

## ADDENDA TO SERVICE MANUAL

The following is a list of either corrections to the Service Manual or changes which have been made to improve the operation of "Outlaw". In order to make the Service Manual available to you as soon as possible, we were unable to incorporate the changes and corrections in the manual. These changes were the following:

1. Video Summing Network: R108 changed from 100  $\Omega$  to 1 K  $\Omega$ .
2. Power Supply: R 53 & R 54 changed from 2.7  $\Omega$  1/4 w to 2.7  $\Omega$  1/2 w (carbon).
3. The printed circuit board has been enclosed in an RF shield to meet FCC requirements on radio frequency.
4. Speaker & grill have been remounted to the side of the cash door assembly. New speaker Part No. 48-004.
5. Motorola monitor used instead of Ball Brothers.
6. Item 4 switch double light described on parts listing for control panel assembly should read part No. A004304-11.
7. A revised table 3-1 switch settings for owner/operator options is attached.
8. A suggested bonus game setting table based upon the degree of difficulty is also enclosed.

SUGGESTED BONUS GAME SETTINGS

DEGREE OF DIFFICULTY	SWITCH SETTINGS	EXPLANATIONS
Bonus Game	S1 off S1 on	No bonus game can be won. Bonus game can be won if player achieves bonus score requirements selected below.
Easy/Difficulty	S1 on S2 off  S3 on S4 off  S5 on S6 off  S7 on	Bonus game can be won. Bonus game can be won even if "Outlaw" scores.  Skill level F wins game.  Skill level F is score of 12.  Bonus game can be won even if player draws pistol before outlaw stops running.
Moderate/Difficulty	S1 on S2 off  S3 on S4 off  S5 off S6 on  S7 on	Bonus game can be won. Bonus game can be won even if "Outlaw" scores.  Skill level F wins bonus game  Skill level F is score of 24  Bonus game can be won even if player draws pistol before Outlaw stops running.
Hard/Difficulty	S1 on S2 off  S3 off S4 on  S5 on S6 on  S7 on	Bonus game can be won. Bonus game can be won even if Outlaw scores.  Skill level G wins bonus game.  Skill level G is score of 36.  Bonus game can be won if player draws before outlaw stops running.
Very Hard/ Difficulty	S1 on S2 on  S3 off S4 on  S5 on S6 on  S7 off	Bonus game can be won. Bonus game cannot be won if outlaw scores.  Skill level G wins bonus game.  Skill level G is score at 36.  Bonus game can not be won if player draws before outlaw stops running.

DESCRIPTION OF OPTION	SWITCH SETTING	EFFECT ON GAME OPERATION
Bonus Game	S1 off	Bonus game <del>is</del> <b>NOT ALLOWED</b>
	S1 on *	Bonus game <del>is</del> allowed
Bonus Game – <del>at Player Skill Level G</del> <b>ONLY IF OUTLAW IS SCORELESS</b>	S2 off *	No effect on game operation
	S2 on	<del>is</del> player score meets requirement for bonus game, <b>Set under skill level F or G and Outlaw is Scoreless</b>
Bonus Game – at Player Skill Level F	S3 off	No effect on game operation
	S3 on *	Skill level F ("Greenhorn") meets requirement for bonus game ( <del>is</del> )
Bonus Game – at Player Skill Level G	S4 off *	No effect on game operation
	S4 on	Skill level G ("Top Gun") meets requirement for bonus game ( <del>is</del> )
Player Skill Level – Minimum Scores	S5 off and S6 off	Windows E, F, G do not light up, regardless of player's score
	S5 on and S6 off	Player's score of 6 lights up window E, 12 lights up F, and 16 lights up G
	S5 off * and S6 on	Player's score of 14 lights up window E, 24 lights up F, and 34 lights up G
	S5 on and S6 on	Player's score of 16 lights up window E, 26 lights up F, and 36 lights up G
Cowards Shoot First	S7 off	If anytime during play the player draws the pistol before the outlaw stops running, the player is prevented from achieving a bonus game (regardless of score)
	<del>S2 off</del>	
	S7 on * <del>S2 off</del>	Drawing the pistol before the outlaw stops running has no effect on achieving a bonus game
Number of plays per coin	S8 off	Two plays per coin
	S8 on *	One play per coin

Table 3-1 Switch Settings for Owner/Operator Options

\* Options selected and set at Factory

# V. Maintenance and Adjustments

## 5.1 ROUTINE MAINTENANCE

Due to its solid-state electronic circuitry, this Atari game should require very little maintenance and only occasional adjustment.

**5.1.1 CLEANING:** Game cabinets and glass may be cleaned with any non-abrasive household cleaner. If desired, special coin machine cleaners that leave no residue can be obtained from distributors.

**5.1.2 LUBRICATION:** About once every three months lightly spray the rejecter linkage portion of the coin acceptor inside the coin mechanism. Use WD-40 or similar lubricant, and avoid spraying the entire coin acceptor.

## 5.2 ADJUSTMENTS ON TV MONITOR

The TV monitor need be adjusted *only* when the picture is distorted, or if contrast or brightness seem out of adjustment.

**NOTE:** The TV monitor is accessible only from inside the game cabinet and these adjustments have to be while the game is energized. Therefore only persons familiar with safety measures and repair procedures on electrical equipment should perform these adjustments.

The TV monitor's adjustments function like those of a conventional commercial TV set, except that the volume adjustment has no effect. The *Crash 'n' Score* game produces its sound in a speaker separate from the TV monitor. Figure 5-1 shows the location of these adjustments on the rear of the TV monitor chassis. The following are general guidelines to follow while making these adjustments:

- BRT (Brightness)**--This should be adjusted before the contrast. Adjust the brightness so that the white lines covering the screen just barely disappear when the brightness turned up.
- CONT (Contrast)**--Adjust so that the images are as bright as possible against the dark background without being blurred.
- HORIZ HOLD (Horizontal Hold)**--Adjust if the picture is slightly off-center horizontally, if the images appear warped, or if the picture is broken up into a series of diagonal lines. Adjust for a stable, centered picture.
- VERT HOLD (Vertical Hold)**--This needs adjustment only if the picture appears to be rolling up or down the screen. Adjust for a stable, centered picture.

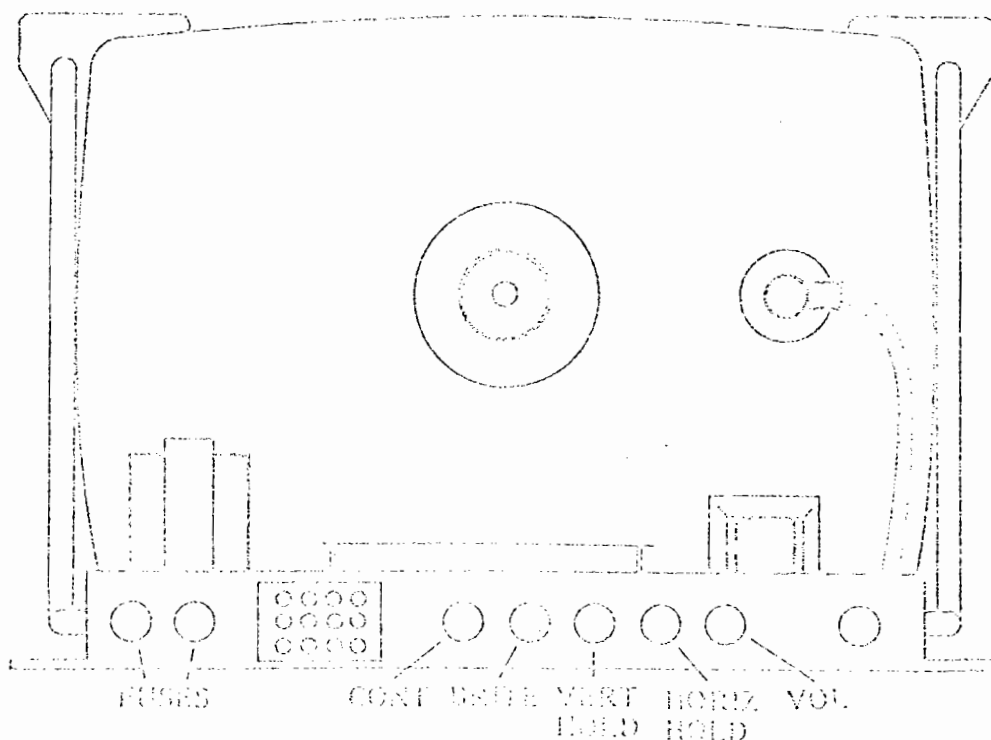
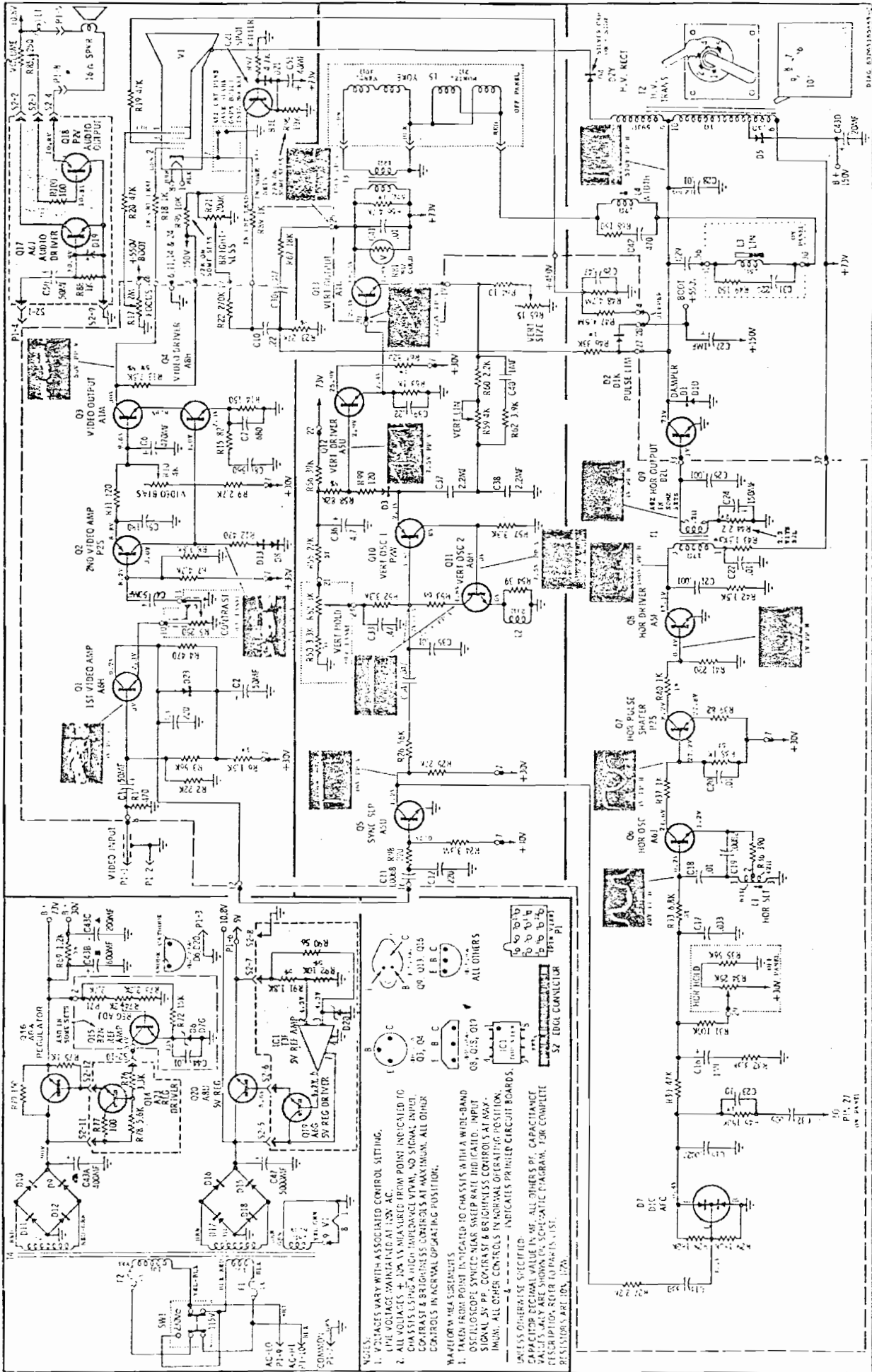


Figure 5-1 Location of Adjustments on TV Chassis



Motorola XM501/XM701 Monitor Schematic

- NOTES:**
1. POTENTIOMETER VALUES WITH ASSOCIATED CONTROL SETTING.
  2. ALL VOLTAGES +150V UNLESS INDICATED TO THE CONTRARY.
  3. ALL VOLTAGES +70V UNLESS INDICATED TO THE CONTRARY.
  4. CHASSIS GROUND IS COMMON TO ALL SIGNAL INPUTS AND OUTPUTS.
  5. ALL OTHER CONTROLS IN NORMAL OPERATING POSITION.
  6. - - - - - INDICATES PRINTED CIRCUIT BOARD.
- WAVEFORM AREA SUBELEMENTS:**
1. TAKEN FROM POINT INDICATED TO CHASSIS WITH A WIDE-BAND OSCILLOSCOPE SYNCHRONIZED NEAR SWEEP RATE INDICATED.
  2. SIGNAL 2V PP, CONTRAST & BRIGHTNESS CONTROLS AT MAXIMUM.
  3. ALL OTHER CONTROLS IN NORMAL OPERATING POSITION.
  4. - - - - - INDICATES PRINTED CIRCUIT BOARD.
- UNLESS OTHERWISE SPECIFIED:**
- CAPACITANCE: DECIMAL VALUE IN MF. ALL OTHERS: PF. CAPACITANCE VALUES ARE SHOWN ON SCHEMATIC DIAGRAM. FOR COMPLETE DESCRIPTION, REFER TO PARTS LIST.
- RESISTORS: ARC: 10%, 100%.

150VA  
150V  
50  
PI. 27  
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