

Technical Publication
SC-1005R0

Schematics

HF Series Generators

REVISION HISTORY

REVISION	DATE	REASON FOR CHANGE
<i>Refer to each schematic</i>		

This Document is the english original version, edited and supplied by the manufacturer.

The Revision state of this Document is indicated in the code number shown at the bottom of this page.

ADVISORY SYMBOLS

The following advisory symbols will be used throughout this manual. Their application and meaning are described below.



DANGERS ADVISE OF CONDITIONS OR SITUATIONS THAT IF NOT HEDED OR AVOIDED WILL CAUSE SERIOUS PERSONAL INJURY OR DEATH.



ADVISE OF CONDITIONS OR SITUATIONS THAT IF NOT HEDED OR AVOIDED COULD CAUSE SERIOUS PERSONAL INJURY, OR CATASTROPHIC DAMAGE OF EQUIPMENT OR DATA.



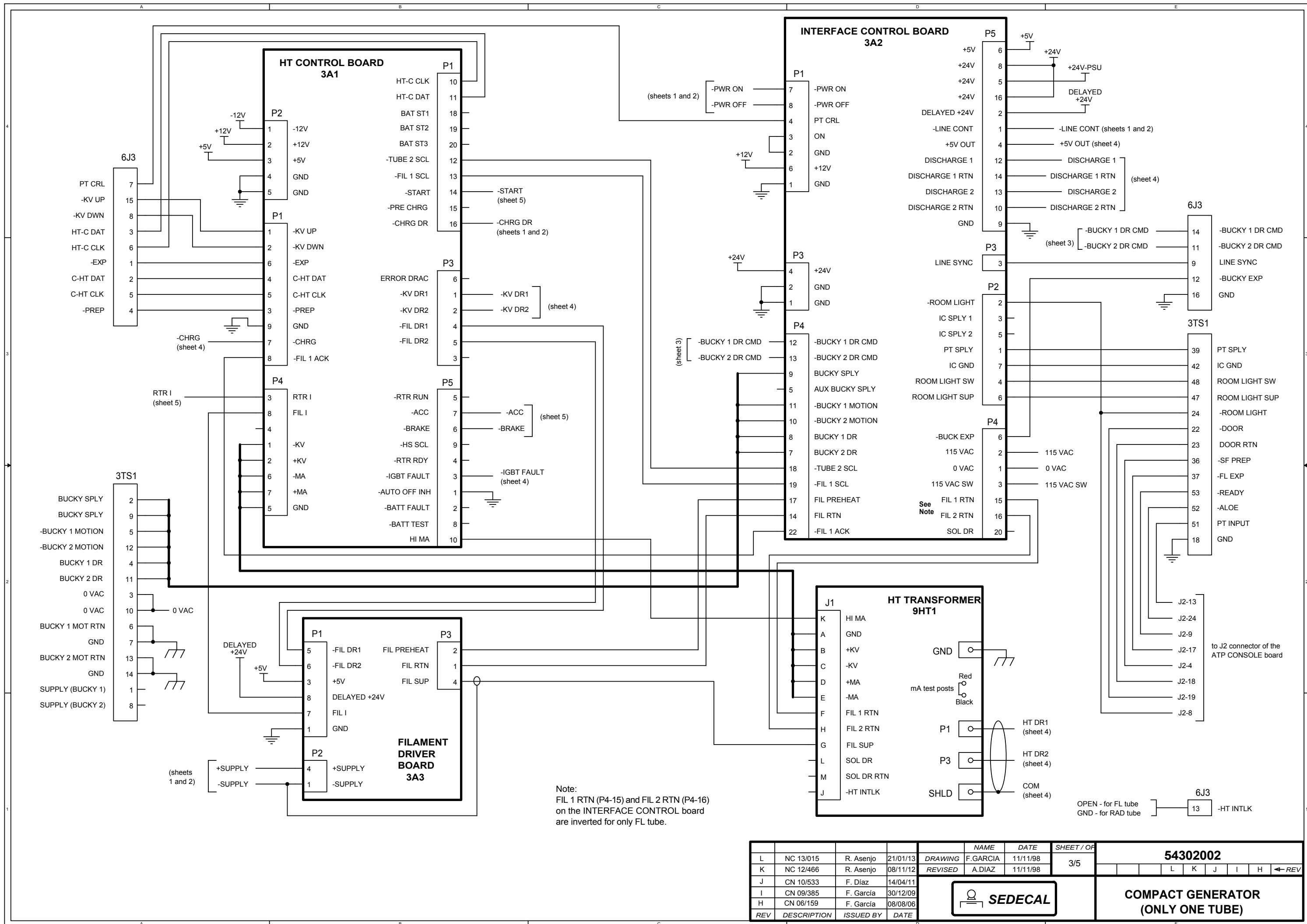
Advise of conditions or situations that if not heeded or avoided could cause personal injury or damage to equipment or data.

Note 


Alert readers to pertinent facts and conditions. Notes represent information that is important to know but which do not necessarily relate to possible injury or damage to equipment.

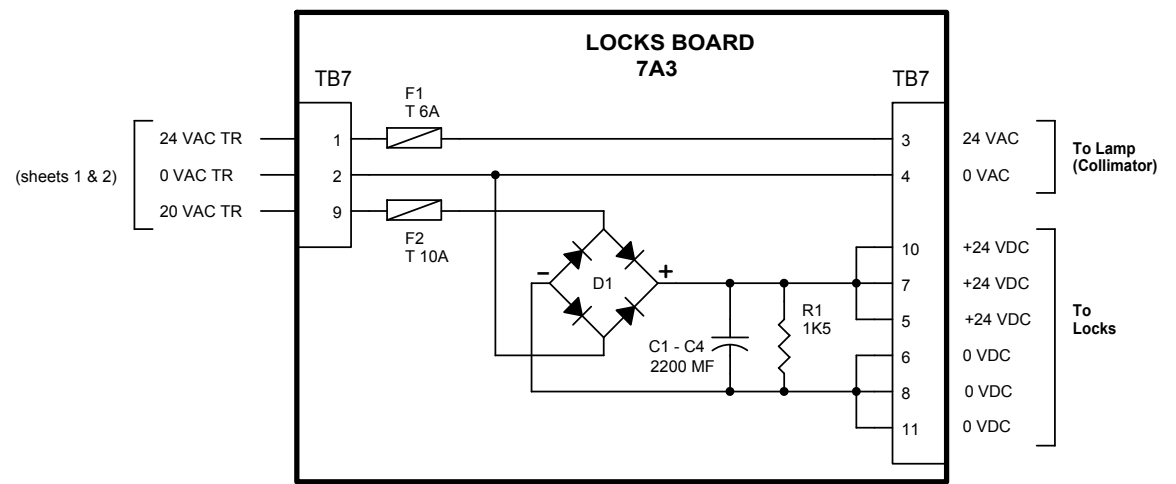
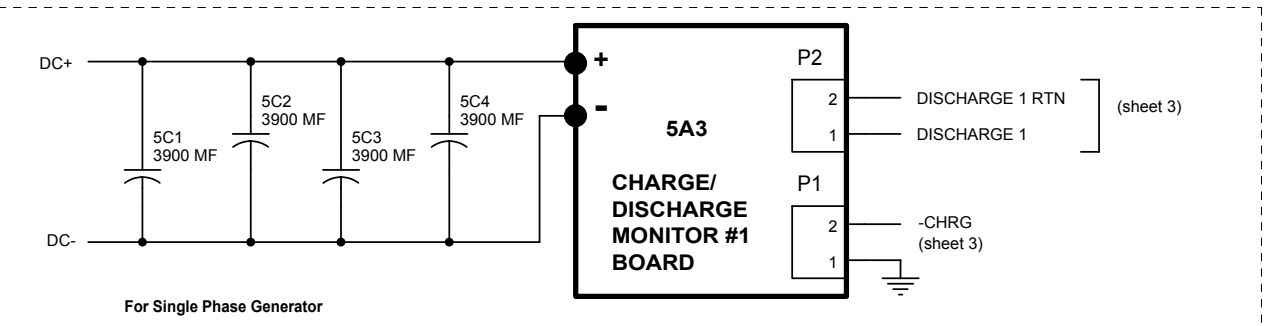
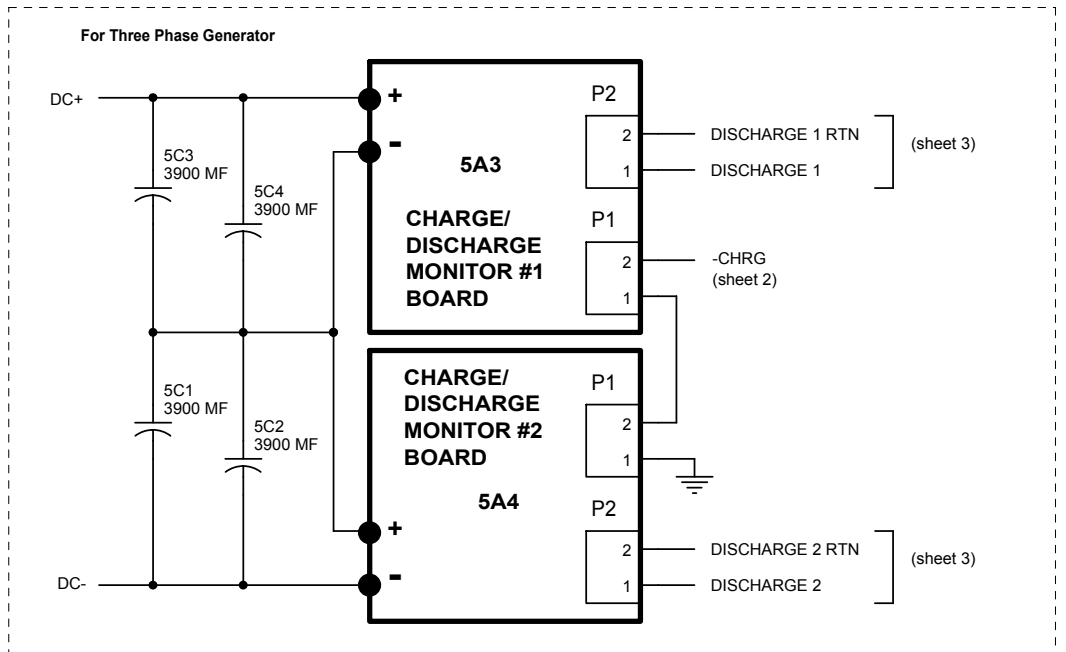
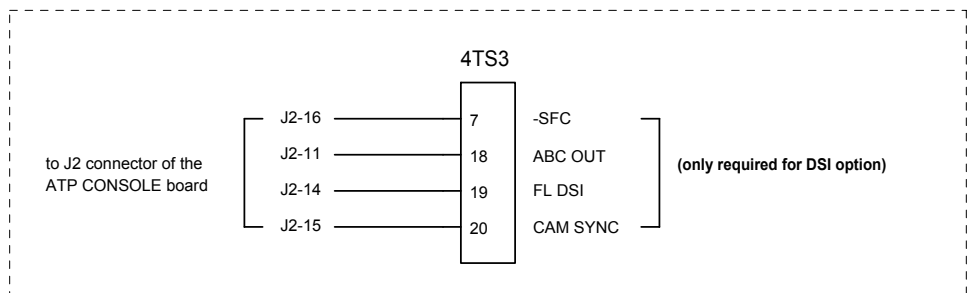
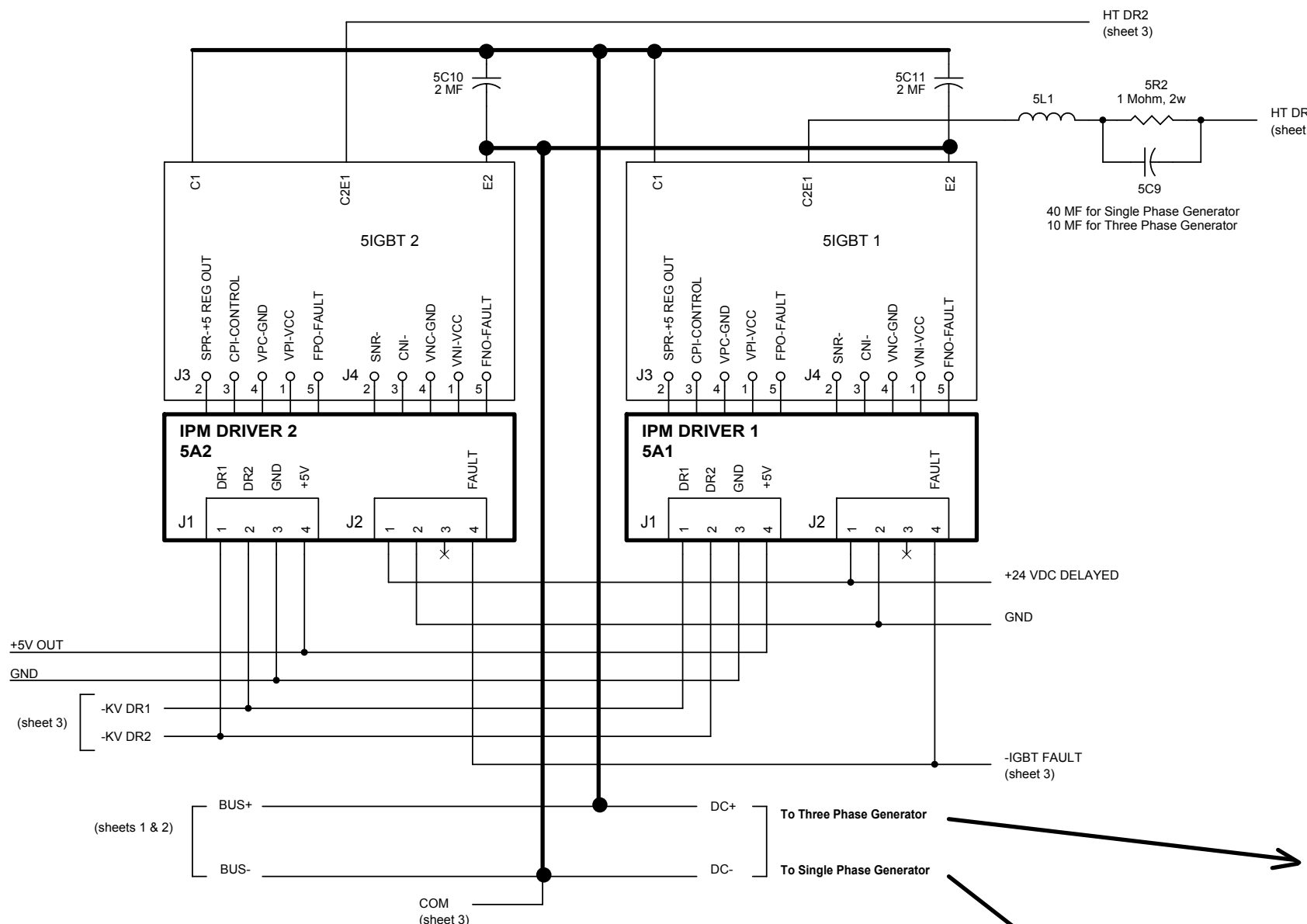
TABLE OF CONTENTS

SCH. No.	SCHEMATIC	REMARKS
54302002	Compact Generator (MINI)	
A3096-02	LF-RAC PCB	<i>Only used with Low Speed Generator</i>
A3000-xx	HT Controller PCB	<i>See Board code in Generator</i>
A3004-xx	Filament Control PCB	<i>See Board code in Generator</i>
A3009-xx	Interface Control PCB	<i>See Board code in Generator</i>
A3063-06	IPM Driver PCB	
A3212-01	Charge / Discharge Monitor PCB	
A3024-xx	ATP Console CPU PCB	
A3012-xx	AEC Control PCB	<i>Only used with AEC Option - See Board code in Generator</i>
A3553-02	Serial Console Control PCB	
A3585-21	RAD Multiuse H2 Serial Console Display	



Note:
 FIL 1 RTN (P4-15) and FIL 2 RTN (P4-16)
 on the INTERFACE CONTROL board
 are inverted for only FL tube.

REV	DESCRIPTION	ISSUED BY	DATE	NAME	DATE	SHEET / OF	54302002				
L	NC 13/015	R. Asenjo	21/01/13	DRAWING	F.GARCIA	11/11/98	3/5				
K	NC 12/466	R. Asenjo	08/11/12	REVISED	A.DIAZ	11/11/98					
J	CN 10/533	F. Diaz	14/04/11				L K J I H ←REV				
I	CN 09/385	F. Garcia	30/12/09								
H	CN 06/159	F. Garcia	08/08/06				 COMPACT GENERATOR (ONLY ONE TUBE)				
REV	DESCRIPTION	ISSUED BY	DATE								

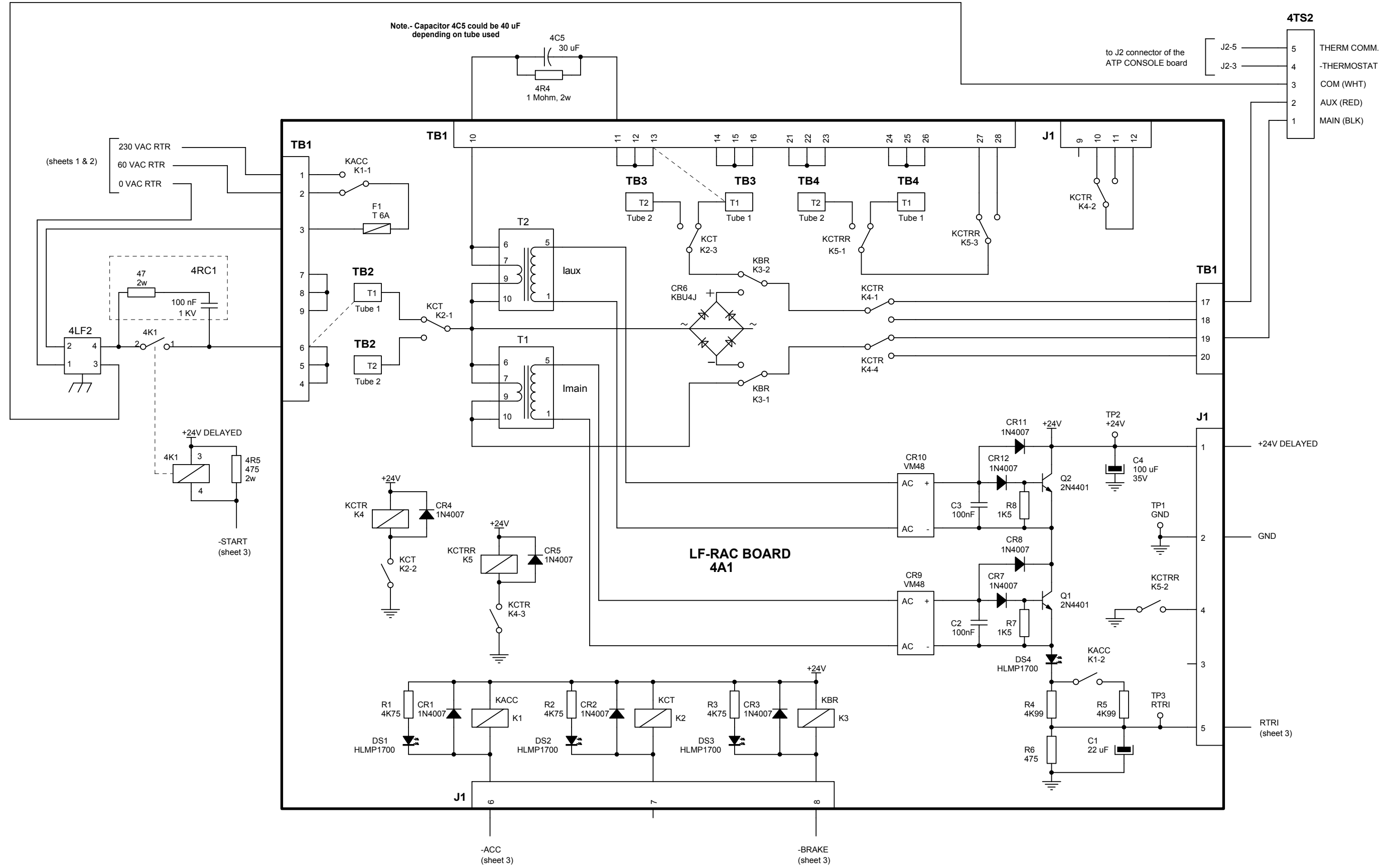


REV	DESCRIPTION	ISSUED BY	DATE	DRAWING	NAME	DATE	SHEET / OF	54302002					
L	NC 13/015	R. Asenjo	21/01/13		F.GARCIA	11/11/98	4/5	L	K	J	I	H	← REV
K	NC 12/466	R. Asenjo	08/11/12	REVISED	A.DIAZ	11/11/98							
J	CN 10/533	F. Diaz	14/04/11										
I	CN 09/385	F. Garcia	30/12/09										
H	CN 06/159	F. Garcia	08/08/06										




**COMPACT GENERATOR
(ONLY ONE TUBE)**

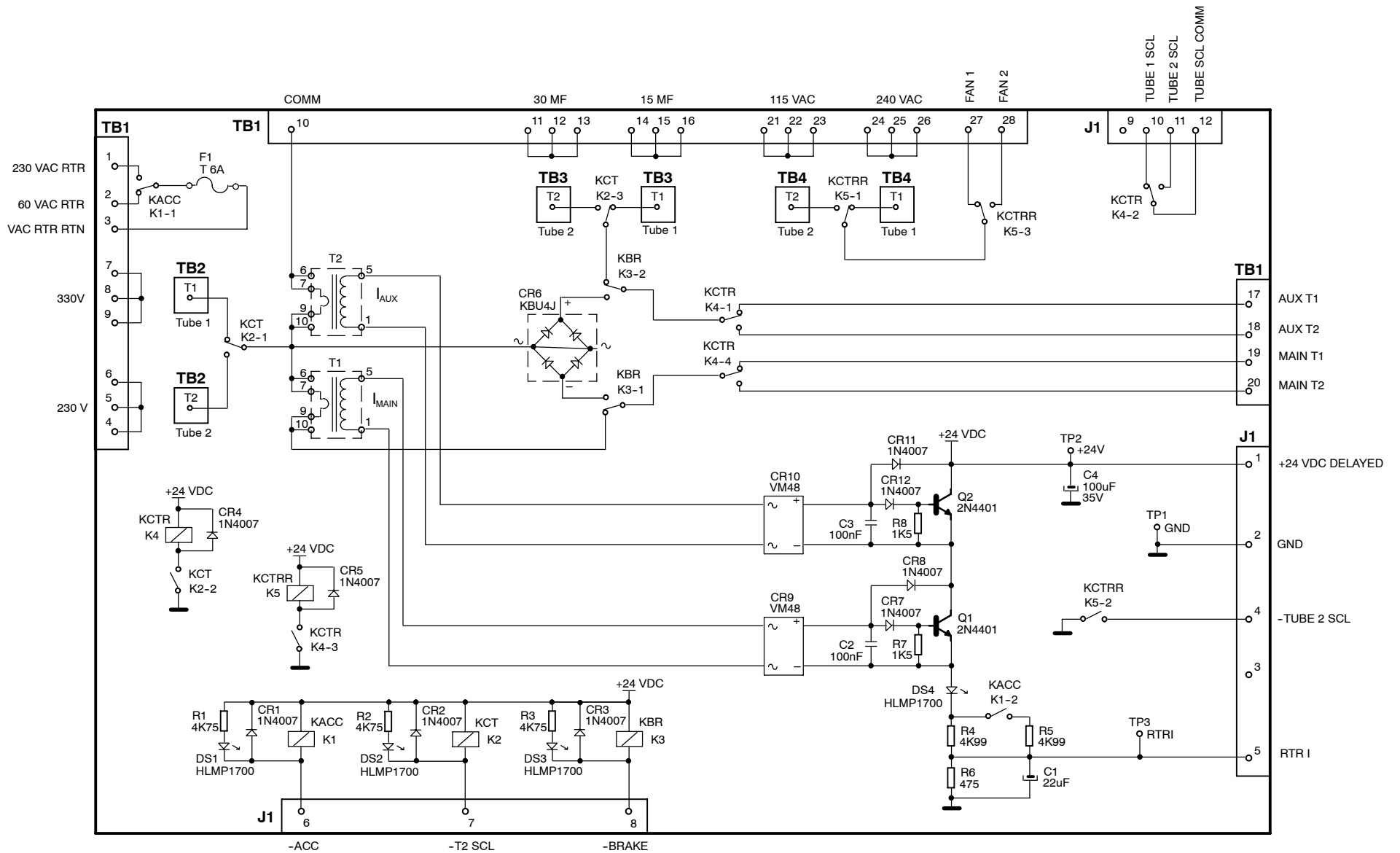
Note.- Capacitor 4C5 could be 40 uF depending on tube used



4TS2

J2-5	5	THERM COMM.
J2-3	4	-THERMOSTAT
	3	COM (WHT)
	2	AUX (RED)
	1	MAIN (BLK)

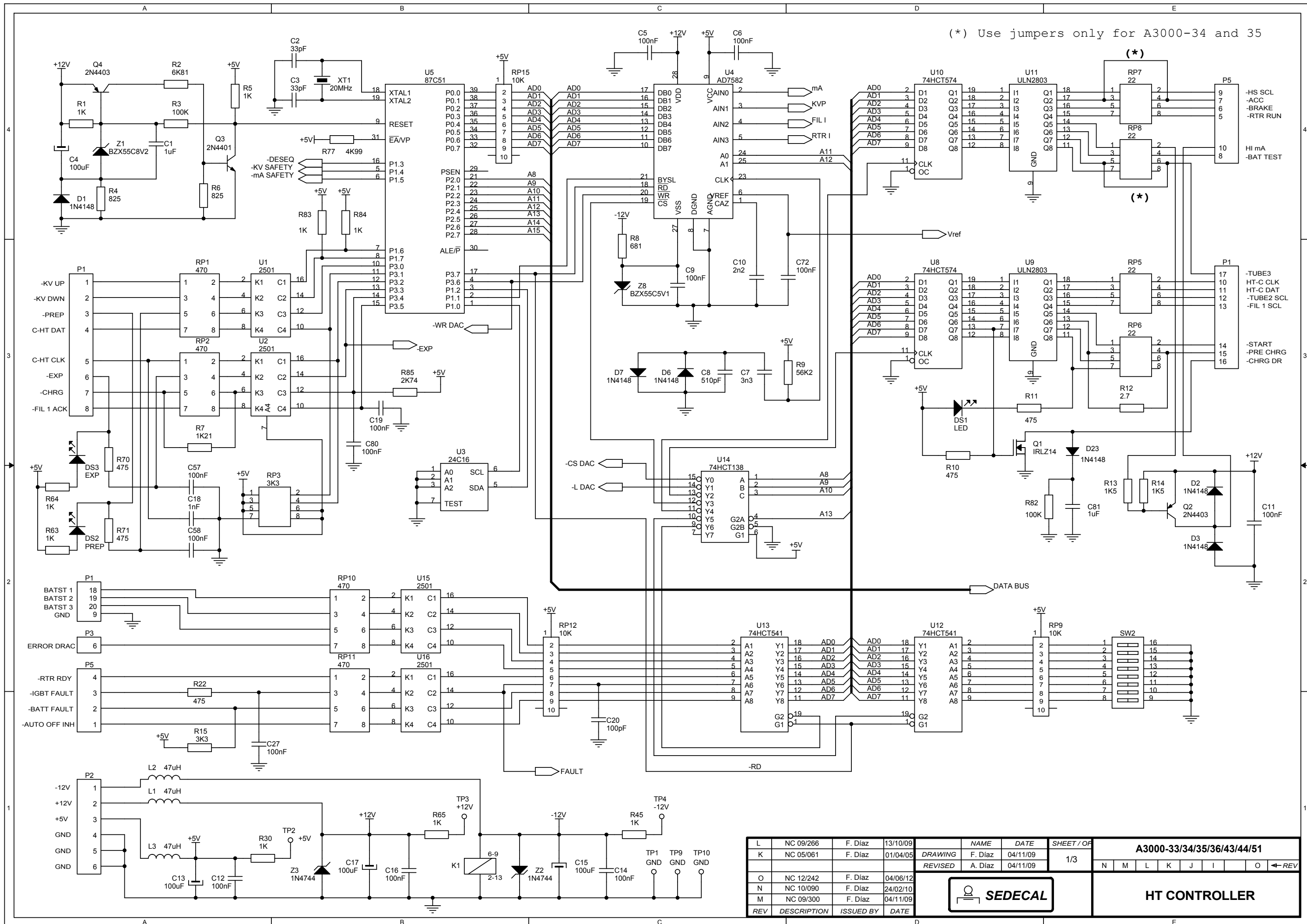
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L	NC 13/015	R. Asenjo	21/01/13	DRAWING	F.GARCIA	11/11/98	5/5	L	K	J	I	H	← REV
K	NC 12/466	R. Asenjo	08/11/12	REVISED	A.DIAZ	11/11/98		 COMPACT GENERATOR (ONLY ONE TUBE)					
J	CN 10/533	F. Diaz	14/04/11										
I	CN 09/385	F. Garcia	30/12/09										
H	CN 06/159	F. Garcia	08/08/06										



Note:
 The LF-RAC shown in the Generator schematic (543020XX) is a basic documentation, only for interconnection purposes.
 Follow this schematic for detailed component information of the LF-RAC board.

061109

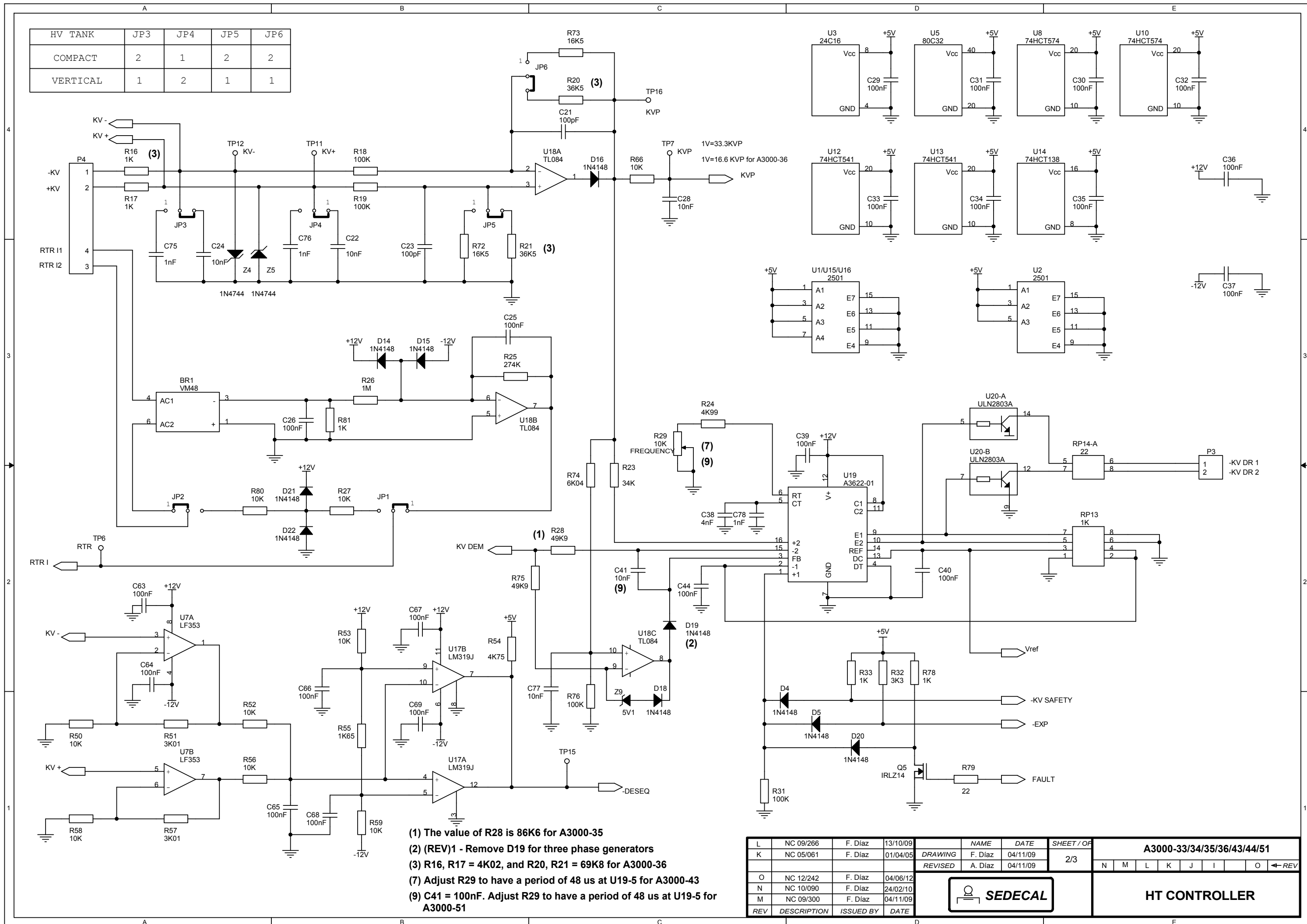
				NAME	DATE	SHEET / OF	DWG: A3096-02				
				DRAWING	F. GARCIA	21/09/97	1 / 1				
				REVISED	A. DIAZ	21/09/97					
							LF - RAC Board (Line Frequency Rotatory Anode Controller)				
B	CN 03/004	F. Garcia	13/01/03								
REV	DESCRIPTION	ISSUED BY	DATE					B	←	REV	



(* Use jumpers only for A3000-34 and 35)

L	NC 09/266	F. Díaz	13/10/09	NAME	DATE	SHEET / OF	A3000-33/34/35/36/43/44/51
K	NC 05/061	F. Díaz	01/04/05	DRAWING	F. Díaz	04/11/09	
O	NC 12/242	F. Díaz	04/06/12	REVISED	A. Díaz	04/11/09	N M L K J I O ← REV
N	NC 10/090	F. Díaz	24/02/10	SEDECAL		HT CONTROLLER	
M	NC 09/300	F. Díaz	04/11/09				
REV	DESCRIPTION	ISSUED BY	DATE				

HV TANK	JP3	JP4	JP5	JP6
COMPACT	2	1	2	2
VERTICAL	1	2	1	1



- (1) The value of R28 is 86K6 for A3000-35
- (2) (REV)1 - Remove D19 for three phase generators
- (3) R16, R17 = 4K02, and R20, R21 = 69K8 for A3000-36
- (7) Adjust R29 to have a period of 48 us at U19-5 for A3000-43
- (9) C41 = 100nF. Adjust R29 to have a period of 48 us at U19-5 for A3000-51

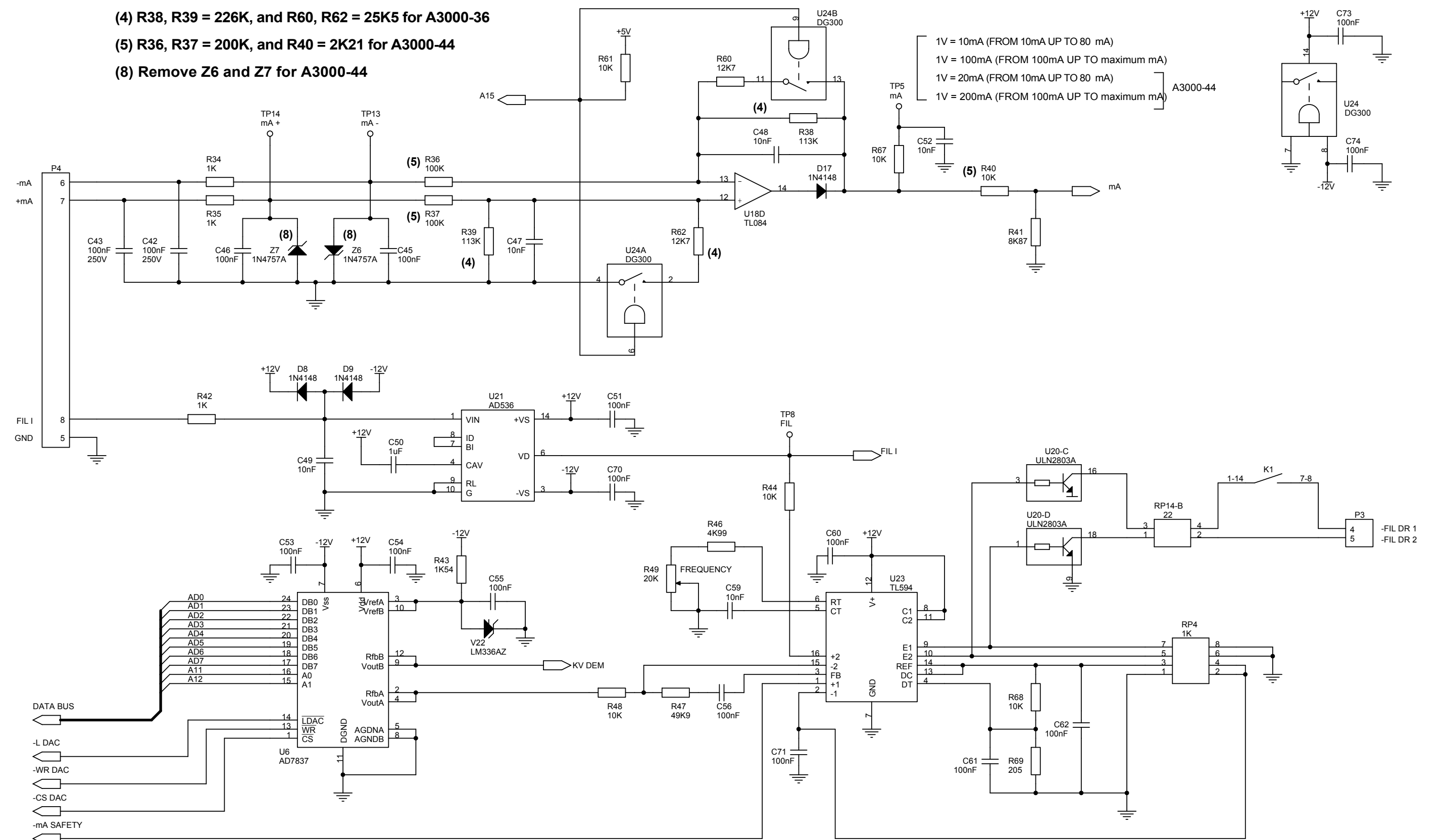
L	NC 09/266	F. Diaz	13/10/09	NAME	DATE	SHEET / OF	A3000-33/34/35/36/43/44/51	
K	NC 05/061	F. Diaz	01/04/05	DRAWING	F. Diaz	04/11/09		2/3
				REVISED	A. Diaz	04/11/09		
O	NC 12/242	F. Diaz	04/06/12					
N	NC 10/090	F. Diaz	24/02/10					
M	NC 09/300	F. Diaz	04/11/09					
REV	DESCRIPTION	ISSUED BY	DATE	SEDECAL			HT CONTROLLER	

(4) R38, R39 = 226K, and R60, R62 = 25K5 for A3000-36

(5) R36, R37 = 200K, and R40 = 2K21 for A3000-44

(8) Remove Z6 and Z7 for A3000-44

1V = 10mA (FROM 10mA UP TO 80 mA)
 1V = 100mA (FROM 100mA UP TO maximum mA)
 1V = 20mA (FROM 10mA UP TO 80 mA)
 1V = 200mA (FROM 100mA UP TO maximum mA)

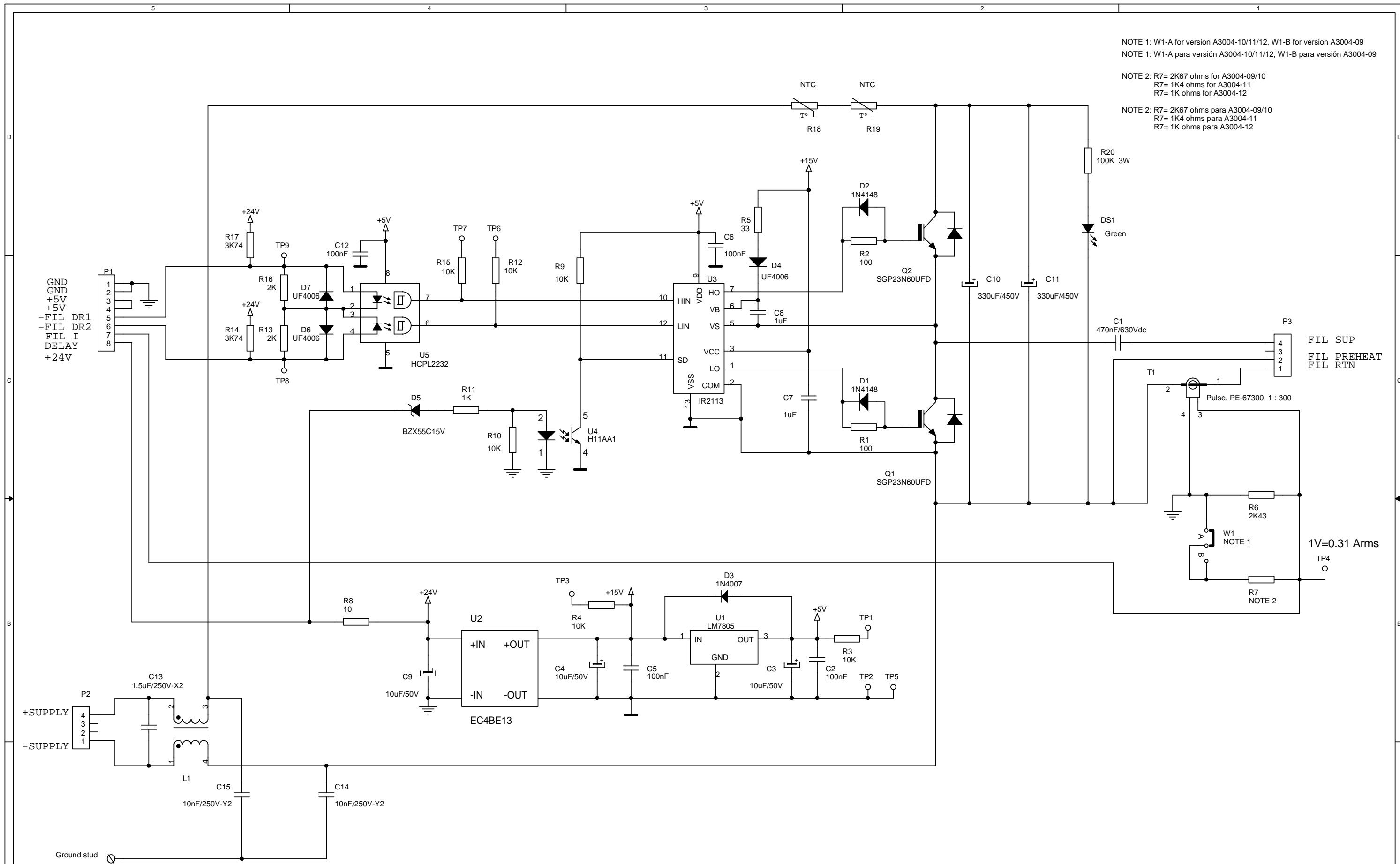


L	NC 09/266	F. Díaz	13/10/09	NAME	DATE	SHEET / OF	A3000-33/34/35/36/43/44/51
K	NC 05/061	F. Díaz	01/04/05	DRAWING	F. Díaz 04/11/09	3/3	
				REVISED	A. Díaz 04/11/09		
O	NC 12/242	F. Díaz	04/06/12				
N	NC 10/090	F. Díaz	24/02/10				
M	NC 09/300	F. Díaz	04/11/09				
REV	DESCRIPTION	ISSUED BY	DATE	SEDECAL		HT CONTROLLER	


NOTE 1: W1-A for version A3004-10/11/12, W1-B for version A3004-09
 NOTE 1: W1-A para versión A3004-10/11/12, W1-B para versión A3004-09

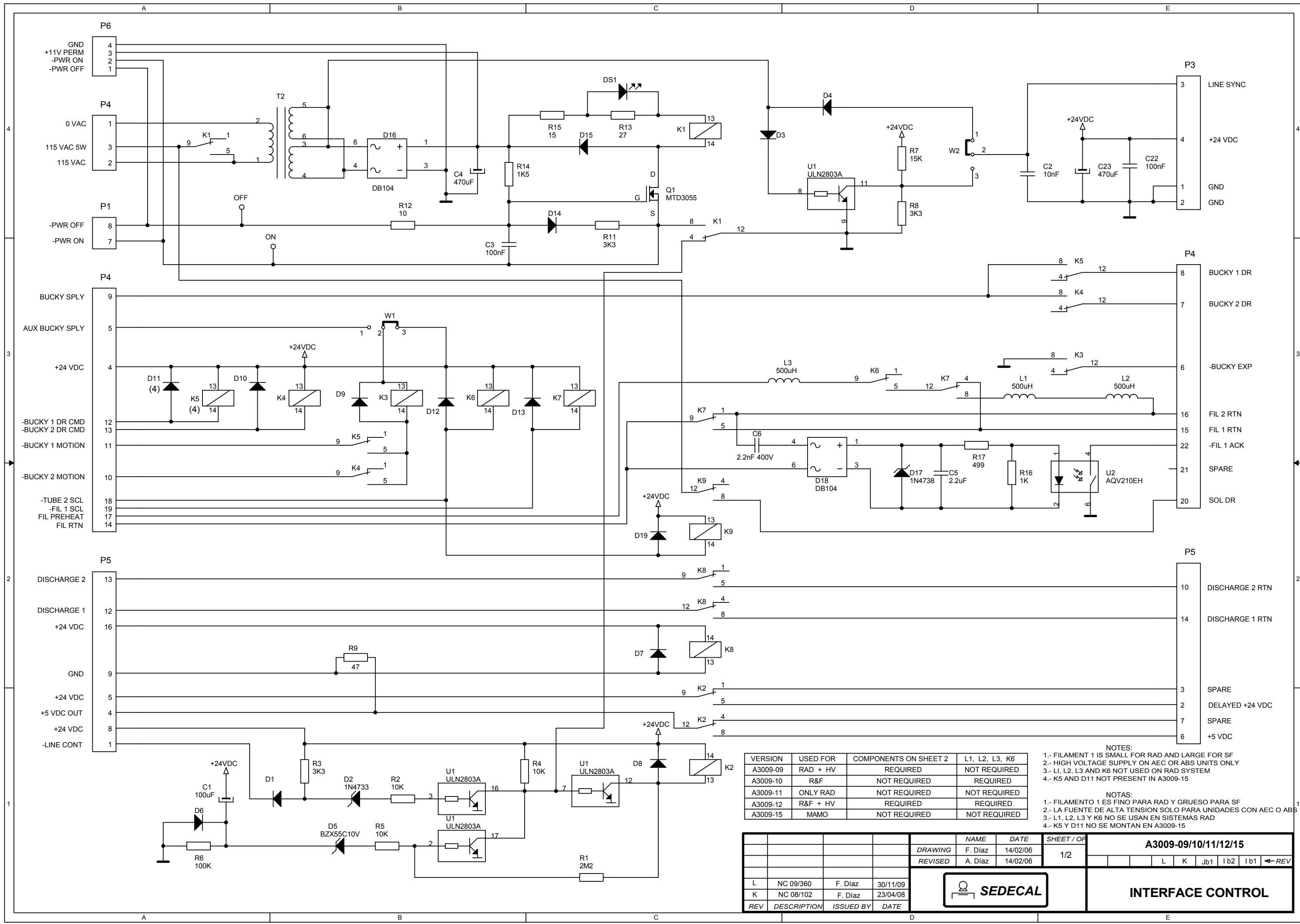
NOTE 2: R7= 2K67 ohms for A3004-09/10
 R7= 1K4 ohms for A3004-11
 R7= 1K ohms for A3004-12

NOTE 2: R7= 2K67 ohms para A3004-09/10
 R7= 1K4 ohms para A3004-11
 R7= 1K ohms para A3004-12



PCB 90068-04

REV	DESCRIPTION	ISSUED BY	DATE	NAME	DATE	SHEET / OF	A3004-09/10/11/12									
F	NC 09/347	F. Díaz	26/11/09	DRAWING	F. Díaz	26/10/04	1/1	F	E	Db1	Cb1	Bb1	Ab1	b2	b1	← REV
E	NC 09/162	R. Asenjo	05/06/09	REVISED	A. Díaz	26/10/04		 Filament Driver HC								
Db1	NC 06/251	F. Díaz	01/12/06													
Cb1	NC 05/112															



VERSION	USED FOR	COMPONENTS ON SHEET 2	L1, L2, L3, K6
A3009-09	RAD + HV	REQUIRED	NOT REQUIRED
A3009-10	R&F	NOT REQUIRED	REQUIRED
A3009-11	ONLY RAD	NOT REQUIRED	NOT REQUIRED
A3009-12	R&F + HV	REQUIRED	REQUIRED
A3009-15	MAMO	NOT REQUIRED	NOT REQUIRED

NOTES:
 1.- FILAMENT 1 IS SMALL FOR RAD AND LARGE FOR SF
 2.- HIGH VOLTAGE SUPPLY ON AEC OR ABS UNITS ONLY
 3.- L1, L2, L3 AND K6 NOT USED ON RAD SYSTEM
 4.- K5 AND D11 NOT PRESENT IN A3009-15

NOTAS:
 1.- FILAMENTO 1 ES FINO PARA RAD Y GRUESO PARA SF
 2.- LA FUENTE DE ALTA TENSION SOLO PARA UNIDADES CON AEC O ABS
 3.- L1, L2, L3 Y K6 NO SE USAN EN SISTEMAS RAD
 4.- K5 Y D11 NO SE MONTAN EN A3009-15

REV	DESCRIPTION	ISSUED BY	DATE	NAME	DATE	SHEET / OF	A3009-09/10/11/12/15					
				DRAWING	F. Díaz	14/02/06	1/2					
				REVISED	A. Díaz	14/02/06						
L	NC 09/360	F. Díaz	30/11/09				L	K	Jb1	Ib2	Ib1	← REV
K	NC 08/102	F. Díaz	23/04/08				SEDECAL					
							INTERFACE CONTROL					

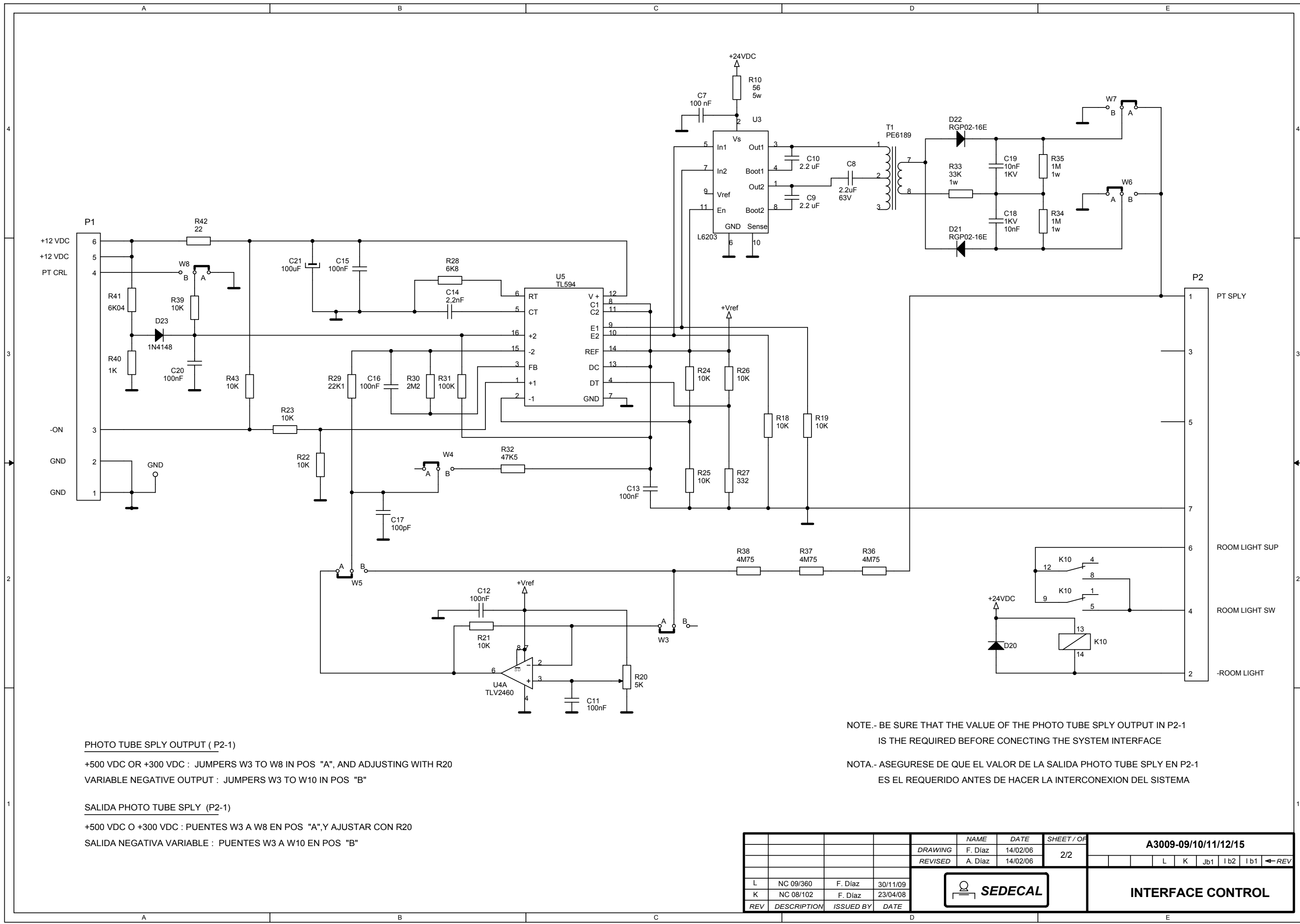


PHOTO TUBE SPLY OUTPUT (P2-1)

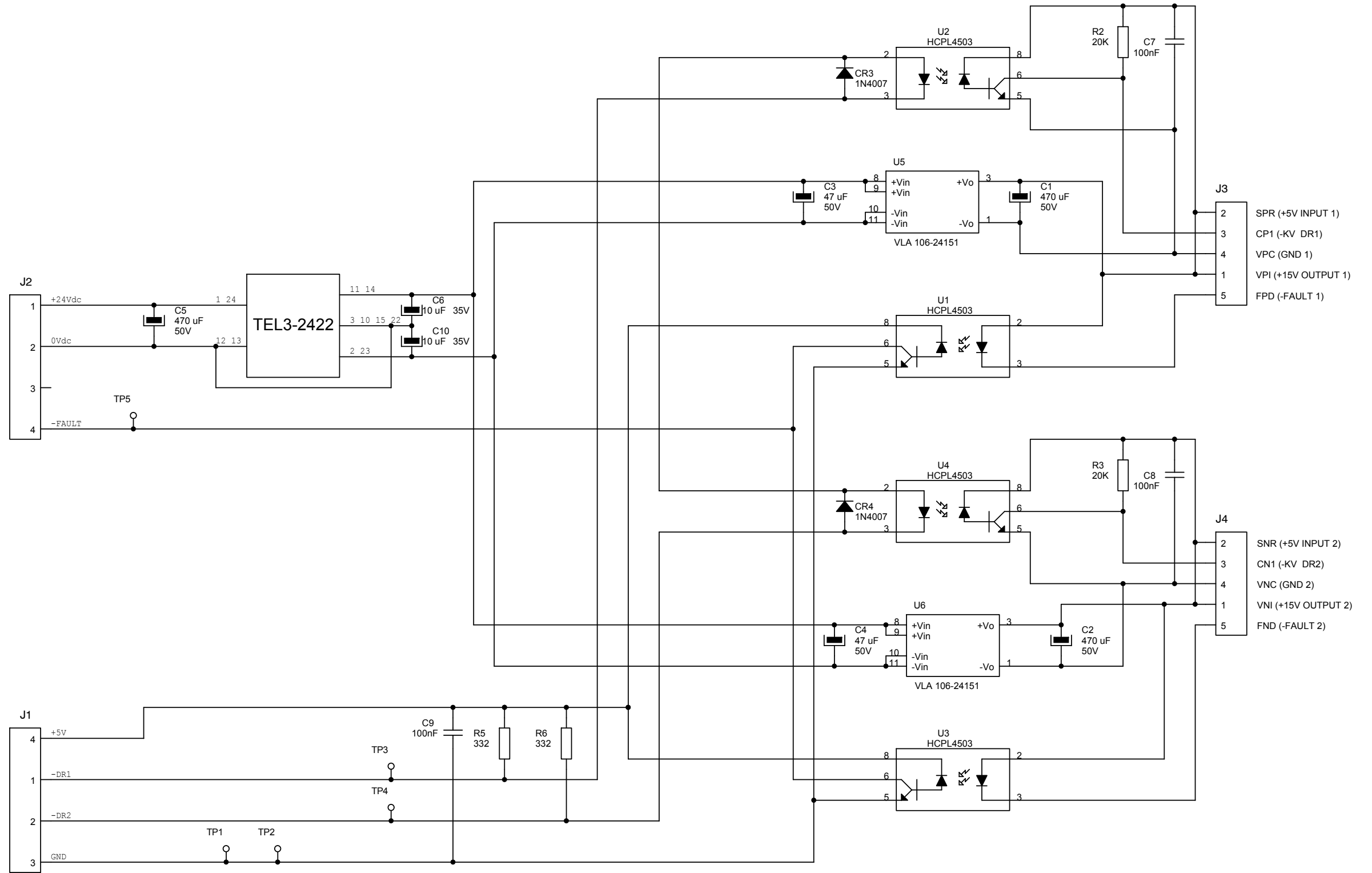
+500 VDC OR +300 VDC : JUMPERS W3 TO W8 IN POS "A", AND ADJUSTING WITH R20
 VARIABLE NEGATIVE OUTPUT : JUMPERS W3 TO W10 IN POS "B"

SALIDA PHOTO TUBE SPLY (P2-1)

+500 VDC O +300 VDC : PUENTES W3 A W8 EN POS "A",Y AJUSTAR CON R20
 SALIDA NEGATIVA VARIABLE : PUENTES W3 A W10 EN POS "B"

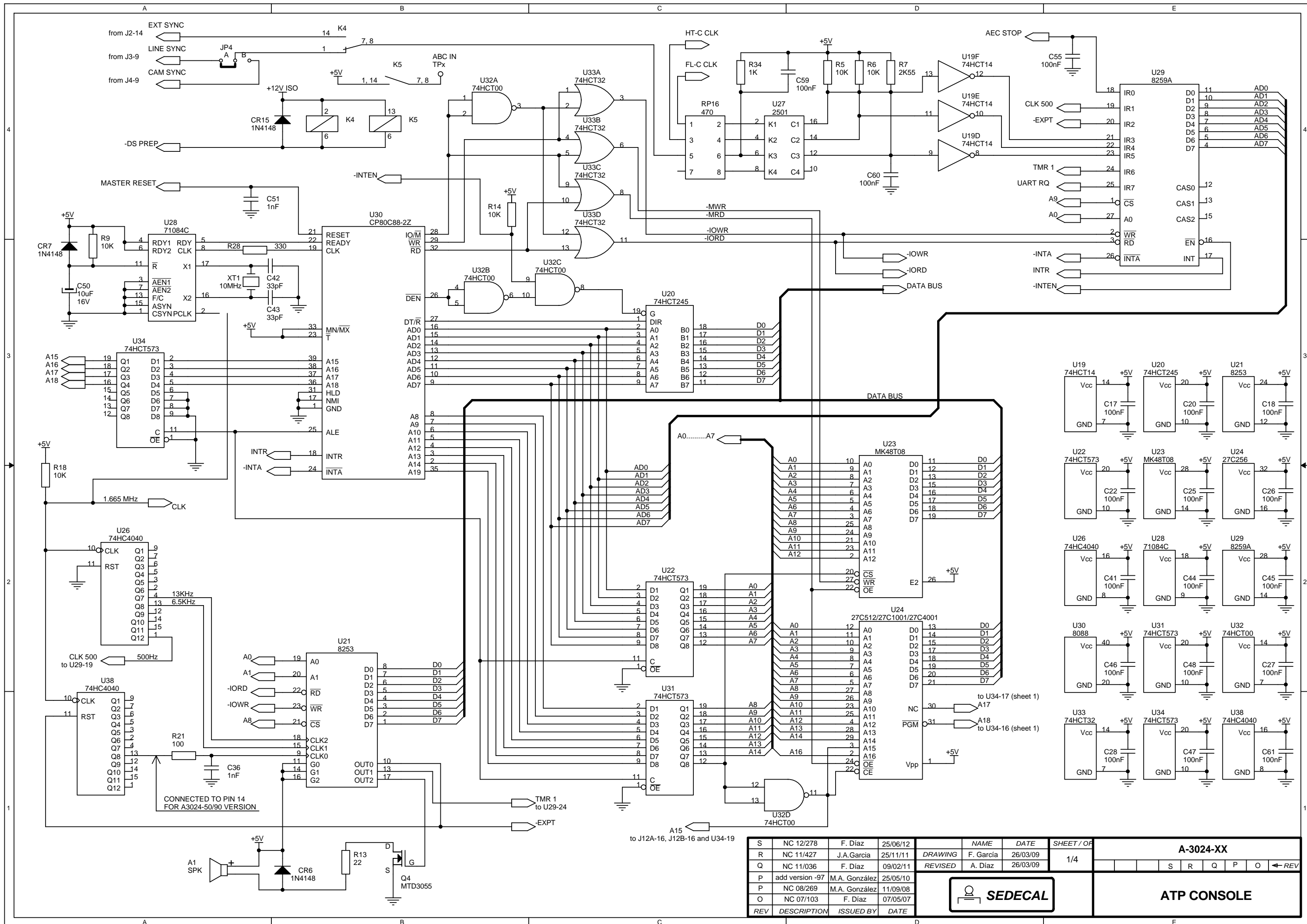
NOTE.- BE SURE THAT THE VALUE OF THE PHOTO TUBE SPLY OUTPUT IN P2-1 IS THE REQUIRED BEFORE CONECTING THE SYSTEM INTERFACE
 NOTA.- ASEGURESE DE QUE EL VALOR DE LA SALIDA PHOTO TUBE SPLY EN P2-1 ES EL REQUERIDO ANTES DE HACER LA INTERCONEXION DEL SISTEMA

		NAME	DATE	SHEET / OF	A3009-09/10/11/12/15							
		DRAWING	F. Díaz	14/02/06	2/2		L	K	Jb1	I b2	I b1	←REV
		REVISED	A. Díaz	14/02/06								
L	NC 09/360	F. Díaz	30/11/09									
K	NC 08/102	F. Díaz	23/04/08									
REV	DESCRIPTION	ISSUED BY	DATE	INTERFACE CONTROL								

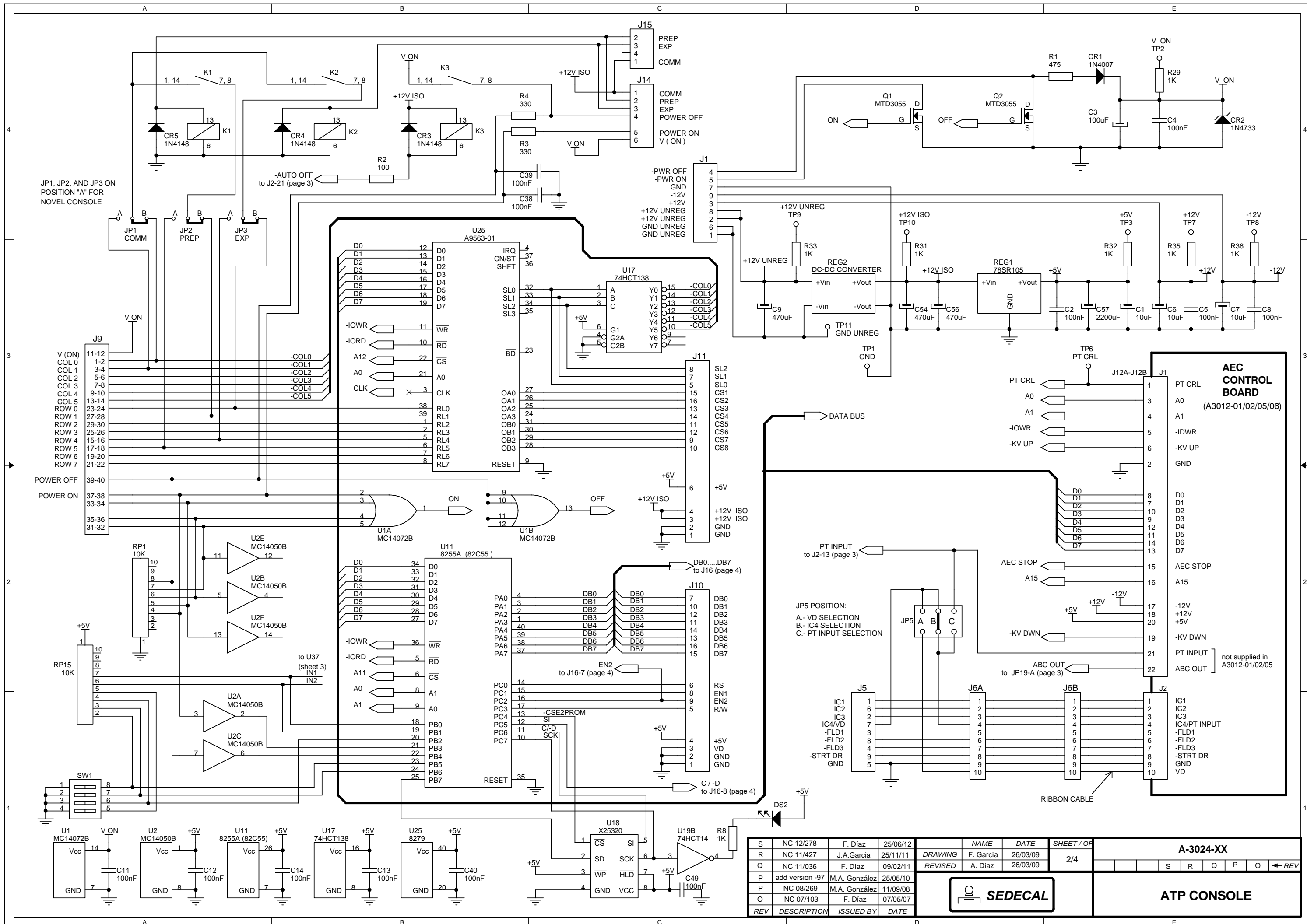


C.I. 90132-06

		NAME	DATE	SHEET / OF	A3063-06	
		DRAWING	F. Diaz	20/06/11	1/1	
		REVISED	A. Diaz	20/06/11	A ← REV	
					IPM DRIVER	
REV	DESCRIPTION	ISSUED BY	DATE			



S	NC 12/278	F. Diaz	25/06/12	NAME	DATE	SHEET / OF	A-3024-XX				
R	NC 11/427	J.A.Garcia	25/11/11	DRAWING	F. Garcia	26/03/09	1/4				
Q	NC 11/036	F. Diaz	09/02/11	REVISED	A. Diaz	26/03/09					
P	add version -97	M.A. González	25/05/10								
P	NC 08/269	M.A. González	11/09/08								
O	NC 07/103	F. Diaz	07/05/07								
REV	DESCRIPTION	ISSUED BY	DATE							ATP CONSOLE	



JP1, JP2, AND JP3 ON POSITION "A" FOR NOVEL CONSOLE

-AUTO OFF to J2-21 (page 3)

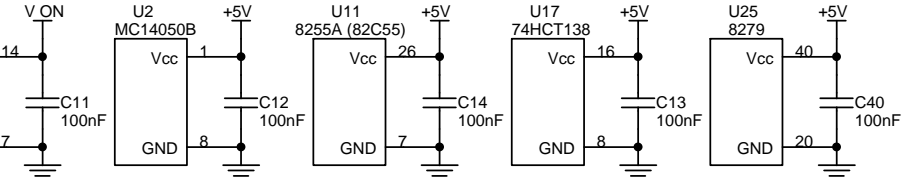
-PWR OFF
-PWR ON
-12V
+12V
GND UNREG

V (ON)
COL 0
COL 1
COL 2
COL 3
COL 4
COL 5
COL 6
ROW 0
ROW 1
ROW 2
ROW 3
ROW 4
ROW 5
ROW 6
ROW 7

POWER OFF
POWER ON

RP15 10K

SW1

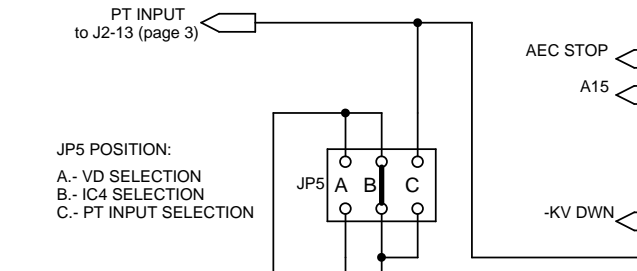
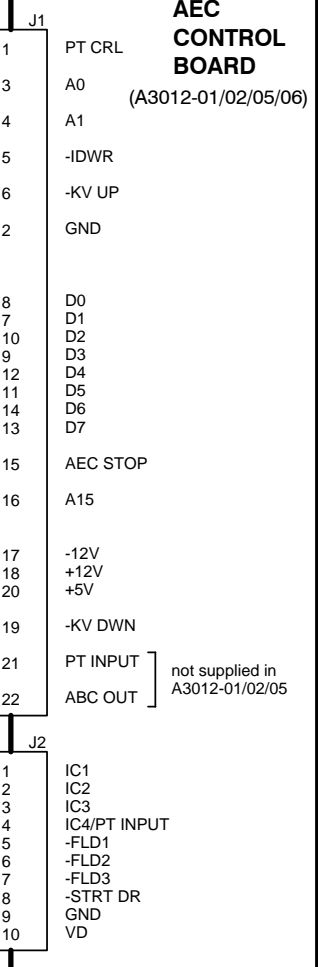


S	NC 12/278	F. Diaz	25/06/12	NAME	DATE	SHEET / OF	A-3024-XX						
R	NC 11/427	J.A.Garcia	25/11/11	DRAWING	F. Garcia	26/03/09	2/4	S	R	Q	P	O	←REV
Q	NC 11/036	F. Diaz	09/02/11	REVISED	A. Diaz	26/03/09							
P	add version -97	M.A. González	25/05/10										
P	NC 08/269	M.A. González	11/09/08										
O	NC 07/103	F. Diaz	07/05/07										
REV	DESCRIPTION	ISSUED BY	DATE										



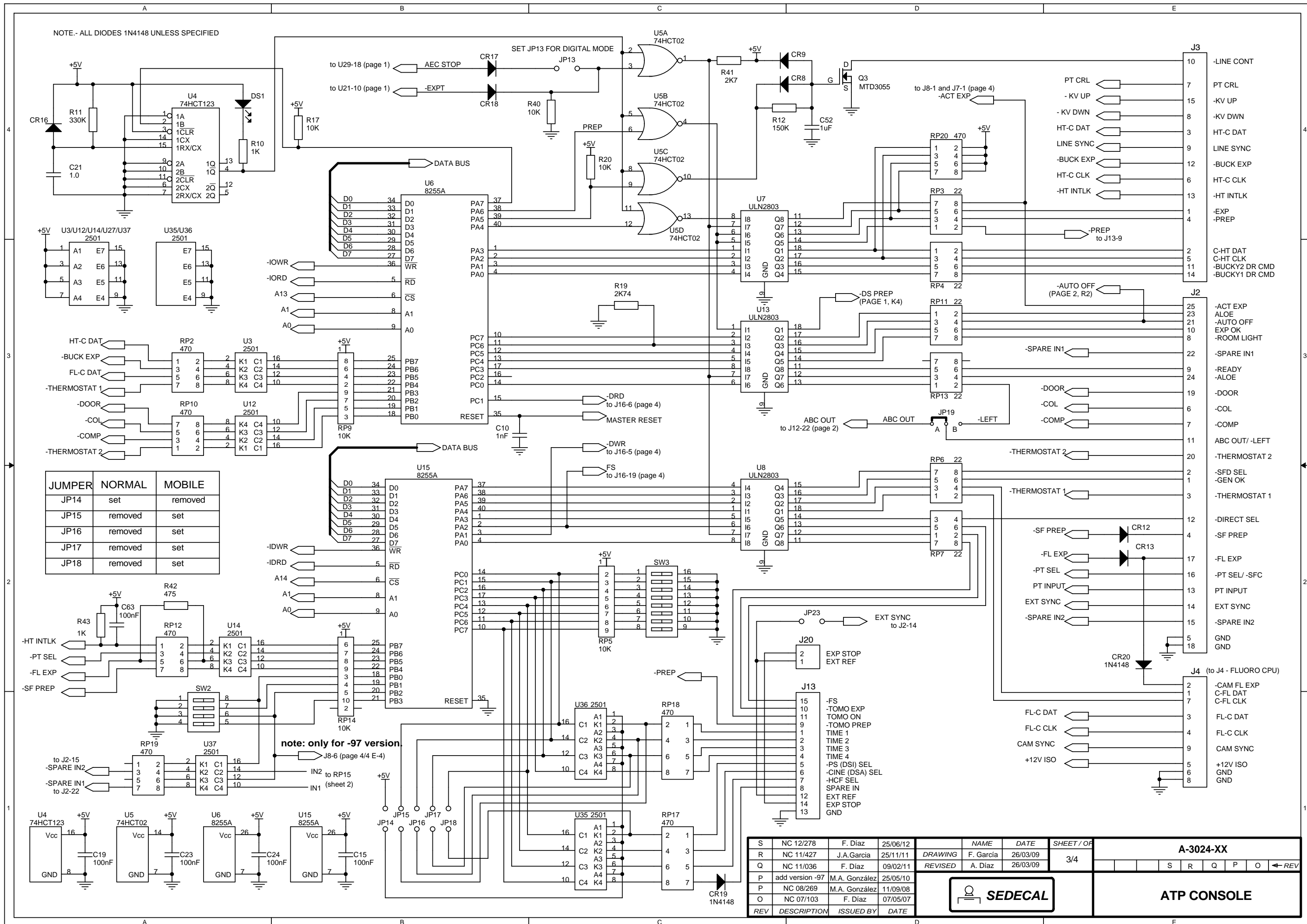
ATP CONSOLE

AEC CONTROL BOARD
(A3012-01/02/05/06)



RIBBON CABLE

NOTE.- ALL DIODES 1N4148 UNLESS SPECIFIED



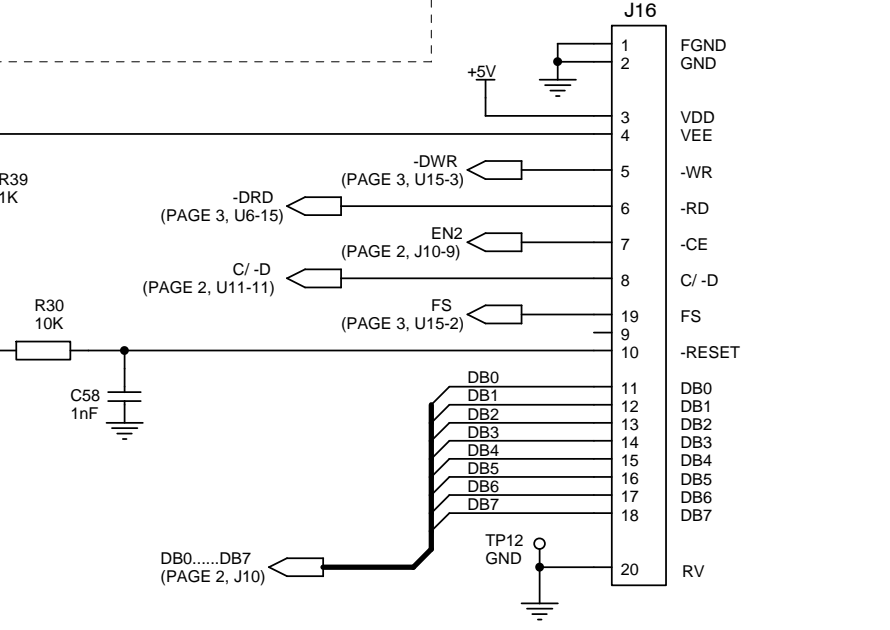
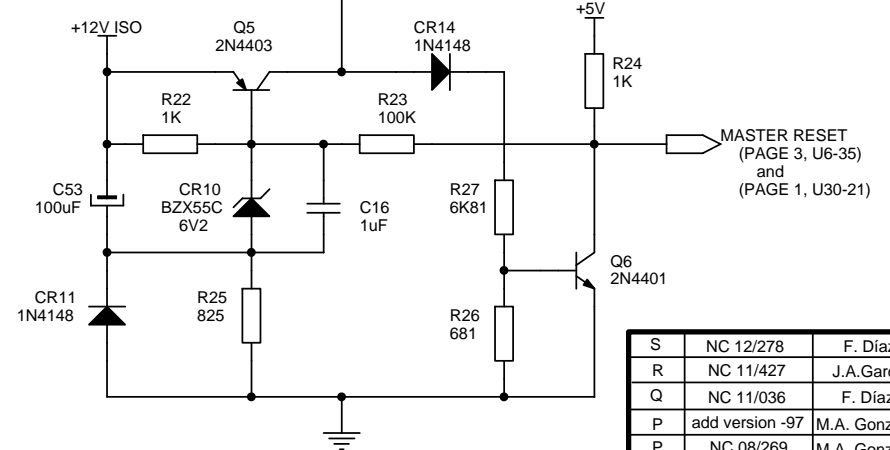
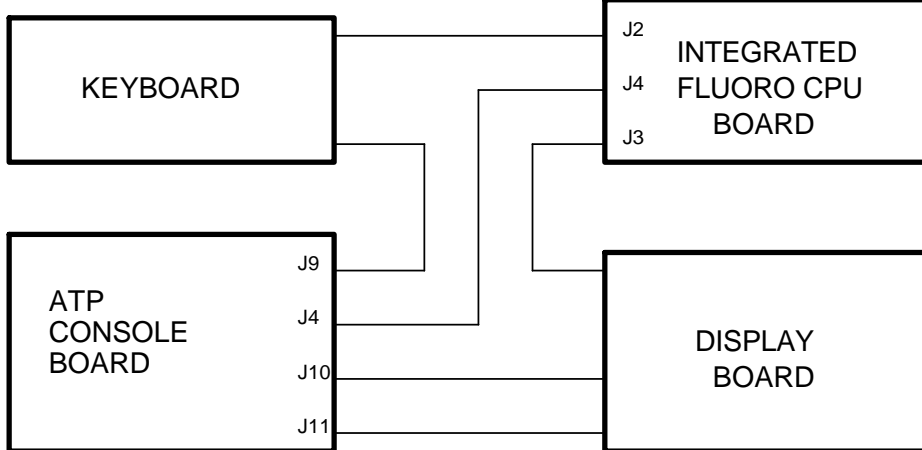
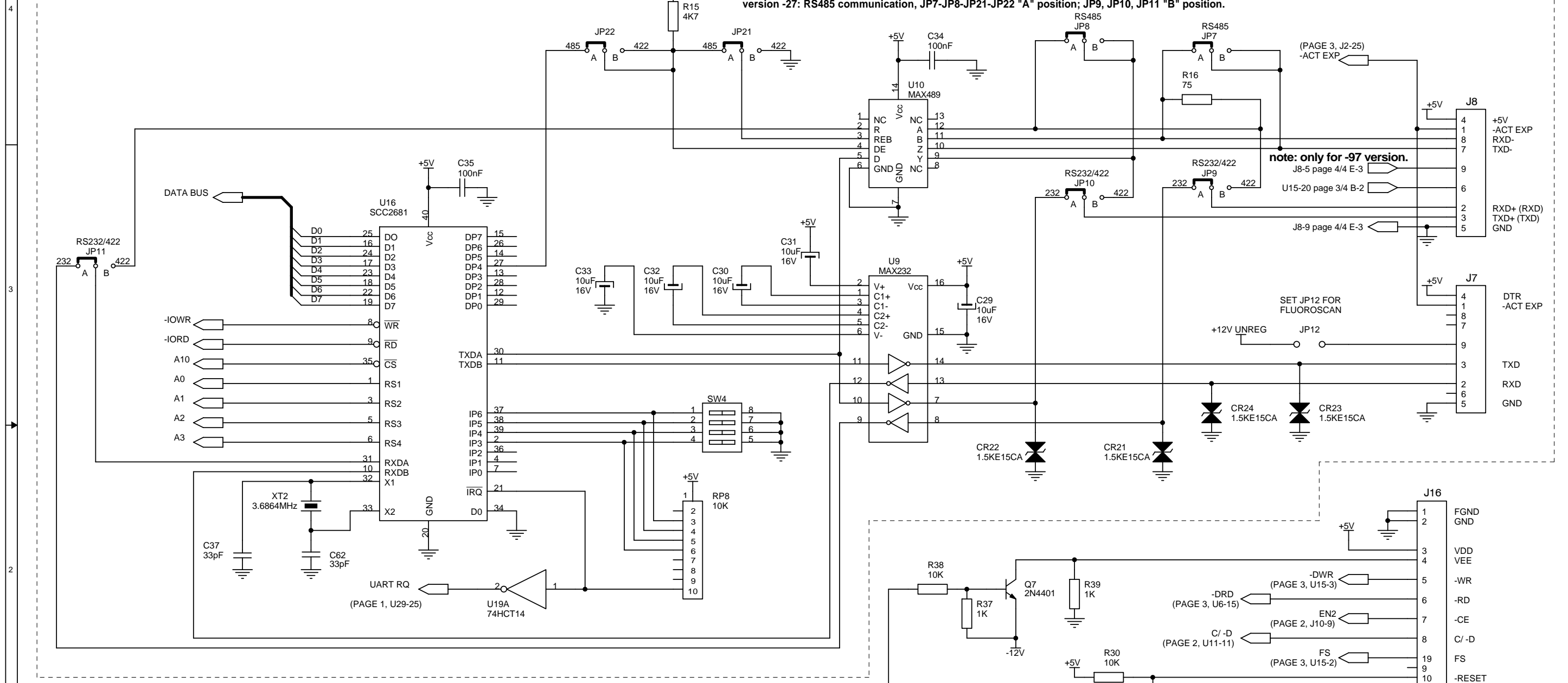
JUMPER	NORMAL	MOBILE
JP14	set	removed
JP15	removed	set
JP16	removed	set
JP17	removed	set
JP18	removed	set

note: only for -97 version

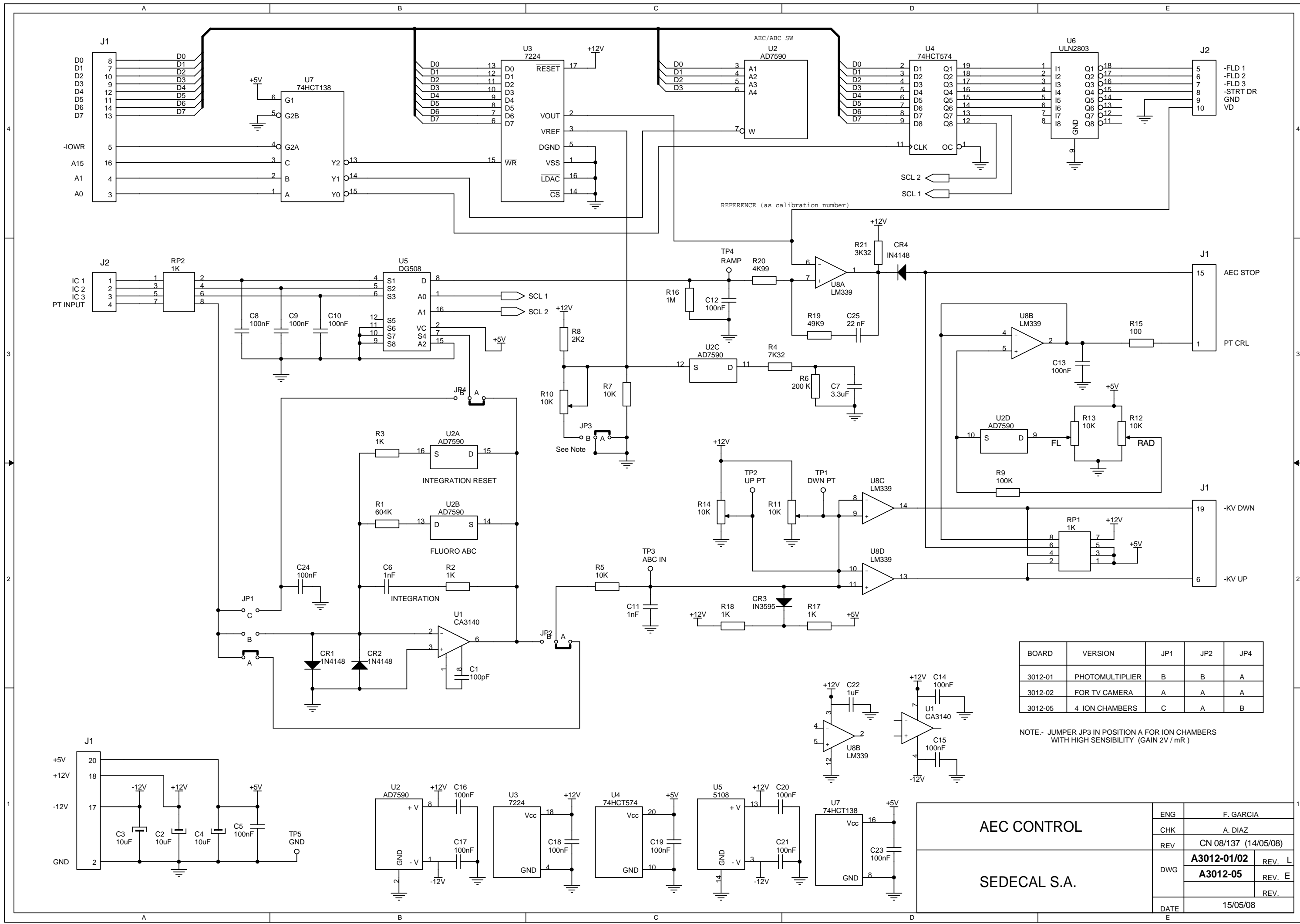
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R	NC 11/427	J.A.Garcia	25/11/11	DRAWING	F. Garcia	26/03/09	3/4						
Q	NC 11/036	F. Diaz	09/02/11	REVISED	A. Diaz	26/03/09							
P	add version -97	M.A. González	25/05/10					S	R	Q	P	O	← REV
P	NC 08/269	M.A. González	11/09/08					SEDECAL					
O	NC 07/103	F. Diaz	07/05/07										ATP CONSOLE
REV	DESCRIPTION	ISSUED BY	DATE										

SERIAL COMMUNICATION REQUIRES THE COMPONENTS SHOWN IN THIS BOX

version -26: RS422 communication, JP7-JP8-JP9-JP10-JP11-JP21-JP22 "B" position
 version -27: RS485 communication, JP7-JP8-JP21-JP22 "A" position; JP9, JP10, JP11 "B" position.



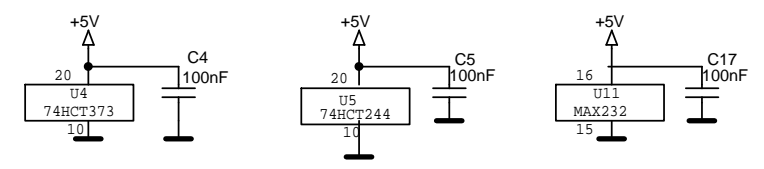
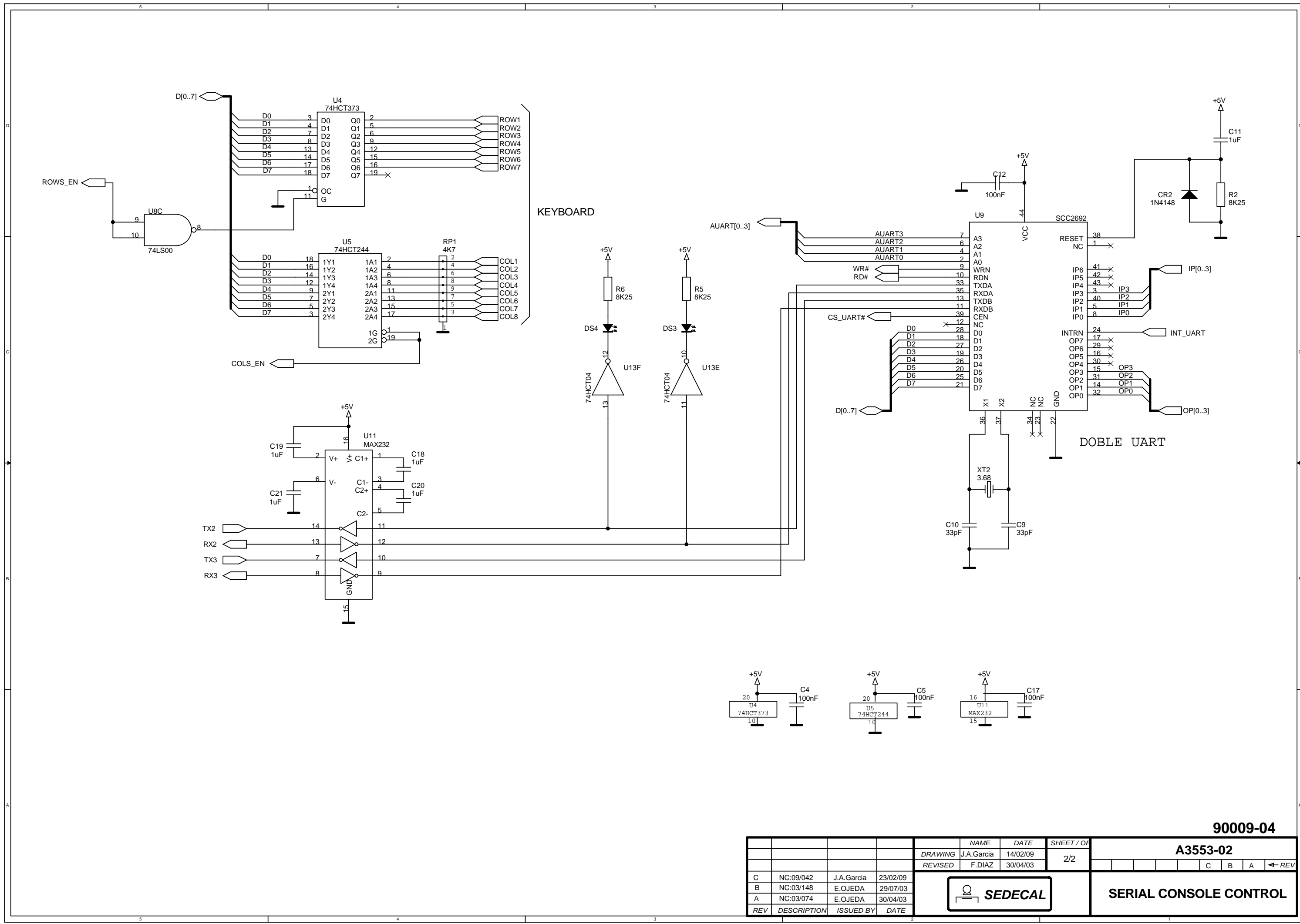
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R	NC 11/427	J.A.Garcia	25/11/11	DRAWING	F. Garcia	26/03/09	4/4	S	R	Q	P	O	← REV
Q	NC 11/036	F. Diaz	09/02/11	REVISED	A. Diaz	26/03/09							
P	add version -97	M.A. González	25/05/10										
P	NC 08/269	M.A. González	11/09/08										
O	NC 07/103	F. Diaz	07/05/07										
REV	DESCRIPTION	ISSUED BY	DATE	SEDECAL		ATP CONSOLE							



BOARD	VERSION	JP1	JP2	JP4
3012-01	PHOTOMULTIPLIER	B	B	A
3012-02	FOR TV CAMERA	A	A	A
3012-05	4 ION CHAMBERS	C	A	B

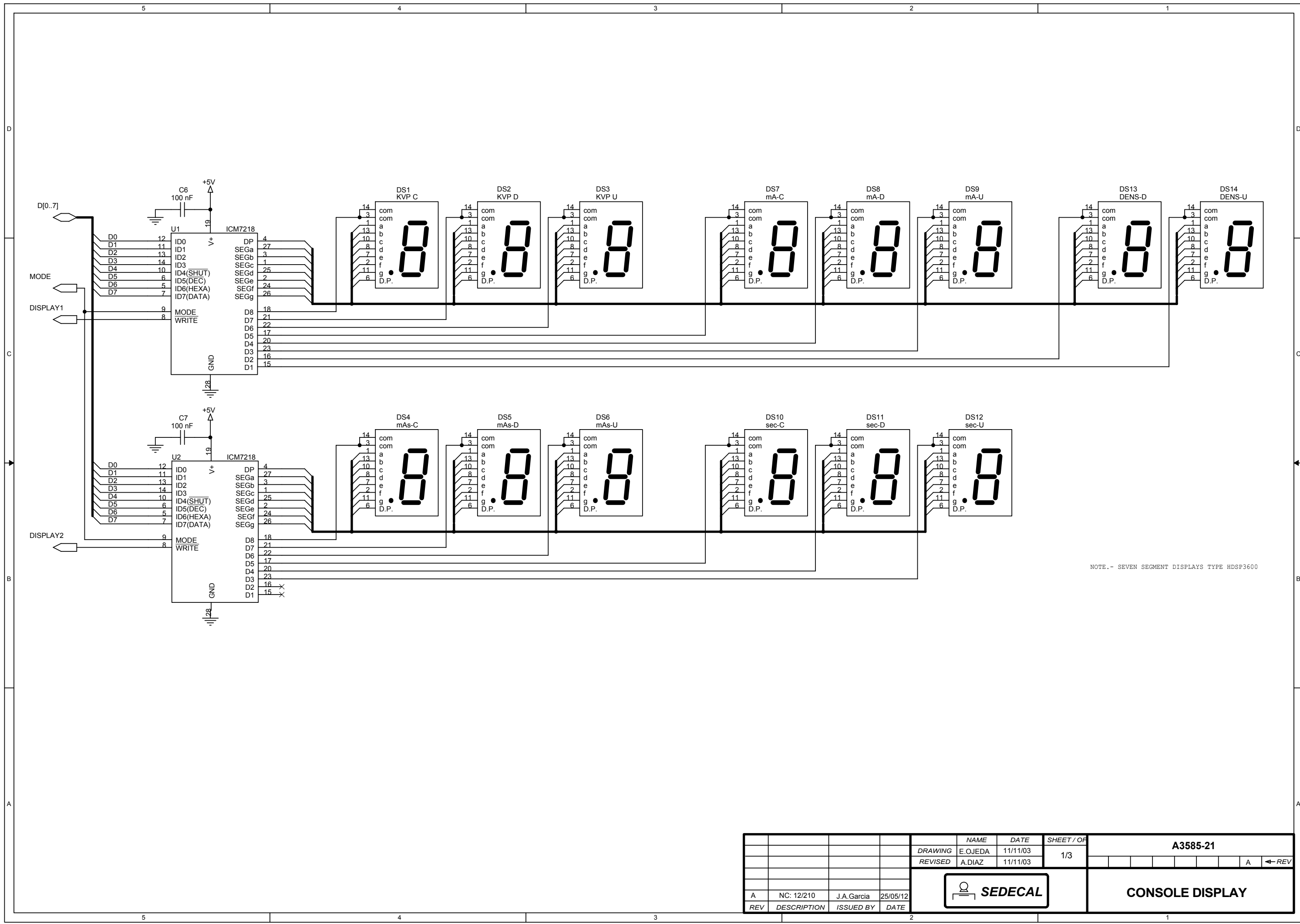
NOTE.- JUMPER JP3 IN POSITION A FOR ION CHAMBERS WITH HIGH SENSIBILITY (GAIN 2V / mR)

AEC CONTROL SEDECAL S.A.		ENG	F. GARCIA
		CHK	A. DIAZ
DWG	REV	CN 08/137 (14/05/08)	
		A3012-01/02	REV. L
		A3012-05	REV. E
			REV.
DATE	15/05/08		



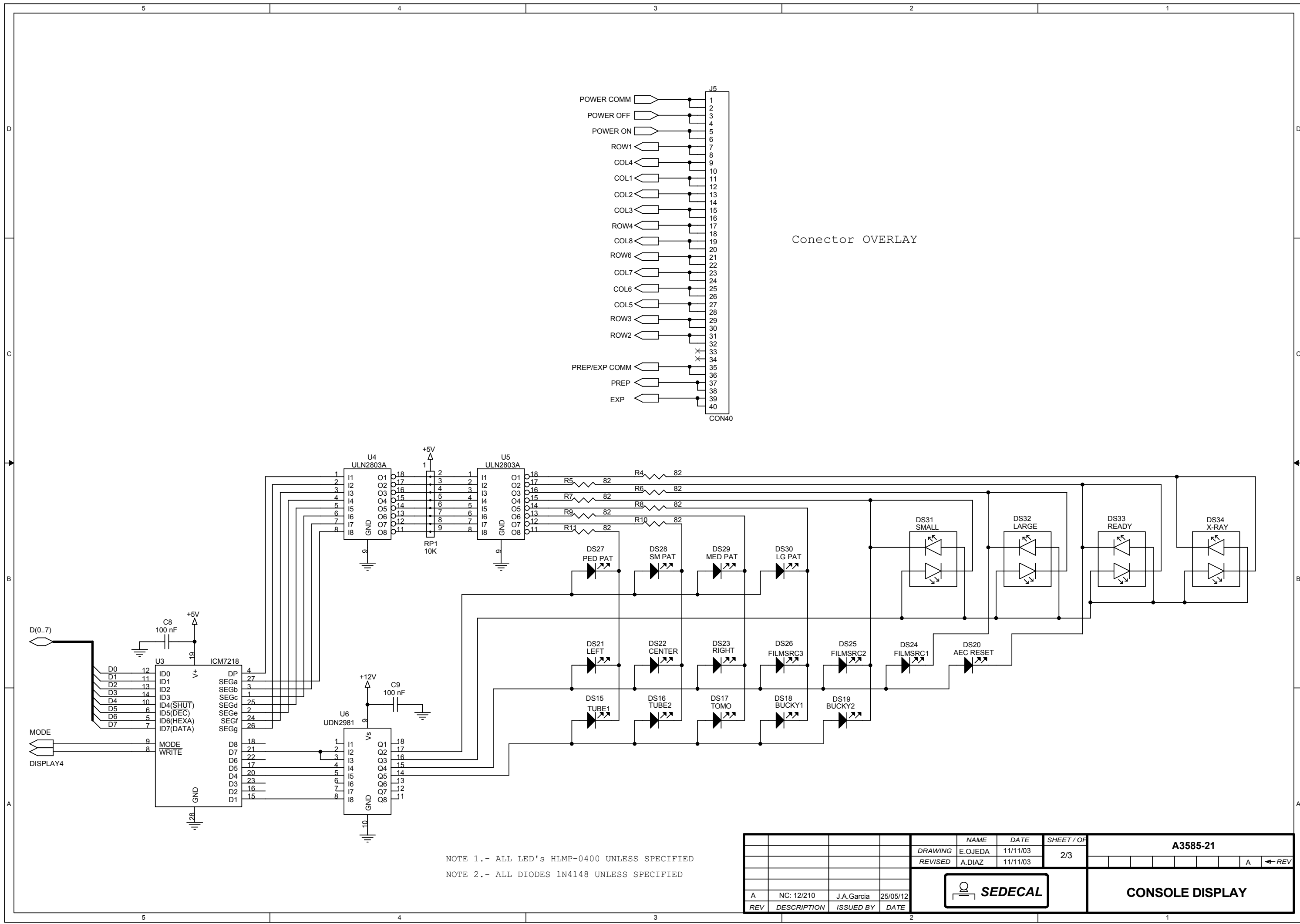
90009-04

				NAME	DATE	SHEET / OF	A3553-02				
				DRAWING	J.A.Garcia	14/02/09					
				REVISED	F.DIAZ	30/04/03	2/2				
C	NC:09/042	J.A.Garcia	23/02/09					C	B	A	← REV
B	NC:03/148	E.OJEDA	29/07/03								
A	NC:03/074	E.OJEDA	30/04/03								
REV	DESCRIPTION	ISSUED BY	DATE					SERIAL CONSOLE CONTROL			



NOTE.- SEVEN SEGMENT DISPLAYS TYPE HDSP3600

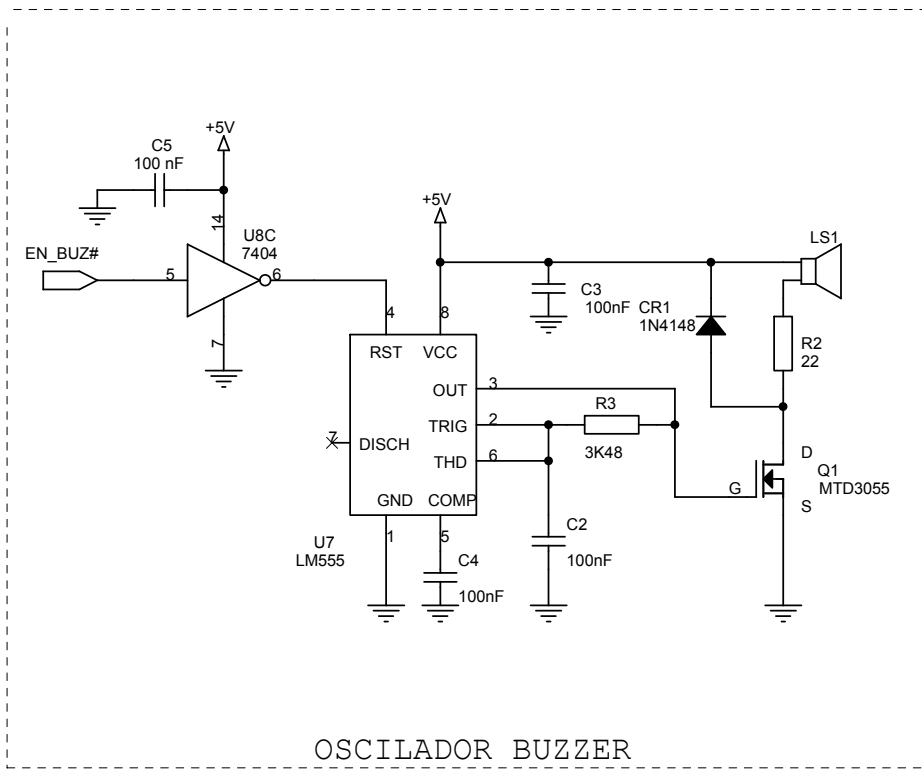
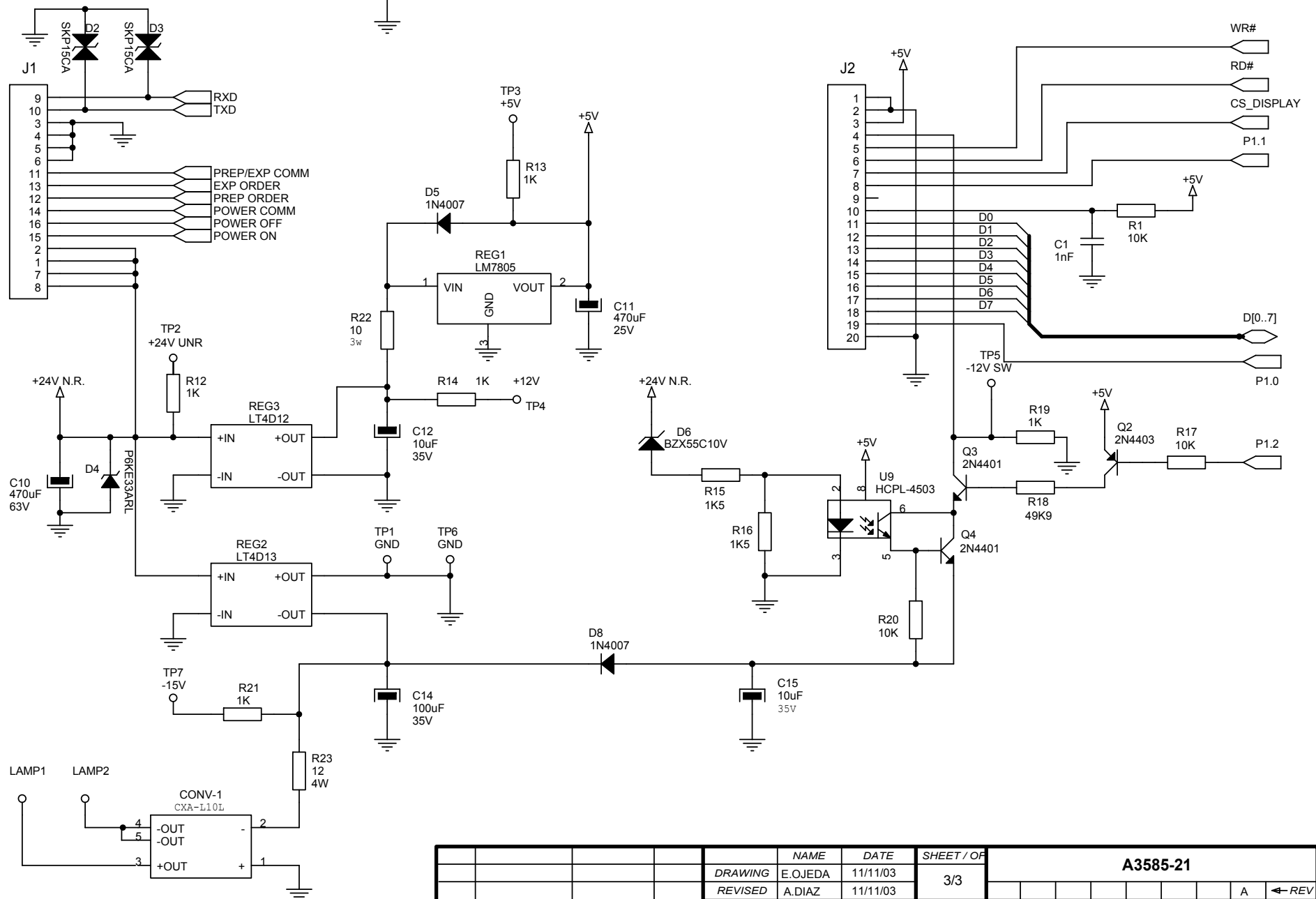
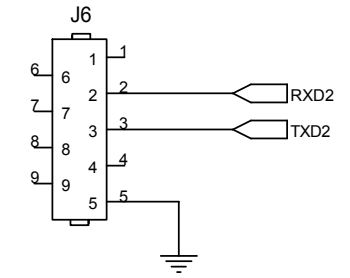
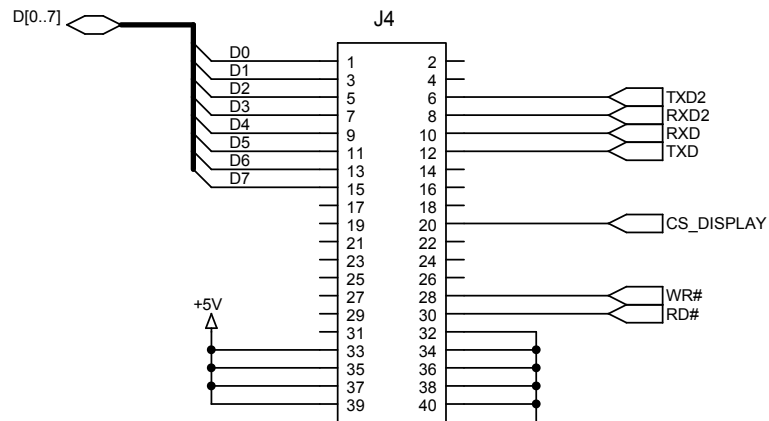
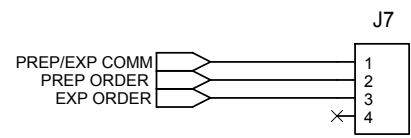
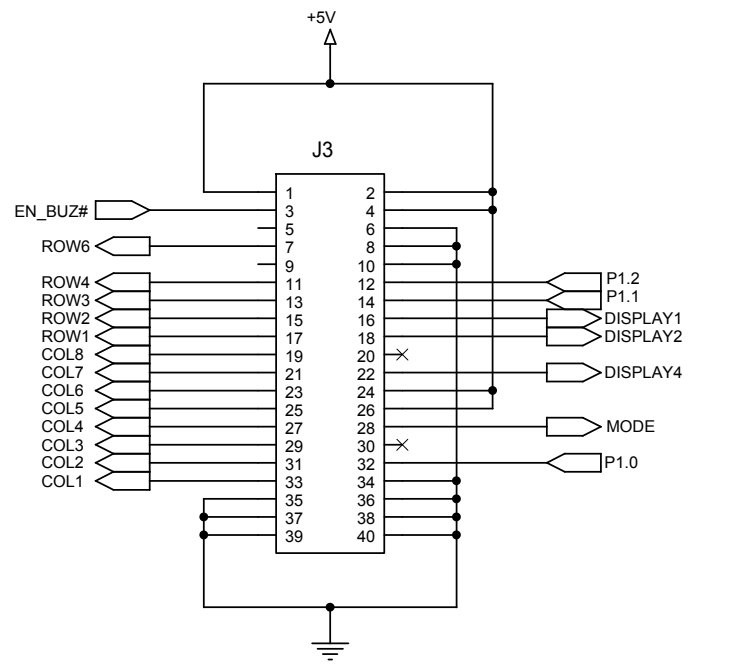
		NAME	DATE	SHEET / OF	A3585-21	
		DRAWING	E.OJEDA	11/11/03		
		REVISED	A.DIAZ	11/11/03		
A	NC: 12/210	J.A.Garcia	25/05/12			
REV	DESCRIPTION	ISSUED BY	DATE			



Conector OVERLAY

NOTE 1.- ALL LED's HLMP-0400 UNLESS SPECIFIED
 NOTE 2.- ALL DIODES 1N4148 UNLESS SPECIFIED

		NAME	DATE	SHEET / OF	A3585-21	
		DRAWING	E.OJEDA	11/11/03	2/3	
		REVISED	A.DIAZ	11/11/03	A ← REV	
A		NC: 12/210	J.A.Garcia	25/05/12	SEDECAL	
REV	DESCRIPTION	ISSUED BY	DATE	CONSOLE DISPLAY		



REV	DESCRIPTION	ISSUED BY	DATE	NAME	DATE	SHEET / OF	A3585-21	
				E.OJEDA	11/11/03	3/3		
				A.DIAZ	11/11/03			
A	NC: 12/210	J.A.Garcia	25/05/12	SEDECAL		CONSOLE DISPLAY		