CONTENTS

DEMONSTRATION OF SNOWBLAST ROTARY SNOW REMOVAL EQUIPMENT
10 and 11 FEBRUARY 1960
CAMP HALE, COLORADO

1. INTRODUCTION
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3. EQUIPMENT DATA
4. PICTURES
5. LITERATURE
INTRODUCTION:

The demonstration to officials of the Armed Forces, Federal Agencies, State and Counties held at Camp Hale during the second week of February was a formal test of Snowblast Rotary Snow Removal Equipment. This demonstration included four different pieces of equipment - the Models R40 and R140 Snowblast Rotary Snow Plow, shown in various tests of capacity and efficiency at previous times to military, federal and state officials. The Model R-2200 arranged with the cab on the front of the rotary snow plow carrier and the power unit of the rotary snow plow carrier at the rear had also been demonstrated at previous times to the same general group of officials. The Model R-2200 Cab-On-Flow version is the newest development in the Snowblast Snow Removal Equipment line. It was shown in operation for the first time during this week.

The Cab-On-Flow Snowblast Rotary Snow Plow is consistent with our advanced engineering design to meet the needs of modern traffic both on airfields and highways. The superb operator visibility of the original R-2200 and ease of control is further improved with this new concept. The basic snow removal system of Snowblast is unchanged yet this new version takes advantage of the superior characteristics allowing practical and safe high-speed rotary snow removal work in heavy traffic and on airfields where obstructed visibility is an absolute must under the most severe circumstances of weather and wind.
The basic purpose of the demonstration was to show that the Snowblast Rotary Snow Removal System has superior abilities in snow removal work as confronts maintenance personnel responsible for continued traffic flow on roads, highways, freeways and airfields. Snowblast is outstanding because of its:

1. High-Speed Snow Removal
2. High Ton Per Horsepower Per Hour Snow Removal Capability
3. Broad Range of Snow Density Snow Removal Ability
4. Operator Visibility and Unit Control
5. Adaptability to highway and airfield terrain by efficient power application through the carrier torque convertor, transmission and the rotary snow plow two-speed remote control transmission.

Both versions of the R-2200 Model Snowblast removed all the snow to the highway surface, and in widening operations there was no spill-over. In hard snow or ice of little or great depth the double acting, hydraulic plow control, cylinders prevent ride-up of the rotary head. This means that up to 90" depths, any snow can be removed by Snowblast Rotary Snow Plows without the assistance of tractor-dozers or blasting.

These five basic characteristics were clearly demonstrated at Camp Hale to those in attendance. Mr. Whitney Borland, Lt. Col. Army Corps of Engineers, Reserve, a specialist in technical snow measurements including scientific determinations of density, shear resistance, moisture content, etc. made the official technical report which is included here.
Specifications of the equipment demonstrated are a part of this report and can be found following Mr. Borland's report.

Photographs of the Camp Hale tests are also included here.
TEST OF SNOWBLAST SNOWPLOWS

Mr. Edward F. Taylor of the American Snowblast Corporation called me and asked if I would go to Camp Hale, Colorado, on February 10 and 11, 1960, to determine snow characteristics and to make capacity tests on some snowplows that he was going to demonstrate there. On the first day of the demonstration, most of the people were from the State Highway Department or people interested in the removal of snow from streets and parking areas. On the second day, most of the people were from the Army or Air Force.

There were four snowplows shown at the demonstration. Two of them were small, being powered by a Volkswagen engine and were designed for clearing driveways, parking areas, and around filling stations. The other two plows were large, being designed for snow removal from highways and airfields. Both plows were mounted on Coleman truck chassis, with the truck being driven by a 220-hp Cummins diesel engine. The engine driving the snowplow and blower was a 320-hp Cummins diesel engine equipped with turbocharger. All plows used the "Snowblast System" (the "Robla System" in Europe) which utilizes a helical spiral cutting bar arrangement in front which drags the snow from the outside toward the center where it is picked up by the blower. The airfield snowplow had one new idea in mounting the cab above the helical spiral cutting bar and in bringing the discharge port of the blower out behind the cab. Thus, the operator of the plow had an exceedingly clear view of road or runway, inasmuch as blower discharged the snow behind him. The cab raised and lowered with the plow.

Camp Hale, Colorado, is a U. S. Army reservation, 125 miles west of Denver and 12 miles north of Leadville, Colorado. Its altitude is 9,200 feet. It is difficult to estimate the snow cover on the Pando Flats at Camp Hale because of high winds which drift the snow. All old snow is modified by wind action which accelerates curing and increases density and hardness. The depth of snow was estimated to be about 18 inches on the level. Many of the streets are plowed by the military force occupying the camp in order to keep roads open in case of fire. Some of these roads were partially drifted shut. There is a small runway on the reservation which had not been cleared and was suitable for testing purposes.

On February 10th, after demonstrating the two small plows, one of which was able to load snow into a truck, the larger plows were demonstrated along the edge of the partially cleared streets. Since the plows could not take a full cut because of the borrow pit, it was not possible to make a run to determine the capacity of the plows. The snow was very hard next to the ground because of melting along side of the road and was composed of chunks of ice. Figure 1 indicates the characteristics of the snow along the sides of the roads. It will be noted that the first 8 inches of snow has a unit weight of over 20 pcf and that the shear resistance is high.

Andre Roche has determined the correlation between the resistance obtained by the ram sonde, or penetrometer, and the shear strength of the snow. The formula expressing this correlation is:
6 = \frac{30.72R^{0.65}}{}

6: shear in pounds per square foot

R = snow resistance as given by penetrometer in kilograms

On Figure 1, the shear resistance has been computed.

On February 11, 1960, a length of the runway was prepared for testing the snowplows; 2,400 feet of the runway was measured off with a surveyor’s chain, and markers were placed every 300 feet. A V-type plow had made one pass along the centerline of the runway 2 or 3 days before. However, 3 or 4 inches of new snow had fallen since the plow had cleared the centerline. Passage of the plow increased the density of the snow, along the sides. The east side of the strip was reserved for a low-speed test. Part of the snow on the west side was removed in preparation for a high-speed test of the airfield snowplow with wings.

Two density determinations were made of the snow cover for the high-speed snowplow test, and the results of the density determinations and tests are shown on Table 1. The depth of the snow was measured at several spots and varied from 1-1/2 inches of very hard packed snow to 6 or 8 inches of reworked snow. The traffic of snowplows and cars had left ruts in the snow cover. It was estimated that the plow removed at least an average of 3 inches of snow from the runway. The airfield snowplow with wings (width = 13½ inches) averaged 13.02 miles per hour for the test reach and had a weight rate of 1,925 tons per hour, or a volume rate of 3,202 cubic feet per minute. The plow was not pushed to its utmost, and the rpm of the snowplow engine was never less than 2,000. It is estimated that the casting distance was not less than 120 feet and that it exceeded 150 feet at times. The snow was quite heavy, having a density of 0.32, or a unit weight of 20 pcf.

To test the rate of the airfield snowplow at slow speeds, the wings were removed from the plow, making its width 8 feet 6 inches. The depth of snow had been determined at the 300-foot markers at three points, one 2 feet in from the edge of the bank, the next 5 feet, and the last another 5 feet. Only two of the depths were used, inasmuch as these covered the width of snow removed. The Monte Rose snow sampler was used in an attempt to determine the density at each point. The depth was determined, however, the temperature was near freezing, and trouble was experienced with the tube clogging. The densities determined with six 500-cc snow tubes at Station 0+00 were used in determining the weight rate for the plow. Figure 2 indicates the variation of these densities. The unit weight was determined to be 14.85 pcf. A penetrometer test was taken of the snow in order to obtain the relative shear resistance of the snow. The results are shown on Figure 2.

The plow was started at the south end of the runway, and when it passed Station 0+00, the stopwatch was started. It was possible to run alongside the plow and read the stopwatch on the fly as it passed each of
the 300-foot markers. The operator stated that the average speed of travel was 3.89 miles per hour. The average weight rate of the plow for the total run was 2,128 tons per hour. Its maximum capacity, between Stations 6400 and 9400, was 2,416 tons per hour. The plow seemed to operate very well indeed, and its casting distance was almost equal to that with the high-speed run, varying from 100 to 120 feet. It is my belief that under ideal conditions with greater depth of snow, well cured and with greater density the plow will show a maximum capacity of 2,500 tons per hour or more.

The accuracy of the rates derived for the high-speed test are not too good, being in the order of plus 20 to minus 10 percent. The accuracy of the slow-speed test are of the order minus 10 to plus 5 percent. The lack of accuracy of the high-speed run is caused by not being able to accurately determine the depth of snow removed from the runway. On the low-speed run the depth of snow is quite accurate, but the density determination are based on those taken at Station 0400, since the results of densities taken with Monte Rose sampler were questionable.

Whitney M. Borland/s

2/19/60
Length of Run - 2,400 ft.

Time - 2 min. 5.6 sec. or 2.093 min.

There was 3 to 6 inches of reworked snow that had been packed by light traffic. Examination showed plow removed 3" of snow on the runway.

RPM never less than 2000

Snow Density

<table>
<thead>
<tr>
<th>Tube No.</th>
<th>Depth</th>
<th>Gross</th>
<th>Tare</th>
<th>H₂O</th>
<th>Density</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2 cm</td>
<td>578.3</td>
<td>414.3</td>
<td>164.0</td>
<td>.328</td>
</tr>
<tr>
<td>2</td>
<td>3½ cm</td>
<td>571.0</td>
<td>416.0</td>
<td>155.0</td>
<td>.310</td>
</tr>
</tbody>
</table>

Average Density .320
Unit Weight 20 lbs./cu. ft.

Width of plow with wings = 8' 6" / 2 (16) = 13½" = 11.167 ft.

Weight of snow per lin. ft. of plow travel = 11.167 x 1 x 20 x 1/4 = 56#

Total wt. of snow removed = 56 x 2400 = 134,000 lbs.

Rate

by Volume

\[
\frac{134,000}{20 \times 2.093} = 3202 \text{ cu. ft./min.}
\]

by Weight

\[
\frac{134,000 \times 60}{2000 \times 2.093} = 13.02 \text{ MPH}
\]

Weather - Partly Cloudy

Wind - N.W. 6-8 MPH

Temp. = -40 Cent.
**COMPUTATION SHEET**

<table>
<thead>
<tr>
<th>Station</th>
<th>Average Depth (Inches)</th>
<th>Cross Sectional Area (Sq.Ft)</th>
<th>Volume (Cu.Ft)</th>
<th>Time (Sec)</th>
<th>Volume Capacity (Cu.Ft/Min)</th>
<th>Weight Capacity (Tons/Hour)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0+00</td>
<td>20</td>
<td>14.16</td>
<td>4248</td>
<td>0</td>
<td>4997</td>
<td>2226</td>
</tr>
<tr>
<td>3+00</td>
<td>20</td>
<td>14.16</td>
<td>4248</td>
<td>51&quot;</td>
<td>4809</td>
<td>2142</td>
</tr>
<tr>
<td>6+00</td>
<td>20</td>
<td>14.16</td>
<td>4248</td>
<td>1' 44&quot;</td>
<td>5423</td>
<td>2416</td>
</tr>
<tr>
<td>9+00</td>
<td>19.5</td>
<td>13.78</td>
<td>4134</td>
<td>2' 31&quot;</td>
<td>4959</td>
<td>2209</td>
</tr>
<tr>
<td>12+00</td>
<td>19.75</td>
<td>13.99</td>
<td>4197</td>
<td>3' 21&quot;</td>
<td>4663</td>
<td>2077</td>
</tr>
<tr>
<td>15+00</td>
<td>19.75</td>
<td>13.99</td>
<td>4197</td>
<td>4' 15&quot;</td>
<td>4497</td>
<td>2003</td>
</tr>
<tr>
<td>18+00</td>
<td>19.25</td>
<td>13.63</td>
<td>4089</td>
<td>5' 11&quot;</td>
<td>4461</td>
<td>1987</td>
</tr>
<tr>
<td>21+00</td>
<td>19.5</td>
<td>13.78</td>
<td>4134</td>
<td>6' 6&quot;</td>
<td>4510</td>
<td>2009</td>
</tr>
<tr>
<td>24+00</td>
<td>19.5</td>
<td>13.78</td>
<td>4134</td>
<td>7' 1&quot;</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total: 33495

Average: 421

*Ave. R·M = 1800*
*Ave. Speed = 3.89 Miles Per Hour*

**DENSITY DETERMINATION**

<table>
<thead>
<tr>
<th>Tube</th>
<th>Depth (CM)</th>
<th>Gross Wt. (Gms)</th>
<th>Tare Wt. (Gms)</th>
<th>Moisture Equivalent Wt. (Gms)</th>
<th>Density</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>3</td>
<td>540.8</td>
<td>416.2</td>
<td>124.6</td>
<td>.2492</td>
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<tr>
<td>8</td>
<td>13</td>
<td>537.1</td>
<td>415.1</td>
<td>122.0</td>
<td>.2440</td>
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<tr>
<td>9</td>
<td>21</td>
<td>539.5</td>
<td>416.1</td>
<td>123.4</td>
<td>.2468</td>
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<td>10</td>
<td>30</td>
<td>531.5</td>
<td>415.2</td>
<td>116.3</td>
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<td>11</td>
<td>38</td>
<td>506.0</td>
<td>414.9</td>
<td>91.8</td>
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<td>12</td>
<td>49</td>
<td>510.7</td>
<td>414.9</td>
<td>95.8</td>
<td>.1916</td>
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<tr>
<td>Surface</td>
<td>58</td>
<td></td>
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<td></td>
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</tbody>
</table>

*Average Density by Plotting = .238 = 14.85#/ft.*

*Weather - Partly Cloudy*
*Temperature = 50° Cent.*
*Wind = N.W. 6-8 MPH*
Test of SNOWBLAST - Rotary Snow Plow
at Camp Hale, Colorado
February 11, 1960
Airfield - Unit without Wings

<table>
<thead>
<tr>
<th>Ram Resistance in kg</th>
<th>Shear Strength lbs/sq ft</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2</td>
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<td>3</td>
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</tr>
<tr>
<td>4</td>
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<tr>
<td>5</td>
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</tr>
<tr>
<td>6</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td></td>
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<tr>
<td>9</td>
<td></td>
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<tr>
<td>10</td>
<td></td>
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<tr>
<td>20</td>
<td></td>
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<td>40</td>
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<tr>
<td>60</td>
<td></td>
</tr>
<tr>
<td>80</td>
<td></td>
</tr>
<tr>
<td>100</td>
<td></td>
</tr>
<tr>
<td>120</td>
<td></td>
</tr>
<tr>
<td>25</td>
<td></td>
</tr>
<tr>
<td>in lbs  6.6</td>
<td></td>
</tr>
<tr>
<td>11.0</td>
<td></td>
</tr>
<tr>
<td>17.6</td>
<td></td>
</tr>
<tr>
<td>22.0</td>
<td></td>
</tr>
</tbody>
</table>

Snow Surface

Shear Strength

Density

Resistance

Ground

Density

Weight lbs/cu ft

0 10 15 20 25 30
Test of SNOWBLAST - Rotary Snow Plow
at Camp Hale, Colorado
February 10, 1960

Fig 1

Ram Resistance in kg

Shear Strength lbs/sq ft

44 in lbs 66 132

Snow Surface

Resistance

Density

Shear Strength

Snow Depth in inches

Weight lbs/cuft

Density .100 .200 .300 .400 .500

0 10 15 20 25 30 35
A. FLow HEAD

1. Dimensions

   Width  102"
   Height
   To top of Cutter Assembly Housing  72"
   To Top of Side Knives  108"
   Length
   From Plow Hinge Point to Cutter Assembly Front  88 1/2"

2. Weight

   Plow Assembly
   (Including Hitch and Complete Power Train without engine and Counterweight)  12,000 Lbs.

3. Engine and Power Train

   Power Unit
   Cummins Diesel
   NNT0-6-IP
   335 BHP
   Transmission
   Two-Speed Pump
   Lubricated Gear Box
   Drive Shaft
   Direct and Horizontal to center of Rotary Snow Plow Head with two Double Universal Joints

4. Controls

   Power Control:
TECHNICAL DATA

4. Controls (Con't)

Power Control: (Con't)

Transmission Shifting, Clutch Engagement, and Engine Acceleration pneumatically actuated by a SINGLE LEVER. Control System protected by positive lock-out valve.

Plow Positioning Control:

Rotary Plow Head raised or lowered through DOUBLE ACTING HYDRAULIC CYLINDERS WITH power supplied from carrier hydraulic system.

Chute Directional Control:

Positive Hydraulic Positioning through 50 Degrees either side of the vertical.

5. Plow Mechanism.

Cutter Assembly

<table>
<thead>
<tr>
<th>Diameter</th>
<th>52&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>RPM</td>
<td></td>
</tr>
<tr>
<td>Low Gear</td>
<td>130</td>
</tr>
<tr>
<td>High Gear</td>
<td>170</td>
</tr>
</tbody>
</table>

Blower

<table>
<thead>
<tr>
<th>Diameter</th>
<th>52&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>RPM</td>
<td></td>
</tr>
<tr>
<td>Low Gear</td>
<td>260</td>
</tr>
<tr>
<td>High Gear</td>
<td>340</td>
</tr>
</tbody>
</table>

B. CARRIER

COLEMAN-BUILT TO SNOWBLAST SPECIFICATIONS

1. Model.

55RE High Speed, Four-Wheel Drive, Four-Wheel Steer, with rear mounted engine.

2. General Specifications.
TECHNICAL DATA

2. General Specifications. (Con't)

Capaciting Rating  
Overall Width  
Overall Height to top of Head Light  
Inter-Axle Angle of Interference  
Wheelbase  

44,000# CWV  
96"  
122 1/2"  
135 Degrees  
145"

3. Components.

Power Unit  
Torque Converter  
Transmission  
Transfer Case  
Propeller Shafts  
Axles  

Cummins Diesel  
Model WE-220  
220 BHP  
Allison TC-574  
Allison TG-602  
Full Power Shift  
Three-Speed  
Coleman Single Speed,  
Constant Engaged  
Spicer 1700 and  
1800 Series

Axle Model 27 Heavy Duty  
Front and Rear  

Capacity  

24,000#

Brakes  
Tires  
Steering System  
Booster  

Air  
14.00 x 20, 16 Ply  
All Weather Tread  
Ross, Standard  
Hydraulic
3. Component (Con't)

Cab

Width

Windshield Wiper

High-Speed Rotary Windshield Air System

Compressor

72"

One Air

Cummins Single Piston

12 CPM

C. INTEGRATED ROTARY FLOW AND CARRIER

1. Overall Length

Approx. 31' 9"

2. Weight

37,350# 

Weight on Axles

a. Plow Raised

Front

Rear

21,800#

15,550#

b. Plow in Flowing Position

Front

Rear

18,150#

16,800

3. Operating Speed

Travel

Maximum - 45 m.p.h.

Flowing Speed

1/4 to 30 m.p.h.

4. Performance Data

Snow Removal Capacity

Up to 2200 Tons/Hour

Maximum Flowing Speed within Capacity Range

30 m.p.h.
TECHNICAL DATA

4. Performance Data (Cont'd)

Casting Distance to Point of Maximum Deposition

<table>
<thead>
<tr>
<th>Gear</th>
<th>Distance</th>
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<tbody>
<tr>
<td>Low</td>
<td>80 Ft.</td>
</tr>
<tr>
<td>High</td>
<td>110 Ft.</td>
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</table>

Clear Depth

<table>
<thead>
<tr>
<th>Condition</th>
<th>Depth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base of Flow at Ground Level</td>
<td>72&quot;</td>
</tr>
<tr>
<td>Flow Fully Raised</td>
<td>91&quot;</td>
</tr>
</tbody>
</table>

Undercut

<table>
<thead>
<tr>
<th>Condition</th>
<th>Depth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Below Travelling Surface of Carrier (with positive down pressure)</td>
<td>3&quot;</td>
</tr>
</tbody>
</table>
A. FLOW HEAD

1. Dimensions

   Width 102"

   Height

   To Top of Cutter Assembly Housing 72"

   To Top of Side Knives 96"

   Length

   From Flow Hinge point to Cutter Assembly Front 88 1/2"

2. Weight

   Flow Assembly (without cab) (Including Hitch and Complete Power Train, without engine and counterweight) 12,000 Lbs.

3. Engine and Power Train

   Power Unit

   Cummins Diesel
   MTO-6-IP
   335 BHP

   Transmission

   Two-Speed Pump
   Lubricated Gear Box

   Drive Shaft

   Direct and Horizontal to center of Rotary Snow Plow Head with two
   Double Universal Joints
4. Controls (Con't)

Power Control:

Transmission Shifting, Clutch Engagement, and Engine Acceleration pneumatically actuated by a SINGLE LEVER. CONTROL System protected by positive lock-out valve.

Flow Positioning Control:

Rotary Flow Head raised or lowered through DOUBLE ACTING HYDRAULIC CYLINDERS WITH power supplied from carrier hydraulic system.

Chute Directional Control:

Positive Hydraulic Positioning through 50 Degrees either side of the Vertical.

5. Flow Mechanism.

Cutter Assembly

Diameter

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Diameter</td>
<td>52''</td>
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</table>

RPM

<table>
<thead>
<tr>
<th>Gear</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Low</td>
<td>130</td>
</tr>
<tr>
<td>High</td>
<td>170</td>
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</tbody>
</table>

Blower

Diameter

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
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<tbody>
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<td>52''</td>
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RPM

<table>
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<tbody>
<tr>
<td>Low</td>
<td>260</td>
</tr>
<tr>
<td>High</td>
<td>340</td>
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</table>

B. CARRIER

COLEMAN-BUILT TO SNOWBLAST SPECIFICATIONS
TECHNICAL DATA

B. CARRIER (Con't)

1. Model

55RE High Speed, Four-Wheel Drive, Two-Wheel Steer, with rear mounted engine.

2. General Specifications.

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
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<tbody>
<tr>
<td>Capacity Rating</td>
<td>50,000# GVW</td>
</tr>
<tr>
<td>Overall Width</td>
<td>96&quot;</td>
</tr>
<tr>
<td>Overall Height to Top of Head Light</td>
<td>Approx. 140&quot;</td>
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<tr>
<td>Inter-Axle Angle of Interference</td>
<td>135 Degrees</td>
</tr>
<tr>
<td>Wheelbase</td>
<td>145&quot;</td>
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3. Components.

<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
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<td>Power Unit</td>
<td>Cummins Diesel Model NA-220</td>
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<td></td>
<td>220 BHP</td>
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<td>Propeller Shafts</td>
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<td>Coleman Model 17 Heavy Duty</td>
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<td>Coleman Model RL7 Heavy Duty</td>
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<td>Rear Capacity</td>
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TECHNICAL DATA

3. Components. (Con't)

<table>
<thead>
<tr>
<th>Component</th>
<th>Specification</th>
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<tbody>
<tr>
<td>Brakes</td>
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<tr>
<td>Tires</td>
<td>14.00 x 20, 16 Ply</td>
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<tr>
<td>Steer. System</td>
<td>All Weather Tread</td>
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<tr>
<td>Booster</td>
<td>Rosas, Standard</td>
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<td>Cab</td>
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<td>72&quot;</td>
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<tr>
<td>Windshield Wiper</td>
<td>One Air</td>
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<tr>
<td>High-Speed Rotary Windshield</td>
<td>One</td>
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<tr>
<td>Air System</td>
<td>Cummins Single Piston 12 CFPM</td>
</tr>
</tbody>
</table>

C. INTEGRATED ROTARY PLOW AND CARRIER

1. Overall Length
   Approx. 32 Ft. 10 In.

2. Weight
   Weight on Axles
   a. Plow Raised
      Front: 23,000#  Rear: 18,200#
   b. Plow in Plowing Position
      Front: 19,000#  Rear: 18,200#

3. Operating Speed
   Travel: Maximum - 45 m.p.h.
   Plowing Speed: 1/4 to 30 m.p.h.
MODEL R-2200
AIRPORT DEMONSTRATOR UNIT

TECHNICAL DATA

4. Performance Data

Snow Removal Capacity

Maximum Flowing Speed within Capacity Range

Casting Distance to Point of Maximum Deposition

Low Gear

High Gear

Casting Depth

Base of Flow at Ground Level

Flow Fully Raised

Undercut

Below Travelling Surface of Carrier (with positive down pressure)

Up to 2200 Tons/ Hour

30 m.p.h.

80 Ft.

110 Ft.

75"

90"

3"
General

2 Wheel Vehicle or
2 Tracks - Extra
2 Wheel Steering (Clutch)
2 Wheel Driving
Total Weight - 1800 lbs.
" ", - 2000 lbs. with tracks
Length - 120"
Width - 42"
Height without Loading chute - 58"
Height with Loading chute - 104"
4 Speed Forward:
  1st Gear - 1/4 m/hr
  2nd Gear - 1/2 m/hr
  3rd Gear - 3/4 m/hr
  4th Gear - 2-1/4 - 4 m/hr
1 Speed Reverse - 1-1/2 m/hr

Snow Removal

Width of cut - 40"
Height of cut - 36"
Casting distance up to - 75'
Casting height up to - 30'
Capacity, depending on weight of snow - from 100 tons/hr (light snow) to 200 tons/hr (heavy snow)
Diameter of cutters - 33"
Diameter of impeller - 20"
Cutter RPM, high gear - 165 (shear pin protected)
" low gear - 95 " 
Impeller RPM, high gear - 700
" low gear - 400
Manually operated discharge chute
Loading & casting chute - 360° (Extra)

Power Unit

VW Engine, 4 cylinder, 4 cycle, gas
25 HP at 3,000 RPM
Max. torque: 48 ft/lbs at 2,000 RPM
Electric Starter
  Fuel tank - 10 gallons
Fuel consumption - 1-1/4 gal/hr
SNOWBLAST
Model R-140

Specifications

General
4 Wheel Vehicle
2 Wheel Steering (Hydraulic)
2 Wheel Driving
Total Weight - 2,500 lbs.
Length - 120"
Width - 42"
Height, without Loading Chute - 90"
Height, with Loading Chute - 104"

4 Speed Forward:
1st Gear - 1/4 m/hr
2nd Gear - 1/2 m/hr
3rd Gear - 3/4 m/hr
4th Gear - 2-1/4 - 4 m/hr
1 Speed Reverse - 1-1/2 m/hr

Snow Removal
Width of cut - 40"
Height of cut - 36"
Casting distance up to - 75'
Casting height up to - 30'
Capacity, depending on weight of snow:
from 100 tons/hr (light snow) to 200 tons/hr (heavy snow)
Diameter of cutters - 33"
Diameter of impeller - 20"
Cutter RPM, high gear - 165 (shear pin protected)
" " , low gear - 95 " " "
Impeller RPM, high gear - 700
" " , low gear - 400

Hydraulically operated discharge chute.
Elevation of snow plow hydraulically controlled.
Loading & casting chute - 360° (Extra)

Power Unit
VW Engine, 4 cylinder, 4 cycle, gas.
25 HP at 3,000 RPM
Max. torque: 48 ft/lbs. at 2,000 RPM
Electric Starter
Fuel Tank - 10 gallons
Fuel Consumption - 1-1/4 gal/hr.
WHITNEY BORLAND, LT. COL., U. S.
ARMY CORPS OF ENGINEERS, RESERVE

TAKING SNOW MEASUREMENTS,
CAMP HALE, COLORADO
Snowblast R-4500L, mounted on a Michigan 380, Series III tractor dozer, cutting a fourteen foot wide swath through a seven foot deep drift in Rocky Mountain National Park, Colorado. Elevation: Approximately 12,000 feet.
SPECIAL ATTACHMENTS
... give year around utility to your SNOWBLAST units.

LOADING CHUTE
The Snowblast Loading Chute is ideal for truck loading or spot casting. Mounted on the casting outlet, the chute channels the snow to trucks driving alongside. An adjustable hood controls the angle of discharge. The attachment, in position, is 8" 8" above ground level.

ROTARY BRUSH *

The problem of cleaning ice rinks, or sweeping light snow in winter to fast power sweeping of walks, drives, docks, parking or other areas in summer is greatly simplified with the Snowblast Rotary Power brush. This attachment with water tank and jets for dust suppression may be substituted for the rotary snow removal unit in a few minutes time and greatly facilitates the cleaning of large areas of dirt or debris with one sweep.

DOZER BLADE *

SNOWBLAST units may be equipped with an adjustable dozer blade. This blade can be positioned for displacement left, right or straight ahead as may be required. It is quickly and easily attached or removed, increasing the usefulness of the equipment.

SNOWBLAST Walking and Riding units are specifically engineered for faster, simple handling of snow problems. They are industrial tools, exclusive in their field and assure highest efficiency in the operations for which they are specifically designed.

SNOWBLAST HIGH SPEED HIGHWAY ROTARY

Model R-2200

The SNOWBLAST Highway Rotary and carrier are of integrated design for maximum performance in ALL snow conditions. The rotary power train and power unit are engineered with the carrier vehicle for balance, highway stability, speed, operator control and visibility.

The rotary head is powered through a two speed transmission making possible plowing speeds from 1/2 mph to 30 mph. This exclusive SNOWBLAST feature assures optimum power utilization.

This snow removal equipment has a capacity of up to 2,200 tons per hour and a casting distance of 110 feet. It is today's most advanced method for moving large quantities of snow from highways, freeways and airports.

Complete details on Snowblast Rotary Equipment are available from American Snowblast Corporation or the nearest authorized representative.

Available for immediate delivery

AMERICAN SNOWBLAST CORPORATION
1227 SHOSHONE ST.          DENVER 4, COLORADO
AComa 2-3636
SNOWBLAST MODEL R-40

This 2-wheel drive unit is specifically designed for areas which can be covered by a walking operator. The forward speeds— from ¼ to 4 mph permit the operator to choose the most efficient speed depending on the type or kind of snow to be removed or the area to be covered.

The R-40 is the most efficient snow removal unit of its size available. It is outstanding in that it:

- Handles ALL types of snow—light, heavy, packed or icy—without compaction or clogging.
- Cleans a 40’ wide path to bare ground in snow up to 3’ deep.
- Casts up to 75’ distance—or 30’ high—or loads 5 cu. yd. Trucks in 3 minutes.
- Combines reliable power, positive traction and greatest economy for fast, efficient operations.

Here is the unit anyone can operate efficiently and easily; saves time and manpower wherever snow creates obstacles to foot or vehicular traffic.

VEHICLE SPECIFICATIONS

(See general specifications at right for other details)

2—Wheels (Tracks in place of wheels optional)
2—Wheel Steering (clutch) 2—Wheel Driving
Total Weight—1,800 lbs. (with tracks, 2,000 lbs)
Length—120”, Width—42” Height—58”
Height with loading chute (see attachments) 104”

MODEL R-140 SNOWBLAST

(Riding Model with heated Cab)

The Model R-140 is a heavier model utilizing the same snow removal unit as the R-40. It is specifically recommended for:

- Larger areas not efficiently covered by an operator on foot.
- Continuous operations during prolonged snow fall in extremely cold weather.
- Greater operator comfort and convenience.

With its capacity of up to 150 tons per hour, the R-140 with one operator can remove more snow than 100 men with shovels. The rotary head positioning, direction of casting and steering are all hydraulically controlled from the cab interior.

This unit is particularly adapted to snow removal in small communities, at airports, railroad station or other passenger loading areas; for clubs, resorts or other institutions where, or when snow creates a continuing hazard to service functions or industrial activity.

Both units, through the use of attachments illustrated elsewhere in this folder, give you year around utility.

VEHICLE SPECIFICATIONS

(See general specifications at right for other details)

4—Wheel Vehicle
2—Wheel Driving 2—Wheel Steering (hydraulic)
Total Weight—3,000 lbs.
Height (with cab)—90” Width—42” Length—120”
Height (with loading chute)—104”

SPECIFICATIONS

SNOW REMOVAL UNIT

Helically shaped, rotary cutter blades separate the snow and throw it to the blower opening at the rear of the cutter chamber. The blower, casts the snow to left or right as desired. This scientific process handles ANY type of snow—light powder snow, heavy, wet snow or snow which has packed density or icy characteristics.

Specifications include:

- Width of Cut—40”
- Height of Cut—36”
- Casting Distance up to 75”
- Casting Height up to 30”
- Capacity: Light Snow up to 100 tons per hr.
  Heavy Snow up to 150 tons per hr.
- Diameter of Impeller: 20”
- Cutter RPM High Gear: 145
- Cutter RPM Low Gear: 95
- Impeller RPM—High Gear—700
- Impeller RPM—Low Gear—400
- Cutter mechanism protected by shear pins

POWER UNIT

Volkswagen Engine—4 cyl., 4-cycle, gas
25 HP @ 3,000 RPM
Max. Torque—48 ft/1b @ 2,000 RPM
Electric Starter
Fuel Tank—10 Gallons
Fuel Consumption—approx. 1½ gals per hr.

SPEEDS

4 Speed Forward
1st Gear—¼ MPH
2nd Gear—½ MPH
3rd Gear—¾ MPH
4th Gear—2¼ to 4 MPH
1 Speed Reverse
1½ MPH
All purpose full rotary equipment utilizing the newest, proven method for the faster, more efficient removal of all types of snow and ice from

- HIGHWAYS
- AIRFIELDS
- INDUSTRIAL and
- DEFENSE INSTALLATIONS

AMERICAN SNOWBLAST CORPORATION
1237 SHOSHONE STREET • DENVER 4, COLORADO
AComa 2-3636 • Cable - Snowblast
The Snowblast System,
A Product of Research and Experience

The SNOWBLAST rotary system of snow removal, which is based on the thoroughly tested and proven Swiss Rolba design, has a background of 14 years of outstandingly successful operation. The design owes its exceptional efficiency, versatility, and economy to years of painstaking, scientific research into the physical properties of snow in every conceivable form.

The SNOWBLAST Rotary Plow operates in two stages:

FIRST: the snow is separated and gathered by means of rotating cutter blades of special helical design, which propel the flow of snow in a direct line toward the impeller housing at accelerated speed thus preventing turbulence and clogging;

THEN, the snow is fed through the impeller, which operates at approximately twice the speed of the cutters, and accelerated to the velocity necessary for effective casting over distances of up to 110 feet from the chute.

SNOWBLAST Rotary Plows are equipped with a two-speed transmission, allowing the operator to vary his approach in accordance with the density of the snow. Low gear provides maximum horsepower for the rotating cutter assembly and somewhat reduced speed and casting range; it is perfect for coping with dense, hard-packed snow. In less difficult snow conditions, the SNOWBLAST Rotary Plow is most effective in high gear, in which it easily attains speeds of up to 30 m.p.h. and casting ranges up to 110 feet.

SNOWBLAST equipment is of rugged, simple design to ensure the utmost efficiency and reliability at the lowest cost. The machine is operated from the driver’s cab by a single lever, which controls the air clutch, two-speed transmission, and engine throttle by means of pneumatic valves and air pistons. Running the SNOWBLAST Rotary Plow is a smooth and simple one-man operation.

VERSATILITY AND EFFICIENCY BEYOND COMPARE

The SNOWBLAST system makes for unprecedented versatility. Any snow, no matter how wet and heavy it may be, will move through the machine without clogging or stalling the engine. New, loose snow is handled with the same efficiency as old, densely packed snow and icy windrows. The heavy duty cutter assembly, which can be depressed up to 3” below the surface on which the plow-carrier is traveling, easily cuts away ice and traffic-compacted snow.

The SNOWBLAST Rotary Plow is capable of moving 2,200 tons of snow per hour. Although the capacity will vary with snow conditions, the efficiency of the machine will remain outstanding.

The SNOWBLAST system assures the effective application of all available power to the job at hand. This is achieved by the clog-free rotary design and by the two-speed transmission, which permits the operator to vary the ratio between cutting power, speed, and casting range for optimum performance. These characteristics enable SNOWBLAST to outperform all other equipment, whether it is sweeping along a snowed-in highway at high speed, or cutting through an avalanche, or clearing a runway in record time.

SNOWBLAST’s excellent record for efficiency and economy is due, to a large extent, to the principle of selective application of power, which reduces wasted effort to an absolute minimum. Other factors that contribute to this record are:

1. The SNOWBLAST system requires relatively less powerful engines for both the carrier and the snow removal unit, since its rotary plow’s full working front does not depend on maximum truck traction to deflect or doze snow into the cutter and snow-gathering mechanism.

2. SNOWBLAST’s high speed removal of fresh snow eliminates the necessity of secondary windrow snow removal.

3. SNOWBLAST’s wide operational range in all types of snow, regardless of depth and density, makes it a multiple-purpose piece of equipment.

In short, SNOWBLAST Rotary Plows offer more snow removal capacity per dollar invested than any other available equipment.

REMOVING WINDROWS. High density windrows are removed swiftly with SNOWBLAST equipment. Snow up to 6’ deep is removed to bare road surface in one pass.
SPECIFICATIONS • MODEL R-2200

DIMENSIONS
Width ........................................................................ 102"
Height: To Top of Cutter Assembly Housing .......... 72"
To Top of Side Knives ........................................... 108"
Length:
From Plow Hinge Point to Cutter Assembly Front .... 92"

WEIGHT
Plow Assembly incl. Hitch and complete Power
Train (without engine and counterweight) ......... 12,000 lbs.

PERFORMANCE DATA
Snow Removal Capacity ............................................. Up to 2200 Tons/Hr
Maximum Plowing Speed within Capacity Range .. 30 MPH
Casting Distance to Point of Maximum Deposition:
Low Gear .......................................................... 80 Ft.
High Gear ......................................................... 110 Ft.
Clearing Depth:
Base of Plow at Ground Level ......................... 72 inches
Plow Fully Raised ............................................ 91 inches
Undercut:
Below Traveling Surface of Carrier
(with positive down pressure) .......................... 3 inches

ENGINE AND POWER TRAIN
Power Unit:
Minimum net intermittent rating at altitude of operation ........................................ 220 HP
Transmission:
Two-Speed, Pump Lubricated Gear Box
Drive Shaft:
Direct and Horizontal to Center of Rotary Snow Plow Head with Two Double Universal Joints
Plow Mechanism protected by Shear Pins in both Impeller and Cutter Assemblies

CONTROLS
Power Control:
Transmission Shifting, Clutch Engagement, and Engine Acceleration pneumatically actuated by a single lever. Control System protected by positive lock out valve.

Plow Positioning Control:
Rotary Plow Head raised or lowered through double acting hydraulic cylinders with power supplied from carrier hydraulic system.

Chute Directional Control:
Positive Hydraulic Positioning through 50 degrees either side of the Vertical.

CARRIER OR TRUCK

RECOMMENDED SPECIFICATIONS
G.V.W. Rating (Minimum) .................. 34,000 to 36,000 lbs.
Front Axle:
Load Rating .................................................. 21,000 lbs.
Differential Setting: Off-Center (Minimum) ........6-8 inches
Power Unit:
Minimum Net Intermittent Rating at Altitude of Operation ........................................ 170 HP
Speed:
Minimum .................................................. Approx. 1/2 MPH
Maximum (Plowing) ..................................... 30 MPH

SNOWBLAST ROTARY PLOW WITH CARRIER — an integrated design. With its cab placed close to the plow for better visibility, its equal distribution of weight on the front and rear axles for easier handling, and its ready accessibility to all parts for quick maintenance and repair, this unit is ideal for highway clearance.

Snowblast Highway Rotary Plow with Carrier

The integrated rotary plow and carrier is specifically designed for the most effective clearance of highways. It is fast, versatile, durable, efficient, and safe. Operation and maintenance are easy and simple.

In addition to the outstanding characteristics of the SNOWBLAST Model R-2200, the integrated model offers the following advantages:

1. Speed.
   Fast and thorough snow removal, at speeds of up to 30 m.p.h., leaving the highway clear and safe for traffic.

2. Safety.
   The cab is in front and above the plow, where the work is. Visibility is greatly improved.

   The carrier power unit overhangs the rear wheels, balancing the entire load equally on the two axles when plow is in operating position. This ensures excellent traction and turning control.

4. Ease of Operation.
   The operator controls the rotary unit by means of a single lever, and the carrier transmission by a dash-mounted lever which actuates a simple, 3-speed, full-power shift. There is no clutch and no transfer shift. The unit is designed to be operated by one man.

5. Ease of Maintenance.
   All working parts are easily accessible from the ground or from the cab-level, full length catwalks. There are no obstructing running boards or conventional fenders. Drive shafts and transmissions do not crowd the front area. The rotary power unit and transmission are skid-mounted and are easily lifted as a unit from the vehicle.

This is a modern highway maintenance machine of the greatest possible utility. It is effective not only in emergencies that are beyond the capacity of the old displacement plow, but in every imaginable snow condition. Whatever the highway snow problem, this SNOWBLAST rotary plow will solve it faster, cheaper, and more effectively.
ALSO AVAILABLE:

UTILITY SNOWBLAST ROTARY UNITS
for INDUSTRIAL, COMMUNITY AND RESORT USE

SNOWBLAST MODEL R-40

This 2-wheel drive unit is specifically designed for areas which can be covered by a walking operator. The forward speeds—from ¼ to 4 mph permit the operator to choose the most efficient speed depending on the type or kind of snow to be removed or the area to be covered.

The R-40 is the most efficient snow removal unit of its size available. It is outstanding in that it:

- Handles ALL types of snow—light, heavy, packed or icy—without compaction or clogging.
- Cleans a 40" wide path to bare ground in snow up to 3' deep.
- Casts up to 75' distance—or 30' high—or loads 5 cu. yd. trucks in 3 minutes.
- Combines reliable power, positive traction and greatest economy for fast, efficient operations.

Here are Rotary Snow Plows anyone can operate easily and efficiently.

SNOWBLAST MODEL R-140
(Riding Model with heated Cab)

The Model R-140 is a heavier model utilizing the same snow removal unit as the R-40. It is specifically recommended for:

- Larger areas not efficiently covered by an operator on foot.
- Continuous operations during prolonged snow fall in extremely cold weather.
- Greater operator comfort and convenience.

With its capacity of up to 150 tons per hour, the R-140 with one operator can remove more snow than 100 men with shovels. The rotary head positioning, direction of casting and steering are all hydraulically controlled from the cab interior.

This unit is particularly adapted to snow removal in small communities, at airports, railroad stations or other passenger loading areas; for clubs, resorts or other institutions where or when snow creates a continuing hazard to service functions or industrial activity.

Complete details on Snowblast Rotary Equipment are available from American Snowblast Corporation or the nearest authorized representative.
Self-Propelled Snow Clearing Machines

Two new Rolba self-propelled snow clearing machines have recently been introduced to this country by Rolba Ltd., Charlewoods Road, East Grinstead, Sussex. The R400, below left, is suitable for town and country use whilst the R1500 (below right) is for use on motorways and airports.

The Rolba R400 is a single-purpose snow clearing machine and is similar in size to the well-known Rolba-Unimog but contains several unique features. For example, it is possible to tilt the rotary snow clearing head through an angle of 12 degrees either to the right or the left in order to follow road camber; the choice of a hydrostatic transmission providing stepless ratio change within a speed range of 0-21 m.p.h.; and finally the weight of the snow clearing head is now supported by a solid front axle with steering being effected by the rear wheels. The turning circle is 32ft diameter. The R400 is powered by the Deutz air-cooled diesel engine which produces 80 b.h.p. at 2200 r.p.m. and drives all four wheels; the engine also provides power for the rotary plough head which can deal with 600 ton/hr or about 6 000m² of light snow. Power distribution is of the order of 75 b.h.p. (max) for the plough drive and 25 b.h.p. (max) for vehicle drive.

Both the R400 and the R1500 feature the Rolba snow clearing head designed to deal with snow clearing in two stages. Firstly, the snow is separated and gathered by means of rotating cutter blades of helical design. These propel the snow particles in a direct line towards the impeller or blower at an accelerated rate to avoid clogging and compaction. Secondly the snow is taken by the impeller, which operates at twice the speed of the helical cutters, and is further accelerated up to a velocity necessary for effective casting over distances of 60ft.

The snow clearing capacity of the larger R1500 is 1 500 ton/hour at casting distances of between 65ft and 100ft. As the illustration shows, the R1500 is of the cab-on-plough design and like the smaller R400 has four wheel drive and rear wheel steering. The vehicle is provided with seven forward and reverse ratios giving travelling speeds between 1 m.p.h. and 20 m.p.h. Power is provided by a six-cylinder air-cooled Deutz diesel engine (145 b.h.p.) for vehicle drive and a twelve-cylinder air-cooled Deutz diesel (230 b.h.p.) for the plough drive. For those requiring it, British diesels can be specified, for example the Rolls-Royce C4NFL four-cylinder diesel giving 140 b.h.p. at 2100 r.p.m. (vehicle drive) and the Rolls-Royce C6NFL six-cylinder diesel giving 210 b.h.p. at 2100 r.p.m. (plough drive).

The clearing capacities of both machines are given in the Table below.

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<thead>
<tr>
<th></th>
<th>R400</th>
<th>R1500</th>
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</thead>
<tbody>
<tr>
<td>Clearing width</td>
<td>5ft 3in</td>
<td>8ft to 10ft</td>
</tr>
<tr>
<td>Clearing depth</td>
<td>4ft to 5ft 6in</td>
<td>5ft 7in to 6ft 7in</td>
</tr>
<tr>
<td>Casting distance:</td>
<td>65ft</td>
<td>100ft</td>
</tr>
<tr>
<td>Long</td>
<td>72ft</td>
<td>100ft</td>
</tr>
<tr>
<td>Short</td>
<td>50ft</td>
<td>65ft</td>
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</tbody>
</table>

Reply Card No. 7855
FIRST SHOWING OF THE SNOWBLAST R-4500L

Partial List of Guests

EDWARD R. BACON COMPANY
San Francisco, California
G. G. Curto

CANADIAN COMMERCIAL CORPORATION
Ottawa, Ontario
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Assistant Project Manager, CEPE/MSE
S/L E. J. Kuffner, RCAF

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Whitehorse, Yukon.

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CITY AND COUNTY OF DENVER
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Glendive, Montana

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SOUTHERN PACIFIC RAILWAY COMPANY

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Trainmaster
Truckee, California

H. F. Dully, Assistant Engineer,
Maintenance of Way and Structures
San Francisco, California

James C. Mahon
Roadmaster
Truckee, California

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New York, New York

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Plant and Structures Division
John F. Kennedy International Airport

Frederick H. Flagg
Assistant to the Chief
Aeronautical Services Division
UNION PACIFIC RAILROAD COMPANY  
Omaha, Nebraska  

V. M. Emal  
General Supervisor of Work Equipment  

W. D. Turley  
Engineer, Motive Power Design  

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Systems Command  
Andrews Air Force Base  
Washington, D. C.  

Andrew J. Price  
Maintenance Division  
Directorate of Civil Engineering  
Washington, D. C.  

CMSgt. Fred M. Taylor  
Strategic Air Command  
Offut Air Force Base, Nebraska  

Major John M. Winskie  
Strategic Air Command  
Offut Air Force Base, Nebraska  

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Engineering Research and Development Laboratory  
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L. David Minsk  
Cold Regions Research and Engineering Laboratory  
Hanover, New Hampshire  

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Richard E. Allgire  

UNIFIED STATES DEPARTMENT OF THE INTERIOR  

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National Park Service  
Omaha, Nebraska  

Whitney M. Borland  
Bureau of Reclamation  
Denver, Colorado
FIRST SHOWING OF THE SNOWBLAST R-4500L

Schedule

7:30 a.m.  Departure of busses from Brown Palace Hotel.

9:15  Arrival at Hidden Valley Ski Lodge in Rocky Mountain National Park.

9:15 - 10:00  Welcome and introductory remarks by Walter O. Lampl, President of American Snowblast Corporation. Showing of brief Snowblast film. Coffee and doughnuts will be available.

10:00 - 10:10  Drive to location where Snowblast R-4500L is parked.

10:10 - 10:50  Inspection of the machine.

10:50 - 11:00  Return to Hidden Valley Ski Lodge.

11:00 - 11:40  Questions and answers about the Snowblast R-4500L.

11:40 - 12:00  Talk by Rocky Mountain National Park naturalist.

12:00 - 1:00  Box lunch.

1:00 - 1:30  Drive to site of snow removal operations.

1:30 - 2:30  Observation of the R-4500L in action.

2:30 - 3:00  Return to Hidden Valley Ski Lodge.

3:00 - 3:45  Questions and answers. Coffee and doughnuts will be available.

3:45  Departure.

5:15  Arrival at Brown Palace Hotel.

7:00  Cocktails, Onyx Room, Brown Palace Hotel (Mezzanine of the main building.)

8:00  Dinner.
THE SNOWBLAST R-4500L

First Showing

PRELIMINARY INFORMATION SHEET

DATE: Thursday, May 5, 1966

SITE: Rocky Mountain National Park, approximately 75 miles northwest of Denver.

TRANSPORTATION: Snowblast will provide a bus leaving Denver at 7:30 a.m. on May 5 for Rocky Mountain National Park, and returning to Denver the same evening at about 6 p.m.

The Snowblast bus will be drawn up in front of the Brown Palace Hotel on Tremont Street, ready for boarding between 7 and 7:30 a.m. on the day of the showing.

LUNCH: Lunch will be provided by American Snowblast at the site.

CAUTION: It may still be quite cold in the high country in early May, and it is certainly likely to be slushy underfoot. Please keep this in mind when you choose the clothing and footwear that you will bring. Sunglasses are also strongly advised to guard against the possible danger of snowblindness.

April 15, 1966
# THE SNOWBLAST R-4500L

## TECHNICAL INFORMATION

### PERFORMANCE DATA

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Snow removal capacity</td>
<td>Up to 4500 tons/hour.</td>
</tr>
<tr>
<td>Snow removal speed range</td>
<td>0 to 28 mph.</td>
</tr>
<tr>
<td>Cutting width</td>
<td>14' 0&quot;</td>
</tr>
<tr>
<td>Clearing depth (head lowered)</td>
<td>6' 0&quot;</td>
</tr>
<tr>
<td>Clearing depth (head raised)</td>
<td>12' 0&quot;</td>
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</tbody>
</table>

### TECHNICAL DATA

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length (overall)</td>
<td>Approximately 35'5&quot;</td>
</tr>
<tr>
<td>Width (overall)</td>
<td>14'</td>
</tr>
<tr>
<td>Height (overall)</td>
<td>13' 8&quot;</td>
</tr>
<tr>
<td>Weight - total</td>
<td>Approximately 125,000 lbs.</td>
</tr>
<tr>
<td>Wheel base</td>
<td>130&quot;</td>
</tr>
</tbody>
</table>

### TWIN ROTARY

- Snow handling system
- Engines: Two-stage - patented Snowblast system, Two Cummins NT-335, turbo-charged diesel engines, 335 bhp @ 2100 rpm each.

### CARRIER

- Make: Michigan Tractor Dozer 380
- Model: 12V-71N, 12 cylinder 430 governed hp.
- Engine Transmission: Clark power shift, eight speeds forward, four speeds reverse.

### TIRES

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
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</thead>
<tbody>
<tr>
<td>Tread front</td>
<td>8' 10&quot;</td>
</tr>
<tr>
<td>Tread rear</td>
<td>9' 4&quot;</td>
</tr>
<tr>
<td>Diameter</td>
<td>87.6&quot;</td>
</tr>
<tr>
<td>Width</td>
<td>33-1/3&quot;</td>
</tr>
</tbody>
</table>
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