

Service Bulletin N° 77

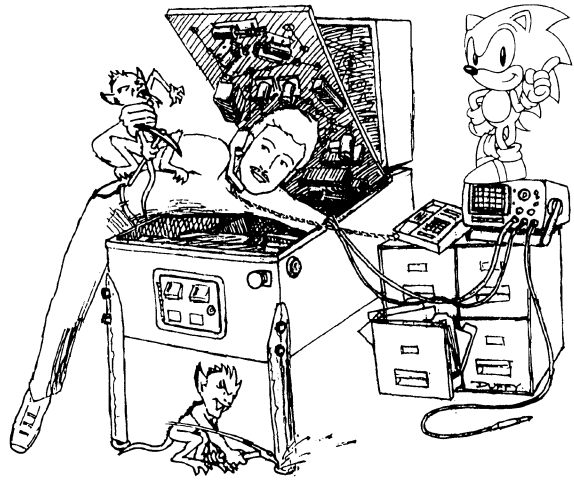


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TO: Parts & Service Managers

DATE: August 24, 1995

SUBJ: "What is this pinball machine trying to tell me?"

Listed below are explanations to the diagnostic aids currently used in our Sega Pinball machines, the latest being "OPERATOR ALERT." If you have any questions or concerns regarding these, please feel free to call us at 1-800-542-5377 (1-800-KICKERS).

* DIAGNOSTIC AIDS *

① The *display reads* "**OPERATOR ALERT...**" — A message displayed during Game Mode or Power-Up to alert the operator of a problem. **OPERATOR ALERT** works by monitoring any *switch activated coil* that has the potential to trap a ball when disabled (e.g. in the Autolaunch, Scoop, Eject, etc.). If this assembly has a closed switch indicating a ball is stuck or the switch is *stuck closed*, the **CPU Board** will activate the coil ten times. If the switch remains closed, the game will display a message indicating there is a problem (e.g. "**OPERATOR ALERT AUTOLAUNCH NOT WORKING**"). This not only warns the operator of a problem immediately, but indicates exactly where the operator should look to resolve it.

② The *display flashes* "**OPEN THE COIN DOOR**" — This indicates that **CMOS RAM** memory (CPU Loc. D5) has been corrupted. This is caused by either failure in memory (e.g. batteries are dead or faulty **RAM**) or upon installation of updated version of code. Opening the Coin Door will initiate a Factory Restore, by opening the Memory Protect Switch. Check battery voltage at **CMOS RAM** with power off.

The overall **CMOS RAM** address range is 0000 - 1FFF (Hex). The protected memory in the **CMOS RAM** occupies addresses 1E00 - 1FFF (Hex). If the address bus is in this range, and MP (Memory Protect) is low (due either to the coin door being closed or a possible wiring problem), write operations to the **CMOS RAM** are disabled through the logic of gates 7C, 1F and 9E on the CPU Board.

③ **TECH ALERT** is a part of the Portals™ Service Menu (Diagnostics) and when selected will display the switch name and number of any switch that the CPU has not seen change state in 50 played games.