

# CM-311AHS

## DIFFEROID® CONDENSER MICROPHONE FOR USE WITH SONY MDR-7506 AND MDR-V6 HEADPHONES



**D**esigned for broadcasters, the Crown® CM-311AHS is a rugged head-worn microphone that mounts on a Sony MDR-7506 or MDR-V6 headphone. The mic rejects background noise quite well, so it's suited for use in sporting events. If background noise is extremely high, as in traffic-copters and car races, you may need the extra isolation of a David Clark headset. Crown makes an adapter for the boom on the David Clark headset. You can special-order the adapter from Crown.

The CM-311AHS is the latest version of Crown's patented Differoid® technology. Its cardioid pickup pattern rejects noise from behind the microphone and its noise-canceling ability rejects ambient noise at a distance.

Lightweight and comfortable, the microphone adjusts to fit any user. It mounts securely on either earpiece of the popular Sony MDR-7506 or MDR-V6 headphone. Two included foam pop filters reduce breath noise, and the windscreen reduces wind noise.

Supplied with the microphone is a belt pack. It includes an XLR-type output connector, a battery on/off switch, a programmable mic on/off switch, and a "Mic On" LED. The belt clip has been designed extra strong to prevent breakage and to keep it securely on your belt. The microphone is an electret condenser type, powered by phantom power or by the 9V battery in the belt pack.

### How to mount the mic on the Sony headphone

Please see Fig. 5. As supplied from the factory, the microphone is ready to mount on the right earpiece of the Sony headphone. If you want to do this, slip the mount over the yoke above the right earpiece and tighten the screws. You may want to route the mic cable along the headband and along the headphone's coiled cable.

If you want to mount the microphone on the left earpiece, please refer to Fig. 6 and follow this procedure:

### Specifications

**Transducer type:** Electret condenser.

**Frequency response (typical):** 50 Hz to 15 kHz (see Fig. 1).

**Polar pattern:** Cardioid. See Fig. 2.

**Impedance:** 75 ohms balanced.

**Open-circuit sensitivity, typical, close-talking:** 4 mV/Pa\* (-48 dB re 1 V/Pa\*).

**Power sensitivity, typical, close-talking:** 42.5 dB re 1 mW/Pa.

**Equivalent noise level (self-noise):** 26 dB SPL typical (0 dB = .0002 dyne/cm<sup>2</sup>), A-weighted.

**S/N ratio:** 68 dB at 94 dB SPL.

**Maximum SPL:** 148 dB SPL produces 3% THD.

**Operating voltage:** 9V DC internal alkaline battery (not supplied) or 18-48V phantom power.

**Polarity:** Positive pressure on diaphragm produces positive voltage on pin 2 with respect to pin 3 of output connector.

**Current drain:** 5 mA.

**Battery life:** 110 hours.

**Output connector:** 3-pin pro audio (XLR type).

**Cables:** 2-conductor shielded, unbalanced cable, 4 feet from mic capsule to battery pack. Use 2-conductor shielded mic cable (not included) between XLR-type connector and mixer mic input.

**Materials:** High-impact plastic mic housing and headphone mount, steel mesh grille screen, brass boom, steel wire headband, high-impact plastic and steel battery pack.

**Finish:** Satin black.

**Net weight:** Headworn mic and mount, 2.3 oz. (64 g). Belt pack and battery, 6.1 oz. (173 g).

**Dimensions:** Mount 3" diameter, boom approximately 7"x3". See Figs. 3 and 4.

**Included accessories:** Microphone carrying case, WS-6 foam pop filter, WS-13 two-stage pop filter and WS-14 windscreen.

**Optional accessories:** PH-4B phantom power supply (4 channels, AC powered). PH-1A phantom power supply (1 channel, battery or AC/DC adapter powered).

**Replacement parts:** WS-6 foam pop filter, WS-13 two-stage pop filter, and WS-14 windscreen.

\*1 pascal = 10 dynes/cm<sup>2</sup> = 10 microbars = 94 dB SPL.

Fig. 1

Frequency Response

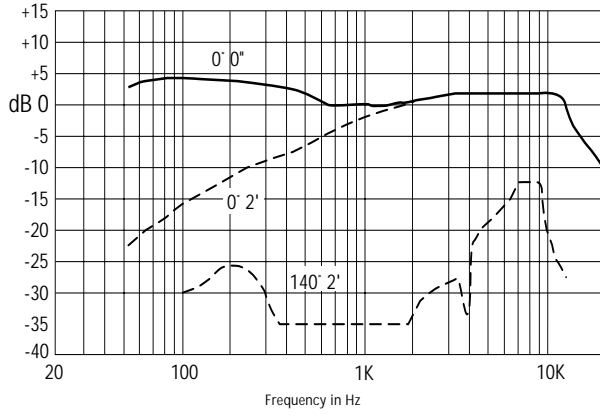


Fig. 2

Polar Response

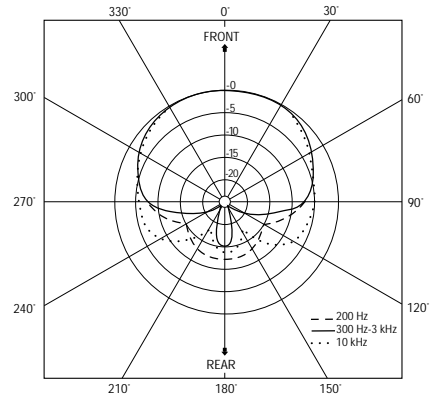


Fig. 3

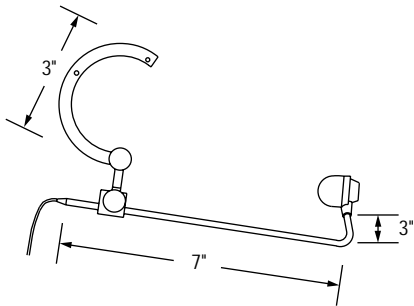


Fig. 4

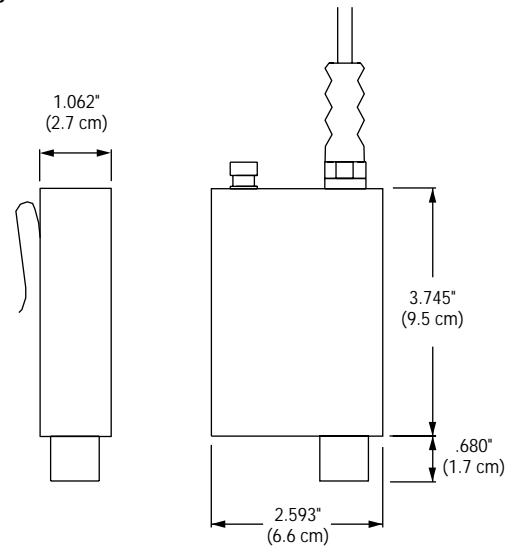


Fig. 5

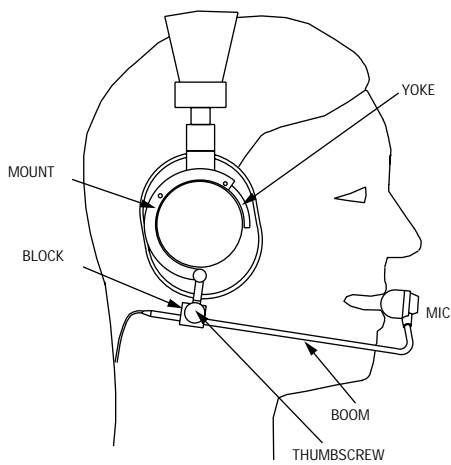
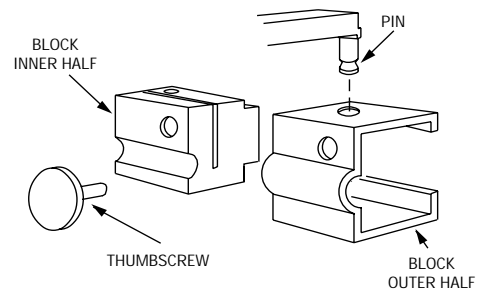


Fig. 6



1. Remove thumbscrew that holds boom in block.
2. Pull block off pin.
3. Slide block outer half off to the right.
4. Reverse boom direction; place boom in block inner half.
5. Slide block outer half on from the right.
6. Insert pin into block.
7. Insert thumbscrew and tighten it.
8. Attach mount to left earpiece yoke.

### How to adjust for fit

The CM-311AHS can be adjusted to fit any user. Please refer to Fig. 5 and follow these steps:

1. Loosen the thumbscrew so the boom moves freely.
2. Put on the Sony headphones with the microphone attached.
3. You can move the microphone toward and away from your mouth, and also left, right, up and down. Position the mic in front of your mouth, with lips touching the foam windscreen (Fig. 5). This is necessary because the mic cancels sounds that are not close to it. To prevent boom bounce, the foam pop filter should press firmly against

the lips.

### Operation

1. Access the battery by sliding open the battery cover.
2. Insert a fresh 9V alkaline battery (Mallory Duracell MN9100 or equivalent) into the battery clip. The battery cover shows the correct polarity.
3. Replace the battery cover.

Connect the belt pack to the mixer using a 2-conductor shielded mic cable with XLR-type connectors. If your mixer lacks phantom power, either turn on the battery switch on the belt pack, or use a separate phantom-power supply (such as the Crown PH-1A or PH-4B).

If you're using phantom power and the battery switch is on, the battery will automatically take over if phantom power fails. Turn off the battery switch when not in use to prolong battery life.

After 110 hours of use, or if the sound is distorted, it's time to replace the battery.

The Sony headphones might invert the polarity of your voice signal, making it sound weak or colored through the head-

phones. If this happens, you might want to invert the polarity of your mixer mic channel.

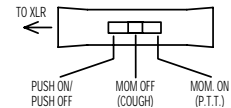
After several hours of use, the foam pop filter can become clogged with moisture, giving a muffled sound. You might want to remove the pop filter periodically and let it dry. It can be washed in mild detergent and water. Additional WS-6 and WS-13 filters for yourself or different users can be ordered from Crown's Parts Department.

### How to program the mic on/off switch

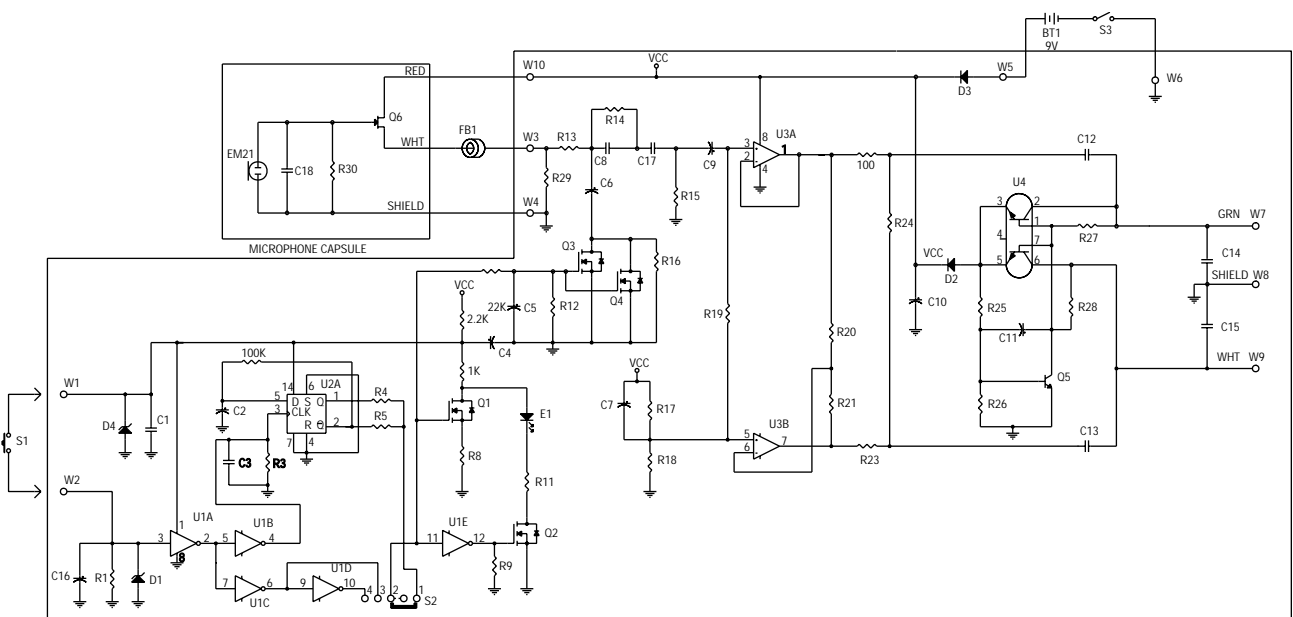
The mic on/off switch can be programmed to work in three ways:

- \* Push-on/push-off (as supplied).
- \* Momentary on (push to talk).
- \* Momentary off (cough button).

To change the switch operation, open the belt-pack case by removing the three screws. Set the switch as shown below:



The LED lights when the mic is on.

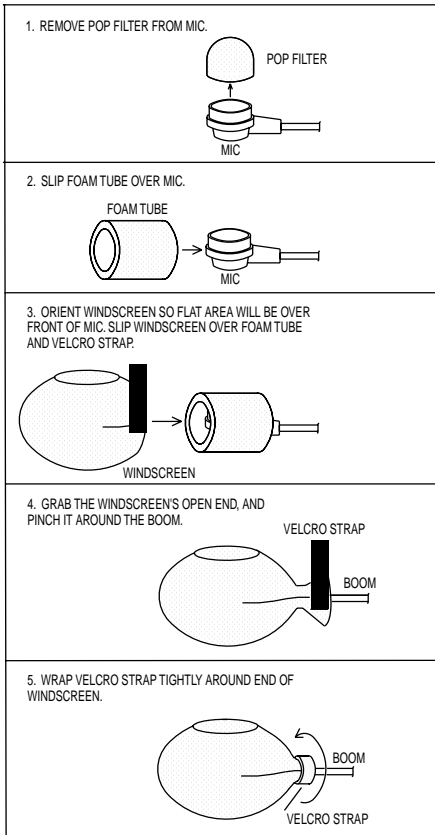


MICROPHONE ELECTRONICS

CM-311AHS Schematic

# CM-311AHS

## How to assemble the WS-14 windscreen



## Architects' and Engineers' Specifications

The microphone shall be the Crown Model CM-311AHS or equivalent. The microphone shall be a head-worn noise-cancelling, cardioid type of electret-condenser design. The microphone shall exhibit excellent off-axis response and gain-before-feedback. The microphone shall have an adjustable boom with a locking thumbscrew, a battery belt pack, a foam pop filter, a 2-stage pop filter, and a wind-screen. The microphone shall mount to either earpiece of a Sony MDR-7506 or MDR-V6 headphone.

A 4-foot, permanently attached, two-conductor shielded cable shall connect the microphone to the belt pack. The belt pack shall include a 3-pin pro audio (XLR type) connector, battery on/off switch, programmable mic on/off switch, and "Mic On" LED. The microphone shall be powered by a 9V battery in the belt pack, or by 18 to 48V phantom power.

Nominal open-circuit sensitivity shall be 4 mV/Pa. Maximum SPL shall be 148 dB SPL for 3% THD. Equivalent noise shall be 26 dBA nominal. Frequency response shall be 50 Hz to 15,000 Hz with a uniform off-axis response, over 20 dB down at the rear null. The Crown model CM-311AHS is specified.

## Warranty

Crown professional microphones are guaranteed unconditionally against malfunction from any cause for a period of three years from date of original purchase. Please refer to the enclosed full warranty statement for more detail.

## Service

If the microphone does not function properly, check that it is aimed correctly and is connected as described in this data sheet. If the microphone is defective, return it in the original packaging to Crown Service Department, Plant 2 SW, 1718 West Mishawaka Road, Elkhart, IN 46517. For further assistance or technical support call 800-342-6939.



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