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# **BavCom™ Two on Two Audio System Installation and Service Manual**

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# **BavCom™ Two on Two Audio**

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## BavCom™ Two on Two Audio

The BavCom™ Two on Two audio system lets two inside positions talk to two remote positions.

### Features

- Full duplex operation
- Electret condenser microphone
- Proprietary closed back speaker for maximum efficiency and minimum feedback
- Case is of heavy 16ga steel construction with a durable powder coated finish
- Interior microphone and speaker are built into the console unit
- All functions are controlled via a factory configured PLA (programmable logic array).
- Built-in call tone is included in the console:  
The call tone is controlled by the logic. The tone will only be activated for a lane not selected. The tone will only stay on while being activated and/or for a maximum of ten seconds. The tone cannot subsequently be activated for another 30 seconds. The LEDs stay flashing until acknowledged by having the lane select or standby buttons activated.
- Plug-in electrical connections:  
One 12-position Molex connector for power and interface. Two 9-position Molex connectors are used for the remote speakers, microphones and call buttons. **Note that all of these connectors are color coded.**
- Master and Slave operation:  
By virtue of wiring harness, one console will be a master and the other a slave. The slave console cannot access a lane already active on the master. The master can cancel a lane active on the slave and then access it.
- Five teller controls:  
All are momentary buttons. There are buttons to select Lane 1, Standby or Lane 2. Boost buttons are provided to give substantial increases in incoming or outgoing volume. Note that when boosting volume in, the outgoing channel is turned off to prevent feedback and vice versa.
- Two LED indicators:  
Each lane has an LED indicator. **Off** indicates that the channel is not in use. **On** indicates that the channel is in use. **Flashing** indicates that the call button has been activated for that lane.
- Five service adjustments:  
Each of the four channels, Lane 1 incoming, Lane 2 incoming, Lane 1 outgoing and Lane 2 outgoing have separate gain controls plus a master incoming audio gain control. See section labeled **ADJUSTMENT** for more information.

## Installation

### Install Consoles:

The consoles are designed to sit above the counter top on a mount that rotates for wall or countertop mounting. The electrical connections are on the back of the console. The speaker then faces down towards the counter top for proper operation.

### Connecting to Existing Bavcom™ audio:

There is an interface board required at both remote devices. This board provides two speakers, microphone and call button outputs from each remote device so that they can connect to both consoles. The cables for the audio connection are color coded. Lane 1 connections have red connectors, Lane 2 connections have blue connectors.

If you have a system that already has BavCom™ audio you can use an interface board with 2 terminal barriers and a 24-position in-line connector. Begin by disconnecting the 24-position in-line connector from the existing audio board. Remove the existing audio board. Install the interface board into the existing audio board location. Connect the 24-position in-line connector to the interface board. The part number for this interface board is 02906015.<sup>1</sup>

The end of the audio cable that connects to the interface board output is a bare cable, not connectorized. We have found that it is much easier to pull bare wires through walls, conduits, etc. versus a wire with a connector attached. After the cable is in place it is stripped and connected to a terminal barrier. Please refer to drawing Fig. 1 for the proper connection information. The opposite end of each of the audio cables has a connector, which then plugs into the matching connector in the back of each console.

### Connecting to Non-Bavcom™ Systems:

There is an interface board required at both remote devices. This board provides two speakers, microphone and call button outputs from each remote device so that they can connect to both consoles. The cables for the audio connection are color coded. Lane 1 connections have red connectors, Lane 2 connections have blue connectors.

To connect to remotes that do not have BavCom™ audio requires the use of an INTERFACE BOARD, which has 3 terminal barriers, part number 01611021. This features a terminal barrier for easy screw type connections. Note we can supply many different types of audio components and they should be selected to suit the needs of the applications. These are to be ordered separately.

Microphones are available in four versions.

- 25" boom type with 3/8" threaded stem and nut, typically used for inside positions, part number 02908033.
- 36" boom type with 3/8" threaded stem and nut, part number 02908032.
- Diamond style that includes a molded housing that is designed for surface mounting, part number 02910992. This type is secured from the rear with screws.

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<sup>1</sup>Note: If your machine has a white 12-position connector and a brown 4-position connector, either the connectors can be cut off and the wires attached to the terminal barrier type splitter board, or consult the factory for the availability of a matching splitter board.

- Bare type that are elements only without a housing or grill, part number 02910052. This element has a rubber mounting grommet that has two ears for attachment.

Speakers are also available in a variety.

2" X 3" speaker back box, part number 02909051

2" x 3" bare with open back, part number 02909991

2" x 3" with flush mounting plate which features integral grill and molded back box, part number 09033121

Available Call button components:

Sealed white button, part number 00319699

Polyester identifying labels, part number 00207012

Composite cable, part number 02910011, is available by the foot. This has 3 pairs in one cable and was especially designed and made for our audio.

After installing your choice of BavCom™ outside microphone, speaker and call button connect these to the INTERFACE BOARD input. See drawing on page 6 for details of these connections.

The end of the audio cable that connects to the interface board output is a bare cable, not connectorized. We have found that it is much easier to pull bare wires through walls, conduits, etc. versus a wire with a connector attached. After the cable is in place it is stripped and connected to a terminal barrier. Please refer to the drawing on page 6 for the proper connection information. The opposite end of each of the audio cables has a connector, which then plugs into the matching connector in the back of each console.

### **Connecting Power:**

The power comes from a UL Listed LOW VOLTAGE (17vdc) power supply, which is included with the kit, part number 01521023. The two 12 position white connectors plug into the mating white connector on the back of each console. **CAUTION: THE POWER MUST BE OFF WHEN PLUGGING OR UNPLUGGING THE WHITE CONNECTORS.** Plug the line cord into a 120vac outlet. Press either lane 1 or lane 2 buttons on each console, the LED should illuminate indicating that the console is operational. Press the standby button and the LED should go out. Test the audio for operation. If the sound levels are not correct, go to the audio adjustment section.

## Adjustment

It is necessary to open the console to adjust the gain controls. Access is gained by turning the two thumbscrews on the back of the console. The fasteners are captive and will not get lost or misplaced. After the fasteners are fully unscrewed the front portion of the case hinges forward for easy access.

Each position has separate gain controls and needs to be adjusted independently. For details on the location of the adjustments, see Fig. 2. The adjustment procedure is the same for each position.

With the teller speaking in the inside microphone and a car present at the customer unit, the outgoing gain control corresponding to that position should then be adjusted for satisfactory volume. The incoming gain control corresponding to that position should then be adjusted clockwise until feedback occurs, then counterclockwise until feedback stops. This should complete the adjustment. If the incoming level is not sufficiently high enough, the outgoing level will have to be reduced to be able to get additional incoming volume level. The gain levels are a balance; adjustment of each has an effect on the other. If the incoming level is too high, adjust it to a lower level. Reassemble the console. **Note: The incoming volume knob should be all the way clockwise for this procedure.**

With a lane selected, press the **boost in** button. The incoming should get substantially louder while the outgoing is muted. Press the **boost out** button. The outgoing should get substantially louder while the incoming is muted. If feedback occurs, consult the factory.

## Board Replacement

When replacing the 2 on 2 logic board, please note that the heat sink which was mounted on the case coming from the old board is mounted to a heat sink located on the new board and does not need to be mounted to the case.

## Troubleshooting

If experiencing a “static charge” problem with the 2 on 2 system, we recommend that the conveyor system, which runs under the counter, be properly grounded using 12 gauge THHN or TFFN building wire. We also recommend that none of the intercom cables be touching the frame of the conveyor at any point.

### ***Audio doesn't work*** (Assumes No LEDS)

Outlet on?

Power supply plugged in?

Check to make sure the green LED on the end of the power supply is on. No LED?

Replace transformer.

LED is on still doesn't work? Replace console.

### ***Lane 1 no incoming*** (Assumes incoming on position 2)

Adjust gain.

Doesn't work? Plug red connector into blue position.

Works, replace console.

Doesn't work, replace remote microphone.

Doesn't work, consult factory.

### ***Lane 1 no outgoing*** (Assumes outgoing on position 2)

Adjust gain.

Doesn't work? Plug red connector into blue position.

Works, replace console.

Doesn't work, replace remote speaker.

Doesn't work, consult factory.

### ***Lane 2 no incoming*** (Assumes incoming on position 1)

Adjust gain.

Doesn't work? Plug blue connector into red position.

Works, replace console.

Doesn't work, replace remote microphone.

Doesn't work, consult factory.

### ***Lane 2 no outgoing*** (Assumes outgoing on position 1)

Adjust gain.

Doesn't work? Plug blue connector into red position.

Works, replace console.

Doesn't work, replace remote speaker.

Doesn't work, consult factory.

### ***No incoming both lanes*** (Assumes power to console, LEDS work)

Remote connection cables plugged in?

Adjust gain.

Still doesn't work? Replace console speaker.

Still doesn't work? Consult factory.

### ***No outgoing both lanes*** (Assumes power to console, LEDS work)

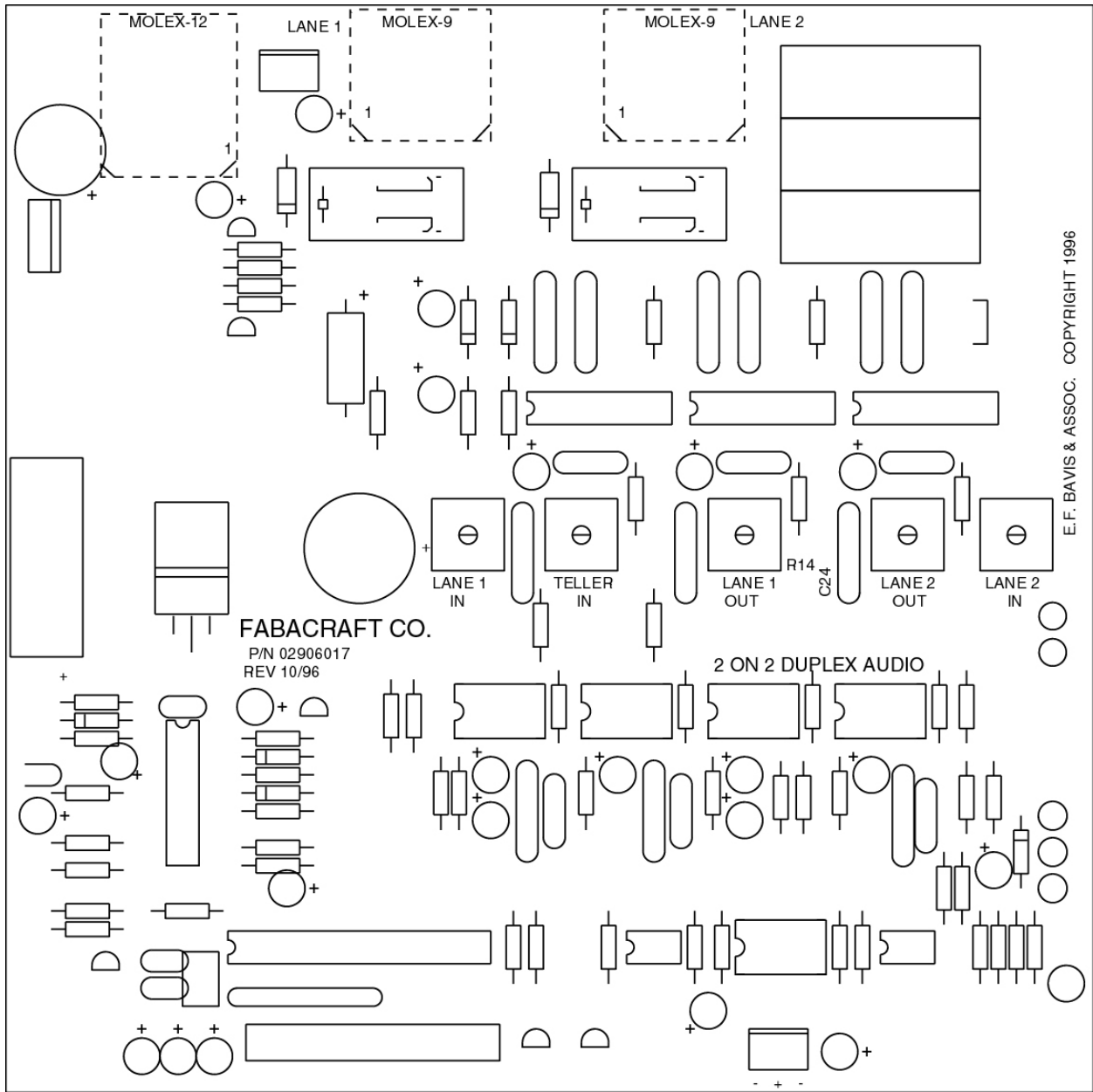
Adjust gain.

Still doesn't work? Replace console microphone.

Still doesn't work? Consult factory.







## **Installation and service tool list for audio**

1/8" and 3/8" flathead screwdrivers  
#0 and #2 Phillips screwdrivers  
1/16" and 3/32" Allen wrenches  
1/2" open-end wrench  
1/4", 5/16", 11/32", 3/8", and 1/2" nut drivers  
Wire cutters  
Wire strippers  
Wire crimpers  
Voltmeter  
Electric drill  
Drill bits  
Level  
7/8" Unibit  
Fish tape  
Loctite