



Simply Engineered Better

Technical Manual

Automatic Glasswasher



Model
MD18-1
MD18-2

Machine Serial No.

July, 2003

P.O. Box 4183
Winston-Salem, North Carolina 27115-4183

Moyer Diebel, U.S.
336/661-1992
Fax: 336/661-1979

Manual P/N 0509243 REV. F

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Complete the information below so it will be available for quick reference.

Model Number _____ Serial Number _____

Voltage and Phase _____

Moyer Diebel Parts Distributor _____ Phone _____

Moyer Diebel Service Agency _____ Phone _____

Moyer Diebel Service:

Moyer Diebel Limited

Phone: 1-905-562-4195

1-800-263-5798

Fax: 1-905-562-4618

Moyer Diebel, US

Phone: 1-336-661-1992

1-800-228-8350

Fax: 1-336-661-1660

NOTE: When calling to order parts, be sure to have the model number, serial number, voltage, and phase of your machine, along with your customer account number.

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Revision History

Revision Date	Revised Pages	Serial Number Effectivity	Comments
10/30/95	—	301	Issue of Manual and Replacement Parts
1/xx/97	All	301	Expanded Parts List
3/12/01	18, 19	G2735	Redesign of scrap screen and sump cover
3/12/01	24, 25	—	Replacement Impeller, Seal/Gasket kit, and Inlet Screen
3/11/01	26, 27	—	Added all drain valve components
2/5/03	29	—	Replaced 108391 with 113622 thermometer
7/23/03	17	—	Replaced 110229 with 0310138

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CONTENTS

	Page
WARRANTY	1
INTRODUCTION	2
GENERAL	3
INSTALLATION	5
Unpacking	5
Electrical Connections.....	5
Plumbing Connections	6
Detergent	6
Rinse-Aid	6
Chemical Sanitizer	6
Completing Installation.....	7
OPERATION	8
Operation Summary	8
Operation Procedures	8
MAINTENANCE.....	10
Cleaning Schedule.....	10
Deliming.....	11
Deliming Process.....	11
Maintenance Schedule.....	12
TROUBLESHOOTING	13
REPLACEMENT PARTS.....	15
ELECTRICAL DIAGRAM.....	36
TIMER CHART	37

LIST OF FIGURES

Figure 1—Overall View.....	15
Figure 2—Door, Tracks, Safety Switch Assembly	16
Figure 3—Upper & Lower Wash Arms & Hubs.....	18
Figure 4—Fill Valve Assembly.....	20
Figure 5—Chemical Pump Assembly	22
Figure 6—Wash Pump Assembly	24
Figure 7—Fill System & Drain System	26
Figure 8—Heating Element, Thermostat, Temperature Gauge.....	28

CONTENTS

Figure 9—Control Panel and Timer Assembly	30
Figure 10—Back Panel.....	32
Figure 11—Rack	34
Figure 12—Wiring Schematic.....	36
Figure 13—Timer Chart	37

LIMITED WARRANTY

Champion Industries/Moyer Diebel Limited, P.O. Box 4183, Winston-Salem, North Carolina 27115, and P. O. Box 301, 2674 North Service Road, Jordan Station, Ontario, Canada L0R 1S0 warrants machines, and parts, as set out below.

Warranty of Machines: Champion Industries/Moyer Diebel Limited warrants all new machines of its manufacture bearing the name "Champion" or "Moyer Diebel" and installed within the United States and Canada to be free from defects in material and workmanship for a period of one (1) year after the date of installation or fifteen (15) months after the date of shipment by Champion/Moyer Diebel, whichever occurs first. [See below for special provisions relating to Model Series DF and SW.] The warranty registration card must be returned to Champion/Moyer Diebel within ten (10) days after installation. If warranty card is not returned to Champion/Moyer Diebel within such period, the warranty will expire after one year from the date of shipment.

Champion/Moyer Diebel will not assume any responsibility for extra costs for installation in any area where there are jurisdictional problems with local trades or unions.

If a defect in workmanship or material is found to exist within the warranty period, Champion/Moyer Diebel, at its election, will either repair or replace the defective machine or accept return of the machine for full credit; provided, however, as to Model Series DF and SW, Champion/Moyer Diebel's obligation with respect to labor associated with any repairs shall end (a) 120 days after shipment, or (b) 90 days after installation, whichever occurs first. In the event that Champion/Moyer Diebel elects to repair, the labor and work to be performed in connection with the warranty shall be done during regular working hours by a Champion/Moyer Diebel authorized service technician. Defective parts become the property of Champion/Moyer Diebel. Use of replacement parts not authorized by Champion/Moyer Diebel will relieve Champion/Moyer Diebel of all further liability in connection with its warranty. In no event will Champion/Moyer Diebel's warranty obligation exceed Champion/Moyer Diebel's charge for the machine. The following are not covered by Champion/Moyer Diebel's warranty:

- a. Lighting of gas pilots or burners.
- b. Cleaning of gas lines.
- c. Replacement of fuses or resetting of overload breakers.
- d. Adjustment of thermostats.
- e. Adjustment of clutches.
- f. Opening or closing of utility supply valves or switching of electrical supply current.
- g. Adjustments to chemical dispensing equipment.
- h. Cleaning of valves, strainers, screens, nozzles, or spray pipes.
- i. Performance of regular maintenance and cleaning as outlined in operator's guide.
- j. Damages resulting from water conditions, accidents, alterations, improper use, abuse, tampering, improper installation, or failure to follow maintenance and operation procedures.

Examples of the defects not covered by warranty include, but are not limited to: (1) Damage to the exterior or interior finish as a result of the above, (2) Use with utility service other than that designated on the rating plate, (3) Improper connection to utility service, (4) Inadequate or excessive water pressure, (5) Corrosion from chemicals dispensed in excess of recommended concentrations, (6) Failure of electrical components due to connection of chemical dispensing equipment installed by others, (7) Leaks or damage resulting from such leaks caused by the installer, including those at machine table connections or by connection of chemical dispensing equipment installed by others, (8) Failure to comply with local building codes, (9) Damage caused by labor dispute.

Warranty of Parts: Champion/Moyer Diebel warrants all new machine parts produced or authorized by Champion/Moyer Diebel to be free from defects in material and workmanship for a period of 90 days from date of invoice. If any defect in material and workmanship is found to exist within the warranty period Champion/Moyer Diebel will replace the defective part without charge.

DISCLAIMER OF WARRANTIES AND LIMITATIONS OF LIABILITY. CHAMPION/MOYER DIEBEL'S WARRANTY IS ONLY TO THE EXTENT REFLECTED ABOVE. CHAMPION/MOYER DIEBEL MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY WARRANTY OF MERCHANTABILITY, OR FITNESS OF PURPOSE. CHAMPION/MOYER DIEBEL SHALL NOT BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES. THE REMEDIES SET OUT ABOVE ARE THE EXCLUSIVE REMEDIES FOR ANY DEFECTS FOUND TO EXIST IN CHAMPION/MOYER DIEBEL DISHWASHING MACHINES AND CHAMPION/MOYER DIEBEL PARTS, AND ALL OTHER REMEDIES ARE EXCLUDED, INCLUDING ANY LIABILITY FOR INCIDENTALS OR CONSEQUENTIAL DAMAGES.

Champion/Moyer Diebel does not authorize any other person, including persons who deal in Champion/Moyer Diebel dishwashing machines, to change this warranty or create any other obligation in connection with Champion/Moyer Diebel Dishwashing Machines.

INTRODUCTION

Welcome to **Moyer Diebel**.

Thank you for choosing **Moyer Diebel** and for allowing us to take care of your glasswashing/warewashing needs.

This manual covers two models (MD 18-1, MD 18-2). Model numbers are shown on the front cover.

Your machine has been completely assembled, inspected, and thoroughly tested at our factory to eliminate problems at installation before it was shipped to your installation site. This manual provides:

- Warranty information
- Installation and operation procedures
- Maintenance instructions
- Troubleshooting guide
- Replacement parts lists.
- Electrical diagrams.

Complete and return your warranty registration card as soon as possible.

Moyer Diebel constantly improves its products; therefore, specifications contained in this manual may have changed.

For your protection, factory authorized parts should always be used.

Replacement parts may be ordered from your **Moyer Diebel** authorized parts distributor or service agency*. When ordering parts, supply the model number, serial number, voltage and phase of your machine, the part number, part description, and quantity.

***Moyer Diebel** can only ship parts to customers with accounts or by C.O.D.

GENERAL

This manual covers the **Moyer Diebel** automatic glasswashing machine.

Standard equipment includes:

- Automatic tank fill
- Common utility connections
- 120 Volt circuit
- Convenient, easy to use controls
- Three chemical pumps
- Upper and lower wash/rinse arms
- Two racks
- Stainless steel heavy-gauge construction
- Pumped Drain

This series of glasswashers is available in the following models:

Model Numbers

MD18-1, MD18-2

- The MD18-1 model is a single door chemical sanitizing rack glasswashing/warewashing machine.
- The MD18-2 model is a two door chemical sanitizing rack glasswashing/warewashing machine.
(specify front to back *or* side-to-side operation)

Accessories

- RS19-24 - 19" wide rack stand with 24" high drain board
- RS19-30 - 19" wide rack stand with 30" high drain board
- RS25-24 - 25" wide rack stand with 24" high drain board
- HS1930 - 19" wide hand sink with scrap basket (30" high)

Options

- P/N 0709242 - Cycle Counter
- P/N 0709241 - Remote cycle switch
- Racks - Peg, Flat, Glass

Electrical Power Requirements

Model	Voltage	Booster Rise	Machine Full Load Amp	Power Requirement (125% Service Factor)
MD18-1	115/60/1	N/A	12	15
MD18-2	115/60/1	N/A	12	15

⇒ NOTE:

All machines come with a 5 Foot cord and plug. Standard 15 amp receptacle required.

INSTALLATION

Unpacking

WARNING:

Care should be taken when lifting the machine to prevent damage.

1. Immediately after unpacking your machine, inspect for any shipping damage. If damage is found, save the packing material and contact the carrier immediately.
2. Remove the glasswasher from the skid. Adjust the feet if required, then move the machine to its permanent location.
3. Level the machine (if required) by placing a level on the top of the machine and adjusting the leveling feet. Level the machine front-to-back and side-to-side.

CAUTION:

After locating your machine, it must meet local health codes.

Electrical Connections

WARNING:

Electrical and grounding connections must comply with the National Electrical Code and/or Local Electrical Codes.

WARNING:

When working on the glasswasher, disconnect the electric service and tag it to indicate work is being done on that circuit.

1. The electrician should compare the electrical specifications on the machine to the electrical power supply before connecting the machine to the incoming service at a fused disconnect switch.
2. Your machine is already equipped with a 5-foot/1.5m power cord and plug suitable for 115V-15A service.

Plumbing Connections

CAUTION:



Plumbing connections must comply with local sanitary and plumbing codes.

Water Connections

1. Connect the hot water supply (140°F/60°C Min) to the fill solenoid valve (located behind the front panel). The fill solenoid valve is equipped with a flow control that will accept water pressures from 20 psi to 70 psi.
2. Install a manual shut-off valve in the water supply line to accommodate servicing the machine. The shut-off valve should be the same size or larger than the supply line.
3. The fill solenoid valve is equipped with a built-in strainer to protect from particles in the water supply.

Drain Connections

1. Your Moyer Diebel glasswasher is supplied with a flexible 5/8" I.D. drain hose, which must be connected to a 1-1/2" drain using a wye (Y) fitting. Additional drain hose may be purchased from a Moyer Diebel parts distributor.

Detergent

1. Use a qualified detergent/chemical supplier for your detergent, rinse aid, and chemical sanitizer needs.
2. Your machine is supplied with a chemical dispensing system that is internally wired and ready for use. Insert the labeled *Chemical* pickup tubes into the correct containers. The pickup tubes have a strainer on the end to prevent crystallized chemical from clogging the supply lines.
3. The cycle timer located in the main control cabinet is equipped with adjustable cams for the chemical dispensing pump(s). The cams control the length of time that the pumps operate. A qualified person should adjust the cam settings if necessary. Refer to the timer chart diagram(s) at the end of the manual for timer cam locations and factory time settings.

NOTE:



A nonchlorinated, nonfoaming commercial detergent is recommended for your glasswasher.

Rinse Aid

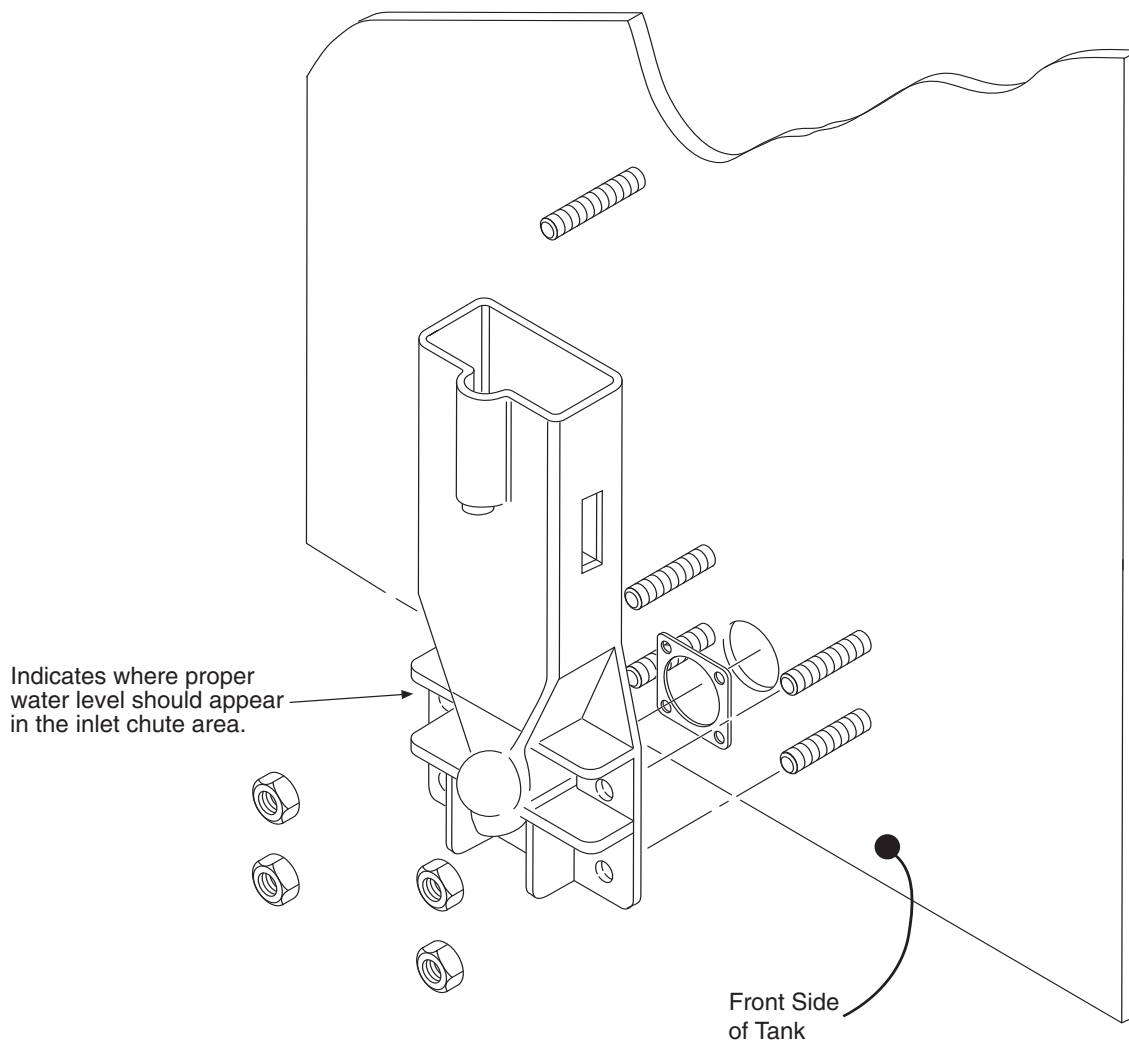
1. Using a liquid rinse aid, insert the labeled *Rinse Aid* pickup tube into the rinse aid container.

Chemical Sanitizer

1. Using a 5.25% or 8.4% sodium hypochlorite solution, insert the labeled *Chemical Sanitizer* pickup tube into the chemical sanitizer container.
2. Contact your chemical supplier for adjustment of the chemical sanitizer.

Completing Installation

1. Remove any foreign material from inside the machine.
2. Check to assure scrap basket and sump cover are in place.
3. After plumbing and electrical connections are completed, check the machine for water leaks by depressing the **ON/FILL** switch on the front panel, then close and latch the door(s). This allows the tank to fill and to complete the rinse cycle. Check for leaks.
4. Open the door and check the water level. Water level should be at bottom of scrap screen.
5. Depress the **OFF/DRAIN** switch, close door, push start switch to drain the tank. This allows the machine to complete the wash and drain cycle. Check the drain plumbing for leaks.
6. Installation is now complete.



OPERATION

Operation Summary

The following is a summary of your Glasswashing Machine operating cycle:

1. The cycle begins when you close the door and push the cycle switch.
2. The green cycle lamp lights and the pump starts.
3. The pump runs during the wash cycle.
4. The pump stops, and the drain valve is opened.
5. After a 2-3 second pause, the pump drain cycle begins.
6. After a 2-3 second pause, the fill valve opens, and the pump starts for the rinse cycle.
7. When the rinse cycle is complete, the pump stops, the green cycle lamp turns off, and the cycle is complete.
8. Open the door and remove the rack of clean ware.

Operation Procedures

The operation of your glasswasher will be more efficient when these procedures are followed:

1. Check that the spray arms and scrap basket are in place.
2. Close the door(s). Push the **ON/FILL** switch to the **ON** position. The tank will begin filling with water. This procedure is followed only when the tank is empty.
3. When the tank is full, check the wash tank temperature gauge. Minimum wash temperature is 140°F/60°C.
4. Scrap all glasses to be washed, and load the glasses into the rack. **DO NOT OVERLOAD THE RACK.**
5. Open the door and insert the rack into the machine.
6. Shut the door, push cycle switch. This will start the wash cycle. The green cycle lamp located on the front control panel will light. This lamp will remain on until the entire wash and rinse cycle is completed.

⇒ NOTE:

The machine may be stopped at any time by opening the door. When restarted, the cycle does not start over. It will continue from the point at which it was interrupted.

7. The pump will automatically stop and the green cycle light will turn off indicating the cycle is completed.
8. Open the door and remove the rack.
9. Repeat steps 4-9 for additional cycles.
10. CLEAN the scrap basket after every use period. During heavy usage, the scrap basket should be cleaned more frequently.

**CAUTION:**

Poor machine performance and/or damage to the machine can occur if the scrap basket becomes clogged with soil or waste particles.

11. After completing usage for the day, water in the tank should be drained by depressing the OFF/DRAIN switch and closing the door(s). Push the start switch. This initiates a wash and drain cycle that drains the tank.

**CAUTION:**

DO NOT LEAVE WATER IN THE TANK OVERNIGHT. Water left in the tank overnight will allow corrosive chemicals to deteriorate the tank.

MAINTENANCE

The efficiency and life of your machine is increased by regularly scheduled preventive maintenance. A well maintained machine gives better results and service. An investment of a few minutes of daily maintenance will be worthwhile.

The best maintenance you can provide is to keep your machine clean. Components that are not regularly cleaned and flushed will clog and become inoperative.

Intervals shown in the following schedules represent an average length of time between necessary maintenance. Maintenance intervals should be shortened whenever your machine is faced with abnormal working conditions, hard water, or multiple shift operations.

Cleaning Schedule

- **Daily-Every 8 Hours**
 1. Depress the **OFF/DRAIN** switch to **OFF** and close the door. Push cycle switch to drain the tank.
 2. Open the door and remove both the upper and lower spray arms by unscrewing the knurled fastener holding each spray arm.
 3. Remove the scrap basket carefully to keep soil or waste particles from falling into the sump.
 4. Clean inside the tank with clean water. Backflush the scrap basket until it is clean. Do not strike the scrap basket against solid objects.
 5. Clean the wash arms to remove any debris from spray openings. Do not strike the spray arms against solid objects.
 6. Reinstall the scrap basket and spray arms.
 7. Leave the door open overnight to allow drying.
 8. Report any unusual conditions to your supervisor.
- **Use Periods**
 1. Clean the scrap basket after every use period and more frequently during heavy usage. Do not allow the scrap basket to become clogged with soil or waste particles.

Deliming

Your glasswasher should be delimed regularly as required. This will depend on the mineral content of your water.

Inspect your machine interior for lime deposits. If deliming is required, a deliming agent should be used for best results.



DANGER:

Deliming solution or other acids must not come in contact with household bleach (sodium hypochlorite) or any chemicals containing chlorine, iodine, bromine, or fluorine. Mixing will cause hazardous gases to form. Skin contact with deliming solutions can cause severe irritation and possible chemical burns. Consult your chemical supplier for specific safety precautions.

Contact Chemical supplier for delime chemical and instruction on how to use.

Maintenance Schedule

- **As Required**
 1. Check the temperature gauge reading.
 2. Check the chemical supplies and refill as necessary.
- **Weekly**
 1. Inspect all water lines for leaks and tighten them at joints if required.
 2. Clean all detergent residue from the exterior of the machine.
 3. Check the drain for leaks.
 4. Clean accumulated scale from the heating element.
 5. Remove and closely inspect each spray arm for blockage.
 6. Check for damage to the scrap screen. Ineffective screening can cause wash system failures.
 7. Flush the detergent, sanitizer, and rinse aid supply tubes by the following procedure:
 - a. Remove the detergent, sanitizer, and rinse aid pick-up tube(s) from the container(s). Place the tube(s) into a container of hot water.
 - b. Depress and hold the **DET** prime switch (located on the front panel) until clear water enters the tank through the fill air gap (located on the side of the tank).
 - c. Follow the same procedure by pressing the **SANITIZER** and/or the **RINSE AID** prime switch until clear water enters the tank through the fill air gap.
 - d. When completed, remove the pickup tubes from the hot water and reinsert them into the correct chemical containers. Repeat the priming procedures to ensure that chemicals have filled the tubes for the next operating period.
 - e. Run a complete cycle to flush chemicals from the tank.

TROUBLESHOOTING

Before determining any specific cause of a breakdown or abnormal operation of your glasswasher, check that:

1. All switches are ON.
2. Wash arms are clean.
3. Scrap screen is properly positioned and clean.
4. Thermostat(s) are at their correct setting.
5. Sanitizer, detergent, and rinse additive dispensers are adequately filled.
6. All plumbing valves are open.

If a problem still exists, use the following table for troubleshooting.

CONDITION	CAUSE	SOLUTION
Machine will not start	Door not closed	Make sure door is fully closed
	Main switch off, or unit unplugged	Check disconnect or plug into outlet
Low or no water	Main water supply is turned off	Turn on house water supply
Chemical not feeding	No chemical in container.....	Replace or fill container
	Feed tubes to/from chemical	Clear obstruction and flush with hot water
	pump clogged	Clean and replace
	Screen on feed tube clogged.....	Straighten or replace tubing
Tubing kinked or split		
Water temperature is low when in use	Incoming water temperature..... at machine too low	Raise temperature to 60°C/140°F for all machines
Insufficient pumped spray pressure	Clogged spray arm	Clean
	Scrap screen full	Must be kept clean and in place
Poor washing results	Detergent dispenser not..... operating properly	Contact service agent
	Insufficient detergents	Check and fill
	Detergent setting too low	Contact detergent supplier
	Wash water temperature too low.....	Contact detergent supplier
	Wash arm clogged	Check incoming water temp
	Clean wash arm	
	Improperly scrapped glasses	Check scrapping procedures
	Ware being improperly..... placed in rack	Use proper racks - do not overload racks
	Improperly cleaned	Unclog wash arms to maintain proper pressure and flow conditions
	equipment	
Electric element has	Clean and delime	
soil/lime buildup		
Machine overflows on to floor	Wash pump impeller	Remove pump assembly and clean impeller plugged with trash

TROUBLESHOOTING

CONDITION	CAUSE	SOLUTION
No water in wash well	Opening door prior to cycle completion	Close door. Wait for green cycle light to go out before opening door.
No water in wash tank after activating the ON/FILL switch	Door not closed	Close door. Wait for wash tank to fill.

MODEL MD18-1



Figure 1 — Overall View of MD18-1

Fig. 1 Item No.	Part No.	Description	Qty
1	0709072	Hood, one door model.....	1
	0709074	Hood, two door model.....	1
1	0709421	Hood, welded (High hood models only)	1
2	0709069	Door, service	1
3	0309085	Hinge, service door	1
4	111370	Screw (10-32 x 5/8 hex hd w/washer SS)	2
5	0508751	Screw (10-32 x 1-1/2 truss hd SS)	1
6	0509671	Legs 4" (Optional).....	4
6	112587	Legs 6"	4

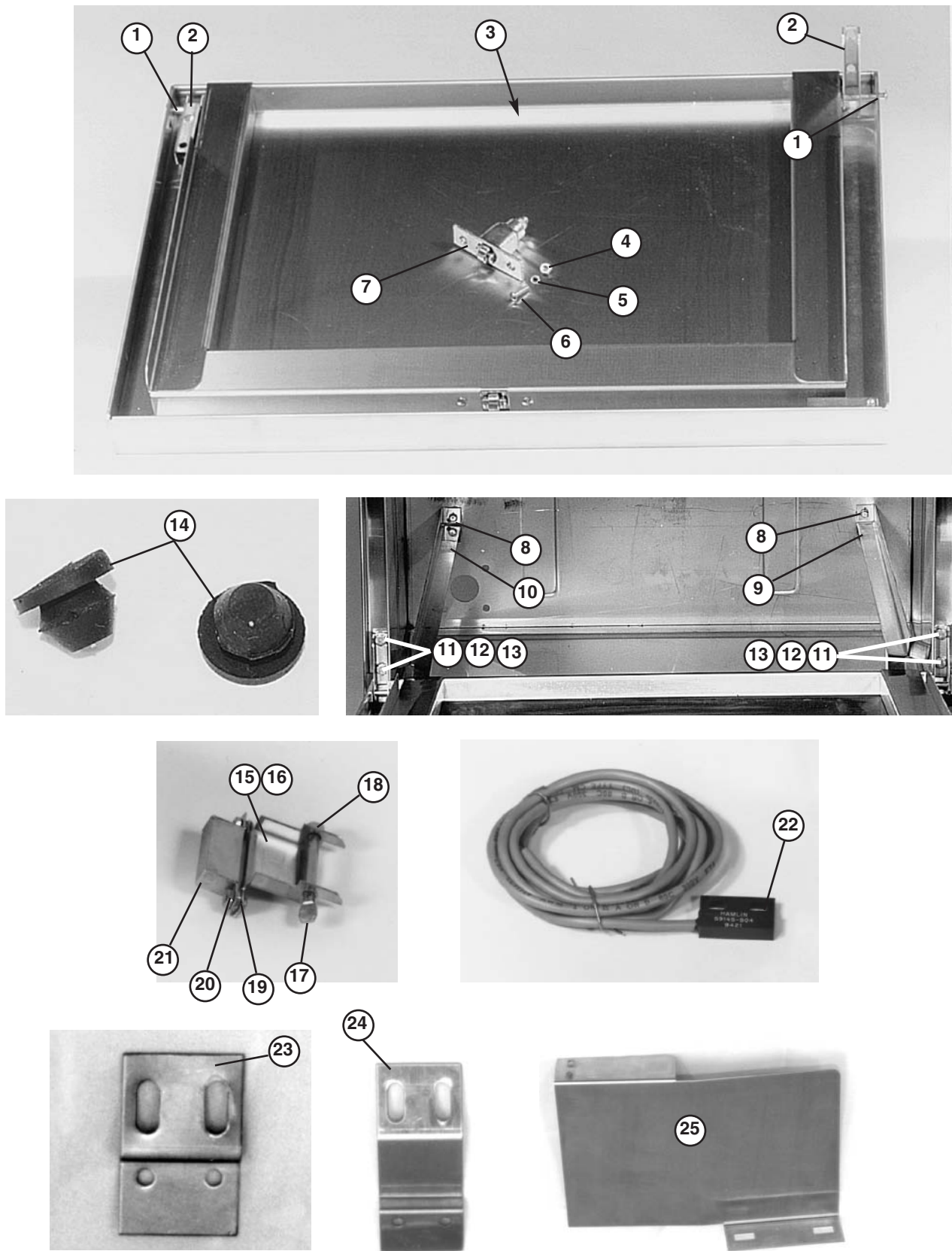


Figure 2 — MD18-1, MD18-2 Door, Tracks, Safety Switch

MD18-1, MD18-2
DOOR, TRACKS, SAFETY SWITCH

Fig. 2 Item No.	Part No.	Part Description	Qty
1	110228	Pin, door	2
2	0310138	Support, door	2
3	0709071	Door assembly (Does not include items 1, 2, 4-7, 17, 18) MD18-1	1
		MD18-2	2
3	0709414	Door Assembly (Does not include items 1, 2, 4-7, 17, 18) High hood only	1
4	0501538	Nut (8-32 SS)	2
5	0501497	Lockwasher	2
6	0501425	Screw (8-32 x 5/8 rd hd SS)	2
7	110233	Catch, door	1
8	107137	Bolt (10-32 x 7/8 hex SS)	4
9	0309123	Guide, rack RH	1
10	0309124	Guide, rack LH	1
11	0501539	Nut (1/4-20 SS)	4
12	0501501	Lockwasher	4
13	0501419	Bolt (1/4-20 x 1/2 hex SS)	4
14	107893	Shock absorber, door, per door	2
*15	0309301	Bracket, door magnet, long	A/R
*16	0309102	Bracket, door magnet, short	A/R
17	0509251	Thumbscrew (1/4-20 x 2-3/4 SS), per door	1
18	0501539	Nut (1/4-20 x 1/2 SS), per door	1
19	104985	Nut (10-32 SS), per door	2
20	0501412	Screw (10-32 x 3/8 truss hd SS), per door	2
21	111026	Magnet, door safety, per door	1
22	111090	Switch, magnetic reed, per door	1
#23	0309228	Bracket, front switch mounting	A/R
#24	0309229	Bracket, rear switch mounting	A/R
#25	0309236	Bracket, corner switch mounting	A/R
26	0501449	Screw (6-32 x 3/8 rd hd SS) (Not shown) per switch bracket	2
27	108954	Nut (6-32 SS Nylite) (Not shown), per switch bracket	2

*MD18-1 Requires (1) 0309301 bracket.

MD18-2 Front-to-Back configuration requires (1) 0309301 and (1) 0309102.

MD18-2 Side-to-Side configuration requires (2) 0309301.

#MD18-1 Requires (1) 0309228.

MD18-2 Front-to-Back requires (1) 0309228 and (1) 0309229.

MD18-2 Side-to-Side requires (1) 0309228 and (1) 0309236.

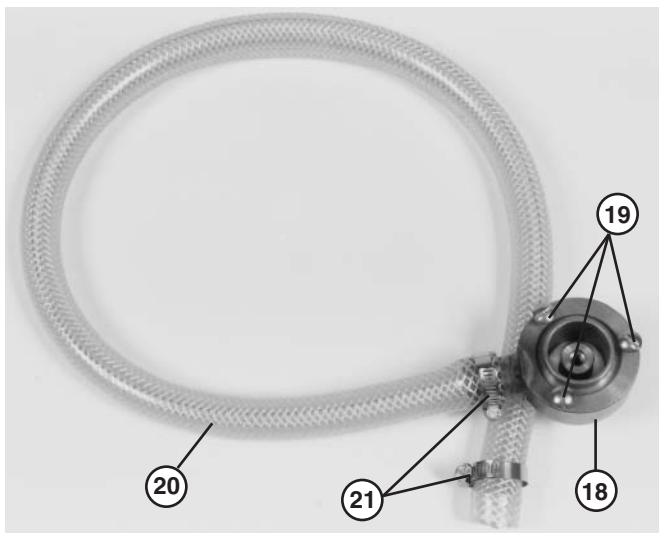
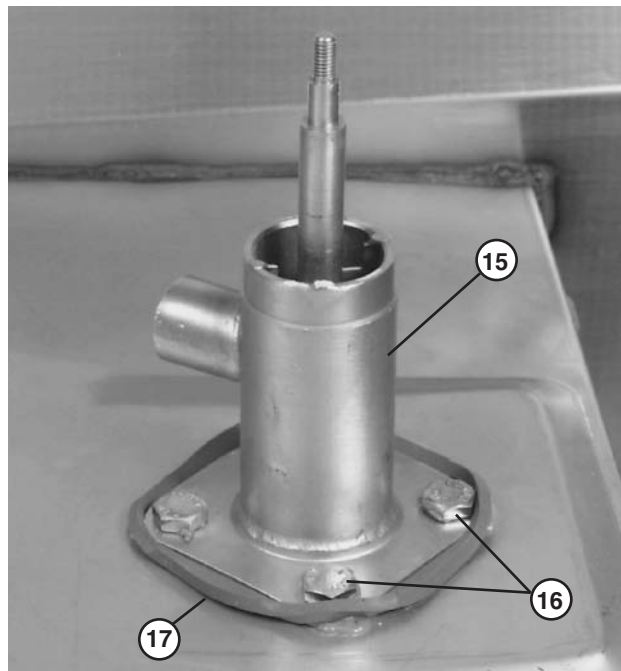
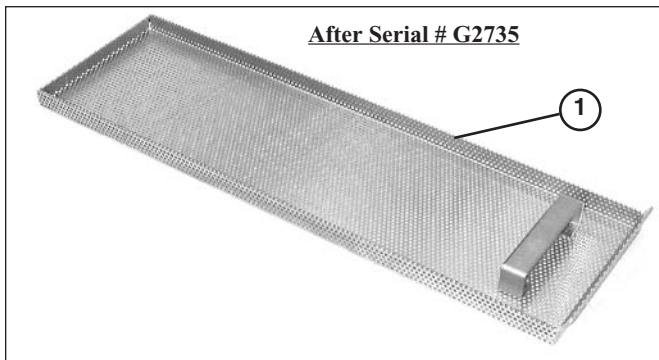
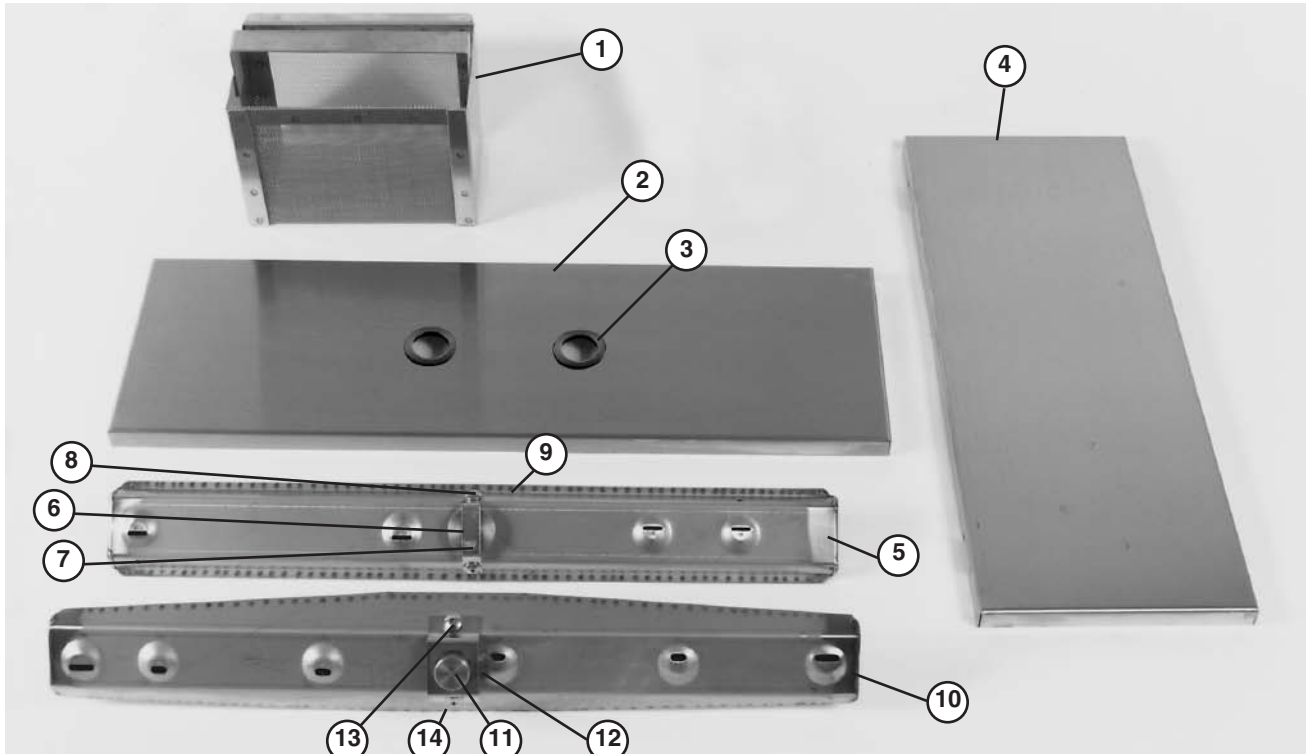


Figure 3 — Upper & Lower Wash Arms & Hubs

MD18-1, MD18-2

UPPER & LOWER WASH ARMS & HUBS

Fig. 3 Item No.	Part No.	Part Description	Qty
1	0709105	Scrap screen assembly (Prior to Serial no. G2735).....	1
1	0710339	Scrap screen assembly (After Serial no. G2735).....	1
2	0309113	Cover, wash tank	1
3	107964	Grommet, snap bushing	2
4	0709479	Cover, sump assy. (Prior to Serial no. G2735)	1
4	0710339	Scrap Screen (After Serial no. G2735).....	1
5	0709131	Upper spray arm, without bearing	1
6	0505042	Upper spray arm pivot	1
7	0308783	Clip, pivot retaining	1
8	0501563	Screw (8-32 x 3/8 truss hd SS)	2
9	0508541	Support, upper spray arm	1
	0709130	Complete upper wash arm assembly (Includes items 5-9)	
10	0709127	Lower spray arm, without bearing.....	1
11	0501684	Locknut	1
12	0308158	Clip, locknut retaining	1
13	0501563	Screw (8-32 x 3/8 truss hd SS)	2
14	0505044	Support, lower spray arm	1
	0709126	Complete lower wash arm assembly (Includes items 11-15)	
15	0709134	Lower wash arm manifold.....	1
16	0501419	Bolt (1/4-20 x 1/2 hex SS).....	4
17	0309212	Gasket, manifold.....	1
18	0708650	Manifold, upper wash arm.....	1
19	0501412	Screw (10-32 x 3/8 truss hd SS)	3
20	0507265	Hose 5/8 ID x 7/8 OD, per ft.	3
21	0508808	Clamp, 3/4 gear SS	1

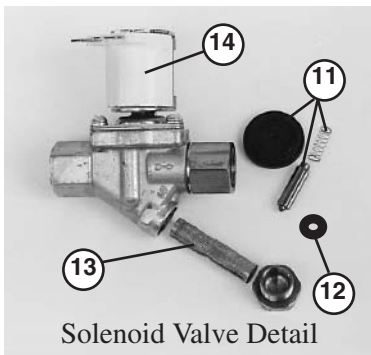
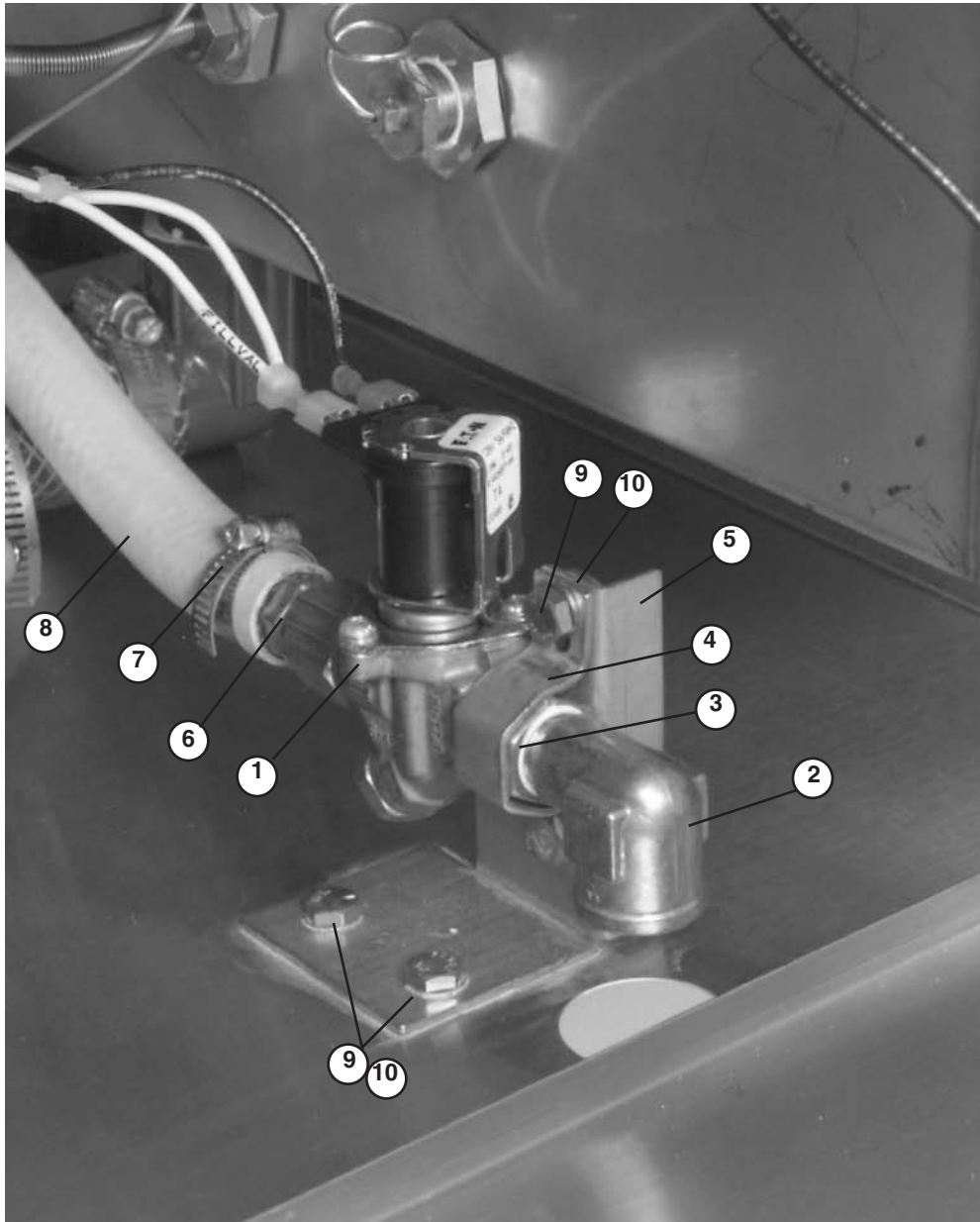


Figure 4 — Fill Valve Assembly

MD18-1, MD18-2

FILL VALVE ASSEMBLY

Fig. 4 Item No.	Part No.	Description	Qty
1	0504952	Valve, fill solenoid.....	1
2	0503713	Elbow, street 1/2 FPT x 3/8 MPT.....	1
3	0502618	Coupling, reducing 1/2 FPT x 3/8 MPT.....	1
4	0300203	Clamp, fill valve support.....	1
5	0300065	Support, fill valve.....	1
6	0502653	Elbow, 3/8 MPT x 1/2 hose (90 degree).....	1
	0502618	Coupling, reducing 1/2 FPT x 3/8 MPT (Straight)	1
7	0503679	Clamp, hose	1
8	0507265	Hose, 5/8 ID x 7/8 OD PVC braid	1
9	0501419	Bolt (1/4-20 x 1/2 hex SS).....	3
10	0501501	Lockwasher	3
11	0502811	Kit, valve repair.....	1
12	0504958	Washer, flow.....	1
13	0502803	Screen	1
14	0505235	Coil, 115VAC	1

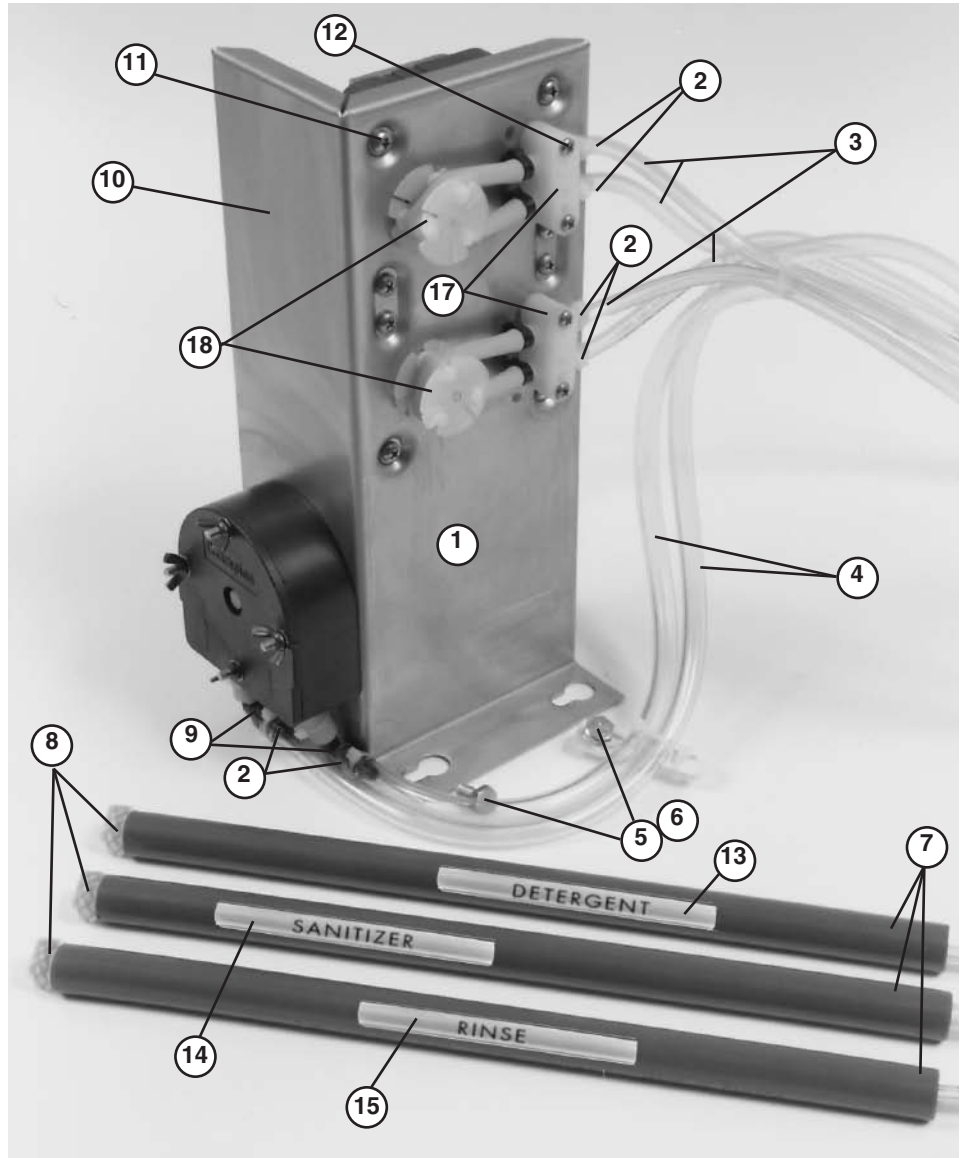
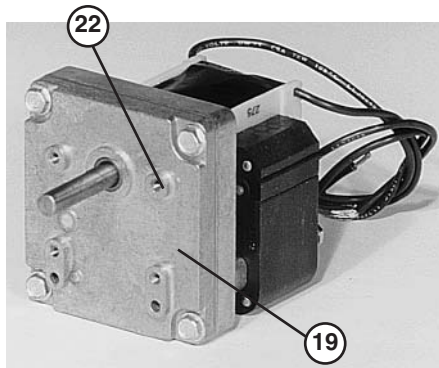
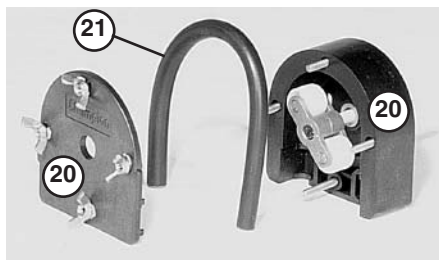
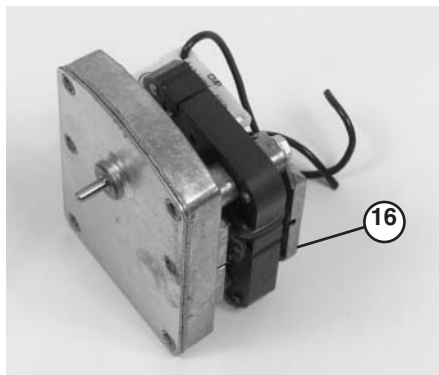


Figure 5 — Chemical Pump Assembly

MD18-1, MD18-2
CHEMICAL PUMP ASSEMBLY

Fig. 5 Item No.	Part No.	Description	Qty
1	0709100	Chemical pump assembly.....	1
2	0501519	Tie, nylon 4 inch (One at each indication)	6
3	0502666	Hose, 1/8 ID x 1/4 OD, per foot.....	A/R
4	0502667	Hose, 1/4 ID x 3/8 OD, per foot.....	A/R
5	0501419	Bolt (1/4-20 x 1/2 hex SS).....	2
6	0501501	Lockwasher	2
7	0306363	Tubing, stiffener	3
8	0501869	Strainer	3
9	0502644	Elbow, 1/4 hose barbed	2
10	0309101	Bracket, chemical pump.....	1
11	0504822	Screw (8-32 x 1/2 pan hd Phillips SS)	10
12	0506589	Screw (6-32 x 7/8 pan hd Phillips SS)	4
		(2 each included with item 17, element tube)	
13	0503695	Label, "DETERGENT".....	1
14	0503694	Label, "SANITIZER".....	1
15	0505483	Label, "RINSE".....	1
16	0503756	Motor, injector.....	2
17	0706635	Tube, element assembly 45 cc.....	2
		(Includes mounting screws)	
18	0707142	Rotor assembly	2
19	0503757	Motor, pump drive, with reducer.....	1
20	109829	Pump, detergent.....	1
21	108194	Tube, 3/16 ID x 3/8 OD.....	1
22	0501425	Screw (8-32 x 5/8 rd hd SS).....	2

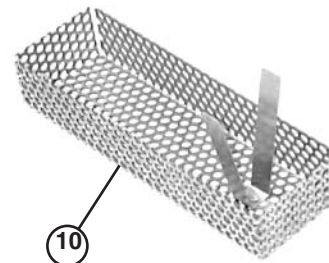
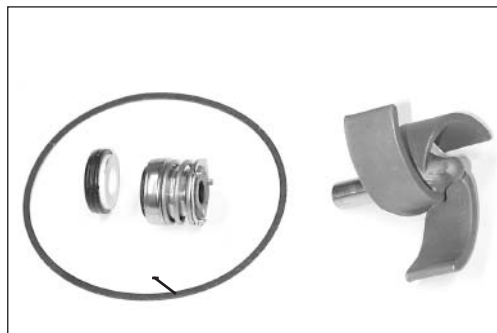
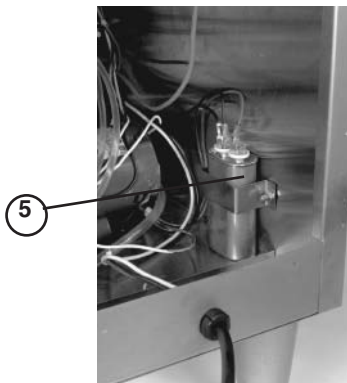
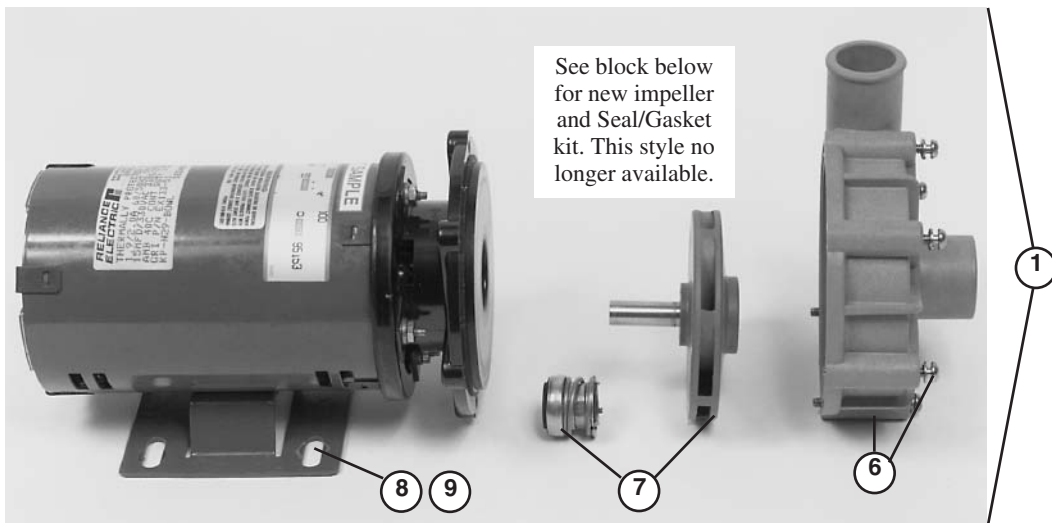
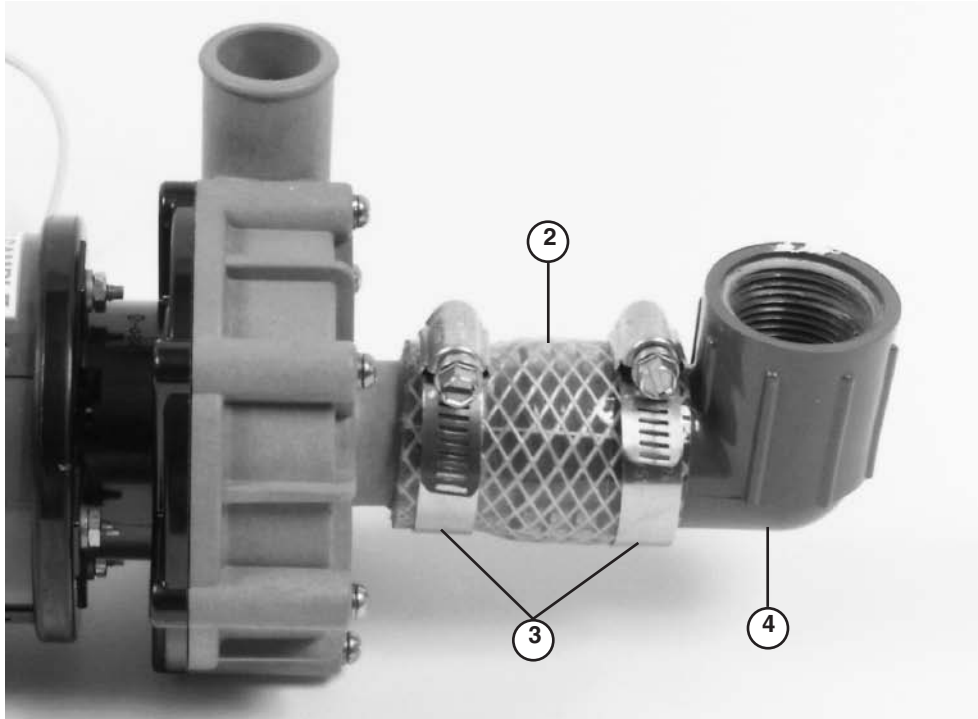


Figure 6 — Wash Pump Assembly

MD18-1, MD18-2

WASH PUMP ASSEMBLY

Fig. 6 Item No.	Part No.	Description	Qty
1	0509096	Pump, wash MD-18.....	1
2	0509235	Hose, 1-1/4 x 1-5/8 braided (3 inch length)	1
3	0502571	Clamp, 1-1/2 gear	2
4	0509239	Elbow, 1-1/4 hose x 1 FPT PVC	1
5	0509282	Capacitor, motor starting	1
6	0509303	Housing, pump kit	1
		(Includes 8-32 x 1-3/4 round head Phillips screws and #8 washers)	
7	0510222	Kit, Seal and gasket	1
8	0501419	Bolt (1/4-20 x 1/2 hex SS).....	4
9	0501501	Lockwasher.....	4
10	0709393	Screen, inlet	1
11	0510221	Impeller, Stainless Steel.....	1

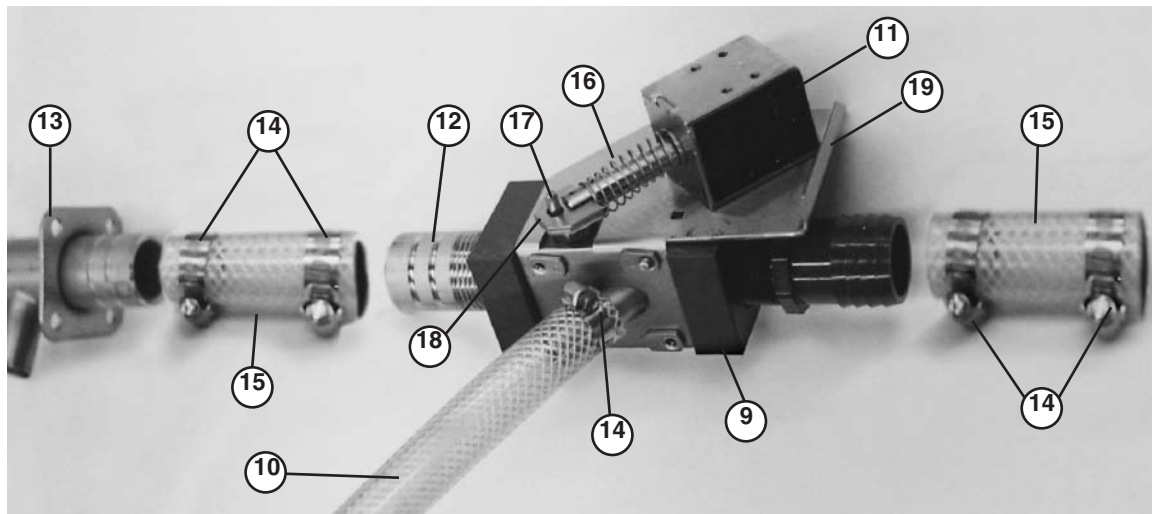
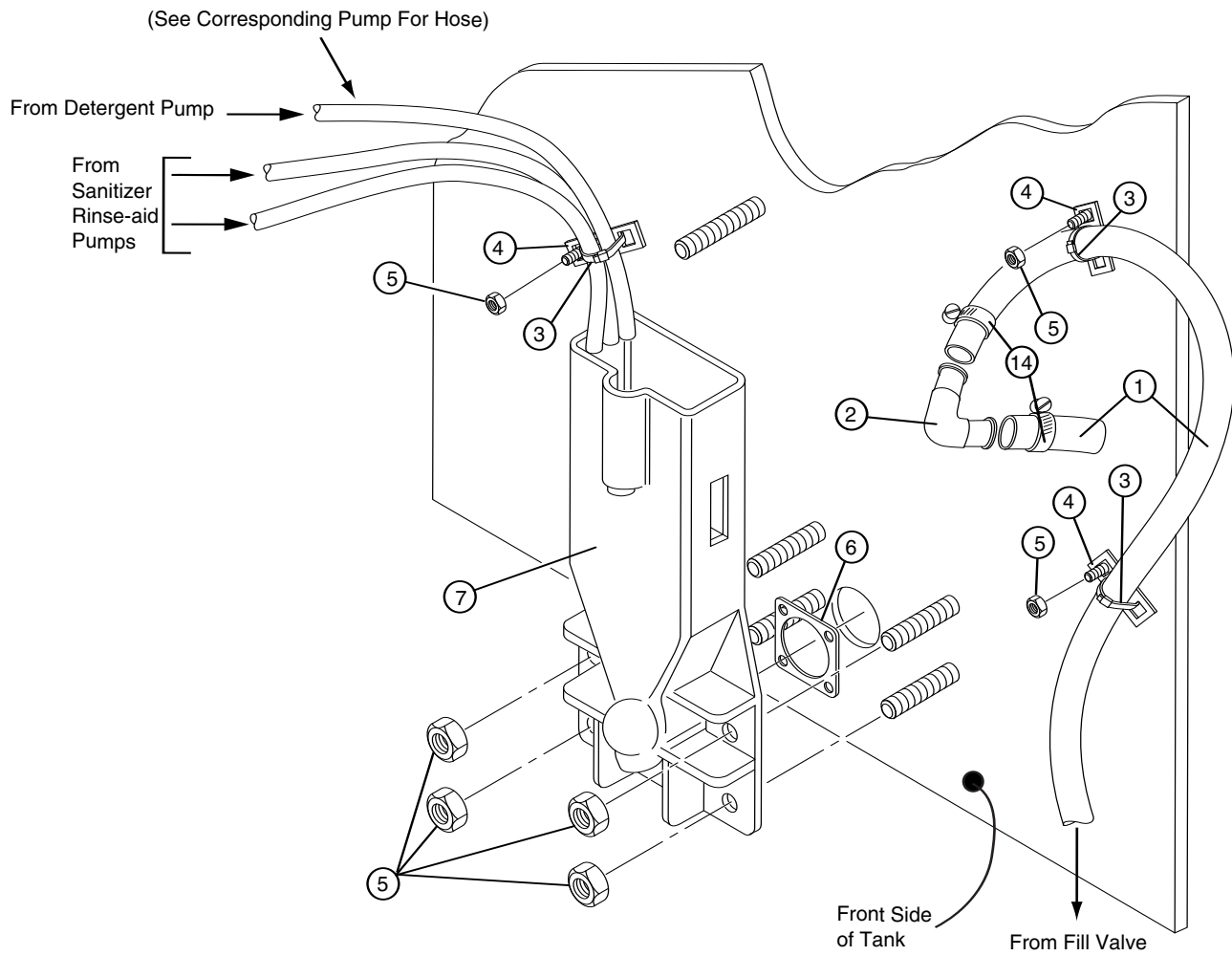


Figure 7 — Fill System & Drain System

MD 18-1, MD 18-2

FILL SYSTEM AND DRAIN SYSTEM

Fig. 7 Item No.	Part No.	Description	Qty
1	0507265	Hose, 5/8 ID x 7/8 OD PVC braided.....	3
2	0509324	Elbow, 5/8 inch 90° plastic barbed.....	1
3	0501518	Tie, nylon 5-1/2 inch	2
4	106090	Plate, tie wrap bracket	2
5	107966	Nut (10-32 Nylite).....	7
6	0509048	Gasket, inlet chute	1
7	0508867	Chute, inlet	1
8	0501519	Tie, nylon 4 inch (Not shown).....	3
*9	0709223	Valve, drain (Complete assembly)	1
—	0509224	Body, drain valve (Body only) (Not shown).....	A/R
—	0509225	Gasket drain cover (Not shown).....	1
10	0509302	Hose, 5/8 ID x 7/8 OD x 60 inch braided.....	1
11	0709285	Solenoid, drain valve	1
—	0509225	Solenoid coil, drain valve (Not shown).....	1
12	0509184	Pipe, valve extension.....	1
13	0709134	Manifold, bottom.....	1
14	0503679	Clamp, hose	5
15	0509235	Hose, 1-1/4 ID x 1-5/8 OD x 4 inch braided.....	26
16	0509226	Spring, drain valve	1
17	0709252	Flapper pivot assembly.....	1
18	0709140	Drain flapper assembly.....	1
19	0309392	Valve support bracket.....	1

* 0709223 Includes items 11, 16, 17, 18

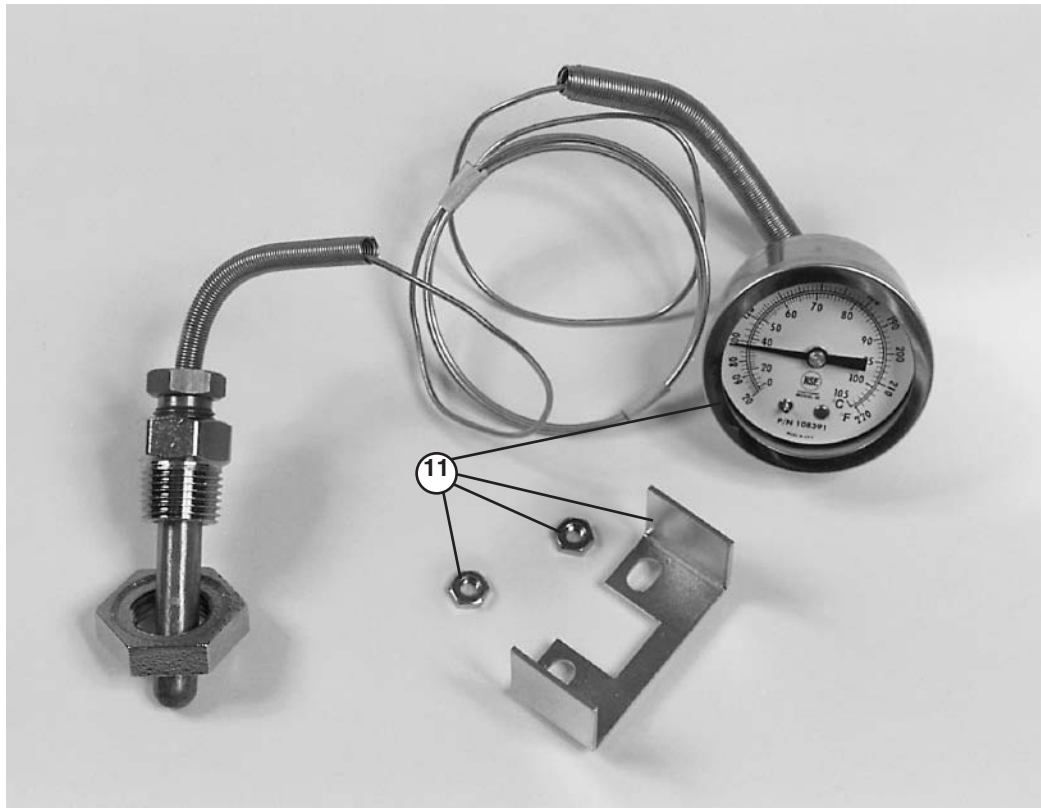
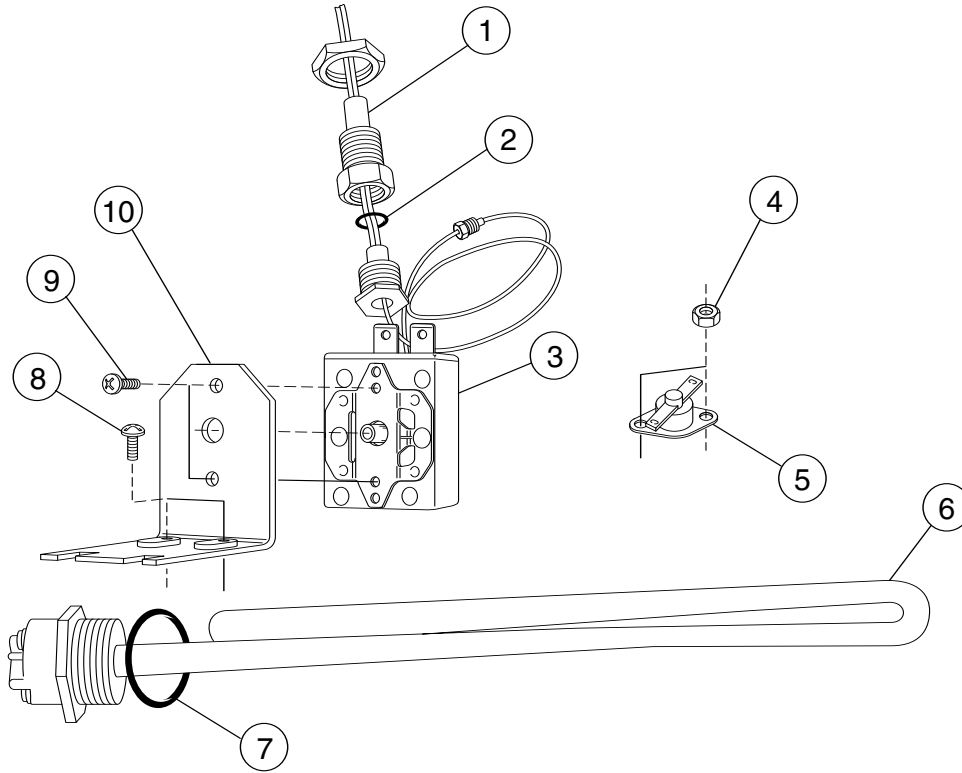


Figure 8 — Heating Element, Thermostat, Temperature Gauge

MD18-1, MD18-2

HEATING ELEMENT, THERMOSTAT, TEMPERATURE GAUGE

Fig. 8 Item No.	Part No.	Description	Qty
1	0501650	Adapter, thermostat	1
2	0501836	O-ring, thermostat adapter.....	1
3	0507323	Thermostat, wash tank.....	1
4	108954	Nut (6-32 Nylite).....	2
5	110562	Thermostat, bi-metal	1
6	0507315	Heater, 240 Volt 3kw (Includes O-ring)	1
7	0503588	O-ring, replacement (Included with heater)	1
8	0501412	Screw (10-32 x 3/8 truss hd)	2
9	0501450	Screw (6-32 x 1/4 round hd NIBS)	2
10	0300096	Bracket, thermostat.....	1
11	113622	Thermometer, flange type 4 ft./1.2 M Gas Filled (Includes mounting hardware) (Replaces 108391)	1

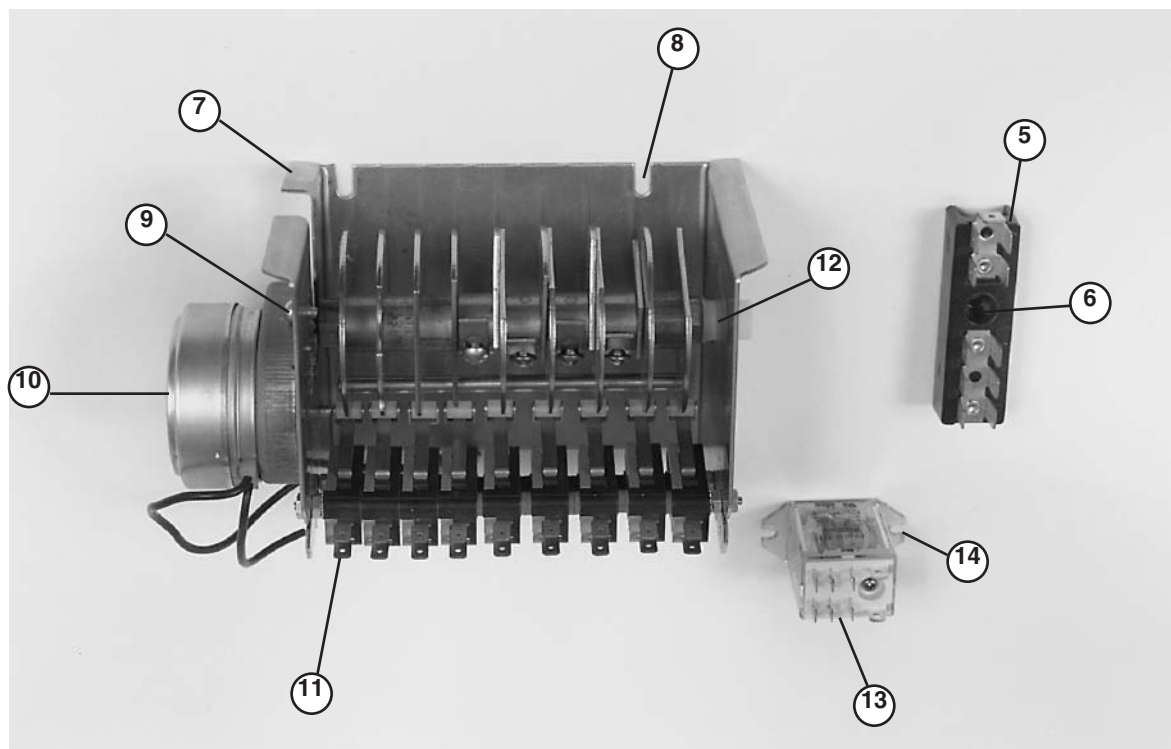
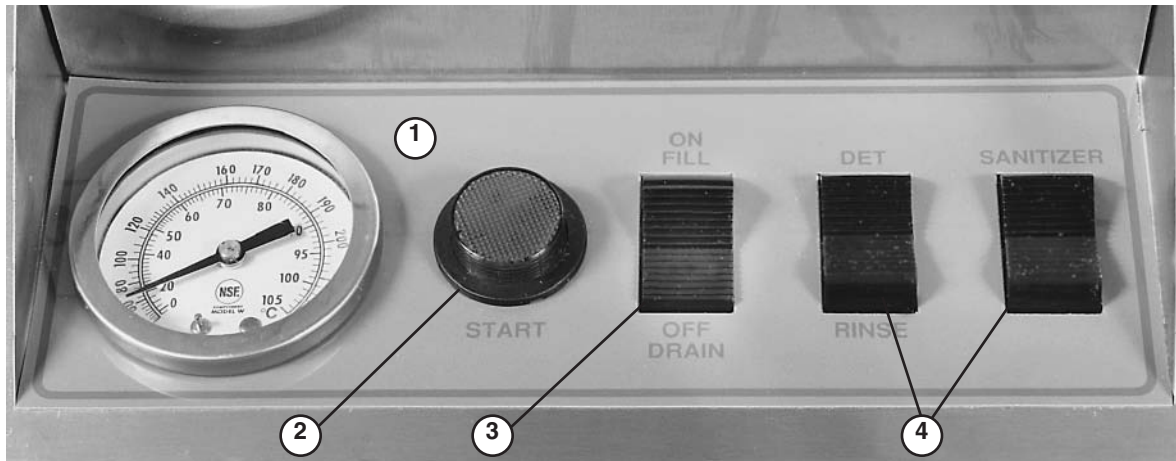


Figure 9 - Control Panel and Timer Assembly

MD18-1, MD18-2

CONTROL PANEL AND TIMER ASSEMBLY

Fig. 9 Item No.	Part No.	Description	Qty
1	0509090	Overlay, switch (ENGLISH)	1
	0509363	Overlay, switch (FRENCH)	1
2	0509089	Switch, lighted push button	1
3	0501361	Switch, rocker DPDT	1
4	0501369	Switch, spring return	2
5	0503749	Board, terminal 11 point.....	1
6	0503648	Screw (8-32 x 5/16 NIBS pan hd SS)	1
7	0308644	Bracket, timer support	1
8	0501408	Screw (8-32 x 1/4 truss hd SS).....	4
9	0501450	Screw (6-32 x 3/16 NIBS Round hd SS).....	2
10	0509227	Motor, timer.....	1
11	0501379	Switch, timer	8
12	0503701	Bearing, timer shaft	1
13	111068	Relay, 2PDT 10A 120VAC	1
14	0501408	Screw (8-32 x 1 truss hd SS).....	2
-	0709076-S	Timer & Cam Assembly (Includes items 7-12)	



Figure 10 — Back Panel and Cover Support Bracket

MD18-1, MD18-2

BACK PANEL AND COVER SUPPORT BRACKET

Fig. 10 Item No.	Part No.	Description	Qty
1	0309237	Panel, rear.....	1
2	0501412	Screw (10-32 x 3/8 truss hd SS).....	4
3	104985	Nut (10-32 SS)	2
4	0309238	Support, tank cover	1

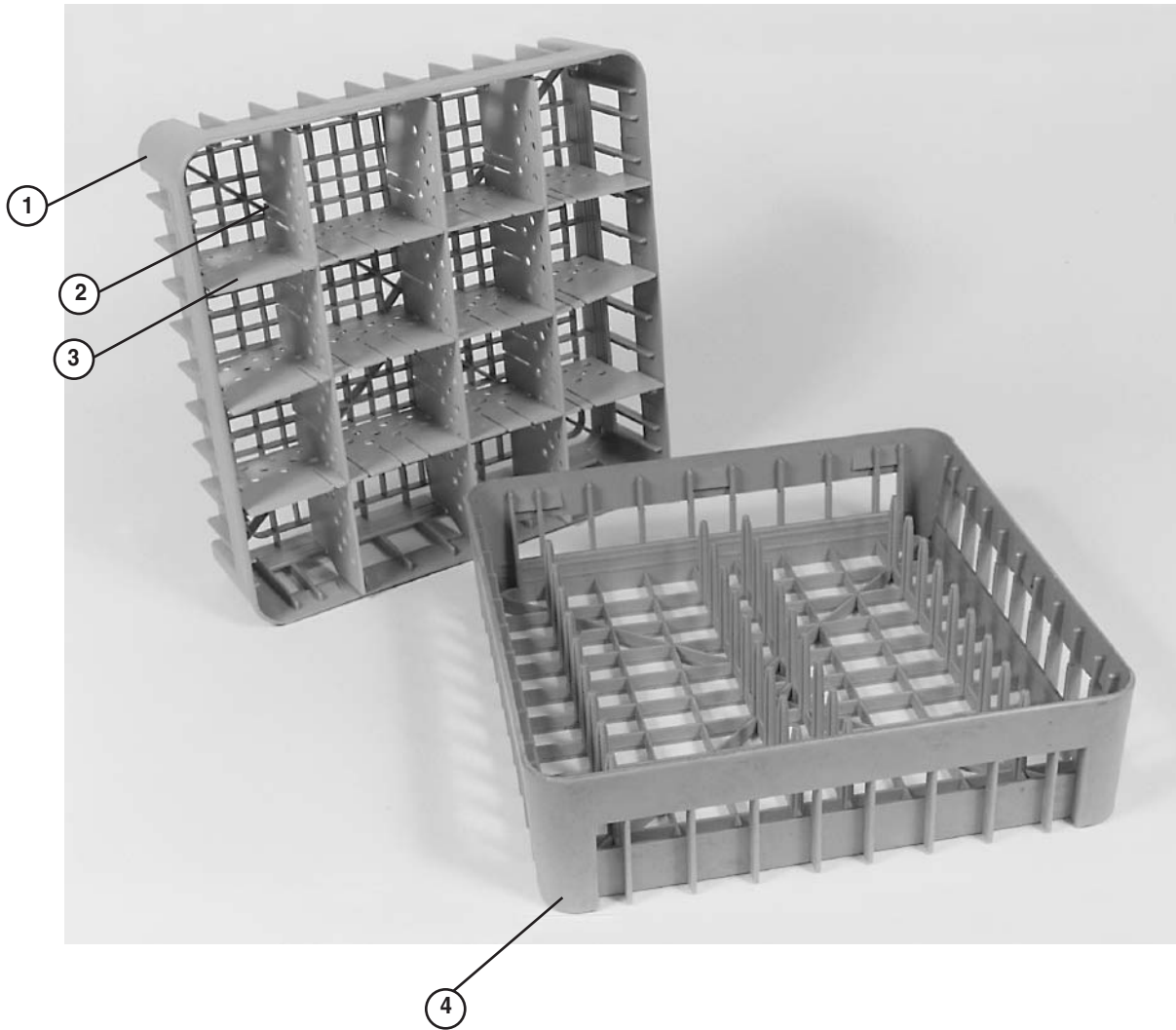


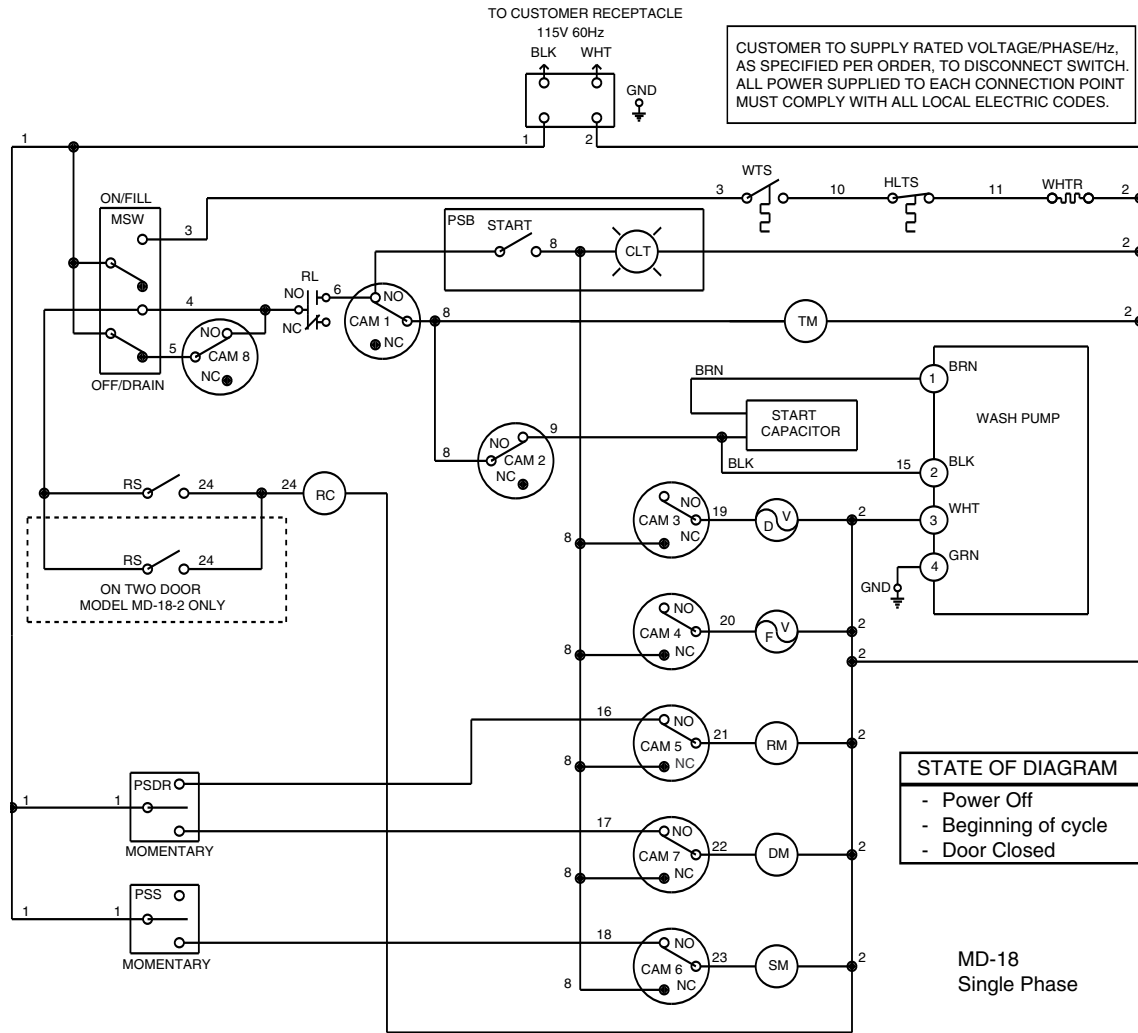
Figure 11 — Racks

MD18-1, MD18-2

RACKS

Fig. 11 Item No.	Part No.	Part Description	Qty
1	110353	Rack, flat 16 in.	1
2	112142	Divider, lower glassrack.....	4
3	112141	Divider, upper glassrack.....	4
4	110352	Rack, peg 16 in.....	1

* Glassracks using adjustable dividers may be made up with either 16, 25, or 36 compartments. Number of compartments determines the number of dividers needed.



STATE OF DIAGRAM
 - Power Off
 - Beginning of cycle
 - Door Closed

MD-18
 Single Phase

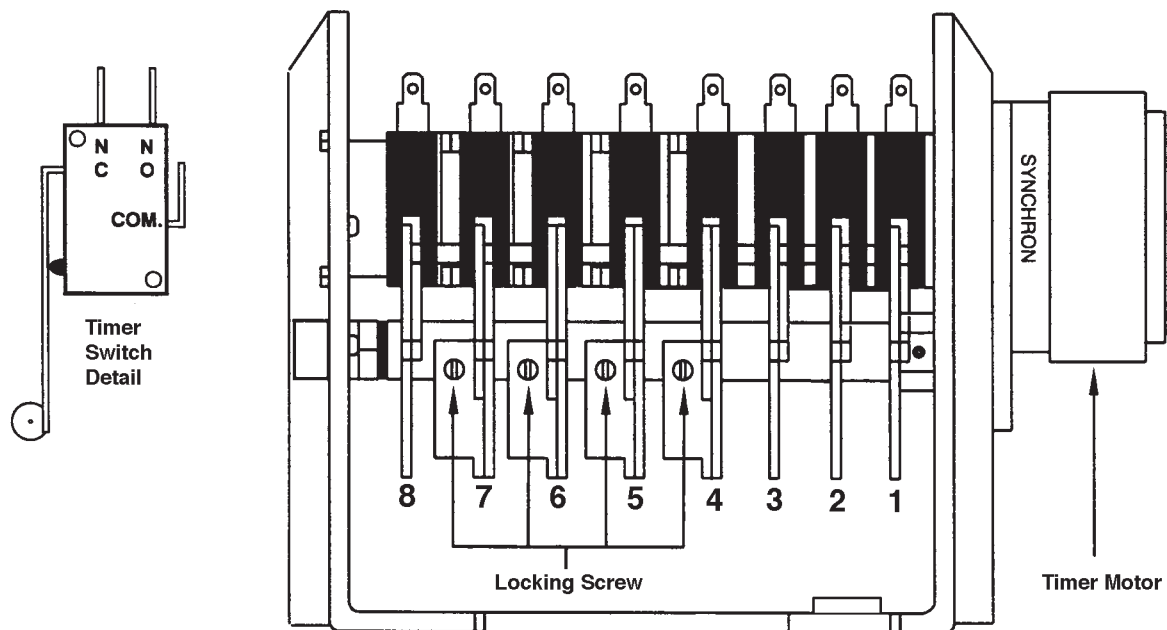
BLK	BLACK	DM	DETERGENT MOTOR	RL	RELAY CONTACT
BLU	BLUE	DV	DRAIN VALVE	RM	RINSE MOTOR
CAM 1	HOMING	FV	FILL VALVE	RS	REED SWITCH
CAM 2	PUMP MOTOR	GND	GROUND	SM	SANITIZER MOTOR
CAM 3	DRAIN	GRN	GREEN	TM	TIMER MOTOR
CAM 4	FILL	HTLS	HIGH LIMIT THERMOSTAT	TP	THERMAL PROTECTOR
CAM 5	RINSE	MSW	MAIN SWITCH ON/OFF	WHT	WHITE
CAM 6	SANITIZER	PSB	PUSHBUTTON START SWITCH	WHTR	WATER HEATER
CAM 7	DETERGENT	PSDR	PRIME SWITCH - DETERGENT, RINSE	WTS	WATER THERMOSTAT
CAM 8	AUTO FILL/DRAIN CYCLE	PSS	PRIME SWITCH - SANITIZER		
CLT	CYCLE ON LIGHT	RC	RELAY COIL		

A0509232/A

Figure 12 — Wiring Schematic

TIMER CHART MD-18

CAM	TIME IN SECS	0	10	20	30	40	50	60	70	80	90
1	HOMING										■
2	WASH PUMP	■	■	■	■	■	■	■	■	■	■
3	DRAIN VALVE						■	■			
4	FILL VALVE								■	■	■
5	RINSE PUMP								■	■	
6	SANITIZER PUMP								■	■	
7	DETERGENT PUMP	■	■								
8	AUTO-FILL DRAIN								■	■	■



TIMER ASSEMBLY MD-18

Figure 13 — MD-18 Timer Assembly

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