BATTLE ZONE ™

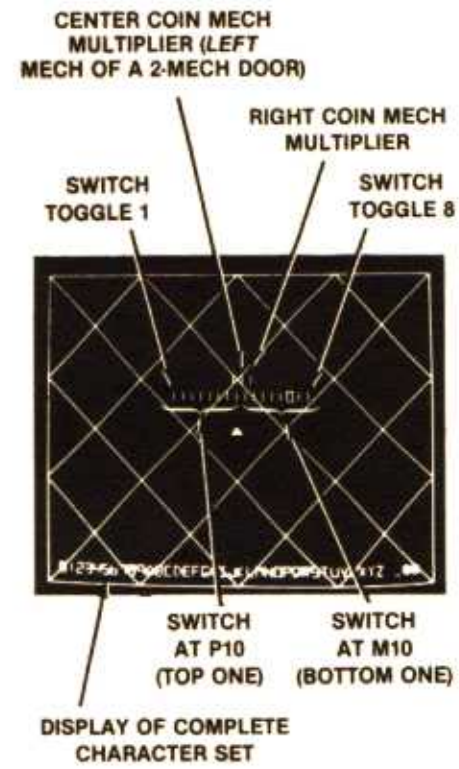# CABARET — SELF-TEST PROCEDURE

IMPORTANT NOTE TO OPERATORS

If the game's service manual, the TV monitor manual, or the schematic sheets were not included with the game when you unpacked it, contact your distributor to get free copies. (All Atari manuals for coin-operated games also include complete illustrated parts lists.)

Instruction	Results if Test Passes	Results if Test Fails
1. Set self-test switch to **on** position (see Figure 5).	After about 3 seconds, the TV monitor displays the picture below.	**RAM FAILURE** is indicated by a sequence of 1 to 10 tones. You will hear a short low tone for each good RAM chip, and a long high tone for a failing RAM chip. The test stops with the first failing RAM-chip pair (example: J2 and H2 are a pair). To restart the sequence, press the reset pushbutton on the Battlezone™ Analog Vector-Generator PCB, or set the self-test switch to off, then again to the on position. Identify the bad RAM chip with the table below. Example: four short low tones followed by a long high tone indicates failure of RAM at location B2.

CENTER COIN MECH MULTIPLIER (LEFT MECH OF A 2-MECH DOOR)

RIGHT COIN MECH MULTIPLIER

SWITCH TOGGLE 1

SWITCH TOGGLE 8

SWITCH AT P10 (TOP ONE)

SWITCH AT M10 (BOTTOM ONE)

DISPLAY OF COMPLETE CHARACTER SET

Long High Tone	Bad RAM Chip Location
1st	J2
2nd	H2
3rd	A2
4th	A1
5th	B2
6th	B1
7th	C2
8th	C1
9th	D2
10th	D1

ROM/PROM FAILURE is indicated by two columns of numbers on the left side of the screen. The number in the left column indicates the location of the failing ROM/PROM(s). Identify the bad ROM/PROM with the table immediately below

Ignore the hexadecimal numbers in the right column.

Displayed No.	Failing ROM	Failing PROM
0	B/C3*	B/C3*, E3
1	A3	A3, F/H3
2	E1	
3	F/H1	
4	J1	
5	K1	
6	L/M1	
7	N1**	

*If ROM or PROM B/C3 is bad, you will hear a continuous low tone, and the program may be unable to display a screen image.

**If ROM N1 is bad, program will be unable to produce tones in RAM test

MATH BOX FAILURE is indicated by a single letter displayed in the upper right corner of the display. Math-box failure is explained in the Signature Analysis Procedure, on the game schematic Sheet 1, Side B. Identify the failure with the table below

Displayed Letter	Failure
T	Time out error
H	Data error—high byte
L	Data error—low byte

You will not hear a low or high beep for the defective switch

| 2. Activate slam switch, all control panel switches and coin door switches. When satisfied with test, set self-test switch to **off** position | As switch activates, you'll hear a low beep. As switch deactivates, you'll hear a high beep. | |

3. Sounds Test (Optional)

You may test the hardware-generated sounds by starting a game and proceeding as follows:

Engine Rumble (Idle): Should be heard as soon as start button is pushed.

Engine Rumble (Active): Pushing both control handles forward should cause an increase in pitch. Releasing control handles should cause engine rumble to return to idle.

Loud Shot: Press the fire button.

Loud Explosion: Heard when you get hit, indicated by cracked windshield.

Soft Explosion: Is heard when you hit an enemy tank or another object.

Game Option Settings

To change toggle positions on the switch assemblies, you need not remove the game PCB. The switches, usually colored blue, are easily accessible when the Battlezone Analog Vector-Generator PCB is mounted in place.

When changing the options, verify proper results on the TV monitor display **by performing the self-test**. Note that changing an option on any of the following eight toggles will cause an immediate change on the TV monitor screen during the self-test.

	Toggle Settings of 8-Toggle Switch on Battlezone PCB (at M10) (BOTTOM switch when PCB is in game)							Option
8	7	6	5	4	3	2	1	
						On	On	Game starts with 2 tanks
						On	Off	Game starts with 3 tanks $
						Off	On	Game starts with 4 tanks
						Off	Off	Game starts with 5 tanks
				On	On			Missile appears after 5,000 points
				On	Off			Missile appears after 10,000 points $
				Off	On			Missile appears after 20,000 points
				Off	Off			Missile appears after 30,000 points
		On	On					No bonus tank
		On	Off					Bonus tank at 15,000 and 100,000 points $
		Off	On					Bonus tank at 25,000 and 100,000 points
		Off	Off					Bonus tank at 50,000 and 100,000 points
On	On							English language $
Off	On							French language
On	Off							German language
Off	Off							Spanish language

Game Price Settings

The white block below contains the manufacturer's suggested settings. All numbers 1 thru 8 are toggle settings on the 8-toggle switch at location P10, on the Battlezone™ Analog Vector-Generator PCB (the **top** switch assembly).

50¢ PER PLAY:

		No bonus				Bonus $1.00 = 3 plays				Bonus $.50 = 1 play / $.75 = 2 plays / $1.00 = 3 plays			
		8	7	6	5	8	7	6	5	8	7	6	5
Straight 25¢ Door	①	On	On	On	On	③ On	Off	Off	On	④ On	On	Off	On
		4	3	2	1	4	3	2	1	4	3	2	1
		On	On	Off	Off	On	On	Off	Off	On	On	Off	Off
		8	7	6	5	8	7	6	5	8	7	6	5
25¢/$1.00 Door or 25¢/25¢/$1.00 Door	① ⑤	On	On	On	On	③ On	Off	Off	On	④ ⑤ On	On	Off	On
		4	3	2	1	4	3	2	1	4	3	2	1
		On	On	Off	Off	On	On	Off	Off	On	On	Off	Off

25¢ PER PLAY:

		No bonus				Bonus $.50 = 3 plays				Bonus $1.00 = 5 plays			
		8	7	6	5	8	7	6	5	8	7	6	5
Straight 25¢ Door	②	On	On	On	On	⑦ On	On	Off	On	⑦ On	Off	On	On
		4	3	2	1	4	3	2	1	4	3	2	1
		On	On	Off	On	On	On	Off	On	On	On	Off	On
		8	7	6	5	8	7	6	5	8	7	6	5
25¢/$1.00 Door or 25¢/25¢/$1.00 Door	②	On	On	On	On	⑦ On	On	Off	On	⑦ On	Off	On	On
		4	3	2	1	4	3	2	1	4	3	2	1
		On	Off	Off	On	On	Off	Off	On	On	Off	Off	On

Circled numbers refer to coin-door labels you should use with each situation.

Note: Battlezone **cannot** be set for a 2-coin minimum.

For your information, we have defined below the switch settings for those options relating to game price, coin mechanism multipliers, and bonus play. This information is useful in case you need to temporarily set the Battlezone™ game on free play, or if you have German coin mechanisms in your door.

Toggle Settings of 8-Toggle Switch on Battlezone PCB (at P10). TOP switch when PCB is in game								Option
8	7	6	5	4	3	2	1	
						On	On	Free play
						On	Off	1 coin* for 2 plays
						Off	On	1 coin* for 1 play
						Off	Off	2 coins* for 1 play $
				On	On			Right coin mech × 1 $
				On	Off			Right coin mech × 4
				Off	On			Right coin mech × 5
				Off	Off			Right coin mech × 6
			On					Center coin mech × 1 $ (Both these settings affect
			Off					Center coin mech × 2 the **left** mech in a 2-mech door)
On	On	On						No bonus coins
On	On	Off						For every 2 coins* inserted, game logic adds 1 more coin*
On	Off	On						For every 4 coins* inserted, game logic adds 1 more coin*
On	Off	Off						For every 4 coins* inserted, game logic adds 2 more coins* $
Off	On	On						For every 5 coins* inserted, game logic adds 1 more coin*

BATTLEZONE ANALOG VECTOR-GENERATOR PCB

OPERATOR OPTION SWITCH

ON — SELF-TEST SWITCH

VOLUME INCREASE: TURN CLOCKWISE

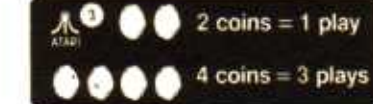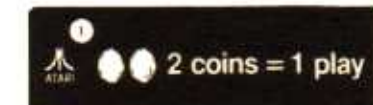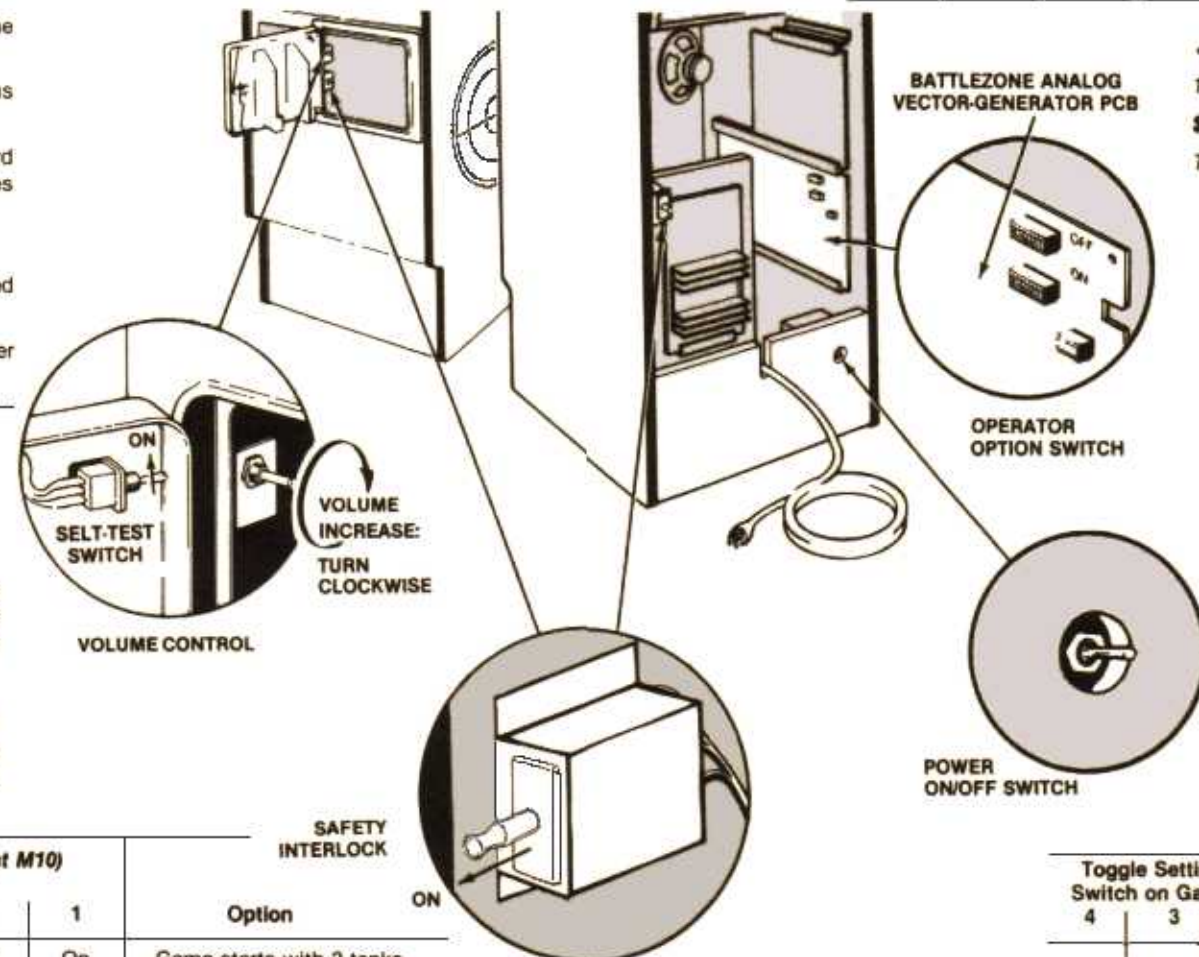VOLUME CONTROL

SAFETY INTERLOCK — ON

POWER ON/OFF SWITCH

*In the U.S., a "coin" is defined as 25¢. In Germany a "coin" is 1 DM.

$ Manufacturer's suggested settings

To achieve bonus plays, all coins must be inserted before pushing

①	2 coins = 1 play
②	1 coin = 1 play
③	2 coins = 1 play / 4 coins = 3 plays
④	2 coins = 1 play / 3 coins = 2 plays / 4 coins = 3 plays
⑤	2 coins = 1 play / $1 coin = 3 plays (Susan B. Anthony coin)
⑥	1 coin = 1 play / 2 play minimum (2 coins = 2 plays)
⑦	*Write in the appropriate phrase

Note: Battlezone **cannot** be set for a 2 coin minimum. Therefore do not stick the above label no. 6 on the Battlezone coin door.

Coin Counter Option Settings

[These toggles determine which coin mechanisms activate which counters]

Toggle Settings of 4-Toggle Switch on Game PCB (at L11)				For Games Having These Coin Doors:	Option
4	3	2	1		
Not Used	Not Used	On	On	Thai 1 Baht/1 Baht, German 1 DM/1 DM, U.S. 25¢/25¢, Belgian or French 5 Fr/5 Fr, Swiss or French 1 Fr/1 Fr, U.S. 25¢/25¢/25¢, Japanese Y100/Y100, Swedish 1 Kr/1 Kr, U.K. 10 P/10 P, Australian 20¢/20¢, or Italian 100 L/100 L	All 3 coin mechanisms are same denomination; all register on **one** coin counter.
		Off	On	German 2 DM/1 DM, German 1 DM/5 DM, U.S. 25¢/$1, or U S 25¢/$1	Left and center mechanisms are same denomination; right mech is another denomination. Requires **two** coin counters.
		On	Off	No coin door is currently designed for this configuration.	Left mech is one denomination; center and right mech are another denomination. Requires **two** coin counters.
		Off	Off	German 1 DM/2 DM/5 DM.	Left, center and right mechs are 3 different denominations. Requires **three** coin counters.