no new coil modes are provided.

Recommended Scan Protocols

Use the GE recommended protocols for scanning with this coil for optimum results and best performance.

Specific choice of protocols is entirely the responsibility of the radiologist and/or technologist.

Chapter 4

Coil Maintenance

Coil Maintenance - Introduction

To maintain the highest possible image quality and to protect patients and personnel from potential injury or illness, it is important to keep the coil clean and well maintained. This chapter lists basic methods for keeping the coil safe and sanitary. Also included is a list of accessories that will enhance the utility of your coil. Refer to the contact information for questions or comments.

Quality Assurance

Coil Quality Assurance tests should be run by a GE Service Representative or a third party service provider. To have a Quality Assurance test run on a coil, please call your GE Service Representative or your third party service provider.

If you do not have a GE Service Representative or third party service provider, use the Class A Service CD that was shipped with your MR System. This CD contains information on phantom setup and the usage of the MCQA tool. Please contact GE Healthcare at 800-582-2145 with any questions or concerns.

Environmental Requirements

Table 4-1 Coil Environmental Requirements:

Environmental Factor	Transport/Storage	Operating Conditions
Barometric pressure	525 hPa to 1013 hPa (394 mm Hg to 760 mm Hg)	As established by the GE recommended MR suite conditions.
Humidity	5% to 95% non-condensing	
Temperature	-40°C to 70°C (-40°F to 158°F)	

Coil Storage

When the coil is not in transport and is not being used, store the coil in an area that has environmental conditions that fall within the specifications given under "Operating Conditions" in Table 4-1.

Coil Maintenance

To store the coil, a storage space that exceeds the dimensions of the coil is required. See Table 4-2 for minimum storage requirements.

Store the Body Array posterior with the nest pad down.

Store the Body Array anterior on top of the phantom holder that was shipped with the coil. The anterior component must be stored so that it maintains its curved shape.

The coil may be stored with the anterior component and the posterior component together or separated.

NOTE: The anterior coil component should not be stored with the cable secured to the coil with the tethers. Neither the anterior component or the posterior component with nest pad should be stored with the cable resting on the foam of the coil. The cable will leave indentations in the foam if the coil is stored with the cable resting on the foam of the coil.

Table 4-2 Minimum coil storage spacing requirements




Coil components	Minimum Spacing Requirements
 <p data-bbox="190 1161 704 1220">Posterior, Anterior, and Phantom Positioner stored together as one unit</p>	<p data-bbox="773 793 1312 858">65cm Wide x 65cm Long x 60cm High (25.59in Wide x 25.59in Long x 23.62in High)</p>
 <p data-bbox="190 1572 464 1602">Posterior with nest pad</p>	<p data-bbox="777 1230 1307 1295">65cm Wide x 65cm Long x 25cm High (25.59in Wide x 25.59in Long x 9.84in High)</p>

Table 4-2 Minimum coil storage spacing requirements

Coil components	Minimum Spacing Requirements
 <p data-bbox="289 575 737 604">Anterior only with Phantom Positioner</p>	<p data-bbox="867 275 1406 338">65cm Wide x 65cm Long x 45cm High (25.59in Wide x 25.59in Long x 17.72in High)</p>



Store the Body Array anterior component so that its curved shape is maintained. Storing the anterior flat may damage the coil.

CAUTION:

Coil Maintenance and Cleaning

The coil must be inspected before each use. Visually check each coil component, cable and accessory to ensure that there is no external damage. If any coil component, cable or accessory is suspected of not being in good condition, discontinue use and contact a GE Service Engineer.

All FRU's (Field Replaceable Units) must be replaced by a GE Service Engineer or a third party service provider. Component part lists with descriptions, instructions for the safe replacement of components, circuit diagrams, and calibration and preventive maintenance instructions are available to service personnel upon request.



WARNING:

Electric shock may occur if the coil is attached to the system during cleaning or when it is still wet. Detach coil connectors from the scanner before attempting to clean the coil. Do not touch connectors with bare fingers. Never press sharp objects against any connector surface. Do not reattach connectors after cleaning until the coil has dried completely.



CAUTION:

The coil contains sensitive electronic components that may be damaged by liquids. Do not spray or pour cleaning solution directly onto the coil. Do not submerge the coil in any solution. Under no circumstances should the coil be placed into any type of sterilizer.

The Discovery 3.0T 32 CH Body Array Coil and patient comfort pads must be thoroughly cleaned after each use.

You may safely clean the coil with germicidal wipes that contain 1% of Sodium Hypochlorite (CAS No. 7681-52-9) as the only active ingredient.

You may also use the following procedure to clean the coil:

- Wipe with a cloth that has been dampened in a solution of 10% bleach and 90% tap water, or 30% isopropyl alcohol and 70% tap water.
- Should your coil need to be returned to GE Healthcare for service, wipe it thoroughly with a 10% bleach solution (as described above) to minimize risk of exposure to potentially infectious agents.
- Dispose of any materials used to clean the coil and the pads according to all federal, state, and local regulations.

Removing the Nest Pad

If the underside of the posterior component or the top of the nest pad needs to be thoroughly cleaned, the nest pad can be removed and separated from the posterior coil. To separate the coil from the nest pad:

1. Remove the coil from the magnet room.
2. Locate the four screws on the underside of the nest pad.
3. Remove the screws and washers using a flat head screwdriver.
4. Separate the nest pad from the posterior component and clean both using the cleaning instructions above.
5. When cleaning is complete, allow the coil and nest pad to dry before securing the posterior coil to the nest pad using the four screws and washers.



All tools being carried into the magnet room must be non-magnetic. Remove the posterior component with the nest pad from the scan room before attempting to remove the nest pad screws with a common screwdriver.

WARNING:



Do not attempt to scan unless the nest pad is attached to the posterior coil.

CAUTION:

Discovery 3.0T 32 CH Body Array Coil Replaceable Parts

3.0T Body Array Coil Replacement parts (FRU's - Field Replaceable Units) should be ordered by a GE Service Representative or a third party service provider.

If you do not have a GE Service Representative or third party service provider, please contact GE Healthcare at 800-582-2145.

Table 4-3 3.0T Body Array Coil Replaceable Parts

Part Name	FRU Part Number
Small Part Kit	5400424
Nest Pad	5400428
Phantom Positioner	5400426
Pad Kit	5445704
3T Body Anterior Array, 32CH Dv	5391471
3T Body Posterior Array with Nest Pad, 32CH Dv	5391474

Contact Information

GE Healthcare Americas	
USA	800-558-5102
Canada	800-668-0732
GE Healthcare Global	
China	86-21-62192228
Taiwan	886-2-2505-7900
Singapore	65-291-8528
Australia	61-2-9975-5501
Japan	81-120-48-2630
Korea	82-31-740-6119
India	91-80-845-2923
Europe	33-1-41-19-76-76
GE Healthcare Manufacturer Information	
GE Website	www.gehealthcare.com
Manufacturer Address	GE Healthcare Coils 1515 Danner Drive Aurora, Ohio 44202-9273 USA
Manufacturer Phone Number	1-330-562-1000