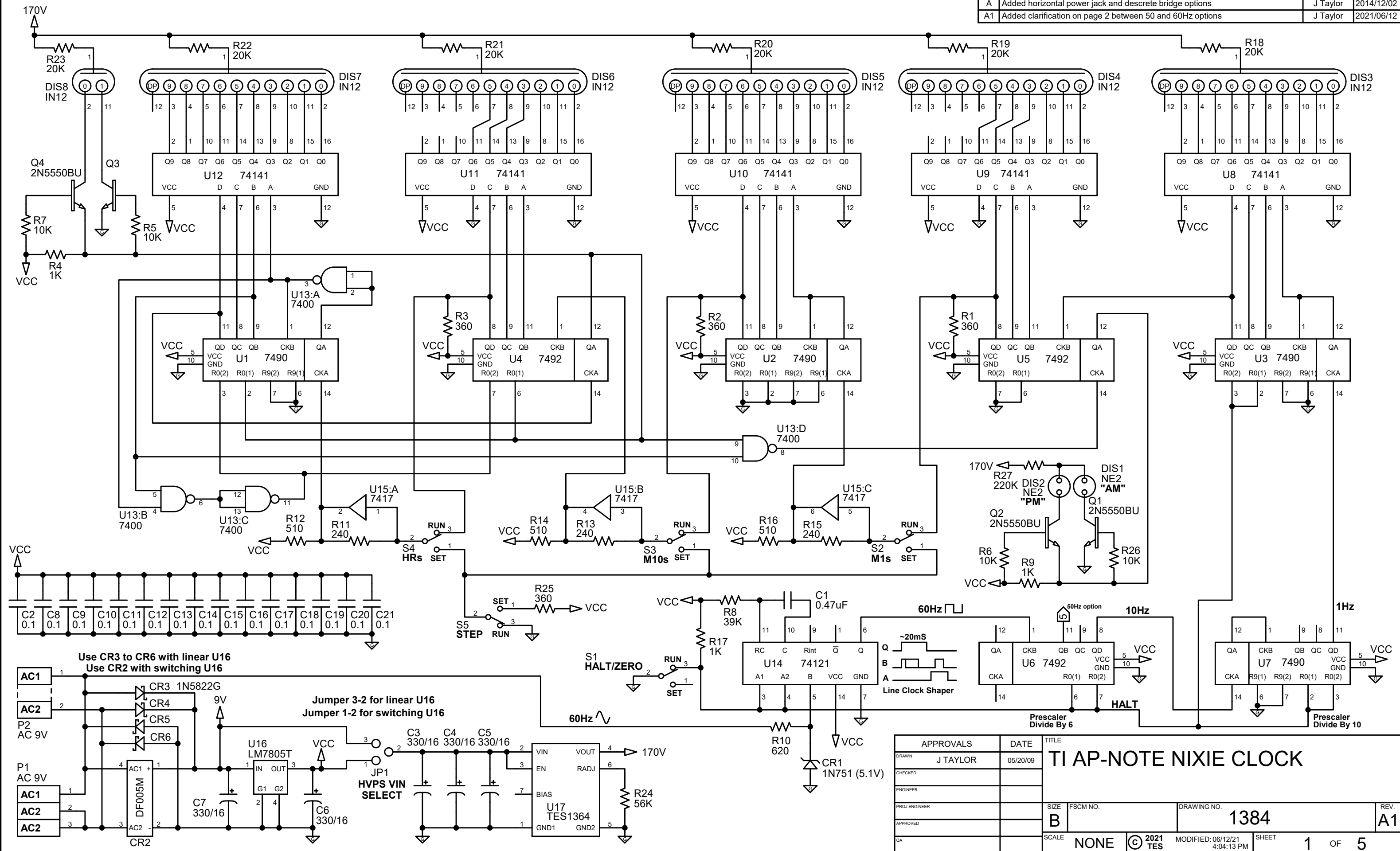


NOTES: UNLESS OTHERWISE SPECIFIED

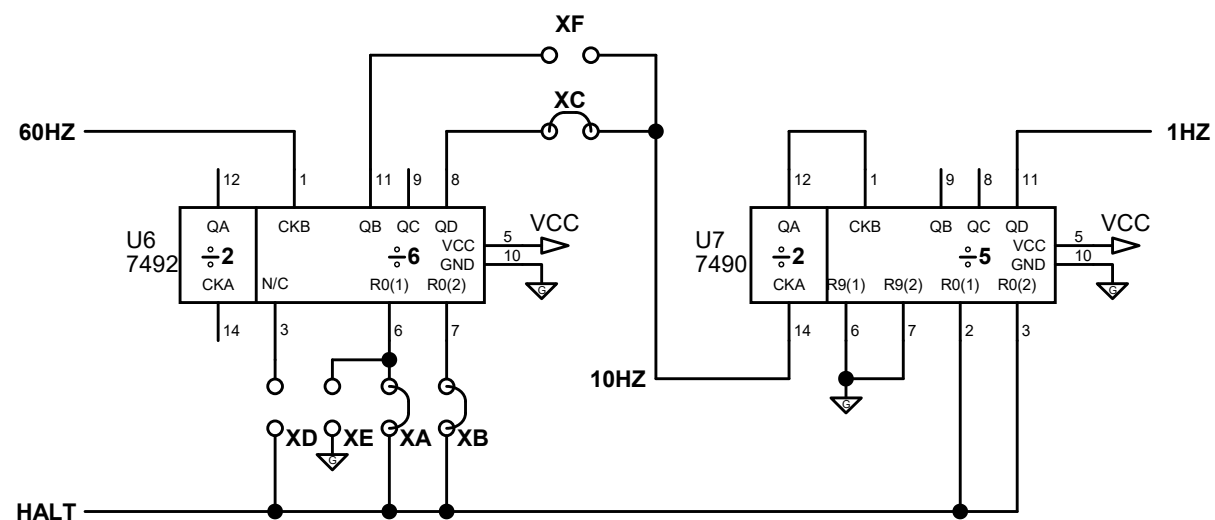
REVISION HISTORY			
REV	DESCRIPTION	APPROVED	DATE
-	Initial release	J Taylor	2009/12/28
A	Added horizontal power jack and discrete bridge options	J Taylor	2014/12/02
A1	Added clarification on page 2 between 50 and 60Hz options	J Taylor	2021/06/12



APPROVALS		DATE	TITLE								
DRAWN	J TAYLOR	05/20/09	TI AP-NOTE NIXIE CLOCK								
CHECKED											
ENGINEER											
PROJ ENGINEER											
APPROVED			<table border="1"> <tr> <td>SIZE</td> <td>FSCM NO.</td> <td>DRAWING NO.</td> <td>REV.</td> </tr> <tr> <td>B</td> <td></td> <td>1384</td> <td>A1</td> </tr> </table>	SIZE	FSCM NO.	DRAWING NO.	REV.	B		1384	A1
SIZE	FSCM NO.	DRAWING NO.	REV.								
B		1384	A1								
SCALE	NONE	© 2021 TES	<table border="1"> <tr> <td>MODIFIED: 06/12/21 4:04:13 PM</td> <td>SHEET</td> <td>1 OF 5</td> </tr> </table>	MODIFIED: 06/12/21 4:04:13 PM	SHEET	1 OF 5					
MODIFIED: 06/12/21 4:04:13 PM	SHEET	1 OF 5									

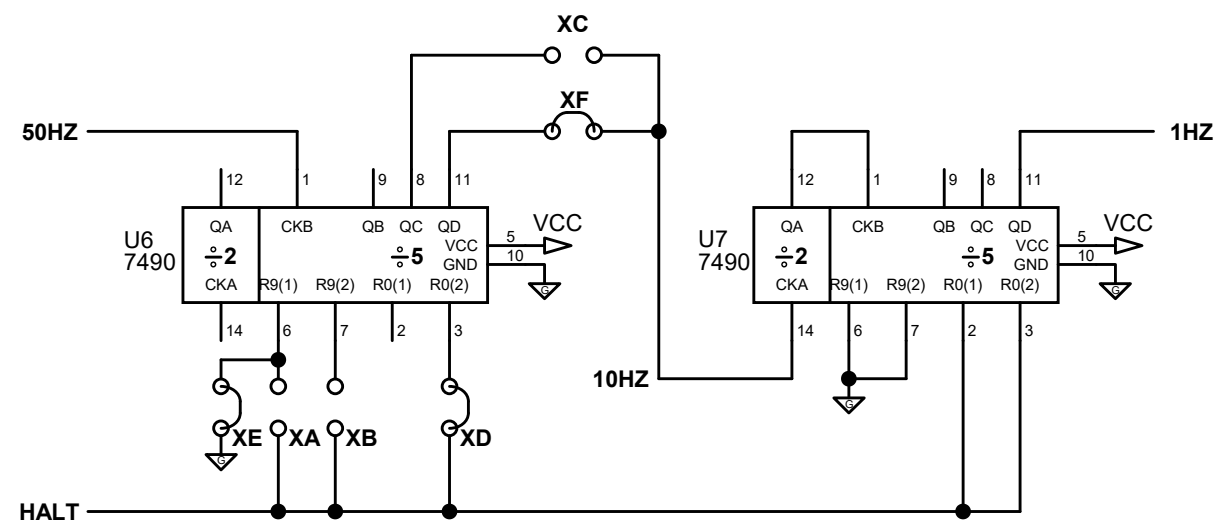
60HZ LINE FREQUENCY OPTION

Jumper XA, XB and XC (Open XD, XE and XF)
 (XA, XB and XC jumpered with tracks by default)



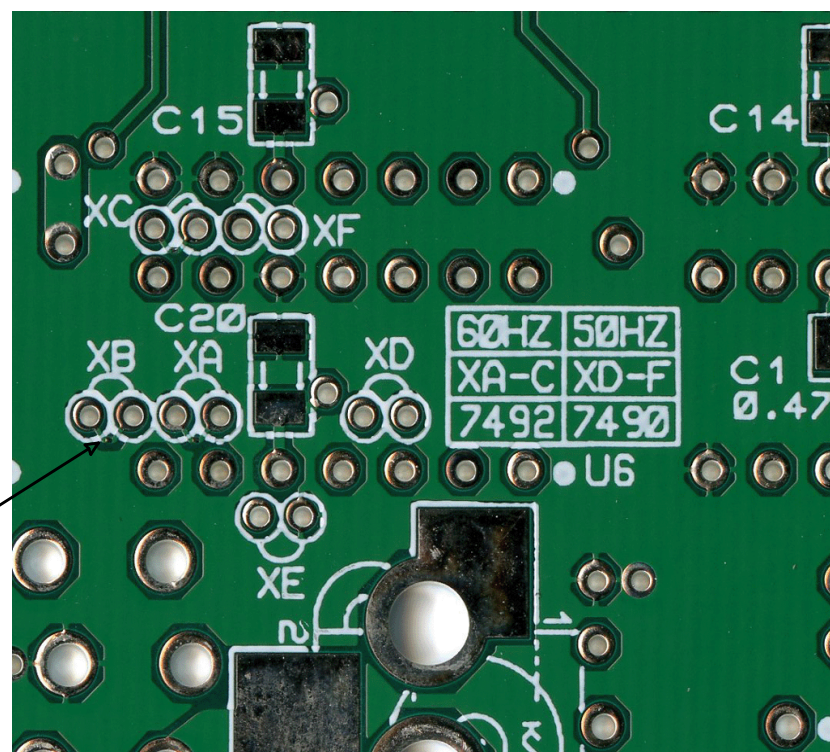
50HZ LINE FREQUENCY OPTION

Jumper XD, XE and XF (Open XA, XB and XC)
 (Must cut tracks jumpering XA, XB and XC)

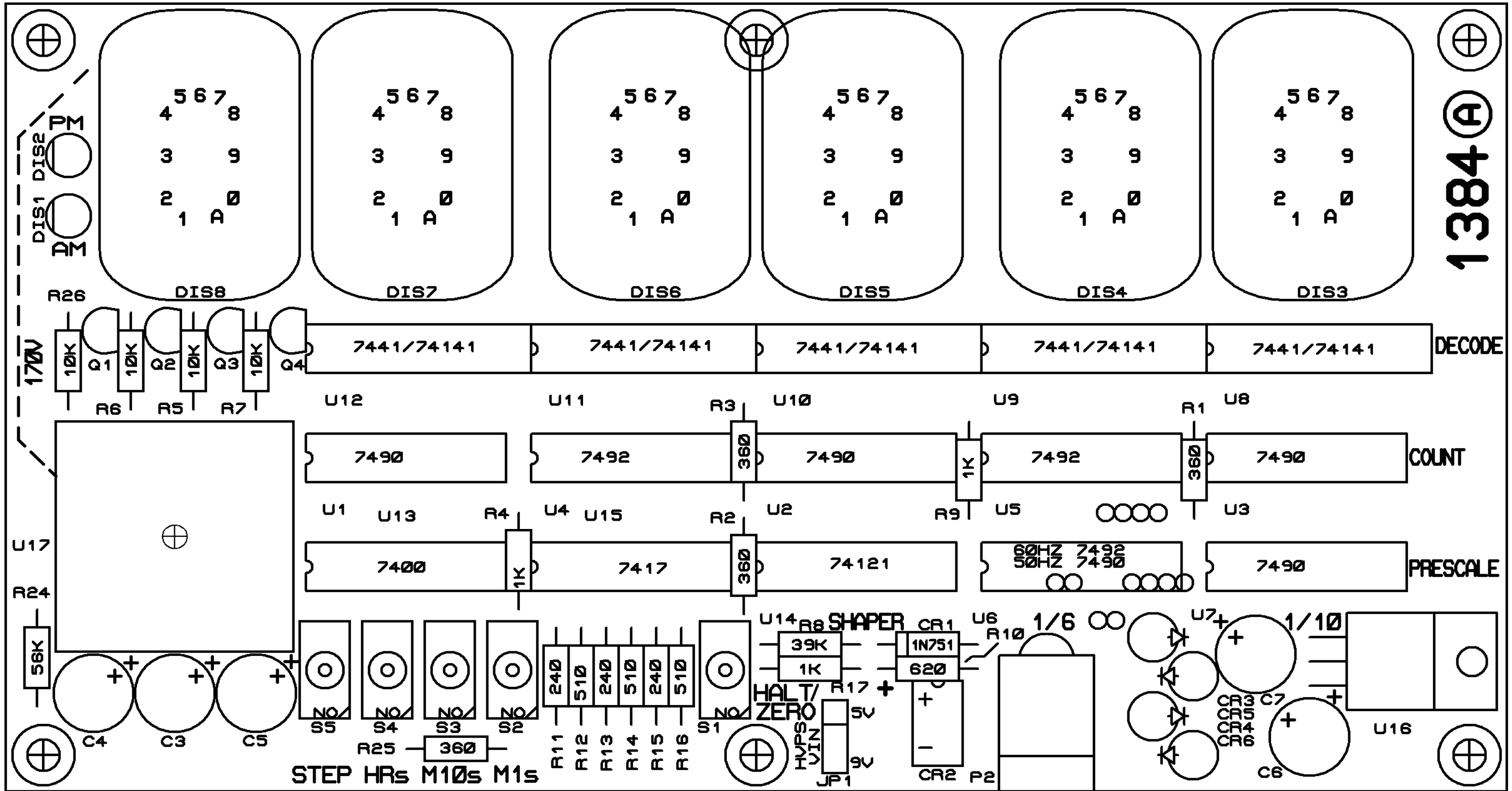


50/60Hz selection jumpers on bottom silk

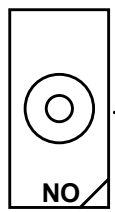
XA, XB and XC track links need to be cut before installing 50HZ jumpers



APPROVALS		DATE	TITLE		
DRAWN	J TAYLOR	05/20/09	TI AP-NOTE NIXIE CLOCK		
CHECKED					
ENGINEER					
PROJ ENGINEER			SIZE	FSCM NO.	DRAWING NO.
APPROVED			B		1384
QA			SCALE	NONE	REV. A1
			© 2021 TES	MODIFIED: 06/12/21 4:04:13 PM	SHEET 2 OF 5

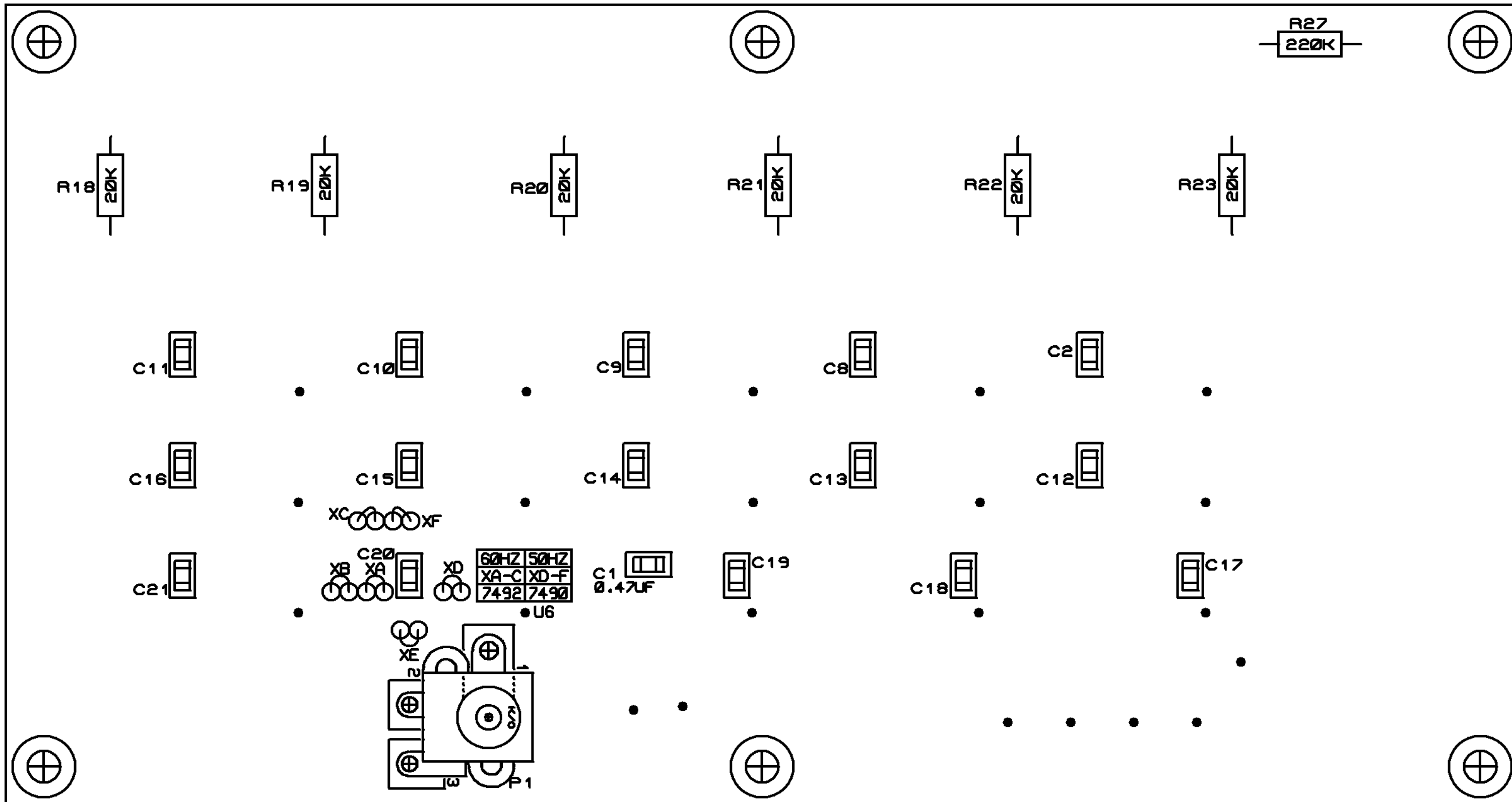


1384A



The Copal push buttons are inserted with the text side on this face.

APPROVALS		DATE	TITLE		
DRAWN	J TAYLOR	05/20/09	TI AP-NOTE NIXIE CLOCK		
CHECKED					
ENGINEER					
PROJ ENGINEER			SIZE	FSCM NO.	DRAWING NO.
APPROVED			B		1384
QA			SCALE	NONE	REV. A1
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APPROVALS		DATE	TITLE		
DRAWN	J TAYLOR	05/20/09	TI AP-NOTE NIXIE CLOCK		
CHECKED					
ENGINEER					
PROJ ENGINEER			SIZE	FSCM NO.	DRAWING NO.
APPROVED			B		1384
QA			SCALE	NONE	REV. A1
			© 2021 TES	MODIFIED: 06/12/21 4:04:13 PM	SHEET 4 OF 5

Changes to original TI schematic shown at right

1. Seconds 10's decoder to nixie connections changed to match minutes 10's: Upper 3 bits of 7492 count 0,1,2,4,5,6 and not 0,1,2,3,4,5.
2. Changed AM/PM driver to NE2 from incandescent for aesthetics.
3. Connected HALT switch to seconds and prescaler reset to zero them to allow easier exact second alignment on release (S1).
4. Changed high voltage from transformer output to boost module.
5. Changed 5V supply from zener shunt to LM7805 to improve performance and eliminate power resistor.
6. Selected Q output on one 74121 one-shot.
7. Minutes 1's 7490 counter shows R0(1)/R0(2) twice, second set should be R9(1)/R9(2).
8. Increment resistor changed to 360 ohms from 330 (S5).
9. Anode resistors changed to 20K for IN12's running at 170V.

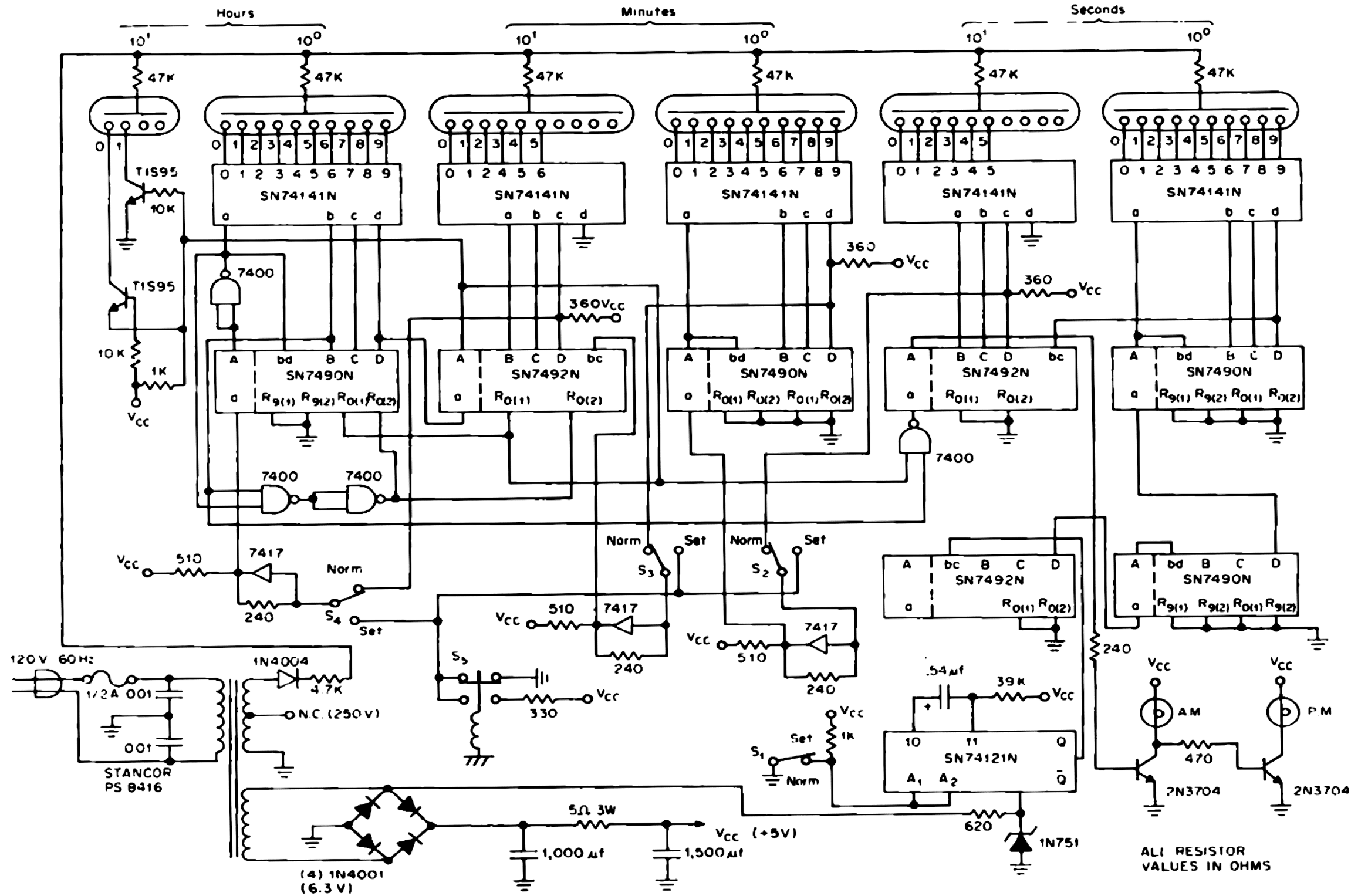


Fig. 12.4. 12-hour digital clock.

APPROVALS		DATE	TITLE		
DRAWN J TAYLOR		05/20/09	TI AP-NOTE NIXIE CLOCK		
CHECKED					
ENGINEER					
PROJ ENGINEER			SIZE B	FSCM NO.	DRAWING NO. 1384
APPROVED			SCALE NONE		REV. A1
QA			© 2021 TES	MODIFIED: 06/12/21 4:04:13 PM	SHEET 5 OF 5