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MODERN HOME LAUNDRY EQUIPMENT

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Today we are going to approach laundry equipment from the aspect of availability, and discuss some of the problems involved in making choices when purchasing.

A separate WASH DAY is no longer a necessity, and daytime or nighttime, rain or shine, the laundering may be done if the homemaker is equipped to do it. But she has many decisions to make in selecting laundering equipment.

What is the necessary equipment? A mechanical washing device, for instance? We have come to think so, in our present culture, and surely it is an energy-saving and time-saving appliance.

NON-AUTOMATIC WASHERS

The simplest of the motor driven washers is the agitator wringer machine, in which anything washable of reasonable size may be washed. The wringer will have a release, for safety sake; the tub will have a gravity drain; there will be controls to turn the washing mechanism and wringer rolls on and off, and there will be casters so the machine can be easily moved.

Where the water supply is limited and several loads need to be washed in the same water, as a conservation measure, a wringer washer, or a spinner-type washer is a solution.

Such a simple machine is available on the market today, but while looking for it the prospective buyer is likely to be confronted with such a variety of washers and such a barrage of advertising

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claims as to make her wonder how an intelligent choice can be made.

Agitator wringer washers have wringer rolls large and soft, or one soft and one hard. The wringer will have either adjustable or compensating tension to take care of items of varying thickness. The wringer will be usable in several different positions. A drainboard below the wringer automatically takes care of the direction the water should run into the tub as it is extracted from the clothes. The agitator itself usually can be removed easily for thorough cleaning of the tub.

To these minimum components of the washer may be added a pump and hose to remove the water from the tub rather than have it drain onto the floor on into a bucket--and the advertising literature stresses the pump's fast action. When the pump is used to empty the water into a tub attached to the house drain, the laundry floor is likely to be drier and less hazardous, and compared to using buckets, the pump saves a great deal of labor.

Two types of timers are available for conventional washers: one signals when a preset time has elapsed; the other, necessarily more expensive, stops the machine at the end of a preset time.

A variety of agitator designs are available, sometimes within the same make. In our study of washing machines several years ago we found agitator machines among the poorest and among the best in washing ability. We cannot help but wonder why one manufacturer will use 3 agitator designs in his own line, when differences in performance are difficult for the buyer to judge. The saving grace of the situation is that probably whatever washer is purchased, the user has enough aids at hand to achieve the desired results. If she isn't satisfied with her first attempts at laundering, she may try any or all of the following things: softening the water; soaking the clothes; raising the water temperature if fibers permit; washing smaller loads; using more, less, or a different detergent; and reasonably increasing the washing time. We have found all of these to improve soil removal.

In some machines lint may be filtered out of the water during the washing period through an attachment atop the agitator. In some others a strainer device to place on the rim of the tub is provided. This filters out lint when the

pump is operated during the agitation of the wash if placed at the spot where the water enters as it is pumped back into the tub. The same system can be used during a machine rinsing of the clothes; it is claimed to give more turbulence to the water, and, of course, could be used for that purpose without the lint filter.

There are several kinds of wringer safety releases on the market; some stop the mechanism when the fabric going through the wringer is given a backward tug; others are activated by bars reachable with a flick of the hand. Before purchasing, the homemaker should try these to see exactly how they work. One manufacturer is making the wringer open at the top so anything that wraps around the roll is easily seen. Another is putting spots of color into the wringer roll so its motion can be more easily seen. A third provides a hose attachment which runs up to the wringer and allows clear water to do a partial rinsing of the fabrics just as they go through the wringer. As with agitators, one manufacturer may have more than one kind of wringer to offer. Theoretically the thicker, softer rolls aren't as damaging to buttons and other fasteners as thinner, harder rolls. Safety features and ease of operation should influence the choice.

The spinner-type washer has two tubs, one for washing and one for extraction of the water, and is necessarily more expensive to purchase than the wringer washer. The extractor tub may be used for rinsing in some models where provision is made for injecting the water into the tub and through the clothes. The spinner extractor is kinder to all sorts of trimmings and fastenings than the wringer, and extracts water from some washable which will not go through the wringer. All will agree it is less hazardous to use than the wringer. To avoid vibration when the extraction is taking place, the basket must be carefully loaded, especially if it is only partly filled. Tests in our laboratory showed that the spinner extracts more water than the wringer.

A double hook on the side of the tub, on which the electrical cord may be looped out of the way, and a hook for the lid, if the lid is not attached to the machine, are conveniences which may be worth a little extra cost.

Some of the casters should lock to keep the machine stationary when in use, because few floors are perfectly level. Machines equipped with 5 casters distribute the load better than the usual 4. For the person shorter or taller than average, washer legs providing adjustable heights are an advantage.

Some manufacturers make quite a point of having a double-walled tub so water is kept warmer than when the single-thickness tub is used. Since there is considerable decrease of water temperature in successive loads, this feature should be evaluated in terms of how many loads will be washed in the same water, and how important it is that temperature be maintained.

A few agitator machines are available with two speeds of agitation, the slower to take care of delicate fabrics and the faster for sturdier clothes.

There are on the market two wringer washers which differ markedly from others. One has two washer tubs mounted with a wringer between, so washing and rinsing may be done mechanically at the same time. However, the manufacturer recommends use of the first tub for a lukewarm, sudsy, agitated soak, the second tub for a very hot, mildly-sudsed wash, then rinsing in a separate tub--all to get the washing done in a hurry.

The second of these washers takes up a space 16x16x32 inches, has a water capacity of 8 gallons, and washes a 5-pound load. An impeller in the side of the tub aerates the water and moves the clothes about to accomplish the washing. The manufacturer claims that it "washes cleaner and faster than any other washer." Although it was not a washer included in our study, we had one in the laboratory a few years ago and did not find that it quite lived up to this claim.

There are many choices on the market, but, as you see, not too many added features for the conventional washer. It is the simplest to operate, but needs more of the homemaker's time than any of the other washers. All-in-all, it is apt to require the least servicing of all the mechanical washers, since it has a fairly simple mechanism. Most manufacturers of these machines have been in the business for many years and have had the time and experience to improve their products.

SEMI-AUTOMATIC AND AUTOMATIC WASHERS

The washer next in line as far as convenience and complexity of mechanism is concerned is the semi-automatic. The American Home Laundry Manufacturers' Association defines it as, "A power-driven device for washing fabrics, which performs filling, washing, rinsing, and water extraction functions without the user's removing the fabrics, but which requires that one or more of the operations be controlled by setting controls after the original setting."

Since the semi-automatics and the simplest of the automatics have similar features, I am going ahead with the discussion of the automatic washers. It is in these that the most versatility is encountered, and that the most special features are offered.

Let us consider first what is desirable to have in the basic automatic machine:

1. A washer tub that will hold at least a 6-pound load.
2. A choice of water temperatures for washing and rinsing.
3. A choice of washing times.
4. Provision for rinsing.

There are several washing actions to choose from among washers which provide these basic functions. Again going back to our experience in the study of washing machines, we found no one type of washing mechanism was consistently superior in soil removal. Choice of a particular washing action may of necessity be made on the basis of past experience of the buyer or on recommendations of friends or neighbors.

Installation Features

There are a few generalizations about installation which apply to most modern automatics.

Most washers, and dryers too, are designed for flush-to-the-wall installation. For this arrangement the hot and cold water pipes and the drain pipe must be confined to that space behind the washer. It also means the hot and cold water faucets cannot be reached to turn off after each use, as most manufacturers suggest, in order to take pressure off hoses and valves. This could be accomplished if the fixtures can be reached through a door from the other side of the wall or turned off on the floor below. In some installations the pressure may not be great enough to be harmful, but in others it may be high enough to damage parts of the washer if the water is not turned off after each washing. We do not have a figure to quote on the pressure that may be damaging, but we have been told by reliable persons that it is far safer to turn off the water after use, thus confining the pressure to the household system, than to rely on the hoses and valves in the appliance to withstand its force. If you wish to know what the pressure is in your home, the local water company will check it, or there are threaded pressure gauges you may screw on a threaded faucet to check it yourself.

Water pressure may also be a factor to consider when deciding on a washer, because of the way the filling of the tub is controlled. The pressure fill allows the washing action to start only when the desired water level has been reached. The timed fill may not allow enough water to flow into the washer if the water pressure is low. Some washers have a metered fill which is not dependent on pressure or time.

Need for bolting down has been eliminated by balancing devices in the washers themselves, or some type of automatic mechanism which stops the spinning of an unbalanced load.

Operation and Design Features

Beyond these installation generalizations, operation and design features are many.

In many current lines of washers are models with a completely separate, less vigorous, sometimes shortened cycle for the washing of man-made fibers, and delicate garments. This cycle often provides a choice of cold water for washing and rinsing. If the washing includes many delicate items with construction features which the regular action would be hard on, the cycle including a slower agitation speed may be worth the extra investment. In our laboratory we found very little difference in wrinkling between fabrics from the regular and from the reduced speed of operation. However, a shortening of the spinning time to one-third that normally used always brought about some reduction in wrinkling in the fabrics we were using. This reduction of spinning time could, of course, be controlled manually rather than automatically. With the advent of thermoplastic fibers a cool wash and rinse have been found to minimize their wrinkling.

Automatic home washers are engineered so that any part of the entire cycle may be skipped or repeated. Washers for laundromat or commercial installations are usually made with a fixed cycle.

On some washers a soak period is a regular part of the cycle. A soak is possible in any washer by managing it as a manual process.

Many washers have an arrangement which removes heavier-than-water particles that settle to the bottom of the tub, so these particles are not recirculated through the clothes. This might be of special interest to those washing children's play clothes, men's work clothes, or other things which might have sand and heavy dirt in them.

Several washers have special arrangements for removing lint. The lint filter also can be used in some washers as a detergent dispenser, since the water circulates through it.

One machine has a setting for no-spin, so garments may be removed from the washer for drip-drying. On the assumption that it will minimize wrinkling another washer pumps out some wash water and pumps cool water into the tub several times in order to cool the water and the clothes before they spin. We investigated this procedure in our study of using mechanical equipment for the laundering of present day fabrics, and although our results weren't too decisive, we believe the process has possibilities, and it could be used manually with other washers than the one on which it is an automatic feature.

There is a great movement afoot to simplify the selection of the combination of wash and rinse temperatures, wash and spin speeds, cycle time, and such, so manufacturers are offering "program computers," fabric formulas, pushbuttons, dials, alphabetical choices to make the machines versatile and more attractive to the buyer. How much this convenience is worth to the user is a matter of conjecture. Automaticity, however, is more expensive, takes more parts, and adds to the possibility of more repair bills.

The control panels of the more complicated models are usually completely lighted so they are easy to see in a dark place. In some this lighting is a part of the on and off cycle, so that the light is on when the machine is in operation, and off when the cycle has been finished, or stopped for another reason. On others there is a simple light with an on and off switch that the operator controls.

Many machines have effective, quick braking to end the spin. This is a safety measure, and a time saver. There is a difference in the speed of spinning among washers. Generally the faster spin extracts more water from the clothes, although length of spin also is a factor. If a dryer is to be used, the amount of moisture left in the clothes is an important consideration in determining the cost of dryer operation.

Top-loading washers which have a lid hinged at the side rather than at the back allow the controls at the back to be easily reached. One washer has this lid counterbalanced so it will not bang shut. All action stops in some machines when the lid is lifted, a safety device especially important if there are children about.

Many manufacturers have a sudsaver model for which a laundry tub is necessary close by to hold the water until it is used again. Some washers have the good feature of automatically adding fresh hot water to make up any amount short as a result of this tub to tub transfer.

Brief instructions for use are given on the inside of the lid in permanent form in many washers. This makes it possible for a user to be readily informed, and also insures that a second owner will have at least minimum instructions. So often the user of a second-hand machine does not receive the instruction booklet from the first owner.

For quite a few washers a base with easy-rolling casters can be purchased to make a regular automatic washer portable. One such portable was pictured being used at the bathroom lavatory. My experience has been that it takes quite a good-sized, deep basin for the drainage of an automatic washer, especially from the wash cycle, where a head of suds is likely to be built up by the force of the pumped-out water. It seems more logical to have the bathtub used for the drain-away water, if the portable washer is to be used in the bathroom.

Although instruction books and laundry manuals give guides for weight of articles in clothes loads, on one washer the open door may be used as a scale to indicate the load size.

In some washers it is possible to adjust the fill of water to match the clothes load. In others the same amount of water is used for loads of all sizes. If the part fill feature is called a water saver, don't confuse it with the sudsaver, which provides for the reuse of sudsy water.

The tub in which the actual washing is done is almost always of porcelain enamel, although a few are of stainless steel or aluminum. Some washers have porcelain enamel cabinets, but more often only the top is porcelain enamel, and the finish of the rest of the machine a baked-on enamel. A durable finish for the top is especially desirable if it is used as a work surface.

I haven't forgotten the dispensers on the washers. Some take care of any many as four different laundry agents. These may be helpful gadgets to have for dispensing detergent, water softener, or fabric softener, and as with all attachments, as long as they work they are fine. Not too much permanent damage is done if they do not work now and then--if the softener gets in where it doesn't belong, or doesn't get in

where it is supposed to. But when it comes to liquid bleach, let's take a long, long look.

This year several washer manufacturers are making an advertising point of their bleach injector feature. In most models the bleach dispenser provides for a single application of bleach. The operator pours a measured amount of the liquid for the one washing into the container, from which it is automatically diluted before it is added to the washing process.

Some dispensers hold enough bleach for many applications. Since the dispenser is an automatic device, we must not overlook the possibility that it may fail to function properly. The hazard to fabrics of overdoses from such a reservoir of bleach are fairly obvious. Dr. Labarthe, speaking at the Home Laundry Conference of the American Home Laundry Manufacturers' Association in October pointed out the danger of making it so easy for the homemaker to bleach that she is apt to bleach mixed loads, with undesirable results.

Research reported by American Cyanamid Company has shown that a liquid bleach is most effective if added several minutes after the detergent has been added and the washing action has started. This insures that both the whitener and the bleach will be effective, since it give the fluorescent material in the detergent time to affix itself to the fabric, where it is less vulnerable to the chlorine. Dry chlorine bleach does not present this problem and can be added at the start of the washing process along with the detergent. The dry bleach contains its own brightener, which is compatible with chlorine.

AUTOMATIC CLOTHES DRYERS

Let's go on to clothes dryers next. I am going to treat gas and electric dryers together, since so many manufacturers make them exactly alike except for source of heat.

Most of the features that have been on dryers for the past years are still available. There are dryers which may be installed in a big, airy room without venting, or they may be vented from left, right, or the rear to the out of doors. There are condenser types, from which the warm, moist air is directed into a stream of cold water which condenses the moisture and washes the lint down the drain. In this type the air is reheated and used over and over again, but the water goes down the drain. The water used in this system must not be overlooked as an added operating expense.

A dryer is available which can be set to dry clothes to a desired moisture content--that is, dry enough to put away, or ready to iron. The dryer stops when the selected dryness has been reached. Some dryers have a bell or light which signals when the drying cycle is completed.

Rated wattage of electric dryers varies, and is also dependent on the voltage supplied. Many manufacturers supply dryers to operate either on 115 or 230 volts. The 115-volt installation usually operates with 1/4 as much wattage as the 230-volt, therefore, takes a much longer drying time. Either should be operated on an appliance circuit for its exclusive use. Operation of the two is similar in cost.

Gas dryers are available for different types of gas supply; the main burner must have an orifice appropriate for the type of gas used. Gas dryers are available with constant pilots or automatic electric ignition. Electric ignition, although initially more expensive than a pilot, may actually save enough on gas used by the constant-burning pilot to pay for itself in a few years of use. It is, however, another feature to get out of order. There is a trend recently toward making the gas burners accessible from the top rather than the back of the dryer, for easier inspection and servicing.

A range of temperature settings is fairly common on today's dryers, although some manufacturers still use a single setting. Sometimes the range of settings is in terms of fabrics or types of articles, rather than an indication of temperature. A safety thermostat, or similar device, operates separately from the one controlling the drying temperature.

One manufacturer has changed the usual tumbling from top to bottom to a criss-cross tumbling by redesigning the baffles; it is claimed that this makes faster drying possible.

Most dryers on the market this year continue to tumble without heat for a few minutes (sometimes 5, sometimes 10) at the end of the drying period. This is to cool the fabric, and is especially useful for the thermoplastic, man-made fibers, which tend to lose more wrinkles with this treatment than if tumbling is stopped while they are quite hot. We found that cooling was accomplished fairly well in a 10-minute period of tumbling without heat. Cooling for 20 minutes gave no better results as far as removing wrinkles from fabrics was concerned. Of course prompt removal of fabrics from the dryer is necessary to keep new wrinkles from forming.

Ultraviolet or ozone lamps placed in the dryer to give, as one manufacturer puts it, "the sweet, fresh smell of summer sunshine all year long" are of dubious value, but take very little current, so it probably makes little difference whether one is or isn't in a dryer. Another device on a dryer is a fabric refresher, which provides a container for pellets of 3 different scents to add to the air being circulated over the clothes. Another manufacturer provides an aerosol container with an air refresher substance which is added to the air during drying by pushing a button which releases the mist.

As with washers, some dryers can be purchased with porcelain enamel tops.

Some doors are hinged at the bottom rather than at the side. Some of these allow 3 different door positions: a partway opening to make a loading chute for the clothes; horizontal opening to make a shelf; or complete 180°opening so the door is entirely out of the way. Side opening doors sometimes open the full 180° also.

For opening the door some dryers are equipped with a toe latch, some have pressure-sensitive doors which open if you push on them, and others have latches that can be worked with the knee. All these are helpful when loading the dryer, because both hands are apt to be full of clothes.

A fairly new feature, and a good one, is the safety door which will open from inside when pushed. This is no doubt in response to incidents where children have crawled into a dryer or have been pushed into it by another child. Most dryers stop when the door is opened.

Several dryers have a sprinkler attachment which dispenses a spray of water over a tumbling load of dry clothes to dampen them for ironing. The location of the dryer in relation to other household activities, especially the ironing, and the amount of sprinkling to be done might determine the convenience of this item. If ironing is to be done soon after drying, it appears that it would be better management to remove articles from the dryer with the right moisture content. Of course, this isn't always possible.

There are times when a heated space for drying a few things without tumbling would be convenient, and one manufacturer provides a rack to be attached inside the drum. A special setting provides air circulation with or without heat.

A companion to the small washer mentioned earlier is an electric dryer of the same size, 16x16x32 inches. It does not tumble the clothes in a drum but dries by a pulsating flow of warm air which floats the clothes in the dryer cabinet. It is made to operate on the 115 or 230 volt circuit.

COMBINATION WASHER-DRYERS

By far the most mechanically complicated piece of laundry equipment in home use today is the washer-dryer combination, which takes care of the whole process without handling of the clothes between washing and drying. The appliance can be used for either washing or drying alone. All combinations at present are of the front-loading, cylinder type. The chief claims for the combination are in space saving, because the one piece of equipment which does both jobs takes up less floor space than a separate washer and dryer, if both are set on the floor, and some saving of time and energy of the user, since the controls can be set for drying to automatically follow the washing, and the clothes need not be moved. The manufacturer who designed a washer and a dryer to stack one on top of the other has also provided the two facilities using a minimum of floor space, and both washing and drying can be carried on simultaneously.

Some combination models are designed to be built under the counter, and one is meant to be part of a continuous counter arrangement with a separate back-splash installation. For these machines the controls are on the front rather than at the back.

Combinations are available which are provided with a water heater to help maintain the water temperature during washing, or even to raise the temperature a small amount. Some have the dispensers for laundry supplies similar to those described for the individual washer.

One manufacturer of combinations claims his washer gets more water out during the final spin than do other combinations, so clothes dry faster. In another combination the dryer preheats during the final spin of the wash cycle, so that drying starts a little sooner. Poor water extraction has been a problem with combinations; this situation contributed to lengthening the drying time, which then made washing and drying a long process. At the Laundry Conference a representative of one manufacturer stated that "a really up-to-date combination of today extracts as much water as a separate washer will; turns the clothing into the drying end of the combination with as little water retention as would a separate washing machine." So maybe this problem has been solved.

As with separate units, dryers of these combinations, if heated electrically, are sometimes of the condenser type, so moisture from them is no problem. Otherwise precautions about venting for operation in a small room should be observed.

It should be remembered that the total life of the washer-dryer is going to be determined by the life of one of the units, whichever is beyond repair first. This may or may not be a shorter time than the life of the separate washer and dryer. If the two had been purchased separately, replacement of both might be unnecessary. This is an economic consideration for many families.

Another economic consideration is original cost. The combination is a deluxe piece of equipment and should not be compared with the cost of the simplest washer plus the simplest dryer. The convenience of the deluxe features must then be evaluated in terms of greater cost.

OUTLOOK

Even in this detailed presentation some appliance features have been omitted. We can't overemphasize the necessity of looking for basic features and deliberating carefully the value of additions, often sales-geared rather than user-demanded.

Looking at the market today, it does not seem that the trend is toward simplification. Yet at the Parts and Service Conference of the American Home Laundry Manufacturers' Association this September there was a great cry for simplification. Speakers asked specifically for such things as:

1. Simplicity in design.
2. Each manufacturer to limit his production to one basic model, with the line expanded by adding proven features.
3. Changes in models only when actual technological advance is incorporated, rather than annual face-lifting.
4. Machines engineered for easy servicing, preferably from the front.

Such a program would make it easier to select an appliance, easier for the dealer to maintain his stock of appliances, and make servicing less difficult and in the long run less necessary.