TESTBOOK

SPECIAL SERVICE CIRCUITS
INSTALLATION/MAINTENANCE
COURSE #2027 & 2028
NOVEMBER, 1988

|||| corporate
—— education

Ⓐ **Illinois Bell**
AN AMERITECH COMPANY

Using the Circuit Details on pages 1 through 4, answer the questions on page 5.


```
CKT 2 /TLNC/186643      /LB              A CHCGILKE      DD Z CHCGILMO
ORD C-30281093          -001  ACTN IE CAC SUT2FB6             MCO CHCGILKE
CUST TOOL AND ENGINEERING                RRI      MSC N  PRQ      RSP
BTN 312-826-6335 CUS 535 CCON     -    -
CLO MBS977304001                      TEST-SUB-ACCT
N/*LOCN,EQPT AND FAC  FRAME ID    UNIT   SV  Z-A  A-Z MISC
        SA  735 S. WASHTENAW CHICAGO,IL.
   CUSTIL9S999
    CPE/PBX                                X4  2.5  2.0
      ACCESS   CODE 9
      FIC    (TL31M)
  W NC44W402          WSMTG-5    2002   X4  2.5  0.1
     WSCM-7306-00
     A TO B/RU1:GN= 1.90DB/
     RU2:GN= 0.10DB:NL=OFF:
     SLOPE=0:HT=3:BW=15/
     OUTPUT=600/
     $S7=N,S11-12=DX1,S13=I/
                      III,,S17=N,S14=.25
   CUSTIL9S999        ADDR BP 3/5 REF 05146/05695    TERM ADDR
1  EXC00044           24NL        1303   XT      2.9 R0414 DB02.7
                                                        1.6
1  EXC00044           24NL        1305   XR  2.9     R0414 DB02.7
R 0227     CO LBMB   DSGNR JC1/312-727-4100 ISS 003/02-04-85 C001-004
```

1

```
CKT 2 /TLNC/186643      /LB                    A CHCGILKE       DD Z CHCGILMO
ORD C-30281093          -001  ACTN IE CAC SUT2FB6                  MCO CHCGILKE
N/*LOCN,EQPT AND FAC    FRAME ID    UNIT    SV  Z-A  A-Z MISC
                                                              1.6
    CHCGILKE
  W SMCM5N2E             51CG574     12      XR  0.1      A
                                                         F10/J187
  W SMCM5N2E             51CG574     12      XT       2.9 B
                                                         F10/J187
      51/-57412-/FF/4BA/01/                              SARTS
      D4F/LN/LN/N/22/ +2.5    5.5                        SARTS
    D4CB003B             05505.12    5A                  F10/L200
  W   D4CE451R           IP                  X4  0.1  8.5 DX4-D4A3
      TRMT=12.6/RCV=6.1/
      L-N=N/SL=1/BW=13/HT=2/
      TRMT(IMP)=600/
      RCV(IMP)=600/
    D4A3
    CHCGILKE                                             F10/L200
  W 103        T1                     8      X4 +4.0 +4.0
                                                         ILCH003.0 SE
    CHCGILMO                                             F10/E135
    D4A3
R 0227      CO LBMB    DSGNR JC1/312-727-4100 ISS 003/02-04-85 PG C002-004
```

2

```
CKT 2 /TLNC/186643        /LB                    A CHCGILKE      DD Z CHCGILMO
ORD C-30281093            -001  ACTN IE CAC SUT2FB6               MCO CHCGILKE
N/*LOCN,EQPT AND FAC      FRAME ID    UNIT    SV  Z-A  A-Z MISC
     D4CB034B             02210.02    1A                       F10/E135
   W D4CB451R             IP                  X4  8.5  0.2 DX4-D4A3
       TRMT=11.3/RCV=5.8/
       L-N=I/SL=0/BW=4/HT=6/
       TRMT(IMP)=1200/
       RCV(IMP)=1200/
   W SMCM3E2G             51CG506     36      XT        0.2 A
                                                           F10/M106
   W SMCM3E2G             51CG506     36      XR  4.1      B
                                                           F10/M106
       51/-50636-/FE/4AB/02/                               SARTS
       L4E/LN/LN/N/22/  4.1/  0.2                          SARTS
   CHCGILMO
 2   EXC00036             24H88       0178    XT        2.6 R0591 DB03.1
                                                                   2.6
 2   EXC00036             24H88       0179    XR  4.1      R0591 DB03.1
                                                                   2.6
     CUSTIL9S999          900 W.18TH BP 28/29              TERM ADDR
   W NC44W402             WSMTG-5     2003    X4  1.7  2.5
       WSCM-7306-00
 R 0227      CO LBMB    DSGNR JC1/312-727-4100 ISS 003/02-04-85 PG C003-004
```

```
CKT 2 /TLNC/186643      /LB                  A CHCGILKE      DD Z CHCGILMO
ORD C-30281093          -001  ACTN IE CAC SUT2FB6            MCO CHCGILKE
N/*LOCN,EQPT AND FAC  FRAME ID   UNIT   SV  Z-A  A-Z MISC
        B TO A/RU1:GN= 0.70DB/
        RU2:GN=-1.70DB:NL=OFF:
        SLOPE=1:HT=7:BW=4/
        OUTPUT=1200/
        $S7=N,S11-12=DX1,S13=I/
                              III,S17=N,S14=.5
        FIC     (TL31M)
        ACCESS  CODE 9
   CUSTIL9S999
    CPE/PBX                              X4  2.0  2.5
        SA  1710 S. PEORIA CHICAGO,IL.
        REF 07830/01787
   CHCGILMOMS1
                        SSC/SARTS  FOR      DIST
1 /19GA/      /22GA/8.9  /24GA/3.2  /26GA/1.4  /BT/.3
2 /19GA/      /22GA/2.2  /24GA/5.0  /26GA/1.0  /BT/


R 0227      CO LBMB    DSGNR JC1/312-727-4100 ISS 003/02-04-85 PG C004-004
```

4

1. WHAT LEVEL WOULD YOU BE SENDING AT IF YOU WERE AT THE "A" END?

   _−2.0_

2. WHAT LEVEL ARE WE FURNISHING THE SUB AT THE "Z" END?

   _−2.5_

3. WHAT LEVEL IS THE SUB FURNISHING US AT THE "Z" END?

   _−2.0_

4. WHAT LEVEL IS THE "Z" END FURNISHING THE C.O.T. AT THE MONROE 00036 CABLE?

   _−4.1_

5. WHAT IS LISTED UNDER THE "O" COLUMN (LOCN)?

   CPE EXC CA.

6. ON PAGE C003, THE X4 LISTED ON LINE D4CE451R TELLS YOU WHAT?
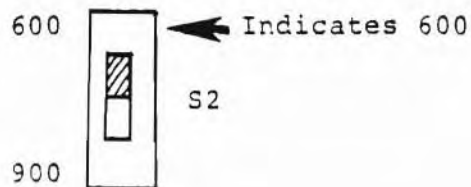
   TRANS + RECIVE SIG. − 4 WIRE TRANS & RECIVE

7. WHAT IS THE EXPECTED LOSS IN THE EXC00044 CABLE PAIR 1303?

   _−2.7_

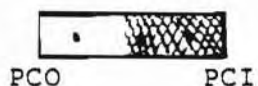8. WHAT IS THE EXPECTED LOSS IN THE XXX36 CABLE PAIR 179?

   _−3.1_

To indicate the position of switches use an arrow.

To indicate a screw is down (IN) use a horizontal line. ⊖

To indicate a screw is up (OUT) use a vertical line. ⊕

To indicate a jumper is on, refer to Para. 7.06 of the practice, darken the pin indicators.

PCO   PCI

In the example below the options are:

SWITCHES	SCREWS	PUSH ON JUMPERS
S1-600	A - IN	Talk battery + and - on Internal (INT)
S2-600	B - OUT	Pulse Corrector - IN (PCI)
S3-2W	RS - OUT	
S4-RPT	SWG/BOR - IN	
S5-SRG		

6
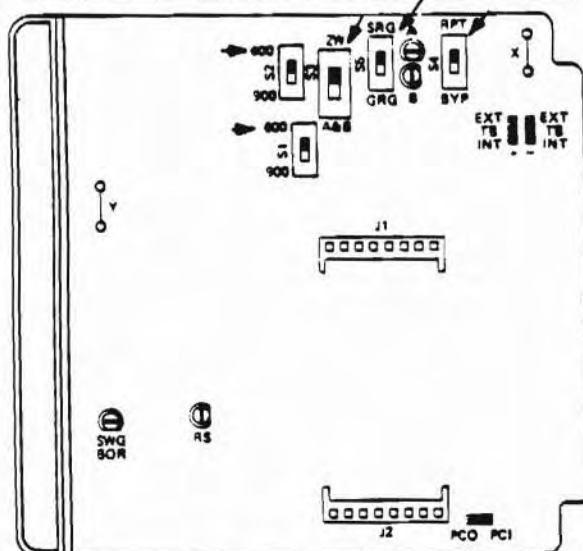
```
CKT 7 /OSNC/178141      /LB              A *KGNIL*K     RL Z *KGNIL*K
CRD C-20713698          -002 ACTN A CAC SUC2JL8          MCC *KGNIL*K
CUST VICTORY;MEMORIAL-HOS                RRI      MSC N   FRQ      RSF
CLO MES935476002                        TEST-SUB-ACCT 224 P/W
N/*LOCN,EQPT AND FAC  FRAME ID   UNIT .  SV. Z-A  A-Z MISC
      THIS IS A CDS DESIGN
      SA  1324 N.SHERIDAN WAUKEGAN FLR.1
   CUSTIL9SS99
    CLASSA                                    X2  3.9  0.8
      JK3 PIN 22
      PC=2144
      STA*737212
    GENTRADE                                  X
    LLQU7370                                  X2  3.9  0.4
      S1-2=6,3=2*,4=R,5=S,INT
      ,A-B-RS-PC=IN,ECR=OUT
   CUSTIL9SS99           IT-MDF-ADD FF-1344                TERM ADDR
1   EXC41                2CNL       1344     X2  3.5  4.8 R0724 DB04.4
                                                              1.7

    *KGNIL*K
   A MTM2H20E            01110.04   41                    CAT1
                                                          FAA
    MTZ2DZ1A                                  X2 +1.2 +0.6
R 2821     CO LEME   DSGNR GT1/312-727-4100 ISS 203/07-31-84 FG CO01-002
```
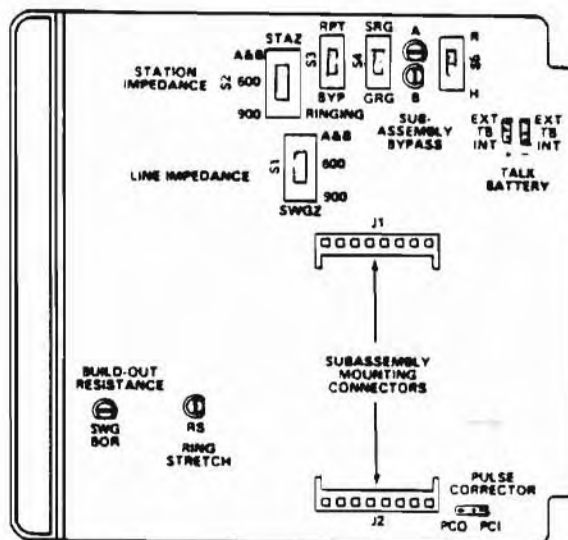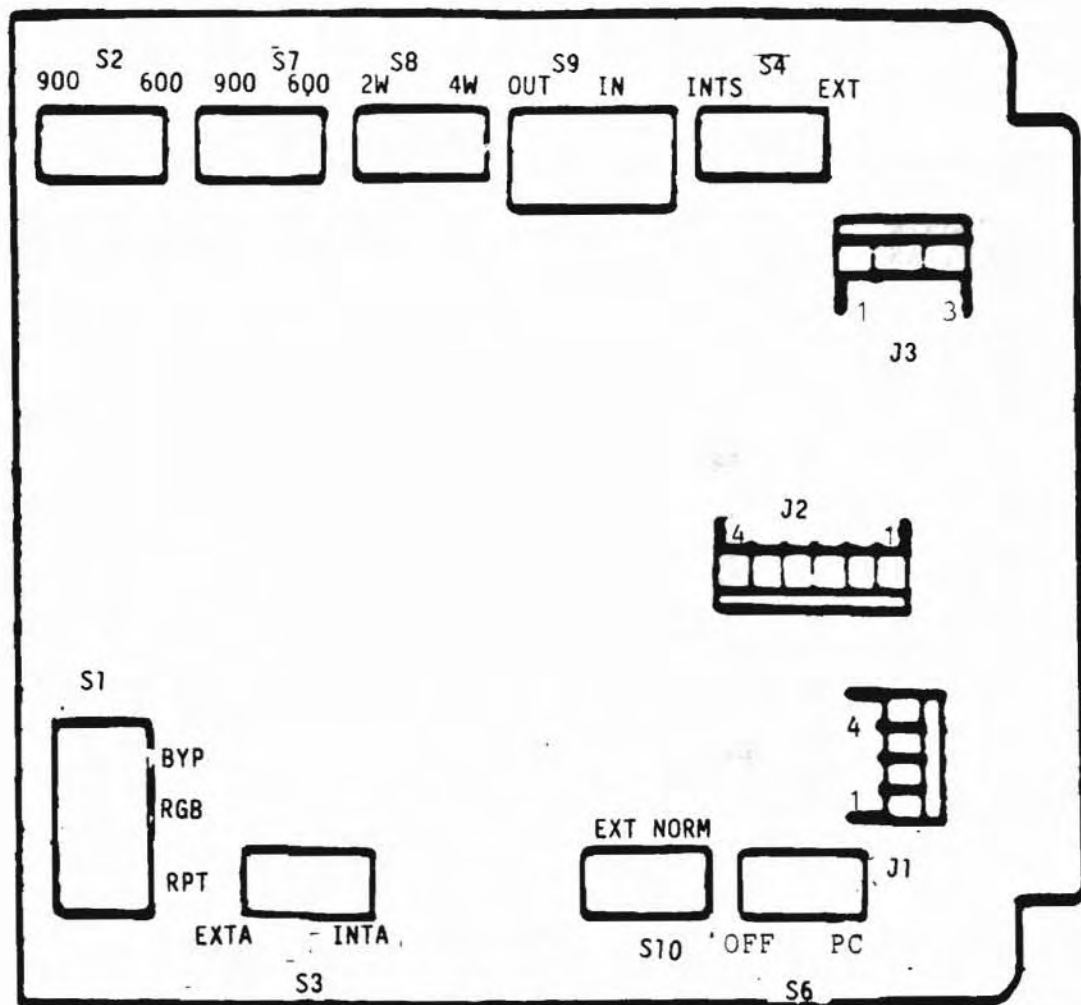
7001A OPTIONS LOCATION

```
CKT 5 /ITLS/311958      /LB                    A BNSVILMCFAA DD Z BNSVILBV
ORD C-77874397A         -001    ACTN IE CAC SSD2EE8          MCO
N/*LOCN,EQPT AND FAC .FRAME ID    UNIT    SV  Z-A  A-Z MISC
                                                               2.8
1   EXC13               22H88      WBA     XR  3.9       R0606 DB03.5
    CUSTIL9S999                                         TERM ADDR
  W VRQUW401            000.10     3202    X4 +0.0  2.6 CKT1
                                                        F10
        GT 2.3/GR 1.1
        $LINE=1200,DROP=600,S3=
                          EXT,S4=NORM,RF=IN
        WES400-401
  W DXQU7316            000.10     3032    X            F10
        $(OPTS=S1,2-DX1,S4-NOR,
                          SCWS DWN=A,D,C1,C4)
        WES400-7316
            R2K,R3K,R1K,R500
    CUSTIL9S999
    NCI 05EA2/     /            ·
  W TTQU4446            000.00     109     X4  2.3  4.9 F10
        $F4
        E & M-S1.0 OR S1.1(CLOSE 1-OPEN 2              ,3,4,5,6,7)
R 0821      CO LBMB    DSGNR B.K/312-727-5685 ISS 003/11-04-83 PG C002-003
```
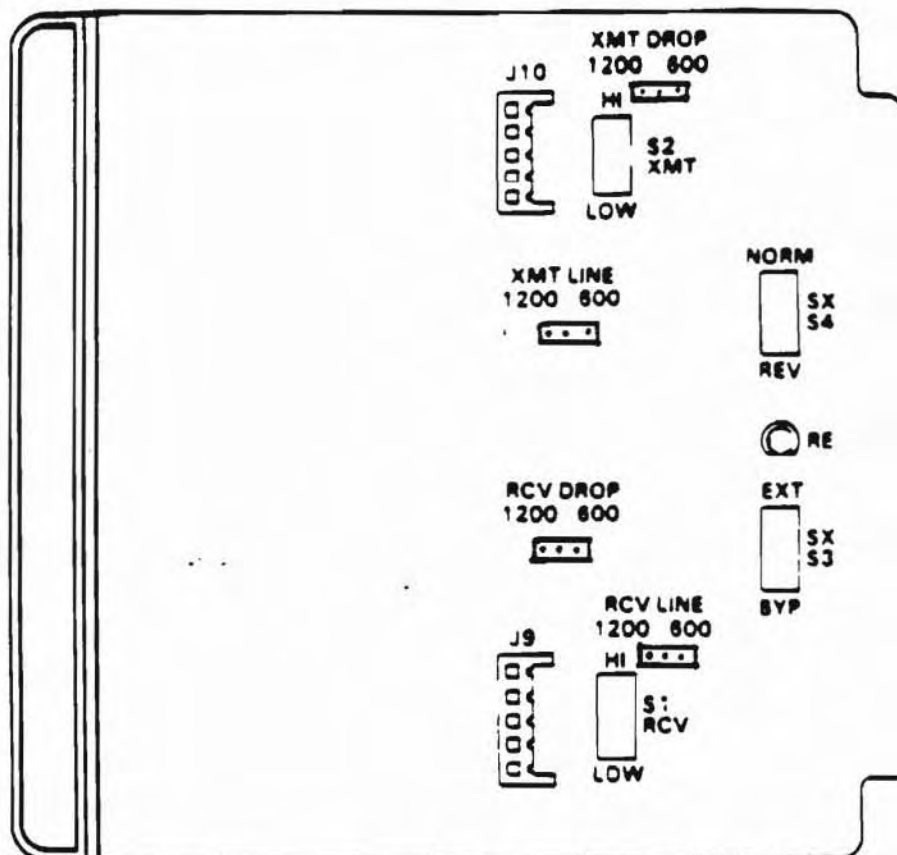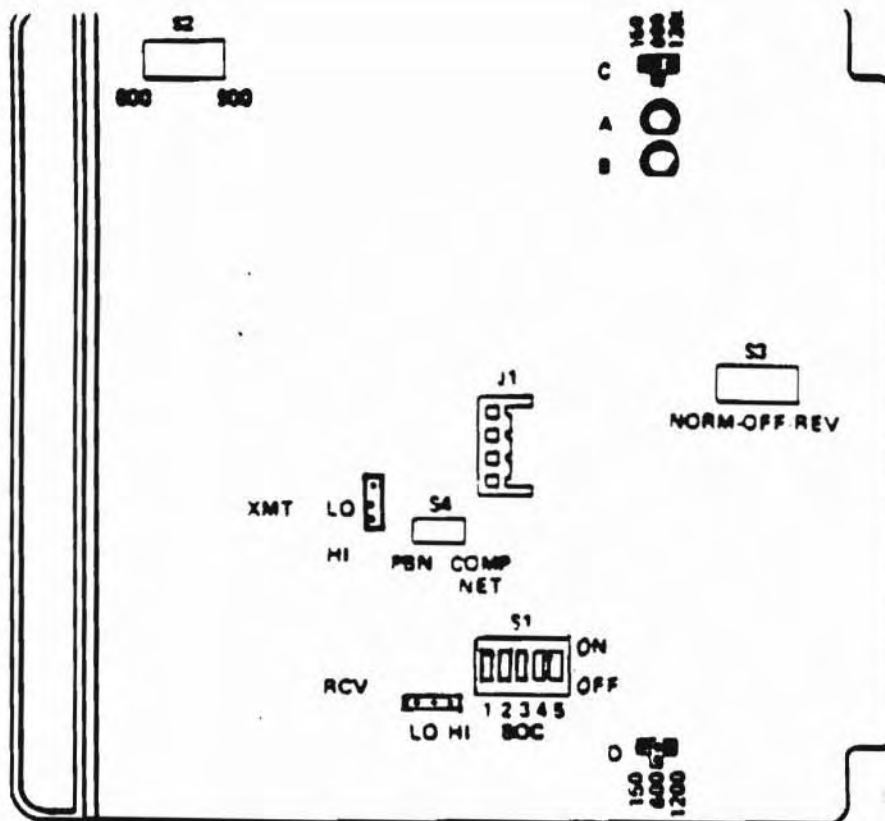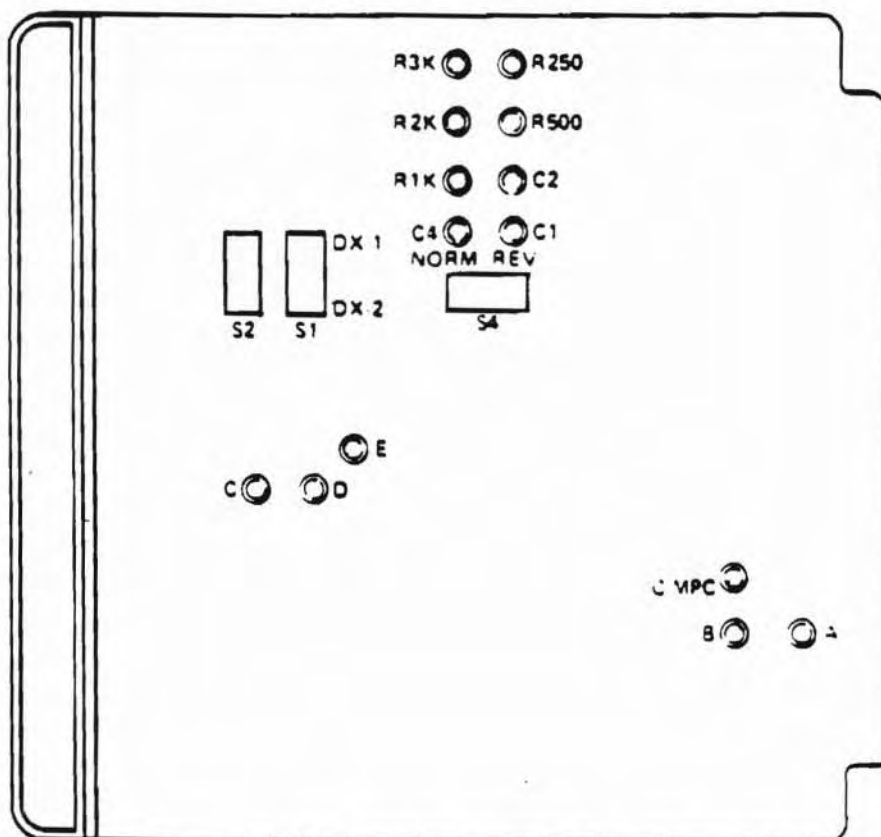
401-00 Option Locations

7316-00 Option Locations

10
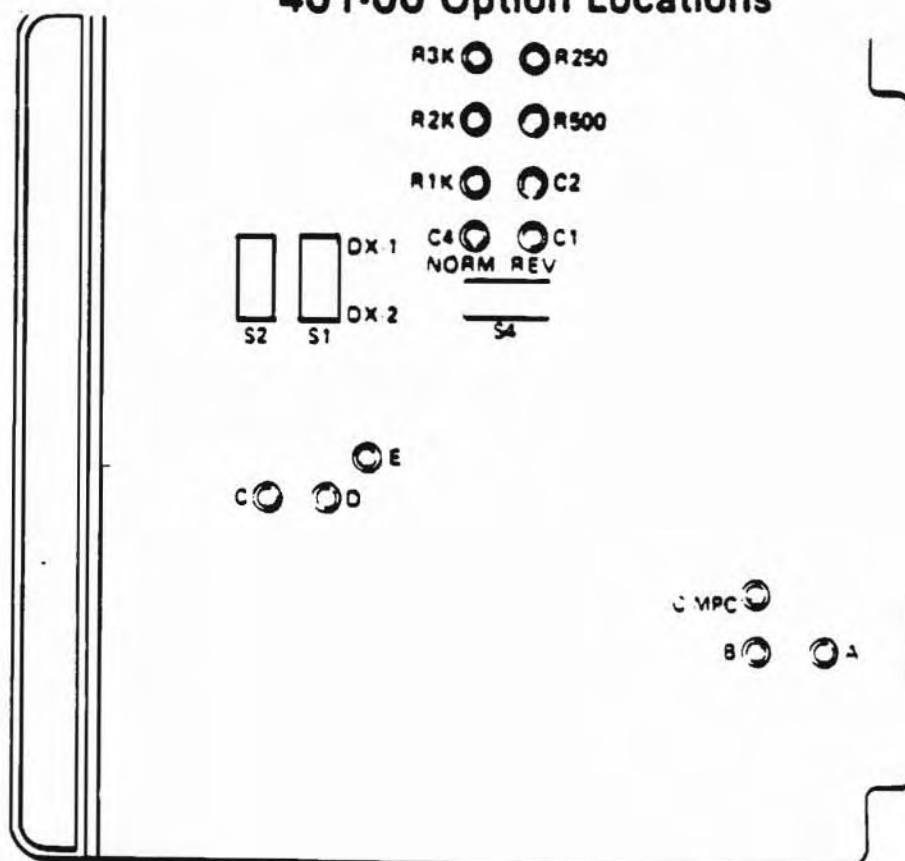
```
CKT 3 /EALS/340959      /LB                    A CHCGILPBFAC RR Z OKPKILOP
ORD C-28893792          -001  ACTN A   CAC STZ2HA5           MCØ CHCGILLR
"/*LOCN,EQPT AND FAC  FRAME ID    UNIT    SV  Z-A  A-Z MISC
       S1=600/S2=600/'N/L'=N
       C-WH/A&B-WH/RLP-167/
       'NOR/REV'-NOR/
    OKPKILOP
 1    EXC24                  24NL       0612     XT        3.4 RØ334 DBØ2.8
                                                                       .9
 1    EXC24                  24NL       0627     XR  3.2      RØ334 DBØ2.8
                                                                       .9
     CUSTIL9S999          MDF-ADDR,BP-62,77               TERM ADDR
   A VRQU7535             02C.13      4073     X2  0.4  4.0 CKT1
                                                           F1Ø
       GT 1.5/PR 0.6
       $(C,D,-600,S1-3,S2-600,
                      S3-OFF,S4-CN,A&B-UP)
   A DXQU7316             000.12      3815     X             F1Ø
       $(OPTS=S1,2-DX1,S4-NOR,
                      SCWS DWN=A,D,C1,C4)
       SCR DN-R3K,R2K,R1K,R500                      11TTMB INTERFC.
     CUSTIL9S999
      DEMARC                                  X2  2.0  4.0
 R Ø321     CO LBMB   DSGNR VB8/312-727-4100 ISS 0Ø1/07-13-84 PG CØØ4-ØØ5
```
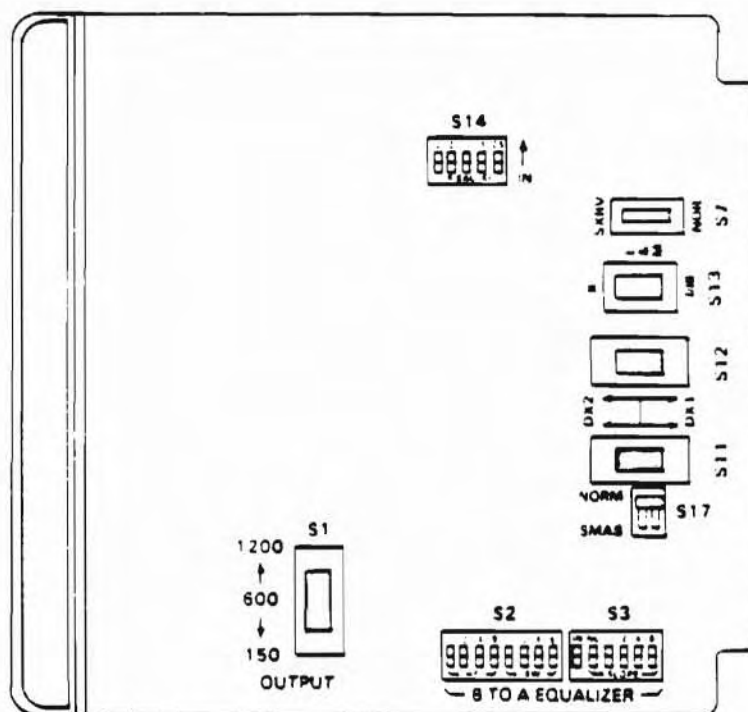
7535-00 (Issue 2) Option Locations

7316-00 Option Locations

```
CKT 2 /TLNC/172522        /LB              A CHCGILIRCGS DD 2 CHCGILFM
CRL C-63774S95            -001  ACTN IE CAC STQ2HK3        MCO CHCGILIR
N. ICCN,EQFT AND FAC      FRAME IL  UNIT    SV  Z-A  A-Z FISC
     CHCGILFM
1    IXC37               24NL       E07     XT       8.2 RU778 LF04.E
                                                               2.2
1    IXC37               24NL       808     XH +0.5      RU778 DE04.6
                                                               2.2
     CUSTILSSSSS                                         Thah ALDR
   h NC44W402            hSCMTG-1   496     X4 +5.5 2.5 F10
        B TO A/RU1:GN= 7.50DB/
        RU2:UN= 3.60LB:NL=ON:
        SLOPE=4:HT=10:Ya=S/
        CUTFLT=6"C/
        $S7=R,S11-12=DX1,S13=I/
                            III,S17=N,S14=,
        .25,1
        INTERFACE/TLCIM
     CUSTIL9SS99
     CFI/FBX                               X42.0  2.5
        SA  7E01 S CICEHO
        RC#24231E
        FH CT 831-85C
h 1005      CO IEME   DSGNR Jh7/312-727-4100 ISS 301/08-14-84 FG C003-004
```

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7306-00 Option Locations

```
CKT 7 /TLNC/171189      /LE                    A DRFDILDF    DD Z BLWDILEW
CRD C-33878696A         -001  ACTN IE CAC SAG9GK2           MCO DRFDILDF
N/*LOCN,EQPT AND FAC    FRAME IE   UNIT   SV  Z-A  A-Z MISC
    C=WH/A&B=WH/SX=NORM/  R
    LF=320 OBMS,
  BLWDILBW
2  EXC0034              24BE8      0005   XT        4.0 R0641 DB03.3
                                                             2.2
2  EXC0034              24B88      0022   XB  4.0       R0641 DB03.3
                                                             2.2
   CUSTIL9SS99          IT                               TERM ADDR
   DRQU7306             WES7306-  06     X2  1.6  2.5
    A TO B/GN=0.8DB/B TO A/
    GN=0.6DB/NL=CFF/
    SLOPE=0:HT=6:BW=4/
    CUT=1200(S1)/NBOC.020/
    (S2=HT/BW,S3=SL-NL/L)
    S11 & S12(DX1/DX2)=DX1,
    S13(E&M)=I/III,S14
    (REAL)=.25,S7(SX NOR/
    RV)=NOR,S17(NOR/SMAS)=
    NOR,S3=IN
    TL11M
R 0821    CO LEMB   DSGNR WG1/312-727-4100 ISS 003/01-24-84 PG C003-004
```
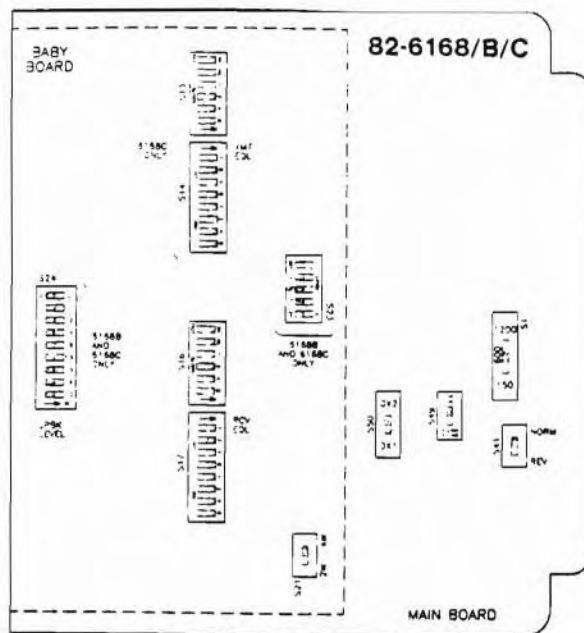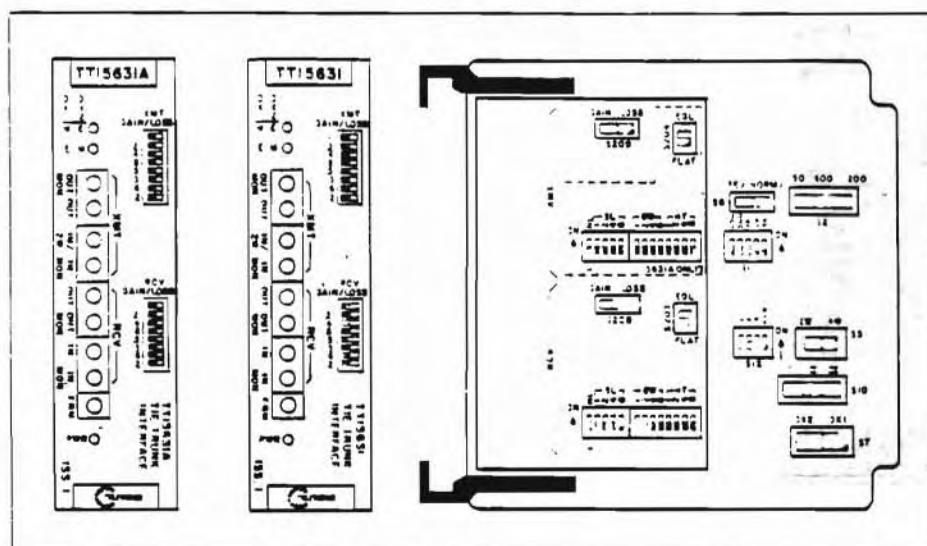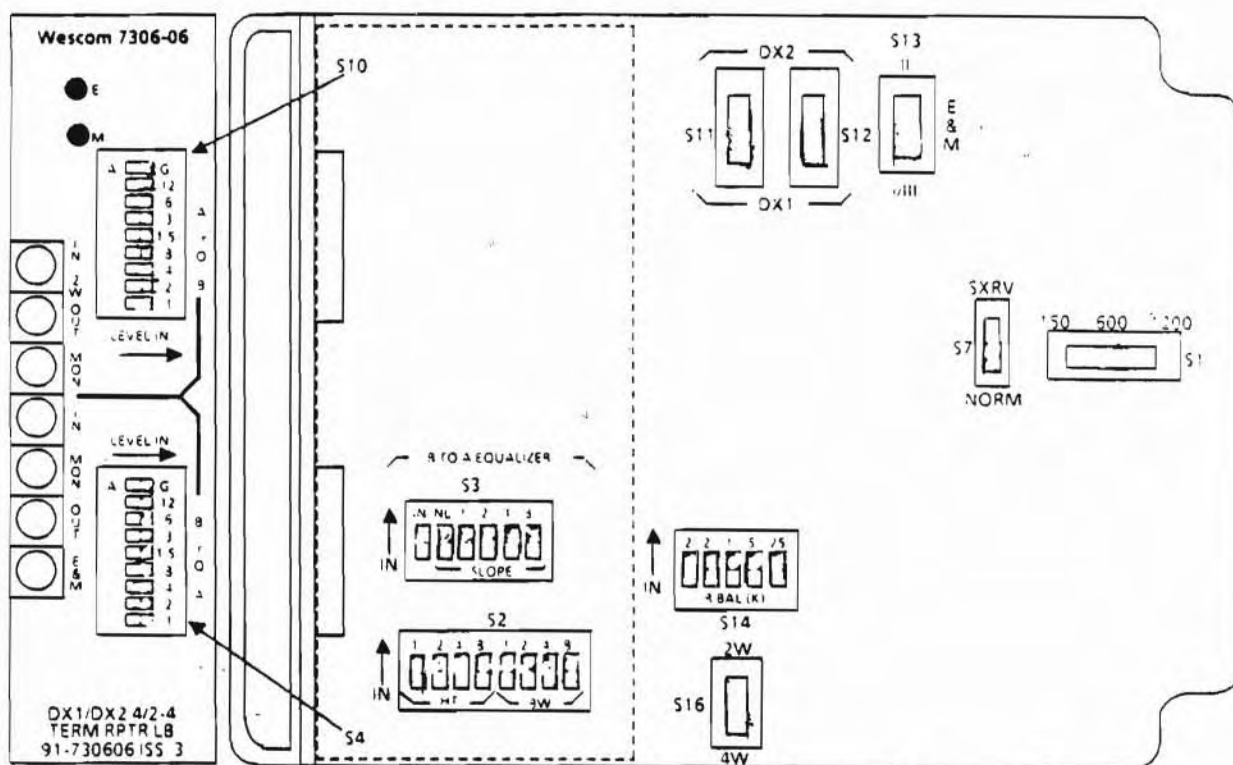
15

figure 12. 6168/X option switch locations
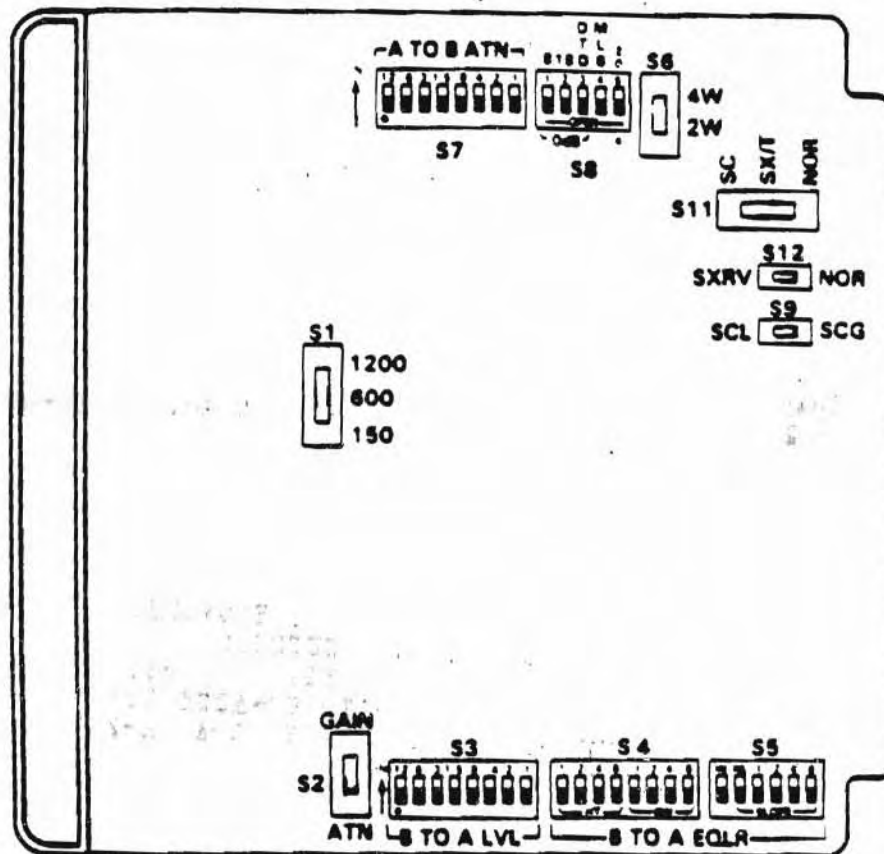

Figure 4. TTI5631/31A Option Diagram

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WESCOM 7306-06 OPTIONS DIAGRAMS

```
CKT 7 /LGGS/380041      /LB               A OKBRILOAF10  - Z NPVLILNA
ORD C-98800011          -001  ACTN A  CAC SUP2CN2           MCO OKBRILOA
N/*LOCN,EQPT AND FAC    FRAME ID    UNIT    SV  Z-A  A-Z MISC
1   EXC46               24H88       103     XT       12.2 R2995 DB05.1
                                                              3.5
1   EXC46               24H88       104     XR 12.5       R0995 DB05.1
                                                              3.5
    CUSTIL9S999         R 572 RTE 95 BP 3/4              TERM ADDR
    A 8D29W701          WSCMTG19    5726    X4  8.5 16.0
        WSCM-7306-45
        B TO A/RU1:GN=-8.12DB/
        RU2:GN=-5.80DB:NL=OFF
        SLOPE=1:HT=4:BW=5
        OUTPUT=1200/
        $55=IN,S6=4,S8=2S5,S9=S
                         CL,S11=SC,S12=SXRV
    CUSTIL9S999
    NCI 04DA2/    /PI                       X4  0.0 16.0
            T J MAXX
    CUSTIL9S999
    DEMARC4W
        SA  576 S RTE 95, AURORA AVE, FL1
        COND=3002 C
1 /19GA/     /22GA/     /24GA/18.7 /26GA/      /3T/.4
```

7306-45 Option Locations

Labels in diagram:
- A TO B ATN
- O M T L D (top)
- S6
- 4W
- 2W
- S7
- S8
- SC SX/T NOR
- S11
- S12
- SXRV NOR
- S9
- SCL SCG
- S1
  - 1200
  - 600
  - 150
- GAIN
- S3
- S4
- S5
- S2
- ATN
- B TO A LVL
- B TO A EQLR

1.

```
CKT 2 /TLNC/172522      /LB                    A CHCGILFHCG3 DD Z CHCGILFM
CHL C-63774995         -001  ACTN II CAC STC2HK3             MCO CHCGILFR
N/*LOCN,EQPT AND FAC   FRAME ID   UNIT    SV  Z-A  A-Z MISC
    CHCGILFM
1   EXC37              24NL       E07     XI        E.2 R2778 DB04.8
                                                              2.2
1   EXC37              24NL       808     XR +0.5       R0778 DB04.8
                                                              2.2
    CUSTILSS99                                           TERM ALER
  1 NC44W402           WSCMTG-1   496     X4 +5.5  2.5 F10
        B TO A/RU1:GN= 7.50DB/
        RU2:GN= 3.60LB:NL=ON:
        SLOPE=4:HT=1C:BW=9/
        CUTPUT=600/
        9S7=R,S11-12=DX1,S13=I7
                              III,S17=N,S14=,
        .25,1
        INTERFACE/TL31M
    CUSTIL9SS99
      CPI/FBX                                X42.0  2.5
        SA  7601 S CICERO
        RO#242311
        PB CT 801-850
B 1005     CO LBMB   DSGNR JH7/312-727-4100 ISS 001/08-14-84 PG C003-904
```

2.

```
CKT 5 /CSNC/640123      /LB                    A ELGNILEL    RD Z ELGNILEL
CHD C60303947          -001  ACTN A  CAC SUC2XR5             MCO ELGNILEL
CUST SIMPSON;ELECTRIC                     RRI      MSC N  PRQ      RSP
CLO CSS509511001                     TEST-SUB-ACCT 224 P/W
N/*LOCN,EQPT AND FAC   FRAME ID   UNIT    SV  Z-A  A-Z MISC
    THIS IS A CDS DESIGN

    CKL 1
    SA  853 DUNDEE AV. FLR 1
    CUSTIL9SS99
      CPI/GFB                                X2  3.9  0.0
    A MTSRAE11           WSCMTG-0   112     X2  3.9  0.4 F10
        9S1-2=6,S3=R,S4=S,S5=R,
                              -INT-PC-AB-RS=IN,BOR=OUT
    CUSTILSSS99          IT ADD  BP-192           TERM ADDR
1   EXC13               2ENL       692     X2  3.5  4.1 R0624 DB03.7
                                                              1.4
    ELGNILEL
    A MTM1630B          02213.36   128             CKT1
                                                   F20/N005
      MT22D21A                               X2 +1.1 +0.1
        A TO B/GAIN= 3.75DB/
B 0821     CO LBCS   DSGNR EM1/312-727-4100 ISS 001/07-31-84 PG C001-002
```

3.

```
CKT 5 /ITLS/311958      /LB              A BNSVILMCFAA DD Z BNSVILBV
ORD C-77874397A         -001  ACTN IE CAC SSD2EE8        MCO
N/*LOCN,EQPT AND FAC    FRAME ID   UNIT   SV  Z-A  A-Z MISC
                                                           2.8
  1   EXC13             22H98      WBA    XR  3.9    R0606 DB03.5
      CUSTIL9S999                                    TERM ADDR
    V VRQUW401          000.10     3202   X4  +0.0 2.5 CKT1
                                                      F10

        GT 2.3/GR 1.1
        $LINE=1200,DROP=600,S3=
                            EXT,S4=NORM,RF=IN

        WES400-401
    V DXQU7316          000.10     3032   X            F10
        $(OPTS=S1,2-DX1,S4-NOR,
                        SCWS DWN=A,D,C1,C4)

        WES400-7315
            R2K,R3K,R1K,R500
      CUSTIL9S999
      NCI 25EA2/    /
    V TTQU4446          000.00     109    X4  2.3  4.9 F10
        $F4
        E & M-S1.0 OR S1.1(CLOSE 1-OPEN 2            ,3,4,5,6,7)
    R 0821      CO LBM3    DSGNR B.K/312-727-5685 ISS 003/11-04-83 PG C002-003
```

4.

```
CKT 3 /OSBS/346103      /LB              A CHCGILJHFAC RD Z LBRDILLM
ORD 484-00215           -001  ACTN IE CAC STZ2M27        MCO CHCGILSU
N/*LOCN,EQPT AND FAC    FRAME ID   UNIT   SV  Z-A  A-Z MISC
  1   EXC23             24H88      TBA    XT       4.9 R0S41 DB04.6
                                                           4.0
  1   EXC23             24H88      TBA    XR  4.9    R0S41 DB04.6
                                                           4.0
      CUSTIL9SS99       C-904,905  EP4,5            TERM ADDR
    V VRQU7535          000.03     1188   X2  0.5  4.3 CKT1
                                                      F10

        FT -0.0/GR 0.8
        $(C,D-1200,S1-3,S2-600,
                        S3-NOR,S4-CN,A&B-UP)

      CUSTIL9SS99
      RJ21X                                X20.0  4.3
        SA  455 EISENHOWER /SAC-ADD/IT-ADD
        #1 FCS4,T29,R4                               LCOF ST
        PATRCN:
        RCCKWELL PCWER TOOL
        CUTAGE  0.5 TRCC 726-8254
        CUS CODF512 TST IMPED
        A 600 Z 600 INSTL PER
        BSF471-000-011LB
    R 0821      CO LBCS    DSGNR VB0/312-727-4100 ISS 004/07-26-84 FG C004-005
```

5.

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CKT 7 /L33S/380041        /LB                    A OKBRILOAF10 - Z NPVLILVA
ORD C-98820011            -201  ACTN A  CAC SUP2CN2          MCO OKBRILOA
N/*LOCN.EQPT AND FAC      FRAME ID   UNIT    SV  Z-A / A-Z MISC
1   EXC46                 24H88      103     XT       12.2 R2995 D325.1
                                                                    3.5
1   EXC46                 24H88      104     XR 12.5     R0995 DB25.1
                                                                    3.5
    CUSTIL9S999           R 572 RTE 95 BP 3/4              TERM ADDR
    A ED29W701            WSCMTG19   5726    X4 8.5 16.2
       WSCM-7306-45
       B TO A/RU1:GN=-9.12DB/
       RU2:GN=-5.80DB:NL=OFF
       SLOPE=1:HT=4:BW=5
       OUTPUT=1200/
       $S5=IN,S6=4,S9=2S5,S9=S
                              CL,S11=SC,S12=SXRV
    CUSTIL9S999
    NCI 34DA2/    /PI                          X4  0.0 16.2
              T J MAXX
    CUSTIL9S999
    DEMARC4W
       SA  576 S RTE 95, AURORA AVE, FL1
       COND=3002 C
1 /19GA/        /22GA/        /24GA/19.7 /26GA/      /3T/.4
```

6.

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CKT 7 /TLNC/171169        /LB                    A DRFDILDF    DD Z BLWDILEW
ORD C-33878896A           34-001 ACTN IE CAC SAG9GR2          MCO DRFDILDF
N/*LOCN.EQPT AND FAC      FRAME ID   UNIT    SV  Z-A  A-Z MISC
       C=WH/A&B=WH/SX=NORM/   R
       LF=320 OHMS,
    BLWDILBW
2   EXC0034               24H88      0005    XT       4.0 R0641 DB03.3
                                                                    2.2
2   EXC0034               24H88      0022    XR 4.0      R0641 DB03.3
                                                                    2.2
    CUSTIL9S999           IT                              TERM ADDR
    DRCU7306 -            WES7306-03   X2 1.6  2.5
       A TO B/GN=0.8DB/B TO A/
       GN=0.6DB/NL=OFF/
       SLOPE=0:HT=6:BW=4/
       OUT=1200(S1)/NBOG.0207
       (S2=HT/BW,S3=SL-NL/L)
       S11 & S12(DX1/DX2)=DX1,
       S13(E&M)=I/III,S14
       (RBAL)=.25,S7(SX NOR/
       RV)=NOR,S17(NOR/SMAS)=
       NOR,S3=IN
    TL11M
```

TRANSMISSION TESTS

1. If a circuit has the following readings:

    Power influence = 86 dBrnc

    circuit noise = 27 dBrnc

    What is the electrical balance? = _____

2. The circuit is: (check one)

    _____ A. GOOD

    _____ B. MARGINAL

    _____ C. UNACCEPTABLE

3. What corrective action should be taken? (check one)

    _____ A. NONE Needed

    _____ B. Circuit may be put in service if corrective action will follow.

    _____ C. Corrective action must be taken before circuit is put in service.

Enter the correct word(s) in the blank(s) for the statements listed below:

1. DX signaling is limited to _____5,000 OHMS_____ maximum loop resistance.

2. DX signaling requires _____2_____ conductors to signal over.

3. The conductors used for DX signaling are the same as the _____TALK PATH_____ therefore no additional cable facilities are required.

4. One conductor carries _____SUPERVS_____ and _____PULSING_____ signals, while the other is for _____GROND_____.

5. DX signaling circuits will repeat _____12_____ pulse per second of _____58_____ percent break with a distortion not exceeding plus or minus _____4_____ percent break.

6. By comparison, this performance is _____BETTER_____ that most loop signaling arrangements.

7. The DX signaling distortion is so small that _____2_____ DX signaling circuits can be used in _____TANDEM_____.

8. A DX signaling circuit uses _____2_____ or _____4_____ wire facilities, composed of cable pairs equipped with _____REPEATING COILS_____ at both ends.

9. A 2-wire loop allows _____HALF_____ the distance of a 4-wire loop, for DX signaling.

10. 4-wire loops are more commonly used for DX signaling because the range is _____2_____ the distance of a 2-wire loop.

11. The two most commonly used DX units are called _DX-1_ and _DX2_.

12. The DX-1 converts the E & M signals of a CO or PBX _TRUNK_ to duplex signaling and vice-versa.

13. The DX-2 converts the E & M signals of a _SIGNAL UNIT_ to duplex and vice-versa.

14. The primary component of the DX-1 and DX-2 is the _POLAR RELAY_.

15. The relay is called "Polar" because the direction of _CURRENT_ controls the way it operates.

16. The strength of the currents through the different _WINDINGS_ will cause the relay to _OPERATE_ or _NOT_.

17. Proper operation of the DX signaling equipment depends on the _BALENCE_.

18. Two types of balances are required, _DC_ and _TRANSIENT_.

19. To achieve, a dc balance, a variable resistor must be adjusted in the balancing network of the DX-1 and DX-2 to _1250-0_ plus the _RESIS._ of the loop.

20. A satisfactory transient balance is obtained with the use of a balancing network that consists of a _LINEAR RESS_ and a _6 UF CAPACITOR_.

21. A short, rapid change in voltage or current in a circuit caused by switching, changes in load or momentary crosses o grounds is called _SIG_.

Have administrator correct test.