

# **MLT Ver Codes**

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04/22/02

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# Table of Contents

Objectives .....	6
VER Codes Index .....	8
Standard VER Codes - Groups.....	9
VER Codes - Programmable .....	17
Test Okay VER Codes.....	22
FEMF VER CODES .....	28
DC Resistance VER Codes .....	46
Central Office VER Codes .....	62
Opens VER Codes.....	80
Pair Gain VER Codes .....	90
Line in Use VER Codes .....	110
ROH and Permanent Signal VER Codes.....	118
Dial Test Results VER Codes .....	128
Miscellaneous VER Codes .....	134
Test Equipment VER Codes .....	146
Denied Service 5ESS - D.....	166
Test Error or Failure.....	174
Test Equipment Failure.....	182
Ringer Results VER Codes.....	196
Miscellaneous Test Handling .....	208
MDF Test Needed.....	212
Test Not Made .....	218
Protected Service/Intercept VER Codes .....	226
System Time-out VER Codes .....	232
Unexpected Results VER Codes .....	234
MLT Extra Results .....	246
Fiber in the Loop VER Codes .....	250
Possible Pair Gain Channel Unit.....	280
Raychem (DSSC) Digital Single Line Subscriber Carrier.....	294
Wescom (DSSC) Digital Single Line Subscriber Carrier .....	302

# MLT VER Codes

## **Introduction:**

The purpose of this module is to provide more detail on how to use a combination of VER code, Summary Message, and Test results to make the best decision for the customer and the company. It also provides a Job Aid to help the MLT user access the best possible information about MLT in a VER code listing.

## **Topics:**

The Logical grouping of VER codes.

The meaning of each POTS related VER code.

Rational actions associated with each Non-ISDN VER code.

# MLT VER Codes

## Objectives:

**At the completion of this module the MLT user will be able to:**

- Find details of every POTS CSB/MC MLT VER code.
- Use this guide to make better decisions about MLT test results.
- Answer questions about MLT tests and VER codes using this Job Aid Module.

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# **MLT VER Codes Index**



# Standard VER Codes - Groups

Test OK	Page
VER - 0..... TEST OK .....	22
VER - 0C..... CPE OR HIGH RESISTANCE OPEN .....	24

## FEMF

VER - 11..... CROSS TO WORKING PAIR: FAULT .....	28
VER - 12..... AC FEMF FAULT .....	30
VER - 13..... HAZARDOUS POTENTIAL.....	32
VER - 14..... CROSS TO WORKING PAIR: MARGINAL.....	34
VER - 15..... DC FEMF MARGINAL.....	36
VER - 16..... AC FEMF MARGINAL.....	38
VER - 17..... RESISTIVE FAULT AND DC FEMF.....	40
VER - 18..... OPEN OUT AND CROSS .....	42

## DC Resistance

VER - 21..... GROUND FAULT .....	46
VER - 22..... SHORT FAULT .....	48
VER - 23..... SWINGING RESISTANCE: FAULT .....	50
VER - 24..... SWINGING RESISTANCE: MARGINAL.....	52
VER - 25..... SHORT AND GROUND .....	54
VER - 26..... MDF TEST RECOMMENDED-LOW RESISTANCE.....	56
VER - 27..... DC RESISTANCE - MARGINAL .....	58

## Central Office

VER - 3..... OPEN IN.....	62
VER - 31..... INVALID LINE CIRCUIT ARRANGEMENT.....	64
VER - 32..... CAN'T DRAW DIAL TONE.....	66
VER - 33..... CAN'T BREAK DIAL TONE.....	68
VER - 34..... POSSIBLE INVALID ACCESS .....	70
VER - 35..... OPEN IN AND CROSS .....	72
VER - 36..... LINE CIRCUIT AND DIAL TONE PROBLEMS .....	74
VER - 37..... DIAL TONE BURST DETECTED.....	76

## OPENS

VER - 41..... OPEN OUT BALANCED .....	80
VER - 42..... OPEN OUT IN CABLE .....	82
VER - 44..... OPEN OUT 2-PARTY OR BRIDGE LIFTERS .....	84
VER - 45..... OPEN OUT NEAR DROP .....	86

# Standard VER Codes - Groups

<b>Pair Gain</b>	<b>Page</b>
VER - 05.....CHANNEL STATUS NOT IDENTIFIED .....	90
VER - 51.....CO BATTERY ON PAIR GAIN SYSTEM.....	92
VER - 52.....INVALID PAIR GAIN CO SIGNATURE.....	94
VER - 53.....PAIR GAIN SYSTEM BUSY.....	96
VER - 54.....PAIR GAIN SYSTEM FAILURE .....	98
VER - 55.....PAIR GAIN CHANNEL FAILURE.....	100
VER - 56.....BAD COT CHANNEL UNIT.....	102
VER - 57.....RT CU BAD .....	104
VER - 58.....BAD COT AND RT UNITS .....	106

<b>Line in Use</b>	
VER - 6.....BUSY-SPEECH.....	110
VER - 61.....LINE IN USE .....	112
VER - LU.....LINE IN USE .....	114

<b>ROH or Permanent Signal</b>	
VER - 71.....ROH .....	118
VER - 73.....LINE IN USE OR PERMANENT SIGNAL .....	120
VER - 74.....PERMANENT SIGNAL.....	122
VER - 75.....SHORT - PROBABLY ROH .....	124

<b>Dial Test Results</b>	
VER - 80.....DIAL OK .....	128
VER - 81.....DIAL NOT OK .....	130

<b>Invalid and Miscellaneous Test Results</b>	
VER - 93.....POOR BALANCE .....	134
VER - 95.....RESISTIVE FAULT AND OPEN .....	136
VER - 96.....MARGINAL BALANCE .....	138
VER - 98.....ANALYSIS OF FULL RESULTS NEEDED .....	140
VER - 99.....MULTIPLE FAULTS DETECTED .....	142

# Standard VER Codes - Groups

<b>Test Equipment Codes</b>	<b>Page</b>
VER - B0..... TEST EQUIPMENT BUSY - TIME OUT IN ACCESS .....	146
VER - B1..... TEST NOT MADE .....	147
VER - B2..... TEST EQUIPMENT BUSY - SANITY OR DIAG IN PROGRESS.....	148
VER - B3..... TEST EQUIPMENT BUSY - SIMULTANEOUS TEST REQUEST MADE ....	149
VER - B4..... TEST EQUIPMENT OUT OF SERVICE .....	150
VER - B5..... TEST EQUIPMENT BUSY - PAIR GAIN ACCESS EQUIPMENT BUSY.....	151
VER - B6..... DOWNLOAD IN PROGRESS .....	152
VER - B7..... TEST EQUIP BUSY .....	153
VER - BA ..... NO DCTU PORT AVAILABLE.....	154
VER - BB ..... DCTU NOT AVAILABLE .....	154
VER - BC ..... NO GDXC AVAILABLE .....	154
VER - BD ..... NO MTB AVAILABLE .....	154
VER - BE ..... NO MTIB AVAILABLE .....	154
VER - BF ..... NO MA PACK AVAILABLE.....	154
VER - BG ..... NO MAB AVAILABLE .....	154
VER - BH ..... NO PRTC AVAILABLE .....	154
VER - BI..... NO MTB TO PGTC AVAILABLE .....	154
VER - BJ..... NO MTB TO PGTC PORT AVAILABLE .....	155
VER - BK ..... PGTC PATH SETUP BLOCKAGE (other) .....	155

# Standard VER Codes - Groups

<b>Test Equipment Codes (continued)</b>	<b>Page</b>
VER - BL ..... NO PORT AVAILABLE.....	156
VER - BM ..... NO TRUNK AVAILABLE .....	157
VER - BP ..... NO PMU AVAILABLE.....	158
VER - BQ..... NO DIALER AVAILABLE.....	159
VER - BR..... NO BUSY DETECTOR AVAILABLE .....	160
VER - BS ..... SWITCH BLOCKAGE .....	161
VER - BT ..... RMU IN USE .....	162
VER - BU ..... CAN'T CONNECT TO RMU.....	163
VER - BV ..... NO MODEM PORT AVAILABLE.....	164

## **Denied Service Results**

VER - D1 ..... DENIED SERVICE - TERMINATING .....	166
VER - D2 ..... DENIED SERVICE - ORIGINATING .....	168
VER - D3 ..... DENIED SERVICE .....	170

## **Test Error or Failure**

VER - DL ..... CONTROLLER-LTF OR FRONT END-LTS DATA LINK FAILURE.....	174
VER - E0 ..... TEST SYSTEM ERROR .....	176
VER - E1 ..... TEST SYSTEM ERROR .....	177
VER - E5 ..... TEST SYSTEM ERROR .....	178
VER - E7 ..... TEST SYSTEM ERROR .....	179
VER - E8 ..... CAN'T SEND REQUEST TO APPROPRIATE FE .....	180

# Standard VER Codes - Groups

<b>Test Equipment Failure</b>	<b>Page</b>
VER - F0..... TEST EQUIPMENT FAILURE.....	182
VER - F1..... TEST EQUIPMENT FAILURE.....	183
VER - F2..... TEST EQUIPMENT FAILURE.....	184
VER - F4..... TEST EQUIP BUSY .....	185
VER - FA ..... BUSY DETECTOR FAILURE.....	186
VER - FB ..... DIALER FAILURE .....	187
VER - FC ..... PMU FAILURE .....	188
VER - FD ..... SLEEVE CONTROL FAILURE.....	189
VER - FH ..... EQUIPMENT ACCESS FAILURE .....	190
VER - FL..... MODEM CONNECTION FAILURE .....	191
VER - FM..... RMU/CMU CONNECT FAILURE .....	192
VER - FN ..... LOGIN FAILURE .....	193
 <b>Ringer Test Results</b>	
VER - G0 ..... VALID RINGER COUNT AND TERMINATION.....	196
VER - G1 ..... INVALID RINGER TERMINATION.....	198
VER - G4 ..... RINGER TEST WITH NO RECORDS .....	200
VER - G6 ..... RINGER TEST-UNCATALOGED EQUIPMENT .....	202
VER - G8 ..... RINGER TEST-UNCATALOGED EQUIPMENT .....	204
 <b>Miscellaneous Test Handling</b>	
VER - LM ..... REMOTE TEST-EXPECT DELAYED RESULTS.....	208
 <b>MDF Test Needed</b>	
VER - MD ..... MDF TEST RECOMMENDED .....	212
VER - MT ..... MDF TESTABLE ONLY .....	214

# Standard VER Codes - Groups

<b>Test Not Made</b>	<b>Page</b>
VER - ND.....TEST NOT MADE FROM THIS FE .....	218
VER - NL.....NO LINE RECORD IN SYSTEM.....	219
VER - NM.....NETWORK MANAGER FAILURE .....	220
VER - NS.....LINE NOT SERVED BY MLT .....	221
VER - NT.....LINE NOT MLT TESTABLE .....	222
VER - NV.....LINE NOT VERIFIED .....	223

<b>Protected Service / Intercept</b>	
VER - SP.....PROTECTED SERVICE .....	226
VER - SS.....SPECIAL SERVICES REQUIRED .....	228
VER - SU....."INTERCEPT" .....	230

<b>System Time out</b>	
VER - T1.....SYSTEM TIMEOUT .....	232

<b>Unexpected Results</b>	
VER - U1.....UNEXPECTED THERMISTORS .....	234
VER - U2.....UNEXPECTED PBX SIGNATURE .....	236
VER - U3.....UNEXPECTED RINGER TERMINATION.....	238
VER - U4.....UNEXPECTED INWARD SERVICE .....	240
VER - U6.....UNEXPECTED INTEGRATED PGS/.....	242
or	
UNEXPECTED UNIVERSAL PGS	

<b>Extra Results</b>	
VER - XA.....OVRD-EXK/NNX COMBO NOT IN DATABASE.....	246
VER - XI.....INVALID TN.....	247
VER - XU.....TEST EQUIPMENT NOT AVAILABLE FOR THIS WC .....	248

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# VER Codes - Programmable

<b>Fiber in the Loop</b>	<b>Page</b>
VER - 2C ..... PROBABLE FIBER-IN-THE-LOOP FOUND - ..... PAIR GAIN CHANNEL FAILURE LOOP TEST INDICATES FEMF GREATER THAN 10 VOLTS- DROP TEST EQUIPMENT FAILURE DISPATCH TO DT	250
VER - 3C ..... PROBABLE FIBER-IN-THE-LOOP FOUND ..... PAIR GAIN CHANNEL FAILURE LOOP TESTS INDICATE - TEST OK	252
VER - 4C ..... PROBABLE FIBER-IN-THE-LOOP FOUND ..... PAIR GAIN CHANNEL FAILURE LOOP TESTS INDICATE - NO RINGER DISPATCH TO ONU	254
VER - 5C ..... PROBABLE FIBER-IN-THE-LOOP FOUND ..... PAIR GAIN CHANNEL FAILURE LOOP TESTS INDICATE -- RESISTANCE FAULT LESS THAN 150 KOHMS DISPATCH TO ONU	256
VER - 6C ..... PROBABLE FIBER-IN-THE-LOOP FOUND - ..... PAIR GAIN CHANNEL FAILURE LOOP TESTS INDICATE - ROH DISPATCH TO ONU	258
VER - 7C ..... PROBABLE FIBER-IN-THE-LOOP FOUND - ..... PAIR GAIN CHANNEL FAILURE LOOP TESTS INDICATE --!! <b>HAZARDOUS VOLTAGE!!</b> <b>TAKE PROPER PRECAUTIONS</b> DISPATCH TO ONU	260



# VER Codes - Programmable

<b>Pair Gain Channel Unit</b>	<b>Page</b>
VER 1P - ..... POSSIBLE INTEGRATED PG CHANNEL - USE ..... TV AND RETEST USING T1C40 OVERRIDE HAVE LMOS LINE RECORD CORRECTED IF NECESSARY IF NOT ON PAIR GAIN -- HANDLE AS A MODERATE SHORT AND GROUND	280
VER - 2P..... POSSIBLE PG CHANNEL UNIT FOUND - USE ..... TV AND RETEST USING T1C40 OVERRIDE HAVE LMOS LINE RECORD CORRECTED IF NECESSARY IF NOT ON PAIR GAIN -- HANDLE AS A MODERATE SHORT AND GROUND	282
VER - 3P..... POSSIBLE PG CHANNEL UNIT FOUND - USE ..... TV AND RETEST USING T1C40 OVERRIDE HAVE LMOS LINE RECORD CORRECTED IF NECESSARY IF NOT ON PAIR GAIN -- HANDLE AS A MODERATE SHORT, GROUND, AND CROSS	282
VER - 4P..... POSSIBLE PG CHANNEL UNIT FOUND - USE ..... TV AND RETEST USING T1C40 OVERRIDE HAVE LMOS LINE RECORD CORRECTED IF NECESSARY IF NOT ON PAIR GAIN -- HANDLE AS A MODERATE SHORT AND GROUND	284
VER - 5P..... POSSIBLE PG CHANNEL UNIT FOUND - USE ..... TV AND RETEST USING T1C40 OVERRIDE HAVE LMOS LINE RECORD CORRECTED IF NECESSARY IF NOT ON PAIR GAIN -- HANDLE AS A MODERATE SHORT AND GROUND	286

# VER Codes - Programmable

## Pair Gain Channel Unit (continued)

## Page

VER - 6P .....	POSSIBLE PG CHANNEL UNIT FOUND - USE .....	290
	TV AND RETEST USING T1C40 OVERRIDE	
	HAVE LMOS LINE RECORD CORRECTED IF	
	NECESSARY	
	IF NOT ON PAIR GAIN -- HANDLE AS A	
	MODERATE SHORT AND GROUND	

## Raychem DSSC

VER - 1R .....	POSSIBLE RAYCHEM DSSC UNIT FOUND - .....	294
	SYSTEM TEST OK	
	IF NOT A RAYCHEM DSSC - HANDLE AS A	
	MODERATE SHORT AND GROUND	

VER - 2R .....	POSSIBLE RAYCHEM DSSC UNIT FOUND - .....	296
	COT SYSTEM FAILURE - DISPATCH TO CO	
	IF NOT A RAYCHEM DSSC - HANDLE AS A	
	MODERATE SHORT AND GROUND	

VER - 3R .....	POSSIBLE RAYCHEM DSSC UNIT FOUND - .....	298
	RT SYSTEM FAILURE - DISPATCH TO RT	
	IF NOT A RAYCHEM DSSC - HANDLE AS A	
	MODERATE SHORT AND GROUND	

## Wescom DSSC

VER - 1W .....	POSSIBLE WESCOM DSSC UNIT FOUND - .....	302
	SYSTEM TEST OK	
	IF NOT A WESCOM DSSC - HANDLE AS A	
	MODERATE SHORT AND GROUND	

VER - 2W .....	POSSIBLE WESCOM DSSC UNIT FOUND - RT .....	304
	SYSTEM FAILURE - DISPATCH TO RT	
	IF NOT A WESCOM DSSC - HANDLE AS A	
	MODERATE SHORT AND GROUND	

VER - 3W .....	POSSIBLE WESCOM DSSC UNIT FOUND - .....	306
	COT SYSTEM FAILURE - DISPATCH TO CO	
	IF NOT A WESCOM DSSC - HANDLE AS A	
	MODERATE SHORT AND GROUND	

# VER Codes - Programmable

## Wescom DSSC (continued)

Page

VER - 4W .....	POSSIBLE WESCOM DSSC UNIT FOUND - COT.....	308
	TO RT FACILITY FAILURE - CABLE	
	IF NOT A WESCOM DSSC - HANDLE AS A	
	MODERATE SHORT AND GROUND	

## Fiber in the Loop

VER - 1X.....	PROBABLE FIBER-IN-THE-LOOP FOUND - NO .....	262
	CHANNEL OR LOOP TESTS AVAILABLE	
	LOOP TEST INDICATES FEMF GREATER THAN 10 VOLTS	
	COMMON EQUIPMENT FAILURE OR NEED	
	DISPATCH TO ONU	
VER - 2X.....	PROBABLE FIBER-IN-THE-LOOP FOUND - .....	264
	CHANNEL - SINGLE PARTY SERVICE	
	FIBER LINK IS GOOD FROM COT TO DT-DROP	
	TEST EQUIPMENT FAILURE OR NEED	
	DISPATCH TO ONU	
VER - 3X.....	PROBABLE FIBER-IN-THE-LOOP FOUND - .....	266
	CHANNEL - SINGLE PARTY SERVICE	
	LOOP TESTS INDICATE - TEST OK	
VER - 4X.....	PROBABLE FIBER-IN-THE-LOOP FOUND - .....	268
	CHANNEL - SINGLE PARTY SERVICE	
	LOOP TESTS INDICATE - NO RINGERS	
VER - 5X.....	PROBABLE FIBER-IN-THE-LOOP FOUND - .....	270
	CHANNEL - SINGLE PARTY SERVICE	
	LOOP TESTS INDICATE - RESISTANCE FAULT	
	LESS THAN 150 KOHMS	
	DISPATCH TO ONU	
VER - 6X.....	PROBABLE FIBER-IN-THE-LOOP FOUND - .....	272
	CHANNEL - SINGLE PARTY SERVICE	
	LOOP TESTS INDICATE - ROH	
	DISPATCH TO ONU	

# VER Codes - Programmable

## Fiber in the Loop (continued)

## Page

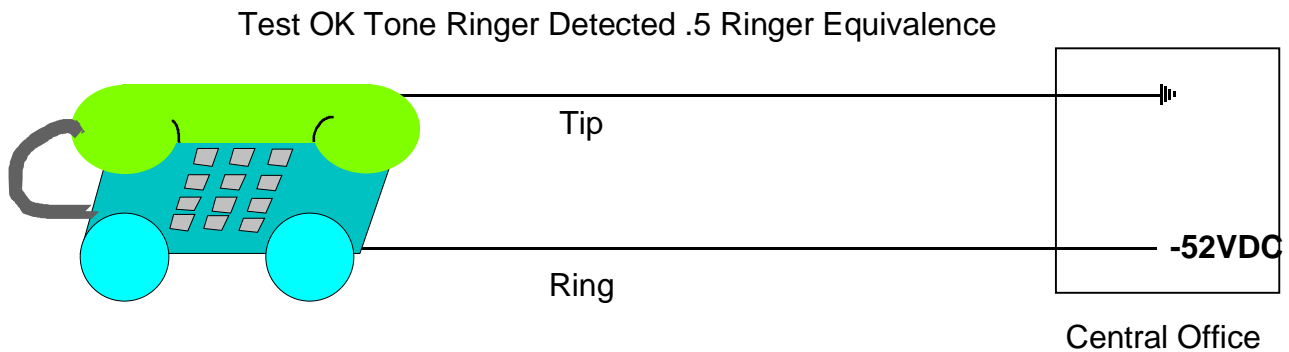
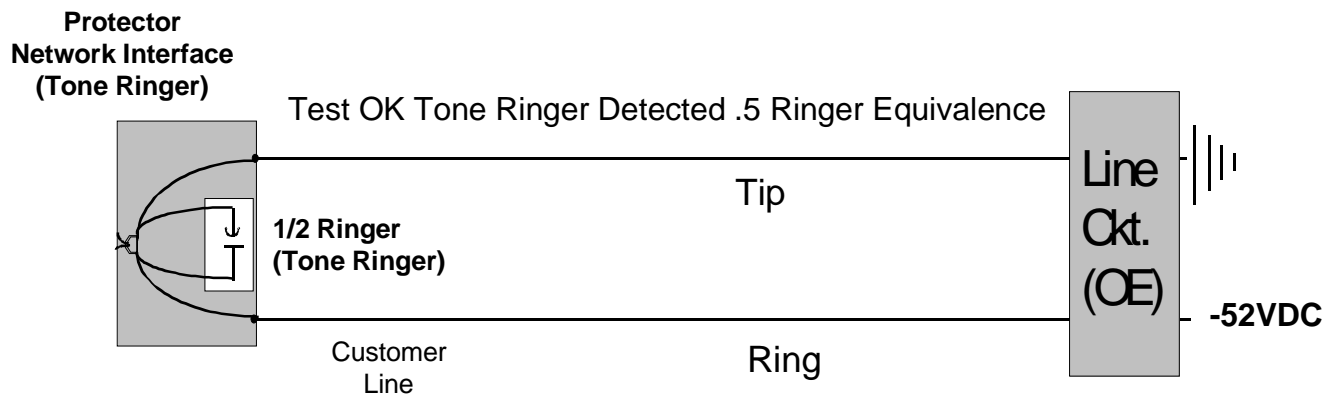
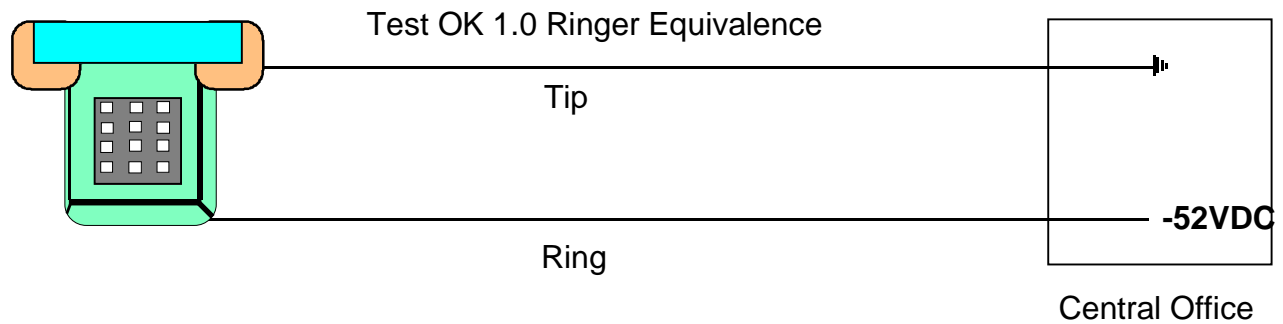
VER - 7X .....	PROBABLE FIBER-IN-THE-LOOP FOUND - .....	272
	CHANNEL - SINGLE PARTY SERVICE	
	LOOP TESTS INDICATE - !!HAZARDOUS	
	VOLTAGE!! TAKE PROPER PRECAUTIONS	
	DISPATCH TO ONU	
VER - 8X .....	PROBABLE FIBER-IN-THE-LOOP FOUND - NO .....	276
	CHANNEL OR LOOP TESTS AVAILABLE	
	FIBER LINK IS GOOD FROM COT TO RT-FIBER	
	LINK IS BAD FROM RT TO DT	
	DISPATCH TO ONU	

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**MLT**

**Test Okay**

**VER Codes**

**VER 0 -- TEST OK**

**VER 0 -- TEST OK**

MLT did not detect any obvious trouble on the line. However, there may still be a problem with parts of the loop that MLT did not test. For example, there might be a problem in the station set, or the central office. **Be VERY reluctant to dispatch a technician on a line that tests TEST OK.**

MLT SUMMARY EXPECTED RESULTS VER 0

## TEST OK

CRAFT KOHMS	DC SIGNATURE VOLTS		MLT: DC SIGNATURE KOHMS	VOLTS		AC SIGNATURE KOHMS	RNGRS	
3500		T-R	3500		T-R	9	YES	T-R
3500	0	T-G	3500	0	T-G	1500		T-G
3500	0	R-G	3500	0	R-G	1500		R-G

CENTRAL OFFICE	BALANCE	
LINE CKT OK	CAP 100 %	LOOP LENGTH = 17000 FT
DIAL TONE OK	LONG 65 DB	

ADDITIONAL INFORMATION

This example is a **TEST OK EXPECTED RESULTS** for a single party line.

The MLT DC signatures show high resistance (>1000 K ohms) and low voltage (0 Volts).

The AC signature indicates the presence of a 1.0A or greater Ringer Equivalence (capacitor) T-R. Ringer Equivalence is a value shown on the bottom of all telephones manufactured since the early 1980's. The higher the Ringer Equivalence, the lower the AC Resistance T-R. MLT must find a value T-R between 1 and 20 to call the line TEST OK. If the value is between 21 and 50, MLT will call the line TEST OK TONE RINGER DETECTED. If MLT does not find a value T-R between 1 and 50, it performs a second AC Signature test with higher AC current. If it then finds a ringer, MLT calls the result VER 0C CPE OR HIGH RESISTANCE OPEN.

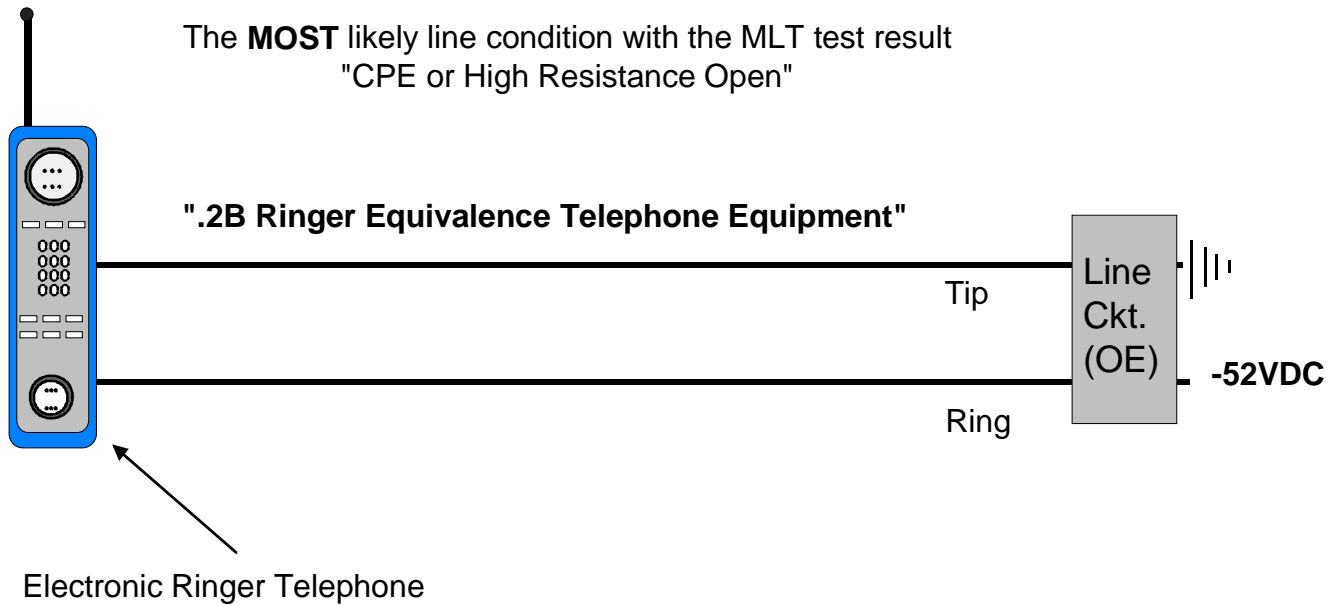
MLT has found that the line circuit arrangement of BATTERY on the RING and GROUND on the TIP was valid.

MLT was able to DRAW AND BREAK dial tone within six seconds.

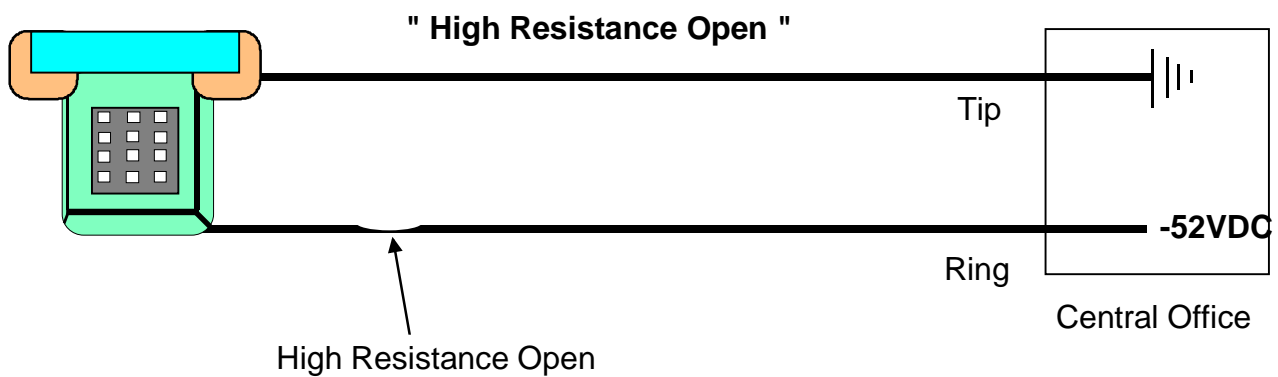
CAPACITANCE BALANCE is 100% and LONGITUDINAL BALANCE is 65DB.



## VER 0C -- CPE or High Resistance Open



The **LEAST** likely line condition with the MLT test result "CPE or High Resistance Open "



**VER 0C -- CPE or High Resistance Open**

MLT did not detect any obvious trouble on the line, however, it did find either a CPE termination or a high resistance open on the line. In most cases this will indicate that it is a CPE termination. The remote possibility exists, however, that it could be a high resistance open problem. **Be VERY reluctant to dispatch a technician on a line that tests CPE OR HIGH RESISTANCE OPEN.**

VER 0C (ZERO C)

**CPE OR HIGH RESISTANCE OPEN**

CRAFT KOHMS	DC SIGNATURE VOLTS		MLT: DC SIGNATURE KOHMS	VOLTS		AC SIGNATURE KOHMS	RNGRS	
3500		T-R	3500		T-R	19	YES	T-R
3500	0	T-G	3500	0	T-G	1500		T-G
3500	0	R-G	3500	0	R-G	1500		R-G

CENTRAL OFFICE	BALANCE	
LINE CKT OK	CAP 100 %	LOOP LENGTH = 17000 FT
DIAL TONE OK	LONG 65 DB	

**ADDITIONAL INFORMATION**

**The above example is actually a TEST OK for a single party line**, Centrex line, Key System, or loop start PBX line with a CPE termination (small Ringer Equivalence value and electronic ringer). These lines may or may not have line records. Notice that the DC signatures show high resistances and low voltages. This is a normal test result for a telephone line with no SHORTS, GROUNDS, or CROSSES.

The message CPE OR HIGH RESISTANCE OPEN is shown because of the remote possibility of a high resistance open condition on the line. This is almost always a TEST OKAY!!

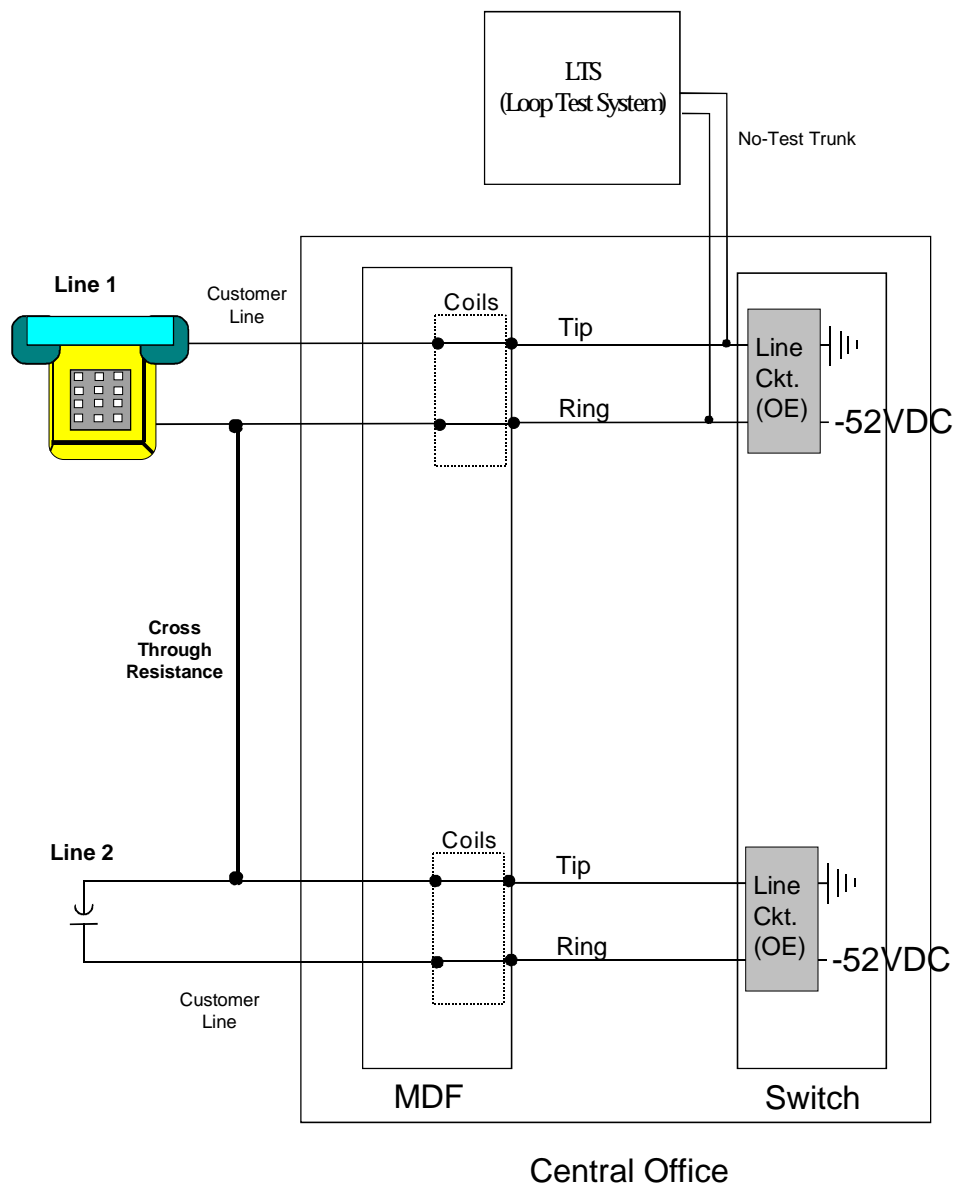
The Central Office and Balance results match the expected results for a single party line.

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**MLT**

**FEMF**

**VER Codes**

**VER 11 -- CROSS TO WORKING PAIR: FAULT**

**A customer with a CROSS on their line may report:**

Noise, Hum, No Dial Tone, Can't Be Called, Hears Others On Line.

**VER 11 -- CROSS TO WORKING PAIR: FAULT**

MLT detected the presence of DC foreign voltage (also referred to as battery) on the line. This is usually caused by DC current flowing on the line from another telephone line. The source of the voltage is the CO battery of the other line. The battery can be present tip to ground, ring to ground, or both. The side of the line that has the battery will have low resistance, or in other words, it will have a ground.

MLT SUMMARY (EXAMPLE) VER 11**CROSS TO WORKING PAIR: RING SIDE  
MODERATE BATTERY R-G -9V**

CRAFT KOHMS	DC SIGNATURE VOLTS		MLT: DC SIGNATURE KOHMS	VOLTS		AC SIGNATURE KOHMS	
3500		T-R	3500		T-R	9	T-R
3500	0	T-G	3500	0	T-G	1456	T-G
415	-9	R-G	415	-46	R-G	246	R-G

CENTRAL OFFICE  
LINE CKT OK  
DIAL TONE OK

ADDITIONAL INFORMATION

When MLT finds a CROSS according to the values in the table below, it makes a determination of the CRAFT Voltage value. If that value is less than 6 volts, MLT sets VER 14 CROSS Marginal. If the CRAFT voltage value is 6 volts or greater, MLT sets VER 11 CROSS Fault.

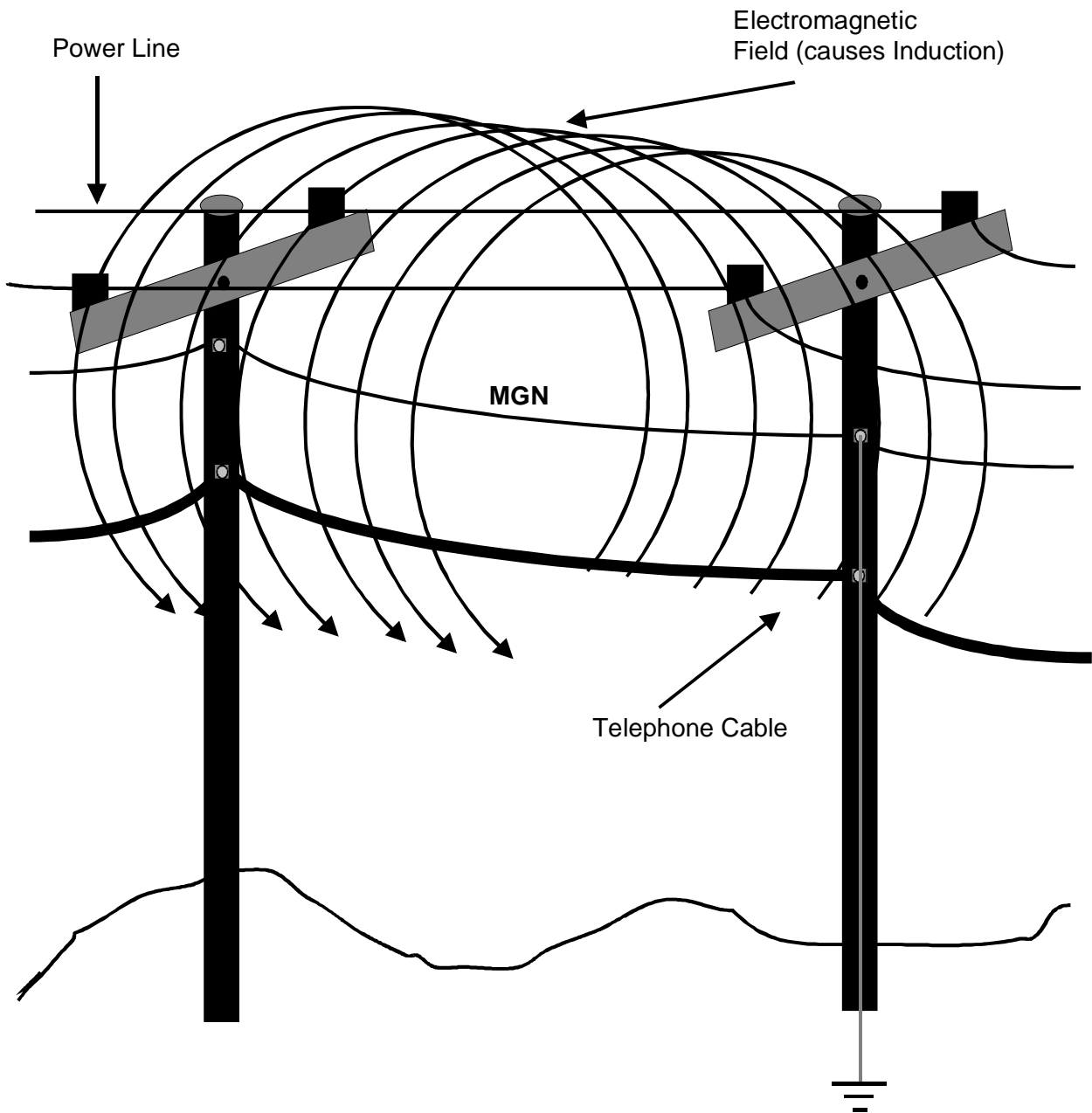
Notice the relationship between the MLT DC VOLTAGE, the MLT DC RESISTANCE, and the CRAFT DC VOLTAGE. The CRAFT DC VOLTAGE of -9 is less than the MLT DC VOLTAGE of -46. This difference is due to the way the measurements are made. The MLT value provides the actual amount of voltage on the line, and the CRAFT value provides the amount of voltage through the resistance on the line. The CRAFT value is a more realistic and accurate value to judge the impact on the customer's service. Note that all CROSSES also have a GROUND associated with them. The GROUND actually determines the severity of the CROSS. The lower the DC Resistance the higher the CRAFT VOLTAGE. The higher the DC Resistance the lower the CRAFT VOLTAGE. On CROSSES, read the CRAFT VOLTAGE values.

A cross is usually a cable problem. The most likely place for two telephone pairs to come in contact is in the cable where they are bundled together.

**MLT identifies a fault as a CROSS when the following values are found:**

MLT DC SIGNATURE  
KOHMS      VOLTAGE  
>10  
> 1          >20    and/or  
> 1          >20

VER 12 -- AC FEMF FAULT



**VER 12 -- AC FEMF FAULT**

An AC foreign voltage greater than the locally determined fault value (25 volts) was detected on the line.

This condition could be caused by a cross with a power line, or AC induction due to telephone lines being close to power lines.

MLT SUMMARY (EXAMPLE) VER: 12

AC	FEMF	FAULT	T-G	31V
AC	FEMF	MARGINAL	R-G	15V
AC	FEMF	CURRENT		

CRAFT KOHMS	DC SIGNATURE VOLTS		MLT: KOHMS	DC SIGNATURE VOLTS		AC SIGNATURE FEMF	
3500		T-R	3500		T-R		T-R
3500	0	T-G	3500	0	T-G	31	T-G
3500	0	R-G	3500	0	R-G	15	R-G

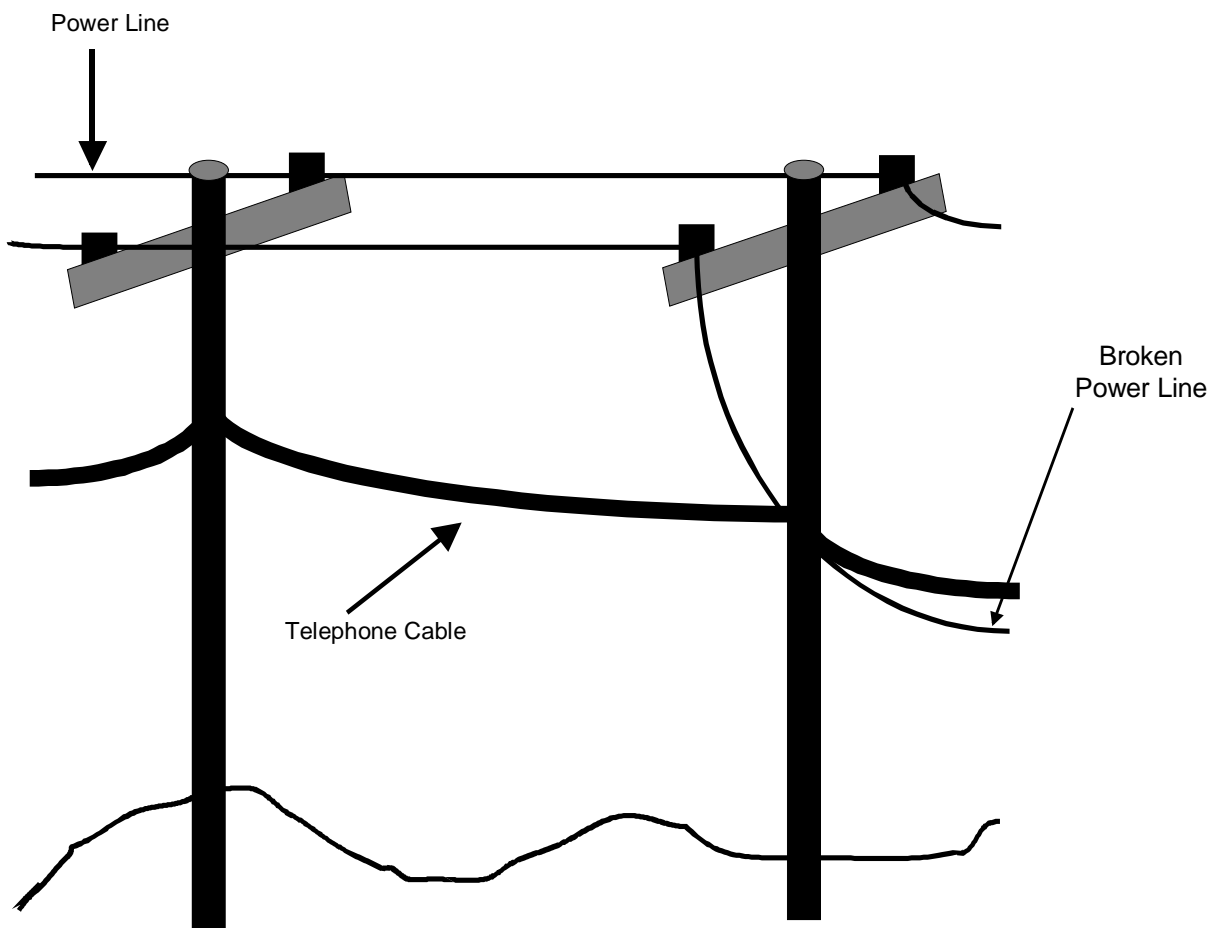
ADDITIONAL INFORMATION

**If this trouble is dispatched to a repair person, that person should be advised to use caution when working on the line.**

**Anytime there is AC voltage on the line, there is a potential danger.**



## VER 13 - HAZARDOUS POTENTIAL



## VER 13 - HAZARDOUS POTENTIAL

VER code 13 is set when, the preliminary MLT tests on the line indicate that there is a **Potentially Dangerous** amount of voltage on the line (150 Volts DC or 50 Volts RMS AC).

### MLT SUMMARY (EXAMPLE) VER: 13

#### HAZARDOUS POTENTIAL

**DANGER- ADVISE SUPERVISOR**

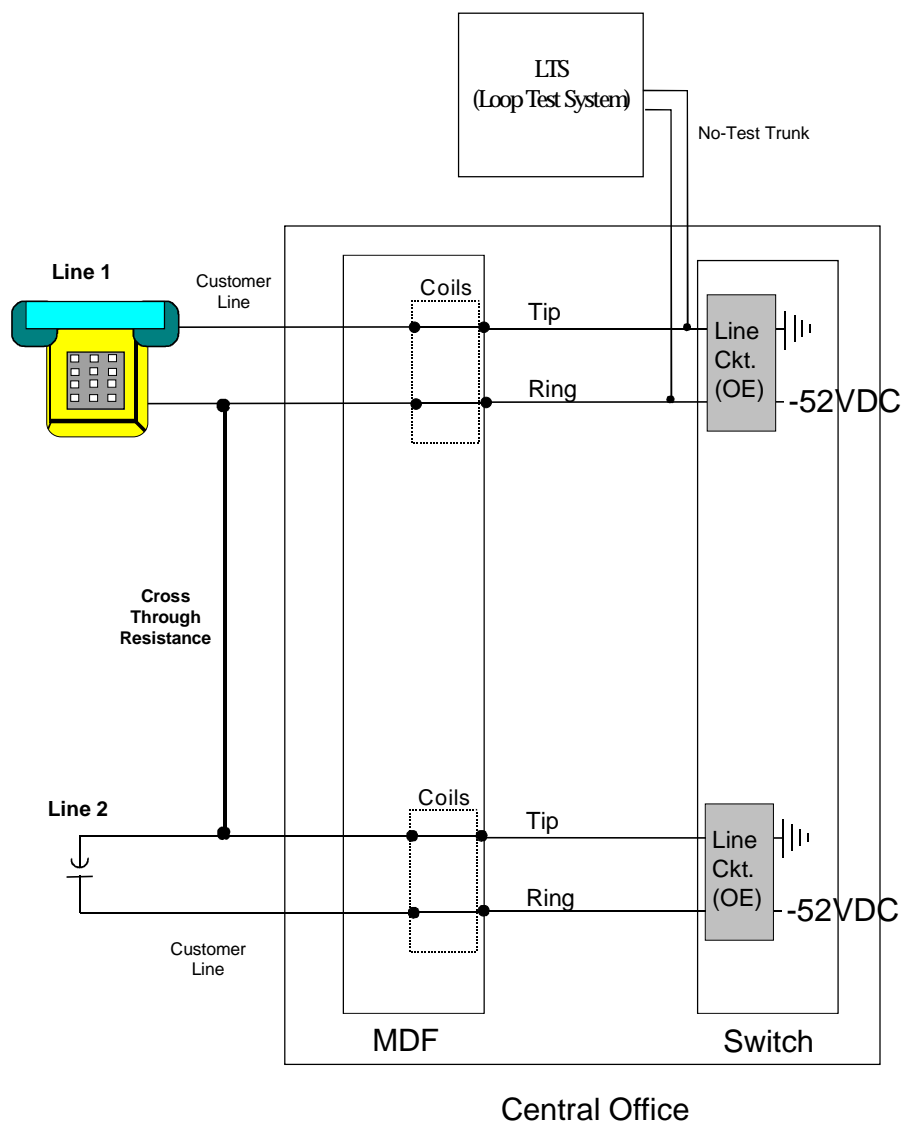
**USE EXTREME CAUTION**

### ADDITIONAL INFORMATION

Hazardous Potential could be caused by a high voltage surge on a line due to a number of conditions, including a cross with a power line or lightning striking the line. The MLT equipment will remain attached to the line, but all further test requests will only check to see if the hazardous potential is still present.

**This condition could be Potentially Dangerous.**

**It is important that you warn any craft person working with the line of the possible hazard.**

**VER 14 -- CROSS TO WORKING PAIR: MARGINAL**

**MLT identifies a fault as a CROSS when the following values are found:**

MLT DC SIGNATURE		
KOHMS	VOLTAGE	
>10		
> 1	>20	and/or
> 1	>20	

**VER 14 -- CROSS TO WORKING PAIR: MARGINAL**

MLT detected the presence of DC foreign voltage (also called foreign battery) below the fault level (marginal is determined when the largest CRAFT DC Voltage value is less than 6 volts) on the line. This is caused by DC current flowing on the line from another telephone line. The source of the voltage is the CO battery of the other line. The battery can be present tip to ground, ring to ground, or both. The side of the line that has the battery will usually have low resistance (a ground). **Be very reluctant to dispatch this type of trouble. The resistance is the key to the severity of this fault. This is virtually a TEST OK.**

MLT SUMMARY (EXAMPLE) VER: 14

CROSS TO WORKING PAIR: RING SIDE

VERY LIGHT BATTERY R-G - -5V

CRAFT KOHMS	DC SIGNATURE VOLTS		MLT: DC SIGNATURE KOHMS	VOLTS		AC SIGNATURE KOHMS	RNGRS	
3500		T-R	3500		T-R	9	YES	T-R
3500	0	T-G	3500	0	T-G	1456		T-G
994	-5	R-G	994	-52	R-G	646		R-G

CENTRAL OFFICE  
LINE CKT OK  
DIAL TONE OK

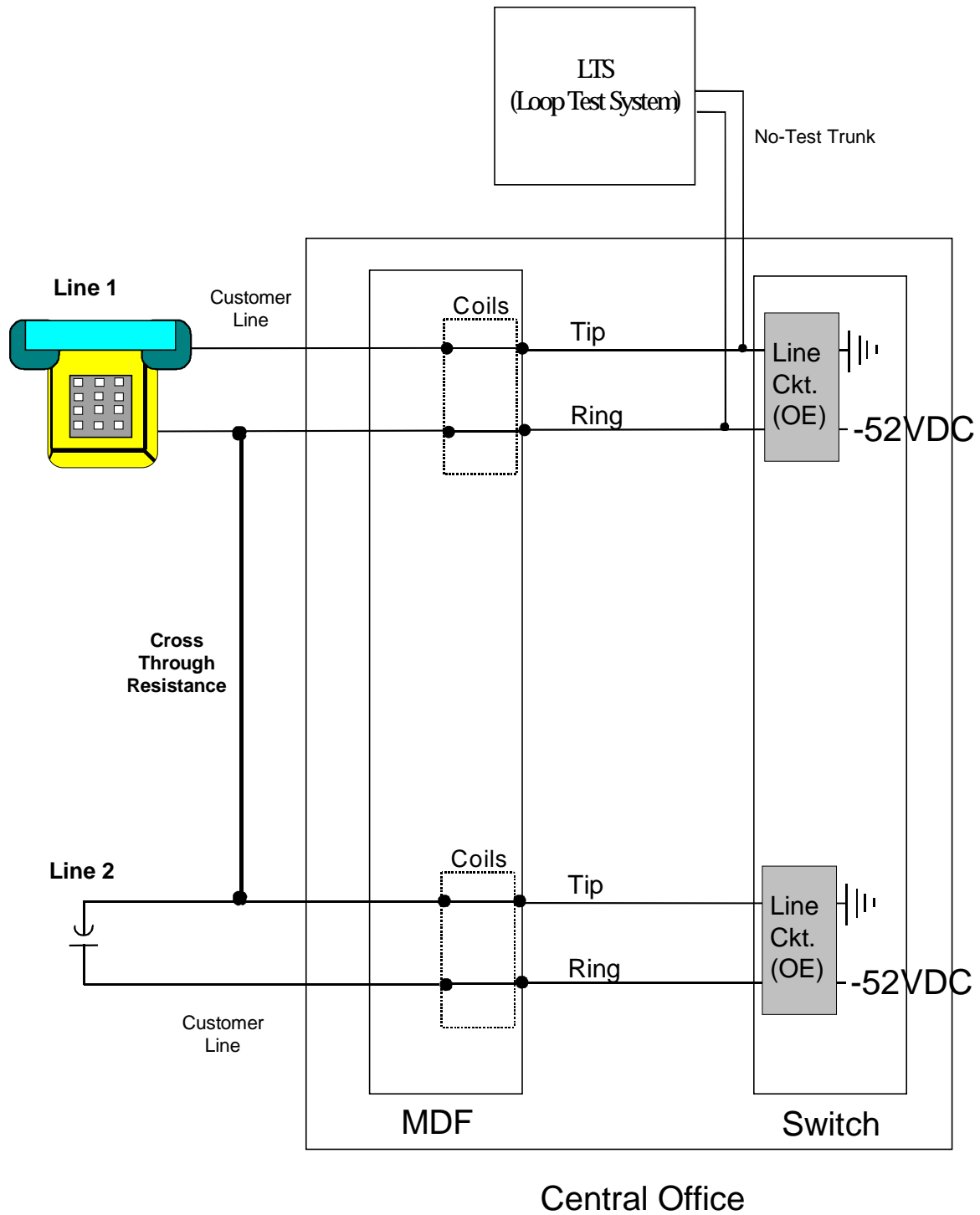
ADDITIONAL INFORMATION

When MLT finds a CROSS according to the values in the table below, it makes a determination of the CRAFT Voltage value. If that value is less than 6 volts, MLT sets VER 14 CROSS Marginal. If the CRAFT voltage value is 6 volts or greater, MLT sets VER 11 CROSS Fault.

Notice the relationship between the MLT DC VOLTAGE, the MLT DC RESISTANCE, and the CRAFT DC VOLTAGE. The CRAFT DC VOLTAGE of -9 is less than the MLT DC VOLTAGE of -46. This difference is due to the way the measurements are made. The MLT value provides the actual amount of voltage on the line, and the CRAFT value provides the amount of voltage through the resistance on the line. The CRAFT value is a more realistic and accurate value to judge the impact on the customer's service. Note that all CROSSES also have a GROUND associated with them. The GROUND actually determines the severity of the CROSS. The lower the DC Resistance, the higher the CRAFT VOLTAGE. The higher the DC Resistance, the lower the CRAFT VOLTAGE. On CROSSES, read the CRAFT VOLTAGE values.

A cross is usually a cable problem. The most likely place for two telephone pairs to come in contact is in the cable where they are bundled together.

## VER 15 -- DC FEMF MARGINAL



**VER 15 -- DC FEMF MARGINAL**

The MLT DC FEMF (Foreign Electromotive Force) or VOLTAGE detected on the line was between -8 and -20 volts. In addition, no other problems are found on the line. It is the MLT DC VOLTAGE values that identify this condition.

MLT SUMMARY (EXAMPLE) VER: 15

VERY LIGHT BATTERY R-G -1 V

CRAFT KOHMS	DC SIGNATURE VOLTS		MLT: DC SIGNATURE KOHMS	VOLTS		KOHMS	AC SIGNATURE RNGRS	
3500		T-R	3500		T-R	9	YES	T-R
3500	0	T-G	3500	0	T-G	1456		T-G
1378	-1	R-G	1378	-19	R-G	646		R-G

CENTRAL OFFICE  
LINE CKT OK  
DIAL TONE OK

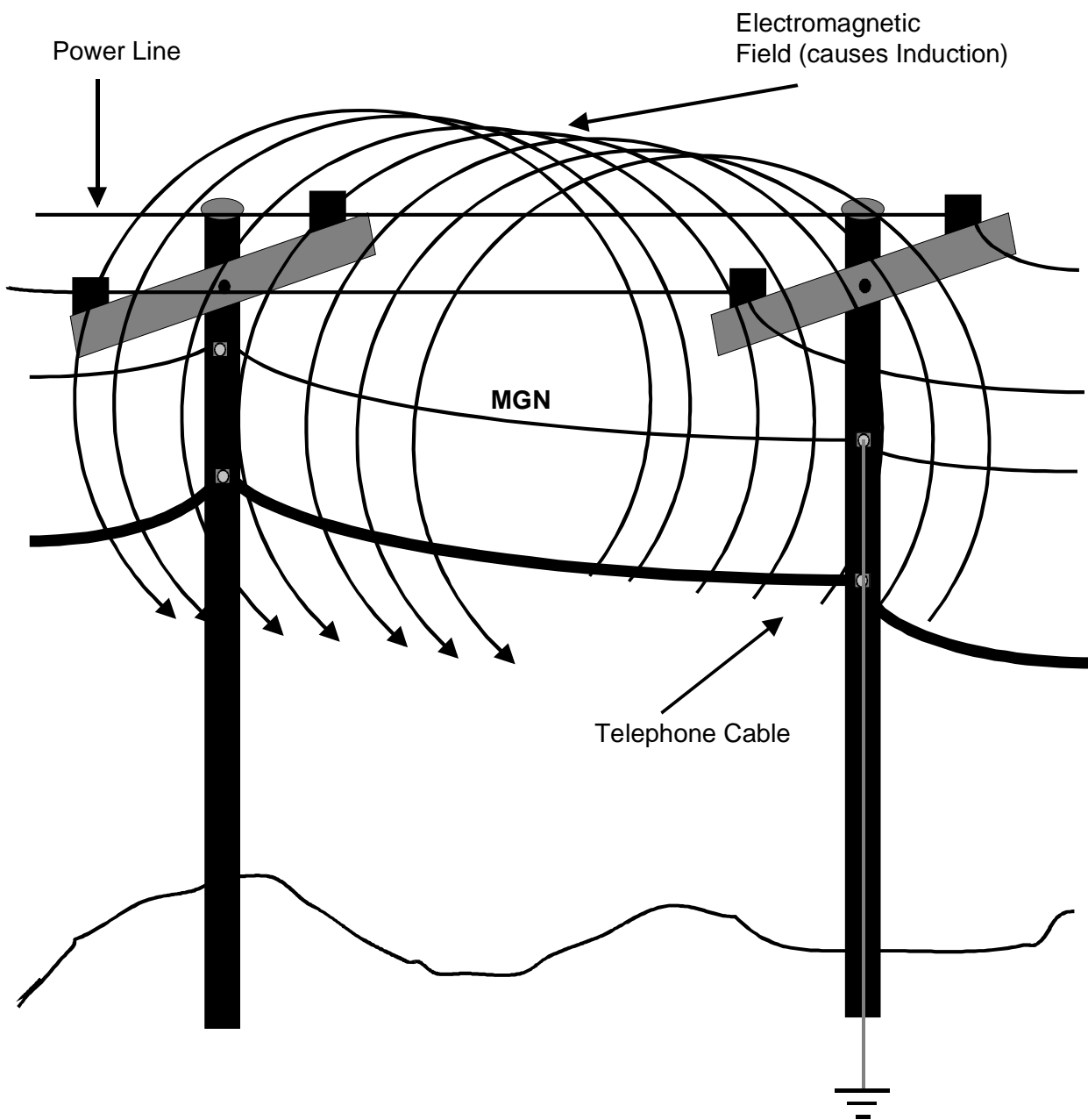
ADDITIONAL INFORMATION

A VER 15 (DC FEMF MARGINAL) is probably a cable trouble. This condition is very similar to both CROSS TO WORKING PAIR conditions (VER 14 and 15) since it indicates that foreign DC battery is on the line. The Distinction of this condition is that the MLT DC VOLTAGE does not match the expected voltage of the MLT DC SIGNATURE for a cross. MLT expects to see an MLT DC VOLTAGE greater than 20 volts in order to call the trouble a cross. In this case the MLT DC VOLTAGE will never be greater than 20 volts.

Basically, VER 15 (DC FEMF MARGINAL) is usually a cross-like condition with a small amount of voltage on the line. The MLT DC RESISTANCE on the side of the line with the voltage, while below 3500 K ohms, is usually close to or above 1000 K ohms. DC resistances in this range will result in some voltage on the line, but not much.

Because of the high DC resistance range and low amount of battery, this condition might be difficult for a technician to locate. **Be VERY reluctant to dispatch this fault based only on this condition.**

VER 16 -- AC FEMF MARGINAL



**VER 16 -- AC FEMF MARGINAL**

An AC FEMF (Foreign Electromotive Force) or voltage less than 25 volts but greater than the display threshold of 15 volts.

This condition could be caused by a cross with a power line, or by AC induction due to the close proximity of telephone lines and power lines.

MLT SUMMARY (EXAMPLE) VER: 16

AC	FEMF	MARGINAL	T-G	11V
AC	FEMF	MARGINAL	R-G	19V
AC	FEMF	CURRENT		

CRAFT KOHMS	DC SIGNATURE VOLTS		MLT: KOHMS	DC SIGNATURE VOLTS		AC SIGNATURE FEMF	
3500		T-R	3500		T-R		
3500	0	T-G	3500	0	T-G	11	T-G
3500	0	R-G	3500	0	R-G	19	R-G

ADDITIONAL INFORMATION

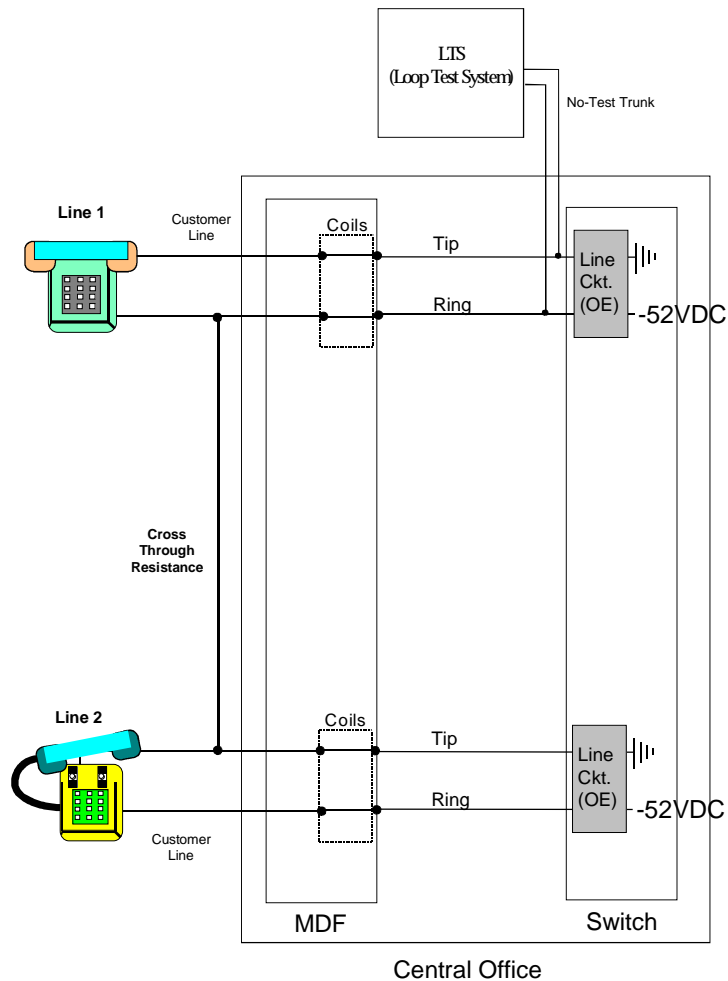
**If this trouble is dispatched to a repair person, that person should be advised to use caution when working on the line.**

**Anytime there is AC voltage on the line, there is a potential danger.**

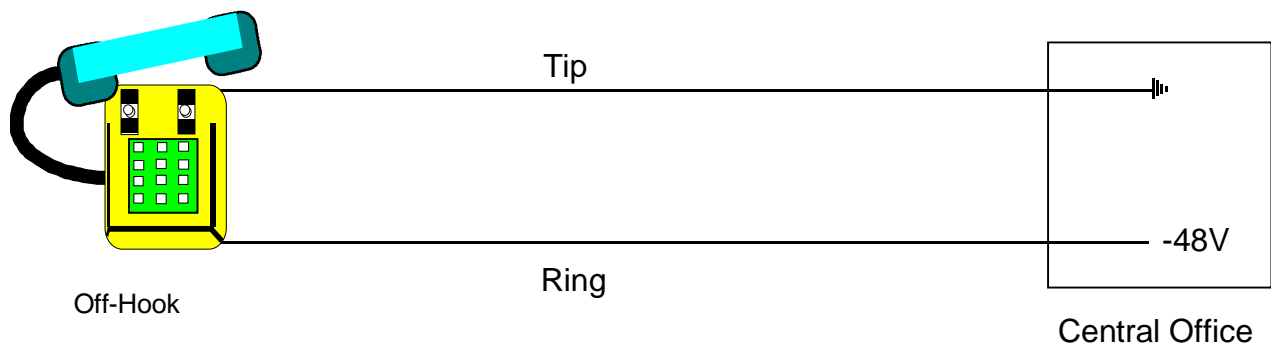


**VER 17 -- RESISTIVE FAULT AND DC FEMF**

The top line shown here would usually test VER 17.



This line, if tested soon after the customer went off-hook, may test VER 17.



**VER 17 -- RESISTIVE FAULT AND DC FEMF**

MLT has detected a stable resistive trouble (short or ground) that is below 1000 KOHMS. In addition, the MLT DC VOLTAGE on the line is greater than 8 volts and less than 20 volts.

MLT SUMMARY (EXAMPLE) VER: 17

HARD GROUND    R-G       MODERATE BATTERY    R-G    13 V

CRAFT KOHMS	DC SIGNATURE VOLTS		MLT: KOHMS	DC SIGNATURE VOLTS	
3500		T-R	3500		T-R
3500	0	T-G	3500	0	T-G
47	-13	R-G	47.25	-18	R-G

CENTRAL OFFICE  
LINE CKT OK  
DIAL TONE OK

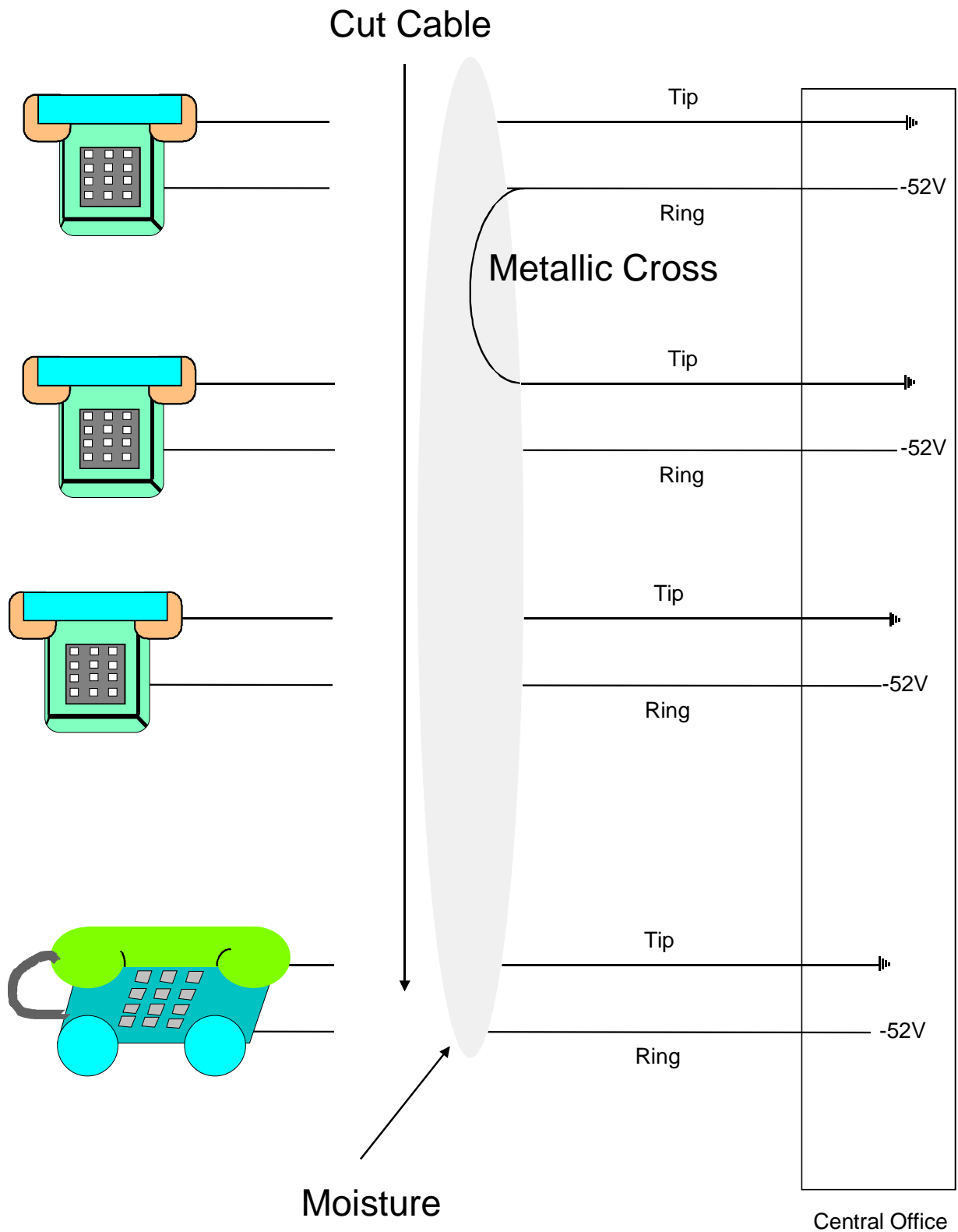
ADDITIONAL INFORMATION

Many of the troubles that are grouped under this VER code are CROSS-like conditions that did not match the MLT DC SIGNATURE of a CROSS for at least one of the following reasons:

1. The T-R MLT resistance was <10 K (Remember a CROSS expects this to be >10)
2. The T-G and/or R-G MLT resistance was <1 K (Remember a CROSS expects this to be >1)
3. The MLT voltage on the line was < 20V (Remember a CROSS expects this to be >20)

- When the reason for the VER 17 is the result of matching items 1 and 2 above but the failure of item 3, the MLT tester is probably seeing a CROSS with higher than normal resistance values. This could be caused by the situation presented in the diagram at the top of the facing page.
- Generally, when the reason for VER 17 is due to failure to match items 1 and/or 2 above, the VER 17 is the result of a Line In Use Condition. Look for the word **BUSY** in the results. This Means MLT was NOT able to kill the CO Battery and Ground to run the test. The results of this test will be suspect and the MLT user needs retest the line. If the results stay the same, it is time to prove the trouble in or out of the CO. The bottom diagram on the facing page depicts the situation of a Line In Use. It could be a severe Short, Ring Ground, Trunk hung in the CO, Customer is on the line, or ROH.

## VER 18 -- OPEN OUT AND CROSS



**VER 18 -- OPEN OUT AND CROSS**

MLT has detected an open on the line and has determined that the open is out of the CO. In addition, a cross to a working pair has been detected.

If the customer is served over a DLCS (Digital Loop Carrier System) and their line is tested by an RMU (Remote Maintenance Unit), this test result indicates the Open and Cross is out from the RT (Remote Terminal) of the Pair Gain System.

MLT SUMMARY (EXAMPLE) VER: 18

OPEN OUT BALANCED-CAP BAL 98%                      MODERATE BATTERY R-G- 7V  
DISTANCE FROM C.O.      23000 FT                      CROSS TO WORKING PAIR: RING SIDE  
MODERATE GROUND      T-G

CRAFT KOHMS	DC SIGNATURE VOLTS		MLT: DC SIGNATURE KOHMS	VOLTS		AC SIGNATURE KOHMS	
789		T-R	3500		T-R	646	T-R
245	0	T-G	247	0	T-G	170	T-G
544	-7	R-G	637	-53	R-G	307	R-G

CENTRAL OFFICE	BALANCE	OPEN DISTANCE
LINE CKT OK	CAP    98 %	FROM CO = 23000 FT
DIAL TONE OK		

ADDITIONAL INFORMATION

Usually, when there is more than one trouble on the line, they are related in some way. One likely situation is that there is an open in the cable and the open wires in the cable are crossed. Here the open is causing the cross to working pair condition.

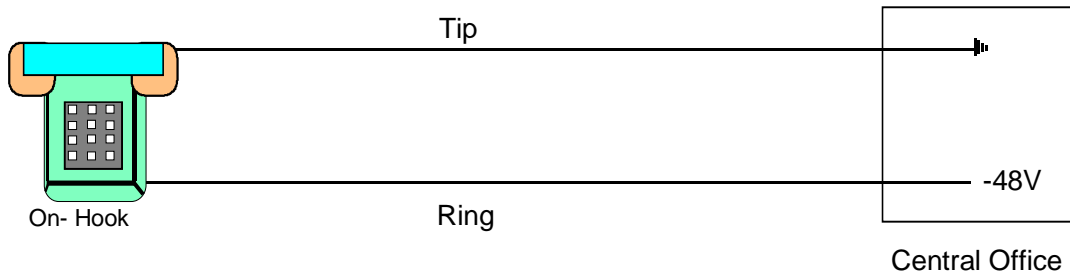
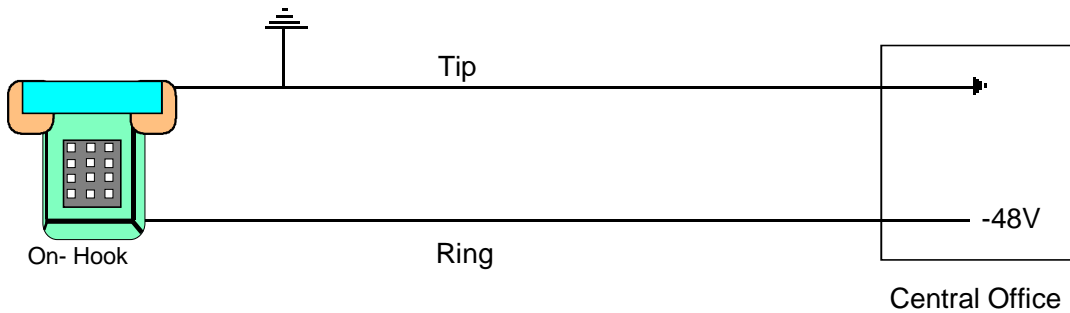
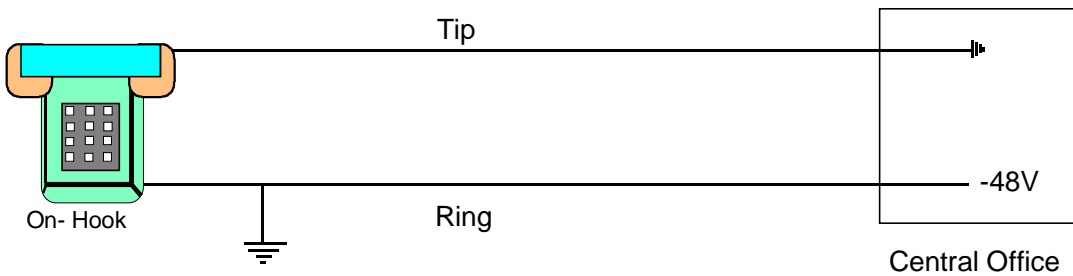
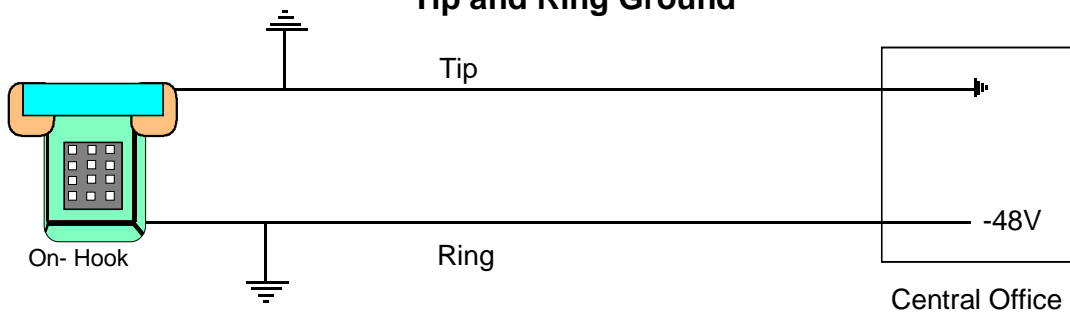
This VER code is likely to reflect cable trouble. One likely possibility is that the line is open and one or both of the open sides are crossed with another pair. This could happen if the cable were cut and the open ends were contacting each other.

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**MLT**

**DC Resistance**

**VER Codes**

**VER 21 -- GROUND FAULT****Test Okay****Tip Ground****Ring Ground****Tip and Ring Ground**

**VER 21 -- GROUND FAULT**

The condition indicates that the MLT DC RESISTANCE to ground (ring-ground and/or tip-ground) is below 150 KOHMS. On a normal line the MLT DC RESISTANCE to ground is high (usually 3500 K ohms). MLT expects it to be more than 1000 KOHMS.

MLT SUMMARY (EXAMPLE) VER: 21**HARD GROUND T-G**

CRAFT KOHMS	DC SIGNATURE VOLTS		MLT: KOHMS	DC SIGNATURE VOLTS		AC SIGNATURE KOHMS	RNGRS	
3500		T-R	3500		T-R	9	YES	T-R
55	0	T-G	55.16	0	T-G	356		T-G
3500	0	R-G	3500	0	R-G	646		R-G

CENTRAL OFFICE  
LINE CKT OK  
DIAL TONE OK

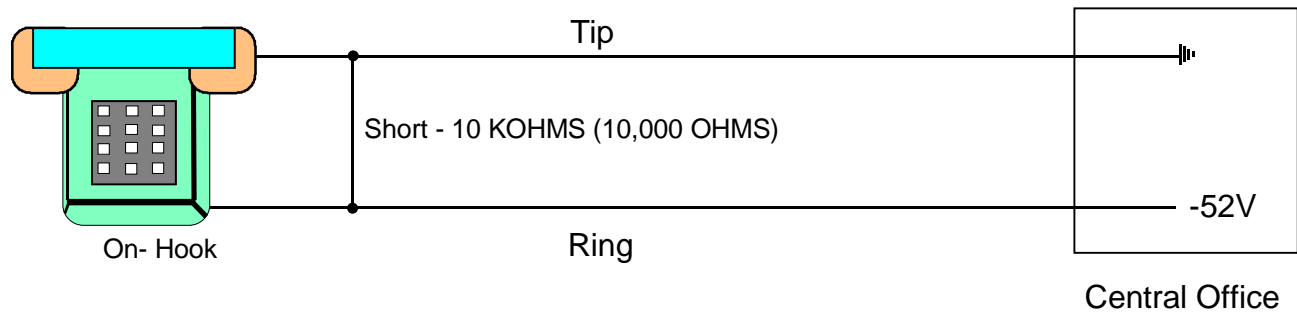
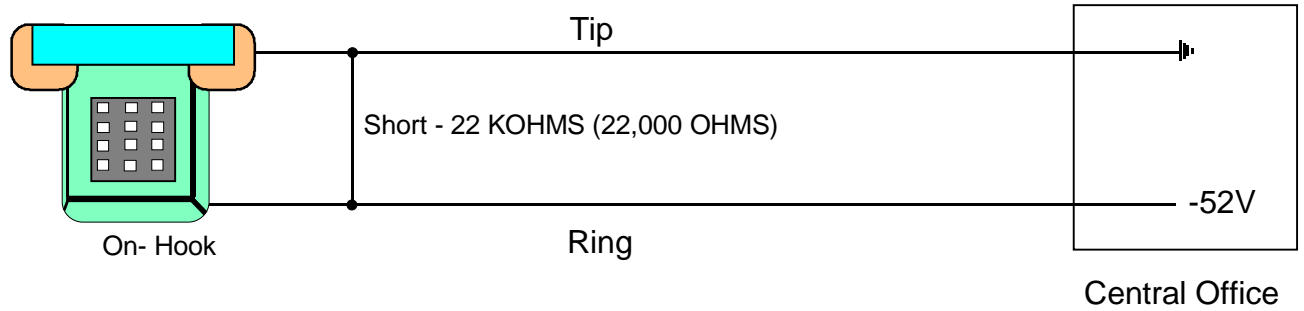
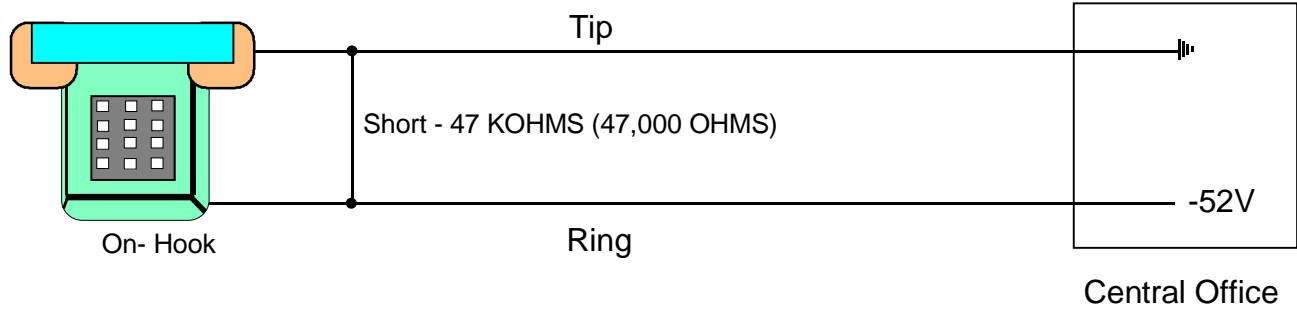
ADDITIONAL INFORMATION

A ground condition can be caused when the insulation between wires of a pair is worn down and the wires either come in contact with or establish an electrical path to a grounded object. Most grounds occur outside of the central office. You can assume that the ground is out of the central office on an MLT VER 21. When the resistances are very low, the trouble may be in or out of central office. MLT, however, realizes this and in such cases recommends that you run an MDF test to sectionalize the trouble.

On a regular plain old telephone line (POTS) the only valid path to ground is in the central office line circuit on the tip and ring sides of the line. Any other path to ground, unless specifically identified as being caused by CO, Outside Plant, or Termination equipment, is a trouble.

When the customer goes off-hook, the central office line circuits put battery on the line. This battery goes out from the C.O. on the ring side of the line and flows between tip and ring at the telephone set. Current then completes the loop flow by returning to the ground. If there is a ground at any point in the circuit other than the C. O. then some or all of the current will leak out of the loop. How much current leaks out of the loop depends on the severity of the ground. The harder (lower the resistance) the ground, the more current will leak out and the more severe the trouble.



**VER 22--SHORT FAULT**

**VER 22--SHORT FAULT**

This condition indicates that the MLT DC RESISTANCE tip to ring is below 150 KOHMS. On a normal line the MLT DC RESISTANCE tip to ring is high (usually 3500 K ohms). MLT expects it to be more than 1000 KOHMS.

MLT SUMMARY (EXAMPLE) VER: 22**HARD SHORT T-R**

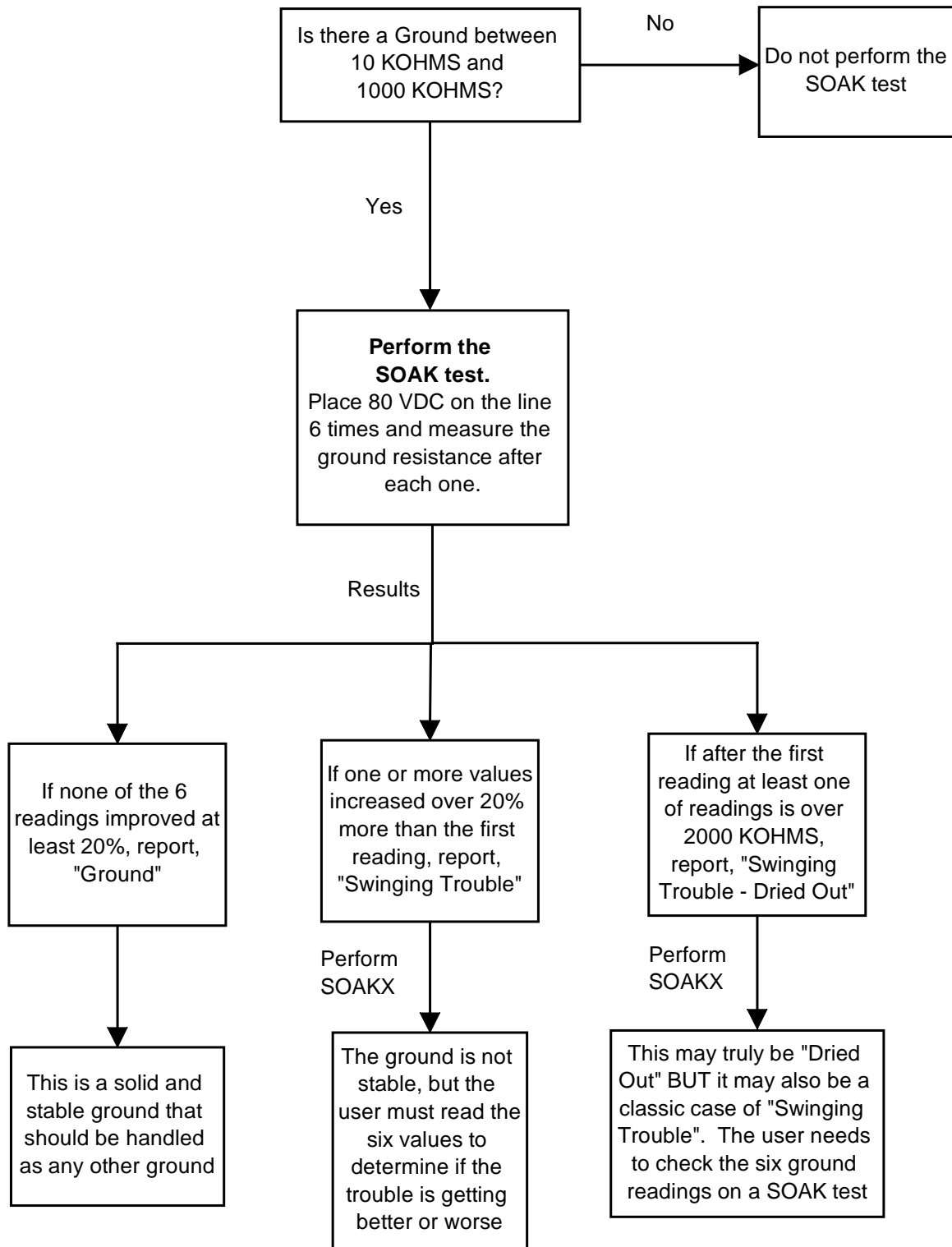
CRAFT KOHMS	DC SIGNATURE VOLTS		MLT: KOHMS	DC SIGNATURE VOLTS		AC SIGNATURE KOHMS	RNGRS	
54		T-R	54.06		T-R	5	YES	T-R
3500	0	T-G	3500	0	T-G	1456		T-G
3500	0	R-G	3500	0	R-G	1546		R-G

CENTRAL OFFICE  
LINE CKT OK  
DIAL TONE OK

ADDITIONAL INFORMATION

A short condition can be caused when the insulation between wires of a pair is worn down and the wires either come in contact with or establish an electrical path with each other. Most shorts occur outside of the central office. You can assume that the short is out of the central office on an MLT VER 22. When the resistances are very low the trouble may be in or out of central office. MLT, however, realizes this and in such cases recommends that you run an MDF test to sectionalize the trouble.

A short allows a path for the central office current to go between tip and ring. The only valid path between tip and ring is at the customer's phone when it is off-hook. Any other short, unless specifically identified as being caused by CO, Outside Plant, or Termination equipment, is a case of trouble. When the customer goes off-hook the central office line circuit puts battery on the line. This battery flows out from the C.O on the ring side of the line and flows between tip and ring at the telephone set. It then completes the loop by returning to the ground in the central office on the tip side of the line. If there is a short at any other point in the circuit other than the telephone set, then some or all of the current will not reach the telephone set but will take the shorter path to the C.O. How much current takes shorter path depends on the severity of the short. The lower the resistance T-R, the more severe the trouble and the current will flow through it instead of through the telephone set.

**VER 23 -- SWINGING RESISTANCE: FAULT**

**VER 23 -- SWINGING RESISTANCE: FAULT**

MLT detects a ground greater than 10 KOHMS but below 1000 KOHMS. A SOAK test is then run on the line to determine the stability of the ground (determines whether the DC resistances of the ground vary with time). If the ground is not stable (a swinging condition) and below 150 KOHMS, then MLT will display VER 23.

MLT SUMMARY (EXAMPLE) VER: 23

## SWINGING TROUBLE

HARD GROUND      T-G

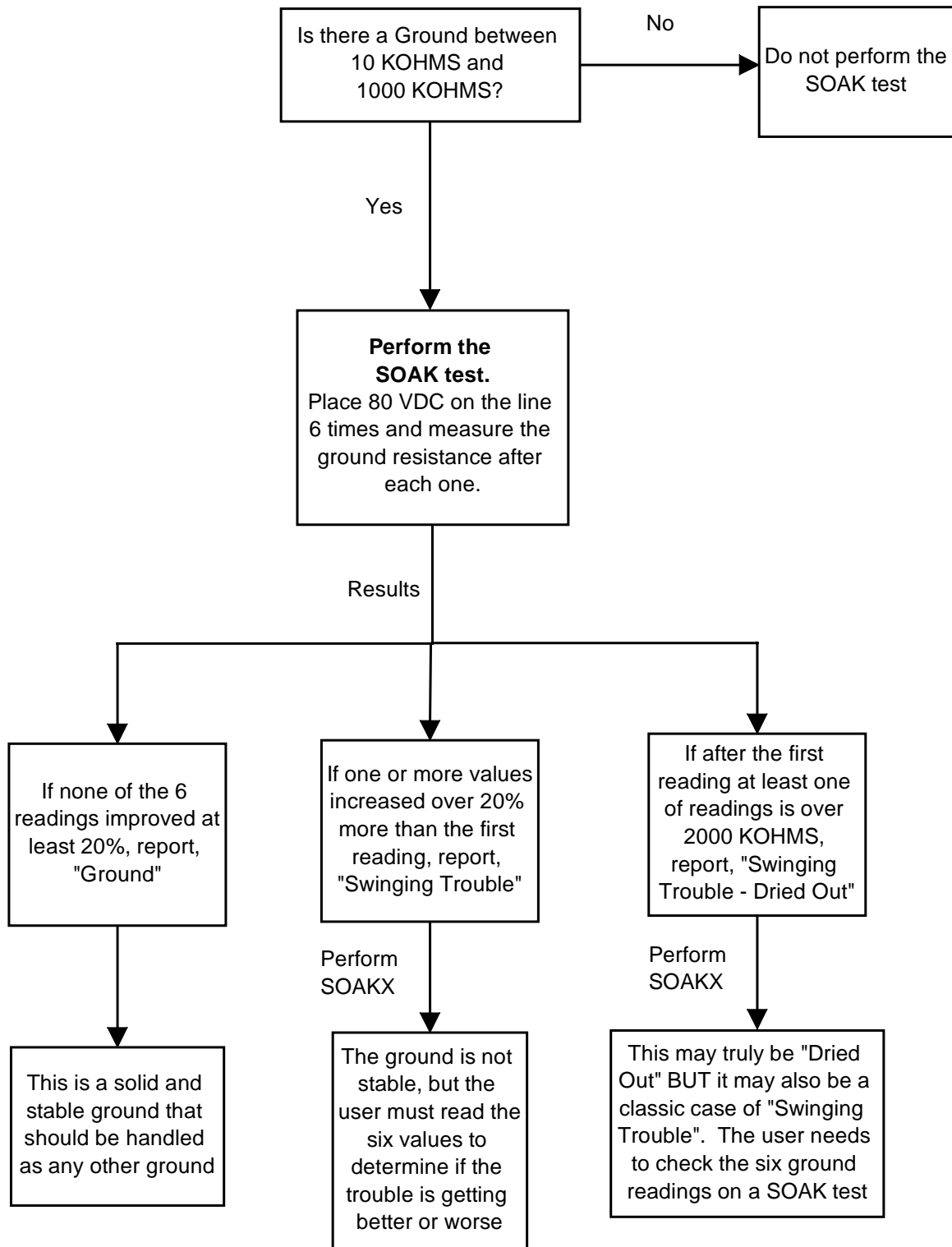
CRAFT KOHMS	DC SIGNATURE VOLTS		MLT: KOHMS	DC SIGNATURE VOLTS	
3500		T-R	3500		T-R
27	0	T-G	27.00	0	T-G
3500	0	R-G	3500	0	R-G

CENTRAL OFFICE  
LINE CKT OK  
DIAL TONE OK

ADDITIONAL INFORMATION

The SOAK test is used to determine the stability of resistive troubles to ground. The SOAK test is run when the MLT DC RESISTANCE to ground (T-G or R-G) is between 10 and 1000 K ohms. The SOAK test is not run if there is a short or cross condition identified. Sometimes the swinging ground problem may be due to some temporary condition like a wet cable. If it is a wet cable, the trouble will become less severe as the cable dries.

The SOAK test puts voltage on the line and then takes six measurements of the DC resistance. If the last of the six measurements is 20% greater than the DC resistance measured before the SOAK test, MLT determines that the ground is not stable (SWINGING). If the largest of the measurements is greater than 2000 K ohms, MLT calls the condition (DRIED OUT). This may mean the fault has been reduced or the condition is swinging from very good to very bad. The MLT user could perform the SOAKX test to see the results of six separate MLT tests.

**VER 24 -- SWINGING RESISTANCE: MARGINAL**

**VER 24 -- SWINGING RESISTANCE: MARGINAL**

MLT detects a ground above 10 KOHMS but less than 1000 KOHMS. A SOAK test is then run on the line to determine the stability of the ground (determines whether the DC resistances of the ground vary with time). If the ground is not stable (a swinging condition) and above 150 KOHMS, then MLT will display VER 24.

MLT SUMMARY (EXAMPLE) VER: 24

## SWINGING TROUBLE

## VERY LIGHT GROUND T-G

CRAFT KOHMS	DC SIGNATURE VOLTS		MLT: KOHMS	DC SIGNATURE VOLTS		AC SIGNATURE KOHMS	RNGRS	
3500		T-R	3500		T-R	11	YES	T-R
560	0	T-G	560.00	0	T-G	225		T-G
3500	0	R-G	3500	0	R-G	354		R-G

CENTRAL OFFICE  
LINE CKT OK  
DIAL TONE OK

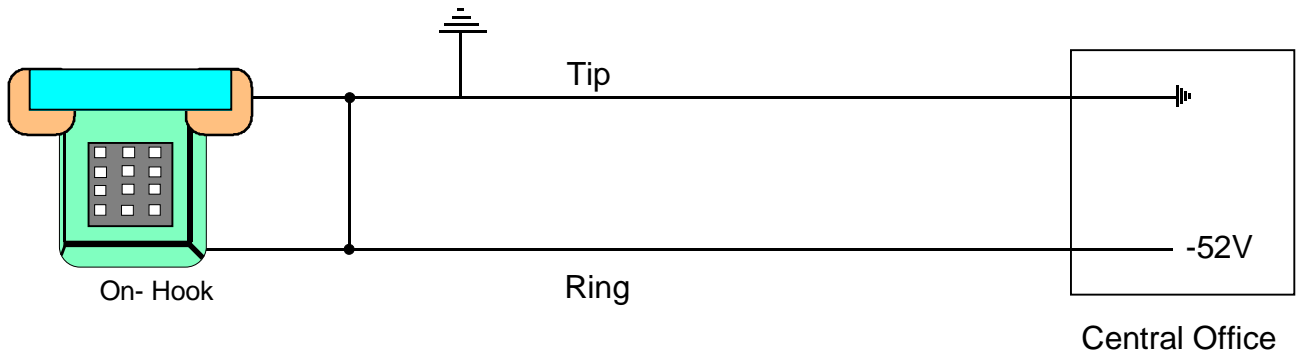
ADDITIONAL INFORMATION

The SOAK test is used to determine the stability of resistive troubles to ground. The SOAK test is run when the MLT DC RESISTANCE to ground (T-G or R-G) is between 10 and 1000 K ohms. The SOAK test is not run if there is a short or cross condition identified. Sometimes the swinging ground problem may be due to some temporary condition like a wet cable. If it is a wet cable, the trouble will become less severe as the cable dries.

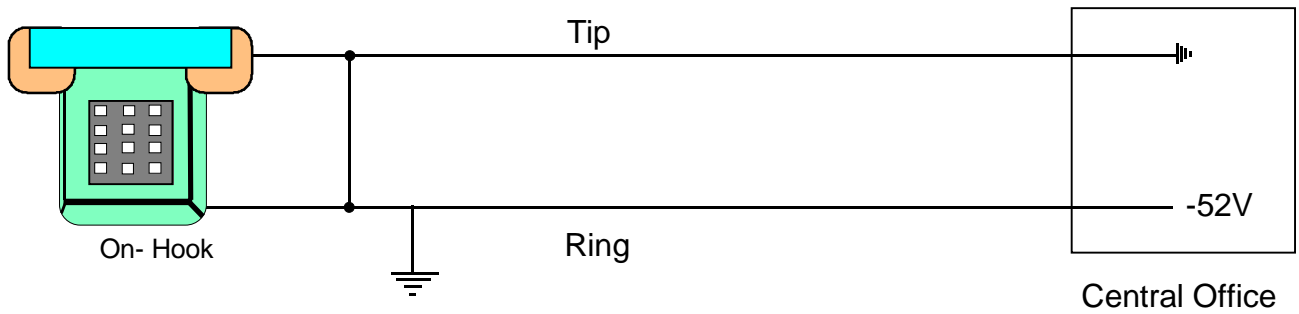
The SOAK test puts voltage on the line and then take six measurements of the DC resistance. If the last of the six measurements is 20% greater than the DC resistance measured before the SOAK test, MLT determines that the ground is not stable (SWINGING). If the largest of the six measurements is greater than 2000 K ohms, MLT indicates that the trouble has come clear (DRIED OUT).

**VER 25 -- SHORT AND GROUND**

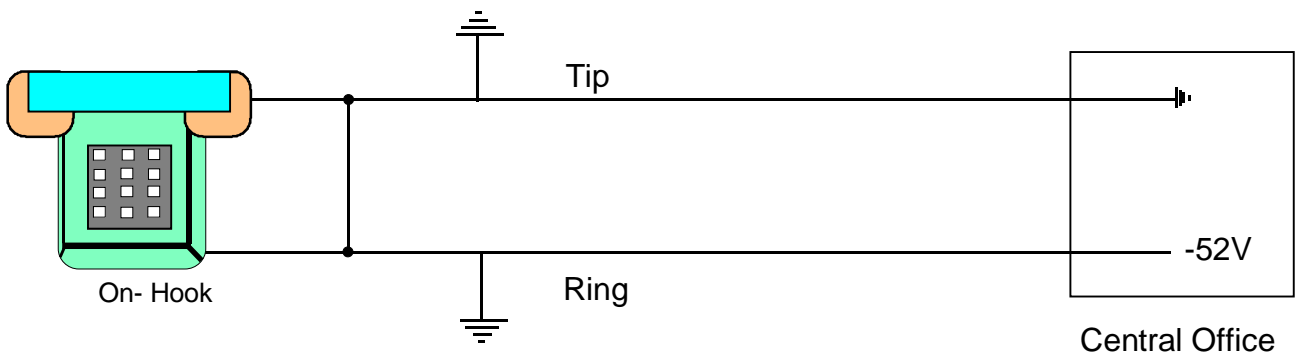
Short and Tip Ground



Short and Ring Ground



Short, Tip and Ring Ground



**VER 25 -- SHORT AND GROUND**

This VER code indicates that MLT has detected a short fault (DC resistance tip to ring below 1000 KOHMS). In addition, one or both of the ground DC resistances (T-G or R-G) was below 1000 KOHMS. On a normal line all the MLT DC resistances should be high (usually 3500 KOHMS).

MLT SUMMARY (EXAMPLE) VER: 25

HARD SHORT            T-G

HARD GROUND        R-G

MODERATE GROUND T-G

CRAFT KOHMS	DC SIGNATURE VOLTS		MLT: KOHMS	DC SIGNATURE VOLTS		AC SIGNATURE KOHMS	RNGRS	
84		T-R	126		T-R	6	YES	T-R
85	0	T-G	245	0	T-G	246		T-G
55	0	R-G	55.03	0	R-G	27		R-G

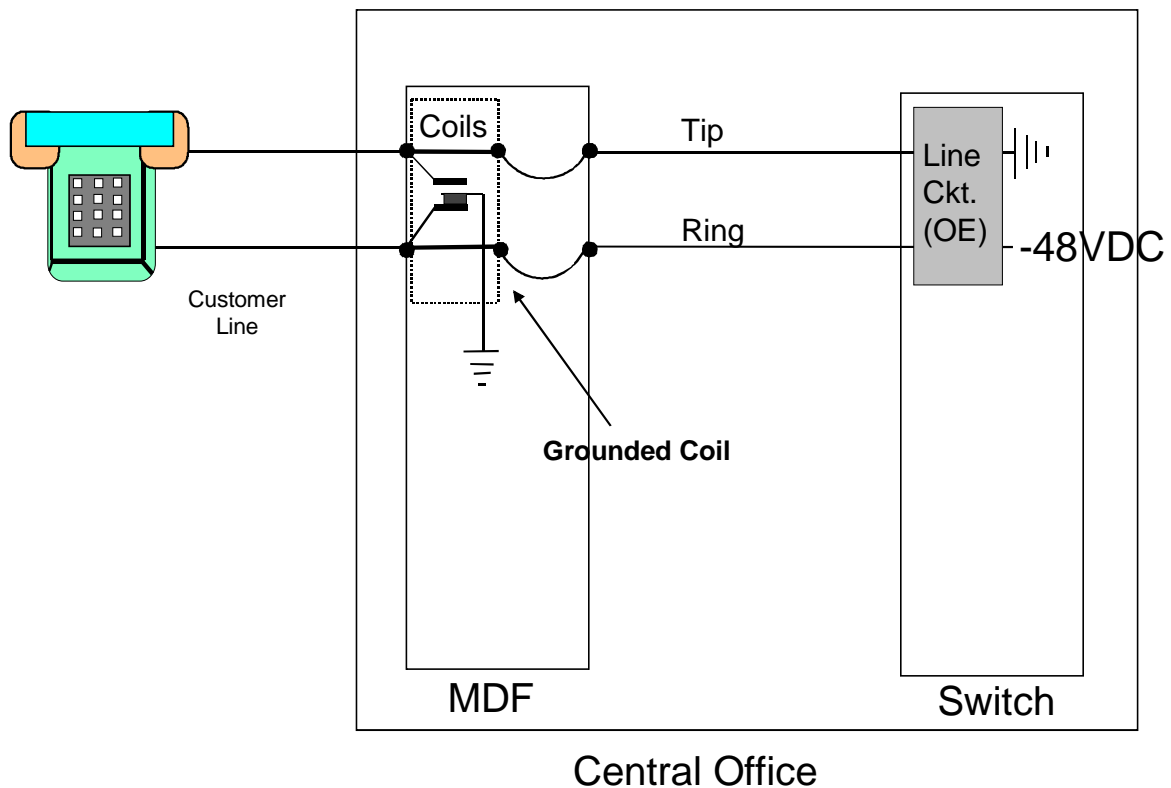
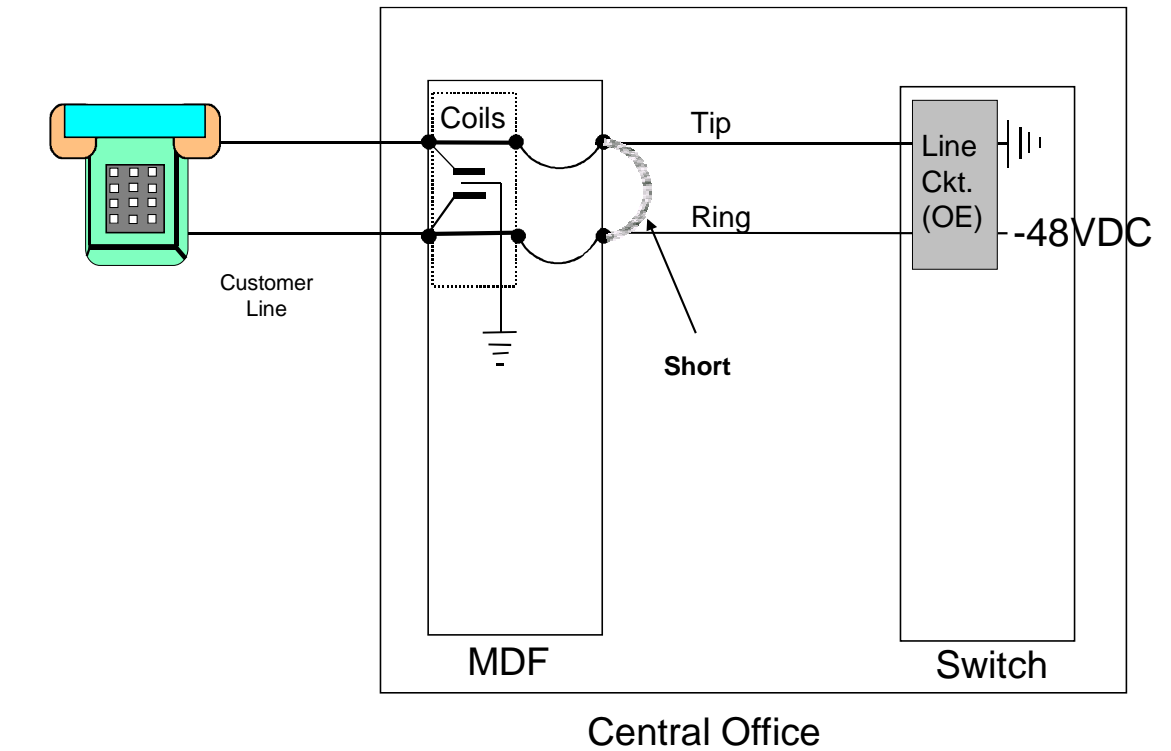
CENTRAL OFFICE  
LINE CKT OK  
DIAL TONE OK

ADDITIONAL INFORMATION

A short or ground condition can be caused when the insulation on the telephone wires is worn or becomes wet, exposing the wires. Most grounds and shorts occur outside of the central office. You can assume that such a condition is out of the central office on an MLT VER 25. When the resistances are very low the trouble may be in or out of central office. MLT, however, realizes this and in such cases recommends that you run an MDF test to sectionalize the trouble.

A short allows a path for the central office current to go between tip and ring. Ground is the electrical value of the earth. Electricity always seeks the easiest path to ground. The only valid path between tip and ring is at the customer's phone when it is off-hook. The only valid grounds are the tip and ring grounds in the central office line circuit, unless the line records indicate that there is CO, Outside Plant, or Termination equipment that also cause low resistance.



**VER 26 -- MDF TEST RECOMMENDED - LOW RESISTANCE**

**VER 26 -- MDF TEST RECOMMENDED - LOW RESISTANCE**

This VER code indicates that MLT has detected a short and/or ground(s) on the line below 150 KOHMS. In addition, the MLT DC RESISTANCE of one or more of the troubles was low enough that MLT could not determine if the trouble was in or out of the central office. Therefore, MLT recommends an MDF test to sectionalize the problem in or out of the C.O.

An MDF test will be recommended when the MLT DC Resistances are:

- < 0.1 KOHM T-R and-or
- < 0.07 KOHM T-G and-or
- < 0.07 KOHM R-G.

MLT SUMMARY (EXAMPLE) VER: 26

MDF TEST RECOMMENDED  
VERY HARD GROUND T-G

CRAFT KOHMS	DC SIGNATURE VOLTS		MLT: KOHMS	DC SIGNATURE VOLTS	
3500		T-R	3500		T-R
0	0	T-G	0.01	0	T-G
3500	0	R-G	3500	0	R-G

ADDITIONAL INFORMATION**MLT's Program Results for Shorts****SHORT Value Range**

1000 KOHMS to 151 KOHMS  
150 KOHMS to 3.5 KOHMS  
3.4 KOHMS to .1

< .1 KOHMS

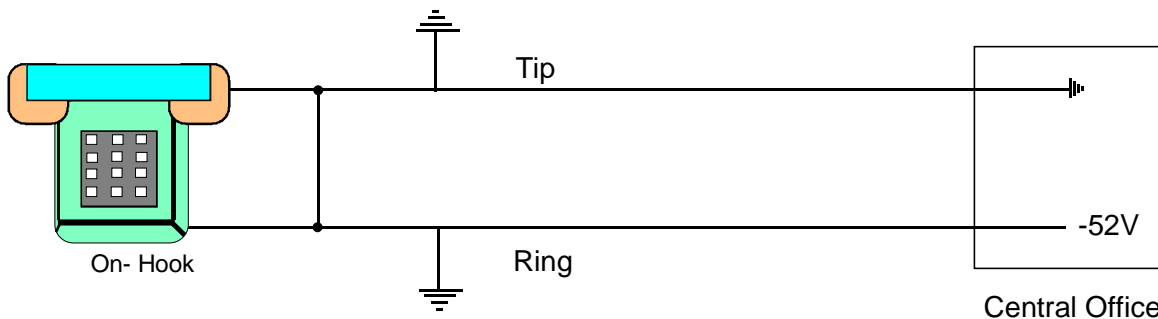
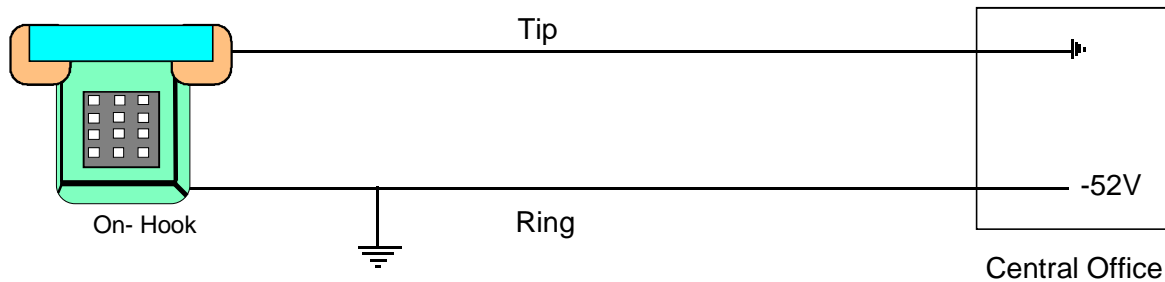
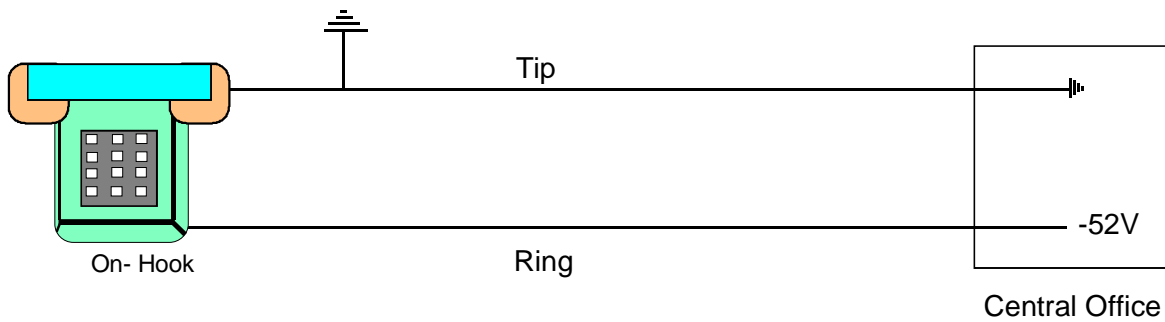
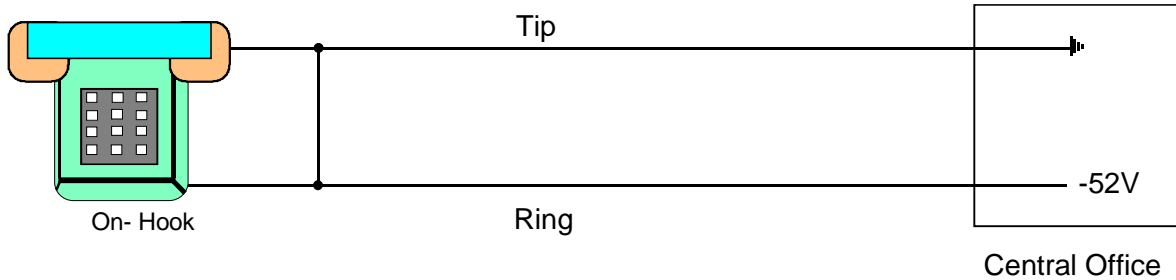
**MLT Summary Message**

SHORT MARGINAL - VER 27  
SHORT FAULT - VER 22  
ROH VER 71 or SHORT  
PROBABLY ROH - VER 75  
MDF TEST RECOMMENDED -  
VER 26

These values are always set by the MLT program based on the actual MLT DC resistance values. When the MLT DC resistance value T-R is close to the boundary of a different VER code, the MLT user should consider both VER codes as a possibility.

## VER 27 -- DC RESISTANCE - MARGINAL

## Shorts and/or Grounds with Resistances Above 150 KOHMS



**VER 27 -- DC RESISTANCE - MARGINAL**

This VER code indicates that MLT has detected a short or a ground condition and the MLT DC RESISTANCE was above 150 KOHMS, but below 1000 KOHMS. This is a marginal condition and will not be described a fault. On a normal line the MLT DC resistances should be high (usually 3500 KOHMS).

MLT SUMMARY (EXAMPLE) VER: 27

## LIGHT SHORT T-R

CRAFT KOHMS	DC SIGNATURE VOLTS		MLT: DC SIGNATURE KOHMS	VOLTS		AC SIGNATURE KOHMS	RNGRS	
442		T-R	442		T-R	9	YES	T-R
3500	0	T-G	3500	0	T-G	1456		T-G
3500	-5	R-G	3500	0	R-G	1459		R-G

CENTRAL OFFICE  
LINE CKT OK  
DIAL TONE OK

ADDITIONAL INFORMATION

A short or ground condition can be caused when the insulation on the telephone wires is worn exposing the wires and/or the wires become wet. This exposure or moisture can provide a path for current to escape from the loop.

A short allows a path for the central office current to go between T-R. Ground is the electrical value of the earth. The only valid path between tip and ring is at the customer's phone when it is off-hook. The only **valid** path to ground are the tip and ring grounds in the central office line circuit, unless the line records specifically indicate that there is CO, Outside Plant, or Termination equipment on the line that cause low DC resistance. Any other short or ground is a trouble. When the customer goes off-hook, the current from the central office line circuit battery flows on the line. This current goes out from the C.O. on the ring side of the line and flows between tip and ring at the telephone set. It then completes the loop by returning to the ground in the central office on the tip side of the line.

If there is a short at any other point in the circuit then some or all of the current will not reach the receiver but will take the shorter path to the C.O. ground. Likewise, if there is any other path to ground other than the ground in the C.O., the current will leak off the line before it can complete the circuit. How much current leaks from the circuit at the ground or short fault depends on the severity of the resistive fault. The harder the problem (the lower the DC resistance), the more current will leave the circuit.

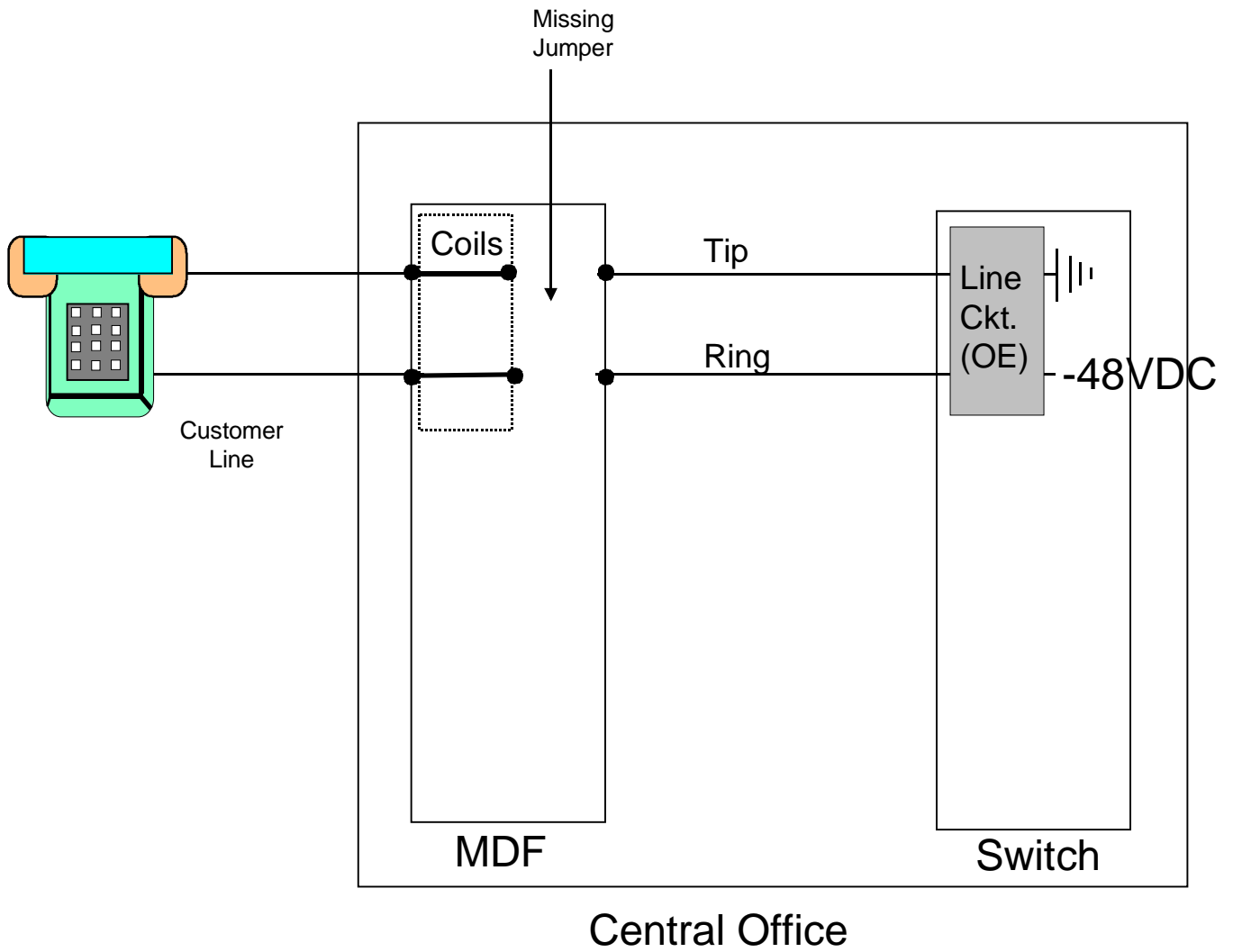
In the example above, the SHORT is not a very severe problem; it is marginal (note the summary message LIGHT SHORT). Repair technicians may have a more difficult time locating the trouble since it is only a marginal one.

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# **MLT**

# **Central Office**

# **VER Codes**

**VER 3 -- OPEN IN**

**VER 3 -- OPEN IN**

MLT has detected an open condition has determined that the open is in or very close to the central office. An open is simply a physical break in the line.

There is an offset value (in feet) stored in the computer for each NNX. This offset tells MLT how long the wires are allowed to be before an OPEN is to be described as an OPEN OUT. As a result of this offset, an open that is outside the CO but very close to it may be identified as an OPEN IN.

**Note! MLT does not give a distance to the open when the open is in the CO.**

MLT SUMMARY (EXAMPLE) VER 3 -- OPEN IN

CRAFT	DC SIGNATURE		MLT:	DC SIGNATURE		AC SIGNATURE		
KOHMS	VOLTS		KOHMS	VOLTS		KOHMS	RNGRS	
3500		T-R	3500		T-R	2000	YES	T-R
3500	0	T-G	3500	0	T-G	2000		T-G
3500	0	R-G	3500	0	R-G	2000		R-G

CENTRAL OFFICE  
LINE CKT OK  
DIAL TONE OK

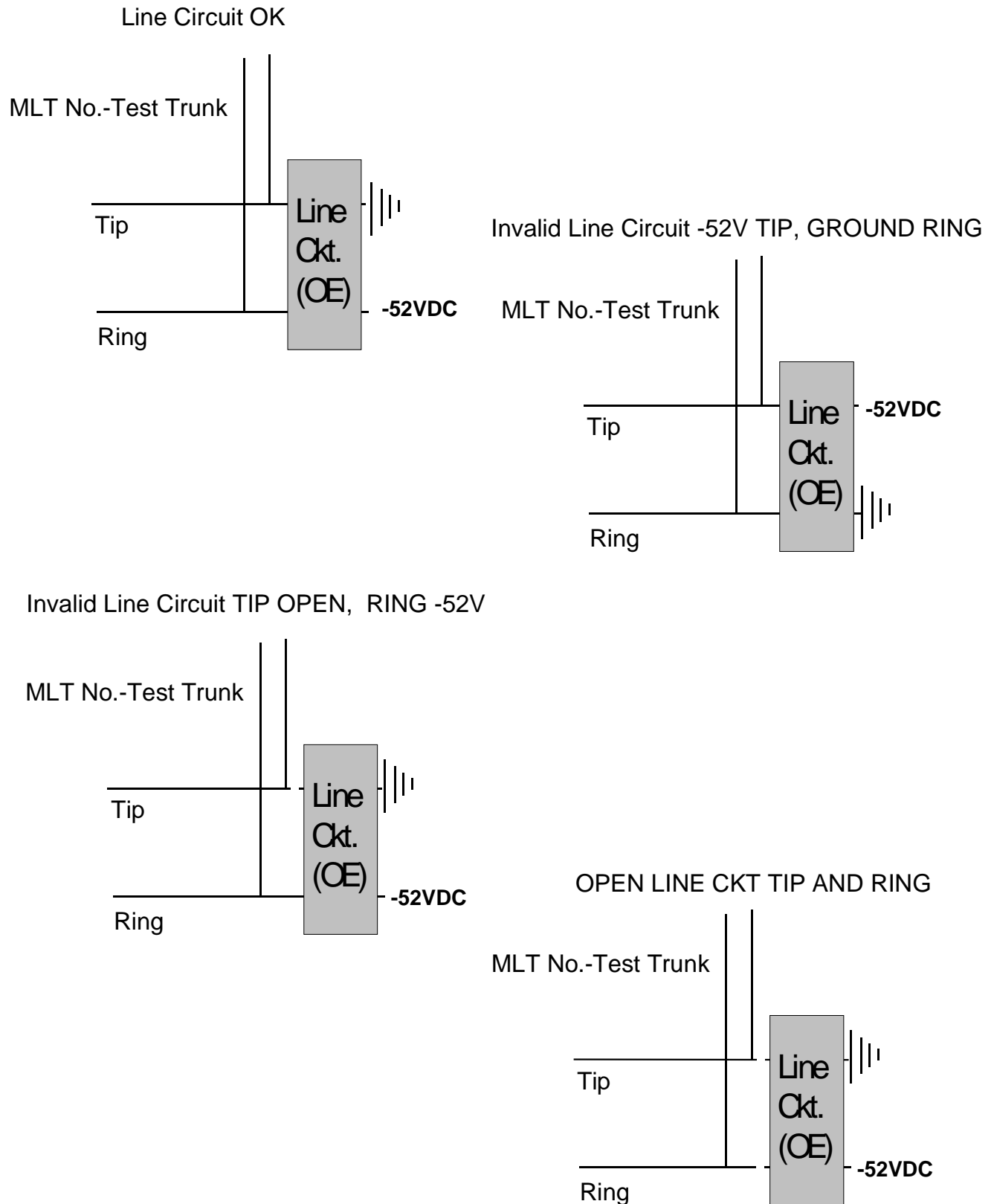
ADDITIONAL INFORMATION

The offset footage is designed to bias opens in favor of the CO when MLT detects an open. This is because on open in the central office is handled by a dispatch in. A dispatch in is less expensive than a dispatch out.

MLT users should also be alert for an MLT test result of OPEN OUT BALANCED with a distance CO of less than 300 to 400 feet. This may be an OPEN IN.



## VER 31 -- INVALID LINE CIRCUIT ARRANGEMENT



**VER 31 -- INVALID LINE CIRCUIT ARRANGEMENT**

MLT checked the central office line circuit and the arrangement of battery and ground was not what was expected based on the line record information. Normally, the proper line circuit arrangement would be battery (with a ground) on the ring side and ground on the tip side. Included in this VER 31 condition is an open line circuit on both tip and ring sides. This, of course, is determined by the absence of battery on the ring and ground on the tip. An Invalid Line Circuit is almost always a Central Office problem. The MLT tester should always retest before dispatching on this condition. It may be caused by the Central Office not properly connecting MLT to the customer's line in the Central Office.

MLT SUMMARY (EXAMPLE) VER 31

OPEN LINE CKT TIP AND RING

CENTRAL OFFICE  
OPEN LINE CKT TIP AND RING  
CANT DO DIAL TONE TEST

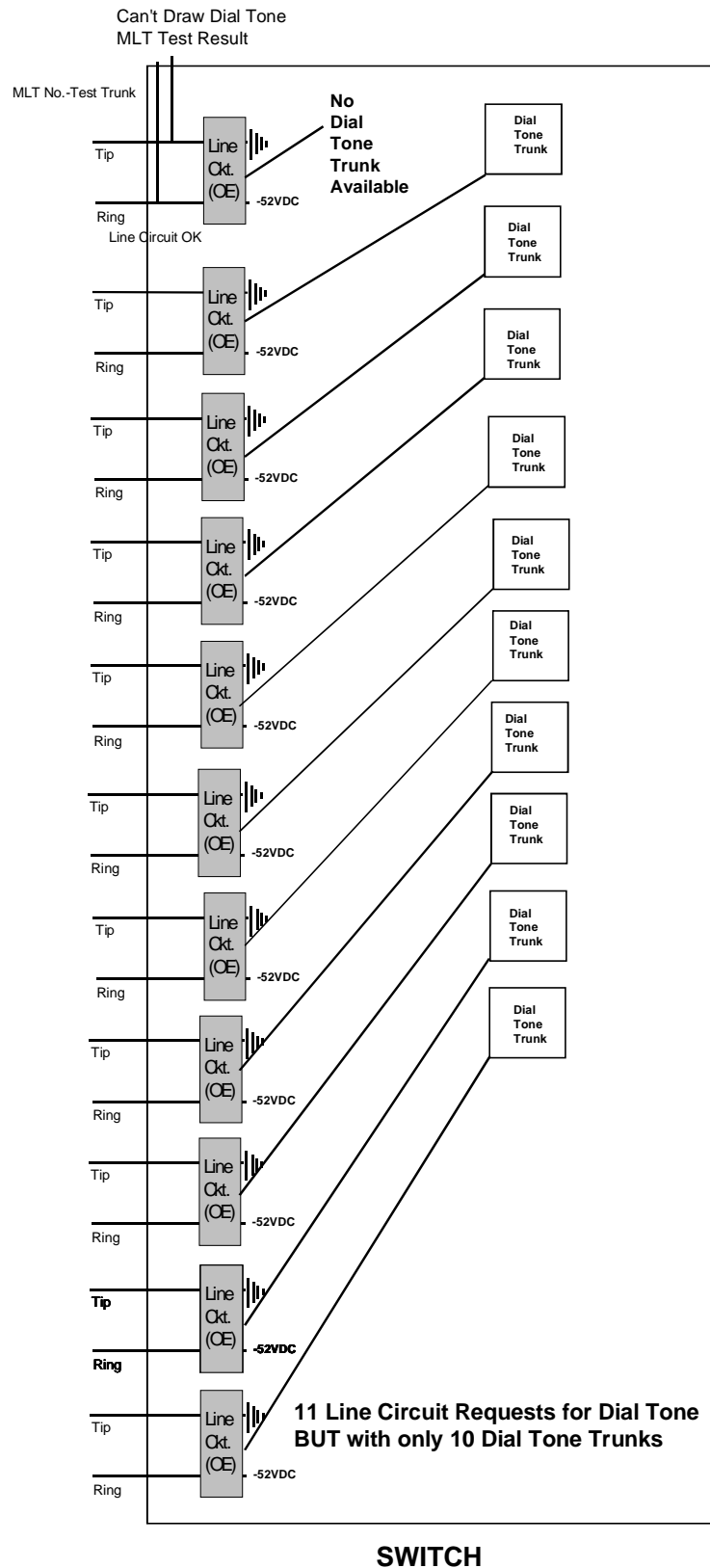
ADDITIONAL INFORMATION

Some of the test results that are associated with this VER code are:

**Invalid Line Circuit Arrangement (Note that all results indicate something other than battery on the ring and ground on the tip).**

TIP -52V, RING GROUND	TIP -52V, OPEN RING
TIP OPEN, RING -52V	TIP GROUND, RING OPEN
TIP OPEN, RING GROUND	BATTERY BOTH SIDES
T-R SHORT (<50 KOHMS)	BATTERY OUT OF LIMITS (normally -42 to -54)
LINE CKT RESISTANCE TOO HIGH(>500 KOHMS)	

## VER 32 -- CAN'T DRAW DIAL TONE



**VER 32 -- CAN'T DRAW DIAL TONE**

MLT attempts to draw and break dial tone after it checks the central office line circuit. In this VER condition, MLT was not able to draw dial tone within the allotted 6 second interval. The MLT user should not dispatch this VER code until it has been re-tested with the same result. It is often the result a Central Office overload. An example of a possible situation that could cause this test result is shown on the facing page.

MLT SUMMARY (EXAMPLE) VER: 32**CAN'T DRAW DIAL TONE**

CRAFT KOHMS	DC SIGNATURE VOLTS		MLT: KOHMS	DC SIGNATURE VOLTS		AC SIGNATURE KOHMS	RNGRS	
3500		T-R	3500		T-R	9	YES	T-R
3500	0	T-G	3500	0	T-G	656		T-G
3500	0	R-G	3500	0	R-G	646		R-G

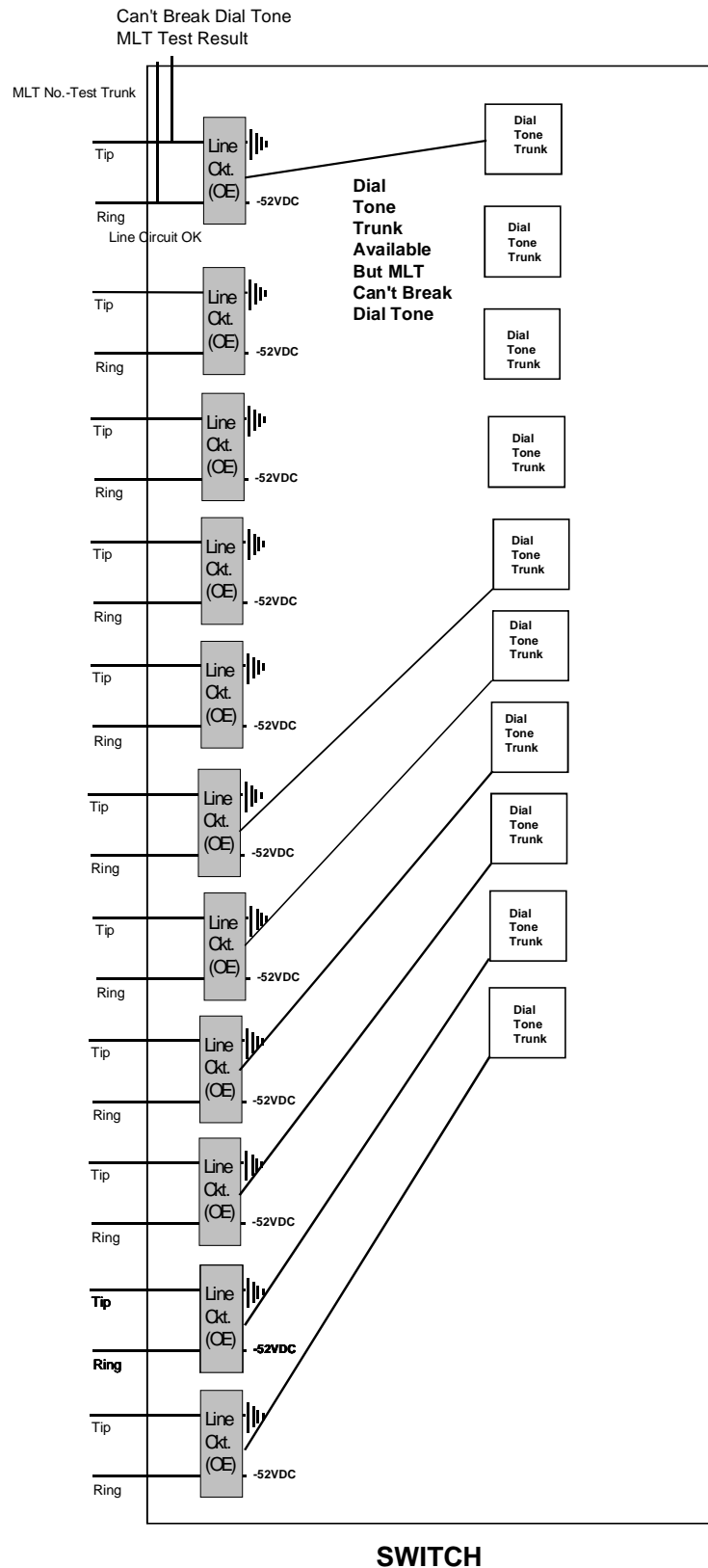
CENTRAL OFFICE	BALANCE
LINE CKT OK	CAP 100 %
CAN'T DRAW DT	LONG 65 DB

ADDITIONAL INFORMATION

This VER condition is usually a central office problem. However, sometimes in busy office situations (emergencies, etc.) the load on the office might cause a delay in drawing or breaking dial tone. This delay may cause a VER 32 condition.

The MLT user should also investigate the possibility of a service suspension when this VER code is set.

## VER 33 -- CAN'T BREAK DIAL TONE



**VER 33 -- CAN'T BREAK DIAL TONE**

MLT attempts to draw and break dial tone after it checks the central office line circuit. In this VER condition, MLT was able to draw dial tone within the allotted 6 second interval, but it was not able to break dial tone within the 1 second interval.

See the graphic on the facing page. This trouble could be an overload or bad Dial Tone Trunk, and it would have to be referred to the Central Office for trouble resolution. Always retest this line before dispatching. If the VER code 33 result persists, dispatch in to the Central Office.

MLT SUMMARY (EXAMPLE) VER: 33**CAN'T BREAK DIAL TONE**

CRAFT KOHMS	DC SIGNATURE VOLTS		MLT: KOHMS	DC SIGNATURE VOLTS		AC SIGNATURE KOHMS	RNGRS	
3500		T-R	3500		T-R	9	YES	T-R
3500	0	T-G	3500	0	T-G	1500		T-G
3500	0	R-G	3500	0	R-G	1500		R-G

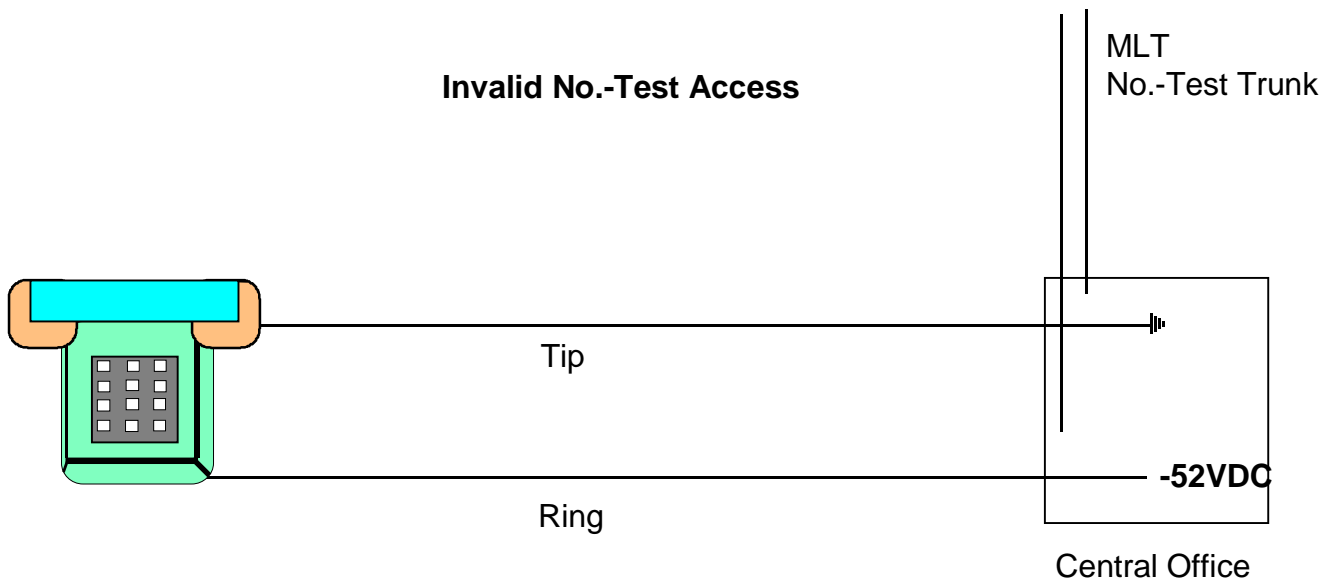
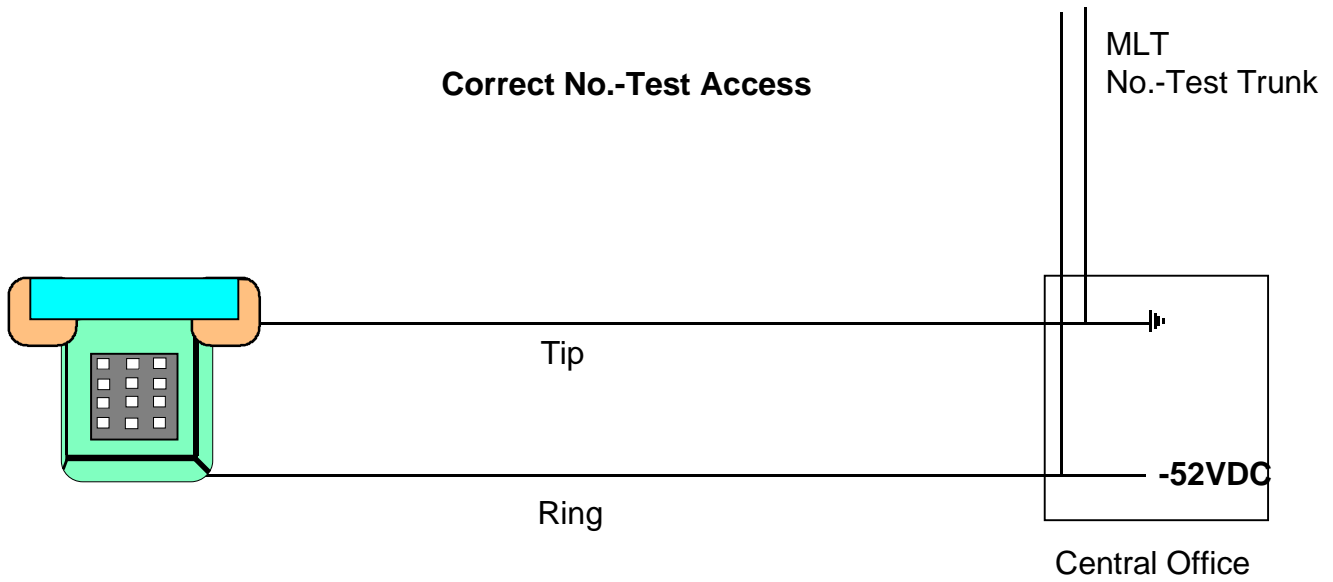
  

CENTRAL OFFICE	BALANCE
LINE CKT OK	CAP 100 %
CAN'T BREAK DT	LONG 65 DB

ADDITIONAL INFORMATION

This VER condition is usually a central office problem. However, during busy office conditions (emergencies, etc.) the load on the central office may cause a delay in attempts to break dial tone. Such delays could cause VER 33 conditions.

## VER 34 -- POSSIBLY INVALID ACCESS



**VER 34 -- POSSIBLY INVALID ACCESS**

This VER code indicates that MLT could have made an improper access to the line. MLT identifies this condition because it "sees" a VERY unusual situation where the line tests OPEN IN and OPEN LINE CKT.

OPEN IN is identified because MLT cannot see the customer's telephone set. At the same time, MLT cannot see the line circuit. An incorrect connection of the MLT No.-Test Trunk in the Central Office is almost always the cause of this situation.

MLT was never properly connected to the customer's line nor the Line Circuit.

**The MLT user should always retest before dispatching this trouble.**

If this fault continues to be the MLT test result, consider performing an MDF test to determine the customer's line condition.

After the MDF test, refer this condition to MLT Administration for resolution.

MLT SUMMARY (EXAMPLE) VER: 34**POSSIBLY INVALID ACCESS****MLT CAN'T SEE LINE CKT**

CRAFT	DC SIGNATURE		MLT:	DC SIGNATURE		AC SIGNATURE	
KOHMS	VOLTS		KOHMS	VOLTS		KOHMS	RNGRS
3500		T-R	3500		T-R	2000	T-R
3500	0	T-G	3500	0	T-G	2000	T-G
3500	0	R-G	3500	0	R-G	2000	R-G

CENTRAL OFFICE  
OPEN LINE CKT  
CAN'T DRAW DIAL TONE

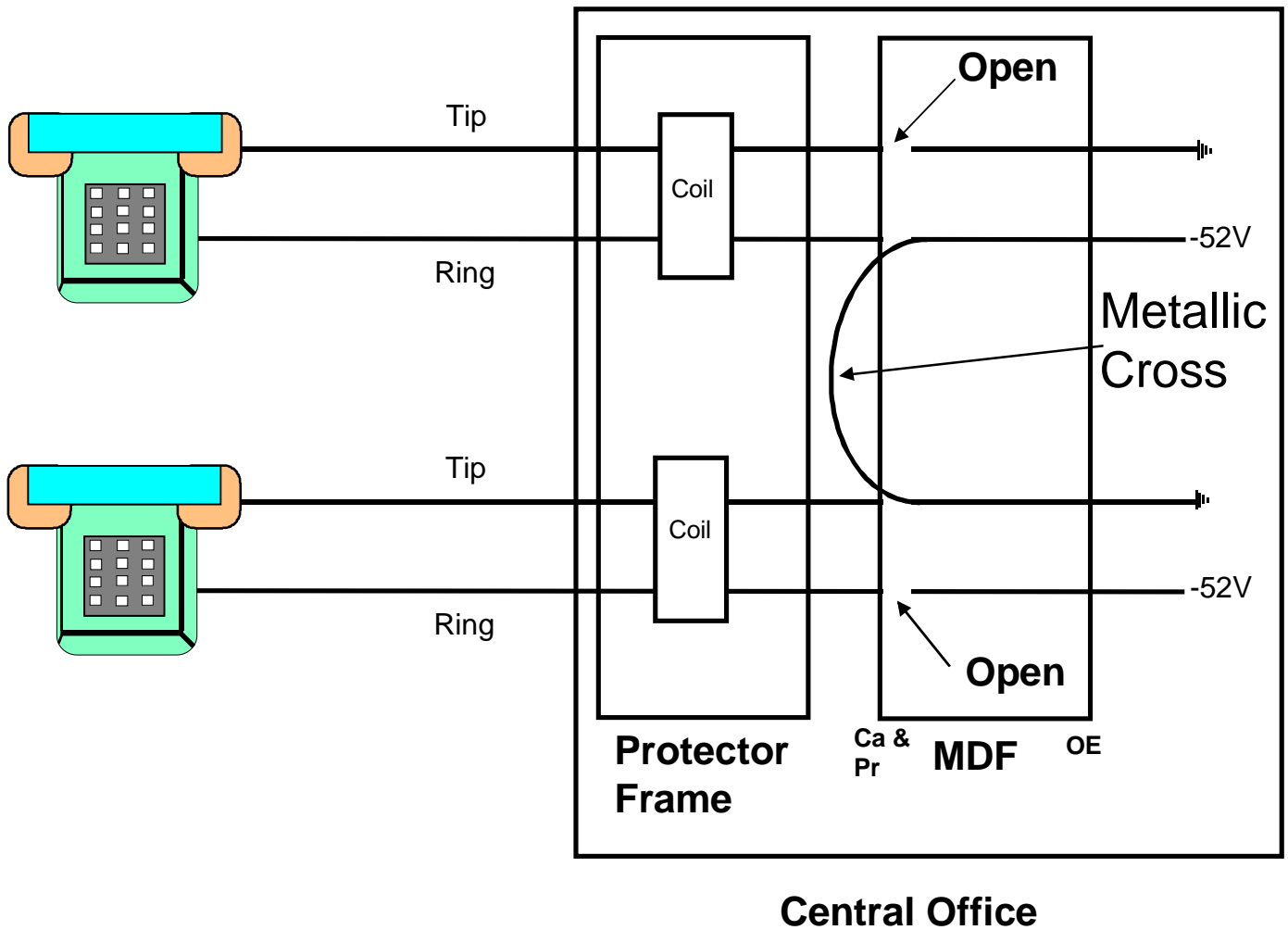
ADDITIONAL INFORMATION

**See the drawing on the facing page:**

The invalid access would not allow MLT to see the telephone nor the line circuit.



## VER 35 -- OPEN IN AND CROSS



**VER 35 -- OPEN IN AND CROSS**

MLT has detected an open and has determined that the open is in or very close to the central office. In addition, MLT has detected an MLT DC SIGNATURE that matches the requirements for a cross to working pair.

MLT SUMMARY (EXAMPLE) VER: 35

OPEN IN

CROSS TO WORKING PAIR: RING SIDE

MODERATE BATTERY R-G -7 V

CRAFT	DC SIGNATURE		MLT:	DC SIGNATURE		AC SIGNATURE		
KOHMS	VOLTS		KOHMS	VOLTS		KOHMS	RNGRS	
3500		T-R	3500		T-R	2000		T-R
3500	0	T-G	3500	0	T-G	2000		T-G
197	-7	R-G	197	-22	R-G	1217		R-G

ADDITIONAL INFORMATION

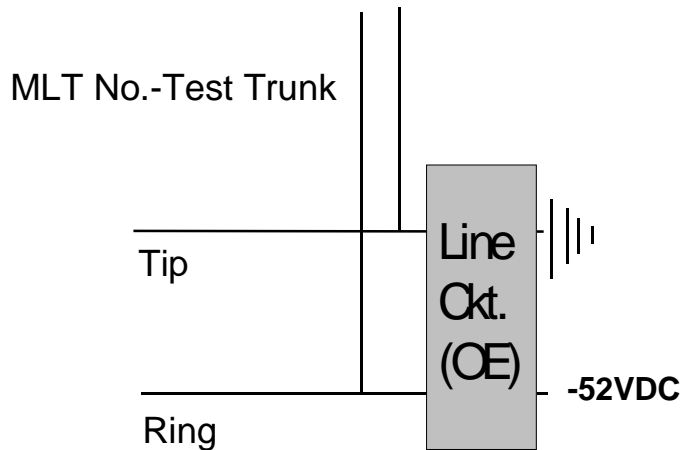
This situation is usually a central office problem.

One possibility is that the pair is open at the frame and one of the open leads is in contact with another telephone line in the central office. See the example in the graphic on the facing page.

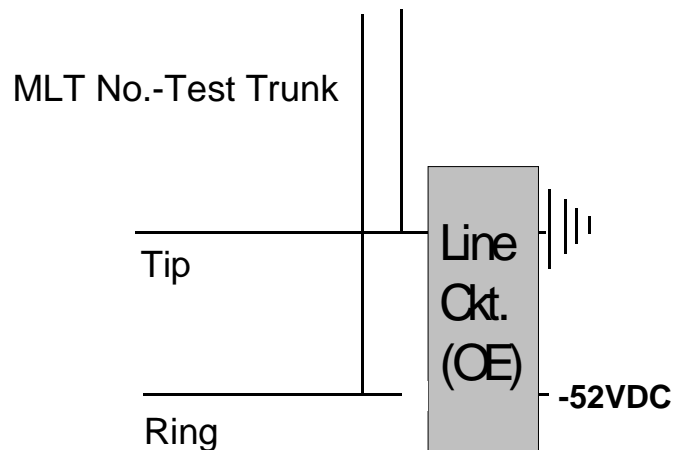
The combination of the ground and battery causes a cross type signature.

## VER 36 - LINE CIRCUIT AND DIAL TONE PROBLEMS

### Line Circuit OK



### Invalid Line Circuit TIP GROUND, RING OPEN



## VER 36 - LINE CIRCUIT AND DIAL TONE PROBLEMS

MLT has detected an invalid line circuit arrangement in the central office. In addition, MLT can neither draw nor break dial tone from the central office.

Unless the records specify differently, the usual line circuit arrangement is battery (with a ground) on the ring side and a ground on the tip side. Also MLT should be able to draw dial tone within six seconds and break dial tone within one second.

### MLT SUMMARY (EXAMPLE) VER: 36

INVALID LINE CKT ARRANGEMENT  
CAN'T DRAW DIAL TONE

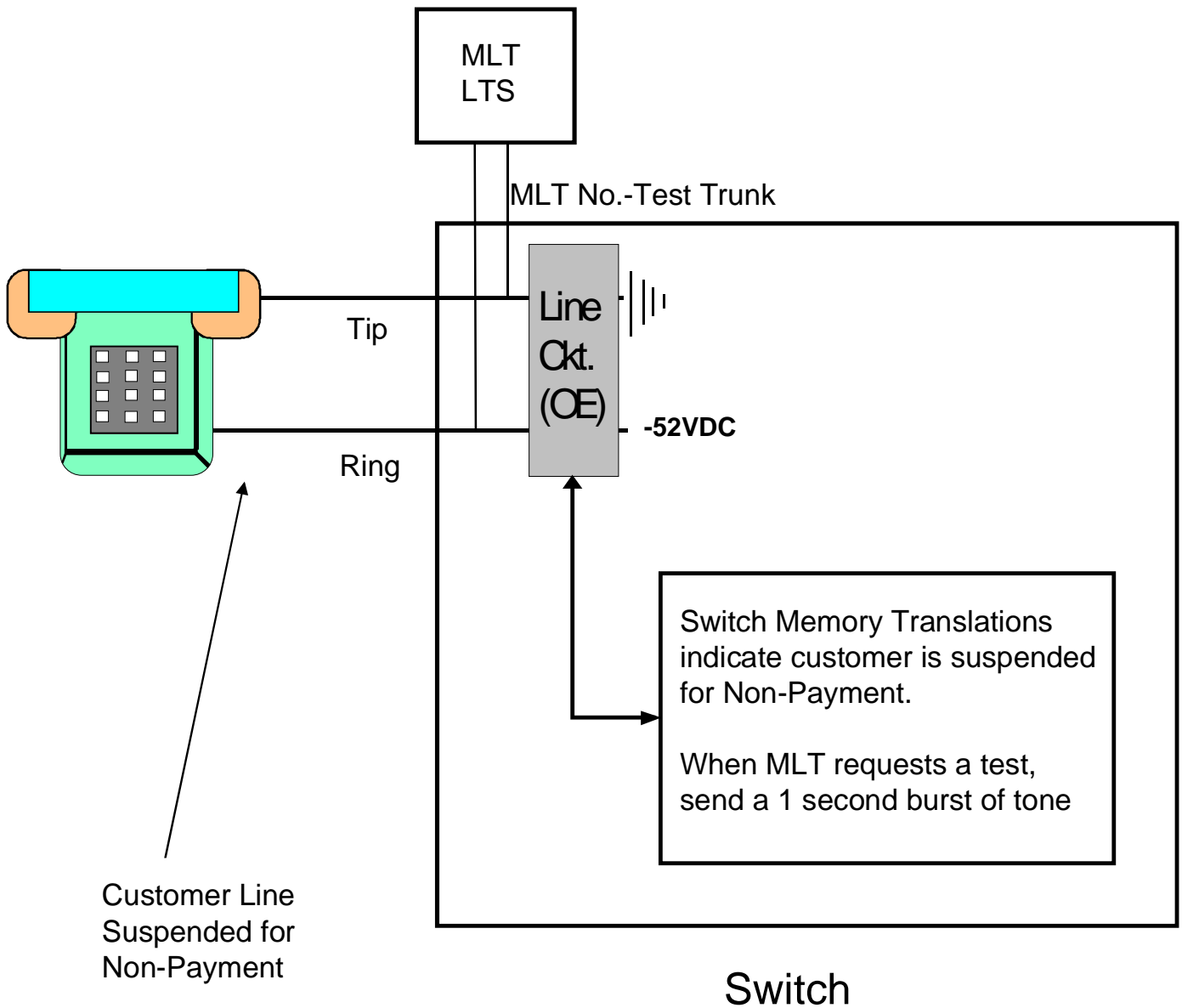
CENTRAL OFFICE  
CAN'T DRAW DIAL TONE

### ADDITIONAL INFORMATION

This VER condition, which is not very common, indicates a central office problem.

Note the diagrams on the facing page. The top graphic represents a correctly wired and functioning Line Circuit. The bottom graphic shows an example of a Line Circuit that could cause this test result.

## VER 37 -- DIAL TONE BURST DETECTED



**VER 37 -- DIAL TONE BURST DETECTED**

This VER code will appear only on lines served by 1ESS<sup>®</sup>, 2ESS<sup>®</sup>, 5ESS<sup>®</sup>, or DMS100<sup>®</sup> switches. If MLT can't draw tone it checks for a one second burst of tone. This burst can be caused by one of the following conditions:

Denied service

Remote make busy key feature

Central Office sends Dial Tone Burst in Error

The detection of the one second tone prevents misleading draw and break dial tone results.

MLT SUMMARY (EXAMPLE) VER: 37**DIAL TONE BURST DETECTED****CAN'T DRAW DIAL TONE**

CRAFT KOHMS	DC SIGNATURE VOLTS		MLT: KOHMS	DC SIGNATURE VOLTS		AC SIGNATURE KOHMS	RNGRS	
3500		T-R	3500		T-R	9	YES	T-R
3500	0	T-G	3500	0	T-G	500		T-G
3500	0	R-G	3500	0	R-G	500		R-G

CENTRAL OFFICE	BALANCE	
LINE CKT OK	CAP 100 %	LOOP LENGTH = 17000 FT
CAN'T DRAW DIAL TONE	LONG 65 DB	

ADDITIONAL INFORMATION

In order to prevent false dispatches from misleading line circuit tests, a check is made for a one second tone burst, if MLT cannot draw dial tone. The one second burst can be caused by a number of different things listed above. Check the line record information to determine which condition exists. For example, if it turns out that service is denied or there is a remote busy key feature, act according to local procedures. If it is determined there is no reason for the Dial Tone Burst, handle the report based on the values of the MLT results.

ESS<sup>®</sup> is a registered trademark of Lucent Technologies, DMS100<sup>®</sup> is a registered trademark of Northern Telecom (NORTEL)

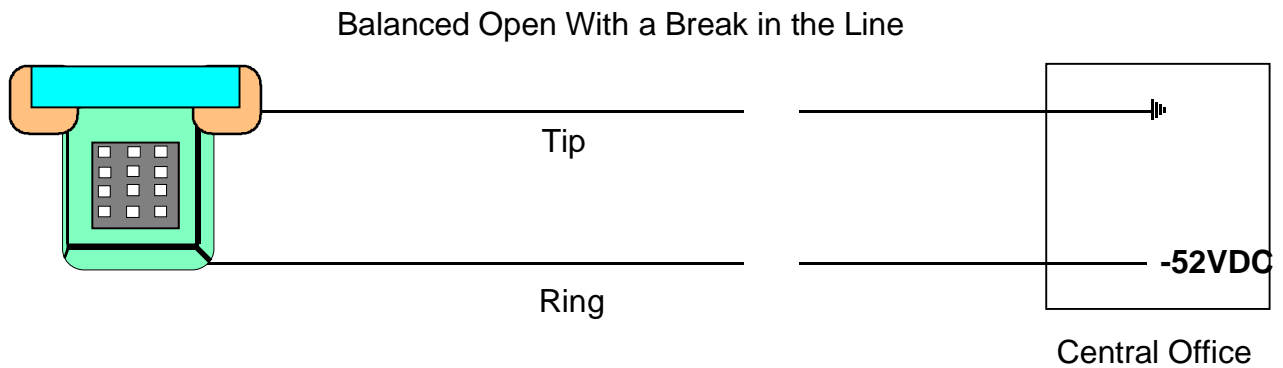
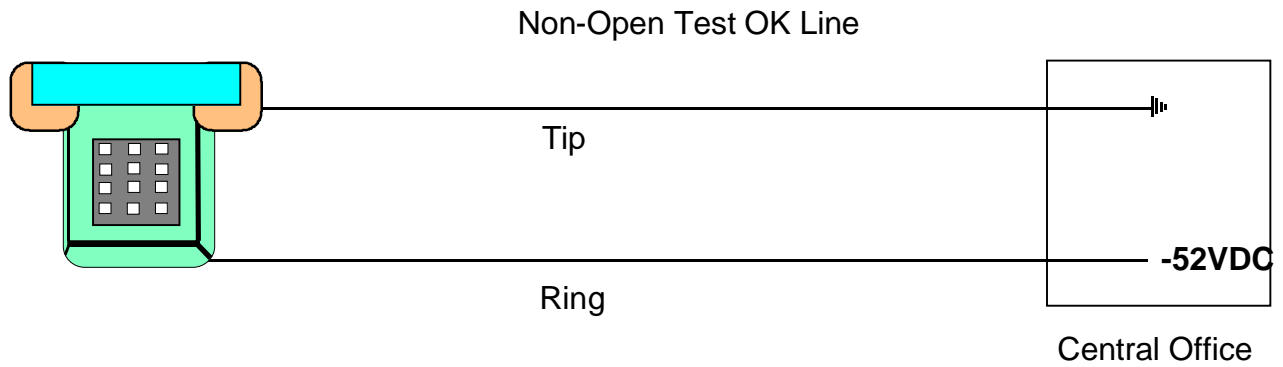
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**MLT**

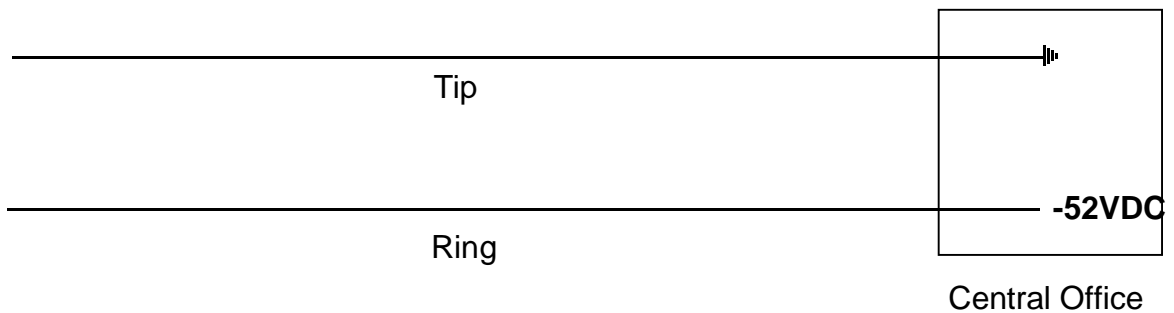
**Opens**

**VER Codes**



**VER 41 -- OPEN OUT BALANCED**

Balanced Open Due to Absence of a Telephone Set and a Network Interface



**VER 41 -- OPEN OUT BALANCED**

MLT has detected an open on the line and has determined that the open is outside the central office. MLT detects an open by not being able to see the capacitance of a ringer or network interface wired tip to ring. An open is simply a physical break in the telephone line. In a balanced open MLT estimates that the length of both sides of the line are roughly the same length. The capacitive balance, which indicates the difference in capacitance between both sides of the line, is 99% or greater. The higher the balance, the more closely the lengths of each side match each other. MLT also provides an estimate of the distance of the open from the central office.

MLT SUMMARY (EXAMPLE) VER: 41

OPEN OUT BALANCED- CAP BAL 100%

DISTANCE FROM C.O. 4900 FT

CRAFT KOHMS	DC SIGNATURE VOLTS		MLT: KOHMS	DC SIGNATURE VOLTS		AC SIGNATURE KOHMS	RNGRS	
3500		T-R	3500		T-R	1012		T-R
3500	0	T-G	3500	0	T-G	1100		T-G
3500	0	R-G	3500	0	R-G	1060		R-G

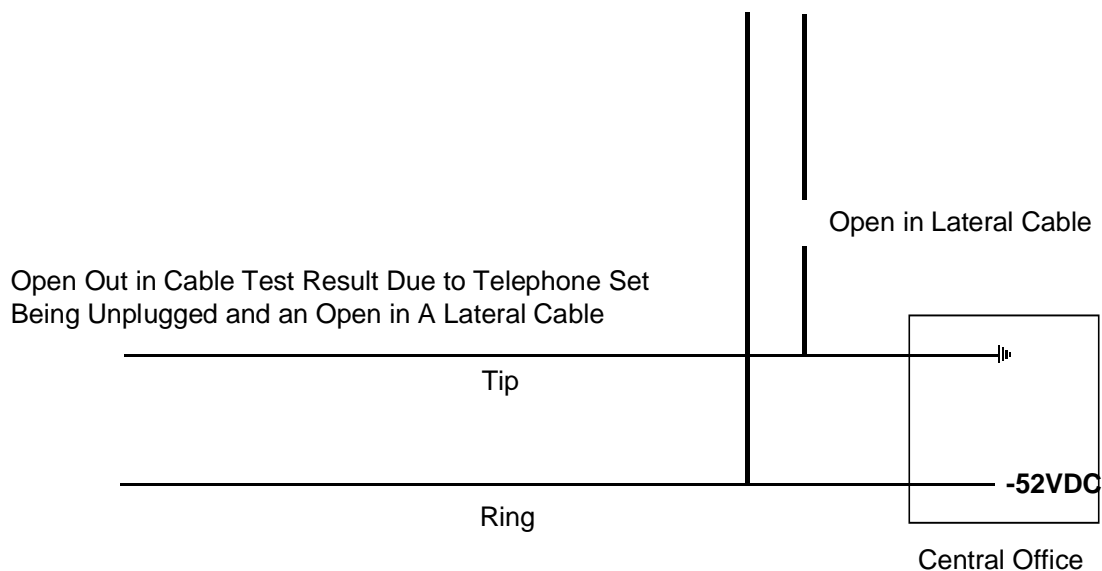
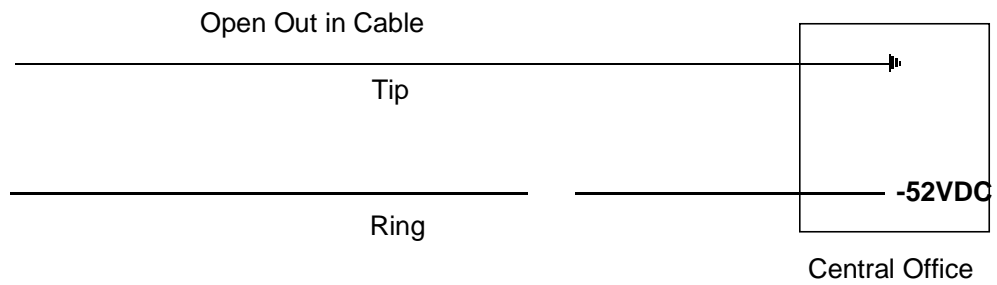
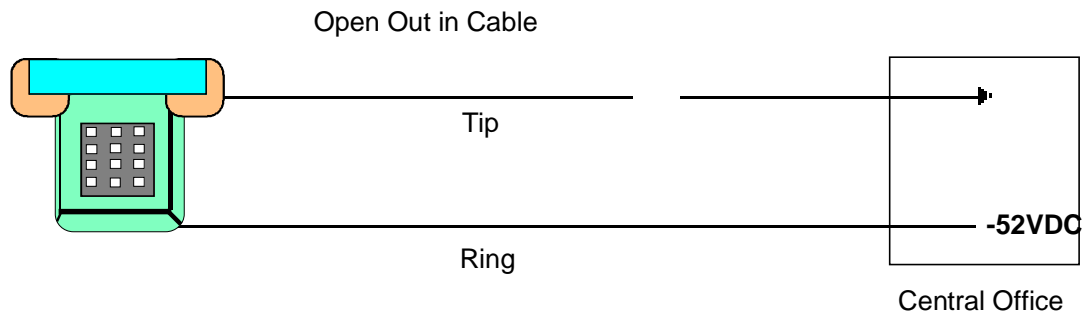
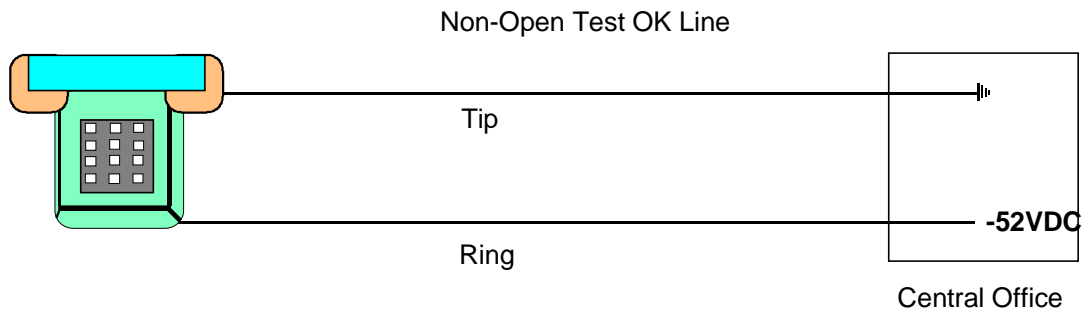
CENTRAL OFFICE	BALANCE	OPEN DISTANCE
LINE CKT OK	CAP 100 %	FROM CO = 4900 FT
DIAL TONE OK		

ADDITIONAL INFORMATION

In a balanced open both sides of the line are roughly the same length. This means that either both sides of the line are open at the same place (the line is cut in one place), or the open is on one side of the line but it is very close to the customer's termination. In this latter case, because one side of the line is open very near the end, it is still very close to being as long as the other side which continues to the customer's premises.

Balanced opens are usually open on both sides in the same place. There is no direct way to tell whether the open is close to the station or back in the cable. The distance of the open from the central office, however, can be helpful in pinpointing the open more specifically.

## VER 42 -- OPEN OUT IN CABLE



**VER 42 -- OPEN OUT IN CABLE**

MLT has detected an unbalanced open on the line. When an open is unbalanced, one side of the line is significantly shorter than the other one and that is usually because only one side is really open. Generally, it is assumed the shorter one is open. MLT uses capacitive balance to decide if the open is balanced or not. If the CAP BAL is less than 99%, it calls the condition an unbalanced open. MLT has the ability to measure the capacitance on each wire and convert that capacitance to an equivalent footage amount.

When MLT sees an unbalanced open, it computes another measurement to determine the location of the open to see if it is to be identified as open in the cable or in the drop. This measurement is based on a ratio of the distance to the open from the station on the good side of the pair to the combined total of the trunk length and distance of the open from the CO on the bad side.

The general idea is that the distance from the station to the open must be larger than the distance from the CO to the open for the trouble to be in the cable. MLT reports the side that is open and the distances from the open to the station and CO. MLT assumes the longest wire goes all the way to the station or customer service location.

**MLT SUMMARY (EXAMPLE) VER: 42**

OPEN OUT CABLE TIP- CAP BAL 92%

DISTANCE FROM STATION        560 FT

DISTANCE FROM C.O.        4900 FT

CRAFT	DC SIGNATURE		MLT:	DC SIGNATURE		AC SIGNATURE	
KOHMS	VOLTS		KOHMS	VOLTS		KOHMS	RNGRS
3500		T-R	3500		T-R	1012	T-R
3500	0	T-G	3500	0	T-G	845	T-G
3500	0	R-G	3500	0	R-G	710	R-G

CENTRAL OFFICE  
LINE CKT OK  
DIAL TONE OK

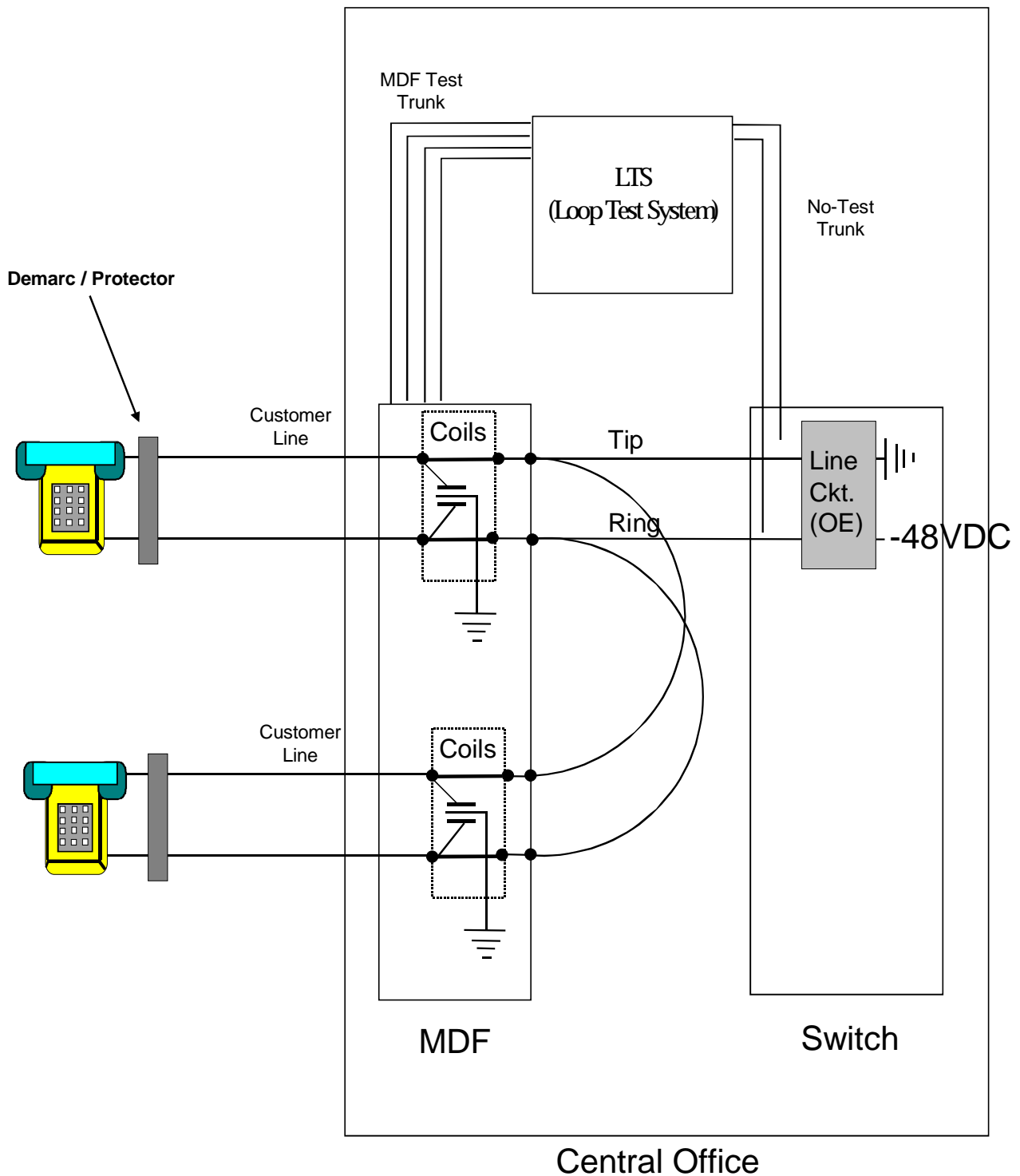
BALANCE  
CAP 92 %

OPEN DISTANCE  
FROM STA=        560 FT  
FROM CO =        4900 FT

**ADDITIONAL INFORMATION**

As mentioned above, the estimates of the open's distance from both the CO and the station are displayed to the user. These should be helpful in coordinating a repair person's search for the trouble.

## VER 44 -- OPEN OUT 2 - PARTY OR BRIDGE LIFTERS



**VER 44 -- OPEN OUT 2 - PARTY OR BRIDGE LIFTERS**

**Southwestern Bell no longer has 2 party lines so this result will mean the line has a Bridge Lifter in its records.**

MLT has detected an open on the line and has determined that the open is outside the central office. An open is simply a physical break in the line. The line records for this line also indicate that the service has Bridge Lifters on it. A Bridge Lifter is a device used on lines with more than one cable pair such as a DPA (Different Premise Address) service. The Bridge Lifter removes the electrical impact of one pair when a customer is talking on another pair. This is important for the MLT user to recognize. If the customer does not specify the trouble location or if they report all locations, the MLT user will need to prove which pair the trouble is on. This will allow the MLT user to dispatch the technician to the correct trouble location.

Because of the Bridge Lifters, no open measurements are available for this condition. The capacitive balance and the distances calculated from the capacitances can be distorted by the Bridge Lifters. This distortion can produce wrong or misleading values. In order to avoid this, no measurements are displayed. The open is outside of the CO, but MLT cannot decide which pair the trouble is on. It also cannot decide if the open is balanced or not.

**MLT SUMMARY (EXAMPLE) VER: 44**

**OPEN OUT- 2 PTY OR BRIDGE LIFTER**

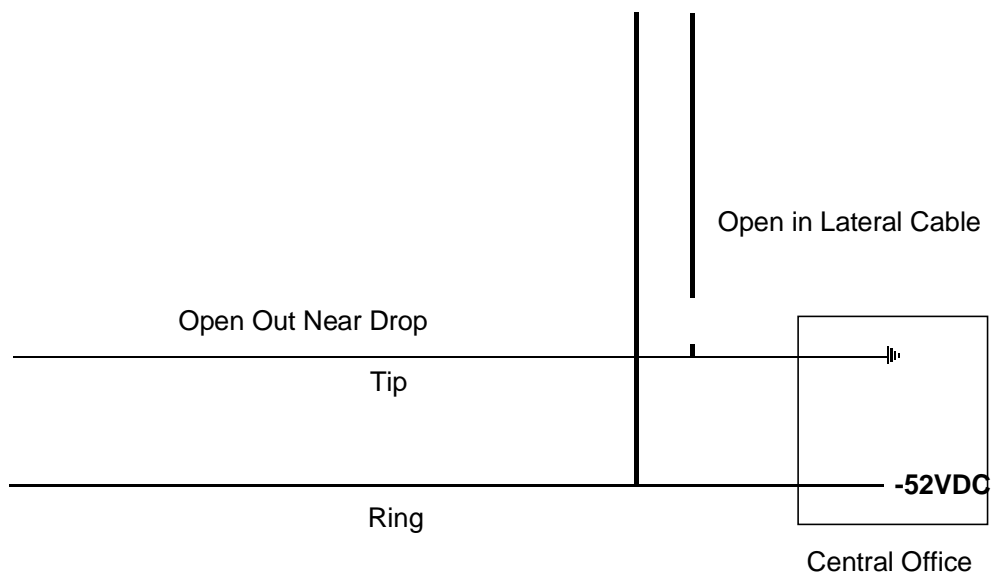
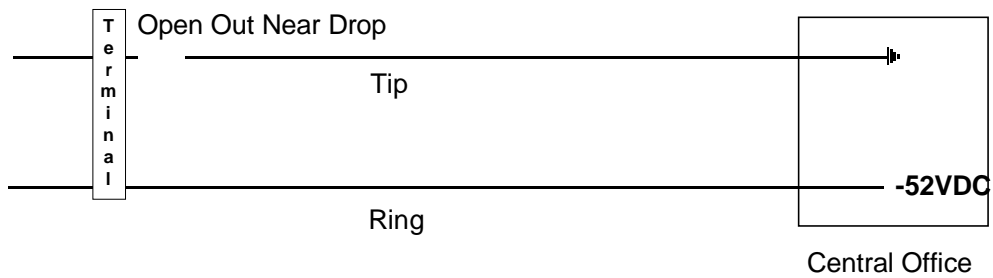
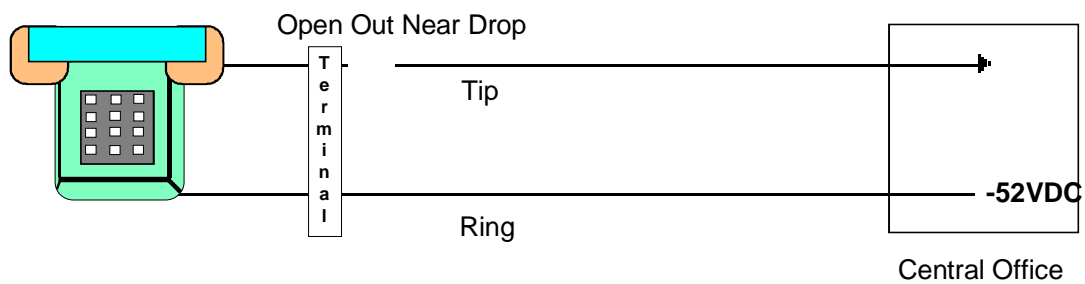
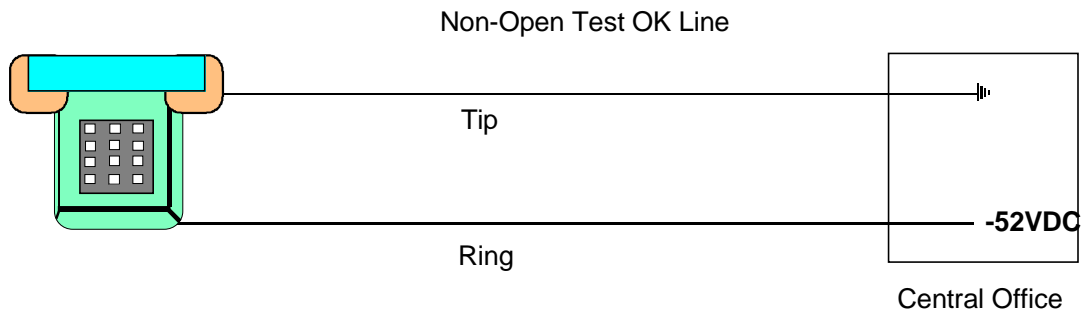
**NO OPEN MEASUREMENTS AVAILABLE**

CRAFT KOHMS	DC SIGNATURE VOLTS		MLT: KOHMS	DC SIGNATURE VOLTS		AC SIGNATURE KOHMS	RNGRS	
3500		T-R	3500		T-R	1509		T-R
3500	0	T-G	3500	0	T-G	1500		T-G
3500	0	R-G	3500	0	R-G	1500		R-G

CENTRAL OFFICE  
LINE CKT OK  
DIAL TONE OK

**ADDITIONAL INFORMATION**

This situation is the same that would exist on a customer line with F and T dual service.

**VER 45 -- OPEN OUT NEAR DROP**

**VER 45 -- OPEN OUT NEAR DROP**

MLT has detected an unbalanced open on the line. When an open is unbalanced, one side of the line is significantly shorter than the other one and that is usually because only one side is really open. It is assumed that the shorter one is the open one. MLT uses capacitive balance to decide if the open is balanced or not. If the CAP BAL is less than 99%, it calls the condition an unbalanced open.

When MLT sees an unbalanced open, it computes another measurement to determine the location of the open to determine by its program standards if the line is open out in cable or open out near drop. This measurement is a ratio of the distance to the open from the station on the good side of the pair to the combined total of the MLT test trunk length, and the distance of the open from the CO on the bad side.

MLT will call the result OPEN OUT NEAR DROP if one of the following two situations is found:

1. The CAP Balance is greater than 97% but less than 99%.
2. The CAP Balance is greater than 95% but less than or equal to 97% and the distance to the station is less than 500 feet.

**MLT SUMMARY (EXAMPLE) VER: 45**

OPEN OUT NEAR DROP-CAP BAL 98%

DISTANCE FROM STATION        170 FT

DISTANCE FROM C.O.        14800 FT

CRAFT KOHMS	DC SIGNATURE VOLTS		MLT: KOHMS	DC SIGNATURE VOLTS		AC SIGNATURE KOHMS	RNGRS	
3500		T-R	3500		T-R	1583	YES	T-R
3500	0	T-G	3500	0	T-G	1146		T-G
3500	0	R-G	3500	0	R-G	876		R-G

CENTRAL OFFICE  
LINE CKT OK  
DIAL TONE OK

BALANCE  
CAP 98 %

OPEN DISTANCE  
FROM STA= 170 FT  
FROM CO = 14800 FT

**ADDITIONAL INFORMATION**

The estimates of the open's distance from the CO and the STATION are displayed. These should be helpful in coordinating a repair person's search for the trouble.



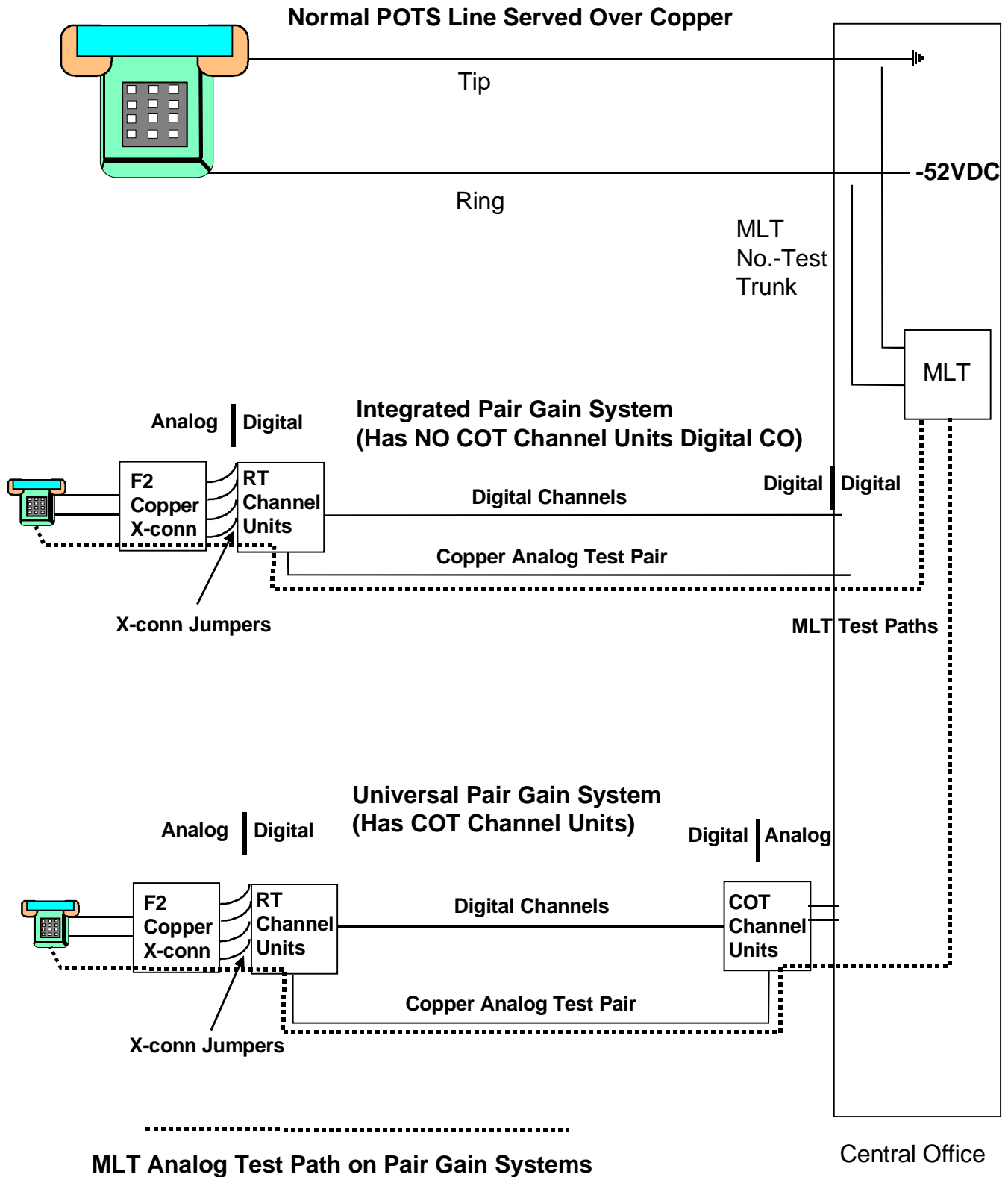
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**MLT**

**Pair Gain**

**VER Codes**

## VER 05 -- CHANNEL STATUS NOT IDENTIFIED



**VER 05 -- CHANNEL STATUS NOT IDENTIFIED**

This VER code is applicable to all switches and applies to both integrated and universal DLC (Digital Loop Carrier) loops. This VER code indicates that all metallic test passed, but the channel test either was not made or did not complete in time to be returned or the results did not match the acceptable signatures. It does not mean that the channel is bad. It is just unknown. In the case of an integrated DLC (IDLC) in 5ESS switches, it may be an indication of a shortage of TTF (Transmission Test Facility) responders. The TTF performs the IDLC (Integrated Digital Loop Carrier) channel tests.

The results indicate the current analog or copper condition of this customer's line. The MLT tester should re-test the line. If the results stay the same, try calling the customer. If that is successful the line is likely okay.

**MLT SUMMARY (EXAMPLE) VER: 05****TEST**

OK - CHANNEL NOT TESTED

CRAFT KOHMS	DC SIGNATURE VOLTS		MLT: KOHMS	DC SIGNATURE VOLTS		AC SIGNATURE KOHMS	RNGRS	
3500		T-R	3500		T-R	11	YES	T-R
3500	0	T-G	3500	0	T-G	1959		T-G
3500	0	R-G	3500	0	R-G	1962		R-G

BALANCE  
CAP 100 %  
LONG 65 DB

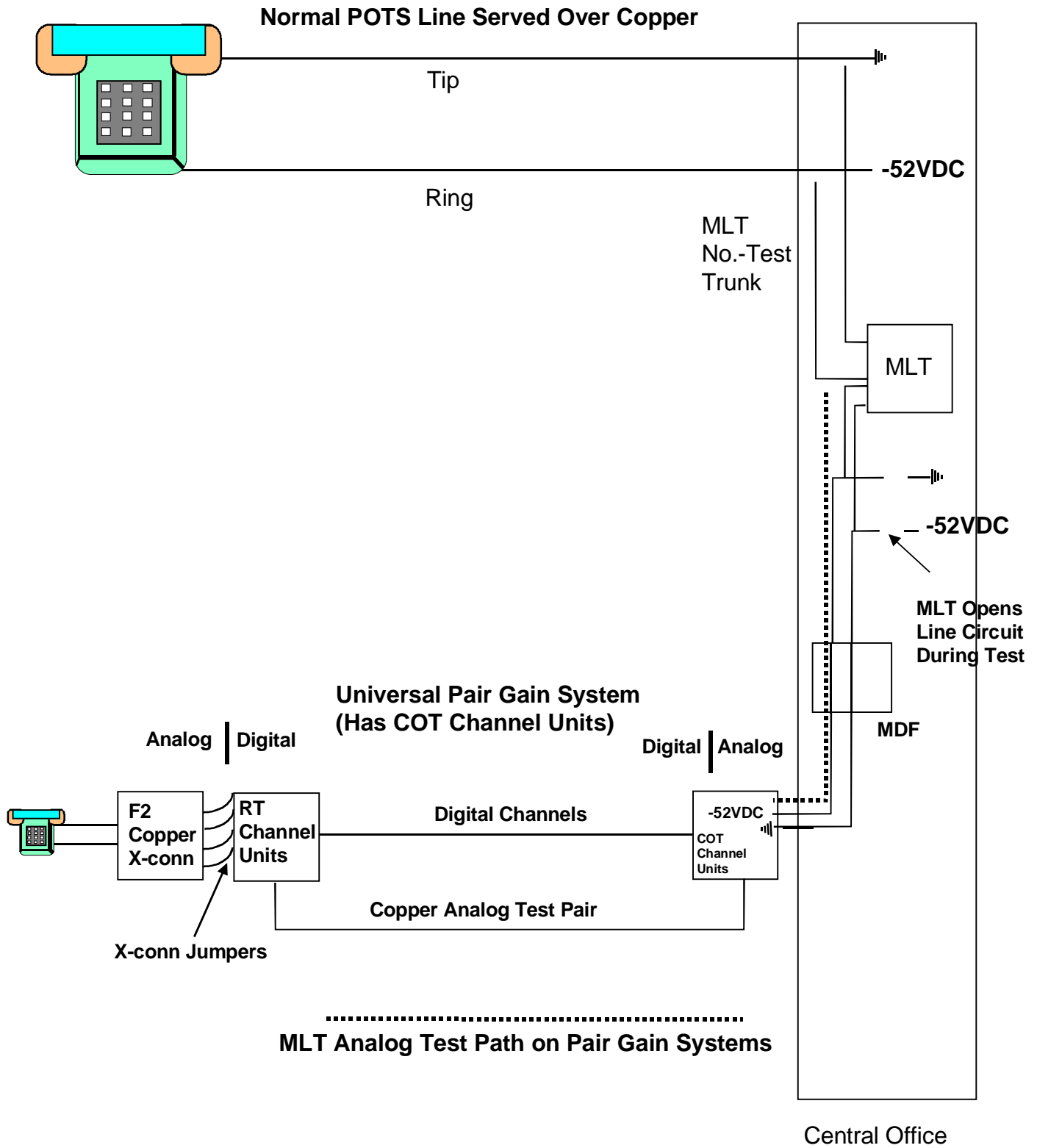
**ADDITIONAL INFORMATION**

Length of Loop test results are not provided with this VER code.

In many locations, pair gain systems are maintained by outside technicians.

**In Southwestern Bell, the decision about where or if to dispatch this condition is made locally.**

## VER 51 -- CO BATTERY ON PAIR GAIN SYSTEM



## VER 51 -- CO BATTERY ON PAIR GAIN SYSTEM

A busy (with no speech) condition is detected on a SLC<sup>®</sup> 96 line with a COT Channel Unit. Testing determines that there is voltage on the line not due to a line in use or a permanent signal condition. MLT assumes that there is CO battery on the pair gain access system. Testing is stopped and no metallic access is attempted.

### MLT SUMMARY (EXAMPLE) VER: 51

#### CO BATTERY ON PAIR GAIN SYSTEM

\*LOOP ACCESS NOT ATTEMPTED

### ADDITIONAL INFORMATION

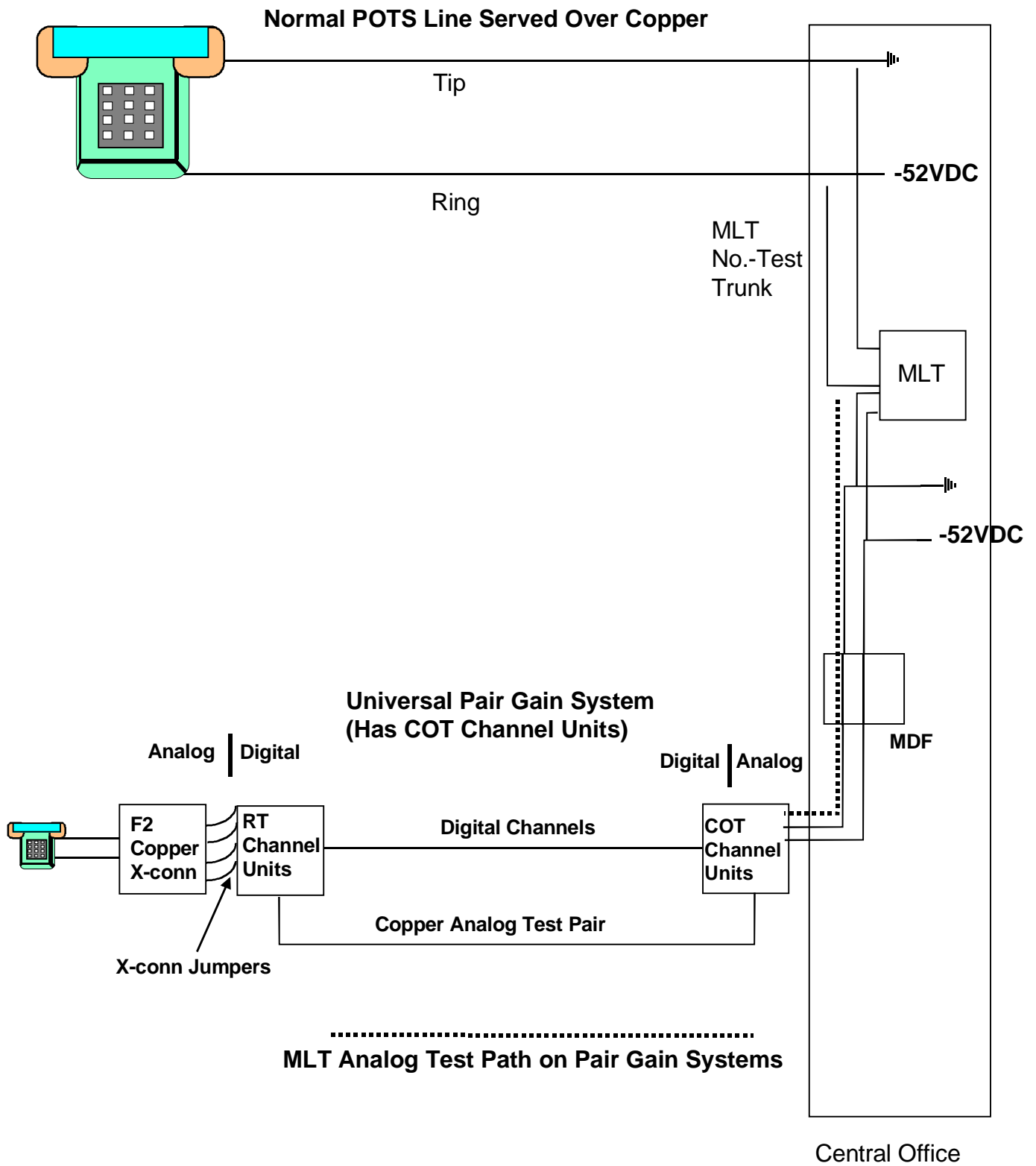
This condition may be at the pair gain system in the central office. It should be routed according to local pair gain procedures.

In many locations, pair gain systems are maintained by outside technicians.

**In Southwestern Bell, the decision about where to dispatch this condition is made locally.**

SLC<sup>®</sup> 96 is a registered trademark of Lucent Technologies

## VER 52 -- INVALID PAIR GAIN C.O. SIGNATURE



**VER 52 -- INVALID PAIR GAIN C.O. SIGNATURE**

Prior to metallic access MLT attempts to identify the C.O. signature for the SLC 96 equipment. If the C.O. signature that is identified is not one that is expected, MLT will call the signature invalid and this summary will be set. Testing is stopped and no metallic access is attempted.

MLT SUMMARY (EXAMPLE) VER: 52**INVALID PAIR GAIN C.O. SIGNATURE**

\*LOOP ACCESS NOT ATTEMPTED

CRAFT	DC SIGNATURE		MLT:	DC SIGNATURE	
KOHMS	VOLTS		KOHMS	VOLTS	
3500		T-R	3500		T-R
3500	0	T-G	3500	0	T-G
3500	0	R-G	3500	0	R-G

CENTRAL OFFICE  
LINE CKT OK  
DIAL TONE OK

ADDITIONAL INFORMATION

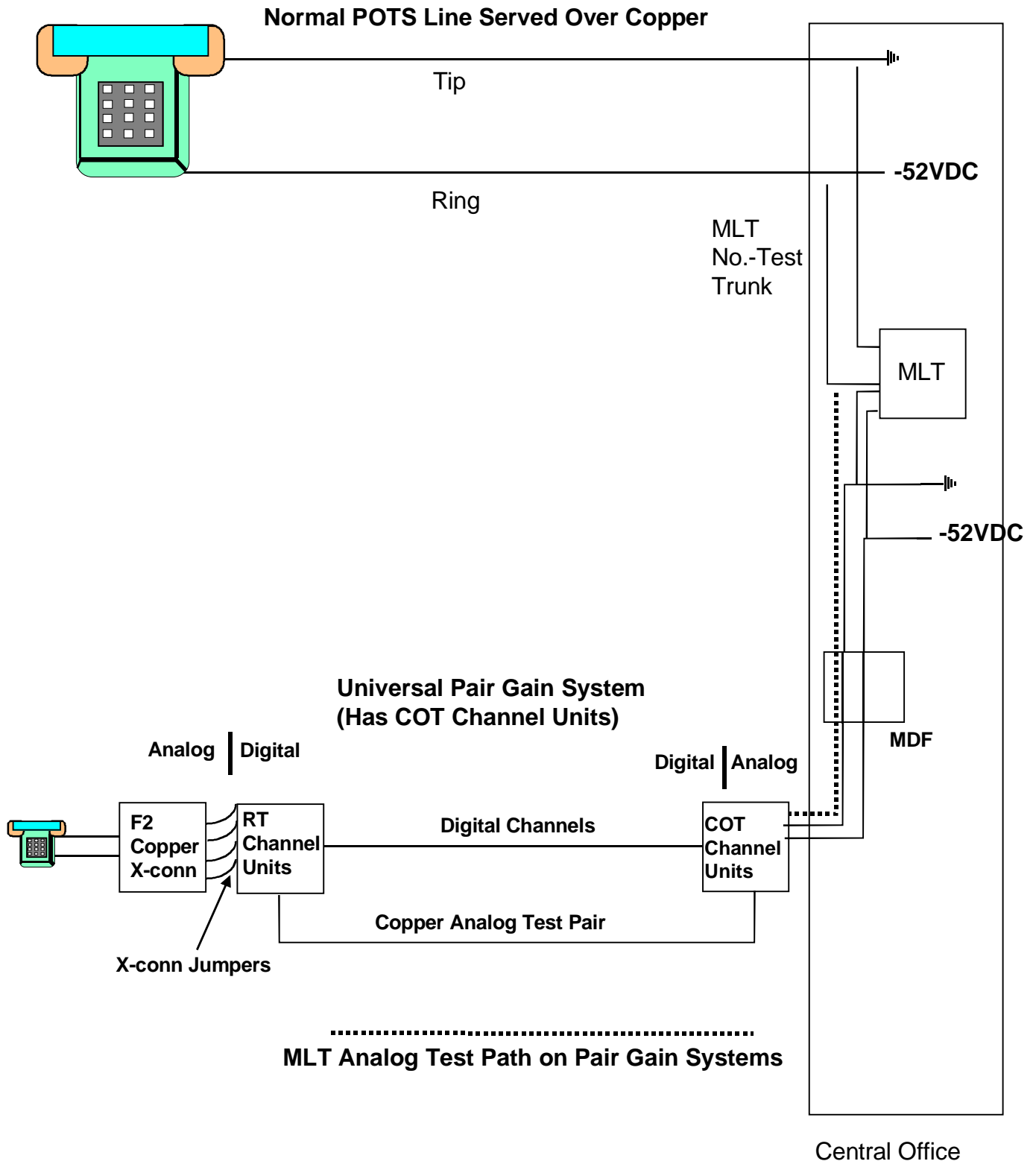
This condition could exist due to a record error. The SLC 96 may not be on the line as the records indicate or the SLC-96 service may not be the one indicated in the records. Determine whether or not the records are correct. If they are not, follow local procedures for correcting them. If they are correct and there is an invalid C.O. signature, the problem is most likely in the central office.

In many locations, pair gain systems are maintained by outside technicians.

**In Southwestern Bell, the decision about where to dispatch this condition is made locally.**



## VER 53 -- PAIR GAIN SYSTEM BUSY



## **VER 53 -- PAIR GAIN SYSTEM BUSY**

MLT cannot make metallic access on the pair gain system because someone else is using the metallic access path to test the line. Testing is stopped and no metallic access is attempted. When a VER code 53 is generated, MLT will automatically drop access to the line.

### MLT SUMMARY (EXAMPLE) VER 53

PAIR GAIN SYSTEM BUSY

COULD NOT MAKE METALLIC ACCESS

\* DUE TO BUSY ACCESS SYSTEM

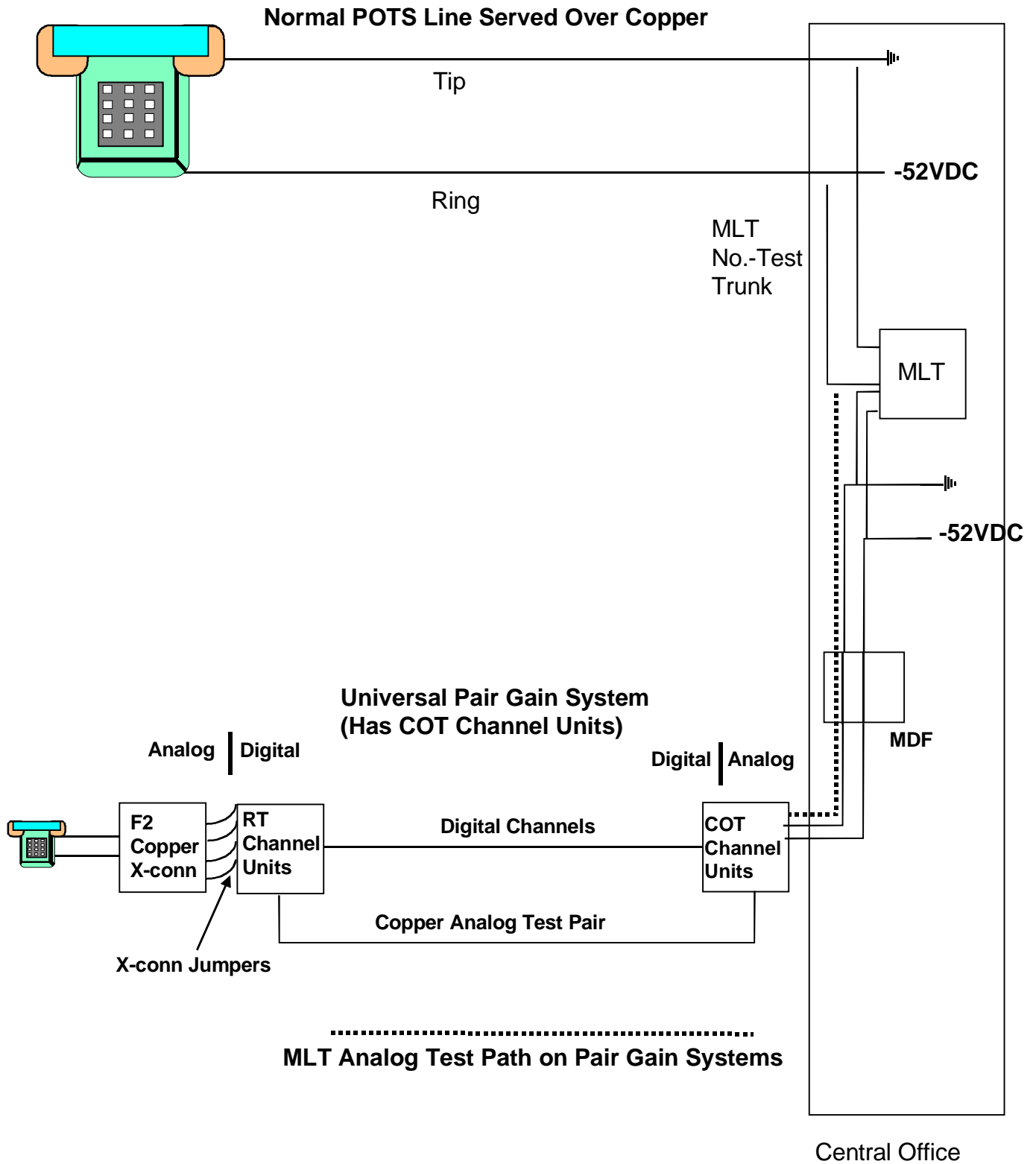
### ADDITIONAL INFORMATION

Since the equipment is busy, it would be advisable to wait and then retest the line. Chances are that the equipment will be available shortly.

This test result can also be the result of a situation where MLT cannot test this particular pair gain system at all due to pair testing system installation problems. To determine if this is the situation:

1. Retrieve LMOS screen RCR by typing /FOR RCR
2. Fill in the required fields using cable and pair information for this pair gain system.
3. Use the RCR list of telephone numbers to test several numbers.
4. If all numbers test VER 53, refer this information to MLT Administration.
5. If the numbers do NOT all test VER 53, use the information at the beginning of the page to decide your actions.

## VER 54 -- PAIR GAIN SYSTEM FAILURE



## **VER 54 -- PAIR GAIN SYSTEM FAILURE**

MLT cannot make metallic access on the pair gain system because:

1. There is a major alarm.
2. There is a minor alarm or alarm in the system.
3. There is a major alarm or busy access system.
4. An MLT user attempts to test a non-pair gain line with a pair gain override such as T1C40 in the MLT TV field OVER. See procedure below \*.

Testing is stopped when any of these conditions is found by MLT.

### MLT SUMMARY (EXAMPLE) VER: 54

PAIR GAIN SYSTEM FAILURE

COULD NOT MAKE METALLIC ACCESS

\* DUE TO TEST SYSTEM FAILURE

CENTRAL OFFICE  
LINE CKT OK  
DIAL TONE OK

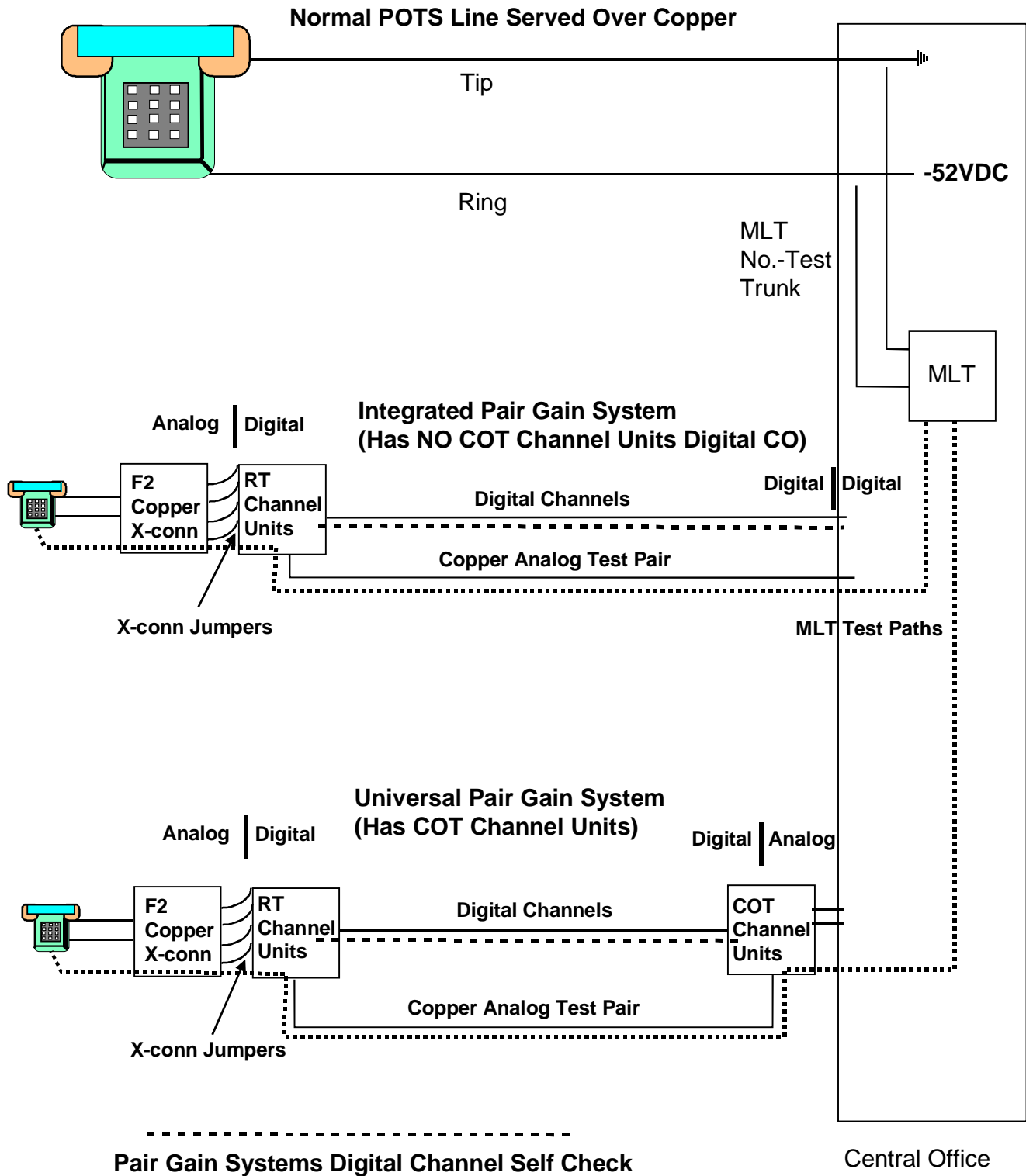
### ADDITIONAL INFORMATION

Either a major or a minor alarm in the pair gain system is probably a trouble in the central office. In many locations, pair gain systems are maintained by outside technicians.

\*If this VER code appears after a T1C40 override, verify the customer's type of F1 facility in LFACS (Loop Facility Assignment and Control System). If the F1 cable has PG as part of its name, the customer is on a pair gain system. If PG is not part of the customer's F1 cable name, the customer is NOT on a pair gain system. If the customer is not on a pair gain system, T1C40 will cause this VER code to be set every time because it is NOT pair gain. Test such a line without T1C40 and analyze the results without regard to the VER and Summary message.

**In Southwestern Bell, the decision about where to dispatch this condition is made locally.**

## VER 55 - PAIR GAIN CHANNEL FAILURE



**VER 55 - PAIR GAIN CHANNEL FAILURE**

If metallic access is made, MLT conducts its regular testing. Meanwhile, the Pair Gain system conducts a self test to determine the condition of the digital carrier channel. If this self check indicates a failure, this VER code is set.

MLT SUMMARY (EXAMPLE) VER: 55

PAIR GAIN CHANNEL FAILURE

CHANNEL STATUS NOT IDENTIFIED

CRAFT KOHMS	DC SIGNATURE VOLTS		MLT: DC SIGNATURE KOHMS	VOLTS		AC SIGNATURE KOHMS	RNGRS	
3500		T-R	3500		T-R	9	YES	T-R
3500	0	T-G	3500	0	T-G	500		T-G
3500	0	R-G	3500	0	R-G	500		R-G

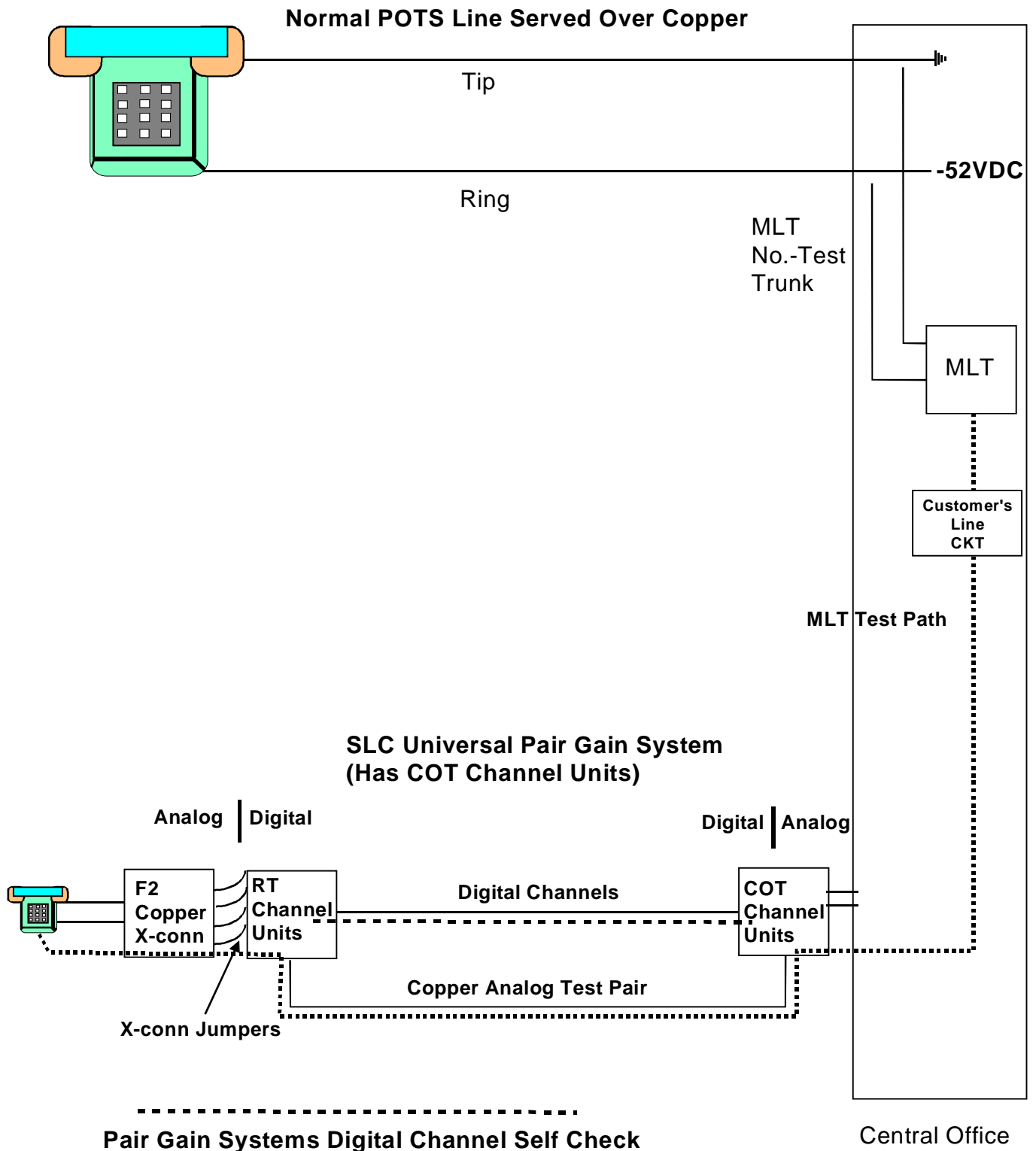
CENTRAL OFFICE	BALANCE	
LINE CKT OK	CAP 100 %	LOOP LENGTH = 17000 FT
DIAL TONE OK	LONG 65 DB	

ADDITIONAL INFORMATION

The MLT user should **ALWAYS** retest this line before deciding what action to take.

In many locations, pair gain systems inside and outside are maintained by outside technicians.

**In Southwestern Bell, the decision about where or if to dispatch this condition is made locally.**

**VER 56 - BAD COT CHANNEL UNIT**

**VER 56 - BAD COT CHANNEL UNIT**

This VER code is returned if the Digital Loop Carrier (DLC) self check reveals a bad channel at the COT (Central Office Terminal). This result is present only on SLC lines with the XTC (Extended Test Controller).

MLT SUMMARY (EXAMPLE) VER: 56**BAD COT CHANNEL UNIT**

CRAFT	DC SIGNATURE		MLT:	DC SIGNATURE		AC SIGNATURE		
KOHMS	VOLTS		KOHMS	VOLTS		KOHMS	RNGRS	
3500		T-R	3500		T-R	9	YES	T-R
3500	0	T-G	3500	0	T-G	1500		T-G
3500	0	R-G	3500	0	R-G	1500		R-G

CENTRAL OFFICE  
LINE CKT OK  
DIAL TONE OK

ADDITIONAL INFORMATION

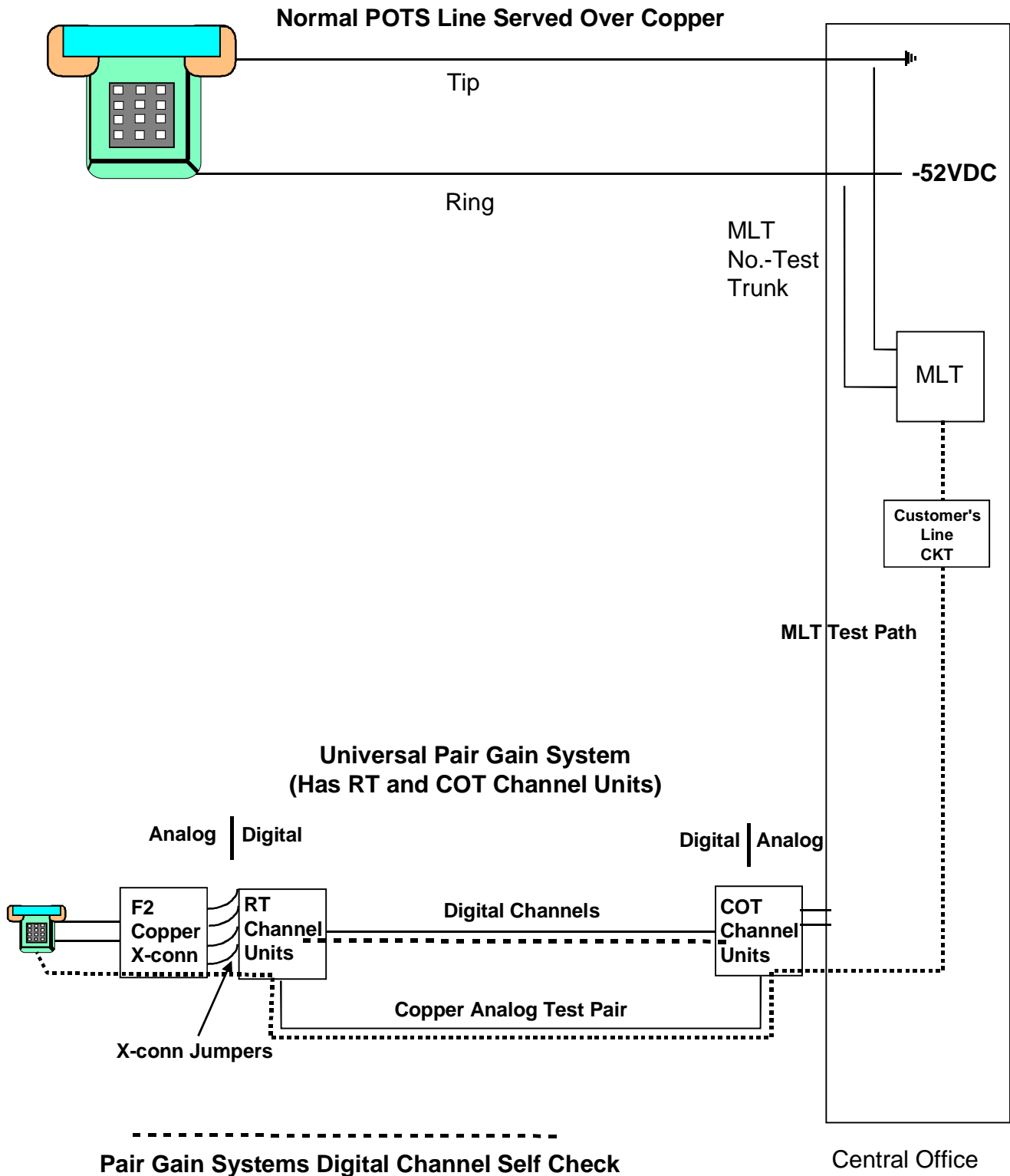
A Channel Unit (CU) is a pair gain system component that is associated with a specific pair gain channel. It is the location on a pair gain system where analog to digital and digital to analog conversions are performed. On a Universal pair gain system, there is one at the COT (Central Office Terminal) and one at the RT (Remote Terminal). On an integrated pair gain system, the only CU is at the RT.

The MLT user should **ALWAYS** retest this line before deciding what action to take. In many locations, pair gain systems inside and outside are maintained by outside technicians.

**In Southwestern Bell, the decision about where or if to dispatch this condition is made locally.**



## VER 57 - RT CHANNEL UNIT BAD



## MLT Analog Test Path on Pair Gain Systems

Proprietary not for disclosure outside Southwestern Bell Telephone Co. without written agreement.

**VER 57 - RT CHANNEL UNIT BAD**

This VER code is returned if the Digital Loop Carrier (DLC) self check reveals a bad channel at the RT (Remote Terminal).

MLT SUMMARY (EXAMPLE) VER: 57

## RT CHANNEL UNIT BAD

CRAFT	DC SIGNATURE		MLT:	DC SIGNATURE		AC SIGNATURE		
KOHMS	VOLTS		KOHMS	VOLTS		KOHMS	RNGRS	
3500		T-R	3500		T-R	9	YES	T-R
3500	0	T-G	3500	0	T-G	1500		T-G
3500	0	R-G	3500	0	R-G	1500		R-G

CENTRAL OFFICE  
LINE CKT OK  
DIAL TONE OK

ADDITIONAL INFORMATION

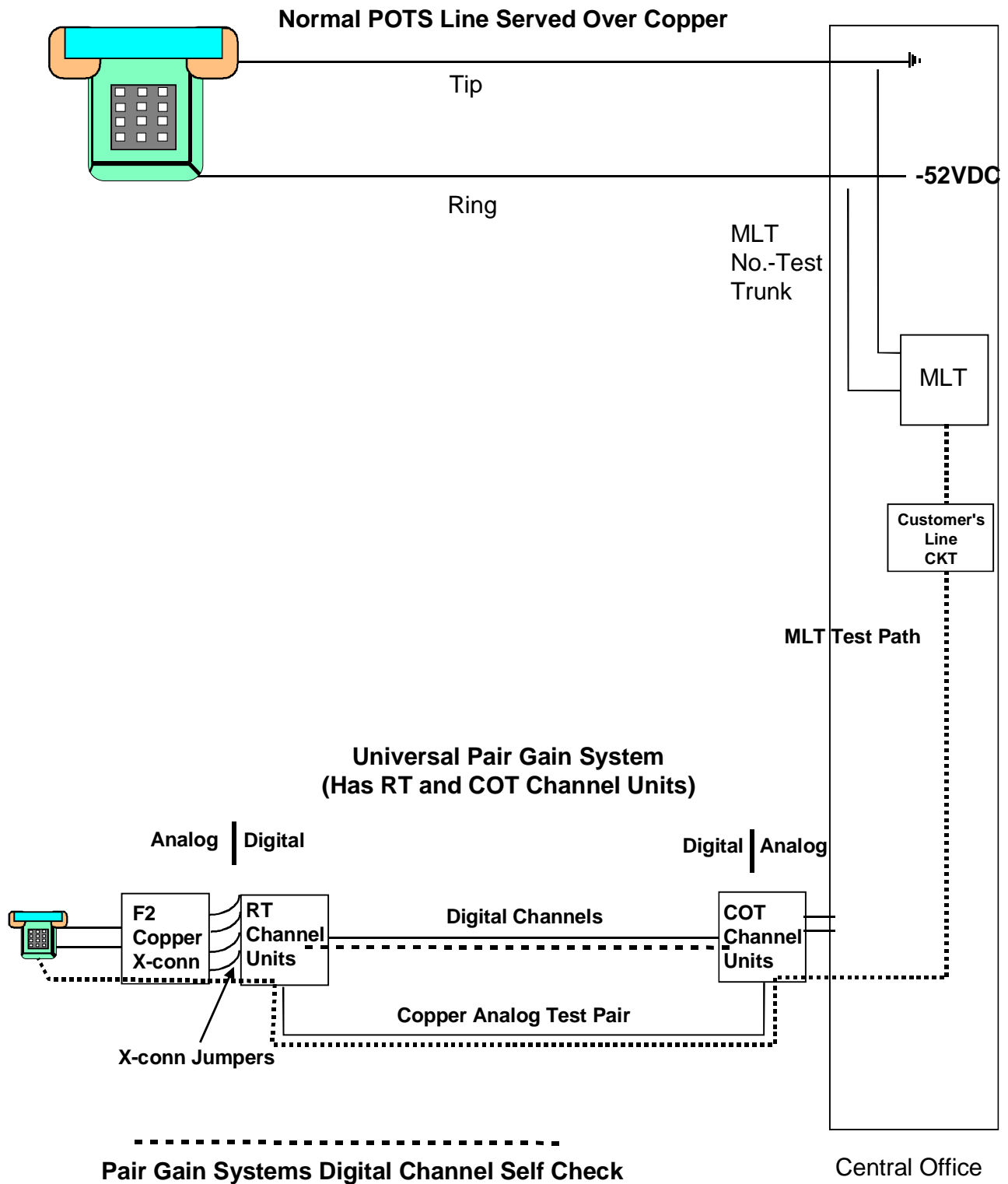
A Channel Unit (CU) is a pair gain system component that is associated with a specific pair gain channel. It is the location on a pair gain system where analog to digital and digital to analog conversions are performed. On a Universal pair gain system, there is one at the COT (Central Office Terminal) and one at the RT (Remote Terminal). On an integrated pair gain system, there is only a CU at the RT.

The MLT user should **ALWAYS** retest this line before deciding what action to take.

In many locations, pair gain systems inside and outside are maintained by outside technicians.

**In Southwestern Bell, the decision about where or if to dispatch this condition is made locally.**

## VER 58 - BAD COT AND RT CHANNEL UNITS



## MLT Analog Test Path on Pair Gain Systems

**VER 58 - BAD COT AND RT CHANNEL UNITS**

This VER code is returned if the Digital Loop Carrier (DLC) self check reveals a bad channel at the COT (Central Office Terminal) and the RT (Remote Terminal).

MLT SUMMARY (EXAMPLE) VER: 58

BAD COT CHANNEL UNIT

BAD RT CHANNEL UNIT

CRAFT	DC SIGNATURE		MLT:	DC SIGNATURE		AC SIGNATURE		
KOHMS	VOLTS		KOHMS	VOLTS		KOHMS	RNGRS	
3500		T-R	3500		T-R	9	YES	T-R
3500	0	T-G	3500	0	T-G	1500		T-G
3500	0	R-G	3500	0	R-G	1500		R-G

CENTRAL OFFICE	BALANCE	LOOP LENGTH = 3400
LINE CKT OK	CAP 100 %	
DIAL TONE OK	LONG 65 DB	

ADDITIONAL INFORMATION

A Channel Unit (CU) is a pair gain system component that is associated with a specific pair gain channel. It is the location on a pair gain system where analog to digital and digital to analog conversions are performed. On a Universal pair gain system, there is one at the COT (Central Office Terminal) and one at the RT (Remote Terminal). On an integrated pair gain system, there is only a channel unit at the RT.

The MLT user should **ALWAYS** retest this line before deciding what action to take.

In many locations, pair gain systems inside and outside are maintained by outside technicians.

**In Southwestern Bell, the decision about where or if to dispatch this condition is made locally.**

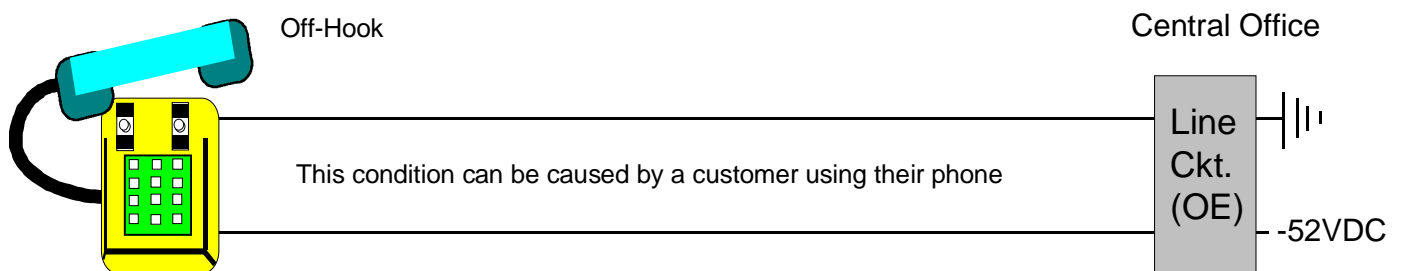
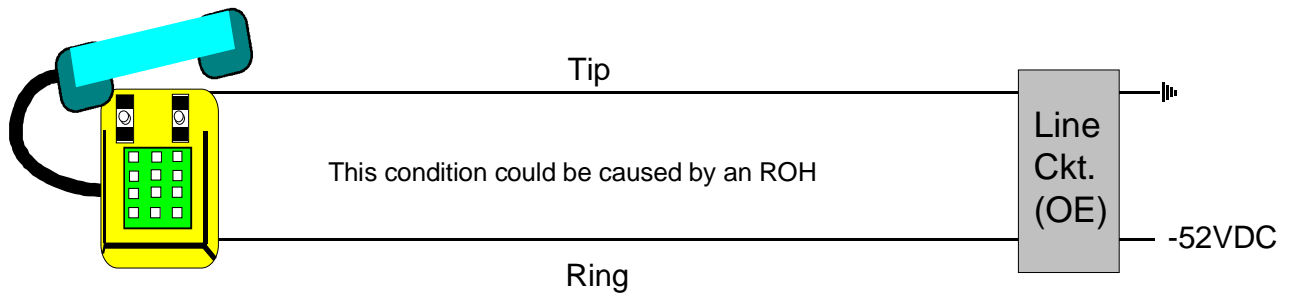
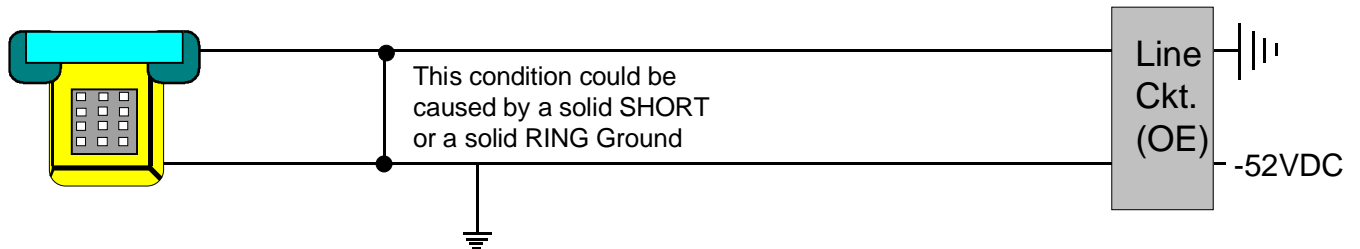
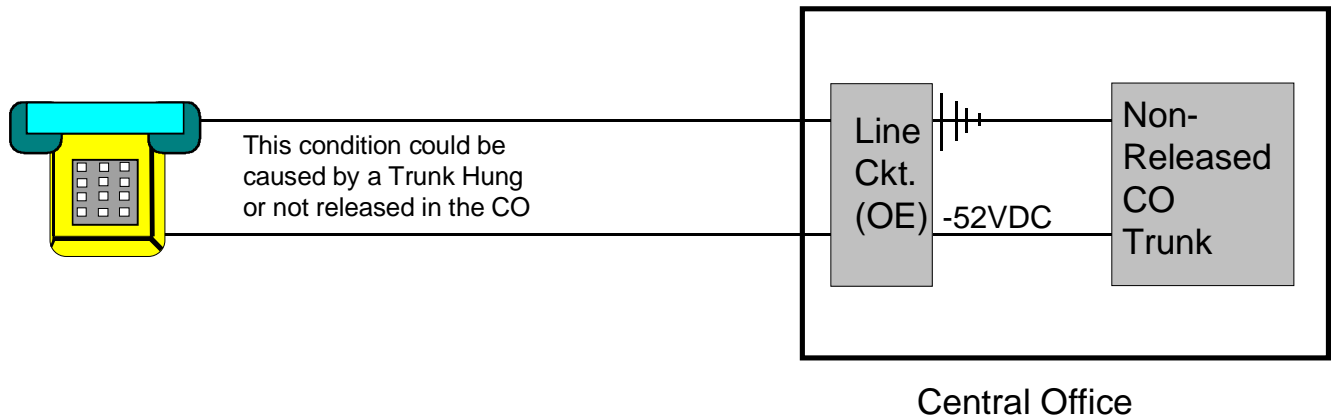
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**MLT**

**Line in Use**

**VER Codes**

## VER 6 -- BUSY-SPEECH



## **VER 6 -- BUSY-SPEECH**

MLT found a LINE IN USE condition and then SPEECH. Testing stopped at this point. To MLT BUSY SPEECH means MLT sees a LINE IN USE condition along with changes occurring on the line. Changes (sounds) can be customers actually talking, customers on hold with music or other sounds, recorded announcements, the Central Office sounder or howler, or even noise.

MLT's program looks for LINE IN USE or BUSY conditions when it is accessing the line in order to not interfere with customer service. MLT is not allowed to kill the CO battery and ground when a LINE IN USE or BUSY condition is found. MLT can never get a valid test result if it is not able to kill CO battery and ground. LINE IN USE is identified by MLT as current flowing on the line at the time of access. Remember current should not flow on a line when the phone is on hook. Sometimes MLT is misled because current can also flow when there is a fault on the line such as a short, ring ground, ROH, trunk hung in the CO, or premise equipment hung.

### MLT SUMMARY (EXAMPLE) VER 6 -- BUSY SPEECH

#### BUSY-SPEECH

#### ADDITIONAL INFORMATION

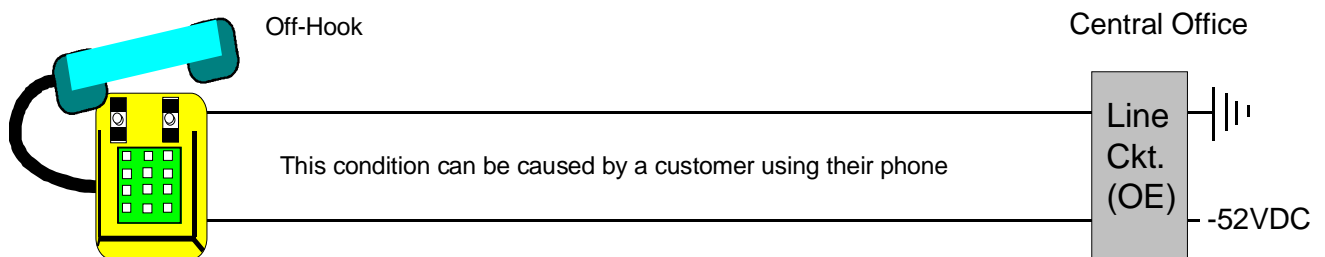
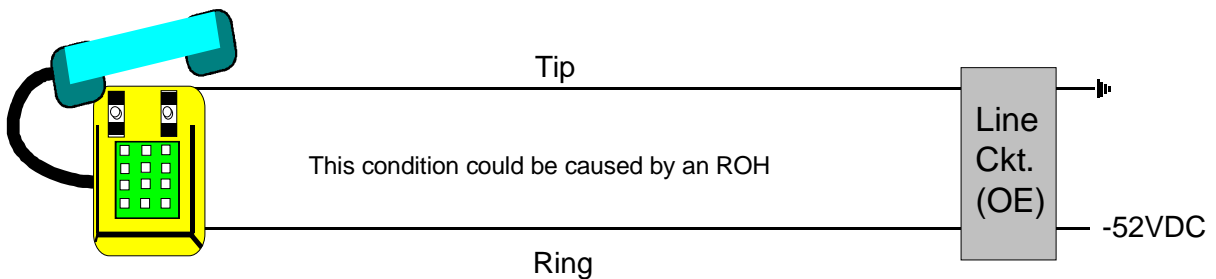
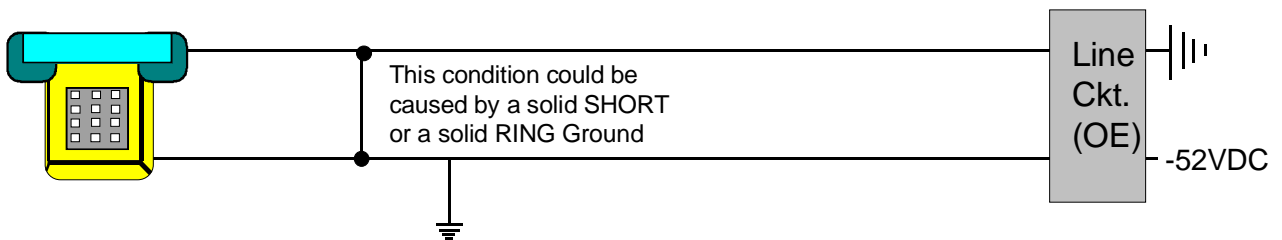
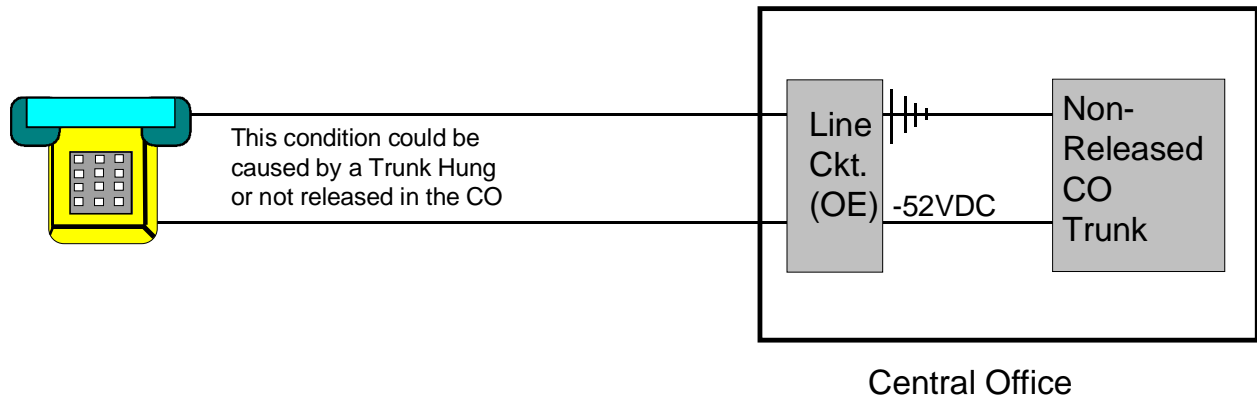
Hold the trouble and retest the line with MLT.

#### **If continuous BUSY-SPEECH test results are received, refer to the following procedure:**

1. Monitor the customer's line. If the customer is heard, drop access.
2. If nothing is heard, remain in the MON mode and call the frame and ask for the coils to be pulled and replaced. This allows the MLT system to kill CO battery.
3. Perform FULL test and look at results.
4. If still BUSY SPEECH or BUSY NO-SPEECH - Dispatch In due to hung trunk in CO.
5. If SHORT or RING GROUND, DISPATCH Out as SHORT or RING GROUND.
6. If SHORT PROBABLY ROH, ask the customer to unplug their equipment from the telephone and power systems for about two minutes and try again.
7. If ROH, handle as ROH. Do not dispatch until all possible efforts to get customer to find ROH have been exhausted.



## VER 61 -- LINE IN USE



**VER 61 -- LINE IN USE**

MLT has determined that the line was being used at the time of testing, but no speech was detected. This result can be caused by a completed telephone circuit and the people are not talking or on hold.

MLT SUMMARY (EXAMPLE) VER: 61

LINE IN USE

BUSY-NO SPEECH

CRAFT	DC SIGNATURE		MLT:	DC SIGNATURE	
KOHMS	VOLTS		KOHMS	VOLTS	
0		T-R	1.28		T-R
0	-6	T-G	0.19	-1	T-G
0	-43	R-G	0.24	-50	R-G

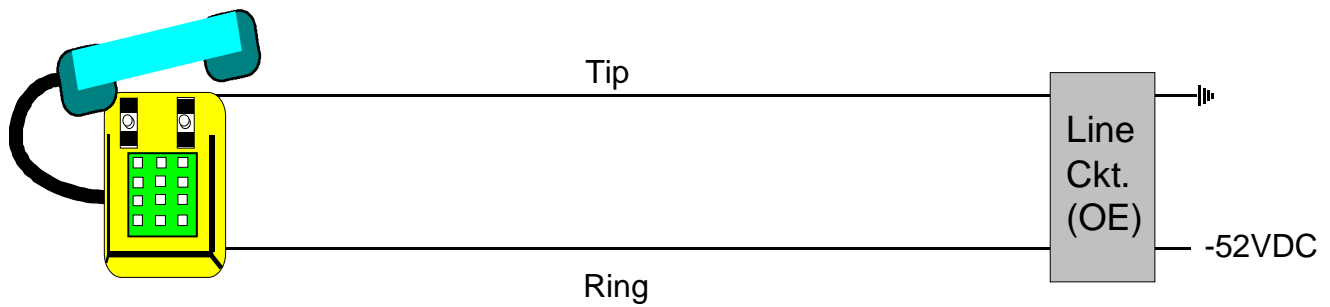
ADDITIONAL INFORMATION

Hold the trouble and retest the line with MLT.

**If continuous BUSY-SPEECH or BUSY NO SPEECH test results are received, refer to the following procedure:**

1. Monitor the customer's line. If the customer is heard, drop access.
2. If nothing is heard, remain in the MON mode and call the frame and ask for the coils to be pulled and replaced. This allows the MLT system to kill CO battery.
3. Perform FULL test and look at results.
4. If still BUSY SPEECH or BUSY NO-SPEECH - Dispatch In due to hung trunk in CO.
5. If SHORT or RING GROUND, DISPATCH Out as SHORT or RING GROUND.
6. If SHORT PROBABLY ROH, ask the customer to unplug their equipment from the telephone and power systems for about two minutes and try again.
7. If ROH, handle as ROH. Do not dispatch until all possible efforts to get customer to find ROH have been exhausted.

**VER LU -- LINE IN USE**



## **VER LU -- LINE IN USE**

This VER code will appear when the subscriber is calling on the line to be tested via ECRS. It is caused by the CSR entering a "Y" in the Line in Use? Field on the ECRS Maintenance Work Item Entry screen.

MLT will automatically attempt a re-test on this line.

### MLT SUMMARY EXAMPLE) VER: LU

LINE IN USE

LINE NOT TESTED - MLT STOPPED

### ADDITIONAL INFORMATION

Always re-test this line, if found in the screening pool.

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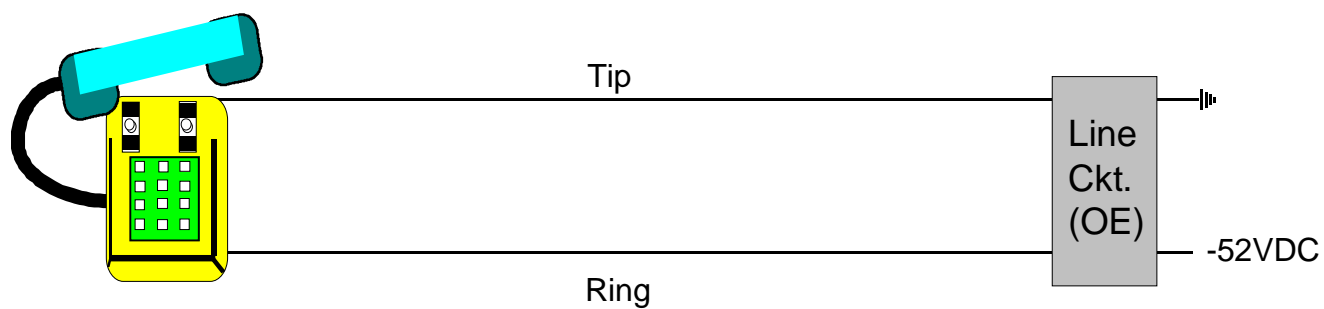
# **MLT**

# **ROH and**

# **Permanent Signal**

# **VER Codes**

**VER 71 -- ROH (Receiver Off Hook)**



## VER 71 -- ROH (Receiver Off Hook)

When MLT tests a line with a short value between .1 and 3.4 KOHMS, it automatically performs the ROH test. If MLT finds an ROH condition it stops testing and presents the results below. The ROH test performs reliable tests that can actually tell when there is physically a Receiver Off Hook.

### MLT SUMMARY (EXAMPLE) VER: 71

ROH

### ADDITIONAL INFORMATION

If the ROH test does not detect an ROH, MLT will present the SHORT PROBABLY ROH test result. This may be in the customer's equipment but will not be a normal receiver off the hook. It will usually be inside the customer's equipment or just a very solid short fault.

#### **MLT's Program Results for Shorts**

##### **SHORT Value Range**

1000 KOHMS to 151 KOHMS

150 KOHMS to 3.5 KOHMS

3.4 KOHMS to .1

< .1 KOHMS

##### **MLT Summary Message**

SHORT MARGINAL

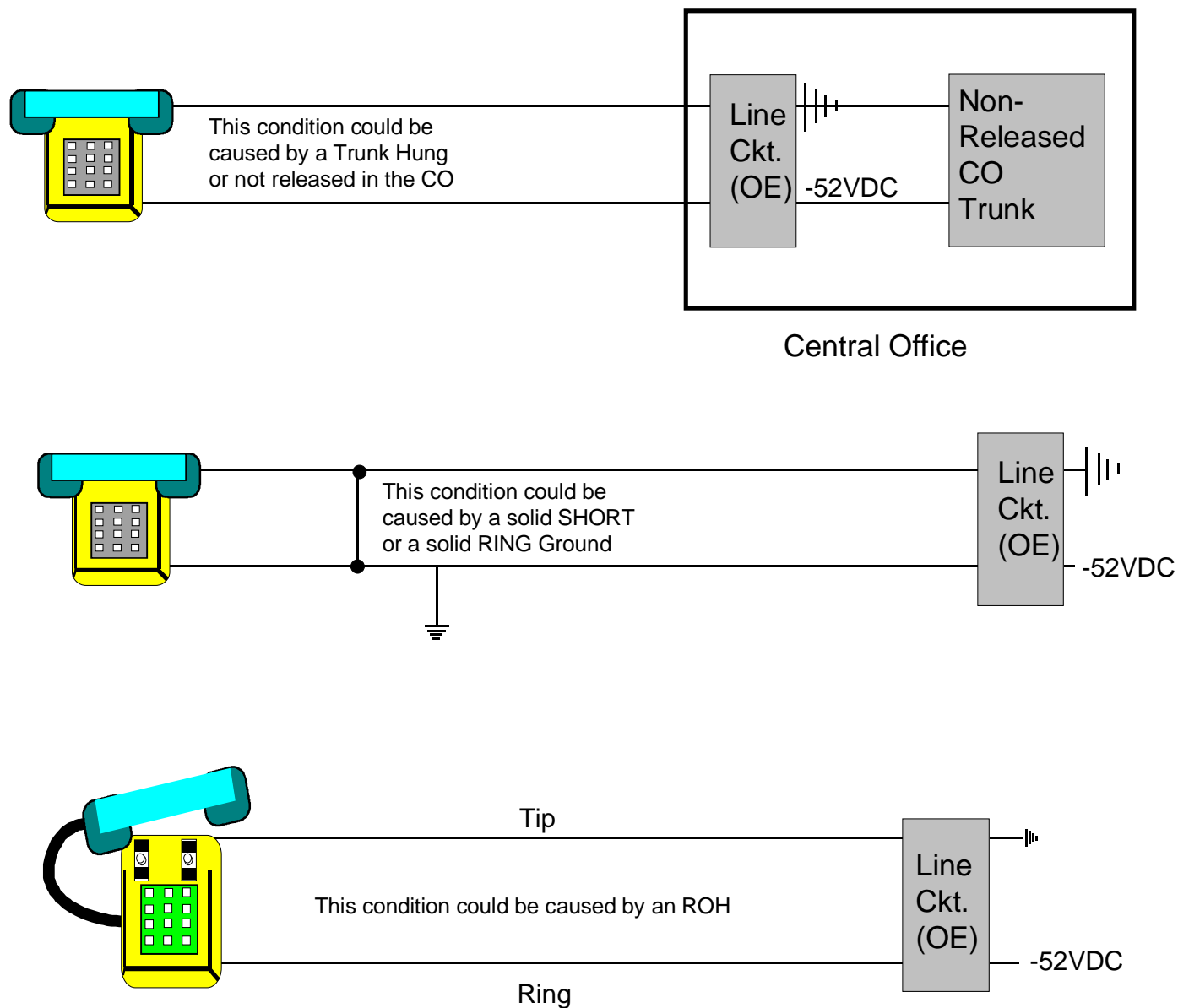
SHORT FAULT

ROH or SHORT PROBABLY ROH

MDF TEST RECOMMENDED



## VER 73 -- LINE IN USE OR PERMANENT SIGNAL



Below are the values MLT finds (along with record conditions described on the facing page) to set VER 73.

MLT: DC SIGNATURE  
KOHMS VOLTS

0 to 3500		T-R
.07 to 1.2	-30 to -75 on one side	T-G
.07 to 1.2	and +15 to -15 on the other	R-G

**VER 73 -- LINE IN USE OR PERMANENT SIGNAL**

MLT decided that the line was busy, but didn't see SPEECH. Next it checks for Permanent Signal or Line In Use conditions. This fault could be any caused by any Line in Use or ROH type condition, but MLT is **NOT** able to describe it correctly due to record conditions.

A PERMANENT SIGNAL is a continuous request for dial tone that MLT is not able to classify in any other way.

**This VER code will occur when:**

MLT finds a severe DC Resistance fault that would ordinarily be described as such but due to equipment or record conditions is not able to perform the tests to confirm ROH, SHORT PROBABLY ROH, etc. Some specific examples are:

- Line matches fault shown on the facing page or is ROH and TV screen TERM field has UNCATALOGED TERM (No ROH test is performed).
- Line matches fault shown on the facing page or is ROH and line has REG, BRIDGE LIFTER, or, UNCATALOGED EQUIP, in the CO field of the TV screen (No ROH test is performed).

MLT SUMMARY (EXAMPLE) VER: 73

POSSIBLE LINE IN USE OR BUSY-NO SPEECH

LINE HIGH AND DRY

POSSIBLE PERMANENT SIGNAL ON LINE

COULD BE FROM ROH OR FAULT

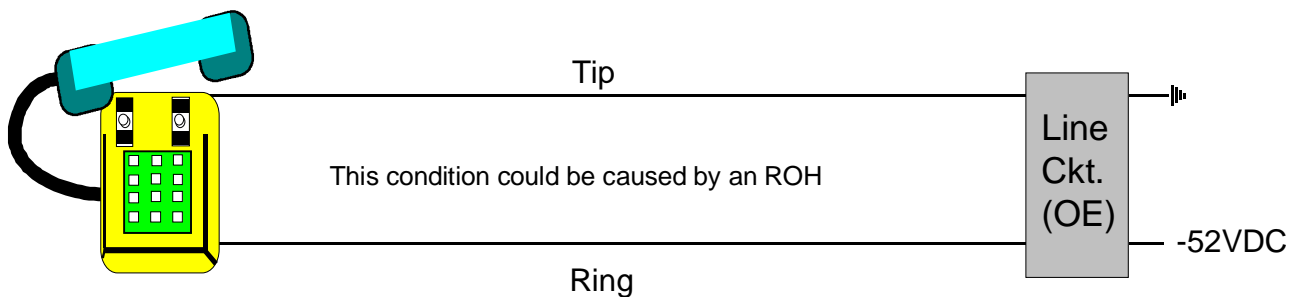
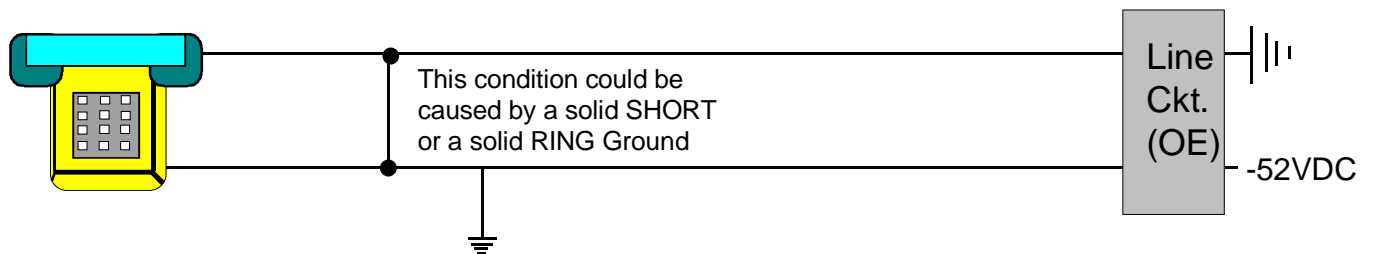
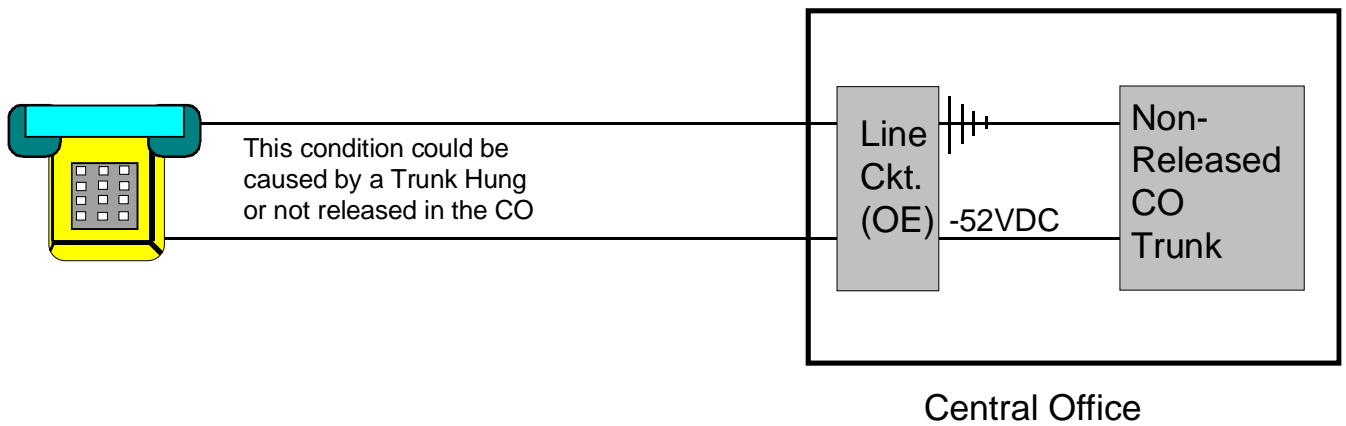
CRAFT KOHMS	DC SIGNATURE VOLTS		MLT: KOHMS	DC SIGNATURE VOLTS	
1		T-R	1000		T-R
0	0	T-G	0.35	0	T-G
0	-38	R-G	0.24	-38	R-G

ADDITIONAL INFORMATION

**The MLT user can try to retest this line using the TV mask and one of the following actions:**

- **Enter T1 in the OVER field of the TV mask** - if the TERM field has UNCATALOGED TERM.
- **Perform MDF sectionalization** - if the CO field has REG, BRIDGE LIFTER, or, UNCATALOGED EQUIP entered.

## VER 74 -- PERMANENT SIGNAL



Below are the values MLT finds (along with record conditions described on the facing page) to set VER 74.

MLT: KOHMS	DC SIGNATURE VOLTS	
.15 to 3.4		T-R
>150	<3	T-G
>150	<3	R-G

**VER 74 -- PERMANENT SIGNAL**

In ESS Central Offices MLT decides that the line is busy, but there is no speech. Next, it checks for PERMANENT SIGNAL and finds it. The PERMANENT SIGNAL is on the line because of a resistive fault or an ROH condition. MLT cannot detect ROH because the line is not ROH testable.

A PERMANENT SIGNAL is a continuous request for dial tone that MLT is not able to classify in any other way.

**This VER code will occur when:**

MLT finds a severe DC Resistance fault that would ordinarily be described as such, but due to equipment or record conditions, is not able to perform the tests to confirm ROH, SHORT PROBABLY ROH, etc. Some specific examples are:

- Line matches fault shown on the facing page or is ROH and TV screen TERM field has UNCATALOGED TERM (No ROH test is performed).
- Line matches fault shown on the facing page or is ROH and line has REG, BRIDGE LIFTER, or, UNCATALOGED EQUIP in the CO field of the TV screen (No ROH test is performed).

MLT SUMMARY (EXAMPLE) VER: 74

PERMANENT SIGNAL  
LINE HIGH AND DRY  
BUSY-NO SPEECH

COULD NOT DO ROH TEST

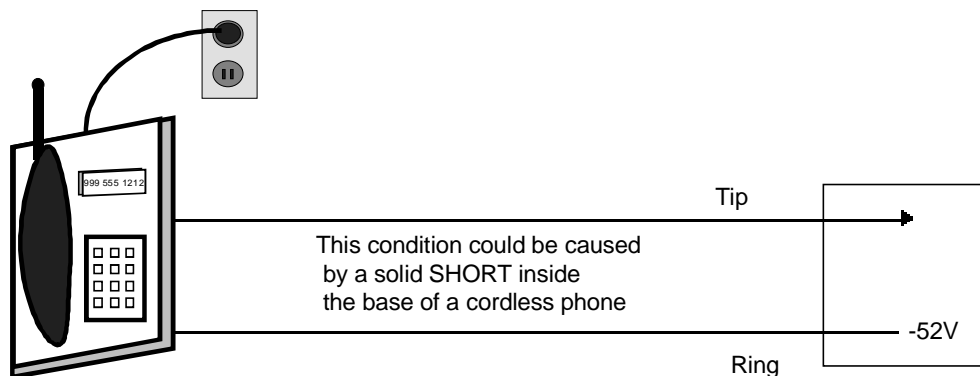
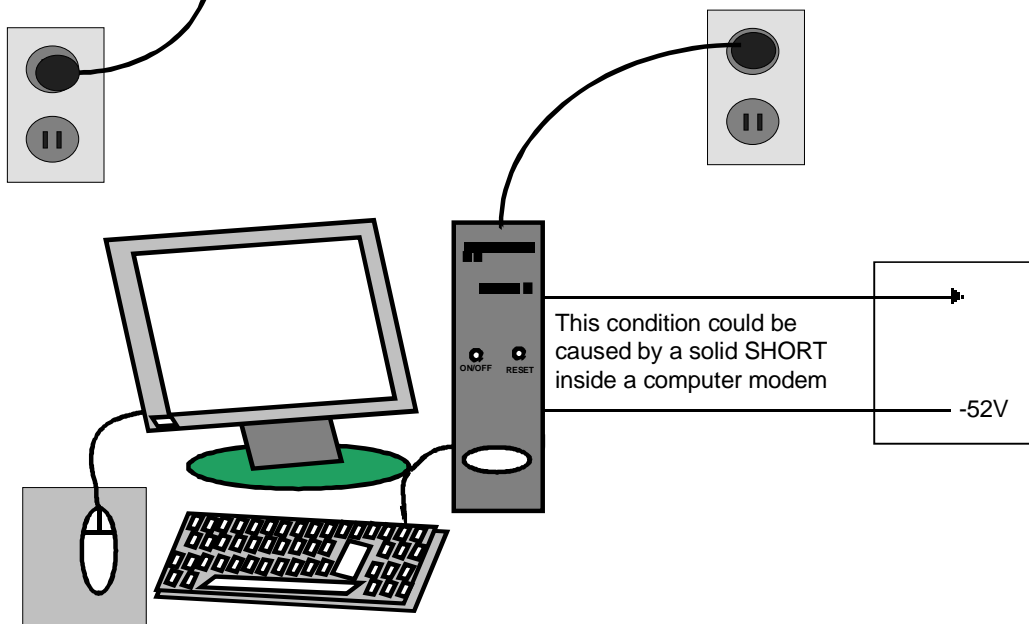
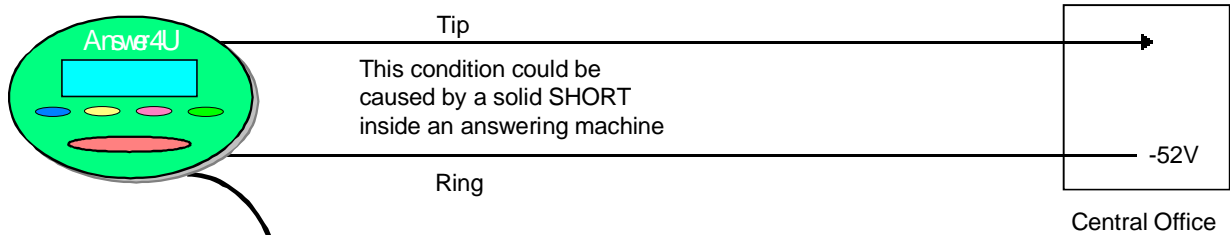
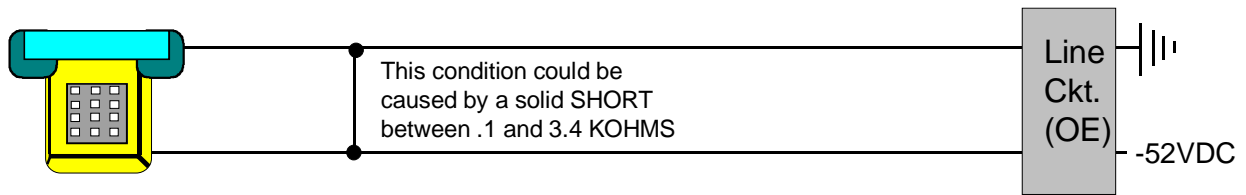
CRAFT KOHMS	DC SIGNATURE VOLTS		MLT: KOHMS	DC SIGNATURE VOLTS	
3		T-R	2.7		T-R
3500	0	T-G	3500	0	T-G
3500	0	R-G	3500	0	R-G

ADDITIONAL INFORMATION

**The MLT user can try to retest this line using the TV mask and one of the following actions:**

- **Enter T1 in the OVER field of the TV mask** - if the TERM field has UNCATALOGED TERM.
- **Perform MDF sectionalization** - if the CO field has REG, BRIDGE LIFTER, or, UNCATALOGED EQUIP entered.

## VER 75 -- SHORT - PROBABLY ROH



**VER 75 -- SHORT - PROBABLY ROH**

This VER code is set, if the MLT DC resistance value T-R is between .1 KOHMS and 3.4 KOHMS, and MLT does not find an ROH condition. If this test doesn't verify an ROH condition, it is not possible for MLT to determine directly whether the trouble is the result of an equipment problem or a short fault. The MLT user should ask the customer to unplug their equipment inside the service location and any connection to AC power, or unplug the telephone line at the Network Interface. This problem is NOT an ROH.

**MLT SUMMARY (EXAMPLE) VER: 75**

VER 75:      SHORT - PROBABLY ROH  
              ATTEMPT TO VERIFY BEFORE DISPATCH

CRAFT KOHMS	DC SIGNATURE VOLTS		MLT: KOHMS	DC SIGNATURE VOLTS	
0		T-R	0.19		T-R
3500	0	T-G	3500	0	T-G
3500	0	R-G	3500	0	R-G

**ADDITIONAL INFORMATION****MLT's Program Results for Shorts****SHORT Value Range**

1000 KOHMS to 151 KOHMS

150 KOHMS to 3.5 KOHMS

3.4 KOHMS to .1

&lt; .1 KOHMS

**MLT Summary Message**

SHORT MARGINAL

SHORT FAULT

ROH or SHORT PROBABLY ROH

MDF TEST RECOMMENDED

This fault can be caused by telephone equipment that uses AC power to answer and/or hold access to a telephone circuit. It can also be caused by any short between .1 and 3.4 KOHMS and MLT does not find an ROH.

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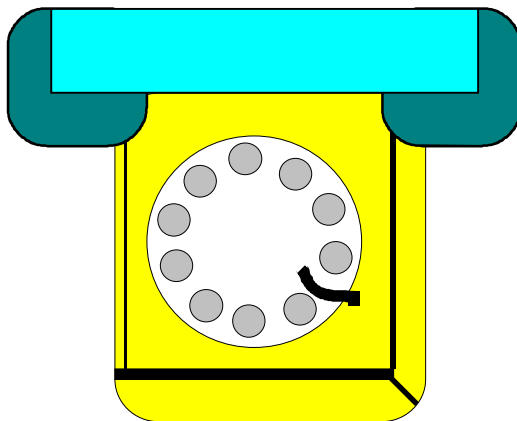
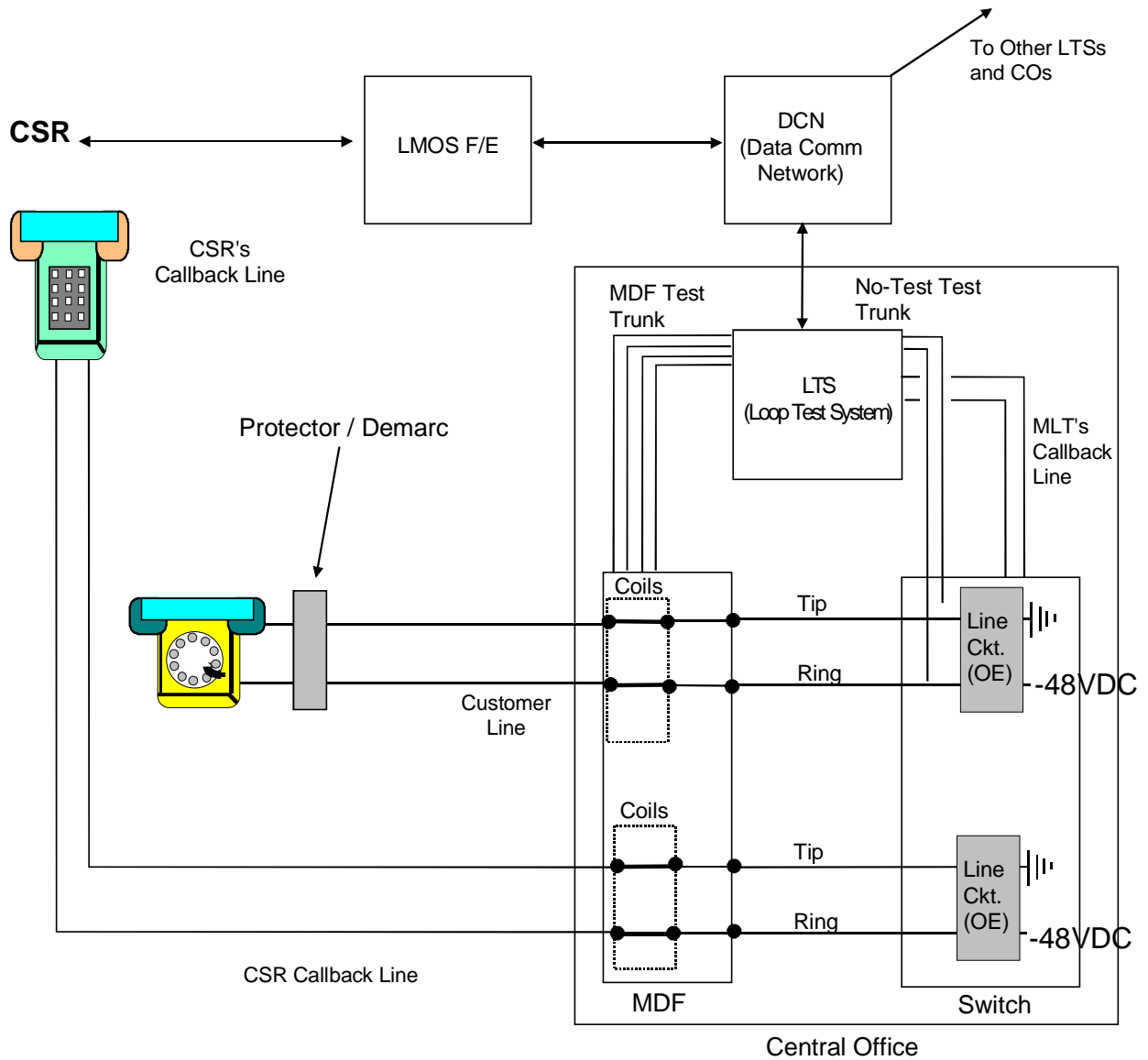
# **MLT**

# **Dial Test Results**

# **VER Codes**



## VER 80 -- DIAL OK



## VER 80 -- DIAL OK

The MLT rotary dial test (DIAL) was run and the results indicate that the dial was working properly. This means that the dial speed was correct (8 to 11 pulses per second), and the percent break was within acceptable range (57 to 64 percent).

### MLT SUMMARY (EXAMPLE) VER: 80

#### DIAL OK

DIAL SPEED OK	10	PPS
BREAK OK	60	%

### ADDITIONAL INFORMATION

The MLT rotary dial test can only be performed with the aid of the customer. This VER code will never appear on an ECRS test result. The MLT TV mask must be used.

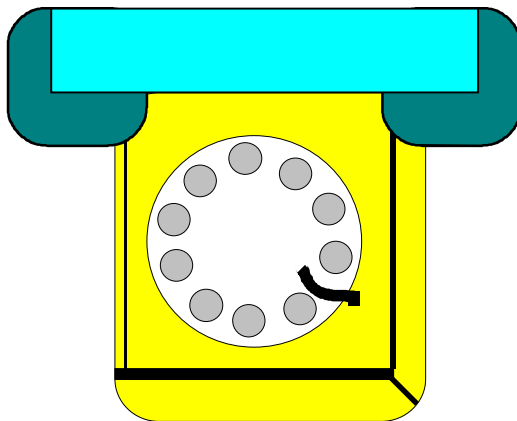
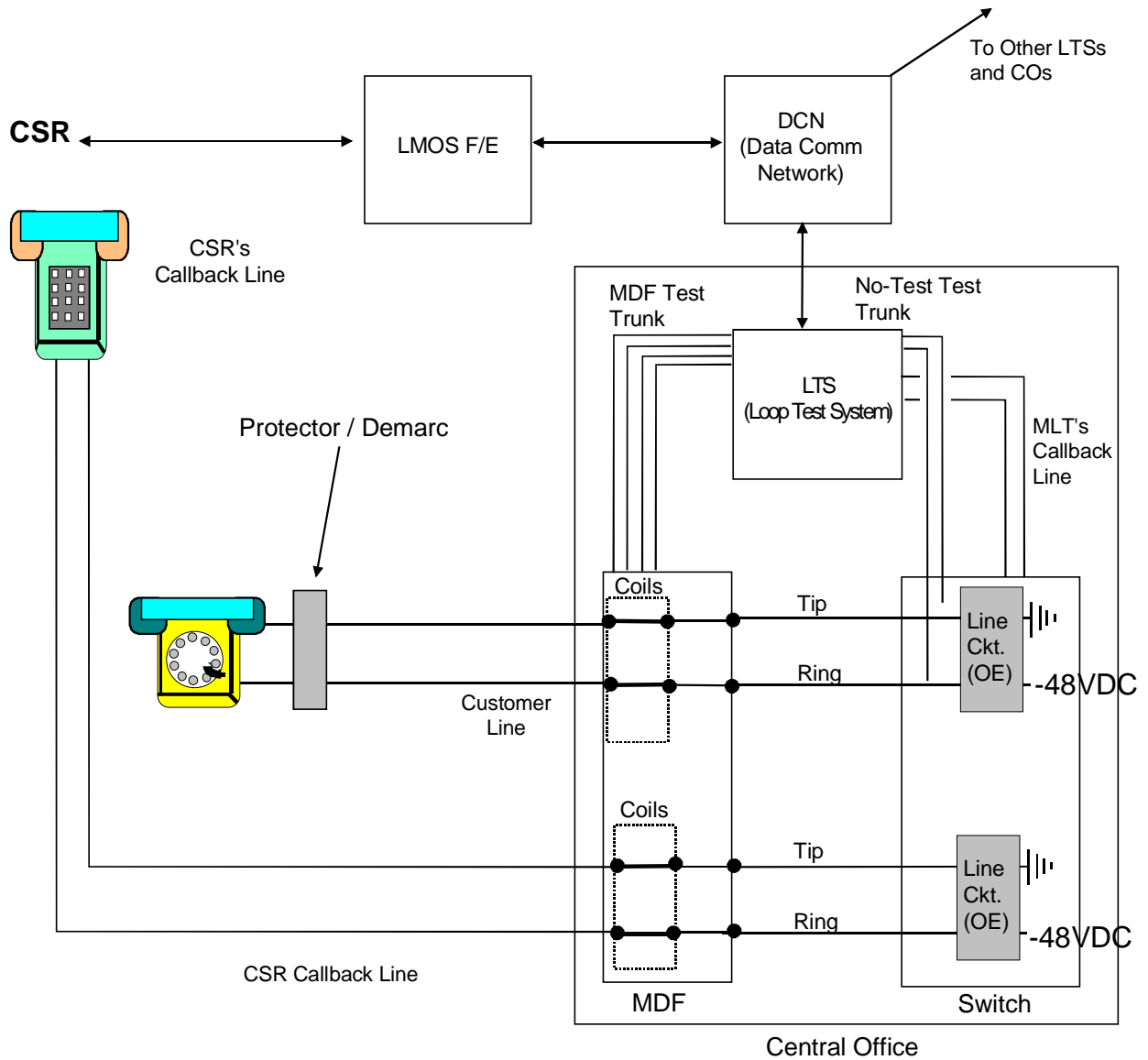
**This procedure is used to find out if the customer's rotary dial is working properly.**

#### **The procedure for using DIAL is:**

1. Establish a talk path with the customer either using the normal telephone network or using a callback path through MLT and the RING request.
2. Explain to the customer that you want to help them determine if their rotary dial is functioning properly. They should listen on the line for a brief period of dial tone. After they hear the dial tone, dial a "0" (zero) and you will be able to talk with them immediately after they dial the "0".
3. Enter DIAL in the REQ field and enter.
4. Listen for the brief dial tone and the customer dialing the "0".
5. Analyze the results of the DIAL request.
6. The results of a DIAL request tell you whether the dial is OK or not.
7. Whether the dial speed is OK or not.
8. What the speed is (Correct dial speed is 8 to 11 Pulses Per Second (PPS)).
9. Does the break test OK?
10. What is the percent break? (Correct is 57% to 64%)

Use the DIAL request when you suspect a problem with the telephone set's rotary dial. The trouble report would be "CAN'T CALL OUT" or "GETS WRONG NUMBERS".

## VER 81 -- DIAL NOT OK



**VER 81 -- DIAL NOT OK**

The MLT rotary dial (DIAL) test has been run and a problem with the dial has been detected. The problem could be with the dial speed (correct dial speed is 8 to 11 pulses per second), or the percent break (the correct range for the break is 57 to 64 percent). Remember, however, that the percent break may occasionally fall within this range and the summary message will still say DIAL NOT OK. This is because the break that is reported in the test results is an average for all 10 pulses. If even one fails, MLT will report that the dial was not OK, but the average break may still fall within the acceptable range.

This result can be caused by the customer not dialing a ZERO. If the result is VER 81, perform the test again and ask the customer to be sure to dial a ZERO. Any fault description other than INCORRECT NUMBER OF PULSES indicates a bad rotary dial.

MLT SUMMARY (EXAMPLE) VER: 81**DIAL NOT OK**

DIAL SPEED OK	10	PPS
INCORRECT BREAK	72	%

ADDITIONAL INFORMATION

The MLT rotary dial test can only be performed with the aid of the customer. This VER code will never appear on an ECRS test result. The MLT TV mask must be used.

**The procedure for using DIAL is:**

1. Establish a talk path with the customer either using the normal telephone network or using a callback path through MLT and the RING request.
2. Explain to the customer that you want to help them determine if their rotary dial is functioning properly. They should listen on the line for a brief period of dial tone. After they hear the dial tone, dial a "0" (zero) and you will be able to talk with them immediately after they dial the "0".
3. Enter DIAL in the REQ field and enter.
4. Listen for the brief dial tone and the customer dialing the "0".
5. Analyze the results of the DIAL request.
6. The results of a DIAL request tell you whether the dial is OK or not.
7. Whether the dial speed is OK or not.
8. What the speed is (Correct dial speed is 8 to 11 Pulses Per Second (PPS)).
9. Does the break test OK?
10. What is the percent break? (Correct is 57% to 64%)

Use the DIAL request when you suspect a problem with the telephone set's rotary dial. The trouble report would be "CAN'T CALL OUT" or "GETS WRONG NUMBERS".

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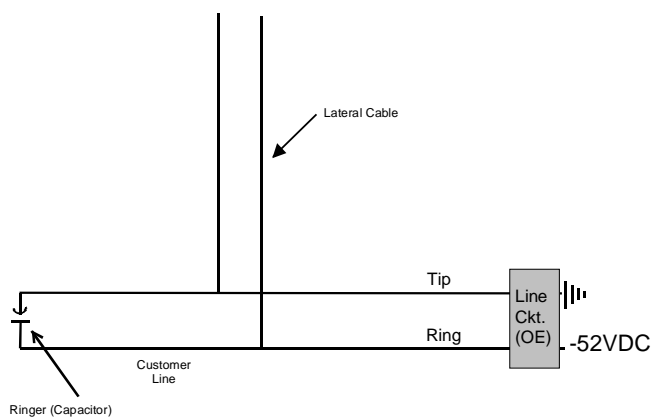
# **MLT**

# **Miscellaneous**

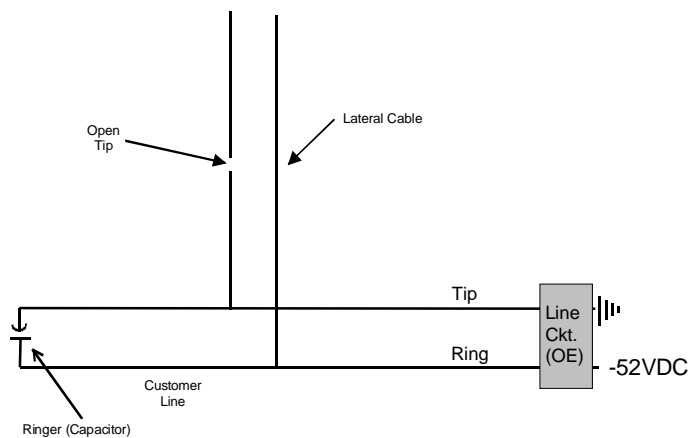
# **VER Codes**

## VER 93 -- POOR BALANCE

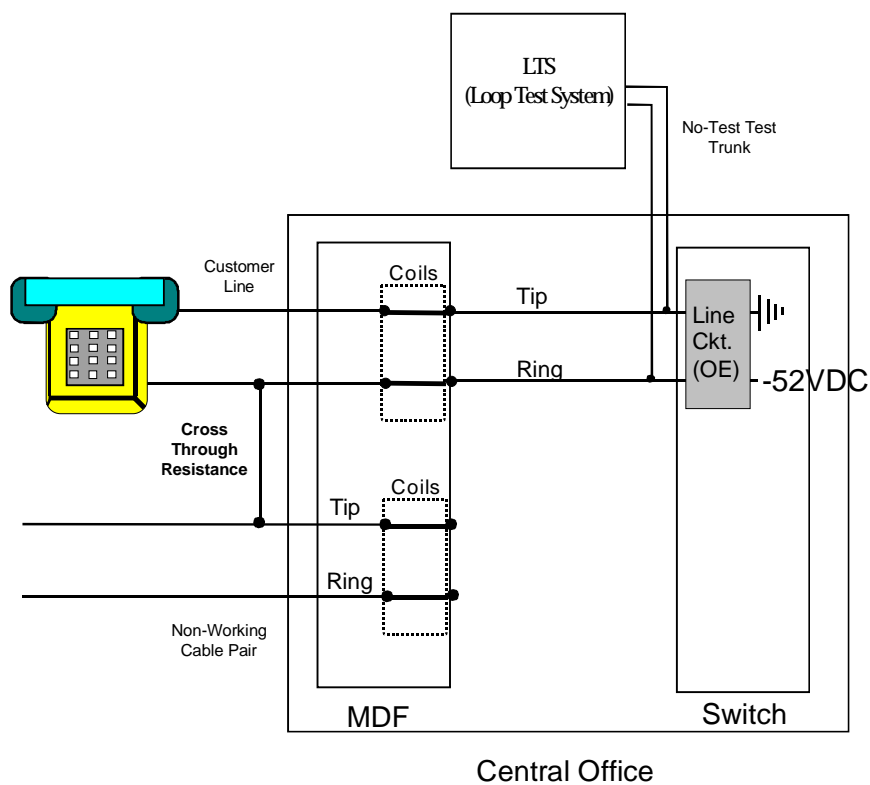
## Line OK



## Line Unbalanced - Lateral Cable Pair



## Line Unbalanced - Crossed to a Non-Working Pair



**VER 93 -- POOR BALANCE**

MLT detects no major faults on the line except POOR LONGITUDINAL BALANCE (below 40 DB), and POOR CAPACITIVE BALANCE (less than 95 percent). This condition could be caused by one of the following:

- capacitance imbalance due to cable bridge tap
- capacitance imbalance due to cross to a non-working cable pair
- ringer or other termination improperly connected to ground

MLT SUMMARY (EXAMPLE) VER: 93

LONGITUDINAL BAL POOR 35 DB

CAPACITIVE BALANCE POOR 85%

CRAFT KOHMS	DC SIGNATURE VOLTS		MLT: KOHMS	DC SIGNATURE VOLTS		AC SIGNATURE KOHMS	RNGRS	
3500		T-R	3500		T-R	9	YES	T-R
3500	0	T-G	3500	0	T-G	554		T-G
3500	0	R-G	3500	0	R-G	870		R-G

CENTRAL OFFICE	BALANCE
LINE CKT OK	CAP 85 %
DIAL TONE OK	LONG 35 DB

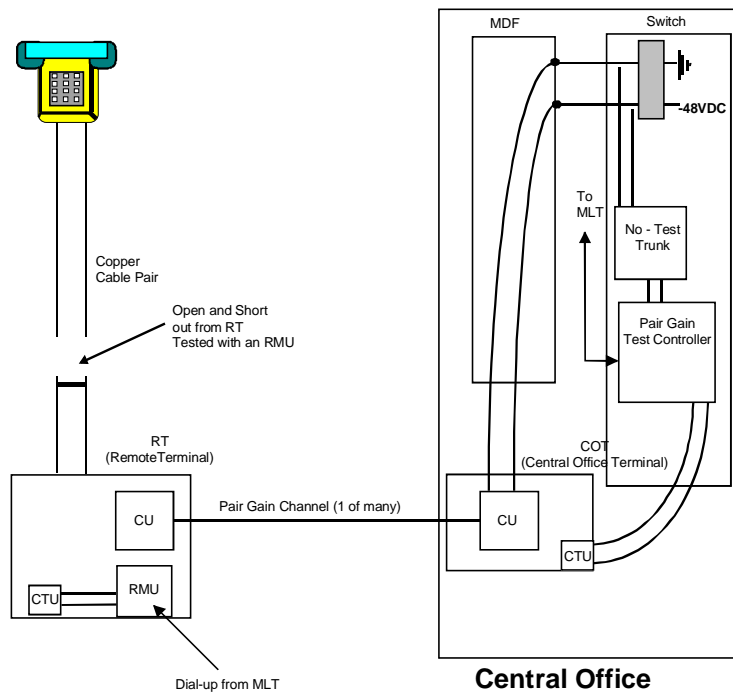
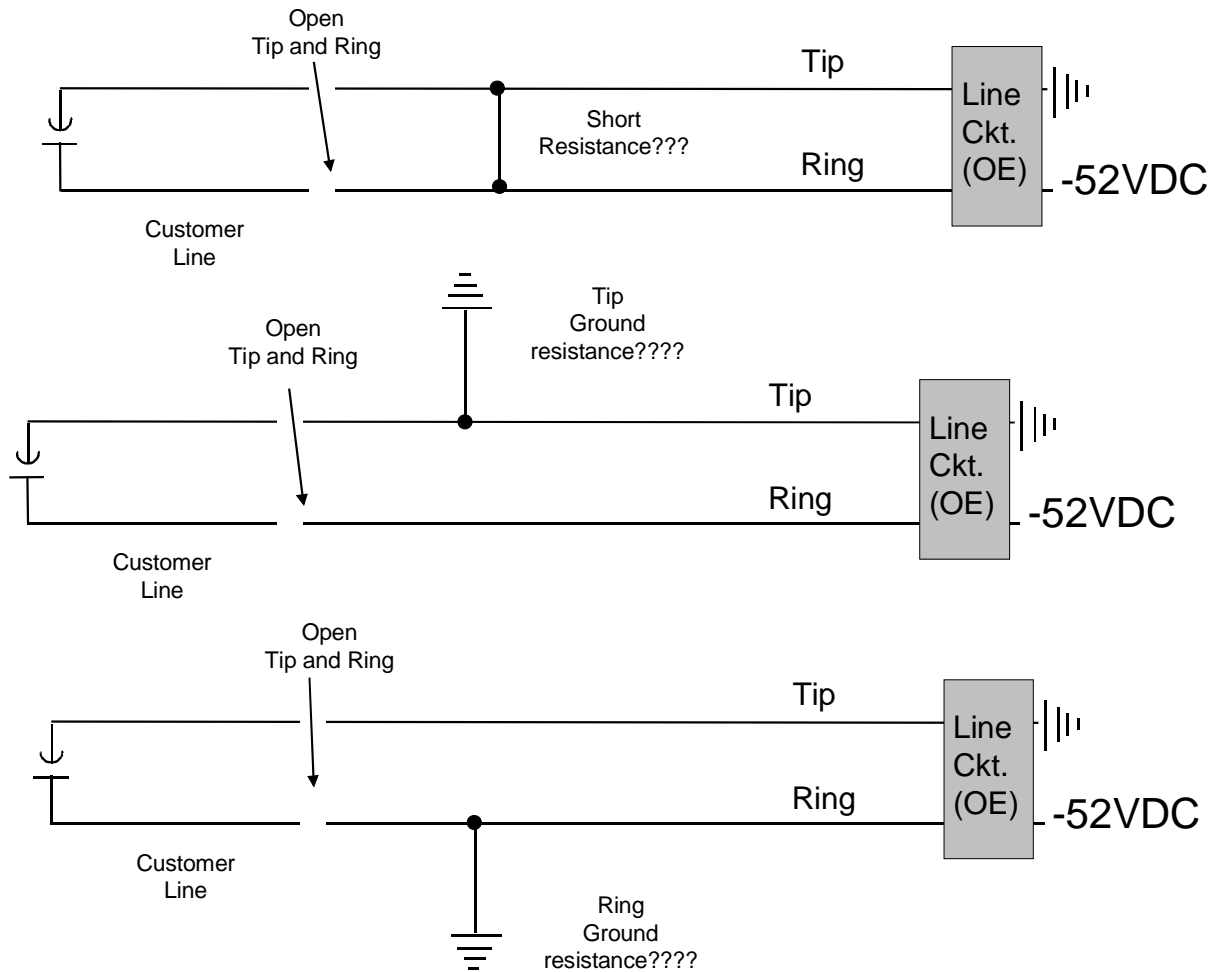
ADDITIONAL INFORMATION

This is a dispatchable trouble.

The customer is likely to report noise, hum, and problems with sending and receiving data with a computer modem.



### VER 95 -- RESISTIVE FAULT AND OPEN



**VER 95 -- RESISTIVE FAULT AND OPEN**

MLT has detected one or more DC resistances (short and/or grounds) below 1000 KOHMS. In addition, MLT has detected an open on the line. Because of the effect of the resistive fault(s) on the line, MLT may not be able to tell if the open is in or out of the central office. The short and/or ground(s) must be between the CO and the open. MLT cannot see beyond an open.

MLT SUMMARY (EXAMPLE) VER: 95

## OPEN-CANNOT MEASURE DISTANCE

\* DUE TO DC FAULTS ON LINE

HARD GROUND

R-G

CRAFT KOHMS	DC SIGNATURE VOLTS		MLT: KOHMS	DC SIGNATURE VOLTS		AC SIGNATURE KOHMS	
3500		T-R	3500		T-R	357	T-R
3500	0	T-G	3500	0	T-G	305	T-G
3500	0	R-G	60	0	R-G	300	R-G

CENTRAL OFFICE  
LINE CKT OK  
DIAL TONE OK

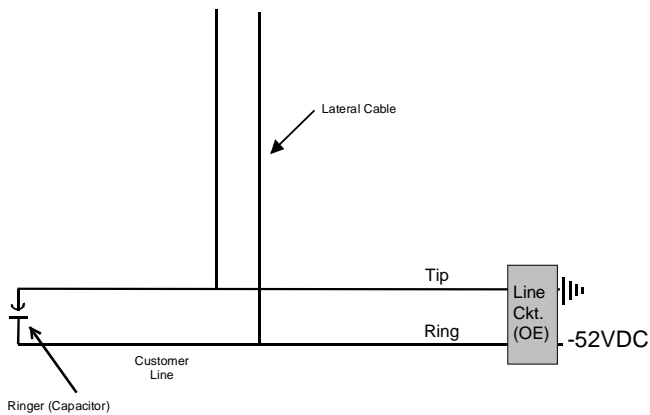
ADDITIONAL INFORMATION

It is likely that both troubles are related. You can assume the faults are both out of the C.O.

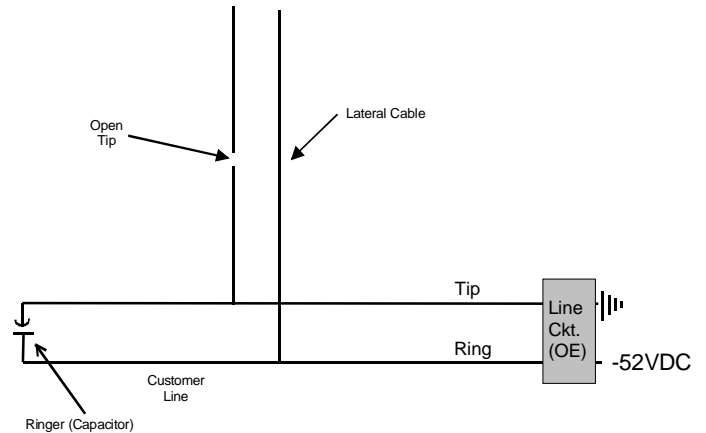
If the line is served by a Digital Loop Carrier System (DLCS) and is tested by an RMU (Remote Maintenance Unit), MLT makes its measurements from the RT (Remote Terminal) of the DLCS. This fault can be assumed to be at or beyond RT.

## VER 96 -- MARGINAL BALANCE

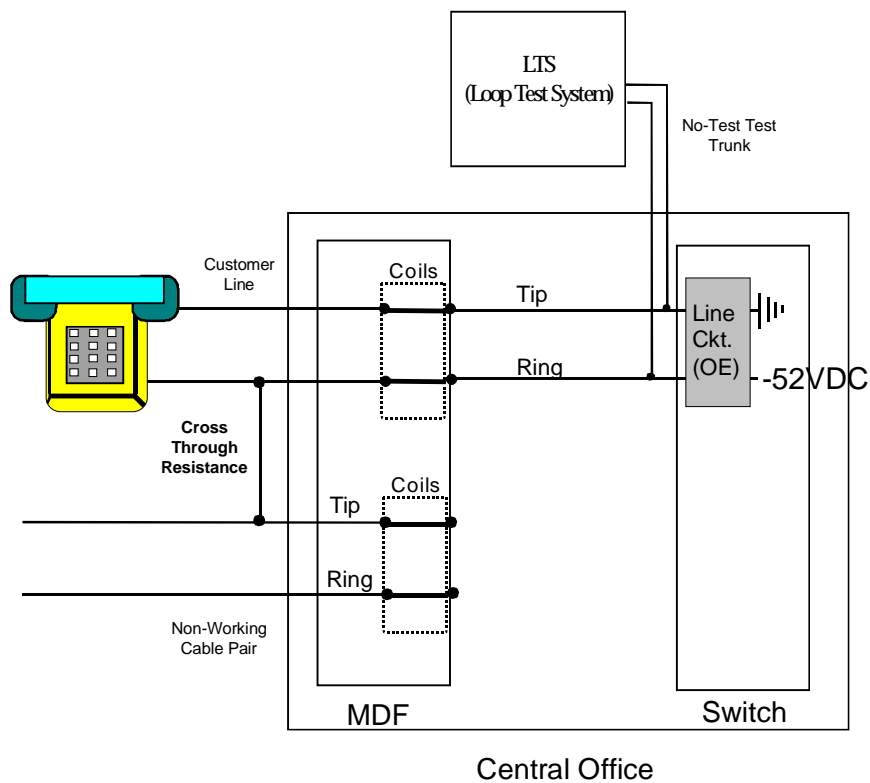
## Line OK



## Line Unbalanced - Lateral Cable Pair



## Line Unbalanced - Crossed to a Non-Working Pair



**VER 96 -- MARGINAL BALANCE**

MLT has detected no major faults on the line, but the longitudinal balance was marginal (less than 60 DB but greater than 40 DB ).

MLT SUMMARY (EXAMPLE) VER: 96

LONGITUDINAL BAL MARGINAL 45 DB

CRAFT	DC SIGNATURE		MLT:	DC SIGNATURE		AC SIGNATURE		
KOHMS	VOLTS		KOHMS	VOLTS		KOHMS	RNGRS	
3500		T-R	3500		T-R	9	YES	T-R
3500	0	T-G	3500	0	T-G	477		T-G
3500	0	R-G	3500	0	R-G	611		R-G

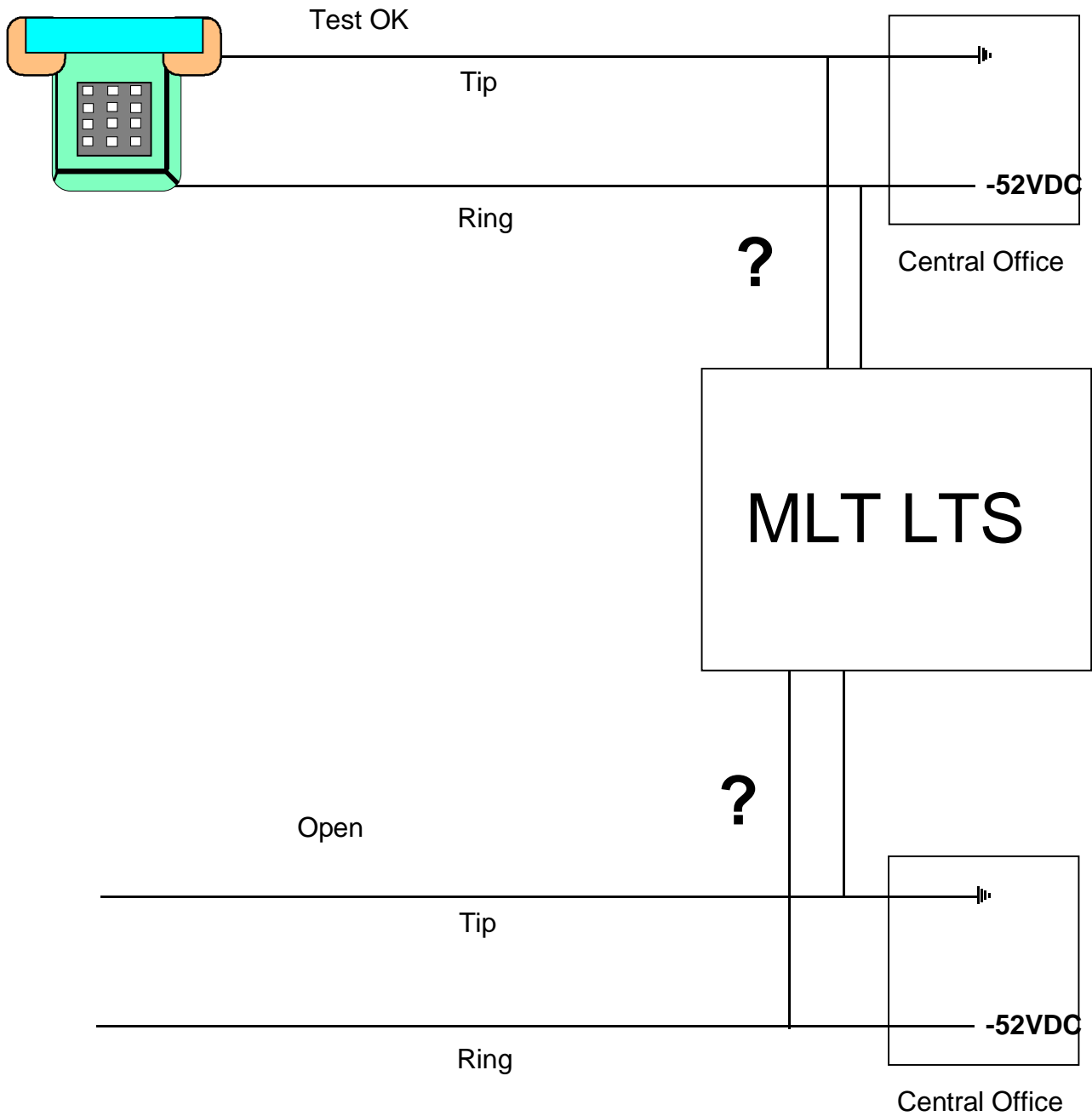
CENTRAL OFFICE	BALANCE
LINE CKT OK	CAP 100 %
DIAL TONE OK	LONG 45 DB

ADDITIONAL INFORMATION

The marginal balance is generally not a severe problem. However, depending on the customer report, work, load, and local policy, you can choose whether or not to dispatch someone on this trouble.

The customer is likely to report noise, hum, and problems with sending and receiving data with a computer modem.

VER 98 -- ANALYSIS OF FULL RESULTS NEEDED



**VER 98 -- ANALYSIS OF FULL RESULTS NEEDED**

This VER code condition is a condition set when MLT does not identify or set any VER code conditions in testing. As a default, VER 98 is displayed to the user with the messages explaining that the detailed results should be examined. One condition that might commonly set this VER code is the case where the line is an UNCATALOGED TERMINATION. When this entry is in the TERM field of the TV mask, MLT cannot identify any AC Signature condition including Open or OK. In this case, MLT does not know what the AC signature should look like and does not attempt to classify the condition on the line. Instead it leaves the analysis up to the user. The user can analyze the results and act accordingly or place T1 in the OVER field of the TV mask and retest.

The summary messages and the detailed results should provide the necessary information about the trouble.

MLT SUMMARY (EXAMPLE) VER: 98

EXAMINE DETAILED TEST RESULTS  
AND DETERMINE FURTHER ACTION  
AC SIGNATURE NOT DEFINED

CRAFT	DC SIGNATURE		MLT:	DC SIGNATURE		AC SIGNATURE		
KOHMS	VOLTS		KOHMS	VOLTS		KOHMS	RNGRS	
3500		T-R	3500		T-R	9	YES	T-R
3500	0	T-G	3500	0	T-G	1500		T-G
3500	0	R-G	3500	0	R-G	1500		R-G

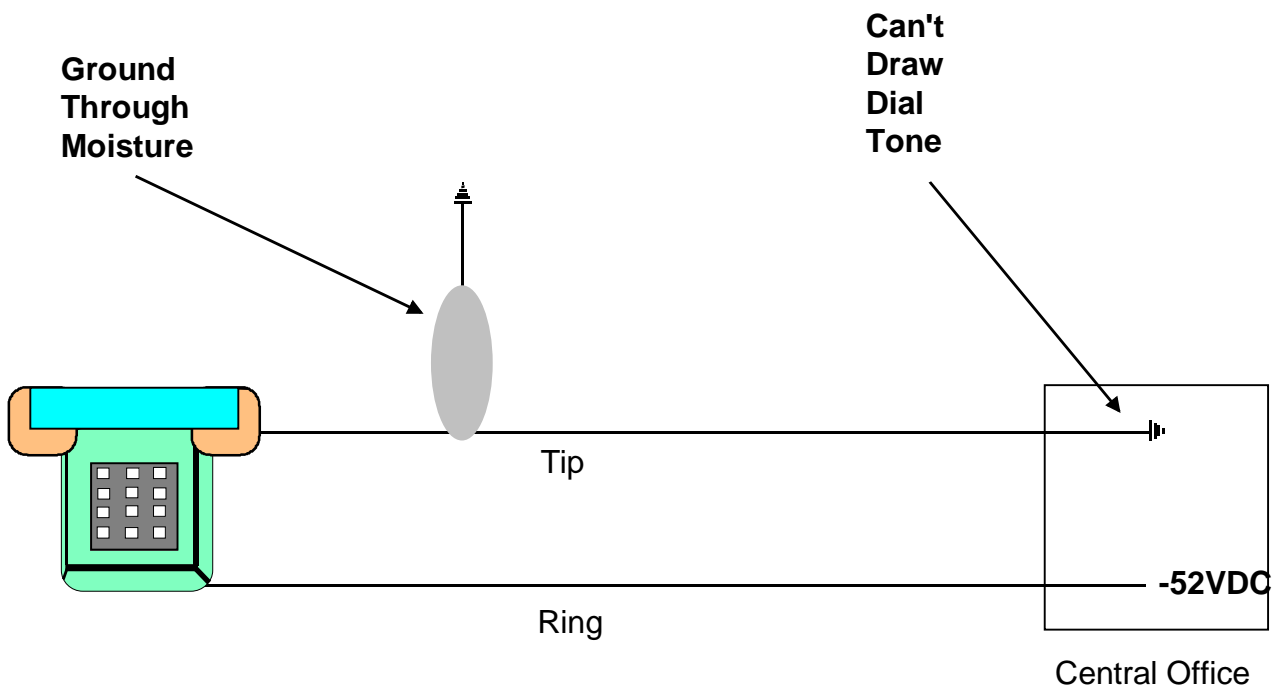
  

CENTRAL OFFICE	BALANCE	
LINE CKT OK	CAP 100 %	LOOP LENGTH = 17000 FT
DIAL TONE OK	LONG 65 DB	

**ADDITIONAL INFORMATION**

VER 98 is set because no VER condition is detected. There will be summary messages to indicate what you should look at in the detailed test results to identify the condition on the line. This means that you should examine the DC and AC signatures and compare them against known valid signatures. Also look at other information such as balance and central office information to identify any particular pattern. Sometimes there are no test results or only incomplete test results. This situation could be due to premature termination of testing. A good suggestion in this case would be to retest the line in an attempt to get more complete results.

## VER 99 -- MULTIPLE FAULTS DETECTED



**VER 99 -- MULTIPLE FAULTS DETECTED**

This VER code condition is used when MLT finds problems relating to more than one VER code. The summary messages and the detailed results will provide the necessary information about the trouble.

In the example below, two independent VER code conditions are set:

- VER 24 - Swinging Resistance Marginal
- VER 33 - Can't Break Dial Tone.

VER 99 - is displayed.

**MLT SUMMARY (EXAMPLE) VER: 99**

SWINGING TROUBLE  
VERY LIGHT GROUND  
CANT BREAK DIAL TONE

CRAFT KOHMS	DC SIGNATURE VOLTS		MLT: KOHMS	DC SIGNATURE VOLTS		AC SIGNATURE KOHMS	RNGRS	
3500		T-R	3500		T-R	9	YES	T-R
518	0	T-G	560	0	T-G	225		T-G
3500	0	R-G	3500	0	R-G	354		R-G

CENTRAL OFFICE  
LINE CKT OK  
CANT DRAW DIAL TONE

**ADDITIONAL INFORMATION**

When VER 99 is set, the summary messages should provide enough information to identify the problems. There is such a wide range of conditions that could cause VER 99 that it is not really practical to list the known ones here.

The MLT user should always retest a line that tests VER 99. The customer's line should also be investigated for possible suspension for non-payment.



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# **MLT Test Equipment VER Codes**

## VER B0 -- TEST NOT MADE

MLT has attempted to test a line but was not successful due to busy system equipment.

VER B0 is set in the following cases:

- Office Overflow
- Time-out in testing
- Time-out in access
  
- Couldn't access the line because one of the following pieces of MLT test equipment was not available:
  - dialers
  - busy detectors
  - trunks (MLT or unigauge)
  - test ports

### MLT SUMMARY (EXAMPLE) VER: B0

OFFICE OVERFLOW

TEST EQUIPMENT BUSY

TIME OUT IN ACCESS

### ADDITIONAL INFORMATION

If this condition occurs, the most appropriate action would be to retest the line and get complete test results.

This is usually a temporary condition. If, however, this VER code continues to appear over and over, it could indicate a more widespread problem. **In this case, notify someone responsible for MLT system maintenance.**

## VER B1 -- TEST NOT MADE

MLT has attempted to test a line but was not successful due to busy system equipment.

VER B1 occurs in the following situation:

- No test package available

### MLT SUMMARY (EXAMPLE) VER: B1

TEST NOT MADE

\* NO TEST PACKAGE AVAILABLE

### ADDITIONAL INFORMATION

If this condition occurs, the most appropriate action would be to retest the line and get complete test results.

This is usually a temporary condition. If, however, this VER code continues to appear over and over, it could indicate a more widespread problem. **In this case, notify someone responsible for MLT system maintenance.**

## VER B2 -- TEST EQUIPMENT BUSY - SANITY OR DIAGNOSTICS IN PROGRESS

MLT has attempted to test a line but was not successful due to busy system equipment.

VER B2 occurs in the following situations:

- Sanity in progress
- Diagnostics in progress

### MLT SUMMARY (EXAMPLE) VER: B2

TEST EQUIPMENT BUSY

SANITY OR DIAG IN PROGRESS

### ADDITIONAL INFORMATION

If this condition occurs, the most appropriate action would be to retest the line at a later time.

This is a normal maintenance process that occurs every evening. It can occur at any time, if there is a problem.

This is usually a temporary condition. If, however, this VER code continues to appear over and over, it could indicate a more widespread problem. **In this case, notify someone responsible for MLT system maintenance.**

## VER B3 -- TEST EQUIPMENT BUSY - SIMULTANEOUS TEST REQUEST MADE

MLT has attempted to test a line but was not successful due to busy system equipment.

VER B3 occurs when another test request was made simultaneously for the same telephone number.

### MLT SUMMARY (EXAMPLE) VER: B3

\*999 - 555 - 1234 IS ALREADY ACCESSED BY THE SYSTEM  
ONLY 1 TEST TRUNK ACCESS PERMITTED FOR A TN

### ADDITIONAL INFORMATION

If this condition occurs, the most appropriate action would be to retest the line at a later time.

This happens most often, when the MLT user accidentally holds the enter key down too long when performing a test.

This is usually a temporary condition. If, however, this VER code continues to appear over and over, it could indicate a more serious problem. **In this case, notify someone in your center. It is probably a problem with your keyboard or computer.**

## VER B4 -- TEST EQUIPMENT OUT OF SERVICE

VER B4 occurs when the MLT LTS (Loop Test System) is out of service and cannot accept test requests.

### MLT SUMMARY (EXAMPLE) VER: B4

TEST EQUIPMENT OUT OF SERVICE

### ADDITIONAL INFORMATION

If this condition occurs, the most appropriate action would be to retest the line at a later time.

This is usually a temporary condition. If, however, this VER code continues to appear over and over, it could indicate a more widespread problem. **In this case, notify someone responsible for MLT system maintenance.**

## VER B5 -- PAIR GAIN ACCESS EQUIPMENT BUSY

MLT has attempted to test a line but was not successful due to busy system equipment.

VER B5 occurs on loops equipped with SLC-96. This VER code is caused by pair gain test access system not being available.

### MLT SUMMARY (EXAMPLE) VER: B5

TEST EQUIPMENT BUSY

\*PAIR GAIN ACCESS EQUIPMENT BUSY

### ADDITIONAL INFORMATION

If this condition occurs, the most appropriate action would be to retest the line at a later time.

This is usually a temporary condition. If, however, this VER code continues to appear over and over, it could indicate a more widespread problem. **In this case, notify someone responsible for MLT system maintenance.**



## VER B6 -- DOWNLOAD IN PROGRESS

MLT has attempted to test a line but was not successful due to busy system equipment.

VER B6 occurs when a test request is made while a maintenance process called downloading is in progress. A DOWNLOAD is a process where computer software data is being transferred from the main MLT computer called the DCN (Data Communications Network) to the local Central Office MLT test system called the LTS (Loop Test System).

### MLT SUMMARY (EXAMPLE) VER: B6

DOWNLOAD IN PROGRESS  
WAIT ONE MINUTE THEN TRY AGAIN

### ADDITIONAL INFORMATION

If this condition occurs, the most appropriate action would be to retest the line at a later time.

This is usually a temporary condition. If, however, this VER code continues to appear over and over, it could indicate a more widespread problem. **In this case, notify someone responsible for MLT system maintenance.**

## VER B7 -- TEST EQUIPMENT BUSY

VER B7 is returned when the switch cannot complete a test request because resources are unavailable from:

- #5ESS Switch Module (SM)
- Protocol Handler (PH)
- Integrated Service Line Unit (ISLU)
- Integrated Services Test Function (ISTF)
- Loop Testing System (LTS)
- Directly Connected test Unit (DCTU).

### MLT SUMMARY (EXAMPLE) VER: B7

LTS UNAVAILABLE

### ADDITIONAL INFORMATION

If this condition occurs, the most appropriate action would be to retest the line at a later time.

This is usually a temporary condition. If, however, this VER code continues to appear over and over, it could indicate a more widespread problem. **In this case, notify someone responsible for MLT system maintenance.**

**VER BA -- NO DCTU PORT AVAILABLE\***

**VER BB -- DCTU NOT AVAILABLE\***

**VER BC -- NO GDXC AVAILABLE\***

**VER BD -- NO MTB AVAILABLE\***

**VER BE -- NO MTIB AVAILABLE\***

**VER BF -- NO MA PACK AVAILABLE\***

**VER BG -- NO MAB AVAILABLE\***

**VER BH -- NO PRTC AVAILABLE\***

**VER BI -- NO MTB PGTC AVAILABLE\***

MLT has attempted to test a line but was not successful due to no DCTU (Directly Connected Test Unit) port available. A DCTU is used in some #5ESS offices instead of an LTS (Loop Test System) to perform MLT tests. A port on a computer system is like a window to make connections to other pieces of equipment. A DCTU is only available in #5ESS offices. The test apparatus is actually incorporated into the switching equipment and is not a stand alone apparatus like the LTS.

VER BA is returned when the switch cannot complete a test request because resources are unavailable from:

- A #5ESS DCTU

#### MLT SUMMARY (EXAMPLE) VER: BA

NO DCTU PORT AVAILABLE

#### ADDITIONAL INFORMATION

**\* All these VER codes indicate a problem with DCTU test equipment in a #5ESS office.**

If these conditions occur, the most appropriate action would be to retest the line at a later time.

This is usually a temporary condition. If, however, this VER code continues to appear over and over, it could indicate a more widespread problem. **In this case, notify someone responsible for MLT system maintenance.**

**VER BJ -- NO MTB TO PGTC PORT EQUIPPED\***

**VER BK -- PGTC PATH SETUP BLOCKAGE\***

**VER BU -- CAN'T CONNECT TO RMU\***

ADDITIONAL INFORMATION

**\* All these VER codes indicate a problem with DCTU test equipment in a #5ESS office.**

If these conditions occur, the most appropriate action would be to retest the line at a later time.

This is usually a temporary condition. If, however, this VER code continues to appear over and over, it could indicate a more widespread problem. **In this case, notify someone responsible for MLT system maintenance.**

## VER BL -- NO PORT AVAILABLE

MLT has attempted to test a line but was not successful because there is no test port available. VER BL is returned when MLT cannot complete a test request because all MLT test ports were out of service or busy.

### MLT SUMMARY (EXAMPLE) VER: BL

NO PORT AVAILABLE

### ADDITIONAL INFORMATION

If this condition occurs, the most appropriate action would be to retest the line at a later time.

This is usually a temporary condition. If, however, this VER code continues to appear over and over, it could indicate a more widespread problem. **In this case, notify someone responsible for MLT system maintenance.**

## VER BM -- NO TRUNK AVAILABLE

MLT has attempted to test a line but was not successful because there is no test trunk available  
VER BM is returned when MLT cannot complete a test request because all MLT test trunks were out of service or busy.

### MLT SUMMARY (EXAMPLE) VER: BM

NO TRUNK AVAILABLE

### ADDITIONAL INFORMATION

If this condition occurs, the most appropriate action would be to retest the line at a later time.

This is usually a temporary condition. If, however, this VER code continues to appear over and over, it could indicate a more widespread problem. **In this case, notify someone responsible for MLT system maintenance.**

## VER BP -- NO PMU AVAILABLE

MLT has attempted to test a line but was not successful because there is no PMU (Precision Measuring Unit) available. A PMU is the device in the MLT LTS (Loop Test System) that actually performs the test to determine the current electrical condition of a customer's line.

VER BP is returned when MLT cannot complete a test request because all MLT PMUs were out of service or busy.

### MLT SUMMARY (EXAMPLE) VER: BP

TIME OUT IN TESTING  
NO PMU AVAILABLE

### ADDITIONAL INFORMATION

If this condition occurs, the most appropriate action would be to retest the line at a later time.

This is usually a temporary condition. If, however, this VER code continues to appear over and over, it could indicate a more widespread problem. **In this case, notify someone responsible for MLT system maintenance.**

## VER BQ -- NO DIALER AVAILABLE

MLT has attempted to test a line but was not successful because there is no dialer available. A dialer is a device in the MLT LTS that actually performs dialing type operations.

VER BQ is returned when MLT cannot complete an MLT request because all MLT dialers were out of service or busy.

### MLT SUMMARY (EXAMPLE) VER: BQ

NO DIALER AVAILABLE

### ADDITIONAL INFORMATION

If this condition occurs, the most appropriate action would be to retest the line at a later time.

This is usually a temporary condition. If, however, this VER code continues to appear over and over, it could indicate a more widespread problem. **In this case, notify someone responsible for MLT system maintenance.**



## VER BR -- NO BUSY DETECTOR AVAILABLE

MLT has attempted to test a line but was not successful because there is no busy detector available. A busy detector is a device in the MLT LTS that performs the test to determine any current busy condition on the customer's line.

VER BR is returned when MLT cannot complete an MLT request because all MLT busy detectors were out of service or busy.

### MLT SUMMARY (EXAMPLE) VER: BR

NO BUSY DETECTOR AVAILABLE

### ADDITIONAL INFORMATION

If this condition occurs, the most appropriate action would be to retest the line at a later time.

This is usually a temporary condition. If, however, this VER code continues to appear over and over, it could indicate a more widespread problem. **In this case, notify someone responsible for MLT system maintenance.**

## VER BS -- SWITCH BLOCKAGE

VER BS code indicates that the switch could not set up the test access to the subscriber's loop because of a switch resource shortage or a switch failure condition.

This problem is **NOT** normally an MLT test equipment problem unless MLT has been programmed with an incorrect dialing sequence or number of digits to be passed to the Central Office.

### MLT SUMMARY (EXAMPLE) VER: BS

#### SWITCH BLOCKAGE

#### ADDITIONAL INFORMATION

If this condition occurs, the most appropriate action would be to retest the line at a later time.

The MLT tester may need to resort to performing an MDF test to be able to process the trouble report.

This is usually a temporary condition. If, however, this VER code continues to appear over and over, it could indicate a more widespread problem. **In this case, notify someone responsible for MLT system maintenance.**

## VER BT -- RMU IN USE

VER BT indicates that a request has been made for access to an RMU (Remote Maintenance Unit) that is already in use. Excessive occurrences of this VER code may be indicative of excessive loading of pair gain systems on the RMU.

An RMU is a small version of an MLT test system that is located at the RT (Remote Terminal) of a pair gain system. It is used in situations where the loop is run over a fiber cable and there can be no copper test pair, or the loop is copper but is over 3000 ohms long. An MLT LTS cannot test when a loop is over 3000 ohms. The RMU performs the test from the RT location.

A phone call is made from LMOS to the RMU to perform the test.

### MLT SUMMARY (EXAMPLE) VER: BT

RMU IN USE

### ADDITIONAL INFORMATION

If this condition occurs, the most appropriate action would be to retest the line at a later time.

This is usually a temporary condition. If, however, this VER code continues to appear over and over, it could indicate a more widespread problem. **In this case, notify someone responsible for MLT system maintenance.**

## VER BU -- CAN'T CONNECT TO RMU

VER BU indicates that the RMU did not answer after being dialed. This VER code can also be reported when the RMU is in use from another LMOS HCFE (High Capacity Front End).

An RMU is a small version of an MLT test system that is located at the RT (Remote Terminal) of a pair gain system. It is used in situations where the loop is run over a fiber cable and there can be no copper test pair, or the loop is copper but is over 3000 ohms long. An MLT LTS cannot test when a loop is over 3000 ohms. The RMU performs the test from the RT location.

A phone call is made from LMOS to the RMU to perform the test.

### MLT SUMMARY (EXAMPLE) VER: BU

CAN'T CONNECT TO RMU

### ADDITIONAL INFORMATION

If this condition occurs, the most appropriate action would be to retest the line at a later time.

This is usually a temporary condition. If, however, this VER code continues to appear over and over, it could indicate a more widespread problem. **In this case, notify someone responsible for MLT system maintenance.**

## VER BV -- NO MODEM PORT AVAILABLE

VER BV indicates that there is no modem port available when a request is made to access an RMU. This may indicate a shortage of modems.

An RMU is a small version of an MLT test system that is located at the RT (Remote Terminal) of a pair gain system. It is used in situations where the loop is run over a fiber cable and there can be no copper test pair, or the loop is copper but is over 3000 ohms long. An MLT LTS cannot test when a loop is over 3000 ohms. The RMU performs the test from the RT location.

A phone call is made from LMOS to the RMU to perform the test.

### MLT SUMMARY (EXAMPLE) VER: BU

NO MODEM PORT AVAILABLE

### ADDITIONAL INFORMATION

If this condition occurs, the most appropriate action would be to retest the line at a later time.

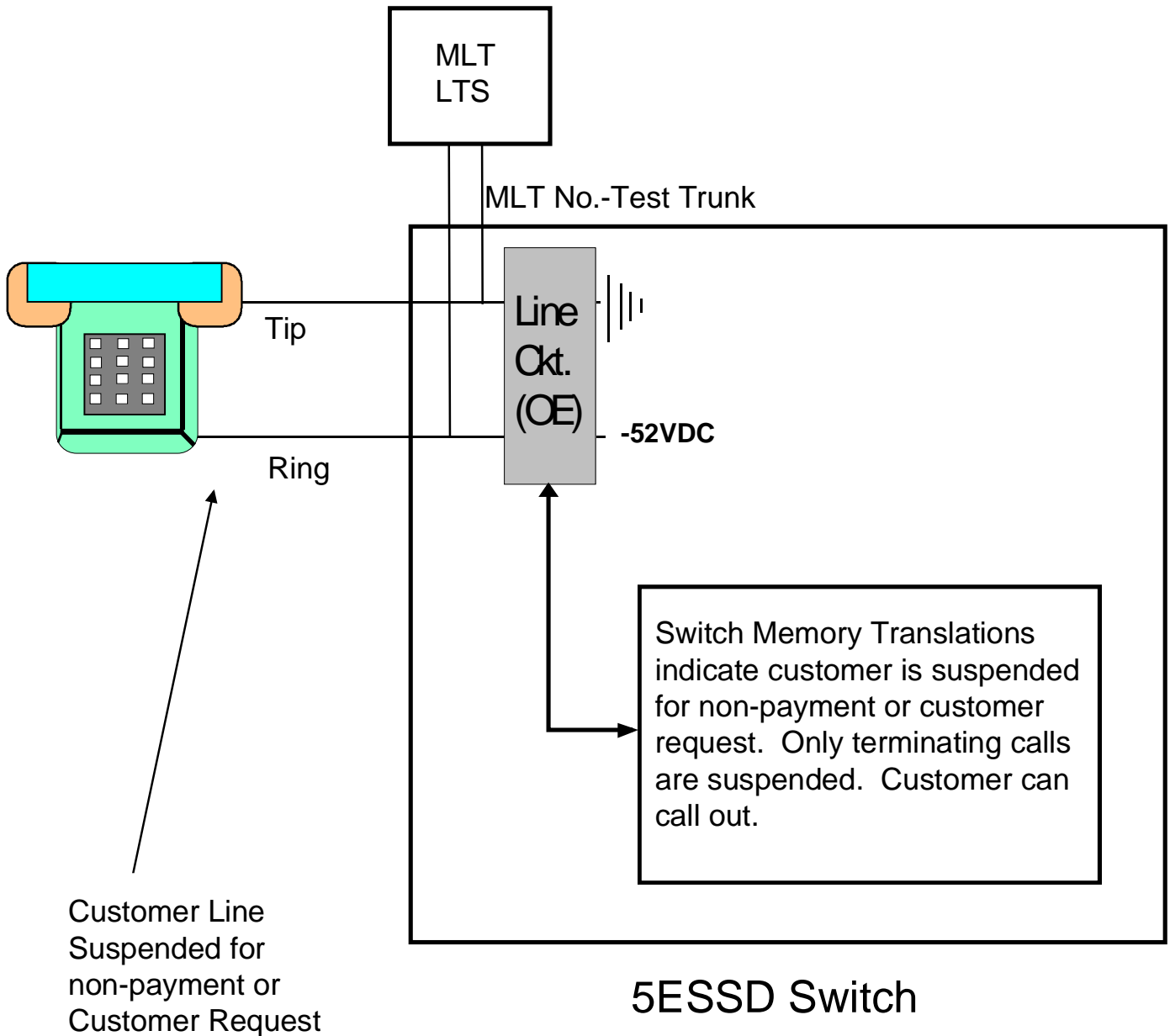
This is usually a temporary condition. If, however, this VER code continues to appear over and over, it could indicate a more widespread problem. **In this case, notify someone responsible for MLT system maintenance.**

**MLT**

**Denied Service**

**5ESS - D**

**VER Codes**

**VER D1 -- DENIED SERVICE - TERMINATING**

**VER D1 -- DENIED SERVICE - TERMINATING**

MLT has detected that this customer's terminating service was denied. This action is normally taken for non-payment of bills or at the customer's request such as vacation home. A terminating denial means that the customer can make calls, but cannot receive them. Another example of denied service terminating lines are the Charge-A-Call telephone lines. These phones are not designed to receive calls.

Denied service does not indicate that anything is wrong with the customer's loop or central office equipment. On a line with denied service, MLT will still test the customer's telephone line. It will present the results of the test that will indicate if anything else is wrong. If there is another condition beyond the service denial, MLT will set VER 99 MULTIPLE FAULTS DETECTED and describe the other condition.

MLT SUMMARY (EXAMPLE) VER: D1**DENIED SERVICE - TERMINATING**

CRAFT KOHMS	DC SIGNATURE VOLTS		MLT: DC SIGNATURE KOHMS	VOLTS		AC SIGNATURE KOHMS	RNGRS	
3500		T-R	3500		T-R	9	YES	T-R
3500	0	T-G	3500	0	T-G	1500		T-G
3500	0	R-G	3500	0	R-G	1511		R-G

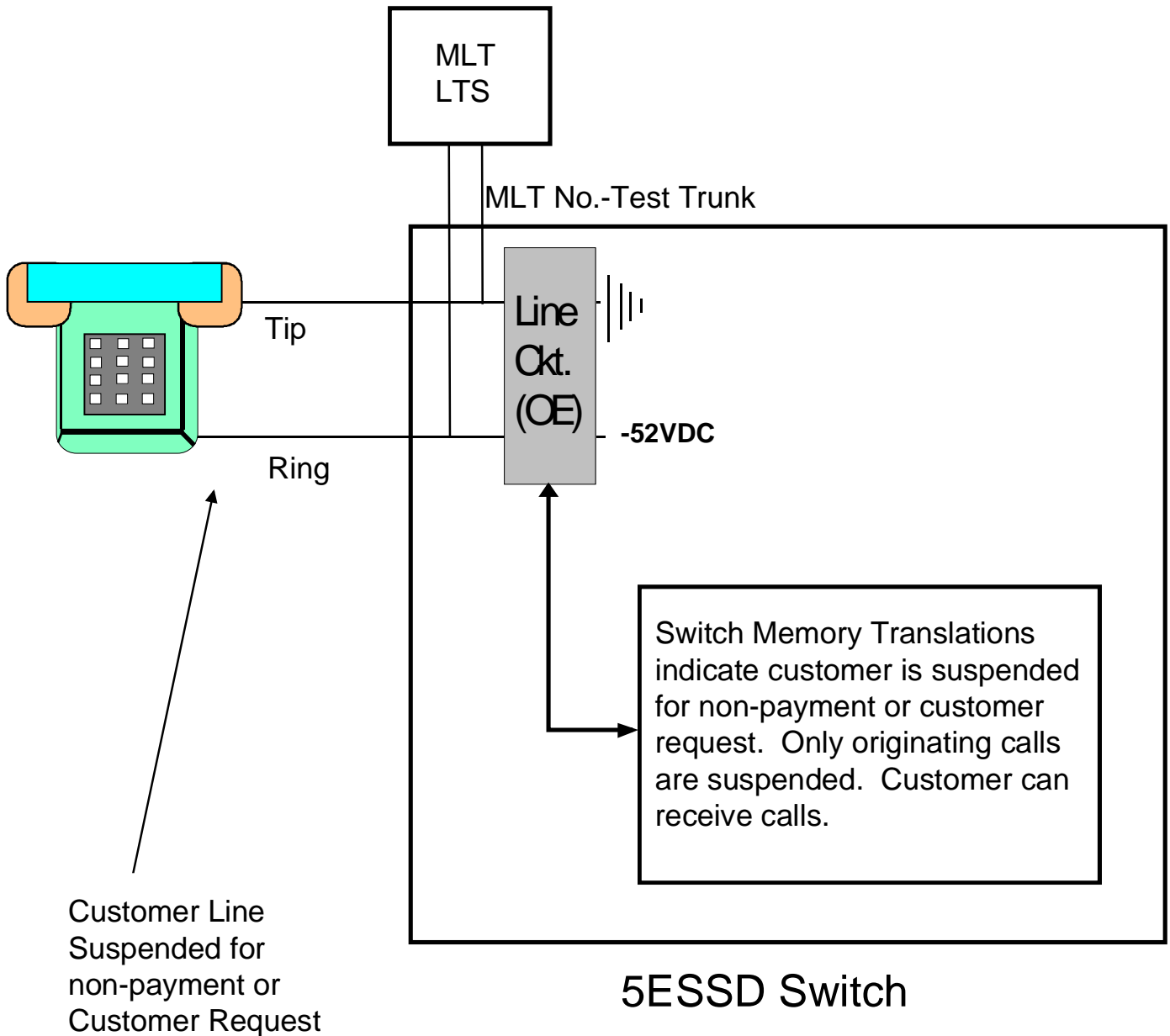
CENTRAL OFFICE	BALANCE
LINE CKT OK	CAP 100 %
DIAL TONE OK	LONG 65 DB

ADDITIONAL INFORMATION

VER code D1 will only appear on lines that are tested by the ESS5-D switch. This is because MLT interacts directly with the switch and can receive status information about individual lines from it. Denied service in other types of switches will provide VER 37 DIAL TONE BURST DETECTED.

MLT users can still contact customers on denied lines by using the MLT RING request and a callback path.



**VER D2 -- DENIED SERVICE - ORGINATING**

**VER D2 -- DENIED SERVICE - ORIGINATING**

MLT has detected that this customer's originating service was denied. This action is normally taken for non-payment of bills or at the customer's request such as vacation home. An originating denial means that the customer can make calls, but cannot receive them.

Denied service does not indicate that anything is wrong with the customer's loop or central office equipment. On lines with denied service, MLT will still test the customer's telephone line. It will also present the results of the test that will indicate if anything else is wrong. If there is another condition beyond the service denial, MLT will set VER 99 MULTIPLE FAULTS DETECTED and describe the other condition.

MLT SUMMARY (EXAMPLE) VER: D2**DENIED SERVICE - ORIGINATING**

CRAFT KOHMS	DC SIGNATURE VOLTS		MLT: KOHMS	DC SIGNATURE VOLTS		AC SIGNATURE KOHMS	RNGRS	
3500		T-R	3500		T-R	9	YES	T-R
3500	0	T-G	3500	0	T-G	1500		T-G
3500	0	R-G	3500	0	R-G	1511		R-G

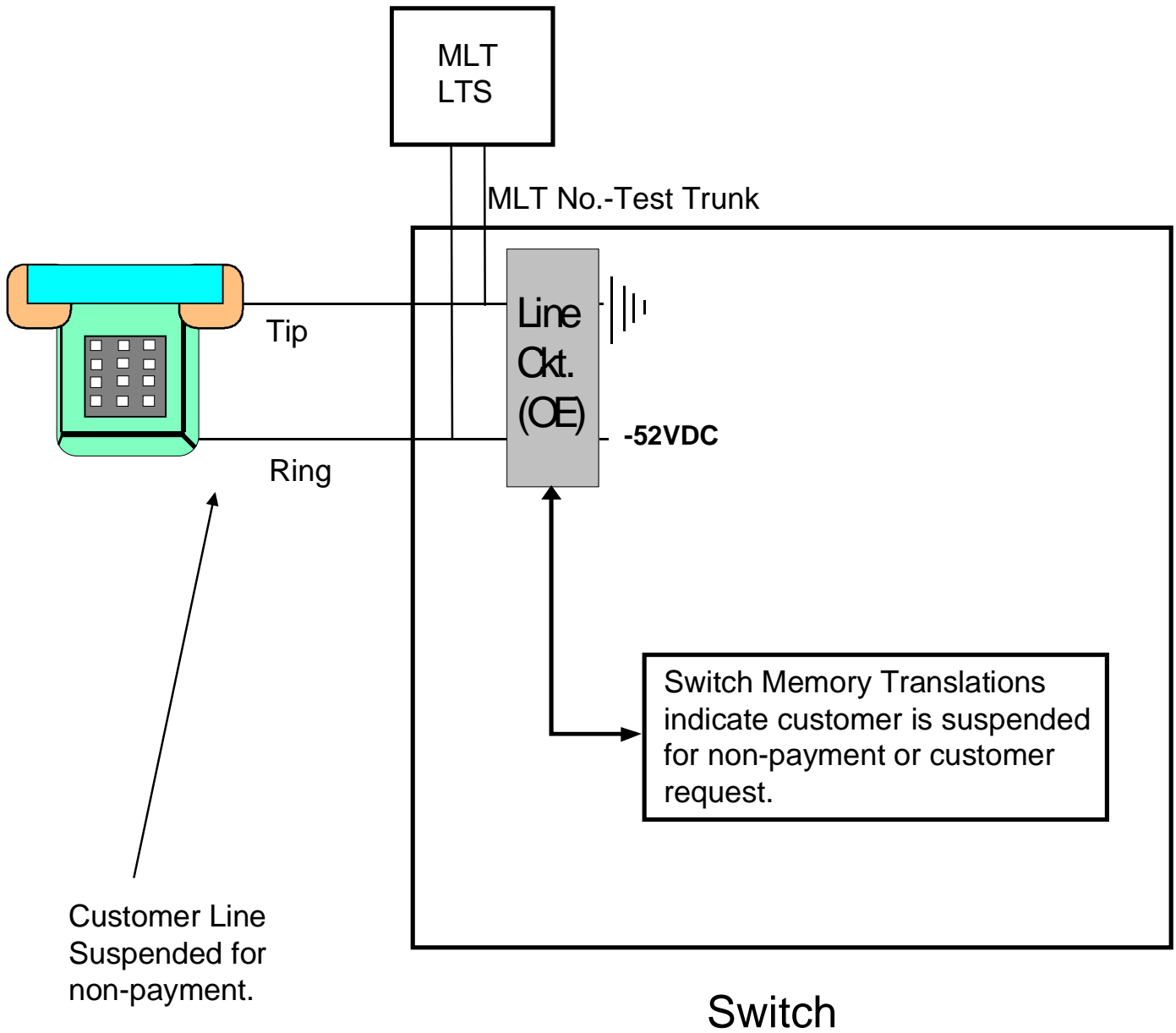
CENTRAL OFFICE	BALANCE
LINE CKT OK	CAP 100 %
DIAL TONE OK	LONG 65 DB

ADDITIONAL INFORMATION

VER code D2 will only appear on lines that are tested by the ESS5-D switch. This is because MLT interacts directly with the switch and can receive status information about individual lines from it. Denied service in other types of switches will provide VER 37 DIAL TONE BURST DETECTED.

MLT users can still contact customers on denied lines by using the MLT RING request and a callback path.

**VER D3 -- DENIED SERVICE**



**VER D3 -- DENIED SERVICE**

MLT has detected that this customer's service was denied both originating and terminating. This action is normally taken for non-payment of bills. Denial of service means that the customer cannot make or receive calls.

Denied service does not indicate that anything is wrong with the customer's loop or central office equipment. On lines with denied service, MLT will still test the customer's telephone line. It will also present the results of the test that will indicate if anything else is wrong. If there is another condition beyond the service denial, MLT will set VER 99 MULTIPLE FAULTS DETECTED and describe the other condition.

MLT SUMMARY (EXAMPLE) VER: D3**DENIED SERVICE**

CRAFT KOHMS	DC SIGNATURE VOLTS		MLT: KOHMS	DC SIGNATURE VOLTS		AC SIGNATURE KOHMS	RNGRS	
3500		T-R	3500		T-R	9	YES	T-R
3500	0	T-G	3500	0	T-G	1500		T-G
3500	0	R-G	3500	0	R-G	1511		R-G

CENTRAL OFFICE	BALANCE
LINE CKT OK	CAP 100 %
DIAL TONE OK	LONG 65 DB

ADDITIONAL INFORMATION

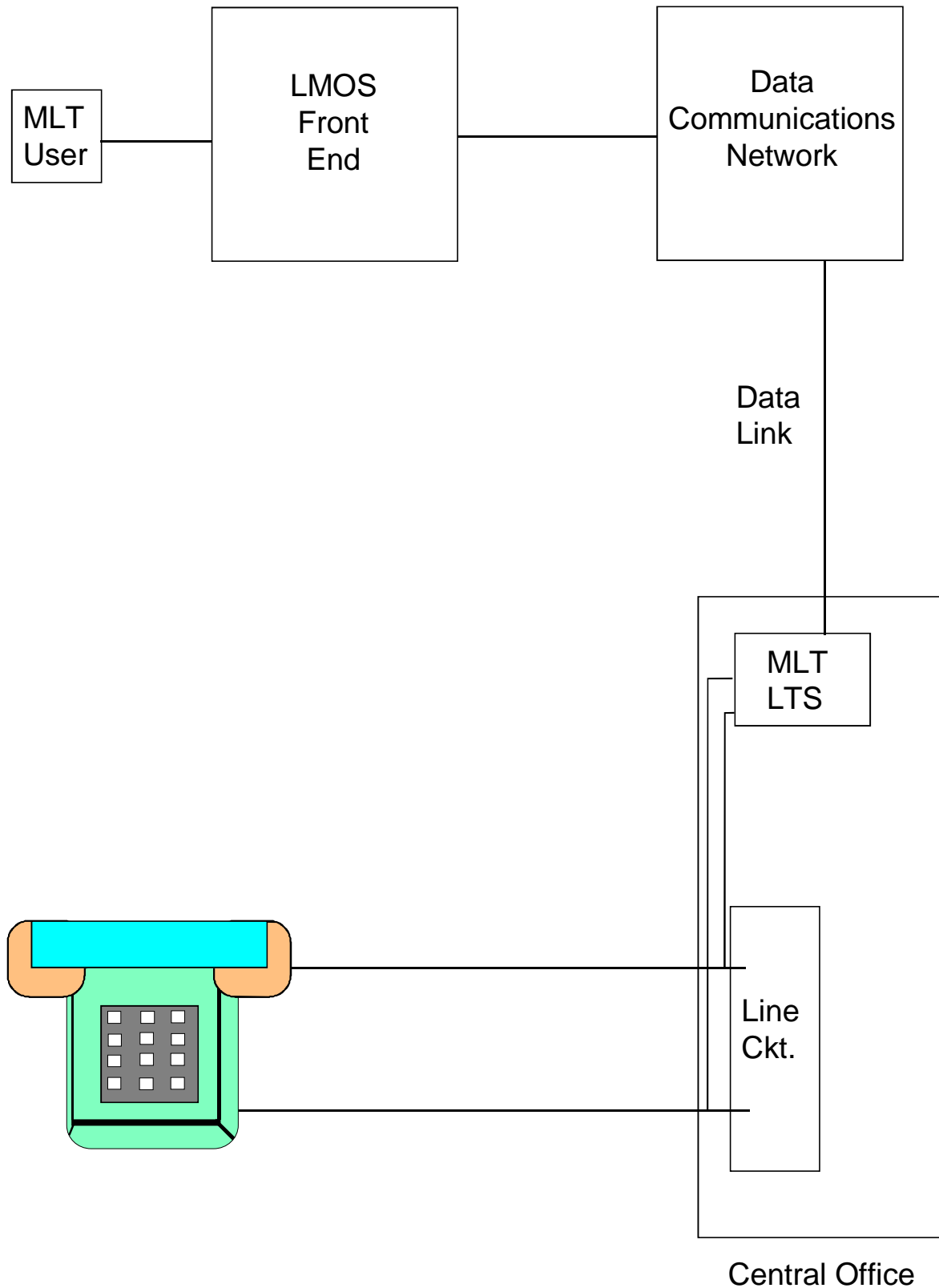
VER code D3 will only appear on lines that are tested by the ESS5-D switch. This is because MLT interacts directly with the switch and can receive status information about individual lines from it. Denied service in other types of switches will provide VER 37 DIAL TONE BURST DETECTED.

MLT users can still contact customers on denied lines by using the MLT RING request and a callback path.

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# **MLT Test Error or Failure VER Codes**

**VER DL -- CONTROLLER-LTF OR FRONT END-LTS DATA LINK FAILURE**



## **VER DL -- CONTROLLER-LTF OR FRONT END-LTS DATA LINK FAILURE**

VER DL code indicates MLT test could not be run or completed because the Data Link between the MLT-2 (Front End) DCN (Data Communications Network) and the LTS (Loop Test System) failed.

### MLT SUMMARY (EXAMPLE) VER: DL

DATA LINK FAILURE

### ADDITIONAL INFORMATION

**Notify someone responsible for MLT system maintenance.**



## VER E0 -- TEST SYSTEM ERROR

VER code E0 is presented because MLT could not test the line due to a system error.

### MLT SUMMARY (EXAMPLE) VER: E0

TEST SYSTEM ERROR

### ADDITIONAL INFORMATION

If this condition occurs, the most appropriate action would be to retest the line at a later time.

This is usually a temporary condition. If, however, this VER code continues to appear over and over, it could indicate a more widespread problem. **In this case, notify someone responsible for MLT system maintenance.**

## VER E1 -- TEST SYSTEM ERROR

MLT could not test this line due to a system error. VER E1 is set specifically when there is a power clear and reset of the system equipment during testing.

### MLT SUMMARY (EXAMPLE) VER: E1

TEST SYSTEM ERROR

LTS POWER CLEAR

### ADDITIONAL INFORMATION

If this condition occurs, the most appropriate action would be to retest the line at a later time.

This is usually a temporary condition. If, however, this VER code continues to appear over and over, it could indicate a more widespread problem. **In this case, notify someone responsible for MLT system maintenance.**

## **VER E5 -- TEST SYSTEM ERROR**

MLT could not test a line due to a system error. When the MLT user enters a test request, MLT checks to see if the NPA-NXX that is in the TN field is mapped to a table of exchange keys by checking the Default Exchange Key Table. VER E5 will be set when one of the following situations exist:

- The exchange key is missing from the Line record.
- MLT could not access the Default Exchange Key Table.

### MLT SUMMARY (EXAMPLE) VER: E5

TEST SYSTEM ERROR

INVALID NPA-NXX

### ADDITIONAL INFORMATION

This VER code may reflect an error in the data base or simply an invalid entry in the TN field.

MLT tester actions for VER E5:

- Check to be sure the correct TN is entered.
- The MLT user can try to retest by determining the correct Exchange Key and placing it in the OVER field of the TV screen and retest the line.
- Contact the MLT system administrator.

## **VER E7 -- TEST SYSTEM ERROR**

MLT could not test a line due to a system error. When the MLT user enters a test request, MLT checks to see if the NPA-NXX that is in the TN field is mapped to a table of exchange keys by checking the Default Exchange Key Table. MLT then checks the MLT Access Table to see if the NPA-NXX is testable by MLT.

VER E7 will be set when the following situation exists:

- If MLT finds the NPA-NNX in the Default Exchange Table but not in the Access Table.

### MLT SUMMARY (EXAMPLE) VER: E7

TEST SYSTEM ERROR

NPA-NXX NOT IN DATA BASE

### ADDITIONAL INFORMATION

This VER code may reflect an error in the data base or simply an invalid entry in the TN field.

MLT tester actions for VER E7:

- Check to be sure the correct TN is entered.
- The MLT user can try to retest by determining the correct Exchange Key and placing it in the OVER field of the TV screen and retest the line.
- Contact the MLT system administrator.

## **VER E8 -- CAN'T SEND REQUEST TO APPROPROATE FE**

MLT could not test a line due to a system error. When the MLT user enters a test request, MLT tries to retrieve a line record. If that line record belongs to a database that corresponds to another LMOS Front End (FE), MLT will try to reach that FE. If it fails to make a connection, it will attempt to continue to perform the test from the current FE with the Default Exchange Key for that NPA-NXX. If a matching entry for this default exchange key can't be found in the MLT Access Table, MLT sets VER E8.

### MLT SUMMARY (EXAMPLE) VER: E8

TEST SYSTEM ERROR

CAN'T SEND REQUEST TO APPROPRIATE FE

### ADDITIONAL INFORMATION

- The MLT user should attempt to get Logged on to the correct LMOS FE.  
If this fails, refer this problem to MLT Administration.

# **MLT**

# **Test Equipment**

# **Failure**

# **VER Codes**

## **VER F0 -- TEST EQUIPMENT FAILURE**

MLT could not test the line because of a failure in the MLT testing equipment.

### MLT SUMMARY (EXAMPLE) VER: F0

#### TEST EQUIPMENT FAILURE

#### ADDITIONAL INFORMATION

This condition indicates a serious problem with the MLT testing system. Generally it means the system is not functioning.

**In the case of this VER code, notify someone responsible for MLT system maintenance.**

## VER F1 -- TEST EQUIPMENT FAILURE

MLT could not test the line because of a failure in the MLT testing equipment. Specifically VER F1 occurs on lines equipped with SLC-96. This condition indicates a failure in the SLC-96 testing equipment.

When a VER Code F1 is generated, MLT will automatically drop access to the customer's line.

### MLT SUMMARY (EXAMPLE) VER: F1

#### TEST EQUIPMENT FAILURE

\* PAIR GAIN EQUIPMENT FAILURE

#### ADDITIONAL INFORMATION

This condition indicates a serious problem with the MLT testing system. Generally it means the system is not functioning.

**In the case of this VER code, notify someone responsible for MLT system maintenance.**



## **VER F2 -- TEST EQUIPMENT FAILURE**

MLT could not test the line because of a failure in the MLT testing equipment. VER F2 can be caused by the unplugging of circuit packs during diagnostics.

### MLT SUMMARY (EXAMPLE) VER: F2

#### TEST EQUIPMENT FAILURE

\* DIAGNOSTICS RUNNING

#### ADDITIONAL INFORMATION

This condition indicates that the system administrator is running diagnostics to fix a problem in the system. Wait for a while and try your request again.

## VER F4 -- TEST EQUIPMENT BUSY

MLT has attempted to test a line but was not successful because system resources are unavailable.

VER F4 is returned when the switch cannot complete a test request because resources are unavailable from:

- #5ESS Switch Module (SM)
- Protocol Handler (PH)
- Integrated Service Line Unit (ISLU)
- Integrated Services Test Function (ISTF)
- Loop Testing System (LTS)
- Directly Connected test Unit (DCTU).

### MLT SUMMARY (EXAMPLE) VER: F4

LTS UNAVAILABLE

### ADDITIONAL INFORMATION

If this condition occurs, the most appropriate action would be to retest the line at a later time.

This is usually a temporary condition. If, however, this VER code continues to appear over and over, it could indicate a more widespread problem. **In this case, notify someone responsible for MLT system maintenance.**

## VER FA -- BUSY DETECTOR FAILURE

MLT has attempted to test a line but was not successful because the busy detector failed. A busy detector is a device in the MLT LTS that performs the test to determine any current busy condition on the customer's line.

### MLT SUMMARY (EXAMPLE) VER: FA

BUSY DETECTOR FAILURE

### ADDITIONAL INFORMATION

If this condition occurs, the most appropriate action would be to retest the line at a later time.

This is usually a temporary condition. If, however, this VER code continues to appear over and over, it could indicate a more widespread problem. **In this case, notify someone responsible for MLT system maintenance.**

## VER FB -- DIALER FAILURE

The FB VER code indicates that the MLT LTS dialer failed when it was in use.

### MLT SUMMARY (EXAMPLE) VER: FB

#### DIALER FAILURE

#### ADDITIONAL INFORMATION

If this condition occurs, the most appropriate action would be to retest the line at a later time.

This is usually a temporary condition. If, however, this VER code continues to appear over and over, it could indicate a more widespread problem. **In this case, notify someone responsible for MLT system maintenance.**

## VER FC -- PMU FAILURE

The FC VER code indicates that the MLT PMU (Precision Maintenance Unit) failed when it was in use. The PMU is the MLT component used to make electrical measurements on telephone lines.

### MLT SUMMARY (EXAMPLE) VER: FC

#### PMU FAILURE

### ADDITIONAL INFORMATION

If this condition occurs, the most appropriate action would be to retest the line at a later time.

This is usually a temporary condition. If, however, this VER code continues to appear over and over, it could indicate a more widespread problem. **In this case, notify someone responsible for MLT system maintenance.**

## VER FD -- SLEEVE LEAD FAILURE

The FD VER code indicates that there was an MLT sleeve lead failure associated with the No.-Test trunk.

The sleeve lead is used by Central Office equipment to electrically communicate that a circuit should be connected, stay connected, or be dropped. MLT would not be able to stay connected to a customer's line if the sleeve lead fails.

### MLT SUMMARY (EXAMPLE) VER: FD

#### SLEEVE LEAD FAILURE

#### ADDITIONAL INFORMATION

If this condition occurs, the most appropriate action would be to retest the line.

This is usually a temporary condition. If, however, this VER code continues to appear over and over, it could indicate a more widespread problem. **In this case, notify someone responsible for MLT system maintenance.**

## VER FH -- LTS EQUIPMENT ACCESS FAILURE

The FH VER code indicates that there was a failure in the LTS (LOOP Test System) that prevented access to the customer's line.

### MLT SUMMARY (EXAMPLE) VER: FH

#### LTS EQUIPMENT ACCESS FAILURE

### ADDITIONAL INFORMATION

If this condition occurs, the most appropriate action would be to retest the line.

This is usually a temporary condition. If, however, this VER code continues to appear over and over, it could indicate a more widespread problem. **In this case, notify someone responsible for MLT system maintenance.**

## VER FL -- MODEM CONNECTION FAILURE

The FL VER code indicates that a modem was obtained but failed in connecting to the RMU (Remote Maintenance Unit). This type of failure is caused when there is no dial tone or no answer.

### MLT SUMMARY (EXAMPLE) VER: FL

#### MODEM CONNECTION FAILURE

### ADDITIONAL INFORMATION

If this condition occurs, the most appropriate action would be to retest the line.

This is usually a temporary condition. If, however, this VER code continues to appear over and over, it could indicate a more widespread problem. **In this case, notify someone responsible for MLT system maintenance.**



## VER FM -- DATAKIT FAILURE

The FM VER code indicates that a modem was datakit connection failure. This VER Code will generally be associated with a connection to an RMU.

### MLT SUMMARY (EXAMPLE) VER: FM

#### DATAKIT FAILURE

### ADDITIONAL INFORMATION

If this condition occurs, the most appropriate action would be to retest the line.

This is usually a temporary condition. If, however, this VER code continues to appear over and over, it could indicate a more widespread problem. **In this case, notify someone responsible for MLT system maintenance.**

## VER FN -- LOGIN FAILURE

The FN VER code indicates that a modem was connected but could not complete the login to an RMU (Remote maintenance Unit) because of problems such as:

- noisy connection
- test head hardware problems
- password error

### MLT SUMMARY (EXAMPLE) VER: FN

#### LOGIN FAILURE

#### ADDITIONAL INFORMATION

If this condition occurs, the most appropriate action would be to retest the line.

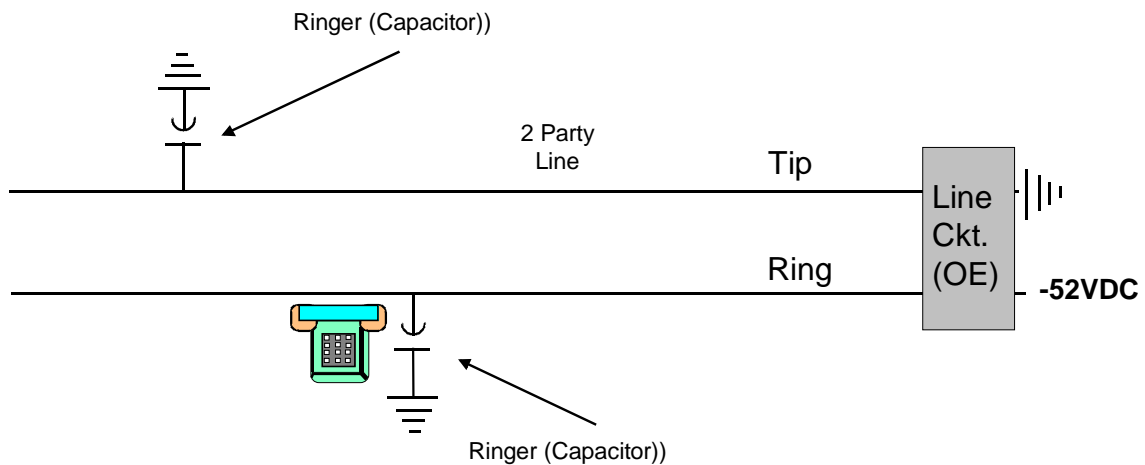
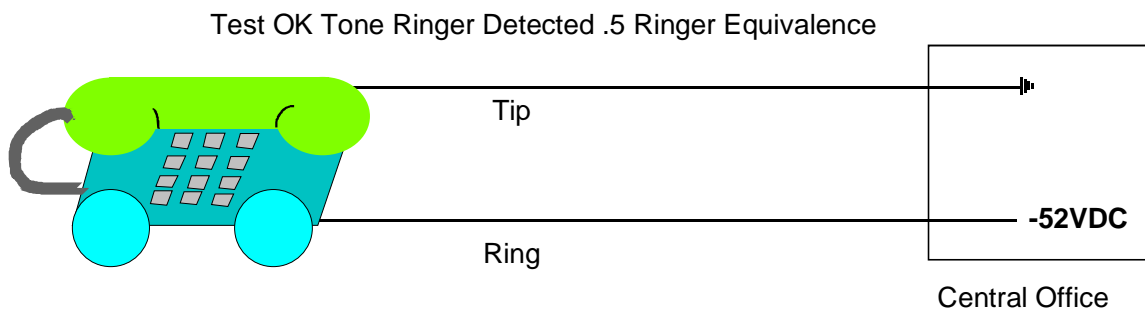
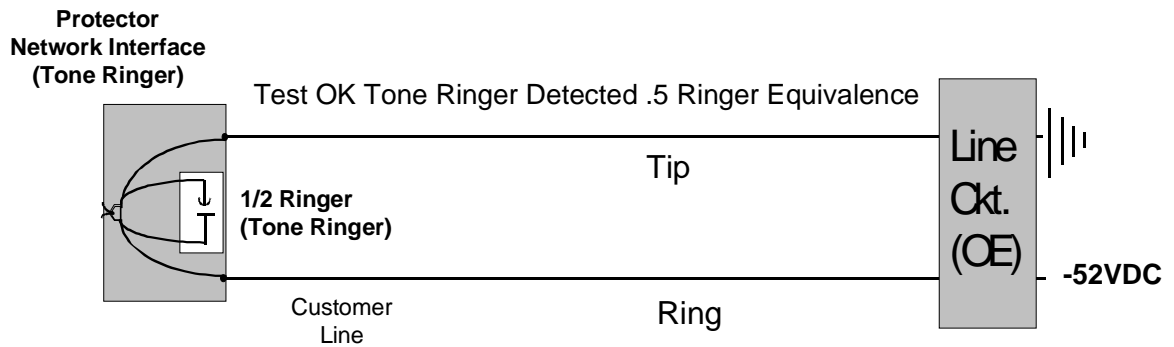
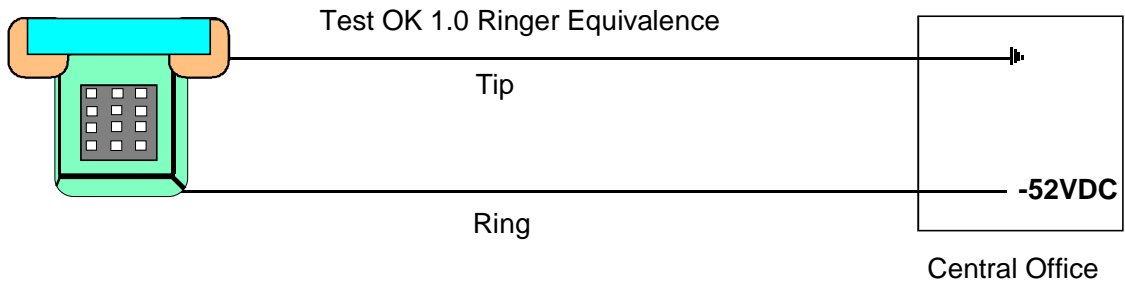
If this VER code continues to appear over and over, it could indicate a more widespread problem. **In this case, notify someone responsible for MLT system maintenance.**

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**MLT**

**Ringer Results**

**VER Codes**

**VER GO -- VALID RINGER COUNT AND TERMINATION**

**VER GO -- VALID RINGER COUNT AND TERMINATION**

This VER code will only appear for the RINGER series test of MLT. It indicates that both the number of ringers\* and the arrangement of those ringers (T-R, T-G, or R-G) were what we expected to see according to the line records.

MLT SUMMARY (EXAMPLE) VER: GO

RINGER COUNT OK

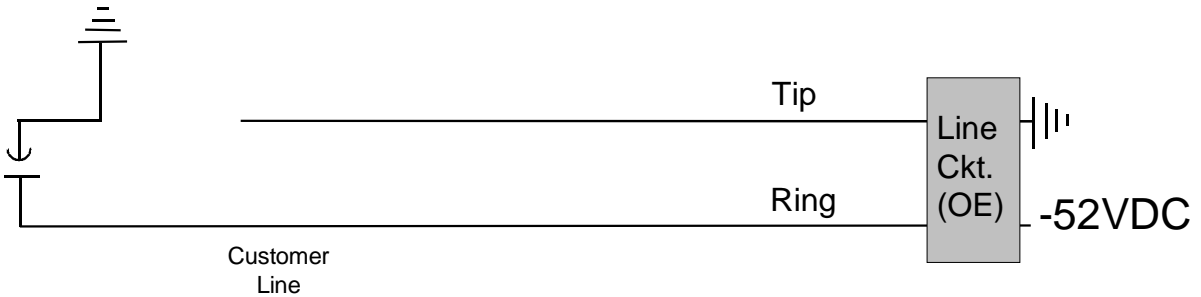
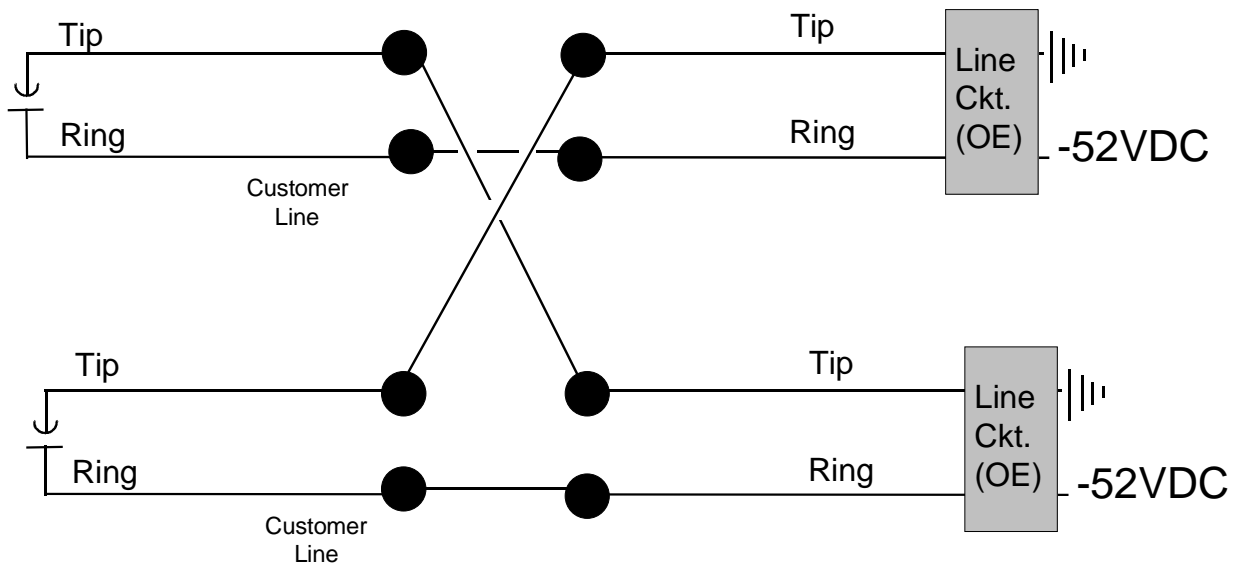
RINGER TERMINATION OK

AC SIGNATURE		
KOHMS	RNGRS	
14	1	T-R
1500		T-G
1500		R-G

ADDITIONAL INFORMATION

- On a single party line, you would expect the ringer to be connected T-R.
- On a two party-one assigned line, you would expect the ringer to be connected one side to ground (most likely R-G).
- On a two party two-assigned line, you would expect the ringers to be connected on both sides to ground (T-G and R-G).
- Southwestern Bell telephone no longer offers two-party service.
- Any indication of ringers wired like a two-party when the customer is a residence single party customer is a trouble condition. See VER G1 Invalid Ringer Termination.

\* Since divestiture ringer count has **NOT** been valid. This count is based on the assumption that the phones have a 1.0A ringer equivalence. The telephones on the market now rarely have a 1.0A ringer equivalence.

**VER G1 -- INVALID RINGER TERMINATION****1.****2.****3.**

**VER G1 -- INVALID RINGER TERMINATION**

This summary can appear in the FULL or LOOP series test as well as the RINGER series test.

VER G1 indicates that the ringer termination was invalid for the type of termination expected by the line records. **This VER will only appear for single party lines.**

**MLT SUMMARY (EXAMPLE) VER: G1**

WRONG RINGER TERM: LIKE 2 PTY-2 ASN

AC SIGNATURE		
KOHMS	RNGRS	
1111		T-R
9	2*	T-G
5	5*	R-G

**ADDITIONAL INFORMATION**

The summary messages not only indicate that the termination is wrong, but as the example above shows, it will also provide information about the type of termination MLT thinks is present. This will only be presented if the line records are not on place (TERM field is blank on TV mask). Southwestern Bell Telephone no longer offers two-party service. Any indication of ringers wired like a two-party when the customer is a residence single party customer is a trouble condition. See VER G1 Invalid Ringer Termination.

**See the examples on the facing page:**

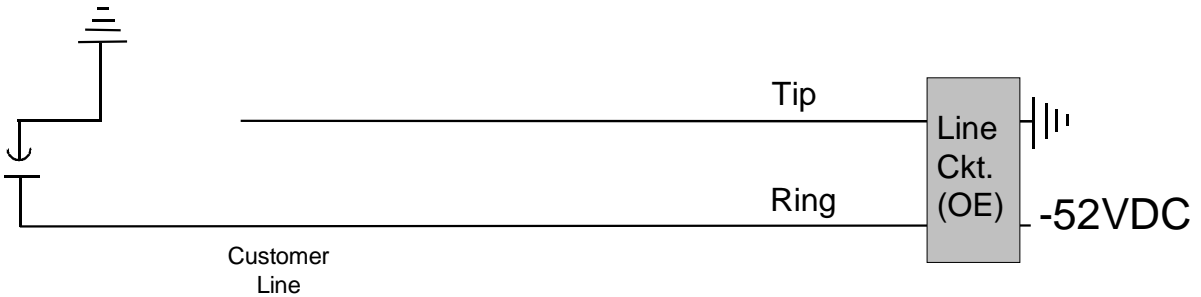
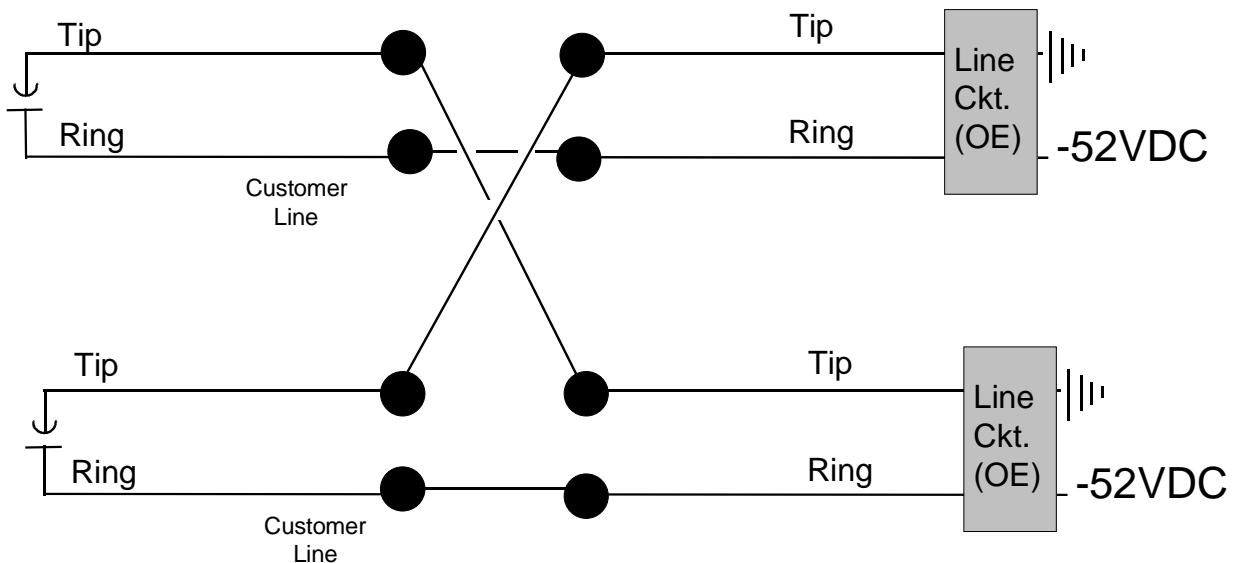
1. This is actually an open and grounded ring (customer will report dead, NDT, CBC).
2. This is actually an open and grounded tip (customer will report noisy, hum).
3. This is actually a trouble condition called a SPLIT (customer will report noisy, clicks, NDT, HOOL, and if it is a Ring to Ring split CBC receives calls for another line).

**AC Signature - EXAMPLES:**

1.	2.	3.	
Open RING	Open TIP	Split	
987	987	987	T-R
6	983	6	T-G
983	6	11	R-G

\* Since divestiture ringer count has **NOT** been valid. This count is based on the assumption that the phones have a 1.0 ringer equivalence. The telephones on the market now rarely have a 1.0 ringer equivalence.



**VER G4 - RINGER TEST WITH NO RECORDS****1.****2.****3.**

**VER G4 - RINGER TEST WITH NO RECORDS**

This VER code will only appear following the RINGER request. **It indicates that the RINGER test was run on a line that did not have line records.** Because of this MLT cannot determine whether or not the ringer termination or the count is valid.

The detailed information must be examined in order to identify the condition on the line.

MLT SUMMARY (EXAMPLE) VER: G4

RINGER TERM LIKE 2 PTY-2 ASN

AC SIGNATURE		
KOHMS	RNGRS	
1111		T-R
9	2*	T-G
5	5*	R-G

ADDITIONAL INFORMATION

The messages will indicate what the type ringer termination looks like (i.e., single party, two party, etc.). This should help you figure out the condition on the line. If more information is required, run a FULL test.

**See the examples on the facing page:**

1. This is actually an open and grounded ring (customer will report dead, NDT, CBC).

This condition would test RINGER TERM LIKE 2 PTY-1 ASN.

2. This is actually an open and grounded tip (customer will report noisy, hum).

This condition would test RINGER TERM LIKE 2 PTY-1 ASN.

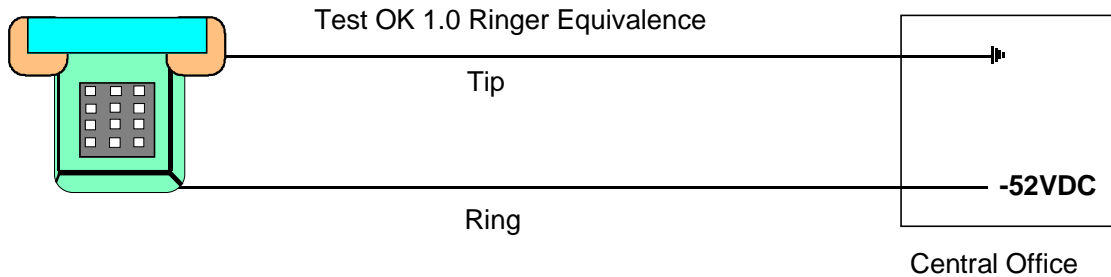
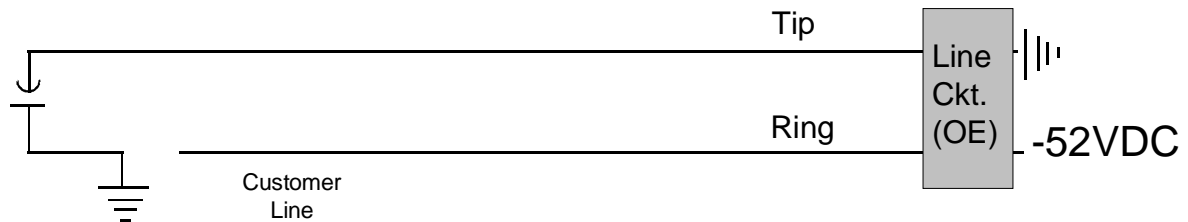
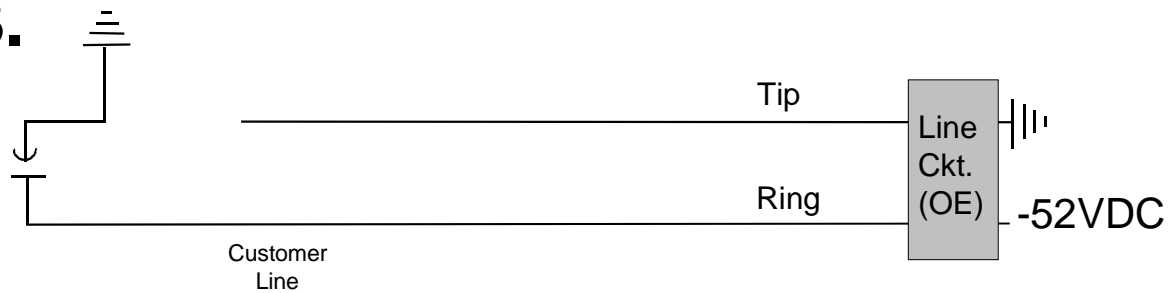
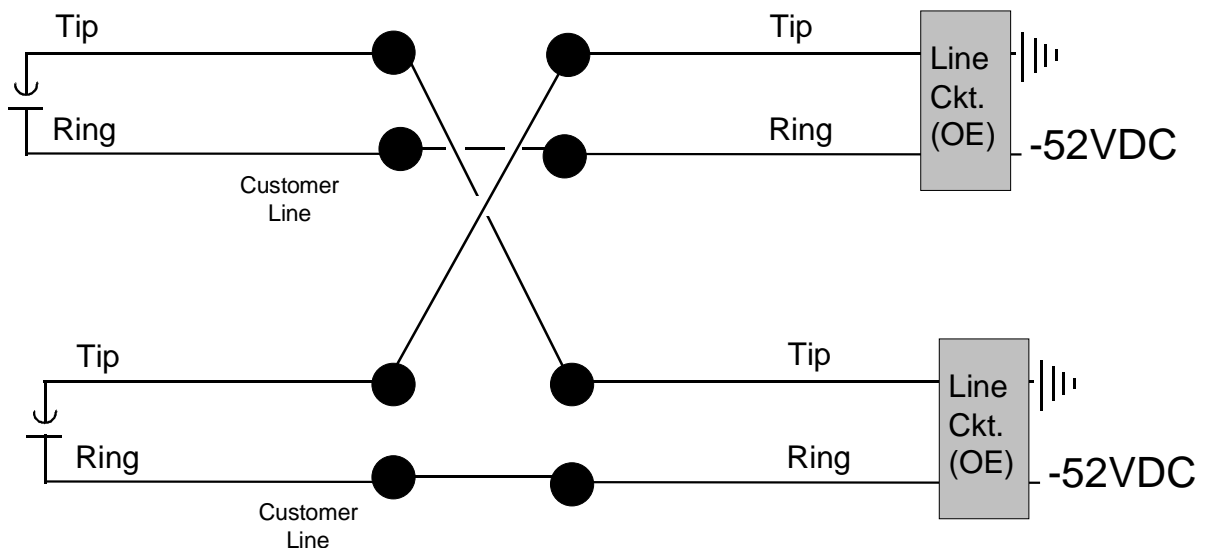
3. This is actually a trouble condition called a split (customer will report noisy, clicks, NDT, HOOL, and if it is a Ring to Ring split CBC receives calls for another line).

This condition would test RINGER TERM LIKE 2 PTY-2 ASN.

**AC Signature - EXAMPLES:**

1.	2.	3.	
Open RING	Open TIP	Split	
987	987	987	T-R
6	983	6	T-G
983	6	11	R-G

\* Since divestiture ringer count has **NOT** been valid. This count is based on the assumption that the phones have a 1.0A ringer equivalence. The telephones on the market now rarely have a 1.0A ringer equivalence.

**VER G6 -- RINGER TEST - UNCATALOGED EQUIPMENT****1.****2.****3.****4.**

**VER G6 -- RINGER TEST - UNCATALOGED EQUIPMENT**

This VER code will only appear following the RINGER request. It indicates that MLT ran the RINGER test on a line that had uncataloged equipment for the termination (UNCAT TERM in the TV mask TERM: field).

MLT cannot determine whether or not the ringer termination is valid for an uncataloged termination simply because there is no information to indicate what a valid termination should be for this line.

MLT SUMMARY (EXAMPLE) VER: G6

CAN'T VERIFY RINGER TERM-UNCATALOGED

AC SIGNATURE	
KOHMS	RNGRS
4	2*
1413	T-R
1415	T-G
	R-G

ADDITIONAL INFORMATION

If more information is required run a FULL test.

**See the examples on the facing page:**

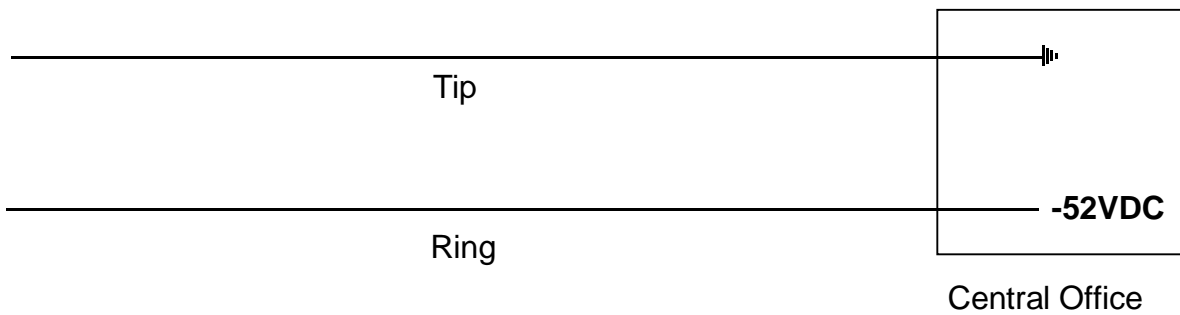
1. This is a Test OK.
2. This is actually an open and grounded ring (customer will report dead, NDT, CBC).
3. This is actually an open and grounded tip (customer will report noisy, hum).
4. This is actually a trouble condition called a SPLIT (customer will report noisy, clicks, NDT, HOOL, and if it is a Ring to Ring SPLIT CBC receives calls for another line).

**AC Signature - EXAMPLES:**

<b>1.</b>	<b>2.</b>	<b>3</b>	<b>4</b>
<b>Test Ok</b>	<b>Open RING</b>	<b>Open TIP</b>	<b>Split</b>
9	987	987	987
896	6	983	6
983	7	6	11

\* Since divestiture ringer count has **NOT** been valid. This count is based on the assumption that the phones have a 1.0A ringer equivalence. The telephones on the market now rarely have a 1.0A ringer equivalence.

**VER G8 -- RINGER TEST - UNCATALOGED EQUIPMENT**



## VER G8 -- RINGER TEST - UNCATALOGED EQUIPMENT

This VER code will only appear for the MLT Ringer series test. It indicates that no ringers were found even though there should have been ringers based on the line records. This result will **NOT** appear on a line with UNCAT TERM in the TERM field of the TV mask.

### MLT SUMMARY (EXAMPLE) VER: G8

NO RINGERS FOUND

AC SIGNATURE	
KOHMS	RNGRS
2000	T-R
2000	T-G
2000	R-G

### ADDITIONAL INFORMATION

If more information is required, run a FULL test.

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# **MLT**

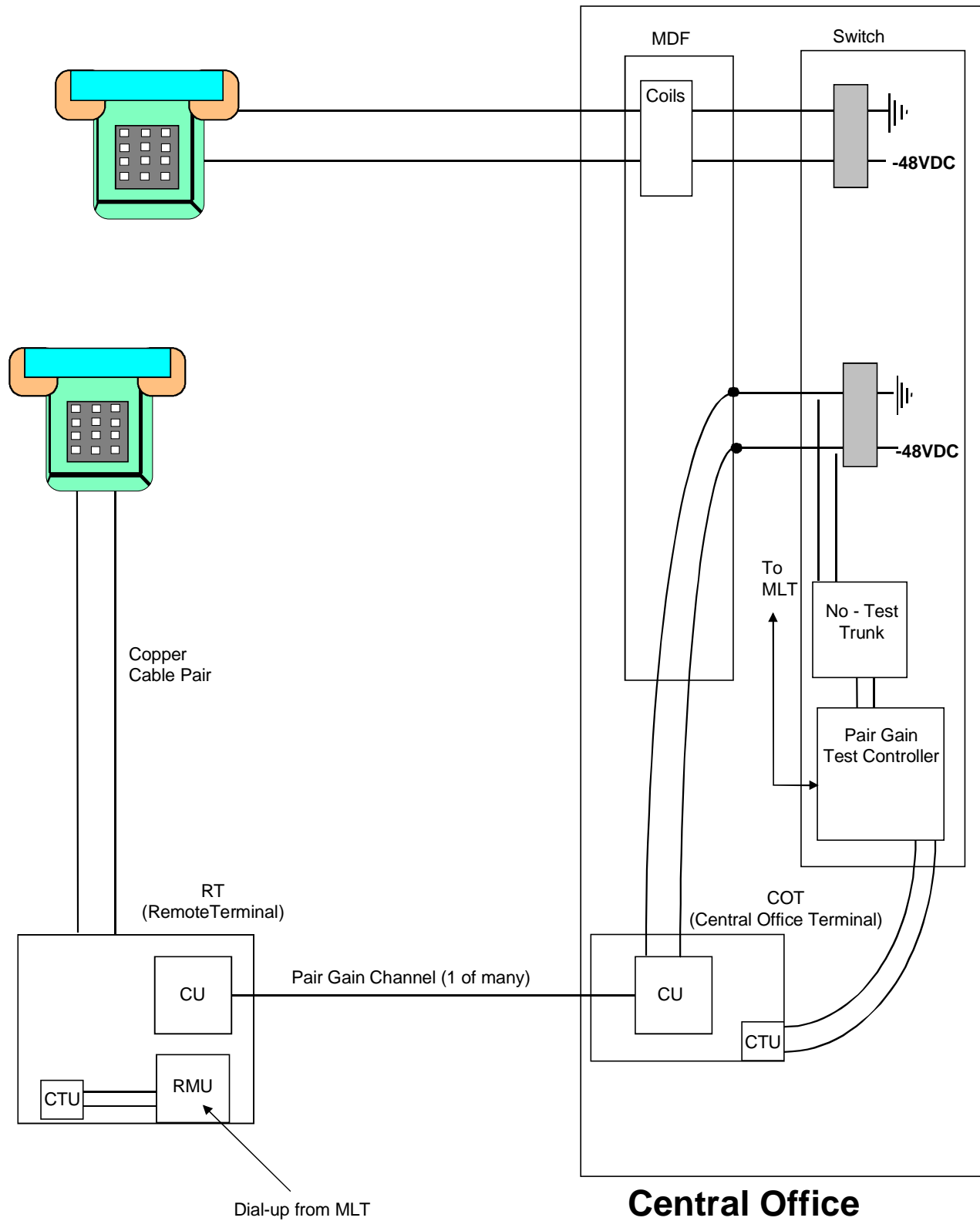
# **Miscellaneous**

# **Test**

# **Handling**

# **VER Codes**



**VER LM -- REMOTE TEST-EXPECT DELAYED RESULTS**

## **VER LM -- REMOTE TEST-EXPECT DELAYED RESULTS**

MLT testing through certain kinds of equipment (RMU Remote Maintenance Unit) may take longer than normal. When this happens, MLT will place the REMOTE TEST-EXPECT DELAYED RESULTS message at the bottom of screen to advise of the extended test time.

### MLT SUMMARY (EXAMPLE) VER: LM

On the TV, STV, TE/TR masks the message will appear on line 24 (bottom of the screen) as  
REMOTE TEST-EXPECT DELAYED RESULTS

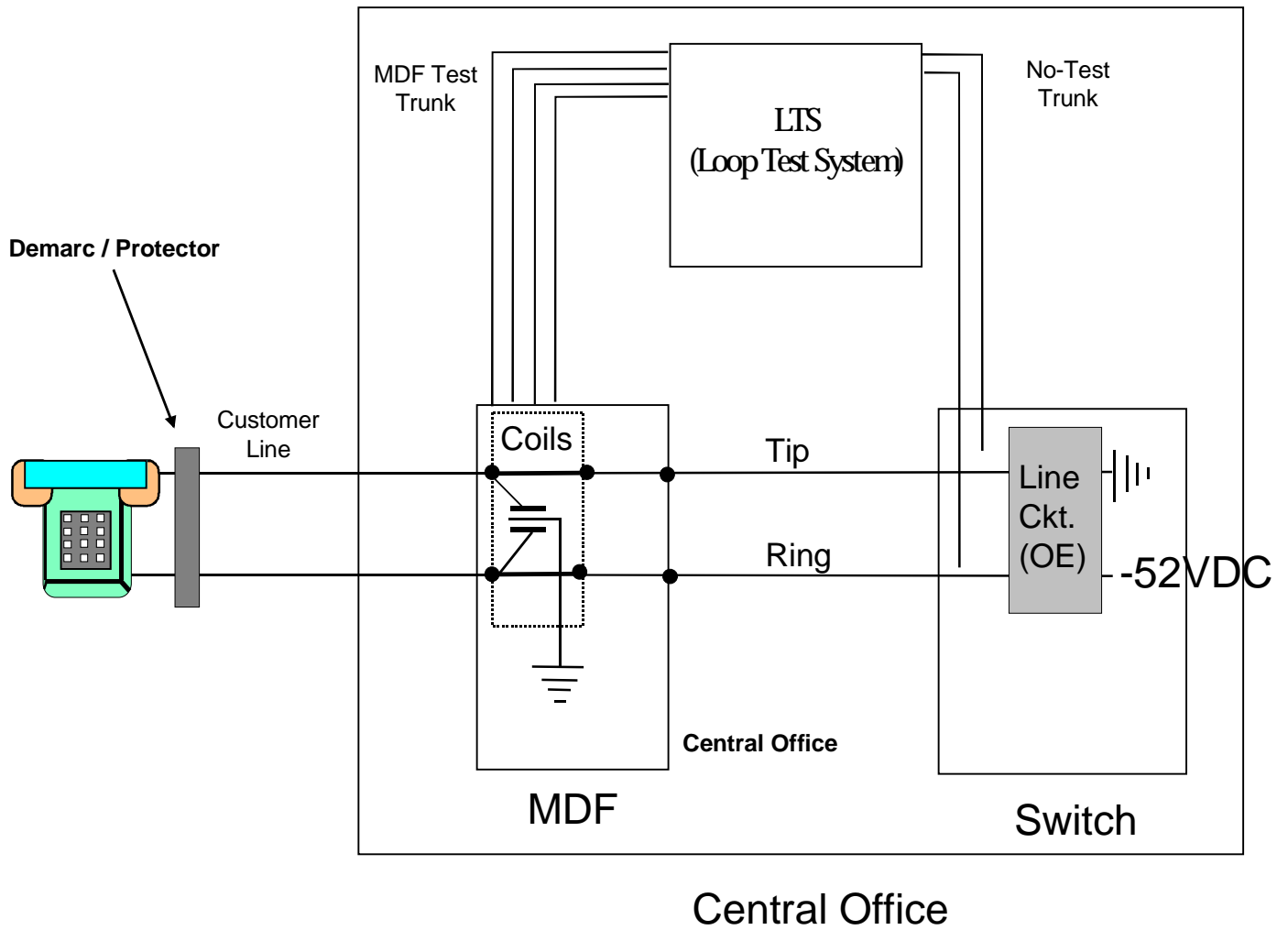
On the DISP and MSCR masks the message will appear on line 24 (bottom of the screen) as  
TN 9995551234 VER LM REMOTE TEST-EXPECT DELAYED RESULTS

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**MLT**

**MDF Test  
Needed**

**VER Codes**

**VER MD -- MDF TEST RECOMMENDED**

## **VER MD -- MDF TEST RECOMMENDED**

This VER code is set, when AC FEMF CURRENT is detected on the line and MLT testing is stopped. No DC tests have been run. An MDF access is necessary to determine if the AC condition is in or out of the Central Office.

### MLT SUMMARY (EXAMPLE) VER: MD

MDF TEST RECOMMENDED

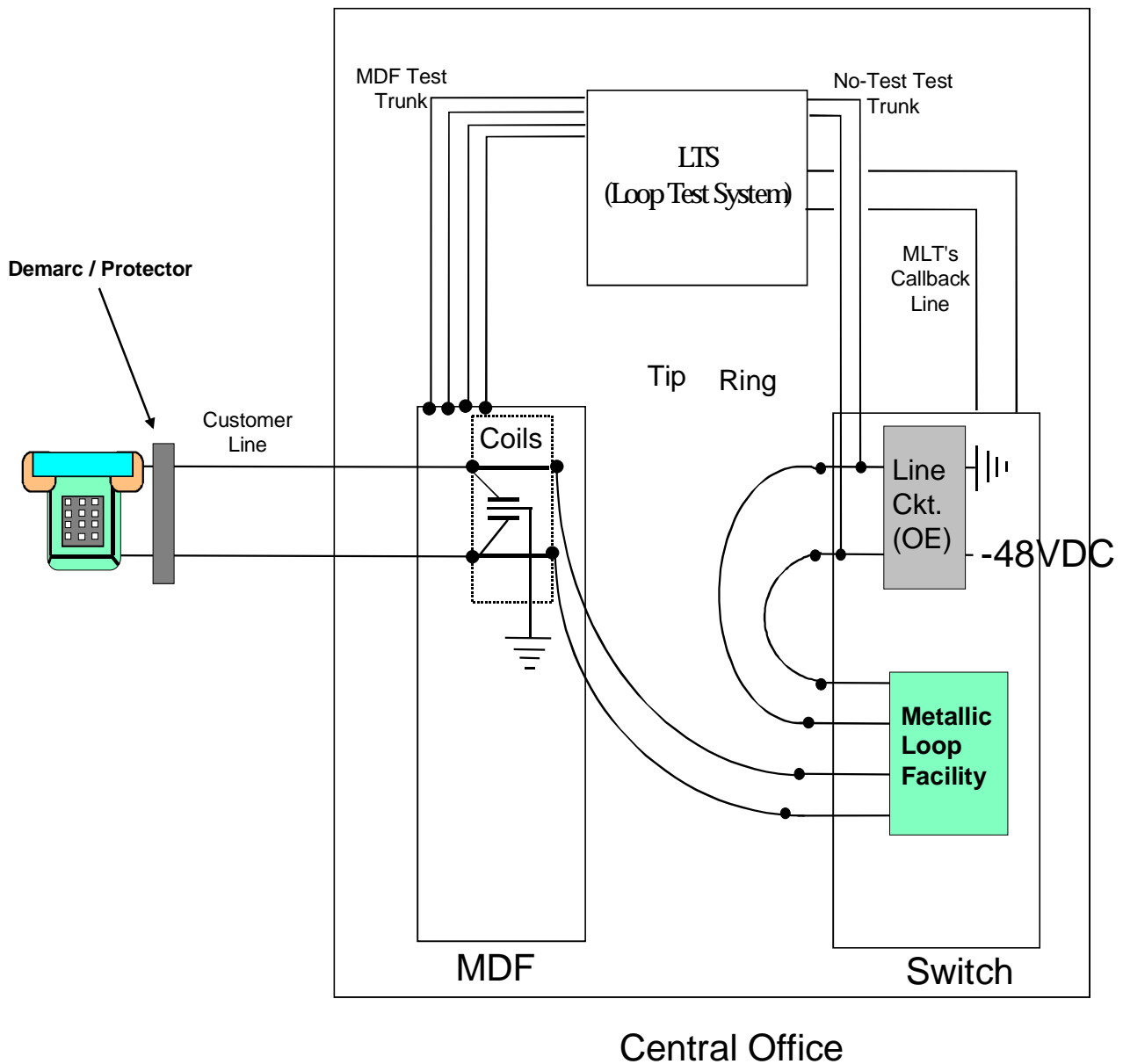
TEST STOPPED-EXCESS AC VOLTAGE

### ADDITIONAL INFORMATION

The MDF test is recommended for this VER condition because by using an MDF access it is possible to sectionalize the AC FEMF and enable you to determine its source.

This condition could be caused by excess voltage at the frame, although excess AC FEMF from the outside part of the line could cause the problem as well.

## VER MT -- MDF TESTABLE ONLY



## **VER MT -- MDF TESTABLE ONLY**

The loop can only be tested via an MDF access. This may be due to equipment in the central office (i.e., Metallic Loop Facility) that prohibits MLT testing. This equipment is bypassed when testing is done on an MDF trunk.

### MLT SUMMARY (EXAMPLE) VER: MT

MDF TESTABLE ONLY

MLT CAN'T SEE THROUGH C.O. EQPT

CENTRAL OFFICE  
LINE CKT OK  
DIAL TONE OK

### ADDITIONAL INFORMATION

Although MLT cannot test through the C.O. equipment, the line circuit and draw and break dial tone tests are run. The results are presented in the CENTRAL OFFICE category of the detailed results in this example. If there is a problem, the appropriate messages will be in the summary.

This test result will also occur when there is an incorrectly coded type of Central Office equipment on the customer's line record that is displayed in the CO: field of the TV mask as UNCAT OPAQUE EQUIP. If this happens, it is often an attempt to enter a REG unit. The MLT user should enter C2 in the TV mask OVER field and test again.



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**MLT**

**Test**

**Not Made**

**VER Codes**

## **VER ND -- TEST NOT RUN FROM THIS FE**

The telephone number was not tested because the FE (Front End) that initiated the request is connected to DCN that different from the DCN that is associated with this telephone number. Southwestern Bell has several DCNs.

### MLT SUMMARY (EXAMPLE) VER: ND

TEST NOT MADE

\* TN FROM FE ON DIFFERENT DCN

### ADDITIONAL INFORMATION

The MLT user should take one of the following actions:

1. Logon to the correct LMOS FE and retest with the TV mask.
2. Perform the test from ECRS. ECRS will automatically route the test to the correct LMOS FE.

**VER NL -- NO LINE RECORD IN SYSTEM**

This VER code is set when a No.-Test type test is requested on a Special Services line and there is no line record in file for the Special Service to be tested.

MLT SUMMARY (EXAMPLE) VER: NL

NO LINE RECORD IN SYSTEM-

TN NOT TESTABLE WITHOUT LINE RECORD

ADDITIONAL INFORMATION

It may still be possible to test this line using an MDF access.

## **VER NM -- NETWORK MANAGER FAILURE**

The Network Manager is the software that sends MLT requests from one LMOS FE(Front End) to another. It is programmed to know the machine ID for each FE. These machine IDs are stored in the MLT Access table on each FE. If one of these IDs is in error, the Network Manager cannot send a request to that machine and MLT will return VER NM.

### MLT SUMMARY (EXAMPLE) VER: NM

CANNOT SEND TO APPLICATION PROCESS

### ADDITIONAL INFORMATION

**Do not attempt to retest. This failure should be referred to the MLT system Administrator.**

**VER NS -- LINE NOT SERVED BY MLT**

The NNX of the telephone number that MLT has been requested to test is an NPA-NNX that is not MLT testable. MLT determined this from the MLT Access table.

MLT SUMMARY (EXAMPLE) VER: NS

LINE NOT SERVED BY MLT

ADDITIONAL INFORMATION

The MLT user can verify the accuracy of this information either within their center or by calling MLT system maintenance.

## **VER NT--LINE NOT MLT TESTABLE**

The line MLT has been requested to test is not testable by MLT. Therefore, no test is made. For example, MLT cannot test a subscriber line carrier (SLC-8 or SLC-40) system. If the line is served by such a system, MLT will recognize this and not test.

### MLT SUMMARY (EXAMPLE) VER: NT

LINE NOT MLT TESTABLE

### ADDITIONAL INFORMATION

Check the MLT Result User Guide listing of the C.O., Outside Plant, and Termination equipment that effects MLT testing for a complete list of those items that will prohibit MLT testing.

## **VER NV -- LINE NOT VERIFIED**

This VER code will only appear on printed BORs (Basic Output Report) or MORs (Mini Output report). An MLT test was requested for the line but the test could not be made because the trouble was a subsequent report.

### MLT SUMMARY (EXAMPLE) VER: NV

NOT VERIFIED

### ADDITIONAL INFORMATION

When processing this trouble have a Manual Test performed or follow local procedures for handling subsequent reports. In other cases, the trouble description and other relevant data on the report should provide information to make a decision.



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# **MLT**

# **Protected Service/ Intercept**

# **VER Codes**

## **VER SP -- PROTECTED SERVICE**

The line records indicate that the line MLT has been requested to test is a protected service (i.e., alarms, etc.). MLT will not test the line unless you override the line record information.

### MLT SUMMARY (EXAMPLE) VER: SP

PROTECTED SERVICE

CUSTOMER PERMISSION NEEDED TO TEST

### ADDITIONAL INFORMATION

Before you test the line by overriding the line records, you should first obtain the customer's permission to do so. If you receive permission to test, you can override the line records in the following way:

- Enter "P" in the OVER field of the TV mask and retest.

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**VER SS -- SPECIAL SERVICES REQUIRED**

MLT DC SIGNATURE

<u>EQUIPMENT</u>	<u>KOHMS</u>	<u>VOLTS</u>
MFT LOOP SIGNAL EXTENDER	>1000	T-R
	75 to 90	-9 to -14 T-G
	75 to 90	-9 to -14 R-G

<u>EQUIPMENT</u>	<u>KOHMS</u>	<u>VOLTS</u>
DIGITAL CHANNEL CARRIER	>1000	T-R
	50 to 800	-55 to -65 T-G
	50 to 800	-55 to -65 R-G

OR

>1000	T-R
30 to 40	-36 to -40 T-G
30 to 40	-36 to -40 R-G

OR

>1000	T-R
140 to 150	-40 to -48 T-G
140 to 150	-40 to -48 R-G

When these signatures are identified, MLT will set the VER SS and specify the particular piece of equipment identified.

**VER SS -- SPECIAL SERVICES REQUIRED**

MLT has detected the electrical signature of one of the following special services equipment:

MFT LOOP SIGNAL EXTENDER

DIGITAL CHANNEL CARRIER

**MLT SUMMARY (EXAMPLE) VER: SS****SPECIAL SERVICES IDENTIFIED**

\*MFT LOOP SIGNAL EXTENDER

CRAFT KOHMS	DC SIGNATURE VOLTS		MLT: KOHMS	DC SIGNATURE VOLTS	
151		T-R	3500		T-R
77	-6	T-G	79.90	-11	T-G
77	-6	R-G	79.32	-11	R-G

**ADDITIONAL INFORMATION**

Special services use MFT loop signal extenders and digital channel carriers. It is appropriate then to route this case to the people responsible for special services. The MLT DC SIGNATURE that identifies the two special services that are included in VER SS are given on the facing page:

## VER SU -- INTERCEPT

MLT has tested a line and found it to be on intercept. The VER SU stands for "Suspended" service. No further MLT tests are made once an intercept condition is identified.

### MLT SUMMARY (EXAMPLE) VER: SU

#### INTERCEPT FOUND BY TESTING

#### ADDITIONAL INFORMATION

MLT detects an intercept condition from the MLT DC SIGNATURE. The following signature identifies an intercept condition:

ESS office - Detect a 480 Hz tone and the MLT DC RESISTANCES specified below:

>1000 KOHMS	T-G
0.3 to 0.8 KOHMS	R-G

When intercept is detected, it is recommended that you determine whether or not the line is supposed to be on intercept by checking in SORD. If the line is supposed to be on intercept, you can close out the report. If the line is not supposed to be on intercept, follow local procedures to correct the situation.

#### **Here are some additional suggestions:**

Because MLT depends on the Central Office to send a 480 Hz tone in addition to a Ring Ground, the possibility exists that MLT can receive a false indication of Intercept and fail to get an Intercept indication when a line is on Intercept.

If the customer reports CBC and people get a recording when they are called and the test is Intercept, place a phone call to the number. If you get a recording, they are on Intercept.

If a customer reports other problems and the MLT test result is Intercept, it is possible there is a Ring Ground and the Central Office sent the 480 Hz tone in error. Call the number and if you do not get a recording the customer has a Ring Ground Fault on the line. To determine the severity of the Ring Ground, perform the QX (QUICKX) test on the line using the MLT TV mask.

# **MLT**

# **System Timeout**

# **VER Codes**



## VER T1 -- SYSTEM TIME-OUT

Your MLT request has timed out while testing was in progress. This problem can be caused by data link problems between the various parts of the system.

### MLT SUMMARY (EXAMPLE) VER: T1

SYSTEM TIME-OUT

### ADDITIONAL INFORMATION

**The best thing to do is try the test again.** The person responsible for system maintenance should be notified if this test result is received repeatedly.

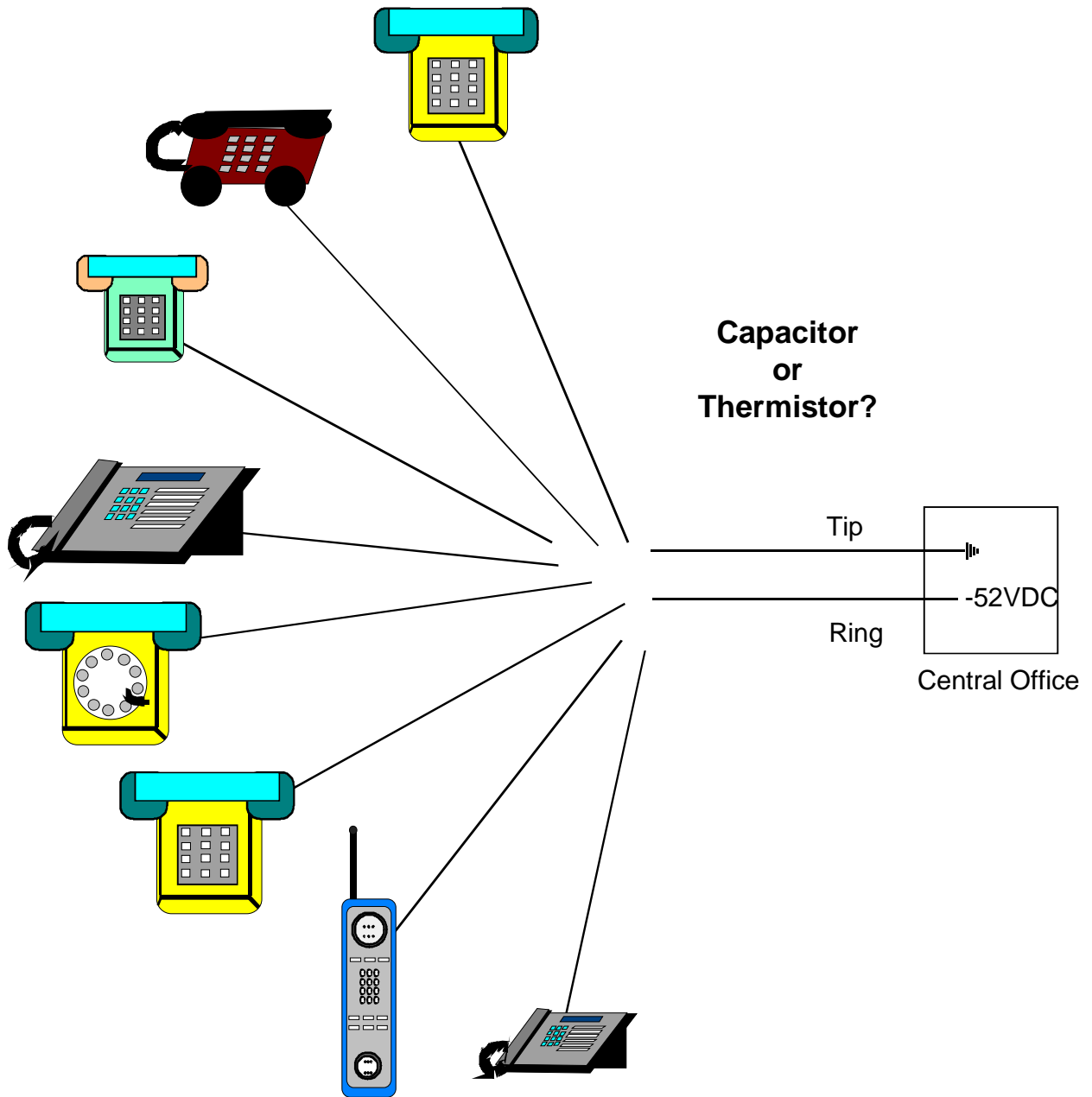
# **MLT**

# **Unexpected**

# **Results**

# **VER Codes**

VER U1 -- UNEXPECTED THERMISTORS



## VER U1 -- UNEXPECTED THERMISTORS

When MLT tests a Single Party line that appears to be open, it will then perform a thermistor test. If MLT identifies a thermistor, when there should not be one according to the records, it will set VER U1.

### MLT SUMMARY (EXAMPLE) VER: U1

#### POSSIBLE RECORD ERROR

#### UNEXPECTED THERMISTOR FOUND

CRAFT KOHMS	DC SIGNATURE VOLTS		MLT: DC SIGNATURE KOHMS	VOLTS		AC SIGNATURE KOHMS	
3500		T-R	3500		T-R	68	T-R
3500	0	T-G	3500	0	T-G	1500	T-G
3500	0	R-G	3500	0	R-G	1500	R-G

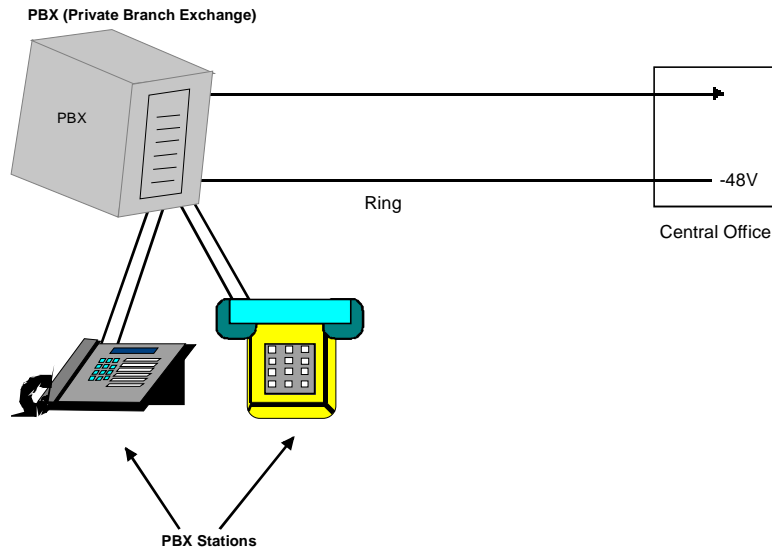
CENTRAL OFFICE  
LINE CKT OK  
DIAL TONE OK

### ADDITIONAL INFORMATION

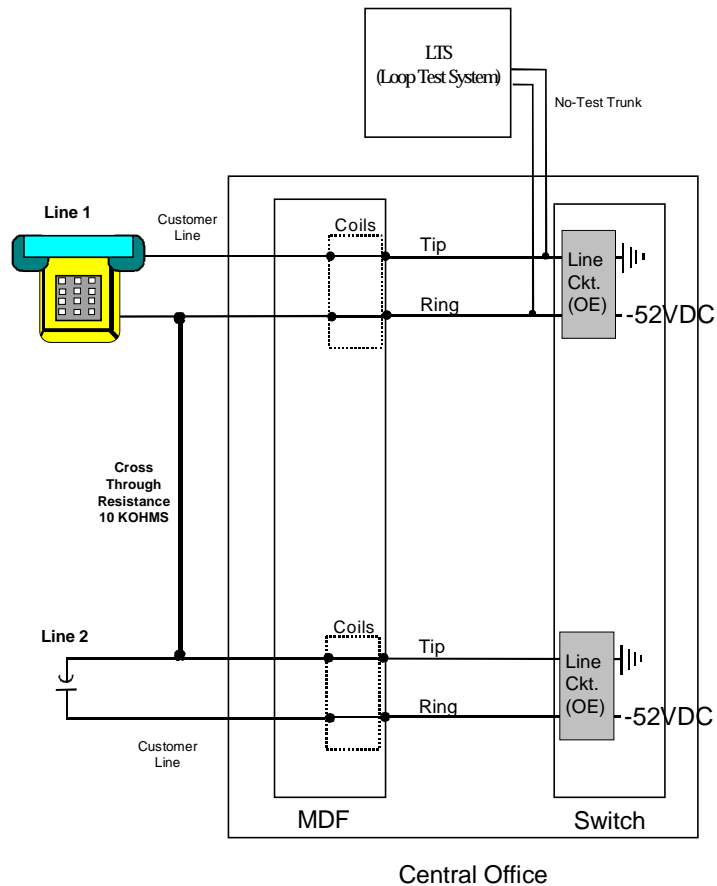
**The presence of thermistors indicates the line is NOT open.**

## VER U2 -- UNEXPECTED PBX SIGNATURE

Is it a PBX???



Or is it a Cross???



**VER U2 -- UNEXPECTED PBX SIGNATURE**

MLT test results indicate that the MLT DC SIGNATURE matched one of the valid MLT DC SIGNATURES for a PBX. The line records indicate that the termination is **not** a PBX termination. In the post-divestiture environment, most of the time this result will be a Single Party line with a Cross.

MLT SUMMARY (EXAMPLE) VER: U2

## POSSIBLE RECORD ERROR

## DC VALUES LOOK LIKE PBX

CRAFT	DC SIGNATURE		MLT:	DC SIGNATURE	
KOHMS	VOLTS		KOHMS	VOLTS	
3500		T-R	3500		T-R
10	-46	T-G	10.12	-52	T-G
3500	0	R-G	3500	0	R-G

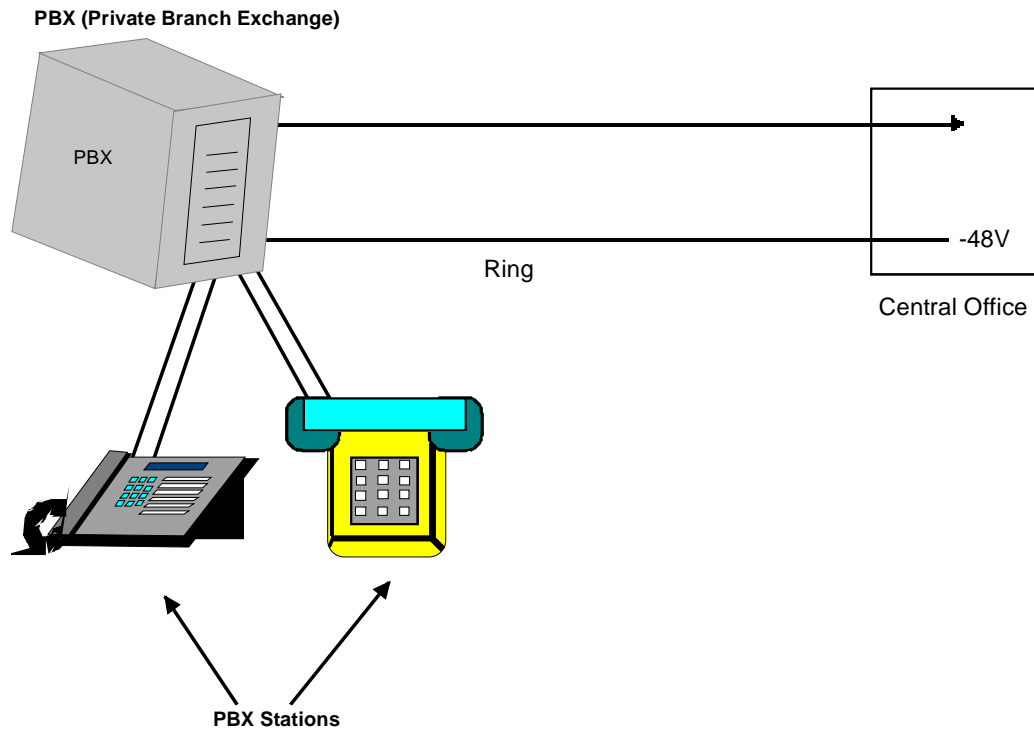
CENTRAL OFFICE  
CAN'T DO CO TEST

ADDITIONAL INFORMATION

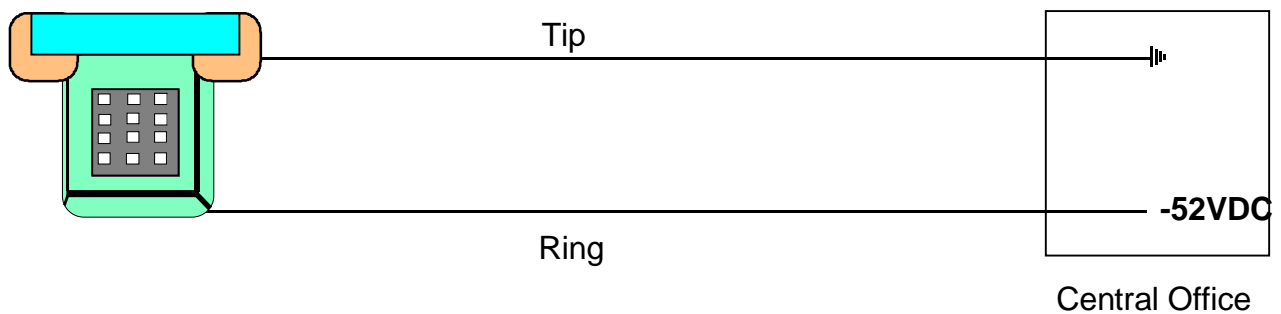
The MLT user should check the customer's record in SORD, LFACS, and LMOS to determine the correct class of service. If the customer has PBX service, the test results may be correct. If the customer is a Single Party, analyze the results for the fault (Short, Ground, or Cross) that is present.

## VER U3 -- UNEXPECTED RINGER TERMINATION

Is it a PBX???



Or is it a Single Party line with a ringer?????



**VER U3 -- UNEXPECTED RINGER TERMINATION**

MLT tests a line whose records indicate that it is a ground start PBX. However, an AC signature is present and the T-R values are in the 2 to 14 Kohm range. An AC signature (especially one that indicates the presence of a ringer T-R) is not expected for a PBX termination.

MLT SUMMARY (EXAMPLE) VER: U3

## POSSIBLE RECORD ERROR

## UNEXPECTED RINGER TERM IDENTIFIED

CRAFT KOHMS	DC SIGNATURE VOLTS		MLT: KOHMS	DC SIGNATURE VOLTS		AC SIGNATURE KOHMS	RNGRS	
3500		T-R	3500		T-R	9	YES	T-R
3500	0	T-G	3500	0	T-G	1500		T-G
3500	0	R-G	3500	0	R-G	1500		R-G

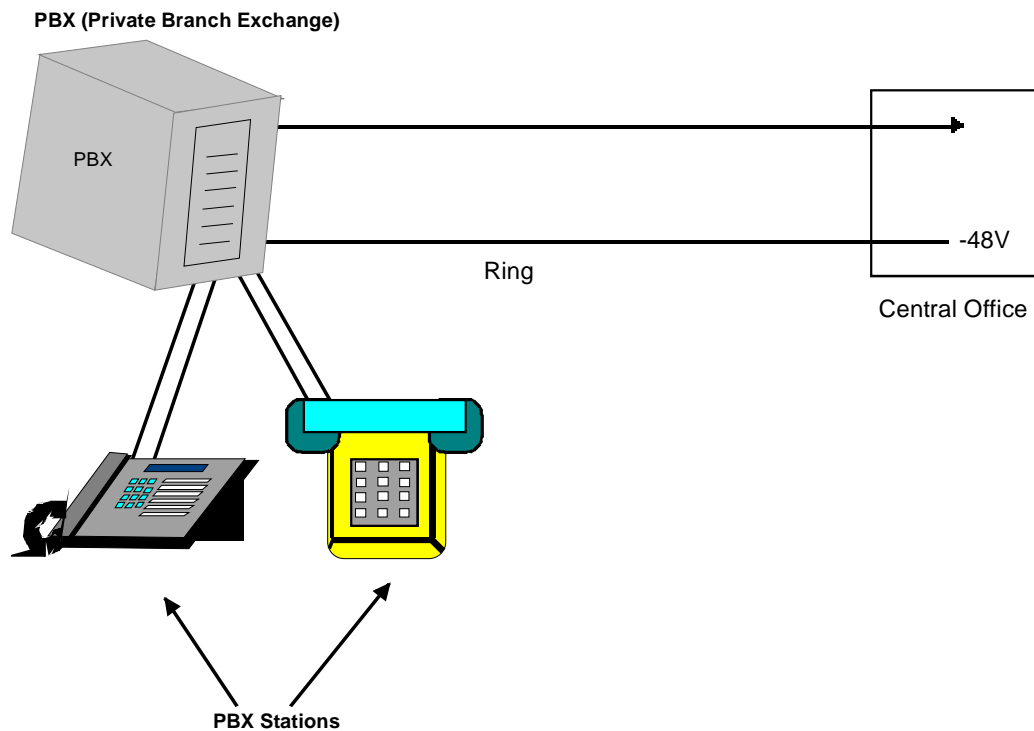
CENTRAL OFFICE  
LINE CKT OK  
DIAL TONE OK

ADDITIONAL INFORMATION

It is possible that the line records are wrong. You must determine whether or not the line is a single party line (as you might expect with a possible ringer T-R). The MLT user should check the customer's record in SORD, LFACS, and LMOS to determine the correct class of service. If the records are wrong, take the appropriate action to correct them and handle the report according to the MLT test results. If the records are correct, handle the trouble based on the customer's report.



## VER U4 -- UNEXPECTED INWARD SERVICE



**VER U4 -- UNEXPECTED INWARD SERVICE**

MLT detects a ground start PBX DC signature with no line circuit and no way to draw dial tone. It is possible that MLT is accessed to an inward-only trunk that cannot make outgoing calls.

**MLT SUMMARY (EXAMPLE) VER: U4**

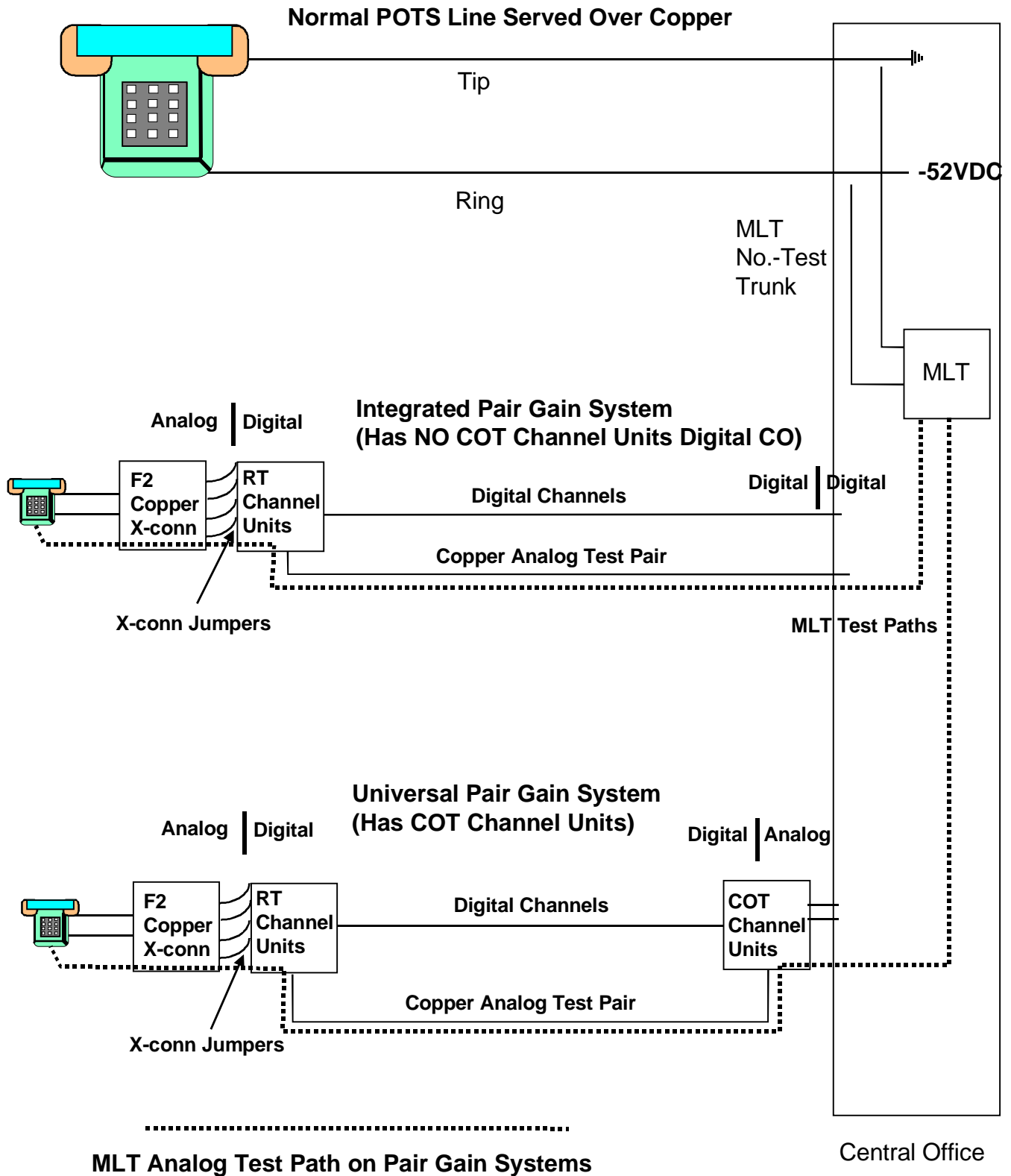
CRAFT	DC SIGNATURE		MLT:	DC SIGNATURE	
KOHMS	VOLTS		KOHMS	VOLTS	
40		T-R	3500		T-R
11	-41	T-G	11.17	-46	T-G
29	-34	R-G	28.93	-44	R-G

CENTRAL OFFICE  
INWARD SERVICE

**ADDITIONAL INFORMATION**

It is possible that the line records are wrong. The MLT user should check the customer's record in SORD, LFACS, and LMOS to determine the correct class of service. If they are wrong, take the appropriate action to correct them. If they are correct, handle the report based on the customer's trouble report and the MLT test results.

## VER U6 -- UNEXPECTED INTEGRATED PGS/UNEXPECTED UNIVERSAL PGS



**VER U6 -- UNEXPECTED INTEGRATED PGS/UNEXPECTED UNIVERSAL PGS**

MLT results indicate a discrepancy in the line record information and the MLT test results.

This VER code is the result of one of the two following situations:

1. MLT expects an Integrated Pair Gain System and the MLT results indicate a Universal Pair Gain System.
2. MLT expects a Universal Pair Gain System and the MLT results indicate an Integrated Pair Gain System.

MLT SUMMARY (EXAMPLE) VER: U6

POSSIBLE RECORD ERROR

UNEXPECTED INTEGRATED PGS

OR

POSSIBLE RECORD ERROR

UNEXPECTED UNIVERSAL PGS

CRAFT KOHMS	DC SIGNATURE VOLTS		MLT: DC SIGNATURE KOHMS	VOLTS		AC SIGNATURE KOHMS	RNGRS	
3500		T-R	3500		T-R	9	YES	T-R
3500	0	T-G	3500	0	T-G	1500		T-G
3500	0	R-G	3500	0	R-G	1500		R-G

CENTRAL OFFICE	BALANCE	
LINE CKT OK	CAP 100 %	LOOP LENGTH = 17000 FT
DIAL TONE OK	LONG 65 DB	

ADDITIONAL INFORMATION

The test results are correct. Act on them on behalf of the customer. The line record needs to be corrected.

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**MLT**

**Extra Results**

**VER Codes**

**VER XA -- OVRD-EXK/NNX COMBO NOT IN DATABASE**

The XA VER code appears when the combination of MLT TV OVER field entry of Exchange Key (EXK) and the NPANXX of the telephone number in the TN field are unknown to MLT. MLT does not know of any switch identified by that override EXK that also serves the NPANXX of the telephone number in the TN field.

MLT SUMMARY (EXAMPLE) VER: XA

OVRD-EXK/NNX COMBO NOT IN DATABASE

TV EC 906 PRTR REQ BY CB 01-20-98 0450A

TN 999 555 5555 SW: ESS-5 OE: 03017-151-31

REQ L# CMT CA CO:

TEMP(F) PR OVER **NPANXX** OSP:

FULLX TERM: SINGLE PARTY

**VER XA: OVRD-EXK/NNX COMBO NOT IN DATABASE**

ADDITIONAL INFORMATION

The override exchange key and NXX combination is used to gain access from the MLT TV mask to test a customer's line under the following conditions:

- When the NXX of the TN is split over two or more switches.
- When the Default Exchange Key table entry produces an EXK result that does not relate to the switch serving the desired line.
- The line record has an incorrect EXK.
- The line record does not have an EXK entry.
- The line record does not exist.

The MLT tester should determine the correct EXK by reviewing the local center's EXK list, enter that EXK in the OVER field, and retest the line.

**VER XI -- INVALID TN**

The XI VER code appears when an MLT user tests a line and the TN field entry is NOT one of the following:

- A ten-digit TN
- A ten-digit TN plus an extra series field starting with either TER, XN, S, OGO, or OD.
- A Special Services TN served by a DLC (Digital Loop Carrier) system that allows the use of MLT's SSA (Special Services Access) request.

MLT SUMMARY (EXAMPLE) VER: XI

INVALID TN

TV EC 906 PRTR REQ BY CB 01-20-98 0450A

TN 999 555 5555	SW: ESS-5	OE: 03017-151-31
REQ L# CMT CA		CO:
TEMP(F) PR	OVER	OSP:
FULLX		TERM: SINGLE PARTY
<b>VER XI: INVALID TN</b>		

ADDITIONAL INFORMATION

The MLT tester should make the correct TN field entry on the MLT TV mask and retest.



**VER XU -- TEST EQUIPMENT NOT AVAILABLE FOR THIS WC**

The XU VER code appears when an MLT user tests a line that is served by a Central Office that does not have an MLT testing system or there is an erroneous entry in the table that identifies the presence of MLT testing equipment in a Central Office.

MLT SUMMARY (EXAMPLE) VER: XU**TEST EQUIPMENT NOT AVAILABLE FOR THIS WC**

TV EC 906 PRTR      REQ BY      CB              01-20-98 0450A

TN 999 555 5555                      SW: ESS-5              OE: 03017-151-31  
REQ      L# CMT      CA                      CO:  
            TEMP(F)      PR                      OVER              OSP:  
            FULLX                      TERM: SINGLE PARTY

**VER XU:      TEST EQUIPMENT NOT AVAILABLE FOR THIS WC**

ADDITIONAL INFORMATION

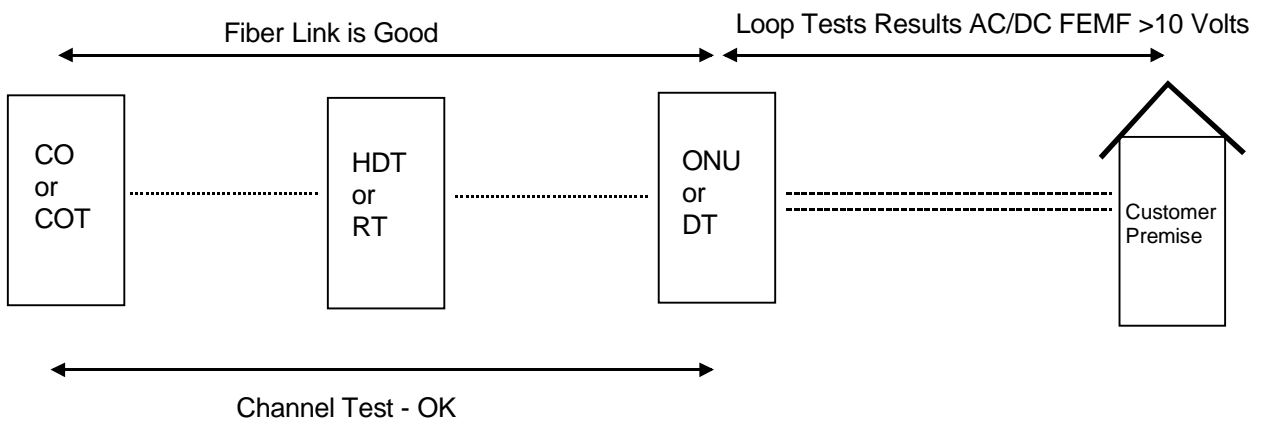
The MLT tester should make the correct TN field entry on the MLT TV mask and retest. If the result is the same and the MLT tester questions the results, refer this situation to the MLT System Administrator.

**MLT**

**Fiber in the Loop**

**VER Codes**

## VER 2C -- PROBABLE FIBER IN THE LOOP



## **VER 2C -- PROBABLE FIBER IN THE LOOP**

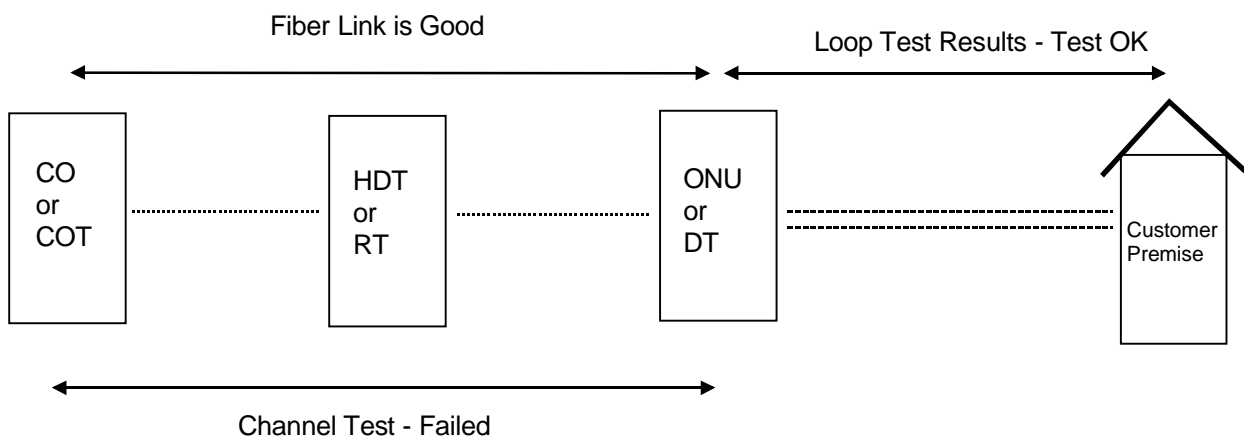
### **VER 2C: PROBABLE FIBER-IN-THE-LOOP**

MLT has discovered what appears to be a Pair Gain customer that is either FIBER-TO-THE-CURB or FIBER-TO-THE-HOME. The Fiber Link is good all the way from the Central Office to the Optical Network Unit (ONU) or Distant Terminal (DT) at the curb or house. The Channel Tests FAILED, and the tests performed on the Customer's Loop (Drop or Inside Wire) have found AC or DC Foreign Battery (FEMF) greater than 10 Volts Tip to Ring, Tip to Ground, or Ring to Ground.

**RECOMMENDATION: DISPATCH TO THE ONU/DT TO REPAIR THE DROP OR INSIDE WIRE**

VER 2C: PROBABLE FIBER-IN-THE-LOOP FOUND - PAIR GAIN CHANNEL FAILURE  
LOOP TESTS INDICATE - FEMF GREATER THAN 10 VOLTS  
(DISPATCH TO ONU)

## VER 3C -- PROBABLE FIBER IN THE LOOP



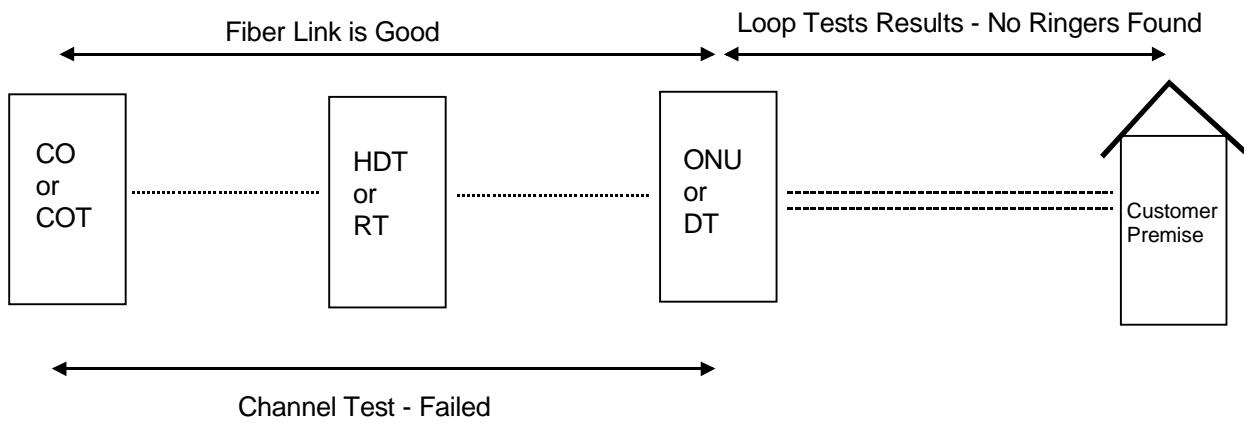
## **VER 3C -- PROBABLE FIBER IN THE LOOP**

### **VER 3C: PROBABLE FIBER-IN-THE-LOOP**

MLT has discovered what appears to be a Pair Gain customer that is either FIBER-TO-THE-CURB or FIBER-TO-THE-HOME. The Fiber Link is good all the way from the Central Office to the Optical Network Unit (ONU) or Distant Terminal (DT) at the curb or house. The Channel Tests FAILED, but the tests performed on the Customer's Loop (Drop or Inside Wire) have found a GOOD Ringer Termination and no faults Tip to Ring, Tip to Ground, or Ring to Ground.

VER 3C: PROBABLE FIBER-IN-THE-LOOP FOUND - PAIR GAIN CHANNEL FAILURE  
LOOP TESTS INDICATE - TEST OK

## VER 4C -- PROBABLE FIBER IN THE LOOP



## **VER 4C-- PROBABLE FIBER IN THE LOOP**

### **VER 4C: PROBABLE FIBER-IN-THE-LOOP**

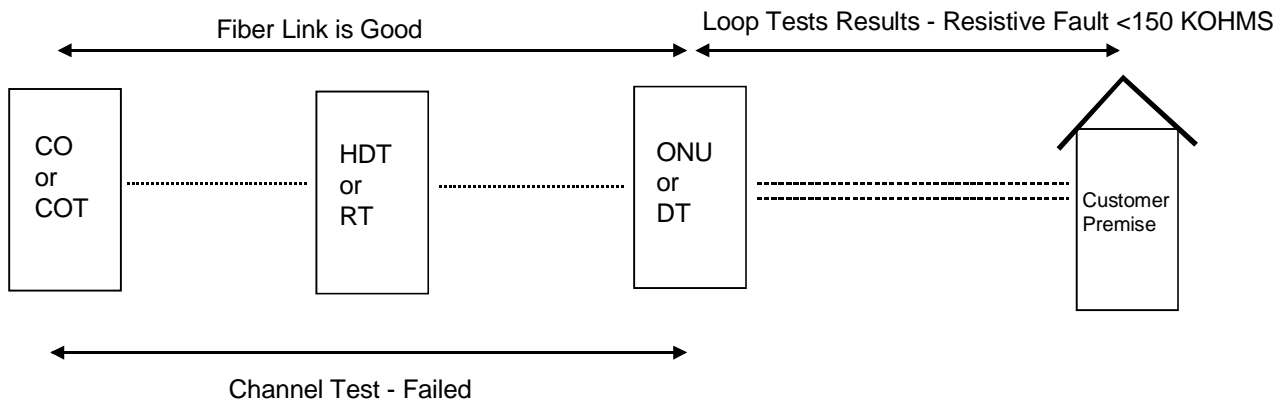
MLT has discovered what appears to be a Pair Gain customer that is either FIBER-TO-THE-CURB or FIBER-TO-THE-HOME. The Fiber Link is good all the way from the Central Office to the Optical Network Unit (ONU) or Distant Terminal (DT) at the curb or house. The Channel Tests FAILED, and the tests performed on the Customer's Loop (Drop or Inside Wire) have found no ringer termination or OPEN between the ONU/DT and the Telephone Sets.

**RECOMMENDATION: DISPATCH TO THE ONU/DT TO REPAIR THE DROP OR INSIDE WIRE**

VER 4C: PROBABLE FIBER-IN-THE-LOOP FOUND - PAIR GAIN CHANNEL FAILURE  
LOOP TESTS INDICATE - NO RINGERS  
(DISPATCH TO ONU)



## VER 5C -- PROBABLE FIBER IN THE LOOP



## **VER 5C -- PROBABLE FIBER IN THE LOOP**

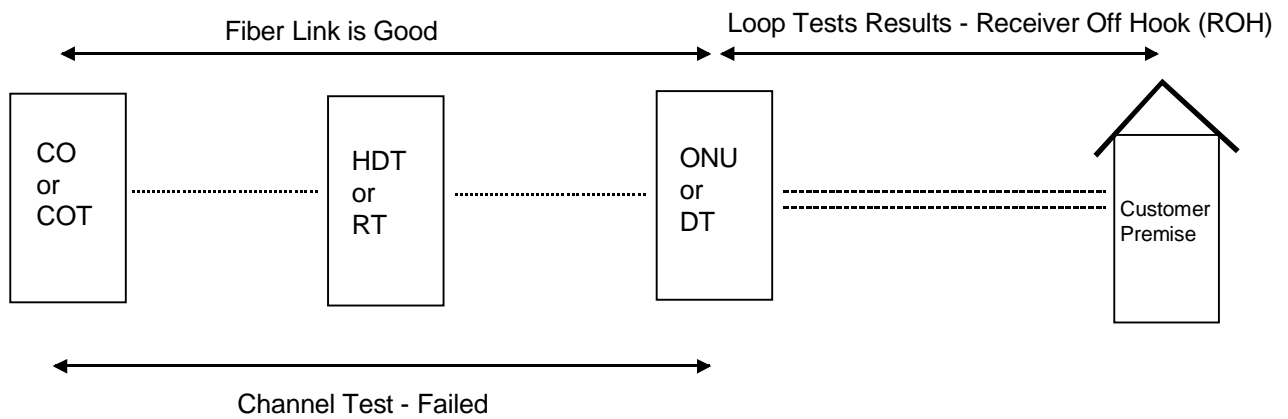
### **VER 5C: PROBABLE FIBER-IN-THE-LOOP**

MLT has discovered what appears to be a Pair Gain customer that is either FIBER-TO-THE-CURB or FIBER-TO-THE-HOME. The Fiber Link is good all the way from the Central Office to the Optical Network Unit (ONU) or Distant Terminal (DT) at the curb or house. The Channel Tests FAILED, and the tests performed on the Customer's Loop (Drop or Inside Wire) have found a RESISTIVE FAULT (Short or Ground) less than 150 KOHMS Tip to Ring, Tip to Ground, or Ring to Ground.

**RECOMMENDATION: DISPATCH TO THE ONU/DT TO REPAIR THE DROP OR INSIDE WIRE**

VER 5C: PROBABLE FIBER-IN-THE-LOOP FOUND - PAIR GAIN CHANNEL FAILURE  
LOOP TESTS INDICATE - RESISTANCE FAULT LESS THAN 150 KOHMS  
(DISPATCH TO ONU)

## VER 6C -- PROBABLE FIBER IN THE LOOP



## **VER 6C -- PROBABLE FIBER IN THE LOOP**

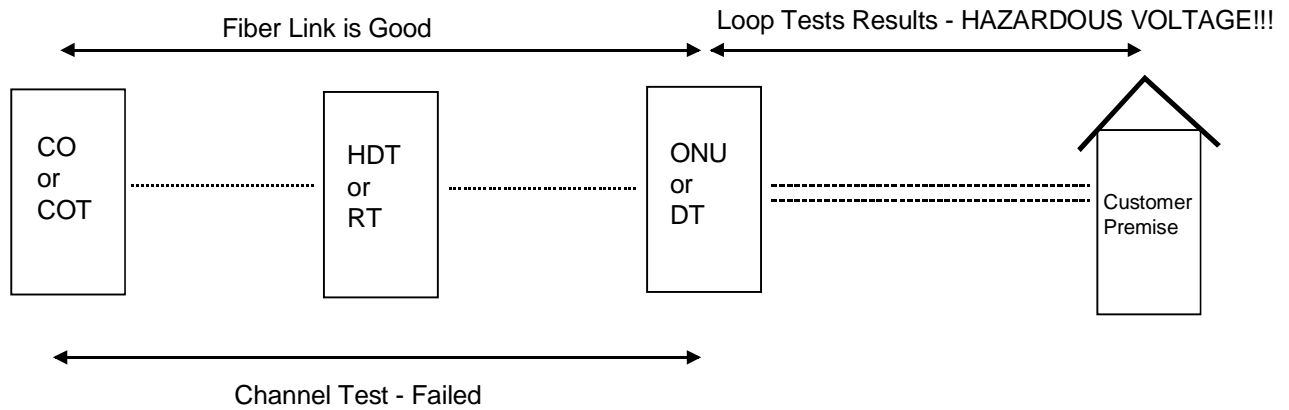
### **VER 6C: PROBABLE FIBER-IN-THE-LOOP**

MLT has discovered what appears to be a Pair Gain customer that is either FIBER-TO-THE-CURB or FIBER-TO-THE-HOME. The Fiber Link is good all the way from the Central Office to the Optical Network Unit (ONU) or Distant Terminal (DT) at the curb or house. The Channel Tests FAILED, and the tests performed on the Customer's Loop (Drop or Inside Wire) have found a RECEIVER-OFF-HOOK (ROH) condition.

**RECOMMENDATION: DISPATCH TO THE ONU/DT OR CUSTOMER LOCATION TO INVESTIGATE THE ROH CONDITION**

VER 6C: PROBABLE FIBER-IN-THE-LOOP FOUND - PAIR GAIN CHANNEL FAILURE  
LOOP TESTS INDICATE - ROH  
(DISPATCH TO ONU)

## VER 7C -- PROBABLE FIBER IN THE LOOP



## **VER 7C -- PROBABLE FIBER IN THE LOOP**

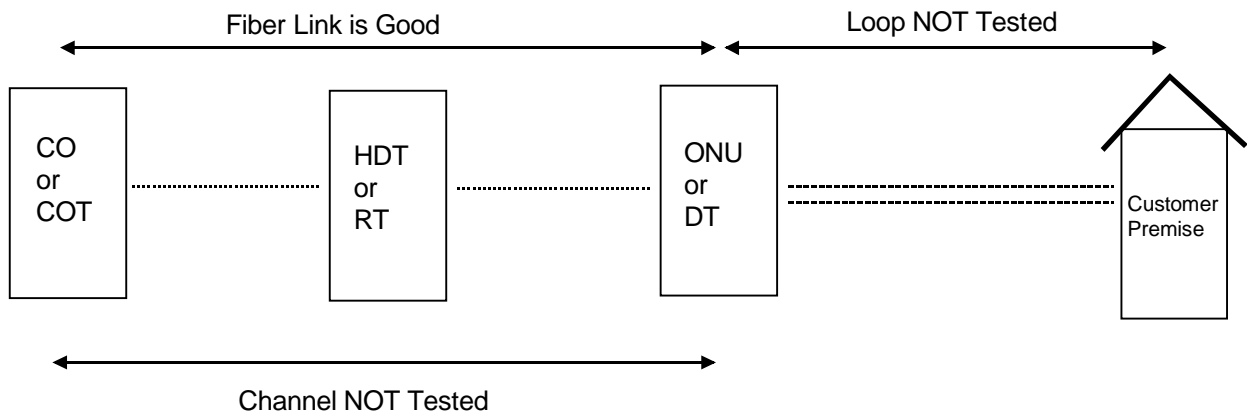
### **VER 7C: PROBABLE FIBER-IN-THE-LOOP**

MLT has discovered what appears to be a Pair Gain customer that is either FIBER-TO-THE-CURB or FIBER-TO-THE-HOME. The Fiber Link is good all the way from the Central Office to the Optical Network Unit (ONU) or Distant Terminal (DT) at the curb or house. The Channel Tests FAILED, and the tests performed on the Customer's Loop (Drop or Inside Wire) have found a **HAZARDOUS VOLTAGE CONDITION !! TAKE PROPER PRECAUTIONS !!**

**RECOMMENDATION: DISPATCH TO THE ONU/DT TO REPAIR THE DROP OR INSIDE WIRE**

VER 7C: PROBABLE FIBER-IN-THE-LOOP FOUND - PAIR GAIN CHANNEL FAILURE  
LOOP TESTS INDICATE - HAZARDOUS VOLTAGE!! TAKE PROPER PRECAUTIONS  
(DISPATCH TO ONU)

## VER 1X -- PROBABLE FIBER IN THE LOOP



## **VER 1X -- PROBABLE FIBER IN THE LOOP**

### **VER 1X: PROBABLE FIBER-IN-THE-LOOP**

MLT has discovered what appears to be a Pair Gain customer that is either FIBER-TO-THE-CURB or FIBER-TO-THE-HOME. The Fiber Link is good all the way from the Central Office to the Optical Network Unit (ONU) or Distant Terminal (DT) at the curb or house. There is a problem with the equipment at the ONU/DT that will not allow testing of the Customer's PG Channel or Loop (Drop or Inside Wire); or the ONU/DT is not equipped for these tests.

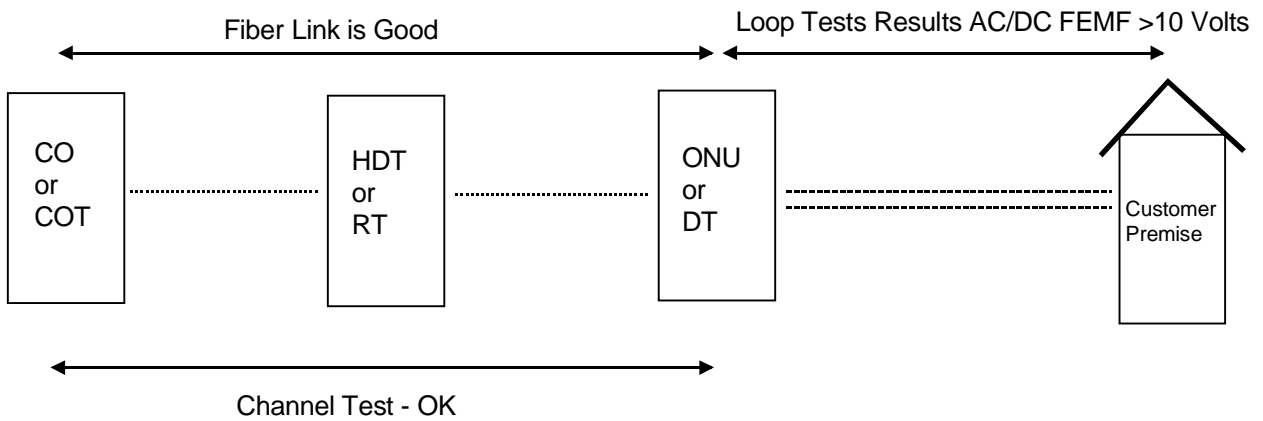
**RECOMMENDATION: DISPATCH TO THE ONU/DT TO INVESTIGATE THE TESTING PROBLEM AND HANDLE THE CUSTOMER'S TROUBLE REPORT.**

VER 1X: PROBABLE FIBER-IN-THE-LOOP FOUND - NO CHANNEL OR LOOP TESTS AVAILABLE. FIBER LINK IS GOOD FROM COT TO DT- ONU COMMON EQUIPMENT FAILURE OR NEAR CUSTOMER PREMISE PROBLEM

(DISPATCH TO ONU)



**VER 2X -- PROBABLE FIBER IN THE LOOP**



## **VER 2X -- PROBABLE FIBER IN THE LOOP**

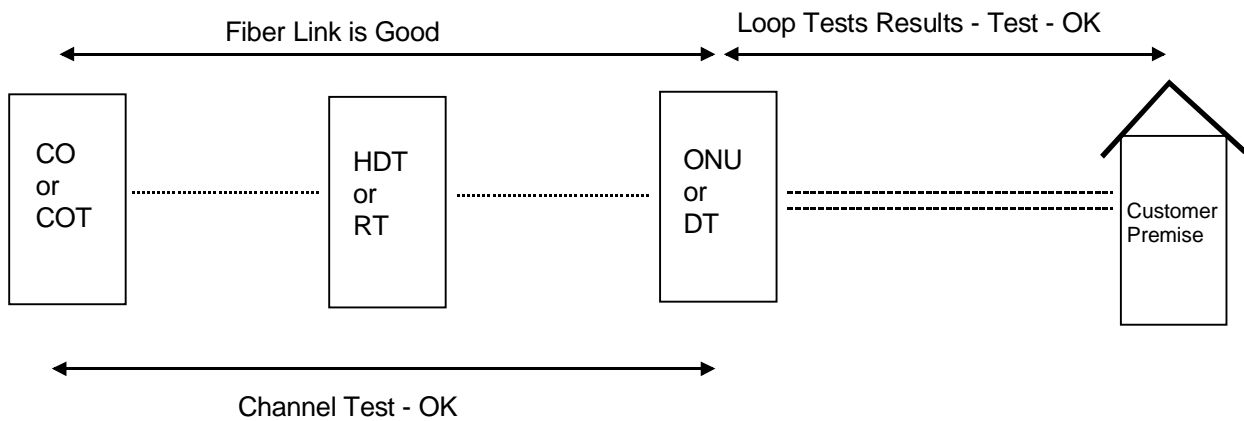
### **VER 2X: PROBABLE FIBER-IN-THE-LOOP**

MLT has discovered what appears to be a Pair Gain customer that is either FIBER-TO-THE-CURB or FIBER-TO-THE-HOME. The Fiber Link is good all the way from the Central Office to the Optical Network Unit (ONU) or Distant Terminal (DT) at the curb or house. The Channel Tests are OK, but the tests performed on the Customer's Loop (Drop or Inside Wire) have found AC or DC Foreign Battery (FEMF) greater than 10 Volts Tip to Ring, Tip to Ground, or Ring to Ground.

### **RECOMMENDATION: DISPATCH TO THE ONU/DT TO REPAIR THE DROP OR INSIDE WIRE**

VER 2X: PROBABLE FIBER-IN-THE-LOOP FOUND - CHANNEL-SINGLE PARTY SERVICE  
LOOP TESTS INDICATE - FEMF GREATER THAN 10 VOLTS  
(DISPATCH TO ONU)

## VER 3X -- PROBABLE FIBER IN THE LOOP



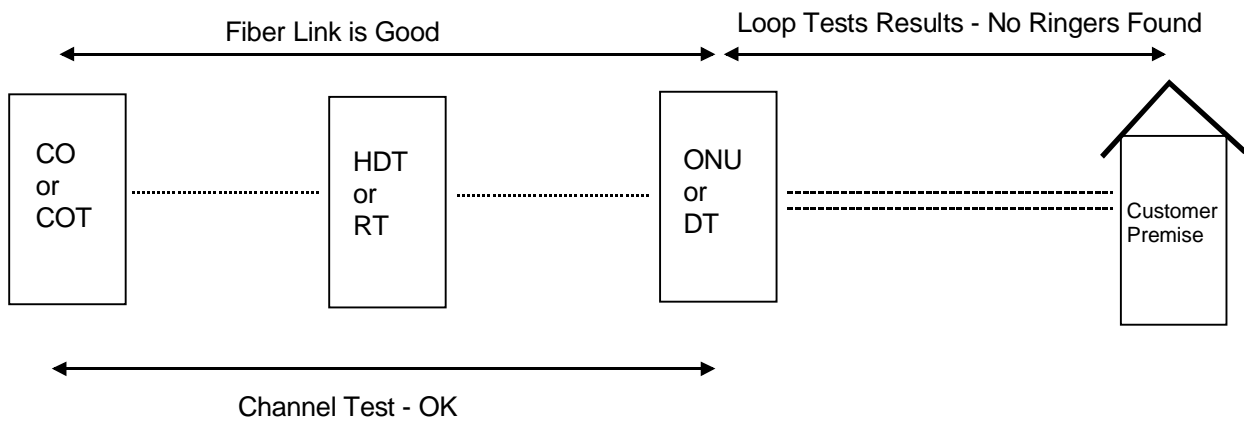
## **VER 3X -- PROBABLE FIBER IN THE LOOP**

### **VER 3X: PROBABLE FIBER-IN-THE-LOOP**

MLT has discovered what appears to be a Pair Gain customer that is either FIBER-TO-THE-CURB or FIBER-TO-THE-HOME. The Fiber Link is good all the way from the Central Office to the Optical Network Unit (ONU) or Distant Terminal (DT) at the curb or house. The Channel Tests are OK, and the tests performed on the Customer's Loop (Drop or Inside Wire) have found GOOD Ringer Termination and no faults Tip to Ring, Tip to Ground, or Ring to Ground.

VER 3X: PROBABLE FIBER-IN-THE-LOOP FOUND - CHANNEL-SINGLE PARTY SERVICE  
LOOP TESTS INDICATE - TEST OK

## VER 4X -- PROBABLE FIBER IN THE LOOP



## **VER 4X -- PROBABLE FIBER IN THE LOOP**

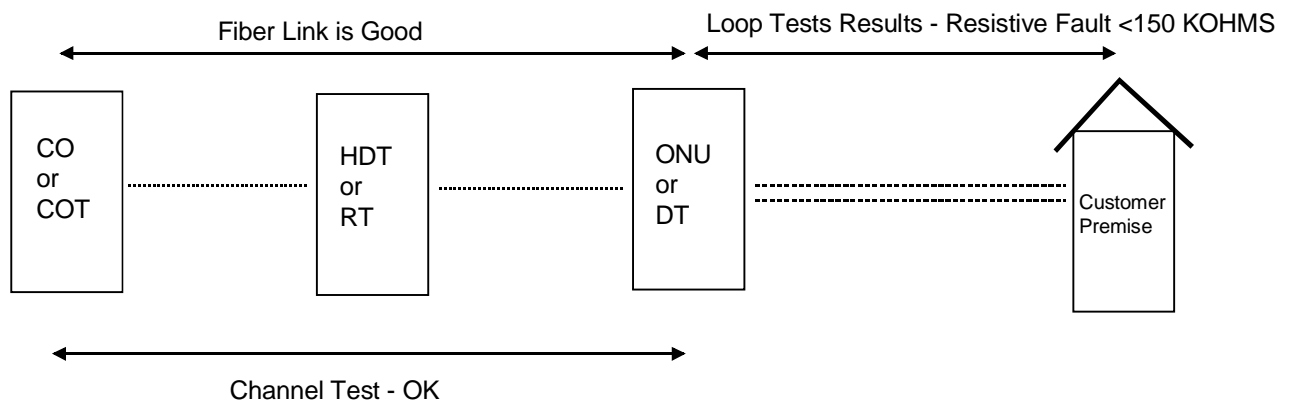
### **VER 4X: PROBABLE FIBER-IN-THE-LOOP**

MLT has discovered what appears to be a Pair Gain customer that is either FIBER-TO-THE-CURB or FIBER-TO-THE-HOME. The Fiber Link is good all the way from the Central Office to the Optical Network Unit (ONU) or Distant Terminal (DT) at the curb or house. The Channel Tests are OK, but the tests performed on the Customer's Loop (Drop or Inside Wire) have found no ringer termination or OPEN between the ONU/DT.

**RECOMMENDATION: DISPATCH TO THE ONU/DT TO REPAIR THE DROP OR INSIDE WIRE**

VER 4X: PROBABLE FIBER-IN-THE-LOOP FOUND - CHANNEL-SINGLE PARTY SERVICE  
LOOP TESTS INDICATE - NO RINGERS  
(DISPATCH TO ONU)

## VER 5X -- PROBABLE FIBER IN THE LOOP



## **VER 5X -- PROBABLE FIBER IN THE LOOP**

### **VER 5X: PROBABLE FIBER-IN-THE-LOOP**

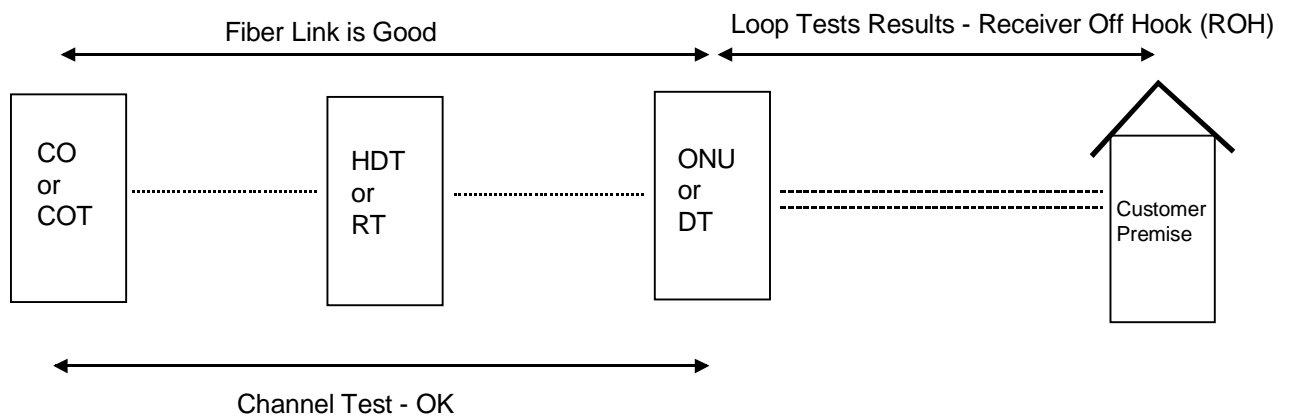
MLT has discovered what appears to be a Pair Gain customer that is either FIBER-TO-THE-CURB or FIBER-TO-THE-HOME. The Fiber Link is good all the way from the Central Office to the Optical Network Unit (ONU) or Distant Terminal (DT) at the curb or house. The Channel Tests are OK, but the tests performed on the Customer's Loop (Drop or Inside Wire) have found a RESISTIVE FAULT (Short or Ground) less than 150 KOHMS Tip to Ring, Tip to Ground, or Ring to Ground.

**RECOMMENDATION: DISPATCH TO THE ONU/DT TO REPAIR THE DROP OR INSIDE WIRE**

VER 5X: PROBABLE FIBER-IN-THE-LOOP FOUND - CHANNEL-SINGLE PARTY SERVICE  
LOOP TESTS INDICATE - RESISTANCE FAULT LESS THAN 150 KOHMS  
(DISPATCH TO ONU)



## VER 6X -- PROBABLE FIBER IN THE LOOP



## **VER 6X -- PROBABLE FIBER IN THE LOOP**

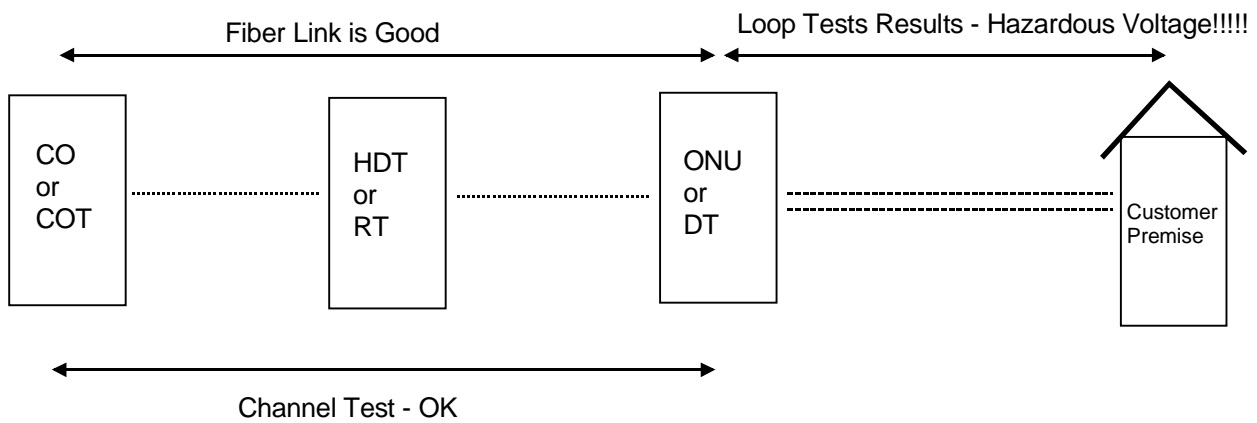
### **VER 6X: PROBABLE FIBER-IN-THE-LOOP**

MLT has discovered what appears to be a Pair Gain customer that is either FIBER-TO-THE-CURB or FIBER-TO-THE-HOME. The Fiber Link is good all the way from the Central Office to the Optical Network Unit (ONU) or Distant Terminal (DT) at the curb or house. The Channel Tests are OK, but the tests performed on the Customer's Loop (Drop or Inside Wire) have found a RECEIVER-OFF-HOOK (ROH) condition.

**RECOMMENDATION: DISPATCH TO THE ONU/DT OR CUSTOMER LOCATION TO INVESTIGATE THE ROH CONDITION**

VER 6X: PROBABLE FIBER-IN-THE-LOOP FOUND - CHANNEL-SINGLE PARTY SERVICE  
LOOP TESTS INDICATE - ROH  
(DISPATCH TO ONU)

## VER 7X -- PROBABLE FIBER IN THE LOOP



## **VER 7X -- PROBABLE FIBER IN THE LOOP**

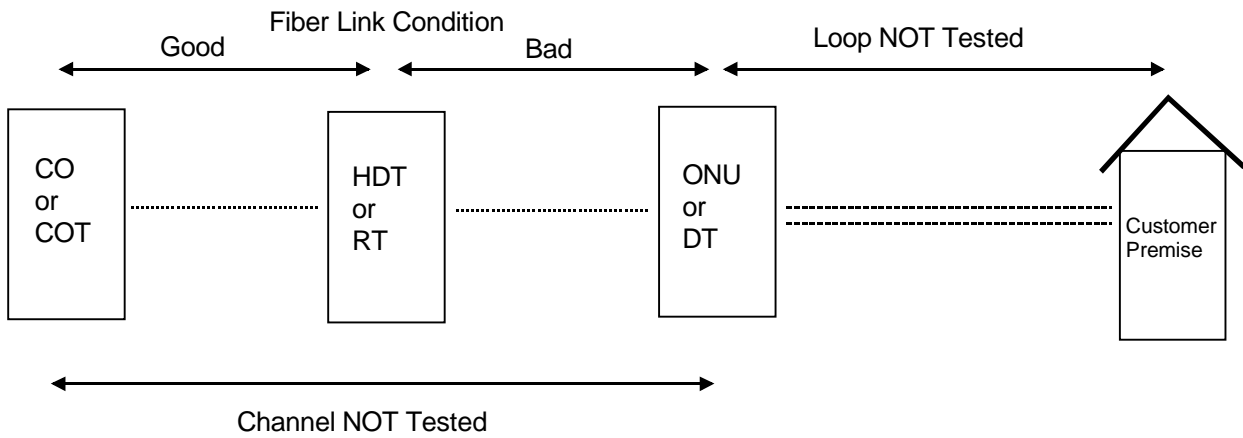
### **VER 7X: PROBABLE FIBER-IN-THE-LOOP**

MLT has discovered what appears to be a Pair Gain customer that is either FIBER-TO-THE-CURB or FIBER-TO-THE-HOME. The Fiber Link is good all the way from the Central Office to the Optical Network Unit (ONU) or Distant Terminal (DT) at the curb or house. The Channel Tests are OK, but the tests performed on the Customer's Loop (Drop or Inside Wire) have found a **HAZARDOUS VOLTAGE CONDITION !! TAKE PROPER PRECAUTIONS !!**

**RECOMMENDATION: DISPATCH TO THE ONU/DT TO REPAIR THE DROP OR INSIDE WIRE**

VER 7X: PROBABLE FIBER-IN-THE-LOOP FOUND - CHANNEL-SINGLE PARTY SERVICE  
LOOP TESTS INDICATE - HAZARDOUS VOLTAGE!! TAKE PROPER PRECAUTIONS  
(DISPATCH TO ONU)

## VER 8X -- PROBABLE FIBER IN THE LOOP



## **VER 8X -- PROBABLE FIBER IN THE LOOP**

### **VER 8X: PROBABLE FIBER-IN-THE-LOOP**

MLT has discovered what appears to be a Pair Gain customer that is either FIBER-TO-THE-CURB or FIBER-TO-THE-HOME. The Fiber Link is good from the Central Office to the Remote Terminal (RT), but the Fiber Link is in trouble from the RT to the ONU/DT. The ONU/DT is not equipped to test the Channel or Loop.

**RECOMMENDATION: DISPATCH TO THE ONU/DT TO INVESTIGATE THE RT TO DT LINK AND HANDLE THE CUSTOMER'S TROUBLE REPORT.**

VER 8X: PROBABLE FIBER-IN-THE-LOOP FOUND-NO CHANNEL OR LOOP TESTS AVAILABLE

FIBER LINK IS GOOD FROM COT TO RT - FIBER LINK IS BAD FROM RT TO DT  
(DISPATCH TO ONU)

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# **MLT**

# **Possible**

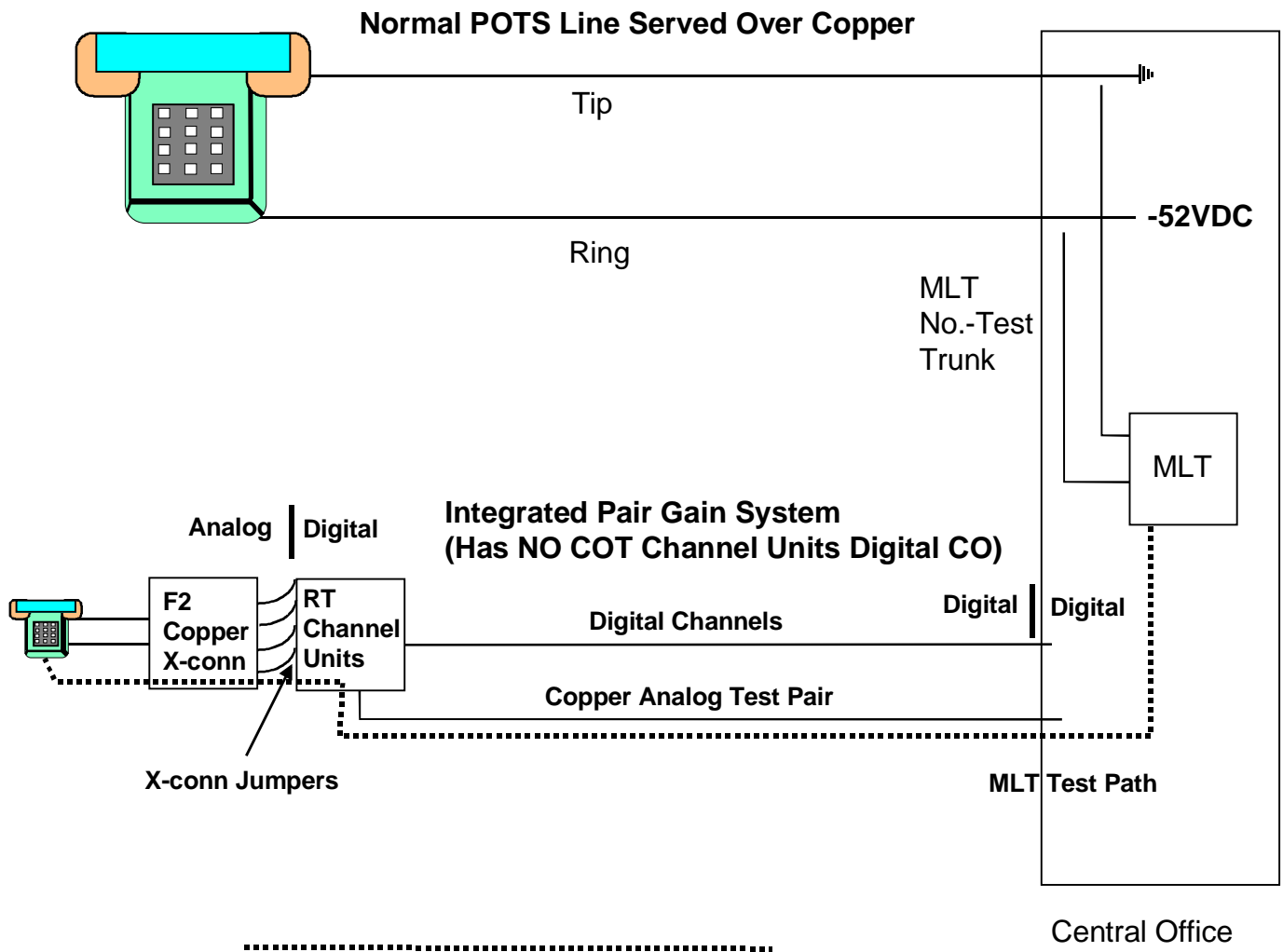
# **Pair Gain**

# **Channel Unit**

# **VER Codes**



## VER 1P -- POSSIBLE INTEGRATED PAIR GAIN CHANNEL



## MLT Analog Test Path on Pair Gain Systems

**VER 1P -- POSSIBLE INTEGRATED PAIR GAIN CHANNEL**

MLT has detected the possibility of an Integrated Pair Gain channel unit on the line. The MLT records do not indicate this customer's service is on a pair gain system.

MLT SUMMARY (EXAMPLE) VER 1P**MLT VER code 1P:**

MLT sets VER code 1P, when the following MLT DC signature parameters are met.

Possible integrated PG channel, use TV and retest using T1C40 override

Have LMOS Line Record Corrected, if necessary

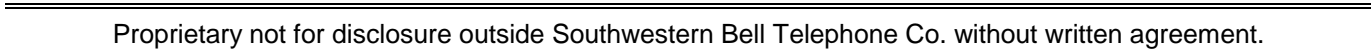
If not on pair gain, handle as a moderate short and ground

**MLT DC SIGNATURE**

KOHMS		VOLTS		
MIN	MAX	MIN	MAX	
53	60			T-R
53	60	-3.0	3.0	T-G
53	60	-3.0	3.0	R-G

ADDITIONAL INFORMATION

**The MLT user should Check LFACS F1 cable for PG indication. If the customer's F1 is a PG system, retest with the C40 override in the OVER field of the TV mask.**



**VER 2P -- POSSIBLE PAIR GAIN CHANNEL UNIT FOUND**

MLT has detected the possibility of a Pair Gain channel unit on the line. The MLT records do not indicate this customer's service is on a pair gain system.

MLT SUMMARY (EXAMPLE) VER 2P

**2P** - Possible PG channel, use TV and retest using T1C40 override

Have LMOS Line Record Corrected, if necessary

If not on pair gain, handle as a moderate short and ground

MLT sets VER code 2P, when the following MLT DC signature parameters are met.

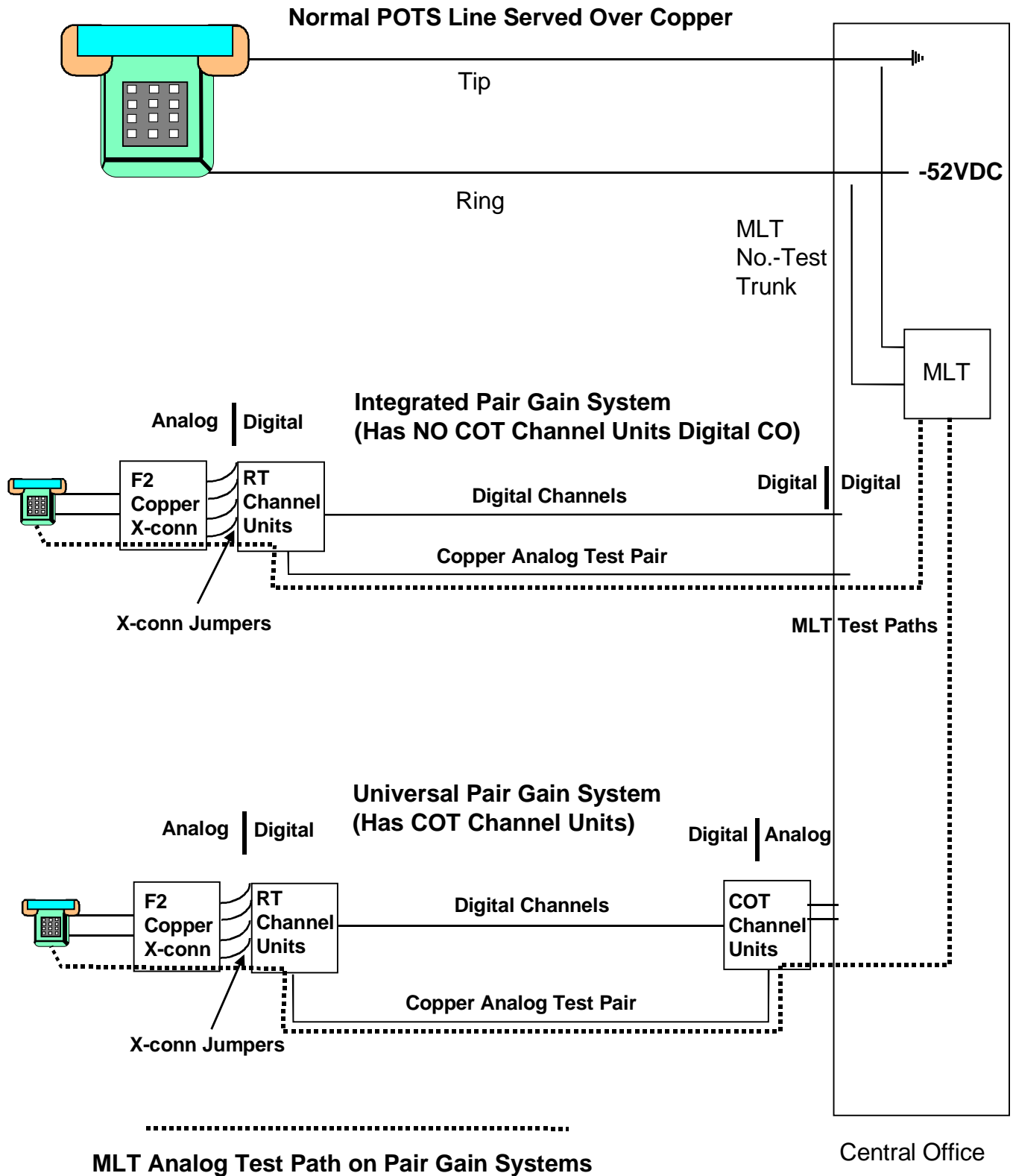
**MLT DC SIGNATURE**

KOHMS		VOLTS		
MIN	MAX	MIN	MAX	
17	30			T-R
25	35	-3	3.0	T-G
500	3500	-3	3.0	R-G

ADDITIONAL INFORMATION

**The MLT user should Check LFACS F1 cable for PG indication. If the customer's F1 is a PG system, retest with the C40 override in the OVER field of the TV mask.**

## VER 3P -- POSSIBLE PAIR GAIN CHANNEL UNIT FOUND



**VER 3P -- POSSIBLE PAIR GAIN CHANNEL UNIT FOUND**

MLT has detected the possibility of a Pair Gain channel unit on the line. The MLT records do not indicate this customer's service is on a pair gain system.

**MLT SUMMARY (EXAMPLE) VER 3P**

**3P** - Possible PG channel, use TV and retest using T1C40 override

Have LMOS Line Record Corrected, if necessary

If not on pair gain, handle as a moderate short, ground and cross

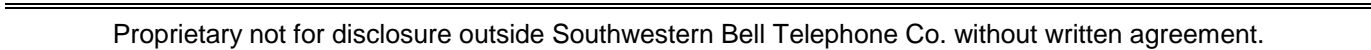
MLT sets VER code 3P, when the following MLT DC signature parameters are met.

**MLT DC SIGNATURE**

KOHMS		VOLTS		
MIN	MAX	MIN	MAX	
1000	3500			T-R
50	800	-65	-55	T-G
50	800	-65	-55	R-G

**ADDITIONAL INFORMATION**

**The MLT user should Check LFACS F1 cable for PG indication. If the customer's F1 is a PG system, retest with the C40 override in the OVER field of the TV mask.**



**VER 4P -- POSSIBLE PAIR GAIN CHANNEL UNIT FOUND**

MLT has detected the possibility of a Pair Gain channel unit on the line. The MLT records do not indicate this customer's service is on a pair gain system.

MLT SUMMARY (EXAMPLE) VER 4P

**4P** - Possible PG channel, use TV and retest using T1C40 override

Have LMOS Line Record Corrected, if necessary

If not on pair gain, handle as a moderate ground

MLT sets VER code 4P, when the following MLT DC signature parameters are met.

## MLT DC SIGNATURE

## KOHMS

## VOLTS

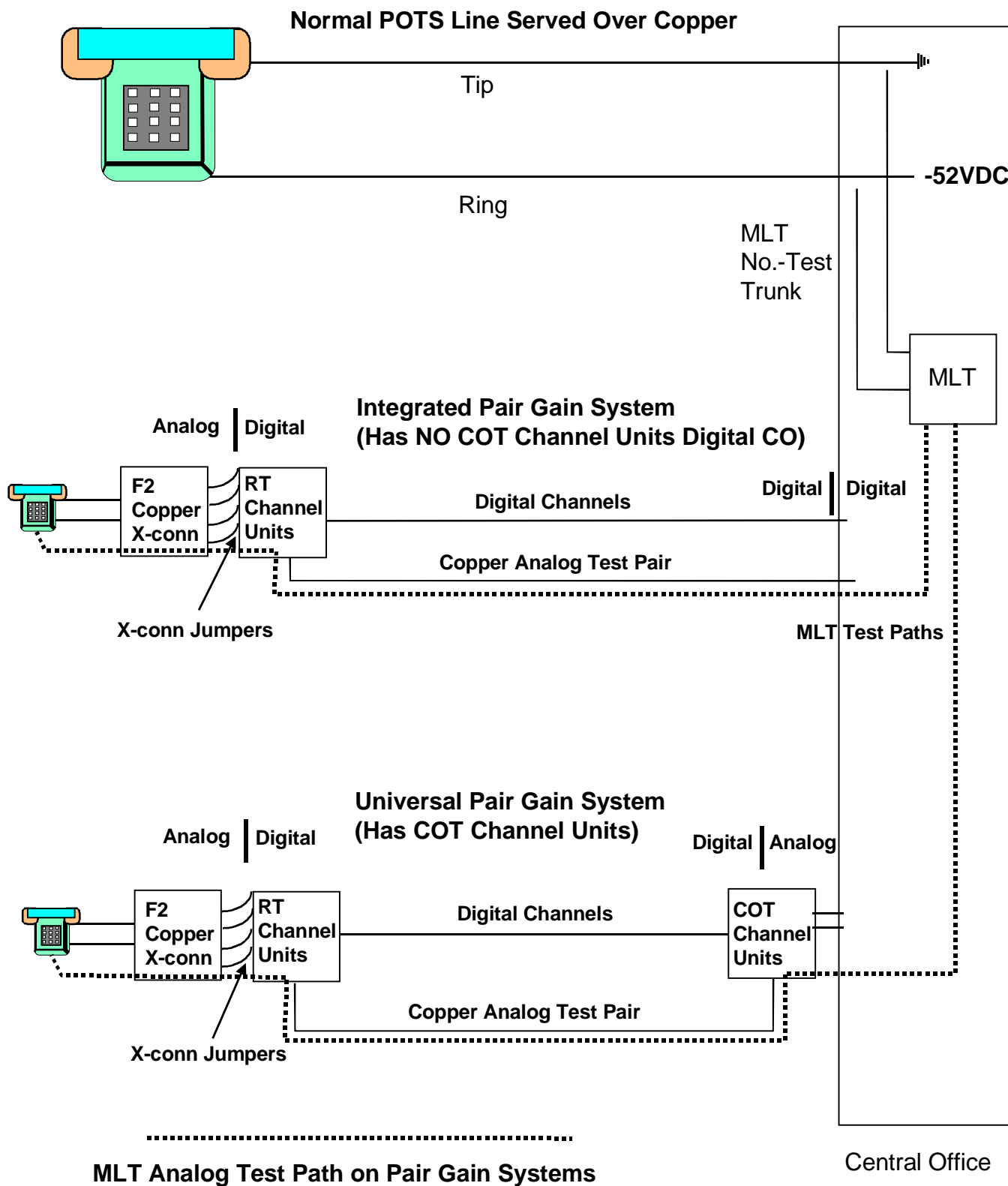
MIN	MAX	MIN	MAX	
3000	3500			T-R
145	175	-3.0	3.0	T-G
3000	3500	-3.0	3.0	R-G

ADDITIONAL INFORMATION

**The MLT user should Check LFACS F1 cable for PG indication. If the customer's F1 is a PG system, retest with the C40 override in the OVER field of the TV mask.**



## VER 5P -- POSSIBLE PAIR GAIN CHANNEL UNIT FOUNND



**VER 5P -- POSSIBLE PAIR GAIN CHANNEL UNIT FOUNND**

MLT has detected the possibility of a Pair Gain channel unit on the line. The MLT records do not indicate this customer's service is on a pair gain system.

**MLT SUMMARY (EXAMPLE) VER 5P**

**5P** - Possible PG channel, use TV and retest using T1C40 override

Have LMOS Line Record Corrected, if necessary

If not on pair gain, handle as a moderate short and ground

MLT sets VER code 5P, when the following MLT DC signature parameters are met.

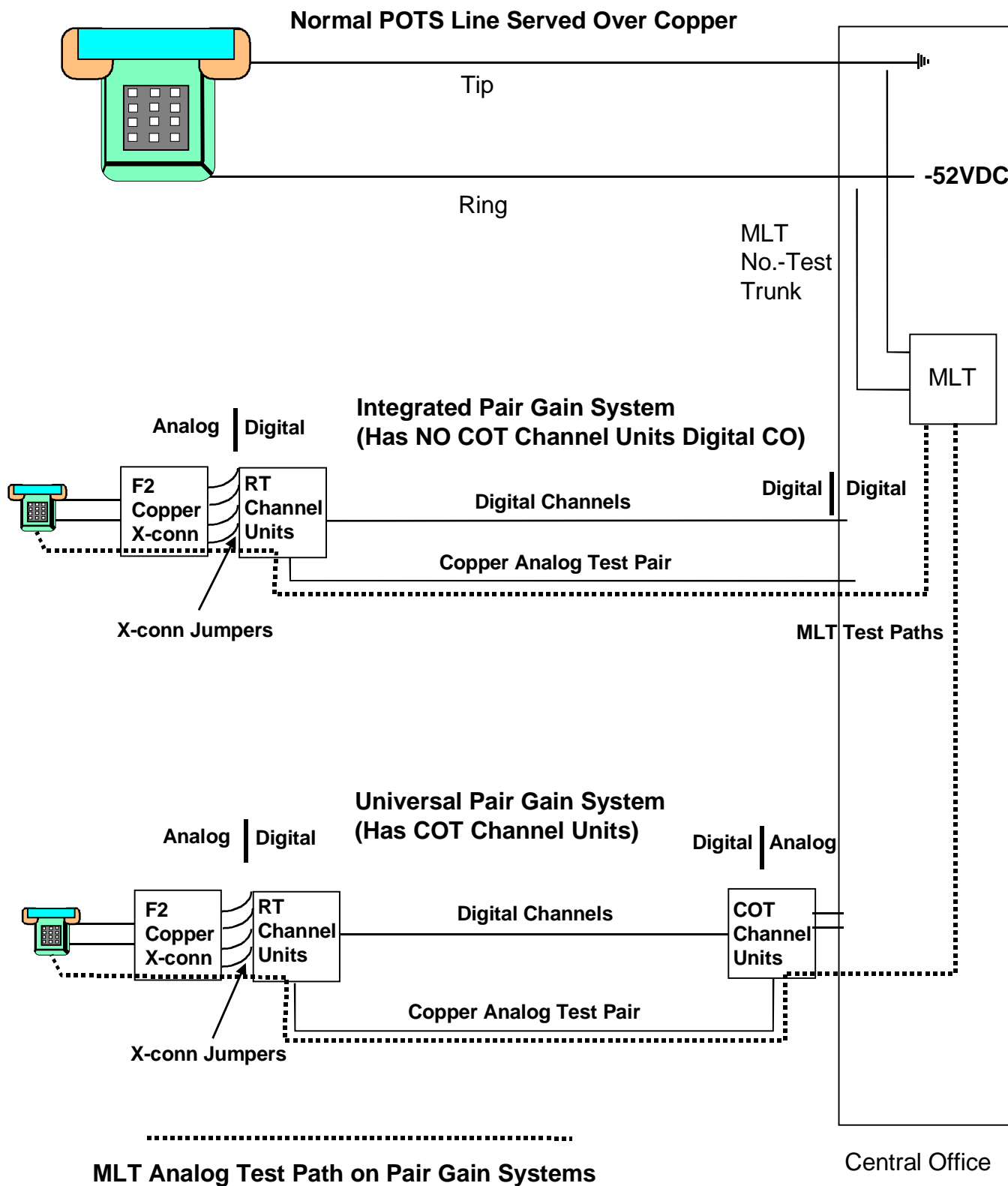
**MLT DC SIGNATURE**

KOHMS		VOLTS		
MIN	MAX	MIN	MAX	
1000	3500			T-R
30	40	-40.0	-36.0	T-G
30	40	-40.0	-36.0	R-G

**ADDITIONAL INFORMATION**

**The MLT user should Check LFACS F1 cable for PG indication. If the customer's F1 is a PG system, retest with the C40 override in the OVER field of the TV mask.**

## VER 6P -- POSSIBLE PAIR GAIN CHANNEL UNIT FOUNND



**VER 6P -- POSSIBLE PAIR GAIN CHANNEL UNIT FOUNND**

MLT has detected the possibility of a Pair Gain channel unit on the line. The MLT records do not indicate this customer's service is on a pair gain system.

**MLT SUMMARY (EXAMPLE) VER 6P**

**6P** - Possible PG channel, use TV and retest using T1C40 override

Have LMOS Line Record Corrected, if necessary

If not on pair gain, handle as a moderate short and ground

MLT sets VER code 6P, when the following MLT DC signature parameters are met.

**MLT DC SIGNATURE**

KOHMS		VOLTS		
MIN	MAX	MIN	MAX	
1000	3500			T-R
140	150	-48.0	-40.0	T-G
140	150	-48.0	-40.0	R-G

**ADDITIONAL INFORMATION**

**The MLT user should Check LFACS F1 cable for PG indication. If the customer's F1 is a PG system, retest with the C40 override in the OVER field of the TV mask.**

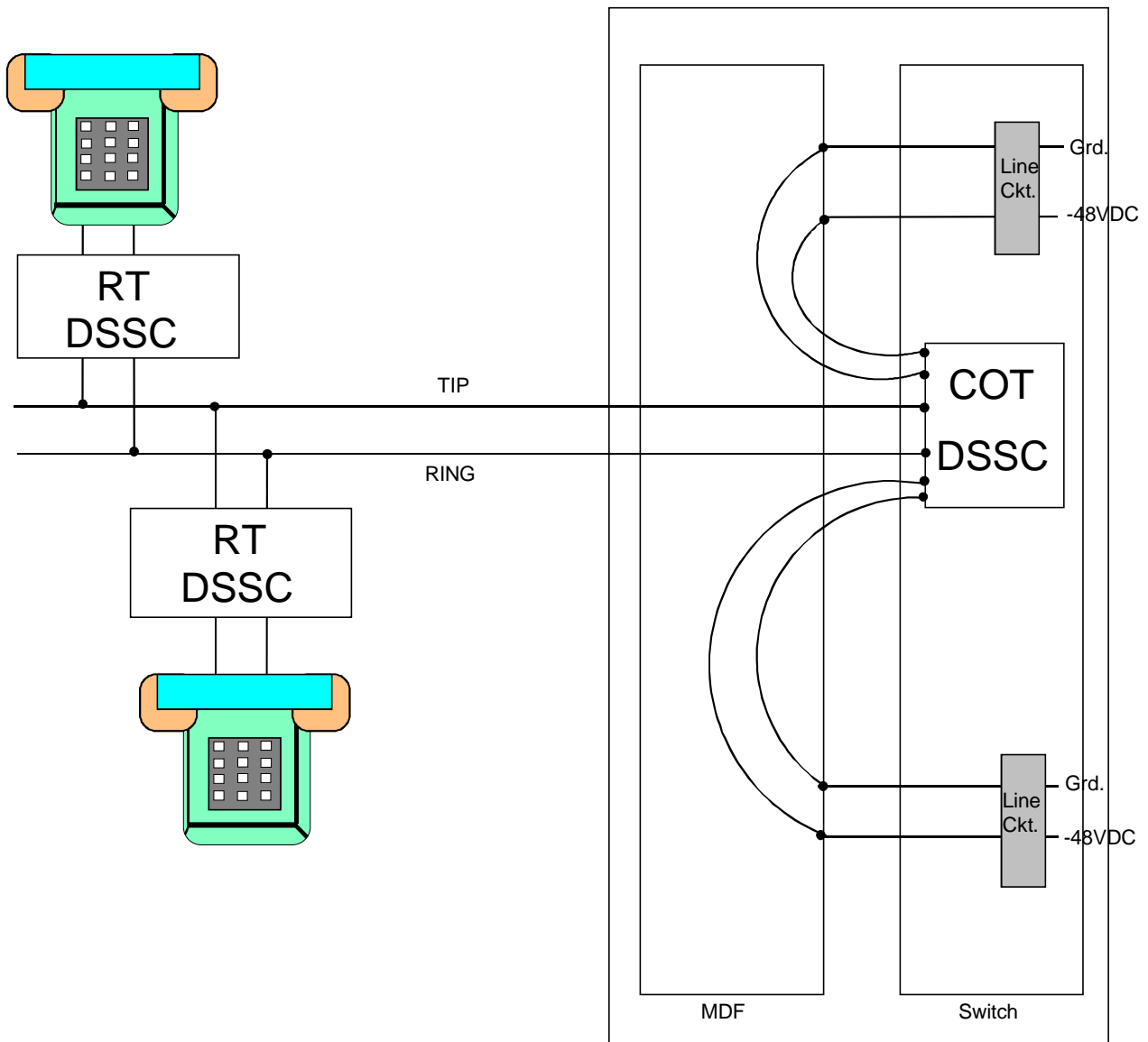
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**MLT**

**RAYCHEM (DSSC)  
Digital Single Line  
Subscriber Carrier**

**VER Codes**

## VER 1R -- POSSIBLE RAYCHEM DSSC UNIT FOUND

**Central Office**

**VER 1R -- POSSIBLE RAYCHEM DSSC UNIT FOUND**

**1R** - Possible RAYCHEM DSSC unit found - System Test OK.

If not a RAYCHEM DSSC - Handle as Moderate Short and Ground

MLT Expected results to Set VER 1R:

**MLT DC SIGNATURE**

KOHMS		VOLTS		
MIN	MAX	MIN	MAX	
3400	3500			T-R
75	85	-3.0	3.0	T-G
75	85	-3.0	3.0	R-G

SWBT uses some special types of carrier systems to provide telephone service when cable pairs are scarce. A digital single line subscriber carrier (DSSC) allows two customers to be served over one cable pair. Each customer is provided service over a carrier channel. MLT cannot perform tests through a carrier. The designers of the DSSC used in SWBT have provided electronic signatures that allow the MLT user to have a good chance to correctly identify and report major conditions of lines served by DSSCs.

There are two major types of DSSCs in use in SWBT. One is made by Wescom, and the other is made by Raychem.

**Record Entries:****DLR**

There are no entries that appear on the TV mask to alter MLT's testing with these systems, but there is an entry on the DLR in RMK that will indicate:

**"/SSC-DSSC,1A or 1B".**

**DMLR**

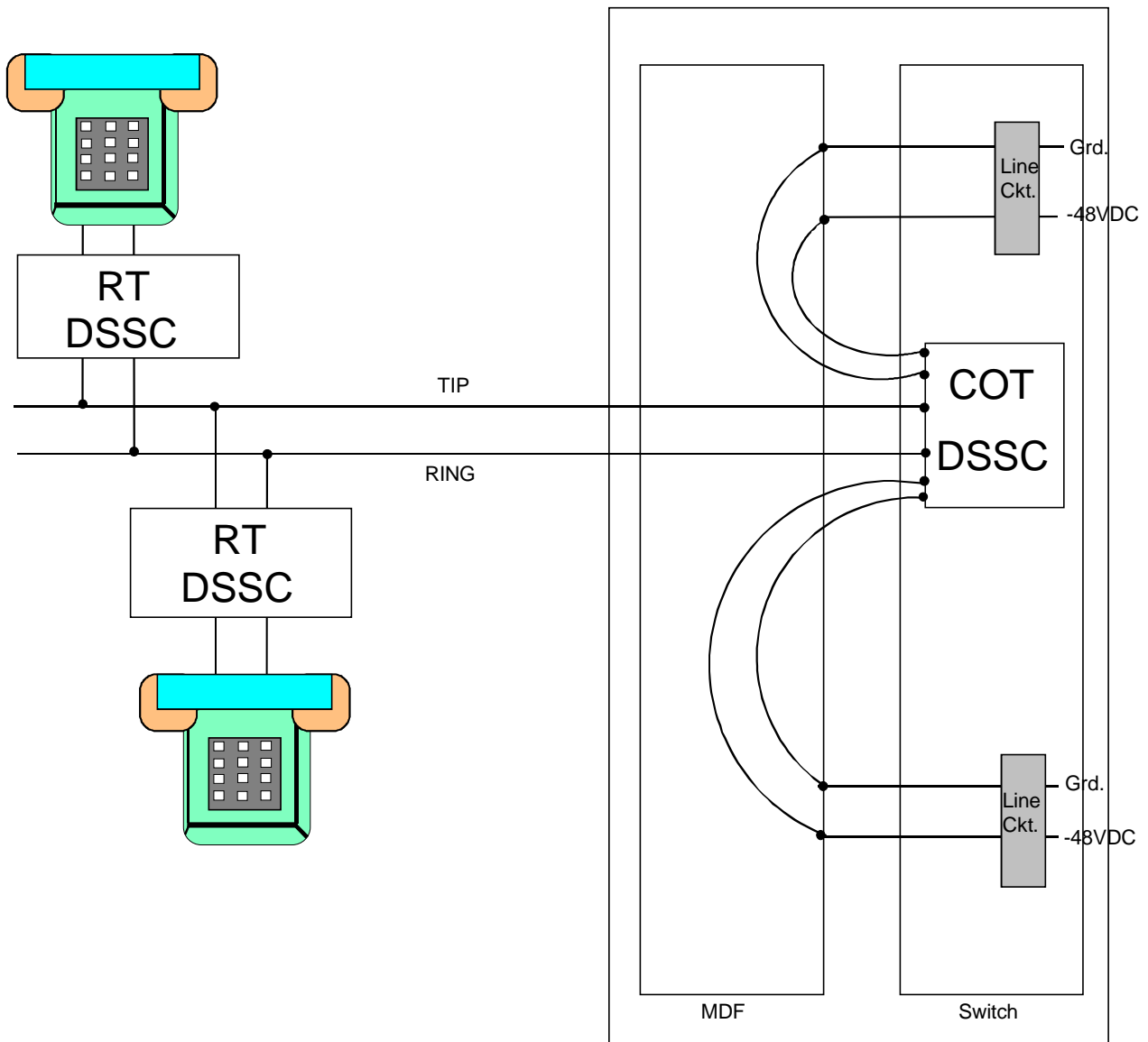
Page 2 in the FEATURES Section: **"AML"**

**ECRS**

WORK ITEM ENTRY SCREEN in the FLAGS area: **"AML"**



## VER 2R -- POSSIBLE RAYCHEM DSSC UNIT FOUND

**Central Office**

**VER 2R -- POSSIBLE RAYCHEM DSSC UNIT FOUND**

**2R** - Possible RAYCHEM DSSC unit found - COT System Failure - Dispatch to CO.

If not a RAYCHEM DSSC - Handle as Moderate Short and Ground

MLT Expected results to Set VER 2R:

**MLT DC SIGNATURE**

KOHMS		VOLTS		
MIN	MAX	MIN	MAX	
3400	3500			T-R
145	155	-3.0	3.0	T-G
145	155	-3.0	3.0	R-G

SWBT uses some special types of carrier systems to provide telephone service when cable pairs are scarce. A digital single line subscriber carrier (DSSC) allows two customers to be served over one cable pair. Each customer is provided service over a carrier channel. MLT cannot perform tests through a carrier. The designers of the DSSC used in SWBT have provided electronic signatures that allow the MLT user to have a good chance to correctly identify and report major conditions of lines served by DSSCs.

There are two major types of DSSCs in use in SWBT. One is made by Wescom, and the other is made by Raychem.

**Record Entries:****DLR**

There are no entries that appear on the TV mask to alter MLT's testing with these systems, but there is an entry on the DLR in RMK that will indicate:

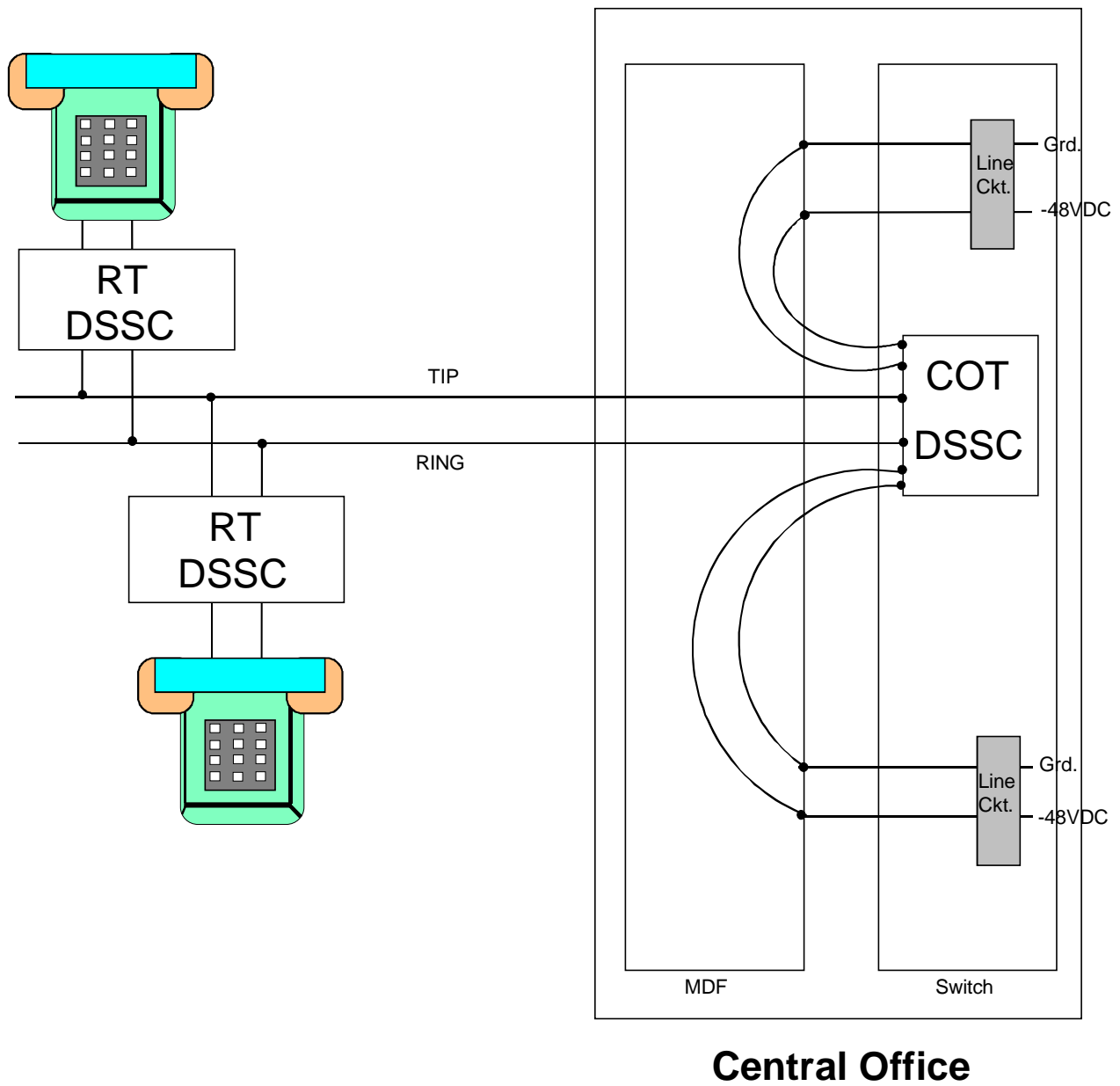
**"/SSC-DSSC,1A or 1B".**

**DMLR**

Page 2 in the FEATURES Section: **"AML"**

**ECRS**

WORK ITEM ENTRY SCREEN in the FLAGS area: **"AML"**

**VER 3R -- POSSIBLE RAYCHEM DSSC UNIT FOUND**

**VER 3R -- POSSIBLE RAYCHEM DSSC UNIT FOUND**

**3R** - Possible RAYCHEM DSSC unit found - RT System Failure - Dispatch to RT.

If not a RAYCHEM DSSC - Handle as Moderate Short and Ground

MLT Expected results to Set VER 3R:

**MLT DC SIGNATURE**

KOHMS		VOLTS		
MIN	MAX	MIN	MAX	
395	405			T-R
395	405	-3.0	3.0	T-G
395	405	-3.0	3.0	R-G

SWBT uses some special types of carrier systems to provide telephone service when cable pairs are scarce. A digital single line subscriber carrier (DSSC) allows two customers to be served over one cable pair. Each customer is provided service over a carrier channel. MLT cannot perform tests through a carrier. The designers of the DSSC used in SWBT have provided electronic signatures that allow the MLT user to have a good chance to correctly identify and report major conditions of lines served by DSSCs.

There are two major types of DSSCs in use in SWBT. One is made by Wescom, and the other is made by Raychem.

**Record Entries:****DLR**

There are no entries that appear on the TV mask to alter MLT's testing with these systems, but there is an entry on the DLR in RMK that will indicate:

**"/SSC-DSSC,1A or 1B".**

**DMLR**

Page 2 in the FEATURES Section: **"AML"**

**ECRS**

WORK ITEM ENTRY SCREEN in the FLAGS area: **"AML"**

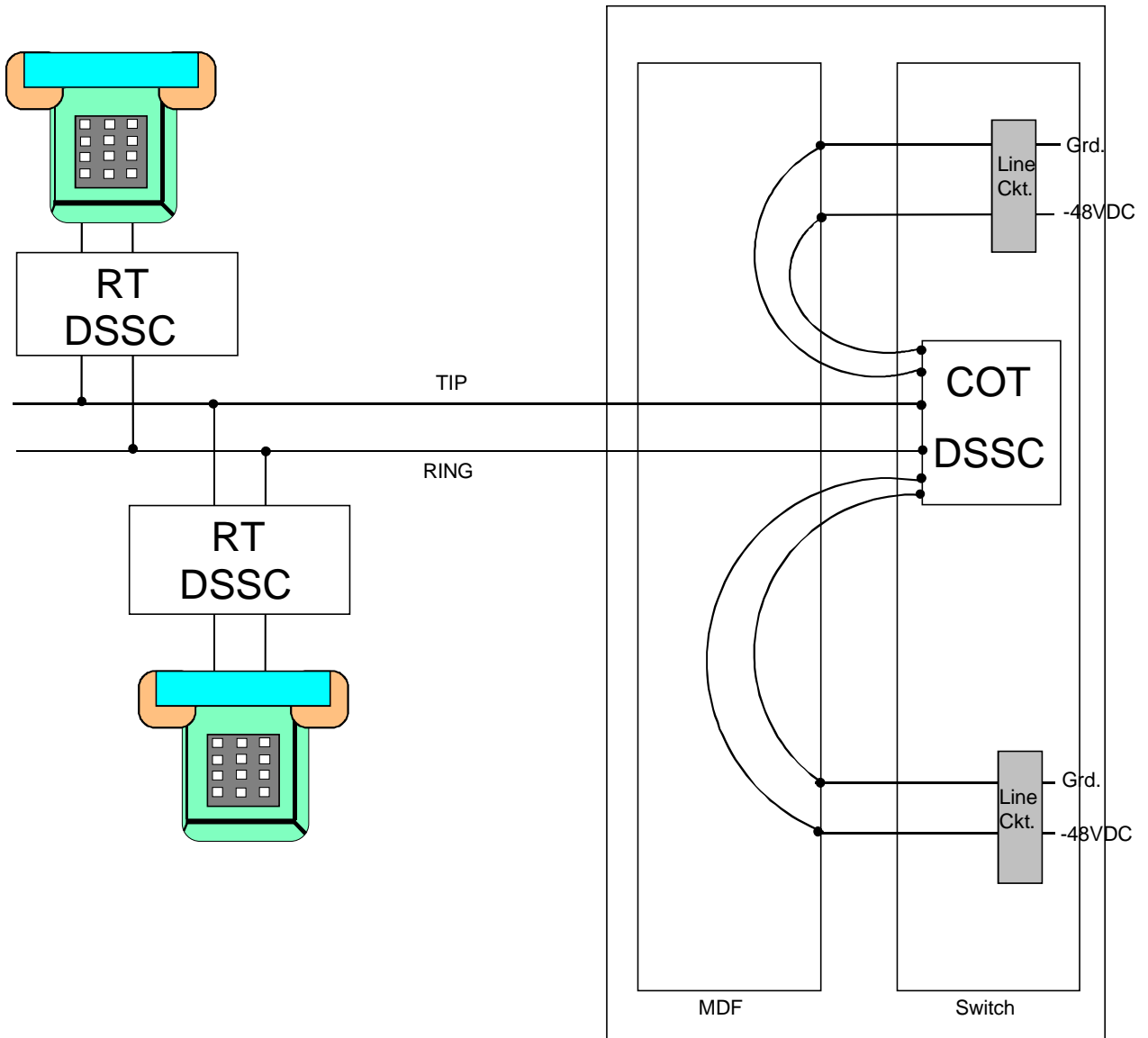
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**MLT**

**WESCOM (DSSC)  
Digital Single Line  
Subscriber Carrier**

**VER Codes**

## VER 1W -- POSSIBLE WESCOM UDC UNIT FOUND

**Central Office**

**VER 1W -- POSSIBLE WESCOM UDC UNIT FOUND**

**1W** - Possible WESCOM DSSC unit found - System Test OK.

If not a WESCOM DSSC - Handle as Moderate Short and Ground

MLT Expected results to Set VER 1W:

**MLT DC SIGNATURE**

KOHMS		VOLTS		
MIN	MAX	MIN	MAX	
194	204			T-R
179	199	-4.0	4.0	T-G
3500	3500	-4.0	4.0	R-G

SWBT uses some special types of carrier systems to provide telephone service when cable pairs are scarce. A digital single line subscriber carrier (DSSC) allows two customers to be served over one cable pair. Each customer is provided service over a carrier channel. MLT cannot perform tests through a carrier. The designers of the DSSC used in SWBT have provided electronic signatures that allow the MLT user to have a good chance to correctly identify and report major conditions of lines served by DSSCs.

There are two major types of DSSCs in use in SWBT. One is made by Wescom, and the other is made by Raychem.

**Record Entries:****DLR**

There are no entries that appear on the TV mask to alter MLT's testing with these systems, but there is an entry on the DLR in RMK that will indicate:

**"/SSC-DSSC,1A or 1B".**

**DMLR**

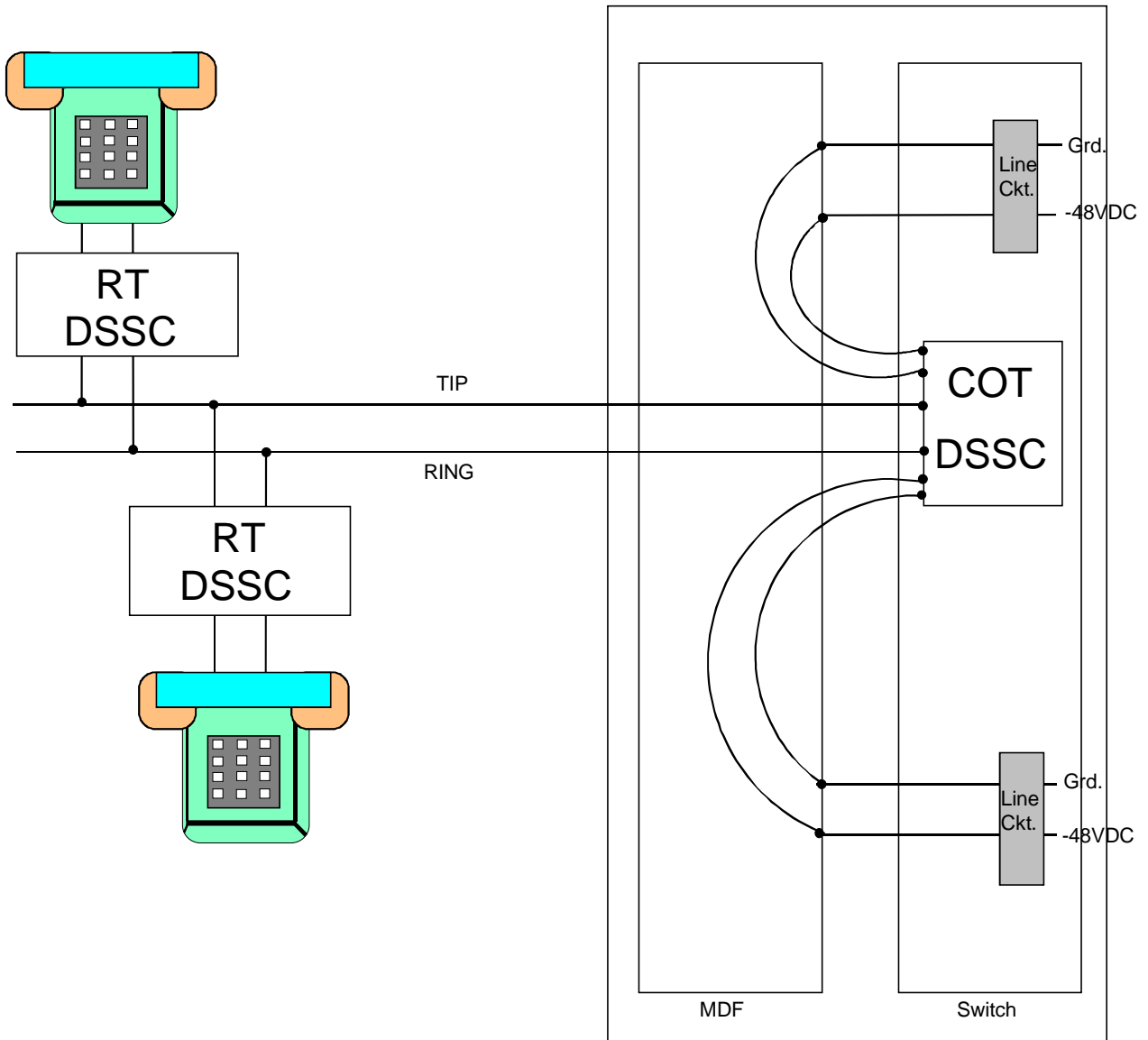
Page 2 in the FEATURES Section: **"AML"**

**ECRS**

WORK ITEM ENTRY SCREEN in the FLAGS area: **"AML"**



## VER 2W -- POSSIBLE WESCOM UDC UNIT FOUND

**Central Office**

**VER 2W -- POSSIBLE WESCOM UDC UNIT FOUND**

**2W** - Possible WESCOM DSSC unit found - RT System Failure - Dispatch to RT.

If not a WESCOM DSSC - Handle as Moderate Short and Ground

MLT Expected results to Set VER 2W:

**MLT DC SIGNATURE**

KOHMS		VOLTS		
MIN	MAX	MIN	MAX	
194	204			T-R
179	199	-4.0	4.0	T-G
900	1100	-4.0	4.0	R-G

SWBT uses some special types of carrier systems to provide telephone service when cable pairs are scarce. A digital single line subscriber carrier (DSSC) allows two customers to be served over one cable pair. Each customer is provided service over a carrier channel. MLT cannot perform tests through a carrier. The designers of the DSSC used in SWBT have provided electronic signatures that allow the MLT user to have a good chance to correctly identify and report major conditions of lines served by DSSCs.

There are two major types of DSSCs in use in SWBT. One is made by Wescom, and the other is made by Raychem.

**Record Entries:****DLR**

There are no entries that appear on the TV mask to alter MLT's testing with these systems, but there is an entry on the DLR in RMK that will indicate:

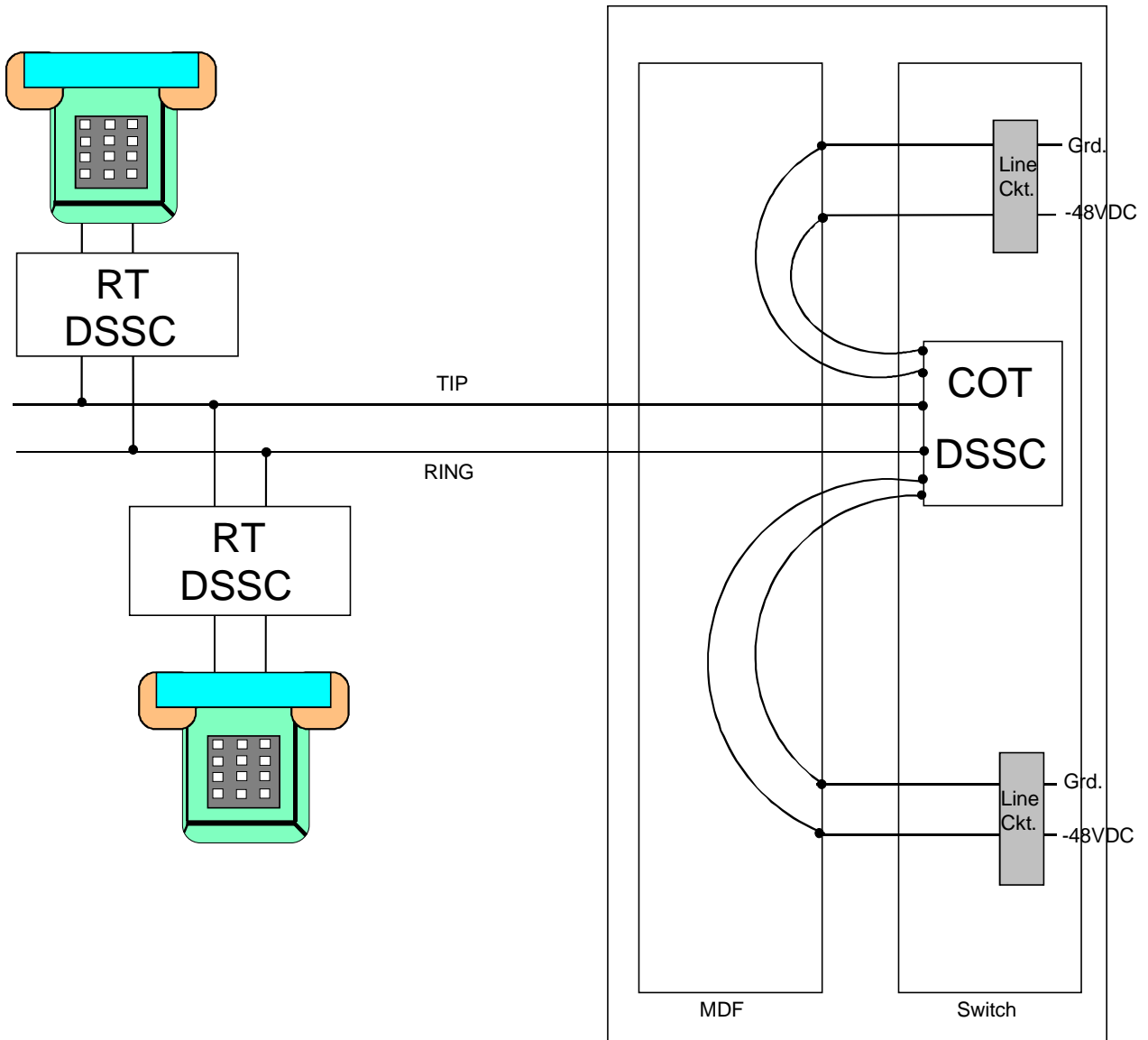
**"/SSC-DSSC,1A or 1B".**

**DMLR**

Page 2 in the FEATURES Section: **"AML"**

**ECRS**

WORK ITEM ENTRY SCREEN in the FLAGS area: **"AML"**

**VER 3W -- POSSIBLE WESCOM UDC UNIT FOUND****Central Office**

**VER 3W -- POSSIBLE WESCOM UDC UNIT FOUND**

**3W** - Possible WESCOM DSSC unit found - COT System Failure - Dispatch to CO.

If not a WESCOM DSSC - Handle as Moderate Short and Ground

MLT Expected results to Set VER 3W:

**MLT DC SIGNATURE**

KOHMS		VOLTS		
MIN	MAX	MIN	MAX	
194	204			T-R
179	199	-4.0	4.0	T-G
480	510	-4.0	4.0	R-G

SWBT uses some special types of carrier systems to provide telephone service when cable pairs are scarce. A digital single line subscriber carrier (DSSC) allows two customers to be served over one cable pair. Each customer is provided service over a carrier channel. MLT cannot perform tests through a carrier. The designers of the DSSC used in SWBT have provided electronic signatures that allow the MLT user to have a good chance to correctly identify and report major conditions of lines served by DSSCs.

There are two major types of DSSCs in use in SWBT. One is made by Wescom, and the other is made by Raychem.

**Record Entries:****DLR**

There are no entries that appear on the TV mask to alter MLT's testing with these systems, but there is an entry on the DLR in RMK that will indicate:

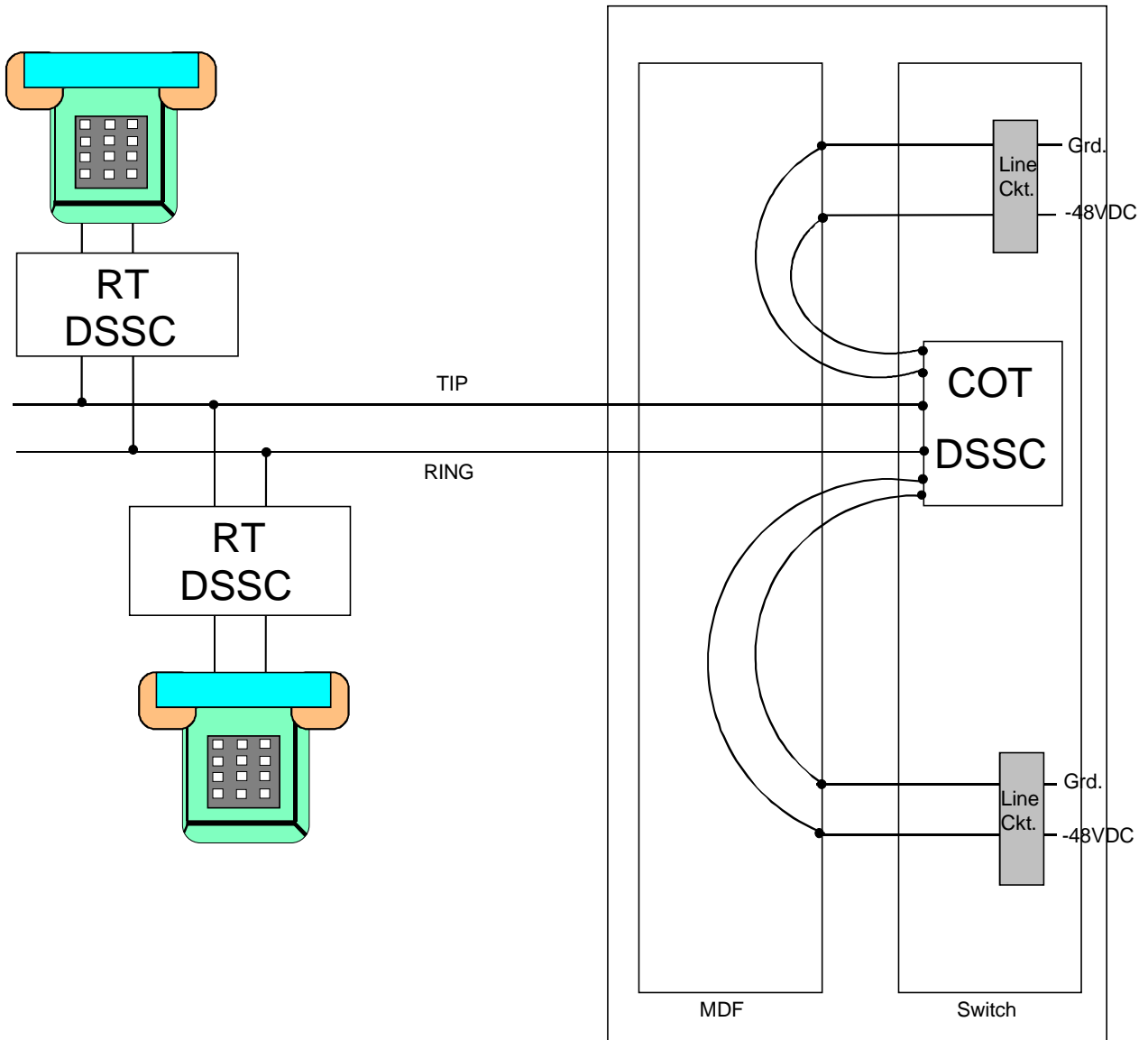
**"/SSC-DSSC,1A or 1B".**

**DMLR**

Page 2 in the FEATURES Section: **"AML"**

**ECRS**

WORK ITEM ENTRY SCREEN in the FLAGS area: **"AML"**

**VER 4W -- POSSIBLE WESCOM UDC UNIT FOUND****Central Office**

**VER 4W -- POSSIBLE WESCOM UDC UNIT FOUND**

**4W** - Possible WESCOM DSSC unit found - COT to RT Facility Failure - Cable.

If not a WESCOM DSSC - Handle as Moderate Short and Ground

MLT Expected results to Set VER 4W:

**MLT DC SIGNATURE**

KOHMS		VOLTS		
MIN	MAX	MIN	MAX	
194	204			T-R
179	199	-4.0	4.0	T-G
310	335	-4.0	4.0	R-G

SWBT uses some special types of carrier systems to provide telephone service when cable pairs are scarce. A digital single line subscriber carrier (DSSC) allows two customers to be served over one cable pair. Each customer is provided service over a carrier channel. MLT cannot perform tests through a carrier. The designers of the DSSC used in SWBT have provided electronic signatures that allow the MLT user to have a good chance to correctly identify and report major conditions of lines served by DSSCs.

There are two major types of DSSCs in use in SWBT. One is made by Wescom, and the other is made by Raychem.

**Record Entries:****DLR**

There are no entries that appear on the TV mask to alter MLT's testing with these systems, but there is an entry on the DLR in RMK that will indicate:

**"/SSC-DSSC,1A or 1B".**

**DMLR**

Page 2 in the FEATURES Section: **"AML"**

**ECRS**

WORK ITEM ENTRY SCREEN in the FLAGS area: **"AML"**

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