QUICK START GUIDE

DC and DCC Operation of Atlas Gold Series HO Scale RS-1 Diesel Locomotives

equipped with ESU LokSound Select Sound-Decoders

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for ESU Firmware Version 4.10.?

Quick Start for DC and DCC Operation of Atlas Gold Series HO-Scale Alco RS-1 Locomotives Equipped with ESU LokSound Select Sound-Decoders

Congratulations on your purchase of an Atlas Master™ Gold Series HO-scale model of an Alco RS-1 locomotive that is factory-equipped with an ESU LokSound Select sound-decoder. This sound-decoder provides the highest quality sound plus state-of-the art motor control. Your locomotive can run on either conventional DC (with basic features) or on NMRA Digital Command Control (with full features).

This document describes the features of the LokSound Select sound-decoder installed in the Atlas HO Gold Series Alco RS-1 locomotive when the locomotive is operated on DC and on DCC power. Please note that a few updates to the software used in this locomotive have been made. As a result, certain DCC function buttons operate somewhat differently than they did in the first two Atlas HO Gold Series locomotives (RS-3 and S-2) that were equipped with LokSound Select sound-decoders. You can download from the Atlas website the current version of the Atlas *User Manual* [1], which includes this locomotive. This *User Manual* explains in detail the differences in DCC function key operation between various ESU software versions, as well as giving a more complete description of both DC and DCC operation.

DC Operation of your Atlas HO-scale Gold Series RS-1 Locomotive

Using a standard variable-voltage DC power pack, turn the DC throttle up slowly until you begin to hear locomotive sounds (around 5 volts). You will hear the diesel engine *Start-Up sound sequence*, which lasts about 25 seconds. The locomotive will **NOT** move before the *Start-Up* sequence has been completed. The headlight facing the direction in which the locomotive will move turns on in its *Dim* state. Once the start-up sequence has been completed, turn up the throttle voltage up (to about 7 volts) until the locomotive starts to move. Note that you must turn the throttle to a higher setting than you would to make a non-sound locomotive start to move. The locomotive starts moving slowly due to built-in inertia from the *BEMF* (Back EMF) motor control. The headlight in the direction of movement will turn from *Dim* to *Bright*; the headlight facing the opposite direction will be *Off*.

On a DC-powered layout, an Atlas HO-scale Gold Series Alco RS-1 locomotive will *automatically* produce sounds that are appropriate for its current state of operation. For example, the *Startup* sound sequence plays before the locomotive begins to move, and *Brake Squeals* play as the locomotive grinds to a halt. However, it is not possible to trigger individual sounds (such as the *horn* or *bell*) manually with DC track power. If you wish to have manual control of sounds, Atlas suggests that you invest in a *Basic DCC System* which will allow you to control all available sounds and other special effects in your locomotive and yet be essentially as simple to operate as a DC power pack. *Basic DCC Systems* that are currently available include the:

- NCE DCC Twin,
- MRC Prodigy Explorer DCC,
- MRC TECH 6 Sound Controller 6.0 (usable in smaller scales, but primarily intended for O-scale and larger).

Moreover, one can change certain operational characteristics of the locomotive when operating on DC power, using the same DCC programming that is used to change these characteristics in DCC operation. See Reference [1] for details. However, a *Standard* (full-featured) *DCC System*, as opposed to a *Basic DCC System*, may be needed to make some or all of these changes.

DCC Operation of your Atlas HO-scale Gold Series RS-1 Locomotive

- **Start-Up Behavior**

  As shipped from the factory, this locomotive behaves as follows at start-up:

  - Locomotive sounds will start up immediately after DCC power is applied to the track. You will first hear the sounds of a diesel locomotive starting up from a powered-down state, followed by normal idling sounds and (after the DCC throttle is advanced) running sounds.
  - Even if you advance the DCC throttle, the locomotive will NOT move until **AFTER** the entire *Start-Up sound sequence* has played.

  If the above behavior at startup is acceptable, there is nothing more that you need to do. If, however, you would like your locomotive to behave differently, see Example 3 in Appendix 4 of Reference [1] to change the behavior described in the first Dash item and Example 1 in Appendix 4 of this same reference to change the behavior described in the second Dash item

- **DCC Functions Available in Atlas HO-Scale Gold Series Alco Locomotives**

  The ESU LokSound Select sound-decoder provides a number of different DCC functions that can be triggered by pressing the appropriate key (e.g., press the "5" key to trigger DCC Function #5) on your DCC controller. The following table lists the DCC functions available in the ESU LokSound Select sound-decoder installed in Atlas Gold Series HO-scale RS-1 locomotives.

DCC Function Key Operation for Atlas HO-scale Gold Series RS-1 Locomotives

Function Key	Locomotive Behavior when Press Function Key	Function Behavior (Latching or Non-latching)	Works Only with Engine Sounds On	Works Only When Moving
F0	Front and Rear Headlights are directional.	Latching	No	No
F1	Bell (1st push on/2nd push off)	Latching	No	No
F2	Horn blows until push F2 key again	Latching	No	No
Horn	Horn blows only while Horn key held down	Non-Latching		
F3	Two Coupler Clank sounds alternate	Non-Latching	No	No
F4	Diesel Fans (1st push on/2nd push off)	Latching	Yes	No
F5	Dynamic Brake Fan (1st push on/2nd push off) Only active when prime mover sound on	Latching	Yes	Yes
F6	Optional Ditch Lights (1st push on/2nd push off)	Latching	-	-
F7	Switching Mode (1st push on/2nd push off)	Latching	No	No
F8	Audio Mute and Start Up/Shut Down	Latching	No	No
F9	Manual Notching Up sounds (1st push on/2nd push off)	Latching	Yes	No
F10	Manual Notching Down sounds (1st push on/2nd push off)	Latching	Yes	No
F11	AUX3 Function Output (1st push on/2nd push off). Preset to MARS light	Latching	-	-

DCC Function Key Operation for Atlas HO-scale Gold Series RS-1 Locomotives (continued)

Function Key	Locomotive Behavior when Press Function Key	Function Behavior	Works Only with Engine Sounds On	Works Only When Moving
F12	Dim Headlight (1st push dim/2nd push bright)	Latching	No	Yes
F13	AUX4 Func Output (1st push on/2nd push off)	Latching	-	-
F14	Talking Defect Detector sounds	Detector sounds play each time F14 is pressed	No	No
F15	Cab Radio Communication sounds	Radio communication sounds play each time F15 is pressed	No	No
F16	Rail-joint Clank sounds (1st push on/2nd push off) Only active when prime mover sound on	Latching	Yes	Yes
F17	Brake Set/Release sounds with each push	Non-Latching	Yes	Yes
F18	Sanding Valve sounds (1st push on/2nd push off)	Latching	Yes	No
F19	Short Air Let-off sounds	Press F19 twice	No	No
F20	Air Compressor sounds (1st push on/2nd push off)	Latching	Yes	No
F21	Pop Valve sounds (1st push on/2nd push off)	Latching	No	No

Section 4.1 in Reference [1] explains the operation of DCC functions F1 to F21 in detail.

Default Headlight Operation in Atlas HO-scale Gold Series RS-1 Locomotives

Since prototype Alco C424/C425s were road locomotives, their headlights would normally be turned on only in the direction that the locomotive was moving. Furthermore, the switch controlling the headlight of a prototype locomotive is normally set to its *dim* position when the locomotive is standing still. The following table illustrates how Atlas's model RS-1 locomotive mimics this behavior.

Light	Forward	Stopped after Forward	Reverse	Stopped after Reverse
Front Headlight	Bright	Dim	Off	Off
Rear Headlight	Off	Off	Bright	Dim

When the locomotive is first powered up, you may need to press the *F0* (or *Headlight)* key on your DCC system one or two times to turn on the directional front or rear headlight.

- **DCC Programming Locations**

Most DCC systems allow you to program a Configuration Variable (CV), such as the DCC address of a locomotive, in either of two places:

- On a special section of track not connected in any way to your layout and called the Program Track. (In DCC terminology, programming locomotives on the program track is called *Service Mode Programming*.)
- Anywhere on the Main Line (regular track) of your layout. [In DCC terminology, programming a locomotive on the main line of your layout is called either *Programming on the Main (POM) or Operations Mode (Ops Mode)* programming.]

- In almost all cases, the ESU LokSound Select decoder installed in your Alco RS-1 locomotive can be programmed on your program tack **WITHOUT** a Program Track Booster connected between the program track output of your DCC system and your physical program track. However, if you do need a Program Track Booster, Atlas recommends the PTB-100 from SoundTraxx.

- **Programming a New DCC Address for Your Locomotive**

The decoder in every Atlas Gold Series locomotive comes from the factory set to use the short address "3." However, in order to control (independently) several locomotives on the same track at the same time, it is necessary that each locomotive have a unique DCC address. A convenient choice for the DCC address is the road number printed on the side of the locomotive's cab. Frequently, the number on the side of the cab is a 3- or 4-digit number, which is treated in DCC as a Long (or 4-digit) Address.

If your DCC system allows you to program 4-digit addresses on the main line (many DCC systems do), Atlas recommends that you take advantage of this capability by programming the address of your Gold Series locomotive on the main line using Operations Mode (Ops Mode) programming.

- **Air Horn Selection**

For the Alco RS-1, the default horn is a Dual Leslie A200/A125 (i.e., CV48 = 64). If you wish to use a different air horn, you may choose from the 16 air horns that are listed in the following table. To select a horn, write into CV48 the value listed to the right of the name of that horn in this table.

Air Horn Name	CV48 Value
Dual Leslie A200/A125	64
Leslie A125	65
Nathan M5	66
Nathan P3	67
Nathan P5A	68
Nathan Single Chime	69
Leslie A200	70
Leslie S3L	71
Leslie S5T	72
Nathan M3	73
Hancock Air Whistle	74
Wabco E2	75
Leslie Supertyfon	76
Nathan M3H	77
Dual Single Chime	78
Nathan K3	79

- **Resetting your Lok-Sound Select Equipped Loco to Factory Default Values**

  Resetting the firmware in the LokSound Select sound-decoder to its factory-built configuration can resolve many problems that sometimes occur with firmware-controlled electronics. In fact, we have found that at least 20 to 25 percent of the problems with Gold Series locomotives that we receive for repair at Atlas can be resolved simply by resetting the sound-decoder. Hence, the very first step you take to resolve a problem should be to reset the LokSound Select sound-decoder in your locomotive using the following procedure:

  - Place the locomotive on your program track and write the value 8 into CV8.
  - Cycle power to the decoder first off and then on again by:
    - Tipping the locomotive to one side so that all the wheels on the opposite side are off the rail,
    - Holding the locomotive in this tipped position for 5 to 10 seconds,
    - Slowly lowering the locomotive back down until all wheels are once again on the program track rails.

  The second dashed item listed above (power cycling) is ***extremely*** important; do ***not*** omit it.

REFERENCES

[1]. *User Manual: DC and DCC Operation of Atlas Gold Series Diesel Locomotives equipped with ESU LokSound Select Sound-Decoders,* Version 1.21, 15 May 2014 (or later). Download from Atlas model website:

http://www.atlasrr.com/

Choose *Support*, *DCC Support*, and then double click on the listing for this document.

[2]. *LokSound Select User Manual for Diesel and Steam Decoders,* Third Edition (or later), May 2012. You can download the ESU *LokSound Select User Manual* document from the ESU website:

http://www.esu.eu/en/start/

by first selecting *DOWNLOADS.* Then click on *Instruction Manuals*. Next, click on *Digital Decoders.* Finally, single-click on the *Download* icon in the box labeled *LokSound Select Users Manual.*

Appendix: Body-Removal Instructions for Atlas HO-Scale RS-1 Locomotives

When reading these instructions, please refer to the exploded diagram and parts list that was packed with your Atlas HO RS-1 locomotive.

1. If you can, remove the side handrails from the cab on both sides. Do **not** remove the handrails from the sill casting. Removing the handrails from the cab reduces the chance of breaking them in Steps 3 through 6 below. However, if you are unable to remove the handrails from the cab relatively easily, do not force them.
2. The plastic hood casting is held onto the metal frame by four tabs that project downward from the bottom of the hood casting: two near the rear (one tab on each side) and two near the front. Each of these tabs has a rectangular slot that engages a rectangular dimple that projects inwards from an opening in the frame. To release a body tab, it must be pressed inward away from its mating frame dimple. You can see these body tabs and frame dimples on the Atlas HO RS-1 parts diagram that was included with your locomotive.
3. To release the two rear tabs, grab the fuel tank part of the frame casting with one hand and with the other hand grab rear part of the hood. Push inwards with your fingers so that both body tabs clear their frame dimples. Be careful where you place your hands and fingers so you don't break the handrails and detail parts. After the two frame tabs at the rear of the locomotive have been released, pull the rear part of the hood up just enough so that these rear tabs will not become re-engaged with the dimples on the frame.
4. To release the two front tabs, again grab the fuel tank part of the frame casting with one hand and grab the front part of the hood with your other hand. Repeat the procedure described in Step 3, but this time you will squeeze the front part of the shell.
5. Usually the technique described in Steps 3 and 4 will work. If it does not work, hold the rear portion of the body upside down between the thumb and forefinger of one hand so that you can see the bottom of the trucks. Using your other hand, insert a long thin flat headed screw driver between the side frame and the gearbox on one side of the rear truck so that you are pushing the rear body tab on that side inwards until it clears the dimple on the frame. Don't let the screwdriver go too far up, or you will damage the shell. While doing this inward pushing, squeeze, wiggle, and pull on that same side of the body so that the first body tab is released from its dimple on the frame. Do not be surprised if a number of small details fall off the roof during this process. You will be able to re-install them after reassembling the locomotive.
6. Perform the operations described in Step 5 on all four tabs so they are clear of the frame dimples. Be careful where you place your hands and fingers so you don't break the handrails and detail parts.
7. Once all four body tabs are released hold the locomotive frame in one hand by the fuel tank. With the thumb and forefinger of your other hand, carefully wiggle and pull the entire body away from the frame. Make sure that you are NOT holding onto the handrails when you grasp the body. This process should allow you to remove the body from the frame.
8. To replace the RS-1 body on its frame, place the body back onto the frame, after first making sure that the front of the body is on the front of the frame. Then push down firmly on the roof sections of the front hood, the cab, and the rear hood near the locations of the tabs until the body is seated firmly on the frame.
9. Re-install the handrails and any small detail parts that fell off.

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