



RL-854 Radio Control Type I, Style A

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Manufactured to FAA Specification
AC 150/5345-49

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Products of Siemens Airfield Solutions manufacture are guaranteed against mechanical, electrical, and physical defects (excluding lamps) for a period of one year from the date of installation or a maximum of two years from the date of shipment and are guaranteed to be merchantable and fit for the ordinary purposes for which such products are made.

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This manual could contain technical inaccuracies or typographical errors. Siemens Airfield Solutions reserves the right to revise this manual from time to time in the contents thereof without obligation of Siemens Airfield Solutions to notify any person of such revision or change.

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RL-854 Radio Control Unit

Type I, Style A

1. Safety

This section contains general safety instructions for using your Siemens Airfield Solutions equipment. Some safety instructions may not apply to the equipment in this manual. Task- and equipment-specific warnings are included in other sections of this manual where appropriate. Note all warnings and follow all instructions carefully. Failure to do so may result in personal injury, death, or property damage.

To use this equipment safely,

- refer to the FAA Advisory Circular AC 150/5340-26, *Maintenance of Airport Visual Aids Facilities*, for instructions on safety precautions.
- observe all safety regulations. To avoid injuries, always remove power prior to making any wire connections and touching any parts. Refer to FAA Advisory Circular AC 150/5340-26.
- read and become familiar with the general safety instructions provided in this section of the manual before installing, operating, maintaining, or repairing this equipment.
- read and carefully follow the instructions given throughout this manual for performing specific tasks and working with specific equipment.
- store this manual within easy reach of personnel installing, operating, maintaining, or repairing this equipment.
- follow all applicable safety procedures required by your company, industry standards, and government or other regulatory agencies.
- obtain and read Material Safety Data Sheets (MSDS) for all materials used.

Safety Symbols

Become familiar with the safety symbols presented in this section. These symbols will alert you to safety hazards and conditions that may result in personal injury, death, or property and equipment damage.



WARNING: Failure to observe this warning may result in personal injury, death, or equipment damage.



WARNING: Risk of electrical shock. Failure to observe this warning may result in personal injury, death, or equipment damage.

Safety Symbols (contd.)



WARNING: Disconnect equipment from line voltage. Failure to observe this warning may result in personal injury, death, or equipment damage.



WARNING: Wear safety goggles. Failure to observe may result in serious injury.



CAUTION: Failure to observe may result in equipment damage.



CONTENTS
STATIC-SENSITIVE
MUST BE GROUNDED
WHEN HANDLING PCB

WARNING: Contents are static-sensitive. Must be grounded when handling PCB.

Qualified Personnel

The term *qualified personnel* is defined here as individuals who thoroughly understand the equipment and its safe operation, maintenance, and repair. Qualified personnel are physically capable of performing the required tasks, familiar with all relevant safety rules and regulations and have been trained to safely install, operate, maintain, and repair the equipment. It is the responsibility of the company operating this equipment to see that its personnel meet these requirements.

Intended Use



WARNING: Use of this equipment in ways other than described in this manual may result in personal injury, death, or property and equipment damage. Use this equipment only as described in this manual.

Siemens Airfield Solutions cannot be responsible for injuries or damages resulting from nonstandard, unintended applications of its equipment. This equipment is designed and intended only for the purpose described in this manual. Uses not described in this manual are considered unintended uses and may result in serious personal injury, death, or property damage. Unintended uses may result from taking the following actions:

- making changes to equipment that have not been recommended or described in this manual or using parts that are not genuine ADB replacement parts
- failing to make sure that auxiliary equipment complies with approval agency requirements, local codes, and all applicable safety standards
- using materials or auxiliary equipment that are inappropriate or incompatible with your Siemens Airfield Solutions equipment
- allowing unqualified personnel to perform any task

Installation

Read the installation section of all system component manuals before installing your equipment. A thorough understanding of system components and their requirements will help you install the system safely and efficiently.



WARNING: Failure to follow these safety procedures can result in personal injury or death.

- Allow only qualified personnel to install Siemens Airfield Solutions and auxiliary equipment. Use only approved equipment. Using unapproved equipment in an approved system may void agency approvals.
- Make sure all equipment is rated and approved for the environment in which you are using it.
- Follow all instructions for installing components and accessories.
- Install all electrical connections to local code.
- Use only electrical wire of sufficient gauge and insulation to handle the rated current demand. All wiring must meet local codes.
- Route electrical wiring along a protected path. Make sure they will not be damaged by moving equipment.
- Protect components from damage, wear, and harsh environment conditions.
- Allow ample room for maintenance, panel accessibility, and cover removal.
- Protect equipment with safety devices as specified by applicable safety regulations.
- If safety devices must be removed for installation, install them immediately after the work is completed and check them for proper functioning.

Operation

Only qualified personnel, physically capable of operating the equipment and with no impairments in their judgment or reaction times, should operate this equipment.

Read all system component manuals before operating this equipment. A thorough understanding of system components and their operation will help you operate the system safely and efficiently.

Operation *(contd.)*

- Before starting this equipment, check all safety interlocks, fire-detection systems, and protective devices such as panels and covers. Make sure all devices are fully functional. Do not operate the system if these devices are not working properly. Do not deactivate or bypass automatic safety interlocks or locked-out electrical disconnects or pneumatic valves.
- Never operate equipment with a known malfunction.
- Do not attempt to operate or service electrical equipment if standing water is present.
- Use this equipment only in the environments for which it is rated. Do not operate this equipment in humid, flammable, or explosive environments unless it has been rated for safe operation in these environments.
- Never touch exposed electrical connections on equipment while the power is ON.

Action in the Event of a System or Component Malfunction

Do not operate a system that contains malfunctioning components. If a component malfunctions, turn the system OFF immediately.

- Disconnect and lock out electrical power.
- Allow only qualified personnel to make repairs. Repair or replace the malfunctioning component according to instructions provided in its manual.

Maintenance and Repair

Allow only qualified personnel to perform maintenance, troubleshooting, and repair tasks. Only persons who are properly trained and familiar with Siemens Airfield Solutions equipment are permitted to service this equipment.

- Always use safety devices when working on this equipment.
- Follow the recommended maintenance procedures in your equipment manuals.
- Do not service or adjust any equipment unless another person trained in first aid and CPR is present.
- Connect all disconnected equipment ground cables and wires after servicing equipment. Ground all conductive equipment.
- Use only approved Siemens Airfield Solutions replacement parts. Using unapproved parts or making unapproved modifications to equipment may void agency approvals and create safety hazards.

Maintenance and Repair
(contd.)

- Check interlock systems periodically to ensure their effectiveness.
- Do not attempt to service electrical equipment if standing water is present. Use caution when servicing electrical equipment in a high-humidity environment.
- Use tools with insulated handles when working with electrical equipment.

2. Description

See Figure 1. This section describes the RL-854 Type I Radio Control system.

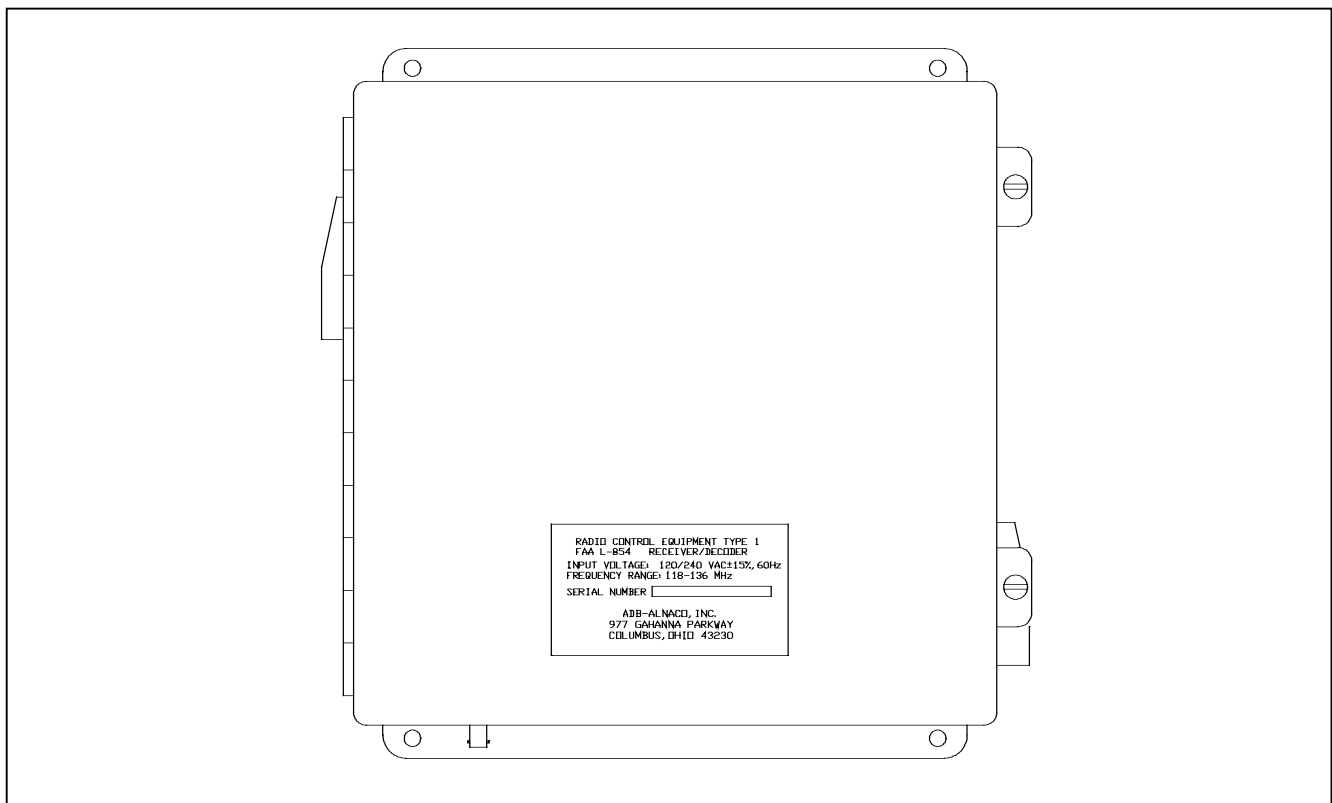


Figure 1. RL-854 Radio Control Unit

Introduction

The RL-854 Type I Radio Control system is used for air-to-ground control of airport lighting facilities. This equipment is manufactured to FAA specification AC 150/5345-49.

The RL-854 Radio Control, consisting of an AM receiver and a Style A decoder, is a completely self-contained system for controlling lighting functions on an airport from a remote radio transmitter. The transmitter is usually the communications transmitter in an aircraft.

Introduction *(contd.)*

The Radio Control has three output relays operated by keying the transmitter in specific sequences. To power these relays, pilots can set their communications transmitters to the frequency to which the RL-854 is tuned.

Three clicks of the mike button within five seconds powers the lighting system on the low brightness setting. Five clicks of the mike button within five seconds powers the lighting system on the medium brightness setting. Seven clicks of the mike button within five seconds powers the lighting system on the high brightness setting. The RL-854 Radio Control can be field programmed for three, five, and seven clicks to change the light settings.

The contacts of the relays in the RL-854 are for control purposes only. They are rated 10 amps (inductive) and are capable of operating the coils or power relays. They are not intended to switch lighting-load currents.

Options

Two options are available for the RL-854 Radio Control Unit: radio controller power handling capability and heater.

Radio Controller Power Handling Capability

An option is available to provide for power handling capability in the Radio Controller, changing the designation to RL-854PR. It adds three 2-pole relays with contact ratings of 25 amps per pole. These power relays are powered by the control relays. Contacts of the power relays are terminated in a terminal block.

The entire Radio Controller is completely solid state and has no moving parts other than the relays.

Heater

A heater is available as an option for the RL-854 Radio Control Unit. Thermostat TH1 in the unit is used to supply the heater with 120 Vac when the outside air temperature drops below 0 °F. This prevents the receiver PCB from freezing.

Equipment Specification Data

Table 1 lists supplied equipment and accessories.

Table 1. Supplied Equipment

Quantity	Description
1	RL-854 or RL-854PR Radio Control Unit
1	Antenna Kit (includes antenna, coaxial cable and antenna connector)
1	Instruction Manual

Table 2 lists reference data pertinent to the provided equipment.

Table 2. Equipment Information

Equipment	Specification
Main Assembly	
Power Input	120 Vac +/-15%, 60 Hz (RL-854 and RL-854PR)
Optional Power Input	12 Vdc (RL-854A) and 220 Vac, 50 Hz (RL-854APR)
Cabinet	
Material	NEMA 4
Antenna Receptacle	Bottom (for BNC connector)
Other	Two 1 in. (25.4-mm) holes in the bottom as wire entrances
Receiver	Fixed frequency superheterodyne, amplitude modulated
Power input	12 Vac
Construction	Plug-in circuit card
Input Impedance	50 Ω nominal
Sensitivity	Up to 5 microvolts for a 10 dB signal plus noise-to-noise ratio [(S+N)/N], adjustable from 5 microvolts to 200 microvolts.
Selectivity	<ul style="list-style-type: none"> ➤ Bandwidth of ± 15 kHz minimum at 6 dB attenuation ➤ Bandwidth of ± 40 kHz maximum at 60 dB attenuation ➤ Ripple (in band) is typically 2 dB or less
Spurious Responses	Greater than 60 dB below the desired signal, 0 to 400 MHz
Frequency Range	118-136 MHz, field-programmable
Frequency Stability	$\pm 0.03\%$
Frequency	As specified by user, field-changeable (see the Appendix)
Output	Pulse drives Type I decoder with input signal of 5 microvolts or more
Continued on next page	

Equipment Specification Data
(contd.)

Table 2. Equipment Information

Equipment	Specification
Style A Decoder	
Construction	Plug-in circuit board
Response	<p>Receiver pulses. Decoder remains non-responsive unless three or more pulses are received in a 5-second interval. Only one relay stays powered, determined by the number of pulses sent to the receiver:</p> <ul style="list-style-type: none"> ➤ 3 pulses closes the 3-pulse relay. ➤ 5 pulses closes the 5-pulse relay and opens the 3-pulse relay. ➤ 7 pulses closes the 7-pulse relay and opens the 5-pulse relay. <p>Decoder does not respond to signal elements of less than 50 milliseconds and does not require signal elements of more than 100 milliseconds.</p>
Relay Response	<p>Field-changeable to operate the relays in the following sequence, by removing diodes D3, D4, and D12.</p> <ul style="list-style-type: none"> ➤ 3 pulses closes the 3-pulse relay. ➤ 5 pulses closes the 3- and 5-pulse relays. ➤ 7 pulses closes the 3-, 5-, and 7-pulse relays.
Timer	Holds the relay(s) closed for 15 minutes. In fast test mode, timer releases relays after 20 seconds.

Equipment Specification Data
 (contd.)

Table 3 lists items not supplied that might be required for installation.

Table 3. Required Equipment Not Supplied

Quantity	Description	Part Number
A/R	grounding rods	commercial
A/R	silicone rubber	Dow-Corning Silastic Rubber or G.E. Silicone Seal
A/R	lightning arrestors	commercial
1	antenna mast	commercial
A/R	antenna mounting hardware	commercial
1	circuit breaker (size per installation plans)	commercial
4	1/4 x 1 in. long lag screws (for mounting enclosure)	commercial
4	1/4 in. flat washer for (1/4 x 1 in. long lag screws)	commercial
1	ground strap	commercial
1	dc voltmeter (high impedance input)	commercial
1	interface panel	Contact Siemens Airfield Solutions Sales Dept.

Table 4 lists general assembly part numbers for the RL-854.

Table 4. RL-854 Part Numbers

Number	Part Description
44A4710-10	RL-854A (60 Hz/120 V ac) without power relay
44A4710-20	RL-854APR (60 Hz/120 V ac) with power relay
44A4710-30	RL-854A (powered by 12 V dc)
44A4710-40	RL-854APR (50 Hz/220 V ac)
44A4710-50	RL-854 (powered by 12 V ac) with power relay SS
44A4710-60	RL-854A (24 V dc) without power relay

Radio Control Restrictions

Use air-to-ground Radio Control at uncontrolled airports or at controlled airports during periods when the Air Traffic Control tower is closed. Except for obstruction lights and the airport beacon, all other lighting systems on the airport may be operated by air-to-ground Radio Control.

Interfacing Radio Controller

You can directly connect the Radio Controller to the airport lighting systems or use an interface panel to provide additional switching capabilities or reduce the load on the Radio Controller. Configure the Radio Control system so the runway lights are on whenever the other lighting systems serving the runway are on, except during daytime operations.

Configure the Radio Control system with a day mode to power only those lighting systems that are useful during the day. This mode can be selected automatically by means of a photocell or by a manual switch. Using the day mode, however, means that the daytime IFR procedures associated with the deactivated lighting systems cannot be used.

In areas with heavy voice traffic on the Radio Controller frequency, there may be nuisance activation due to random microphone clicks. If this is a problem, bypass the three-click setting on the Radio Control for daytime use.

When the air-to-ground Radio Control is used at night, the lighting system may not be powered for long periods of time.

During these idle periods, the airport beacon, obstruction lights, and any other lighting systems that are not radio-controlled continue to operate while the radio-controlled systems are off. As an option, leave the runway edge lights on a low intensity setting, as required by local conditions. If you leave on the runway lights during idle periods, also leave on other lighting systems on a pre-selected intensity.

Intensity Control

Table 5 provides guidance on how to interface the Radio Control with the intensity settings of the airport lighting system. For example, connect a lighting system with five intensity settings so three clicks of the microphone would power brightness setting 1 or 2, five clicks would power setting 3, and seven clicks would power setting 5. The airport authority may select either setting 1 or 2 for the lowest brightness setting, depending on the background lighting at the airport.

Intensity Control (contd.)

Table 5. Interface of Radio Control with Airport Visual Aids

Lighting System	Number of Intensity Settings	Status During Idle Periods*	Intensity Setting Selected per Number of Microphone Clicks		
			3 clicks	5 clicks	7 clicks
Approach Lights	2	Off	Low	Low	High
	3	Off	Low	Medium	High
	5	Off	1 or 3	3	5
Edge Lights:					
Low Intensity	1	Off	On	On	On
Med. Intensity	3	Off or Low	Low	Medium	High
High Intensity	5	Off or Low	1 or 2	3	5
Taxiway Edge Lights	1	Off	On	On	On
	2	Off	Low	Low	High
	3	Off	Low	Medium	High
Runway Centerline Touchdown Zone Lights	5	Off	1 or 2	3	5
Taxiway Centerline Lights	3	Off	Low	Medium	High
	5	Off	1 or 2	3	5
REILS	1	Off	Off	Off	On
	2	Off	Off	Low	High
	3	Off	Low	Medium	High
Visual Glideslope Systems	Photocell Control	Off	On	On	On
	3	Off	Low	Medium	High
	5	Off	1 or 2	3	5
<p>NOTE: * If runway lights are left on during idle periods, other lighting systems may also be left on at a pre-selected brightness. Table 5 is from FAA AC 150/5320-27A, Table 1.</p>					

Intensity Control *(contd.)*

REILS

Adapt the Radio Control of REILS to the equipment and the needs of the airport. For one- or two-setting REIL systems, turn off the REILS at the lower intensity and leave powered at the higher intensity.

Approach Lights and Edge Lights

When a runway has approach lights that are Radio Controlled and edge lights that are not, the edge lights are left on at an intensity level selected according to the anticipated weather conditions during the hours of night operation. If the runway lights are Radio Controlled and the approach lights are not, then the approach lights may be left off or at a pre-selected brightness. *The approach lights should never be on while the runway lights are off.* On runways where the approach lights and runway lights are both radio-controlled, the intensities of both systems are increased or decreased simultaneously by the Radio Control.

Photocell Control

When the intensity of the lighting system is automatically controlled by a photocell or other means, the Radio Control powers the system. The intensity is selected automatically by the photocell.

Theory of Operation

This subsection describes the RL-854 Radio Control unit theory of operation.

General

The RL-854 has three major components: the mother printed circuit board (PCB), the Receiver PCB, and the Decoder PCB.

Main Assembly

See Figure 2. Power is supplied to the motherboard via terminal block TB1. Fuse F1 protects and switch S1 switches the power to the primary power of transformer T1. T1 has two 120 V ac primary windings that are operated in parallel.

Main Assembly (contd.)

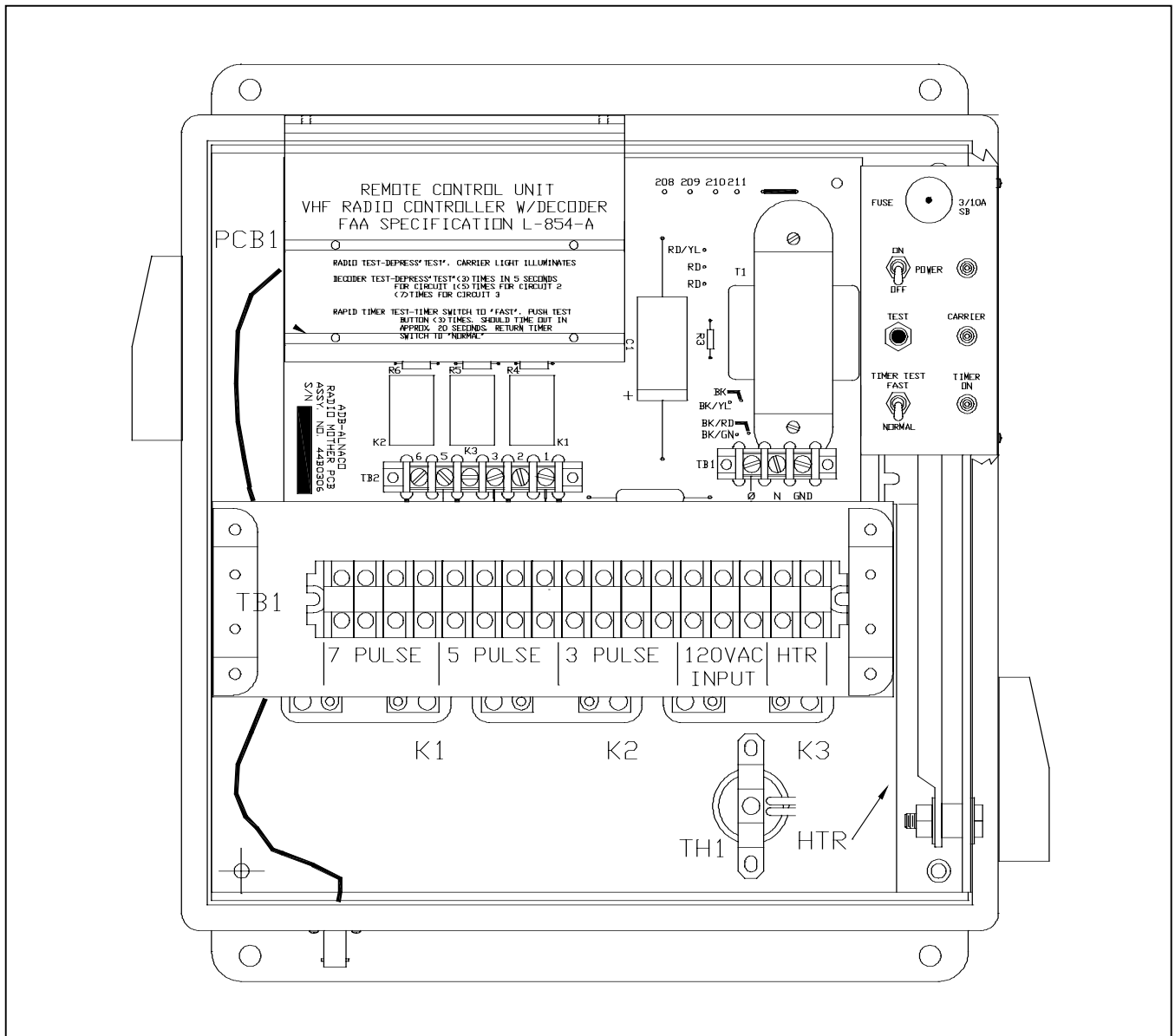


Figure 2. RL-854 Main Assembly

Main Assembly *(contd.)*

The secondary power source for T1 is 25.2 V ac, center-tapped. This voltage is applied to the Decoder PCB, which contains a full-wave rectifier. Capacitor C1 provides the filtering for the rectifier via connector J2 pin 9, which is 17.5 V dc and acts as the DC source for relays and lamps. All relays have a 62- Ω resistor in series with their coil to drop the coil voltage to 12 V dc.

Interface Panel

See Figure 3. The RL-854 Interface panel is used to interface an air-to-ground Radio Control unit with an L-821 control panel and L-828 constant current regulator (CCR). The CCR control voltage can be either +48 V dc or 120 V ac.

Interface Panel (contd.)

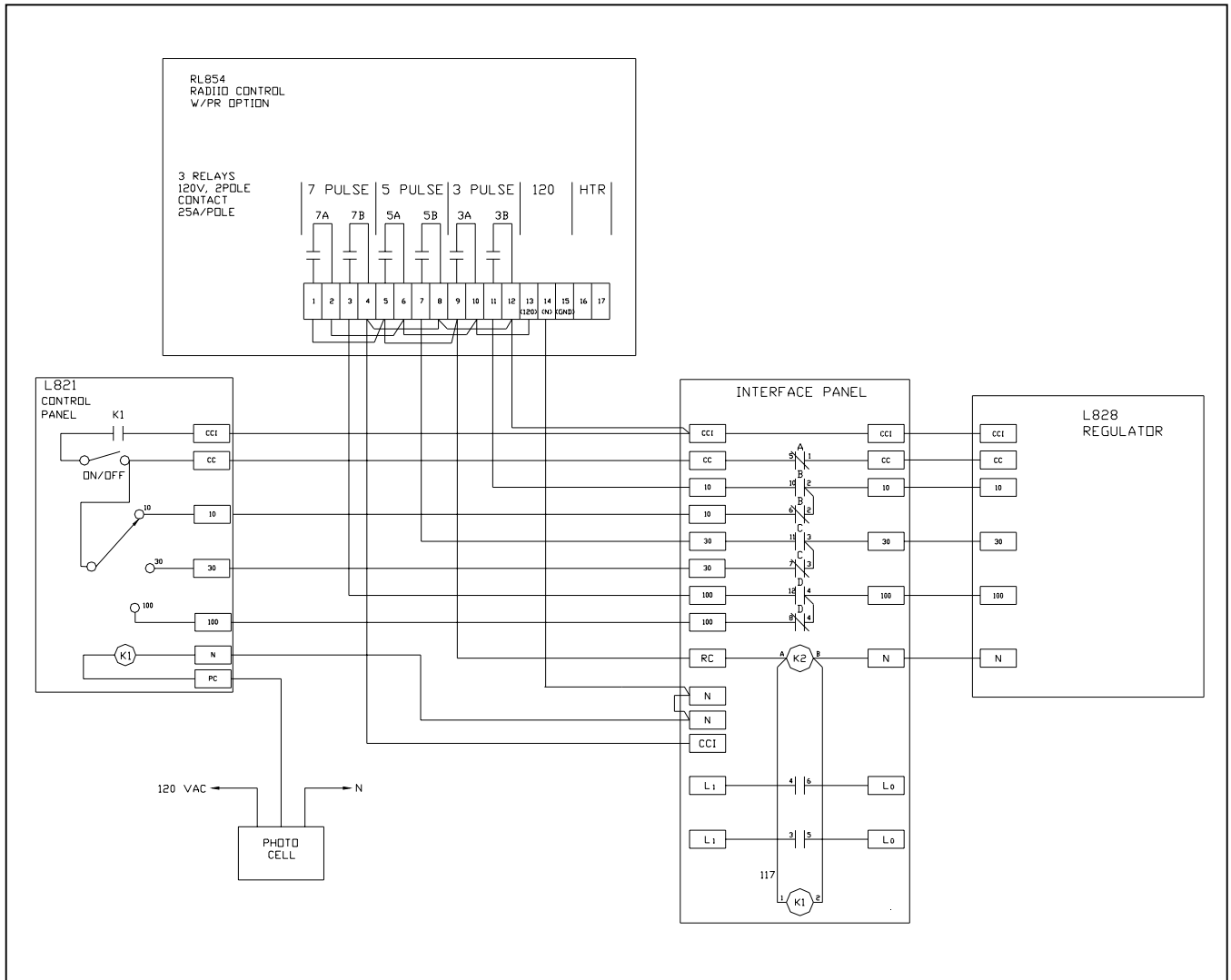


Figure 3. Interface for L-828

Interface Panel *(contd.)*

Automatic Radio Control

When the Radio Control unit is powered, 120 V ac is connected to relays K1 and K2 through contact 7A, 5A, or 3A, powering K1 and K2. Energizing K1 supplies power to the REILS.

If a 3-pulse relay is energized, CCI control voltage from the CCR is supplied through the normally open contact of relay K2 back to CC. CCI voltage is fed to the B10 input of the CCR through contact 3B and normally open contact of K2. This powers the CCR at the 10% brightness level.

If a 5-pulse relay is energized, the 3-pulse relay is de-energized and the 30% brightness level command voltage is supplied to the CCR via relay contact 5B and the normally open contacts of K2. Relay K2 remains energized via relay contact 5A.

If a 7-pulse relay is energized, the 5-pulse relay is de-energized and the 100% brightness level command voltage is supplied via relay contact 7B through the normally open contacts of K2 to the CCR. Relay K2 remains energized via relay contact 7A.

Manual Control

See Figure 3. In the manual position, K2 is de-energized and control voltage is supplied to the CCR through the normally closed contacts of K2.

If the CCR main rotary control switch is placed in the remote position, either 120 V ac or +48 V dc is output from the CCR at terminal CCI. The CCI voltage is input into the L-821 control panel at the terminal labeled CCI. This voltage is then switched via relay K1, whose coil is controlled by the photocell.

The photocell supplies 120 V ac to the coil of K1 during the daytime. When K1 is energized, the CCI control voltage is supplied through K1's contacts to the ON/OFF switch. If the switch is placed in the ON position, the CCR is automatically powered at the rotary-switch intensity-level setting. The rotary switch has three positions: 10, 30, and 100. If at any time the Radio Control is powered, operation of the CCR is automatically switched over to the RL-854 unit.

Several regulators can be operated together or separately from the same voltage through corresponding switches. In addition, other equipment can be controlled from the L-821 panel (for example, edge lights, VASI, or REILS) by using a toggle switch to control voltage to a contactor connected in line with each piece of equipment.

Interface Panel (contd.)

Other L-821 Configurations

Multiple configurations for the L-821 are available. For example, CCI control voltage can be provided from an external source. This eliminates the need for the CCI output voltage from the CCR. Contact Siemens Airfield Solutions Sales Department for details.

3. Installation



WARNING: Allow only qualified personnel to perform the following tasks. Observe and follow the safety instructions in this document and all other related documentation.

This section provides instructions for the installation of the RL-854 Radio Control unit and RL-854PR Radio Control unit with the power relay option. Refer to the project plans and specifications for the specific installation instructions.

Unpacking

The equipment must be handled carefully to prevent component damage. Unpack the carton upon receipt and check the contents and their condition. You should find the antenna, the antenna connector, the radio unit, and the antenna lead-in cable. Note any exterior damage to the carton that might lead to detection of equipment damage.

If you find any damage to equipment, file a claim form with the carrier immediately. Inspection of equipment by the carrier may be necessary.

Installing Standard RL-854

Refer to *Installing RL-854PR Radio Controller* in this section for RL-854PR installation details.

To install the standard RL-854 Radio Control unit, perform the following procedure:

1. Determine the best location for the Radio Control.

NOTE: Radio Control location should be within 50 feet (15.24 m) of the antenna and secured to a wall. Consideration should be given to locating it out of a traffic area to reduce or minimize its exposure to unauthorized personnel. Consideration should also be given to the routing of the antenna lead-in cable. Route it away from heavy concentrations of electrical wires to reduce interference.

2. See Figure 4. Install the radio unit using the four mounting holes.

NOTE: Use four 1/4 x 1 in.- (6.35 x 25.4 mm-) long lag screws with 1/4 in. flat washers (or other suitable fasteners) for mounting, or as appropriate for the surface to which the radio unit is being mounted.

Installing Standard RL-854
(contd.)

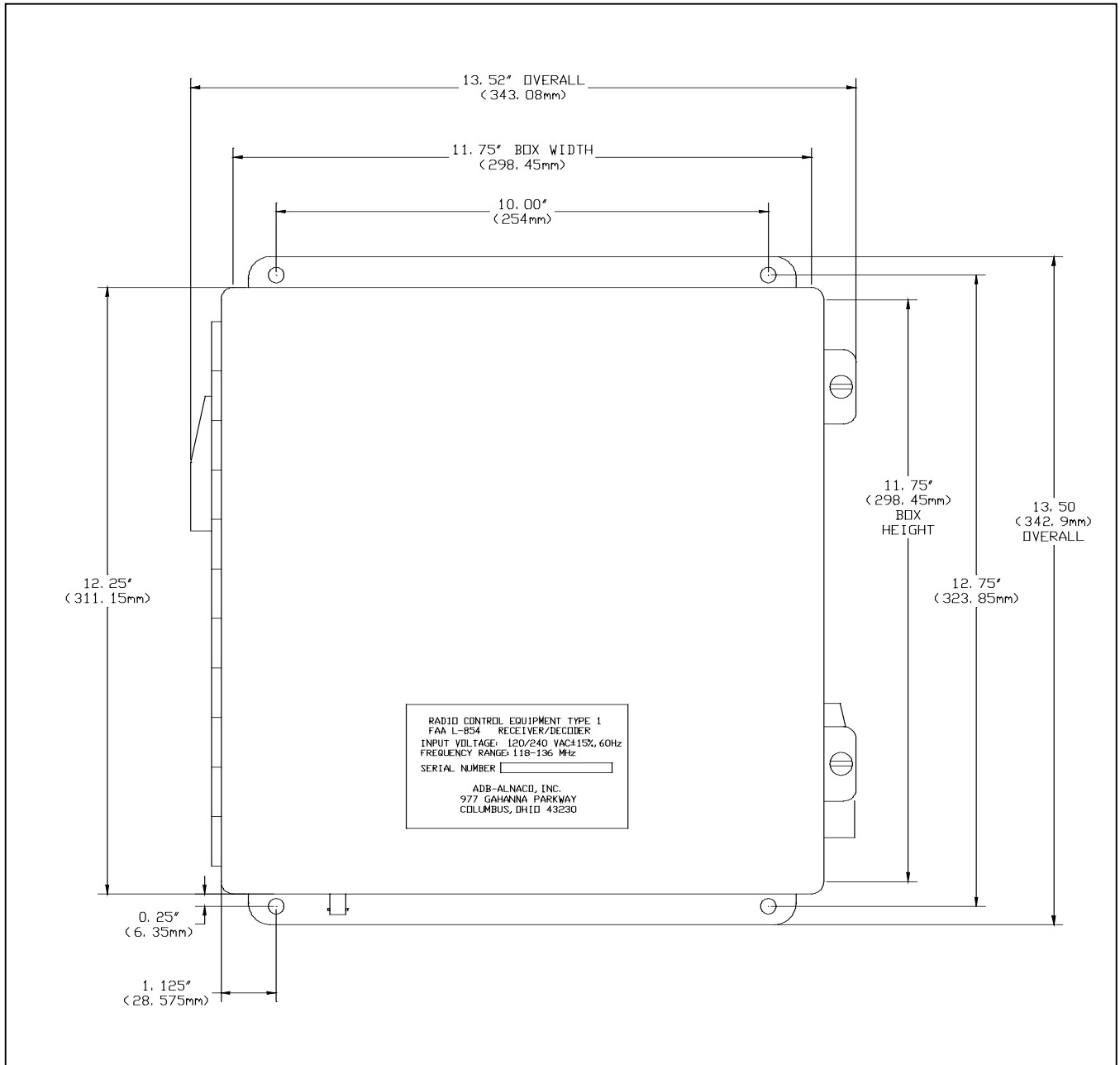


Figure 4. Mounting Dimensions

Installing Standard RL-854
(*contd.*)

3. Route power to the unit.

NOTE: This must meet the National Electric Code (NEC) and/or any local codes. One of the two 1 in. (25.4 mm) bottom wire entrance holes may be used for this purpose.

4. See Figure 2. Connect 120 V ac to terminal TB1 as follows:

- a) Black wire to line (L) terminal
- b) White wire to neutral (N) terminal
- c) Green wire to ground (G) terminal

5. Connect the circuits to be controlled to terminal block TB2 terminal 1 through 6 (as required) as follows:

- a) Terminal 1 connects to terminal 2 when 3-pulse relay is powered.
- b) Terminal 3 connects to terminal 4 when 5-pulse relay is powered.
- c) Terminal 5 connects to terminal 6 when 7-pulse relay is powered.

NOTE: These contacts have only a light-duty current-carrying capacity.

6. Connect the antenna plug attached to the antenna lead-in wire to the receptacle on the radio unit. Route the antenna cable to the antenna location.

NOTE: Avoid sharp bends in the antenna cable, and leave a drip loop anywhere the antenna lead-in wire changes from vertical to horizontal. Be sure to secure the antenna lead-in cable so it does not move excessively in the wind to prevent fatigue failure of the cable.

Assembling Antenna

To assemble the antenna, perform the following procedure:

1. Unpack the antenna and become familiar with the parts and hardware.
2. Loosen the mounting nut and assemble the radials as shown in Figure 5. Tighten jam nuts against the hub to secure the radials. Retighten the mounting nut.

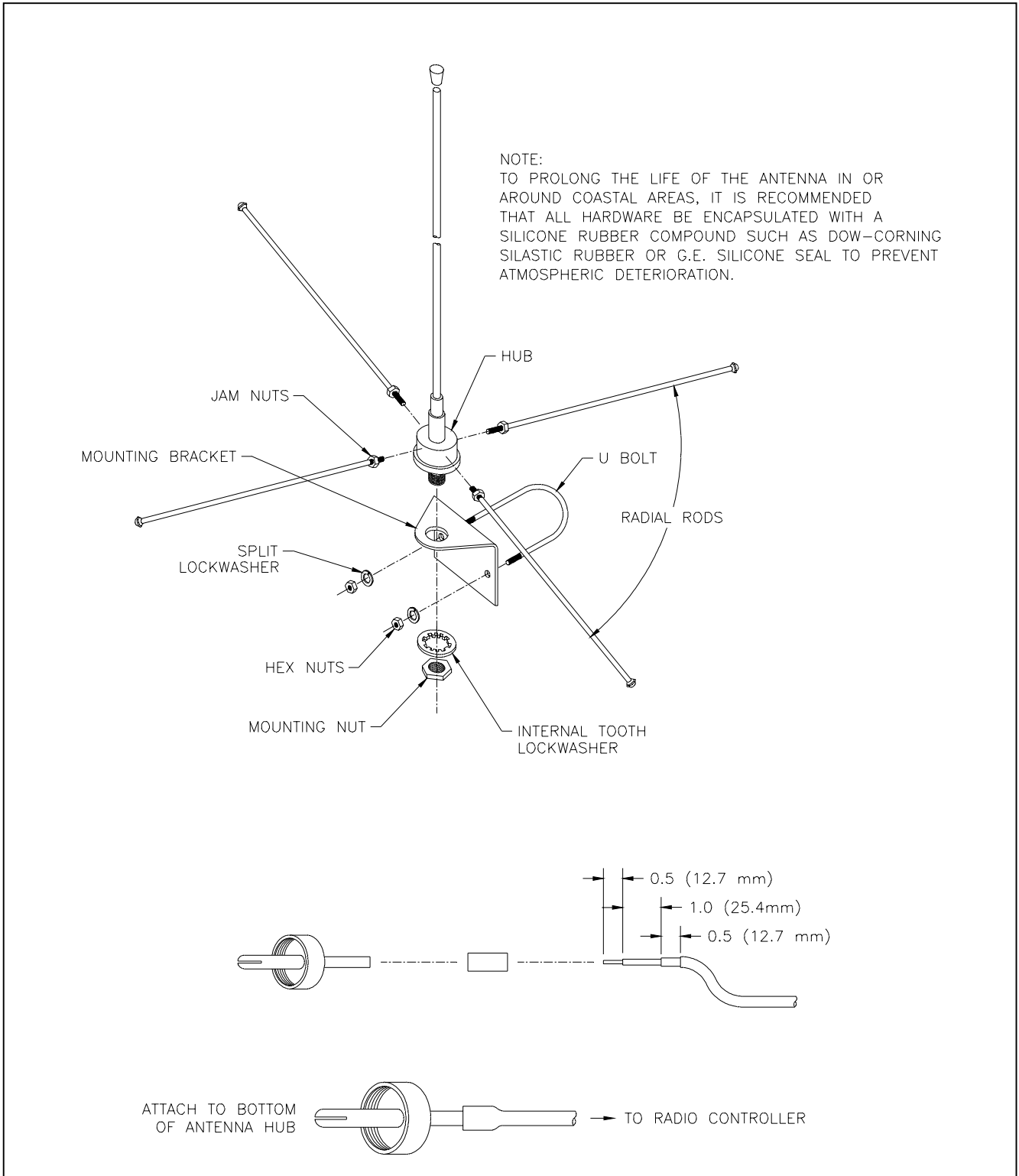


Figure 5. Assembling Antenna

Installing Standard RL-854 (contd.)

3. Connect the end of the coaxial cable terminated with antenna connector to the antenna hub.

NOTE: To prolong the life of the antenna in or around coastal areas, it is recommended that the hardware be encapsulated with a silicon rubber compound such as Dow-Corning Silastic Rubber or GE Silicone Seal to prevent atmospheric deterioration.

Installing Antenna

This subsection describes how to install the antenna.

Safety Precautions



WARNING: Installation of the antenna near power lines is dangerous. For your safety, follow the installation directions.

Each year, hundreds of people are killed, mutilated, or receive severe permanent injuries when attempting to install an antenna. In many of these cases, the victim was aware of the danger of electrocution but did not take adequate settings to avoid the hazard. For your safety, and to achieve a good installation, please read and follow the safety precautions below. They may save your life.

Follow the safety guidelines below.

- Select your installation site with safety, as well as performance, in mind.
- Plan your installation procedure carefully and completely before you begin.
- Successful raising of a mast or tower is largely a matter of coordination.
- Each person should be assigned to a specific task and should know what to do and when to do it. One person should be designated as the master of the operation to call out instructions and watch for signs of trouble.

Installing Standard RL-854 (contd.)

- When installing your antenna, remember:
 - ⇒ Do not use a metal ladder.
 - ⇒ Do not work on a wet or windy day.
 - ⇒ Dress properly - shoes with rubber soles and heels, rubber gloves, long sleeve shirt or jacket.
- If the assembly starts to drop, get away from it and let it fall. Remember, the antenna, mast, cable, and metal guy wires are all excellent conductors of electrical current. Even the slightest touch of any of these parts to a power line completes an electrical path through the antennas and the installer.

Mounting Antenna

The antenna should be mounted higher than the roof of the building it is mounted on. It is preferable that it be mounted higher than other obstructions in the immediate area. In the case of a utility pole, mount the antenna part way up the utility pole. If there are other cables or wires running vertically on the utility pole, the vertical part of the antenna should be between 40 in. (1.02 m) and 50 in. (1.27 m) away from the vertical wires/conduit.

To mount the antenna, perform the following procedure:

1. Attach the antenna onto a 1/2 in. (12.7 mm) to 3/4 in. (19.05 mm) pipe or up to 1-3/8 in. (34.925 mm) OD tubing using the U-bolt, lockwashers, and hex nuts. The pipe or mast should be rigidly supported so that it does not twist or turn.
2. Secure the cable to the mounting mast every few feet with strap or plastic tape to avoid strain on cable connections.
3. Remove any unnecessary slack from the coaxial cable and use the supplied field attachable connector to connect the end of the cable to the antenna connector of the Radio Controller.

Installing RL-854PR Radio Controller

Installation instructions are the same for the RL-854PR as for the RL-854. Refer to *Installing Standard RL-854* in this section, steps 1, 2, 3, and 6, except that the power connectors are changed. Refer to *Incremental Relay Option* in the *Operation* section for external wire connections.

Installing RL-854PR Radio Controller *(contd.)*

The RL-854PR contains three 2-pole power relays that are rated for 25 amps (resistance) per pole. The auxiliary terminal strip TB1 handles up to AWG 10 wire. Wire the RL-854PR as follows:

1. Terminal 1 and Terminal 2 - closes when 7-pulse relay is powered.
2. Terminal 3 and Terminal 4 - closes when 7-pulse relay is powered.
3. Terminal 5 and Terminal 6 - closes when 5-pulse relay is powered.
4. Terminal 7 and Terminal 8 - closes when 5-pulse relay is powered.
5. Terminal 9 and Terminal 10 - closes when 3-pulse relay is powered.
6. Terminal 11 and Terminal 12 - closes when 3-pulse relay is powered.
7. Terminal 13 - line (120 Vac), black wire.
8. Terminal 14 - neutral (120 Vac return), white wire.
9. Terminal 15 – earth ground, green wire.

4. Operation

This section describes operations of the RL-854 Radio Control unit.

Incremental Relay Option

The RL-854 is shipped for **individual relay** operation. Under **individual relay** operation:

- 3 pulses closes the 3-pulse relay
- 5 pulses closes the 5-pulse relay and opens the 3-pulse relay
- 7 pulses closes the 7-pulse relay and opens the 5-pulse relay

The relay operation can be changed for **incremental relay** operation, which is as follows:

- 3 pulses closes the 3-pulse relay
- 5 pulses closes the 5-pulse and 3-pulse relays
- 7 pulses closes the 7-pulse and 5-pulse relays

Incremental Relay Option
(contd.)

See Figure 6. If you want to change the relay operation from **individual** to **incremental**, disconnect diodes D3, D4, and D12 on Decoder PCB. Cut these diodes from the Decoder PCB using a diagonal cutter tool.



WARNING: Make sure power to the RL-854 has been disconnected before attempting to cut the diodes.

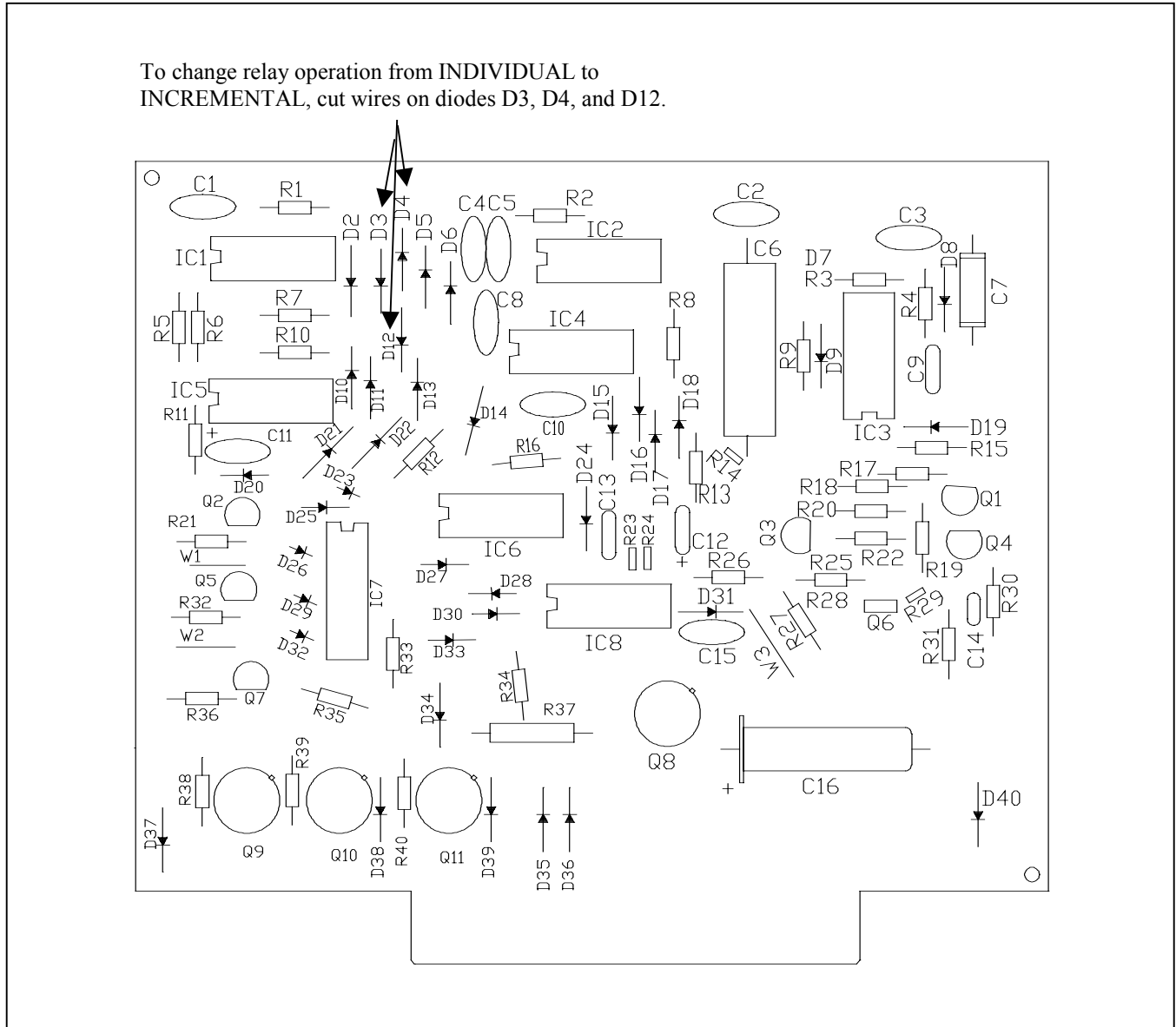


Figure 6. Decoder PCB

Controls and Indicators

See Figure 2. Refer to Table 6. All switches, pushbuttons, indication lights, and fuses used in the operation of the RL-854 are located inside the cabinet.

Table 6. Controls and Indicators

Part	Purpose
Controls	
ON/OFF Switch S1	Controls primary AC power.
Fuse F1 (3/10 A, Slo-Blo)	Provides primary circuit protection.
Timer Test Fast Switch S3	Provides a fast check of the timer circuit, causing the timer to time-out in approximately 20 seconds.
Timer Test Normal Switch S3	Timer takes 15 minutes to time-out.
Test Pushbutton S2	Tests receiver completely. Depressing Test Pushbutton S2 produces the same type signal that an aircraft transmitter produces. It tests everything in the receiver except the antenna.
Indicators	
Power Light DS1	Indicates DC power is on.
Carrier Light DS2	Indicates the receiver is receiving a carrier in the proper frequency.
Timer Light DS3	Indicates the timer is powered and is in a 20-second or 15-minute cycle.

Startup Procedures

See Figure 7. Startup procedures for the RL-854 Radio Control unit are discussed below.

Startup Procedures (contd.)

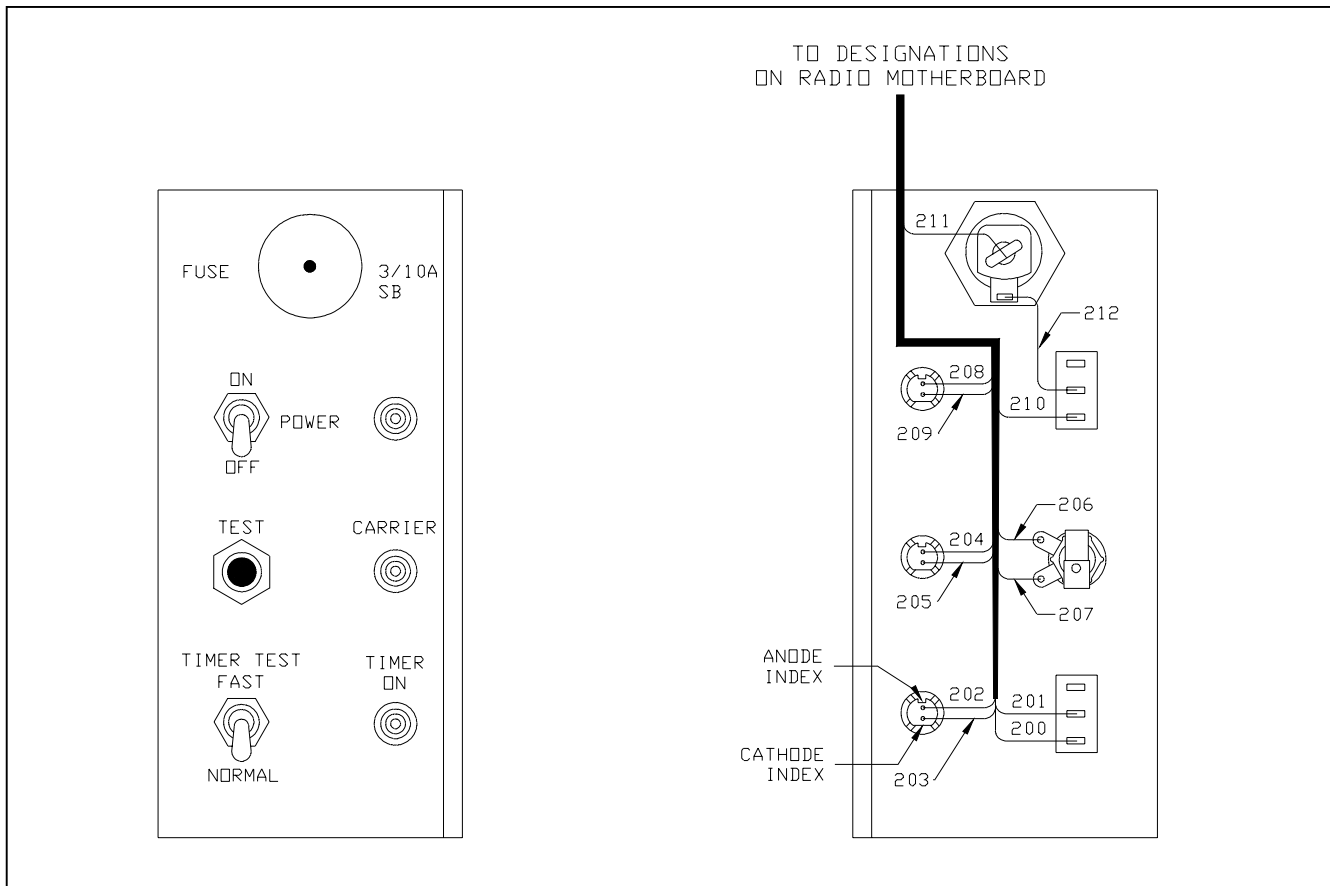


Figure 7. Control Board and Fuse Assembly

To start up the Radio Control unit, perform the following procedure:

1. **Action:** Turn power switch to ON.

Result: Red power-on light should light. Timer light may or may not come on. Since the timer module uses electronic memory, and since this memory comes on in a random fashion at initial turn on, the unit must be operated once to put all circuits in proper order.

2. **Action:** Turn Timer Test Switch S2 to FAST.
3. **Action:** Depress Test Pushbutton S3 three times within 5 seconds.

Result: The 3-pulse relay should close.

Startup Procedures *(contd.)*

4. **Action:** Wait approximately 20 seconds.
Result: The 3-pulse relay should open.
5. **Action:** Depress Test Pushbutton S3 five times within 5 seconds.
Result: The 5-pulse relay should close.
6. **Action:** Wait approximately 20 seconds.
Result: The 5-pulse relay should open.
7. **Action:** Depress Test Pushbutton S3 seven times within 5 seconds.
Result: The 7-pulse relay should close.
8. **Action:** Wait approximately 20 seconds.
Result: The 7-pulse relay should open.
9. **Action:** Return Timer Test Switch S2 to NORMAL.
Result: Unit is now ready for operation.

NOTE: Each time Test Pushbutton S3 is depressed, carrier light DS2 should turn on.

5. Maintenance



CAUTION: This equipment contains semiconductor devices and integrated circuits. Static electrical charge buildup in the human body can destroy integrated circuits. Wear a commercially approved ground strap when handling printed circuit boards containing integrated circuits. Wearing a ground strap discharges any static charge buildup to ground and ensures the safety of the integrated circuit. For information on using the ground strap, refer to the ground strap instruction manual.

This section describes maintenance procedures for the RL-854 Radio Control unit.

Prior to undertaking any maintenance to this unit, refer to *Theory of Operation* in the *Description* section.

Introduction

The only maintenance recommended by people other than skilled radio technicians is changing the fuses, lamps, PCBs, and plug-in relays. If a problem develops in the unit, make the following checks:

1. See Figure 2. Make sure that power is coming into the unit by measuring the AC voltage across input power line TB1 L to N.
2. Make sure power switch is turned ON. If it is on but the **Power On** light is out, check fuse F1.

NOTE: If the fuse is blown, replace only with the same size fuse. If the fuse blows again after replacement, consult a repairman to analyze the problem.

3. If the fuse is not blown, but the red power light does not come on, check Power Light DS1.
4. If during the operational test one of the relays (K1, K2, or K3) does not operate, interchange it with one that does operate properly to determine whether the relay or the electronic circuit that activates the relay is defective.
5. If the unit tests properly during an operational test, but cannot be activated from an aircraft, inspect the antenna, antenna connectors, and coaxial lead-in cable for shorts, breaks, or loose fittings.
6. If the unit still cannot be activated from an aircraft, check to make sure that the receiver PCB is set to the correct frequency.

Receiver Frequency Setting

See Figure 8. If frequency setting is required, the receiver PCB must be removed from the unit. The frequency setting is accomplished by setting the dip switches S1 and S2 on the receiver PCB to the correct position. For example, to set the receiver frequency at 118 MHz the dip switches S1 and S2 on receiver PCB must be set as follows:

SWITCH 2								SWITCH 1								RF Frequency
8	7	6	5	4	3	2	1	8	7	6	5	4	3	2	1	Hz
0	1	1	0	0	0	0	0	1	1	0	0	1	0	1	1	118,000,000

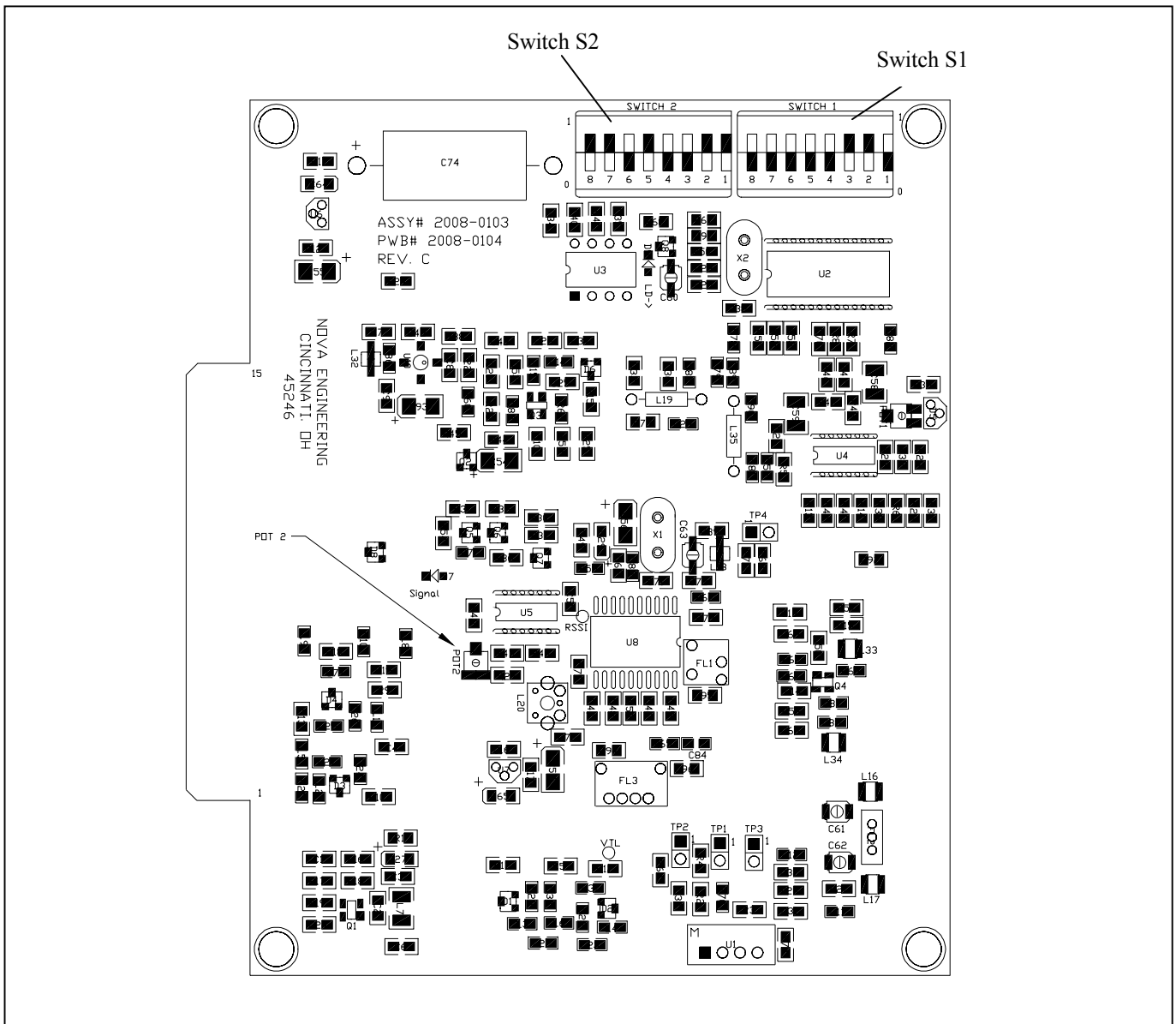


Figure 8. New Receiver PCB Assembly

6. Troubleshooting



WARNING: Allow only qualified personnel to perform the following tasks. Observe and follow the safety instructions in this document and all other related documentation.



WARNING: Make sure power to the RL-854 has been disconnected before attempting to service the radio control unit.

Refer to Table 7. This section provides troubleshooting information for the RL-854 Radio Control unit.

Table 7. RL-854 Radio Control Unit Troubleshooting

Problems and Possible Causes	Solutions
Problem: No Timer Lamp	
Defective lamp	Replace lamp.
Defective motherboard	Repair or replace motherboard.
Bad contacts on decoder board	Clean contacts.
Problem: Timer light is on but relay fails to function properly	
Defective relay	Swap with spare relay and test; replace if necessary.
Problem: One or more relay(s) remain powered	
Defective relay	Replace relay.
Defective decoder board	Repair or replace decoder board.
Problem: One or more relay(s) fail to power	
Defective relay	Replace relay.
Defective relay socket	Replace socket.
Bad contacts on decoder board	Clean contacts.
Defective decoder board	Repair or replace decoder board.
Problem: No carrier lamp	
Defective lamp	Replace lamp.
Defective antenna	Check antenna and antenna lead.
Defective lamp socket	Replace socket.
Low sensitivity	Increase sensitivity by turning pot2 on receiver board clockwise.
Defective receiver board	Replace or repair receiver board.
Wrong frequency	Check for proper frequency setting on receiver PCB.
Problem: No power lamp	
No power	Check power source.
Defective lamp	Replace lamp.
Blown fuse	Replace fuse.
Defective motherboard	Repair or replace motherboard.
Problem: No fast time when timer test switch is in FAST position	
Bad contacts on decoder board	Clean contacts.
Defective decoder board	Repair or replace decoder board.

Continued on next page

6. Troubleshooting *(contd.)*

Table 7. RL-854 Radio Control Unit Troubleshooting

Problems and Possible Causes	Solutions
Problem: No test when test button is depressed	
Defective carrier lamp	Replace lamp.
Low sensitivity on receiver board	Turn pot2 on receiver board clockwise.
Bad contacts on receiver board	Clean contacts.
Bad contacts on decoder board	Clean contacts.
Defective receiver board	Repair or replace receiver board.
Defective decoder board	Repair or replace decoder board.
Problem: No 15-minute time out, timer test switch in normal position	
Bad contacts on decoder board	Clean contacts.
Defective decoder board	Repair or replace decoder board.
Problem: 15-second fast test time out (all functions)	
Defective decoder board	Repair or replace decoder board.

7. Parts

To order parts, call Siemens Airfield Solutions Customer Service or your local representative. Use this four-column parts list, and the accompanying illustration, to describe and locate parts correctly.

Using the Illustrated Parts List

The Item column numbers correspond to the numbers that identify parts in illustrations following each parts list. NS (not shown) indicates that a listed part is not illustrated.

The Description column gives the part name, as well as its dimensions and other characteristics when appropriate. Indentions show relationships between assemblies, subassemblies, and parts.

The Part Number column gives the Siemens Airfield Solutions part number.

Item	Description	Part Number	Note
NS	Assembly	XXXXXXXX	A
T1	Assembly		
	Part	XXXXXXXX	
	Part	XXXXXXXX	

The Note column contains letters that refer to notes at the end of each parts list. Notes contain special ordering information.

**RL-854 Radio Control Unit
Part Numbering System**

Figure 9 shows how to determine the part number for a particular RL-854 Radio Control Unit.

**RL-854 Radio Control Unit
 Part Numbering System**

(contd.)

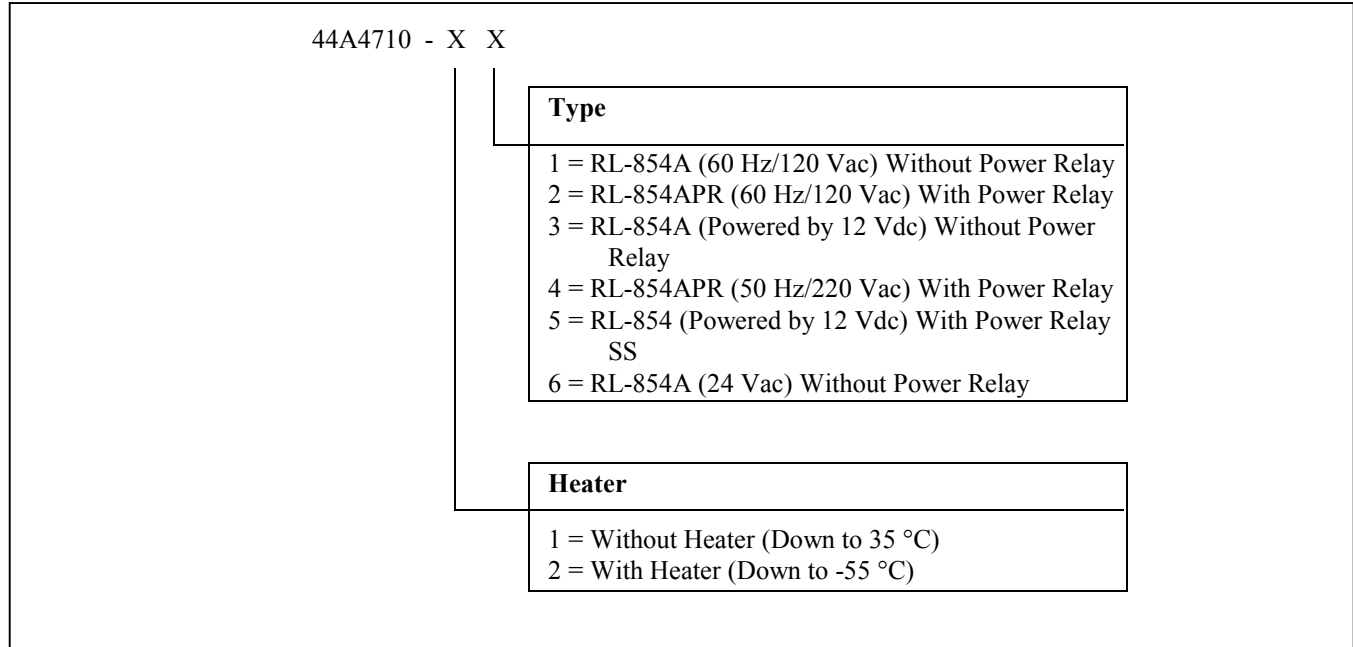


Figure 9. RL-854 Radio Control Unit Part Numbers

**RL-854 Main Assembly Parts
 List**

See Figure 10.

Item	Description	Part Number	Note
PCB1	Motherboard Assembly	44B0306	
A1	Control Panel	44B0304	
A2	Coaxial Connector (Amphenol 7486UG-290A/U)	70A0059	
NS	Antenna Kit (Antenna Corp. Model 22530)	44B0347	
K1-3	Relay, DPDT, 120 V ac, 25A	53A0126-1	
TB1	Terminal Block	72A0016	
TB1	Terminal Block End Piece	72A0025	
D1	Decoder Board Assembly (requires separate order)	44D0308	
R1	Receiver Board Assembly (requires separate order)	44B4698	
NS: Not Shown			

RL-854 Main Assembly Parts
List (contd.)

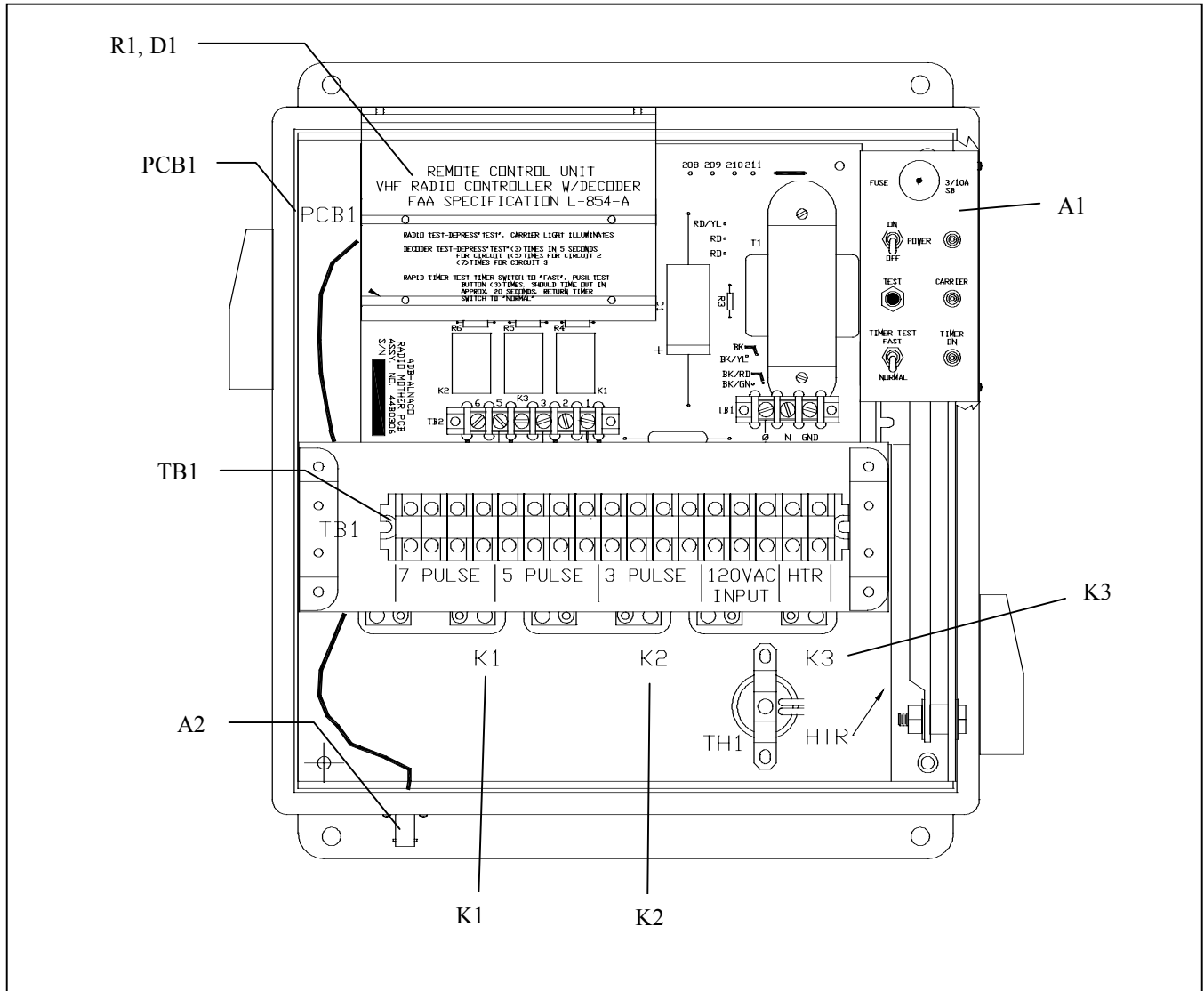


Figure 10. Main Assembly

RL-854 Motherboard
Assembly Parts List

See Figure 11.

Item No.	Description	Part Number	Note
	Motherboard Assembly	44B0306	
K1-3	Relay, 4PDT, 12 V dc, 5A (maximum)	53A0301	

RL-854 Motherboard
Assembly Parts List (contd.)

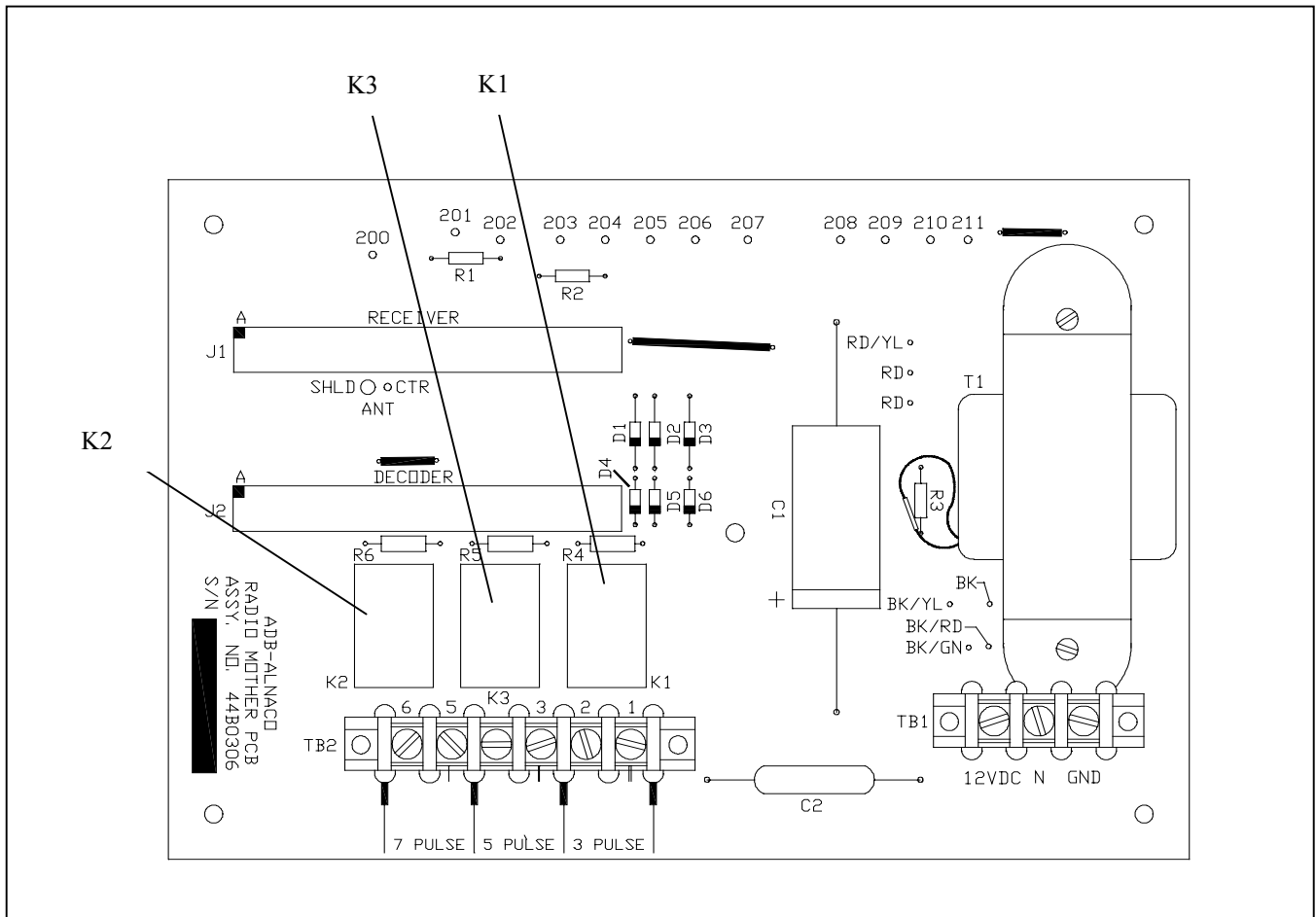


Figure 11. Motherboard

RL-854 Control Board and Fuse Assembly Parts List

See Figure 12.

Item No.	Description	Part Number	Note
	Control Board and Fuse Assembly		
F1	Fuse, 3/10 A, Slo-Blo	47A0006	
S1-2	Switch, SPDT	45A0210	
S3	Pushbutton Switch SPST NO	45A0212	
DS2-3	Red LED	39A0005	
DS1	Green LED	39A0004	
L1-3	Lens Clips	39A0010	

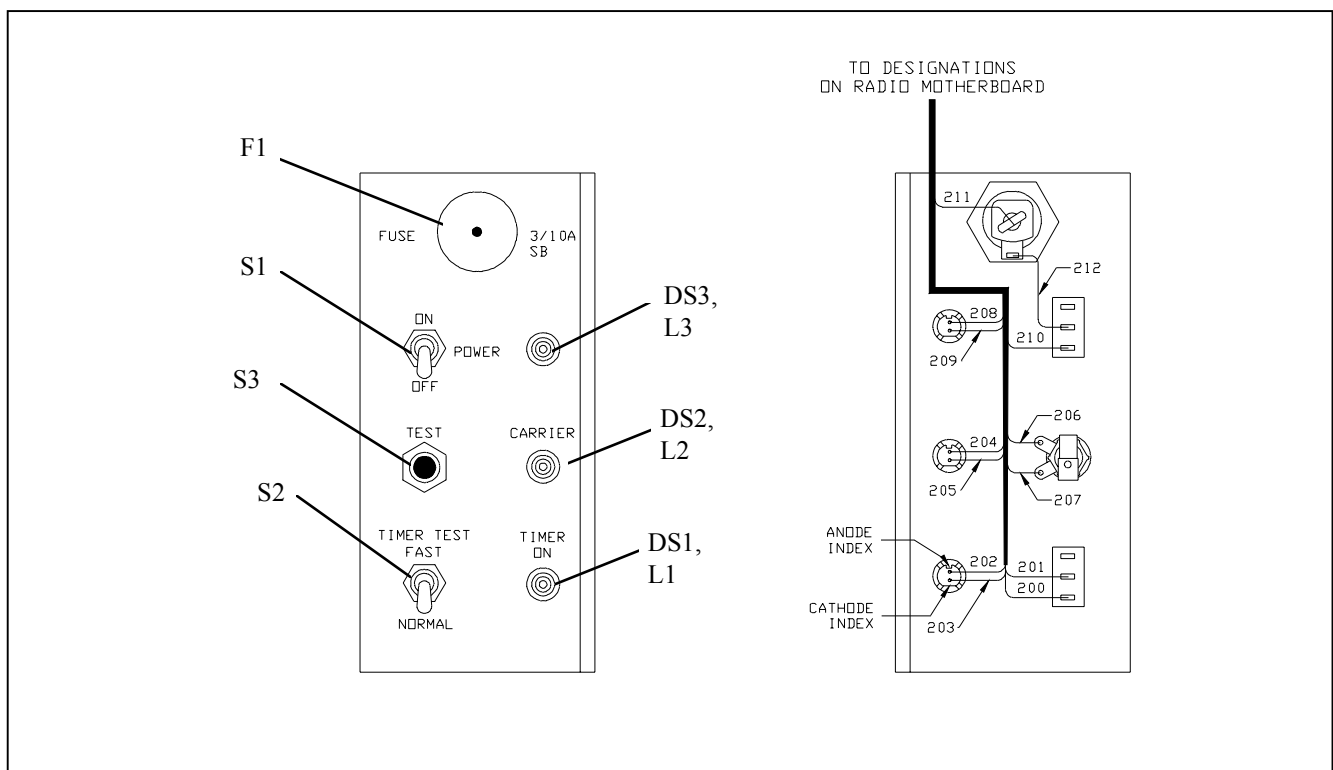


Figure 12. Control Board and Fuse Assembly

Optional Parts

The table below provides optional parts.

Item No.	Description	Part Number	Note
NS	Interface Panel (for additional switching capabilities or to reduce the load on the Radio Control)	44C0703	
NS: Not Shown			

Appendix

Table 8. Switch Settings for Frequency Control of Receiver PCB

SWITCH 2								SWITCH 1							RF Frequency	
8	7	6	5	4	3	2	1	8	7	6	5	4	3	2	1	Hz
0	1	1	0	0	0	0	0	1	1	0	0	1	0	1	1	118,000,000
0	1	1	0	0	1	0	0	1	1	0	0	1	0	1	1	118,025,000
0	1	1	0	1	0	0	0	1	1	0	0	1	0	1	1	118,050,000
0	1	1	0	1	1	0	0	1	1	0	0	1	0	1	1	118,075,000
0	1	1	1	0	0	0	0	1	1	0	0	1	0	1	1	118,100,000
0	1	1	1	0	1	0	0	1	1	0	0	1	0	1	1	118,125,000
0	1	1	1	1	0	0	0	1	1	0	0	1	0	1	1	118,150,000
0	1	1	1	1	1	0	0	1	1	0	0	1	0	1	1	118,175,000
0	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	118,200,000
0	0	0	0	0	1	0	0	1	1	0	0	1	1	0	0	118,225,000
0	0	0	0	1	0	0	0	1	1	0	0	1	1	0	0	118,250,000
0	0	0	0	1	1	0	0	1	1	0	0	1	1	0	0	118,275,000
0	0	0	1	0	0	0	0	1	1	0	0	1	1	0	0	118,300,000
0	0	0	1	0	1	0	0	1	1	0	0	1	1	0	0	118,325,000
0	0	0	1	1	0	0	0	1	1	0	0	1	1	0	0	118,350,000
0	0	0	1	1	1	0	0	1	1	0	0	1	1	0	0	118,375,000
0	0	1	0	0	0	0	0	1	1	0	0	1	1	0	0	118,400,000
0	0	1	0	0	1	0	0	1	1	0	0	1	1	0	0	118,425,000
0	0	1	0	1	0	0	0	1	1	0	0	1	1	0	0	118,450,000
0	0	1	0	1	1	0	0	1	1	0	0	1	1	0	0	118,475,000
0	0	1	1	0	0	0	0	1	1	0	0	1	1	0	0	118,500,000
0	0	1	1	0	1	0	0	1	1	0	0	1	1	0	0	118,525,000
0	0	1	1	1	0	0	0	1	1	0	0	1	1	0	0	118,550,000
0	0	1	1	1	1	0	0	1	1	0	0	1	1	0	0	118,575,000
0	1	0	0	0	0	0	0	1	1	0	0	1	1	0	0	118,600,000
0	1	0	0	0	1	0	0	1	1	0	0	1	1	0	0	118,625,000
0	1	0	0	1	0	0	0	1	1	0	0	1	1	0	0	118,650,000
0	1	0	0	1	1	0	0	1	1	0	0	1	1	0	0	118,675,000
0	1	0	1	0	0	0	0	1	1	0	0	1	1	0	0	118,700,000
0	1	0	1	0	1	0	0	1	1	0	0	1	1	0	0	118,725,000
0	1	0	1	1	0	0	0	1	1	0	0	1	1	0	0	118,750,000
0	1	0	1	1	1	0	0	1	1	0	0	1	1	0	0	118,775,000
0	1	1	0	0	0	0	0	1	1	0	0	1	1	0	0	118,800,000
0	1	1	0	0	1	0	0	1	1	0	0	1	1	0	0	118,825,000
0	1	1	0	1	0	0	0	1	1	0	0	1	1	0	0	118,850,000
0	1	1	0	1	1	0	0	1	1	0	0	1	1	0	0	118,875,000
0	1	1	1	0	0	0	0	1	1	0	0	1	1	0	0	118,900,000
0	1	1	1	0	1	0	0	1	1	0	0	1	1	0	0	118,925,000
0	1	1	1	1	0	0	0	1	1	0	0	1	1	0	0	118,950,000
0	1	1	1	1	1	0	0	1	1	0	0	1	1	0	0	118,975,000
0	0	0	0	0	0	0	0	1	1	0	0	1	1	0	1	119,000,000

SWITCH 2								SWITCH 1							RF Frequency	
8	7	6	5	4	3	2	1	8	7	6	5	4	3	2	1	Hz
0	0	0	0	0	1	0	0	1	1	0	0	1	1	0	1	119,025,000
0	0	0	0	1	0	0	0	1	1	0	0	1	1	0	1	119,050,000
0	0	0	0	1	1	0	0	1	1	0	0	1	1	0	1	119,075,000
0	0	0	1	0	0	0	0	1	1	0	0	1	1	0	1	119,100,000
0	0	0	1	0	1	0	0	1	1	0	0	1	1	0	1	119,125,000
0	0	0	1	1	0	0	0	1	1	0	0	1	1	0	1	119,150,000
0	0	0	1	1	1	0	0	1	1	0	0	1	1	0	1	119,175,000
0	0	1	0	0	0	0	0	1	1	0	0	1	1	0	1	119,200,000
0	0	1	0	0	1	0	0	1	1	0	0	1	1	0	1	119,225,000
0	0	1	0	1	0	0	0	1	1	0	0	1	1	0	1	119,250,000
0	0	1	0	1	1	0	0	1	1	0	0	1	1	0	1	119,275,000
0	0	1	1	0	0	0	0	1	1	0	0	1	1	0	1	119,300,000
0	0	1	1	0	1	0	0	1	1	0	0	1	1	0	1	119,325,000
0	0	1	1	1	0	0	0	1	1	0	0	1	1	0	1	119,350,000
0	0	1	1	1	1	0	0	1	1	0	0	1	1	0	1	119,375,000
0	1	0	0	0	0	0	0	1	1	0	0	1	1	0	1	119,400,000
0	1	0	0	0	1	0	0	1	1	0	0	1	1	0	1	119,425,000
0	1	0	0	1	0	0	0	1	1	0	0	1	1	0	1	119,450,000
0	1	0	0	1	1	0	0	1	1	0	0	1	1	0	1	119,475,000
0	1	0	1	0	0	0	0	1	1	0	0	1	1	0	1	119,500,000
0	1	0	1	0	1	0	0	1	1	0	0	1	1	0	1	119,525,000
0	1	0	1	1	0	0	0	1	1	0	0	1	1	0	1	119,550,000
0	1	0	1	1	1	0	0	1	1	0	0	1	1	0	1	119,575,000
0	1	1	0	0	0	0	0	1	1	0	0	1	1	0	1	119,600,000
0	1	1	0	0	1	0	0	1	1	0	0	1	1	0	1	119,625,000
0	1	1	0	1	0	0	0	1	1	0	0	1	1	0	1	119,650,000
0	1	1	0	1	1	0	0	1	1	0	0	1	1	0	1	119,675,000
0	1	1	1	0	0	0	0	1	1	0	0	1	1	0	1	119,700,000
0	1	1	1	0	1	0	0	1	1	0	0	1	1	0	1	119,725,000
0	1	1	1	1	0	0	0	1	1	0	0	1	1	0	1	119,750,000
0	1	1	1	1	1	0	0	1	1	0	0	1	1	0	1	119,775,000
0	0	0	0	0	0	0	0	1	1	0	0	1	1	1	0	119,800,000
0	0	0	0	0	1	0	0	1	1	0	0	1	1	1	0	119,825,000
0	0	0	0	1	0	0	0	1	1	0	0	1	1	1	0	119,850,000
0	0	0	0	1	1	0	0	1	1	0	0	1	1	1	0	119,875,000
0	0	0	1	0	0	0	0	1	1	0	0	1	1	1	0	119,900,000
0	0	0	1	0	1	0	0	1	1	0	0	1	1	1	0	119,925,000
0	0	0	1	1	0	0	0	1	1	0	0	1	1	1	0	119,950,000
0	0	0	1	1	1	0	0	1	1	0	0	1	1	1	0	119,975,000
0	0	1	0	0	0	0	0	1	1	0	0	1	1	1	0	120,000,000
0	0	1	0	0	1	0	0	1	1	0	0	1	1	1	0	120,025,000
0	0	1	0	1	0	0	0	1	1	0	0	1	1	1	0	120,050,000
0	0	1	0	1	1	0	0	1	1	0	0	1	1	1	0	120,075,000
0	0	1	1	0	0	0	0	1	1	0	0	1	1	1	0	120,100,000
0	0	1	1	0	1	0	0	1	1	0	0	1	1	1	0	120,125,000
0	0	1	1	1	0	0	0	1	1	0	0	1	1	1	0	120,150,000

SWITCH 2								SWITCH 1							RF Frequency	
8	7	6	5	4	3	2	1	8	7	6	5	4	3	2	1	Hz
0	0	1	1	1	1	0	0	1	1	0	0	1	1	1	0	120,175,000
0	1	0	0	0	0	0	0	1	1	0	0	1	1	1	0	120,200,000
0	1	0	0	0	1	0	0	1	1	0	0	1	1	1	0	120,225,000
0	1	0	0	1	0	0	0	1	1	0	0	1	1	1	0	120,250,000
0	1	0	0	1	1	0	0	1	1	0	0	1	1	1	0	120,275,000
0	1	0	1	0	0	0	0	1	1	0	0	1	1	1	0	120,300,000
0	1	0	1	0	1	0	0	1	1	0	0	1	1	1	0	120,325,000
0	1	0	1	1	0	0	0	1	1	0	0	1	1	1	0	120,350,000
0	1	0	1	1	1	0	0	1	1	0	0	1	1	1	0	120,375,000
0	1	1	0	0	0	0	0	1	1	0	0	1	1	1	0	120,400,000
0	1	1	0	0	1	0	0	1	1	0	0	1	1	1	0	120,425,000
0	1	1	0	1	0	0	0	1	1	0	0	1	1	1	0	120,450,000
0	1	1	0	1	1	0	0	1	1	0	0	1	1	1	0	120,475,000
0	1	1	1	0	0	0	0	1	1	0	0	1	1	1	0	120,500,000
0	1	1	1	0	1	0	0	1	1	0	0	1	1	1	0	120,525,000
0	1	1	1	1	0	0	0	1	1	0	0	1	1	1	0	120,550,000
0	1	1	1	1	1	0	0	1	1	0	0	1	1	1	0	120,575,000
0	0	0	0	0	0	0	0	1	1	0	0	1	1	1	1	120,600,000
0	0	0	0	0	1	0	0	1	1	0	0	1	1	1	1	120,625,000
0	0	0	0	1	0	0	0	1	1	0	0	1	1	1	1	120,650,000
0	0	0	0	1	1	0	0	1	1	0	0	1	1	1	1	120,675,000
0	0	0	1	0	0	0	0	1	1	0	0	1	1	1	1	120,700,000
0	0	0	1	0	1	0	0	1	1	0	0	1	1	1	1	120,725,000
0	0	0	1	1	0	0	0	1	1	0	0	1	1	1	1	120,750,000
0	0	0	1	1	1	0	0	1	1	0	0	1	1	1	1	120,775,000
0	0	1	0	0	0	0	0	1	1	0	0	1	1	1	1	120,800,000
0	0	1	0	0	1	0	0	1	1	0	0	1	1	1	1	120,825,000
0	0	1	0	1	0	0	0	1	1	0	0	1	1	1	1	120,850,000
0	0	1	0	1	1	0	0	1	1	0	0	1	1	1	1	120,875,000
0	0	1	1	0	0	0	0	1	1	0	0	1	1	1	1	120,900,000
0	0	1	1	0	1	0	0	1	1	0	0	1	1	1	1	120,925,000
0	0	1	1	1	0	0	0	1	1	0	0	1	1	1	1	120,950,000
0	0	1	1	1	1	0	0	1	1	0	0	1	1	1	1	120,975,000
0	1	0	0	0	0	0	0	1	1	0	0	1	1	1	1	121,000,000
0	1	0	0	0	1	0	0	1	1	0	0	1	1	1	1	121,025,000
0	1	0	0	1	0	0	0	1	1	0	0	1	1	1	1	121,050,000
0	1	0	0	1	1	0	0	1	1	0	0	1	1	1	1	121,075,000
0	1	0	1	0	0	0	0	1	1	0	0	1	1	1	1	121,100,000
0	1	0	1	0	1	0	0	1	1	0	0	1	1	1	1	121,125,000
0	1	0	1	1	0	0	0	1	1	0	0	1	1	1	1	121,150,000
0	1	0	1	1	1	0	0	1	1	0	0	1	1	1	1	121,175,000
0	1	1	0	0	0	0	0	1	1	0	0	1	1	1	1	121,200,000
0	1	1	0	0	1	0	0	1	1	0	0	1	1	1	1	121,225,000
0	1	1	0	1	0	0	0	1	1	0	0	1	1	1	1	121,250,000
0	1	1	0	1	1	0	0	1	1	0	0	1	1	1	1	121,275,000
0	1	1	1	0	0	0	0	1	1	0	0	1	1	1	1	121,300,000

	SWITCH 2								SWITCH 1								RF Frequency Hz
	8	7	6	5	4	3	2	1	8	7	6	5	4	3	2	1	
0	1	1	1	0	1	0	0	1	1	0	0	1	1	1	1	121,325,000	
0	1	1	1	1	0	0	0	1	1	0	0	1	1	1	1	121,350,000	
0	1	1	1	1	1	0	0	1	1	0	0	1	1	1	1	121,375,000	
0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	121,400,000	
0	0	0	0	0	1	0	0	1	1	0	1	0	0	0	0	121,425,000	
0	0	0	0	1	0	0	0	1	1	0	1	0	0	0	0	121,450,000	
0	0	0	0	1	1	0	0	1	1	0	1	0	0	0	0	121,475,000	
0	0	0	1	0	0	0	0	1	1	0	1	0	0	0	0	121,500,000	
0	0	0	1	0	1	0	0	1	1	0	1	0	0	0	0	121,525,000	
0	0	0	1	1	0	0	0	1	1	0	1	0	0	0	0	121,550,000	
0	0	0	1	1	1	0	0	1	1	0	1	0	0	0	0	121,575,000	
0	0	1	0	0	0	0	0	1	1	0	1	0	0	0	0	121,600,000	
0	0	1	0	0	1	0	0	1	1	0	1	0	0	0	0	121,625,000	
0	0	1	0	1	0	0	0	1	1	0	1	0	0	0	0	121,650,000	
0	0	1	0	1	1	0	0	1	1	0	1	0	0	0	0	121,675,000	
0	0	1	1	0	0	0	0	1	1	0	1	0	0	0	0	121,700,000	
0	0	1	1	0	1	0	0	1	1	0	1	0	0	0	0	121,725,000	
0	0	1	1	1	0	0	0	1	1	0	1	0	0	0	0	121,750,000	
0	0	1	1	1	1	0	0	1	1	0	1	0	0	0	0	121,775,000	
0	1	0	0	0	0	0	0	1	1	0	1	0	0	0	0	121,800,000	
0	1	0	0	0	1	0	0	1	1	0	1	0	0	0	0	121,825,000	
0	1	0	0	1	0	0	0	1	1	0	1	0	0	0	0	121,850,000	
0	1	0	0	1	1	0	0	1	1	0	1	0	0	0	0	121,875,000	
0	1	0	1	0	0	0	0	1	1	0	1	0	0	0	0	121,900,000	
0	1	0	1	0	1	0	0	1	1	0	1	0	0	0	0	121,925,000	
0	1	0	1	1	0	0	0	1	1	0	1	0	0	0	0	121,950,000	
0	1	0	1	1	1	0	0	1	1	0	1	0	0	0	0	121,975,000	
0	1	1	0	0	0	0	0	1	1	0	1	0	0	0	0	122,000,000	
0	1	1	0	0	1	0	0	1	1	0	1	0	0	0	0	122,025,000	
0	1	1	0	1	0	0	0	1	1	0	1	0	0	0	0	122,050,000	
0	1	1	0	1	1	0	0	1	1	0	1	0	0	0	0	122,075,000	
0	1	1	1	0	0	0	0	1	1	0	1	0	0	0	0	122,100,000	
0	1	1	1	0	1	0	0	1	1	0	1	0	0	0	0	122,125,000	
0	1	1	1	1	0	0	0	1	1	0	1	0	0	0	0	122,150,000	
0	1	1	1	1	1	0	0	1	1	0	1	0	0	0	0	122,175,000	
0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	1	122,200,000	
0	0	0	0	0	1	0	0	1	1	0	1	0	0	0	1	122,225,000	
0	0	0	0	1	0	0	0	1	1	0	1	0	0	0	1	122,250,000	
0	0	0	0	1	1	0	0	1	1	0	1	0	0	0	1	122,275,000	
0	0	0	1	0	0	0	0	1	1	0	1	0	0	0	1	122,300,000	
0	0	0	1	0	1	0	0	1	1	0	1	0	0	0	1	122,325,000	
0	0	0	1	1	0	0	0	1	1	0	1	0	0	0	1	122,350,000	
0	0	0	1	1	1	0	0	1	1	0	1	0	0	0	1	122,375,000	
0	0	1	0	0	0	0	0	1	1	0	1	0	0	0	1	122,400,000	
0	0	1	0	0	1	0	0	1	1	0	1	0	0	0	1	122,425,000	
0	0	1	0	1	0	0	0	1	1	0	1	0	0	0	1	122,450,000	

SWITCH 2								SWITCH 1							RF Frequency	
8	7	6	5	4	3	2	1	8	7	6	5	4	3	2	1	Hz
0	0	1	0	1	1	0	0	1	1	0	1	0	0	0	1	122,475,000
0	0	1	1	0	0	0	0	1	1	0	1	0	0	0	1	122,500,000
0	0	1	1	0	1	0	0	1	1	0	1	0	0	0	1	122,525,000
0	0	1	1	1	0	0	0	1	1	0	1	0	0	0	1	122,550,000
0	0	1	1	1	1	0	0	1	1	0	1	0	0	0	1	122,575,000
0	1	0	0	0	0	0	0	1	1	0	1	0	0	0	1	122,600,000
0	1	0	0	0	1	0	0	1	1	0	1	0	0	0	1	122,625,000
0	1	0	0	1	0	0	0	1	1	0	1	0	0	0	1	122,650,000
0	1	0	0	1	1	0	0	1	1	0	1	0	0	0	1	122,675,000
0	1	0	1	0	0	0	0	1	1	0	1	0	0	0	1	122,700,000
0	1	0	1	0	1	0	0	1	1	0	1	0	0	0	1	122,725,000
0	1	0	1	1	0	0	0	1	1	0	1	0	0	0	1	122,750,000
0	1	0	1	1	1	0	0	1	1	0	1	0	0	0	1	122,775,000
0	1	1	0	0	0	0	0	1	1	0	1	0	0	0	1	122,800,000
0	1	1	0	0	1	0	0	1	1	0	1	0	0	0	1	122,825,000
0	1	1	0	1	0	0	0	1	1	0	1	0	0	0	1	122,850,000
0	1	1	0	1	1	0	0	1	1	0	1	0	0	0	1	122,875,000
0	1	1	1	0	0	0	0	1	1	0	1	0	0	0	1	122,900,000
0	1	1	1	0	1	0	0	1	1	0	1	0	0	0	1	122,925,000
0	1	1	1	1	0	0	0	1	1	0	1	0	0	0	1	122,950,000
0	1	1	1	1	1	0	0	1	1	0	1	0	0	0	1	122,975,000
0	0	0	0	0	0	0	0	1	1	0	1	0	0	1	0	123,000,000
0	0	0	0	0	1	0	0	1	1	0	1	0	0	1	0	123,025,000
0	0	0	0	1	0	0	0	1	1	0	1	0	0	1	0	123,050,000
0	0	0	0	1	1	0	0	1	1	0	1	0	0	1	0	123,075,000
0	0	0	1	0	0	0	0	1	1	0	1	0	0	1	0	123,100,000
0	0	0	1	0	1	0	0	1	1	0	1	0	0	1	0	123,125,000
0	0	0	1	1	0	0	0	1	1	0	1	0	0	1	0	123,150,000
0	0	0	1	1	1	0	0	1	1	0	1	0	0	1	0	123,175,000
0	0	1	0	0	0	0	0	1	1	0	1	0	0	1	0	123,200,000
0	0	1	0	0	1	0	0	1	1	0	1	0	0	1	0	123,225,000
0	0	1	0	1	0	0	0	1	1	0	1	0	0	1	0	123,250,000
0	0	1	0	1	1	0	0	1	1	0	1	0	0	1	0	123,275,000
0	0	1	1	0	0	0	0	1	1	0	1	0	0	1	0	123,300,000
0	0	1	1	0	1	0	0	1	1	0	1	0	0	1	0	123,325,000
0	0	1	1	1	0	0	0	1	1	0	1	0	0	1	0	123,350,000
0	0	1	1	1	1	0	0	1	1	0	1	0	0	1	0	123,375,000
0	1	0	0	0	0	0	0	1	1	0	1	0	0	1	0	123,400,000
0	1	0	0	0	1	0	0	1	1	0	1	0	0	1	0	123,425,000
0	1	0	0	1	0	0	0	1	1	0	1	0	0	1	0	123,450,000
0	1	0	0	1	1	0	0	1	1	0	1	0	0	1	0	123,475,000
0	1	0	1	0	0	0	0	1	1	0	1	0	0	1	0	123,500,000
0	1	0	1	0	1	0	0	1	1	0	1	0	0	1	0	123,525,000
0	1	0	1	1	0	0	0	1	1	0	1	0	0	1	0	123,550,000
0	1	0	1	1	1	0	0	1	1	0	1	0	0	1	0	123,575,000
0	1	1	0	0	0	0	0	1	1	0	1	0	0	1	0	123,600,000

	SWITCH 2								SWITCH 1							RF Frequency	
	8	7	6	5	4	3	2	1	8	7	6	5	4	3	2	1	Hz
0	1	1	0	0	1	0	0		1	1	0	1	0	0	1	0	123,625,000
0	1	1	0	1	0	0	0		1	1	0	1	0	0	1	0	123,650,000
0	1	1	0	1	1	0	0		1	1	0	1	0	0	1	0	123,675,000
0	1	1	1	0	0	0	0		1	1	0	1	0	0	1	0	123,700,000
0	1	1	1	0	1	0	0		1	1	0	1	0	0	1	0	123,725,000
0	1	1	1	1	0	0	0		1	1	0	1	0	0	1	0	123,750,000
0	1	1	1	1	1	0	0		1	1	0	1	0	0	1	0	123,775,000
0	0	0	0	0	0	0	0		1	1	0	1	0	0	1	1	123,800,000
0	0	0	0	0	1	0	0		1	1	0	1	0	0	1	1	123,825,000
0	0	0	0	1	0	0	0		1	1	0	1	0	0	1	1	123,850,000
0	0	0	0	1	1	0	0		1	1	0	1	0	0	1	1	123,875,000
0	0	0	1	0	0	0	0		1	1	0	1	0	0	1	1	123,900,000
0	0	0	1	0	1	0	0		1	1	0	1	0	0	1	1	123,925,000
0	0	0	1	1	0	0	0		1	1	0	1	0	0	1	1	123,950,000
0	0	0	1	1	1	0	0		1	1	0	1	0	0	1	1	123,975,000
0	0	1	0	0	0	0	0		1	1	0	1	0	0	1	1	124,000,000
0	0	1	0	0	1	0	0		1	1	0	1	0	0	1	1	124,025,000
0	0	1	0	1	0	0	0		1	1	0	1	0	0	1	1	124,050,000
0	0	1	0	1	1	0	0		1	1	0	1	0	0	1	1	124,075,000
0	0	1	1	0	0	0	0		1	1	0	1	0	0	1	1	124,100,000
0	0	1	1	0	1	0	0		1	1	0	1	0	0	1	1	124,125,000
0	0	1	1	1	0	0	0		1	1	0	1	0	0	1	1	124,150,000
0	0	1	1	1	1	0	0		1	1	0	1	0	0	1	1	124,175,000
0	1	0	0	0	0	0	0		1	1	0	1	0	0	1	1	124,200,000
0	1	0	0	0	1	0	0		1	1	0	1	0	0	1	1	124,225,000
0	1	0	0	1	0	0	0		1	1	0	1	0	0	1	1	124,250,000
0	1	0	0	1	1	0	0		1	1	0	1	0	0	1	1	124,275,000
0	1	0	1	0	0	0	0		1	1	0	1	0	0	1	1	124,300,000
0	1	0	1	0	1	0	0		1	1	0	1	0	0	1	1	124,325,000
0	1	0	1	1	0	0	0		1	1	0	1	0	0	1	1	124,350,000
0	1	0	1	1	1	0	0		1	1	0	1	0	0	1	1	124,375,000
0	1	1	0	0	0	0	0		1	1	0	1	0	0	1	1	124,400,000
0	1	1	0	0	1	0	0		1	1	0	1	0	0	1	1	124,425,000
0	1	1	0	1	0	0	0		1	1	0	1	0	0	1	1	124,450,000
0	1	1	0	1	1	0	0		1	1	0	1	0	0	1	1	124,475,000
0	1	1	1	0	0	0	0		1	1	0	1	0	0	1	1	124,500,000
0	1	1	1	0	1	0	0		1	1	0	1	0	0	1	1	124,525,000
0	1	1	1	1	0	0	0		1	1	0	1	0	0	1	1	124,550,000
0	1	1	1	1	1	0	0		1	1	0	1	0	0	1	1	124,575,000
0	0	0	0	0	0	0	0		1	1	0	1	0	1	0	0	124,600,000
0	0	0	0	0	1	0	0		1	1	0	1	0	1	0	0	124,625,000
0	0	0	0	1	0	0	0		1	1	0	1	0	1	0	0	124,650,000
0	0	0	0	1	1	0	0		1	1	0	1	0	1	0	0	124,675,000
0	0	0	1	0	0	0	0		1	1	0	1	0	1	0	0	124,700,000
0	0	0	1	0	1	0	0		1	1	0	1	0	1	0	0	124,725,000
0	0	0	1	1	0	0	0		1	1	0	1	0	1	0	0	124,750,000

SWITCH 2								SWITCH 1								RF Frequency
8	7	6	5	4	3	2	1	8	7	6	5	4	3	2	1	Hz
0	0	0	1	1	1	0	0	1	1	0	1	0	1	0	0	124,775,000
0	0	1	0	0	0	0	0	1	1	0	1	0	1	0	0	124,800,000
0	0	1	0	0	1	0	0	1	1	0	1	0	1	0	0	124,825,000
0	0	1	0	1	0	0	0	1	1	0	1	0	1	0	0	124,850,000
0	0	1	0	1	1	0	0	1	1	0	1	0	1	0	0	124,875,000
0	0	1	1	0	0	0	0	1	1	0	1	0	1	0	0	124,900,000
0	0	1	1	0	1	0	0	1	1	0	1	0	1	0	0	124,925,000
0	0	1	1	1	0	0	0	1	1	0	1	0	1	0	0	124,950,000
0	0	1	1	1	1	0	0	1	1	0	1	0	1	0	0	124,975,000
0	1	0	0	0	0	0	0	1	1	0	1	0	1	0	0	125,000,000
0	1	0	0	0	1	0	0	1	1	0	1	0	1	0	0	125,025,000
0	1	0	0	1	0	0	0	1	1	0	1	0	1	0	0	125,050,000
0	1	0	0	1	1	0	0	1	1	0	1	0	1	0	0	125,075,000
0	1	0	1	0	0	0	0	1	1	0	1	0	1	0	0	125,100,000
0	1	0	1	0	1	0	0	1	1	0	1	0	1	0	0	125,125,000
0	1	0	1	1	0	0	0	1	1	0	1	0	1	0	0	125,150,000
0	1	0	1	1	1	0	0	1	1	0	1	0	1	0	0	125,175,000
0	1	1	0	0	0	0	0	1	1	0	1	0	1	0	0	125,200,000
0	1	1	0	0	1	0	0	1	1	0	1	0	1	0	0	125,225,000
0	1	1	0	1	0	0	0	1	1	0	1	0	1	0	0	125,250,000
0	1	1	0	1	1	0	0	1	1	0	1	0	1	0	0	125,275,000
0	1	1	1	0	0	0	0	1	1	0	1	0	1	0	0	125,300,000
0	1	1	1	0	1	0	0	1	1	0	1	0	1	0	0	125,325,000
0	1	1	1	1	0	0	0	1	1	0	1	0	1	0	0	125,350,000
0	1	1	1	1	1	0	0	1	1	0	1	0	1	0	0	125,375,000
0	0	0	0	0	0	0	0	1	1	0	1	0	1	0	1	125,400,000
0	0	0	0	0	1	0	0	1	1	0	1	0	1	0	1	125,425,000
0	0	0	0	1	0	0	0	1	1	0	1	0	1	0	1	125,450,000
0	0	0	0	1	1	0	0	1	1	0	1	0	1	0	1	125,475,000
0	0	0	1	0	0	0	0	1	1	0	1	0	1	0	1	125,500,000
0	0	0	1	0	1	0	0	1	1	0	1	0	1	0	1	125,525,000
0	0	0	1	1	0	0	0	1	1	0	1	0	1	0	1	125,550,000
0	0	0	1	1	1	0	0	1	1	0	1	0	1	0	1	125,575,000
0	0	1	0	0	0	0	0	1	1	0	1	0	1	0	1	125,600,000
0	0	1	0	0	1	0	0	1	1	0	1	0	1	0	1	125,625,000
0	0	1	0	1	0	0	0	1	1	0	1	0	1	0	1	125,650,000
0	0	1	0	1	1	0	0	1	1	0	1	0	1	0	1	125,675,000
0	0	1	1	0	0	0	0	1	1	0	1	0	1	0	1	125,700,000
0	0	1	1	0	1	0	0	1	1	0	1	0	1	0	1	125,725,000
0	0	1	1	1	0	0	0	1	1	0	1	0	1	0	1	125,750,000
0	0	1	1	1	1	0	0	1	1	0	1	0	1	0	1	125,775,000
0	1	0	0	0	0	0	0	1	1	0	1	0	1	0	1	125,800,000
0	1	0	0	0	1	0	0	1	1	0	1	0	1	0	1	125,825,000
0	1	0	0	1	0	0	0	1	1	0	1	0	1	0	1	125,850,000
0	1	0	0	1	1	0	0	1	1	0	1	0	1	0	1	125,875,000
0	1	0	1	0	0	0	0	1	1	0	1	0	1	0	1	125,900,000

SWITCH 2								SWITCH 1							RF Frequency	
8	7	6	5	4	3	2	1	8	7	6	5	4	3	2	1	Hz
0	1	0	1	0	1	0	0	1	1	0	1	0	1	0	1	125,925,000
0	1	0	1	1	0	0	0	1	1	0	1	0	1	0	1	125,950,000
0	1	0	1	1	1	0	0	1	1	0	1	0	1	0	1	125,975,000
0	1	1	0	0	0	0	0	1	1	0	1	0	1	0	1	126,000,000
0	1	1	0	0	1	0	0	1	1	0	1	0	1	0	1	126,025,000
0	1	1	0	1	0	0	0	1	1	0	1	0	1	0	1	126,050,000
0	1	1	0	1	1	0	0	1	1	0	1	0	1	0	1	126,075,000
0	1	1	1	0	0	0	0	1	1	0	1	0	1	0	1	126,100,000
0	1	1	1	0	1	0	0	1	1	0	1	0	1	0	1	126,125,000
0	1	1	1	1	0	0	0	1	1	0	1	0	1	0	1	126,150,000
0	1	1	1	1	1	0	0	1	1	0	1	0	1	0	1	126,175,000
0	0	0	0	0	0	0	0	1	1	0	1	0	1	1	0	126,200,000
0	0	0	0	0	1	0	0	1	1	0	1	0	1	1	0	126,225,000
0	0	0	0	1	0	0	0	1	1	0	1	0	1	1	0	126,250,000
0	0	0	0	1	1	0	0	1	1	0	1	0	1	1	0	126,275,000
0	0	0	1	0	0	0	0	1	1	0	1	0	1	1	0	126,300,000
0	0	0	1	0	1	0	0	1	1	0	1	0	1	1	0	126,325,000
0	0	0	1	1	0	0	0	1	1	0	1	0	1	1	0	126,350,000
0	0	0	1	1	1	0	0	1	1	0	1	0	1	1	0	126,375,000
0	0	1	0	0	0	0	0	1	1	0	1	0	1	1	0	126,400,000
0	0	1	0	0	1	0	0	1	1	0	1	0	1	1	0	126,425,000
0	0	1	0	1	0	0	0	1	1	0	1	0	1	1	0	126,450,000
0	0	1	0	1	1	0	0	1	1	0	1	0	1	1	0	126,475,000
0	0	1	1	0	0	0	0	1	1	0	1	0	1	1	0	126,500,000
0	0	1	1	0	1	0	0	1	1	0	1	0	1	1	0	126,525,000
0	0	1	1	1	0	0	0	1	1	0	1	0	1	1	0	126,550,000
0	0	1	1	1	1	0	0	1	1	0	1	0	1	1	0	126,575,000
0	1	0	0	0	0	0	0	1	1	0	1	0	1	1	0	126,600,000
0	1	0	0	0	1	0	0	1	1	0	1	0	1	1	0	126,625,000
0	1	0	0	1	0	0	0	1	1	0	1	0	1	1	0	126,650,000
0	1	0	0	1	1	0	0	1	1	0	1	0	1	1	0	126,675,000
0	1	0	1	0	0	0	0	1	1	0	1	0	1	1	0	126,700,000
0	1	0	1	0	1	0	0	1	1	0	1	0	1	1	0	126,725,000
0	1	0	1	1	0	0	0	1	1	0	1	0	1	1	0	126,750,000
0	1	0	1	1	1	0	0	1	1	0	1	0	1	1	0	126,775,000
0	1	1	0	0	0	0	0	1	1	0	1	0	1	1	0	126,800,000
0	1	1	0	0	1	0	0	1	1	0	1	0	1	1	0	126,825,000
0	1	1	0	1	0	0	0	1	1	0	1	0	1	1	0	126,850,000
0	1	1	0	1	1	0	0	1	1	0	1	0	1	1	0	126,875,000
0	1	1	1	0	0	0	0	1	1	0	1	0	1	1	0	126,900,000
0	1	1	1	0	1	0	0	1	1	0	1	0	1	1	0	126,925,000
0	1	1	1	1	0	0	0	1	1	0	1	0	1	1	0	126,950,000
0	1	1	1	1	1	0	0	1	1	0	1	0	1	1	0	126,975,000
0	0	0	0	0	0	0	0	1	1	0	1	0	1	1	1	127,000,000
0	0	0	0	0	1	0	0	1	1	0	1	0	1	1	1	127,025,000
0	0	0	0	1	0	0	0	1	1	0	1	0	1	1	1	127,050,000

SWITCH 2								SWITCH 1							RF Frequency	
8	7	6	5	4	3	2	1	8	7	6	5	4	3	2	1	Hz
0	0	0	0	1	1	0	0	1	1	0	1	0	1	1	1	127,075,000
0	0	0	1	0	0	0	0	1	1	0	1	0	1	1	1	127,100,000
0	0	0	1	0	1	0	0	1	1	0	1	0	1	1	1	127,125,000
0	0	0	1	1	0	0	0	1	1	0	1	0	1	1	1	127,150,000
0	0	0	1	1	1	0	0	1	1	0	1	0	1	1	1	127,175,000
0	0	1	0	0	0	0	0	1	1	0	1	0	1	1	1	127,200,000
0	0	1	0	0	1	0	0	1	1	0	1	0	1	1	1	127,225,000
0	0	1	0	1	0	0	0	1	1	0	1	0	1	1	1	127,250,000
0	0	1	0	1	1	0	0	1	1	0	1	0	1	1	1	127,275,000
0	0	1	1	0	0	0	0	1	1	0	1	0	1	1	1	127,300,000
0	0	1	1	0	1	0	0	1	1	0	1	0	1	1	1	127,325,000
0	0	1	1	1	0	0	0	1	1	0	1	0	1	1	1	127,350,000
0	0	1	1	1	1	0	0	1	1	0	1	0	1	1	1	127,375,000
0	1	0	0	0	0	0	0	1	1	0	1	0	1	1	1	127,400,000
0	1	0	0	0	1	0	0	1	1	0	1	0	1	1	1	127,425,000
0	1	0	0	1	0	0	0	1	1	0	1	0	1	1	1	127,450,000
0	1	0	0	1	1	0	0	1	1	0	1	0	1	1	1	127,475,000
0	1	0	1	0	0	0	0	1	1	0	1	0	1	1	1	127,500,000
0	1	0	1	0	1	0	0	1	1	0	1	0	1	1	1	127,525,000
0	1	0	1	1	0	0	0	1	1	0	1	0	1	1	1	127,550,000
0	1	0	1	1	1	0	0	1	1	0	1	0	1	1	1	127,575,000
0	1	1	0	0	0	0	0	1	1	0	1	0	1	1	1	127,600,000
0	1	1	0	0	1	0	0	1	1	0	1	0	1	1	1	127,625,000
0	1	1	0	1	0	0	0	1	1	0	1	0	1	1	1	127,650,000
0	1	1	0	1	1	0	0	1	1	0	1	0	1	1	1	127,675,000
0	1	1	1	0	0	0	0	1	1	0	1	0	1	1	1	127,700,000
0	1	1	1	0	1	0	0	1	1	0	1	0	1	1	1	127,725,000
0	1	1	1	1	0	0	0	1	1	0	1	0	1	1	1	127,750,000
0	1	1	1	1	1	0	0	1	1	0	1	0	1	1	1	127,775,000
0	0	0	0	0	0	0	0	1	1	0	1	1	0	0	0	127,800,000
0	0	0	0	0	1	0	0	1	1	0	1	1	0	0	0	127,825,000
0	0	0	0	1	0	0	0	1	1	0	1	1	0	0	0	127,850,000
0	0	0	0	1	1	0	0	1	1	0	1	1	0	0	0	127,875,000
0	0	0	1	0	0	0	0	1	1	0	1	1	0	0	0	127,900,000
0	0	0	1	0	1	0	0	1	1	0	1	1	0	0	0	127,925,000
0	0	0	1	1	0	0	0	1	1	0	1	1	0	0	0	127,950,000
0	0	0	1	1	1	0	0	1	1	0	1	1	0	0	0	127,975,000
0	0	1	0	0	0	0	0	1	1	0	1	1	0	0	0	128,000,000
0	0	1	0	0	1	0	0	1	1	0	1	1	0	0	0	128,025,000
0	0	1	0	1	0	0	0	1	1	0	1	1	0	0	0	128,050,000
0	0	1	0	1	1	0	0	1	1	0	1	1	0	0	0	128,075,000
0	0	1	1	0	0	0	0	1	1	0	1	1	0	0	0	128,100,000
0	0	1	1	0	1	0	0	1	1	0	1	1	0	0	0	128,125,000
0	0	1	1	1	0	0	0	1	1	0	1	1	0	0	0	128,150,000
0	0	1	1	1	1	0	0	1	1	0	1	1	0	0	0	128,175,000
0	1	0	0	0	0	0	0	1	1	0	1	1	0	0	0	128,200,000

	SWITCH 2								SWITCH 1								RF Frequency Hz
	8	7	6	5	4	3	2	1	8	7	6	5	4	3	2	1	
0	1	0	0	0	1	0	0	1	1	0	1	1	0	0	0	128,225,000	
0	1	0	0	1	0	0	0	1	1	0	1	1	0	0	0	128,250,000	
0	1	0	0	1	1	0	0	1	1	0	1	1	0	0	0	128,275,000	
0	1	0	1	0	0	0	0	1	1	0	1	1	0	0	0	128,300,000	
0	1	0	1	0	1	0	0	1	1	0	1	1	0	0	0	128,325,000	
0	1	0	1	1	0	0	0	1	1	0	1	1	0	0	0	128,350,000	
0	1	0	1	1	1	0	0	1	1	0	1	1	0	0	0	128,375,000	
0	1	1	0	0	0	0	0	1	1	0	1	1	0	0	0	128,400,000	
0	1	1	0	0	1	0	0	1	1	0	1	1	0	0	0	128,425,000	
0	1	1	0	1	0	0	0	1	1	0	1	1	0	0	0	128,450,000	
0	1	1	0	1	1	0	0	1	1	0	1	1	0	0	0	128,475,000	
0	1	1	1	0	0	0	0	1	1	0	1	1	0	0	0	128,500,000	
0	1	1	1	0	1	0	0	1	1	0	1	1	0	0	0	128,525,000	
0	1	1	1	1	0	0	0	1	1	0	1	1	0	0	0	128,550,000	
0	1	1	1	1	1	0	0	1	1	0	1	1	0	0	0	128,575,000	
0	0	0	0	0	0	0	0	1	1	0	1	1	0	0	1	128,600,000	
0	0	0	0	0	1	0	0	1	1	0	1	1	0	0	1	128,625,000	
0	0	0	0	1	0	0	0	1	1	0	1	1	0	0	1	128,650,000	
0	0	0	0	1	1	0	0	1	1	0	1	1	0	0	1	128,675,000	
0	0	0	1	0	0	0	0	1	1	0	1	1	0	0	1	128,700,000	
0	0	0	1	0	1	0	0	1	1	0	1	1	0	0	1	128,725,000	
0	0	0	1	1	0	0	0	1	1	0	1	1	0	0	1	128,750,000	
0	0	0	1	1	1	0	0	1	1	0	1	1	0	0	1	128,775,000	
0	0	1	0	0	0	0	0	1	1	0	1	1	0	0	1	128,800,000	
0	0	1	0	0	1	0	0	1	1	0	1	1	0	0	1	128,825,000	
0	0	1	0	1	0	0	0	1	1	0	1	1	0	0	1	128,850,000	
0	0	1	0	1	1	0	0	1	1	0	1	1	0	0	1	128,875,000	
0	0	1	1	0	0	0	0	1	1	0	1	1	0	0	1	128,900,000	
0	0	1	1	0	1	0	0	1	1	0	1	1	0	0	1	128,925,000	
0	0	1	1	1	0	0	0	1	1	0	1	1	0	0	1	128,950,000	
0	0	1	1	1	1	0	0	1	1	0	1	1	0	0	1	128,975,000	
0	1	0	0	0	0	0	0	1	1	0	1	1	0	0	1	129,000,000	
0	1	0	0	0	1	0	0	1	1	0	1	1	0	0	1	129,025,000	
0	1	0	0	1	0	0	0	1	1	0	1	1	0	0	1	129,050,000	
0	1	0	0	1	1	0	0	1	1	0	1	1	0	0	1	129,075,000	
0	1	0	1	0	0	0	0	1	1	0	1	1	0	0	1	129,100,000	
0	1	0	1	0	1	0	0	1	1	0	1	1	0	0	1	129,125,000	
0	1	0	1	1	0	0	0	1	1	0	1	1	0	0	1	129,150,000	
0	1	0	1	1	1	0	0	1	1	0	1	1	0	0	1	129,175,000	
0	1	1	0	0	0	0	0	1	1	0	1	1	0	0	1	129,200,000	
0	1	1	0	0	1	0	0	1	1	0	1	1	0	0	1	129,225,000	
0	1	1	0	1	0	0	0	1	1	0	1	1	0	0	1	129,250,000	
0	1	1	0	1	1	0	0	1	1	0	1	1	0	0	1	129,275,000	
0	1	1	1	0	0	0	0	1	1	0	1	1	0	0	1	129,300,000	
0	1	1	1	0	1	0	0	1	1	0	1	1	0	0	1	129,325,000	
0	1	1	1	1	0	0	0	1	1	0	1	1	0	0	1	129,350,000	

	SWITCH 2								SWITCH 1								RF Frequency Hz
	8	7	6	5	4	3	2	1	8	7	6	5	4	3	2	1	
0	1	1	1	1	1	0	0	1	1	0	1	1	0	0	1	129,375,000	
0	0	0	0	0	0	0	0	1	1	0	1	1	0	1	0	129,400,000	
0	0	0	0	0	1	0	0	1	1	0	1	1	0	1	0	129,425,000	
0	0	0	0	1	0	0	0	1	1	0	1	1	0	1	0	129,450,000	
0	0	0	0	1	1	0	0	1	1	0	1	1	0	1	0	129,475,000	
0	0	0	1	0	0	0	0	1	1	0	1	1	0	1	0	129,500,000	
0	0	0	1	0	1	0	0	1	1	0	1	1	0	1	0	129,525,000	
0	0	0	1	1	0	0	0	1	1	0	1	1	0	1	0	129,550,000	
0	0	0	1	1	1	0	0	1	1	0	1	1	0	1	0	129,575,000	
0	0	1	0	0	0	0	0	1	1	0	1	1	0	1	0	129,600,000	
0	0	1	0	0	1	0	0	1	1	0	1	1	0	1	0	129,625,000	
0	0	1	0	1	0	0	0	1	1	0	1	1	0	1	0	129,650,000	
0	0	1	0	1	1	0	0	1	1	0	1	1	0	1	0	129,675,000	
0	0	1	1	0	0	0	0	1	1	0	1	1	0	1	0	129,700,000	
0	0	1	1	0	1	0	0	1	1	0	1	1	0	1	0	129,725,000	
0	0	1	1	1	0	0	0	1	1	0	1	1	0	1	0	129,750,000	
0	0	1	1	1	1	0	0	1	1	0	1	1	0	1	0	129,775,000	
0	1	0	0	0	0	0	0	1	1	0	1	1	0	1	0	129,800,000	
0	1	0	0	0	1	0	0	1	1	0	1	1	0	1	0	129,825,000	
0	1	0	0	1	0	0	0	1	1	0	1	1	0	1	0	129,850,000	
0	1	0	0	1	1	0	0	1	1	0	1	1	0	1	0	129,875,000	
0	1	0	1	0	0	0	0	1	1	0	1	1	0	1	0	129,900,000	
0	1	0	1	0	1	0	0	1	1	0	1	1	0	1	0	129,925,000	
0	1	0	1	1	0	0	0	1	1	0	1	1	0	1	0	129,950,000	
0	1	0	1	1	1	0	0	1	1	0	1	1	0	1	0	129,975,000	
0	1	1	0	0	0	0	0	1	1	0	1	1	0	1	0	130,000,000	
0	1	1	0	0	1	0	0	1	1	0	1	1	0	1	0	130,025,000	
0	1	1	0	1	0	0	0	1	1	0	1	1	0	1	0	130,050,000	
0	1	1	0	1	1	0	0	1	1	0	1	1	0	1	0	130,075,000	
0	1	1	1	0	0	0	0	1	1	0	1	1	0	1	0	130,100,000	
0	1	1	1	0	1	0	0	1	1	0	1	1	0	1	0	130,125,000	
0	1	1	1	1	0	0	0	1	1	0	1	1	0	1	0	130,150,000	
0	1	1	1	1	1	0	0	1	1	0	1	1	0	1	0	130,175,000	
0	0	0	0	0	0	0	0	1	1	0	1	1	0	1	1	130,200,000	
0	0	0	0	0	1	0	0	1	1	0	1	1	0	1	1	130,225,000	
0	0	0	0	1	0	0	0	1	1	0	1	1	0	1	1	130,250,000	
0	0	0	0	1	1	0	0	1	1	0	1	1	0	1	1	130,275,000	
0	0	0	1	0	0	0	0	1	1	0	1	1	0	1	1	130,300,000	
0	0	0	1	0	1	0	0	1	1	0	1	1	0	1	1	130,325,000	
0	0	0	1	1	0	0	0	1	1	0	1	1	0	1	1	130,350,000	
0	0	0	1	1	1	0	0	1	1	0	1	1	0	1	1	130,375,000	
0	0	1	0	0	0	0	0	1	1	0	1	1	0	1	1	130,400,000	
0	0	1	0	0	1	0	0	1	1	0	1	1	0	1	1	130,425,000	
0	0	1	0	1	0	0	0	1	1	0	1	1	0	1	1	130,450,000	
0	0	1	0	1	1	0	0	1	1	0	1	1	0	1	1	130,475,000	
0	0	1	1	0	0	0	0	1	1	0	1	1	0	1	1	130,500,000	

SWITCH 2								SWITCH 1							RF Frequency	
8	7	6	5	4	3	2	1	8	7	6	5	4	3	2	1	Hz
0	0	1	1	0	1	0	0	1	1	0	1	1	0	1	1	130,525,000
0	0	1	1	1	0	0	0	1	1	0	1	1	0	1	1	130,550,000
0	0	1	1	1	1	0	0	1	1	0	1	1	0	1	1	130,575,000
0	1	0	0	0	0	0	0	1	1	0	1	1	0	1	1	130,600,000
0	1	0	0	0	1	0	0	1	1	0	1	1	0	1	1	130,625,000
0	1	0	0	1	0	0	0	1	1	0	1	1	0	1	1	130,650,000
0	1	0	0	1	1	0	0	1	1	0	1	1	0	1	1	130,675,000
0	1	0	1	0	0	0	0	1	1	0	1	1	0	1	1	130,700,000
0	1	0	1	0	1	0	0	1	1	0	1	1	0	1	1	130,725,000
0	1	0	1	1	0	0	0	1	1	0	1	1	0	1	1	130,750,000
0	1	0	1	1	1	0	0	1	1	0	1	1	0	1	1	130,775,000
0	1	1	0	0	0	0	0	1	1	0	1	1	0	1	1	130,800,000
0	1	1	0	0	1	0	0	1	1	0	1	1	0	1	1	130,825,000
0	1	1	0	1	0	0	0	1	1	0	1	1	0	1	1	130,850,000
0	1	1	0	1	1	0	0	1	1	0	1	1	0	1	1	130,875,000
0	1	1	1	0	0	0	0	1	1	0	1	1	0	1	1	130,900,000
0	1	1	1	0	1	0	0	1	1	0	1	1	0	1	1	130,925,000
0	1	1	1	1	0	0	0	1	1	0	1	1	0	1	1	130,950,000
0	1	1	1	1	1	0	0	1	1	0	1	1	0	1	1	130,975,000
0	0	0	0	0	0	0	0	1	1	0	1	1	1	0	0	131,000,000
0	0	0	0	0	1	0	0	1	1	0	1	1	1	0	0	131,025,000
0	0	0	0	1	0	0	0	1	1	0	1	1	1	0	0	131,050,000
0	0	0	0	1	1	0	0	1	1	0	1	1	1	0	0	131,075,000
0	0	0	1	0	0	0	0	1	1	0	1	1	1	0	0	131,100,000
0	0	0	1	0	1	0	0	1	1	0	1	1	1	0	0	131,125,000
0	0	0	1	1	0	0	0	1	1	0	1	1	1	0	0	131,150,000
0	0	0	1	1	1	0	0	1	1	0	1	1	1	0	0	131,175,000
0	0	1	0	0	0	0	0	1	1	0	1	1	1	0	0	131,200,000
0	0	1	0	0	1	0	0	1	1	0	1	1	1	0	0	131,225,000
0	0	1	0	1	0	0	0	1	1	0	1	1	1	0	0	131,250,000
0	0	1	0	1	1	0	0	1	1	0	1	1	1	0	0	131,275,000
0	0	1	1	0	0	0	0	1	1	0	1	1	1	0	0	131,300,000
0	0	1	1	0	1	0	0	1	1	0	1	1	1	0	0	131,325,000
0	0	1	1	1	0	0	0	1	1	0	1	1	1	0	0	131,350,000
0	0	1	1	1	1	0	0	1	1	0	1	1	1	0	0	131,375,000
0	1	0	0	0	0	0	0	1	1	0	1	1	1	0	0	131,400,000
0	1	0	0	0	1	0	0	1	1	0	1	1	1	0	0	131,425,000
0	1	0	0	1	0	0	0	1	1	0	1	1	1	0	0	131,450,000
0	1	0	0	1	1	0	0	1	1	0	1	1	1	0	0	131,475,000
0	1	0	1	0	0	0	0	1	1	0	1	1	1	0	0	131,500,000
0	1	0	1	0	1	0	0	1	1	0	1	1	1	0	0	131,525,000
0	1	0	1	1	0	0	0	1	1	0	1	1	1	0	0	131,550,000
0	1	0	1	1	1	0	0	1	1	0	1	1	1	0	0	131,575,000
0	1	1	0	0	0	0	0	1	1	0	1	1	1	0	0	131,600,000
0	1	1	0	0	1	0	0	1	1	0	1	1	1	0	0	131,625,000
0	1	1	0	1	0	0	0	1	1	0	1	1	1	0	0	131,650,000

	SWITCH 2								SWITCH 1								RF Frequency
	8	7	6	5	4	3	2	1	8	7	6	5	4	3	2	1	Hz
0	1	1	0	1	1	0	0	1	1	0	1	1	1	0	0	131,675,000	
0	1	1	1	0	0	0	0	1	1	0	1	1	1	0	0	131,700,000	
0	1	1	1	0	1	0	0	1	1	0	1	1	1	0	0	131,725,000	
0	1	1	1	1	0	0	0	1	1	0	1	1	1	0	0	131,750,000	
0	1	1	1	1	1	0	0	1	1	0	1	1	1	0	0	131,775,000	
0	0	0	0	0	0	0	0	1	1	0	1	1	1	0	1	131,800,000	
0	0	0	0	0	1	0	0	1	1	0	1	1	1	0	1	131,825,000	
0	0	0	0	1	0	0	0	1	1	0	1	1	1	0	1	131,850,000	
0	0	0	0	1	1	0	0	1	1	0	1	1	1	0	1	131,875,000	
0	0	0	1	0	0	0	0	1	1	0	1	1	1	0	1	131,900,000	
0	0	0	1	0	1	0	0	1	1	0	1	1	1	0	1	131,925,000	
0	0	0	1	1	0	0	0	1	1	0	1	1	1	0	1	131,950,000	
0	0	0	1	1	1	0	0	1	1	0	1	1	1	0	1	131,975,000	
0	0	1	0	0	0	0	0	1	1	0	1	1	1	0	1	132,000,000	
0	0	1	0	0	1	0	0	1	1	0	1	1	1	0	1	132,025,000	
0	0	1	0	1	0	0	0	1	1	0	1	1	1	0	1	132,050,000	
0	0	1	0	1	1	0	0	1	1	0	1	1	1	0	1	132,075,000	
0	0	1	1	0	0	0	0	1	1	0	1	1	1	0	1	132,100,000	
0	0	1	1	0	1	0	0	1	1	0	1	1	1	0	1	132,125,000	
0	0	1	1	1	0	0	0	1	1	0	1	1	1	0	1	132,150,000	
0	0	1	1	1	1	0	0	1	1	0	1	1	1	0	1	132,175,000	
0	1	0	0	0	0	0	0	1	1	0	1	1	1	0	1	132,200,000	
0	1	0	0	0	1	0	0	1	1	0	1	1	1	0	1	132,225,000	
0	1	0	0	1	0	0	0	1	1	0	1	1	1	0	1	132,250,000	
0	1	0	0	1	1	0	0	1	1	0	1	1	1	0	1	132,275,000	
0	1	0	1	0	0	0	0	1	1	0	1	1	1	0	1	132,300,000	
0	1	0	1	0	1	0	0	1	1	0	1	1	1	0	1	132,325,000	
0	1	0	1	1	0	0	0	1	1	0	1	1	1	0	1	132,350,000	
0	1	0	1	1	1	0	0	1	1	0	1	1	1	0	1	132,375,000	
0	1	1	0	0	0	0	0	1	1	0	1	1	1	0	1	132,400,000	
0	1	1	0	0	1	0	0	1	1	0	1	1	1	0	1	132,425,000	
0	1	1	0	1	0	0	0	1	1	0	1	1	1	0	1	132,450,000	
0	1	1	0	1	1	0	0	1	1	0	1	1	1	0	1	132,475,000	
0	1	1	1	0	0	0	0	1	1	0	1	1	1	0	1	132,500,000	
0	1	1	1	0	1	0	0	1	1	0	1	1	1	0	1	132,525,000	
0	1	1	1	1	0	0	0	1	1	0	1	1	1	0	1	132,550,000	
0	1	1	1	1	1	0	0	1	1	0	1	1	1	0	1	132,575,000	
0	0	0	0	0	0	0	0	1	1	0	1	1	1	1	0	132,600,000	
0	0	0	0	0	1	0	0	1	1	0	1	1	1	1	0	132,625,000	
0	0	0	0	1	0	0	0	1	1	0	1	1	1	1	0	132,650,000	
0	0	0	0	1	1	0	0	1	1	0	1	1	1	1	0	132,675,000	
0	0	0	1	0	0	0	0	1	1	0	1	1	1	1	0	132,700,000	
0	0	0	1	0	1	0	0	1	1	0	1	1	1	1	0	132,725,000	
0	0	0	1	1	0	0	0	1	1	0	1	1	1	1	0	132,750,000	
0	0	0	1	1	1	0	0	1	1	0	1	1	1	1	0	132,775,000	
0	0	1	0	0	0	0	0	1	1	0	1	1	1	1	0	132,800,000	

SWITCH 2								SWITCH 1							RF Frequency	
8	7	6	5	4	3	2	1	8	7	6	5	4	3	2	1	Hz
0	0	1	0	0	1	0	0	1	1	0	1	1	1	1	0	132,825,000
0	0	1	0	1	0	0	0	1	1	0	1	1	1	1	0	132,850,000
0	0	1	0	1	1	0	0	1	1	0	1	1	1	1	0	132,875,000
0	0	1	1	0	0	0	0	1	1	0	1	1	1	1	0	132,900,000
0	0	1	1	0	1	0	0	1	1	0	1	1	1	1	0	132,925,000
0	0	1	1	1	0	0	0	1	1	0	1	1	1	1	0	132,950,000
0	0	1	1	1	1	0	0	1	1	0	1	1	1	1	0	132,975,000
0	1	0	0	0	0	0	0	1	1	0	1	1	1	1	0	133,000,000
0	1	0	0	0	1	0	0	1	1	0	1	1	1	1	0	133,025,000
0	1	0	0	1	0	0	0	1	1	0	1	1	1	1	0	133,050,000
0	1	0	0	1	1	0	0	1	1	0	1	1	1	1	0	133,075,000
0	1	0	1	0	0	0	0	1	1	0	1	1	1	1	0	133,100,000
0	1	0	1	0	1	0	0	1	1	0	1	1	1	1	0	133,125,000
0	1	0	1	1	0	0	0	1	1	0	1	1	1	1	0	133,150,000
0	1	0	1	1	1	0	0	1	1	0	1	1	1	1	0	133,175,000
0	1	1	0	0	0	0	0	1	1	0	1	1	1	1	0	133,200,000
0	1	1	0	0	1	0	0	1	1	0	1	1	1	1	0	133,225,000
0	1	1	0	1	0	0	0	1	1	0	1	1	1	1	0	133,250,000
0	1	1	0	1	1	0	0	1	1	0	1	1	1	1	0	133,275,000
0	1	1	1	0	0	0	0	1	1	0	1	1	1	1	0	133,300,000
0	1	1	1	0	1	0	0	1	1	0	1	1	1	1	0	133,325,000
0	1	1	1	1	0	0	0	1	1	0	1	1	1	1	0	133,350,000
0	1	1	1	1	1	0	0	1	1	0	1	1	1	1	0	133,375,000
0	0	0	0	0	0	0	0	1	1	0	1	1	1	1	1	133,400,000
0	0	0	0	0	1	0	0	1	1	0	1	1	1	1	1	133,425,000
0	0	0	0	1	0	0	0	1	1	0	1	1	1	1	1	133,450,000
0	0	0	0	1	1	0	0	1	1	0	1	1	1	1	1	133,475,000
0	0	0	1	0	0	0	0	1	1	0	1	1	1	1	1	133,500,000
0	0	0	1	0	1	0	0	1	1	0	1	1	1	1	1	133,525,000
0	0	0	1	1	0	0	0	1	1	0	1	1	1	1	1	133,550,000
0	0	0	1	1	1	0	0	1	1	0	1	1	1	1	1	133,575,000
0	0	1	0	0	0	0	0	1	1	0	1	1	1	1	1	133,600,000
0	0	1	0	0	1	0	0	1	1	0	1	1	1	1	1	133,625,000
0	0	1	0	1	0	0	0	1	1	0	1	1	1	1	1	133,650,000
0	0	1	0	1	1	0	0	1	1	0	1	1	1	1	1	133,675,000
0	0	1	1	0	0	0	0	1	1	0	1	1	1	1	1	133,700,000
0	0	1	1	0	1	0	0	1	1	0	1	1	1	1	1	133,725,000
0	0	1	1	1	0	0	0	1	1	0	1	1	1	1	1	133,750,000
0	0	1	1	1	1	0	0	1	1	0	1	1	1	1	1	133,775,000
0	1	0	0	0	0	0	0	1	1	0	1	1	1	1	1	133,800,000
0	1	0	0	0	1	0	0	1	1	0	1	1	1	1	1	133,825,000
0	1	0	0	1	0	0	0	1	1	0	1	1	1	1	1	133,850,000
0	1	0	0	1	1	0	0	1	1	0	1	1	1	1	1	133,875,000
0	1	0	1	0	0	0	0	1	1	0	1	1	1	1	1	133,900,000
0	1	0	1	0	1	0	0	1	1	0	1	1	1	1	1	133,925,000
0	1	0	1	1	0	0	0	1	1	0	1	1	1	1	1	133,950,000

	SWITCH 2								SWITCH 1								RF Frequency
	8	7	6	5	4	3	2	1	8	7	6	5	4	3	2	1	Hz
0	1	0	1	1	1	0	0	1	1	0	1	1	1	1	1	133,975,000	
0	1	1	0	0	0	0	0	1	1	0	1	1	1	1	1	134,000,000	
0	1	1	0	0	1	0	0	1	1	0	1	1	1	1	1	134,025,000	
0	1	1	0	1	0	0	0	1	1	0	1	1	1	1	1	134,050,000	
0	1	1	0	1	1	0	0	1	1	0	1	1	1	1	1	134,075,000	
0	1	1	1	0	0	0	0	1	1	0	1	1	1	1	1	134,100,000	
0	1	1	1	0	1	0	0	1	1	0	1	1	1	1	1	134,125,000	
0	1	1	1	1	0	0	0	1	1	0	1	1	1	1	1	134,150,000	
0	1	1	1	1	1	0	0	1	1	0	1	1	1	1	1	134,175,000	
0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	134,200,000	
0	0	0	0	0	1	0	0	1	1	1	0	0	0	0	0	134,225,000	
0	0	0	0	1	0	0	0	1	1	1	0	0	0	0	0	134,250,000	
0	0	0	0	1	1	0	0	1	1	1	0	0	0	0	0	134,275,000	
0	0	0	1	0	0	0	0	1	1	1	0	0	0	0	0	134,300,000	
0	0	0	1	0	1	0	0	1	1	1	0	0	0	0	0	134,325,000	
0	0	0	1	1	0	0	0	1	1	1	0	0	0	0	0	134,350,000	
0	0	0	1	1	1	0	0	1	1	1	0	0	0	0	0	134,375,000	
0	0	1	0	0	0	0	0	1	1	1	0	0	0	0	0	134,400,000	
0	0	1	0	0	1	0	0	1	1	1	0	0	0	0	0	134,425,000	
0	0	1	0	1	0	0	0	1	1	1	0	0	0	0	0	134,450,000	
0	0	1	0	1	1	0	0	1	1	1	0	0	0	0	0	134,475,000	
0	0	1	1	0	0	0	0	1	1	1	0	0	0	0	0	134,500,000	
0	0	1	1	0	1	0	0	1	1	1	0	0	0	0	0	134,525,000	
0	0	1	1	1	0	0	0	1	1	1	0	0	0	0	0	134,550,000	
0	0	1	1	1	1	0	0	1	1	1	0	0	0	0	0	134,575,000	
0	1	0	0	0	0	0	0	1	1	1	0	0	0	0	0	134,600,000	
0	1	0	0	0	1	0	0	1	1	1	0	0	0	0	0	134,625,000	
0	1	0	0	1	0	0	0	1	1	1	0	0	0	0	0	134,650,000	
0	1	0	0	1	1	0	0	1	1	1	0	0	0	0	0	134,675,000	
0	1	0	1	0	0	0	0	1	1	1	0	0	0	0	0	134,700,000	
0	1	0	1	0	1	0	0	1	1	1	0	0	0	0	0	134,725,000	
0	1	0	1	1	0	0	0	1	1	1	0	0	0	0	0	134,750,000	
0	1	0	1	1	1	0	0	1	1	1	0	0	0	0	0	134,775,000	
0	1	1	0	0	0	0	0	1	1	1	0	0	0	0	0	134,800,000	
0	1	1	0	0	1	0	0	1	1	1	0	0	0	0	0	134,825,000	
0	1	1	0	1	0	0	0	1	1	1	0	0	0	0	0	134,850,000	
0	1	1	0	1	1	0	0	1	1	1	0	0	0	0	0	134,875,000	
0	1	1	1	0	0	0	0	1	1	1	0	0	0	0	0	134,900,000	
0	1	1	1	0	1	0	0	1	1	1	0	0	0	0	0	134,925,000	
0	1	1	1	1	0	0	0	1	1	1	0	0	0	0	0	134,950,000	
0	1	1	1	1	1	0	0	1	1	1	0	0	0	0	0	134,975,000	
0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	1	135,000,000	
0	0	0	0	0	1	0	0	1	1	1	0	0	0	0	1	135,025,000	
0	0	0	0	1	0	0	0	1	1	1	0	0	0	0	1	135,050,000	
0	0	0	0	1	1	0	0	1	1	1	0	0	0	0	1	135,075,000	
0	0	0	1	0	0	0	0	1	1	1	0	0	0	0	1	135,100,000	

SWITCH 2								SWITCH 1							RF Frequency	
8	7	6	5	4	3	2	1	8	7	6	5	4	3	2	1	Hz
0	0	0	1	0	1	0	0	1	1	1	0	0	0	0	1	135,125,000
0	0	0	1	1	0	0	0	1	1	1	0	0	0	0	1	135,150,000
0	0	0	1	1	1	0	0	1	1	1	0	0	0	0	1	135,175,000
0	0	1	0	0	0	0	0	1	1	1	0	0	0	0	1	135,200,000
0	0	1	0	0	1	0	0	1	1	1	0	0	0	0	1	135,225,000
0	0	1	0	1	0	0	0	1	1	1	0	0	0	0	1	135,250,000
0	0	1	0	1	1	0	0	1	1	1	0	0	0	0	1	135,275,000
0	0	1	1	0	0	0	0	1	1	1	0	0	0	0	1	135,300,000
0	0	1	1	0	1	0	0	1	1	1	0	0	0	0	1	135,325,000
0	0	1	1	1	0	0	0	1	1	1	0	0	0	0	1	135,350,000
0	0	1	1	1	1	0	0	1	1	1	0	0	0	0	1	135,375,000
0	1	0	0	0	0	0	0	1	1	1	0	0	0	0	1	135,400,000
0	1	0	0	0	1	0	0	1	1	1	0	0	0	0	1	135,425,000
0	1	0	0	1	0	0	0	1	1	1	0	0	0	0	1	135,450,000
0	1	0	0	1	1	0	0	1	1	1	0	0	0	0	1	135,475,000
0	1	0	1	0	0	0	0	1	1	1	0	0	0	0	1	135,500,000
0	1	0	1	0	1	0	0	1	1	1	0	0	0	0	1	135,525,000
0	1	0	1	1	0	0	0	1	1	1	0	0	0	0	1	135,550,000
0	1	0	1	1	1	0	0	1	1	1	0	0	0	0	1	135,575,000
0	1	1	0	0	0	0	0	1	1	1	0	0	0	0	1	135,600,000
0	1	1	0	0	1	0	0	1	1	1	0	0	0	0	1	135,625,000
0	1	1	0	1	0	0	0	1	1	1	0	0	0	0	1	135,650,000
0	1	1	0	1	1	0	0	1	1	1	0	0	0	0	1	135,675,000
0	1	1	1	0	0	0	0	1	1	1	0	0	0	0	1	135,700,000
0	1	1	1	0	1	0	0	1	1	1	0	0	0	0	1	135,725,000
0	1	1	1	1	0	0	0	1	1	1	0	0	0	0	1	135,750,000
0	1	1	1	1	1	0	0	1	1	1	0	0	0	0	1	135,775,000
0	0	0	0	0	0	0	0	1	1	1	0	0	0	1	0	135,800,000
0	0	0	0	0	1	0	0	1	1	1	0	0	0	1	0	135,825,000
0	0	0	0	1	0	0	0	1	1	1	0	0	0	1	0	135,850,000
0	0	0	0	1	1	0	0	1	1	1	0	0	0	1	0	135,875,000
0	0	0	1	0	0	0	0	1	1	1	0	0	0	1	0	135,900,000
0	0	0	1	0	1	0	0	1	1	1	0	0	0	1	0	135,925,000
0	0	0	1	1	0	0	0	1	1	1	0	0	0	1	0	135,950,000
0	0	0	1	1	1	0	0	1	1	1	0	0	0	1	0	135,975,000
0	0	1	0	0	0	0	0	1	1	1	0	0	0	1	0	136,000,000