INSTRUCTIONS FOR REGEAR INSTALLATION IN ATHEARN RDC

ABOUT OIL- We have found the resin materials our gears are made of to be completely self lubricating. In our tests oils have caused a surface adhesion resulting in a loss of performance instead of an improvement. However, use oil on the motor and metal shafts.

Use these instructions with the aid of the photographs. Be sure to check for smoothness of operation with each assembly step. Doing so will ensure a smooth running unit without the need to backtrack and troubleshoot.

Figure 1. Remove body shell. For reassembly purposes take note that the commutator end of the motor faces away from the large round hole in the frame. The commutator end of the motor is the end that the flywheel will be pressed onto.

Figure 2. In order, remove top electrical clip, motor and drive shafts, and truck assemblies from frame.

Figure 3. You may cut off the rubber bands from the unpowered truck. The unpowered truck is the one on the end opposite the round hole in the frame mentioned earlier. Disassemble the other truck which will be used for powering.

Figure 4. Carefully twist out metal axle assemblies from the plastic axle centers. Do this by gripping the axle itself with a good set of pliers. Do not twist the wheel itself.

Figure 5. Layout parts. Trim the flash on the sides of the 16 tooth spur gears with a sharp exacto knife. Also custom fit the axles into the gearbox sideframes. Assemble the two sideframes with axles only. Turn and wiggle the gear to check for fit. A loose fit with absolutely no drag is required here. Place the exacto knife in the hole and twist to enlarge the hole from the inside face of the gearbox. Assemble and disassemble to work this over as many times as necessary. This is the most critical fit of the gearbox as if too tight a bind will occur.

Figure 6. Now assemble the seven 16 tooth gears into the gearbox. Spin the gears to check for mesh. Double check that the area you trimmed earlier doesn't hang up.

Figure 7. Install axles and other sideframe. Check for smoothness. This is the last chance to correct any fit problems on the axles.

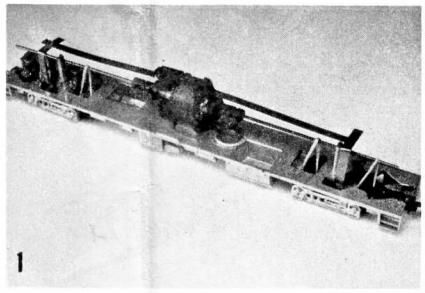
Figure 8. Push the spacers onto the axles. Again test the mechanism for smoothness. Do not allow the spacers to be pressed against the gearbox creating a bind.

Figure 9. Twist the wheel assemblies into the axles using the same method you removed them with.

Figure 10. Completed gearbox! Test roll for smoothness.

Figure 11. We used a Tuff Wheel cutoff disc to cut the post off of the frame as shown. Cut it close to the frame but it dose not need to be perfectly smooth.

Figure 12. Frame with post cut off.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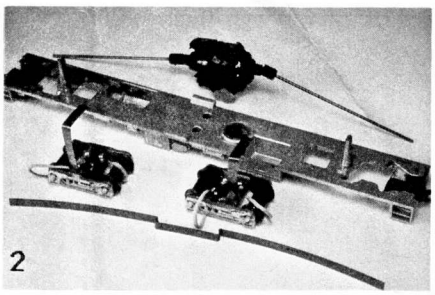
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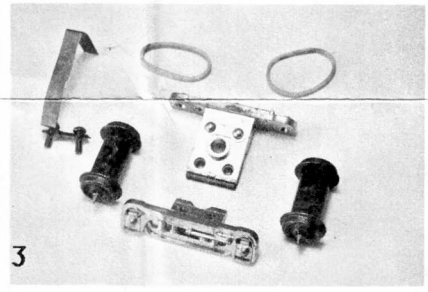
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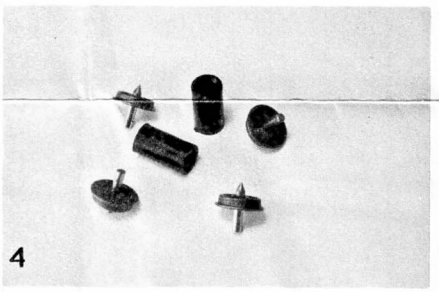
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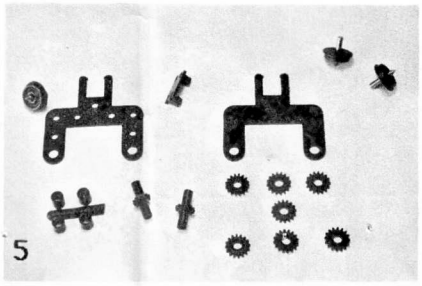
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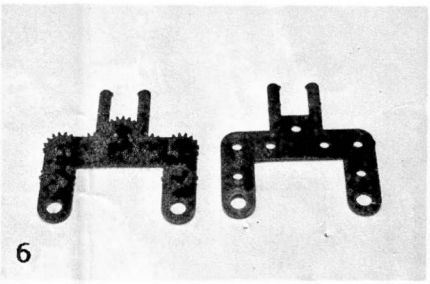
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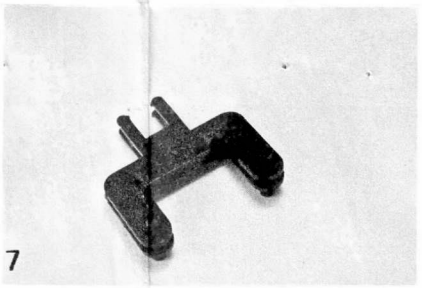
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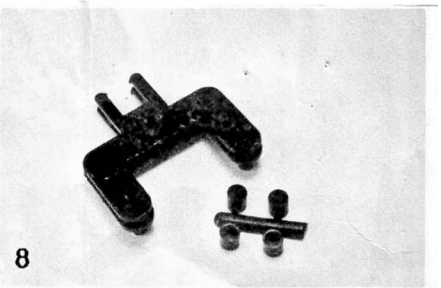
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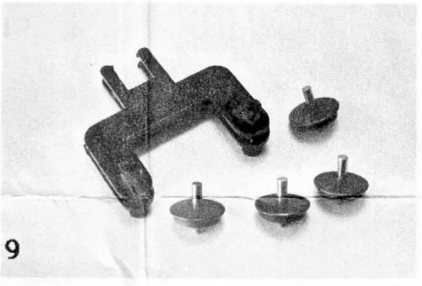
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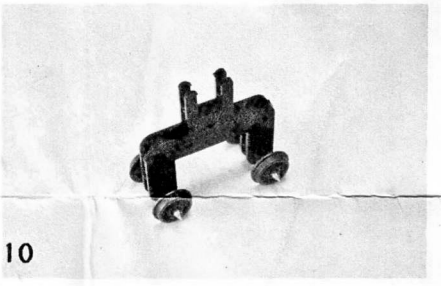
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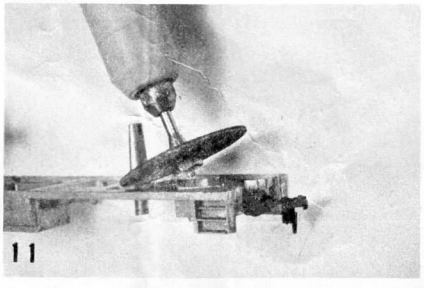
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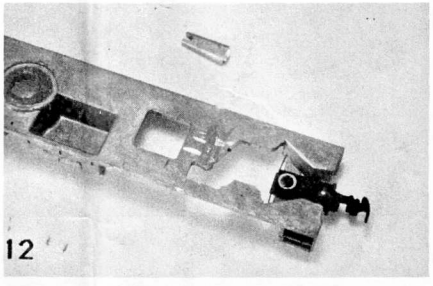
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Figure 13. Outline shows area needed to be ground or cut away. We did this with a Dremel metal cutting bit.

Figure 14. Enough has to be cut away to allow the gearbox assembly to fit in.

Figure 15. Truck installed in frame.

Figure 16. Place dummy truck in frame and secure by either peening over the end of the bolster as we did or use a washer and screw. If you peen over be careful not to overdo it.

Figure 17. Assemble truck sideframes onto gearbox assembly. Check for - turning radius clearance, clearance between top of frame and gearbox, and smoothness of roll. Interference between axle ends and sideframes is a possible source of drag.

Figure 18 Tap or press steel shaft into worm as shown.

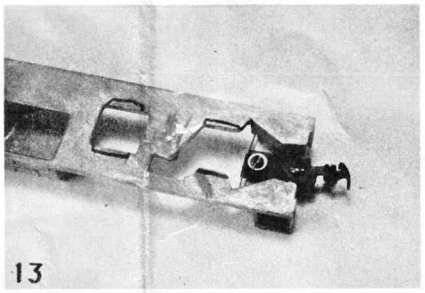
Figure 19. Remove one of the drive couplers from the driveshaft and press it onto the worm assembly. Install assembly into gearbox and secure with worm clip.

Figure 20. Press the driveshaft into the flywheel making sure of installing on the commutator end of the motor. Remove the drive couplers before doing this. We very carefully lined up the motor and the flywheel and pressed them together in a regular bench vise. Install motor into frame. With driveshaft attached to the motor make a cut mark on driveshaft. The cut mark should allow about 1/16th inch clearance between the end of the driveshaft and the center of the truck drive coupler. DO NOT CUT TOO SHORT. Also the cut mark is to be made with the commutator pushed to the flywheel end of the motor. This is necessary to allow for the truck to pivot without binding the driveshaft.

Figure 21. Wrap 1" of scotch tape around end of driveshaft. Wrap another 1" of scotch tape around the driveshaft 1/8" back from end. This will form a step for pushing on the drive coupler as shown. After the drive coupler was fitted we trimmed off the excess tape and Super Glued the drive coupler on.

Figure 22. Reinstall driveshaft and check to ensure that the armature does not bottom out in the motor housing as the truck is pivoted from side to side. Final adjust as necessary. The top clip must be bent with a pair of needle nose pliers to clear the flywheel. Install the top clip and test run. An interesting note of the Athearn motor is that if the locomotive direction is different than other engines, it can be reversed by turning the magnet end for end in the motor.

Figure 23 and 24. Here it is. Use these photos for reference.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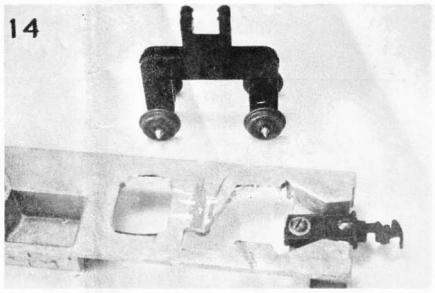
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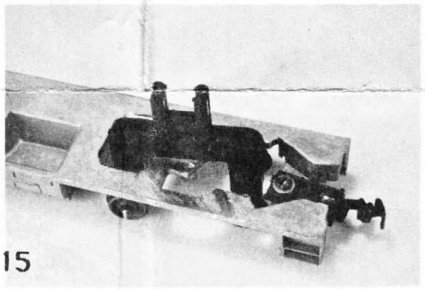
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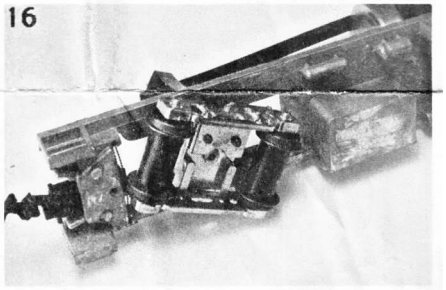
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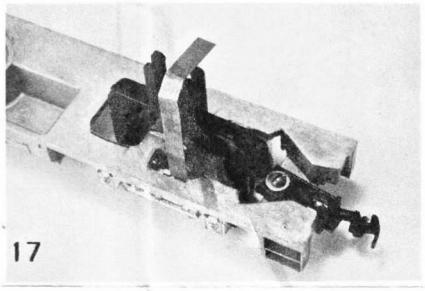
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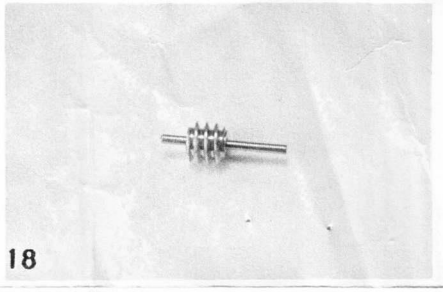
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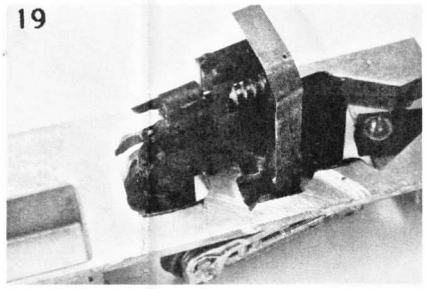
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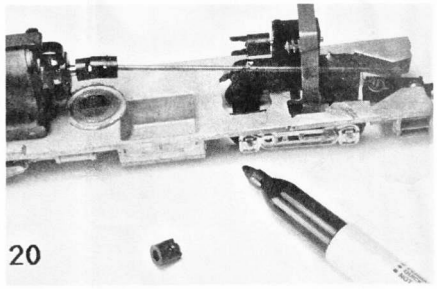
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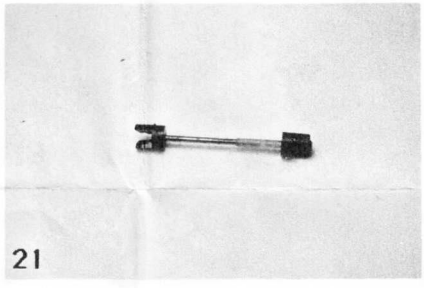
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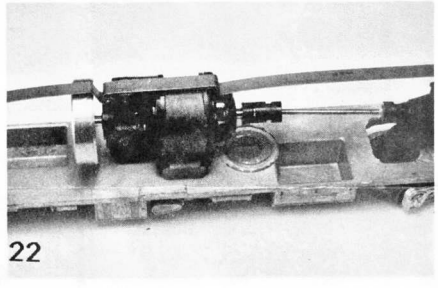
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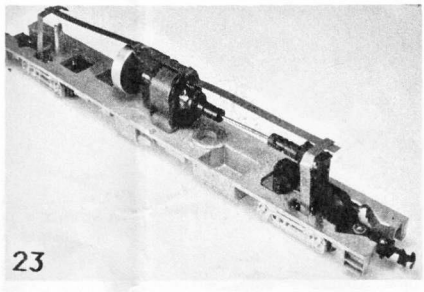
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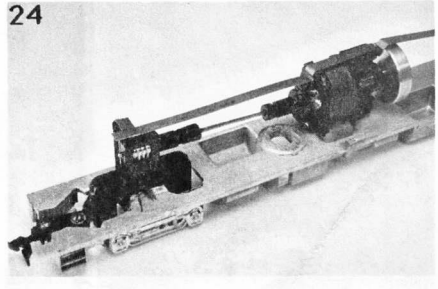
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