

12-7-50

## Turntable Drive.

Let turntable sweep out one degree of azimuth per second of time. This requires a speed of one revolution in six minutes.

Assume.

Wheels 16 inches diameter

Motor speed 1750 rpm

Track 82.0 feet diameter

Since wheel and track diameters will not be exact, wheel slip and motor speed uncertain and position of wheel tread on rail variable; only a near ratio need be secured. The exact speed may be obtained by slight changes in the frequency of the diesel engine generator.

Wheel speed becomes.

$$\frac{\pi \cdot 82.0}{6} \cdot \frac{1}{\frac{16}{12} \pi} = 10.24 \text{ rpm.}$$

Total reduction  $1750/10.24 = 170.9 \text{ to } 1$

(over)

Speed reducer 15 to 1

Pinion 12 teeth 10 pitch 1" face

Gear 140 teeth 10 " 1" "

Total reduction  $\frac{15}{1} \times \frac{140}{12} = 175$  to 1

To get 10.24 rpm wheel speed requires

$$10.24 \times 175 = 1790 \text{ rpm on motors}$$

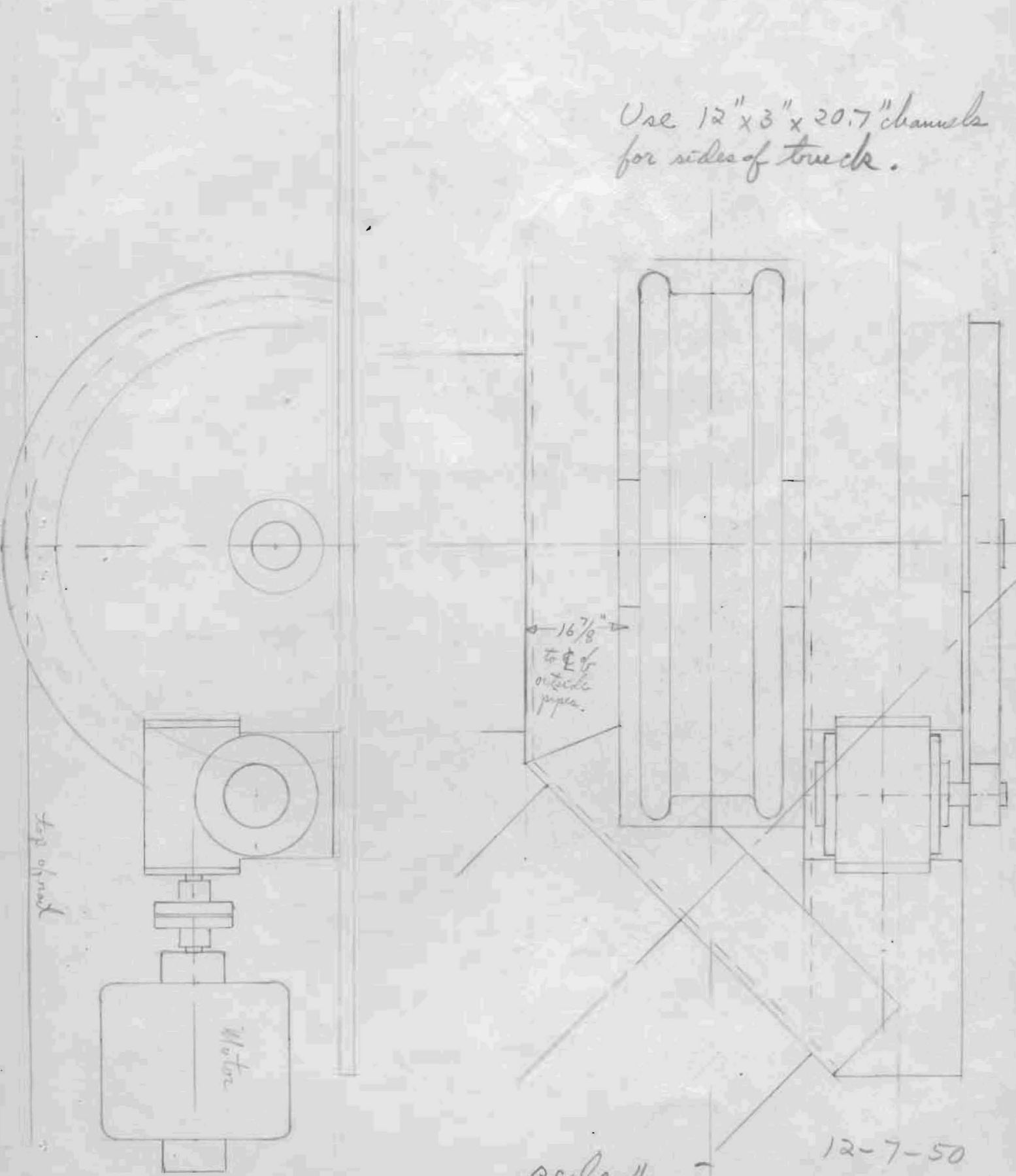
Since motors are operating substantially without load this is probably about right as synchronous speed is 1800 rpm. For real exact work the engine speed may have to be increased a bit above 60 cycles.

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# Approx Weight of Truck

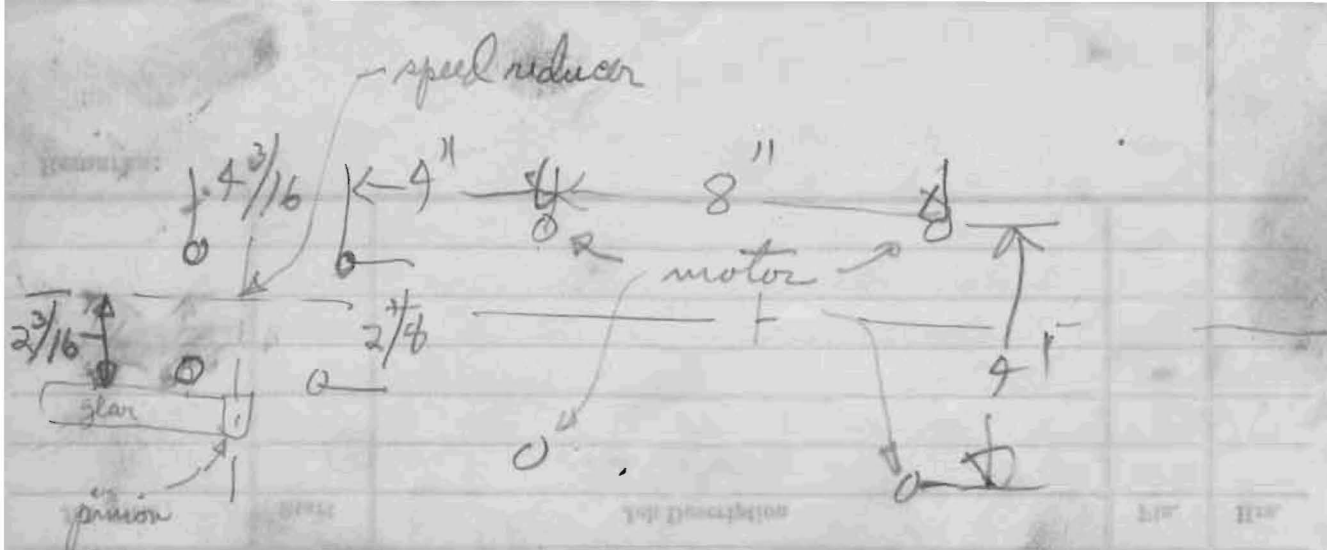
12" x 3" x 20.7# Channel 75' long	130#
1/2" x 14" x 64" steel plate	128#
2" dia x 18" steel shaft	16#
2 bearings @ 20#	40#
1 Wheel at	150#
Gear Box	30#
Motor	35#
Gear + pinion	25#
Total	<u>554#</u>

Use 12" x 3" x 20.7" channels  
for sides of truck.



scale  $\frac{1}{4}$  size.

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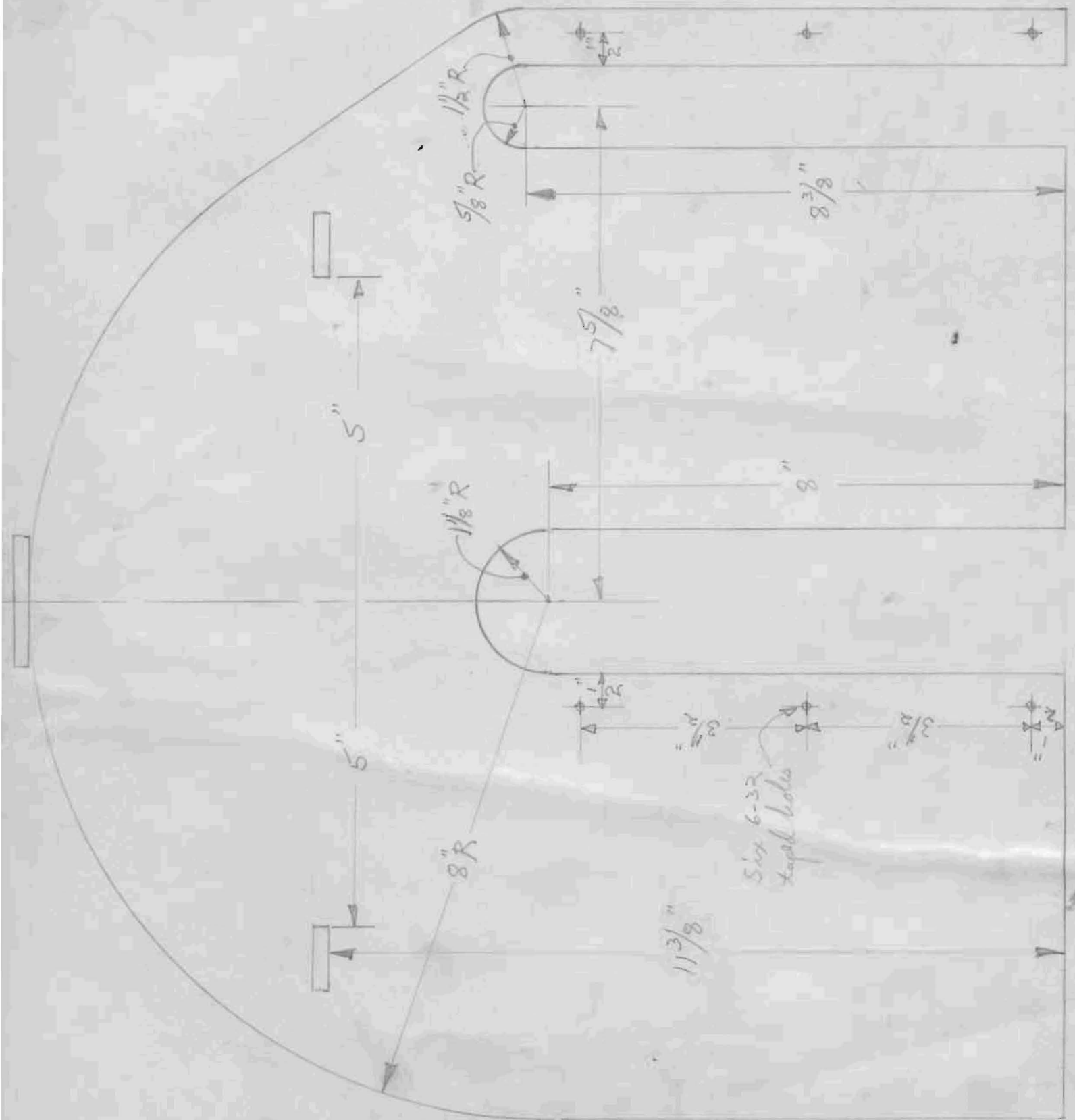


Holes in track for drive mechanism

RESCO MACHINE SHOP

# Fender for Gear Covering

Rear view



Scale 1/2 full size

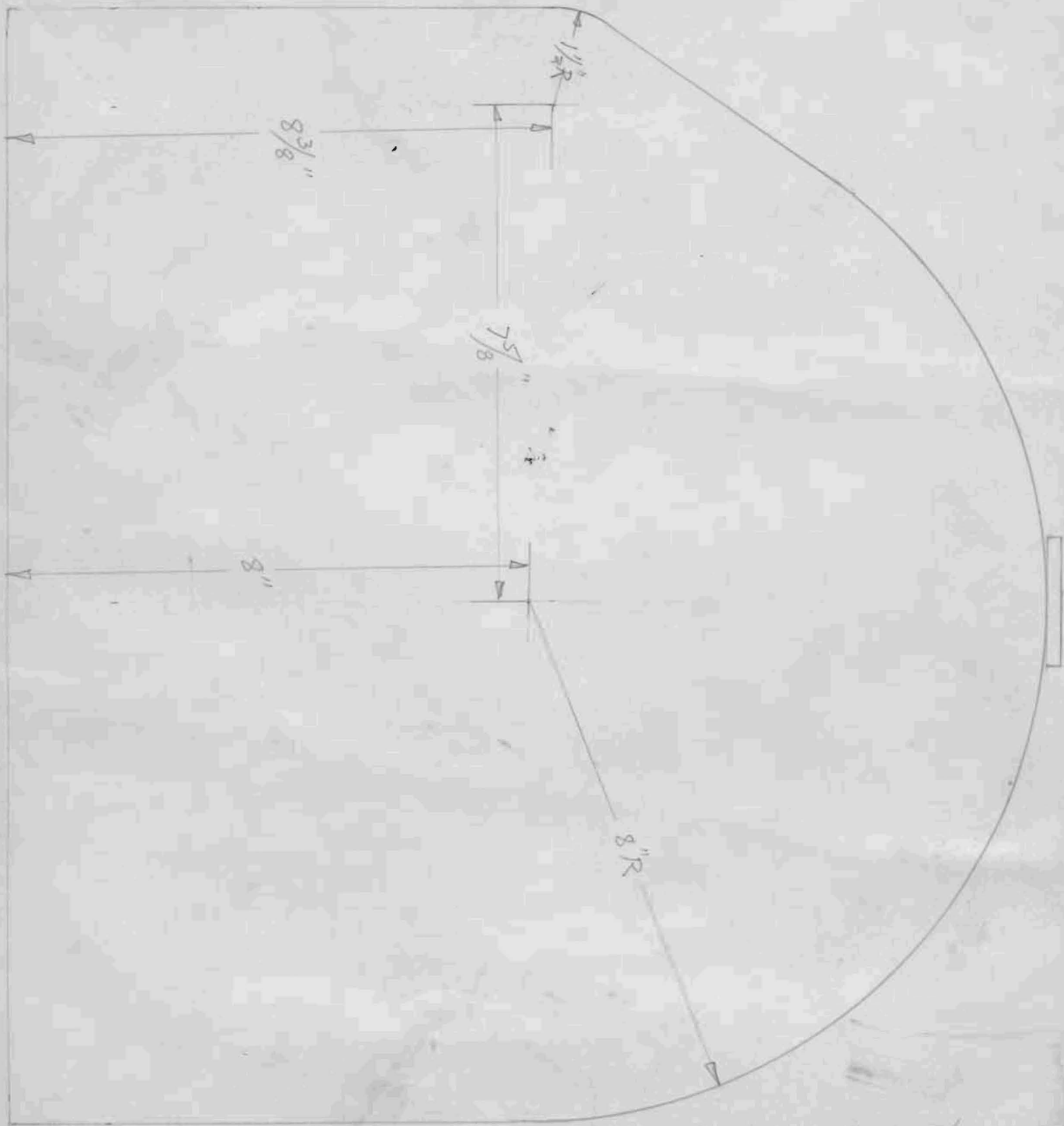
Make four from 1/16" plate

Grote Rubber

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Fender  
Front View

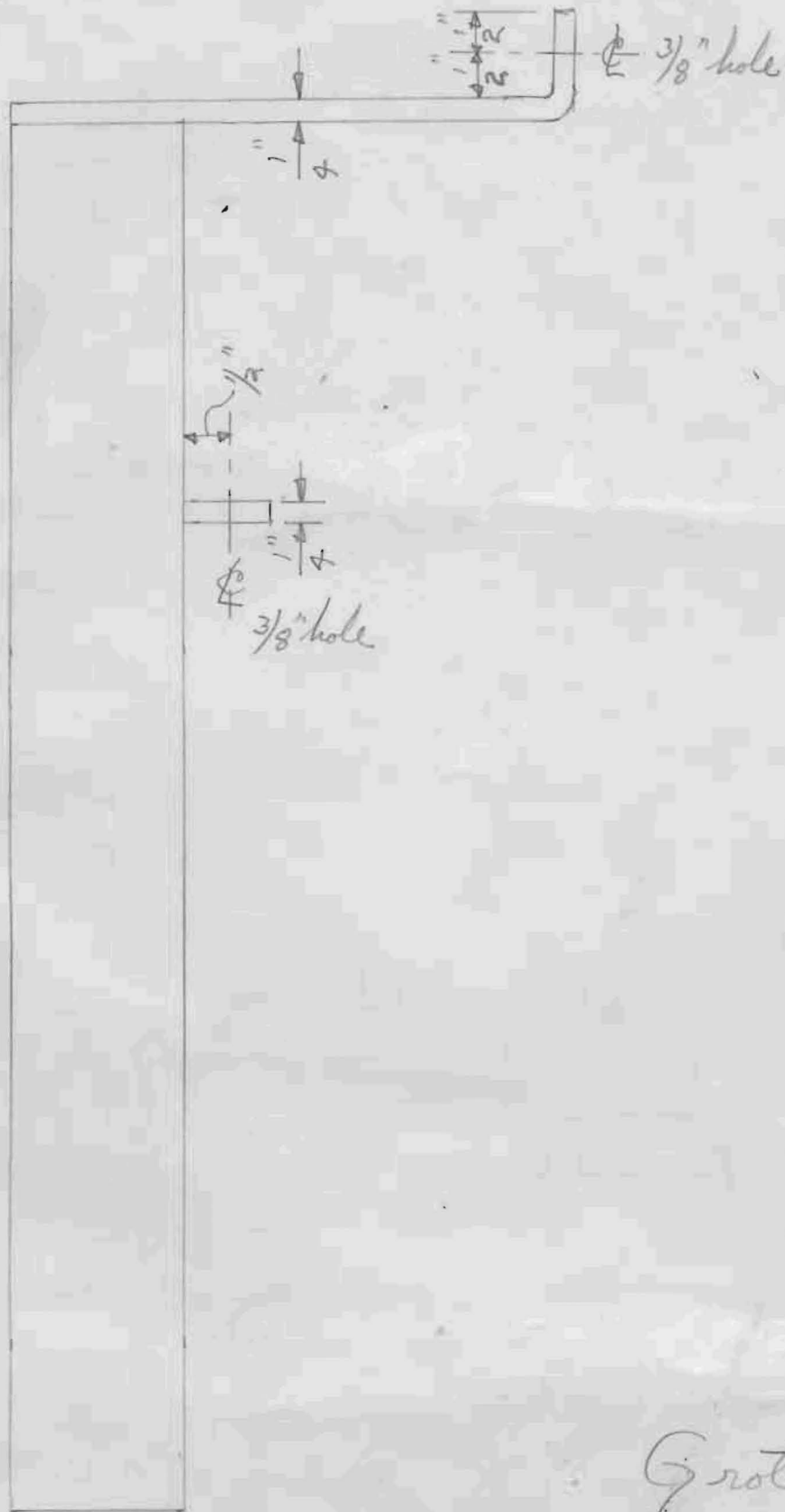


Scale  $\frac{1}{2}$  full size  
Make four from  $\frac{1}{16}$ " plate

Grote Reber  
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Fender  
end view



Scale 1/2 full size

Grote Reber

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Fender

Top view

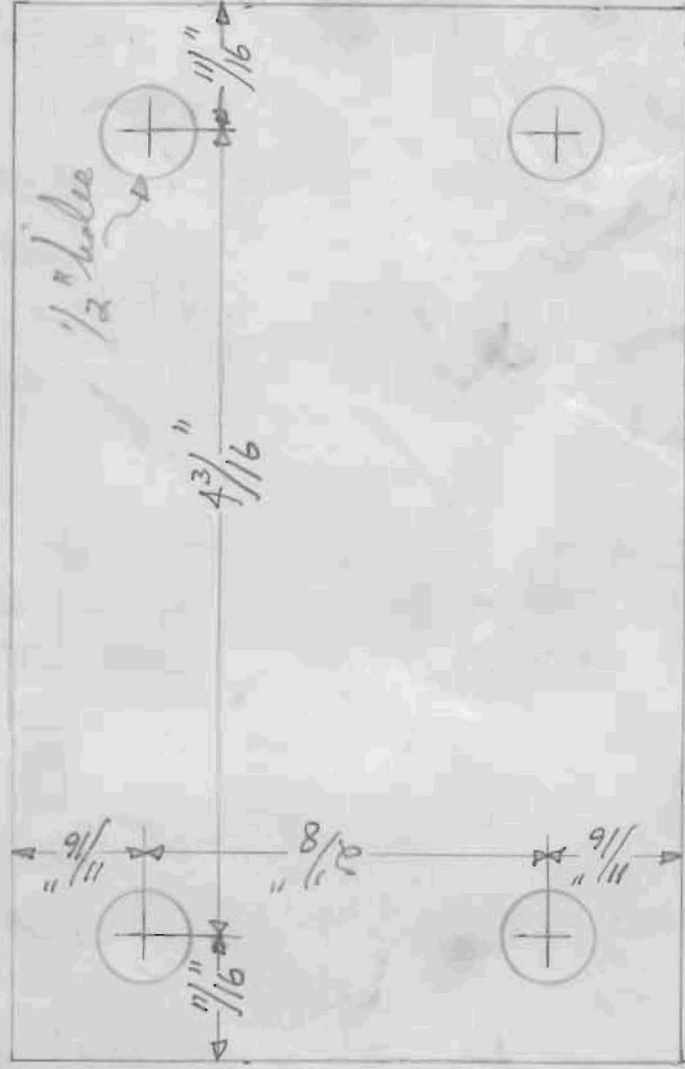


Scale 1/2 full size

Grote Reber

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Shims for under speed reducer  
make eight from same material as box

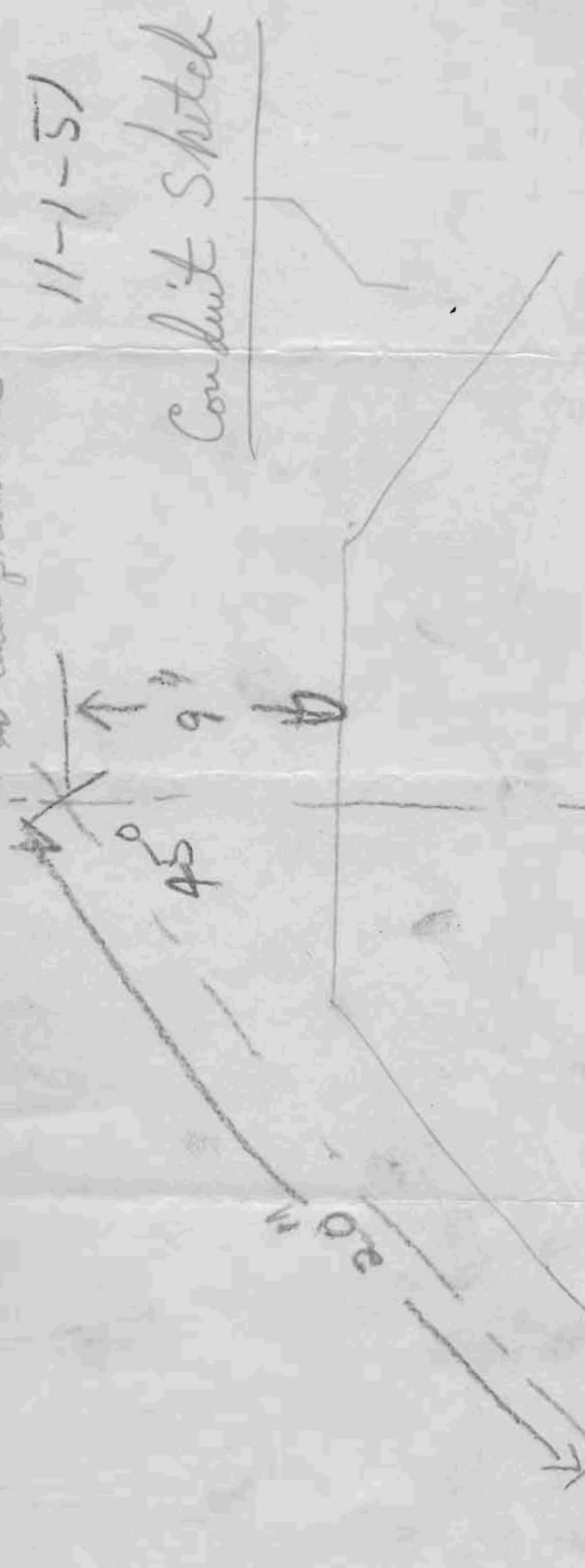


Full size  
Grote Reber  
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to center of turntable

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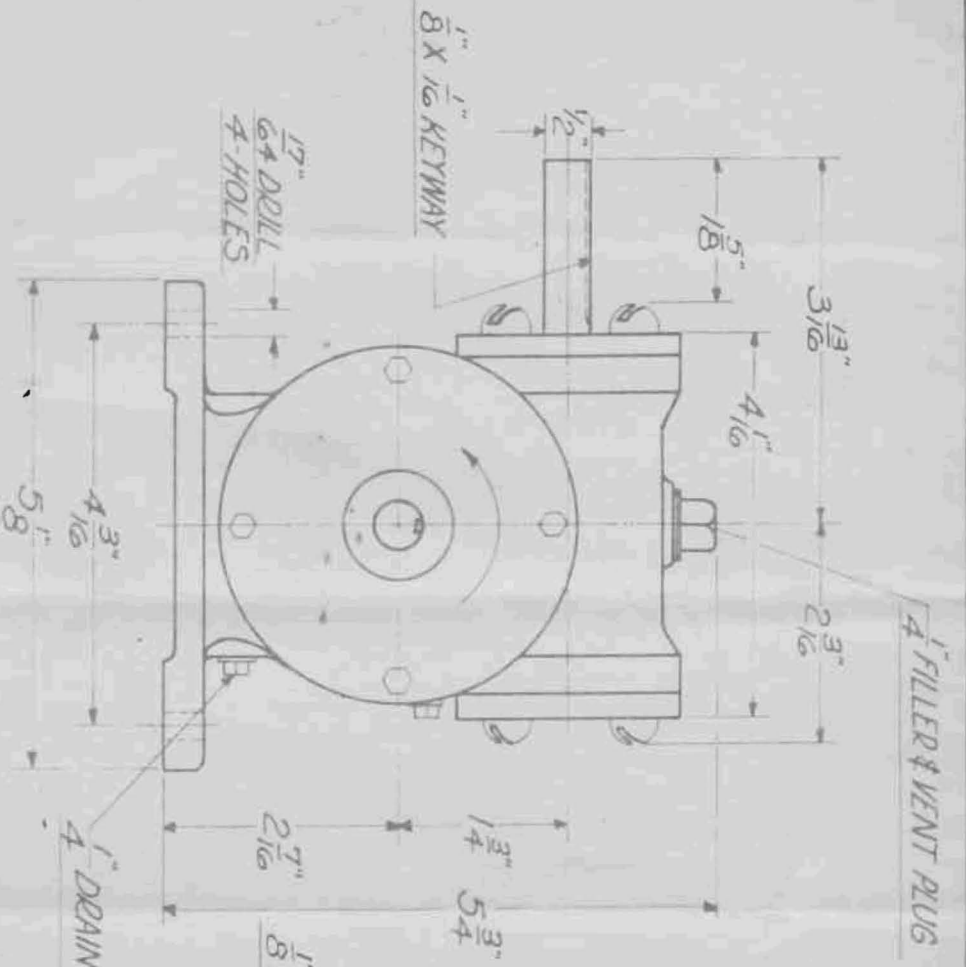
Conduit Sketch



Thus  $20 + 3 - 9 = 14$   
conduit length over 90 ft.



motor box end



ratio 15:1

SUPERSEDES DWG. B-204-2-NO DATE

**APPROVED**

CUSTOMER Wagner Eng'r.

ORDER NO. 51078

WINFIELD H. SMITH CORPORATION

DATE SEP 19 1951 BY EH HARRINGTON

WINFIELD H. SMITH CORP.  
 SPRINGVILLE, ERIE CO., N. Y.

OUTLINE ASSEMBLY "A" STANDARD UNIT

FOR NO. 2 B WORM GEAR SPEED REDUCER

DRAWN BY RCM DATE 5-24-48

CHECKED BY LHC SCALE 6"=1'

**A-204-2**