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TECHNICAL INFORMATION

FOR

EMS TEST DISTRIBUTOR

600152

(INCLUDES 600154 MATRIX)

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TEST & VERIFICATION DISTRIBUTOR

600152 / 600154

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1.0 GENERAL

1.1 DESCRIPTION

This distributor consists of a 600152 control circuit and a 600154 Matrix Card for each 500 numbers equipped up to a maximum of 10,000 numbers. Additional distributors can be equipped for multiple office codes.

The Matrix Card is equipped with matrix for 2 Test Distributors. The Distributor can be controlled from a Test Board or from various Automatic Line Testers manufactured by Teradyne, Western Electric, Badger, Lordel, etc. See application information below for additional information.

1.2 APPLICATIONS

A. Test Distributor Operation

The ITEC Test Distributor controls the establishment of a metallic test path from a Test Board or Automatic Test Unit to a subscriber line terminal via a Test Connector. It allows the Test Person or Auto Test Unit to control the Test Connector for number selection, including incremental number and/or level advance, and control of the line cutoff relay for testing in or out on the subscriber line.

Is is compatible with electromechanical Test Connectors that are direct control (mechanism only) or indirect control (loop dialing) by strap option. It normally selects a Test Connector with 2 dialed digits, however, it can be optioned for single digit operation.

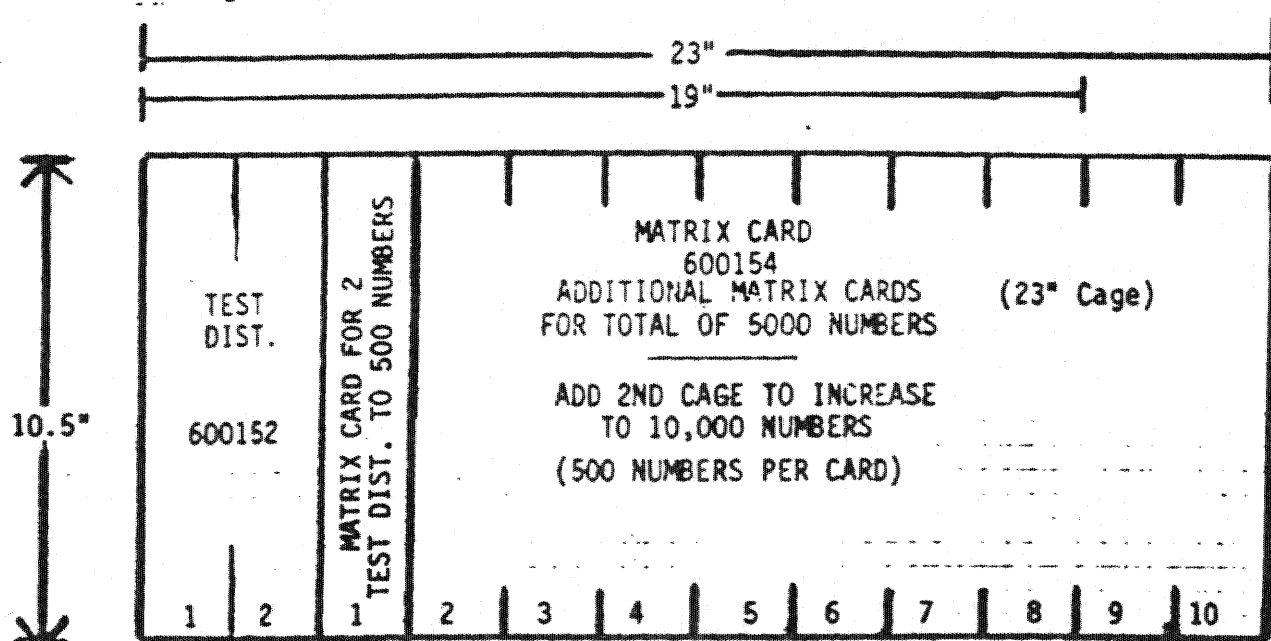
B. Test Selector Operation

The unit may be arranged, using Installer wiring and strapping options, to function as a 1 digit Selector to access Test Distributors assigned to different MNX codes in large exchanges.

C. Verification Dist. Operation

The unit may be arranged to be accessed via an incoming TC selector level for operator number verification, by Installer wiring options. In this application, the Operator is capacitor coupled to the dialed number for transmission. Supervision is extended to the Operator to indicate the dialed number is busy.

FIGURE 1-1
TEST DIST/MATRIX MOUNTING
(2 TEST DISTRIBUTORS)



2.0 INSTALLATION INFORMATION

2.1 Mounting

The 600152 and 600154 circuit cards must be mounted in ITEC card cages 500044-1 (19") or 500044-2 (23") which have a capacity of 10 and 12 cards respectively. Adapters are available to mount either the 19" or the 23" cage on a 27" or 27 1/2" relay rack.

A 9 Ft. relay rack will hold 9 cages. An 11 ft. 6 in. relay rack will hold 12 cages. See Fig 2-1.

2.2 Fusing & Power Wiring

Each Test Distributor has a 3/8 amp. fuse on the circuit card. The card cage must also be fused at the bay fuse panel to protect the wiring and connectors. The Matrix Cards are powered from the distributors and therefore not fused.

Fuse the cage of 2 Distributors with one 2 amp. fuse on the bay fuse panel. Use no smaller than 22 guage paired wire for feed from bay fuse panel to cage.

2.3 Wiring

All Installer wiring is with 24 gauge bulk cable wire wrapped directly to the circuit card edge connectors. See Figs 2-1 and 2-2 for edge connector pin assignments.

Assignment of TH 0-9 and H 0-9 leads from Test Distributor to Matrix Cards is per exchange numbering requirements. Do not confuse pin identity markings on matrix cards with fixed number assignments.

Wire TH 0-9 leads to TH 1 or 2 on A Matrix Card to correspond to the 'Thousands' group assigned. A matrix card can be assigned to only 1 TH (thousands) group. Do not attempt to mix different thousands on the same matrix card.

Wire H 0-9 leads to H1-1-5 or H2-1-5 to assign 'Hundreds' groups - Refer to drawing C600154 for additional information.

Example: A 1600 Terminal exchange
NXX - 4000-4999 & 5100-5600

Matrix Cards 1 & 2 are 4xxx no. grp
Matrix Cards 3 & 4 are 5xxx no. grp

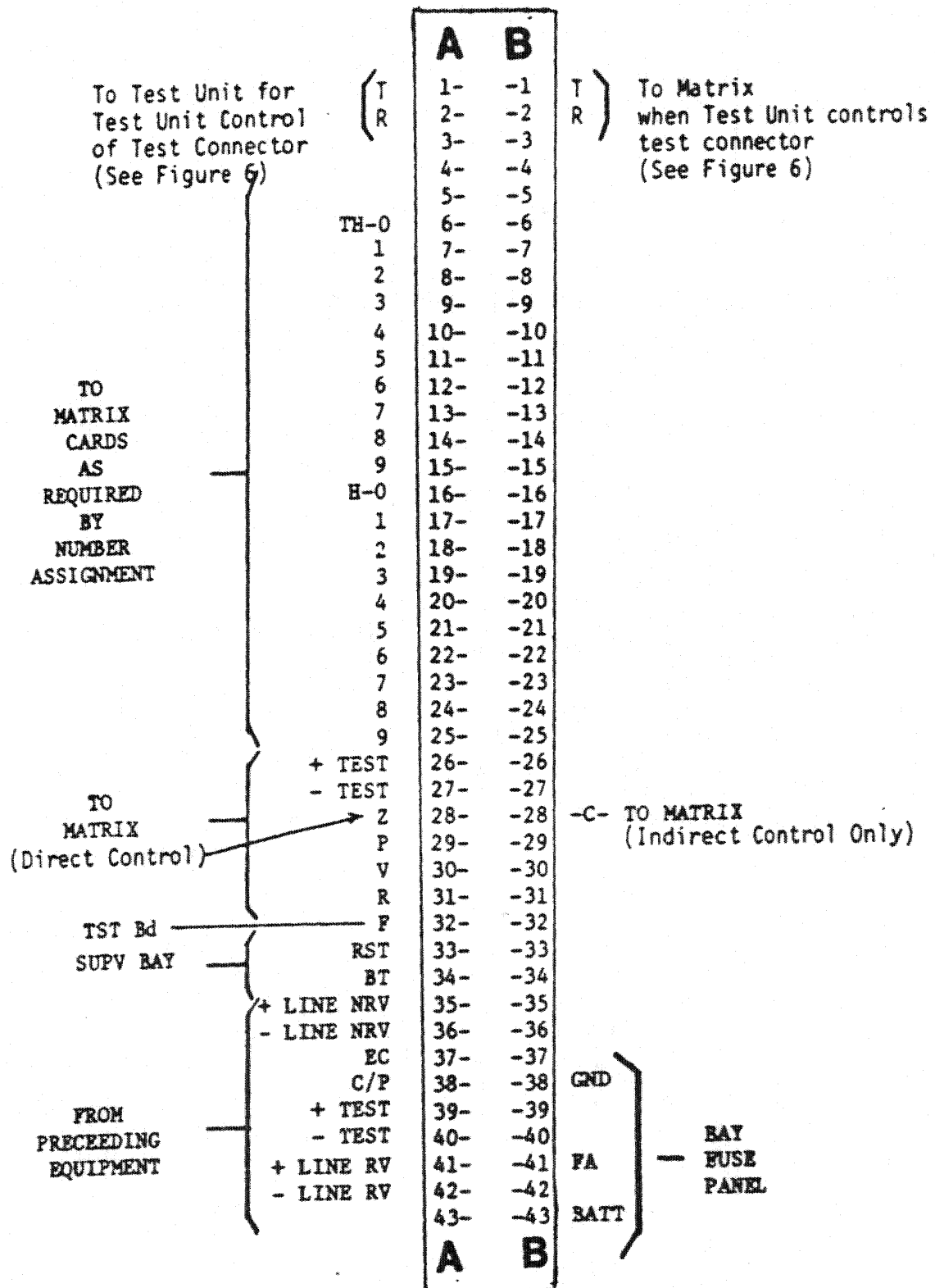
WIRE

FROM		TO	
TD #1 PIN	TD #2 PIN	MATRIX CARDS	PIN
TH-4		1 & 2	TH-1
-	TH-4	1 & 2	TH-2
TH-5	-	3 & 4	TH-1
-	TH-5	3 & 4	TH-2
H0		1	H1-1
	H0	1	H2-1
1	1	1 & 3	H1-2
		1 & 3	H2-2
2	2	1 & 3	H1-3
		1 & 3	H2-3
3	3	1 & 3	H1-4
		1 & 3	H2-4
4	4	1 & 3	H1-5
		1 & 3	H2-5
5	5	2 & 4	H1-1
		2 & 4	H2-1
6	6	2 & 4	H1-2
		2 & 4	H2-2
7	7	2	H1-3
		2	H2-3
8	8	2	H1-4
		2	H2-4
9	9	2	H1-5
		2	H2-5

All leads designated TO MATRIX on Fig. 2-1 are multiplied to all Matrix Cards equipped.

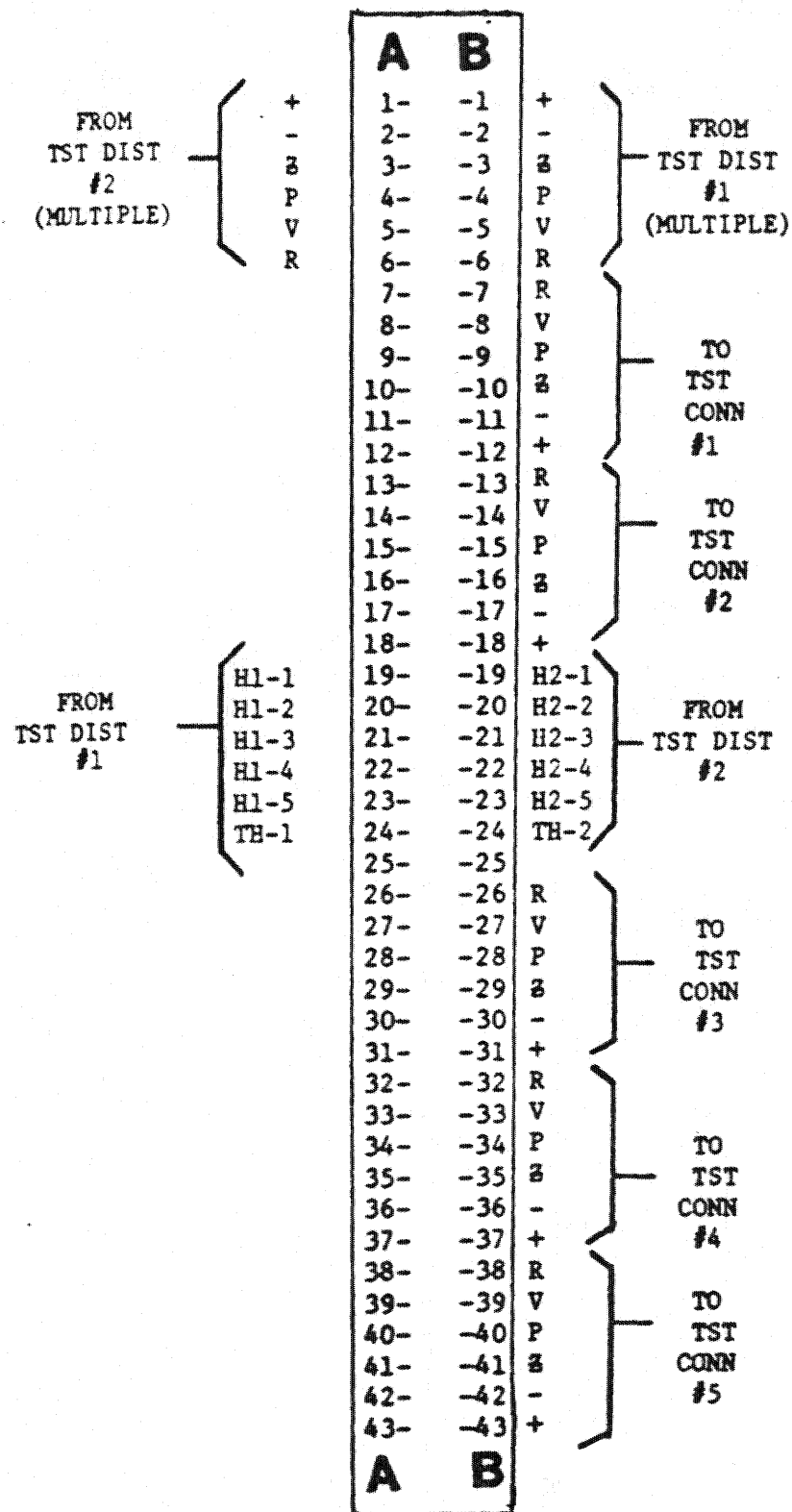
Leads designated FROM PRECEEDING EQUIPMENT are from Test board or Auto Test Unit or Verification Trunk.

TEST DISTRIBUTOR



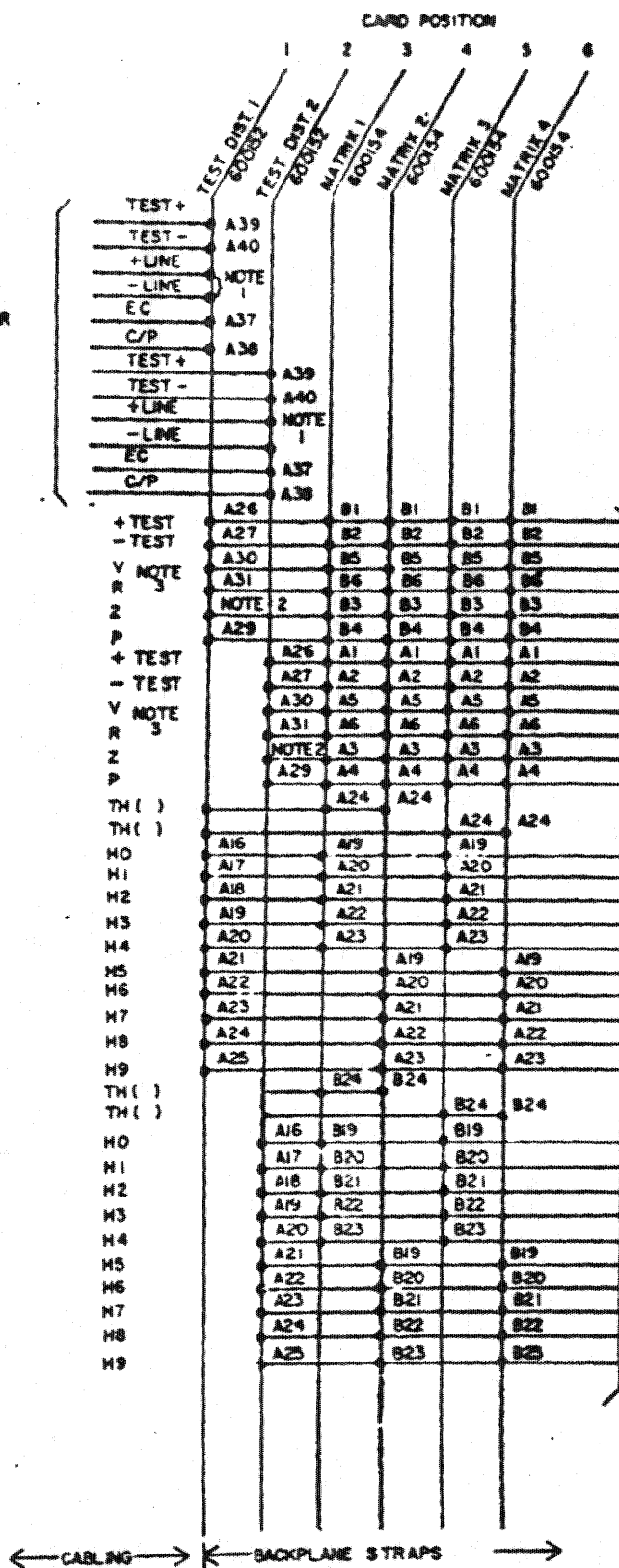
INSTALLERS WIRING SIDE

MATRIX CARD



INSTALLERS WIRING SIDE

SEE VARIOUS
MANUFACTURER
DRAWINGS AND/OR
APPLICATION
DRAWINGS FOR
CONNECTION



TO OTHER MATRIX CARDS.
2 CARDS PER THOUSANDS
GROUP OF TEST CONNECTORS
WIRE APPROPRIATE THOUSAND
LEAD TO EACH PAIR OF CARDS
AND MULTIPLE HUNDREDS LEADS.

SEE TECHNICAL BULLETIN
FOR CONNECTIONS TO TEST
CONNECTORS.

NOTES:

1. FOR NON-REVERSE ACCESS + LINE PIN A35
-LINE PIN A36. FOR REVERSE ACCESS + LINE
PIN A41, -LINE PIN A42
2. FOR DIRECT CONTROL USE PIN A28, FOR
INDIRECT CONTROL USE PIN B28

3. FOR INDIRECT CONTROL, STRAP A30 & A31
TOGETHER USE LEAD R TO -OPR OF TEST
CONNECTOR. LEAD V WILL NOT BE USED.
4. REFER TO APPLICATION DRAWINGS FOR
VARIATIONS IN WIRING FOR AUTO TEST CIRCUITS.

DESCRIPTION OF LEADS

- A1 - Tip or +Line from Auto Test Unit when Auto Test Unit controls the Test Connector.
- A2 - Ring or -Line from Auto Test Unit when Auto Test Unit controls the Test Connector.
- A3 - Spare
- A4 - Spare
- A5 - Spare
- A6 - Thousands 0 - Output to Matrix
- A7 - Thousands 1 - Output to Matrix
- A8 - Thousands 2 - Output to Matrix
- A9 - Thousands 3 - Output to Matrix
- A10- Thousands 4 - Output to Matrix
- A11- Thousands 5 - Output to Matrix
- A12- Thousands 6 - Output to Matrix
- A13- Thousands 7 - Output to Matrix
- A14- Thousands 8 - Output to Matrix
- A15- Thousands 9 - Output to Matrix
- A16- Hundreds 0 - Output to Matrix
- A17- Hundreds 1 - Output to Matrix
- A18- Hundreds 2 - Output to Matrix
- A19- Hundreds 3 - Output to Matrix
- A20- Hundreds 4 - Output to Matrix
- A21- Hundreds 5 - Output to Matrix
- A22- Hundreds 6 - Output to Matrix
- A23- Hundreds 7 - Output to Matrix
- A24- Hundreds 8 - Output to Matrix
- A25- Hundreds 9 - Output to Matrix

- A26 + Test - (to matrix) Tip to Subscriber Line under Test
- A27 - Test - (to matrix) Ring to Subscriber Line under Test
- A28 Z - (to matrix) Sleeve, or release, of Direct Control Test Connector
- A29 P - (to Matrix) Sleeve to Subscriber Line under Test
- A30 V - (to matrix) Vertical of Test Connector. The tens digit is pulsed over this lead in direct control operation. In indirect control systems, this lead is multiplied to A31 then to the Test Connector Ring. (No connection is made to the tip of the test connector.)
- A31 R - (to Matrix) Rotary of Test Connector. The units digit is pulsed over this lead in direct control operation. In indirect control systems, this lead is multiplied to A30 then to the Test Connector Ring.
- A32 F - To test board. Ground applied to this lead causes the Test Distributor to open the Tip & Ring to the line.
- A33 RST - Supervisory Bay - Machine Start
- A34 BT - Supervisory Bay 120 IPM Busy Tone
- A35 + Line HRY - Preceding equipment. Tip of Non-reversing access from test board or Auto Test Unit.
- A36 - Line HRY - Preceding equipment. Ring of Non-reversing access from test board or Auto Test Unit.
- A37 EC - Preceding equipment. Ground output from this lead indicates a busy line or busy test connector.

A38 C/P - Preceding equipment. Sleeve of Test Distributor is grounded when distributor is accessed.

A39 + Test - Preceding equipment. Tip of Subscriber Line

A40 - Test Preceding equipment. Ring of Subscriber Line

A41 + Line RV - Preceding equipment. Tip of Reversing access from Test Board, Auto Test, Unit or Verification Trunk.

A42 - Line RV - Preceding equipment. Ring of Reversing access from Test Board, Auto Test Unit or Verification Trunk

A43- Spare

B1 Tip or + Line to Matrix when Test Unit controls the Test Connector

B2 Ring or - Line to Matrix when Test Unit controls the Test Connector

B3 - B26 - Spares

B27- Future use

B28- - C or sleeve of Indirect control Test Connector. (To Matrix)

B29 - B37 - Spares

B38- Ground to Bay Fuse Panel

B39- Spare

B40- Spare

B41- PA from Bay Fuse Panel

B42- Spare

B43- -48 VDC from Bay Fuse Panel

2.4 Strapping

A. The 600152 Test Distributor card must have certain straps to customize it for some types No Installer straps are required for 2 digit direct operations as used with ITEC EMS.

Strap according to Table below and Fig. 2-5.

STRAPPING INSTRUCTIONS

INDIRECT CONTROL
TEST CONNECTORS
(AE, WE, NTL, ITEC
ITT-SE SC 30161)

Strap P1 - P2,
D2 - D3

See Notes 1 & 3

DIRECT CONTROL
TEST CONNECTORS
(ITEC, ITT, GEC,
Plessey, AKI, STC,
BPO, SC 30248)

Strap P2 - P3,
D1 - D2

See Note 3

PULSING METHOD
(INWARD)

Loop - Strap B1 to
B2, Grd on Ring -
Strap B2 to B3
See Note 3

PULSING LOOP
(INWARD)
Less than 1500 ohm

Strap A1 - A2,
A3 - A4
(Do not use with
MLT)

BATTERY SEARCH

Strap BS
Provides 500 ohm
battery on C wire
to preceding
equipment.

TEST SELECTOR
SINGLE DIGIT
OPERATION

Strap Outputs 1-0
to Inputs 1 - 0
as required for cut
through to
applicable levels

VERIFICATION
DISTRIBUTOR

Strap C1 - C2,
C3 - C4
See Note 2

NOTES:

1. On PCB 299152 Rev 4 and earlier, a track must be removed between Pads P2 and 3 and also between pads D1 and D2.
2. PCB Rev 4 and earlier had C1 - C2, C3 - C4 built into the PC board, Capacitors C2 and C3 must be removed from automatic test unit applications.

3. Automatic Test equipment commonly pulses ground on Ring. Check equipment being connected.

B. Using EMS-1 Test Distributor as Selector

For single digit cut through, strap all used digits (1-0) to their respective terminal posts (1-0) in 600152.

Installer connections from selector Test Distributor to relay matrix as follows.

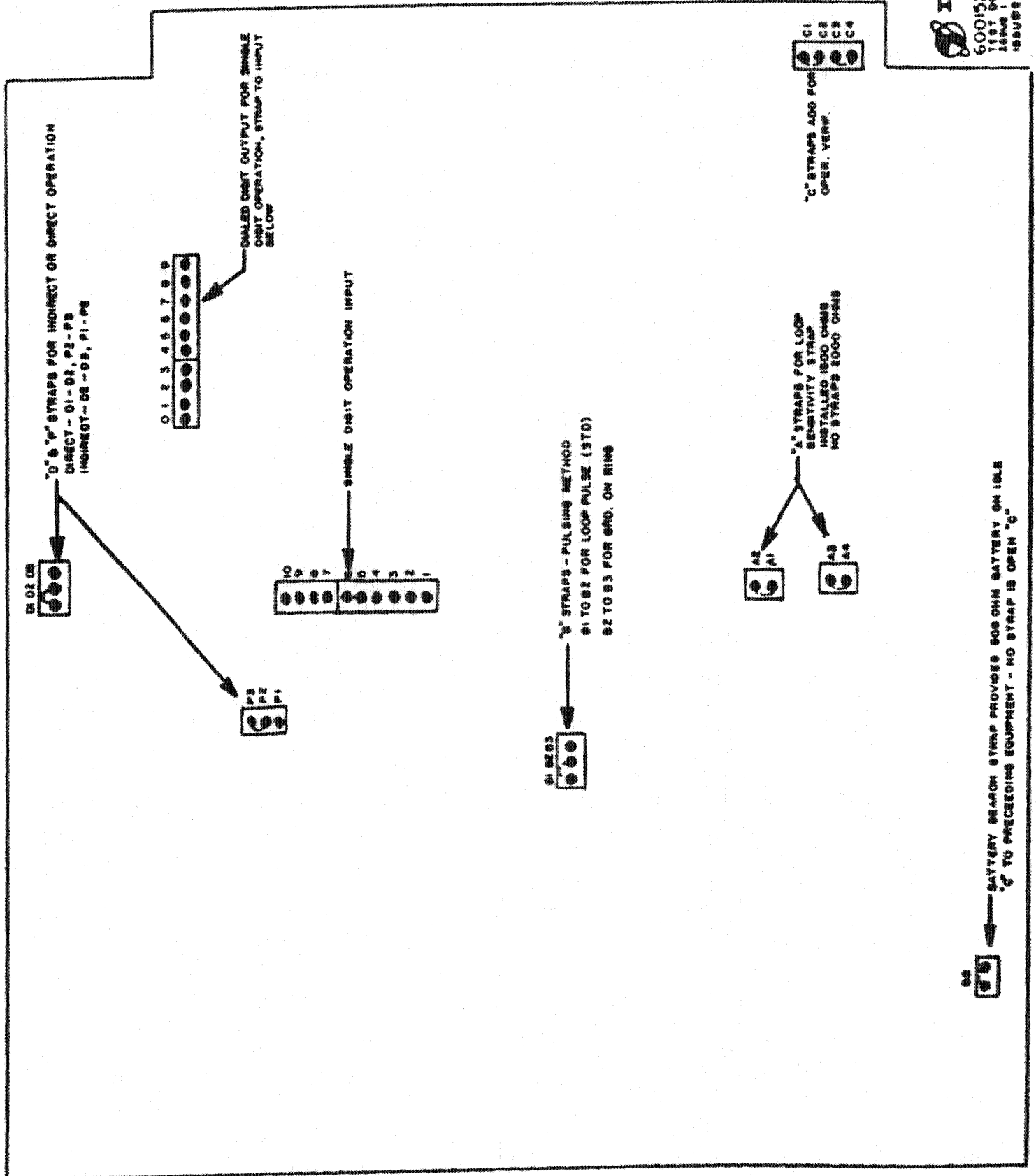
The 600154 must be modified when used for single digit cut through, by shorting diodes, D1, D3, D5, D7, D9, D11, D13, D15, D17, and D19, with a strap wire.

Selector To Matrix Pins

A16 (H0)	A or B 24 (TH-1)
A7 (TH1)	A or B 19 (H1-1)
A8 (TH2)	A or B 20 (H1-2)
A9 (TH3)	A or B 21 (H1-3)
A10 (TH4)	A or B 22 (H1-4)
A11 (TH5)	A or B 23 (H1-5)

In this application, the first digit is pulsed into the Distributor and stored in the TH counter. At the end of the first digit, the exit gates are operated to allow the matrix relay to operate using the H0 lead out of the Distributor and the TH lead determined by the dialed digit. The matrix relays operate and will hold until the loop is opened on the + & - Line leads. Additional pulsing into this circuit will not affect the selected matrix relays.

FIGURE 2-4



ITMO
 600152
 TEST DISCONNECTOR
 ISSUE 1 4-55 55
 ISSUE 2 6-10-55

CIRCUIT DESCRIPTION

VERIFICATION OF TEST DISTRIBUTOR

600152 / 600154

3.0 Power On

When the circuit card is plugged in, the POR (Power On Reset), will momentarily mark the RLS and RLS leads. This resets the circuit to the idle condition.

3.1 Seizure

A loop is received on the + and - LINE terminals. This operates the Pulse Control and the SZ (Seizure) latch.

The SZ latch sets the Seq. Ctr. (Sequence Counter), TH Store, and H store free to operate. The SZ latch also operates the BY relay.

Relay BY operates, removing the idle battery and grounding the C/P lead. This holds the preceeding equipment (if required). The Pulse Control starts the IDT (Inter-Digital Timer).

The IDT operates at the end of an approximately 150 ms delay and operates Pulse Gen. #1.

The Pulse Gen #1 produces an approximate 2 ms pulse which will step the Seq. Ctr. to position #1.

The Seq. Ctr. on position #1 enables the TH Store Counter (CE).

3.2 Receiving First Digit

When the first digit is dialed, the loop on the + and - LINE terminals are opened and reclosed once for each pulse of the digit dialed.

On the first edge of the first pulse, the Pulse Control resets the IDT. The IDT will hold over the dial pulses.

Each pulse will be counted and stored by the TH Store Counter.

At the end of the digit, and a delay of 150 ms, the IDT activates which operates Pulse Gen. #1.

Pulse Gen. #1 produces a 2 ms pulse which advances the Seq. Ctr. to position #2.

The Seq. Ctr. on position #2 disables the CE of the TH Store Counter and enables the CE of the H Store Counter.

The first digit dialed is now locked into the H Store Counter.

3.3 Single Digit Cut-Thru (Optional)

Any first digit stored may be used to 'cut-thru' to a Test Connector by strapping that digit terminal to the respective input terminal.

This will operate Pulse Generator #2 which will advance the Seq. Ctr. to position #3. This disables the H Store and operates the TER (terminate latch).

When the circuit terminates, the H0 Term. will be marked along with the dialed TH digit.

This operation is used when this circuit is arranged to access Test Distributors in multiple WNX code exchanges.

3.4 Receiving Second Digit

When the second digit is dialed, the loop on the + and - LINE terminals are opened and reclosed once for each pulse of the digit dialed.

On the first edge of the first pulse, the Pulse Control resets the IDT. The IDT will hold over the dial pulses.

Each pulse will be counted and stored by the H Store Counter.

At the end of the digit and a delay of 150 ms, the IDT activates which operates Pulse Gen. #1.

Pulse Gen. #1 produces a 2 ms pulse which advances the Seq. Ctr. to position #3.

The Seq. Ctr. on position #3 disables the CE of the H Store Counter and operates the TER (Terminate) latch.

The second digit dialed is now locked into the H Store Counter.

3.5 Termination

The TER latch operates the TER inverts which enables the TH & H Exit gates.

The TH & H Exit gates mark the two (2) digits stored to the Matrix (600154). The operated Matrix relay completes a path to the selected Test Connector.

The Test Connector is tested for an idle condition via lead "Z". Absence of a resistive battery indicates an idle circuit (trunk) and resistive battery indicates a busy circuit.

The Seq. Ctr. prepares the pulsing path to the "V" terminal and operates the Delay (approximately 72 ms).

Prior to the operation of the Delay, the trunk is tested for Busy or Idle condition.

If the trunk is busy, a path is prepared to operate relay TBY at the end of the delay.

If the trunk is Idle, a path is prepared to operate the TK-I (Trunk Idle) latch.

The Delay operates the Test-T (Test-Trunk) latch.

Busy Trunk

Relay TBY operates and returns Reverse Battery & Busy tone to the accessing equipment.

Trunk Idle

Watch TK-I operates, removes RST, disables the operate path for relay TBY, and enables the PLS path to terminate "V" or "R".

NOTE: If trunk was busy, the accessing equipment may hold the connection until the trunk goes Idle. At that time, the TK-I latch operates and relay TBY restores.

3.6 Receiving the Third Digit-or "V" Terminate Pulsing

When the digit is dialed, the loop on the + and - LINE terminals are opened and reclosed once for each pulse of the digit dialed.

On the first edge of the first pulse, the Pulse Control resets the IDT.

The IDT will hold over the dial pulses and resets the Delay (72 ms).

Each pulse will be extended through this circuit to the "V" terminal (ground pulses) through the matrix to the accessed Test Connector.

When the Test Connector is normally loop controlled, (WE, WTL, AE), this circuit pulses ground on the Ring (-) side of the line to the Test Connector A relay rather than a loop. This is done by strapping the V & R outputs of the Test Distributor together on the edge connector.

At the end of dialing, the IDT will operate Pulse Gen. #1, after the 150 ms delay.

The Pulse Gen. #1 will produce an approximate 2 ms pulse advancing the Seq. Ctr. to position #4.

The Seq. Ctr., on position #4, disables the "V" terminal pulsing path and enables the "R" terminal path.

3.7 Receiving the Fourth Digit-or "R" Term. Pulsing

When the digit is dialed, the loop on the + and - LINE terminals are opened and reclosed once for each pulse of the digit dialed.

On the first edge of the first pulse the Pulse Control resets the IDT.

The IDT will hold over the dial pulses.

Each pulse will be extended through this circuit to the "R" terminal (ground pulses) through the matrix to the accessed Test Connector.

At the end of dialing, the IDT will operate after the 150 ms delay, and operate the Pulse Gen. #1.

Pulse Gen. #1 will produce an approximate 2 ms pulse advancing the Seq. Ctr. to position #5.

The dialed line circuit is tested for an Idle Condition.

3.8 Testing the Dialed Line Circuit

The Seq. Ctr. on position #5 will disable the "R" terminal pulsing path, enable the path to the "V" terminal, prepare the operation of latch ZR #1 (if required), and operate the Delay (72 ms).

The dialed line circuit is busy, a ground will be on terminal "P".

After the Delay, (72 ms), Relay LBY operated causing relay TBY to operate.

This returns RVB to the preceeding equipment.

NOTE: If the line circuit was busy, the accessing equipment may hold the connection until the line circuit goes Idle. At that time, the CT relay will operate and relays LBY and TBY restore.

3.9 Idle Line Circuit

The Delay (72 ms) operates causing the CT latch to activate which operates relay CT and latch CTA.

Relay CT grounds the line circuit "P" terminal and cuts the - and + Test leads through the Distributor.

Latch CTA disables the output of Pulse Gen. #1 and transfers the pulsing path from the "V" terminal to the "I" terminal.

3.10 Selecting Another Line on the Same Level of the Test Connector

When the test board operator has completed testing a line and desires to advance the test connector to a line on the same level, the operator dials one digit corresponding to the required number of steps.

When the digit is dialed, the loop on the + and - LINE terminal are opened and reclosed once for each pulse of the digit dialed. (Example: 5 pulses for a digit 5).

On the first edge of the first pulse, the Pulse Control resets the IDT.

The IST will hold over the dial pulses and reset the Delay (72 ms).

This also releases the CT latch. The CT latch releases the CT relay which removes ground from the seized line circuit "P" terminal.

Each pulse will be extended through this circuit to the "R" terminal (ground pulses) to the accessed test Connector.

At the end of dialing, the IDT will operate, after a 230 ms delay. Pulse Gen. #1 will not operate.

The IDT also prepares the CT Latch for operating (if LINE) and operates the Delay (72 ms).

The dialed Line Circuit is tested for Idle or Busy the same as in the section above.

NOTE: This operation may be repeated as often as required; this operation may be done when the Seq. Ctr. is on positions 5, 7, 1, or 3 (positions 1 and 3 are enabled after TER and the first CT operation).

3.11 Inward To Go

When the test board operator operates the correct key on the Test Board, ground is applied to both + and - LINE terminals.

This operation removes the ground from the accessed line circuit sleeve (P) terminal releasing the cut-off relay. The operator may now complete a test call for the line circuit, using the + and - Test terminals.

When the operator has completed the line circuit test, the key will be restored and this circuit once again applies to the line circuit "P" terminal to reoperate the cut-off relay.

3.12 Selecting Another Line on a Different Level of the Test Connector

When the test board operator operates the correct key, the - LINE terminal is opened and a battery is connected to the + LINE terminal.

A momentary ground is marked on lead "Z", and this circuit resets the CT and CTA latches and relay CT restores. At this time, the pulsing path is prepared for marking the "Y" terminal path.

When the operator releases the key, this circuit is ready to extend the next two digits dialed to the Test Connector, the first digit over the "Y" terminal and the second digit over the "R" terminal.

NOTE: This operation may be done as often as desired. The Seq. Ctr. will be on position 5, 7, 1 or 3.

3.13 Release

When the operator releases the loop, the + and - LINE terminals are opened. This starts the Release Timer (220 ms).

At the end of the time out period, the Release Timer operates and resets this circuit to the Idle condition.

3.14 Shunting Down a line that is in Lockout

When the Test Board operator operates the correct key, a ground will be received on the terminal F operating relay F.

Relay F operates and opens up the + and - TEST leads so that the shunt battery and ground are not presented to the Testman.

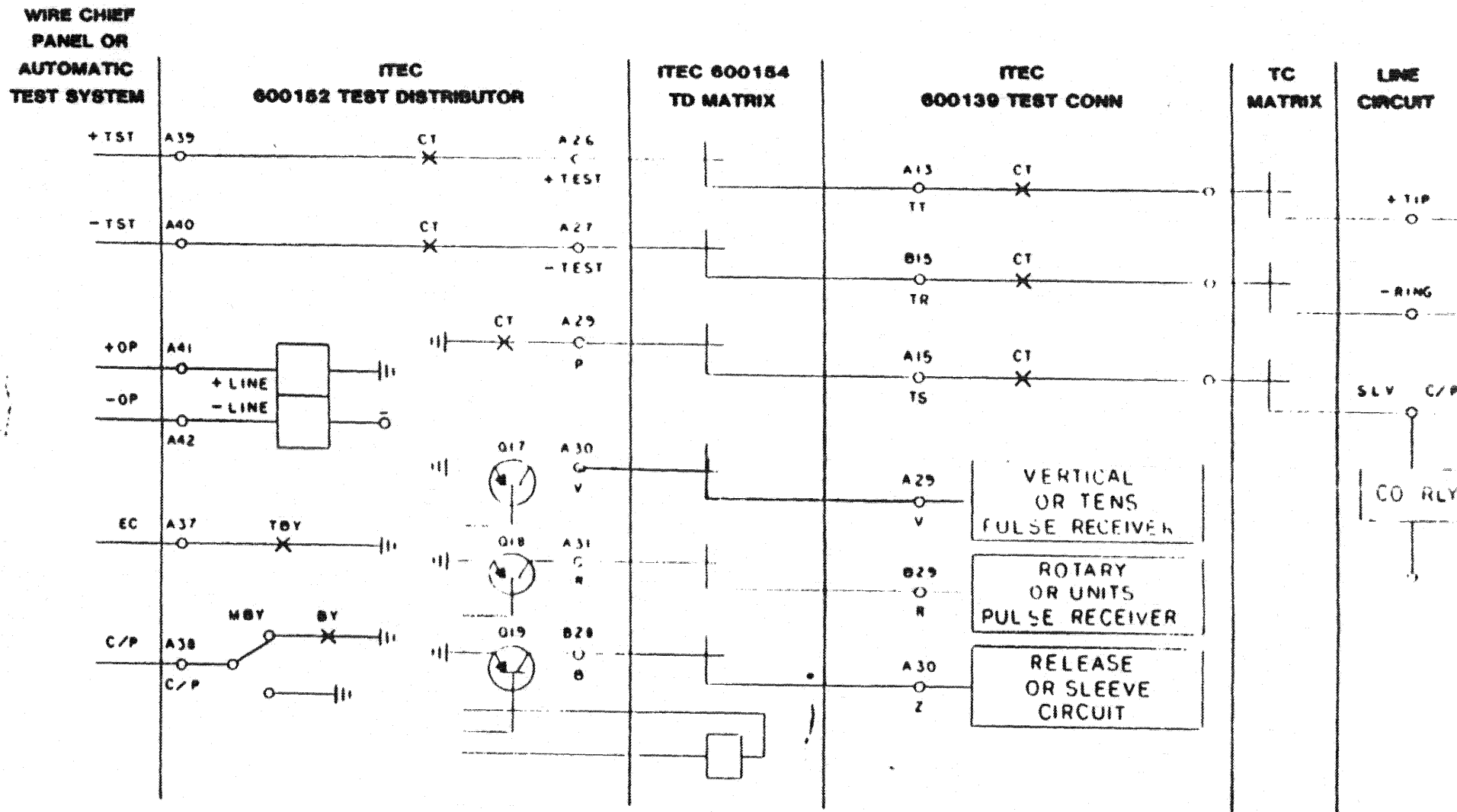
When key is restored, relay F releases.

NOTE: Not Terminals

LEAD DESIGNATION

DESIGNATION	MEANING
1	1
2	2
3	3
1A	1 Aux
CL	Clock
CT	Cut-Thru
CTA	Cut-Thru Acc.
CTR	Cut-Thru Rel.
DL	Different Level
DLA	Different Level Aux.
DLC	Different Level Cont.
GC	Ground Cont.
IDT	Inter-Digital Timer
IT	Idle Trunk
IV	Inward
IWA	Inward Aux.
LTE 3	Line Test Enabled 3
PG1	Pulse Gen. #1
PG2	Pulse Gen. #2
PLS	Pulse
RLS	Release
RLS	Release Not
RS	Reset
SZ	Seize
SZ	Seize Not
TB	Trunk Busy
TC	Terminate Cont.
TT	Test Trunk

FIGURE 3-1
ITEC EMS TEST DISTRIBUTOR AND CONNECTOR
DIRECT OPERATION



INSTALLER CONNECTIONS

FIGURE 3-2

**ITEC EMS TEST DISTRIBUTOR AND CONNECTOR
INDIRECT OPERATION**

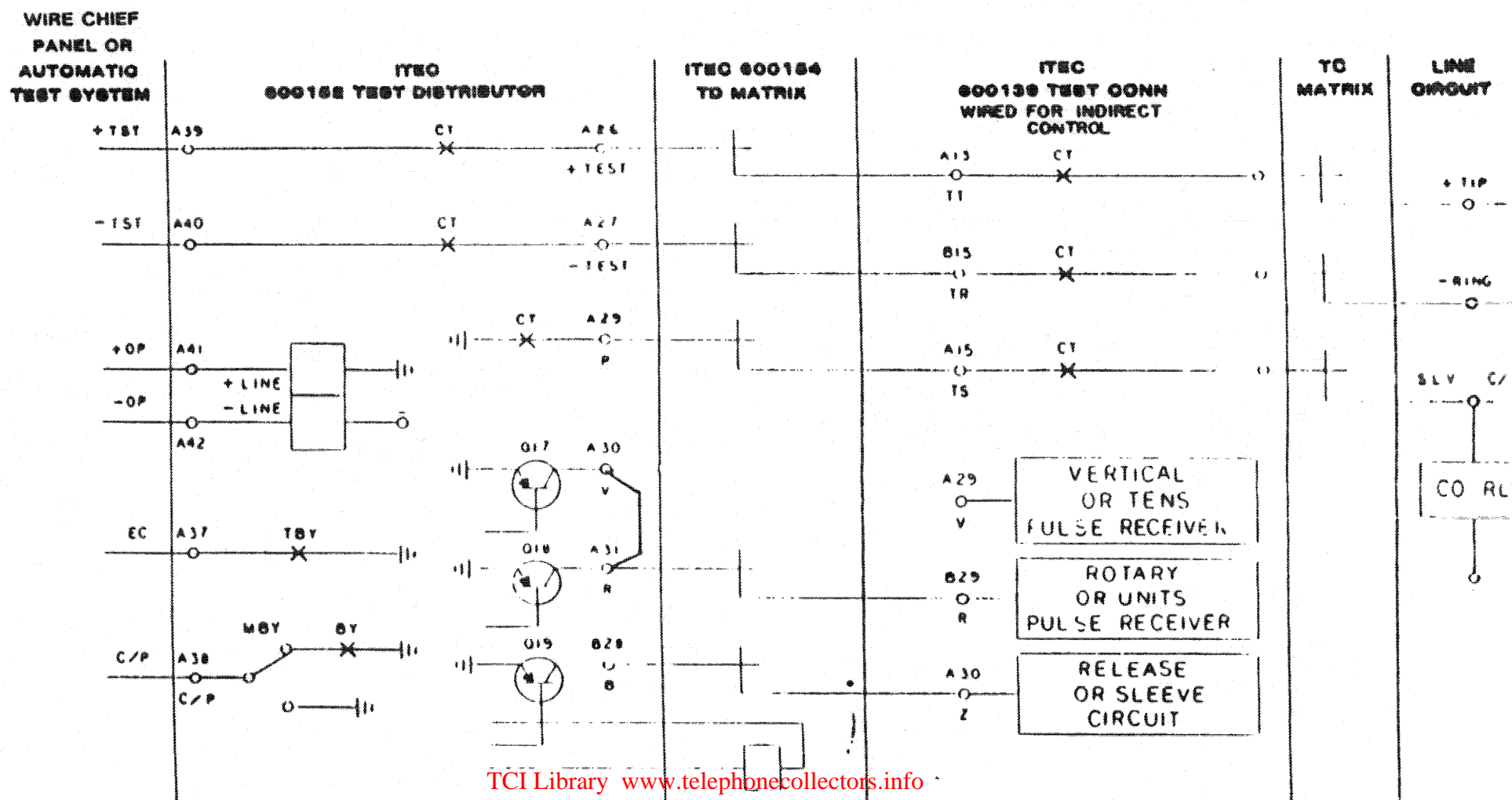


FIGURE 3-3
TEST TRAIN FOR LARGE EXCHANGE
INDIRECT OPERATION

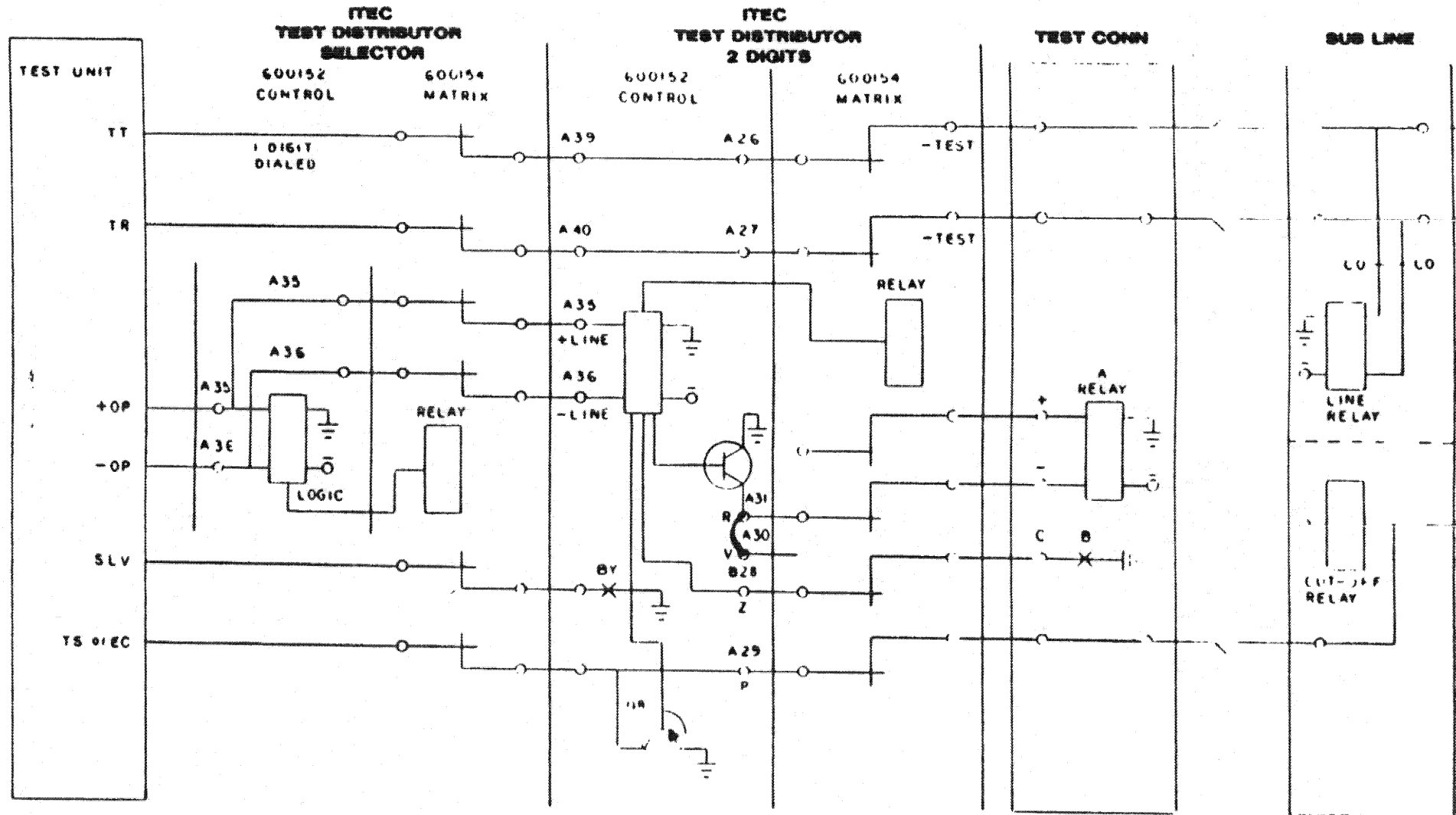


FIGURE 3-4
AUTOMATIC TEST UNIT
WITH TEST SET CONTROL OF TEST CONNECTORS

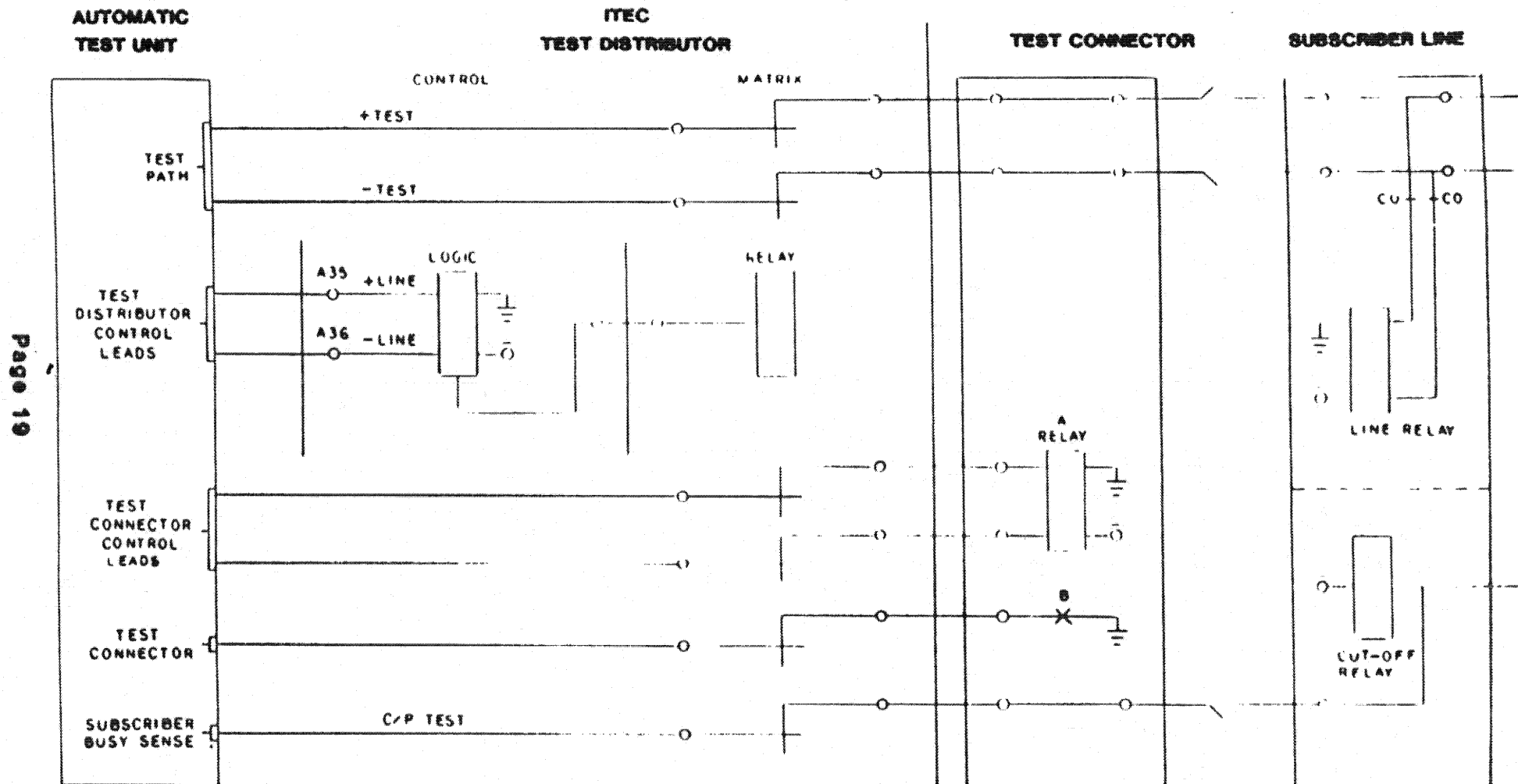


FIGURE 3-8

COLT 4TEL WITH INDIRECT CONTROL

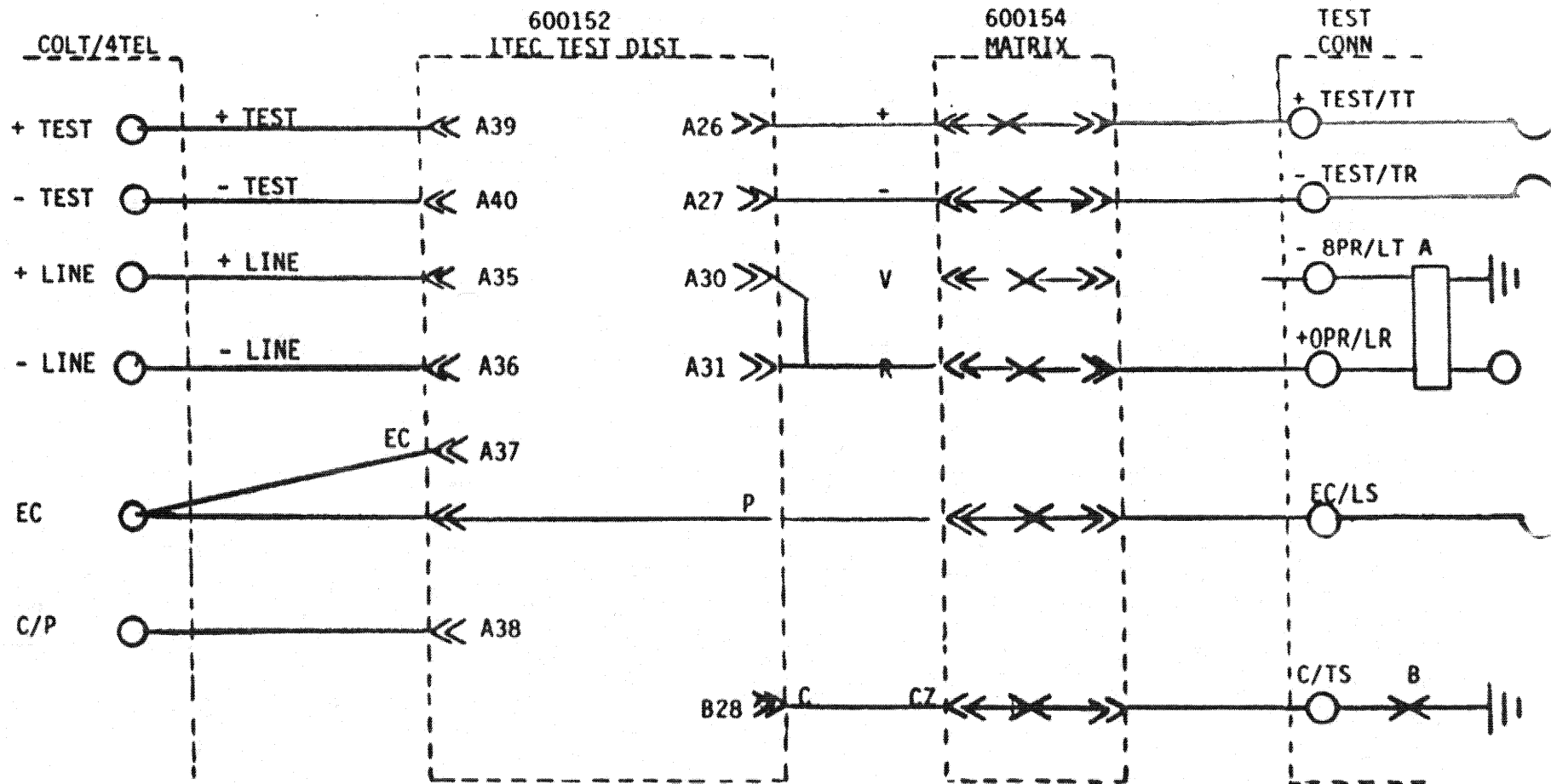


FIGURE 3-6

SCOT - 4TEL WITH INDIRECT CONTROL OPERATION

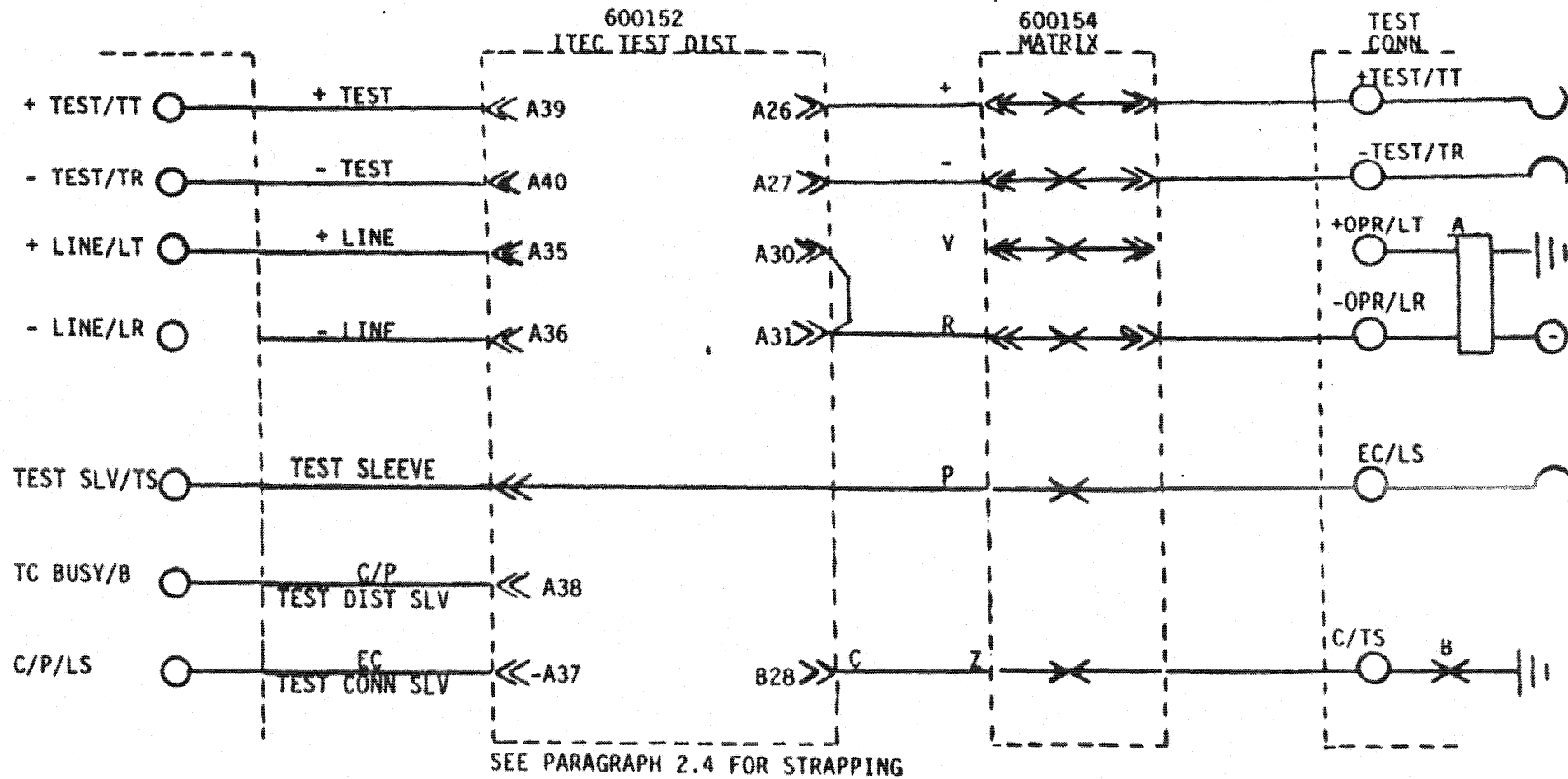


FIGURE 3-7

RTEC/LORDELL T915 WITH INDIRECT CONTROL

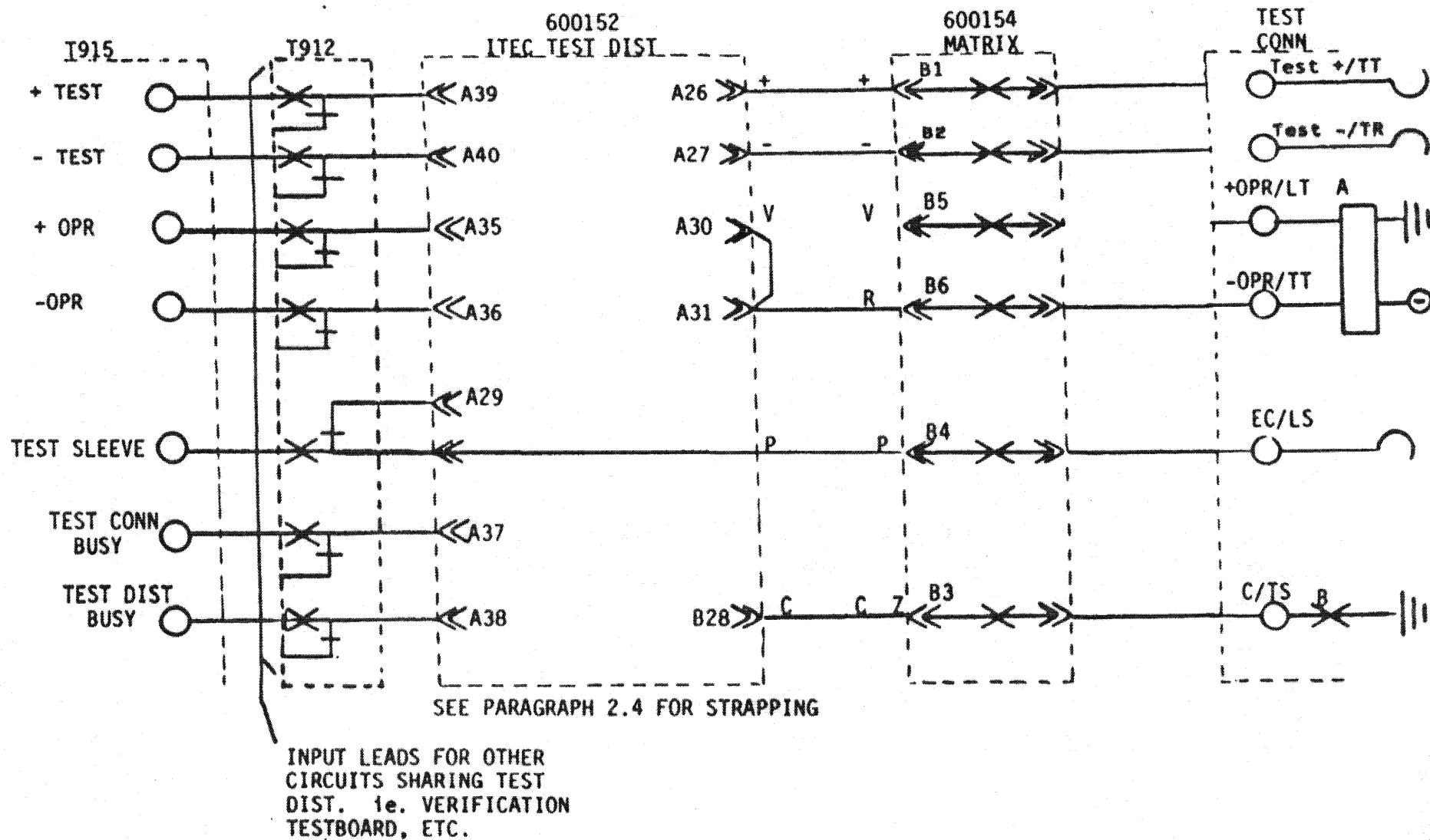


FIGURE 3-8

BADGER 612A WITH INDIRECT CONTROL OPERATION

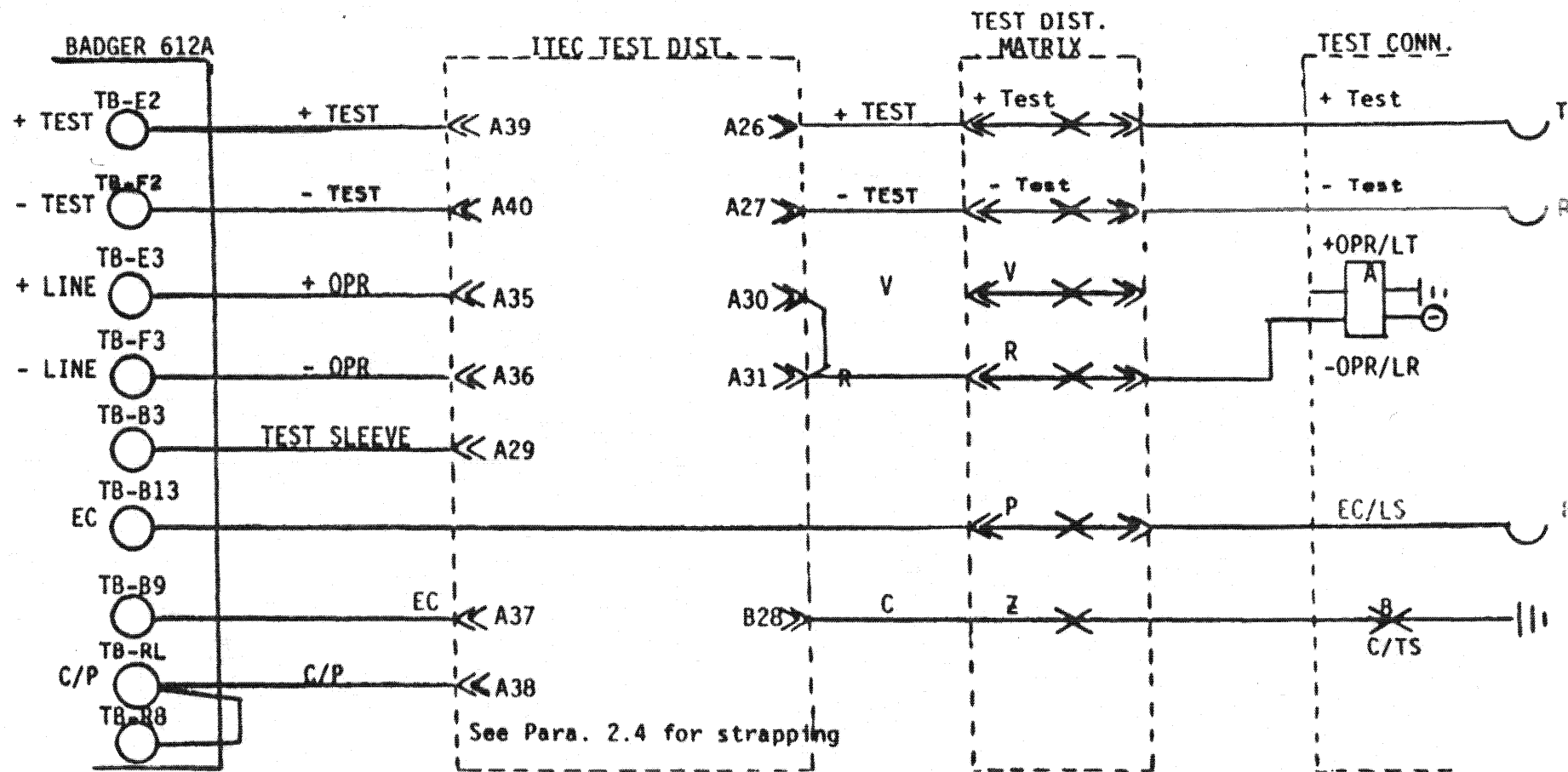


FIGURE 3-9
AUTOMATIC ELECTRIC DETECTION TEST SET.

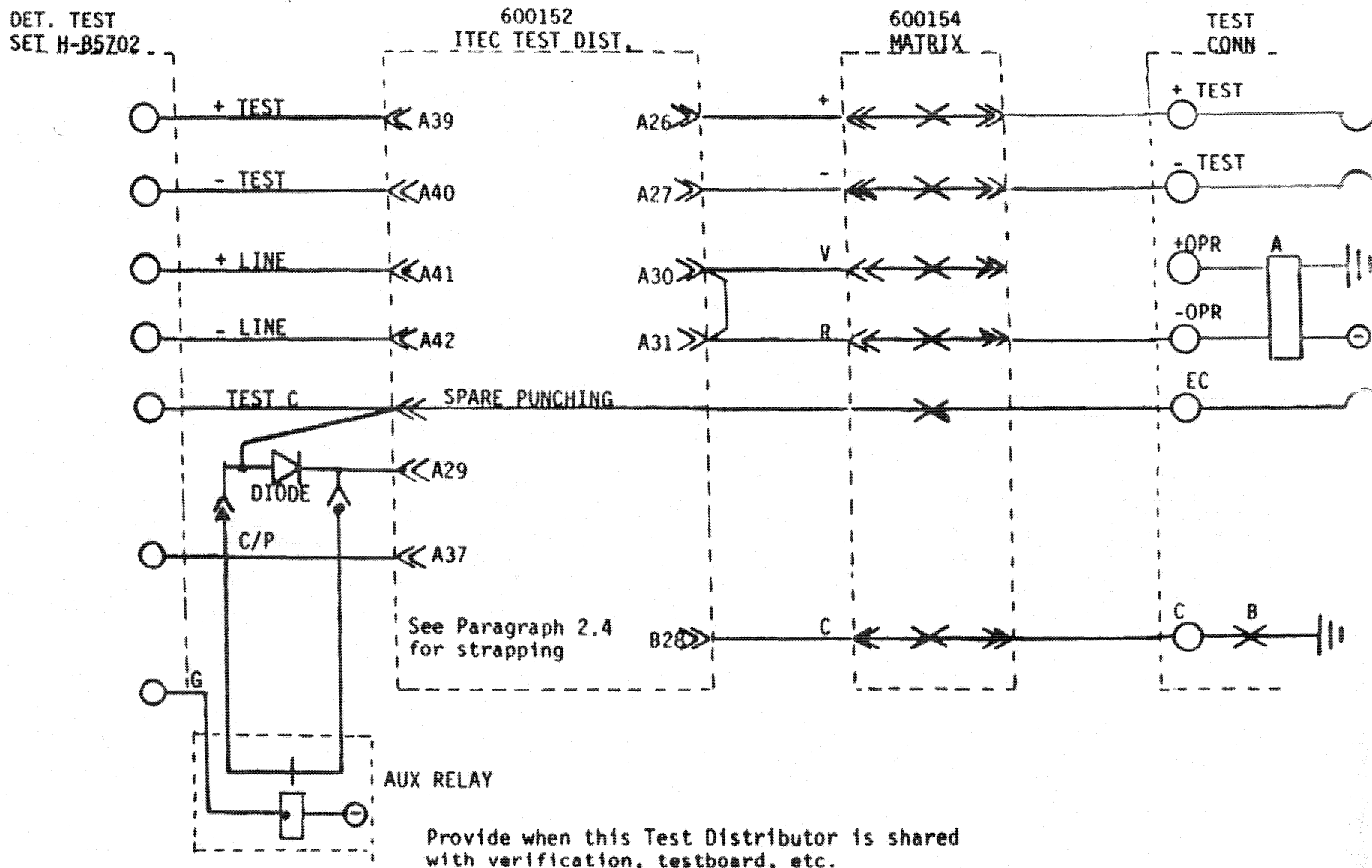
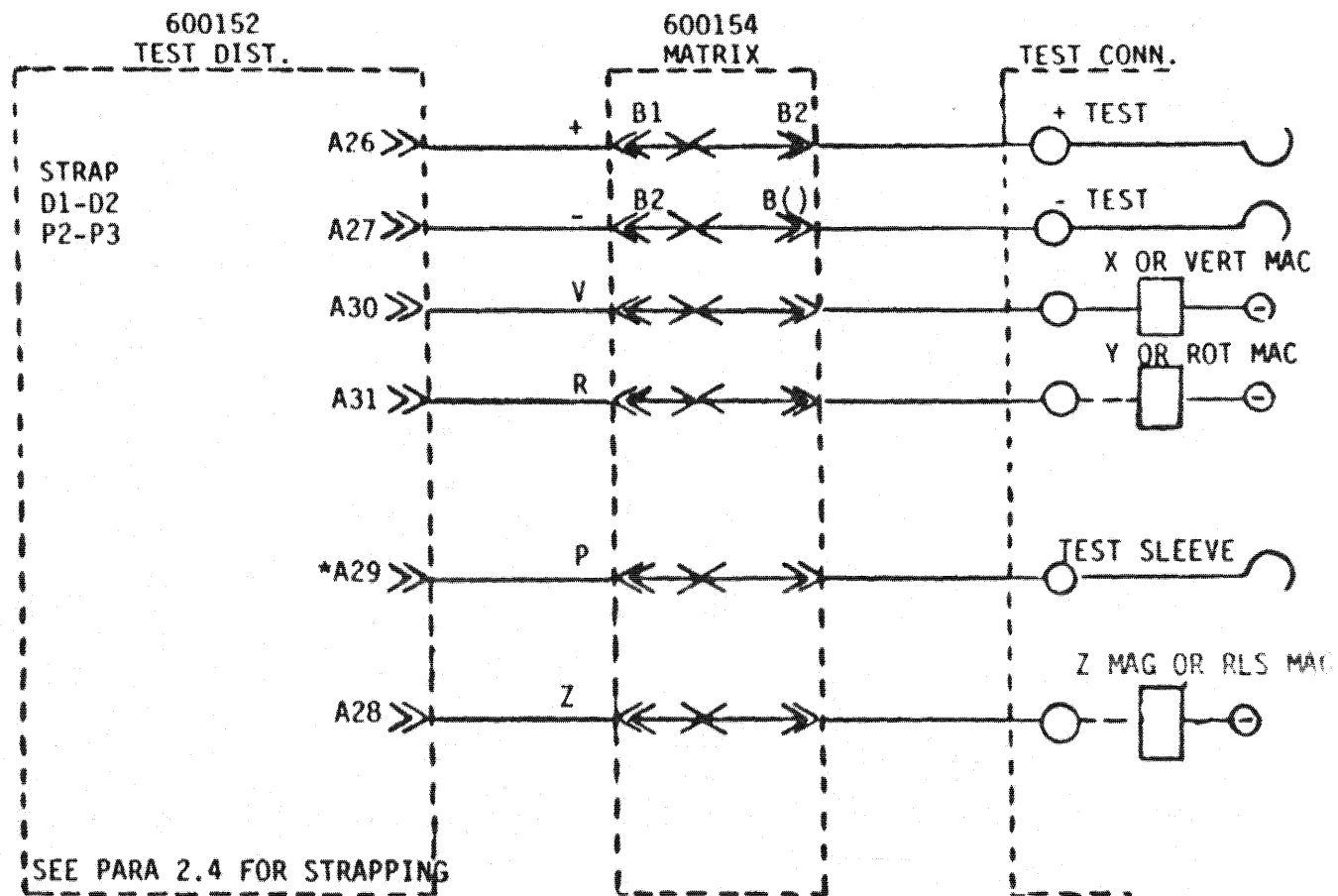


FIGURE 3-10
DIRECT CONTROL



* See application dwgs for SCOT, COLT, etc.

MLT2 WIRING CHART FOR ITEC DISTRIBUTOR AND ITEC DISTRIBUTOR ACCESS

T. D. C.		ITEC T. D.				T. D. A. UNIT										TEST CONNEC	
T.S. on UNIT	LEAD	LEAD	PIN	PIN'	LEAD	LEAD	TD-1	TD-2	TEST CONNECTORS					LEAD	LEAD	JACK SP	
									1	2	3	4	5				
17	TT	+ TEST	A39	A26	+ TEST	+	B1	A1	B12	B18	B31	B37	B43	+	TT	20	
18	TR	- TEST	A40	A27	- TEST	-	B2	A2	B11	B17	B30	B36	B42	-	TR	19	
7	LT	+ LINE	A35	A30	V	V			B8	B14	B27	B33	B39	V	LT (unused)	2	
8	LR	- LINE	A36	A31	R	R	B6	A6	B7	B13	B26	B32	B38	R	LR	1	
9	B	EC	A37	B28	C	Z	B3	A3	B10	B16	B29	B35	B41	Z	LS	9	
10	LS	C/P	A38	A29	P	P	B4	A4	B9	B15	B28	B34	B40	P	TS	15	

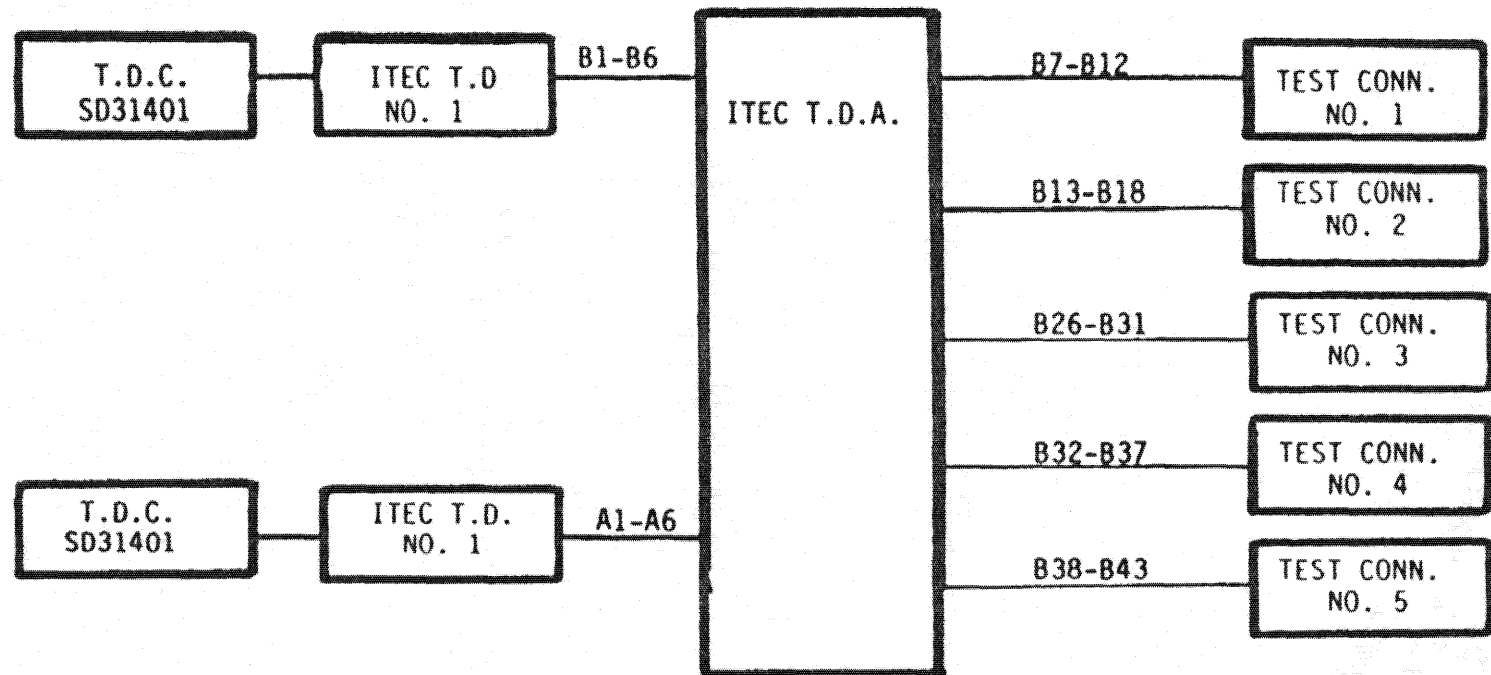
Lead Designation

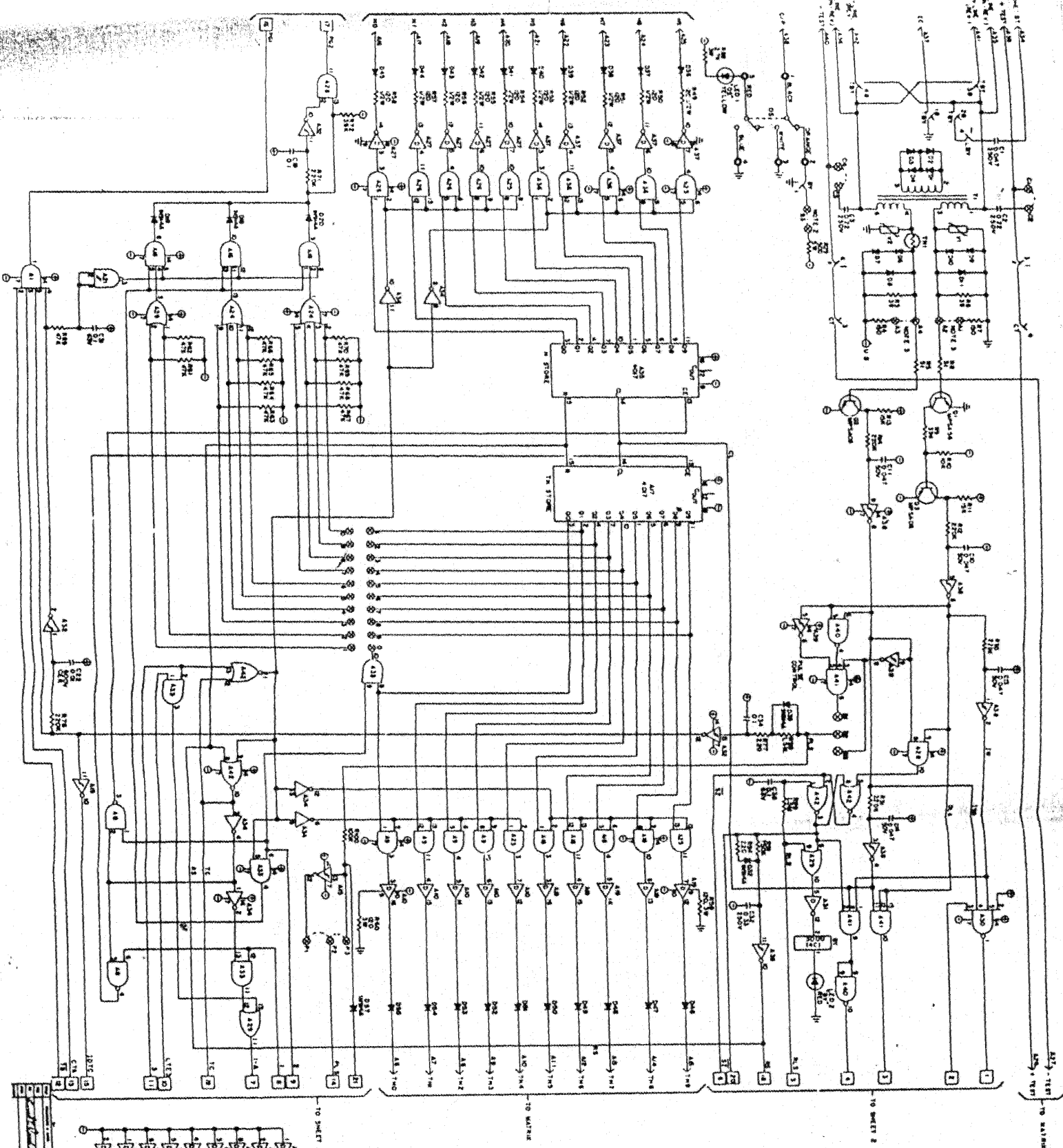
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ITEC	WECO
+ TEST	= TT
- TEST	= TR
C/P	= LS
EC	= B
+ LINE	= LT
- LINE	= LR
Z	= TS
V/R	= LR

Option Straps

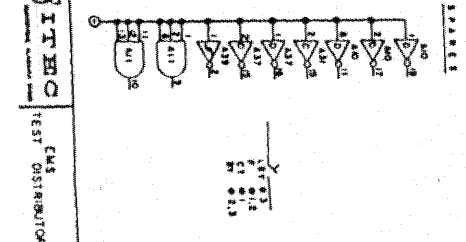
D2-D3
P1-P2
B2-B3





COMPONENT	VALUE	QUANTITY	REMARKS
1N4001	1N4001	10	Rectifier Diodes
1N914	1N914	10	Signal Diodes
2N2219	2N2219	10	Transistors
2N3055	2N3055	10	Power Transistors
561	561	10	Resistors
562	562	10	Resistors
563	563	10	Resistors
564	564	10	Resistors
565	565	10	Resistors
566	566	10	Resistors
567	567	10	Resistors
568	568	10	Resistors
569	569	10	Resistors
570	570	10	Resistors
571	571	10	Resistors
572	572	10	Resistors
573	573	10	Resistors
574	574	10	Resistors
575	575	10	Resistors
576	576	10	Resistors
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590	590	10	Resistors
591	591	10	Resistors
592	592	10	Resistors
593	593	10	Resistors
594	594	10	Resistors
595	595	10	Resistors
596	596	10	Resistors
597	597	10	Resistors
598	598	10	Resistors
599	599	10	Resistors
600	600	10	Resistors

1. Check all components for correct value and type.
 2. Check all connections for correct polarity and wiring.
 3. Check all components for correct value and type.
 4. Check all connections for correct polarity and wiring.
 5. Check all components for correct value and type.
 6. Check all connections for correct polarity and wiring.
 7. Check all components for correct value and type.
 8. Check all connections for correct polarity and wiring.
 9. Check all components for correct value and type.
 10. Check all connections for correct polarity and wiring.

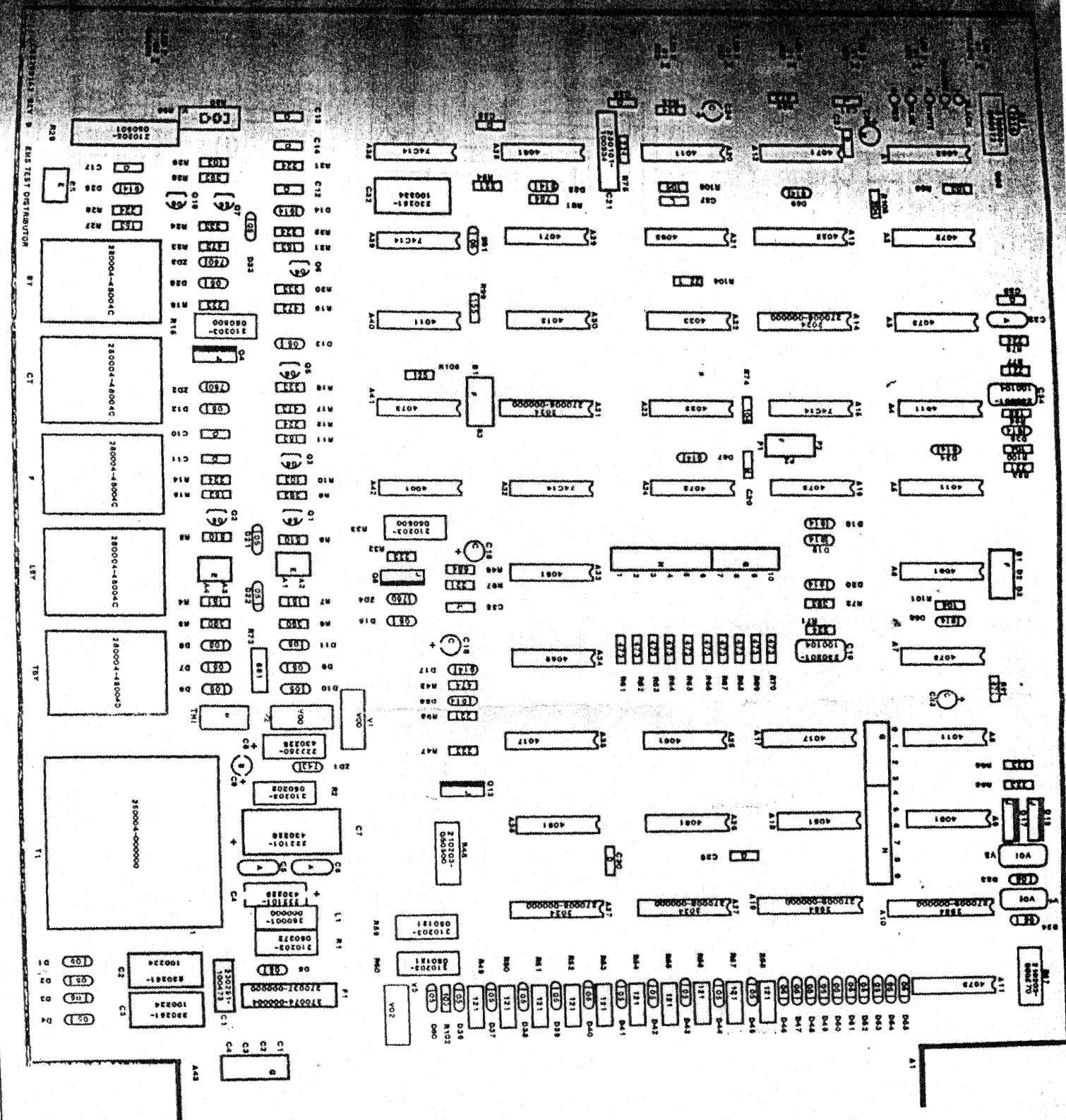


ITHC
 TEST DISTRIBUTOR

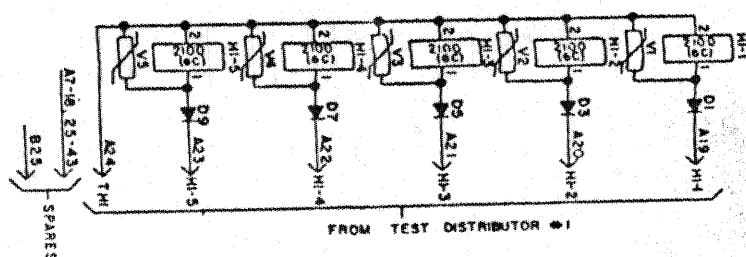
1	17.24	10-15-80
2	17.24	11-19-80
3	17.90	11-20-80
4	18.19	1-9-81
5	18.19	6-5-81
6	19.17	9-29-81
7	20.92	1-31-82
8	21.70	1-31-82
9	26.91	12-20-82
10	28.70	4-28-83
11	28.70	5-22-83
12	29.72	9-23-83
13	31.83	4-2-84
14	35.14	5-23-85
15	37.65	4-25-86
16	37.68	4-22-86
17	38.32	7-2-86
18	38.92	9-26-86
19	43.37	2-22-88

NOTES:

1. A 235601-990103
B 235601-100655
C 235601-100714
D 235601-100714
E (1) 235601-100714
F (2) 235601-100714
G (3) 235601-100714
H (4) 235601-100714
I (5) 235601-100714
J (6) 235601-100714
K (7) 235601-100714
L (8) 235601-100714
M (9) 235601-100714
N (10) 235601-100714
O (11) 235601-100714
P (12) 235601-100714
Q (13) 235601-100714
R (14) 235601-100714
S (15) 235601-100714
T (16) 235601-100714
U (17) 235601-100714
V (18) 235601-100714
W (19) 235601-100714
X (20) 235601-100714
Y (21) 235601-100714
Z (22) 235601-100714
2. THIS DRAWING WILL SERVE AS BOTH AN "A" AND "M".



		EMS TEST DISTRIBUTOR
MANUFACTURED BY MANUFACTURE ALABAMA 35807		MA600152-00
DATE: 11-23-82		DRAWN BY:
CHECKED BY:		APPROVED BY:

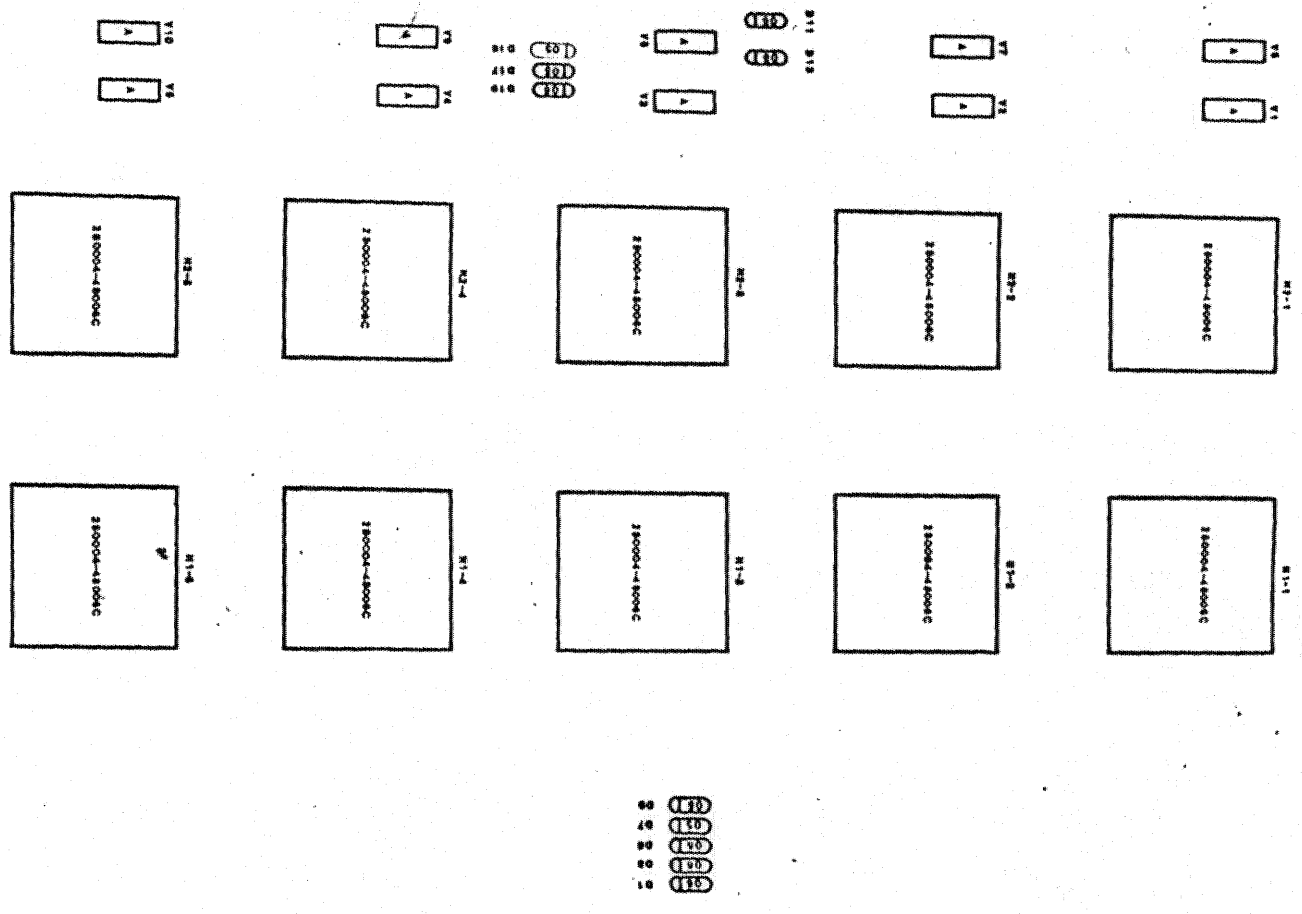


第15章 第17章 第18章


[illegible]

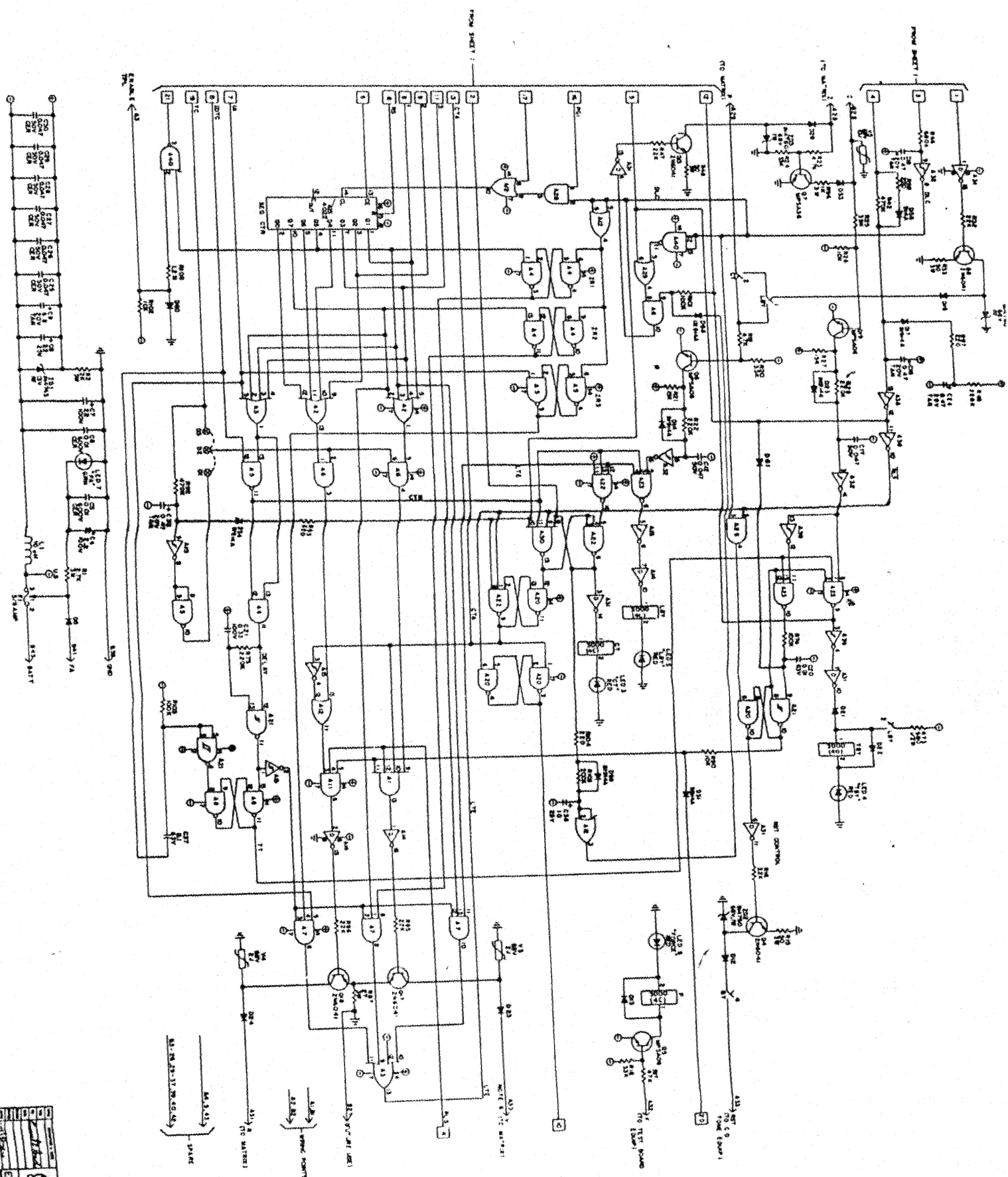
ISSUE 2	12-15-80
ISSUE 3	6-17-82


ISSUE NO	DATE	APPROVAL
1	10/14/87	MA 600154-00
2	11/17/87	MA 600154-00
3	11/27/87	MA 600154-00
4	12/20/87	MA 600154-00
5	12/20/87	MA 600154-00
6	1/13/88	MA 600154-00
7	1/13/88	MA 600154-00



NOTES:
 1. A - 1: 1001-00000
 2. THIS PLANTING SEPTS AS 10
 3. AND 1001-00000

DATE	10/14/87	ISSUE NO	MA 600154-00
BY	MA 600154-00	APPROVAL	MA 600154-00
 ITIEC INTERNATIONAL TELEPHONE EXCHANGE COLLECTORS			
EMS TEST DISTRIBUTOR ACCESS			



1	1-100	 ITT INTERNATIONAL TELEPHONE TEST DISTRIBUTOR	EMS TEST DISTRIBUTOR C600152
2	101-200		
3	201-300		
4	301-400		
5	401-500		