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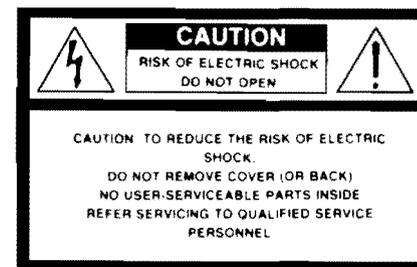
INTRODUCTION

The Radio Shack Telephone Tester represents a multi-function, value featured advance in telephone service technology.

With privately owned telephones on the increase, the Tester allows fast, convenient and positive tests of basic telephone functions. Office Equipment Sales/Service organizations, will benefit as will Telemarketing professionals.

NOTE: This unit may not properly test Electronic Key Systems or PABX Key Sets.

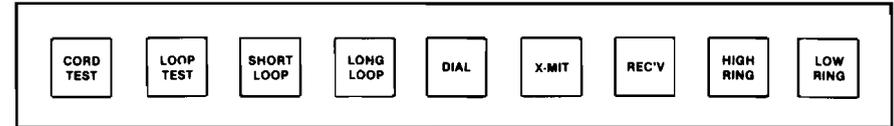
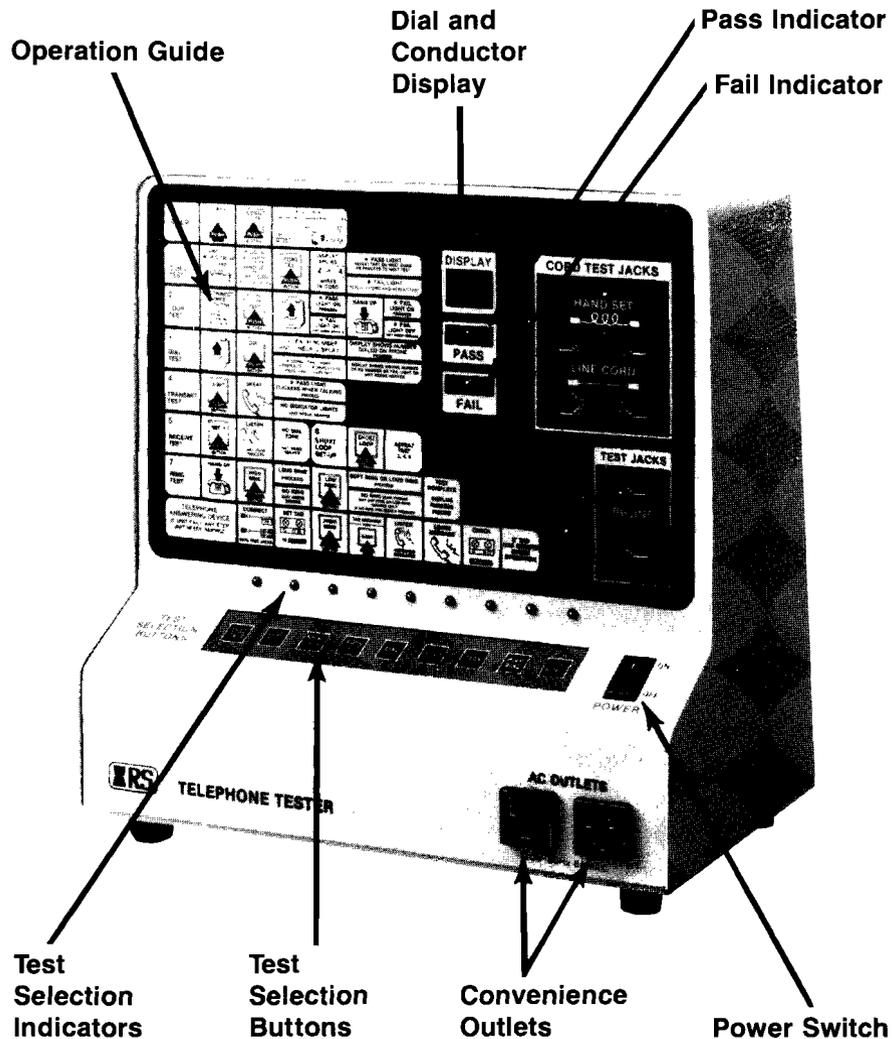
- Avoids needless outside repairs
- Checks most common phone problems including cords and plugs.
- Microprocessor-controlled for accurate diagnosis
- Tests Touch-tone, Rotary Pulse Dialing and Cordless phones
- Checks Answering machines
- Tests single line units, and is adaptable for 2-line phones.



The lightning symbol is to remind you that there is dangerous voltage inside the unit. Do not open the enclosure

The exclamation symbol indicates there is important operating information in this manual.

TEST AREAS AND CONTROL BUTTON FUNCTIONS



TEST SELECTION BUTTONS

Cord

Press for Cord Test. Checks the number of wires in the Handset or Line Cord. Also verifies the condition of either cord.

Loop Test

Press to verify proper switch hook impedance parameters.

Short Loop

Sets electrical conditions which permits you to duplicate use with a close-by Central Office.

Long Loop

Presents conditions duplicating a connection to a Central Office of some distance from the test phone.

Dial

Press before initiating a test call to verify dialing accuracy.

X-Mit

Press to test handset transmitter operation.

Recv

Press to test handset earpiece operation.

High Ring

Checks ringer operation at high voltage level, simulating a SHORT loop.

Low Ring

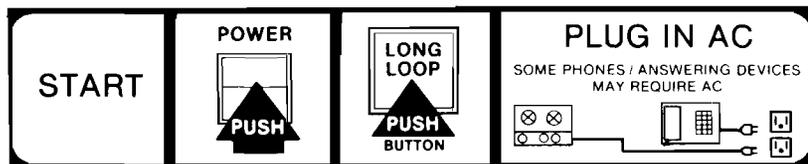
Checks ringer operation at low voltage level to simulate a LONG loop.

TEST SELECTION BUTTON INDICATORS

When a Test Selection Button is pressed, the LED directly above will light.

However, when either the DIAL, X-MIT or REC'V Test

Selection Button is pressed, not only will the LED above the button light, but either the SHORT LOOP or LONG LOOP LED will also light.

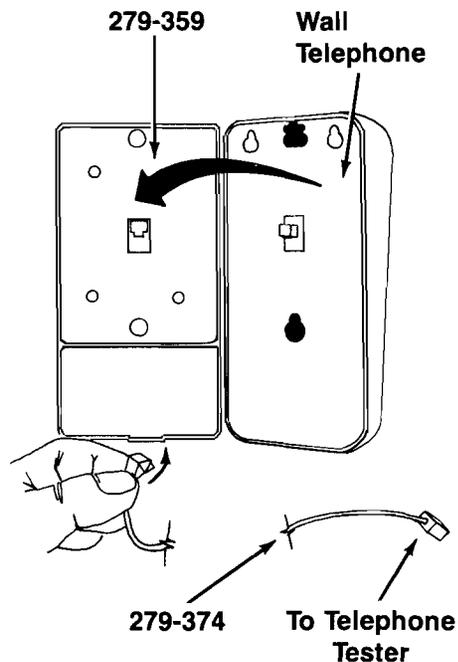


PRELIMINARY OPERATION

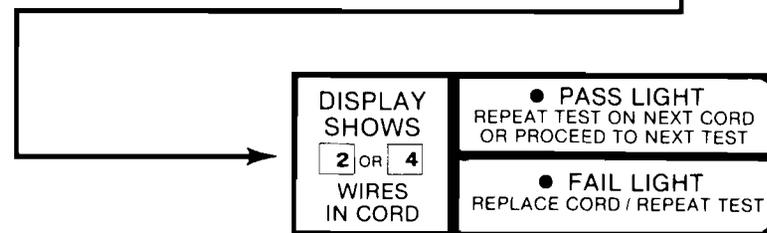
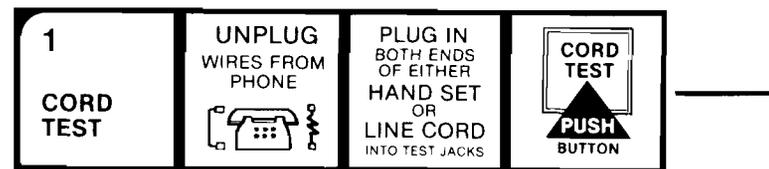
Before beginning a specific function test, perform the following steps:

1. Insert the AC Line Cord into a source of 110-120 volts, 60 Hz.
2. Press the POWER switch. The power indicator will light showing that power is present.
3. Press the LONG LOOP button. Initial tests will be made in this configuration.
4. If the phone or device to be tested requires the use of a separate AC adapter or other source of household AC, plug the device into one of the convenient outlets located on the front apron of the Tester.

Two Line Phones: To connect a two line phone to the Tester, use a 2-Line Coupler, Cat. No. 279-401. Insert the modular plug into the adapter. You can then test each line separately with each cord from the adapter.



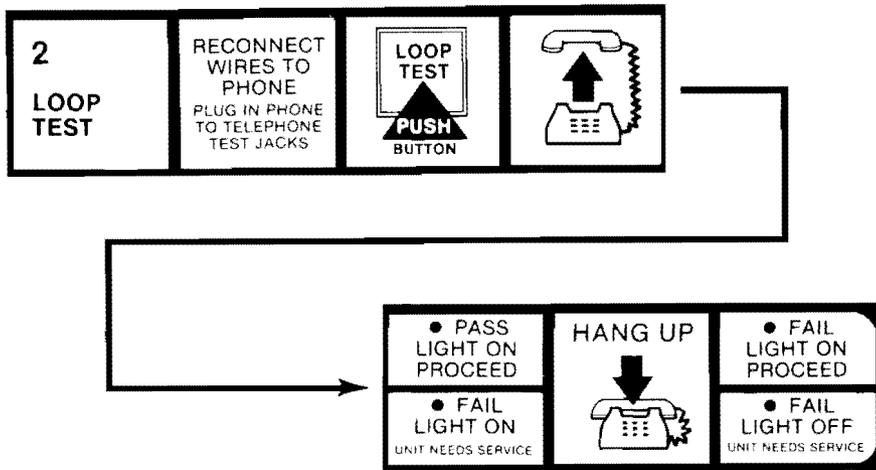
NOTE: If you wish to test a wall type telephone, insert the modular plug of the phone into a Modular Duplex Wall Phone Adapter, Cat. No. 279-359. Then insert a cord, terminating in a modular plug at each end, Cat. No. 279-374, into the bottom jack on the adapter. The free plug on the cord is then used to connect to the Tester.



CORD TEST

To check the total number of wires, and to verify their electrical fitness, in either the Line Cord or the Handset Cord, follow the steps below:

1. If the cords of your phone disconnect, unplug the modular line cord connector, (the wire that connects to the wall).
2. Connect both ends of the cord into the modular sockets in the test area labeled **CORD TEST JACKS** which is located on the upper right corner of the front panel. Be sure to insert the Line Cord into the jacks labeled **LINE CORD**.
3. Press the **CORD TEST** button.
4. The LED in the **DISPLAY** on the panel will light. Either the digit 2 or the digit 4 should be shown to indicate the number of wires in the cord.
5. At the same time either the **PASS LIGHT** or the **FAIL LIGHT** will be illuminated.
 - If **PASS** lights, the cord under test is usable.
 - If **FAIL** lights, replace the cord.
6. After testing the **LINE CORD** and re-installing it into the telephone (assuming the cord is good), remove the **HANDSET CORD** in a similar way.
7. Repeat Steps 1 to 6 for the **HANDSET CORD**, making sure to connect it to the jacks labeled **HANDSET** on the panel.



LOOP TEST

This test checks for an acceptable DC resistance value within the Switch Hook Loop.

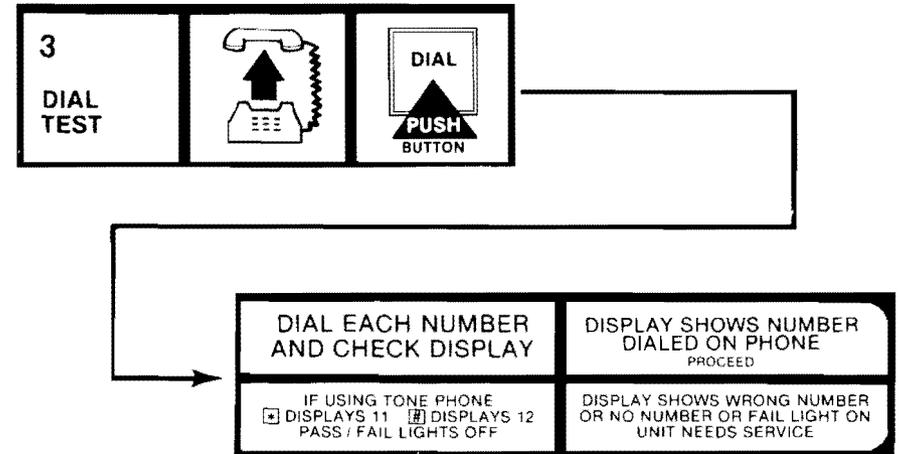
When the Handset is off-hook, the Central Office should "see" DC resistance between 57 and 600 ohms. This range is tested.

1. Reconnect LINE CORD and HANDSET CORD to the phone.
2. Plug LINE CORD into the test area labeled TEST JACKS — PHONE.
3. Press the LOOP TEST button.

4. Lift the Handset from the switch-hook. If the PASS LED lights, you are within the range of 57 to 600 ohms. If the FAIL LED lights, the phone needs service.

5. Replace the Handset on the switch-hook. If the circuit is restored to the 10 megohm level the FAIL light will go ON.

If the FAIL LED was ON and now goes off or remains off, the unit requires service.



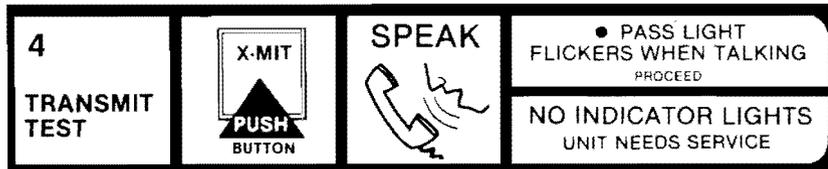
DIAL TEST

The following steps will check for proper output of each digit/character of either a rotary dial phone or key-pad of a pulse or tone phone.

1. Remove the Handset from the Switch-Hook.
2. Press the DIAL TEST button.
3. While watching the DISPLAY panel LEDs, dial each digit on the phone. If operational, the individual digit will be displayed.

If no number or the wrong number is shown or if the FAIL lamp lights, the unit needs service.

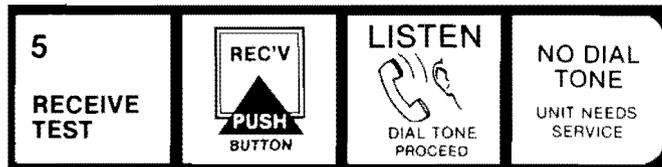
Note: If a tone phone is under test, the * key will display an 11. The # key will display a 12. Both PASS and FAIL lamps will be off while testing a tone phone.



TRANSMIT TEST

To check operation of the telephone mic:

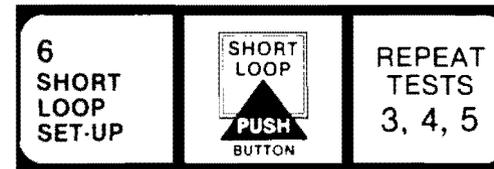
1. Lift the Handset from the switch-hook.
2. Press the X-MIT button.
3. Speak into the microphone.
4. If the unit is functional, the PASS lamp will flicker as you speak. If NO indicator lights, the unit is defective.



RECEIVE TEST

To check the function of the earpiece of the phone:

1. Lift the Handset from the switch-hook.
2. Press the REC'V button.
3. Listen for a dial tone. If one is heard, the unit is working. If no tone is heard the receiver is defective.

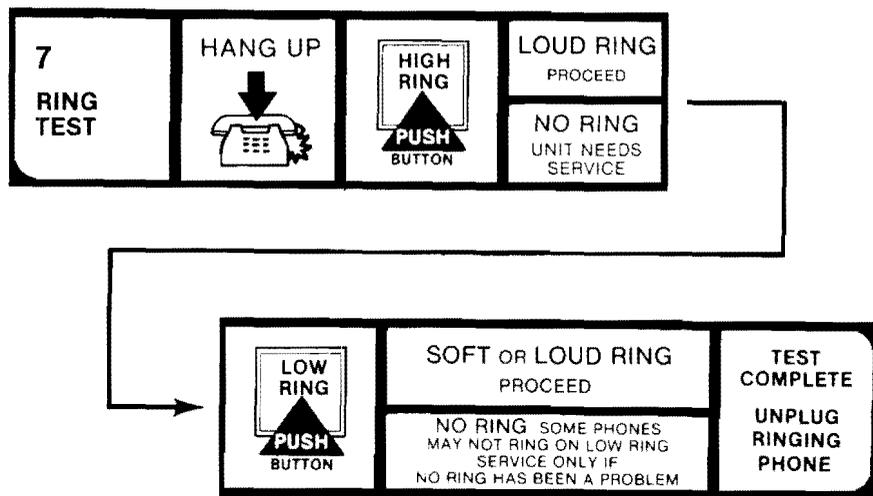


SHORT LOOP

All previous tests have been made as if the telephone was connected to distant Central Office.

To test the unit as if it were trying a connection to a nearby Central Office:

1. Press the SHORT LOOP button.
2. Repeat Test 3 DIAL TEST
3. Repeat Test 4 TRANSMIT TEST.
4. Repeat Test 5 RECEIVE TEST.
5. Arrange for service or proceed to other tests based on the criteria for passing or failing Tests 3, 4 and 5.



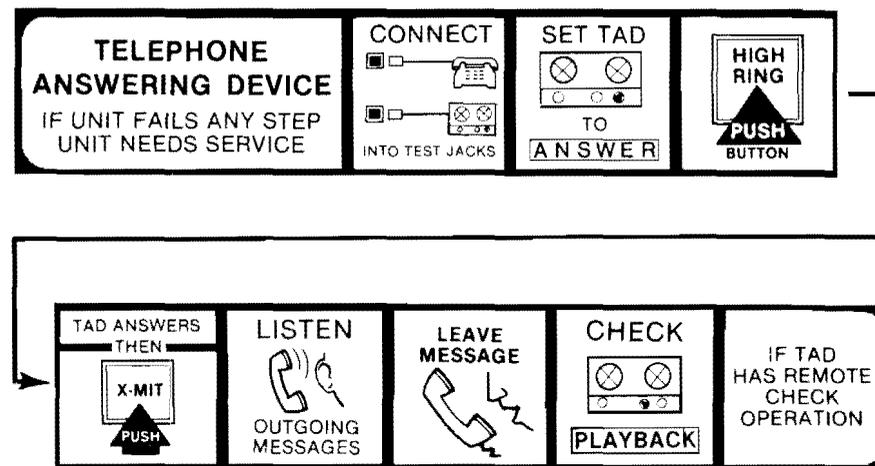
RINGER TEST

Test 5 was finished with the Handset off-hook. To check the operation of the RING mechanism:

1. Hang up the Handset. (Go on-hook.)
2. Press HIGH RING to check high ringer voltage (nearby Central Office) operation.
3. If the telephone rings loudly, proceed. If not, the ringer is defective.
4. To check low level operation (distant Central Office), press LOW RING.
5. If **either** a low volume or high level ring is obtained the unit is OK.

Note: Some phones may not produce a ring under LOW RING test. In such cases, service is indicated only if ringing has been a verified problem or area of concern.

6. Unplug the phone from the front panel to stop ringing.
 7. Turn POWER switch OFF.
- Testing is now complete.



TELEPHONE ANSWERING DEVICE (TAD)

The following steps will check essential operation of a typical Telephone Answering Device.

1. Connect a known good telephone to the PHONE TEST JACK on the front panel.
2. Connect the TAD to the AUX TEST JACK directly beneath.
3. Set the controls of the TAD to answer an incoming call.
4. With the phone on hook, press the HIGH RING button.
5. The TAD should start operation, answering an incoming call.
6. As soon as the TAD answers, press the X-MIT button.
7. Lift the handset and listen to the TAD's outgoing message in the phone's receiver.
8. When you hear the TAD's tone, indicating that you may leave your message, speak clearly into the phone, leaving a test message.
9. Switch the TAD to rewind and begin playback of your test message. Verify that it was recorded accurately.
10. If the TAD features remote operation, be sure to check that as well using the appropriate device.

TELEPHONE TERMINOLOGY

In order to assist you to use and understand the flexibility of the Tester and to translate the results of the various tests into proper action, the following overview of some typically used terms is offered.

The Loop: Your phone is connected to a central office by means of a pair of wires. This pair may be relatively short (a few blocks), or much longer, such as a few miles.

Usually there is a standard voltage of 50 volts DC present in your phone with the handset on the hook. If you are close to the central office, a **short loop**, the current might be as high as 0.08 ampere. If you are several miles away, a **long loop**, that current might be as small as 0.02 ampere instead.

Handset: Although today the handset comes in many shapes and sizes, it is still comprised of a transmitter, into which you speak, and a receiver, from which you hear the other phone. The transmitter is typically a mic made of loosely packed carbon granules. The receiver is a miniature loudspeaker.

The Hookswitch: The buttons on the cradle of your phone, are connected to a multi-contact switch inside the phone's case. When you lift the handset and the switch makes an electrical connection, it is off-hook. The phone is disconnected when the handset is on-hook.

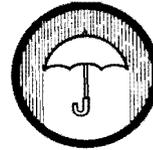
The Ringer: While electronic ringers produce sound differently and have values unique to their family of circuits, the classic ringer consisted of a gong struck by a clapper. Today, electronic circuits produce warbles, or other new sounds. The resistance of older coils are checked by the Tester. Newer circuits are similarly tested.

Central Office: The switching equipment that provides local exchange telephone service for a given geographical area, designated by the first three digits of the telephone number.

MAINTENANCE

Your Telephone Tester represents a fine example of electronic engineering and construction. As such it should be treated accordingly. We offer the following suggestions so you will enjoy this product for many years to come.

If at anytime you suspect that your unit is not performing as it should, stop by your local Radio Shack store. Our personnel are there to assist you and arrange for service, if needed.



Keep it dry. If water should get on it, wipe it off immediately. Water contains minerals that can corrode electronic circuits.



Do not store in hot areas. High temperatures can shorten the life of electronic devices, damage batteries, and can even distort or melt certain plastics.



Do not drop your product. This will likely result in failure to operate. Circuit boards can crack and cases may not survive the impact. Handling your product roughly will shorten its useful life.



Do not use or store in areas of high levels of dirt or dust. The electronics may be contaminated. Any moving parts will wear prematurely.



Do not use harsh chemicals, cleaning solvents or strong detergents to keep your unit looking new. You need only wipe it with a dampened cloth from time to time.

SPECIFICATIONS

Dial Speed	8 PPS - 11 PPS \pm .1275 PPS
Make/Break Ratio	58 - 64% \pm .6%
Loop Test	57 - 600 Ohms DC Resistance
Receive Test	-26 dBm \pm 5% reference to 600 ohms
Transmit Test	-20 dBm \pm 5% reference to 600 ohms
Ring Test (Typical)	Low Ring 45 V RMS High Ring 90 V RMS
Touch Tone Frequency	
Detect Bandwidth	Typical \pm 2.3% of F_0 Maximum \pm 3.5% of F_0
Amplitude for Detection	Min -19 dBm reference to 600 ohms Max -2 dBm reference to 600 ohms
Supply Voltage	Minimum 105 VAC Typical 120 VAC Maximum 135 VAC

Note: Above specifications based on 120 VAC only.

Cord Test	Pass	2 or 4 conductor. Tests inner pair, tip and ring and outer pair. Position of conductors within the inner pair and position of conductors within the outer pair may be reversed within the pair and the cord will pass.
	Fail	Fails on 0, 1, or 3 conductors. Also fails if one conductor in one pair is shorted to one conductor in the other pair.
Unit Weight		13 pounds

NOTES

SCHEMATIC DIAGRAM

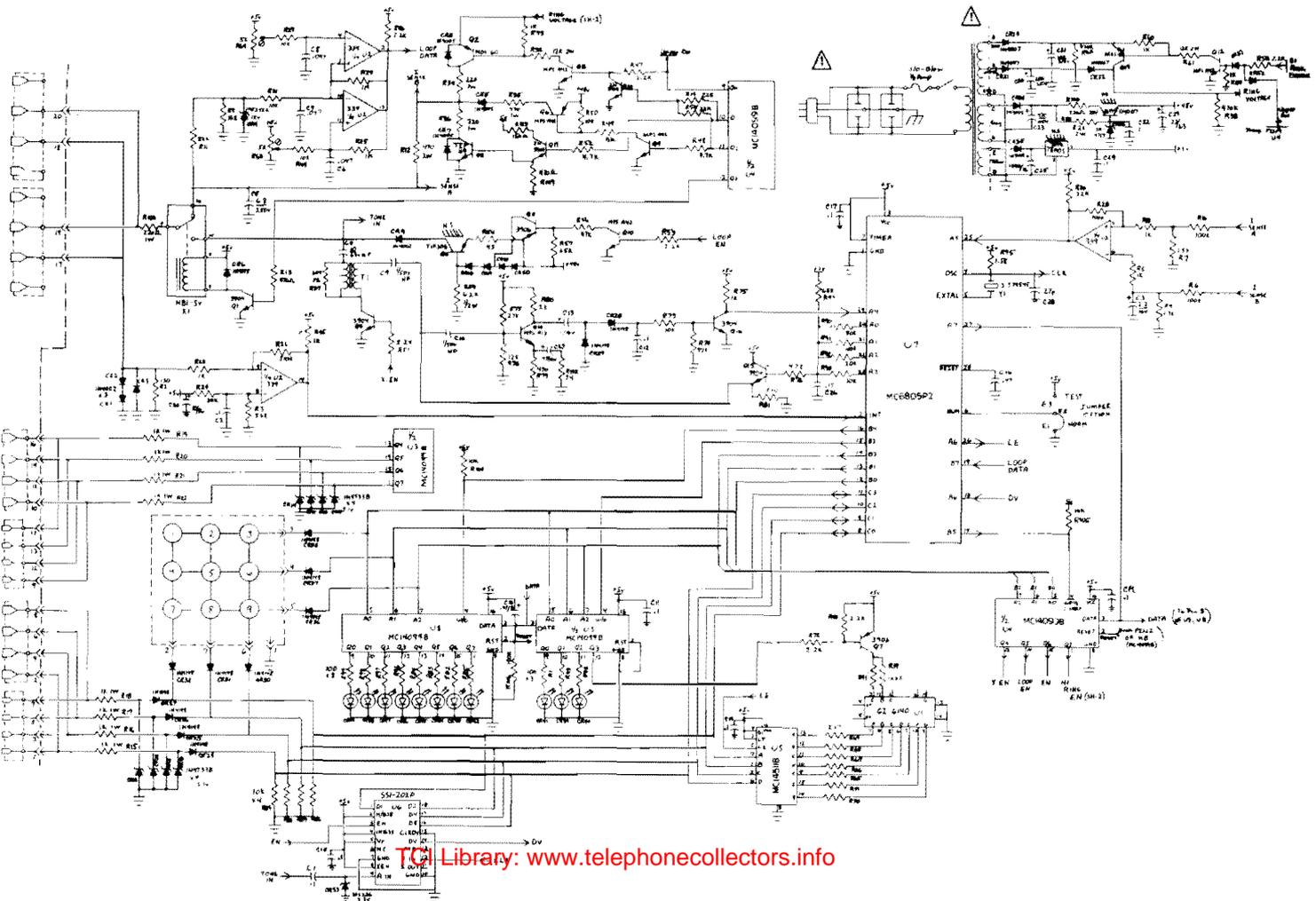
Schematic subject to change. For latest schematic and parts, contact Radio Shack National Parts, 900 E. Northside Dr., Fort Worth, Texas 76104.



SAFETY CRITICAL COMPONENTS: REPLACE WITH PARTS RECOMMENDED BY MANUFACTURER.

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RADIO SHACK LIMITED WARRANTY

This product is warranted against defects for one year from date of purchase from Radio Shack company-owned stores and authorized Radio Shack franchisees and dealers. Within this period, we will repair it without charge for parts and labor. Simply **bring your Radio Shack sales slip** as proof of purchase date to any Radio Shack store. Warranty does not cover transportation costs. Nor does it cover a product subjected to misuse or accidental damage.

EXCEPT AS PROVIDED HEREIN, RADIO SHACK MAKES NO WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. Some states do not permit limitation or exclusion of implied warranties; therefore, the aforesaid limitation(s) or exclusion(s) may not apply to the purchaser.

This warranty gives you specific legal rights and you may also have other rights which vary from state to state

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