

Assembly Instructions

EMD F-7 DUAL ROAD DIESEL

In O Gauge by All-Nation

Before starting construction of your F-7 unit, examine all castings and remove all flash. Be careful not to file tongues off top of side casting and groove on bottom of roof casting. All detail parts should be added before unit is assembled. A preliminary assembly is recommended to check the fit to the parts, end to sides, sides to roof, etc.

DETAILING

To the end (404) fit two grab irons (these are formed from .032 wire), then mount coupler using 2-56 screw. Then install wire forms for uncoupling (see detail drawing and instructions).

Cement fiber diaphragm (508) to striker plate (509). When dry cement assembly to the door frame with striker plate away from end. Permit the floor sill to come through inside of striker plate when diaphragm is compressed.

Fit door window glass into frame from the inside. (do not install till painting is finished).

Now take the sides (304-305). You have a choice of either one or two headlites. If you want only one, file off boss on nose door. If you want to use two, file out the membrane in nose door. NOTE if you want to use a MARS Lite both lites will have to be used, the top one for the MARS and the bottom for the headlite. If you want 45° number boards see drawing and instructions for their installation.

Fit hand rails (formed from wire in kit) in nose and sides. Then mount front coupler using 2-56 screw. Now mount the uncoupling wire forms on the nose as shown on the drawing. (For best results in Operating Automatic Couplers, solder drawbar handle wire form closed after it has been assembled and installed).

Fit all windows at this time. These are fitted from the back of the casting and not from the front as shown on the drawings. (Do not install till painting is finished).

Place horns in place, one facing forward and one back, and cement or swedge on the inside.

Grill can now be cut to fit A unit (it will not have to be cut for B unit). It fits between the front door and the rear of the unit. This should not be mounted until after the unit is painted.

The roof is now drilled if you want to put the train heating stacks on the rear of the unit. Mark off the roof as shown on drawing and drill with a 17/64" drill. Place the stacks in place and glue or swedge in place. Mount exhaust stacks in place. Mount roof lift rings and bend over on the inside. Fit plastic grill in opening in roof. (do not install till painting is finished).

ASSEMBLING

Assemble end and one side with 4-40 screws (C-1405). Do not draw up tight. Start the turnbuckles (222) into bosses in side. Set headlite lenses in place, flat side facing outside. Then start turnbuckles in other side. Draw sides together, using 1/4" open end wrench being careful not to deform the castings. The tongues and grooves must line up. If sides are bent out of shape, loosen and bend back into shape.

Now fasten other side to end with 4-40 screws.

Fasten roof to sides and ends with 4-40 screws. Again be careful that tongues and grooves line up.

Body can now be painted to suit. When paint is dry, mount windows and roof grill using a clear cement. Mount the long metal grill with Goo. If instructions are followed grills will not come loose. If you wish you may want to drill and pin grills in place.

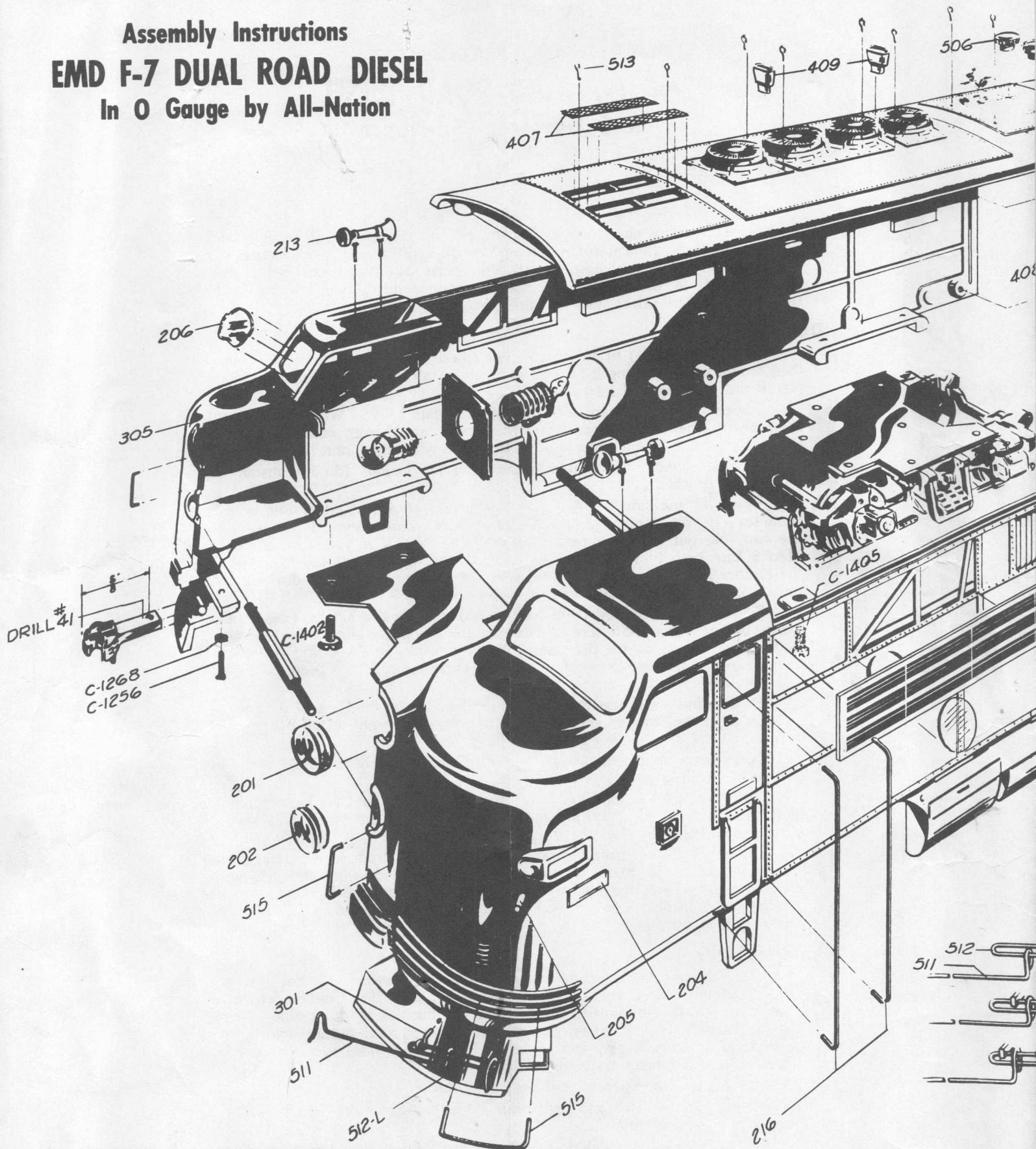
Lite assembly can now be placed in lite compartment and held in place with spring wire ring.

B unit is assembled the same as the A, but use two ends. The roof is attached in the same manner as the A.

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EMD F-7 DUAL ROAD DIESEL

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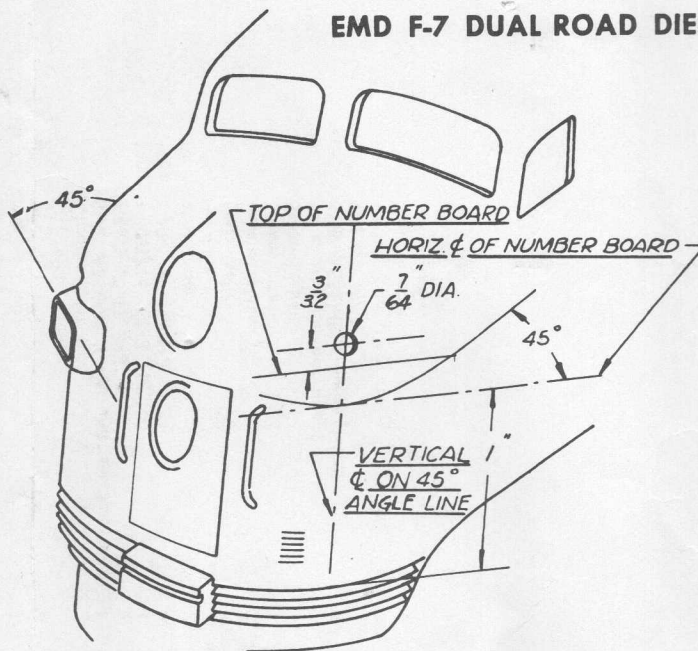
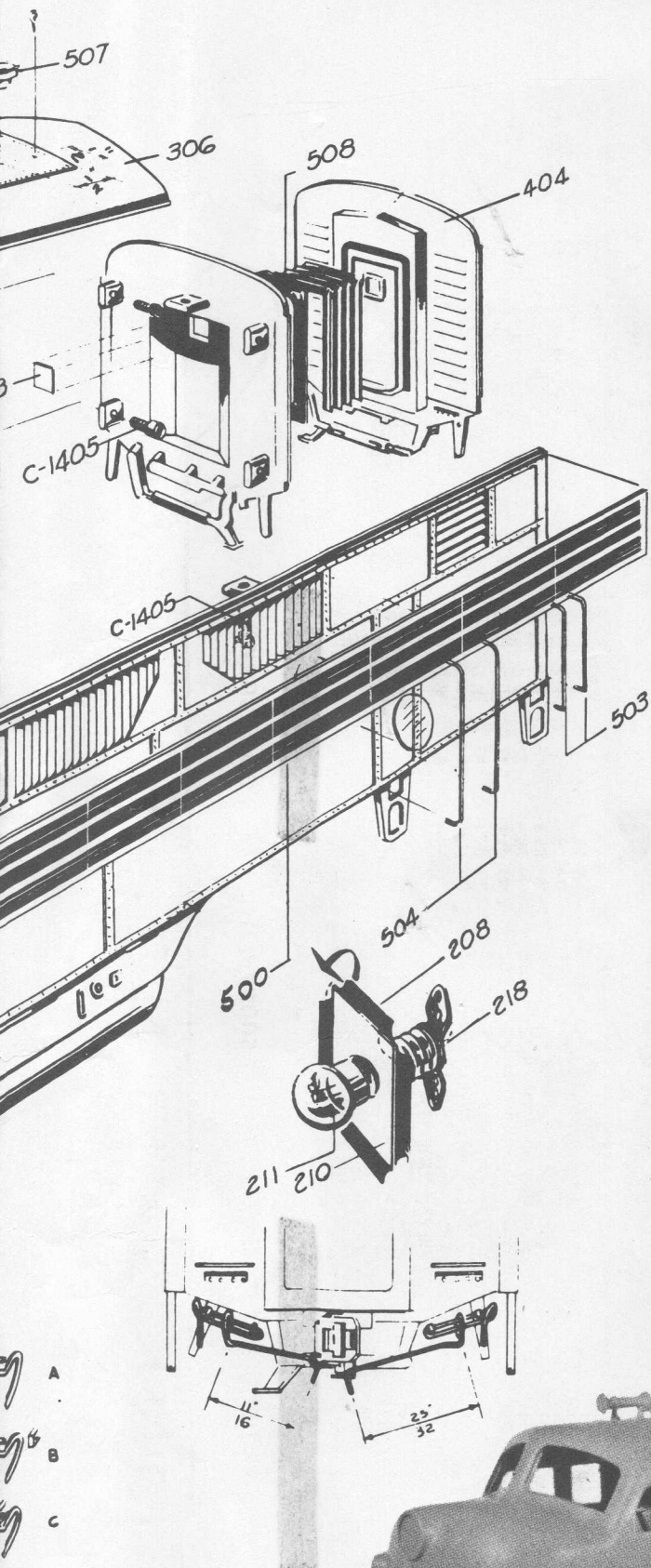


THE "ALL-NATION LINE"—LEADER IN THE GREATEST VARIETY OF O GAUGE

Steam Locomotives and Tenders, Diesels, Box Cars, Refrigerator Cars, Flat Cars, Composite Reefers, Watermelon Car, 40 and 50 foot Automobile Cars, Caboose, 40 Ft. Outside Braced Box Cars, Trucks, Ties, Bridges, Mars Lite, Foliage Kits, Brass and Steel Rail, Super Cement and Railroad Lacquers, thousands of parts and accessories.

ALL NATION LINE, INC.
 Manufacturer and Distributor "O" Scale Model Railroads
 1020 BUSSE HIGHWAY • PARK RIDGE, ILL. 60068

LOCATION OF 45° NUMBER BOARDS ON THE EMD F-7 DUAL ROAD DIESEL



The location and installation of the 45° number boards is as follows:—First, file the flat or side type number board completely off with a wide, fairly fine file. This is done on both sides. Use a 45° angle to find the tangent point anywhere along the nose on the cylindrical section as in Sketch No. 1. By scraping the 45° angle protractor or template up and down the nose, it will leave a line along the 45° tangent-point.

Along this centerline measure 1" up from the top anti-climber rails. This will be the horizontal centerline of the number board. Repeat process on the other side.

The simplest method of mounting these lights was found to be cementing them into place with household cement after removing the cast bosses on the inside of the number board casting. The rear indicator or jewel above the number board is located 3/32" above the top of the board. The hole itself should be about a scale 5" diameter, which would be about 7/64".

To illuminate the number board itself, merely open up the nose after fitting the board and scribe the location of the opening on the nose. Fit the acetate "glass" carefully, then paint the inside black and use white number decals on the outside. Scratch the paint from behind the numbers so the light will illuminate them.



EMD F-7 DUAL ROAD DIESEL

ALL NATION LINE, INC.

MANUFACTURERS OF THE FAMOUS ALL-NATION "O" SCALE EQUIPMENT

1020 BUSSE HIGHWAY

PARK RIDGE, ILLINOIS 60068

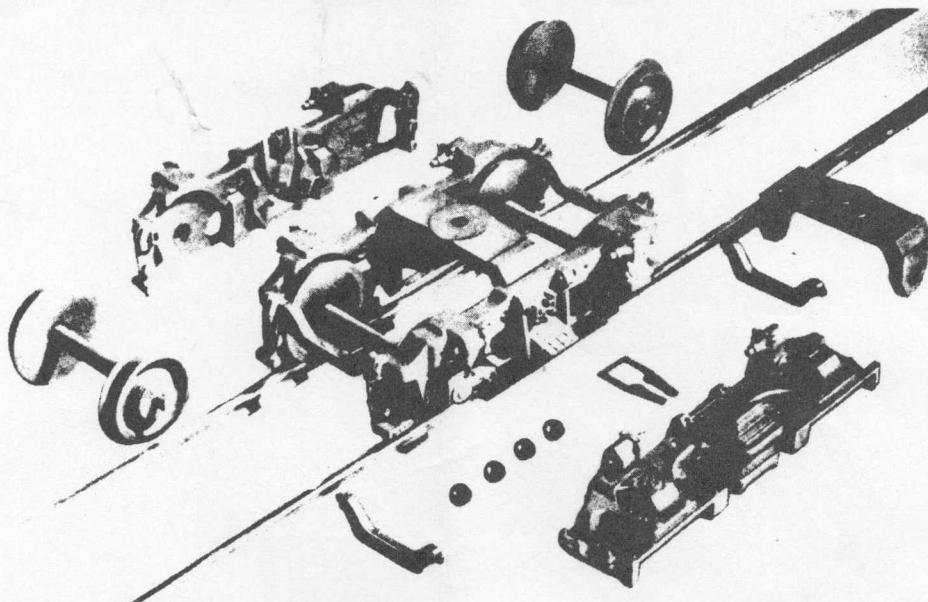
PARTS LIST

	A unit	B unit	Price		A unit	B unit	Price
101A Side frame	4	4	1.20 ea.	513 Roof rings	10		4/.10
404 End	1	2	2.50 ea.	2482 SUB ASSEMBLY—Headlite	1		
1004 Bolster	2	2	.50 ea.	201 Large lense	1		.15 ea.
304-7 Right side A	1		9.50 ea.	202 Door lense	1		.15 ea.
305-7 Left side A	1		9.50 ea.	205 Marker lite	2		.10 pr.
306-7 Roof A	1		7.50 ea.	209 Paper insulator	1		.05 ea.
901-7 Roof B		1	7.50 ea.	210 Bulb mounting plate	1		.15 ea.
902-7 Left side B		1	8.50 ea.	220 Retaining ring	1		.05 ea.
903-7 Right side B		1	8.50 ea.	4016 Socket	1		.20 ea.
400 Plastic grill	1	1	.65 ea.	4018 12 volt bulb	1		.25 ea.
508 Diaphragm	1	2	.40 Pr.	2483 SUB ASSEMBLY—B unit small castings		1	
509 Striker plate	1	2	.20 pr.	C-1256 2-56x3/8" Fil. Hd.		2	.25 dz.
1008 Floor plate	2	2	.25 ea.	C-1402 4-40x3/16" Bind. Hd.		8	.25 dz.
1908 Hook up wire	1		.06 ft.	C-1407 4-40x1/4" Fil. Hd.		14	.25 dz.
1903 .032 wire	2	2	.03 ft.	C-1800 #3 washer		2	.15 dz.
1903A .025 wire	1		.03 ft.	409 Exhaust stack		2	.15 ea.
500 Chrome grill	2	2	1.00 pr.	506 Steam intake		1	.15 ea.
2480 SUB ASSEMBLY—A unit small castings	1			507 Steam exhaust		1	.15 ea.
C-1256 2-56x3/8" Fil. Hd.	2		.25 dz.	2484 SUB ASSEMBLY—B unit wire forms		4	.03 ea.
C-1402 4-40x3/16" Bind Hd.	8		.25 dz.	511 Bottom operating bar		2	.03 ea.
C-1407 4-40x1/4" Fil. Hd.	9		.25 dz.	512R Right handle		2	.03 ea.
C-1800 #3 washer	2		.15 dz.	512L Left handle		14	4/.10
213 Air horn	2		.25 ea.	513 Roof rings	1	1	
222 Nose bolts	2		.50 pr.	2485 SUB ASSEMBLY—Truck parts	2	2	.15 dz.
409 Exhaust stacks	2		.15 ea.	C-1804 #5x.032 washer	4	4	.15 ea.
506 Steam intake	1		.15 ea.	C-2032 Bolster clip	2	2	.05 ea.
507 Steam exhaust	1		.15 ea.	C-2036 C washer	4	4	.05 ea.
204 45 degree number board	2		.50 pr.	103 End bar	8	8	.10 ea.
2481 SUB ASSEMBLY—wire forms	1			109 Tank ends	2	2	.15 pr.
301 Lift bar ring	4		.03 ea.	1009 1/4" king pin	8	8	.15 ea.
511 Bottom operating bar	4		.03 ea.	1013 Ball bearing	2	2	.98 pr.
512R Right handle	2		.03 ea.	3818 Operating couplers			
512L Left handle	2		.03 ea.				

ALL-NATION LINE
23 W 546 ST. CHARLES RD.
WHEATON, ILL. 60187

F-3 - F-7 - GP-7 - TRUCKS

In O Gauge by All-Nation



Due to the extremely close tolerances to which these trucks have been built, extreme care must be taken to have them fit together. If two parts do not fit, do not force them. Recheck the instructions.

First clean all flash from castings. Then press the brake cylinder ends (109) into holes in side frames (101a). Now take one side frame and place bolster (1004) on the lug on rear of frame. This is locked in place with clip (C2032). Now take the side frame bearings (1013) and place them on axles with the flat edge of the bearing against the wheel. Place wheels with the bearings on into the side frame, letting flat side of bearing line up with hole in side frame. Place other side frame on bolster and repeat the above.

Before placing other clip on the second side frame open one end of truck at a time and place the truck end bars (103) in place. Be certain both insulated wheels are on the same side of truck.

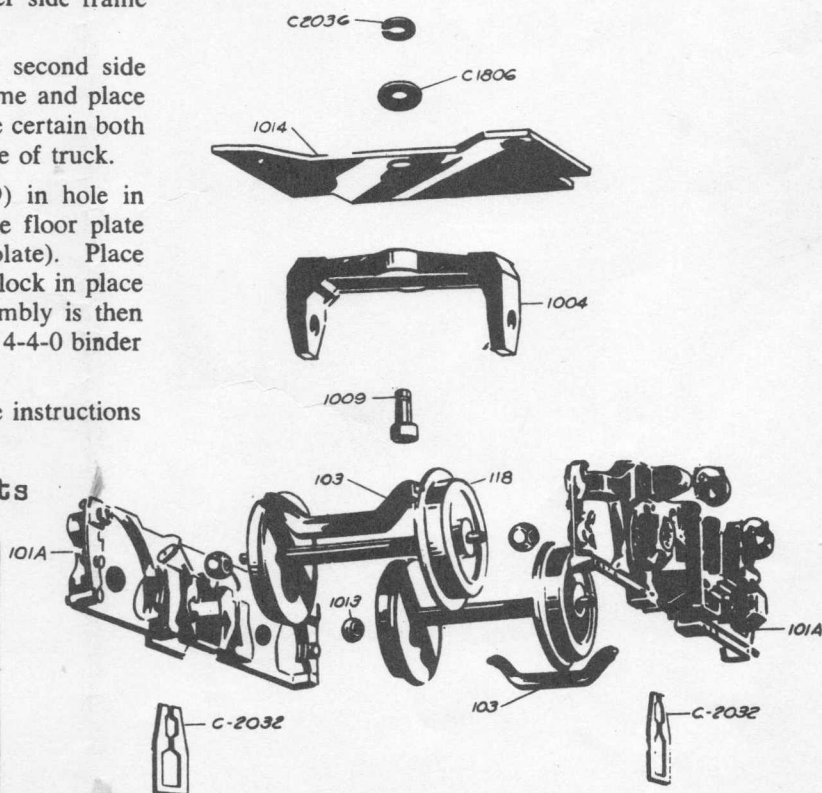
Now place the king pin (1009) in hole in bolster and then into the hole in the floor plate (1008 for scale or 1014 for Tinplate). Place washer (C1806) over king pin, then lock in place with C Washer (C2036). This assembly is then mounted on the body of the unit with 4-4-0 binder head screws.

To mount motor in these units, see instructions that come with motor assembly.

* Included in Diesel kits

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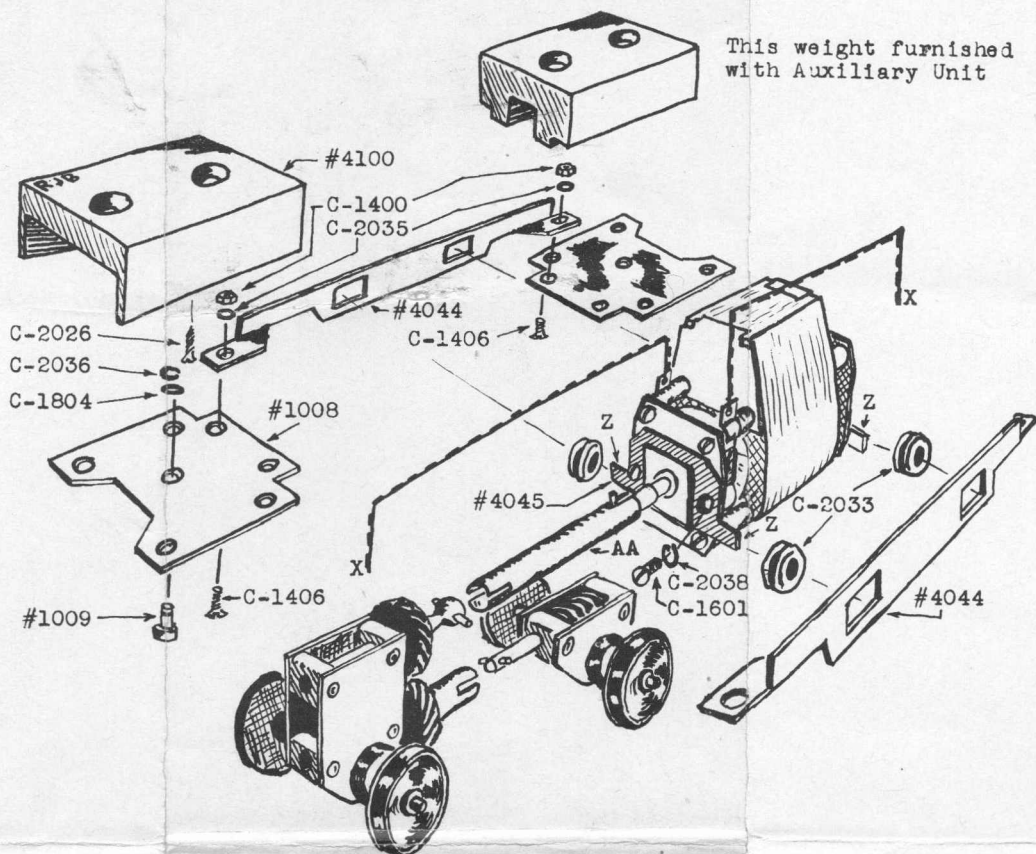
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ALL NATION LINE - P.O. Box 145 - Des Plaines, Illinois 60017

THE ALL-NATION LINE...

F-3 F-7 POWER UNIT



INSTRUCTIONS

Please read **CAREFULLY** before construction

- (1) Assemble the 'Constant Torque' transmission by following the F-3 F-7 GP-7 truck instructions furnished with the Diesel kit, with the following exception. Substituting the transmission in place of the 40" wheels and then following the remainder of the truck assembly as per instruction.
- (2) Mount the motor brackets #4045 to motor, by using screws #C-1601, and lock washers #C-2038.
- (3) Mount rubber grommets #C-2033 into motor frame #4044 and place onto lugs (Z) of motor brackets #4045 as shown.
- (4) Mount the above assembly to the floor plates #1008 with screws #C-1406, lock washers #C-2035 and nuts #1400, in holes as shown in drawing.
- (5) Place your truck assembly into floor plate #1008 (supplied with Diesel kit) temporarily with the kingpin #1009 into hole as shown. Proceed with making the Ball Joint Coupling (AA) as per instruction enclosed with kit. When finished, mount permanently with washer #C-1804 and 'C' washer #C-2036.
- (6) If mounting an Auxiliary power unit, follow instructions #1 and #5.
- (7) Attach wires as shown with the (X) being the 'C' clip #C-2032 on the truck assemblies by soldering. DO NOT solder on transmission.
- (8) Grease the gears, oil the bearings and suggest that you run it in before installing into Diesel body.
- (9) Mount the weights through the roof and screw same with #C-2026 self-tapping screws to the lugs on the inside of the Diesel side. Now mount the roof.
- (10) You may now install the power assembly into the body by using #C-1402 screws, furnished with Diesel kit and as shown in Diesel instructions.

PARTS LIST

POWER UNIT #9025

- 1 Motor (single or double shaft DC)
- 1 'Constant Torque' Transmission
- 2 #4044 Motor frame
- 1 #4093 Ball Joint Coupling
- 1 #4100 Weight
- 1 #1905 — #20 x 10" wire
- 1 #2486 Accessories
- 1 Instructions

#2486 ACCESSORIES

- 4 #C-1400 — 4-40 nuts
- 4 #C-1406 — 4-40 x 3/8" flat head
- 4 #C-1601 — 6-32 x 3/16" round head
- 2 #C-2026 — #4 x 1/4 flat head S.T.
- 4 #C-2033 rubber grommets
- 4 #C-2035 — #6 Internal lockwashers
- 4 #C-2038 — #6 Split lockwashers
- 2 #4045 Motor brackets

AUXILIARY UNIT #9026

- 1 'Constant Torque' Transmission
- 1 #4100 Weight
- 1 #4093 Ball Joint Coupling
- 2 #C-2026 — #4 x 1/4 flat head S.T.

ALL-NATION HOBBY SHOP

F3-A, F7-A DUAL POWER UNIT

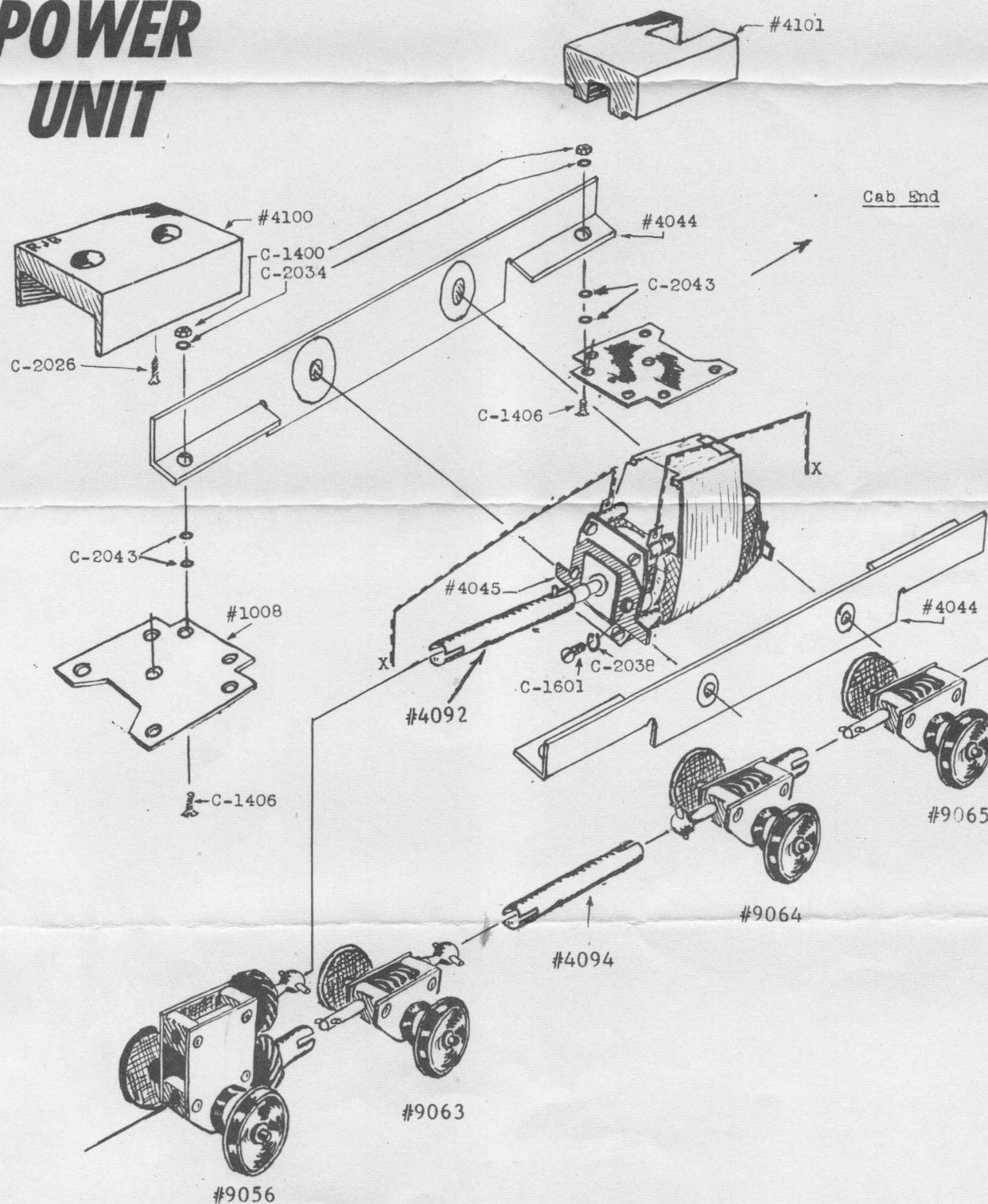
INSTRUCTIONS

READ CAREFULLY BEFORE STARTING

1. Study the picture and note the relative positions of the four gear units in relation to the front of the A unit. Lubricate all bearings and gears and assemble the units into the trucks following the F3, F7, GP7 truck instructions furnished with the diesel body kit, substituting the gear units for the wheel and axle assemblies.
2. Mount the #4045 motor brackets to the motor using #C-1601 screws and #C-2038 lock washers. The lugs on the brackets should be below the centerline of the motor. Solder ball joint coupling on motor shaft.
3. Install the #4044 motor frame by inserting the lugs on the motor brackets into the holes in the rubber grommets. The large flanges of the grommets should face the motor.
4. Mount the above assembly onto floor plate #1008 using #C-1406 screws, #C-2043 spacer washers, #C-2034 lock washers and #C-1400 nuts. IMPORTANT: Two each of the #C-2043 spacer washers must be used between the floor plate and the motor frame in each of four places to raise the frames 1/8" off the floor plates.
5. Place the truck assemblies into the floor plates and at the same time install the #4092 drive tube between the motor and the #9056 tower gear unit in the rear truck. Secure both trucks in place using the #1009 king pins, #C-1806 washers and #C-2036 "C" washers from the body kit as shown in the truck assembly sheet. Install the #4094 countershaft drive tube between the trucks by swiveling trucks outward and slipping tube over the ball joints.
6. Solder wire leads to motor as shown in drawing. Point "X" should be soldered to the #C-2032 sideframe retaining clips. DO NOT attempt to solder wire leads to any point on the transmission gear units.
7. At this point test run the unit. Note that the countershaft drive tube will fall out of its place if the trucks are allowed to swivel excessively. This will not occur once the unit is mounted into the body as truck swivel will be limited by the steps.
8. Install the weights into the body with #C-2026 sheet metal screws. This can be done thru the bottom with a little dexterity and possibly a little filing of the top corners of the weights. If your model has not been finished and painted the weights can be installed thru the top. Make sure that the headlight socket wiring does not touch the special front end weight.
9. Complete the wiring (headlight to motor) and install the power unit into the body using #C-1402 screws from the body kit.
10. PLEASE NOTE!! FOLLOW THIS PROCEDURE AFTER ASSEMBLY INTO CHASSIS. Run the chassis upside down before assembling into diesels and lightly sand uninsulated wheel treads on power trucks removing black plating as this plating is an insulator. This will assure perfect pickup. We do not do this at factory to prevent rusting. If possible do same to pick-up wheels if not on a power truck. Best way is in a drill press or hand electric drill. Be careful to chuck axle ends lightly as not to mar axle end.

THE ALL-NATION LINE... 9027

F-3 F-7 DUAL A POWER UNIT



PARTS LIST

1	#1418	Motor
2	#4044	Motor frame with C-2037 grommets installed
1	#4100	Weight (rear)
1	#4101	Weight (front)
1	#1905	#20 X 10" hook-up wire
1	#9056	Tower gear unit, rear axle, rear truck
1	#9063	Small gear unit, front axle, rear truck
1	#9064	Small gear unit, rear axle, front truck
1	#9065	Small gear unit, front axle, front truck

ACCESSORIES

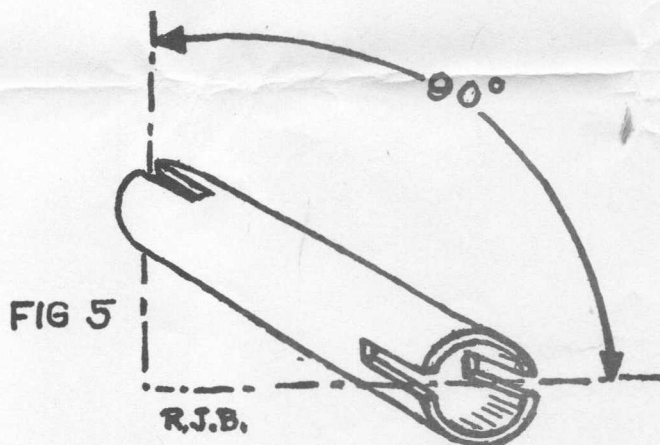
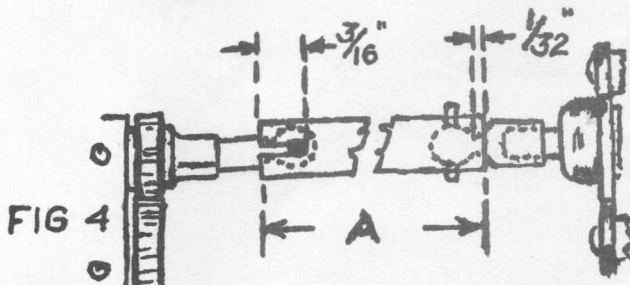
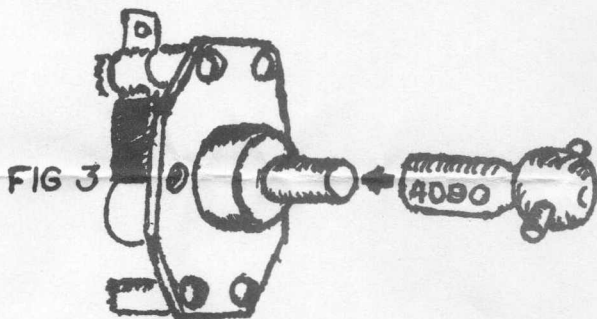
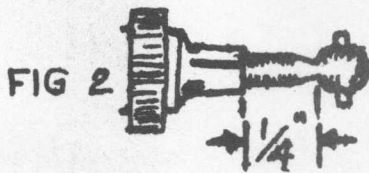
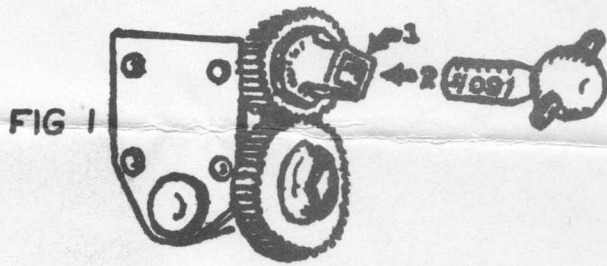
SUB ASSEMBLY #2486A

4	C-1400	4-40 nuts
4	C-1406	4-40 X 3/8" F.H.M.S.
4	C-2034	#4 internal lockwasher
8	C-2043	5/16" X 1/8" X 1/16" thick washer
4	C-1601	6-32 X 3/16" R.H.M.S.
4	C-2038	#6 split lockwasher
4	C-2026A	#4 sheet metal screw
2	4045A	motor bracket
1	4090	ball joint
1	4092	drive tube, motor
1	4094	drive tube, countershaft

NEW ALL-NATION BALL JOINT COUPLING

For Diesels and Steam Locomotives

Kit No. 4093



INSTRUCTIONS

Drill out square shaft (Arrow 1) of power truck with a $\frac{1}{8}$ " drill and solder ball joint No. 4091 (Arrow 2) into it as illustrated in Fig 1.

Make sure that there is a $\frac{1}{4}$ " space between end of square shaft and ball as illustrated in Fig 2. This is important, so as not to interfere with the kingpin.

Solder ball joint with sleeve No. 4090 on to shaft of motor as illustrated in Fig 3.

Now put the motor in the frame. Place power truck in the sideframes and attach to the floor plate, so that we may take a measurement of the distance (A) in Fig. 4. Make sure that you measure about $\frac{1}{32}$ " passed the ball on both sides, as shown in Fig. 4. Now cut the tube to measured length with a fine saw and clean the burrs with a small round file. We now proceed with the filing of the slots. Clamp tube in a vise and take a flat file, $\frac{1}{16}$ " thick, using the edge for making a slot about $\frac{3}{16}$ " deep on both sides. Make sure the slots are 90 degrees from each other as in Fig. 5. Now slip tube on motor end and loosen power truck and slip the other end onto the ball. Attach power truck to floor plate and your unit is ready.

PARTS LIST

1	#4090	Ball joint with sleeve	@	\$.45
1	#4091	Ball joint with rod	@	.35
1	#4092	Fibre tube 3" piece	@	.15
1	#4093	Ball joint coupling kit	@	.90