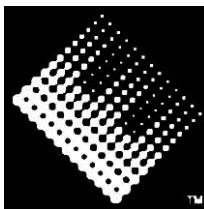
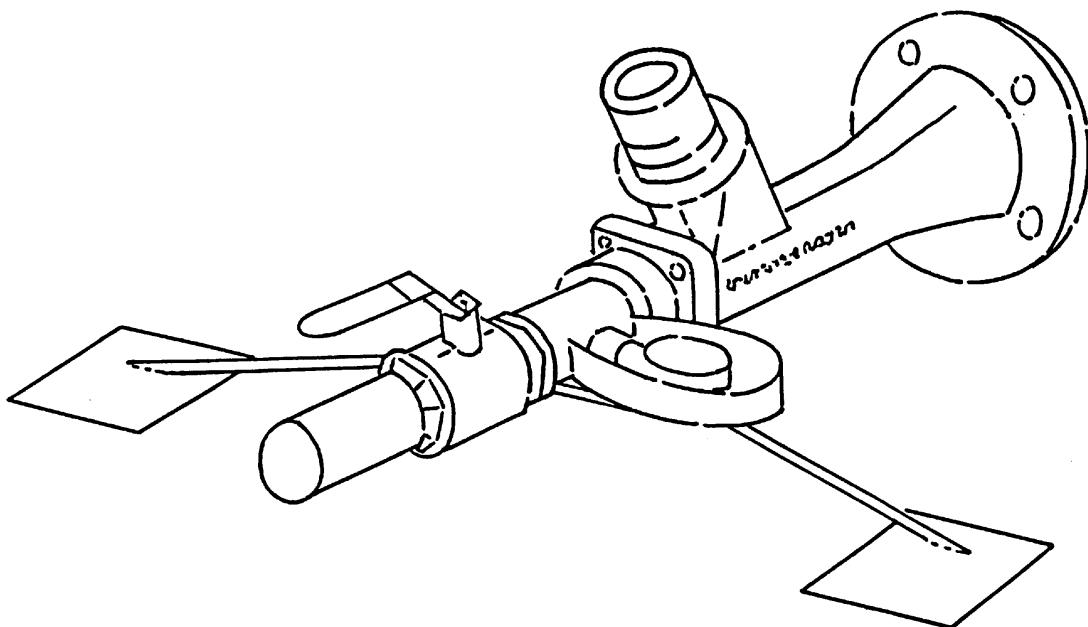


# Vacutrans® Instructions



**EMPIRE ABRASIVE EQUIPMENT COMPANY**

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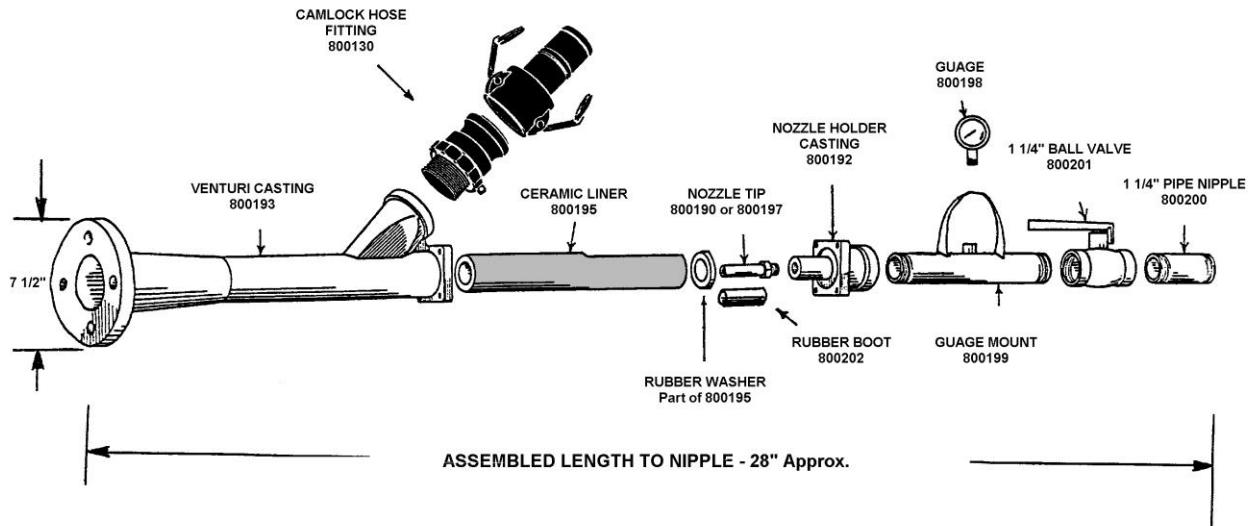
## ASSEMBLY DETAIL

Your Vacutrans® unit has been shipped almost completely assembled. The box contains:

1. 1ea. Vacutrans® body assembly
2. 1ea. Ball valve / gauge assembly
3. 1ea. Camlock set for 2" hose
4. 1ea. Optional mounting stand

To make your unit operational you must thread the camlock hose fitting into the vacuum port, thread the ball valve / gauge assembly into the Vacutrans® body assembly and attach the optional mounting stand to the unit (if desired).

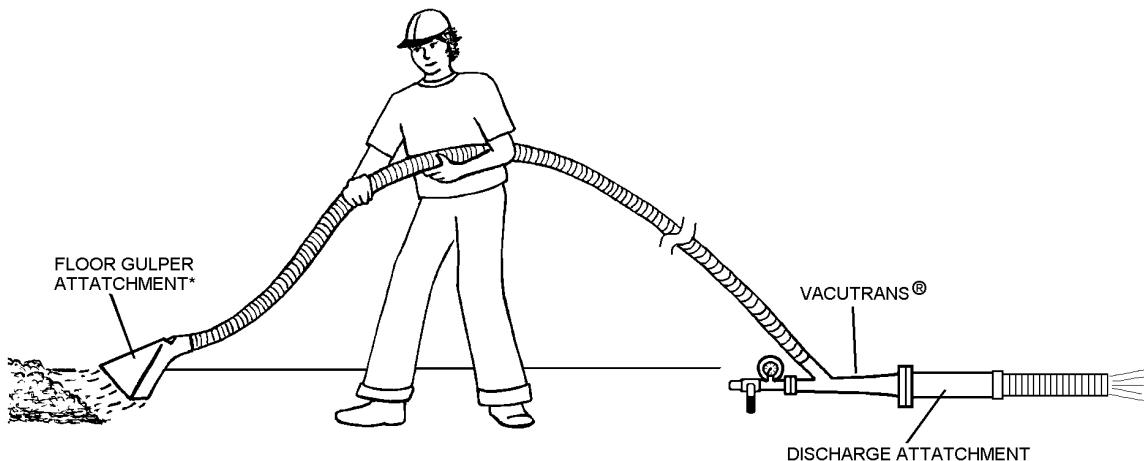
## VACUTRANS ASSEMBLY DETAIL



## GENERAL

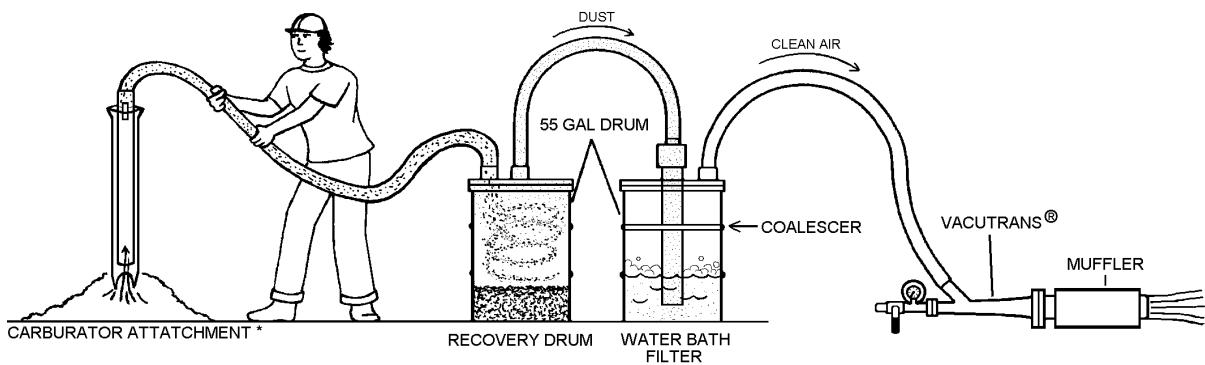
*Vacutrans®* has been designed to be an easy to use tool. By understanding two simple setups, you can discover an endless number of applications for your vacuum tool.

The first setup method is the Direct Transfer Mode. In this mode, material is actually pulled into the *Vacutrans®* under vacuum and discharged out of the *Vacutrans®* under pressure.



For Direct Transfer Mode, where the discharge material need not be controlled, attach a vacuum hose to the 2" vacuum port on the *Vacutrans®* and the material will be pulled into the unit and discharged out the exhaust end. When material must be moved some distance and then deposited in a specific place such as a truck, bin or pile, discharge hose can be connected to the flanged end of the *Vacutrans®* using the Discharge Hose Attachment accessory. Hose with less than 3" diameter should not be used. It is important to minimize bends, ups and downs. It is also easier to push a long distance rather than pull. For example, when moving material 100', it is better to pull (vacuum) 20' and push 80' instead of pull 80' and push 20'. Generally, material being discharged from the unit is at a fairly high velocity, so care must be given to potential for abrasion and the lack of control for dust created by the material movement.

The second basic setup method is the Drum Transfer Mode. When material must be controlled or saved, a vacuum hose is attached between the *Vacutrans®* and the container to be filled and another hose runs from the container to the material being picked up.



Because a vacuum is pulled on the container, it is important there be no air leaks and that a good seal be maintained between the transfer lid and the container. The pickup hose is always attached to the outside port of the container lid, the vacuum hose from the *Vacutrans®* unit to the center port. Unlike the direct transfer mode, it is possible to add dust and noise control in the drum transfer mode. Vacuum can be pulled on a 55 gallon drum, or any other container of your choice, provided it is properly modified.

Material must visually flow for *Vacutrans®* to perform satisfactorily in either of the above configurations. A simple, quick check is to take a handful of the product and compress it in your grip. If, when your grip is released, the material will not flow through your fingers, it will probably not move effectively by any vacuum. In addition, if the material has no natural slope (i.e. flour consistency vs granular sugar consistency) and will not flow to the tool at the pickup point – it will move fine once entrained in the air stream but will probably need to be agitated at the pickup point in order to keep the flow constant.

## **Vacutrans® OPERATING INSTRUCTIONS**

You have purchased an air-driven vacuum tool that will give you uninterrupted service with only the following precautions and details:

1. Compressed air is the power supply, so attention to the quantity and pressure of the input compressed air is important. When dealing with material in the 100 lb. / cu. ft. range or heavier, 200 cubic feet per minute (cfm) at 100 pounds per square inch (psi) of compressed air is required to maintain maximum performance. Lighter material requires less pressure and quantity of compressed air, but a gauge reading below 60 psi is a practical lower limit. Refer to the CFM/PSI Chart in the back of the instructions.
2. *Optional Nozzle* – reduced compressed air requirement  
A specially designed Vacutrans® nozzle is available and operates on *half* the compressed air supply (100 cfm). Caution is urged before using in moving bulk material. While the compressed air volume required for operation is half, the induced vacuum airflow is kept equal to the larger nozzle but there is less vacuum pressure (suction). In many cases with light weight material, production rates will be virtually unchanged, however, with less pressure, line clogs will clear slower, and work rates will be reduced. In the case of heavy material, the lifting power may be marginal.
3. Compressed air supply line size is also important to take full advantage of the compressor output. We recommend a minimum 1½" air supply line. If you are running ¾" air line, two lines can be tee'd into the Vacutrans® air supply port to assure that the unit will be supplied with adequate quantity for maximum performance. As with any air driven tool, hose bends and total length should be kept to a minimum. Keep in mind that it is the smallest restriction in the air supply system that counts. It does no good to attach a 1½" line to a ½" fitting.
4. Maintenance of a couple of key internal parts will insure the long life of your Vacutrans®. A daily visual check on only two parts is all that is required. The first is inspection of the air nozzle by looking into the vacuum inlet port. When the black rubber boot over the nozzle begins to show excessive wear, either rotate the boot or replace the boot. The second item to check is the ceramic wear liner. The liner sits on a ledge inside the Vacutrans® and the edge of the liner's inlet slot is visible through the same vacuum inlet port. When the liner wears down to the edge of the casting port, it is time for replacement. When replacing, be sure the slot in the liner is aligned with the casting vacuum port. When reassembling the Vacutrans®, make sure the rubber washer is positioned between the ceramic wear liner and the air nozzle casting.

WEAR OCCURS ONLY IN THE DIRECT TRANSFER MODE, WHERE MATERIAL IS PASSING THROUGH THE Vacutrans®. IF YOU ARE PULLING MATERIAL INTO A CONTAINER AHEAD OF THE Vacutrans®, AS IN THE DRUM TRANSFER MODE, WEAR IS NOT A CONCERN, UNLESS THE CONTAINER BECOMES FULL AND OVERFLOWS.

SHOULD EITHER THE NOZZLE OR LINER WEAR THROUGH AND REMAIN UNCHECKED, THE CASTING BODY WILL DESTRUCT IN A MATTER OF HOURS, DEPENDING ON THE MATERIAL BEING CONVEYED AND WILL NEED TO BE REPLACED AT SUBSTANTIALLY MORE COST THAN THE MAINTENANCE PARTS.

5. SAFETY CONSIDERATIONS include staying clear of the exhaust port when pumping material directly through the *Vacutrans®*. Also, under certain conditions, static electricity will build up and discharge from conveying hoses. This can be more of a nuisance than anything, but at times could pose a danger to the worker. Grounding of the hoses and tools will solve the problem. It should also be mentioned that in the drum recovery mode, it is possible to collapse the drum under vacuum if the hose clogs with material. Again, this is more of a nuisance than danger. To avoid this be sure to use the proper pickup tools with breathing provisions or be visually sure material is entering the vacuum hose at a proper rate.
6. Materials larger than  $\frac{1}{2}$ " in diameter cannot be pumped directly through the *Vacutrans®*. Dry material or liquid and slurry material will convey. Anything that visually will not flow can probably not be conveyed by *Vacutrans®*.

## **MALFUNCTIONS**

IN THE EVENT THAT YOUR *Vacutrans*<sup>®</sup> DOES NOT PERFORM AS YOU EXPECT OR CEASES TO PERFORM PROPERLY DURING OPERATION, PLEASE CHECK THE FOLLOWING:

1. Compressor too small (inadequate cfm and/or psi)
2. Compressed air supply line too small
3. Leak in air supply line
4. Air line too long (line loss due to friction)
5. Obstructed air supply line
6. Obstruction in *Vacutrans*<sup>®</sup> nozzle
7. Leak in vacuum pickup hose
8. Obstruction in vacuum hose
9. Too many bends in vacuum hose
10. Obstruction in vacuum tool
11. Obstruction in *Vacutrans*<sup>®</sup> body
12. Wear liner in place but off-center
13. Material too damp to flow
14. Drum transfer mode – drum lid not sealing properly
15. Obstruction in exhaust hose
16. Too many bends in exhaust hose
17. Material too heavy
18. Using vacuum with no pickup tools

## PSI/CFM CHART

*Vacutrans*® is an air driven tool and it is important to understand that the vacuum power as well as the rate of material movement through the vacuum system is affected by the amount in quantity (or volume) and the pressure of the compressed air supplied. To help in understanding, below is a chart relating the pressure reading on the air gauge to the quantity (cfm) going through the air nozzle at that pressure (i.e. at 100 psi, the *Vacutrans*® will consume 200 cfm of air; at 50 psi, it will consume 140 cfm of air).

| PSI<br>READING | CFM<br>CONSUMED * |
|----------------|-------------------|
| 1              | 20                |
| 5              | 45                |
| 10             | 63                |
| 20             | 89                |
| 30             | 109               |
| 40             | 126               |
| 50             | 140               |
| 60             | 155               |
| 70             | 167               |
| 80             | 180               |
| 90             | 190               |
| 100            | 200               |
|                |                   |

\*Standard 800021 Model. The 800020 Model requires less compressed air and has less suction pressure but the gauge will read about the same positive pressure.

Another way to interpret the above figures for instance, if you only have a 155 cfm compressor available to drive the *Vacutrans*®, you will only be able to maintain 60 psi against the tool which may or may not generate enough vacuum to pickup the particular material you are trying to move.

The lighter the material, the less vacuum power is required. At 100 lbs. per cubic foot material, all of the vacuum power possible is required for satisfactory movement rates.

## WORKRATE CHARTS

Chart 1 – Direct Transfer

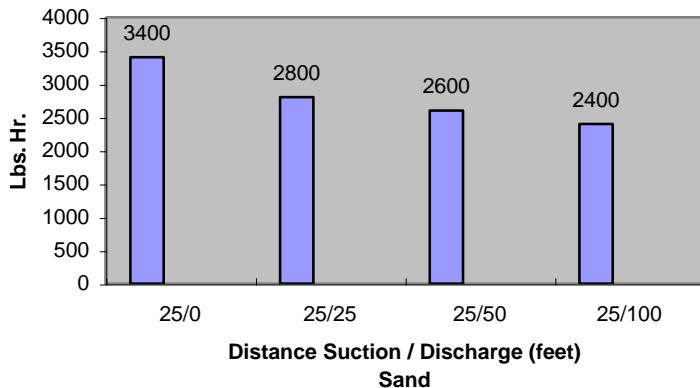


Chart 2 – Drum Transfer Mode

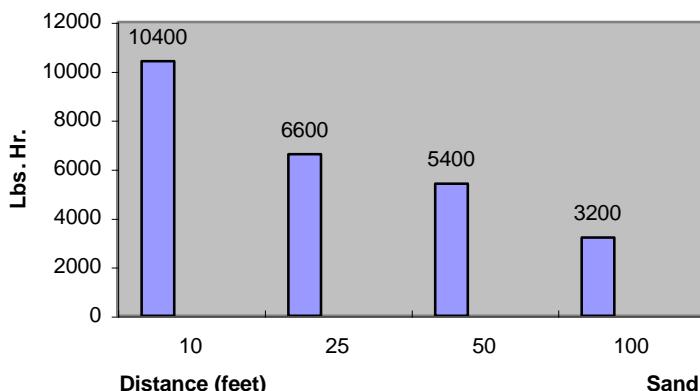
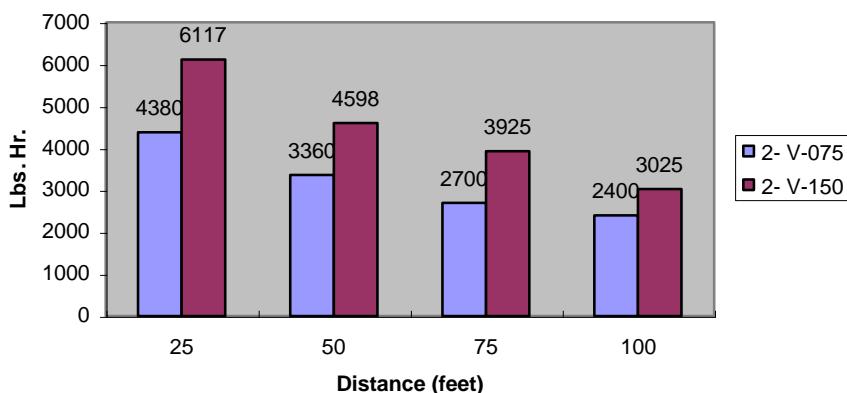


Chart 3 – Double Vacutrans® w/ steel grit (small nozzle vs large nozzle models)



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