

Atkinson Dynamics Intercoms

Model AD26-Z

Installation and Service Instructions

Address all communications and shipments to:



ATKINSON DYNAMICS

A FEDERAL SIGNAL COMPANY

2645 Federal Signal Drive

University Park, IL 60466-3195

(800) 264-3578

**INSTALLATION AND SERVICE INSTRUCTIONS FOR ATKINSON DYNAMICS
HEAVY-DUTY INTERCOMS**

 **WARNING**

The lives of people depend on your safe servicing of these products. It is important to read and follow all instructions shipped with the products. In addition, listed below are some other safety instructions and precautions you should follow:

- **Read and understand all instructions in this manual before servicing this intercom.**
- **To properly service an intercom: you must have a good understanding of automotive electrical procedures and systems, along with proficiency in the installation and service of safety warning equipment.**
- **A qualified and competent electronic technician must perform electronic circuit repairs.**
- **Your hearing and the hearing of others, in or close to your emergency vehicle, could be damaged by loud sounds. This can occur from short exposures to moderately loud sounds. For hearing conservation guidance, refer to federal, state, or local recommendations. OSHA Standard 1910.95 offers guidance on “Permissible Noise Exposure.”**
- **DO NOT connect this system to the positive of the battery until servicing is complete, and you have verified that there are no short circuits to ground.**
- **In order for the intercom to function properly, the ground connection must be made to the NEGATIVE battery terminal.**
- **After repair, test the intercom to ensure that it is operating properly.**

Failure to follow all safety precautions and instructions may result in property damage, serious injury, or death to you or others.

A. General Intercom Features.

The Atkinson Dynamics intercom is a heavy-duty, 2-way or 3-way, communications device designed for various heavy-duty applications. The basic model AD26-Z is designed to operate on any 12VDC or 24VDC negative ground vehicle electrical system. A description of the available models follows.

Basic Model AD26-Z Specifications:

Supply Voltage	12 Vdc-24 Vdc
Current Draw	1.47 A max. at 13.6VDC, 100 mA standby
Amplifier Specifications	
Frequency Response (-6dB)	320 Hz to 8.0 kHz
Input Impedance	10,000 ohms
Max. Output Voltage:	
Sine Wave:	
Unbalanced Output	7.9 Vrms
Square Wave:	
Unbalanced Output	9.5 Vrms

Wall Mount Intercom Specifications:

Speaker Rating	25 watts
Speaker Impedance	8 ohms
Temperature Range	-50 to +150 °F
Weight	
Shipping	10 lb, 11 oz
Net	9 lb, 2 oz
Housing Dimensions	6.50" x 9.88" x 3.88"
Conduit Entrances	Dual 1/2-14 IPS
Housing Material	Aluminum
Finish	Dark Grey Epoxy

Panel Mount Intercom Specifications:

Shipping Weight	3 lb
Dimensions	6.5 x 4.4 x 3.4 (see Fig 12)

	ADDITIONAL INTERCOM MODEL INFORMATION
LETTER GROUP	FUNCTION/FEATURE
“C”	Master Mode
“D”	Hands-Free Mode
“P”	Panel Mount
NUMBER GROUP	
“-1”	Remote Power (Audio and Power lines in same cable)
“-2”	Provisions for external talk/listen switch (footswitch)
“-7”	Provisions for hand-held noise canceling microphone
“-8”	Additional pre-amp for use with remote hands-free speaker
MISCELLANEOUS	
“-M34”	Provisions for headset microphone with belt switch
“-M44”	Remote speaker volume control
“-M78”	Combine -M34 and -M44 options

Table 1.

MASTER UNITS:

“C” Models default to Master, or speaker, mode. In Master mode, the unit acts as a speaker and broadcasts audio signals generated elsewhere in the intercom system. Depressing the Talk switch turns the unit into a microphone and enables the user to broadcast to all other intercoms in the system. Releasing the switch returns the unit to Master mode. Figure 2, 3, and 6 illustrates a Master/Hands-Free intercom system.

HANDS-FREE UNITS:

“D” Models default to Hands-Free, or microphone, mode. In Hands-Free mode, the unit is designed to serve as a hands-free microphone with transmission to all Master units in the intercom system. The Hands-Free unit will act as a speaker and broadcast audio transmissions only when the Talk switch of any Master unit in the intercom system is depressed. Figure 2, 3, and 6 illustrates a Master/Hands-Free intercom system.

MICROPHONE:

“7” Hand-Held Noise Canceling Microphones are recommended for use in environments with high levels of ambient noise. Keying the microphone overrides the default mode of the intercom and enables audio transmission to all units in the intercom system. Figure 2 illustrates a common intercom system where hand-held microphones are used.

HEADSET MICROPHONE WITH-BELT-SWITCH:

“-M34” Headset Microphones and Belt Switches are an additional option for environments with a high level of ambient noise. Keying the belt switch overrides the default mode of the intercom and enables audio transmission to all units in the intercom system. Figure 3 illustrates a common intercom system where a headset with microphone and belt switch are used.

REMOTE POWER:

“-1” Models are designed to have one cable rather than two, with power and audio signals in the same cable. Figure 6 illustrates this configuration.

PRE-AMPLIFIER:

“-8” Models are equipped with a pre-amplifier and are designed for use with Hands-Free speaker units such as the ADSV-25-Z Remote Speaker with Volume Control. The “-M44” option equips the “-8” Master unit with a knob for controlling the volume of remote speakers such as the ADSF-25-Z Flush Mount Speaker or the ADSS-25-Z Swivel Mount Speaker. Figures 4, 5, and 7 illustrate intercom systems with the “-8” and “-M44” options.

SURGE PROTECTION:

Metal Oxide Varistor (MOV) devices are used to protect the audio lines. The intercom must have Earth or Chassis Ground terminated to it to ensure surge protection.

The output amplifier of the Atkinson Dynamics intercom offers full short circuit and overheat protection.

FOOT PEDAL READY:

Models with the “-2” option are designed for hands-free activation of the Talk/Listen switch. Figure 6 shows an example of intercoms with this option.

B. General Speaker Specifications.

The Atkinson Dynamics product line consists of a variety of speaker models. Model ADSV-25 is a remote speaker station with volume control for use with “-8” intercom models. Models ADSS-25-Z and ADSF-25-Z are remote speakers for use with intercoms

with the “-M44” option. The volume control for these speakers is located on the intercom. Model ADSS-25-Z has a swivel-mounting bracket, while Model ADSF-25-Z has holes in its outer flange for flush mounting. All speakers are rated for 25 watts.

Speaker Specifications	ADSV-25-Z	ADSS-25-Z	ADSF-25-Z
Frequency Response (Hz)	800 – 5,000	800 – 5,000	800 – 5,000
Power Handling (Watts)	25	25	25
Shipping Weight (lb.)	10.0	6.0	9.0
Dimensions (inches)	10.0 x 6.4 x 4.4 (H x W x D)	6.4 x 5.1 (Dia. x D)	7.3 x 3.8 (Dia. x D)

Table 2.

C. Unpacking.

After unpacking the Atkinson Dynamics Intercom, examine it for damage that may have occurred in transit. If the equipment has been damaged, do not attempt to install or operate it, and file a claim immediately with the carrier stating the extent of the damage. Carefully check all envelopes, shipping labels and tags before removing or destroying them.

Before attempting to install the intercom, be sure that all parts listed in the KIT CONTENTS LIST have been supplied.

KIT CONTENTS LIST

Qty.	Description	Part Number
1	Resistor, 1 K, 1 W	101216

D. Intercom and Model ADSV-25-Z Mounting.

CAUTION

The selection of the mounting location for the device, its controls and the routing of the wiring are to be accomplished by someone having a good understanding of automotive electrical procedures and systems.

The intercom is intended to be mounted on any relatively flat and rigid surface by the two mounting ears on the exterior of the housing. Figure 9 is a dimensional outline drawing showing the proper mounting configuration. The two mounting ears are 13/32" diameter holes spaced 5.68" apart. Hardware for mounting the intercom to the surface shall be provided by the installer.



This unit is heavy and should be mounted on a rigid surface capable of supporting the weight of the intercom.

Model ADSS-25-Z Mounting:

Speaker Model ADSS-25-Z is equipped with a serrated swivel-mounting bracket with a locking nut that allows the speaker to be adjusted through an angle of 90 degrees. Figure 11 is a dimensional outline drawing of the speaker. The speaker-mounting bracket is intended to be mounted on any relatively flat and rigid surface. There are three mounting holes present in the base of the mount. Hardware for mounting the speaker shall be provided by the installer.

Model ADSF-25-Z Mounting:

Speaker Model ADSF-25-Z is intended for flush mounting. Figure 10 is a dimensional outline drawing of the speaker. There are six mounting holes approximately 0.200" in diameter in its outer flange. Install the speaker behind a 6-1/8" diameter hole. Hardware for mounting the speaker shall be provided by the installer.

Panel Mount Intercom Mounting:**CAUTION**

The selection of the mounting location for the device, its controls, and the routing of the wiring are to be accomplished under the direction of someone who has a good understanding of automotive electrical procedures and systems, along with proficiency in the installation and service of safety warning equipment.

1. The panel mount intercom is designed to be mounted behind a customer-supplied panel. The panel is designed to mount on a panel cut out mounting pattern as shown in Figure 12.

2. Secure the panel mount intercom by installing the screws in to the four (4) mounting holes. The four mounting holes are 0.203 in diameter and will accept 1/4-20 screws. Hardware for mounting the intercom to the surface is left up to the installer.

E. Electrical Connections.

Plug each intercom into a nearby power source. Connect the audio inputs in parallel. Audio wires should be sized properly for your specified application.

CAUTION

The (+) and (-) DC power leads should be connected to the vehicle's battery terminals.

Optional: A 1 K, 1 W resistor is included in a kit with each intercom. Installing the resistor across the audio lines may help to reduce noise in certain environments. Only one resistor needs to be installed on the lines for any system installation.

See figures 1 through 12 for typical intercom connections and wiring information.

CAUTION

The "audio common" should not be connected to chassis ground for optimum performance.

F. Service.**1. General.**

Federal Signal will service your equipment or provide technical assistance with any problems that cannot be handled locally.

A Return Material Authorization must accompany any units returned to Atkinson Dynamics for service or inspection. This R.M.A can be obtained only from the factory by calling (800) 433-9132.

At this time a brief explanation of the service requested or the nature of the malfunction should be given.

Address all communications and shipments to:
Atkinson Dynamics
EMP Service Department
2645 Federal Signal Drive
University Park, IL 60466-3195

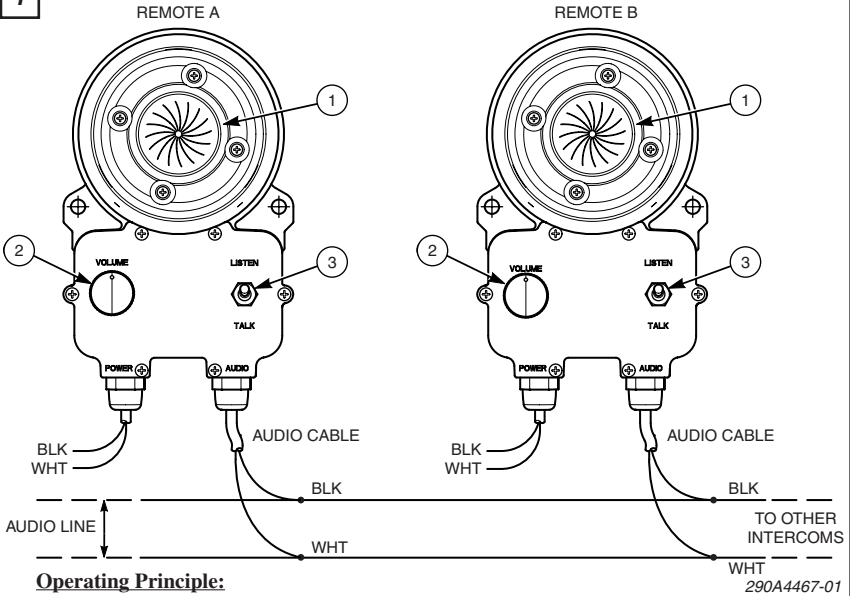
2. Replacement Parts.

Description	Part Number
Cover plate gasket	Z8590013B
Knob, volume control	Z141A129A
PC board, 12-24 V, AD26-Z	Z2005164A-S
Resistor, 1 K, 1 W (accessory kit)	Z101216A
Rubber boot, toggle switch	Z288696A
Potentiometer with on/off switch	Z106125A
Momentary toggle switch DPDT	Z122339A
Toggle switch 3PDT	Z122369A
Pushbutton switch 3-pole 9-terminal	Z122351A

G. Warranty.

Atkinson Dynamics guarantees their intercoms to be free of defects at the time of delivery. If damage is found to be a factory defect, Atkinson Dynamics will warrant all labor charges for repair for one full year, and all replacement parts for two full years.

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Operating Principle:

- When one talks, all intercoms will hear.
- To talk to other stations, press the talk/listen switch and speak into the speaker/microphone. Release talk switch to listen.

NOTES:

1. Speaker/Microphone
2. Off/On/Speaker Volume Control
3. Talk/Listen Switch

Power	Remote A	Remote B
12-24 Vdc	AD26-Z	AD26-Z

POWER CONNECTIONS:

BLK	+DC Power	12/24 V Models
WHT	-DC Power	12/24 V Models

Reminders:

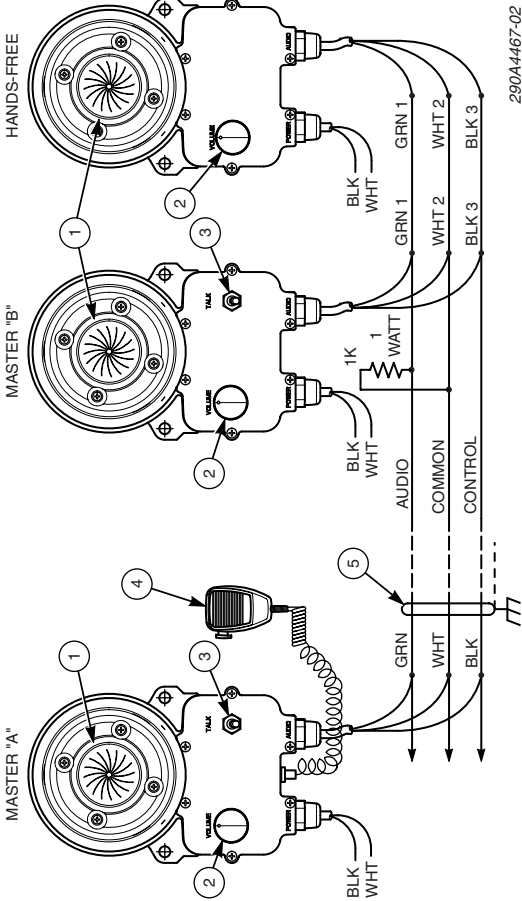
- Before installing remote intercoms, precautions should be taken to prevent feedback between two or more remotes in close proximity and acoustically reflective areas.
- 16-20 gauge low voltage audio cable. Shielded twisted pair may improve performance.
- Shielded audio cable would improve performance when operating in high electromagnetic fields. Ground one end of the shield to earth ground.
- Type of power cable depends on intercom model.
- 7-foot provided for audio and power.

Operating Principle:

- Masters normally listen to Hands-Free.
- Hands-Free talks to master hands-free, without having to press a talk switch.
- When any master talks, Hands-Free hears. Other masters will hear.
- To talk into master, press talk switch and speak into speaker/microphone. Release talk switch to listen.
- To talk into hand-held microphone, press talk switch on microphone and speak into microphone element.

NOTES:

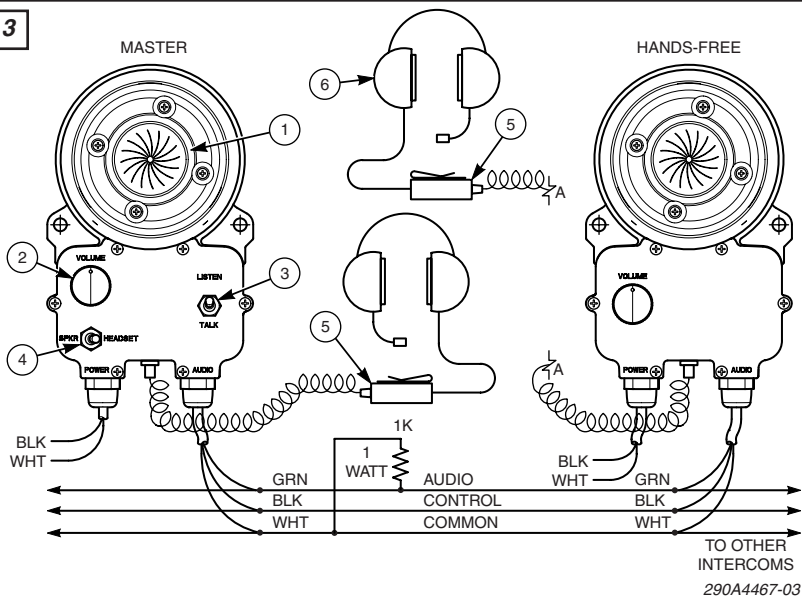
1. Speaker/Microphone
2. Off/On/Speaker volume control
3. Press-to-talk Switch
4. ADNCM hand-held, noise cancelling microphone
5. 3-conductor/16-22 gauge cable. Use shielded cable in electrically noisy areas. Ground one end of the shield to "earth" ground. Ground chassis of DC unit to ground.



Before installing remote intercoms, precautions should be taken to prevent feedback between two or more remotes in close proximity and acoustically reflective areas.

Power	POWER CONNECTIONS:		
	Master A	Master B	Hands-Free
12-24 V dc	AD26C-7-Z	AD26C-Z	AD-26D-Z
	+DC Power	+DC Power	12/24V Models
	-DC Power	-DC Power	12/24V Models

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Before installing remote intercoms, precautions should be taken to prevent feedback between two or more remotes in close proximity and acoustically reflective areas.

Operating Principle:

- When one talks, all remotes will hear.
- To talk into remote, press talk switch and talk into speaker/microphone. Release talk switch to listen. (The headset speaker selector switch must be in "speaker" position to hear received audio signal on speaker.)
- To talk into headset, press belt "talk" switch and talk into headset microphone. Release belt switch to listen. (The selector switch must be in "headset" position.)
- 16–20 gauge low voltage audio cable. Shielded twisted pair may improve performance.
- Shielded audio cable would improve performance when operating in high electromagnetic fields. Ground one end of the shield to earth ground.

NOTES:

1. Speaker/Microphone
2. Off/On/Speaker volume control
3. Talk/Listen switch
4. Headset/Speaker selector switch
5. ADHSB Belt switch w/15-foot cord w/noise cancelling microphone in headset.

POWER CONNECTIONS:

BLK +DC Power 12/24 V Models
WHT -DC Power 12/24 V Models

<u>Master</u>	<u>Hands-Free</u>
AD26C-M34-Z	AD26D-M34-Z

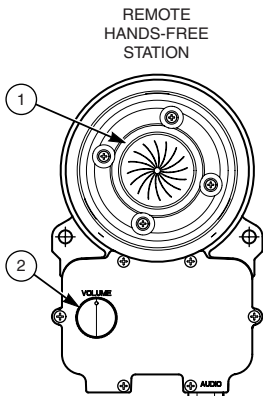
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POWER CONNECTIONS:

BLK +DC Power 12/24 V Models
 WHT -DC Power 12/24 V Models

NOTES

1. Speaker/Microphone
2. Off/On Speaker Volume Control
3. Talk/Listen Switch
4. Remote Hands-Free Station Model ADSV-25-Z
5. 16-20 gauge low voltage audio cable. Shielded twisted pair may improve performance.
6. Shielded audio cable would improve performance when operating in high electromagnetic fields. Ground one end of the shield to earth ground.

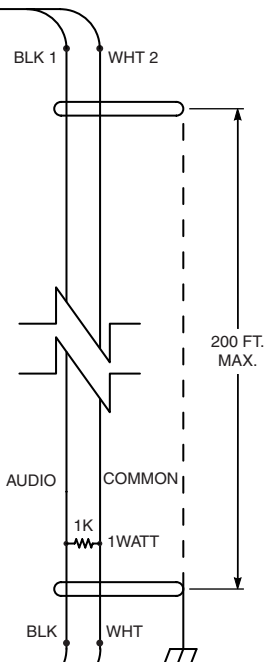
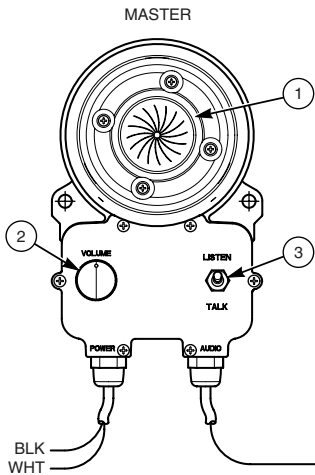


Operating Principle:

- Hands-Free station is both a speaker and a microphone.
- Master is normally in "Listen" mode until the talk button is pressed to talk to remote.
- Volume controls are for received signal volume only. They do not control transmitted signals.

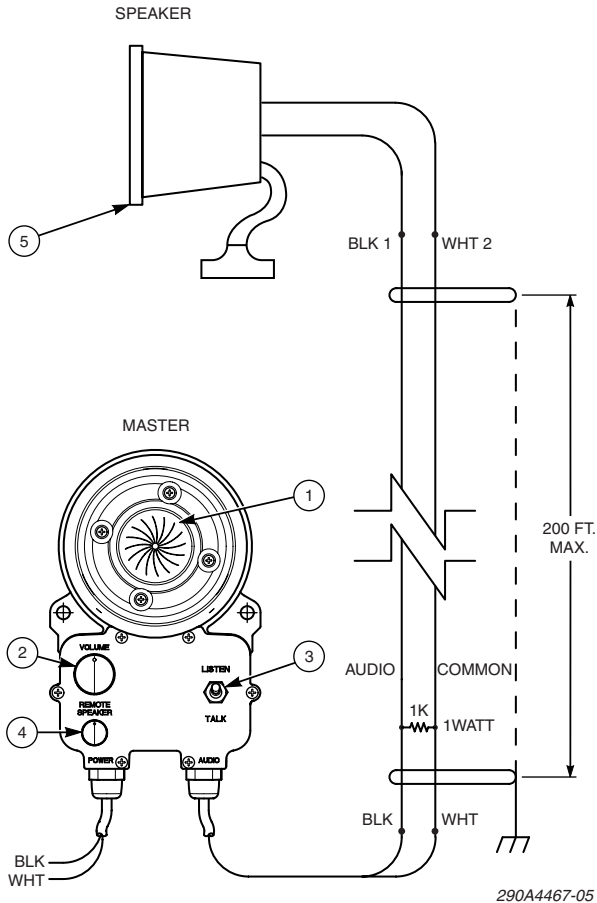
POWER
12/24VDC

MASTER
AD26-8-Z



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5



Operating Principle:

- Hands-Free station is both a speaker and a microphone.
- Master is normally in “Listen” mode until the talk button is pressed to talk to remote.
- Outgoing and incoming volumes are controlled by separate controls on master.

NOTES:

1. Speaker/Microphone
2. Off/On/Speaker volume control
3. Talk/Listen switch
4. Outgoing Volume Control
5. Speaker Model ADSS-25-Z with swivel mounting bracket or Speaker Model ADSF-25-Z with holes in outer flange for flush mounting
6. 16–20 gauge low voltage audio cable. Shielded twisted pair may improve performance.
7. Shielded audio cable would improve performance when operating in high electromagnetic fields. Ground one end of the shield to earth ground.

POWER CONNECTIONS:

BLK	+DC Power	12/24 V Models
WHT	-DC Power	12/24 V Models

POWER
12/24 Vdc

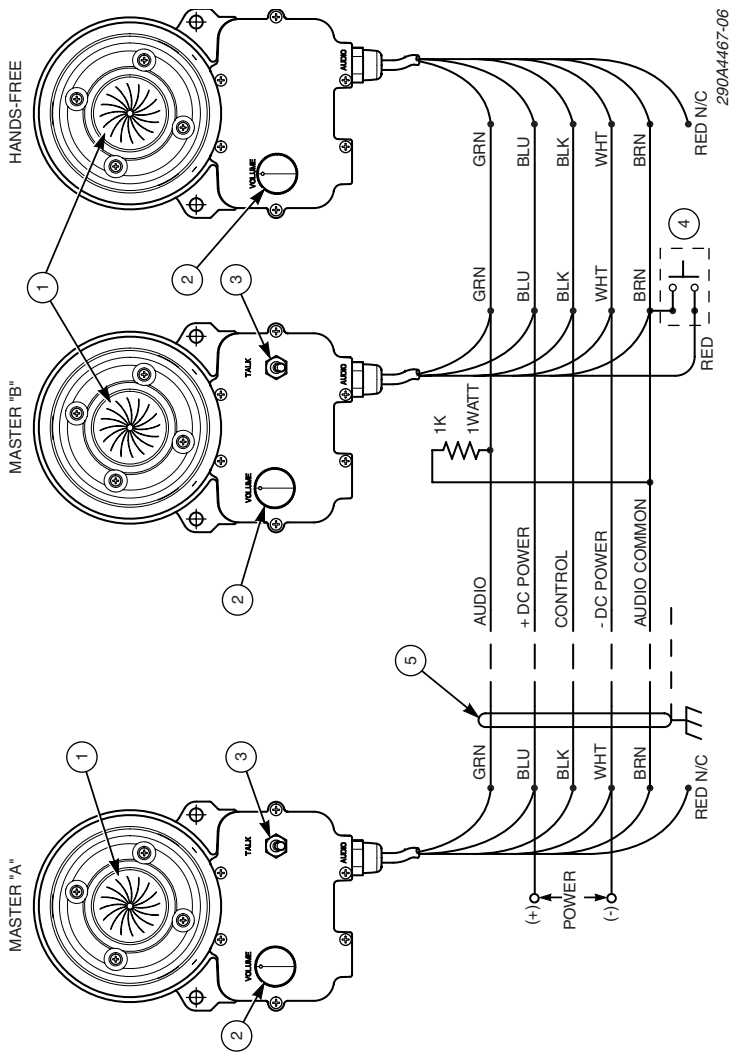
MASTER
AD26-8-M44-Z

Operating Principle:

1. Masters normally listen to Hands-Free.
2. Slave talks to masters "hands-free", without having to press a talk switch.
3. When any master talks, Hands-Free hears. Other master will hear.
4. To talk into master, press talk switch and speak into speaker/microphone. Release talk switch to listen.
5. 16-20 gauge low voltage audio cable. Shielded twisted pair may improve performance. Shielded audio cable would improve performance when operating in high electromagnetic fields. Ground one end of the shield to earth ground.

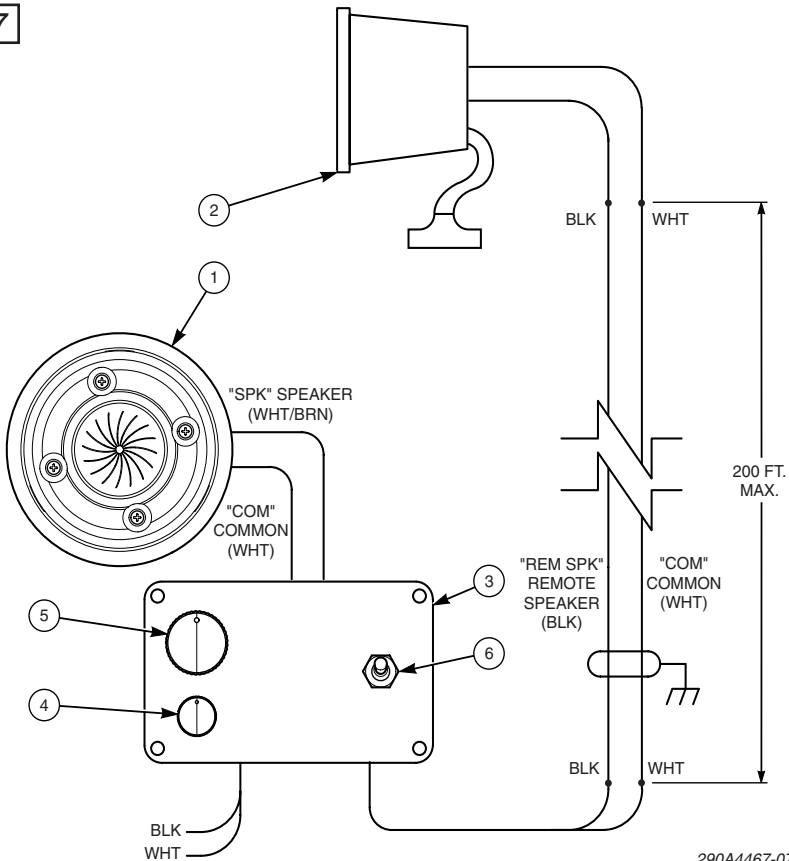
NOTES:

1. Speaker/Microphone
2. Off/On/Speaker Volume Control
3. Press-to-Talk Switch
4. Red wire connected in "-2" model only. External Press-To-Talk switch, momentary (e.g., footswitch)



POWER	MASTER A	MASTER B	HANDS-FREE
12-24VDC	AD26C-1-Z	AD26C-1-2-Z	AD26D-1-Z

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POWER CONNECTIONS:

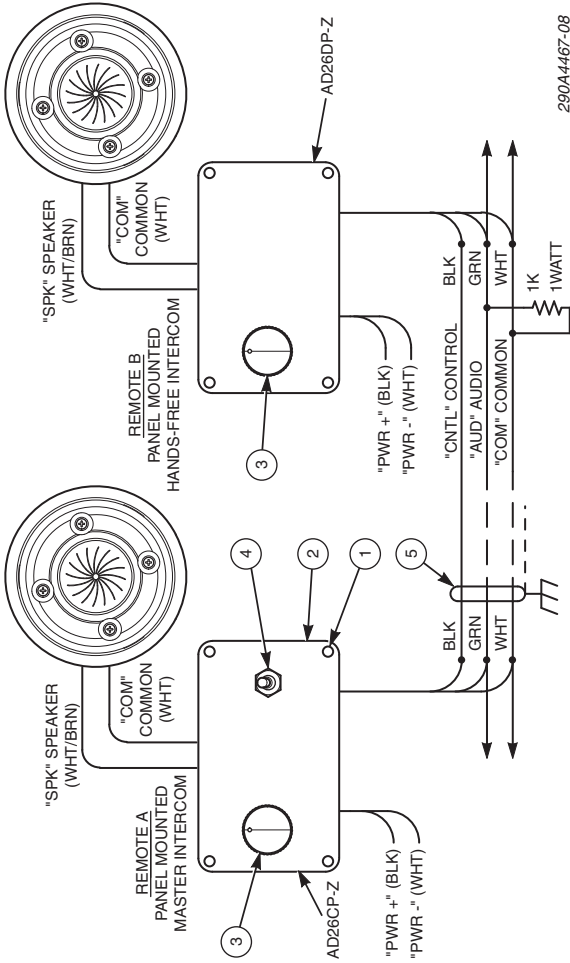
BLK	+DC Power	12/24 V Models
WHT	-DC Power	12/24 V Models

NOTES:

1. Speaker/Microphone Model ADSF-25-Z
2. Remote Speaker Model ADSS-25-Z
3. Panel Mount Intercom Model AD26-8-M44P-Z
5. Off/On/Speaker Volume Control
4. Remote Speaker Volume
6. Talk/Listen Switch
7. 16–20 gauge low voltage audio cable. Shielded twisted pair may improve performance. Shielded audio cable would improve performance when operating in high electromagnetic fields. Ground one end of the shield to earth ground.

LOCAL SPEAKER/MICROPHONE
MODEL ADSF-25-Z

LOCAL SPEAKER/MICROPHONE
MODEL ADSF-25-Z



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NOTES:

1. Mounting Holes
2. Cover Plate
3. On/Off/Speaker Volume Control
4. Talk/Listen Switch
5. Use shielded audio cable in electrically noisy areas. Ground one end of the shield to chassis ground.

Operating Principle:

1. Hands-Free constantly talks to all master intercoms. For master to talk to Hands-Free stations, press the talk/listen switch and speak into the speaker/microphone.
2. Release talk/listen switch to listen.

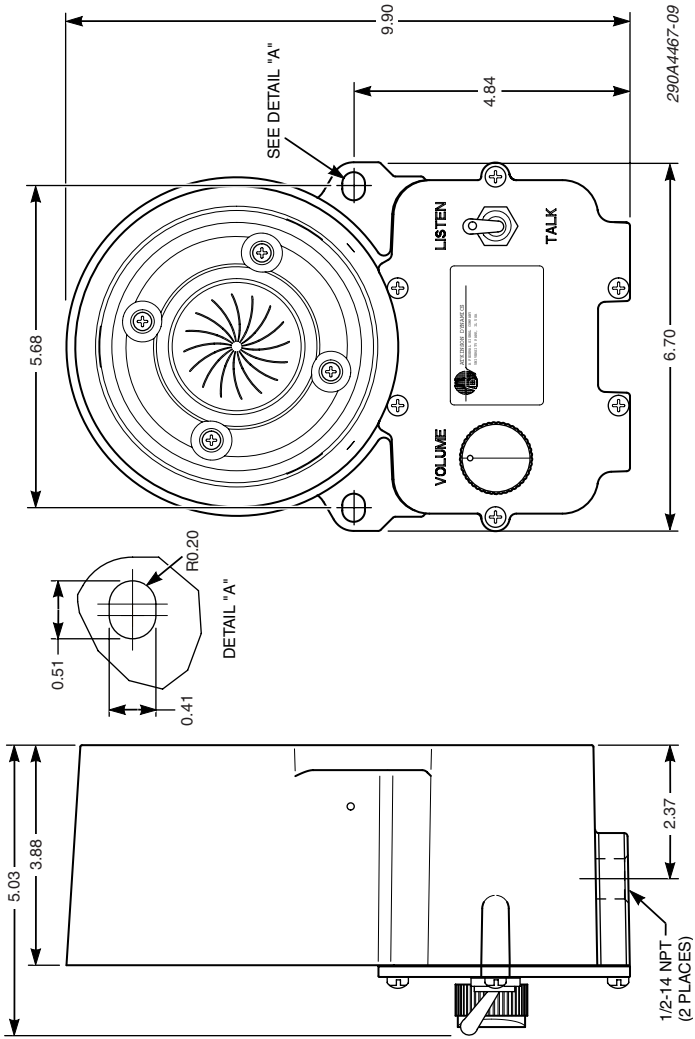
MASTER HANDS-FREE

AD26CP-Z AD26DP-Z

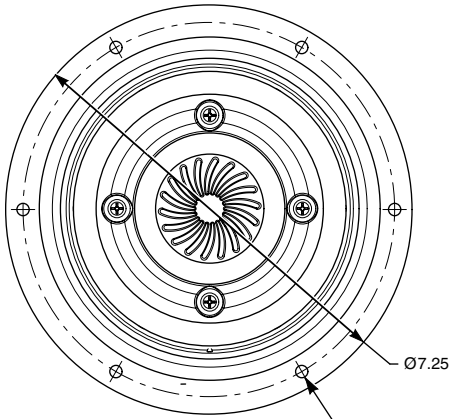
POWER CONNECTIONS:

BLK +DC Power 12/24 V Models
 WHT -DC Power 12/24 V Models

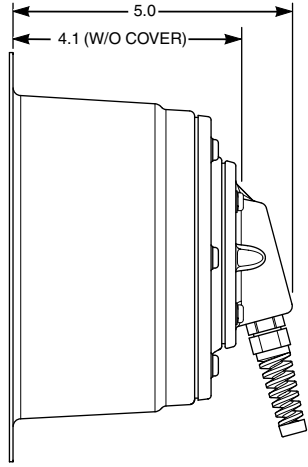
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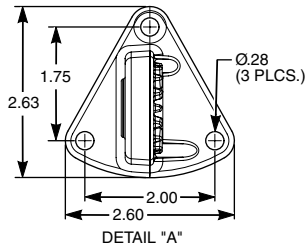
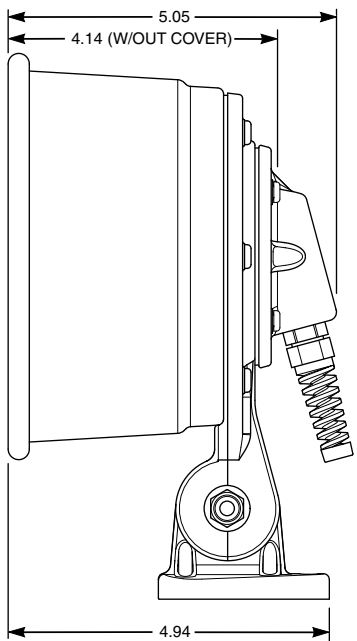
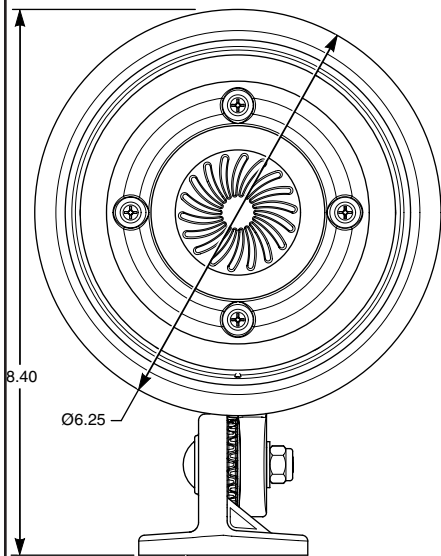


$\text{Ø}22$ (6 PLCS.)
ON A $\text{Ø}6.63$ B.C.



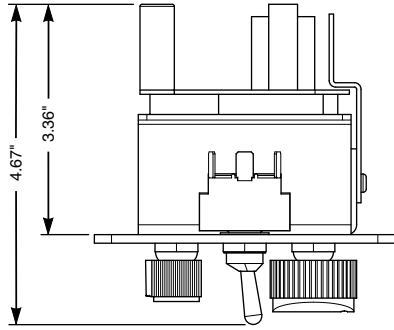
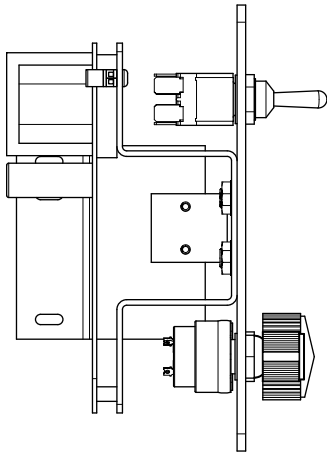
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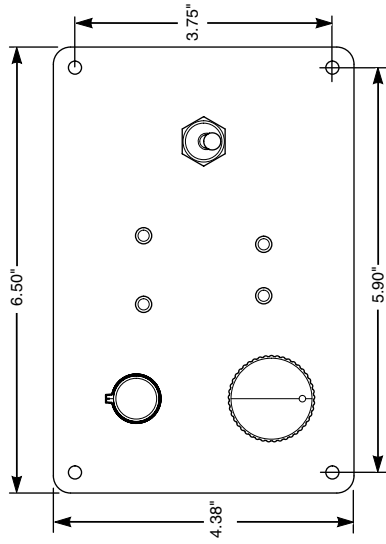


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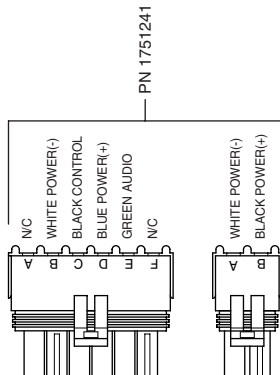
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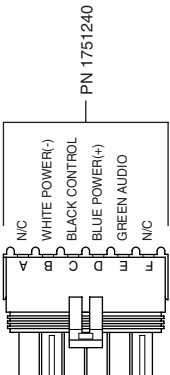
Federal Signal Corporation manufactures several different versions of the Atkinson Dynamics Intercom for Altec Industries Incorporated. Although each of these models are functionally the same as the standard single cable master (AD26C-1-Z) and slave (AD26D-1-Z) units, each has its own cable connector(s) and wire colors.

This figure illustrates each of the different connectors, the models that use them, and the functions and wire colors associated with each one.

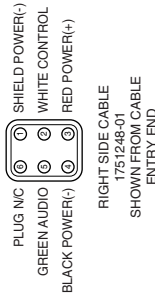
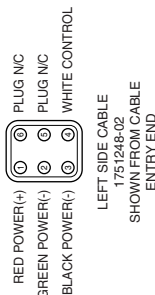
AD26C-1-ALT2
MASTER UNIT



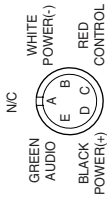
AD26D-1-ALT3
SLAVE UNIT



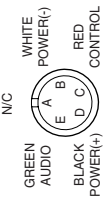
AD26C-1-ALT3
MASTER UNIT



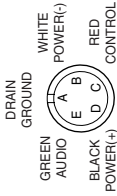
AD26C-1-ALT1
MASTER UNIT



AD26D-1-ALT
AD26D-1-ALT1
AD26D-1ALT2
SLAVE UNIT



AD26C-1-ALT
MASTER UNIT



AD26D-1-ALT4
SLAVE UNIT

