LETHAL ENFORCERS ™

OPERATORS

AND

SERVICE MANUAL

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LETHAL ENFORCERS

CONTENTS

GAME DESCRIPTION

PLAY INSTRUCTION

There are two types of game "arcade" and "street" which are controlled by the dip switches.

STARTING ARCADE TYPE GAME

One or two players can play at the same time a second player can join in at any time by depositing coin/s and pressing start button.

STARTING STREET TYPE GAME

One or two players can play at the same time a second player can join in at any time by depositing coin/s and pressing start button. The stage select screen will appear. To select a stage just point your gun at the required stage and pull the trigger. If you are playing with another player the first selection is accepted.

HOW TO PLAY

Aim and shoot the enemy to kill them. Don't shoot innocent people, if you do shoot them you will lose one life.To reload, point your gun off screen and pull the trigger. You can do this at any time.

Weapons of extra power are available just shoot then to collect.

MAGNUM	: Large caliber bullets,you can shoot 6 bullets without reload.
AUTOMATIC	: 12 rounds, you can shoot 12 bullets without reload.
ASSAULT RIFLE	: 3 shot burst,you can shoot 12 bullets without reload.
SHOT GUN	: Large gauge,you can shoot 6 bullets without reload.
MACHINE GUN	: Full automatic,you can shoot 36 bullets only.
GRENADE GUN	: Explosive,you can shoot 8 bullets only.

Being shot by the enemy causes you to lose one life each time, you can get extra lives with high scores.

When set to "arcade" type, there are 5 stages and shooting range as bonus stage. Each stage consists of 3 or 4 scenes where you must defeat the "boss" enemy to continue to the next stage.

When you set the game to "street" type, there you can choose one of the 5 stages or practise on the shooting range.

Continuation is available. (The operator can change the settings in the "GAME OPTIONS")

DIP SWITCH SETTINGS

This game is equipped with 4-bit DIP SWITCH on the PCB (position Q1). Switching from arcade type game to Street type game and other changes can easily be done with this DIP switch

	FUNCTION	ON	OFF
SW 1	SOUND OUTPUT	MONAURAL	**STEREO**
SW 2	COIN MECHANISM	INDEPENDENT	**COMMON**
SW 3	GAME TYPE	**ARCADE**	STREET
SW 4	NOT USED		

Bold letters show default settings

Note:

1) This machine has be designed to use "stereo" sound .If stereo sound has been turned off you will get poor music and sound effects.

2) Regarding other game options and coin options, refer to "Manual Test" from page 5 to 8.

TEST MODES

SELF TEST

The machine will do a self test on power up if everything is normal "OK" will be displayed and the attract mode will start .If something is abnormal "BAD" will be displayed and self test will repeat.

MANUAL TEST

(1) HOW TO START

After switching on power, press the "test switch" on the "pcb" and you will get the "main menu" of the "manual test".

NOTE: Switching on with "test switch" pressed causes the program in the eeprom to be initialized to default

(2) HOW TO RETURN TO GAME MODE

Select "game mode" on the "main menu" with the player start buttons then pull any gun trigger to return to the game mode.

(3) ITEMS AND HOW TO SELECT

Press player one start button to move up the menu, and press player two start button to move down the menu, then pull either player one or player two gun triggers to enter that test.

By pulling player one gun trigger you change options one way and by pressing player two gun trigger you change options the other way.

The "main menu" screen looks as follows.

```
┌─────────────────────────────────────┐
│            MAIN MENU                 │
│                                      │
│        →  I/O CHECK                  │
│           GUN CHECK                  │
│           SCREEN CHECK               │
│           COLOUR CHECK               │
│           SOUND CHECK                │
│           MASK ROM CHECK             │
│           GAME OPTIONS               │
│           COIN OPTIONS               │
│           GAME AUDITS                │
│           GAME MODE                  │
│                                      │
│   P1 START=UP/P2 START=DOWN          │
│   GUN TRIGGER=DO CHECK               │
└─────────────────────────────────────┘
```

(4) EXPLANATION OF TESTS

4a I/O CHECK

When start buttons or triggers are pressed "ON" will appear next to its function. Dip switch settings show the present options chosen. To modify settings use the dip switch on the pcb (position Q1). To return to the "main menu" press player one and player two start buttons at the same time.

4b GUN CHECK

The screen is filled with boxes outlined in red you aim and shoot these boxes first with player one gun , then with player two gun.The boxes will disappear when they are shot .If you cannot shoot some boxes you need to adjust the monitor .
You can see "help" screen by pressing player two start button. It suggests how to troubleshoot problems.

4c SCREEN CHECK

The screen alignment should be adjusted so you can just see the red outline of the cross-hatch screen.

4d COLOUR CHECK

In colour bar screen you can adjust colour brightness so that the specified area should be colourless. Improper adjustment can cause problems in game play. When you press player two start button , the screen will be filled with red, green, blue, white then back to colour bar screen.

4e SOUND CHECK

When "sound scale check" is selected a music scale sounds.
At "sound code" pull player one trigger to increase code value, player two trigger to decrease code value respectively.

4f MASK ROM CHECK

Roms will be checked one after another, and the message "OK" or "BAD" will be displayed on the screen.

4g GAME OPTIONS

The following screen will appear. Push player one start button to move the arrow up player two start button to move the arrow down and pull gun trigger to modify settings.
Factory settings are shown in green and modified settings shown in red.(Settings below are not always the factory settings).
After modification is complete selsect "save and exit" and pull player one or player two trigger to save and return to main menu.

GAME OPTIONS	
PLAYER'S LIFE 1 CREDIT 5 LIVES	... Select from 1 to 9 lives
EXTRA LIFE 1ST AT 2000 POINTS	... Select out of "1st/1000,2nd/1000","1st/100,2nd/2000"
2ND AT 2000 POINTS	..."1st/2000,2nd/2000","1st/2000,2nd/3000","NO EXTRA LIFE"
CONTINUATION YES (NO LIMIT)	... Select out of YES(NO LIMIT), NO CONTINUE,YES (1-9 times)
DIFFICULTY LEVEL 4/MEDIUM	... Select out of 8 levels.
VIDEO SCREEN FLIP MIRROR	..."MIRROR","UPSIDE DOWN","NO MIRROR","MIRROR FLIP"
VOLUME ▮▮▮▮▮▮▮ 40	... Sound level from 1 to 59
SOUND IN ATTRACT MODE	... "ALL THE TIME","COMPLETELY OFF",ONCE EVERY 4 CYCLES"
ALL THE TIME	
FACTORY SETTINGS	... All settings return to default.
SAVE AND EXIT	... Save the modified settings.
EXIT	
P1 START=UP/P2 START=DOWN	
GUN TRIGGER=MODIFY SETTINGS	

If you select "exit" instead of "save and exit" after you have modifed some settings the message appears: "you did not save" - " do you want to save yes or no". When you choose "yes" the screen shows "now saving.." and returns to the main menu. If you choose "no" ,"no modification" is shown and then main menu appears.

4h COIN OPTIONS

```
COIN OPTIONS


FREE PLAY              NO              ... "NO" , "YES
COIN MECHANISM     COMMMOM           ... You can change this with DIP SWITCH on the PCB (SW2)
  COIN SLOT 1   1 COIN 1 CREDIT

  COIN SLOT 2   1 COIN 1 CREDIT

PREMIUM START        YES 1           ..."NO" or "YES" to "YES UP TO 4 CREDITS".(You can set the play
  2 CREDITS TO START                 fee for starting higher than the play fee for continuation)

  1 CREDIT TO CONTINUE


                                     ... Same as "GAME OPTIONS"
    FACTORY SETTINGS
    SAVE AND EXIT
    EXIT

P1 START=UP/P2 START=DOWN
GUN TRIGGER=MODIFY SETTINGS
```

When the "coin mechanism" is set at "common" on the dip switches (SW2 is "off"). All coins are inserted into one coin mech which must be set at 1 coin for 1 credit as a credit board would be fitted. On a cabinet with 2 coin slots "coin mechanism" must be set at "indepentent" (SW2 is"on") ,coin settings must be done for each coin slot. The left coin slot will be for player one, the right coin slot for player two. When you want "premium start" setting choose the number of extra coins necessary for starting then decide the coin setting for continuation. The number of coins for starting will be the sum of both numbers. If you do not set premium start, the number of coins necessary for start and continuation will be the same.

COIN SETTING OPTIONS

COIN(S)	1	1	1	1	1	1	1	2	2	2	3	3	3	4	4	4
CREDIT(S)	1	2	3	4	5	6	7	1	3	5	1	2	4	1	3	5

TEST MODES

4i GAME AUDITS

GAME AUDITS		
TOTAL PLAYS	200 TIMES	... The total amount of plays.
GAMES STARTED	50 TIMES	... The amount of plays started from the beginning.
GAMES CONTINUED	150 TIMES	... The amount of continued.
AVERAGE TIME/CREDIT	60 SEC.	... The average play time per credit.
AVERAGE SCORE/CREDIT	800 PONITS	... The average score per credit.

```
          EXIT
          CLEAR AUDIT
          TABLE


     P1 START=UP/P2 START=DOWN
     GUN TRIGGER=EXECUTION
```

After changing the "game options" or "coin option" it is better to clear the Audit Table to see how those changes affect the game play.

TROUBLE SHOOTING OF GUN AND MONITOR

HERE IS A LIST OF COMMONLY FOUND PROBLEMS AND THEIR POSSIBLE SOLUTIONS.

ERRATIC GUN SHOT PLACEMENT.

Check to see that there is no reflected light from fluorescent or neon lights bouncing off the screen. Strong sunlight also affects the shot placement.

YOU CANNOT SHOOT CERTAIN AREA/S ON THE SCREEN.

Check the monitor's purity with red, green, blue and white screen in the "colour check" in manual test. If you find purity problems, you should degauss the monitor. Check to see there is no magnetic equipment around the cabinet. This may also cause the monitor to become magnetized. After degaussing the monitor, you can check the gun and monitor in the "gun check" in the manual test. The polo monitor has automatic degauss, check if this is operational. If problem persists a manual degauss coil may have to be used. Available from your distributor.
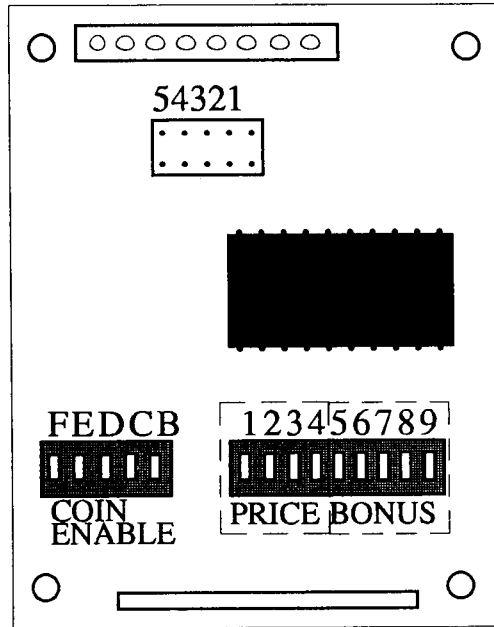
SCREEN FLASHES WHEN TRIGGER IS PULLED BUT NO SHOT IS MADE.

Check to see the gun lens inside the barrel is clean. Adjust the monitor brightness with colour bar screen in the "colour check" of the manual test. If this does not cure fault, swop over gun plugs to ascertain whether the gun or PCB is faulty.

CREDIT BOARD SETTINGS

This machine is fitted with a mars MS111 coin mech and a mars credit board. Settings are as follows (NOTE THE FOLLOWING SETTINGS ARE FOR THE UK ONLY. FOR OTHER COUNTRIES A CREDIT BOARD INFORMATION SHEET WILL BE PUT LOOSE IN THIS MANUAL).

GAME PRICE INCREMENT & METER PULSING

10p

LINKS	O LINKS REMOVED ● LINK FITTED			
5	4	3	2	1
O	O	O	O	O

54321

FEDCB   123456789

COIN ENABLE   PRICE BONUS

COIN ENABLE

On = Accept coin
Off = Reject coin

Coin	F	E	D	C	B
Value	£1	50p	20p	10p	

GAME PRICE SETTING

123456789

NOTE ; Power unit down before changing switch settings

GAME PRICE	SWITCH 1= ON 0= OFF				BONUS GAME AWARDED AT:	
	1	2	3	4	LEVEL 1	LEVEL 2
10p	0	0	0	0		
20p	1	0	0	0		
30p	0	1	0	0	50P	£1
40p	1	1	0	0		
50p	0	0	1	0		
60p	1	0	1	0		
70p	0	1	1	0		
80p	1	1	1	0	£1	£2
90p	0	0	0	1		
£1.00	1	0	0	1		
£1.10	0	1	0	1		
£1.20	1	1	0	1		
£1.30	0	0	1	1	£2	£5
£1.40	1	0	1	1		
£1.50	0	1	1	1		
£1.60	1	1	1	1		

THE PRICE OF GAMES IS CONTROLLED BY SWITCHES 1 TO 4 .

BONUS GAMES SETTINGS

BONUS LEVEL 1

No. OF BONUS GAMES AWARED	SWITCH	1= ON 0= OFF
	5	6
0	0	0
1	1	0
2	0	1
3	1	1

NOTE : VALUE AT WHICH BONUS GAMES ARE AWARED DEPENDS ON GAME PRICE SET.

BONUS LEVEL 2

No. OF BONUS GAMES AWARED	SWITCH	1= ON 0= OFF	
	7	8	9
0	0	0	0
1	1	0	0
2	0	1	0
3	1	1	0
4	0	0	1
5	1	0	1
6	0	1	1
7	1	1	1

OUTLINE SPECIFICATION FOR MARS ELECTRONICS INTERNATIONAL CREDIT BOARD

Machine interface connector

The board is fitted with a 0.2" Pitch Molex Compatible

1	0v	- Supply input
2	12v	- Supply input
3	0v	- Output
4	Game o/p	- Output
5	12v	- Output
6	Meter o/p	- Output
7	12v	- Output
8	Lamp o/p	- Output

Supply Voltage
MAX 15v
MIN 10v
MAX CURRENT CONSUMPTION 200mA
(excluding validator,game o/p ,lamp,meter)

GAME OUTPUT
npn transistor switching to 0v
Sink current> 100mA @ max voltage of 0.5V
100ms pulse with 200ms min gap
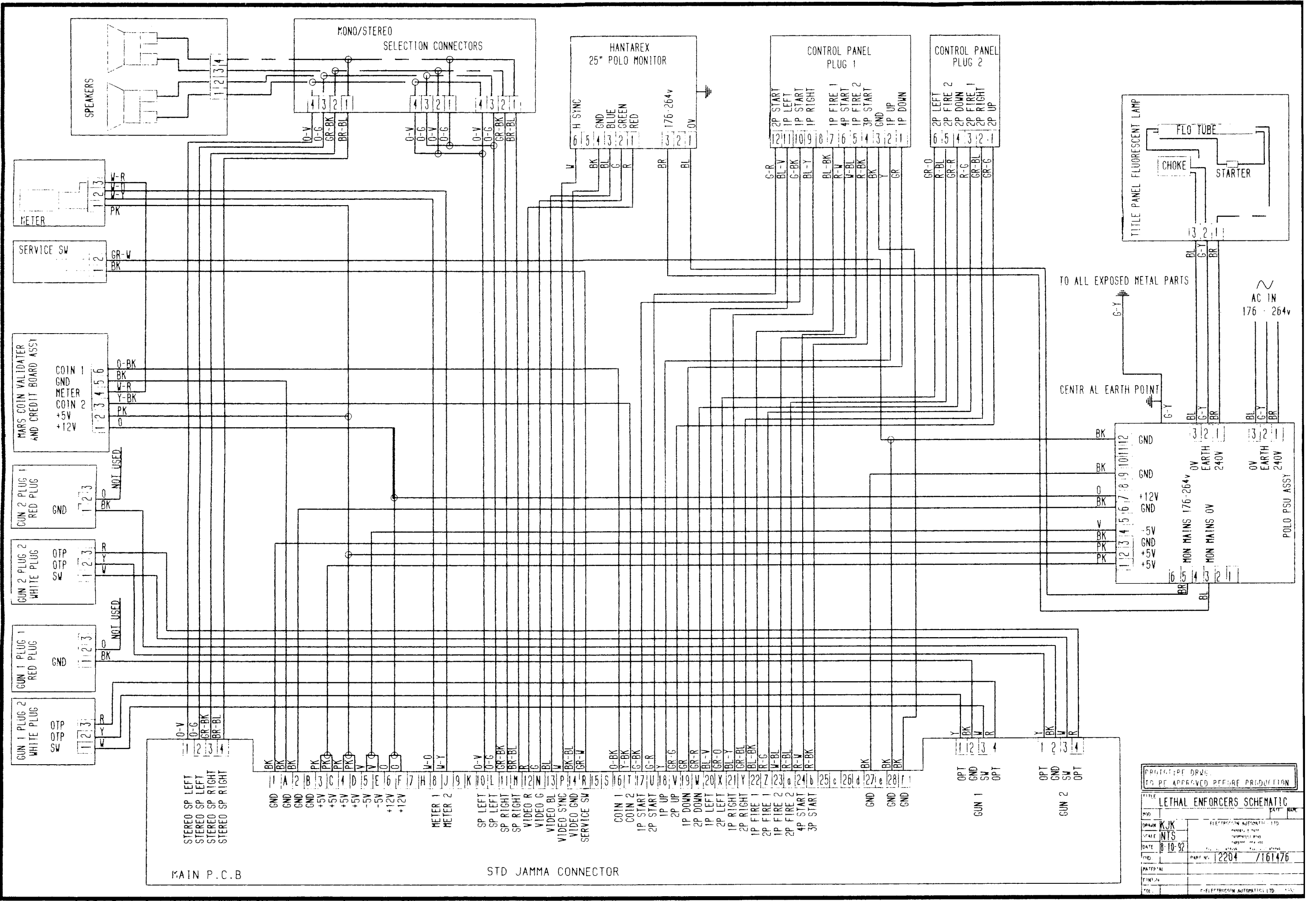(timing +- 20% over 0 - 40C temperature range).

SPECIAL FEATURES AND PARTS LIST

The machines SPECIAL FEATURE is that it can be converted to a standard Jamma cabinet when the game has reached the end of its useful life. This is done by ordering CONVERSION KIT PART No. 33059 from YOUR DISTRIBUTOR. The CONVERSION KIT contains a two player control panel, monitor brackets, new screen glass plus convertion instuctions.

The machine is wired for stereo or mono, the LETHAL ENFORCER has an adaptor lead for stereo , Which plugs on to the pcb (4 way jst) and plugs into the main loom (4 way M+L) .

PARTS LIST

PART NO.	DESCRIPTION
10083	MONITOR 25" POLO
10087	25" POLO CHASSIS
21236	GUN + LEAD (RED)
21237	GUN + LEAD (BLUE)
31333	GUN ROPE
38924	PSU POLO MONITOR
14012	SWITCH MODE MIGHTY POWER
16161	MAINS CABLE (IEC IN)
50157	ME 111 MECH FRONT REJECT (GGBL5L00B/E2 UK ONLY)
50381	CREDIT BOARD MARS (109645001)
241556	SCREEN GLASS LETHAL ENFORCER
241558	MIRROR LETHAL ENFORCER
241557	A-PANEL LETHAL ENFORCER
23547	CONTROL PANEL OVERLAY
33059	JAMMA CONVERSION KIT (U/R MONITOR BRKT + 2P PANEL)

LETHAL ENFORCERS SCHEMATIC