



INSTALLATION • OPERATION • MAINTENANCE

INSTRUCTIONS

TYPE LCB RELAY MODULES

M38923

These instructions contain a brief description, schematic, component location and bill of material for the following LCB modules.

MD	Modulator/Demodulator
IFT	Audio Tone Interface
IFO	Fiber Optic Interface
RELAY	Relay Sensing Logic
DTT	Direct Transfer Trip
AXLM	Auxiliary Logic
ARTM-1/2	AR Trip 1/2

CONSTRUCTION

The LCB modules are designed for insertion into a 3 rack unit LCB chassis. Module terminations are provided by means of a terminal connector.

Following is a tabulation of all the LCB module location width's and number of connector terminals.

CAUTION

Printed circuit modules should not be removed or inserted while the LCB is energized. Failure to observe this precaution can result in an undesired tripping output and/or component damage. In addition, modules should not be interchanged between relays without rechecking calibration.

All integrated circuits used on the modules are sensitive to and can be damaged by the discharge of static electricity. Electrostatic discharge precautions should be observed when handling modules or individual components.

Module Name	Module Location Width	No. Connector Terminals
ALS	2	18
DTD	1	18
MD	1	18
IFT	1	18
IFO	1	18
RELAY	1.75	35
DTT	1	18
AXLM	1	18
ARTM-1/2	3	22

NOTE: 1 module location width equals 1.2 inches.

All possible contingencies which may arise during installation, operation, or maintenance, and all details and variations of this equipment do not purport to be covered by these instructions. If further information is desired by purchaser regarding his particular installation, operation or maintenance of his equipment, the local Westinghouse Electric Corporation representative should be contacted.

MODULE APPLICATION/DESCRIPTION

ALS - Analog Logic Power Supply

The ALS power supply covered in other instructions provides +/-15Vdc to power the LCB relay. Units are available for 48, 125 or 250Vdc station batteries. This module is covered by I.L.41-830.11.

MD - Modulator/Demodulator

The MD module contains both the modulator and demodulator for transmission and detection of the LCB communicated signal.

The modulator generates the 1.7 KHz carrier signal and contains the circuitry to provide the modulation of the carrier signal based on the sequence output voltage from the RELAY module. In turn, the modulated output connects to the channel interface for transmission to the remote terminal.

The demodulator receives its information from the respective channel interface (audio or optical) and reconstructs the remote LCB signal.

IFT - Audio Tone Interface

The IFT module contains the circuitry to provide both the transmit and receive isolated interface with the users audio tone equipment or equivalent.

The transmitter provides adjustable output for proper coordination with the communication medium.

In the receive portion, input level sensitivity is adjustable and stabilized with an AGC circuit. Detection circuits are employed for high and low level, excessive noise to signal levels, and missing cycle periods.

IFO - Optical Interface

The IFO module contains the circuitry to provide both the transmit and receive interface to fiber optic cable.

The transmitter consists of a fiber optic LED emitter mounted on a bracket extending to the rear of the module.

For the receive portion, a bulkhead connector mounted on the same bracket as the emitter provides a means for connection of the receive fiber optic cable. From this connector, a larger core fiber connects to a fiber optic PIN photodiode detector in a shielded receiver circuit. Following detection, the receiver employs an AGC circuit, low level and missing cycle detection.

RELAY - Relay Sensing

The RELAY module contains the circuitry to generate, compare and determine trip for the LCB current differential system relaying quantities. Included are: a sequence network with independent sensitivity selection for positive (P), negative (N) and zero (Z), adjustable system pickup setting (T DIAL), adjustable channel delay equalizer, comparison circuits for the local versus remote quantities, trip detection and channel monitoring functions.

DTT - Direct Transfer Trip

The DTT module is used as an option to provide a direct transfer trip function utilizing the same channel as that employed for normal LCB relaying.

For tripping, the LCB system utilizes the ARTM-2 module, which provides 2 AR relays, with one dedicated for direct transfer trip.

AXLM - Auxiliary Logic

The AXLM module is used to provide auxiliary logic, timing, indication and input/output features associated with the LCB relay system. Such features include electrical target reset, trip desensitizing on breaker closing, unblock tripping, normal and re-close, and sustained loss of channel monitoring and indication.

ARTM-1/2 - AR Trip Module

- 1 (One AR)
- 2 (Two AR)

The ARTM-1, single trip, or ARTM-2 double trip, module provides the final AR contact tripping output for the LCB relay system. Block of tripping and indication during dc power up/down as well as provision for manual reset is also provided on this module.

MODULE REFERENCE INFORMATION

MD Module - Style 1586C13G01
 Internal Schematic: 1349D35
 Component Location: 1484B80
 Chassis Location: POS. D

IFT Module - Style 1586C07G01
 Internal Schematic: 1349D37
 Component Location: 1488B18
 Chassis Location: POS. F (Channel 1)

IFO Module - Style 1586C11G01
 Internal Schematic: 1349D36
 Component Location: 1488B20
 Chassis Location: POS. F (Channel 1)

RELAY Module - Style 1586C15G01
 Internal Schematic: 1349D34
 Component Location: 1488B22
 Chassis Location: POS. G

DTT Module - Style 1586C09G01
 Internal Schematic: 1349D38
 Component Location: 1488B19
 Chassis Location: POS. K

AXLM Module - Style 1581C23G01
 Internal Schematic: 1345D82
 Component Location: 1484B30
 Chassis Location: POS. L

ARTM-1 Module - Style 1581C25G01
 Internal Schematic: 1345D83
 Component Location: 1484B31
 Chassis Location: POS. M
 (NOTE: sub assembly style
 is 1581C25G03)

ARTM-2 Module - Style 1581C25G02
 Internal Schematic: 1345D83
 Component Location: 1484B32
 Chassis Location: POS. M
 (NOTE: sub assembly style
 is 1581C27G01)

RENEWAL PARTS

Repair work can be done most satisfactorily at the factory. However, interchangeable spare modules or components can be furnished to the customers who are equipped for doing repair work. When ordering parts (components, modules, etc.) always give the complete catalog number and appropriate Westinghouse style number(s).

ATTACHMENTS

A. Internal Schematics

Module	Drawing	Figure
MD	1349D35	1
IFT	1349D37	2
IFO	1349D36	3
RELAY	1349D34	4
DTT	1349D38	5
AXLM	1345D82	6
ARTM-1/2	1345D83	7

B. Component Locations

	Drawing	Figure
MD	1488B80	8
IFT	1488B18	9
IFO	1488B20	10
RELAY	1488B22	11
DTT	1488B19	12
AXLM	1484B30	13
ARTM-1	1484B31	14
ARTM-2	1484B32	15

C. Bill of Materials

Module	
MD	1586C13G01
IFT	1586C07G01
IFO	1586C11G01
RELAY	1586C15G01
DTT	1586C09G01
AXLM	1586C23G01
ARTM-1	1581C25G03
ARTM-2	1581C27G01

DWG NO	SUB	PART NAME	APPAR TYPE	ADD'L DESC.	3/29/84
1586C13G01	4	MOD/DEMOM MODULE	LCB	MD/IL40-216.2	

ITEM	PART NAME	STYLE	DESCRIPTION
C1	CAPACITOR	3534A68H01	.001 MFD, 200V, +-1% MET-POLY CARB
C2	CAPACITOR	3534A68H08	.1 MFD 100V +- 5% MET-POLY CARB
C3	CAPACITOR	861A846H10	510 PF 500V, +-2% MICA
C4	CAPACITOR	3533A53H01	.022 MFD 100V +- 2% MET-POLY CARB
C5	CAPACITOR	3534A68H08	.1 MFD 100V +- 5% MET-POLY CARB
C8	CAPACITOR	3534A68H08	.1 MFD 100V +- 5% MET-POLY CARB
C9	CAPACITOR	3508A89H03	.47 MFD 100V, +- 5% MET-POLY CARB
C10	CAPACITOR	187A584H05	5100 PF, 500V, +-2%, MICA
C11	CAPACITOR	861A846H10	510 PF 500V, +-2% MICA
C12	CAPACITOR	3534A68H01	.001 MFD, 200V, +-1% MET-POLY CARB
C13	CAPACITOR	3534A68H08	.1 MFD 100V +- 5% MET-POLY CARB
C14	CAPACITOR	763A209H17	47 PF 500V, +-2% MICA
C15	CAPACITOR	3534A68H02	.001 MFD, 200V, +-5% MET-POLY CARB
C16	CAPACITOR	762A757H12	270 PF 500V, +- 2% MICA
C17	CAPACITOR	3534A68H02	.001 MFD, 200V, +-5% MET-POLY CARB
C18	CAPACITOR	3534A68H05	.015 MFD 200V, +-2% MET-POLY CARB
C19	CAPACITOR	3534A68H08	.1 MFD 100V +- 5% MET-POLY CARB
C20	CAPACITOR	3534A68H08	.1 MFD 100V +- 5% MET-POLY CARB
C21	CAPACITOR	3534A68H02	.001 MFD, 200V, +-5% MET-POLY CARB
C22	CAPACITOR	3533A53H01	.022 MFD 100V +- 2% MET-POLY CARB
C23	CAPACITOR	187A584H05	5100 PF, 500V, +-2%, MICA
C24	CAPACITOR	763A209H03	10 PF, 500V, +- 5% MICA
C25	CAPACITOR	3534A68H02	.001 MFD, 200V, +-5% MET-POLY CARB
C26	CAPACITOR	3534A68H03	.01 MFD 200V, +- 5% MET-POLY CARB
C27	CAPACITOR	880A363H01	100 MFD, 35V, +-20% TANTALUM
C28	CAPACITOR	880A363H01	100 MFD, 35V, +-20% TANTALUM
C29	CAPACITOR	3534A68H08	.1 MFD 100V +- 5% MET-POLY CARB
C30	CAPACITOR	3534A68H08	.1 MFD 100V +- 5% MET-POLY CARB
C31	CAPACITOR	3534A68H08	.1 MFD 100V +- 5% MET-POLY CARB
D1	DIODE	836A928H06	1N4148 75V
D2	DIODE	836A928H06	1N4148 75V
D3	DIODE	836A928H06	1N4148 75V
D4	DIODE	837A692H03	1N645A 225V
D5	DIODE	837A692H03	1N645A 225V
IC1	INT CKT	3527A09H06	MC14066BAL QUAD BILATERIAL SWITCH
IC3	INT CKT	3528A90H01	TL074IJ QUAD OP AMP
IC4	INT CKT	3527A09H01	MC14538BAL DUAL PREC MONO MULTIVIB
IC5	INT CKT	3527A26H01	MC14070BAL QUAD EXCLUSIVE OR
IC6	INT CKT	3528A90H01	TL074IJ QUAD OP AMP
IC7	INT CKT	3527A09H06	MC14066BAL QUAD BILATERIAL SWITCH
IC8	INT CKT	3527A09H02	MC14011BAL QUAD-2 INPUT NAND
IC9	INT CKT	3528A90H01	TL074IJ QUAD OP AMP
IC10	INT CKT	3527A09H09	MC14020BAL 14 BIT BINARY COUNTER
IC11	INT CKT	3527A09H01	MC14538BAL DUAL PREC MONO MULTIVIB

DWG NO	SUB	PART NAME	APPAR TYPE	ADD'L DESC.	3/29/84
1586C13G01	4	MOD/DEMOM MODULE	LCB	MD/IL40-216.2	

ITEM	PART NAME	STYLE	DESCRIPTION
P1	POT	3527A30H04	20K 3/4W, +-10% TRIMPOT
P3	POT	3527A30H04	20K 3/4W, +-10% TRIMPOT
P4	POT	3527A30H02	500-OHM 3/4W +-10% TRIMPOT
Q1	TRANSISTOR	3527A33H01	2N3799 PNP
Q2	TRANSISTOR	3527A33H01	2N3799 PNP
R1	RESISTOR	848A818H51	100 OHM, 1%, 1/4W, METAL FILM
R2	RESISTOR	848A821H71	200K 1% 1/4W METAL FILM
R3	RESISTOR	848A821H14	51.1K 1/4W 1% METAL FILM
R4	RESISTOR	848A821H50	121K 1/4W 1% METAL FILM
R5	RESISTOR	848A821H62	162K 1% 1/4W METAL FILM
R6	RESISTOR	848A821H42	100K 1/4W 1% METAL FILM
R7	RESISTOR	848A821H59	150K 1% 1/4W METAL FILM
R8	RESISTOR	848A820H91	30.1K 1% 1/4W METAL FILM
R9	RESISTOR	848A821H46	110K 1% 1/4W METAL FILM
R10	RESISTOR	848A820H62	15 K 1/4W 1% METAL FILM
R11	RESISTOR	848A820H41	9.09K 1% 1/4W METAL FILM
R12	RESISTOR	848A819H20	511 OHM 1% 1/4 METAL FILM
R13	RESISTOR	848A820H62	15 K 1/4W 1% METAL FILM
R14	RESISTOR	848A821H14	51.1K 1/4W 1% METAL FILM
R15	RESISTOR	848A821H30	75K 1% 1/4W METAL FILM
R16	RESISTOR	848A821H59	150K 1% 1/4W METAL FILM
R17	RESISTOR	848A820H45	10K 1/4W 1% METAL FILM
R21	RESISTOR	848A822H27	750K 1% 1/4W METAL FILM
R22	RESISTOR	848A821H54	133K 1% 1/4W METAL FILM
R23	RESISTOR	848A821H46	110K 1% 1/4W METAL FILM
R24	RESISTOR	187A640H24	51M 10% 1/2W CARBON
R25	RESISTOR	848A820H62	15 K 1/4W 1% METAL FILM
R26	RESISTOR	848A821H42	100K 1/4W 1% METAL FILM
R27	RESISTOR	848A820H45	10K 1/4W 1% METAL FILM
R28	RESISTOR	848A821H14	51.1K 1/4W 1% METAL FILM
R29	RESISTOR	848A821H14	51.1K 1/4W 1% METAL FILM
R30	RESISTOR	848A821H14	51.1K 1/4W 1% METAL FILM
R31	RESISTOR	848A820H74	20K 1% 1/4W METAL FILM
R32	RESISTOR	848A820H74	20K 1% 1/4W METAL FILM
R33	RESISTOR	848A820H06	3.92K 1/4W 1% METAL FILM
R34	RESISTOR	848A821H50	121K 1/4W 1% METAL FILM
R35	RESISTOR	848A821H50	121K 1/4W 1% METAL FILM
R36	RESISTOR	848A818H51	100 OHM, 1%, 1/4W, METAL FILM
R38	RESISTOR	848A820H91	30.1K 1% 1/4W METAL FILM
R39	RESISTOR	848A822H39	1MEG 1/4W, 1% METAL FILM
R40	RESISTOR	848A820H37	8.25K 1/4W 1% METAL FILM

DWG NO	SUB	PART NAME	APPAR TYPE	ADD'L DESC.	3/29/84
1586C13G01	4	MOD/DEMOM MODULE	LCB	MD/IL40-216.2	

ITEM	PART NAME	STYLE	DESCRIPTION
R43	RESISTOR	848A821H46	110K 1% 1/4W METAL FILM
R44	RESISTOR	848A820H62	15 K 1/4W 1% METAL FILM
R45	RESISTOR	848A820H62	15 K 1/4W 1% METAL FILM
R46	RESISTOR	848A819H20	511 OHM 1% 1/4W METAL FILM
R47	RESISTOR	848A820H62	15 K 1/4W 1% METAL FILM
R48	RESISTOR	848A818H01	30.1OHM 1/4W, 1%, METAL FILM
R49	RESISTOR	848A818H01	30.1OHM 1/4W, 1%, METAL FILM
R50	RESISTOR	848A820H62	15 K 1/4W 1% METAL FILM
R51	RESISTOR	848A820H45	10K 1/4W 1% METAL FILM
R52	RESISTOR	187A290H40	15M 5% 1/2W CARBON
R53	RESISTOR	848A821H42	100K 1/4W 1% METAL FILM
R54	RESISTOR	848A820H45	10K 1/4W 1% METAL FILM
R55	RESISTOR	848A821H88	301K 1/4W 1% METAL FILM
R56	RESISTOR	848A821H88	301K 1/4W 1% METAL FILM
R57	RESISTOR	848A821H34	82.5K 1% 1/4W METAL FILM
R58	RESISTOR	187A290H31	2.7 OHM 1/2W 5% CARBON
R59	RESISTOR	187A290H31	2.7 OHM, 1/2W, 5% CARBON
R60	RESISTOR	848A821H42	100K 1/4W 1% METAL FILM
R61	RESISTOR	848A821H14	51.1K 1/4W 1% METAL FILM
R62	RESISTOR	848A820H74	20K 1% 1/4W METAL FILM
R63	RESISTOR	848A821H59	150K 1% 1/4W METAL FILM
R64	RESISTOR	848A820H45	10K 1/4W 1% METAL FILM
R65	RESISTOR	848A820H45	10K 1/4W 1% METAL FILM
R66	RESISTOR	848A819H48	1K, 1% 1/4W METAL FILM

DWG NO	SUB	PART NAME	APPAR TYPE	ADD'L DESC.	6/26/84
1586C07G01	5	TONE INT MODULE	LCB	IFT/IL40-216.3	

ITEM	PART NAME	STYLE	DESCRIPTION
C1	CAPACITOR	3534A68H05	.015 MFD 200V +-2% MET-POLY CARB
C2	CAPACITOR	3534A68H01	.001 MFD 200V +-1% MET-POLY CARB
C3	CAPACITOR	762A757H12	270 PF 500V, +-2% MICA
C4	CAPACITOR	3533A53H01	.022 MFD 100V +-2% MET-POLY CARB
C5	CAPACITOR	3534A68H01	.001 MFD 200V +-1% MET-POLY CARB
C6	CAPACITOR	3534A68H08	.1 MFD 100V +-5% MET-POLY CARB
C7	CAPACITOR	3534A68H10	.22 MFD 100V +-5% MET-POLY CARB
C8	CAPACITOR	3534A68H10	.22 MFD 100V +-5% MET-POLY CARB
C9	CAPACITOR	3534A68H01	.001 MFD 200V +-1% MET-POLY CARB
C10	CAPACITOR	3534A68H01	.001 MFD 200V +-1% MET-POLY CARB
C11	CAPACITOR	3534A68H01	.001 MFD 200V +-1% MET-POLY CARB
C12	CAPACITOR	763A209H03	10 PF, 500V, +- 5% MICA
C13	CAPACITOR	3534A68H01	.001 MFD 200V +-1% MET-POLY CARB
C14	CAPACITOR	3534A68H01	.001 MFD 200V +-1% MET-POLY CARB
C15	CAPACITOR	3534A68H01	.001 MFD 200V +-1% MET-POLY CARB
C16	CAPACITOR	3534A68H01	.001 MFD 200V +-1% MET-POLY CARB
C17	CAPACITOR	3534A68H08	.1 MFD 100V +-5% MET-POLY CARB
C18	CAPACITOR	3534A68H08	.1 MFD 100V +-5% MET-POLY CARB
C19	CAPACITOR	863A166H16	.33 MFD 50V, +-5% MET-POLY CARB
C20	CAPACITOR	3534A68H01	.001 MFD 200V +-1% MET-POLY CARB
C21	CAPACITOR	3534A68H01	.001 MFD 200V +-1% MET-POLY CARB
C22	CAPACITOR	3534A68H08	.1 MFD 100V +-5% MET-POLY CARB
C23	CAPACITOR	863A166H16	.33 MFD 50V, +-5% MET-POLY CARB
C24	CAPACITOR	3534A68H11	1.0 MFD 50V, +-5% MET-POLY CARB
C25	CAPACITOR	3534A68H01	.001 MFD 200V +-1% MET-POLY CARB
C26	CAPACITOR	3534A68H01	.001 MFD 200V +-1% MET-POLY CARB
C27	CAPACITOR	3534A68H01	.001 MFD 200V +-1% MET-POLY CARB
C28	CAPACITOR	3534A68H08	.1 MFD 100V +-5% MET-POLY CARB
C29	CAPACITOR	3534A68H03	.01 MFD 200V, +-5% MET-POLY CARB
C30	CAPACITOR	3533A53H04	.0033MFD 400V, +-2% MET-POLY CARB
C31	CAPACITOR	3534A68H06	.033 MFD, 100V,+-5% MET-POLY CARB
C32	CAPACITOR	3534A68H03	.01 MFD 200V, +-5% MET-POLY CARB
C33	CAPACITOR	3534A68H03	.01 MFD 200V, +-5% MET-POLY CARB
C34	CAPACITOR	3508A89H03	.47 MFD 100V,+-5% MET-POLY CARB
C35	CAPACITOR	3508A89H03	.47 MFD 100V,+-5% MET-POLY CARB
C36	CAPACITOR	3534A68H08	.1 MFD 100V +-5% MET-POLY CARB
C37	CAPACITOR	3533A53H02	.01 MFD, 200V +-2% MET-POLY CARB
C38	CAPACITOR	3534A68H03	.01 MFD 200V, +-5% MET-POLY CARB
C39	CAPACITOR	3533A53H08	.0015 MFD 600V +-2% MET-POLY CARB
C40	CAPACITOR	762A757H12	270 PF 500V, +-2% MICA
C41	CAPACITOR	3533A53H06	.0068 MFD, 200V 2% MET-POLY CARB
C42	CAPACITOR	3534A68H08	.1 MFD 100V +-5% MET-POLY CARB
C43	CAPACITOR	3534A68H08	.1 MFD 100V +-5% MET-POLY CARB
C44	CAPACITOR	3508A89H03	.47 MFD 100V,+-5% MET-POLY CARB
C45	CAPACITOR	3508A89H03	.47 MFD 100V,+-5% MET-POLY CARB
C46	CAPACITOR	3534A68H08	.1 MFD 100V +-5% MET-POLY CARB
C47	CAPACITOR	3534A68H08	.1 MFD 100V +-5% MET-POLY CARB

DWG NO	SUB	PART NAME	APPAR TYPE	ADD'L DESC.	6/26/84
1586C07G01	5	TONE INT MODULE	LCB	IFT/IL40-216.3	

ITEM	PART NAME	STYLE	DESCRIPTION
C48	CAPACITOR	863A166H16	.33 MFD 50V, +-5% MET-POLY CARB
C49	CAPACITOR	880A363H01	100 MFD, 35V +-20% TANTALUM
C50	CAPACITOR	880A363H01	100 MFD, 35V +-20% TANTALUM
C51	CAPACITOR	3534A68H08	.1 MFD 100V +-5% MET-POLY CARB
C52	CAPACITOR	3534A68H08	.1 MFD 100V +-5% MET-POLY CARB
C53	CAPACITOR	3533A53H05	.0022 MFD 2% 400V, MET-POLY CARB
C54	CAPACITOR	763A209H17	47 PF 500V, +-2% MICA
C55	CAPACITOR	3534A68H08	.1 MFD 100V +-5% MET-POLY CARB
C56	CAPACITOR	3534A68H08	.1 MFD 100V +-5% MET-POLY CARB
D1	DIODE	836A928H06	1N4148 75V
D2	DIODE	836A928H06	1N4148 75V
D3	DIODE	836A928H06	1N4148 75V
D4	DIODE	837A692H03	1N645A 225V
D5	DIODE	837A692H03	1N645A 225V
D6	DIODE	837A692H03	1N645A 225V
D7	DIODE	837A692H03	1N645A 225V
D8	DIODE	837A692H03	1N645A 225V
D9	DIODE	836A928H06	1N4148 75V
D10	DIODE	836A928H06	1N4148 75V
D11	DIODE	836A928H06	1N4148 75V
D12	DIODE	836A928H06	1N4148 75V
D13	DIODE	836A928H06	1N4148 75V
D14	DIODE	837A692H03	1N645A 225V
HS-1	HEAT SINK	3534A74H01	TRANSISTOR HEAT SINK
HS-2	HEAT SINK	3534A74H01	TRANSISTOR HEAT SINK
LED-HI	DIODE	3508A22H01	RED LED (EDGE MOUNT)
LED-LO	DIODE	3508A22H01	RED LED (EDGE MOUNT)
LED-SN	DIODE	3508A22H01	RED LED (EDGE MOUNT)
LK-R	JUMPER	3529A14G01	JUMPER LINK (PRIOR TO END 84)
LK-R	JUMPER	3532A54H01	BLUE CLIP LINK (AFTER 84)
LK-X	JUMPER	3529A14G01	JUMPER LINK (PRIOR TO END 84)
LK-X	JUMPER	3532A54H01	BLUE CLIP LINK (AFTER 84)
IC1	INT CKT	3528A90H01	TL074IJ QUAD OP AMP
IC2	INT CKT	3533A21H01	CA3080AS OP TRANSCOND AMP
IC3	INT CKT	3528A90H01	TL074IJ QUAD OP AMP
IC4	INT CKT	3528A90H01	TL074IJ QUAD OP AMP
IC5	INT CKT	3528A90H01	TL074IJ QUAD OP AMP
IC6	INT CKT	3527A09H01	MC14538BAL DUAL PREC MONO MULTIVIB
MV1	VARISTOR	3509A31H04	20-24 VDC @ 1 MA, 106 JOULES 0.1W
MV2	VARISTOR	3509A31H04	20-24 VDC @ 1 MA, 106 JOULES 0.1W

DWG NO	SUB	PART NAME	APPAR TYPE	ADD'L DESC.	6/26/84
1586C07G01	5	TONE INT MODULE	LCB	IFT/IL40-216.3	

ITEM	PART NAME	STYLE	DESCRIPTION
P1	POT	3527A30H06	2K 3/4W +-10% TRIMPOT
P2	POT	3527A30H04	20K 3/4W, +-10% TRIMPOT
P3	POT	3527A30H06	2K 3/4W +-10% TRIMPOT
R72	POT	3527A30H04	20K 3/4W 10% TRIMPOT
Q1	TRANSISTOR	762A672H10	2N2905A, PNP
Q2	TRANSISTOR	762A672H11	2N2219A NPN
Q3	TRANSISTOR	3527A33H01	2N3799 PNP
R1	RESISTOR	848A821H50	121K 1/4W 1% METAL FILM
R2	RESISTOR	848A821H50	121K 1/4W 1% METAL FILM
R3	RESISTOR	848A820H37	8.25K 1/4W 1% METAL FILM
R4	RESISTOR	848A821H34	82.5K 1% 1/4W METAL FILM
R5	RESISTOR	848A821H14	51.1K 1/4W 1% METAL FILM
R6	RESISTOR	848A821H18	56.2K 1% 1/4W METAL FILM
R7	RESISTOR	848A820H62	15K 1/4W 1% METAL FILM
R8	RESISTOR	848A819H94	3.01K 1%, 1/4W METAL FILM
R9	RESISTOR	848A820H89	28.7K 1%, 1/4W METAL FILM
R10	RESISTOR	848A818H97	301 OHM 1%, 1/4W METAL FILM
R11	RESISTOR	848A821H48	115K 1/4W 1% METAL FILM
R12	RESISTOR	848A821H48	115K 1/4W 1% METAL FILM
R13	RESISTOR	848A821H75	221K 1% 1/4W METAL FILM
R14	RESISTOR	848A821H50	121K 1/4W 1% METAL FILM
R15	RESISTOR	848A820H06	3.92K 1% 1/4W METAL FILM
R16	RESISTOR	848A819H94	3.01K 1%, 1/4W METAL FILM
R17	RESISTOR	848A818H68	150 OHM 1/4W 1% METAL FILM
R18	RESISTOR	848A820H91	30.1K 1% 1/4W METAL FILM
R19	RESISTOR	848A821H50	121K 1/4W 1% METAL FILM
R20	RESISTOR	848A820H33	7.5K 1/4W 1% METAL FILM
R21	RESISTOR	848A822H56	1.5M 1% 1/4W METAL FILM
R22	RESISTOR	848A818H93	274 OHM 1/4W 1% METAL FILM
R23	RESISTOR	848A820H06	3.92K 1% 1/4W METAL FILM
R24	RESISTOR	848A821H88	301K 1/4W METAL FILM
R25	RESISTOR	848A819H77	2K 1% 1/4W METAL FILM
R26	RESISTOR	848A820H45	10K 1/4W 1% METAL FILM
R27	RESISTOR	848A822H11	511K 1/4W 1% METAL FILM
R28	RESISTOR	848A820H45	10K 1/4W 1% METAL FILM
R29	RESISTOR	848A821H42	100K 1/4W 1% METAL FILM
R30	RESISTOR	848A820H87	27.4K 1/4W 1% METAL FILM
R31	RESISTOR	848A820H45	10K 1/4W 1% METAL FILM
R32	RESISTOR	629A531H51	6.2K 2% 1/2W METAL FILM
R33	RESISTOR	848A820H74	20K 1% 1/4W METAL FILM
R34	RESISTOR	848A820H74	20K 1% 1/4W METAL FILM
R35	RESISTOR	848A820H74	20K 1% 1/4W METAL FILM
R36	RESISTOR	848A820H74	20K 1% 1/4W METAL FILM
R37	RESISTOR	848A819H48	1K 1% 1/4W METAL FILM

DWG NO	SUB	PART NAME	APPAR TYPE	ADD'L DESC.	6/26/84
1586C07G01	5	TONE INT MODULE	LCB	IFT/IL40-216.3	

ITEM	PART NAME	STYLE	DESCRIPTION
R38	RESISTOR	848A820H57	13.3K 1% 1/4W METAL FILM
R39	RESISTOR	848A821H95	357K 1% 1/4W METAL FILM
R40	RESISTOR	848A821H71	200K 1% 1/4W METAL FILM
R41	RESISTOR	848A820H62	15K 1/4W 1% METAL FILM
R42	RESISTOR	848A821H59	150K 1% 1/4W METAL FILM
R43	RESISTOR	848A821H59	150K 1% 1/4W METAL FILM
R44	RESISTOR	848A821H01	37.4K 1% 1/4W METAL FILM
R45	RESISTOR	848A819H68	1.62K 1% 1/4W METAL FILM
R46	RESISTOR	848A819H28	619 OHM 1% 1/4W METAL FILM
R47	RESISTOR	848A820H57	13.3K 1% 1/4W METAL FILM
R48	RESISTOR	848A821H42	100K 1/4W 1% METAL FILM
R49	RESISTOR	848A821H42	100K 1/4W 1% METAL FILM
R50	RESISTOR	848A821H42	100K 1/4W 1% METAL FILM
R51	RESISTOR	848A821H71	200K 1% 1/4W METAL FILM
R52	RESISTOR	187A290H30	2 MEG 5% 1/2W CARBON
R53	RESISTOR	848A821H66	178K 1% 1/4W METAL FILM
R54	RESISTOR	848A820H69	17.8K 1% 1/4W METAL FILM
R55	RESISTOR	848A820H33	7.5K 1/4W 1% METAL FILM
R56	RESISTOR	848A820H33	7.5K 1/4W 1% METAL FILM
R57	RESISTOR	848A820H33	7.5K 1/4W 1% METAL FILM
R58	RESISTOR	848A818H63	133 OHM 1% 1/4W METAL FILM
R59	RESISTOR	848A821H34	82.5K 1% 1/4W METAL FILM
R60	RESISTOR	187A290H30	2 MEG 5% 1/2W CARBON
R61	RESISTOR	848A821H14	51.1K 1/4W 1% METAL FILM
R62	RESISTOR	848A821H14	51.1K 1/4W 1% METAL FILM
R63	RESISTOR	848A821H75	221K 1% 1/4W METAL FILM
R64	RESISTOR	848A819H68	1.62K 1% 1/4W METAL FILM
R65	RESISTOR	848A821H42	100K 1/4W 1% METAL FILM
R66	RESISTOR	848A821H42	100K 1/4W 1% METAL FILM
R67	RESISTOR	848A820H45	10K 1/4W 1% METAL FILM
R68	RESISTOR	848A820H74	20K 1% 1/4W METAL FILM
R69	RESISTOR	848A821H14	51.1K 1/4W 1% METAL FILM
R70	RESISTOR	187A290H28	4.7 MEG 5% 1/2W CARBON
R71	RESISTOR	848A820H91	30.1K 1% 1/4W METAL FILM
R73	RESISTOR	187A290H30	2 MEG 5% 1/2W CARBON
R74	RESISTOR	629A531H51	6.2K 2% 1/2W METAL FILM
R75	RESISTOR	848A821H30	75K 1% 1/4W METAL FILM
R76	RESISTOR	848A821H42	100K 1/4W 1% METAL FILM
R77	RESISTOR	848A819H36	750 OHM 1% 1/4W METAL FILM
R78	RESISTOR	848A821H42	100K 1/4W 1% METAL FILM
R79	RESISTOR	848A820H33	7.5K 1/4W 1% METAL FILM
R80	RESISTOR	187A290H30	2 MEG 5% 1/2W CARBON
R81	RESISTOR	848A821H14	51.1K 1/4W 1% METAL FILM
R82	RESISTOR	848A821H18	56.2K 1% 1/4W METAL FILM
R83	RESISTOR	187A290H30	2 MEG 5% 1/2W CARBON
R84	RESISTOR	629A531H51	6.2K 2% 1/2W METAL FILM
R85	RESISTOR	848A821H42	100K 1/4W 1% METAL FILM

DWG NO	SUB	PART NAME	APPAR TYPE	ADD'L DESC.	6/26/84
1586C07G01	5	TONE INT MODULE	LCB	IFT/IL40-216.3	

ITEM	PART NAME	STYLE	DESCRIPTION
R86	RESISTOR	848A819H20	511 OHM 1% 1/4W METAL FILM
R87	RESISTOR	848A818H51	100 OHM 1% 1/4W METAL FILM
R88	RESISTOR	848A821H66	178K 1% 1/4W METAL FILM
R89	RESISTOR	848A820H45	10K 1/4W 1% METAL FILM
R90	RESISTOR	848A819H28	619 OHM 1% 1/4W METAL FILM
R91	RESISTOR	187A290H31	2.7 OHM 1/2W 5% CARBON
R92	RESISTOR	187A290H31	2.7 OHM 1/2W 5% CARBON
R93	RESISTOR	848A819H94	3.01K 1%, 1/4W METAL FILM
R94	RESISTOR	848A819H94	3.01K 1%, 1/4W METAL FILM
T1	TRANSF	3534A75H01	MT26-PC(600 OHM MATCHING)
T2	TRANSF	3534A75H01	MT26-PC(600 OHM MATCHING)

DWG NO	SUB	PART NAME	APPAR TYPE	ADD'L DESC.	DATE
1586C11G01	5	OPT INT MODULE	LCB	IFO/IL40-216.4	3/8/84

ITEM	PART NAME	STYLE	DESCRIPTION
C1	CAPACITOR	3534A68H08	.1 MFD 100V +- 5% MET-POLY CARB
C2	CAPACITOR	3533A53H01	.022 MFD 100V +-2% MET-POLY CARB
C3	CAPACITOR	3534A68H11	1.0 MFD 50V, +- 5% MET-POLY CARB
C4	CAPACITOR	3534A68H05	.015 MFD 100V +-2% MET-POLY CARB
C5	CAPACITOR	3534A68H01	.001 MFD 200V +-1% MET-POLY CARB
C6	CAPACITOR	762A757H12	270 PF 500V, +- 2% MICA
C7	CAPACITOR	3533A53H01	.022 MFD 100V +-2% MET-POLY CARB
C8	CAPACITOR	3533A53H08	.0015 MFD, 600V, +-2%, MET-POLY CARB
C9	CAPACITOR	3534A68H08	.1 MFD 100V +- 5% MET-POLY CARB
C10	CAPACITOR	187A584H09	300 PF, 500V, +-2% MICA
C11	CAPACITOR	3534A68H10	.22 MFD, 100V +-5% MET-POLY CARB
C12	CAPACITOR	3534A68H10	.22 MFD, 100V +-5% MET-POLY CARB
C13	CAPACITOR	863A166H16	.33 MFD 50V, +-5% MET-POLY CARB
C14	CAPACITOR	763A209H03	10 PF, 500V, +- 5% MICA
C15	CAPACITOR	3534A68H08	.1 MFD 100V +- 5% MET-POLY CARB
C16	CAPACITOR	3534A68H11	1.0 MFD 50V, +- 5% MET-POLY CARB
C17	CAPACITOR	3534A68H08	.1 MFD 100V +- 5% MET-POLY CARB
C18	CAPACITOR	3533A53H02	.01 MFD 200V +-2%, MET-POLY CARB
C19	CAPACITOR	880A363H01	100 MFD, 35V, +-20% TANTALUM
C20	CAPACITOR	3534A68H08	.1 MFD 100V +- 5% MET-POLY CARB
C21	CAPACITOR	3534A68H08	.1 MFD 100V +-5% MET-POLY CARB
C22	CAPACITOR	880A363H01	100 MFD, 35V, +-20% TANTALUM
C23	CAPACITOR	3534A68H08	.1 MFD 100V +- 5% MET-POLY CARB
C24	CAPACITOR	837A241H15	1 MFD 35V, +-10% TANTALUM
C25	CAPACITOR	3534A68H08	.1 MFD 100V +- 5% MET-POLY CARB
C26	CAPACITOR	880A363H01	100 MFD, 35V, +-20% TANTALUM
C27	CAPACITOR	3534A68H08	.1 MFD 100V +- 5% MET-POLY CARB
C28	CAPACITOR	837A241H15	1 MFD 35V, +-10% TANTALUM
C29	CAPACITOR	3534A68H08	.1 MFD 100V +-5% MET-POLY CARB
C30	CAPACITOR	3534A68H08	.1 MFD 100V +-5% MET-POLY CARB
C31	CAPACITOR	763A209H17	47 PF 500V, +-2% MICA
C32	CAPACITOR	3533A53H05	.0022 MFD 2% 400V, MET. POLY CARB
C33	CAPACITOR	3534A68H10	.22 MFD, 100V +-5% MET-POLY CARB
D1	DIODE	836A928H06	1N4148 75V
D2	DIODE	836A928H06	1N4148 75V
D3	DIODE	836A928H06	1N4148 75V
D4	DIODE	836A928H06	1N4148 75V
D5	DIODE	836A928H06	1N4148 75V
D6	DIODE	836A928H06	1N4148 75V
D7	DIODE	837A692H03	1N645A 225V
D8	DIODE	836A928H06	1N4148 75V
D9	DIODE	837A692H03	1N645A 225V
D10	DIODE	836A928H06	1N4148 75V
D11	DIODE	836A928H06	1N4148 75V

DWG NO	SUB	PART NAME	APPAR TYPE	ADD'L DESC.	DATE
1586C11G01	5	OPT INT MODULE	LCB	IFO/IL40-216.4	3/8/84

ITEM	PART NAME	STYLE	DESCRIPTION
FOC	CABLE	1586C73G01	100/140 UM 9 INCH FIBER OPTIC CABLE
IC1	INT CKT	3528A90H01	TL0741J QUAD OP AMP
IC2	INT CKT	3528A90H01	TL0741J QUAD OP AMP MULTIVIB
IC3	INT CKT	3527A09H01	MC14538BAL DUAL PREC MONO MULTIVIB
IC4	INT CKT	3533A21H01	CA3080AS OP TRANSCOND AMP
IC5	INT CKT	3528A90H01	TL0741J QUAD OP AMP
LED-1	DIODE	3508A22H01	RED LED (EDGE MOUNT)
OR-1	DIODE	3534A77H02	SPX-4692-002 SPECTRONICS DETECTOR
OT-1	DIODE	3534A77H01	SPX-4689-004 SPECTRONICS EMITTER
R1	RESISTOR	848A822H19	619K 1/4W 1% METAL FILM
R2	RESISTOR	848A821H88	301K 1/4W 1% METAL FILM
R3	RESISTOR	848A820H65	16.2K 1/4W 1% METAL FILM
R4	RESISTOR	848A821H88	301K 1/4W 1% METAL FILM
R5	RESISTOR	848A819H65	1.5K, 1%, 1/4W, METAL FILM
R6	RESISTOR	848A821H42	100K 1/4W 1% METAL FILM
R7	RESISTOR	848A820H06	3.92K 1/4W 1% METAL FILM
R8	RESISTOR	848A821H50	121K 1/4W 1% METAL FILM
R9	RESISTOR	848A821H50	121K 1/4W 1% METAL FILM
R10	RESISTOR	848A820H37	8.25K 1/4W 1% METAL FILM
R11	RESISTOR	848A821H42	100K 1/4W 1% METAL FILM
R12	RESISTOR	848A821H42	100K 1/4W 1% METAL FILM
R13	RESISTOR	848A821H71	200K 1/4W 1% METAL FILM
R14	RESISTOR	848A821H18	56.2K 1/4W 1% METAL FILM
R15	RESISTOR	848A821H14	51.1K 1/4W 1% METAL FILM
R16	RESISTOR	848A820H45	10K 1/4W 1% METAL FILM
R17	RESISTOR	848A821H95	357K 1% 1/4W METAL FILM
R18	RESISTOR	848A821H71	200K 1/4W 1% METAL FILM
R19	RESISTOR	848A821H75	221K 1%, 1/4W METAL FILM
R20	RESISTOR	848A820H57	13.3K 1% 1/4W METAL FILM
R21	RESISTOR	848A822H11	511K 1/4W 1% METAL FILM
R22	RESISTOR	848A820H62	15K 1/4W 1% METAL FILM
R23	RESISTOR	848A820H62	15K 1/4W 1% METAL FILM
R24	RESISTOR	187A290H28	4.7 MEG 5% 1/2W CARBON
R25	RESISTOR	848A820H69	17.8K 1% 1/4W METAL FILM
R26	RESISTOR	848A820H87	27.4K 1% 1/4W METAL FILM
R27	RESISTOR	187A290H30	2.0 MEG 5% 1/2W CARBON
R28	RESISTOR	848A821H42	100K 1/4W 1% METAL FILM
R29	RESISTOR	848A820H25	6.19K 1/4W 1% METAL FILM
R30	RESISTOR	848A820H33	7.5K 1/4W 1% METAL FILM
R31	RESISTOR	848A821H71	200K 1/4W 1% METAL FILM
R32	RESISTOR	848A821H14	51.1K 1/4W 1% METAL FILM
R33	RESISTOR	848A821H14	51.1K 1/4W 1% METAL FILM
R34	RESISTOR	848A821H34	82.5K 1% 1/4W METAL FILM

DWG NO	SUB	PART NAME	APPAR TYPE	ADD'L DESC.	DATE
1586C11G01	5	OPT INT MODULE	LCB	IFO/IL40-216.4	3/8/84

ITEM	PART NAME	STYLE	DESCRIPTION
R35	RESISTOR	187A290H08	20 OHM 1/2W 5% CARBON
R36	RESISTOR	185A207H11	220 OHM 2W 5% MOLD. COMP.
R37	RESISTOR	185A207H11	220 OHM 2W 5% MOLD. COMP.
R38	RESISTOR	848A818H97	301 OHM 1% 1/4W METAL FILM
R39	RESISTOR	187A290H01	10 OHM, 1/2W, +-5% CARBON
R40	RESISTOR	187A290H01	10 OHM, 1/2W, +-5% CARBON
R41	RESISTOR	848A820H33	7.5K 1/4W 1% METAL FILM
R42	RESISTOR	187A290H01	10 OHM, 1/2W, +-5% CARBON
R43	RESISTOR	187A290H01	10 OHM, 1/2W, +-5% CARBON
R44	RESISTOR	848A821H66	178K 1/4W 1% METAL FILM
R45	RESISTOR	848A818H97	301 OHM 1% 1/4W METAL FILM
R46	RESISTOR	187A290H26	2.2 MEG, 5%, 1/2W CARBON
R47	RESISTOR	848A821H42	100K 1/4W 1% METAL FILM
R48	RESISTOR	848A821H71	200K 1/4W 1% METAL FILM
R49	RESISTOR	187A290H30	2.0 MEG 5% 1/2W CARBON
R50	RESISTOR	848A820H33	7.5K 1/4W 1% METAL FILM
R51	RESISTOR	848A819H94	3.01K 1%, 1/4W METAL FILM
R52	RESISTOR	848A819H94	3.01K 1%, 1/4W METAL FILM
R53	RESISTOR	848A820H62	15K 1/4W 1% METAL FILM
R54	RESISTOR	848A820H33	7.5K 1/4W 1% METAL FILM
Q1	TRANSISTOR	762A672H15	2N2222A, NPN
Z1	DIODE	186A797H07	1N961B 10V 5% 400MW

DWG NO	SUB	PART NAME	APPAR TYPE	ADD'L DESC.	6/26/84
1586C15G01	4	RELAY MODULE	LCB	RELAY/IL40-216.5	

ITEM	PART NAME	STYLE	DESCRIPTION
C1	CAPACITOR	3534A68H08	.1 MFD 100V +- 5% MET-POLY CARB
C2	CAPACITOR	3533A53H01	.022 MFD 100V +- 2% MET-POLY CARB
C3	CAPACITOR	3533A53H02	.01 MFD, 200V, +-2% MET-POLY CARB
C4	CAPACITOR	3534A68H11	1.0 MFD 50V +- 5% MET-POLY CARB
C5	CAPACITOR	3533A53H03	.1 MFD 50V, +-2% MET-POLY CARB
C6	CAPACITOR	3534A68H07	.047 MFD 100V, +-5% MET-POLY CARB
C7	CAPACITOR	3533A53H02	.01 MFD, 200V, +-2% MET-POLY CARB
C8	CAPACITOR	3533A53H02	.01 MFD, 200V, +-2% MET-POLY CARB
C9	CAPACITOR	3533A53H02	.01 MFD, 200V, +-2% MET-POLY CARB
C10	CAPACITOR	3534A68H10	.22MFD 100V 5% MET-POLY CARB
C11	CAPACITOR	3534A68H08	.1 MFD 100V +- 5% MET-POLY CARB -
C12	CAPACITOR	3534A68H04	.012 MFD, 200V, +-5% MET-POLY CARB
C13	CAPACITOR	3534A68H08	.1 MFD 100V +- 5% MET-POLY CARB
C14	CAPACITOR	3533A53H02	.01 MFD, 200V, +-2% MET-POLY CARB
C15	CAPACITOR	3533A53H06	.0068 MFD, 200V +-2%, MET-POLY CARB
C16	CAPACITOR	3534A68H06	.033 MFD, 100V, +-5% MET-POLY CARB
C17	CAPACITOR	3534A68H08	.1 MFD 100V +- 5% MET-POLY CARB
C18	CAPACITOR	3533A53H03	.1 MFD 50V, +-2% MET-POLY CARB
C19	CAPACITOR	3534A68H09	.15 MFD, 100V +-5%, MET-POLY CARB
C20	CAPACITOR	862A530H12	10 MFD 35V, +-5% TANTALUM
C21	CAPACITOR	3534A68H08	.1 MFD 100V +- 5% MET-POLY CARB
C22	CAPACITOR	861A846H10	510 PF 500V, +-2% MICA
C23	CAPACITOR	3533A53H03	.1 MFD 50V, +-2% MET-POLY CARB
C24	CAPACITOR	3533A53H03	.1 MFD 50V, +-2% MET-POLY CARB
C25	CAPACITOR	3534A68H08	.1 MFD 100V +- 5% MET-POLY CARB
C26	CAPACITOR	3502A85H09	.0047 MFD, 200V, +-5% MYLAR
C27	CAPACITOR	3534A68H07	.047 MFD 100V, +-5% MET-POLY CARB
C28	CAPACITOR	3533A53H02	.01 MFD, 200V, +-2% MET-POLY CARB
C29	CAPACITOR	3534A68H11	1.0 MFD 50V +- 5% MET-POLY CARB
C30	CAPACITOR	3533A53H02	.01 MFD, 200V, +-2% MET-POLY CARB
C31	CAPACITOR	862A530H12	10 MFD 35V, +-5% TANTALUM
D1	DIODE	837A692H03	1N645A 225V
D2	DIODE	837A692H03	1N645A 225V
D3	DIODE	836A928H06	1N4148 75V
D4	DIODE	836A928H06	1N4148 75V
D5	DIODE	836A928H06	1N4148 75V
D6	DIODE	836A928H06	1N4148 75V
D7	DIODE	837A692H03	1N645A 225V
D8	DIODE	837A692H03	1N645A 225V
D9	DIODE	837A692H03	1N645A 225V
D10	DIODE	837A692H03	1N645A 225V
D11	DIODE	836A928H06	1N4148 75V
D12	DIODE	836A928H06	1N4148 75V
D13	DIODE	836A928H06	1N4148 75V
D14	DIODE	836A928H06	1N4148 75V
D15	DIODE	836A928H06	1N4148 75V

DWG NO	SUB	PART NAME	APPAR TYPE	ADD'L DESC.	6/26/84
1586C15G01	4	RELAY MODULE	LCB	RELAY/IL40-216.5	

ITEM	PART NAME	STYLE	DESCRIPTION
D16	DIODE	836A928H06	1N4148 75V
D17	DIODE	836A928H06	1N4148 75V
D18	DIODE	836A928H06	1N4148 75V
D19	DIODE	836A928H06	1N4148 75V
D20	DIODE	836A928H06	1N4148 75V
DIAL	DIAL	3509A12H03	DIGITAL DIAL
IC1	INT CKT	3528A90H01	TL074IJ QUAD OP AMP
IC2	INT CKT	3528A90H01	TL074IJ QUAD OP AMP
IC3	INT CKT	3528A90H01	TL074IJ QUAD OP AMP
IC4	INT CKT	3528A90H01	TL074IJ QUAD OP AMP
IC5	INT CKT	3528A90H01	TL074IJ QUAD OP AMP
IC6	INT CKT	3528A90H01	TL074IJ QUAD OP AMP
IC7	INT CKT	3527A09H06	MC14066BAL QUAD BILATERAL SWITCH
IC8	INT CKT	3533A17H01	MC14001BAL QUAD 2-INPUT NOR
IC9	INT CKT	3527A09H01	MC14538BAL DUAL PREC MONO MULTIVIB
IC10	INT CKT	3533A17H01	MC14001BAL QUAD 2-INPUT NOR
LED	DIODE	3508A22H01	RED LED (EDGE MOUNT)
P1	POT	3527A30H07	100K 3/4W 10% TRIMPOT
P2	POT	3527A30H07	100K 3/4W 10% TRIMPOT
P3	POT	3509A13H04	100K 2W, 10 TURN, 5%, PREC POT
P4	POT	3527A30H07	100K 3/4W 10% TRIMPOT
P5	POT	3527A30H09	1K 3/4W 10% TRIMPOT
R1	RESISTOR	629A531H19	300 OHM 2% 1/2W METAL GLAZE
R2	RESISTOR	848A821H42	100 K 1/4W 1% METAL FILM
R3	RESISTOR	3534A73H01	301K 1/4W .1% METAL FILM
R4	RESISTOR	3534A73H01	301K 1/4W .1% METAL FILM
R5	RESISTOR	848A821H42	100 K 1/4W 1% METAL FILM
R6	RESISTOR	848A821H66	178K 1/4W 1% METAL FILM
R7	RESISTOR	848A821H48	115K 1/4W 1% METAL FILM
R8	RESISTOR	848A821H42	100 K 1/4W 1% METAL FILM
R9	RESISTOR	848A821H42	100 K 1/4W 1% METAL FILM
R10	RESISTOR	848A821H42	100 K 1/4W 1% METAL FILM
R11	RESISTOR	848A821H30	75K 1% 1/4W METAL FILM
R12	RESISTOR	848A821H30	75K 1% 1/4W METAL FILM
R13	RESISTOR	848A821H42	100 K 1/4W 1% METAL FILM
R14	RESISTOR	848A821H71	200K 1% 1/4W METAL FILM
R15	RESISTOR	848A821H71	200K 1% 1/4W METAL FILM
R16	RESISTOR	848A821H71	200K 1% 1/4W METAL FILM
R17	RESISTOR	848A821H71	200K 1% 1/4W METAL FILM
R18	RESISTOR	848A821H42	100 K 1/4W 1% METAL FILM
R19	RESISTOR	848A821H42	100 K 1/4W 1% METAL FILM
R20	RESISTOR	848A821H42	100 K 1/4W 1% METAL FILM

DWG NO	SUB	PART NAME	APPAR TYPE	ADD'L DESC.	6/26/84
1586C15G01	4	RELAY MODULE	LCB	RELAY/IL40-216.5	

ITEM	PART NAME	STYLE	DESCRIPTION
R21	RESISTOR	848A821H71	200K 1% 1/4W METAL FILM
R22	RESISTOR	848A821H71	200K 1% 1/4W METAL FILM
R23	RESISTOR	848A821H71	200K 1/4W 1% METAL FILM
R24	RESISTOR	848A821H42	100 K 1/4W 1% METAL FILM
R25	RESISTOR	848A821H71	200 K 1/4W 1% METAL FILM
R26	RESISTOR	848A821H42	100 K 1/4W 1% METAL FILM
R27	RESISTOR	848A820H37	8.25K 1/4W 1% METAL FILM
R28	RESISTOR	629A531H19	300 OHM 2% 1/2W METAL GLAZE
R29	RESISTOR	848A821H42	100 K 1/4W 1% METAL FILM
R30	RESISTOR	848A821H42	100 K 1/4W 1% METAL FILM
R31	RESISTOR	848A820H10	4.32K 1/4W 1% METAL FILM
R32	RESISTOR	848A820H12	4.53K 1/4W 1% METAL FILM
R33	RESISTOR	848A820H16	4.99K 1/4W 1% METAL FILM
R34	RESISTOR	848A819H48	1K 1% 1/4W METAL FILM
R35	RESISTOR	848A820H82	24.3K 1/4W 1% METAL FILM
R36	RESISTOR	848A821H56	140K 1/4W 1% METAL FILM
R37	RESISTOR	848A821H71	200K 1% 1/4W METAL FILM
R38	RESISTOR	187A290H30	2.0 MEG 5% 1/2W CARBON
R39	RESISTOR	848A821H14	51.1K 1/4W 1% METAL FILM
R40	RESISTOR	848A821H22	61.9K 1/4W 1% METAL FILM
R41	RESISTOR	848A821H71	200K 1% 1/4W METAL FILM
R42	RESISTOR	848A821H22	61.9K 1/4W 1% METAL FILM
R43	RESISTOR	629A531H19	300 OHM 2% 1/2W METAL GLAZE
R44	RESISTOR	848A821H71	200K 1% 1/4W METAL FILM
R45	RESISTOR	3534A73H01	301K 1/4W .1% METAL FILM
R46	RESISTOR	3534A73H01	301K 1/4W .1% METAL FILM
R47	RESISTOR	3534A73H01	301K 1/4W .1% METAL FILM
R48	RESISTOR	848A821H42	100 K 1/4W 1% METAL FILM
R49	RESISTOR	3534A73H01	301K .1% 1/4W METAL FILM
R50	RESISTOR	3534A73H01	301K .1% 1/4W METAL FILM
R51	RESISTOR	3534A73H01	301K .1% 1/4W METAL FILM
R52	RESISTOR	848A821H42	100 K 1/4W 1% METAL FILM
R53	RESISTOR	848A819H39	806 OHM 1/4W, 1% METAL FILM
R54	RESISTOR	848A819H11	412 OHM 1/4W, 1% METAL FILM
R55	RESISTOR	848A820H74	20K 1% 1/4W, 1% METAL FILM
R56	RESISTOR	848A820H45	10K 1/4W, 1% METAL FILM
R57	RESISTOR	848A821H71	200K 1% 1/4W METAL FILM
R58	RESISTOR	848A821H71	200K 1% 1/4W METAL FILM
R59	RESISTOR	848A821H42	100 K 1/4W 1% METAL FILM
R60	RESISTOR	848A821H71	200K 1% 1/4W METAL FILM
R61	RESISTOR	848A821H71	200K 1% 1/4W METAL FILM
R62	RESISTOR	848A821H59	150K 1% 1/4W, 1% METAL FILM
R63	RESISTOR	848A821H88	301K 1/4W 1% METAL FILM
R64	RESISTOR	848A821H59	150K 1% 1/4W, 1% METAL FILM
R65	RESISTOR	848A820H45	10K 1/4W, 1% METAL FILM
R66	RESISTOR	848A820H62	15K 1/4W 1% METAL FILM
R67	RESISTOR	848A818H51	100 OHM 1% 1/4W METAL FILM

DWG NO	SUB	PART NAME	APPAR TYPE	ADD'L DESC.	6/26/84
1586C15G01	4	RELAY MODULE	LCB	RELAY/IL40-216.5	

ITEM	PART NAME	STYLE	DESCRIPTION
R68	RESISTOR	848A820H91	30.1K 1% 1/4W METAL FILM
R69	RESISTOR	848A821H62	162K 1% 1/4W METAL FILM
R70	RESISTOR	848A820H17	5.11K 1/4W 1% METAL FILM
R71	RESISTOR	848A819H77	2K 1% 1/4W METAL FILM
R72	RESISTOR	848A821H88	301K 1/4W 1% METAL FILM
R73	RESISTOR	848A821H88	301K 1/4W 1% METAL FILM
R74	RESISTOR	848A821H88	301K 1/4W 1% METAL FILM
R75	RESISTOR	848A821H59	150K 1% 1/4W, 1% METAL FILM
R76	RESISTOR	848A821H59	150K 1% 1/4W, 1% METAL FILM
R77	RESISTOR	848A821H59	150K 1% 1/4W, 1% METAL FILM
R78	RESISTOR	848A821H75	221K 1% 1/4W METAL FILM
R79	RESISTOR	848A821H75	221K 1% 1/4W METAL FILM
R80	RESISTOR	848A821H59	150K 1% 1/4W, 1% METAL FILM
R81	RESISTOR	848A821H59	150K 1% 1/4W, 1% METAL FILM
R82	RESISTOR	848A821H42	100 K 1/4W 1% METAL FILM
R83	RESISTOR	848A821H71	200K 1% 1/4W METAL FILM
R84	RESISTOR	848A820H45	10K 1/4W, 1% METAL FILM
R85	RESISTOR	848A820H45	10K 1/4W, 1% METAL FILM
R86	RESISTOR	848A821H71	200K 1% 1/4W METAL FILM
R87	RESISTOR	848A821H71	200K 1% 1/4W METAL FILM
R88	RESISTOR	848A819H94	3.01K 1/4W 1% METAL FILM
R89	RESISTOR	848A819H94	3.01K 1% 1/4W METAL FILM
R90	RESISTOR	848A821H59	150K 1% 1/4W, 1% METAL FILM
R91	RESISTOR	848A821H30	75K 1% 1/4W METAL FILM
R92	RESISTOR	848A821H30	75K 1% 1/4W METAL FILM
R93	RESISTOR	848A821H88	301K 1/4W 1% METAL FILM
R94	RESISTOR	848A821H42	100 K 1/4W 1% METAL FILM
R95	RESISTOR	848A821H71	200K 1% 1/4W METAL FILM
R96	RESISTOR	848A821H71	200K 1% 1/4W METAL FILM
R97	RESISTOR	848A821H71	200K 1% 1/4W METAL FILM
R98	RESISTOR	848A821H42	100 K 1/4W 1% METAL FILM
R99	RESISTOR	848A821H42	100 K 1/4W 1% METAL FILM
R100	RESISTOR	848A821H14	51.1K 1/4W 1% METAL FILM
R101	RESISTOR	848A821H42	100 K 1/4W 1% METAL FILM
R102	RESISTOR	848A821H30	75K 1% 1/4W METAL FILM
R103	RESISTOR	848A821H71	200K 1% 1/4W METAL FILM
R104	RESISTOR	848A821H71	200K 1% 1/4W METAL FILM
R105	RESISTOR	848A821H71	200K 1% 1/4W METAL FILM
R106	RESISTOR	848A821H88	301K 1/4W 1% METAL FILM
R107	RESISTOR	848A821H41	9.09K 1% 1/4W METAL FILM
R108	RESISTOR	848A821H71	200K 1% 1/4W METAL FILM
R109	RESISTOR	848A820H45	10K 1/4W, 1% METAL FILM
R110	RESISTOR	848A820H45	10K 1/4W, 1% METAL FILM
R111	RESISTOR	848A820H45	10K 1/4W, 1% METAL FILM
R112	RESISTOR	848A820H45	10K 1/4W, 1% METAL FILM
R113	RESISTOR	848A820H45	10K 1/4W, 1% METAL FILM
R114	RESISTOR	848A820H45	10K 1/4W, 1% METAL FILM

DWG NO	SUB	PART NAME	APPAR TYPE	ADD'L DESC.	6/26/84
1586C15G01	4	RELAY MODULE	LCB	RELAY/IL40-216.5	

ITEM	PART NAME	STYLE	DESCRIPTION
R115	RESISTOR	848A821H88	301K 1/4W 1% METAL FILM
R116	RESISTOR	848A819H94	3.01K 1% 1/4W METAL FILM
R117	RESISTOR	848A819H94	3.01K 1% 1/4W METAL FILM
R118	RESISTOR	848A819H94	3.01K 1% 1/4W METAL FILM
R119	RESISTOR	848A819H94	3.01K 1% 1/4W METAL FILM
R120	RESISTOR	848A819H94	3.01K 1% 1/4W METAL FILM
R121	RESISTOR	848A819H94	3.01K 1% 1/4W METAL FILM
Z1	DIODE	837A693H01	1N759A 12V 5% 400 MW
Z2	DIODE	186A797H07	1N961B 10V 5% 400 MW
Z3	DIODE	186A797H07	1N961B 10V 5% 400 MW
Z4	DIODE	837A693H01	1N759A 12V 5% 400 MW
LK-J	JUMPER	3529A14G01	JUMPER LINK (PRIOR TO END 84)
LK-J	JUMPER	3532A54H01	BLUE CLIP LINK (AFTER END 84)
LK-L	JUMPER	3529A14G01	JUMPER LINK (PRIOR TO END 84)
LK-L	JUMPER	3532A54H01	BLUE CLIP LINK (AFTER END 84)
LK-N	JUMPER	3529A14G01	JUMPER LINK (PRIOR TO END 84)
LK-N	JUMPER	3532A54H01	BLUE CLIP LINK (AFTER END 84)
LK-P	JUMPER	3529A14G01	JUMPER LINK (PRIOR TO END 84)
LK-P	JUMPER	3532A54H01	BLUE CLIP LINK (AFTER END 84)
LK-Z	JUMPER	3529A14G01	JUMPER LINK (PRIOR TO END 84)
LK-Z	JUMPER	3532A54H01	BLUE CLIP LINK (AFTER END 84)

DWG NO	SUB	PART NAME	APPAR TYPE	ADD'L DESC.	3/29/84
1586C09G01	4	DTT MODULE	LCB	DTT/IL40-216.7	

ITEM	PART NAME	STYLE	DESCRIPTION
C01	CAPACITOR	3534A68H08	.1 MFD 100V +- 5% MET-POLY CARB
C02	CAPACITOR	862A530H12	10 MFD 35V, +-5% TANTALUM
C03	CAPACITOR	862A530H12	10 MFD 35V, +-5% TANTALUM
C04	CAPACITOR	3534A68H08	.1 MFD 100V +- 5% MET-POLY CARB
C05	CAPACITOR	3534A68H07	.047 MFD 100V, +-5% MET-POLY CARB
C06	CAPACITOR	3534A68H05	.015 MFD 200V, +- 2% MET-POLY CARB
C07	CAPACITOR	3533A53H08	.0015 MFD, 600V +-2%, MET-POLY CARB
C08	CAPACITOR	861A846H10	510 PF 500V, +-2% MICA
C09	CAPACITOR	763A209H07	20 PF, 500V +-2.5% MICA
C10	CAPACITOR	763A209H07	20 PF, 500V +-2.5% MICA
C11	CAPACITOR	861A846H10	510 PF 500V, +-2% MICA
C12	CAPACITOR	3534A68H05	.015 MFD 200V, +- 2% MET-POLY CARB
C13	CAPACITOR	3533A53H05	.0022 MFD 2% 400V, MET. POLY CARB
C14	CAPACITOR	3533A53H05	.0022 MFD 2% 400V, MET. POLY CARB
C15	CAPACITOR	3534A68H05	.015 MFD 200V, +- 2% MET-POLY CARB
C16	CAPACITOR	3533A53H01	.022 MFD 100V +-2% MET-POLY CARB
C17	CAPACITOR	3533A53H06	.0068 MFD, 200V +-2% MET-POLY CARB
D01	DIODE	837A692H03	1N645A 225V
D02	DIODE	836A928H06	1N4148 75V
D03	DIODE	836A928H06	1N4148 75V
IC01	INT CKT	774B936H01	4N35 OPTICAL COUPLER
IC02	INT CKT	3527A09H01	MC14538BAL DUAL PREC MONO MULTIVIB
IC03	INT CKT	3533A17H01	MC14001BAL QUAD 2-INPUT NOR
IC04	INT CKT	3533A17H01	MC14001BAL QUAD 2-INPUT NOR
IC05	INT CKT	3527A09H05	CD 4060BF BIN RIPPLE CNTR/DIV/OSC
IC06	INT CKT	3527A26H01	MC14070BAL QUAD EXCLUSIVE OR
IC07	INT CKT	3528A90H01	TL074IJ QUAD OP AMP
LK-J	JUMPER	3529A14G01	JUMPER LINK (PRIOR TO MID 84)
LK-J	JUMPER	3532A54H01	BLUE CLIP LINK (AFTER MID 84)
LD1	DIODE	3508A22H01	RED LED (EDGE MOUNT)
LD2	DIODE	3508A22H01	RED LED (EDGE MOUNT)
Q01	TRANSISTOR	3527A32H01	2N5089, NPN
R01	RESISTOR	185A207H58	20K, 2W, +-5% CARBON
R02	RESISTOR	185A207H47	6.8K, 2W, +-5% CARBON
R03	RESISTOR	629A531H23	430 OHM, 1/2W, +-2% METAL GLAZE
R04	RESISTOR	848A821H14	51.1K 1/4W 1% METAL FILM
R05	RESISTOR	629A531H43	3.0K 1/2W 2% METAL GLAZE
R06	RESISTOR	629A531H54	8.2K, 1/2W, +-2% METAL GLAZE
R07	RESISTOR	629A531H23	430 OHM, 1/2W, +-2% METAL GLAZE
R08	RESISTOR	848A821H50	121K 1% 1/4W METAL FILM
R09	RESISTOR	848A821H59	150K 1/4W 1% METAL FILM

DWG NO	SUB	PART NAME	APPAR TYPE	ADD'L DESC.	3/29/84
1586C09G01	4	DTT MODULE	LCB	DTT/IL40-216.7	

ITEM	PART NAME	STYLE	DESCRIPTION
R10	RESISTOR	848A822H04	432K 1/4W 1% METAL FILM
R11	RESISTOR	848A821H07	43.2K 1/4W 1% METAL FILM
R12	RESISTOR	848A821H42	100K 1/2W 1% METAL FILM
R13	RESISTOR	848A821H42	100K 1/2W 1% METAL FILM
R14	RESISTOR	848A821H14	51.1K 1/4W 1% METAL FILM
R15	RESISTOR	848A822H11	511K 1/4W 1% METAL FILM
R16	RESISTOR	848A822H11	511K 1/4W 1% METAL FILM
R17	RESISTOR	629A531H43	3.0K 1/2W 2% METAL GLAZE
R18	RESISTOR	848A821H14	51.1K 1/4W 1% METAL FILM
R19	RESISTOR	848A822H04	432K 1/4W 1% METAL FILM
R20	RESISTOR	848A821H14	51.1K 1/4W 1% METAL FILM
R21	RESISTOR	848A822H04	432K 1/4W 1% METAL FILM
R22	RESISTOR	848A821H42	100K 1/2W 1% METAL FILM
R23	RESISTOR	848A821H42	100K 1/2W 1% METAL FILM
R24	RESISTOR	848A821H14	51.1K 1/4W 1% METAL FILM
R25	RESISTOR	848A820H33	7.5 K 1/4W 1% METAL FILM
R26	RESISTOR	848A821H26	68.1K 1/4W 1% METAL FILM
R27	RESISTOR	848A821H42	100K 1/4W 1% METAL FILM
R28	RESISTOR	848A821H42	100K 1/2W 1% METAL FILM
R29	RESISTOR	848A821H26	68.1K 1/4W 1% METAL FILM
R30	RESISTOR	848A820H33	7.5 K 1/4W 1% METAL FILM
R31	RESISTOR	848A820H62	15K 1/4W 1% METAL FILM
R32	RESISTOR	848A822H39	1 MEG 1/4W, 1% METAL FILM
R33	RESISTOR	848A822H11	511K 1/4W 1% METAL FILM
R34	RESISTOR	848A820H45	10K 1/4W 1% METAL FILM
R35	RESISTOR	848A821H14	51.1K 1/4W 1% METAL FILM
R36	RESISTOR	848A820H45	10K 1/4W 1% METAL FILM
R37	RESISTOR	185A207H58	20K, 2W, +-5% CARBON
R38	RESISTOR	848A820H45	10K 1/4W 1% METAL FILM
R39	RESISTOR	848A821H42	100K 1/2W 1% METAL FILM
R40	RESISTOR	848A821H59	150K 1% 1/4W METAL FILM
Z01	DIODE	186A797H12	1N752A 5.6V 400MW, 5%
Z02	DIODE	849A487H01	1N4747A 20V 1W, 5%

DWG. NO.	SUB	PART NAME	APPAR TYPE	ADD'L DESC.	3/9/84
1581C23G01	4	AUX LOGIC MODULE	LCB	AXLM/IL40-216.8	

ITEM	PART NAME	STYLE	DESCRIPTION
AL1	RELAY	1484B33H01	AROMAT TYPE STE - 1 FORM C
AL2	RELAY	1484B33H01	AROMAT TYPE STE - 1 FORM C
C1	CAPACITOR	862A530H12	10 MFD 35V, +- 5% TANTALUM
C2	CAPACITOR	3534A68H08	.1 MFD 100V, +- 5% MET-POLY CARB
C3	CAPACITOR	3534A68H08	.1 MFD 100V, +- 5% MET-POLY CARB
C4	CAPACITOR	3534A68H10	.22 MFD, 100V, +- 5% MET-POLY CARB
C5	CAPACITOR	3534A68H11	1.0 MFD 50V, +- 5% MET-POLY CARB
C6	CAPACITOR	863A166H16	.33 MFD 50V, +- 5% MET-POLY CARB
C7	CAPACITOR	3534A68H08	.1 MFD 100V, +- 5% MET-POLY CARB
C8	CAPACITOR	3534A68H08	.1 MFD 100V, +- 5% MET-POLY CARB
C9	CAPACITOR	3534A68H02	.001 MFD, 200V, +- 5% MET-POLY CARB
C10	CAPACITOR	861A846H25	150PF 500V +2% MICA
C11	CAPACITOR	184A661H21	6.8 MFD, 35V, +- 5% TANTALUM
C12	CAPACITOR	861A846H25	150PF 500V +2% MICA
C13	CAPACITOR	3534A68H09	.15 MFD, 100V, +- 5% MET-POLY CARB
C14	CAPACITOR	184A661H21	6.8 MFD, 35V, +- 5% TANTALUM
C15	CAPACITOR	861A846H25	150PF 500V +2% MICA
C16	CAPACITOR	3534A68H11	1.0 MFD 50V, +- 5% MET-POLY CARB
C17	CAPACITOR	861A846H25	150PF 500V +2% MICA
C18	CAPACITOR	3534A68H11	1.0 MFD 50V, +- 5% MET-POLY CARB
C19	CAPACITOR	3534A68H08	.1 MFD 100V, +- 5% MET-POLY CARB
C20	CAPACITOR	3534A68H08	.1 MFD 100V, +- 5% MET-POLY CARB
C21	CAPACITOR	3534A68H08	.1 MFD 100V, +- 5% MET-POLY CARB
C22	CAPACITOR	3534A68H08	.1 MFD 100V, +- 5% MET-POLY CARB
D1	DIODE	837A692H03	1N645A 225V
D2	DIODE	837A692H03	1N645A 225V
D3	DIODE	836A928H06	1N4148 75V
D4	DIODE	836A928H06	1N4148 75V
D5	DIODE	836A928H06	1N4148 75V
D6	DIODE	836A928H06	1N4148 75V
D7	DIODE	836A928H06	1N4148 75V
D8	DIODE	836A928H06	1N4148 75V
D9	DIODE	837A692H03	1N645A 225V
D10	DIODE	837A692H03	1N645A 225V
IC1	INT CKT	774B936H01	4N35 OPTICAL COUPLER
IC2	INT CKT	774B936H01	4N35 OPTICAL COUPLER
IC3	INT CKT	3528A90H01	TL074IJ QUAD OP AMP
IC4	INT CKT	3527A26H04	MC14050BAL HEX BUFFER
IC5	INT CKT	3527A23H05	MC14049BAL HEX INV/BUFFER
IC6	INT CKT	3533A17H01	MC14001BAL QUAD 2-INPUT NOR
IC7	INT CKT	3527A09H07	MC14043BAL QUAD NOR RS LATCH
IC8	INT CKT	3527A09H06	MC14066BAL QUAD BILATERIAL SWITCH
IC9	INT CKT	3533A17H01	MC14001BAL QUAD 2-INPUT NOR
IC10	INT CKT	3527A09H02	MC14011BAL QUAD-2 INPUT NAND

DWG. NO.	SUB	PART NAME	APPAR TYPE	ADD'L DESC.	3/9/84
1581C23G01	4	AUX LOGIC MODULE	LCB	AXLM/IL40-216.8	

ITEM	PART NAME	STYLE	DESCRIPTION
IC11	INT CKT	3533A17H01	MC14001BAL QUAD 2-INPUT NOR
IC12	INT CKT	3527A09H01	MC14538BAL DUAL PREC MONO MULTIVIB
IC13	INT CKT	3527A09H01	MC14538BAL DUAL PREC MONO MULTIVIB
LED 1	DIODE	3508A22H01	RED LED (EDGE MOUNT)
LED 2	DIODE	3508A22H01	RED LED (EDGE MOUNT)
LED 3	DIODE	3508A22H01	RED LED (EDGE MOUNT)
LED 4	DIODE	3508A22H01	RED LED (EDGE MOUNT)
LK-TR	JUMPER	3532A54H01	BLUE CLIP LINK
LK-52B	JUMPER	3532A54H01	BLUE CLIP LINK
LK-AL1	JUMPER	3532A54H01	BLUE CLIP LINK
LK-AL2	JUMPER	3532A54H01	BLUE CLIP LINK
LK-UR	JUMPER	3532A54H01	BLUE CLIP LINK
LK-UNBLK	JUMPER	3532A54H01	BLUE CLIP LINK
LK-TRDS	JUMPER	3532A54H01	BLUE CLIP LINK
LK-5X	JUMPER	3532A54H01	BLUE CLIP LINK
P1	POT	3527A30H04	20K 3/4W +- 10% TRIMPOT
P2	POT	3527A30H11	1 MEG 3/4W +- 10% TRIMPOT
P3	POT	3527A30H04	20K 3/4W +- 10% TRIMPOT
Q1	TRANSISTOR	762A672H15	2N2222A, NPN
Q2	TRANSISTOR	762A672H17	2N2907A, PNP
Q3	TRANSISTOR	762A672H17	2N2907A, PNP
R1	RESISTOR	185A207H58	20K, 2W, +- 5% CARBON
R2	RESISTOR	185A207H58	20K, 2W, +- 5% CARBON
R3	RESISTOR	185A207H47	6.8K, 2W +- 5% CARBON
R4	RESISTOR	629A531H23	430 OHM, 1/2W, +- 2% METAL GLAZE
R5	RESISTOR	629A531H23	430 OHM, 1/2W, +- 2% METAL GLAZE
R6	RESISTOR	629A531H54	8.2K, 1/2W, +- 2% METAL GLAZE
R7	RESISTOR	848A822H39	1 MEG, 1/4W, 1% METAL FILM
R8	RESISTOR	848A820H62	15K 1/4W 1% METAL FILM
R9	RESISTOR	848A821H14	51.1K 1/4W 1% METAL FILM
R10	RESISTOR	848A820H45	10K 1/4W 1% METAL FILM
R11	RESISTOR	848A820H16	4.99K 1/4W 1% METAL FILM
R12	RESISTOR	848A819H77	2K 1% 1/4W METAL FILM
R13	RESISTOR	848A820H62	15K 1/4W 1% METAL FILM
R14	RESISTOR	848A820H45	10K 1/4W 1% METAL FILM
R15	RESISTOR	848A821H14	51.1K 1/4W 1% METAL FILM
R16	RESISTOR	848A820H45	10K 1/4W 1% METAL FILM
R17	RESISTOR	848A821H14	51.1K 1/4W 1% METAL FILM
R18	RESISTOR	848A820H45	10K 1/4W 1% METAL FILM
R19	RESISTOR	848A821H14	51.1K 1/4W 1% METAL FILM
R20	RESISTOR	848A820H45	10K 1/4W 1% METAL FILM

DWG. NO.	SUB	PART NAME	APPAR TYPE	ADD'L DESC.	3/9/84
1581C23G01	4	AUX LOGIC MODULE	LCB	AXLM/IL40-216.8	

ITEM	PART NAME	STYLE	DESCRIPTION
R21	RESISTOR	185A207H58	20K, 2W, +- 5% CARBON
R22	RESISTOR	185A207H58	20K, 2W, +- 5% CARBON
R23	RESISTOR	185A207H47	6.8K, 2W +- 5% CARBON
R24	RESISTOR	629A531H23	430 OHM, 1/2W, +- 2% METAL GLAZE
R25	RESISTOR	629A531H23	430 OHM, 1/2W, +- 2% METAL GLAZE
R26	RESISTOR	629A531H54	8.2K, 1/2W, +- 2% METAL GLAZE
R27	RESISTOR	848A822H39	1 MEG, 1/4W, 1% METAL FILM
R28	RESISTOR	848A820H62	15K 1/4W 1% METAL FILM
R29	RESISTOR	848A821H22	61.9K 1% 1/4W METAL FILM
R30	RESISTOR	848A820H45	10K 1/4W 1% METAL FILM
R31	RESISTOR	848A820H45	10K 1/4W 1% METAL FILM
R32	RESISTOR	848A820H97	34.8K 1/4W 1% METAL FILM
R33	RESISTOR	848A820H74	20K 1% 1/4W METAL FILM
R34	RESISTOR	848A820H91	30.1K 1% 1/4W METAL FILM
R35	RESISTOR	848A820H45	10K 1/4W 1% METAL FILM
R36	RESISTOR	848A820H83	24.9K 1/4W 1% METAL FILM
R37	RESISTOR	848A820H45	10K 1/4W 1% METAL FILM
R38	RESISTOR	848A820H37	8.25K 1/4W 1% METAL FILM
R39	RESISTOR	848A819H85	2.43K 1/4W 1% METAL FILM
R40	RESISTOR	848A821H75	221K 1% 1/4W METAL FILM
R41	RESISTOR	848A819H94	3.01K 1% 1/4W METAL FILM
R42	RESISTOR	848A821H42	100K 1/4W 1% METAL FILM
R43	RESISTOR	848A820H45	10K 1/4W 1% METAL FILM
R44	RESISTOR	848A821H96	365K 1/4W 1% METAL FILM
R45	RESISTOR	848A821H42	100K 1/4W 1% METAL FILM
R46	RESISTOR	848A820H45	10K 1/4W 1% METAL FILM
R47	RESISTOR	848A820H45	10K 1/4W 1% METAL FILM
R48	RESISTOR	848A821H42	100K 1/4W 1% METAL FILM
R49	RESISTOR	848A820H45	10K 1/4W 1% METAL FILM
R50	RESISTOR	848A821H42	100K 1/4W 1% METAL FILM
R51	RESISTOR	848A820H45	10K 1/4W 1% METAL FILM
R52	RESISTOR	848A821H59	150K 1/4W 1% METAL FILM
R53	RESISTOR	848A821H42	100K 1/4W 1% METAL FILM
R54	RESISTOR	848A820H45	10K 1/4W 1% METAL FILM
R55	RESISTOR	848A821H71	200K 1/4W 1% METAL FILM
R56	RESISTOR	848A819H94	3.01K 1% 1/4W METAL FILM
R57	RESISTOR	848A820H16	4.99K 1/4W 1% METAL FILM
R58	RESISTOR	848A819H77	2K 1% 1/4W METAL FILM
R59	RESISTOR	629A531H12	150 OHM 1/2W +- 2% METAL GLAZE
R60	RESISTOR	848A819H94	3.01K 1% 1/4W METAL FILM
R61	RESISTOR	848A820H16	4.99K 1/4W 1% METAL FILM
R62	RESISTOR	848A819H77	2K 1% 1/4W METAL FILM
R63	RESISTOR	629A531H12	150 OHM 1/2W +- 2% METAL GLAZE
R64	RESISTOR	848A819H94	3.01K 1% 1/4W METAL FILM
R65	RESISTOR	848A819H94	3.01K 1% 1/4W METAL FILM
R66	RESISTOR	848A819H94	3.01K 1% 1/4W METAL FILM

DWG. NO.	SUB	PART NAME	APPAR TYPE	ADD'L DESC.	3/9/84
1581C23G01	4	AUX LOGIC MODULE	LCB	AXLM/IL40-216.8	

ITEM	PART NAME	STYLE	DESCRIPTION
Z1	DIODE	849A487H01	1N4747A, 20V, 1W, 5%
Z2	DIODE	186A797H12	1N752A, 5.6V 400MW, 5%
Z3	DIODE	849A487H01	1N4747A, 20V, 1W, 5%
Z4	DIODE	186A797H12	1N752A, 5.6V 400MW, 5%

DWG NO	SUB	PART NAME	APPAR TYPE	ADD'L DESC.	3/9/84
1581C25G03	6	ARTM-1 MODULE	LCB	MAIN BOARD FOR 1581C25G01 IL40-216.9	

ITEM	PART NAME	STYLE	DESCRIPTION
AR-1	RELAY	408C845G44	1.6 OHM COIL, 10W, 4A
C1	CAPACITOR	880A363H01	100 MFD, 35V, +-20% TANTALUM
C2	CAPACITOR	3534A68H08	.1 MFD 100V +-5% MET-POLY CARB
C3	CAPACITOR	184A661H03	47 MFD, 35V, +-20% TANTALUM
C4	CAPACITOR	188A669H01	.47 MFD, 200V, +-10% MYLAR
C5	CAPACITOR	880A363H01	100 MFD, 35V, +-20% TANTALUM
C6	CAPACITOR	3534A68H06	.033 MFD, 100V, +-5% MET-POLY CARB
C7	CAPACITOR	3534A68H06	.033 MFD, 100V, +/-5% MET-POLY CARB
C8	CAPACITOR	3534A68H08	.1 MFD 100V +-5% MET-POLY CARB
C9	CAPACITOR	3534A68H08	.1 MFD 100V +-5% MET-POLY CARB
D1	DIODE	837A692H03	1N645A
D2	DIODE	837A692H03	1N645A
D3	DIODE	188A342H06	1N4818
D4	DIODE	837A692H03	1N645A
D5	DIODE	837A692H03	1N645A
D6	DIODE	837A692H03	1N645A
D7	DIODE	837A692H03	1N645A
D8	DIODE	837A692H03	1N645A
D9	DIODE	837A692H03	1N645A
D10	DIODE	188A342H06	1N4818
IC1	INT CKT	3527A26H03	MC14023BAL TRIPLE 3 INPUT NAND
IC2	INT CKT	3527A09H02	MC14011BAL QUAD-2 INPUT NAND
IC3	INT CKT	3527A09H06	MC14066BAL QUAD BILATERIAL SWITCH
J1	JUMPER	862A478H01	0 OHM
J2	JUMPER	862A478H01	0 OHM
LED-1	DIODE	3508A22H01	RED LED (EDGE MOUNT)
LED-2	DIODE	3508A22H01	RED LED (EDGE MOUNT)
PB-1	SWITCH	1444C63H01	PUSHBUTTON
Q1	TRANSISTOR	762A672H15	2N2222A, NPN
Q2	TRANSISTOR	762A672H17	2N2907A PNP
Q3	TRANSISTOR	762A672H17	2N2907A PNP
Q4	TRANSISTOR	762A672H15	2N2222A, NPN
Q5	TRANSISTOR	762A672H15	2N2222A, NPN
Q6	TRANSISTOR	762A672H15	2N2222A, NPN
Q7	TRANSISTOR	762A672H17	2N2907A PNP
Q8	TRANSISTOR	3502A22H01	MJE205, NPN, PWR

DWG NO	SUB	PART NAME	APPAR TYPE	ADD'L DESC.	3/9/84
1581C25G03	6	ARTM-1 MODULE	LCB	MAIN BOARD FOR 1581C25G01 IL40-216.9	

ITEM	PART NAME	STYLE	DESCRIPTION
R1	RESISTOR	848A819H48	1K, 1% 1/4W METAL FILM
R2	RESISTOR	848A820H45	10K 1/4W 1% METAL FILM
R3	RESISTOR	848A819H94	3.01K 1%, 1/4W METAL FILM
R4	RESISTOR	848A821H14	51.1K 1/4W 1% METAL FILM
R5	RESISTOR	848A820H45	10K 1/4W 1% METAL FILM
R6	RESISTOR	848A818H51	100-OHM 1% 1/4W METAL FILM
R7	RESISTOR	848A820H74	20K 1% 1/4W METAL FILM
R8	RESISTOR	848A820H74	20K 1% 1/4W METAL FILM
R9	RESISTOR	848A819H48	1K, 1% 1/4W METAL FILM
R10	RESISTOR	848A820H74	20K 1% 1/4W METAL FILM
R11	RESISTOR	187A290H01	10 OHM, 1/2W, +-5% CARBON
R12	RESISTOR	848A820H91	30.1K 1% 1/4W METAL FILM
R13	RESISTOR	848A819H48	1K, 1% 1/4W METAL FILM
R14	RESISTOR	848A820H74	20K 1% 1/4W METAL FILM
R15	RESISTOR	848A820H45	10K 1/4W 1% METAL FILM
R16	RESISTOR	848A820H45	10K 1/4W 1% METAL FILM
R17	RESISTOR	848A820H45	10K 1/4W 1% METAL FILM
R18	RESISTOR	848A820H74	20K 1% 1/4W METAL FILM
R19	RESISTOR	848A821H42	100K 1/4W 1% METAL FILM
R20	RESISTOR	848A820H45	10K 1/4W 1% METAL FILM
R21	RESISTOR	848A820H45	10K 1/4W 1% METAL FILM
R22	RESISTOR	848A821H14	51.1K 1/4W 1% METAL FILM
R23	RESISTOR	848A820H45	10K 1/4W 1% METAL FILM
R24	RESISTOR	848A822H11	511K 1/4W 1% METAL FILM
R25	RESISTOR	848A822H11	511K 1/4W 1% METAL FILM
R26	RESISTOR	848A821H14	51.1K 1/4W 1% METAL FILM
R27	RESISTOR	848A820H45	10K 1/4W 1% METAL FILM
R28	RESISTOR	848A819H94	3.01K 1%, 1/4W METAL FILM
R29	RESISTOR	848A821H14	51.1K 1/4W 1% METAL FILM
R30	RESISTOR	848A820H45	10K 1/4W 1% METAL FILM
R31	RESISTOR	848A819H94	3.01K 1%, 1/4W METAL FILM
R32	RESISTOR	848A819H94	3.01K 1%, 1/4W METAL FILM
R33	RESISTOR	848A820H21	5.62K, 1/4W, 1% METAL FILM
R34	RESISTOR	762A679H02	330 OHMS, +-5% 3W, WIREWOUND
R35	RESISTOR	848A819H48	1K, 1% 1/4W METAL FILM
R36	RESISTOR	04D1297H41	22.4-OHM 25W +-5% WIREWOUND
R37	RESISTOR	848A820H62	15K 1/4W 1% METAL FILM
R38	RESISTOR	848A820H62	15K 1/4W 1% METAL FILM
R56	RESISTOR	848A820H21	5.62K, 1/4W, 1% METAL FILM
RY-1	REED RELAY	1442C62G01	.5 AMP DC PICKUP, FORM A
RY-2	REED RELAY	1442C62G01	.5 AMP DC PICKUP, FORM A
Z1	ZENER	862A288H07	1N5235B 6.8V 5% 500 MW
Z2	ZENER	186A797H10	1N960B 9.1V 5% 400 MW

DWG NO	SUB	PART NAME	APPAR TYPE	ADD'L DESC.	3/9/84
1581C27G01	6	ARTM-2 MODULE SUB ASSEMBLY	LCB	HINGED BOARD FOR 1581C25G02 ARTM-1/2 IL40-216.9	

ITEM	PART NAME	STYLE	DESCRIPTION
AR2	AR UNIT	408C845G44	1.6 OHM COIL, 10W, 4A
C10	CAPACITOR	3534A68H06	.033 MFD, 100V, +-5% MET-POLY CARB
C11	CAPACITOR	3534A68H06	.033 MFD, 100V, +-5% MET-POLY CARB
C12	CAPACITOR	3534A68H08	.1 MFD 100V +-5% MET-POLY CARB
C13	CAPACITOR	3534A68H08	.1 MFD 100V +-5% MET-POLY CARB
C14	CAPACITOR	880A363H01	100 MFD, 35V, +-20% TANTALUM
D11	DIODE	188A342H06	1N4818
IC4	INT CKT	3527A26H03	MC14023BAL TRIPLE 3 INPUT NAND
IC5	INT CKT	3527A09H02	MC14011BAL QUAD-2 INPUT NAND
IC6	INT CKT	3527A09H06	MX14066BAL QUAD BILATERAL SWITCH
J03	JUMPER	862A478H01	0 OHM
J04	JUMPER	862A478H01	0 OHM
LED3	DIODE	3508A22H01	RED LED (EDGE MOUNT)
LED4	DIODE	3508A22H01	RED LED (EDGE MOUNT)
Q9	TRANSISTOR	762A672H17	2N2907A PNP
Q10	TRANSISTOR	3502A22H01	MJE205, NPN, PWR
R39	RESISTOR	848A821H14	51.1K 1/4W 1% METAL FILM
R40	RESISTOR	848A820H45	10K 1/4W 1% METAL FILM
R41	RESISTOR	848A822H11	511K 1/4W 1% METAL FILM
R42	RESISTOR	848A822H11	511K 1/4W 1% METAL FILM
R43	RESISTOR	848A821H14	51.1K 1/4W 1% METAL FILM
R44	RESISTOR	848A820H45	10K 1/4W 1% METAL FILM
R45	RESISTOR	848A819H94	3.01K 1%, 1/4W METAL FILM
R46	RESISTOR	848A821H14	51.1K 1/4W 1% METAL FILM
R47	RESISTOR	848A820H45	10K 1/4W 1% METAL FILM
R48	RESISTOR	848A819H94	3.01K 1%, 1/4W METAL FILM
R49	RESISTOR	848A820H21	5.62K, 1/4W, 1% METAL FILM
R50	RESISTOR	848A819H94	3.01K 1%, 1/4W METAL FILM
R51	RESISTOR	762A679H02	330 OHMS, +-5% 3 WATTS, WIRE WOUND
R52	RESISTOR	848A819H48	1K, 1% 1/4W METAL FILM
R53	RESISTOR	04D1297H41	22.4-OHM 25W +-5% WW
R54	RESISTOR	848A820H62	15K 1/4W 1% METAL FILM
R55	RESISTOR	848A820H62	15K 1/4W 1% METAL FILM
RY3	REED RELAY	1442C62G01	.5 AMP DC PICKUP, FORM A
RY4	REED RELAY	1442C62G01	.5 AMP DC PICKUP, FORM A

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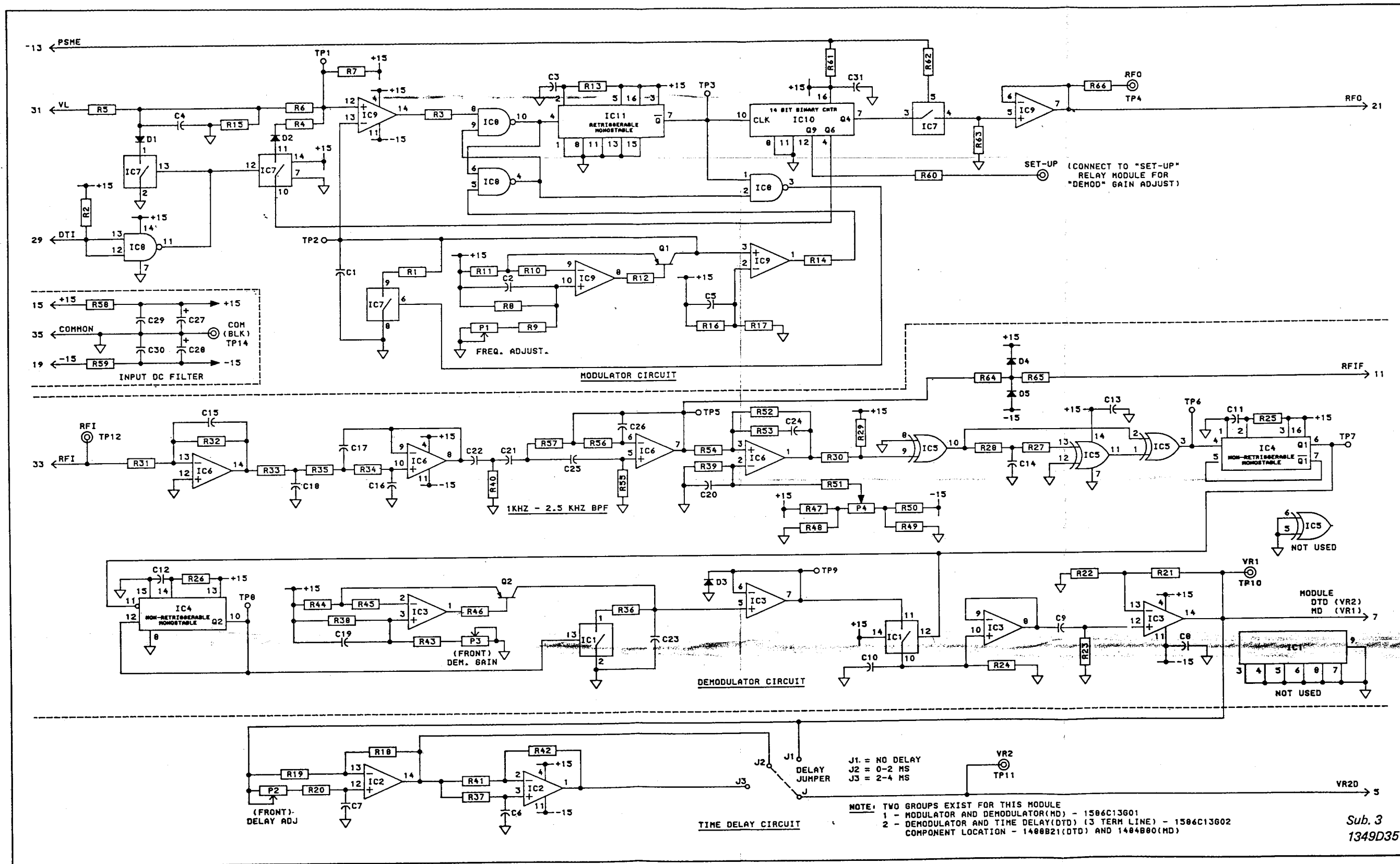


Fig. 1 MD Module

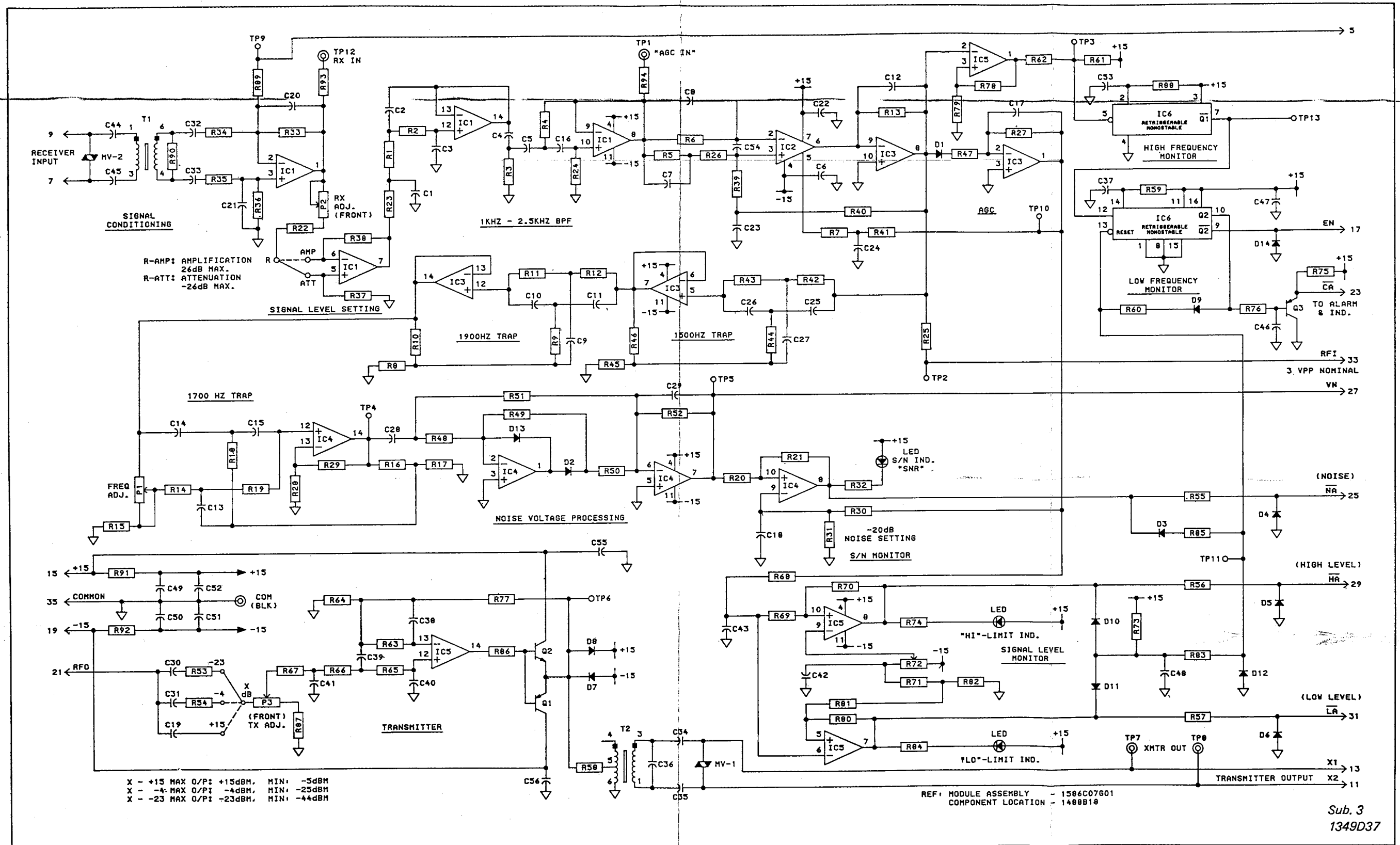


Fig. 2. IFT Module

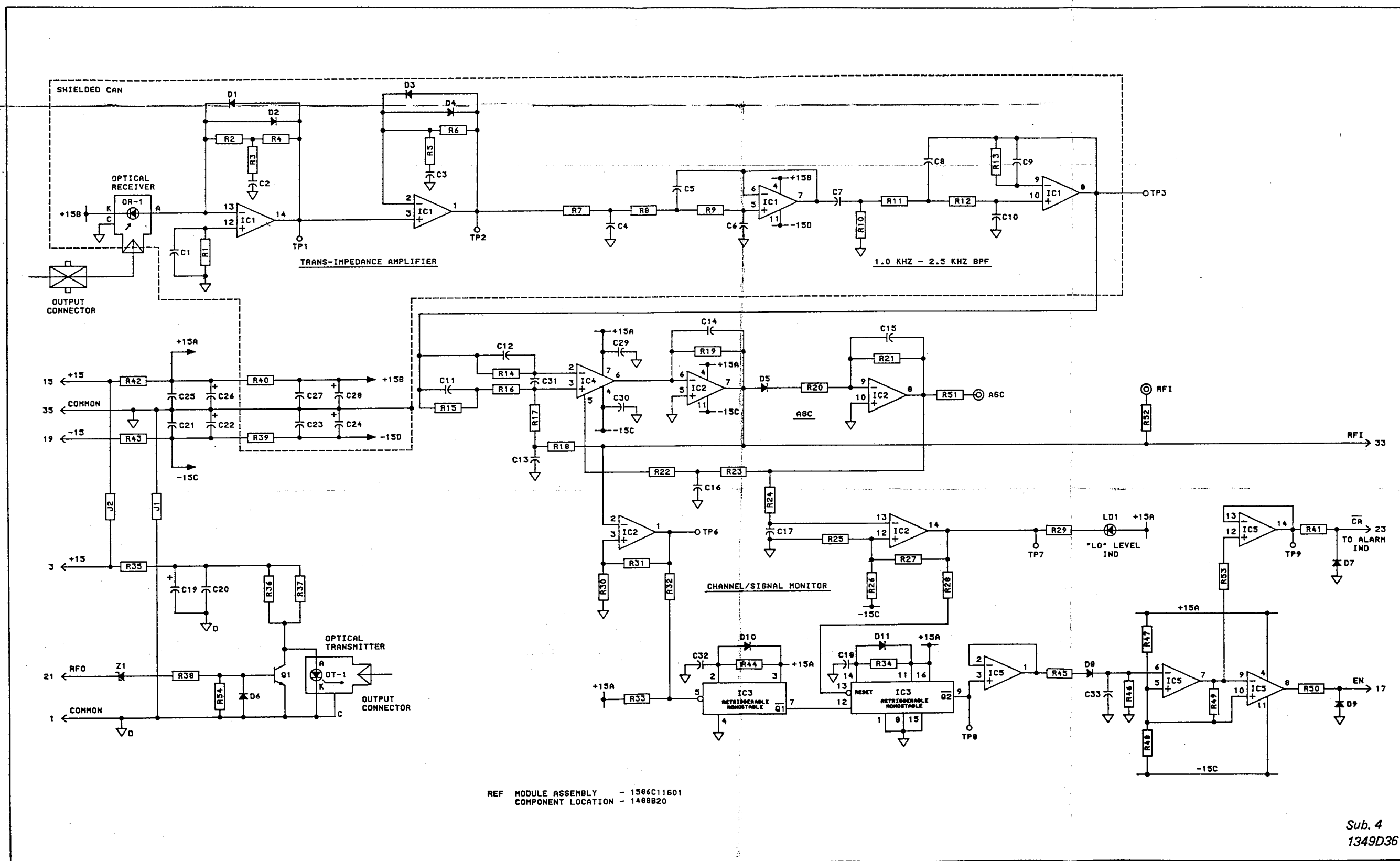


Fig. 3. IFO Module

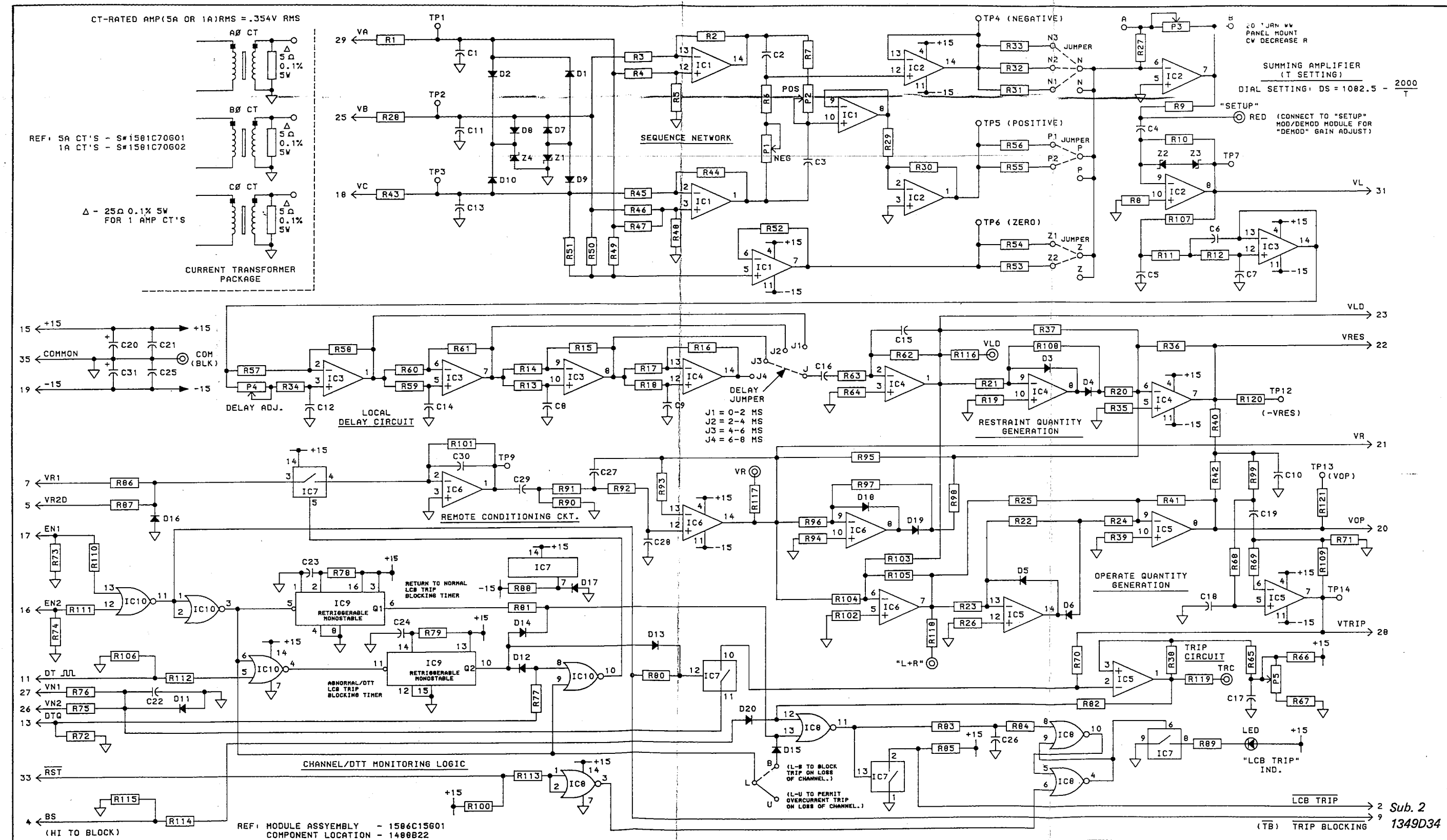


Fig. 4. RELAY Module

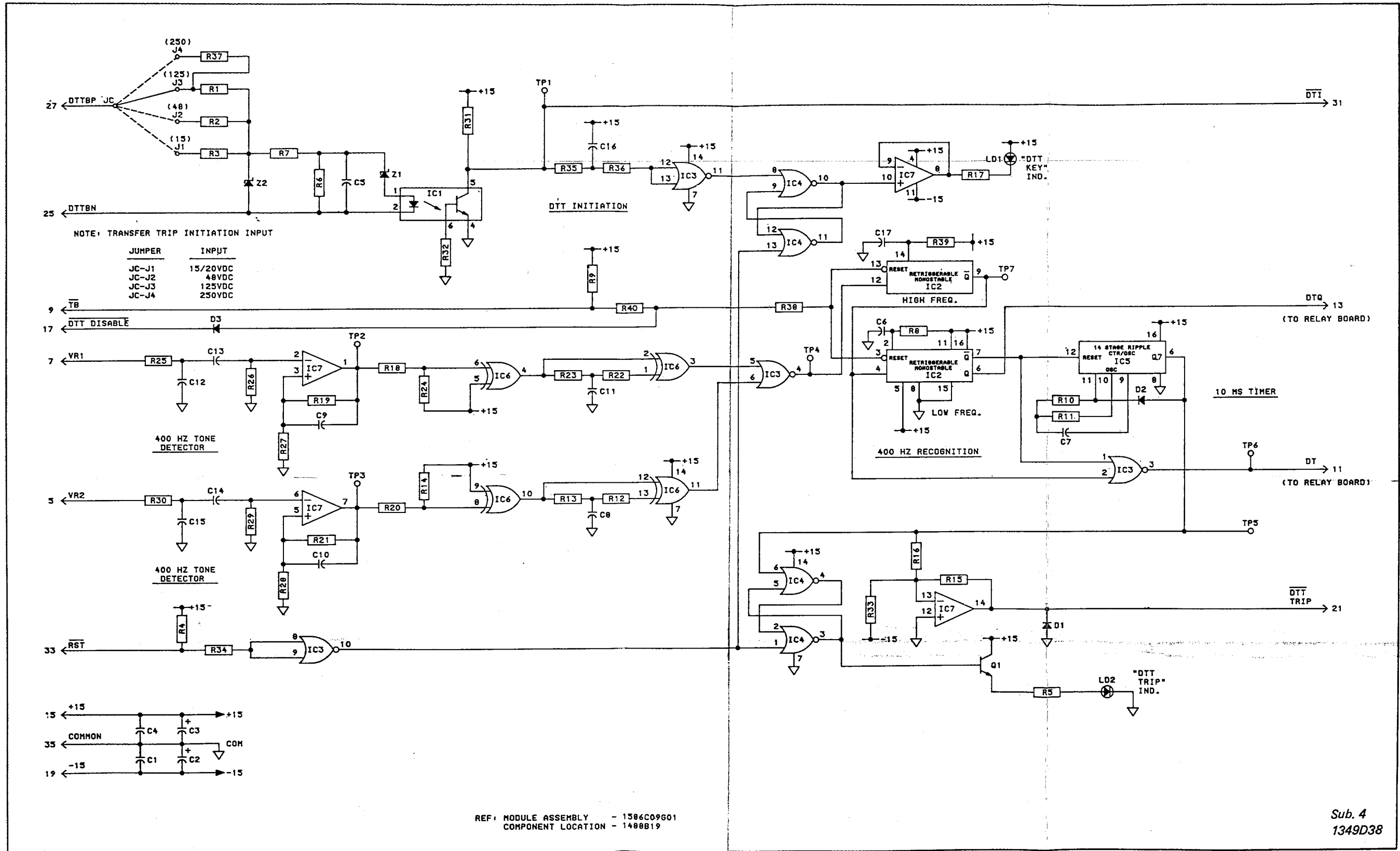


Fig. 5. DTT Module

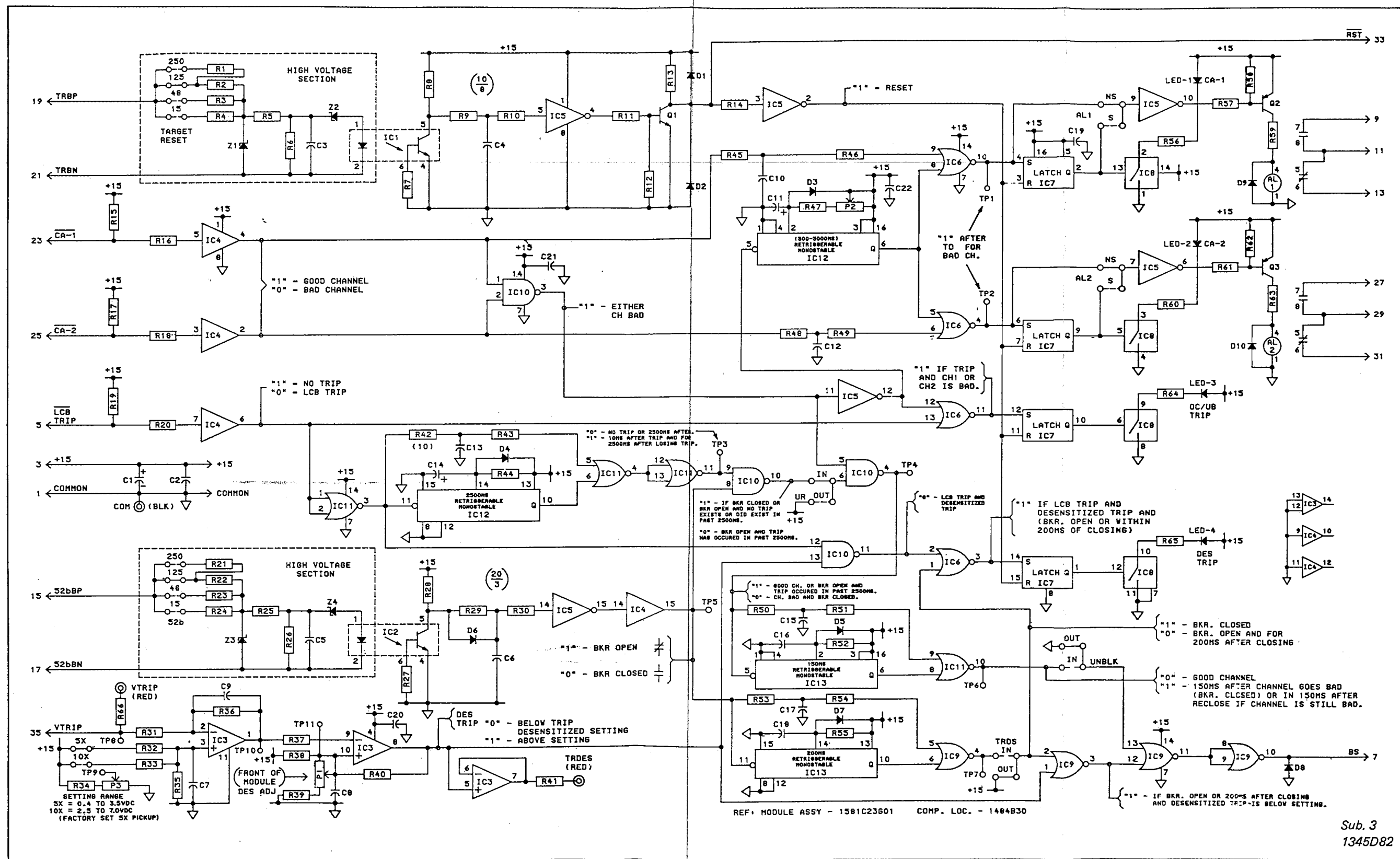


Fig. 6. AXLM Module

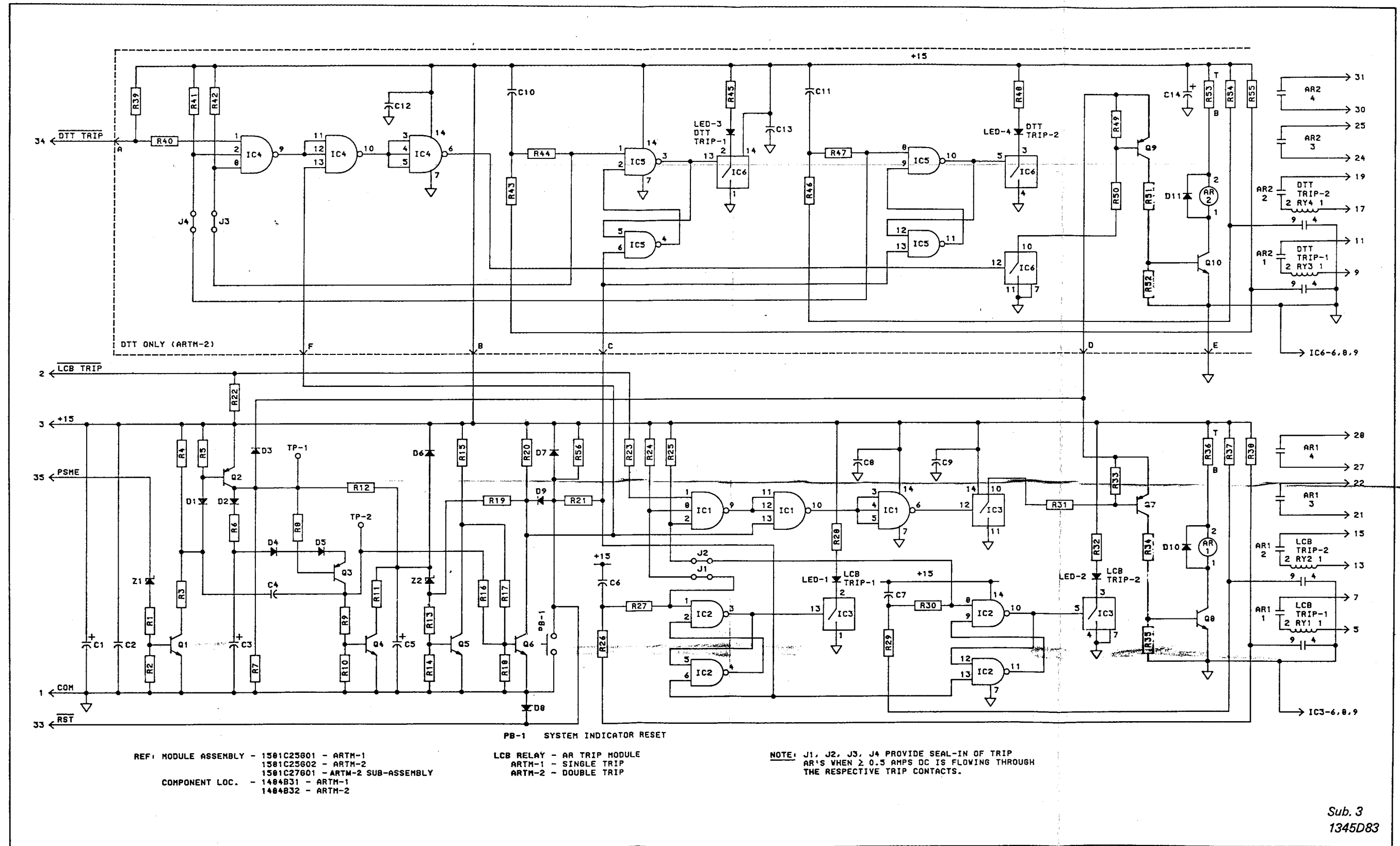


Fig. 7. ARTM-1/2 Module

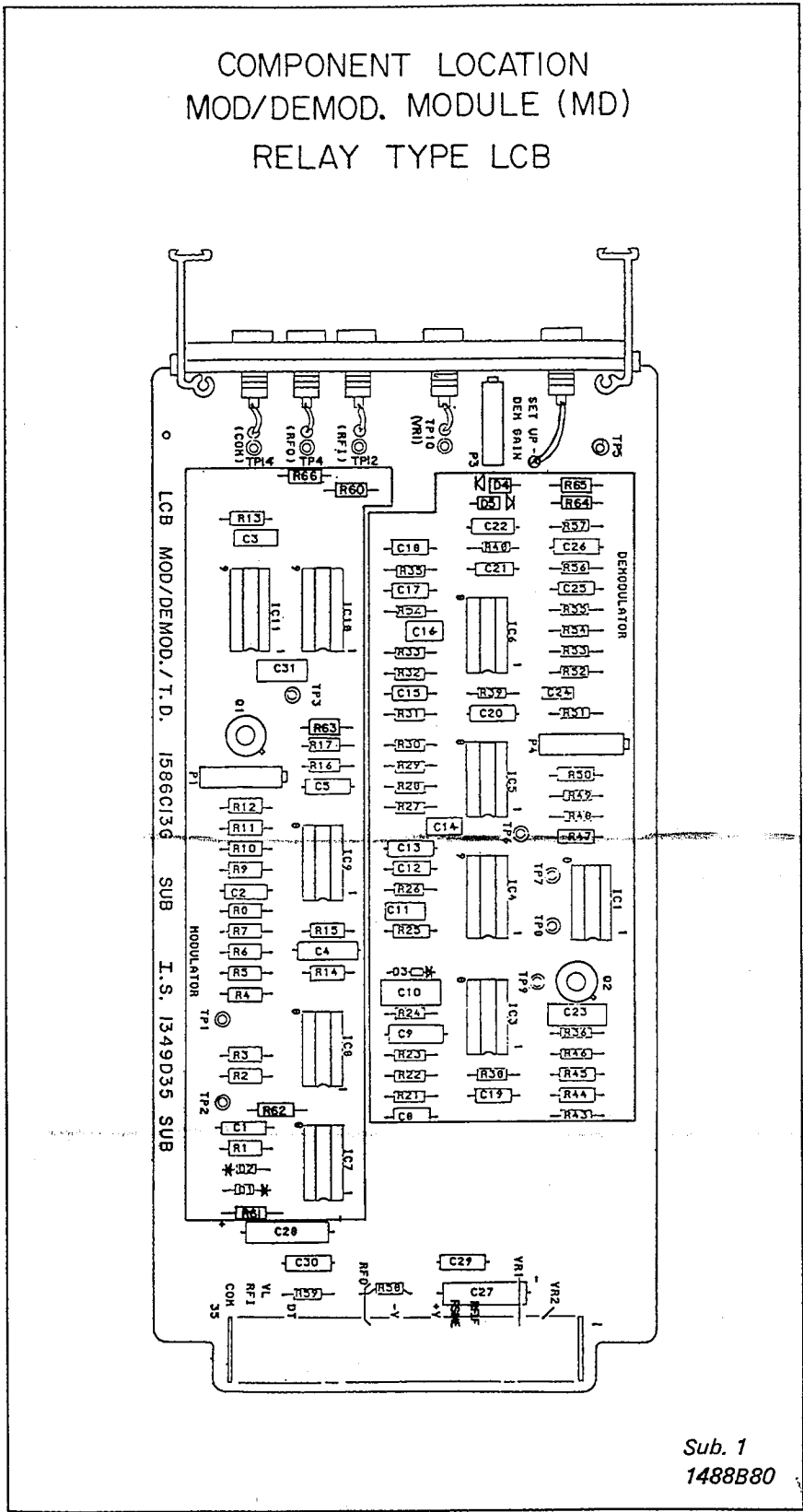


Fig. 8. MD Component Location

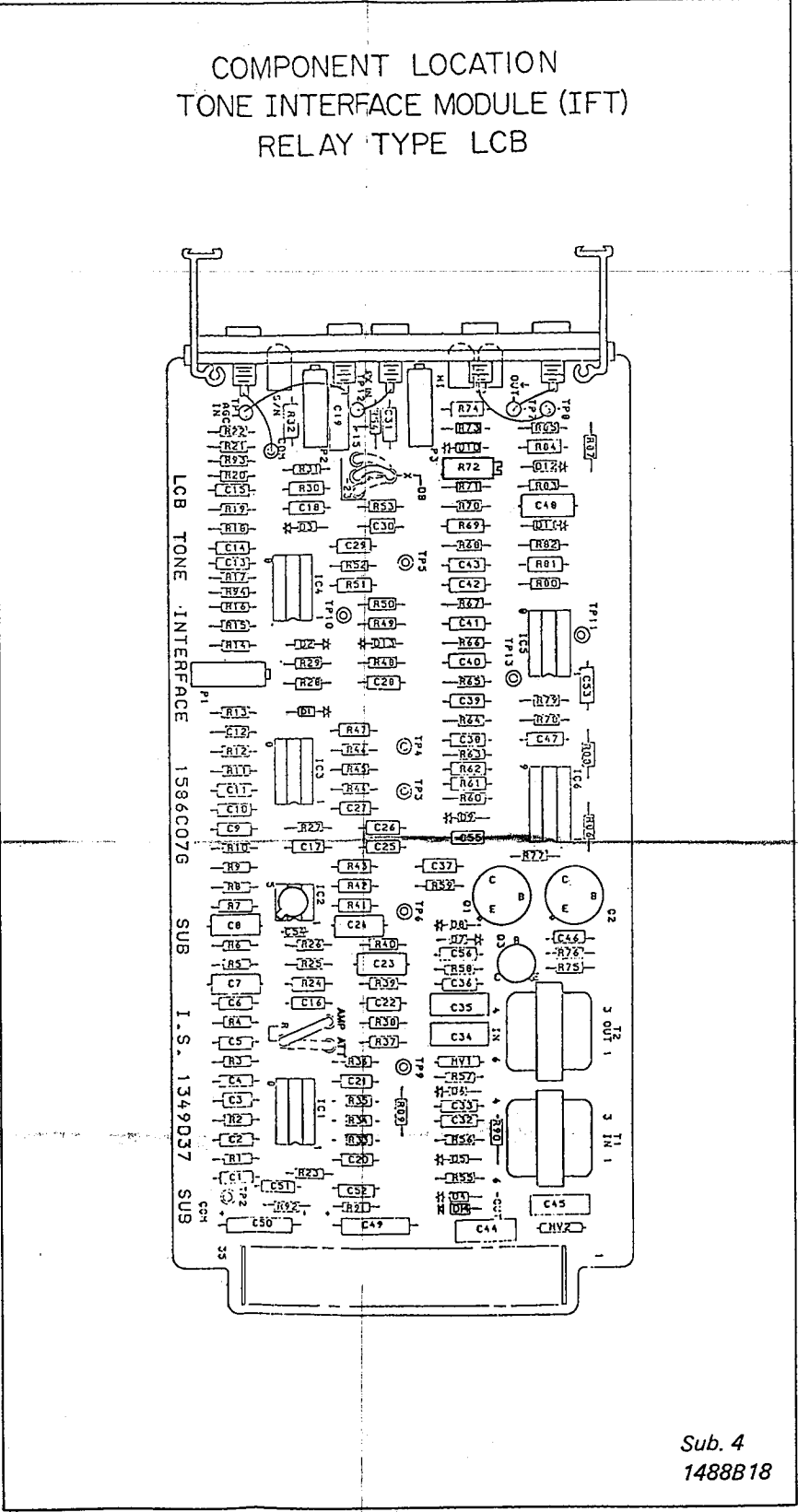


Fig. 9. IFT Component Location

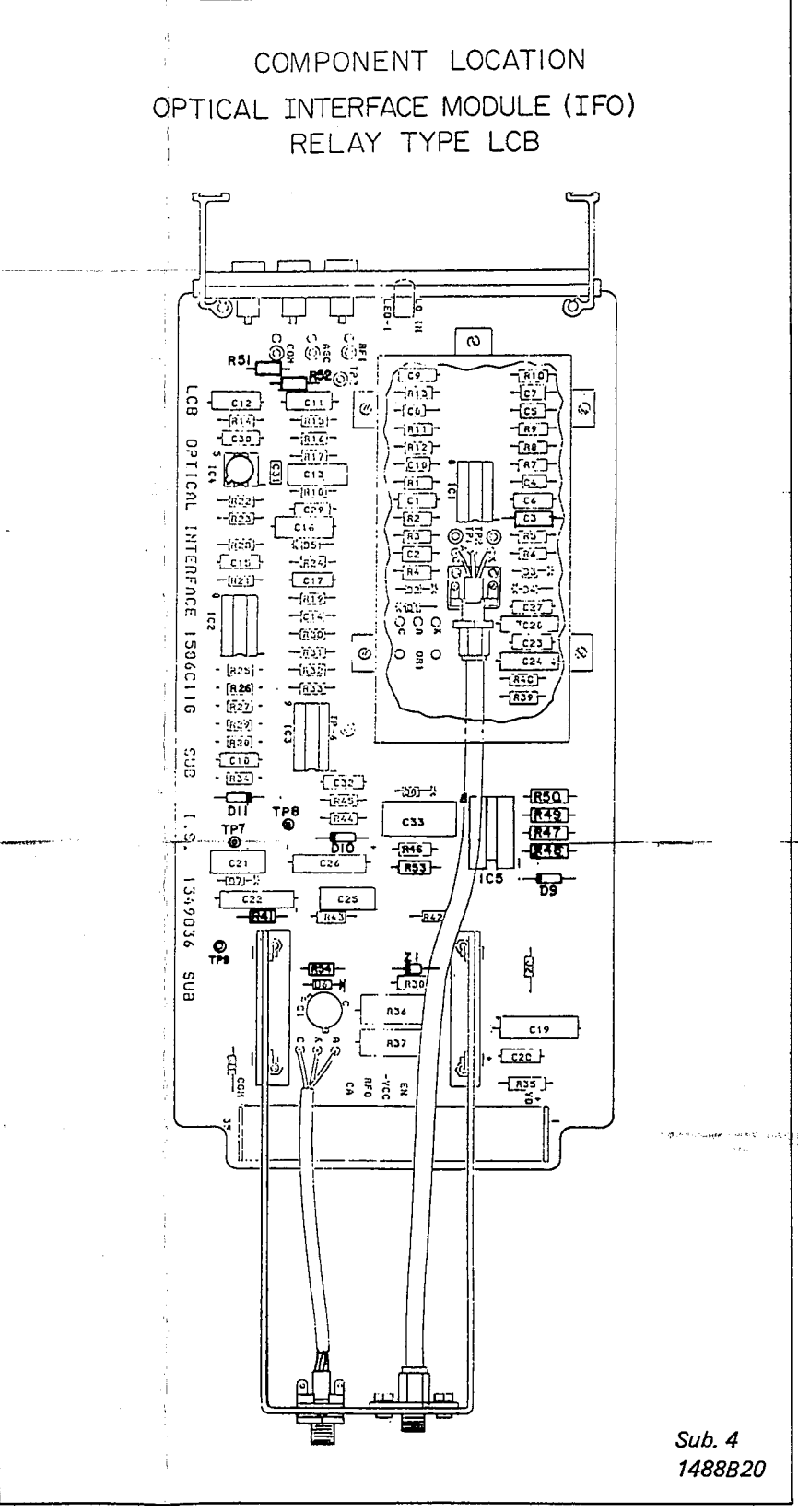


Fig. 10. IFO Component Location

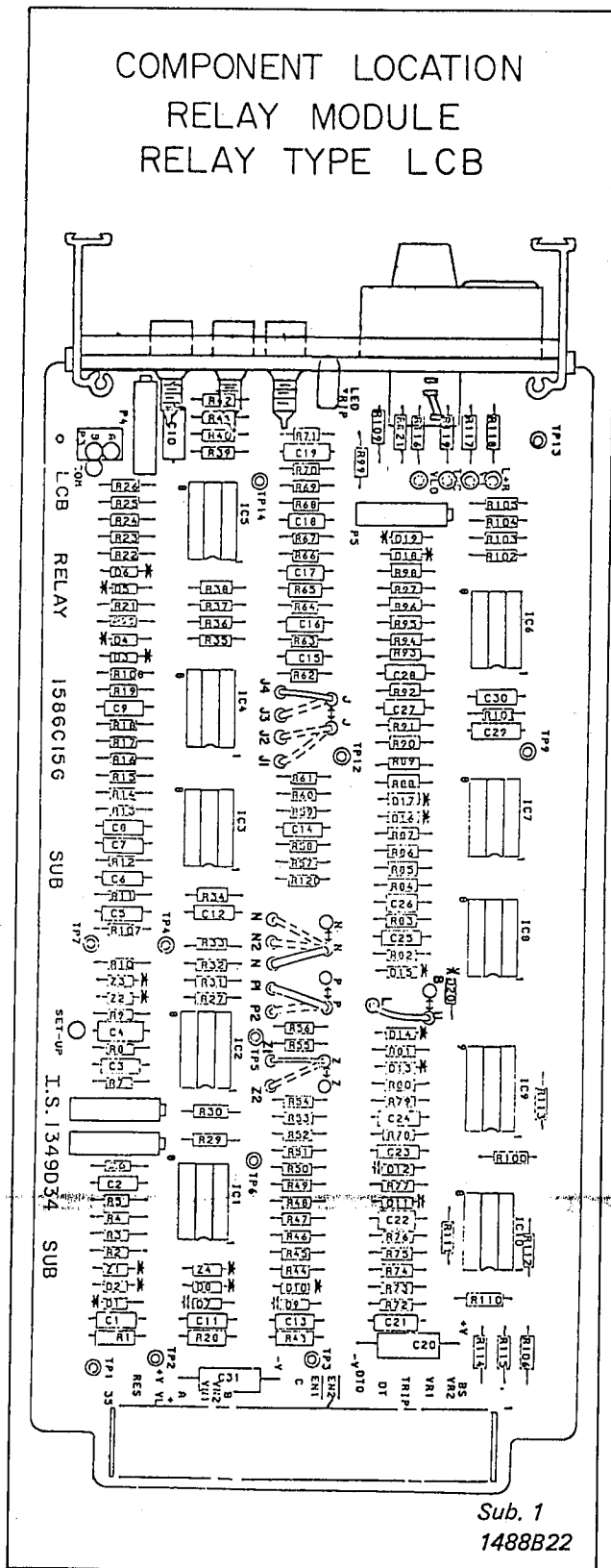


Fig. 11. RELAY Component Location

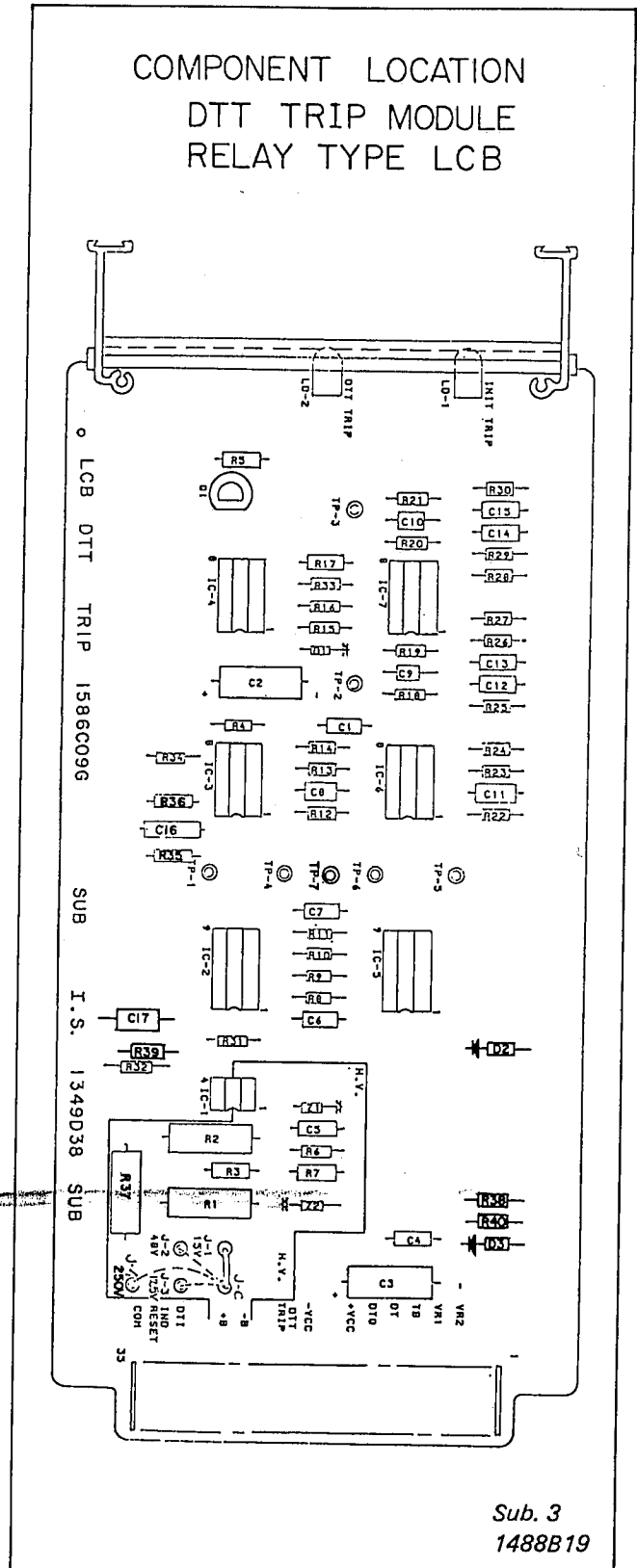


Fig. 12. DTT Component Location

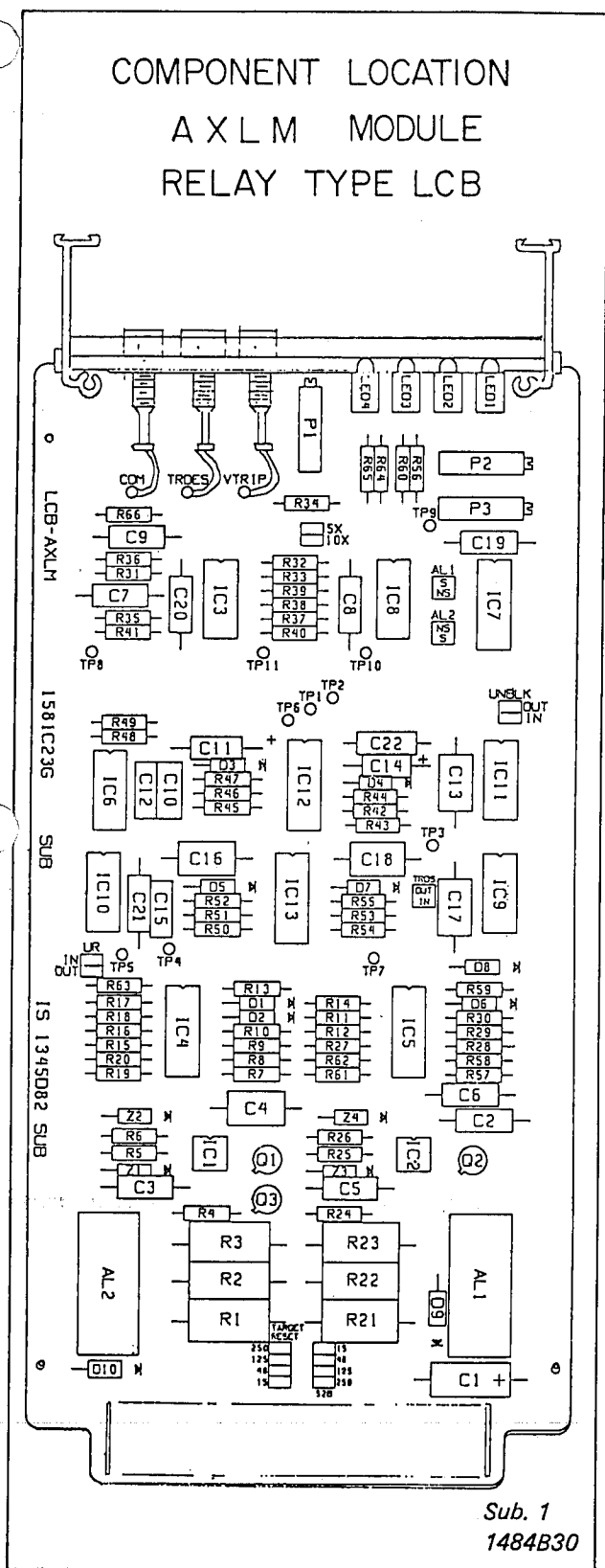


Fig. 13. AXLM Component Location

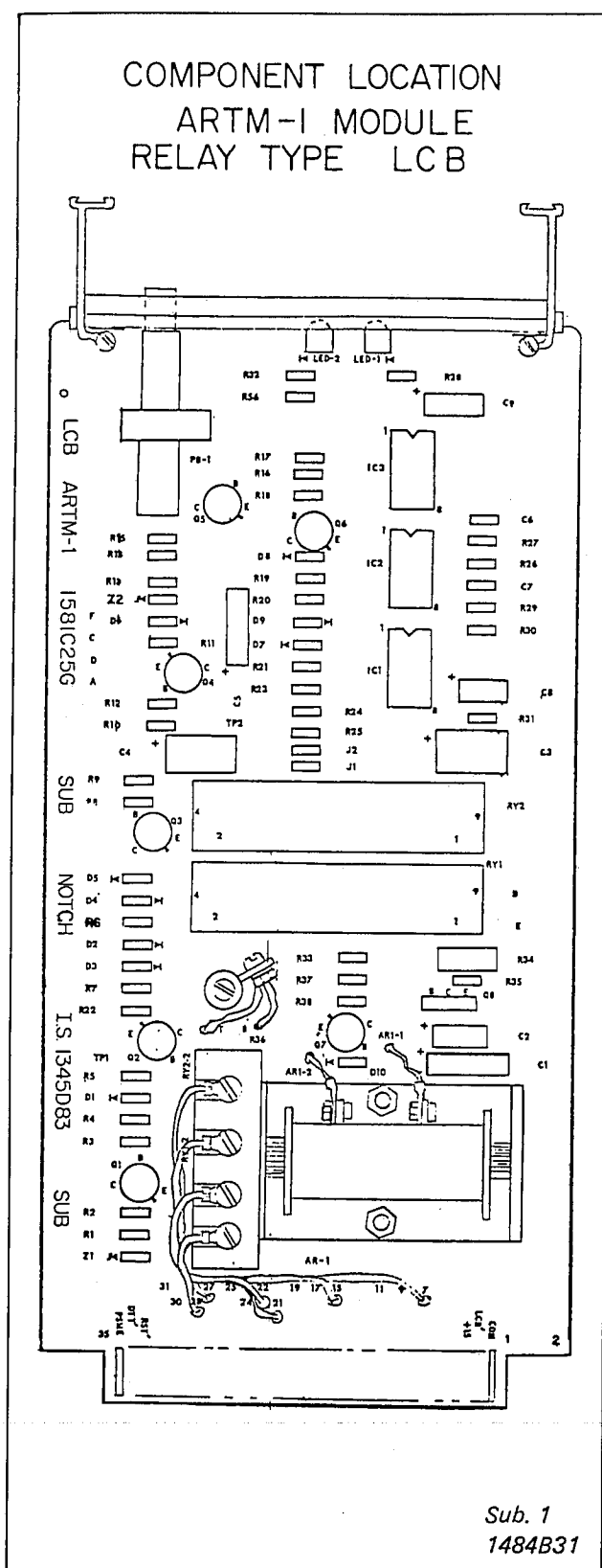
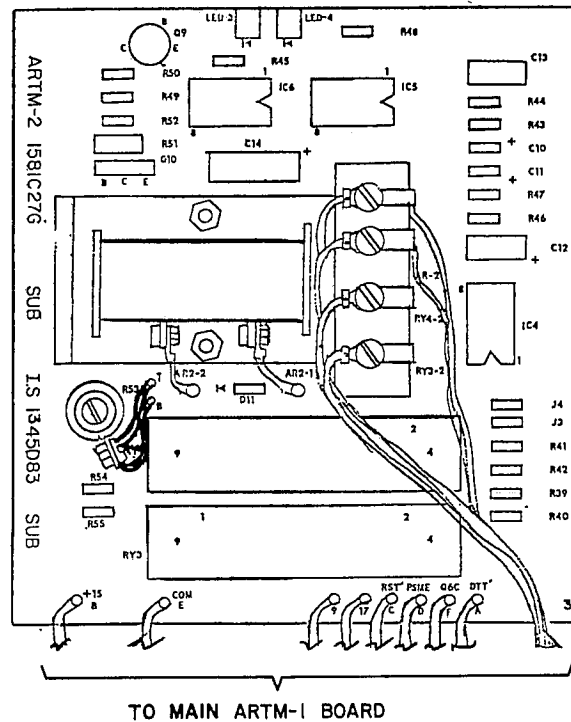


Fig. 14. ARTM-1 Component Location

COMPONENT LOCATION
ARTM-2 SUBASSEMBLY MODULE
RELAY TYPE LCB



Sub. 1
1484B32

Fig. 15. ARTM-2 Component Location