11-473

ASSEMBLY INSTRUCTIONS
(FOR ALL VERSIONS T-201 - T-206)

A New and Improved Model
of the Famous

NASH QUAD

Power on All Four Wheels

Figure 1

MANUFACTURED & PRINTED IN THE U.S.A.

NASH QUAD
SPECIFICATIONS

In the period just before the outbreak of the First World War, American Army engineers were seeking to replace horses with motor trucks. All the big-name companies were considered, but with very few miles of domestic paved roads, attention quickly centered on the all-wheel-drive trucks. Foremost was the FWD (Four Wheel Drive) Corporation in Clintonville, Wisconsin, which began in 1908 by adapting a White steamer, but quickly moved on to building their own trucks and engines.

Competition was not far away, and at nearby Kenosha, one of the most versatile and innovative vehicles of the period, the **Jeffrey Quad**, was in embryo. In addition to four-wheel-drive, it also had steering on all four wheels, and, unusual for the era, brakes on both axles! Production began in 1913 at the Thomas B. Jeffrey plant, where Rambler bicycles and cars were also built. In 1916 it was sold to Nash Motors, later to be absorbed by American Motors Corp. Between 1914 and 1918 several thousand QUADs were built, many going to the Russian and French governments. The American Army gained experience with the QUADs (and mechanized military transport) between March 1916 and February 1917 while carrying General Pershing's troops into Mexico in pursuit of the outlaw Pancho Villa. When the US finally entered the war in 1917, production at Kenosha was stepped up to supply the American Expeditionary Forces. In 1916, the QUAD carried both **Jeffrey** and **Nash** names, but after 1916 until production ceased in 1928, it was known as the **NASH-QUAD**. In 1918, Nash produced 11,490 trucks - mostly QUADs - thus becoming the world's largest truck builder.

After the Armistice, many trucks were returned to the US, and sold to municipalities where they worked in every capacity from Ambulance to Fire engine, with road-building absorbing large numbers. Many in Europe went to private contractors or were simply scrapped. Truck production after the war dropped dramatically with this influx of cheap competition, and many manufacturers went under in spite of good products.

References:

This Was Trucking, Robert F. Karolevitz, Bonanza Books, New York, MCMLXVI pp. 42, 57-9, 67, 70, 77, 126, 143.

This Was Logging, Ralph W. Andrews, Superior Publishing, Seattle, WA log truck on page 139.

Our 1:48 scale model is probably the first replica of the **NASH-QUAD** ever offered. We have tried to make it as accurate as possible. Our first encounter was a derelict in a weed patch near Arcata, California, that yielded field data and detail photos. We have since collected materials from a number of sources, including Don Chew (Denver), Clive Jones (Edmonton), Vincent McLaughlin (Philadelphia), and David Fletcher, Tank Museum curator (Bovington), and many others who sent a photo or two, an ad, or a lead. John Labbe, Al Armitage, Don Farewell and Richard Peskett were among these. **The Automobile** and **The Automobile Engineer** magazines yielded many photos of the period.

ABOUT THE KIT:

This kit is not easy to build, and involves several complex sequences. Study the directions carefully and then proceed. Different truck versions in the series may have different details, but the mechanics will be constant. Most difficult is getting the various (wire) drive shafts in place, and aligning the engine, transmission and differentials with each other. You will need a pin vice with #64 and #72 drills, an X-acto knife, small files, wire nippers and small pliers, and

continued....

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wheel center, and fit #1-72 x 3/8" hex-head screws. Drill and tap the brake drum. These are not provided.)

Set **ENGINE** assembly into place in motor mount (front). The drive shaft should be cut 1/16" longer than the distance from the transmission universal to the engine universal from the 1/32" brass wire. Lift the engine back out, and thread the main drive shaft through the Cross Member hole and into the transmission. Tilt the motor onto the free shaft end, and lower the front onto the motor mount. If all looks good, glue the motor in place.

Now the other drive shafts may be fitted. Cut sections of the 1/32" brass wire *forlength* by 1/16" to run from the transmission to the axle gearcases. If the drive shaft is cut to the right length, one end may be pushed all the way into one hole, aligned with the universal on the transmission, and pulled half-way back, still resting partially in each hole. It may take more than one try! Glue both ends.

Bend the "crank" to the template from .020 wire, drill the crankshaft end, and insert. OPTION: Place crank in 4:00 o'clock position, form small "leather" sling for crank, fasten to frame. Find the radiator (**#16**), and the two radiator mounting brackets (**#17**). Glue the brackets to the frame just ahead of the motor mount cross member. Set the radiator (lettering on front) in place. Glue exactly vertical. "Cram" a segment of insulated wire (for hose) in a deep vertical "swoop" from the bottom of the top radiator reservoir down to the cooling manifold on the engine assembly. The curve is to clear the dash and the engine cover. The bottom hose can be connected from the lower outlet of the pump to the bottom reservoir of the radiator. A twisted loop of the fine silver wire twisted around each end of the "hose" makes an effective radiator "clamp". Invert the truck and add the muffler casting. Glue it to the back of the exhaust manifold, and secure to the frame with a small wire loop at the rear transmission member.

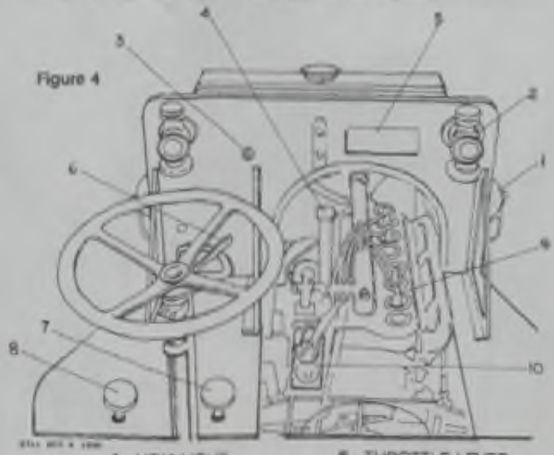


Figure 4

1 - HEADLIGHT
2 - SIDE LIGHTS
3 - IGNITION SWITCH
4 - OIL FILLER
5 - BUILDER'S PLATE
6 - THROTTLE LEVER
7 - BRAKE PEDAL
8 - CLUTCH PEDAL
9 - SPARK PLUGS
10 - MAGNETO

BODY: Glue the dash panel (**#18**) to the front edge of the floor panel (**#19**) at right angles, with bottom edges matching. Fit small pieces of .020 wire angled between the (three) sets of holes on the floor and on the dash. Glue the seat box (**#20**) at the back edge of the floor. Glue the steering column (spark lever/throttle goes on right) and (brass pin) pedals into position. Form .020 wire for "S"-curved braces on seat ends to

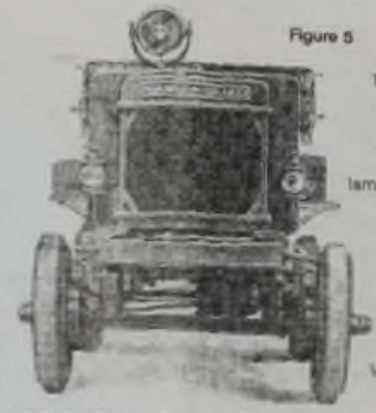


Figure 5

This prototype view shows yet another headlight configuration... no "side lights", but lower lamps and the search-the folding-style light. Note also of engine crank on the front bumper.

From a Service Manual, col. of Vincent McLaughlin

FRONT VIEW OF CHASSIS, MODEL 4017-A ONLY

template, drill seat, and apply. Glue (painted) seat onto truck. (Keep checking to see that engine cover (**#22**) will slip in and out. Notch front to clear radiator hose, if necessary.) Clip off the angle base of "Johnson Bar" brake lever (**#23**) **and file** to fit curve of engine cover, and glue to cover. In thin space left on floorboard beside brake lever, drill a hole for the "pearl-pin" gearshift lever. The engine cover need not be glued in place. **CAUTION**: If you are fitting a driver, contort (him?) into position *before* gluing the steering wheel in place.

Add the headlights appropriate to the configuration of this version of the NASH-QUAD. Generally, the single searchlight appears to have been on earlier versions. (Return the dash and light castings to swap for the other version, if you prefer.) Ream the upper corner holes so that the two 'Marker Lights' fit half-way in (from back). The carbide cylinder (**#30**) is placed on the side of the frame as shown in the photos. The lights may be painted "brass", black or body color, with a "chrome" reflector. The rear tail-lamp is drilled for a small .020 wire "bracket" mounted on the frame.

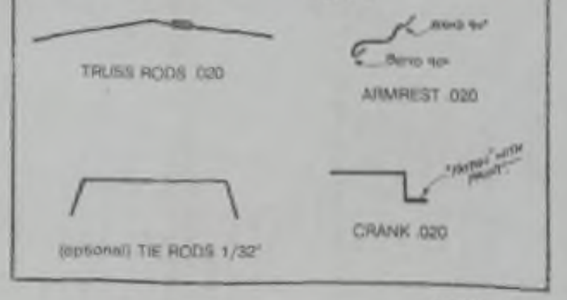
FOR COUPLER VERSIONS: Add the small "brass" drawbar to the hitch bracket. Bend brass strip for diagonal bracing to frame. Coil small wire to form a spring and apply to front end of hitch.

Add final details. The horn is seen either at the driver's seat side, or centered in the steering wheel. The toolbox goes on the "running" board. The gas tank was under the seat. Several manufacturers (**Evergreen Hill**) offer canvas "waterbags", tools, oil cans, welding equipment, and the like. **C.H.B.** has some good figures. Watch **McKENZIE IRON & STEEL Co.** for accessory trailers and other **NASH-QUAD** versions. Dump (end and side) trucks, a tank truck, logger, and **National Guard Armored Truck*** are in the works.

* For "Wobbly" control, Mexican partisan insurrections, or WW1!

WIRE BENDING TEMPLATES:

Figure 6



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11-473

NASH — QUAD

(5)

1914 - 1928

CHASSIS

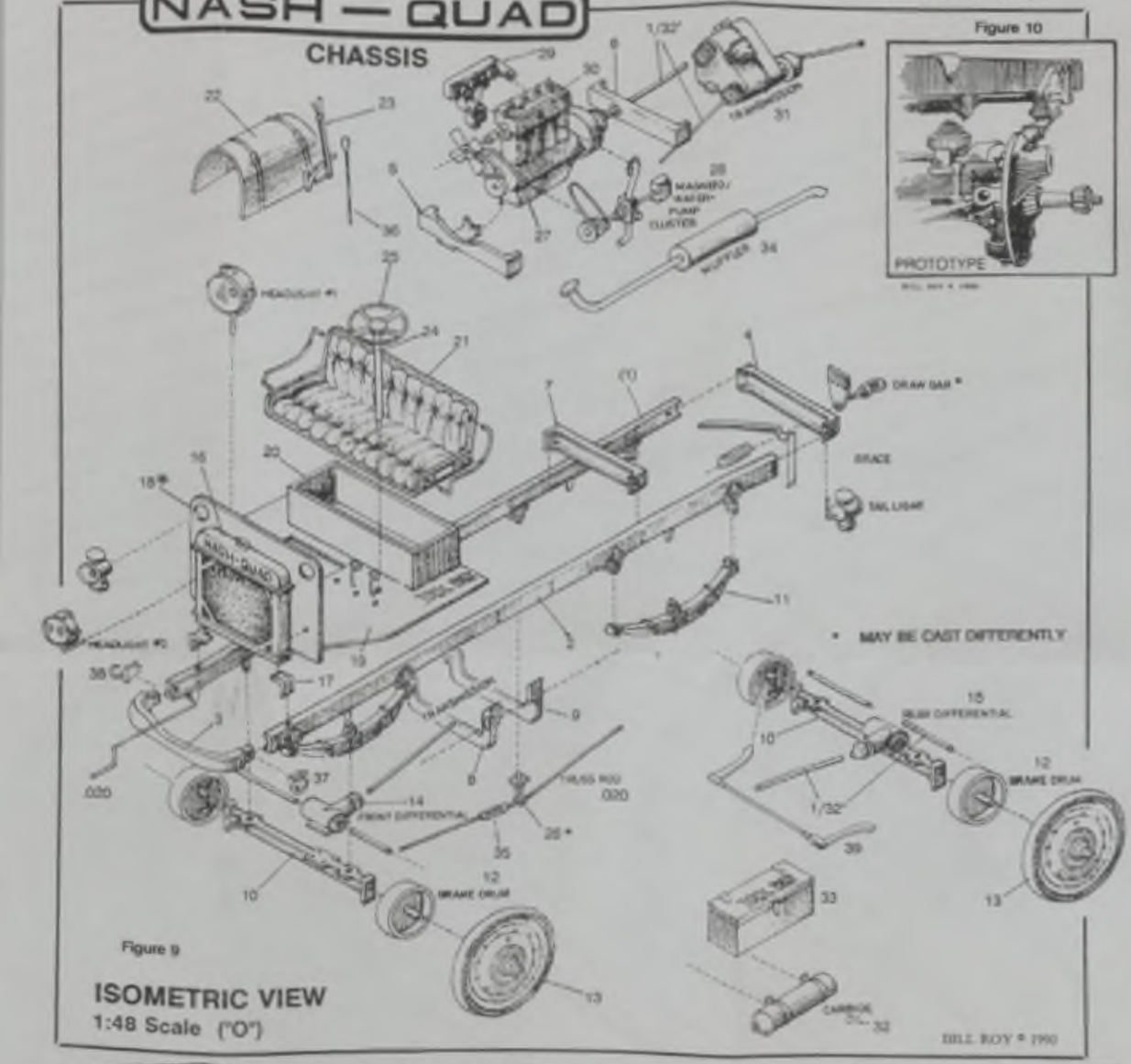

Figure 9

ISOMETRIC VIEW
1:48 Scale ("O")

Figure 10

YOU WILL NEED TO DRILL:

Differntial gearcases	3 places, each	#64 drill
Transmission	3 places	#64 drill
Engine block	1 place (rear)	#64 drill
	2 places (front)	#72 drill
Fan blade (optional)	1 place	#72 drill
Magneto (optional)	1 place (for wires)	#64 drill
Seat sides (armrest)	4 places	#72 drill
Dashboard	3 places	#72 drill
plus....		

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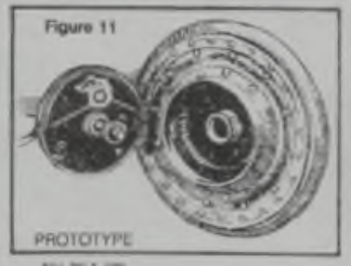
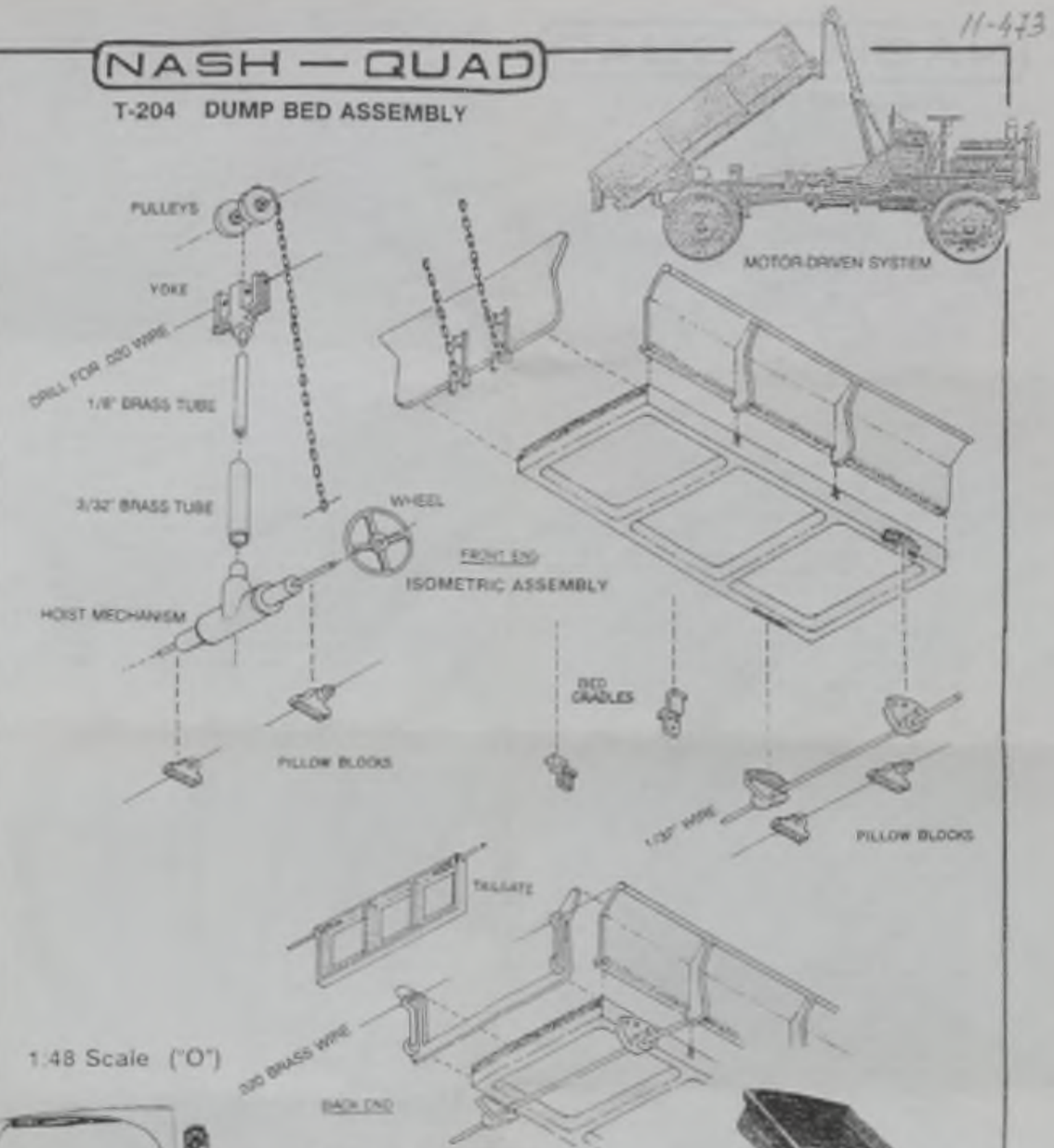
Figure 11



11-473

NASH — QUAD

T-204 DUMP BED ASSEMBLY



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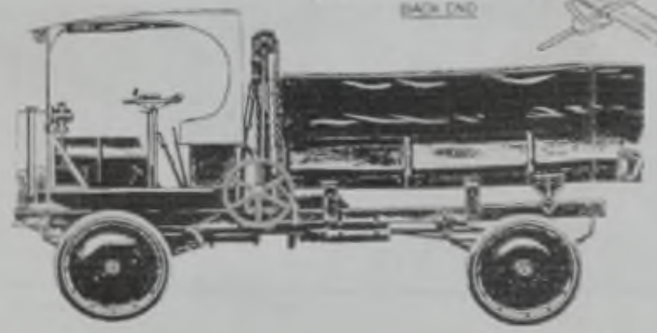
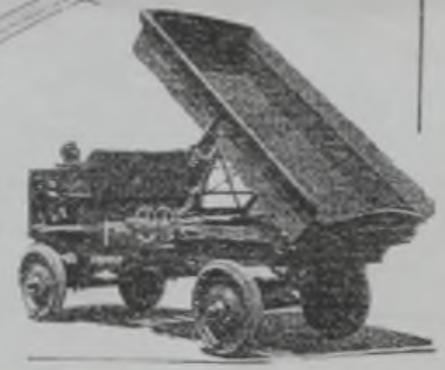




Cyano-acrylate (ACC) cement or epoxy. Model paints like Floquil or Poly-S are suggested. (The trucks were delivered in primer, or "Dove" Grey with Orange accents.) Weathered black, brass, chrome and "leather" colors are also needed.

Several sub-assemblies are suggested, with each painted before final assembly. They are: (1) **Frame**, (2) **Engine**, (3) **Axle assemblies**, (4) **Body**. There are also several options available to each builder, which should be selected before general construction begins, to avoid problems later - check the special **OPTIONS** page at the end of the instructions.

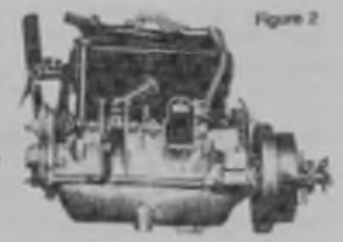
FAMILIARIZE YOURSELF WITH ALL THE PARTS!

"LEFT" and "RIGHT" refers to the sides, facing forward from the top. "BOTTOM" means the underside.

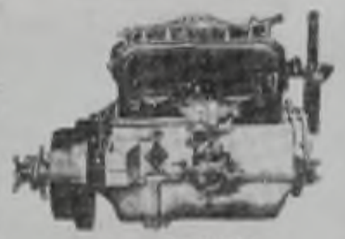
ENGINE: Locate engine block, intake/exhaust manifold, and magneto/water pump shaft. Align carefully (**Figure**) and glue fan blade (drill-n-pin, if you prefer).

OPTIONS: add fan belt, driven from pulley on magneto/water pump shaft (**#28**), using the narrow brass strip. Drill the back of the magneto to accommodate the four (bundled together) spark plug wires. Drill holes in the rear "clutch/universal" (#64 drill), and in the crankshaft front pulley (for the crank) (#72 drill). Install the long Cooling Manifold casting (**#30**) centered on the blank half of the cylinder head. After painting assembly, glue (4) ignition wires into back of magneto, and train up and over to each spark plug (the four "plugs" are the taller "nubs" - the other "nubs" are oilers). Set engine aside.

Figure 2



LEFT SIDE OF MOTOR



RIGHT SIDE OF MOTOR

FRAME: Locate the side frames (**#1,2**), round-ended front cross member (**#3**)(the "dipped" edge goes on top), and the rear cross member (**#4**)(most kits have a cast-on hitch bracket). On a flat surface, check for straightness and bend, if necessary. Arrange the parts upside down. These four may be glued together. The flexibility of the side frames will allow the other cross members to be inserted later. The **engine mount** cross member (**#5**) may be glued in position snug against the cast "blocks"). Use a small square - or square object - to check positioning.

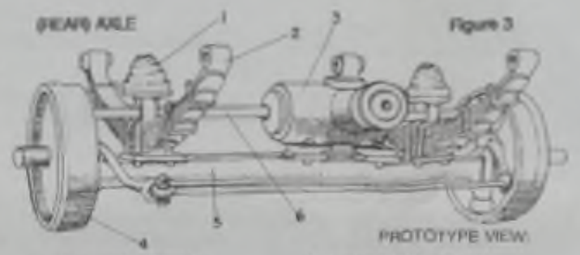
Locate plain cross member with the offset 1/16" hole (**#6**), glue in frame just back of (front) rear spring pedestals, with "ears" facing **back (the hole goes on the right)**. Use the engine block (**#27**) for final positioning, with the pierced cross member just clearing the universal joint on the clutch housing. Set frame aside.

Find transmission and two "drop" cross members (**#8,9**). Cut and file ends of the 1/16" brass wire square at 1 3/4" long. This is the front/rear steering shaft. Gently drill all three universal joints of transmission (**#31**)(and rear of engine) to a depth of 1/16"s each, with #54 drill. Also drill all three shaft holes of each differential gearcase (**#14,15**). Cut 5/8" of 1/32" brass wire for main drive shaft. (Set aside). Carefully position transmission on the two "drop" cross members (flanges facing each other, holes on LEFT). The transmission has 2 mounting pads on the rear, one on the front. (Check **Figure 9** .) "Snug" transmission to left side. **NOW!** carefully glue... I know it "ain't easy!" Place the front/rear steering shaft through the holes of the cross members. Slip transmission assembly between frame members, centered on "flat" area of frame center and truss rod queen-post "dimples". (The steering shaft should just clear the pierced frame cross member). Adjust assembly so that the TOP edge of cross members comes half way up the side frames. GLUE in place.

Place the plain cross member (**#7**) behind the brass shaft, align ends with rivets in the frame (ears facing forward), and glue. **If the brass 1/16" shaft is NOT in place, it won't fit now!**

TRUSS RODS: Most kits have cast-on truss rod pedestals, but optional plastic castings (Grandt Line #67) are included. Position the .020 brass wire to the Truss Rod template, and cut to length. The rod ends butt into the spring mounts (or into optional drilled holes [#74 drill]), if you prefer. Remove any burr from wire's end, and thread a plastic turnbuckle casting (Grand Line #4019) onto it. Position on frame and glue.

Figure 3



PROTOTYPE VIEW:

1 - "BUMPER" SPRING
2 - SPRING, COMPLETE
3 - GEAR CASE (DIFFERENTIAL)
4 - GEAR/BRAKE DRUM
5 - AXLE "BED"
6 - AXLE DRIVE SHAFT

AXLE ASSEMBLIES: Both front and rear axles are essentially the same, with Left-handed and Right-handed variations. Locate the two **axles** (**#10**), four **springs** (**#11**), four **hubs** or "brake drums" (**#12**), and two **differential** gear boxes (**#15,16**). Drill ends and universal of differentials with the #54 drill. Carefully align differentials with pad/bolts on axles. Glue in place... there will be one each of left and right. Test fit spring ends into shackles on frame, and file carefully to fit. From 1/32" wire, cut shafts to fit into differential, through spring, and into socket on brake drum. (Glue into differential and slip to length). Fit drum onto shaft and axle ends and glue. OPTION: If you care to "steer" wheels, file axle ends and glue in "turned" position. (NASH-QUAD's came in both 4-wheel and 2-wheel steering models.)

Set axle/spring assemblies into inverted frame, fit for alignment, turn right-side-up and confirm level, and glue in place. Paint assembly to this point. It is easiest to paint the wheels separately, where hard "rubber" tires can be painted by turning wheel slowly on a shaft.

OPTION: If you care to install Traction Chains, fit 1/2" pieces of fine, blackened, chain with NBW (nut-bolt-washer) castings. **Clover House** #383 or 385 chain, with **Grandt Line** NBWs work, but "it ain't easy!" Wheels are glued into place. (For spinable wheels, drill out

DETAIL OF WHEEL CHAINS

continued....

NASH — QUAD

END DUMP TRUCK T-204

THIS KIT REPRESENTS AN EARLY MECHANICAL DUMP TRUCK, USING MANUAL LABOR TO RAISE THE BED THROUGH A COMPLEX GEARED "JACK" LIFTING THE BED WITH CHAINS OVER THE JACKED PULLEY SYSTEM. IT WAS NOT LONG BEFORE VARIOUS MOTOR-DRIVEN SYSTEMS WERE USED, AND THE **NASH-QUAD** IS SEEN IN SOME PHOTOS WITH A POWER-TAKE-OFF SYSTEM. THIS ONE STRIKES US AS THE MOST VISUALLY INTERESTING!

FIRST, BUILD THE **NASH-QUAD** TRUCK PORTION OF THE KIT, FOLLOWING DIRECTIONS CAREFULLY. PAINT THE MODEL EXCEPT FOR THE FEW POINTS ON THE FRAME WHERE THE **DUMP BOX** MOUNTS - OR SCRAPE PAINT FROM THOSE AREAS FOR BETTER BONDING OF THE GLUE. USE **ACC** (Cyanoacrilate) GLUE.

UNPACK THE **DUMP BOX** PARTS AND CLEAN OF FLASH. THE BED SIDES (**Parts B**) MOUNT ON THE FRAME (**A**), WITH THE TWO RIB BOTTOMS HOOKING OVER THE SIDES. USE THE END OF THE BED (**C**) AS A GUIDE, AND MATCH IT'S CONTOURS TO THOSE OF THE CAST-ON RIBS. THE BOTTOM EDGE SHOULD COME 1/2-WAY DOWN THE FRONT EDGE. FLOW **ACC** INTO THE JOINTS. FIT THE .031 PLASTIC BOTTOM ONTO THE FRAME, BETWEEN THE SIDES. THE PIECE WILL BE ABOUT 1" x 2 7/16". GLUE THE BACK "END" (**D**) INTO PLACE WITH THE EDGE FLUSH WITH THE BED BOTTOM. CAREFULLY DRILL THE BACK END AND THE TAILGATE (**E**) (TOP EDGE - THE ONE WITH THE BEVEL) FOR .020 WIRE HINGE PINS. THERE ARE DIMPLES ON BOTH PARTS TO LOCATE THE HOLES.

OPEN THE **SMALL PARTS** PACKET AND LOOK THEM OVER. FIND THE TWO SPECIAL BED (**F**) "PILLOW BLOCKS". ON THE INVERTED DUMP BED, LOCATE THEM SO THE SHAFT IS 3/8" FROM THE BACK END. (GLUE ONE SIDE, THEN TAKE SPECIAL CARE TO "SQUARE" THE OTHER ONE WITH THE FIRST.) ONE THE TRUCK FRAME, PLACE TWO OF THE REGULAR PILLOW BLOCKS (**G**) ON THE FRAME, 3/16" FROM THE BACK OF THE TRUCK, AGAIN, SQUARE. TEST-FIT THE BED WITH THE WIRE SHAFT. FROM THE VERY SMALL BRASS TUBE, CUT AND FIT 2 BUSHINGS FOR THE GAP BETWEEN EACH PAIR OF PILLOW BLOCKS TO PREVENT SIDE "SLOP" (WE ARE WORKING ON THIS ONE!)

FIT THE TWO BED "CRADLES" (**H**) TO THE FRAME SIDES ABOUT 1 7/8" FORWARD ON THE TRUCK FRAME. THE DUMP BOX, WHEN DOWN, SHOULD REST SQUARELY "UP" ON THESE BLOCKS IN A LEVEL POSITION.

INSTRUCTIONS

THE FUN PART IS RIGGING THE MECHANISM. PLACE A PILLOW BLOCK ON THE TRUCK FRAME IN THE REMAINING SPACE, HALF-WAY BETWEEN THE SEAT BACK AND THE DUMP BED FRONT. FILE/FIT THE "NUB" ON THE HOIST MECHANISM CASTING (**I**) TO ACCEPT THE 5/8" PIECE OF LARGER BRASS TUBE. (SORRY FOR THE DIFFICULT FIT!) WHEN GLUED ON, END-SLIP THE CASTING INTO THE PILLOW BLOCK WITH THE LONG BRASS END ON THE DRIVER'S SIDE. SLIP THE SECOND PILLOW BLOCK IN PLACE, SQUARE UP, AND GLUE. FIT THE WHEEL (**J**) TO THE LONG END, JUST CLEARING THE CAB FLOOR, AND CLIP THE OTHER END.

FIT THE PULLEY "YOKE" (**K**) WITH THE OTHER PIECE OF BRASS TUBING. **CUT TO LENGTH** AFTER TRYING IN PLACE. (FOR THE DOWN POSITION OF THE BED, CUT THE BRASS AT 5/8" [ALSO]; FOR A RAISED POSITION, THIS WOULD BE TELESCOPED, SO CUT AT BETWEEN 3/4" AND 1" LONG. TAKE OFF SHORT LENGTHS UNTIL IT LOOKS RIGHT TO YOU.) DRILL THE YOKE FROM EACH SIDE INTO THE CENTER FOR .020 WIRE, AND FIT THE PULLEYS. AFTER GLUING THE WIRE, CLIP THE ENDS.

...NOW THAT "FUN" PART... RIGGING THE CHAIN. CUT THE LENGTH OF CHAIN (**P**) IN HALF (KINKS SHOULD SHAKE OUT). ONE END OF EACH PIECE MUST BE FASTENED IN THE SLOT ON THE FRONT OF THE DUMP BED. AN EASY WAY IS TO THREAD TWO CHAIN ENDS ONTO A PIECE OF .020 WIRE, HOOK IT BEHIND THE BED SLOTS AND GLUE IN PLACE. THE CHAIN WILL PASS UP OVER THE PULLEYS, AND DOWN TO AN ANCHOR UNDER THE SEAT. BOTH CHAINS SHOULD BE THE SAME LENGTH UNDER EQUAL TENSION.

...PAINT TO YOUR WHIM AND YOU ARE DONE!

MATERIALS LIST:

DUMP BED FRAME	A	1
BED SIDES	B	2
BED FRONT END	C	1
BED BACK END	D	1
TAILGATE	E	1
SPECIAL BED "PILLOW BLOCKS"	F	2
PILLOW BLOCKS	G	4
BED "CRADLES"	H	2
HOIST MECHANISM "GEARBOX"	I	1
HOISTING WHEEL	J	1
HOIST PULLEY "YOKE"	K	1
PULLEYS	L	2
.031 SHEET PLASTIC (FLOOR)	M	1
.020 BRASS WIRE	N	1
1/32" BRASS WIRE	O	1
FINE CHAIN, 6"	P	1
3/32" BRASS TUBING	Q	1
1/8" BRASS TUBING (TELESCOPING)	R	1

WARNING: CASTINGS CONTAIN LEAD
-NOT SUITABLE FOR CHILDREN-
USE APPROPRIATE PRECAUTIONS
ESPECIALLY AROUND FOOD AND CHILDREN

McKENZIE IRON & STEEL

PARTS LIST:

RIGHT FRAME MEMBER	1	1
LEFT FRAME MEMBER	2	1
FRONT CROSS MEMBER	3	1
REAR CROSS MEMBER	4	1
ENGINE MOUNT CROSS MEMBER	5	1
CROSS MEMBER (WITH HOLE)	6	1
CROSS MEMBER (PLAIN)	7	1
TRANSMISSION CROSS MEMBERS		
FRONT	8	1
REAR	9	1
"I" BEAM AXLE	10	2
LEAF SPRING	11	4
BRAKE DRUM	12	4
WHEEL	13	4
DIFFERENTIAL (FRONT)	14	1
DIFFERENTIAL (REAR)	15	1
RADIATOR	16	1
RADIATOR BRACKETS	17	2
DASH PANEL	18	1
FLOOR PANEL	19	1
SEAT BASE (BOX)	20	1
SEAT & CUSHIONS	21	1
ENGINE COVER (HOOD)	22	1
BRAKE LEVER	23	1
STEERING COLUMN	24	1
STEERING WHEEL	25	1
TRUSS ROD PEDESTALS	26	2
(MAY BE CAST AS PART OF FRAME)		
ENGINE BLOCK	27	1
MAGNETO/WATER PUMP CLUSTER	28	1
INTAKE/EXHAUST MANIFOLD	29	1
COOLING MANIFOLD	30	1
4-SPEED TRANSMISSION	31	1
CARBIDE CYLINDER	32	1
TOOL BOX	33	1
HEADLIGHT #1 (SEARCHLIGHT)*		1
HEADLIGHTS #2 (CARBIDE LAMPS)*		2
"MARKER" LAMPS*		2
TAIL LAMP (SAME AS "MARKER" LAMP)*		1
DRAW BAR*		1
MUFFLER/TAILPIPE	34	1
TURNBUCKLE	35	2
GEAR SHIFT ("PEARLY" PIN)	36	1
FRAME HOOKS (L&R)	37,38	2
STEERING TIE RODS (2)	39	2

BRASS WIRE:

1/8" Cut to 1 3/4" for Steering Shaft (rear-wheel steer).
1/16" for all Drive Shafts
.020 for Truss Rods, Crank, Arm Rests*
BRASS STRIP: fine for Fan Belt, medium for Hitch Bracing*

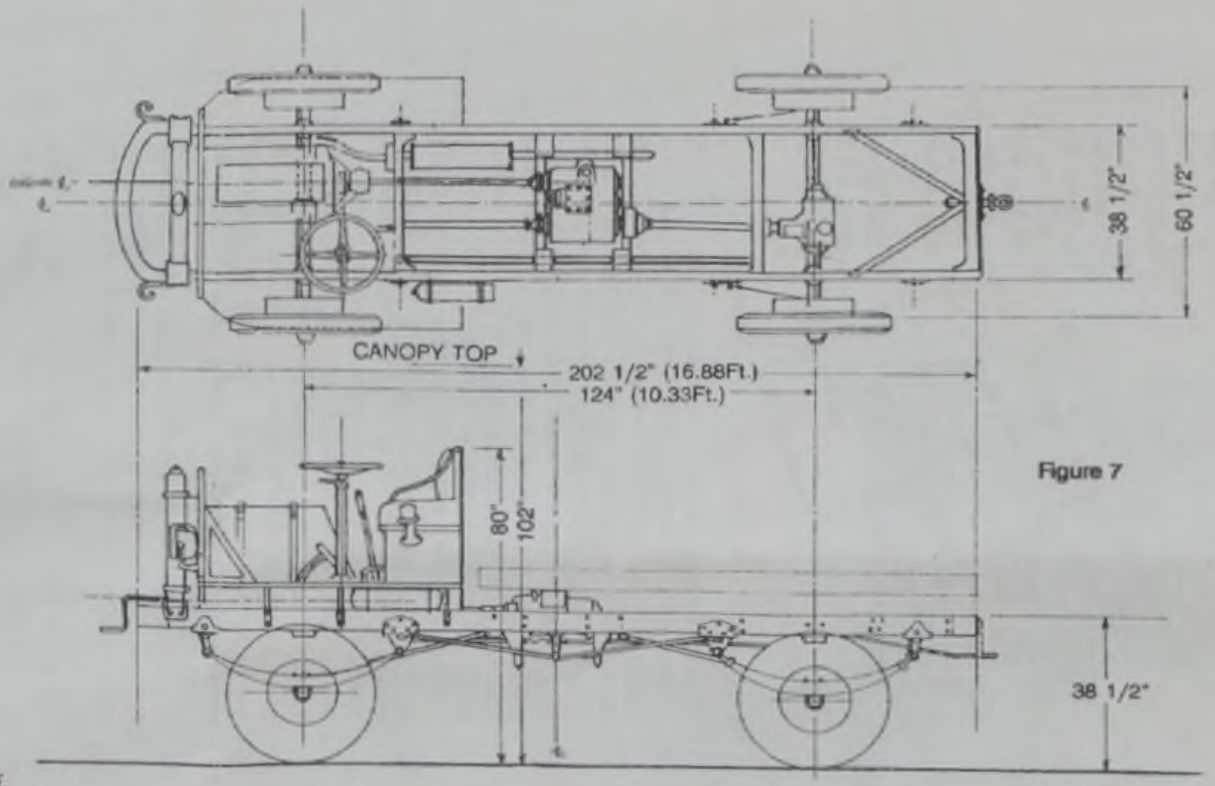
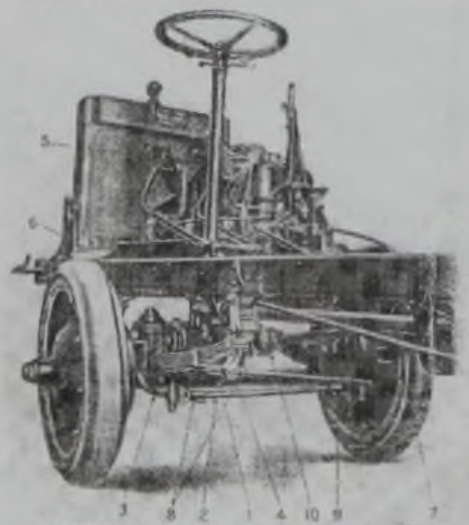


Figure 7

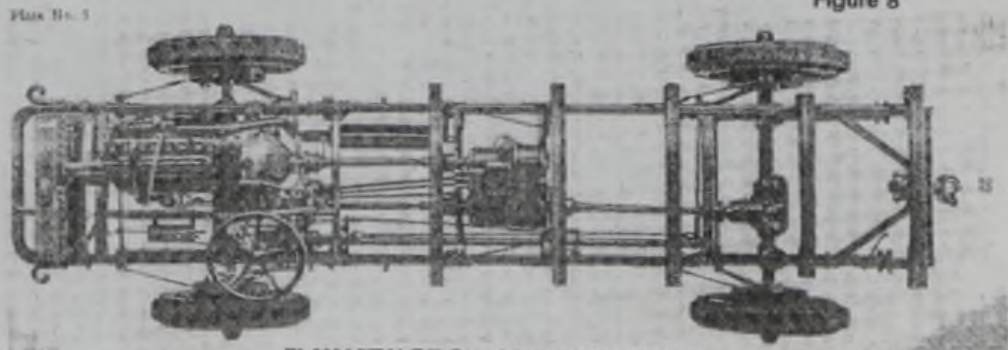
PROTOTYPE VIEW.



STEERING DEVICE AND CONNECTIONS

1 - STEERING DRAG LINK
2 - STEERING KNUCKLE TIE ROD
3 - STEERING KNUCKLE ARM
4 - STEERING TUBE LEVER (FRONT)
5 - STEERING COLUMN
6 - STEERING COLUMN BOTTLE
7 - STEERING ARM CONNECTING TUBE TO REAR STEERING ARMS
8 - ADJUSTMENTS
9 - WHEEL BRAKE
10 - UNIVERSAL JOINT, FRONT

Figure 8



PLAN VIEW OF CHASSIS (NASH-QUAD)

PROTOTYPE VIEW.

HOSE CLAMP
(DETAIL)