



User Manual

A800-0002 Protego® Radiation Protection System, Toshiba Configuration

A800-0004 Protego® Radiation Protection System, Siemens Configuration

A800-0006 Protego® Radiation Protection System, Philips Configuration

A800-0007 Protego® Radiation Protection System, GE Configuration

For use with imaging tables equipped with metric (10mm x 25mm) accessory rails



Important Notices



PROTEGO SYSTEM SHIELDING IS DESIGNED FOR USE IN ENVIRONMENTS WHERE DANGEROUS RADIATION IS PRESENT. READ, UNDERSTAND, AND FOLLOW ALL INSTRUCTIONS AND WARNINGS PROVIDED IN THIS OPERATOR'S MANUAL AND ON PRODUCT LABELS. FAILURE TO READ AND FOLLOW ALL WARNINGS AND INSTRUCTIONS CAN RESULT IN SERIOUS INJURY OR DEATH.



Radiation exposure is dangerous and cumulative. The protection afforded by the Protego Radiation Protection System cannot reduce the amount of radiation to which an individual has already been exposed or undo any damage an individual has already sustained from previous exposure.



DO NOT USE the Protego Radiation Protection System without the RaySafe™ Radiation Survey Meter, or comparable product, to monitor radiation exposure levels and protection. FAILURE TO MONITOR RADIATION EXPOSURE LEVELS WITH THE RAYSAFE™ METER IS A MISUSE OF PROTEGO RADIATION PROTECTION SYSTEM AND CAN RESULT IN SERIOUS INJURY OR DEATH.

The trademark RaySafe™ Radiation Survey Meter is owned by Fluke Biomedical.

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The text of this manual was originally written, approved, and published by the manufacturer in English. The information and images in this document are proprietary to Image Diagnostics, Inc. (IDI) and is only for use for and by IDI representatives or their Agents.

OVERVIEW

This manual pertains to the specified devices only and does not intend to replace or substitute for certified training in the application of this equipment. The device is intended for qualified medical personnel who have been trained in the use of medical equipment and have been thoroughly advised by the facility physicist and safety office. The safety processes must be defined by the facility.

Functional capabilities and operation of the equipment described herein can be employed in a variety of diagnostic, therapeutic, and surgical applications.

OWNER RESPONSIBILITIES

The owner of this device is responsible to ensure system compatibility and the qualifications of the operator and maintenance personnel. The operator must be properly trained and have obtained credentials from the appropriate authorities.

The owner of this device is responsible for verifying continued compliance with all applicable regulations and standards. Consult local, state, federal and/or international agencies regarding specific requirements and regulations applicable to the use of this equipment.

IDI certifies only the equipment. After-sale operating practices and safety are the responsibility of the owner and operator. IDI assumes no liability or responsibility for after-sale operating or safety practices; nor can it be responsible for personal injury or damage resulting from misuse.

Never make modifications or adjustments to the equipment unless directed by a qualified representative of IDI. This equipment, when properly assembled, meets US federal regulations and standards. Unauthorized modifications to the equipment may impact adherence to these standards and make the equipment unsafe to operate.



WARNING: Failure to use Protego Radiation Protection System as intended may cause permanent injuries as the result of radiation exposure. Consequences of radiation exposure may include tumors, cataracts, thyroid disease, cardiovascular effects, and other health problems, possibly leading to debilitation and death.



WARNING: Elimination of personal protection devices and apparel in a radiation exposure environment should **ONLY** be allowed with proper protection, real-time dose monitoring, and the approval of the facility Radiation Safety Office. Removal of personal protection devices and apparel in a radiation exposure environment **MUST** be done **ONLY** in accordance with hospital radiation safety policy and protocols and as permitted under applicable federal, state, and local radiation safety regulations.



WARNING: The use of the Protego Radiation Protection System is predicated on the use of a real-time dosimetry system. IDI will not allow the deployment of the Protego Radiation Protection System in the absence of real-time dosimetry. If the healthcare facility does not already own a real-time dosimetry system, one can be purchased through IDI or another source.




WARNING: Any radiation exposure accumulated by healthcare personnel throughout their careers and lives is not impacted by the Protego Radiation Protection System. Previous radiation exposure remains a risk to the healthcare provider. When used properly, Protego Radiation Protection System can significantly reduce radiation exposure for the healthcare provider. However this product does not and cannot reset existing or historical exposure conditions or prevent the potential health risks associated with that exposure. Annual and lifetime radiation dose guidelines only reduce the risks associated with radiation exposure. There is no “safe level of exposure.” There are only varying degrees of risk.


CUSTOMER SUPPORT

IDI will make available, on request, radiation testing results, component part lists, or other information which will assist the user's appropriately qualified technical personnel to repair those parts of equipment which are designated by the manufacturer as repairable.


For technical assistance, call IDI at (978) 829-0009. Be prepared to give the complete model and serial number found on the data plate on upper side of the column of the Protego System's Mobile Stand at the time of contact.

This Personnel Protective Shield component is manufactured by IDI complies with applicable FDA performance standards contained in 21CFR Sec. 892.6500 at date of manufacture.

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APRON-FREE™ IMAGING

The Protego Radiation Protection System by IDI provides radiation protection for approximately half the cath lab space. Testing has determined that the Protego System provides enough radiation protection that it may be used in lieu of lead aprons and other personal radiation protection. The following recommendations can be used to develop a successful radiation safety program to go Apron-Free with the Protego Radiation Protection System.



RaySafe badges show real-time radiation exposure. When there is a high reading, adjustments in shielding should be made immediately to reduce the exposure to meet facility guidelines. Do not continue with intervention until the radiation exposure is reduced to at least meet facility guidelines. RaySafe badges are used *in conjunction with* lifetime radiation exposure badges.



CAUTION: A 0.0 mrem reading from a real-time dosimetry system does not necessarily mean that no radiation is present. Such a reading indicates that the radiation level is below the threshold for the real-time dosimetry equipment to detect the presence of radiation.

- Product Training:** Staff trained by Image Diagnostics personnel, or authorized representative, for safe use of the Protego Radiation Protection System.
- Dosimetry:** Implementation of real-time dosimetry in the cath lab where the Protego System will be used to shielding is properly employed.
- Set Benchmark Exposure Reading:** Set by the Radiation Safety Officer (RSO), the benchmark exposure reading will give guidance to when staff to readjust shielding when there is sufficient radiation exposure to do so. There are a variety of ways to determine the benchmark, and two are described below.
 - Examine staff exposure over 400 cases with real-time dosimetry readings, and set the average as your benchmark.
 - Average the readings of permanent badges for the entire team over the last three months.
- Create a New Baseline:** dosimetry badge readings for the first 30 cases must be recorded. The data will include names of individual wearing dosimeters, where on their persons the dosimeters were located, and the general area in which the staff member stood in the cath lab, relative to the table, during procedures. Readings for the initial 30 cases should demonstrate consistent results within the recommended range for all users in all positions and should remain under the maximum exposure level as defined by the RSO, while allowable exposure levels are ultimately subject to state and local laws as well as the discretion of the RSO.

The annual occupationally max allowable dose per year is 5,000 mrem. At 10% of the occupationally max allowable dose, which is 500 mrem, and assuming 400 cases are performed per year by an interventional cardiologist, the benchmark would be not to exceed 1.2 mrem per case. The Protego System has been shown to consistently reduce average case exposure to well under 1.2 mrem when properly deployed. While badge readings may vary by room and procedure, a sufficient baseline of readings from the real-time dosimetry system will be documented during the product demonstration or product in-service/staff training phase. Consistent readings, typically well under the 1.2 mrem benchmark, indicate proper technique and will minimize operator and staff exposure. Further, consistent badge readings below the established value will be used

as one of the primary benchmarks to determine if the elimination of personal protection devices will be permitted.

5. **Map the Room:** the facility Radiation Safety Officer or other responsible party within a facility must complete a grid and safe zone demarcation within the room where Protego System is to be deployed. This room map will be laid out using dosimetry devices and will identify the zone where personal radiation equipment does not need to be worn. This zone must be clearly and indelibly marked on the floor as a guide for personnel. IDI can provide a mapping protocol for your reference.
6. **Update Radiation Safety Protocols:** New procedures and room safety protocols may be required and implemented at the discretion of the facility Radiation Safety Officer/Physicist and/or room staff, to ensure the working environment that the Protego Radiation Protection System creates will enable staff safety for all situations.
7. **Safety Inspections:** the Protego Radiation Protection System must be added to and included in any existing radiation protection equipment safety inspections performed on a regular and on-going basis. New protocols for safety inspection may be determined and implemented at the discretion of the facility Radiation Safety Officer/Physicist or staff.
8. **Legal Considerations:** the path to Apron-Free™ imaging must include compliance with all governing bodies within a state, county, and municipality as state and local laws may ultimately impact any decision to perform procedures without personal radiation protection devices.

SYMBOL IDENTIFICATION



Attention! Consult accompanying documents. Failure to follow these instructions could cause serious personal injury or damage to equipment.



Device serial number



WARNING: Information or instructions shown near this symbol must be adhered to in order to prevent a potentially hazardous situation which if not avoided, could result in death or serious injury.



Device date of manufacture



CAUTION: Information or instructions shown near this symbol must be adhered to in order to prevent a potentially hazardous situation which, if not avoided, may result in minor or moderate injury or equipment damage.



Location where device was manufactured



Recyclable material



Read the manual



There is the potential of exposure to harmful x-rays. Be sure to read and comply with all warnings.



Maximum vertical arm support system lift load



Not made with natural rubber latex



Critical instructions for administering CPR



Device model number

INTENDED USE

The Protego Radiation Protection System is a series of shields that significantly blocks radiation from the personnel working, initially, in the fluoroscopic laboratory such as cardiac catheterization labs (cath labs). The system provides an enlarged and modernized radiation protective barrier which shields physicians and table-side assistants from exposure to primary, secondary, and scatter radiation. Subject to validation from the hospital physicist and Radiation Safety Officer, this system provides head-to-toe protection that can provide the equivalent of 0.5 mm of lead or better if properly installed, positioned, and draped. With proper positioning and patient draping, the Protego Radiation Protection System provides effective radiation protection. If a nurse or operator is required to move to the imaging end of the table on the x-ray system side of the barrier, for instance to check on a patient condition, they must wear proper radiation safety equipment per the healthcare facility requirements or follow the facility protocol as written by Radiation Safety officer.

All persons using this equipment must fully understand its operation instructions, emergency procedures, and be aware of all potential safety hazards.

This manual should be accessible to all personnel installing, operating, or servicing this equipment.



CAUTION: Only a qualified technician may install or service this equipment.



CAUTION: Failure to follow safety precautions may result in serious injury to user, patient or damage to equipment.



CAUTION: The Protego Radiation Protection System must be inspected regularly per the institutions radiation safety policy to ensure essential performance functions that would pose a risk due to failure or degradation of the unit or any of its components.

It is imperative that all personnel operating the Protego Radiation Protection System be familiar with the equipment operation, transport, and all documentation supplied by Image Diagnostics, Inc (IDI).

The Protego Radiation Protection System is intended to be used in a healthcare facility setting in accordance with national standards.

When transporting the system room-to-room, it is imperative that the device be in the transport lock position and at the lowest height setting on column and with the safety pin engaged. The main shield barrier is rotated to be parallel to the cart's column with the top pipe rail push into the park assembly mounted on the cart's column. The supplied strap must be used to provide additional security to hold the shield barrier to the column.

Comments and questions regarding safety should be addressed to:



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ELECTROMAGNETIC COMPATIBILITY (EMC) STATEMENT

Class B device.

Mobile RF Communications Equipment will not affect the Protego Radiation Protection System, which is a non-electrical system. No special precautions needed regarding EMC when Protego Radiation Protection System is installed, operated, and maintained.

PRODUCT DESCRIPTION

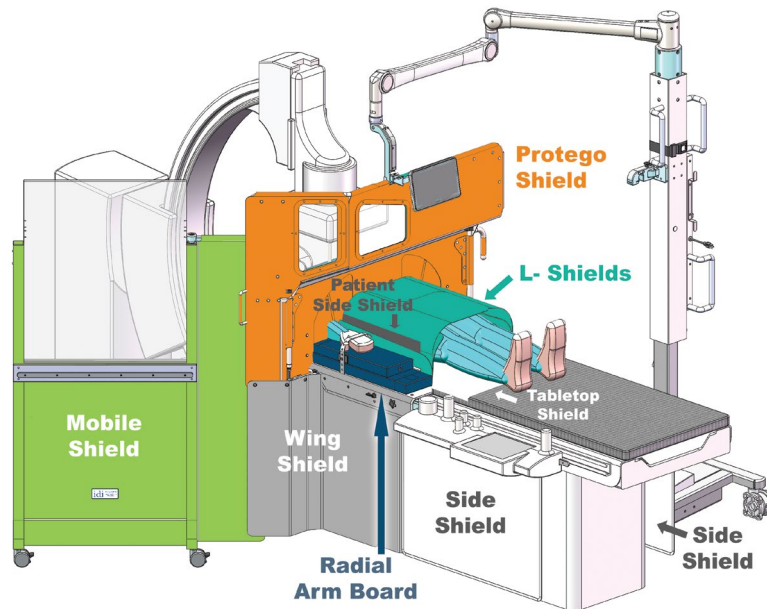
The Protego Radiation Protection System is a comprehensive solution for reducing radiation exposure to healthcare providers, improving the safety for all team members in the cardiac catheterization lab. The shielding is attached to the imaging table and pans with it, and the system allows for unhindered femoral and radial access. The Protego system provides a platform for the entire interventional team to operate Apron-Free™*.

**Procedure parameters for Apron-Free™ imaging at your facility must be defined by your Radiation Safety Officer or facility physicist as well as comply with state and local regulations.*



The ilix™ D Visualization System is sold separately.

GENERAL DESCRIPTIONS FOR SYSTEM COMPONENTS



Protego Shield

The Protego Shield is the heart of the system. Blocking scatter radiation coming from the patient, the shield has an aperture designed to accommodate a wide range of patient sizes and shapes. The shield pans with the table as it locks into the Wing Shields which are attached to the table rails. The unique shape of the shield and its built-in flexibility, with pivoting feet and a jointed connection to the swing arm, allow for unhindered C-arm movement without shield manipulation during the procedure. Leaded acrylic windows and built-in HD camera system allow for patient visualization.



Support Stand

The Support Stand holds the Protego Shield with a spring arm so that it can be moved by staff comfortably as well as pan with the table. The Support Stand's column has a built-in rail for holding a shield that expands radiation protection for the team. The column telescopes to allow for elevation to maximize compatibility with other equipment in the cath lab, and it shortens for transport through doorways. The base is weighted to prevent tipping and features handles and a directional caster to facilitate relocation. Power for the visualization system is routed through the column, and tools for side shield attachment and making adjustments to the spring arm are stored on the column.



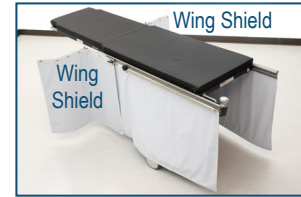
Side Shields

Because radiation can travel down the sides of the table, the Side Shields are bilateral and extend protection to the end of the table. They offer 0.5 mm lead equivalence and overlap, with the Wing Shields to increase the effective lead equivalence and to help ensure reliable shielding during cases. These shields slide onto the table's rails and are equipped with rails for equipment and accessories. They are secured by tightening the screws located near the ends of the shields, under the rail, with the smaller yellow-handled tool stored on the Support Stand column.



Wing Shields

The Wing Shields' overlapping shielding sections accommodate when the tube projects outside the table footprint. Magnet locks on the Wing Shields hold the Protego Shield, enabling it to pan with the table. The actuator knobs for the magnet locks are color-coded: green for locked and orange for unlocked. The Wing Shields have a "slide" feature which allows for up to 8" in Protego Shield movement to increase C-arms angles and patient access. Wing Shields offer a minimum of 0.5 and a maximum of 1.0mm equivalence protection with the overlapping shields. In some cases, the left side may be released to increase the possible angulation range as well as accommodate the C-arm drive system.



Pedestal Shield

Each Protego System includes a pedestal shield to block scatter radiation from traveling down the length of the table. The pedestal shield varies in design based on the model of table used. The Pedestal Shield provides 0.5mm lead equivalence protection.



Pedestal Shield

Tabletop Shielding

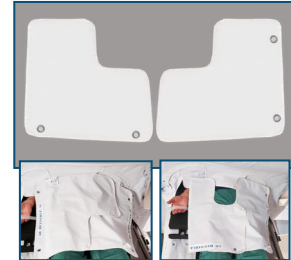
TABLETOP SHIELD

This Shield rests on the table pad, under the patient's thighs to protect from tube scatter as it travels under the table. Place this shield on the table before patient transfer. When possible, cascade this shield over the table sides for better radiation protection. Lead equivalence is 0.5mm and dimensions are 26" x 32".



L-DRAPES

The L-Drapes are the primary patient scatter shields. They overlap the patient aperture flaps and transcend down to the patients knees. The drapes form a square for radial approaches and rotating one opens creates a "U" opening for groin approaches. Lead equivalence for each L-Drape is 0.25mm and the dimensions are 24" x 24".



Patient Side Shielding

Overlapping shielding sheet in primary scatter areas. Place this shield upright along patient's right side to protect personnel from scatter radiation. Lead equivalence is 0.5mm and the dimensions are 7.5" x 32".



Radial Arm Board

The Radial Arm Board is divided into two sections for improved handling and storage. The left side section is padded and provides a surgical platform for the patient's arm. Both sections of the arm board overlapping shielding that snaps together is has 0.5 lead equivalence. An integral wrist restraint keeps the patient's arm stabilized, and a removeable section provides visualization of the right heart via a brachial approach.



Flexi-Shield

These fabric-covered shields are made of radiation-blocking metal that is malleable enough to be bent into the shape you need and rigid enough to maintain that form. Lead Equivalence is 0.5mm and dimensions are 14" x 24". One included with original system and are also sold separately.



Shown flat and bent.

Mobile Shield

Shields the back table for potential scatter and expands the coverage area on the clinical side of the room and for steep LAO angulations. The Mobile Shield has a patient viewing window for patient visualization. Its rails and brackets are for storing many of the shield components of the system between cases as well as for transporting the system to another lab. The Mobile Shield is rated at 2.0mm lead equivalence, and the attached extension shield is 0.5mm lead equivalence.



Support Stand Rail

When patient transfer is on the table's left side, the left side Wing Shield can be temporarily stored on the rail of the Support Stand.



RaySafe Active Dosimetry System

The RaySafe i3 is an active dosimetry system that provides immediate insights about radiation exposure, helping medical staff and physicians evaluate and take action to more effectively use radiation reduction measures. The RaySafe Real-time Dosimeter measures and records radiation every second. Data is transferred wirelessly to the RaySafe Real-time Display or Hub. RaySafe Real-time View visualizes radiation exposure in real time using easy-to-read, color-coded bar graphs displayed on either the dedicated RaySafe Real-time Display or your main X-ray monitor. Green, yellow and red bars indicate the dose rate for up to eight individuals. Instant feedback empowers users to learn, adapt, and take immediate actions to minimize unnecessary radiation exposure. Each badge records the total exposure for the given time frame.

The badges are directional and need to be placed on each person situated to face the radiation source.

Please refer to the RaySafe product manual for learning how to use the RaySafe system.

Supplemental Drapes

PROKIT

One ProKit contains the three sterile drapes needed for a procedure: one Protego Shield drape and two L-Shield drapes.

MONITOR DRAPE

Monitor automatically turns on when system is powered. Power button is on the bottom, right side. Expect 45 to 60 seconds to boot. Tap screen to toggle through views. Battery lasts approximately one hour.



DISPOSABLE FEMORAL SHIELD

Proprietary design, single-use radiation protection for femoral access. Lead equivalence is 0.25mm.



DISPOSABLE RADIAL SHIELD

Proprietary design, single-use radiation protection for radial access. Lead equivalence is 0.25mm.



DETAILED INFORMATION FOR SYSTEM COMPONENTS

PEDESTAL SHIELD

The Pedestal Shield completes the wall of protection created by the table shields. The design is dependent on the type of C-arm and table system set-up is being used. For the rounded pedestal type, we use Velcro to attach the shielding to the table. The other pedestal shields use the pedestal rail to attach to the table column.

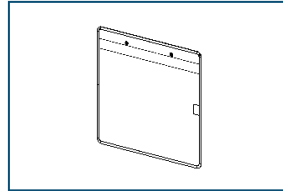
When setting up the Protego System, the first piece to be installed is the Pedestal Shield. With most systems, the shield mounts to the pedestal rail. For systems without pedestal rails, VELCRO® is used to attach the Pedestal Shield. This shield remains on the table between cases.



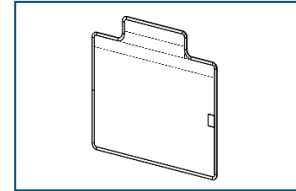
Siemens
C-arm Set-up



Philips
C-arm Set-up



Toshiba
C-arm Set-up



GE
C-arm Set-up

SIDE SHIELDS

The Side Shields (left and right sides) help create the wall of protection. They remain on the table between cases.



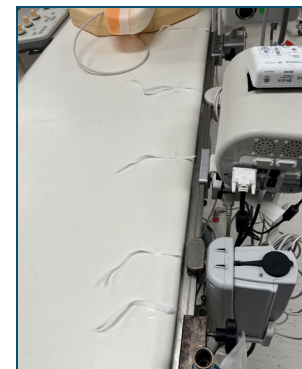
Side Shields are stored on the Mobile Shield during system transport.

INSTALLING SIDE SHIELDS

1. Take a picture or make note of the placement of the equipment mounted to the patient-left rail of the imaging table.
2. Remove equipment mounted to the patient-left rail of the imaging table.
3. The Side Shields are stored on the rails of the Mobile Shield. The Wing Shields will be mounted to the rails of the Side Shields, remove them first and set them aside to get to the Side Shields.
4. Slide the Side Shields onto the foot-end of the table rails, leaving 6" of table rail open at head-end for mounting the Wing Shields.
5. To secure Side Shields to the rail, use the 1/8" Allen wrench stored on the Mobile Base column to tighten (or loosen when changing position on the rail or removing) the set screws found on each end of the Side Shields.

NOTE: Leaving the Side Shields unlocked on the rail will make it easier to reconfigure the shields when necessary.

6. Re-mount equipment to the side rail of the patient-left Side Shield to the same positions it was on the imaging table rail.



Take a picture of the equipment on the table rail before removing it. Or use temporary markings to aid in returning items to their proper place on the Side Shield rail once on the table rail.



Secure Side Shields to rail by at least one of shield's set screws, found at the ends of the shields (see picture to the right). Possible injury to personnel or the patient may occur if either side shield slides off the rail.



Use the 1/8" Allen wrench stored on the Mobile Stand column to engage or retract the shield's set screws to secure or release from the table rail.



The Protego Radiation Protection System reduces the ability to use steep Trendelenburg. In an emergent situation, remove the Protego Shield to get a steeper Trendelenburg angle.



Use Allen wrench to tighten (or loosen) set screws at both ends of the shield to secure to rail

WING SHIELDS

The Wing Shields are critical pieces of the system that hold the Protego Shield to the table, allowing for easy panning. They also add additional radiation protection for those cases where extreme LAO or RAO angles project the tube outside the bounds of the table. For right-side patient transfer, the patient-right Wing Shield is stored on the Mobile Shield between cases. For left-side patient transfer, the left-side Wing Shield is stored on the Mobile Stand.



For left-side patient transfer, the patient-left Wing Shield can be stored on the Support Stand's rail.



Wing Shields mounted on table extend protection for LAO and ROA angulations



For right-side patient transfer, the patient-right Wing Shield is stored on the Mobile Shield's rail.

MOUNTING WING SHIELDS TO TABLE

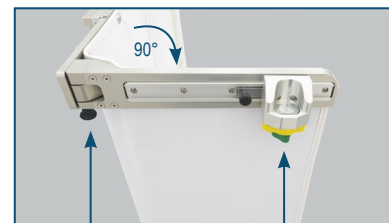
1. Remove the patient-left Wing Shield from the Mobile Shield.
2. Slide the patient-left side Wing Shield onto the left-side table rail at the head-end of the table. Lock using the rail knob (shown below). Pull down the corner plunger (see image to the right) to unlock. Swing the shield wing out until it locks into place at a 90-degree angle.
3. Set the shield's slide feature to the halfway point to allow adjustment movements in either direction (see below) and set the Wing Shield magnet lock to green (locked).

NOTE: The patient-left Wing Shield will remain on the table between cases.

4. Repeat the same actions for the patient-right Wing Shield: ensure the slide function is active and the magnet lock is set to green (locked). The patient-right Wing Shield should be stored on the Mobile Shield, mounted to the table after the patient is transferred to the table and replaced on the Mobile Shield after the procedure to allow for patient transfer off the table.

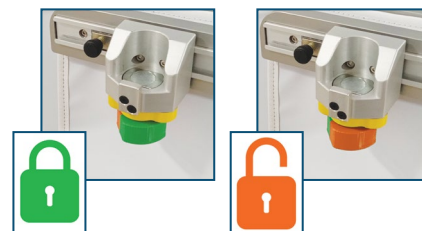


Slide Wing Shield onto table rail and secure with tightening knob. As shown below, pull corner plunger to release wing part of shield



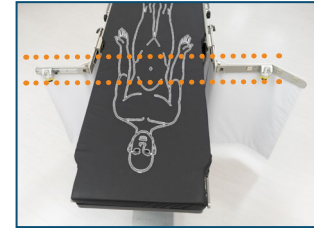
The corner plunger pulls down to release wing to swing out 90°

The Magnet Lock connects the Protego Shield to the Wing Shield



PATIENT UMBILICUS AND WING SHIELD ALIGNMENT

Wing Shield placement on the table must accommodate lining up with the patient umbilicus, and at transfer the patient's umbilicus must align with the Wing Shields. The Protego Shield attaches to the wing shield in this plane, making proper positioning of the patient critical for ensuring adequate surgical access, radiation protection, and patient comfort.



Wing Shield Slide Feature

The slide feature allows for repositioning the Protego Shield independently from the table rail, helping to increase caudal access angles and providing improved patient anatomical visualization. There are 8" of slide movement possible. By positioning the Wing Shield at the center of its slide rail provides the most flexibility in repositioning the Protego Shield. In some instances, particularly with GE and Toshiba fixed systems, it may be necessary to release the left side and to set the Protego Shield at an off-angle to accommodate the C-arm's drive system.



Wing shield slide provides 8" of movement for easy repositioning of the Protego Shield



Before sliding Protego Shield toward foot end of the table via the Wing Shield



After sliding Protego Shield toward foot end of the table via the Wing Shield

WING SHIELD CONNECTION ADJUSTMENTS

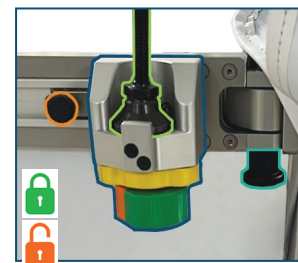
To lock the Protego Shield to the Wing Shields, at the bottom of the Wing Shields' Magnet Locks (outlined in blue) turn the knob 180°. Place the connection foot (outlined in green) into the recess of the Magnet Lock (outlined in light blue). The magnet locks secure the Protego Shield to the Wing Shields.

Magnet locks is green when engaged. Rotate to orange to disengage. When engaged the Protego Shield can be removed from the magnet locks with a strong, quick tug on the shield handles in emergent situations.

The patient-left side Magnet Lock is adjustable to ensure easy connection to the Protego Shield. The picture to the right shows the adjustment knob outlined in orange. Right side of the Protego Shield should be placed into Magnet Lock first, then the left side to make the width adjustment.

For very steep C-arm angles, the Protego Shield may need to be offset. There are two options. 1) Release the patient-left side Magnet Lock and allow that side of shield to float, or 2) unlock the Wing Shield from its 90° angle (see blue outlined knob) and allow the wing to move.

NOTE: The Protego Shield connection feet allow for shield movement while it remains securely attached to accommodate C-arm positioning.



- A - Connection foot of the Protego Shield
- B - Magnet Lock of Wing Shield
- C - Locking knob for Magnet Lock positioning
- D - Release knob to lock wing at 90°



WARNING: At least one side of the Protego Shield should be attached to the Wing Shields in order to create the proper radiation protection as well as pan with the table.

PLACING THE MOBILE STAND

After the table shielding is mounted, locate the stand next to the table. Pull out the locking pin, unlock the column, and elevate the column to its highest position. Then re-pin and re-lock the column. When positioning the column, provide enough reach for the Protego Shield to easily nest into the magnet locks and the Protego Shield Arm (holding the shield above the table) have a bend in the elbow in order to ensure smooth panning. Leave adequate space between the stand and the table for patient care. Lock a minimum of two casters after moving the Mobile Stand into place. See page 21 for Emergent Situation section of this manual.



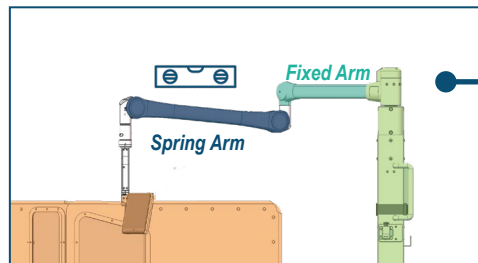
Space for movement between the Mobile Stand and the table



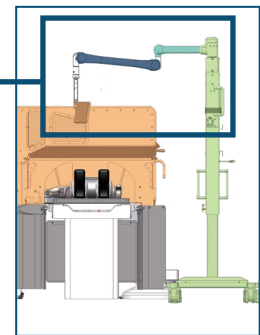
WARNING: At least two casters of the Protego Shield must be locked while system is in use or in storage

Spring Arm Positioning

The Spring Arm is flexible to allow the Protego Shield to move in any direction, including up and down, with the imaging table. The Spring Arm should be approximately level to the floor. When the Spring Arm is not approximately level because the table is positioned too high or low, reducing its ability to pan with the table and potentially damaging the Protego Shield support system.



CLOSE UP: The imaging table is too low or high if the Spring Arm isn't approximately level to the floor.



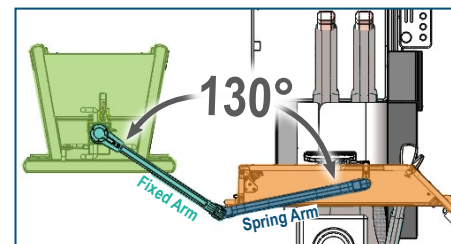
View from foot side of imaging table.



WARNING: Overextending the support arm joint may prevent proper table panning as well as damage the support arm.

Positioning the Spring Arm and Fixed Arms

To ensure the Protego Shield pans properly with the table, the angle between the Fixed Arm and the Spring Arm will be 130° plus or minus 10 degrees. The arm can bend toward either direction (toward patient head or feet), depending on what works best with other equipment in the room.



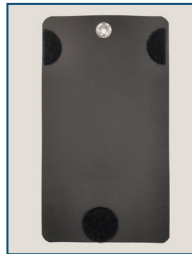
View from overhead.



WARNING: Start procedure with an approximate angle of 130° +/- 10° between the spring and fixed arms of the Protego Shield support system to ensure proper panning throughout procedure.

BRACHIAL APPROACH

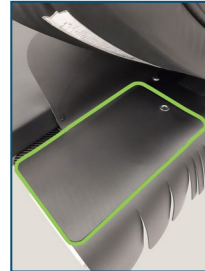
The armboard provides a removeable section for visualization of the right heart via a brachial approach. Store the removeable armboard section on the Mobile Shield hanger at top of the window. **When this patch is removed, use a Disposable Radial Shield to prevent radiation leaks.** Replace the section at end of procedure.



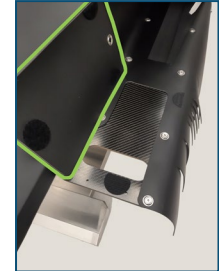
Removeable led section



Locate the removeable led section under the armboard pad indicated by green circle



Lift left-side armboard pad to find the removeable led section (outlined in green in the image to make it easy to see).



Removing led section creates an opening through which to X-ray the brachial access area. Lift section and store on the Mobile Shield to replace after the procedure.

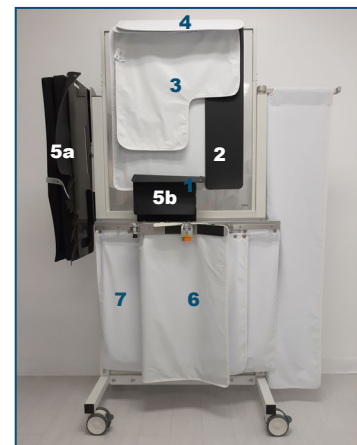


WARNING: ALWAYS use the Disposable Radial Shield when the led section of the armboard is removed.

MOBILE SHIELD FOR STORAGE

The Mobile Shield is equipped to store the pieces of the Protego Radiation Protection System both between cases and for transport into another room. Acts as a storage point for many Protego items between cases and when moving the system into another room.

1. **Tabletop Shield** - between cases and for transport
2. **Patient Side Shield** - between cases and for transport
3. **L-Shields** - between cases and for transport
4. **Flexi-Shield** - between cases and for transport
5. **Shielded Radial Armboard** - between cases and for transport
6. **Wing Shields** - patient-right side between cases, both shields for transport
7. **Side Shields** - both shields for transport



POST-PROCEDURE STORAGE OF PROTEGO SHIELD

When the patient procedure has been completed, it may be necessary to lower the table before removing the Protego Radiation Barrier. The Protego Radiation Barrier are connected to Wing Shields with magnet locks. Rotate lock knobs to **orange to disengage**. The Protego Radiation Barrier can now be lifted straight up and then moved to the side out of the way of the interventional team. The drape on the Protego Radiation Barrier can be removed now or later and then disposed of in a proper manner.

SYSTEM SET-UP

1. Note the location of equipment mounted to the table rails. Remove this equipment for Protego System installation.
2. Place the Support Stand on location marked on the floor. Remove pin from side of column and unlock it. Elevate the column to working height. Re-pin and re-lock the column.

If the floor has not been marked for the stand location, place preferred location is opposite the patient loading side. If that is not practical,

- Mount both Wing Shields. Extend wing portions of Wing Shields and ensure they line up to where approximately where the patient umbilicus will be.
 - The Support Stand should be placed so that 1) patient access on the left side is adequate for normal or emergent access, 2) the column is positioned approximate to the patient umbilicus, 3) the Protego Shield can easily rest in the Wing Shield Magnet Locks, and 4) the bend in the Protego Shield support arm is about 130°.
 - Ensure that there are nominal conflicts when placing and removing the shield.
3. Install Pedestal Shield.
 4. Install the Side Shields onto the table rails. They should abut the Wing Shields. Lock using the smaller tool stored on the Support Stand. Mount the equipment that was stored on the table rails onto the Side Shield rails in their previous locations.
 5. Remove patient right-side Wing Shield and store on Mobile Stand until the patient is transferred to the table.
 6. Store the Mobile Stand where conveniently available for case set up.

PROCEDURE PREPARATION

Before the patient is in the room

POWER PATIENT VISUALIZATION SYSTEM

- Support Stand cord should be plugged into a wall outlet. The system automatically turns on and loads in 45 seconds. Power switch is located on bottom, right side of monitor.
- Tap the screen to toggle through views options to find the split-screen view.

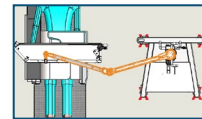


SUPPLY SCRUB/BACK TABLE

Obtain two sets of ProKits, Disposable Radial Shields, and Disposable Femoral Shields. One set is for use, and the other is for backup.

CONFIRM PROPER MOBILE STAND POSITION

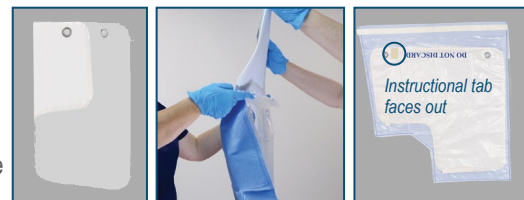
- The Mobile Stand's wheels is placed properly with two wheels locked.
- Ensure the Protego® Shield Support Arm, shown in orange, is bent to ~130° pointing in either direction.



DRAPE THE L-SHIELDS

Requires both a sterile and a non-sterile team member.

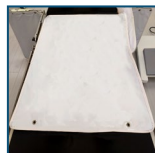
1. Sterile person creates a cuff around the bag opening with the clear side facing away from self.
2. Non-sterile person should hold shield by the grommet side, making sure the manufacturer tag is facing him/her. Fold the long end towards self and drop into the drape. Place drape on flat surface, make sure the shield is fully at the end of the drape and unfold L-Shield. Remove the tape covers and close the drape as tight as possible around the shield.



WING SHIELDS: UNLOCK SLIDE FEATURE & SET MAGNET LOCKS TO GREEN



PLACE TABLETOP SHIELD



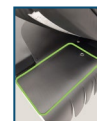
DOSIMETRY SET UP

A team member is the badge manager to ensure:

1. Each staff member going Apron-Free™ has a real-time dosimetry badge. Since badges are directional, they must face the source of the radiation. The operator closest to the shield should wear two badges on his/her side closest to the C-arm, one and at the thyroid and the other at the waist.
2. Badges are set to zero before the procedure starts.
3. Radiation levels are monitored during the procedure to alert the team if a leak is detected in order to resolve the leak.

Status of deployed badges should be part of the Time-Out Process. If a badge exceeds the RSO's radiation limit, then the effected individual should stop to put on lead.

CONFIRM RADIAL ARMBOARD RIGHT-HEART PATCH IS POSITIONED CORRECTLY

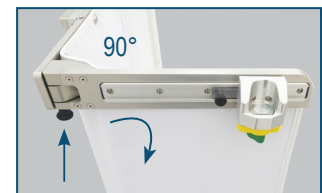


After transferring patient to the table

1. MOUNT THE LOADING-SIDE WING SHIELD, EXTEND BOTH WING SHIELDS
2. POSITION THE RADIAL ARM BOARD, SNAP SHIELDING TOGETHER, SECURE PATIENT WRIST WITH RESTRAINT IF RADIAL ACCESS, AND PLACE PATIENT SIDE SHIELD.
3. ENSURE PROPER ALIGNMENT OF PATIENT AND SHIELDING.
4. PREP AND DRAPE PATIENT.
5. DRAPE THE PROTEGO SHIELD AND LOCK INTO WING SHIELDS.
6. PLACE THE L-SHIELDS & DISPOSABLE RADIATION SHIELDS (IF REQUIRED).

1. MOUNT WING SHIELD TO TABLE RAIL, EXTEND WINGS

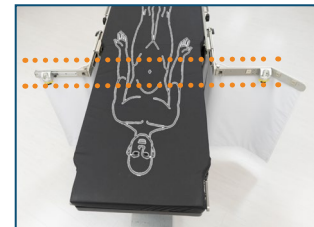
1. Mount the Wing Shield to the rail and lock.
2. Locate wing release knob at the joint of the shield as shown. Pull down to unlock the wing. Swing the wing out until it locks into place at a 90° angle to the side of the table.
3. The magnet lock should be approximate to the patient umbilicus. The access point (radial or groin) should be below (caudal side) the magnet lock.
4. Rotate the locking knob so that the color **green** (and smooth side) is facing outward in the **locked** position.
5. Slide the shield, independent of the rail, to about halfway to allow for intra-operational repositioning of the Protego Shield.



The corner plunger pulls down to release wing to swing out 90°

CHECK PATIENT UMBILICUS AND WING SHIELDS

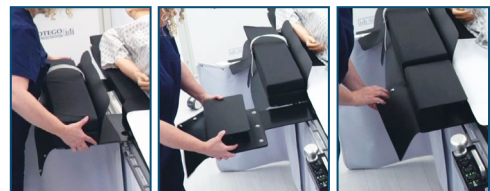
At this time, check to determine if the patient umbilicus and the joint in the wing shields line up. The Protego Shield attaches to the wing shield in this plane, making proper positioning of the patient critical for ensuring adequate surgical access as well as patient comfort. Slide patient to correct position.



2. POSITION SHIELDED RADIAL ARMBORD

Position the left-side armboard so that two flaps are to the left of the Wing Shield and slide the armboard under the table pad all the way flush to the side of the table pad. Slide the second armboard section to the right of the main armboard. Snap armboard flaps together.

NOTE: If a left radial approach is used, drape as normal and perhaps consider gaining access first, then draping the Protego® Shield and locking in place.



WARNING: ALWAYS use the right-side Shielded Radial Armboard as it provides necessary radiation shielding.

DURING THE TIME-OUT: CHECK DOSIMETRY MONITORING

1. The real-time RaySafe dosimetry badges are turned on and are reset.
2. The Apron-Free™ team members are wearing the RaySafe dosimetry badges in the appropriate locations.
3. A team member is assigned to continuously monitor dose readings during the procedure.

3. PREP ACCESS SITES & PLACE THE PATIENT SURGICAL DRAPE

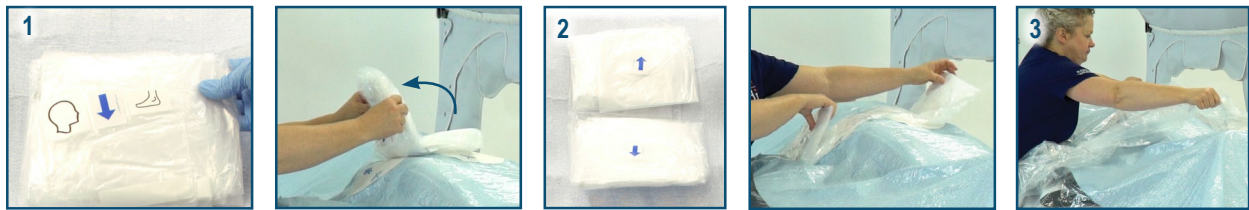
(The surgical drape is not a product associated with the Protego Radiation Protection System).

4. UNFOLD PROTEGO SHIELD DRAPE

1. Place the Protego drape with the head label toward the patient's head to the left and the foot label toward the patient feet to the right.
2. IMPORTANT - unfold in the direction of the arrows being careful to keep the right side above the top of the table.
3. Spread out the drape left to right over the Patient's drape, once fully exposed locate the Protego shield over the drape.



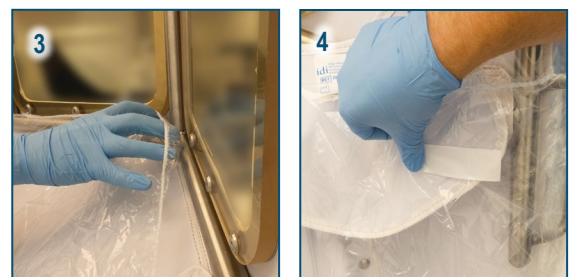
WARNING: Drape sterility will be compromised if the drape falls below the tabletop.



5. DRAPE PROTEGO SHIELD

Locate Protego Shield over the groin area of the patient. The shield should be over the drape's seam, and the **yellow dots** should be at or near the Wing Shield Magnet Locks.

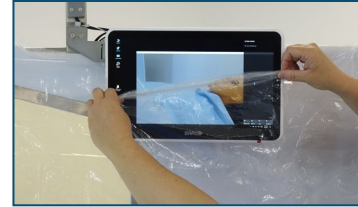
1. The Protego Shield's aperture flaps should be centered over the drape seam and the drape's yellow dots near the magnet locks.
2. On the patient foot side, insert a sterile hand on to the drapes backside elastic corner and place up and over the right side corner (as shown). Repeat on the left side.
3. On the C-arm side, there are two elasticized areas. Wrap the closest elastic area over the shield's side handle. Locate the second elastic area and place over the rear hook.
4. Using tape tabs provided, carefully enclose each side of the Protego Shield.
5. If using a radial approach, move the shield towards the patient head, and place the Protego Shield feet into the Wing Shield magnet locks. If using groin access, leave Protego Shield floating for now. (See *Access Point Imaging Options* section on page 2.)
6. Check the access site and confirm you have room to access. If you need more angulation or access, slide the Wing Shield & Protego shield together either toward the patient head or feet.
7. Check to see the drape is not over the rear cameras or front monitor and look for obvious distortions of the aperture flaps, they should lay flat on the patient. Correct as necessary.
8. Drape the front monitor if needed.



6. DRAPE THE PATIENT VISUALIZATION MONITOR (OPTIONAL)

The drape for the patient visualization monitor is a sleeve. Roll the elastic over hand. Slide drape over monitor, limiting creases over the screen.

NOTE: Monitor touchscreen is operational after drape is applied.



ACCESS POINT IMAGING OPTIONS

Right Radial Access - If the access is right radial, continue with directions at Step 7 (below).

Groin Access - Groin access requires the Protego Shield to be unlocked and suspended over the patient. The L-Drapes should be positioned near the final resting point. The interventionalist locate and place forceps over anticipated access site. Pan the table with the forceps through the Protego Shield aperture and take the image. Relocate forceps if necessary and image. Pan the table back through the Protego Shield aperture, locate ultrasound, and achieve access. Lock the Protego Shield into magnet locks, re-position L-Drapes, and place the Disposable Femoral Shield.

Brachial Right Radial - If the access is a right-heart pressure, remove the removeable shield under the left side of the radial armboard pad to allow for visualization of the upper arm (see page 12 for details). Locate the L-Drapes as normal. Release the patient-left side of or float the Protego Shield over the patient. Acquire access, then lock the Protego Shield in place.

FEMORAL ACCESS MAPPING

With the Protego Shield floating close above the patient, place L-Shields as illustrated below for a femoral approach. Place forceps. While holding forceps in place, pan table toward patient head until the access site is on the fluoro side of the Protego Shield. Remove hand. Fluoro and adjust marker as necessary. When access site is located, pan table toward patient feet until the Protego Shield is aligned with the patient umbilicus. Lock Protego Shield into Wing Shield magnet locks. Make access and perform ultrasound. When ready to begin intervention, adjust L-Shields positioning to allow for site access and also have them overlap the Protego Shield aperture flaps. Place Disposable Femoral Shield over access point, ensure the flap is closed for optimal radiation shielding.

7. PLACE L-SHIELDS

Shields are shown without their sterile drapes for clarity.

1. Remove the adhesive covers from each location.
2. Place the sterile, left-side L-Shield first with the long end toward the feet with the short end **overlapping the aperture flaps**. The inside corner should allow for a groin access if needed. Press to secure.
3. Place the right side L-Shield with the long side **overlapping the aperture flaps**. The outside edge of the drape should be as close as possible to the radial site.
4. To convert to a groin access, rotate the right side L-Shield counter clockwise forming the drapes into a "U". Cover the open site with our proprietary **Disposable Femoral Shield**. It may be necessary to fold the outside edge of the top L-Shield underneath itself allowing for radial access.
5. When using the Disposable Femoral Shield, be sure the flap is covering the access point to block scatter radiation.
6. Place the Disposable Radial Shield with the tape up on the front of the Protego Shield drape.



WARNING: L-Shields, Disposable Femoral Shield, and Disposable Radial Shield must all overlap the Protego Shield aperture flaps.

Femoral Approach



Position L-Shields like the left image and have them overlap as shown in the right image.



Disposable Femoral Shield

Radial Approach



Position L-Shields like the left image and have them overlap as shown in the right image.



Disposable Radial Shield

To convert radial approach to femoral, reposition top L-shield 90° counterclockwise.

8. PLACE MOBILE SHIELD

1. Roll the Mobile Shield into place and at angle to the table. The aluminum spring arm has a passive connection hook that allows for table panning.
2. Important – don't push the shield too far into the back of the surgical site as it could impact panning.



CONVERTING TO FEMORAL ACCESS

In the event that the case converts to femoral access:

1. Release the shield while keeping it hovering over the table.
2. Rotate the top L-Shield counterclockwise a quarter-turn to open femoral access.
3. Place marker and pan the table towards the head, image, and relocate marker if necessary.
4. Reverse pan, do the ultrasound, gain access, lock Protego Shield into Wing Shields
5. Relocate the L-Shields, gain access, and place a Disposable Femoral Shield.



9. FINAL CHECK

- RADIAL ARMBOARD is seated next to patient.
- APERTURE FLAPS are bent so the ends are toward the patient's feet, overlapping, and there are no obvious leak points.
- L-SHIELDS are overlapping the aperture flaps. Secure with the adhesive strips on bottom of drapes, and extended laterally as far as they can be once access is achieved.
- RADIAL ARM SHIELD is up and taped to the face of the Protego Shield.
- TABLE SIDE SHIELDS must hang freely and overlap to ensure shield integrity. The footswitch should be clear of the panels.
- BADGES are in the proper places on the required team members, reset to zero, and recognized by the system.
- MOBILE STAND is positioned as closely as possible to the table while permitting access to the patient. The PROTEGO SHIELD ARM must not be straight to ensure proper panning with the table, and the bend can point in either direction, depending on the space requirements of the room.

10. CONTINUOUS MONITORING OF RADIATION DOSE

IMPORTANT! One person must be designated to observe the exposure level during the case and call out when radiation levels are noted by the badge. At no time should the exposure levels exceed the Radiation safety Officer's determined maximum single procedure dose.

These are the steps to take in the event of an unusually high radiation does reading.

1. Check the L-Shields for possible migration during the case. Reposition if necessary.
2. Verify that aperture flaps of the Protego Shield are overlapping and there are no separations causing the radiation leak.
3. The Side Shields must be overlapping and unhindered by other equipment in the room. The C-arm foot switch could be causing a shield not to hang correctly.
4. If radiation levels exceed the allowable benchmark as set by RSO and the leak cannot be resolved, team members must put on appropriate personal protective lead shielding.



DO NOT USE the Protego Radiation Protection System without the RaySafe™ real-time radiation monitoring system to monitor radiation exposure levels and protection.



Failure to monitor radiation exposure levels with the RaySafe™ real-time system is a misuse of Protego Radiation Protection System and can result in serious injury or death.



Radiation exposure is dangerous and cumulative. The protection afforded by the Protego Radiation Protection System cannot reduce the amount of radiation to which an individual has already been exposed or undo any damage an individual has already sustained from previous exposure.

THE PROTEGO SHIELD AND EMERGENT SITUATIONS

The Protego Shield can be moved or removed, depending on the emergent situation as well as facility protocol.

INCREASE PATIENT VISUALIZATION

Move the Mobile Shield away from the table and off to the side to increase patient visualization and provide a wider path to the patient.

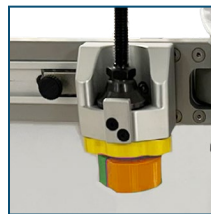


WARNING: Moving the Mobile Shield will reduce the size of the apron-free zone.



Increasing Access: Release One Side of Protego Shield

Unlock the Magnet Lock on the patient-left side of the table only. Move the Protego Shield toward the patient feet without disrupting the intervention.



Twist knob 180° to **UNLOCK** Magnet Lock and release Protego Shield



At the handle, move Protego Shield toward patient feet to create more room at the head-end of the table

WHEN INTERVENTION BECOMES STABILIZATION

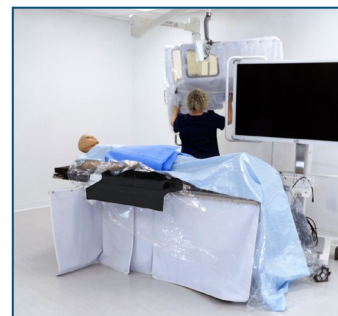
From the patient-left side, unlock Magnet Lock, then give a firm tug upward. This releases the Protego Shield from the Wing Shields and allows for pulling the shield out of the way.



Unlock Magnet Lock, firmly tug upward to release far side of shield



Lift straight up, clearing the patient



Pull toward patient-left side and store out of the way

CLEANING

Cleaning Agents

General Purpose

Simple Green™ is the tested and approved general cleaning agent to use on the product.

Metals and Plastics

The following list of cleaning and disinfecting agents have been tested and approved for use with the metal and plastic parts of the product.

- Sodium hypochlorite (generic household bleach) in solution of 5.25% sodium hypochlorite diluted between 1:10 and 1:100 with water.
- Alcohol (generic).
- Precise Hospital Foam Cleaner Disinfect
- Envirocide® Disinfectant and Cleaner.
- Disinfecting Wipes (Lysol or equivalent), Ammonium Chloride 0.2 to 0.5%

Radiation Shields

Use Hydrogen Peroxide spray or wipes for disinfecting. We recommend Scrubbles® for cleaning, disinfecting, and deodorizing, by Infab Corporation, <https://www.infabcorp.com/apron-cleaning/>

1. Apply Scrubbles on one section of the shield at a time and allow to stand a few minutes
2. Scrub the area with the soft bristle brush. Do not let the solution dry before rinsing
3. Rinse the section with water and damp cloth.
4. Continue steps 1-3 until the entire shield is clean

Windows

Acrylic windows are easily scratched. Care for them is very specific. Only use the following when cleaning the acrylic windows and be sure to read the following warnings.

- Standard Dish washing liquid, one drip to a quart. Use only a very soft damp cloth when cleaning acrylic surfaces.
- Use a new or separate cloth for care of acrylic to prevent scratches from grit or cleaning chemicals.



It is possible to scratch acrylic, so NEVER use any scouring compounds or chemical cleaners such as Windex or other glass cleaners (even if they are environmentally friendly, organic, or non-scented).



Should anything ever stick to an acrylic surface (such as an adhesive label or gummy substance) do not use any type of solvent.



Never use the same cloth that you clean other items with – it can retain dirt, grit, and chemical residues that may harm your acrylic items. We recommend using a new or separate cloth for your acrylic care.



However, scratches do happen – but don't worry! Unlike other materials, scratches on acrylic can be easily removed with Novus products.



Keep your acrylic surfaces free from dust and dirt, with Novus 1. It is a clear, anti-static formula specially created to remove the negative charge that can attract dust and dirt to the surface of acrylic. It is easy to use simply wipe on and wipe off! The Novus 2 anti-static formula to remove surface scratches while it cleans. The Novus 3 is for removal of heavier scratches and requires Novus 2 for final finishing.



AVOID ammonia or vinegar-based cleaners and regular use of isopropyl alcohol which can cause tiny cracks in window.

Cleaning Directions

Protego Shield

Wipe off any excess fluids with a water dampened cloth or sponge.

Clean the Protego System handles, magnet lock knobs and position lock plunger knobs area and accessories using an approved cleaner listed above.

Clean the articulating arms and components from either the ceiling mount or mobile platform systems with Simple Green™ cleaner as needed.

NOTE: The Protego Radiation Barrier is not removable; cleaning must be done while hanging for suspension arm.

Flexible Radiation Shields

Apply recommended cleaner on one area at a time. With use of a damp cloth, wipe area with circle motion. Rinse and repeat as needed with cleaner and damp cloth where needed. Use cleaner in an adequately ventilated area.

Table and Patient Shields

- Lift off and remove from location. Lay shield assembly or partition on a flat surface before using the recommended cleaner in an adequately ventilated area.
- Apply approved cleaner to one side at a time and allow to stand a few minutes.
- With use of a damp cloth, wipe area with circle motion. Do not let the solution dry before rinsing.
- Rinse with water and a damp cloth.
- Apply more cleaner, wipe area with damp cloth in circle motion again, if necessary.
- Attach Radiation Shield back onto location from which removed.

Acrylic Windows

Windows can be scratched, be careful to read and follow these instructions carefully.

- **Do not use** abrasive tools or cleaners. Never use a cloth used for another cleaning job for this could scratch the acrylic. Do not use paper towels, scrub pads, or other abrasive cleaning tools.
- **Do use** a mild, non-abrasive cleaning solution, soft cloths with careful, minimal pressure motion. Clean using on a new microfiber or non-abrasive damp cloth. Wet the cloth directly in the soapy mild water solution. Use only the approved cleaners listed above.

DISPOSAL OF COMPONENTS



The Protego System is constructed with components made of steel, aluminum and shielding materials. Steel and aluminum are easily recycled. Shielding materials will be consider waste disposal products. Components must be disassembled before recycling.

Disposal Considerations for shielding materials – Waste Disposal: Classified in Europe as non-hazardous under EWC code 12 01 99. Should be disposed of in registered landfill sites in accordance with local authority regulations.

COMPONENT	ITEM	RECYCLING GROUP
Frame & Rail Supports	Pipe Weldment & Lower Shield Rail Supports	Metal (Steel and Aluminum)
Mobile Platforms & Suspension Components	Arms & Frames	Metal, Plastic
Lead Acrylic Windows & Flexible Shields	Window Shield Partitions	Heavy Metal Composites

ORDER LIST

PRODUCT ACCESSORIES FOR USE WITH SYSTEM


A800-0310	Protego ProKits	Each box contains 25 kits that consist of one Drape for the Protego Shield and two L-Shield Drapes. All drapes are sterile and disposable.
C000-1717	Drape, Protego Shield Monitor	Each box contains 25 sterile, disposable drapes for the Protego Shield Monitor.
X800-0288	Drape, L-Shield	Each box contains 25 sterile, disposable drapes for L-Shields. Dimensions are 24" x 24")
Z800-0285	Flexi-Shield	A reusable shield that bends into the shape needed and retains that shape. To be used when needed. Dimensions are 14" x 24", and lead equivalence is 0.5 mm. Sold individually.
Z800-0286	L-Shield	A reusable shield placed over patient to protect personnel from scatter radiation. Lead equivalence is 0.5 mm. Sold individually.
Z610-0295	Radial Palm Restraint	Stabilizes palm for easier radial access. Sold individually.
Z610-0297	Radial Palm Restraint Strap	Replacement strap for the Radial Palm Restraint. Sold individually.
X800-0177	Drape, Protego Shield	Each box contains 25 sterile, disposable drapes for the Protego Shield.
Z610-0349	Tabletop Shield	Dimensions are 26" x 32", each
Z610-0358	Patient Side Shield	Dimensions are 7.5" x 32", each

PREMIUM DISPOSABLE SCATTER SHIELD PADS (OPTIONAL)

X800-0147	Disposable Radial Arm Shield	Each box contains 15 sterile, single-use scatter pads that are 0.25mm lead equivalent radiation protection. (12" x 16")
X800-0251	Disposable Femoral-Shield	Each box contains 15 sterile, single-use scatter pads that are 0.25mm lead equivalent radiation protection. (12" x 17")


WARRANTY

Warranty details for IDI Products can be obtained directly from Image Diagnostics, Inc

 **Image Diagnostics, Inc**
310 Authority Drive
Fitchburg, MA 01420
United States of America

 **ORDER:** sales@imagediagnostics.com
SUPPORT: techsupport@imagediagnostics.com

 **WEBSITE:** <https://imagediagnostics.com/protego/>

 +1-978-829-0009
Monday through Friday
8am to 5pm, Eastern