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This document (CS032) contains logic diagrams that are provided to support the functional descriptions and maintenance information contained in related maintenance documents such as CS031, SPD 20/20 Site Maintenance Manual, as well as the various SPD peripheral devices which are covered in the various volumes contained in the SPD 20/20 Peripherals Manual. Any comments or suggestions should be forwarded to the INCOTERM Customer Service Publications Department in Natick, Massachusetts.


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NOTES:
1. HEIGHT LIMITATIONS
   a. COMPONENT SIDE OF BOARD .400 MAX
   b. ETCH SIDE OF BOARD .080 MAX
2. LOCATE IN APPROXIMATE AREA SHOWN REVISION LABEL ITEM 40
   AND MARK ASSY NO. 047-20-02-70 AND LATEST ASSY REVISION.
3. ATTACH JUMPER WIRE (ITEM 54) TO BOARD USING GLUE (ITEM 55) IN APPROX. AREAS MARKED (Q)
   a. DES M3-12 (ITEM 62) ON EACH SIDE OF BOARD, AS SHOWN USING SOLDERING (ITEM 67)
   b. TO AVOID SHORTING TO LANDED
NOTES:

1. HEIGHT LIMITATIONS
   COMPONENT SIDE OF BOARD .400 MAX
   ETCH SIDE OF BOARD .080 MAX

2. LOCATE IN APPROXIMATE AREA SHOWN REVISION LABEL ITEM 3B.
   AND MARK ASSY NO. 247 23 J2-701 AND LATEST ASSY REVISION.

3. INSTALL JOKET ITEM 4G IN THE FOLLOWING LOCATIONS:
   13. 37-64. 66 B36120.
   4. ATTACH JUMPER WIRES (ITEM 4) TO BOARD USING GLUE (ITEM 10) IN
      APPROXIMATE AREAS MARKED (40).

COMPONENT SIDE
NOTES:

1. HEIGHT LIMITATIONS
   - COMPONENT SIDE OF BOARD 4.00 MAX
   - ETCH SIDE OF BOARD 3.80 MAX

2. LOCATE IN APPROXIMATE AREA SHOWN REVISION LABEL ITEM 38.
   AND MARK ASSY NO. 047-23-02-701 AND LATEST ASSY REVISION.

3. PATTERNS MARKED "X" NOTE USED (M117, I25, I26, I27)

4. SECURE WIRE, ITEM 43, TO BOARD USING GLUE, ITEM 44.
NOTES:

1. HEIGHT LIMITATIONS
   COMPONENT SIDE OF BOARD .400 MAX
   ETCH SIDE OF BOARD .080 MAX

2. LOCATE IN APPROXIMATE AREA SHOWN REVISION LABEL ITEM 38
   AND MARK ASSY NO. 047-32 - 02-701 AND LATEST ASSY REVISION.

3. PATTERNS MARKED "X" NOT USED (MI17, 125, 126 & 127)
NOTES:

1. UNLESS OTHERWISE SPECIFIED:

A. ALL RESISTOR VALUES ARE IN OHMS AND ARE 1/4 WATT ±5%.
NOTES:

1. HEIGHT LIMITATIONS
   COMPONENT SIDE OF BOARD .400 MAX
   ETCH SIDE OF BOARD .060 MAX

2. LOCATE IN APPROXIMATE AREA SHOWN REVISION LABEL ITEM 62
   AND MARK ASSY NO. 047-37-02-701 AND LATEST ASSY REVISION.

3. JUMPER MAY BE REMOVED BETWEEN 152 FOR MFG TEST.
NOTES:

1. HEIGHT LIMITATIONS
   COMPONENT SIDE OF BOARD .400 MAX
   ETCH SIDE OF BOARD .080 MAX

2. LOCATE IN APPROXIMATE AREA ShOWN REVISION LABEL ITEM 62
   AND MARK ASSY NO. AND LATEST ASSY REVISION.

3. JUMPER MAY BE REMOVED BETWEEN 1 & 2 FOR MFG TEST

4. JUMPER 6 TO 7 FOR 703 & 704

SEE NOTE 3

SEE NOTE 2

SEE DETAIL A
NOTES:

1. HEIGHT LIMITATIONS
   COMPONENT SIDE OF BOARD .400 MAX
   ET 1 SIDE OF BOARD .080 MAX

2. LOCATE IN APPROXIMATE AREA SHOWN REVISION LABEL ITEM 63.
   AND MARK ASSY NO.047-26-02-701 AND LA.
   JSY REVISION.

3. PATTERNS MARKED X ARE NOT USED.

4. ADD SLEEVING (ITEM 52) & RESISTORS (X) .400 EASY TO PREVENT
   SHORTING TO ETCH.

5. ATTACH JUMPER WIRE (16-9689) TO BOARD USING WIRE (ITEM 24)
   IN APPROXIMATE AREAS MARKED (O).

6. DRILL HOLE IN APPROXIMATE AREA SHOWN.
   USING NO.50 DRILL.
NOTES:
1. HEIGHT LIMITATIONS
   COMPONENT SIDE OF BOARD 400 MAX
   ETCH SIDE OF BOARD 900 MAX
2. LOCATE IN APPROXIMATE AREA SHOWN REVISION LABEL ITEM 68
   AND MARK ASSY NO. 047-26-02-70 AND LATEST ASSY REVISION.
3. PATTERNS MARKED X ARE NOT USED.
ETCH SIDE

- AT M35-14 (20 only)
- M35-14 TO M35-1B (20 only)
- CUT ETCH FROM
- M35-1N TO G30 (20 only)
- ADD JUMPER (20 only) FROM
NOTES:

1. HEIGHT LIMITATIONS

 COMPONENT SIDE OF BOARD .400 MAX
 ETCH SIDE OF BOARD .080 MAX

2. LOCATE IN APPROXIMATE AREA SHOWN REVISION LABEL ITEM 68
 AND MARK ASSY NO. 047-19-02-70 AND LATEST ASSY REVISION.

3. LOCATE ITEM 64 IN FOLLOWING POSITIONS;
   MI-1, M6, M11-16, M29/M32, M40, M44, M55, M58, M72, M76, M87 & M92.

COMPONENT SIDE
ASSEMBLY WITH ASSY NO. 047-19-03-70  REV D

REFERENCE DESIGNATION

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EXPANSION KIT

P.C. BOARD ASSY
REFRESH SLAVE
CLUSTER 702-76D

047-19-02

65
NOTE:

1. HEIGHT LIMITATIONS.
   COMPONENT SIDE OF BOARD 3 MAX.
   ETCH SIDE OF BOARD 0.50 MAX.
2. LOCATE W APPROXIMATE AREA SHOWN, REV LABEL
   ITEM 904 AND MARK ASSY NO. 047-22-02-701
   AND LATEST ASSY REV
3. ATTACH JUMPER WIRES (TERM MG) TO BOARD USING GUE
   (ITEM 35) IN APPROX AREAS MARKED (O).

MARKED AS
C.1
ADJ. JUMPER WIRE (ITEM 34) FROM A1 M2-13 TO MB-3
A1 M2-4-2 TO MB-13

SEE NOTE 2

NOTES:

1. HEIGHT LIMITATIONS
   COMPONENT SIDE OF BOARD 2.13 MAX
   ETCH SIDE OF BOARD 0.90 MAX

2. LOCATE IN APPROXIMATE AREA SHOWN REVISION LABEL ITEM 90.
   AND MARK ASSY NO. 047-22-02-701 AND LATEST ASSY REVISION.

COMPONENT SIDE

SOLDER WITH RESISTOR 047-22-03-701 REV D

P.C. BOARD ASSY
CLOSER KEYBOARD
CONSOLC - 70G

D 047-22-02

REFERENCE DESIGNATION

0 7 6 5 4 3
NOTES:

1. HEIGHT LIMITATIONS
   COMPONENT SIDE OF BOARD
   MAX ETCH SIDE OF BOARD .080 MAX

2. LOCATE IN APPROXIMATE AREA SHOWN REVISION LABEL ITEM 98.
   AND MARK ASSY NO. 047-21-02-01 AND LATEST ASSY REVISION.

3. BEND LEADS OF RESISTOR TO FIT HOUSING PATTERN.

4. CUT PIN 2 OF ITEM 95 FLUSH TO PIN HOUSING AS SHOWN.

5. ADD TAPE (ITEM 92) TO RC BOARD ETCH TO PREVENT SHORTING OF TRANSISTORS
   OR 기타.

6. ADD SLITTING (ITEM 70) ON LEADS OF RESISTORS R83, R84, R87 FOR CAP C49.

(SEE SH 2 FOR P/L VARIATIONS)
NOTES:
1. HEIGHT LIMITATIONS
   COMPONENT SIDE OF BOARD .400 MAX
   ETCH SIDE OF BOARD .020 MAX
2. LOCATE IN APPROXIMATE AREA SHOWN REVISION LABEL ITEM 98
   AND MARK ASSY NO. 047-21-02-70) AND 1 TEST ASSY REVISION.
3. CUT PIN 2 OF ITEM 95 FLUSH TO PIN HOUSING, AS SHOWN
   4. ADD SLEEPING (ITEM 95) ON LEADS OF CM 87

COMPONENT SIDE
**WIRING CHART**

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**NOTE:**

1. SOLDER CABLE ASSY, ITEM 10 TO P3 BOARD PER WIRING CHART.
NOTES:

1. **HEIGHT LIMITATIONS**
   COMPONENT SIDE OF BOARD: .500 MAX
   ETCH SIDE OF BOARD: .080 MAX

2. LOCATE IN APPROXIMATE AREA SHOWN REVISION LABEL ITEM 64
   AND MARK ASSY NO. 047-35-02-701 AND LATEST ASSY REVISION.

3. INSTALL SOCKET ITEM 63 IN THE FOLLOWING LOCATIONS: 6, 22, 37, 97

PIN NUMBERING AND ORIENTATION
NOTES:
1. WHEN REPLACING CAPACITOR, C6, WITH STM PART NO. 045238922 OR CALLOUS PART NO. 15-9000-13, S.I. CAPACITORS MUST BE MOUNTED USING ADJACENT HOLE CENTERS SHOWN BY CAPACITOR DESIGNATION A MUST BE ELIMINATED TO ACCOMMODATE CAPACITOR MOUNTING.
NOTES:

1. LOCATE IN APPROXIMATE AREA SHOWN, REV LABEL

ITEM 166, AND MARK 'ASSY NO 047-28-02-701' AND LATEST ASSY REV

2. USE ITEM 116 (HEAT SINK COMPOUND) ON ALL COMPONENTS MOUNTED ON A HEAT SINK, EXCEPT FOR CR7, 8, 27 & 28.

3. DISCARD HARDWARE SUPPLIED WITH DIODES
NOTES:
1. LOCATE IN APPROXIMATE AREA SHOWN, REV. 3.
2. USE ITEM 116 MOUNTED ON HEAT SINK EXCEPT CR1, 2, 3, 4.
3. DISCARD HARDWARE SUPPLIED WITH DIODES.

* SUPPLIED WITH ITEM 92
** SUPPLIED WITH ITEM 93

COMPONENT SIDE
NOTES:

1. LOCATE IN APPROXIMATE AREA SHOWN, REV.
   LABEL (ITEM 118) AND MARK ASSY NO.
   047-28-02-701 AND LATEST ASSY REV.
2. USE ITEM 116 (HEAT SINK COMPOUND) ON ALL
   COMPONENTS MOUNTED ON A HEAT SINK EXCEPT CR7, 1, 2, 3, 4.
3. DISCARD HARDWARE SUPPLIED WITH DIODES.
4. SUPPLIED WITH ITEM 92
5. SUPPLIED WITH ITEM 93

ADD JUMPER WIRE

CR8, CR1, TO CR6, AN
CR7, CR1, TO CR5, AN

TEFLON BUSHING *

MICA WASHER *

TEFLON BUSHING **

MICA WASHER **

CR1, 2, 3, 4

TYP. MTG.

NOTE 2.

3, 5, 6, 8 REF.

4, 7, REF.

CR5, 6 REF.

CR7, 27, 28

COMPONENT SIDE

ASSEMBLY WITH ARTWORK 047-28-03-701 REV E

PART REQ. NO

DESCRIPT

ASSEMBLY QUANTITY

047-28-02 BI

F.C. BOARD ASSY
POWER SUPPLY
MOTHER BD. 701
NOTE:

1. HEIGHT LIMITATIONS.
COMPONENT SIDE OF BOARD .400 MAX.
ETCH SIDE OF BOARD .080 MAX.

2. SILK/END ARE MANUFACTURER SELECTED RESISTOR.
   R1 IN ITEM 16 & 17, R37 IN ITEM 18, R38 IN ITEM 37
3. R1, R3, R9 ARE MANUFACTURER SELECTED VALUES.

4. ADD SLEEVING (ITEM 68) ON COMPONENT AS SHOWN ON SIV 8.
NOTE:
1. HEIGHT LIMITATIONS.
   COMPONENT SIDE OF BOARD .600 MAX.
   ETCH SIDE OF BOARD .080 MAX.
2. LOCATE IN APPROXIMATE AREA SHOWN, REVISION
   LABEL ITEM 60, AND MARK ASSY NO. 047-29-02-701
   AND LATEST REV NO.
3. R1, 37, 70 ARE MFG. SELECTED PARTS
4. ADD SOLDERING ITEM 52 ON COMPONENTS
   AS SHOWN ON SHEET 4.
5. DELETE DUPLICATE MARKING OF K22 FROM BOARD, WHERE SHOWN.
NOTE:

1. HEIGHT LIMITATIONS.
   COMPONENT SIDE OF BOARD .400 MAX.
   ETCH SIDE OF BOARD .080 MAX.
NOTES:

1. HEIGHT LIMITATIONS

COMPONENT SIDE OF BOARD .600 MAX
ETCH SIDE OF BOARD .080 MAX

2. LOCATE IN APPROXIMATE AREA SHOWN REVISION LABEL ITEM 60, AND MARK ASSY NO.047-29-02-701 AND LATEST ASSY REVISION.

3. R1, R7, R9 ARE MTL SELECTED PARTS

4. ADD SLEEVING ITEM 82, ON COMPONENTS AS SHOWN ON SHEET 4.

5. LOCATIONS MARKED X ARE OPTIONAL USE R28 AND K9

NOTES:

1. HEIGHT LIMITATIONS
COMPONENT SIDE OF BOARD .600 MAX
ETCH SIDE OF BOARD .080 MAX

2. LOCATE IN APPROXIMATE AREA SHOWN REVISION LABEL ITEM 60, AND MARK ASSY NO.047-29-02-701 AND LATEST ASSY REVISION.

3. R1, R7, R9 ARE MTL SELECTED PARTS

4. ADD SLEEVING ITEM 82, ON COMPONENTS AS SHOWN ON SHEET 4.

5. LOCATIONS MARKED X ARE OPTIONAL USE R28 AND K9

PIN NUMBERING
AND ORIENTATION

COMPONENT SIDE
NOTES:

1. RIGHT LIMITATIONS
COMPONENT SIDE OFBOARD: 1,000 MAX
ETCH SIDE OF BOARD: 0.8 G MAX

2. LOCATE IN APPROXIMATE AREA SHOWN REVISION LABEL ITEM 60,
AND MARK ASSY NO. 047-29-02-701 AND LATEST ASSY REVISION.
PARTS 37/38 ARE MPV SELECTED PARTS.
* INITIAL VALUE
AND REC. 25K, 1% TOL, ON COMPONENTS AS SHOWN ON SHEET 4,
5. LOCATION MARKED X ARE OPTIONAL USE RES AND R99.
### Notes:

1. Unless otherwise specified:
   - All resistor values are in ohms and are 1/16, 1/8, 1/4, unless specified otherwise.
   - All capacitor values are in microfarads (SH2, SH3).

2. All diodes are 1N4003.

3. All transistors are 2N1711.

4. MFG selected feedback resistor values are on SHEET 2:
   - R18-75A, may also be 51, 68, 82, 100k.
   - R19-100A, may also be 120, 150, 200k.
   - R21-100A, may also be 75, 100, 150k.
   - R22-120A, may also be 110, 150, 220k.

5. MFG selected feedback resistor values are on SHEET 3:
   - R11-75A, may also be 51, 68, 82, 100k.
   - R12-100A, may also be 120, 150, 200k.
   - R13-100A, may also be 75, 100, 150k.
   - R14-120A, may also be 110, 150, 220k.

6. See cap spec no. 905-01-04-002 for value range.

7. See cap spec no. 905-01-04-003 for value range.
NOTES:

1. HEIGHT LIMITATIONS
   COMPONENT SIDE OF BOARD .430 MAX
   ETCH SIDE OF BOARD .080 MAX

2. LOCATE IN APPROXIMATE AREA SHOWN REVISION LABEL ITEM 6
   AND MARK ASSY NO.058-15-03-701 AND LATEST ASSY REVISION.

COMPONENT SIDE
ASSEMBLED WITH ARTICULAR 058-15-03-701 REV A
NOTES:

1. WEIGHT LIMITATIONS
   COMPONENT SIDE OF BOARD 400 MAX
   ETCH SIDE OF BOARD .080 MAX

2. LOCATE IN APPROXIMATE AREA SHOWN REVISION LABEL ITEM 39
   AND MARK ASSY NO. AND LATEST ASSY REVISION.

3. TRANSISTOR LEADS MUST BE CUT SHORT AS POSSIBLE.

4. MOUSE TAILS (ITEM 27) ARE REQ'D ONLY IF C5 AND C6 ARE SUBSTITUTED FOR C1

OPTIONAL ASSY WHEN C1 (ITEM 12) IS REPLACED BY C5-C6 (ITEM 13)
NOTES:
1. LOCATE NT APPROXIMATE AREA SHOWN
   REVISION LABEL ITEM 81 AND MARK ASSY
   NO. 058-10-24-701 AND LATEST REVISION.
NOTES:
1. HEIGHT LIMITATIONS
   COMPONENT SIDE OF BOARD 5.30 MAX
   ETCH SIDE OF BOARD .125 MAX
2. LOCATE IN APPROXIMATE AREA SHOWN REVISION LABEL ITEM 35
   AND MARK ASSY NO. AND LATEST ASSY REVISION.(FAR SIDE)

JUMPER PIN 2 TO PIN 3
WHERE TB1 NORMALLY LOCATED

DETAIL C -702 ONLY
AC RTN

TBI

AC LINE

TBI INTERCONNECTION TABLE

NOMINAL AC LINE VOLTAGE

<table>
<thead>
<tr>
<th>VOLTAGE</th>
<th>INTERCONNECTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>115 V</td>
<td>1-2, 3-4</td>
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<tr>
<td>230 V</td>
<td>2-3</td>
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</table>

IC1 TABLE

<table>
<thead>
<tr>
<th>IC1 TABLE</th>
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</thead>
<tbody>
<tr>
<td>001 LM209</td>
</tr>
<tr>
<td>002 LM323K</td>
</tr>
</tbody>
</table>

SEE IC TABLE

HEAT SINK

5 V (REGULATED)

+5V RTN

TP1

TP2

LM209

LM323K

C1 3000 UF 25V

C2 100 UF 100V

C3 5 UF 12V

C4 5 UF 12V

C1

C2

C3

C4

LM323K

IN4001
NOTES:
1. ALL WIRE TO BE CRIMPED WITH W-1050.
2. ITEM 2 MUST BE CLOTHED AN INSTALLED IN PLACE (RH) TO KEY CONNECTOR.
NOTES:

1. HEIGHT LIMITATIONS
   COMPONENT SIDE OF BOARD 400 MAX
   ETCH SIDE OF BOARD 080 MAX

2. LOCATE IN APPROXIMATE AREA SHOWN REVISION LABEL ITEM 58
   AND MARA ASSY NO. 055-13-01-701 AND LATEST ASSY REVISION.

3. PATTERN MARKED X NOT USED M1, M42
NOTES:
1. HEIGHT LIMITATIONS
   COMPONENT SIDE OF BOARD 400 MAX
   ETCH SIDE OF BOARD 250 MAX
2. LOCATE IN APPROXIMATE AREA SHOWN REVISION LABEL ITEM 58
   AND MARK ASSY NO. C55-13-02-701 AND LATEST ASSY REVISION.
3. PATTERNS MARKED 'X' NOT USED MI, M42
NOTE:

1. HEIGHT LIMITATIONS.

COMPONENT SIDE OF BOARD .400 MAX.

ETCH SIDE OF BOARD .080 MAX.
NOTE:

1. HEIGHT LIMITATIONS.
   COMPONENT SIDE OF BOARD .400 MAX.
   ETCH SIDE OF BOARD .080 MAX.
NOTE:

1. HEIGHT LIMITATIONS.
   COMPONENT SIDE OF BOARD, .400 MAX.
   ETCH SIDE OF BOARD, .080 MAX.

2. LOCATE IN APPROXIMATE AREA SHOWN ON REVISION LABEL, ITEM 41,
   AND MARK ASSEMBLY NO. 12-85-04-02, 7050C, AND LAYOUT ASSEMBLY REVISION.

3. THIS ASSEMBLY DRAWING REPLACES THE ASSEMBLY DRAWING USING
   REV. 'B' ARTWORK (SAME, NEVER PURCHASED AT ARTWORK REVISION 'B').
NOTE:

1. HEIGHT LIMITATIONS.

   COMPONENT SIDE OF BOARD .400 MAX.

   ETCH SIDE OF BOARD .080 MAX.

2. Locate in approximate area shown revision label, item 40, and main assy no. 001-04-02-706C and latest assy revision.

3. This assembly drawing replaces the assembly drawing using revision 'D' artwork. (hangs never purchased as artwork revision 'C')
NOTE:

1. HEIGHT LIMITATIONS.
   COMPONENT SIDE OF BOARD .400 MAX.
   ETCH SIDE OF BOARD .080 MAX.

2. LOCATE IN APPROXIMATE AREA
   SHOWN IN LAYOUT SHEET MA844.
   AND MARK ASSEMBLY DATA ON SHEET AND
   LATEST ASSEMBLY REVISION.

COMPONENT SIDE
<table>
<thead>
<tr>
<th>SIGNAL NAME (LOGIC)</th>
<th>DO CABLE COLOR CODE</th>
<th>DEVICE SIGNAL NAME</th>
</tr>
</thead>
<tbody>
<tr>
<td>TRANSMIT DATA</td>
<td>BLACK</td>
<td>PROTECTIVE GROUND</td>
</tr>
<tr>
<td>RECEIVED DATA</td>
<td>WHITE</td>
<td>TRANSMITTED DATA</td>
</tr>
<tr>
<td>RTS</td>
<td>RED</td>
<td>RECEIVED DATA</td>
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<tr>
<td>CTS</td>
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<td>RIUD LINE SIG DET</td>
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<td>DATA SET READY</td>
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<tr>
<td>OPEN CIRCUIT</td>
<td>WHITE/BLACK</td>
<td>SIGNAL GROUND</td>
</tr>
<tr>
<td>TRANSMIT TIMING</td>
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<td>SPARE/UNASSIGNED</td>
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<td>RECEIVER SIGNAL TIMING ELEMENT</td>
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<td>RED/WHITE</td>
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<tr>
<td>OPEN CIRCUIT</td>
<td>BLUE/WHITE</td>
<td>READY</td>
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**NOTES:**
- **CONSTRUCTION:**
  - **Description of Drawing:**
  - **Assembly Quantities:**
  - **Device Signal Name (Logic):**
  - **Do Cable Color Code:**
  - **Part No:**
  - **Date:**
  - **Revision:**
JUMPER OPTIONS

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</table>

APPLICABLE TO PC BOARD ARTWORK
CGH-04-03-707 REV B OR GREATER

ASYNCHRONOUS CONTROLLER
356C DIAGRAM 007

INCOTERM CORPORATION

238
<table>
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<th>Pin</th>
<th>Color</th>
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<tr>
<td>1</td>
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<td>2</td>
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<td>BROWN</td>
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<td>6</td>
<td>BLUE</td>
<td>DATA SET PTU</td>
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<tr>
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<td>OMBRE</td>
<td>SIGNAL GND</td>
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<td>8</td>
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</table>

**Logical Name:** REVRX-2/BXHIRE

**Pin Table Color Code:**

- **Black** 1: PROTECTIVE GND
- **Red** 2: TRANSMITTED DATA
- **Green** 3: RECEIVED DATA
- **White** 4: SELECT TO SEND
- **Brown** 5: CLEAR TO SEND
- **Blue** 6: DATA SET PTU
- **Orange** 7: SIGNAL GND
- **Yellow** 8: RECEIVED LINE SIGNAL DETECTOR
- **White/Black** 12: GHOST
- **White/Red** 15: TRANSMITTED SIGNAL SIGNAL CONCATENATION
- **White/Blue** 17: RECEIVED SIGNAL SIGNAL CONCATENATION ELEMENT
- **White/Seal** 19: REMOTE RELEASE
- **White/Tab** 20: DATA TERMINAL FREE
- **White/Silver** 21: READY
NOTE:

1. HEIGHT LIMITATIONS.

COMPONENT SIDE OF BOARD .400 MAX.

ETCH SIDE OF BOARD .080 MAX.

2. LOCATE IN APPROXIMATE AREA SHOWN.

REVISED: INDEX REVISION 1, 53, 54, 44, 45, 56, 57.

ASSEMBLE WITH ARTWORK 001-08-03-704 REV E.

COMPONENT SIDE
NOTE:

1. HEIGHT LIMITATIONS.
   COMPONENT SIDE OF BOARD .400 MAX.
   ETCH SIDE OF BOARD .080 MAX.

2. LOCATE IN APPROXIMATE AREA SHOWN REVISION LABEL ITEM 15.
   AND MARK ASSY NO. 001-18-02-701 AND LATEST ASSY REVISION.

COMPONENT SIDE
<table>
<thead>
<tr>
<th>SIGNAL NAME</th>
<th>CODE</th>
<th>DEVICE SIGNAL NAME</th>
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<tbody>
<tr>
<td>1</td>
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<td>PROTECTIVE GROUND</td>
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</table>

**Diagram:**
- 202 A
- 202 B
- DATA SET
- R10 DEVICE
- 201-10-37
- 001-10-57
- CTRL PORT
- PART 7 LOCKOUT
- 001-10-05
- PART 6 CONTROLLER
- 001-10-07

**Table:**
- SIGNAL NAME (LOGIC)
- CODE
- I/O CABLE COLOR
- DEVICE SIGNAL NAME
NOTES:
1. LOCATE IN APPROXIMATE AREA SHOWN, REVISION LABEL, ITEM 30, AND MARK ASSY. NO. 001-05-01 AND LATEST ASSY. REVISION.
NOTE:

1. HEIGHT LIMITATIONS.
   COMPONENT SIDE OF BOARD 0.400 MAX.
   ETCH SIDE OF BOARD 0.080 MAX.

2. PATTERNS MARKED X NOT USED

3. LOCATE IN APPROXIMATE AREA SHOWN REVISION LABEL, ITEM 37.
   AND MARK ASY. NO. 010-38-02-TDA AND LATEST ASY. REVISION.
NOTE:
1) M1 THROUGH M7, M18 THROUGH M17,
M28 = M25, M27 = M26,
M2 = M15, M21 = M20,
M22 = M16, M22 = M21
ARE SANYO REG SPECIFICATION
NUMBER 782-04-07-001.
NOTE:

1. HEIGHT LIMITATIONS.
   COMPONENT SIDE OF BOARD .400 MAX.
   ETCH SIDE OF BOARD .080 MAX.
NOTE:

1. HEIGHT LIMITATIONS.
   COMPONENT SIDE OF BOARD .400 MAX.
   ETCH SIDE OF BOARD .080 MAX.
2. X INDICATES NO COMPONENT MOUNTED AT
   THIS LOCATION.
3. LOCATE IN APPROPRIATE AREA SHOWN REVISION STATUS LABEL.
4. ITEMS 29 AND MARK ASSY. NO. 001-09-02-702 AND LATEST ASSY.
   REVISION.
NOTE:

1. HEIGHT LIMITATIONS.
   COMPONENT SIDE OF BOARD,.400 MAX.
   ETCH SIDE OF BOARD,.080 MAX.

2. X INDICATES NO COMPONENT MOUNTED AT
   THIS LOCATION.

ADD 10,000 WIRE PER BOX
ATT. PK. PIN TO J. WIRE
B1. PK. PIN TO WIRES

PIN NUMBERING AND
ORIENTATION

COMPONENT SIDE
NOTE:

THE FOLLOWING I/O PINS ARE PREASSIGNED AND MUST BE USED FOR THE FUNCTIONS DESCRIBED:
A. +5V-PINS 1 & 2.
B. GND-PINS 85 & 86.
C. +12V-PINS 75 & 76.
D. -13V-PINS 81 & 82.
E. I/O BUSS - PINS 3 THRU 37.

1 THIS LOGIC IS TO BE USED WITH BOARDS ASSEMBLED USING ARTWORK, 001-09-03-101 REV B.
NOTE:
1. HEIGHT LIMITATIONS.
2. LOCATE IN APPROXIMATE AREA SHOWN, REVISION LABEL, ITEM 38, AND MARK ASSY NO. 010-33-02-7010 AND LATEST ASSY. REVISION.
ETCH SIDE
ASSEMBLE WITH ARTWORK U/D-34-03 RED REV B 70 &

PC BOARD ASSY DUAL PRINTER (PRINTEC)
NOTE:

1. HEIGHT LIMITATIONS.
   COMPONENT SIDE OF BOARD .400 MAX.
   ETCH SIDE OF BOARD .080 MAX.

2. PATTERN MARKED "X" NOT USED.

3. LOCATE IN APPROXIMATE AREA SHOWN REVISION LABEL, ITEM 25,
   AND MARK ASSY NO. 010-3402-20C AND LATEST ASSY REVISION.
NOTE:

1. HEIGHT LIMITATIONS.
   COMPONENT SIDE OF BOARD .400 MAX.
   ETCH SIDE OF BOARD .080 MAX.
2. PATTERNS MARKED 'X' NOT USED.
3. LOCATE APPROXIMATE AREA SHOWN REVISION LABEL.
   MIX 97 AND PARAS ANNOTATE NO. 080 3902 501A AND
   LATEST ASY REV FIT.
NOTE:

1. HEIGHT LIMITATIONS.
   COMPONENT SIDE OF BOARD .400 MAX.
   ETCH SIDE OF BOARD .080 MAX.
2. PATTERNS MARKED 'X' NOT USED.
3. LOCATE IN APPROXIMATE AREA SHOWN; REVISION L/H, J.E.
   ITEM 47 AND MATCH ASSEMBLY NO. 010-01-200A AND LATEST ASSY. REVISION.
NOTE:

1. HEIGHT LIMITATIONS.
   COMPONENT SIDE OF BOARD .400 MAX.
   ETCH SIDE OF BOARD .080 MAX.

2. LOCATE IN APPROXIMATE AREA SHOWN
   REV LABEL, ITEM 42, AND MARK "ASSY NO 01D-40-02-701" AND LATEST ASSY REV

3. ATTACH JUMPER WIRES ITEM 43, USING GLUE, ITEM 44, TO BOARD IN AREAS MARKED "CO.

4. ATTACH - CLEAR SHEET ITEM 45, OVER DIODE LEADS "CO.

5. ATTACHING - SIDE TO BOARD

REFERENCE DESIGNATION

HANDLE

P.C BOARD

VIEW A-A

FORM HEAD THIS SIDE

SWAGE THIS SIDE

REFERENCES DESIGNATION

P.C BOARD ASS Y FLOPPY DISC CONTROLLER - 001B

P.C BOARD ASS Y 001B

REVISED 1/2/70

REVISED 11/2/70

REVISED 12/1/70

REVISED 3/21/70

REVISED 3/29/70

REVISED 3/30/70

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REFERENCES DESIGNATION

COMPONENT SIDE

ASSEMBLE WITH ARTWORK (CIC-40 02-701) REV B

PIN NUMBERING AND ORIENTATION

COMMENTS
NOTE:

1. **HEIGHT LIMITATIONS.**

   - **COMPONENT SIDE** OF BOARD 400 MAX.
   - **ETCH SIDE** OF BOARD 080 MAX.

2. **LOCATE IN APPROXIMATE AREA SHOWN.**

3. **ATTACH JUMPER WIRES,** ITEM 43, TO BOARD USING SLIDE, ITEM 44 IN APPROXIMATE AREAS MARKED 'A.'

   - REV LABELED ITEM 42, AND MARK 'ASS'Y NO. 010-40-02-701' AND LATEST ASS'Y REV.

   - ATTACH JUMPER WIRES, ITEM 43, TO BOARD USING SLIDE, ITEM 44 IN APPROXIMATE AREAS MARKED 'A.'
NOTE:

1. HEIGHT LIMITATIONS.
   COMPONENT SIDE OF BOARD .400 MAX.
   ETCH SIDE OF BOARD .080 MAX.

2. "X" INDICATES NO COMPONENTS.

3. LOCATE IN APPROXIMATE AREA SHOWN FEWISION LABEL,
   ITEM 34 AND MARK ASSY NO. 010-42-02-701 AND L-TEST
   ASSY. REVISION

4. FASTEN JUMPER WIRE (ITEM 29) TO BOARD, USING GLUE
   (ITEM 25) IN PLACES MARKED (O).
NOTE:

1. HEIGHT LIMITATIONS.

COMPONENT SIDE OF BOARD .400 MAX.
ETCH SIDE OF BOARD .080 MAX.

2. LOCATE IN APPROXIMATE AREA SHOWN, REVISION LABEL.
ITEM 34, AND MARK ASSY. NO. 010-42-02-701 AND LATEST
ASSY. REVISION.
NOTES:
1. UNLESS OTHERWISE SPECIFIED:
   A. ALL RESISTORS ARE IN OHMS AND ARE 1/4W, 15%.
   B. ALL CAPACITORS ARE IN MICRO FARADS.
2. THE FOLLOWING 10 PINS ARE PRE-ASSIGNED AND MUST BE USED FOR THE FUNCTIONS ECSHIMED ONLY:
   A. 5V PINS, 1-2.
   B. D.C. PINS, 3-37.
   C. 5V PINS, 38-82.
   E. 12V PINS, 3-37.
3. CDS-2 FOR 6-BIT DATA PRINTERS ONLY (CDC & DATA PRINTER ETC).
NOTE:

1. HEIGHT LIMITATIONS.

COMPONENT SIDE OF BOARD .400 MAX.
ETCH SIDE OF BOARD .080 MAX.

2. LOCATE IN APPROXIMATE AREA SHOWN. REV LABEL ITEM 4B, AND MARK 'ASSY NO. C010-48-02-702' & LATEST ASSY REV.

3. ATTACH JUMPER WIRE, ITEM 4B, USING GLUE, ITEM 50, TO BOARD IN APPROXIMATE AREAS MARKED O.
NOTE:

1. HEIGHT LIMITATIONS.

COMPONENT SIDE OF BOARD 0.400 MAX.

ETCH SIDE OF BOARD 0.800 MAX.

2. LOCATE IN APPROXIMATE AREA SHOWN. REV LABEL 171M48
   AND MARK ASSY NO. 010-48-02-701 OR 702 & LATEST ASSY REV
   - PATTERN MARKEDX NOT USED (701 ONLY)

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COMPONENT SIDE

ASSEMBLE WITH ARTWORK NO. 010-48-03-701 REV. B

PIN NUMBERING AND ORIENTATION

NOTE:

1. HEIGHT LIMITATIONS.

COMPONENT SIDE OF BOARD .400 MAX.

ETCH SIDE OF BOARD .800 MAX.

2. LOCATE IN APPROXIMATE AREA SHOWN. REV LABEL 171M48
   AND MARK ASSY NO. 010-48-02-701 OR 702 & LATEST ASSY REV
   - PATTERN MARKED X NOT USED (701 ONLY)
ADD WIRE ITEM 49 FROM A MCo3-1 TO M<o3. &.
8 MCo3-4 TO C MCo3-IOTO Mic3·1ic
D M<c. 3-14 ro EYELET
M<c3-3 TO Mic3 · 8

ETCH SIDE

RE. :..:F _____ _

322
NOTES:

1. HEIGHT LIMITATIONS:
   COMPONENT SIDE OF BOARD .400 MAX.
   ETCH SIDE OF BOARD .080 MAX.

2. LOCATE IN APPROXIMATE AREA SHOWN REVISION LABEL ITEM 44
   AND MARK ASSY NO.010-51-02-701 AND LATEST ASSY REVISION.

3. PATTERNS MARKED 'X' NOT USED. M62, M69.

4. 14 PIN I.C. USED IN 16 PIN PATTERN. PIN 1 & 2 OF PATTERN
   NOT USED.

5. ATTACH JUMPER WIRE ITEM 48 TO BOARD WITH
   GLUE ITEM 49 APPROX AS SHOWN TO

6. ATTACH CLEAR SLEEVING ITEM52 OVER DIODE LEADS CRI-CR4(ITEM51) BEFORE ATTACHING TO
   P.C. BRO.
NOTES:

1. HEIGHT LIMITATIONS
   COMPONENT SIDE OF BOARD .400 MAX
   ETCH SIDE OF BOARD .080 MAX

2. LOCATE IN APPROXIMATE AREA SHOWN REVISION LABEL ITEM 44
   AND MARK ASSY NO. 010-51-02-701 AND LATEST ASSY REVISION.

3. PATTERNS MARKED 'X' NOT USED M62, M69

4. INSTALL CLEAR SLEEving (ITEMS 2) OVER DIODE LEADS CRI-CR4
   (ITEM 5) BEFORE ATTACHING TO PC BRD.
NOTES:

1. HEIGHT LIMITATIONS
   COMPONENT SIDE OF BOARD .433 MAX
   ETCH SIDE OF BOARD .080 MAX

2. LOCATE IN APPROXIMATE AREA SHOWN REVISION LABEL ITEM 40,
   AND MARK ASSY NO. 010-53-02-701 AND LATEST ASSY REVISION.

3. PATTERNS MARKED "X" NOT USED, M16, M22, M25, M29, M32, M35,
   M47, M49, M52, M55.
NOTES:
1. HEIGHT LIMITATIONS
   COMPONENT SIDE OF BOARD - 433 MAX
   ETCH SIDE OF BOARD - 000 MAX
2. LOCATE IN APPROXIMATE AREA SHOWN REVISION LABEL ITEM 42
   AND MARK ASSY NO. 010-53-09-701 AND LATEST ASSY REVISION.
3. PATTERNS MARKED "X" NOT USED, M16, M20, M25, M30, M35, M40, M43, M47, M49, M52, M56
ADD JUMPER WIRE (ITEM 43)

A1: M50-11 TO M33-1
A2: M50-12 TO M33-12
A3: M50-13 TO M33-13
A4: M50-14 TO M33-14
A5: M50-15 TO M33-15
A6: M50-16 TO M33-16
A7: M50-17 TO M33-17

CUT ETCH FROM
A: M41-1 TO EYELET
NOTES:
1. HEIGHT LIMITATIONS
COMPONENT SIDE OF BOARD 400 MAX
ETCH SIDE OF BOARD .080 MAX
2. LOCATE IN APPROXIMATE AREA SHOWN REVISION LABEL ITEM 42
AND MARK ASSY NO. 010-56-02-70X AND LATEST ASSY REVISION.
NOTES:
1. UNLESS OTHERWISE SPECIFIED:
   A. ALL RESISTORS ARE IN OHMS, 1/4W, ±5%
   B. ALL CAPACITORS ARE IN MICROFARADS.
   C. ALL DIODES ARE TYPE IN4148.
2. THE FOLLOWING IO PINS ARE PREASSIGNED
   AND MUST BE USED FOR THE FUNCTIONS
   DESCRIBED ONLY:
   A. +5V PINS 35&36
   B. GND PINS 75&76

FOOTNOTE

NOTES:
1. UNLESS OTHERWISE SPECIFIED:
   A. ALL RESISTORS ARE IN OHMS, 1/4W, ±5%
   B. ALL CAPACITORS ARE IN MICROFARADS.
   C. ALL DIODES ARE TYPE IN4148.
2. THE FOLLOWING IO PINS ARE PREASSIGNED
   AND MUST BE USED FOR THE FUNCTIONS
   DESCRIBED ONLY:
   A. +5V PINS 35&36
   B. GND PINS 75&76
CUT ETCH FROM  
A) EYELET 3 TO EYELET 4  
B) WI-13 TO EYELET  
ADD JUMPER WIRE (ITEM 53) FROM  
A1) EYELET 1 TO EYELET 2  
A2) WI-4 TO WI-5  
A3) WI-6 TO WI-7  
A4) ETCH TO WI-12  
A5) WI-10 TO WI-12  
A6) WI-8 TO WI-11

NOTES:
1. HEAVY LIMITATIONS  
COMPONENT SIDE OF BOARD .040 MAX  
ETCH SIDE OF BOARD .080 MAX  
2. LOCATE IN APPROXIMATE AREA SHOWN REVISION LABEL ITEM 50  
AND MARK ASSY NO. 049-13-02-701 AND LATEST ASSY REVISION.
NOTES:
1. HEIGHT LIMITATIONS
   COMPONENT SIDE OF BOARD .4-.6 MAX
   ETL SIDE OF BOARD .525 MAX
2. ALL JUMPER WIRE PINS MUST BE INSERTED TO BOARD USING ITEM 1, 3 PINS 4 MARK (O)
3. MARK AS SHOWN IN .04 HIGH VERTICAL GOTHIC CHARACTERS (BLACK) NEW ASSY NO 50 REV
   NOTE EXISTING AND ASSEMBLY AND REV
   NOTE PHOTOS USING AND ISO CHART (078 CHART)
4. DRILL HOLES USING AND ISO CHART (1078 CHART)
   IN AREA SHOWN

PIN NUMBERING AND ORIENTATION
**NOTES**

1. LR = LINE RECEIVER SN75154.
2. LD = LINE DRIVER JJA9616.
3. LR 'DATA NO/DATA' USED ONLY FOR MASTER MULTIPLEXER (701 ASSY).
4. LR 'LAST TO SEND' USED ONLY FOR MASTER MULTIPLEXER (701 ASSY).
5. LR 'XMITTER SIG TIMING ELEMENT' USED ONLY FOR MASTER MULTIPLEXER (701 ASSY).
6. RESISTORS ARE 1/4W, 5%.
NOTE:

1. WEIGHT LIMITATIONS.

COMPONENT SIDE OF BOARD .400 MAX.
ETCH SIDE OF BOARD .080 MAX.

2. LOCATE IN APPROXIMATE AREA SHOWN. REVISION LABEL, ITEM 10, AND MARA ASSY. NO. 007-04-02-704C AND LATEST ASSY. REVISION.
NOTE:

1. HEIGHT LIMITATIONS.

COMPONENT SIDE OF BOARD .400 MAX.
ETCH SIDE OF BOARD .080 MAX.

2. LOCATE IN APPROXIMATE AREA SHOWN REVISION LABEL,
ITEM 16, AND MARK ASSY NO. 007-04-02-703C AND LATEST
ASSY. REVISION.

PIN NUMBERING AND ORIENTATION

COMPONENT SIDE
NOTE:

1. HEIGHT LIMITATIONS.
   COMPONENT SIDE OF BOARD .400 MAX.
   ETCH SIDE OF BOARD .080 MAX.
NOTES:

1. UNLESS OTHERWISE SPECIFIED ALL RESISTOR VALUES ARE IN OHMS, ± 5% AND ARE 1/4 WATT.

2. A & B ARE ETCH CUT OPTIONS.
NOTE:

1. WEIGHT LIMITATIONS.
   COMPONENT SIDE OF BOARD .400 MAX.
   ETCH SIDE OF BOARD .080 MAX.
NOTE:

1. All jumper wires are to be fasten to board using item #10 places marked (C).

NOTE:

1. HEIGHT LIMITATIONS.
   COMPONENT SIDE OF BOARD .400 MAX.
   ETCH SIDE OF BOARD .080 MAX.
NOTE:

1. **WEIGHT LIMITATIONS.**
   - COMPONENT SIDE OF BOARD .400 MAX,
   - ETCH SIDE OF BOARD .080 MAX.
NOTE:

1. HEIGHT LIMITATIONS.

COMPONENT SIDE OF BOARD .400 MAX.
ETCH SIDE OF BOARD .080 MAX.

2. LOCATE IN APPROXIMATE AREA ShOWN.

REVISION LABEL, ITEM 37 AND MARK
ASSY NO. 007-06-0291 AND 0 LATEST
ASSEMBLY REVISION.

PIN NUMBERING AND ORIENTATION

COMPONENT SIDE

ASSEMBLE WITH ARTWORK 007-06-03-701 REV B

R.C. BOARD ASSY
DATA FLOW BOARD
MULTIPLEXER 701B
NOTE:

1. WEIGHT LIMITATIONS.
   COMPONENT SIDE OF BOARD 400 MAX.
   ETCH SIDE OF BOARD 080 MAX.

2. LOCATE IN APPROXIMATE AREA SHOWN REVISION LABEL ITEM 30,
   AND MNT ASSY NO. 027-042-703C AND LATEST ASSY REVISION.

3. TOP ASSEMBLY DRIVING REPLACES THE ASSEMBLY DRIVING USING REVISION'S
   ARTWORK (BOARDS NEVER SUBJECT AT ARTWORK REVISION'S)

PIN NUMBERING AND ORIENTATION

COMPONENT SIDE
ASSEMBLE WITH ARTWORK 027-042-703C REV C
A. MAKE 12 HIGH VERTICAL GROVE (BLACK) CHARACTERS USING ACRYLIC BASE INK.

2. COMPONENT TERMINATING LEADS TO BE CLINCHED OR NON-CLINCHED PRIOR TO SOLDERING.

3. MAXIMUM HEIGHT OF LEAD PROTRUSIONS CLINCHED OR NON-CLINCHED TO BE 0.060 MAX.

4. COMPONENT HEIGHT TO BE 0.060 MAX.

INCLUDING SHIELD COVERS, TEST SOCKETS WITH INTERNAL RIBBON, ETC.

NOTES: