Traktronic Radio Remote Control System

Installation and Fault Diagnosis.

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1.0	03/12/98	Original
2.0	26/06/00.	Revision
3.0	10/07/00	Addition of Appendix 1
4.0	14/07/00	Technical revision
4.1	05/01/01	Text Update
4.2	06/06/01	Update to installation detail to include fuse.
4.3	12/06/01	Update to include Battery Caution.
4.4	18/06/01	Update to include Changes Caution.

Contents.

1. INTRODUCTION. 2

2. INSTALLATION OF THE RADIO RECEIVER AERIAL BUFFER. 2

3. INSTALLATION OF THE RECEIVER DRIVER MODULE. 3

4. OPERATION OF THE RADIO TRANSMITTER. 4

4.1 TURN ON THE RADIO TRANSMITTER. 4
4.2 AUXILIARY FUNCTION CONTROL ON THE RADIO TRANSMITTER. 4
4.3 FEEDER CONTROL ON THE RADIO TRANSMITTER. 4
4.4 TRACK OPERATION ON THE RADIO TRANSMITTER. 5
4.5 TURNING OFF THE RADIO TRANSMITTER. 5
4.6 REPLACEMENT OF THE RADIO TRANSMITTER BATTERY. 6

5. PROGRAM THE RECEIVER TO OPERATE WITH A SPECIFIC TRANSMITTER. 6

6. SET UP THE "SLOW" TRACK SPEEDS ON THE RECEIVER. 7

7. FAULT DIAGNOSIS. 8

7.1 FAULT DIAGNOSIS OF THE RADIO TRANSMITTER. 8
7.2 FAULT DIAGNOSIS OF THE RECEIVER DRIVER MODULE. 9
7.3 FAULT DIAGNOSIS OF THE TRACK CONTROL OF RECEIVER DRIVER MODULE. 10

8. APPENDIX 1. MACHINE FAULT FINDING CHECKLIST 11

9 APPENDIX 2 INSTALLATION WIRING DIAGRAM 12

CAUTION:
Risk of explosion if battery is replaced incorrectly or by incorrect type. Dispose of used batteries according to local guidelines.

CAUTION:
Changes or modifications not expressly approved by the manufacture could void the user's authority to operate the equipment and would void any warranty.

1. Introduction.

The Traktronic Radio Remote Control System comprises three main elements:

- Hand Held Transmitter.
- Radio Receiver Aerial Buffer.
- Receiver Driver Module fitted with Danfoss PVG32 Driver card.

The Hand Held Transmitter is used by the operator to send command signals to activate the machine. A 9-volt PP3 battery powers the Transmitter

From January 2000 the transmitter unit was modified from wide band to narrow band operation in order to improve reception. The change is visually signalled by a change in colour of the gasket fitted to both ends of the transmitter. Wide band units were fitted with a YELLOW gasket; narrow band units are fitted with a GREEN gasket

At the same time an electronic heartbeat was added. This is a safety feature that means that the transmitter remains in contact with the receiver when the conveyor is switched on, to ensure that it can then be positively switched off

The Radio Receiver Aerial Buffer receives the transmitted signals. This module contains "active electronics" which decode the signal, and "send" it to the Receiver Driver Module.

The Receiver Driver Module takes this data and drives the outputs according to the Transmitter commands.

2. Installation of the Radio Receiver Aerial Buffer.

The Aerial buffer should be located towards the top of the machine, so the Aerial is not screened by any of the surrounding bodywork. The location should be such that it is away from any electric motors and other devices likely to generate radio interference.

The three-core cable should then be routed back to the Receiver Driver Module.

3. Installation of the Receiver Driver Module.

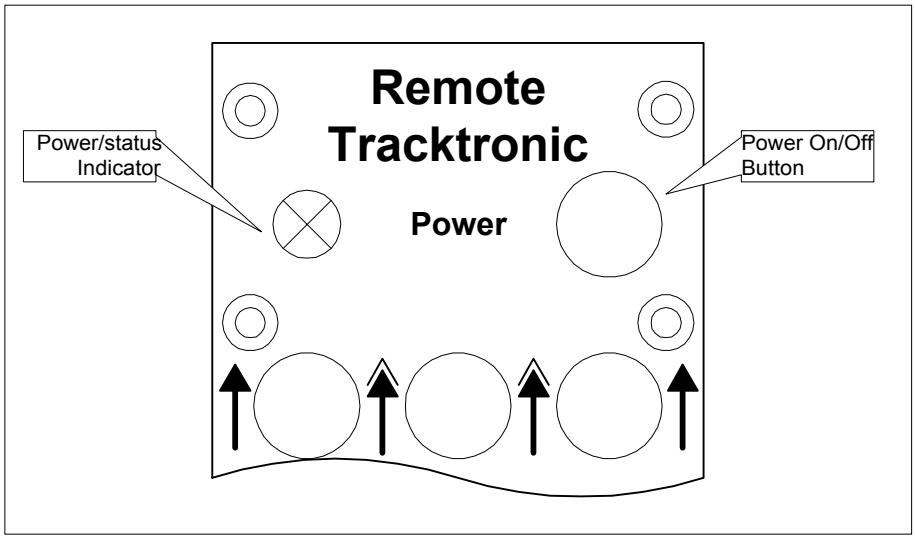
The precise installation of the Receiver Driver module will be detailed in the wiring diagram for the particular machine. An overview of a typical installation is shown in Appendix 1.

4. Operation of the Radio Transmitter.

4.1 Turn on the Radio Transmitter.

To turn on the Radio Transmitter:

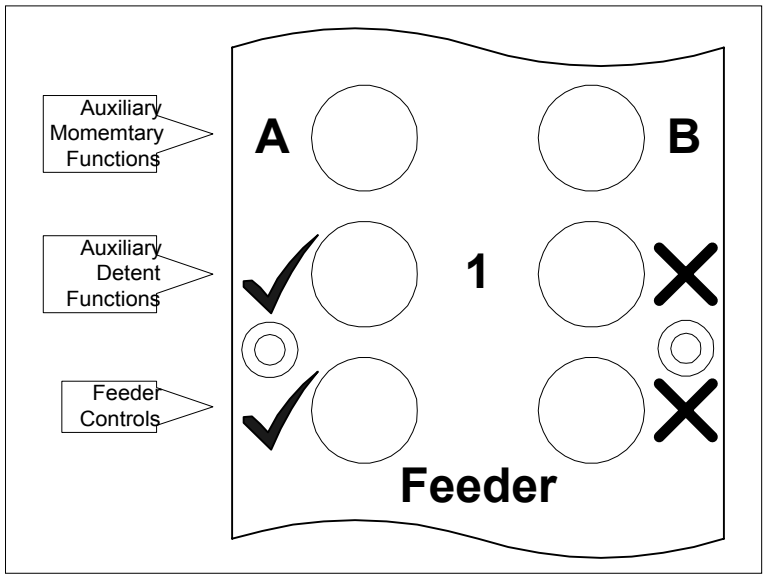
1. Release the Stop button (this is a twist release).
2. Press and hold the Power Button, until the indicator illuminates (this should be green).
3. Release the Power button and the indicator will begin to flash green. If the flashes change to Orange then the battery needs to be replaced (see relevant section).



4.2 Auxiliary function control on the Radio Transmitter.

Once the Transmitter is turned on, the buttons may be used to activate the machine. The function buttons A and B operate an auxiliary service (if fitted). These are momentary functions, i.e. when the button is pressed the service will be operated, and when the button is released the service will stop.

The On/Off control of service 1 is also an auxiliary service and may or may not be fitted.



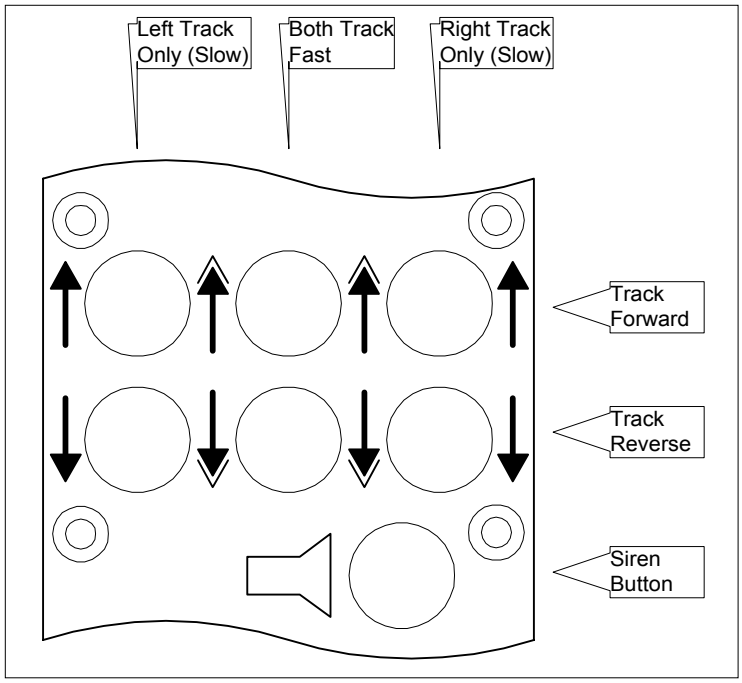
4.3 Feeder control on the Radio Transmitter.

The Feeder On/off Controls control the operation of the feeder. Pressing the “tick” button starts the Feeder and pressing the “Cross” stops the feeder.

4.4 Track Operation on the Radio Transmitter.

The top group of 6 buttons on the Transmitter operates the Tracks. When the transmitter is first turn on the Track Buttons are not operational. To activate the buttons press the Siren Button. This will activate the Siren. Approximately 5 seconds later the Track Buttons will become active.

Pressing the outside buttons will move the Left and Right Tracks individually, forwards and backwards at low speed. Pressing the centre buttons will operate both Tracks together at high-speed either forward or backwards.



Note: If the high-speed buttons are pressed in combination with any other buttons the Track will not operate.

Note: The siren is active continuously whilst the Track Buttons are active.

If the system stops tracking, for example if the transmitter is out of range, then the Track Button(s) must be released before tracking can be restarted

To disable the Track buttons, and turn off the Siren, Press the Siren button. The Siren will stop sounding and the track buttons will not be operational.

4.5 Turning Off the Radio Transmitter.

The Radio Transmitter can be turned off in two ways:

1. Pressing the Power Button again.
2. Pressing the Stop Button.

When the Power Button is pressed the Transmitter will turn off but the Machine will continue to operate. The indicator will turn Red whilst the Power Button is depressed.

When the Stop button is pressed the Machine will stop and turn off the engine. Note: As soon as the Stop Button is pressed the indicator will go off.

Note: Always store the Transmitter with the Stop Button depressed. This avoids inadvertent use of the Radio Transmitter and also extends battery life.

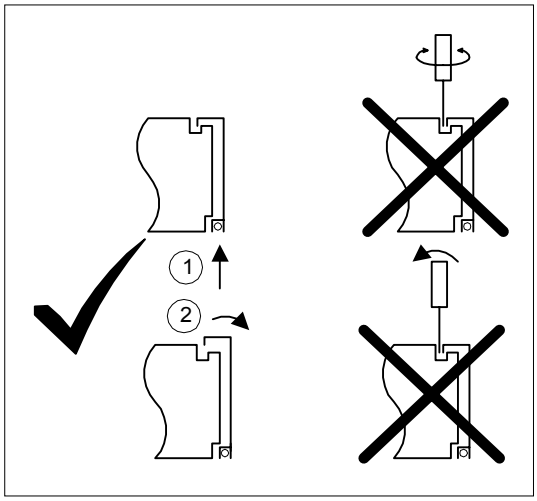
The Radio transmitter will automatically turn itself off after a few minutes when a button has not been pressed. This is to conserve battery life.

4.6 Replacement of the Radio Transmitter Battery.

The battery should be replaced when the indicator flashes Orange. The battery compartment is sealed and should be opened as follows:

1. Press lightly on the base of the battery compartment. This raises the lid slightly on the hinge.
2. At the same time as pressing on the base, open the lid.
3. Once the lid is open, open the plastic battery box, and replace the battery.

NOTE: DO NOT FORCE WITH A SCREW DRIVER OR OTHER TOOL. The lid catch is strong and considerable force will be required.



Only use PP3 Long Life Batteries e.g. Duracell. This will give extended battery life.

CAUTION:
Risk of explosion if battery is replaced incorrectly or by incorrect type. Dispose of used batteries according to local guidelines.

5. Program the Receiver to Operate with a specific Transmitter.

Each Transmitter is manufactured with a specific serial number. The Receiver will only operate with a specific Transmitter, and must learn which Transmitter to operate with. This is achieved as follows:

1. Turn on electrical power to the Receiver.
2. Turn on the Transmitter.
3. Press and HOLD the Feeder “Cross” button on the Transmitter.
4. Press and HOLD the programme button on the Receiver.
5. The LED on the Receiver will flash a sequence of Red five times and then Green. After approximately 15 seconds the Receiver Indicator will stop flashing and remain “solid” at either Red or Orange.
6. Now release the programme button on the Receiver.
7. Now release the button on the Transmitter.
8. Remove power from the Receiver.
9. Re-apply power to the Receiver.
10. The Transmitter will now operate the Receiver.

6. Set up the "Slow" Track Speeds on the Receiver.

Track Set Up Mode is use to set the slow speed for:

- Left Track Forward
- Left Track Reverse
- Right Track Forward
- Right Track Reverse

To enter Track Set Up Mode use the following procedure:

1. Turn off the Transmitter.
2. Press and hold the Power button on the Transmitter.
3. Whilst the power button is held, within 5 seconds press the Siren Button for 1 second and then release it. The power indicator will turn Orange.
4. Release the power button.
5. The siren will sound, the Track Buttons will be operational, and the system is in Track Set Up Mode.
6. The track buttons will now operate as normal, except the Fast Forward and Fast Reverse buttons will operate both tracks but at the Slow Speed.
7. Operate the desired track function. Whilst it is operational use the Feeder Stop to decrease the speed of the track that is moving, and the Feeder Start to increase the speed.
   Note: Every time the Feeder Stop or Start is pressed the Track speed will increase or decrease one step. If the Feeder button is just held the track will not change speed. If a large change in speed is required Press and Release the Feeder Stop or Start several times.
8. To set the manufacturing default speeds, press the Feeder Stop and Start Buttons together without any tracks operational. This will reset the Speeds to the manufacturing default speeds.
9. Once the correct speeds have been set up it is necessary to "store" them.
   This is achieved by pressing the Siren button on the transmitter. When this happen the Receiver will store the values and switch off (no functions will operate).
   Once the values have been stored the machine should be switched off. Once the machine is switched off, switch off the Transmitter (the order of powering down is important).

   Note: No changes are stored until the Siren button is pressed on the Transmitter. Thus it is possible to "abort" the changes by switching off the Machine, and then switching off the Transmitter (the order of powering down is important). When the machine is turned back on the original speeds will be used.

7. Fault Diagnosis.

The first object is to determine the “location” of the fault, i.e. Transmitter, Receiver Aerial Buffer, or Receiver Driver Module.

First test the Radio transmitter for correct operation, then the Receiver Driver Module.

7.1 Fault Diagnosis of the Radio transmitter.

The Radio Transmitter has a status indicator on it. Follow the following sequence to ensure correct operation:

1. Press and release the Power button. The indicator should flash Green.
   If the indicator does **not illuminate** replace the battery with a new one. If the fault remains return the Radio Transmitter for repair.
   If the indicator is **Red** then replace the battery with a new one. If the fault remains it indicates one of the buttons is “stuck down”. If no buttons are “stuck down” then return the Radio Transmitter for repair.
2. When powered up the Indicator on the Transmitter will blip Green. If it the indicator turns **Orange** then replace the battery with a new one.
3. The rate of blips will change when a button is pressed (if it is active) as this indicates a button is pressed and the information is being transmitted.
   Note: The Track buttons must be turned on (by pressing the Siren button) for this to happen with the Track Buttons).
4. If one function does not operate then it is necessary to check the button. This can be done as follows:
   1. Press the Stop Button to power down the Transmitter.
   2. Release the Stop Button.
   3. Press and hold the Power button.
   4. Whilst holding the Power Button, press each of the function buttons in turn. When a button is pressed the Indicator will turn Red to indicate a button is pressed.

      If any buttons do not make the status indicator go Red then that button is not operating. Return the Transmitter to BL-Pegson for Repair.

7.2 Fault Diagnosis of the Receiver Driver Module.

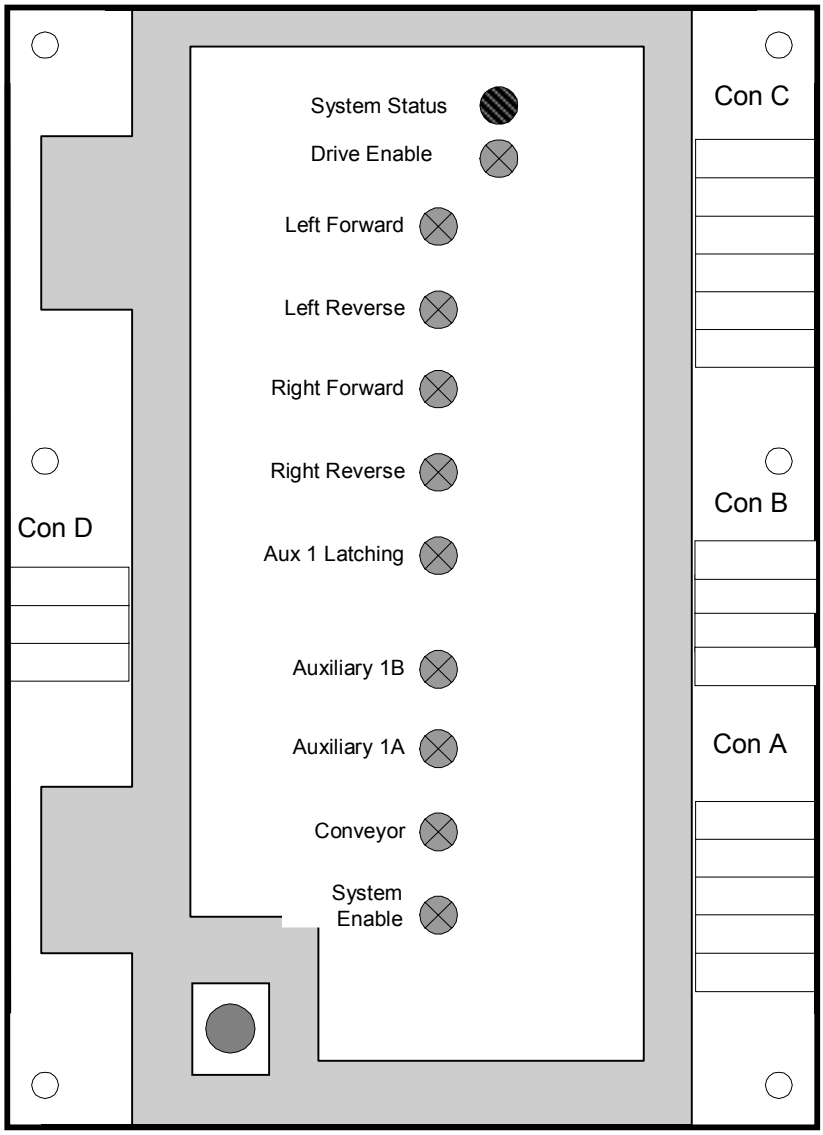
Turn off the Radio transmitter by depressing the Stop Button.

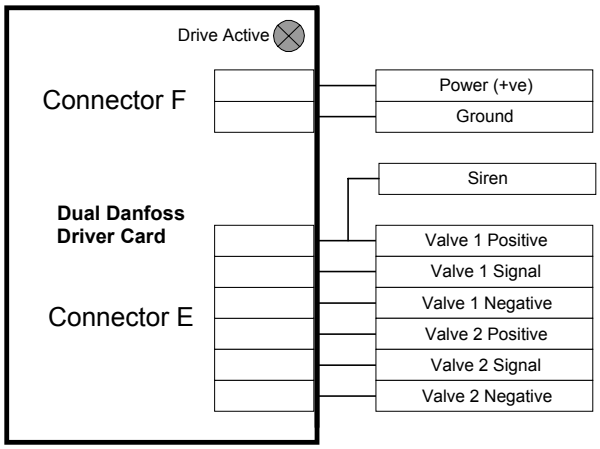
When power is first applied to the Receiver Driver the Status Indicator will blip Red and then turn Green. The System Enable indicator will be illuminated and all the other indicators will be off.

If any Drivers are on (apart from the System Enable) then remove the 6-pin Connector (E) on the valve driver card as shown below) and the 4-pin connector (B). If the indicator now goes out, then the problem is not with the Receiver Driver but elsewhere on the machine. Refer to the appropriate documentation.

If when these connectors are removed the drive indicator remains illuminated then return the Receiver Driver for repair.

If the System Status Indicator blips Red a number of times, then Green and repeats this sequence, then a fault exists. Please see over the page.





Count the number of Red blips between the Green flashes. The number of Red blips indicates the error code as follows:

Red Blips between Green Flashes	Error Code.	Solution.

Green Flashes.		
2	First Received Data has a function active.	Turn Transmitter off and on again.
3	Radio Receiver Aerial Buffer not connected.	Check connections to Buffer are correct. If fault persists change Buffer.
4	The Transmitter Address has been forgotten.	Program the Receiver to operate with the Transmitter (see relevant section).
5	The Receiver has not been programmed to operate with the Transmitter currently being used.	Use the correct Transmitter or Program the Receiver to operate with the Transmitter (see relevant section).

Turn on the Transmitter. When data is being received from the Transmitter the multi coloured indicator will change to orange to indicate reception. If no data is being received the indicator will be Green.

If the Transmitter is Transmitting (a button is pressed, excluding Tracks), but the Receiver is not receiving (status indicator is Green and not orange) then the fault is either the Transmitter or the Radio Receiver Aerial Buffer. See *Fault Diagnosis of the Radio Transmitter* Section.

Whenever a function is pressed the relevant indicator on the Receiver will be illuminated. Ensure that all functions operate correctly.

If a function does not illuminate then remove connectors (B) and (E). If the function now illuminates correctly then the output is short-circuited on the machine. This problem should be corrected before proceeding.

If the indicator is illuminated but the function does not operate then refer to other relevant manuals.

NOTE: If an Stop Button command is received from the Transmitter the System Enable indicator will go off, stopping the machine. This can only be reset by turning power off to the Receiver Driver and then re-applying power.

7.3 Fault Diagnosis of the Track Control of Receiver Driver Module.

The Tracks are operated on the Transmitter by first pressing the Siren Button. Approximately 5 seconds later the track Buttons will become active.

If when the Siren Button is pressed the Siren does not sound check other functions operate correctly as above.

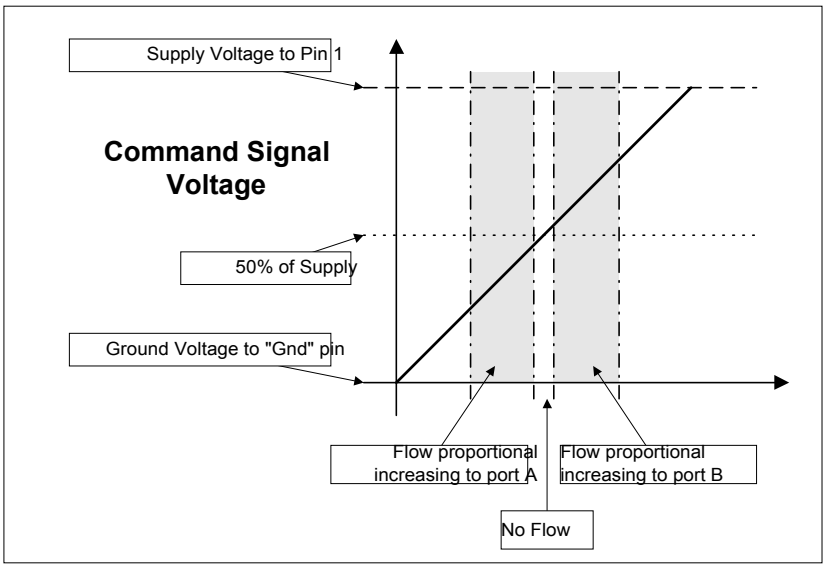
The Drive enable will illuminate when the Siren Button is pressed. The Drive Card (below the main Receiver Card) also has an indicator, which illuminates. The Drive Card has its own power supply connections. Ensure power is correctly connected.

If the Card is illuminated correctly then check the 6-pin output connector on the Drive Card. This connector is connected to the Danfoss track drive valves. Each valve has 3 connections: Power, Ground and control signal. The operation of the valve is detailed below.

The valve used is a Danfoss PVG32 with a 24-volt PVEM electronic module. The Danfoss valve has three connections:

- Battery Supply On to Pin 1 of the connector.
- Battery Ground On to the "Gnd" pin of the connector.
- Command Signal On to pin 2 of the connector.

The Command Signal to the Valve is a voltage signal. When the Command Signal of the valve is at 50% of the supply, the valve will be in the neutral position (off). As the voltage is reduced to 25% of supply the valve will proportionally increase flow to maximum flow in one direction. As the voltage of the Command Signal is increased to 75% of supply flow will increase to full flow in the opposite direction. This is shown below:



The Drive Card controls both the Supply Voltage to the Valve and also the Command Signal. The Supply Voltage is switched on and off by a relay. This allows the valve to be totally de-activated when it is not in use for increased safety. When it is in use the relay in the Drive Card is turned on and the Command Signal used to control the valve.

Ensure the Relay is activated and the Drive Signal changes appropriately.

Appendix 1 Tracktronic Fault Finding

Machine Type: **Serial Number:** **Location:**

Transmitter: **Serial Number: (inside Battery cover):**

1 Has the transmitter been correctly tuned to the receiver as described in Section 5 of this manual? (See page 5)

2 Press the power on button – does the indicator show Red?
Green?
Yellow?
Not lit?

3 Press the Siren button – does the siren sound?

4 When the Buttons are active does the rate of blip change?

5 Do all or any of the function operate?

Receiver: **Serial Number: (on top of PCB)**

(All functions except for tracking.)

1 Turn off the transmitter by using the Stop Button

2 Apply power to the card – see wiring diagram in manual

3 Does the System Status indictor blip Red and then turn Green?

4 Is the System Enable indicator lit?

5 Are any of the other indicators lit?

6 Is the System Status indicator flashing red and then green?

7 How many red flashes are there before it flashes green?

8 Turn on the Transmitter – when a button is pressed on the Transmitter does the correct indicator light on the receiver card?

To test the tracking function.

1 Press the siren button – does the siren sound?

2 Wait for 5 seconds – do the tracks then operate?

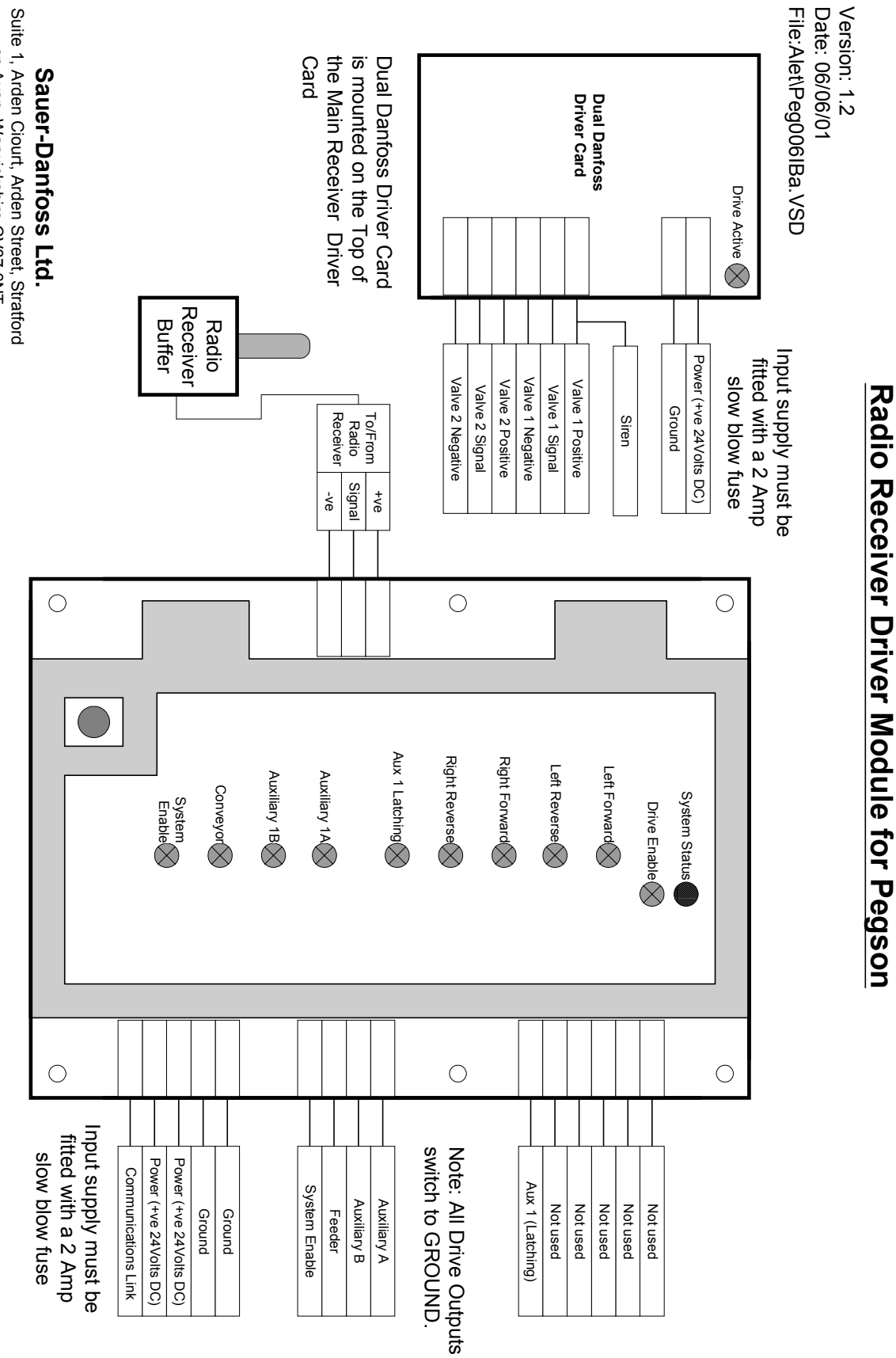
3 Is the drive card indicator lit when the button is pressed?

4 Does the relay operate?

Aerial Buffer. **Serial Number: (inside enclosure)**

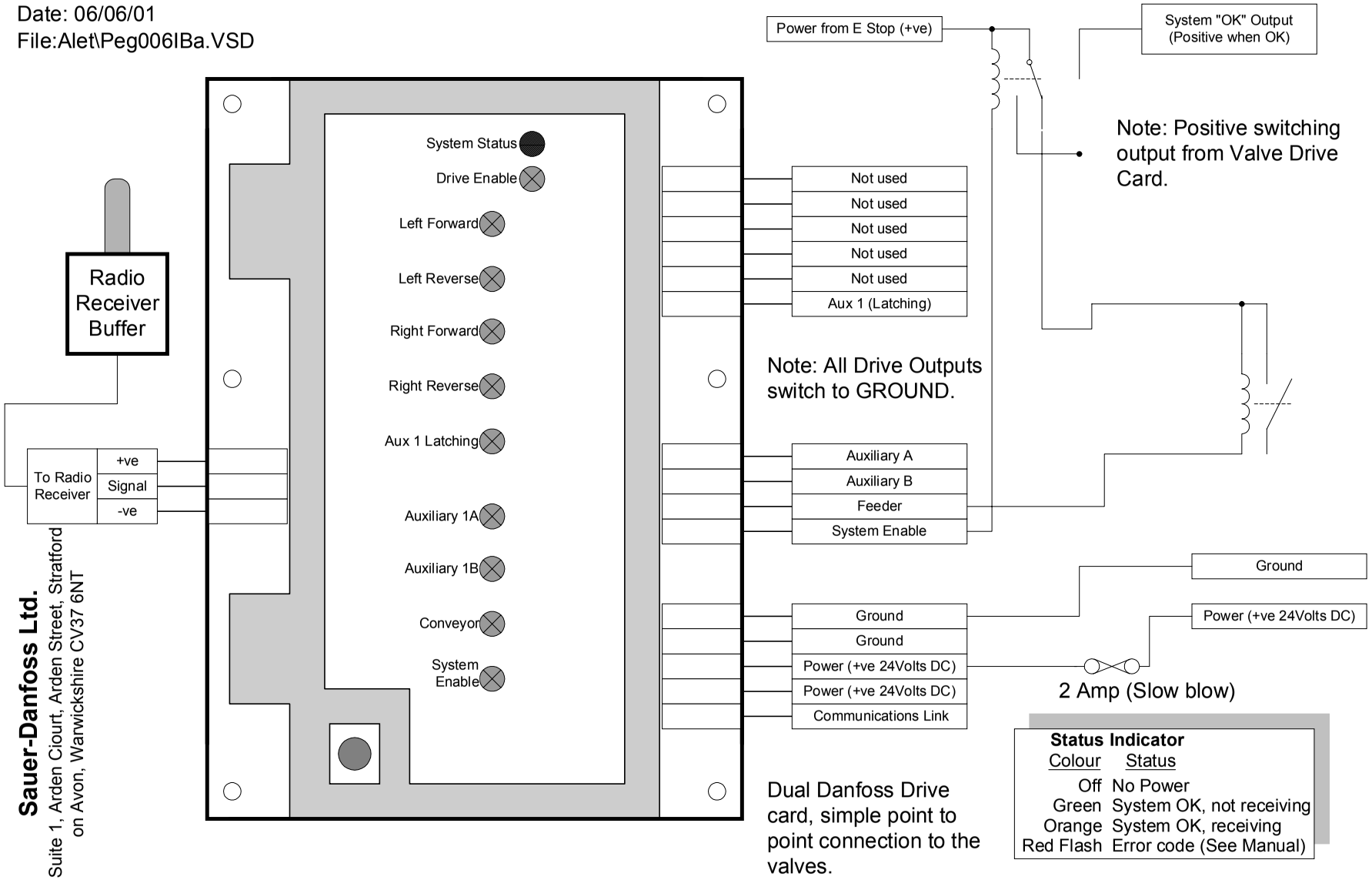
1 Is the light on the side of the buffer flashing when the transmitter is operating?

Appendix 2. Installation wiring diagram.



Radio Receiver Driver Module (Typical Installation detail).

Version: 1.2
Date: 06/06/01
File:Alet\Peg006IBa.VSD



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