

PRODUCTION SOUND ESSENTIALS

(Or How Eggs should be Sucked)

Robert Allen's mind meanders after fifty years recording sound for Motion Pictures.

READ AND UNDERSTAND THE SCRIPT

Re-read script considering sound requirements. Underline or highlight any sound effects or sound directions mentioned in the scene descriptions. Note down any sound effects atmosphere tracks or sound ideas you may think useful for the final sound track.

ASSESS THE DIALOGUE

Is it interior or exterior? Are any of the scenes in noisy locations such as factories, busy city streets or beaches with surf? These may require the use of radio microphones so count the number of artists in each scene in order to know the number of channels needed.

Are there any musical numbers in the script that will have to be pre-recorded? If so, provision of synch playback will be needed on set. If music is to be recorded on location, synch playback equipment will still be needed.

MEET WITH THE DIRECTOR TO DISCUSS THE SCRIPT

Find out his ideas about the sound on his/her production. Is there anything special not obvious in script? Try and assess his/her attitude towards sound and its use.

INSIST ON GOING ON LOCATION "RECCE" FOR BOTH INTERIORS AND EXTERIORS

Carefully listen for noise sources that will cause problems. Assess the amount of heavy traffic, aircraft flight paths, air conditioning in buildings and poor acoustics on interiors. If chosen locations are going to be extremely difficult for obtaining good direct sound endeavour to persuade the Director to choose a quieter alternative. Make out a report for Director and Producer outlining your reasons for the unsuitability of such locations. During recce, contact building supervisors to check if activity and air conditioning in building can be controlled during takes. Location Managers should see to this, but rarely do. Check surroundings to see where Generator can be parked to ease sound problems, but not inconvenience electricians with long cable runs. The Location Manager should be informed of the position. Generators are blimped, but the amount of noise reduction varies from machine to machine. Electrical Crews dislike parking the Generator more than one cable length from the set. Do not let them bully you, put the Generator where it won't cause problems.

Make sure that other outfits like wardrobe and make-up wagons, who usually have Honda Generators on board for lighting and heating, are either suitably parked or arrangements made for shutting off the Generators during takes.

DECISIONS - DECISIONS

- Is picture to be shot on Film or Video?
- 16 mm or 35 mm?
- 24 fps or 25 fps?
- Is sound to be mono or stereo?
- Is sound to be analogue or digital?
- Is synch to be crystal or time code?
- Is dialogue to be recorded mono or stereo?
- Is postproduction to be non-linear or analogue, using

- sprocketed film?
- Where is film to be re-recorded to make final track?
- Where is sound to be transferred and to what system?

REGARDING STEREO

It is recommended that all production dialogue be recorded mono. Atmosphere effects tracks and crowd tracks should be recorded stereo, but car up and past tracks are probably best recorded mono and the positioning of the vehicles done at the re-recording session. Car interior effects should be recorded stereo. Spot sound effects, such as doors telephones, typewriters, are best recorded mono.

TV production companies often insist dialogue is recorded stereo, saying that it can be monoed if it doesn't work or causes problems during the re-recording process.

Cinema stereo standards require clear intelligible dialogue in mono. The Dolby standard is for dialogue to be centre screen, or wide shots it may be panned slightly left or right as required.

ANALOGUE OR DIGITAL?

Present day fashion is to record digital sound as it is considered to be better quality. However, as the dynamic range is considerably greater than analogue magnetic and as the final mixed track will probably be on analogue magnetic or photographic, care should be taken not to exceed the analogue dynamic range too greatly. There is now, however, a chance the final track may be a digital photographic one.

Whatever system of recording is chosen, the machines available are all capable of producing excellent quality and operation of them is reasonably straightforward.

IN GENERAL

Professional microphones, along with suitable shock mounts and windscreens, are also capable of excellent quality sound, as are the professional multi-channel microphone mixer units at present available.

Poor sound quality is rarely the fault of properly maintained professional equipment. It is usually due to lack of experience and sometimes, in the case of student production, lack of interest in the task of recording sound.

There are of course often occasions where the recording of satisfactory dialogue quality is prohibited by the level of extraneous noise on the location. It could also be because the type of noise, e.g. traffic or aircraft, is incompatible with the period of the photoplay. In these cases, the Sound Crew should record as good quality as possible so that the sound may be used as a "guide track" for the artists to "post synchronise" to when the sound is being recorded during the "Automatic Dialogue Replacement" (ADR) session in a sound studio.

With synch shooting, there is always a level of ambience the Sound Crew has to contend with. Shooting on exterior locations it is fairly obvious that there are atmospheric noises, even in the so-called quite countryside. Shooting interiors on location gives little relief and even on a studio sound stage the Sound Crew cannot relax, the general ambience of even a well-disciplined shooting crew standing around the set or "keeping out of the way" has to be watched.

The Sound Crew's job is to get the very best "signal to noise" ratio possible, the signal being the dialogue and the noise the atmosphere in which the dialogue is being recorded.

The best possible way to ensure acceptable signal to noise is to get the microphone in a suitable position, usually as close as possible to the dialogue source. This position is limited by the edges of the picture frame.

The best dialogue sound is that recorded using a microphone of professional quality, skilfully handled by a Boom Operator using a microphone boom or hand pole.

The traditional way is for the Boom Operator to suspend the microphone just clear of the picture frameline above the heads of the artists. From this position he favours the sensitive side of the microphone towards the artist speaking.

The microphone may be required to pan following an artist and to be raised or lowered as the camera tracks in or out. In this way, the microphone picks up the sound in perspective with the action covered in picture, creating a realistic effect.

When recording dialogue, it is important that it is intelligible and clear of noises created by props, doors shutting, footsteps etc. Noises such as these are more than likely to be out of balance with the level that the dialogue is being spoken at.

It is therefore necessary for the Sound Crew to endeavour to see that the noises are minimised. This may be by covering the artists shoe soles with soft rubber material or felt, putting down carpet runners for the artists or crew to walk on, tape on the bottom of cups and saucers. It may also be necessary to ask, via Director, co-operation of artists to avoid speaking over door shutting and being light-handed handling crockery, cutlery and other props. All requests for co-operation from artists, including using more voice, should be made via Director.

Dialogue recording should never be attempted single-handed. There should always be a minimum crew of two. In charge of recording and responsible for the quality of sound is the Production Sound Mixer. He is assisted by the Boom Operator whose job it is to get the microphone in the right place at the right time.

Many think that the Boom Operator's job is trivial and can be done by anybody who happens to be spare. Ask any Production Mixer working on dialogue pictures and they will most assuredly tell you that their results are only as good as the Boom Operator's skill will allow. Ask Directors of Photography and Picture Camera Operators and they will both agree the need of a Boom Operator who knows what he/she is doing.

For the Boom Operator, knowledge of basic film lighting techniques is necessary to understand how to avoid casting boom and microphone shadows on artists and set. A knowledge of lens sizes and acceptance angles is necessary to understand the frame limits in order to keep the microphone as close as possible to the artists, but clear of picture.

The addition of a third person to the Sound Crew can be an asset and well worth the possible extra (not large) cost. The ideal third person is a maintenance engineer who is willing to do "dogs-body" work as well as look after the well being of all the sound equipment. The mentioned "dogs-body" work consists of doing second boom when required, handling cables on tracking shots, setting up equipment and shifting and packing it, operating playback and public address equipment when required, filling in tape log sheets, maintaining supplies of tape and batteries. All these jobs exist and if a third person is not employed they have to be done by the Production Mixer and Boom Operator, which detracts from their concentration and efficiency for the job of actually recording.

If the budget will not allow for a qualified Maintenance Engineer, then an intelligent trainee who is keen to learn the movie sound business will, if given instruction and encouragement by the Mixer and Boom Operator, prove a valuable asset to Sound Crew, Director and Producer.

RADIO MICROPHONES

On occasions, when usable sound cannot be obtained by use of a boom microphone due to extra wide camera angles, high levels of extraneous noise, low ceilings on location interiors, dialogue scenes where actors photographed on the end of long lenses are inaccessible, or any other situations where a boom microphone is impractical, radio microphones will need to be used.

It must be remembered that successful results with radio microphones require quite a deal of skill, experience and attention.

Using one or two channels is fairly straightforward, but above that number, besides the dexterity required by the production mixer to handle the recording levels and monitor the sound quality, there are radio transmission problems to be considered. It must be ensured that the transmission frequencies of all channels in use are compatible in order to avoid interaction amongst them.

Present day state of the art radio microphone channels, using diversity systems, are capable of eliminating most of the problems encountered with RF transmission. However, great care must still be taken with the microphone part of the system.

The fitting of personal microphones to actors and actresses must be done with great respect for the person and great care with the fitting. Artists should be politely informed that radio mics will be necessary and arrangements made with the wardrobe crew for assistance in fitting.

In fitting the miniature personal microphone, care should be taken to ensure that it is not covered with heavy clothing and is clear of clothes rubbing on it. The transmitter must be securely fixed so that it is immovable during action and the aerial must be separated from the microphone lead. The transmitter, as also the microphone and leads, must not be visible.

If radio microphones are used for TV interviews or on TV presenters, then with the Director's permission the miniature microphones used may be clipped or pinned to exterior clothing. This will reduce the clothes rustle problem, but care must be taken to ensure that the microphones are fitted neatly and as unobtrusively as possible, remembering to keep microphone lead and aerial separate.

Radio mics should be regarded as an extra tool and not considered as a be all and end all to the problems encountered recording dialogue for motion pictures.

Directors of Photography, Picture Camera Operators would prefer Sound Crews to use radio microphones all the time. They save the DOP worry of lighting to eliminate boom shadows, Cameras Operators the need to watch for microphones coming into the picture frame and Directors the worries of these problems occurring. Their problems are eased by adding to the problems of the Sound Crew.

Another point to be remembered is that sound perspective is lost when personal microphones are used for dialogue. The artists' voices are always in "close-up" regardless of their distance from camera. This lack of perspective can be corrected to some extent in the re-recording process, but it is difficult to recreate the feeling of reality obtained by conventional microphone techniques. However, if usable sound using conventional techniques is not possible, then it is better to have usable radio microphone quality than to have to resort to Automatic Dialogue Replacement (ADR).

If a two track or multi-track recorder is being used, then placing each radio channel on its own tack could be of aid in postproduction. When multi-tracking, the balance of voices and recorded levels must be made as if they were being mixed on to one track. With multi-tracking it is most important to log what is recorded on each track so that postproduction personnel are able to make efficient use of the material.

When only a two-track recorder is used, it may be useful to record the boom mike on one track and the mixed balanced radio mics on the other.

An atmosphere wild track should always be recorded in the area where the action takes place. This should be done using the boom microphone.

TAKING DELIVERY OF RENTED EQUIPMENT

1. Ensure recorder is in good working order.
2. If recording using Nagra ¼" analogue machine, establish that the bias and equalisation are set correctly for the type of ¼" tape to be used.
3. Ask renting company proof that machine's record and replay frequency responses are up to manufacturers specification.
4. Make test recording and playback, checking that synch pilot is recording and that record and replay levels line up.
5. Check that there is a spare take up spool included.
6. Check that type of microphones requested have been supplied and are in good condition and working order.
7. Check that all microphone accessories such as shock mounts, windscreens, hand poles, have been included and that all threaded fixings are compatible.
8. Check that sufficient microphone extension cables, to meet the needs of production, are supplied and ensure that all are in good order, including connectors. Make sure that connectors are compatible with input sockets on recorder and mixer, if used.
9. Check all main and other inter-connecting cables for good order and compatibility. If rechargeable batteries are used, make sure suitable mains charger is supplied with kit and that Nicads are in good condition.
10. Make sure that reasonable supplies of spare batteries are supplied.

11. Check that number of rolls of ¼" tape or DAT cassettes requested have been supplied and that the stock is of the correct type and all of the same manufacturer's batch number.

IF RADIO MICROPHONES ARE RENTED

1. Make sure that radio microphones channels supplied are all frequency compatible and legal.
2. Check that each channel supplied is complete with transmitter, receiver and aerials for both, along with lead to connect receiver to recorder or mixer.
3. Check that suitable miniature microphones are supplied, along with fixing clips and pins.
4. Set up radio mics, testing each channel by making short recordings of a person walking about with microphone and transmitter and talking.

EXTRA EQUIPMENT

1. If multi-channel microphone mixer unit is to be used, check that it is in good working order and that equalisation controls are understood.
2. Check that mixer/recorder interconnecting lead is included.
3. Mains units for recorder and mixer should also be supplied, even if all shooting is to be on exteriors. They will be needed for battery charging.
4. If a mixer is to be used, then it is advisable to have a suitable trolley, stand or cart to mount the mixer and recorder on.

START OF THE DAY

1. On arrival at location ascertain when first shooting is to take place.
2. Unpack and set up equipment in vicinity of shooting area.
3. Check through equipment to ensure all is working correctly.
4. With ¼ analogue equipment, check heads are clean.
5. Load recorder with tape.
6. Record reference line up tone.
7. Record verbal identification of production and roll number.
8. If used, set timecode to correct frame rate and time. Set User Bits to an agreed format.
9. Make out tape report sheet.
10. Play back above recording and check for quality, equality of record/replay levels and that synchronisation system is working.
11. Check that microphone is OK and that suspension and pole are free from rattles and noise when handled.
12. When re-loading machine during course of day, heads should be checked for dirt and the line up/identification procedure followed, as above.
13. A separate sound report sheet should be made out for each roll or cassette.

HINTS AND TIPS

1. Know what has to be recorded.
2. Keep abreast of what is going on.
3. Don't have to be told what to do.
4. Think ahead.
5. Be sure you have the equipment necessary.
6. Never attempt recording drama dialogue single-handed.
7. Listen out on rehearsals for noises made by actors that interfere with intelligibility of lines and see that they are eliminated where possible.
8. Listen carefully for other extraneous noises, especially those made by the crew, and eliminate.
9. Make sure all dialogue is intelligible, good quality, and recorded at a good level.
10. If there are problems, make sure Director and Assistant Director are aware and that you are taking steps to correct them.
11. Keep clear, detailed records of all takes and clear indication of those takes to be transferred. It is almost impossible to give postproduction crews too much information.
12. Record atmosphere tracks on all locations.
13. Record sound effects that you consider will be necessary and useful for

- postproduction.
14. Record wild tracks of any lines of dialogue you feel were unclear during a take.
 15. Always be pleasant but firm about the needs of the sound track.

DO'S AND DON'TS (not necessarily in Order of Importance!)

• DO

1. Read and understand script.
2. Ensure you have all the right equipment for the assignment.
3. Ensure all equipment is in good working order and performing to specification.
4. Ensure for ¼" analogue, the recorder is biased and equalised for type of tape to be used.
5. Protect equipment from heavy handling and excess vibration in transit.
6. Protect equipment from climate excesses.
7. Make sure picture and sound synchronisation used during production will be compatible with transfer and postproduction requirements.
8. Keep all microphone cables neatly coiled when not in use.
9. Always replace equipment in correct boxes.

• DON'T

1. Attempt drama dialogue recording single-handed.
2. Attempt to record exterior sound with the microphone not in a suitable windscreen.
3. Over record when recording, especially when using digital equipment.
4. Under record when using either digital or analogue.
5. Leave equipment lying about.
6. Leave equipment out of sight on location.

• ALSO Essential

Besides being sure all equipment to cover the assignment is to hand, ensure that your kit includes basic maintenance tools such as:

1. Pliers and Side Cutters
2. Screw drivers (medium and pocket)
3. Test meter
4. Soldering iron and solder
5. Camera tape 1/2" and 2".

TRAVEL TO LOCATIONS

The production mixer will normally be responsible for arranging transport for equipment and crew to locations. Directions to locations must be clearly understood and time of journey estimated, allowing for possible hold-ups. Always plan to get there a minimum of 15 minutes before the actual call time. Be sure you know the date and time of call and the scene that are to be shot that day.

PERSONAL

1. Be sure you will be comfortable at all times. Personal discomfort hinders clear thinking and inhibits efficiency.
2. Provide yourself and advise crew members to have suitable rainwear (shooting can continue in the rain).
3. Wear warm clothing and head gear for winter or night shooting.
4. Wear footwear should be suitable for location being worked, e.g. gumboots for wet and mud, tennis or boating shoes for swimming pools, good boots for countryside.
5. Try and have a good breakfast before leaving home or hotel.
6. If you must smoke, take sufficient fags or tobacco to last you a long day.
7. Keep a chocolate bar or apple tucked away in case of long breaks

between meals.

8. ***In other words, look after yourself - no one else will.***

REMEMBER

1. Poor sound quality is not the fault of properly maintained professional recording equipment.
2. Best natural dialogue quality is recorded using microphone on boom or hand pole.
3. It is the responsibility of each crew member to know what the call is for each day. If you fail to get a call sheet, find out why. "*I didn't know*" is no excuse.
4. The worst words a sound recordist can hear are a member of the audience saying, "*What did he say?*"
5. Since talking pictures took over from the silent 70% to 80% of communication in a movie is by means of the sound track. Try running a film or video with the sound off. This fact makes your job an important one.

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