

Introduction

Standard Features:

- Latched shutdown for increased safety
- 6 channels provide for shutdown, PTO, throttle, query, reel unwind and auxiliary remote controls
- Powerful transmitter with 300 feet range
- Waterproof sealed transmitter
- User enabled/disabled query feature
- Remote ignition relay
- Receiver can respond to multiple transmitters (up to 15)
- Sealed receiver enclosure
- Throttle control may be toggled or momentary
- Installer enabled PTO delay remotely controls the tank valve using the PTO button. Automatically delays PTO engagement on Valve Open

RSD Description

The RSD is designed to comply with D.O.T requirements for off-truck, remote shutdown capabilities for transport trucks. In the event of an unintentional product release, the operator may remotely kill the vehicle engine and close the internal valve, using a handheld, wireless transmitter.

When a button is pressed on the transmitter, the transmitter sends an encoded 32-bit ID number and commands to the receiver. Only receivers that have that transmitter's ID in its programmed list of transmitters will respond. Receivers can be easily programmed to respond to up to 15 different transmitters.

In addition to the shutdown function, the RSD-6 provides PTO, throttle, reel unwind, query timer and auxiliary control.

Upon proper installation, the operator will arm the receiver and provide power to the internal valve solenoid simply by setting the parking brake with the truck engine running.

When the RSD receiver is armed, the wireless link to the transmitter is enabled. but there is no change to the state of the channel relays; all relays are OFF. The ignition relay remains OFF and the ignition circuit is completed through the relay contacts allowing the engine to continue running. Power is routed through the channel 1 normally closed relay contacts to the internal valve solenoid, allowing the internal valve to be opened.

With the wireless link enabled, ignition circuit complete, and the internal valve solenoid energized - the RSD system is armed and product transfer can begin. See **PTO-Delay** for optional remote valve control method.

Pressing the transmitter's EMERGENCY SHUTDOWN button will kill the engine by opening the ignition circuit, and close the tank valve. To reset the system, the operator must manually turn off the ignition switch and re-start the engine.



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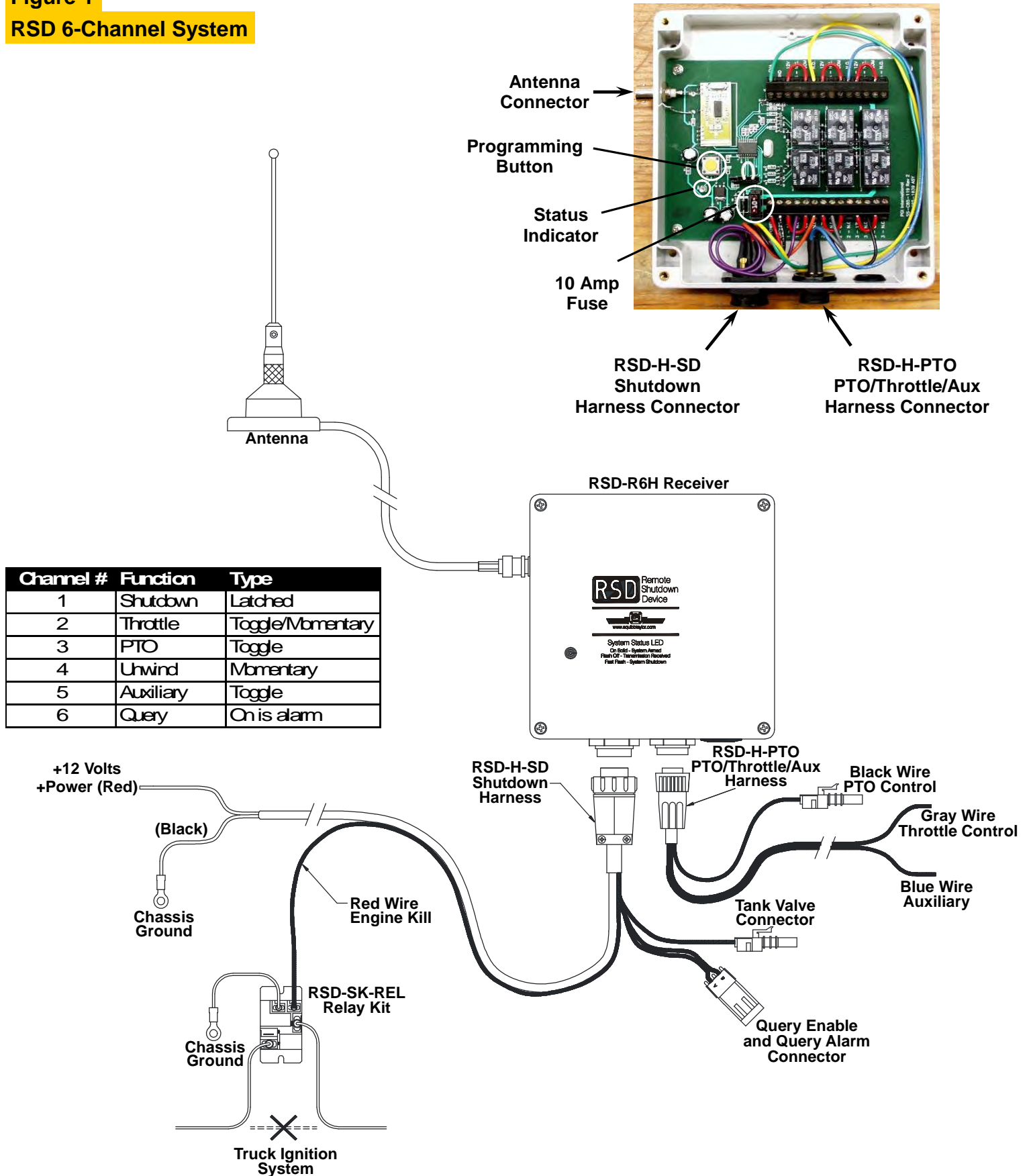
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Table of Contents

System Overview	4
Receiver Installation	5
Antenna Installation	6
Receiver Relays	
Receiver Channel Connection Options.....	6
Arming the RSD System by Setting the Parking Brake	
Using a Pressure Switch	7
Using a Dash Lamp	7
Emergency Shutdown Function (Channel 1)	
Engine Kill Ignition Relay	8
To Install the Relay	8
Relay Installation	
CAT 3126B	9
Cummins ISB/ISC	9
GM 7.4 Liter	9
International Navistar DT 466E.....	9
Internal Valve Closure	
Rego Flomatic Valves	10
Air Operated Valves	10
Cable or Manually Operated Valves.....	10
Query Operation (Channel 6)	
Overview.....	11
Installation using Relay and PTO Light.....	12
Disabling the Query Function.....	12
PTO (Channel 3)	
Electric PTO Installation.....	13
Hot-Shift PTO Installation.....	13
Clutch Shift PTO Installation.....	14
PTO-Delay Option	15
PTO Jumper	15
Tank Valve Wiring Diagrams	
Normal Tank Valve Control	16
PTO-Delay Tank Valve Control	17
Throttle (Channel 2)	
Throttle Jumper	18
Throttle Control Wiring for GM 7.4 Liter Engines.....	19
Throttle Control Wiring for GM 8.1 Liter Engines.....	19
Throttle Control Wiring for CAT 3126B Engines	20
Throttle Control Wiring for Cummins Engines.....	20
Hose Reel Unwind (Channel 4)	
Connection Diagram.....	21
Auxiliary (Channel 5)	
Operation	21
RSD-R6H Operation	
Programming the Receiver.....	22
Adding a Transmitter to the Receiver's List	22
To Clear all Transmitters from Receiver's List.....	22
Resetting the Receiver after a Shutdown	22
Testing the System	
Daily Test	23
Warranty	24

System Overview

Figure 1
RSD 6-Channel System



Antenna Installation

The antenna should be installed at the rear of the tank and as high as possible. If there is risk of damage to the antenna from low tree limbs, the antenna can be installed on the top of the meter cabinet.

Verify that the cable is long enough to reach the receiver and can be safely routed before mounting the antenna. Mounting brackets, magnetic mount bases, high gain antennas, and custom length cables are available.

Contact your local distributor or Squibb-Taylor for details and/or specification.

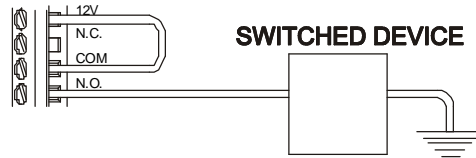
Receiver Relays

Receiver Channel Connection Options

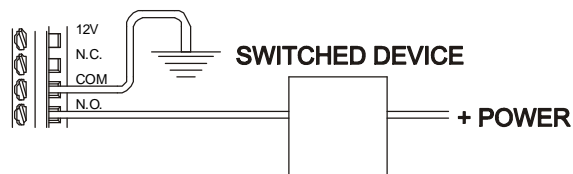
Each channel of the RSD receiver is equipped with a wire screw terminal for 12 volts (12V), the relay common (COM), normally open (N.O.), and normally closed (N.C.) contacts. This gives the installer maximum flexibility when connecting to devices that need to be switched remotely. Channels 2 (throttle), 3 (PTO), and 5 (auxiliary) will toggle on or energize when the transmitter button is pressed and then toggle off when the same button is pressed again. Channel 4 (reel unwind) will energize the relay while the transmitter UNWIND button is held down. When the transmitter button is released, the channel 4 relay will turn off.

Each channel can switch power, switch ground, short two wires or open two wires when active. **RELAY CONTACTS ARE RATED AT 10 AMPS MAXIMUM.** The receiver power and the 12V for each channel is protected by a single internal 10 amp fuse. The total power for all channels that use receiver power must be less than 10 amps. If a switched device uses excessive power, consider running power for that device through a separate fuse. Similarly, the low pressure switch connected to the parking brake air line must have a sufficient current rating for the devices powered through it. Use a separate fused power source for switched devices, if necessary.

SWITCHED POWER



SWITCHED GROUND



SHORTING TWO WIRES



Figure 3

Query Function Disabled

Arming the RSD System

IMPORTANT:

The +12 volt power source to the receiver must be switched ON and OFF by the ignition key and remain 'hot' or live while cranking.

WARNING!

It is extremely important that the power which arms the RSD device be routed in such a manner to make it impossible for the device to be armed while the vehicle is moving. Typically, this is done by routing the arming power such that power is supplied only when the parking brake is set. This **MUST** be done to eliminate the possibility that accidental actuation of the safety system would *kill the engine in a moving vehicle situation*.

WARNING!

DO NOT ARM THROUGH ANY FUNCTION OTHER THAN SETTING THE PARKING BRAKE.

Figure 4

CONNECTION DIAGRAM USING A PRESSURE SWITCH TO ARM THE RSD SYSTEM BY SETTING THE PARKING BRAKE

If the truck is equipped with air brakes, a normally closed pressure switch installed in the air line can be used to detect when the parking brake is set. Power to the receiver can be routed through the pressure switch. By doing so, the RSD receiver will only be powered on, or armed, when the parking brake is set.

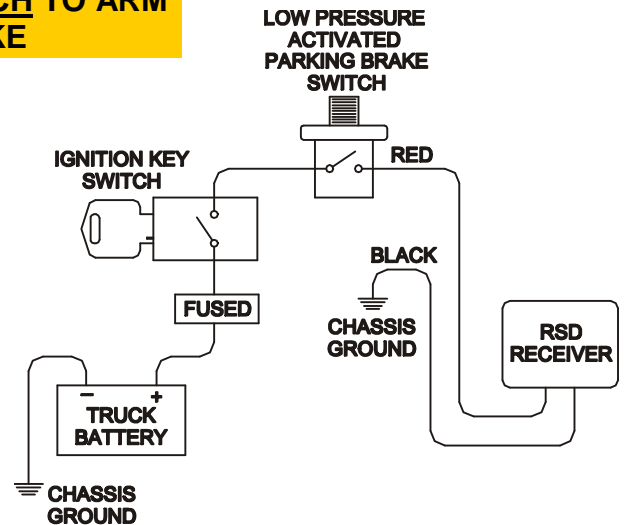
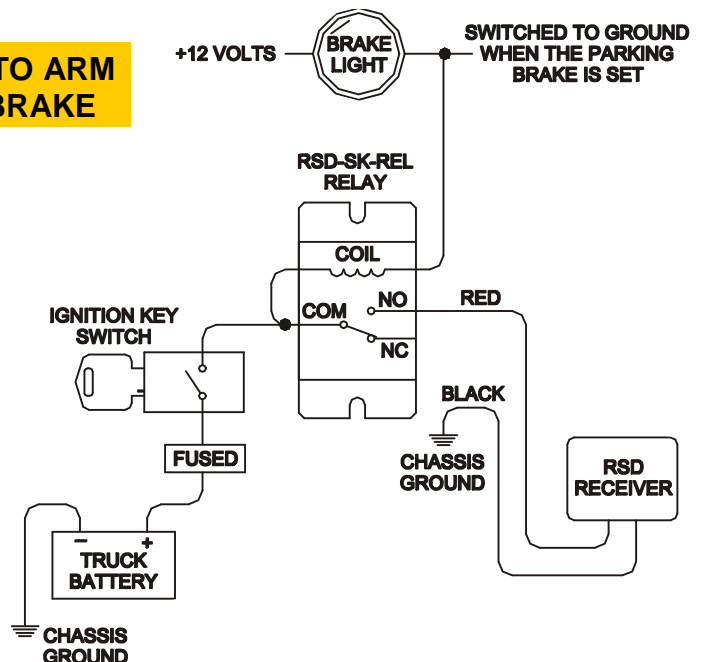


Figure 5

CONNECTION DIAGRAM USING A DASH LAMP TO ARM THE RSD SYSTEM BY SETTING THE PARKING BRAKE

A brake dash light provides a convenient way to detect when the brake is set. This diagram shows connection to a brake dash light using an additional RSD Relay Kit, RSD-SK-REL.



Installing the Emergency Shutdown Function (Channel 1)

As mandated by D.O.T., the RSD system includes an Emergency Shutdown feature that will kill the engine and close the tank valve when the red EMERGENCY SHUTDOWN button on the transmitter is pressed.

When the red EMERGENCY SHUTDOWN button on the transmitter is pressed, the channel 1 receiver relay is latched ON. This removes power from the internal valve solenoid, closing the valve and energizing the ignition relay. The ignition relay opens the ignition circuit and stops the truck engine. Latching the relay ON prevents unintentional arming of the system using the transmitter.

Engine Kill Ignition Relay

The ignition relay must be installed in-line with the ignition HOT wire. This wire is in a normally closed circuit. When the EMERGENCY SHUTDOWN button on the transmitter is pressed:

- the circuit will be broken
- the truck engine will stop
- the internal valve will close

For optimal performance, the relay should be installed as close as possible to the ignition wire, preferably under the truck dash. If installed under the hood, keep the relay and wires clear of engine parts that run hot, such as the exhaust manifold. The dealer service department or truck service manuals will help determine which wire to use for your specific truck make and model. Some common applications are shown in Figure 7.

Wires are attached using crimp-on spade terminals. Use two .187" wide terminals for the coil connections and two .250" wide spade terminals for the relay switch connections.

To install the relay . . .

- 1) Verify that the battery's HOT (+) cable is disconnected.
- 2) Cut the ignition HOT wire.
- 3) Connect one end of the ignition HOT wire to the relay COMMON terminal.
- 4) Connect the other end of the ignition HOT wire to the relay N.C. terminal.
- 5) Connect one relay COIL terminal to chassis ground.
- 6) Connect the other relay COIL terminal to the RED wire bundled with the Grey Power Cable. (Refer to Figure 1 and the diagrams that follow.)

Figure 6
RSD-SK-REL Relay

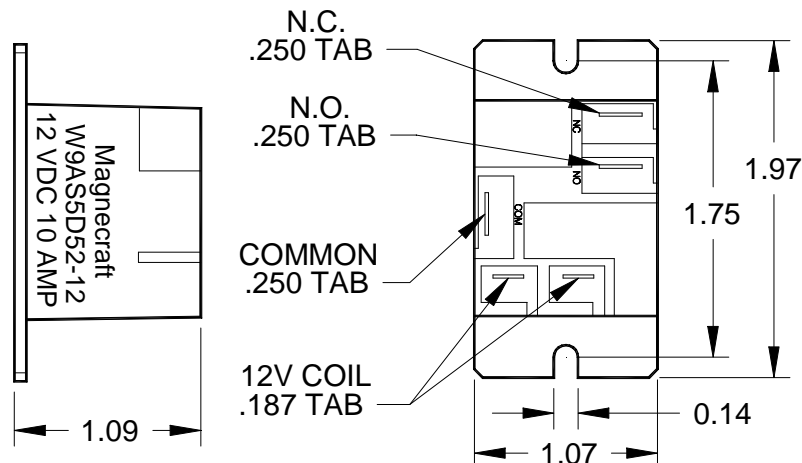
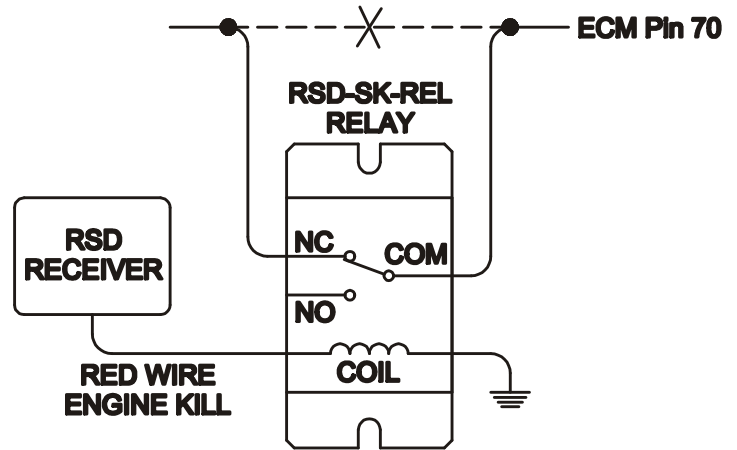


Figure 7

Ignition Relay Installation

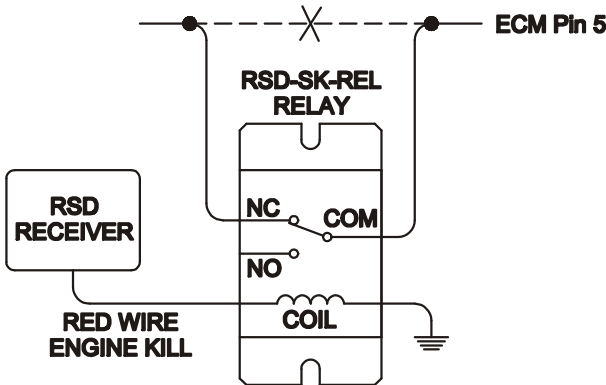
CAT 3126B

Open wire to pin 70 on ECM to kill the engine on shutdown.



CUMMINS ISB/ISC

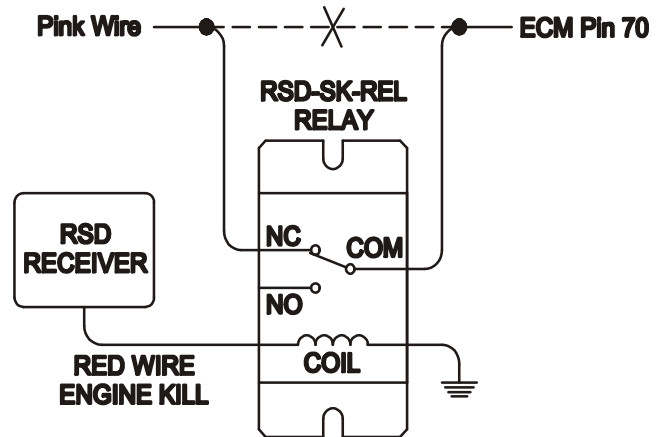
Open wire to pin 5 on ECM to kill the engine on shutdown.



The relay normally-closed contacts should be wired into the wire from pin 5 of the ECM connector. Cut the wire on the engine side, not the chassis side, of the connector.

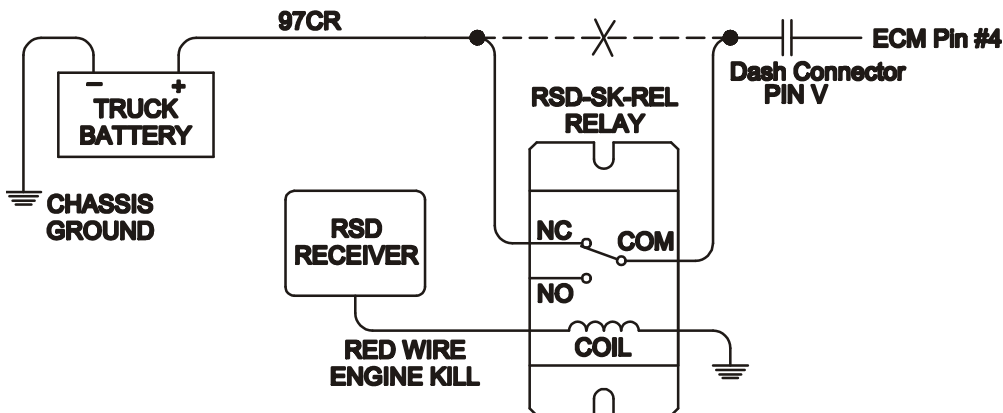
GM 7.4 Liter

Open the pink wire under the fuse cover on the upper right side of the engine firewall to kill the engine on shutdown.



International Navistar DT 466E

Open wire 97CR from battery to Pin #4 on ECM to kill the engine on shutdown.



Internal Valve Closure

The type of internal tank valve will determine how it is connected to the receiver . . .

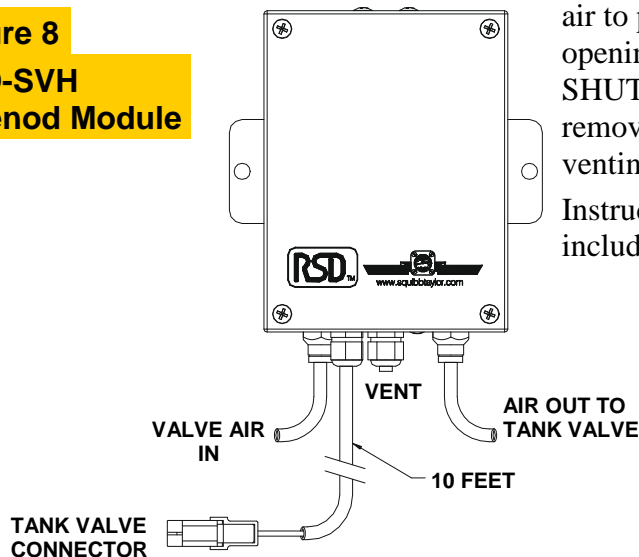
Rego Flomatic Valves

The Flomatic valve opens when the pump starts and closes when the pump stops. For this type valve, only the ignition relay is required. When the engine is stopped, the pump will also stop, allowing the valve to close.

Air Operated Valves

To operate air actuated valves; a 3-way air solenoid valve must be installed in the airline to the valve actuator. When the receiver is armed (power applied), the 3-way solenoid will be energized allowing air to pass through the solenoid valve to the valve actuator, opening the internal valve. When the EMERGENCY SHUTDOWN button on the transmitter is pressed, power is removed from the 3-way solenoid, blocking the air supply and venting the air in the valve actuator, closing the internal valve. Instructions for installing the 3-way solenoid valve are included with RSD-SVH Air Solenoid Module.

Figure 8
RSD-SVH
Solenoid Module



Cable or Manually Operated Valves

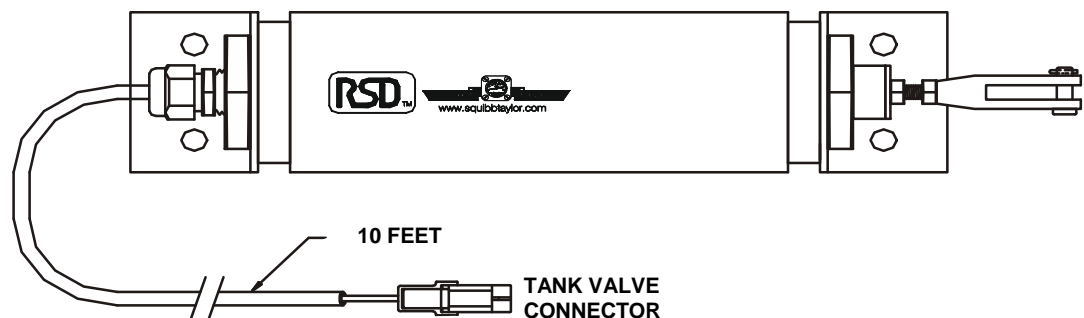
The RSD-BV1 Manual Tank Valve Actuator is designed to be used with a radio controlled safety shutdown system on bobtail delivery vehicles equipped with cable operated internal valves, allowing the operator to remotely close the internal valve, as mandated by D.O.T. The heart of the BV1 is an internal electromagnet which may be disarmed remotely in an emergency situation, closing the internal valve.

The electromagnet is mounted on a shaft connected to the valve cable at the clevis. When disarmed, the BV1 generates over 55 pounds of cable pull force on the Safety Trip Lever to trip all the manual levers to the CLOSED or OFF position.

Power is applied to the magnet only when the system is armed. When properly connected, the system is armed simply by setting the vehicle's parking brake, but the strength of the magnet alone is not enough to pull the shaft to the "cocked" or OPEN position. However, when the system is armed and the internal valve lever is "cocked" by the operator, the magnet has the power to **hold** the valve in that position. *Without* power to the magnet, all the manual levers remain operational, but the spring will pull the levers to the CLOSED position.

Instructions for installing the actuator for manually operated valves are included with the RSD-BV1 valve actuator.

Figure 9
RSD-BV1
Manual Tank
Valve Actuator



Query Operation (Channel 6)

Receiver channel 6 is used for the Query feature and ensures compliance to D.O.T. requirements where query features are mandated. Even on installations where Query is not required, its use will ensure transmitter/receiver operation at every delivery. Without it, it would be possible to off-load product even if the transmitter is not functioning.

In the event of an unintentional product release, a transmitter with dead batteries would not provide the protection that it was designed for. The Query feature requires that the operator is attentive to the product delivery process. When Query is used, the operator is occasionally prompted for a transmitter button press. If the transmitter signal is received, the wireless link is healthy and RSD is ready to respond when needed. If the receiver does not receive a query reset from the transmitter, the system safely shuts down. This brief test verifies the wireless link between the transmitter and receiver will be available when needed.

If the query feature is used, the query warning relay should be connected to a buzzer, horn, or the reverse beeper to warn the operator that the system is about to shut-off. If your installation does not require a query feature, it can be disabled by shorting the Q-ENA terminal to the GND terminal in the receiver with a short piece of wire, as described in *Disabling the Query Function* (Figure 11). If the Q-ENA terminal is “open” the Query feature is enabled.

When the receiver is armed and query enabled, a timer in the receiver is started. After 4.5 minutes, the query warning relay is activated to sound an alarm to the operator. The operator then has 30 seconds to press the QUERY button on the transmitter before the system is disabled (internal valve closed and engine killed). Pressing the transmitter QUERY button clears the timer back to zero and de-energizes the query warning relay.

On installations where the query feature is enabled, it may be desirable to allow the truck engine to idle with the parking brake set – but not require the operator to query the receiver with the RSD transmitter. The Q-ENA wire terminal in the RSD receiver can be used to enable the query feature only when the truck is actually delivering product. The following instructions and illustrations will aide installation to meet your requirements.

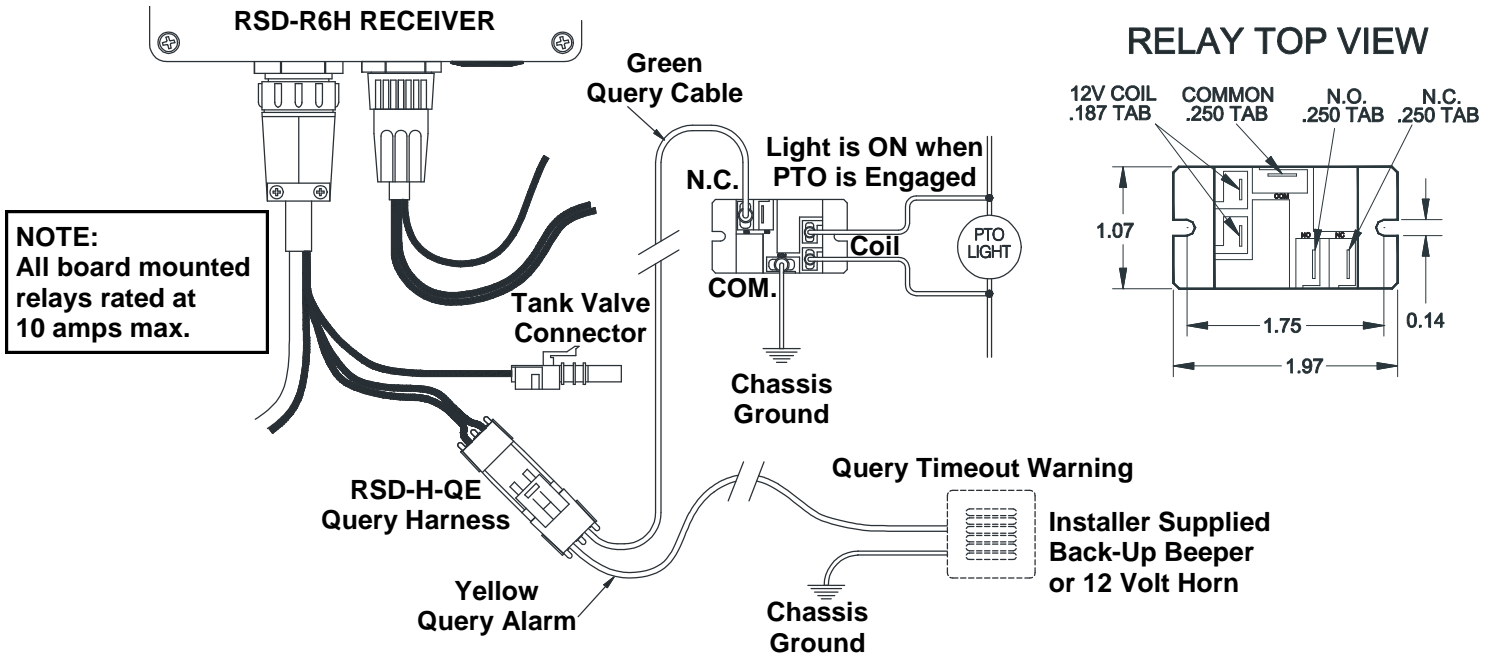
Choose a function that is only active while transferring product. Some examples of functions that may be used to enable/disable the query feature are listed below.

- **An air pressure switch in the internal valve air hose.** The switch should “open” when air pressure is applied to the valve actuator to open the internal valve. Query is enabled only while the internal valve is “open”.
- **A limit switch that is activated by the valve or PTO pull cable on cable operated trucks.** When the lever is operated or “pulled” at the rear of the truck, the switch should “open”. When the lever is in the valve “closed” or PTO “OFF” position, the switch should be “closed” to disable the query.
- **The PTO or throttle control channels.** If a multi-function receiver, such as the RSD-R6, is used to control PTO and/or throttle, the PTO or throttle channel can be wired directly to the Q-ENA to enable/disable the query on either of those functions.
- **Any electrical event which is active only while transferring product.** For example, an indicator light on the dash for valve “open” or PTO “engaged” could enable the query when the light is ‘ON’. Typically, one side of the light is connected to 12 volts and the other side is grounded to turn on the light. If so, a relay must be installed as shown on the following page.

On some installations it may be possible to locate a source that is at 12 volts only while pumping, and grounded when not pumping. If not, then a relay must be used to enable/disable the query feature. Figure 10 illustrates connections to a PTO indicator lamp that is ‘ON’ when the PTO is “engaged”.

Figure 10

Query Installation Diagram using Relay and PTO Light



NOTE:
All board mounted
relays rated at
10 amps max.

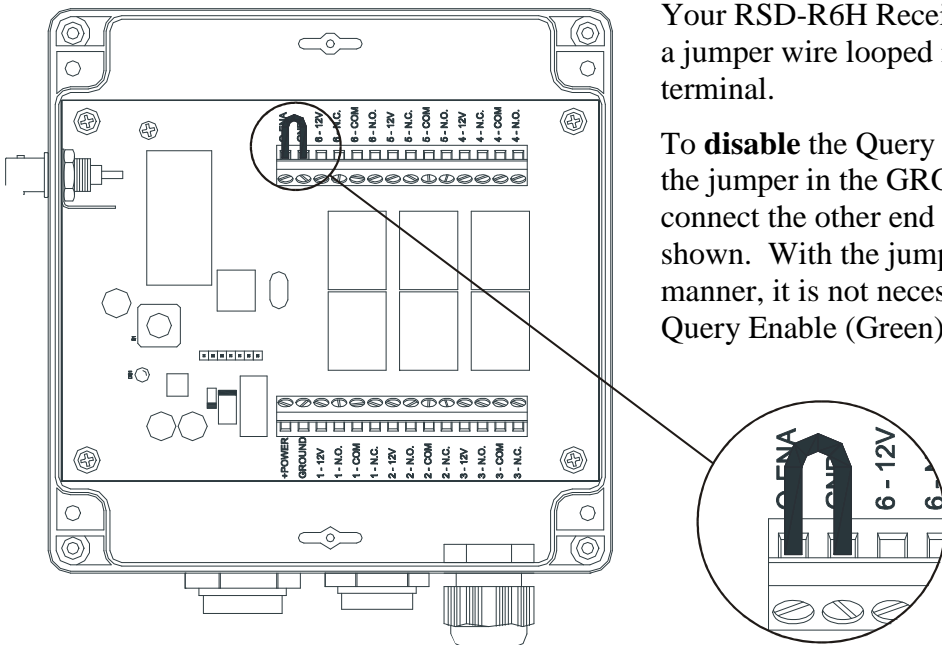
1. Connect the two relay coil wires directly across the PTO lamp, as shown. Polarity is not important.
2. Connect the relay COM to a good chassis ground.
3. Connect the relay N.C. to the RSD Q-ENA wire terminal.

When the lamp is on, the relay will switch, removing the short to chassis ground on the Q-ENA terminal. When the PTO is “engaged” the RSD query feature is enabled. With the PTO light off, the Q-ENA terminal will be shorted to ground through the relay, disabling the query feature.

Disabling the Query Function

Figure 11

Query Disable Jumper



Your RSD-R6H Receiver has been shipped with a jumper wire looped into the GROUND terminal.

To **disable** the Query Function, leave one end of the jumper in the GROUND terminal and connect the other end to the Q-ENA terminal, as shown. With the jumper connected in this manner, it is not necessary to disconnect the Query Enable (Green) Wire inside the receiver.

PTO (Channel 3)

Receiver channel 3 is used to engage and disengage the PTO. Pressing the transmitter PTO button will toggle the channel 3 relay on and off, changing states each time the transmitter button is pressed. +12 volts is routed through the relay contacts to supply power to the PTO actuator when active, or remove power (open circuit) to disengage the PTO. The PTO control wire from the receiver can be wired directly into a hot-shift actuator, or on clutch shift PTO's to an air valve actuator. On clutch shift PTO's, an air cylinder is required to engage and disengage the clutch pedal. The receiver will either supply 12 volts, to press the clutch pedal and disengage the PTO; or open the circuit to remove 12 volts to release the clutch pedal and engage the PTO.

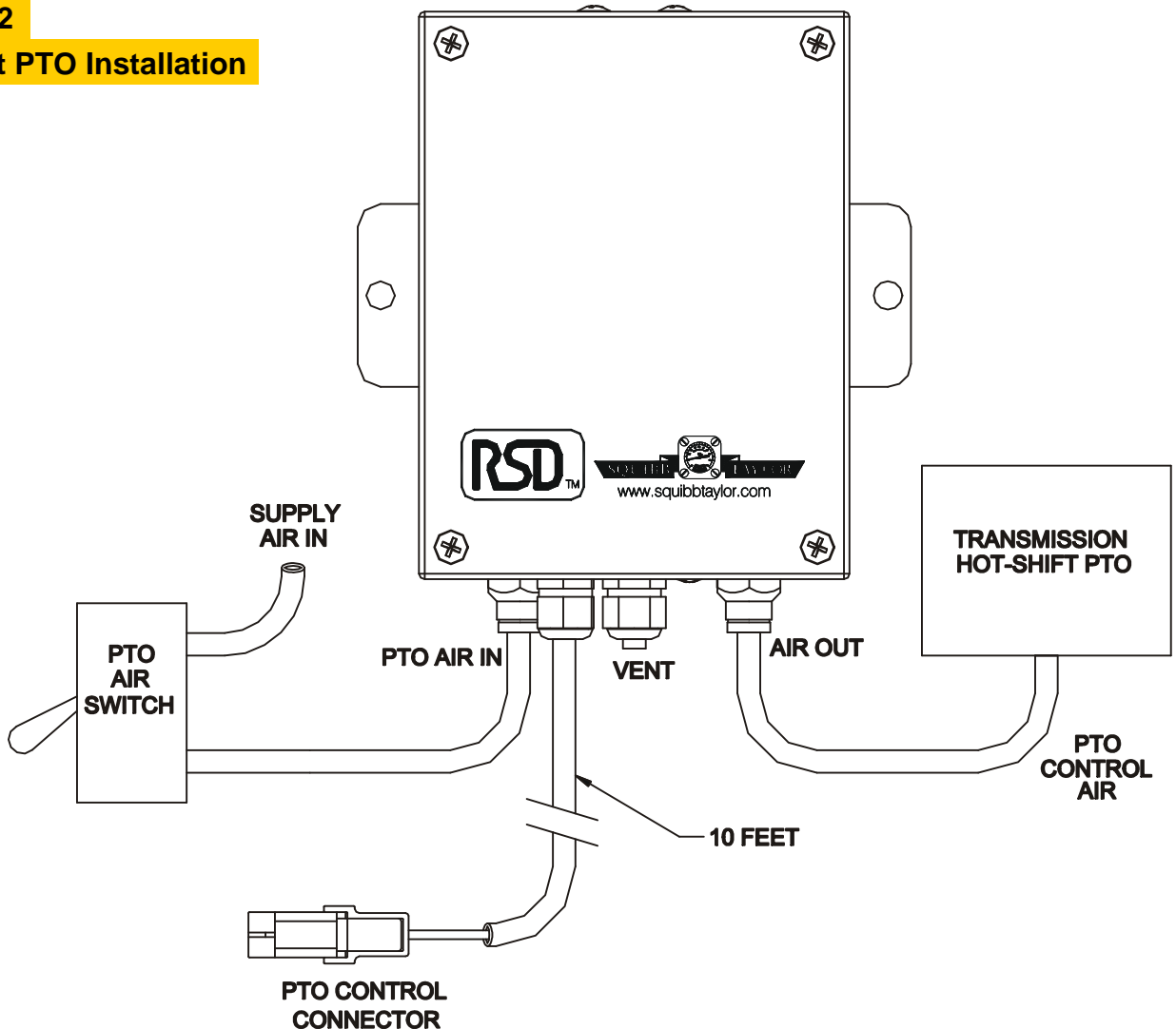
Electric PTO Installation

For installations where a PTO air solenoid or electric PTO actuator is already installed, the RSD PTO control wire can be wired directly into that actuator. The receiver will provide 12 volts to the actuator when the transmitter PTO button is pressed and then remove power when the button is pressed again.

Hot-Shift PTO Installation

A hot-shift PTO can be remotely controlled by routing the existing PTO air line through the RSD-SVH solenoid valve module. Pressing the transmitter PTO button will energize the RSD-SVH, allowing air through to engage the PTO. Pressing the transmitter PTO button again will remove power from the RSD-SVH, venting the PTO control air, and disengaging the PTO.

Figure 12
Hot-Shift PTO Installation



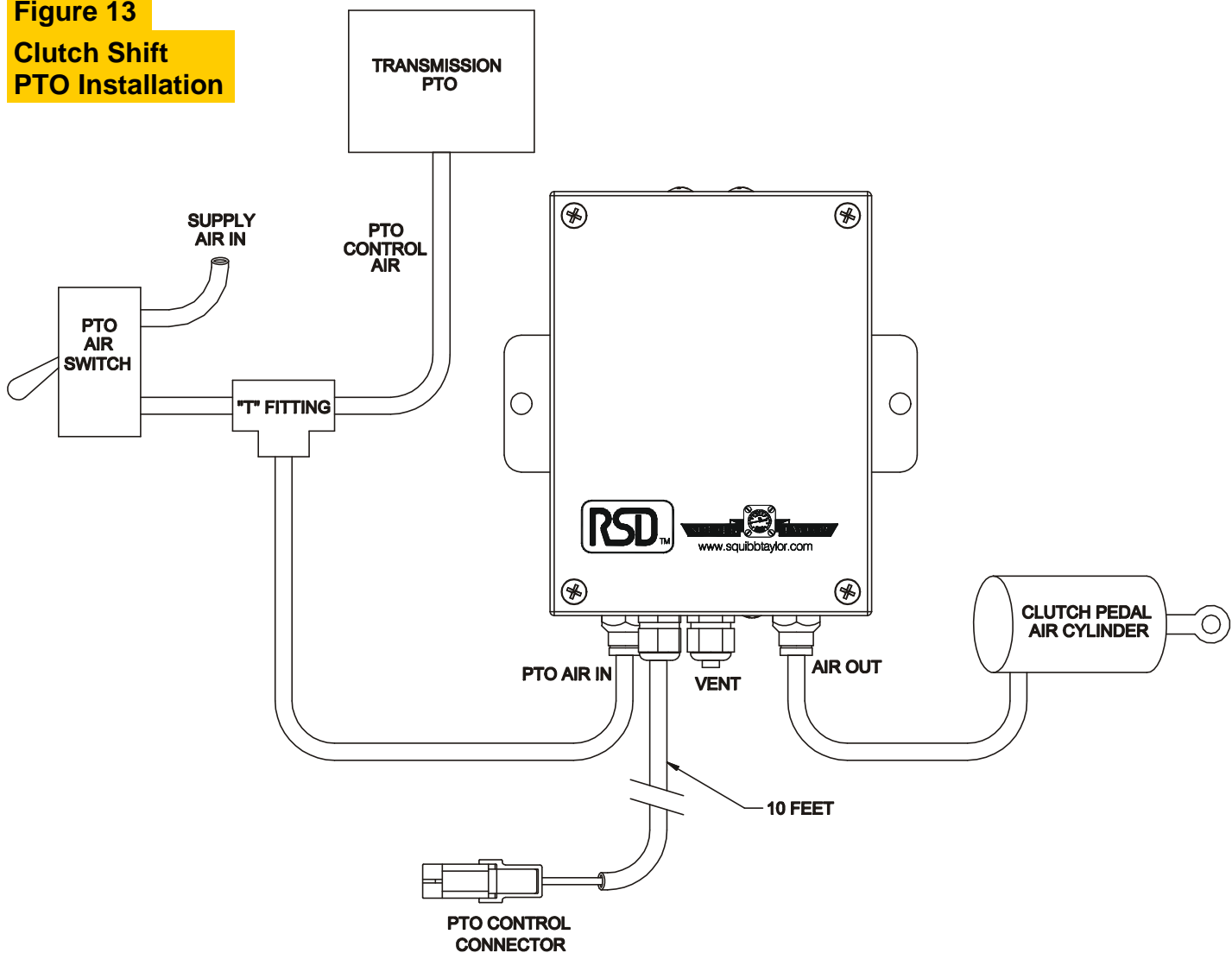
Clutch Shift PTO Installation

An air cylinder, supplied by the installer, must be installed so that when extended, or pressurized, it will press the clutch pedal fully. When the air cylinder is vented it will retract and release the clutch pedal. An RSD-SVH electric solenoid valve, connected to the RSD receiver, is used to remotely control the clutch pedal cylinder.

To operate the PTO:

1. Arm the RSD system by setting the parking brake.
2. Press down the clutch pedal.
3. Open the PTO switch to engage the PTO. This will allow PTO supply air to the RSD-SVH solenoid valve.
4. Press the PTO button on the transmitter to energize the RSD-SVH. This will hold the clutch pedal pressed.
5. Remove your foot from the clutch pedal. The air cylinder will keep the clutch pedal held down until the transmitter PTO button is pressed again.

Figure 13
Clutch Shift
PTO Installation



PTO-Delay Option

When the PTO-Delay is enabled, the tank valve will be remotely opened and closed using the transmitter's PTO button. Pressing the PTO button will open the tank valve and then, after a 5 second delay, the PTO will be activated. Pressing the transmitter's PTO button again will toggle the PTO off and close the tank valve simultaneously. Delaying the PTO after opening the tank valve prevents running the pump while the valve is opening.

Remotely operating the tank valve and PTO offers increased safety because the tank valve will be opened only while product is being transferred.

To enable the PTO-Delay feature:

1. Remove the large jumper from the receiver. Removing the jumper changes the operating mode of the Auxiliary and PTO channels.
2. Move the violet wire from 1-NC to 5-NO. The violet wire controls the tank valve. Route the wire around the bottom of the receiver circuit board away from the antenna connector. Moving the violet wire to 5-NO will allow the Auxiliary channel to control the tank valve by pressing the PTO button on the transmitter.

In PTO-Delay mode the Auxiliary button on the transmitter is not used.

Figure 14

PTO Jumper Location

(See Figures 15 & 16 for Tank Valve Control Wiring Diagrams)

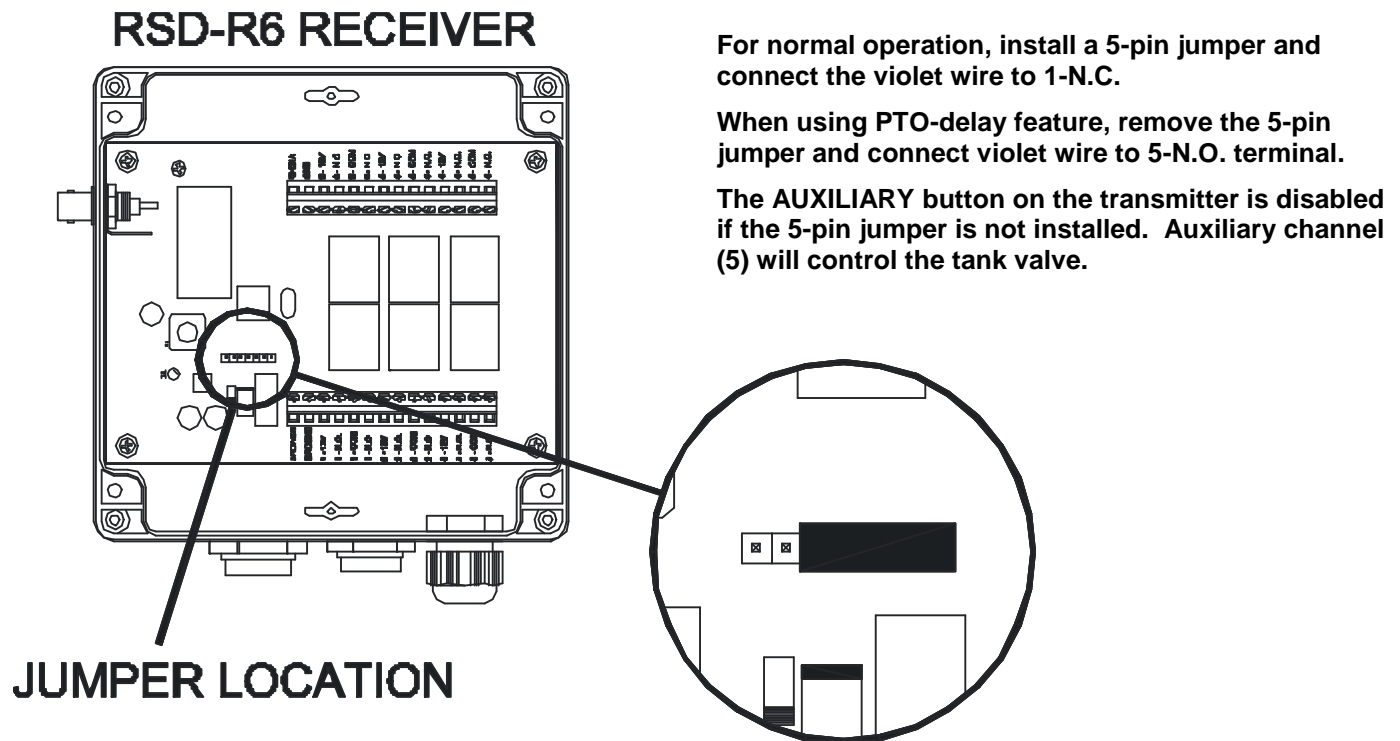
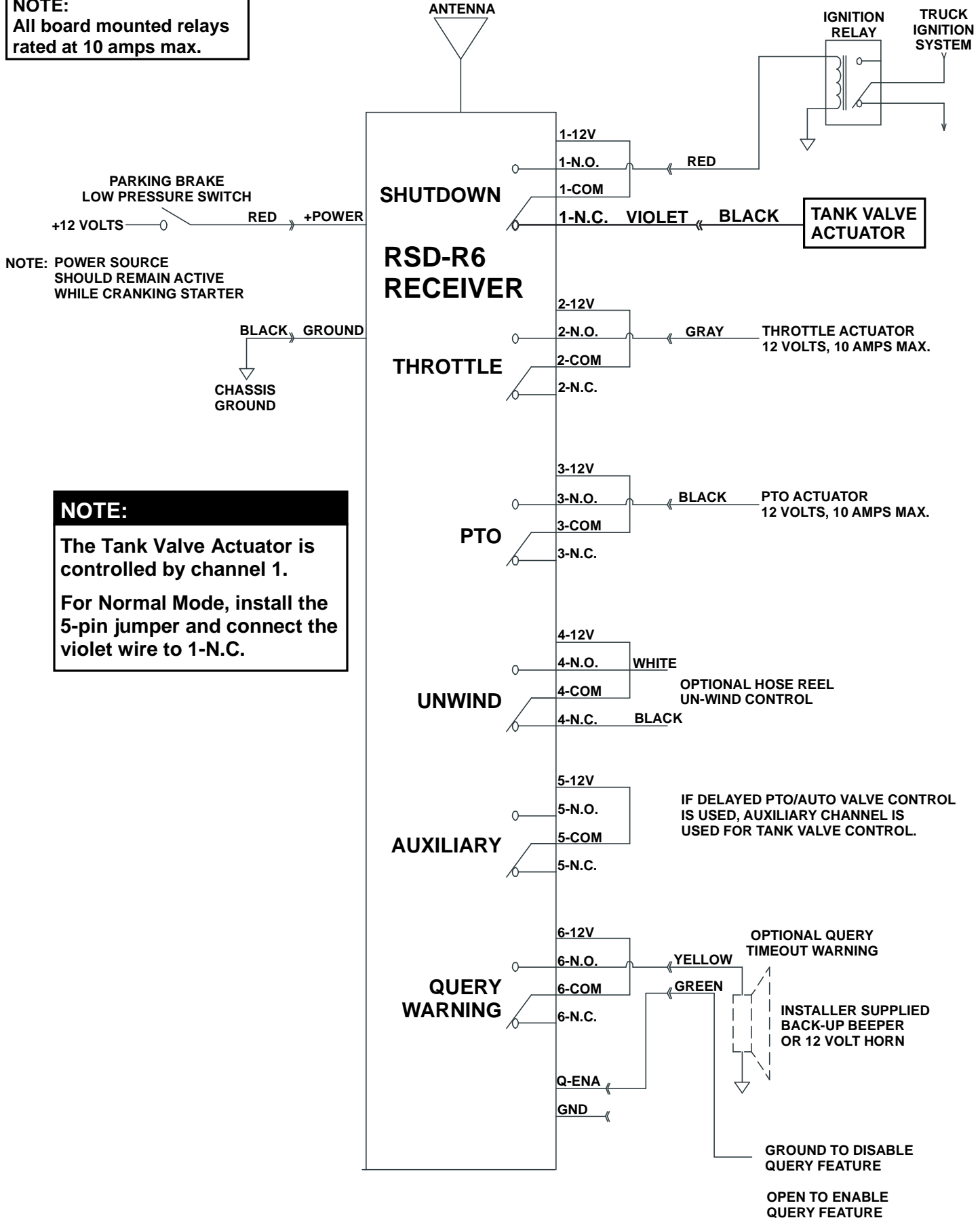


Figure 15
Normal Tank Valve Control Wiring Diagram

NOTE:
 All board mounted relays
 rated at 10 amps max.

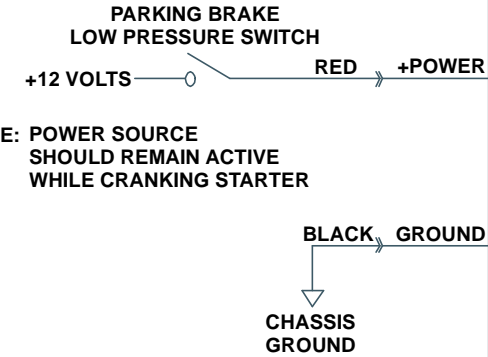


NOTE:
 The Tank Valve Actuator is
 controlled by channel 1.
 For Normal Mode, install the
 5-pin jumper and connect the
 violet wire to 1-N.C.

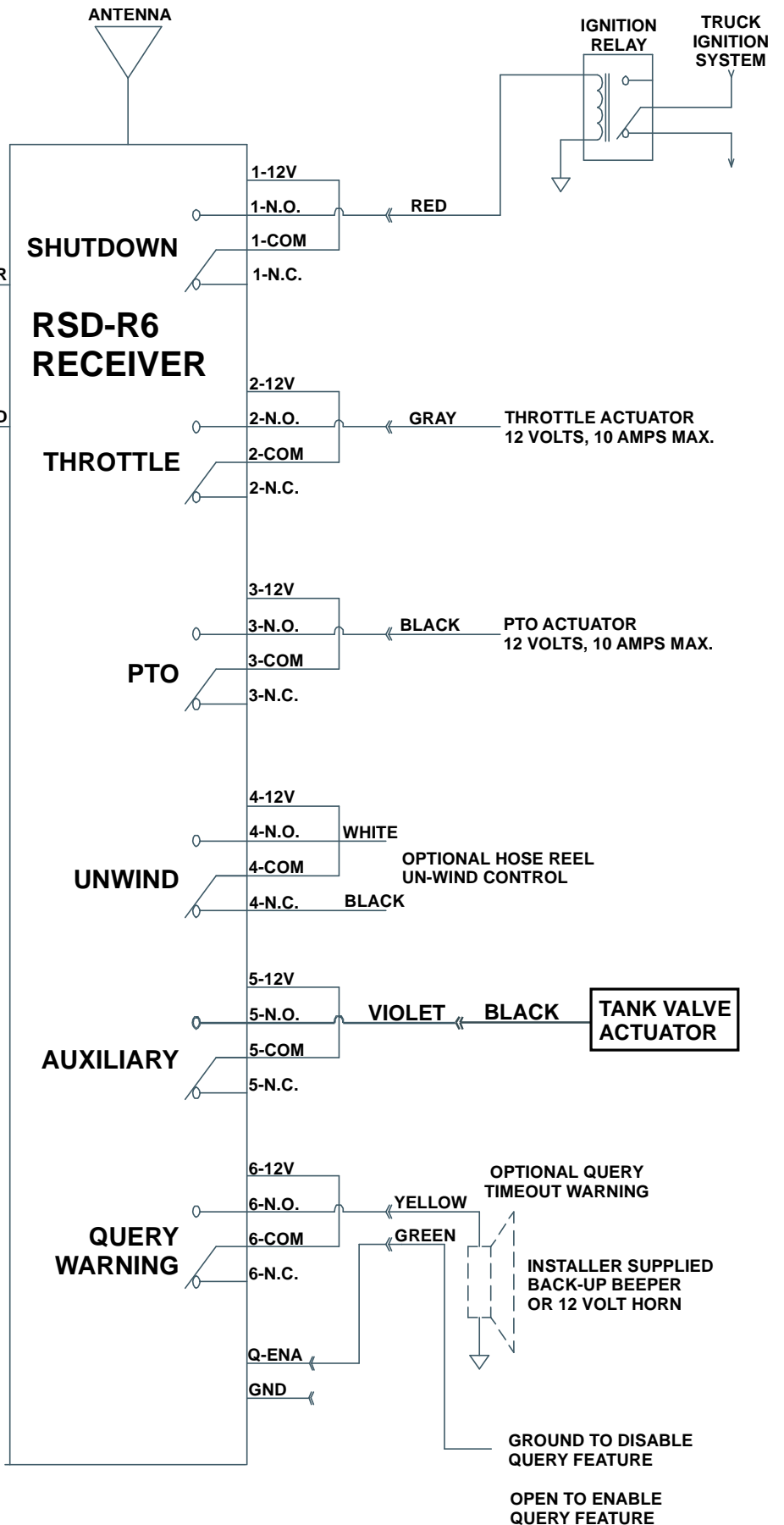
Figure 16
PTO-Delay Tank Valve Control Wiring Diagram

NOTE:
 All board mounted relays
 rated at 10 amps max.

NOTE: POWER SOURCE
 SHOULD REMAIN ACTIVE
 WHILE CRANKING STARTER



NOTE:
 The Tank Valve Actuator is
 controlled remotely by the
 auxiliary channel (5).
 For PTO-Delay Mode, remove
 the 5-pin jumper and move the
 violet wire to 5-N.O.

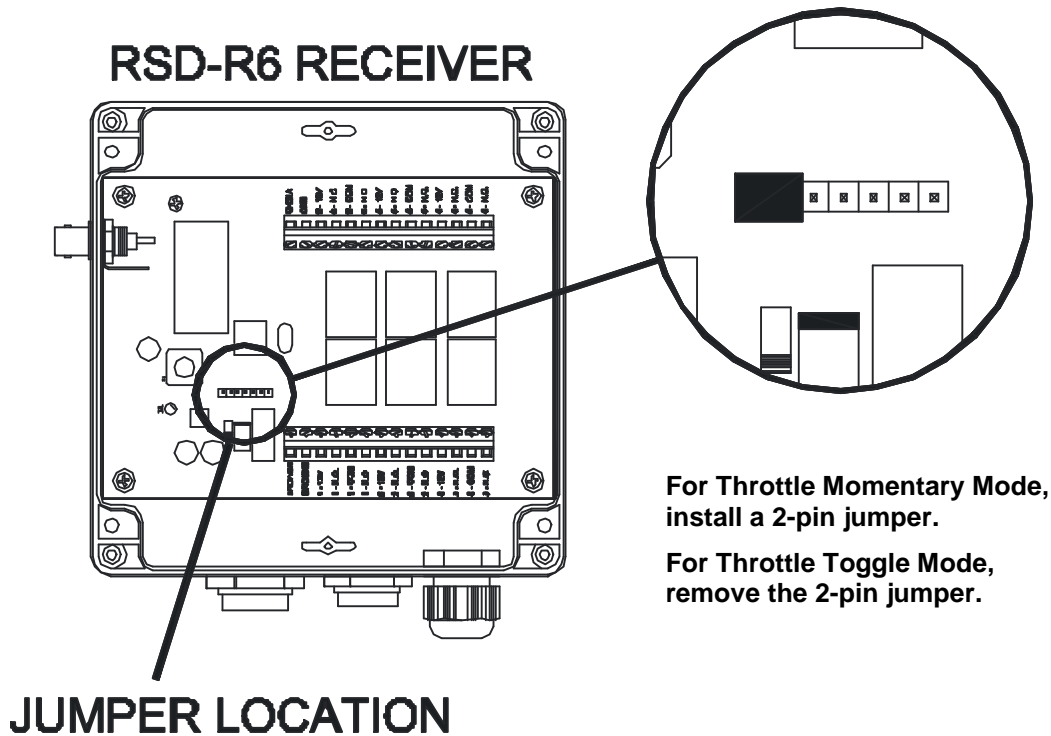


Throttle (Channel 2)

Receiver channel 2 is used for remote throttle control. Pressing the transmitter THROTTLE button will increase or decrease the engine idle speed by activating a fast idle switch, electronic control module (ECM), or under hood throttle actuator. The throttle channel can be configured to toggle each time the transmitter button is pressed, or provide a momentary pulse (for ECM applications) when the transmitter button is pressed.

When configured to toggle, the state of the relay will change each time the button is pressed. For example, if the relay is off, pressing the transmitter throttle button will toggle the relay on. If the relay is on, pressing the transmitter throttle button will toggle the relay off. To set the receiver to the throttle toggle mode, remove the throttle configuration jumper. (See Figure 17.)

Figure 17
Throttle Jumper Location



The RSD-R6 receiver is shipped with the throttle channel wired to provide 12 volts when active and open-circuit when not active (Switched Power). Some installations will require grounding the throttle control wire when active and open-circuit when not active (Switched Ground). Refer to **Receiver Channel Connection Options** in this manual for details on how to change the way the throttle channel relay functions.

Some engine computers (ECM) require that the throttle control be momentary, or pulsed. When configured as momentary, the channel relay will remain on as long as the transmitter button is pressed. When the transmitter button is released, the relay will turn off after a short delay. Install the 2-pin throttle configuration jumper to set the receiver to the momentary throttle mode.

Figure 18

Throttle Control Wiring for GM 7.4 Liter Engines

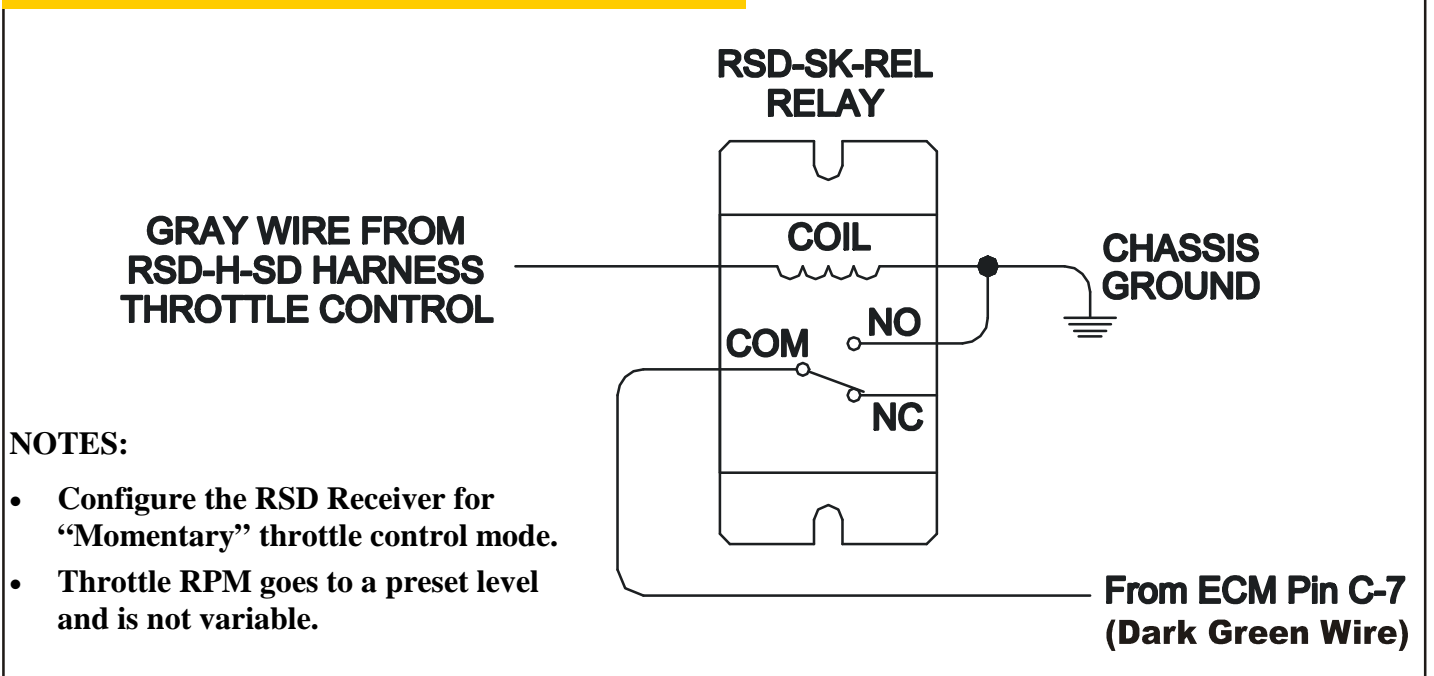


Figure 19

Throttle Control Wiring for GM 8.1 Liter Engines

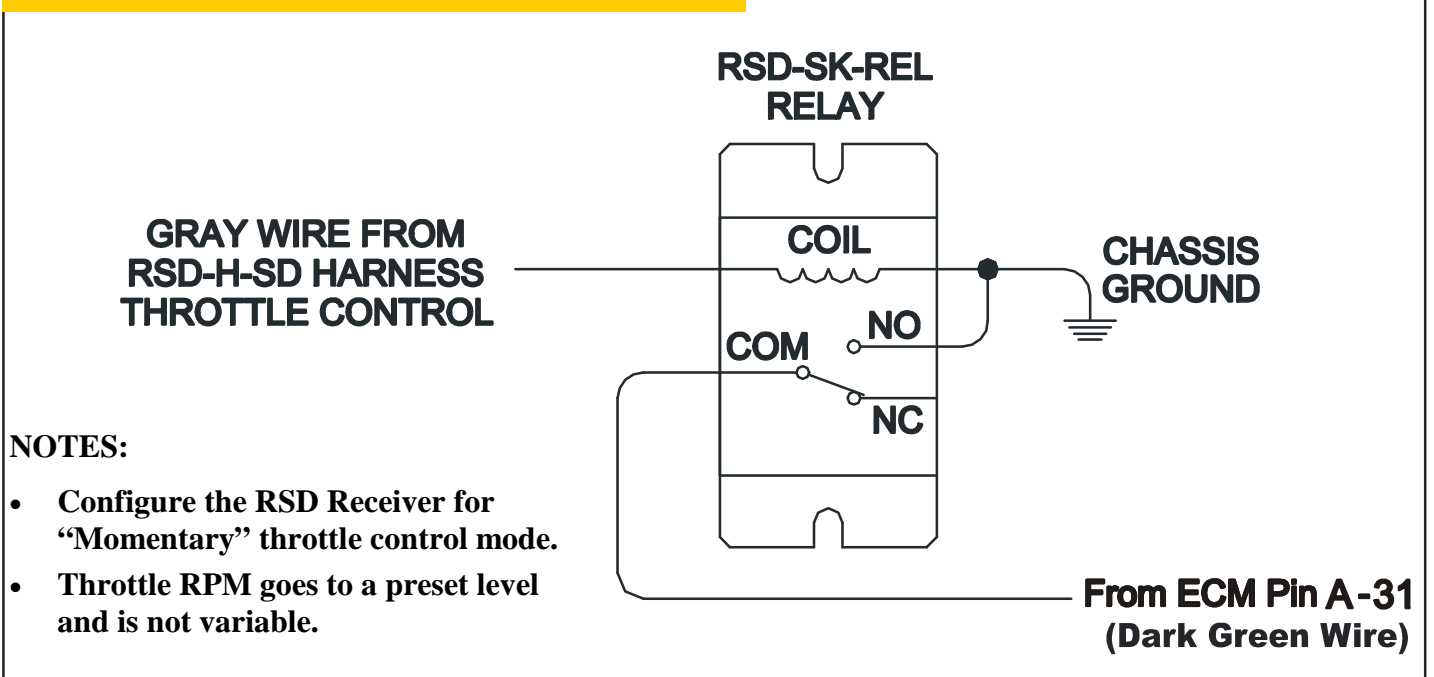


Figure 20

Throttle Control Wiring for CAT 3126B Engines

NOTES:

- ECM must be programmed by CAT for “Dedicated PTO” mode.
- Throttle RPM goes to a preset level and is not variable.
- Foot pedal and cruise control is disabled by PTO.

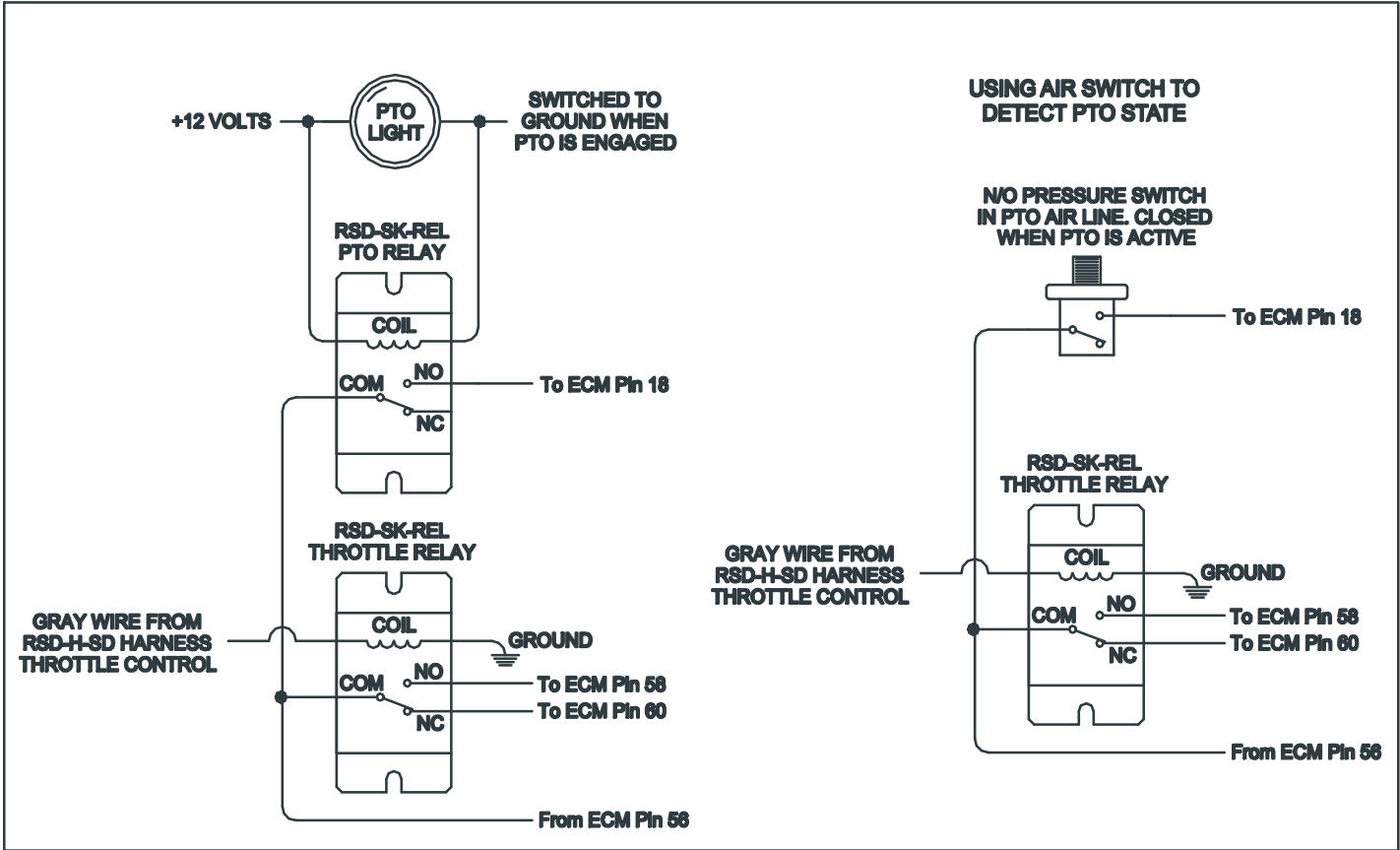
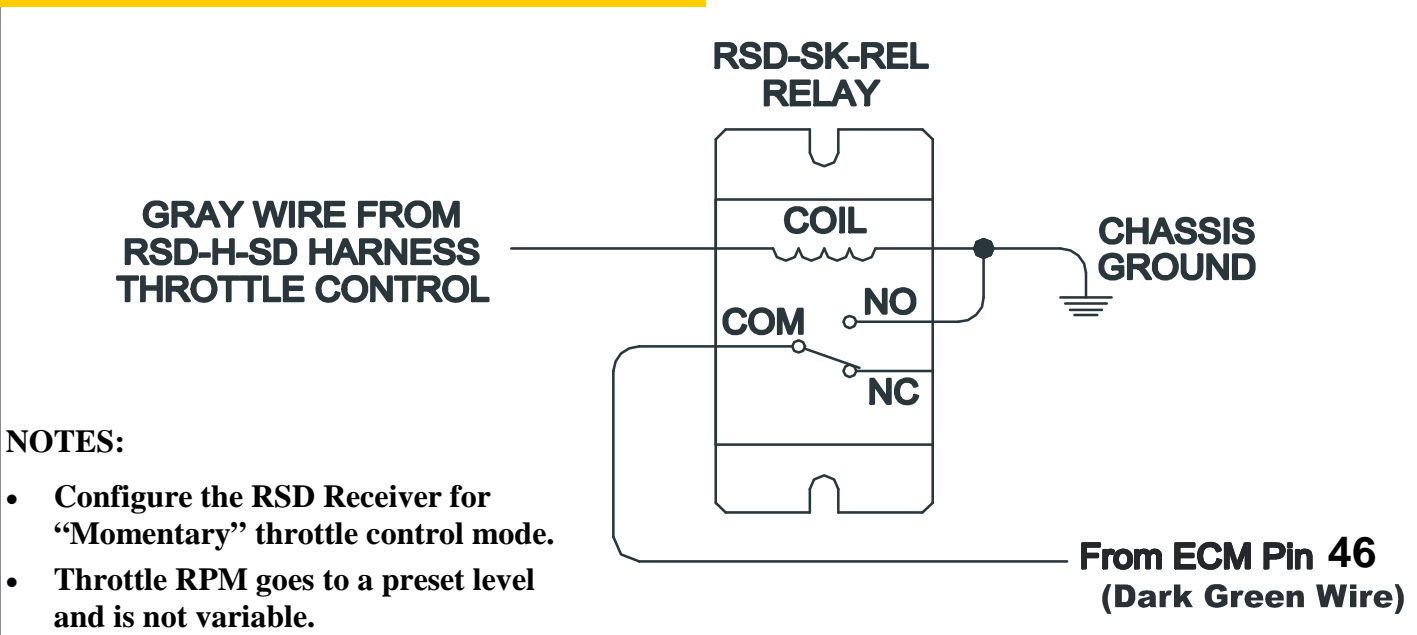


Figure 21

Throttle Control Wiring for Cummins Engines



NOTES:

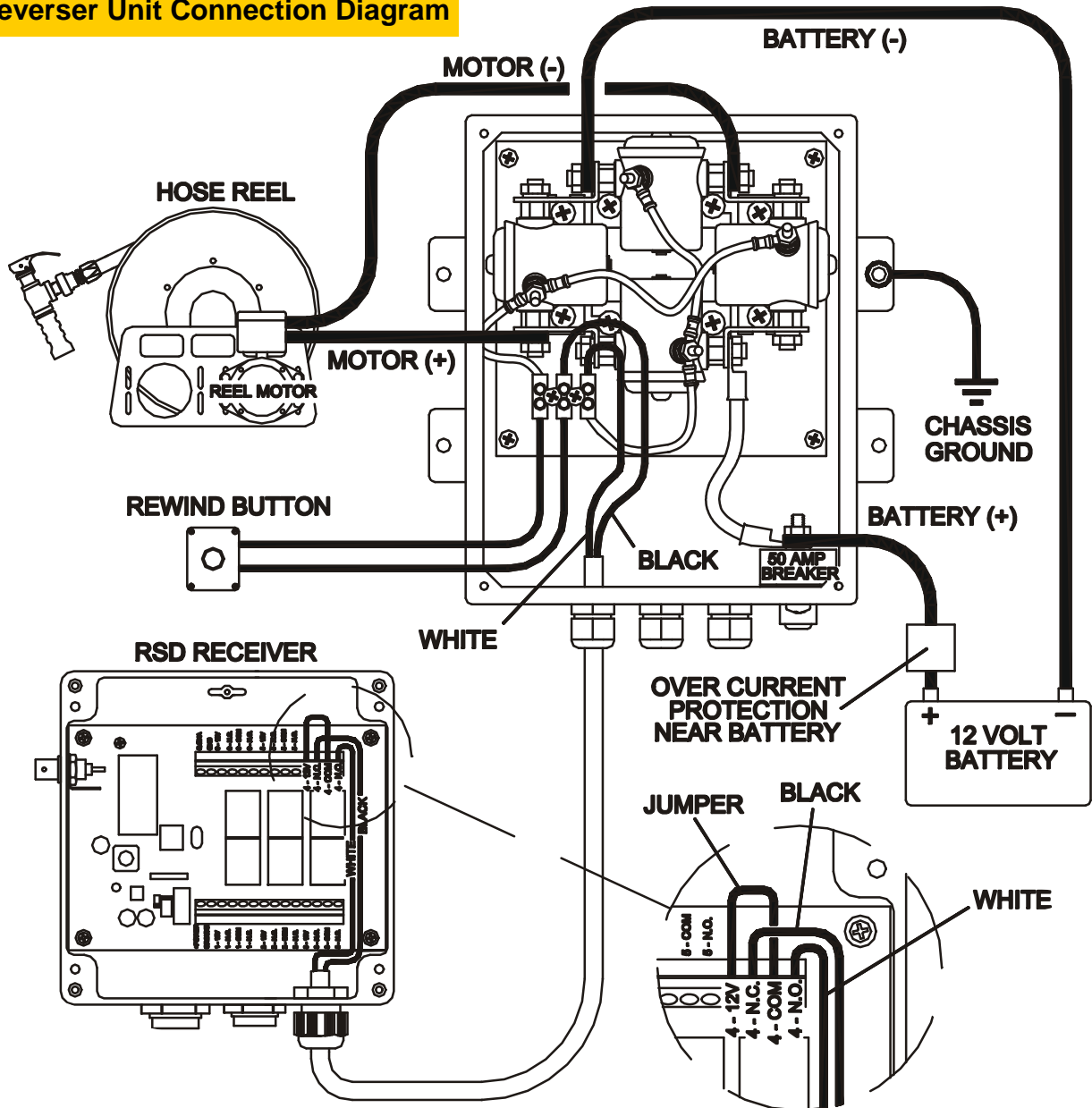
- Configure the RSD Receiver for “Momentary” throttle control mode.
- Throttle RPM goes to a preset level and is not variable.

Hose Reel Unwind (Channel 4)

The receiver channel 4 relay is used to switch ON a reel-reversing switch to unwind the hose. The normally open relay contacts are wired to provide power to the reversing relay while the transmitter UNWIND button is held down. Releasing the transmitter UNWIND button will remove power to the channel 4 relay, stopping the reel. The reel will unwind as long as the transmitter UNWIND button is held down. Installation instructions are included with the RSD-RUH Reel Reverser Unit.

Figure 22

Reel Reverser Unit Connection Diagram



Auxiliary (Channel 5)

Receiver channel 5 is used to switch auxiliary equipment ON or OFF. Pressing the transmitter AUXILIARY button will toggle the channel 5 relay ON and OFF, changing states each time the transmitter button is pressed.

Operation

Programming the Receiver

The receiver keeps a list of transmitters that it will recognize and respond to.

Each time the receiver decodes a valid received packet, it compares the received 32-bit transmitter ID code to those that are in the receiver's list. If the code is in the list, the receiver will process the received packet, activating the required channel.

Receivers are shipped with the transmitter table cleared. At least one transmitter must be added to the receiver's list before it can be used.

To add a transmitter to the receiver's list . . .

- 1) Remove the cover on the receiver.
- 2) Apply the parking brake.
- 3) Switch the ignition key on, to supply power to the receiver.
NOTE: The status indicator inside the receiver should be ON.
- 4) With the status indicator ON, press and hold the programming button until the status indicator blinks (about 5 seconds). Release the button when the indicator starts blinking.
- 5) Press and hold one of the transmitter buttons until the status indicator stops blinking.
- 6) The receiver has added the transmitter to its list and is ready to be used.

The receiver's status indicator will flash each time a valid packet is received from a transmitter that is in the receiver's list of programmed transmitters. Press the QUERY button on the transmitter and verify that the status indicator flashes while the button is held down. This will confirm that the receiver has been correctly programmed.

To clear all transmitters from the receiver's list . . .

With the status indicator ON, press and hold the programming button. After 5 seconds the indicator will flash. Keep holding the button for an additional 10 seconds until the indicator stops flashing and is ON solid. Release the button when the status indicator stops flashing. All transmitters will be cleared from the list. The receiver will need to learn at least one transmitter before it can be used.

If the transmitter list in the receiver is full, (it already has 15 transmitters) the oldest transmitter in the list will be overwritten with the new transmitter ID code.

The list is saved, even when power is removed from the receiver.

Resetting the Receiver after a Shutdown

After a shutdown the receiver must be reset manually:

- 1) With the parking brake set, turn off the ignition key.
- 2) Re-start the truck.

Testing the System

IMPORTANT: Test the System Daily

To comply with D.O.T. requirements, the system must be tested before the first delivery each day at a distance of 150 feet from the cargo vehicle from a location where there is an unobstructed view of the cargo vehicle.

After completing the installation, the system should be thoroughly tested to confirm that all channels perform correctly.

After the initial installation, verify that the shutdown system closes the internal valve and stops the truck engine from a distance of 300 feet.

This test must be done with an unobstructed view of the truck in a clear, open area.

Subsequent shutdown system tests should be performed from a distance of 150 feet before the first delivery each day.

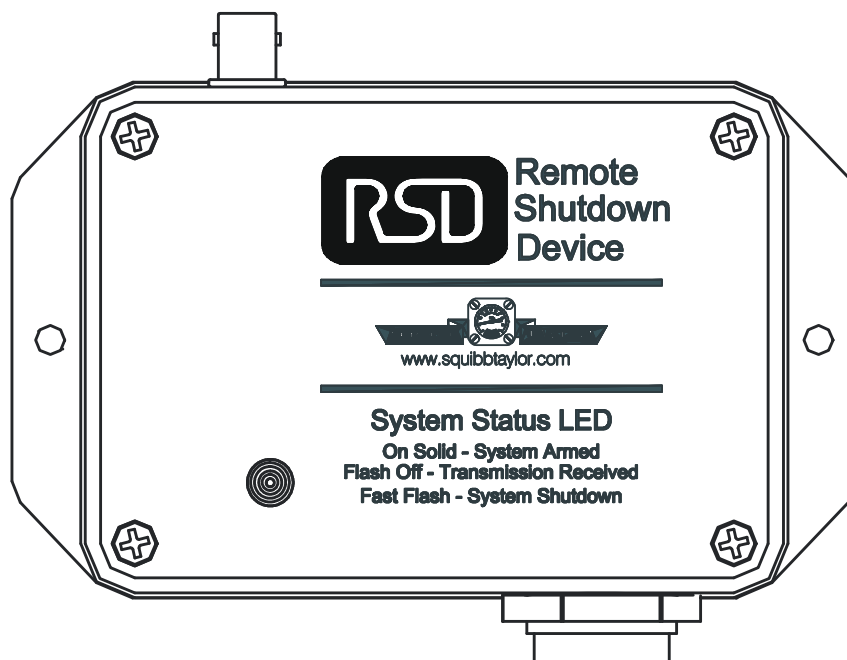
NOTE!

The transmitter will not reset the receiver after shutdown.

All RSD functions will be disabled after a remote shutdown. To reset the receiver, the ignition key switch must first be turned off, and then the truck restarted. With the parking brake set and the engine running, the system is re-armed.

The System Status LED operating modes are listed on the RSD-R6H Receiver cover.

- **SOLID ON** — System is armed and ready to receive commands from the transmitter.
- **FLASH OFF** — The Status LED will flash off for each valid packet received from the transmitter. The flash rate should match the transmitter flash rate while a transmitter button is held down.
- **FAST FLASH** — The receiver is in shutdown. To reset, turn off the ignition key switch and re-start the engine.



V. Warranty

Squibb-Taylor warrants the product identified herein to be free from defects in material and workmanship under normal use and service for **four years** from the date of purchase.

The owner's responsibility is for normal maintenance and any servicer's travel and labor charges.

This warranty applies only when the product is used for consumer use within the United States and Canada and is installed and used in accordance with all applicable national, state, and local codes, regulations, and laws.

This warranty shall not apply if the product has been subjected to unreasonable use, negligence, accident in transit, alteration, improper installation or misapplication.

Squibb-Taylor shall not be liable for any default or delay in performance under this warranty caused by any contingency beyond its control including without limitation to war, government restrictions or restraint, strikes, fire, flood, or a shortage or reduced supply of raw material.

There are no expressed warranties other than set forth above. All implied warranties, including the implied warranties of merchantability and fitness for a particular purpose, are limited to the duration of the expressed warranties set forth above. Liability for consequential damages under this warranty is excluded to the extent exclusion is permitted by law. This warning gives you certain rights and you may have other rights which vary from state to state.

While this information is presented in good faith and believed to be accurate, the manufacturer does not guarantee satisfactory results from reliance upon such information. Nothing contained herein is to be construed as a warranty or guarantee, expressed or implied, regarding the performance, merchantability, fitness or any other matter with respect to the products, nor as a recommendation to use any product or process in conflict with any patent. The manufacturer reserves the right, without notice, to alter or improve the designs or specifications of the products described herein.