

DIAGNOSTIC CHECKS

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INTRODUCTION TO DIAGNOSTIC CHECK LISTS

The purpose of this section is to help those who operate, work with, service or repair this equipment solve operational situations in a logical and efficient manner.

To locate the section most appropriate to the situation you are experiencing, find the topic most closely related to the issue in the index.

For vans, cube vans, trucks and/or Butler parts, components and procedures that are not specifically addressed, please call our Service Department.



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

THE BUTLER SYSTEM'S INTENDED USE

The Butler System is intended to be used, solely, for wet cleaning of: carpet, fabrics and hard surfaces. Any adaptation or modification to the Butler System or if the Butler System is used for any purpose other than its original intended use, will void the Butler System warranty.

PARTS AND COMPONENTS PROVIDED BY THE BUTLER CORPORATION

Parts and components provided by The Butler Corporation are not to be used for any purpose other than their original intended use and must be installed by qualified persons who possess the knowledge, skill, tools, hardware, and/or equipment to perform the installation.

Replacement parts and components supplied by The Butler Corporation are intended solely, for the original Butler System and the original vehicle, in which the Butler System was installed. These parts and components are not to be used to create, supplement, repair, etc. any other machine or for any Butler System that has been modified or removed and reinstalled by others.

The Butler Corporation assumes no responsibility for damage or injury of any kind, due to the misuse or improper application of any part, in any way, by any person and all risks must be borne, solely, by the user. All parts and components sold are subject to the exclusions, limitations, and disclaimers as described in the Butler System Warranty Booklet. It is important that anyone who works with, operates or is in contact with any product purchased from The Butler Corporation, read all labels, understand and follow all directions, caution statements and Safety Data Sheets (SDS) before use.

OBTAINING GAUGE READINGS

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.

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

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

GAUGES TO BE CHECKED:

- TACHOMETER (9400)
- VACUUM GAUGE (5120)
- HIGH PRESSURE GAUGE (2030)
- TEMPERATURE GAUGE (3045)
- DETERGENT FLOW METER (4030)

How to obtain a TACHOMETER reading:

IMPORTANT: To obtain Gauge Readings, the vehicle's shift selector must be in the PARK (P) position, the parking brake FIRMLY set, the heater/AC system placed in the OFF position and the vehicle's engine started and warmed to normal operating temperature.

The Tachometer (9400) indicates the speed of the vehicle's engine in revolutions per minute (RPM).

NOTE: *The RPM speeds on 2006 and newer Ford vans and 2007 and newer GM vans are factory set and CANNOT be adjusted. If the RPM readings are not as described, please call our service department for further assistance.*

1. Place Engage System Switch (9310), Engage Pump Switch (9320) and Speed Control Switch (9330) to the bottom OFF position on the Instrument Panel.
2. Place the Key Activated ON/OFF Switch (9460) to the ON position and start Machine by activating the Engage System Switch (9310).
3. With the Speed Control Switch (9330) in the bottom position the RPM on the Tachometer (9400) should read in the Black range (LOW Speed, 900–1050).
4. To increase the RPM to the White range (NORMAL Speed, 1450–1550 RPM) on the Tachometer (9400), place the Speed Control Switch (9330) to the middle position, then momentarily seal the end of the Vacuum Hose to increase the RPM.
5. To increase the RPM to the Orange range (HIGH Speed, 1550–1750 RPM) on the Tachometer (9400), place the Speed Control Switch (9330) to the top position.

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

6. 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.

How to obtain a VACUUM GAUGE reading:

The Vacuum Gauge (5120) indicates the amount of vacuum, in inches of mercury (Hg). To obtain accurate Vacuum Gauge readings, the readings must be taken with 100' of 2" Vacuum Hose attached to the Recovery Tank or Vacuum Hose Reel (if equipped) and with a clean Filter Bag and Filter Screen in the Recovery Tank.

Check that the Vacuum Relief Valve located on top of the Recovery Tank moves up and down freely. Lubricate with lubricating-type oil (WD-40). DO NOT adjust Vacuum Relief Valve. A pre-set, factory-adjusted valve can be obtained from our Service Department, if necessary.

IMPORTANT: To obtain Gauge Readings, the vehicle's shift selector must be in the PARK (P) position, the parking brake FIRMLY set, the heater/AC system placed in the OFF position and the vehicle's engine started and warmed to normal operating temperature.

1. Place Engage System Switch (9310), Engage Pump Switch (9320) and Speed Control Switch (9330) to the bottom OFF position on the Instrument Panel.
2. Place the Key Activated ON/OFF Switch (9460) to the ON position and start Machine by activating the Engage System Switch (9310).
3. 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).

The following table lists the proper Vacuum Gauge readings for both the Butler Standard and optional Butler Maximum Vacuum/Blower Systems.

Vacuum/Blower	100' of 2" hose open at end	100' of 2" hose sealed at end
Butler Standard	8 – 10" Hg	14 – 15" Hg
Butler Maximum	10 – 12" Hg	14 – 15" Hg

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

4. 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.

NOTE: Any restriction, such as a blockage or kink in a hose or a dirty Filter Bag, will indicate a high gauge reading. Any leak, such as a poor Recovery Tank Lid Gasket Seal, Vacuum Hose connection leak or worn Drain Valve, may be indicated by a low gauge reading. See ("Decreased Vacuum or Machine Sounds Abnormal") in this "Diagnostic Checks" section.

How to obtain a HIGH PRESSURE GAUGE reading:

The High Pressure Gauge (2030), located under the Equipment Shroud, indicates the amount of pressure in pounds per square inch (psi), in the High Pressure Pump Cylinders (2010), Unloader (2050) and connecting hoses, etc., when the High Pressure Pump (2000) is activated; and a Butler Wand, Simulator Nozzle or other cleaning tool is in use.

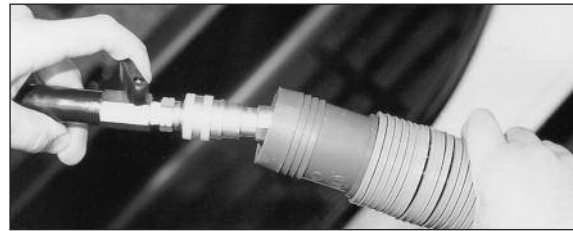
IMPORTANT: To obtain Gauge Readings, the vehicle's shift selector must be in the PARK (P) position, the parking brake FIRMLY set, the heater/AC system placed in the OFF position and the vehicle's engine started and warmed to normal operating temperature.

1. Place Engage System Switch (9310), Engage Pump Switch (9320) and Speed Control Switch (9330) to the bottom OFF position on the Instrument Panel.
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2. Connect the Simulator Nozzle to the High-Pressure Hose with a shut-off valve, on the High-Pressure Hose Reel (if equipped); 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.
3. Place the Key Activated ON/OFF Switch (9460) to the ON position and start Machine by activating the Engage System Switch (9310).
4. 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. Start High Pressure Pump (2000) by activating the Engage Pump Switch (9320).
6. 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).

FIG 1

7. Insert and hold Simulator Nozzle into a Vacuum Hose attached to the Recovery Tank.
8. OPEN shut-off valve at end of High-Pressure Hose for 10–15 seconds for a meaningful High-Pressure Gauge (2030) reading. (FIG 1)



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

9. High Pressure Gauge (2030) should read in the Green Range, 450–550 psi for most cleaning procedures.
 10. Adjustment to pressure can be made with the Pressure Adjustment Knob (2060). *Turning Knob clockwise will increase pressure and counterclockwise will decrease pressure.*
- NOTE: Before proceeding or shutting Machine OFF, place Speed Control Switch (9330) to the LOW Speed (bottom) position.**
11. Shut-off High-Pressure Pump (2000) by deactivating the Engage Pump Switch (9320).
 12. 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.
 13. Turn shut-off valve on High-Pressure Hose to the OFF position, disconnect Simulator Nozzle and store.
 14. Store hoses.

How to obtain a WATER TEMPERATURE GAUGE reading:

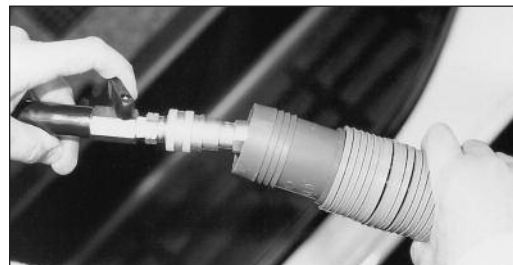
The Water Temperature Gauge (3045) indicates the temperature in degrees Fahrenheit (°F) of the heated cleaning solution just prior to leaving the Machine.

IMPORTANT: To obtain Gauge Readings, the vehicle's shift selector must be in the PARK (P) position, the parking brake FIRMLY set, the heater/AC system placed in the OFF position and the vehicle's engine started and warmed to normal operating temperature.

1. Place Engage System Switch (9310), Engage Pump Switch (9320) and Speed Control Switch (9330) to the bottom OFF position on the Instrument Panel.
2. Place Temperature Adjusting Ball Valve (2080/3030) in the HOT position. (As shown on the Schematic)
3. Connect the Simulator Nozzle to the High-Pressure Hose with a shut-off valve, on the High-Pressure Hose Reel (if equipped); 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.
4. 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. Start High Pressure Pump (2000) by activating the Engage Pump Switch (9320).
7. 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).

FIG 2

8. Insert and hold Simulator Nozzle into the Vacuum Hose attached to the Recovery Tank.
9. OPEN shut-off valve at end of High-Pressure Hose for 45–60 seconds for a meaningful reading of the Water Temperature Gauge (3045). (FIG 2)



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

10. Water Temperature Gauge (3045) should read +/-190°F when the vehicle's engine is operating at normal temperature and Temperature Adjusting Ball Valve (2080/3030) is in the HOTTEST position. (As shown on the Schematic)
 11. Adjustment of temperature can be made with Temperature Adjusting Ball Valve (2080/3030). *Move Temperature Adjusting Ball Valve counterclockwise to decrease temperature.*
- NOTE: Before shutting Machine OFF, place Speed Control Switch (9330) to the LOW Speed (bottom) position.**
12. Shut-off High-Pressure Pump (2000) by deactivating the Engage Pump Switch (9310).
 13. 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.
 14. Turn shut-off valve on High-Pressure Hose to the OFF position, disconnect Simulator Nozzle and store.
 15. Store hoses.

How to obtain a DETERGENT FLOW METER reading:

The Detergent Flow Meter (4030) indicates the amount of liquid truckmount-type detergent (with a dilution ratio of 1¹/₂ to 2 ounces to 5 gallons of water) is being injected into the freshwater stream to form a cleaning solution.

IMPORTANT: To obtain Gauge Readings, the vehicle's shift selector must be in the PARK (P) position, the parking brake FIRMLY set, the heater/AC system placed in the OFF position and the vehicle's engine started and warmed to normal operating temperature.

1. Place Engage System Switch (9310), Engage Pump Switch (9320) and Speed Control Switch (9330) to the bottom OFF position on the Instrument Panel.
2. OPEN Detergent Flow Control Valve (4110), approximately 8 to 10 turns from CLOSED position. (counterclockwise)
3. OPEN Instant ON/OFF Valve (4095), if CLOSED.

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

5. Connect the Simulator Nozzle to the High-Pressure Hose with a shut-off valve, on the High-Pressure Hose Reel (if equipped) (FIG 3); 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. (FIG 4)

6. Verify that there is water in the Fresh Water Holding Tank (if equipped) and that Ball Valves (1050) and (3965) 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.*

7. Place the Key Activated ON/OFF Switch (9460) to the ON position and start Machine by activating the Engage System Switch (9310).

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

9. 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).

10. Insert and hold Simulator Nozzle into the Vacuum Hose attached to the Recovery Tank.

11. OPEN shut-off valve at end of hose. (FIG 5)

FIG 3



FIG 4



FIG 5



CAUTION

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

12. Indicator Ball (4040) in Detergent Flow Meter (4030) should rise up to the top of the meter.

13. To set the detergent injection flow rate, refer to (“Setting Detergent Injection Pump Flow Rate” in the “System Operations”) section in this manual.

14. If Indicator Ball (4040) in Detergent Flow Meter (4030) does not rise to the top of the meter, the detergent system may need to be primed. Refer to (“Priming the Detergent Injection Pump” under “No or Erratic Detergent Flow”) in this “Diagnostic Checks” section.

15. Adjust the detergent flow rate, to within the Yellow Block Range on the Detergent Flow Meter (4030), by turning the Detergent Flow Control Adjustment Knob (4120) clockwise to decrease flow or counterclockwise to increase flow. *If equipped with a GPH (Gallons Per Hour meter) adjust flow rate to the recommended setting.*

NOTE: DO NOT use Detergent Flow Control Valve (4110) as a shut-off valve, as damage to the needle inside valve will occur.

16. 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.

17. 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.

18. Turn shut-off valve on High-Pressure Hose to the OFF position, disconnect Simulator Nozzle and store.

19. Store hoses.

SYSTEM DOES NOT OPERATE WHEN ENGAGE SYSTEM SWITCH IS ACTIVATED

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.**

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



Confirm that Machine components are not frozen due to freezing temperatures. If freezing has occurred, the Machine must be fully thawed. Refer to (“Winterizing” section in this Owner’s Manual), for further information.

The system is designed NOT to engage if any of the following conditions exist:

- The vehicle’s shift selector lever is not in the PARK (P) position.
 - The Key Activated ON/OFF Switch (9460) is in OFF position.
 - The Engage System Switch (9310) is in the OFF position.
 - The Recovery Tank is full.
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ITEMS TO CHECK:

If the large (top) Indicator Lamp on the Engage System Switch (9310) DOES NOT light up when the switch is placed in the ON position, check the following conditions.

1. Place Engage System Switch (9310) in the OFF position.
2. Turn the Key Activated ON/OFF Switch (9460) to the OFF position and remove Key.
3. Shut off the vehicle's engine and remove key.
4. Check all fuses in the Butler Fuse and Relay Center located under the passenger seat, the Butler Power Relay Module and the vehicles fuse block located under the driver's seat and the vehicle's under hood fuse block attached to the left fender in the engine compartment. Replace (if needed) with the exact fuse or Relay.
5. With the vehicle's shift selector in the PARK (P) position, parking brake firmly set and engine OFF, check wires and connectors to the Electric Clutch (9390) located on the front of the Driveshaft (8000) in the engine compartment.
6. Check wires and connections at Instrument Panel.
7. Check all wires for scorching, melting, or bare-wire grounding against metal.
8. Check connectors on all wires; they should be crimped tight.
9. Check all connectors are firmly attached to components and switches.

If the large (top) Indicator Lamp on the Engage System Switch (9310) turns RED when the switch is placed in the ON position, check the following conditions.

10. Place Engage System Switch (9310) in the OFF position.
11. Turn the Key Activated ON/OFF Switch (9460) to the OFF position and remove Key.
12. Shut off the vehicle's engine and remove key.
13. Check the Recovery Tank water level. The Recovery Tank may be full or the Float Switch in the Recovery Tank may be stuck in the OFF position. If the Float Switch has debris build-up, rinse thoroughly with water.
14. Check the wire connection at Recovery Tank Float Switch located behind the Recovery Tank.
15. Verify the vehicle's shift selector lever is firmly in the PARK (P) position and the PRNDL indicator on the vehicle's instrument panel indicates (P).
16. Check the green LED on the Delay Module, located in the Butler Fuse and Relay Center under the passenger seat, is illuminated.

If the large (top) Indicator Lamp on the Engage System Switch (9310) turns GREEN when the switch is placed in the ON position and the machine DOES NOT engage, check the following conditions.

17. Check that the vehicle's engine is running.
18. Place Engage System Switch (9310) in the OFF position.
19. Turn the Key Activated ON/OFF Switch (9460) to the OFF position and remove Key.

DIAGNOSTIC CHECKS

20. Shut OFF the vehicle's engine and remove key.
21. Check for loose, worn, glazed, damaged or missing "V" Belts (9060) on Electric (Front) Clutch (9390) located on the front of the Driveshaft (8000) in the engine compartment.
22. Check for loose, worn, glazed, damaged or missing "V" Belts on Vacuum Blower (8060).
23. Turn "V" Belts (8060) by hand. If "V" Belts DO NOT turn, the Vacuum/ Blower (5000) could be seized. If the Vacuum/Blower is seized (See "Vacuum/Blower Seizure" in this "Diagnostic Checks" section).
24. Check that the green and red LEDs on the Soft Start Module, (located under the hood between the drivers headlamp and radiator), are illuminated.

IF YOU HAVE FOLLOWED THE ABOVE PROCEDURES AND THE MACHINE IS NOT PERFORMING NORMALLY, PLEASE CALL OUR SERVICE DEPARTMENT FOR FURTHER ASSISTANCE.

DECREASED VACUUM OR MACHINE SOUNDS ABNORMAL

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.

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

NOTE: A decrease in airflow usually is due to air entering the system or a blockage in the system. The cause of a decrease in airflow can usually be determined by reading the Vacuum Gauge. A low reading usually indicates there is an air leak. A high reading usually indicates there is a blockage.

Vacuum/Blower	100' of 2" hose open at end	100' of 2" hose sealed at end
Butler Standard	8 – 10" Hg	14 – 15" Hg
Butler Maximum	10 – 12" Hg	14 – 15" Hg

ITEMS TO CHECK WITH UNIT OFF:

1. Engage vehicle's shift selector into the PARK (P) position and FIRMLY set parking brake.
 2. Shut OFF vehicle's engine and remove key.
 3. Check Wand Vacuum Openings (5150), Clean Out Plug (5160) and the Wand Tubing (5170) for accumulated debris.
 4. Check that the Recovery Tank Drain Valve is CLOSED.
 5. Check condition of gaskets on Recovery Tank Lid and optional In-Line Filter Recovery System (if equipped) and that Lids are secure.
 6. Check Filter Bag under left Lid of the Recovery Tank (or in optional In-Line Filter Recovery System, if equipped) making sure bag is clean and in good condition.
 7. Check that Recovery Tank Filter Screen on the right front of the Recovery Tank Lid is clean.
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8. Check if the Vacuum Hoses are split or collapsed.
9. Check Vacuum Hose Reel Swivel and hose connection inside Vacuum Hose Reel (if equipped).
10. Check if all Vacuum Hoses are correctly coupled together.
11. Check for collapsed Vacuum Hose between Vacuum/Blower (5000) and Recovery Tank.
12. Check that the Vacuum Relief Valve (located on top of the Recovery Tank) moves up and down freely. DO NOT adjust valve.

NOTE: A pre-set, factory adjusted valve can be obtained from our Service Department, if needed.

13. Check for loose, worn, glazed, damaged or missing “V” Belts (8060) on Vacuum Blower (5000). “V” Belts should be snug, with very little play.
14. Check the vehicle’s engine compartment for loose, worn, or glazed “V” Belts (8080) on the Electric Clutch (9390) and that they are snug, with very little play.

NOTE: If “V” Belts are worn, frayed, or glazed, replace immediately with a new set of “matched” industrial-grade “V” Belts that conform to original equipment specifications, as worn or slipping “V” Belts can cause excessive wear to pulleys and drivetrain components.

15. Check Vacuum/Blower Silencer (under vehicle) for damage.

ITEMS TO CHECK WITH UNIT ON:

1. Engage vehicle’s shift selector into the PARK (P) position, FIRMLY set parking brake and turn heater/AC system OFF.
2. Start vehicle’s engine and warm to normal operating temperature.
3. Place the Key Activated ON/OFF Switch (9460) to the ON position and start Machine by activating the Engage System Switch (9310).
4. 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).
5. Check that the Recovery Tank Drain Valve is CLOSED and SEALED. Hold hand over end of drain fitting (momentarily) to feel for any suction. If there is suction, the Drain Valve could be worn or is not CLOSED completely.
6. Check and listen for air leaks on Recovery Tank Lid and optional In-Line Filter Recovery System (if equipped).
7. Check and listen for air leaks in all Vacuum Hoses.
8. Check and listen for air leaks in Vacuum Hose Reel Swivel hose connection inside Vacuum Hose Reel (if equipped).

WARNING

Ensure hands and articles of clothing are clear of the belts, pulleys and shaft.

9. VISUALLY CHECK for slipping “V” Belts (8060) on Vacuum/Blower (5000).
10. VISUALLY CHECK in the vehicle’s engine compartment for slipping “V” Belts (8080) on front of Driveshaft and Crankshaft Pulleys.

NOTE: If “V” Belts are slipping replace immediately with a new set of “matched” industrial-grade V” Belts that conform to original equipment specifications, as worn or slipping “V” Belts can cause excessive wear to pulleys and drivetrain components.

DIAGNOSTIC CHECKS

11. Check for blockage in fittings on Vacuum Hose Reel, Recovery Tank Lid and optional In-Line Filter Recovery System (if equipped).

12. Remove all Vacuum Hose from system and connect one section of hose at a time to determine if there is a blockage in a section of hose.

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

13. 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.

14. Shut OFF vehicle's engine and remove key.

IF YOU HAVE FOLLOWED THE ABOVE PROCEDURES AND THE MACHINE IS NOT PERFORMING NORMALLY, PLEASE CALL OUR SERVICE DEPARTMENT FOR FURTHER ASSISTANCE.

VACUUM/BLOWER SEIZURE

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.

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

THERE MAY BE A TIME WHEN THE MACHINE IS SWITCHED ON, BUT WILL NOT RUN. THIS COULD MEAN THE VACUUM/BLOWER IS SEIZED. IT IS VERY IMPORTANT TO FOLLOW THESE PROCEDURES STEP BY STEP:

NOTE: Confirm that Machine components are not frozen due to freezing temperatures. If freezing has occurred, the Machine must be fully thawed. Refer to ("Winterizing" section in this Owners Manual), for further information.

EQUIPMENT REQUIRED TO PERFORM THIS PROCEDURE:

- Lubricating-type oil (WD-40)
- Large pipe wrench
- 3 to 4 quarts of HOT water with detergent
- A length of pipe
- Catch container

1. Engage vehicle's shift selector into the PARK (P) position and FIRMLY set parking brake.

2. Shut OFF vehicle's engine and remove key.

3. Try to turn, by hand, Drive Pulley (8010) and "V" Belts (8060) in both directions. If "V" Belts DO NOT turn, Vacuum/Blower (5000) may be seized.

4. Remove Equipment Shroud.

5. Remove "V" Belts (8060) from Drive Pulley (8010) and Vacuum/Blower Drive Pulley (8030). Try to turn Vacuum/Blower Drive Pulley (8030) in both directions by hand. If Vacuum/Blower Drive Pulley does not turn; Vacuum/Blower (5000) may have accumulated foreign material, dirt, fibers, etc. or is seized due to rusting.

6. Remove the Vacuum Hoses (5100) and (7600) located on the Vacuum Junction Block (5025) and remove the Vacuum Hose that is attached to the Vacuum Elbow and Barb Assembly (5010). (FIG 6)

7. Using a large pipe wrench, remove steel Vacuum Elbow (5010) on top of the Vacuum/Blower (5000) by rotating Elbow counterclockwise.

⚠ WARNING

Be sure to remove: any jewelry, rings, watches, etc. and put up or tie-back long hair when working near Unit and ensure that any articles of clothing are clear of the belts, pulleys, shaft and Vacuum/Blower opening.

8. Check to see if there is foreign material, dirt, fibers, etc. in the Vacuum/Blower opening. Use a pair of pliers or other tool to CAREFULLY remove.

9. If the Vacuum/Blower Drive Pulley (8030) can be turned by hand; spray lubricating-type oil (WD-40) into opening for 15 seconds and let set for 10–15 minutes.

10. Reinstall “V” Belts (8060).

11. Start vehicle’s engine.

12. Place the Key Activated ON/OFF Switch (9460) to the ON position.

13. Start and stop Machine by activating and deactivating the Engage System Switch (9310) 3 or 4 times, CONSECUTIVELY. Note: *There will be a 10–15 second delay between disengaging and re-engaging due to the Soft Start feature.*

NOTE: If Vacuum/Blower does not immediately rotate freely DO NOT continue to “engage” and “disengage” as severe damage can occur.

14. If Vacuum/Blower (5000) rotates immediately and no abnormal noise is heard, proceed to NOTE after Step #20 and follow procedures to the end.

15. If the Vacuum/Blower (5000) DOES NOT IMMEDIATELY ROTATE FREELY, disengage the Engage System Switch (9310).

16. Place the Key Activated ON/OFF Switch (9460) to the OFF position and remove Key.

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

The following procedure is for a Vacuum/Blower that is seized due to rusting of the Internal Lobes.

18. SLOWLY and CAREFULLY pour 3 to 4 quarts of HOT water with detergent into the Vacuum/Blower (5000) opening and let sit for 30 minutes or more.

19. Using a large pipe wrench, grasp the Vacuum/Blower Pulley Shaft (5110). Be sure the wrench is placed between the Vacuum/Blower Drive Pulley (8030) and Vacuum/Blower Casing, not on end of shaft. (FIG 7) and pull on pipe wrench.

NOTE: If pipe wrench will not fit on Vacuum/Blower Pulley Shaft (5110), between the Vacuum/Blower Drive Pulley (8030) and the Vacuum/Blower Casing, call our Service Department for further assistance.

FIG 6

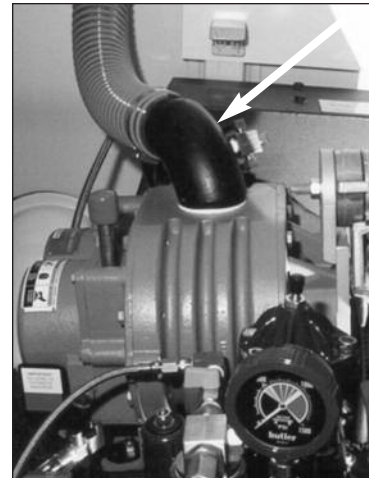
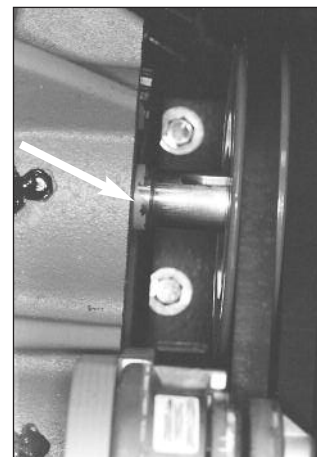


FIG 7



NOTE: *If necessary, for greater leverage, slide a length of pipe over the handle of the pipe wrench and give a sharp tug.*

If Vacuum/Blower fails to rotate call our Service Department for further assistance.

20. If Vacuum/Blower (5000) begins to rotate, grasp “V” Belts (8060) by hand and turn several revolutions in both directions to be sure Vacuum/Blower is turning FREELY and no abnormal noise is heard.

NOTE: *The following procedures will wash and lubricate the Vacuum/Blower (5000) Internal Lobes. Prior to beginning the following procedures be careful where you park, as HOT water, detergent and dirt accumulated in the Vacuum/Blower and Silencer will discharge from Outlet (tailpipe) of the Silencer.*

21. Place a catch container under the Outlet (tailpipe) of the Vacuum/Blower Silencer to collect discharging water.

22. Remove approximately 20' of Vacuum Hose from Vacuum Hose Reel (if equipped) or connect a section of Vacuum Hose to the Recovery Tank. Insert end of Vacuum Hose into the bottom corner of the catch container. (FIG 8)

23. Start vehicle's engine.

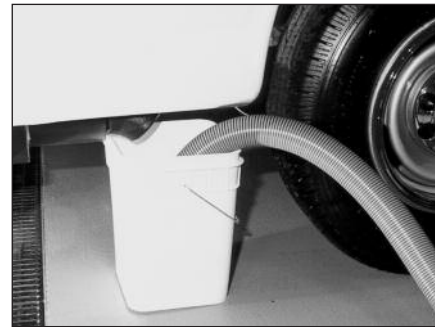


FIG 8

⚠ WARNING

Be sure to remove: any jewelry, rings, watches, etc. and put up or tie-back long hair when working near Unit and ensure that any articles of clothing are clear of the belts, pulleys, shaft and Vacuum/Blower opening.

24. Place Speed Control Switch (9330) in the Black Range (LOW Speed, 900–1050 RPM).

25. Place the Key Activated ON/OFF Switch (9460) to the ON position and start Machine by activating the Engage System Switch (9310).

IMPORTANT: Listen for abnormal noises i.e.: knocking, clicking, squealing, belt slipping, etc. If any abnormal noises are heard SHUT Machine OFF immediately. DO NOT PROCEED as severe damage can occur. Call our Service Department for assistance.

26. If no abnormal noises are detected; very SLOWLY and CAREFULLY, pour 3 to 4 quarts of HOT water with detergent into the Vacuum/Blower opening where the Vacuum Elbow and Barb Assembly (5010) were removed.

27. Let Machine continue to run for 5–10 minutes, allowing time for the Vacuum/Blower Internal Lobes and Silencer to dry.

28. Spray lubricating-type oil (WD-40) for approximately 15 seconds into the Vacuum/Blower opening Lubricating the Internal Lobes.

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

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

30. Shut OFF vehicle's engine and remove key.

31. Reinstall the Vacuum Elbow and Barb Assembly (5010) and the Vacuum Junction Block (5025) and all Vacuum Hoses.
32. Reinstall the Equipment Shroud.
33. Remove discharge container from underneath the Silencer Outlet and store Vacuum Hose and container.
34. Start vehicle's engine.
35. Place the Key Activated ON/OFF Switch (9460) to the ON position and start Machine by activating the Engage System Switch (9310).
36. 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).

IMPORTANT: Listen for abnormal noises, i.e.: knocking, clicking, squealing, belt slipping, etc. If any abnormal noises are heard or vibrations detected, IMMEDIATELY SHUT OFF Machine by deactivating the Engage System Switch (9310). DO NOT PROCEED as severed damage can occur.

IF YOU HAVE FOLLOWED THE ABOVE PROCEDURES AND ANY ABNORMAL NOISES ARE HEARD, VIBRATIONS DETECTED OR NEED FURTHER ASSISTANCE, PLEASE CALL OUR SERVICE DEPARTMENT.

37. If Vacuum/Blower and all other components SOUND NORMAL proceed to use Machine.

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

38. If Machine is not going to be used, 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.
39. Shut OFF vehicle's engine and remove key.

THE VEHICLE'S ENGINE RPM DOES NOT INCREASE

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.

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

1. Engage vehicle's shift selector into the PARK (P) position, FIRMLY set parking brake and turn heater/AC system OFF.
2. Start the vehicle's engine and warm to normal operating temperature.
3. Check that the vehicle's parking lamp indicator is illuminated on the vehicle's instrument panel.
4. Check the vehicle's instrument panel for any warning lights that may be ON; such as: Service Engine, ABS, Low Tire Light, etc. and have any warning repaired prior to engaging the Butler System.
5. Place Speed Control Switch (9330) to the bottom position, Black range (LOW Speed, 900–1050 RPM) on Tachometer (9400).

DIAGNOSTIC CHECKS

6. Place the Key Activated ON/OFF Switch (9460) to the ON position and start Machine by activating the Engage System Switch (9310).
7. 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).
8. Increase the RPM to the Orange range (HIGH Speed, 1550–1750 RPM) on the Tachometer (9400) by placing the Speed Control Switch (9330) to the top position.

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

9. 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.
10. Shut OFF vehicle's engine and remove key.

NOTE: The RPM speed controls (Speed Control Module) for the 2006 and newer Ford vans and 2007 and newer GM vans are factory set and are not adjustable.

IF YOU HAVE FOLLOWED THE ABOVE PROCEDURES AND THE MACHINE DOES NOT INCREASE RPM OR IS NOT PERFORMING NORMALLY PLEASE CALL OUR SERVICE DEPARTMENT FOR FURTHER ASSISTANCE.

NO HIGH PRESSURE OR LOSS OF PRESSURE

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.

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

ITEMS TO CHECK:

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, thereby impeding the mechanical ability to loosen and remove soil, perhaps leaving a streaking condition. It is recommended that Jets be 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.

EQUIPMENT REQUIRED TO PERFORM THIS PROCEDURE:

- 2¹/₂ Gallon Solution Container or (similar container)
- 4-Gallon Discharge Container or (similar container)

1. Engage vehicle's shift selector into the PARK (P) position, FIRMLY set parking brake and turn heater/AC system OFF.
 2. With vehicle's engine OFF and Machine OFF, check that "V" Belt (8080) is snug and in good condition.
 3. Clean Inlet Strainer (1015) and Inlet Water Strainer (1090). (FIG 10–11)
-

FIG 10



FIG 11



FIG 9

4. If equipped with a High-Pressure Hose Reel, CLOSE shut-off valve (3065) located on the back of the Instrument Panel at floor level, behind Quick Connections (3100, 3090). (FIG 9)

5. Check that all of the Machine's Quick Connects are securely coupled together and that all hose fittings are tight.

NOTE: The following procedures will check water flow through Machine with Machine OFF.

6. CLOSE Ball Valve (1050), if equipped with a Fresh Water Holding Tank.

7. Connect a Garden Hose to an outside water faucet and to the Cold Water Inlet Connection (1010) (FIG 10) and turn water ON at faucet.

8. OPEN Cold Water Inlet Valve (1020).

9. Position and hold the Hot Water Convenience Hose (3080), so that it is pointing away from you and put into the 2¹/₂ Gallon Solution Container or (similar container) located outside of the vehicle. (FIG 12)

10. OPEN Hot Water Convenience Valve (3070).



FIG 12



CAUTION

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

11. Water should flow freely through the Machine and out the Hot Water Convenience Hose (3080).

NOTE: If water DID NOT flow freely, the Machine may have scale buildup. Refer to ("Water Conditions" in the "Maintenance" section of this Owner's Manual.)

NOTE: The following procedures will check water flow through Machine with Machine ON.

12. Start vehicle's engine.

13. Place the Key Activated ON/OFF Switch (9460) to the ON position and start Machine by activating the Engage System Switch (9310).

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

15. 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).

16. If water is flowing freely, shut OFF the High Pressure Pump (2000) by deactivating Engage Pump Switch (9320).

17. CLOSE Hot Water Convenience Valve (3070).

18. Connect Stair Tool (or similar tool) directly to Instrument Panel using Quick Connection (3090 or 3100). (FIG 13)

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

20. Activate Stair Tool Trigger (or similar tool) and discharge solution into the 4-Gallon Discharge Container or (similar container). (FIG 13)

21. Check High-Pressure Gauge (2030), should read in the Green Range, (450–550 psi).

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



FIG 13

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

23. 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.

24. Shut OFF vehicle's engine and remove key.

NOTE: If water DID NOT flow freely, the Machine may have scale buildup. Refer to ("Water Conditions" in the "Maintenance" section of this Owners Manual.)

NOTE: If pressure and flow is normal, the blockage may be in one or more of the following components: High-Pressure Hoses, Wand or another tool, quick disconnects, or shut-off valves.

25. Shut OFF outside water faucet.

26. OPEN then CLOSE Hot Water Convenience Valve (3070), momentarily to relieve pressure.

27. Disconnect Stair Tool and store.

28. Disconnect Garden Hose and store.

29. Store Hot Water Convenience Hose (3080).

30. CLOSE Cold Water Inlet Valve (1020).

31. OPEN Shut-Off Valve (3065), if equipped.

32. Dispose of discharge solution or vacuum solution into the Recovery Tank for later disposal and store discharge container.

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.

IF YOU HAVE FOLLOWED THE ABOVE PROCEDURES AND THE MACHINE IS NOT PERFORMING NORMALLY, PLEASE CALL OUR SERVICE DEPARTMENT FOR FURTHER ASSISTANCE.

NO HOT WATER

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.**

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

ITEMS TO CHECK:

1. Engage vehicle's shift selector into the PARK (P) position and FIRMLY set parking brake.
2. Shut OFF vehicle's engine and remove key.
3. With the vehicle's engine OFF and COLD; check the level of antifreeze/coolant in the vehicle's coolant reservoir and radiator. **If low, add vehicle manufacturer's recommended antifreeze/coolant only. Refer to vehicles owner's manual.**
4. Check that the vehicle's heater is OFF.
5. Start vehicle's engine and allow engine to reach normal operating temperature.
6. Check that the vehicle's engine coolant temperature gauge at the vehicle's instrument panel is at its normal operating temperature. Refer to vehicles owner's manual.

NOTE: *If antifreeze/coolant in reservoir and radiator is at proper operating levels and the vehicle's temperature gauge is reading below normal operating temperature, the vehicle's thermostat may need replacing. Please see your "dealer" for the Original Equipment thermostat replacement.*

7. Place Temperature Adjusting Ball Valve (2080/3030) in the HOT position. (As shown on the Schematic)
8. Connect the Simulator Nozzle to the High-Pressure Hose with a shut-off valve, on the High-Pressure Reel (if equipped) or connect the Simulator Nozzle to a 50' length or longer High-Pressure Hose with shut-off valve, to Quick Connection (3090 or 3100) on the Instrument Panel.
9. 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.*
10. Place the Key Activated ON/OFF Switch (9460) to the ON position and start Machine by activating the Engage System Switch (9310).
11. Start High Pressure Pump (2000) by activating Engage Pump Switch (9320).
12. 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).
13. Insert and hold Simulator Nozzle into a Vacuum Hose attached to the Recovery Tank.

14. OPEN shut-off valve at end of High- Pressure Hose for 45–60 seconds for a meaningful reading of the Water Temperature Gauge (3045).

⚠ WARNING

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

15. Water Temperature Gauge (3045) should read +/-190°F when the vehicle's engine is operating at normal temperature and the Temperature Adjusting Ball Valve (2080/3030) is in the HOT position. (As shown on the Schematic)

16. Adjustment of temperature can be made with the Temperature Adjusting Ball Valve (2080/3030). (FIG 14)

17. Check that the Pressure Relief Valve (2095) located at the Heat Exchanger (3000) is NOT discharging water under the vehicle.

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.

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. OPEN then CLOSE Hot Water Convenience Valve (3070), momentarily to relieve pressure.

22. Turn shut-off valve on High-Pressure Hose to the OFF position, disconnect Simulator Nozzle and store.

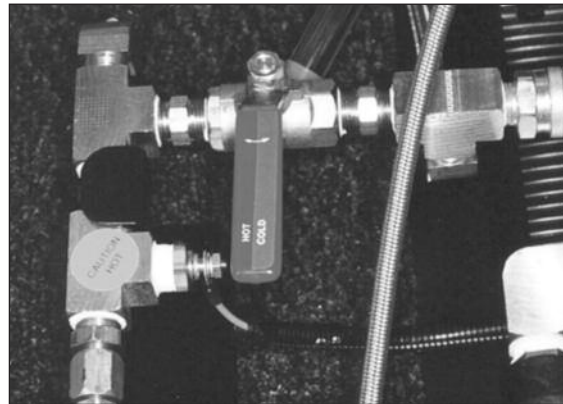
23. Store hoses.

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.

NOTE: Temperature may be impaired when using Jets larger than originally specified, worn, or when using multiple tools (see Dual Wand Information in the "System Operations" section of this manual).

IF YOU HAVE FOLLOWED THE ABOVE PROCEDURES AND THE MACHINE IS NOT PERFORMING NORMALLY, PLEASE REFERENCE "WATER CONDITIONS" IN THE "MAINTENANCE" SECTION OF THIS MANUAL.

FIG 14



NO OR ERRATIC DETERGENT FLOW

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.

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

If you are experiencing difficulty obtaining OR maintaining a stable detergent flow, be sure to first determine if the detergent has thickened. Thickening could be due to factors such as:

- Freezing during shipping, storage or use.
- Loss of hydrating elements, such as water or additives.
- Mixing dilution ratios other than recommended.
- Mixing other cleaning products or other brands together.
- Contamination by foreign materials.

ITEMS TO CHECK:

1. Engage vehicle's shift selector into the PARK (P) position and FIRMLY set parking brake.
2. Shut OFF vehicle's engine and remove key.
3. Check that there is detergent in the Detergent Container (4000).
4. Check that the Strainer (4010) located at the end of the clear detergent Hose (4020) in the Detergent Container (4000) is clean and not blocked. (FIG 15)
5. Check clear Detergent Hose (4020) from the Detergent Container (4000), making sure that there is no build-up of residue OR that Hose (4020) is not cut, kinked or collapsed.
6. Check that the Indicator Ball (4040) in the Detergent Flow Meter (4030) is not stuck. The ball should be at the bottom of the meter when the Machine is OFF.
7. To check that the Indicator Ball (4040) is moving freely, remove the Clear Detergent Hose (4020) from the Detergent Container (4000) and remove the Detergent Strainer (4010) from end of hose.
8. Disconnect Braided Hose (4050) at the check valve (4060) located on the Detergent Pump (4070).
9. Blow a SMALL AMOUNT of LOW PRESSURE (regulated) compressed air into the end of the Clear Detergent Hose (4020) where the Detergent Strainer (4010) was removed. **Use caution, as detergent will be expelled from end of Braided Hose.**
10. Reinstall hoses and fittings.
11. Check all fittings and tighten connections that may have become loose.



FIG 15

NOTE: If condition is not corrected by following the above procedures (See how to obtain a "Detergent Flow Meter Reading" in this section and "Setting Detergent Injection Pump Flow Rate" in the "System Operations" section of this manual) and replace detergent with warm tap water to test if the detergent has thickened or is defective.

IF YOU HAVE FOLLOWED THE ABOVE PROCEDURES AND THE MACHINE IS NOT PERFORMING NORMALLY, PLEASE CALL OUR SERVICE DEPARTMENT FOR FURTHER ASSISTANCE.