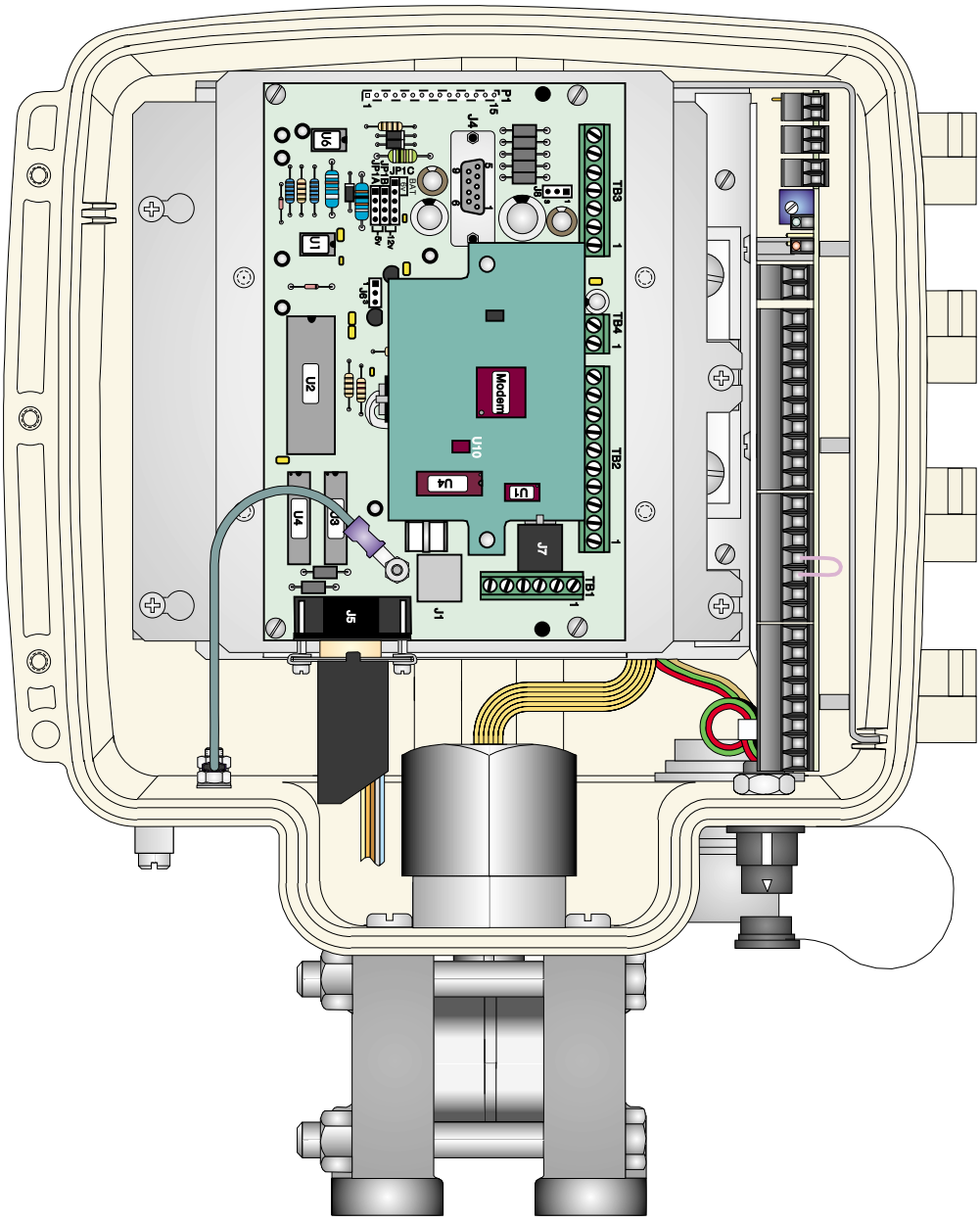
Product Information Package

No. PIP-3530MGKI
Issue 07/2000

TeleFlow MODEM GROUNDING KIT 621495-01-8 INSTALLATION INSTRUCTIONS

For BBI Instruction Manual CI-3530-10B



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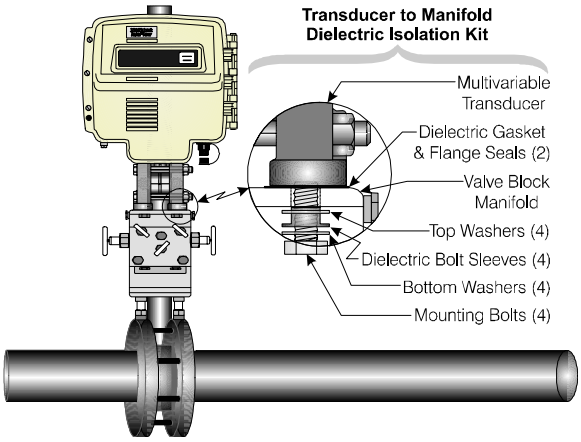

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PIP-3530MGKI

TeleFlow MODEM GROUNDING KIT

INSTALLATION INSTRUCTIONS

PT. Number 621495-01-8

Product Information Package

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REFERENCED DOCUMENTS

Installation Instructions for the TeleFlow Modem Grounding Kit

Prior to the installation of a 9600 bps Modem into a TeleFlow (3530-10B), the TeleFlow enclosure (case) must be modified to accommodate the Modem Grounding Kit. Units that are already field installed must be removed to a safe, clean and static-free work environment.

The TeleFlow Modem Grounding Kit consists of the following items:

- Hex Nut - #10-32 (Item A – Figure 4)
- Cabinet Ground Cable (Item B – Figures 2 & 4)
- Self-Locking Nut - #10-32 UNF (Item C – Figure 4)
- Flat Washer - #10 (Item D – Figure 4)
- Ground Lug (Item F – Figures 2 & 4)
- Pan Head Screw - #10-32 x 3/4" (Item G – Figures 2 & 4)
- Pan Head Screw - - #4-40 x 3/8" (Item H – Figure 2)
- Self-Locking Nut - #4-40 UNC (Item J – Figure 2)
- Hex Nut - #4-40 (Item K – Figure 2)

To modify a TeleFlow (3530-10B) follow steps 1 through 15 below.

1. Open the Instrument Front Cover. Disconnect power by removing the power plug from primary power connector J8 on the modem's CPU Board**. Note: In the event the TeleFlow requires continuous operation, a small auxiliary 9V battery can be plugged into the secondary power connector J7.** If a modem is installed in the unit, remove its' power wires from modem connector TB4. If these wires are connected to the battery system, make sure that you prevent them from shorting together. Remove the modem's phone line connections. Then remove the modem. This is accomplished by removing the four (4) screws that secure the modem to stand-offs, on the Modem Mounting Plate (see Figure 4). Remove the wiring harness connector from the modem's D-type Port J5 after removing the modem. ***The modem must be handled using ESD safe handling techniques***.

2. Referring to Figure 1, determine the location of the 13/64-inch hole that must be drilled through the bottom of the enclosure. Mark this location on the bottom of the enclosure. Clamp the TeleFlow (3530-10B) in a vise (or otherwise secure the unit) and drill a 13/64 inch hole through the bottom case at the location specified in Figure 1. Use an appropriate size rat-tail file to remove any slag from the edges of the hole. Take extra precautions to assure that no filing are left within the enclosure and that no debris enters the unit's Multivariable Transducer.

3. Referring to Figures 2, 3 & 4, install the Ground Lug (Item F). The Ground Lug will be situated on the bottom of the enclosure and is to be secured via a Pan Head Screw (Item G), a washer (Item D) and a Self-Locking Nut (Item C) as illustrated in Figure 4. ***Note: The inside of the enclosure has been painted with a conductive coating. This coating serves to provide an effective EMI/RFI shield. Connecting the Ground Lug to a known good earth ground will ground the modem and the TeleFlow enclosure. This coating can be easily and accidentally scraped away. Make sure that the Flat Washer (Item D) is installed prior to installing the Self-locking Nut (Item C) or the conductive coating may be scrapped off causing a loss of EMI/RFI shunt protection.***

4. Connect one end of the Cabinet Ground Cable to the Modem PCB as illustrated in Figures 2, 3 & 4. Figure 4 shows the location of the Modem Ground. This is the point where the modem's protective surge circuitry is to be connected to Ground. Connect the Modem Interface Cable to the 9-pin D-Type Connector (J5) on the bottom edge of the modem. Mount the modem onto the stand-offs on the Modem Mounting Plate. If required, install the modem (mounted on the Modem Mounting Plate) onto the Radio/Modem Mounting Plate (that in turn is mounted on the Battery Mounting Bracket).

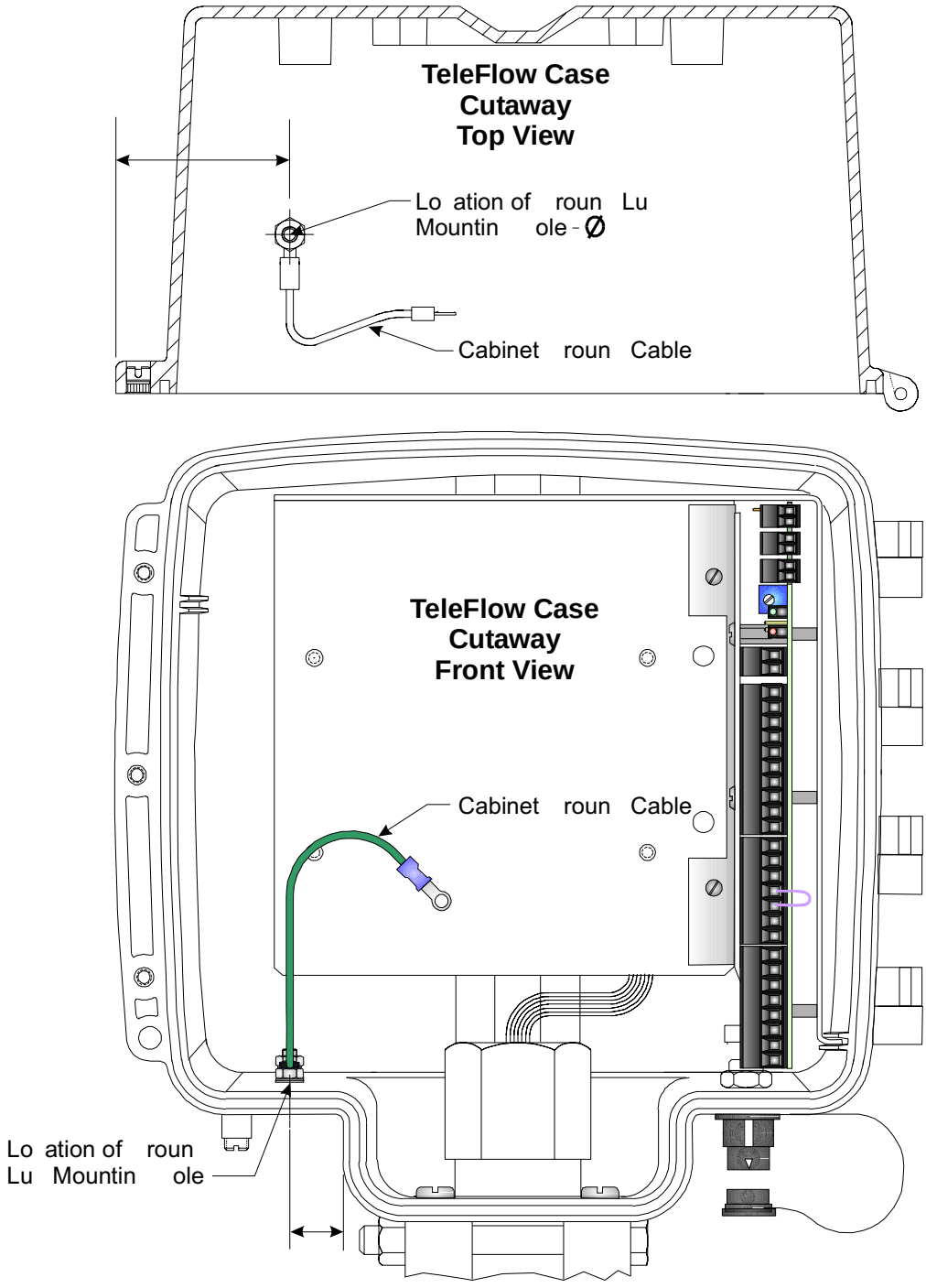

Figure 1 - Ground Lug Hole Location Diagram

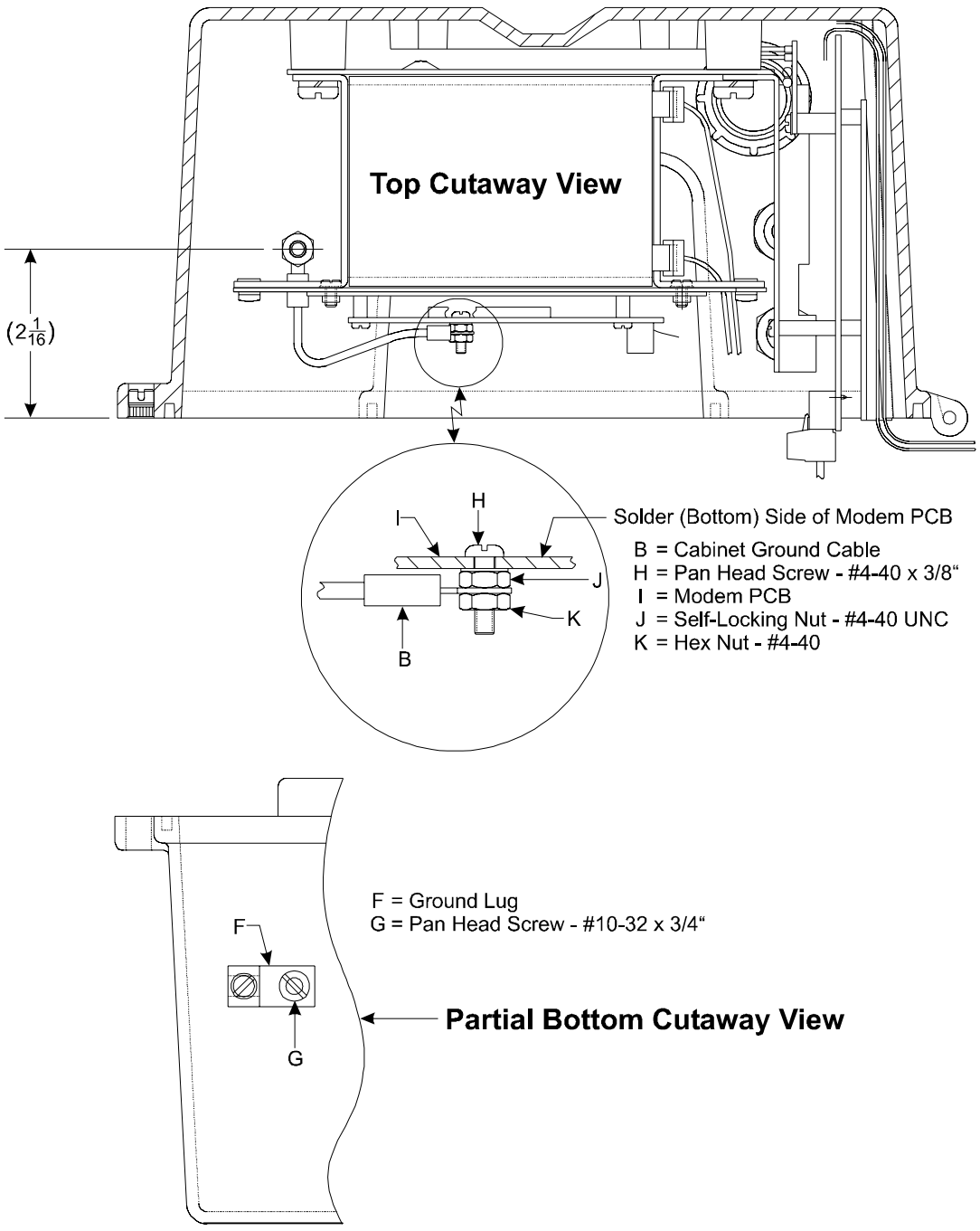

Figure 2 - Modem Grounding Kit Installation Drawing #1

5. Secure the other end of the Cabinet Ground Cable (Item B) to the Pan Head Screw (Item G) on the inside of the enclosure via the #10-32 Hex Nut (Item A) as illustrated in Figures 2, 3 & 4.

6. If required, configure the Modem Jumpers (See Figure 5). Note: Jumper J8 must be set on position 1-2 for PSTN RTS to CTS loopback operation.

7. If installing a modem for the first time, remove the seal plug associated with the modem/radio option from the bottom of the enclosure and loosely install the Phone Connector and Sealing Nut in its place making sure not to tighten the knurled

portion of the Cord Connector. The TeleFlow (3530-10B) must be mounted at its' assigned installation site prior to performing the remaining steps.

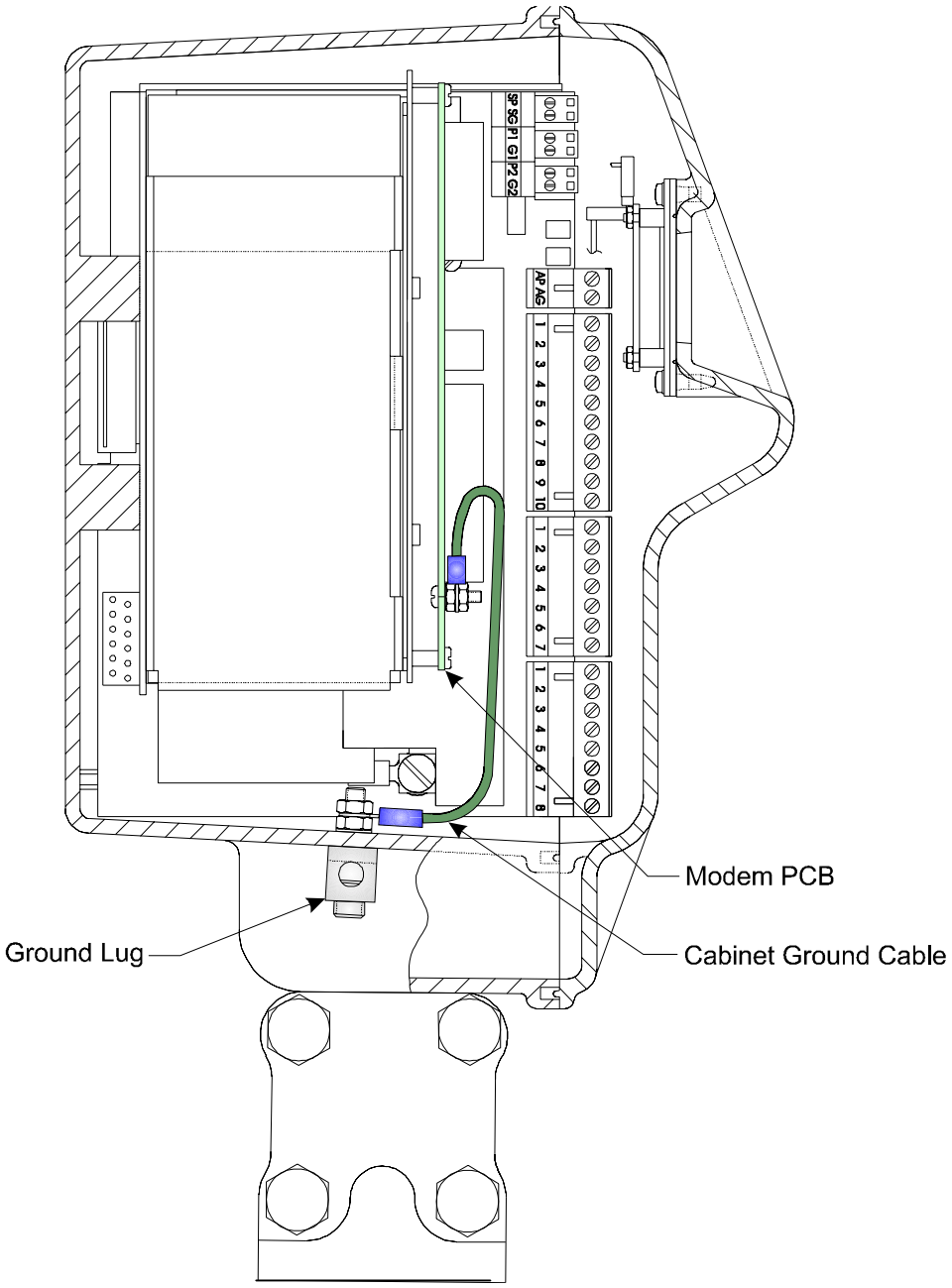

Figure 3 - Modem Grounding Kit Installation Drawing #2

8. Route the Phone Cable (cord) through the Cord Connector installed in step 7. Route the Phone Cable as far away as possible from the Multivariable Transducer's Flex Cable and far enough into the enclosure to accommodate connection of the wires to the modem and then tighten the knurled portion of the Cord Connector that was installed in step 7.

9. Connect the end of the Modem Interface Cable, that was not installed in step 4, to the appropriate TeleFlow CPU Board connectors (see Table 1).

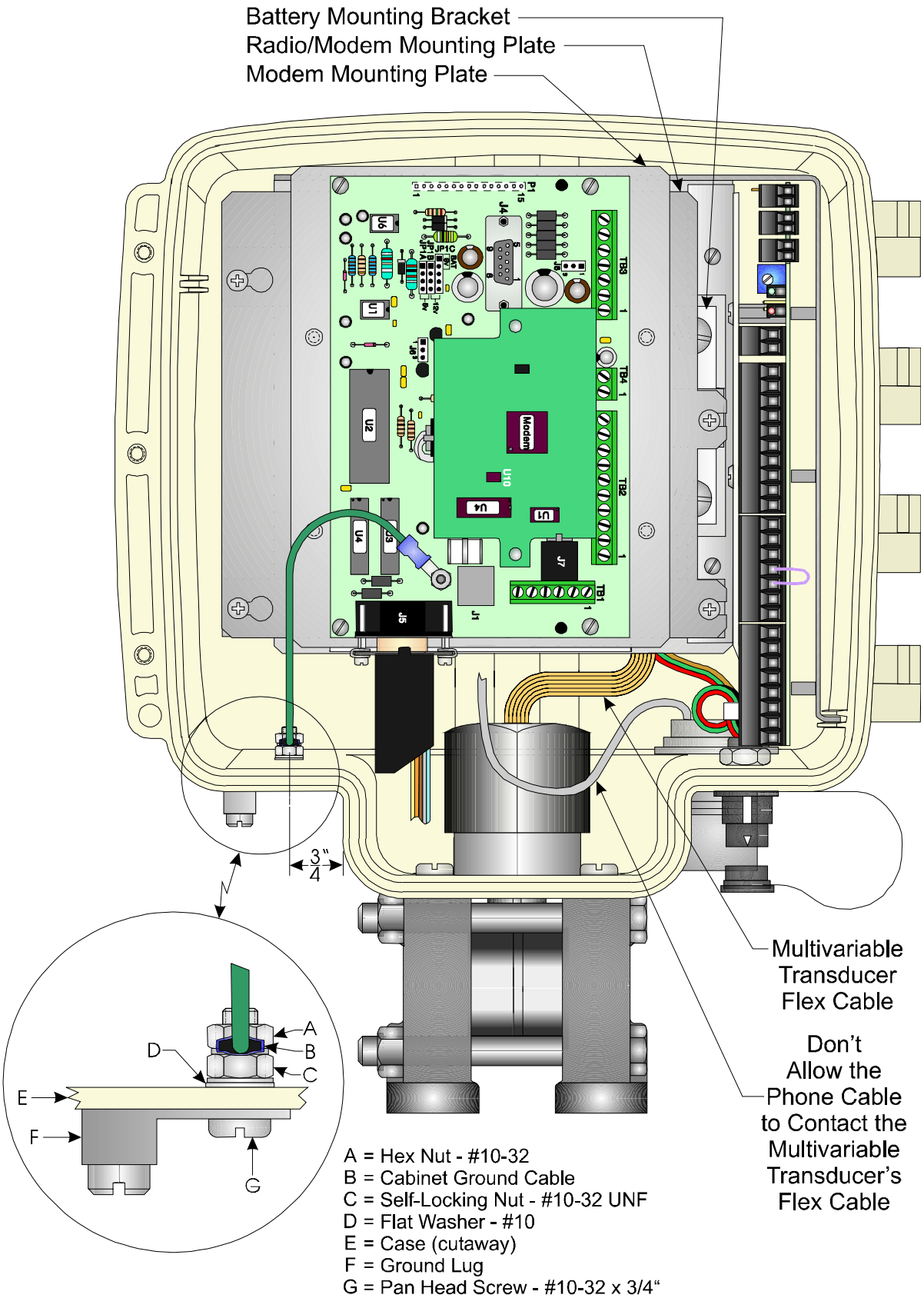

Figure 4 - Modem Grounding Kit Installation Drawing #1

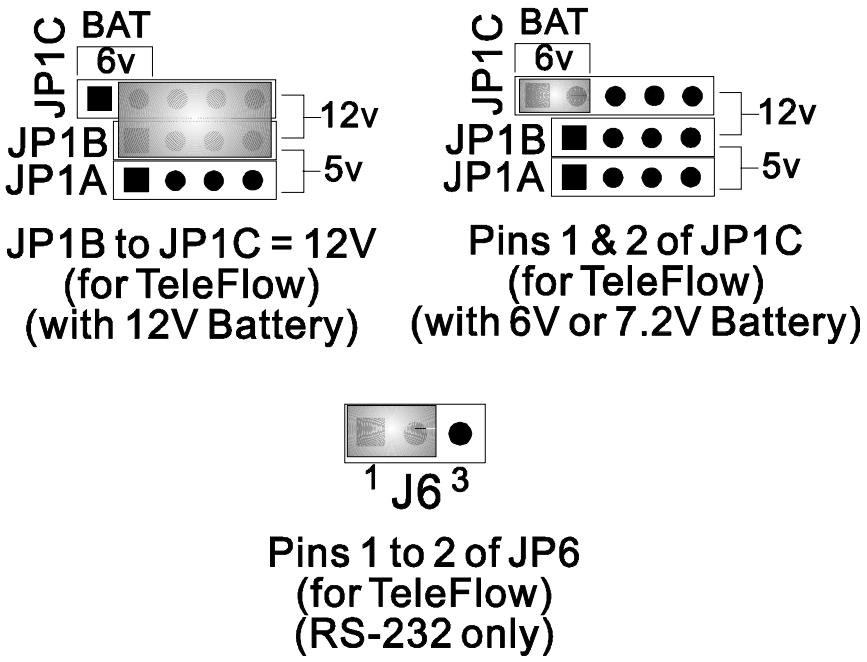

Figure 5 - TeleFlow/Modem Jumper Configuration

Table 1 - Wiring Listing

TeleFlow CPUs	TeleFlow Conn. & Sig.	Signal Direction	Modem Conn. & Sig.	Port Usage	Wire Color
392561XXX 392926XXX	J5-17 (RTXD) J13-7 (RTXD)	To Modem	J5-3 (TD)	RS-232	Brown
392561XXX 392926XXX	J5-16 (RRXD) J13-6 (RRXD)	From Modem	J5-2 (RD)	RS-232	Blue
392561XXX 392926XXX	J5-13 (RDTR) J13-3 (RDTR)	To Modem	J5-4 (DTR)	RS-232	Yellow
392561XXX 392926XXX	J5-15 (RRTS) J13-5 (RRTS)	To Modem	J5-7 (RTS)	RS-232	Orange
392561XXX 392926XXX	J5-14 (RCTS) J13-4 (RCTS)	---	---	RS-232	---
392561XXX 392926XXX	J5-12 (RDCD) J13-2 (RDCD)	From Modem	J5-1 (CD)	RS-232	Gray
392561XXX 392926XXX	J5-11 (GND) J13-1 (GND)	---	J5-5 (GND)	Ground	Green
392561XXX 392926XXX	J8-1 (PWR1) J8-1 (PWR1)	To Modem	TB4-2 (EXTVDC)	Power	Red
392561XXX 392926XXX	J8-2 (GND) J8-2 (GND)	---	TB4-1 (GND)	Pwr Gnd	Black
			TB1-1 (T/R)	Phone Line	---
			TB1-2 (T/R)	Phone Line	---

Note: A jumper wire should be installed between RRTS and RCTS on the TeleFlow CPU Board.

10. Connect the Modem Power Cable to the Modem as follows:
    Red Wire = Modem Board Connector TB4-2
    Blk Wire = Modem Board Connector TB4-1

    Don't connect the modem's power cable to the CPU Board at this time.

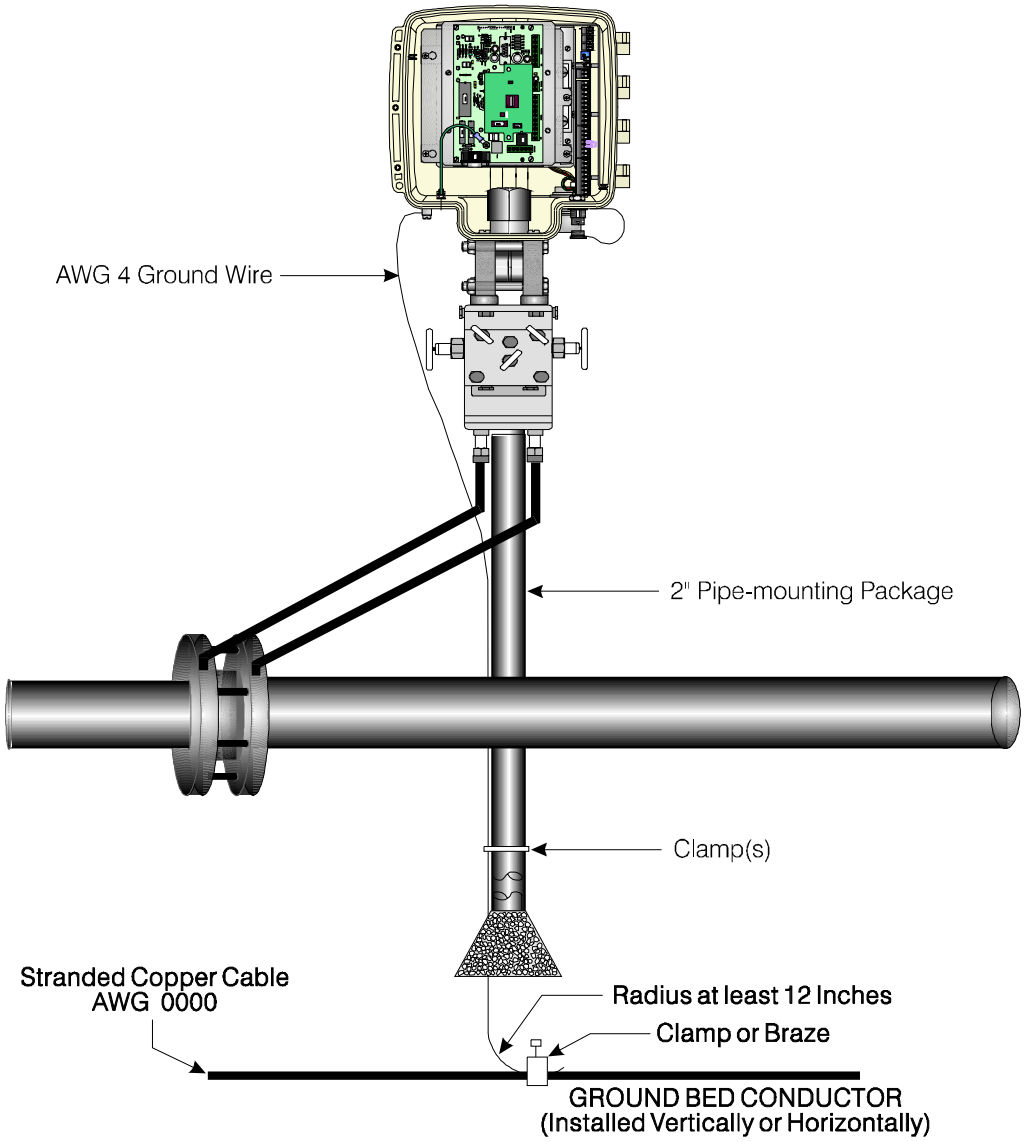

Figure 6 - Earth Grounding of TeleFlow Modem and Case

11. Connect a ground wire between the Ground Lug (on the bottom of the case) and a known good Earth Ground (see Figure 6). Observe these recommendations:
    - Ground wire size should be AWG 4. It is recommended that stranded copper wire is used for this application and that the length should be as short as possible.
    - This ground wire should be clamped or brazed to the Ground Bed Conductor (that is typically a stranded copper AWG 0000 cable installed vertically or horizontally).
    - The wire ends should be tinned with solder prior to insertion into the TeleFlow Ground Lug.
    - The ground wire should be run such that any routing bend in the cable (once it enters the earth) has a minimum of a 12-inch radius.

- See next section of this document, i.e., Additional TeleFlow Grounding Considerations.

12. Connect the modem to the phone line (see Modem Manual CI-9600). After the telephone company has installed the jack, connect the modem's phone cable to the phone company's wall jack. After routing the phone cable as far away as possible from the Multivariable Transducer's Flex Cable and far enough into the TeleFlow enclosure to accommodate connection of the wires to the modem, connect the phone cable to the modem's phone jack (J1). A Telephone cable (which terminates to a wall jack) may be hard-wired to the modem's Terminal Block TB1 (see Table 2) in lieu of J1.

13. Connect the modem's power cable to the CPU Board as follows:
    Red Wire = To J8-1 = PWR1
    Blk Wire = To J8-2 = GND

14. Reconnect power to the CPU Board. Configure the TMS or ACCOL Load for modem operation.

15. The configuration of the PSTN modem is now complete.

Table 2 - Alternate Telephone Connector #1 - TB1

TB1 Pin #	Signal Name	Description	Input/Output
1	T/R	Transmit/Receive	I/O
2	T/R	Transmit/Receive	I/O
3	R	Receive 4-Wire	Not Used
4	R	Receive 4-Wire	Not Used
5	N/A	Not Used	N/A
6	N/A	Not Used	N/A

Additional TeleFlow Grounding Considerations

- **Meter Runs without Cathodic Protection**
  TeleFlows may be mounted directly on the pipeline or remotely on a vertical stand-alone two-inch stand-pipe. The ground conductor is to run between the TeleFlow and Earth Ground even though the TeleFlow's Multivariable Transducer is grounded to the pipeline.

- **Meter Runs with Cathodic Protection**
  Dielectric isolators are included in the direct mount parts list and are always recommended as an *added measure* in isolating the TeleFlow from the pipeline even though TeleFlow does provide 500V galvanic isolation from the pipe and should not be affected by cathodic protection or other EMF on the pipeline. While users are warned to avoid "grounding" the electronics to the pipeline, we also recommend that installers thoroughly review the grounding and wiring practices information contained in supplement document S1400A, Site Considerations for Equipment Installation, Grounding & Wiring. Isolation Fittings should also be used in remotely mounted meter systems. See BBI Specification Summary F1670SS-0a for information on PGI Direct Mount Systems and manifolds.

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