

# How to evaluate your vacuum system

BY  
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Field equipment replacement on farms is common. It is replaced as it becomes worn to the point that further maintenance doesn't seem worthwhile, or perhaps the unit doesn't have the capacity to keep up when expansion takes place, or it just plain obsolete and needs to be replaced because new methods have made it outdated.

But, are milking systems handled the same way?

Is there a tendency to overlook the milking system because it does give good service?

Does it become obsolete, too?

In the last few years, there have been a large number of new innovations in milking systems: new parlor types; automatic take-off milkers; vacuum switching milkers, even for stall barn milking.

Automatic weight recording is becoming possible.

There have been shifts from high to low-line milking, and there have been changes in the standards and recommendations used in the industry for milking system installation over the years.

How long has it been since you reviewed the performance of your milking system? Take vacuum pumps for example.

Vacuum pumps used for milking machine operation can be divided into three types: piston, rotary vane, and centrifugal water displacement.

The piston and rotary types are common in the eastern U.S. and will work satisfactorily as long as they provide adequate capacity and have sufficient reserve.

Less well known here is the centrifugal water displacement pump which is commonly used in large dairies in the west - but now, we have larger parlors, too, and

it may be well to look at this type of pump if you're considering replacement.

While it is more expensive, and requires a water supply and waste line, it is much more durable than the other types since there is no metal-to-metal contact within the pump. A ring of water moves with the segments of an offset impeller within the housing, providing a seal between the impeller and the housing. As impeller turn, the alternation movement of the water toward and away from the shaft causes a pulse-free pumping action.

The exhaust from the pump should be at least as large as the connection fitting of the pump, and in all cases, should be directed outside, downward and away from the building. Mufflers or silencers should be used only if absolutely necessary since they may reduce pumping capacity, or consider their use when sizing a new pump.

An oil trap can be provided to cut down on messy conditions. Water seal pumps may require a water separator as well. Consider having the exhaust discharge to an external sump filled with rock to minimize mess and noise.

If two or more pumps are used, they should be manifolded together, or connected into a common vacuum header or tank (unless you are using a split-vacuum system) This will assure only one vacuum level and will balance the air movement load.

Each pump should be connected into the system with a full-flow gate valve for quick disconnect in the event of pump failure.

A vacuum pump should be rated in CFM (cubic feet of air per minute) at a specific vacuum level and pump speed (RPM) and not in terms how many units it will handle.

Differences in air requirements per feet,

the way milking systems are installed, or the way they are operated can cause wide variations in air moving requirements.

The problem of pump sizing is further complicated by the common use of two different standards, the ASME (American Society of Mechanical Engineers) or the New Zealand standard.

The ASME is based upon free air, or atmospheric pressure, while the New Zealand standard uses 15 inches of mercury vacuum level. The result is that the New Zealand specifications are twice those of the ASME standard.

Be certain you are using proper rating system for your installation.

Periodically, the recommendations for air delivery are changed, using experience in installation as a guide. The effect has been to move toward recommendations being used in California.

At the present time, the following values are being used for pipeline milkers.

Milker units, 6.0 cfm (ASME), Milk meter, 1.0; Sanitary couplings, per 20, 1.0; Inlets, per 10, 1.0, Regulators (each), 3.0,

As an example, an eight unit system would have: 8 units @ 6 cfm = 48 cfm, 8 meters @ 1 cfm = 8; 80 couplings @ 1 cfm/20 = 4, 30 inlets @ 1 cfm/10 = 3, 2 regulators @ 3 cfm each = 6. The total is 69 cfm.

Values for conventional bucket milkers are as follows: cfm reserve, 10 cfm, cfm per unit, 2.5.

As an example, a four unit conventional system would require 20 cfm ASME or 40 cfm under the New Zealand standard. Since it is not likely that your system meets these

specifications, is it a good idea to replace vacuum pumps of questionable capacity with a larger, high

capacity pump?

If the vacuum system has properly sized and installed vacuum controllers, and if milk line sizes are properly related to the number of units, then high

capacity vacuum systems should be no problem.

However, if milk size is small, excess pump capacity may increase milk line flooding causing vacuum fluctua-

tions which may be reflected in udder problems.

The milking system

must be analyzed as a system, and not as an accumulation of separate segments.

## JUNIATA CO. FARM AT PUBLIC SALE SATURDAY, APRIL 25

Located approx. 35 mi. northwest of Harrisburg, near Richfield.

PARCEL #1 - 62 A's, 30 tillable, balance wooded, 5 room dwelling, 2600' frontage.  
PARCEL #2 - 68 A's, 30 tillable, balance wooded, 3100' frontage  
NOTE - Both Parcels offered separate, then as one unit, 130 A's total.

For Complete Info, Contact:  
Long Bros., Aucts.  
R.D. #2  
Port Royal, Pa. 17082  
Ph. 717-527-4784

## PUBLIC SALE FARM MACHINERY

Conducted By Russell M. Wright,  
Auctioneer

P.O. Box 111, Newport, PA  
FRIDAY, MARCH 27, 1981

At 10:00 A.M.

Located in Perry County, Buffalo Township. From Newport exit off Route 22-322, go North approximately 1 mile on Route 34. Turn right at intersection onto Montgomerys Ferry Road, 3 1/2 miles to sale. Or 3 miles West of Route 11-15 along Montgomerys Ferry Road in Bucks Valley.

Consisting of a small amount of household goods including Treadle Sewing Machine, Clothes Tree, Trunk, Dinner Bell, Maytag Wringer Washer and various items

### — MACHINERY —

Farmall Super H Tractor with live hydraulic; Cultivators for Farmall H or M; New Holland No. 268 Hayliner Baler with thrower, New Holland, No. 467 Pull-Type Haybine, 7-foot cut; 2 - 6-ton Hay Wagons with Oak Racks, 16 ft., New Idea No. 400 Side Rake; IHC Side Rake; 2 - Grain Wagons, 165 bu. Hopper Bins; New Idea No. 323 Single Row Corn Picker, Diadem 3 pt. Fertilizer Spreader No. 290 (NEW); 16 ft. Grain Auger; New Idea Trail-Type Mower, 7-ft cut; Agway Pull-Type Sprayer with 200 gal fiberglass tank; Mayrath Bale and Grain Elevator; PTO Grass Seeder; John Deere Self-Dumping 12-ft Spring Tooth Harrow; Ontario 12-ft Spring Tooth Harrow; Oliver 3 - 12" Bottom Trail Plows; Oliver 14" 2 Bottom Trail Plows (NEW); Land Slides to Fit Oliver; 2 - New Oliver 12" Plow Bottoms; Oliver No. 40 Walking Plow with Steel Beam; Ontario 13 Double Disc Grain Drill on steel wheels; 12" Post Hole Auger; 35-ft. Endless Drive Belt, 7" wide; new Tray for Wheel Barrow; Case 8-ft Disc Harrow; 2-Pair Stewart Cow Clippers; Heavy Log Chain; 50-gal. Drums; 8 1/2-ft. Truck Cap, 8 H.P. Dnyamark Riding Mower; 2 - Fuel Storage Tanks with Pumps, 160 and 300 gal sizes; Milk Cans; Tractor Chains to fit size 14-28 tires; 28" Tractor Tire and Tube; 2 - Electric Brooders; Stainless Steel Milk Strainer; Double Stainless Steel Wash Tubs; 82 gal Glass Lined Electric Water Heater, Homelite Gear Drive Chain Saw; 12-ft x 14-ft Tarps; Meat Bench; Barb Wire, Small 8" Table Saw; Pile of Scrap Iron.

### — AUTOMOBILE —

1 - '66 Pontiac Catalina, 4-Dr Sedan  
NOTE: This machinery has been well cared for and is in good condition. Order of Sale: Household Goods - Machinery

TERMS: Cash or Good Check  
Lunch stand

**HAROLD W. and ANNABELLE M.  
CAMPBELL**

R.D. #1, Newport, PA 17074  
Phone 567-3585  
Seller reserves the right to reject any or all bids  
Not responsible for accidents

## PUBLIC SALE

OF 1.80 ACRE POULTRY FARM  
SATURDAY, APRIL 11, 1981

At 11 A.M.

Located approx. 2 miles west of Morgantown along Rt. 23. Caernarvon Twp., Lanc. Co., Pa.

### REAL ESTATE

HOUSE. 2 1/2 story cement block house with stucco, asphalt shingle roof, full basement. 1st flr. has nice mod. kitchen with oak cabinets and dishwasher, also pantry, dining room with open startway, large living room, closed in porch, 1/2 bath, mostly w/w carpeting. 2nd flr has 4 bedrooms and full bath, w/w carpeting. Oil hot water heat, attached 2 car garage with storage above.

POULTRY HOUSE 2 story cement block 290' in length, part 40' wide and part 27' wide. Total broiler capacity 26,000 inc. both floors (Total sq. ft. 20,340, Floor space) includes automatic waterers, Big Dutchman chain type feeders, building equipped with ventilating fans, 2 bulk feed bins each 10 ton cap.  
SHOP 10'x18' frame. All buildings in good cond.

LAND. 1.80 acres, all open. Terrain gentle slope. Nice garden area, all macadam drive. WATER Well and pressure system.

SCHOOL DIST.: Garden Spot  
TERMS: 10% dn. day of sale. Inspection anytime by appt. Call: HORNING FARM AGENCY, INC. 215-286-5183.

Terms By  
**JESSE & VERNA MAE STOLTZFUS**  
Wentz & Weaver, Attys.

Auctioneers  
Elton & Alvin Horning  
HORNING FARM AGENCY, INC.  
Main Street  
Morgantown, Pa.  
215-286-5183

## AUCTION

FARM EQUIPMENT, ETC.  
SATURDAY, APRIL 4  
10 A.M.

On Possum Hollow Road, Limerick Twp., 6 mi. E. of Pottstown. Turn off Rt. 422 on Airport Rd. to Lightcap Rd., to Possum Hollow Rd. Follow sale signs on Rt. 422 & Airport Rd. 3 mi. to sale. Known as Gilpin Farm.

MACHINERY: Allis Chalmers WD 45 tractor; A.C. WD tractor, A.C. WD tractor & 2 sets cultivators, A.C. Roto Baler; 3 A.C. 3 bottom mounted plows, A.C. combine; A.C. 7 ft mowing machine; Ford 7 ft mowing machine; 1949 Chev. flat bed Truck, J.D. 2 row corn planter, J.D. manure spreader, J.D. disc on wheels; cultipacker, 3 sec spring tooth harrow, lime spreader, 2 Ontario grain drills, Brillion seeder & cultipacker, 2 power corn shellers, buzz saw, 7 ft snow plow, pull type disc, J.D. hay crusher, 3 pt. sprayer, hammer mill, 2 elevators, 2 rubber tire flat wagons, 2 wheel trailer

TOOLS: elec welder, elec grinder, anvil, 2 hp. motors, ladders, vises & workbenches, many small tools found around a farm. Quantity LUMBER, mostly oak, large drums, snow fence, Bob Sled, wagon wheels, harness, 300 gal gas tank & pump, cast iron pig troughs, platform scale, lot scrap iron

FEED, etc.: 1200 bu. corn, bin of oats, mow of straw, lot barley.

Everyone should attend this sale. Something for large, small & weekend farmers. All machinery is operable. Farm has been sold, everything to highest bidder. Tools sold first, followed by machinery & feed.

Estate of  
**LUCY D. GILPIN**  
By Order of First Penna. Bank & Robert D. Gilfillan, Execs.



489 7127

948-8050

**HESS & MOYER**  
AUCTIONEERS

115 HESS ROAD • COLLEGEVILLE, PA 19426

## ABSOLUTE AUCTION

4 ACRE FARMETTE  
Tuesday, April 14, 1981  
at 12 Noon

Four miles west of Fogelsville, 1/2 mile east of New Smithville exit Rt. 22 and Rt. 863, (one block south off old Rt. 22 along Klines Mill Road) Weisenberg, Twp., Lehigh Co. Pa.

A four acre farmette w/two and one half story frame farm house w/six rooms & 1 1/2 baths, coal fired hot water heat, well water, a barn w/(3) 12'x15' horse box stalls, a two car garage, a two story cement block bldg for poultry or storage, plus other out bldgs, fenced in pasture. For inspection call (215) 395-8084

Terms: 10% auction day, bal. by May 25, 1981  
Auct. Note: A real chance to buy that small farm, will be sold regardless of price, owners moving out of area.

Sale Ordered by  
**MARLYN C. & ALICE L. STROH**  
Conducted by  
Ralph W. Zettlemoyer Auction Co. Inc.  
(215) 395-8084



## SADDLE UP!

To Better  
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CLASSIFIEDS!