SUBS

SELF-TEST PROCEDURE

IMPORTANT NOTE TO OPERATORS:

If the operation, maintenance and service manual was not included in this game when you unpacked it, contact your distributor to get a free copy. (All Atari and Kee Games manuals for coin-operated games also include a complete illustrated parts catalog.)

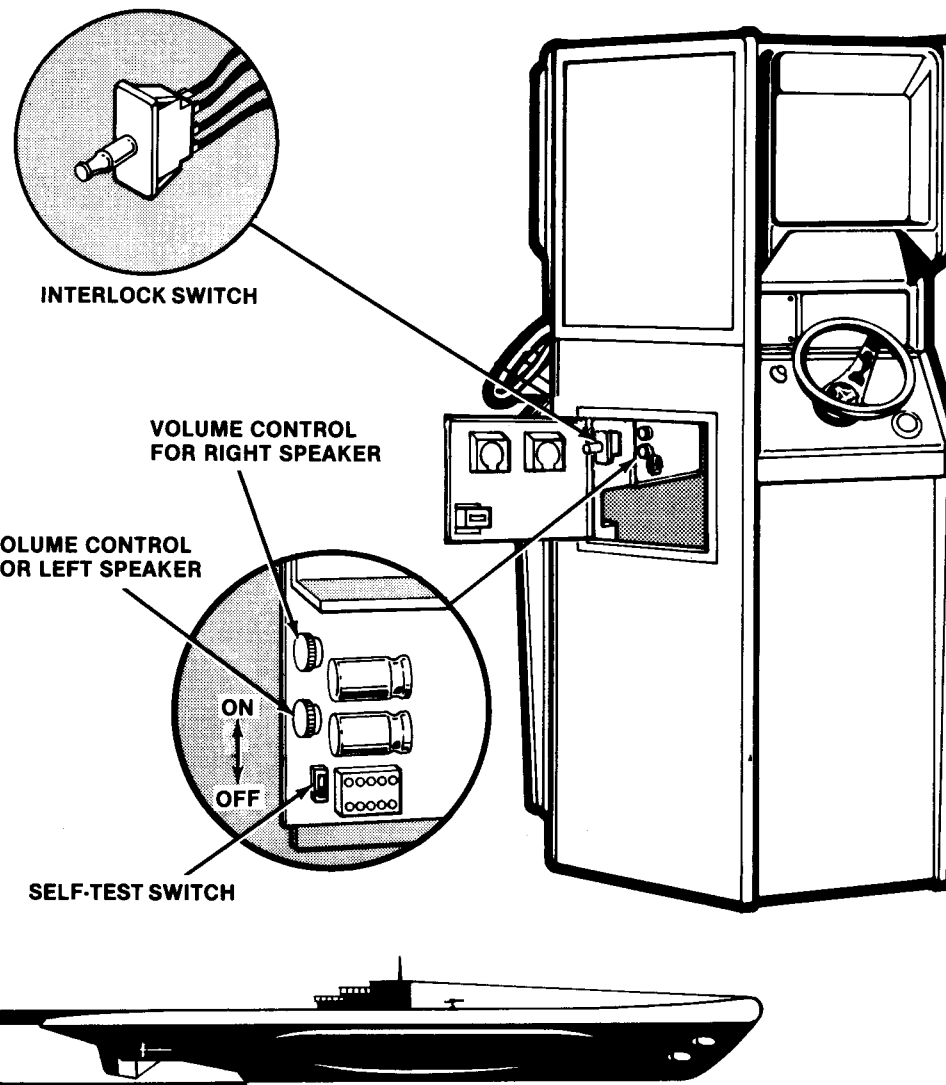| INSTRUCTIONS	RESULT IF TEST PASSED	RESULT IF TEST FAILED
RAM TEST: Unlock and open coin door. Interlock switch will turn power off. Throw self-test switch on Audio PCB to UP position. Pull interlock switch plunger *out*.	Both monitors read "RAM OK". Self-Test automatically advances to next test.	See Note Below This Table
ROM TEST: Automatically entered when RAM test is completed.	Both monitors read "ROM OK". In the case of games intended for English or German language use ONLY, the display may read "ROM A". Ignore this message. B Self-Test advances automatically to next test.	Both screens display "ROM" followed by one or more letters that identify faulty ROM chips or circuitry. See Table 1-4 for bad ROM (or circuitry) isolation.
OPTION SWITCH SETTINGS: Option switch settings are displayed at the conclusion of the ROM test. (See Table 1-5 for description of option switch functions, positions, etc.)	A row of 8 digits displays the positions of operator option switches, with switch 1 on left, 8 on the right. The digit "1" means *on*, while "0" means *off*.	
PLAYER CONTROLS CHECK: Each control will be identified by a word on the monitor. Move or operate each control in turn, watching the display *above that control*.	As the control is moved or pressed, a white square will flash just under the word that identifies that control. A "crashing" sound should also be heard from that side's speaker.	No flashing square or "crashing" sound.

NOTES ON THE RAM TEST

Failure of a RAM chip or associated circuitry may cause erroneous monitor displays. Therefore, "pinging" sound effects and the flashing of the start LED at the *LEFT* player position are used to allow you to isolate the failed RAM circuit(s). If, during the RAM portion of self-test, you observe anything other than the RAM OK message, listen carefully and watch the *LEFT* player position start LED. The pinging sound indicates a good bit, and an LED flash indicates a bad one, so by counting the number of pings *and* flashes, the faulty RAM circuit(s) can be identified (see example below). Consult Table 1-3 for faulty RAM isolation.

In the case of more than one failed RAM circuit, the test may continue after the first flash. In this event, count the flash as if it were a ping, remembering its position in the count. (If necessary, repeat the test until you have verified the pattern of pings and flashes). Then look up the position(s) of the flash(es) in Table 1-3. Here's an example:

IDENTIFICATION OF FAULTY RAM CHIPS

Count from Table 1-2	Troubleshoot this RAM:	Count from Table 1-2	Troubleshoot this RAM:
1	E3	5	M3
2	J3	6	L3
3	K3	7	H3
4	D3	8	F3

INTERLOCK SWITCH

VOLUME CONTROL FOR RIGHT SPEAKER

VOLUME CONTROL FOR LEFT SPEAKER

ON

OFF

SELF-TEST SWITCH

NOTE:
WHEN TROUBLESHOOTING WITH THE DOOR(S) OPEN, YOU MUST PULL INTERLOCK PLUNGER OUT AS INDICATED BY DIRECTION OF ARROW.

IDENTIFICATION OF FAULTY ROM CHIPS

LETTER ON SCREEN	PROM -01 VERSION OF GAME	PROM -01 ALTERNATE VERSION	ROM -02 VERSION OF GAME
	Faulty ROM Chip		
A[1]	E1	E1	E1
B[1]	E2	E2	E2
E	H1	H1	P1
F	H2	H2	P1
G	H1	F1	P1
H	H2	F2	P1
I	K1	K1	P2
J	K2	K2	P2
K	K1	J1	P2
L	K2	J2	P2
M	M1	M1	N2
N	M2	M2	N2
O	M1[2]	L1[2]	N2
P	M2[2]	L2[2]	N2[2]

[2]ROM *must* be in place for self-test to run properly.
[1]These chips contain ONLY French and Spanish messages. If the game is to be operated in the English or German language, there is no need to replace them. In fact, they may not even be supplied on a printed circuit board intended for use only in English- or German-speaking areas.

POWER ON/OFF SWITCH

INTERLOCK SWITCH

LOUDSPEAKER (LEFT)

SECURING SCREW

GAME PCB

OPERATOR OPTION SWITCHES

OPTION SETTINGS

Option	Toggle no. of DIP Switch On Game PCB								Result
	8	7	6	5	4	3	2	1	
Game Length	On	On	On						0:30 Minutes
	On	On	Off						1:00 Minutes
	On	Off	On						*1:30 Minutes
	On	Off	Off						2:00 Minutes
	Off	On	On						2:30 Minutes
	Off	On	Off						3:00 Minutes
	Off	Off	On						3:30 Minutes
	Off	Off	Off						4:00 Minutes
Coinage/ Free Play				Off					Free Play
				On					Coinage as determined by toggle 2.
Game Instruction Language					On	On			*English
					On	Off			French
					Off	On			Spanish
					Off	Off			German
Credit/Time							Off		1 coin/player, fixed time.
							On		*Each coin buys time for 1 or 2 players (as set by toggles 6, 7, and 8).
Sound During Attract Mode								Off	No sonar "ping" sound during attract mode.
								On	*"Ping" sound activated during attract mode.

* Denotes Atari factory switch settings