Build Out a Mobile Sound Design Studio from Scratch

**STEP 1**
**CONSIDER THE SCOPE OF YOUR PROJECT**
Though this is one of the easiest steps in the process, it’s extremely important. Not all of us are going to use our trucks to cover large events like the Super Bowl, so before doing anything else, consider the scope of the projects you’re typically involved with. On average, how many channels of audio do you use? Are you going to be recording in surround? How many cameras do you normally work with? What type of situations will you be using the studio for—do you do a lot of remote recording or are you using this on a motion picture studio lot? This will keep you on task when selecting elements for your mobile studio.

**STEP 2**
**SELECT YOUR TRAILER**
Due to the amount of weight you will likely be hauling, a fifth wheeler (RV trailer separate from towing vehicle) is better suited for a mobile studio than a pusher or a coach. Both cannot tow as much weight as a fifth wheeler and are harder to maneuver. In addition, a fifth wheeler lets the towing vehicle be unhitched and used as transportation while on location.

When selecting a vehicle to convert into a mobile studio, space is a major factor. You want the largest space possible that will fit in your budget. The amount and size of slide-outs will determine how much space you have, so look closely at these specs.

Ceiling height is another element to explore when selecting a vehicle. Lower ceilings make your projects sound too “closet-y,” for lack of a better word. Higher ceilings let sound reflect properly. A fifth wheeler on average has two feet more ceiling space than a pusher or coach. For my install, I converted a 1998 Damon Challenger because it has the largest slide-outs for that year: 16 feet on one side and six feet on the other, as well as eight-foot high ceilings.

**STEP 3**
**SELECT A TOWING VEHICLE**
Two features to look for in a towing vehicle are 4-wheel drive and an 8.1 liter engine. These give you better maneuverability up inclines and on dirt or gravel and are essential for driving long distances. It’s also best to go with a gas-powered engine instead of diesel because the engine is quieter and there are more places you can get gas on the open road. I selected a Chevy Silverado, with a liquid-cooled Allison transmission, as my tow vehicle.

**STEP 4**
**SELECT YOUR EQUIPMENT**
When selecting systems for a mobile studio always choose the highest quality your budget will allow. Less obvious features you should take into account are voltage requirements, atmospheric noise, space and weight.

**Voltage**
Most generators make noise and can interfere with a recording project, so power will need to be supplied by the RV’s batteries when on location. This means looking for systems that run off of 12 volts. Don’t worry about running your RV batteries down. Once you turn on the RV’s generator or start the towing vehicle the batteries will charge themselves. Products running on 12 volts are slightly tricky to find, but they are out there. For example, the Tamara IZM125 is a full, on-location mixer, which runs on 12 volts.
Noise
When not recording or when the mobile studio is a good distance from your source material, use a silent generator. For my studio, I use the Honda 2000 Silent Generator because it lets me connect a second Honda 2000 generator, doubling the available power. Keep in mind that you will still need to create an area where the sound of the generator can be properly muffled and ventilated.

Weight
There’s only so much weight that one vehicle can carry, so look for items that provide high-quality performance, but are lightweight and compact. Heavy duty fiber optic cables are a good choice for connectivity because they can record up to 256 audio channels through one cable line from more than 40 miles away; they are also lighter than bringing the same length of copper analog cable. Transmission quality will still be consistent no matter the distance. I find the heavy duty Optocore Fiber Optic System to be the most durable.

Trying to capture a surround recording while keeping the vehicle weight down can be difficult. Holophone’s H2-PRO surround microphone works well for this because, in one small unit, you’re able to easily record 7.1 channels (Left, Right, Center, Low Frequency, Left Surround, Right Surround, Top, and Center Rear) with no additional mixing or manipulation required. You can also power the mic with a 12-volt battery. To receive the same result using traditional microphones, you would need several mics and cables, adding unnecessary weight and taking up space. To monitor sound coming into the truck, high fidelity, compact speakers, such as Tannoy’s Revel 5-As, are ideal. For visuals, I use the Sony HVR-V1 high-definition camera, which gives me the highest quality images at the most affordable cost. I upload all my work to a Mac G5 computer.

One last thing: Don’t forget to buy a rear-view camera. Typically installed to the rear of the RV, this camera sends images to the towing vehicle to make it easier to back your mobile studio into small spaces.

STEP 5
PICK A STABLE MODE OF TRANSMISSION
In many cases, your mobile studio will be far away from the recording source, so communication and transmission are key. Installing a satellite dish with Internet access lets dailies be sent to those in charge of editing while at the same time allowing the mobile studio to receive visuals from the shoot location. I selected the DirecWay Dish because it gives me Internet and cable TV access—hey we all need a little down time!

To keep an eye on the action at the shoot location from your mobile studio, install video monitors. With HD flat screens, you can easily see the shoot while in action and play back dailies on a larger screen, so continuity and composition issues can be quickly and easily detected. They also obviously require less space.

STEP 6
SELECT FURNITURE
When selecting furniture, think the way you did when selecting equipment. Weight is a major factor. For storage, select metals that are strong enough to do the job, but light enough to keep from weighing the place down. I chose aluminum frames for the shelving systems, instead of steel, with lightweight plywood shelves, because they offered comparable strength at a lighter weight.

Since RVs are made predominately for recreation, much of the furniture that comes standard with the vehicle is uncomfortable for working and can easily function as studio space. For example, I use the chairs from my dining room table as chairs for the workspace. As a result, I was able to keep the weight down and space clear.

To make it easier to move between the different areas of my workspace, I’ve installed wood floor-
ing. The movement of the slide-outs made this a little tricky, so I'd suggest hiring someone who specializes in RV installs to help you. Basically, your furniture and flooring choices are going to come down to personal preference, but keep constant stock of your vehicle's weight—a mobile studio is only useful if it's mobile!

STEP 7
PLAN THE SPACE LAYOUT
When planning out the layout, workstation efficiency should be your primary concern. Before starting to take everything out of the space, ask yourself how current space can serve dual purposes. I've started to use the bedroom to record ADR, for example. I place a microphone in the bedroom, close the door and have actors do their loop lines. Since the bed takes up most of the space in the room, it absorbs the sound, making the acoustics ideal for recording.

Sometimes the equipment you use will dictate your layout. I know this seems odd, but I've based a portion of my layout around the Holophone H2-PRO surround microphone. The H2-PRO captures audio through a top channel, so I needed a way to recreate that sound in my mobile studio. To do this, I needed a speaker in my RV's ceiling. First, I cut a hole in the drop ceiling of the RV to create a place for a speaker and its power supply to be mounted. Then I had the speaker shaved down three to four inches so that it would fit in the space.

Since a studio like this will basically be your mobile office, it's a good idea to designate a space where you can meet with clients. In my case, I kept one of the slide-outs as a seating area and installed a flat screen so clients can view my work while we're on location. I also kept the kitchen intact so I can entertain them.

STEP 8
INSTALL YOUR EQUIPMENT
Installing items in a mobile studio is a little different than in a permanent studio because you need to account for movement of the slide-outs. For example, be sure to add enough slack to the cables to prevent them from being ripped out and damaging equipment. Another option is to customize the cable length for its intended use and just disconnect everything when you're ready to pack up. All you need to do is reconnect the next time you use it.

Vehicle movement is a final yet critical factor in any installation. Sometimes it's as simple as using Velcro to affix your speakers to the shelves so they don't move while in transit. Or, you can always strap items to the wall with a bungee cord.

STEP 9
THE ICING ON THE CAKE—PAINT AND POLISH!
For those of you who want your mobile studio to look like a place of business and not like you're gearing up for a road trip, give the exterior a paint job. While working on my vehicle, I ran into a stumbling block when I tried to remove the original manufacturer decals from the truck. Luckily, I found a molding adhesive and strip remover took them right off. This handy tool is a small disk made out of an eraser-like material that you connect to a drill. It is used like a buffer and will take off any external decals without affecting the fiberglass body.