



FLAT SURFACE CLEANERS:

Selecting the Right Unit Can Make a Huge Difference on the Road to Business Success

by Bruce Tassone

Surface cleaners are one of the single most debated accessories for the professional pressure washer contractor. The reason is that a good unit is the lifeblood of the flat work specialist and the ultimate time-saving tool for the contractor. A poorly designed product is a waste of money at best and a time sink for repairs at worst.

Distributors and contractors alike share many of the same questions and concerns. What style should I buy? Is the swivel really that important? Is it wise to purchase one on the Internet, or at the retail outlet for less than half that price? All of these concerns are valid, but prior to making an investment in any new or replacement equipment, the business owner should consider a number of issues that are relevant to his current operation.

The questions a user needs to ask before investing in a piece of surface washer equipment are:

- How many years do I intend to use this equipment?
- How many hours per week will the surface cleaner be in use?
- What is the value of my time in the event the unit is down or needs to be sent to a distributor for repair?
- How long does it take to get the unit repaired?
- Who will use the equipment?

After taking a close look at the daily operation, most contractors make the calculated decision to purchase a piece of equipment that will last a minimum of five to seven years on average. This investment horizon lowers the effective cost of use and maximizes the value of the end users' financial resources.

How to Choose Materials, and Cleaning Quality

There are a wide variety of surface cleaners to choose from. However, the major elements remain the same. There are four core components to each unit: a handle assembly, a cover, a spray bar, and, most importantly, a swivel. Each subassembly impacts

the longevity of the unit, maintenance of the equipment, and the quality of cleaning.

The handle assembly is typically manufactured from either steel or aluminum. Steel components are usually painted to avoid corrosion and weigh substantially more than aluminum. Manufacturers that have selected aluminum do so to lower the effective weight of the unit and eliminate the need for preventive maintenance created by corrosion. Remember, the unit sees both water as well as the corrosive elements of a variety of pH cleaners.

Well designed units utilize aircraft grade aluminum. A passivated or beaded surface eliminates the potential for corrosion. In many cases, the handle assembly can be easily repaired in the event a component is lost or damaged in the field. Ergonomics include using a gun that is angled to

avoid stress on wrists and elbows. Additionally, the handle should be comfortable enough to ensure the legs are used versus the upper body to avoid fatigue. If the contractor intends to use a unit for extended periods, a fixed handle is recommended to further reduce fatigue. Remember that fatigue is the enemy when fighting to ensure the same quality is achieved at the start as well as end of the day. Lastly, fixed or collapsible configurations exist with many units. This is a personal preference, combined with storage or space limitations.

The cover assemblies are available in a wide variety of materials. Steel, fiberglass, plastic, and urethane are typical for a number of the existing products. Steel provides structural integrity yet adds substantial weight to the unit. Plastic is an effective material that is lightweight and lowers the up-front cost for the user. Urethane



Table 1

		Unit A		Unit B	
Initial Purchase Price		\$795.00		\$475.00	
Year	1	\$0.00	No cost	\$50.00	Repair
	2	\$0.00	No cost	\$100.00	Repair
	3	\$35.00	Repair	\$150.00	Repair
	4	\$125.00	Repair	\$475.00	Replace
Average Yearly Cost-of-Use		\$238.75		\$312.50	

Assumes:

- Two year warranty for Units
- Unit B is beyond repair in Year 4

provides the benefit of being virtually unbreakable while still offering a weight saving over the metal alternative. Some of the plastic and urethane-molded cover assemblies incorporate complex shapes to improve the cleaning effectiveness.

Units can be purchased with or without brushes and with or without wheels. Regardless, if a unit is purchased with or without wheels, the user and distributor need to make sure the height between the nozzle discharge and the cleaning surface are sufficient to accommodate the pressure washer discharge pressure and flow.

Brushes should be firm to avoid overspray yet sufficiently flexible. Proper nozzle selection and maintenance can only improve any unit's cleaning ability. Clogged nozzles lead to imbalances, zebra striping, and premature swivel failure due to vibration. Upgrading to IMeg nozzles improves the spray pattern created, giving the surface cleaner a crisp, clean spray path that reduces the potential for swirling and striping.

A fixed spray bar eliminates variables that occur in field use. An adjustable spray bar allows the end user to adjust the impingement angle for flexibility—like operating at a lower pressure flow or cleaning a delicate surface like wood decking.

Durability and Maintainability—The Key Is the Swivel

The principal component to any surface cleaner is the swivel. It must be robust enough to absorb minor impact

and still allow the end user to make a repair at two A.M. when the distributor is no longer available for an emergency room visit. Materials selections are key elements that deserve repeating. An aluminum core lowers weight and provides corrosion resistance. Sealed bearings provide increased insurance the unit will run for many years without daily maintenance and continue running in the event of minor weeping.

For proper cleaning effectiveness, swivels typically need to spin in excess of 1500 rpm. Additionally, they need to accommodate pressure up to 4500 psi and withstand temperatures exceeding 200 F.

Cleaning Width and Weight—How Do They Affect Performance?

Bigger does not necessarily mean better. When determining the proper diameter, users should be familiar with the concept that the pressure washer and not the diameter of the surface cleaner defines the rate of cleaning. An engine generates cleaning force in proportion to its horsepower, so the horsepower of the pressure washer defines the cleaning capacity of the surface cleaner.

The impact force created by the pressure washer can be calculated using the formula:

$$\text{Impact Force or Reaction Force} = 0.0526 \times \text{gpm} \times \sqrt{\text{psi (lb.)}}$$

This means that the impact force created must be greater than the weight of the unit to permit it to be maneuverable. If the weight of the surface cleaner is much greater than the impact

force, then wheels are required for support and maneuverability of the unit to reduce operator fatigue.

Lighter units used with a pressure washer creating the same impact force would not require wheels and would still be maneuverable. The end user should check with his distributor to make sure that the unit will float based on the pressure washer that he intends to use.

What Is the Best Economic Choice—What Does It Cost to Operate?

Identifying the materials and design that fit your specific operation helps ensure that the unit will give you a long useful life and a high quality cleaning result. To further minimize your out-of-pocket expense, you should secure an industrial quality warranty that covers all major subassembly elements. The Cost-of-Use Concept is a means to evaluate your equipment investment over its projected life. The example in **Table 1** shows an inexpensive unit actually costs 30 percent more to operate over a four-year investment period.

Since the cost of your investment can range from \$500 to \$1500, you want to get the best bang for your buck. That means purchasing a dependable machine that delivers a high quality cleaning job. This way, in the end, you actually save time and, just as importantly, money.

Distributor Keys:

- Price—Make sure it is an economic choice for the customer.
- Maintainability—The unit should be easy to service and repair. A unit sitting in the shop eats away at profitability, for both the distributor and user alike.
- Quality—The unit has to be durable and deliver great cleaning results.
- Dependability—If you cannot get parts in 24 hours, your customer is unhappy and your reputation suffers.

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