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Electronics Division
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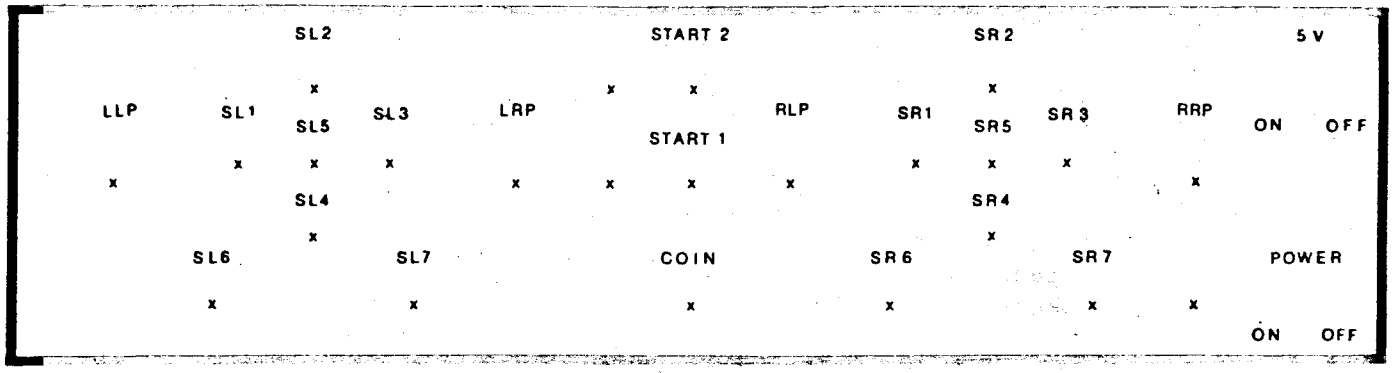
KURZ-KASCH INC.
ELECTRONICS DIVISION
2271 ARBOR BLVD.
DAYTON, OHIO 45439

Operating Instructions

For Model 298AB - 265C

ORBIT

ATARI



1. Insert 298B program card into TF-650 "B" connector.

2. Insert 298A program card into TF-650 "A" connector.

3. Insert 265C card into 25-pin connector on TF-650.

4. Insert Game Board into 265C card connector.

5. If you want AUDIO, connect plug on 298B program card to audio board and connect speakers across each set of RED and BLACK pigtails.

6. Push POWER SWITCH to on.

7. Coin 1 is COIN switch.
   Coin 2 is START 1 switch.

8. Game description switches are on 298A program card.

	Beginner	Intermediate	Expert	Super Expert
Press One	SW 1 Slow	SW 4 Slow	SW 6 Fast Shells	SW 10
	SW 2 Medium	SW 5 Fast	SW 7 Slow	
	SW 3 Fast		SW 8 Medium	
			SW 9 Fast	

9. Option switches are same switches on 298A program card.

Press One or More	SW 1 Bounce Back	SW 5 Space Stations
	SW 2 Negative Gravity	SW 6 Unlimited Supplies
	SW 3 Zero Gravity	SW 7 Start
	SW 4 Black Hole	SW 8 Strong Gravity

10. START 2 is game reset switch.

11. SR 6 is HEAT RESET switch.

12. Right side controls are:

SR 1 Rotate counter clockwise
SR 2 Thrust
SR 3 Rotate clockwise
SR 4 Hyperspace jump
SR 5 Fire Shots

13. Left side controls are:

SL 1 Rotate counter clockwise
SL 2 Thrust
SL 3 Rotate clockwise
SL 4 Hyperspace jump
SL 5 Fire Shots

14. Hyperspace jump LED is on 298A card (HYP)
Heat reset LED is on 298A card (HR)
Coin lockout LED is on 298A card (CL)

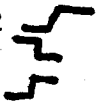
ORBIT
#298

ATARI

INDIVIDUAL ROM TEST
12 ea 82S137 ROMS

1. Use hardwired driven clips on E4 & E6 (8T28)

* 2. Use hardwired clip on driver control E3 (74LS00)

3. Clock Ø2 
   Start
   Stop

VCC 826P

START/STOP A5-15

JUMPER	E3-4 to E3-14		E3-6 to E3-14	
PIN	H1	L1	H2	L2
11	0H43	7454	667F	7314
12	2368	H213	67PF	7UU1
13	9HP5	CUCF	11C8	4HF9
14	4APH	0693	H955	A086

START/STOP A5-16 

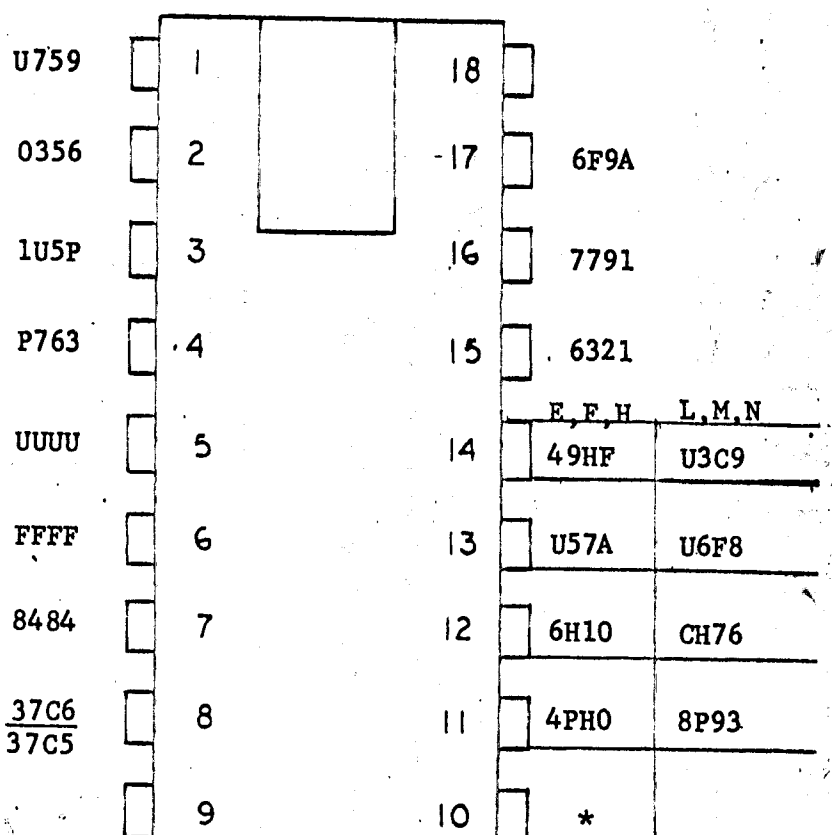
JUMPER	E3-4 to E3-14		E3-6 to E3-14	
PIN	F1	M1	F2	M2
11	6472	0CU6	5384	7959
12	A03C	06CP	90C9	CP9C
13	456P	UFH2	1A96	7U3P
14	PPH0	422P	F947	H7C0

START/STOP A5-17

JUMPER	E3-4 to E3-14		E3-6 to E3-14	
PIN	E1	N1	E2	N2
11	3HU6	HU81	F4A8	F3AF
12	U2HH	PH44	CH7A	H986
13	F069	7796	1U2A	0H34
14	6467	421U	APP6	UU66

*If this is not done damage to E4 & E6 will result.

DATE	SYM	REVISION RECORD	AUTH.	DR.	CK.



Hardwired*E3, E4 & E6
Clock Ø2
Start, Stop A-15

ROMS (12 each 82S137) in
locations E1, 2; F1, 2; H1, 2;
L1, 2; M1, 2; N1, 2.

*If this is not done damage to E4 & E6 will result.

*E1	=	86C1
F1	=	A04H
H1	=	UH4P
L1	=	UH4P
M1	=	A04H
N1	=	86C1

TOLERANCES (EXCEPT AS NOTED)	COLLECTIVE ROM SIGNATURES		
DECIMAL ±		SCALE	DRAWN BY
			APPROVED BY
FRACTIONAL ±	TITLE ORBIT ROM TEST		
ANGULAR ±	DATE	DRAWING NUMBER 298	

ORBIT
#298

ATARI

SYNC CHAIN

HORIZONTAL

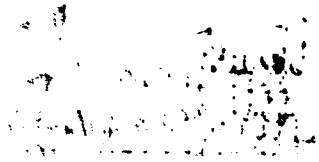
	R4	R5	R6
CLOCK ⌐	R4-2	R5-2	R6-2
START/STOP ⌐	R4-11	R5-11	R6-13
GROUND	R4-8	R5-8	R6-8
VCC	UP73	CC34	H7PH
PIN			
7	UP73	826P	HF12
9	UP73	CC34	----
10	UP73	826P	03P7
11	UP8H	H58A	----
12	OU16	77F7	----
13	334U	85PA	6FHO
14	55H1	7P25	4596
15	0102	C3F2	FH5F
H SYNC	R8-8	309C	
	R8-9	P77U	

VERTICAL

	P7	P8	P6	N6	N7
CLOCK ⌐	P7-2	P8-2	P8-2	P8-2	P8-2
START/STOP ⌐	P7-11	P8-11	P8-11	P8-11	P8-11
GROUND	P7-8	P8-8	P8-8	P8-8	P8-8
VCC	UP73	9A02	9A02	9A02	9A02

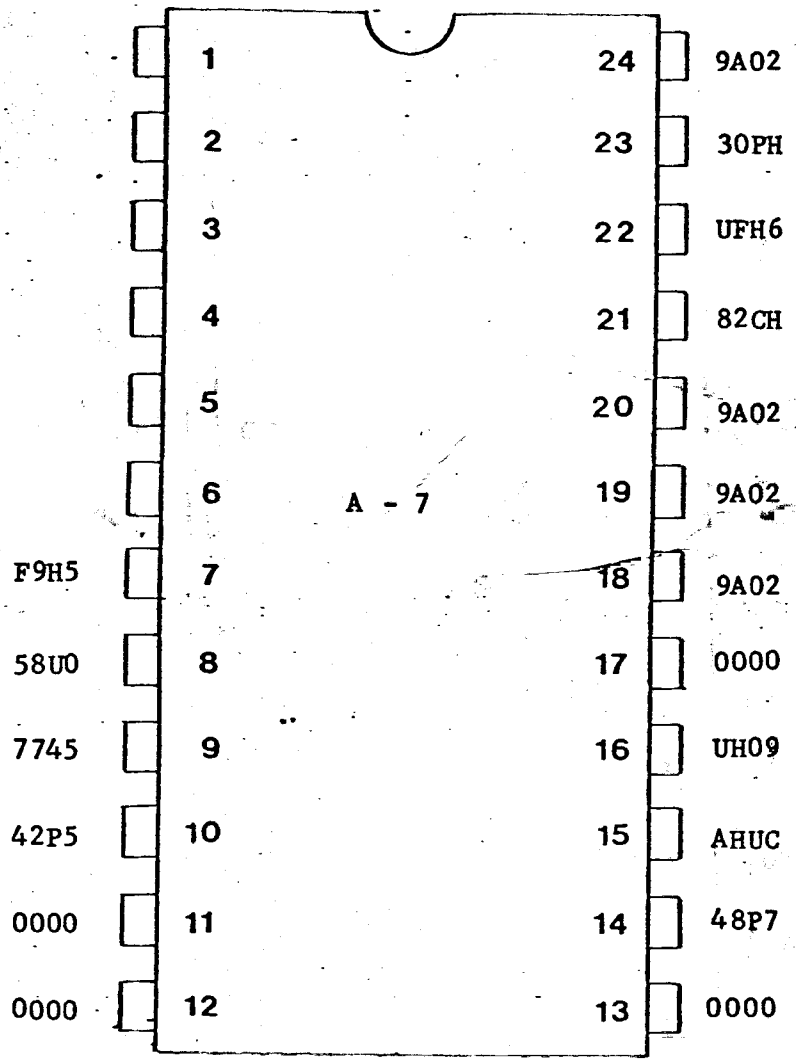
PIN	P7	P8	P6	N6	N7
1			38F4	69A2	U3H0
2			66H6	9A02	0000
3			C01C	----	0000
4			AAPU	48P8	9A02
5			9A02	----	0000
6			18CU	FFCF	9A02
7	UP73	AC7C	66H4	43C0	0000
8	0000	0000	0000	0000	68A7
9	UP73	29F0	FFCF	9F38	U2A5
10	UP73	AC7C	48P8	3H6F	9A02
11	UP8H	F52P	3H6F	----	9A02
12	0U16	F29C	5333	5333	43C0
13	334U	38F4	0000	----	43C0
14	55H1	66H6	----	0000	9A02
15	0102	P175	F52P	F996	
16	UP73	9A02	9A02	9A02	

VERT SYNC N8-5 ---- U2A5



CLOCK	P8-2 ⌐
START	P8-11 ⌐
STOP	P8-11 ⌐
GROUND	P8-8
VCC	9A02

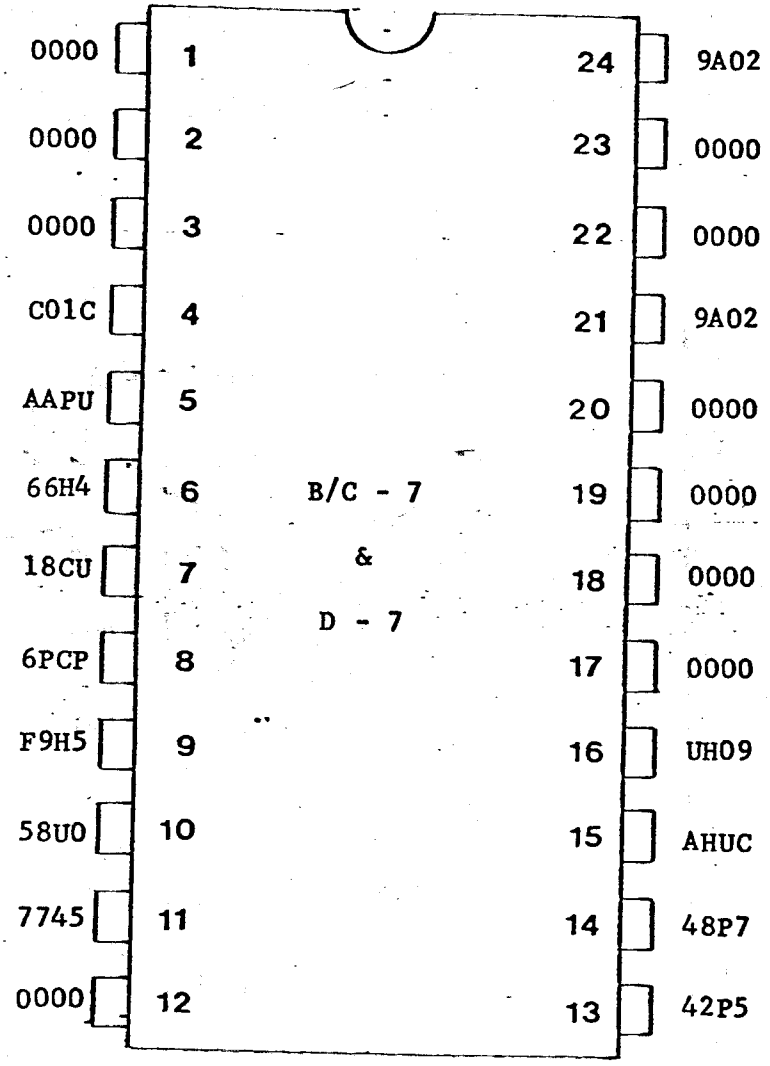
GAME NO.	298
TO TEST	ORBIT
MANUFACTURER	ATARI



NOTE: Signatures will alternately be unstable & stable.
Read when stable.

CLOCK P8-2
START P8-11
STOP P8-11
GROUND P8-8
VCC 9A02

GAME NO. 298
TO TEST ORBIT
MANUFACTURER ATARI



NOTE: Signatures will be alternately be unstable & stable.
Read when stable.

CLOCK Ø2
START A-15
STOP A-15
GROUND
VCC 0003

GAME NO. 298
TO TEST ORBIT
MANUFACTURER ATARI

Hardwire *E-3, E-4 & E-6

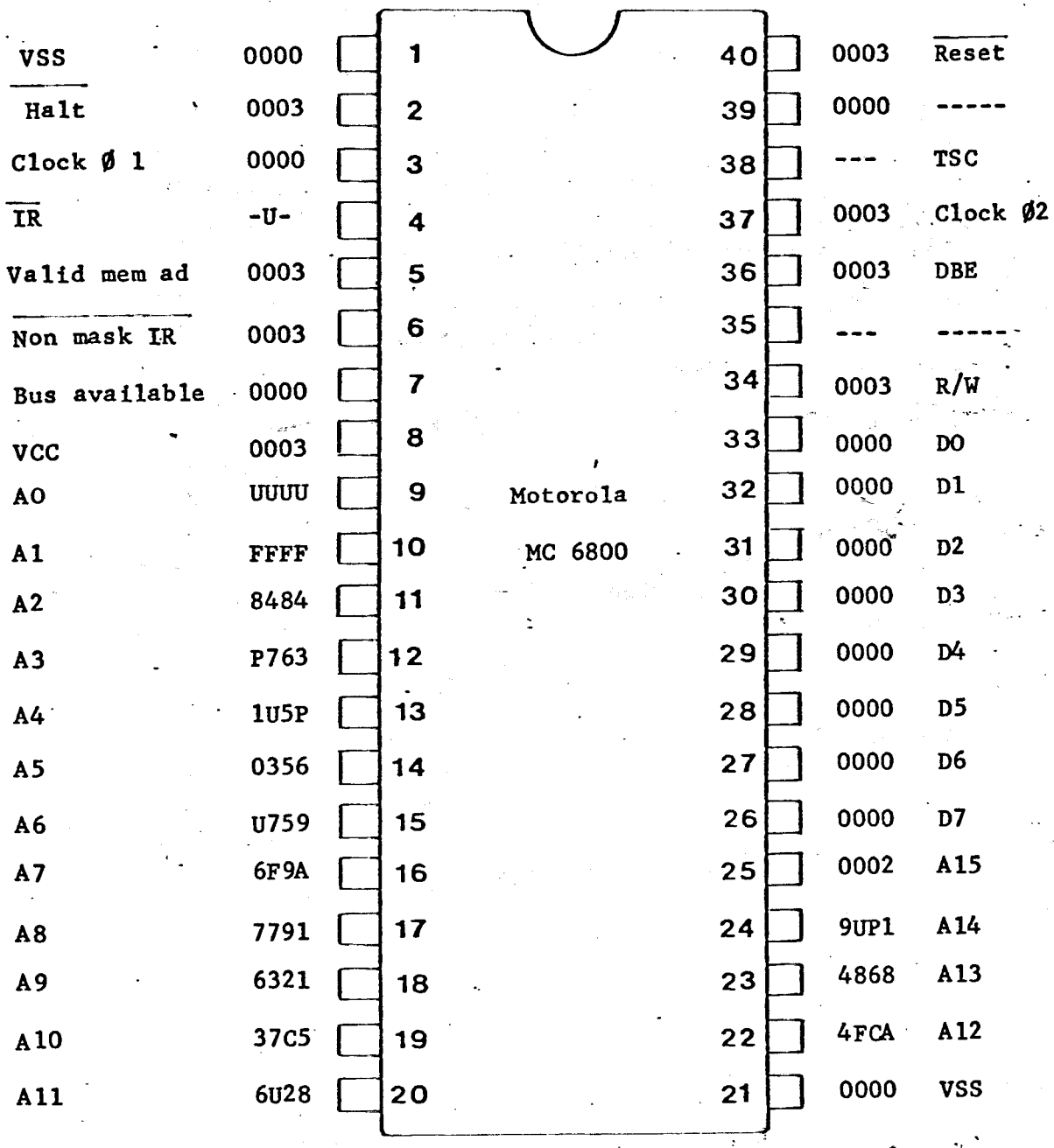


Figure 1

*If this is not done damage to E4 & E6 will result

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ATARI

CPU TEST

* 1. Connect E3-13 to E3-7
(This disables Bus Drivers E4 & E6)

2. On E4 (8T-28) & E6 (8T-28) connect pins 2, 5, 11 & 14 to pin 8 on each E4 & E6. This wires in the NOP instruction to the 68-00 processor.

3. Jumper E6-13 to GROUND. This disables the watchdog (reset) circuit.

Connect Signature II as follows:

CLOCK Ø2 (ring located between C4 &D4)
START A-15
STOP A-15

CPU Signatures as Figure 1.

*If this is not done, damage to E4 & E6 will result.