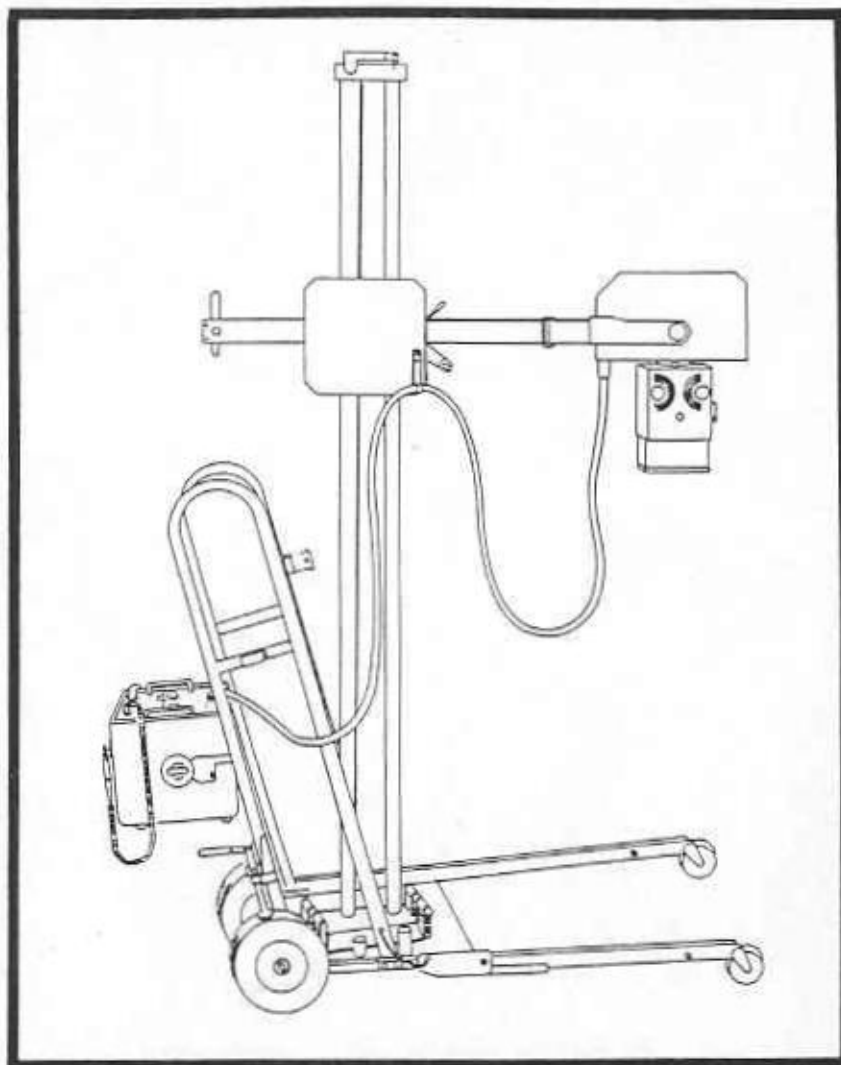


OPERATION AND MAINTENANCE MANUAL FOR MODEL 1200 PORTABLE X-RAY SYSTEM



IDDC/Porta Ray, Inc.
19 Jefryn Blvd. West
Deer Park, NY 11729

September 24, 1990

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for

MODEL 1200 PORTABLE X-RAY SYSTEM

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RECORD OF CHANGES

CHANGE NO.	DATE	TITLE OR BRIEF DESCRIPTION	ENTERED BY

INTRODUCTION TO THIS MANUAL

HOW TO USE THIS MANUAL

This manual is intended to provide an easily usable source of reference that will assist in the understanding of the basics of assembly, installation, operation and maintenance of the Model 1200 Portable X-Ray System. The manual is arranged in seven sections, each of which will support a general understanding of the X-Ray System. A complete table of contents, list of illustrations, and list of tables are included to assist in the location of information contained within.

PARAGRAPH, PAGE, FIGURE, AND TABLE NUMBERING SYSTEM

All paragraphs, pages, figures, and tables are assigned numbers keyed to the section and sequence in which they appear. For example, Figure 2-1 is the first figure in Section 2, and Figure 2-2 is the second figure in Section 2.

CONTENTS

The information presented in each section of this manual is as follows:

- Section 1 - General Description. This section introduces the content of the manual; describes the X-Ray System, its purpose, function, and capabilities; and provides a table of leading particulars. Each major assembly of the X-Ray System is identified by an illustration.
- Section 2 - Assembly and Preparation for Use. This section will provide the instructions necessary to unpack and assemble the Model 1200 as well as complete instructions for its operation.
- Section 3 - Operating Instructions. This section contains the Model 1200 X-Ray System operating instructions.
- Section 4 - Simplified Functional Description. This section provides a functional block description of the X-Ray System and also describes the function of each major assembly.
- Section 5 - Maintenance/Troubleshooting. This section provides scheduled preventive maintenance (inspection, cleaning, and lubrication) instructions for the X-Ray System. This section also provides a list of performance standards, a troubleshooting chart, alignment and adjustment procedures, and replacement and disassembly procedures.
- Section 6 - Parts List. This section includes a listing of parts, and reference to supporting diagrams.
- Section 7 - Diagrams. This section contains the X-Ray System schematic and wiring diagrams.

INTRODUCTION TO THIS MANUAL
(Continued)

The Model 1200 Portable X-Ray System manufactured by IDDC/Porta Ray Inc. 19 Jefryn Blvd. West, Deer Park, NY 11729 USA, provides high quality X-Ray capability in a portable format. It is intended for general medical applications where a compact, rugged, and highly mobile X-Ray system is required. The system complies with the requirements of the United States Department of Health and Human Services for mobile and special purpose radiographic equipment, when operated, maintained and repaired in accordance with the instructions in this manual.

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SAFETY SUMMARY

Certain safety precautions are unique to the Model 1200 Portable X-Ray System, and must be observed at all times by all personnel.

The following are general safety precautions not related to any specific procedures and therefore do not appear elsewhere in this publication. These are recommended precautions that personnel must understand and apply during many phases of operation and maintenance.

KEEP AWAY FROM LIVE CIRCUITS

Operating personnel must at all times observe all safety regulations.

Do not replace components or make adjustments inside the equipment with any high voltage power supply turned on. Under certain conditions, dangerous potentials may exist when the power control is in the off position, due to charges retained by capacitors. To avoid injury always remove power and discharge and ground a circuit before touching it.

DO NOT SERVICE OR ADJUST ALONE

Under no circumstances should any person reach into or enter the enclosure for the purpose of servicing or adjusting the equipment except in the presence of someone who is capable of rendering aid.

RESUSCITATION

Personnel working with, or near, high voltages should be familiar with modern methods of resuscitation. Such information may be obtained from the Bureau of Medicine and Surgery.

FOR YOUR INFORMATION

The following keys are included throughout this manual to bring your attention to certain procedures and precautions. Each of these keys is intended for the following purposes:

NOTE: To highlight an instruction or procedure that requires special attention.

CAUTION: To bring your attention to an instruction or procedure which, if improperly performed, could damage the equipment.

WARNING: To bring your attention to an instruction or procedure which, if improperly performed, could cause bodily injury to the operator and/or patient.

The following cautions and warnings appear in the text of this manual, and are repeated here for emphasis.

SAFETY SUMMARY
(Continued)

CAUTION

The X-Ray System is not designed to withstand an air drop.
(Page 1-1)

WARNING

The X-Ray Generator Assembly is very heavy (78 lbs),
exercise care when lifting. (Page 2-5 and page 2-6)

CAUTION

Be certain that the LINE FREQ. switch setting agrees with
the primary power frequency (60 Hz or 50 Hz). (Page 3-1)

WARNING

Personnel working with or near X-Radiation should be fully acquainted with the recommendations of the National Committee on Radiation Protection as published in the National Bureau of Standards Handbooks and the International Commission of Radiation Protection, and should take adequate precautions to protect against injury. X-Ray equipment, if not properly used, can cause injury. The IDDC/Porta Ray X-Ray System incorporates a high degree of protection against X-Radiation, however, there is no way to provide complete protection. The X-Ray System operators must take normal precautionary steps to prevent unwisely or unknowingly exposing themselves or others to direct or secondary radiation. It is mandatory that all persons authorized to use the equipment are aware of the danger of excessive exposure to X-Radiation and are properly trained and instructed in its use. Various protective devices and materials are available. It is urged that such devices and materials be used. (Page 3-8)

CAUTION

The projection lamp can become extremely hot. The lamp should be used only for the time required. (Page 3-9)

WARNING

To avoid injury to inexperienced personnel, only trained and qualified personnel should be permitted access to the internal portions of the X-Ray generator. (Page 5-4)

SAFETY SUMMARY
(Continued)

WARNING

Adjustments of power resistors must be performed with all power to X-Ray System off. Failure to turn off power could result in bodily injury to servicing personnel. (Page 5-4)

WARNING

Dangerous voltages present inside the control assembly, exercise caution. (Page 5-16)

CAUTION

Power must be turned off while removing/installing printed circuit boards and extender card. (Page 5-16)

CAUTION

Extender card will fit into all three printed circuit board slots and all three printed circuit boards will fit into extender card. Remove and test only one board at a time to prevent the possibility of plugging the wrong printed circuit board into the wrong slot. (Page 5-16)

WARNING

Dangerous voltages present inside the control assembly, exercise caution. (Page 5-23)

CAUTION

Power must be turned off while removing/installing printed circuit boards and extender card. (Page 5-23)

CAUTION

Extender card will fit into all three printed circuit board slots and all three printed circuit boards will fit into extender card. Remove and test only one board at a time to prevent the possibility of plugging the wrong printed circuit board into the wrong slot. (Page 5-23)

WARNING

Dangerous voltages present inside the control assembly, exercise caution. (Page 5-26)

SAFETY SUMMARY
(Continued)

CAUTION

Power must be turned off while removing/installing printed circuit boards and extender card. (Page 5-26)

CAUTION

Extender card will fit into all three printed circuit board slots and all three printed circuit boards will fit into extender card. Remove and test only one board at a time to prevent the possibility of plugging the wrong printed circuit board into the wrong slot. (Page 5-26)

WARNING

Dangerous voltages present inside the X-Ray Generator assembly. (Page 5-33)

WARNING

Dangerous voltages present inside X-Ray Generator Assembly (Page 5-34)

SECTION 1 GENERAL DESCRIPTION

1-1 INTRODUCTION

This manual provides operating and service instructions for the Model 1200 Portable X-Ray System, hereinafter referred to as the X-Ray System (Figure 1-1). The X-Ray System is manufactured by IDDC/Porta Ray Inc., Deer Park, NY 11729.

This manual consists of seven sections as follows:

- Section 1. General Description
- Section 2. Assembly and Preparation for Use
- Section 3. Operation
- Section 4. Simplified Functional Description
- Section 5. Maintenance Instructions
- Section 6. Parts List
- Section 7. Diagrams

1-2 CAPABILITIES AND LIMITATIONS

The X-Ray System meets the standards established by the Radiation Control for Health and Safety Act of 1968. The X-Ray System is capable of performing all field radiographic procedures. The X-Ray System has the capability of determining fractures and locating foreign bodies and secondary effects of trauma to the head, extremities, and abdomen. It can provide both bedside and litter diagnostic quality radiography under field conditions.

CAUTION

The X-Ray System is not designed to withstand an air drop.

The X-Ray System capabilities are maximized when using a rare earth film/screen with a minimum speed of 600.

The X-Ray System permits the operator to select the kVp/mA, and exposure time with the aid of the appropriate technique chart.

In an emergency, the X-Ray System can be shut down immediately by releasing the Exposure Switch, by switching the POWER ON switch on the line power controller to the OFF position, or by pulling the line cord plug out of the facility power receptacle.

1-3 PURPOSE AND FUNCTION

The X-Ray System is a lightweight, portable, diagnostic X-Ray system, intended for use in small medical units, field hospitals, and for general-purpose radiographic examinations. The X-Ray System can establish the nature and extent of injury to personnel who may require evacuation to higher-level facilities or on-site treatment prior to evacuation.

Table 1-1 lists the leading particulars of the X-Ray System. Table 1-2 lists the leading particulars of the collimator and Table 1-3 is a list of items supplied.

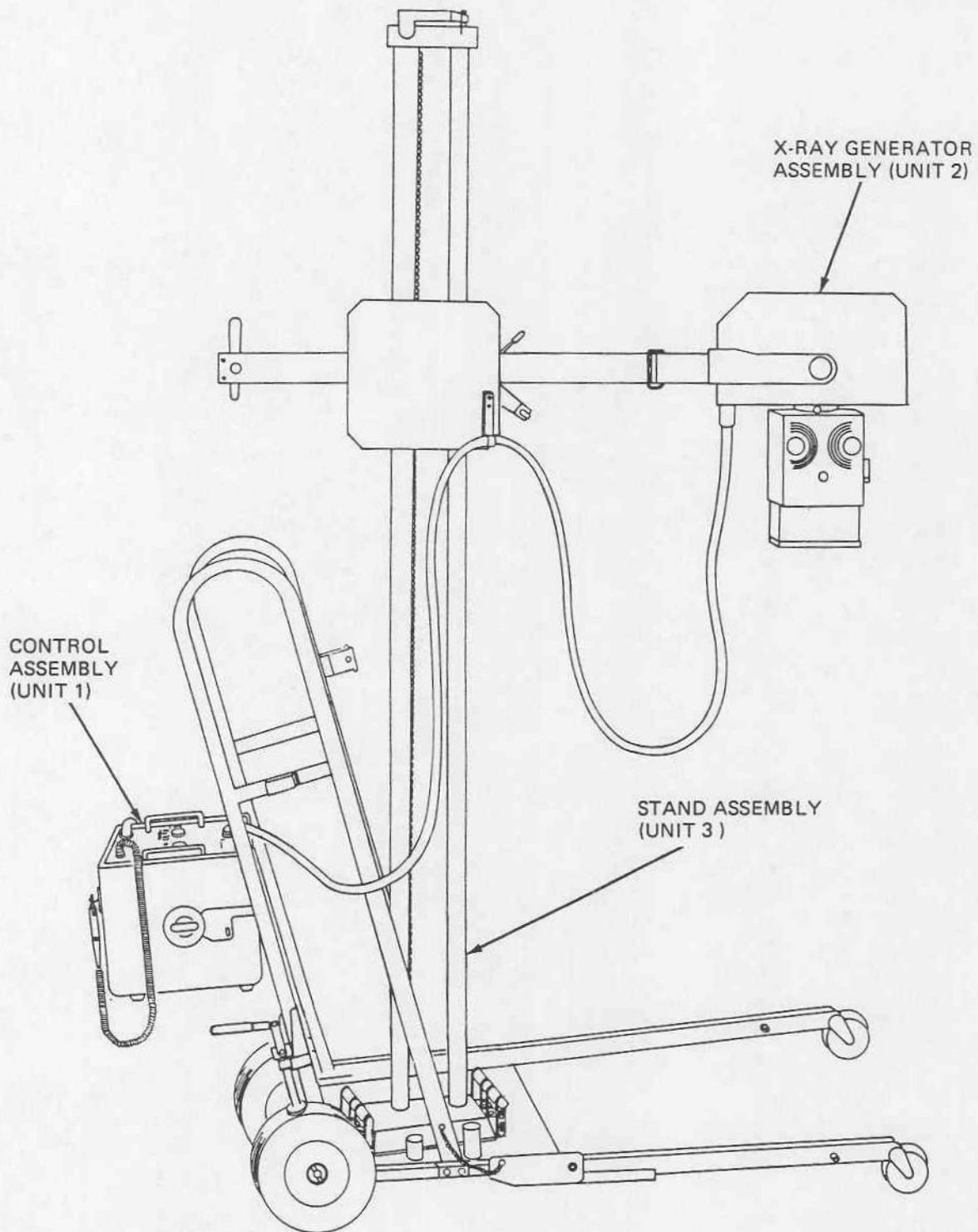


Figure 1-1. Model 1200 Portable X-Ray System

Table 1-1. System Leading Particulars

PERFORMANCE SPECIFICATIONS

kVp	Switch selectable; 60, 70, 80, 90, and 100 kVp nominal, $> .1$ second $\pm 10\%$, $< .1$ second $+10\%$, -15% . kVp measurements performed with Keithley kVp Divider Model No. 35080 and Hitachi Model VC-6020 Storage Oscilloscope, or equivalent instrument.
mA	Automatically selected; 40 mA (60 kVp), 30 mA (70 and 80 kVp); and 25 mA (90 and 100 kVp) plus/minus 15%. Milliampere current (mA) measurements are taken using a Keithley Model No. 35050 mAs Meter, or equivalent.
Exposure Time	Selected by means of a 24-position rotary switch. RANGE - 1/120 to 4 seconds for 60 Hz line power 1/100 to 4 seconds for 50 Hz line power, $+2\%$ Time interval measurements are made by counting the number of X-Ray pulses and dividing by two times (2X) the line frequency.

POWER

Line Voltage Range	110 VAC, or 220 VAC $\pm 10\%$, 50/60 Hz when used with line 50 to 60 Hz operation controlled by panel switch.
Line Voltage Regulation	5% min Load, 8% max Load
Technique Factor for Maximum Line Current	100 kVp - 25 mA
Maximum Line Current	30 amps - @ 120 VAC Line Power 20 amps - @ 220 VAC Line Power
BEAM ANGLE	12-1/2° maximum
FOCAL SPOT SIZE	1 mm diameter nominal

Table 1-1. System Leading Particulars - Continued

TARGET MATERIAL Tungsten

POWER SUPPLY TYPE Full-wave Bridge Rectifier

MINIMUM PERMANENT FILTRATION

2.5 mm aluminum equivalent at 100 kVp output power.

LEAKAGE TECHNIQUE FACTORS

Leak test performed @ 100 kVp and 0.9 mA output power
continuous operation (3240 mAs/hour)

ASSEMBLED DIMENSIONS AND WEIGHTS

	<u>Length (inches)</u>	<u>Width (inches)</u>	<u>Height (inches)</u>	<u>Weight (pounds)</u>
Stand Assembly	60.75	27.50	75.00	133
Control Module	16.00	10.00	9.25	37
X-Ray Generator Assembly	25.91	14.28	11.00	78

ENVIRONMENTAL REQUIREMENTS

Storage Temperature

Hot Limit 160°F (70°C)

Cold Limit -60°F (-51°C)

Operating Temperature

Hot Limit 100°F (38°C)

Cold Limit 32°F (0°C)

Operating Humidity 5 to 95% (non-condensing)

Table 1-1. System Leading Particulars - Continued

COOLING CURVES AND DUTY CYCLE

In order to allow proper tube cooling between exposures, the system contains an automatic inhibit circuit that provides a time delay. The time delay is proportional to the in-use exposure time. Cooling curves are provided in Figure 1-2 and Figure 1-3.

SRX-100GE X-RAY TUBE TECHNICAL SPECIFICATIONS

Envelope	Hard glass throughout
Inherent Filtration	Approximately 1 mm aluminum equivalent
Target Angle	12.5° anode type
Coverage	25°
Operation	Oil-immersed, center-grounded, full-wave rectified

Ratings:

Maximum useful voltage	110 kVp
------------------------	---------

Filament Characteristics:

Voltage range	3.5 to 5.0 VDC
Current range	1.5 to 2.2 amps
Anode Heat Storage Capacity	30,000 H.U. (kVp x mA x sec)

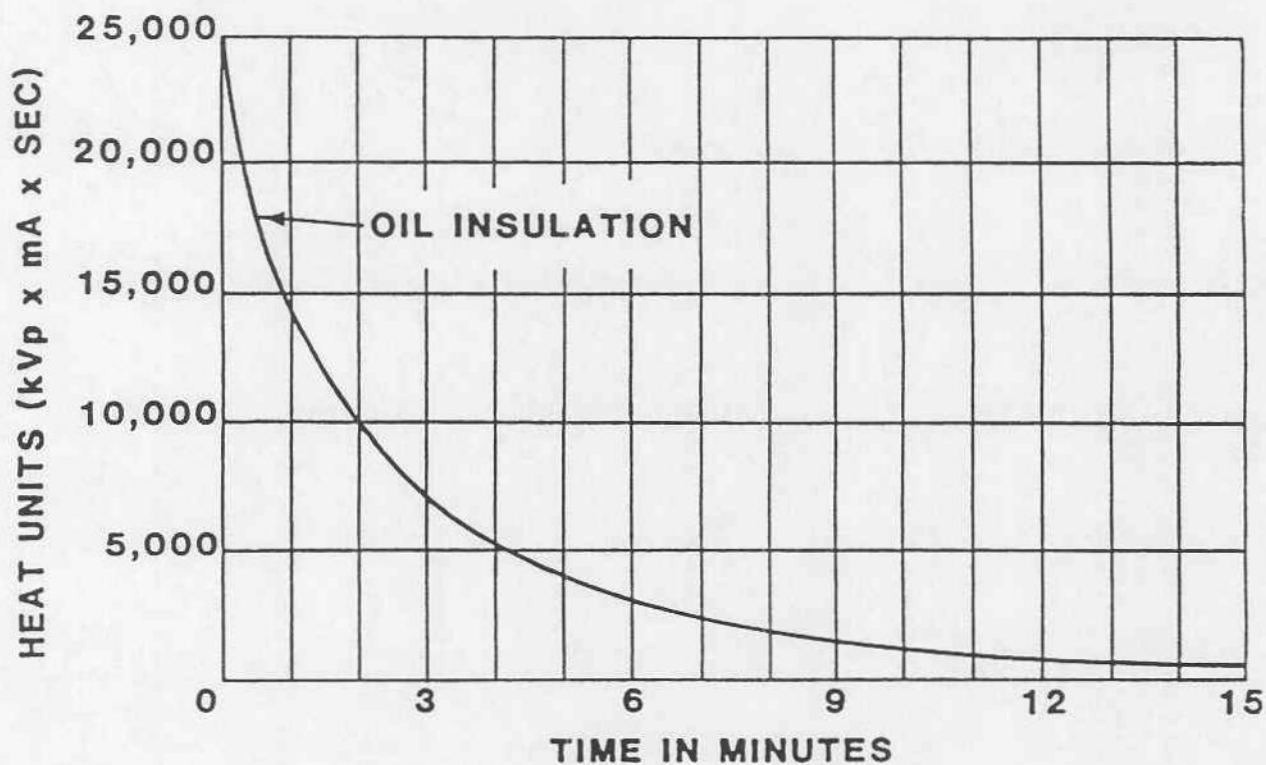


Figure 1-2. X-Ray Tube Anode Cooling Curve

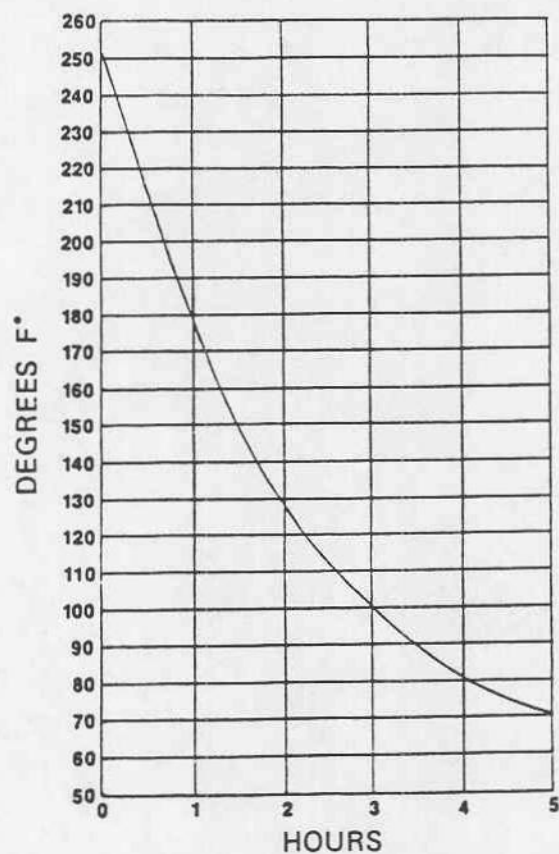


Figure 1-3. X-Ray Tube Head Assembly Cooling Curve

Table 1-2. Collimator Leading Particulars

COLLIMATOR TECHNICAL SPECIFICATIONS	
MAXIMUM kVp	125 kVp
OUTER DIMENSIONS	182 mm x 197 mm x 222 mm
NET WEIGHT	Approximately 6.2 kg
SHUTTER DRIVE	Two manual control knobs
PROJECTION LAMP	Philips Type 7158 Halogen Lamp, 24 V/150 W (rated)
POWER SUPPLY TO LAMP	19 VAC (under load) minimum, measured at lamp socket
LAMP TIMER	Pushbutton type, 30-second electronic timer
MINIMUM LINE CURRENT	6.0 amps at 19 VAC (under load)
MAXIMUM FIELD SIZE	35 cm x 35 cm at SID 65 cm
MINIMUM FIELD SIZE	Less than 5 cm x 5 cm at SID 100 cm
MINIMUM ALUMINUM EQUIVALENT	1.8 mm @ 50 kVp output power
TUBE FOCAL DISTANCE	60 mm, at standard tube focal distance, from tube focus to bottom surface of adapter flange; adjustable between 60 mm and 52 mm by use of spacers supplied with each collimator
CONTRAST RATIO ON LIGHT FIELD EDGES	3.5:1 or more, to permit easy identification of light field and its size
MAXIMUM PERMISSIBLE LEAKAGE RADIATION	Within 50 mR/h at SID 100 cm
INSULATION RESISTANCE (between source circuit and a grounding metal)	Greater or equal to 2 Megohms
ELECTRICAL RESISTANCE (between ground terminal or ground metal and outer case)	0.1 ohm maximum

Table 1-3. List of Items Supplied

Item	Qty	Part No.
Control Assembly Model 1200 (Unit 1)	1	500507
Exposure Switch Assembly (1A7)	1	500512
X-Ray Generator Assembly (Unit 2)	1	500542
Stand Assembly (Unit 3)	1	500592
Reuseable Storage Container (Unit 4)	1	201047
Line Cord (1W1)	1	500081
Interconnect Cable Assembly (1W2)	1	500595

1-4 DESCRIPTION

A physical description and illustration of each of the system's major units is provided in the following paragraphs.

The system is shipped in a reuseable storage container. Whenever the system is transferred to another site, it shall be repacked in the reuseable storage container. The stand assembly and the X-Ray System are designed for rapid assembly or disassembly prior to or after transport.

1-5 Control Assembly (Unit 1)

The Control Assembly (Unit 1) with the attached exposure switch (see Figure 1-1) is mounted on the X-Ray Stand Assembly (Unit 3). The module contains its own regulated power supplies and a digital timer. The solid-state digital timer provides precise exposure times without calibration adjustments. The Control Assembly (Unit 1) calibrations are independent of the X-Ray Generator Assembly (Unit 2) calibrations. These units may be interchanged at will without any required recalibration procedures. The control assembly houses all of the X-Ray System operating controls, except for the exposure switch (hand-held control assembly) which is attached to it with a cable. Major components of the control module are:

- o Panel Assembly (1A1)
- o Motherboard PC Board Assembly (1A2)
- o Timer PC Board Assembly (1A3)
- o Line Set PC Board Assembly (1A4)
- o mAs Interface PC Board Assembly (1A5)
- o Base Plate Assembly (1A6)
- o Exposure Switch Assembly (1A7)
- o Line Cord Assembly (1W1)
- o Interconnect Cable Assembly (1W2)
- o Harness Assembly (1W6)

The control functions are to adjust the line voltage, select the kVp, mA and exposure time and send these signals to the X-Ray generator.

1-6 X-Ray Generator Assembly (Unit 2)

The X-Ray Generator Assembly (see Figure 1-1) houses the Chassis Assembly (2A4). Internal to the Chassis Assembly is the Filament Control PC board that provides stabilized filament power to the X-Ray tube. Variations in X-Ray tube filament current is accomplished by the mA manual control located on the front panel of the Control Assembly. The X-Ray generator assembly, power supply voltage and current adjustments, calibrations are independent of the control assembly calibrations. X-Ray generator assemblies and control assemblies may be exchanged without the need for calibration between X-Ray generator assemblies and control assemblies for rapid field repairs.

The X-Ray generator assembly also contains the X-Ray tube head assembly which is a sealed, oil-filled unit that includes the SXR-100GE X-Ray Tube, the high voltage and filament transformers, and a full-wave bridge rectifier assembly.

Major components for the X-Ray generator assembly are:

- o Collimator Assembly Modified (2A1)
- o Tube Head Assembly (2A2)
- o Yoke Assembly (2A3)
- o Chassis Assembly (2A4)

1-7 STAND ASSEMBLY (UNIT 3)

The Stand Assembly (see Figure 1-1) is used to position the X-Rays, as well as to provide the carriage and wheels required to move the X-Ray system to the work area.

The X-Ray stand assembly is made up of the following major subassemblies:

- o Frame Assembly (3A1)
- o Cross Arm Assembly (3A2)
- o Gear Box Assembly (3A3)
- o Lower Pipe Assembly (3A4)

SECTION 2

ASSEMBLY AND PREPARATION FOR USE

2-1 INTRODUCTION

This section contains instructions for assembly, electrical interconnection of the X-Ray System units, as well as a preoperational checkout procedure.

2-2 FACILITY REQUIREMENTS FOR INSTALLATION

The X-Ray System facility requirements are, a stable mounting site, accessibility to electrical power required, and proximity to support equipment, i.e., x-ray film processing etc.

2-2.1 Power Requirements. The Model 1200 Portable X-Ray System power requirements are as follows.

Line Voltage Range	110VAC, or 220VAC +10%, 50/60 Hz when used with line 50 to 60 Hz operation controlled by panel switch.
Line Voltage Regulation	+5% min Load, 8% max Load
Technique Factor for Maximum Line Current	100 kVp - 25 mA
Maximum Line Current	30 amps - 120 VAC Line 20 amps - 220 VAC Line

2-3 UNPACKING AND INSPECTION

Upon receipt of the X-Ray System, carefully examine the shipping container for any evidence of mishandling during shipment. Note the condition; if abnormal, carefully unpack the unit and examine it for damage.

2-4 ASSEMBLY/SETUP PROCEDURE

The X-Ray System is designed to be assembled without the need for any tools, additional materials, or test equipment. Figures 2-1 through 2-3 are provided to illustrate the assembly procedure steps.

To prepare the X-Ray System for use, the system units must be assembled and set up as described in the following steps:

1. Remove reuseable storage container from the wooden shipping crate, release leg clips.
2. Open the reuseable container.

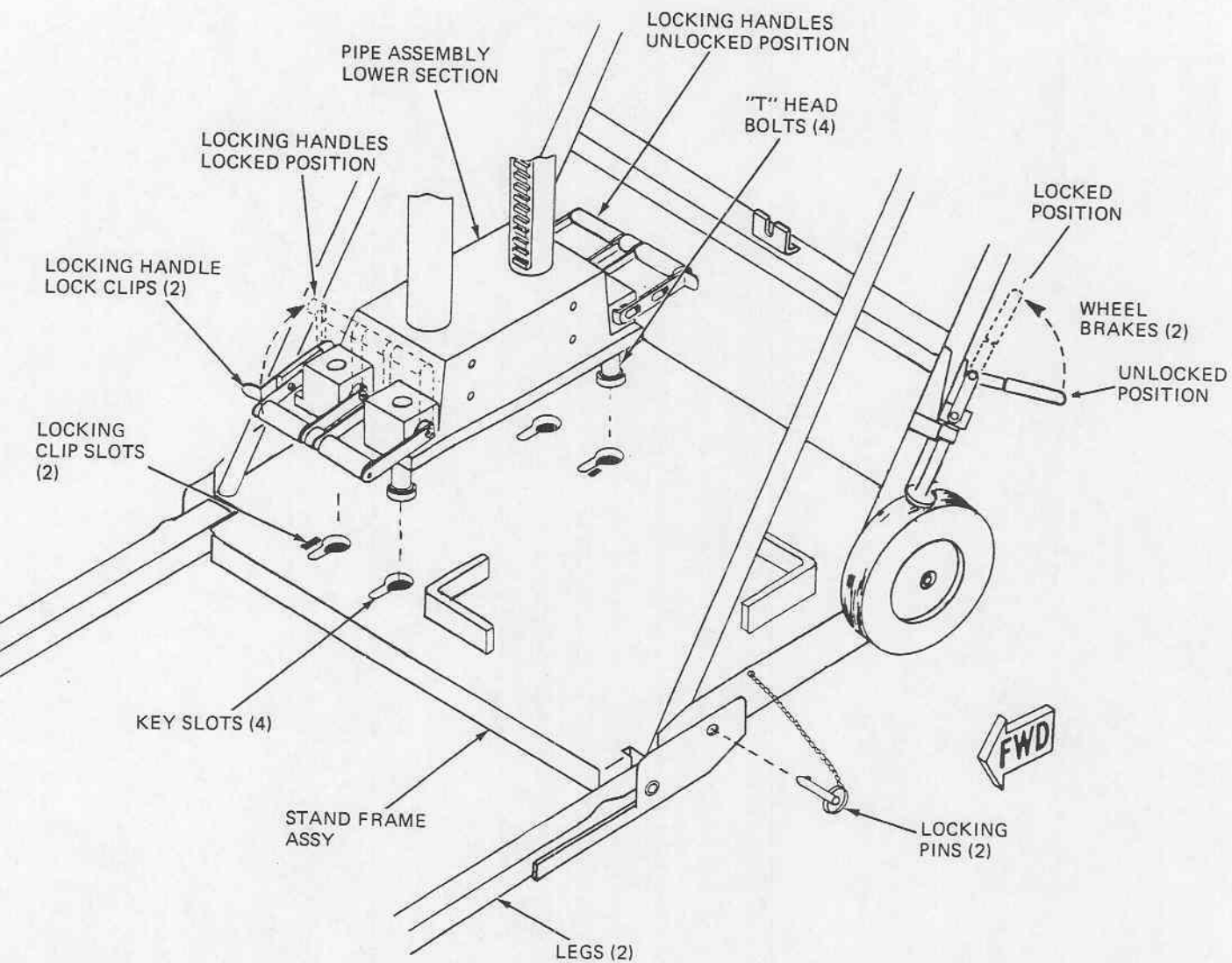
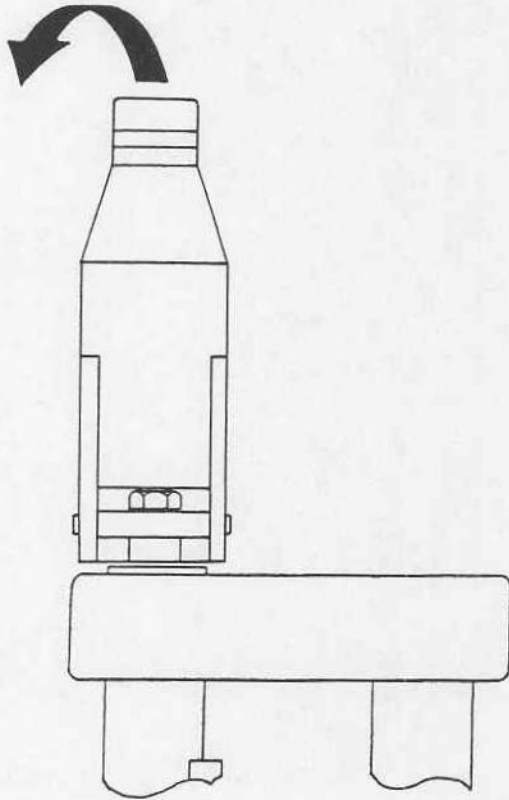
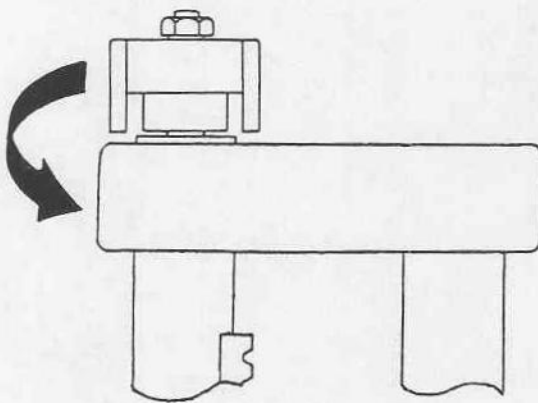


Figure 2-1. Stand Position and Pipe Assembly Placement

UP (UNLOCKED) POSITION



PERPENDICULAR POSITION



DOWN (LOCKED) POSITION

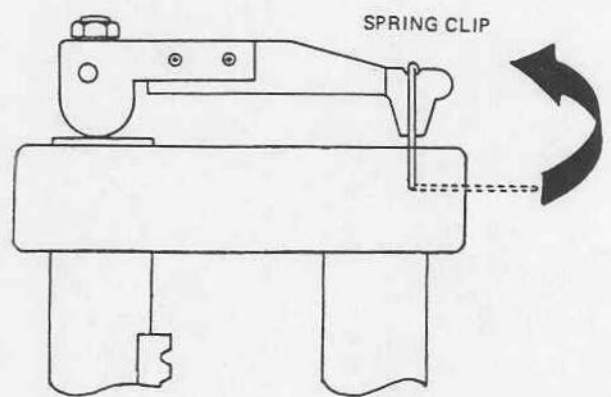


Figure 2-2. Pipe Assembly, Upper Section

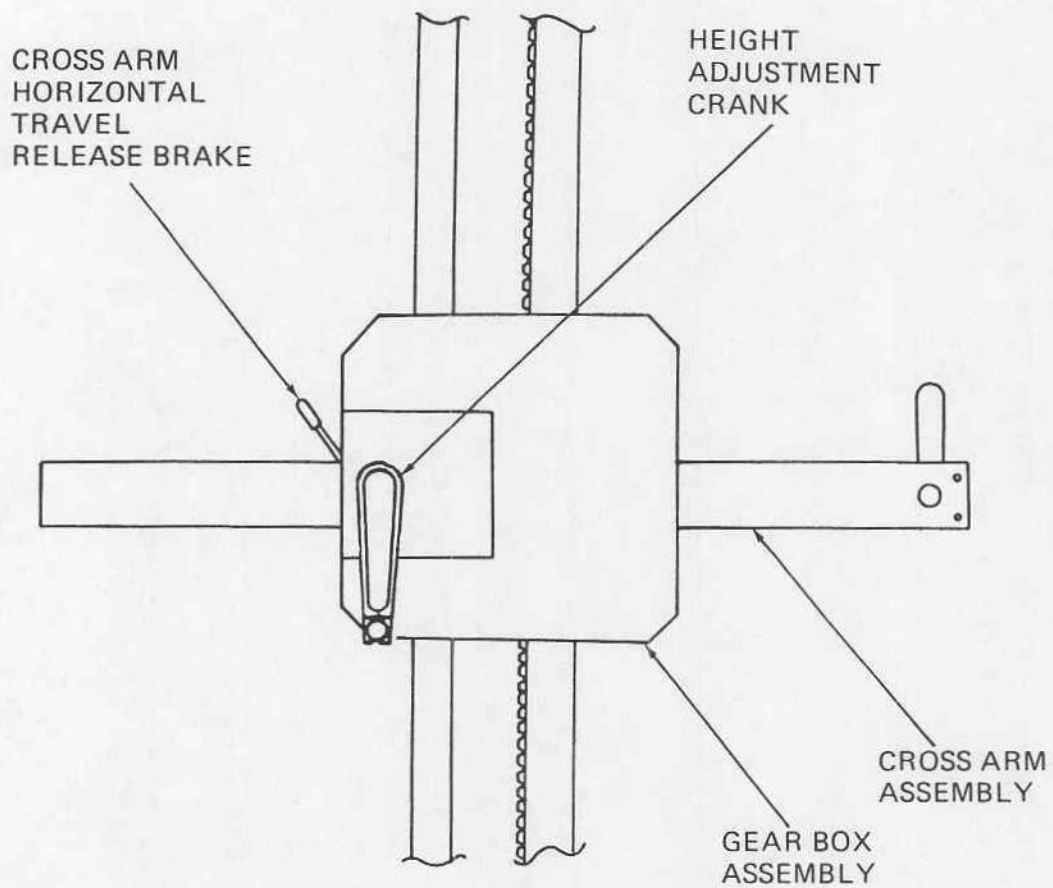


Figure 2-3. Gear Box Assembly (3A3) Cross Arm Horizontal Travel Release Brake Location

3. Remove the stand frame assembly, position on floor, engage rear wheel brakes, fold out legs and insert locking pins to frame/leg holes to lock legs (Figure 2-1).
4. Remove the pipe assembly, lower section, (with gear box assembly) and position locking handles down (to the horizontal unlocked position) (Figure 2-1).
5. Position the pipe assembly, lower section, with the gear rack toward the rear of the stand. Align the four "T" head bolts on the bottom of the pipe assembly, lower section with the four keyslots on the stand frame assembly. Lower into place, being sure the "T" bolts fit into the keyslots (Figure 2-1).
6. Slide the pipe assembly, lower section, forward (approximately 1 inch) and lift, the two locking handles up (to the vertical locked position). Ensure that both locking clips fit into locking clip slots (Figure 2-1).
7. Remove pipe assembly, upper section, from the reuseable container.
8. Position pipe assembly, upper section, locking handle to the up (unlocked) position (Figure 2-2).
9. Position the pipe assembly, upper section, on top of the pipe assembly, lower section, with the rack gear facing the rear of the stand.
10. Pull locking handle down (from the unlocked position) to the perpendicular position and rotate 90° to the lock position, secure locking handle with spring clip (Figure 2-2).
11. Crank Gear Box Assembly up to a comfortable working height.
12. Remove cross arm assembly from side of stand frame assembly.
13. Press cross arm horizontal travel release brake and slide cross arm into gear box assembly (Figure 2-3).

WARNING

The X-Ray Generator Assembly is very heavy (78 lbs), exercise care when lifting.

14. Lift X-Ray generator assembly out of reuseable container, remove safety pin, position X-Ray generator yoke assembly into end of cross arm assembly, secure safety pin (Figure 2-4).
15. Lift control assembly out of reuseable container. Position the control arm assembly on the stand brackets (see Figure 1-1) pull out on the end clips, and snap in to place.
16. Attach line cord to control assembly LINE IN connector, attach exposure switch cable to control assembly, HAND SWITCH connector and connect one end of the interconnect cable to the control assembly LINE OUT connector and the remaining end to the X-Ray generator assembly connector.

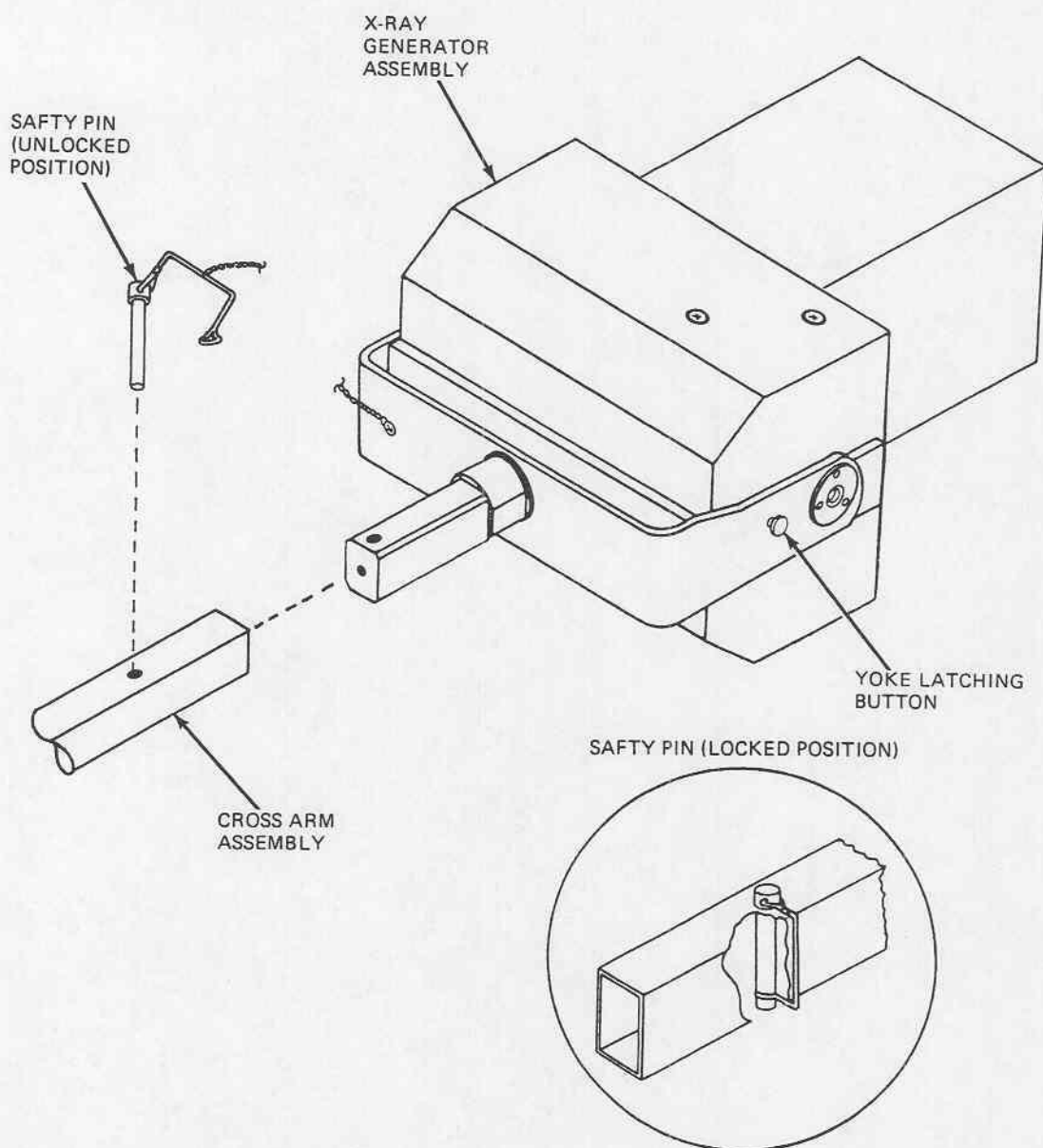


Figure 2-4. X-Ray Generator Assembly Installation

2-5 ASSEMBLY CHECKOUT PROCEDURE

The following Assembly Checkout Procedure will be performed whenever the X-Ray system is assembled.

1. Verify that the stand foldout leg lock pins are installed. (Figure 2-1).
2. Verify that the pipe assembly lower section locking handles are in the up (locked) position and that the handle locking clips are engaged (Figure 2-1).
3. Verify that pipe assembly upper section locking handle is in the locked position and the spring clip is engaged. (Figure 2-2).
4. Verify that the X-Ray generator safety pin is installed and locked. (Figure 2-4).
5. Verify that the line cord, the exposure switch and the interconnect cable are properly installed.
6. Refer to paragraph 3-3 for preoperational checkout procedures.

2-6 TRANSPORT POSITION

The transport position will be used whenever the X-Ray system is moved, between rooms, up or down stairs or whenever moving the system in the "ready" position, will create a hazard.

1. Disconnect the interconnect cable from the control assembly LINE OUT connector and from the X-Ray generator assembly connector.
2. Lock rear wheel brakes, crank Gear Box Assembly down onto the pipe assembly, lower section (Figure 2-5).

WARNING

The X-Ray Generator Assembly is very heavy (78 lbs), exercise care when lifting.

3. Remove safety pin, lift and pull X-Ray generator assembly out of cross arm assembly, position X-Ray generator collimator assembly face down. Fit the face of the collimator into the stand corner brackets, and fit the yoke latching button into the yoke latching button bracket, secure safety pin (Figure 2-3 and Figure 2-4).
4. Press cross arm horizontal travel release brake and slide horizontal cross arm out of gear box assembly (Figure 2-4).
5. Slide the cross arm assembly into cross arm bracket on the side of stand (Figure 2-6).

6. Position pipe assembly upper section locking handle to the up (unlocked) position. Lift off pipe assembly upper section and position on stand pipe assembly upper section support blocks, and fit pipe assembly into gear box pipe assembly spring clip (Figure 2-2 and Figure 2-6).
7. Remove leg locking pins, fold legs up into leg retaining clips (Figure 2-1 and Figure 2-6).

The X-Ray System is ready for transport.

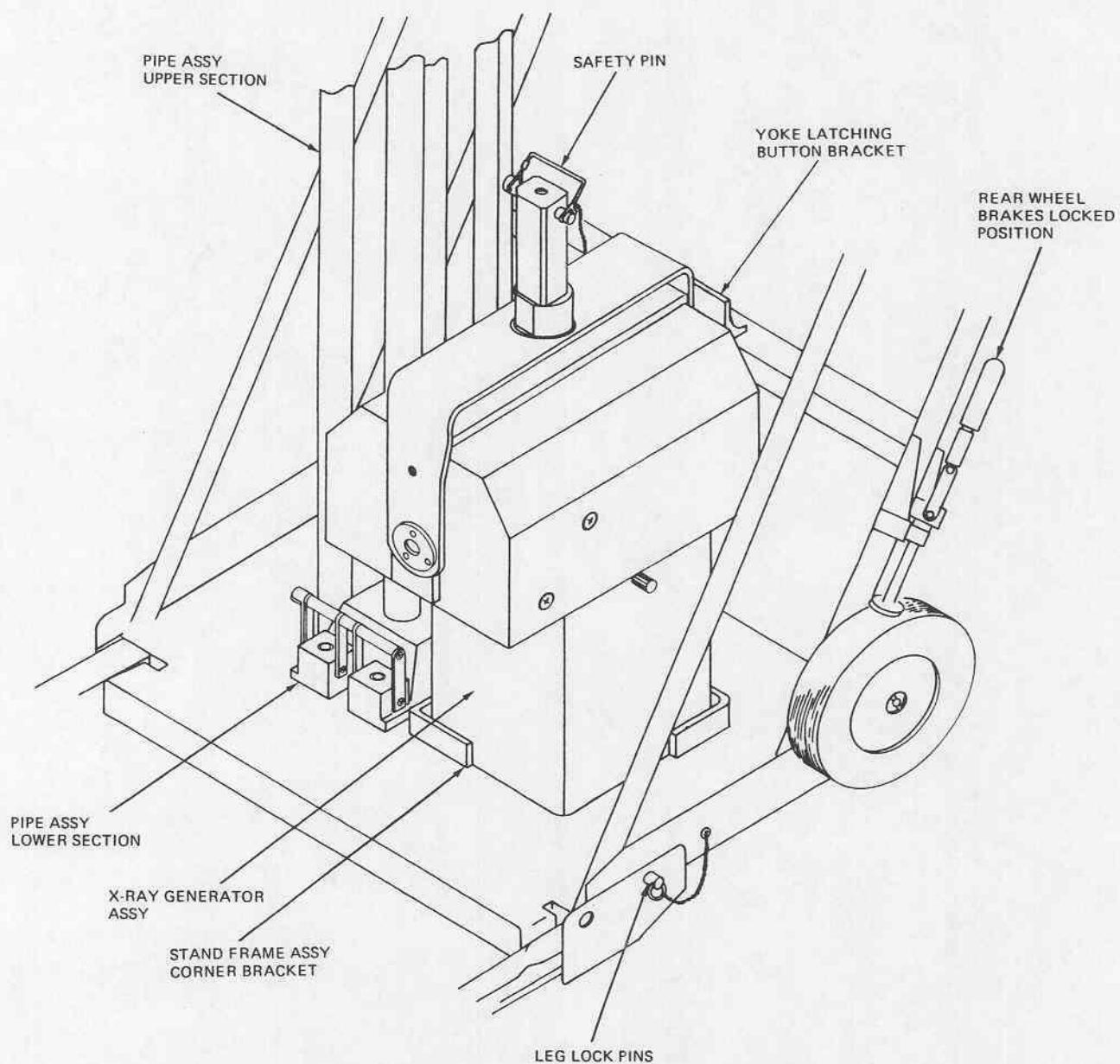


Figure 2-5. Transport Position X-Ray Generator Location

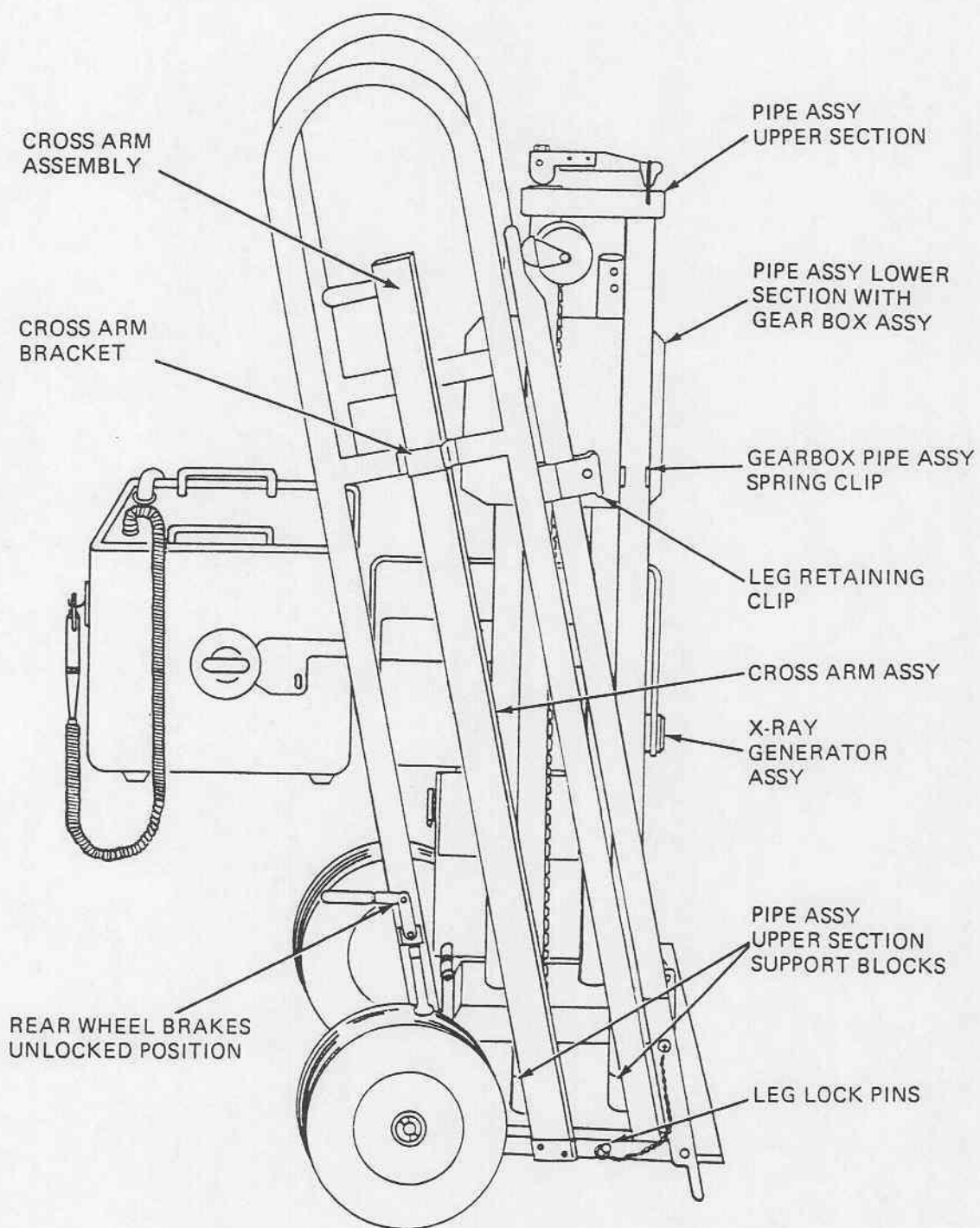


Figure 2-6. X-Ray System Transport Position

SECTION III

OPERATION

3-1 INTRODUCTION

This section contains the operating instructions for the X-Ray System. Paragraph 3-2 describes the functions of the X-Ray System controls and indicators. Paragraph 3-3 describes the preoperational checkout procedures, and paragraph 3-4 provides the X-Ray System operating procedures.

3-2 FUNCTIONS OF CONTROLS AND INDICATORS

The X-Ray System is designed for ease of operation with a minimum of adjustment. Table 3-1 provides a description of the controls and indicators on the Control Assembly (Unit 1), Control Panel Assembly 1A1. The control assembly controls and indicators may be identified by referring to Figure 3-1. Table 3-2 describes the functions of operating controls and indicators on the Collimator (Unit 2). The collimator controls and indicators may be located by referring to Figure 3-2. Table 3-3 describes the function of controls and indicators on the Stand Assembly (Unit 3). All of the Stand Assembly (Unit 3) controls are located on the Gear Box Assembly (3A3). The location of the Gear Box Assembly (3A3) controls and indicators is shown in Figure 3-3.

3-3 PRE-OPERATIONAL CHECKOUT

The following procedures will be performed prior to daily or first time operating of the X-Ray System.

1. Check the control module to the X-Ray generator connector. Check that power line cord to the unit is connected to the primary power source. Check that the collimator power cord is attached to its connector.

CAUTION

Be certain that the LINE FREQ. switch setting agrees with the primary power frequency (60 Hz or 50 Hz).

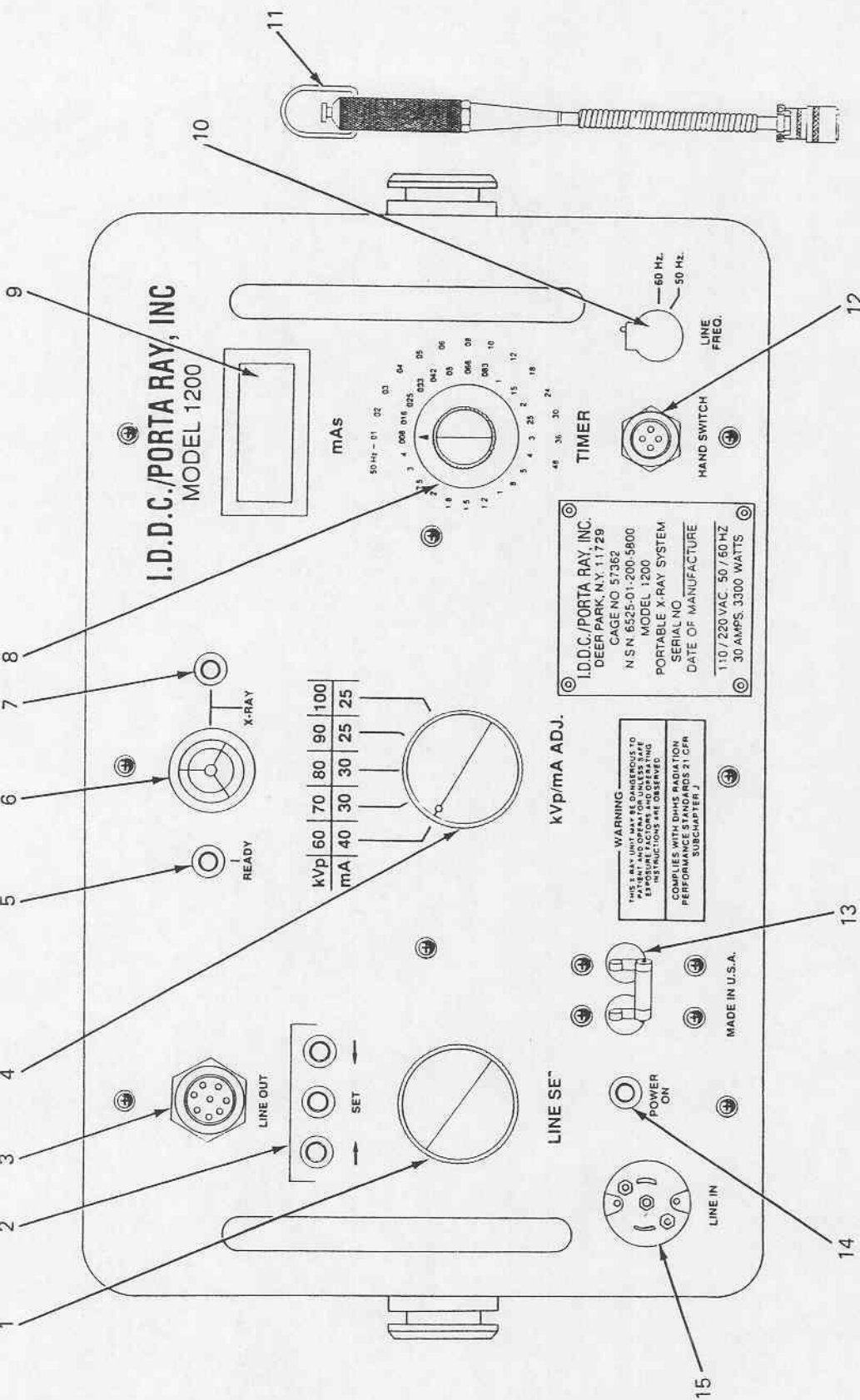
2. Verify that the 50/60 Hz switch is set to the correct line frequency by lifting the protective cap in the lower right corner of the control and noting the position of the screwdriver slot. Reset as required.
3. Turn on power switch, and rotate the line set switch with the green lamp lights.
4. Close the collimator shutters.
5. Select 60 kVp/40 mA station.
6. Set timer for 0.1 seconds.
7. Step back from unit (6 feet) with the exposure switch.

Table 3-1. Control Module Controls and Indicators Functions

Figure 3-1 Index No.	Control/ Indicator	Function
1	LINE SET Switch	A rotary switch that works in conjunction with the set indicators to adjust the unit to the incoming line voltage.
2	SET Indicators	Center green indicator illuminates to indicate the line is set properly. If either of the red indicators is illuminated, rotate the line set switch away from the illuminated red indicator until the green indicator illuminates.
3	LINE OUT Connector	Connector for the interconnecting cable to the X-Ray generator.
4	kVp/mA ADJ	A rotary switch that selects the desired kVp/mA combination.
5	READY Indicator	When the system is ready for operation, a solid-state LED illuminates. Pressing the Exposure Switch to the operate position has no effect until the READY Indicator illuminates.
6.	Buzzer	Emits an audible tone when X-Rays are being generated. The buzzer sounds simultaneously with the X-Ray generation, except for very short exposures, the tone duration is extended to 1 second, to make it easier for the operator to hear.
7	X-RAY Indicator	A solid-state, light-emitting diode (LED) illuminates when X-Rays are being generated. This occurs during the same time interval as the buzzer.
8	TIMER Switch	A rotary switch that provides for selection of exposure time from .008 to 4 seconds (60 Hz), .01 to 4 seconds (50 Hz).
9	mAs Display	Indicates the selected X-Ray tube filament current in milliamps (mAs) (mA setting X TIMER setting) prior to exposure (not for calibration purposes).
10	LINE FREQ Switch	Frequency selection switch, set at 60 Hz or 50 Hz to match line frequency.

Table 3-1. Control Module Controls and Indicators Functions - Continued

Figure 3-1 Index No.	Control/ Indicator	Function
11	Prep/Exposure Switch	A two position momentary switch that controls operation of the X-Ray beam. This is a "dead man" type switch and must be pressed continuously during the exposure. Releasing the switch will terminate the exposure and reset the timer. The first position preps the unit for an exposure and the second position starts the X-Ray output.
12	HAND SWITCH Connector	Connector for the remote exposure switch assembly (1A7).
13	POWER ON Switch/ Circuit Breaker	A switch that controls primary power to the X-Ray generator. Operating the switch turns the unit on. Power should not be turned on until the X-Ray System is ready to use and should be turned off after use.
14	POWER ON	A red neon lamp that illuminates when the power is on.
15	LINE IN Connector	Line power input connector.

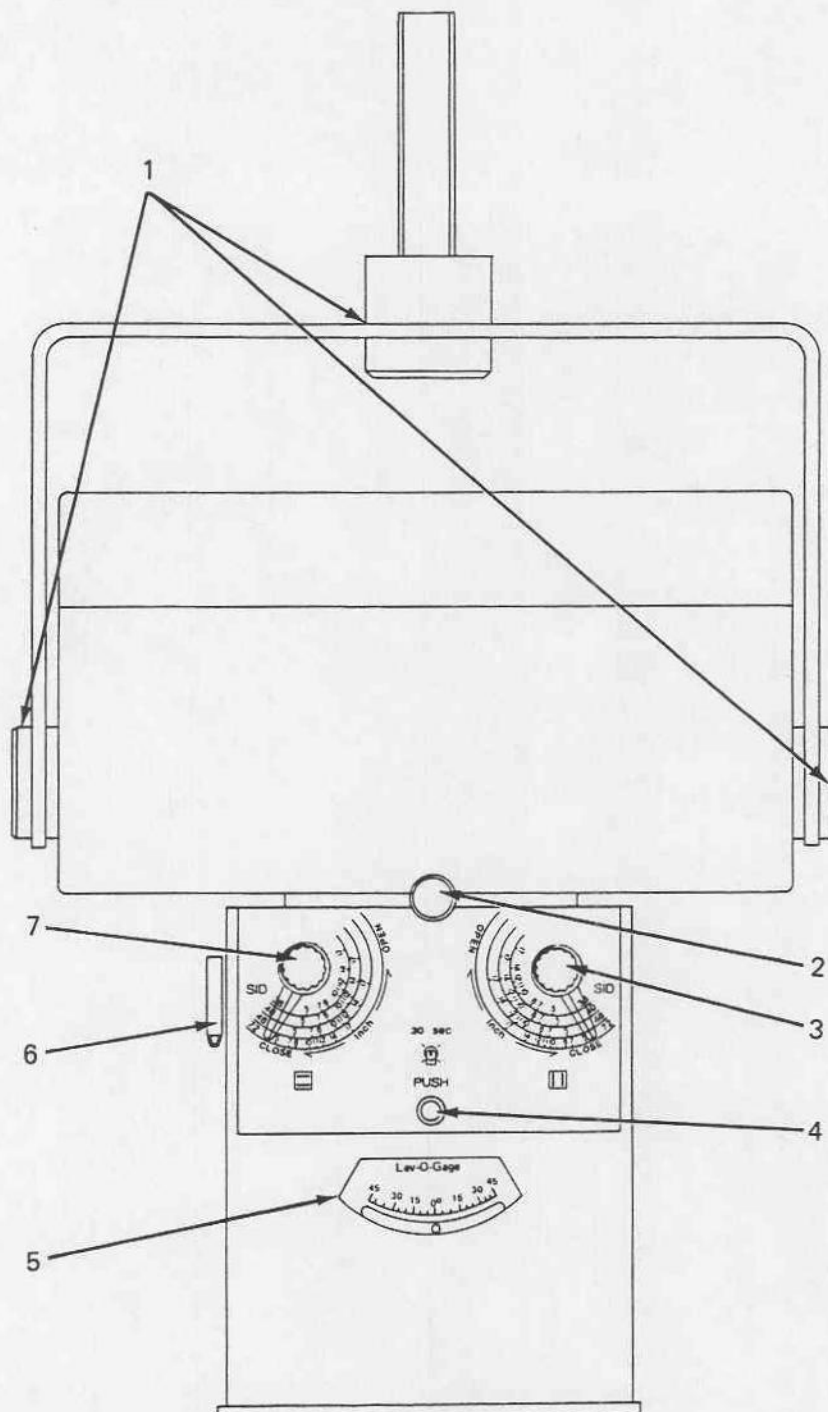


1. LINE SET Switch
2. SET Indicators
3. LINE OUT Connector
4. kVp/mA ADJ Switch
5. READY Indicator
6. Buzzer
7. X-Ray Indicator
8. TIMER SWITCH
9. mAs Display
10. LINE FREQ Switch
11. Prep/Exposure Switch
12. HAND SWITCH Connector
13. Power On Switch
14. POWER ON Indicator
15. LINE IN Connector

Figure 3-1. Control Assembly (Unit 1) Operating Controls and Indicators

Table 3-2. Functions of X-Ray Generator Assembly (Unit 2)
Controls and Indicators

Figure 3-2 Index No.	Control/ Indicator	Function
1	Yoke Friction Pivots	Allows for two planes of rotation and holds the X-Ray Generator at the selected position.
2	Collimator Rotation Lock	The locking screw is loosened by turning the knurled portion counterclockwise. This allows the collimator to be rotated to permit the X-Ray field edges to be squared-up with the edges of the cassette.
3	Long Shutter Control Knob and Scales	The right knob is used to adjust the width dimension of the X-Ray beam. The scales and graduations correspond to those of the cross shutter scales used to adjust the vertical scale.
4	PUSH Pushbutton	Press the momentary pushbutton to illuminate the high-intensity lamp, and project a visible beam with the same dimensions as the X-Ray beam. With high-intensity lamp on, the shutters can easily be adjusted to match the the cassette dimensions.
5	Lev-0-Gage	Level gage, indicates the relative angle of the X-Ray Generator Assembly with respect to the floor.
6	SID Measuring Tape	Measuring tape on the side of the collimator. It is extended to measure the Source-To-Image Distance (SID) factor, used in determining technique. The tape is calibrated to show the distance to the focal spot.
7	Cross Shutter Control Knob and Scales	The left knob is used to adjust the height (Y dimension) of the X-Ray beam so that it duplicates film dimension. There are four scales marked for standard SID settings of 40, 72, 36 and 48 inches. Graduations on the scales represent coverage in inches at the selected SID.



1. Yoke Friction Pivots
2. Collimator Rotation Lock
3. Long Shutter Control Knob
and Scales
4. PUSH Button

5. Lev-O-Gage
6. SID Measuring Tape
7. Cross Shutter Control Knob
and Scales

Figure 3-2. X-Ray Generator (Unit 2) Identification of Controls and Indicators

Table 3-3. Stand Assembly (Unit 3) Controls and Indicators

Figure 3-3 Index No.	Control/ Indicator	Function
1	Cross Arm Horizontal Travel Brake Release	Allows for forward and backward adjustment as needed to position the generator.
2	Height Adjustment Crank	Crank handle is used to raise or lower the X-Ray Generator.

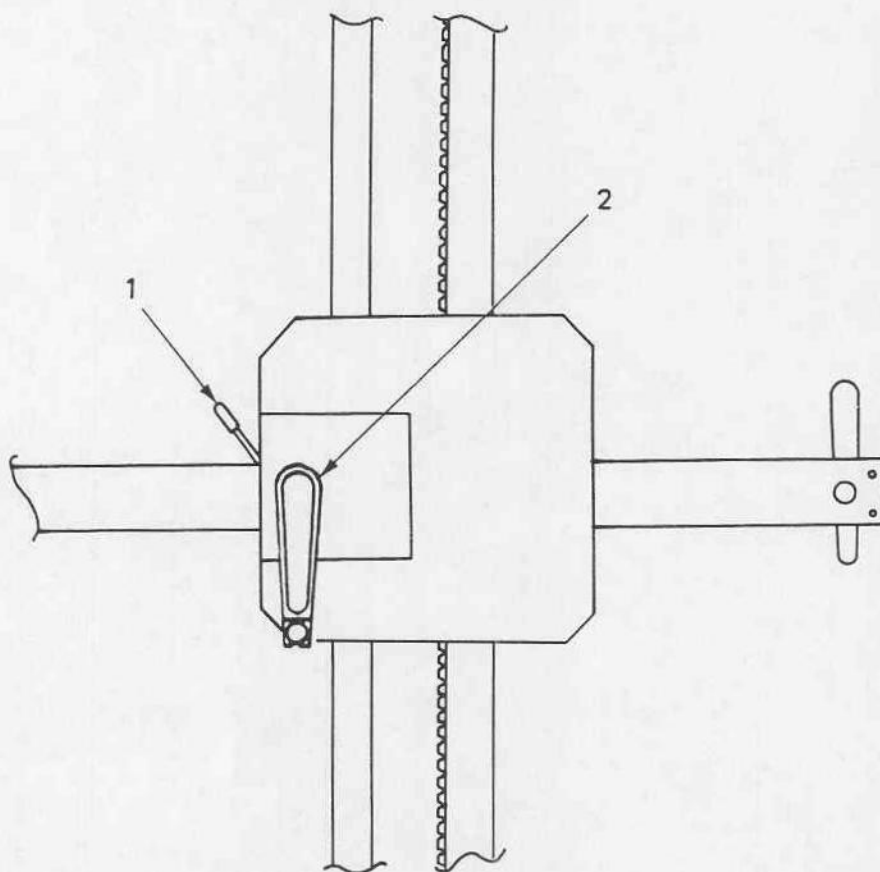


Figure 3-3. Gear Box Assembly (3A3) Identification of Controls

8. Press the exposure switch to the first position (prep), observe that the ready lamp goes off and on after about a one second delay.
9. Press the exposure switch all the way down to the X-Ray position and observe the X-Ray on lamp and audio tone operate.

3-4 OPERATING PROCEDURES

The Model 1200 Portable X-Ray System step-by-step operating procedures are provided in the following paragraph.

WARNING

Personnel working with or near X-Radiation should be fully acquainted with the recommendations of the National Committee on Radiation Protection as published in the National Bureau of Standards Handbooks and the International Commission of Radiation Protection, and should take adequate precautions to protect against injury. X-Ray equipment, if not properly used, can cause injury. The IDDC/Porta Ray X-Ray System incorporates a high degree of protection against X-Radiation, however, there is no way to provide complete protection. The X-Ray system operators must take normal precautionary steps to prevent unwisely or unknowingly exposing themselves or others to direct or secondary radiation. It is mandatory that all persons authorized to use the equipment are aware of the danger of excessive exposure to X-Radiation and are properly trained and instructed in its use. Various protective devices and materials are available. It is urged that such devices and materials be used.

3-4.1 System Operating Procedures. The X-Ray System operating procedure is described in the following steps.

1. Set the power on circuit breaker/switch on. The control assembly POWER ON indicator illuminates. The line SET indicators will illuminate either red or green. If either red indicator is illuminated, rotate the LINE SET knob away from the illuminated red indicator until the green indicator illuminates.
2. Select the kVp desired by means of the kVp/mA ADJ. selector.
3. Select the exposure time required by setting the TIMER Switch. The mAs display will indicate the product of the mA setting and the TIMER setting.
4. Locate the generator at the desired distance from the film cassette. The Collimator Assembly (2A1) contains a built-in tape measure to determine the distance accurately. The technique charts, Figures 3-3 through 3-5 provide a guide for some common applications.

5. Operate the collimator lamp to locate the X-Ray beam.

CAUTION

The projection lamp can become extremely hot. The lamp should be used only for the time required.

6. Maneuver the X-Ray generator until the light beam is centered on the film cassette. Adjust the shutters until the beam just covers the film cassette.
7. The READY Indicator illuminates after the required warm up period, and (X-Ray system will not operate until the ready light illuminates). If the unit has not been operated for a long period of time an additional 2 minute warming period is required.
8. Hold the Exposure Control, and step at least 6 feet (2 meters) to the rear or side of the X-Ray generator.
9. Press the Operate Switch on the Exposure Control to the prep position, and maintain pressure. When the READY lamp illuminates, press the switch to the second X-Ray position to start the exposure, maintain switch in exposure position until after exposure completion, releasing the exposure switch terminates the X-Ray. During the exposure, the control assembly X-RAY indicator illuminates, and the audio tone sounds.

NOTE

The audio tone and X-Ray lamp circuitry contains a minimum time setting of one second. This is to enable the operator to observe short exposure setting indications.

At the end of the required time interval, the control module terminates the exposure, the operating indicators turn off, and pressure may be removed from the exposure switch. If the X-Ray is terminated prior to completion of the selected time interval, the timer automatically resets.

10. Unless the X-Ray generator is going to be immediately used again, turned off power. Leaving the unit on provides an increased chance of accidental operation.
11. If the unit is to be operated again an automatic inhibit circuit allows time for the X-Ray tube to cool (in proportion to the on-time) to prevent X-Ray tube overheating and damage. At the end of this period, the READY Indicator illuminates.

3.5 TECHNIQUE CHARTS

Technique charts specifically for use with the X-Ray System will be included as Figures 3-4, and 3-5.

Table 3-4. X-Ray System Technique Chart

All Source to Image Distances 40"					
Kodak T-MAT G Film, TMG-1 and Kodak XMTC Cassettes with Lanex Fast Screens C1					
Anatomical View	kVp	mA	Time	mAs	Grid
HEAD					
Skull AP	80	30	0.5	15	Y
LAT	80	30	0.4	12	Y
Fronto-Occipital	80	30	0.8	24	Y
Facial Bones AP	80	30	0.5	15	Y
LAT	80	30	0.4	12	Y
Sinus Waters	80	30	0.5	15	Y
Mastoids AP	80	30	0.3	9	Y
LAT	80	30	0.4	12	Y
CHEST					
Chest AP	80	30	.05	1.5	N
Ribs	80	30	.066	2.0	N
Abdomen AP	80	30	.5	15	Y
Spines					
Lumbar Spine AP	80	30	.5	15	Y
Oblique	80	30	.8	24	Y
Lateral	90	25	2.0	50	Y
LAT-Coccyx	90	25	2.5	62	Y
Oblique Illum	80	30	0.8	24	Y
Sacral Joint	80	30	0.8	24	Y
Cervical Spine AP	60	40	0.25	10	N
LAT	60	40	0.25	10	N
PELVIS AP	80	30	0.5	15	Y
LOWER EXTREMITIES					
Foot AP	60	40	0.83	3.3	N
LAT	60	40	.1	4.0	N
Ankle AP	60	40	.15	6.0	N
LAT	60	40	.1	4.0	N

Table 3-4. X-Ray System Technique Chart
(Continued)

All Source to Image Distances 40" Kodak T-MAT G Film, TMG-1 and Kodak XMTC Cassettes with Lanex Fast Screens C1					
Anatomical View	kVp	mA	Time	mAs	Grid
Tibia-Fibula AP	60	40	.2	8.0	N
LAT	60	40	.2	8.0	N
Knee AP	60	40	.2	8.0	N
LAT	60	40	.2	8.0	N
Femur AP	70	30	.25	7.5	N
LAT	70	30	.25	7.5	N
UPPER EXTREMITIES					
Hand AP	60	40	0.33	1.3	N
LAT	60	40	0.66	2.6	N
Wrist AP	60	40	.05	2.0	N
LAT	60	40	0.66	2.6	N
ForeArm AP	60	40	.05	2.0	N
LAT	60	40	.083	3.3	N
Elbow AP	60	40	.1	4.0	N
LAT	60	40	.1	4.0	N
Humerus AP	60	40	.15	6.0	N
LAT	60	40	.15	6.0	N
Shoulder Internal & External	60	40	.20	8.0	N
Scapula AP	60	40	.25	10.0	N
Clavicle AP	60	40	.20	8.0	N
Oblique	60	40	.25	10.0	N

SECTION IV

GENERAL THEORY OF OPERATION

4-1 INTRODUCTION

This section provides the functional block description of the Model 1200 Portable X-Ray System, with each of the functional blocks described in its normal operating sequence. The functional operation of the X-Ray System is traced through the Model 1200 Portable X-Ray System Simplified Functional Block Diagram, Figure 4-1. To supplement this description, paragraphs 4-3, function of control assembly and paragraph 4-4 function of X-Ray generator assembly, describe the operational function of each unit and the key subassemblies in the X-Ray System.

The functional descriptions provided in this section are laid out to match the breakdowns described in Section V, Troubleshooting. This enables the service technicians to refer back to the Theory of Operation section and to clarify troubleshooting procedures.

Detailed schematic diagrams of each of the assemblies are provided in Section VII.

4-2 FUNCTIONAL BLOCK DESCRIPTION OF THE MODEL 1200 PORTABLE X-RAY SYSTEM

The Control Assembly (Unit 1) conditions the line power, sets the proper voltage and kVp and sends it to the X-Ray Generator Assembly (Unit 2) for a set selected time intervals. It also provides to the X-Ray generator assembly 24V AC for the filament power and collimator lamp. An additional circuit performs the mathematical calculation of the milliamp time product (mAs) for all of the different mA, time, and line frequencies. This is provided as a convenience to the operator.

The X-Ray Generator Assembly (Unit 2) uses conditioned line power, transforms it to high voltage, rectifies it, and applies it to the X-Ray tube. It also uses the 24VAC power to provide a regulated filament supply to stabilize the mA.

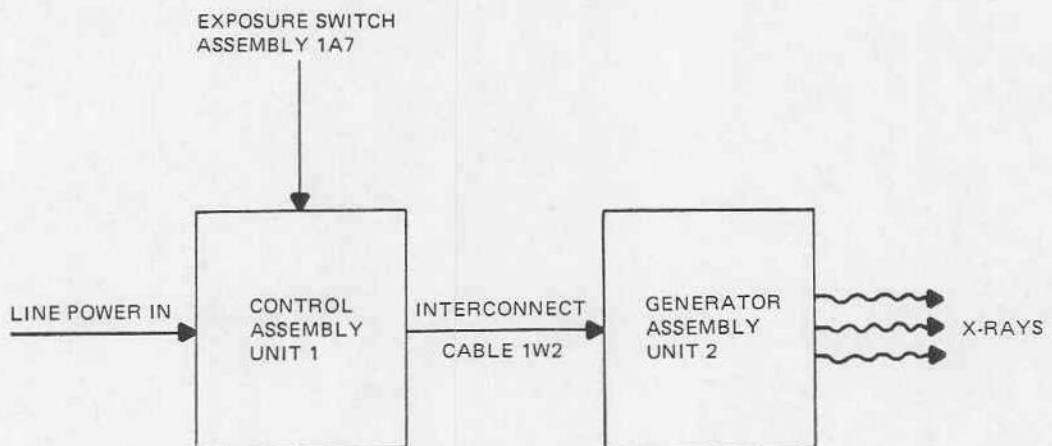


Figure 4-1. Model 1200 Portable X-Ray System, Simplified Block Diagram

The mA adjustments are selected by the Control Assembly (Unit 1), however the calibration of the mA is located in the X-Ray Generator Assembly (Unit 2). This allows for simplified field service. The Control Assemblies (Unit 1) and X-Ray Generator Assemblies (Unit 2) may be interchanged without the need for recalibration.

4-3 FUNCTIONAL BLOCK DESCRIPTION OF THE CONTROL ASSEMBLY (UNIT 1)

The Control Assembly (Unit 1) provides four major functions, (Figure 4-2). One, it conditions the line power, provides kVp/mA selection, provides the precise exposure time intervals necessary, and indicates the mAs (provided as an operator aid). Each of these functions is described in detail in the following subparagraphs.

- 1) Line Conditioning. Line power is applied to the auto transformer through a two pole Circuit Breaker CB1 that also functions as an on/off switch. Relay K1 switches the auto transformer taps for either the 110 or 220 volt range. The normally closed (unpowered) position is the 220V range. This prevents over voltage from being applied during power turn-on.

The Line Set/Sense PC Board 1A4 measures the line voltage and applies power to the relay when the line voltage is in the 110V range. The pc board then lights up the appropriate set lamp (red for needing adjustment, green for SET) allowing the operator to fine tune the line voltage by adjusting S1, the LINE SET switch. When the green "SET" condition occurs, the board then sends a signal to the timer board allowing an exposure. No exposure can be made when either red lamp is lit. The line set board also provides two +5 volt power supplies for the other pc boards and circuits.

- 2) kVp/mA Selection. After setting the LINE SET, the operator then selects the kVp/mA combination for the particular exam by adjusting kVp/mA Selection Switch (S2). The first pole of kVp/mA Selection Switch S2 (S2A) selects a tap on the auto transformer that provides a voltage that when applied to the high voltage transformer in the generator, will produce the desired kVp. The second pole sends a signal to the generator to set the corresponding mA as follows:

40 mA	Pin D is low
30 mA	Pin C is low
25 mA	Pin C and Pin D is low

The voltage selected by the kVp/mA switch is then applied to a mechanical "safety" relay K2. This relay closes in the prep position of the operate switch and opens upon release. Releasing the exposure switch stops the X-Ray, even if the electronics fail. From the safety relay, the voltage then goes to K3, a solid state relay. K3 is controlled by a timed 5 volt pulse that is generated by the timer pc board when the exposure switch is pressed to the X-Ray position.

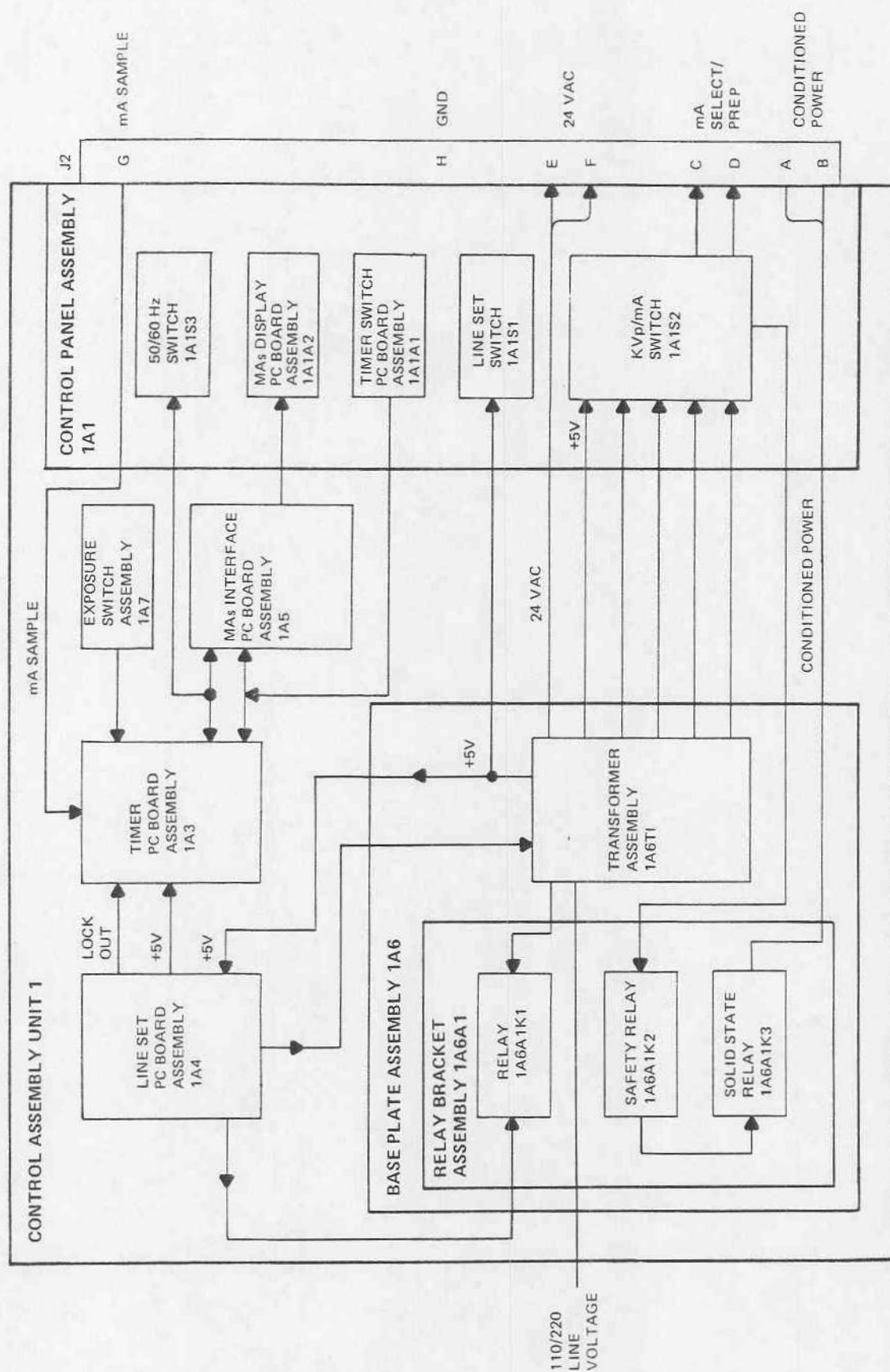


Figure 4-2. Control Assembly (Unit 1) Detailed Block Diagram

- 3) Timing and mAs Display. The exposure time switch is a BCD coded rotary switch that provides 24 positions from 1 impulse to 4 seconds. There is a red scale on the panel for the first 14 positions, which correspond to the 50 Hz line frequency setting of the 50/60 Hz switch.

All other positions remain the same for both line frequencies. The exposure time and line frequency data go to both the Timer PC Board 1A3 and mAs PC Board 1A5. At the timer, a sample of the line voltage is used as a clock for digital circuits that control the exposure time without any adjustments or error. The timer also provides a delay, to the exposure time, after each exposure to allow the X-Ray tube to cool and a delay prior to exposure, to allow the X-Ray tube filaments to turn on. These are displayed to the user by means of the READY light. A sample of the X-Ray tube current (mA) is also sent to the timer pc board. If no current is present during an exposure, then the X-RAY lamp and buzzer will not function.

- 4) mAs PC Board 1A5. The mAs PC Board (1A5) functions only as an operator aid and has no operational function. It takes data from the exposure time switch, the 50/60 Hz switch, and the kVp/mA switch, performs the math digitally and displays the computed mAs value.

4-3.1 Timer PCB Assembly Functional Description. (Refer to schematic 700TBS). When the line set is in the green (set) condition and the exposure switch is pressed to the prep condition, a low appears on pin 33. This turns on U6, an optically isolated triac which in turn energizes the safety relay K2. The same low is applied to U5D pin 12. The resultant high on pin 11 is delayed from being applied to U5C pin 8 by the RC time constant formed by R17 and C8. This is the time required for turning on the filaments of the X-Ray tube. When U5C goes low U5B goes high and Q4 turns on the READY lamp.

When the board is "READY" U3D is low and U4C will then allow a low from the X-Ray switch (pin 43) to pass. Therefore even if the exposure switch is pressed all the way to the X-Ray position immediately, the unit will still go through its full prep X-Ray sequence. U4A, R25-C9, R24-C7 provide time delays on turn on and after an exposure, to allow the X-Ray tube to cool. U4A drives U4B inhibiting an X-Ray "on" command, and U5B preventing the READY light. When all these conditions are met, U4B through U3C turns U5A which triggers U2 the main timing circuit.

Timing occurs as follows, a 24VAC voltage is applied to pins 5 and 7 where CR1 and CR2 full-wave rectifies it. The rectified voltage is squared up by Q1 and U3B and sent as a clock (120 Hz for 60 Hz line frequency, 100 Hz for 50 Hz line) to U1, the time base generator. U1 is set by the 50/60 Hz switch and the time switch so that for the first 14 positions of the timer switch, it produces a new clock equal to the clock generated by U3B and for the last 10 positions a clock equal to 0.1 seconds. The clock is fed through U3A to pin 14 of U2, the clock input. It also is gated through U5A to pin 11 where it triggers U2. U2 counts

in accordance with the BCD coded timer switch settings on pins 1 - 7, and sends a timed pulse through U4D and Q3 to the solid state relay K3. U8 is a backup safety timer that will turn off K3 if U2 fails to time out.

A sample of the mA signal is applied to pins 50 and 52. This is applied through Q7 to U7 which adds about a 1/10 second onto the mA pulse. U7 then drives Q5 and Q6 which in turn drive the X-RAY lamp and buzzer "on". Therefore if the lamp and buzzer function, then there is mA and X-Ray production. Lamp and buzzer intervals are extended for very short X-Ray exposures to allow the operator to hear and see these functions. The extension circuits effect only the lamp and buzzer and do not effect the actual exposure.

4-3.2 Line Set PCB Assembly Functional Description. (Refer to Schematic 700112). The line power controller includes an auto-transformer which permits voltage selection via coil taps by means of a line voltage adjust switch (LINE SET). The line power controller also includes a line voltage monitor pc board and a line voltage relay. The relay connects the line for 220 V operation. If 110 V is present, the line voltage monitor pc board automatically activates the relay which switches taps on the auto transformer. Fine adjustment of the line voltage is made by the line voltage adjust switch (LINE SET) and the SET lamps.

Refer to Schematic # 700112. This pc board performs three functions, 1) Operates K1 if the incoming line is in the 110V range, 2) To assist the operator in setting the line set switch by lighting either the high, low, or SET lamp, 3) To provide +5V power to the system.

- 1) Transformer T2 is connected to the incoming AC line and its secondary provides a sample voltage. This is rectified by BR2 and filtered by C7. If the line is in the 220V range, the resulting DC voltage is high enough to overcome Zener diode CR4 and turn on Q1. This in turn turns Q2 off and U3, a optically isolated traic is not activated. The external K1 relay remains in its 220V normally closed position. If a 110V line is applied the sample voltage is not large enough to overcome CR4 and Q1 turns off. This turns Q2 on, activating U3 and changing the relay to the 110V position. By having the 220V range as the unactivated condition, excess voltage is never applied to the other circuits.
- 2) Transformer T1 provides a sample of the AC line output after the LINE SET switch. It is rectified by BR1 and filtered by C4. It is then applied to the input of two comparaters U1A and U1B. These compare the voltage as follows:

	<u>U1A</u>	<u>U1B</u>
a) Line voltage to low	Low	Low
b) Line voltage in current range	High	Low
c) Line voltage to high	High	High

In condition a) U1C will also be low and the low lamp will be lit through R12-A pine 36 and U2C pin 19. U1D will be high. U2C will be high resulting in relay K1 contacts to be open and a low will not be available to the prep/X-Ray on switch disabling it. In condition b) (above) both U1C and U1D will be high, driving U2A low. U2B then

goes high and U2C and D goes low. U2C then turns relay K1 on, providing a hard low to the prep switch. When the prep switch is closed a low is fed back through pin 38 and CR7, freezing the system. Therefore, after the unit is prepped, the line set function is locked out preventing an interruption of the exposure. U2D lights the SET lamp.

In condition C U1D will be low and the high lamp will light. U2C will again be driven high opening K1 and preventing an exposure.

4-3.3 mAs Interface PCB Assembly Functional Description. Refer to Figure 4-3 and Schematic 700116. The mAs pc board 1A5 provides a user aid in computing and displaying the mAs that result from any combination of exposure time, line frequency, and mA. It is not directly involved in X-Ray production. U18 does sample the clock from the timer pc board and if it were missing, would cause the timer to malfunction.

U9 is the basic system clock generator. It runs at about 80 kHz, but its frequency is not critical since everything is divided down and is proportional to the clock. U13 contains a register and display driver. The object of the balance of the circuitry is to tell U13 to count a number of clock pulses equal to the mAs number, to then turn off the clock input, and then to have U13 store and display that number. While the number is displayed the counter is reset, a new train of clock pulses are counted and the display is then refreshed. This continues so that when either the mA or time settings are changed, the display is rapidly updated. The numbers remain accurate and stable since they are not effected by the actual clock frequency, but only by the digitally derived ratios.

U2 and U16 - U26 form the divider preoperational to mA. The mA data enters on either pin 39, 40, or 51 and is gated by U10 and U14 into the registers. The output on pin 8 of U26 is a divided down ratio of the clock frequency proportional to the mA value selected. It resets the counter U2 and is fed through U7 to U1. As an example, if the 25 mA station is selected, U26 would produce one pulse for every 25 clock pulses. U1 and U3, U4, U27 function to divide the counter proportional to the exposure time setting data from pins 25, 27, 29, 31, 33, 35, 36.

The time between pulses from pin 8 of U27 is now sufficient to allow the correct number of the original clock pulses to be counted by U13 and displayed as the mAs. U13 however, requires a time sequence between when it is told to count, store and display, and reset. U6 and U8 provide one delay period and U5 and U15 another so that the reset and store commands are in the proper sequence. U12 and U11 provide a 10:1 reduction in the clock frequency for those time settings (the first 14) when the clock in the timer pc board is at the line frequency.

4-4 FUNCTION OF X-RAY GENERATOR ASSEMBLY (UNIT 2)

The X-Ray Generator (Unit 2) produces the required X-Rays. See X-Ray generator detailed block diagram, Figure 4-4. It contains four major components: a Collimator Assembly (2A1) a Tube Head Assembly (2A2), Yoke Assembly (2A3) and a Chassis Assembly (2A3). Reference the tube head assembly functional description in paragraph 4-4.1 and collimator functional description in paragraph 4-4.2, for more detailed discussion.

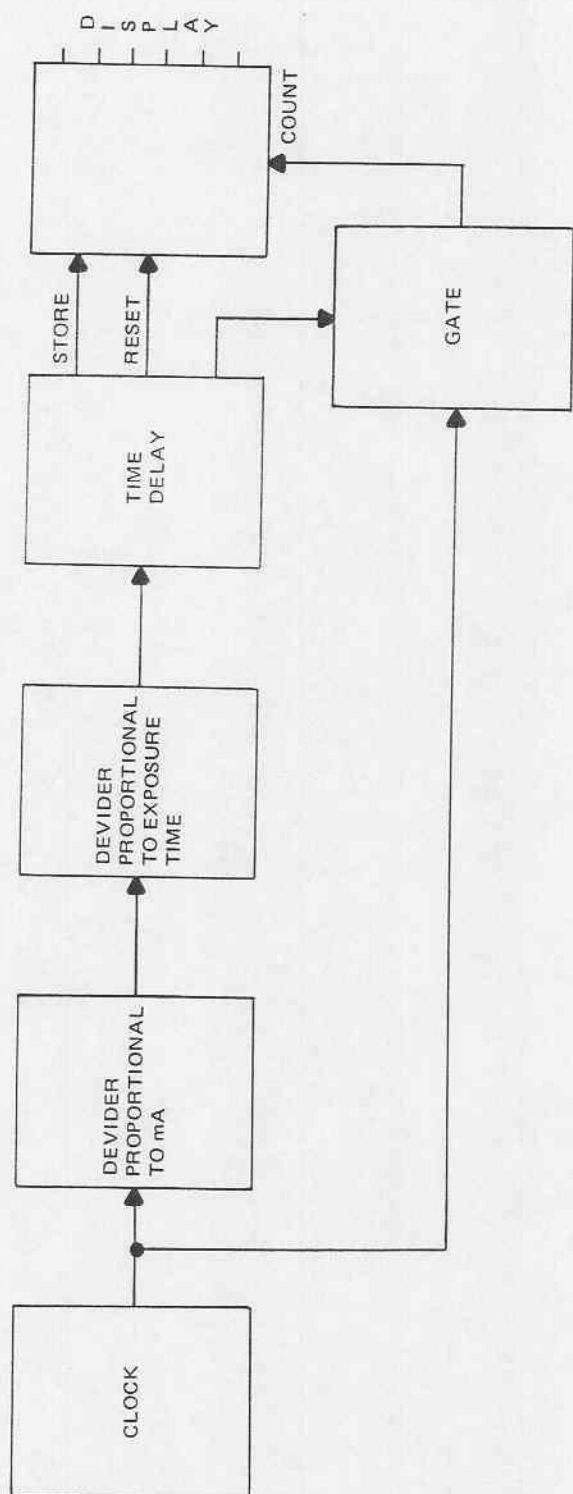


Figure 4-3. mAs PC Board Simplified Block Diagram

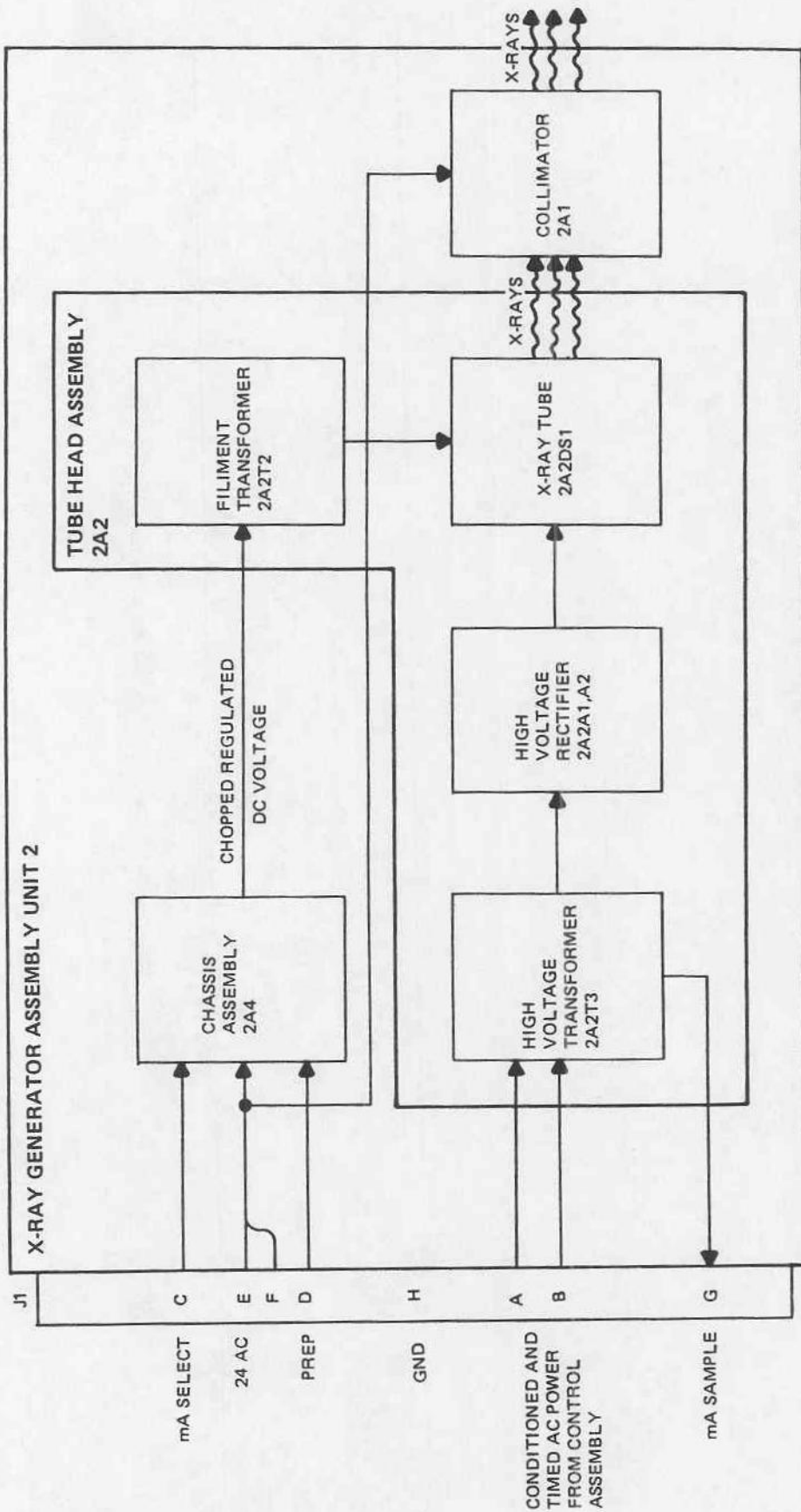


Figure 4-4. X-Ray Generator Assembly (Unit 2) Detailed Block Diagram

The X-Ray tube current is controlled by adjusting the power to the tube filaments. To stabilize and set the tube current, the generator contains the Chassis Assembly 2A4. The chassis assembly rectifies the 24V AC input, and regulates the DC voltage. The regulated voltage is set by one of three variable resistors (one for each mA station) selected by the Control Assembly, Unit 1.

The DC voltage then goes to the center tap of the filament transformer primary. When the exposure switch is operated to the prep position the selected mA data line goes low which sets the regulator and starts the inverter that drives the filament transformer primary. No power is applied to the filaments except in the prep and X-Ray "on" condition. After the filaments come up to operating temperature the AC power is applied to the H.V. transformer primary. The resulting H.V. is then full-wave rectified and applied to the X-Ray tube. The resulting X-Ray beam then passes through the collimator whose lead shutters can reduce the field size, and on to the object and film.

4-4.1 Collimator (2A1) Functional Description. The Collimator (2A1) is used to both restrict and define the area covered by the X-Ray beam and to reduce stray X-Ray radiation. The beam collimated by the two control knobs should cover the smallest area of the patient necessary to produce the required radiograph.

The collimator allows a stepless adjustment of the X-Ray field-size and utilizes a light localizer to project a visible beam with coverage equivalent to the coverage of the X-Ray beam. The calibration scales indicate the light field sizes at each SID. Accuracy is $\pm 2\%$ of SID. The collimator incorporates the following features:

- o Pushbutton timer switch which, when pressed, turns the collimator light beam on for 30 seconds. After 30 seconds, the light beam turns off automatically.
- o A special ring device is used to adjust the center of collimator by ± 2 mm to align the center of visible beam with the X-Ray beam. (The collimator can be rotated.)
- o The light localizer lamp is replaceable with minimal displacement error of lamp position. The lamp filament position can be easily adjusted.

4-4.1.1 Collimator Timer (2A1A1A1). When the PUSH pushbutton on the collimator is pressed, the K1 relay contacts close (on Collimator Timer PC Board, 2A1A1A1) supplying power to the projector lamp. The time is preset for 30 seconds at the end of this time, the relay contacts open and the collimator lamp turns off.

4-4.2 Tube Head Assembly (2A2) Function Description. The Tube Head (2A2) is a sealed oil filled assembly, containing the Transformer Assembly (2A2T1) which has the Filament Transformer (2A2T2), the High Voltage Transformer (2A2T3), the SXR-100GE X-Ray Tube (2A2DS1), the Full-wave Rectifier Assemblies 2A2A1 and A2, the Chassis Assembly 2A4 contains the Filament Control PC Board 2A4A1.

The filament transformer applies a voltage across the X-Ray tube filament, this voltage varies with mA selected. Across the filament (cathode) and target (anode) of the X-Ray tube is applied high-voltage direct current produced by the diodes connected as a full-wave rectifier. The level of the high voltage applied to the bridge is determined by the selection of a particular tap on the auto transformer. Tap selection is determined by the kVp switch.

SECTION V

MAINTENANCE/TROUBLESHOOTING

5-1 INTRODUCTION

This section includes periodic maintenance, testing, troubleshooting, calibration, alignment, adjustment, replacement, and disassembly procedures for the Model 1200 Portable X-Ray System. Maintenance can be performed with general-purpose tools and with special test equipment listed in Table 5-1. The system is designed to permit the use of standard electronic test equipment whenever possible. If any item listed in Table 5-1 is not available, an equivalent item may be substituted.

Table 5-1. List of Special Test Equipment Recommended

Nomenclature	Model or part number	Manufacturer	Qty
Digital Voltmeter/Ammeter	Model 77	Fluke	1
Storage Oscilloscope	Model VC-6020	Hitachi	1
kVp Divider	Model 35080	Keithly	1
Digital mA/mAs Meter	Model 35035	Keithly	1
Dosimeter	Model 35050	Keithly	1
Pulse Counter	Model 1910A	Fluke	1
Light Meter, Digital Photo Meter	Model J16	Tektronix	1
HVL Test Fixture		Nuclear Associates	1
Beam Alignment Test Tool	Part No. 07-661	Nuclear Associates	1
Beam Alignment Tool	Part No. 07-662	Nuclear Associates	1
Extender Card	Part No. 500602	Porta Ray	1

5-2 PERIODIC MAINTENANCE SCHEDULE AND PROCEDURES

The recommended periodic maintenance schedule and procedures for the Model 1200 Portable X-Ray System are presented in Table 5-2. The instructions schedule includes inspection, cleaning, and lubrication procedures. Table 5-3 provides the long-term storage, maintenance procedures.

5-3 CLEANING

Use a cloth moistened in warm soapy water (mild soap) to clean the units. Do not soak the units and do not use strong cleaners or solvents as they may blur the lettering or dull the finish. To avoid scratching lens, do not polish meter windows.

Table 5-2. Preventive Maintenance Schedule and Procedures

Interval	Procedure
Monthly	Clean unit using procedure in paragraph 5-3, cleaning.
3 Months	1) Visually inspect unit, check electrical cables and connectors for bent, broken, or loose pins; cracked or broken insulators; weak, broken or loose pin connections; dirt and corrosion. Repair as required. 2) Verify that unit meets all of the pre-operational check out procedures listed in paragraph 3-3. 3) Tighten any loose hardware. 4) Touch up paint, any scratches, chips or exposed metal.
6 Months	Perform alignment, adjustment, calibration and checkout procedures in paragraph 5-5.

Table 5-3. Long Term Storage, Maintenance Procedures

Number of months	Procedure	Corrective action
6 Months	X-Ray Tube (2A2DS1) Degassing	Return X-Ray Tube 2A2DS1 to IDDC/Porta Ray for recharging, or install X-Ray tube into a functional Model 1200 X-Ray System and perform the following procedure. Follow the assembly setup and operating procedures in Sections 2 and 3 of this manual. Cycle X-Ray system starting with the lowest kVp setting and the shortest time. Gradually increase mA and time exposures up to the maximum kVp and time settings.

Table 5-3. Long Term Storage, Maintenance Procedures
(Continued)

Number of months	Procedure	Corrective action
6 Months	Tube Head Assembly (2A2) X-Ray Tube Degassing	Return Tube Head Assembly 2A2 to IDDC/Porta-Ray for recharging or install the tube head assembly into a functional Model 1200 X-Ray System and perform the following procedure. Follow the assembly setup and operating procedures in Sections 2 and 3 of this manual. Cycle X-Ray system starting with the lowest kVp setting and the shortest time. Gradually increase kVp and time exposures up to the maximum kVp and time settings.
6 Months	Generator Assembly Unit 2 X-Ray Tube Degassing	Position the generator assembly in Model 1200 X-Ray System and perform the following procedure. Follow the assembly setup and operating procedures in Sections 2 and 3 of this manual. Cycle X-Ray system starting with the lowest kVp setting and the shortest time. Gradually increase kVp and time exposures up to the maximum kVp and time settings.
6 Months	Model 1200 Portable X-Ray System X-Ray Tube Degassing	Follow the assembly setup and operating procedures in Sections 2 and 3 of this manual. Cycle X-Ray system starting with the lowest kVp setting and the shortest time. Gradually increase kVp and time exposures up to the maximum kVp and time settings.

5-4 INSPECTION/TESTING PROCEDURES

The Model 1200 Portable X-Ray System inspection procedures and operational acceptance tests are performed simultaneously with alignment, adjustment, and calibration procedures, paragraph 5-6. If any component fails to comply with the alignment, adjustment and calibration parameters specified, replace the component or refer to the System Troubleshooting Guide, Table 5-4.

5-5 ALIGNMENT, ADJUSTMENT, CALIBRATION AND CHECKOUT PROCEDURES

WARNING

To avoid injury to inexperienced personnel, only trained and qualified personnel should be permitted access to the internal portions of the X-Ray generator.

The following paragraphs provide alignment and adjustment procedures for the X-Ray System. Copy the calibration checklist and use the copy during the checkout procedure, Figure 5-1. Alignment and adjustment of particular components will be performed in any of three situations, as required:

- o To correct an operational malfunction
- o Subsequent to replacement of a critical component
- o As required by the preventive maintenance schedule in Table 5-2.

The X-Ray System is shipped from the factory in a properly aligned and adjusted condition. Alignment or adjustment should be required only to correct a malfunction or after replacement of a major operational component, or as required by preventive maintenance schedule in Table 5-2.

WARNING

Adjustments of power resistors must be performed with all power to X-Ray System off. Failure to turn off power could result in bodily injury to servicing personnel.

Step 1) LINE VOLTAGE: Using a digital voltmeter measure and record the AC line voltage (nominal: 110VAC/60 Hz and 220VAC/50 Hz).

Place the Generator/Collimator Assembly in a test chamber and connect the interface cable from the Control Chassis (Model 1200-C) to the Generator/Collimator Assembly (Model 1200-G). Complete and verify the heading of the Calibration Checklist.

Step 2) LINE SET: Using a digital voltmeter connect the positive lead to Test Point TP3 and the negative lead to TP4 of the Line Set Board P/N 500504 (located in the card rack of control assembly). Set the digital voltmeter to the 2VDC scale position. Adjust LINE SET knob until a voltage of .88VDC is achieved. Move the positive meter lead to TP2 and adjust R2 to 1.05VDC. Move the positive meter lead to TP1 and adjust R1 to .83VDC.

- Step 3) CALIBRATION SET-UP: Connect the mAs meter to the phone plug (J4) located in the Control Assembly (500507). Set the following technique factors; 60 kVp/40 mA and 1/10 seconds. Load the kVp Divider with the 0 = 42 kVp cassette (Filter Pack, P/N 32867C) and place in the X-Ray field. Set Function Switch to RUN. Connect the kVp divider cable to the oscilloscope and set up as follows:

Volts/Div: .1

Display: set to Storage

Time/Div : 20 mS

Source: Channel 1

Ground Input/trace: lower line

Input: DC

Mode: Channel 1

Trigger Mode: Single

Pre-trigger: 2 divisions

Push "Ready"

- Step 4) mA/kVp CALIBRATION: With this setup, make an exposure and note the obtained kVp and mA after each shot. Compute the kVp by counting the ground line as 42 kVp and each division as 10 kVp. Note the mAs reading and adjust R17/filament control if necessary (turn clockwise to increase mA, counter-clockwise to decrease mA). Repeat the above procedure for the following kVp/mA settings and adjust if necessary;

kVp/mA Range

Adjustment Point

70 kVp/30 mA

R16/Filament Control

80 kVp/30 mA

R16/Filament Control

Replace the divider cassette with 0=55 kVp (Filter Pack P/N 32865C) and repeat the above procedure for the following kVp/mA settings and adjust if necessary;

kVp/mA Range

Adjustment Point

90 kVp/25 mA

R15/Filament Control

100 kVp/25 mA

R15/Filament Control

If the kVp and mA values are within the tolerances specified in the calibration checklist, then the calibration of mAs and kVps is complete and the noted data can be entered on the calibration checklist.

- Step 5) Verify Step 4 with an input voltage of 220 VAC/50 Hz.
- Step 6) TIMER TEST DATA: Connect to output of the kVp Divider (using the 3 Volt Filter Pack, P/N 32659B) to the Pulse Counter and verify the time base as indicated on the checklist.
- Step 7) EXPOSURE INDICATION: Confirm audible and visual indication of exposure at all timer settings.
- Step 8) LINE CURRENT: Attach the Ammeter Clamp over the black wire of the line cord and connect leads to AC ammeter. Set the AC Ammeter to the 200 mA scale. Make a 1.0 second exposure at 100 kVp, 25 mA. Record meter reading and observe if reading is within specified tolerance.

- Step 9) mAs METER: Verify the control assembly front panel mAs display indicates the product of the mA setting and the kVp setting.
- Step 10) REPRODUCIBILITY: Place X-Ray System in test chamber. Set the X-Ray field SID to 40 inches. Connect the dosimeter to the ion-chamber. Connect DC Voltmeter (Set to the 2 VDC scale) to binding posts. Set mode switch to DOSE and turn dosimeter ON. Press zero momentarily to set meter to voltage 0, +/- .003 volts. If voltage drifts, turn ON Background and adjust, CW if drifting down, CCW if drifting up.
- Set the following technique factors; 100 kVp/25 mA and 1/10 second. Make an exposure and read the resulting DC voltage from the Dosimeter. Multiply this figure by 100 (move decimal point 2 places right) and enter on checklist as mR. Repeat for a total of ten exposures. Using a statistics program calculator, compute mean ($\bar{X}$) and standard deviation (S). Compute coefficient of variation by dividing standard deviation by the mean. If unit is within tolerance, enter these values on checklist.
- Step 11) HALF VALUE LAYER: Set the following technique factors; 100 kVp, 25 mA and 1/2 second. Place the Half Value Layer Test Tool in the test chamber without the filter in place. Adjust the Collimator, Dosimeter Chamber, and Test Tool such that the X-Ray will expose a small circle in the center of the chamber. Make an exposure, multiply DC volts by 100 (for mR), and enter as the Unfiltered Reading. Place the 2.7 mm filter over the opening in the Test Tool, make an exposure and record mR as Filtered Reading. Divide the Filtered Reading by the Unfiltered Reading and enter on checklist. Result must be greater than 0.5.
- Step 12) LEAKAGE TEST: Close both collimator shutters completely. Set the following technique factors; 100 kVp, 25 mA and 1.0 second. Place the ion chamber of the dosimeter on the bottom shelf (40" SID) make an exposure and record the mR reading. Rotate the unit so an exposure is made from all six sides. Record all mR readings as position 1 through position 6 on checklist. Multiply all mR readings by 60 and verify that no reading exceeds 50 mR. If any reading exceeds 50 mR repair/replace collimeter.
- Step 13) LIGHT ILLUMINANCE: Open collimator doors and press button to activate lamp. Check to insure that the light stays on for a minimum of 15 seconds. Use the light meter with probe placed at 40 inches to measure light intensity. Set the meter switch to A x 10 and probe switch to x1. Measure the light intensity in center of each quadrant by pressing meter button, reading the A scale and multiplying by 10. Enter the lowest reading on checklist.

Step 14) BEAM ALIGNMENT: Rotate collimator so that knobs are facing front and tighten lock. Place Alignment Tool (RMI 161A) in beam at 40" and collimator field just to the outside edge of the silver border. Place Beam Alignment Tool (RMI 162A) in center of field (center dot at intersection of center lines) and adjust beam so that shadow of upper dot covers lower dot. Readjust borders if necessary. Place identifying numbers (stock or serial) on upper right corner and take an exposure at 60 kVp, 2 mAs. Develop film and inspect image. Measure the actual X-Ray field and record the numbers on the checklist. In addition to the overall size the center of the X-Ray field must coincide with the center of the light field within +/- 1% of the SID (0.4").

If the centers are too far out of alignment, adjustment of collimator light field is necessary. Place the alignment tool in the field such that the light field is lined up to the outside edge of the silver border. Place the exposed film on top of the alignment tool making sure that the exposed border of the film coincides with the silver border of the alignment tool. Adjust the collimator light field to coincide with the exposed field of the X-Ray film.

Rotate collimator to access and remove cover plate. Locate vertical and horizontal hex head adjustment bolts, and 2 slotted clamping screws. Loosen the clamping screws slightly and adjust hex head bolts.

Move Beam Left	-----	Turn horizontal bolt CCW
Move Beam Right	-----	Turn horizontal bolt CW
Move Beam Down	-----	Turn vertical bolt CCW
Move Beam Up	-----	Turn vertical bolt CW

Rotate collimator back to original position to check alignment by repeating original procedure. If field cannot be sufficiently centered with adjustment bolts, notify supervisor otherwise continue.

Place a loaded cassette in the field at 40 inches, set the collimator shutters so scales read 5.0" x 7.0" on the 40" SID scale and make an exposure. Develop the film and verify that the actual size is within tolerance. Record measurements on checklist and attach test films.

Step 15) FINAL STEP: Verify that the entire checklist has been completed. Sign and date the checklist.

4) Timer Test Data (measured in pulses)

<u>110 VAC, 60 Hz</u>			<u>220 VAC, 50 Hz</u>		
<u>Nominal</u>	<u>Spec.</u>	<u>Actual</u>	<u>Nominal</u>	<u>Spec.</u>	<u>Actual</u>
0.008	1	_____	0.01	1	_____
0.042	5	_____	0.05	5	_____
0.1	12	_____	0.1	10	_____
0.8	96	_____	0.8	80	_____
2.0	240	_____	2.0	200	_____
4.0	480	_____	4.0	400	_____

5) Indication of Exposure (Audible and Visual) at all settings from 0.008 sec. through 4 sec. _____

6) Line Current

100 kVp @ 25 mA, 110 VAC/60 Hz : _____ amps (less than 30)
 100 kVp @ 25 mA, 220 VAC/50 Hz : _____ amps (less than 15)

7) MAS Meter @ 25 mA (tolerance +/- 0 mAs)

<u>Control Timer Settings</u>	<u>MAS @ 50 Hz</u>	<u>MAS @ 60 Hz</u>
.01/0.008	0.2 _____	0.2 _____
0.1	2.5 _____	2.5 _____
1.5	37 _____	37 _____
3.0	75 _____	75 _____

8) Reproducibility (100 kVp, 25 mA, .1 sec., 110 VAC/60 Hz)

<u>Exp. No.</u>	<u>mR</u>	<u>Exp. No.</u>	<u>mR</u>
1	_____	6	_____
2	_____	7	_____
3	_____	8	_____
4	_____	9	_____
5	_____	10	_____

Standard Deviation (s) = _____
 ----- = _____ (less than .02)
 Average of 10 exposures ($\bar{x}$) = _____

9) Half Value Lever (@ 100 kVp, 25 mA, 1/2 sec. @ 40 in.)

$\frac{\text{Filtered Reading (2.7 mm)}}{\text{Unfiltered Reading}} = \frac{\text{_____}}{\text{_____}} = \text{_____}$ (greater than 0.5)

Figure 5-1. Calibration Checklist (Sheet 2 of 3)

10) Leakage Test (@ 100 kVp, 25 mA, 1 sec. @ 40")

Tolerance: less than 50 mR/hour

<u>Position</u>	<u>mR Reading</u>		<u>mR/hour</u>
Front	_____ mR	x 60 =	_____
Back	_____ mR	x 60 =	_____
Right	_____ mR	x 60 =	_____
Left	_____ mR	x 60 =	_____
Top	_____ mR	x 60 =	_____
Bottom	_____ mR	x 60 =	_____

11) Collimator Light Level (greater than 18 foot candles @ 40")

Lowest value of all four quadrants _____

12) Beam Limiting Device Alignment: (@ 40 in. SID)

(Use collimator test tool RMI 161A & 162A)

X-Ray Field vs. Light Field

	<u>Light Field</u>	<u>Tolerance</u>	<u>X-Ray Field</u>
5.5 in. x 7.0 in.	5.5 in.	5.1 - 5.9	_____ in.
<u>Lead Pattern</u>	7.0 in.	6.6 - 7.4	_____ in.

X-Ray Field : Indicated vs. Actual

	<u>Indicated</u>	<u>Tolerance</u>	<u>Actual</u>
5.0 in. x 7.0 in.	5.0 in.	4.6 - 5.4	_____
	7.0 in.	6.6 - 7.4	_____

**** ATTACH TEST FILMS TO CALIBRATION SHEET ****

COMMENTS: _____

CALIBRATED BY: _____

DATE: _____

Figure 5-1. Calibration Checklist (Sheet 3 of 3)

5-6 GEAR BOX ASSEMBLY 3A3 ALIGNMENT AND ADJUSTMENT

The Gear Box Assembly 3A3, component location and alignment, adjustment requirements are provided in Section VII, Drawing No. 500581, Gear Box Assembly. Do not assemble the gear box assembly without referring to this drawing. The gear box assembly does not require periodic alignment or adjustment and should only require alignment after a repair/replacement procedure.

5-7 TROUBLESHOOTING

If any of the operational tests described in paragraph 5-5 cannot be successfully completed, a fault is indicated. To isolate the fault, refer first to Table 5-4, System Troubleshooting Guide.

The system troubleshooting guide will refer to a detailed assembly/subassembly troubleshooting procedure or the alignment, adjustment, calibration and checkout procedures. The subsequent troubleshooting procedures isolate the fault either to a replaceable assembly or component. Each repairable assembly has its own troubleshooting procedure for use at the depot level.

Once a fault has been isolated, standard tests of the outputs of each suspect module or components should be performed. During testing, reference should be made to the appropriate schematic diagram in Section VIII. To accelerate fault isolation, the substitution method of replacing a suspect module with an identical module known to be in good operational condition may be employed. This method is recommended for modules which can be easily replaced, such as pc boards. Tables 5-4 through 5-12 list the troubleshooting guide for each assembly. Table 5-6 provides the technician with the wiring harness (1W1) continuity checklist.

5-8 REPLACEMENT, DISASSEMBLY AND REPAIR PROCEDURES

The following paragraphs provide instructions for parts replacement. The instructions are limited to those parts/assemblies for which replacement procedures are not obvious. To locate a part/assembly location drawing, refer to the Parts Catalog. Where disassembly is required, a disassembly procedure is included. If required, the associated parts location diagram in Section VI is referenced. Where necessary, references are made to Section VII diagrams to support the disassembly procedure. In those instances where parts replacement is not the reverse of the removal procedure, specific replacement procedures are included.

5-8.1 Inspection/Check Procedures. Inspect the disassembled components under a strong light for visible evidence of mechanical and electrical defects. Use the following steps as a general inspection guide.

1. Check all parts for distortion, cracks, and other damage.
2. Check all hardware having threaded parts for burrs and stripped or damaged threads.

Table 5-4. System Troubleshooting Guide

Malfunction	Probable cause	Corrective action
1. If any of the turn-on checkout procedures fail	1. Control Unit 1 2. Cable 1W2 3. Generator Unit 2	Substitute another control or generator or cable to determine which component is defective. No calibrations or adjustments are required. Refer to the troubleshooting guide for the defective components for further repair.
2. Aiming lamp not functioning	Collimator Assembly 2A1	Replace Collimator Assembly 2A1 or refer to Collimator Assembly 2A1 troubleshooting procedure, Table 5-10.
3. X-Ray field appears to be improperly positioned	Collimator out of alignment	Refer to paragraph 5-6, Alignment, Adjustment, Calibration and Final Checkout Procedures.
4. Any problems with X-Ray intensity or uniformity	Out of calibration	Refer to paragraph 5-6, Alignment, Adjustment, Calibration and Final Checkout Procedures.
5. Gear box crank does not lift/lower, or excessive force required	Gear box assembly 3A3	Replace Gear Box Assembly 3A3 or refer to gear box assembly alignment and adjustment procedure, paragraph 5-7.
6. Any mechanical problems, wheels don't turn, pivot points don't pivot etc.	Dirt or corrosion build up	Disassemble, clean, apply a light lubricant such as WD-40 or equivalent, reassemble.

Table 5-5. Control Assembly Unit 1, Troubleshooting Guide

Malfunction	Probable cause	Corrective action
Power ON lamp does not illuminate	1. Bad lamp 2. Bad 1A6A1K1 relay 3. Bad Line Set PC Board 1A4	Replace lamp. Reverse 1A6A1K1 and 1A6A1K2 if lamp lights replace K2. Replace Line Set PC Board 1A4 or refer to line set pc board troubleshooting procedure, Table 5-7.
One of the line set lamps does not illuminate	1. Bad lamp 2. Bad Line Set PC Board 1A4	Rotate line set switch to see if other lamps illuminate. If they do, replace bad lamp. Replace Line Set PC Board 1A4 or refer to line set pc board troubleshooting procedure, Table 5-7.
No mAs displayed	1. Loosen ribbon Cable 1A1W4 2. Defective mAs Display PC Board 1A1A2 3. Defective mAs Interface PC Board 1A5 4. Defective Line Set PC Board 1A4	Check for proper connections. Replace mAs Display PC Board 1A1A2. Replace mAs Interface PC Board or refer to mAs pc board troubleshooting procedure, Table 5-8. Replace Line Set PC Board 1A4 or refer to line set pc board troubleshooting procedure, Table 5-7.
READY light does not illuminate	1. Bad lamp 2. Bad 1A3 pc board 3. Bad 1A4 pc board	Replace lamp. Replace Timer PC Board 1A3 or refer to timer pc board troubleshooting procedure, Table 5-6. Replace Line Set PC Board 1A4 or refer to line set pc board troubleshooting procedure, Table 5-7.

Table 5-5. Control Assembly Unit 1, Troubleshooting Guide
(Continued)

Malfunction	Probable cause	Corrective action
Green SET lamp does not light at any line set switch position	Defective Line Set PC Board or mis-calibrated 1A4 pc board	Replace Line Set PC Board 1A4, if problem continues recalibrate using procedure in paragraph 5-6. Refer to Table 5-7 for line set pc board troubleshooting procedures.
Improper mAs display	1. 50/60 Hz switch in wrong position	Set line frequency switch to correct frequency.
	2. Defective Display Board 1A1A2	Replace Display Board 1A1A2.
	3. Defective mAs Board 1A5	Replace mAs Board 1A5 or refer to mAs interface pc board troubleshooting procedure, Table 5-8.
	4. Defective Ribbon Cable 1W3	Replace ribbon cable.
	5. Defective Timer Switch Assembly 1A1A1	Replace Timer Switch Assembly 1A1A1.
READY light does not go off and back on when exposure switch is depressed to the first (prep) position	Defective Timer PC Board 1A3	Replace Timer PC Board 1A3 or refer to Timer PC Board 1A3 troubleshooting procedure, Table 5-6.
No exposure	1. Defective 1A3 Timer Board	Replace Timer PC Board 1A3 or refer to Timer PC Board 1A3 troubleshooting procedure, Table 5-6.
	2. Defective Relay 1A6A1K3	Replace Relay 1A6A1K3.
	3. Defective Relay 1A6A1K2	Replace Relay 1A6A1K2.

Table 5-5. Control Assembly Unit 1, Troubleshooting Guide
(Continued)

Malfunction	Probable cause	Corrective action
No exposure (continued)	4. Defective Cable 1W2	Replace Cable 1W2.
	5. Defective Generator Unit 2	Refer to X-Ray Generator Assembly Unit 2 troubleshooting procedure, Table 5-9.
	6. Defective Exposure Switch 1A7	Replace Exposure Switch 1A7 assembly.
Short exposure	1. Defective 1A3 PC Board	Replace Timer PC Board 1A3 or refer to Timer PC Board 1A3 troubleshooting procedure, Table 5-6.
	2. Defective X-Ray Generator Assembly Unit 2	Refer to X-Ray Generator Assembly Unit 2 troubleshooting procedure, Table 5-9.
Long exposure	1. Defective 1A3 board	Replace Timer PC Board 1A3 or refer to Timer PC Board 1A3 troubleshooting procedure, Table 5-6.
	2. Defective 1A1A1 board	Replace defective PC Board 1A1A1.
	3. Defective Ribbon Cable 1A2W3	Replace defective PC Board 1A2W3.
Improper exposure	Out of calibration	Refer to calibration procedure paragraph 5-7.

Prior to the start of the following troubleshooting procedures observe the following warnings, cautions and notes.

WARNING

Dangerous voltages present inside the control assembly, exercise caution.

CAUTION

Power must be turned off while removing/installing printed circuit boards and extender card.

CAUTION

Extender card will fit into all three printed circuit board slots and all three printed circuit boards will fit into extender card. Remove and test only one board at a time to prevent the possibility of plugging the wrong printed circuit board into the wrong slot.

NOTE

Turn power off. Remove control assembly case, install extender card, restore system power prior to performing timer pc board troubleshooting procedure.

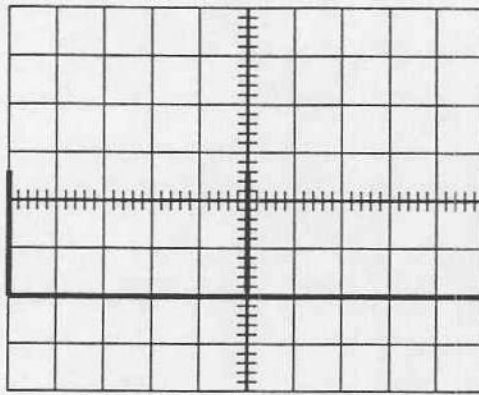
Table 5-6. Timer PCB Assembly (1A3) Troubleshooting Guide

Malfunction	Extender card test point no.	Probable cause	Corrective action
No READY light	1. 33	Operate exposure switch to prep	Voltage goes from +4V to 0V.
	2. 27	Operate exposure switch to prep	Voltage goes from 0V to +5V. After .3 seconds it returns to 0V. If not correct, replace U5 and/or related component. See Extender Card Test Point 27 waveform, Figure 5-2.
	3. U5 Pin 4	Operate U4, U5 exposure switch to prep	Voltage goes from +5V to 0V. After .3 seconds it returns to +5V. If not correct, replace U5 or U4.
	4. 51	Operate Q4 exposure switch to prep	Voltage goes from 0V to +5V. After .3 seconds it returns to 0V. If not correct, replace Q4.
No READY light after exposure	1. 53	U4, U2	Make an exposure. Observe a 5V pulse = to the selected time interval. If not correct, check signal timing on chip U2. See Extender Card Test Point No. 53 waveform, Figure 5-2.
	2. 45	U4, U5	Observe U4 goes to 0V at the end of the exposure and remains low for 15-60 seconds. If not correct, check U4 and U5 using the Extender Card Test Point No. 45 and 49 waveforms. Compare Extender Card Test Point waveform with Extender Card Test Point No. 47 waveform, Figure 5-2. If waveforms are not correct, replace U4 or U5 as required.

Table 5-6. Timer PCB Assembly (1A3) Troubleshooting Guide
(Continued)

Malfunction	Extender card test point no.	Probable cause	Corrective action
No or improper exposure	1. 31	CR1, CR2, Q1	120 Hz square wave (60 Hz line). If not present, check CR1, CR2, Q1. See Extender Card Test Point No. 31 waveform, Figure 5-2.
	2. 17	U1, 1A1A1, U3	Set time switch to 1/60 sec. 120 Hz, check pulse. If not correct, check U1, 1A1A1 or U3.
	3. 17	U1, 1A1A1, U3	Set time switch to 1/2 sec. 10 Hz clock pulse. If not correct, check U3, U1 or 1A1A1. See Extender Card Test Point No. 17 waveform, Figure 5-2.
No exposure	15	U1, U3, U5	Make an exposure and compare Extender Card Test Point No. 15 with Extender Card Test Point No. 15 waveform, Figure 5-2.
Pin 43	29	CR8, U4, U5	Make an exposure, observe a timed signal starting at +5V and going low for the timed period. If not correct, trace low from exposure switch at Extender Card Test Point No. 43 through CR8, U4, to U5 Pin 2. See Extender Card Test Point No. 29 waveform, Figure 5-2 and compare with U5 pin 2. If U5 pin 2 goes low replace U2.
No buzzer & no X-Ray ON lamp	52, 57	Q7, U7, Q5, Q6	Make an exposure, check for presence of mA signal at Extender Card Test Point No. 52. Check Q7 output. Check Q7, U7, Q5, Q6. Compare Extender Card Test Point No. 52 waveform, with the waveform on Extender Card Test Point No. 57, Figure 5-2.

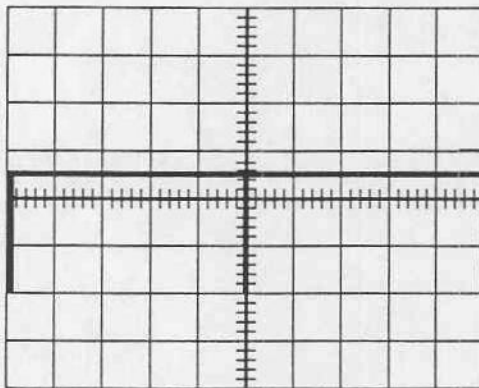
TIMER PC BOARD EXTENDER CARD
TEST POINT NO. 15 WAVEFORM



PROBE - X10
VERT - .2V
HORIZ - 20MS
TP - 15

< OV

TIMER PC BOARD EXTENDER CARD
TEST POINT NO. 17 WAVEFORM

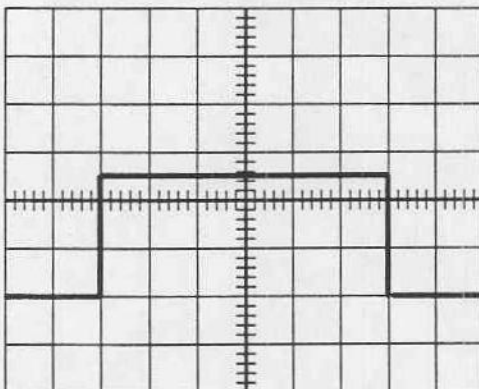


UNIT MUST BE SET TO
1/2 SEC AT 25 mA

PROBE - X10
VERT - .2V
HORIZ - 20MS
TP - 17

< OV

TIMER PC BOARD EXTENDER CARD
TEST POINT NO. 27 WAVEFORM



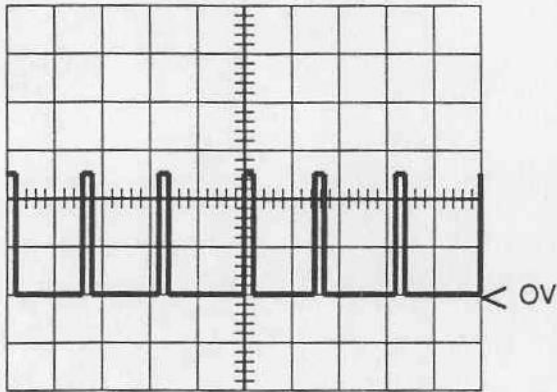
THIS SIGNAL WILL HAPPEN
WHEN PREPING THE UNIT

PROBE - X10
VERT - .2V
HORIZ - .5 SEC
TP - 27

< OV

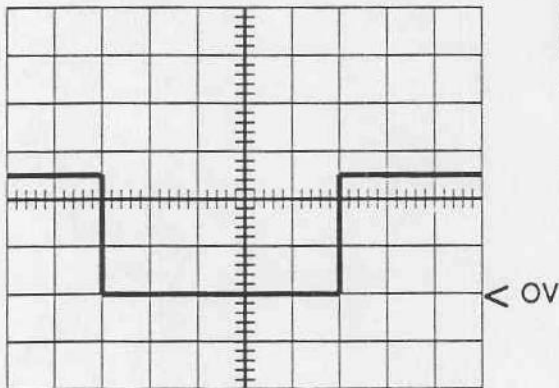
Figure 5-2. Timer PC Board Test Point Waveforms (Sheet 1 of 4)

TIMER PC BOARD EXTENDER CARD
TEST POINT NO. 31 WAVEFORM



PROBE - X10
VERT - .2V
HORIZ - 5MS
TP - 31

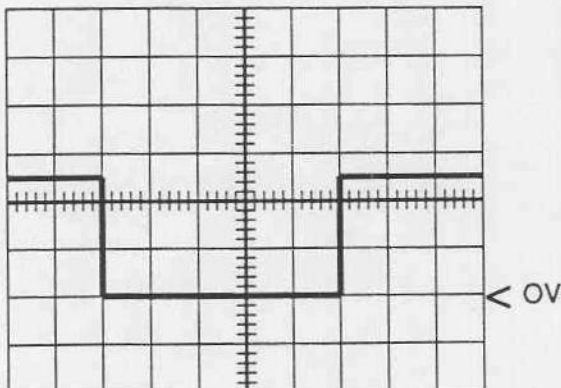
TIMER PC BOARD EXTENDER CARD
TEST POINT NO. 45 WAVEFORM



THIS SIGNAL WILL HAPPEN
WHEN EXPOSURE IS MADE.
SIGNAL WILL VARY FROM
.5 SEC TO .6 SEC

PROBE - X10
VERT - .2V
HORIZ - .1 SEC
TP - 45

TIMER PC BOARD EXTENDER CARD
TEST POINT NO. 47 WAVEFORM



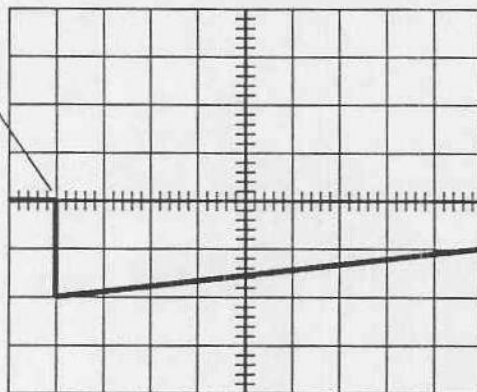
THIS SIGNAL WILL HAPPEN
WHEN EXPOSURE IS MADE.
SIGNAL WILL VARY FROM
.5 SEC TO .6 SEC

PROBE - X10
VERT - .2V
HORIZ - .1 SEC
TP - 47

Figure 5-2. Timer PC Board Test Point Waveforms (Sheet 2 of 4)

END OF
EXPOSURE

TIMER PC BOARD EXTENDER CARD TEST POINT NO. 49 WAVEFORM

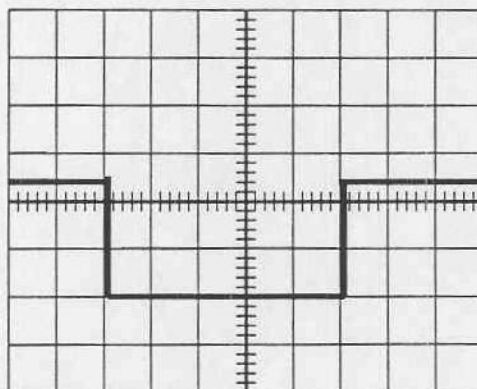


THIS SIGNAL WILL HAPPEN
AT THE END OF EXPOSURE.
VOLTAGE WILL INCREASE
BACK TO 2V IN 20 TO 25 SEC

PROBE - X10
VERT - .2V
HORIZ - .2 SEC
TP - 49

< OV

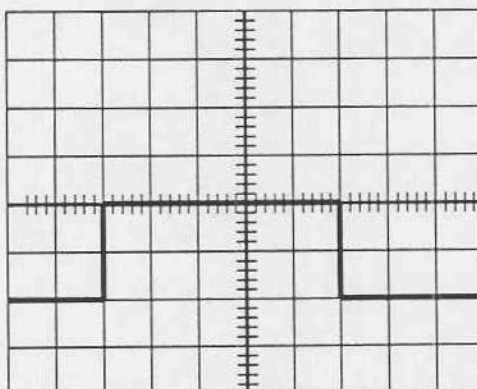
TIMER PC BOARD EXTENDER CARD TEST POINT NO. 52 WAVEFORM



PROBE - X10
VERT - .2V
HORIZ - .1 SEC
TP - 52

< OV

TIMER PC BOARD EXTENDER CARD TEST POINT NO. 53 WAVEFORM



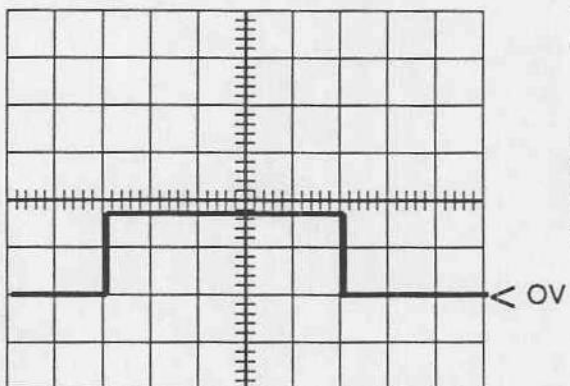
THIS SIGNAL WILL HAPPEN
WHEN EXPOSURE IS MADE.

PROBE - X10
VERT - .2V
HORIZ - .1 SEC
TP - 53

< OV

Figure 5-2. Timer PC Board Test Point Waveforms (Sheet 3 of 4)

TIMER PC BOARD EXTENDER CARD
TEST POINT NO. 57 WAVEFORM



THIS SIGNAL WILL HAPPEN
WHEN EXPOSURE IS MADE

PROBE - X10
VERT - .2V
HORIZ - .1 SEC
TP - 57

Figure 5-2. Timer PC Board Test Point Waveforms (Sheet 4 of 4)

Prior to the start of the following troubleshooting procedures observe the following warnings, cautions and notes.

WARNING

Dangerous voltages present inside the control assembly, exercise caution.

CAUTION

Power must be turned off while removing/installing printed circuit boards and extender card.

CAUTION

Extender card will fit into all three printed circuit board slots and all three printed circuit boards will fit into extender card. Remove and test only one board at a time to prevent the possibility of plugging the wrong printed circuit board into the wrong slot.

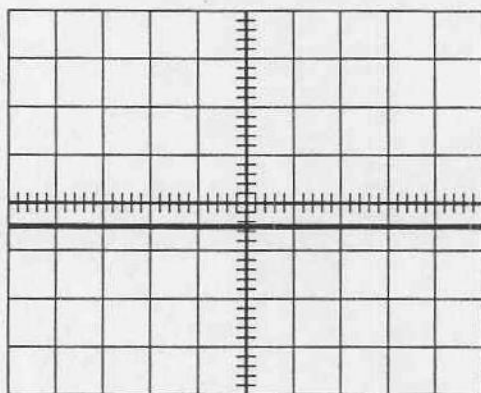
NOTE

Turn power off. Remove control assembly case, install extender card, restore system power prior to performing line set pc board troubleshooting procedure.

Table 5-7. Line Set PCB Assembly (1A4) Troubleshooting Guide

Malfunction	Extender card test point no.	Probable cause	Corrective action
Prevents mAs board from functioning	57 & 58	CR5, CR6, VR2, C10, C11	Measure +5V output at Extender Card Test Point No. 57 & 58. If not present, check CR5, CR6, VR2, C10, C11.
Prevents timer board from functioning	3 & 4	CR1, CR2, VR1, C1, C2	Measure +5V at pins 3 & 4. If not present, check CR1, CR2, VR1, C1, C2.
Does not switch from 220VAC to 110VAC operation	Q2	T2, BR2, CR4, Q1, CR3, Q2, U3	Operate from 110VAC line, measure voltage on Q2 collector of approximately zero volts. If not correct, check T2, BR2, CR4, Q1, CR3, Q2. If OK check U3.
Line set lamps do not function properly	26, 28, 30	U1 and U2	To check U1 and U2. Compare the following waveforms: Extender Card Test Point No. 26 with LINE SET, waveform, Figure 5-3. Extender Card Test Point No. 28 with LINE SET, waveform, Figure 5-3. Extender Card Test Point No. 30 with LINE SET, waveform, Figure 5-3.
Improper mA signal and obtain set condition, no exposure	42	K1	Replace U1 and U2 if waveforms are not correct. Extender Card Test Point No. 42 should be less than 0.1 volts. If not correct, check K1.

LINE SET PC BOARD EXTENDER CARD
TEST POINT NO. 26 WAVEFORM

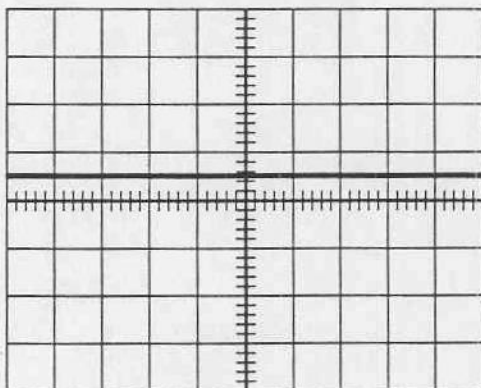


TEST POINTS 1 & 2 MAY
VARY WITH CALIBRATION

PROBE - X10
VERT - 50mV
HORIZ - 5mS
TP - 26

< 0V

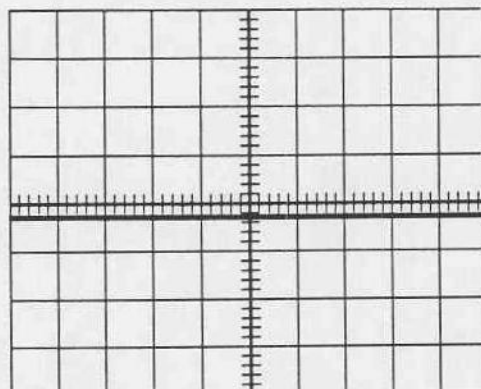
LINE SET PC BOARD EXTENDER CARD
TEST POINT NO. 28 WAVEFORM



PROBE - X10
VERT - 50mV
HORIZ - 5mS
TP - 28

< 0V

LINE SET PC BOARD EXTENDER CARD
TEST POINT NO. 30 WAVEFORM



THIS SIGNAL SHOWN IN SET
STATE. IT WILL VARY WITH
LINE SET SWITCH OR
VARIATION OF LINE VOLTAGE

PROBE - X10
VERT - 50mV
HORIZ - 5mS
TP - 30

< 0V

Figure 5-3. Line Set PC Board Waveforms

Prior to the start of the following troubleshooting procedures observe the following warnings, cautions and notes.

WARNING

Dangerous voltages present inside the control assembly, exercise caution.

CAUTION

Power must be turned off while removing/installing printed circuit boards and extender card.

CAUTION

Extender card will fit into all three printed circuit board slots and all three printed circuit boards will fit into extender card. Remove and test only one board at a time to prevent the possibility of plugging the wrong printed circuit board into the wrong slot.

NOTE

Turn power off. Remove control assembly case, install extender card, restore system power prior to performing mAs pc board troubleshooting procedure.

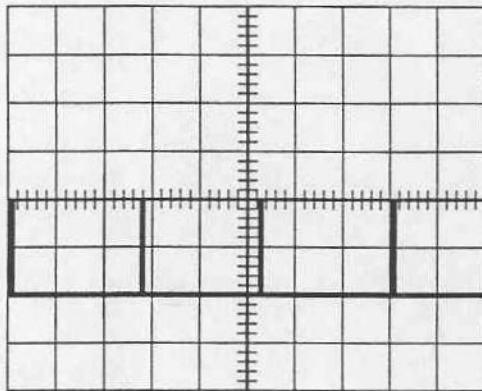
Table 5-8. mAs Interface PCB Assembly (1A5) Troubleshooting Guide

Malfunction	Extender card test point no.	Probable cause	Corrective action
Missing segments in mAs display		U13	Replace
Non-function	1. 9	U9	Observe clock output frequency at Extender Card Test Point No. 9 of approximately 66 Khz, if not correct, replace U9.
	2. 7	U2, U16-U22	Set 1/2 sec. and 25 mA on control. Observe Extender Card Test Point No. 7 for new pulse train equal to 1/25 of the clock frequency. If not present, check/replace U2 and U16-U26.

Table 5-8. mAs Interface PCB Assembly (1A5) Troubleshooting Guide
(Continued)

Malfunction	Extender card test point no.	Probable cause	Corrective action
Non-function (continued)	3. 6	U1, U3, U4, U27, U7	Set 1/2 sec. and 25 mA on control. Observe Extender Card Test Point No. 6 for frequency of 1/5 plus 50 us of Extender Card Test Point No. 7. If not correct, check/replace U1, U3, U4, U27, U7.
	4. 50	U6, U8, U11	Set 1/2 sec. and 25 mA on control. Observe Extender Card Test Point No. 50 for frequency of 1/10 of Extender Card Test Point No. 7. If not correct, check/replace U6, U8, U11.
	5. 52	U11, U12, U15	Observe Extender Card Test Point No. 52 that the pulse train equals the width of Extender Card Test Point No. 50 (positive going signal). If not correct, check/replace U11, U12, U15.
	6. 53, 55 and 57	U5, U15	Compare Extender Card Test Point Nos. 53, 55 and 57 waveforms. If not correct, check/replace U5, U15.

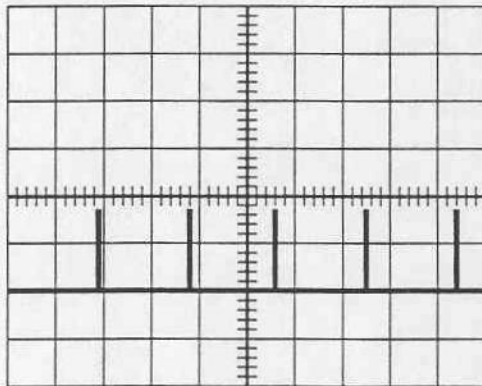
mAs PC BOARD EXTENDER CARD
TEST POINT NO. 6



WHEN UNIT IS IN 25mA
STATION AT A 1/2 SEC

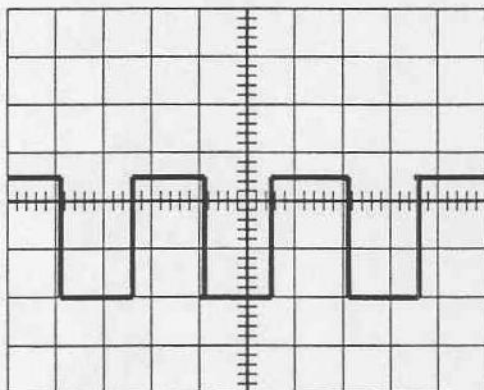
PROBE - X10
VERT - .2
HORIZ - 1mS
TP - 6

mAs PC BOARD EXTENDER CARD
TEST POINT NO. 7



PROBE - X10
VERT - .2V
HORIZ - .2mS
TP - 7

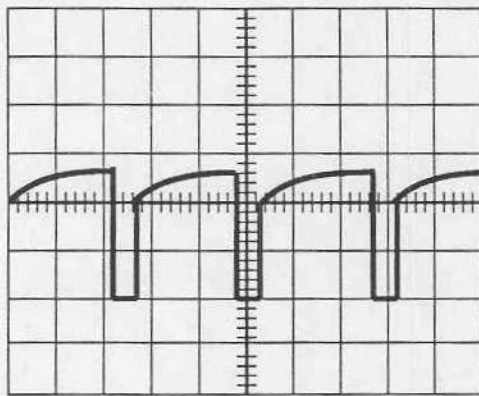
mAs PC BOARD EXTENDER CARD
TEST POINT NO. 9



PROBE - X10
VERT - .2
HORIZ - 5μS
TP - 9

Figure 5-4. mAs PC Board Waveforms (Sheet 1 of 3)

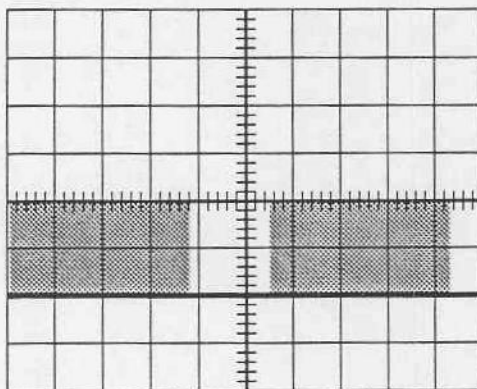
mAs PC BOARD EXTENDER CARD
TEST POINT NO. 50



PROBE - X10
VERT - .2V
HORIZ - 1mS
TP - 50

< OV

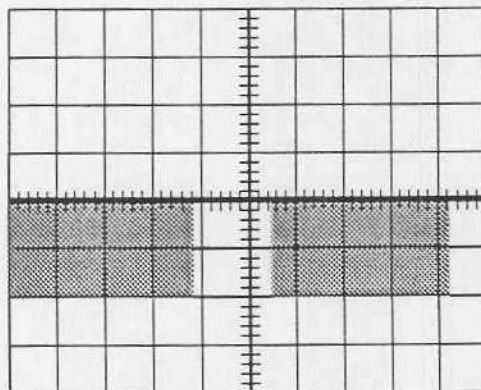
mAs PC BOARD EXTENDER CARD
TEST POINT NO. 52



PROBE - X10
VERT - .2V
HORIZ - .5mS
TP - 52

< OV

mAs PC BOARD EXTENDER CARD
TEST POINT NO. 53

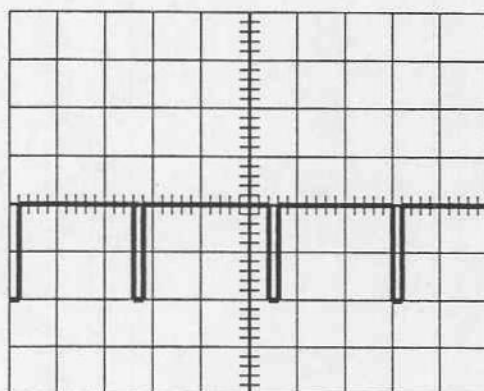


PROBE - X10
VERT - .2V
HORIZ - .5mS
TP - 53

< OV

Figure 5-4. mAs PC Board Waveforms (Sheet 2 of 3)

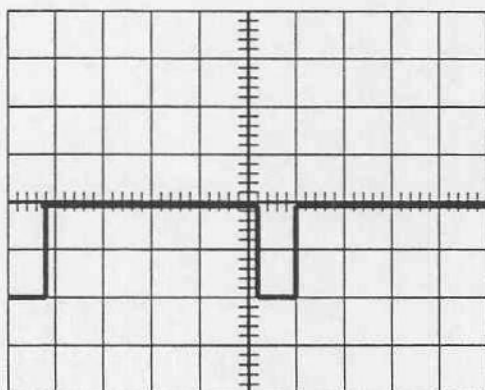
mAs PC BOARD EXTENDER CARD
TEST POINT NO. 55



PROBE - X10
VERT - .2V
HORIZ - 1mS
TP - 55

< OV

mAs PC BOARD EXTENDER CARD
TEST POINT NO. 57



PROBE - X10
VERT - .2V
HORIZ - .5mS
TP - 57

< OV

Figure 5-4. mAs PC Board Waveforms (Sheet 3 of 3)

Table 5-9. X-Ray Generator Assembly Unit 2 Troubleshooting Guide

Malfunction	Probable cause	Corrective action
Short exposures	H.V. Arcing	Paragraph 5.7, step 6. Replace tube head assembly or refer to recalibration of mA.
No mA/wrong mA	Chassis Assembly	Paragraph 5.7, step 6. Replace chassis and refer to recalibration of mA.
No collimator light	Collimator Assembly 2A1 or Control Assembly Unit 1	Check for 24VDC coming into collimator at J6A, J6C. If 24VDC is not present, refer to Control Assembly Unit 1 troubleshooting procedure, Table 5-4. If 24VDC is present, refer to collimator assembly troubleshooting procedure, Table 5-10.

Table 5-10. Collimator Assembly (2A1) Troubleshooting Guide

Malfunction	Probable cause	Corrective action
No collimator light	1. 24VDC power from control assembly not available	Check for 24VAC power at collimator connector. If power is not present, refer to Control Assembly (Unit 1) troubleshooting procedure, Table 5-4.
	2. Bulb	Replace bulb.
	3. Collimator Timer PC Board 2A1A1A1	Replace Collimator Timer PC Board 2A1A1A1.
	4. Collimator light out of alignment	Refer to paragraph 5-7. Perform procedure Step 16.
	5. Collimator mirror broken	Replace mirror.

Prior to the start of the following troubleshooting procedures observe the following warnings and notes.

WARNING

Dangerous voltages present inside the X-Ray Generator assembly.

NOTE

Remove X-Ray Generator cover plate to access chassis assembly.

Table 5-11. Chassis Assembly (2A4) Troubleshooting Guide

Malfunction	Probable cause	Corrective action
No mA/wrong mA	1. VR2 shorted or open	Check for regulated voltage at pin 1 TB2. If not present, check/replace VR2, BR1, C8.
	2. Inverter inoperative	1. Check U5 for clock output. 2. With exposure switch in "prep" position, observe clock at: a) Collector of Q1 & Q2 b) Pin 5 of U6 & U7 c) Cathode of CR6 & CR8
	3. mA signal decoding	Rotate kVp switch through all positions and observe a low (when exposure switch is in the "prep" position the signal will go low) at U3 Pin 3 for 40 mA Pin 6 for 30 mA Pin 8 for 25 mA. If not, check continuity of kVp switch and/or replace U3.
	4. Filament control pc board	Replace filament control pc board or refer to Table 5-12 for filament control pc board troubleshooting guide.

Prior to the start of the following troubleshooting procedures observe the following warnings and notes.

WARNING

Dangerous voltages present inside X-Ray Generator Assembly

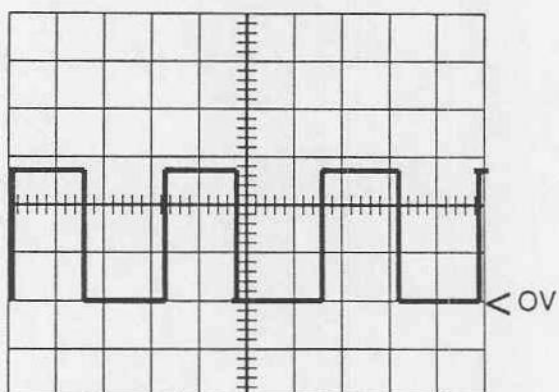
NOTE

Remove X-Ray Generator cover plate to access chassis assembly.

Table 5-12. Filament Control PC Board (2A4A1) Troubleshooting Guide

Malfunction	Probable cause	Corrective action
No mA/wrong mA	U3, U4, U1, U2, U8	Rotate kVp switch through all positions and observe a low when unit is preped at U3 pin 3 for 40 mA, U3 pin 6 for 30 mA, U3 pin 8 for 25 mA. If not correct, replace U3, U4.
No mA	U5	Check to see if clock signal output is on U5 pin 1 (See waveform TP1 on Figure 5-5). If not present, replace U5.
Have clock signal with no mA output	U4, U6, U7, Q3, Q4	Observe waveforms with probes connected between TP2 and TP3. Compare to filament control TP2 and TP3 waveform, Figure 5-5. If not present, look on gates. If signal is present replace Q3, Q4. If not present, replace U4, U5, U7.

FILAMENT CONTROL PC BOARD
TEST POINT NO. 1



FILAMENT CONTROL PC BOARD
TEST POINT NO(S) 2 & 3

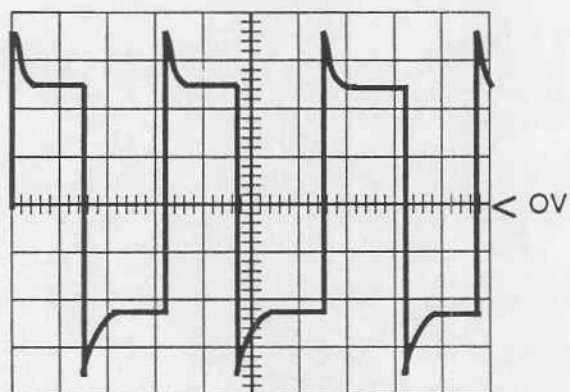


Figure 5-5. Chassis Assembly Waveforms

Table 5-13. Wiring Harness (1W1) Troubleshooting Continuity Checklist

FROM	TO	
Connector, pin no.	Connector, pin no.	Wire no.
GND-LUG	1A1J3-D	89
GND-LUG	1A1S2C-COM	92
GND-LUG	1A6A1J4-1	99
GND-LUG	1A6TB1-11	13
1A1A1-3	1A6F2-2	12
1A1CB1-1	1A1J1-X	1
1A1CB1-2	1A1J1-Y	2
1A1CB1-3	1A6A1K1-1	4
1A1CB1-4	1A6A1K1-8	5
1A1D1-1	1A1S2B-4	63
1A1D1-2	1A1S2B-3	64
1A1D2-1	1A1S2B-4	65
1A1D2-2	1A1S2B-1	66
1A1GNP-LUG	1A1J1-Z	3
1A1J1-GND	1A1RT-GND	95
1A1J1-X	1A1CB1-1	1
1A1J1-Y	1A1CB1-2	2
1A1J1-Z	1A1GNP-LUG	3
1A1J2-A	1A6A1K2-6	55
1A1J2-B	1A6A1K3-2	54
1A1J2-C	1A1S2B-2	60
1A1J2-D	1A1S2B-1	59
1A1J2-E	1A6F2-2	56
1A1J2-F	1A6F1-2	57
1A1J2-G	1A6A1J4-3	97
1A1J2-H	1A6A1J4-1	96
1A1J3-A	1A2J4-18	86
1A1J3-B	1A2J4-21	87
1A1J3-C	1A2J4-17	88
1A1J3-D	GND-LUG	89
1A1L1-A	1A1L2-A	71
1A1L1-A	1A2J4-11	70
1A1L1-B	1A2J4-15	73
1A1L2-A	1A1L1-A	71
1A1L2-B	1A2J4-13	72
1A1L3-A	1A2J4-4	74
1A1L3-B	1A2J4-19	75
1A1L4-A	1A2J4-14	78
1A1L4-B	1A2J4-22	79
1A1L5-A	1A2J4-12	76
1A1L5-B	1A2J4-30	77
1A1L6-A	1A6TB1-8	93
1A1L6-B	1A6A1K2-8	94
1A1RT-GND	1A1J1-GND	95
1A1S/A-COM	1A6A1K1-5	9
1A1S/A-5	1A1S1B-4	24

Table 5-13. Wiring Harness (1W1) Troubleshooting Continuity Checklist
(Continued)

FROM	TO	
Connector, pin no.	Connector, pin no.	Wire no.
1A1S/A-6	1A1S1B-6	27
1A1S/A-7	1A1S1B-8	31
1A1S/A-8	1A1S1B-10	34
1A1S/B-COM	1A6A1K1-6	10
1A1SP1-1	1A2J4-28	90
1A1SP1-1	1A2J4-29	91
1A1S1A-1	1A6TB2-1	16
1A1S1A-10	1A6TB1-3	37
1A1S1A-11	1A6TB1-4	38
1A1S1A-2	1A6TB2-2	17
1A1S1A-3	1A6TB2-3	18
1A1S1A-4	1A6TB2-5	20
1A1S1A-5	1A6TB2-7	23
1A1S1A-6	1A6TB2-9	26
1A1S1A-7	1A6TB2-11	30
1A1S1A-8	1A6TB2-13	33
1A1S1A-9	1A6TB1-2	36
1A1S1B-1	1A6TB2-4	19
1A1S1B-10	1A1S/A-8	34
1A1S1B-11	1A6TB1-1	35
1A1S1B-2	1A6S/A-4	21
1A1S1B-4	1A1S/A-5	24
1A1S1B-5	1A6TB2-8	25
1A1S1B-6	1A1S/A-6	27
1A1S1B-7	1A6TB2-10	29
1A1S1B-8	1A1S/A-7	31
1A1S1B-9	1A6TB2-12	32
1A1S2A-COM	1A6A1K2-1	45
1A1S2A-1	1A1S2A-2	40
1A1S2A-1	1A6TB1-5	39
1A1S2A-2	1A1S2A-1	40
1A1S2A-3	1A1S2A-4	42
1A1S2A-3	1A6TB1-6	41
1A1S2A-4	1A1S2A-3	42
1A1S2A-5	1A6TB1-7	43
1A1S2B-COM	1A2J4-17	58
1A1S2B-1	1A1D2-2	66
1A1S2B-1	1A1J2-D	59
1A1S2B-2	1A1J2-C	60
1A1S2B-2	1A1S2B-3	61
1A1S2B-3	1A1D1-2	64
1A1S2B-3	1A1S2B-2	61
1A1S2B-4	1A1D1-1	63
1A1S2B-4	1A1D2-1	65
1A1S2B-4	1A1S2B-5	62

Table 5-13. Wiring Harness (1W1) Troubleshooting Continuity Checklist
(Continued)

FROM	TO	
Connector, pin no.	Connector, pin no.	Wire no.
1A1S2B-5	1A1S2B-4	62
1A1S2C-COM	GND-LUG	92
1A1S2C-COM	1A1S3A-C1	83
1A1S2C-COM	1A2J4-1	84
1A1S2C-1	1A2J4-33	81
1A1S2C-2	1A1S2C-3	82
1A1S2C-3	1A1S2C-2	82
1A1S2C-3	1A2J4-31	80
1A1S3A-C1	1A1S2C-COM	83
1A1S3A-2	1A2J4-10	69
1A1S3B-C2	1A2J4-6	67
1A1S3B-7	1A2J4-8	68
1A2J4-1	1A1S2C-COM	84
1A2J4-10	1A1S3A-2	69
1A2J4-11	1A1L1-A	70
1A2J4-12	1A1L5-A	76
1A2J4-13	1A1L2-B	72
1A2J4-14	1A1L4-A	78
1A2J4-15	1A1L1-B	73
1A2J4-16	1A6A1K2-2	47
1A2J4-17	1A1J3-C	88
1A2J4-17	1A1S2B-COM	58
1A2J4-18	1A1J3-A	86
1A2J4-19	1A1L3-B	75
1A2J4-20	1A6A1K3-3	51
1A2J4-21	1A1J3-B	87
1A2J4-22	1A1L4-B	79
1A2J4-23	1A6A1K1-7	48
1A2J4-24	1A6A1J4-2	98
1A2J4-25	1A6A1K1-8	49
1A2J4-26	1A6A1K3-4	52
1A2J4-27	1A6A1K1-2	50
1A2J4-28	1A1SP1-1	90
1A2J4-29	1A1SP1-1	91
1A2J4-30	1A1L5-B	77
1A2J4-31	1A1S2C-3	80
1A2J4-33	1A1S2C-1	81
1A2J4-4	1A1L3-A	74
1A2J4-5	1A6F1-2	15
1A2J4-6	1A1S3B-C2	67
1A2J4-7	1A6A1K2-7	85
1A2J4-8	1A1S3B-7	68
1A2J4-9	1A6TB1-8	44
1A6A1J4-1	GND-LUG	99
1A6A1J4-1	1A1J2-H	96

Table 5-13. Wiring Harness (1W1) Troubleshooting Continuity Checklist
(Continued)

FROM	TO	
Connector, pin no.	Connector, pin no.	Wire no.
1A6A1J4-2	1A2J4-24	98
1A6A1J4-3	1A1J2-G	97
1A6A1K1-1	1A1CB1-3	4
1A6A1K1-1	1A6A1K1-7	6
1A6A1K1-2	1A2J4-27	50
1A6A1K1-3	1A6TB1-8	8
1A6A1K1-4	1A6TB1-9	7
1A6A1K1-5	1A1S/A-COM	9
1A6A1K1-6	1A1S/B-COM	10
1A6A1K1-7	1A2J4-23	48
1A6A1K1-7	1A6A1K1-1	6
1A6A1K1-8	1A1CB1-4	5
1A6A1K1-8	1A2J4-25	49
1A6A1K2-1	1A1S2A-COM	45
1A6A1K2-2	1A2J4-16	47
1A6A1K2-3	1A6A1K3-1	53
1A6A1K2-6	1A1J2-A	55
1A6A1K2-7	1A2J4-7	85
1A6A1K2-7	1A6A1K2-8	46
1A6A1K2-8	1A1L6-B	94
1A6A1K2-8	1A6A1K2-7	46
1A6A1K2-8	1A6TB2-9	28
1A6A1K3-1	1A6A1K2-3	53
1A6A1K3-2	1A1J2-B	54
1A6A1K3-3	1A2J4-20	51
1A6A1K3-4	1A2J4-26	52
1A6F1-1	1A6TB1-12	14
1A6F1-2	1A1J2-F	57
1A6F1-2	1A2J4-5	15
1A6F2-1	1A6TB1-10	11
1A6F2-2	1A1A1-3	12
1A6F2-2	1A1J2-E	56
1A6S/A-4	1A1S1B-2	21
1A6TB1-1	1A1S1B-11	35
1A6TB1-10	1A6F2-1	11
1A6TB1-11	GND-LUG	13
1A6TB1-12	1A6F1-1	14
1A6TB1-2	1A1S1A-9	36
1A6TB1-3	1A1S1A-10	37
1A6TB1-4	1A1S1A-11	38
1A6TB1-5	1A1S2A-1	39
1A6TB1-6	1A1S2A-3	41
1A6TB1-7	1A1S2A-5	43
1A6TB1-8	1A1L6-A	93
1A6TB1-8	1A2J4-9	44

Table 5-13. Wiring Harness (1W1) Troubleshooting Continuity Checklist
(Continued)

FROM	TO	
Connector, pin no.	Connector, pin no.	Wire no.
1A6TB1-8	1A6A1K1-3	8
1A6TB1-9	1A6A1K1-4	7
1A6TB2-1	1A1S1A-1	16
1A6TB2-10	1A1S1B-7	29
1A6TB2-11	1A1S1A-7	30
1A6TB2-12	1A1S1B-9	32
1A6TB2-13	1A1S1A-8	33
1A6TB2-2	1A1S1A-2	17
1A6TB2-3	1A1S1A-3	18
1A6TB2-3	1A6TB2-6	22
1A6TB2-4	1A1S1B-1	19
1A6TB2-5	1A1S1A-4	20
1A6TB2-6	1A6TB2-3	22
1A6TB2-7	1A1S1A-5	23
1A6TB2-8	1A1S1B-5	25
1A6TB2-9	1A1S1A-6	26
1A6TB2-9	1A6A1K2-8	28

3. Check electrical components and wiring for burns, cracks, or deterioration.
4. Check electrical connectors for bent, broken, or loose pins; cracked or broken insulators; weak, broken or cold-soldering pin connections; dirt and corrosion.
5. Check circuit boards for cracked or charred surfaces; weak, broken or shorted printed wiring; weak or broken leaks; weak or broken solder connections; damaged components; cracked or broken insulation; dirt or corrosion.

5-8.2 Removal and Reassembly of Tube Head Assembly 2A2 Components.

A. Removal

- Step 1) Remove X-Ray Generator Assembly Unit 2 from stand.
- Step 2) Use standard disassembly techniques to remove Tube Head Assembly 2A2 from X-Ray Generator Assembly Unit 2.

NOTE

Tube head assembly is oil filled, exercise care not to spill insulating oil.

- Step 3) Remove screws, remove cover plate.
- Step 4) Remove drain plug and drain insulating oil.
- Step 5) Remove connector retaining screws and push connector into can assembly.
- Step 6) Interior components may now be lifted out as a complete assembly for component replacement.

B. Reassembly

- Step 1) Reassembly is the reverse of the disassembly procedures.
- Step 2) Prior to installing the cover plate, fill tube head assembly with insulating oil and place open tube assembly into a vacuum chamber (with a viewing window)
- Step 3) Pull a vacuum of 30 inches of mercury and allow tube head assembly to stand for a minimum of eight hours.
- Step 4) Check for any signs of bulbs still coming to the surface of the oil. If bulbs are still appearing, check unit in one hour. Repeat check until no signs of bulbs are seen.
- Step 5) Repressurize vacuum chamber, remove tube head assembly, top off with insulating oil and reinstall cover.

Step 6) Position tube head assembly with drain plug up, remove drain plug and add insulating oil until no air is remaining in tube head assembly. Replace drain plug.

Step 7) Return tube head assembly to service.

5-9 PREPARATION FOR RESHIPMENT

It is recommended that the Model 1200 Portable X-Ray System be reshipped in the original shipping containers, if available.

If the original container is not available, package as follows:

1. Store the system in the reuseable storage container.
2. Insert the reuseable storage container in a wooden crate, being sure to adequately cushion the carton on all sides so that the crate will be held securely in place. Seal the crate.
3. Wrap the crate with water-resistant paper and seal with waterproof tape. Mark the crate "FRAGILE".
4. Affix a label containing the following information:
 - a. Model 1200 Portable X-Ray System
 - b. Serial number
 - c. Date of last overhaul
 - d. Note and date of any other component change.

5-10 PREPARATION FOR STORAGE

Prepare the Model 1200 Portable X-Ray System as described in paragraph 5-9. System must be unpacked and have the long term storage procedures performed per Table 5-3.

SECTION VI

PARTS CATALOG

6-1 INTRODUCTION

This section lists all the component parts for Model 1200 Portable X-Ray System, manufactured by Porta Ray, Inc. The following paragraphs provide a brief description of the lists contained in this section and instructions for requisitioning parts.

6-2 LIST OF MANUFACTURERS

This list contains the Commercial and Government Entity Code (CAGE) which are listed numerically by code number.

6-3 LIST OF MAJOR ASSEMBLIES

This list indicates each major assembly which comprise the complete X-Ray System, together with the assigned reference designation series for the major assembly. In addition, the item number for each major assembly is listed for cross-reference to the Major Assembly Parts List (MAPL) and numerical parts list. This list is in item number order.

6-4 MAJOR ASSEMBLY PARTS LIST

This list contains a complete breakdown of the Model 1200 Portable X-Ray System in top down breakdown order (reference designator sequence is followed where feasible). Major assemblies are broken down into assemblies, subassemblies and components, with each item having an indenture number to show its relationship to the next higher assembly. The information provided in each of the columns of the MAPL is as follows:

6-5 COLUMN 1 - ITEM NUMBER

This column contains consecutive item numbers for each item listed.

6-6 COLUMN 2 - REFERENCE DESIGNATION OR FIGURE AND INDEX NUMBER

This column contains the reference designation appearing on drawings and schematics. For items without a reference designation, the figure and index number for the illustrated part in the handbook is used.

6-7 COLUMN 3 - INDENTURE NUMBER

The indenture number indicates the relationship to the next higher assembly for the item listed.

6-8 COLUMN 4 - PART NAME AND DESCRIPTION

The noun name, modifier, and basic characteristics for each part is provided in this column.

6-9 COLUMN 5 - MANUFACTURER'S CODE

The CAGE for the manufacturer of the part, in accordance with Cataloging Handbook H4-1.

6-10 COLUMN 6 - PART NUMBERS

The Government Standard Number, commercial catalog number, or the manufacturer's part number is listed on the upper line. The second line contains the IDDC/PORTA-RAY part number. In each case, the upper part number, except for Government Standard Numbers, is that of the actual manufacturer who supplies the part to the contractor. If a part is modified by, or manufactured by, the prime contractor, the prime contractor's part/drawing number is listed in both the upper, and the lower lines.

6-11 COLUMN 7 - QUANTITY PER ASSEMBLY

This column indicates the number of parts in the next higher assembly.

6-12 COLUMN 8 - SECTION VII DRAWING

This column refers to the SECTION VII, next higher assembly drawing, for part location.

6-13 NUMERICAL PARTS LIST

This list contains all maintenance significant Model 1200 Portable X-Ray System parts in numeric-alpha sequence by part number and indicates the manufacturer's 5 digit CAGE, item number, National Stock Number (NSN), and quantity per Model 1200 Portable X-Ray System. The information provided in each of the columns of the Numerical Parts List is as follows:

6-14 PART NUMBER

The part number in this column is the number entered in column 6 of the MAPL.

6-15 THE MANUFACTURER'S CODE

The manufacturer's code is the same CAGE that is used in column 5 of the MAPL.

6-16 ITEM NUMBER

The item number of the item's first appearance in the Major Assembly parts List is entered in this column.

6-17 NATIONAL STOCK NUMBER

The National Stock Number (NSN) is entered, when available.

6-18 QUANTITY PER MODEL 1200 X-RAY SYSTEM

For each item within the Model 1200 Portable X-Ray System, the total quantity used throughout the complete Model 1200 Portable X-Ray System is entered.

6-19 REFERENCE DESIGNATION LIST

This is an alphanumeric list of reference designations or figure and index numbers that appear on drawings, schematics, or figures. The part numbers and item numbers associated with these reference designations and figures are included as part of this list.

6-20 HOW TO USE THE PARTS CATALOG

a. When the Reference Designation or Figure and Index Number is known, refer to the Reference Designation List for the Part Number and Index Number. Use the item number in the MAPL to obtain the part name, description, and CAGE.

b. When the Major Assembly Title is known, refer to the List of Major Assemblies to determine the Item Number. Use this item number to obtain the description and CAGE in the MAPL.

c. When only the part number is known, refer to the Numerical Parts List for its first appearance and note the item number. Use this item number in the MAPL to obtain the reference designation, description, and CAGE.

Table 6-1. List of Manufacturers

CAGE	MANUFACTURERS NAME	MANUFACTURERS ADDRESS
01599	REID TOOL CO.	2265 BLACK CREEK RD MUSKEGON, MI
03612	BURNDY	1 RICHARD AVE. NORWALK, CT 06856
04713	MOTOROLA INC. SEMICONDUCTOR PRODUCTS DIV.	5005 E. MCDONALD RD. PHOENIX, AZ 85008
04813	BUNDY CORP. DIXON INDUSTRIES CORPORATION	BRISTOL, RI 02809
05972	LOCTITE CORPORATION	705 NORTH MOUNTAIN ROAD NEWINGTON, CT 06111
06229	ELECTROVERT	466 MAIN ST. NEW ROCHELLE, NY 10801
06776	ROBERTSON NUGENT INC.	800 EAST EIGHTH ST. P.O. BOX 1208 NEW ALBANY, IN 47150
07980	HEWLETT PACKARD NJ DIVISION	150 GREEN POND RD. ROCKAWAY, NJ 07866
08730	VEMALINE	333 STRAWBERRY FIELD RD. WARWICK, RI 02887-6979
09721	GENERAL BEARING	RTE 303 BLAUVELT, NY 10913
0C858	SKF BEARING SERVICES	1100 FIRST AVENUE KING OF PRUSSIA, PA 19406-1352
0EX37	AMP INC.	BRIDGE ST. P.O. BOX 13 SELINGROVE, PA 17870
0GCW4	GLOBE ELECTRONICS	32-02 57TH ST. P.O. BOX 727 WOODSIDE, NY 11377
0HF77	PANASONIC	1700 MOORE ST. ARLINGTON, VA 22209-1964
13103	THERMALLOY, INC.	BOX 340839 DALLAS, TX 75234
14704	CRYDOM	1521 T GRAND AVE EL SEGUNDO, CA 90245

Table 6-1. List of Manufacturers (Continued)

CAGE	MANUFACTURERS NAME	MANUFACTURERS ADDRESS
16556	SPECTROL	17070 T E. GALE AVE CITY OF INDUSTRY, CA 91745
18677	SCANBE	3445 FLETCHER AVE. P.O. BOX 4159 EL MONTE, CA 91731
1AA44	COLLMER SEMICONDUCTOR	14368 PROTON RD. DALLAS, TX 75243
1B546	VARO INC. SEMICONDUCTOR DIV.	2800 W. KINGSLEY RD. P.O. BOX 40676 GARLAND, TX 75041
1ES66	MAXIM INTERGRATED PRODUCTS INC.	120 SAN GABRIEL DR. SUNNYVALE, CA 94086
20093	ELECTRICAL INDUSTRIAL	691 CENTRAL AVE MURRY HILL, NJ 07974
20772	SPECTRONICS CORPORATION	956 BRUSH HOLLOW RD WESTBURY, NY 11590
21649	OTTO ENGINEERING INC. OTTO CONTROLS DIV.	2 E. MAIN ST. CARPENTERSVILL, IL 60110
24355	ANALOG DEVICES	RT. 1 INDUSTRIAL PARK NORWOOD, MA 02062
25894	DIGI-KEY CORPORATION	P.O. BOX 250 THIEF RIVER FALLS, MN 56701
26769	MEPCO CENTRALAB A NO. AMERICAN PHILIPS CO.	5900 AUSTRALIAN AVE. WEST PALM BEACH, FL 33407
2P882	NICE BALL BEARINGS	DETWILER RD KULPSVILLE, PA 19443
2V082	HEYCO MOLDED PRODUCTS	P.O. BOX 160 KENILWORTH, NJ 07033-1721
2X587	NAGASE CORP.	500 FIFTH AVE. NEW YORK, NY 10100-0001
31433	KEMIT ELECTRONICS CORP.	P.O. BOX 5928 GREENVILLE, SC 29606
31781	EDAC	20 RAILSIDE RD. DON MILLS, ONT N3A1A4 CANADA

Table 6-1. List of Manufacturers (Continued)

CAGE	MANUFACTURERS NAME	MANUFACTURERS ADDRESS
37942	MALLORY CAPACITOR CORP. SUB. OF EMHART IND. INC.	3029 EAST WASHINGTON ST. INDIANAPOLIS, IN 46206
3A054	MCMASTER-CARR SUPPLY CO.	9630 NORWALK BLVD. SANTA FE SPRINGS, CA 90670-2932
41415	ACCULEX	440 MYLES STANDISH BLVD. TAUNTON, MA 02780
44655	OHMITE MFG. CO.	3601 W. HOWARD ST. SKOKIE, IL 60076-4014
4F894	WINFRED M. BERG, INC.	499 OCEAN AVENUE EAST ROCKAWAY, NY 11518
4J007	MANHATTAN SUPPLY CO. MSC LONG ISLAND DIVISION	151 SUNNYSIDE BLVD. PLAINVIEW, NY 11803
4J995	ASSOCIATED SPRING	18 MAIN ST. BRISTOL, CT 08420
52179	AUTAC INC.	2180 FOXON RD. N. BRADFORD, CT 06471-0306
57362	PORTA RAY	19 JEFRYN BLVD WEST DEER PARK, NY 11729
57922	BOURNS	1200 COLUMBIA AVE. RIVERSIDE, CA 92507
58007	GORDOS/ARKANSAS INC.	1000 NORTH 2ND ST. ROGERS, AR 60410
5M304	KIPP/ELESA MONROE ENG. PROD.	380 N. WOODWARD, SUITE 240 BIRMINGHAM, MI 48011
5R753	AROMAT CORP.	629 CENTRAL AVE. NEW PROVIDENCE, NJ 07976
5T436	SPC TECHNOLOGIES DIVISION OF PREMIER IND. CORP.	1101 W. IRVING PARK RD BENSONVILLE, IL 60106-1713
5W358	LENCO	1330 BELDON ST. MCHENRY, IL 60050-8181
62060	LOCKWELL PRODUCTS	701 W. FOOTHILL BLVD AZUZA, CA 91702

Table 6-1. List of Manufacturers (Continued)

CAGE	MANUFACTURERS NAME	MANUFACTURERS ADDRESS
62317	GLEN MAGNETICS INC.	1165 THIRD ST ALPHA, NJ 08865
63426	NKK SWITCHES OF AMERICA, INC.	14415 NORTH SCOTTSDALE ROAD SCOTTSDALE, AR 85260
70957	ACTIVE WIRE AND CABLE CORP.	1566 OCEAN AVE BOHEMIA, NY 11716
72619	DIALIGHT DIVISION	203 HARRISON PLACE BROOKLYN, NY 11237
74545	HUBBELL HARVEY INC.	584 DERBY MILFORD RD. BRIDGEPORT, CT 06605
74868	AMPHENOL CORP.	1 KENNEDY AVENUE DANBURY, CT 06810-5803
77342	AMF INC. (CUNO) POTTER & BRUMFIELD DIV.	200 RICHLAND CREEK DRIVE PRINCETON, IN 77670
7U156	TEXAS INSTRUMENTS SUPPLY DIV.	1001 E. CAMBELL ST. RICHARDSON, TX 75081-1821
80353	CLAROSTAT MFG. CO. INC.	LOWER WASHINGTON ST. DOVER, NH 03820
81073	GRAYHILL, INC.	561 HILLGROVE AVENUE P.O. BOX 10373 LA GRANGE, IL 60525
82104	STANDARD GRIGSBY	920 RATHBONE AVE. AURORIA, IL 60507
83803	PEERLESS RADIO CORP.	19 WILBUR STREET LYNBROOK, NY 11563-2316
84830	LEE SPRING COMPANY INC.	1462 62ND STREET BROOKLYN, NY 11219-5413
86797	ROGAN CORP.	3455 WOODHEAD DR. NORTHBROOK, IL 60062-1812
88342	BRYANT ELECTRIC DIVISION OF WESTINGHOUSE	BRIDGEPORT, CT 06606
8C978	EXXON	BAYWAY CHEMICAL PLANT PARK & BRUNSWICK AVE. LINDEN, NJ 07036

Table 6-1. List of Manufacturers (Continued)

CAGE	MANUFACTURERS NAME	MANUFACTURERS ADDRESS
8H134	HAWTHORNE RUBBER MFG. CORP.	35-4 AVENUE HAWTHORNE, NJ 07506
8P909	INTERSIL SUBSIDERY OF GECO	560 SYLVAN AVE. ENGLEWOOD CLIFFS, NJ 07632
8Z637	SUPERIOR X-RAY TUBE CO.	126 ST. & HOLMAN AVE. BLUE ISLAND, IL 60406
91833	KEYSTONE ELECTRONICS CORP.	49 BLEECKER ST. NEW YORK, NY 10012
94696	MAGNECRAFT ELECTRIC	1910 TECHNY RD NORTHBROOK, IL 60062
96652	MEDALIST REIN LEITKE	HUSTIFORD, WI 53034
97464	INDUSTRIAL RETAINING RING	57 CORDIER ST IRVINGTON, NJ 07111
99017	PROTECTIVE CLOSURES CO., INC. CAPPLUGS DIVISION	2150 ELMWOOD AVENUE BUFFALO, NY 14207
9R076	EATON CORP.	CLEVELAND, OH 44101
APEX	APEX PACKING AND RUBBER CO.	1855 NEW HIGHWAY FARMINGDALE, NY
ARROWH	CROUSE-HINDS COMPANY ARROW HART DIVISION	103 HAWTHORN ST. HARTFORD, CT 06101
DESTCO	DESTACO	DRAWER 2800 T TROY, MI 48007
GABRIL	GABRIAL CO.	CLEVELAND, OH 73533
MCGILL	MCGILL MANUFACTURING CO., INC. BEARING DIVISION	VALPARAISO, INDIANA 46383-4299
MCI	MCI TRANSFORMER CORP.	411 MANHATTAN AVE. BABYLON, NY 11702
RHOMBU	RHOMBUS CASTERS INTERNATIONAL	20 WEST STOW RD MARION, NJ

Table 6-1. List of Manufacturers (Continued)

CAGE	MANUFACTURERS NAME	MANUFACTURERS ADDRESS
SSR	SYSTEM SALES REPRESENTATIVES	P.O. BOX 1388 INDUSTRIAL PARKWAY LYNDONVILLE, VT 05851
SUN CO	SUN COMPANY INC.	14025 WEST 66TH AVE ARVADA, CO
VACO	VOLTAMPERE CORP.	146 HORTON AVE. LYNBROOK, NY
VLIER	VLIER CORP.	4130 LINDON AVE SUITE 240 DAYTON, OH 45432
WIL-CR	WILCOX-CRITTENDEN	699 MIDDLE STREET MIDDLETOWN, CT 06457

Table 6-2. List of Major Assemblies

MAJOR ASSEMBLY DESCRIPTION	IND	REFERENCE DESIGNATION	ITEM NO.
MODEL 1200 X-RAY SYSTEM	1	-	1
CONTROL ASSY, MODEL 1200	2	1	2
PANEL ASSY, CONTROL MODEL 1200	3	1A1	58
PCB ASSY, MOTHER BD, MODEL 1200	3	1A2	134
PCB ASSY, TIMER BD (CARD RACK,1200)	3	1A3	20
PCB ASSY, LINE SET (CARD RACK,1200)	3	1A4	98
PCB ASSY, MAS INTERFACE BD (1200)	3	1A5	143
PLATE ASSY, BASE 1200	3	1A6	178
SWITCH ASSY, EXPOSURE 1200	3	1A7	207
CASE, CONTROL ASSEMBLY 1200	3	1A8	7
CORD, LINE, ASSEMBLY	3	1W1	3
CABLE ASSY, 1200 INTERCONNECT	3	1W2	12
HARNESS ASSY 1200	3	1W5	215
GENERATOR ASSEMBLY 1200	2	2	236
COLLIMATOR ASSEMBLY (MODIFIED)	3	2A1	237
TUBE HEAD ASSEMBLY (MODEL 1200)	3	2A2	329
YOKE ASSEMBLY 1200	3	2A3	380
CHASSIS, GENERATOR, ASSEMBLY 1200	3	2A4	400
STAND ASSEMBLY MODEL 1200	2	3	486
FRAME ASSEMBLY, STAND MODEL 1200	3	3A1	487
CROSS ARM ASSEMBLY, STAND	3	3A2	534
GEAR BOX ASSEMBLY (MODEL 1200)	3	3A3	540
PIPE ASSEMBLY 1200	3	3A4	617
CONTAINER, REUSEABLE	2	4	670

Table 6-3. Major Assemblies Parts List, Model 1200 Portable X-Ray System

ITEM NO.	REFERENCE DESIGNATION	IND	PART NAME AND DESCRIPTION	MFR CODE CAGE	MANUFACTURER PART NUMBER / PORTA RAY PART NUMBER	QTY/ ASSY	SECT. VII DRAWING
1	-	1	MODEL 1200 X-RAY SYSTEM	57362	500598 500598		500598
2	1	2	CONTROL ASSY, MODEL 1200	57362	500507 500507		500598
3	1W1	3	CORD, LINE, ASSEMBLY	57362	500081 500081		500507
4	1W1J1	4	CONNECTOR, AC PLUG	ARROWH	8115VW 385027		500081
5	1W1J2	4	CONNECTOR, AC RECEPTACLE	88342	7484NC 385013		500081
6		4	CABLE, SJO 14/3 (300V/UL)	57362	400011 400011		500081
7	1A8	3	CASE, CONTROL ASSEMBLY 1200	57362	500587 500587		500507
8		4	CASE, CONTROL SUBASSEMBLY 1200	57362	800264 800264		500587
9		4	MOUNT, CONTROL	57362	101885 101885		500587
10		4	WASHER, SPLIT (#8)	57362	381002 381002		500587
11		4	SCREW, PHIL/PH (8-32 X 3/8)	57362	381006 381006		500587
12	1W2	3	CABLE ASSY, 1200 INTERCONNECT	57362	500595 500595		500507
13	1W2P1	4	CONNECTOR, PLUG (8 PIN MALE)	03612	G6F1288PNE 385174		500595
14		4	PIN, MALE (.062)	03612	SM16ML-1TK6 385183		500595
15		4	PIN, FEMALE (.062)	03612	SC16M-1TK6 385184		500595

Table 6-3. Major Assemblies Parts List, Model 1200 Portable X-Ray System (Continued)

ITEM NO.	REFERENCE DESIGNATION	IND	PART NAME AND DESCRIPTION	MFR CODE CAGE	MANUFACTURER / PORTA RAY PART NUMBER	QTY/ ASSY	SECT. VII DRAWING
16		4	PIN, MALE	03612	SM20ML-LTK6 385189		500595
17		4	PIN, FEMALE	03612	SC16ML-LTK6 385190		500595
18	1W2J1	4	CONNECTOR, PLUG (8 PIN FEMALE)	03612	G6FI288SNE 385209		500595
19		4	CABLE PVC (8 CONDUCTOR 5-16, 3-22)	70957	AW28610 400058		500595
20	1A3	3	PCB ASSY, TIMER BD (CARD RACK, 1200)	57362	500500 500500		500507
21		4	PCB BLANK, TIMER (CARD RACK, 1200)	57362	101476 101476		500500
22		4	PCB EJECTOR (W/PIN)	18677	S-200 214039		500500
23	1A3CR3-CR9	4	DIODE, (1N4148)	7U176	1N4148 300001		500500
24	1A3CR1, CR2	4	DIODE, (1N4005)	04713	1N4005 300002		500500
25	1A3Q1-Q7	4	TRANSISTOR, SIGNAL (2N3904)	04713	2N3904 310003		500500
26	1A3U7, U8	4	IC, LINEAR (555)	04713	NE555V 330001		500500
27	1A3U6	4	IC, LINEAR (MOC3010)	04713	MOC3010 330008		500500
28	1A3U1, U2	4	IC, DIGITAL (7260)	1ES66	ICM7260IJE 335001		500500
29	1A3U4, U5	4	IC, DIGITAL (4001)	04713	MC14001BCP 335048		500500
30	1A3U3	4	IC, DIGITAL (4584)	04713	MC14584BCP 335049		500500

Table 6-3. Major Assemblies Parts List, Model 1200 Portable X-Ray System (Continued)

ITEM NO.	REFERENCE DESIGNATION	IND	PART NAME AND DESCRIPTION	MFR CODE CAGE	MANUFACTURER PART NUMBER / PORTA RAY PART NUMBER	QTY/ ASSY	SECT. VII DRAWING
31	1A3R3,R11,R15,R22,R26,28-29,31,38,40	4	RESISTOR, (10K 1/4W 5%)	44655	OK1035 340001		500500
32	1A3R36	4	RESISTOR, (330K 1/4W 5%)	44655	OK3345 340003		500500
33	1A3R24,R25,R39	4	RESISTOR, (150K 1/4W 5%)	44655	OK1545 340005		500500
34	1A3R7-R9	4	RESISTOR, (330 OHM 1/4W 5%)	44655	OK3315 340007		500500
35	1A3R20,R35	4	RESISTOR, (5.6K 1/4W 5%)	44655	OK5625 340008		500500
36	1A3R30	4	RESISTOR, (27K 1/4W 5%)	44655	OK2735 340009		500500
37	1A3R41	4	RESISTOR, (510 OHM 1/4W 5%)	44655	OK5115 340010		500500
38	1A3R1,R2,R4-6,R10,R10,R23,R27	4	RESISTOR, (1K 1/4W 5%)	44655	OK1025 340014		500500
39	1A3R13	4	RESISTOR, (47K 1/4W 5%)	44655	OK4735 340025		500500
40	1A3R12,R14,R33,R34	4	RESISTOR, (100 OHM 1/4W 5%)	44655	OK1015 340029		500500
41	1A3R18	4	RESISTOR, (820K 1/4W 5%)	44655	OK8245 340032		500500
42	1A3R17	4	RESISTOR, (220K 1/4W 5%)	44655	OK2245 340047		500500
43	1A3R32,R37	4	RESISTOR, (2.2K 1/4W 5%)	44655	OK2225 340069		500500
44	1A3R16,R21	4	RESISTOR, (2.7K 1/4W 5%)	44655	OK2725 340143		500500
45	1A3R19	4	RESISTOR, (2.2M 1/4W 5%)	26769	5043CX2M200J 340144		500500

Table 6-3. Major Assemblies Parts List, Model 1200 Portable X-Ray System (Continued)

ITEM NO.	REFERENCE DESIGNATION	IND	PART NAME AND DESCRIPTION	MFR CODE CAGE	MANUFACTURER PART NUMBER / PORTA RAY PART NUMBER	QTY/ ASSY	SECT. VII DRAWING
46	1A3C1,C6,C10	4	CAPACITOR, (.001uf 50V EPOXY)	26769	CW15C102M 350029		500500
47	1A3C4,C15	4	CAPACITOR, (.01uf 50V EPOXY)	26769	CW15C103M 350030		500500
48	1A3C2,C3,C5, C11,C12,C17,C21-30	4	CAPACITOR, (.1uf 50V EPOXY)	26769	CW20C104K 350032		500500
49	1A3C14,C16, C19,C20,C31	4	CAPACITOR, (.47uf 100V EPOXY)	26769	CY30A474M 350033		500500
50	1A3C32	4	CAPACITOR, (470pf 100V EPOXY)	26769	CW15A471K 350034		500500
51	1A3C33	4	CAPACITOR, (47pf 100V EPOXY)	26769	CN15A470K 350035		500500
52	1A3C8	4	CAPACITOR, (10uf 10V TANT)	31433	Y322B106K010AS 355028		500500
53	1A3C7,C9,C13, C18	4	CAPACITOR, (33uf 6V TANT)	31433	T322C336K006AS 355036		500500
54	1A3XU7,XU8	4	SOCKET, IC (8 PIN)	06776	ICO-083-S8T 385047		500500
55	1A3XU3-XU5	4	SOCKET, IC (14 PIN)	06776	ICO-143-S8T 385048		500500
56	1A3XU1,XU2	4	SOCKET, IC (16 PIN)	06776	ICO-163-S8T 385049		500500
57	1A3XU6	4	SOCKET, IC (6 PIN)	06776	ICO-063-S8T 385165		500500
58	1A1	3	PANEL ASSY, CONTROL MODEL 1200	57362	500503 500503		500507
59	1A1A1	4	PCB ASSY, TIMER SW (MODEL 1200)	57362	500371 500371		500503
60		5	PCB BLANK, TIMER SWITCH, MODEL 1200	57362	101078 101078		500371

Table 6-3. Major Assemblies Parts List, Model 1200 Portable X-Ray System (Continued)

ITEM NO.	REFERENCE DESIGNATION	IND	PART NAME AND DESCRIPTION	MFR CODE CAGE	MANUFACTURER PART NUMBER / PORTA RAY PART NUMBER	QTY/ ASSY	SECT. VII DRAWING
61	1A1A1S3	5	SWITCH, ROTARY (TIMER)	82104	2451P/REL-24-1 370063		500371
62	1A1A1J1	5	HEADER, (14 PIN, PCB MOUNT)	18R23	CWN-350-14-0021 385157		500371
63		5	EJECTOR HOOK W/PIN (CW HEADER)	18R23	CWN-LK-L 385158		500371
64	1A1A2	4	PCB ASSY, MAS DISPLAY BD MODEL 1200	57362	500517 500517		500507
65		5	PCB BLANK, MAS DISPLAY (MODLE 1200)	57362	101506 101506		500517
66	1A1A2R1-R8	5	RESISTOR, (33 OHM 1/4W 5%)	44655	OK3305 340080		500517
67	1A1A2DS1-DS3	5	DISPLAY, (7 SEGMENT LED)	07980	HDSP-H103 374014		500517
68		5	SPACER, SWAGE 1/4 LG	OGC4W	SS-2602-090-105-0 383580		500517
69		5	EJECTOR HOOK W/PIN (CW HEADER)	18R23	CWN-LK-L 385158		500517
70	1A1A2XD1-XD6	5	SOCKET, (SINGLE ROW 5 PIN)	OEX37	643105-1 385203		500517
71	1A1A2J10	5	HEADER, (16 PIN PC MT, RT ANG)	18R23	CWN-300-16-0021 385204		500517
72		4	CONTROL PANEL 1200	57362	101484 101484		500503
73		4	FILTER, METER (MAS DISPLAY)	57362	101642 101642		500503
74		4	NAMEPLATE MODEL 1200	57362	101882 101882		500503
75	1A1SP1	4	BUZZER MIL SPEC.	37942	SC628M 205006		500503

Table 6-3. Major Assemblies Parts List, Model 1200 Portable X-Ray System (Continued)

ITEM NO.	REFERENCE DESIGNATION	IND	PART NAME AND DESCRIPTION	MFR CODE CAGE	MANUFACTURER PART NUMBER / PORTA RAY PART NUMBER	QTY/ ASSY	SECT. VII DRAWING
76		4	KNOB, ROUND 1 3/4	86797	MS91528-4-N-2-B 210010		500503
77		4	KNOB, ROUND W/SKIRT/POINTER	86797	MS91528-2-F-2-B 210011		500503
78		4	KNOB, MIL	86797	MS91528-4C2B 210025		500503
79		4	HANDLE, OVAL (SATIN BLACK)	08730	BV735-10 210029		500503
80	1A1DS1,DS4	4	LAMP, LED GREEN	72619	507-4857-3332-500 370093		500503
81	1A1DS2,DS3,DS5	4	LAMP, LED RED	72619	507-4757-3331-500 370094		500503
82	1A1DS6	4	LAMP, NEON RED	72619	507-4538-1431-630 370095		500503
83	1A1XDS1-5	4	LAMP HOLDER	72619	508-8738-504 370096		500503
84	1A1XDS6	4	LAMP HOLDER NEON	72619	508-8745-504 370097		500503
85	1A1S1	4	SWITCH, ROTARY 2 POLE	63426	HS-16-2(328) 370105		500503
86	1A1S2	4	SWITCH, ROTARY 3 POLE	63426	HS-16-3(328) 370106		500503
87	1A1S3	4	SWITCH, ROTARY 2 POLE	81073	44YY233006 370107		500503
88		4	COVER, ENVIROMENTAL	82389	515 370108		500503
89	1A1M1	4	BEZEL, METER	41415	B-1 374012		500503
90	1A1CB1	4	CURCUIT BREAKER 15 AMP	77342	W68X2Q1-2-15 378068		500503

Table 6-3. Major Assemblies Parts List, Model 1200 Portable X-Ray System (Continued)

ITEM NO.	REFERENCE DESIGNATION	IND	PART NAME AND DESCRIPTION	MFR CODE CAGE	MANUFACTURER / PORTA RAY PART NUMBER	QTY/ ASSY	SECT. VII DRAWING
91		4	SCREW, PHIL/HD (2-56 X 1/2)	57362	380025 380025		500503
92		4	NUT, HEX (6-32)	57362	380500 380500		500503
93		4	WASHER, SPLIT (#6)	57362	380502 380502		500503
94		4	SCREW, PHIL/FH (6-32 X 1/4 100DEG)	57362	380538 380538		500503
95		4	WASHER, SPLIT (#8)	57362	381002 381002		500503
96		4	SCREW, PHIL/PH (8-32 X 3/8)	57362	381006 381006		500503
97	1A1J1	4	CONNECTOR, RECP. (MALE)	74545	7486 385011		500503
98	1A4	3	PCB ASSY, LINE SET (CARD RACK, 1200)	57362	500504 500504		500507
99		4	PCB BLANK, LINE SET/SENSE (1200)	57362	101483 101483		500504
100		4	PCB EJECTOR (W/PIN)	18677	S-200 214039		500504
101	1A4CR3	4	DIODE, (1N4148)	7U176	1N4148 300001		500504
102	1A4CR1, CR2, CR5, CR6	4	DIODE, (1N4005)	04713	1N4005 300002		500504
103	1A4CR7	4	DIODE, (1N24)	7U176	1N24 300012		500504
104	1A4CR4	4	DIODE, ZENER 6.2V (1N4735A)	04713	1N4735A 303006		500504
105	1A4BR1, BR2	4	RECTIFIER, BRIDGE (PCB MOUNT)	1B546	VE18X 306002		500504

Table 6-3. Major Assemblies Parts List, Model 1200 Portable X-Ray System (Continued)

ITEM NO.	REFERENCE DESIGNATION	IND	PART NAME AND DESCRIPTION	MFR CODE CAGE	MANUFACTURER PART NUMBER /PORTA RAY PART NUMBER	QTY/ ASSY	SECT. VII DRAWING
106	1A4Q1,Q2	4	TRANSISTOR, SIGNAL (2N3904)	04713	2N3904 310003		500504
107	1A4U1	4	IC, LINEAR (LM339N)	04713	LM339N 330006		500504
108	1A4U3	4	IC, LINEAR (MOC3042)	04713	MOC3042 330020		500504
109	1A4VR1,VR2	4	VOLTAGE REGULATOR, (+5VDC)	04713	MC7805C 330009		500504
110	1A4U2	4	IC, DIGITAL (7400)	7U176	SN7400 335029		500504
111	1A4R16,R17	4	RESISTOR, (10K 1/4W 5%)	44655	OK1035 340001		500504
112	1A4R12,R13, R18,R19	4	RESISTOR, (330 OHM 1/4W 5%)	44655	OK3315 340007		500504
113	1A4R9	4	RESISTOR, (5.6K 1/4W 1%)	44655	MB5602F 340151		500504
114	1A4R11,R14	4	RESISTOR, (1K 1/4W 5%)	44655	OK1025 340014		500504
115	1A4R5,R6	4	RESISTOR, (100K 1/4W 1%)	44655	MB1005F 340150		500504
116	1A4R3	4	RESISTOR, (1K 1/4W 1%)	44655	MB1003F 340148		500504
117	1A4R15	4	RESISTOR, (150 OHM 1/4W 5%)	44655	OK1515 340089		500504
118	1A4R4	4	RESISTOR, (221 OHM 1/4W 1%)	44655	MB2210F 340149		500504
119	1A4R7,R8,R10	4	RESISTOR, (10K 1/4W 1%)	44655	MB1004F 340152		500504
120	1A4R1,R2	4	POTENTIOMETER, (2K RIGHT ANGLE)	57922	3005-P-1-202 345028		500504

Table 6-3. Major Assemblies Parts List, Model 1200 Portable X-Ray System (Continued)

ITEM NO.	REFERENCE DESIGNATION	IND	PART NAME AND DESCRIPTION	MFR CODE CAGE	MANUFACTURER /PORTA RAY PART NUMBER	QTY/ ASSY	SECT. VII DRAWING
121	1A4C9	4	CAPACITOR, (.047uf 400V)	OHF77	ECQ-E4473KZ 350024		500504
122	1A4C2,C3,C11	4	CAPACITOR, (.1uf 50V EPOXY)	26769	CW20C104K 350032		500504
123	1A4C5	4	CAPACITOR, (33uf 25V TANT)	31433	T322E336K025S 355029		500504
124	1A4C1,C10	4	CAPACITOR, (100uf 25V TANT)	37942	TLS107M025C1B 355030		500504
125	1A4C4,C8	4	CAPACITOR, (270uf 25V TANT)	37942	TLH277M025C1B 355031		500504
126	1A4C6,C7	4	CAPACITOR, (33uf 6V TANT)	31433	T322C336K006AS 355036		500504
127	1A4T1,T2	4	TRANSFORMER	MCI	4-02-2010 360066		500504
128		4	RELAY, REED (SPST)	94696	W107DIP5 378071		500504
129		4	HEXNUT, 4-40	57362	380000 380000		500504
130		4	SCREW, PHIL/PH (4-40 X 1/4)	57362	380010 380010		500504
131		4	PIN, TERMINAL (.040)	91833	1219 385191		500504
132	1A4XU15,XU2,XK1	4	SOCKET, IC (14 PIN)	06776	ICO-143-S8T 385048		500504
133	1A4XU3	4	SOCKET, IC (6 PIN)	06776	ICO-063-S8T 385165		500504
134	1A2	3	PCB ASSY, MOTHER BD, MODEL 1200	57362	500515 500515		500507
135		4	PCB BLANK, MOTHER BD, MODEL 1200	57362	101503 101503		500515

Table 6-3. Major Assemblies Parts List, Model 1200 Portable X-Ray System (Continued)

ITEM NO.	REFERENCE DESIGNATION	IND	PART NAME AND DESCRIPTION	MFR CODE CAGE	MANUFACTURER PART NUMBER / PORTA RAY PART NUMBER	QTY/ ASSY	SECT. VII DRAWING
136		4	HEXNUT, 4-40	57362	380000 380000		500515
137		4	SCREW, PHIL/PH (4-40 X 1/2)	57362	380008 380008		500515
138	1A2J5	4	HEADER (14 PIN, PCB MOUNT)	18R23	CWN-350-14-0021 385157		500515
139		4	EJECTOR HOOK W/PIN (CW HEADER)	18R23	CWN-LK-L 385158		500515
140	1A2J6	4	HEADER, (16 PIN PC MOUNT)	18R23	CWN-350-16-0021 385200		500515
141	1A2J7-J9	4	CONNECTOR, (60 PIN EDGE PCB)	31781	345-060-520-202 385201		500515
142		4	POLARIZING KEY, CONNECTOR	31781	345-240-318 385208		500515
143	1A5	3	PCB ASSY, MAS INTERFACE BD (1200)	8P909	ICM7217 500516		500507
144		4	PCB BLANK, MAS INTERFACE BD (1200)	57362	101504 101504		500516
145		4	PCB EJECTOR (W/PIN)	18677	S-200 214039		500516
146	1A5CR1-CR11	4	DIODE, (1N4148)	7U176	1N4148 300001		500516
147	1A5Q1	4	TRANSISTOR, SIGNAL (2N3904)	04713	2N3904 310003		500516
148	1A5U6	4	IC, LINEAR (555)	04713	NE555V 330001		500516
149	1A5U9	4	IC, (LINEAR AD654)	24355	AD654JN 330019		500516
150	1A5U1	4	IC, DIGITAL (7260)	1ES66	ICM7260IJE 335001		500516

Table 6-3. Major Assemblies Parts List, Model 1200 Portable X-Ray System (Continued)

ITEM NO.	REFERENCE DESIGNATION	IND	PART NAME AND DESCRIPTION	MFR CODE CAGE	MANUFACTURER PART NUMBER / PORTA RAY PART NUMBER	QTY/ ASSY	SECT. VII DRAWING
151	1A5U13	4	IC DIGITAL (7217)	8P909	INTERSIL, ICM7217A1PI 335002		500516
152	1A5U7,U10,U15	4	IC, DIGITAL (74LS04)	7U176	SN74LS04N 335008		500516
153	1A5U5,U11,U18	4	IC, DIGITAL (74LS00)	7U176	SN74LS00N 335007		500516
154	1A5U16,U17, U19-U27	4	IC, DIGITAL (74LS30)	7U176	SN74LS30N 335033		500516
155	1A5U2,U12	4	IC, DIGITAL (14040)	04713	MC14040BCP 335051		500516
156	1A5U3,U4	4	IC, DIGITAL (14077)	04713	MC14077BCP 335052		500516
157	1A5U8	4	IC, DIGITAL (14013)	04713	MC14013BCP 335053		500516
158	1A5U14	4	IC, DIGITAL (74LS08)	7U176	SN74LS08N 335055		500516
159	1A5R1-R3,R8,R12, R15-R18	4	RESISTOR, (10K 1/4W 5%)	44655	OK1035 340001		500516
160	1A5R6	4	RESISTOR, (510 OHM 1/4W 5%)	44655	OK5115 340010		500516
161	1A5R4,R7,R9, R14	4	RESISTOR, (1K 1/4W 5%)	44655	OK1025 340014		500516
162	1A5R13	4	RESISTOR, (43K 1/4W 5%)	44655	OK4335 340015		500516
163	1A5R5,R11	4	RESISTOR, (3.3K 1/4W 5%)	44655	OK3025 340024		500516
164	1A5R10	4	RESISTOR, (47K 1/4W 5%)	44655	OK4735 340025		500516
165	1A5A2	4	RESISTOR, NETWORK (10K 2%)	0HF77	EXB-F8E103G 340145		500516

Table 6-3. Major Assemblies Parts List, Model 1200 Portable X-Ray System (Continued)

ITEM NO.	REFERENCE DESIGNATION	IND	PART NAME AND DESCRIPTION	MFR CODE CAGE	MANUFACTURER / PORTA RAY PART NUMBER	QTY/ ASSY	SECT. VII DRAWING
166	1A5A1	4	RESISTOR, NETWORK (220K 2%)	OHF77	EXB-F8E224G 340146		500516
167	1A5C5, 18, 20, 36	4	CAPACITOR, (.001uf 50V EPOXY)	26769	CW15C102M 350029		500516
168	1A5C9	4	CAPACITOR, (.047uf 50V EPOXY)	26769	CW20C473K 350031		500516
169	1A5C1-4, 6-8, 10-12, 15 16, 19, 21, 23-32, 37-42	4	CAPACITOR, (.1uf 50V EPOXY)	26769	CW20C104K 350032		500516
170	1A5C17, C43, C44	4	CAPACITOR, (.01uf 50V EPOXY)	26769	CW15C103M 350030		500516
171	1A5C13, 14, 22, 33, C34, C35	4	CAPACITOR, (.47uf 100V EPOXY)	26769	CY30A474M 350033		500516
172	1A5XU6, XU9	4	SOCKET, IC (8 PIN)	06776	ICO-083-S8T 385047		500516
173	1A5XU3-5, XU7, XU8, XU10, XU11, XU14-27	4	SOCKET, IC (14 PIN)	06776	ICO-143-S8T 385048		500516
174	1A5XU1-2, XU12	4	SOCKET, IC (16 PIN)	06776	ICO-163-S8T 385049		500516
175	1A5XU13	4	SOCKET, IC (28 PIN)	06776	ICO-286-S8T 385050		500516
176	1A5JP1-JP3	4	CONNECTOR, SHUNT (JUMPER)	OEX37	531220-2 385206		500516
177		4	HEADER, (SINGLE ROW BREAKAWAY)	06776	NSH-36SB-S1-T 385207		500516
178	1A6	3	PLATE ASSY, BASE 1200	57362	500511 500511		500507
179	1A6A1	4	PLATE ASSY, RELAY 1200	57362	500510 500510		500507
180		5	PLATE RELAY, 1200	57362	101486 101486		500510

Table 6-3. Major Assemblies Parts List, Model 1200 Portable X-Ray System (Continued)

ITEM NO.	REFERENCE DESIGNATION	IND	PART NAME AND DESCRIPTION	MFR CODE CAGE	MANUFACTURER / PORTA RAY PART NUMBER	QTY/ ASSY	SECT. VII DRAWING
181	1A6A1K3	5	RELAY, SOLID STATE (240 VAC)	14704	D24404 378038		500510
182	1A6A1K1-K2	5	RELAY, 115VAC	5R753	HG-2-AC115V 378066		500510
183	1A6A1XK1-2	5	SOCKET, RELAY	5R753	HG-2-SS 378067		500510
184		5	WASHER, FLAT (#8)	57362	381001 381001		500510
185		5	WASHER, SPLIT (#8)	57362	381002 381002		500510
186		5	SCREW, PHIL PH (8-32 X 1/2)	57362	381004 381004		500510
187	1A6A1J4	5	CONNECTOR, PHONE JACK (MONO)	82389	12A 385046		500510
188		4	RACK PLATE TOP 1200	57362	101487 101487		500511
189		4	PLATE - BASE 1200	57362	101488 101488		500511
190		4	RACK BRACKET BOTTOM	57362	101489 101489		500511
191		4	BAR, TOP RACK 1200	57362	101490 101490		500511
192		4	BAR, TIE (RACK) 1200	57362	101492 101492		500511
193	1A6F1,F2	4	FUSE, NORMAL-BLO (3A/250V)	89875	FUSE3A250V 203003		500511
194		4	HOLDER, FUSE 2 POSITION	71400	3823-2 203016		500511
195		4	CARD GUIDE	18677	11633-2 214037		500511

Table 6-3. Major Assemblies Parts List, Model 1200 Portable X-Ray System (Continued)

ITEM NO.	REFERENCE DESIGNATION	IND	PART NAME AND DESCRIPTION	MFR CODE CAGE	MANUFACTURER PART NUMBER / PORTA RAY PART NUMBER	QTY/ ASSY	SECT. VII DRAWING
196		4	BRACKET, RESISTOR MOUNT 9/16 DIA	44655 9	340142		500511
197	1A6R1	4	RESISTOR, FIXED (1 OHM 50 WATT)	80353	VP50K 340154		500511
198	1A6T1	4	TRANSFORMER ASSEMBLY, AUTO (1200)	57362	360070 360070		500511
199		4	NUT, HEX (6-32)	57362	380500 380500		500511
200		4	WASHER, SPLIT (#6)	57362	380502 380502		500511
201		4	SCREW, PHIL/PH (6-32 X 3/8)	57362	380514 380514		500511
202		4	SCREW, PHIL/PH (6-32 X 5/8)	57362	380526 380526		500511
203		4	WASHER, SPLIT (#8)	57362	381002 381002		500511
204		4	SCREW, PHIL/PH (8-32 X 3/8)	57362	381006 381006		500511
205		4	1/4-20, LOCKING NUT	57362	383050 383050		500511
206		4	WASHER, FLAT (1/4)	57362	382001 382001		500511
207	1A7	3	SWITCH ASSY, EXPOSURE 1200	57362	500512 500512		500507
208		4	HOOK, HAND CONTROL ASSY	84830	005-250-A100212 100212		500512
209		4	HANDLE, EXPOSURE	57362	101493 101493		500512
210	1A7S1	4	SWITCH, PUSHBUTTON (2 POS.)	21655	P4-20002 370064		500512

Table 6-3. Major Assemblies Parts List, Model 1200 Portable X-Ray System (Continued)

ITEM NO.	REFERENCE DESIGNATION	IND	PART NAME AND DESCRIPTION	MFR CODE CAGE	MANUFACTURER PART NUMBER / PORTA RAY PART NUMBER	QTY/ ASSY	SECT. VII DRAWING
211	1A7P1	4	CONNECTOR, PLUG (4 PIN)	03612	G6F10-4PNE 385175		500512
212		4	PIN, MALE	03612	SM20ML-1TK6 385189		500512
213		4	CORD, 4 COND COIL	52179	24.0115PRC1207 400008		500512
214		4	RELIEF, STRAIN W/NUT (5/8)	2V082	3240 415017		500512
215	1W5	3	HARNES ASSY 1200	57362	500538 500538		500507
216		4	PIN, FEMALE (.062)	03612	SC16M-1TK6 385184		500538
217	1W5J2	4	CONNECTOR, SOCKET (4 PIN)	03612	G3B104SNE 385187		500538
218	1W5J3	4	CONNECTOR, SOCKET (8 PIN FEMALE)	03612	G3B1288SNE 385188		500538
219		4	PIN, FEMALE	03612	SC16ML-1TK6 385190		500538
220	1W5J4	4	CONNECTOR, (34 PIN EDGE S/H)	83830	345-034-500-202 385202		500538
221		4	WIRE, HOOK-UP PVC (WHT/22AWG)	57362	406009 406009		500538
222		4	WIRE, HOOK-UP PVC (WHT/16AWG)	57362	406037 406037		500538
223		4	TERMINAL, RING LUG (BLUE # 8)	57362	410003 410003		500538
224		4	TERMINAL, RING LUG (RED # 8)	57362	410002 410002		500538
225		4	TERMINAL, RING LUG (# 8)	57362	410006 410006		500538

Table 6-3. Major Assemblies Parts List, Model 1200 Portable X-Ray System (Continued)

ITEM NO.	REFERENCE DESIGNATION	IND	PART NAME AND DESCRIPTION	MFR CODE CAGE	MANUFACTURER PART NUMBER / PORTA RAY PART NUMBER	QTY/ ASSY	SECT. VII DRAWING
226		4	TERMINAL, FASTON (BLUE 1/4)	57362	410010 410010		500538
227		4	TERMINAL, RING LUG (YELLOW # 8)	57362	410018 410018		500538
228		4	BAR, SKID	57362	101903 101903		500538
229		4	WASHER, FLAT (#6)	57362	380501 380501		500538
230		4	SCREW, PHIL/PH (6-32 X 3/8)	57362	380514 380514		500538
231		4	WASHER, FLAT (#8)	57362	381001 381001		500538
232		4	SCREW, PHIL/PH (8-32 X 3/8)	57362	381006 381006		500538
233		4	SCREW, PHIL/PH (8-32 X 1)	57362	381022 381022		500538
234		4	CABLE ASSY, RIBBON 14 PIN, 7	57362	400059 400059		500538
235		4	CABLE ASSY, RIBBON 16 PIN 10	57362	400057 400057		500538
236	2	2	GENERATOR ASSEMBLY 1200	57632	500542 500542		500598
237	2A1	3	COLLIMATOR ASSEMBLY (MODIFIED)	57632	500591 500591		500542
238	2A1A1	4	COLLIMATOR, MANUAL (LONG BODY)	2X587	P180HS 201001		500591
239	2A1A1A1	5	TIMER PCB, COLLIMATOR ELECTRONIC	57632	201024 201024		500591
240	2A1A1A1R4	6	RESISTOR, (510 K 1/4W 5%)	57362	340103 340103		201024

Table 6-3. Major Assemblies Parts List, Model 1200 Portable X-Ray System (Continued)

ITEM NO.	REFERENCE DESIGNATION	IND	PART NAME AND DESCRIPTION	MFR CODE CAGE	MANUFACTURER / PORTA RAY PART NUMBER	QTY/ ASSY	SECT. VII DRAWING
241	2A1A1A1R5	6	RESISTOR, (2.2K 1/4W 5%)	44655	OK2225 340069		201024
242	2A1A1A1R3	6	RESISTOR, (100 OHM 1/4W 5%)	44655	OK1015 340029		201024
243	2A1A1A1R2	6	RESISTOR, (8.2 K 1/4W 5%)	57362	340061 340061		201024
244	2A1A1A1C3	6	CAPACITOR, (.047uf 50V EPOXY)	26769	CW20C473K 350031		201024
245	2A1A1A1C4,C5	6	CAPACITOR, (.1uf 50V EPOXY)	26769	CW20C104K 350032		201024
246	2A1A1A1C1	6	CAPACITOR, (220uf 50V)	57362	350036 350036		201024
247	2A1A1A1C2	6	CAPACITOR, (47uf 16V)	57362	355025 355025		201024
248	2A1A1A1CR2	6	DIODE, ZENER (1N758A)	7U176	1N758A 303016		201024
249	2A1A1A1CR1	6	RECTIFIER, BRIDGE (PCB MOUNT)	1B546	VE18X 306002		201024
250	2A1A1A1CR3	6	DIODE, (1N4005)	04713	1N4005 300002		201024
251	2A1A1A1Q1	6	TRANSISTOR, SIGNAL (2N3904)	04713	2N3904 310003		201024
252	2A1A1A1U1	6	IC, LINEAR (555)	04713	NE555V 330001		201024
253	2A1A1A1K1	6	RELAY	57362	378049 378049		201024
254		5	BASE, PLATE	57632	201049 201049		500591
255		5	REAR, PANEL	57632	201042 201042		500591

Table 6-3. Major Assemblies Parts List, Model 1200 Portable X-Ray System (Continued)

ITEM NO.	REFERENCE DESIGNATION	IND	PART NAME AND DESCRIPTION	MFR CODE CAGE	MANUFACTURER PART NUMBER / PORTA RAY PART NUMBER	QTY/ ASSY	SECT. VII DRAWING
256		5	SCREW, REAR PANEL	57632	201045 201045		500591
257		5	MASK, FIXED	57632	201050 201050		500591
258		5	PLATE, RING	57632	201052 201052		500591
259		5	DIAL, INDICATOR	57632	201053 201053		500591
260		5	DIAL, FLANGE	57632	201034 201034		500591
261		5	STOPPER	57632	201046 201046		500591
262		5	KNOB, DIAL	57632	201033 201033		500591
263		5	CROSS HAIR WINDOW	57632	201015 201015		500591
264		5	PLATE, FIXING	57632	201054 201054		500591
265		5	BASE, LEAD	57632	201055 201055		500591
266		5	CASE, HOUSING	57632	201044 201044		500591
267		5	RING, INNER	57632	201056 201056		500591
268		5	RING, OUTER	57632	201057 201057		500591
269		5	PANEL, FRONTAL	57632	201041 201041		500591
270		5	HOLDER, SWITCH	57632	201058 201058		500591

Table 6-3. Major Assemblies Parts List, Model 1200 Portable X-Ray System (Continued)

ITEM NO.	REFERENCE DESIGNATION	IND	PART NAME AND DESCRIPTION	MFR CODE CAGE	MANUFACTURER / PORTA RAY PART NUMBER	QTY/ ASSY	SECT. VII DRAWING
271		5	SWITCH, PUSHBUTTON	57632	201059 201059		500591
272		5	BUSHING	57632	201060 201060		500591
273		5	POWER CORD	57632	201061 201061		500591
274		5	BLADE 1 GATE R	57632	201062 201062		500591
275		5	BLADE 1 R	57632	201063 201063		500591
276		5	BLADE 2 HOLDER R	57632	201064 201064		500591
277		5	BLADE 2 R	57632	201065 201065		500591
278		5	BLADE 1 GATE L	57632	201066 201066		500591
279		5	BLADE 1 L	57632	201067 201067		500591
280		5	BLADE 2 HOLDER L	57632	201068 201068		500591
281		5	BLADE 2 L	57632	201069 201069		500591
282		5	PIN, DRIVING	57632	201070 201070		500591
283		5	GATE SCREW R	57632	201071 201071		500591
284		5	GATE SCREW L	57632	201072 201072		500591
285		5	BLADE HOLDER	57632	201073 201073		500591

Table 6-3. Major Assemblies Parts List, Model 1200 Portable X-Ray System (Continued)

ITEM NO.	REFERENCE DESIGNATION	IND	PART NAME AND DESCRIPTION	MFR CODE CAGE	MANUFACTURER PART NUMBER / PORTA RAY PART NUMBER	QTY/ ASSY	SECT. VII DRAWING
286		5	BEARING STAND C.F.	57632	201074 201074		500591
287		5	GEAR, C-R	57632	201075 201075		500591
288		5	SHAFT C	57632	201076 201076		500591
289		5	DRIVING ARM	57632	201077 201077		500591
290		5	PLATE, STOPER	57632	201078 201078		500591
291		5	GEAR, C-RL	57632	201079 201079		500591
292		5	BEARING STAND HCG	57632	201080 201080		500591
293		5	GEAR, C-RL	57632	201081 201081		500591
294		5	SHAFT G	57632	201082 201082		500591
295		5	SHAFT H	57632	201083 201083		500591
296		5	BUSHING G	57632	201084 201084		500591
297		5	GEAR F	57632	201085 201085		500591
298		5	GEAR G	57632	201086 201086		500591
299		5	GEAR H	57632	201087 201087		500591
300		5	SPACER, BEARING R	57632	201088 201088		500591

Table 6-3. Major Assemblies Parts List, Model 1200 Portable X-Ray System (Continued)

ITEM NO.	REFERENCE DESIGNATION	IND	PART NAME AND DESCRIPTION	MFR CODE CAGE	MANUFACTURER PART NUMBER /PORTA RAY PART NUMBER	QTY/ ASSY	SECT. VII DRAWING
301		5	SPACER, BEARING L	57632	201089 201089		500591
302		5	BASE, LAMP	57632	201090 201090		500591
303		5	MOVEABLE BASE, LAMP	57632	201091 201091		500591
304		5	SLIT	57632	201092 201092		500591
305		5	COVER PLATE, LAMP	57632	201093 201093		500591
306		5	SLIDING BLOCK A	57632	201094 201094		500591
307		5	SLIDING BLOCK B	57632	201095 201095		500591
308		5	ADJUST BOLT, LAMP	57632	201096 201096		500591
309		5	PIN, GUIDE	57632	201097 201097		500591
310		5	MIRROR SUPPORT A	57632	201098 201098		500591
311		5	HOLDER, MIRROR	57632	201051 201051		500591
312		5	BRAKE A	57632	201099 201099		500591
313		5	BRAKE B	57632	201100 201100		500591
314		5	PLATE, TERMINAL	57632	201101 201101		500591
315		5	MIRROR	57632	201048 201048		500591

Table 6-3. Major Assemblies Parts List, Model 1200 Portable X-Ray System (Continued)

ITEM NO.	REFERENCE DESIGNATION	IND	PART NAME AND DESCRIPTION	MFR CODE CAGE	MANUFACTURER / PORTA RAY PART NUMBER	QTY/ ASSY	SECT. VII DRAWING
316		5	SPACER, LAMP BASE	57632	201102 201102		500591
317	2A1A1DS1	5	LAMP, HALOGEN	57632	201007 201007		500591
318		5	SOCKET, LAMP HALOGEN	57632	201103 201103		500591
319		5	WASHER, WAVE	57632	201104 201104		500591
320		5	TERMINAL BLOCK	57632	201105 201105		500591
321		5	ASBESTOS	57632	201106 201106		500591
322		4	FLANGE, ADAPTER REWORK	57632	101928 101928		500591
323		4	TAPE, ADHESIVE DOUBLE BACKED	57632	101954 101954		500591
324		4	LABEL, COMPLIANCE (COLLIMATOR)	57632	101686 101686		500591
325		4	TAPE, MEASURE (COLLIMATOR)	57632	218001 218001		500591
326		4	GAUGE, LEV-C, COLLIMATOR	SUN CO	201F 303-424-4651 218003		500591
327	2A1A1P1	4	CONNECTOR, PLUG (4 PIN)	03612	G6F10-4PNE 385175		500591
328		4	PIN, MALE (.062)	03612	SM16ML-1TK6 385183		500591
329	2A2	3	TUBE HEAD ASSEMBLY (MODEL 1200)	57362	500541 500541		500542
330	2A2A1	4	TRANSFORMER ASSEMBLY, H.V.	57362	500540 500540		500541

Table 6-3. Major Assemblies Parts List, Model 1200 Portable X-Ray System (Continued)

ITEM NO.	REFERENCE DESIGNATION	IND	PART NAME AND DESCRIPTION	MFR CODE CAGE	MANUFACTURER PART NUMBER /PORTA RAY PART NUMBER	QTY/ ASSY	SECT. VII DRAWING
331	2A2A1J1	5	CONNECTOR ASSEMBLY, HEADER (8 PIN)	57362	500576 500576		500540
332		6	FLANGE SEAL, HEADER	57362	100069 100069		500576
333		6	O-RING, 1/8 X 2	APEX	75224 214003		500576
334		6	CONNECTOR, HEADER (8 PIN)	06229	125SFR-90WRP-0S8 385211		500576
335		5	SPACER, CORE LIMIT	57362	101551 101551		500540
336		5	CRADLE, FILAMENT TRANSFORMER	57362	101556 101556		500540
337		5	INSULATOR, UPPER RAIL, ANODE	57362	101557 101557		500540
338		5	INSULATOR, LOWER RAIL	57362	101558 101558		500540
339		5	INSULATOR, UPPER RAIL, CATHODE	57362	101559 101559		500540
340		5	TUBE BED (MODEL 1200)	57362	101560 101560		500540
341		5	BAR, BRIDGE SUPPORT	57362	101777 101777		500540
342		5	MOUNT, ANODE	57362	101778 101778		500540
343		5	BLOCK, BRIDGE	57362	101780 101780		500540
344		5	PAPER, INSULATING CREPE (4	SSR	INSULFLEX GRADE 510, SHEETS 100523		500540
345		5	PAPER, INSULATING CREPE 6W 3ID/10OD SSR	SSR	INSULFLEX GRADE 510 217179		500540

Table 6-3. Major Assemblies Parts List, Model 1200 Portable X-Ray System (Continued)

ITEM NO.	REFERENCE DESIGNATION	IND	PART NAME AND DESCRIPTION	MFR CODE CAGE	MANUFACTURER PART NUMBER / PORTA RAY PART NUMBER	QTY/ ASSY	SECT. VII DRAWING
346		5	INSULATION, FLEXABLE LEAD 1/4	SSR	FLEX-CON 1 GRADE 35, 1/16 WALL 217180		500540
347	2A2A1DS1	5	X-RAY TUBE, SXR-100GE	8Z637	12-300010 201029		500540
348	2A2A1A1,A2	5	BRIDGE, ASSEMBLY FULL WAVE C/TAP	1AA44	CS4483A1 306015		500540
349	2A2A1T2	5	TRANSFORMER FILAMENT	62317	CB2153 360071		500540
350	2A2A1T1	5	TRANSFORMER, HIGH VOLTAGE	1B546	171105 360065		500540
351		5	WASHER, SPLIT (#6)	57362	380502 380502		500540
352		5	SCREW, PHIL/FH (6-32 X 3/4)	57362	380504 380504		500540
353		5	SCREW, PHIL/PH (6-32 X 3/8)	57362	380514 380514		500540
354		5	SCREW, PHIL/FH (6-32 X 3/8)	57362	380521 380521		500540
355		5	HEXNUT, 8-32	57362	381000 381000		500540
356		5	WASHER, SPLIT (#8)	57362	381002 381002		500540
357		5	SCREW, PHIL/FH (8-32 X 3/8)	57362	381009 381009		500540
358		5	NUT, CAP (10-32)	57362	381507 381507		500540
359		5	SCREW, SS PHIL/PH (10-32 X 2-1/4)	57362	381555 381555		500540
360		5	SCREW, NYLON PHIL/PH (8-32 X 3/8)	57362	383034 383034		500540

Table 6-3. Major Assemblies Parts List, Model 1200 Portable X-Ray System (Continued)

ITEM NO.	REFERENCE DESIGNATION	IND	PART NAME AND DESCRIPTION	MFR CODE CAGE	MANUFACTURER PART NUMBER / PORTA RAY PART NUMBER	QTY / ASSY	SECT. VII DRAWING
361		5	TIE, CABLE 824	57362	415013 415013		500540
362		4	CAN WELDMENT, HIGH VOLTAGE 1200	57362	800251 800251		500541
363		4	RETAINER, BELLOWS	57362	100044 100044		500541
364		4	BELLOWS, 9150/60/70/80	8H134	100050 100050		500541
365		4	PLATE, BELLOWS RETAINER	57362	100530 100530		500541
366		4	BOLT, RETAINER	57362	101552 101552		500541
367		4	PLATE, NUT	57362	101576 101576		500541
368		4	PLATE, COVER	57362	101577 101577		500541
369		4	COVER, BRACKET	57362	101578 101578		500541
370		4	NUT BAR, CHASSIS	57362	101579 101579		500541
371		4	GASKET, FORMED	57362	101881 101881		500541
372		4	OIL, TRANSFORMER INSULATING	8C978	N-61 384501		500541
373		4	WASHER, SPLIT (#6)	57362	380502 380502		500541
374		4	SCREW, PHIL/FH (6-32 X 1/4)	57362	380510 380510		500541
375		4	SCREW, PHIL/FH (8-32 1/2 100 DEG)	57362	381046 381046		500541

Table 6-3. Major Assemblies Parts List, Model 1200 Portable X-Ray System (Continued)

ITEM NO.	REFERENCE DESIGNATION	IND	PART NAME AND DESCRIPTION	MFR CODE CAGE	MANUFACTURER / PORTA RAY PART NUMBER	PART NUMBER	QTY / ASSY	SECT. VII DRAWING
376		4	WASHER, SPLIT (1/4)	57362	382002	382002		500541
377		4	SCREW, HEX (1/4-20 X 1/2)	57362	382007	382007		500541
378		4	BOLT, HEX HEAD (3/8-16 X 1/2)	57362	382511	382511		500541
379		4	WASHER, FLAT 3/8 ID X 5/8 OD	57632	383119	383119		500541
380	2A3	3	YOKE ASSEMBLY 1200	57362	500585	500585		500542
381		4	PLATE, FRICTION	57362	101608	101608		500585
6-3 382		4	PLATE, WEAR	57362	101618	101618		500585
383		4	DISC, FRICTION (YOKE ASSEMBLY)	57362	101620	101620		500585
384		4	HUB, ROTATION (YOKE ASSEMBLY)	57362	101926	101926		500585
385		4	PIVOT, SUPPORT 1200	57362	101873	101873		500585
386		4	SUPPORT, YOKE	57362	101874	101874		500585
387		4	FRAME, YOKE 1200	57362	101875	101875		500585
388		4	BEARING, SLEEVE (.625ID 3/4L)	57362	101927	101927		500585
389		4	BUTTON, LATCHING	57362	101968	101968		500585
390		4	BEARING, SLEEVE (1.503ID 7/8L)	44655	AA-1704-4	216030		500585

Table 6-3. Major Assemblies Parts List, Model 1200 Portable X-Ray System (Continued)

ITEM NO.	REFERENCE DESIGNATION	IND	PART NAME AND DESCRIPTION	MFR CODE CAGE	MANUFACTURER PART NUMBER / PORTA RAY PART NUMBER	QTY/ ASSY	SECT. VII DRAWING
391		4	BEARING, FLANGED (.751ID 3/4L)	44655	FF838-3 216032		500585
392		4	WIRE, LANYARD	62060	LW1023-4-600 218058		500585
393		4	SCREW, PHIL/HD (2-56 X 1/4)	57362	380012 380012		500503
394		4	SCREW, SH/CAP (6-32 X 1/2)	57362	380537 380537		500585
395		4	SCREW, PHIL/FH (8-32 X 1/2)	57362	381015 381015		500585
396		4	SCREW, PHIL/FH (1/4-28 X 1/2)	57362	382045 382045		500585
397		4	BOLT, STRIPPER (3/4D X 4.0L)	3A054	91259A851 383110		500585
398		4	PIN, SAFTY SNAP	3A054	98416A018 383581		500585
399		4	PIN, SPRING (1/8 X 1/4)	57362	383583 383583		500585
400	2A4	3	CHASSIS, GENERATOR, ASSEMBLY 1200	57362	500588 500588		500542
401	2A4A1	4	PC BOARD ASSY FILIMENT CONT. 1200	57362	500584 500584		500588
402		5	PC BOARD FILIMENT CONT. 1200	57362	101880 101880		500584
403		5	HEATSINK, BOARD MOUNT	13103	6078B 218011		500584
404	2A4A1CR3-CR4	5	DIODE, (1N4148)	7U176	1N4148 300001		500584
405	2A4A1CR1-CR2	5	DIODE, (1N4005)	04713	1N4005 300002		500584

Table 6-3. Major Assemblies Parts List, Model 1200 Portable X-Ray System (Continued)

ITEM NO.	REFERENCE DESIGNATION	IND	PART NAME AND DESCRIPTION	MFR CODE CAGE	MANUFACTURER PART NUMBER / PORTA RAY PART NUMBER	QTY/ ASSY	SECT. VII DRAWING
406	2A4A1CR5,CR7	5	DIODE, ZENER 14V (1N5224)	04713	1N5224 303007		500584
407	2A4A1CR6,CR8	5	DIODE, ZENER 36V 5W (1N5365)	04713	1N5365 303015		500584
408	2A4A1BR2	5	RECTIFIER, BRIDGE (PCB MOUNT)	1B546	VE18X 306002		500584
409	2A4A1BR1	5	BRIDGE RECTIFIER, (6 AMP)	1B546	VH048 306016		500584
410	2A4A1Q1,Q2	5	TRANSISTOR, SIGNAL (2N3904)	04713	2N3904 310003		500584
411	2A4A1Q3,Q4	5	MOSFET, 6V	04713	IRF511 315005		500584
412	2A4A1VR1	5	VOLTAGE REGULATOR, (+5VDC)	04713	MC7805C 330009		500584
413	2A4A1U1-2,U6-8	5	IC, LINEAR (H11A1GE)	04713	H11A1GE 335047		500584
414	2A4A1U5	5	IC, (LINEAR AD654)	24355	AD654JN 330019		500584
415	2A4A1U3	5	IC, DIGITAL (74LS00)	7U176	SN74LS00N 335007		500584
416	2A4A1U4	5	IC, DIGITAL (74LS04)	7U176	SN74LS04N 335008		500584
417	2A4A1R19,R20	5	RESISTOR, (10K 1/4W 5%)	44655	OK1035 340001		500584
418	2A4A1R1,R9,R10,R2,R6	5	RESISTOR, (1K 1/4W 5%)	44655	OK1025 340014		500584
419	2A4A1R3	5	RESISTOR, (43K 1/4W 5%)	44655	OK4335 340015		500584
420	2A4A1R7,R8	5	RESISTOR, (220 OHM 1/4W 5%)	57362	340045 340045		500584

Table 6-3. Major Assemblies Parts List, Model 1200 Portable X-Ray System (Continued)

ITEM NO.	REFERENCE DESIGNATION	IND	PART NAME AND DESCRIPTION	MFR CODE CAGE	MANUFACTURER / PORTA RAY PART NUMBER	QTY/ ASSY	SECT. VII DRAWING
421	2A4A1R18	5	RESISTOR, (270OHM 1/2W 5%)	57362	OE27165 340155		500584
422	2A4A1R14	5	RESISTOR, (2.43K 1/4W 1%)	57362	340153 340153		500584
423	2A4A1R15-R17	5	POTENTIOMETER, (2K 1W MULT WW)	80353	3250W-1-202 345054		500584
424	2A4A1R4	5	POTENTIOMETER, (10K 2W MULT)	20772	67F5830 345046		500584
425	2A4A1C1	5	CAPACITOR, (.01uf 50V EPOXY)	26769	CW15C103M 350030		500584
426	2A4A1C3-C5	5	CAPACITOR, (.1uf 50V EPOXY)	26769	CW20C104K 350032		500584
427	2A4A1C2	5	CAPACITOR, (100uf 25V TANT)	37942	TLS107M025C1B 355030		500584
428	2A4A1C6,C7	5	CAPACITOR, (4.7uf 50V TANT)	31433	T322D475K050AS 355039		500584
429		5	SCREW, PHIL/PH (4-40 X 1/4)	57362	380010 380010		500584
430		5	HEXNUT, 4-40	57362	380000 380000		500584
431		5	SOCKET, IC (6 PIN)	06776	ICO-063-S8T 385165		500584
432		5	SOCKET, IC (14 PIN)	06776	ICO-143-S8T 385048		500584
433		5	SOCKET, IC (8 PIN)	06776	ICO-083-S8T 385047		500584
434	2A4A1TB1	5	TERMINAL, STRIP (PC MOUNT-12)	06229	25.100.1253 420011		500584
435	2A4A1TB2	5	TERMINAL, STRIP (4 POS PC MOUNT)	06229	25.135.0453 420012		500584

Table 6-3. Major Assemblies Parts List, Model 1200 Portable X-Ray System (Continued)

ITEM NO.	REFERENCE DESIGNATION	IND	PART NAME AND DESCRIPTION	MFR CODE CAGE	MANUFACTURER PART NUMBER / PORTA RAY PART NUMBER	QTY/ ASSY	SECT. VII DRAWING
436	2A4A2	4	HARNES, CHASSIS, ASSEMBLY 1200	57362	500589 500589		500588
437	2A4J2	5	CONNECTOR, SOCKET (4 PIN)	03612	G7B10-4SNE 385182		500589
438		5	PIN, MALE (.062)	03612	SM16ML-1TK6 385183		500589
439		5	PIN, FEMALE (.062)	03612	SC16ML-1TK6 385184		500589
440		5	PIN, MALE	03612	SM20ML-1TK6 385189		500589
441	2A4J1	5	CONNECTOR, SOCKET (8 PIN)	03612	G7B1288SNE 385212		500589
442	2A4J3	5	CONNECTOR, 8-PIN OCTAL SOCKET	74868	78-S8 385214		500589
443		5	WIRE, HOOK-UP PVC (WHT/22AWG)	57362	406009 406009		500589
444		5	WIRE, HOOK-UP PVC (WHT/16AWG)	57362	406037 406037		500589
445		5	TERMINAL, RING LUG (RED # 8)	57362	410007 410007		500589
446		5	TERMINAL, RING LUG (BLUE #10)	57362	410027 410027		500589
447	2A4A3	4	CHASSIS MODEL 1200	57362	101898 101898		500588
448		4	INSULATOR, PAD, TO-3	5T436	SPI-1104-06-02 209001		500588
449		4	RIVET, POP	44655	AA42 219010		500588
450	2A4U1	4	POWER SUPPLY, I.C. LINEAR	27014	LM350 330021		500588

Table 6-3. Major Assemblies Parts List, Model 1200 Portable X-Ray System (Continued)

ITEM NO.	REFERENCE DESIGNATION	IND	PART NAME AND DESCRIPTION	MFR CODE CAGE	MANUFACTURER PART NUMBER / PORTA RAY PART NUMBER	QTY/ ASSY	SECT. VII DRAWING
451	2A4C1	4	CAPACITOR (1000 uF, 50VDC)	37942	CGR102V050R1N 355037		500588
452		4	BRACKET, CAPACITOR MOUNT	37942	VR38 355038		500588
453		4	NUT, HEX (6-32)	57362	380500 380500		500588
454		4	WASHER, FLAT (#6)	57362	380501 380501		500588
455		4	WASHER, SPLIT (#6)	57362	380502 380502		500588
456		4	SCREW, PHIL/FH (6-32 X 1/4)	57362	380510 380510		500588
457		4	SCREW, PHIL/PH (6-32 X 3/8)	57362	380514 380514		500588
458		4	WASHER, EXTERNAL STAR (#6)	57362	380528 380528		500588
459		4	SCREW, PAN HD TAPPING (#6-32 X 1/2)	57362	383044 383044		500588
460		4	SOCKET, TRANSISTOR	91833	4601K-MD 385213		500588
461		3	COVER, GENERATOR FRONT (1200)	57362	800243 800243		500542
462		3	COVER, GENERATOR REAR (1200)	57362	800244 800244		500542
463		3	RETAINER, COVER 1200	57362	101593 101593		500542
464		3	BLOCK, MOUNTING	57362	101581 101581		500542
465		3	PLATE, TRANSITION	57362	101582 101582		500542

Table 6-3. Major Assemblies Parts List, Model 1200 Portable X-Ray System (Continued)

ITEM NO.	REFERENCE DESIGNATION	IND	PART NAME AND DESCRIPTION	MFR CODE CAGE	MANUFACTURER PART NUMBER /PORTA RAY PART NUMBER	QTY/ ASSY	SECT. VII DRAWING
466		3	RETAINER, CROWN	57362	101920 101920		500542
467		3	RETAINER, PIVOT	57362	101902 101902		500542
468		3	PAD, FRICTION (YOKE ASSEMBLY)	57362	101617 101617		500542
469		3	SHAFT, PIVOT	57362	101621 101621		500542
470		3	LABEL, X-RAY TUBE	57362	101684 101684		500542
471		3	SHEILD, LEAD GENERATOR	57362	101966 101966		500542
472		3	SHEILD, LEAD, HEAD	57362	101967 101967		500542
473		3	NAMEPLATE MODEL 1200	57362	101882 101882		500542
474		3	WASHER, FRICTION (YOKE ASSEMBLY)	57362	216051 216051		500542
475		3	WASHER, FLAT (#6)	57362	380501 380501		500542
476		3	SCREW, PHIL/FH (8-32 X 3/8)	57362	381009 381009		500542
477		3	SCREW, PHIL/FH (6-32 X 1/4)	57362	380510 380510		500542
478		3	SCREW, PHIL/FH (8-32 X 3/8)	57362	381009 381009		500542
479		3	SCREW, PHIL/FH (8-32 X 5/16)	57362	381018 381018		500542
480		3	NUT, HEX (10-32)	57362	381500 381500		500542

Table 6-3. Major Assemblies Parts List, Model 1200 Portable X-Ray System (Continued)

ITEM NO.	REFERENCE DESIGNATION	IND	PART NAME AND DESCRIPTION	MFR CODE CAGE	MANUFACTURER PART NUMBER / PORTA RAY PART NUMBER	QTY/ ASSY	SECT. VII DRAWING
481		3	WASHER, FLAT (#10)	57362	381501 381501		500542
482		3	SCREW, PHIL/PH (10-32 X 5/8)	57362	381537 381537		500542
483		3	NUT, HEX (1/4-20)	57362	382000 382000		500542
484		3	SCREW, STN.STL PH/FH (1/4-20 X 1/2)	57632	382060 382060		500542
485		3	SCREW, DRIVE (#4 X 1/8 TYPE U RND)	57362	383118 383118		500542
486	3	2	STAND ASSEMBLY MODEL 1200	57362	500592 500592		500598
487	3A1	3	FRAME ASSEMBLY, STAND MODEL 1200	57362	500593 500593		500592
488		4	FRAME ASSEMBLY, WELDMENT	57362	800262 800262		500593
489		4	LEG ASSEMBLY, FRONT	57362	500601 500601		500593
490		5	LEG, FRONT WELDMENT	57362	800254 800254		500601
491		5	SUPPORT, WELDMENT FRONT LEG	57362	800263 800263		500601
492		5	HUB, VERTICAL	57362	101864 101864		500601
493		5	VERTICAL SHAFT, FRONT WHEEL	57362	101865 101865		500601
494		5	PIN, PIVOT	57362	101951 101951		500601
495		5	CASTER, RHOMBUS 4	RHOMBU	367A32C100BZLD 211013		500601

Table 6-3. Major Assemblies Parts List, Model 1200 Portable X-Ray System (Continued)

ITEM NO.	REFERENCE DESIGNATION	IND	PART NAME AND DESCRIPTION	MFR CODE CAGE	MANUFACTURER PART NUMBER / PORTA RAY PART NUMBER	QTY/ ASSY	SECT. VII DRAWING
496		5	MOUNT, BALL STUD	9R076	P116-27 218055		500601
497		5	WIRE, LANYARD	62060	LW1023-4-600 218058		500601
498		5	RING, RETAINING EXT. 1/4	57632	219003 219003		500601
499		5	WASHER, FLAT (#8)	57362	381001 381001		500601
500		5	SCREW, PHIL/PH (8-32 X 1/4)	57362	381019 381019		500601
501		5	SCREW, PHIL/PH (1/4-20 X 1)	57362	382025 382025		500601
502		5	PIN, QUICK RELEASE	62060	LG4CR1310 383597		500601
503		4	CRADLE, SIDE BAR	57362	101856 101856		500593
504		4	NAMEPLATE MODEL 1200	57362	101882 101882		500593
505		4	SOCKET, CONTROL MOUNT	57362	101889 101889		500593
506		4	HUB, SOCKET	57362	101892 101892		500593
507		4	HUB, TRANSPORT	57362	101907 101907		500593
508		4	LOCK NUT, WHEEL	57362	101915 101915		500593
509		4	LIMITER, CORNNER	57362	101918 101918		500593
510		4	HOLDER, SLIDE ARM	57362	101923 101923		500593

Table 6-3. Major Assemblies Parts List, Model 1200 Portable X-Ray System (Continued)

ITEM NO.	REFERENCE DESIGNATION	IND	PART NAME AND DESCRIPTION	MFR CODE CAGE	MANUFACTURER PART NUMBER / PORTA RAY PART NUMBER	QTY/ ASSY	SECT. VII DRAWING
511		4	CATCH BRACKET, GENERATOR	57362	101942 101942		500593
512		4	HOLDER, SHORT UPPER TUBE	57362	101950 101950		500593
513		4	SLEEVE, WHEEL	57362	101952 101952		500593
514		4	SPACER, WHEEL	57362	101953 101953		500593
515		4	HANDLE, TOGGLE CLAMP	DESTCO 604	210032		500593
516		4	WHEEL, RHOMBUS 10	RHOMBU 07R250W-25 211014			500593
517		4	PLUNGER, SPRING	VLIER SLR500 218054			500593
518		4	RECEIVER, BALL STUD	9R076	C1663-031-4 218056		500593
519		4	LEVELING GLIDE T-418	GABRIL T418-5/16-18-1 1/2 218057			500593
520		4	HOOK, FENDER (NICKEL PLATED)	WIL-CR 257-CP 218060			500593
521		4	RIVET, POP	44655	AA42 219010		500593
522		4	RIVET, POP 3/16D X 3/4 GRP	57362	219013 219013		500593
523		4	SCREW, PHIL/FH UNDERCUT (6-32 X .5)	57362	380539 380539		500593
524		4	SCREW, SOCKET HEAD (8-32 X 3/4) SS	57362	380470 381047		500593
525		4	SCREW, SOCKET HEAD (8-32 X 1) SS	57362	381048 381048		500593

Table 6-3. Major Assemblies Parts List, Model 1200 Portable X-Ray System (Continued)

ITEM NO.	REFERENCE DESIGNATION	IND	PART NAME AND DESCRIPTION	MFR CODE CAGE	MANUFACTURER PART NUMBER / PORTA RAY PART NUMBER	QTY/ ASSY	SECT. VII DRAWING
526		4	SCREW, SH/CAP (10-32 X 1 1/8)	57362	381533 381533		500593
527		4	SCREW, SET (1/4-20 X 1/2) SS CUP PT	57362	382036 382036		500593
528		4	SCREW, SH/CAP (1/4-20 X 1 1/2)	57362	382055 382055		500593
529		4	WASHER, FLAT (3/8, 7/8 OD)	57362	382501 382501		500593
530		4	NUT, HEX (5/16-18)	57362	382545 382545		500593
531		4	BOLT, SOC HEAD CAP 3/8-24 X 1.5 SS	57362	382562 382562		500593
532		4	NUT, LOCKING THIN 5/8 OD (3/8-24)	57362	382564 382564		500593
533		4	BOLT, SHOULDER 1/2-13	4J007	7565627 383120		500593
534	3A2	3	CROSS ARM ASSEMBLY, STAND	57362	500590 500590		500592
535		4	CROSS ARM	57362	101897 101897		500590
536		4	HANDLE, TAPERED (BLACK)	01599	BTH-5 210031		500590
537		4	CAP, PLASTIC (1.25 X 2)	99017	RET-1-1/4 X 2 214044		500590
538		4	STOP, RUBBER	57362	214045 214045		500590
539		4	SCREW, PANHEAD S.S. (3/8-16 X 2.5)	57362	382561 382561		500590
540	3A3	3	GEAR BOX ASSEMBLY (MODEL 1200)	57362	500581 500581		500592

Table 6-3. Major Assemblies Parts List, Model 1200 Portable X-Ray System (Continued)

ITEM NO.	REFERENCE DESIGNATION	IND	PART NAME AND DESCRIPTION	MFR CODE CAGE	MANUFACTURER PART NUMBER / PORTA RAY PART NUMBER	QTY/ ASSY	SECT. VII DRAWING
541		4	SHAFT ASSEMBLY, WORM GEAR	57362	500603 500603		500581
542		5	SHAFT, WORM GEAR	57362	101829 101829		500603
543		5	BLOCK, FRONT MOUNT	57362	101846 101846		500603
544		5	BUSHING, FRONT BLOCK	57362	101944 101944		500603
545		4	WASHER, THRUST	57362	101947 101947		500581
546		4	GEAR, BEVEL	57632	215008 215008		500581
547		4	SPRING PIN, SS 3/32D X 5/8L	57362	383596 383596		500581
548		4	CRANK, HANDLE ASSEMBLY	57362	500599 500599		500581
549		5	CRANK ARM (GEAR BOX)	57362	101913 101913		500599
550		5	HOUSING, PIVOT	57362	101937 101937		500599
551		5	HANDLE, CRANK	57362	101938 101938		500599
552		5	PIN, LOCK	57362	101939 101939		500599
553		5	SHAFT, MAIN	57362	101940 101940		500599
554		5	SCREW, ADJUSTMENT	57362	101941 101941		500599
555		5	PIN, SPRING (5/32 DIA)	96652	20-076 383595		500599

Table 6-3. Major Assemblies Parts List, Model 1200 Portable X-Ray System (Continued)

ITEM NO.	REFERENCE DESIGNATION	IND	PART NAME AND DESCRIPTION	MFR CODE CAGE	MANUFACTURER PART NUMBER / PORTA RAY PART NUMBER	QTY/ ASSY	SECT. VII DRAWING
556		5	SPRING, COMPRESSION	84830	LC-029E-13 M/W 213029		500599
557		5	SCREW, SET (1/4-20 X 1/4)	57362	382005 382005		500599
558		5	PIN, SPRING (1/16 X 1/4LG SS)	57362	383598 383598		500599
559		4	COVER, CRANK ASSEMBLY	57362	800253 800253		500581
560	3A3A1	4	CLUSTER, GEAR ASSEMBLY	57362	101827 101827		500581
561	3A3A2	4	CLUSTER, GEAR RACK	57362	101828 101828		500581
562	3A3A3	4	GEAR, CRANK HANDLE	57362	101830 101830		500581
563		4	BLOCK, SETUP	57362	101831 101831		500581
564	3A3A5	4	SPACER, RACK CLUSTER	57362	101834 101834		500581
565	3A3A6	4	WASHER, RACK CLUSTER	57362	101835 101835		500581
566	3A3A7	4	SHAFT, RACK CLUSTER	57362	101836 101836		500581
567		4	WASHER, CROSS ARM ROLLER	57362	101837 101837		500581
568		4	ROLLER, CROSS ARM	57362	101838 101838		500581
569		4	SHAFT, CROSS ARM ROLLER	57362	101839 101839		500581
570		4	HUB, CRANK	57362	101841 101841		500581

Table 6-3. Major Assemblies Parts List, Model 1200 Portable X-Ray System (Continued)

ITEM NO.	REFERENCE DESIGNATION	IND	PART NAME AND DESCRIPTION	MFR CODE CAGE	MANUFACTURER PART NUMBER /PORTA RAY PART NUMBER	QTY/ ASSY	SECT. VII DRAWING
571		4	BRACKET, CROSS	57362	101842 101842		500581
572	3A3A8	4	SHAFT, GEAR/BRAKE	57362	101843 101843		500581
573		4	SHAFT, VERTICAL ROLLER	57362	101844 101844		500581
574		4	BLOCK, REAR MOUNT	57362	101845 101845		500581
575		4	PLATE, SIDE, CRANK	57362	101847 101847		500581
576		4	PLATE, SIDE	57362	101848 101848		500581
577		4	COVER, TOP	57362	101849 101849		500581
578		4	COVER, SIDE	57362	101850 101850		500581
579		4	ROLLER, VERTICAL GUIDE	57362	101853 101853		500581
580		4	COVER, BOTTOM	57362	101872 101872		500581
581		4	BAR, SPRING	57362	101876 101876		500581
582		4	CAM, CROSS ARM BRAKE	57362	101877 101877		500581
583		4	HANDLE, CROSS ARM BRAKE	57362	101878 101878		500581
584		4	BUSHING, GEAR CLUSTER	57362	101910 101910		500581
585		4	BUSHING, CRANK HANDLE	57362	101924 101924		500581

Table 6-3. Major Assemblies Parts List, Model 1200 Portable X-Ray System (Continued)

ITEM NO.	REFERENCE DESIGNATION	IND	PART NAME AND DESCRIPTION	MFR CODE CAGE	MANUFACTURER PART NUMBER / PORTA RAY PART NUMBER	QTY/ ASSY	SECT. VII DRAWING
586		4	SPACER, VERTICAL ROLLER	57362	101925 101925		500581
587		4	WASHER LARGE, CRANK GEAR	57362	101929 101929		500581
588		4	BUSHING, INSIDE CRANK GEAR	57362	101930 101930		500581
589		4	WASHER, WEAR	57362	101931 101931		500581
590		4	SPACER, CROSS ARM BRAKE	57362	101934 101934		500581
591		4	GUIDE, CROSS ARM	57362	101935 101935		500581
592		4	BLOCK, CENTERING	57362	101943 101943		500581
593		4	BUSHING, REAR BLOCK	57362	101945 101945		500581
594		4	TIRE, CROSS ARM BRAKE	57362	101946 101946		500581
595		4	ANCHOR, SPRING	3A054	9634K11 213001		500581
596		4	SPRING, EXTERNAL	84830	LE045D-3MW 213003		500581
597		4	BUSHING, M-LINER	37062	DRML-1012 216040		500581
598		4	BEARING, RADIAL	2P882	16622 216042		500581
599		4	BEARING, OUTER RING	MCGILL	MR12N 216043		500581
600		4	BEARING, INNER RING	MCGILL	MI-9-N 216044		500581

Table 6-3. Major Assemblies Parts List, Model 1200 Portable X-Ray System (Continued)

ITEM NO.	REFERENCE DESIGNATION	IND	PART NAME AND DESCRIPTION	MFR CODE CAGE	MANUFACTURER PART NUMBER / PORTA RAY PART NUMBER	QTY/ ASSY	SECT. VII DRAWING
601		4	BEARING, THRUST	29440	B5-5-SS 216048		500581
602		4	HOOK	57362	218015 218015		500581
603		4	HOLDER, CLIP	57362	218059 218059		500581
604		4	RETAINING RING, EXTERNAL 1/2	97464	3100-50 219001		500581
605		4	WASHER, FLAT (#6)	57362	380501 380501		500581
606		4	SCREW, PHIL/FH (6-32 X 1/2)	57362	380507 380507		500581
607		4	SCREW, PHIL/FH (6-32 X 1/4)	57362	380510 380510		500581
608		4	SCREW, PHIL/FH (6-32 1/4 100DEG)	57362	380538 380538		500581
609		4	WASHER, FLAT (#8)	57362	381001 381001		500581
610		4	WASHER, SPLIT (#8)	57362	381002 381002		500581
611		4	SCREW, PHIL/FH (8-32 X 3/8)	57362	381006 381006		500581
612		4	SCREW, PHIL/FH (8-32 X 3/8)	57362	381009 381009		500581
613		4	SCREW, PHIL/FH (8-32 1/2 100 DEG)	57362	381046 381046		500581
614		4	WASHER, FLAT (1/4	57362	382001 382001		500581
615		4	SCREW, HEX (1/4-20 X 1/2)	57362	382007 382007		500581

Table 6-3. Major Assemblies Parts List, Model 1200 Portable X-Ray System (Continued)

ITEM NO.	REFERENCE DESIGNATION	IND	PART NAME AND DESCRIPTION	MFR CODE CAGE	MANUFACTURER PART NUMBER / PORTA RAY PART NUMBER	QTY/ ASSY	SECT. VII DRAWING
616		4	SCREW, FH/SOCK (1/4-20 X 1/2)	57362	382026 382026		500581
617	3A4	3	PIPE ASSEMBLY 1200	57362	500586 500586		500592
618		4	PIPE ASSEMBLY, INTERMEDIATE	57362	500600 500600		500586
619		5	GUIDE, DRAW ROD	57362	101796 101796		500600
620		5	PIN, LOCK GUIDE	57362	101799 101799		500600
621		5	SUPPORT, BOTTOM	57362	101814 101814		500600
622		5	PIN, ALIGNMENT	57362	101800 101800		500600
623		5	TIE BAR, UPPER	57362	101801 101801		500600
624		5	TIE BAR, LOWER	57362	101802 101802		500600
625		5	GEAR RACK, UPPER	57632	101803 101803		500600
626		5	TUBE GUIDE, FRONT LOWER	57362	101804 101804		500600
627		5	TUBE GUIDE, FRONT UPPER	57362	101805 101805		500600
628		5	GEAR RACK, LOWER	57632	101806 101806		500600
629		5	SUPPORT, TOP	57362	101808 101808		500600
630		5	TUBE, UPPER RISER	57362	101812 101812		500600

Table 6-3. Major Assemblies Parts List, Model 1200 Portable X-Ray System (Continued)

ITEM NO.	REFERENCE DESIGNATION	IND	PART NAME AND DESCRIPTION	MFR CODE CAGE	MANUFACTURER PART NUMBER / PORTA RAY PART NUMBER	QTY/ ASSY	SECT. VII DRAWING
631		5	TUBE, UPPER RISER	57362	101813 101813		500600
632		5	SUPPORT, BOTTOM	57362	101825 101825		500600
633		5	SCREW, SH/CAP (8-32 X 3/8)	57362	381045 381045		500600
634		5	PIN, DOWEL (3/8 X 1.5 SS)	57362	383507 383507		500600
635		5	PIN, DOWEL (3/16 X 1.5 SS)	57362	383553 383553		500600
636		5	PIN, ROLL (5/16 X 2.25 SS)	57362	383593 383593		500600
637		5	PIN, ROLL (5/16 X 3.25 SS)	57362	383594 383594		500600
638		4	TIE BAR, UPPER BOTTOM	57362	101783 101783		500586
639		4	CAM, LEVER (LEFT)	57362	101785 101785		500586
640		4	CAM, LEVER (RIGHT)	57362	101786 101786		500586
641		4	SPRING, RETAINER	57362	101787 101787		500586
642		4	CAM LEVER, INNER	57362	101788 101788		500586
643		4	TIE BAR	57362	101789 101789		500586
644		4	SPACER, INTERFACE	57362	101790 101790		500586
645		4	LATCH, FOOT	57362	101791 101791		500586

Table 6-3. Major Assemblies Parts List, Model 1200 Portable X-Ray System (Continued)

ITEM NO.	REFERENCE DESIGNATION	IND	PART NAME AND DESCRIPTION	MFR CODE CAGE	MANUFACTURER PART NUMBER / PORTA RAY PART NUMBER	QTY/ ASSY	SECT. VII DRAWING
646		4	PAD, COMPRESSION	57362	101792 101792		500586
647		4	CAM, INNER LATCH	57362	101793 101793		500586
648		4	CAM, OUTER LATCH	57362	101794 101794		500586
649		4	WEAR PLATE, CAM	57362	101795 101795		500586
650		4	CAM, LIFT HUB	57362	101797 101797		500586
651		4	LOCK, SLEEVE	57362	101798 101798		500586
652		4	PIN, LATCH	57362	101809 101809		500586
653		4	CAM LEVER, EXTENSION	57362	101811 101811		500586
654		4	ARBOR, CAM LEVER	57362	101818 101818		500586
655		4	CAM LOCK ARM	57362	101819 101819		500586
656		4	BEARING, CAM INNER	57362	101820 101820		500586
657		4	BEARING, CAM OUTER	57362	101821 101821		500586
658		4	STRIP, WEAR	57362	101822 101822		500586
659		4	LEVER, OUTER CAM	57362	101823 101823		500586
660		4	ROD, DRAW	57362	101824 101824		500586

Table 6-3. Major Assemblies Parts List, Model 1200 Portable X-Ray System (Continued)

ITEM NO.	REFERENCE DESIGNATION	IND	PART NAME AND DESCRIPTION	MFR CODE CAGE	MANUFACTURER PART NUMBER / PORTA RAY PART NUMBER	QTY/ ASSY	SECT. VII DRAWING
661		4	SCREW, PHIL/PH (4-40 X 1/4)	57362	380010 380010		500586
662		4	SCREW, SOCKET/FH (10-32 X 1/2)	57362	381504 381504		500586
663		4	SCREW, PHIL/PH (10-32 X 1/2)	57362	381513 381513		500586
664		4	SCREW, PHIL/PH (10-32 X 3/8)	57362	381531 381531		500586
665		4	SCREW, SOCKET/FH (10-32 X 1-1/4)	57362	381541 381541		500586
666		4	SCREW, PHIL/PH (10-32 X 2-1/4)	57362	381552 381552		500586
667		4	BOLT, HEX HEAD (10-32 X 1/2)	57362	381553 381553		500586
668		4	NUT, LOCK (3/8-16)	57362	382538 382538		500586
669		4	SCREW, SHOULDER (1/4-20 X 1/4)	57362	383115 383115		500586
670	4	2	CONTAINER, REUSEABLE	57362	201047 201047		500598

Table 6-4. Numerical Parts List

MANUFACTURER PART NUMBER /PORTA RAY PART NUMBER	MFR CODE CAGE	MAPL ITEM NO	NATIONAL STOCK NUMBER	TOTAL QTY
005-250-A100212 100212	84830	208		1
07R250W-25 211014	RHOMBU	516		2
100044 100044	57362	363		2
100050 100050	8H134	364		2
100069 100069	57362	332		1
100530 100530	57362	365		2
101078 101078	57362	60		1
101476 101476	57362	21		1
101483 101483	57362	99		1
101484 101484	57362	72		1
101486 101486	57362	180		1
101487 101487	57362	188		1
101488 101488	57362	189		1
101489 101489	57362	190		1
101490 101490	57362	191		1

Table 6-4. Numerical Parts List (Continued)

MANUFACTURER PART NUMBER /PORTA RAY PART NUMBER	MFR CODE CAGE	MAPL ITEM NO	NATIONAL STOCK NUMBER	TOTAL QTY
101492 101492	57362	192		6
101493 101493	57362	209		1
101503 101503	57362	135		1
101504 101504	57362	144		1
101506 101506	57362	65		1
101551 101551	57362	335		4
101552 101552	57362	366		4
101556 101556	57362	336		1
101557 101557	57362	337		1
101558 101558	57362	338		2
101559 101559	57362	339		1
101560 101560	57362	340		1
101576 101576	57362	367		2
101577 101577	57362	368		1
101578 101578	57362	369		1

Table 6-4. Numerical Parts List (Continued)

MANUFACTURER PART NUMBER /PORTA RAY PART NUMBER	MFR CODE CAGE	MAPL ITEM NO	NATIONAL STOCK NUMBER	TOTAL QTY
101579 101579	57362	370		1
101581 101581	57362	464		2
101582 101582	57362	465		1
101593 101593	57362	463		1
101608 101608	57362	381		1
101617 101617	57362	468		2
101618 101618	57362	382		4
101620 101620	57362	383		1
101621 101621	57362	469		1
101642 101642	57362	73		1
101684 101684	57362	470		1
101686 101686	57632	324		1
101777 101777	57362	341		2
101778 101778	57362	342		1
101780 101780	57362	343		4

Table 6-4. Numerical Parts List (Continued)

MANUFACTURER PART NUMBER /PORTA RAY PART NUMBER	MFR CODE CAGE	MAPL ITEM NO	NATIONAL STOCK NUMBER	TOTAL QTY
101783 101783	57362	638		1
101785 101785	57362	639		1
101786 101786	57362	640		1
101787 101787	57362	641		1
101788 101788	57362	642		1
101789 101789	57362	643		1
101790 101790	57362	644		1
101791 101791	57362	645		1
101792 101792	57362	646		1
101793 101793	57362	647		1
101794 101794	57362	648		1
101795 101795	57362	649		1
101796 101796	57362	619		1
101797 101797	57362	650		1
101798 101798	57362	651		1

Table 6-4. Numerical Parts List (Continued)

MANUFACTURER PART NUMBER /PORTA RAY PART NUMBER	MFR CODE CAGE	MAPL ITEM NO	NATIONAL STOCK NUMBER	TOTAL QTY
101799 101799	57362	620		1
101800 101800	57362	622		1
101801 101801	57362	623		1
101802 101802	57362	624		1
101803 101803	57632	625		1
101804 101804	57362	626		1
101805 101805	57362	627		1
101806 101806	57632	628		1
101808 101808	57362	629		1
101809 101809	57362	652		1
101811 101811	57362	653		1
101812 101812	57362	630		1
101813 101813	57362	631		1
101814 101814	57362	621		1
101818 101818	57362	654		1

Table 6-4. Numerical Parts List (Continued)

MANUFACTURER PART NUMBER /PORTA RAY PART NUMBER	MFR CODE CAGE	MAPL ITEM NO	NATIONAL STOCK NUMBER	TOTAL QTY
101819 101819	57362	655		2
101820 101820	57362	656		4
101821 101821	57362	657		4
101822 101822	57362	658		2
101823 101823	57362	659		2
101824 101824	57362	660		1
101825 101825	57362	632		1
101827 101827	57362	560		1
101828 101828	57362	561		1
101829 101829	57362	542		1
101830 101830	57362	562		1
101831 101831	57362	563		2
101834 101834	57362	564		1
101835 101835	57362	565		2
101836 101836	57362	566		1

Table 6-4. Numerical Parts List (Continued)

MANUFACTURER PART NUMBER /PORTA RAY PART NUMBER	MFR CODE CAGE	MAPL ITEM NO	NATIONAL STOCK NUMBER	TOTAL QTY
101837 101837	57362	567		2
101838 101838	57362	568		2
101839 101839	57362	569		2
101841 101841	57362	570		1
101842 101842	57362	571		1
101843 101843	57362	572		1
101844 101844	57362	573		5
101845 101845	57362	574		1
101846 101846	57362	543		1
101847 101847	57362	575		1
101848 101848	57362	576		1
101849 101849	57362	577		1
101850 101850	57362	578		1
101853 101853	57362	579		5
101856 101856	57362	503		1

Table 6-4. Numerical Parts List (Continued)

MANUFACTURER PART NUMBER /PORTA RAY PART NUMBER	MFR CODE CAGE	MAPL ITEM NO	NATIONAL STOCK NUMBER	TOTAL QTY
101864 101864	57362	492		2
101865 101865	57362	493		2
101872 101872	57362	580		1
101873 101873	57362	385		1
101874 101874	57362	386		1
101875 101875	57362	387		1
101876 101876	57362	581		1
101877 101877	57362	582		1
101878 101878	57362	583		1
101880 101880	57362	402		1
101881 101881	57362	371		1
101882 101882	57362	74		3
101885 101885	57362	9		2
101889 101889	57362	505		2
101892 101892	57362	506		2

Table 6-4. Numerical Parts List (Continued)

MANUFACTURER PART NUMBER /PORTA RAY PART NUMBER	MFR CODE CAGE	MAPL ITEM NO	NATIONAL STOCK NUMBER	TOTAL QTY
101897 101897	57362	535		1
101898 101898	57362	447		1
101902 101902	57362	467		2
101903 101903	57362	228		2
101907 101907	57362	507		1
101910 101910	57362	584		1
101913 101913	57362	549		1
101915 101915	57362	508		2
101918 101918	57362	509		2
101920 101920	57362	466		2
101923 101923	57362	510		1
101924 101924	57362	585		1
101925 101925	57362	586		1
101926 101926	57362	384		1
101927 101927	57362	388		2

Table 6-4. Numerical Parts List (Continued)

MANUFACTURER PART NUMBER /PORTA RAY PART NUMBER	MFR CODE CAGE	MAPL ITEM NO	NATIONAL STOCK NUMBER	TOTAL QTY
101928 101928	57632	322		1
101929 101929	57362	587		1
101930 101930	57362	588		1
101931 101931	57362	589		1
101934 101934	57362	590		1
101935 101935	57362	591		1
101937 101937	57362	550		1
101938 101938	57362	551		1
101939 101939	57362	552		1
101940 101940	57362	553		1
101941 101941	57362	554		1
101942 101942	57362	511		1
101943 101943	57362	592		1
101944 101944	57362	544		1
101945 101945	57362	593		1

Table 6-4. Numerical Parts List (Continued)

MANUFACTURER PART NUMBER /PORTA RAY PART NUMBER	MFR CODE CAGE	MAPL ITEM NO	NATIONAL STOCK NUMBER	TOTAL QTY
101946 101946	57362	594		1
101947 101947	57362	545		1
101950 101950	57362	512		1
101951 101951	57362	494		2
101952 101952	57362	513		2
101953 101953	57362	514		2
101954 101954	57632	323		1
101966 101966	57362	471		1
101967 101967	57362	472		2
101968 101968	57362	389		1
11633-2 214037	18677	195		6
12-300010 201029	8Z637	347		1
1219 385191	91833	131		4
125SFR-90WRP-OS8 385211	06229	334		1
12A 385046	82389	187		1

Table 6-4. Numerical Parts List (Continued)

MANUFACTURER PART NUMBER /PORTA RAY PART NUMBER	MFR CODE CAGE	MAPL ITEM NO	NATIONAL STOCK NUMBER	TOTAL QTY
16622 216042	2P882	598		10
171105 360065	1B546	350		1
1N24 300012	7U176	103		1
1N4005 300002	04713	24	5961 01-170-2320	9
1N4148 300001	7U176	23	5961 00-938-1135	21
1N4735A 303006	04713	104	5961 00-938-2020	1
1N5224 303007	04713	406		8
1N5365 303015	04713	407		8
1N758A 303016	7U176	248		1
20-076 383595	96652	555		1
201007 201007	57632	317		1
201015 201015	57632	263		1
201024 201024	57632	239		1
201033 201033	57632	262		1
201034 201034	57632	260		2

Table 6-4. Numerical Parts List (Continued)

MANUFACTURER PART NUMBER /PORTA RAY PART NUMBER	MFR CODE CAGE	MAPL ITEM NO	NATIONAL STOCK NUMBER	TOTAL QTY
201041 201041	57632	269		1
201042 201042	57632	255		1
201044 201044	57632	266		1
201045 201045	57632	256		1
201046 201046	57632	261		1
201047 201047	57362	670		1
201048 201048	57632	315		1
201049 201049	57632	254		1
201050 201050	57632	257		1
201051 201051	57632	311		1
201052 201052	57632	258		1
201053 201053	57632	259		2
201054 201054	57632	264		1
201055 201055	57632	265		1
201056 201056	57632	267		1

Table 6-4. Numerical Parts List (Continued)

MANUFACTURER PART NUMBER /PORTA RAY PART NUMBER	MFR CODE CAGE	MAPL ITEM NO	NATIONAL STOCK NUMBER	TOTAL QTY
201057 201057	57632	268		1
201058 201058	57632	270		1
201059 201059	57632	271		1
201060 201060	57632	272		1
201061 201061	57632	273		1
201062 201062	57632	274		2
201063 201063	57632	275		2
201064 201064	57632	276		2
201065 201065	57632	277		2
201066 201066	57632	278		2
201067 201067	57632	279		2
201068 201068	57632	280		2
201069 201069	57632	281		2
201070 201070	57632	282		4
201071 201071	57632	283		4

Table 6-4. Numerical Parts List (Continued)

MANUFACTURER PART NUMBER /PORTA RAY PART NUMBER	MFR CODE CAGE	MAPL ITEM NO	NATIONAL STOCK NUMBER	TOTAL QTY
201072 201072	57632	284		4
201073 201073	57632	285		1
201074 201074	57632	286		1
201075 201075	57632	287		2
201076 201076	57632	288		4
201077 201077	57632	289		4
201078 201078	57632	290		4
201079 201079	57632	291		1
201080 201080	57632	292		1
201081 201081	57632	293		1
201082 201082	57632	294		1
201083 201083	57632	295		1
201084 201084	57632	296		1
201085 201085	57632	297		1
201086 201086	57632	298		1

Table 6-4. Numerical Parts List (Continued)

MANUFACTURER PART NUMBER /PORTA RAY PART NUMBER	MFR CODE CAGE	MAPL ITEM NO	NATIONAL STOCK NUMBER	TOTAL QTY
201087 201087	57632	299		1
201088 201088	57632	300		1
201089 201089	57632	301		1
201090 201090	57632	302		1
201091 201091	57632	303		1
201092 201092	57632	304		1
201093 201093	57632	305		1
201094 201094	57632	306		2
201095 201095	57632	307		1
201096 201096	57632	308		2
201097 201097	57632	309		2
201098 201098	57632	310		1
201099 201099	57632	312		2
201100 201100	57632	313		2
201101 201101	57632	314		1

Table 6-4. Numerical Parts List (Continued)

MANUFACTURER PART NUMBER /PORTA RAY PART NUMBER	MFR CODE CAGE	MAPL ITEM NO	NATIONAL STOCK NUMBER	TOTAL QTY
201102 201102	57632	316		1
201103 201103	57632	318		1
201104 201104	57632	319		4
201105 201105	57632	320		4
201106 201106	57632	321		1
201F 303-424-4651 218003	SUN CO	326		1
214045 214045	57362	538		1
215008 215008	57632	546		1
216051 216051	57362	474		2
218001 218001	57632	325		1
218015 218015	57362	602		1
218059 218059	57362	603		1
219003 219003	57632	498		1
219013 219013	57362	522		2
24.0115PRC1207 400008	52179	213		1

Table 6-4. Numerical Parts List (Continued)

MANUFACTURER PART NUMBER /PORTA RAY PART NUMBER	MFR CODE CAGE	MAPL ITEM NO	NATIONAL STOCK NUMBER	TOTAL QTY
2451P/REL-24-1 370063	82104	61		1
25.100.1253 420011	06229	434		1
25.135.0453 420012	06229	435		1
257-CP 218060	WIL-CR	520		1
2N3904 310003	04713	25	5961 00-892-8706	13
3005-P-1-202 345028	57922	120		5
3100-50 219001	97464	604		1
3240 415017	2V082	214		1
340045 340045	57362	420		3
340061 340061	57362	243		1
340103 340103	57362	240		1
340153 340153	57362	422		1
345-034-500-202 385202	83830	220		1
345-060-520-202 385201	31781	141		3
345-240-318 385208	31781	142		3

Table 6-4. Numerical Parts List (Continued)

MANUFACTURER PART NUMBER /PORTA RAY PART NUMBER	MFR CODE CAGE	MAPL ITEM NO	NATIONAL STOCK NUMBER	TOTAL QTY
360070 360070	57362	198		1
367A32C100BZLD 211013	RHOMBU	495		2
378049 378049	57362	253		1
380000 380000	57362	129		14
380008 380008	57362	137		6
380010 380010	57362	130		6
380012 380012	57362	393		12
380025 380025	57362	91		1
380470 381047	57362	524		10
380500 380500	57362	92		8
380501 380501	57362	475		18
380502 380502	57362	93		26
380504 380504	57362	352		1
380507 380507	57362	606		10
380510 380510	57362	607		22

Table 6-4. Numerical Parts List (Continued)

MANUFACTURER PART NUMBER /PORTA RAY PART NUMBER	MFR CODE CAGE	MAPL ITEM NO	NATIONAL STOCK NUMBER	TOTAL QTY
380514 380514	57362	201		10
380521 380521	57362	354		2
380526 380526	57362	202		6
380528 380528	57362	458		1
380537 380537	57362	394		4
380538 380538	57362	94		12
380539 380539	57362	523		2
381000 381000	57362	355		4
381001 381001	57362	231		22
381002 381002	57362	10		45
381004 381004	57362	186		4
381006 381006	57362	11		41
381009 381009	57362	612		25
381015 381015	57362	395		2
381018 381018	57362	479		4

Table 6-4. Numerical Parts List (Continued)

MANUFACTURER PART NUMBER /PORTA RAY PART NUMBER	MFR CODE CAGE	MAPL ITEM NO	NATIONAL STOCK NUMBER	TOTAL QTY
381019 381019	57362	500		4
381022 381022	57362	233		4
381045 381045	57362	633		4
381046 381046	57362	613		24
381048 381048	57362	525		8
381500 381500	57362	480		3
381501 381501	57362	481		6
381504 381504	57362	662		4
381507 381507	57362	358		4
381513 381513	57362	663		4
381531 381531	57362	664		4
381533 381533	57362	526		2
381537 381537	57362	482		6
381541 381541	57362	665		4
381552 381552	57362	666		4

Table 6-4. Numerical Parts List (Continued)

MANUFACTURER PART NUMBER /PORTA RAY PART NUMBER	MFR CODE CAGE	MAPL ITEM NO	NATIONAL STOCK NUMBER	TOTAL QTY
381553 381553	57362	667		4
381555 381555	57362	359		4
382000 382000	57362	483		4
382001 382001	57362	206		5
382002 382002	57362	376		2
382005 382005	57362	557		1
382007 382007	57362	615		3
382025 382025	57362	501		2
382026 382026	57362	616		18
382036 382036	57362	527		2
382045 382045	57362	396		1
382055 382055	57362	528		2
382060 382060	57632	484		4
3823-2 203016	71400	194		1
382501 382501	57362	529		4

Table 6-4. Numerical Parts List (Continued)

MANUFACTURER PART NUMBER /PORTA RAY PART NUMBER	MFR CODE CAGE	MAPL ITEM NO	NATIONAL STOCK NUMBER	TOTAL QTY
382511 382511	57362	378		1
382538 382538	57362	668		1
382545 382545	57362	530		2
382561 382561	57362	539		1
382562 382562	57362	531		4
382564 382564	57362	532		4
383034 383034	57362	360		8
383044 383044	57362	459		2
383050 383050	57362	205		4
383115 383115	57362	669		2
383118 383118	57362	485		4
383119 383119	57632	379		1
383507 383507	57362	634		1
383553 383553	57362	635		1
383583 383583	57362	399		1

Table 6-4. Numerical Parts List (Continued)

MANUFACTURER PART NUMBER /PORTA RAY PART NUMBER	MFR CODE CAGE	MAPL ITEM NO	NATIONAL STOCK NUMBER	TOTAL QTY
383593 383593	57362	636		1
383594 383594	57362	637		1
383596 383596	57362	547		1
383598 383598	57362	558		1
4-02-2010 360066	MCI	127		2
400011 400011	57362	6		6FT
400057 400057	57362	235		1
400059 400059	57362	234		1
406009 406009	57362	443		132
406037 406037	57362	444		112
410002 410002	57362	224		5
410003 410003	57362	223		2
410006 410006	57362	225		4
410007 410007	57362	445		1
410010 410010	57362	226		4

Table 6-4. Numerical Parts List (Continued)

MANUFACTURER PART NUMBER /PORTA RAY PART NUMBER	MFR CODE CAGE	MAPL ITEM NO	NATIONAL STOCK NUMBER	TOTAL QTY
410018 410018	57362	227		1
410027 410027	57362	446		2
415013 415013	57362	361		3
44YY233006 370107	81073	87		1
4601K-MD 385213	91833	460		1
500081 500081	57362	3		1
500371 500371	57362	59		1
500500 500500	57362	20		1
500503 500503	57362	58		1
500504 500504	57362	98		1
500507 500507	57362	2		1
500510 500510	57362	179		1
500511 500511	57362	178		1
500512 500512	57362	207		1
500515 500515	57362	134		1

Table 6-4. Numerical Parts List (Continued)

MANUFACTURER PART NUMBER /PORTA RAY PART NUMBER	MFR CODE CAGE	MAPL ITEM NO	NATIONAL STOCK NUMBER	TOTAL QTY
500517 500517	57362	64		1
500538 500538	57362	215		1
500540 500540	57362	330		1
500541 500541	57362	329		1
500542 500542	57632	236		1
500576 500576	57362	331		1
500581 500581	57362	540		1
500584 500584	57362	401		1
500585 500585	57362	380		1
500586 500586	57362	617		1
500587 500587	57362	7		1
500588 500588	57362	400		1
500589 500589	57362	436		1
500590 500590	57362	534		1
500591 500591	57632	237		1

Table 6-4. Numerical Parts List (Continued)

MANUFACTURER PART NUMBER /PORTA RAY PART NUMBER	MFR CODE CAGE	MAPL ITEM NO	NATIONAL STOCK NUMBER	TOTAL QTY
500592 500592	57362	486		1
500593 500593	57362	487		1
500595 500595	57362	12		1
500598 500598	57362	1	6525 01-325-3740	1
500599 500599	57362	548		1
500600 500600	57362	618		1
500601 500601	57362	489		2
500603 500603	57362	541		1
5043CX2M200J 340144	26769	45		1
507-4538-1431-630 370095	72619	82		1
507-4757-3331-500 370094	72619	81		3
507-4857-3332-500 370093	72619	80		2
508-8738-504 370096	72619	83		5
508-8745-504 370097	72619	84		1
515 370108	82389	88		1

Table 6-4. Numerical Parts List (Continued)

MANUFACTURER PART NUMBER /PORTA RAY PART NUMBER	MFR CODE CAGE	MAPL ITEM NO	NATIONAL STOCK NUMBER	TOTAL QTY
531220-2 385206	OEX37	176		3
604 210032	DESTCO	515		2
6078B 218011	13103	403		2
643105-1 385203	OEX37	70		6
67F5830 345046	20772	424		1
7484NC 385013	88342	5		1
7486 385011	74545	97		1
75224 214003	APEX	333		1
7565627 383120	4J007	533		2
78-S8 385214	74868	442		1
800243 800243	57362	461		1
800244 800244	57362	462		1
800251 800251	57362	362		1
800253 800253	57362	559		1
800254 800254	57362	490		2

Table 6-4. Numerical Parts List (Continued)

MANUFACTURER PART NUMBER /PORTA RAY PART NUMBER	MFR CODE CAGE	MAPL ITEM NO	NATIONAL STOCK NUMBER	TOTAL QTY
800262 800262	57362	488		1
800263 800263	57362	491		2
800264 800264	57362	8		1
8115VW 385027	ARROWH	4		1
9 340142	44655	196		2
91259A851 383110	3A054	397		1
9634K11 213001	3A054	595		1
98416A018 383581	3A054	398		1
AA-1704-4 216030	44655	390		1
AA42 219010	44655	449		18
AD654JN 330019	24355	149		2
AW28610 400058	70957	19		4FT
B-1 374012	41415	89		1
B5-5-SS 216048	29440	601		1
BTH-5 210031	01599	536		1

Table 6-4. Numerical Parts List (Continued)

MANUFACTURER PART NUMBER /PORTA RAY PART NUMBER	MFR CODE CAGE	MAPL ITEM NO	NATIONAL STOCK NUMBER	TOTAL QTY
BV735-10 210029	08730	79		2
C1663-031-4 218056	9R076	518		2
CB2153 360071	62317	349		1
CGR102V050R1N 355037	37942	451		1
CN15A470K 350035	26769	51		1
CS4483A1 306015	1AA44	348		2
CW15A471K 350034	26769	50		1
CW15C102M 350029	26769	46		7
CW15C103M 350030	26769	47		6
CW20C104K 350032	26769	48		54
CW20C473K 350031	26769	168		2
CWN-300-16-0021 385204	18R23	71		1
CWN-350-14-0021 385157	18R23	62		2
CWN-350-16-0021 385200	18R23	140		1
CWN-LK-L 385158	18R23	63		8

Table 6-4. Numerical Parts List (Continued)

MANUFACTURER PART NUMBER /PORTA RAY PART NUMBER	MFR CODE CAGE	MAPL ITEM NO	NATIONAL STOCK NUMBER	TOTAL QTY
CY30A474M 350033	26769	49		11
D24404 378038	14704	181		1
DRML-1012 216040	37062	597		2
ECQ-E4473KZ 350024	OHF77	121		1
EXB-F8E103G 340145	OHF77	165		1
EXB-F8E224G 340146	OHF77	166		1
FF838-3 216032	44655	391		1
FLEX-CON 1 GRADE 35, 1/16 WALL SSR 217180		346		4
FUSE3A250V 203003	89875	193	5920 00-296-1517	2
G3B104SNE 385187	03612	217		1
G3B1288SNE 385188	03612	218		1
G6F10-4PNE 385175	03612	211		2
G6F1288PNE 385174	03612	13		1
G6FI288SNE 385209	03612	18		1
G7B10-4SNE 385182	03612	437		1

Table 6-4. Numerical Parts List (Continued)

MANUFACTURER PART NUMBER /PORTA RAY PART NUMBER	MFR CODE CAGE	MAPL ITEM NO	NATIONAL STOCK NUMBER	TOTAL QTY
G7B1288SNE 385212	03612	441	.	1
H11A1GE 335047	04713	413		5
HDSP-H103 374014	07980	67		3
HG-2-AC115V 378066	5R753	182		2
HG-2-SS 378067	5R753	183		2
HS-16-2(328) 370105	63426	85		1
HS-16-3(328) 370106	63426	86		1
ICM7217 500516	8P909	143		1
ICM7260IJE 335001	1ES66	28		3
ICO-063-S8T 385165	06776	57		7
ICO-083-S8T 385047	06776	54		5
ICO-143-S8T 385048	06776	55		28
ICO-163-S8T 385049	06776	56		5
ICO-286-S8T 385050	06776	175		1
INSULFLEX GRADE 510 217179	SSR	345		30'

Table 6-4. Numerical Parts List (Continued)

MANUFACTURER PART NUMBER /PORTA RAY PART NUMBER	MFR CODE CAGE	MAPL ITEM NO	NATIONAL STOCK NUMBER	TOTAL QTY
INSULFLEX GRADE 510, SHEETS 100523	SSR	344		10
INTERSIL, ICM7217AIP1 335002	8P909	151		1
IRF511 315005	04713	411		2
LC-029E-13 M/W 213029	84830	556		1
LE045D-3MW 213003	84830	596		1
LG4CR1310 383597	62060	502		2
LM339N 330006	04713	107	5962 01-88-3862	1
LM350 330021	27014	450		1
LW1023-4-600 218058	62060	392		4
MB1004F 340152	44655	119		3
MB1005F 340150	44655	115		2
MB2210F 340149	44655	118		2
MB5602F 340151	44655	113		1
MC14001BCP 335048	04713	29	5961 01-033-2276	2
MC14013BCP 335053	04713	157	6545 01-276-7964	1

Table 6-4. Numerical Parts List (Continued)

MANUFACTURER PART NUMBER /PORTA RAY PART NUMBER	MFR CODE CAGE	MAPL ITEM NO	NATIONAL STOCK NUMBER	TOTAL QTY
MC14040BCP 335051	04713	155		2
MC14077BCP 335052	04713	156		2
MC14584BCP 335049	04713	30		1
MC7805C 330009	04713	109	5962 00-365-5977	3
MI-9-N 216044	MCGILL	600		4
MOC3010 330008	04713	27		1
MOC3042 330020	04713	108		1
MR12N 216043	MCGILL	599		4
MS91528-2-F-2-B 210011	86797	77		1
MS91528-4-N-2-B 210010	86797	76		1
MS91528-4C2B 210025	86797	78		1
N-61 384501	8C978	372		7QT
NE555V 330001	04713	26	5962 01-265-1333	4
NSH-36SB-S1-T 385207	06776	177		3
OE27165 340155	57362	421		1

Table 6-4. Numerical Parts List (Continued)

MANUFACTURER PART NUMBER /PORTA RAY PART NUMBER	MFR CODE CAGE	MAPL ITEM NO	NATIONAL STOCK NUMBER	TOTAL QTY
OK1015 340029	44655	40		5
OK1025 340014	44655	38		23
OK1035 340001	44655	31		26
OK1515 340089	44655	117		1
OK1545 340005	44655	33		3
OK2225 340069	44655	43		3
OK2245 340047	44655	42		8
OK2725 340143	44655	44		2
OK2735 340009	44655	36		1
OK3025 340024	44655	163		2
OK3305 340080	44655	66		8
OK3315 340007	44655	34		7
OK3345 340003	44655	32		1
OK4335 340015	44655	162		2
OK4735 340025	44655	39		2

Table 6-4. Numerical Parts List (Continued)

MANUFACTURER PART NUMBER /PORTA RAY PART NUMBER	MFR CODE CAGE	MAPL ITEM NO	NATIONAL STOCK NUMBER	TOTAL QTY
OK5115 340010	44655	37		2
OK5625 340008	44655	35		3
OK8245 340032	44655	41		1
P116-27 218055	9R076	496		2
P180HS 201001	2X587	238		1
P4-20002 370064	21655	210		1
RET-1-1/4 X 2 214044	99017	537		1
S-200 214039	18677	22		3
SC16M-1TK6 385184	03612	15		13
SC16ML-1TK6 385190	03612	17		14
SC628M 205006	37942	75	6350 00-102-4210	1
SLR500 218054	VLIER	517		2
SM16ML-1TK6 385183	03612	14		6
SM20ML-1TK6 385189	03612	16		10
SN7400 335029	7U176	110		1

Table 6-4. Numerical Parts List (Continued)

MANUFACTURER PART NUMBER /PORTA RAY PART NUMBER	MFR CODE CAGE	MAPL ITEM NO	NATIONAL STOCK NUMBER	TOTAL QTY
SN74LS00N 335007	7U176	153		4
SN74LS04N 335008	7U176	152		4
SN74LS08N 335055	7U176	158		1
SN74LS30N 335033	7U176	154		11
SPI-1104-06-02 209001	5T436	448		1
SS-2602-090-105-0 383580	OGC4W	68		2
T322C336K006AS 355036	31433	53		6
T322D475K050AS 355039	31433	428		2
T322E336K025S 355029	31433	123		1
T418-5/16-18-1 1/2 218057	GABRIL	519		2
TLH277M025C1B 355031	37942	125		2
TLS107M025C1B 355030	37942	124		3
VE18X 306002	1B546	105	5961 01-041-6807	4
VE18X 306002	1B546	408	5961 01-041-6807	3
VH048 306016	1B546	409		1

Table 6-4. Numerical Parts List (Continued)

MANUFACTURER PART NUMBER /PORTA RAY PART NUMBER	MFR CODE CAGE	MAPL ITEM NO	NATIONAL STOCK NUMBER	TOTAL QTY
VP50K 340154	80353	197		4
VR38 355038	37942	452		1
W107DIP5 378071	94696	128		2
W68X2Q1-2-15 378068	77342	90		1
Y322B106K010AS 355028	31433	52		1

Table 6-5. Reference Designation List, Model 1200 Portable System

REFERENCE DESIGNATION	MANUFACTURER PART NUMBER /PORTA RAY PART NUMBER	MAPL ITEM NO.
1	500507 500507	2
1A1	500503 500503	58
1A1A1	500371 500371	59
1A1A1J1	CWN-350-14-0021 385157	62
1A1A1S3	2451P/REL-24-1 370063	61
1A1A2	500517 500517	64
1A1A2DS1-DS3	HDSP-H103 374014	67
1A1A2J10	CWN-300-16-0021 385204	71
1A1A2R1-R8	OK3305 340080	66
1A1A2XD1-XD6	643105-1 385203	70
1A1CB1	W68X2Q1-2-15 378068	90
1A1DS1,DS4	507-4857-3332-500 370093	80
1A1DS2,DS3,DS5	507-4757-3331-500 370094	81
1A1DS6	507-4538-1431-630 370095	82
1A1J1	7486 385011	97

Table 6-5. Reference Designation List, Model 1200 Portable System (Continued)

REFERENCE DESIGNATION	MANUFACTURER PART NUMBER /PORTA RAY PART NUMBER	MAPL ITEM NO.
1A1M1	B-1 374012	89
1A1S1	HS-16-2(328) 370105	85
1A1S2	HS-16-3(328) 370106	86
1A1S3	44YY233006 370107	87
1A1SP1	SC628M 205006	75
1A1XDS1-5	508-8738-504 370096	83
1A1XDS6	508-8745-504 370097	84
1A2	500515 500515	134
1A2J5	CWN-350-14-0021 385157	138
1A2J6	CWN-350-16-0021 385200	140
1A2J7-J9	345-060-520-202 385201	141
1A3	500500 500500	20
1A3C1,C6,C10	CW15C102M 350029	46
1A3C14,C16, C19,C20,C31	CY30A474M 350033	49
1A3C2,C3,C5, C11,C12,C17,C21-30	CW20C104K 350032	48

Table 6-5. Reference Designation List, Model 1200 Portable System (Continued)

REFERENCE DESIGNATION	MANUFACTURER PART NUMBER /PORTA RAY PART NUMBER	MAPL ITEM NO.
1A3C32	CW15A471K 350034	50
1A3C33	CN15A470K 350035	51
1A3C4, C15	CW15C103M 350030	47
1A3C7, C9, C13, C18	T322C336K006AS 355036	53
1A3C8	Y322B106K010AS 355028	52
1A3CR1, CR2	1N4005 300002	24
1A3CR3-CR9	1N4148 300001	23
1A3Q1-Q7	2N3904 310003	25
1A3R1, R2, R4-6, R10 R10, R23, R27	OK1025 340014	38
1A3R12, R14, R33, R34	OK1015 340029	40
1A3R13	OK4735 340025	39
1A3R16, R21	OK2725 340143	44
1A3R17	OK2245 340047	42
1A3R18	OK8245 340032	41
1A3R19	5043CX2M200J 340144	45

Table 6-5. Reference Designation List, Model 1200 Portable System (Continued)

REFERENCE DESIGNATION	MANUFACTURER PART NUMBER /PORTA RAY PART NUMBER	MAPL ITEM NO.
1A3R20,R35	OK5625 340008	35
1A3R24,R25,R39	OK1545 340005	33
1A3R3,R11,R15,R22 R26,28-29,31,38,40	OK1035 340001	31
1A3R30	OK2735 340009	36
1A3R32,R37	OK2225 340069	43
1A3R36	OK3345 340003	32
1A3R41	OK5115 340010	37
1A3R7-R9	OK3315 340007	34
1A3U1,U2	ICM7260IJE 335001	28
1A3U3	MC14584BCP 335049	30
1A3U4,U5	MC14001BCP 335048	29
1A3U6	MOC3010 330008	27
1A3U7,U8	NE555V 330001	26
1A3XU1,XU2	ICO-163-S8T 385049	56
1A3XU3-XU5	ICO-143-S8T 385048	55

Table 6-5. Reference Designation List, Model 1200 Portable System (Continued)

REFERENCE DESIGNATION	MANUFACTURER PART NUMBER /PORTA RAY PART NUMBER	MAPL ITEM NO.
1A3XU6	ICO-063-S8T 385165	57
1A3XU7, XU8	ICO-083-S8T 385047	54
1A4	500504 500504	98
1A4BR1, BR2	VE18X 306002	105
1A4C1, C10	TLS107M025C1B 355030	124
1A4C2, C3, C11	CW20C104K 350032	122
1A4C4, C8	TLH277M025C1B 355031	125
1A4C5	T322E336K025S 355029	123
1A4C6, C7	T322C336K006AS 355036	126
1A4C9	ECQ-E4473KZ 350024	121
1A4CR1, CR2, CR5, CR6	1N4005 300002	102
1A4CR3	1N4148 300001	101
1A4CR4	1N4735A 303006	104
1A4CR7	1N24 300012	103
1A4Q1, Q2	2N3904 310003	106

Table 6-5. Reference Designation List, Model 1200 Portable System (Continued)

REFERENCE DESIGNATION	MANUFACTURER PART NUMBER /PORTA RAY PART NUMBER	MAPL ITEM NO.
1A4R1,R2	3005-P-1-202 345028	120
1A4R11,R14	OK1025 340014	114
1A4R12,R13, R18,R19	OK3315 340007	112
1A4R15	OK1515 340089	117
1A4R16,R17	OK1035 340001	111
1A4R3	MB1003F 340148	116
1A4R4	MB2210F 340149	118
1A4R5,R6	MB1005F 340150	115
1A4R7,R8,R10	MB1004F 340152	119
1A4R9	MB5602F 340151	113
1A4T1,T2	4-02-2010 360066	127
1A4U1	LM339N 330006	107
1A4U2	SN7400 335029	110
1A4U3	MOC3042 330020	108
1A4VR1,VR2	MC7805C 330009	109

Table 6-5. Reference Designation List, Model 1200 Portable System (Continued)

REFERENCE DESIGNATION	MANUFACTURER PART NUMBER /PORTA RAY PART NUMBER	MAPL ITEM NO.
1A4XU15, XU2, XK1	ICO-143-S8T 385048	132
1A4XU3	ICO-063-S8T 385165	133
1A5	ICM7217 500516	143
1A5A1	EXB-F8E224G 340146	166
1A5A2	EXB-F8E103G 340145	165
1A5C1-4, 6-8, 10-12, 15 16, 19, 21, 23-32, 37-42	CW20C104K 350032	169
1A5C13, 14, 22, 33, C34, C35	CY30A474M 350033	171
1A5C17, C43, C44	CW15C103M 350030	170
1A5C5, 18, 20, 36	CW15C102M 350029	167
1A5C9	CW20C473K 350031	168
1A5CR1-CR11	1N4148 300001	146
1A5JP1-JP3	531220-2 385206	176
1A5Q1	2N3904 310003	147
1A5R1-R3, R8, R12, R15-R18	OK1035 340001	159
1A5R10	OK4735 340025	164

Table 6-5. Reference Designation List, Model 1200 Portable System (Continued)

REFERENCE DESIGNATION	MANUFACTURER PART NUMBER /PORTA RAY PART NUMBER	MAPL ITEM NO.
1A5R13	OK4335 340015	162
1A5R4,R7,R9, R14	OK1025 340014	161
1A5R5,R11	OK3025 340024	163
1A5R6	OK5115 340010	160
1A5U1	ICM7260IJE 335001	150
1A5U13	INTERSIL, ICM7217AIPi 335002	151
1A5U14	SN74LS08N 335055	158
1A5U16,U17, U19-U27	SN74LS30N 335033	154
1A5U2,U12	MC14040BCP 335051	155
1A5U3,U4	MC14077BCP 335052	156
1A5U5,U11,U18	SN74LS00N 335007	153
1A5U6	NE555V 330001	148
1A5U7,U10,U15	SN74LS04N 335008	152
1A5U8	MC14013BCP 335053	157
1A5U9	AD654JN 330019	149

Table 6-5. Reference Designation List, Model 1200 Portable System (Continued)

REFERENCE DESIGNATION	MANUFACTURER PART NUMBER /PORTA RAY PART NUMBER	MAPL ITEM NO.
1A5XU1-2, XU12	ICO-163-S8T 385049	174
1A5XU13	ICO-286-S8T 385050	175
1A5XU3-5, XU7, XU8, XU10, XU11, XU14-27	ICO-143-S8T 385048	173
1A5XU6, XU9	ICO-083-S8T 385047	172
1A6	500511 500511	178
1A6A1	500510 500510	179
1A6A1J4	12A 385046	187
1A6A1K1-K2	HG-2-AC115V 378066	182
1A6A1K3	D24404 378038	181
1A6A1XK1-2	HG-2-SS 378067	183
1A6F1, F2	FUSE3A250V 203003	193
1A6R1	VP50K 340154	197
1A6T1	360070 360070	198
1A7	500512 500512	207
1A7P1	G6F10-4PNE 385175	211

Table 6-5. Reference Designation List, Model 1200 Portable System (Continued)

REFERENCE DESIGNATION	MANUFACTURER PART NUMBER /PORTA RAY PART NUMBER	MAPL ITEM NO.
1A7S1	P4-20002 370064	210
1A8	500587 500587	7
1W1	500081 500081	3
1W1J1	8115VW 385027	4
1W1J2	7484NC 385013	5
1W2	500595 500595	12
1W2J1	G6FI288SNE 385209	18
1W2P1	G6FI288PNE 385174	13
1W5	500538 500538	215
1W5J2	G3B104SNE 385187	217
1W5J3	G3B1288SNE 385188	218
1W5J4	345-034-500-202 385202	220
2	500542 500542	236
2A1	500591 500591	237
2A1A1	P180HS 201001	238

Table 6-5. Reference Designation List, Model 1200 Portable System (Continued)

REFERENCE DESIGNATION	MANUFACTURER PART NUMBER /PORTA RAY PART NUMBER	MAPL ITEM NO.
2A1A1A1	201024 201024	239
2A1A1A1C1	350036 350036	246
2A1A1A1C2	355025 355025	247
2A1A1A1C3	CW20C473K 350031	244
2A1A1A1C4,C5	CW20C104K 350032	245
2A1A1A1CR1	VE18X 306002	249
2A1A1A1CR2	1N758A 303016	248
2A1A1A1CR3	1N4005 300002	250
2A1A1A1K1	378049 378049	253
2A1A1A1Q1	2N3904 310003	251
2A1A1A1R2	340061 340061	243
2A1A1A1R3	OK1015 340029	242
2A1A1A1R4	340103 340103	240
2A1A1A1R5	OK2225 340069	241
2A1A1A1U1	NE555V 330001	252

Table 6-5. Reference Designation List, Model 1200 Portable System (Continued)

REFERENCE DESIGNATION	MANUFACTURER PART NUMBER /PORTA RAY PART NUMBER	MAPL ITEM NO.
2A1A1DS1	201007 201007	317
2A1A1P1	G6F10-4PNE 385175	327
2A2	500541 500541	329
2A2A1	500540 500540	330
2A2A1A1, A2	CS4483A1 306015	348
2A2A1DS1	12-300010 201029	347
2A2A1J1	500576 500576	331
2A2A1T1	171105 360065	350
2A2A1T2	CB2153 360071	349
2A3	500585 500585	380
2A4	500588 500588	400
2A4A1	500584 500584	401
2A4A1BR1	VH048 306016	409
2A4A1BR2	VE18X 306002	408
2A4A1C1	CW15C103M 350030	425

Table 6-5. Reference Designation List, Model 1200 Portable System (Continued)

REFERENCE DESIGNATION	MANUFACTURER PART NUMBER /PORTA RAY PART NUMBER	MAPL ITEM NO.
2A4A1C2	TLS107M025C1B 355030	427
2A4A1C3-C5	CW20C104K 350032	426
2A4A1C6,C7	T322D475K050AS 355039	428
2A4A1CR1-CR2	1N4005 300002	405
2A4A1CR3-CR4	1N4148 300001	404
2A4A1CR5,CR7	1N5224 303007	406
2A4A1CR6,CR8	1N5365 303015	407
2A4A1Q1,Q2	2N3904 310003	410
2A4A1Q3,Q4	IRF511 315005	411
2A4A1R1,R9,R10,R2,R6	OK1025 340014	418
2A4A1R14	340153 340153	422
2A4A1R15-R17	3250W-1-202 345054	423
2A4A1R18	OE27165 340155	421
2A4A1R19,R20	OK1035 340001	417
2A4A1R3	OK4335 340015	419

Table 6-5. Reference Designation List, Model 1200 Portable System (Continued)

REFERENCE DESIGNATION	MANUFACTURER PART NUMBER /PORTA RAY PART NUMBER	MAPL ITEM NO.
2A4A1R4	67F5830 345046	424
2A4A1R7,R8	340045 340045	420
2A4A1TB1	25.100.1253 420011	434
2A4A1TB2	25.135.0453 420012	435
2A4A1U1-2,U6-8	H11A1GE 335047	413
2A4A1U3	SN74LS00N 335007	415
2A4A1U4	SN74LS04N 335008	416
2A4A1U5	AD654JN 330019	414
2A4A1VR1	MC7805C 330009	412
2A4A2	500589 500589	436
2A4A3	101898 101898	447
2A4C1	CGR102V050R1N 355037	451
2A4J1	G7B1288SNE 385212	441
2A4J2	G7B10-4SNE 385182	437
2A4J3	78-S8 385214	442

Table 6-5. Reference Designation List, Model 1200 Portable System (Continued)

REFERENCE DESIGNATION	MANUFACTURER PART NUMBER /PORTA RAY PART NUMBER	MAPL ITEM NO.
2A4U1	LM350 330021	450
3	500592 500592	486
3A1	500593 500593	487
3A2	500590 500590	534
3A3	500581 500581	540
3A3A1	101827 101827	560
3A3A2	101828 101828	561
3A3A3	101830 101830	562
3A3A5	101834 101834	564
3A3A6	101835 101835	565
3A3A7	101836 101836	566
3A3A8	101843 101843	572
3A4	500586 500586	617
4	201047 201047	670

SECTION VII

DIAGRAMS

7-1 INTRODUCTION

This section contains the maintenance diagrams required to support the Model 1200 Portable X-Ray System. Table 7-1 provides a numerical sequenced listing of all drawings including complete drawing number (abbreviated drawing numbers are not used), drawing title, and applicable revision for each drawing.

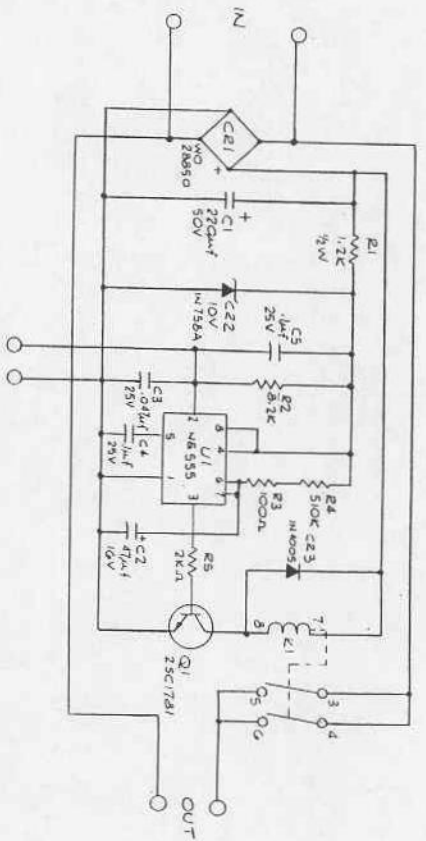
Table 7-1. Model 1200 Portable X-Ray System Drawings List

Drawing number	Title	Revision	Revision date	Page number
201024	COLLIMATOR ELECTRONIC TIMER PCB	A	09/05/90	F0-1
500081	LINE CORD ASSEMBLY	B	07/27/90	F0-2
500371	TIMER SW.BD ASSY (PIX) 1A1A1	-	03/28/90	F0-3
500500	TIMER BOARD ASSY	A	01/15/90	F0-4
500503	PANEL, CONTROL 1A1	B	09/11/90	F0-5
500504	PCB ASSY, LINE SET (CARD RACK)	C	07/06/90	F0-6
500507	CONTROL ASSEMBLY (2 SHEETS)	A	07/07/90	F0-7
500510	BRACKET ASSY RELAY (1A6A1)	A	09/12/90	F0-9
500511	PLATE, ASSY BASE 1A6	C	09/19/90	F0-10
500512	SWITCH ASSEMBLY, EXPOSURE	-	07/11/90	F0-11
500515	PCB ASSY, MOTHER BOARD	-	06/12/90	F0-12
500516	mAs BOARD ASSY CARD RACK	A	01/16/90	F0-13
500517	PCB ASSY mAs DISPLAY BD	-	06/12/90	F0-14
500538	HARNESS ASSY CONTROL (1W5)	-	07/12/90	F0-15
500540	TRANSFORMER ASSEMBLY (2 SHEETS)	A	09/21/90	F0-16
500541	TUBE HEAD ASSEMBLY	-	07/13/90	F0-18
500542	X-RAY GENERATOR ASSY (2 SHEETS)	B	08/28/90	F0-19
500576	CONNECTOR ASSY, HI-VOLTAGE	-	07/10/90	F0-21
500581	GEAR BOX ASSEMBLY (2 SHEETS)	A	09/24/90	F0-22
500584	FILAMENT CONTROL PC BOARD	A	08/14/90	F0-24
500585	YOKE ASSY	C	08/28/90	F0-25
500586	PIPE ASSEMBLY	A	08/01/90	F0-26
500587	CASE, CONTROL ASSEMBLY	C	09/19/90	F0-27
500588	CHASSIS ASSY GENERATOR	A	09/07/90	F0-28
500589	HARNESS ASSEMBLY	-	08/14/90	F0-29
500590	CROSS-ARM ASSEMBLY	A	08/15/90	F0-30
500591	COLLIMATOR ASSY (MODIFIED) (4 SHEETS)	C	09/21/90	F0-31
500592	STAND ASSY	-	08/16/90	F0-35
500593	FRAME ASSY	A	09/21/90	F0-36
500595	CABLE ASSEMBLY INTERCONNECT	-	07/11/90	F0-37
500598	MODEL 1200 X-RAY SYSTEM	A	09/19/90	F0-38
500599	CRANK HANDLE ASSEMBLY	A	08/15/90	F0-39
500600	PIPE ASSY INTERMEDIATE (2 SHEETS)	-	07/05/90	F0-40
500601	FRONT LEG ASSEMBLY	A	09/10/90	F0-42
500603	SHAFT ASSEMBLY GEAR	A	08/23/90	F0-43

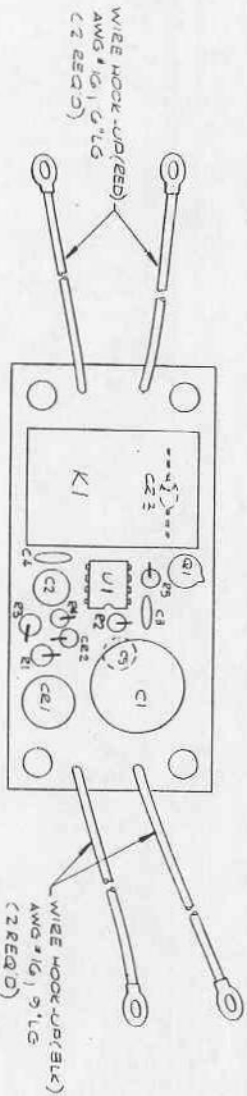
Table 7-1. Model 1200 Portable X-Ray System Drawings List
(Continued)

Drawing number	Title	Revision	Revision date	Page number
700112	LINE SET/SENSE BOARD	C	07/06/90	F0-44
700115	SCHEMATIC, TIMER PC BOARD	A	01/16/90	F0-45
700116	SCHEMATIC, mAs CARD RACK	A	06/12/90	F0-46
700117	SCHEMATIC, mAs DISPLAY BOARD	-	12/08/89	F0-47
700128	SCHEMATIC, FILAMENT CONT. PCB	A	08/14/90	F0-48
700129	SCHEMATIC, MODEL 1200 SYSTEM	A	09/21/90	F0-49
700132	SCHEMATIC, GENERATOR ASSEMBLY	-	08/28/90	F0-50

SCHEMATIC DIAGRAM



PCB ASSEMBLY LAYOUT



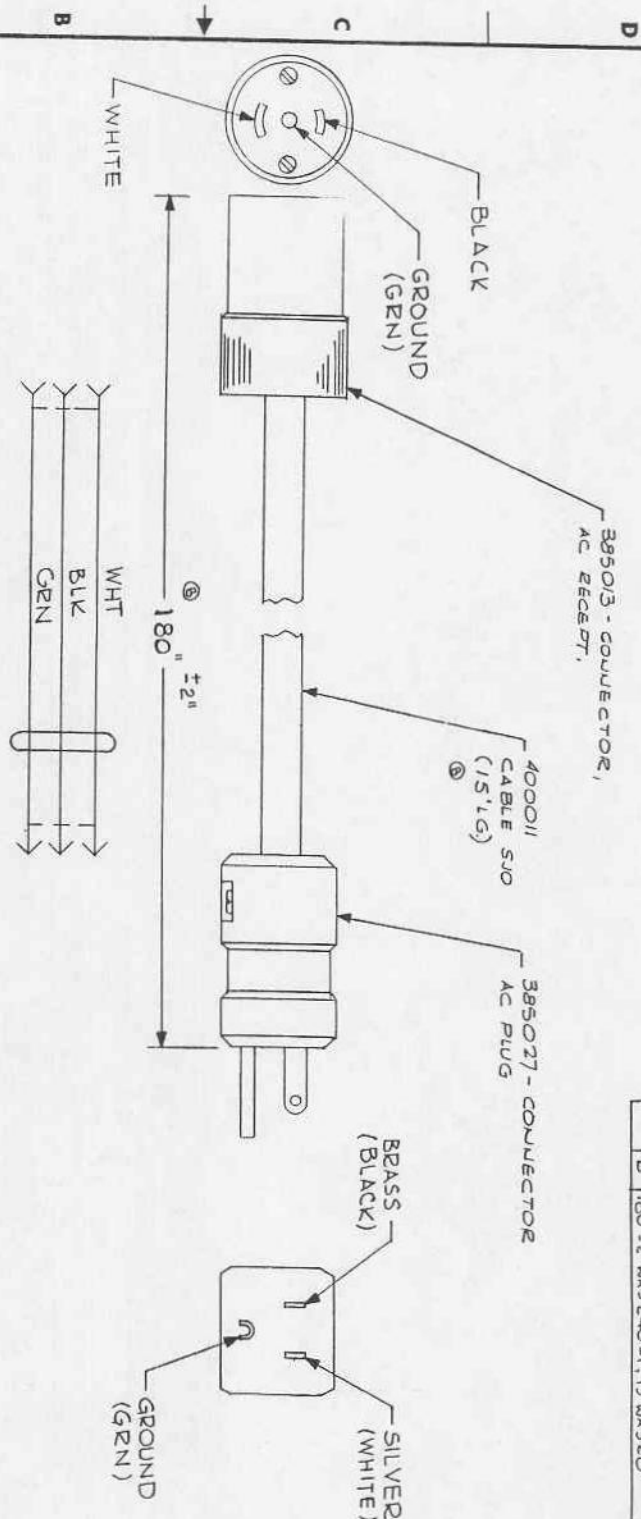
NOTES:
1. UNLESS OTHERWISE SPECIFIED
ALL RESISTORS ARE 1/4W

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
-	NEW RELEASE	9-5-75	
A	C2 WAS 270K, C3 WAS 2K, C4 WAS 100K, C5 WAS 100K, R2 WAS 100K, R3 WAS 100K, R4 WAS 100K, R5 WAS 100K, D1 WAS 1N4001, K1 WAS 12VDC RELAY	9-5-75	

PARTS LIST			
PART NO.	DESCRIPTION	REF. DES.	QTY
34013	RESISTOR 510K	R4	1
34029	RESISTOR 100K	R3	1
34069	RESISTOR 2K	R5	1
34097	RESISTOR 1.2K 1/2W	R1	1
34061	RESISTOR 8.2K	R2	1
350031	CAPACITOR	C3	1
350032	CAPACITOR	C4, C5	2
350036	CAPACITOR	C1	1
355025	CAPACITOR	C2	1
303016	DIODE, 1N4001	D1	1
306002	BRIDGE RECTIFIER	CE1	1
300002	DIODE	CE3	1
310003	TRANSISTOR	Q1	1
330001	I.C.	U1	1
378049	RELAY	K1	1

MATERIAL			
FINISH			
WEIGHT			
HEAT TREAT			
TITLE			
ELECTRONIC TIMER			
(30 SEC) DC 24V			
NO. 1200			
DRAWN 5-11-75			
CHECKED 5-11-75			
APPROVED 5-11-75			
DATE 5-11-75			
SCALE 1:1			
NO. 1			
NEXT ASSY. 201001			
IDDC/Porta Ray, Inc.			
19 Jeffry Blvd. West			
Deer Park, NY 11729			
SIZE			
DRAWING NUMBER			
201024			
ISSUE			
A			

REVISIONS			
ZONE	LTR	DESCRIPTION	DATE
A	ITEM NOS	CHANGED TO PLCT NOS	17-14-87
B	180 ± 2" WAS	24031, 15 WAS 20"	7-27-90
			CH



SCHEMATIC DIAGRAM

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS DECIMALS ANGLES ± .01 ± .005 ± .01		CONTRACT NO.		DATE	
DRAWN L.O.		228.84		2-5-76	
CHECKED CH					
MATERIAL		FINISH		SCALE	
500 50T 1200		—		NONE	
500 525 9170 (220V)		—		B	
500 280 9170 (120V)		—		500081	
NEXT ASSY		USED ON		B	
APPLICATION		DO NOT SCALE DRAWING		SHEET 1 OF 1	

LINE CORD ASSY-120V
9170, 9165

IDDC/Porta Ray, Inc.
19 Jeffrey Blvd. West
Deer Park, NY 11729

OGALVE PRESS

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL

ITEM	P/N	QTY	DESCRIPTION	USAGE
1	1D1D72	1	PCB	—
2	385157	1	CONNECTOR	J1
3	385158	2	CONN. LOCK/EJECT	—
4	370062	1	ROTARY SWITCH	S3
5	400046	1	RIBBON CABLE ASSY.	—

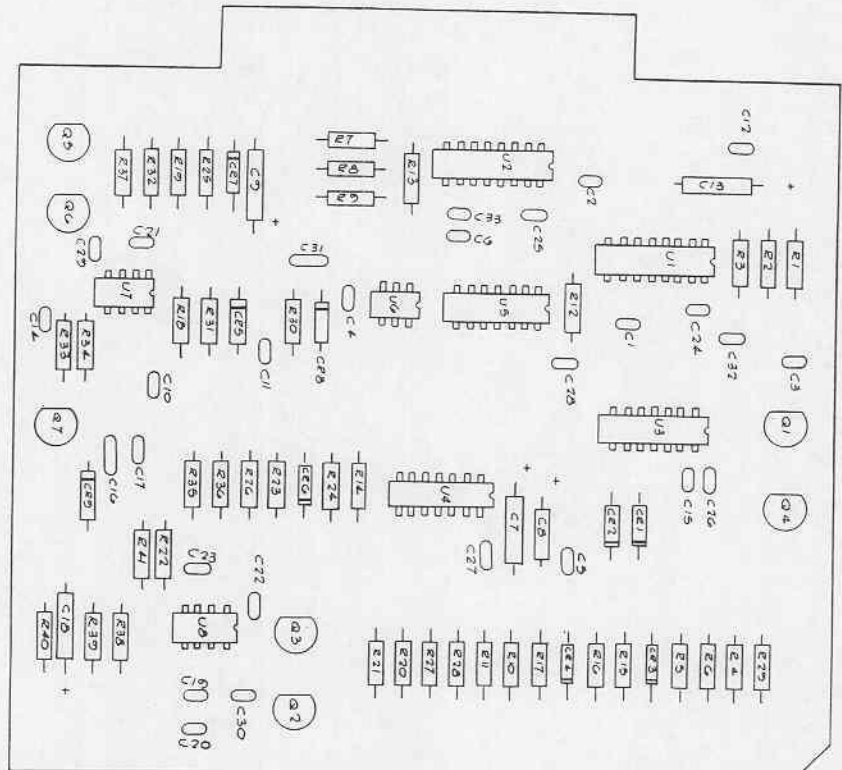
MATERIAL		FINISH		HEAT TREAT	
N		N		N	

DIMENSIONAL TOLERANCES UNLESS OTHERWISE SPECIFIED				TITLE		DRAWN		CHECKED		APPROVED	
FRAC.	DEC.	ANG.	±	TIMER SWITCH BD. ASSY.		R. E. Fisher		DATE 3-2-88		DATE 3-2-88	
± 1/64	± .005	± 30°	±								
N	N	N	N								
SCALES 2:1				NO. REQ'D							
NEXT ASSY. 500318											
500507											

SIZE	DRAWING NUMBER	ISSUE
A	500371	—

IDD/C/Porta Ray, Inc.
19 Jeffryn Blvd. West
Deer Park, NY 11729

REVISIONS			
REV	DESCRIPTION	DATE	APPROVAL
A	REWORK & REVISION	11/1/74	<i>[Signature]</i>

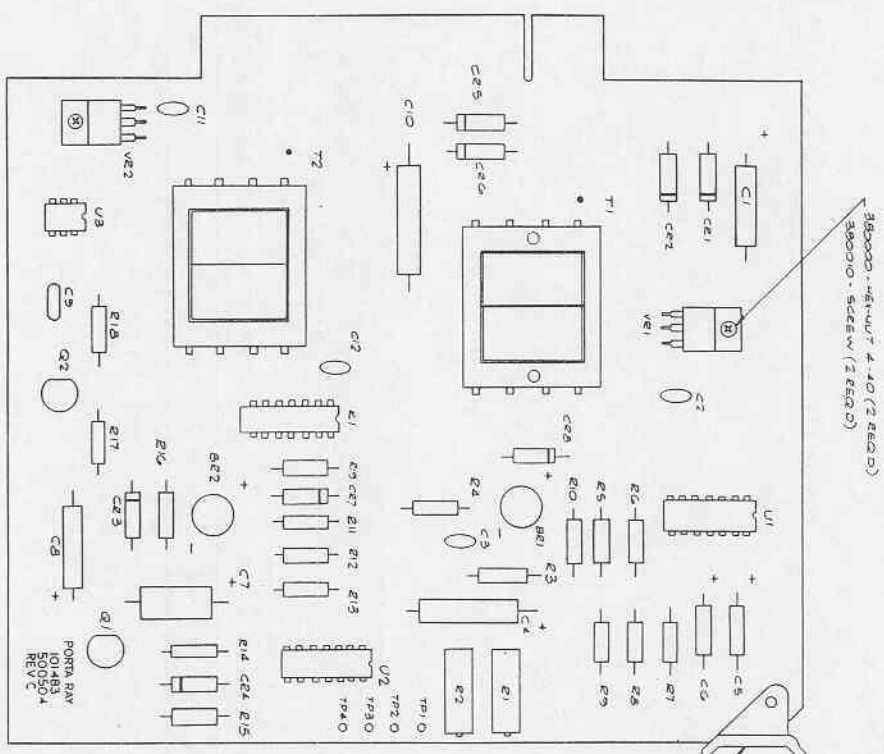


PART	DESCRIPTION	QTY	REF. DESIGNATION
100001	RESISTOR, 10K, 1/4W	1	R1
100002	RESISTOR, 10K, 1/4W	1	R2
100003	RESISTOR, 10K, 1/4W	1	R3
100004	RESISTOR, 10K, 1/4W	1	R4
100005	RESISTOR, 10K, 1/4W	1	R5
100006	RESISTOR, 10K, 1/4W	1	R6
100007	RESISTOR, 10K, 1/4W	1	R7
100008	RESISTOR, 10K, 1/4W	1	R8
100009	RESISTOR, 10K, 1/4W	1	R9
100010	RESISTOR, 10K, 1/4W	1	R10
100011	RESISTOR, 10K, 1/4W	1	R11
100012	RESISTOR, 10K, 1/4W	1	R12
100013	RESISTOR, 10K, 1/4W	1	R13
100014	RESISTOR, 10K, 1/4W	1	R14
100015	RESISTOR, 10K, 1/4W	1	R15
100016	RESISTOR, 10K, 1/4W	1	R16
100017	RESISTOR, 10K, 1/4W	1	R17
100018	RESISTOR, 10K, 1/4W	1	R18
100019	RESISTOR, 10K, 1/4W	1	R19
100020	RESISTOR, 10K, 1/4W	1	R20
100021	RESISTOR, 10K, 1/4W	1	R21
100022	RESISTOR, 10K, 1/4W	1	R22
100023	RESISTOR, 10K, 1/4W	1	R23
100024	RESISTOR, 10K, 1/4W	1	R24
100025	RESISTOR, 10K, 1/4W	1	R25
100026	RESISTOR, 10K, 1/4W	1	R26
100027	RESISTOR, 10K, 1/4W	1	R27
100028	RESISTOR, 10K, 1/4W	1	R28
100029	RESISTOR, 10K, 1/4W	1	R29
100030	RESISTOR, 10K, 1/4W	1	R30
100031	RESISTOR, 10K, 1/4W	1	R31
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100035	RESISTOR, 10K, 1/4W	1	R35
100036	RESISTOR, 10K, 1/4W	1	R36
100037	RESISTOR, 10K, 1/4W	1	R37
100038	RESISTOR, 10K, 1/4W	1	R38
100039	RESISTOR, 10K, 1/4W	1	R39
100040	RESISTOR, 10K, 1/4W	1	R40
100041	RESISTOR, 10K, 1/4W	1	R41
100042	RESISTOR, 10K, 1/4W	1	R42
100043	RESISTOR, 10K, 1/4W	1	R43
100044	RESISTOR, 10K, 1/4W	1	R44
100045	RESISTOR, 10K, 1/4W	1	R45
100046	RESISTOR, 10K, 1/4W	1	R46
100047	RESISTOR, 10K, 1/4W	1	R47
100048	RESISTOR, 10K, 1/4W	1	R48
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100051	RESISTOR, 10K, 1/4W	1	R51
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100053	RESISTOR, 10K, 1/4W	1	R53
100054	RESISTOR, 10K, 1/4W	1	R54
100055	RESISTOR, 10K, 1/4W	1	R55
100056	RESISTOR, 10K, 1/4W	1	R56
100057	RESISTOR, 10K, 1/4W	1	R57
100058	RESISTOR, 10K, 1/4W	1	R58
100059	RESISTOR, 10K, 1/4W	1	R59
100060	RESISTOR, 10K, 1/4W	1	R60
100061	RESISTOR, 10K, 1/4W	1	R61
100062	RESISTOR, 10K, 1/4W	1	R62
100063	RESISTOR, 10K, 1/4W	1	R63
100064	RESISTOR, 10K, 1/4W	1	R64
100065	RESISTOR, 10K, 1/4W	1	R65
100066	RESISTOR, 10K, 1/4W	1	R66
100067	RESISTOR, 10K, 1/4W	1	R67
100068	RESISTOR, 10K, 1/4W	1	R68
100069	RESISTOR, 10K, 1/4W	1	R69
100070	RESISTOR, 10K, 1/4W	1	R70
100071	RESISTOR, 10K, 1/4W	1	R71
100072	RESISTOR, 10K, 1/4W	1	R72
100073	RESISTOR, 10K, 1/4W	1	R73
100074	RESISTOR, 10K, 1/4W	1	R74
100075	RESISTOR, 10K, 1/4W	1	R75
100076	RESISTOR, 10K, 1/4W	1	R76
100077	RESISTOR, 10K, 1/4W	1	R77
100078	RESISTOR, 10K, 1/4W	1	R78
100079	RESISTOR, 10K, 1/4W	1	R79
100080	RESISTOR, 10K, 1/4W	1	R80
100081	RESISTOR, 10K, 1/4W	1	R81
100082	RESISTOR, 10K, 1/4W	1	R82
100083	RESISTOR, 10K, 1/4W	1	R83
100084	RESISTOR, 10K, 1/4W	1	R84
100085	RESISTOR, 10K, 1/4W	1	R85
100086	RESISTOR, 10K, 1/4W	1	R86
100087	RESISTOR, 10K, 1/4W	1	R87
100088	RESISTOR, 10K, 1/4W	1	R88
100089	RESISTOR, 10K, 1/4W	1	R89
100090	RESISTOR, 10K, 1/4W	1	R90
100091	RESISTOR, 10K, 1/4W	1	R91
100092	RESISTOR, 10K, 1/4W	1	R92
100093	RESISTOR, 10K, 1/4W	1	R93
100094	RESISTOR, 10K, 1/4W	1	R94
100095	RESISTOR, 10K, 1/4W	1	R95
100096	RESISTOR, 10K, 1/4W	1	R96
100097	RESISTOR, 10K, 1/4W	1	R97
100098	RESISTOR, 10K, 1/4W	1	R98
100099	RESISTOR, 10K, 1/4W	1	R99
100100	RESISTOR, 10K, 1/4W	1	R100

NOTES:
1. FOR SCHEMATIC DIAGRAM SEE
DWG # 700115

MATERIAL	QUANTITY	UNIT PRICE	TOTAL PRICE
100001	1	1.00	1.00
100002	1	1.00	1.00
100003	1	1.00	1.00
100004	1	1.00	1.00
100005	1	1.00	1.00
100006	1	1.00	1.00
100007	1	1.00	1.00
100008	1	1.00	1.00
100009	1	1.00	1.00
100010	1	1.00	1.00
100011	1	1.00	1.00
100012	1	1.00	1.00
100013	1	1.00	1.00
100014	1	1.00	1.00
100015	1	1.00	1.00
100016	1	1.00	1.00
100017	1	1.00	1.00
100018	1	1.00	1.00
100019	1	1.00	1.00
100020	1	1.00	1.00
100021	1	1.00	1.00
100022	1	1.00	1.00
100023	1	1.00	1.00
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100097	1	1.00	1.00
100098	1	1.00	1.00
100099	1	1.00	1.00
100100	1	1.00	1.00

REVISIONS			
REV	DESCRIPTION	DATE	APPROVAL
A	ISSUED CAT	3/1/79	[Signature]
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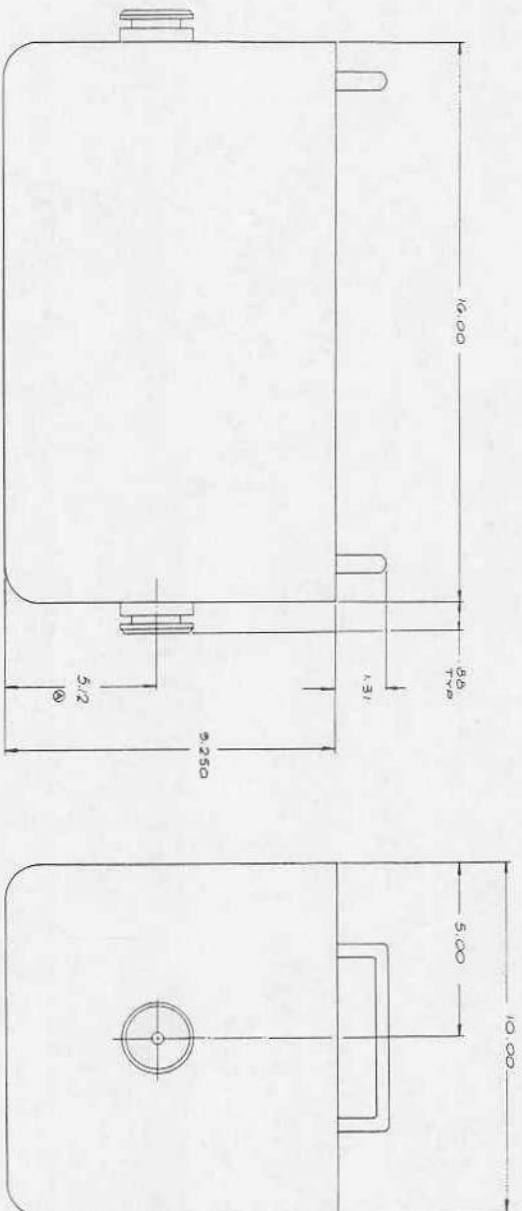


NOTES:
1. FOR SCHEMATIC SEE DWG # 700112

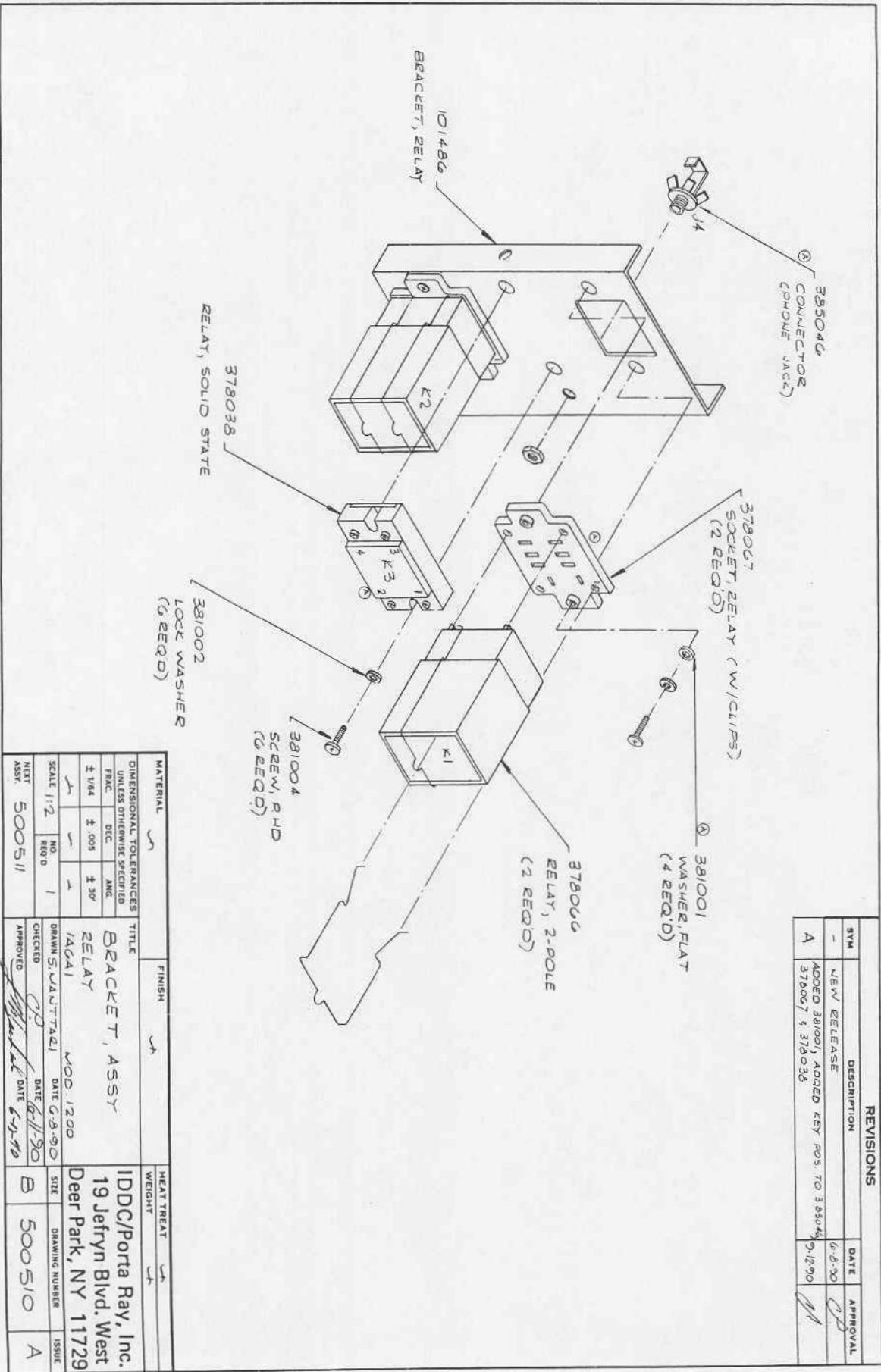
[illegible][illegible]

F0-7

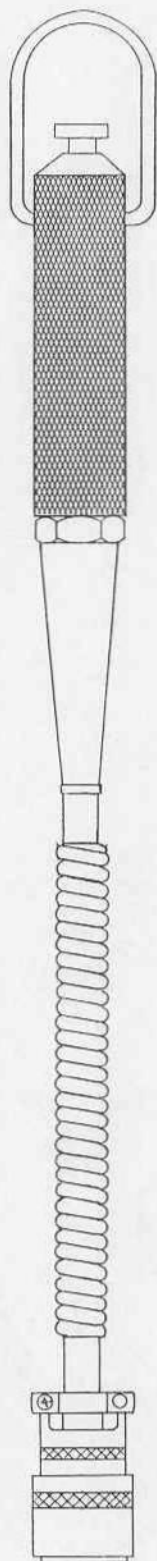
REVISIONS		
REVISION	DATE	APPROVAL
1	7/1/01	[Signature]



ALTERNATE	PERSON	5-11-87 3:04 P
SUBMITTAL TO BE EXAMINED DATE TIME 3:14 PM 2:00 AM DATE TIME 2:00 2:15 PM REASON FOR DEFECT 1/2 NO. OF DEFECTS 1	TITLE CONTROL ASSTY WORK ORDER NO. 720 DATE 7-9-80 BY 107	HEAT TREAT SPECIFICATION 500507 DRAWING NUMBER 500507 STOCK NUMBER A
DRAWN BY 107 CHECKED BY 107 APPROVED BY 107 DATE 7-9-80	LOCATION 19 Jefferson Blvd. West Deer Park, NY 11729	



REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
-	NEW RELEASE	7-11-90	CL



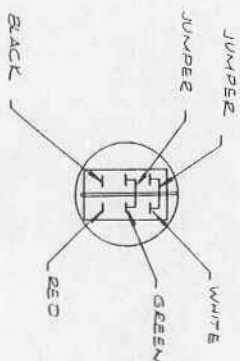
✓ 100212
HOOK, HAND CONTROL

✓ 101493
HANDLE, EXPOSURE

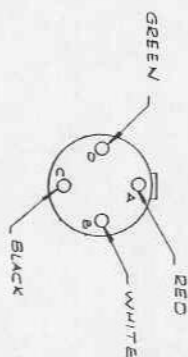
✓ 415017
RELIEF, STRAIN

✓ 400008
CORD, COIL

SWITCH, PUSH BUTTON
SEE DETAIL 'A'



DETAIL 'A'
VIEW FROM BACK
ON SWITCH WIRING



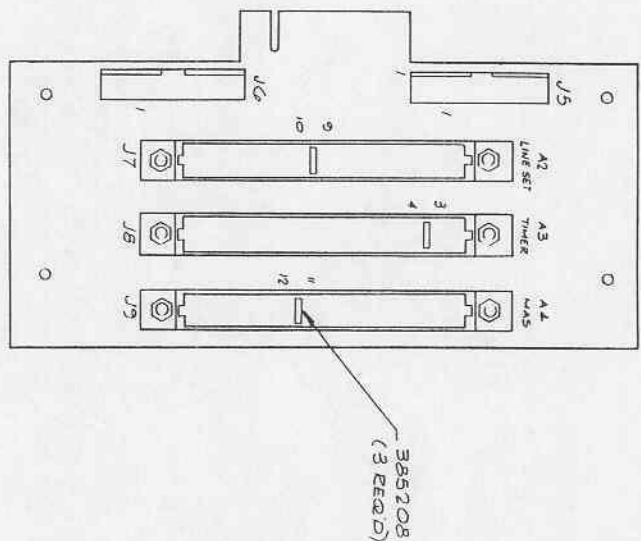
DETAIL 'B'
CONNECTOR WIRING

385175
CONNECTOR, PLUG
385189
PIN, MALE (4REQD)
SEE DETAIL 'B'

MATERIAL				FINISH				HEAT TREAT			
DIMENSIONAL TOLERANCES UNLESS OTHERWISE SPECIFIED				TITLE				WEIGHT			
FRACTION	DIGIT	ANG.		SWITCH ASSEMBLY, EXPOSURE				IDDC/Porta Ray, Inc. 19 Jeffryn Blvd. West Deer Park, NY 11729			
± 1/64	± .005	± .30°		MOD 1200				SIZE			
SCALE	NO.	NO.	1	DRAWN 5 WAA-TT-AE/				DATE 7-11-90			
NET	AST.	500507		CHECKED				DATE 7-11-90			
				APPROVED				DATE 7-11-90			
				B				500512			

REVISIONS			
SYN	DESCRIPTION	DATE	APPROVAL
-	NEW RELEASE	3-12-90	CJ

BILL OF MATERIALS		
PART NO.	DESCRIPTION	QTY
101503	PCB BLANK, MOTHER	1
38000	HEAT-UT 4-40	6
380008	SCREW 4-40X 1/2 LG	6
385157	CONNECTOR (14 PIN)	1
385158	EJECTOR HOOK W/ PIN	4
385200	CONNECTOR (16 PIN)	1
385201	CONNECTOR (60 PIN)	3
385208	CONN. POLARIZING KEY	3

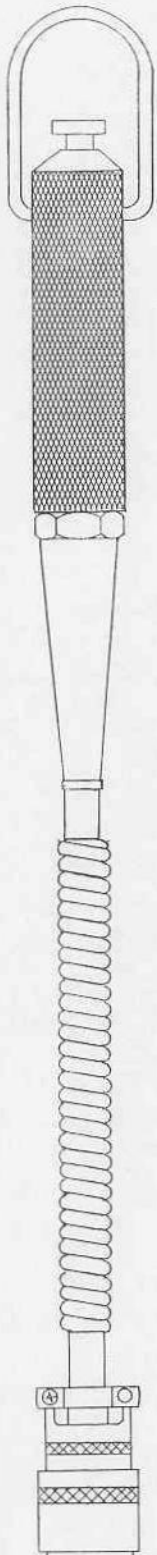


NOTES:

1. FOR SCHEMATIC DIAGRAM SEE DWG # 700129
2. ALL POLARIZING KEYS ARE SHOWN IN BETWEEN THE PIN NUMBERS INDICATED

MATERIAL		FINISH		HEAT TREAT	
DIMENSIONAL TOLERANCES		TITLE		WEIGHT	
UNLESS OTHERWISE SPECIFIED		PCB ASSY, MOTHER BOARD		IDDC/Porta Ray, Inc.	
FRACTION	DEC	ANG		19 Jeffryn Blvd, West	
± 1/64	± .005	± 30°		Deer Park, NY 11729	
SCALE 1" = 1"	NO. RECD 1	DRAWN S. WAJTTARZ	DATE 3-12-90	SITE	DRAWING NUMBER
NET ASST 500507	CHECKED <i>[Signature]</i>	DATE 5-18-90	APPROVED <i>[Signature]</i>	B	500515
		DATE 6-22-90			ISSUE
					-

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
-	NEW RELEASE	7/1/90	C.T.



100212
HOOK, HAND CONTROL

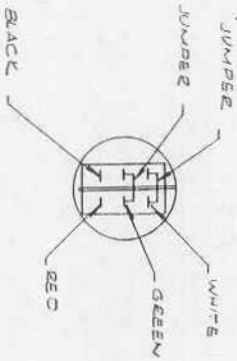
101493
HANDLE, EXPOSURE

415017
RELIEF, STRAIN

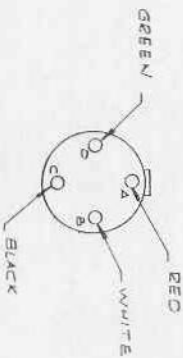
400008
CORD, COIL

SWITCH, PUSH BUTTON
SEE DETAIL 'A'

385175
CONNECTOR, PLUG
385189
PIN, MALE (4REQD)
SEE DETAIL 'B'

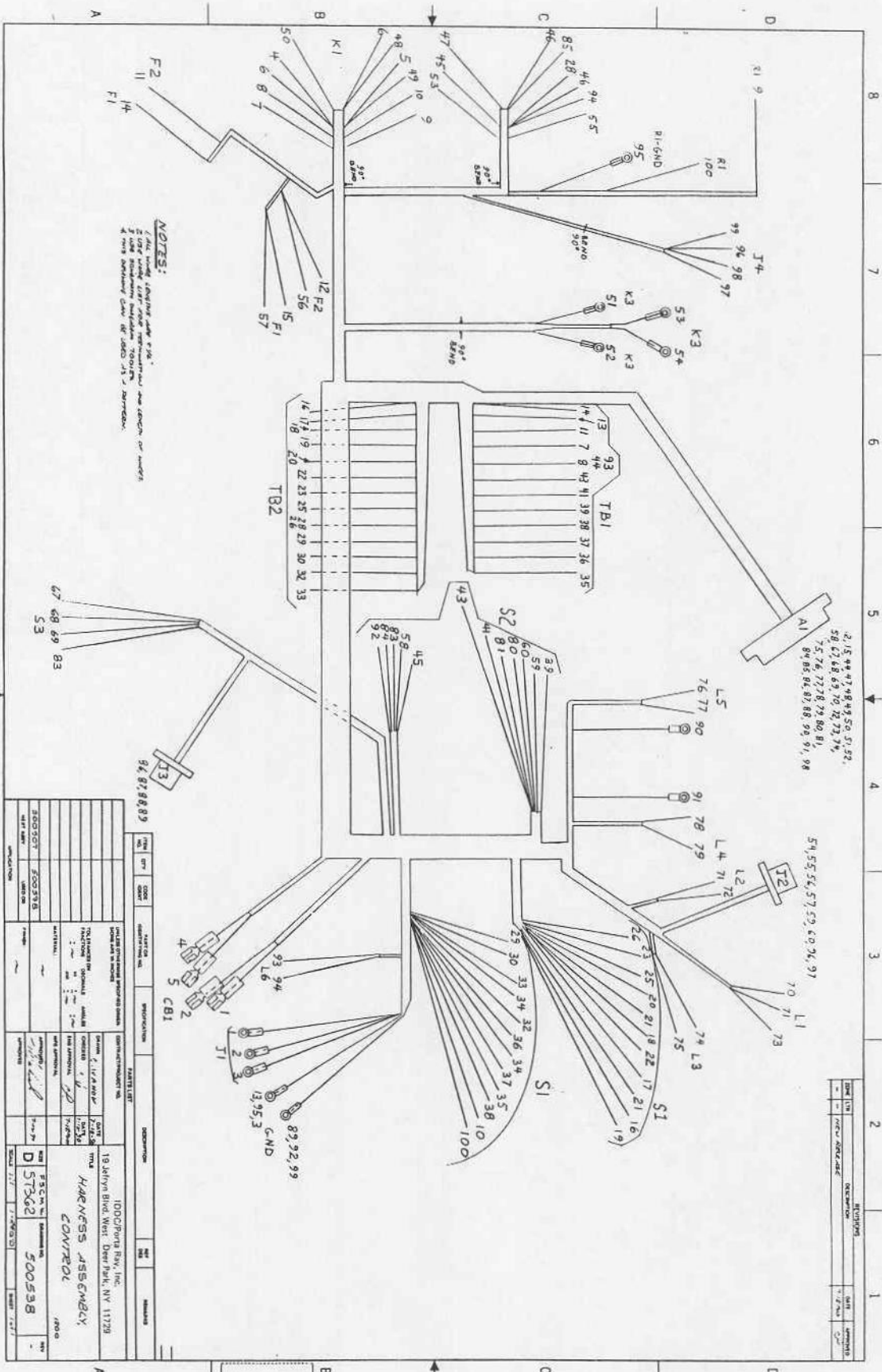


DETAIL 'A'
VIEW FROM BACK
ON SWITCH WIZING

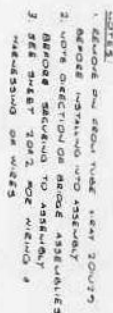


DETAIL 'B'
CONNECTOR WIZING

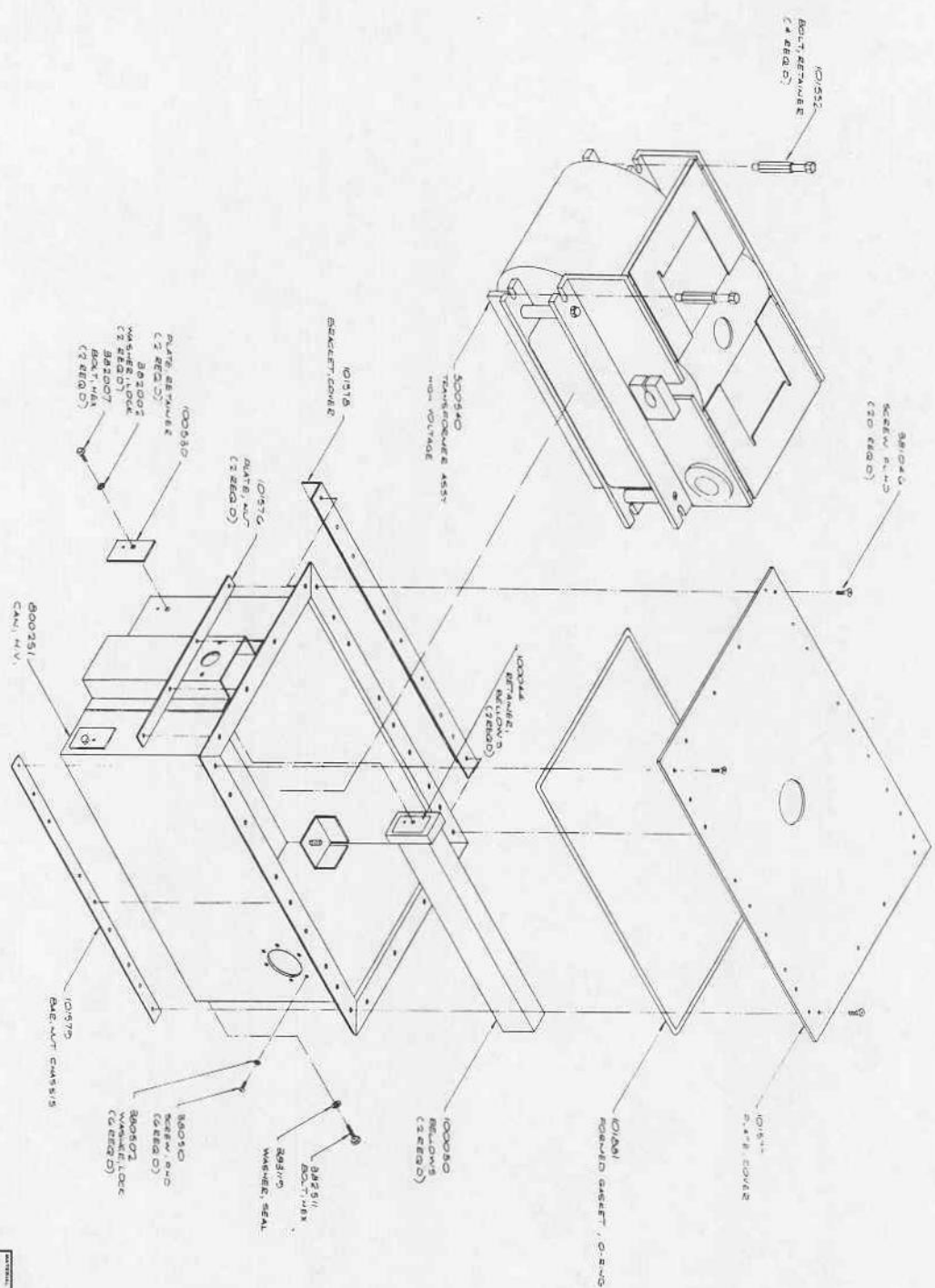
MATERIAL				FINISH				HEAT TREAT			
DIMENSIONAL TOLERANCES UNLESS OTHERWISE SPECIFIED				TITLE				WEIGHT			
FRACTION	DEC	ANG		SWITCH ASSEMBLY, EXPOSURE				IDDC/Porta Ray, Inc. 19 Jeffryn Blvd. West Deer Park, NY 11729			
± .004	± .003	± .10°		MOD 1200				DATE 7/1/90			
SCALE	LOVE	NO	PRO D	DRAWN S. V. A. W. - 421				DATE 7/1/90			
NET ASST.	500507			CHECKED [Signature]				DATE 7/1/90			
				APPROVED [Signature]				DATE 7/1/90			
				B				500512			



DATE	5/20/84	TIME	11:00
TO	1500 Forest Ave, Inc 15 Jefferson Blvd West Deer Park, NY 11720		
FROM	5005 40th		
SUBJECT	RE: 5005 40th		
REMARKS	5005 40th		

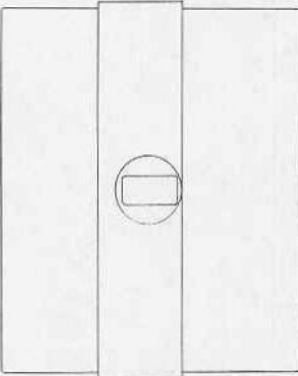


REVISIONS			
REV	DATE	DESCRIPTION	BY
1	01/11/79	INITIAL DESIGN	WJ

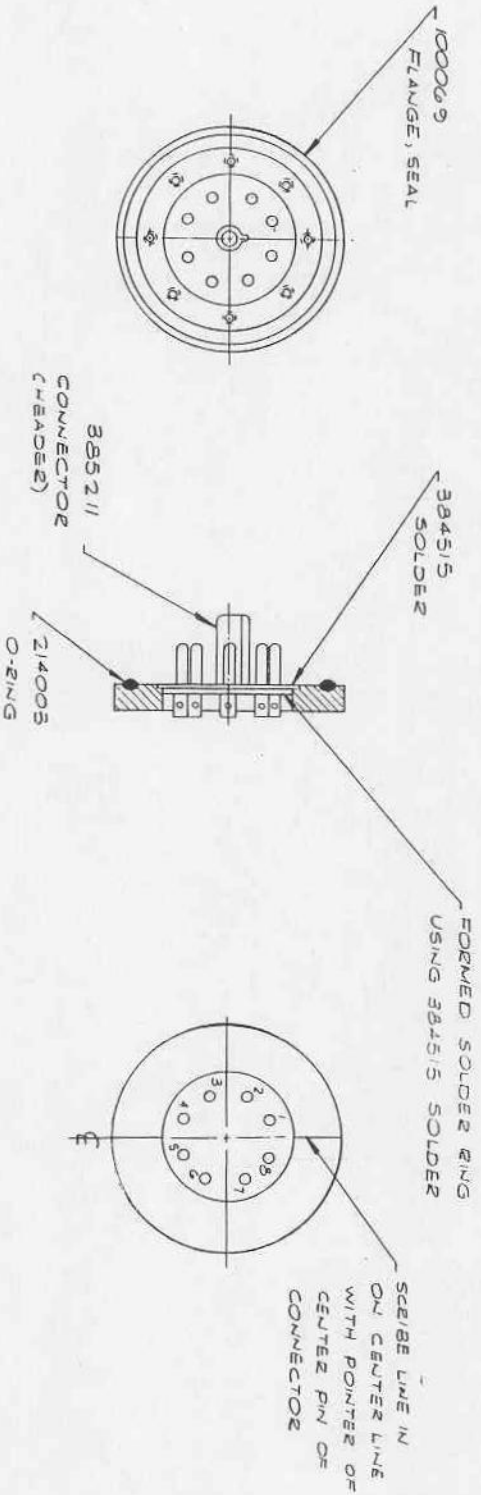


REVISIONS			
REV	DATE	DESCRIPTION	BY
1	01/11/79	INITIAL DESIGN	WJ

NOTES:
 1. USE STANDARD DIMENSIONS
 2. USE STANDARD DIMENSIONS
 3. USE STANDARD DIMENSIONS
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REVISIONS			DATE	APPROVAL
1	DESCRIPTION	DATE	DATE	APPROVAL
1	NEW RELEASE	7-11-80		



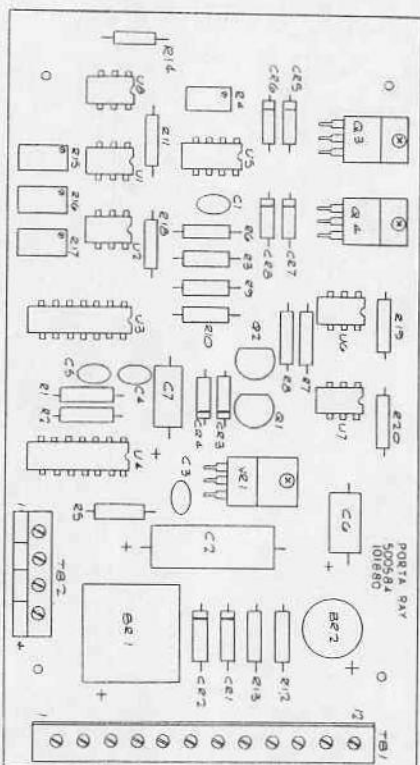
NOTES:

1. FORM SOLDER RING (1100)
2. INSTALL SOLDER RING ONTO CONNECTOR, THEN INSTALL INTO FLANGE SEAL
3. ALIGN POINTER ON CONNECTOR WITH ANY THREAD ON FLANGE
4. USING FIXTURE CLAMP ASSEMBLY & HEAT ON HOT PLATE UNTIL SOLDER FLOWS
5. APPLY SOLDER ONTO ASST, AROUND AREA BETWEEN CONNECTOR & FLANGE TO FILL VOID AREAS
6. LEAK CHECK - REPEAT STEPS 4 & 5 IF NEEDED

MATERIAL			FINISH			HEAT TREAT		
DIMENSIONAL TOLERANCES UNLESS OTHERWISE SPECIFIED			TITLE			WEIGHT		
FRACTION	DEC.	ANG.	H1-VOLTAGE CONNECTOR ASST			IDDC/Porta Ray, Inc. 19 Jeffryn Blvd. West Deer Park, NY 11729		
± 1/64	± .005	± 30'	MOD 1200			SITE		
SCALE	UNLESS NOTED	REQ. 1	DATE 7-10-80			DRAWING NUMBER		
500540	500540	500540	DATE 7-11-80			500576		
NEET ASST.	500540	500540	DATE 7-11-80			ISSUE		
APPROVED			DATE 7-11-80			B		

FO-27

REVISIONS		
ITEM	DESCRIPTION	DATE
1	NEW ELECTRICAL	02/07/02
2	REPLACE EXISTING ELECTRICAL	02/07/02

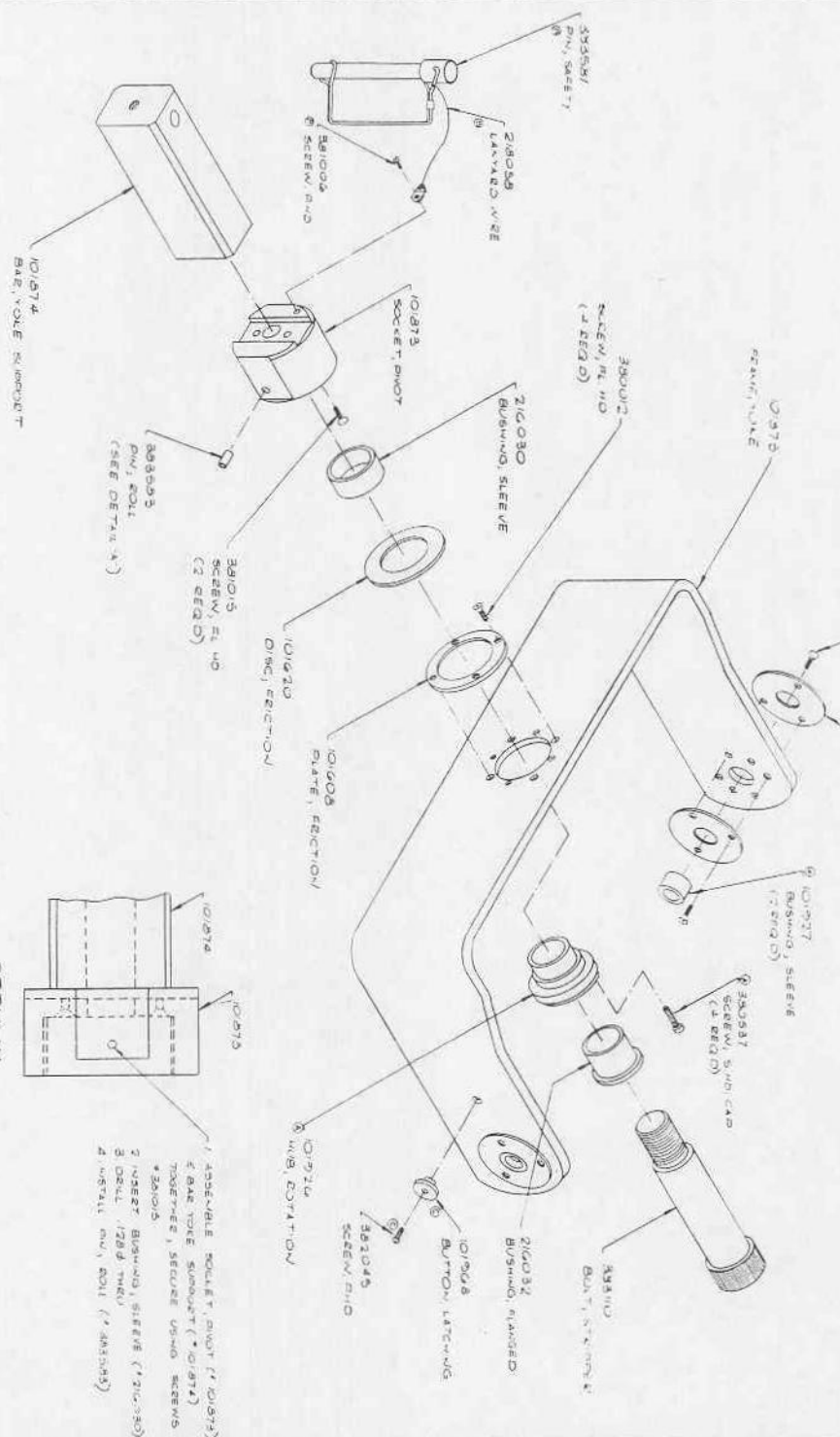


NOTES!
FOR RESEARCH ON MICROBIAL LIFE AND ECOLOGY

DATE	DESCRIPTION	AMOUNT	CHECK NO.	DATE
1/1/80	1/1/80	100.00	100	1/1/80
2/1/80	2/1/80	200.00	200	2/1/80
3/1/80	3/1/80	300.00	300	3/1/80
4/1/80	4/1/80	400.00	400	4/1/80
5/1/80	5/1/80	500.00	500	5/1/80
6/1/80	6/1/80	600.00	600	6/1/80
7/1/80	7/1/80	700.00	700	7/1/80
8/1/80	8/1/80	800.00	800	8/1/80
9/1/80	9/1/80	900.00	900	9/1/80
10/1/80	10/1/80	1000.00	1000	10/1/80
11/1/80	11/1/80	1100.00	1100	11/1/80
12/1/80	12/1/80	1200.00	1200	12/1/80
1/1/81	1/1/81	1300.00	1300	1/1/81
2/1/81	2/1/81	1400.00	1400	2/1/81
3/1/81	3/1/81	1500.00	1500	3/1/81
4/1/81	4/1/81	1600.00	1600	4/1/81
5/1/81	5/1/81	1700.00	1700	5/1/81
6/1/81	6/1/81	1800.00	1800	6/1/81
7/1/81	7/1/81	1900.00	1900	7/1/81
8/1/81	8/1/81	2000.00	2000	8/1/81
9/1/81	9/1/81	2100.00	2100	9/1/81
10/1/81	10/1/81	2200.00	2200	10/1/81
11/1/81	11/1/81	2300.00	2300	11/1/81
12/1/81	12/1/81	2400.00	2400	12/1/81
1/1/82	1/1/82	2500.00	2500	1/1/82
2/1/82	2/1/82	2600.00	2600	2/1/82
3/1/82	3/1/82	2700.00	2700	3/1/82
4/1/82	4/1/82	2800.00	2800	4/1/82
5/1/82	5/1/82	2900.00	2900	5/1/82
6/1/82	6/1/82	3000.00	3000	6/1/82
7/1/82	7/1/82	3100.00	3100	7/1/82
8/1/82	8/1/82	3200.00	3200	8/1/82
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11/1/82	11/1/82	3500.00	3500	11/1/82
12/1/82	12/1/82	3600.00	3600	12/1/82
1/1/83	1/1/83	3700.00	3700	1/1/83
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4/1/84	4/1/84	5200.00	5200	4/1/84
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12/1/84	12/1/84	6000.00	6000	12/1/84
1/1/85	1/1/85	6100.00	6100	1/1/85
2/1/85	2/1/85	6200.00	6200	2/1/85
3/1/85	3/1/85	6300.00	6300	3/1/85
4/1/85	4/1/85	6400.00	6400	4/1/85
5/1/85	5/1/85	6500.00	6500	5/1/85
6/1/85	6/1/85	6600.00	6600	6/1/85
7/1/85	7/1/85	6700.00	6700	7/1/85</

[illegible]

REVISIONS			
REV	DESCRIPTION	DATE	APPROVAL
1	NEW DESIGN	02/75	CP
A	REWORK (SEE DETAIL A)	07/80	CP
B	REWORK (SEE DETAIL A)	08/80	CP
C	REWORK (SEE DETAIL A)	08/80	CP



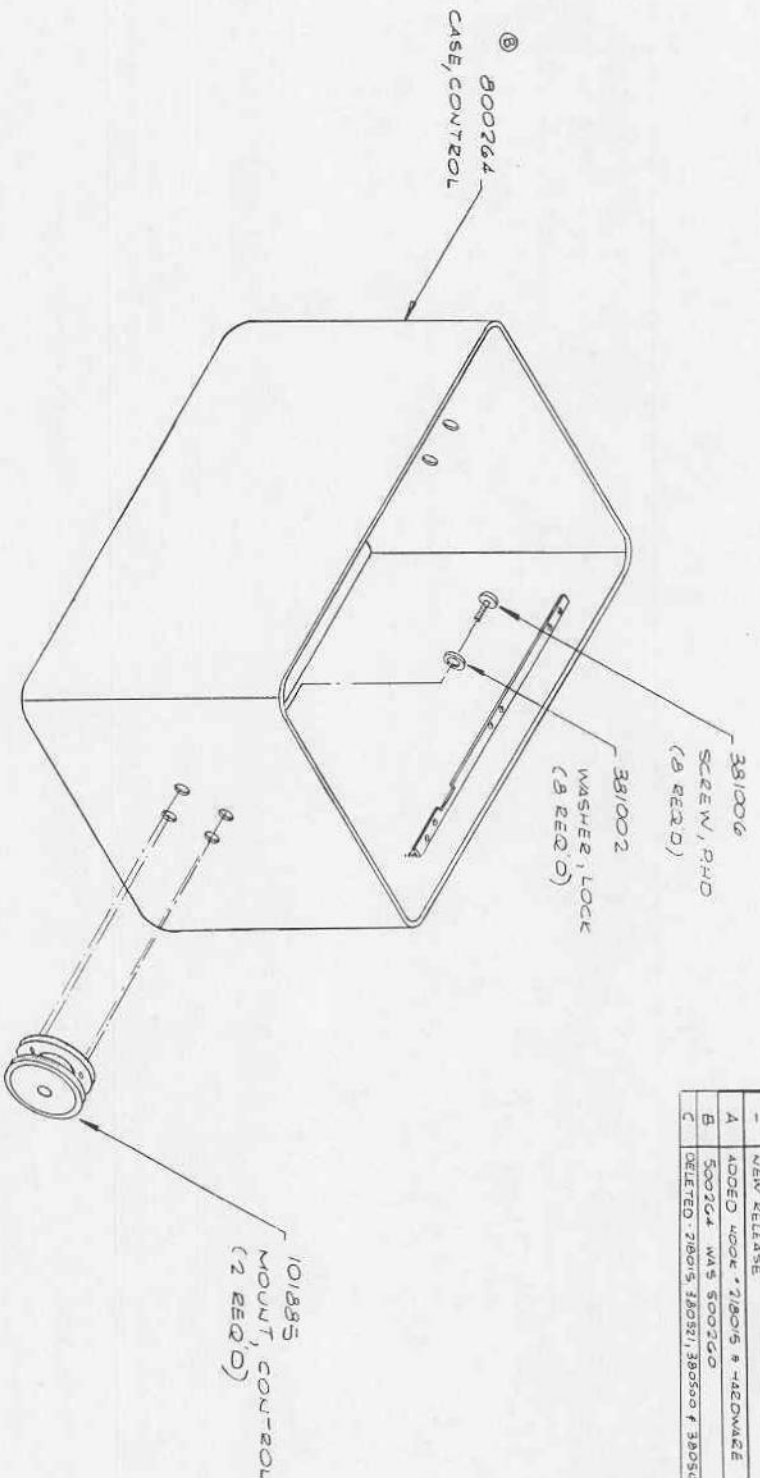
DETAIL A

NOTES:
1. USE LOCKWIRE (13045/2) ON ALL SCREWS

MATERIAL		FINISH		TREATMENT	
SUBASSEMBLY: YOLE ASSY.					
ITEM	QTY	REQ.	REQ.	REQ.	REQ.
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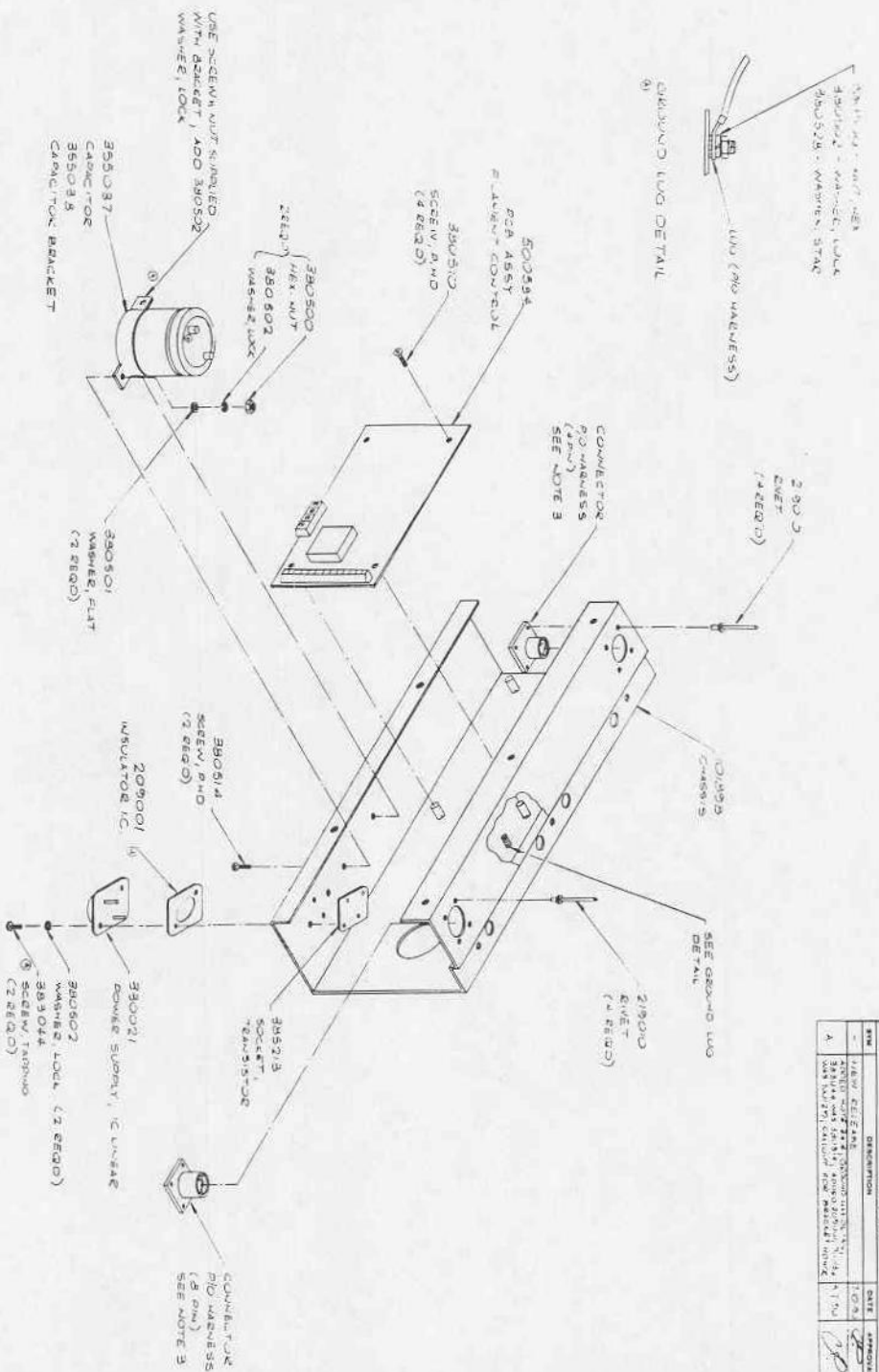
REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
-	NEW RELEASE	6-27-90	CJ
A	ADDED LOCK * 218015 & * 420WAZE	7-6-90	CJ
B	500264 WAS 500260	8-13-90	CJ
C	DELETED: 218015, 1A0321, 3A0500 & 3A0502	9-7-90	CJ



NOTES:
1. USE LOCKWITE P/N 384512 ON ALL SCREWS.

MATERIAL				FINISH		HEAT TREAT	
DIMENSIONAL TOLERANCES UNLESS OTHERWISE SPECIFIED				TITLE		WEIGHT	
FRACTION	DEC.	ANG.		CASE, ASSEMBLY		IDDC/Porta Ray, Inc.	
± 1/64	± .005	± .30°		CONTROL		19 Jeffryn Blvd. West	
				NDD 1200		Deer Park, NY 11729	
SCALE 1" = 4"	NO. 1	REQ'D		DRAWN S. MAUTZ		DATE 6-27-90	
				CHECKED CJ		DATE 6-29-90	
				APPROVED [Signature]		DATE 7-7-90	
NEXT ASSY. 500507						B	
						500587	
						C	

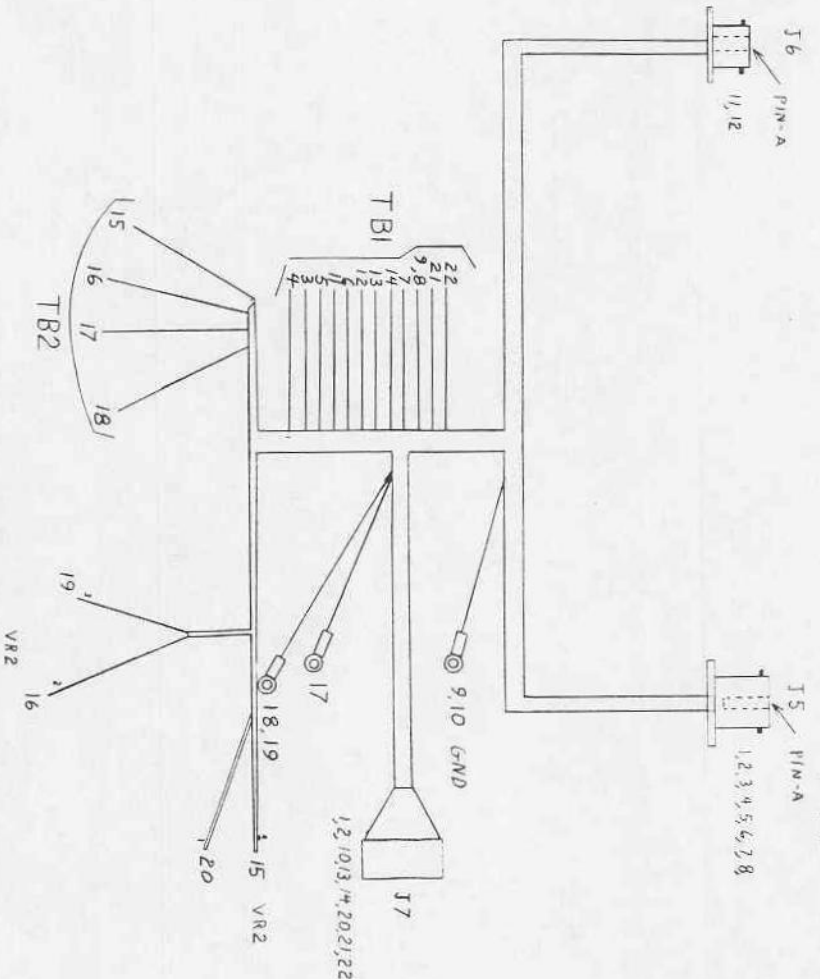
COMPANY NAME		FIRM		TOTAL PRICE	
CONCRETE, FORMWORK		ITEM 2		1	
PAVING, ASPHALT		ITEM 3		1	
PAVING, PORTLAND CEMENT		ITEM 4		1	
PAVING, GRAVEL		ITEM 5		1	
PAVING, SAND		ITEM 6		1	
PAVING, OTHER		ITEM 7		1	
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PAVING, TOTAL		ITEM 9		1	
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PAVING, TOTAL		ITEM 211		1	
PAVING, TOTAL		ITEM 212		1	
PAVING, TOTAL		ITEM 213		1	
PAVING, TOTAL		ITEM 214		1	
PAVING, TOTAL		ITEM 215		1	
PAVING, TOTAL		ITEM 216		1	
PAVING, TOTAL		ITEM 217		1	
PAVING, TOTAL		ITEM 218		1	
PAVING, TOTAL		ITEM 219		1	
PAVING, TOTAL		ITEM 220		1	
PAVING, TOTAL		ITEM 221		1	
PAVING, TOTAL		ITEM 222		1	
PAVING, TOTAL		ITEM 223		1	
PAVING, TOTAL		ITEM 224		1	
PAVING, TOTAL		ITEM 225		1	
PAVING, TOTAL		ITEM 226		1	
PAVING, TOTAL		ITEM 227		1	
PAVING, TOTAL		ITEM 228		1	
PAVING, TOTAL		ITEM 229		1	
PAVING, TOTAL		ITEM 230		1	
PAVING, TOTAL		ITEM 231		1	
PAVING, TOTAL		ITEM 232		1	
PAVING, TOTAL		ITEM 233		1	
PAVING, TOTAL		ITEM 234		1	
PAVING, TOTAL		ITEM 235		1	
PAVING, TOTAL		ITEM 236		1	
PAVING, TOTAL		ITEM 237		1	
PAVING, TOTAL		ITEM 238		1	
PAVING, TOTAL		ITEM 239		1	
PAVING, TOTAL		ITEM 240		1	
PAVING, TOTAL		ITEM 241		1	
PAVING, TOTAL		ITEM 242		1	
PAVING, TOTAL		ITEM 243		1	
PAVING, TOTAL		ITEM 244		1	
PAVING, TOTAL		ITEM 245		1	
PAVING, TOTAL		ITEM 246		1	
PAVING, TOTAL		ITEM 247		1	
PAVING, TOTAL		ITEM 248		1	
PAVING, TOTAL		ITEM 249		1	
PAVING, TOTAL		ITEM 250		1	
PAVING, TOTAL		ITEM 251		1	
PAVING, TOTAL		ITEM 252		1	
PAVING, TOTAL		ITEM 253		1	
PAVING, TOTAL		ITEM 254		1	
PAVING, TOTAL		ITEM 255		1	
PAVING, TOTAL		ITEM 256		1	
PAVING, TOTAL		ITEM 257		1	
PAVING, TOTAL		ITEM 258		1	
PAVING, TOTAL		ITEM 259		1	
PAVING, TOTAL		ITEM 260		1	
PAVING, TOTAL		ITEM 261		1	
PAVING, TOTAL		ITEM 262		1	
PAVING, TOTAL		ITEM 263		1	
PAVING, TOTAL		ITEM 264		1	
PAVING, TOTAL		ITEM 265		1	
PAVING, TOTAL		ITEM 266		1	
PAVING, TOTAL		ITEM 267		1	
PAVING, TOTAL		ITEM 268		1	
PAVING, TOTAL		ITEM 269		1	
PAVING, TOTAL		ITEM 270		1	
PAVING, TOTAL		ITEM 271		1	
PAVING, TOTAL		ITEM 272		1	
PAVING, TOTAL		ITEM 273		1	
PAVING, TOTAL		ITEM 274		1	
PAVING, TOTAL		ITEM 275		1	
PAVING, TOTAL		ITEM 276		1	
PAVING, TOTAL		ITEM 277		1	
PAVING, TOTAL		ITEM 278		1	
PAVING, TOTAL		ITEM 279		1	
PAVING, TOTAL		ITEM 280		1	
PAVING, TOTAL		ITEM 281		1	
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PAVING, TOTAL		ITEM 284		1	
PAVING, TOTAL		ITEM 285		1	
PAVING, TOTAL		ITEM 286		1	
PAVING, TOTAL		ITEM 287		1	
PAVING, TOTAL		ITEM 288		1	
PAVING, TOTAL		ITEM 289		1	
PAVING, TOTAL		ITEM 290		1	
PAVING, TOTAL		ITEM 291		1	
PAVING, TOTAL		ITEM 292		1	
PAVING, TOTAL		ITEM 293		1	
PAVING, TOTAL		ITEM 294		1	
PAVING, TOTAL		ITEM 295		1	
PAVING, TOTAL		ITEM 296		1	
PAVING, TOTAL		ITEM 297		1	
PAVING, TOTAL		ITEM 298		1	
PAVING, TOTAL		ITEM 299		1	
PAVING, TOTAL		ITEM 300		1	
PAVING, TOTAL		ITEM 301		1	
PAVING, TOTAL		ITEM 302		1	
PAVING, TOTAL		ITEM 303		1	
PAVING, TOTAL		ITEM 304		1	
PAVING, TOTAL		ITEM 305		1	
PAVING, TOTAL		ITEM 306		1	
PAVING, TOTAL		ITEM 307		1	
PAVING, TOTAL		ITEM 308		1	
PAVING, TOTAL		ITEM 309		1	
PAVING, TOTAL		ITEM 310		1	
PAVING, TOTAL		ITEM 311		1	
PAVING, TOTAL		ITEM 312		1	
PAVING, TOTAL		ITEM 313		1	
PAVING, TOTAL		ITEM 314		1	
PAVING, TOTAL		ITEM 315		1	
PAVING, TOTAL		ITEM 316		1	
PAVING, TOTAL		ITEM 317		1	
PAVING, TOTAL		ITEM 318		1	
PAVING, TOTAL		ITEM 319		1	
PAVING, TOTAL		ITEM 320		1	



NOTES

1. USE WIRE CABLE * 7001820
2. NOT STAIN BUT FORDS FACT OF THIS ASST !
3. NOTE POSITION OF CETS ON CONNECTORS BEFORE WETTING W/TO PLACE
4. USE WIRE LIST FOR ALL WIRE LENGTHS & END TERMINATIONS

REVISIONS			
REV	DATE	DESCRIPTION	BY
1	10/1/89	NEW ASSEMBLY	CA

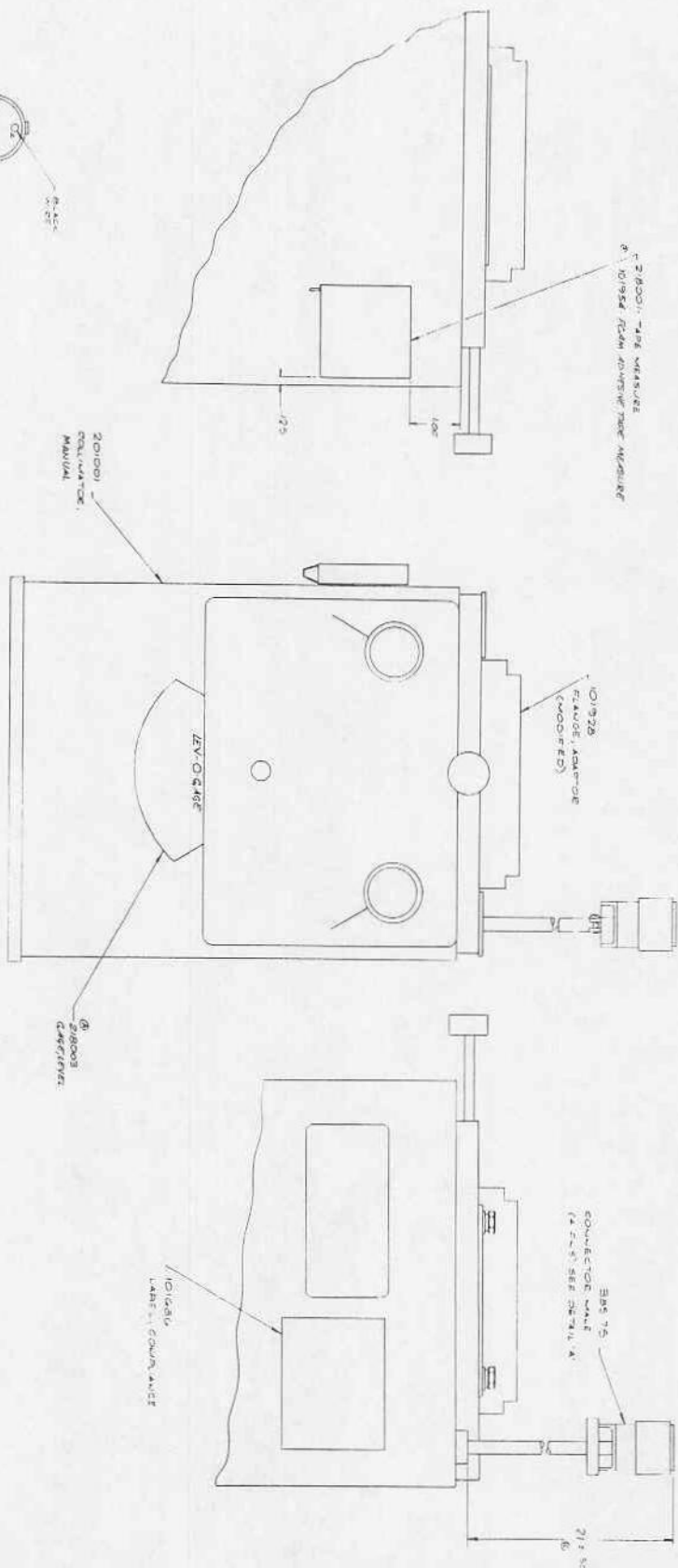


NOTE:
 1. USE WIRE LIST FOR ALL WIRE IDENTIFICATIONS
 2. ALL WIRE LENGTHS ARE IN INCHES
 3. USE STANDARD DIMENSIONING TOOLS
 4. THIS DRAWING IS A 1:1 SCALE

ITEM NO.	QTY	CODE IDENT	PART OR IDENT NO.	SPECIFICATION	DESCRIPTION	REV	DATE	REMARKS
500588	500542							
UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES				PART LIST				
TOLERANCES ON DECIMALS				DATE				
FRACTIONS				10/1/89				
ANGLES				10/1/89				
MATERIAL				WIRING APPROVAL				
FINISH				APPROVED				
APPLICATION				APPROVED				
SCALE				1:1				
SHEET				1 of 1				

[illegible]

REV	DATE	BY	APP'D	DESCRIPTION
1	10/10/84	10/10/84	10/10/84	10/10/84
2	10/10/84	10/10/84	10/10/84	10/10/84
3	10/10/84	10/10/84	10/10/84	10/10/84
4	10/10/84	10/10/84	10/10/84	10/10/84
5	10/10/84	10/10/84	10/10/84	10/10/84
6	10/10/84	10/10/84	10/10/84	10/10/84
7	10/10/84	10/10/84	10/10/84	10/10/84
8	10/10/84	10/10/84	10/10/84	10/10/84
9	10/10/84	10/10/84	10/10/84	10/10/84
10	10/10/84	10/10/84	10/10/84	10/10/84



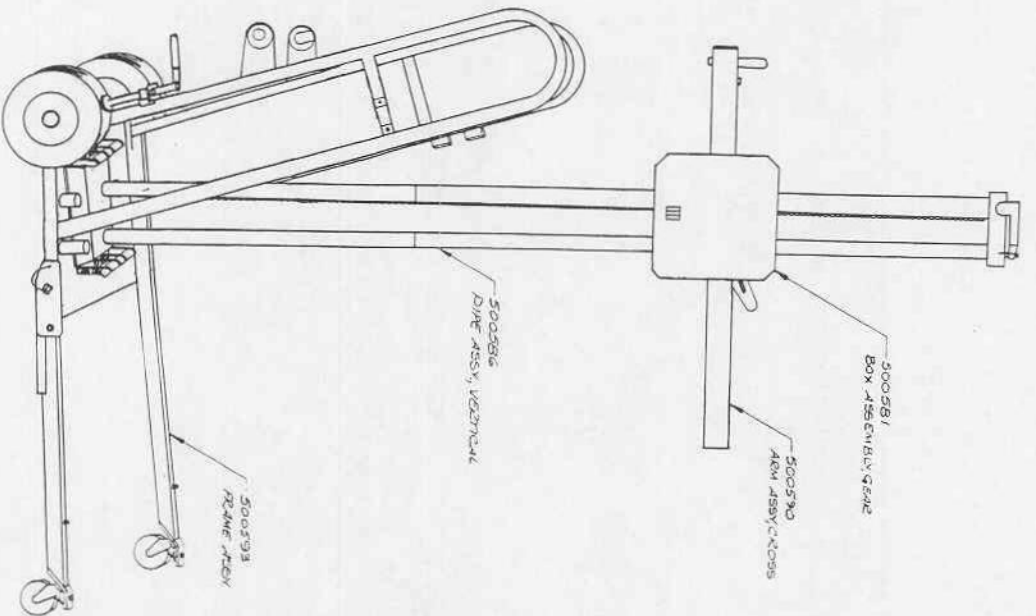
DETAIL A
USE ONLY
ON 38575

REV	DATE	BY	APP'D	DESCRIPTION
1	10/10/84	10/10/84	10/10/84	10/10/84
2	10/10/84	10/10/84	10/10/84	10/10/84
3	10/10/84	10/10/84	10/10/84	10/10/84
4	10/10/84	10/10/84	10/10/84	10/10/84
5	10/10/84	10/10/84	10/10/84	10/10/84
6	10/10/84	10/10/84	10/10/84	10/10/84
7	10/10/84	10/10/84	10/10/84	10/10/84
8	10/10/84	10/10/84	10/10/84	10/10/84
9	10/10/84	10/10/84	10/10/84	10/10/84
10	10/10/84	10/10/84	10/10/84	10/10/84



F0-33

REVISIONS		
REV	DESCRIPTION	DATE
1	NEW DESIGN	10/2/77

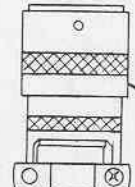


MATERIAL			
QTY	UNIT	DESCRIPTION	REMARKS
2	PCS	500581 BOX ASSEMBLY Q&A2	
2	PCS	500590 ARM ASSY, CROSS	
1	PCS	500586 DIVE ASSY, VERTICAL	
1	PCS	500593 PLATE ASSY	
1	PCS	500598	

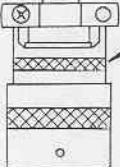
[illegible]

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
-	NEW RELEASE	7-10-90	<i>[Signature]</i>

385209-CONNECTOR, 8 PIN
 385190- PIN, FEMALE (3 REQ'D)
 385184- PIN, FEMALE (5 REQ'D)
 SEE DETAIL 'B'

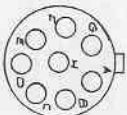


385174-CONNECTOR, 8 PIN
 385189- PIN, MALE (3 REQ'D)
 385183- PIN, MALE (5 REQ'D)
 SEE DETAIL 'A'



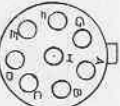
400058
 CABLE, PVC (8COND)
 (8 FT. LG)

PIN LTR.	PIN PART #	WIRE COLOR
A	385184	BLACK *1G
B	385184	WHITE *1G
C	385190	RED *22
D	385190	ORANGE *22
E	385184	BROWN *1G
F	385184	BLUE *1G
G	385190	YELLOW *22
H	385184	GREEN *1G



DETAIL 'B'

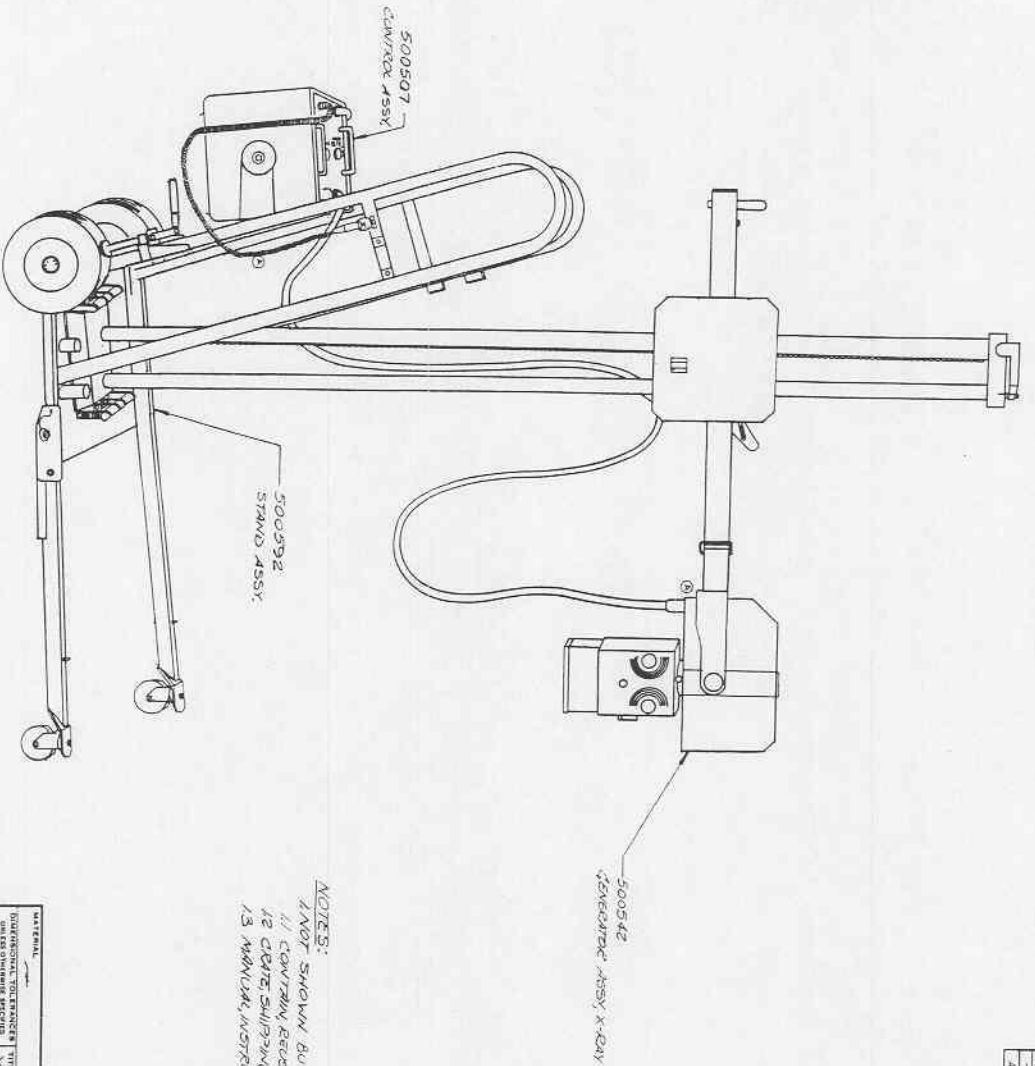
PIN LTR.	PIN PART #	WIRE COLOR
A	385183	BLACK *1G
B	385183	WHITE *1G
C	385189	RED *22
D	385189	ORANGE *22
E	385183	BROWN *1G
F	385183	BLUE *1G
G	385189	YELLOW *22
H	385183	GREEN *1G



DETAIL 'A'

MATERIAL		FINISH		HEAT TREAT		WEIGHT	
DIMENSIONAL TOLERANCES UNLESS OTHERWISE SPECIFIED FRACTION DECIMAL ANGLES $\pm 1/64$ $\pm .003$ $\pm .30^\circ$							
TITLE				CABLE ASSEMBLY			
INTERCONNECT				MOD 1200			
SCALE	NO.	NO.	NO.	DRAWN S. MANTTARI	DATE 7-10-90	SIZE	500595
NEXT ASSY.	500507	REQ'D	1	CHECKED	DATE 7-10-90	DRAWING NUMBER	ISSUE
APPROVED				B 500595 -			

REVISIONS		
REV#	DESCRIPTION	DATE APPROVAL
-	NEW RELEASE	8/6/90
4	GRANDPARENT CHANGE	8/9/90



NOTES:
1. NOT SHOWN BUT FORMS PART OF THIS ASSEMBLY:
11. CONTAINING REVERSIBLE 201047
12. CATERPILLAR SHIPPING 500804
13. MANUAL INSTRUCTION 700133

[illegible]

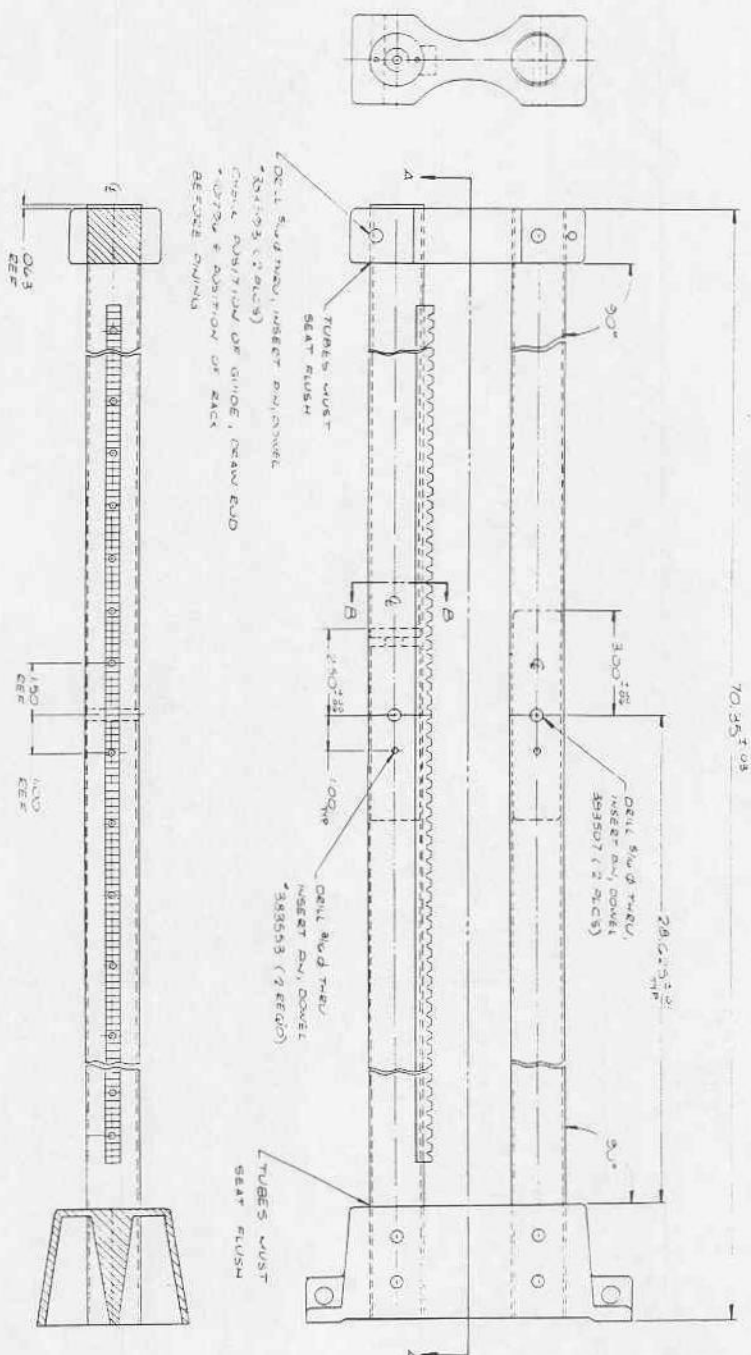
NOTES:
1. DALL 5/32 (156d) THRU CRANK ARM *101913 & PIVOT-ROUING *101937
INSERT PIN, COLL # 383595
2. DALL 1/16 (062d) THRU CRANK ARM *101913 & PIVOT-ROUING *101937
INSERT PIN, COLL # 383595 (SEE DETAIL 'A')



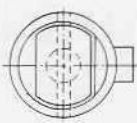
THE LOST • MISSING ON SCREWS ROAD



REVISIONS			
ITEM	DESCRIPTION	DATE	APPROVAL
-	SEE SHEET 1	7-2-97	<i>[Signature]</i>



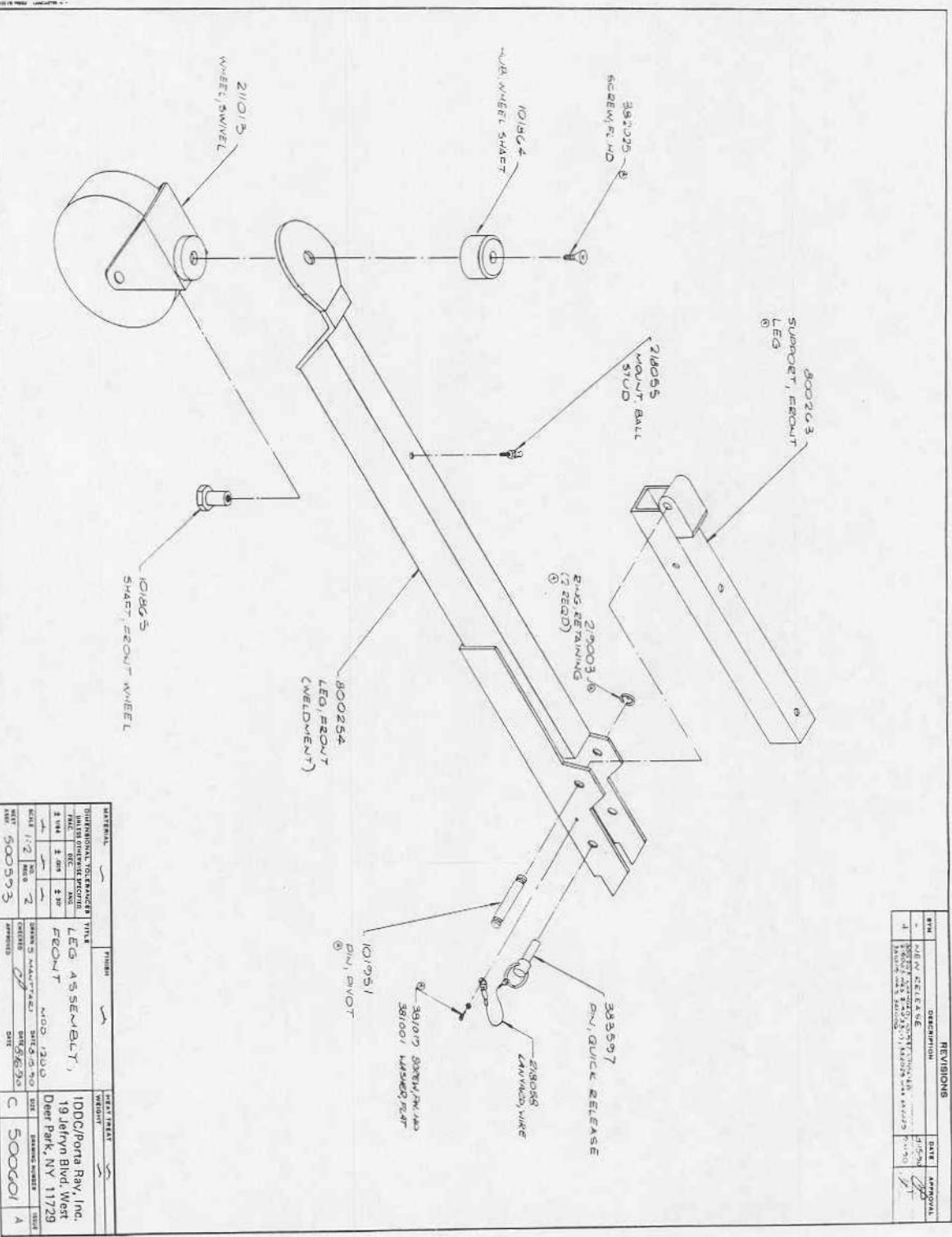
SECTION B-B



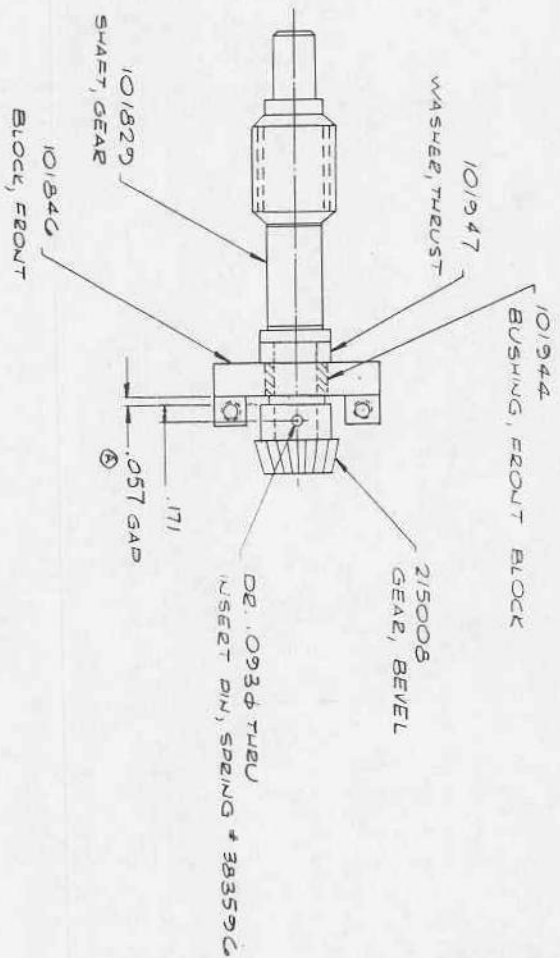
VIEW A - A

[illegible]

REVISIONS		
REV	DESCRIPTION	DATE
1	ISSUED FOR FAB	5-15-64
2	ISSUED FOR FAB (REVISED)	5-15-64
3	ISSUED FOR FAB (REVISED)	5-15-64
4	ISSUED FOR FAB (REVISED)	5-15-64

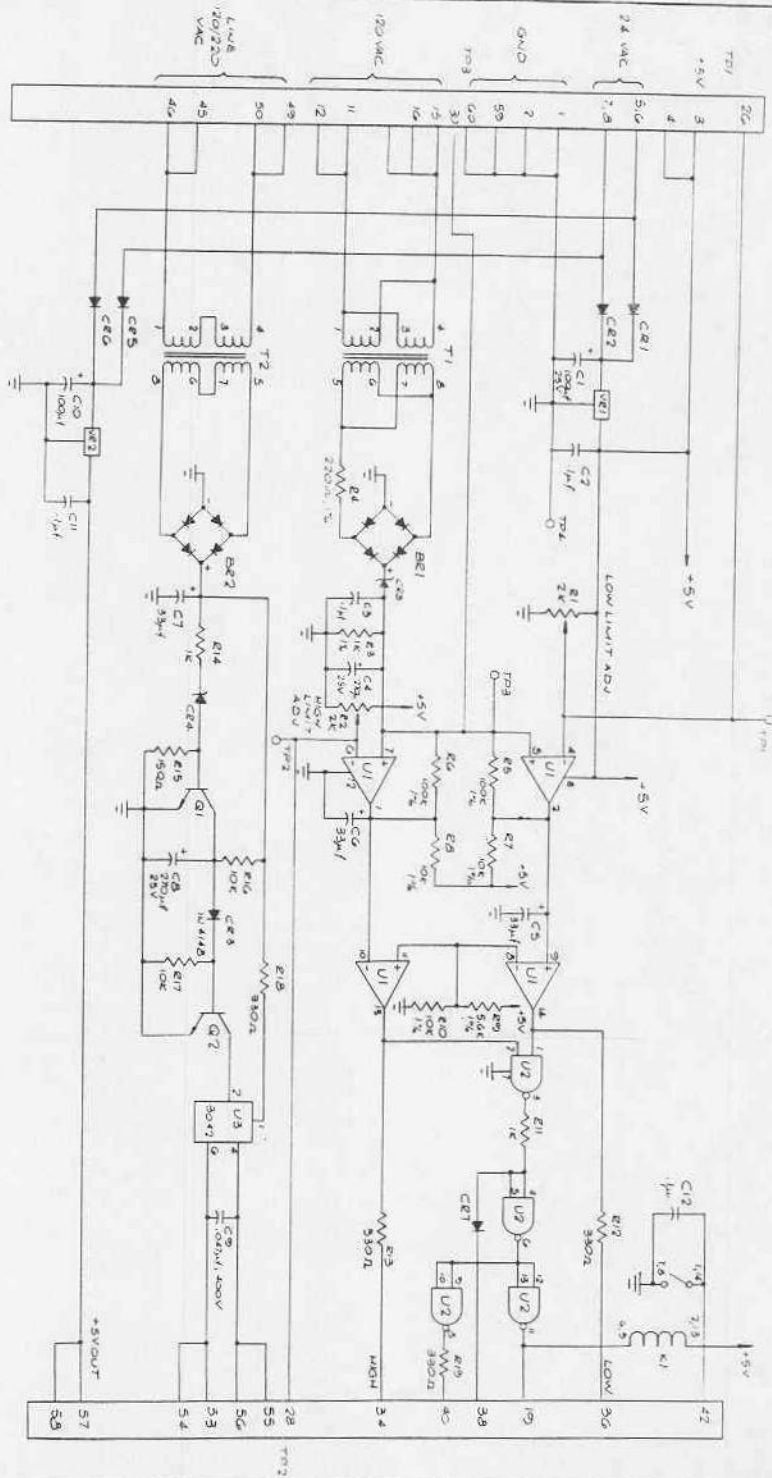


REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
-	NEW RELEASE	8-8-90	CD
A	.057 GAP WAS .075	8-23-90	CD



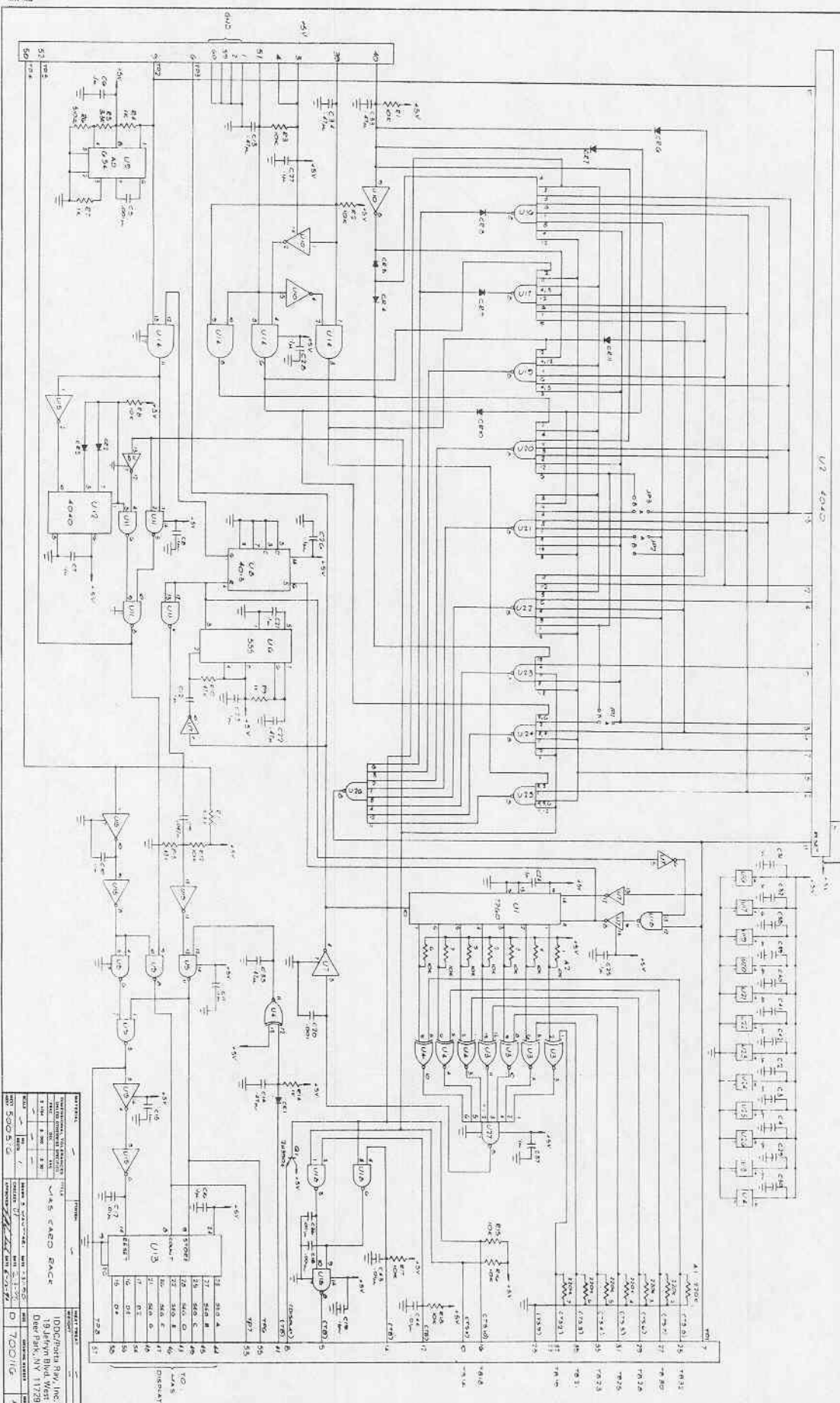
MATERIAL		FINISH		HEAT TREAT	
DIMENSIONAL TOLERANCES UNLESS OTHERWISE SPECIFIED					
FRACTION	DEC.	ANG.			
± 1/64	± .005	± 10'			
SCALE 1:1	NO. RECD 1				
NEXT ASSY. 500581	CHECKED CD	DATE 8-8-90	DATE 8-13-90		
APPROVED					
TITLE		IDDC/Porta Ray, Inc.			
SHAFT ASSY, GEAR		19 Jeffryn Blvd. West			
(GEAR BOX)		Deer Park, NY 11729			
MOD 1200		DRAWN S. MANTTARI			
DATE 8-8-90		DATE 8-13-90			
SIZE		DRAWING NUMBER			
B		500603			
ISSUE		A			

REVISIONS			
REV	DESCRIPTION	DATE	APPROVAL
A	DESIGNED & APPROVED C.E. 7	5-10-75	CE
B	DESIGNED & APPROVED C.E. 7	5-10-75	CE
C	DESIGNED & APPROVED C.E. 7	5-10-75	CE

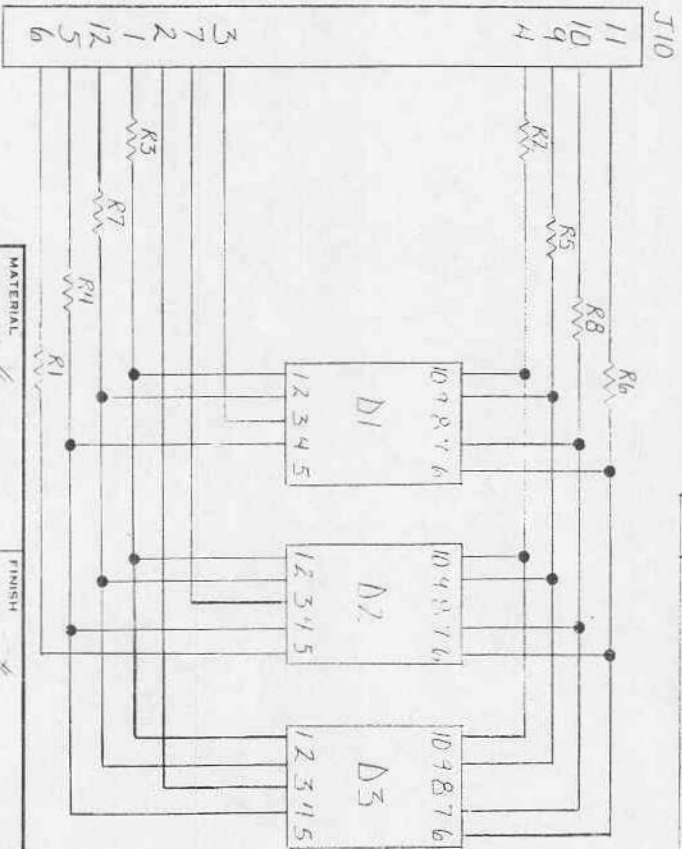


MATERIAL		FINISH	IDENTIFY
CONNECTIONS TO REVERSE			
LINE SET 1			
SEUSE BOARD			
19 JEFFRY BLVD, WEST			
DEER PARK, NY 11729			
SCALE: 1" = 10"			
DRAWN BY: J. A. E.			
CHECKED BY: J. A. E.			
DATE: 5-10-75			
CIRCUIT: 700112			
C			

[illegible]



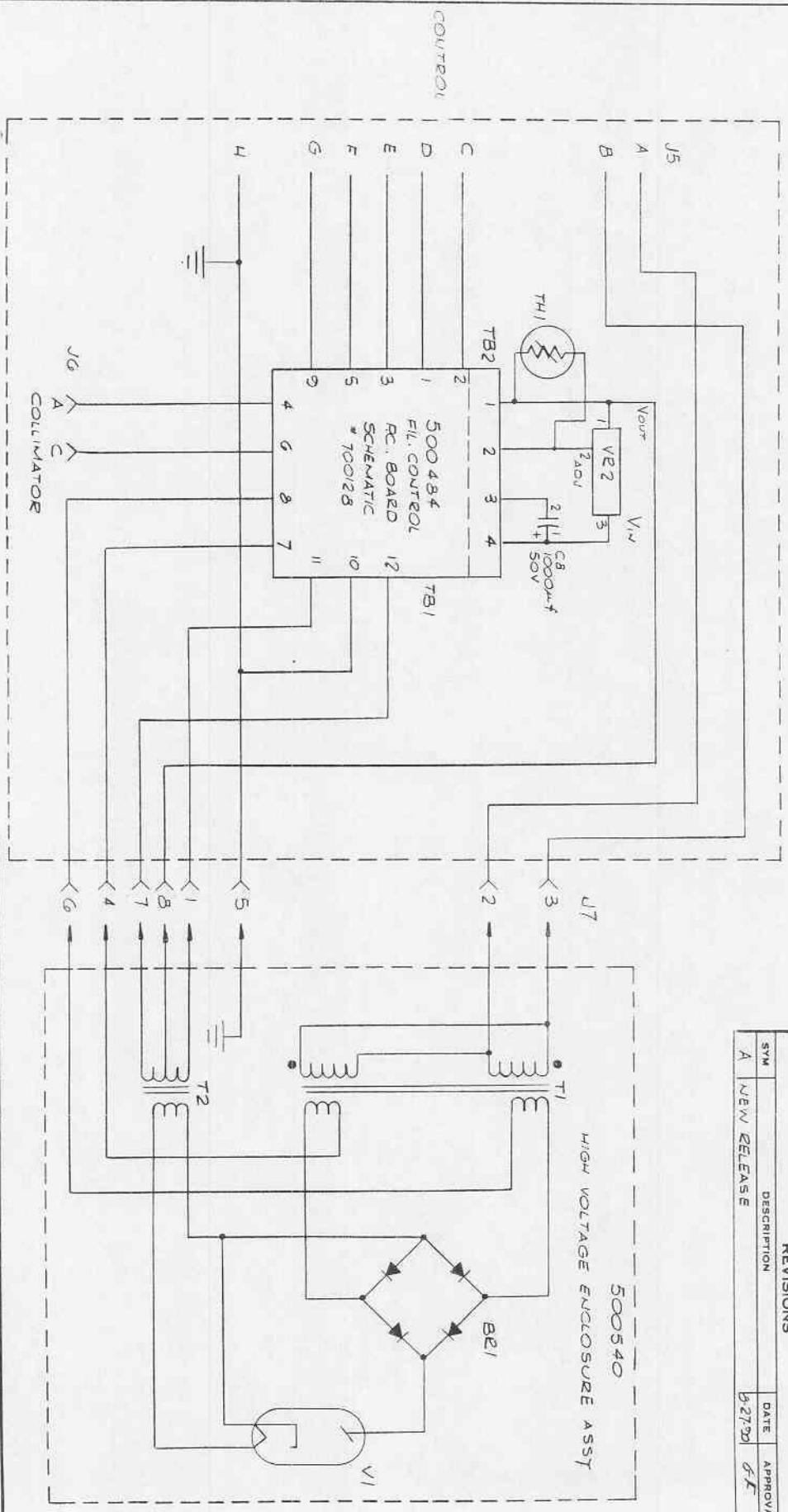
REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
-	NEW RELEASE	9-22-89	R. J. [Signature]



NOTE:
ALL RESISTORS
33.0L 1/4W

MATERIAL		FINISH		HEAT TREAT	
DIMENSIONAL TOLERANCES UNLESS OTHERWISE SPECIFIED		TITLE		WEIGHT	
FRACTION	DEC.	ANG.		IDDC/Porta Ray, Inc. 19 Jeffryn Blvd. West Deer Park, NY 11729	
± 1/64	± .005	± .30'		DATE 9-22-89	
SCALE	NO. REV. D.	DRAWN		DATE 9-22-89	
NEXT ASST. 500517		CHECKED		DATE 9-22-89	
		APPROVED		DATE 9-22-89	
		SITE		DRAWING NUMBER	
		A		700117	
				ISSUE	
				-	

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
A	NEW RELEASE	6-27-70	G.F.



CHASSIS ASSY
500588

MATERIAL			FINISH		HEAT TREAT	
DIMENSIONAL TOLERANCES UNLESS OTHERWISE SPECIFIED			TITLE		WEIGHT	
FRACTION	DEC.	ANG.	SCHEMATIC DIAGRAM GENERATOR ASSY		IDDC/Porta Ray, Inc. 19 Jethryn Blvd. West Deer Park, NY 11729	
± 1/64	± .005	± 30°	W001700			
SCALE	NO. REQ'D		DRAWN S. MANTTARI		SITE	
1/8	1	1	DATE 8-27-70		DRAWING NUMBER	
			CHECKED P. L.		700132	
			APPROVED [Signature]		ISSUE	
NEXT ASSY.	500542		DATE 8-28-70		B	
			DATE 8-15-70			