OPERATING AND MAINTENANCE MANUAL
Colour version

SCANMAX 15 CC

DESK TOP CABINET
SECURITY X-RAY SCREENING SYSTEM
FITTED WITH COLOUR STORAGE CAMERA
(230V)

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WARNING NOTICE

Safety precautions for use and operation of x-ray producing equipment

X-RAY PRODUCING EQUIPMENT CAN BE DANGEROUS TO BOTH THE OPERATOR AND PERSONS WITHIN THE IMMEDIATE VICINITY UNLESS SAFETY PRECAUTIONS ARE STRICTLY OBSERVED.

Exposure to excessive quantities of X-radiation may be dangerous to health. Therefore users should avoid exposing any parts of their person, not only to the direct beam, but also to secondary or scattered radiation which occurs when an x-ray beam strikes or has passed through any material.

The X-ray producing equipment is installed in a cabinet providing adequate radiation shielding, the user should be aware that the useful beam can constitute a distinct hazard if not employed in strict accordance with instructions contemplated to provide maximum safety for the operator.

Also, the electrical circuits, although enclosed for the protection of the operators, must be considered as a potential hazard calling for strict observance of safety practices pertaining to operation and maintenance. Proper electrical grounding must always be used.

OPERATION MANUAL FOR THE SCANMAX 15

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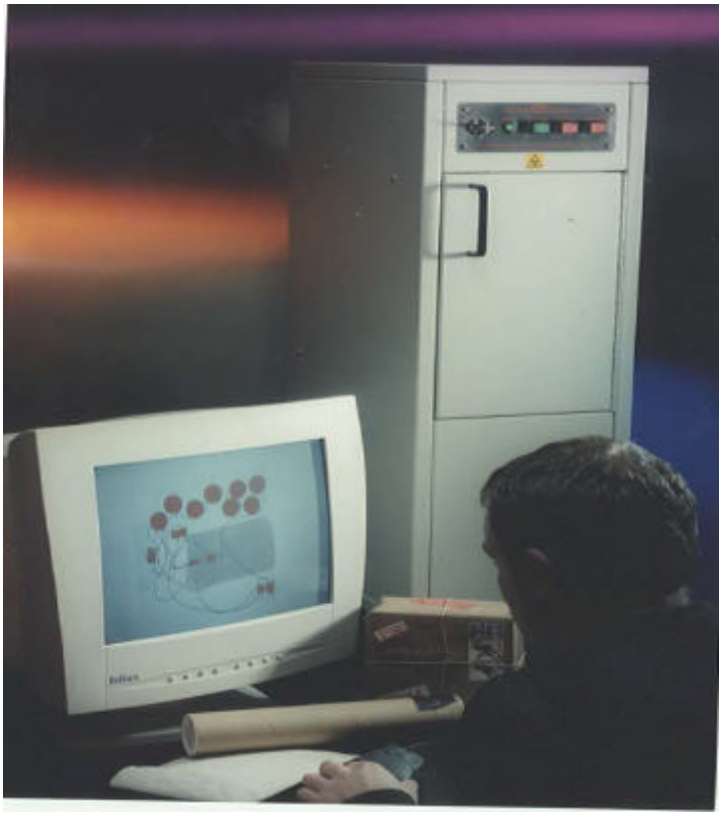
INTRODUCTION



The SCANMAX 15 is a compact fluoroscopic X-ray cabinet specifically designed for the detection of explosive devices, hate mail and other contraband material concealed in incoming mail and packages which would have been posted in a mail box and would normally be up to telephone directory in size. Items are placed in the inspection chamber and simply by pressing a push button switch a high resolution image is displayed on the colour monitor. Image reversal, high penetration and 2 different colour palettes are available. These and the zoom facility will expedite the recognition of the items in the package.

It is ideally suited for use in government and commercial mailrooms, embassies, prisons and courtrooms. It can also be used in reception areas for the inspection of briefcases and hand-delivered items not passing through the central mailroom.

The SCANMAX 15 is completely self contained and can be put into operation immediately and is capable of examining the contents of a parcel 30 x 40 cm (16” x 16”). A parcel or a batch of envelopes/small packets can be examined in less than 10 seconds.

The SCANMAX is designed to ensure operator protection against radiation hazards through the use of lead shielding. An interlock system on the door prevents the generation of X-rays when the inspection chamber door is opened, ensuring maximum protection to personnel. Even so, always be aware that radiation (X-rays) can constitute a distinct hazard if not employed in strict accordance with the instructions provided in this manual.

Before operating the SCANMAX 15 all personnel designated to operate the unit, or supervise its operation, must have a full understanding of the contents of this manual.

UNPACKING INSTRUCTIONS

The installation of the SCANMAX 15 is relatively simple and requires no special tools. It is shipped as a whole in a sturdy ply wood container mounted on a wooden pallet. The shipping crate is designed to withstand normal handling during overseas shipments.

Despite these safeguards, damage may occur in transit. Therefore, immediately inspect the exterior of the container for evidence of damage. In the event damage has occurred, immediately notify the carrier at your location.

UNPACKING THE SCANMAX 15

To remove the SCANMAX from the shipping crate, perform the following:

1. Undo the binding and open the box with the help of a large screwdriver.

2. Using extreme care, remove the pallet and lift the equipment into place. For this use the handles provided, a lifting trolley or fork-lift truck. Care must be taken to avoid scratching the unit.

3. Inspect the SCANMAX cabinet for evidence of any physical damage.

WARNING: Physical damage to the SCANMAX cabinet may result in excessive radiation emission levels. Any damage observed should be thoroughly investigated, prior to operating the unit.

Fitting of Handles

Handles have been provided for the location of the units at the time of installation, when they require to be dismounted from their wheeled base or for relocation of the unit.

The handles are universal in that they are designed to fit any of the range of Scanmax units. The outer holes are for the Scanmax 20 the centre for the Scanmax 25 and the inner holes for the Scanmax 15.

Screws have been provided at the front and rear of the unit to fit the handles.

The only tool required is a screwdriver with a narrow shaft with the head of the screwdriver small enough to fit through the holes on the handle.

Simply remove the screws from the unit and with the open side of the handle uppermost place the screw in through the top and through the rear hole. Line up the screw with the unit and tighten.

When the unit is positioned remove the handles and replace the screws into the unit. Do not operate the unit with the handles fitted.

WARNING

When lifting the unit extreme care must be taken as the units are top heavy. It is strongly recommended that four people are used to lift the units one at the end of each handle.

IMPORTANT:
INSTALLATION ADVICE WHEN USING A SUPPORT TROLLEY

TO FIT THE TOP UNIT TO THE BASE THE FOLLOWING PROCEDURE MUST BE USED

1. Ensure that the feet have been removed from the base of the Scanmax before attempting to place the unit on its trolley.

2. The unit can be placed on the trolley in either direction.

3. Assemble the unit at, or close to, the intended site of operation as the Scanmax 15 is top heavy when on its base. Care must be taken whilst moving the unit on its base.

4. Fit the feet up through the trolley to secure the unit. This ensures that the feet are available for use if the unit is to be operated dismounted and also will ensure that unwanted light does not enter the cabinet through these holes.

PRE INSTALLATION CHECKS

WARNING: To ensure operator safety, radiation emission levels must be checked before putting the SCANMAX into operation. See page 19 and 23 for Radiation Leakage checks

Prior to first time operation, it is essential for the safety of the operator and for the long life of the equipment that the following instructions are strictly observed.

Ensure that the system voltage is the same as the mains supply voltage available. If in doubt regarding the mains voltage at hand, perform a measurement. Units will be set at 230V unless otherwise instructed and should therefore only be operated from a 230V mains supply. Connecting to a different mains voltage will result in improper operation or even destruction of the unit.

Ensure that a good mains earth is provided. To minimise shock hazard the SCANMAX must be connected to an electrical ground or earth. The unit is equipped with a three conductor AC mains lead. The corresponding socket at the installation must be fitted with a reliable protective earth contact.

SCANNA or the supplier cannot be held responsible for incorrect connection.
Do not operate the equipment in the presence of flammable gases or fumes.

INSTALLATION GUIDE

1. Take unit out of box (following the instructions in the previous section) and place on a strong table/base capable of supporting up to 120 kgs. Take extreme care when lifting as the unit is very heavy (120 kgs/264 lbs). Use a lifting trolley or fork lift truck. Ensure that there is unrestricted access to the inspection chamber door on the right of the unit. Ensure that the door is fully closed.

2. Connect monitor to unit by means of the video and power cables supplied

3. Connect the trackball and place on a suitable surface.

4. Plug unit into the mains supply after checking voltage of machine matches local voltage. Check that the **MAINS ON** lamp is illuminated.

5. Ensure that the door is fully closed and insert the key into the key switch on the front control panel and turn it clockwise to switch on the unit. The green **SYSTEM READY** light should illuminate to indicate the interlocks have been operated and that the equipment is ready for use.

6. Perform interlock check by doing the following:
   Activate the red **X-RAY ON** button on the front control panel. Observe that all X-ray lights illuminate and that they remain illuminated for approximately 5 seconds. Slowly open the loading door during that 5 second period and verify that the **X-RAY ON** and warning indicators switch off ***as soon as the door is opened.***

7. Check image quality by placing a sample package into the centre of the inspection cabinet.

IMPORTANT

Upon installation and after any relocation a critical examination report should be carried by qualified staff with the appropriate radiation survey equipment and a Radiation Leakage Report sheet completed (see page 23)

If all controls function properly and the radiation tests show the equipment to be safe then the SCANMAX is ready for operation

WARNING

THIS EQUIPMENT PRODUCES IONISING RADIATION WHEN ENERGISED AND SHOULD BE OPERATED ONLY BY TRAINED PERSONNEL

IMPORTANT SAFETY PRECAUTIONS

The SCANMAX 15 utilises an X-ray generator which is lead shielded against radiation emissions. The generation of X-rays normally starts when the X-ray On switch is pressed and will remain energised for 5 seconds whilst the camera obtains and stores the image. X-ray generation stops automatically as soon as the door is opened, accidentally or otherwise. This high level of safety conforms to the strictest protective measures against radiation.

The SCANMAX 15 is inspected with results documented and approved prior to shipment to ensure that radiation emission levels are well within the legal requirements.

Modification No modification of the SCANMAX, particularly the radiation chamber, should be attempted without written consent from the manufacturer.

Support If the SCANMAX is moved after initial operation, extreme care should be taken to ensure proper handling. Use mechanical aids such as forklifts or lifting jacks and the handles provided. **Do not place the unit on an inadequate support or try to lift it unaided.** If the unit is dropped, do not attempt to resume operation before consulting a qualified service technician. The user must be aware that excessive radiation leakage could develop due to mishandling.

Relocation A radiation leakage survey, conducted by appropriately qualified personnel, must be conducted and documented after any relocation of this equipment or after any modification to the equipment. This procedure will prevent radiation health hazards to operating personnel.

Grounding To avoid electrical shock, ensure that the grounding is not defeated.

Wiring It is obvious that any abnormal use or modification of the internal wiring is highly discouraged. We cannot be responsible for any damage or injury caused by such action

Health & Safety UK radiation control regulations require the registration of radiation Sources with the local Health and Safety Executive. Registration should be made within 30 days of purchase. Contact your local HSE for further information.

SAFETY INSTRUCTIONS

WARNING: Radiation hazard can result if this unit is operated improperly.

Below is a list of common ways in which this might occur. This is not an exhaustive list and final responsibility for safe operation is rests with the user.

1. Never operate with the safety interlocks defeated. Never attempt to make the unit function with the door opened. Make sure the plunger interlock on the door does not become broken or damaged.

2. Never operate with any of the enclosure panels removed or damaged.

3. Never operate a unit that has become physically damaged unless it is successfully re-tested for radiation integrity by qualified staff.

4. Never compromise cabinet integrity by drilling holes or attaching fasteners.

5. Never undo or attempt to undo the TORX tamperproof screws on the side of the cabinet.

6. If when viewing the equipment the lead glass appears to be damaged, switch off the unit and report as faulty. Do not use the system until it has been checked by a competent engineer and a successful radiation check carried out.

7. In the event of any concern regarding the safe operation of the SCANMAX contact your supplier or your local Radiological Protection Adviser immediately.

WARNING: SCANMAX is an electrical device and is subject to shock hazard.

Good operating procedure should be practised to avoid electrical hazards. Final responsibility for safe operation is assumed by the user.

1. A grounded or earthed supply must be used, preferably with ground fault interruption.

2. SCANMAX is designed for indoor use. Do not operate outside where moisture or rain can create a shock hazard. Do not operate in excessively wet environments.

WARNING: If you are involved in servicing this unit, be aware that lethal voltages can be present in the controller and at the tube head even when the key is switched off.

1. Physically disconnect line power or take appropriate precautions before making adjustments.

2. If a problem is detected, discontinue use and call your service representative.

INTRODUCTION TO X-RAYS

Radiation and the inherent dangers of radiation have in recent years received much publicity however since 1972 the use of x-ray systems has become commonplace throughout the world particularly at Airports. Indeed in these troubled times the public and staff demand the level of security provided by these x-ray screening systems.

The use of x-rays is no more dangerous than a piece of industrial machinery with moving parts, if you put your hand in moving machinery, such as a guillotine, you may be seriously injured, fortunately this type of accident is rare, if common sense and safety procedures are implemented.

The same is true with an x-ray unit. Not interfering with guarding or access panels, *NEVER* defeating interlocks and regularly servicing the equipment will provide a high degree of safety.

Contrary to Radioactive Sources the x-rays or Ionising Radiation used in the Scanmax 20 and other systems supplied by Scanna are non residual. That is the x-rays are produced electrically and as soon as the power is removed from the x-ray generator there are no x-rays in the system.

The following safety measures and devices are included in the equipment supplied by Scanna MSC.

- Low x-ray dose.
- X-ray beam limiting.
- Interlock system.
- X-ray On indicators.
- Lead Shielding

In the United Kingdom the requirement is a leakage rate as low as is practicable but in no case to exceed 1 micro Sievert per hour. It is the stated intention of Scanna to provide equipment designed so that irradiation leakage is zero. The Regulations and the Code of Practice has introduced conditions whereby doses of radiation can and are maintained considerably below the threshold where the radiation has an detrimental effect. Indeed it is accepted that by far the largest contribution to population dose is from our natural background, e.g. radiation from space (300 ? Sv), Gamma radiation from earth (350 ? Sv), internal radiation from natural radioneuclides in the body.(380 ? Sv) and inhaled gases and nuclear fallout (970 ? Sv). The current safety limit for annual exposure is 5000 ? Sv

Sieverts	rem			
0.1	10	1 dental x-ray exposure	5 rem	0.05 Sv
0.01	1	Natural radiation.	200 m rem per year	2,000 ?Sv
0.001	0.1			
0.000,1	0.01	1 Transatlantic Flight	2.5 m rem	25 ? Sv
0.000,01	0.001			
0.000,001	0.000,1			
0.000,000,1	0.000,01	Leakage from Scanmax 20	0.000,002 rem	0.2 ? Sv max.
0.000,000,01	0.000,001			

It can be seen from the above figures that spending every hour of your working life within 1 inch of the equipment with the x-rays switched on would still not so much as double your annual dose of radiation accrued simply from being alive.

OPERATING INSTRUCTIONS

1. Switch on mains isolating switch on the rear panel. Note that the front panel "POWER ON " indicator on the front control panel illuminates.

2. Insert the key into the key switch and turn a quarter turn to the right ensure that the TV monitor is turned on.

3. Place objects to be inspected inside the chamber and close the door firmly (take care not to slam the door). This enables the radiation safety interlocks and the SYSTEM READY light will illuminate.

1. Depress the ''X-RAY ON'' switch and keep pressed until an image appears on the screen or the x-rays switch off. The ''X-RAY ON'' indicators will illuminate for 5 to 7 seconds

4. After 5 seconds an X-ray image of the item will become visible on the monitor screen, adjust the Brightness and Contrast controls on the monitor to obtain the optimum image on the screen.

5. Security Screening can be accomplished quickly and can normally be completed within 5-10 seconds. This is usually sufficient to determine whether a package is harmless or contains a suspect article however the image is displayed for as long as required

6. Closer examinations can be made by use of the trackball. When the ball is moved a square is illuminated on the screen, move the square centrally over the area for closer examination and press the left hand key and the image will be enlarged by a factor of 2 (Zoom x 2) If a further close look is required press the left hand key again for x4 or x8 and then press again for Normal image.
The image will revert to Normal image when a new image is obtained by pressing the X-ray On switch.

7. The right hand key of the trackball will give the following image displays:

1	Normal display.	
2	Brightened "high penetration" grey.	
3	"Inverse" (negative) grey level image	
3	Green / Orange / Grey	"Organics" mode dense objects show as green, less dense objects (plastics and narcotics may show as orange). Other regions show as grey scale
5	Red/Grey "Bomb" mode	Very dense objects show as red other regions as grey scale.
6	Red / Green / Yellow	A "vivid" bright colour display to emphasise colour capability.

Access is gained to each enhancement by repeatedly pressing the right hand trackball key until the image required is displayed, repeated pressing will return to the Normal image.
When a new image is obtained the last enhancement used will be the display mode used for the new image.

9 Normal letters, express mail etc., can be inspected in batches of 25 or more at a time. This will expedite the screening process. It also reduces the use of the system. Larger packages or briefcases should be inspected individually. (See next section for more details).

10 The **SCANMAX 15** should be turned off when not in use and the key removed from the equipment. The key should be kept by a designated key-holder/supervisor

11 Operator maintenance involves only the cleanliness of the unit both inside the inspection chamber and the outside of the unit and regular safety checks to include mains lead etc.

Hints:

?? Tilt or change the orientation of an object to obtain a clearer profile.

?? If photographing, use shutter setting 30 or 60 to allow for the camera to synchronise to the monitor (Lines will appear across the film if it not synchronised) to ensure good depth of field, black and white film will tend to give higher apparent contrast.

?? If used for law enforcement or security, obtain appropriate training from a qualified personnel.

Warning:

If the indicators start flashing on and off a fault condition has occurred. One of the indicators will have failed, when the indicator has been replaced the unit should be switched off at the mains supply on the rear of the unit and then switch on again. If an X-ray warning indicator flashes the unit will not be able to generate x-rays until the fault condition has been corrected.

X-RAY SCREENING PROCEDURES

1. Envelopes may be processed in batches, or evenly spread out within the the inspection chamber.

2. Larger packages or briefcases should be placed towards the centre of the unit and processed flat and one at a time.

3. Any item screened which shows the presence of anything unusual (i.e., wires, electrical switches, batteries etc), or which contains high density (black) materials which cannot be penetrated should be treated with extreme caution.

4. If the item appears suspicious, security staff should be alerted and the appropriate security procedures implemented.

SCANNA strongly recommend that users of X-ray inspection equipment implement proper security procedures for dealing with suspect packages.

SCANNA also recommend that operators have appropriate training in the recognition of suspect packages and X-ray image identification. Contact SCANNA or your local Police/Law Enforcement Agency for advice on suitable courses.

Be sure to display contacts and appropriate emergency telephone numbers adjacent to the unit.

MAINTENANCE

The **SCANMAX 15** contains no user serviceable parts other than fuses. For reasons of safety maintenance of the unit should be undertaken by a trained and approved engineer at least once a year during which the security, integrity and levels of all components should be checked. A radiation leakage check should be carried out and results recorded using a calibrated radiation level monitor. Please contact your service representative or **SCANNA MSC LTD** for most maintenance needs. A few common procedures are described below and all should be referred to your service representative.

Refer any further problems to **SCANNA MSC Ltd.**. Procedures listed in this section include:

Line grounding and regulation
Fuse replacement
X-ray source replacement
Door Adjustment
Camera adjustment and cleaning
Testing for radiation leakage

SCANNA MSC Ltd. does not accept any liability for damages resulting from system modifications performed by the customer.

Line Grounding and Regulation

Regulation

When the unit is energised, the line voltage should drop no more than 5% at the wall outlet. Any further drop indicates that your AC power source needs to be upgraded.

Grounding

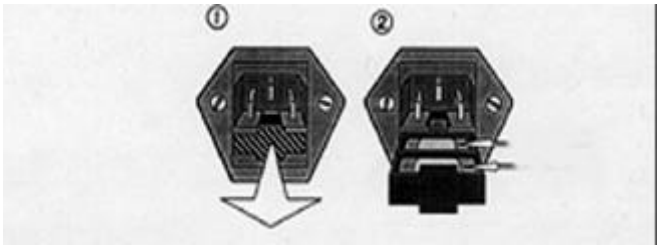
A three pin plug must be used with a suitable earth or frame ground. If this ground is not at actual earth potential a shock hazard can exist. For this reason it should be checked and if possible, outlets with ground fault interruption should be used.

Warning

Always disconnect the power cable when working on the equipment. Line voltage can be present at the controller when the key switch is not activated.

Fuse Replacement

Below the mains input socket for the power cord at the rear of the unit is a fuse holder. It is covered by a rectangular piece of black plastic which is part of the holder. Pull outward on this holder until the fuse is exposed. Replace with a 15 amp, 230V, 2 AG style Slow Blow fuse. An extra location is provided where a spare fuse can be kept if needed. If the fuse blows repeatedly, call your service representative.



X-ray Generator and Controller Replacement – Trained Service Personnel Only

In the event of failure of either the Generator or the Controller the Serial number of both the unit and the faulty x-ray generator must be given to SCANNA to ensure that the correct replacement will be supplied.

The Primary voltage and the tube current are pre-set in the controller software, and it insures that factory pre-sets have been observed. Contact SCANNA if alternate arrangements need to be made. To replace the x-ray generator and controls follow the procedure below. Read safety precautions listed elsewhere in this manual before proceeding.

S1. Warning: disconnect the power. Remove the cover at the top of the unit. Note that removal of the top panel will operate an interlock switch to electrically isolate the unit.
Disengage the wiring connections carefully from the x-ray source.

S2. Loosen the x-ray generator by unfastening the four bolts holding it in place in the the top of the inspection chamber.

S3. Disconnect the in-line plug / socket to the x-ray source. (Early models may require the connections unsoldering, ensure that a note is made of the connections.

S4. Remove the x-ray generator from the case.
Caution :The x-ray generator is heavy two persons are required for this task.

S5. Pack the x-ray generator in a shock resistant shipping carton so that the ceramic and glass parts of the system do not become damaged. Note, any compression or shock to the outside of the tube head container is transferred directly to the glass envelope of the X-ray tube!

To install a new x-ray generator, repeat the process but in reverse.

S1. Install the new x-ray generator and bolt down.

S2. Reattach the connections to the x-ray generator.

S3. Refit the top panel ensuring the earth lead is re-connected

Controller Removal

S1. Ensure that the unit is disconnected from the mains supply.

S2. Open the rear hinged access panel (two screws).
NOTE: The Controller is isolated via a panel interlock switch by this action.

S3. Note the position of the connections and disconnect.

S4. Remove the Controller by removing the four mounting nuts taking care not to misplace the nuts or the insulators.

Fit the new Controller in reverse order

S1. Fit the Controller module.

S2. Refit the connectors to the PCB.

S3. Refit the rear connection panel and test the unit. Check the panel interlock for correct operation

Door Adjustment This must be carried out by service representative

To re-seat the door in case of mechanical trauma or accidental loosening of screws, use the following procedure:

S1. Loosen screws on right side of door and back out the set screws until flush with the hinge.

S2. Lift the door and secure the screws. This should eliminate radiation leakage at the door. Be sure that the plunger interlock on the door is not damaged.

S3. Re-tighten screws to fix position. Tighten set screws to ensure that setting does not change. Set screws can also be used to provide a very slight adjustment from left to right if needed.

S4. Test for radiation leakage and correct as needed. You must reject the unit at this point if levels of 1?Sv/hr are exceeded.

Final re-seating of the door should be performed in conjunction with radiation testing to ensure that proper fit has been achieved. Door fit was correct upon shipping of the unit from the factory if proper installation instructions have been followed.

The attached Maintenance Report Sheet should be completed by the engineer carrying out the maintenance.

Camera Adjustment and Cleaning

Disconnect the unit from the mains supply.

If carrying out adjustments in the bottom of the unit to the camera and its lens whilst the unit is energised be sure to keep all parts of the body and metallic tools clear of the Isolating transformer and any wiring.

The camera is accessed by opening the rear hinged access panel.

The camera is pointing horizontally and the lens may after a period of time become dusty. It is recommended that any loose dust on the lens should be initially orally blown off and then clean the lens using a proprietary lens or spectacle cleaning cloth ensuring that the lens is not scratched.

The lens aperture is factory set and the camera must adjusted for optimum setting by repeated X-ray exposures on a known image.
The camera / lens can be focused by putting a small piece of typed paper on the lead glass in the base of the inspection chamber, remember to remove after adjustments are completed.

Re-fit the access panel after adjustments ensuring that the earth straps are re-fitted to the panel.

Testing for Radiation Leakage

To complete an accurate radiation leakage test, follow the detailed instructions on the enclosed radiation leakage form.

WARNING:
This must be performed by a qualified technician using an approved radiation meter.

Rear of unit with door open showing the position of the controller camera and transformer.

View of rear panel

From Left

1 Mains input (with fuse under)
2 Mains isolating switch
3 Mains for Monitor (if applicable)
4 Remote “X-ray On”
5 Video Out
6 Trackball
7 Coaxial connector for monochrome output (5 & 6 would not be fitted.)

Operating View

Front Panel

Trackball

From left

1 Keyswitch
2 Mains On Indicator
3 System Ready
4 X-Ray On Indicator
5 X-Ray On switch

Left switch - Zoom
Right Switch – Image
Ball to select area for Zoom.

MAINTENANCE REPORT SHEET

Customer	Site

The Ionising Radiation Regulations (1999) and the Approved Code of Practice, regulate the use of the equipment's listed. this report and attached Radiation Test Certificate comply with the requirements of the regulations.

Equipment	Serial No.

Item	Check	Result	Comment
1	Check Indicators		
2	Check switch operation		
3	Check door operation and interlock		
4	Clean equipment internally		
5	Check X-ray generator		
6	Check tube current		
7	Check all connectors		
8	Check timer operation		
9	Check all panels are secure		
10	Check monitor controls		
11	Check camera operation		
12	Carry out radiation check		
13	Clean equipment externally		
14			

Comments

Engineer Customer

Date Date

SCANNA MSC LIMITED
CRITICAL EXAMINATION REPORT

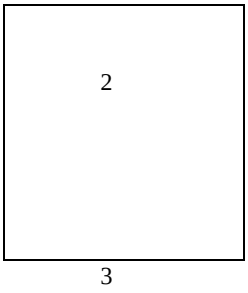
Customer: Equipment Type Scanmax 15

Order No.: Model Serial No.:

Date:

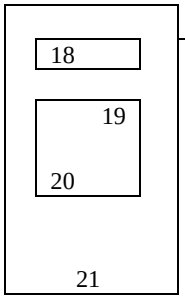
1. Scan all seams and mark with an ‘’X’’ any areas than the specified limit
2. Radiation levels are not to exceed 1µSv/hr. at any inspection point.
3. Write the readings in the columns

Area Left Side Panel



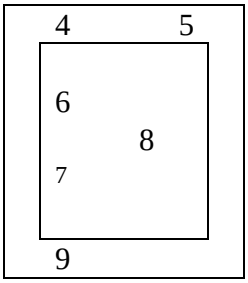
No	Name	
1	Front Panel Vertical Seam	
2	Left Side Panel	
3	Bottom Edge	
	Highest Reading	

Area Front Panel



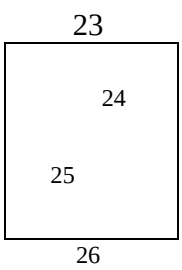
No	Name	
18	Front Panel	
19	Door top & right	
20	Door left & bottom	
21	Bottom Edge	
	Highest Reading	

Area Back Panel



No	Name	
4	Left Vertical Seam	
5	Right Vertical Seam	
6	Top Door Hinge	
7	Bottom Door Hinge	
8	Back Panel	
9	Electrical Plug	
10	Bottom Plug	
	Highest Reading	

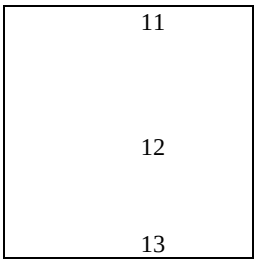
Area Lid



No	Name	
23	Back Lid Seam	
24	Right Lid Seam	
25	Left Lid Seam	
26	Front Lid Seam	
	Highest. Reading	

`

Area Right Side Panel



No	Name	
11	Top Right Side Panel	
12	Centre side panel	
13	Bottom Right Side Panel	
	Highest Reading	

Readings carried out using Radiation Monitor Type:

Minimonitor 900D Serial Number_____

All reading shown are in µSv/hr

As part of this examination the warning indicators and safety interlocks have been checked and found to l functioning satisfactorily.

Tests Carried out by

Signature

SPECIFICATIONS

Physical Specifications-	Height:	89 cm (35 inches)
	Width:	32.5 cm (12.8 inches)
	Depth:	50 cm (19.7 inches)
	Weight:	114 kg (250 lb)
Inspection Chamber size	Height:	34 cm (13.4 inches)
	Width:	32 cm (12.6 inches)
	Depth:	40 cm (15.7 inches)
Door Opening	Height:	33 cm (13 inches)
	Width:	23 cm (9 inches)
Image Area	Depth:	39 cm (15 inches)
	Width:	30 cm (11.8 inches)
Shipping Dimensions	110 x 70 x 70 cm. (43 x 28 x 28 inches) Weight: 150 kgs (330 lbs)	
Power Requirements	230 VAC +/- 10% 50 HZ Single Phase	

X=Ray Source

Focal Spot	1.5 mm
Anode Angle	35 degrees
Anode Type	Stationary
Kvp	60 KV (85KV max)
Tube Current	7 mA (20mA max)
Cooling method	Oil cooled

Resolution 36 AWG

Radiation Safety Complies with all current radiation regulations.

Climatic Conditions 0-40° C.
Maximum humidity: 95% non condensing.

Control specifications

Front Panel:	Key switch, Power On Light, X-ray On light, System Ready, Exposure Switch (X-ray On).
Power Electronics:	Ma Stabiliser, Interlock input, foot switch input. 110 v AC Line in. X-ray generator / Control panel connectors. .

Duty Cycle 100%

Camera Specifications

Pick-up device	1/2” Interline-Transfer CCD.
No. of Elements	795 (h) x 595 (v) 473025
Sensing Area	4.9 mm x 3.7 mm
Scanning System	CCIR & SVGA
Sync. System	Internal.
Resolution	752 X 582
Lens Mount	C Mount.
Minimum illumination	0.02 Lux, F1.4 Output Voltage will work to 0.011x
Cpu BOARD	2MB DRAM 512KB Flash 30-150 MIPS.
Video Output	Monochrome CCIR Color SVGA
Ambient Temperature	-20?C ~ +55? C less than 95% (non condensing)
Power Requirements	12 VDC
Power Consumption	1.8 W.
Weight	250 gm (1.46 lbs).
Dimensions	120 x 50 x 35 mm

VC21 CAMERA

The VC21 camera has been specifically modified for use with the Scanmax 15 camera system and care must be taken when handling the camera and the lens mountings to ensure that connection of the multi way connector is not damaged or broken.

PRECAUTIONS

?? Do not aim the camera towards the sun or extremely bright object.

?? Do not touch the CCD imager which is very sensitive and not user serviceable.

?? Do not attempt to disassemble the camera unnecessarily. There are no user serviceable components inside.

FEATURES

High sensitivity in a low light level down to 0.02 lux for excellent picture quality.

Picture burn in does not occur

Excellent immunity to vibration and shock.

The camera interface uses solid state components and requires no periodical maintenance work or replacement of components during normal use.

ADJUSTMENTS

The only adjustment available is the lens aperture and focus.
A live image display mode is provided to allow for easy installation of the camera. In this mode the camera operates as a standard camera, displaying a live image on the monitor. This mode is used for setting the camera into its correct position and setting the focus. Live display can be activated by switching the set-up line and will stay in that mode until the x-rays are energised when the camera automatically reverts to normal operation.

WARRANTY

NOTICE: **THIS SHIPMENT LEFT OUR FACTORY IN PERFECT CONDITION.**

If merchandise is delivered in damaged condition, *do not reject shipment*. Purchaser must have the driver note the damage (or the fact that possible damage exists and inspection will follow, or any shortage or overage) and sign all copies of the freight bill duly noted as damaged. Purchaser must examine for concealed damage as soon as possible. Notice of freight claim must be given to carrier within 5 days of delivery. Damaged merchandise and packaging must be retained until inspected by carrier. ***Seller shall not be responsible for any losses sustained due to Purchaser's failure to comply with this freight claim procedure. Seller's invoice must be paid in full, when due, irrespective of pending freight claim.***

REPAIRS:
A one year warranty is provided on the labour performed and any new parts installed by service technician at **SCANNA**'s premises. This warranty is limited to labour performed and parts installed in the repair of a specifically identified problem and does not cover other problems which might develop within the same X-ray unit at another time.

Transportation to the factory or service centre is to be prepaid and is the responsibility of the purchaser. Shipment must not be made without first gaining authorisation from SCANNA or its agent.

IMPORTANT NOTICE:

Damage occurring due to operation or installation of this machine in a manner other than that detailed in this manual, will void the warranty.

Any type of damage to the fluoroscopic screen will not be covered.

Damage resulting from exceeding the duty cycle will not be covered.

Damage resulting from improper adjustment of the head or controller by an unqualified technician (as approved by **SCANNA**) will not be covered.

CRIME PREVENTION ADVICE

Bombs in the Post...

Be Alert

Look for the unusual:-

Shape	**Wrapping**	**Writing**
Size	**Grease Marks**	**Spelling**
Thickness	**Postmark**	**Unsolicited mail**
Scaling	**Signs of wire or batteries**	**Wrong name, title or address**

If you are suspicious:

DON'T	**DO**
1. Don't try to open it.	**1. Keep calm**
2. Don't press squeeze or prod it.	**2. Look for sender's name on the back**
3. Don't put it in sand or water.	**3. Check with the sender**
4. Don't put it in a container.	**4. Check with the addressee.**
5. Don't let anyone else do one of these.	

Still think you have got one?

Leave it where found
Evacuate the room
Lock the door and keep the key
Send for the security officer and

INVOKE YOUR EMERGENCY PROCEDURES OR TELEPHONE THE POLICE

TROUBLE SHOOTING

1	**Insert key and turn on power.**	Is Power light lit	No	Check that the mains lead is connected and that the unit is switched on at the rear Check that the mains socket is active. Check mains input fuse If fuse blows again check with door open fuse blows again check with door closed Check bulb	At the wall socket and then to the rear connection panel. If not contact electrician If faulty, replace, If faulty, replace, If faulty, replace, Change controller and x-ray generator If faulty, replace
2	**System Ready**	Is System Ready light on	No	Check door is fully closed Check rear panel interlock Check top panel interlock Check LED	))) Ensure interlocks are made))
2	**Press X-ray On switch** **No Picture**	Is X-ray On light lit	No	Is System Ready lamp lit Check door is fully closed. Check LED Check mains input fuse	)) Ensure interlocks are made.) If faulty, replace. If faulty, replace.

2	**Cont.**	Is X-ray On light lit	Yes	Is the TV Monitor Switched on Are the TV Monitor mains and video cables connected or damaged. Is the Monitor working Is the camera working.	Switch on If faulty replace If faulty, replace If faulty, replace
3	**Dim Picture**			Is there a large object in the viewing chamber Is fluorescent screen damaged Is the TV Camera lens dirty	Remove and check with an empty chamber Replace fluorescent screen Clean lens
				Seek qualified help to check Controller and Source	Check with your local distributor
4	**Indicators flashing**			Identify indictor not flashing	Replace indicator. Switch unit off and then on again to reset the Controller board