

120 TON STEAM WRECKING CRANE KIT #4010

— INTRODUCTION —

Thank you for joining us in this exciting and rewarding modeling project!

At The Gould Company, we believe that a fine model results from the combined efforts of you, the modeler, and we the manufacturer. It is our responsibility to produce a kit that is precision engineered for easy assembly, accurate in detail, reflects the finest workmanship, and offers you the greatest modeling enjoyment. You have only to relax and enjoy the reward of assembling a fine scale model.

Although there are many parts to be assembled, we do not consider this model a "craftsman kit". Few tools and only basic modeling skills are required to produce a contest quality model, which we feel is the only type you deserve.

All of the parts are carefully engineered to fit together precisely, there are no holes to drill, and the instructions will guide you step by step.

So lets get to work! We know you will enjoy building this model as much as we have bringing it to you.

— PROTOTYPE HISTORY —

The Industrial Works, Bay City Michigan (now the Industrial Brownhoist Corp., a division of American Hoist and Derrick) established itself as one of the leading makers of railroad wrecking cranes with the introduction of the world's first steam powered 20 ton crane in 1883.

The model chosen as the prototype for this kit is typical of the 120 ton version introduced in 1909. This crane was very well received, with almost all American railroads owning at least several. Many of these cranes are still in operation, often steam or converted to diesel electric.

This kit represents a "factory version" (see D & SL #10300 photo). Many modifications and variations were developed by the various owners to suit their needs and specifications. Appliances such as headlights, generators, ladders, platforms, handrails, worklights, and curtains were added, as shown by the photos. This offers you many opportunities for superdetailing using many locomotive parts offered by your dealer.

There were several boom styles offered and we have chosen the "heavier" version.

The crane always traveled with a crane tender or "boom car". Reaching under the boom, as an idler car, it also carried the many chains, cable, timbers and auxiliary attachments, as well as extra fuel and water supplies.

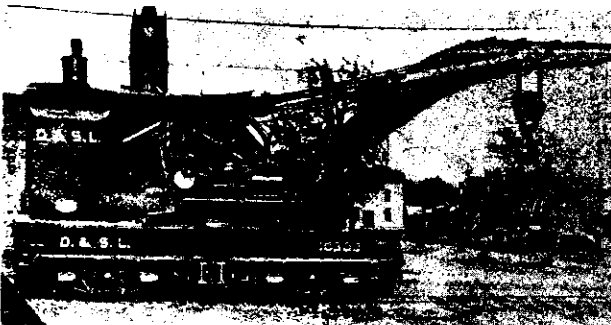
In operation, "outriggers", heavy steel sections, were extended from each end and center of the carbody. Using timbers and jacks, the crane jacked up until the coil springs in the trucks were relaxed. This allowed the full tonnage rating to be used. Due to complex assembly required, these do not operate on the model, but are correctly shown in the stowed position.

Two cranes were often used in heavy salvage, such as derailed locomotives, and were also used for shop and bridge erecting. One crane operator usually acted as fireman and operator.

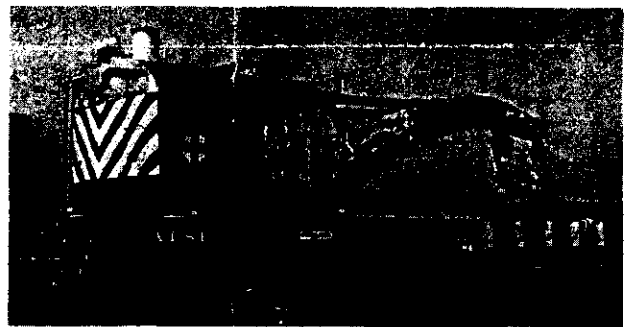


W.C. HENDRICK COLLECTION

PHOTO DATED SEPTEMBER 25, 1942 MONTALVO, CALIFORNIA



INDUSTRIAL WORKS; DAVE GARCIA COLLECTION



DAVE GARCIA COLLECTION



ROBERT J. DAVIS COLLECTION



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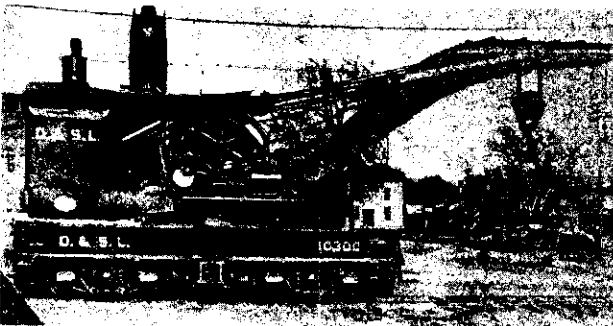
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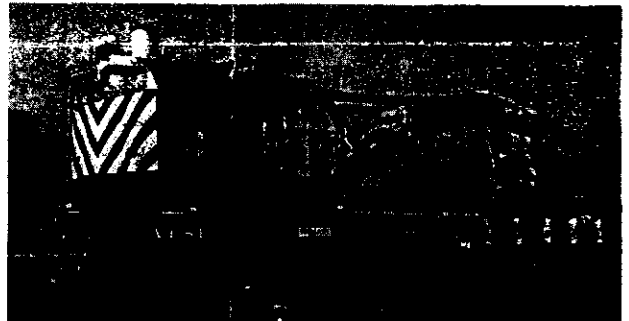


W.C. HENDRICK COLLECTION

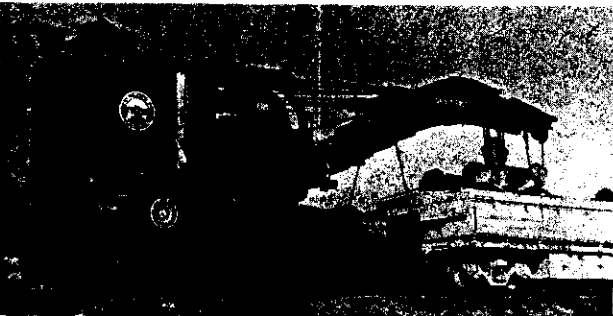
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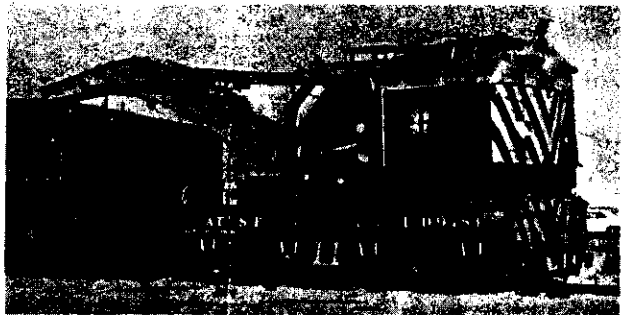
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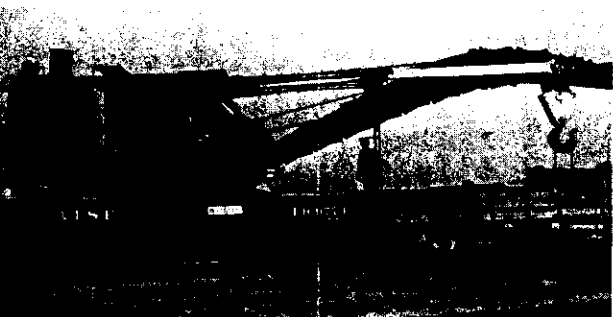
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INDUSTRIAL BROWNHOIST is a REG. T.M. of AMERICAN HOIST AND DERRICK, Inc. Used with permission.

EEDED

knife

y cement

e plastic

e, we recommend

MRA hook (Athearn)

ST

QUIRED IN ()

TS*

ATE

- (1) D-1 Not numbered white nylon SPIDER SPRING
- (8) D-2 JOURNAL BEARINGS
- (1) E-1 WEIGHT BOX
- (1) E-2 WEIGHT LID
- (1) F-1 CHASSIS FLOOR
- (1) G-1 A-FRAME SIDE, RIGHT
- (1) G-2 BOOM SIDE LEFT
- (1) G-3 FRONT BOOM SPREADER
- (1) H-1 A-FRAME SIDE, LEFT
- (1) H-2 BOOM SIDE RIGHT
- (1) H-3 REAR BOOM SPREADER
- (1) I BOOM FLANGE, BOTTOM
- (1) J BOOM FLANGE, TOP
- (1) K-1 CAB SIDE, RIGHT
- (1) K-2 CAB SIDE, LEFT
- (1) K-3 CAB REAR
- (1) K-4 COUNTERWEIGHT, CENTER
- (2) K-5 SMALL COUNTERWEIGHT STACK
- (1) L-1 CAB ROOF
- (1) L-2 MANIFOLD BRACKET
- (1) L-3 EXHAUST MANIFOLD
- (1) L-4 ROOF HINGED PANEL
- (1) L-5 ROOF PANEL HINGE

This model is made up of four basic sub-assemblies; CHASSIS; A-FRAME; BOOM AND CAB. Each is a complete model, and may be treated as such. The assembly, not including painting, will require from six to eight enjoyable hours. You can work on the various sub-assemblies at the same time, but you **MUST** follow the individual step by step sequence exactly, as some parts must be assembled before others. This is very important — Don't try to out guess us!

Plastic requires time for the cement to set, so we recommend that when a basic sequence is assembled, set it aside and work on another group of parts.

If you think that a part does not fit, **STOP** — you have made a mistake. All of the parts **DO** fit. Study the illustrations carefully before assembly, and test fit each part to see where cement should be applied.

Each "sprue", or group of parts, has a letter identification, and each part a number; for example, "N-5, valve chest cover". Two each of sprues A, B, N, O are provided, as two of each part is required.

- (1) M-1 CAB INSIDE, RIGHT
- (1) M-2 CAB INSIDE, LEFT
- (1) M-3 BOILER
- (1) M-4 WINDING DRUM
- (1) M-5 WINDING DRUM TOP FLANGE
- (1) M-6 DRUM TOP PLATE
- (1) M-7 STEAM/EXHAUST PIPE, RIGHT
- (1) M-8 STEAM/EXHAUST PIPE, LEFT
- (1) M-9 A-FRAME FORK RETAINER, RIGHT
- (1) M-10 A-FRAME FORK RETAINER, LEFT
- (1) M-11 WORM DRIVE
- (2) N-1 CYLINDER HALF, INSIDE
- (2) N-2 CYLINDER HALF, OUTSIDE
- (2) N-3 FRONT CYLINDER HEAD
- (2) N-4 REAR CYLINDER HEAD
- (2) N-5 VALVE CHEST COVER
- (7) N-6* OPERATING LEVERS
- (2) N-7 HANDWHEEL
- (1) N-8* FRONT (BOOM) DRUM
- (1) N-9* MIDDLE (MAIN HOOK) DRUM
- (1) N-10* MIDDLE DRUM SPACER
- (1) N-11* REAR DRUM GEAR
- (1) N-12* REAR (SMALL HOOK) DRUM
- (2) N-13 TRUSS ROD
- (2) N-14 BOOM TORSION ROD/FORK
- (2) N-15 A-FRAME FORK
- (4) N-16 BOOM PULLEY PINS
- (2) N-17 BOOM FORK PIN
- (2) N-18 BOOM PIVOT PIN

- (1) O-1* LADDER
- (1) O-2* MAIN HOOK PULLEY SET, CENTER
- (2) O-3 MAIN HOOK PULLEY SET, OUTSIDE
- (1) O-4* SMALL HOOK PULLEY SET
- (2) O-5 MAIN HOOK SIDE PLATE
- (1) O-6* MAIN HOOK
- (2) O-7 SMALL HOOK SIDE PLATE
- (1) O-8* BOOM TOP CASTING
- (1) O-9* BOOM PULLEY CROSSBAR
- (4) O-10 BOOM PULLEYS
- (8) O-11 BOOM PULLEY RINGS
- (1) P-1 INTERMEDIATE GEAR/PINION
- (1) P-2 MAIN BULL GEAR/PINION
- (2) P-3 FLYWHEEL
- (1) P-4 IDLER PULLEY, RIGHT
- (1) P-5 IDLER PULLEY, LEFT
- (1) P-6 IDLER PULLEY V-GROOVE RING
- (1) P-7 IDLER PULLEY V-GROOVE RING
- (1) P-8 IDLER PULLEY V-GROOVE RING
- (1) P-9 CROSSHEAD/ROD, LEFT
- (1) P-10 CROSSHEAD/ROD, RIGHT
- (1) P-11 ROCKER SHAFT, LEFT
- (1) P-12 ROCKER SHAFT, RIGHT
- (1) P-13 OPERATING LEVER BRACKET
- (1) P-14 SHORT HANDRAIL, LEFT SIDE
- (1) P-15 LONG HANDRAIL, RIGHT SIDE
- 2 ea. 2-56 screws
- LEAD SHOT — 1 BAG
- 4-40 SELF THREADING SCREW (1)
- BLACK CABLE 60 INCHES
- WHEELSETS (4) ATHEARN
- INSTRUCTIONS

PLEASE READ BEFORE ASSEMBLY

When completed, some extra parts (marked * on the parts list) will be left over. Use these as clutter around the engine house.

As many parts are small, we suggest you carefully clean your workspace, and do the actual construction over a piece of white typing paper, with adequate lighting.

Remove parts from the sprue **ONLY** when required in assembly. Mark off each step when completed. When trimming parts off, be sure not to let them "snap" off and into the carpet! **DO NOT** twist them off.

Plastic parts are held to the sprue by small tabs, or "gates". We try to locate these where they are easy to trim, and, in some cases, are on the back of the part. An example is part #P-1 and P-2 gears. These should be removed.

Plastic parts have a sharp "witness" line, usually on the thin edge. (See part G-1, A-Frame side.) This is a "parting line" where the mold halves come together. This should not be confused with "flash" which is a large area of very thin plastic extending from the parting line. We try not to ship parts that have "flushed", as this indicates the part is thicker than designed, and may not fit.

For a finer appearance, this fine line can be easily removed by scraping with a modelers knife.

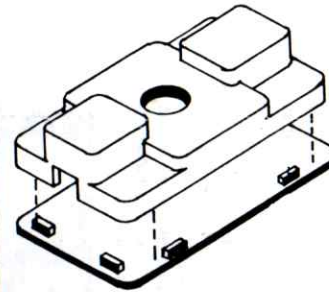
Plastic parts are removed from the mold with ejector or "knockout" pins. This results in a small round mark on the back, or non-detailed surface. As a rule, these do not show, and indicate the back of the part. In some cases, these are an integral part of the design, such as part #B-10 coupler pocket. A small pin on the edge of a part is a "sucker" and should be removed, as with part #B-12, coupler pocket lid. Another example is the large bull gear P-2, which has FOUR suckers partially connected to the back of the rim. These must be removed.

If a part does break during removal or assembly, apply a small amount of cement and set aside. It is not practical to make the boom operate from the drums, so the winding drum has been located in the cab behind the boiler. This may be operated to position the boom by removing the cab or from under the A-Frame with a small screwdriver. You may wish to cement the boom in a traveling position with the main hook just above a flatcar floor.

There is no sequence in the packing of the bags. The parts are bagged according to shape and fragility. You may open the bags to study the parts, and proceed with assembly.

1 WEIGHT PACKAGE

Securely cement lid to weight box. Set aside. It will be filled with lead shot later in assembly.

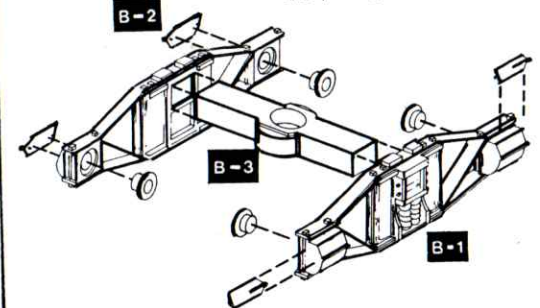


2 TRUCKS make two.

Sprue #B and white plastic sprue. NOTE — There are two different "B" sprues treat them as one.

- (1) Carefully trim white nylon bearings from sprue. Firmly press bearings into holes in journals on B-1 until bearing "bottoms" in hole.
- (2) Cement B-2 to B-1, two per side frame. Hinge spring should be on right side of journal.

- (3) Cement B-3 to B-1. Study drawing and be sure sideframe springs are down and bolster is as shown.
- (4) Cement opposite B-1 to assembly. Make sure truck is square, and set aside. Wheel sets will be added after painting.



TOOLS NEEDED

- Sharp pointed modelers knife
- Fine pointed tweezers
- #00 or #000 brush to apply cement
- Liquid cement for styrene plastic
- Small flat medium cut file
- Paint (styrene compatible, we recommend airbrush application.)
- Couplers; Kadee #5 or NMRA hook (Athearn)
- Decals

PARTS LIST

TOTAL QUANTITY REQUIRED IN ()

EXTRA PARTS *

(2) A-2	CHASSIS SIDE		Not numbered white nylon
(2) A-3	CHASSIS END	(1) D-1	SPIDER SPRING
(2) A-4	BODY BOLSTER PLATE	(8) D-2	JOURNAL BEARINGS
(2) A-5	BODY BOLSTER		
(2) A-6	BODY BOLSTER	(1) E-1	WEIGHT BOX
(2) A-7	END OUTRIGGER, INSIDE	(1) E-2	WEIGHT LID
(2) A-8	END OUTRIGGER, OUTSIDE		
	Two "B" sprues—treat as one	(1) F-1	CHASSIS FLOOR
(4) B-1	TRUCK SIDE FRAME	(1) G-1	A-FRAME SIDE, RIGHT
(8) B-2	JOURNAL LID	(1) G-2	BOOM SIDE LEFT
(2) B-3	TRUCK BOLSTER	(1) G-3	FRONT BOOM SPREADER
(4) B-4	OUTRIGGER I BEAM		
(2) B-5	CENTER OUTRIGGER SIDE PLATE	(1) H-1	A-FRAME SIDE, LEFT
(2) B-6	I BEAM END PLATE	(1) H-2	BOOM SIDE RIGHT
(2) B-7	COUPLER POCKET PIN	(1) H-3	REAR BOOM SPREADER
(2) B-8	ROLLER		
(2) B-9	FRAME GUSSET	(1) I	BOOM FLANGE, BOTTOM
(2) B-10	COUPLER POCKET	(1) J	BOOM FLANGE, TOP
(2) B-11	OUTRIGGER LOCK PIN		
(2) B-12	COUPLER POCKET LID	(1) K-1	CAB SIDE, RIGHT
(2) B-13	OUTRIGGER BOTTOM PLATE	(1) K-2	CAB SIDE, LEFT
(2) B-14	OUTRIGGER TOP PLATE	(1) K-3	CAB REAR
(20) B-15*	GRAP IRONS	(1) K-4	COUNTERWEIGHT, CENTER
		(2) K-5	SMALL COUNTERWEIGHT
		(1) K-6	STACK
(1) C-1	FRONT CASING	(1) L-1	CAB ROOF
(1) C-2	OPERATORS PLATFORM	(1) L-2	MANIFOLD BRACKET
(1) C-3	A-FRAME FLOOR	(1) L-3	EXHAUST MANIFOLD
(1) C-4	RUNNING BOARD LEFT	(1) L-4	ROOF HINGED PANEL
(1) C-5	RUNNING BOARD RIGHT	(1) L-5	ROOF PANEL HINGE
(4) C-6	TROLLEY WHEELS		
(2) C-7	TROLLEYS		
(1) C-8	TROLLEY REAR PLATE		

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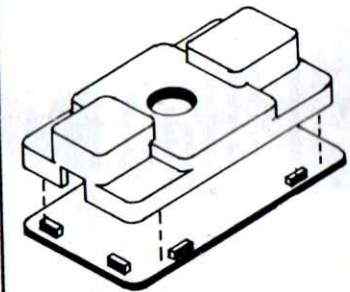
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(1) M-2	CAB INSIDE, LEFT	(1) O-2*	MAIN HOOK PULLEY SET, CENTER
(1) M-3	BOILER	(2) O-3	MAIN HOOK PULLEY SET, OUSTIDE
(1) M-4	WINDING DRUM	(1) O-4*	SMALL HOOK PULLEY SET
(1) M-5	WINDING DRUM TOP FLANGE	(2) O-5	MAIN HOOK SIDE PLATE
		(1) O-6*	MAIN HOOK
(1) M-6	DRUM TOP PLATE	(2) O-7	SMALL HOOK SIDE PLATE
(1) M-7	STEAM/EXHAUST PIPE, RIGHT	(1) O-8*	BOOM TOP CASTING
(1) M-8	STEAM/EXHAUST PIPE, LEFT	(1) O-9*	BOOM PULLEY CROSSBAR
(1) M-9	A-FRAME FORK RETAINER, RIGHT	(4) O-10	BOOM PULLEYS
(1) M-10	A-FRAME FORK RETAINER, LEFT	(8) O-11	BOOM PULLEY RINGS
(1) M-11	WORM DRIVE		
(2) N-1	CYLINDER HALF, INSIDE	(1) P-1	INTERMEDIATE GEAR/PINION
(2) N-2	CYLINDER HALF, OUTSIDE	(1) P-2	MAIN BULL GEAR/PINION
(2) N-3	FRONT CYLINDER HEAD	(2) P-3	FLYWHEEL
(2) N-4	REAR CYLINDER HEAD	(1) P-4	IDLER PULLEY, RIGHT
(2) N-5	VALVE CHEST COVER	(1) P-5	IDLER PULLEY, LEFT
(7) N-6*	OPERATING LEVERS	(1) P-6	IDLER PULLEY V-GROOVE RING
(2) N-7	HANDWHEEL	(1) P-7	IDLER PULLEY V-GROOVE RING
(1) N-8*	FRONT (BOOM) DRUM	(1) P-8	IDLER PULLEY V-GROOVE RING
(1) N-9*	MIDDLE (MAIN HOOK) DRUM	(1) P-9	CROSSHEAD/ROD, LEFT
(1) N-10*	MIDDLE DRUM SPACER	(1) P-10	CROSSHEAD/ROD, RIGHT
(1) N-11*	REAR DRUM GEAR	(1) P-11	ROCKER SHAFT, LEFT
(1) N-12*	REAR (SMALL HOOK) DRUM	(1) P-12	ROCKER SHAFT, RIGHT
(2) N-13	TRUSS ROD	(1) P-13	OPERATING LEVER BRACKET
(2) N-14	BOOM TORSION ROD/FORK	(1) P-14	SHORT HANDRAIL, LEFT SIDE
(2) N-15	A-FRAME FORK	(1) P-15	LONG HANDRAIL, RIGHT SIDE
(4) N-16	BOOM PULLEY PINS		
(2) N-17	BOOM FORK PIN		
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(2) P-3	FLYWHEEL
(1) P-4	IDLER PULLEY, RIGHT
(1) P-5	IDLER PULLEY, LEFT
(1) P-6	IDLER PULLEY V-GROOVE RING
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(1) P-10	CROSSHEAD/ROD, RIGHT
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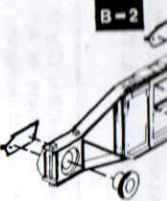
1 WEIGHT PACKAGE

Securely cement lid to weight box. Set aside. It will be filled with lead shot later in assembly.



2 TRUCKS make two.

- (1) Carefully trim white nylon from sprue. Firmly press into holes in journals bearing "bottoms" in frame.
- (2) Cement B-2 to B-1, right side of journal.



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For a finer appearance, the scraping with a modelers knife.

Plastic parts are removed by "knockout" pins. This results in a non-detailed surface. As a rule, the back of the part. In some cases, such as part #B-10 coupler, a part is a "sucker" and shows a coupler pocket lid. Another example has FOUR suckers partially cut. These must be removed.

If a part does break during assembly, use a small amount of cement and set aside to operate from the drums, so the cab behind the boiler. This may require removing the cab or from under the boiler. You may wish to cement the boiler hook just above a flatcar floor.

There is no sequence in bagged according to shape a study the parts, and proceed

3 CHASSIS ASSEMBLY

Sprues A-B-FLOOR

A small amount may need to be filed off ends of chassis sides (A-2). This is due to possible variation in shrinkage rate during the molding process. Proceed as follows:

- (1) Cement (B-9) to (A-2). Repeat for other side.
- (2) Cement **one** end (A-3) to floor.
- (3) **Test fit** one side (A-2). Check length. Side should be flush with opposite end of floor. If slightly long, remove an equal amount from each end of side until it is flush. Cement in place.
- (4) Repeat for opposite (A-2). Cement.
- (5) Cement opposite end (A-3) in place.

NOTE: sides **must** assembled before adding end.

- (6) Cement (A-5) & (A-6) to floor and locating tabs.
- (7) Cement (A-4) in notch.
- (8) Cement (B-10) to each end.
- (9) Cement (A-7) to (A-8). Make two.

- (10) Cement two (B-4) to B-13).
- (11) Cement (B-14) to assembly.
- (12) Cement (B-6) to assembly. Set aside until step 16.
- (13) Repeat steps 10-11-12. for other end
- (14) Before proceeding with further assembly, familiarize yourself with the coupler installation, as it is difficult to see the correct assembly after parts (A-7) & (A-8) are installed. This is test fitting only, as couplers will be added after painting.

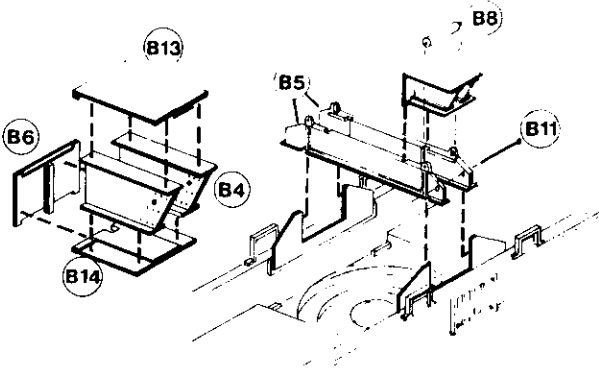
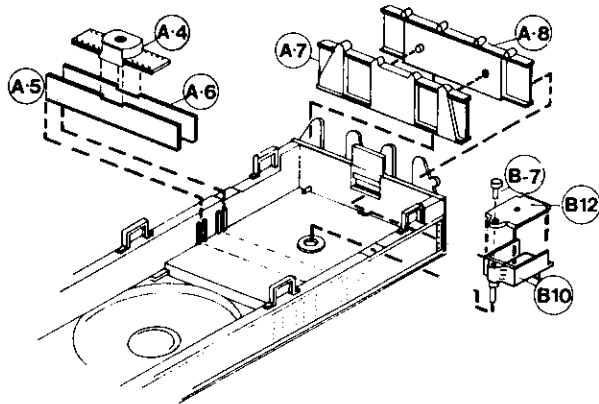
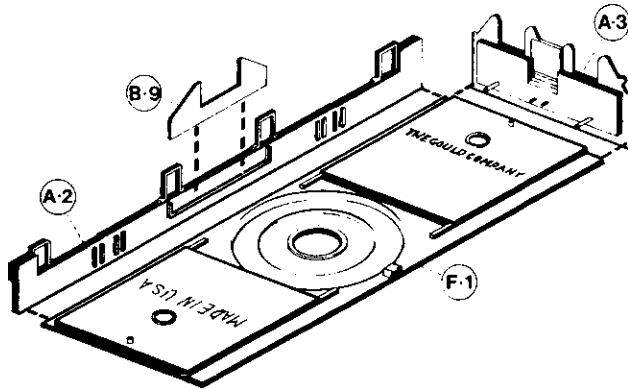
Kadee® #5 (A) Slide centering spring thru opening in Coupler pocket of A-3. Check that spring fits without snagging. Insert coupler thru opening. Place lid (B-12) onto pocket (B-10). It will be held by tang on end and press-fit pin (B-7). Do not install (B-7) now. After checking assembly for free action, remove couplers and spring, set aside.

(B) NMRA Hook (Athearn); Same as above, omit spring.

- (15) Cement outrigger assemblies (A-7 & A-8) to ends.

- (16) Complete assembly of center outrigger as follows.

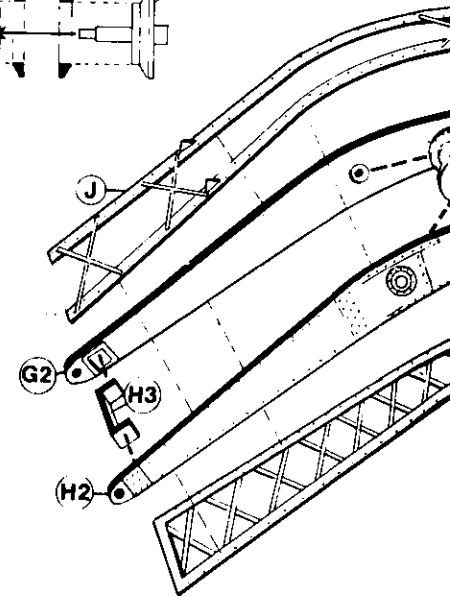
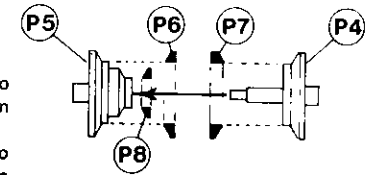
- (a) Insert **do not** cement, two parts (B-5) into gussets (B-9). Frame is an assembly fixture for this operation, as completed assembly will be removed later.
- (B) Carefully cement center "I" beam assemblies from step 12 between parts (B-5). **Do not** allow cement to flow from (B-5) to gussets!
- (C) Cement (B-8) to each end of outrigger.
- (D) Insert and cement (B-11) to each end.
- (E) When cement has set, lift outrigger assembly from frame and set completed assemblies aside.



4 BOOM ASSEMBLY

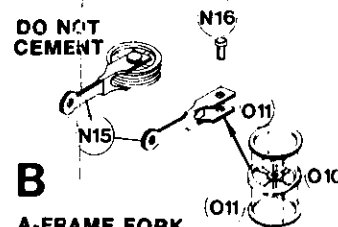
Sprues G-H-I-J-P

- (1) Cement H-3 and G-3 to G-2.
- (2) Cement H-2 to assembly. Set aside.
- (3) Pulley assembly: Note: it is easier to assemble pulleys if P-4 & P-5 are left on sprue until assembly is completed.
 - (A) Cement P-6 to P-5. Cement P-7 to P-4. Cement P-8 to P-5. Remove completed P-4 & P-5 from sprue, clean up gate tabs.
 - (B) Cement assembled P-4 to P-5.
- (4) Carefully spread boom sides apart and insert pulley assembly into center hole, with double pulley on left side of boom. **DO NOT** cement.
- (5) Watch those fingerprints! Test fit flange/X-Brace "I" onto boom sides. Study how the locating tabs on the flanges fit, and where cement is to be applied. Remove, apply cement to edges of boom side. **NOTE:** several passes of the cement brush may be required. Place flanges in position, applying additional cement from inside as necessary. Make sure flange is properly located, and hold in position until cement has set.
- (6) Repeat for top flange/X-Brace J. Set aside to thoroughly dry.



5 PULLEY/FORK ASSEMBLY

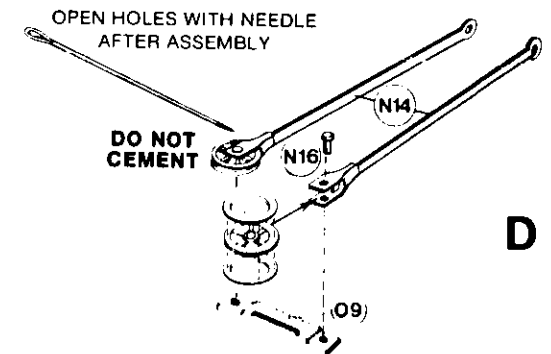
Sprues N-O, two of each



A-FRAME FORK
Place, **do not** cement, assembled pulley O11 into N-15; insert pin O16. Apply drop of cement to bottom of pin. Pulley should rotate.

A PULLEY ASSEMBLY

Cement one part O-11 to each side of O10. Make four.



C BOOM

- (1)
- (2) sprue raised ends. front.
- (3) assemble angle pin N-16. Forks

D

After forks, between on for the "jump

A-B-FLOOR

Trimmed off ends of floor plates may show a slight variation in length. Proceed as follows.

on other side.

Each side should be checked for fit. If slightly long, trim to length. End of side until

adding end.

trimming tabs.

until step 16.

For assembly, install as it is shown after parts (A-1) through (A-8) are fitted only, as

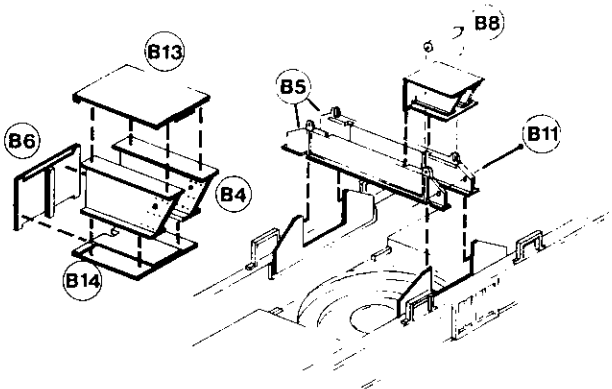
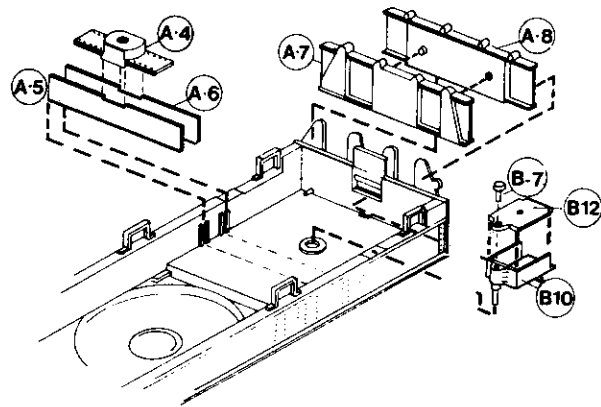
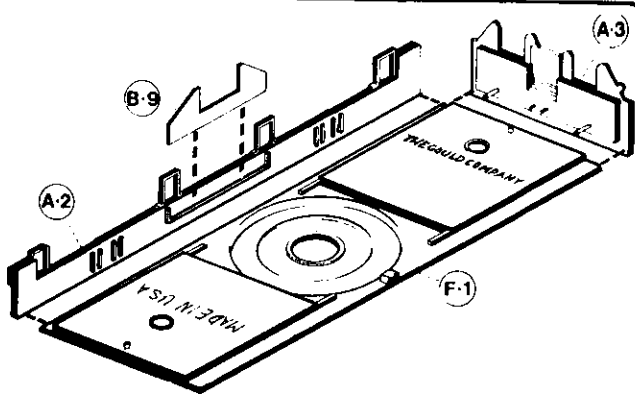
shown thru opening in floor plate. Make sure flange fits without forcing. Place lid (B-12) on end and secure with (B-7) now. After installing couplers and

couplers, omit spring. Install (A-8) to ends.

Install as follows. Place parts (B-5) into assembly fixture for assembly will be

from assemblies (B-13) and (B-14). Do not allow the setscrews to slip. Tighten. End.

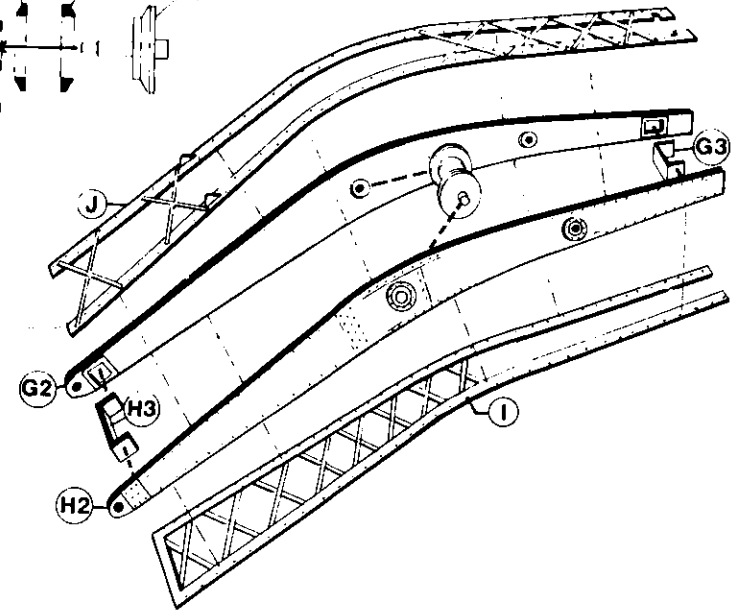
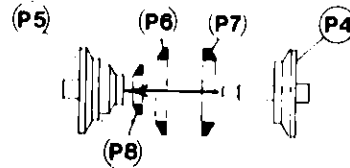
After assembly of assemblies



4 BOOM ASSEMBLY

Sprues G-H-I-J-P

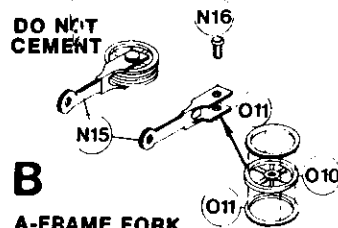
- (1) Cement H-3 and G-3 to G-2.
- (2) Cement H-2 to assembly. Set aside.
- (3) Pulley assembly. Note: it is easier to assemble pulleys if P-4 & P-5 are left on sprue until assembly is completed.
 - (A) Cement P-8 to P-5. Cement P-7 to P-4. Cement P-8 to P-5. Remove completed P-4 & P-5 from sprue, clean up gate tabs.
 - (B) Cement assembled P-4 to P-5.
- (4) Carefully spread boom sides apart and insert pulley assembly into center hole, with double pulley on left side of boom. **DO NOT** cement.
- (5) Watch those fingerprints! Test fit flange/X-Brace "I" onto boom sides. Study how the locating tabs on the flanges fit, and where cement is to be applied. Remove, apply cement to edges of boom side. NOTE: several passes of the cement brush may be required. Place flanges in position, applying additional cement from inside as necessary. Make sure flange is properly located, and hold in position until cement has set.
- (6) Repeat for top flange/X-Brace J. Set aside to thoroughly dry.



5 PULLEY/FORK ASSEMBLY

Sprues N-O, two of each

DO NOT CEMENT



B

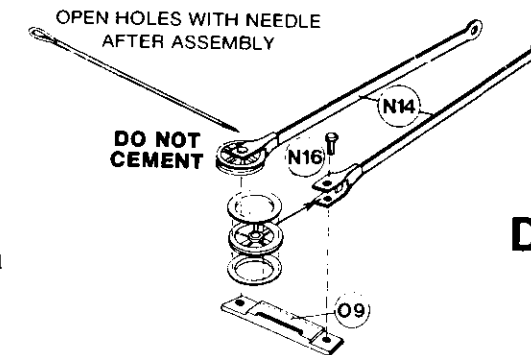
A-FRAME FORK

Place, **do not** cement, assembled pulley O-11 into N-15; insert pin O-16. Apply drop of cement to bottom of pin. Pulley should rotate.

A

PULLEY ASSEMBLY

Cement one part O-11 to each side of O-10. Make four.



C

BOOM TORSION ROD/FORK

- (1) Repeat as in step 2, using forks N-14.
- (2) Look at O-9, from the side that the sprue numbers are engraved. Note the raised pad in the center is angled on the ends. The narrow side faces the boom front.
- (3) Remove O-9, from sprue; cement assembled forks to top surface. These angles locate the forks, as well the pivot pin. Make sure that ejector pin marks in Forks N-14 are facing inside.

D

After pulleys have been assembled into forks, **open up** small "V" shaped holes between pulley groove and web molded on forks. This will allow a clear passage for the thread, and prevent thread from "jumping" off pulley.

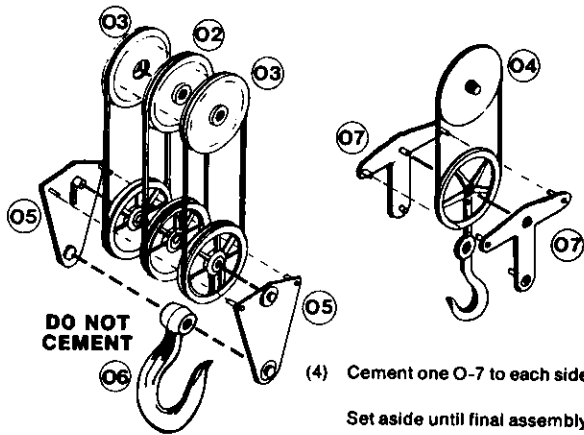
Set aside

6 HOOK ASSEMBLY

Sprue "O"

NOTE when completed, you will have a spare O-2, O-4, O-6.

- (1) Cement one O-3 to one O-2, cement other O-3 to opposite side of O-2. Note — ring on solid pulley of O-2 fits into recesses of solid pulley of O-3.
- (2) Cement one O-5 to assembled pulleys, lining up tab on O-5 in slot in lower pulley.
- (3) Place, do not cement, O-6 onto pin of O-5. Cement opposite O-5 to assembly. Hook should pivot freely.



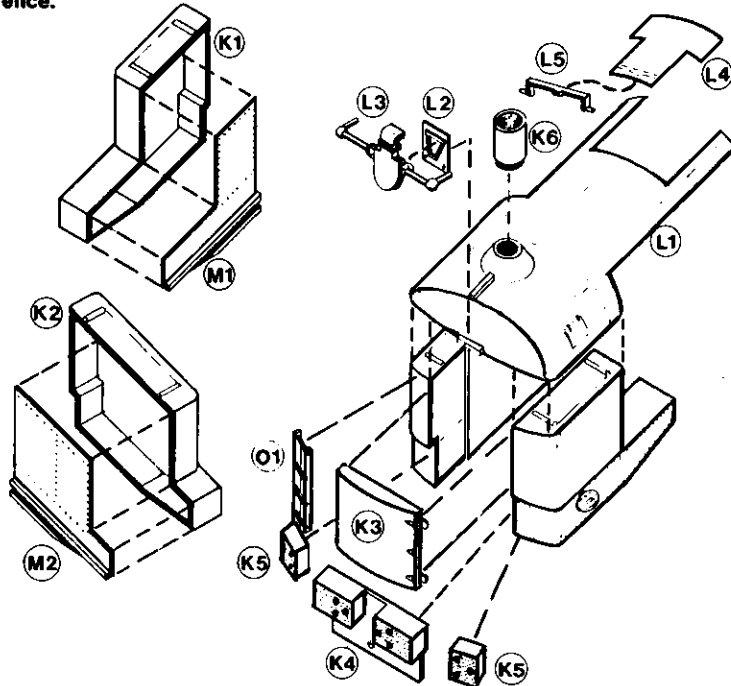
- (4) Cement one O-7 to each side of O-4. Set aside until final assembly.

7 CAB

Sprues #K-L-M-O and C, for reference.

NOTE — When cementing cab, be extremely careful not to allow cement to flow between plastic and your fingertips! Also, there is a tendency to "squeeze" the cab out of square during assembly, so allow time for the cement to set between each step.

- (1) Cement M-1 to K-1. Cement M-2 to K-2.
- (2) Cement K-1 to L-1. Note register pins for correct location.
- (3) Test fit K-3, with arrow and "top" next to roof. Hold in place while cementing K-2 to assembly.
- (4) Cement K-3 in place from **inside**.
- (5) Cement K-4 in place as shown.
- (6) Cement one K-5 to each side of large counterweights.
- (7) Make sure cab assembly is square and slots on inside cab panels will slide easily onto flanges of A-Frame floor C-3. **DO NOT** cement cab to floor, this is only to check fit. Refer to final assembly drawing.
- (8) Cement L-2 to L-3, then cement assembly to rear of cab roof, using block on roof to align part.
- (9) Cement K-6 to roof.
- (10) Cement O-1 to left side of cab rear, with mounting tabs locating between the beading. (An extra ladder is provided.)
- (11) Cement L-5 to L-4. Set aside.

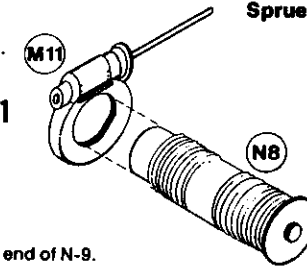


8 A-FRAME SUB ASSEMBLY GROUP

BOOM DRIVE

Cement N-8 to M-11.

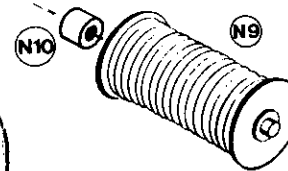
FIG. 1



CENTER DRUM

Cement N-10 to gate end of N-9.

FIG. 2



Sprue #C-G-H-M and two each of #N & O

WINDING DRUM

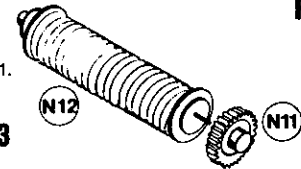
Cement M-4 to M-5. M-4 is short, and does not receive it. Thread will

FIG.

REAR DRUM

Cement N-12 to N-11.

FIG. 3



CYLINDER ASSEMBLY

NOTE: You will make two opposing cylinders, for opposite sides.

- (1) Cement N-1 to N-2 Repeat.
- (2) Cement one N-3 to cylinder assembly. Cement other N-3 to opposite end of opposing cylinder.
- (3) Cement one N-4 to each cylinder assembly, with piston rod packing gland vertical.
- (4) Cement one N-5 to top of each cylinder valve chest. Sorry, we couldn't provide register pins here.

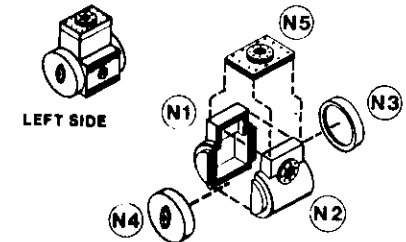


FIG. 5

RIGHT SIDE

TROLLEY ASSEMBLY

It is easier to leave the C-7 and C-1 attached to sprue during assembly.

- (1) Cement two C-6 to one C-7. Hollow part of wheel faces away from trolley.
- (2) After cement has set, remove C-7 and cement one on each side under C-1 (Side opposite sprue number.)
- (3) Cement C-8 in place behind trolley wheels.

FIG. 6

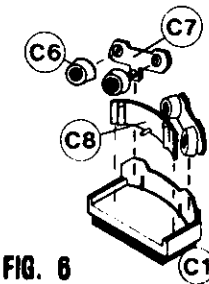
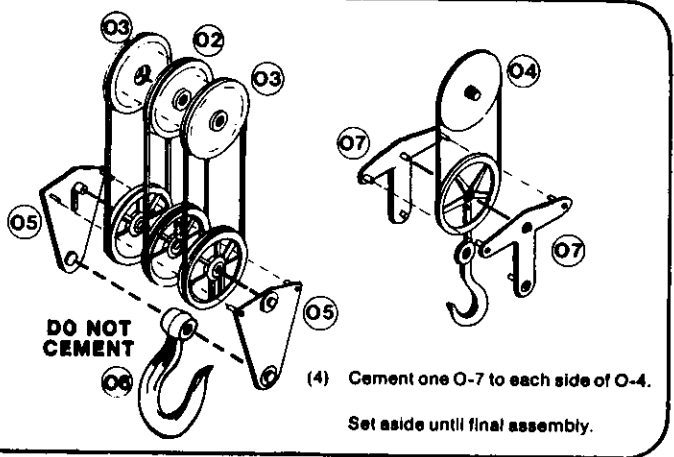


FIG. 7

OPERATING

Cement release lever. The levers and may be

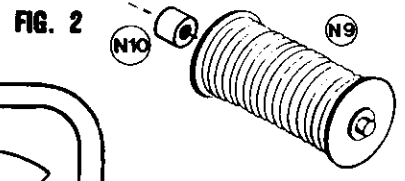
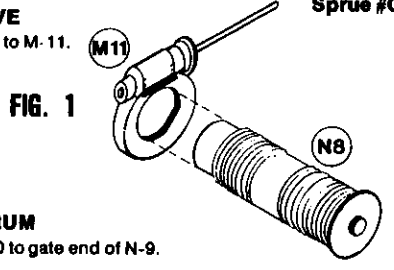


8 A-FRAME SUB ASSEMBLY GROUP

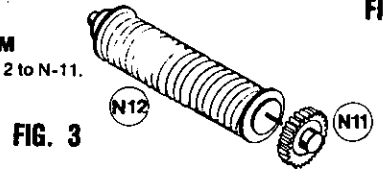
BOOM DRIVE
Cement N-8 to M-11.

CENTER DRUM
Cement N-10 to gate end of N-9.

Sprue #C-G-H-M and two each of #N & O

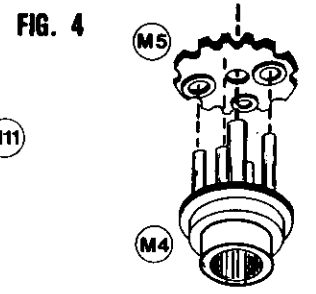


REAR DRUM
Cement N-12 to N-11.



WINDING DRUM

Cement M-4 to M-5. Note that one pin on M-4 is short, and does not have a cup on M-5 to receive it. Thread will fasten to this pin.



and C, for reference.

Very careful not to "squeeze" the cab too tight for the

pins for correct

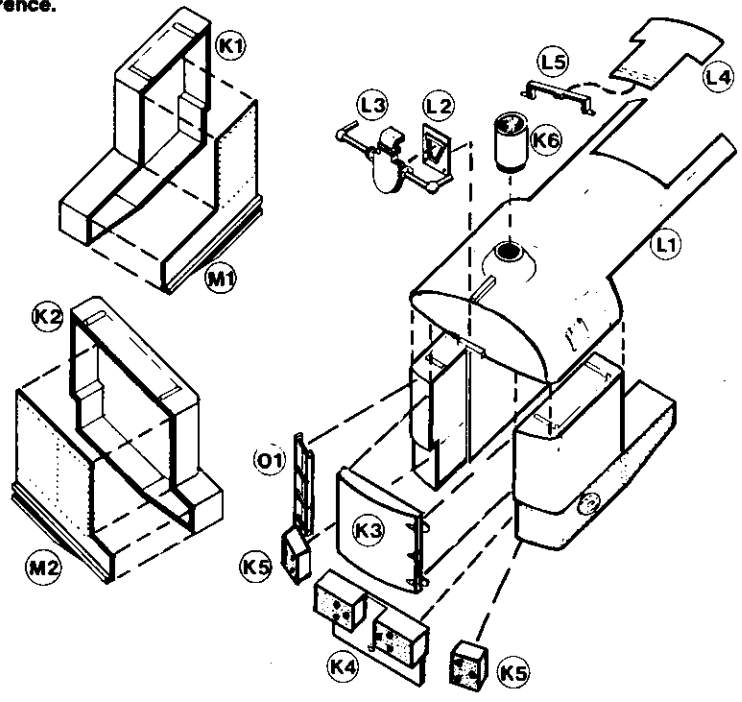
next to roof. Hold

side of large

flanges of A- to floor, this is drawing.

assembly to rear of

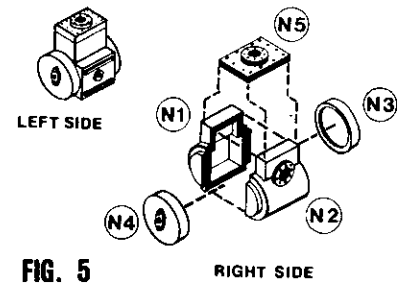
with mounting extra ladder is



CYLINDER ASSEMBLY

NOTE: You will make two opposing cylinders, for opposite sides.

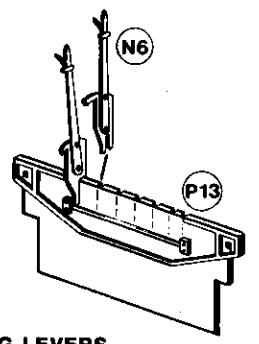
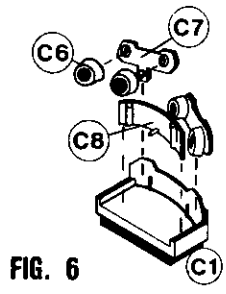
- (1) Cement N-1 to N-2 Repeat.
- (2) Cement one N-3 to cylinder assembly. Cement other N-3 to opposite end of opposing cylinder.
- (3) Cement one N-4 to each cylinder assembly, with piston rod packing gland vertical.
- (4) Cement one N-5 to top of each cylinder valve chest. Sorry, we couldn't provide register pins here.



TROLLEY ASSEMBLY

It is easier to leave the C-7 and C-1 attached to sprue during assembly.

- (1) Cement two C-6 to one C-7. Hollow part of wheel faces away from trolley.
- (2) After cement has set, remove C-7 and cement one on each side under C-1 (Side opposite sprue number.)
- (3) Cement C-8 in place behind trolley wheels.



OPERATING LEVERS

Cement seven N-6 to P-13, with hand grab release lever on same side as detail of P-13. The levers are molded in different positions, and may be installed in any order.

9

A-FRAME ASSEMBLY

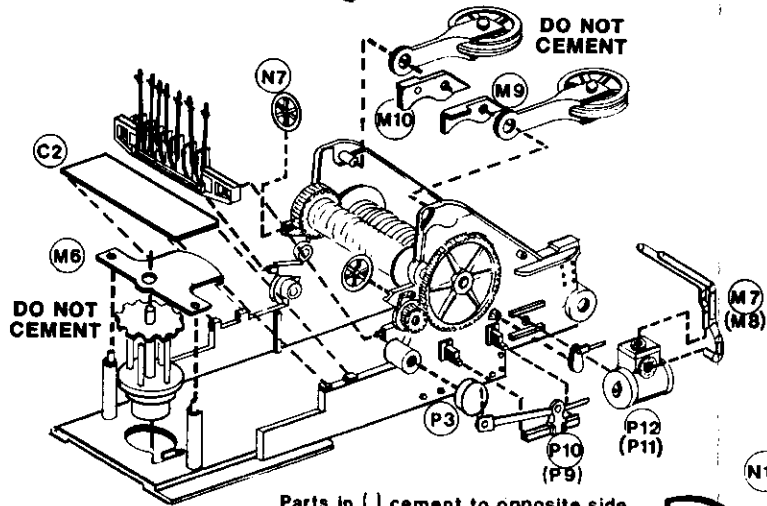
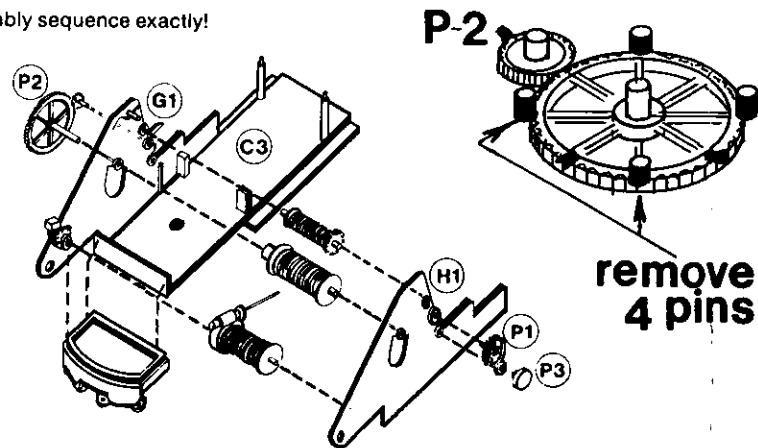
NOTE: Follow the assembly sequence exactly!

Prepare G-1 and H-1 for assembly. Pre-thread screw hole in bottom of C-3 by running screw in from bottom (gently). Remove screw.

- (1) Cement G-1 to C-3. Hold until cement has set.
- (2) Remove P-2 from sprue, and clean small tab gates from rear. Cement P-2 to G-1.
- (3) Cement **boom drive assembly** to inside of G-1. Small tab on back of worm housing fits to bracket, and drive shaft follows angle of bracket on A-Frame.

NOTE: Inside drums N-9 & N-12 so that cored holes are pointing toward rear and floor of A-Frame, away from line of sight.

- (4) Cement large center drum to G-1.
- (5) Cement rear drum to G-1.
- (6) Before cement has set, cement H-1 to A-Frame floor aligning drum shafts to bosses.
- (7) Cement operating lever bracket to small tabs at rear of A-Frame sides.
- (8) Cement C-2 to four raised brackets on A-Frame sides.
- (9) Cement trolley/bottom casting in place at bottom-front of A-Frame, and hard against A-Frame floor.
- (10) Place, **DO NOT CEMENT** winding drum into hole at rear of A-Frame floor, allowing the molded friction spring to snap over bottom of drum. Cement M-6 onto two posts, with flange on end down. Drum must rotate.
- (11) Cement M-3 to A-Frame floor and top plate.
- (12) Cement P-1 to left side, with small gear in bottom hole.
- (13) Cement one P-3 to small gear of P-1. Cement other P-3 to boss on right side.
- (14) Cement right cylinder assembly to right side (packing gland facing rear).
- (15) Repeat step 14 for opposite side.
- (16) Cement P-9 to brackets on left side, with piston rod inserted into packing gland and main rod on flywheel. Crosshead guide is on **BOTTOM**.
- (17) Cement P-10 to brackets on right side, as in step 16.
- (18) Cement P-11 to left side and P-12 to right side.
- (19) Cement one N-7 to Right A-Frame and one N-7 to A-Frame side.
- (20) Place A-Frame fork/pulley assembly N-15 on pin at top of A-Frame left. Cement M-10 in place. **DO NOT CEMENT** fork, as it must rotate.

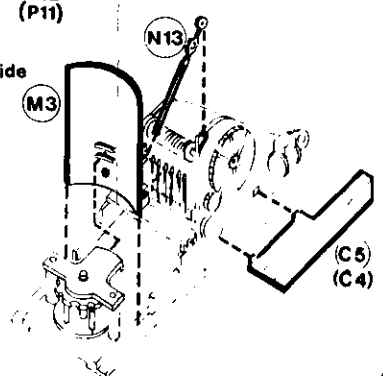


Parts in () cement to opposite side

- (21) Repeat for right side, using M-9.
- (22) Cement C-4 to left A-Frame, and C-5 to right A-Frame.
- (23) Cement M-7 to right hand cylinder, and M-8 to left hand cylinder. Make sure pipes are vertical and square to cylinder.
- (24) Cement one TRUSS ROD N-13 to each side, connecting top of A-FRAME and bracket on BOILER.

Hand grabs P-14 & P-15 will be added just prior to painting, as they are very delicate.

remove 4 pins



10

PAINTING

Use only paint that is compatible with styrene plastic. We recommend you use an airbrush.

Most cranes were painted "basic black". Very seldom sooty, and always greasy, we suggest adding about 10% gloss or glaze to the paint to achieve an oiled sheen.

- Some suggestions:
- CHASSIS — Black or dark green.
 - CAB — Black, dark green, yellow, dark red.
 - BOOM — Black, aluminum or red.
 - OPERATING LEVERS — Red.
 - CROSSHEAD/RODS/GEARS — Brown/black (grease).
 - HOOK SIDE PLATES — Black or safety yellow.
 - CABLES, DRUMS — Greasy black.

Before painting do the following:

- (1) Carefully install 20 grabirons B-15 in holes provided on chassis.
- (2) Wash the sub-assemblies in warm water and a little soap. Allow to dry, and avoid handling or fingerprints before painting.
- (3) Cement handrails, P-14 to left A-Frame, P-15 to right.
- (4) Place white nylon spider friction ring in large recess in floor.
- (5) Hold weight package (remember that part?) with small end slot up. Snip a corner off the plastic bag of shot, fill weight package, tapping gently to settle the shot.

WARNING

THE SHOT CONTAINS LEAD — DO NOT SMOKE OR EAT WHILE HANDLING — KEEP OUT OF REACH OF CHILDREN. IMMEDIATELY AND SAFELY DISPOSE OF ANY REMAINING SHOT.

- (6) Holding chassis with one end up. (use tissue to avoid fingerprints) and **WITH SPIDER IN PLACE**, insert weight package between body bolsters by "tilting it in place. Cement to floor.

(7) Mask off white nylon bearings in truck sidframes and top of white nylon spider protruding thru floor.

- (8) Insert center outrigger assembly cement.

You will paint.
CHASSIS
PULLEYS
PULLEY S
BOOM.
And the
final assem
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before br
decals, sar



WEIGHT BO

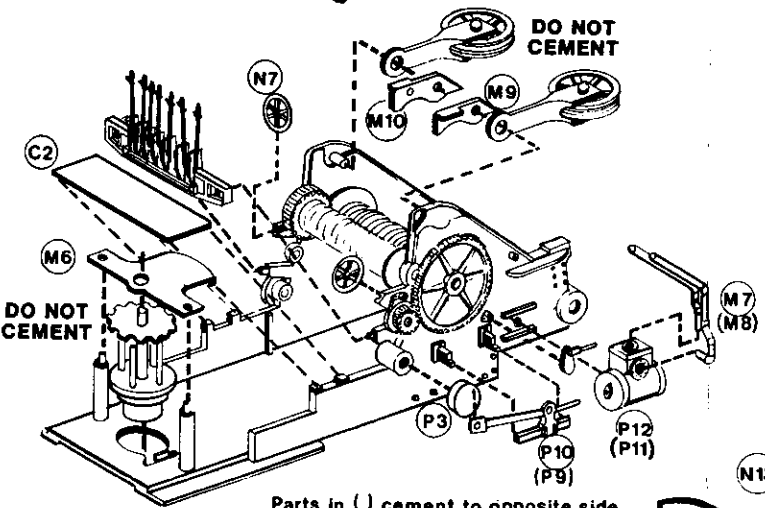
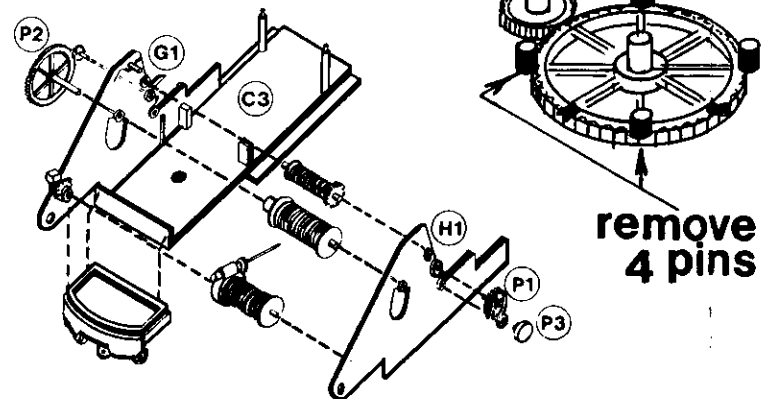
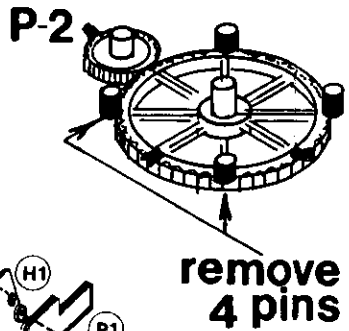


NOTE: Follow the assembly sequence exactly!

Pre-thread screw
in from bottom
ment has set,
small tab gates
to inside of G-1.
to bracket, and
A-Frame.
that cored holes
Frame, away from

H-1 to A-Frame
to small tabs at
ockets on A-Frame
n place at bottom-
frame floor.
ing drum into hole
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Cement M-6 onto
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all gear in bottom
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bly to right side

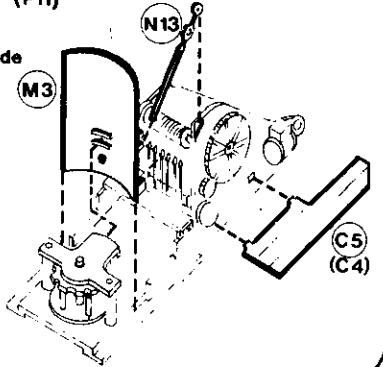
side, with piston
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ht side, as in step
2 to right side.
ne and one N-7 to
mbly N-15 on pin
n place. **DO NOT**



Parts in () cement to opposite side

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 - BOOM — Black, aluminum or red.
 - OPERATING LEVERS — Red.
 - CROSSHEAD/RODS/GEARS — Brown/black (grease).
 - HOOK SIDE PLATES — Black or safety yellow.
 - CABLES, DRUMS — Greasy black.

- Before painting do the following:
- (1) Carefully install 20 grabirons B-15 in holes provided on chassis.
 - (2) Wash the sub-assemblies in warm water and a little soap. Allow to dry, and avoid handling or fingerprints before painting.
 - (3) Cement handrails, P-14 to left A-Frame, P-15 to right.
 - (4) Place white nylon spider friction ring in large recess in floor.
 - (5) Hold weight package (remember that part?) with small end slot up. Snip a corner off the plastic bag of shot, fill weight package, tapping gently to settle the shot.

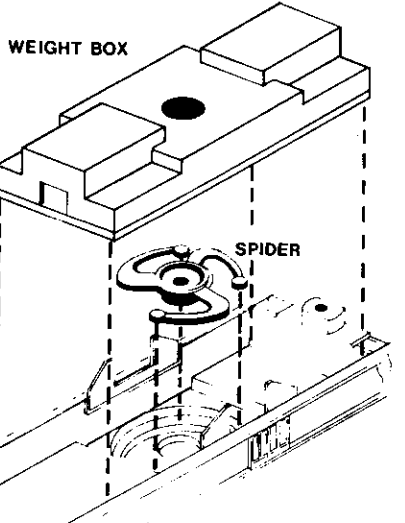
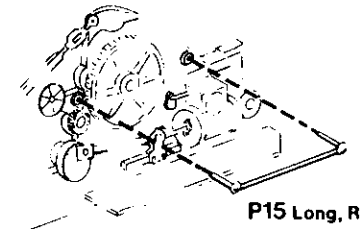
WARNING
THE SHOT CONTAINS LEAD
— DO NOT SMOKE OR EAT
WHILE HANDLING — KEEP
OUT OF REACH OF
CHILDREN. IMMEDIATELY
AND SAFELY DISPOSE OF
ANY REMAINING SHOT.

- (6) Holding chassis with one end up. (use tissue to avoid fingerprints) and **WITH SPIDER IN PLACE**, insert weight package between body bolsters by "tilting it in place. Cement to floor.
- (7) Mask off white nylon bearings in truck sideframes and top of white nylon spider protruding thru floor.
- (8) Insert center outrigger assembly cement.

You will now have these assemblies ready to paint.
CHASSIS • BOOM TORSION ROD/
PULLEYS • TWO TRUCKS • MAIN HOOK
PULLEY SET • A-FRAME • SMALL HOOK
PULLEY SET • CAB • ROOF PANEL •
BOOM.

And these parts should be painted prior to final assembly. N-16, N-17, N-18, O-8.

Allow paint to dry at least several days before brush painting details, and adding decals, same for final assembly.



Please allow paint to thoroughly dry at least several days before proceeding. The rigging is tedious but not difficult if you study the drawing carefully.

(1) **Carefully** snap wheelsets into trucks. (You might want to check the gauge with an NMRA track gauge and adjust as necessary.)

(2) Scrape paint off two long tabs extending along sides of A-Frame floor. Check that cab slides easily onto A-Frame.

(3) Install couplers. Press in pin B-7.

(4) Insert main hook pulley assembly from underside of boom. Hook may face front or rear. Place torsion rod/pulley assembly on boom, and retain both by pressing in pins N-17 on each side.

(5) Attach boom to A-Frame with two press fit pins N-18.

(6) Attach A-Frame to chassis with 4-40 screw inserted from under chassis.

(7) Rigging

Be careful not to snap any protruding details with thread "loop". Be patient, work slowly, and study the drawing carefully. Snip off about 8 inches of thread, to be used for "dummy" hook rigging, if you wish to show this detail.

Study the drawing carefully, as the rigging is impossible to describe in words.

Some pointers:

- Start by threading end of cable thru right boom fork, bottom pulley across and thru left bottom fork, pulley. Pull thread thru to leave an equal amount out each side.
- Perform each threading operation to each side before moving to next operation.
- The most difficult operation is running cable around boom idler pulley. Run cable **over** pulley, and thru bottom X brace. From under boom, pick up end of cable with tweezers, feed back thru toward rear of boom. Cable runs **thru** open space between two X braces on top of pivot end of boom.
- Run cable **over** front drum, **under** other drums, operating levers and platform, **thru** hole in bottom of boiler, (when cab is installed, cable can not be seen) and **between** winding drum and post on right side of A-Frame floor.
- **Carefully** check that all rigging is correct and on the groove of **each** pulley. Pull thread taut, with boom in a "lowered" position. Knot two ends together.

- Slip knotted end over short pin on winding drum, wind up excess **NOTE**; boom is not intended to be operated as a toy. The purpose of the winding drum is to allow you to pose the boom for appearances. Boom will need assistance when changing positions. Access to winding drum is by removing cab, or from under A-Frame floor with a screwdriver. If you wish, boom and cables may be cemented in traveling position, with main hook just above the floor of a flatcar.

(8) Insert small hook from top of boom, with shaft resting into small cups inside boom front.

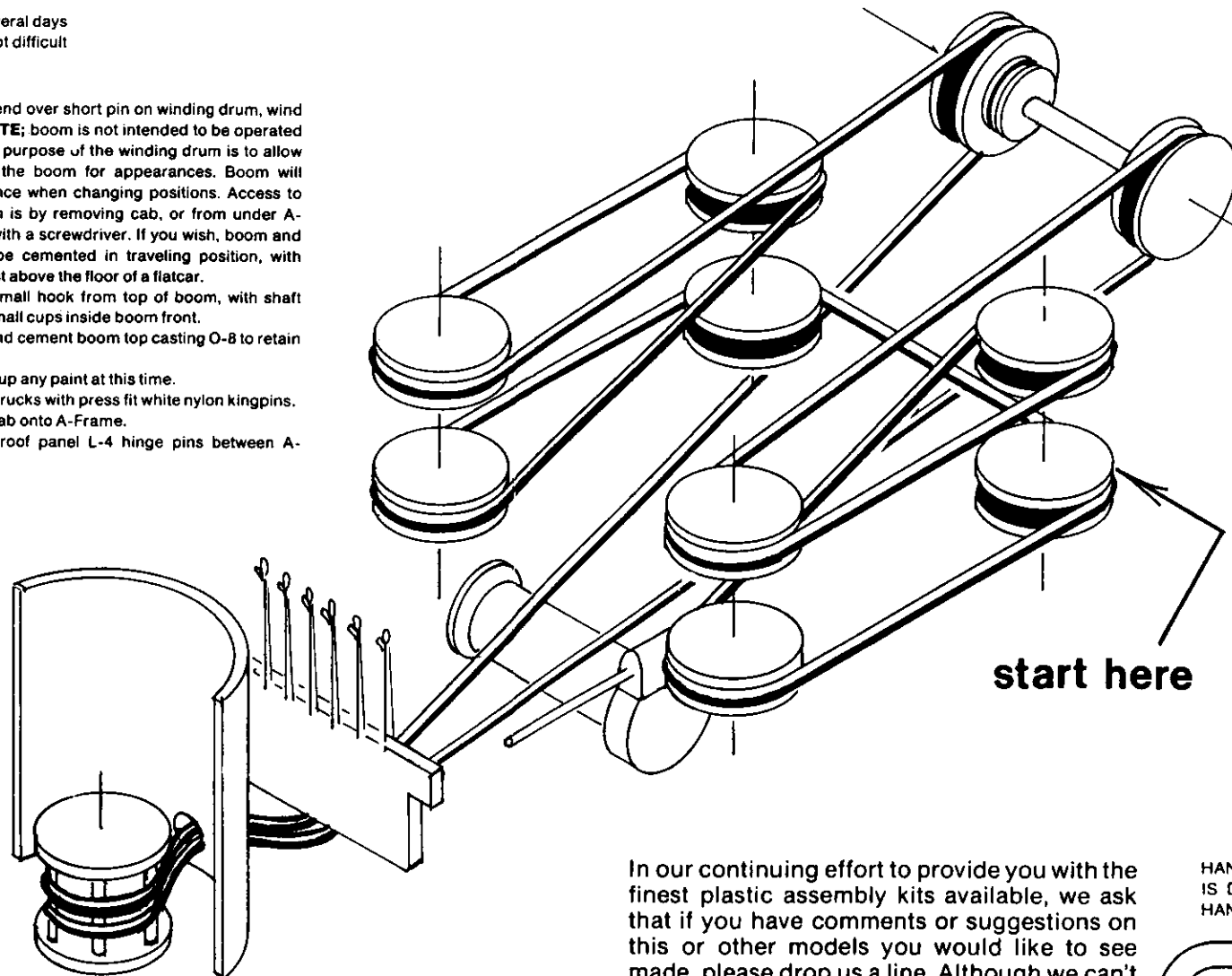
(9) Insert and cement boom top casting O-8 to retain small hook.

(10) Touch up any paint at this time.

(11) Install trucks with press fit white nylon kingpins.

(12) Slide cab onto A-Frame.

(13) Snap roof panel L-4 hinge pins between A-Frame sides.



In our continuing effort to provide you with the finest plastic assembly kits available, we ask that if you have comments or suggestions on this or other models you would like to see made, please drop us a line. Although we can't promise a reply, we do appreciate hearing from you. At TICHY TRAIN GROUP, we truly recognize the value of a satisfied customer!

HANDLE COMPLETELY
IS DELICATE. THE
HANDRAILS ON A-

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allow paint to thoroughly dry at least several days preceding. The rigging is tedious but not difficult if you follow the drawing carefully.

trucks. (You might use a track gauge and

extending along the track slides easily onto

from underside of the frame place torsion rods through the holes by pressing in

press fit pins N-

10 screw inserted

ing details with the drawing, and study the threads of the screws, to be sure you wish to show this

the rigging is

right boom fork, the bottom fork, pulley. Mount out each

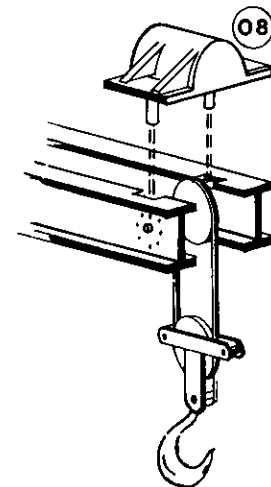
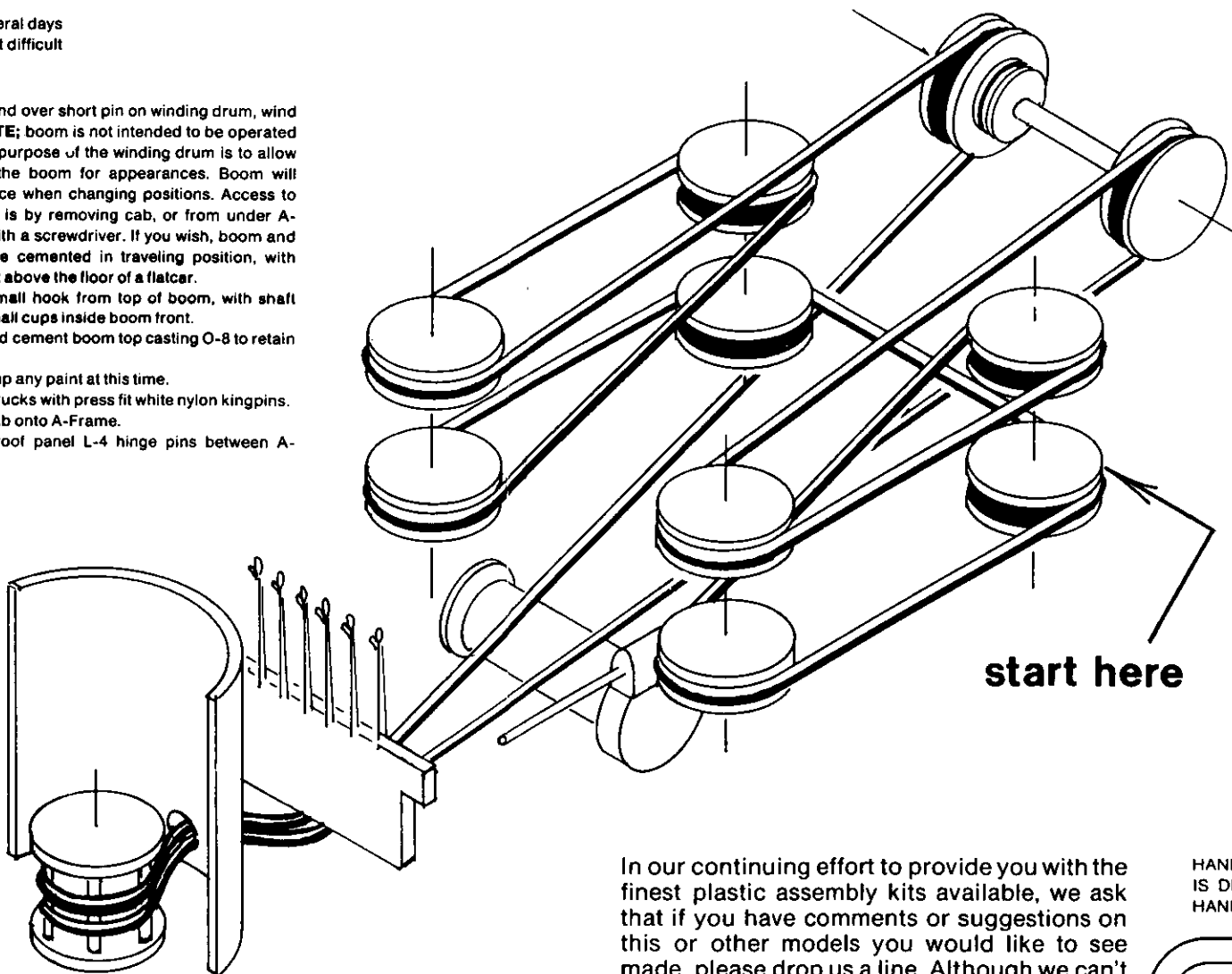
each side before

ing cable around the pulley, and thru the hole pick up end of cable toward rear of the car between two X

r other drums, the hole in bottom of the frame (can not be seen) on right side of A-

orrect and on the left side, with boom in a vertical position.

- Slip knotted end over short pin on winding drum, wind up excess **NOTE**; boom is not intended to be operated as a toy. The purpose of the winding drum is to allow you to pose the boom for appearances. Boom will need assistance when changing positions. Access to winding drum is by removing cab, or from under A-Frame floor with a screwdriver. If you wish, boom and cables may be cemented in traveling position, with main hook just above the floor of a flatcar.
- (8) Insert small hook from top of boom, with shaft resting into small cups inside boom front.
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- (10) Touch up any paint at this time.
- (11) Install trucks with press fit white nylon kingpins.
- (12) Slide cab onto A-Frame.
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HANDLE COMPLETED MODEL WITH CARE, AS IT IS DELICATE. THE FRONT HOOK AND LONG HANDRAILS ON A-FRAME ARE EASILY BROKEN.

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