

**LUDLUM MODEL 3500-3000
RADIATION DETECTOR SYSTEM**

August 2006
Serial Number 150001
and Succeeding Serial Numbers

Firmware Version n52 - Latching Alarm
Firmware Version n27 - Non-Latching Alarm
and Succeeding Versions

RECEIVING CONDITION EXAMINATION

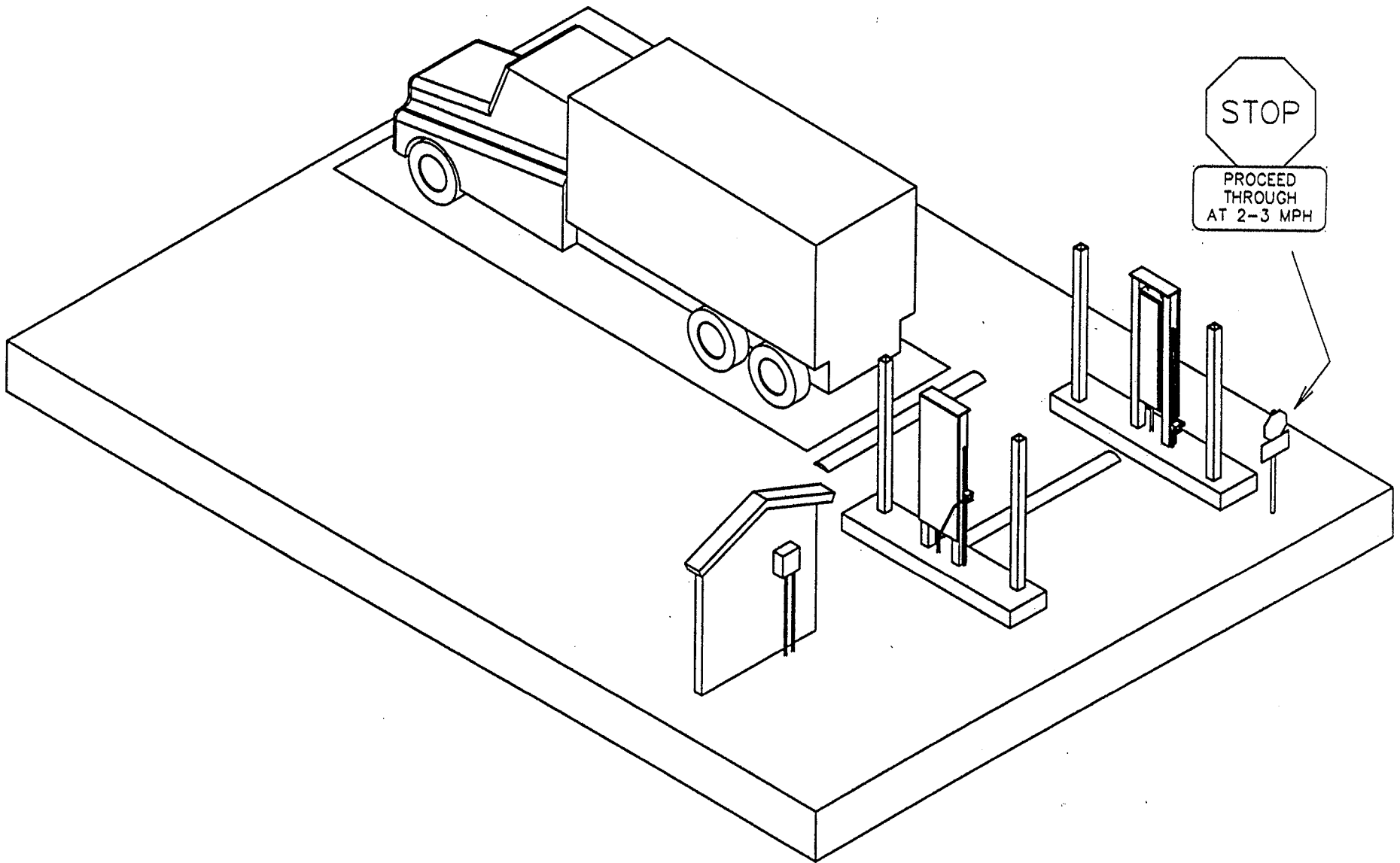
Be sure to verify that the shipping carton is received in good condition with no visible damage. Should the instrument be received in a damaged condition, save the shipping container and the packing material and request an immediate inspection by the carrier.

RETURN OF GOODS TO MANUFACTURER

If equipment needs to be returned to Ludlum Measurements, Inc. for repair or calibration, please send to the address below. All shipments should include documentation containing return shipping address, customer name, telephone number, description of service requested, and all other necessary information. Your cooperation will expedite the return of your equipment.

**LUDLUM MEASUREMENTS, INC.
ATTN: REPAIR DEPARTMENT
501 OAK STREET
SWEETWATER, TX. 79556
800-622-0828(USA) 325-235-5494
FAX: 325-235-4672**

REV #	ALTERATIONS	DATE	BY
	VALID	7-14-98	JGV



STOP

PROCEED THROUGH AT 2-3 MPH

SHOWN WITH OPTIONAL CURB AND SPEED BUMPS

SEE ALSO SHEETS
384 X 260 A,B,C,D

DWN	DATE	CHECKED	APPROVED
JGV	7-14-98	BLH 7-16-98	BLH 9-24-98
TITLE: M 3500-3K ISO VIEW			
LUDLUM RESEARCH, INC. 201 ONE STREET EVANSTON, ILL. 60120	SERIES	SHEET	
	384	260E	

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MODEL 3500-3000 RADIATION MONITOR SYSTEM

1. GENERAL

The Model 3500-3000 Radiation Monitor System is designed to detect low levels of radiation in loads passing through the system.

Two scintillation detectors, each containing approximately 1500 cubic inches of plastic detector media, provide coverage on both sides of a vehicle. The detectors' large size, 60 inches long by 12 inches wide by 2 inches thick, provides a large area for the capture of gamma radiation. The detectors are housed in weather-tight steel enclosures.

The microprocessor based electronics is constructed in a steel box. This unit provides automatic background compensation and automatic alarm point setting above the current background reading. Each detector has its own high voltage power supply to minimize the risk of total system failure. The monitor is very easy to use and requires only minimal operator interaction. Upon power up, the monitor requires

approximately fifteen seconds to measure background readings. It is then ready for operation. Diagnostic routines provide assurance that the system is operating correctly and indicators warn of possible detector failure. Meter override buttons check the count from each detector. Alarm settings are internal, allowing for tamper-resistant operation of the system. A digital RS-232 output is provided for connection of a computer or printer. An alarm relay output is also provided to drive additional beacons or sirens in an alarm condition. An infrared sensor is placed with the detectors. The sensor is used to signal the microprocessor to switch from updating background to monitoring for an increase in radiation level.

2. HOW IT WORKS

The Model 3500-3000 Radiation Monitor is a two-channel dynamic monitoring system. It is designed primarily to be used at a facility's weigh scale or entry point; however, it can also be used in other areas as well.

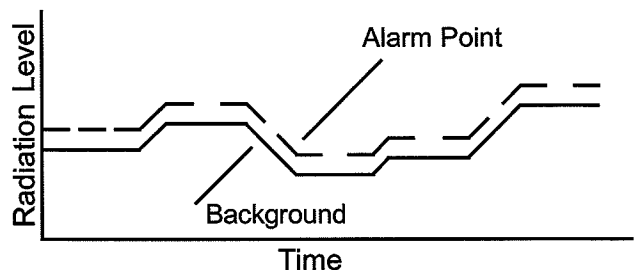
The purpose of the system is to help in the detection of any sources of radiation in a load of material. It is strongly recommended that this be used as a first line of defense. This should be backed up by monitoring the material in the yard with a handheld unit periodically throughout the processing of the material to insure optimum coverage of the material.

When the system is turned on, it will perform a self-diagnostic routine and take background samples. Once the background is established, the alarm point will be automatically set at a certain point above the background reading.

NOTE: This alarm point is set at 6 deviations above background when shipped. It can be changed if desired by the operator.

The system will continue to monitor the background reading while there are no vehicles

passing through the system. As the readings change, the alarm point will change in order to stay at the same level above background.



When a vehicle passes through the system, the infrared sensor triggers the system to stop monitoring background and begin monitoring the vehicle for any radiation sources that may be in the load. Once the vehicle has passed completely through the system, the processor will analyze the data to determine if there is a source of radiation in the load.

If the system detects excessive radiation, the alarm circuit will be activated to warn the user. Otherwise the system will resume background monitoring and is ready for the next vehicle.

MODEL 3500-3000 RADIATION MONITOR SYSTEM

2. HOW IT WORKS

In the event of an alarm, the user simply has to press the alarm reset button, and the instrument will then resume monitoring background. If the user wants to maintain the alarm condition until a supervisor or other person is aware of it, the user can press the AUDIO ACKNOWLEDGE button to silence the audio while still having the alarm identified by the lights.

Other options include a printer to obtain a hard copy of the data on the vehicle that caused the alarm or a computer interface to have all the data dumped to a file for use at a later time. This latter option also provides the user with a visual presentation of the approximate location of the source in the load on a depiction of the vehicle.

3. PRELIMINARY INSTRUCTIONS

UNPACKING AND REPACKING

Remove calibration certificate and place in secure location. Remove instrument and accessories (batteries, cable, etc.) and ensure that all of the items listed on the packing list are in the carton. If more than one instrument is in carton refer to the calibration certificate(s) for serial number match. The Model 3500-1000 S/N is located on the front panel near the lower left hand corner.

To return an instrument for repair or calibration provide sufficient packing material to prevent damage during shipment. Provide appropriate warning labels to ensure careful handling. Include detector(s) and related cable(s) for calibration. Include brief information as to the reason for return and return shipping instructions (address, P.O.#, etc.).

- return shipping address
- customer name or contact
- telephone number
- description of service requested
and all other necessary information

4. RADIATION

RADIATION: A Brief Explanation

Radiation in recycled material has become a matter of growing concern. Whether the radiation is natural or artificial, the potential for injury and lost revenue in the work place exists. For steel mills the threat of multimillion dollar clean up costs, worker injury, and law suits is staggering. For scrap metal suppliers the expense of rejected loads and potential worker injury is becoming higher every day.

Radiation is an energy given off by an unstable atom as it decays. Many radioactive materials, such as radium, uranium, and others occur naturally and are found in the ground. These and other sources of naturally occurring radiation make up what is commonly referred to as background radiation. This is low level radiation that is always present. We are all exposed to background radiation every day with no ill effects.

The problem, therefore, is not in detecting radiation in scrap metal but detecting excessive radiation in scrap metal. There are many factors that have to be considered when attempting to do this.

1. Background radiation is not constant. It is continuously changing due to cosmic events, weather, and other influences.
2. The farther away from the source of radiation, the less you will be able to detect from that source. A source of a certain size will read a certain amount at one foot from the source. If you double the distance (2 feet from the source) the reading will only be 25% of that obtained at one foot.
3. The longer the time that the detectors have to look at a source the better the reading will be. For this reason the slower the vehicle passes through the system the better chance of seeing a potential source.
4. The amount of scrap and its density play a large part in the detector's ability to see a potential source. The more material there is between the source and the detectors, the harder it is for the detectors to see it. The higher the density, the harder it is for the detectors to see it as well.
5. The larger the detector the more sensitive it will be.
6. A well shielded detector will be able to detect smaller changes in radiation levels than an otherwise equivalent unshielded detector. By shielding the sides and back of the detectors we are able to block out a large part of the background radiation, thus increasing the sensitivity of the detector to the small changes in radiation levels caused by a source.

When taking all of the above circumstances into consideration it can be determined that the best way to monitor loads is to have large detectors as close to a lightly-packed small load that is moving through the system as slowly as possible. Another factor to consider is that the system should be able to monitor background radiation at all times and make adjustments to the alarm to keep it as close to the background as possible without causing a false alarm.

Naturally Occuring Radioactive Material, called NORM, is a big problem. Oilfield pipe, hot water heaters, and industrial piping will sometimes contain scale that is radioactive. Almost 99% of all alarms are results of NORM. Another problem are medical tests that use a radioactive dye or tracer. People can be released from the hospital reading several thousand $\mu\text{R/hr}$ or less than $100\mu\text{Sv/hr}$, and set off gate monitors 100 ft. away. A third problem is that radiographers and certified welders use a powerful radiation source to check their material or welds for cracks. This radiation is powerful enough to set off gate monitors two miles away. When the gate monitor is installed would be a good time to consult your neighbors and to ask them to point their source another direction.

MODEL 3500-3000 RADIATION MONITOR SYSTEM

5. SPECIFICATIONS

ELECTRONICS

INDICATED USE: Low level radiation monitoring

SYSTEM OPERATION: The system will continuously monitor background levels until the infrared sensor identifies an object. It will then automatically switch to checking the object for radiation.

AUDIO: Unimorph type speaker with volume control (*greater than 80 dB at 2 feet*)

METER: 6" (15.2cm) arc 1 mA analog type

METER DIAL: 0 - 25 kcps

POWER OK: (*green LED*) Indicates that the power is connected to the system

SYSTEM OK: (*green LED*) Indicates that system is functioning properly

CHECKING: (*green LED*) Indicates vehicle is passing through system

CHANNEL 1: Pushbutton to check current radiation level of channel 1

CHANNEL 2: Pushbutton to check current radiation level of channel 2

ALARM: Indicated by red LED's, and audible tone (*can be set internally from 1 - 8.5 deviations above background in half step increments*)

FAIL: (*yellow LED's*) Indicates when signal not received from the detectors and/or high background

RS-232: 9 pin connector to allow for connection of computer or printer

CONTROLS: 5 pin connector allowing for connection of infrared sensor(s)

RELAYS: 3 pin connector allowing for connection of external alarm indicators

SETUP CONTROLS:(internal)

DETECTOR NUMBER(DET):A two-position dip switch to select between using one detector or two detectors.

PC / PRINTER:A two position dip switch that is used to select a printer output or PC output for the RS-232 port.

ALARM LEVEL:A 16-position rotating switch, labeled from 0-9 and A-F. Zero indicates a 1 sigma alarm level, 1= 1.5 sigma, 2= 2 sigma, etc. A "normal" setting when infrared truck sensors are used is 5 sigma. Without truck sensors the alarm typically needs to be set at E= 8 sigma.

POWER: 95 - 135 VAC (*178 - 240 VAC available on request*), 50-60 Hz single phase (*less than 100 mA*)

CONSTRUCTION: Steel NEMA 12 enclosure

TEMPERATURE RANGE: -20°F(-29°C) to 140°F(60°C)

May be certified to operate from -40°F(-40°C) to 150°F(65°C)

SIZE: 12.3"(31.8cm)H X 15"(38.1cm)W X 6.8"(17.1cm)D

WEIGHT: 18 lbs (8.2kg)

DETECTORS

SCINTILLATOR: 1500 in³ plastic detector media (each)

TUBE: 1.125" (2.9 cm) diameter magnetically shielded photomultiplier

HOUSING: painted weather-tight steel enclosures

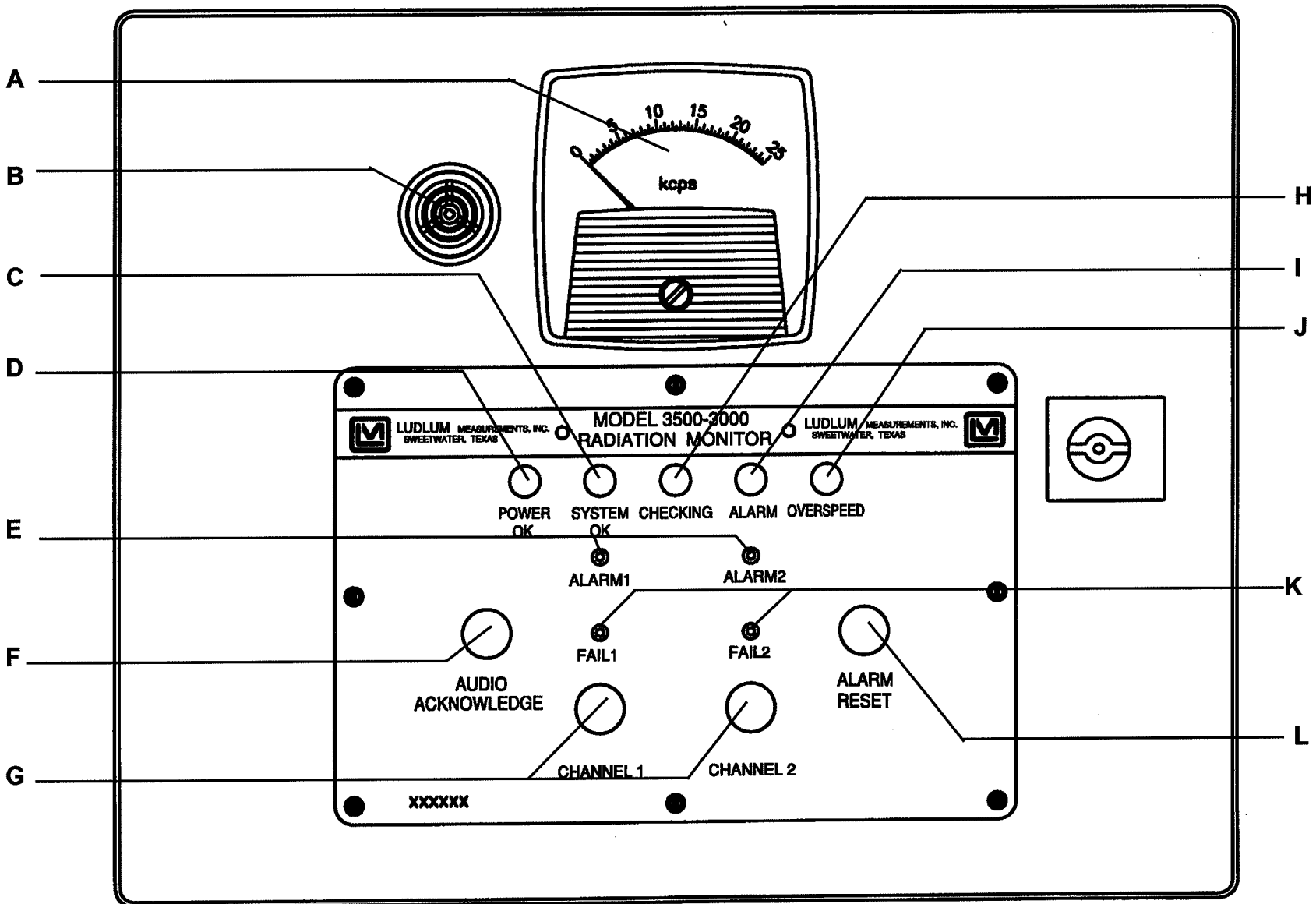
SIZE: approximately 18" wide X 84" long

WEIGHT: 150lbs (68.04 kg) each

MODEL 3500-3000 RADIATION MONITOR SYSTEM

6. INSTRUMENT CONTROLS AND FUNCTIONS

6.1 Front Panel



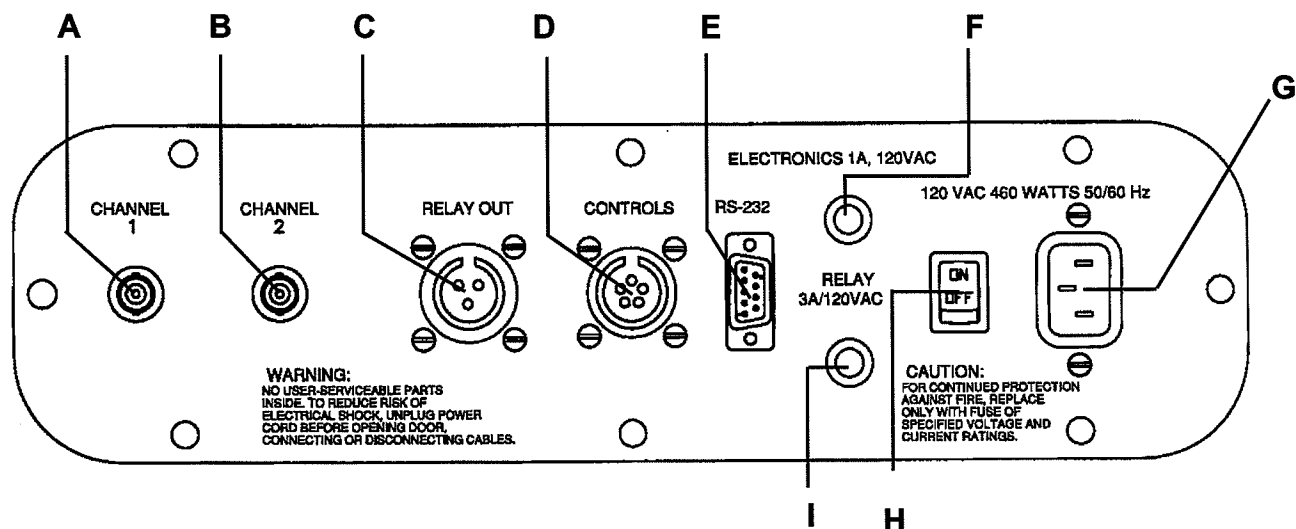
6. INSTRUMENT CONTROLS AND FUNCTIONS

- A. METER:** Provides a visual reading of the radiation level being monitored with a range from 0 - 25 kcps.
- B. AUDIO UNIMORPH:** Provides an audible tone in the event of an alarm (*greater than 80 dB at 2 feet(0.61m)).*
- C. SYSTEM OK LED:** A green LED which lets the user know that the system is operating properly.
- D. POWER OK LED:** A green LED that indicates that the instrument is connected to a power source and is turned on.
- E. CHANNEL ALARM INDICATORS:** A set of red LED's labeled ALARM1, and ALARM2 to let the user know which detector caused an alarm.
- F. AUDIO ACKNOWLEDGE:** A pushbutton to silence the audio after an alarm has been indicated.
- G. METER OVERRIDE BUTTONS:** Two pushbuttons labeled CHANNEL 1 and CHANNEL 2 that allow the operator to view the reading coming from each channel on the meter.
- H. CHECKING:** A green LED that lets the user know when a vehicle or other object is being monitored.
- I. ALARM:** A red LED that lets the user know when an alarm has been indicated.
- J. OVERSPEED (optional):** A red LED that lets the user know when a vehicle has passed through the system at a speed greater than 10 mph(16.1kph).
- K. FAILURE INDICATORS:** Two yellow LED's labeled FAIL1 and FAIL2 that let the user know if the system has had a detector failure.
- L. ALARM RESET:** A pushbutton that is used to reset both the audible and visual alarm indicators after an alarm has been indicated.

MODEL 3500-3000 RADIATION MONITOR SYSTEM

6. INSTRUMENT CONTROLS AND FUNCTIONS

6.2 Connector Plate



A. CHANNEL 1: A BNC connector to allow for connection of one detector to the electronics.

B. CHANNEL 2: A BNC connector to allow for connection of a second detector to the electronics.

C. RELAY OUT: A three-pin connector which allows for connection of an optional alarm strobe or horn.

D. CONTROLS: A five-pin connector which allows the vehicle sensor to be connected to the electronics.

E. RS-232: A nine-pin connector to allow for connection of a printer or computer to the system.

F. ELECTRONICS 1A: A 1 amp fuse to protect the electronics from a power surge or internal component failure.

G. 120 VAC: A three-pin connector for the instrument power cord.

H. ON/OFF: A two-position rocker switch to turn the power on or off

I. RELAY 3A: A three-amp fuse to protect the optional strobe or horn in the event of a power surge or internal component failure.

7. OPERATING PROCEDURES

7.1 Initial Instrument Check

Once the Model 3500-3000 Gate Monitor has been properly installed it should be ready for normal operation. The following procedures will take you through the initial checkout of the instrument and its operation.

NOTE: Installation instructions, with drawings and diagrams, can be found in a separate manual: "Model 3500-3000 Installation Manual."

1. Insure that detectors, vehicle sensors, and any optional accessories are properly connected to the main electronics (*i.e. printer, computer, strobes, horns, etc*).
2. Confirm that the main electronics is connected to 110 VAC (*220 VAC if applicable*).
3. Flip the power switch on the connector plate to the ON position.

7.2 Vehicle Sensor and Alarm Check

For the next part of the checkout it is necessary to use the check source that is provided with the instrument to check the alarm function for proper operation.

1. You should get the source and place it so that it is located on the Ludlum Measurements, Inc. sticker on the detector while placing the other hand in front of the infrared sensor. Hold it there for approximately 5 seconds and then remove the source from the detector and your hand from in front of the sensor.

NOTE: When this is done, the meter should momentarily deflect to full scale, and all of the lights on the electronics will light up for approximately one second. The meter will then begin indicating a reading from the detectors. The lights should all go off with the exception of the POWER OK light which will stay on and the SYSTEM OK light which will flash for approximately fifteen seconds while the instrument obtains a background reading and completes a diagnostic check of all parameters. The SYSTEM OK light will then come on and stay on.

NOTE: The alarm circuit should activate causing the audio to come on and the alarm lamp to light up. The ALARM1 or ALARM2 lamp should also illuminate, depending on which detector is being tested. Any remote alarm indicators should also be activated (*i.e. strobe or horn if applicable*).

2. Press the AUDIO ACKNOWLEDGE button. The audio on the electronics should quit, but the alarm lights and remote indicators will still be activated.
3. Press the ALARM RESET button. All alarm indicators should go off, including any remote strobe or horn that is connected (*if applicable*).

Repeat this procedure for the other detector. Once completed successfully, the system is ready for normal operation.

Note: This procedure should be done periodically. It is suggested that it be done on a daily basis. As long as the instrument passes the alarm check, there is no need for a complete recalibration.

MODEL 3500-3000 RADIATION MONITOR SYSTEM

7. OPERATING PROCEDURES

7.3 Instrument Operation

During normal operation there is very little operator intervention required. After the procedures in 7.1 and 7.2 have been completed, the system is ready to monitor vehicles. In the

event of an alarm, the system is easily reset by pressing the ALARM RESET button on the front panel. Once this is done the instrument is again ready to monitor vehicles.

8. TROUBLESHOOTING

This section is intended to assist the user of the Model 3500-3000 Gate Monitor system in isolating and identifying problems with the system if and when they occur. Ludlum Measurements, Inc., (LMI) provides technical support for our

customers who wish to repair their instruments. If you have any questions regarding instrument repairs, please contact our repair/calibration department at 1-800-622-0828 (USA) or 325-235-5494.

<u>SYMPTOM</u>	<u>PROBABLE CAUSE</u>	<u>POTENTIAL SOLUTION</u>
Detector fail light comes on.	The system electronics is either receiving an excessively high number of counts or no counts from the detector.	Check the detector and cabling to insure proper connection. Check the detector HV setting for proper adjustment
Instrument alarms when no vehicle is present.	The infrared sensors are not properly aligned. The infrared sensors are not working at all.	Check the alignment of the sensors using the guides on the mounting brackets. Check for proper connection of the sensors to the electronics.
Meter reads full scale and SYSTEM OK light blinks.	The system electronics is still in calibration mode.	Remove the 2-pin connector at P6 to restore the system to operating mode.

MODEL 3500-3000 RADIATION MONITOR SYSTEM

8. TROUBLESHOOTING

<u>SYMPTOM</u>	<u>PROBABLE CAUSE</u>	<u>POTENTIAL SOLUTION</u>
One detector continually alarms.	The electronics are not working properly.	Switch detector connections at the electronics and see if the problem follows the detector or stays on the same channel. If the problem follows the detector, then the problem is not in the electronics.
	The cable has failed and is causing excessive noise.	Swap a "good" detector for a "bad" one. If the problem persists, the cable should be replaced.
	The detector is not working properly.	The detector must be repaired.

If the above recommendations do not correct the problem, the problem is most likely more serious in nature and will probably need to be investigated by an electronics technician.

MODEL 3500-3000 RADIATION MONITOR SYSTEM

9. PARTS LIST, COMPONENT LAYOUTS, AND SCHEMATICS

Model 3500-3000 Gate Monitor System

Ref No.	Description	Part Number
UNIT	Completely Assembled Model 3500-3000 Gate Monitor System	48-3041

MODEL 3500-3000 RADIATION MONITOR SYSTEM

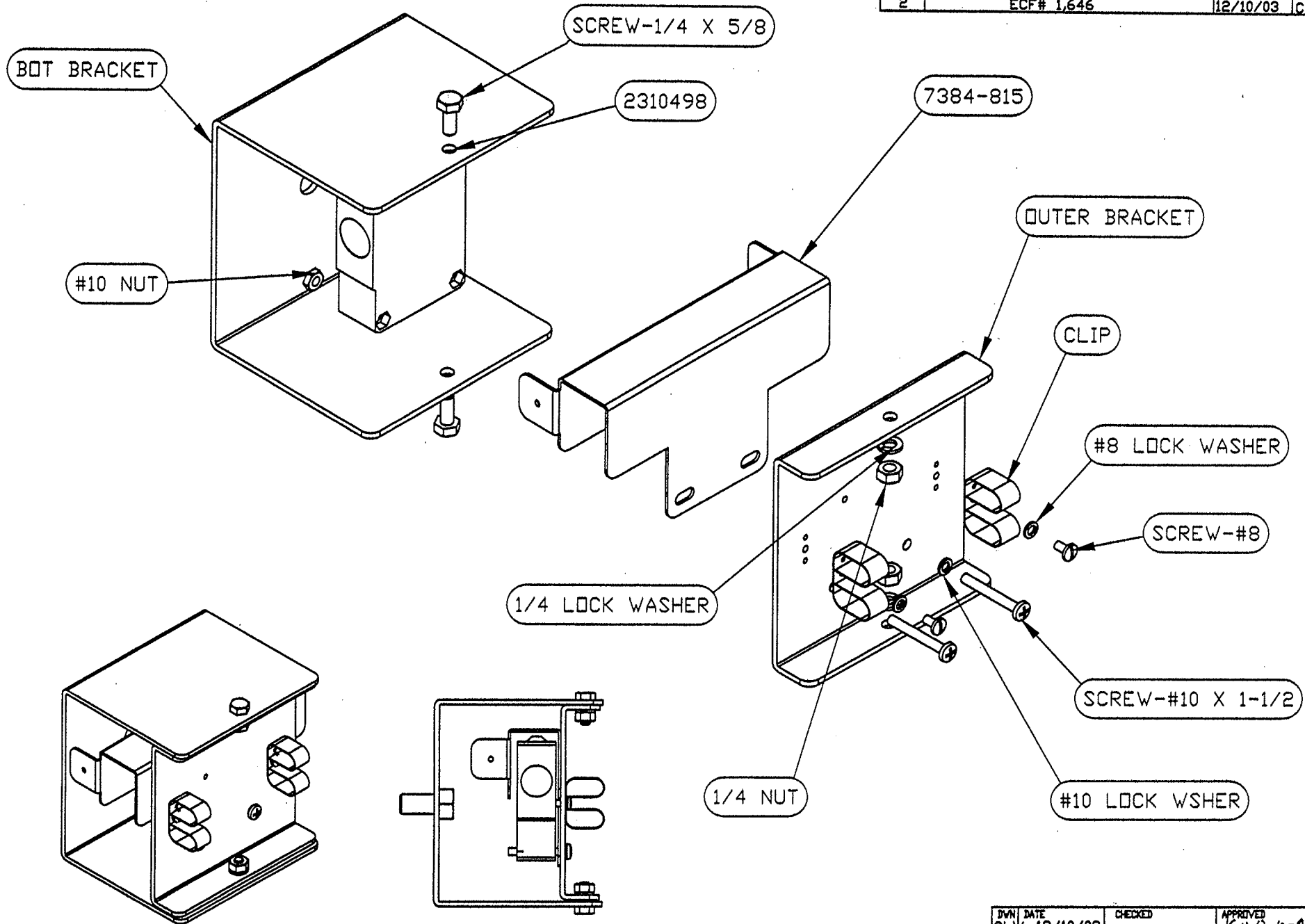
9. PARTS LIST, COMPONENT LAYOUTS, AND SCHEMATICS

Model 3500-3000 Gate Monitor System

M 3500-3000 Unistrut Brackets

Ref No.	Description	Part Number
Board	Assembled Unistrut Brackets	4384-307

REV #	ALTERATIONS	DATE	BY
	VALID	6-18-98	JGV
2	ECF# 1,646	12/10/03	CLW



DWN DATE	CHECKED	APPROVED
CLW 12/10/03		JGV 12-10-03
TITLE: M 3500-3K IR UNISTRUT BRKTS		
LUDLUM MEASUREMENTS, INC.	SERIES	SHEET
500 DMC STREET FORTWORTH, TEXAS 76104	384	307

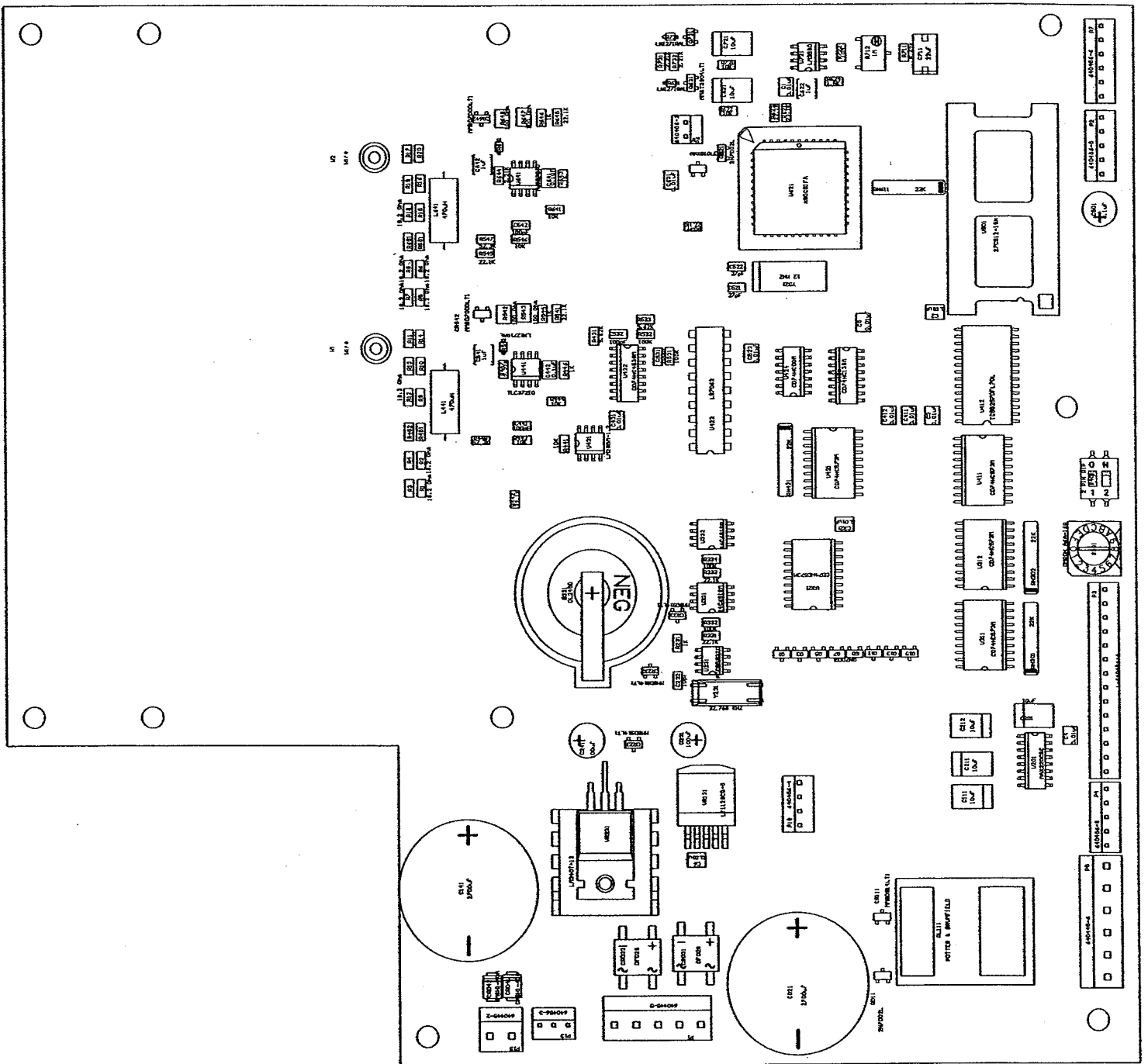
MODEL 3500-3000 RADIATION MONITOR SYSTEM

9. PARTS LIST, COMPONENT LAYOUTS, AND SCHEMATICS

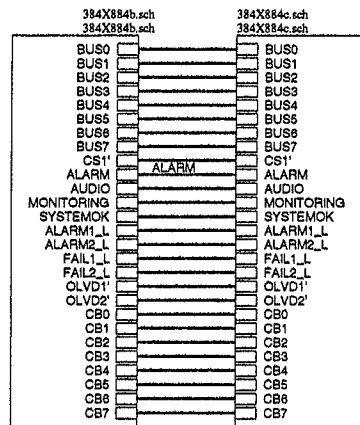
Model 3500-3000 Gate Monitor System

MAIN Board Components

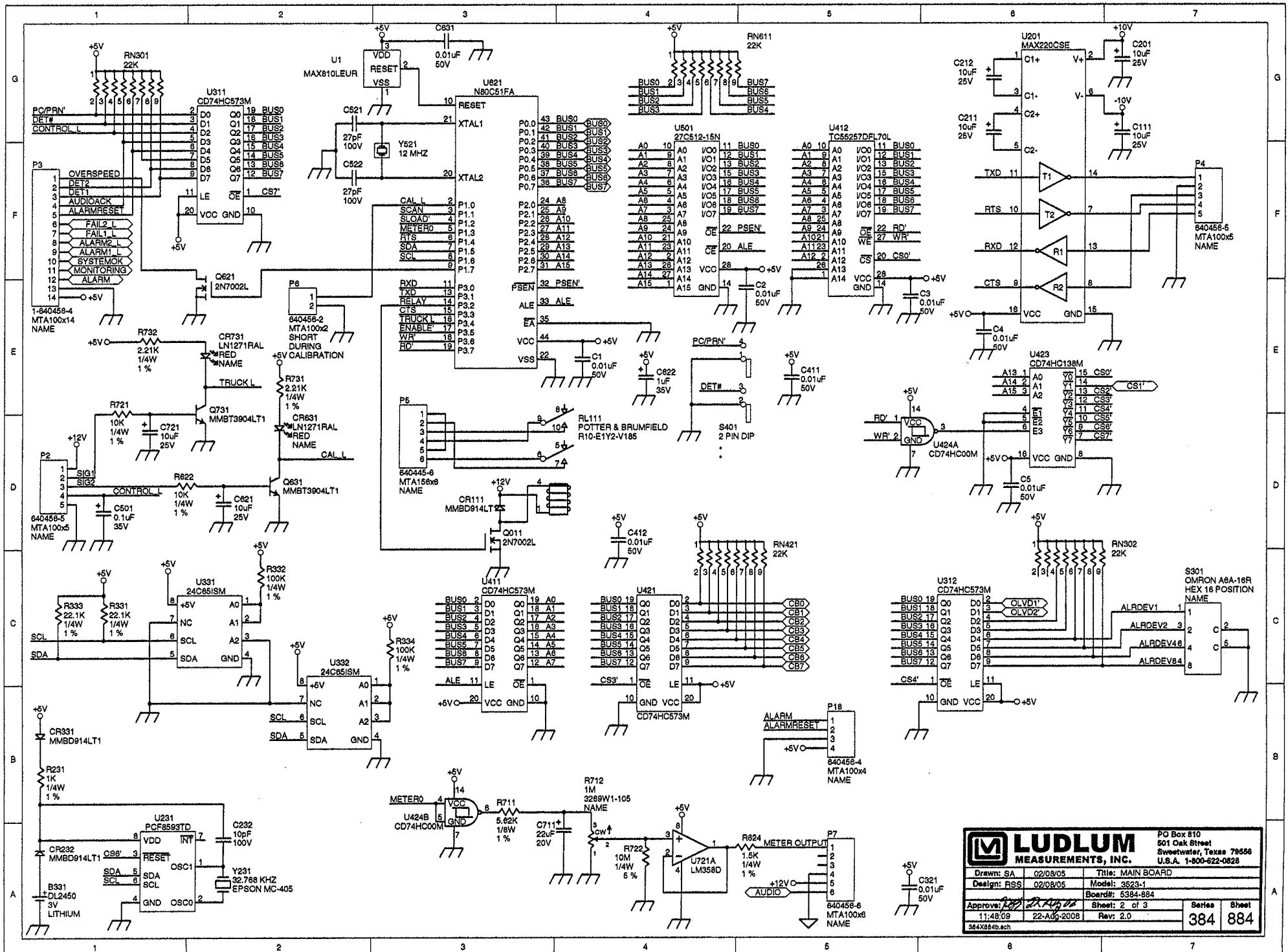
Ref No.	Description	Part Number
Board	Assembled Main Board	5384-884



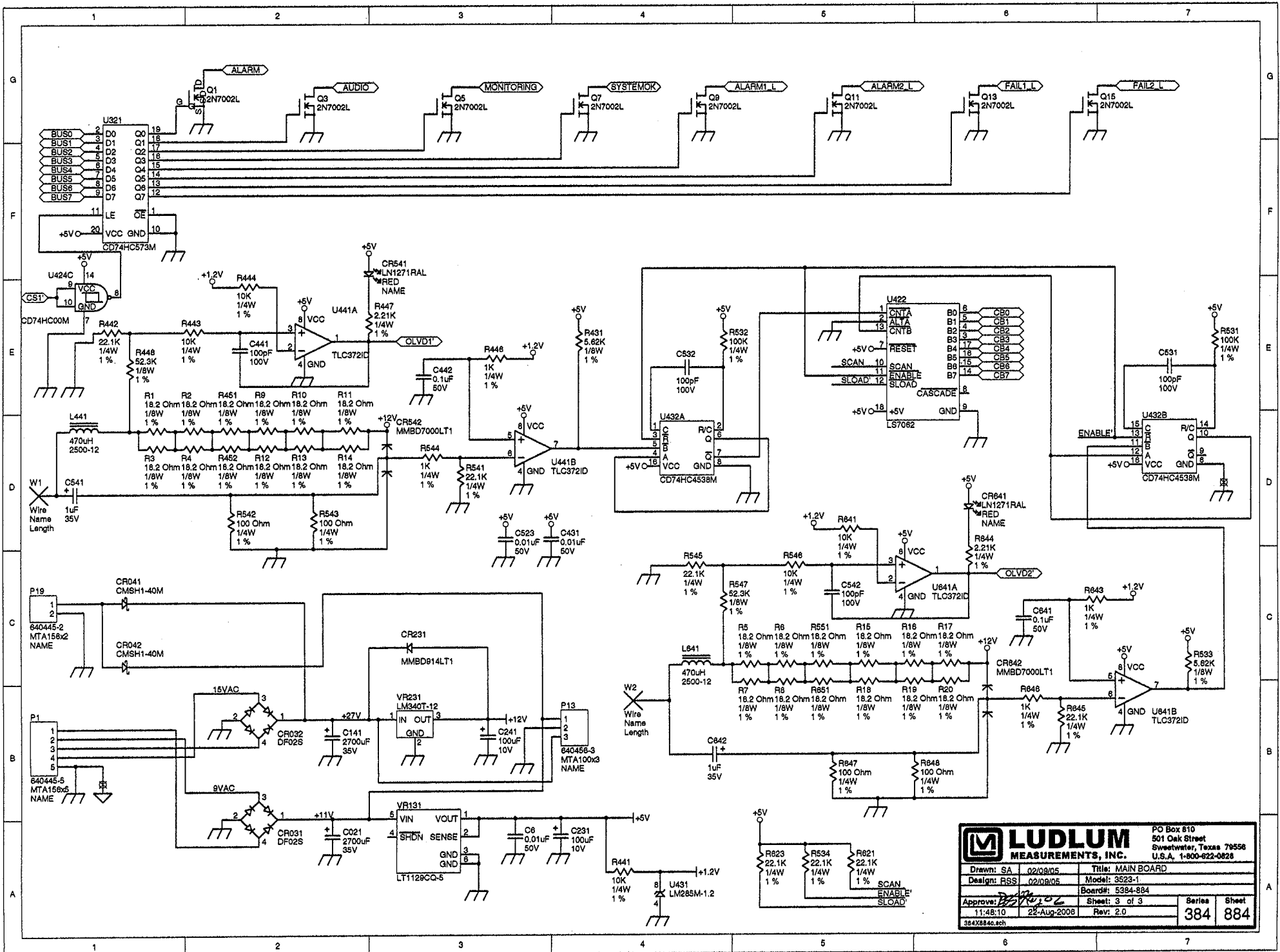
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Design:	RSS	03/25/05	MAIN BOARD	
			Model: 3523-1	
Approve:	<i>RSS</i>	<i>22 Aug 06</i>	Board#: 5384-884	
Layer:			Rev. 2.0	Series
Mech.1	MD:		SCALE: 0.94	Sheet
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BS384884.PCB				



		PO Box 810 501 Oak Street Sweetwater, Texas 79556 U.S.A. 1-800-822-0828	
Drawn: SA	02/09/05	Title: MAIN BOARD	
Design: BSS	02/09/05	Model: 3523-1	
		Board#: 5384-884	
Approve: <i>[Signature]</i>		Sheet: 1 of 3	Series
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		PO Box 810	
		501 Oak Street Sweetwater, Texas 79556 U.S.A. 1-800-622-0928	
Drawn: SA	02/08/05	Title: MAIN BOARD	
Design: RSS	02/08/05	Model: 3523-1	
Approved: [Signature]	22-Aug-2008	Sheet: 2 of 3	Series: 384
11:48:09	22-Aug-2008	Rev: 2.0	Sheet: 884
384X884b.ecn			



LUDLUM MEASUREMENTS, INC.
 PO Box 810
 501 Oak Street
 Sweetwater, Texas 79558
 U.S.A. 1-800-622-0828

Drawn: SA	02/08/05	Title: MAIN BOARD
Design: RSS	02/08/05	Model: 3523-1
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Series	Sheet	
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384	884	

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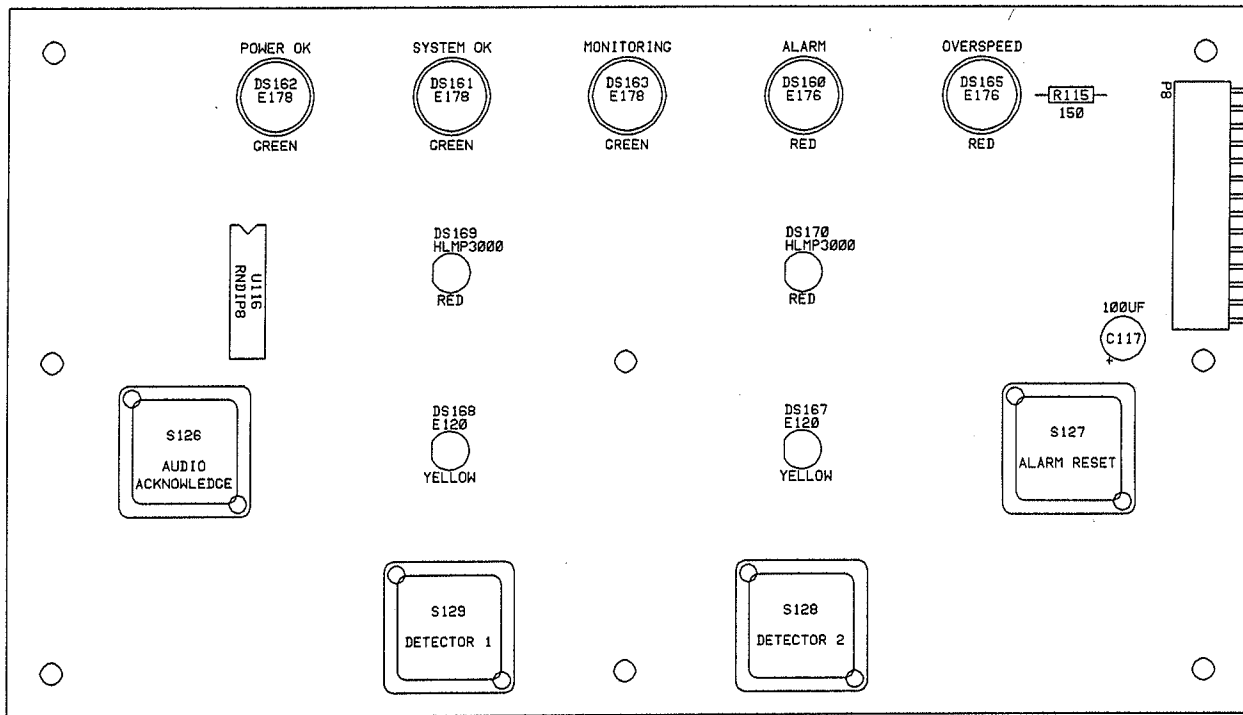
MODEL 3500-3000 RADIATION MONITOR SYSTEM

9. PARTS LIST, COMPONENT LAYOUTS, AND SCHEMATICS

Model 3500-3000 Gate Monitor System

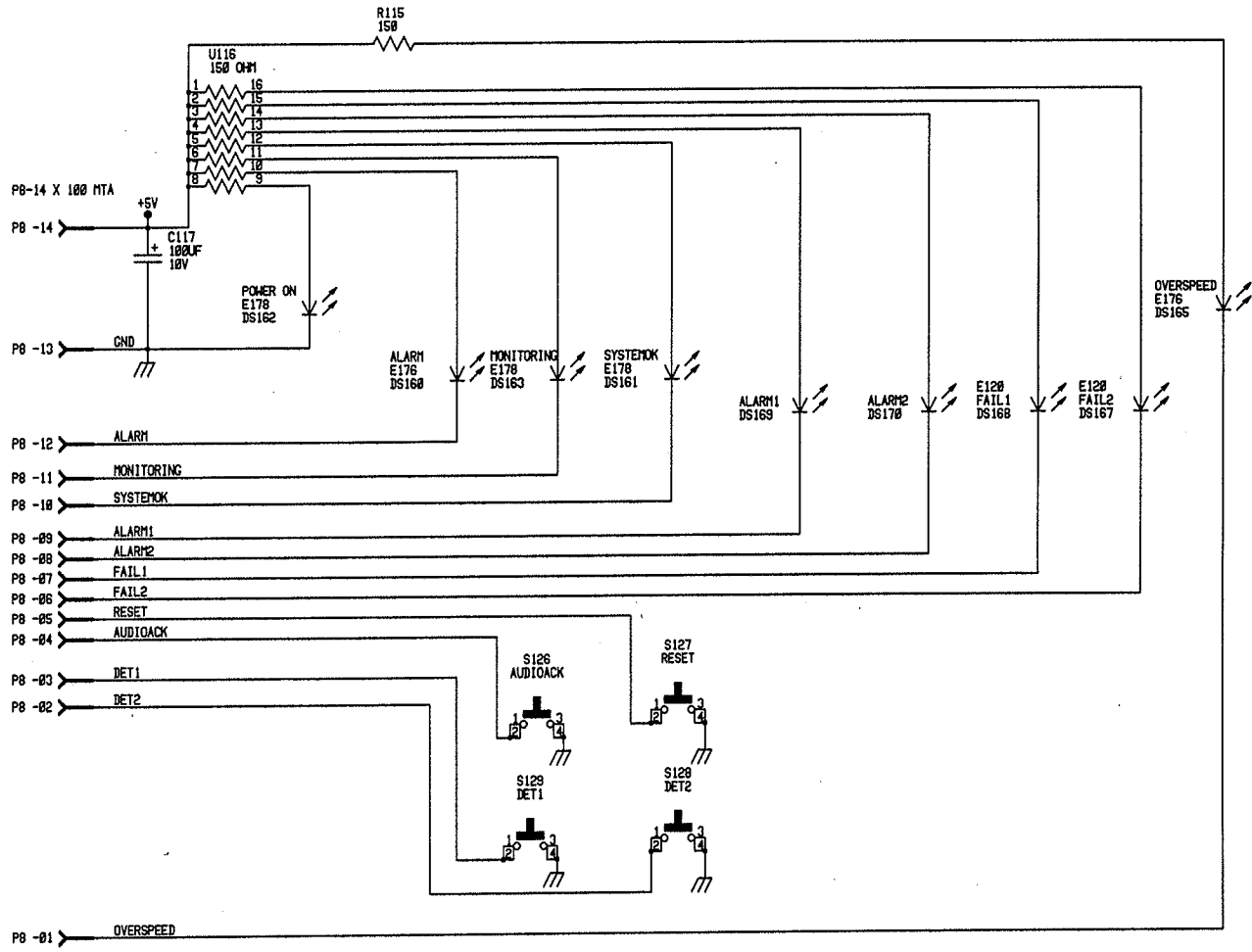
LED Board Components

Ref No.	Description	Part Number
Board	Assembled LED Board	5384-187



<input checked="" type="checkbox"/> LUDLUM MEASUREMENTS INC. SHEETWATER, TX.			
DR	RSS	07-24-95	TITLE: LED BOARD
CHK	P.W.	6-17-98	BOARD# 5384-187 BS384187
DSGN	RSS	07-24-95	MODEL 3523 SERIES 384 SHEET 136
APP	RSS	6-17-98	COMP ARTWORK <input type="checkbox"/> SLDR ARTWORK <input type="checkbox"/>
Ø8:35:57	6-Jun-98	COMP OUTLINE <input type="checkbox"/>	SLDR OUTLINE <input type="checkbox"/>
COMP PASTE <input type="checkbox"/>		COMP MASK <input type="checkbox"/>	SLDR PASTE <input type="checkbox"/> SLDR MASK <input type="checkbox"/>

				REVISIONS		
EFF	AUTHORITY	ZONE	LTR	DESCRIPTION	DATE	APPROVED



UPDATED		LUDLUM MEASUREMENTS INC.			
DR	RSS	07-24-95	TITLE: LED BOARD		
CHK	P.W.	6.17.98	BOARD# 5384-187		
DSGN	RSS	07-24-95	SIZE	MODEL	SHEET
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MODEL 3500-3000 RADIATION MONITOR SYSTEM

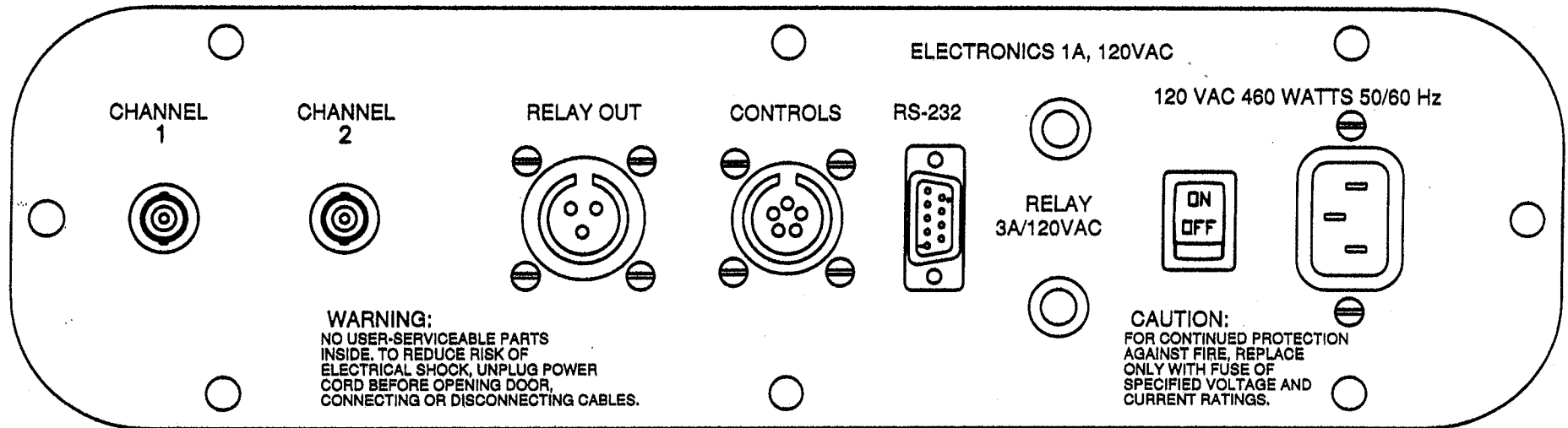
9. PARTS LIST, COMPONENT LAYOUTS, AND SCHEMATICS

Model 3500-3000 Gate Monitor System

Electronics Housing and Connector Plate

Ref No.	Description	Part Number
Connector Plate	Assembled Plate	4384-263

REV #	ALTERATIONS	DATE	BY
	VALID	06-30-98	T.JR



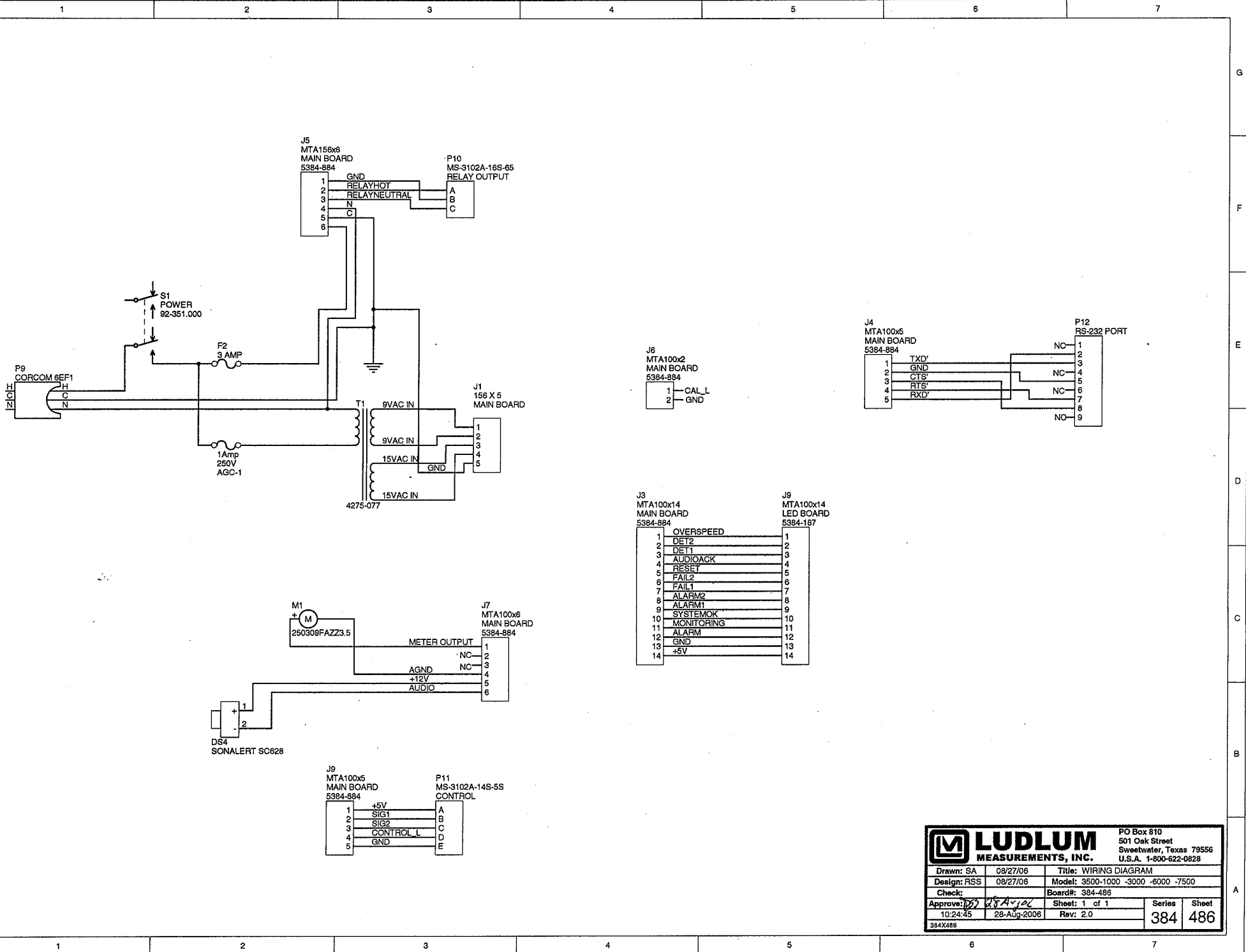
ENH DATE	CHECKED	APPROVED
T.JR 06-30-98		JGW 6-30-98
TITLE: M 3500-1000 CON. PLATE		
<input checked="" type="checkbox"/> LUDLUM MANUFACTURING, INC. 200 W. 10TH STREET MILWAUKEE, WIS. 53212	REVISED 384	SHEET 324

MODEL 3500-3000 RADIATION MONITOR SYSTEM

9. PARTS LIST, COMPONENT LAYOUTS, AND SCHEMATICS

Model 3500-3000 Gate Monitor System

WIRING DIAGRAM



		PO Box 810 501 Oak Street Sweetwater, Texas 79556 U.S.A. 1-800-622-0828	
		Drawn: SA 08/27/06 Design: RSS 08/27/06 Check: 10/24/06 Approve: <i>[Signature]</i> 10/24/06	Title: WIRING DIAGRAM Model: 3600-1000 -3000 -6000 -7500 Board#: 384-486 Sheet: 1 of 1 Rev: 2.0

MODEL 3500-3000 RADIATION MONITOR SYSTEM

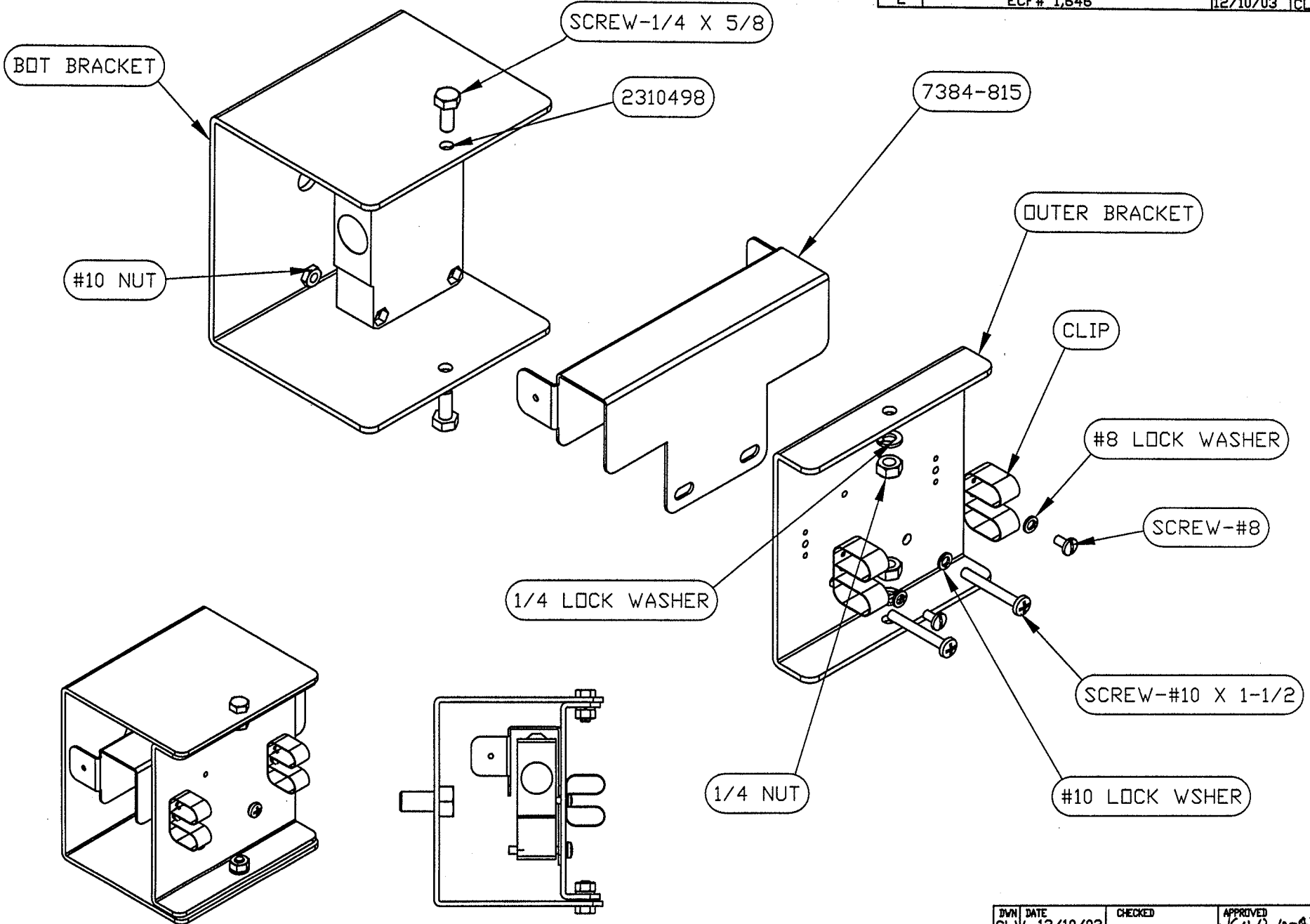
9. PARTS LIST, COMPONENT LAYOUTS, AND SCHEMATICS

Model 3500-3000 Gate Monitor System

Detectors and Infrared Sensors

Ref No.	Description	Part Number
DETECTOR		
2 ea.	Model 44-131 Detector	47-3044
INFRARED SENSORS		
1 ea.	M3500 IR Top Bracket	7384-111
1 ea.	M3500 IR Rain Shield	7384-112
1 ea.	10 kohm 1/4W 5% Res	10-7016
8 ea.	8-32 X 3/8 BH Screws	17-8525
4 ea.	8-32 X 1 BH Screws	17-8558
4 ea.	8/32 Reg Patt Nut .343	20-9006
12 ea.	#8 ITL Washers	20-9010
6 ea.	71B Ideal 30-071 Wire Nuts	20-9142
1 ea.	Infrared Sensor	2310498
1 ea.	Infrared Cable	8303-398

REV #	ALTERATIONS	DATE	BY
	VALID	6-18-98	JGW
2	ECF# 1,646	12/10/03	CLW



DWN	DATE	CHECKED	APPROVED
CLW	12/10/03		12/10/03
TITLE: M 3500-3K IR UNISTRUT BRKTS			
LUDLUM MEASUREMENTS, INC.		SERIES	SHEET
501 DWK STREET SWEETWATER, TEXAS 75086		384	307

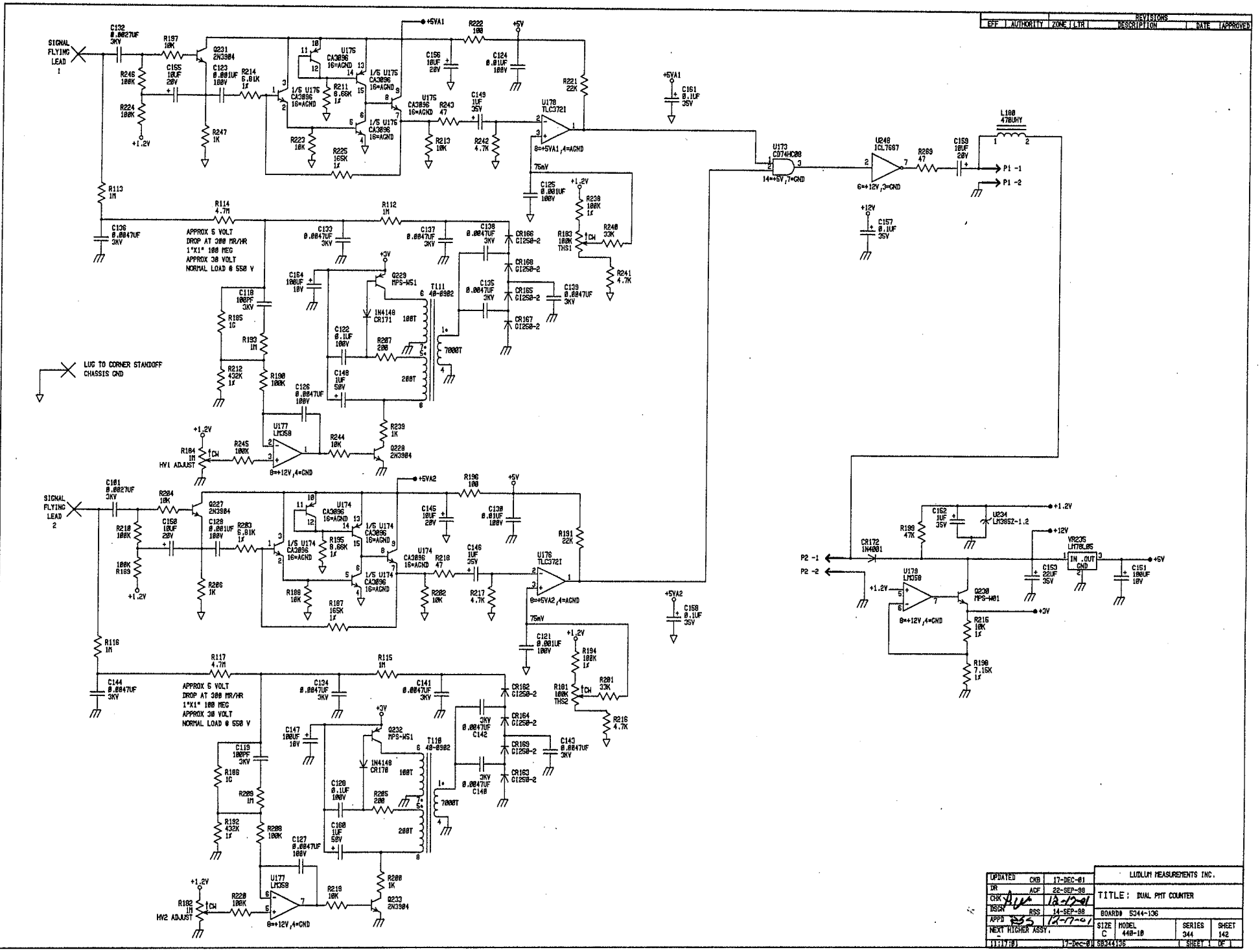
MODEL 3500-3000 RADIATION MONITOR SYSTEM

9. PARTS LIST, COMPONENT LAYOUTS, AND SCHEMATICS

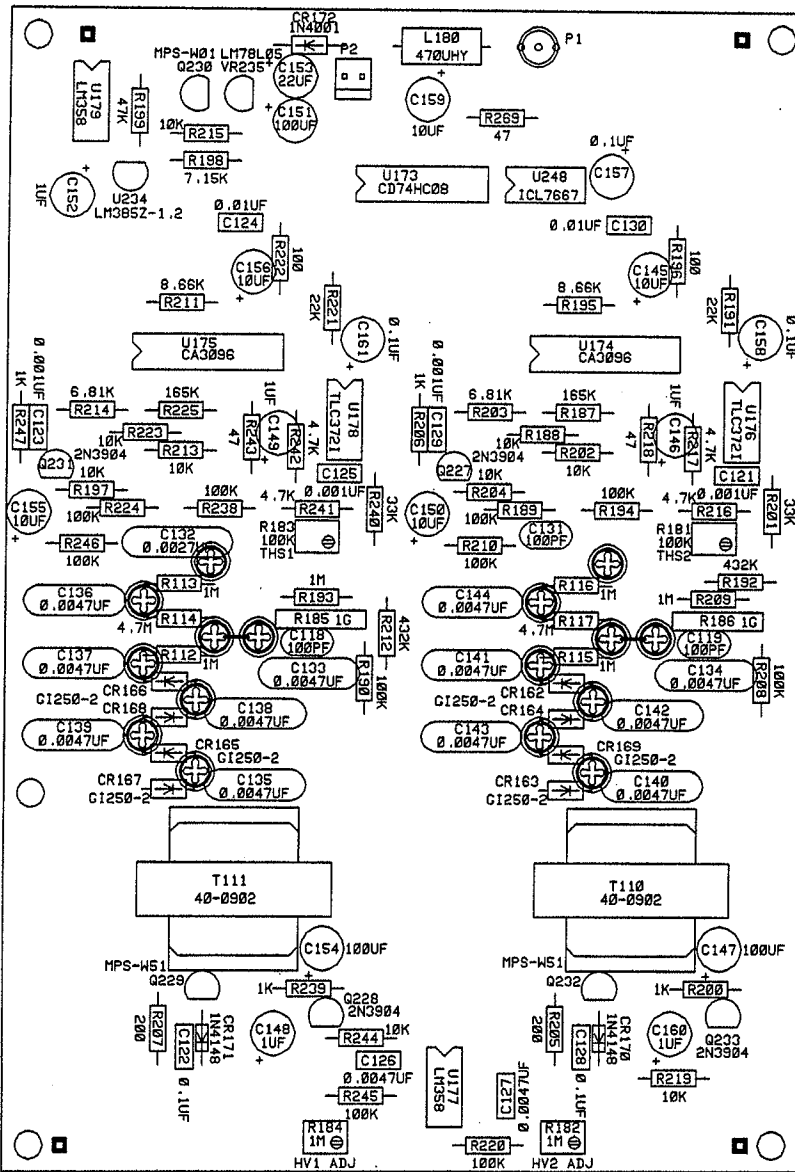
Model 3500-3000 Gate Monitor System

Detector Electronics

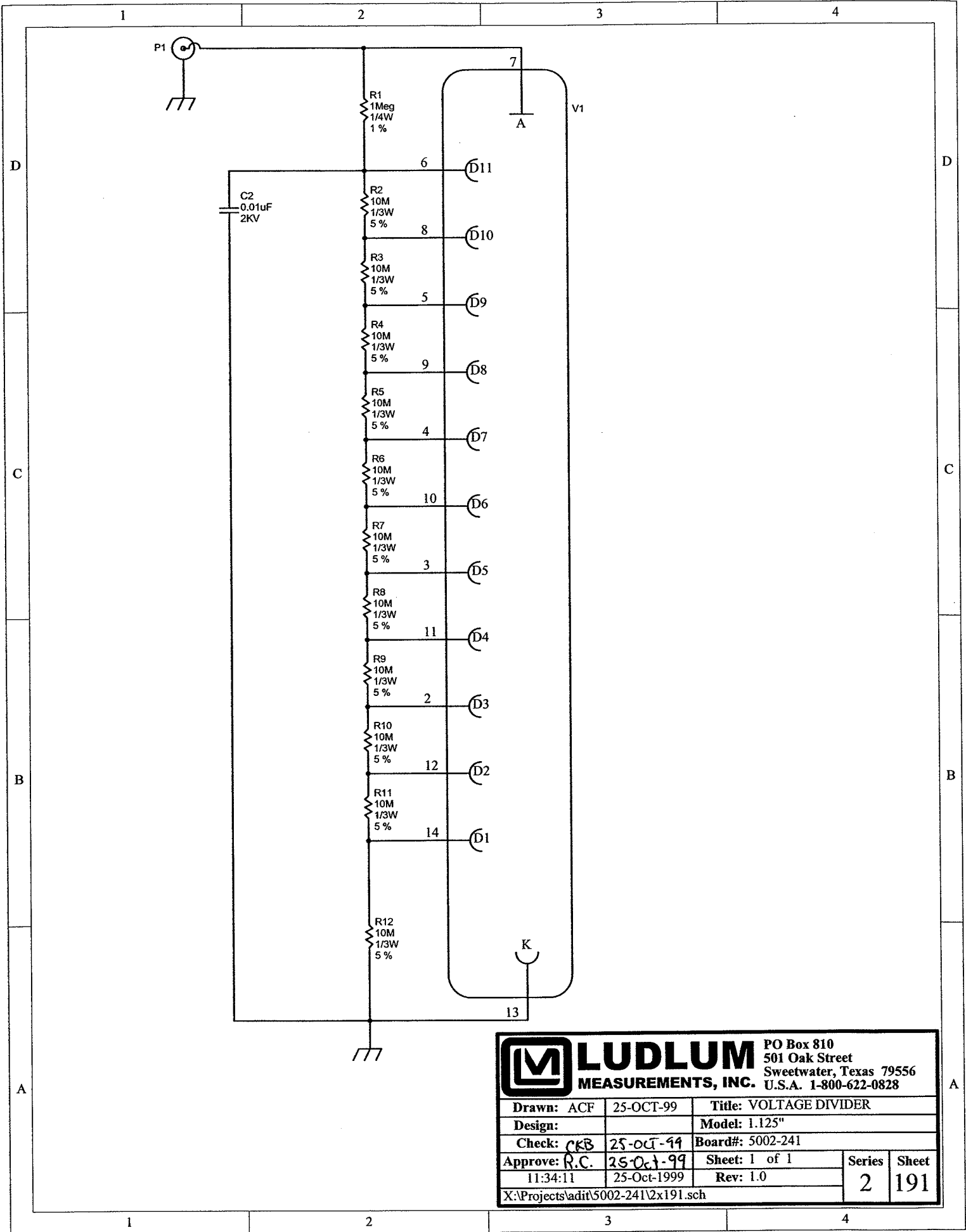
Ref No.	Description	Part Number
Board	Assembled Dual PMT Counter	5344-136
Board	Assembled Voltage Divider	5002-241



UPDATED	CMB	17-DEC-81	LUDLUM MEASUREMENTS INC.	
DR	ADF	22-SEP-80	TITLE: DUAL PHT COUNTER	
CHK	AW	12-12-81	BOARD#	5044-136
ISSN	RSS	14-SEP-80	SIZE	MODEL
APPD	RSS	12-17-81	C	448-10
NEXT HIGHER ASSY.			SERIES	344
11117181			17-DEC-81	50441336
			SHEET	142
				DF



<input checked="" type="checkbox"/> LUDLUM MEASUREMENTS INC. SHEETWATER, TX.			
DR	CKB	17-DEC-01	TITLE: DUAL PNT COUNTER
CHK	10	12-2-0	BOARD# 5344-136 BS344136
DSCN	RSS	14-SEP-98	MODEL 440-10 SERIES 344 SHEET 143
APP	RSS	12-17-01	COMP ARTNORK <input type="checkbox"/> SLDR ARTNORK <input type="checkbox"/>
11:16:58	17-Dec-01	COMP OUTLINE <input type="checkbox"/>	SLDR OUTLINE <input type="checkbox"/>
COMP PASTE <input type="checkbox"/>	COMP MASK <input type="checkbox"/>	SLDR PASTE <input type="checkbox"/>	SLDR MASK <input type="checkbox"/>



		LUDLUM		PO Box 810	
		MEASUREMENTS, INC.		501 Oak Street	
				Sweetwater, Texas 79556	
				U.S.A. 1-800-622-0828	
Drawn: ACF	25-OCT-99	Title: VOLTAGE DIVIDER			
Design:		Model: 1.125"			
Check: <i>CKB</i>	25-OCT-99	Board#: 5002-241			
Approve: <i>R.C.</i>	25-Oct-99	Sheet: 1 of 1	Series	Sheet	
11:34:11	25-Oct-1999	Rev: 1.0	2	191	
X:\Projects\adit\5002-241\2x191.sch					