

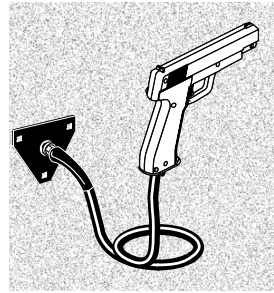
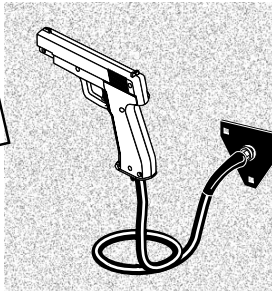
HAPP

OPTICAL GUN 96-2300-XX

XX = Color

- 10 = Red
- 12 = Blue
- 13 = Green
- 17 = Orange
- 20 = Deep Purple
- 119 = Pink
- 112 = Light Blue

**ACCEPT NO
SUBSTITUTES**



The Happ Optic Gun is intended to be used on a video game to optically sense a small area of the screen and provide a synchronization signal via a trigger to the game hardware.

The player aims the gun to select a target on the screen and pulls the trigger when he wants to "shoot" the target. The game system determines if a valid target was selected when the trigger is pulled and reacts accordingly. The gun will operate with projection monitors, in bright or dim ambient light conditions and is sensitive to all CRT colors, although it operates best when the screen is flashed white or cyan for one frame each time the trigger is pulled. Most optic gun games currently made will do this.

The gun is injection molded from Polycarbonate plastic and contains a sensor, PCB and lens to detect light from a CRT screen. A gold contact switch is included to provide the trigger signal.

The gun is powered by +5 vdc. The optical output signal is a negative going pulse from a LM311 voltage comparator pulled up with a 4.7k resistor. This output is given at the horizontal frequency and is present whenever the gun is aimed at the screen. The trigger signal is a single negative going pulse pulled up with a 4.7k resistor and is active as long as the trigger is pulled. The harness has a four pin .100 center connector to connect to the game system with the following pinouts:

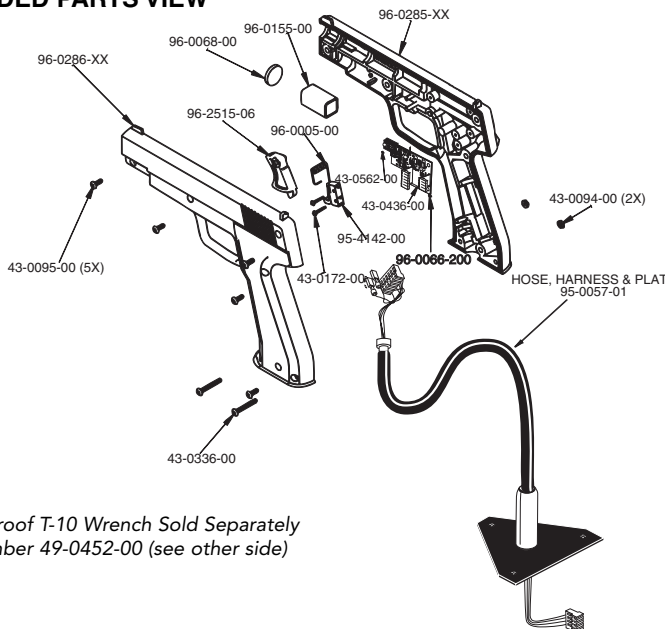
Pin Number	Wire Color	Function
1	Red	+5vdc
2	White	Trigger Signal
3	Black	Circuit Ground
4	Blue	Optic Signal

The gun is anchored to the game cabinet with a highly flexible 12mm diameter, 1.1 meter (44") long hose. The hose is constructed of durable rubber for improved player appeal. The hose can withstand twisting and pulling without damage and will protect the special high-flex wires used to connect the gun to the game system. The hose is securely anchored to the gun and cabinet and can't be twisted or pulled off. The hose connects to a special mounting bracket which fastens to the cabinet.

To replace Konami Lethal Enforcer gun:

Locate where Konami gun harness is connected at connectors CN7 (player 1) and CN8 (player 2) on game PCB. Note where red wire from Konami gun is connected. Plug connector from Happ gun harness into game PCB so red wire on Happ harness is connected this pin. If connector from Happ gun is accidentally plugged in backwards, it will not damage the Happ gun. Simply reverse the connection. If Konami gun to be replaced has two separate connectors simply cut and splice wires into existing Konami connectors on gun to be replaced as shown in box below.

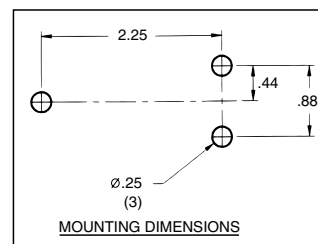
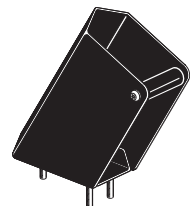
EXPLODED PARTS VIEW



Konami Wire Color	Function	Happ Wire Color
Red	+5vdc	Red
White	Trigger Signal	White
Black	Circuit Ground	Black
Yellow	Optic Signal	Blue
Orange	Not Used	-

**Also Available: Gun Holster for
Optic Gun**
Part Number 96-0750-16

For Use on Flat Mounting Surface

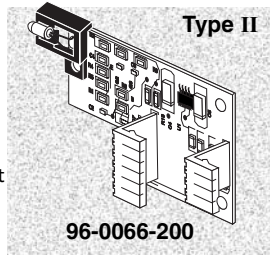


Tamperproof T-10 Wrench Sold Separately
Part Number 49-0452-00 (see other side)

ADDITIONAL ACCESSORIES FOR OPTICAL GUNS

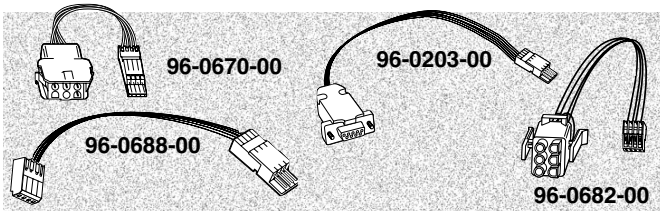
UNIVERSAL OPTIC GUN BOARD

- New surface mount design
- Universal PCB design allows one PCB to be used for both 4-Pin and 6-Pin applications
- New innovative "Inductorless" circuit design for increased reliability
- Direct replacement for Happ Controls and Atari optic guns
- New Type II Optic PCB has innovative optic can holder that securely holds the optic in place and prevents breakage of optic legs due to shock



Part Number	Description
96-0066-200	Universal Optic Gun Board with Optic Holder (Type II)

ADAPTER HARNESSES

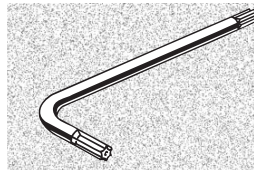


- Gun adapter harness allows optical gun to be easily adapted to other games
- Simply plug gun into adapter and then plug into game cabinet harness

Part Number	Adapts From	Adapts To
96-0670-00	Happ Gun	Atari Area 51, Maximum Force and Site 4 Games
96-0203-00	Happ Gun	Atari Cops Game
96-0688-00	Happ Gun	Zero Point Game
96-0682-00	Atari Area 51	Happ Gun
	Maximum Force Games	

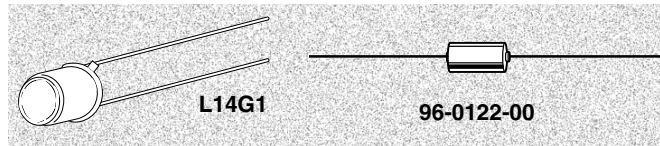
TORX T-10® TAMPERPROOF WRENCH

- Used to disassemble gun for service



Part Number	Description
49-0452-00	Torx® T-10 Tamperproof Wrench

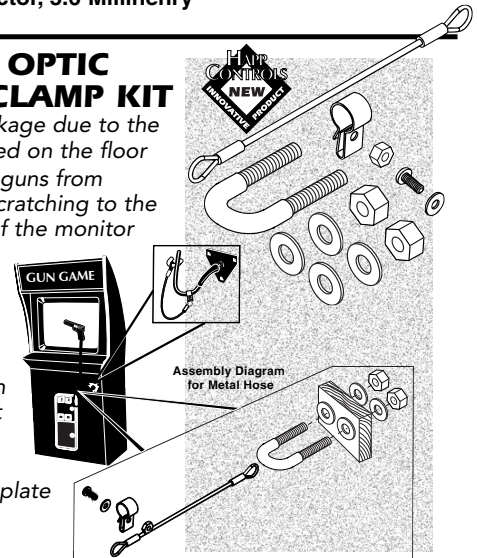
REPLACEMENT PARTS FOR UNIVERSAL OPTICAL GUN BOARD



Part Number	Description
L14G1	Photo Transistor Sensor
96-0122-00	Inductor, 5.6 Millihenry

GUN \$AVER OPTIC GUN HOSE CLAMP KIT

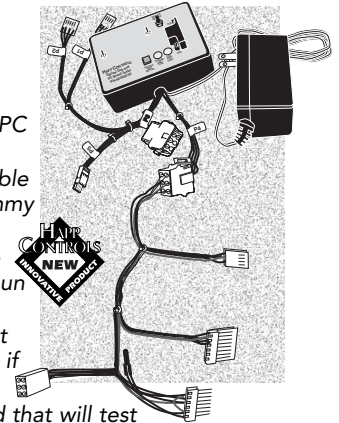
- Prevents gun breakage due to the guns being dropped on the floor
- Helps prevent the guns from causing damage/scratching to the Plexiglas in front of the monitor when being hit with front of guns
- Works for both metal and rubber hoses
- Simple to install on almost any cabinet
- Comes with Installation Instructions & Template



Part Number	Description
96-0290-00	Gun Hose Clamp Kit

OPTICAL GUN AND PCB TESTER

- Improved version!
- A must for all operators and technicians!
- Easy and economical
- Tests all Happ optical guns and PC boards
- Can also be used to test Incredible Technologies and American Sammy optical guns
- Hand held device tests both the optical PCB and the complete gun assembly
- Simply plug in and press the test button – indicator light tells you if board is good or bad
- Additional harness now included that will test the optics on Recoil Guns, but not the coil



Part Number	Description
96-0256-00	Optical Gun and PCB Tester

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