

# **SYSTEM OPERATIONS**

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# KNOW YOUR BUTLER SYSTEM

## CARE AND MAINTENANCE

Experience indicates that most failures are caused by lack of care and/or maintenance. It is recommended that the servicing procedures for the Butler System and vehicle be studied carefully and adhered to. Frequent references to this Owner's Manual and the Butler System Schematic are encouraged.

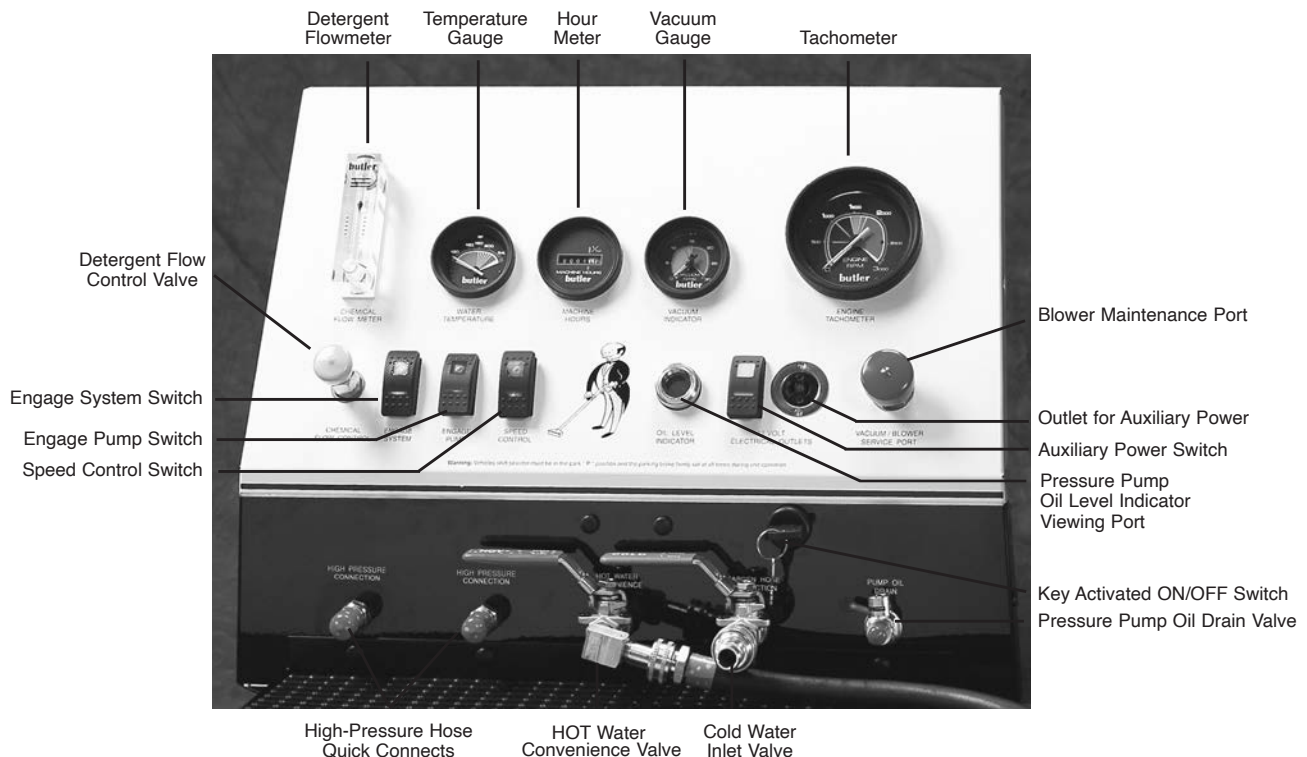
## ADJUSTMENT AND REPAIR

While the Butler System is manufactured to be extremely reliable, you will, from time to time, encounter a situation requiring hands-on adjustment or repair. If a repair or adjustment is required, we urge you to first refer to this Owner's Manual. Most situations can be resolved on your own by referring to the "Maintenance" or "Diagnostic Checks" sections. If further assistance is required, please contact our Service Department. You may be asked to refer to the Schematic, the Butler System Warranty Booklet, and this Owner's Manual, as well as, your current Maintenance Records Booklet(s). Please have this information readily available at the time of your call.

There may be an occasion when some operations involve extra care, patience and a degree of precision work. This is especially true in the replacement of the Vacuum/Blower, Driveshaft, High Pressure Pump and pulleys, etc. If you have limited mechanical ability, you may need to contact a capable person or repair shop that can provide you with the required level of expertise.

We strongly recommend that the person performing the repair look at the Butler System and study the workings of the Unit, Schematic and Owner's Manual so they will understand how to operate, diagnose, perform adjustments and repairs. If further assistance is required, our Service Department will aid them during this time and provide the proper procedures step by step.

If it is determined that parts or components need to be repaired or replaced, only new or reconditioned Butler parts or components are to be used. All parts replaced during the warranty period will become the property of The Butler Corporation for technical materials analysis or other usage. Please refer to the Butler System Warranty Booklet for detailed information regarding warranty compliance and coverage.



## STARTING MACHINE AND ENGAGING SWITCHES

**WARNING:** It is important before starting this or any other procedure, that you or anyone who operates, works with, maintains, services or repairs the Butler System and/or vehicle (Unit), be familiar with its operation and thoroughly read, understand and follow in their entirety all of the Warnings, Cautions and Notices described in their designated section (highlighted on the yellow pages) of this Owner's Manual. YOUR SAFETY AND THE SAFETY OF OTHERS DEPENDS ON IT.

### STARTING MACHINE

Before starting Machine, the vehicle's shift selector must be in the PARK (P) position, the parking brake FIRMLY set and the engine running. When Machine is running DO NOT USE the vehicle's heater or A/C.

Numbers (example: 1050) indicate components on the Butler System Schematic.

### KEY ACTIVATED ON/OFF SWITCH (9460)

The Butler System has been provided with a Key Activated ON/OFF Switch (9460), allowing authorized personnel to operate the Butler System only after it is determined safe to do so. To activate, place the key into the opening of the Switch and rotate clockwise. To deactivate, turn the key counterclockwise and remove the key from the Switch.

### ENGAGE SYSTEM SWITCH (9310)

1. To START Machine, fully depress the top of the Engage System Switch (9310).
2. To shut Machine OFF, fully depress the bottom of the Engage System Switch.

### ENGAGE PUMP SWITCH (9320)

1. To START the High Pressure Pump (2000), fully depress the top of the Engage Pump Switch (9320).
2. To shut the High Pressure Pump OFF, fully depress the bottom of the Engage Pump Switch.

### SPEED CONTROL SWITCH (9330)

1. LOW speed. To operate in the Black range (LOW Speed, 900–1050 RPM) on the Tachometer (9400), place Speed Control Switch (9330) to the LOW (bottom) position.
2. NORMAL Speed. To operate in the White range (NORMAL Speed, 1450–1550 RPM) on the Tachometer (9400), place Speed Control Switch (9330) to the NORMAL (center) position and momentarily seal end of Vacuum Hose until RPM increases.
3. HIGH speed. To operate in the Orange range (HIGH Speed, 1550–1750 RPM) on the Tachometer (9400), place Speed Control Switch (9330) to the HIGH speed (top) position.

**IMPORTANT.** Before shutting OFF Machine place Speed Control Switch (9330) to the LOW Speed (bottom) position.

**NOTE:** To change RPM while the Machine is running place Speed Control Switch (9330) to the desired position.

### 12 VOLT ELECTRICAL OUTLET SWITCH (9340)

To supply power to the Electrical Outlets (9350) located on the Instrument Panel and at the rear of the Recovery Tank, depress the top of the Auxiliary Power Switch (9340). If system is equipped with an Automatic Pump-out System, the Auxiliary Power Switch (9340) must be depressed.

## VEHICLE/EQUIPMENT WEIGHTS

### Definitions

**Curb Weight:** Curb Weight is the vehicle's weight without the driver, passengers or cargo. Curb Weight includes all the fluid levels topped up, a full tank of fuel and the vehicle's standard equipment.

**Gross Vehicle Weight Rating (GVWR):** GVWR is the vehicle manufacturer's maximum weight rating for the vehicle.

**Gross Vehicle Weight (GVW):** GVW is the weight of the vehicle, including Payload.

**Gross Axle Weight Rating (GAWR):** GAWR is the vehicle manufacturer's maximum weight that an axle is rated to carry. GAWR is separated into Front Axle Weight Rating (FAWR) and Rear Axle Weight Rating (RAWR).

**Gross Combined Weight Rating (GCWR):** GCWR is the vehicle manufacturer's maximum weight rating for the vehicle, including the Payload and a vehicle or trailer in tow.

**Gross Payload:** Gross Payload is the vehicle's maximum weight carrying capacity.

**Payload:** Payload is the weight carried in a vehicle, including options: equipment, cargo, fuel, water, and occupants, etc.

**Net Payload:** Net Payload is the Gross Payload less the Payload.

**Manufacturer's Labels and Federal Stickers:** Labels and stickers list the Vehicle Identification Number (VIN), GVWR, GAWR (Front and Rear), tire and wheel sizes and recommended tire pressures, etc.

### PAYLOAD INFORMATION

It is important to know the GVWR, the Payload and the net Payload for your vehicle. The chart below is to be used as a guide only and is subject to changes by the vehicle manufacturer and/or The Butler Corporation. Please contact The Butler Corporation for related information on all other types of vans, cube vans and trucks.

	GM 2500 Series-V6 Regular Length (135" Wheelbase)	GM 2500 Series-V6 Extended Length (155" Wheelbase)	GM 3500 Series-V6 Regular Length (135" Wheelbase)	GM 3500 Series-V6 Extended Length (155" Wheelbase)
GVWR*	8,600 lbs.	8,600 lbs.	9,600 lbs.	9,600 lbs.
CURB WEIGHT*	-5,193 lbs.	-5,415 lbs.	-5,199 lbs.	-5,418 lbs.
PAYLOAD**	-2,374 lbs.	-2,374 lbs.	-2,374 lbs.	-2,374 lbs.
NET PAYLOAD	1,033 lbs.	811 lbs.	2,027 lbs.	1,808 lbs.

\*GVWR and Curb Weight (when shipped) was provided by the vehicle manufacturer.

\*\*The 2,374 lb. Payload listed above was determined by weighing the Butler System's Standard Equipment, Preferred Equipment Packages #1, #2 and #3; two 175 lb. occupants and an additional 917 lbs. was allocated for the transport of 110 gallons of water.

*NOTE: Additional options, equipment, cargo, fuel, water, and occupants, etc. will increase the GVW and reduce the Net Payload.*

## Vehicle Loading and Weights

The number and size of the storage compartments and tank capacities have been maximized for the Butler System's value, convenience, operational requirements and overall versatility. It is the owner's/operator's responsibility to analyze the conditions for which the vehicle will be used and ensure that when adding or positioning Payload, the vehicle manufacturer's weight ratings are not exceeded. ***See vehicle manufacturer's owner's manual for important weight ratings, loading instructions and weight distribution, etc.***

## Weights

Below are the approximate weights of supplies, fluids and additional equipment to assist in determining Payload.

Air Movers – 25–35 lbs.	Overhead Supply Hose Reel w/50 ft. hose – 33 lbs.
Automatic Pump-Out System – 18 lbs.	High-Pressure Hose (50 ft.) – 11 lbs.
Auxiliary 90-Gallon Fresh Water Holding Tank – 148 lbs.	Storage Platform – 80 lbs.
Dehumidifier – 85–120 lbs.	Shelving – 15 lbs. per linear ft.
Diesel Fuel – 6 lbs. per gallon	Upholstery Tool – 9 lbs.
Electric Vacuum Hose Reel – 29 lbs.	Vacuum Hose (50 ft.) – 23 lbs.
Floor Wand – 16 lbs.	Water – 8.5 lbs. per gallon
Gasoline – 6 lbs. per gallon	200-Gallon Fresh Water Tank – 142 lbs.
In-Line Filter Recovery System – 48–60 lbs.	210-Gallon Recovery Tank – 150 lbs.
Maximum Heat Exchange System – 52 lbs.	1 Gallon Detergent/Traffic Lane Cleaner, etc. – 9 lbs.
Maximum Vacuum/Blower System – 32 lbs.	2 <sup>1</sup> / <sub>2</sub> Gallon Detergent/Traffic Lane Cleaner etc. – 25 lbs.

## Determining Weight and Weight Distribution

Vehicle weight and axle weights can be measured at a commercial scale and a federal or state weigh station.

## Wheel Re-Alignment Recommendation

The vehicle manufacturer's wheel alignment was performed at the factory when the vehicle was empty of payload and may not be correct for the final weight and the distribution of weight being carried. Vehicle manufacturers recommend that a re-alignment be performed when the vehicle is loaded with the weight it will regularly be carrying and with the weight distributed in the vehicle as it would normally be transported.

## Vehicle Owner's Manual

Please refer to the vehicle owner's manual for complete vehicle information and specifications.

## OPERATING THE WAND

**WARNING:** It is important before starting this or any other procedure, that you or anyone who operates, works with, maintains, services or repairs the Butler System and/or vehicle (Unit), be familiar with its operation and thoroughly read, understand and follow in their entirety all of the Warnings, Cautions and Notices described in their designated section (highlighted on the yellow pages) of this Owner's Manual. **YOUR SAFETY AND THE SAFETY OF OTHERS DEPENDS ON IT.**

### GENERAL OPERATING PROCEDURES FOR BUTLER SYSTEM WANDS

We recommend cleaning a section of carpet approximately 3' x 6' proceeding as follows:

1. For lightly soiled areas it should be adequate to activate the water only on the back stroke of the wand.
2. For heavily soiled areas, activate the water on both the forward stroke and the back stroke. Stop the water flow approximately 3" before the completion of the back stroke. This will eliminate leaving a pressure ridge.
3. The soil conditions will dictate the speed at which the wand is to be moved and the width of the stroke to be overlapped.
4. After completing the 3' x 6' section with the water activated, immediately extract the same area, using the overlapping procedure.
5. For natural fiber carpets (i.e. wool, cotton), clean only a 3' x 3' section using the above procedure, followed by two extraction passes. Lower water temperature adjustments are necessary when cleaning natural fiber carpets (i.e. wool, cotton) and stain resistant carpeting.
6. There is no need to press down on the wand. Try to make it as easy as possible on yourself. There is no need to scrub—let the wand do the work. By pressing down on the wand, you will decrease the efficiency of the vacuum. This could result in a tired operator and a dirtier, wetter carpet.

*NOTE: Jets wear gradually over time. Wear can affect the water distribution pattern as the nozzle opening enlarges and distorts, using more water and increasing the detergent flow. The distortion of the spray angle will deliver erratic impact at the carpet fiber and thereby impede the mechanical ability to loosen and remove soil, perhaps leaving a streaking condition. It is recommended that Jets be aligned periodically (as originally positioned), and changed at least once a year or more often if conditions dictate. Jet sizes SHOULD NOT be larger than originally specified, as this may affect pressure, water consumption, detergent consumption, flow and heat.*

**IMPORTANT: To HELP prevent High Pressure Pump (Cat Pump) damage, DO NOT operate the pump for more than 5–10 minutes without relieving the pressure and displacing the water in the pump with cooler water. The pump's maximum temperature rating is 160°F. If the pump is left running without displacing the water, the temperature will continually increase. NEVER run the pump dry.**

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## DUAL WAND INFORMATION

The Butler System is equipped for dual wand cleaning. For two 3-Jet Wands, a 3-Jet Wand and Stair Tool, or a 3-Jet Wand and an Upholstery Tool, an extra tool and perhaps extra hoses will be required. There are some facts that you should be aware of when using a dual wand set-up.

**PRESSURE:** An additional High-Pressure Hose may be connected to the Instrument Panel, or a “tee” may be used at the end of another High-Pressure Hose. Pressure may deviate from the use of a single 3-Jet Wand by only a few pounds per square inch, and no adjustments are usually necessary.

**VACUUM:** It is imperative that for maximum efficiency the Vacuum Hoses on each wand be the same length and the second hose is connected directly to the Second Vacuum Inlet on the Recovery Tank, the optional In-Line Filter Recovery System or “Y” Connector (Dual Wand or live Vacuum Hose Reel Bypass). This is to maintain equal balance of airflow. The reduction in vacuum efficiency is normally 15% ±.

**HEAT:** Because of the unique design of the Butler Heat Exchanger(s), you may experience only slight loss of temperature when using two 3-Jet Wands or other types of cleaning tools.

**DETERGENT:** The detergent flow will automatically regulate from a single 3-Jet Wand to a dual wand with no adjustment required. Always set the detergent flow at the single wand setting, prior to using the second wand. The detergent flow adjustment can be set using either the 3-Jet Wand or the detergent adjustment Simulator Nozzle (provided). Set the detergent flow rate using the White range (NORMAL Speed, 1450–1550 RPM) on the Tachometer (9400). To set the detergent flow rate, refer to (“Setting Detergent Flow Rate” in this “System Operations” section).

**HIGH SPEED:** For increased water flow capacity, airflow, and velocity, place the Speed Control Switch (9330), located at the Instrument Panel, into the Orange range (HIGH Speed, 1550–1750 RPM). This will increase the vehicle’s engine speed, as well as both Vacuum/Blower (5000) and High Pressure Pump (2000) speeds.

**MULTI-JET WANDS:** If larger multi-jet wands (i.e. 5-Jet) or other types of cleaning tools are being used, you could experience High Pressure Pump cavitation as well as significant drop in pressure and water flow. This may be caused by the High Pressure Pump capacity being exceeded. To compensate, smaller jet sizes may be necessary, in addition to increasing the pressure setting and decreasing the lengths of hoses. Should this situation not be corrected by these suggestions, the wand size may have to be changed or one wand may have to be eliminated. **Continued Pressure Pump cavitation can cause damage and failure to the High Pressure Pump and other components.**

*NOTE: Jets wear gradually over time. Wear can affect the water distribution pattern as the nozzle opening enlarges and distorts, using more water and increasing the detergent flow. The distortion of the spray angle will deliver erratic impact at the carpet fiber and thereby impede the mechanical ability to loosen and remove soil, perhaps leaving a streaking condition. It is recommended that Jets be aligned periodically (as originally positioned), and changed at least once a year or more often if conditions dictate. Jet sizes SHOULD NOT be larger than originally specified, as this may affect pressure, water consumption, detergent consumption, flow and heat.*



## DETERGENT INJECTION PUMP

**WARNING:** It is important before starting this or any other procedure, that you or anyone who operates, works with, maintains, services or repairs the Butler System and/or vehicle (Unit), be familiar with its operation and thoroughly read, understand and follow in their entirety all of the Warnings, Cautions and Notices described in their designated section (highlighted on the yellow pages) of this Owner's Manual. **YOUR SAFETY AND THE SAFETY OF OTHERS DEPENDS ON IT.**

View Service Videos and Technical Instructions in the **SUPPORT** section at [butlersystem.com](http://butlersystem.com).

**Carefully read and understand the complete list of instructions before proceeding.**

Numbers (example: 1050) indicate components on the Butler System Schematic.

The Machine incorporates a Detergent Injection Pump (4070). When using most liquid detergents, no mixing is required. The Detergent Injection Pump injects under high pressure the desired amount of detergent, which is approximately 1½ to 2 ounces per 5 gallons of water. Filling the 2½ Gallon Detergent Container (4000) is usually only required once every few days.

Once the Detergent Pump (4070) is set at the desired detergent flow rate with a 3-Jet Wand or the detergent adjustment Simulator Nozzle (see "Setting Detergent Flow Rate" in this section), the flow will automatically adjust for 5-Jet Wands, dual wand operation, Stair Tool, Upholstery Tool, or any other combination. Set the detergent using the White range (NORMAL Speed, 1450–1550 RPM) on the Tachometer (9400).

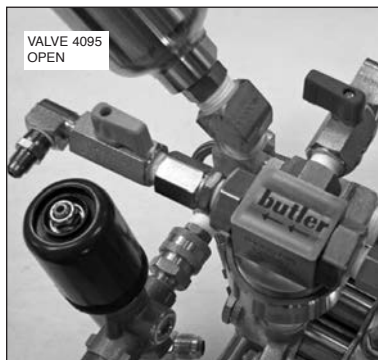
Liquid detergent is recommended; however, powdered formulations may be used if desired. If you choose to use powders, changes to the Detergent Flow Meter (4030) and Detergent Flow Control Valve (4110) can be provided. **Improper mixing and use of some powders and liquids may cause severe blockage and/or corrosion in the system.**

**IMPORTANT: DO NOT USE Detergent Flow Control Valve (4110) as a shut-off valve, as damage to the fine needle inside valve will occur. DO NOT USE acid based cleaning products (acid rinses) as they will cause premature wear, deterioration and corrosion.**

### PRIMING DETERGENT INJECTION PUMP

1. Engage vehicle's shift selector into the PARK (P) position, FIRMLY set parking brake and turn heater/AC OFF.
2. Start vehicle's engine and warm to normal operating temperature.
3. Ensure there is detergent in the Detergent Container (4000), detergent Strainer (4010) is clean, Strainer is secure on Hose (4020) and Hose is submersed in the detergent.

FIG 1



4. Before starting this procedure, you must verify that there is water in the Fresh Water Holding Tank (if equipped) and that Ball Valves (1050) and (3065) are OPEN. *If not equipped with a Fresh Water Holding Tank, attach a Garden Hose to an outside water faucet and to the Cold Water Inlet Connection (1010) on the Instrument Panel. Turn ON the outside faucet and OPEN Cold Water Inlet Valve (1020) on the Instrument Panel.*
5. Place the Key Activated ON/OFF Switch (9460) to the ON position and start Machine by activating the Engage System Switch (9310).
6. Instant ON/OFF Valve (4095) must be in the OPEN position. (FIG 1)



7. Start High Pressure Pump (2000) by activating the Engage Pump Switch (9320).

8. Place the Speed Control Switch (9330) to the middle position, then momentarily seal the end of the Vacuum Hose to increase the RPM to the White range (NORMAL Speed, 1450-1550 RPM) on the Tachometer (9400).

9. Place the 2<sup>1</sup>/<sub>2</sub> Gallon Solution Container (included with the Machine Winterizing Kit) or similar container outside the vehicle.

10. Position and hold the Hot Water Convenience Hose (3080) so it is pointing away from you into the container. (FIG 2)



FIG 2

**CAUTION**

**Hot Water Convenience Hose (3080) will become EXTREMELY HOT.**

11. OPEN Hot Water Convenience Valve (3070).

12. OPEN Detergent Flow Control Valve (4110) to the normal setting by turning Knob (4120) approximately 10–12 turns (counter clockwise) from the fully CLOSED position.

13. OPEN Detergent Pump Bleeder Valve (4220) located on side of Detergent Injection Pump (4070). (FIG 3)

14. If detergent does not immediately flow, SLOWLY, PARTIALLY CLOSE Ball Valve (1050) (if equipped with a Fresh Water Holding Tank) (FIG 4) OR the Cold Water Inlet Valve (1020) (if a live garden hose is being used to supply water to the Machine), until detergent begins to flow, then FULLY OPEN appropriate valve.

*If water is being supplied by the hose on the Live Garden Hose Reel, SLOWLY, PARTIALLY CLOSE Ball Valve at Swivel Fitting on the left side of Live Garden Hose Reel. FULLY OPEN Ball Valve when detergent begins to flow.*

**IMPORTANT: When closing valves (1050, 1020 or Ball Valve on Garden Hose Reel), DO NOT CLOSE FULLY – CLOSE only enough to start the detergent flow. Closing valves fully could cause damage to the Detergent Injection Pump (4070) and High Pressure Pump (2000).**

15. When all air is displaced from the Hose (4020) and Detergent Flow Meter (4030), CLOSE Detergent Pump Bleeder Valve (4220). (FIG 5)

16. Close Hot Water Convenience Valve (3070).

17. Set the detergent flow rate. Refer to (“Setting Detergent Flow Rate” in this “System Operations” section).

18. Shut-off High Pressure Pump (2000) by deactivating the Engage Pump Switch (9320).

**NOTE: Before shutting Machine OFF place Speed Control Switch (9330) to the LOW Speed (bottom) position.**

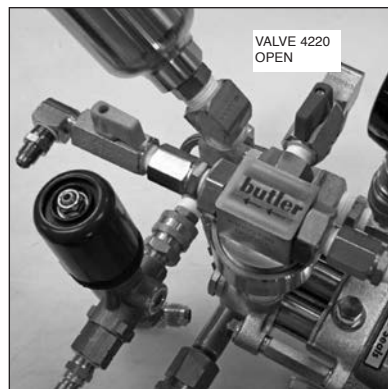


FIG 3

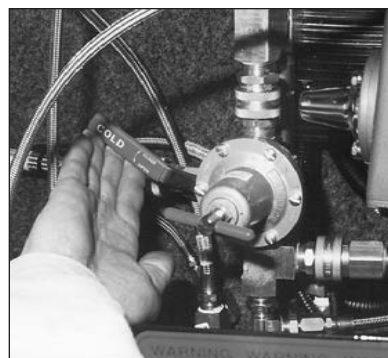


FIG 4

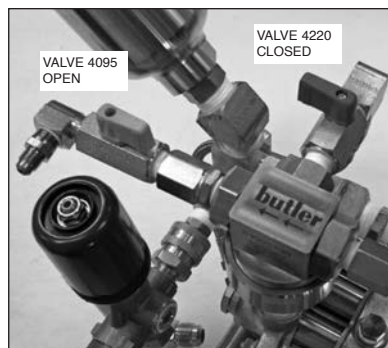


FIG 5

19. Shut Machine OFF by deactivating the Engage System Switch (9310), place the Key Activated ON/OFF Switch (9460) to the OFF position and remove Key.
20. Shut OFF vehicle's engine and remove key.
21. Empty 2<sup>1</sup>/<sub>2</sub> Gallon Solution Container and store.

**NOTE: It is important that you familiarize yourself and comply with all municipal, county, state and federal regulations regarding the legal and proper disposal of any and all fluids, including, but not limited to: water, recovered water, cleaning products, windshield washer antifreeze, solutions, oil, etc.**

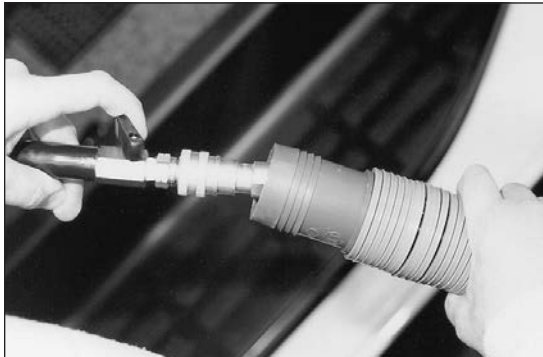
## SETTING DETERGENT FLOW RATE

**NOTE: Before starting this procedure, if detergent flow does not adjust according to the instructions, carefully follow the instructions for ("Priming Detergent Pump" in this "Systems Operation" section), then continue setting flow rate.**

**The Detergent Flow Meter (4030) indicates the amount of liquid truckmount-type detergent (with a dilution ratio of 1<sup>1</sup>/<sub>2</sub> to 2 ounces to 5 gallons of water) that is being injected into the hot freshwater stream to form a cleaning solution.**

1. Engage vehicle's shift selector into the PARK (P) position, FIRMLY set parking brake and turn heater/AC OFF.
2. Start vehicle's engine and warm to normal operating temperature.
3. OPEN Detergent Flow Control Valve (4110) by turning Knob (4120) approximately 8 to 10 turns (counterclockwise) from CLOSED position.
4. OPEN Instant ON/OFF Valve (4095), if closed.

FIG 6



5. Ensure there is detergent in the Detergent Container (4000), detergent Strainer (4010) is clean, Strainer is secure on Hose (4020) and Hose is submersed in the detergent.

6. Connect the Simulator Nozzle to the High Pressure Hose with a shut-off valve, on the High-Pressure Hose Reel (if equipped) (FIG 6). If not equipped with a High-Pressure Hose Reel connect a 50' or longer length of High-Pressure Hose with a shut-off valve, to Quick Connect (3090 or 3100) on the Instrument Panel.

7. Verify that there is water in the Fresh Water Holding Tank (if equipped) and that Ball Valves (1050) and (3065) are OPEN. *If not equipped with a Fresh Water Holding Tank, attach a Garden Hose to an outside water faucet and to the Cold Water Inlet Connection (1010) on the Instrument Panel. Turn ON the outside faucet and OPEN Cold Water Inlet Valve (1020) on the Instrument Panel.*
8. Place the Key Activated ON/OFF Switch (9460) to the ON position and start Machine by activating the Engage System Switch (9310).
9. Start High Pressure Pump (2000) by activating the Engage Pump Switch (9320).
10. Place the Speed Control Switch (9330) to the middle position, then momentarily seal the end of the Vacuum Hose to increase the RPM to the White range (NORMAL Speed, 1450–1550 RPM) on the Tachometer (9400).

11. Insert and hold Simulator Nozzle into a Vacuum Hose attached to the Recovery Tank. (FIG 6)
12. OPEN shut-off valve at end of hose.



**The Simulator Nozzle, shut-off valve and High-Pressure Hose will become EXTREMELY HOT.**

13. Indicator Ball (4040) in Detergent Flow Meter (4030) should rise to within the Yellow Block Range.
14. Adjust Detergent Flow Control Valve (4110) to the Yellow Block by turning the Detergent Flow Control Adjustment Knob (4120) counter clockwise for more detergent or clockwise for less detergent.

**NOTE: If the detergent is not flowing, you may have to prime the Detergent Injection Pump (4070). Refer to (“Priming the Detergent Injection Pump” in this “System Operations” section).**

15. Shut OFF High Pressure Pump (2000) by deactivating the Engage Pump Switch (9320).

**NOTE: Before shutting Machine OFF place Speed Control Switch (9330) to the LOW Speed (bottom) position.**

16. Shut Machine OFF by deactivating the Engage System Switch (9310), place the Key Activated Switch (9460) to the OFF position and remove Key.

17. Remove and store Simulator Nozzle and hoses.

18. Shut OFF vehicle’s engine and remove key.

**NOTE: It is important that you familiarize yourself and comply with all municipal, county, state and federal regulations regarding the legal and proper disposal of any and all fluids, including, but not limited to: water, recovered water, cleaning products, windshield washer antifreeze, solutions, oil, etc.**

## INSTRUCTIONS FOR STANDING WATER REMOVAL

**WARNING:** It is important before starting this or any other procedure, that you or anyone who operates, works with, maintains, services or repairs the Butler System and/or vehicle (Unit), be familiar with its operation and thoroughly read, understand and follow in their entirety all of the Warnings, Cautions and Notices described in their designated section (highlighted on the yellow pages) of this Owner’s Manual. YOUR SAFETY AND THE SAFETY OF OTHERS DEPENDS ON IT.

**IMPORTANT: DO NOT engage High Pressure Pump (2000) while extracting standing water, as damage to the pump will occur.**

It is not recommended to use the Butler System for extracting any standing water with a depth of more than 1" unless using the **Butler Floating Water Extraction Tool\***. If the water depth is greater than 1", you must first use a submersible pump (or similar device) and then use the Butler System to extract the balance.

Never close the entire OPEN end of the Vacuum Hose with the water you are extracting. Continued use, without air being introduced, will cause premature wear and/or damage to the Vacuum/Blower (5000) and the Shaft-Drive System.

**\*NOTE: The Butler Floating Water Extraction Tool is specifically designed to allow air to be introduced into the water being extracted. The water being extracted can be at any depth, as the tool floats on the surface. Water can be extracted continuously with no adjustments to the Butler System required.**

**IMPORTANT:** When extracting standing water, all hose(s) must be uncoiled from the Vacuum Hose Reel and the shortest length of hose possible should be used.

Upon completion of extracting standing water, continue operating the Vacuum/Blower (5000) for 5–10 minutes to allow the Internal Lobes in the Vacuum/Blower and Exhaust System to dry thoroughly. Before shutting Vacuum/Blower OFF, remove Knob (7550) and spray lubricating-type oil (WD-40) into the Vacuum/Blower Lubricating Port (7500) for approximately 10–15 seconds.

## **ELECTRIC VACUUM HOSE REEL OPERATION**

**NOTE:** *Vehicle's engine must be running for Electric Vacuum Hose Reel operation, in order to prevent battery drain.*



**Keep hands, objects and articles of clothing away from rotating reel and DO NOT operate Reel with motor cover removed.**

1. Press and hold the Button on the flexible Gooseneck Assembly to rotate the Electric Vacuum Hose Reel.
2. Guide Vacuum Hose onto rotating reel.
3. Release Button to STOP rotation.

## **ITEMS TO CARRY IN THE VEHICLE**

The following are suggestions that may be helpful in the operation and maintenance of your Butler System, as well as, a list of supplies that may be helpful in the administration and appearance of your business.

### **DAILY OPERATING SUPPLIES AND EQUIPMENT**

- Related cleaning supplies
  - Measuring device (wheel or electronic)
  - Estimating pad, calculator and pen
  - Measuring cup
  - Funnel
  - Clean shirt
  - Filter Bags for Recovery Tank
  - 4-Gallon Container with Lid (empty) or similar container
  - Winterizing Kit(s) as required
  - WD-40 or equivalent
-

## SUPPLY KIT ITEMS

Butler Recommended Supply Kit items (can be purchased separately)

Kit includes:

- Wand Valve Seal Kit
- 2" Vacuum Hose Connector
- Set (2) belts (front end)
- Set (2) belts (Vacuum/Blower)
- Belt (1) (High Pressure Pump)
- Wand Clean Out Plugs (2)
- One (1) 21 oz. bottle of Cat Pumps High-Pressure Pump Oil
- One (1) quart of Gardner Denver AEON PD-XD Extreme Duty Synthetic Lubricant for Gardner Denver Vacuum/Blower (if equipped)
- One (1) quart of MD PLUS Full Synthetic Oil for Tuthill Vacuum/Blower (if equipped)
- One (1) tube of Tuthill Pneulube Synthetic Grease (if Vacuum/Blower has grease fitting(s))
- Two (2) 3' lengths of clear tubing for ease of draining Vacuum/Blower oil

## ADDITIONAL SUPPLIES AND REPAIR TOOLS

To Include:

- $\frac{1}{4}$ " Hex Nipple (male to male fitting)
- $\frac{1}{4}$ " Male Quick Connect
- $\frac{1}{4}$ " Female Quick Connect
- $\frac{1}{4}$ " High-Pressure Shut-Off Valve
- Flat-blade screwdriver
- 8" adjustable wrench
- 6" adjustable wrench
- $\frac{7}{16}$ " open-end wrench
- $\frac{1}{2}$ " open-end wrench
- $\frac{1}{4}$ " nut driver
- Pliers (regular)
- Hacksaw blade (to clean out wand vacuum opening) – for safety, be sure to tape one end
- Grease gun
- Tire pressure gauge
- Small brush (to clean Recovery Tank Screen)
- Teflon tape
- Duct tape
- Silicone grease
- Flashlight