



APPENDIX V

BRITISH COLUMBIA SOCIETY OF MODEL ENGINEERS BULKHEAD RIDE ASTRIDE CARS 1.6" SCALE 7.5" GAUGE

**The Bulkhead Ride Astride Car have been adopted by
Kitsap Live Steamers as the safest car to be used**

Design of body: Ken Klakowich
Modified: Lindsay McDonnell

Design of trucks, patterns, castings & drawing:
Lindsay McDonnell 01 / 2000
Ph (604)420-1778

padding vinyl seat cushion - light gray (cooler in the sun.)

3/4" plywood x two, bottom piece is glued inside side panels, top one on top of side panels

Hinge seat board to the car.

2"x 4" x 8ft. kiln dry wood, recommended.

que & screw together

3/4" plywood floor, then steel angle
1.25" x 1.25" x 1/8" angle

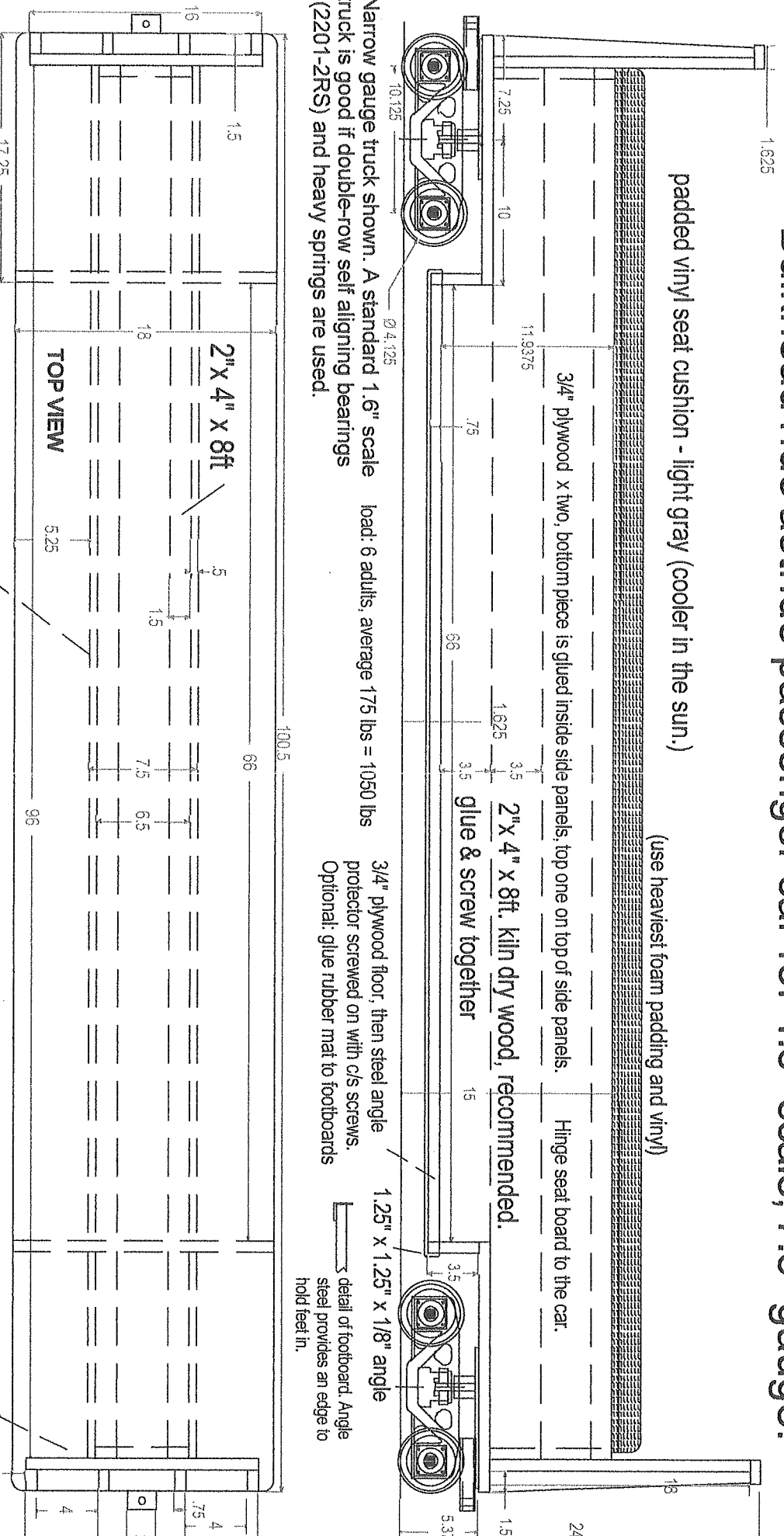
protector screwed on with c/s screws.

Optional: glue rubber mat to footboards

steel provides an edge to hold feet in.

Narrow gauge truck shown. A standard 1.6" scale truck is good if double-row self aligning bearings (2201-2RS) and heavy springs are used.

load: 6 adults, average 175 lbs = 1050 lbs



sides: 1/2" plywood, good one side,

ends: 3/4" plywood, good two sides

design of body: Ken Klakovich

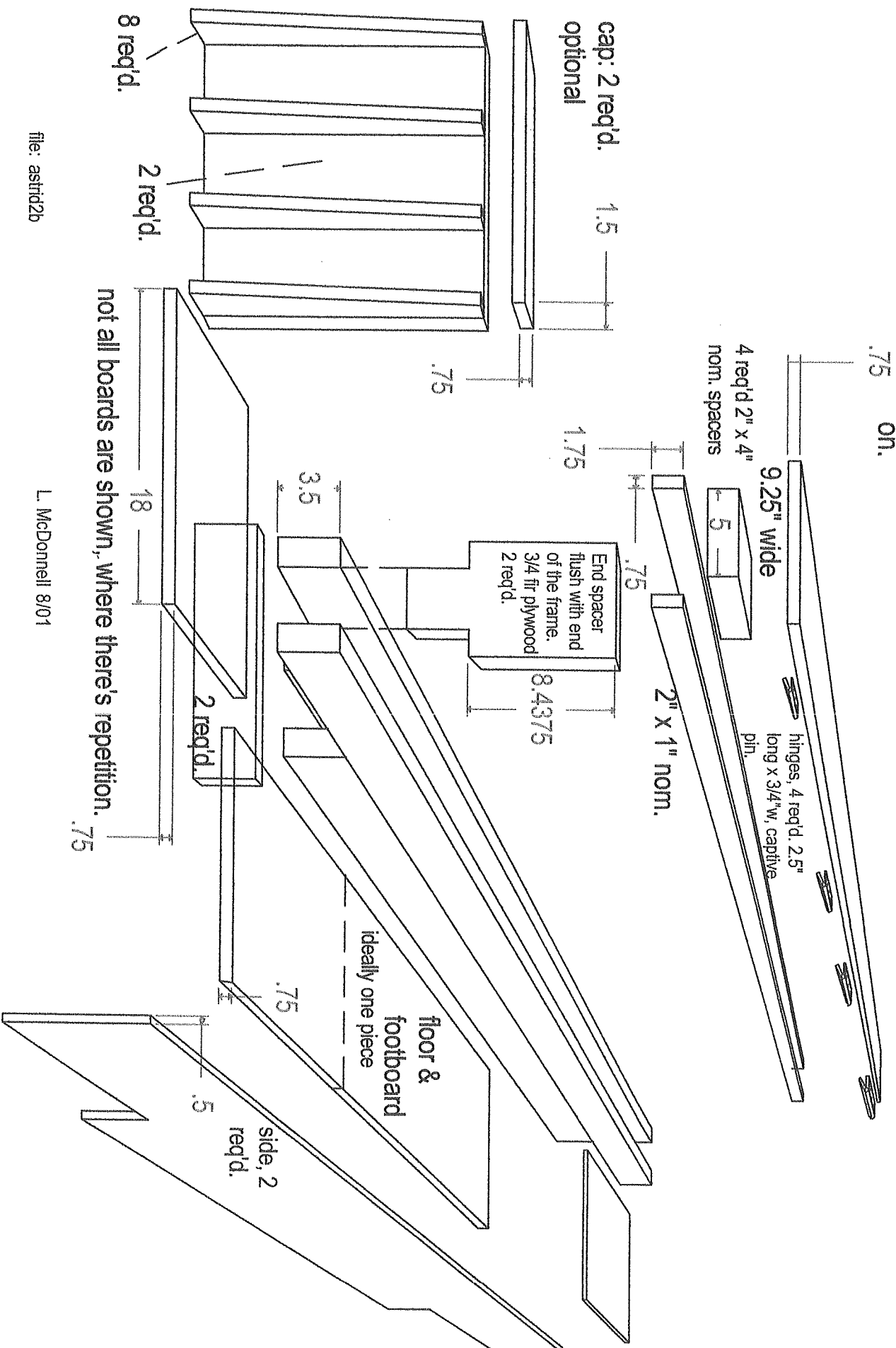
Length of car can be shortened as req'd. A 6ft car for 4 adults, 8ft holds 6 adults.

modified: Lindsay McDonnell

design of trucks, patterns, castings & drawing: L. McDonnell 01/2000, Ph.(604) 420-1778

Exploded view of Ride-astride car

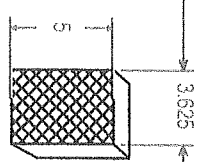
Alternate construction of the top of the car. Seat-board, hinged to car, padding optional. Extra width for riders to hold



screw seatboard to hinges

Bulkhead ride-astride car: construction for the top to take the padded seatboard. Pad with heavy duty foam and vinyl, light gray is cooler.

Glue & screw these boards to the sides. The padded seat board is hinged on top and is wider for riders to hold on to.



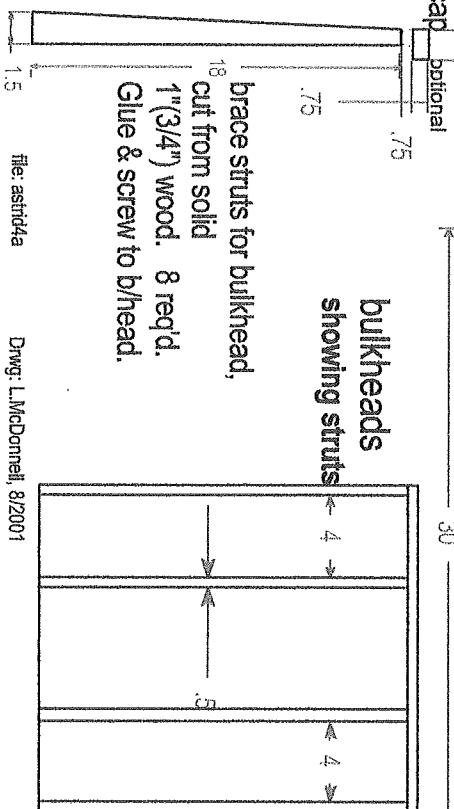
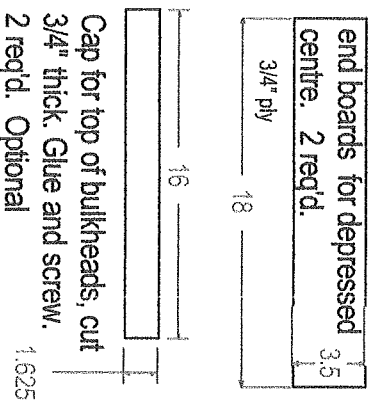
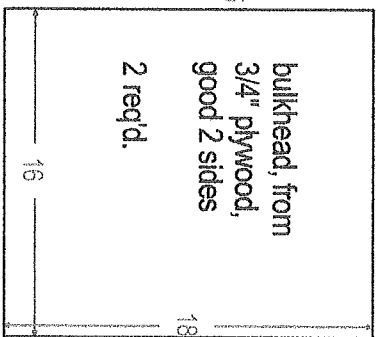
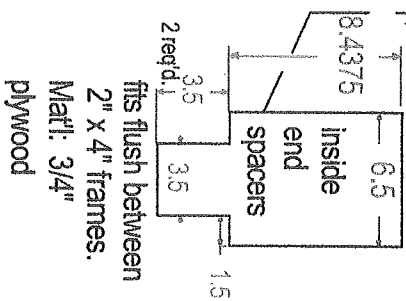
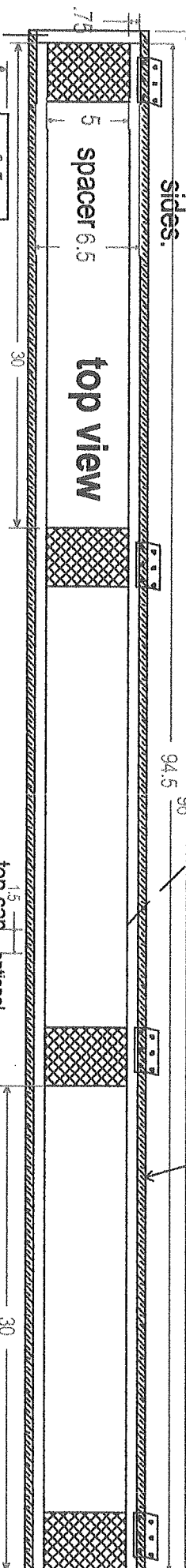
2" x 4" nom.
wood spacers
4 req'd.

3/4" ply or 2 x 1 dressed lumber (1.625" x 3/4"), screw and glue to

side 1/2" ply.
2 req'd.

sides.

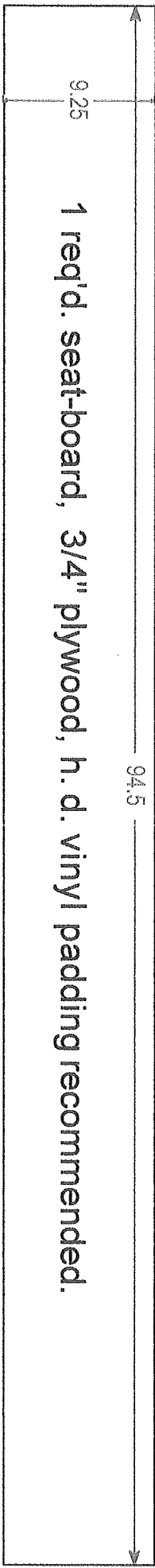
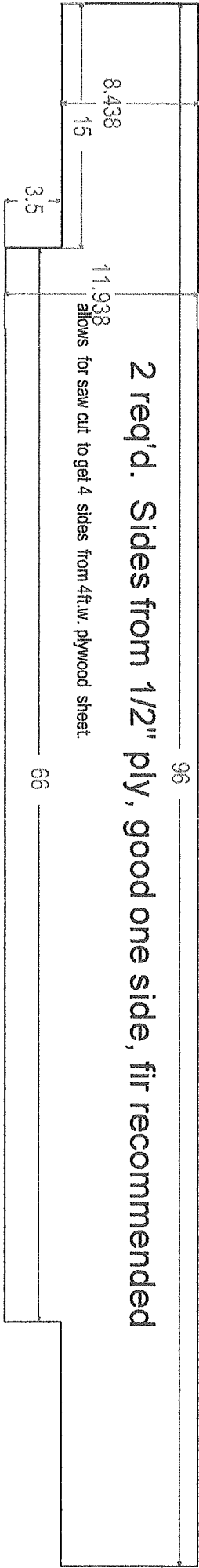
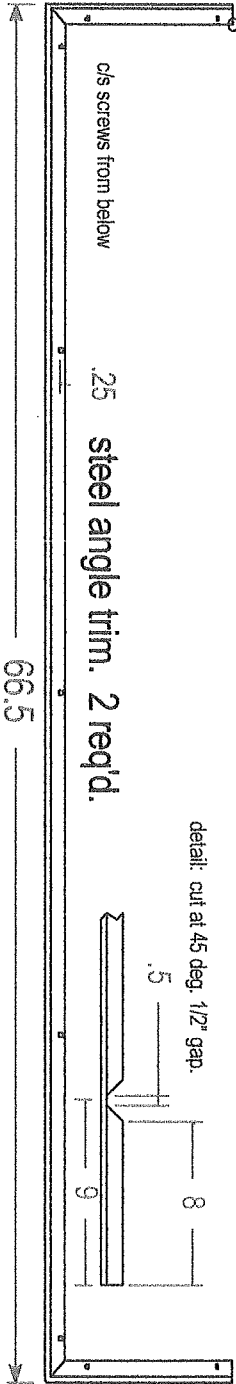
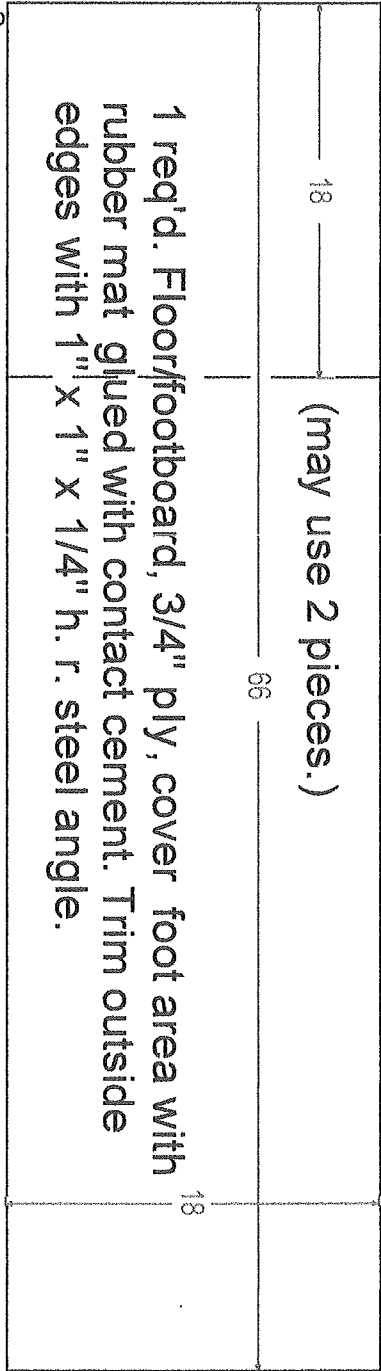
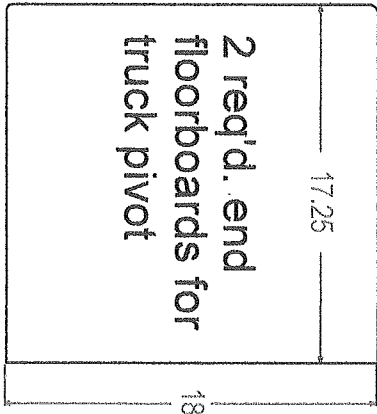
top view



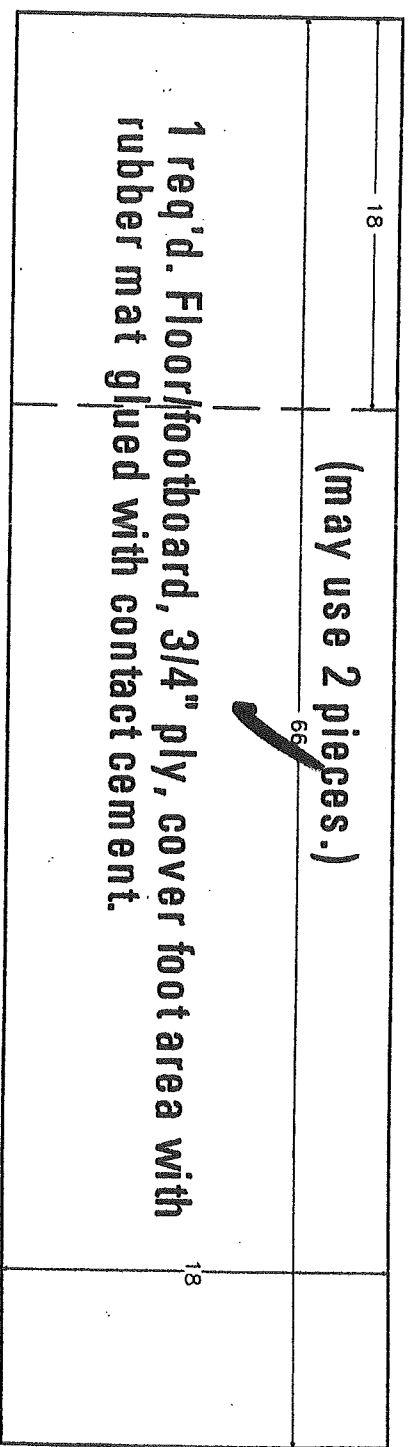
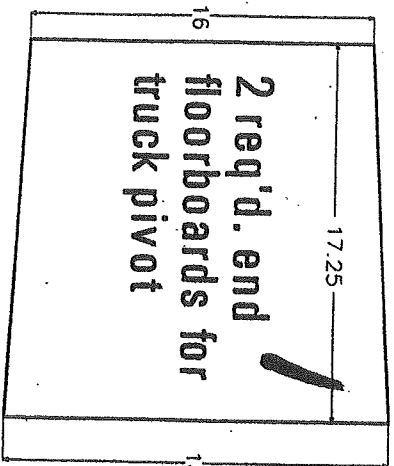
file: astid4a

Drwg: L.McDonnell, 8/2001

Plywood parts for Bulkhead ride-astride car in 7.5" gauge.



Plywood parts for Bulkhead ride-astride car in 1.6 scale.



9.25	95
1 req'd. seatboard, 1/2" or 3/4" ply, padded (optional)	

8.438	96
15	11.938
2 req'd. Sides from 1/2" ply, good one side	
3.5	66
allowance for sawblade to get four sides from 48" plywood sheet	

Rev. 02/12/05

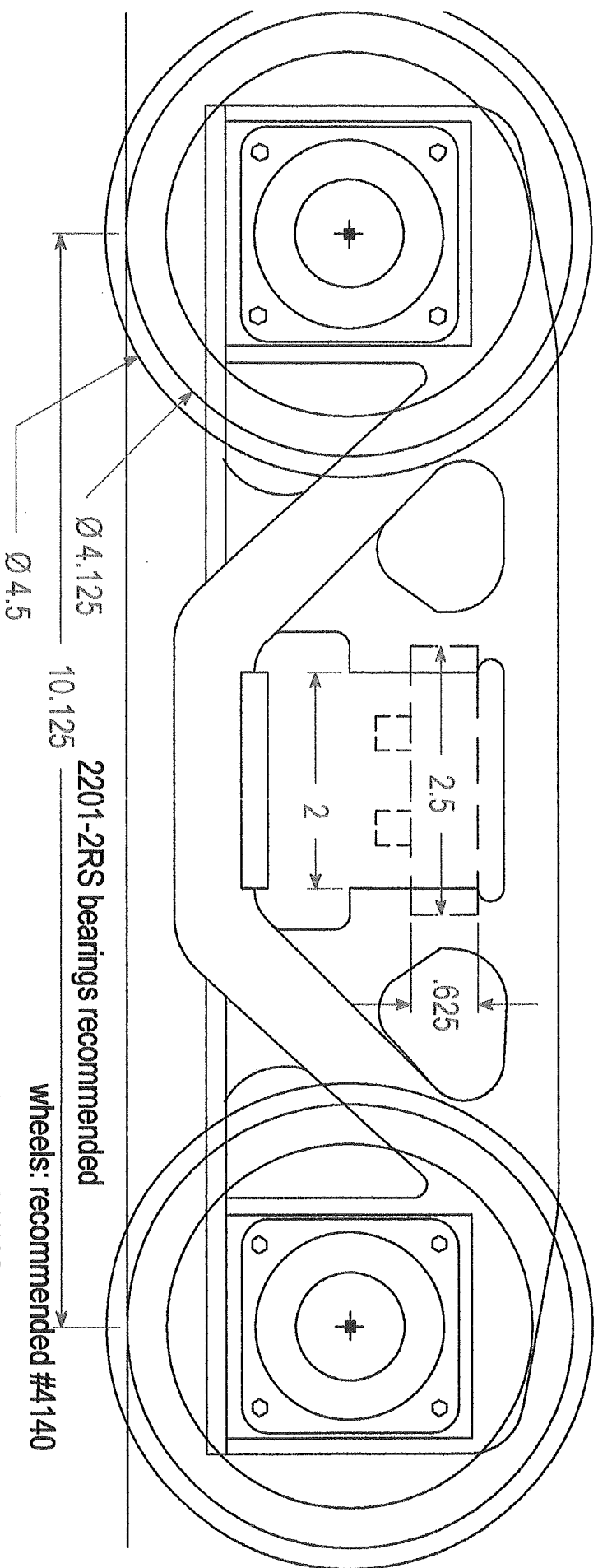
drawn: L. McDonnell, Jan. 199

1/4" - 20 for bottom cross strut.
3/4" deep from the back (inside).
Don't drill right through!

Suggested that you machine the 2" wide slot first, then after all castings have been done, set up a block on a vert. mill and machine the bearing holes so they are equi-distant from the centre. Then, drill #7 tapping size for 1/4"-20NC for brake hangers and the bottom cross strut. Its function is purely to stop the sideframes from moving sideways.

designed & drawn by L. McDonnell 1/97

Narrow gauge Andrew's style truck for 7.5" gauge with standard freight car wheels.



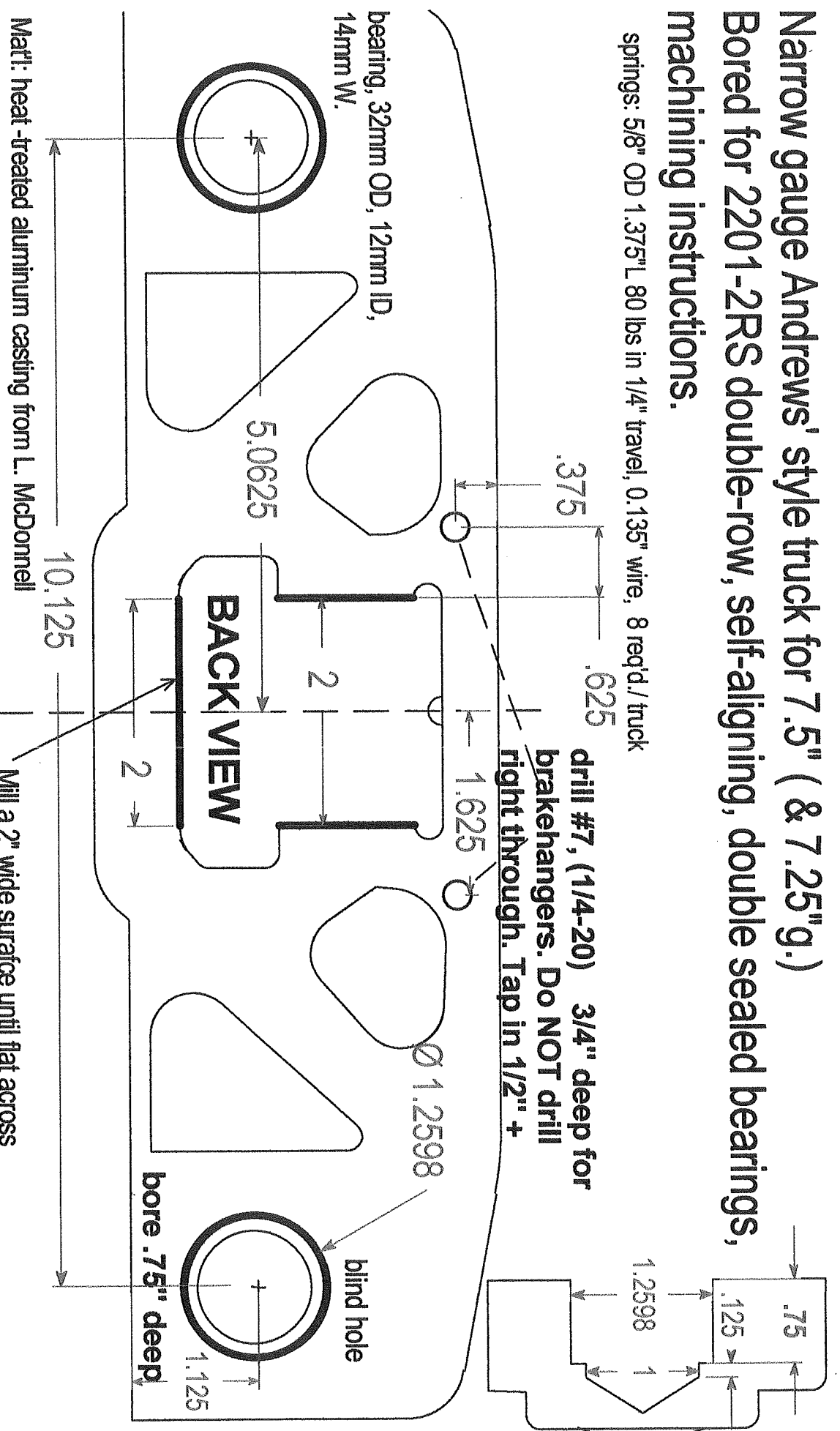
2201-2RS bearings recommended

wheels: recommended #4140

designed & drawn by Lindsay McDonnell 01/1997

Narrow gauge Andrews' style truck for 7.5" (& 7.25" g.) Bored for 2201-2RS double-row, self-aligning, double sealed bearings, machining instructions.

springs: 5/8" OD 1.375" L 80 lbs in 1/4" travel, 0.135" wire, 8 req'd./ truck



Mat'l: heat-treated aluminum casting from L. McDonnell

file: NGktside

designed & drawn by L. McDonnell rev. 11/06

Mill a 2" wide surface until flat across to take out the 2 deg. taper in the casting. This takes channel spring pads, with bottom strut.

sideframes bored to 3/4" depth for bearings.

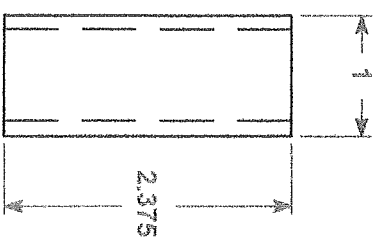


booster

Mat'l: 8"x 1/4" h.r. steel plate

rollers

recommended



Bolster shown with vacuum brackets and actuators, at max rotation, 12 deg from ahead.

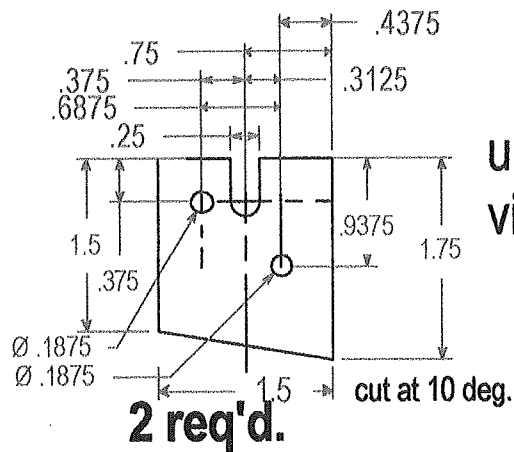
L. McDonnell design. 5/95,
updated 03/2007
file: Astrid1

underside view

[illegible]

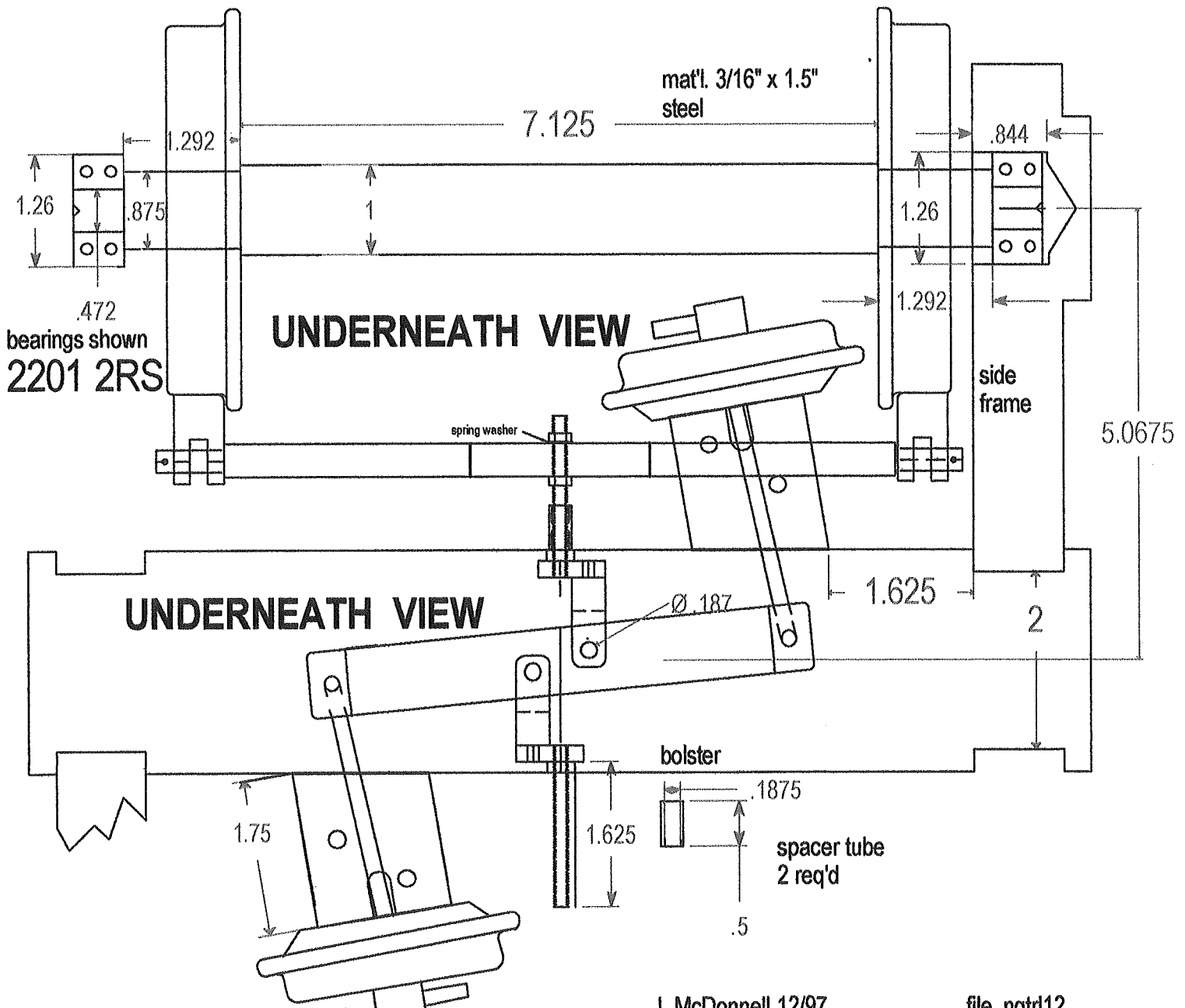
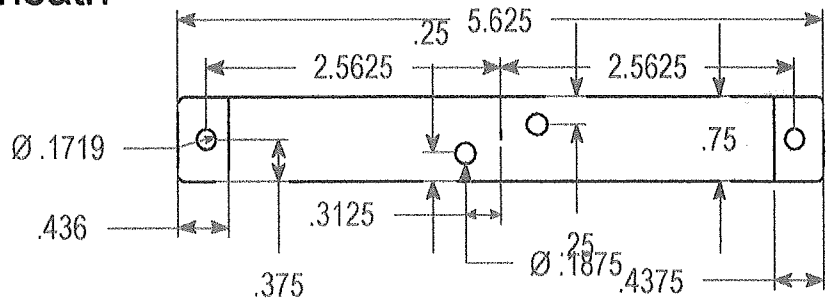
file: astride6

7.5"g Andrews style N.G. truck. Brackets to hold 3" dia. vacuum cylinders, part # DD12 Motorcraft, Ford.



underneath
view

after bending



7.5" g. narrow gauge Andrews type truck

**Brackets to hold 3" dia. vacuum cylinders
part # Motorcraft (Ford) DD 12 or equivalent.**

BOTTOM VIEW

**Vacuum
brake
bracket
optional.**

2 req'd per truck

drill holes to
match actual
vac. cyl.

weld to bolster. Mat'l. 3/16" x 1.5" h.r.
steel.

this side faces the rails

bottom
side

mat'l: 5/8" x 2.5" x 11.875" h.r. steel bar

side view

drill 33/64

top side

Loctite 680, or force fit pins in place

9375 pins,
8 req'd

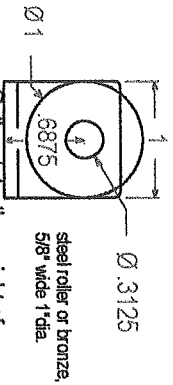
chamfer to ease spring assembly

Designed and drawn: L. McDonnell, updated 11/06

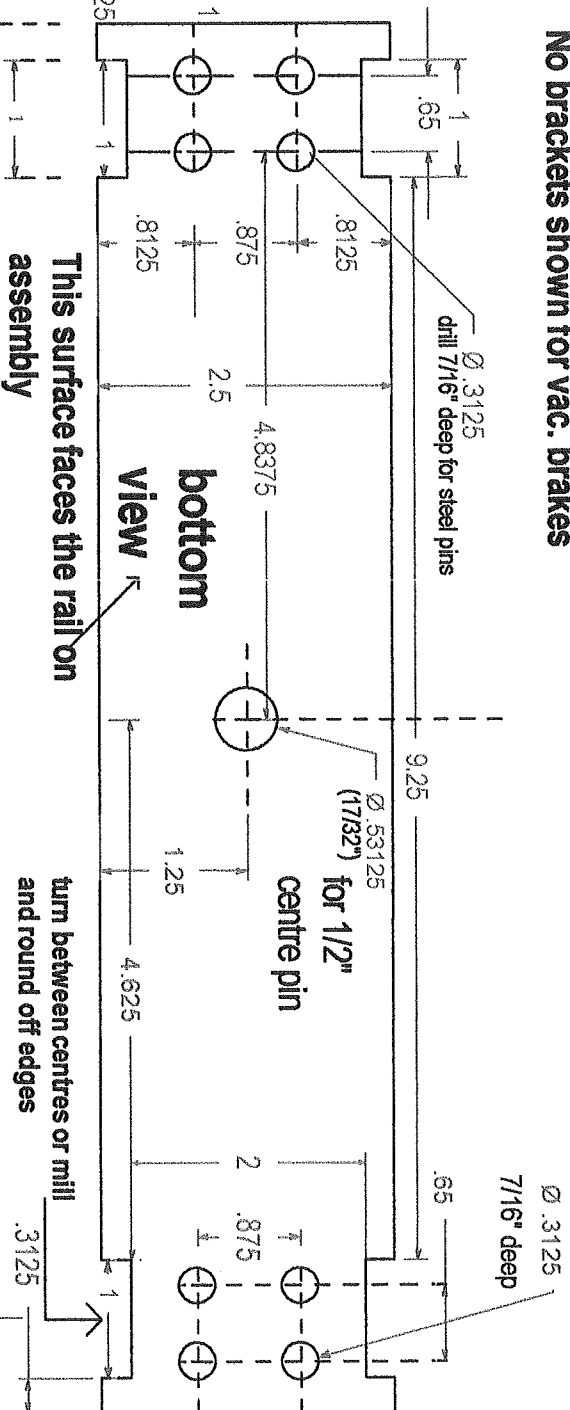
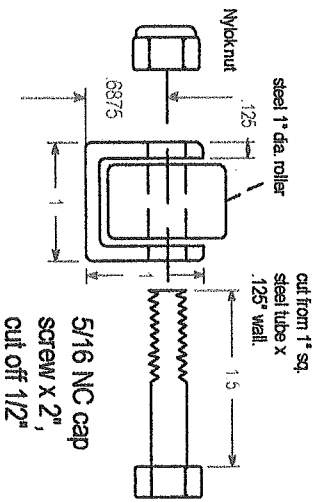
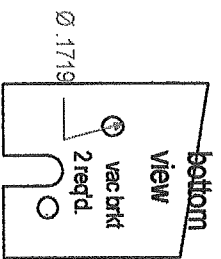
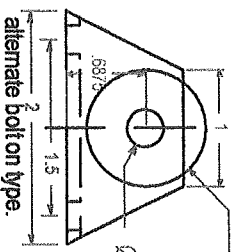
file: ngtrk2.VLM

Top bolster for narrow gauge Andrews style truck for 7 1/2" g. ride-astride cars.

No brackets shown for vac. brakes



Rollers take the weight of the car. Turn upside down and weld to spacer and to plate screwed to car body.

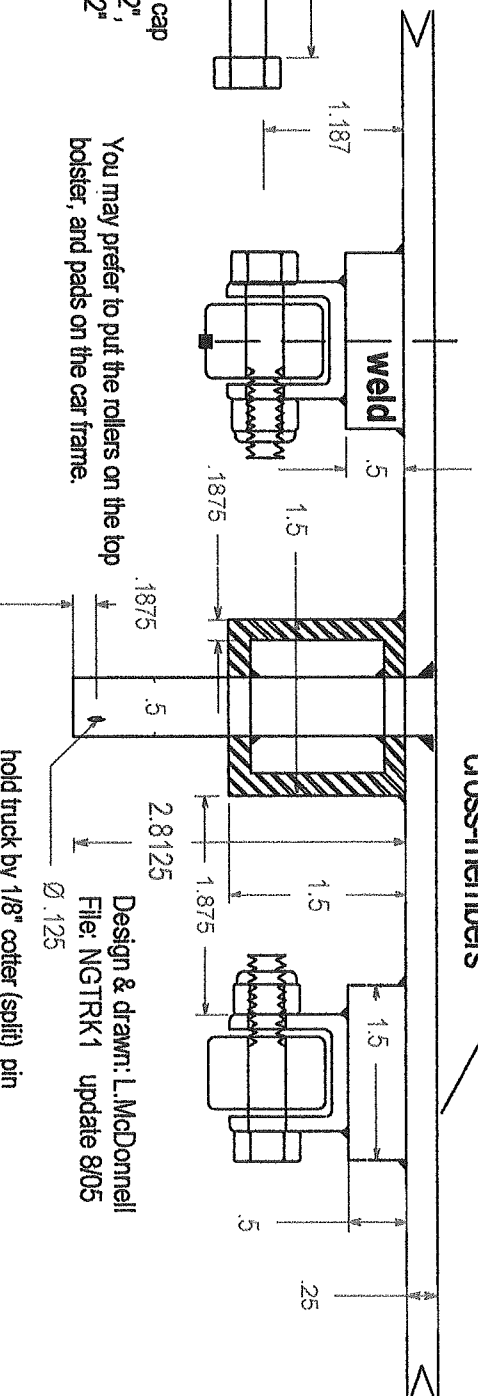


This surface faces the rail on assembly

pins to locate springs; 8 req'd
force fit or Loctite #680
spring size; 5/8" OD, 1.375" long, 80 lbs

Matl. 2 1/2" x 5/8" x 11 7/8" h.r. steel

Mounting details, 1/4" plate, screws to frame cross-members



You may prefer to put the rollers on the top bolster, and pads on the car frame.

Design & drawn: L. McDonnell
File: NGTRK1 update 8/05

bottom bolster (strut) spring pads

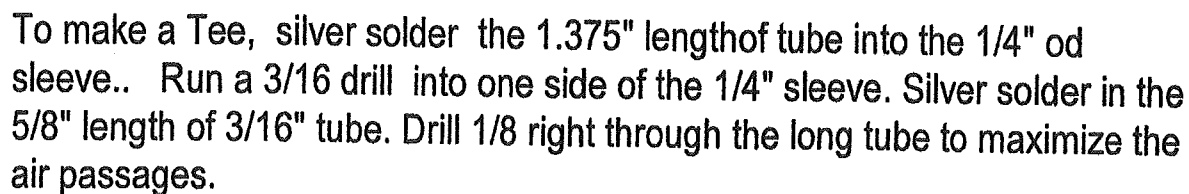
nylok
nuts

stopping the rod vibrating sideways.



L. McDonnell 9/2002

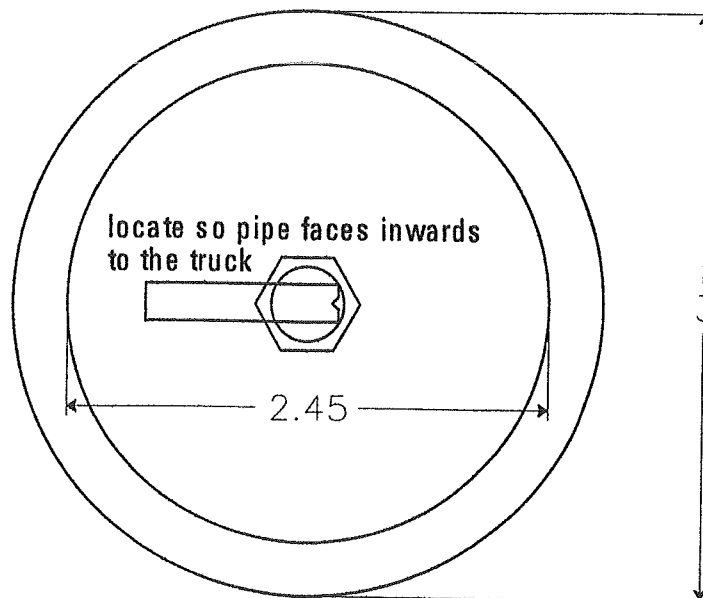
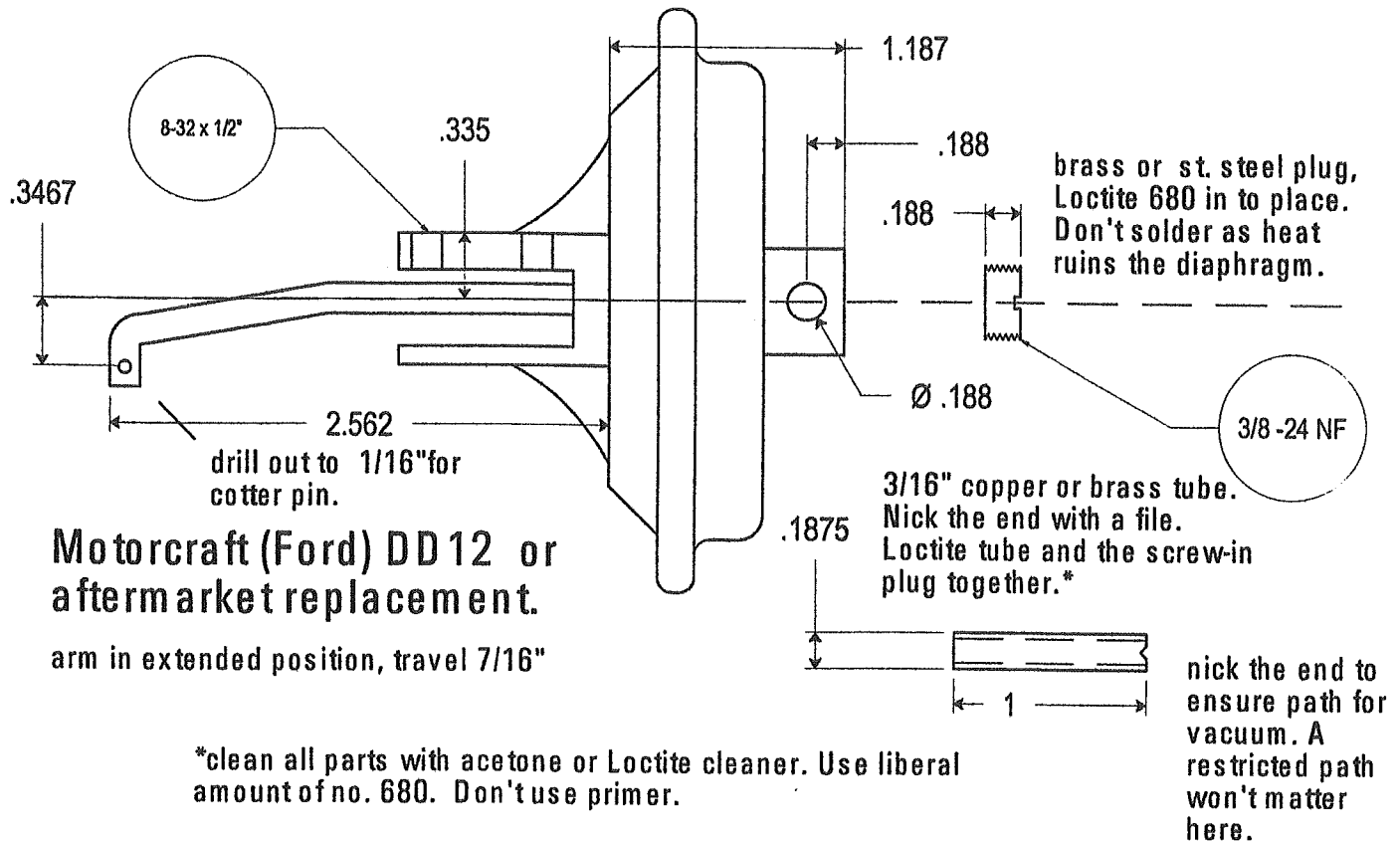
4 WAY



L. McDonnell



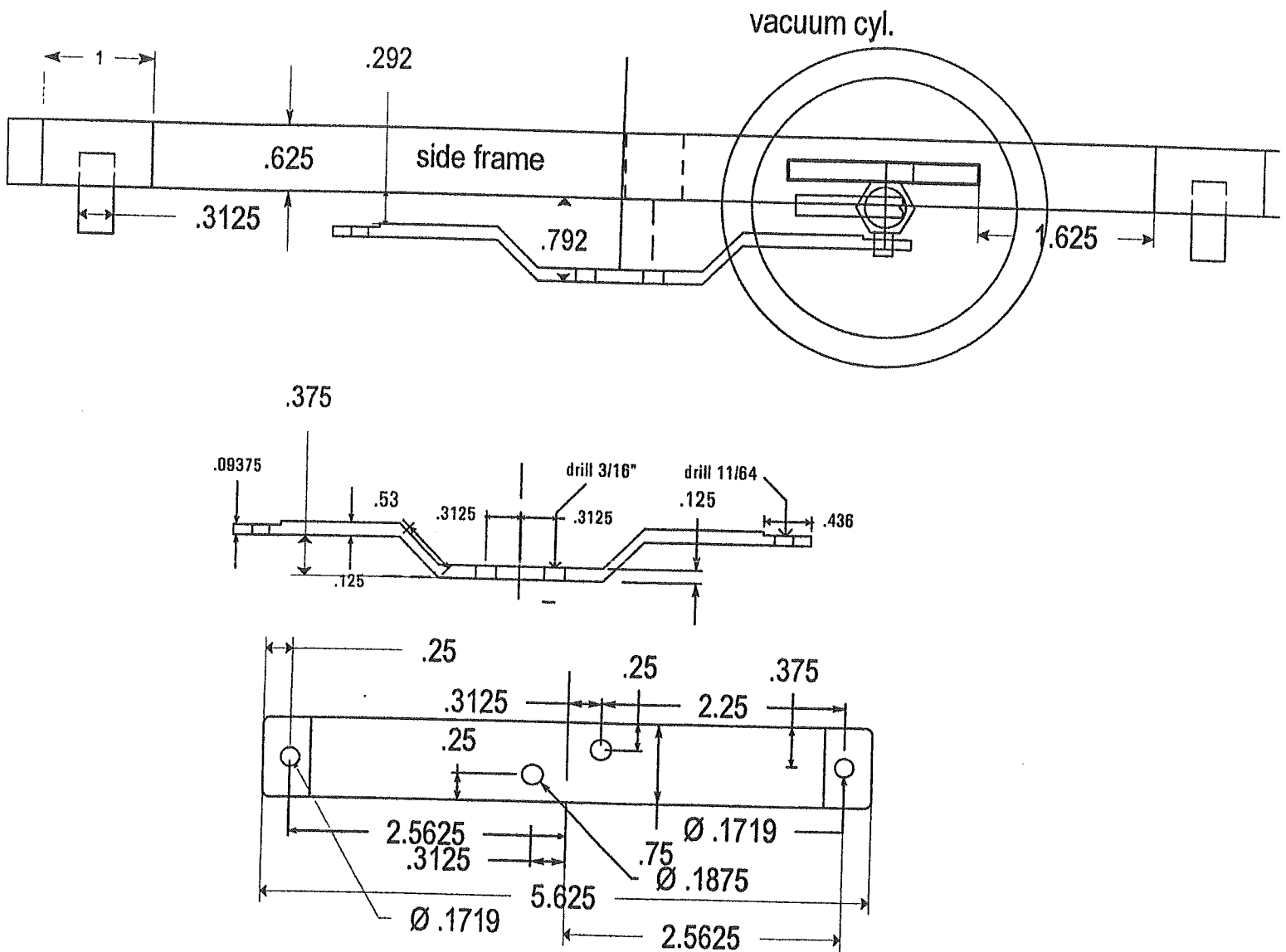
Vacuum actuator for train brakes.



Area of diaphragm is 4.7 sq. ins. Pull at 20 in. Hg is 47 lbs. With 6.6:1 leverage, 310 lbs is applied to brake beam, therefore 155 lbs per brakeshoe on the wheels. At 80% efficiency, 124 lbs. Cast gray iron is best for brakeshoes as it's friction causes linear deceleration. Wear is negligible over 20 years.

full size file: vacmcyl.VLM

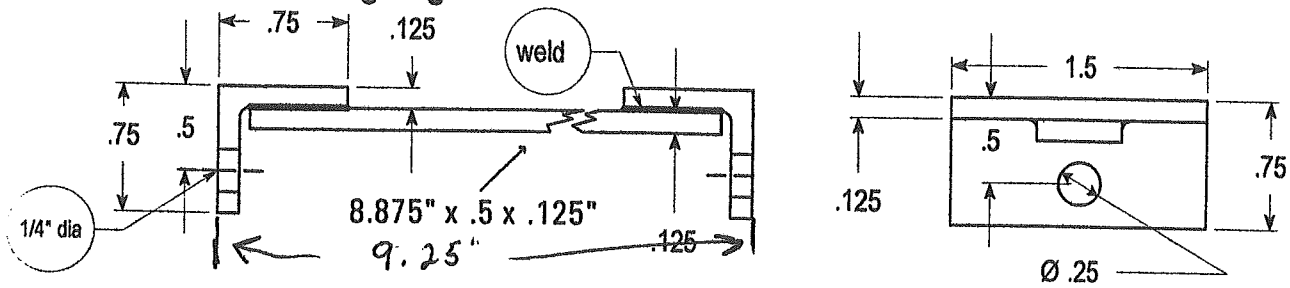
drawing: L. McDonnell 3/97



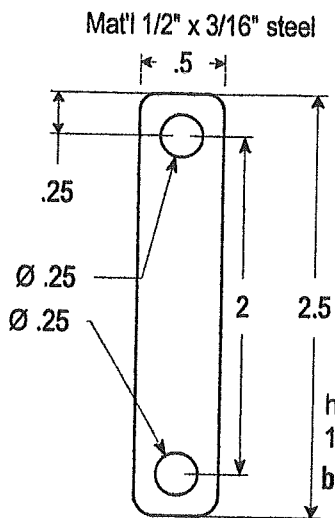
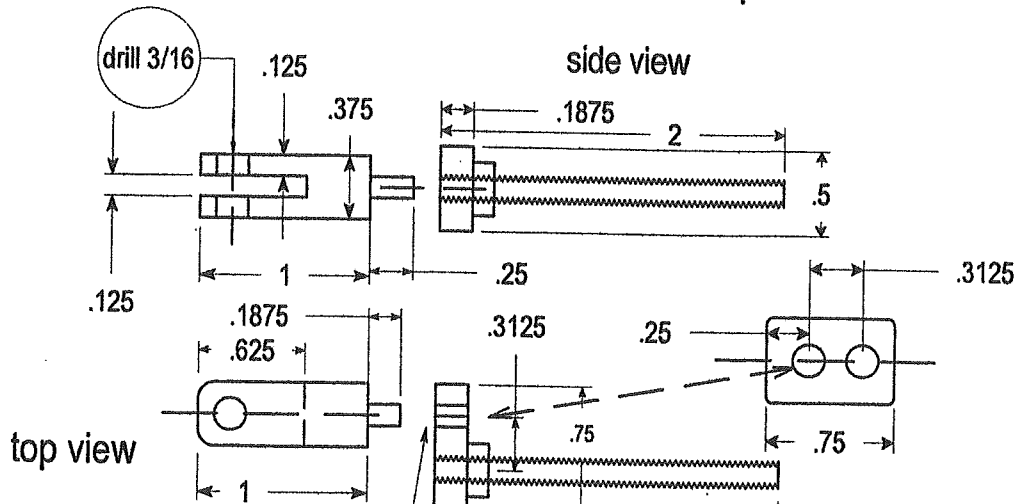
file: ngtrk5.VLM

designed & drawn by L. McDonnell 1/97
Phone (604) 420 1778

Bottom stretcher for 7.5" g. narrow gauge Andrews truck

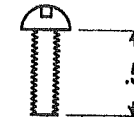
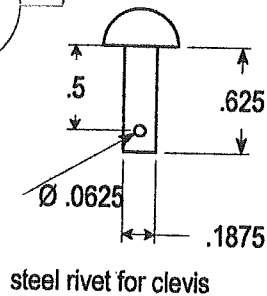


offset vacuum brake clevis, 2 req'd.



hanger screws 1/4-20
1.25" Long hex cap screws.
brake hangers, 4 req'd.

silver solder



8-32 screws to
attach vacuum
cyl.

spring
washer

brake shoe

taper to match
wheel

