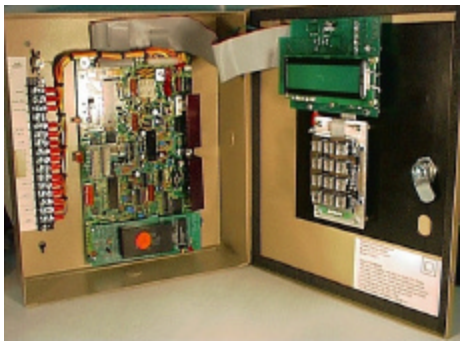
CAT PRODUCTS

TROUBLESHOOTING GUIDE



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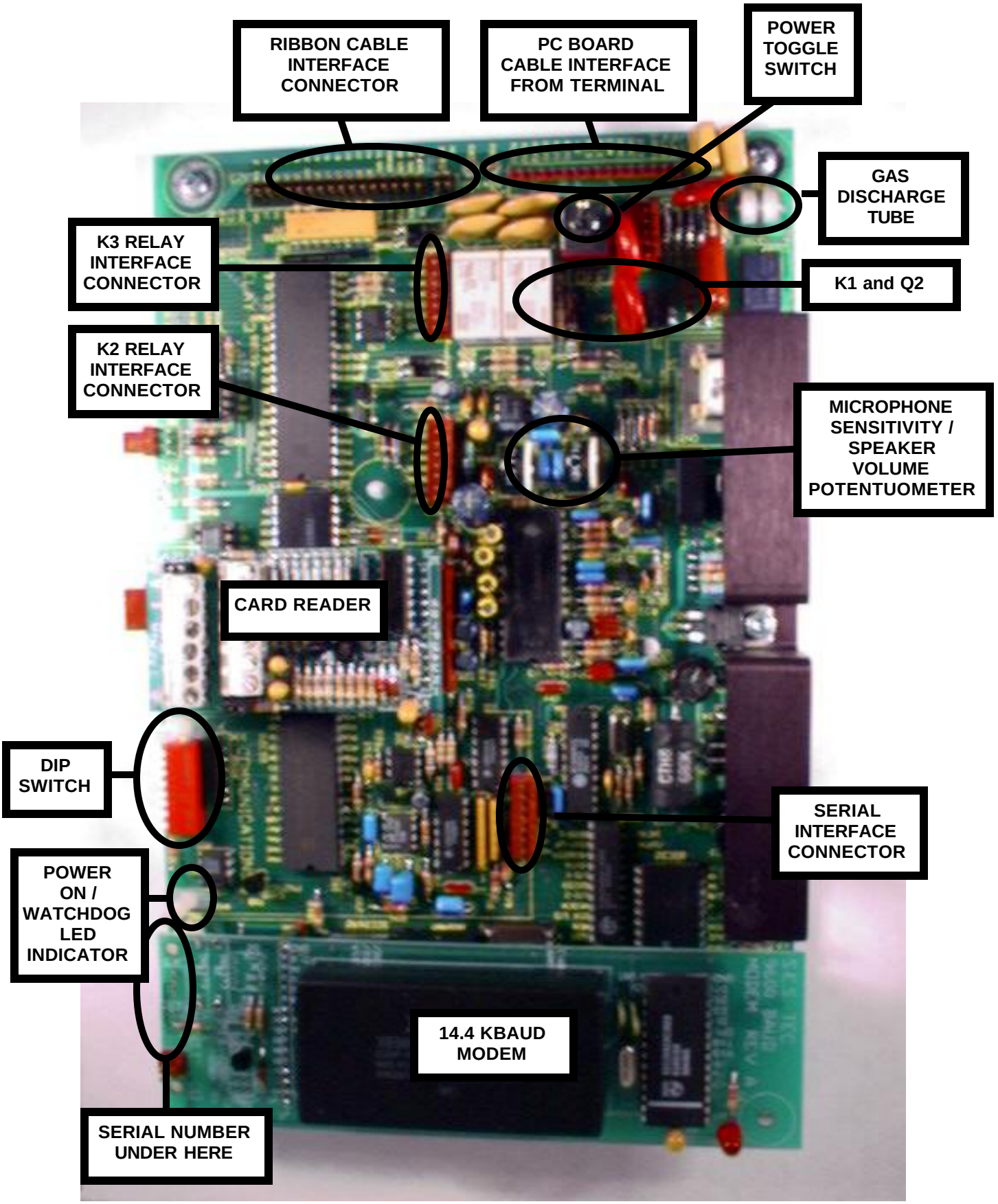
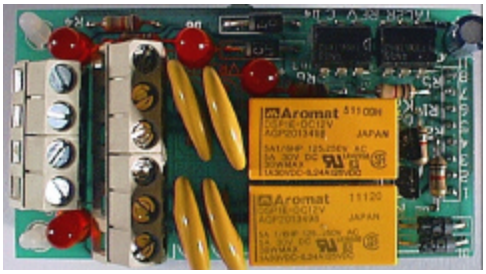
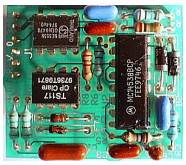
CAT PC BOARD OVERVIEW



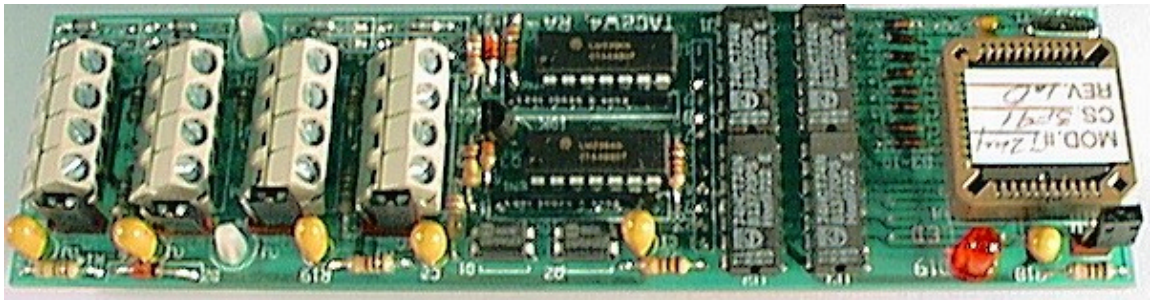
CAT ADD-ON BOARDS



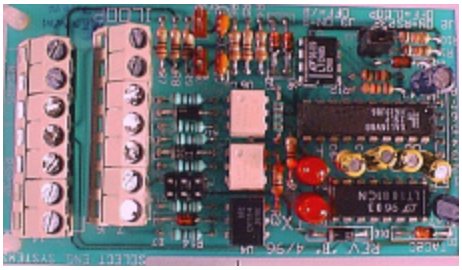
K2 OR K3 ADD-ON RELAY BOARD



MUI, MULTI UNIT INTERFACE BOARD



OPTK4DR, FOUR READER BOARD



OPTKSERIAL, RS232 INTERFACE BOARD

NO MICROPHONE VOICE HEARD BY PARTY CALLED

1.- **MICROPHONE LEVEL CONTROL:** ADJUST MIC LEVEL CONTROL .
IF NO DIFERENCE……..CONTINUE TO NEXT STEP.

2A.- **PLUG J7 FOR HANDSET:**
IF HANDSET MODEL…….J7 SHOULD BE SHORTED WITH PLUG.
IF HANDSFREE……. J7 SHOULD BE FREE.

2B.- **MICROPHONE:** VISUAL INSPECTION FOR DAMAGE OR CORROSION.
IF BAD…….REPLACE
ALSO TRY USING A SPARE MIC IF AVAILABLE.

3.- **CALL DIFERENT PARTY:** CALL A DIFERNT PARTY AND TEST MIC LEVEL. IF THE LEVEL IS FINE WITH THE NEW PARTY, THE PROBLEM IS WITH THE FIRST PARTY'S PHONE OR TELCO LINE.

4.- **FLAT RIBBON CABLE TO DISPLAY:** TURN UNIT OFF. VERIFY CONDITION OF RIBBON CABLE FOR ANY PINCHED WIRES. UNPLUG BOTH ENDS AND VERIFY CONDITIONS OF PINS ON THE MAIN PCB, AND ON DISPLAY CONTROLLER BOARD. RE-PLUG RIBBON BOTH SIDES AND TURN UNIT ON. TEST IT.

5.- **SPEAKER / MICROPHONE HARNESS:** TURN UNIT OFF. UNPLUG AND VERIFY CONDITIONS OF J's PINS, VISUAL INSPECTION FOR SIGNS OF CORROSION. CHECK FOR CONTINUITY WITH OHMETER. REINSTALL THE HARNESS AND TURN UNIT ON.
TEST IT.

6.- **ADD ON BOARDS:** TURN UNIT OFF. UNPLUG ALL ADD ON BOARDS THAT HAVE BEEN INSTALLED WHICH ACCESS TELCO LINE. THERE ARE TWO TYPES : MUI , AND , MODEM. DO A VISUAL INSPECTION FOR SIGNS OF CORROSION ON THESE ADD ON BOARDS AND ON THEIR JACKS ON MAIN PCB.

IF CORROSION IS PRESENT……..CONTACT SES TECHNICAL SUPPORT FOR FURTHER ASSISTANCE
IF NO CORROSION IS PRESENT……..REINSTALL THE BOARDS.

7.– **RE-TEST THE UNIT**, IF IT FAILS……..CONTACT SES TECHNICAL SUPPORT FOR FURTHER ASSISTANCE.

NO SPEAKER VOICE HEARD ON THE UNIT

1.- **SPEAKER LEVEL CONTROL:** ADJUST SPEAKER LEVEL CONTROL.
IF NO DIFERENCE……..CONTINUE TO NEXT STEP.

2.- **PLUG J7 FOR HANDSET:**
IF HANDSET MODEL…J7 SHOULD BE SHORTED WITH PLUG.
IF HANDSFREE…..J7 SHOULD BE FREE.

3.- **SPEAKER:** VISUAL INSPECTION FOR DAMAGE OR CORROSION.
IF BAD…….REPLACE

4.- **CALL DIFFERENT PARTY:**
CALLING A DIFFERNT PARTY AND TEST SPEAKER LEVEL. IF THE LEVEL IS FINE WITH THE NEW PARTY, THE PROBLEM IS WITH THE FIRST PARTY'S PHONE OR TELCO LINE.

5.- **FLAT RIBBON CABLE TO DISPLAY:** TURN UNIT OFF.
VERIFY CONDITION OF RIBBON CABLE FOR ANY PINCHED WIRES.
UNPLUG BOTH ENDS AND VERIFY CONDITIONS OF PINS ON THE MAIN PCB AND ON DISPLAY CONTROLLER BOARD.
RE-PLUG RIBBON BOTH SIDES AND TURN UNIT ON. TEST IT.

6.- **SPEAKER / MICROPHONE HARNESS:** TURN UNIT OFF.
UNPLUG AND VERIFY CONDITIONS OF JUMPER PINS. INSPECTION FOR SIGNS OF CORROSION. CHECK FOR CONTINUITY WITH OHMETER.
RE-PLUG THE HARNESS AND TURN UNIT ON.
RE-TEST THE UNIT.

7.- **ADD ON BOARDS:** TURN UNIT OFF.
UNPLUG ALL ADD ON BOARDS THAT HAVE BEEN INSTALLED WHICH ACCESS TELCO LINE. THERE ARE TWO TYPES OF BOARDS:
MUI
MODEM.
DO A VISUAL INSPECTION FOR SIGNS OF CORROSION ON THESE ADD ON BOARDS AND ON THEIR CONNECTORS ON THE MAIN PCB.
IF CORROSION IS PRESENT……CONTACT SES TECHNICAL SUPPORT FOR FURTHER ASSISTANCE.
IF NO CORROSION IS PRESENT……..REINSTALL THE ADD-ON BOARDS

8.- **RE-TEST THE UNIT**, IF IT FAILS……CONTACT SES TECHNICAL SUPPORT FOR FURTHER ASSISTANCE.

HUM OR DISTORTED AUDIO ON THE PHONE LINE

1.- **SPEAKER LEVEL CONTROL:** ADJUST SPEAKER LEVEL CONTROL .
IF NO DIFFERENCE……..CONTINUE TO NEXT STEP.

2.- **MICROPHONE LEVEL CONTROL:** ADJUST MIC LEVEL CONTROL .
IF NO DIFFERENCE……..CONTINUE TO NEXT STEP.

3.- **CALL DIFFERENT PARTY:** CALL A DIFFERNT PARTY AND TEST. IF THE LEVEL IS FINE WITH THE NEW PARTY, THE PROBLEM IS WITH THE FIRST PARTY'S PHONE OR TELCO LINE.

4.- **SPEAKER / MICROPHONE HARNESS:** TURN UNIT OFF.
UNPLUG AND VERIFY CONDITIONS OF JUMPER PINS. INSPECT FOR SIGNS OF CORROSION. CHECK FOR CONTINUITY WITH OHMETER.REINSTALL THE HARNESS AND TURN UNIT ON. RE-TEST THE UNIT.

5.- **ADD ON BOARDS:** TURN UNIT OFF.
UNPLUG ALL ADD ON BOARDS THAT ACCESS TELCO LINE.
THERE ARE TWO TYPES :
MUI
MODEM.
DO A VISUAL INSPECTION FOR SIGNS OF CORROSION ON THESE BOARDS AND ON THEIR CONNECTORS ON THE MAIN PCB.
IF CORROSION IS PRESENT……CONTACT SES TECHNICAL SUPPORT FOR FURTHER ASSISTANCE.
IF NO CORROSION IS PRESENT……..REINSTALL THE ADD-ON BOARDS

6.- **GROUND:**
CHECK FOR PROPER INSTALLATION OF THE GROUND WIRE AT THE WING NUT TERMINAL INSIDE THE UNIT.

7.- **CHECK THE INTEGRITY OF THE TELEPHONE LINE WITH A BUTT SET:**
DISCONECT TELCO'S TIP / RING WIRES FROM TERMINAL BARRIER STRIP.
PLACE BUTT SET ON THE WIRES OF TELCO LINE.
ALLOW THE TELCO GO OFFHOOK (YOU WILL HEAR THE TOUCH TONES).

IF THE LINE IS HUMMING……..CHECK INTEGRITY OF TELCO LINE.

IF THE LINE HAS NO HUM WITH THE BUTT SET……CONTACT SES TECHNICAL SUPPORT FOR FURTHER ASSISTANCE.

LOW AUDIO LEVEL ON THE TEC SPEAKER

1.- **SPEAKER LEVEL CONTROL:** ADJUST SPEAKER LEVEL CONTROL .
IF THERE IS NO DIFFERENCE……..CONTINUE TO NEXT STEP.

2.- **PLUG J7 FOR HANDSET:**
IF HANDSET MODEL……..J7 SHOULD BE SHORTED WITH PLUG.
IF HANDSFREE……. J7 SHOULD BE FREE.

3.- **SPEAKER:** VISUAL INSPECTION FOR DAMAGE OR CORROSION.
IF BAD…….REPLACE THE SPEAKER.

4.- **CALL DIFERENT PARTY:** CALL A DIFFERENT PARTY AND TEST SPEAKER LEVEL.

5.- **FLAT RIBBON CABLE TO DISPLAY:** TURN THE UNIT OFF.
VERIFY THE CONDITION OF RIBBON CABLE FOR ANY PINCHED WIRES.
UNPLUG BOTH ENDS AND VERIFY CONDITION OF THE PINS ON THE MAIN PCB, AND ON DISPLAY CONTROLLER BOARD.
REINSTALL THE RIBBON CABLE ON BOTH ENDS. TURN THE UNIT ON.
RE-TEST THE TEC UNIT.

6.- **SPEAKER / MICROPHONE HARNESS:** TURN THE UNIT OFF.
UNPLUG AND INSPECT THE CONNECTORS AND PINS FOR SIGNS OF CORROSION. ALSO CHECK FOR CONTINUITY WITH AN OHMETER.
REINSTALL THE HARNESS AND TURN THE UNIT ON.
RE-TEST THE UNIT.

7.- **ADD ON BOARDS:** TURN UNIT OFF.
UNPLUG ALL ADD ON BOARDS WHICH ACCESS TELCO LINE.
THERE ARE TWO TYPES :
MUI
MODEM.
DO A VISUAL INSPECTION FOR SIGNS OF CORROSION ON THE CONNECTORS ON THE BOARD AND ON THEIR PINS ON MAIN PCB.

IF CORROSION IS PRESENT……CONTACT SES TECHNICAL SUPPORT FOR FURTHER ASSISTANCE.

IF NO CORROSION IS PRESENT……..REINSTALL THE ADD-ON BOARDS

8.- **RE-TEST THE UNIT**, IF IT FAILS……CONTACT SES TECHNICAL SUPPORT FOR FURTHER ASSISTANCE.

NO DIAL TONE

1.- **TELCO NOMINAL VOLTAGE:** MEASURE DC VOLTS ON SCREWS ON THE TERMINAL BARRIER STRIP BETWEEN THE TIP AND RING. NOMINAL TELCO VOLTAGE SHOULD BE 48 TO 52 VOLTS.
IF NOT…….CHECK INTEGRITY OF TELCO LINE.
IF VOLTAGE IS OK……CONTINUE NEXT STEP.

2.- **TELCO VOLTAGE ONBOARD:** MEASURE DC VOLTS ON BOTH ENDS OF "GD1" GAS DISCHARGE TUBE. (LOCATED ON CORNER OF PCB BOARD BESIDE THE MAIN CONNECTOR)
IF 48 TO 52 VOLTS ……. JUMP TO STEP # 4.
IF NOT …….. CONTINUE TO NEXT STEP.

3.- **HARNESS FROM TERMINAL BARRIER STRIP TO THE MAIN PCB:** TURN THE UNIT OFF. UNPLUG AND VERIFY CONDITION OF CONNECTOR AND THE PINS LOOKING FOR SIGNS OF CORROSION.
REINSTALL THE HARNESS AND TURN THE UNIT ON, RE-CHECK DC VOLTS ON "GD1" GAS DISCHARGE TUBE.
IF THERE IS STILL NOT 48 TO 52 VOLTS…….REPLACE HARNASS
IF 48 TO 52 VOLTS……CONTINUE TO NEXT STEP

4.- **LOOK FOR SIGNS OF CORROSION:** VISUAL INSPECTION OF "K1", "GD1" AND SURROUNDING AREA. IF CORROSION PRESENT ….. CONTACT SES TECHNICAL SUPPORT FOR FURTHER ASSISTANCE.

5.- **SPEAKER / MICROPHONE HARNESS:** TURN THE UNIT OFF. UNPLUG AND VERIFY THE CONDITION OF THE CONNECTOR AND PINS LOOKING FOR SIGNS OF CORROSION. CHECK FOR CONTINUITY WITH OHMETER.
REINSTALL THE HARNESS AND TURN THE UNIT ON.
RE-TEST THE UNIT.

6.- **ADD ON BOARDS:** TURN THE UNIT OFF. UNPLUG ALL BOARDS THAT HAVE ACCESS TO THE TELCO LINE.
THERE ARE TWO TYPES OF BOARDS:
- MUI
- MODEM.

DO A VISUAL INSPECTION FOR SIGNS OF CORROSION ON THE BOARDS CONNECTORS AND PINS ON THE MAIN PCB.
IF CORROSION IS PRESENT ……CONTACT SES TECHNICAL SUPPORT FOR FURTHER ASSISTANCE.
IF NO CORROSION IS PRESENT, REINSTALL THE BOARDS. NEXT STEP.

7. **UNIT OFF HOOK:** TURN THE UNIT ON. PRESS A NUMBER ON THE KEYPAD TO TAKE UNIT OFF HOOK. IF THERE IS STILL NO TOUCH TONES..CONTACT SES TECHNICAL SUPPORT FOR FURTHER ASSISTANCE.

UNIT NOT DIALING OUT

1.- **TELCO NOMINAL VOLTAGE:** MEASURE DC VOLTS ON SCREWS ON THE TERMINAL BARRIER STRIP BETWEEN THE TIP AND RING. NOMINAL TELCO VOLTAGE SHOULD BE 48 TO 52 VOLTS.
IF NOT…….CHECK INTEGRITY OF TELCO LINE.
IF VOLTAGE IS OK……CONTINUE NEXT STEP.

2.- **TELCO VOLTAGE ONBOARD:** MEASURE DC VOLTS ON BOTH ENDS OF "GD1" GAS DISCHARGE TUBE. (LOCATED ON CORNER OF PCB BOARD BESIDE THE MAIN CONNECTOR)
IF 48 TO 52 VOLTS ……. JUMP TO STEP # 4.
IF NOT …….. CONTINUE TO NEXT STEP.

3.- **HARNESS FROM TERMINAL BARRIER STRIP TO THE MAIN PCB:** TURN THE UNIT OFF. UNPLUG AND VERIFY CONDITION OF CONNECTOR AND THE PINS LOOKING FOR SIGNS OF CORROSION.
REINSTALL THE HARNESS AND TURN THE UNIT ON, RE-CHECK DC VOLTS ON "GD1" GAS DISCHARGE TUBE.
IF THERE IS STILL NOT 48 TO 52 VOLTS……REPLACE HARNASS
IF 48 TO 52 VOLTS……CONTINUE TO NEXT STEP

4.- **LOOK FOR SIGNS OF CORROSION:** VISUAL INSPECTION OF "K1", "GD1" AND SURROUNDING AREA. IF CORROSION PRESENT ….. CONTACT SES TECHNICAL SUPPORT FOR FURTHER ASSISTANCE.

5.- **DIAGNOSTIC MODE:** TURN THE UNIT OFF. FLIP DIP SWITCH # 2 WHICH WILL ALLOW YOU TO HEAR DIALED TONES WHEN CALLING.
TURN THE UNIT ON, AND TEST DIALING OUT.

IF NO TONES HEARD……CONTACT SES TECHNICAL SUPPORT FOR FURTHER ASSISTANCE.

IF TONES ARE HEARD……..CHECK INTEGRITY OF TELCO LINE.

HEAR THE DIAL TONE WHEN DIALING

1. **DIP SWITCHES:** VERIFY THE CORRECT POSITIONS ACCORDING TO THE TYPE OF UNIT. CONSULT THE MANUAL.

   DIP SWITCH #2 SHOULD BE IN THE OFF POSITION TO MUTE THE DIAL TONE WHEN DIALING.

   IF NOT SET CORRECTLY……TURN THE UNIT OFF AND ADJUST.

   IF SET CORRECT …CONTACT SES TECHNICAL SUPPORT FOR FURTHER ASSISTANCE.

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UNIT HOLDS PHONE LINE BUSY

1.- **HARNESS FROM TERMINAL BARRIER STRIP TO THE MAIN PCB:** TURN UNIT OFF. UNPLUG AND VERIFY CONDITIONS OF BOTH THE CONNECTOR AND THE PINS LOOKING FOR SIGNS OF CORROSION. REINSTALL THE HARNESS.

2.- **LOOK FOR SIGNS OF CORROSION:** VISUAL INSPECTION OF "K1" , "Q2" FOR SIGNS OF CORROSION
IF CORROSION IS PRESENT……CONTACT SES TECHNICAL SUPPORT FOR FURTHER ASSISTANCE.
IF NO CORROSION ……..CONTINUE NEXT STEP.

3.- **UNIT OFF HOOK:** TURN THE UNIT ON. PRESS A NUMBER OF KEYPAD TO TAKE UNIT OFF HOOK. PRESS THE "#" KEY TO TAKE UNIT ON HOOK. AFTER 60 SECONDS AGAIN PRESS A NUMBER ONTHE KEYPAD TO TAKE UNIT OFF HOOK
IF THE LINE STILL BUSY …… CONTINUE TO NEXT STEP.

4- **OTHER DEVICES ON SAME LINE:** VERIFY THE PRESENCE AND STATUS OF OTHER DEVICES SHARING THE SAME PHONE LINE. (AN ALARM, FAX, GUARD PHONE OR OTHER DEVICE CAN CAUSE A PROBLEM)

5.- **TELCO VOLTAGE:** MEASURE DC VOLTS ON SCREWS OF TERMINAL BARRIER STRIP, BETWEEN THE TIP AND RING. NOMINAL TELCO VOLTAGE SHOULD BE 48 TO 52 VOLTS.

6.- **BUTT SET:** PLACE BUTT SET ON THE TIP / RING OF TERMINAL BARRIER STRIP, LET TELCO GO OFFHOOK, THEN ONHOOK. VERIFY IF LINE IS STILL BUSY.

IF THE LINE IS STILL BUSY…… CHECK INTEGRATY OF TELCO LINE OR OTHER DEVICES.

IF NOT BUSY……CONTACT SES TECHNICAL SUPPORT FOR FURTHER ASSISTANCE.

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MODEM IS NOT ANSWERING

1.- **PROGRAMMING:** DETERMINE IF THE "RING COUNT" OR (UNIT ID) OF THE UNIT IS SET TO A VALUE GREATER THAN "1". IF THE ID IS SET TO "0", THE MODEM WILL NOT ANSWER.

2- **OTHER DEVICES ON SAME LINE:** VERIFY PRESENCE AND CONDITION OF OTHER DEVICES SHARING THE SAME LINE. A FAX OR SOME OTHER DEVICE ON THE SAME LINE COULD BE ANSWERING BEFORE THE CAT UNIT MODEM.

3.- **TELCO VOLTAGE:** MEASURE DC VOLTS ON SCREWS OF TERMINAL BARRIER STRIP BETWEEN THE TIP AND RING. NOMINAL TELCO VOLTAGE SHOULD BE 48 TO 52 VOLTS.

4.- **TELCO VOLTAGE ONBOARD:** MEASURE DC VOLTS ON BOTH ENDS OF "GD1" GAS DISCHARGE TUBE. (LOCATED ON CORNER OF PCB BOARD BESIDE THE MAIN CONNECTOR FROM THE TERMINAL BARRIER STRIP)
IF 48 TO 52 VOLTS ……. CONTINUE TO NEXT STEP
IF NOT …….. REPLACE MAIN HARNESS OR CHECK CONTINUITY

5.- **BUTT SET:** PLACE BUTT SET ON TIP / RING OF TERMINAL BARRIER STRIP. LET TELCO GO OFF HOOK, THEN ON HOOK.
CHECK INTEGRITY OF TELCO LINE.

6.- **LOOK FOR SIGNS OF CORROSION:** VISUAL INSPECTION OF THE MODEM BOARD FOR SIGNS OF CORROSION. UNPLUG THE MODEM FROM MAIN PCB, CLEAN THE PINS OF ITS CONNECTOR, AT J27.
IF CORROSION IS PRESENT…… CONTACT SES TECHNICAL SUPPORT FOR FURTHER ASSISTANCE.
IF NO CORROSION WAS FOUND ……..CONTINUE NEXT STEP.

7.- **ADD ON BOARDS:** TURN THE UNIT OFF. UNPLUG "MUI" BOARD FROM THE MAIN PCB. DO A VISUAL INSPECTION FOR SIGNS OF CORROSION.
TURN THE UNIT ON.
IF THE MODEM IS STILL NOT ANSWERING……..CONTINUE NEXT STEP.
IF UNIT WORKS……CHECK CONDITIONS OF "MUI", LOOK FOR CORROSION THAT WILL INTERFER WITH THE MODEM'S RESPONSE.

8.- **RE-TEST THE MODEM**, IF IT FAILS…..CONTACT SES TECHNICAL SUPPORT FOR FURTHER ASSISTANCE.

NO RS232 SERIAL COMUNICATION

1.- **PROGRAMMING:** DETERMINE CORRECT BAUD RATE PROGRAMMED IN THE UNIT (MENU 1- SUBMENU 2) MATCHES THE BAUD RATE PROGRAMMED IN SELCOM SOFTWARE OR IN YOUR TERMINAL PROGRAM.
(DEFAULT IS 9600 bps)

2.- **CHECK PHYSICAL CONNECTIONS:** RE-TIGHTEN ALL SCREWS OF TERMINAL STRIP WERE YOUR WIRES ARE CONNECTED. WHEN USING A DB9 PLUG VERIFIY THAT IT IS PROPELY INSERTED.
TEST YOUR COMMUNICATION AGAIN.

3.- **MAKE A "LOOP BACK" TEST:** REMOVE THE "TX" AND "RX" WIRES FROM CAT SERIAL BOARD, AND TEMPORARILY CONNECT THEM TOGETHER. RUN A TERMINAL PROGRAM AND WHATEVER YOU TYPE SHOULD ECHO BACK TO THE SCREEN.
IF ECHO IS OK……. … CONTINUE TO NEXT STEP
IF ECHO NOT OK……. CHECK YOUR CPU COM-PORT AND WIRES OR SETTINGS OF COMPUTER.

4.- **RESTORE TX AND RX WIRES:** RESTORE TX AND RX WIRES TO THEIR ORIGINAL POSITIONS.

5.- **CHECK CORRECT PATHS** OF TX AND RX: RUNNING A TERMINAL PROGRAM, PRESS ANY CHARACTER AND VERIFY THAT THE "RX LED" LIGHTS.
IF "RX LED" LIGHTS…..JUMP TO STEP # 7
IF IT DOES NOT LIGHT……CONTINUE TO NEXT STEP

6.- **NO "RX LED" FLASH:** THIS CAN HAPPEN FOR TWO REASONS:
A.- RX LINE OPENED……..THEREFORE CHECK IT'S CONTINUITIY
B - RX AND TX LINES ARE FLIPPED…..THEREFORE TRY FLIPPING TX/RX

7.- **CONTINUITY OF " GND " LINE:** WITH YOUR METER, CHECK CONTINUITY OF THE "GND" LINE BETWEEN THE CPU'S COM PORT OUR CAT SERIAL BOARD.

8.- **LOOK FOR SIGNS OF CORROSION:** VISUAL INSPECTION OF SERIAL INTERFACE BOARD.
TURN THE UNIT OFF, UNPLUG THE SERIAL INTERFACE BOARD AND MAKE A VISUAL INSPECTION. CLEAN PINS.
REINSTALL THE BOARD AND TURN THE UNIT ON AND RE-TEST.
IF INTERFACE FAILS…CONTACT SES TECHNICAL SUPPORT FOR FURTHER ASSISTANCE.

GATE (ENTRANCE) NOT OPENING

1.- **TYPE OF INPUT:**
IF USING A PIN CODE THRU KEYPAD, CONTINUE TO THE NEXT STEP.

IF USING CARD READERS GO TO WIEGAND READER NOT LATCHING GATE

IF USING TONE INPUT GO TO TONE NOT LATCHING GATE

2- **RELAY CONTACTS:** TEMPORARILY DISCONECT WIRES COMING FROM THE GATE AT THE MAIN TERMINAL BARRIER STRIP. MEASURE RESISTANCE ON SCREWS BELONGING TO NORMALLY OPEN WHILE USING THE TONE INPUT FROM A CALLED PARTY, TO OPEN GATE.

IF DOES NOT GO FROM “OPEN” TO “SHORT”….JUMP TO NEXT STEP.

IF DOES GO FROM “OPEN” TO “SHORT”, THE PROBLEM IS IN THE EXTERNAL WIRES.

3.- **PROGRAMMING:** RE-CONNECT WIRES COMING FROM GATE TO MAIN TERMINAL STRIP. VERIFY CORRECT TONE DIGIT PROGRAMMED TO OPEN THE GATE, OR RE-PROGRAM THE SETTINGS ACCORDINGLY.
TEST THE TONE TO OPEN GATE AGAIN.

4.- **TIGHTEN SCREWS:** RE-TIGHTEN ALL SCREWS ON THE TERMINAL BARRIER STRIP AND ON TAC2W CARD READER BOARD.

5.- **LOOK FOR SIGNS OF CORROSION:** DO A VISUAL INSPECTION OF THE MAIN BOARD IN AREA BETWEEN JACK 20 , JACK21 , AND CHIP U26.

6.- **CHECK PIN:** USING A PIN NUMBER ATTEMPT TO OPEN THE GATE OR ENTRANCE. VERIFY THAT PIN NUMBER IS CORRECTLY PROGRAMMED.
IF THE PIN IS NOT OPENING GATE ……CONTACT SES TECHNICAL SUPPORT FOR FURTHER ASSISTANCE.

IF THE PIN OPENS THE GATE……..CONTINUE TO NEXT STEP.

7.- **CALL DIFERENT PARTY:** CALL A DIFERENT PARTY AND HAVE THEM RELEASE THE ENTRANCE AS TOUCH TONES ARE NOT BEING DETECTED FROM THE FIRST SOURCE.

IF THE TEST FAILS……CONTACT SES TECHNICAL SUPPORT FOR FURTHER ASSISTANCE.

TONE NOT OPENING GATE

1.- **TELCO NOMINAL VOLTAGE:** MEASURE DC VOLTS ON SCREWS OF THE TERMINAL BARRIER STRIP BETWEEN TIP AND RING. NOMINAL TELCO VOLTAGE SHOULD BE 48 TO 52 VOLTS.
IF NOT…….CHECK INTEGRITY OF TELCO LINE.
IF LEVEL OK……CONTINUE NEXT STEP.

2.- **CHECK PIN ACTIVITY:** USING A PIN NUMBER, ACTIVATE AN ENTRANCE, IF NOT ACTIVITING ……GO TO STEP#2 OF "GATES NOT LATCHING "

3.- CALL DIFERENT PARTY: CALL A DIFERENT PARTY AND TEST

4.- **HARNESS TO MAIN PCB:** TURN UNIT OFF. UNPLUG AND VERIFY THE CONDITION OF THE MAIN HARNESS, AND THE CONNECTOR PINS. DO A VISUAL INSPECTION FOR SIGNS OF CORROSION.
REINSTALL THE HARNESS AND TURN THE UNIT ON.
IF THE RE-TEST FAILS……CONTINUE NEXT STEP.

5.- **LOOK FOR SIGNS OF CORROSION:** DO A VISUAL INSPECTION OF "K1", "GD1" AND SURROUNDING AREA.

6.- **RE-TEST:** IF STILL FAILS……CONTACT SES TECHNICAL SUPPORT FOR FURTHER ASSISTANCE.

WIEGAND READER NOT OPENING GATE OR ENTRANCE

1.- **DIAGNOSTIC MODE:** TURN THE UNIT OFF. FLIP DIP SWITCH # 5 ON. TURN THE UNIT ON. WATCH THE LCD DISPLAY WHILE USING WIEGAND READER, THE DISPLAY WILL SHOW THE CARD NUMBER AND BIT LENGTH.
IF THE DISPLAY MATCHES CARD/CLICKER …. JUMP TO STEP# 3
IF THE DISPLAY DOES NOT MATCH…….CONTINUE TO NEXT STEP.

2.- **PROGRAMMING:** DETERMINE CORRECT BIT AND SITE CODE NUMBERS OF THE CARDS / CLICKERS. VERIFY OR REPROGRAM YOUR SETTINGS ACCORDINGLY.
TEST THE READER AGAIN IN DIAGNOSTIC MODE (WITH THE DISPLAY SHOWING THE READS).
(NOTE; IFTHE SITE CODE IS UNKNOWN, YOU CAN PROGRAM SITE CODE TO 255 TEMPORARILY, WHICH WILL IGNORE THE SITE CODE AND ALLOW ANY VALID CARD TO BE READ)

3.- **TIGHTEN SCREWS:** RE-TIGHTEN ALL SCREWS OF TERMINAL STRIP OF THE TAC2W (CARD READER BOARD).

4.- **LOOK FOR SIGNS OF CORROSION:** DO A VISUAL INSPECTION OF THE TAC2W CARD READER BOARD. TURN UNIT OFF, UNPLUG TAC2W AND LOOK FOR SIGNS OF CORROSION, ALSO MAKE VISUAL INSPECTION OF THE PINS ON THE PC BOARD. CLEAN THE PINS.
REINSTALL THE BOARD AND TURN UNIT ON. RE-TEST THE CARDS / CLICKERS IN DIAGNOSTIC MODE.

5.- **POWER SUPPLY TO READER:** MEASURE DC VOLTAGE BETWEEN FIRST AND LAST SCREWS OF EACH TERMINAL STRIP ON TAC2W CARD READER BOARD. THE VOLTAGE SHOULD MEASURE 5 OR 12 VOLTS PER THE SETTINGS OF THE JUMPERS, AND THE REQUIREMENT OF YOUR DEVICE.
(CHECK YOUR READER DEVICE POWER SPECIFICATIONS)
IF THE VOLTAGE INCORRECT…….ADJUST JUMPERS
IF THE VOLTAGE LOWER THAN 3 VOLTS…JUMP TO STEP# 6

6.- **TWO DATA LINES:** VERIFY CORRECT WIRE SETUP OF LINES “D0” AND “D1”. IF THESE WIRES ARE BACKWARDS, THE READER WILL NOT WORK CORRECTLY.
TEST AGAIN, IF STILL NOT LATCHING….CONTACT SES TECHNICAL SUPPORT FOR FURTHER ASSISTANCE.

7.- **POWER SUPPLY TO READER SHORTED:** TURN THE UNIT OFF. DISCONECT ALL WIRES TO TERMINAL STRIP OF TAC2W CARD READER BOARD. TURN THE UNIT ON. MEASURE DC VOLTAGE BETWEEN FIRST AND LAST SCREWS OF EACH TERMINAL STRIP ON TAC2W CARD READER BOARD.
IF VOLTAGE LOWER THAN 3 VOLTS…CONTACT SES TECHNICAL SUPPORT FOR FURTHER ASSISTANCE.
IF VOLTAGE IS CORRECT….SEND READER TO SERVICE (IF FROM ANOTHER SOURCE THAN SES) OR CONTACT SES TECHNICAL SUPPORT FOR FURTHER ASSISTANCE.

MAIN LED BLINKING –UNIT NOT RESPONDING IN "WATCH DOG MODE"

1.- **TURN THE UNIT OFF**.

TURN DIP SWITCH # 3 TO THE ON POSITION.

TURN THE UNIT ON.

CHECK THE MAIN LED, IF STILL BLINKING……CONTINUE TO NEXT STEP.

IF MAIN LED SOLID GLOW……..CONTACT SES TECHNICAL SUPPORT FOR FURTHER ASSISTANCE.

2.- **UNIT NOT RESPONDING:** GO TO UNIT NOT RESPONDING AND NO DISPLAY

NO DISPLAY

1.- **MAIN LED ON:** VERIFY THAT THE LED ON THE MAIN BOARD, D107 IS GLOWING STEADY.
(THE LED IS NEAR THE DIP SWITCHES AND ALMOST UNDER THE MODEM, IF PRESENT)
IF NOT GLOWING STEADY…..GO TO: UNIT NOT RESPONDING AND NO DISPLAY

IF GLOWING STEADY…….CONTINUE NEXT STEP.

2- **DIP SWITCHES:** VERIFY THE CORRECT POSITION ACCORDING TO TYPE OF CAT UNIT. (CONSULT THE MANUAL)
IF NOT SET CORRECTLY……TURN THE UNIT OFF AND ADJUST.

3.- **FLAT RIBBON CABLE TO DISPLAY:** TURN THE UNIT OFF.
VERIFY CONDITION OF RIBBON CABLE FOR ANY PINCHED WIRES.
UNPLUG BOTH ENDS AND VERIFY CONDITION OF CONNECTOR AND THE PINS ON THE MAIN PCB, AND ON DISPLAY CONTROLLER BOARD.
REINSTALL THE RIBBON CABLE ON BOTH ENDS.
TURN THE UNIT ON.

4.- **LOOK FOR SIGNS OF CORROSION:** DO A VISUAL INSPECTION OF THE DISPLY CONTROLLER BOARD FOR SIGNS OF CORROSION.
IF CORROSION IS PRESENT…..CONTACT SES TECHNICAL SUPPORT FOR FURTHER ASSISTANCE.
IF NO CORROSION PRESENT ……..CONTINUE NEXT STEP.

5.- **SWAP THE DISPLAY:**
TEMPORARILY CONNECT MAIN PCB TO ANOTHER DISPLAY (IF AVAILABLE).
IF THE REPLACEMENT DISPLAY FAILS….CONTACT SES TECHNICAL SUPPORT FOR FURTHER ASSISTANCE.

IF THE REPLACEMENT DISPLAY IS OK……CONTACT SES TECHNICAL SUPPORT FOR FURTHER ASSISTANCE.

UNIT NOT RESPONDING AND NO DISPLAY

1.- **MAIN "ON" LED:** VERIFY IF MAIN "ON" LED D107 IS GLOWING STEADY **(NEAR DIP SWITCHES AND ALMOST UNDER THE MODEM IF PRESENT)**
IF STEADY GLOWING…..JUMP TO STEP #4
IF LED STILL BLINKING…….CONTINUE NEXT STEP.

2- **POWER TRANSFORMER SUPPLY:** MEASURE ON TERMINAL BARRIER STRIP APROX. 18 VOLTS AC…..WITH UNIT TURNED ON OR OFF.

3.- **OHMS ON DIODE D5:** TURN UNIT OFF. UNPLUG FLAT RIBBON TO DISPLAY. MEASURE OHMS ACROSS PINS OF DIODE D5 (Besides main crystal)
IF OVER 1000 OHMS……. CONTINUE TO NEXT STEP.
IF UNDER 1000 OHMS…….SHORT CIRCUIT SEND PCB+DISPLAY SERVICE

4- **DIP SWITCHES:** VERIFY CORRECT POSITION ACCORDING TO TYPE OF THE UNIT.
IF NOT SET CORRECTLY……TURN UNIT OFF AND ADJUST.

5.- **HARNESS TO MAIN PCB:** TURN UNIT OFF. UNPLUG AND VERIFY THE CONDITION OF MAIN HARNESS, AND J1's PINS. DO A VISUAL INSPECTION FOR SIGNS OF CORROSION.
REINSTALL THE HARNESS AND TURN THE UNIT ON.

6.- **FLAT RIBBON TO DISPLAY:** TURN THE UNIT OFF. CHECK CONDITION OF THE RIBBON CABLE FOR ANY PINCHED WIRES.
UNPLUG BOTH ENDS AND CHECK THE CONDITION OF PINS ON THE MAIN PCB, AND ON DISPLAY CONTROLLER BOARD.

7.- **TEST WITHOUT DISPLAY LOAD:** WITH THE FLAT RIBBON CABLE TO THE DISPLAY UNPLUGGED…TURN THE UNIT ON AND VERIFY STATUS OF MAIN LED…
IF LED STEADY GLOWING……DISPLAY NEEDS SERVICE, CONTACT SES TECHNICAL SUPPORT FOR FURTHER ASSISTANCE.

IF LED STILL BLINKING…….CONTINUE NEXT STEP

9.- **SPEAKER / MICROPHONE HARNESS:** TURN UNIT OFF. REINSTALL THE RIBBON CABLE ON BOTH ENDS. UNPLUG AND VERIFY THE CONDITION OF THE PINS AND CONNECTORS FOR THE SPEAKER / MICROPHONE. DO A VISUAL INSPECTION FOR SIGNS OF CORROSION.
REINSTALL THE HARNESS AND TURN THE UNIT ON.

10.- **ADD ON BOARDS:** TURN UNIT OFF UNPLUG ALL ADD ON BOARDS ON THE MAIN PCB. DO A VISUAL INSPECTION FOR SIGNS OF CORROSION. BE SURE RIBBON CABLE TO DISPLAY IS PLUGGED IN, THEN TURN UNIT ON.
IF THE UNIT STILL NOT WORKING……CONTACT SES TECHNICAL SUPPORT FOR FURTHER ASSISTANCE.
IF UNIT WORKS……CHECK THE CONDITION OF EACH ADD ON BOARD.

KEYPAD NOT RESPONDING

1.- **MAIN "ON" LED:** VERIFY IF MAIN "ON" LED D107 IS STEADY GLOWING **(NEAR DIP SWITCHES AND ALMOST UNDER THE MODEM IF PRESENT)**
IF NOT STEADY GLOWING…..GO TO UNIT NOT RESPONDING / NO DISPLAY
IF GLOWING STEADY …….CONTINUE NEXT STEP.

2.- **FLAT RIBBON TO DISPLAY:** TURN UNIT OFF. VERIFY CONDITION OF RIBBON CABLE FOR ANY PINCHED WIRES.
UNPLUG BOTH ENDS AND VERIFY THE CONDITION OF PINS ON THE MAIN PCB, AND ON DISPLAY CONTROLLER BOARD.
REINSTALL THE RIBBON CABLE ON BOTH SIDES AND TURN UNIT ON.

3.- **KEYPAD HARNESS:** TURN UNIT OFF. UNPLUG AND VERIFY CONDITION OF J's PINS DO A VISUAL INSPECTION FOR SIGNS OF CORROSION.
REINSTALL THE HARNESS AND TURN UNIT ON.

4.- **LOOK FOR SIGNS OF CORROSION:** VISUAL INSPECTION OF "KEYPAD" FOR SIGNS OF CORROSION.
IF CORROSION IS PRESENT…..CONTACT SES TECHNICAL SUPPORT FOR FURTHER ASSISTANCE.
IF NO CORROSION ……..CONTINUE NEXT STEP.

5.- **SWAP KEYPAD:** TEMPORARILY CONNECT MAIN PCB TO OTHER KEYPAD.
IF NEW KEYPAD FAILS….CONTACT SES TECHNICAL SUPPORT FOR FURTHER ASSISTANCE.

IF KEYPAD OK…CONTACT SES TECHNICAL SUPPORT FOR FURTHER ASSISTANCE.

DISPLAY IS GARBLED

1- **VISUAL INSPECTION OF AREA AROUND:** RN103 , RN106, U26, J25
(WHERE FLAT RIBBON CABLE FOR DISPLAY IS PLUGGED)

2.- **FLAT RIBBON TO DISPLAY:** TURN UNIT OFF. VERIFY CONDITION OF RIBBON CABLE FOR ANY PINCHED WIRES.
UNPLUG BOTH ENDS AND VERIFY THE CONDITION OF PINS ON THE MAIN PCB, AND ON DISPLAY CONTROLLER BOARD.
REINSTALL THE RIBBON CABLE ON BOTH ENDS AND TURN UNIT ON.
CHECK THE DISPLAY……..IF STILL GARBLED, GO TO THE NEXT STEP

3- **LOOK FOR SIGNS OF CORROSION:** DO A VISUAL INSPECTION OF THE DISPLAY CONTROLLER BOARD.

IF STILL GARBLED…CONTACT SES TECHNICAL SUPPORT FOR FURTHER ASSISTANCE.

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