

What is remote television production?

Chapter I



Figure 1.1 Trailers such as these are found outside many major sports and entertainment venues. When the event can't come to the television broadcaster, the broadcaster hires facilities like these to go to the event. (Source: Core Digital Technologies/SWTV)



Figure 1.2 Two Belgium remote, or "outside broadcast" units built on a VAN HOOL T 927 two-level coach. Each unit is essentially a television production facility on wheels. Each can switch up to 30 cameras into an integrated television program. (Source: Allacam)

First, what is a remote truck

Some Definitions

On April 20, 1939, David Sarnoff of RCA introduced television to the masses by taking a camera to the World's Fair in Flushing Meadows, NY and transmitting the signal to sets in department store windows. From this humble beginning television production originating outside the studio, or a "remote" as it is known, has become a staple of programming produced by stations as well as broadcast and cable networks.

Think back to your earliest memories of significant events — the assassination of JFK or Martin Luther King, the first moon landing, the Super Bowl, World Series, the Oscars, Friday Night Fights, the Olympics, the LA riots, September 11 and many others. Chances are you were there through the medium of live television and the remote.

This book takes a look at the television remote from its infancy to today — the people, equipment and companies involved. We'll follow the process of planning and setting up and the actual broadcast. We'll look at productions ranging from one-camera "live shots" to in-depth coverage of the 2002 Winter Olympics in Salt Lake, The Super Bowl and the Indy 500.

Chapter One takes a look at just what a remote truck is, and offers some insights from those involved.

There are probably only 100,000 people in the world who know what remote trucks are without any explanation. To the other six+ billion the term may conjure up some strange images. Driverless trucks controlled remotely? An earthbound version of the Predator aircraft? Or maybe the term means trucks found in "remote" places, like the Mojave or Sahara deserts, or high above the Arctic Circle. Yes, remote trucks are found in those places, but that is not how they derived their name.

Remote trucks, often tractor/trailer combinations, are



Figure 1.3 Graphic that depicts remote truck basic operations in terms of early 1960s gear

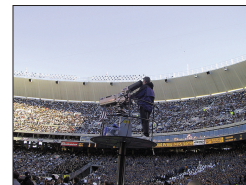


Figure 1.4 Camera on high-rise pedestal (Source: Core Digital Technologies/SWTV)



Figure 1.5 Early televised interview

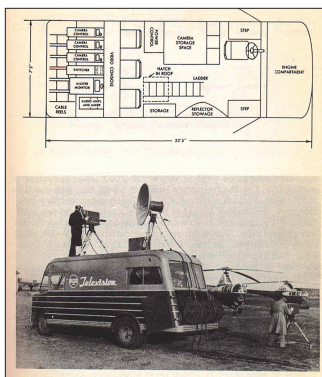


Figure 1.6 Early remote truck. This truck carried three black-and-white cameras. It had no recording capability. Its link, or connection back to the local television station, was via the microwave dish perched on top of the truck. In the lower left portion of the truck layout, notice the small space allocated for the audio portion of the production. As in most of television, on many early trucks audio was looked upon as a necessary evil.

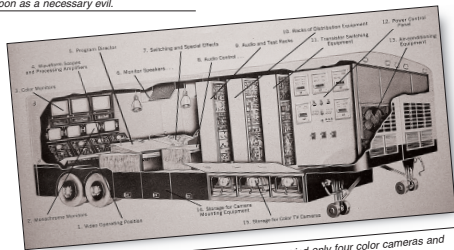


Figure 1.7 Early 1960s era truck. This 35-foot trailer carried only four color cameras and still had no onboard recording capability.

involved in “remote pickups.” That sounds sinister. These “pickups” are more generally known today as “remote productions” or “shoots.” Pickups, shoots? What are we talking about? The Europeans have a more descriptive term for what these trucks do. They call their activities “outside broadcasts.” Broadcasts, you know, radio and television. What television and radio productions? Sports, news, entertainment. When’s the last time you attended a professional sporting event and didn’t see television cameras? In the United States there are over 10,000 sports “remotes” per year.

Remote truck is a term coined to describe the facilities — usually on wheels, but not always, as we will see — that allow television and radio production to be done in places where it normally isn’t. That is television production done remotely from the television or network studio.

Up until 30 years ago, a television camera showing up on a street corner would have garnered a lot of interest. In today’s camcorder environment, it’s no big deal. Years ago television gear was large, and transporting it and the equipment to support it usually required a truck.

Today, the television camera is small and lightweight, yet the size of the largest remote trucks plying the roads today is larger than ever. Up until the early 60s,



Figure 1.8 Mid-80s marketing info showing a fairly full range of remote trucks. The trucks at the top are used for newsgathering and for small field production. These two activities are known as Electronic News Gathering (ENG) and Electronic Field Production (EFP) in the industry. The trucks at the bottom of the ad would have been used in progressively larger remote productions.



Figure 1.9 NMT's DX7. NMT has the largest fleet of remote trucks (43) in the world. This truck is typical of the latest generation of high-end standard-definition trucks. It has a digital infrastructure (NMT uses the DX prefix to signify a standard-definition digital unit), and can support up to 16 cameras and record and playback 16 sources at the same time. This unit has CBS livery on it as CBS uses the unit on a regular basis. (Source: Gerling & Associates)



remote trucks ranged up to 40 feet in length. Twenty years ago these trucks were pushing 50 feet in length.

Today the largest trucks are at the maximum lengths allowed in the United States (about 53 feet), and they push the maximum bridge weights allowed (80,000 lbs.). Once these trucks are in place they are often configured to expand in multiple directions to

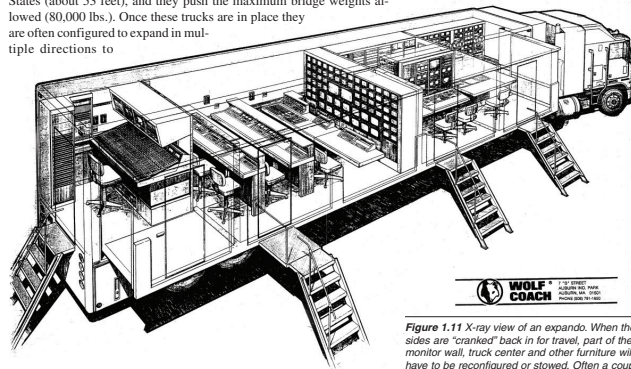


Figure 1.11 X-ray view of an expando. When the sides are "cranked" back in for travel, part of the monitor wall, truck center and other furniture will have to be reconfigured or stowed. Often a couple of the equipment racks that comprise the monitor wall will be on hinges or slides so that they can be moved away from the curbside wall, closer to the trailer's center. Often a number of panels, partitions and whole operations consoles slide together — as is the case with consoles at the front of the truck — eliminating "people space" so the truck can hit the road. (Source: Wolf Coach)

increase the people space. Not only that, but many remote television events require more than one remote truck.

The remote truck can take many forms, from vans on up to the large tractor-trailer units just mentioned. The small ones are usually intended for news duty. Larger ones show up for productions ranging from city council meetings or high school basketball to college football, the Super Bowl and the Oscars.

We've taken an initial look at what remote trucks are, how they come in many sizes, and how from a crude start they have evolved into high-end production facilities. In the next section we will look at how they are used. ■

Figure 1.10 Many units today have sides that expand out once the trailer is parked. These are known as expandos. There are units that expand out both sides, known as double expandos. Some even expand out the back, thus triple expandos. Although the required equipment has gotten smaller over time, the complexities of today's production vs. your father's requires much more equipment and many more people in the trailer. These expandable sides allow for more "people" space. (Source: Gerling & Associates)

Remotes come in all sizes

S's and up

Many remotes are known as S's, which stands for set, shoot, strike. This describes a remote where the remote is set up, the event is televised or recorded (the shoot), and the equipment is torn back down and put away, or struck. These remotes must be economical in terms of time, space and simplicity. So these S's often involve a single truck. But some remotes require much more equipment and many more people. Remotes can require many trucks tied together to bring the necessary gear to bear to accomplish the shoot. These types of remotes often require multiple days, and obviously more money, to do. Only events that would induce the broadcaster, network or production company to make the required outlay have the luxury of extra time, mainly for setup.



Figure 1.12 1970s version of EFP. The professional television camera was just becoming truly portable but, as this photo demonstrates, they were still 10 years from incorporating high quality videotape recorders (VTRs) into them. The camera, center, feeds video to the VTR on the left.



Figure 1.13 Modern ENG truck, mask and microwave antenna on top of truck extend upwards to about 40 feet. (Source: Gerling & Associates)

EFP/ENG Shoots

At the extreme other end of the spectrum is the shoot where a single cameraman goes out alone armed with a camcorder and a mic to shoot raw footage for editing later. This is known as Electronic Field Production or EFP. If the specific reason for the trip into the field is to support a television organization's news efforts, then it is called Electronic News Gathering (ENG). Often the cameraman is not alone on these trips. Talent, or a reporter in the case of news, might be required. Sometimes a person concerned with the audio gathering will be part of the team. If the field trip is a news feature or part of the production of a larger show a producer or an assistant, often called an associate producer, will orchestrate the shoot.

Now that the film industry has discovered the utility of today's digital television equipment, EFP shoots can now comprise dozens of people, including a director, all to support the acquisition of audio and video by a single camera. As we will see later, film and television folks usually had very different mind-sets as to how a project was approached and what production techniques were employed. The differences were often manifested by the equipment that each industry used. Today television equipment has evolved to the point where entire "movie" projects use no film at all in production — high-end television cameras and processing equipment is used instead. The latest *Star Wars* release, *Attack of the Clones*, was shot, processed and



Figure 1.14 Photographer accompanied by a person handling the mixing of the boom microphone and the one mounted on the camera



Figure 1.15 No one ever said that there can't be ENG cars.



Figure 1.16 Contemporary camcorder in use by a "one-man-band" photographer. Front half is a professional camera, at the rear is a component VTR.



Figure 1.18 ENG microwave truck used for newsgathering. This type of truck produces the vast majority of "live shots" seen on newscasts. The 35-foot mast with transmit antenna on top is extended via air pressure. Generally a single operator drives, parks, sets up, establishes a microwave path back to the television station's receive site, and often becomes the cameraman for the live shot. These trucks can do multiple live shots each day, sometimes driving to a separate location for a second shot during the same newscast.



edited as digital television signals. The use of digital will most likely eventually extend to distribution, either via satellite or even via Internet TCP/IP connectivity. In a few years many movies will stay in the digital realm from conception right up to their display on the big screen in front of you. Even in the projector's display the techniques are increasingly digital — time modulation of the projector's light emission is used to control the light intensity shone towards the screen. So just as truck-based remotes can be very large or small, EFP shoots can also have the same range. Even ENG-type shoots can become large when a station uses multiple ENG microwave trucks to get feeds from multiple cameras in the field back to the television station where they are switched and mixed into a composite show.



Figure 1.19 Television camera configured in a way familiar to a film director of photography (DP)

Figure 1.21 Often television stations will have multiple receive sites, either to enable multiple live shots at once or to allow microwave shoots from a larger geographical area. The water tank-looking structure is a "radome" protecting a steerable microwave receive dish. This site is atop Loma Prieta south of San Jose, CA.



Figure 1.20 The receive end of the microwave path from the ENG truck. The dish just off picture center receives the microwave signal from the truck. The dish is steerable, which means it can be rotated in the direction of the ENG truck. As is the case here, these receive dishes are often mounted on the television station's transmit tower. There is usually a second microwave link to get the signal from the transmit site back to the studio.





Figure 1.22 Production control compartment inside a large production truck. Slew of video monitors allow the director and others to see what each source is capturing. Sources are cameras, VTRs, graphics generation and effects devices, and outside sources such as other trucks. Computer monitors are increasingly present among the traditional video monitors as computers handle more of graphics effort and tracking of video and audio material.



Figure 1.23 Videotape compartment of a large production truck. (Source: James Stellpflug - EVS)



Figure 1.24 Laying down on the job. Today cameras can get just about anywhere.

Lots of Monitors

Remotes are different things to different folks. One of the problems people in the business face is trying to explain what they do to outsiders. Most everyone knows that the business involves cameras; fewer realize that these cameras are tied to one or more production trailers parked nearby. The average layperson usually gasps at all the "TVs" found inside the truck.

In the first section we saw that remote production trucks come in all sizes, in this section we saw that the productions themselves come in all sizes. We have also seen that "remote production" can mean many different kinds of television production. In the next section industry insiders will list what they would have called the book. Collectively the suggested names present a flavor of the challenges faced by people in the industry, and the kinds of questions they hear from outsiders. ■



Figure 1.25 Television production trailer under construction. When parked with the sides expanded, the interior space can be as much as a large mobile home. Far monitor wall is for the production compartment, monitors to the right are for the tape area.

What's in a name?

The insider's view

In the process of researching the book we asked people in the industry to suggest names for the book. Many of the names proposed provided insight that could only come from those who do this for a living. Many that were submitted are esoteric to the industry, and some are inside jokes. But many give an insider's view of the business. Let's look at a few of the submitted names.

Many people in the industry work in the business full time, but many work remotes as a second job. In either case a substantial percentage of people who work in the business are technically self-employed contractors, or freelancers. The production company, network or television station doing the remote production hires them either by the day or usually by the event. In many cases there is a middle entity between the freelancer and the actual employer, as there are crewing services that assemble crews for remotes.



Figure 1.26 Eight O'clock in the Lobby — Bob Dixon, Jimmy Grgurich No two remotes are exactly alike. Even the same event at the same venue, such as a three-game baseball stand at Shea Stadium, can have totally different complexities, obstacles or even just a different feeling, as equipment and even personalities can change from one day to the next. Because the crew almost always shares transportation to and from the venue, a common parlance at the end of the day is when to meet in the morning.

Isn't Everybody a Cameraman?

Most people in the business who tell someone on the outside that they work in television have been asked this question. It is the tip of the television production effort that is most visible to the public. Another common response upon finding that a person is in television is to assume that they must be "talent" of some sort.



Figure 1.28 Cameraman at the rehearsal for the 1973 Miss Universe contest at the ancient Herod Atticus Amphitheater in Athens. Most camera gigs are not this easy.



Figure 1.27 So What is Your Real Job During the Week? — Peter Larsson (Picture source: Core Digital Technologies/SWTV)



Figure 1.29 Talent in the announce booth for auto racing



Figure 1.30 Are You a Cameraman? – M. Forman Operating a camera can require long stretches of concentration and spending a long time on your feet. As is the case in this photo, two separate remotes are often done side by side — one for the home team broadcast, and another for the visiting team.



Figure 1.31 The challenge can be ratcheted up by running a camera where the wind can be biting and the roar of the track can make hearing directions from the truck difficult.

Figure 1.32 Or the cameraman can work inside and be warm and dry; the trade-off being holding a 20+ pound camera on their shoulder while sitting on the floor.



Figure 1.33 Production truck (far left), graphics truck and two satellite uplink trucks stitched together along with backup power generator for NCAA basketball.

On the Road

Turnpike TV 101; Roadside Attraction; Stop, Drop and Roll; Behind the Wheel of Mobile TV; The Curbside Television Diaries; Mobile Madness — Gabriel Antonini

All these suggested names point to the nomadic aspect of the business. Want to travel, like the outdoors, want new situations and challenges? Remotes might be for you.

Working as a System and a Team

TV in a Truck — Just Add Cameras, Computers, People, and a Lot of Blood, Sweat and Tears! — R Leong

Often the last part is true.

Inside the Box: A Look at the Remote Truck Industry; Studio on Wheels - Stories for the Mobile Production Enthusiast; Mobile Madness: True Stories About Remote Truck Production — Judy Skeie-Voss

Judy's three titles sum up the average remote. It is television production on location, sometimes in cramped quarters, often under chaotic conditions. Her second suggestion came closest to the final name selected for the book.

If Mobiles Could Talk — J Shymanski

If they could talk, would they — or scream in hysterics?

'Scuse Me Buddy, Can You Spare an XLR Turnaround? I'll Give it Back to Ya Later! and *Remote TV production: A Brotherhood of Strangers* — Terry York

Terry points out that people who work on remote productions must be able to get along with people they might only work with on occasion, sometimes only once. Remotes are a cacophony of cables and interfaces. The reference to an XLR turnaround (audio adaptor used to mate cables of the same connector sex) points out the fact that connecting all the components that must be connected often requires a lot of co-operation among the crew members.

You Can't Park Here! — Bob Janeway

This is heard very often, sometimes after setup has commenced.

Imagine 53-foot, 80,000-pound lavatories! (See Figure 1.40.) A few years ago portable bathrooms in trailers began showing up at venues. Andy

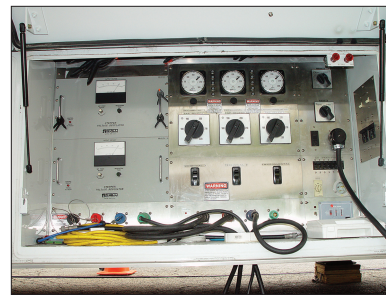


Figure 1.34 Park and Power: The History (or Story) of the Remote Television Industry — Lee Estroff. The power required by large production trucks can be quite substantial. The biggest trucks can draw well over 100kW. Here is three-phase power, plus ground, into a large truck. The amount of power these trucks draw along with the necessary monitoring require complex power panels.



Figure 1.35 Load the Elephants...Unload the Elephants! — Clay Underwood. Equipment used to be quite large and very heavy. Early color cameras weighed nearly 400 lbs. Today equipment has become much more reasonable in both aspects, but the volume of equipment used in the largest remotes dwarfs what was used only 30 years ago. In the late 60s, the first generation of color camera heads (the part of the camera that the public sees, about one-third the total electronics for the camera), here a RCA TK-44, required two people to comfortably carry it.



Figure 1.36 A few years before the TK-44, GE introduced the PE-250. It took a couple of strong backs to carry this camera head.



Figure 1.37 Inside a graphics truck used by the networks



Figure 1.38 A name suggested by many is "Out by the Dumpster." That seems to be the area where the truck is invariably parked. Timothy Kubit of Denali remembers a truck coordinator by the name of Grace Cap, who was having no luck getting a venue in St. Louis to provide information on where to park the truck. She then thought to ask where the Dumpsters were at the venue and told the truck crew to try parking near them. It turned out that was where the truck was supposed to park all along.

Swieck remembers a mother with daughter in tow frantically entering a production truck, pondering the equipment and activity for a moment, then in a confused state wondering aloud where the "stalls" were. When informed that this was not the bathroom, the mother insisted that her daughter be allowed to use the truck's bathroom. Mother and daughter left convinced that something as complicated as that production truck must have had a bathroom. Most EICs and engineers are happy that these trucks don't, as there are enough potential disasters that can occur with all the electronics onboard. Imagine adding plumbing to the mix.

Often systems not directly responsible for capturing audio or video can have a profound effect on how smoothly a remote production goes. Tallies, which indicate to talent and the crew which sources are "on air," can wreak havoc if they are not working correctly. Tallies are not only found on cameras, as seen in Figure 1.42, but are also found throughout the production truck. Another system that makes television production harder when it fails is the prompter system, the large monitor also depicted in the photo. Most often these monitors, which allow talent to look at the camera and read the script simultaneously, are mounted on the camera. The intercom is another such system. Probably the largest amount of grief that can occur in the middle of a production would not be the loss of most of the cameras or a couple of mics, it would be the loss of intercom. Imagine trying to orchestrate a production without the ability to communicate with people out of earshot.

Finally Steve Beim suggested the phrase, "What goes on, on the road, stays on the road." That is, until now.

The names in this section indicate some of the things that can conspire to make television production on the road difficult. We also previewed some of the attributes required to make remotes rewarding and sometimes downright fun. ■



Figure 1.39 European "OB" or outside broadcast van



Figure 1.40 This is Not the Bathroom — Andy Swieck. Some people mistake the production truck for this one.



Figure 1.41 E.I.C. (Everyone Else is Clueless), and Other Nonsense from the Back of the Truck — Brian Nuphaus. Actually the EIC stands for engineer in charge. This person is the lead technical contact between the truck client and the truck vendor.

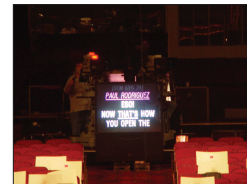


Figure 1.42 We Have no Tally! — Dennis Lanus