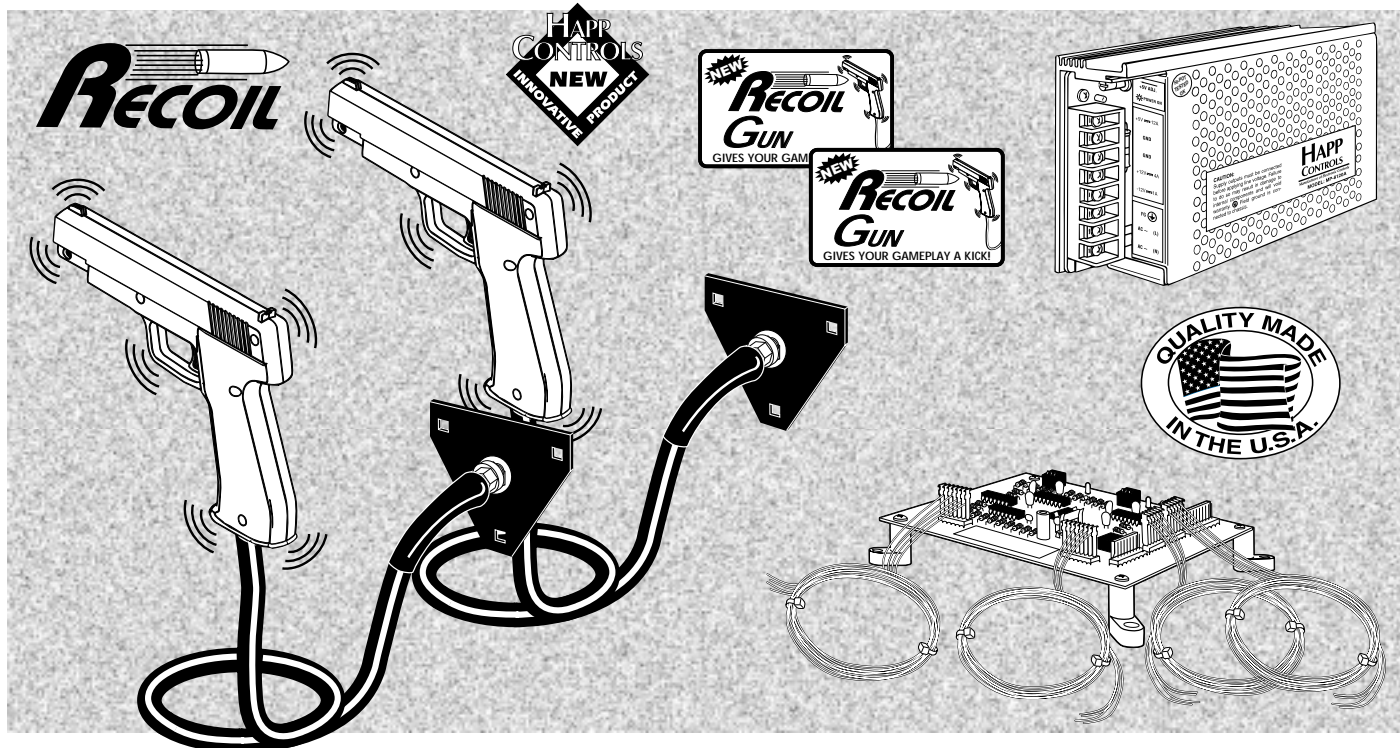# HAPP CONTROLS

RECOIL Gun Kit
Part Number 96-2700-RBKIT

Add Recoil Gun Action to Non-Recoil Games!

Installation Instructions

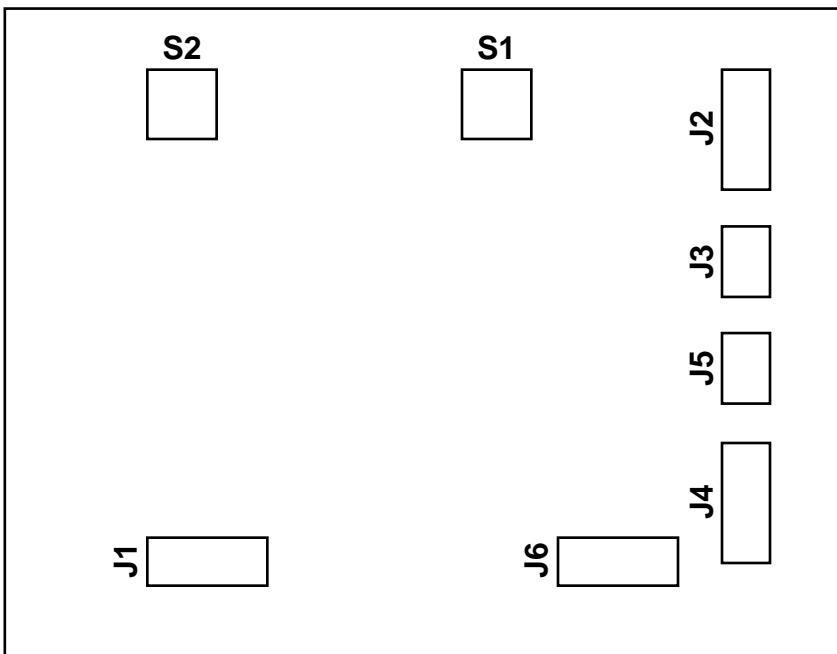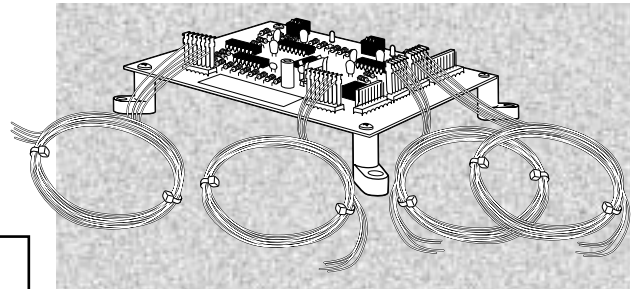| Kit Contents	Quantity
Recoil Gun Control PCB, 96-0720-00	1
Set of 4 PCB Mounting Feet, 49-1019-00	1
24 VDC Power Supply, 80-0216-00	1
Red Happ Recoil Gun, 96-2700-10	1
Blue Happ Recoil Gun, 96-2700-12	1
Coin/Start Harness, 96-0721-00	1
Player One Harness, 96-0723-00	1
Player Two Harness, 96-072400	1
Power Harness, 96-0725-00	1
Recoil Gun Label,	2

INS-0040

General:

- The recoil action is provided by a solenoid within each gun.
- The solenoid is powered by the 24 VDC power supply (included).
- The recoil action is enabled only when a coin is dropped into the game and the start button is pushed.
- The recoil action will be disabled after the last trigger pull and a time delay.
- The time delay is adjustable from 20 seconds to one minute. If the trigger is not pulled in this set amount of time the recoil will cease. Another coin will be necessary to enable the solenoid again. The gun will still operate during this time (except for the solenoid), if the game is playing.

Diagram of the Recoil Gun Control PCB

S2 & **S1** – Player 2 & 1 solenoid turn-off delay adjustment (See Solenoid Turn-Off Delay adjustment settings table)

J2 - To Player 1 Happ Recoil Gun

J3 - To Game Board Player 1 Gun Connection

J5 - To Game Board Player 2 Gun Connection

J4 - To Player 2 Happ Recoil Gun

J1 – To Player 1 & 2 Coin & Start switches

J6 – To +5 VDC from Game Cabinet and +24 VDC from Power Supply

Connection Instructions:

1. Mount the Recoil Gun Control PCB in a convenient location using the PCB feet either before or after these connections are made.

Power Supply Connections - `J6` :

2. Connect 120 VAC from the game cabinet to the 120 VAC terminals on the power supply. Be sure to connect an "earth" ground to the "FG" terminal

3. Find the 7 pin wire harness with a Red, a Violet and 2 Black wires.
    3a. Connect one Black wire to "GND" on the power supply.
    3b. Connect the Violet wire to the "+24" terminal on the power supply.
    3c. Connect the Red wire to +5 VDC from the game cabinet.
    3d. Connect the other Black wire to the game cabinet power supply common.
4. Mount the power supply in a convenient location inside the game cabinet.
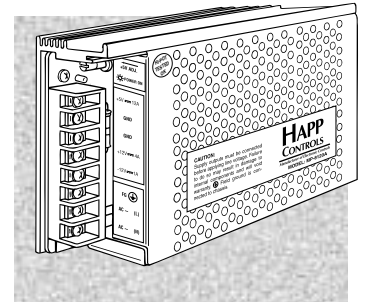
Coin and Start Connections - `J1` :

5. Find the 6 pin wire harness with a Blue, Blue/White, Green and Green/White and Black wires. Connect the following wires to the Normally Open (NO) terminals of the indicated switch. The NO contact is marked on the switch. There will already be wires on these terminals. Do not disconnect those. The above wires need to be added to the switch terminals and the existing wires.
    5a. Connect Blue to Coin 1
    5b. Connect Blue/White to Start 1
    5c. Connect Green to Coin 2
    5d. Connect Green/White to Start 2
    5e. Connect the Black wire to one of the switch common (COM) terminals along with the existing wires.
NOTE: On games with only one coin switch, connect the blue and green wires (Coin 1 and Coin 2) together.

Connections from the Recoil Gun Control PCB to the Game PCB- `J3` & `J5` :

Player 1:
6. Find the wire harness with a Red, White, Black, Blue and Green wires. This will connect to Recoil PCB `J3` . Connect the other end of the harness to the Game PCB Player 1 Gun Connections as follows:
    6a. Connect Red to +5 VDC
    6b. Connect White to Trigger
    6c. Connect Black to common
    6d. Connect Blue to the Optic signal
The Green wire is intended for those games that have two buttons on the gun. Normally it is not connected.

Player 2:
7. Find the wire harness with a Red, White/Black, Black, Blue/Black and Green/black wire. This will connect to Recoil PCB `J5` . Connect the other end of the harness to the Game PCB as follows:
    7a. Connect Red to +5 VDC
    7b. Connect White/Black to Trigger
    7c. Connect Black to common
    7d. Connect Blue/Black to the Optic signal
The Green/Black wire is intended for those games that have two buttons on the gun. Normally it is not connected.
NOTE: Refer to your Game Manual for the proper Game PCB connectors, wire colors, etc.
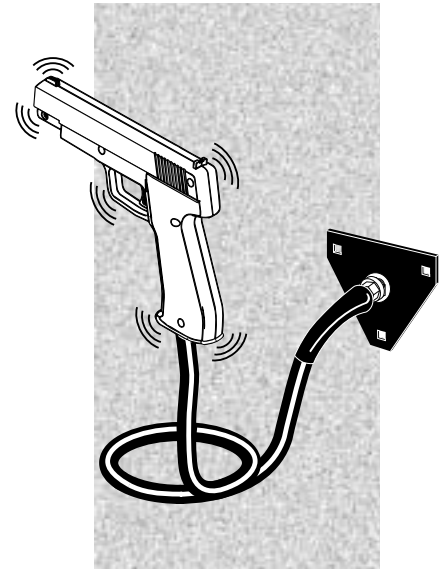
Connections from the Happ Recoil Guns to the Recoil Gun Control PCB – J2 & J4:

Connect Player 1 Recoil Gun to J2 and Player 2 Recoil Gun to J4.

IMPORTANT! After installation, re-calibrate the gun accuracy using the calibration set-up in the Game software.

Setting Solenoid Turn-Off Delay:
The following applies to DIP Switches S1 and S2. Set both switches the same way:

SOLENOID TURN-OFF DELAY			
ON	OFF	OFF	ALWAYS ENABLE
OFF	ON	ON	20 SECONDS
OFF	ON	OFF	40 SECONDS
OFF	OFF	OFF	1 MINUTE

REV. 11/10/00