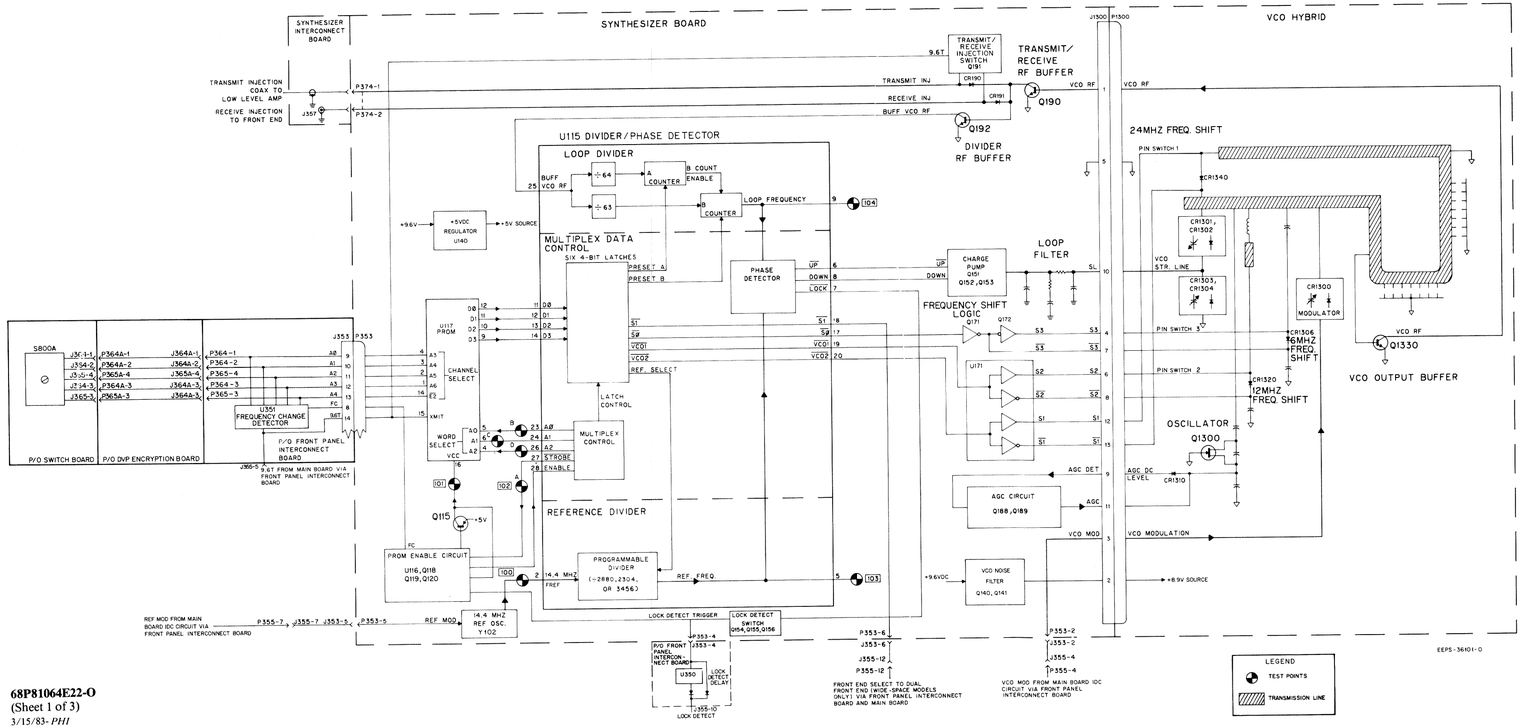
STANDARD LOCK FREQUENCY SYNTHESIZER

FUNCTIONAL INTERCONNECT DIAGRAM AND PARTS LIST

SYNTHESIZER FUNCTIONAL INTERCONNECT DIAGRAM



68P81064E22-O
(Sheet 1 of 3)
3/15/83- *PHI*

parts list

TRN5243A Synthesizer — PL-8414-O

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		capacitor, fixed: uF ± 20%; 25 V; unless otherwise stated:
C100	21-11026F42	100 pF ± 5%; 50 V
C101		NOT USED
C102		NOT USED
C103, 104		NOT USED
C106, 107	21-11025A01	.01
C108	21-82610C87	47 pF ± 5%; 200 V
C110	21-11025A01	.01
C111	23-84665F20	1
C112	21-11025A01	.01
C113	21-11025A01	.01
C114	21-11026F42	100 pF ± 5%; 50 V
C115	21-11025A01	.01; 50 V
C116	21-868829	220 pF ± 5%; 50 V
C117	21-11025A01	.01
C118	21-868829	220 pF ± 5%; 50 V
C119	21-11025A01	.01
C121	21-11026F42	100 pF ± 5%; 50 V
C123	23-84538G13	22; 25 V
C124, 126	21-11025A01	.01
C127	21-868829	220 pF ± 5%; 50 V
C128	21-84393M03	1500 pF
C140	21-11025A01	.01
C141	21-11026F42	100 pF ± 5%; 50 V
C142	23-11019A27	22; 16 V
C143	23-84538G13	22; 25 V
C144	21-11025A01	.01
C145	21-11026F42	100 pF ± 5%; 50 V
C146	21-11025A01	.01
C147	23-84538G03	.01 ± 10%; 16 V
C150	23-84538G22	6.8 ± 10%; 16 V
C151	9-84637L21	0.15 ± 10%; 100 V
C152	8-11023A17	.022 ± 5%; 50 V
C153	8-11017B01	.001 ± 10%; 50 V
C154	21-11025A01	.01
C155	23-11019A27	22; 16 V
C156	8-11023A17	.022 ± 5%; 50 V
C157, 158	21-11026F42	100 pF ± 5%; 50 V
C171-184	21-84874K01	470 pF; 250 V
C187	23-84665F20	1; 50 V
C188	21-11025A01	.01
C190, 191	21-11026F42	100 pF ± 5%; 50 V
C192	21-11025A01	.01
C193	21-84511B01	100 pF ± 10%; 50 V
C194	21-11025A01	.01
C195, 196, 197	21-11026F42	100 pF ± 5%; 50 V
C199	21-11026F42	100 pF ± 5%; 50 V
C200	21-11022G17	4.7 pF ± .25 pF; 50 V
		diode: (see note)
CR100, 101		NOT USED
CR140, 141, 142, 143, 151, 152	48-84399M01	silicon
CR190, 191	48-83510F03	silicon
		connector, receptacle:
J1300	9-84321M01	female: 13-contact
		coil, rf:
L100	24-82723H27	choke: 1.2 uH
L101	24-82723H39	choke: 2.6 uH
L102	24-82723H27	choke: 1.2 uH
L116	24-82549D41	choke: 100 uH
L117-127	24-82723H27	choke: 1.2 uH
L150	24-82549D41	choke: 100 uH
L190, 191	24-82723H39	choke: 2.6 uH
L192-193	24-82723H27	choke: 1.2 uH
L194	24-82723H13	85 nH, air
		connector, plug: assembly, feed-thru plate includes: C171 thru 185
P353	1-80731D23	TERMINAL, post; 14 used)
	29-84322M01	BOARD, feed-thru
	84-83566M01	male: 2-contact
P374	28-82040K03	male: 4-contact adapter
P379	28-83186M02	
		transistor: (see note)
Q100		NOT USED
Q101		NOT USED
Q102		NOT USED
Q115	48-869681	PNP; type M9681
Q118-120	48-02081B10	NPN; type M1B10
Q140	48-869681	PNP; type M9681
Q14, 151	48-02081B10	NPN; type M1B10
Q152	48-02081B11	PNP; type M1B11
Q153, 154, 155	48-02081B10	NPN; type M1B10
Q156	48-02081B11	PNP; type M1B11
Q171	48-02081B10	NPN; type M1B10
Q172	48-02081B11	PNP; type M1B11
Q188, 189	48-02081B10	NPN; type M1B10
Q190	48-869932	NPN; type M9932
Q191	48-02081B11	PNP; type M1B11
Q192	48-869932	NPN; type M9932

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		resistor, fixed: ± 5%; 1/4 W: unless otherwise stated:
R100		NOT USED
R101		NOT USED
R102		NOT USED
R103		NOT USED
R107		NOT USED
R109		NOT USED
R115-117	6-11020A73	10k
R118-122	6-11020A79	18k
R123	6-11020A57	2.2k
R124	6-11020A49	1k
R125	6-11020A45	680
R126	6-11020A41	470
R127	6-11020A49	1k
R128	6-11020A65	4.7k
R129	6-11020A31	180
R130	6-11020A81	22k
R133	6-11020A85	33k
R134	6-11020A89	47k
R135, 136	6-11020A73	10k
R138	6-11020A73	10k
R140	6-11020A45	680
R141	6-11020A35	270
R142	6-11020A73	10k
R143	6-11020A71	8.2k
R144	6-11020A57	2.2k
R150	6-11020A53	1.5k
R151	6-11020A61	3.3k
R152, 153	6-11020A25	100
R154	6-11020A53	1.5k
R155	6-11020A71	8.2k
R156	6-11020A45	680
R157	6-11020A77	15k
R158	6-11020A85	33k
R159	6-11020A23	82
R160	6-11020A87	39k
R161	6-11020A59	2.7k
R162	6-11020A13	3.9k
R163	6-11020A40	680
R164	6-11020A59	2.7k
R165	6-11020A53	1.5k
R166	6-11020A47	820
R167	6-11020A39	390
R168	6-11020A87	3.9k
R172	6-11020A73	10k
R173, 174	6-11020A89	47k
R175	6-11020A49	1k
R176, 178	6-11020A65	4.7k
R179	6-11020A49	1k
R180, 181	6-11020A89	47k
R184	6-11020A61	3.3k
R185	6-11020A29	150
R186	6-11020A73	10k
R187	6-11020A11	27
R188	6-11020A61	3.3k
R191	6-11020A39	390
R192	6-11020A19	56
R193	6-11020A49	1k
R194	6-11020A65	4.7k
R196, 197	6-11020A73	10k
R189	6-11020A45	680
R199, 200	6-11020A39	390
		integrated circuit: (see note)
U115	TRN4569A	Divider
U116	51-82884C03	type M8403 (Quad NOR)
	or 51-82884C04	type M8404 (Quad NOR)
U117	TRN4670A	PROM, up to 32 channel
U140	41-84621K96	type 7805 (regulator)
U171	51-83627M53	type M2753 (line driver)
		crystal: (see note)
Y102	51-80291B02	channel element KXN1096
		mechanical parts
	3-84208M03	SCREW, machine (M2.2 x 0.45 x 6)
	7-84109M01	BRACKET, synthesizer mounting
	9-80269B01	SOCKET, PROM
	9-80269B03	SOCKET, divider
	14-05160A01	INSULATOR, crystal
	42-10219A17	RETAINER; 3 used
	75-84112M01	PAD, channel element (2 used)
	11-00008853	TWINE, lagging
	64-84111M01	PLATE, feed-thru
	3-84208M01	SCREW, machine (M3 x 0.5 x 8") 3 used

note: For optimum performance, diodes, transistors, and integrated circuits must be ordered by Motorola part numbers.

TRN4670A PROM Kit, 32-Channel — PL-7787-O

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
U117	51-80070C03	32-channel PROM (standard lock)
U116	51-80070C03	32-channel PROM (fast-lock)

note: This is part number of non-programmed PROM module. Order programmed PROM modules from factory on *MCX100* Supplementary Order Form.

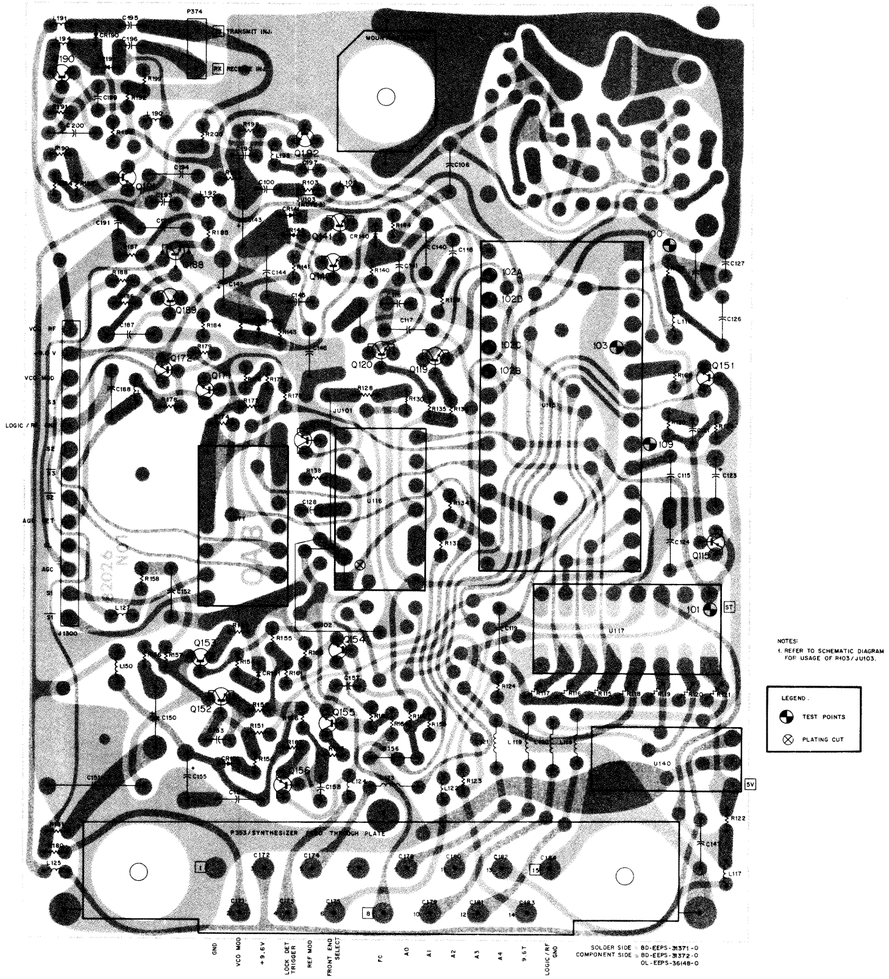
TRN4601A Synthesizer Interconnect Board — PL-7193-O

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		connector, receptacle:
J374	29-10134A29	female; 2 used

STANDARD LOCK FREQUENCY SYNTHESIZER

CIRCUIT BOARD DETAILS

TRN5243A SYNTHESIZER BOARD

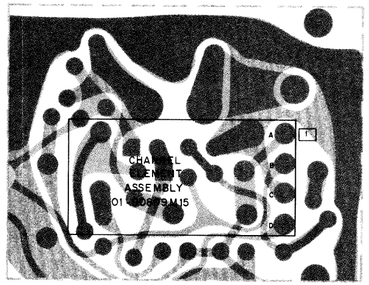


NOTES:
1. REFER TO SCHEMATIC DIAGRAM FOR USAGE OF R103/JU103.

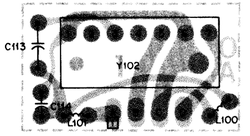
LEGEND
- TEST POINTS
- PLATING CUT

SHOWN FROM SOLDER SIDE

SYNTHESIZER BOARD DETAIL



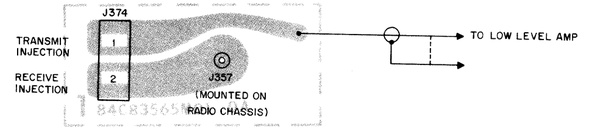
CHANNEL ELEMENT BOARD



SHOWN FROM COMPONENT SIDE

SOLDER SIDE - AEPS-30208-O
COMPONENT SIDE - AEPS-30207-O
OL - AEPS-30206-A

SYNTHESIZER INTERCONNECT BOARD

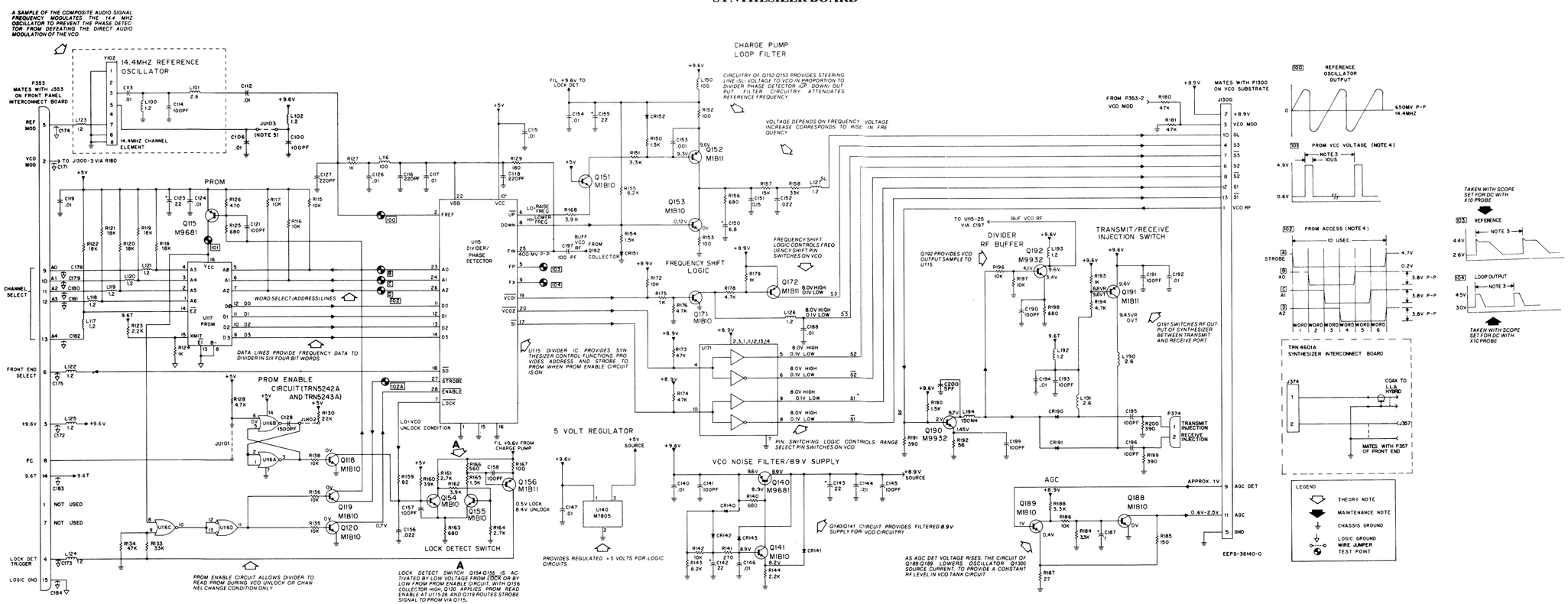


OL - BEPS-30209-O
SOLDER SIDE - BEPS-30211-O

STANDARD LOCK FREQUENCY SYNTHESIZER

SYNTHESIZER BOARD
SCHEMATIC DIAGRAM

SYNTHESIZER BOARD



NOTES:

1. UNLESS OTHERWISE NOTED, RESISTOR VALUES ARE IN OHMS, CAPACITORS VALUES ARE MICROFARADS, INDUCATOR VALUES ARE IN MICROHENRIES.
2. VOLTAGE DESIGNATION:
   T = TRANSMIT
   R = RECEIVE
3. PERIOD FOR WAVEFORMS AT TEST POINTS 101, 103 and 104 ARE AS FOLLOWS:

   160 USEC AT 6.25 KHZ CHANNEL SPACING
   200 USECT AT 5 KHZ CHANNEL SPACING
   240 USEC AT 4.166 KHZ CHANNEL SPACING
4. WAVEFORM AT 101 AND 102 PRESENT DURING OUT-OF-LOCK OR CHANNEL CHANGE CONDITION.
5. JU103 ALWAYS IN.

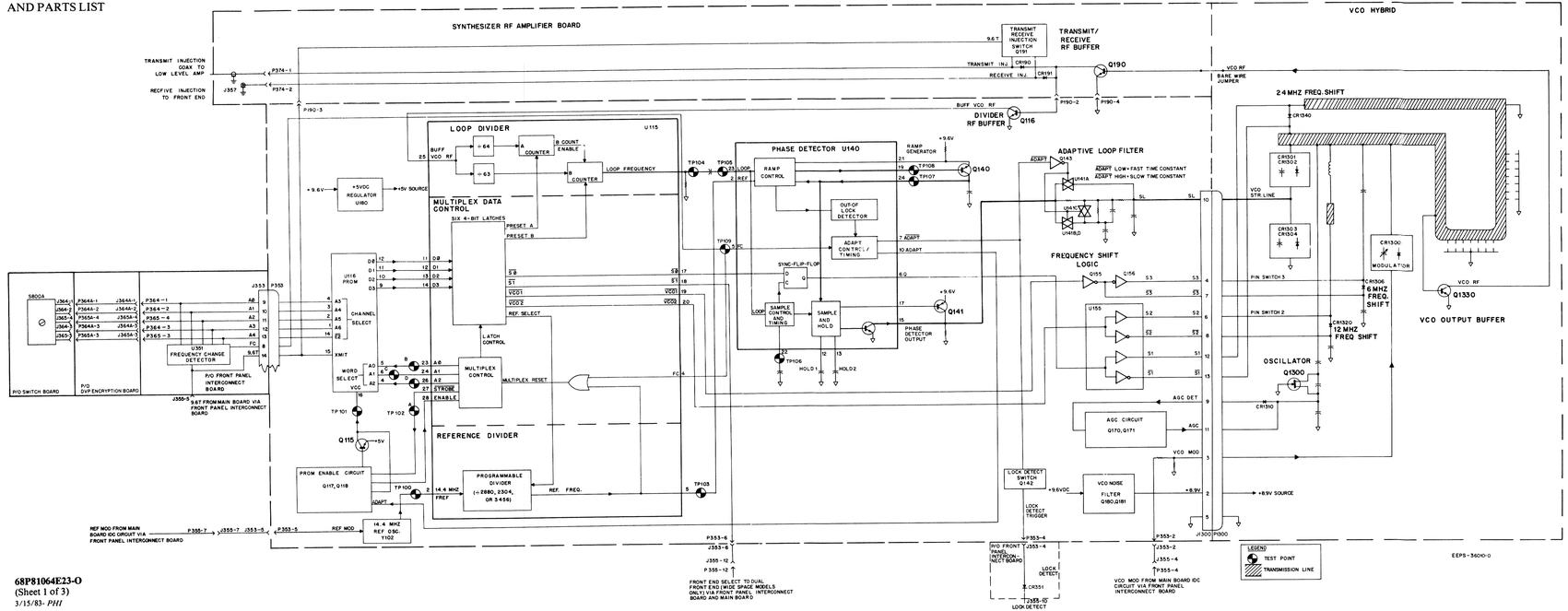
FUNCTION

Generates mixer injection signal in receive mode, and low level modulated rf in transmit mode.

FAST—LOK FREQUENCY SYNTHESIZER

FUNCTIONAL INTERCONNECT DIAGRAM AND PARTS LIST

SYNTHESIZER FUNCTIONAL INTERCONNECT DIAGRAM



parts list

TRN5129A Synthesizer *Fast-Lok* Board — PL-7858-A

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		capacitor, fixed: ± 10%, 50 V: unless otherwise stated
C101	21-11025A01	.01 uF ± 20%; 25 V
C103	21-11026F42	100 pF ± 5%
C104	21-11032A21	.01 uF (chip)
C115	21-11032A21	.01 uF (chip)
C116	21-11031A39	100 pF ± 5% (chip)
C118	21-11032A21	.01 uF (chip)
C119, 120, 121	21-11031A51	330 pF ± 5% (chip)
C122, 123, 124	21-11032A21	.01 uF (chip)
C125	21-11031A39	100 pF ± 5% (chip)
C126, 127, 128	21-11031A51	330 pF ± 5% (chip)
C140	21-11032A21	.01 uF (chip)
C141	8-11017B07	.0066 uF
C142	8-80027B02	.0082 uF ± 5%; 100 V
C143	8-11017A01	.0015 uF ± 5%
C144	8-80027B02	.0047 uF ± 5%; 100 V
C145	23-84539G03	0.1 uF ± 20%; 35 V
C146	8-00012M01	1 uF; 100 V
C147	8-00013M01	.033 uF; 100 V
C148	23-11013C56	22 uF ± 20%; 15 V
C149	21-11032A21	.01 uF (chip)
C150	23-11019A27	22 uF ± 20%; 25 V
C151	21-11002BM33	220 pF (chip)
C152, 153	21-11031A51	330 ± 5% (chip)
C161 thru 174	21-84874K01	470 pF; feed-thru
C176	23-11013G01	0.1 uF (chip)
C180	21-11032A21	.01 uF (chip)
C181	21-11031A51	330 pF ± 5% (chip)
C182	23-11019A27	22 uF ± 20%; 25 V
C183	21-11032A21	.01 uF (chip)
C184	23-11013C56	22 uF ± 20%; 25 V
C185	21-11032A25	.022 uF (chip)
C186	21-11031A51	330 pF ± 5% (chip)
C187, 188	23-11013C56	22 uF ± 20%; 15 V
C189	21-11032A21	.01 uF (chip)
C190	23-11019A27	22 uF ± 20%; 15 V
		diode: (see note)
CR115, 116	48-84399M01	silicon
CR140	48-84399M01	silicon
CR180 thru 183	48-83654H01	silicon
		connector, receptacle: female; 13-contact
J1300	9-84321M01	
		coil, rf:
L100	24-82723H27	choke; 1.2 uH
L101	24-82723H39	choke; 2.6 uH
L102	NOT USED	
L103	24-82723H27	choke; 1.2 uH
L116 thru 124	24-82723H27	choke; 1.2 uH
L140	24-82549D41	choke; 100 uH
L141, 142, 143	24-82723H27	choke; 1.2 uH
L180	24-82723H27	choke; 1.2 uH
L181	24-82549D41	choke; 100 uH
		connector, plug:
P190	28-82040K04	PLUG, 4-contact
P353	29-84322M01	TERMINAL, feed-thru; 15 used
		transistor: (see note)
Q115	48-869681	PNP; type M9681
Q116	48-869932	NPN; type M9932
Q117, 118	48-869642	NPN; type M9642
Q140	48-869548	PNP; type M9548
Q141, 142, 143	48-869643	PNP; type M9643
Q155	48-869642	NPN; type M9642
Q156	48-869543	PNP; type M9643
Q170, 171	48-869642	NPN; type M9642
Q180	48-869681	PNP; type M9681
Q181	48-869642	NPN; type M9642
		resistor, fixed: ± 5%; 1/8 W (chip type): unless otherwise stated
R115, 116, 117	6-11024A65	4.7k
R118 thru 122	6-11024A73	10k
R123	6-11024A57	2.2k
R124, 125	6-11024A49	1k
R126	6-11024A31	180
R127	6-11024A65	4.7k
R128	6-11024A69	6.8k
R129	6-11024A41	470
R130	6-11024A47	820
R131	6-11024A45	680
R132	6-11024A57	2.2k
R133	6-11024A65	4.7k
R134	6-11024A73	10k
R135	6-11024A65	4.7k
R136, 137, 138	6-11024A73	10k
R139	6-11024A57	2.2k
R140	6-11024A29	150
R141	6-11024A35	270
R142	6-11024A36	300
R143	6-11024A11	27
R144	6-11024A65	4.7k
R145	6-11024A73	10k
R146	6-11024A81	22k
R147	6-11020B10	330k (carbon film)
R148	6-11024A73	10k
R149	6-11020A57	2.2k (carbon film)
R150	6-11024A73	10k
R151	6-11024A77	15k
R152	6-11024A65	4.7k
R153	6-11024A81	22k
R154	6-11024A65	4.7k
R156	6-11024A73	10k
R157	6-11024A49	1k
R158, 159	6-11024A65	4.7k
R160	6-11024A49	1k
R161, 162	6-11024A81	22k
R163	6-11024A73	10k
R170	6-11024A61	3.3k
R171	6-11024A11	27
R172	6-11024A29	150
R173	6-11024A73	10k
R174	6-11024A61	3.3k
R175, 176	6-11024A81	22k
R177	6-11024A73	10k
R178	6-11024A65	4.7k
R179	6-11024A89	47k
R180	6-11024A71	8.2k
R181	6-11024A73	10k
R182	6-11024A35	270
R183	6-11024A57	2.2k
R184	6-11024A45	680
		thermistor: 1k @ 25°C
RT140	6-83600K02	
		integrated circuit: (see note)
U115	51-84768F63	divider
U116	TRN4668A or TRN4670A	PROM; 1-16 channel PROM; up to 32 channel
U140	51-83977M23	phase detector
U141	51-80073C02	quad analog switch
U155	51-83627M53	line driver
U180	51-83629M17	5 V regulator
		crystal: (see note)
Y102	51-80291B02	oscillator 14.4 MHz
		mechanical parts
	7-83091N01	BRACKET, synthesizer rear
	64-84111M01	PLATE, feed-thru
	75-84112M01	PAD, channel element; 2 used
	3-84208M01	SCREW, feed-thru plate; 4 used
	3-84208M03	SCREW, M2.5
	9-80269B01	IC SOCKET; PROM
	9-80271K09	IC SOCKET; 14-pin (2 used);divider

TRN5218A Synthesizer RF Amplifier/Wall — PL-7857-O

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		capacitor, fixed: ± 10%; 75 V: unless otherwise stated
C190	21-00026M37	220 pF
C191	21-84511B75	5.6 pF ± 0.25 pF; 200 V
C192, 193	21-00026M24	100 pF
C194	21-00021M01	.01 uF; 50 V
C195	21-00026M37	220 pF
C196	21-00021M01	.01 uF; 50 V
C197	21-00026M37	220 pF
		diode: (see note)
CR190, 191	48-83510F03	silicon
		connector:
J190	29-10134A29	female; single contact; 4 used
		coil, rf:
L190	24-82723H22	150 nH
L191, 192	24-82723H19	choke; 2.6 uH
L193, 194	24-82723H27	choke; 1.2 uH
		transistor: (see note)
Q190	48-869932	NPN; type M9932
Q191	48-02081B11	PNP; type M1B11
		resistor, fixed: ± 5%; 1/8 W: unless otherwise stated
R190	6-185A53	1.5k
R191	6-185A39	390
R192	6-185A19	56
R193		NOT USED
R194	6-185A49	1k
R195	6-185A65	4.7k
R196, 197	6-185A39	390
R198	6-185A83	27k
		mechanical parts
	7-83090N01	BRACKET, mounting
	14-83099N01	INSULATOR, rf buffer; side
	14-83099N02	INSULATOR, rf buffer; top
	26-83092N01	SHIELD, can
	26-82845M01	SHIELD, fast lock

note: For optimum performance, diodes, transistors, and integrated circuits must be ordered by Motorola part numbers.

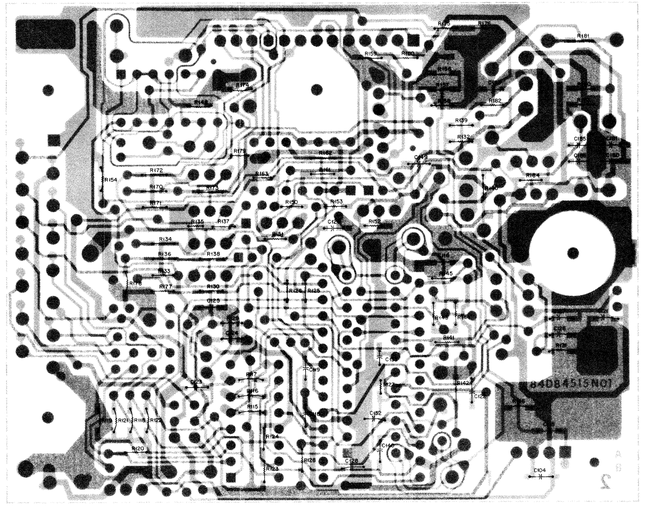
TRN4670A PROM Kit, 32-Channel — PL-7787-O

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
U117	51-80070C03	32-channel PROM (standard lock)
U116	51-80070C03	32-channel PROM (fast-lock)

note: This is part number of non-programmed PROM module. Order programmed PROM modules from factory on *MCX100* Supplementary Order Form.

FAST—LOK
FREQUENCY SYNTHESIZER
CIRCUIT BOARD DETAILS

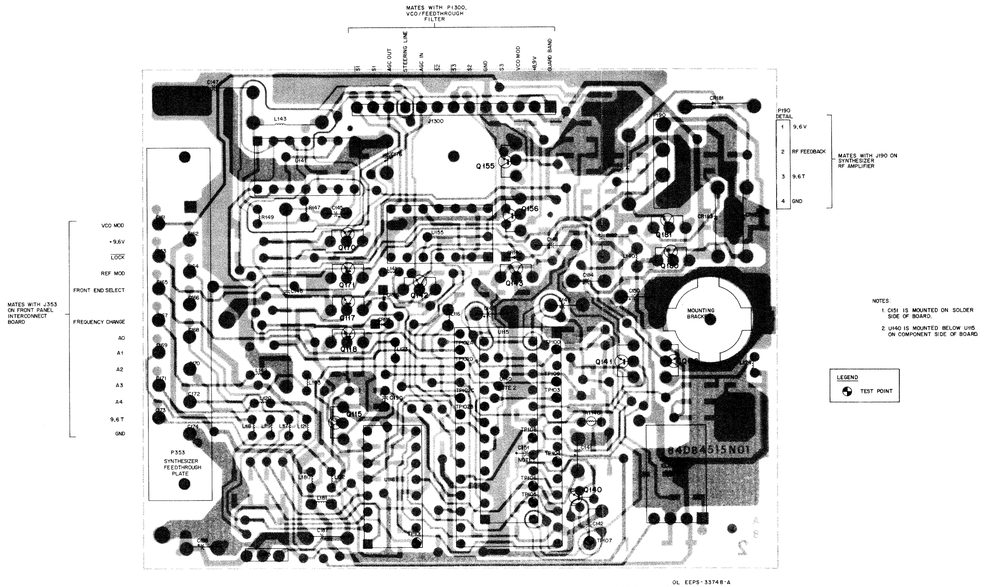
SYNTHESIZER BOARD — SOLDER SIDE CHIP COMPONENTS



SHOWN FROM SOLDER SIDE

OL EEPS-33751-A
SOLDER SIDE ® BD EEPS-33749-A
COMPONENT SIDE ® BD EEPS-33750-A

SYNTHESIZER BOARD — COMPONENT SIDE COMPONENTS

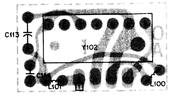


NOTES:
1. CR51 IS MOUNTED ON SOLDER SIDE OF BOARD.
2. LH90 IS MOUNTED BELOW U95 ON COMPONENT SIDE OF BOARD.

SHOWN FROM SOLDER SIDE

OL EEPS-33748-A
SOLDER SIDE ® BD EEPS-33749-A
COMPONENT SIDE ® BD EEPS-33750-A

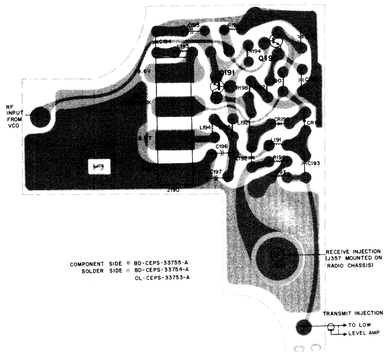
CHANNEL ELEMENT BOARD



SHOWN FROM COMPONENT SIDE

SOLDER SIDE ® AEPS-30208-O
COMPONENT SIDE ® AEPS-30207-O
OL AEPS-30206-A

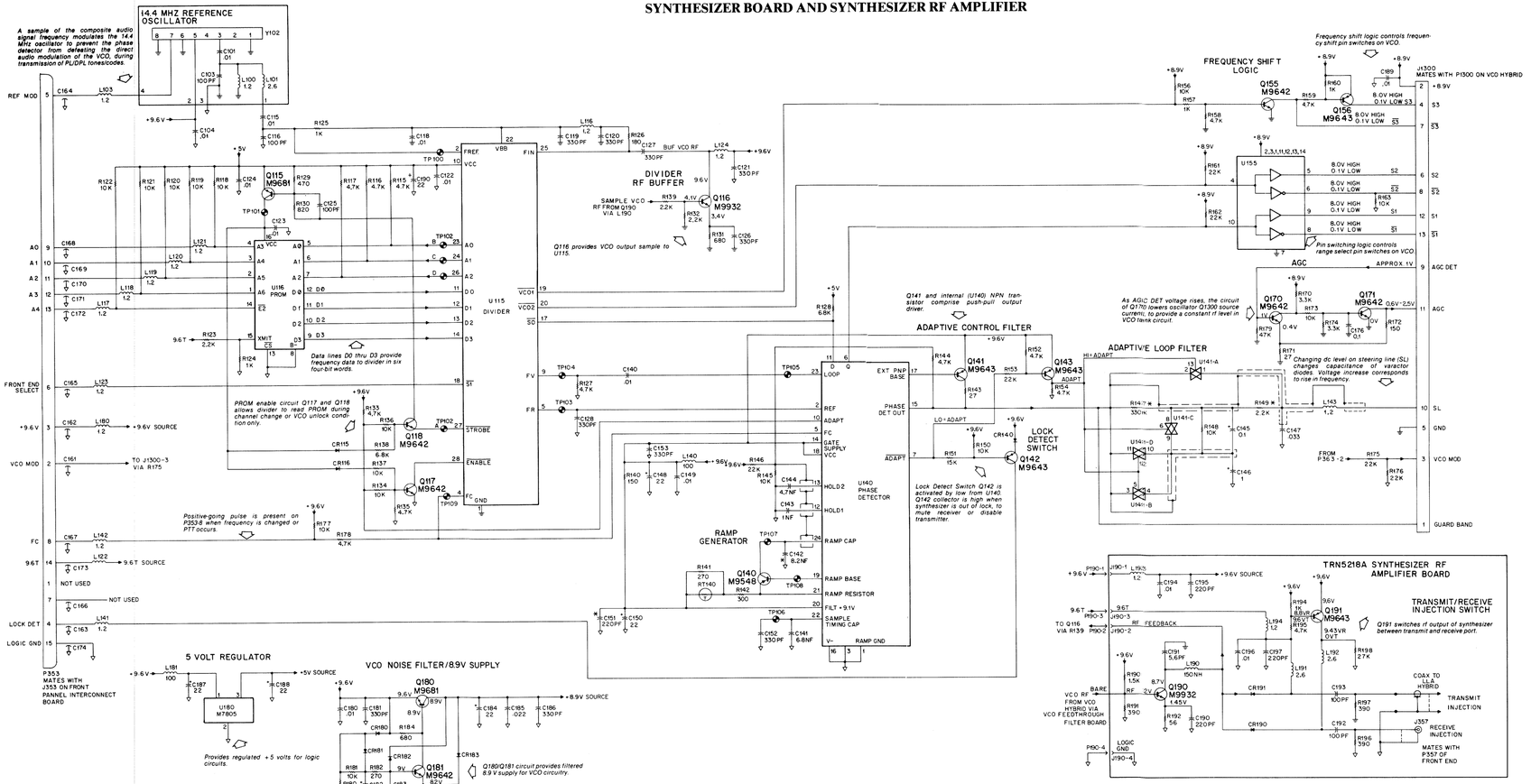
SYNTHESIZER RF AMPLIFIER BOARD

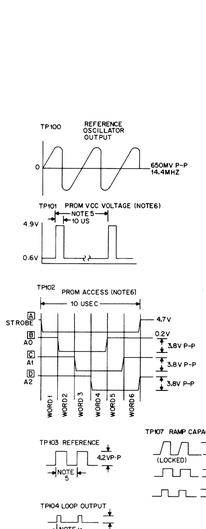


COMPONENT SIDE ® BD-CEPS-33755-A
SOLDER SIDE ® BD-CEPS-33754-A
OL CEPS-33753-A

SHOWN FROM SOLDER SIDE

SYNTHESIZER BOARD AND SYNTHESIZER RF AMPLIFIER





EEPS-33758-A

NOTES:

1. Unless otherwise noted, resistor values are in ohms, capacitor values are in microfarads, inductor values are in microhenries.
2. All resistors, except those marked with an asterisk (*) are chip components mounted to solder side of circuit board.
3. All capacitors are chip components mounted to solder side of circuit board, except electrolytic (polarized) capacitors, and those marked with an asterisk (*).
4. Voltage designations:
   T = Transmit
   R = Receive
5. Period for waveforms at test points 101, 103, 104, 105, and 106 are as follows:

   160 usec at 6.25 kHz channel spacing
   200 usec at 5 kHz channel spacing
   240 usec at 4.166 kHz channel spacing
6. Waveform at TP101 and 102 present during out-of-lock or channel change condition.
7. Dashed lines denote "guard band" shields, which consist of plating around portions of circuitry.

FAST—LOK
FREQUENCY SYNTHESIZER

SYNTHESIZER BOARD
SCHEMATIC DIAGRAM

FUNCTION

Controls voltage controlled oscillator (VCO) to generate mixer injection signal in receive mode, and low level modulated rf in transmit mode.

Fast-Lok Synthesizer Option
Model Complement Chart

TRN5129A	*Fast-Lok Synthesizer Board*
TRN5218A	*Synthesizer RF Amplifier/Wall*

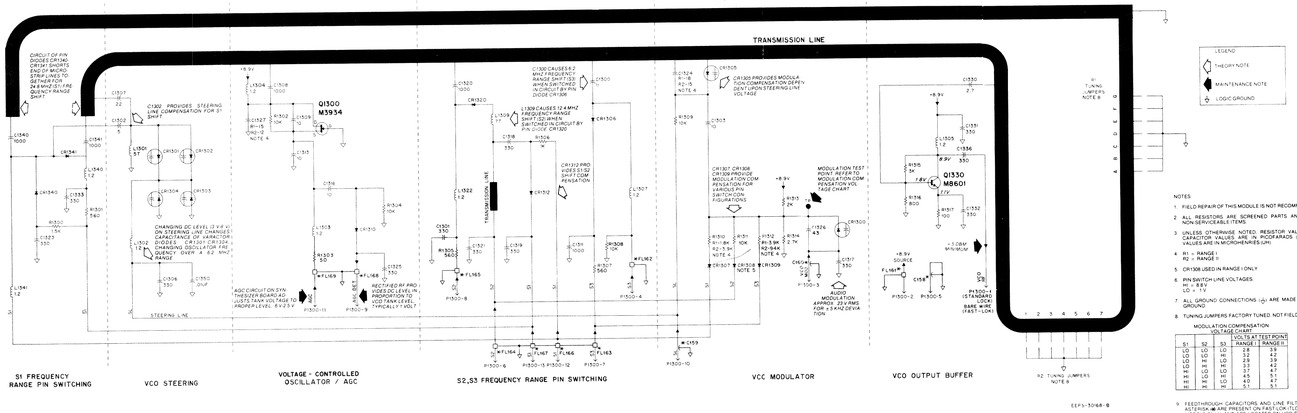
Note: Refer to VCO Instruction Section for VCO models.

68P81064E23-O
(Sheet 3 of 3)
3/15/83- *PHI*

VOLTAGE CONTROLLED OSCILLATOR

MODELS TLD2441A/TLD2442A STANDARD LOCK
AND TLD2541A/TLD2542A *FAST—LOK*

VCO SCHEMATIC



NOTES:

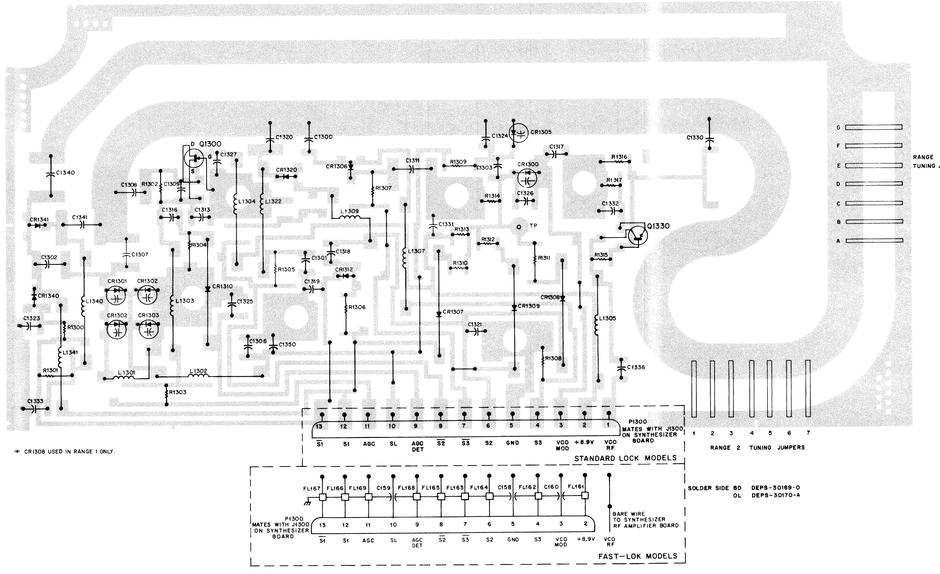
1. FIELD REPAIR OF THIS MODULE IS NOT RECOMMENDED.
2. ALL RESISTORS ARE SCREENED PARTS AND ARE THEREFORE NONSERVICEABLE ITEMS.
3. UNLESS OTHERWISE NOTED, RESISTOR VALUES ARE IN OHMS, CAPACITOR VALUES ARE IN MICROFARADS (MF) AND INDUCTOR VALUES ARE IN MICROHENRIES (UH).
4. R1 = RANGE I
   R2 = RANGE II
5. CR1308 USED IN RANGE I ONLY.
6. PIN SWITCHLINE VOLTAGES:
   HI = 8.8V
   LO = 1.5
7. ALL GROUND CONNECTIONS (⏚) ARE MADE TO RADIO LOGIC/RF GROUND.
8. TUNING JUMPERS FACTORY TUNED. NOT FIELD ADJUSTABLE.

MODULATION COMPENSATION
VOLTAGE CHART

S1	S2	S3	VOLTS AT TEST POINT RANGE I	RANGE II
LO	LO	LO	2.8	3.9
LO	LO	HI	3.2	4.0
LO	HI	LO	3.5	4.3
LO	HI	HI	3.7	4.4
HI	LO	LO	3.7	4.7
HI	LO	HI	4.5	5.1
HI	HI	LO	4.6	5.1
HI	HI	HI	5.0	5.5

9. FEEDTHROUGH CAPACITORS AND LINE FILTERS DESIGNATED BY ASTERISK ✱ ARE PRESENT ON FAST-LOK (TLD2541A AND TLD2542A MODELS ONLY) AND ARE LOCATED ON VCO FEEDTHROUGH FILTER BOARD (Y-16-1), AND ARE PI-TYPE LOW PASS LINE FILTERS.

VCO HYBRID



✱ CR1308 USED IN RANGE 1 ONLY.

VOLTAGE CONTROLLED OSCILLATOR

MODELS TLD2441A/TLD2442A STANDARD LOCK
TLD2541A/TLD2542A *FAST—LOK*

parts list

TRN5217A VCO Filter Kit — PL-7856-A

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		capacitor, fixed:
C158, 159, 160	21-80234C01	470 pF; feed-thru
		filter:
FL161 thru 169	91-87511C02	feed-thru
		connector, plug:
P1300	28-84318M15	male; 12-contact
		mechanical parts
	22-83317N01	PIN, feed-thru; 13 used
	29-84322M04	TERMINAL
	64-83093N01	PLATE, feed-thru

TLD9122A VCO Kit, Range 1
TLD9123A VCO Kit, Range 2
TLD9301A VCO, *Fast-Lok* Range 1
TLD9302A VCO, *Fast-Lok* Range 2 — PL-7168-C

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		capacitor, fixed: pF ± 5%; 50 V; unless otherwise stated:
C1300	21-84296M01	11
C1301	21-84873H98	330 ± 10%
C1302	21-84736E07	5.1 ± 0.25 pF
C1303	21-84873H76	10
C1306	21-84873H98	330 ± 10%
C1307	21-84736E13	22
C1308	21-84873H13	1000
C1309	21-84736E30	10 ± 0.5 pF
C1311	21-84873H13	1000
C1313, 1316	21-84873H76	10
C1317, 1318, 1319	21-84873H98	330 ± 10%
C1320	21-84873H13	1000
C1321, 1323	21-84873H98	330 ± 10%
C1324 (R1)	21-84873H86	18 ± 2%
C1324 (R2)	21-84873H97	15
C1325	21-84873H98	330 ± 10%
C1326	21-84873H88	43
C1327 (R1)	21-84873H97	15
C1327 (R2)	21-84873H77	12
C1330	21-84873H60	2.7 ± .25 pF
C1331, 1332, 1333, 1336	21-84873H98	330 ± 10%
C1340, 1341	21-84873H13	1000
C1350	21-84547A11	.01 uF
		diode: (see note)
CR1300 - 1305	48-82190H57	varactor
CR1306	48-84622E02	silicon
CR1307, 1308, 1309	48-83654H01	silicon
CR1310	48-84616A01	hot carrier
CR1312, 1320, 1340, 1341	48-84622E02	silicon
		coil, rf:
L1301	24-84331M39	5 turns
L1302 - 1305, 1307	24-82723H27	choke; 1.2 uH
L1309	24-84331M40	7 turns
L1322, 1340, 1341	24-82723H27	choke; 1.2 uH
		connector:
P1300	31-84107M01	terminal, header
		transistor: (see note)
Q1300	48-84939C34	field-effect; type M3934
Q1330	48-84086J01	NPN; type M8601
		mechanical parts
	42-83694N01	CLIP; 2 used
	31-83318N01	TERMINAL STRIP (TLD9301A, TLD9302A only)

note: For optimum performance, diodes, transistors, and integrated circuits must be ordered by Motorola part numbers.

FUNCTION

Generates mixer injection signal in receive mode, and low level modulated rf in transmit mode. Controlled by synthesizer board.

Standard Lock VCO Model Complement Chart

TLD2441A VCO Assembly RI	
TLD9122A	VCO Hybrid
TRN4703A	Carrier Plate
TLD2442A VCO Assembly RII	
TLD9123A	VCO Hybrid
TRN4703A	VCO Carrier Plate

Note: When replacing VCO hybrid, order VCO Assembly for applicable range (TLD2441A or TLD2442A)

Fast—Lok VCO Model Complement Chart

TLD2541A VCO/Feed-thru Filter RI	
TLD9311A	VCO/Carrier RI
TRN5217A	VCO Filter
TLD2542A VCO/Feed-thru Filter RII	
TLD9312A	VCO/Carrier RII
TRN5217A	VCO Filter
TLD9311A VCO/Carrier RI	
TLD9301A	VCO RI
64-83089N01	Carrier Plate
TLD9312 VCO/Carrier RII	
TLD9302A	VCO RII
64-83089N01	Carrier Plate

Note: When replacing VCO hybrid, order VCO/Carrier Kit for applicable range (TLD9311A or TLD9312A).