

LOCOMOTIVE WORKSHOP

SHORT RUN PRODUCTION
MODEL R.R. EQUIPMENT

ROBERTSVILLE ROAD
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201-536-6873

ASSEMBLY OF ELECTROMOTIVE SW SERIES SWITCHERS

Comment: These kits are designed to be assembled by soldering. You will need a good iron of 25 Watts or more, or a soldering torch. We recommend that you use 60tin/40lead solder as available through Radio Shack or other electronics supply houses. We prefer No-Kor-Ode soldering flux. A jewelers' saw, a selection of small files, and a good hand shear will also help.

1. Begin by notching out the corners of the frame to suit the steps. Each notch is 2 feet square. Locate and drill all small holes in the frame for railings, etc. at this time.

Also, scribe a centerline on the bottom of the frame, and locate the truck centers. If you have selected a power unit, this is the time to fit it to the frame and trucks.

2. Solder the long angles to the underside of the mainframe, about six scale inches in from the sides. Solder the 9 inch wide (scale) brass strips to the outer side of these angles, to form the side member of the underframe. Trim at the step cut-outs.

3. Cut the inner step sides from the etched sheet provided. There should be two lefts and two rights. Bend each one at a right angle at the toe of the bottom step. This way, you will have a guide as to the location of the steps.

4. Solder the inner step sides inside the underframe side member, flush with the step cut-out. Solder each of the three steps into place against the step side. Be sure to solder both at the side and at top. Gently file the outer edges of the steps flush.

5. Cut the pilots from the etched sheet. Note that they may be cut to mount the pilot steps inside or outside the pilot. (Check photograph for your preference, but inside is easier.) Solder to the steps. Trim the pilot steps to fit, with the pilot step about 6 scale inches below the bottommost side step, and solder into place.

6. Add airtanks and fuel tank, per drawings, making sure you clear the mechanism.

7. Cut the cab ends from the etched sheet, using a jewelers' saw for the windows, filing to final shape if needed. The cab sides

may be simply cut out from the sheet, using the window openings as etched, or the inner window frame may be filed to the larger outline and the separate window frame provided added behind. (Note: It will probably be useful to cut out the cab front in way of the hood.)

Solder the four sides of the cab together, reinforcing the corners with scrap brass angle if desired. Best technique is to gently tack solder, then check squareness, and then complete soldering.

8. Add the cab roof. Simplest technique is to mate the roof with the cab ends in the longitudinal direction, then solder all around. Last step would be to file the sides of the cab even with the sides.

9. Solder the transition piece to the rear end of the long hood. A simple way to do this is to solder scrap strips of brass (about 1/16" wide) to the inner sides of both the transition piece and the long hood, and then bring the two together and complete soldering. The strips will help greatly in aligning the two pieces.

SW-1 Notch Hood: Instead of being in one piece, the transition section is in three pieces, two etched, and one stamped. The larger end of the stamped piece is intended to fit into the long hood. Tack solder this in place. Then lay the etched side pieces on the stamping, with their bottom edges even with those of the long hood; scribe into the transition piece the upper side of the etched sides. Remove the stamping from the long hood, and carefully cut on the line, filing to final dimension. Solder the works back together. To save trying to trim the rear half of the transition stamping, fit it inside the cab front (see below.)

10. Solder the cab to the hood, making sure that everything is flat and square before commencing final soldering.

11. Add the hood front to the hood.

12. Add the rear battery box to the cab. Simplest way is to solder the sides into place, and then add the top, filing the top to final contour.

13. Add the stacks, bell, horn, etc. per arrangement drawings. Note that a piece of scrap brass must be used to cover the engine hatch on the SW8 so that a single stack can be fitted.

14. Hood railings should be added using stanchion posts.

SW Switcher - Page Three

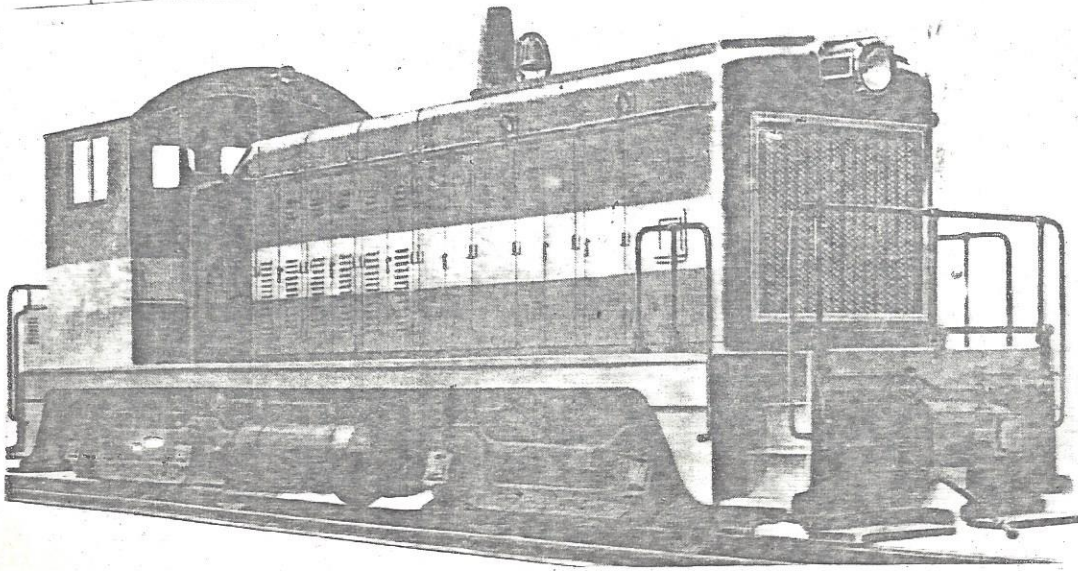
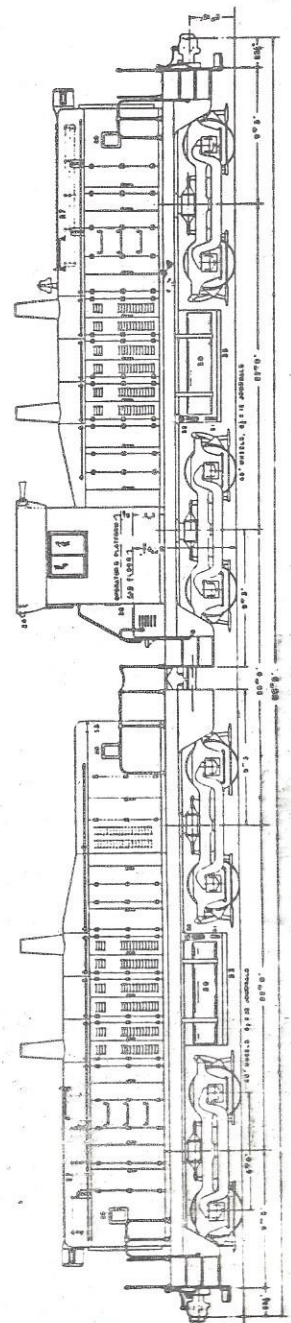
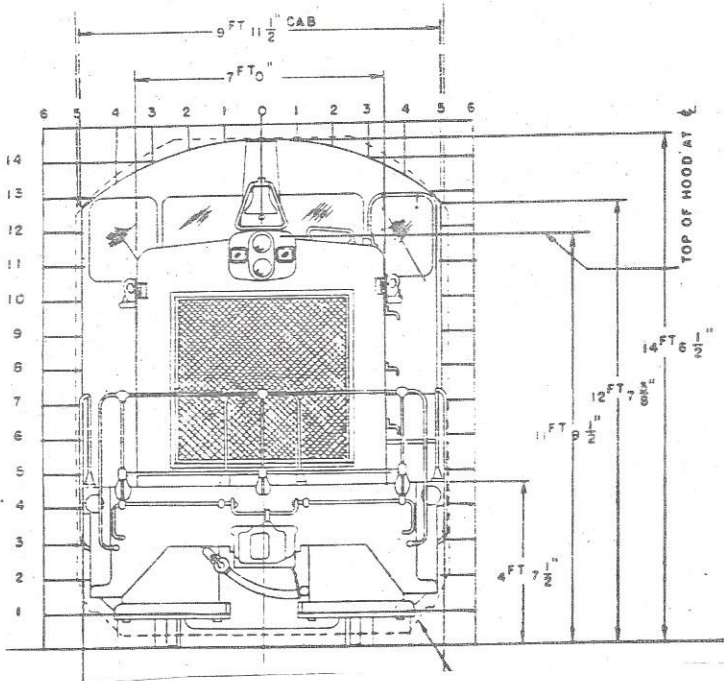
15. Attach the superstructure to the frame, using screws at the four corners, clear of the mechanism.

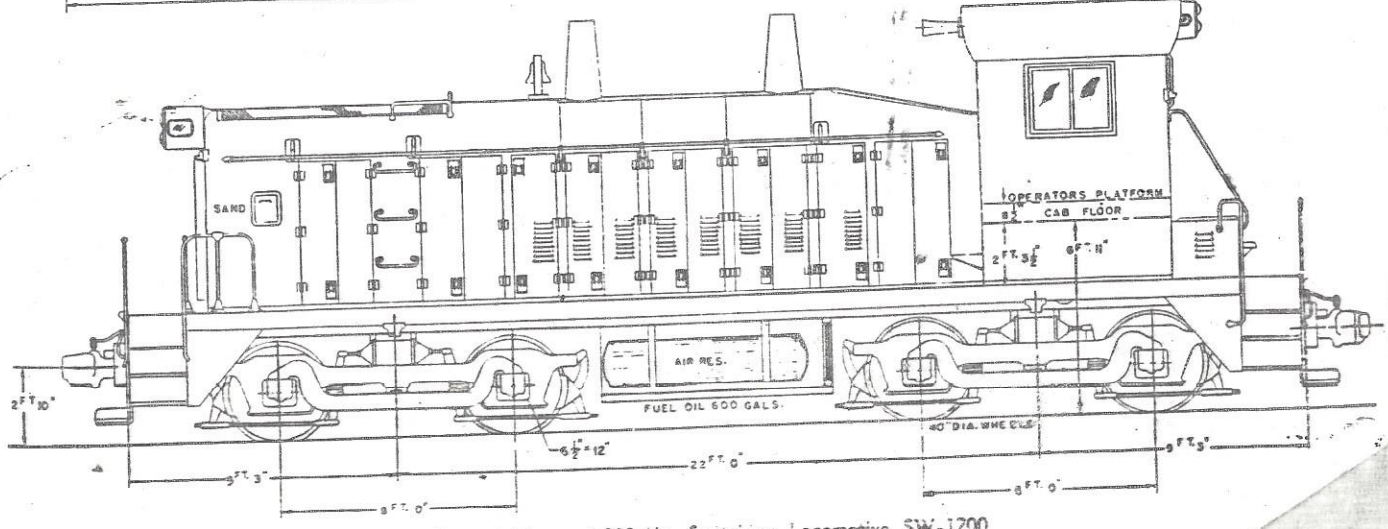
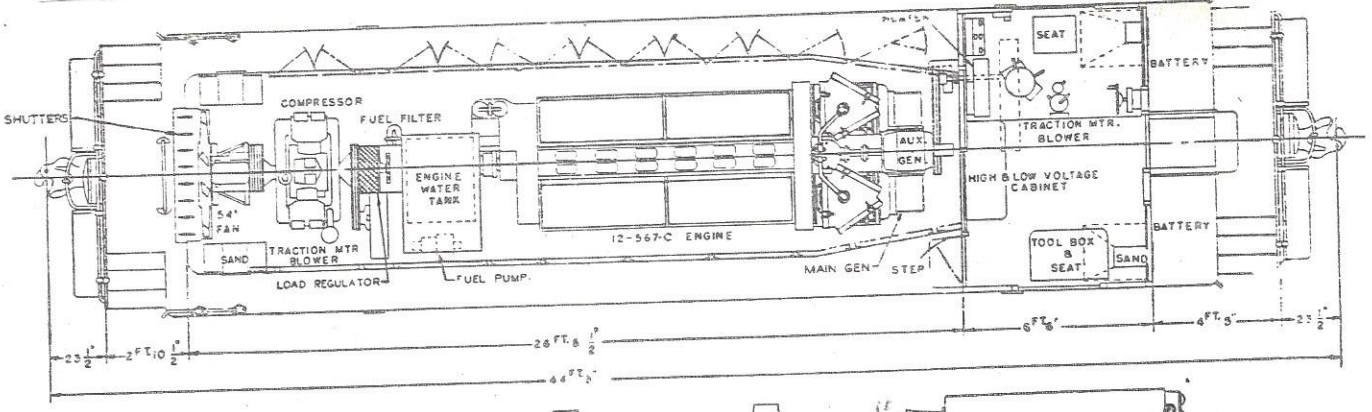
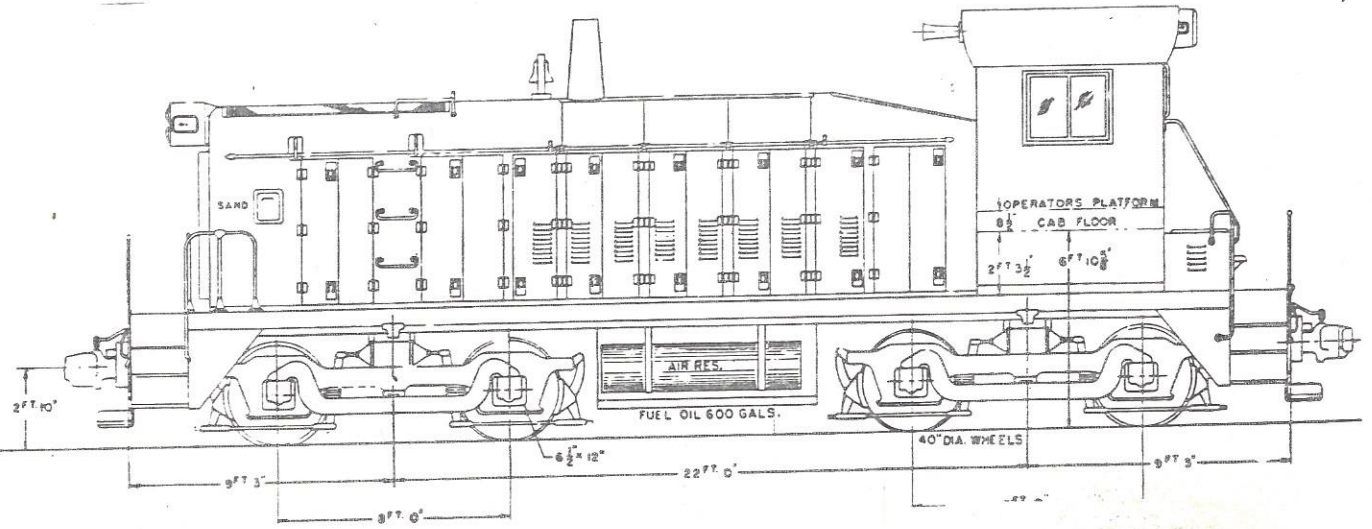
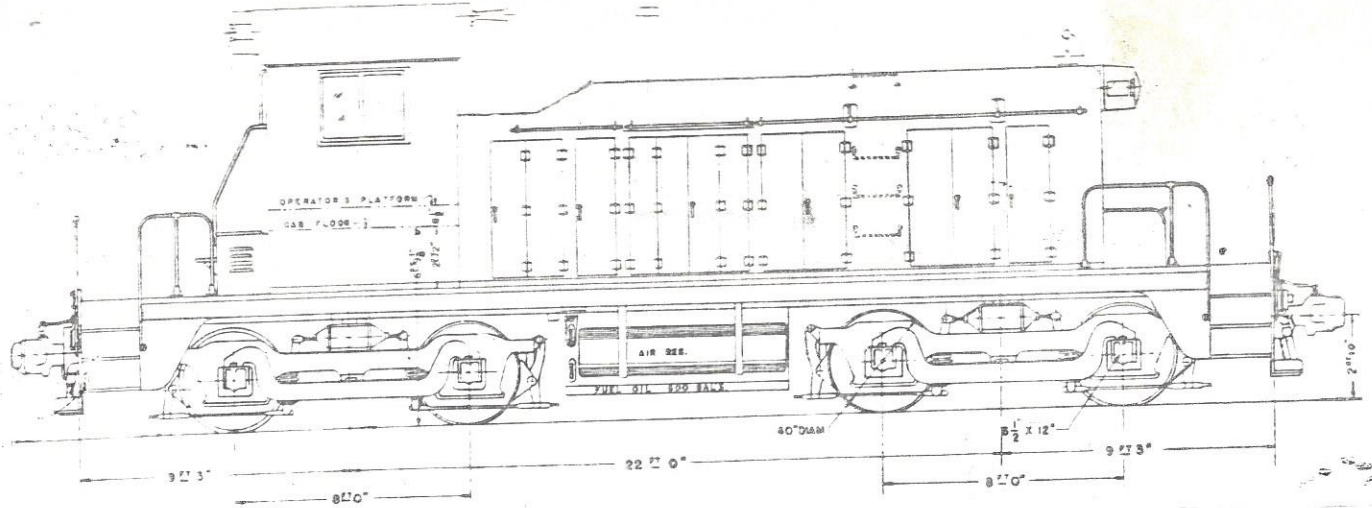
OPTIONS:

A. A louvered screen etching is provided in the SW1200 and SW-8 kits for making up later engines. Simply solder over radiator screen.

B. A separate kit is available for conversion of 1200hp locomotives to "cow and calf" Construction is similar, except that etched hood section replaces cab, and steps are eliminated on calf end near cab (special etchings provided.)

C. Most parts are available for the NW-5 elongated (road) switcher with Blomberg trucks.





General Motors 1200-Hp. Switching Locomotive SW-1200

INSTRUCTIONS - SW SERIES SWITCHERS

This S Gauge locomotive power unit kit is designed to be used with Locomotive Workshop's series of EMD SW- switcher kits. Normal modelers' tools such as files, jewelers saw, and small screw driver are required. Although certain steps call for soldering of some assemblies, epoxie or certain cements can be used if desired.

Due to the lack of space inside the small switcher bodies, the design of the power trucks has been modified to have the chain riser mounted on one of the trucks. This allows longer universal joint links and better performance on sharp curves.

It is recommended that you take some time to familiarize yourself with instructions and parts before jumping into the actual kit assembly.

1.0 Driven truck instructions - refer to figure 1.

- 1.1 Install the two worms on the power truck equalizer axle. Be carefull when pressing the gears onto the axle. the axle can be bent if too much force is used. Sometimes the gear or the axle will have a burr on the end which makes installation difficult. If you bend the axle -- do not use it -- return it for a free replacement.
- 1.2 Cut holes for the worm gears in the equalizer tube as shown in Figure 1. A jewelers saw works best as shown in the inset of the figure but a file can also be used.
- 1.3 Add one of the bronze thrust washers to each end of the axle. Install one of the bearings in the end of the equalizer tube and make a trial assembly of the equalizer and check for axle end play. If necessary, add a thrust washer if too loose. If the axle is too tight the worms will have to be moved inward slightly.
- 1.4 Solder the end bearings in place when the axle fits properly.
- 1.5 Install the gearboxes and geared wheelsets as shown on the assembly drawing. Make sure that the truck runs properly by turning the equalizer axle with the fingers.

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2.0 Chain Riser truck instructions - refer to figure 2.

- 2.1 Cut holes for worm gears in the equalizer tube the same way as done in paragraph 1.2
- 2.2 Install the bearing in one end of the tube. Add the chain riser plate and top shaft bearing. Be sure to remove the burrs from around the holes in the riser plate and bearings.
- 2.3 Install the two worms on the axle. Lock them in place with a touch of solder on the inside ends. Add a bronze thrust washer and bearing on the long shaft end. Then add the sprocket bushing and lock the bushing in place with solder. Make a trial assembly by combining the tube and axle assemblies. When the gears, etc. are in the correct positions, remove all traces of soldering flux from the axle and tube assemblies before the final installation of the last bearing.
- 2.4 Add the gearboxes and geared wheelsets to the assembly and make sure it operates properly before proceeding.
- 2.5 Add the 16 tooth sprocket to the equalizer axle. Install the top axle and hold it in place by pressing on the Teflon(white plastic) thrust bearing. Again, check that everything works correctly.

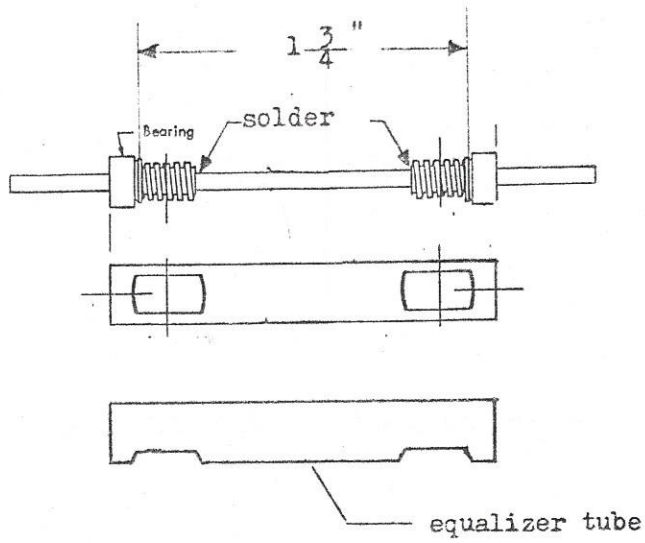
3.0 Final assembly

The drawing shows the installation for SW-1 and SW-8 units. This requires that the motor extend into the cab and therefore a hole must be cut in the cab wall. On the SW-1200 the motor/u-joint/chain can be installed all within the hood by placing the cab at the right-hand side of the drawing, on performing the installation of the power unit on that basis.

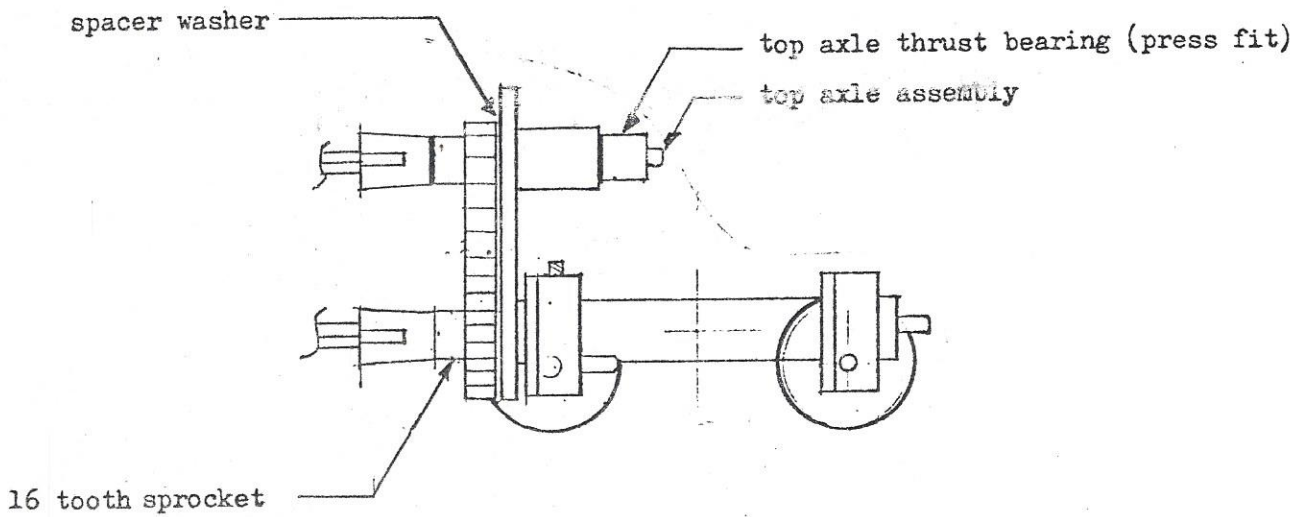
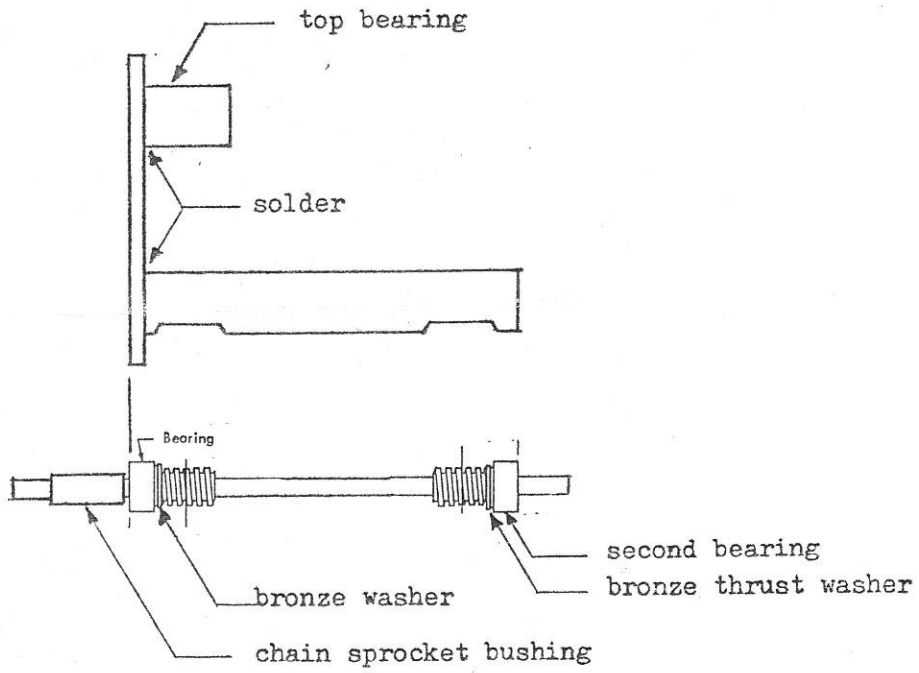
- 3.1 Cut a hole in the frame for the chain riser as shown on the assembly drawing.
- 3.2 If you wish to install the motor with the screws supplied, drill holes for the screws in the appropriate place on the frame. Less noise from the motor will be transmitted to the frame if the motor is mounted with silicone rubber glue rather than screws. The motor should be mounted last so wait until you have installed the trucks with sideframes and universal joints before installing the motor.

- 3.3 Mount power trucks to the frame. Spacers will be required between the sideframes and bolsters to make the bolsters clear the equalizer tube.
- 3.4 Install the universal joints according to the instructions provided on the package. Note that one of the knuckles has been drilled out to fit the top axle of the chain truck.
- 3.5 Install motor. Lubricate all bearings and gears before running the unit. It is best to run the unit for a couple of hours, half the time running forward and the other half in reverse -- with the unit up on blocks. This allows the bearings to break-in.

Electrical considerations: Both trucks should be insulated from the frame using suitable hardware. When connecting wires from the motor to each truck check that the unit runs forward when the power positive connection is placed to the right hand running rail.



cut gear holes in equalizer tube.



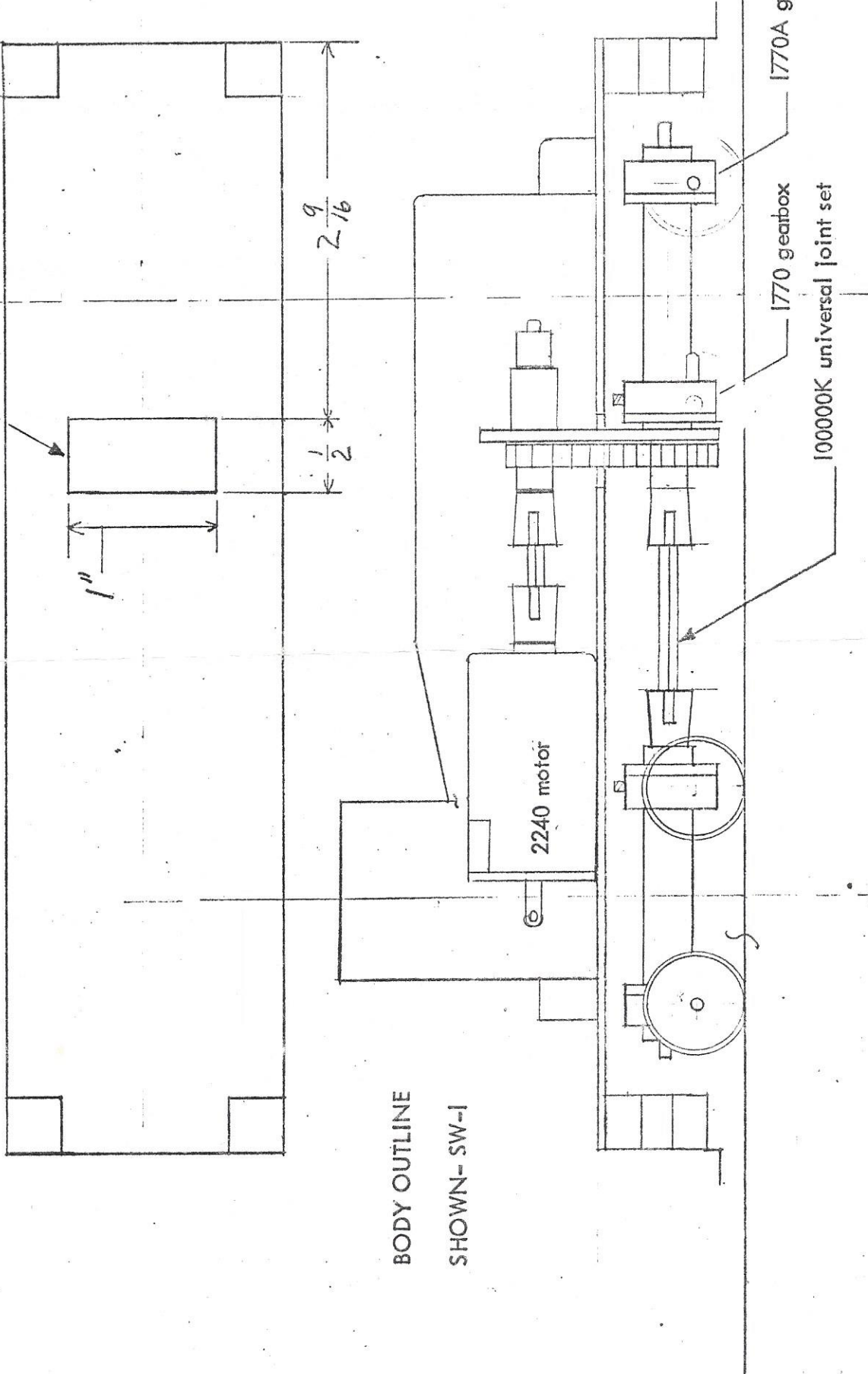
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PARTS LIST - SW SERIES SWITCHERS

Quantity	Part No.	Description
✓ 1	S2240CW	Northwest Shortline/Sagami Motor
no 2	2.4mm	Motor mount screw(supplied with motor)
✓ 1	100000KML	Universal joint set
no 1	1855	Axle Bearing (top axle)
✓ 1	2474	Top Axle with 8 Tooth Sprocket
✓ 1	1855T	Top Axle Thrust Bearing
no 1	2467	Chain riser Plate
no 4"	1227	Chain
no 1	S216	16 Tooth Sprocket
✓ 1	1273	Sprocket Bushing
✓ 2	1269	Equalizer Tube
✓ 2	1275	Equalizer Axle
✓ 4	72DPW	Worm Gear
✓ 4	3461	Bearing -- Equalizer axle
✓ 6	103	Bronze Thrust Washers
✓ 2	1770	Axle Gear Box Set - Fixed
✓ 2	1770A	Axle Gear Box Set - Swivel
✓ 4	1264	Geared Wheelset - 15 Tooth
1	1299	Wire Package
✓ 1	3580SW	Parts List and Instruction sheets
X2	STD	Thrust Washer for Top axle
1	3567	Insulating Hardware set -power truck mount INCL WIRE

CUT HOLE FOR CHAIN RISER



BODY OUTLINE
SHOWN - SW-1