



Producing Primetime Drama on 24P

By Phil Squyres

In Hollywood, over the past two television seasons, 24P HDCAM has replaced film as the acquisition format of choice for virtually all multicamera sitcoms. In this same period, only a handful of dramas have made the switch to 24P. This paper will explore both the advantages of adopting 24P as an acquisition format for drama, and review some of the reasons why some producers may be reluctant to adopt this new digital option.

Sony Pictures Television (SPT) currently produces three 24P originated dramas for primetime television: “Joan of Arcadia” for CBS, “Rescue Me for “FX,” and “Huff” for Showtime. All three shows are critically acclaimed, and have been picked up for a second season. Over the past four years, the studio has originated more than 100 episodes of one-hour drama on 24P.

This offers a unique perspective on how 24P can be used successfully in the production of quality primetime drama, and gives some insight on how it affects the production and post-production workflow.

First—Why Shoot 24P?

The primary answer is savings, though many remain skeptical. At SPT, a significant amount is saved per episode by using digital photography instead of 35mm film. That savings, however, goes back into the show to “further improve” the quality of the program. It provides the opportunity for an additional writer, set, or location, as well as the occasional special guest star, or another half day out on location on a per episode basis. The phrase “further improve” mentioned above, is reference to the fact that choosing HD production automatically increases the quality of the production compared to super 16mm. In the case of “Joan of Arcadia,” a full seasons worth of production, or 22 episodes, shooting 24P represented a savings of almost a million dollars, which was used to improve content quality.

What Are the Technical Challenges?

The technical differences between film capture and digital capture are well known and debated. These include, but are not limited to, dynamic range, depth-of-field, ultimate resolution, size of equipment, and framing issues, with an image that is not overscanned in the operator’s viewfinder. However, experience shows that

only two of these issues play a role in the choice of format when producing a television drama.

First is the size of equipment, which has the same effect on the format choice whether shooting film or digital.

Super 16mm was the choice for "Strong Medicine," a fourth season drama on the Lifetime network, centered in a metropolitan hospital. 24P was tried during the early stages of production, and it was found that the size and weight of the camera would not allow the company to shoot with a fast-moving, choreographed steadicam rig, a staple in the shooting day. However, the option to replace the small 16mm Aaton rig with anything else, whether a 24P camera or a larger, heavier, 35mm camera was not an option.

The second and most important production issue encountered daily when shooting 24P is dynamic latitude, or the challenge of avoiding those typical video artifacts of overexposure and clipping when shooting in certain situations. Every other issue or difference has been found to be less than problematic on set. For instance, HD has a greater depth of field than 35mm, a problem that also occurs when shooting super 16mm. This issue, which was widely noted as a problem in the early days, is sometimes an advantage, almost always correctable by using exposure and lens techniques, and always viewable on set by the creative team deciding on the look of a particular setup. When an out-of-focus background is critical for storytelling, the director of photography (DP) has always found a way to achieve that goal.

That challenge of shooting offspeed? In typical dramas this is not a major requirement, and when required, there has been success in shooting 50 and 60i, then deinterlacing and using it as 50 and 60p, slowed down to 24P, a reasonable amount of slow-motion effect for most straight-ahead dramas.

Ramping techniques have also been developed, using 50i as the base shooting mode, then deinterlacing for slow motion, and skip frame printing for the transitions to and from normal (well, almost normal) screen speed.

And ultimate resolution? It can be stated that most DPs decide, for aesthetic and creative reasons, to reduce the image sharpness of 24P HDCAM using some sort of optical diffusion filtration. Therefore, the format is considered by DPs to be aesthetically too sharp, but correctable with established filmmaking techniques.

Likewise, this dynamic latitude issue is simply an

exposure and/or lighting challenge for the DP. However, how do you deal with exposure challenges? The best way is with techniques such as fill lighting, scrims, silks, or a combination of all. It's the DP's manipulation of exposure that makes 24P work—just like in film. The DP is the key person on a 24P set. His or her talents, abilities, and execution determine the outcome of the picture. That fact is not changed by 24P or digital. If a DP has the talent to make pretty pictures, 24P is easy and looks great. If he doesn't, then 24P is the excuse.

Hidden Issues in 24P Production

There are a number of hidden issues, not often discussed when debating 24P. Most are revealed only when 24P is used daily.

Increase in Shooting Ratios

What happens when the production unit realizes that there is almost a 100 to 1 cost saving in shooting stock? The average cost of a single 52-min HDCAM, is about \$1/min. 35mm stock, which includes processing and telecine transfer to HD, and getting to the same HDCAM format for post, costs nearly \$100/min for film acquisition. Because tape stock is inexpensive, the director allows the camera to roll as needed.

Typical dailies output on 24P productions have increased significantly over film shows. The good news is better material on screen to use in the show. The bad news is more footage to process or deal with in the dailies workflow. A modified approach to the dailies workflow will be discussed later in this paper.

Crew Size

Some have argued that it takes more people to shoot 24P. Well, occasionally, it is necessary to add a few grips to hang silks over a large exterior day set, to deal with exposure latitude. But, on large night exteriors, less lighting, equipment, and thus fewer crew are typically required to light up the night, because of the HD camera's ability to "see into the dark" without penalty of grain buildup.

The camera and sound crews are the same size as a film production unit. Some might challenge the additional cost of hiring digital imaging technicians (DITs). However, it is not necessary to use them for television series. They may be needed on pilots or the first few episodes of a series if the DP has limited or no experience shooting in 24P. This does not only reduce the cost of the crew count; it is a subtle and somewhat obscure savings in increased speed, efficiency, and the

artistic intent of the DP.

On several early productions and pilots, a problem referred to as “DIT delay” occurred. This can happen when a technician on the crew is elevated to a station of importance almost equal to that of the DP. DITs have been observed holding up the roll in order to put the final “adjustment” onto the image. Essentially, it was found that some DITs had a tendency to inject themselves into a territory that was the responsibility of the DP. This was confirmed when it was discovered that DPs could make great pictures, simply if the camera was on a nominal setting and just like film, the DP painted with light, and then corrected in post-production, with minor shortcomings or compromises made during shooting for expediency.

That has meant that each setup was faster, without having to leave time for the DIT to adjust the cameras. This has proven efficient and reasonable on multiple productions in almost 100 hr of finished programming, not to mention on literally hundreds of days of shooting on these series. This has worked both on shows primarily studio-based and on those shot on location on rainy mountaintops in Scotland and winter snowfields of Norway.

While addressing this particular subject, there is one caveat to insert. Although television content shot on HD, due to its relative size on various displays, can do without a DIT, it is not only smart and prudent to have an enlightened and talented video technician on a digital shoot for a motion picture release, but is absolutely essential for a number of reasons, which will not be discussed in this paper.

It's also been found that the traditional camera crew complement: the operator, first assistant, and second assistant, could handle the basic technical requirements of digital photography without another expert on set. The loader, obviously anachronistic in this setting, was typically replaced or retrained to handle the various HD monitors and cable inter-connections that, although not necessary, tend to be requested items on an HD set. For the most part, after a learning curve, the camera crew has less to do on a 24P shoot than on a film shoot, so they have time to be responsible for their camera and its operation—exactly what they want and what is expected.

In 24P, there is no magazine loading, threading the film into the camera every 10 to 12 min of shooting, or cleaning the gate; and, when necessary, focus can be checked accurately without measuring or using a tape.

This is done by using the onboard HD finder to focus. With difficult shots or stunts, a shot can be reviewed in the camera to assure everyone that the picture is in the “on the tape,” avoiding the “just one more for protection” syndrome.

Shooting Ratios

In past years, when 35mm film was shot on dramas, the typical daily budget for film stock was 10,000 ft per day, or about 148 min of raw 3-perf dailies per day. On the last season of the 35mm drama, “The Guardian,” the average shooting was 140 min per day, with 62% circled, meaning an average of about 87 min of circled takes dailies each day.

Today, 24P production units, on average, shoot almost twice that amount of footage, and sometimes hit 4 to 5 hr of raw footage each day. They usually select 65% to 80% of that footage as “circled takes,” meaning that the editors can often have 2 to 3-hr footage per day to digitize.

Although it is true that some directors have chosen to restart takes without stopping the camera (because tape is so cheap), this alone cannot explain how a 24P production team can actually capture twice the amount of footage that a film crew typically could. Obviously, there must be another advantage beyond cost savings with digital photography—more footage can be shot each day.

The main reason directors shooting with 24P will choose to restart instead of cutting, is tied mostly to the desire to protect the mood or performance of an actor on set. And, as long as the camera is rolling, it is only the director who will typically venture out to give the actor a note. The makeup/hair and costumers stay back, and the next take happens much quicker on a 24P set than on a film set. The technology allows this freedom and efficiency, because of the low cost of raw stock. This also helps the director perform his primary job, which is telling a story.

Dailies and Post-Production

As noted earlier, the large amount of daily footage in post-production presents some challenges. It has been surprising to see the approach adopted by most post-production houses in processing these 24P dailies, which was based more on the traditional film dailies model. Although there is actually no processing, it is necessary to downconvert the footage to a usable standard-definition format for editing.

To avoid the traditional film model of 24P dailies, called “telecine without the telecine,” dailies can be processed in-house for local 24P productions. This model is based on videotape duplication, in which HD camera originals are simultaneously and continuously downconverted with instant sound-sync. An HD backup clone is created with sound, as well as a DVCAM with sound, for editorial, along with two overlapping .ale files.

Because the DVCAM is virtually a standard-definition clone of the entire original camera roll, every shot and setup is available on these editorial reels. One .ale file generated is a “circled takes” list, the other is a list of every take on the reel. The editors digitized from the circled takes list, locates noncircled takes from an “all takes” list, if and when needed. A DVCAM containing all the material shot is on the shelf, so there is never the need for any B-roll negative calls (which is a request to transfer a particular noncircled take for use in editorial).

Using this new dailies processing technique allows delivery of all the footage shot each day to the editorial staff. Typically, one person managing the system can process 6 to 7 reels of footage in an 8-hr shift. That typically represents over 4 hr of raw material that is downconverted, sound added, HD cloned, circled takes pulled, and ales-generated. This concept proved scalable, so when “Joan of Arcadia” began shooting in July 2004, two shows were done each night, with two people responsible for processing 12 to 16 reels per night. Besides creating downconverted clones of the camera rolls, after the scenes are logged, the circled takes were also extracted from each roll onto a separate video server to create the circled takes dailies reels for the executives and network to view.

The End Result?

The shows look more like 35mm than 16mm, which is the only other budgetary option on two of these shows (the two made for cable). Money can be diverted from below-the-line costs and applied to on-the-screen advantages. It may be a coincidence, or part of what creates advantage in the end result, because all three of these most recent 24P productions have been picked up for a second season, one of them before a single airing and another not halfway through its first season.

All of this suggests that storytelling is not the exclusive territory of any one technology, and that technology, in this case digital photography, applied with enlightened vision and informed craft, can extend and enhance the techniques of storytelling.

Conclusion

24P HDCAM has been successfully used in the acquisition of primetime one-hour dramas. Over 100 hr of drama have been successfully shot and edited in this format in many different settings and circumstances. 24P in the right hands can provide the rich traditional look of 35mm film at a reduced cost to the production, while providing some additional production and post-production benefits and advantages.

Although there are some challenges in capturing scenes with very high contrast ratios, most earlier concerns regarding depth of field, size of equipment and crews, along with other logistical concerns have proven to be nonissues in shooting drama.

DPs and camera crews have adapted well to the challenge of digital photography, and most embrace the format, once given a chance to shoot with it. Increased amounts of dailies output from the set is a challenge, if dailies are processed in typical film model approaches. New video server techniques are now being used to process the increased amounts of footage, providing extraordinary amounts of cloned material each day, for the editors to use in completing a show.

Finally, experience has shown that 24P assists in the execution of episodic dramatic storytelling, giving directors and DPs interesting and rich options to perform their craft in efficient and artistic ways.

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In 2003, Squyres headed up the Sony Pictures Entertainment digital initiative, known as LAB24P, in which Hollywood filmmakers were invited to experiment and shoot with 24P. Several ASC and DGA members participated, along with other industry facilities, which donated equipment and services.

Squyres has served as Manager (two terms) and Governor (two terms) in the Hollywood Section of SMPTE. He currently chairs the Hollywood-based Lou Wolf Memorial Scholarship committee and is actively involved in the local SMPTE educational committee.