

INSTRUCTION MANUAL

# Auscultation Trainer and SmartScope™

LF01142 & LF01172



*Nasco*  
HEALTHCARE

# About the Simulator

The Auscultation Trainer Simulator features 28 heart and lung conditions selected by the instructor by wireless remote control. The simulator duplicates human conditions as closely as modern plastics and electronic technology allows.

The remote control does not have to be pointed directly at the manikin or SmartScope™ to operate. One remote control will operate multiple sets of SmartScopes™ and manikins simultaneously. Great for group instruction. The range of the remote control is up to 100 feet. LF01172 includes amplified speaker. LF01142 does not include amplified speaker.

## LIST OF COMPONENTS

- Trainer Torso
- Remote Control
- Colored Dots
- SmartScope™ with Single- & Dual-Use Headpieces
- Amplifier/Speaker System (LF01189U included in LF01172U only)
- Batteries
- Hard Carry Case details.

## SET UP

- Remove product from packaging.
- Install batteries first in the remote and then in the SmartScope™. (See Figure 1.)
- Retain packaging for storage.



Figure 1

## GENERAL INSTRUCTIONS FOR USE

1. To begin using the Auscultation Trainer, press the red power button. This turns on the remote control and sends a signal to activate the SmartScope™ as well. After the unit is activated, the display will be in the “status” mode, displaying the current menu settings for the heart and lung conditions.
2. To select a new condition, press either the heart or lung button. This will put the display into the menu mode. The user can select a condition by either using the number buttons, or by viewing the conditions in sequence using the scroll button.
3. After the condition is selected, press the enter button to activate or write our Customer Service Department.

### The remote control can be programmed to these heart conditions:

- 01 Normal Heart
- 02 Aortic regurgitation
- 03 Pulmonary stenosis
- 04 Mitral stenosis
- 05 Holosystolic
- 06 Mid-systolic
- 07 S3 Gallop
- 08 S4 Gallop
- 09 Systolic click
- 10 ASD
- 11 PDA
- 12 VSD

# Warranty

## The remote control can be programmed to these lung conditions:

- 01 Normal lung
- 02 Vesicular
- 03 Wheezes
- 04 Mono wheeze
- 05 Fine crackle
- 06 Coarse crackle
- 07 Ronchi crackle
- 08 Stridor
- 09 Cavernous
- 10 Bronchovesicular
- 11 Bronchial
- 12 Pulmonary edema
- 13 Infant
- 14 Friction rub
- 15 Egophony
- 16 Pectoriloquy

4. To listen to the selected sounds, place the ear pieces in ears angled in a forward position. Place the diaphragm of the SmartScope™ over one of the appropriate sites on the manikin. **(See diagram on pages 4 & 5.)**

5. As an alternative, an amplified speaker (LF01189, included with LF01172) can be used, allowing an entire classroom to hear at the same time. To connect the speaker, plug the speaker cord into the speaker jack on the top of the Smart-Scope™ box. **(See Figure 2.)** When a speaker is connected to the Smart-Scope™, the ear pieces will not work. Place the diaphragm of the SmartScope™ over the appropriate sites on the manikin. **(See diagram on pages 4 & 5.)**

6. Colored dots are included with the torso to aid with teaching.



## CARE AND MAINTENANCE

- Clean torso when needed using Nasco Cleaner (LF09919).
- Store in hard carry case in a temperature controlled environment, avoiding extreme hot or cold temperatures.
- Replace batteries regularly for optimum working condition.
- It is recommended that batteries are removed when not in use.
- Avoid getting ink on torso simulator or practice boards. Ink will transfer indelible stains.

## TROUBLESHOOTING

- When preparing to use your SmartScope™ and remote, use batteries that are fully charged and installed correctly. **(See Figure 3.)** The SmartScope™ is not equipped with a power button; this may drain the useful life of your batteries.
- Due to frequency changes,

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Adult Auscultation Trainer SmartScopes™ with serial numbers 0 to 4999 are only compatible with remotes with serial numbers 0 to 4999. SmartScopes™ with serial numbers 5000 and up will only work with remotes with serial numbers 5000 and up. The serial numbers are located on the back of the device and are handwritten in ink. (See Figure 4.)



## COMMON CAUSES OF NO SOUNDS

- **Incorrect SmartScope™ placement.** Move the SmartScope™ slowly over the torso to locate sensors. See diagrams on page 5 for placement of sensors. You may apply color-coded dots on the heart and lung sites to assist with training.
- **Ear tips facing the wrong way.** Verify that the ear tips of the SmartScope™ are facing forward in your ear canal.
- **Battery replacement.** After installing new batteries, make sure to turn the remote off and back on. This allows the remote and SmartScope™ to reset.  
**NOTE:** SmartScope™ does not turn off.

- **Battery saver mode.** The remote will go into battery saver mode if left on the same setting for 8 minutes. Sounds will not be heard if the remote is off.
- **Using multiple remotes**  
One remote will operate all SmartScopes™ within 100 ft. simultaneously as long as the serial numbers are compatible. Using multiple remotes can cause interference. (See Figure 5.)

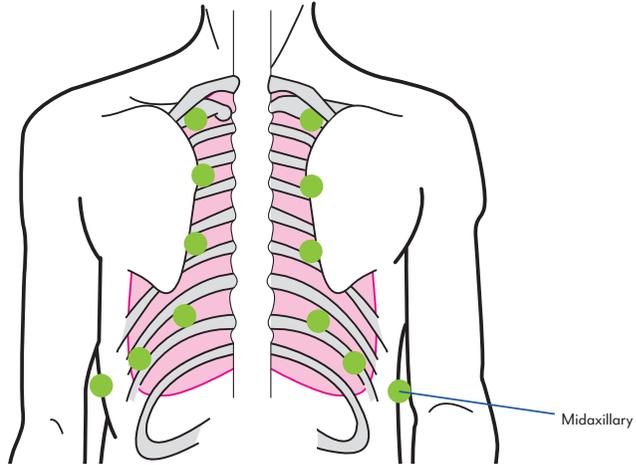
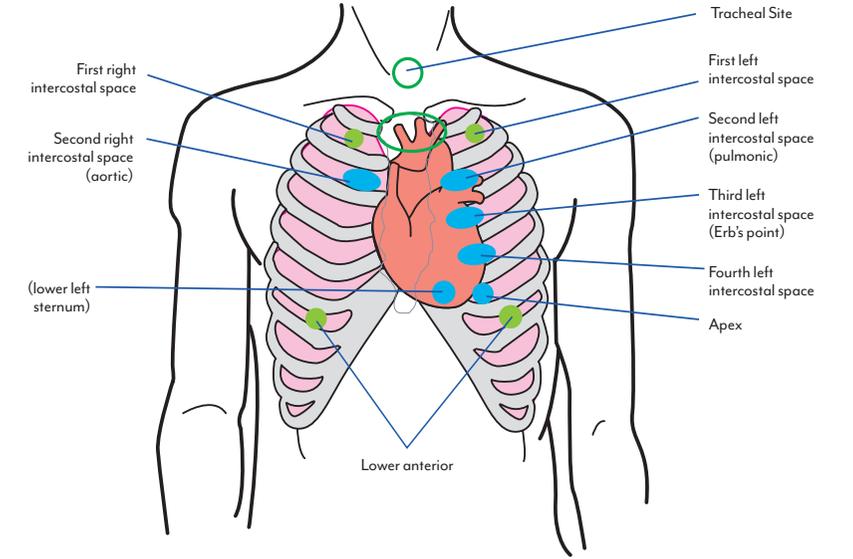


- **Interference.** Wireless communication from another transmitter using 433 MHz may cause sound selection issues or existing sounds to stop or restart. Reset the remote by turning it off briefly, then on again and select a different Heart or Lung sound.
- **Connecting an external speaker.** Insert the jack end of the speaker cord into the top of the SmartScope™. (See Figure 2.)
- **Using an external speaker.** When using an amplifier/speaker, no sounds will be heard through the SmartScope™ ear tips.
- **Check volume.** Make sure the volume on the amplifier/speaker is turned up.

## AVAILABLE SUPPLIES

- LF01144 Additional SmartScope™
- LF01148 Replacement Remote Control
- LF09919 Nasco Cleaner
- SB20146 Amplified Speaker

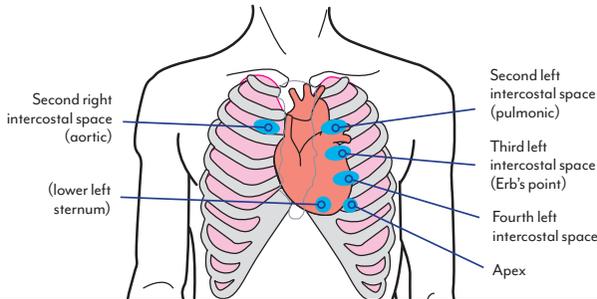
## ANTERIOR HEART AND LUNG SITES



## POSTERIOR LUNG SITES

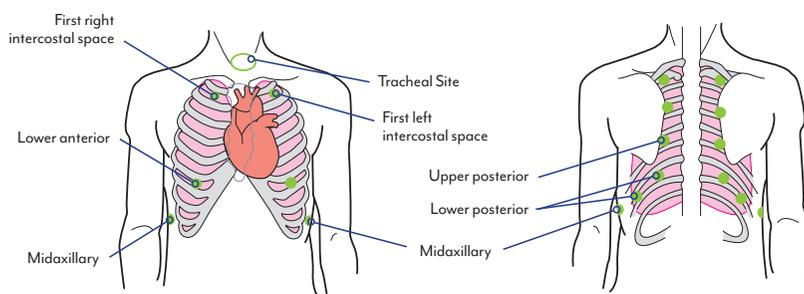
# About the Simulator

## ANTERIOR HEART SITES



	Aortic Second Right Intercostal Space	Pulmonic Second Left Intercostal Space	Erb's Point Third Left Intercostal Space	Fourth Left Intercostal Space	Lower Left Sternum	Apex
1. Normal	Normal, S2 Accentuated	Normal, S2 Accentuated	Normal, S2 Accentuated	Normal	Normal	Normal
2. Aortic Regurgitation	Ejection Sound, Loud Mid systolic & soft early diastolic murmur	Ejection sound, mild systolic murmur, early diastolic blowing murmur			Normal	Normal
3. Pulmonary Stenosis	Normal	Moderate 4th sound, harsh late peaking systolic murmur, soft late pulmonic 2nd sound	Normal	Normal	Normal	Normal
4. Mitral Stenosis	Normal	Normal	Severe held expiration, tachycardia: opening snap .03 seconds after loud 2nd sound	Constrictive Pericarditis/knock. Inspiratory augmentation indicates a gallop of right ventricular origin	Normal	Held expiration, tachycardia: opening snap, mid diastolic & presystolic murmurs, loud 1st sound
5. Holosystolic Murmur	Normal	Normal	Normal	Normal	Patient has mitral regurgitation & frequent premature ventricular contractions. Murmur is crescendo-decrescendo with late peaking. Soft S3 in mid diastole.	
6. Midsystolic Murmur	Normal	Normal	Normal	Normal	Patient with hypertrophic cardiomyopathy has a murmur that begins after S1 and ends before S2	
7. S3 Gallop	Normal	Normal	Normal	Normal	Patient has a readily heard third heart sound. S3 occurs later in diastole than the opening snap.	
8. S4 Gallop	Normal	Normal	Normal	Normal	Patient with left ventricular hypertrophy has a fourth sound (S4) that is not heard on every cycle. The sound is presystolic about .1 second before S1.	
9. Midsystolic Click	Normal	Normal	Normal	Normal	Patient has mitral prolapse which produces a mid systolic click heard during inspiration.	
10. Atrial Septal Defect	Normal	Respiration: mid systolic murmur, fixed split 2nd, soft 3rd, breath sounds with inspiration	Normal	Respiration: mid systolic murmur, fixed split 2nd, mid diastolic murmur	Normal	Normal
11. Patent Ductus Arteriosus	Normal	Continuous murmur	Normal	Continuous murmur	Normal	Normal
12. Ventricular Septal Defect	Normal	Normal	Holosystolic murmur with late crescendo		Normal	Normal

## ANTERIOR/POSTERIOR LUNG SITES



	Tracheal Site	First Left & Right Intercostal Sites	Upper Posterior Lung Sites	Lower Posterior Lung Sites Two Midaxillary Sites 2 Lower Anterior Sites
1. Normal Lung	Tracheal	Bronchovesicular	Normal Vesicular	Normal Vesicular
2. Normal Vesicular	Tracheal	Bronchovesicular	Normal Vesicular	Normal Vesicular
3. Wheezes	Wheeze	Wheeze	Wheeze	Wheeze Lower Volume
4. Mono Wheeze	Mono Wheeze	Mono Wheeze	Mono Wheeze	Mono Wheeze Lower Volume
5. Fine Crackle	Fine Crackle	Fine Crackle	Fine Crackle	Fine Crackle
6. Coarse Crackle	Coarse Crackle	Coarse Crackle	Coarse Crackle	Coarse Crackle
7. Ronchi	Ronchi	Ronchi	Ronchi	Ronchi
8. Stridor	Stridor	Stridor	Stridor Lower Volume	Stridor Lower Volume
9. Cavernous	Cavernous	Cavernous	Cavernous	Cavernous
10. Bronchovesicular	Tracheal	Bronchovesicular	Normal Vesicular	Normal Vesicular
11. Bronchial	Bronchial	Bronchial	Normal Vesicular	Normal Vesicular
12. Pulmonary Edema	Pulmonary Edema	Pulmonary Edema	Pulmonary Edema	Pulmonary Edema
13. Infant	Infant	Infant	Infant	Infant
14. Friction Rub	Tracheal	Bronchovesicular	Friction Rub	Friction Rub
15. Egophony	Egophony	Egophony	Egophony	Egophony
16. Pectoriloquy	Pectoriloquy	Pectoriloquy	Pectoriloquy	Pectoriloquy



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