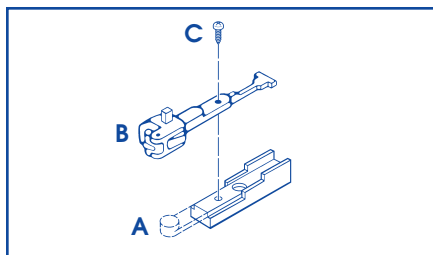


KNUCKLE COUPLER INSTALLATION

- Remove Hook & Loop coupler.
- Clip tab "A" from end of tongue and file smooth.
- Attach USA knuckle coupler "B" with #4 screw (C) provided.



SERVICING

This Diesel locomotive is built with pride by USA Trains and is covered by a limited warranty. (See limited warranty terms). Please follow these instructions carefully before sending your locomotive for service:

1. Return locomotive in its original blue/red box with the proper foam inserts and then pack the original box in a proper shipping carton so it is well protected in shipment. The package must be fully insured and prepaid. USA Trains is not responsible for damage or loss during shipment.

2. Include a note explaining the problem and servicing you need performed. Be sure to include your name, street address, (NO P.O. BOXES PLEASE) City, State, Country (if outside U.S.A) and zip code along with a daytime phone number including area code. If the locomotive service is not covered by warranty, a reasonable service fee will be charged. For any locomotives to be returned outside the continental U.S.A., please include \$25.00 U.S. currency to cover return postage. Any locomotives returned to customers in the continental U.S.A. will be pre-paid by USA Trains.

3. Ship your item to:

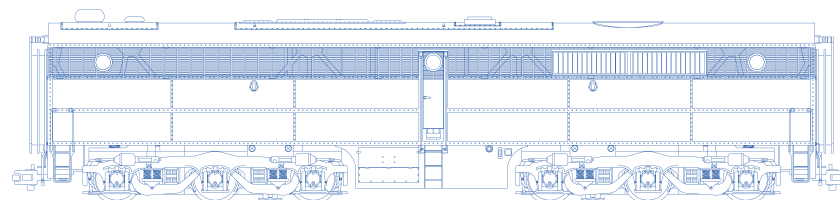
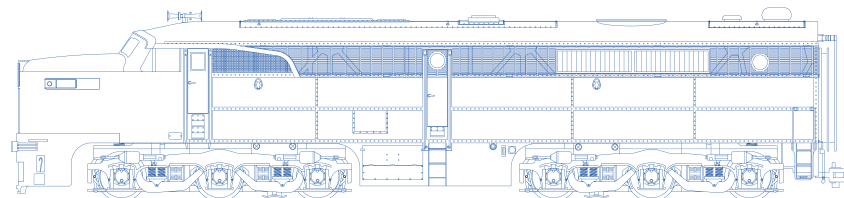
USA TRAINS
662 CROSS STREET
MALDEN, MA. 02148

LIMITED ONE YEAR WARRANTY

This USA Trains locomotive is warranted for one year from the date of purchase against defects in material or workmanship. We will repair or replace (at our option) the defective part without charge for parts or labor within one year of the original date of purchase provided the warranty registration card has been received by USA Trains. This warranty does not cover items that have been abused or damaged by careless handling or improper operation such as a train derailment, modification or repair by non-factory technicians. Parts that "wear out" due to excessive use are also not covered under warranty. USA Trains reserves the right to determine "excessive use". Transportation costs incurred by the customer are not covered under this warranty.



ALCO PA-1 & PB-1 DIESEL LOCOMOTIVE OWNERS MANUAL



USA TRAINS
P.O. BOX 100
MALDEN, MA 02148
USA



Dear Customer,

Congratulations on your purchase of this highly detailed replica of the Alco PA locomotive.

The engineering and design staff at USA Trains has spent many hours reviewing original blueprints and developing a locomotive that looks authentic and will provide you with many hours of operating enjoyment all at a reasonable price. Over 400 parts make up this model - the level of detail found in brass locomotives costing thousands of dollars for a fraction of the cost. This locomotive will enhance the appearance of any modelers railroad.

Please read the following instructions which will help you understand and operate the numerous features of this locomotive.

Happy Railroading
USA TRAINS

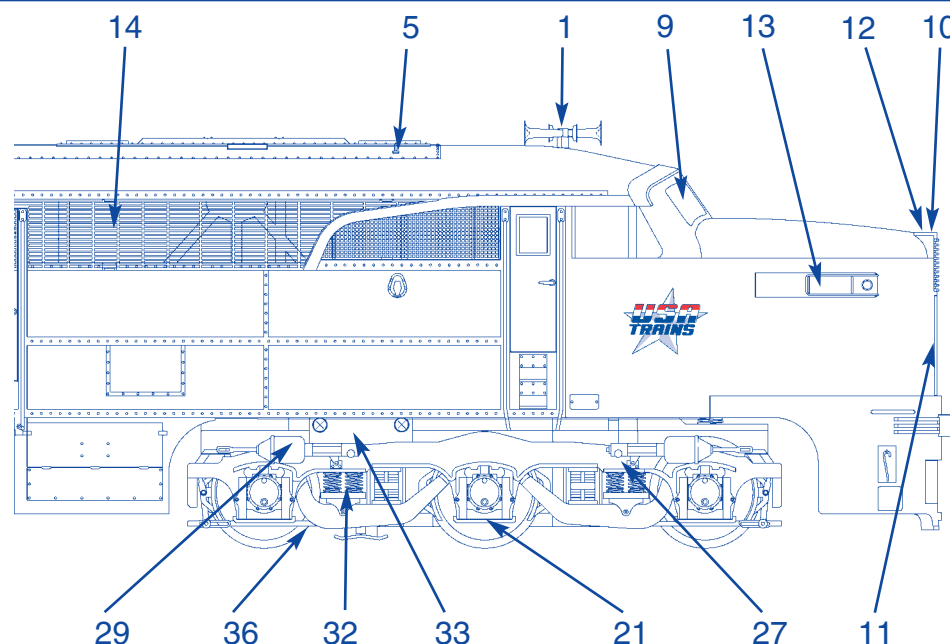
HISTORY OF THE ALCO PA LOCOMOTIVE

ALCO first introduced the PA diesel locomotive in 1946. Right after W.W.II, the dieselization of America's railroads began to flourish. Manufacturers began to produce gleaming diesel Locomotives for fleets of newly equipped passenger trains. ALCO introduced a handsome newcomer, the PA (cab unit) and PB (booster). The first PA was built on June 27, 1946 in celebration of ALCO's 75,000th locomotive. This three unit A-B-A was the Santa Fe War Bonnet (#51 LAB) and traveled the country in celebration of ALCO's landmark.

The styling of the PA was conceived by General Electric designer Ray Stevenson and was widely regarded as the most stylish diesel locomotive ever produced. The PA's appearance was sleek and long. It was distinguished from the competition with its square looking long nose, automobile styled grills, and rain gutters.

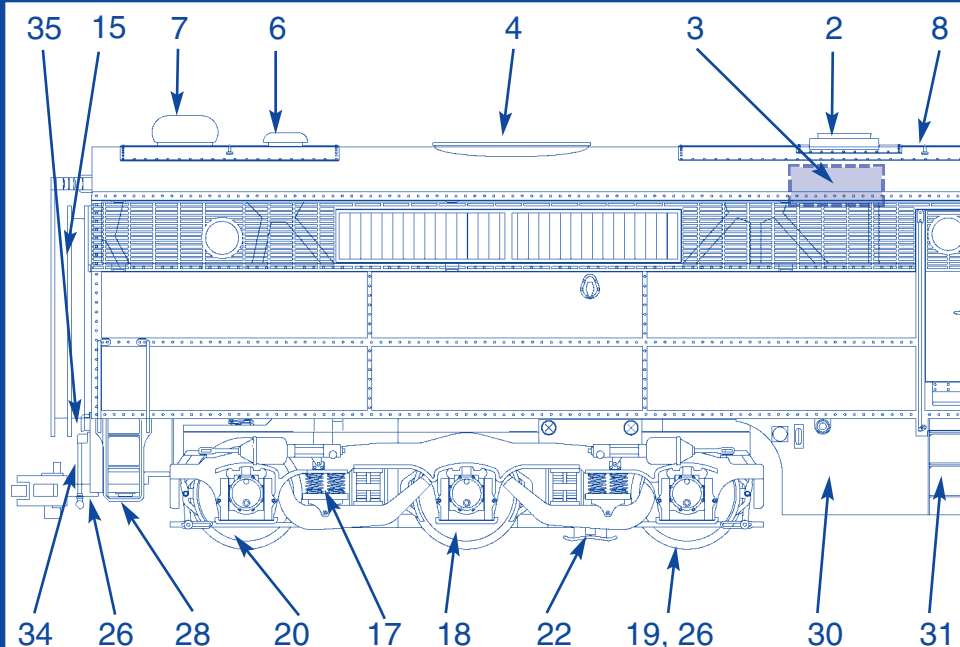
During its seven year long production life, 247 PA cab units and 47 PB booster units were produced for 16 different railroads. Southern Pacific owned the greatest number of PA's with 66 units. PA's ran until 1978 and will always be one of the most admired locomotives in railroad history.

The accurate reproduction of this locomotive by USA Trains will allow the modeler to have his favorite railroad PA-PB running among the other locomotives on his/her railroad.



ITEM No.	PART No.	DESCRIPTION
20	R22-520	METAL WHEELS WITH GEARS (2) (for end gear box)
21	R22-521	REPLACEMENT MOTOR TRUCK (1)
22	R22-122	SLIDE SHOE AND SPRING (4)
26	R22-526	RUBBER TIRES (4)
27	R22-527	TRUCK SIDEFRAAME (2)
28	R22-528	LADDERS (4) (specify color)
29	R22-529	TRUCK CYLINDERS (1 right & 1 left)
30	R22-530	SIDE SKIRT (1 right & 1 left) (specify color)
31	R22-531	FUEL TANK (specify color)
32	R22-532	REPLACEMENT MOTOR ONLY
33	R22-533	TRUCK MOUNTING BLOCK (1)
34	R22-534	AIR HOSES (2)
35	R22-535	COUPLER LIFT BAR WITH 4 HOLDERS (1) (specify color)
36	R22-536	MOTOR BLOCK BOTTOM COVER PLATE
	R50001	USA TRAINS SMOKE FLUID
	R50002	USA TRAINS CONDUCTIVE LUBRICANT

Please call our parts department for prices and availability or visit our web site www.usatrains.com • Phone: 781-322-6084 • Fax: 781-321-6459



FEATURES

- Powerful dual-motored 12 wheel Power Trac drive train
- Operating fan driven smoke stack emits realistic diesel exhaust
- Directional red/green marker lights
- Front single or dual headlights for prototypical modeling
- Constant voltage lighting
- Metal handrails
- Interior cab lighting
- Opening cab doors
- Detail cab interior with engineer and control panel with gauges
- Authentic detailing including brass side and roof screens, real rubber diaphragms between units, pilot detail and rotating roof fans
- Expert decoration reproducing authentic paint schemes of your favorite railroad
- Multiple road numbers available for A-B-A or A-B-B-A multi-unit operation

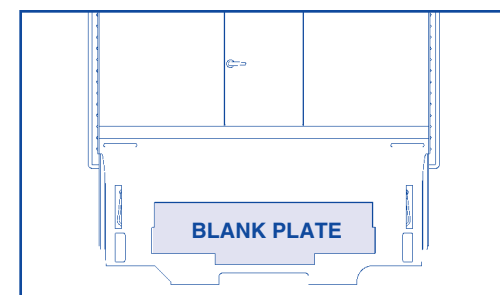
PA UNIT FRONT PILOT CONVERSION

Your PA comes equipped from the factory with a "Blank" plate on the front pilot to simulate prototypical operation of the lead A unit in a multi-unit consist. If you purchased more than one A unit for A-B-A or A-B-B-A operation, you must remove the "Blank" plate and install either the knuckle or Hook/Loop coupler provided.

Installation of one of these couplers is as follows:

(1) Remove "Blank Plate"

Remove "Blank" plate from front pilot by reaching your hand under pilot and apply outward pressure from the inside of the plate. The plate should slide out.



(2) Install Coupler

For Hook/Loop coupler operation, simply screw the Hook/Loop coupler provided on the coupler arm mounted to the underframe. For knuckle coupler installation, cut off the tab as described in knuckle coupler installation (see last page of this manual) and screw on the knuckle coupler with screw provided.

ITEM No.	PART No.	DESCRIPTION
1	R22-501	DIESEL HORN (2)
2	R22-502	SMOKE STACK (1)
3	R22-503	SMOKE UNIT WITH FAN
4	R22-504	ROOF FAN WITH ROTATING FAN BLADE (specify color)
5	R22-505	ROOF VENT #1 (specify color)
6	R22-506	ROOF VENT #2 (specify color)
7	R22-507	STEAM GENERATOR
8	R22-508	BRASS LIFT RINGS (6) (specify color)
9	R22-509	WINDSHIELD WIPERS (2)
10	R22-510	HEADLIGHT LENS COVER
11	R22-511	HEADLIGHT LENS COVER (front door)
12	R22-512	HEADLIGHT BULB AND WIRE (headlight)
13	R22-513	NUMBER BOARD (specify number)
14	R22-514	SIDE GRILLS (2) (specify color and whether A or B unit)
15	R22-515	DIAPHRAGMS (2)
16	R22-516	COUPLER SPRING & MOUNTING PLATE
17	R22-517	TRUCK SIDEFRAME SPRINGS (8)
18	R22-518	METAL WHEELS WITH GEARS (2) (for center axle)
19	R22-519	TRACTION WHEELS W/GEARS (2) (for inner axle/rubber tires)

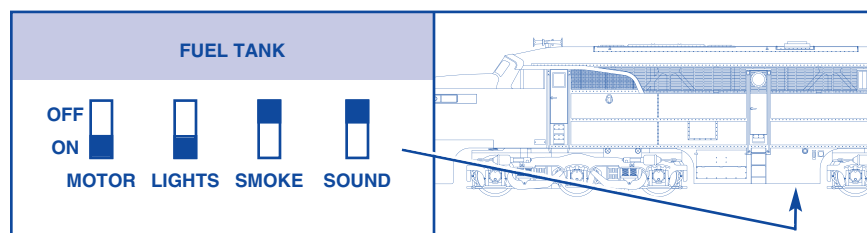
OPERATION OF YOUR PA

POWER REQUIREMENTS

The locomotive is designed to operate on direct current (DC) with outputs of 0-22 volts.

CONTROL SWITCHES

The locomotive contains four switches to operate the on/off motors, on/off smoke generator, on/off lights and on/off sound. The control switches are located on the underside of the locomotive, between the rear motor truck and the fuel tank. (see diagram below)



CAUTION! If the locomotive is going to be run for any period of time without smoke fluid, please position the smoke switch to the OFF position.

SMOKE GENERATOR

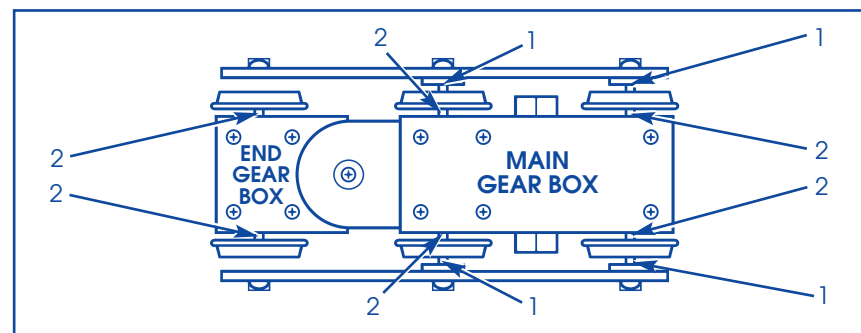
The locomotive contains a fan driven smoke unit which produces "diesel exhaust" through the stack on the topside of the cab body. The smoke generator requires the periodic addition of smoke fluid in order to operate properly. Add 25-30 drops of USA Trains smoke fluid (USA Trains part # R50001) into the smoke generator hole. Never overfill the smoke generator and promptly wipe up any excess smoke fluid that may have spilled onto any painted surfaces. During operation, smoke production will begin when the fluid becomes heated. It may take longer to generate the smoke if the unit is full. When the smoke chamber is empty the unit will shutdown automatically until more fluid is added. By following these directions, the smoke generator will provide hours of enjoyment and enhance the realistic operation of your PA locomotive.

CAUTION! Even though your locomotive is equipped with an automatic shut-off when the smoke generator runs out of fluid, we suggest you shut off the smoke switch on the underside of the locomotive to prevent accidental burning out of the smoke generator.

MAINTAINING AND SERVICING YOUR PA

LUBRICATION

Your locomotive was lubricated at the factory and under normal operating conditions will not need to be lubricated during the first 50 hours of operation. The locomotive has three lubrication points. (See diagram below)



1. SIDEFRAME JOURNAL BOX: The axle ends fit into brass bushings which bring power into the locomotive. These brass bushings should periodically be cleaned out and lubricated with a small amount of USA Trains electrically conductive lubricant (USA Trains Part #R50002). Use only our conductive lubricant to avoid loss of electrical contact which could cause your locomotive to lose power or run erratically. The frequency of lubrication depends on your operating conditions.

2. AXLE LUBRICATION: Two drops of oil should be placed on all six contact points where the axle enters the gear box. An ultra light oil such as Hob-E-Lube (#HL653) is recommended.

3. GEAR BOX LUBRICATION: Under normal operating conditions, the gear box should not have to be lubricated. However, you may want to lubricate the gears after each 100 hours of operation by removing the six screws on the bottom of the main gear box to expose the gears and applying moly grease by Hob-E-Lube to the gears on the axle only. Replace main gear box. Remove 4 screws from end gear box cover and lube. Replace end gear box cover. Do not apply grease to any electrical contacts inside the gear box as you may hinder the electrical contacts required for smooth operation.

WHEEL/SLIDE SHOES

Each unit is equipped with twelve electrical pickup points-six per motor truck. Each of these must be cleaned periodically to ensure proper electrical contact with the track which will ensure smooth operation of your locomotive. Clean all six wheels and the bottom surface of the slide shoes periodically to ensure good electrical contact with the track. A good indication that you need to clean these contacts is flickering lights, non-operation of the smoke unit, or a jerking motion of the locomotive.