ORDER NO. VSD9802M203
D27

Service Manual

HD-525 Down-converter Board

AJ-DFC2000

Operating Instructions
Electrical Adjustment
Block Diagrams
Schematic Diagrams
Circuit Board Diagrams
Exploded Views & Replacement Parts Lists

Panasonic®

⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public.
It does not contain warnings or cautions to advice non-technical individuals of potential dangers in attempting to service a product.
Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service manual by anyone else could result in serious injury or death.

INTRODUCTION

This Service Manual contains all operation and technical information for use and service of the Panasonic HD-525 Down-Converter Board model AJ-DFC2000.

Video input/output signals (when down-converter board has been installed)

NTSC reference input	Analog NTSC black burst signal (BNC×1)
525 serial output	●525-line system serial digital output (complying with SMPTE 259M standard) (BNC×2) ●D3/D5 serial output switching (4 audio channels)
525 analog video output	525 analog video output Analog NTSC composite (BNC×2) (VIDEO 1 output only, VBS/VB switchable)
525 analog video monitor output	Analog NTSC composite (with TC superimposed) (BNC×1)

SAFETY PRECAUTIONS

GENERAL GUIDELINES

1. When servicing, observe the original lead dress. If a short circuit is found, replace all parts which have been overheated or damaged by the short circuit.
2. After servicing, see to it that all the protective devices such as insulation barriers, insulation papers shields are properly installed.
3. After servicing make the following leakage current checks to prevent the customer from being exposed to shock hazards.

LEAKAGE CURRENT COLD CHECK

1. Unplug the AC cord and connect a jumper between the two prongs on the plug.
2. Measure the resistance value, with an ohm meter, between the jumpered AC plug and each exposed metallic cabinet part on the equipment such as screwheads, connectors, control shafts, etc. When the exposed metallic part has a return path to the chassis, the reading should be between 1 MΩ and 5.2MΩ.
   When the exposed metal dose not have a return path to the chassis, the reading must be ∞.

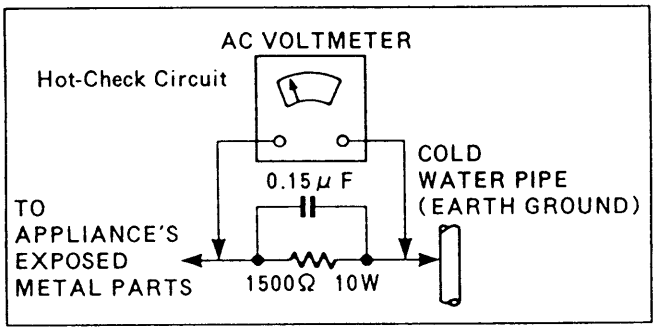


Figure 1

LEAKAGE CURRENT HOT CHECK (See Figure 1)

1. Plug the AC cord directly into the AC outlet.
   Do not use an isolation transformer for this check.
2. Connect a 1.5KΩ, 10W resistor, in parallel with 0.15μF capacitor, between each exposed metallic part on the set an a good earth ground such as a water pipe, as shown in Figure 1.
3. Use an AC voltmeter, with 1000 ohms/volt or more sensitivity, to measure the potential across the resistor.
4. Check each exposed metallic part, and measure the voltage at each point.
5. Reverse the AC plug in the AC outlet repeat each of the above measurements.
6. The potential at any point should not exceed 0.75 volts RMS. A leakage current tester (Simpson Model 229 equivalent) may be used to make the hot checks, leakage current must not exceed 1/2 milliamp. In case a measurement is outside of the limits specified, there is a possibility of a shock hazard, and the equipment should be repaired and rechecked before it is returned to the customer.

ELECTROSTATICALLY SENSITIVE (ES) DEVICES

Some semiconductor (solid state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatically sensitive (ES) Devices. Examples of typical ES devices are integrated circuits and some field-effect transistors and semiconductor "chip" components. The following techniques should be used to help reduce the incidence of component damage caused by static electricity.

1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any electrostatic charge on your body by touching a known earth ground.
   Alternatively, obtain and wear a commercially available discharging wrist strap device, which should be removed for potential shock reasons prior to applying power to the unit under test.
2. After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge buildup or exposure of the assembly.
3. Use only a grounded tip soldering iron to solder or unsolder, ES devices.
4. Use only an anti-static solder removal device classified as "anti-static" can generate electrical charges sufficient to damage ES devices.
5. Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ES devices.
6. Do not remove a replacement ES device from its protective package until immediately before you are ready to install it. (most replacement ES devices are packaged with leads electrically shorted together by conductive foam, aluminum foil or comparable conductive material).
7. Immediately before removing the protective material from the leads of replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.
   CAUTION: Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.
8. Minimize bodily motions when handling unpackaged replacement ES devices. (Otherwise harmless mother such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity sufficient to damage an ES device).

X-RADIATION

WARNING

1. The potential source of X-Radiation in EVF sets is the High Voltage section and the picture tube.
2. When using a picture tube test jig for service, ensure that jig is capable of handling 10kV without causing X-Radiation.

NOTE: It is important to use an accurate periodically calibrated high voltage meter.

3. Measure the High Voltage. The meter (electric type) reading should indicate 2.5kV, ± 0.15kV. If the meter indication is out of tolerance, immediate service and correction is required to prevent the possibility of premature component failure. To prevent an X-Radiation possibility, it is essential to use the specified picture tube.

Note:

1. Do not use the part number shown on the schematic diagram or P.C. Board layout for ordering.
   The correct part number for ordering is shown in the Exploded Views/Parts List section.
2. Unless otherwise specified, all resistors are in OHMS,
   K=1,000 OHMS, all capacitors are in MICROFARADS (μF), P=$\mu\mu$F.

Note:

1. *Be sure to make your orders of replacement parts according to this list.
2. Unless otherwise specified, all registors are in OHMS, K=1,000 OHMS, all capacitors are in MICROFARADS (μF), P=$\mu\mu$F.
3. The P.C. Board units marked with "■" shown below the main assembled parts.
4. The parts marked with Ⓔ on the exploded view show the electric parts.
5. IMPORTANT SAFETY NOTICE
   Components identified with the mark < ! > have the special characteristics for safety.
   When replacing any of these components, use only the same type.

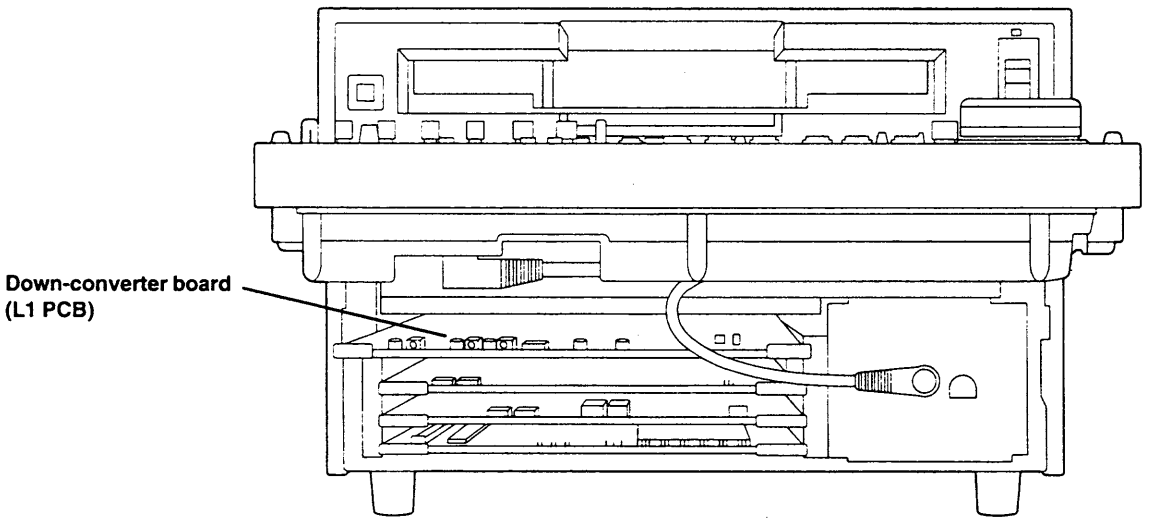
< <Abbreviations for part> >

<NAME> >		<DESCRIPTIONS>
C. CAPACITOR		: CERAMIC CAPACITOR
C. CAPACITOR	CH	: CERAMIC CHIP CAPACITOR
E. CAPACITOR		: ELECTROLYTIC CAPACITOR
G. CAPACITOR		: GLASS CAPACITOR
M. CAPACITOR		: MICA CAPACITOR
P. CAPACITOR		: PLASTIC FILM CAPACITOR
S. CAPACITOR		: SEMI-CONDUCTOR CAPACITOR
T. CAPACITOR		: TANTALUM CAPACITOR
TRIMMER		: TRIMMER
C. RESISTOR		: CARBON RESISTOR
F. RESISTOR		: FUSE RESISTOR
M. RESISTOR		: METAL OXSIDE RESISTOR
M. RESISTOR	CH	: METAL OXSIDE CHIP RESISTOR
S. RESISTOR		: SOLID RESISTOR
V. RESISTOR		: VARIABLE RESISTOR
W. RESISTOR		: WIRE WOUND RESISTOR
COMBI. TR-R		: TRANSISTOR-RESISTOR COMBINATION PARTS
COMBI. R-R		: RESISTOR-RESISTOR COMBINATION PARTS
COMBI. C-R		: CAPACITOR-RESISTOR COMBINATION PARTS
COMBI. C-R-R		: CAPACITOR-RESISTOR-COIL COMBINATION PARTS
P.C. BOARD		: PRINTED CIRCUIT BOARD
W/COMPONENT		: WITH COMPONENT

CONTENTS

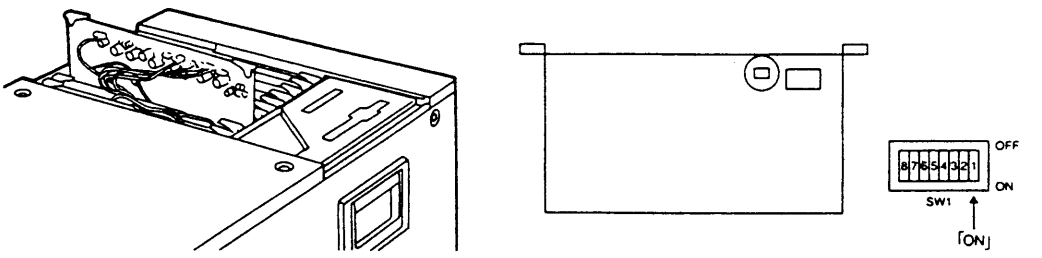
Using the Down-Converter Board AJ-DFC2000

When it is installed in a digital video cassette recorder (AJ-HD2000), this board is designed to convert Hi-Vision playback signals into 525 line system standard television signals and to output serial digital signals and NTSC analog signals.
By installing this board, the operation menus relating to the down-converter are automatically added on the front panel of the AJ-HD2000.
For details on the menu operations, refer to the DOWN CONV SET UP menu on page 69.



Installation procedure

1. After switching off the power of the VTR (AJ-HD2000), lift the front panel, and disengage the clamp provided to hold the boards in place.
2. Install the down-converter board (AJ-DFC2000).
3. Attach the clamp which was disengaged in step 1.
4. Take out the S PCB clamp and remove the S5 PCB.
5. Set SW1-1 on the S5 PCB to the ON position.



6. Return the S5 PCB to its original position and mount the S PCB clamp.

The clamp which is mounted on the inside of the board's front panel is designed to prevent the circuit board from popping out. When the board is to be transported, the two screws must be used to secure the clamp on both sides.

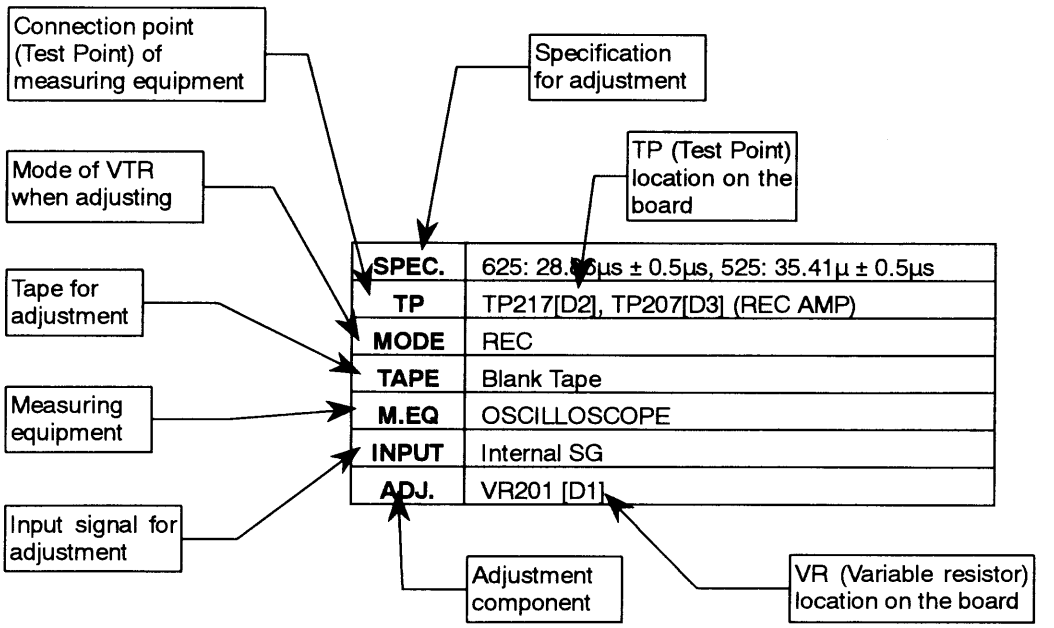
MEMO

ELECTRICAL ADJUSTMENT PROCEDURES

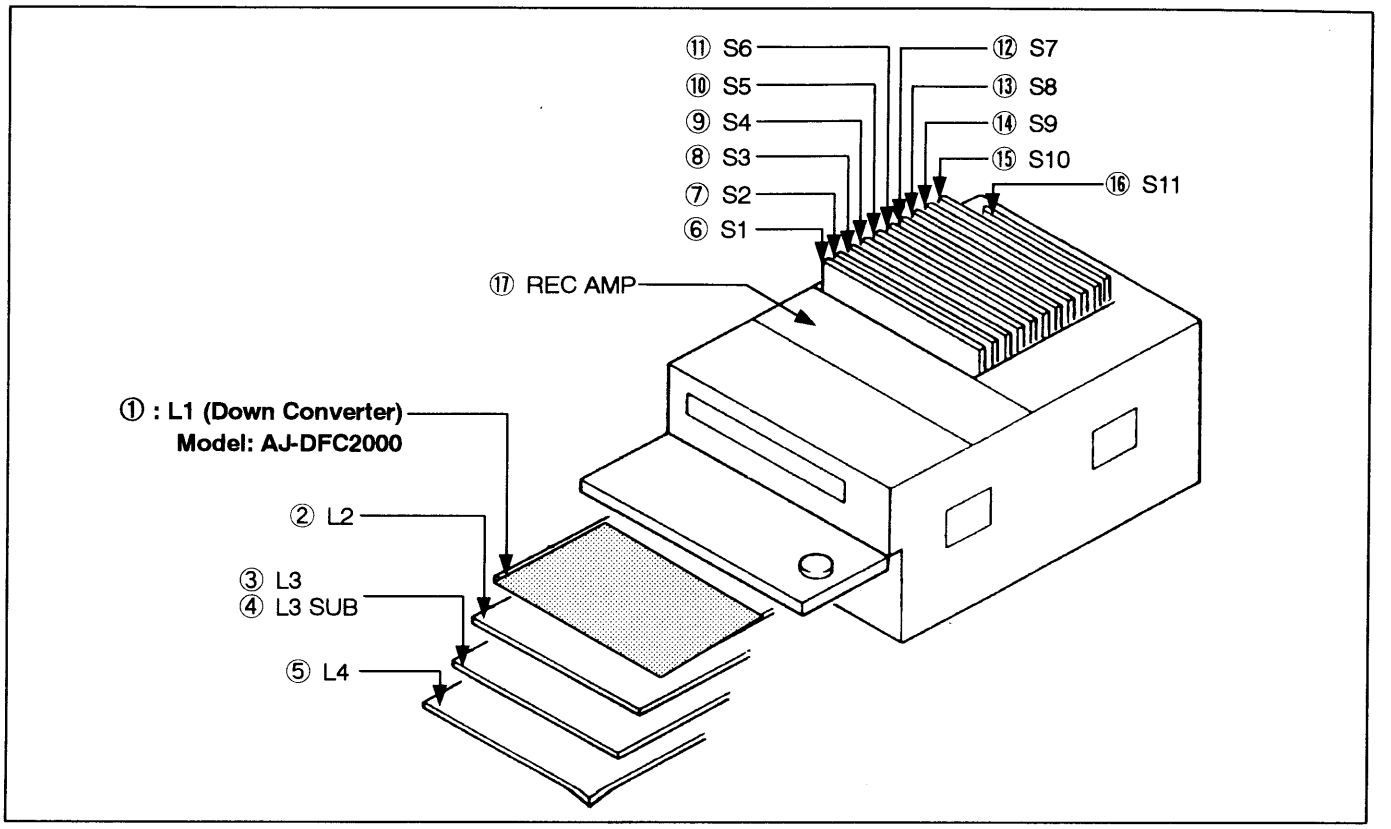
1. RECOMENDED TEST AND SERVICE EQUIPMENT

No.	NAME	PART No.	REMARK
1	Oscilloscope		400MHz and 3GHz
2	Video Signal Generator	Tektronix 1910	Analogue
3	Waveform Monitor & Vector Scope	Tektronix 1780R	
4	Component / Composite Monitor		
5	Extension Board	VFK0864 (L Board)	

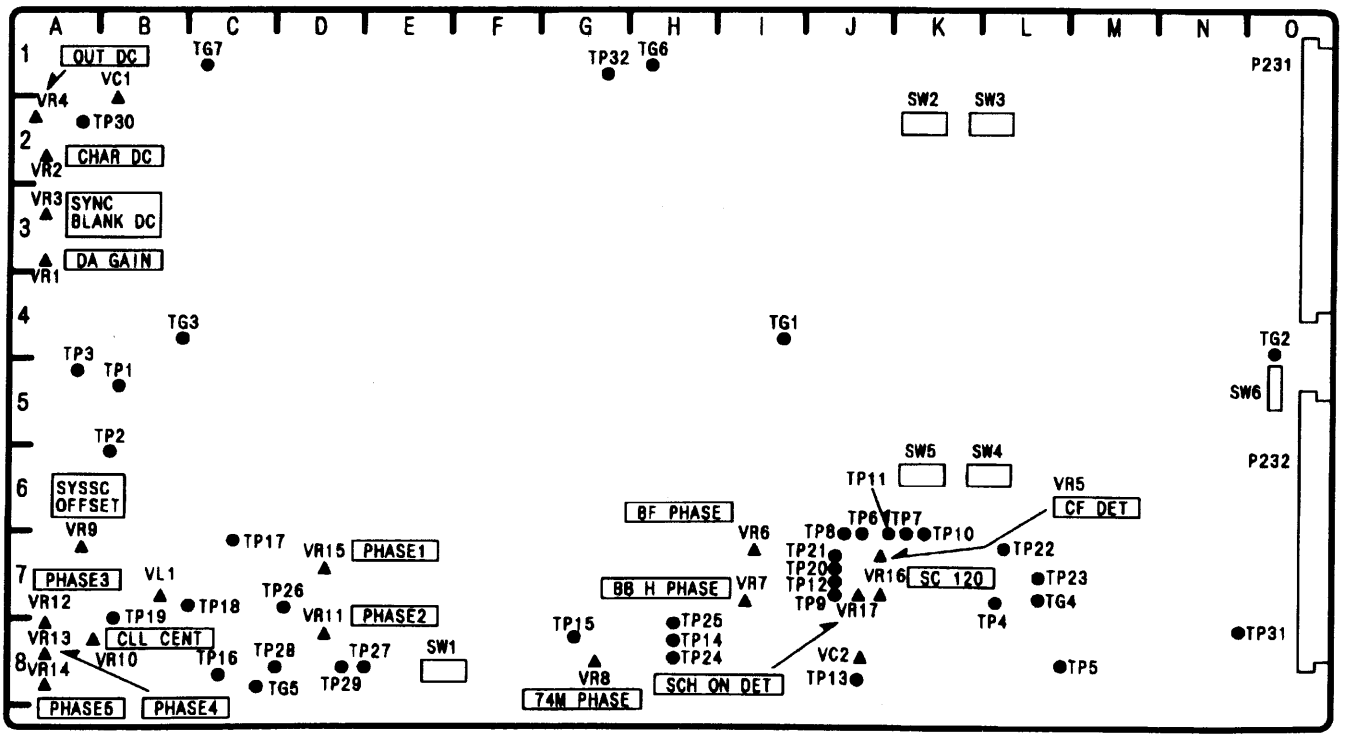
2. HOW TO READ THE ADJUSTMENT PROCEDURES TABLE



3. CIRCUIT BOARD LAYOUT



4. TP & VR LOCATION



(COMPONENT SIDE)

5. ADJUSTMENT PROCEDURES

5-1. Burst Position Adjustment

SPEC.	Refer to Figure 1
TP	TP5, TP11
MODE	EE
TAPE	----------
M.EQ	Oscilloscope
INPUT	Internal SG (Color-bar signal) NTSC REF. : Black Burst (NTSC)
ADJ.	VR6

1. Set the "OUT REF" to the "NTSC REF".
   [-] (TEST)→ [F1] (VIDEO)→ [F6] (OUT REF)
2. Supply a NTSC Black Burst signal to the NTSC REF (DOWN CONVERTER) connector on the rear panel.
3. Adjust VR6 so that the burst position becomes as shown in Figure 1

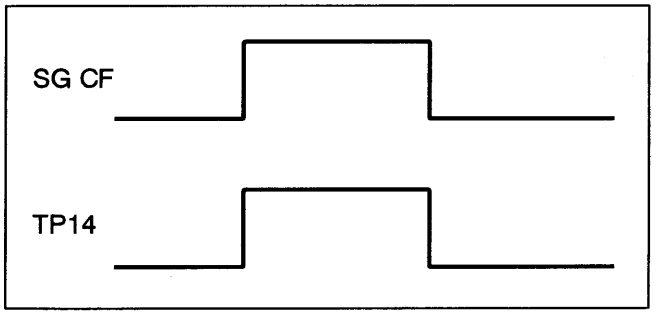


Figure 1

5-2. Ref. PLL Adjustment

SPEC.	0V±0.1V
TP	TP10, TP13
MODE	EE
TAPE	----------
M.EQ	Oscilloscope
INPUT	Internal SG (Color-bar signal) NTSC REF. : Black Burst (NTSC)
ADJ.	VC2

1. Set the "OUT REF" to the "NTSC REF".
   [-] (TEST)→ [F1] (VIDEO)→ [F6] (OUT REF).
2. Supply a NTSC Black Burst signal to the NTSC REF (DOWN CONVERTER) connector on the rear panel.
3. Adjust VC2 so that the voltage on TP13 becomes 0V±0.1V.

5-3. CF Adjustment

SPEC.	Refer to Figure 2
TP	TP14, CF signal of a Signal Generator
MODE	EE
TAPE	----------
M.EQ	Oscilloscope
INPUT	Internal SG (Color-bar signal) NTSC REF. : Black Burst (NTSC)
ADJ.	VR5

1. Set the "OUT REF" to the "NTSC REF".
   [-] (TEST)→ [F1] (VIDEO)→ [F6] (OUT REF)
2. Supply a NTSC Black Burst signal to the NTSC REF (DOWN CONVERTER) connector on the rear panel.
3. Adjust VR5 so that the phase of Color-bar signal and TP14 becomes same as shown in Figure 2.

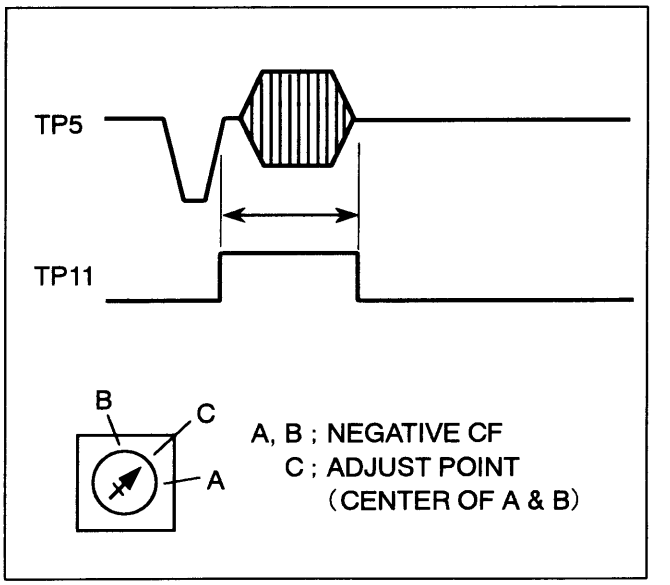


Figure 2

5-4. SCH Detection Adjustment (1)

SPEC.	94ns±4ns
TP	TP21
MODE	EE
TAPE	----------
M.EQ	Oscilloscope
INPUT	Internal SG (Color-bar signal) NTSC REF. : Black Burst (NTSC)
ADJ.	VR16

1. Set the "OUT REF" to the "NTSC REF".
   [-] (TEST)→ [F1] (VIDEO)→ [F6] (OUT REF).
2. Supply a NTSC Black Burst signal to the NTSC REF (DOWN CONVERTER) connector on the rear panel.
3. Adjust VR16 so that the high period of TP21 becomes 94ns±4ns as shown in Figure 3.

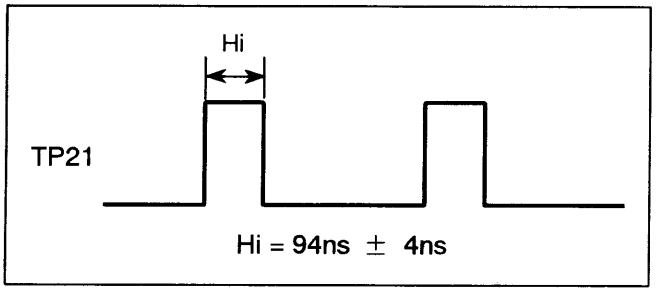


Figure 3

5-5. SCH Detection Adjustment (2)

SPEC.	47ns±2ns
TP	TP20, TP21
MODE	EE
TAPE	----------
M.EQ	Oscilloscope
INPUT	Internal SG (Color-bar signal) NTSC REF. : Black Burst (NTSC)
ADJ.	VR17

1. Set the "OUT REF" to the "NTSC REF".
   [-] (TEST)→ [F1] (VIDEO)→ [F6] (OUT REF).
2. Supply a NTSC Black Burst signal to the NTSC REF (DOWN CONVERTER) connector on the rear panel.
3. Connect a oscilloscope Ext. Trigger to pin 31 of IC134.
4. During low period of pin 31 of IC134, adjust VR17 so that the rising edge of TP20 becomes center of high period of TP21 as shown in Figurer 4.

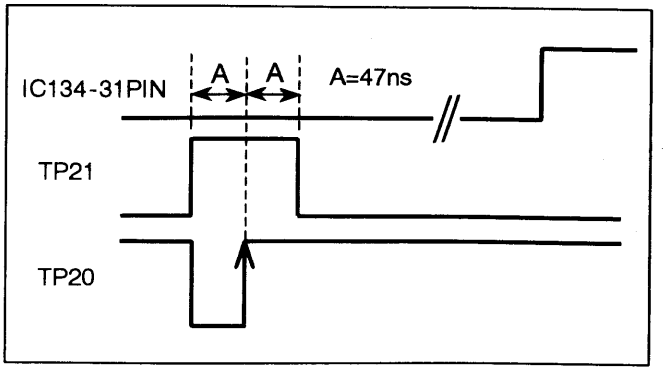


Figure 4

5-6. BB H Position Adjustment

SPEC.	0±20ns
TP	TP5, TP25
MODE	EE
TAPE	----------
M.EQ	Oscilloscope
INPUT	Internal SG (Color-bar signal) NTSC REF. : Black Burst (NTSC)
ADJ.	VR7

1. Set the "OUT REF" to the "NTSC REF".
   [-] (TEST)→ [F1] (VIDEO)→ [F6] (OUT REF).
2. Supply a NTSC Black Burst signal to the NTSC REF (DOWN CONVERTER) connector on the rear panel.
3. Adjust VR7 so that the "T" becomes as shown in Figure 5

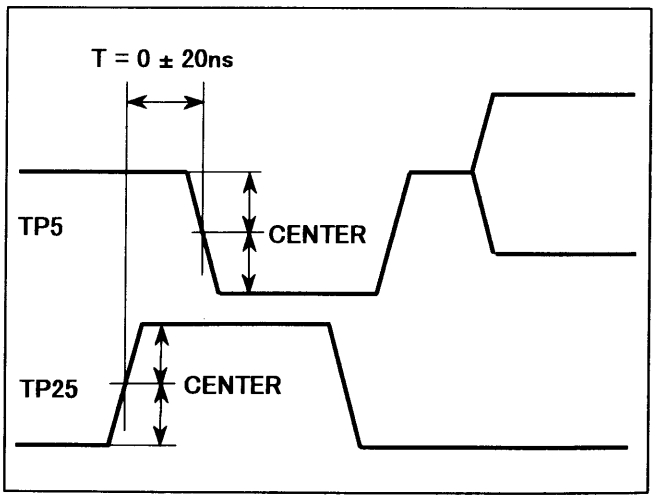


Figure 5

5-7. 36MHz PLL Fine Adjustment

SPEC.	-0.3V±0.05V
TP	TP19
MODE	EE
TAPE	----------
M.EQ	Oscilloscope
INPUT	Internal SG (Color-bar signal) NTSC REF. : Black Burst (NTSC)
ADJ.	VL1, VR10

1. Set the "OUT REF" to the "NTSC REF".
   [-] (TEST)→ [F1] (VIDEO)→ [F6] (OUT REF).
2. Set the Down –Converter Output "4:2:2W".
   [8] (VIDEO OUT)→ [F13] (DOWNCONV) →[F1] (TYPE)
3. Supply a NTSC Black Burst signal to the NTSC REF (DOWN CONVERTER) connector on the rear panel.
4. Set the VL1 as shown in Figure 6.

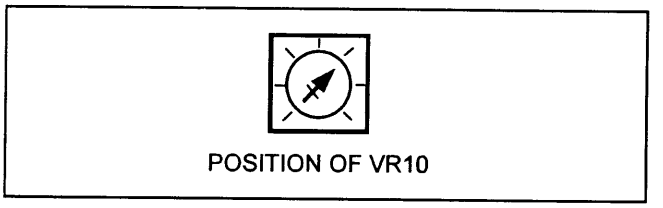


Figure 6

5. Adjust VL1 so that the voltage of TP19 becomes –1.0±0.1V.
6. Turn off and on the power and confirm that the voltage is rocked to –1.0±0.1V.
7. If the voltage of TP19 is not –1.0±0.1V, turn VR10 half scale to counter-clockwise
8. Adjust VL1 so that the voltage of TP19 becomes -0.3V±0.05V.

5-8. Output DC Adjustment

SPEC.	X = 0±5mV
TP	VIDEO 3 OUTPUT
MODE	EE
TAPE	----------
M.EQ	Oscilloscope
INPUT	Internal SG (Color-bar signal) NTSC REF. : Black Burst (NTSC)
ADJ.	VR4

1. Set the "OUT REF" to the "NTSC REF".
   [-] (TEST)→ [F1] (VIDEO)→ [F6] (OUT REF).
2. Supply a NTSC Black Burst signal to the NTSC REF (DOWN CONVERTER) connector on the rear panel.
3. Adjust VR4 so that the voltage of the blanking DC and the superimpose DC becomes same level ("X"=0) as shown in Figure 7.

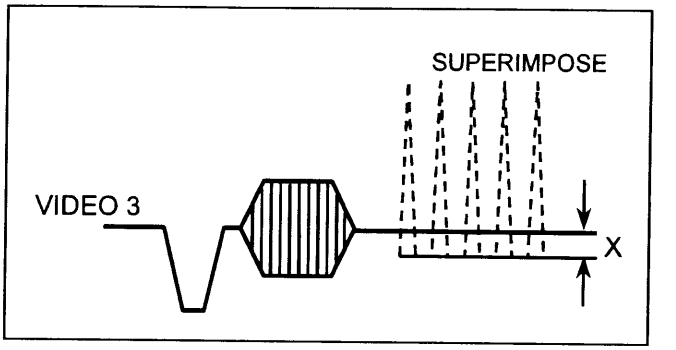


Figure 7

5-9. Output Level Adjustment

SPEC.	714mV±7mV
TP	VIDEO 2 OUTPUT
MODE	EE
TAPE	----------
M.EQ	WAVEFORM MONITOR
INPUT	Internal SG (Color-bar signal) NTSC REF. : Black Burst (NTSC)
ADJ.	VR1

1. Set the "OUT REF" to the "NTSC REF".
   [-] (TEST)→ [F1] (VIDEO)→ [F6] (OUT REF).
2. Supply a NTSC Black Burst signal to the NTSC REF (DOWN CONVERTER) connector on the rear panel.
3. Adjust VR1 so that the Y level of VIDEO 2 OUTPUT becomes 714mV±7mV as shown in Figure 8.

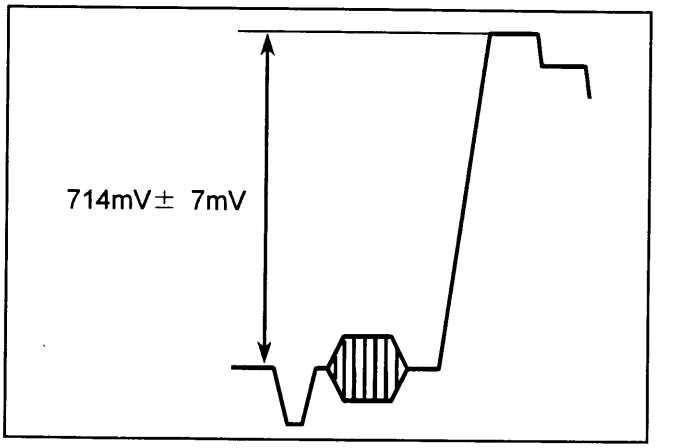


Figure 8

5-10. SYNC Blank DC Adjustment

SPEC.	0±5mV
TP	VIDEO 1 OUTPUT
MODE	EE
TAPE	----------
M.EQ	WAVEFORM MONITOR
INPUT	Internal SG (Color-bar signal) NTSC REF. : Black Burst (NTSC)
ADJ.	VR3

1. Set the "OUT REF" to the "NTSC REF".
   [-] (TEST)→ [F1] (VIDEO)→ [F6] (OUT REF).
2. Set the SYNC signal off.
   [8] (VIDEO OUT)→ [F13] (DOWNCONV) →[F5] (SYNC)
3. Supply a NTSC Black Burst signal to the NTSC REF (DOWN CONVERTER) connector on the rear panel.
4. Adjust VR3 so that the DC level of blanking area of VIDEO 2 OUTPUT becomes flat as shown in Figure 9.

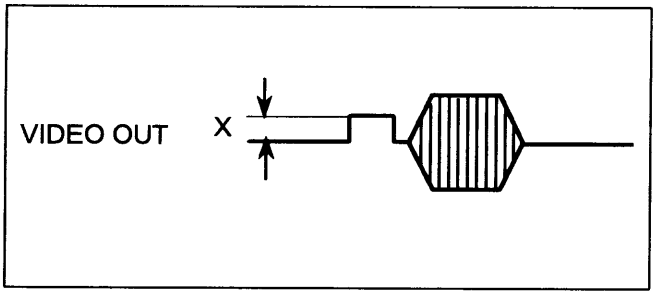


Figure 9

5-11. Frequency Response Adjustment

SPEC.	0 +0/-0.5 dB
TP	VIDEO 2 OUTPUT
MODE	EE
TAPE	----------
M.EQ	WAVEFORM MONITOR
INPUT	Internal SG (Multi-burst signal) NTSC REF. : Black Burst (NTSC)
ADJ.	VC1

1. Set the "OUT REF" to the "NTSC REF".
   [-] (TEST)→ [F1] (VIDEO)→ [F6] (OUT REF).
2. Set the Down –Converter Output "4:2:2W".
   [8] (VIDEO OUT)→ [F13] (DOWNCONV) →[F1] (TYPE)
3. Supply a NTSC Black Burst signal to the NTSC REF (DOWN CONVERTER) connector on the rear panel.
4. Adjust VC1 so that the frequency response of 15MHz becomes flat with 3MHz to 12MHz as shown in Figure 10.

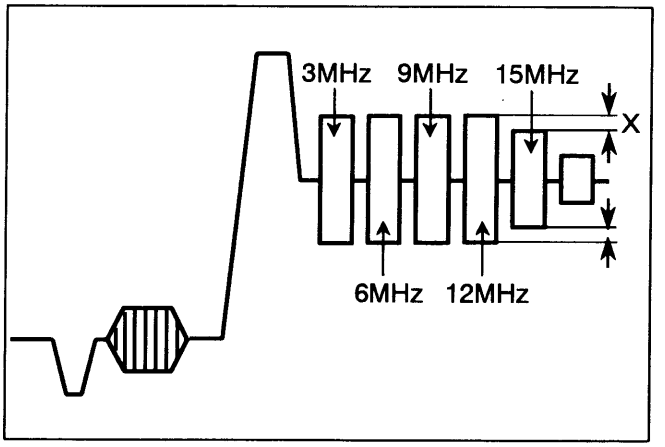


Figure 10

5-12. System SC Adjustment (1)

SPEC.	15° ± 5°
TP	VIDEO 2 OUTPUT
MODE	EE
TAPE	----------
M.EQ	VECTOR SCOPE
INPUT	Internal SG (Multi-burst signal) NTSC REF. : Black Burst (NTSC)
ADJ.	VR9

1. Set the "OUT REF" to the "NTSC REF".
   [-] (TEST)→ [F1] (VIDEO)→ [F6] (OUT REF).
2. Set the Down –Converter Output "COMPST".
   [8] (VIDEO OUT)→ [F13] (DOWNCONV) →[F1] (TYPE)
3. Supply a NTSC Black Burst signal to the NTSC REF (DOWN CONVERTER) connector on the rear panel and connect its though out to Ext.Ref. input and input A of the vector scope as shown in Figure 11.
4. Connect the VIDEO2 output signal to the input B of the vector scope as shown in Figure 11.

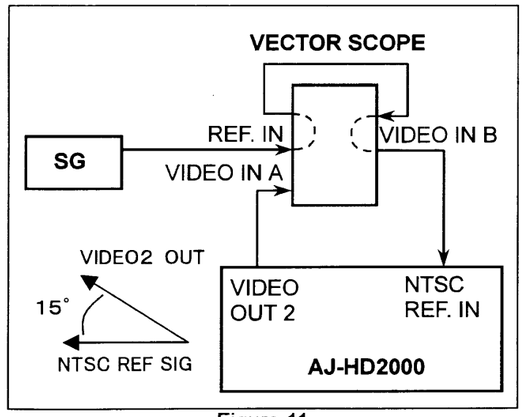


Figure 11

5. Set the trigger of Vector Scope to Ext.
6. Adjust VR9 so that the phase deference between the NTSC Reference signal (B) and Video Out 2 (A) becomes 15° ± 5° .

5-13. System SC Adjustment (2)

SPEC.	0° ± 5°
TP	VIDEO 2 OUTPUT
MODE	EE
TAPE	----------
M.EQ	VECTOR SCOPE
INPUT	Internal SG (Multi-burst signal) NTSC REF. : Black Burst (NTSC)
ADJ.	VR11, VR15

1. Set the "OUT REF" to the "NTSC REF".
   [-] (TEST)→ [F1] (VIDEO)→ [F6] (OUT REF).
2. Set the Down –Converter Output "4:2:2".
   [8] (VIDEO OUT)→ [F13] (DOWNCONV) →[F1] (TYPE)
3. Supply a NTSC Black Burst signal to the NTSC REF (DOWN CONVERTER) connector on the rear panel and connect its though out to Ext.Ref. input and input A of the vector scope as shown in Figure 11.
4. Connect the VIDEO2 output signal to the input B of the vector scope as shown in Figure 11.
5. Set the trigger of Vector Scope to Ext.
6. Adjust VR15 so that the phase deference between the NTSC Reference signal (B) and Video Out 2 (A) becomes 0° ± 5° .
7. Set the Down –Converter Output "4:2:2W".
   [8] (VIDEO OUT)→ [F13] (DOWNCONV) →[F1] (TYPE)
8. Adjust VR11 so that the phase deference between the NTSC Reference signal (B) and Video Out 2 (A) becomes 0° ± 5° .

5-14. HD H Position Adjustment

SPEC.	0±13ns
TP	525 SYNC OUTPUT, TP5
MODE	EE
TAPE	----------
M.EQ	Oscilloscope
INPUT	Internal SG (Color-bar signal) NTSC REF. : Black Burst (NTSC)
ADJ.	VR8

1. Set the "OUT REF" to the "NTSC REF".
   [-] (TEST)→ [F1] (VIDEO)→ [F6] (OUT REF).
2. Supply a NTSC Black Burst signal to the NTSC REF (DOWN CONVERTER) connector on the rear panel.
4. Adjust VR8 so that the "T" becomes as shown in Figure 12.

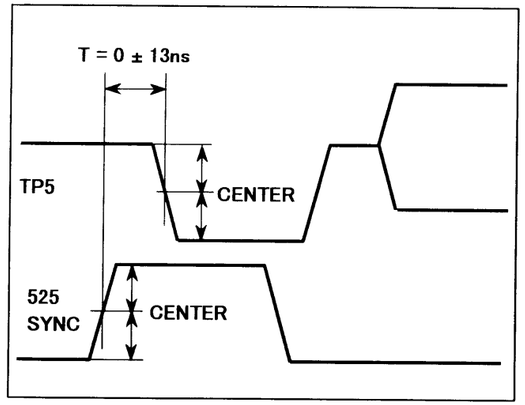


Figure 12

5-15. HD Ref. H Position Adjustment

SPEC.	0±13ns
TP	525 SYNC OUT, VIDEO 2 OUTPUT
MODE	EE
TAPE	----------
M.EQ	Oscilloscope
INPUT	Internal SG (Color-bar signal) NTSC REF. : Black Burst (NTSC)
ADJ.	VR12, VR13, VR14

1. Set the "OUT REF" to the "HD REF".
   [-] (TEST)→ [F1] (VIDEO)→ [F6] (OUT REF).
2. Set the Down –Converter Output "COMPST".
   [8] (VIDEO OUT)→ [F13] (DOWNCONV) →[F1] (TYPE)
3. Supply a NTSC Black Burst signal to the NTSC REF (DOWN CONVERTER) connector on the rear panel.
4. Adjust VR12 so that the "T" becomes as shown in Figure 13.
5. Set the Down –Converter Output "422".
   [8] (VIDEO OUT)→ [F13] (DOWNCONV) →[F1] (TYPE)
6. Adjust VR13 so that the "T" becomes as shown in Figure 13.
7. Set the Down –Converter Output "422W".
   [8] (VIDEO OUT)→ [F13] (DOWNCONV) →[F1] (TYPE)
8. Adjust VR13 so that the "T" becomes as shown in Figure 13.

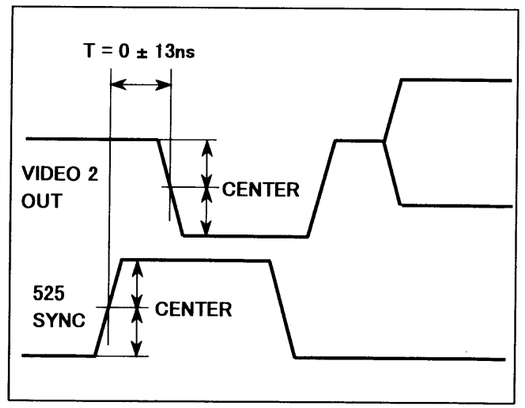
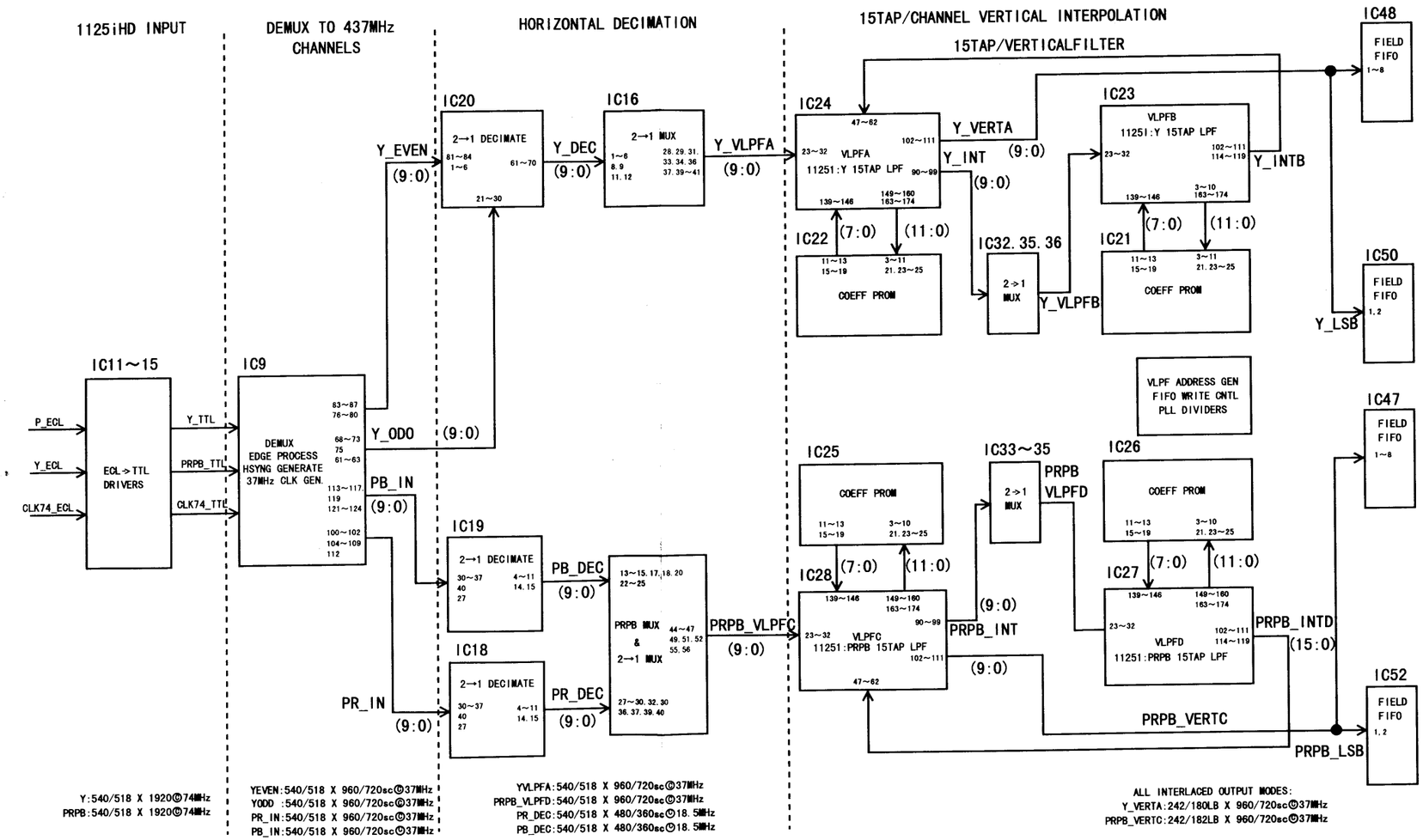
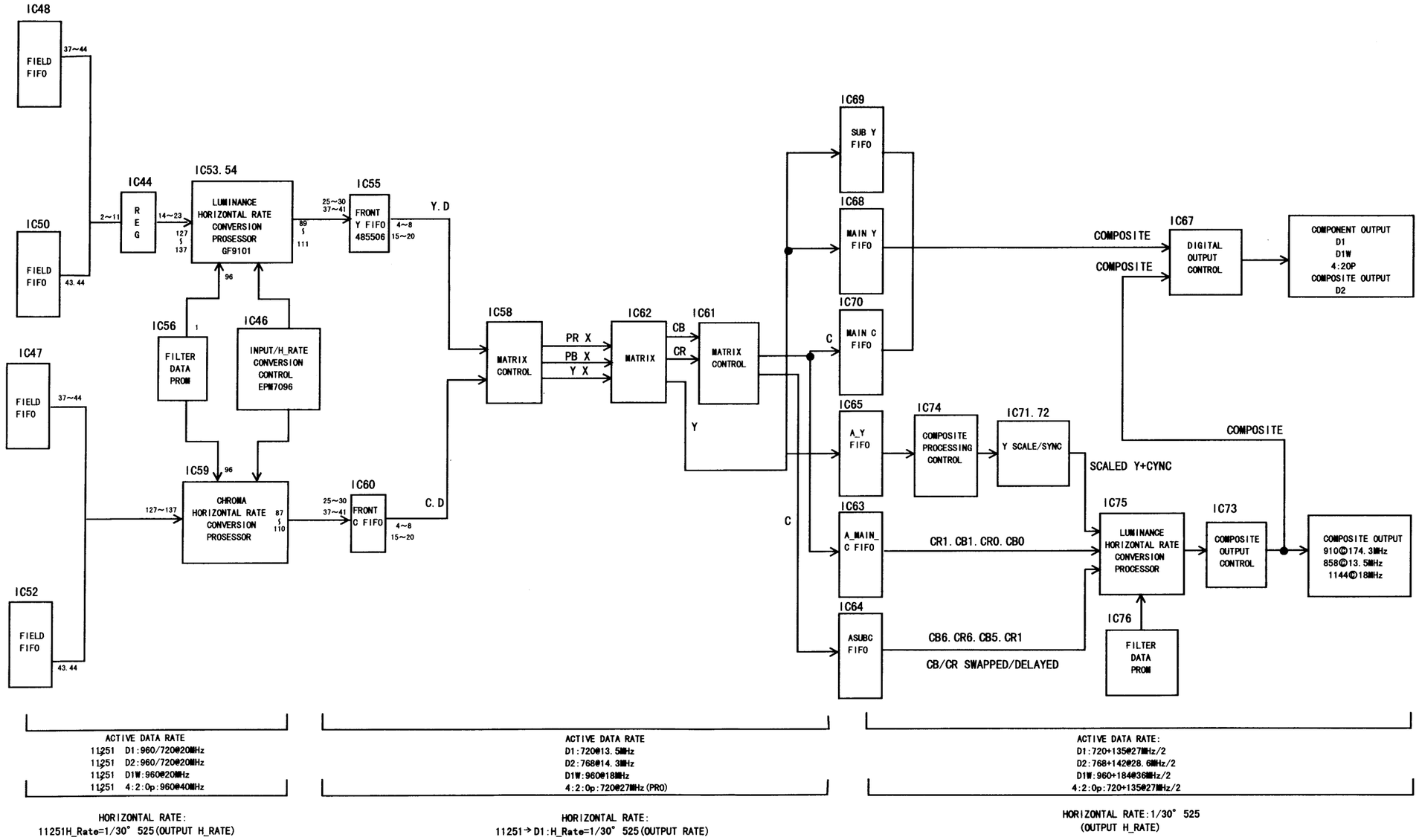


Figure 13

L1.DOWN CONVERTER BLOCK DIAGRAM

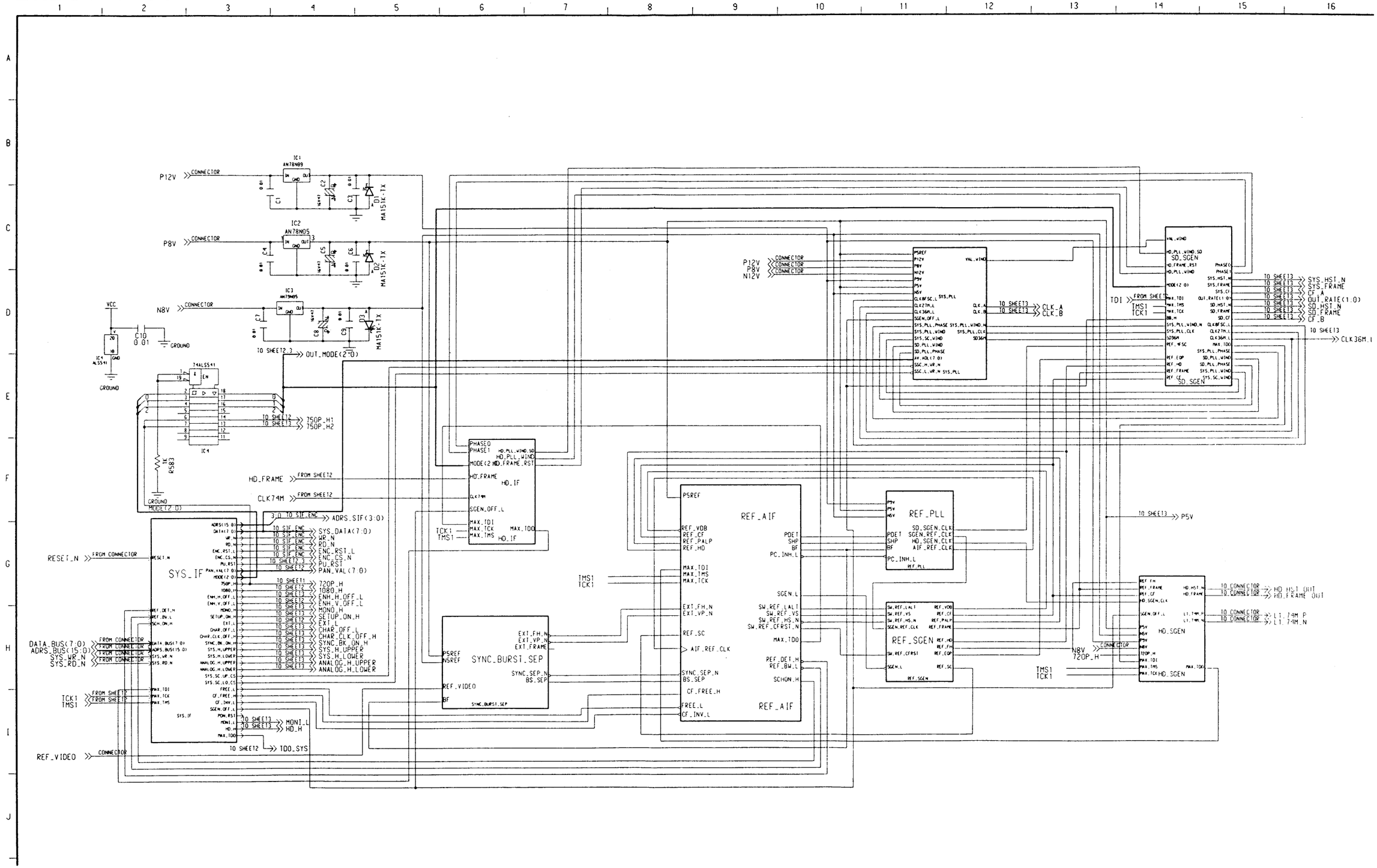


BLK-1


IC48
FIELD FIFO
37~44
IC50
FIELD FIFO
43.44
2~11
IC44
R E G
14~23
IC53.54
LUMINANCE HORIZONTAL RATE CONVERSION PROSESSOR GF9101
127 ~ 137
96
25~30 37~41
89 ~ 111
IC55
FRONT Y FIFO 485506
4~8 15~20
Y.D
IC56
FILTER DATA PROM
1
IC46
INPUT/H_RATE CONVERSION CONTROL EPM7096
IC47
FIELD FIFO
37~44
IC59
96
CHROMA HORIZONTAL RATE CONVERSION PROSESSOR
127~137
87 ~ 110
IC60
25~30 37~41
FRONT C FIFO
4~8 15~20
C.D
IC52
FIELD FIFO
43.44
IC58
MATRIX CONTROL
PR X
PB X
Y X
IC62
MATRIX
CB
CR
IC61
MATRIX CONTROL
Y
C
IC69
SUB Y FIFO
IC68
MAIN Y FIFO
IC70
MAIN C FIFO
IC65
A_Y FIFO
IC74
COMPOSITE PROCESSING CONTROL
IC71.72
Y SCALE/SYNC
SCALED Y+CYNC
IC63
A_MAIN_ C FIFO
CR1. CB1. CR0. CB0
IC64
ASUBC FIFO
CB6. CR6. CB5. CR1
CB/CR SWAPPED/DELAYED
IC67
DIGITAL OUTPUT CONTROL
COMPOSITE
COMPOSITE
COMPONENT OUTPUT
D1
D1W
4:2OP
COMPOSITE OUTPUT
D2
COMPOSITE
IC75
LUMINANCE HORIZONTAL RATE CONVERSION PROCESSOR
IC73
COMPOSITE OUTPUT CONTROL
COMPOSITE OUTPUT
910@174.3MHz
858@13.5MHz
1144@18MHz
IC76
FILTER DATA PROM
ACTIVE DATA RATE
11251 D1:960/720@20MHz
11251 D2:960/720@20MHz
11251 D1W:960@20MHz
11251 4:2:0p:960@40MHz
HORIZONTAL RATE:
11251H_Rate=1/30° 525(OUTPUT H_RATE)
ACTIVE DATA RATE
D1:720@13.5MHz
D2:768@14.3MHz
D1W:960@18MHz
4:2:0p:720@27MHz(PRO)
HORIZONTAL RATE:
11251→D1:H_Rate=1/30° 525(OUTPUT RATE)
ACTIVE DATA RATE:
D1:720+135@27MHz/2
D2:768+142@28.6MHz/2
D1W:960+184@36MHz/2
4:2:0p:720+135@27MHz/2
HORIZONTAL RATE:1/30° 525
(OUTPUT H_RATE)

BLK-2

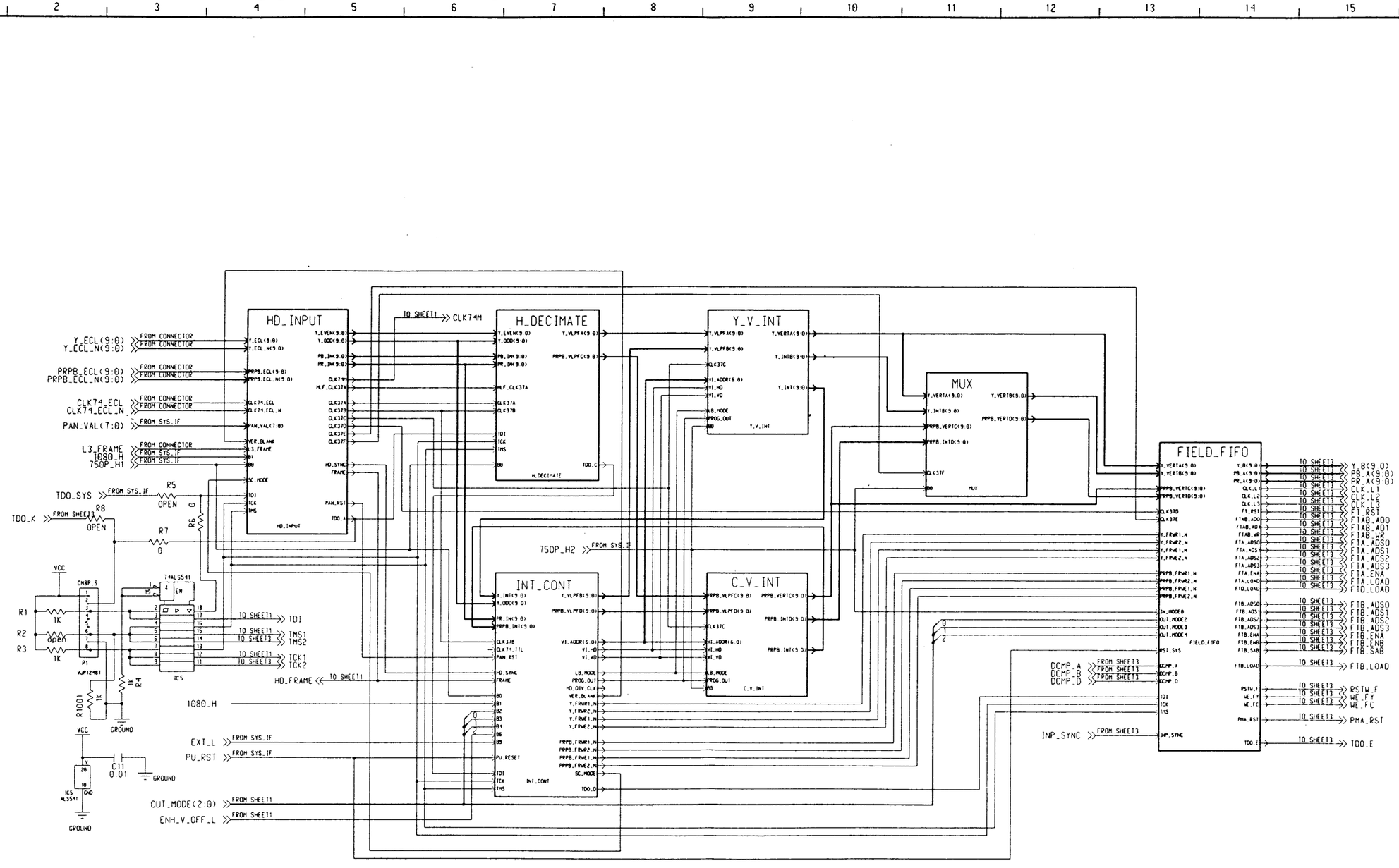
L1.DOWN CONVERTER SCHEMATIC DIAGRAM 1/28



SCM-1

SCM-1

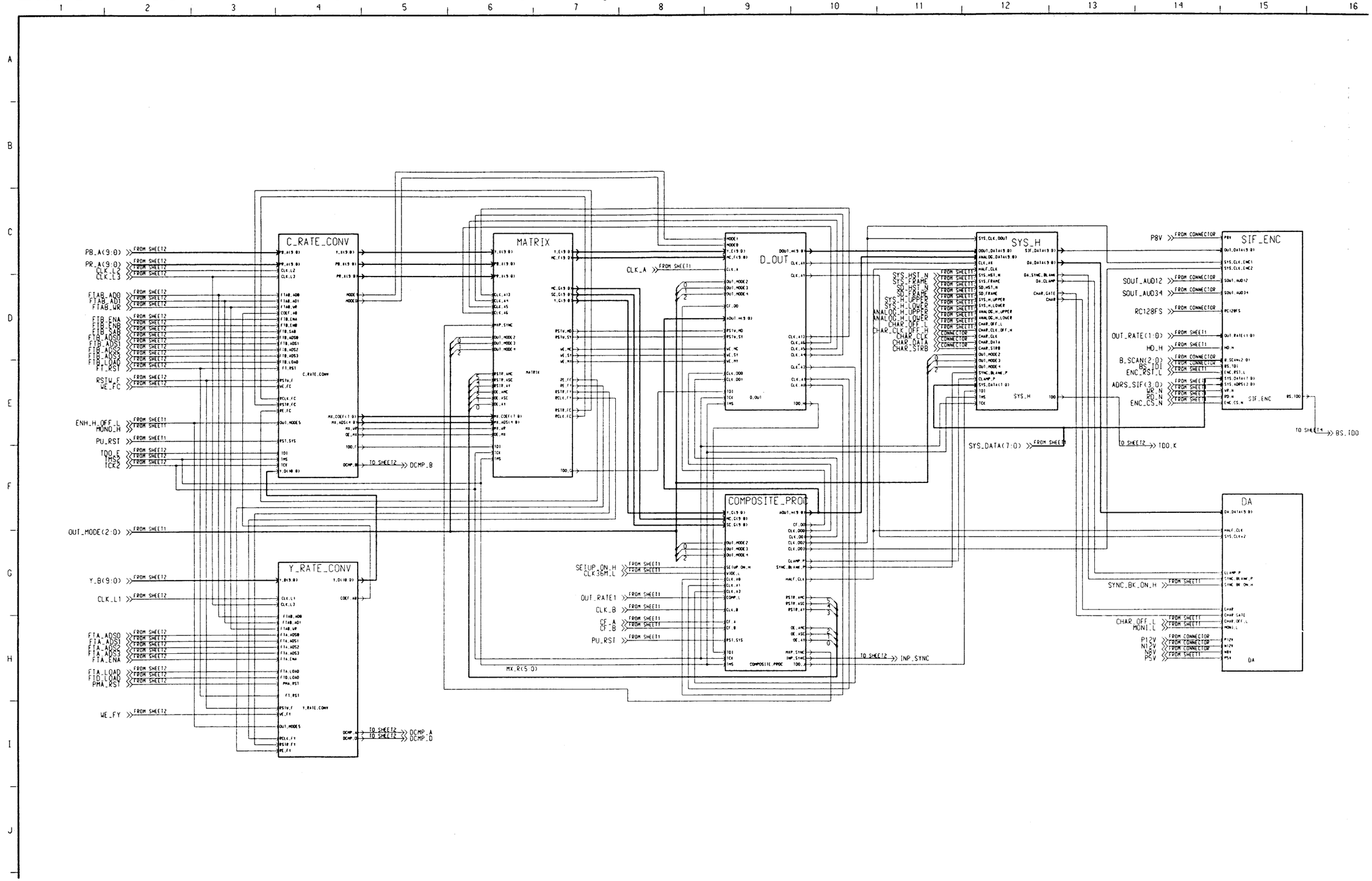
L1.DOWN CONVERTER SCHEMATIC DIAGRAM 2/28



SCM-2

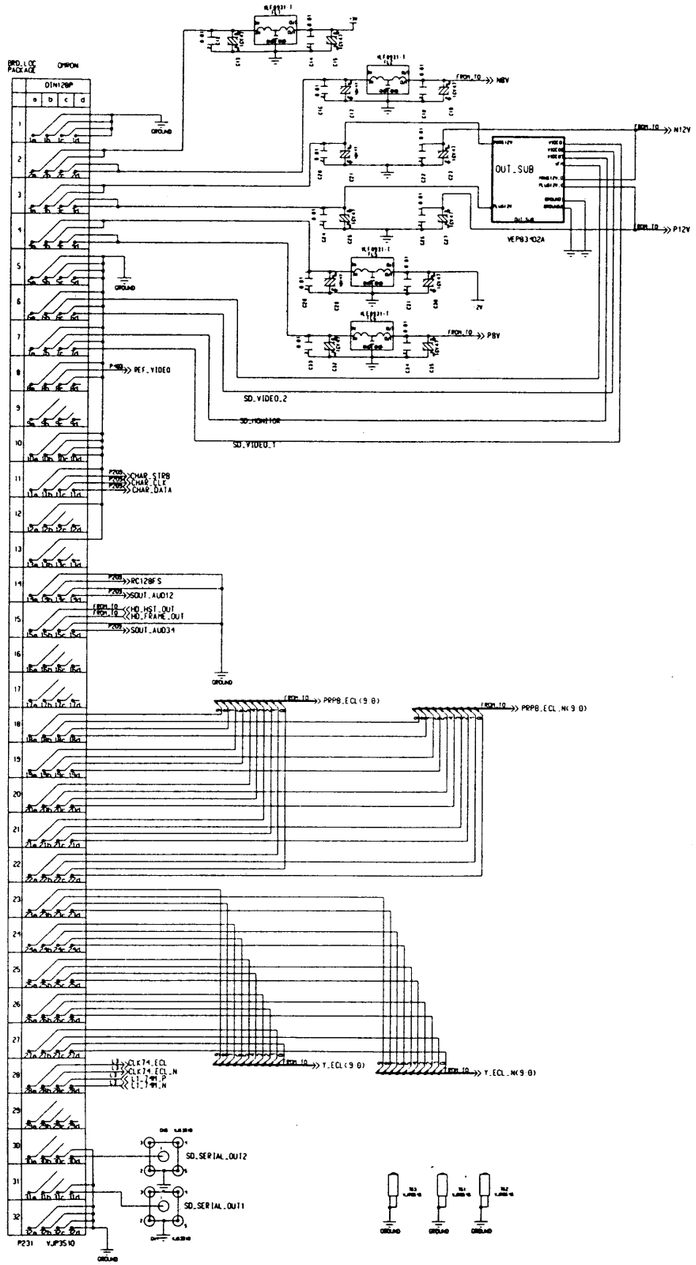
SCM-2

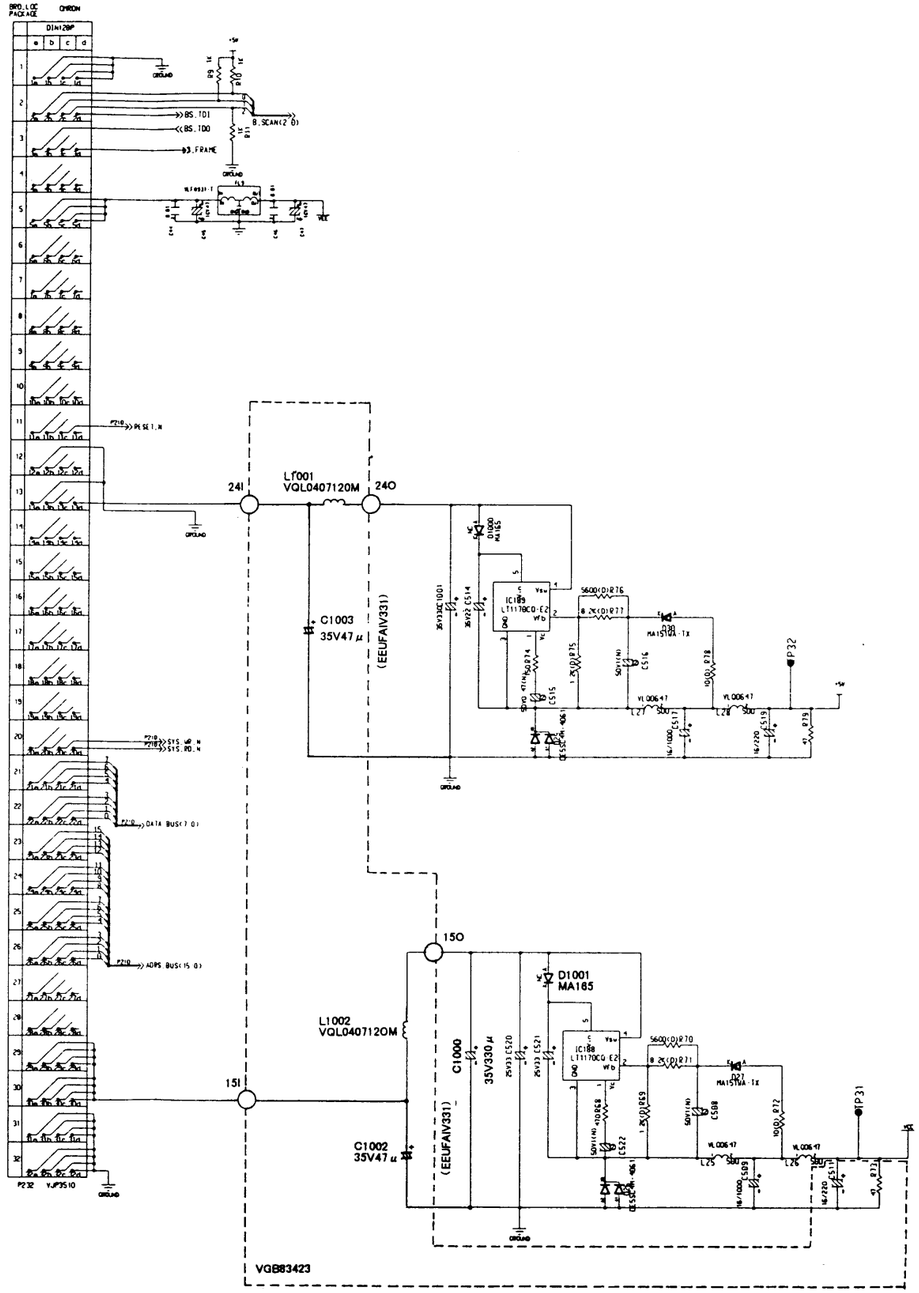
L1.DOWN CONVERTER SCHEMATIC DIAGRAM 3/28



SCM-3

L1.DOWN CONVERTER SCHEMATIC DIAGRAM 4/28

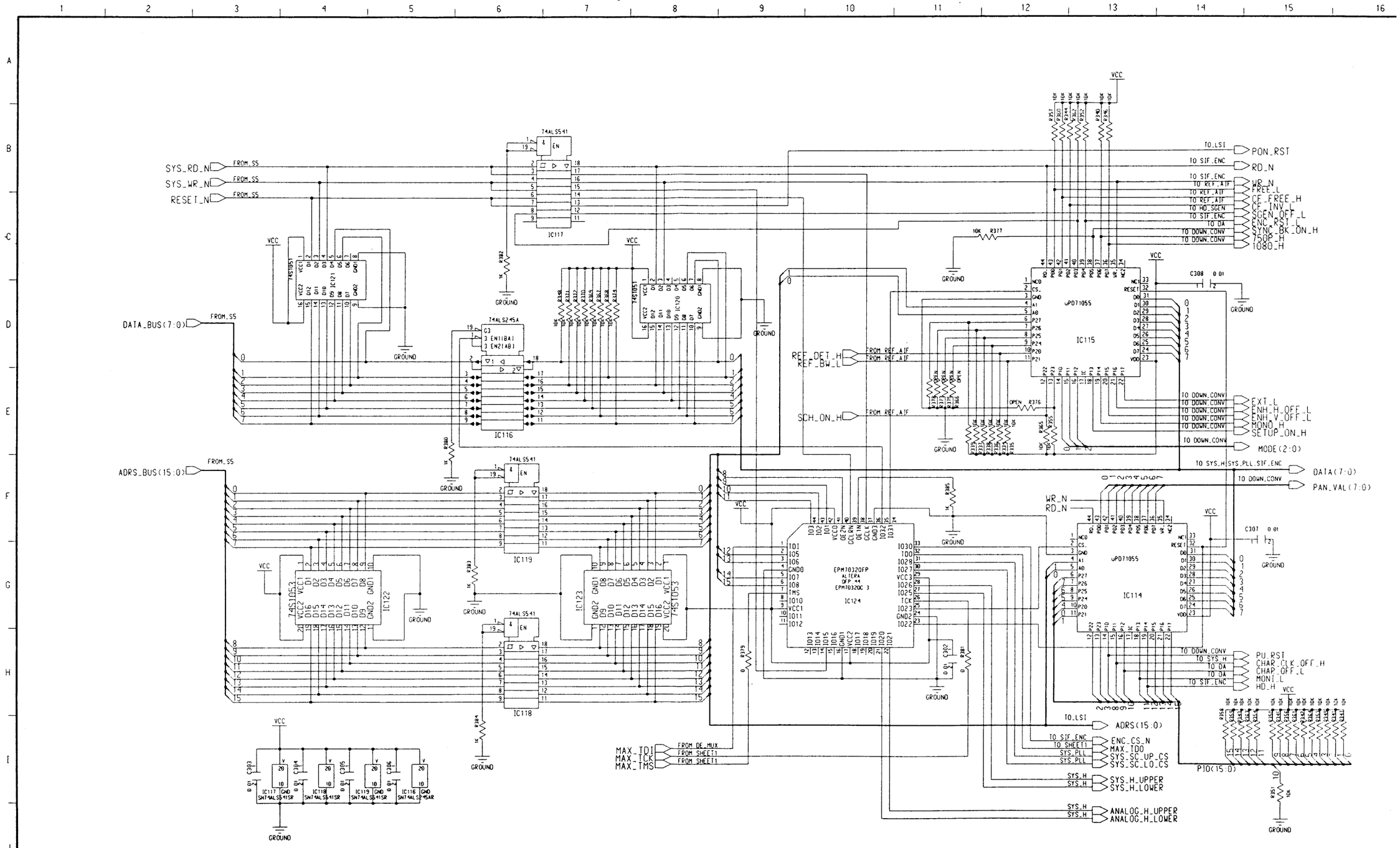




SCM-4

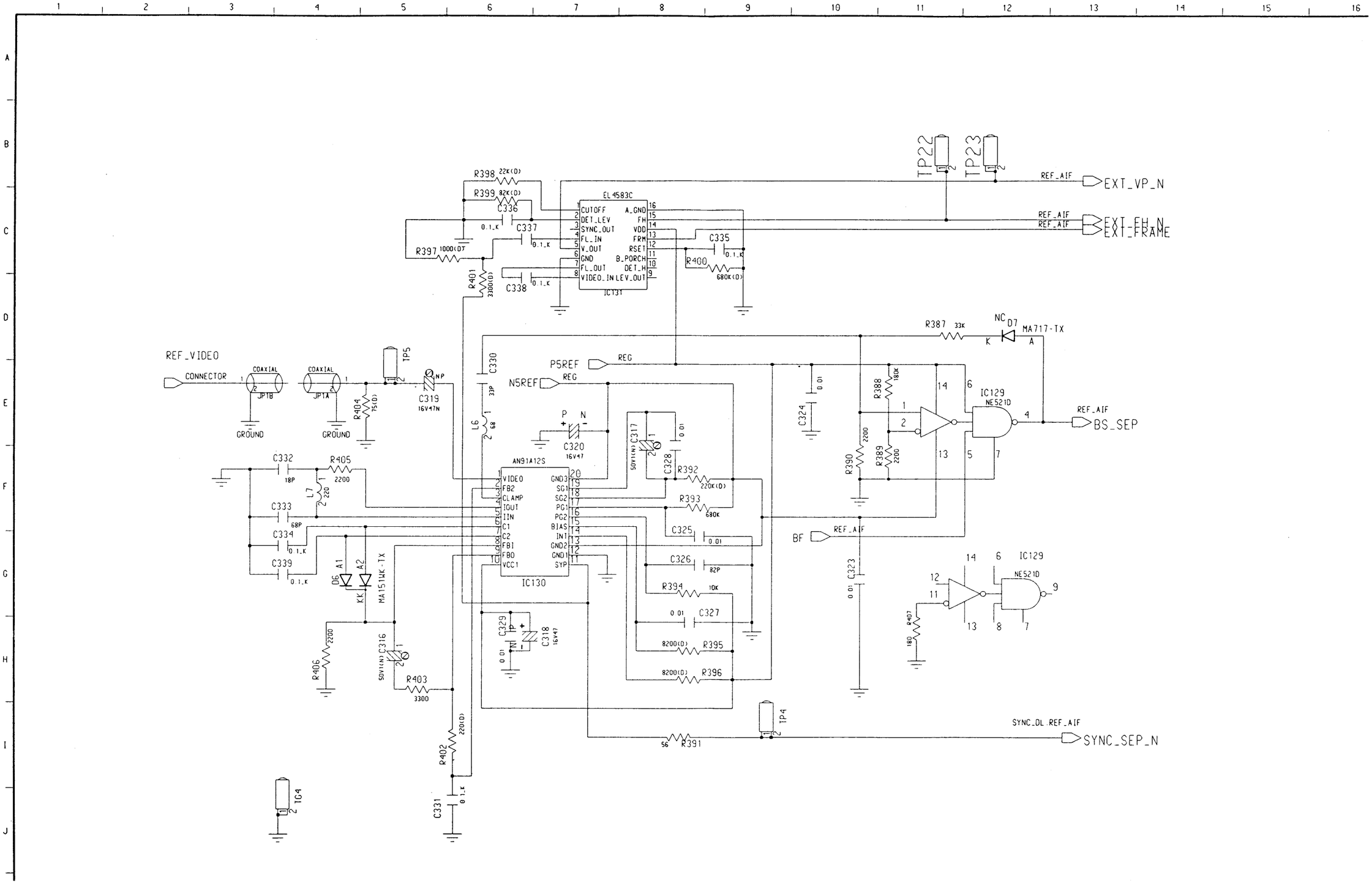
SCM-4

L1.DOWN CONVERTER SCHEMATIC DIAGRAM 5/28



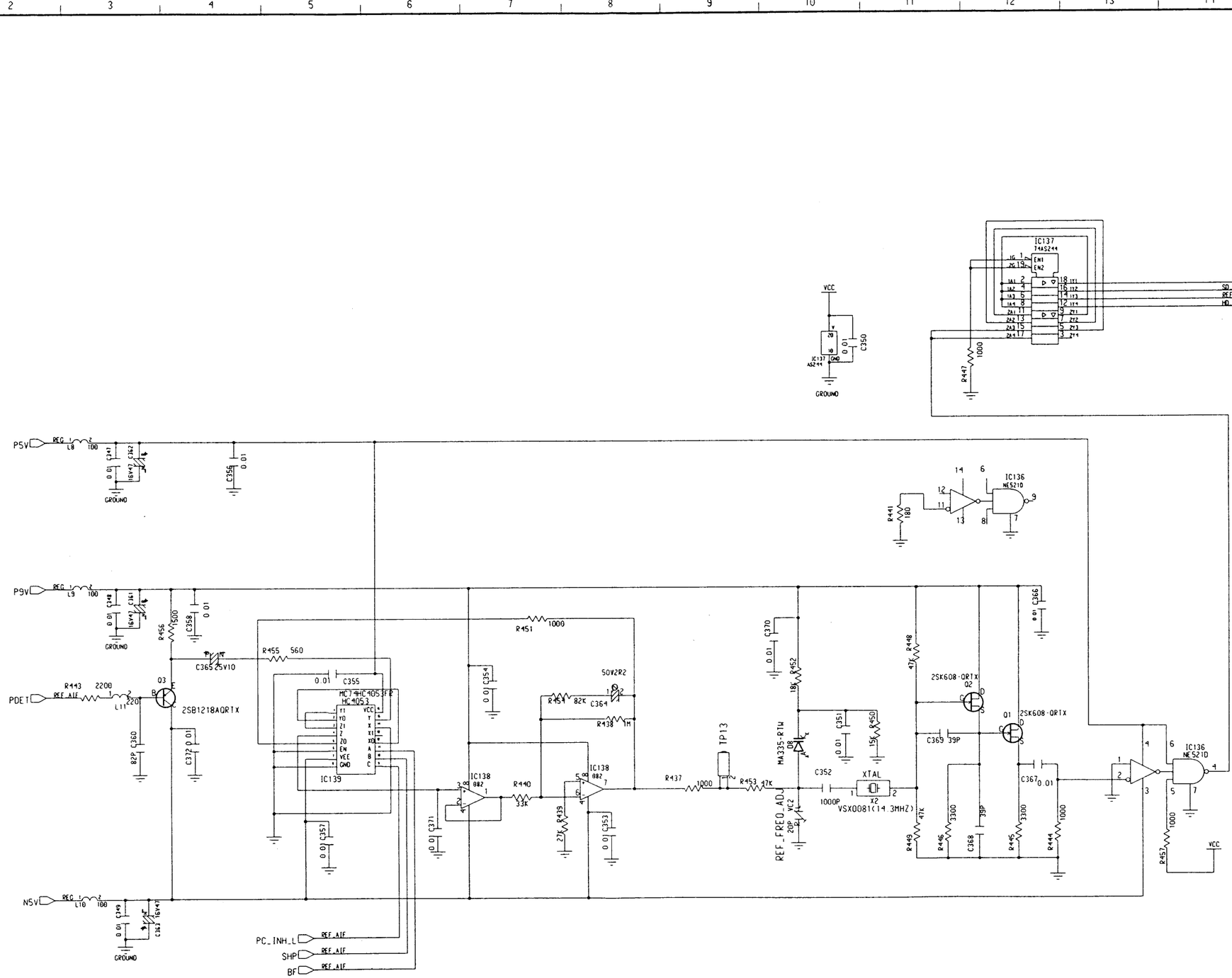
SCM-5

L1.DOWN CONVERTER SCHEMATIC DIAGRAM 6/28



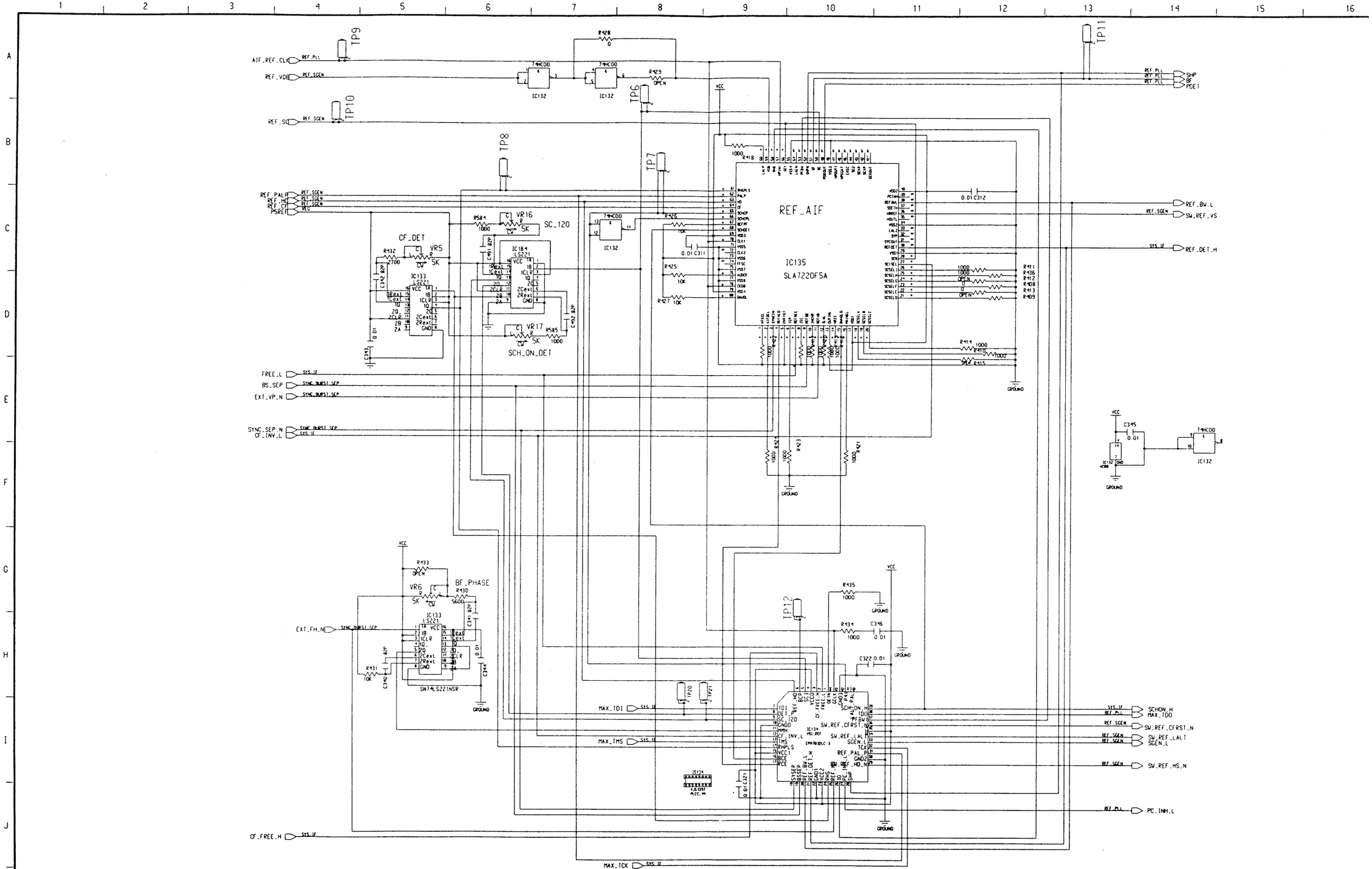
SCM-6

L1.DOWN CONVERTER SCHEMATIC DIAGRAM 7/28



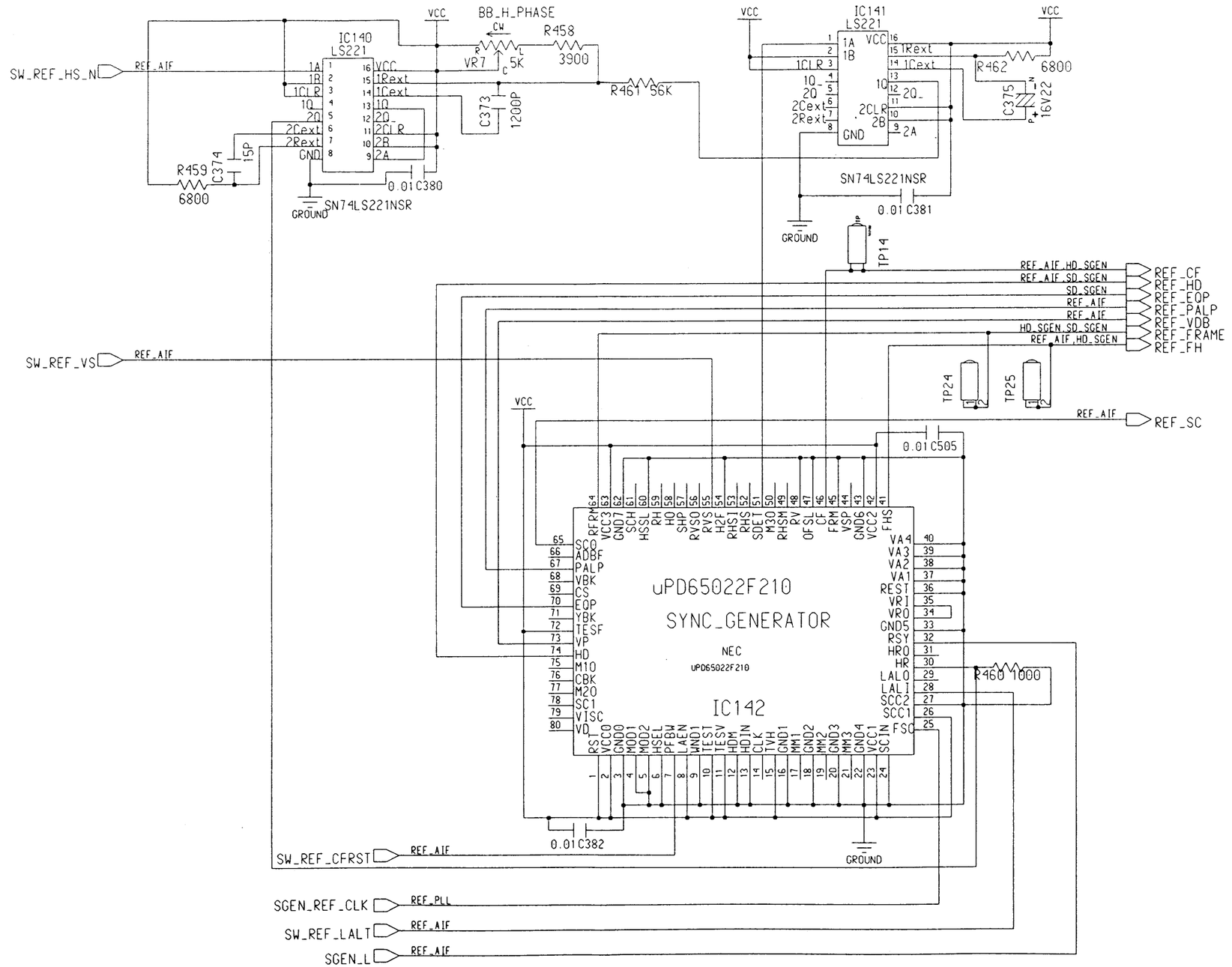
SCM-7

L1.DOWN CONVERTER SCHEMATIC DIAGRAM 8/28



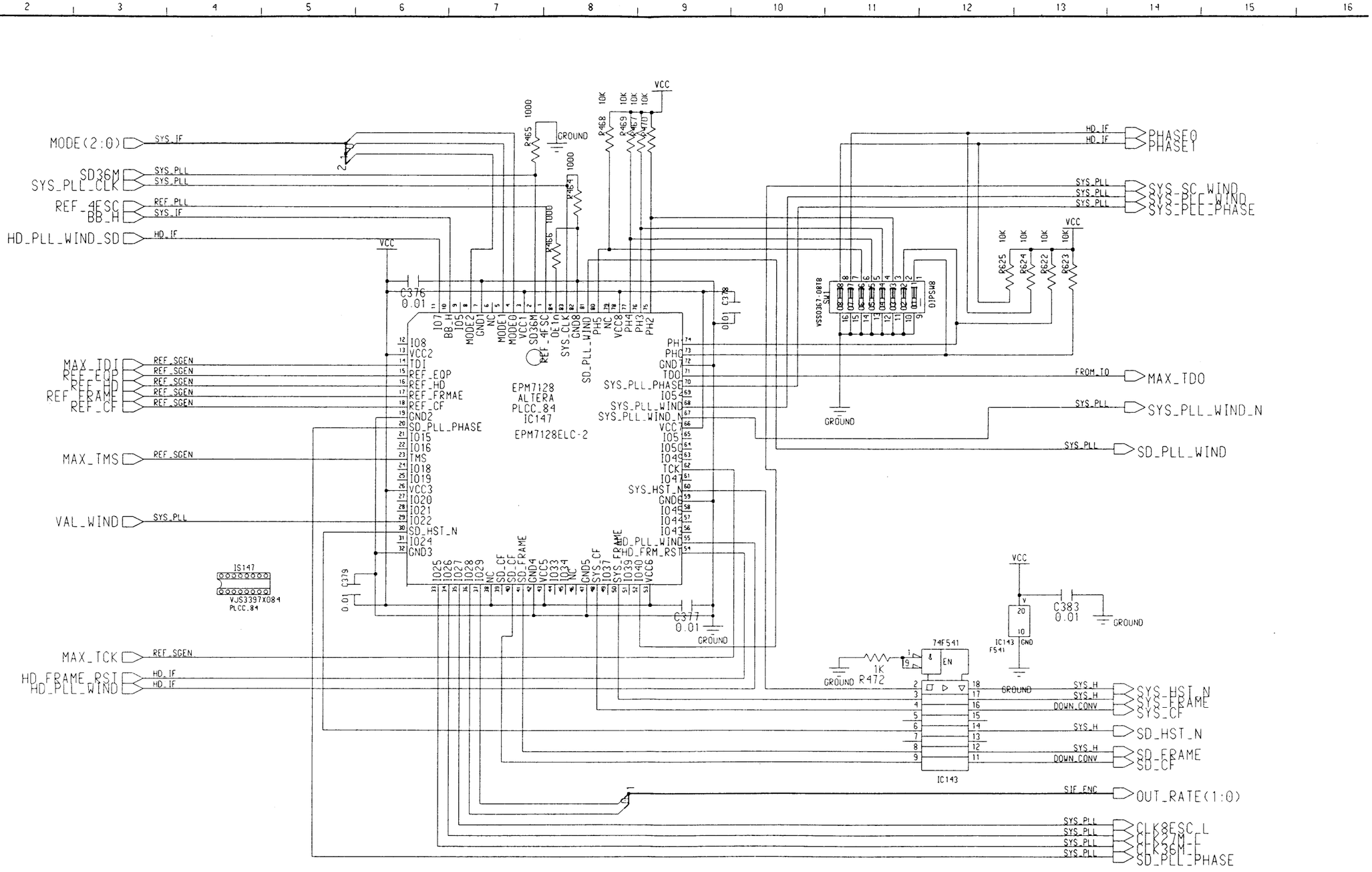
SCM-8

L1.DOWN CONVERTER SCHEMATIC DIAGRAM 9/28



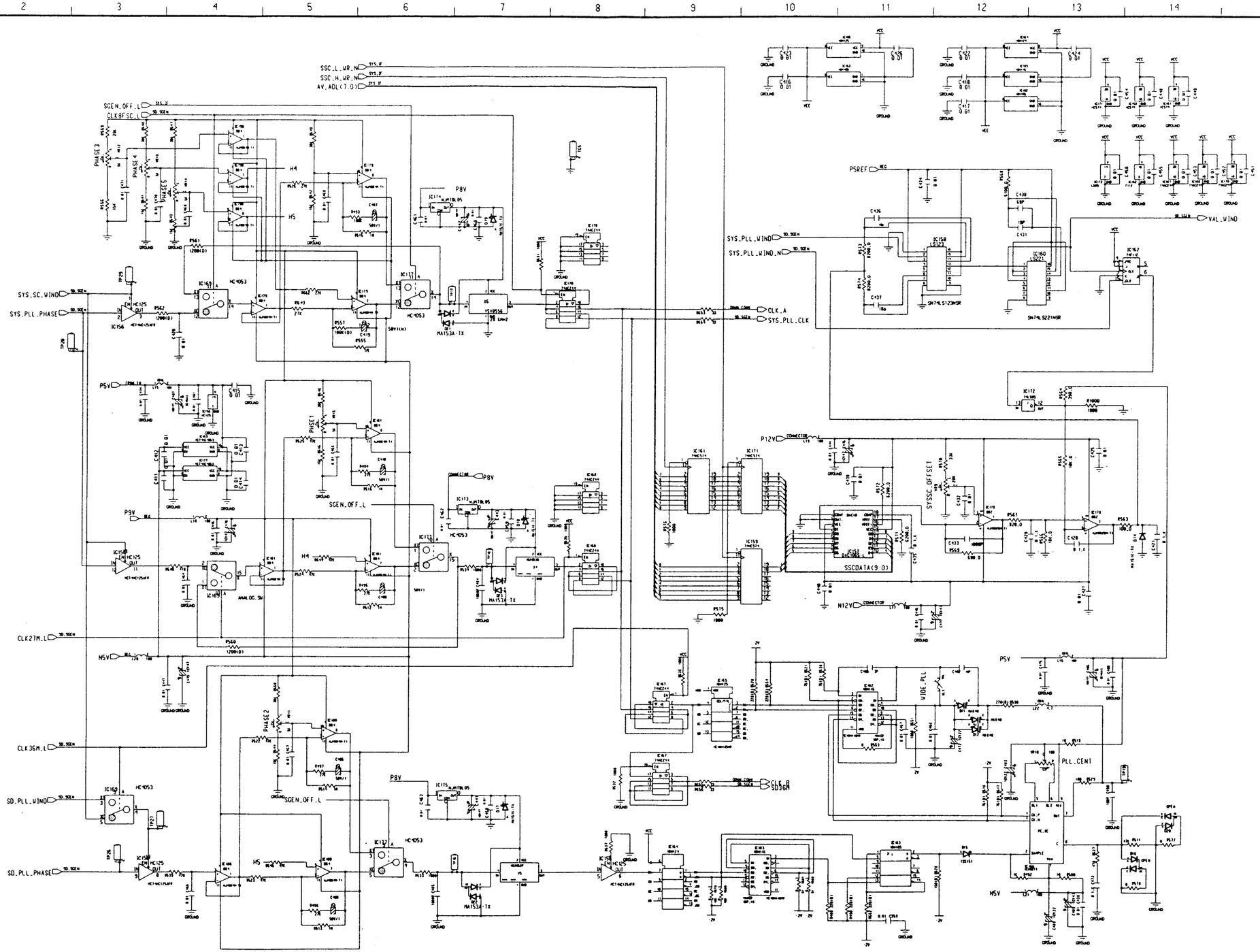
SCM-9

L1.DOWN CONVERTER SCHEMATIC DIAGRAM 10/28



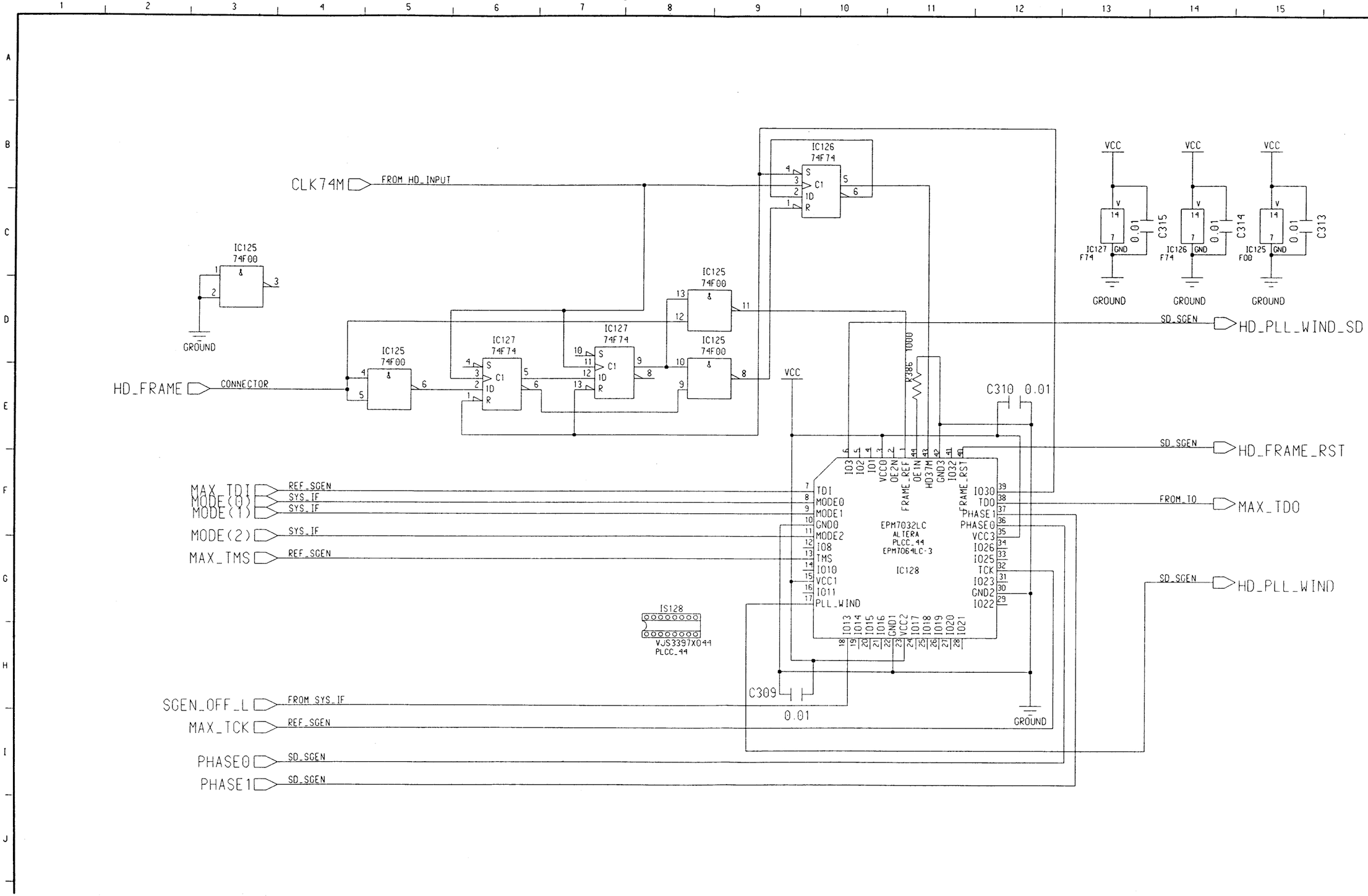
SCM-10

L1.DOWN CONVERTER SCHEMATIC DIAGRAM 11/28



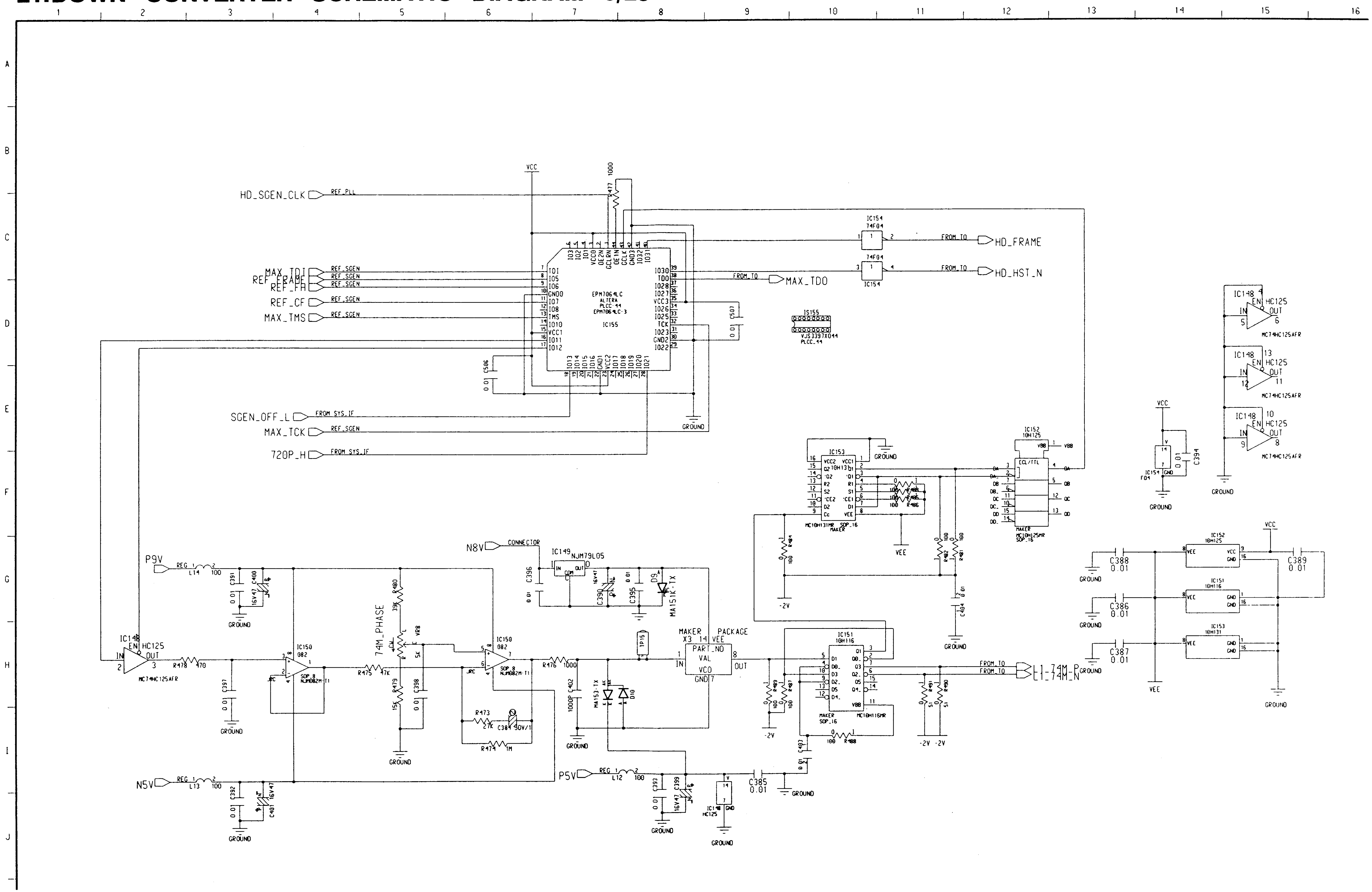
SCM-11

L1.DOWN CONVERTER SCHEMATIC DIAGRAM 12/28

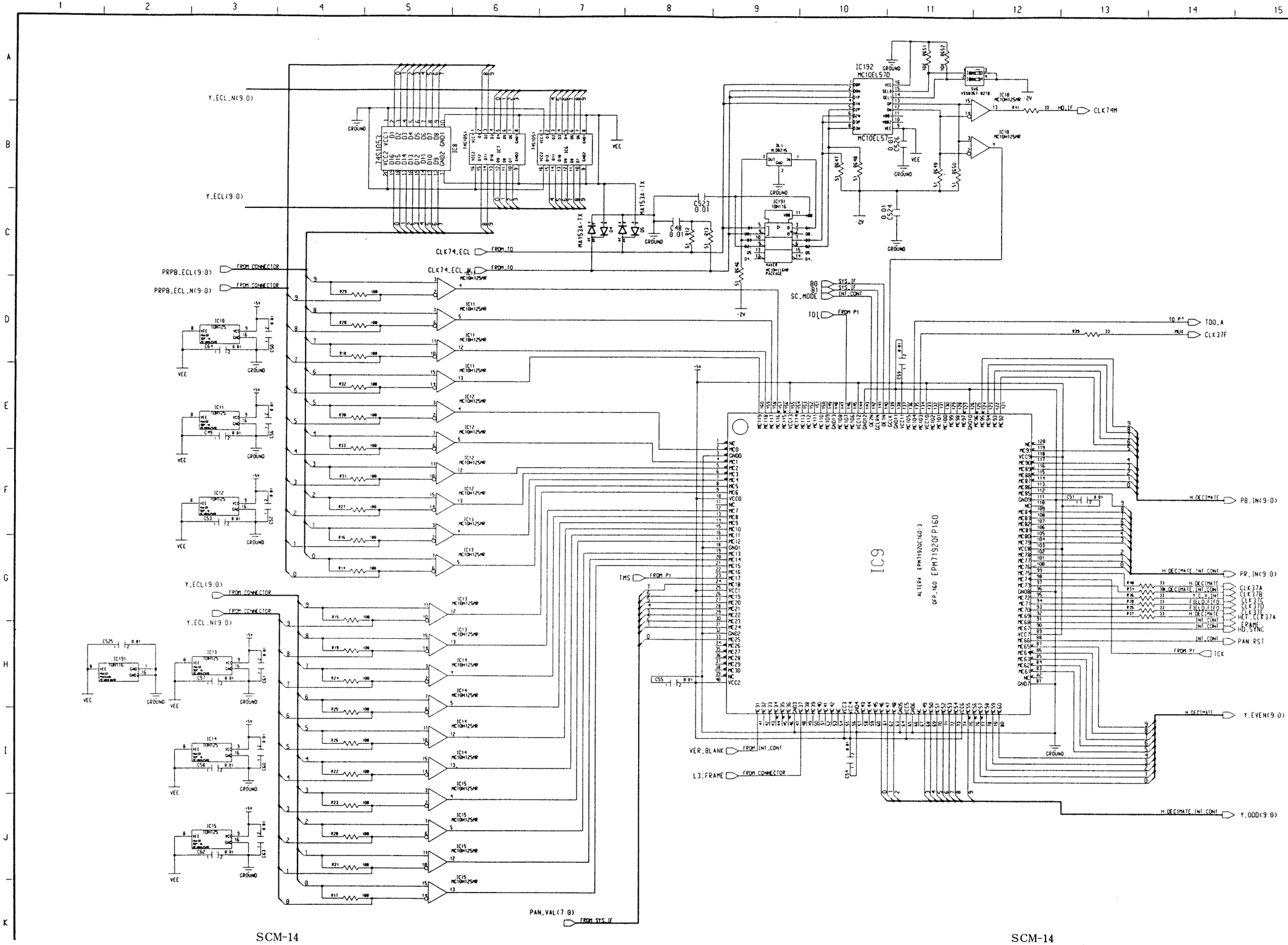


SCM-12

L1.DOWN CONVERTER SCHEMATIC DIAGRAM 13/28

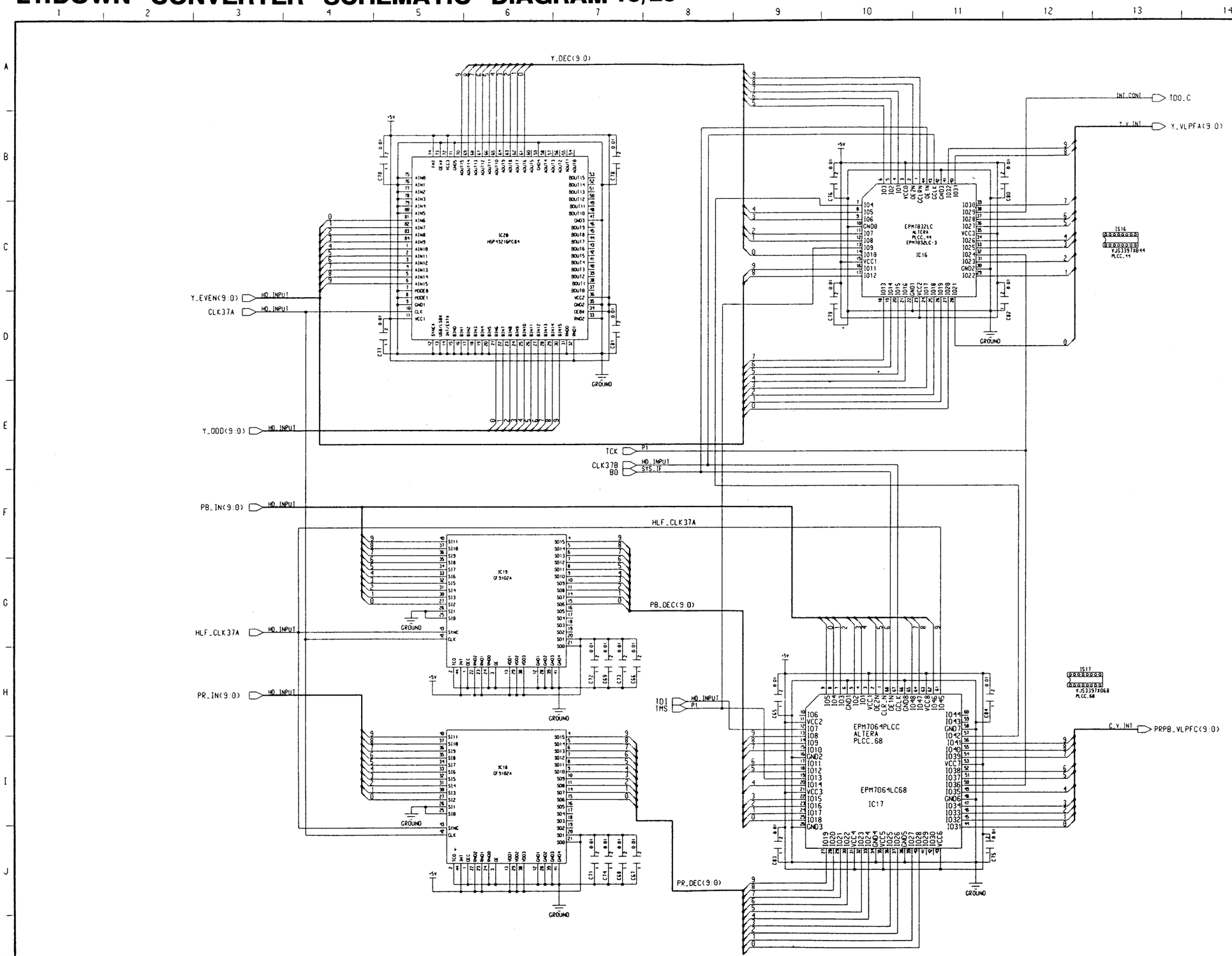


L1.DOWN CONVERTER SCHEMATIC DIAGRAM 14/28



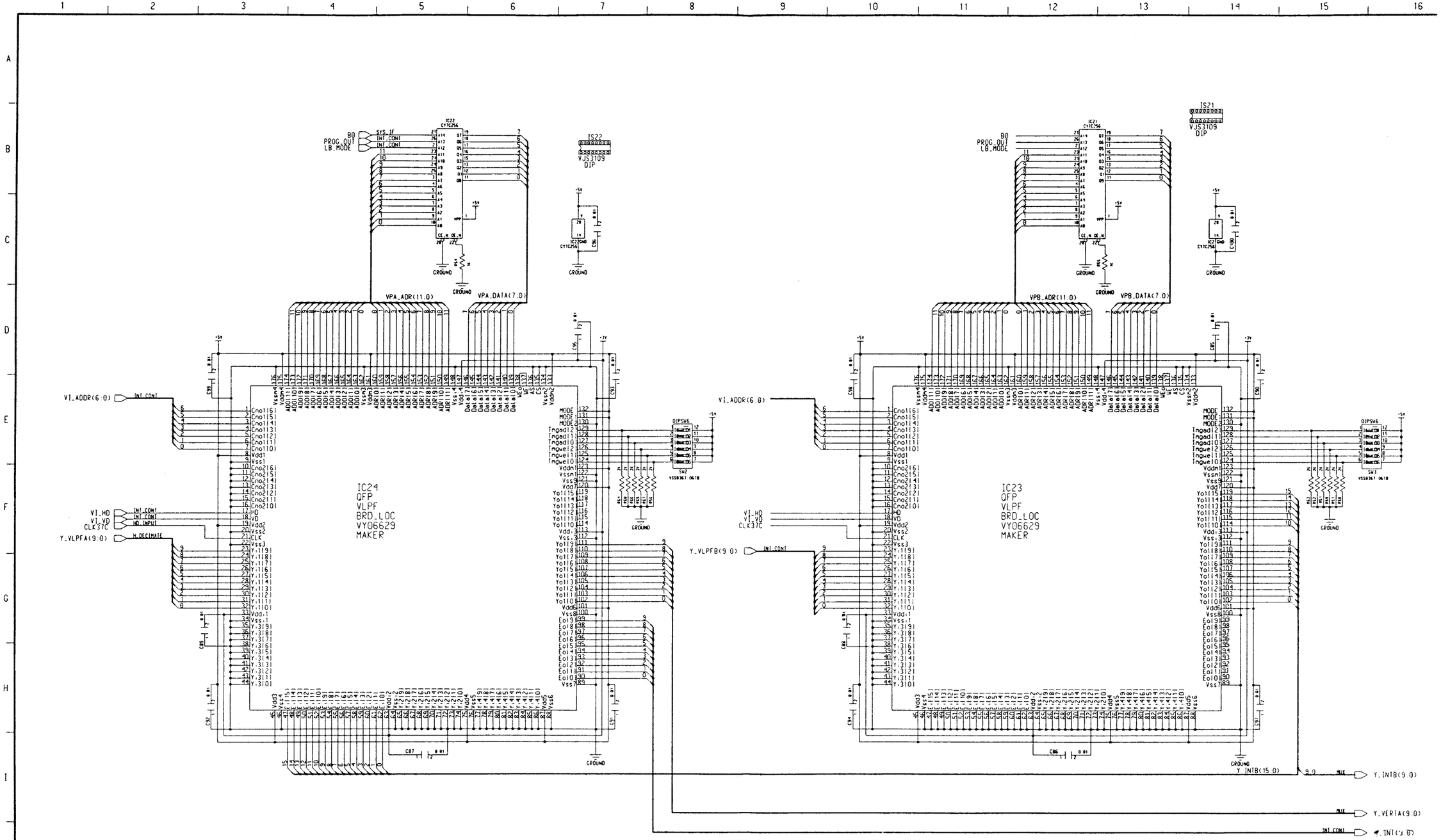
SCM-14

L1.DOWN CONVERTER SCHEMATIC DIAGRAM 15/28



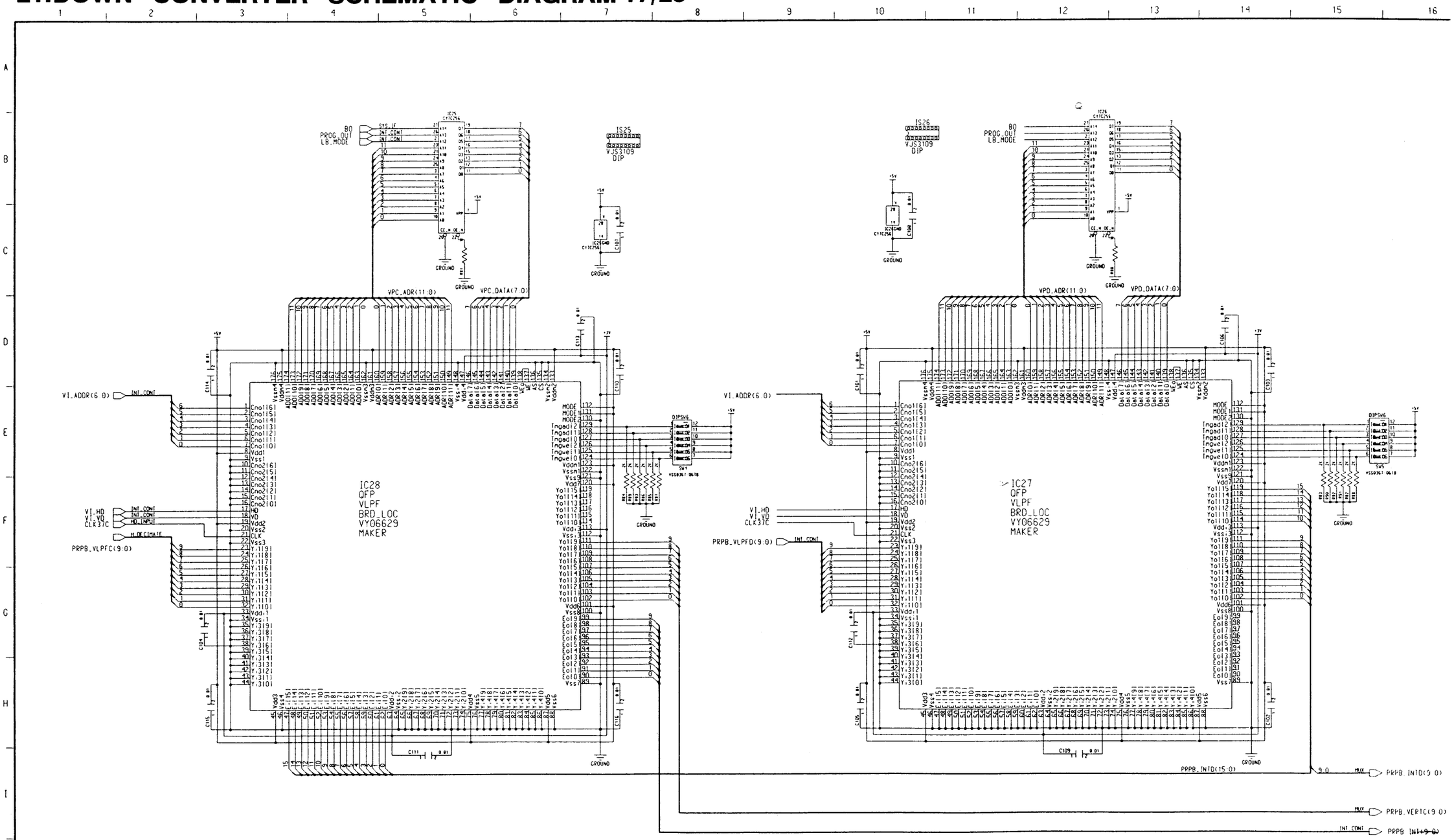
SCM-15

L1.DOWN CONVERTER SCHEMATIC DIAGRAM 16/28



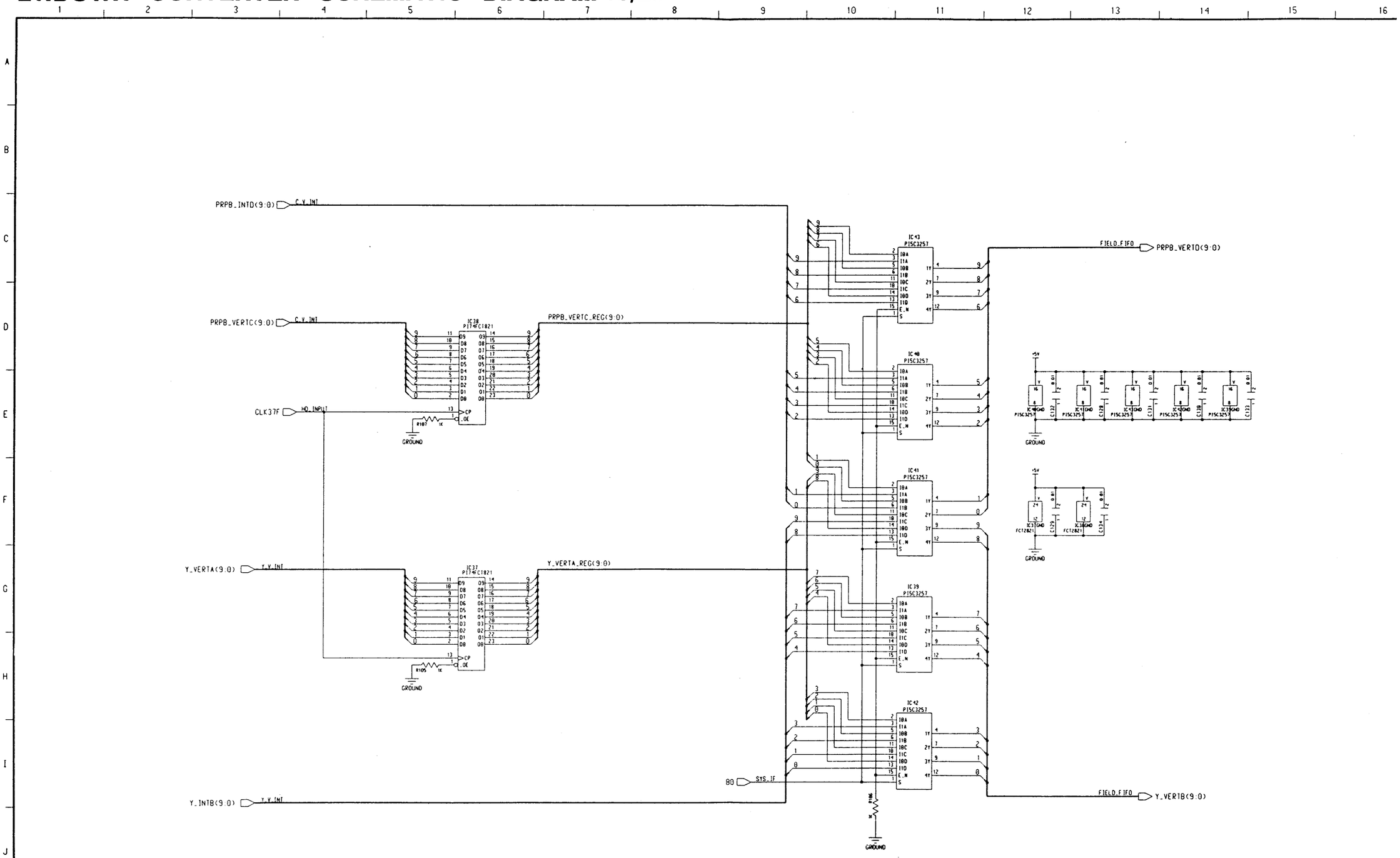
SCM-16

L1.DOWN CONVERTER SCHEMATIC DIAGRAM 17/28



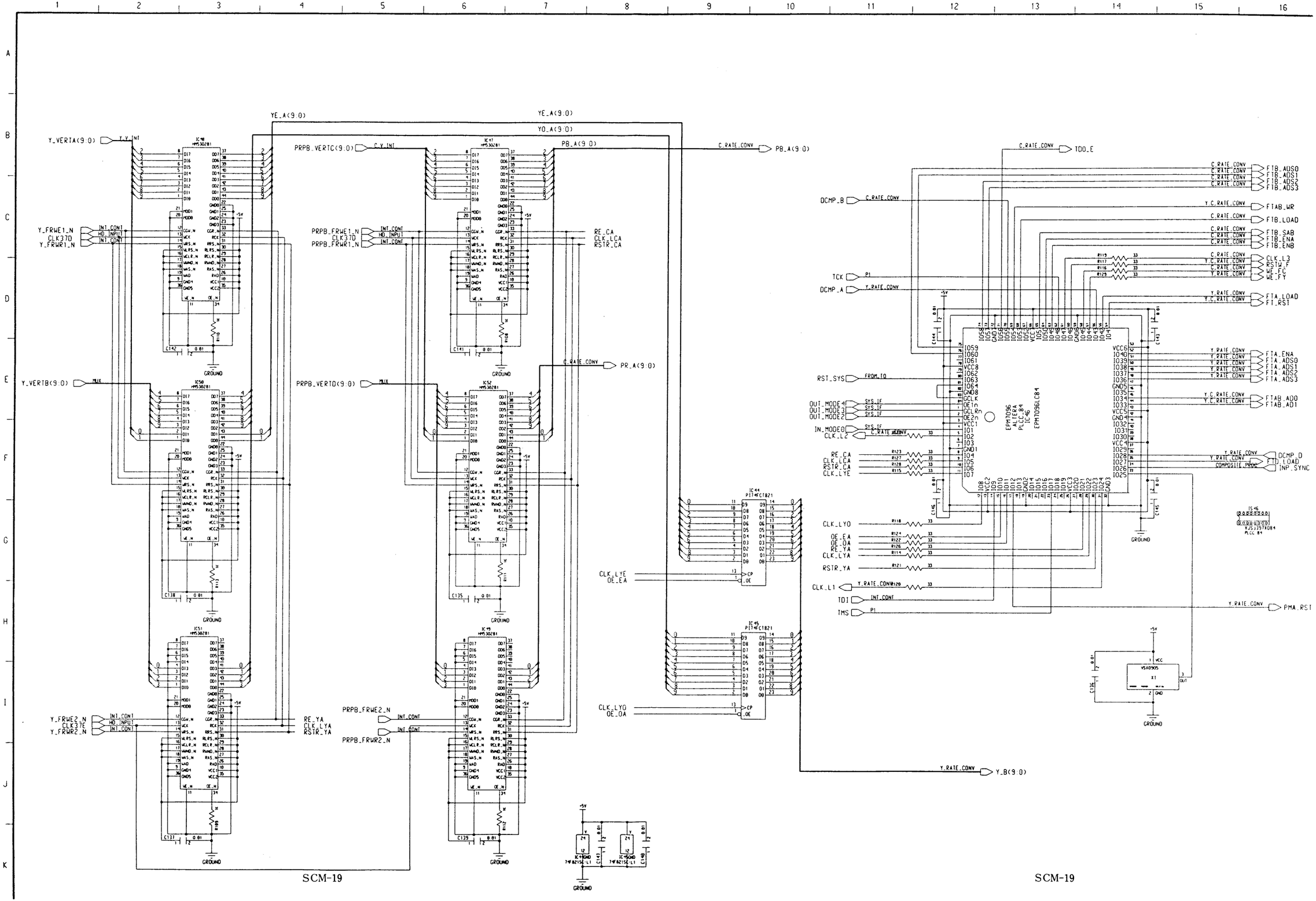
SCM-17

L1.DOWN CONVERTER SCHEMATIC DIAGRAM 18/28

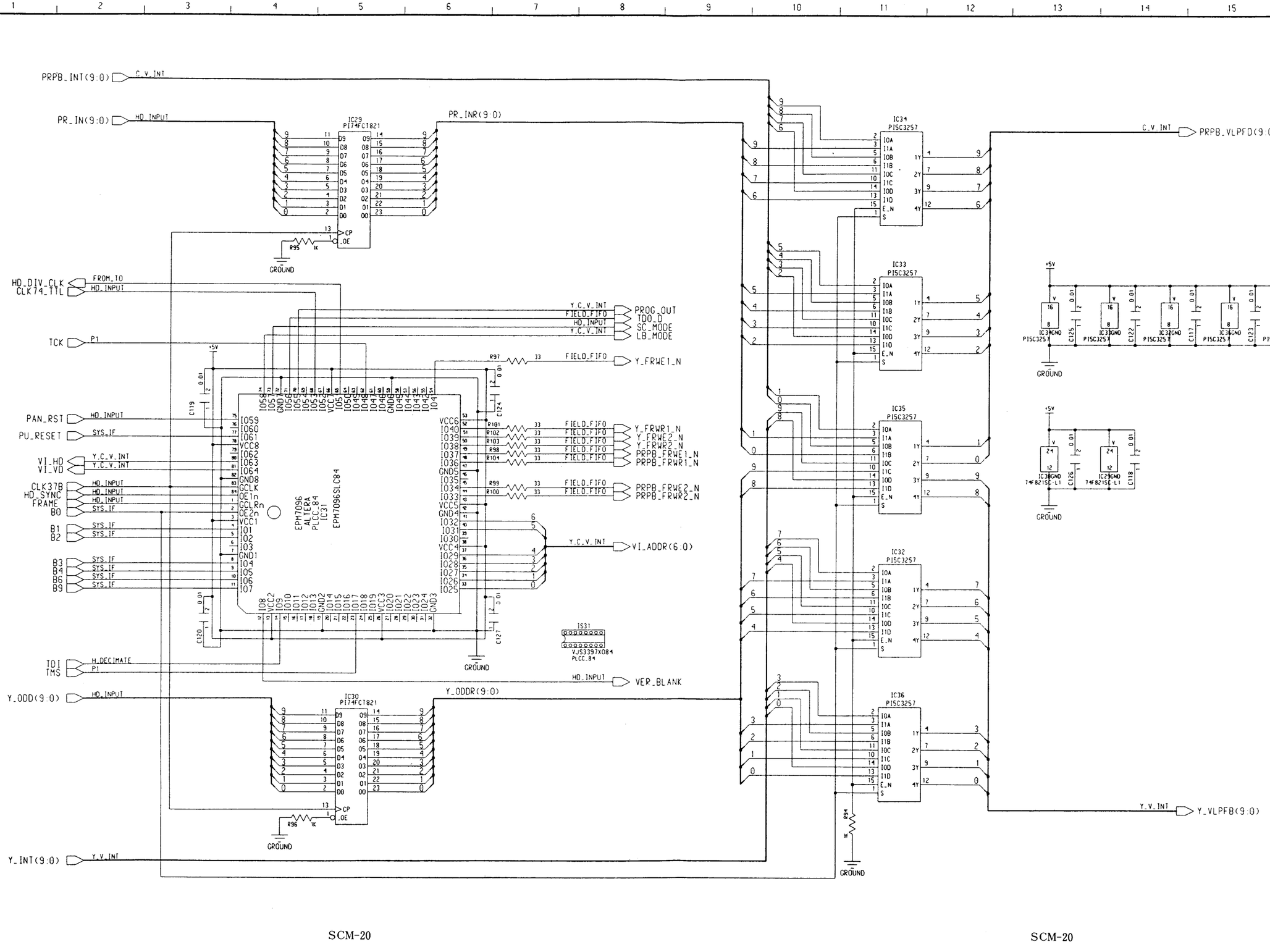


SCM-18

L1.DOWN CONVERTER SCHEMATIC DIAGRAM 19/28

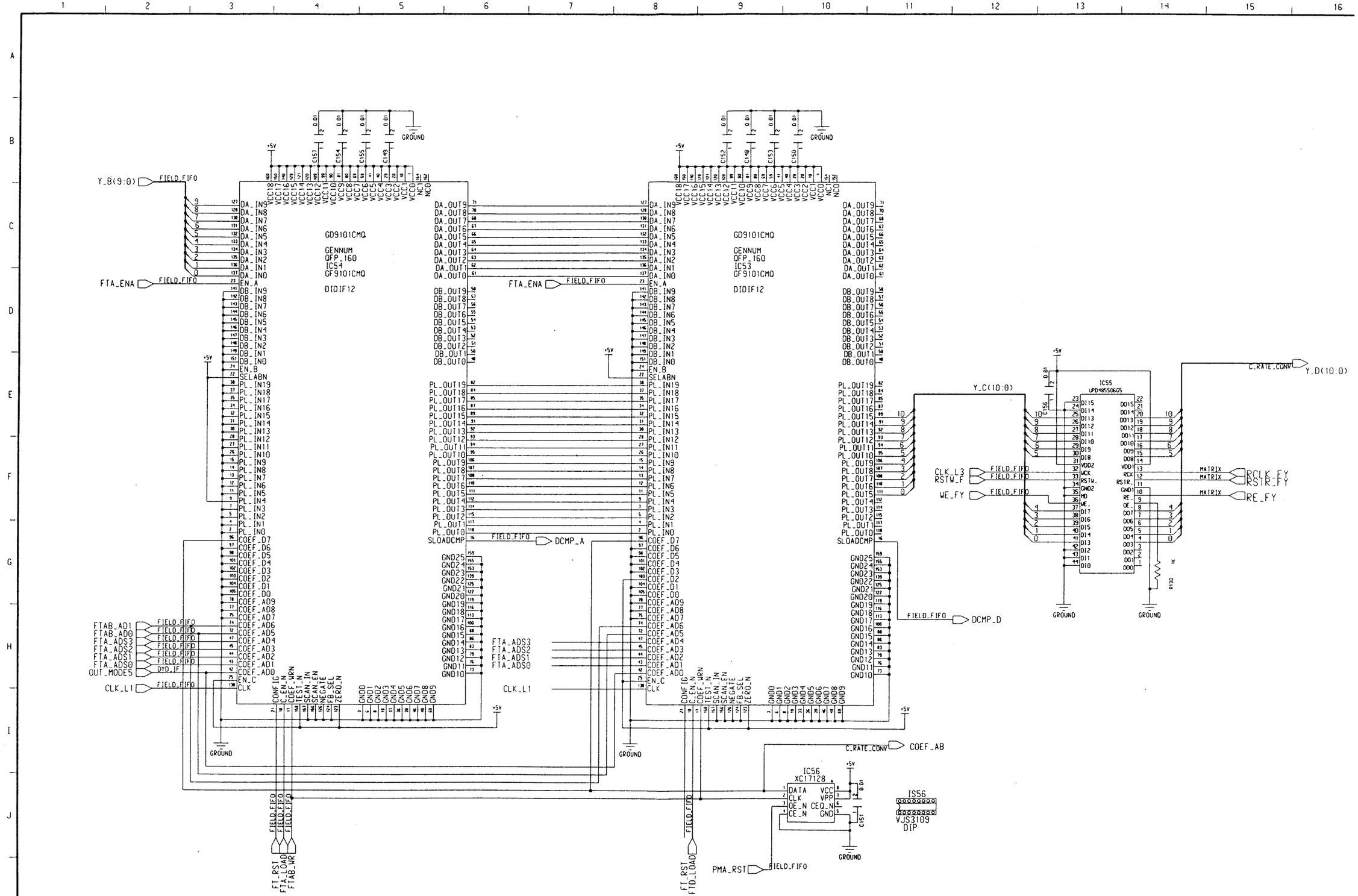


L1.DOWN CONVERTER SCHEMATIC DIAGRAM 20/28



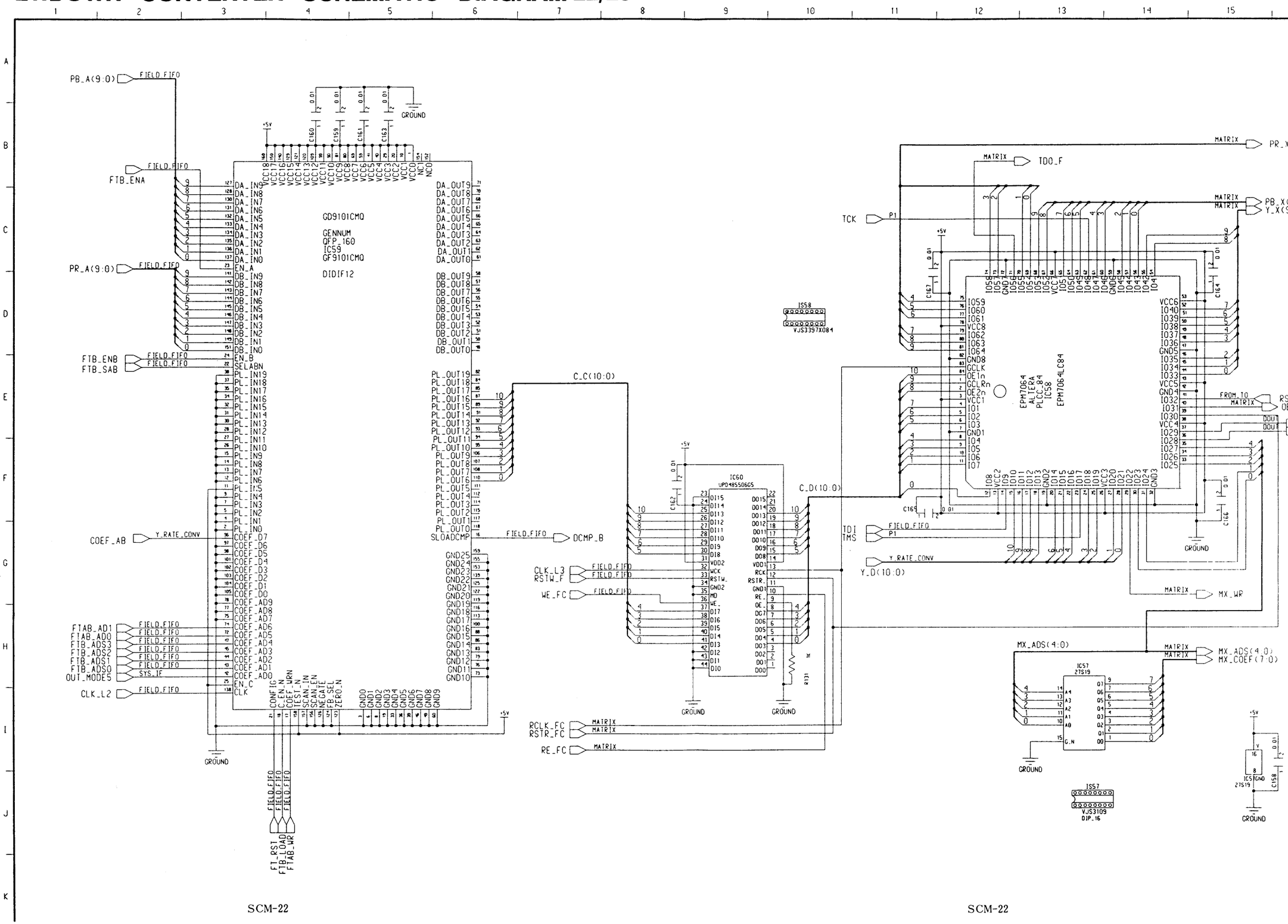
SCM-20

L1.DOWN CONVERTER SCHEMATIC DIAGRAM 21/28



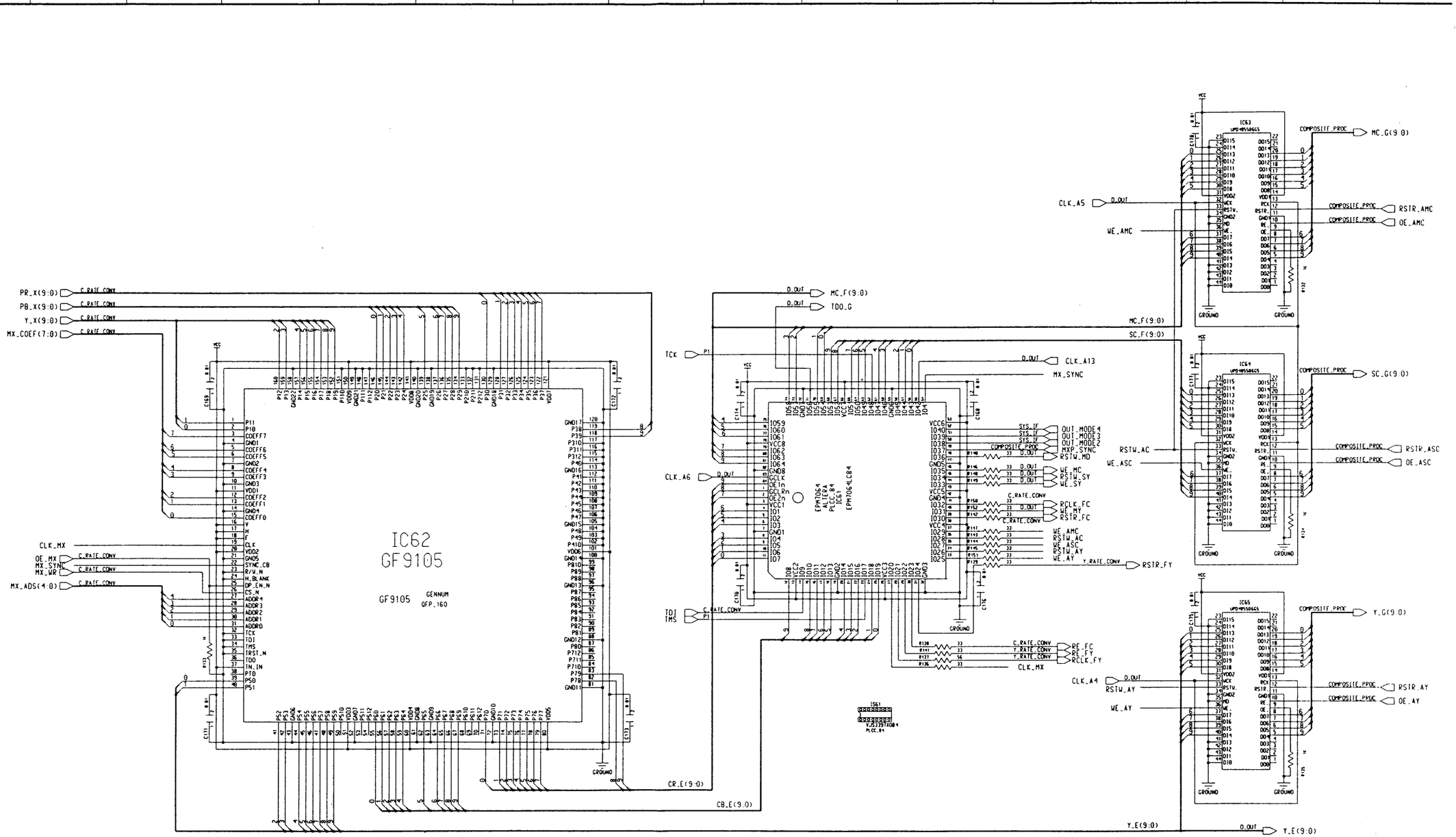
SCM-21

L1.DOWN CONVERTER SCHEMATIC DIAGRAM 22/28



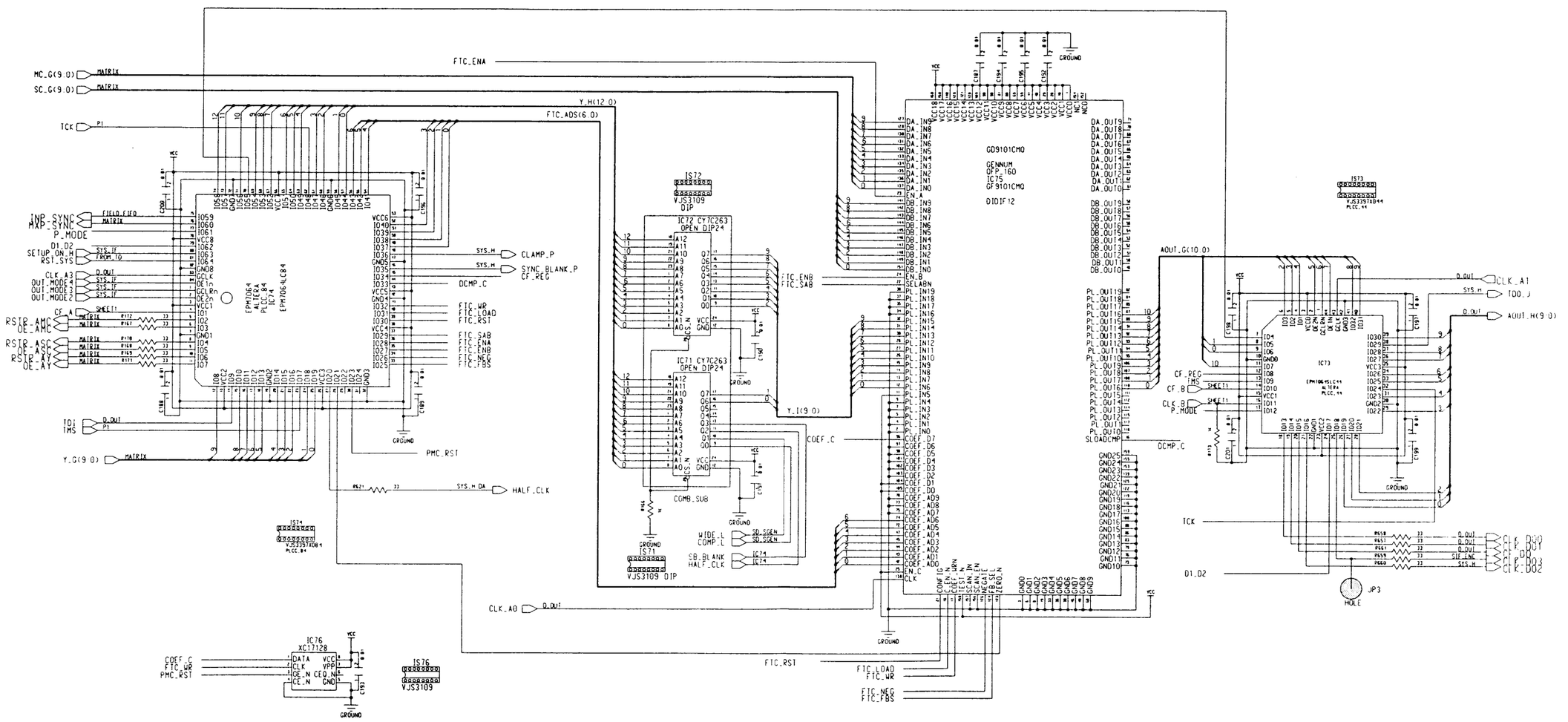
SCM-22

L1.DOWN CONVERTER SCHEMATIC DIAGRAM 23/28



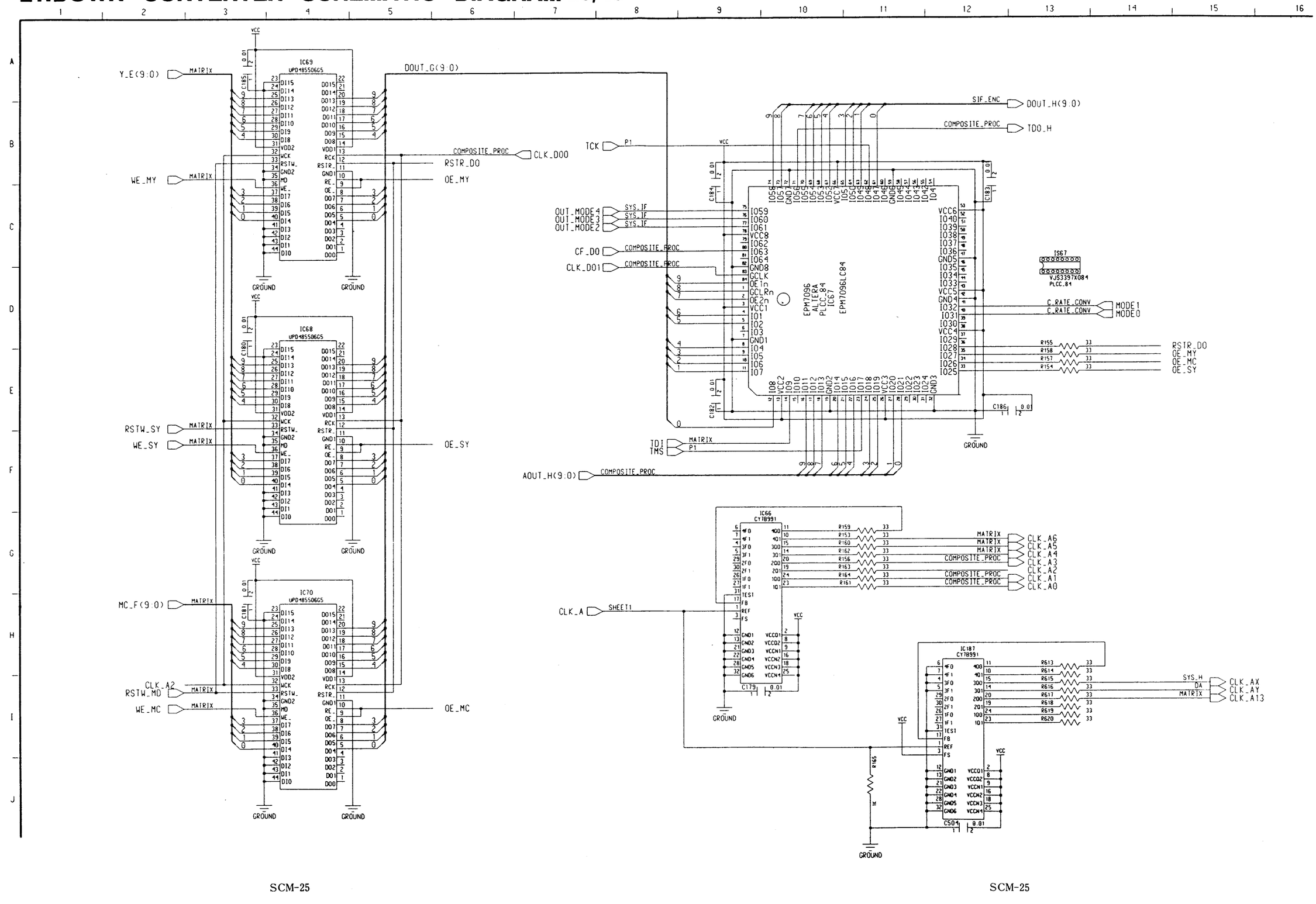
SCM-23

L1.DOWN CONVERTER SCHEMATIC DIAGRAM 24/28



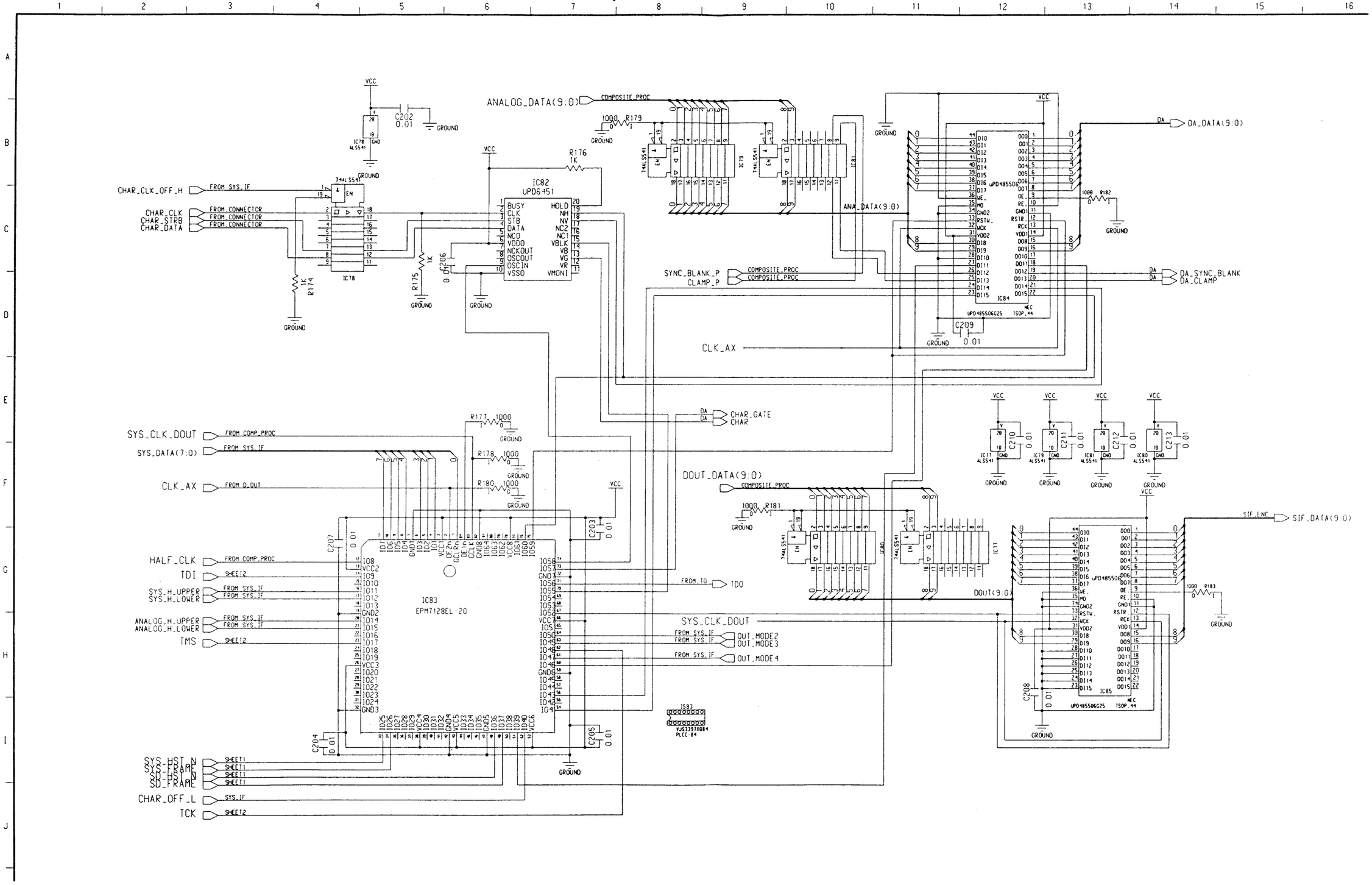
SCM-24

L1.DOWN CONVERTER SCHEMATIC DIAGRAM 25/28



SCM-25

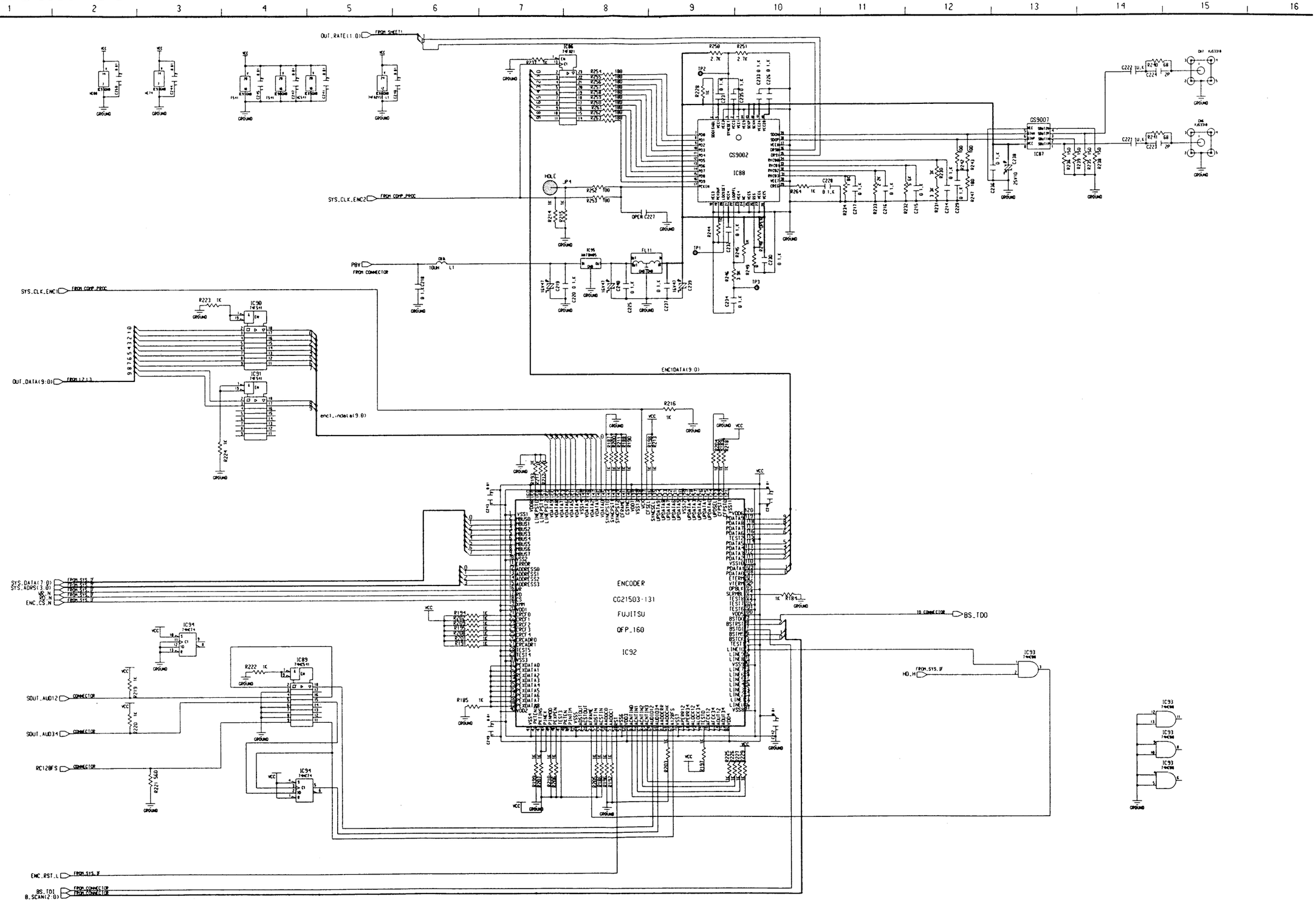
L1.DOWN CONVERTER SCHEMATIC DIAGRAM 26/28



SCM-26

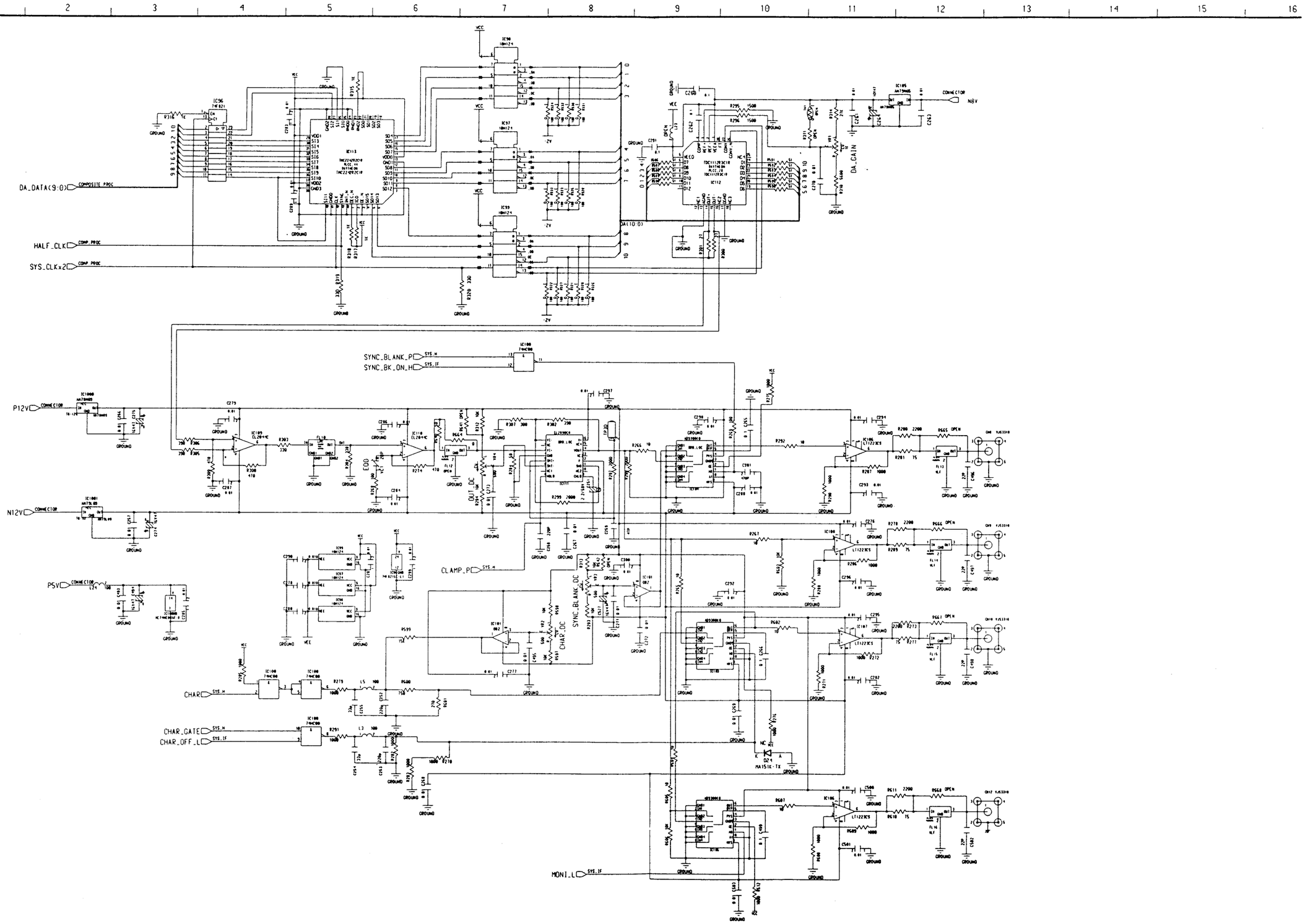
SCM-26

L1.DOWN CONVERTER SCHEMATIC DIAGRAM 27/28



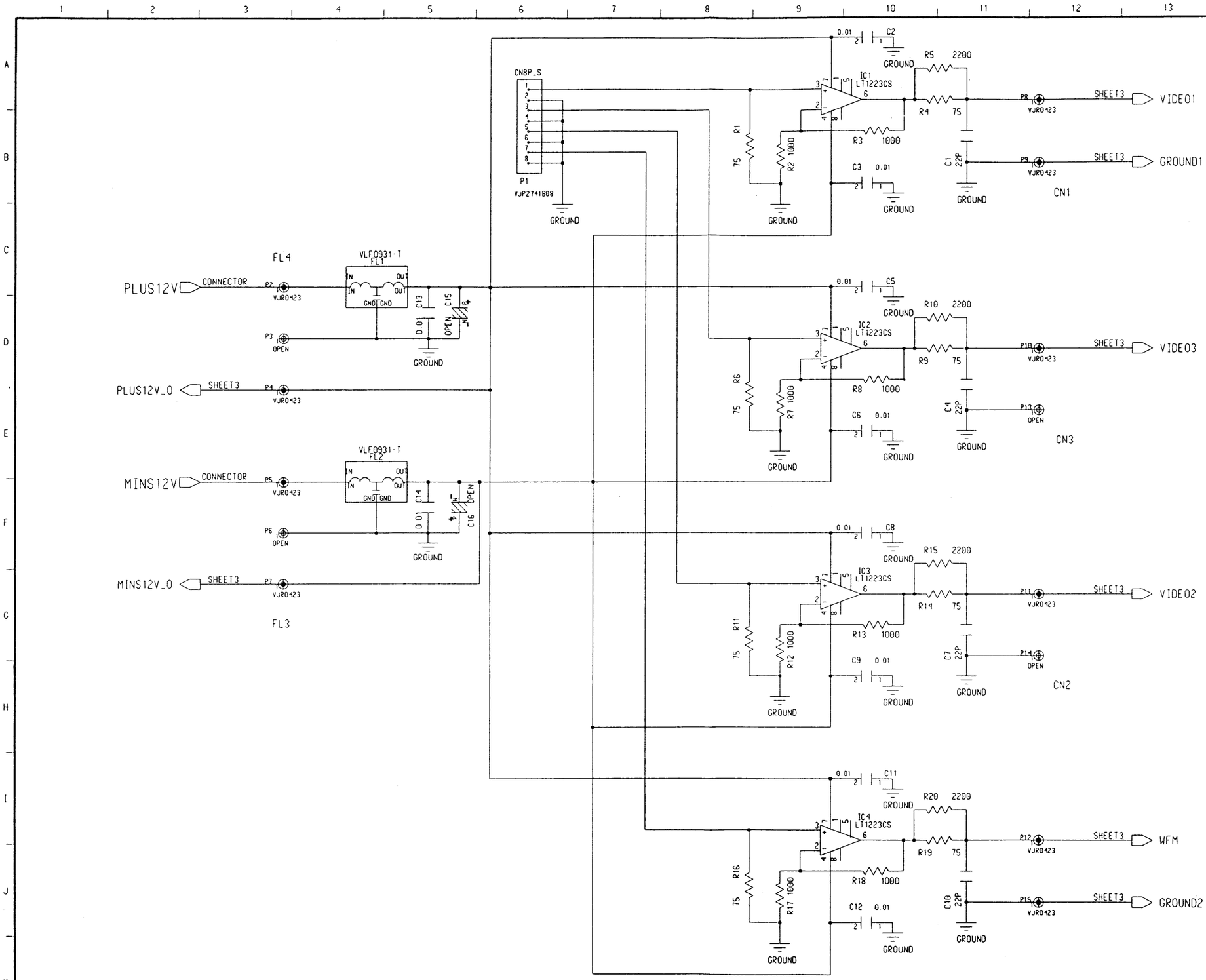
SCM-27

L1.DOWN CONVERTER SCHEMATIC DIAGRAM 28/28



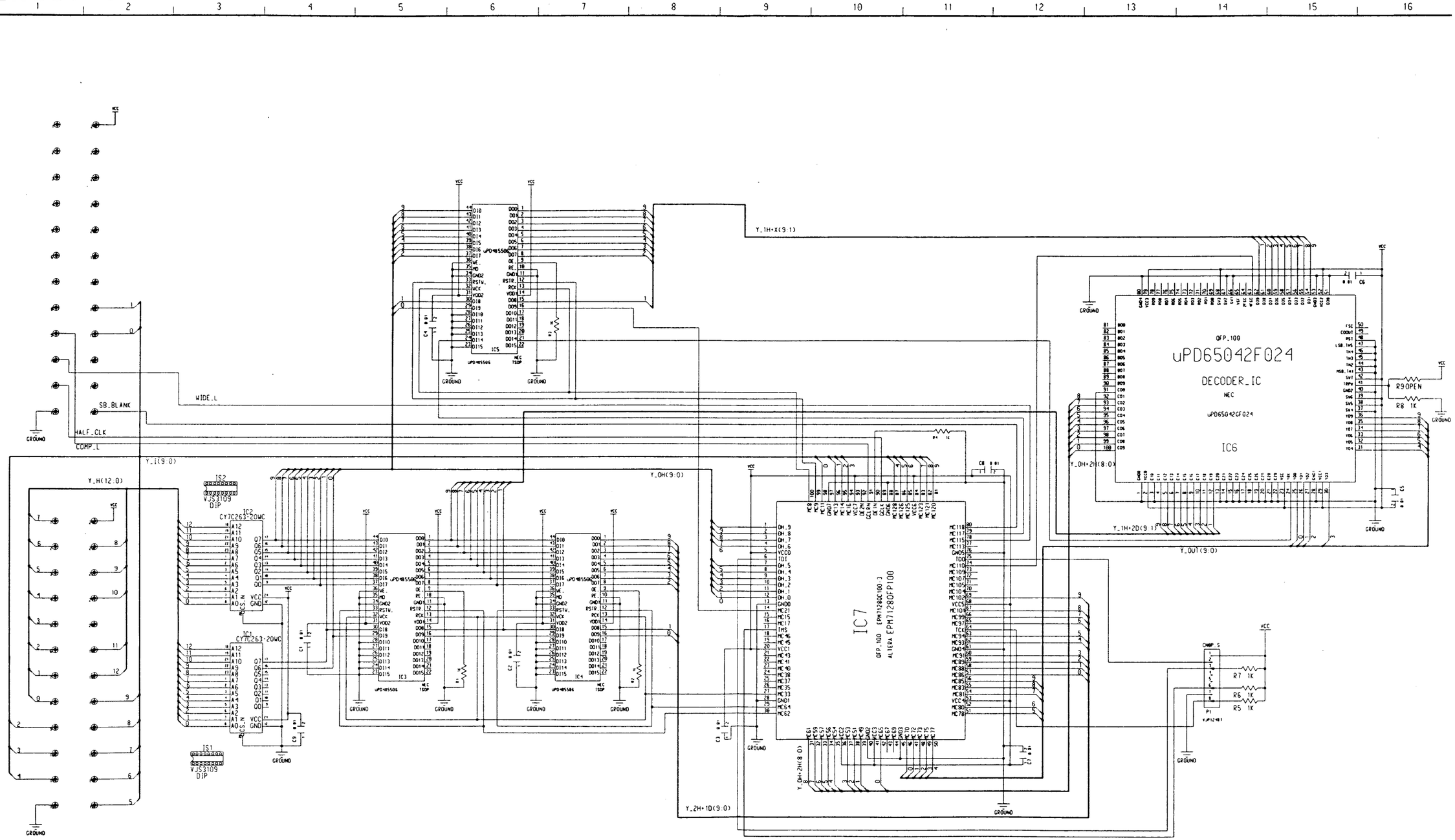
SCM-28

L1.COMB SUB SCHEMATIC DIAGRAM



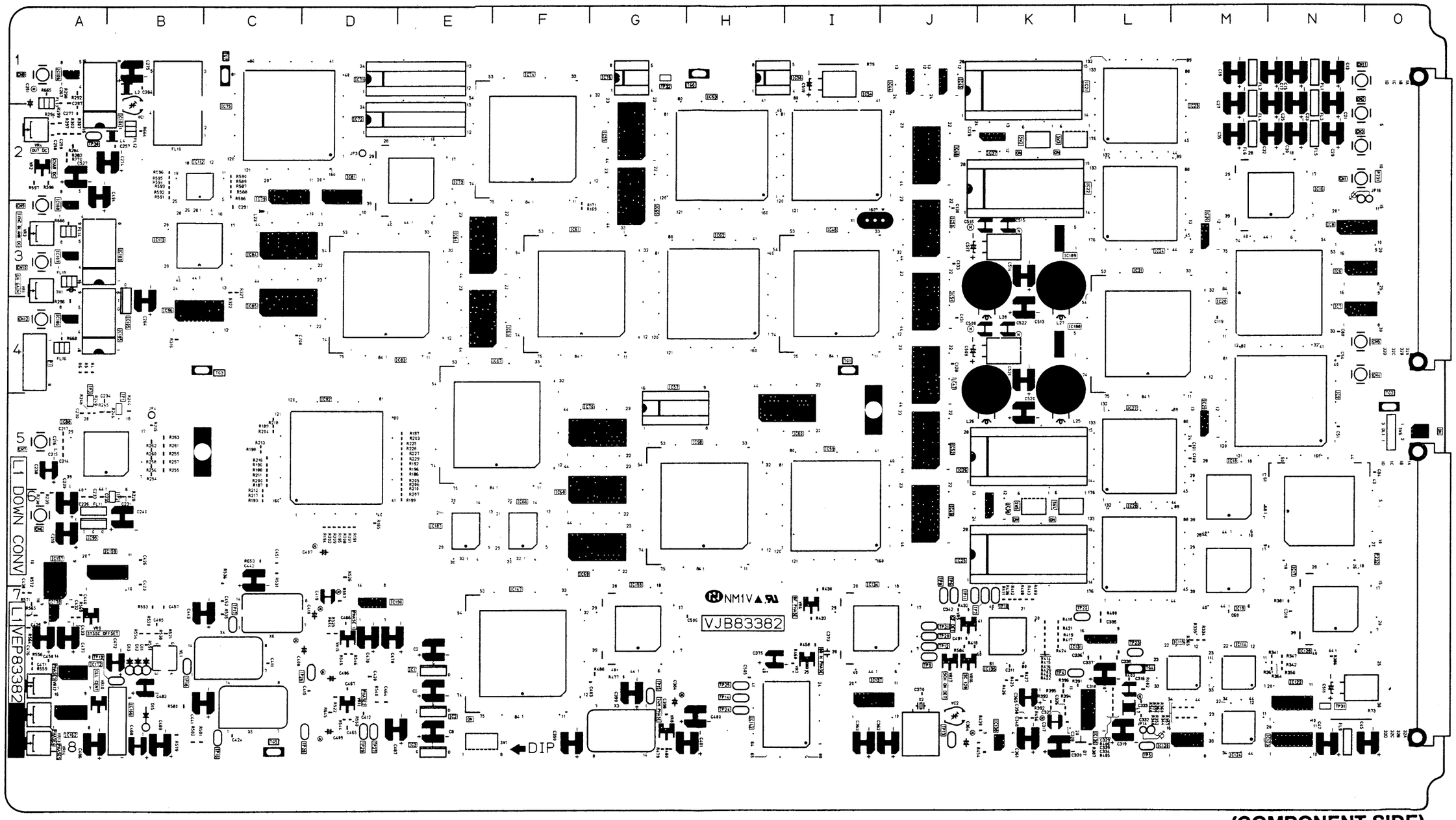
SCM-29

L1.OUT SUB SCHEMATIC DIAGRAM



SCM-30

L1.DOWN CONVERTER P.C.BOARD(VEP83382A)



(COMPONENT SIDE)

SCM-31

L1 DOWN CONV P.C.BOARD

COMPONENT SIDE

INTEGRATED CIRCUIT

IC 1	E-7	IC 72	E-2
IC 2	E-8	IC 73	E-2
IC 3	E-8	IC 74	F-2
IC 6	N-3	IC 75	C-2
IC 7	N-4	IC 76	G-1
IC 8	N-3	IC 79	C-2
IC 9	N-5	IC 81	D-2
IC 16	N-2	IC 83	D-4
IC 17	N-6	IC 84	C-3
IC 18	M-6	IC 85	C-4
IC 19	M-6	IC 88	A-5
IC 20	N-4	IC 92	D-5
IC 21	K-1	IC 95	A-6
IC 22	K-2	IC 96	B-4
IC 23	L-2	IC 103	A-3
IC 24	L-3	IC 104	A-1
IC 25	K-6	IC 105	B-4
IC 26	K-5	IC 106	A-1
IC 27	L-5	IC 107	A-3
IC 28	L-6	IC 108	A-3
IC 29	M-5	IC 112	B-2
IC 30	M-3	IC 113	B-3
IC 31	L-4	IC 114	M-7
IC 37	K-2	IC 115	M-7
IC 38	K-6	IC 120	M-8
IC 44	J-1	IC 122	N-8
IC 45	J-1	IC 123	N-8
IC 46	I-3	IC 124	M-8
IC 47	J-4	IC 128	N-7
IC 48	J-2	IC 130	L-8
IC 49	J-6	IC 131	L-7
IC 50	J-3	IC 134	I-7
IC 51	J-4	IC 135	K-7
IC 52	J-5	IC 137	I-8
IC 53	H-2	IC 138	K-8
IC 54	I-1	IC 142	I-8
IC 55	G-2	IC 147	F-7
IC 56	H-1	IC 155	G-7
IC 57	G-5	IC 157	A-6
IC 58		IC 159	B-6
IC 59	I-6	IC 162	A-8
IC 60	I-5	IC 166	B-8
IC 61	F-3	IC 172	A-7
IC 62	H-3	IC 178	A-7
IC 63	E-4	IC 185	A-4
IC 64	E-3	IC 186	A-4
IC 65	G-2	IC 187	E-6
IC 66	F-6	IC 188	K-4
IC 67	F-5	IC 189	K-3
IC 68	G-6	IC 190	D-7
IC 69	G-6		
IC 70	G-5		
IC 71	E-1		

TEST POINT

TP 1	B-5
TP 2	B-6
TP 3	A-5
TP 4	L-7
TP 5	L-8
TP 6	J-7
TP 7	K-7
TP 8	J-7
TP 9	J-7
TP 10	K-7
TP 11	J-7
TP 12	J-7
TP 13	J-8
TP 14	H-8
TP 15	G-8
TP 16	C-8
TP 17	C-7
TP 18	B-7
TP 19	B-7
TP 20	J-7
TP 21	J-7
TP 22	L-7
TP 23	L-7
TP 24	H-8
TP 25	H-8
TP 26	D-7
TP 27	D-8
TP 28	D-8
TP 29	D-8
TP 30	A-2
TP 31	N-8
TP 32	G-1
TG 1	I-4
TG 2	O-5
TG 3	C-4
TG 4	L-7
TG 5	C-8
TG 6	H-1
TG 7	C-1

ADJUSTMENT

VR 1	A-3
VR 2	A-2
VR 3	A-3
VR 4	A-2
VR 5	J-7
VR 6	I-7
VR 7	I-7
VR 8	G-8
VR 9	A-7
VR 10	A-8
VR 11	D-8
VR 12	A-8
VR 13	A-8
VR 14	A-8
VR 15	D-7
VR 16	J-7
VR 17	J-7
VC 1	B-2
VC 2	J-8

CONNECTOR

CN 1	N-2
CN 2	N-2
CN 3	N-2
CN 4	N-4
CN 5	N-4
CN 6	A-6
CN 7	A-5
CN 8	A-1
CN 9	A-3
CN 10	A-3
CN 11	N-1
CN 12	A-4
P 1	A-4
P 231	O-3
P 232	O-6

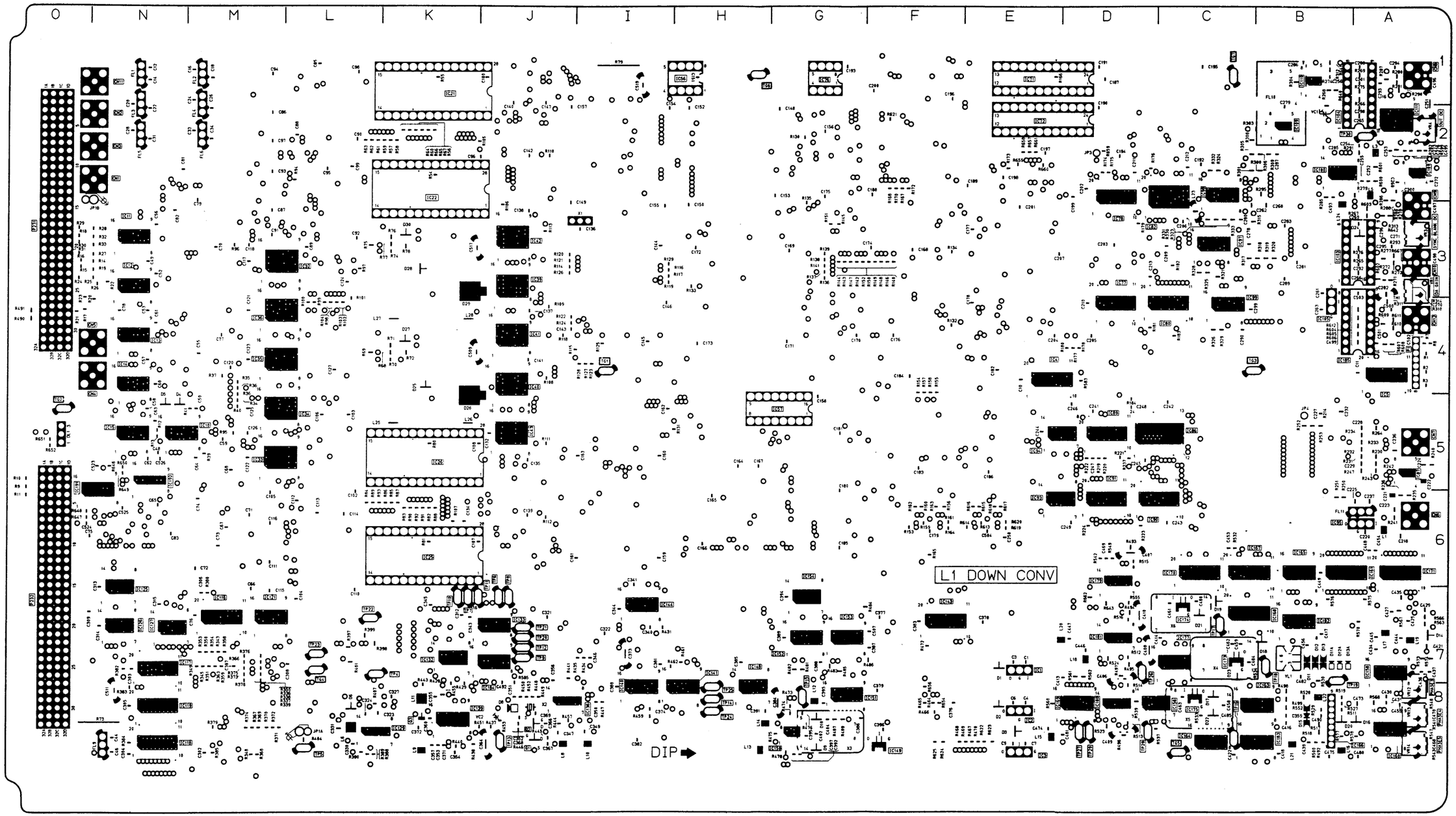
SWITCHING

SW 1	E-8
SW 2	K-2
SW 3	K-2
SW 4	K-6
SW 5	K-6

FOIL SIDE

TRANSISTOR	
Q 1	J-8
Q 2	J-8
Q 3	K-8

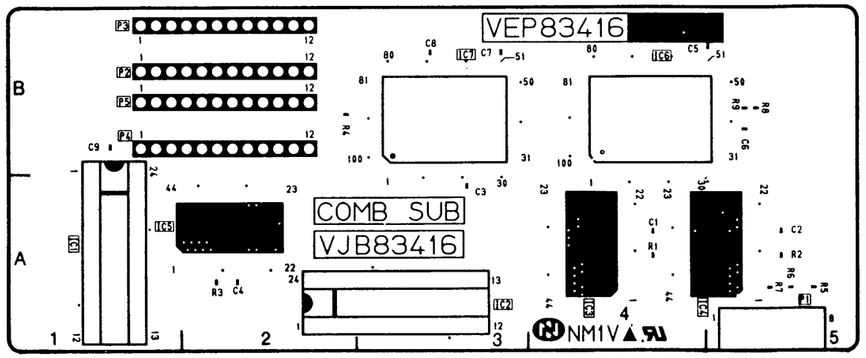
INTEGRATED CIRCUIT	
IC 4	E-4
IC 5	A-4
IC 10	N-5
IC 11	N-3
IC 12	N-3
IC 13	N-4
IC 14	N-4
IC 15	N-5
IC 32	M-3
IC 33	M-5
IC 34	M-5
IC 35	M-4
IC 36	M-4
IC 39	J-3
IC 40	J-4
IC 41	J-4
IC 42	J-3
IC 43	J-5
IC 77	D-4
IC 78	D-2
IC 80	C-4
IC 82	C-2
IC 86	C-5
IC 87	A-5
IC 89	D-5
IC 90	C-6
IC 91	D-6
IC 93	D-6
IC 94	D-5
IC 97	C-3
IC 98	C-2
IC 99	C-4
IC 100	B-2
IC 101	A-2
IC 109	B-2
IC 110	B-1
IC 111	A-2
IC 116	M-7
IC 117	N-7
IC 118	N-8
IC 119	N-8
IC 121	M-7
IC 125	N-7
IC 126	N-7
IC 127	N-7
IC 129	K-8
IC 132	K-7
IC 133	J-7
IC 136	I-8
IC 139	K-8
IC 140	I-8
IC 141	H-8
IC 143	F-7
IC 144	I-7
IC 148	H-8
IC 149	F-8
IC 150	G-8
IC 151	G-8
IC 152	G-7
IC 153	G-7
IC 154	G-7
IC 156	C-8
IC 158	A-7
IC 160	A-8
IC 161	A-6
IC 163	B-8
IC 164	C-8
IC 165	B-6
IC 167	B-6
IC 168	B-7
IC 169	D-8
IC 170	C-6
IC 171	A-6
IC 173	C-7
IC 174	C-7
IC 175	C-8
IC 177	C-7
IC 179	D-6
IC 180	D-8
IC 181	D-7
IC 182	B-7
IC 183	B-8
IC 184	J-7
IC 191	N-5
IC 192	N-5



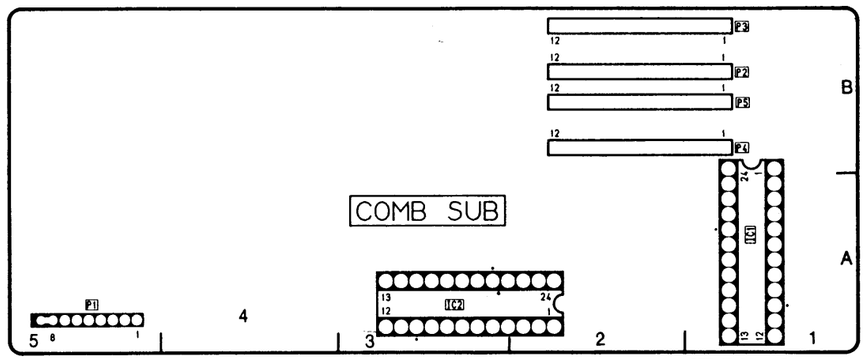
(FOIL SIDE)

SCM-34

L1.COMB SUB P.C.BOARD(VEP83416A)



(COMPONENT SIDE)



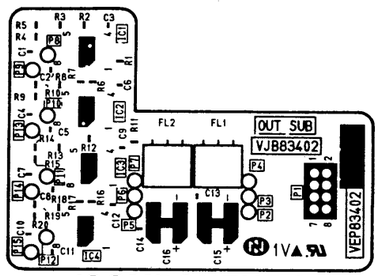
(FOIL SIDE)

COMB SUB P.C.BOARD

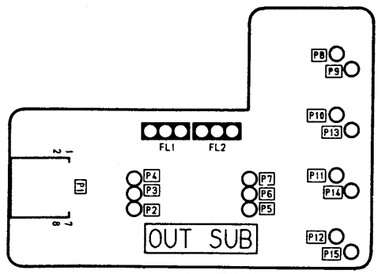
COMPONENT SIDE	
INTEGRATED CIRCUIT	
IC 1	A-1
IC 2	A-3
IC 3	A-4
IC 4	A-5
IC 5	A-2
IC 6	B-4
IC 7	B-3
CONNECTOR	
P 1	A-5
P 2	B-2
P 3	B-2
P 4	B-2
P 5	B-2

FOIL SIDE	
INTEGRATED CIRCUIT	
IC 1	A-1
IC 2	A-3
CONNECTOR	
P 1	A-5
P 2	B-2
P 3	B-2
P 4	B-2
P 5	B-2

L1.OUT SUB P.C.BOARD(VEP83402A)

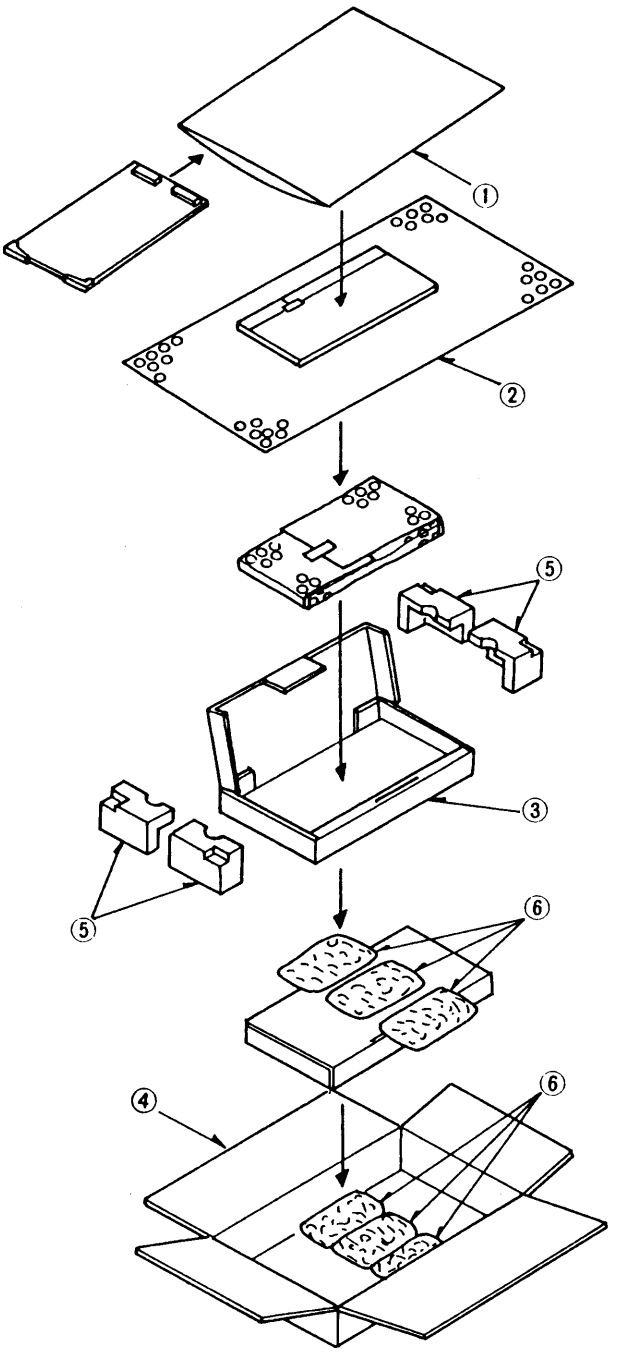


(COMPONENT SIDE)



(FOIL SIDE)

PACKING PARTS ASSEMBLY



AJ-DFC2000P

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
1	VPF0655	POLYETHYLENE BAG	1	
2	VPN3412	AIR CAP SHEET	1	
3	VPK1243	PACKING CASE (INSIDE)	1	
4	VPG7653	PACKING CASE (OUTER)	1	
5	VPN2011	CUSHION	2	
6	VPN2817	CUSHION	4	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks

ELECTRICAL PARTS LIST

AJ-DFC2000P

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
■	------	DOWN CONV. P.C.BOARD	1	
■	------	DOWN CONV. P.C.BOARD		
C1	ECUX1H103KBV	C.CAPACITOR CH 50V 0.01U	1	
C1	ECUX1H220JCV	C.CAPACITOR CH 50V 22P	1	
C2	ECEV1CV470Q	E.CAPACITOR CH 16V 47U	1	
C2, C3	ECUX1H103KBV	C.CAPACITOR CH 50V 0.01U	2	
C3, C4	ECUX1H103KBV	C.CAPACITOR CH 50V 0.01U	2	
C4	ECUX1H220JCV	C.CAPACITOR CH 50V 22P	1	
C5	ECEV1CV470Q	E.CAPACITOR CH 16V 47U	1	
C5, C6	ECUX1H103KBV	C.CAPACITOR CH 50V 0.01U	2	
C6, C7	ECUX1H103KBV	C.CAPACITOR CH 50V 0.01U	2	
C7	ECUX1H220JCV	C.CAPACITOR CH 50V 22P	1	
C8	ECEV1CV470Q	E.CAPACITOR CH 16V 47U	1	
C8, C9	ECUX1H103KBV	C.CAPACITOR CH 50V 0.01U	2	
C9, 10	ECUX1H103KBV	C.CAPACITOR CH 50V 0.01U	2	
C10	ECUX1H220JCV	C.CAPACITOR CH 50V 22P	1	
C11	ECUX1H103KBV	C.CAPACITOR CH 50V 0.01U	1	
C11, 12	ECUX1H103KBV	C.CAPACITOR CH 50V 0.01U	2	
C12	ECUX1H103KBV	C.CAPACITOR CH 50V 0.01U	1	
C13	ECEV1CV470Q	E.CAPACITOR CH 16V 47U	1	
C13, 14	ECUX1H103KBV	C.CAPACITOR CH 50V 0.01U	2	
C14	ECUX1H103KBV	C.CAPACITOR CH 50V 0.01U	1	
C15	ECEV1CV470Q	E.CAPACITOR CH 16V 47U	1	
C16	ECUX1H103KBV	C.CAPACITOR CH 50V 0.01U	1	
C17	ECEV1CV470Q	E.CAPACITOR CH 16V 47U	1	
C18	ECUX1H103KBV	C.CAPACITOR CH 50V 0.01U	1	
C19	ECEV1CV470Q	E.CAPACITOR CH 16V 47U	1	
C20	ECUX1H103KBV	C.CAPACITOR CH 50V 0.01U	1	
C21	ECEV1CV470Q	E.CAPACITOR CH 16V 47U	1	
C22	ECUX1H103KBV	C.CAPACITOR CH 50V 0.01U	1	
C23	ECEV1CV470Q	E.CAPACITOR CH 16V 47U	1	
C24	ECUX1H103KBV	C.CAPACITOR CH 50V 0.01U	1	
C25	ECEV1CV470Q	E.CAPACITOR CH 16V 47U	1	
C26	ECUX1H103KBV	C.CAPACITOR CH 50V 0.01U	1	
C27	ECEV1CV470Q	E.CAPACITOR CH 16V 47U	1	
C28	ECUX1H103KBV	C.CAPACITOR CH 50V 0.01U	1	
C29, 30	ECEV1CV470Q	E.CAPACITOR CH 16V 47U	2	
C31	ECUX1H103KBV	C.CAPACITOR CH 50V 0.01U	1	
C32	ECEV1CV470Q	E.CAPACITOR CH 16V 47U	1	
C33, 34	ECUX1H103KBV	C.CAPACITOR CH 50V 0.01U	2	
C35	ECEV1CV470Q	E.CAPACITOR CH 16V 47U	1	
C44	ECUX1H103KBV	C.CAPACITOR CH 50V 0.01U	1	
C45	ECEV1CV470Q	E.CAPACITOR CH 16V 47U	1	
C46	ECUX1H103KBV	C.CAPACITOR CH 50V 0.01U	1	
C47	ECEV1CV470Q	E.CAPACITOR CH 16V 47U	1	
C48-13	ECUX1H103KBV	C.CAPACITOR CH 50V 0.01U	166	
C214-18	ECUX1E104KBN	C.CAPACITOR CH 25V 0.1U	5	
C219	ECEV1CV470Q	E.CAPACITOR CH 16V 47U	1	
C220	ECUX1E104KBN	C.CAPACITOR CH 25V 0.1U	1	
C221, 22	ECUM1C105KBM	C.CAPACITOR CH 16V 1U	2	
C223, 24	ECUM1H020CCN	C.CAPACITOR CH 50V 2P	2	
C225, 26	ECUX1E104KBN	C.CAPACITOR CH 25V 0.1U	2	
C228-37	ECUX1E104KBN	C.CAPACITOR CH 25V 0.1U	10	
C238	ECEV1EV100Q	E.CAPACITOR CH 25V 10U	1	
C239, 40	ECEV1CV470Q	E.CAPACITOR CH 16V 47U	2	
C241-50	ECUX1H103KBV	C.CAPACITOR CH 50V 0.01U	10	
C251	ECEA1HN2R2	E.CAPACITOR 50V 2.2U	1	
C252, 53	ECUX1H221JCV	C.CAPACITOR CH 50V 220P	2	
C254, 55	ECUX1H330JCV	C.CAPACITOR CH 50V 33P	2	
C256, 57	ECUX1H103KBV	C.CAPACITOR CH 50V 0.01U	2	
C258	ECUX1H221JCV	C.CAPACITOR CH 50V 220P	1	
C259	ECUX1H470JCV	C.CAPACITOR CH 50V 47P	1	
C260	ECUX1E104KBN	C.CAPACITOR CH 25V 0.1U	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
C261	ECUX1H103KBV	C.CAPACITOR CH 50V 0.01U	1	
C262	ECUX1E104KBN	C.CAPACITOR CH 25V 0.1U	1	
C263	ECUX1H103KBV	C.CAPACITOR CH 50V 0.01U	1	
C264	ECEV1CV470Q	E.CAPACITOR CH 16V 47U	1	
C265, 66	ECUX1E104KBN	C.CAPACITOR CH 25V 0.1U	2	
C267-73	ECUX1H103KBV	C.CAPACITOR CH 50V 0.01U	7	
C274, 75	ECEV1CV470Q	E.CAPACITOR CH 16V 47U	2	
C276-90	ECUX1H103KBV	C.CAPACITOR CH 50V 0.01U	15	
C291	ECUX1E104KBN	C.CAPACITOR CH 25V 0.1U	1	
C292-00	ECUX1H103KBV	C.CAPACITOR CH 50V 0.01U	9	
C301	ECUX1H471JCV	C.CAPACITOR CH 50V 470P	1	
C302-15	ECUX1H103KBV	C.CAPACITOR CH 50V 0.01U	14	
C316, 17	ECEV1HN010Q	E.CAPACITOR CH 50V 1U	2	
C318-20	ECEV1CV470Q	E.CAPACITOR CH 16V 47U	3	
C321-25	ECUX1H103KBV	C.CAPACITOR CH 50V 0.01U	5	
C326	ECUX1H820JCV	C.CAPACITOR CH 50V 82P	1	
C327-29	ECUX1H103KBV	C.CAPACITOR CH 50V 0.01U	3	
C330	ECUX1H330JCV	C.CAPACITOR CH 50V 33P	1	
C331	ECUX1E104KBN	C.CAPACITOR CH 25V 0.1U	1	
C332	ECUX1H180JCV	C.CAPACITOR CH 50V 18P	1	
C333	ECUX1H680JCV	C.CAPACITOR CH 50V 68P	1	
C334-39	ECUX1E104KBN	C.CAPACITOR CH 25V 0.1U	6	
C340-42	ECUX1H820JCV	C.CAPACITOR CH 50V 82P	3	
C343-51	ECUX1H103KBV	C.CAPACITOR CH 50V 0.01U	9	
C352	ECUX1H102KBV	C.CAPACITOR CH 50V 1000P	1	
C353-59	ECUX1H103KBV	C.CAPACITOR CH 50V 0.01U	7	
C360	ECUX1H820JCV	C.CAPACITOR CH 50V 82P	1	
C361-63	ECEV1CV470Q	E.CAPACITOR CH 16V 47U	3	
C364	ECA1HXKN2R2	E.CAPACITOR 50V 2.2U	1	
C365	ECEV1EV100Q	E.CAPACITOR CH 25V 10U	1	
C366, 67	ECUX1H103KBV	C.CAPACITOR CH 50V 0.01U	2	
C368, 69	ECUX1H390JCV	C.CAPACITOR CH 50V 39P	2	
C370-72	ECUX1H103KBV	C.CAPACITOR CH 50V 0.01U	3	
C373	ECHS1221JZ	P.CAPACITOR 50V 220P	1	
C374	ECUX1H150JCV	C.CAPACITOR CH 50V 15P	1	
C375	ECEV1CV220Q	E.CAPACITOR CH 16V 22U	1	
C376-83	ECUX1H103KBV	C.CAPACITOR CH 50V 0.01U	8	
C385-89	ECUX1H103KBV	C.CAPACITOR CH 50V 0.01U	5	
C390	ECEV1CV470Q	E.CAPACITOR CH 16V 47U	1	
C391-98	ECUX1H103KBV	C.CAPACITOR CH 50V 0.01U	8	
C399-01	ECEV1CV470Q	E.CAPACITOR CH 16V 47U	3	
C402	ECUX1H102KBV	C.CAPACITOR CH 50V 1000P	1	
C403, 04	ECUX1H103KBV	C.CAPACITOR CH 50V 0.01U	2	
C405	ECUX1H030CCV	C.CAPACITOR CH 50V 3P	1	
C406-10	ECEA1HN010S	E.CAPACITOR 50V 1U	5	
C411-18	ECUX1H103KBV	C.CAPACITOR CH 50V 0.01U	8	
C419	ECEV1HN010Q	E.CAPACITOR CH 50V 1U	1	
C420	ECUM1H103KBN	C.CAPACITOR CH 50V 0.01U	1	
C421	ECUX1E104KBN	C.CAPACITOR CH 25V 0.1U	1	
C422-27	ECUX1H103KBV	C.CAPACITOR CH 50V 0.01U	6	
C428, 29	ECUX1E104KBN	C.CAPACITOR CH 25V 0.1U	2	
C430	ECUX1H680JCV	C.CAPACITOR CH 50V 68P	1	
C431	ECUX1H180JCV	C.CAPACITOR CH 50V 18P	1	
C432	ECUX1H103KBV	C.CAPACITOR CH 50V 0.01U	1	
C433	ECUX1H102KBV	C.CAPACITOR CH 50V 1000P	1	
C434	ECUX1H103KBV	C.CAPACITOR CH 50V 0.01U	1	
C435	ECUX1E104KBN	C.CAPACITOR CH 25V 0.1U	1	
C436, 37	ECUX1H180JCV	C.CAPACITOR CH 50V 18P	2	
C438-40	ECUX1H103KBV	C.CAPACITOR CH 50V 0.01U	3	
C441-43	ECEV1CV470Q	E.CAPACITOR CH 16V 47U	3	
C444-63	ECUX1H103KBV	C.CAPACITOR CH 50V 0.01U	20	
C464, 65	ECUM1H103KBN	C.CAPACITOR CH 50V 0.01U	2	
C466-71	ECUX1H103KBV	C.CAPACITOR CH 50V 0.01U	6	
C472	ECEV1CV220Q	E.CAPACITOR CH 16V 22U	1	
C473	ECUX1E104KBN	C.CAPACITOR CH 25V 0.1U	1	
C474, 75	ECUX1H103KBV	C.CAPACITOR CH 50V 0.01U	2	
C476-79	ECEV1CV470Q	E.CAPACITOR CH 16V 47U	4	
C480, 81	ECUX1H103KBV	C.CAPACITOR CH 50V 0.01U	2	
C482	ECUX1H180JCV	C.CAPACITOR CH 50V 18P	1	
C483	ECEV1CV220Q	E.CAPACITOR CH 16V 22U	1	
C484, 85	ECUX1H102KBV	C.CAPACITOR CH 50V 1000P	2	
C486, 87	ECEV1CV470Q	E.CAPACITOR CH 16V 47U	2	
C488	ECEV1CV220Q	E.CAPACITOR CH 16V 22U	1	
C489	ECEV1CV470Q	E.CAPACITOR CH 16V 47U	1	
C490	ECUX1H101JCV	C.CAPACITOR CH 50V 100P	1	

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Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
C491, 92	ECUX1H820JCV	C. CAPACITOR CH 50V 82P	2	
C493	ECUX1H103KBV	C. CAPACITOR CH 50V 0.01U	1	
C494	ECEV1CV470Q	E. CAPACITOR CH 16V 47U	1	
C495	ECUX1H103KBV	C. CAPACITOR CH 50V 0.01U	1	
C496-98	ECUX1H220JCV	C. CAPACITOR CH 50V 22P	3	
C499	ECUX1E104KBN	C. CAPACITOR CH 25V 0.1U	1	
C500, 01	ECUX1H103KBV	C. CAPACITOR CH 50V 0.01U	2	
C502	ECUX1H220JCV	C. CAPACITOR CH 50V 22P	1	
C503-07	ECUX1H103KBV	C. CAPACITOR CH 50V 0.01U	5	
C508	ECEV1HN010Q	E. CAPACITOR CH 50V 1U	1	
C509	ECEA1CGE102	E. CAPACITOR 16V 1000U	1	
C511	ECA1CXLV221	E. CAPACITOR 16V 220U	1	
C514	ECEV1VV220Q	E. CAPACITOR CH 35V 22U	1	
C515	ECEV1HNR47Q	E. CAPACITOR CH 50V 0.47U	1	
C516	ECEV1HN010Q	E. CAPACITOR CH 50V 1U	1	
C517	ECA1CXLV221	E. CAPACITOR 16V 220U	1	
C519	ECA1CXLV221	E. CAPACITOR 16V 220U	1	
C520, 21	ECEV1EV330Q	E. CAPACITOR CH 25V 33U	2	
C522	ECEV1HN010Q	E. CAPACITOR CH 50V 1U	1	
C523-26	ECUX1H103KBV	C. CAPACITOR CH 50V 0.01U	4	
C527	ECEV1CV470Q	E. CAPACITOR CH 16V 47U	1	
C1000, 01	ECEA1VGE331	E. CAPACITOR 35V 330U	2	
CN4-10	VJP3461	CONNECTOR (MALE)	7	
CN12	VJP3461	CONNECTOR (MALE)	1	
D1-D3	MA151K	DIODE	3	
D4, D5	MA153A	DIODE	2	
D6	MA151WK	DIODE	1	
D7	MA717	DIODE	1	
D8	MA335-R	DIODE	1	
D9	MA151K	DIODE	1	
D10	MA153	DIODE	1	
D11, 12	FC54M-5	DIODE	2	
D14	MA151K	DIODE	1	
D15	1SS97	DIODE	1	
D16	MA153A	DIODE	1	
D17-19	MA151K	DIODE	3	
D20-23	MA153A	DIODE	4	
D24	MA151K	DIODE	1	
D25	MA151WA	DIODE	1	
D26	DE5SC4M-4061	DIODE	1	
D27	MA151WA	DIODE	1	
D29	DE5SC4M-4061	DIODE	1	
D30	MA151WA	DIODE	1	
D1000	MA165	DIODE	1	
DL1	VLD0245	DELAY LINE	1	
FL1	VLF0931	FILTER	1	
FL1, L2	VLF0931	FILTER	2	
FL2	VLF0931	FILTER	1	
FL5, L6	VLF0931	FILTER	2	
FL9	VLF0931	FILTER	1	
FL10	VLF1066	FILTER	1	
FL11	VLF0931	FILTER	1	
FL13-16	NFM51R00P106	FILTER	4	
IC1	AN78N09	IC	1	
IC1	LT1223CS8	IC	1	
IC2	AN78N05	IC	1	
IC2	LT1223CS8	IC	1	
IC3	AN79N05	IC	1	
IC3, C4	LT1223CS8	IC	2	
IC4	SN74ALS541NS	IC	1	
IC5	LT1223CS8	IC	1	
IC5	SN74ALS541NS	IC	1	
IC6, C7	SN74S1051NS	IC	2	
IC8	SN74S1053NS	IC	1	
IC9	VSI2701	IC	1	
IC10-15	MC10H125M	IC	6	
IC16	VSI2528	IC	1	
IC17	VSI2532	IC	1	
IC18, 19	GF9102ACPM	IC	2	
IC20	HSP43216JC52	FILTER	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
IC21	VSI2543	IC	1	
IC22	VSI2542	IC	1	
IC23, 24	VY06629	IC	2	
IC25	VSI2544	IC	1	
IC26	VSI2545	IC	1	
IC27, 28	VY06629	IC	2	
IC29, 30	PI74F2821BTQ	IC	2	
IC31	VSI2534	IC	1	
IC32-36	PI5C3257S	IC	5	
IC37, 38	PI74F2821BTQ	IC	2	
IC39-43	PI5C3257S	IC	5	
IC44, 45	PI74F2821BTQ	IC	2	
IC46	VSI2533	IC	1	
IC47-52	HM530281-20	IC	6	
IC53, 54	L1A7260	IC	2	
IC55	UPD485506G25	IC	1	
IC56	VSI2548	IC	1	
IC57	VSI2550	IC	1	
IC58	VSI2535	IC	1	
IC59	L1A7260	IC	1	
IC60	UPD485506G25	IC	1	
IC61	VSI2536	IC	1	
IC62	GF9105-CQQ	IC	1	
IC63-65	UPD485506G25	IC	3	
IC66	CY7B991-7JC	IC	1	
IC67	VSI2540	IC	1	
IC68-70	UPD485506G25	IC	3	
IC71	VSI2546	IC	1	
IC72	VSI2547	IC	1	
IC73	VSI2531	IC	1	
IC74	VSI2537	IC	1	
IC75	L1A7260	IC	1	
IC76	VSI2549A	IC	1	
IC77-81	SN74ALS541NS	IC	5	
IC82	D6451AGT-101	IC	1	
IC83	VSI2538	IC	1	
IC84, 85	UPD485506G25	IC	2	
IC86	74F821SC	IC	1	
IC87	GS9007-CKA	IC	1	
IC88	GS9002-CPM	IC	1	
IC89	MC74HC541AF	IC	1	
IC90, 91	74F541SJ	IC	2	
IC92	CG21503-131	IC	1	
IC93	MC74HC08AF	IC	1	
IC94	MC74HC74AF	IC	1	
IC95	AN78N05	IC	1	
IC96	74F821SC	IC	1	
IC97-99	MC10H124M	IC	3	
IC100	MC74HC00AF	IC	1	
IC101	NJM082BM	IC	1	
IC103, 04	AD9300KQ	IC	2	
IC105	AN79N05	IC	1	
IC106-08	LT1223CS8	IC	3	
IC109, 10	EL2044CS	IC	2	
IC111	EL2090CM	IC	1	
IC112	TDC1112R3C1	IC	1	
IC113	T2242AR2C1	IC	1	
IC114, 15	UPD71055GB	IC	2	
IC116	SN74ALS245A	IC	1	
IC117-19	SN74ALS541NS	IC	3	
IC120, 21	SN74S1051NS	IC	2	
IC122, 23	SN74S1053NS	IC	2	
IC124	VSI2541	IC	1	
IC125	74F00SJ	IC	1	
IC126, 27	T74VHC74F	IC	2	
IC128	VSI2529	IC	1	
IC129	NE521D	IC	1	
IC130	AN91A12S	IC	1	
IC131	EL4583CS	IC	1	
IC132	MC74HC00AF	IC	1	
IC133	SN74LS221NS	IC	1	
IC134	VSI2527	IC	1	
IC135	SLA7220F5A	IC	1	
IC136	NE521D	IC	1	
IC137	SN74AS244AN	TTL	1	

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Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
IC138	NJM082BM	IC	1	
IC139	MC74HC4053F	IC	1	
IC140, 41	SN74LS221NS	IC	2	
IC142	UPD65022F210	IC	1	
IC143	74F541SJ	IC	1	
IC144	SN74LS221NS	IC	1	
IC147	VSI2539A	IC	1	
IC148	MC74HC125AF	IC	1	
IC149	NJM79L05UA	IC	1	
IC150	NJM082BM	IC	1	
IC151	MC10H116M	IC	1	
IC152	MC10H125M	IC	1	
IC153	MC10H131M	IC	1	
IC154	74F04SJ	IC	1	
IC155	VSI2530	IC	1	
IC156	MC74HC125AF	IC	1	
IC157	DAC10GS	IC	1	
IC158	SN74LS123NS	IC	1	
IC159	MC74HC574AF	IC	1	
IC160	SN74LS221NS	IC	1	
IC161	MC74HC574AF	IC	1	
IC162	74F112SJ	IC	1	
IC163	MC10H105M	IC	1	
IC164	MC10H124M	IC	1	
IC165	MC10H125M	IC	1	
IC166	VCR0377	IC	1	
IC167, 68	74AC244SJ	IC	2	
IC169	MC74HC4053F	IC	1	
IC170	74AC244SJ	IC	1	
IC171	MC74HC574AF	IC	1	
IC172	SN74LS05NS	IC	1	
IC173-75	NJM78L05UA	IC	3	
IC177	MC74HC4053F	IC	1	
IC178	NJM082BM	IC	1	
IC179-81	NJM084M	IC	3	
IC182, 83	MC10H116M	IC	2	
IC184	SN74LS221NS	IC	1	
IC185	AD9300KQ	IC	1	
IC186	LT1223CS8	IC	1	
IC187	CY7B991-7JC	IC	1	
IC188, 89	LT1170CQ	IC	2	
IC190	NJM084M	IC	1	
IC191	MC10H116M	IC	1	
IC192	MC10EL57D	IC	1	
IS16	VJS3396	CONNECTOR (FEMALE)	1	
IS17	VJS3397X068	CONNECTOR (FEMALE)	1	
IS21, 22	VJS3109	CONNECTOR (FEMALE)	2	
IS25, 26	VJS3109	CONNECTOR (FEMALE)	2	
IS31	VJS3397X084	CONNECTOR (FEMALE)	1	
IS46	VJS3397X084	CONNECTOR (FEMALE)	1	
IS56, 57	VJS3109	CONNECTOR (FEMALE)	2	
IS58	VJS3397X084	CONNECTOR (FEMALE)	1	
IS61	VJS3397X084	CONNECTOR (FEMALE)	1	
IS67	VJS3397X084	CONNECTOR (FEMALE)	1	
IS71, 72	VJS3109	CONNECTOR (FEMALE)	2	
IS73	VJS3396	CONNECTOR (FEMALE)	1	
IS74	VJS3397X084	CONNECTOR (FEMALE)	1	
IS76	VJS3109	CONNECTOR (FEMALE)	1	
IS83	VJS3397X084	CONNECTOR (FEMALE)	1	
IS128	VJS3396	CONNECTOR (FEMALE)	1	
IS134	VJS3396	CONNECTOR (FEMALE)	1	
IS147	VJS3397X084	CONNECTOR (FEMALE)	1	
IS155	VJS3396	CONNECTOR (FEMALE)	1	
L1	VLQ0319K100	COIL 10UH	1	
L2-L5	VLQ0319K101	COIL 100UH	4	
L6	VLQ0133K680	COIL 68UH	1	
L7	VLQ0133K221	COIL 220UH	1	
L8-10	VLQ0319K101	COIL 100UH	3	
L11	VLQ0133K221	COIL 220UH	1	
L12-21	VLQ0319K101	COIL 100UH	10	
L22	VLQ0319K4R7	COIL 4.7UH	1	
L23	VLP0017	COIL	1	
L24	VLQ0319K101	COIL 100UH	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
L25-28	VLQ0647	COIL	4	
P1	VJP1248T	CONNECTOR (MALE) 8P	1	
P1	VJP2741B008	CONNECTOR (MALE)	1	
P231, 32	VJP3510	CONNECTOR (MALE)	2	
Q1, Q2	2SK608-R	TRANSISTOR	2	
Q3	2SB1218A-R	TRANSISTOR	1	
R1	ERJ3GEYG102	M. RESISTOR CH 1/16W 1K	1	
R1	VRE0034E750	M. RESISTOR CH 1/10W 75	1	
R2	ERJ3GEYG102	M. RESISTOR CH 1/16W 1K	1	
R2	ERJ6RBD102	M. RESISTOR CH 1/10W 1K	1	
R3	ERJ3GEYG102	M. RESISTOR CH 1/16W 1K	1	
R3	ERJ6RBD102	M. RESISTOR CH 1/10W 1K	1	
R4	ERJ3GEYG102	M. RESISTOR CH 1/16W 1K	1	
R4	VRE0034E750	M. RESISTOR CH 1/10W 75	1	
R5	ERJ6RBD222	M. RESISTOR CH 1/10W 2.2K	1	
R6	ERJ3GEY0R00	M. RESISTOR CH 1/16W 0	1	
R6	VRE0034E750	M. RESISTOR CH 1/10W 75	1	
R7	ERJ3GEY0R00	M. RESISTOR CH 1/16W 0	1	
R7, R8	ERJ6RBD102	M. RESISTOR CH 1/10W 1K	2	
R9	ERJ3GEYG102	M. RESISTOR CH 1/16W 1K	1	
R9	VRE0034E750	M. RESISTOR CH 1/10W 75	1	
R10	ERJ3GEYG102	M. RESISTOR CH 1/16W 1K	1	
R10	ERJ6RBD222	M. RESISTOR CH 1/10W 2.2K	1	
R11	ERJ3GEYG102	M. RESISTOR CH 1/16W 1K	1	
R11	VRE0034E750	M. RESISTOR CH 1/10W 75	1	
R12	ERJ3GEYJ510	M. RESISTOR CH 1/16W 51	1	
R12	ERJ6RBD102	M. RESISTOR CH 1/10W 1K	1	
R13	ERJ3GEYJ510	M. RESISTOR CH 1/16W 51	1	
R13	ERJ6RBD102	M. RESISTOR CH 1/10W 1K	1	
R14	ERJ3GEYJ101	M. RESISTOR CH 1/16W 100	1	
R14	VRE0034E750	M. RESISTOR CH 1/10W 75	1	
R15	ERJ3GEYJ101	M. RESISTOR CH 1/16W 100	1	
R15	ERJ6RBD222	M. RESISTOR CH 1/10W 2.2K	1	
R16	ERJ3GEYJ101	M. RESISTOR CH 1/16W 100	1	
R16	VRE0034E750	M. RESISTOR CH 1/10W 75	1	
R17	ERJ3GEYJ101	M. RESISTOR CH 1/16W 100	1	
R17	ERJ6RBD102	M. RESISTOR CH 1/10W 1K	1	
R18	ERJ3GEYJ101	M. RESISTOR CH 1/16W 100	1	
R18	ERJ6RBD102	M. RESISTOR CH 1/10W 1K	1	
R19	ERJ3GEYJ101	M. RESISTOR CH 1/16W 100	1	
R19	VRE0034E750	M. RESISTOR CH 1/10W 75	1	
R20	ERJ3GEYJ101	M. RESISTOR CH 1/16W 100	1	
R20	ERJ6RBD222	M. RESISTOR CH 1/10W 2.2K	1	
R21-33	ERJ3GEYJ101	M. RESISTOR CH 1/16W 100	13	
R34-41	ERJ3GEYJ330	M. RESISTOR CH 1/16W 33	8	
R54, 55	ERJ3GEYG102	M. RESISTOR CH 1/16W 1K	2	
R56-67	ERJ3GEYJ202	M. RESISTOR CH 1/16W 2K	12	
R68	ERJ3GEYG471	M. RESISTOR CH 1/16W 470	1	
R69	ERJ6RBD122	M. RESISTOR CH 1/10W 1.2K	1	
R70	ERJ6RBD562	M. RESISTOR CH 1/10W 5.6K	1	
R71	ERJ6RBD822	M. RESISTOR CH 1/10W 8.2K	1	
R72	ERJ6RED100	M. RESISTOR CH 1/10W 10	1	
R73	ERG1ANJ470	M. RESISTOR 1W 47	1	
R74	ERJ3GEYJ151	M. RESISTOR CH 1/16W 150	1	
R75	ERJ6RBD122	M. RESISTOR CH 1/10W 1.2K	1	
R76	ERJ6RBD562	M. RESISTOR CH 1/10W 5.6K	1	
R77	ERJ6RBD822	M. RESISTOR CH 1/10W 8.2K	1	
R78	ERJ6RED100	M. RESISTOR CH 1/10W 10	1	
R79	ERG1ANJ470	M. RESISTOR 1W 47	1	
R80, 81	ERJ3GEYG102	M. RESISTOR CH 1/16W 1K	2	
R82-93	ERJ3GEYJ202	M. RESISTOR CH 1/16W 2K	12	
R94-96	ERJ3GEYG102	M. RESISTOR CH 1/16W 1K	3	
R97-04	ERJ3GEYJ330	M. RESISTOR CH 1/16W 33	8	
R105-13	ERJ3GEYG102	M. RESISTOR CH 1/16W 1K	9	
R114-29	ERJ3GEYJ330	M. RESISTOR CH 1/16W 33	16	
R130-35	ERJ3GEYG102	M. RESISTOR CH 1/16W 1K	6	
R136	ERJ3GEYJ330	M. RESISTOR CH 1/16W 33	1	
R137	ERJ3GEYJ560	M. RESISTOR CH 1/16W 56	1	
R138-64	ERJ3GEYJ330	M. RESISTOR CH 1/16W 33	27	
R165, 66	ERJ3GEYG102	M. RESISTOR CH 1/16W 1K	2	
R167-72	ERJ3GEYJ330	M. RESISTOR CH 1/16W 33	6	
R173-20	ERJ3GEYG102	M. RESISTOR CH 1/16W 1K	48	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
R221	ERJ3GEYJ681	M. RESISTOR CH 1/16W 680	1	
R222-29	ERJ3GEYG102	M. RESISTOR CH 1/16W 1K	8	
R230	ERJ6RBD302	M. RESISTOR CH 1/10W 3K	1	
R231	ERJ6RBD332	M. RESISTOR CH 1/10W 3.3K	1	
R232	ERJ6RBD562	M. RESISTOR CH 1/10W 5.6K	1	
R233	ERJ6RBD222	M. RESISTOR CH 1/10W 2.2K	1	
R234	ERJ6RBD182	M. RESISTOR CH 1/10W 1.8K	1	
R235, 36	ERJ6RBD151	M. RESISTOR CH 1/10W 150	2	
R237	ERJ3GEYG102	M. RESISTOR CH 1/16W 1K	1	
R238, 39	ERJ6RBD151	M. RESISTOR CH 1/10W 150	2	
R240, 41	ERJ6RED680	M. RESISTOR CH 1/10W 68	2	
R242, 43	ERJ6RBD101	M. RESISTOR CH 1/10W 100	2	
R244	ERJ6RBD102	M. RESISTOR CH 1/10W 1K	1	
R245	ERJ6GEYG105	M. RESISTOR CH 1/10W 1M	1	
R246	ERJ6RBD392	M. RESISTOR CH 1/10W 3.9K	1	
R247	ERJ6RBD181	M. RESISTOR CH 1/10W 180	1	
R249	ERJ3GEY0R00	M. RESISTOR CH 1/16W 0	1	
R250, 51	ERJ6RBD272	M. RESISTOR CH 1/10W 2.7K	2	
R252, 53	ERJ6RBD101	M. RESISTOR CH 1/10W 100	2	
R254-63	ERJ6RBD181	M. RESISTOR CH 1/10W 180	10	
R264	ERJ6RBD102	M. RESISTOR CH 1/10W 1K	1	
R265-67	ERJ6RED100	M. RESISTOR CH 1/10W 10	3	
R268, 69	ERJ6RBD101	M. RESISTOR CH 1/10W 100	2	
R270-72	ERJ6RBD102	M. RESISTOR CH 1/10W 1K	3	
R273	ERJ6RBD222	M. RESISTOR CH 1/10W 2.2K	1	
R274	ERJ6RBD471	M. RESISTOR CH 1/10W 470	1	
R275, 76	ERJ6RBD102	M. RESISTOR CH 1/10W 1K	2	
R277	VRE0034E750	M. RESISTOR CH 1/10W 75	1	
R278	ERJ6RBD222	M. RESISTOR CH 1/10W 2.2K	1	
R279	ERJ6RBD102	M. RESISTOR CH 1/10W 1K	1	
R280	ERJ6RBD222	M. RESISTOR CH 1/10W 2.2K	1	
R281	VRE0034E750	M. RESISTOR CH 1/10W 75	1	
R282, 83	ERJ6RBD102	M. RESISTOR CH 1/10W 1K	2	
R284	ERJ6RED510	M. RESISTOR CH 1/10W 51	1	
R285-88	ERJ6RBD102	M. RESISTOR CH 1/10W 1K	4	
R289	VRE0034E750	M. RESISTOR CH 1/10W 75	1	
R290, 91	ERJ6RBD102	M. RESISTOR CH 1/10W 1K	2	
R292	ERJ6RED100	M. RESISTOR CH 1/10W 10	1	
R293, 94	ERJ6RBD103	M. RESISTOR CH 1/10W 10K	2	
R295, 96	ERJ6RBD152	M. RESISTOR CH 1/10W 1.5K	2	
R297-99	ERJ6RBD202	M. RESISTOR CH 1/10W 2K	3	
R300, 01	ERJ6RED270	M. RESISTOR CH 1/10W 27	2	
R302	ERJ6RBD391	M. RESISTOR CH 1/10W 390	1	
R303, 04	ERJ6RBD331	M. RESISTOR CH 1/10W 330	2	
R305, 06	ERJ6RBD391	M. RESISTOR CH 1/10W 390	2	
R307	ERJ6RBD301	M. RESISTOR CH 1/10W 300	1	
R308, 09	ERJ6RBD471	M. RESISTOR CH 1/10W 470	2	
R310	ERJ6RBD562	M. RESISTOR CH 1/10W 5.6K	1	
R311	ERJ6RBD752	M. RESISTOR CH 1/10W 7.5K	1	
R312, 13	ERJ6RBD103	M. RESISTOR CH 1/10W 10K	2	
R314	ERJ6RBD273	M. RESISTOR CH 1/10W 27K	1	
R315-18	ERJ6RBD102	M. RESISTOR CH 1/10W 1K	4	
R319, 20	ERJ6RBD331	M. RESISTOR CH 1/10W 330	2	
R321-33	ERJ6RBD101	M. RESISTOR CH 1/10W 100	13	
R334-65	ERJ3GEYJ103	M. RESISTOR CH 1/16W 10K	32	
R367-72	ERJ3GEYJ103	M. RESISTOR CH 1/16W 10K	6	
R374	ERJ3GEYJ103	M. RESISTOR CH 1/16W 10K	1	
R377	ERJ3GEYJ103	M. RESISTOR CH 1/16W 10K	1	
R379	ERJ3GEY0R00	M. RESISTOR CH 1/16W 0	1	
R380	ERJ3GEYG102	M. RESISTOR CH 1/16W 1K	1	
R381	ERJ3GEY0R00	M. RESISTOR CH 1/16W 0	1	
R382-86	ERJ3GEYG102	M. RESISTOR CH 1/16W 1K	5	
R387	ERJ3GEYJ333	M. RESISTOR CH 1/16W 33K	1	
R388	ERJ3GEYJ184	M. RESISTOR CH 1/16W 180K	1	
R389, 90	ERJ3GEYJ222	M. RESISTOR CH 1/16W 2.2K	2	
R391	ERJ3GEYJ560	M. RESISTOR CH 1/16W 56	1	
R392	ERJ6RED224	M. RESISTOR CH 1/10W 220K	1	
R393	ERJ3GEYJ684	M. RESISTOR CH 1/16W 680K	1	
R394	ERJ3GEYJ103	M. RESISTOR CH 1/16W 10K	1	
R395, 96	ERJ6RBD822	M. RESISTOR CH 1/10W 8.2K	2	
R397	ERJ6RBD102	M. RESISTOR CH 1/10W 1K	1	
R398	ERJ6RBD223	M. RESISTOR CH 1/10W 22K	1	
R399	ERJ6RBD823	M. RESISTOR CH 1/10W 82K	1	
R400	ERJ6RED684	M. RESISTOR CH 1/10W 680K	1	
R401	ERJ6RBD332	M. RESISTOR CH 1/10W 3.3K	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
R402	ERJ6RBD221	M. RESISTOR CH 1/10W 220	1	
R403	ERJ3GEYG332	M. RESISTOR CH 1/16W 3.3K	1	
R404	VRE0034E750	M. RESISTOR CH 1/10W 75	1	
R405, 06	ERJ3GEYJ222	M. RESISTOR CH 1/16W 2.2K	2	
R407	ERJ3GEYJ181	M. RESISTOR CH 1/16W 180	1	
R408	ERJ3GEY0R00	M. RESISTOR CH 1/16W 0	1	
R410, 11	ERJ3GEYG102	M. RESISTOR CH 1/16W 1K	2	
R413	ERJ3GEY0R00	M. RESISTOR CH 1/16W 0	1	
R414	ERJ3GEYG102	M. RESISTOR CH 1/16W 1K	1	
R415	ERJ3GEY0R00	M. RESISTOR CH 1/16W 0	1	
R416-24	ERJ3GEYG102	M. RESISTOR CH 1/16W 1K	9	
R425-27	ERJ3GEYJ103	M. RESISTOR CH 1/16W 10K	3	
R428, 29	ERJ3GEY0R00	M. RESISTOR CH 1/16W 0	2	
R430	ERJ3GEYJ562	M. RESISTOR CH 1/16W 5.6K	1	
R431	ERJ3GEYJ103	M. RESISTOR CH 1/16W 10K	1	
R432	ERJ3GEYJ272	M. RESISTOR CH 1/16W 2.7K	1	
R434-37	ERJ3GEYG102	M. RESISTOR CH 1/16W 1K	4	
R438	ERJ3GEYJ105	M. RESISTOR CH 1/16W 1M	1	
R439	ERJ3GEYJ273	M. RESISTOR CH 1/16W 27K	1	
R440	ERJ3GEYJ333	M. RESISTOR CH 1/16W 33K	1	
R441	ERJ3GEYJ181	M. RESISTOR CH 1/16W 180	1	
R443	ERJ3GEYJ222	M. RESISTOR CH 1/16W 2.2K	1	
R444	ERJ3GEYG102	M. RESISTOR CH 1/16W 1K	1	
R445, 46	ERJ3GEYG332	M. RESISTOR CH 1/16W 3.3K	2	
R447	ERJ3GEYG102	M. RESISTOR CH 1/16W 1K	1	
R448, 49	ERJ3GEYJ473	M. RESISTOR CH 1/16W 47K	2	
R450	ERJ3GEYJ153	M. RESISTOR CH 1/16W 15K	1	
R451	ERJ3GEYG102	M. RESISTOR CH 1/16W 1K	1	
R452	ERJ3GEYJ183	M. RESISTOR CH 1/16W 18K	1	
R453	ERJ3GEYJ473	M. RESISTOR CH 1/16W 47K	1	
R454	ERJ3GEYJ823	M. RESISTOR CH 1/16W 82K	1	
R455	ERJ6RBD561	M. RESISTOR CH 1/10W 560	1	
R456	ERJ3GEYG152	M. RESISTOR CH 1/16W 1.5K	1	
R457	ERJ3GEYG102	M. RESISTOR CH 1/16W 1K	1	
R458	ERJ3GEYJ392	M. RESISTOR CH 1/16W 3.9K	1	
R459	ERJ3GEYG682	M. RESISTOR CH 1/16W 6.8K	1	
R460	ERJ3GEYG102	M. RESISTOR CH 1/16W 1K	1	
R461	ERJ3GEYJ563	M. RESISTOR CH 1/16W 56K	1	
R462	ERJ3GEYG682	M. RESISTOR CH 1/16W 6.8K	1	
R464-66	ERJ3GEYG102	M. RESISTOR CH 1/16W 1K	3	
R467-70	ERJ3GEYJ103	M. RESISTOR CH 1/16W 10K	4	
R472	ERJ3GEYG102	M. RESISTOR CH 1/16W 1K	1	
R473	ERJ3GEYJ273	M. RESISTOR CH 1/16W 27K	1	
R474	ERJ3GEYJ105	M. RESISTOR CH 1/16W 1M	1	
R475	ERJ3GEYJ473	M. RESISTOR CH 1/16W 47K	1	
R476, 77	ERJ3GEYG102	M. RESISTOR CH 1/16W 1K	2	
R478	ERJ3GEYG471	M. RESISTOR CH 1/16W 470	1	
R479	ERJ3GEYJ153	M. RESISTOR CH 1/16W 15K	1	
R480	ERJ3GEYJ393	M. RESISTOR CH 1/16W 39K	1	
R481, 82	ERJ6GEYG101	M. RESISTOR CH 1/10W 100	2	
R483-91	ERJ6RBD101	M. RESISTOR CH 1/10W 100	9	
R492	ERJ3GEYG102	M. RESISTOR CH 1/16W 1K	1	
R493	ERJ6RBD104	M. RESISTOR CH 1/10W 100K	1	
R494-97	ERJ6RBD273	M. RESISTOR CH 1/10W 27K	4	
R498, 99	ERJ6RBD221	M. RESISTOR CH 1/10W 220	2	
R500	ERJ3GEYJ100	M. RESISTOR CH 1/16W 10	1	
R511	ERJ3GEYJ473	M. RESISTOR CH 1/16W 47K	1	
R512-16	ERJ3GEYJ105	M. RESISTOR CH 1/16W 1M	5	
R517, 18	VRE0034E750	M. RESISTOR CH 1/10W 75	2	
R519	ERJ3GEYJ100	M. RESISTOR CH 1/16W 10	1	
R520	ERJ6RBD221	M. RESISTOR CH 1/10W 220	1	
R521	VRE0034E750	M. RESISTOR CH 1/10W 75	1	
R522-25	ERJ6RBD473	M. RESISTOR CH 1/10W 47K	4	
R526	ERJ6RBD273	M. RESISTOR CH 1/10W 27K	1	
R527	ERJ3GEYG471	M. RESISTOR CH 1/16W 470	1	
R528	ERJ6RBD151	M. RESISTOR CH 1/10W 150	1	
R529	ERJ3GEYJ181	M. RESISTOR CH 1/16W 180	1	
R530	ERJ6RBD271	M. RESISTOR CH 1/10W 270	1	
R531-37	ERJ3GEYG102	M. RESISTOR CH 1/16W 1K	7	
R538	VRE0034E750	M. RESISTOR CH 1/10W 75	1	
R539, 40	ERJ6RBD471	M. RESISTOR CH 1/10W 470	2	
R541-45	ERJ3GEYJ153	M. RESISTOR CH 1/16W 15K	5	
R546-50	ERJ3GEYJ393	M. RESISTOR CH 1/16W 39K	5	
R551	ERJ3GEYG102	M. RESISTOR CH 1/16W 1K	1	
R552	ERJ6RBD221	M. RESISTOR CH 1/10W 220	1	

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Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
R553	ERJ3GEY0R00	M. RESISTOR CH 1/16W 0	1	
R554	ERJ6RBD221	M. RESISTOR CH 1/10W 220	1	
R555	ERJ3GEYJ105	M. RESISTOR CH 1/16W 1M	1	
R556	ERJ3GEYJ153	M. RESISTOR CH 1/16W 15K	1	
R557	ERJ6RBD104	M. RESISTOR CH 1/10W 100K	1	
R559	ERJ3GEYJ393	M. RESISTOR CH 1/16W 39K	1	
R560-62	ERJ6RBD122	M. RESISTOR CH 1/10W 1.2K	3	
R563	ERJ6RBD101	M. RESISTOR CH 1/10W 100	1	
R564	ERJ6RBD391	M. RESISTOR CH 1/10W 390	1	
R565	ERJ6RBD103	M. RESISTOR CH 1/10W 10K	1	
R566	ERJ6RBD183	M. RESISTOR CH 1/10W 18K	1	
R567	ERJ6RBD821	M. RESISTOR CH 1/10W 820	1	
R568	ERJ6RBD512	M. RESISTOR CH 1/10W 5.1K	1	
R569	ERJ6RBD681	M. RESISTOR CH 1/10W 680	1	
R570	ERJ3GEYJ333	M. RESISTOR CH 1/16W 33K	1	
R571 72	ERJ6RBD622	M. RESISTOR CH 1/10W 6.2K	2	
R573. 74	ERJ6RBD822	M. RESISTOR CH 1/10W 8.2K	2	
R575. 76	ERJ3GEYG102	M. RESISTOR CH 1/16W 1K	2	
R577. 78	ERJ3GEY0R00	M. RESISTOR CH 1/16W 0	2	
R579-82	ERJ6RBD101	M. RESISTOR CH 1/10W 100	4	
R583-85	ERJ3GEYG102	M. RESISTOR CH 1/16W 1K	3	
R586-96	ERJ3GEYJ510	M. RESISTOR CH 1/16W 51	11	
R597. 98	ERJ6RBD103	M. RESISTOR CH 1/10W 10K	2	
R599	ERJ6RBD153	M. RESISTOR CH 1/10W 15K	1	
R600	ERJ6RBD751	M. RESISTOR CH 1/10W 750	1	
R601	ERJ6RBD331	M. RESISTOR CH 1/10W 330	1	
R602	ERJ6RED100	M. RESISTOR CH 1/10W 10	1	
R603	ERJ6RBD103	M. RESISTOR CH 1/10W 10K	1	
R604. 05	ERJ6RED100	M. RESISTOR CH 1/10W 10	2	
R606	ERJ6RBD103	M. RESISTOR CH 1/10W 10K	1	
R607	ERJ6RED100	M. RESISTOR CH 1/10W 10	1	
R608. 09	ERJ6RBD102	M. RESISTOR CH 1/10W 1K	2	
R610	VRE0034E750	M. RESISTOR CH 1/10W 75	1	
R611	ERJ6RBD222	M. RESISTOR CH 1/10W 2.2K	1	
R612	ERJ6RBD102	M. RESISTOR CH 1/10W 1K	1	
R613-21	ERJ3GEYJ330	M. RESISTOR CH 1/16W 33	9	
R622-25	ERJ3GEYJ103	M. RESISTOR CH 1/16W 10K	4	
R640	ERJ6RED510	M. RESISTOR CH 1/10W 51	1	
R641. 42	ERJ6RED154	M. RESISTOR CH 1/10W 150K	2	
R643	ERJ6RBD273	M. RESISTOR CH 1/10W 27K	1	
R644. 45	ERJ6RBD473	M. RESISTOR CH 1/10W 47K	2	
R646-50	ERJ3GEYJ510	M. RESISTOR CH 1/16W 51	5	
R651. 52	ERJ3GEYJ103	M. RESISTOR CH 1/16W 10K	2	
R653-61	ERJ3GEYJ330	M. RESISTOR CH 1/16W 33	9	
R662	ERJ6RBD273	M. RESISTOR CH 1/10W 27K	1	
R664	ERJ3GEY0R00	M. RESISTOR CH 1/16W 0	1	
R1000	ERDS2TJ182	C. RESISTOR 1/4W 1.8K	1	
SW1	VSS0367-08B	SWITCH	1	
SW2-W5	VSS0367-08B	SWITCH	4	
SW6	VSS0367-02B	SWITCH	1	
TG1-G7	VJR0646	TEST POINT	7	
TP1-P3	EYF6CU	TEST POINT	3	
TP4-30	VJR0646	TEST POINT	27	
TP31. 32	EYF6CU	TEST POINT	2	
VC1. C2	ECV1ZW20X53T	TRIMMER	2	
VL1	VLD0264	COIL	1	
VR1	VRV0064B102	V. RESISTOR 1K	1	
VR2	VRV0113B501	V. RESISTOR 500	1	
VR3. R4	VRV0064B501	V. RESISTOR 500	2	
VR5-R8	VRV0113B502	V. RESISTOR 5K	4	
VR9	VRV0113B203	V. RESISTOR 20K	1	
VR10	VRV0113B101	V. RESISTOR 100	1	
VR11	VRV0113B502	V. RESISTOR 5K	1	
VR12-14	VRV0064B502	V. RESISTOR 5K	3	
VR15-17	VRV0113B502	V. RESISTOR 5K	3	
X1	VSX0905	CRYSTAL OSCILLATOR	1	
X2	VSX0081	CRYSTAL OSCILLATOR	1	
X3	VSX0800	CRYSTAL OSCILLATOR	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
X4	VSX0596	CRYSTAL OSCILLATOR	1	
X5	VSX0597	CRYSTAL OSCILLATOR	1	
X6	VSX0613	CRYSTAL OSCILLATOR	1	
		MISCELLANEOUS		
	VML2143	CARD PULLER	1	
	VML2144	CARD PULLER	1	
	VMP3048	P. C. B. HOLDER ANGLE	2	
	VXA4418	P. C. B. SHIELD PLATE	1	
	XNG26EFXS	NUT	4	
	XTV3+6FFR	SCREW	8	
	XYN26+C12	SCREW	4	
	VMP5476	GUIDE ANGLE	1	
	XTV3+8FR	SCREW	1	
	VEE0C39	TABLE	1	

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