



# Revenge From Mars 6 Ball Trough Upgrade Install Instructions

Thanks for buying one of our Revenge From Mars 6 Ball Trough Upgrade kits. Purchase of this kit supports our pinball 2000 software update efforts. This kit is designed for the medium pinball tech user. If you don't have experience with soldering and installing wires into connectors, seek help from a friend or pinball tech.

Please read the below instruction carefully to ensure correct installation.

## Kit Contents

- 1) Opto Expander Board
- 2) Opto Transmitter x 2
- 3) Opto Receiver x 2
- 4) Female Connector Plug 4 way
- 5) Opto Expander Cable

## Board Installation

Make sure game is switched OFF. Lift up playfield and install expander board onto existing opto board. Reinstall the 12-way switch matrix plug onto the new expander board as shown below. (Fig 1)

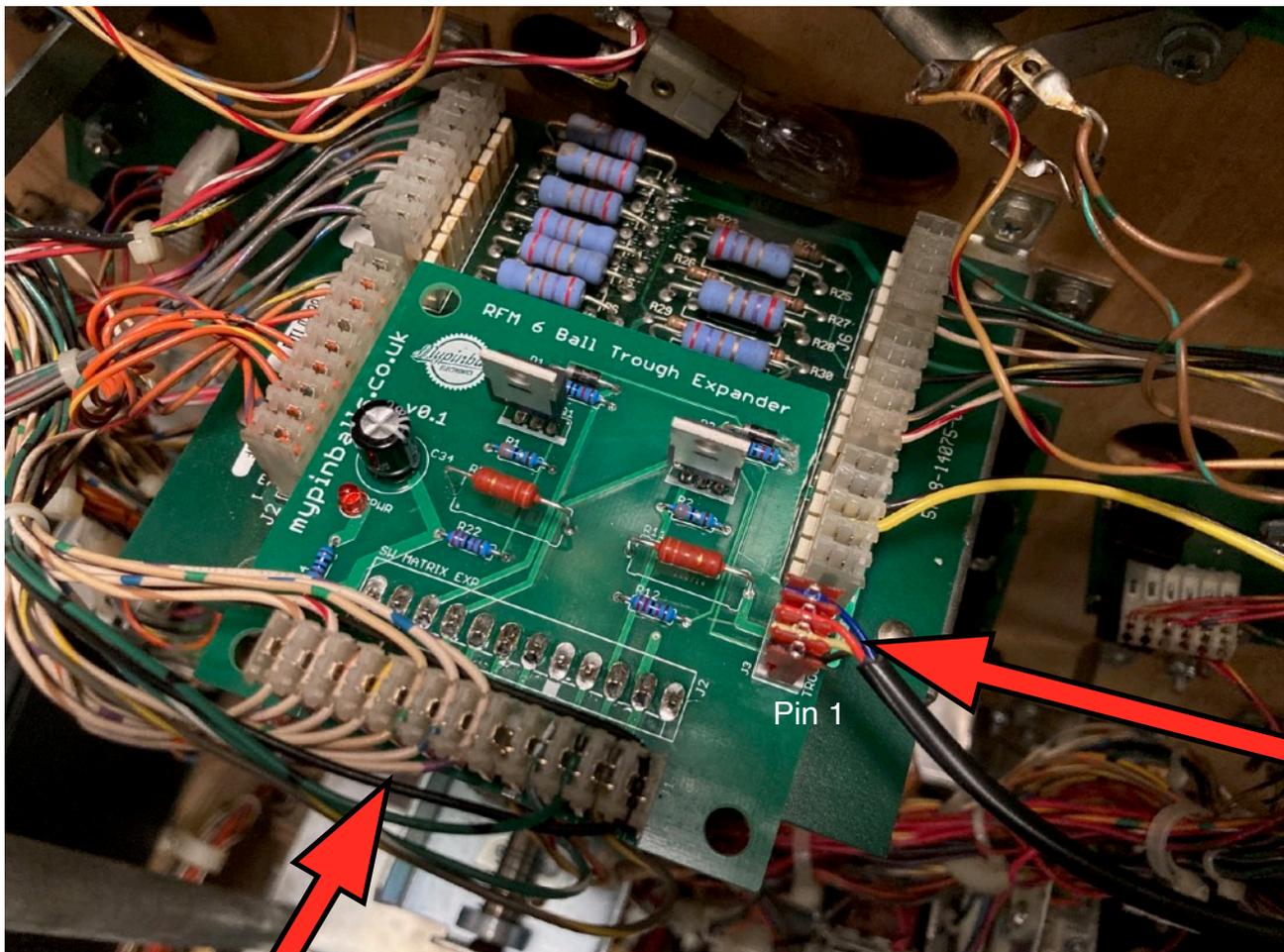


Fig 1

Fig 2

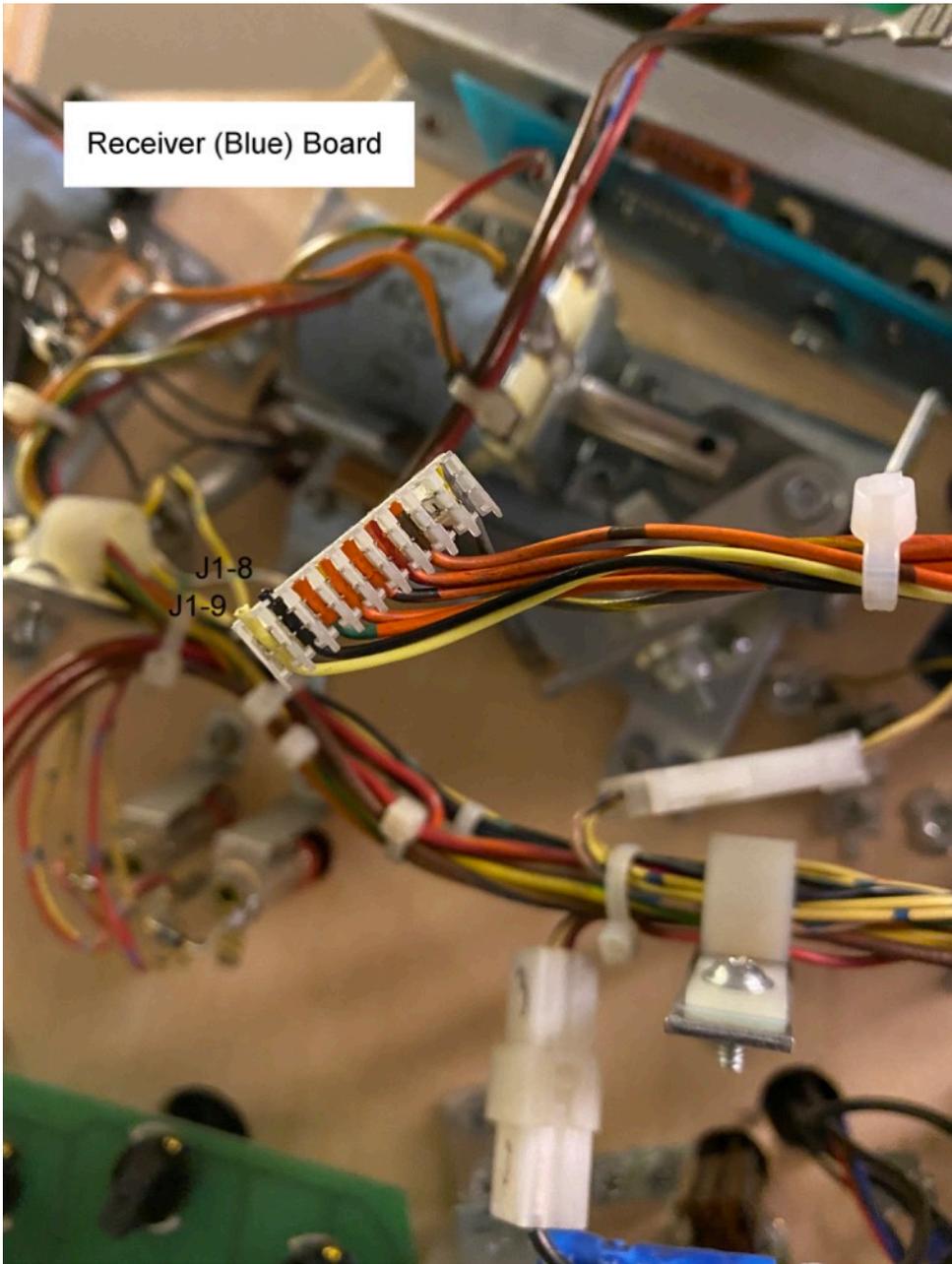
## Existing Trough Modification

Use the following table and pictures to help install the extra 2 sets of included optos plus wiring. Both opto boards will need to be removed and the extra optos installed into the blank spaces on the pcbs. Soldering skills are required. Seek help from a pinball tech if you are not comfortable removing solder and installing new electronic parts on to pcbs.

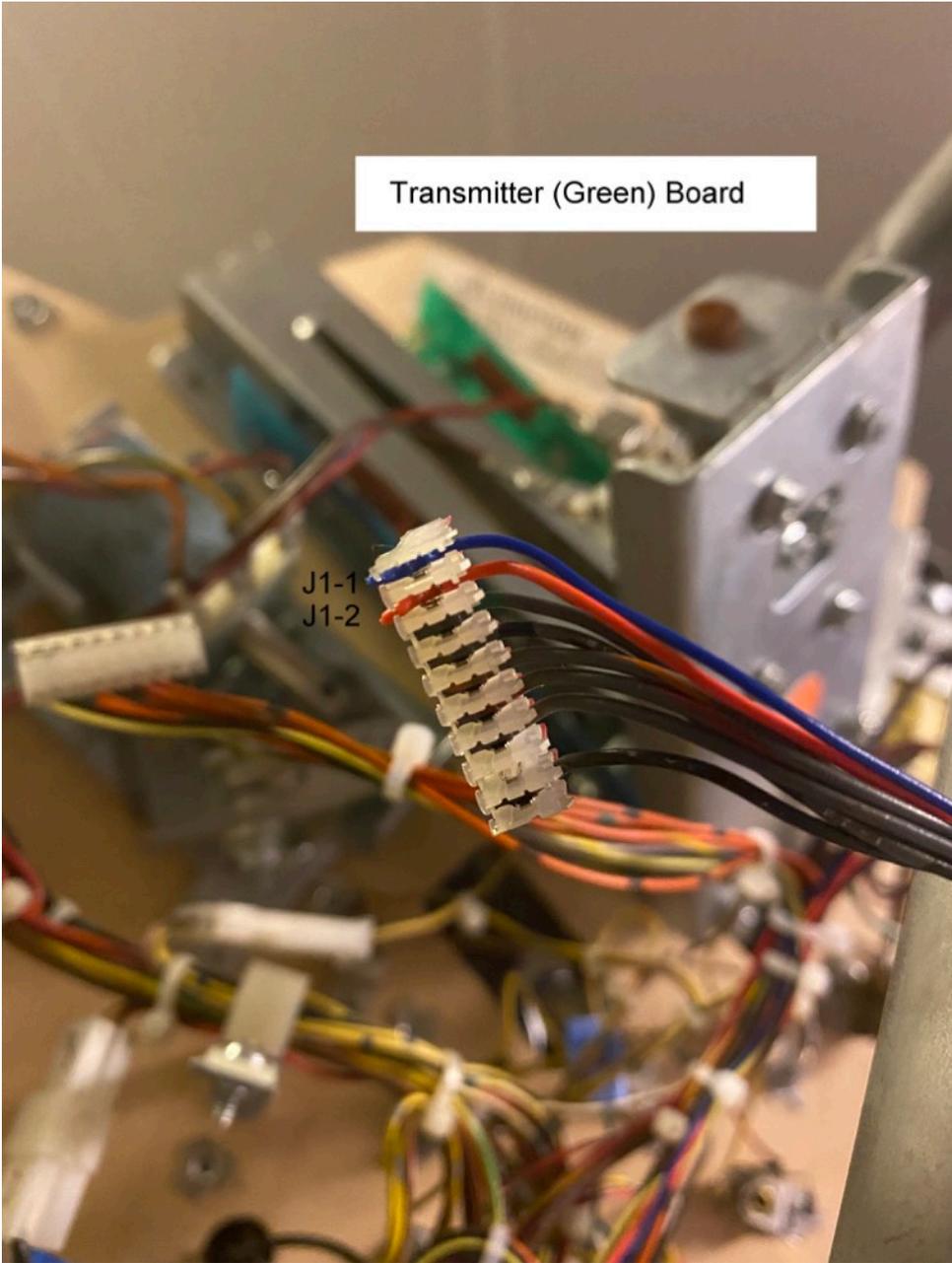
The transmitter optos are pink in colour and the receiver optos are black in colour. The Transmitter Cathode (K) is the short leg and case flat. The Receiver Emitter (E) is the short leg and case flat.

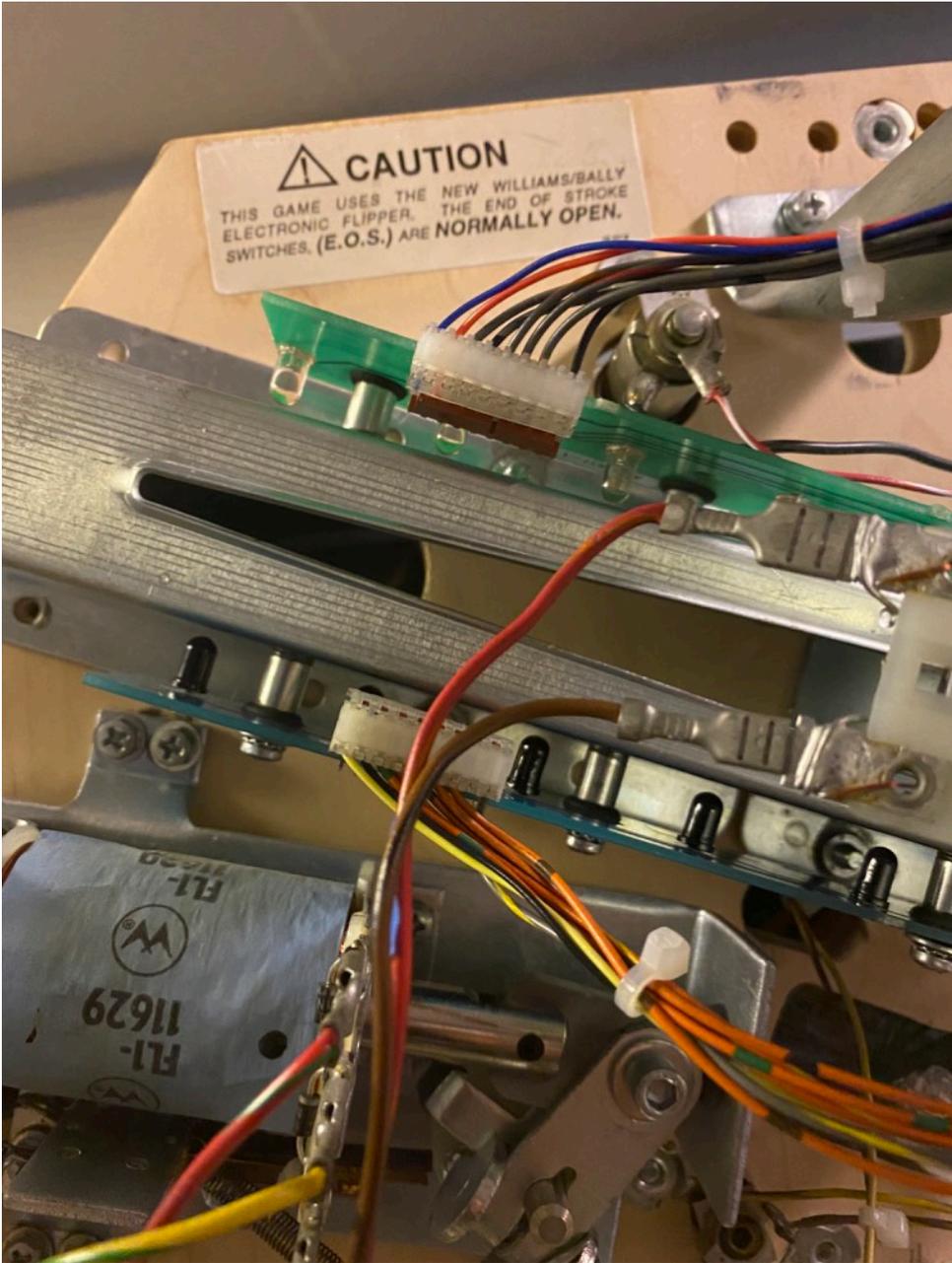
<i>Opto Expansion Connector J3 (Fig2)</i>					
<b>Pin</b>	<b>Wire Colour</b>	<b>Description</b>	<b>Opto Board Position</b>	<b>Switch Matrix Colour</b>	<b>Switch No.</b>
1	Black	Trough 5 Receiver Drive	Receiver Brd J1-8	Wht-Org	53
2	Yellow	Trough 6 Receiver Drive	Receiver Brd J1-9	Wht-Yel	54
3	Red	Trough 5 Transmitter +12v	Transmitter Brd J1-2	-	-
4	Blue	Trough 6 Transmitter +12v	Transmitter Brd J1-1	-	-

Receiver (Blue) Board



Transmitter (Green) Board





## *Appendix A*

- Please note that modifying your game is at your own risk and myPinballs Electronics takes no responsibility for any damage caused to yourself and/or the game. All mods that we create are for fun and enjoyment of enhancing your game. Please take your time and seek help if needed.