

PHB-340 48-POINT, UNBALANCED PATCH BAY
PHB-350 48-POINT, BALANCED PATCH BAY

Hosa® Patch Bay Applications Guide

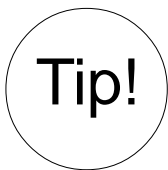


This booklet explains operation of Hosa Patchbay models **PHB-340**, **PHB-350**, and **PHB-360**. Although the **type of connector** (Balanced 1/4", Unbalanced 1/4", RCA, etc.) vary from model to model, the basic operation and patch options are identical.

Patch bays are intended for insertion into the signal path between multi-track recorders and audio mixing consoles in home and commercial studios. Connecting the patchbay between the recorder and mixer allows very convenient and flexible signal-routing and re-patching, without crawling around behind the

equipment every time a change becomes necessary.

The inputs and outputs of outboard signal processors like reverbs, delays and compressors are also routed through the patch bay, making it simple to add such effects into the signal path by employing short, patch-bay cables to connect one device's output to another device's input. Often, multiple patch bays are used so that every sound source, every signal processor, and every sound destination can be within fingertip reach.



Patch-bay connections can seem confusing at first until you've grasped the concepts. As you read this manual, it will help if you maintain a vivid mental picture of the *direction of signal flow*, as though your audio signal was water flowing through pipes, and your cables were hoses. And when looking at a vacant jack in the bay, learn to think of it as a **source** or a **load**, meaning that it's either offering signal *to* you or accepting it *from* you, but never both!

Patch-Bay Types

Patch Bays can be divided into three main categories, based upon the way signal may be routed. These types are often referred to by the terms "Open" (De-Normalled), "Full-Normalled", and "Half-Normalled".

What Does "Normalled" Mean?

In a *general sense*, "Normalled" means "usually (normally) connected", and it refers to the vertically-oriented jack pairs at the rear of the bay. (See **Fig. 1.**, this page.) For example, most recording studios have the mixer's **OUTPUTS** "usually connected" with the recorder's **INPUTS** as we have done in **Fig. 1.** For recording purposes, it is very convenient to have signal "loop" through the bay in this manner (with the permanent connections made at the rear) because we can now intercept, divert or make substitutions for the signal easily at the front of the bay in a number of ways, depending upon the patch bay's configuration.

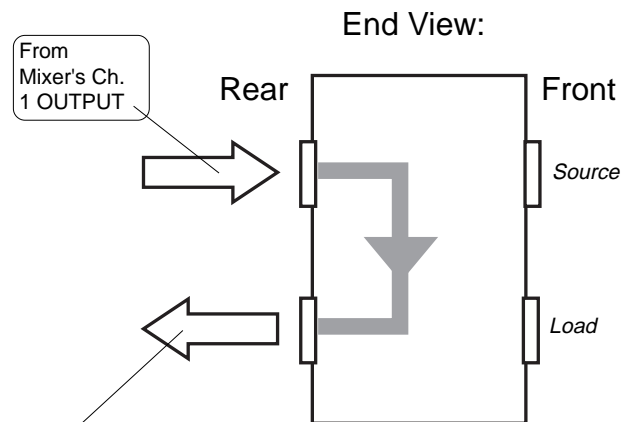
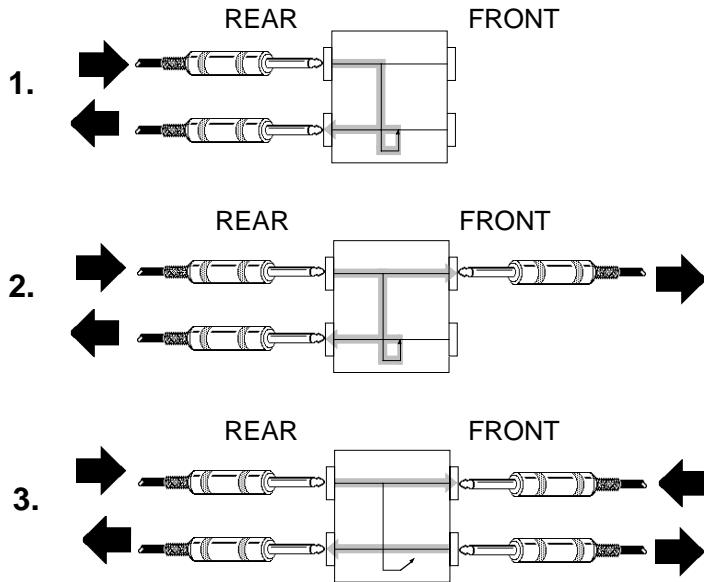


Fig.1 Arrows indicate direction of signal-flow when using the commonly accepted practice of employing top-rear jacks to accept incoming signals, and bottom-rear jacks to pass outgoing signals.

A "Half-normalled" bay, like your new Hosa Patch bay, is one which allows you to break the connection between the *rear* top and bottom jacks simply

by plugging a cable into the *bottom-front* jack. This is a very versatile configuration, allowing a number of different signal-flow scenarios.

FIG. 2. PATCHING OPTIONS AVAILABLE WITH HOSA HALF-NORMAL-TYPE PATCH BAYS.



Unbalanced 1/4" phone plugs are shown in our illustration, as used in the **PHB-340**.

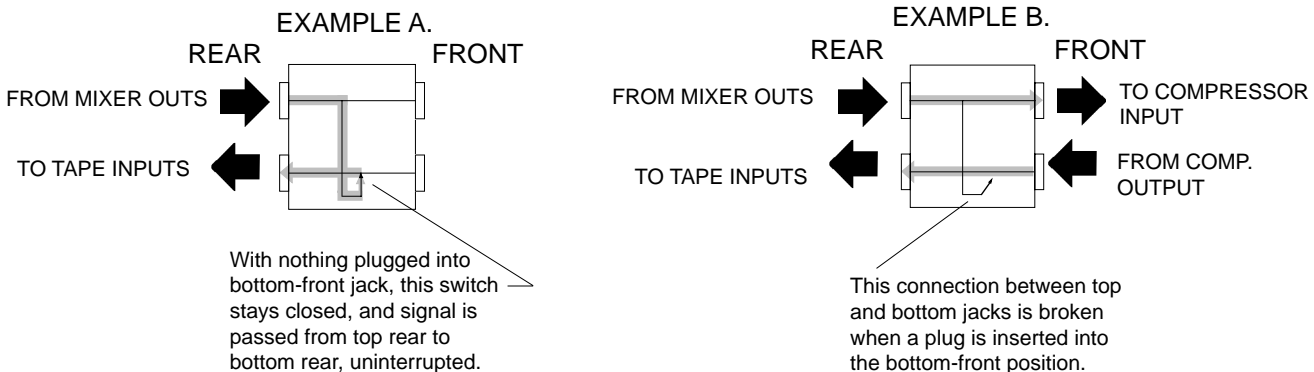
While circuit paths are identical for other models, the plugs used will vary.

The PHB-350 accepts balanced tip-ring-sleeve 1/4" phone plugs:

Arrows indicate direction of signal-flow when using the commonly accepted practice of allowing top-rear jacks to accept incoming signals, and bottom-rear jacks to pass outgoing signals.

Notice that until a cable is inserted into the bottom-front jack, signal is passed from top rear to bottom rear without interruption (#1), and may also be accessed at the top front jack (#2). But when a cable is inserted into the bottom-front jack, signal flow from top jacks to bottom jacks is interrupted (#3)

Figure 3. Connection Examples



Example A (see preceding page) shows the usual connection from MIXER outs to TAPE inputs. Notice that the signal is passed from the top rear jacks directly to those at the bottom rear. This is just one example. You may also want to bring your tape outs into the patchbay for patching to the console's inputs. If you always follow the convention of upper-rear IN and lower-rear OUT, you'll avoid possible confusion.

a compressor would be inserted between the mixer's outputs and the tape deck's inputs. **Notice that the act of plugging the compressor's output into the lower front jack has caused a switch to open, breaking the connection between the "normally connected" mixer outs and tape inputs.** Therefore, the signal must flow first from the mixer outs through to the compressor inputs, and then from the compressor outputs back through to the mixer inputs.

Example B (also on the preceding page) shows how

Figure 4.

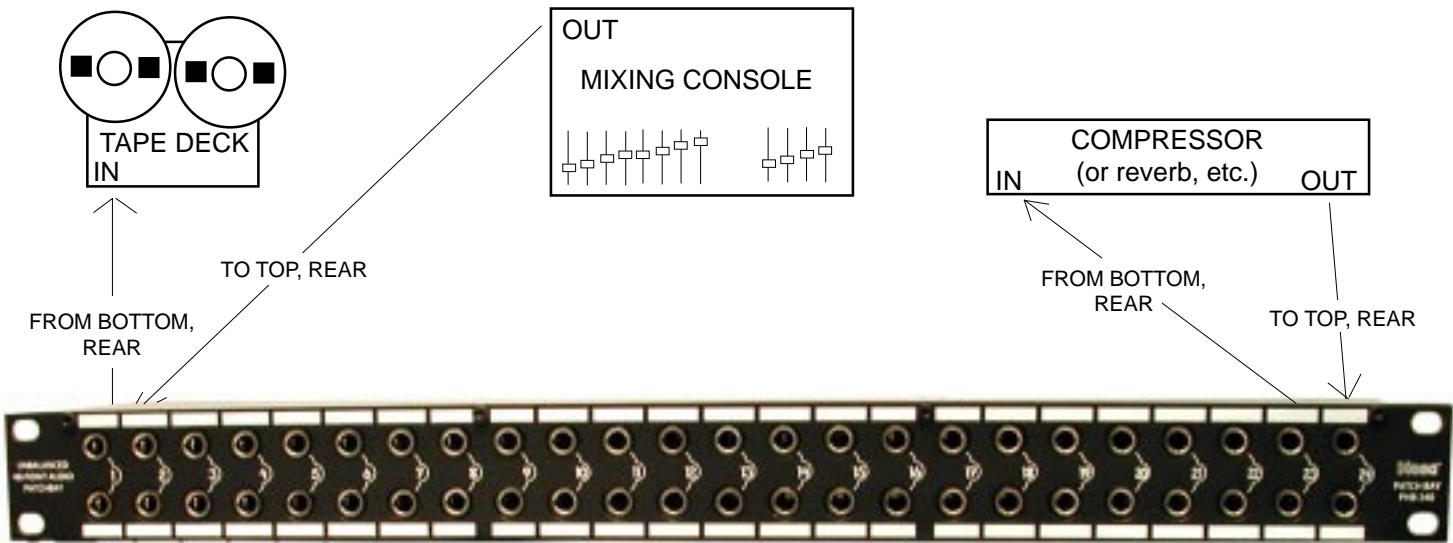
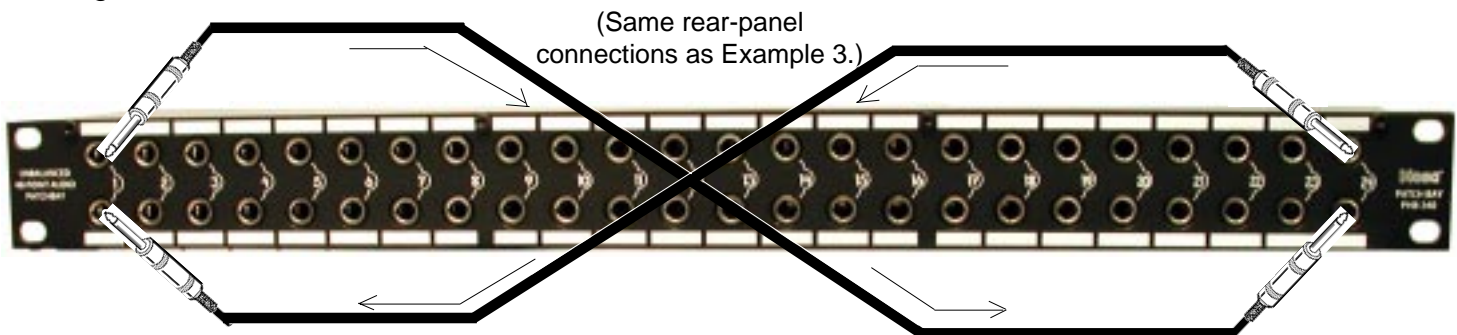


Figure 4. This simple setup shows patch-bay Channels 1 and 24 in use. All connections are done at the rear of the patch bay. The tape deck / mixing console circuit carried by Channel 1 is exactly the same as that shown in Figure 3, Example A on the previous page. And we've chosen to connect the *compressor's* IN and OUT in the same way, at the other end of the patch bay.

Note that unless we connect some cables to the front of the patch bay, the compressor is not connected to either the mixer or the tape deck. To insert the compressor into the signal path between the mixer and the tape deck, you will use short patch cables as shown in Figure 5, below.

Figure 5.



Arrows indicate direction of signal flow.

Figure 5. (Page 3.) Here, the compressor's input will receive its signal-feed from the mixing console's output, therefore, you would connect Channel 1's top-front jacks to Channel 24's bottom-front jack. And since the tape deck's input will receive its signal-feed from the compressor's output, you will need to connect Channel 16's top-front jack to and Channel 1's bottom-front jack. In our example, arrows indicate direction of signal flow. □

RE-CONFIGURING THE BAY

Sometimes *non-normalled* operation (no connection ever between top and bottom) is preferable. That would be the case with the compressor ins and outs in Figure 4, since with nothing plugged into the front, bottom jack of the patch bay channel used by the compressor, an undesirable loop is created between the compressor's output and its own input. This could be avoided by reversing the front/rear orientation of the patchbay channel used by the compressor. That way, with the switching jack in the back (where permanent connections are made), the top and bottom jacks will be disconnected from each other.

Here's how to reverse the front/rear orientation of an individual channel card: First, remove the patch bay's front panel by removing the four screws from the front panel of your patch bay using the appropriate size allen wrench. Don't lose these screws!

Next, using a small adjustable wrench, remove the two hex nuts that hold the channel card to the rear panel. Now, pull out the channel card and flip it over backward, so that the jacks that were in the front are now in the back. (You can't turn it around sideways, because you won't be able to fit the card back in place.) Then reattach the hex nuts at the rear of the bay, and reattach the front panel.

Make sure to label any channels that you have reversed! A "D" for "de-normalled" would be appropriate. (*Don't use permanent markers--see below*). □

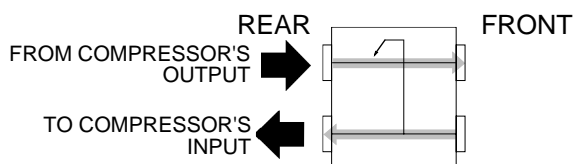


Figure 6. Inverted Module

With module inverted, the compressor's In and Out are not connected to each other.

LABELLING

By now, you're probably aware of the importance of labelling all of your patch-bay connections. With so

many dozens of patch points (especially when more than one patch bay is employed), you'll never keep track of them all without labelling. Hosa patch-bay patch points all have a white area above the jack for the purpose of labelling. Make sure to use a "wipe-off" marker, like the ones used on white presentation boards, or get a "grease" pencil from an art supply store. DON'T use permanent markers. Otherwise, if you decide later to re-configure your patch-bay signal routing, you'll be stuck with the old labels.

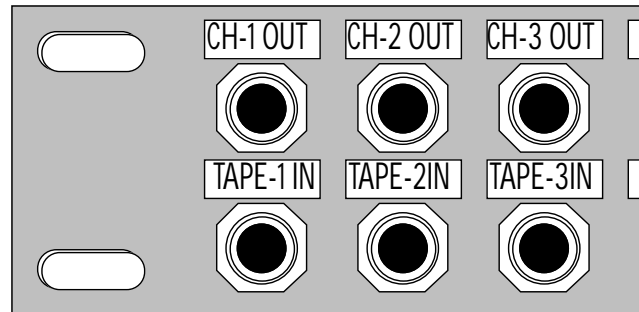


Figure 7. Label Your Patch Points, But Don't Use Permanent Markers.

MULTIPLE BAYS

Contemporary multi-track studios utilize many keyboards, synthesizers and sampler modules, each of which can have from two to eight outputs! Mixing consoles with 24, 32 or more input channels are common, even in home studios, and often each channel has two separate signal paths allowing twice that number of inputs. And in addition, you are probably familiar with outboard signal processors that feature multiple ins and outs. The answer? More than one patch bay! Use one for all of your tape-to-console ins and outs, another for your synthesizers, samplers and modules, and still another for your outboard signal processors if necessary. The key is organization, and just an afternoon's work in configuring your studio in this way will save you precious hours of studio time in the months to come! □

PATCH-BAY CABLES

Most major music stores and pro sound shops carry Hosa-brand cables for nearly every application. Included in the Hosa cable line are color-coded patch-bay cable sets of eight shielded cables each. They are available terminated in 1/4" phone, RCA, or 1/4" balanced phone, in a variety of convenient lengths specifically for use with professional patch bays. Ask your local dealer, or call Hosa for the name of a dealer near you. □