

SERVICE TIPS

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- MANDATORY
- ON FAILURE ONLY
- FOR YOUR INFORMATION

82-7

ATTN: SERVICE MANAGERS

GAME: ALPINE SKI
SUBJECT: TROUBLESHOOTING CHART

SOLUTION: THE ATTACHED IS A COMBINATION PROCEDURE FLOW-CHART TYPE
OF TROUBLESHOOTING GUIDE. HOPING THAT INFORMATION LIKE
THIS WILL AID YOU IN TROUBLESHOOTING TAITO AMERICA
CORPORATION PRODUCTS.

KEY TO TROUBLESHOOTING AND REPAIR OF PCB'S.

1. Define the Problem

The key to troubleshooting and repair of not only PCB's, but of any electronic game is the accurate analysis and definition of the problem. For instance, does the screen show anything, or do you have any sound, or can you operate the game? In other words, try to narrow down your problem to one or two well defined areas.

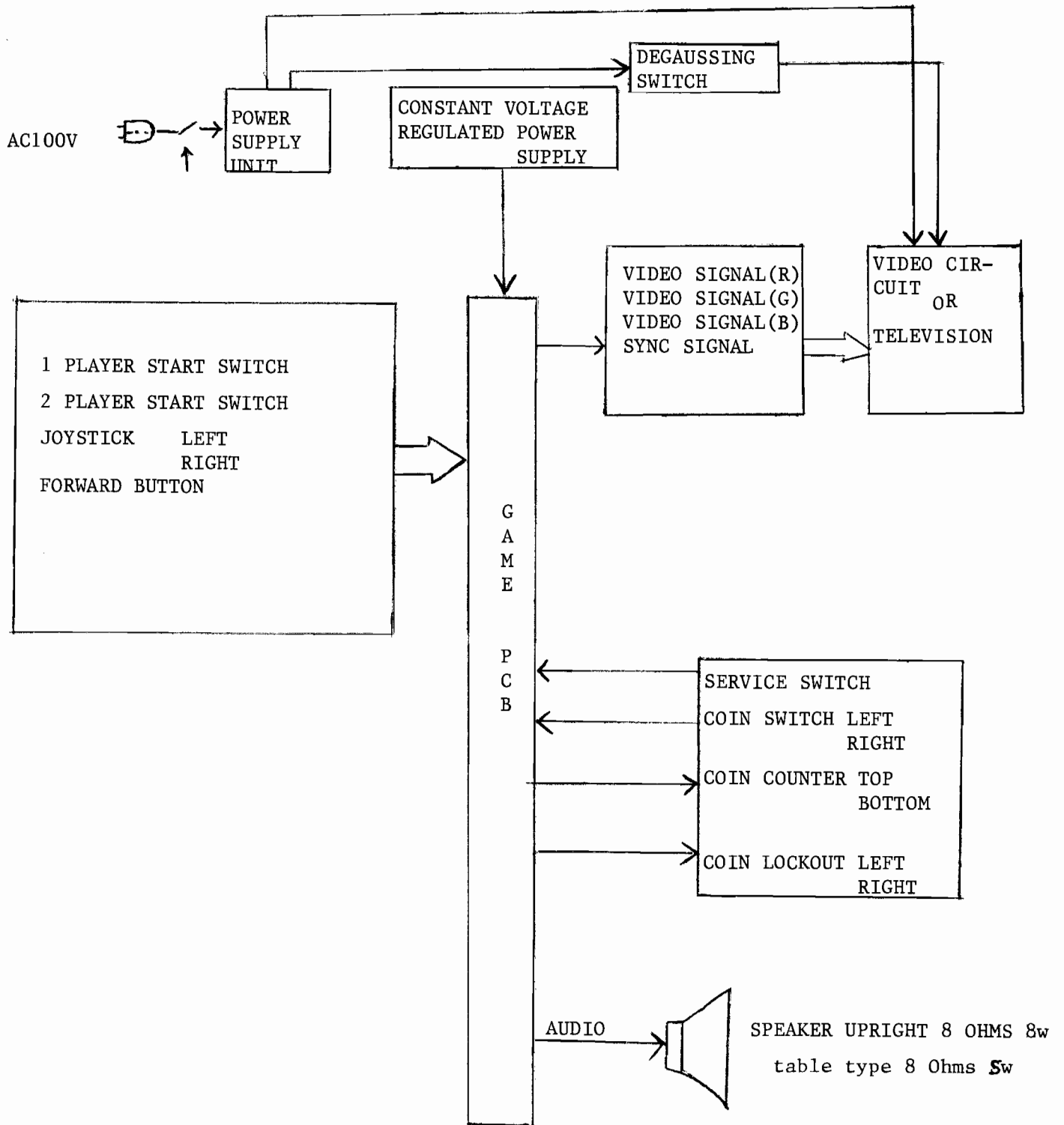
2. Localize and Isolate the Problem

Once you have narrowed down your problem to a well defined area the next step is to localize and isolate the cause of the problem. This is the most difficult task and takes a lot of patience. The method of troubleshooting the problem, is done basically by narrowing down the area one by one, and finally down to a specific device or component.

When there are more than two sets of PCB's change the respective combination of CPU, Video Game, and Sub-PCB, and by comparing the changes of conditions and by defining the problem area is an effective way of troubleshooting PCB's.

Please make use of the following check flow charts for checking malfunctions of screen, sound, and operation of the game. Also, for precision checking of PCB's a Triggered-Scope of more than 20MHz would be required.

TROUBLESHOOTING ALPINE SKI



SOUND OUTPUT TEST POINTS

PSG0 -- This is the output signal of 8910 of IC63.

IC63 is controlled by the game CPU, and outputs the background music.

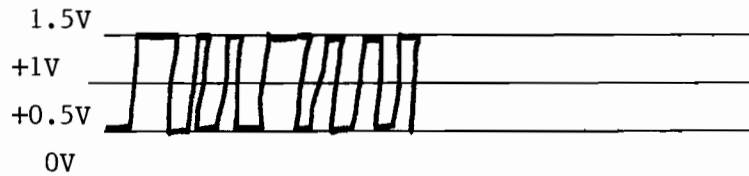


* Output only during output of background music.

* At 0V level during normal time.

This is located between the GRD Pin and the "R" Connector, source is Pin 3,4, and 38.

PSG1 -- This is the output signal of 8910 of IC51.



* Output only during output of sound.

* At 0.5V level during normal time.

This is the sound of the turning of the Ski's.

PSG3 -- This is the output signal of 8910 IC49.

IC49 is controlled by the sound CPU, and the output waves are the same as PSG1.

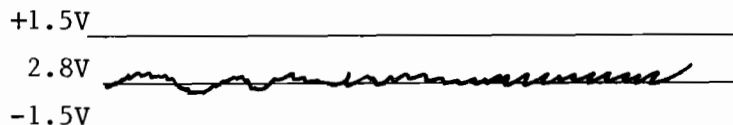
* Output only during output of sound.

* At 0.5V level during normal time.

This is the Snow Plow sound.

PSG4 -- This is the output which filtered the output of 8910 of IC50 by the 3900 of IC17.

* IC50 is controlled by the sound CPU.



This is the crowd cheering sound.

DAOUT -- This uses the output of 8910 of IC51, and configures the D/A Converter with ladder resistors and the output of this is the DAOUT.

* Since this is the integrated output of D/A Converter output, the output waves are small.

* Sound CPU controls this.

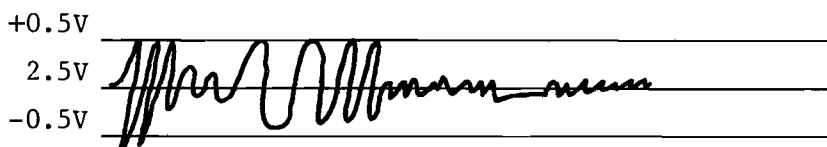


* Output only during output of sound.

* At 0.5V level during normal time.

This is the Hit and Crash Sound.

PSG2 -- The output of DAOUT is filtered by 3900 of IC8, and is the output which was further amplified.

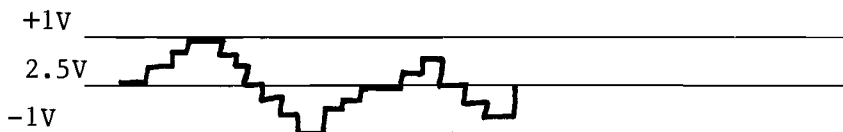


* At 2.1V level during normal time.

MU1 -- This is the amplified output of PSG0 output.

* Will output during the background music at the output of 3900 of IC17.

* Output waves shall change slightly depending upon the sound volume.

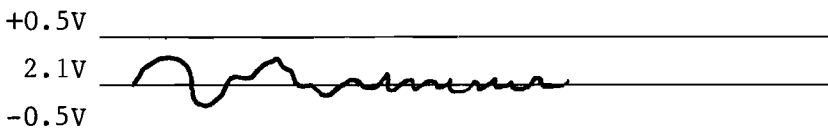


* At 2.5V level during normal time.

MU2 -- This is the output of mixing the outputs of PSG1, PSG2, PSG3, and PSG4 with 3900 of IC1.

* Output only during output of sound.

* When there is no output from MU2, it may be the sound CPU control is malfunctioning.

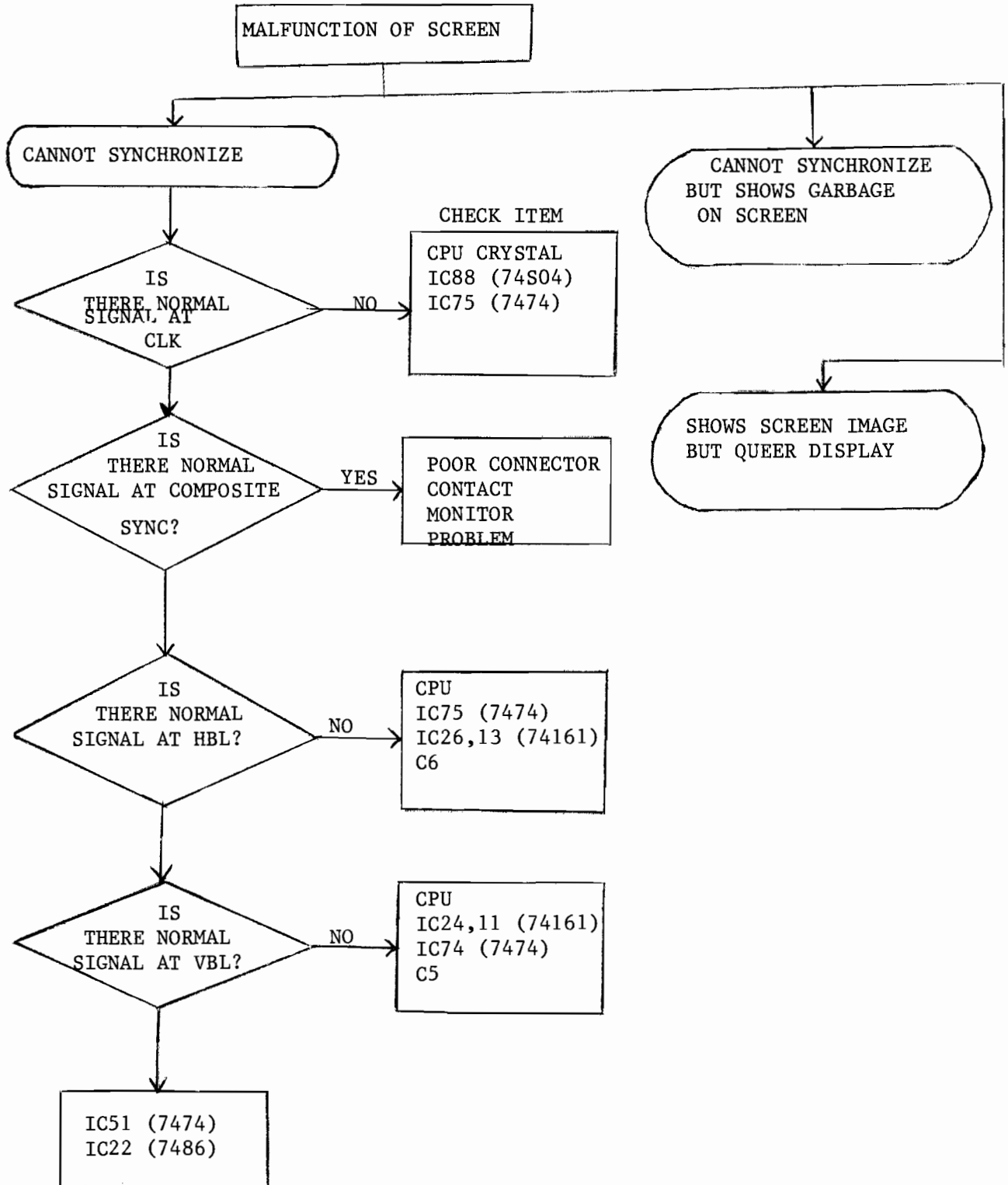


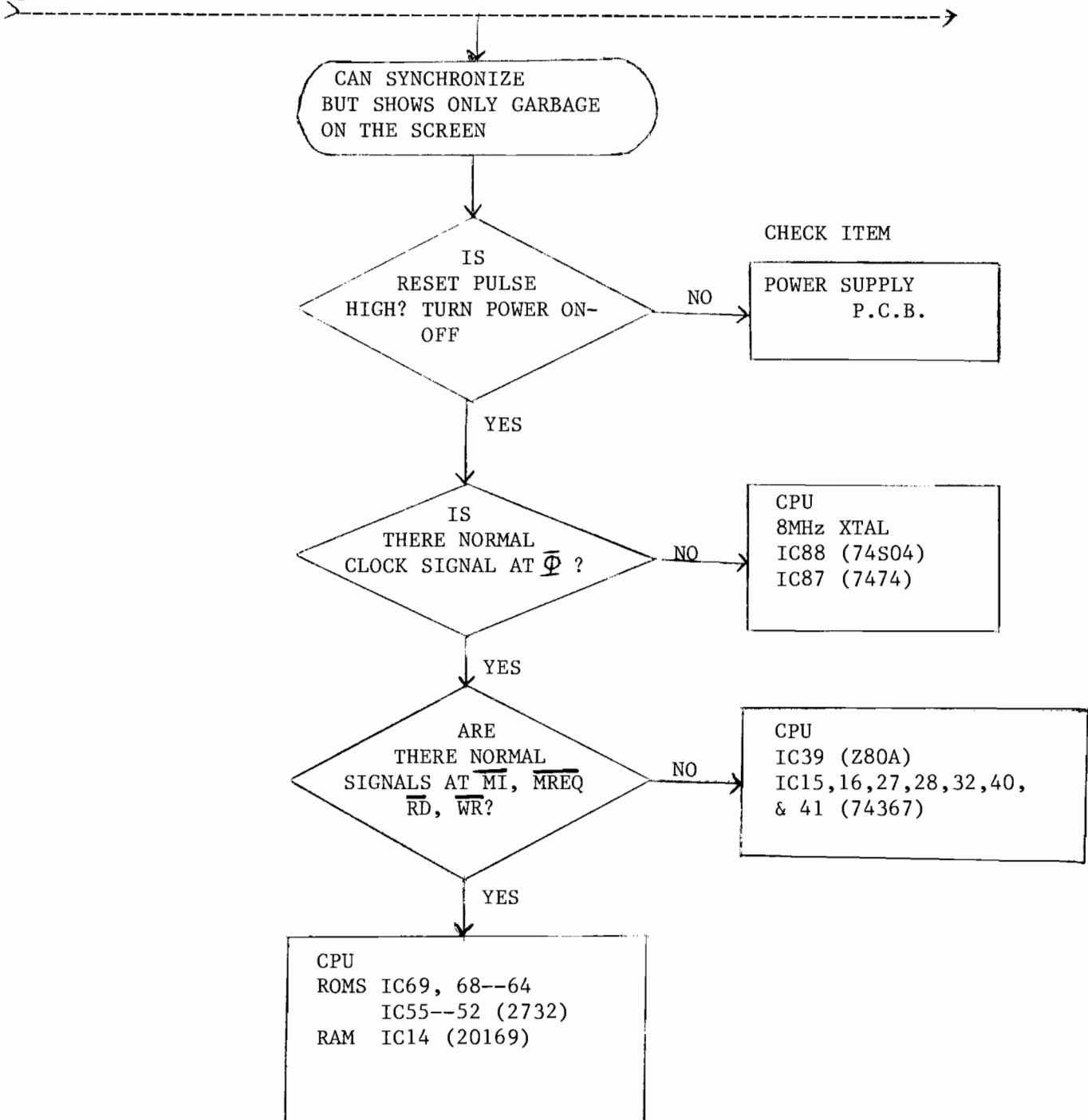
* The waves are different depending on the output of MU2.

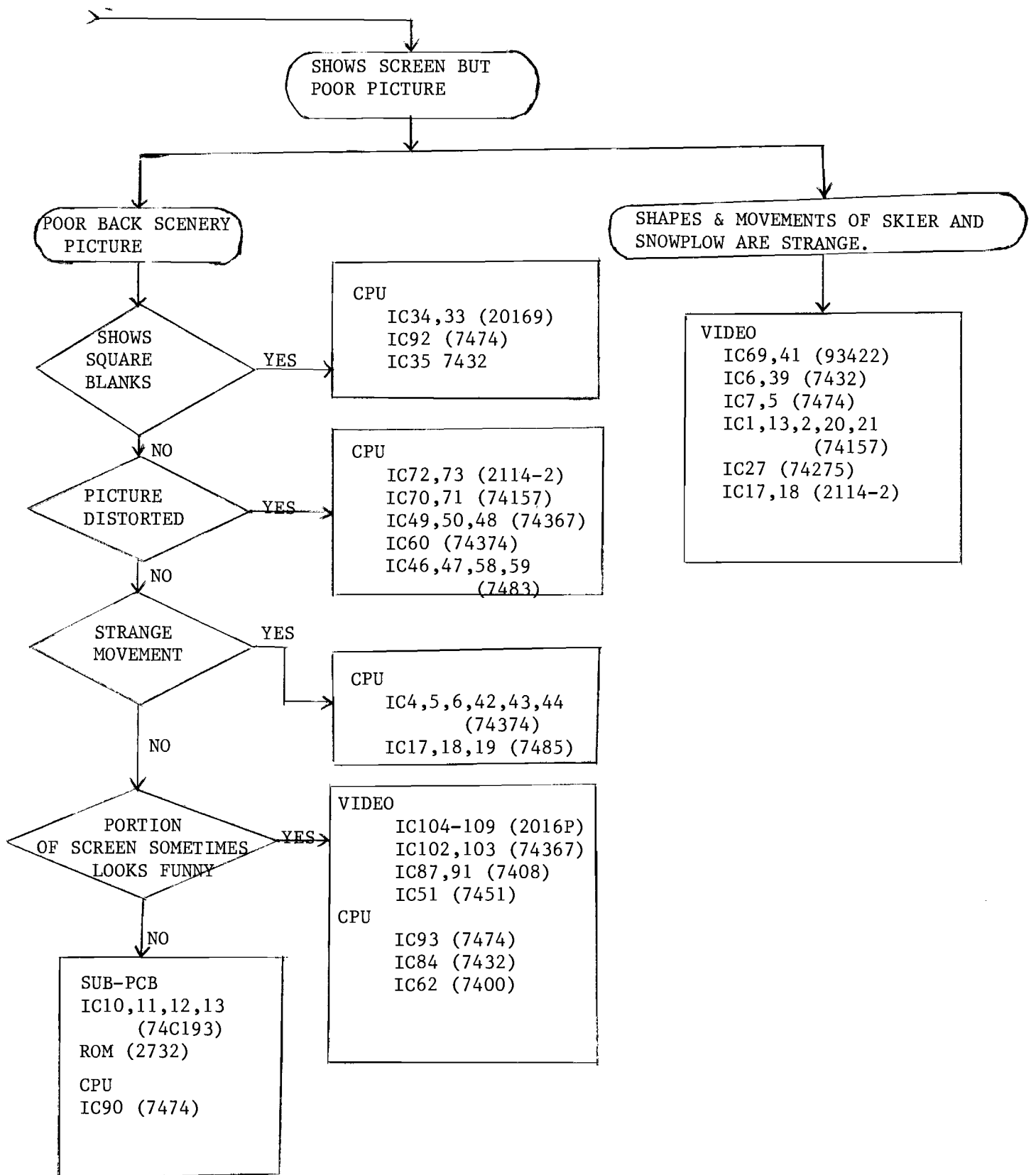
* At 2.5V level during normal time.

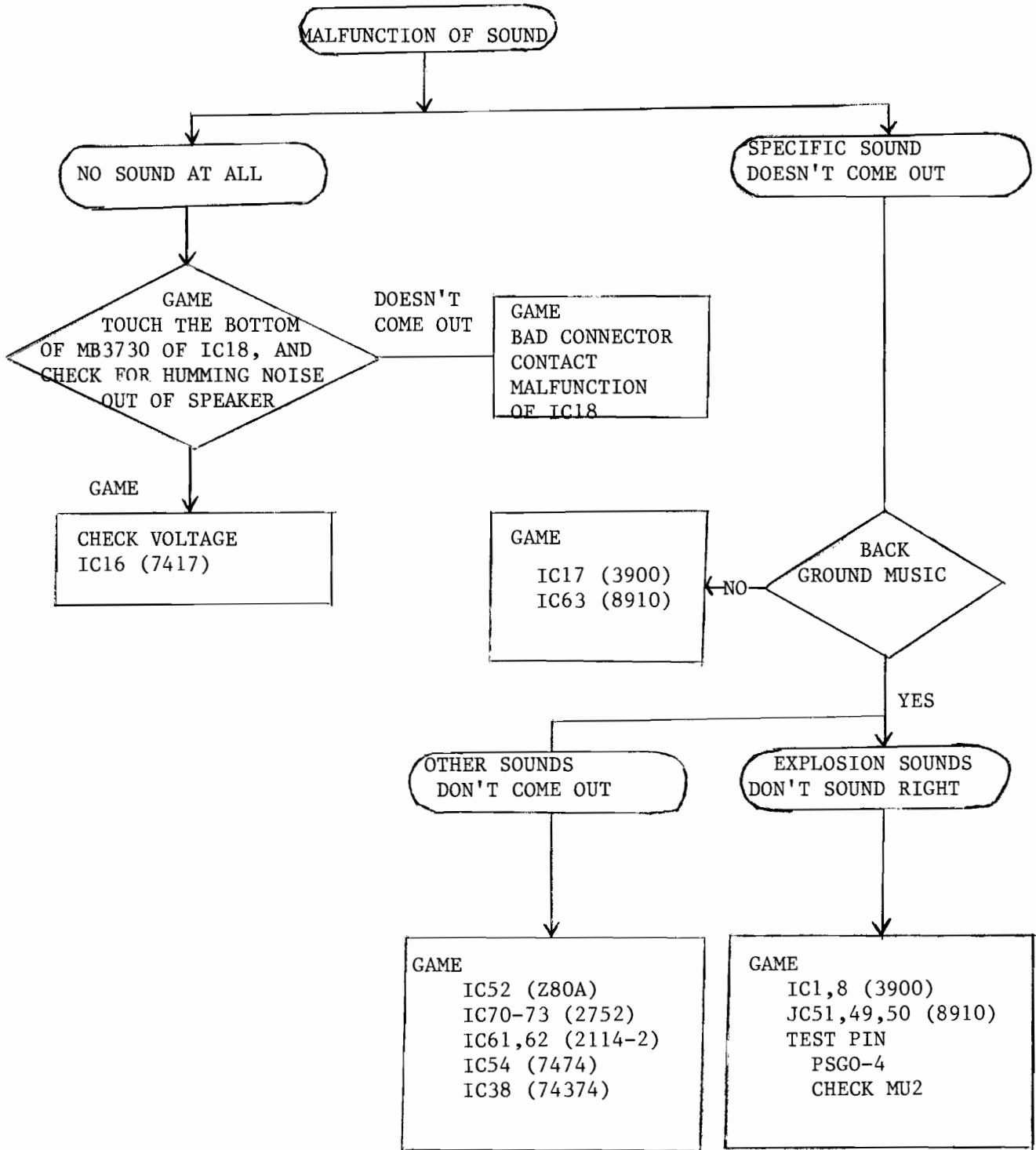
NOTE 1. IC52 is the sound CPU.

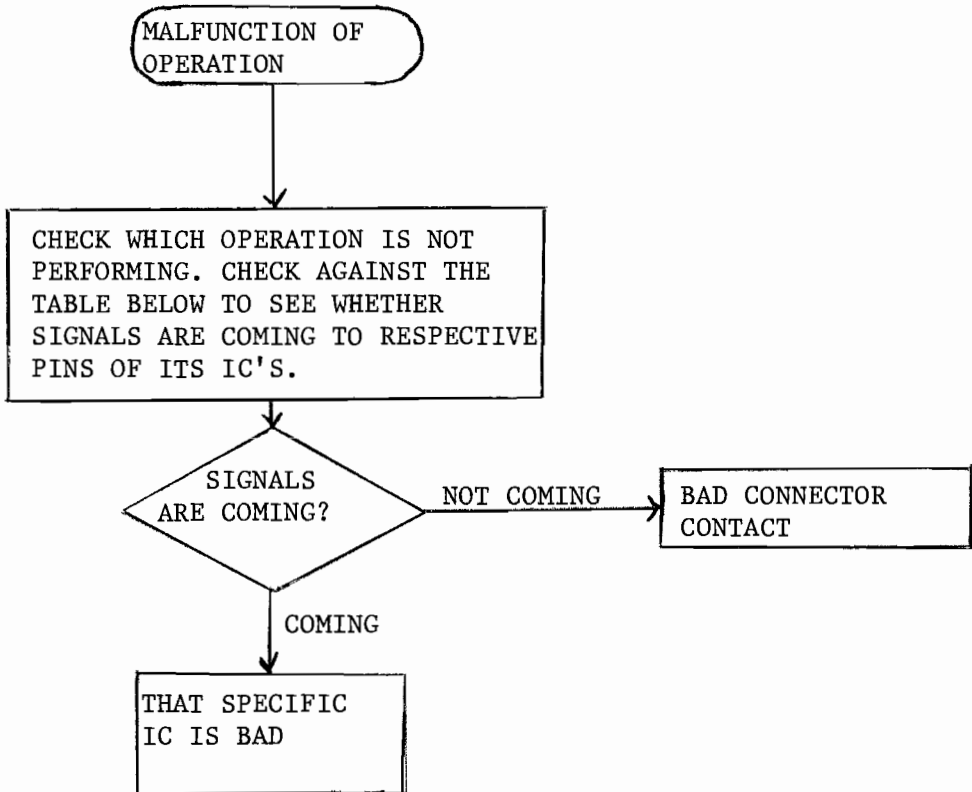
NOTE 2. When there is no sound coming out even though MU1 and MU2 is outputting, it may be either the sound stop circuit, and 7417 of IC16 are failing, or the MB3730 of the output AMPlifier is damaged.











OPERATION SWITCH	IC AND ITS PIN NO.
COIN SWITCH (LEFT)	IC27-3
COIN SWITCH (RIGHT)	IC27-9
SERVICE SWITCH	IC27-1
TILT	IC7-5
SELECT (1 PLAYER)	IC6-3
SELECT (2 PLAYER)	IC6-13
RIGHT	IC3-11
LEFT	IC3-5
FORWARD	IC5-5