✦ SOUNDS REPRODUCED ✦

The sounds of the Atlas O AEM-7/ALP-44 have been recorded from the actual locomotive and are prototypically correct for utmost realism. Sounds included are horn, bell, brake release, air compressor and cooling blowers.

HORN - is user activated in several ways. It can be activated by the whistle switch or button on transformers appropriately equipped or by a separate sound activation button, such as Lionel #6-5906. The horn can also be activated by the WHISTLE/HORN button on the LOCOMATIC™ CONTROLLER. The horn will play as long as the switch or button is held down. A manual switch allows the horn and bell to be deactivated so that, for multiple unit operation, only the lead locomotive's horn and bell will sound.

BELL - is user activated by the bell control on transformers or by a separate wired sound activation button. The bell can also be activated by the BELL button on the LOCOMATIC™ CONTROLLER. The bell sound will remain "on" when the bell control is activated and will turn "off" when the control is again activated. A manual switch allows the bell to be deactivated for multiple unit operation.

BRAKE RELEASE - will be heard when the locomotive changes from the "neutral" or "stop" position and starts to move in either forward or reverse direction.

AIR COMPRESSOR - sounds will be heard at random intervals. These sounds may not be noticeable when the locomotive is actually in motion, because of other sounds being produced.

COOLING BLOWERS - this sound is constantly "on" and does not change in either pitch or volume regardless of locomotive motion or direction. Blower sound can be turned "off" by means of the LOCOMATIC™ CONTROLLER. If the COOLING BLOWERS are "off", the only sound available is the horn.

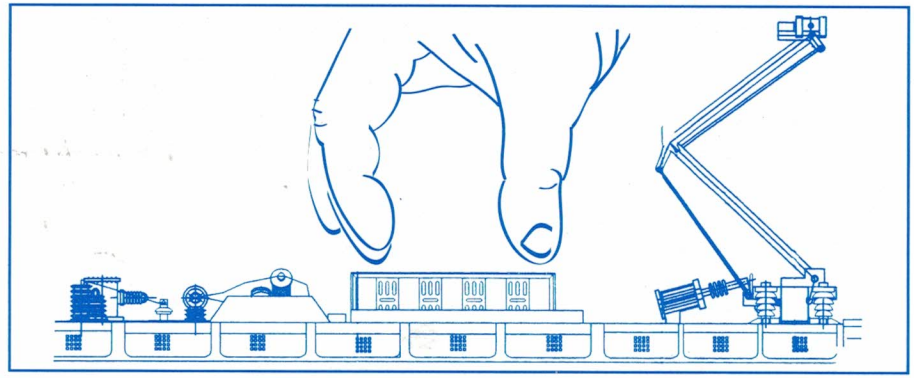
✦ LIGHTING FEATURES ✦

The AEM-7/ALP-44 is equipped with lighting that is directional so that the forward headlight and the rear marker lights will illuminate when the locomotive is in forward motion. When the locomotive is in reverse motion the rear headlight and forward marker lights will illuminate. The headlights and marker lights can also be manually operated by means of the ATLAS O LOCOMATIC™ CONTROLLER.

The locomotive is also equipped with roof top strobe lights that will automatically flash whenever the HORN or BELL are activated. The strobe lights will continue to flash for a short time after the HORN or BELL has sounded. The strobe lights can also be manually operated by the LOCOMATIC™ CONTROLLER. The rear strobe lights on this locomotive are decorative only and do not illuminate.

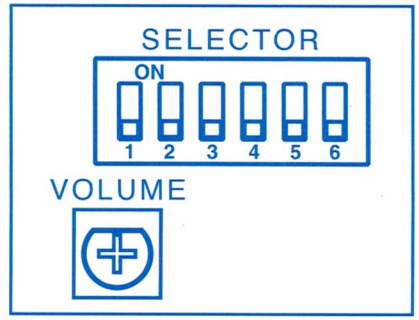
✦ MANUAL ADJUSTMENTS TO THE LOCOMOTIVE ✦

There are six switches and a volume control located on the top of the locomotive under the lift off housing between the pantographs (Fig. 1).



(Figure 1)

Gently squeeze the housing as shown and lift. The control switches and volume control (Fig. 2) are now accessible.



(Figure 2)

The six switches are normally set to the "off" position and select the following operations:

Switch 1 "off"--start in forward
"on"---start in neutral

Switch 2 "off"--normal sequencing
"on"---lock in start position

Switch 3 "off"--horn and bell can sound
"on"---horn and bell do not sound

Switch 4 "off"--forward coupler operational
"on"---forward coupler deactivated

Switch 5 "off"--rear coupler operational
"on"---rear coupler deactivated

Switch 6 "off"--forward direction is to locomotive front
"on"---forward direction is to locomotive rear

Switches 3 thru 6 are used primarily when two or more locomotives are operated together in a multiple unit lash-up. You can turn off the horn and bell in the trailing locomotives and deactivate the couplers between units so that only the couplers at the front and rear of the lash-up are operational. If any of the locomotives are actually facing to the rear, Switch 6 on such locomotives allows operation in concert with other units facing forward. When Switch 6 changes forward to rear all directional functions such as headlights, marker lights, strobe lights and couplers are switched also.

The volume can be adjusted with a small bladed screwdriver by turning either clockwise or counter clockwise to the desired volume level. It is suggested that the volume be set midrange for comfortable listening.

✦ OPERATION USING A TRANSFORMER ✦

This locomotive will operate in the same manner as other locomotives when using a transformer to vary speed. When power is applied the locomotive will come "on" in either the forward or neutral position, as selected, and blower sounds will be heard. If in forward, you will also hear a brake release and motion will begin. Momentary interruptions of power will allow the locomotive to sequence through the usual direction positions. Sequencing can be accomplished either by a direction switch/button or by turning the speed control to "off" and then back "on".

Traditional operation follows the usual forward-neutral-reverse-neutral sequencing pattern, except if you have selected start in neutral as an option. In that case, the sequencing pattern will be neutral-forward-neutral-reverse-neutral. (Refer to the section "Manual Adjustments to the Locomotive.")

Power interruptions for direction sequencing should be momentary only. If power remains "off" for more than a short time it is possible that the stored energy will be used up and the sound/control system will shut down. When power then returns the system will come "on" in its initial start position.

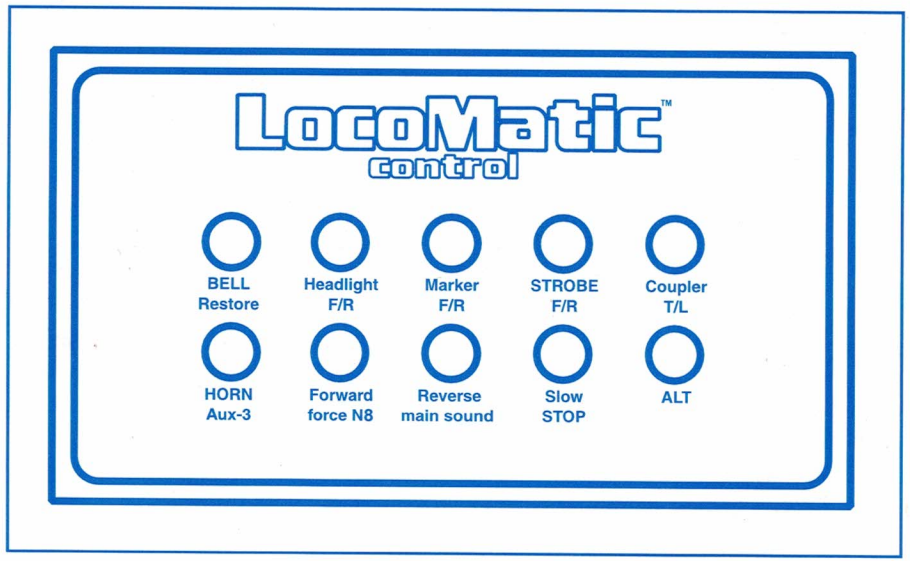
If your transformer includes whistle or bell controls, or if you have provided sound activation buttons, you will be able to sound the horn or the bell with these controls whenever there is power to the track. The horn will sound as long as you hold the control "on". The bell control is a push "on", push "off".

An added feature of this sound/control system involves the way the motor is driven, particularly at slow speeds. When track power is at lower voltages the system further reduces the power to the motor to provide extremely smooth and realistic slow speeds for starting and stopping your train. If the track power fluctuates at these lower voltages you may notice a slight surging in the speed of the locomotive. If track power is set high while in neutral and you sequence to a direction, the locomotive will gradually increase its speed rather than jump directly to the high speed. This type of operation not only looks better but also results in less strain on the entire motor/gear drive system and is less likely to cause derailments of the locomotive or its train.

✦ ATLAS LOCOMATIC™ CONTROL ✦

Your Atlas O AEM-7/ALP-44 will operate correctly with your transformer in the same manner as traditional locomotives, but with the simple installation of the LOCOMATIC™ CONTROL BOX, operation will be greatly enhanced.

The LOCOMATIC™ CONTROLLER contains ten operating buttons and is usable either in conjunction with your regular transformer or as an independent control with a fixed voltage applied to the track. The LOCOMATIC™ CONTROLLER is a pass through type of device which is wired between your transformer and the track. The LOCOMATIC™ CONTROLLER itself is powered by a 9 volt DC plug in power supply which is included. Some of the buttons cause activation as long as they are held "on" while others work in a push-on, push-off mode. The lower right hand button, labeled 'ALT', is the alternate button which provides a second function to each of the other nine buttons. For example, pressing the COUPLER button will operate the rear/trailing coupler while pressing ALT/COUPLER will operate the front/leading coupler. Not all of the buttons have alternate functions on this locomotive.



(Figure 3)

The ten CONTROLLER buttons perform the following when used with your Atlas O AEM-7/ALP-44 loco:

BELL - turns bell "on" or "off"

ALT/BELL - restores automatic directional lighting
Note - lighting on this locomotive is directional until a request is made via the CONTROLLER for a manual activation. Lighting functions will then remain manual via the CONTROLLER. Pressing ALT/BELL will allow all lighting functions to return to directional operation at the next direction request.

HEADLIGHT - turns front headlight "on" or "off"

ALT/HEADLIGHT - turns rear headlight "on" or "off"

MARKERS - turns front marker lights "on" or "off"

ALT/MARKERS - turns rear marker lights "on" or "off"

STROBE - turns front strobe lights "on" or "off"

ALT/STROBE - turns rear strobe lights "on" or "off"
Note - the rear strobe lights on this locomotive are decorative only and do not illuminate. The strobe lights of the Deluxe tail car will operate as rear strobe lights. The strobe lights on an additional locomotive if turned so that front is rear and switch #6 "on" will also operate as rear strobe lights.

COUPLER-------activates the locomotive rear/trailing coupler

ALT/COUPLER---activates the locomotive front/leading coupler

HORN - activates the horn

ALT/HORN - no function on this locomotive

FORWARD - forward motion overriding sequencing

ALT/FORWARD - no function on this locomotive

REVERSE - reverse motion overriding sequencing

ALT/REVERSE - turns COOLING BLOWERS sound "on" or "off"

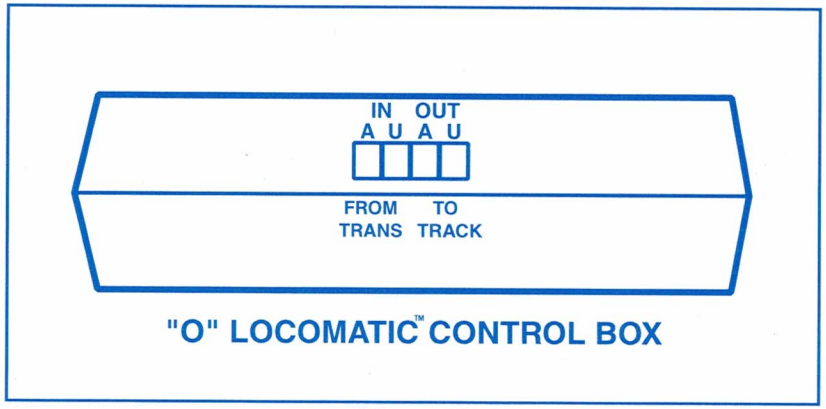
SLOW - neutral position overriding sequencing

ALT/SLOW - neutral position or emergency stop

ALT - alternate button for second functions

✦ INSTALLATION OF THE ATLAS O LOCOMATIC™ CONTROLLER ✦

Connect two wires from your transformer to the terminals on the CONTROLLER labeled IN. The U terminal is the "common" and the A terminal is the "hot".



(Figure 4)

Then connect two wires from the terminals labeled OUT to the track. The U terminal is connected to the outside rails of your track and the A is connected to the center rail. This installs the CONTROLLER as a pass through between your transformer and the track. We recommend using #20 stranded wire, such as Atlas item #315-319, as a minimum, for these connections. If the CONTROLLER is not "on," your transformer will still function normally. Connect the 9 volt DC power supply to the input jack on the CONTROLLER and plug it in. The CONTROLLER is now "on" and is ready to operate with your transformer.

Note - If on your transformer the horn button activates the bell and the bell button activates the horn, you will have to reverse the wire connections at one only of the following locations: at the transformer; at the IN terminals; at the OUT terminals or at the track.

✦ OPERATION USING THE LOCOMATIC™ CONTROLLER WITH YOUR TRANSFORMER ✦

The horn and bell can be activated by either your transformer controls or by the CONTROLLER. If the bell is turned "on" by your transformer it can be turned "off" by either your transformer or by the CONTROLLER, but if the bell is turned "on" by the CONTROLLER it must also be turned "off" by the CONTROLLER.

You can manually operate any of the lighting features on this locomotive using the CONTROLLER. Once you have selected any manual lighting, all automatic directional operation is overridden. However you can return to directional lighting at any time by using the ALT/BELL button.

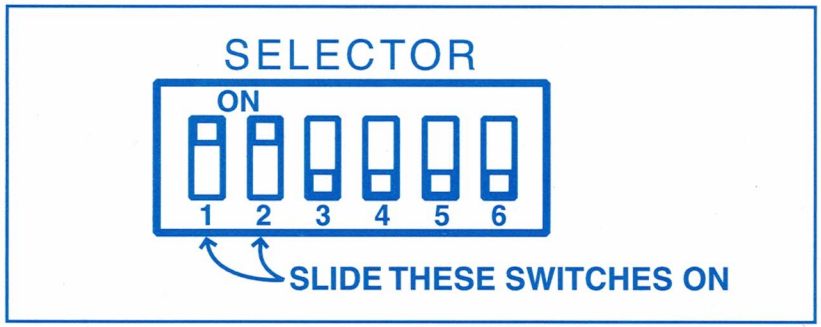
The electric coil couplers are activated ONLY by the CONTROLLER. There is a brief waiting time between coupler activations and a minimum of 14 volts on track is necessary in order to allow the coupler circuit to recharge. The couplers can be activated either in neutral or in a motion direction as you prefer.

With the CONTROLLER in place it is no longer necessary to follow the forward-neutral-reverse-neutral-forward sequence. If you are in neutral and wish to go forward, depress the FORWARD button and advance the speed control. The locomotive will move in the forward direction. You can actually set the speed control at a fixed voltage and operate the locomotive with just the FORWARD, REVERSE and SLOW buttons. The sound/control system in this locomotive has incorporated a momentum feature that will gradually increase speed to the the set voltage rather than just jump to that speed. The FORWARD button will result in a gradual increase in speed up to the preset voltage in the forward direction. The SLOW button will gradually return the locomotive to neutral while the ALT/SLOW is an immediate return to neutral. The REVERSE button will result in a gradual increase in speed up to the preset voltage in the reverse direction. The momentum feature will also work with the direction control on your transformer if you prefer to employ usual sequencing.

In summary, LOCOMATIC™ CONTROL allows fingertip operation of a unique sound system with the additional features of realistic, prototypical speed and direction control.

✦ LOCOMATIC™ COMMAND CONTROL ✦

In ADDITION to all of the previously described features, this locomotive will operate independently with just the ATLAS O LOCOMATIC™ CONTROLLER and fixed 15 to 18 volts AC on the track. To enter the INDEPENDENT CONTROL or "COMMAND" mode, all power to the locomotive must be "off" and all stored energy exhausted. Once you are sure that all power is gone, set Switch 1 to select neutral start on and set Switch 2 to lock on. These switches are located on the roof of the locomotive under the housing between the pantographs (see page 5).



(Figure 5)

With the locomotive locked to start in neutral, full LOCOMATIC™ COMMAND mode is entered as soon as track power is applied. Turn the speed control on your transformer to output approximately 18 volts and you are ready to operate under LOCOMATIC™ COMMAND.

***UNDER NO CIRCUMSTANCES SHOULD THE TRANSFORMER VOLTAGE IN THIS OPERATING MODE EXCEED 20 VOLTS.**

With the fixed voltage on track in this operating mode, all lights when turned "on" (including lighting in passenger cars or other equipment) will be at full illumination. The coil coupler circuit will also have full voltage for recharging so there will be less delay time between coupler activations.

The horn, bell, lighting and coupler controls function as before except that the locomotive will no longer respond to the horn and bell controls on your transformer. Lowering the voltage on your transformer will only effect a reduction in the top speed possible. We do not recommend operating at less than 14 volts as this is the minimum voltage for recharging the coil couplers.

The FORWARD, REVERSE and SLOW buttons are now speed and direction controls. Press and release either FORWARD or REVERSE and your locomotive will begin in that direction. With each, approximately 1/2 second, momentary button activation, the speed will increase one step through a total of 24 steps. Holding a button "on" will continuously increase through the steps to full speed. To slow down, you can activate or hold the SLOW button through the steps to a stop. You can also slow down by using the opposite direction button. If the locomotive is in forward direction and you hold the REVERSE button, the locomotive will slow to a stop and then accelerate in reverse. Similarly, if running in reverse, holding the FORWARD button will result in a slow to stop and then accelerate in forward. The ALT/SLOW button results in an emergency stop.

If there seems to be a lack of response to the buttons on the LOCOMATIC™ CONTROLLER it is generally due to either poor electrical contact between the pick up rollers, wheels and track because of dirt, or the lack of a choke (SEE SUPPLEMENTAL NOTE #1 on page 14) in series with something that is getting its power from the track.

Operating your locomotive/train is easy and fun by using the 10 blue buttons on the LOCOMATIC™ CONTROLLER. The desired sounds and directions can easily be achieved with either a push/release or by a push/hold.

LocoMatic™ Control

✦ SUPPLEMENTAL NOTE #1 ✦

The signals generated by the ATLAS O LOCOMATIC™ CONTROLLER *may* be adversely affected by any powered device that is connected to the track at the same time that the LOCOMATIC™ CONTROLLER is functional. This would include track powered accessories, lighted cars or a lighted or powered locomotive operating from the same transformer that is passed through the LOCOMATIC™ CONTROLLER.

To eliminate this possibility it is required that all accessories be independently powered by a separate transformer or transformers. Lighted cars or other lighted or powered locomotives that will be operating with a locomotive with this sound/control system installed MUST BE MODIFIED by installation of a choke in series between track pick up and the lights and/or motor.

The most common installation would be to locate the wires coming from the center rail rollers and disconnect them from the present location. Connect these wires to one end of the choke and then connect the other end of the choke to the same location that the wires were originally connected to. Be sure to properly insulate your connections and to mount the choke so that it does not move. Double-sided mounting tape makes a simple and neat installation.

In some situations, it may be simpler to connect the choke between the load and the frame ground. Either method is acceptable as long as the choke is in series between the track and the load.

All Atlas O locomotives and illuminated rolling stock will have the chokes factory installed. Additional chokes are available as separate sale accessories from Atlas O, item #62999.

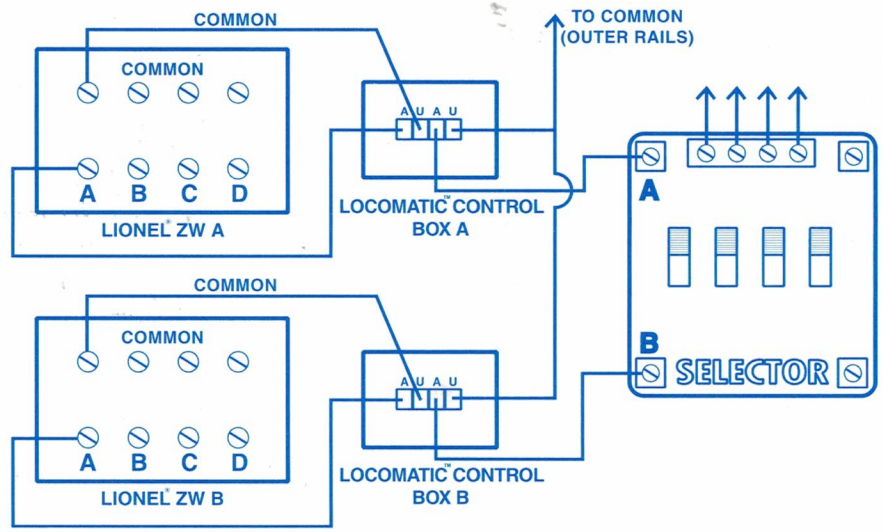
LocoMatic™ Control

(Hook-up of multiple LocoMatic™ Control boxes using Atlas Selectors)

✦ SUPPLEMENTAL NOTE #2 ✦

The LOCOMATIC™ CONTROLLER is designed to control all LocoMatic™ signals in a single electrical circuit of your layout. If your layout is divided into blocks, for multiple train operation, additional LOCOMATIC™ CONTROLLERS can be added to each circuit, should you wish the entire layout to have access to LOCOMATIC™ CONTROL at all times.

Figure 6 below illustrates a typical hook-up using multiple LOCOMATIC CONTROLLERS with Atlas Selectors. Additional LOCOMATIC™ CONTROLLERS are available from Atlas O, item #6020.



(Figure 6)

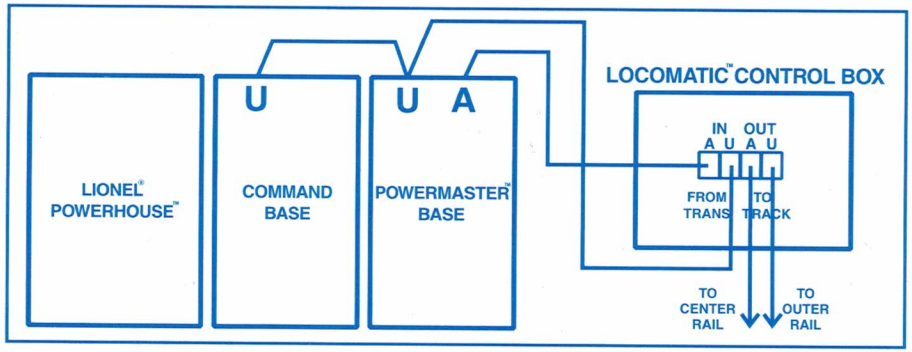
LocoMatic™ Control

(Simultaneous operation of an Atlas O LocoMatic™ compatible locomotive with a Lionel Trainmaster Command equipped locomotive)

✦ SUPPLEMENTAL NOTE #3 ✦

Since both of these control systems can function with a fixed AC voltage it becomes possible to operate simultaneously and independently with both systems on the same track if certain conditions are met.

The fixed voltage power to the Lionel Trainmaster Command System must be passed through the ATLAS O LOCOMATIC™ CONTROLLER before being connected to the track. See Fig. 7 below.



(Figure 7)
(Hook-up of LocoMatic™ Control Box to Lionel Trainmaster Command)

The LOCOMATIC™ CONTROLLER does not interfere with the Lionel Trainmaster Command Control System. All Command equipped locomotives or other devices that are common to the fixed voltage power supply will require the installation of a choke in series with power pick up. This series connection can be made either on the center rail pick up or on the ground, whichever is easier. Refer to Supplemental Note #1(page 14) for additional information.

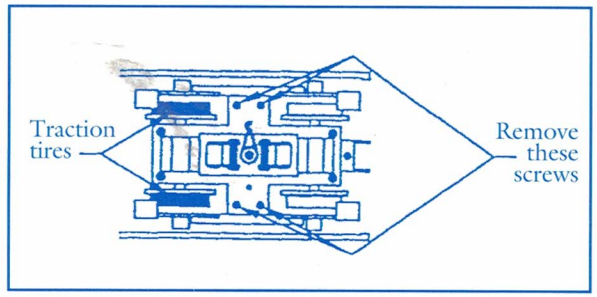
With the above installation completed and track power "on", the Lionel Command equipped locomotive is operational via the Trainmaster Command Control System. Another locomotive, equipped with a LOCOMATIC™ sound/control system in the LOCOMATIC™ COMMAND MODE, can also be operated at the same time on the same track via the LOCOMATIC™ CONTROLLER.

A WORD OF CAUTION—as can happen with any command control system, when operating several locomotives simultaneously, remember that "cornfield meets", also known as head on or rear end collisions, are a real possibility.

✦ TRACTION TIRE REPLACEMENT ✦

The inner wheelsets of both trucks of the locomotive are equipped with rubber traction tires. If it becomes necessary to replace a damaged tire, replacement is easy. Remove the truck sideframe on the side of the defective tire by loosening the 2 screws that hold the sideframe to the truck underside. See Figure 8.

Stretch the replacement tire over the wheel and fit it into the wheel groove. Make sure that the tire sits flat in the groove and is not twisted. Reassemble the sideframe to the truck. Extra tires are included with the loco.



(Figure 8)

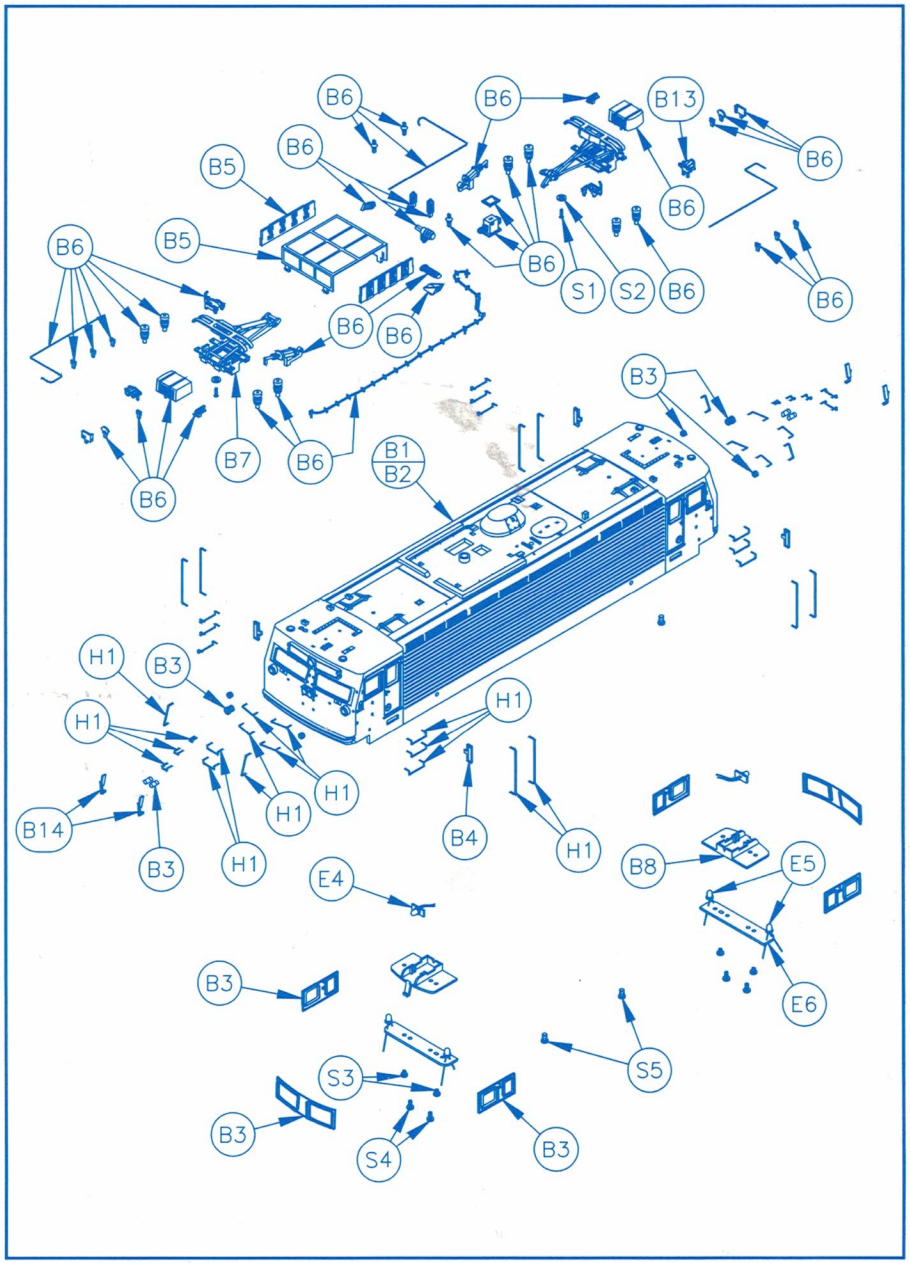
✦ LUBRICATION ✦

The Atlas O AEM-7/ALP-44 locomotive has been lubricated at the factory. After 10 hours of operation it is suggested that a drop of light lubricant be applied to the axles where they roll in the bronze bushings, as well as to the pick up rollers. DO NOT OVER LUBRICATE!

✦ ASSEMBLY PARTS #1 ✦

PART#	GROUP DESCRIPTION
B1-620200	AEM 7 BODY
B2-620201	ALP 44 BODY
B3-620202	CAB GLAZING SET Front Window Rightside Window Leftside Window Side Marker Light Front Light Glass Marker Light Glass
B4-620204	MIRRORS
B5-620205	ROOF ELECTRICAL BOX Box Top Box Sides
B6-620206	ROOF DETAIL SET Air Hose Air Cylinder Pant Lock Pant Lock Rod Pant Lock Brackets Air Hose Brackets Air Hose End Bracket Insulator A Insulator B Insulator C Insulator D Insulator E Insulator F Insulator G Pantograph Insulator Pantograph Cylinder MTG Bracket Ins D Junction Box Junction Box Cover Roof Piping Electrical Box Warning Sign Lifting Bracket
B7-620207	PANTOGRAPH ASSEMBLY Roof Mtg. Bracket Pant Hold Down Insulator Top Bracket Pant Support Bar Upper Leg Actuating Bar Lower Leg Upper To Lower Leg Toggle Upper Leg Actuating Bar Toggle Rivet Upper Leg
	Upper Insulator Plate Upper Leg To Pant Support Pin Pant To Pant Support Pin Pant Collector Pant Spring
HI-620208	HAND RAIL SET Door Hand Rails Side Step Grabs Window Center Grabs Under Window Grabs End Center Grabs
B8-620209	CAB LIGHT SHIELD
B9 -620210	CAB DETAIL SET Floor Back Wall Dash Board Dash Boardlight Bar
B10-620210	CAB DETAIL SET Electrical Cabinet Seats Control Stand Control Levers Telephone
B11-620211	FIGURES
B12 -620212	PILOT DETAIL SET Coupler Lift Bar Coupler Lift Bar Brackets Short Coupler Lift Bar Brackets Long Air Hose Left Air Hose Right Step
B13-620213	HORN
B14 -620214	WINDSHIELD WIPERS
B15-620215	BELL

✦ ASSEMBLY DRAWING #1 ✦



✦ ASSEMBLY PARTS #2 ✦

PART#	GROUP DESCRIPTION
C1-610400	CHASSIS
C2-620401	3 RAIL PILOT
C3-620402	3 RAIL COUPLER Coupler Shaft Knuckle Knuckle Rivet Knuckle Spring Centering Spring Plate Centering Spring Plate Screw Coupler Mtg Box
C4-620403	WEIGHT
C6-620405	UNIVERSAL U1 Universal Outer Connector U2 Universal Spyder U3 Universal Male U4 Universal Female
E1-620501	L.E.D. RED
E2-620502	BULB CLEAR
E3-620503	CAB FRONT PC BOARD
E4-620504	LED RED
E5-620505	LED CLEAR
E6-620506	ROOF PC BOARD
E7-620507	3 RAIL MAIN PC BOARD
E9-620509	MOTOR ASSEMBLY Motor Motor Mounts Fly Wheels
E11-620511	WIRE W/ SPADE ROLLER PICK UP
EI2-620512	SPEAKER
S1-620601	PANTOGRAPH MTG SCREW
S2-620602	WASHER
S3-620603	PC BOARD TO LIGHT SHIELD
S4-620604	PC BOARD TO BODY
S5-620605	MAIN PC BOARD SCREW
S6-620606	CAB FLOOR SCREW
S7-620607	MOTOR MOUNT SCREW
S8-620608	BODY MOUNT SCREWS
S10-620610	GEAR COVER SCREW

PART#	GROUP DESCRIPTION
S11-620611	TRUCK SIDE FRAME SCREW
S13-620613	ROLLER MTG SCREW
S14-620614	WEIGHT MOUNTING SCREW
T1-620701	TRUCK ASSEMBLY 3 RAIL
T3-620703	3 RAIL WHEEL SET Wheel Grooved for Traction Tire Axle Axle Insulating Bushing Thrust Washer Axle Bushing Gear Traction Tire
T5-620705	GEAR CASE RIGHT
T6-620706	GEAR CASE LEFT
T7-620707	GEAR CASE SCREW
T8-620708	GEAR SHAFT BUSHING
T9-620709	THRUST WASHER
T10-620710	WORM SHAFT
T11-620711	UPPER IDLER GEAR
T12-620712	DOUBLE GEAR MIDDLE GEAR
T13-620713	LOWER IDLER GEAR
T14-620714	GEAR COVER
T15-620715	SIDE FRAME RIGHT
T16-620716	STDE FRAME LEFT
T19-620719	C CLIP
T21-620721	3RAIL WHEELSET WITH TRACTION TIRE Axle Wheel with Groove Gear Axle Bushing Axle Insulating Bushing Traction tire
T20-620720	ROLLER ASSEMBLY Roller Link Mounting Plate Roller Rivet Plate Rivet

✦ ASSEMBLY DRAWING #2 ✦