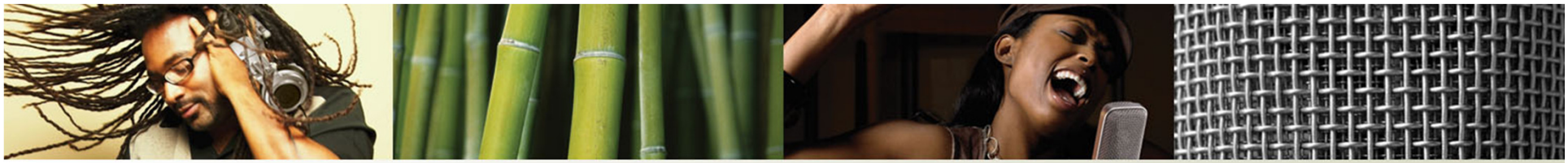
RIGGING LAVALIERS AND WIRELESS MICROPHONES

Applications for film and video production



audio-technica
always listening

BODY MICS - LAVALIERS

A brief history…

- Originally “lavalier” referred to “neck-worn” or “body-worn” class of small microphones

- First lavaliers were large, dynamic mics
  - Rugged designs, about size of a cigar tube
  - Worn around neck by means of a lanyard (“lavaliere”)
  - Had very short pickup range

- Microphone’s had mediocre frequency response

- Early Lavs were clumsy an awkward to wear
  - Heavy cable looked bad on camera
  - But these mics freed up the talent’s hands

BODY MICS - LAVALIERS

Technological advances in 60's and 70's saw a miniaturization of the lav mic

- Electret condensers
- Smaller and more sensitive
- Greater bass response that complimented the "golden-throated" newscasters of the era

Improvements in lavalier mic technology

- Even smaller sizes (2.5mm, 5mm)
- Easier to hide on actors
- Smoother low-end response
  - Less wind noise and rumble
  - More natural voice sound

audio-technica
always listening

TRANSPARENT VS. PROXIMITY LAVALIER MICS

Transparent Lavaliers

- Sound like an omnidirectional studio microphone
- Very sensitive to sounds
- Volume change vs. working distance is more gradual
- Can be deployed at greater distances
- Sound more natural and less forced
- Intercut well with boom mics on set
- Also sensitive to background noise
- Require greater skill to hide

Proximity Lavaliers

- Works best when kept fairly close to sound source
- Less sensitive to background sounds and noise
- Volume change vs. distance is more pronounced
- Emphasizes voice in a “tight close-up way”, produces “lavalier perspective, voice of authority” type sound
- Ideal choice in situations where sound reinforcement (PA) is in use

AUDIO-TECHNICA LAV MICROPHONES

BP896 MicroPoint™ Omnidirectional Condenser – Proximity

- 2.6 mm diameter capsule
- Short reach, insensitive to distant sound
- 11 – 52V DC Phantom Power (AT8539 Power Module)
- Available in black or beige color

AT899 Subminiature Omnidirectional Condenser - Transparent

- 5 mm diameter capsule
- Outstanding clarity, accurate voice reproduction
- Good reach, natural sound
- 11 – 52V DC phantom power or AA battery (AT8537 Power Module)
- Available in black or beige color

AT898 Subminiature Cardioid Condenser – Transparent

- 5 mm diameter capsule
- Ideal for situation with live reinforcement
- 11 – 52V DC phantom power or AA battery (AT8537 Power Module)
- Available in black color

AUDIO-TECHNICA LAV MICROPHONES

MT830 Omnidirectional Condenser – Transparent

- Flat .33” wide x .19” thick
- Good clarity, accurate voice reproduction
- 11 – 52V DC Phantom Power (AT8538 Power Module)
- Available in black or beige color

AT831R Miniature Cardioid Condenser – Proximity

- 10.2 mm diameter capsule
- Full sounding voice pickup, solid bass pickup
- Suppresses background noise, not forgiving on off-axis voice
- 11 – 52V DC phantom power (AT8538 Power Module)
- Available in black color

AT808 Miniature Omnidirectional Condenser

- 10.2 mm diameter capsule
- Low cost alternative to AT899
- 11 – 52V DC phantom power or AA Battery (AT8531 Power Module)
- Available in black color

RIGGING LAVALIER MICROPHONES – VISIBLE ON CLOTHING

Mounting methods

- Use a “tie-bar” or other mounting clip
- Attach mic to center opening on shirt/blouse or to necktie
- If attaching to a lapel, place mic on side talent turns to
- Alternate is to use pin mount or viper clip

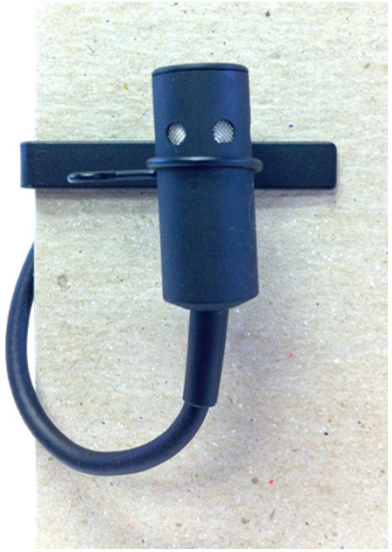
Let the talent attach their own microphone and dress the cable

- Minimizes embarrassment
- Adjust microphones final position after talent attaches it
- Make certain power module is hidden (in pocket, clipped to belt)

RIGGING LAVALIER MICROPHONES – VISIBLE ON CLOTHING

Broadcast (Newsman's) Loop

- Secure mic in the clip
- Loop cable up and around into the clip
- Clip mic to clothing
- Secure cable to back side of clip between clip and clothing
- Dress remainder of cable behind talent's clothing



audio-technica
always listening

RIGGING LAVALIER MICROPHONES – UNDER CLOTHING

Noises to contend with…

- Clothing noise
  - Contact – clothing rubbing against microphone
  - Acoustic – clothing rubbing against itself
- Cable noise
  - Mechanical noise transmitted up the microphone cable

If garments cannot move in relation to the mic, they can not rub or strike the mic!

- Immobilize the clothing around the mic
- Each soundmixer has own techniques to do this

RIGGING LAVALIER MICROPHONES – UNDER CLOTHING

Eliminating cable noise

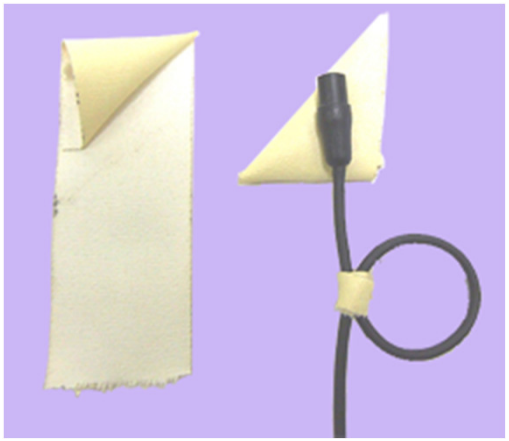
- Form one of two loops in cable (1/2” in diameter)
- Just below mic capsule
- Tie loops in loosely in place
- Use dental floss, string or sticky tape (inside out)
- Acts as strain relief if cable gets pulled

RIGGING LAVALIER MICROPHONES – UNDER CLOTHING

Securing microphone capsule (Sticky tape method)

- Use two small tape triangles
- Use camera or gaffers tape, sticky side out
- Microphone is centered in triangles

- Rig can be placed above a shirt or blouse button
- Cable loop lays opposite the button
- Tape about an inch of cable to the shirt

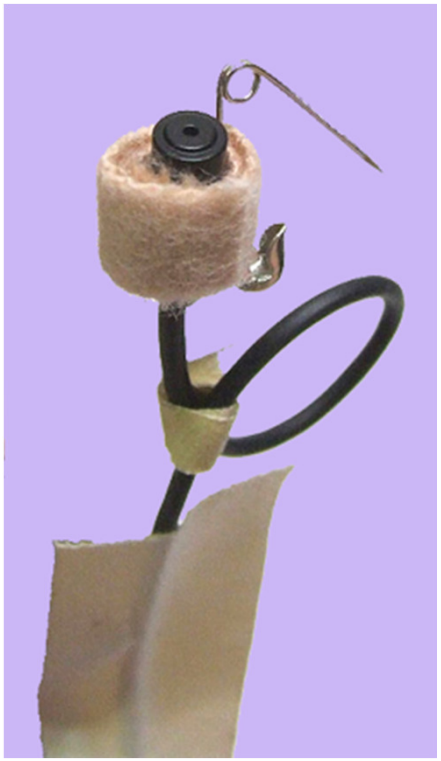


audio-technica
always listening

RIGGING LAVALIER MICROPHONES – UNDER CLOTHING

Securing microphone capsule (Moleskin/pin method)

- Use Moleskin strips and safety pin
- Anchors weight of mic and cable
- Wrap strip around mic (sticky side out)
- Insert open safety pin and wrap again



- Pin will hold mic securely
- Cable loop acts as strain relief to mic
- Can be used with sticky triangles to prevent clothing noise
- Secure about an inch of cable below the loop to the shirt

audio-technica
always listening

RIGGING LAVALIER MICROPHONES – UNDER CLOTHING

Dealing with acoustic clothing noise

- Static Guard spray can be used to lubricate clothing
- Heavy starch conducts noise – wet down area around mic

Know your fabrics

- Cotton and woolens are quietest fabrics
- Silks, and synthetics should be avoided
- Watch for jewelry, beard stubble and other noise makers

Alternate hiding places for microphones

- Under collar with sweaters and sweatshirts
- Beneath hat brims or eyeglass frames
- Under hair in center of actors forehead
- Hollowed out plastic pen

RIGGING LAVALIER MICROPHONES – WIND NOISE

Contact wind noise

- Distortion caused by wind striking the microphone capsule
- Use a good windscreen
  - Foam tip form head cleaning swab
  - Slide over mic and sandwich between tape triangles
  - Cheesecloth over foam
  - Patch of cloth or felt to match winter coat

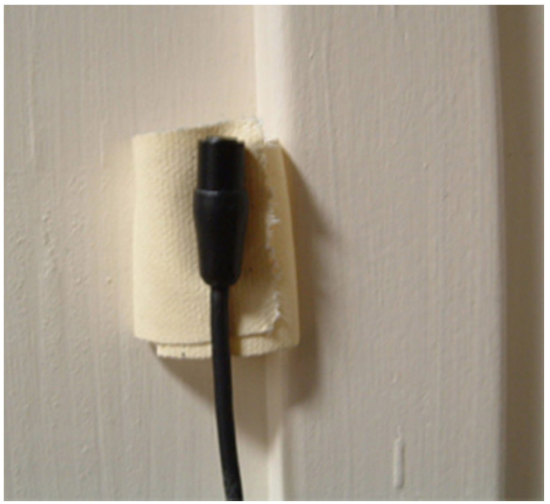
Acoustic wind noise

- Sound of wind howling between trees or buildings
- Form of background noise
- Minimize it by:
  - Keep mic close to talent
  - Rolling off low frequencies

RIGGING LAVALIER MICROPHONES – PLANT MICS

Best solution to clothing noise is to keep mic off the body entirely

- Hide lavaliers into handheld props
- For car interior scenes, hide lavalier mic in sun visor
  - Use transparent lav mics
  - Visor padding reduces echo
- Lavalier mics can be hidden (planted) on set
  - Centerpiece on table
  - Desk set in office
  - Inside of door jamb, etc.
  - Use imagination and be creative



Shock mount the mic to minimize surface vibration

- Use sticky tape pad to mount mic

audio-technica
always listening

RIGGING LAVALIERS - PERSPECTIVE

Perspective needs to be considered when using lav mics

- Proximity lavs always like a tight close-up even when camera is 50' away
- Transparent lavs sound more natural
  - Perspective is fixed
  - Boom mics move further or closer as frame changes
  - Lavalier mics do not

Use shotgun as "bleed mic"

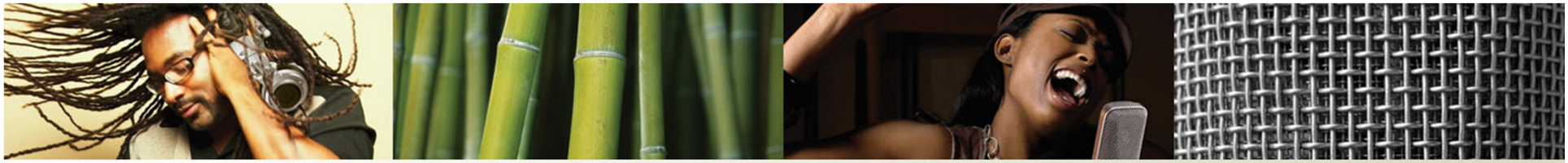
- Aimed at nothing in particular
- Capture footsteps, general ambience from an angle that will not pick up dialogue
- Mix in bleed mic (30%) for long shots
- Close down bleed mic on close-ups

Open up perspective by placing lav mics further down on actor's chest

THANKS FOR ATTENDING

Come back for our other sessions:

- Microphone Techniques for Episodic Television and Features
- Microphone Techniques for DSLR Cameras
- SpectraPulse for Broadcast Applications



audio-technica
always listening