

PRESIDENT

BARRY AM/FM 12/24

SERVICE MANUAL

-TECNNICAL CHARACTERITICS

BARRY AM/FM 12/24 (config: EU PL d EC U In)

1-GENERAL:

-Multiconfiguration (EU, PL, d, EC, U, In)

- EU ⇒ 40 channels AM/FM 4W (from 26,965Mhz to 27,405Mhz)
- PL ⇒ 40 channels AM/FM 4W (from 26,960Mhz to 27,400Mhz)
- d ⇒ 80 channels FM 4W (from 26,565Mhz to 27,405Mhz)
40 channels AM 4W (from 26,965Mhz to 27,405Mhz)
- EC ⇒ 40 channels FM 4W (from 26,965Mhz to 27,405Mhz)
- U ⇒ 40 channels CEPT AM/FM 4W (from 26,965Mhz to 27,405Mhz)
40 channels FM UK 4W (from 27,60125Mhz to 27,99125Mhz)
- In ⇒ 27 channels AM/FM 4W (from 26,965Mhz to 27,275Mhz)

-Channel step

-10KHz

-Class of emission

-AM(A3E)/FM(F3E)

-Power supply

-12V/24V/ From10,8V to 31,2V

-Antenna impedance

-50Ω

-Dimensions(in mm)

-125(W)x175(D)x45(H)

-Weight

-0,9Kg

2-TRANSMISSION:

-Frequency allowance

-±200Hz

-Transmission interference

-Inferior to 4nW(-54dBm)

-Audio frequency response

-From 300Hz to 3kHz in AM/FM

-Emitted power in the adjacent channel

-Inferior to 20μW

-Microphone sensitivity

-Inferior to 7mV

-Current drain

-2A max at 13,2V / 1A max at 26,4V (in transmission mode with modulation)

-Modulated signal distortion

-Inferior to 2%

3-RECEPTION:

-Maximum sensitivity at 20dB sinad

-0,5 μ V(-113dBm) AM/FM

-Audio frequency response

-From 300Hz to 3kHz in AM/FM

-Adjacent channel selectivity

-Superior to 60dB

-Frequency image rejection

-Superior to 60dB

-Intermodulation response

-Superior to 54dB

-Maximum audio power

-2,5W

-Squelch sensitivity

-Threshold 0,2 μ V(-120dBm)/Tight 1mV(-47dBm)

-Current drain

-600mA max at 13,2V / 300mA max at 26,4V

ALIGNMENT PROCEDURE (BARRY AM/FM)

* VCO/PLL PORTION

- Alignment procedure
 - Test points
 - Frequencies chart

* TRANSMITTER

- Alignment procedure
 - Test points

* RECEIVER

- Alignment procedure
 - Test points

Test equipment required

Frequency counter 200 Mhz	HF Generator
DC Voltmeter	BF Voltmeter
Distortimeter	HF Voltmeter
Wattmeter - Dummy load	Osilloscope
FM linear detector	Load 8 Ω
AF generator	Sinad meter

Conditions of Measurements on HF Generator

Reception

AM mode: Level - 107 dBm Frequency 1 KHz with 60% of modulation.
FM mode: Level - 107 dBm Frequency 1 KHz with 1,2KHz of deviation.

Transmission

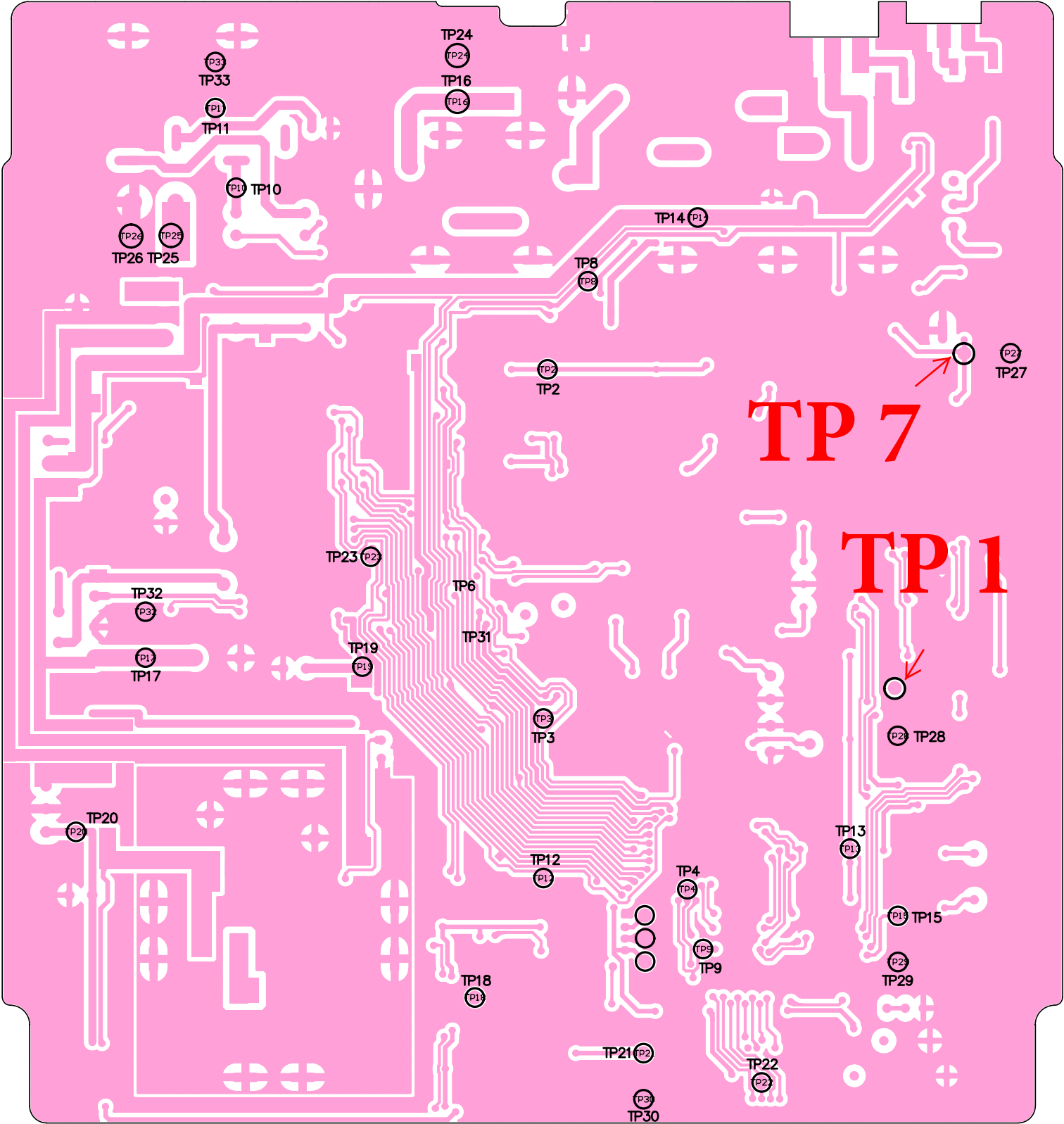
Frequency 1 KHz 30mV.

ALIGNMENT VCO/PLL

1 - Alignment procedure (13,2V/26,4V;configuration"EU")

STEP	CONDITION	ADJUSTMENT	REMARKS OF ADJUSTMENT
1	AM/FM(EU) RX mode Channel 20		Connect a frequency counter to TP7, and and check: 37,900MHz.
2	AM/FM(EU) TX/RX mode Channel 40		Connect a voltmeter to TP 1, and check: Tx Channel 40=3V±0,2V Rx Channel 40=3,2V±0,2V
3	AM/FM(EU) TX/RX mode Channel 1		Connect a voltmeter to TP 1, and check: Tx Channel 1=2,6V±0,2V Rx Channel 1=2,8V±0,2V
4	AM/FM(EU) TX/RX mode Channel 1 to 40 or 1 to 80(d)		Connect a frequency counter to TP7, and check VCO frequencies.

ALIGNMENT VCO/PLL



- FREQUENCY LIST (EU channels)

CH	Channels Frequencies (MHz)	VCO Frequencies (MHz)
1	26,965	37,660
2	26,975	37,670
3	26,985	37,680
4	27,005	37,700
5	27,015	37,710
6	27,025	37,720
7	27,035	37,730
8	27,055	37,750
9	27,065	37,760
10	27,075	37,770
11	27,085	37,780
12	27,105	37,800
13	27,115	37,810
14	27,125	37,820
15	27,135	37,830
16	27,155	37,850
17	27,165	37,860
18	27,175	37,870
19	27,185	37,880
20	27,205	37,900
21	27,215	37,910
22	27,225	37,930
23	27,255	37,950
24	27,235	37,930
25	27,245	37,940
26	27,265	37,960
27	27,275	37,970
28	27,285	37,980
29	27,295	37,990
30	27,305	38,000
31	27,315	38,010
32	27,325	38,020
33	27,335	38,030
34	27,345	38,040
35	27,355	38,050
36	27,365	38,060
37	27,375	38,070
38	27,385	38,080
39	27,395	38,090
40	27,405	38,100

- FREQUENCY LIST (PL channels)

CH	Channels Frequencies (MHz)	VCO Frequencies (MHz)
1	26,960	37,655
2	26,970	37,665
3	26,980	37,675
4	27,000	37,695
5	27,010	37,705
6	27,020	37,715
7	27,030	37,725
8	27,050	37,745
9	27,060	37,755
10	27,070	37,765
11	27,080	37,775
12	27,100	37,795
13	27,110	37,805
14	27,120	37,815
15	27,130	37,825
16	27,150	37,845
17	27,160	37,855
18	27,170	37,865
19	27,180	37,875
20	27,200	37,895
21	27,210	37,905
22	27,220	37,915
23	27,250	37,945
24	27,230	37,925
25	27,240	37,935
26	27,260	37,955
27	27,270	37,965
28	27,280	37,975
29	27,290	37,985
30	27,300	37,995
31	27,310	38,005
32	27,320	38,015
33	27,330	38,025
34	27,340	38,035
35	27,350	38,045
36	27,360	38,055
37	27,370	38,065
38	27,380	38,075
39	27,390	38,085
40	27,400	38,095

- FREQUENCY LIST (d channels)

CH	Channels	VCO	CH	Channels	VCO
D	Frequencies (MHz)	Frequencies (MHz)	D	Frequencies (MHz)	Frequencies (MHz)
1	26,965	37,660	41	26,565	37,260
2	26,975	37,670	42	26,575	37,270
3	26,985	37,680	43	26,585	37,280
4	27,005	37,70	44	26,595	37,290
5	27,015	37,710	45	26,605	37,300
6	27,025	37,720	46	26,615	37,310
7	27,035	37,730	47	26,625	37,320
8	27,055	37,750	48	26,635	37,330
9	27,065	37,760	49	26,645	37,340
10	27,075	37,770	50	26,655	37,350
11	27,085	37,780	51	26,665	37,360
12	27,105	37,800	52	26,675	37,370
13	27,115	37,810	53	26,685	37,380
14	27,125	37,820	54	26,695	37,390
15	27,135	37,830	55	26,705	37,400
16	27,155	37,850	56	26,715	37,410
17	27,165	37,860	57	26,725	37,420
18	27,175	37,870	58	26,735	37,430
19	27,185	37,880	59	26,745	37,440
20	27,205	37,900	60	26,755	37,450
21	27,215	37,910	61	26,765	37,460
22	27,225	37,930	62	26,775	37,470
23	27,255	37,950	63	26,785	37,480
24	27,235	37,930	64	26,795	37,490
25	27,245	37,940	65	26,805	37,500
26	27,265	37,960	66	26,815	37,510
27	27,275	37,970	67	26,825	37,520
28	27,285	37,980	68	26,835	37,530
29	27,295	37,990	69	26,845	37,540
30	27,305	38,000	70	26,855	37,550
31	27,315	38,010	71	26,865	37,560
32	27,325	38,020	72	26,875	37,570
33	27,335	38,030	73	26,885	37,580
34	27,345	38,040	74	26,895	37,590
35	27,355	38,050	75	26,905	37,600
36	27,365	38,060	76	26,915	37,610
37	27,375	38,070	77	26,925	37,620
38	27,385	38,080	78	26,935	37,630
39	27,395	38,090	79	26,945	37,640
40	27,405	38,100	80	26,955	37,650

- FREQUENCY LIST (EC channels)

CH CEPT	Channels Frequencies (MHz)	VCO Frequencies (MHz)
1	26,965	37,660
2	26,975	37,670
3	26,985	37,680
4	27,005	37,700
5	27,015	37,710
6	27,025	37,720
7	27,035	37,730
8	27,055	37,750
9	27,065	37,760
10	27,075	37,770
11	27,085	37,780
12	27,105	37,800
13	27,115	37,810
14	27,125	37,820
15	27,135	37,830
16	27,155	37,850
17	27,165	37,860
18	27,175	37,870
19	27,185	37,880
20	27,205	37,900
21	27,215	37,910
22	27,225	37,930
23	27,255	37,950
24	27,235	37,930
25	27,245	37,940
26	27,265	37,960
27	27,275	37,970
28	27,285	37,980
29	27,295	37,990
30	27,305	38,000
31	27,315	38,010
32	27,325	38,020
33	27,335	38,030
34	27,345	38,040
35	27,355	38,050
36	27,365	38,060
37	27,375	38,070
38	27,385	38,080
39	27,395	38,090
40	27,405	38,100

- FREQUENCY LIST (UK channels)

CH UK	Channels Frequencies (MHz)	VCO Frequencies (MHz)
1	27,60125	38,29625
2	27,61125	38,30625
3	27,62125	38,31625
4	27,63125	38,32625
5	27,64125	38,33625
6	27,65125	38,34625
7	27,66125	38,35625
8	27,67125	38,36625
9	27,68125	38,37625
10	27,69125	38,38625
11	27,70125	38,39625
12	27,71125	38,40625
13	27,72125	38,41625
14	27,73125	38,42625
15	27,74125	38,43625
16	27,75125	38,44625
17	27,76125	38,45625
18	27,77125	38,46625
19	27,78125	38,47625
20	27,79125	38,48625
21	27,80125	38,49625
22	27,81125	38,50625
23	27,82125	38,51625
24	27,83125	38,52625
25	27,84125	38,53625
26	27,85125	38,54625
27	27,86125	38,55625
28	27,87125	38,56625
29	27,88125	38,57625
30	27,89125	38,58625
31	27,90125	38,59625
32	27,91125	38,60625
33	27,92125	38,61625
34	27,93125	38,62625
35	27,94125	38,63625
36	27,95125	38,64625
37	27,96125	38,65625
38	27,97125	38,66625
39	27,98125	38,67625
40	27,99125	38,68625

- FREQUENCY LIST (In channels)

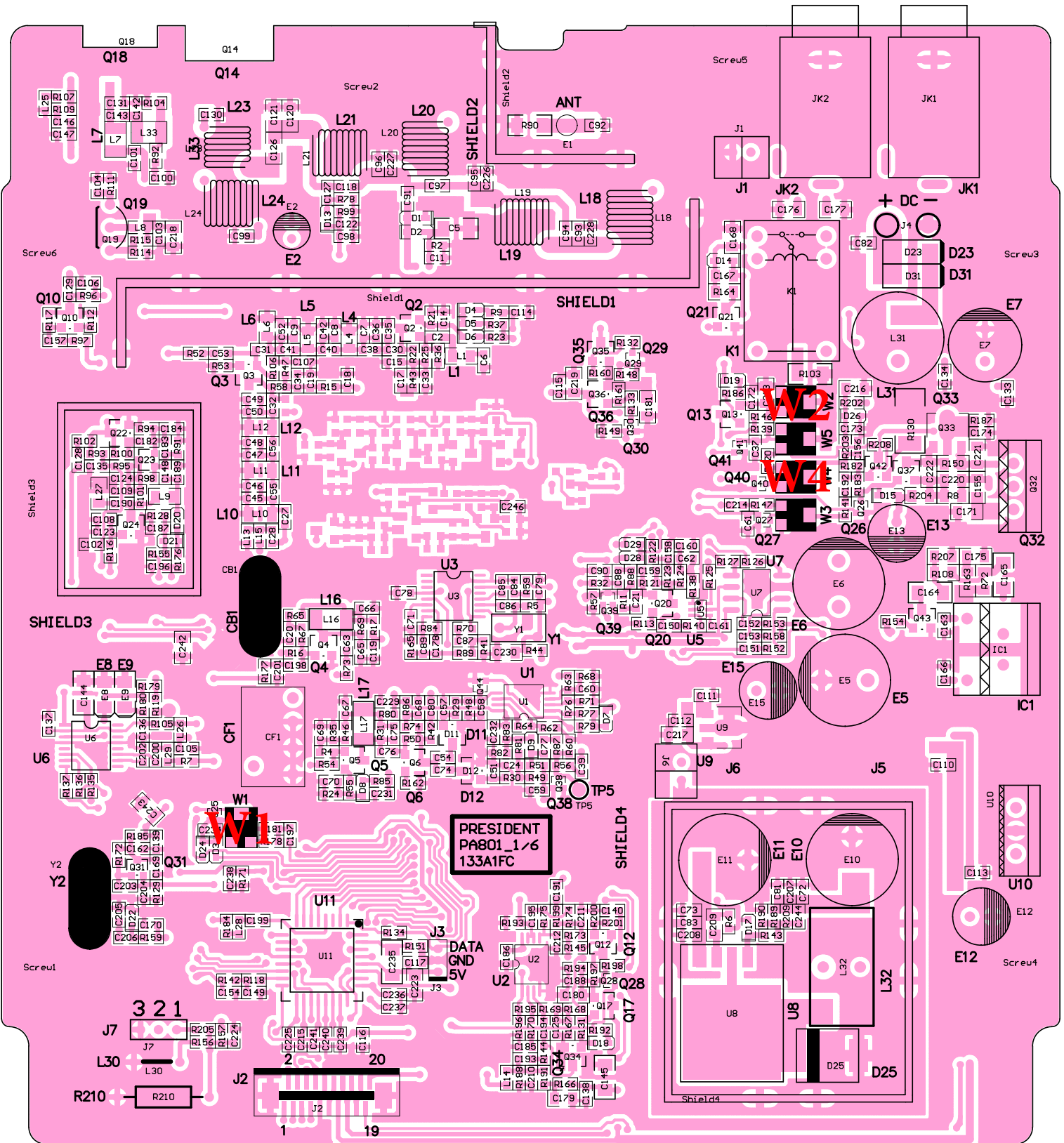
CH	Channels	VCO
In	Frequencies (MHz)	Frequencies (MHz)
1	26,965	37,660
2	26,975	37,670
3	26,985	37,680
4	27,005	37,70
5	27,015	37,710
6	27,025	37,720
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16	27,155	37,850
17	27,165	37,860
18	27,175	37,870
19	27,185	37,880
20	27,205	37,900
21	27,215	37,910
22	27,225	37,930
23	27,255	37,950
24	27,235	37,930
25	27,245	37,940
26	27,265	37,960
27	27,275	37,970

ALIGNMENT TRANSMITTER

1 - Alignment procedure (13,2V/26,4V;configuration"EU")

STEP	CONDITION	ADJUSTMENT	REMARKS OF ADJUSTMENT
1	AM/FM(EU) TX Channel 20	W4	Connect a wattmeter to jack antenna, adjust W4 to reach 4W on the wattmeter.
2	Same as 1		Connect a dummy load to jack antenna. Check that the "RF meter" displays 4 bars.
3	FM(EU) TX Mod 30 mV 1 KHz CH 20	W1	Adjust W1 to reach $\pm 1,2$ KHz of deviation.
7	AM(EU) TX Mod 30 mV 1 KHz CH 20	W2	Adjust W2 to reach $\pm 85\%$ of modulation.

ALIGNMENT TRANSMITTER



ALIGNMENT RECEIVER

1 - Alignment procedure (13,2V/26,4V;configuration"EU")

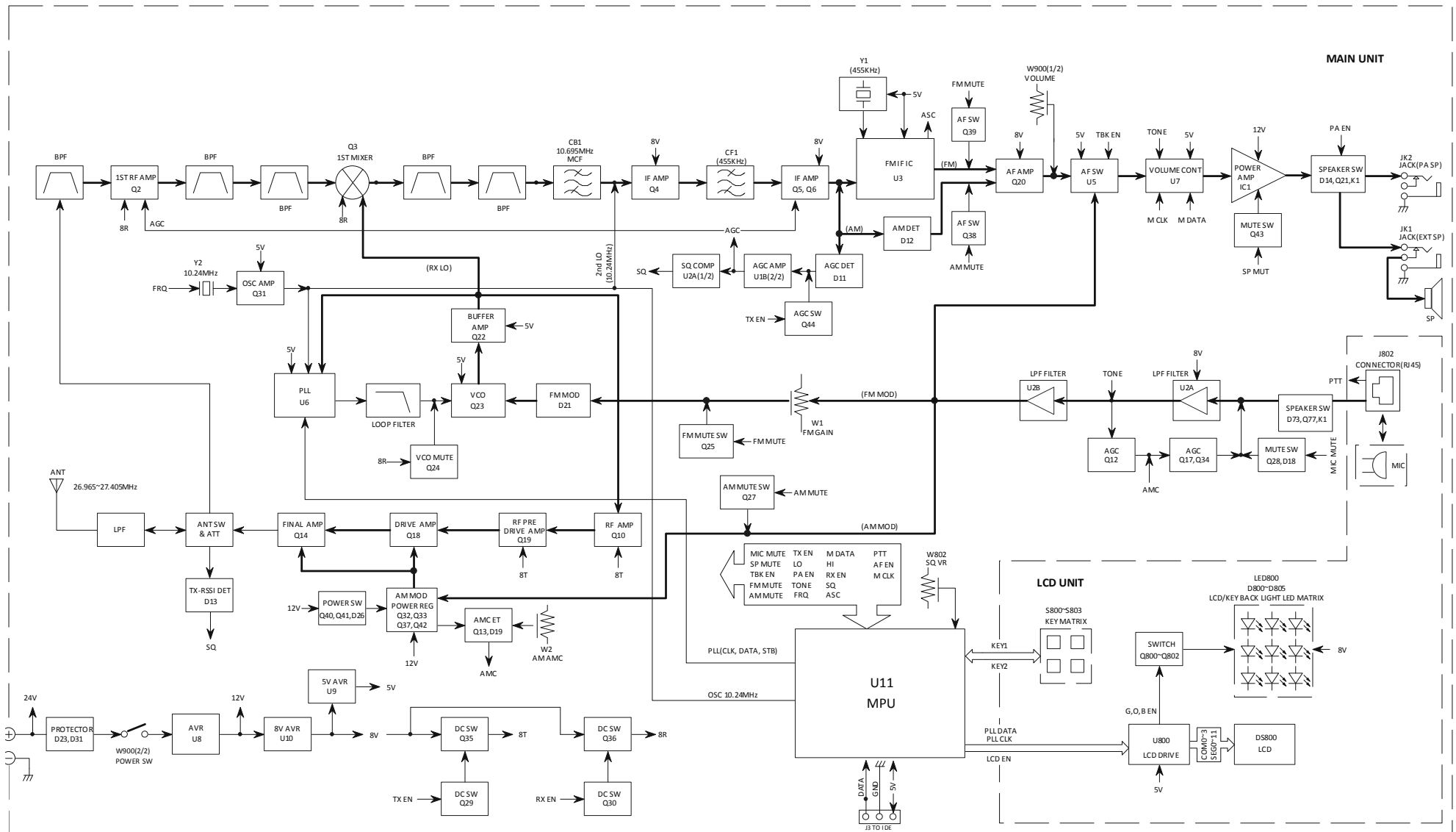
STEP	CONDITION	ADJUSTMENT	REMARKS OF ADJUSTMENT
1	AM(EU) Channel 20 Middle volume level. No squelch active		Connect HF generator to jack antenna adjusted at (-107dBm / 1KHz 60%), connect sinad meter to jack EXT speaker and check: The sensitivity must be ≥ 20 dB sinad.
2	FM(EU) Channel 20 Middle volume level No squelch active		Connect HF generator to jack antenna adjusted at (-107dBm 1KHz / 1,2KHz Dev), connect sinad meter to jack EXT speaker and check: The sensitivity must be ≥ 20 dB sinad.
3	AM(EU) Channel 20 Middle volume level No squelch active		Connect HF generator to jack antenna adjusted at (-67dBm \pm 3dB / 1KHz 60%) and check that the "S meter" displays 3 bars.
4	AM(EU) Channel 20 Middle volume level Squelch maximum clockwise		Connect HF generator to jack antenna adjusted at (-47dBm \pm 3dB / 1KHz 60%) and check that the signal is audible .
5	AM(EU) Channel 20 Middle volume level Squelch maximum counterclockwise (ASC)		Connect HF generator to jack antenna. Connect sinad meter to jack EXT speaker, adjust the ouput level of HF generator and check that the opening ASC sinad level is 20dB \pm 3dB.

BARRY AM/FM

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BLOCK DIAGRAM

BLOCK DIAGRAM

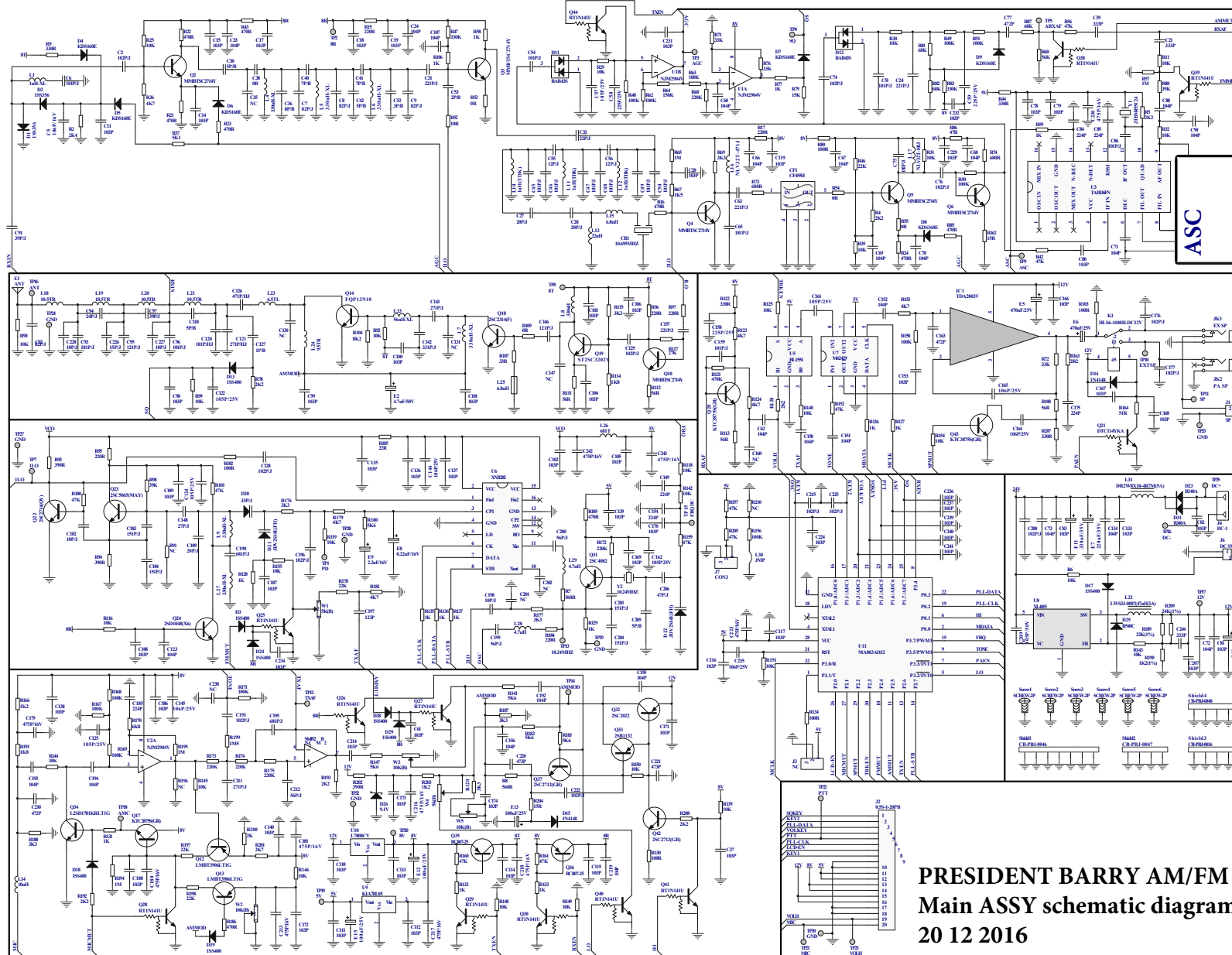


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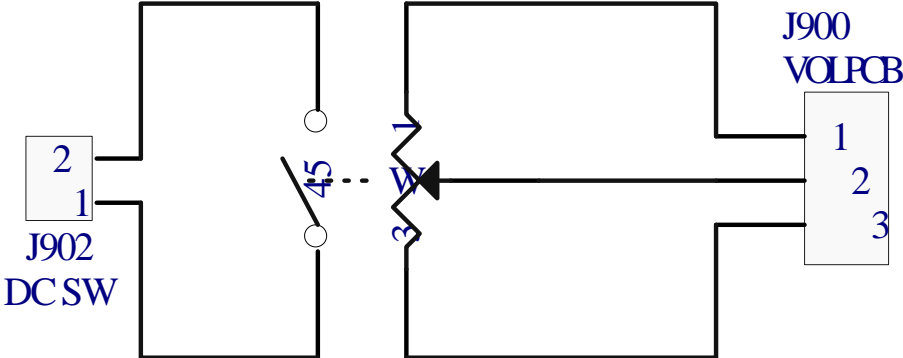
SCHEMATIC DIAGRAM

SCHEMATIC DIAGRAM



PRESIDENT BARRY AM/FM
Main ASSY schematic diagram
20 12 2016

SCHEMATIC DIAGRAM



W900

RP09110SNBX-V01-1479(B103a,KA20A11)



W901

RP09110NOBX-V01-1478(B103a,KA20A11)

J901

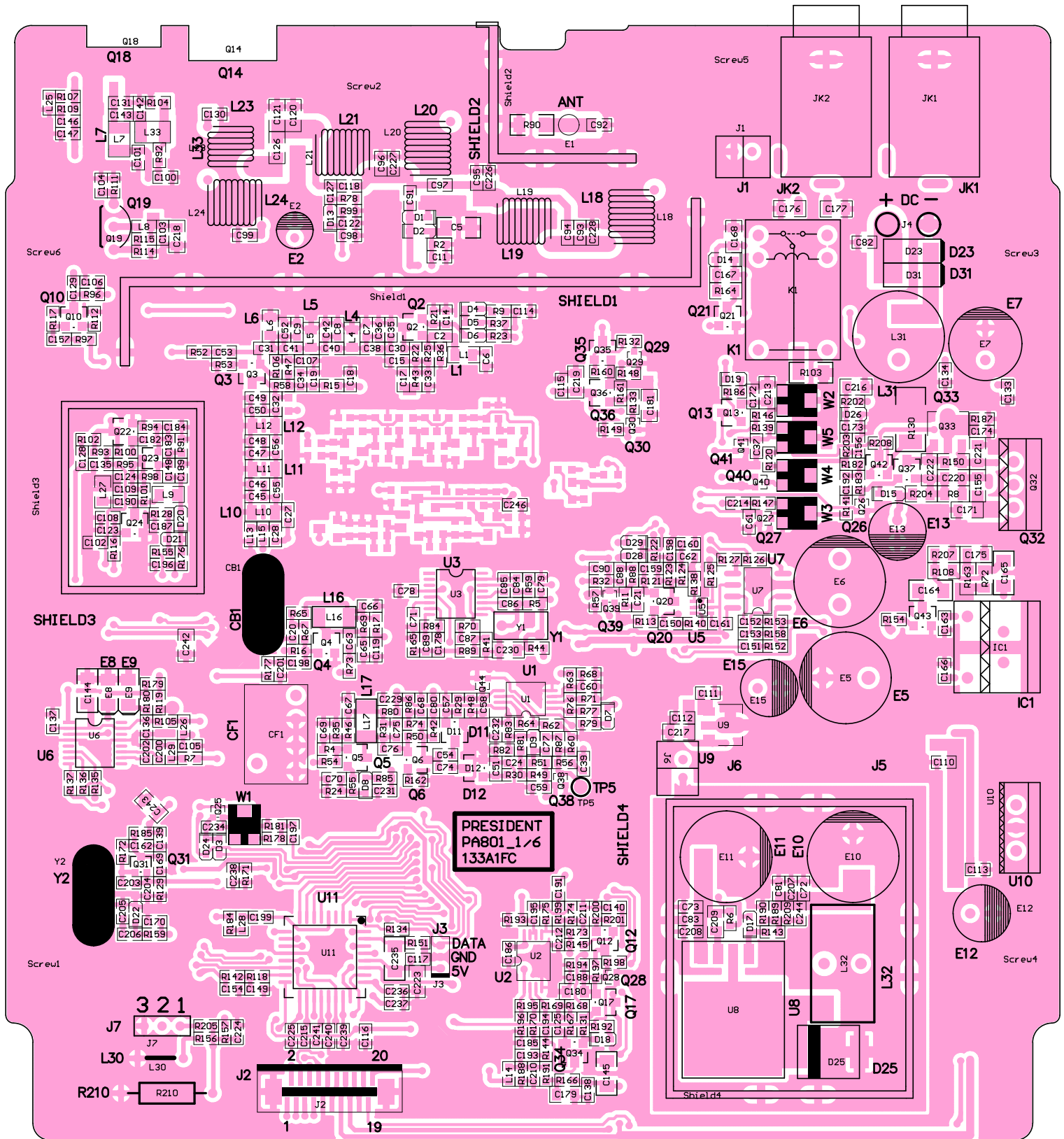
SQPCB

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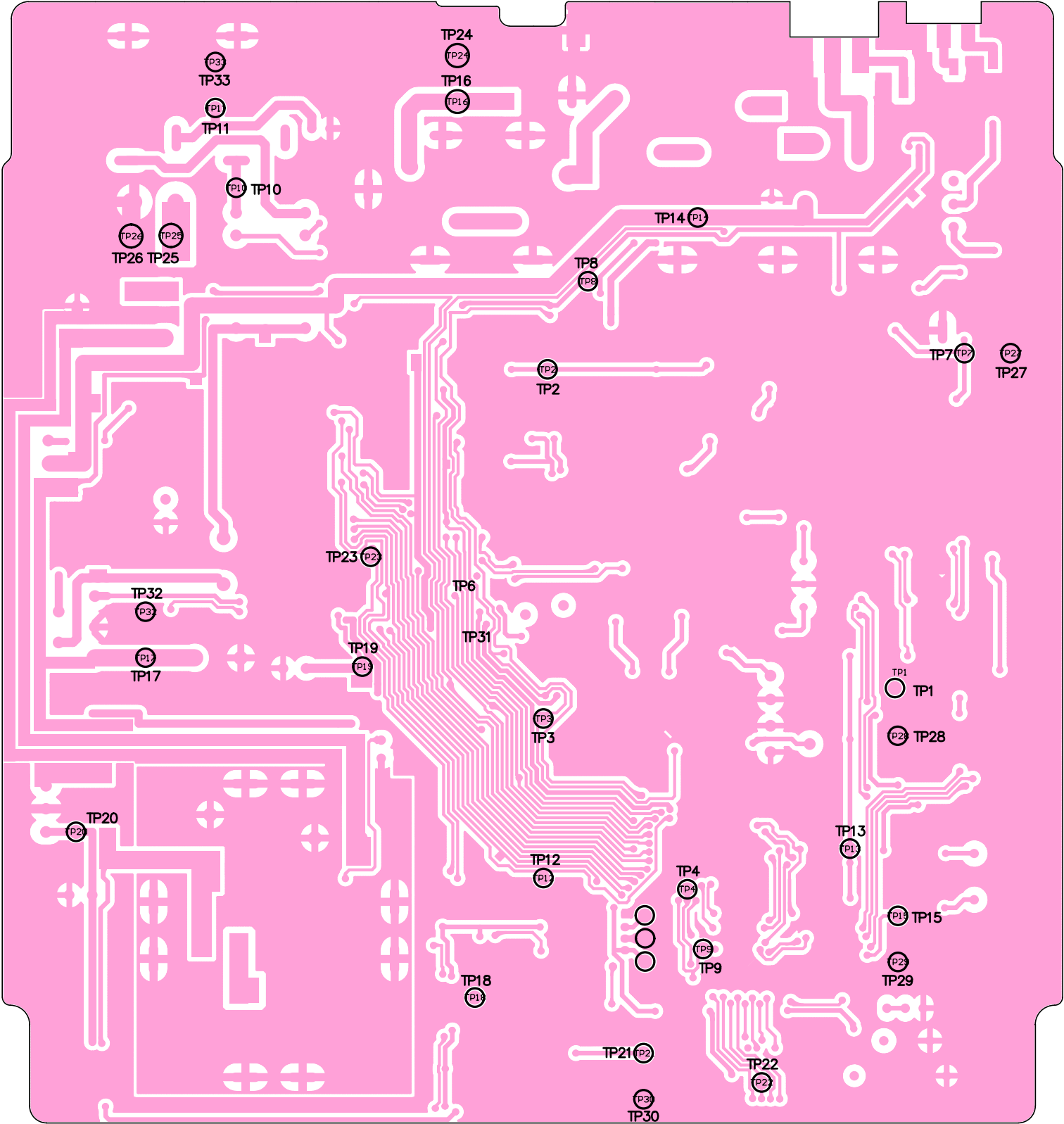
COMPONENT LAYOUT

PC BOARD VIEWS

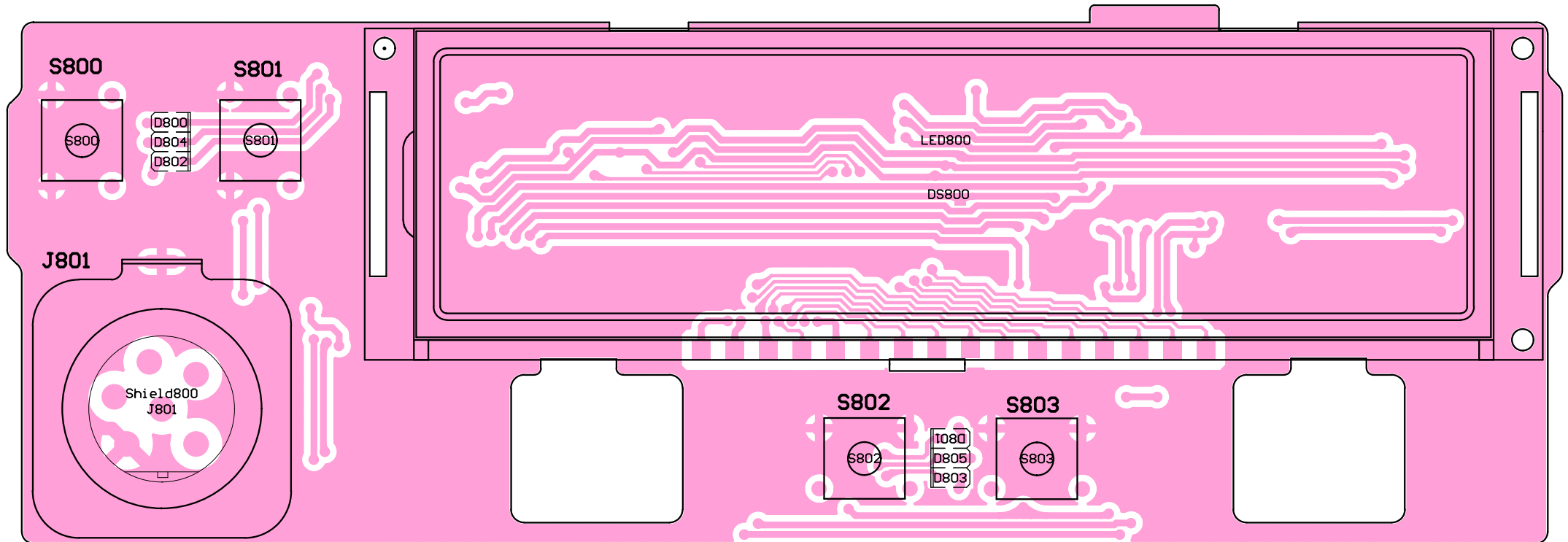


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Main PCB component layout
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PC BOARD VIEWS

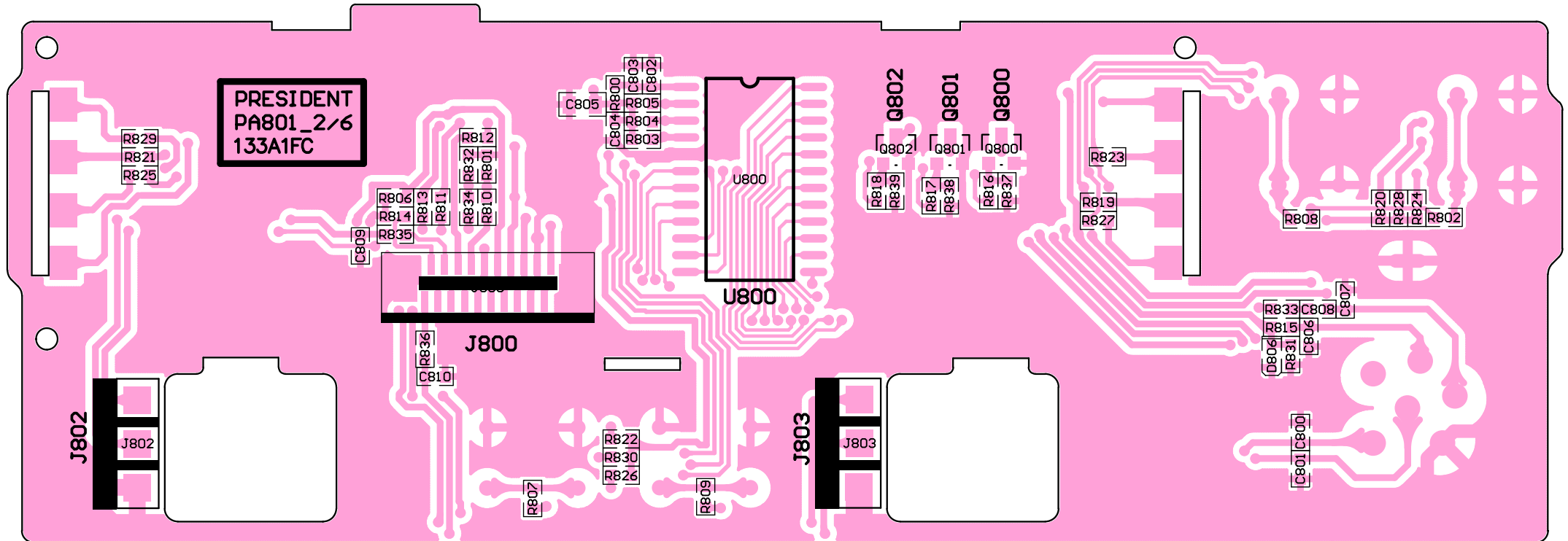


PC BOARD VIEWS



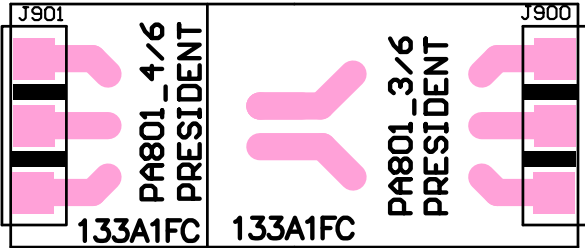
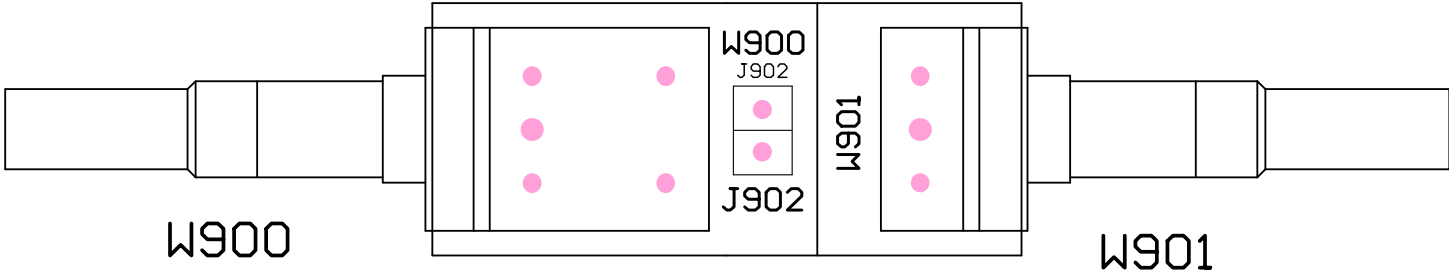
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Front PCB top component layout
20 12 2016

PC BOARD VIEWS



PRESIDENT BARRY AM/FM
Front PCB bottom component
layout 20 12 2016

PC BOARD VIEWS



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COMPONENTS LIST

FRONT PCB		
Designators	Comment	Footprint
C800	103P	S0603N
C801	103P	S0603N
C802	225P/25V	S0603N
C803	103P	S0603N
C804	103P	S0603N
C805	475P/16V	S0805N
C806	103P	S0603N
C807	103P	S0603N
C808	104P	S0603N
C809	103P	S0603N
C810	103P	S0603N
D800	BLU	SD0603
D801	BLU	SD0603
D802	GRE	SD0603
D803	GRE	SD0603
D804	ORG	SD0603
D805	ORG	SD0603
D806	5.1V	SD0603
DS800	GDS-FT-3210WS	GDS-FT-3210WS
J800	0.5S-1-20PB	SIPM20
J801	CN6	QFM16-6F2
J802	VOLPCB	CON3-1.27
J803	SQPCB	CON3-1.27
LED800	BARRY-BLACK	BACK LIGHT
Q800	KTC3875S(GR)	SOT23
Q801	KTC3875S(GR)	SOT23
Q802	KTC3875S(GR)	SOT23
R800	100R	S0603N
R801	10K	S0603N
R802	33K	S0603N
R803	10K	S0603N
R804	10K	S0603N
R805	10K	S0603N
R806	10K	S0603N
R807	33K	S0603N
R808	18K	S0603N
R809	18K	S0603N
R810	1K	S0603N
R811	1K	S0603N
R812	1K	S0603N
R813	1K	S0603N
R814	1K	S0603N
R815	100R	S0603N
R816	10K	S0603N
R817	10K	S0603N
R818	10K	S0603N
R819	1K2	S0603N
R820	1K5	S0603N
R821	1K2	S0603N
R822	1K5	S0603N
R823	1K8	S0603N
R824	3K3	S0603N
R825	1K8	S0603N
R826	3K3	S0603N
R827	270R	S0603N
R828	1K	S0603N
R829	270R	S0603N
R830	1K	S0603N

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Designators	Comment	Footprint
R831	4K7	S0603N
R832	4K7	S0603N
R833	0R	S0603N
R834	1K	S0603N
R835	1K	S0603N
R836	1K	S0603N
R837	4K7	S0603N
R838	4K7	S0603N
R839	4K7	S0603N
S800	AM/FM/PA	SKW
S801	EMG	SKW
S802	DN	SKW
S803	UP	SKW
U800	TM1722	SOL-24
MAIN PCB		
Designators	Comment	Footprint
C1	NC	
C2	102P/J	S0603N
C3	NC	
C4	NC	
C5	106P/16V	1206
C6	101P/J	S0603N
C7	82P/J	S0603N
C8	82P/J	S0603N
C9	82P/J	S0603N
C10	NC	
C11	103P	S0603N
C12	NC	
C13	NC	
C14	103P	S0603N
C15	103P	S0603N
C16	NC	
C17	103P	S0603N
C18	103P	S0603N
C19	103P	S0603N
C20	103P	S0603N
C21	333P	S0603N
C22	NC	
C23	NC	
C24	221P/J	S0603N
C25	NC	
C26	NC	
C27	20P/J	S0603N
C28	20P/J	S0603N
C29	NC	
C30	5P/B	S0603N
C31	221P/J	S0603N
C32	22P/J	S0603N
C33	104P	S0603N
C34	104P	S0603N
C35	NC	
C36	8P/B	S0603N
C37	103P	S0603N
C38	0R	S0603N
C39	333P	S0603N
C40	7P/B	S0603N
C41	7P/B	S0603N
C42	5P/B	S0603N
C43	NC	

BARRY AM/FM

Designators	Comment	Footprint
C44	NC	
C45	101P/J	S0603N
C46	101P/J	S0603N
C47	101P/J	S0603N
C48	101P/J	S0603N
C49	101P/J	S0603N
C50	101P/J	S0603N
C51	101P/J	S0603N
C52	3P/B	S0603N
C53	2P/B	S0603N
C54	101P/J	S0603N
C55	12P/J	S0603N
C56	12P/J	S0603N
C57	105P/25V	S0603N
C58	225P/25V	S0603N
C59	225P/25V	S0603N
C60	104P	S0603N
C61	103P	S0603N
C62	104P	S0603N
C63	221P/J	S0603N
C64	NC	
C65	181P/J	S0603N
C66	104P	S0603N
C67	104P	S0603N
C68	104P	S0603N
C69	104P	S0603N
C70	104P	S0603N
C71	104P	S0603N
C72	104P	S0603N
C73	104P	S0603N
C74	102P/J	S0603N
C75	102P/J	S0603N
C76	102P/J	S0603N
C77	472P	S0603N
C78	103P	S0603N
C79	103P	S0603N
C80	103P	S0603N
C81	103P	S0603N
C82	103P	S0603N
C83	103P	S0603N
C84	224P	S0603N
C85	224P	S0603N
C86	101P/J	S0603N
C87	101P/J	S0603N
C88	104P	S0603N
C89	392P/J	S0603N
C90	104P	S0603N
C91	39P/J	S0603N
C92	82P/J	S0603N
C93	181P/J	S0603N
C94	24P/J	S0603N
C95	121P/J	S0603N
C96	101P/J	S0603N
C97	39P/J	S0603N
C98	103P	S0603N
C99	103P	S0603N
C100	103P	S0603N
C101	103P	S0603N
C102	103P	S0603N

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Designators	Comment	Footprint
C103	103P	S0603N
C104	103P	S0603N
C105	103P	S0603N
C106	103P	S0603N
C107	104P	S0603N
C108	103P	S0603N
C109	103P	S0603N
C110	103P	S0603N
C111	103P	S0603N
C112	103P	S0603N
C113	103P	S0603N
C114	103P	S0603N
C115	103P	S0603N
C116	103P	S0603N
C117	103P	S0603N
C118	5P/B	S0603N
C119	103P	S0603N
C120	181P/HJ	S0805N
C121	271P/HJ	S0805N
C122	105P/25V	S0603N
C123	104P	S0603N
C124	105P/25V	S0603N
C125	105P/25V	S0603N
C126	471P/HJ	S0805N
C127	1P/B	S0603N
C128	102P/J	S0603N
C129	102P/J	S0603N
C130	NC	
C131	NC	
C132	NC	
C133	103P	S0603N
C134	104P	S0603N
C135	103P	S0603N
C136	103P	S0603N
C137	103P	S0603N
C138	103P	S0603N
C139	103P	S0603N
C140	103P	S0603N
C141	NC	
C142	331P/J	S0603N
C143	271P/J	S0603N
C144	106P/25V	1206
C145	106P/25V	1206
C146	121P/J	S0603N
C147	NC	
C148	27P/J	S0603N
C149	224P	S0603N
C150	104P	S0603N
C151	104P	S0603N
C152	104P	S0603N
C153	103P	S0603N
C154	224P	S0603N
C155	104P	S0805N
C156	104P	S0603N
C157	221P/J	S0603N
C158	225P/25V	S0603N
C159	101P/J	S0603N
C160	NC	
C161	105P/25V	S0603N

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Designators	Comment	Footprint
C162	105P/25V	S0603N
C163	472P	S0603N
C164	106P/25V	1206
C165	106P/25V	1206
C166	103P	S0603N
C167	103P	S0805N
C168	103P	S0805N
C169	103P	S0603N
C170	103P	S0603N
C171	103P	S0805N
C172	103P	S0603N
C173	103P	S0603N
C174	103P	S0603N
C175	224P	S0805N
C176	102P/J	S0805N
C177	102P/J	S0805N
C178	391P/J	S0603N
C179	475P/16V	S0805N
C180	475P/16V	S0805N
C181	475P/16V	S0805N
C182	10P/J	S0603N
C183	151P/J	S0603N
C184	151P/J	S0603N
C185	224P	S0603N
C186	103P	S0603N
C187	103P	S0603N
C188	103P	S0603N
C189	20P/J	S0603N
C190	681P/J	S0603N
C191	102P/J	S0603N
C192	104P	S0603N
C193	104P	S0603N
C194	104P	S0603N
C195	681P/J	S0603N
C196	102P/J	S0603N
C197	123P	S0603N
C198	10P/J	S0603N
C199	56P/J	S0603N
C200	56P/J	S0603N
C201	NC	
C202	NC	
C203	151P/J	S0603N
C204	151P/J	S0603N
C205	5P/B	S0603N
C206	47P/J	S0603N
C207	103P	S0603N
C208	102P/J	S0603N
C209	105P/50V	S0805N
C210	472P	S0603N
C211	271P/J	S0603N
C212	56P/J	S0603N
C213	475P/16V	S0805N
C214	183P	S0603N
C215	102P/J	S0603N
C216	475P/16V	S0805N
C217	475P/16V	S0805N
C218	475P/16V	S0805N
C219	104P	S0805N
C220	473P	S0805N

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Designators	Comment	Footprint
C221	473P	S0805N
C222	102P/J	S0805N
C223	475P/16V	S0805N
C224	103P	S0603N
C225	102P/J	S0603N
C226	15P/J	S0603N
C227	10P/J	S0603N
C228	10P/J	S0603N
C229	103P	S0603N
C230	475P/16V	S0805N
C231	103P	S0603N
C232	103P	S0603N
C233	NC	
C234	103P	S0603N
C235	106P/25V	1206
C236	103P	S0603N
C237	103P	S0603N
C238	NC	
C239	103P	S0603N
C240	103P	S0603N
C241	103P	S0603N
C242	475P/16V	S0805N
C243	475P/16V	S0805N
C244	333P	S0603N
C245	NC	
C246	103P	S0603N
C247	NC	
CB1	10.695MHZ	M10.7
CF1	CF455H	K455E5
D1	1SS356	M0805AK(1)
D2	1SS356	M0805AK(1)
D3	1SS400	SD0603
D4	KDS160E	SD0603
D5	KDS160E	SD0603
D6	KDS160E	SD0603
D7	KDS160E	SD0603
D8	KDS160E	SD0603
D9	KDS160E	SD0603
D10	NC	
D11	BAR43S	SOT23-123(1)
D12	BAR43S	SOT23-123(1)
D13	1SS400	SD0603
D14	1N4148	M0805AK(1)
D15	1N4148	M0805AK(1)
D17	1SS400	SD0603
D18	1SS400	SD0603
D19	1SS400	SD0603
D20	33P/J	SD0603
D21	JDV2S14E(FH)	SD0603
D22	JDV2S14E(FH)	SD0603
D23	B340A	SOD-106
D24	1SS400	SD0603
D25	B540C	DO-214AB
D26	9.1V	SD0603
D28	1SS400	SD0603
D29	1SS400	SD0603
D31	B340A	SOD-106
E1	ANT	ANT
E2	4.7uF/50V	SRB0.08(4MM)

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Designators	Comment	Footprint
E5	470uF/25V	SRB0.200(10MM)
E6	470uF/25V	SRB0.200(10MM)
E7	220uF/35V	SRB0.160(8MM)
E8	0.22uF/16V	RBM1
E9	2.2uF/16V	RBM1
E10	330uF/35V	SRB0.200(10MM)
E11	330uF/35V	SRB0.200(10MM)
E12	100uF/25V	SRB0.125(6MM)
E13	100uF/25V	SRB0.125(6MM)
E15	100uF/25V	SRB0.125(6MM)
IC1	TDA2003V	TO220V-V-V1.0
J1	SP	SIP2T2
J2	0.5S-1-20PB	SIPM20
J4	DC-1	DC-1.0/2.5MM-V1.0
J6	DC SW	SIP2T2
J7	CON3	CON2.0-3
JK1	EX SP	PJ-302
JK2	PA SP	PJ-302
K1	HLS6-4100H-DC12V	HLS6-4100H
L1	1uH-XL	S0805N
L2	NC	
L3	NC	
L4	330nH-XL	S0805N
L5	330nH-XL	S0805N
L6	330nH-XL	S0805N
L7	330nH-XL	2520-18
L8	330nH	S0603N
L9	330nH-XL	S0805N
L10	1uH(TDK)	M2520(1)
L11	1uH(TDK)	M2520(1)
L12	1uH(TDK)	M2520(1)
L13	22uH	S0603N
L14	10uH	S0603N
L15	6.8uH	S0603N
L16	NLV32T-471J	S3225N
L17	NLV32T-101J	S3225N
L18	10.5TR	0.5*4.2*11.5TR
L19	10.5TR	0.5*4.2*11.5TR
L20	10.5TR	0.5*4.2*11.5TR
L21	10.5TR	0.5*4.2*11.5TR
L22	NC	
L23	6.5TL	H0.5*4.2*8.5TL
L24	9.5TR	0.5*4.2*11.5TR
L25	6.8uH	S0603N
L26	681T	S0603N
L27	330nH-XL	S0805N
L28	4.7uH	S0603N
L29	4.7uH	S0603N
L30	JMP	JMP
L31	DR2W8X10-4R7M(5A)	RB.2/.4
L32	LWS33-0007(47uH/3A)	L7*13
L33	56nH-XL	2520-18
Q1	NC	
Q2	MMBTSC2714Y	SOT23
Q3	MMBTSC2714Y	SOT23
Q4	MMBTSC2714Y	SOT23
Q5	MMBTSC2714Y	SOT23
Q6	MMBTSC2714Y	SOT23
Q7	NC	

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Designators	Comment	Footprint
Q8	NC	
Q9	NC	
Q10	MMBTSC2714Y	SOT23
Q11	NC	
Q12	LMBT3906LT1G	SOT23
Q13	LMBT3906LT1G	SOT23
Q14	FQP13N10	TO220-V-BCE
Q15	NC	
Q16	NC	
Q17	KTC3875S(GR)	SOT23
Q18	2SC2314(F)	TO126-V-ECB-V1.0
Q19	ST2SC3202Y	TO92-ECB
Q20	KTC3875S(GR)	SOT23
Q21	DTC114YKA	SOT23
Q22	2SC2714(QY)	SOT23
Q23	2SC5065(MAY)	SC70
Q24	2SD1048(X6)	SOT23
Q25	RT1N141U	EMT3
Q26	RT1N141U	EMT3
Q27	RT1N141U	EMT3
Q28	RT1N141U	EMT3
Q29	RT1N141U	EMT3
Q30	RT1N141U	EMT3
Q31	2SC4082	SC70
Q32	2SC2022	TO220F-V-BCE-V1.0
Q33	2SB1132	SOT89
Q34	L2SD1781KRLT1G	SOT23
Q35	BC807-25	SOT23
Q36	BC807-25	SOT23
Q37	2SC2712(GR)	SOT23
Q38	RT1N141U	EMT3
Q39	RT1N141U	EMT3
Q40	RT1N141U	EMT3
Q41	RT1N141U	EMT3
Q42	2SC2712(GR)	SOT23
Q43	KTC3875S(GR)	SOT23
Q44	RT1N141U	EMT3
Q45	NC	
Q46	NC	
R1	NC	
R2	2K4	S0603N
R3	NC	
R4	2K2	S0603N
R5	2K2	S0603N
R6	10K	S0603N
R7	560R	S0603N
R8	560R	S0805N
R9	330R	S0603N
R10	NC	
R11	10K	S0603N
R12	NC	
R13	NC	
R14	NC	
R15	220R	S0603N
R16	470R	S0603N
R17	220R	S0603N
R18	NC	
R19	NC	
R20	NC	

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Designators	Comment	Footprint
R21	470R	S0603N
R22	470R	S0603N
R23	470R	S0603N
R24	470R	S0603N
R25	10K	S0603N
R26	NC	
R27	NC	
R28	NC	
R29	10K	S0603N
R30	10K	S0603N
R31	10K	S0603N
R32	10K	S0603N
R33	NC	
R34	NC	
R35	10K	S0603N
R36	4K7	S0603N
R37	5K1	S0603N
R38	NC	
R39	NC	
R40	NC	
R41	47K	S0603N
R42	47K	S0603N
R43	470R	S0603N
R44	330R	S0603N
R45	NC	
R46	22K	S0603N
R47	330K	S0603N
R48	100K	S0603N
R49	100K	S0603N
R50	100K	S0603N
R51	100K	S0603N
R52	10R	S0603N
R53	0R	S0603N
R54	0R	S0603N
R55	0R	S0603N
R56	47K	S0603N
R57	1M	S0603N
R58	1K	S0603N
R59	1K	S0603N
R60	56K	S0603N
R61	NC	
R62	100K	S0603N
R63	100K	S0603N
R64	150K	S0603N
R65	1M	S0603N
R66	NC	
R67	1K5	S0603N
R68	220K	S0603N
R69	3K3	S0603N
R70	3K3	S0603N
R71	33K	S0603N
R72	33K	S0805N
R73	680R	S0603N
R74	680R	S0603N
R75	NC	
R76	33K	S0603N
R77	1K	S0603N
R78	2K2	S0603N
R79	15K	S0603N

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Designators	Comment	Footprint
R80	100R	S0603N
R81	68K	S0603N
R82	68K	S0603N
R83	330K	S0603N
R84	330K	S0603N
R85	470R	S0603N
R86	47R	S0603N
R87	68K	S0603N
R88	39K	S0603N
R89	120K	S0603N
R90	10K	1206
R92	10K	S0603N
R93	390R	S0603N
R94	390R	S0603N
R95	220R	S0603N
R96	220R	S0603N
R97	220R	S0603N
R98	39K	S0603N
R99	10K	S0603N
R100	47K	S0603N
R101	47K	S0603N
R102	100R	S0603N
R103	100R	1206
R104	8K2	S0603N
R105	22R	S0603N
R106	1K	S0603N
R107	33R	S0603N
R108	56R	S0805N
R109	0R	S0603N
R110	NC	
R111	56R	S0603N
R112	56R	S0603N
R113	56R	S0603N
R114	1K8	S0603N
R115	3K3	S0603N
R116	10K	S0603N
R117	27K	S0603N
R118	10K	S0603N
R119	10K	S0603N
R120	3K3	S0603N
R121	470K	S0603N
R122	330R	S0603N
R123	4K7	S0603N
R124	4K7	S0603N
R125	10K	S0603N
R126	1K	S0603N
R127	1K	S0603N
R128	1K	S0603N
R129	1K	S0603N
R130	100R	2010
R131	1K	S0603N
R132	1K	S0603N
R133	1K	S0603N
R134	100R	S0603N
R135	1K	S0603N
R136	1K	S0603N
R137	1K	S0603N
R138	2K2	S0603N
R139	10K	S0603N

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Designators	Comment	Footprint
R140	10K	S0603N
R141	5K6	S0603N
R142	10K	S0603N
R143	10K	S0603N
R144	10K	S0603N
R145	10K	S0603N
R146	10K	S0603N
R147	5K6	S0603N
R148	10K	S0603N
R149	10K	S0603N
R150	10K	S0805N
R151	10K	S0603N
R152	47K	S0603N
R153	4K7	S0603N
R154	10K	S0603N
R155	10K	S0603N
R156	100K	S0603N
R157	47K	S0603N
R158	100K	S0603N
R159	47K	S0603N
R160	47K	S0603N
R161	47K	S0603N
R162	15R	S0603N
R163	2R2	S0805N
R164	51R	S0805N
R165	82R	S0603N
R166	1K2	S0603N
R167	100K	S0603N
R168	100K	S0603N
R169	100K	S0603N
R170	6K8	S0603N
R171	100K	S0603N
R172	220K	S0603N
R173	220K	S0603N
R174	220K	S0603N
R175	220K	S0603N
R176	3K3	S0603N
R177	3K3	S0603N
R178	22K	S0603N
R179	4K7	S0603N
R180	5K6	S0603N
R181	4K7	S0603N
R182	5K6	S0603N
R183	5K6	S0603N
R184	220R	S0603N
R185	470R	S0603N
R186	470R	S0603N
R187	3K3	S0603N
R188	3K3	S0603N
R189	22K(1%)	S0603N
R190	1K2(1%)	S0603N
R191	1K8	S0603N
R192	2K2	S0603N
R193	2K2	S0603N
R194	1M	S0603N
R195	1M	S0603N
R196	NC	
R197	22K	S0603N
R198	22K	S0603N

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Designators	Comment	Footprint
R199	1M5	S0603N
R200	2K	S0603N
R201	2K7	S0603N
R202	390R	S0603N
R203	1K2	S0603N
R204	15R	S0805N
R205	47K	S0603N
R206	NC	
R207	330R	S0805N
R208	2K2	S0603N
R209	24K(1%)	S0603N
R211	NC	
U1	NJM2904V	SSOP8
U2	NJM2904V	SSOP8
U3	TA31136FN	SSOP16
U5	BL1551	SOT363
U6	XN31202	SSOP16
U7	M62429	SOP8
U8	XL4015	TO-263
U9	KIA78L05	SOT89N(123)
U10	L7808CV	TO220-V-123
U11	MA803AD32	LQFP32
W1	5K(B)	VERM-3*3
W2	10K(B)	VERM-3*3
W3	10K(B)	VERM-3*3
W4	5K(B)	VERM-3*3
W5	10K(B)	VERM-3*3
Y1	JTBM455C24	K450V2
Y2	10.24MHZ	XTAL