THE WHEELS ARE ALWAYS TURNING

A DOVER COMPANY

Half/Pack®
Front End Loader

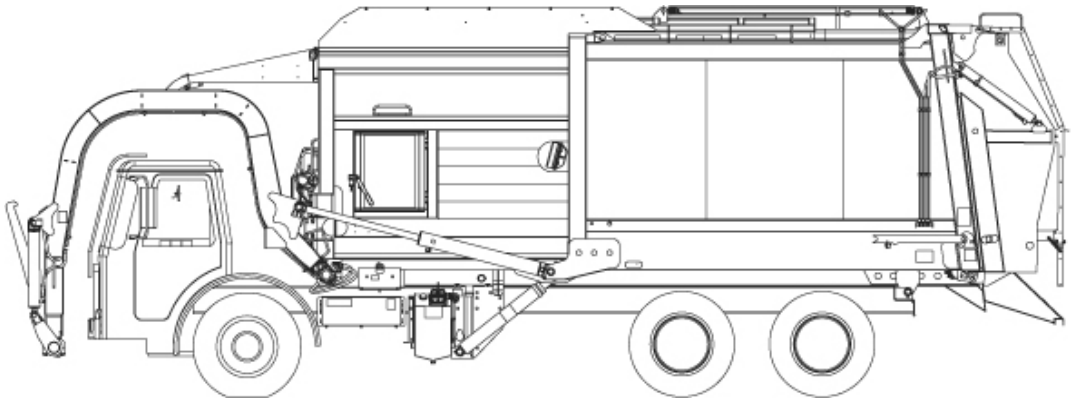
WARNING

Failure to follow all instructions and safety precautions in this manual, in the Maintenance and Adjustment Manual (or Service), in other manufacturer's manuals and on the safety decals attached to the product could result in serious injury or death to operators or bystanders and/or damage to property.

DO NOT operate this vehicle before you READ and UNDERSTAND this Operator's Manual, the Parts and Maintenance/Adjustments (Service) Manual for this unit, other applicable manufacturer's manuals and the safety decals on the product.

Each operator of this unit must read and understand all directions in this manual before they first operate this vehicle.

Keep this manual in the cab for new operators and to remind all operators about safe use.



Operator's Manual

Revision: Original Release

SWS-706224-0509

Read This Manual!

EVERY PERSON who will **OPERATE, MAINTAIN, REPAIR, OR OTHERWISE WORK** with the Heil Half/Pack® Front Loader **MUST READ AND UNDERSTAND** this entire Operator's Manual before starting the engine or activating any switches or controls. **MAKE SURE** to read the Maintenance/Adjustments (or Service) Manual for the unit **BEFORE** you do any maintenance or repair procedures.

ALL USERS of this equipment must be trained professionals who understand how the machine operates and know how to avoid the risks associated with driving the vehicle and with picking up, compacting, and dumping refuse in an ever-changing traffic environment.

If you do not understand an operation or instruction, seek additional help or instruction from a qualified source **BEFORE** you operate the unit.

Organization of This Manual

This Operator's Manual has eleven (11) sections plus two appendices and the Warranty Statement. Each section has a specific set of topics and information for the Heil Half/Pack® Front End Loader (hereafter the Half/Pack® or the unit).

The Table of Contents lists all 11 sections and first level of specific topics in each section plus the appendices and the Warranty Statement.

Each section has a Section Contents that lists the specific content in that section.

How to Use This Manual

Locating a Desired Section

You can use the numbered black tabs located on each right-hand page of the manual to find any desired section, except for the appendices. The tabs are there to help you quickly flip to any section without looking for a specific page number.

Terminology

This manual uses terminology that is defined in the Glossary, which is in Section 1, Introduction.

Directives

When we give directions for using the equipment, we capitalize key words. These words are usually a command followed by a result.

For example, “MOVE the body raise switch to LOWER …”.

Use of Bold and CAPITAL Letters

We also put some words in **BOLD AND CAPS** for emphasis, usually related to safety or something of other importance, such as “**MAKE SURE** you close the side door”.

We put some words in just bold for emphasis, such as “All warranty repairs **must** be performed by …”.

We make the text in each DANGER, WARNING and CAUTION notice of this manual in **BOLD** so that you can notice them more easily. Each DANGER, WARNING and CAUTION notice precedes its applicable text.

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Table of Contents

Table of Contents

1. Introduction

Preview

Read this section to learn about:

- The responsibilities of the owner, the operator and the mechanic
- Warranty information
- Telephone numbers and web site URL for parts, technical support, warranty claims, training and manuals
- Identifying the different models
- Identifying the left (street side) of the unit
- The serial plate
- Various parts of the unit.

Section Contents

1. Introduction

To the Owner

This manual is designed to help ensure safe, efficient and proper operation of The Heil Co. d/b/a Heil Environmental ("Heil") Half/Pack® Front End Loader (FEL) refuse collection vehicle (or the unit).

The manual will familiarize you with the unit and will give you proper operating procedures and tips.

For chassis operation and maintenance instructions, see the Chassis Owner's Manual and the Half/Pack® Parts and Maintenance/Adjustments (Service) Manual.

As the owner, you have several responsibilities:

- You must complete and return the warranty registration for the unit to Heil. Owners will soon be able to do this electronically.
- You must make sure that each operator has the proper driving license.
- You must make sure that the operator does not operate the unit under the influence of drugs or alcohol.
- You must make sure that the unit is properly maintained to meet all local, state and federal requirements.
- You must keep the vehicle maintained and properly adjusted to meet the manufacturer's standards and recommendations.
- You must keep accurate records of daily inspections, breakdowns, malfunctions, maintenance and repairs of the unit.
- You must make sure that repairs are made that may affect the safe operation of the unit before it is made available of operation.
- You must provide adequate lighting on the unit for safe operation under low light or night conditions.
- You must provide adequate training for each operator and mechanic that will operate the unit BEFORE an operator goes on route or BEFORE a mechanic performs maintenance or repair procedures.
- You must determine if an operator or mechanic has difficulties reading or understanding this manual. When a person has difficulties reading or understanding this manual, you must provide adequate assistance so that the person does understand the material in this manual.
- You must make sure that each operator uses the equipment on a route as given in the instructions of this manual and other manufacturer's manuals.
- You must provide on-going training for each operator and mechanic that operates the unit.
- You must make sure that this manual stays with the vehicle at all times

Properly operated and maintained, your Half/Pack® unit should give you years of low-cost, trouble free service.

1. Introduction

To the Operator

DANGER **Do not operate the unit or perform repair or maintenance procedures on the unit until you read and understand all of the instructions in this manual. Failure to do so may result in injury or death to operators or bystanders.**

NOTICE **Do not operate the unit or perform repair or maintenance procedures on the unit until you read and understand all of the instructions in this manual. Failure to do so may result in damage to the unit or other property.**

NOTE: If you do not understand a procedure or instruction, tell the owner or the designated person immediately. Do not operate the unit if you do not understand all procedures and instructions in this manual. The owner or designated person can contact your Heil dealer or Heil for additional help. See page 11 for contact information.

As the operator of the unit, you have several responsibilities:

- You must have a valid driver's license.
- You must understand and follow all manufacturers' instructions for equipment operation.
- You must observe and obey pertinent laws and regulations.
- Do not use drugs or alcohol while you operate the unit.
- You must read, study and understand all procedures and requirements of this Operator's Manual before you operate the unit for the first time.
- If you do not understand or have difficulty reading this manual, YOU MUST tell the owner or designated person before you operate the unit. DO NOT operate the unit until you understand all procedures and requirements of this manual.
- You must receive proper training before you operate the unit. If you have not been trained, you must inform the owner.
- You must perform a daily inspection of the unit before you go on route. Refer to the daily inspection checklist on page 133.
- You must make sure that all decals and labels are clean and readable.
- You must report to the owner (or designated person) any and all deficiencies, malfunctions or problems you find during the daily inspection.
- You must read, understand and obey all safety messages and decals that are on the outside or in the cab of the unit.
- You must use and follow the lock-out procedures, in this manual and any that the owner may have, as necessary.

To the Operator - Continued

- Before you start the engine or operate the unit for the first time:
  - You must clear the area of other people
  - You must learn and practice safe use of all controls and indicators before you operate the Half/Pack® unit in a collection route environment.
- Before each time you start the engine or operate the unit, you must clear the area of other people.
- Before you operate the unit in reverse, you must make sure the area behind the unit is clear of other people, vehicle or other obstructions.
- You must make sure the unit is on hard, stable ground when you unload refuse at the landfill or transfer station.

To the Mechanic

DANGER **Do not operate the unit or perform repair or maintenance procedures on the unit until you read and understand all of the instructions in this manual. Failure to do so may result in injury or death to operators or bystanders.**

NOTICE **Do not operate the unit or perform repair or maintenance procedures on the unit until you read and understand all of the instructions in this manual. Failure to do so may result in damage to the unit or other property.**

NOTE: If you do not understand a procedure or instruction, tell the owner or the designated person immediately. Do not operate the unit if you do not understand all procedures and instructions in this manual. The owner or designated person can contact your Heil dealer or Heil for additional help. See page 11 for contact information.

As the mechanic of the unit, you have several responsibilities:

- You must have a valid driver's license.
- You must understand and follow all manufacturers' instructions for equipment operation.
- You must observe and obey pertinent laws and regulations.
- Do not use drugs or alcohol while you operate the unit.
- You must read, study and understand all procedures and requirements of this Operator's Manual and the Parts and Maintenance/Adjustment (Service) Manual before you operate the unit for the first time.

To the Mechanic - Continued

- If you do not understand or have difficulty reading this manual or the Parts and Maintenance/Adjustment (Service) Manual, YOU MUST tell the owner or designated person before you operate the unit.
- DO NOT operate the unit until you understand all procedures and requirements of this manual.
- You must receive proper training before you operate or service and maintain the unit. If you have not been trained, you must inform the owner.
- You must use and follow the lock-out procedures, in this manual and any that the owner may have, as necessary.
- You must read, understand and obey all safety messages and decals that are on the outside or in the cab of the unit.
- You must use and follow lock-out procedures, in this manual or any that the owner may have.
- Before you start the engine or operate the unit for the first time:
  - You must clear the area of other people
  - You must learn and practice safe use of all controls and indicators before you operate the Half/Pack® unit or before you do repair or maintenance procedures.
- Before you operate the unit in reverse, you must make sure the area behind the unit is clear of other people, vehicle or other obstructions.

Warranty Claims and Inquiries

The HEIL ENVIRONMENTAL WARRANTY STATEMENT is printed on the inside, back cover of this manual. Should a failure occur that is covered by this warranty, contact the nearest Heil dealer for warranty repair unless otherwise authorized by Heil. All warranty repairs ***must*** be performed by a Heil dealer or service center unless otherwise authorized by Heil.

For all parts, warranty claims, and inquiries, please give the dealer or service center the model and serial number located on the serial plate. The unit has one serial plate. See Figure 1 for the location of this plate.

Customer Service and Repair Parts

Contact Customer Service for:

● Parts ● Technical Support
● Warranty Claims
● Training ● Manuals

Parts Central
Phone: (866) 275-4345
Fax: (245) 845-8320
4301 Gault Avenue North
Ft. Payne, AL 35967
www.heil.com

1. Introduction

Models

The Half/Pack® FEL has three body models:

- Eject
- Service Hoist
- Dump

All three body models use a Packer/Eject panel and two cylinders to compact the refuse from the hopper into the body (packer mode) and to push all or some/most (Dump model) of the refuse from the body (eject mode).

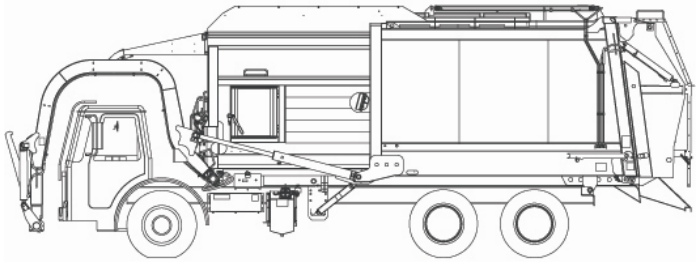
Each body model also comes in two versions – Standard (Commercial or non-AutoLift™ and Residential (or AutoLift™). The Commercial version has fork adapters that go into the pockets/slots on commercial waste bins. Both versions can use a carrycan that the unit carries with the forks and the operator fills with refuse from each pickup. The Residential version has the AutoLift™ function as a standard feature.

The Eject body model does not have Body Raise or Service Hoist Cylinders.

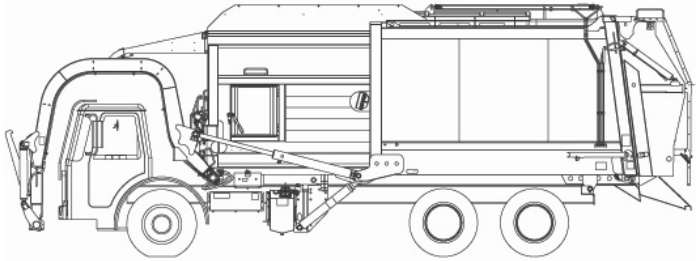
The Service Hoist body model is an Eject body with two service hoist cylinders for service and maintenance operations. The cylinders are smaller than the Body Raise Cylinders and raise the empty body but not as high as on the dump model.

The Dump Body model has two Body Raise Cylinders. You use the Packer/Eject cylinders to move some/most of the refuse out of the body. You then raise the body to remove the remaining refuse.

EJECT MODEL



SERVICE HOIST MODEL



DUMP MODEL

Equipment Directions

You determine the sides of the unit by facing the direction of forward travel. See Figure 1. The left side is the "streetside" and the right side is the "curbside".

Serial Plate Location

Figure 1 shows the location of the serial plate on the streetside of the unit's body. See the next page for a description of the information that is on the serial plate.

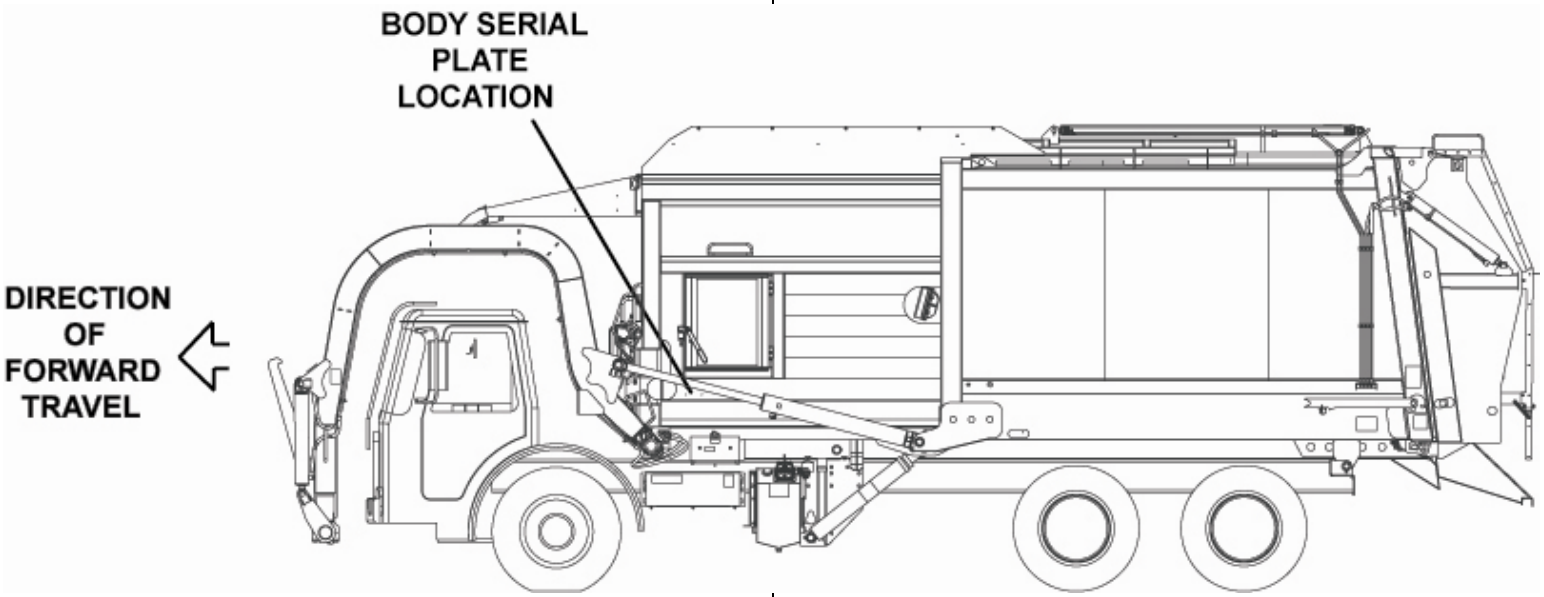


Figure 1. Body Serial Plate Location (Streetside – Dump Body)

Reading the Serial Plate

The Half/Pack® serial plate is the "birth certificate" of the unit. See Figure 2.

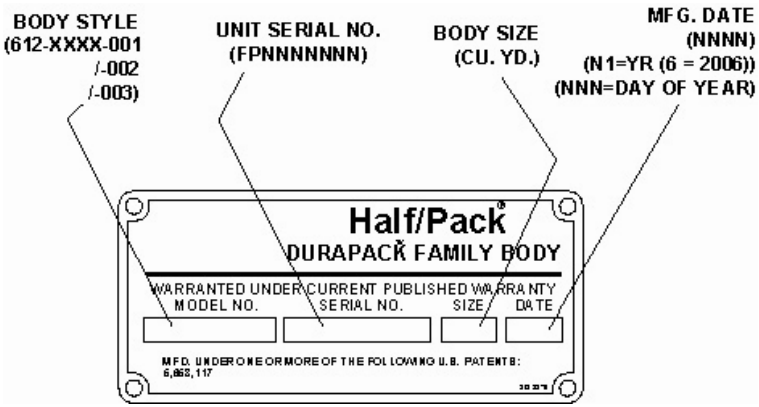


Figure 2. Reading the Serial Plate

Information stamped in the four boxes on the serial plate indicates:

- Body style (dump, eject or service hoist): 612-nnnn-001 is a dump body, -002 is an eject body, and -003 is a service hoist body ("n" is any single-digit number).
- Unit's unique serial number
- Body size (cu. yd.)
- Date of manufacture (last number of the year followed by the number of the day of the year, e.g. 6145 is year 2006 and the 145th day of 2006).

NOTE: The code for the year of manufacture is in accordance with FMVSS 115. See the following table.

Year of Manufacture			
Year Code	Year	Year Code	Year
5	2005	F	2015
6	2006	G	2016
7	2007	H	2017
8	2008	J	2018
9	2009	K	2019
A	2010	L	2020
B	2011	M	2021
C	2012	N	2022
D	2013	P	2023
E	2014	R	2024

Product Nomenclature

Figure 3 shows the major components and their typical location on the unit.

See the following pages for brief descriptions of each component pictured below.

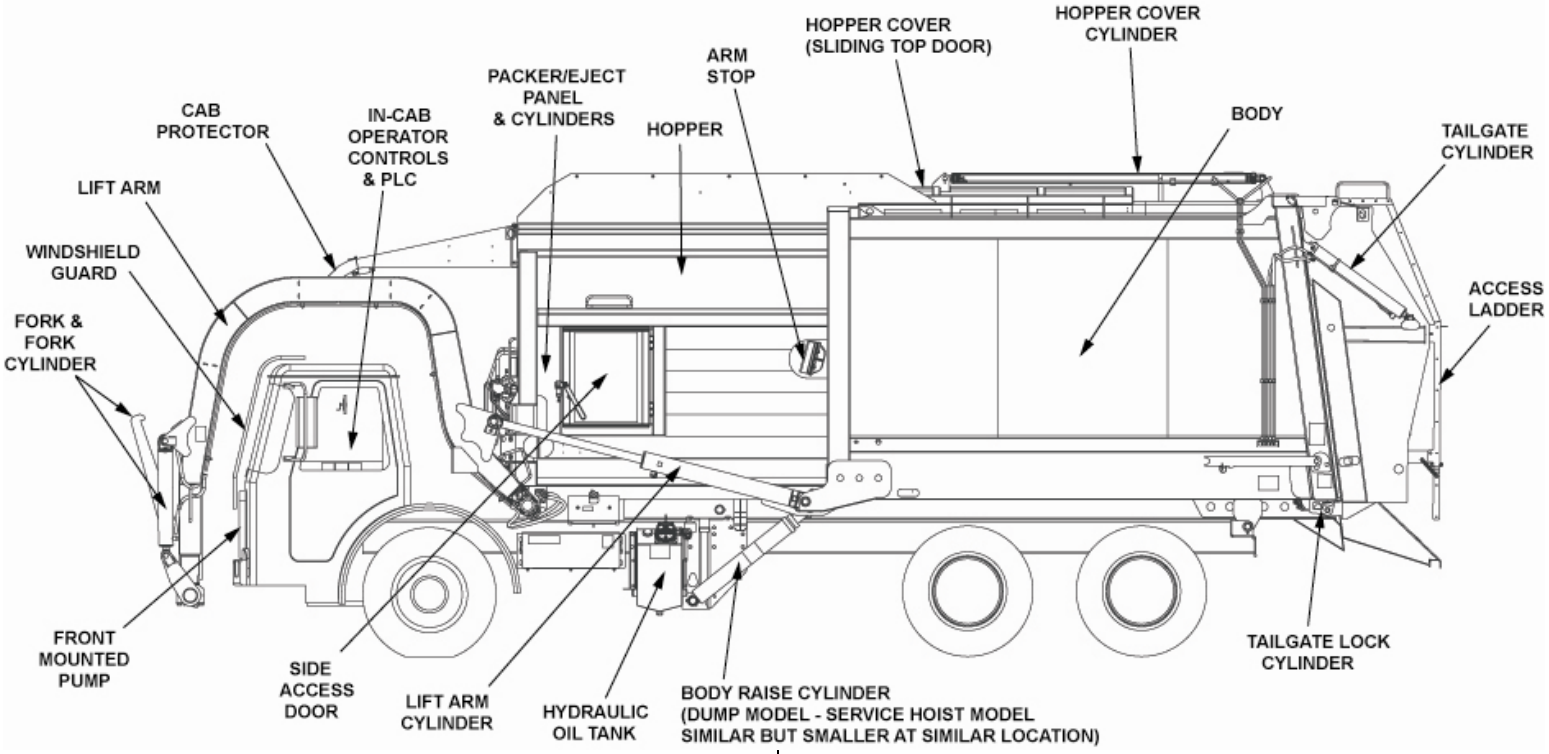


Figure 3. Product Nomenclature

WARNING **Moving equipment can be dangerous to bystanders. Serious injury or death can occur if a person is in the wrong area or is not attentive to the operations. Clear the area of all unnecessary people before you operate the controls.**

Fork & Fork Cylinder - You use the two fork cylinders to rotate (RAISE or LOWER) the forks to the correct angle to engage a refuse container's pickup sleeves.

Optional controls can move the forks inward and outward to adjust for container widths. See Adjustable Forks Switch on page 64.

WARNING **Moving equipment can be dangerous to bystanders. Serious injury or death can occur if a person is in the wrong area or is not attentive to the operations. Clear the area of all unnecessary people before you operate the controls.**

Lift Arms & Cylinders - You use these two cylinders to RAISE and LOWER the lift arms to lift a container for dumping and to set it back on the ground.

Windshield Guard - DO NOT use the windshield guard as a ladder. The guard protects the windshield from falling debris.

Cab Protector – The cab protector helps keep falling debris from landing on the cab.

Operator Controls - The standard operator controls for running the Half/Pack® components are inside the vehicle cab. See "Section 3: Cab Controls, Switches and Indicator Lights" for the different controls that may be installed in your unit.

Optional controls also allow you to operate the unit from outside the vehicle. See "Optional Outside Controls" on page 65.

Programmable Logic Controller - The unit has a Programmable Logic Controller (PLC). The PLC monitors critical components, allows safe operation of the various functions and performs other functions. When the PLC detects a fault or unsafe condition, it alerts the operator with an indicator light and/or a buzzer alarm. During certain conditions, the PLC will not allow operation of different functions.

Hopper - The hopper is the front part of the body assembly between the packer/eject panel and the body bin and is under the opening of the sliding top door. The hopper is the loading chamber for the refuse. Refuse dumped into the unit falls inside the hopper where it stays until the operator compacts the load into the body with the packer/eject panel.

Body - The body stores the compacted refuse until you dump the load at the landfill.

Access Ladder - Use the access ladder to climb on the body or onto the roof. MAKE SURE the unit is in lock-out before you use the access ladder AND the Hopper Cover (Sliding Top Door) is CLOSED. **BE CAREFUL** at all times when you use the ladder. Maintain good balance with two feet and one hand, or one foot and two hands, firmly in place.

Arm Stop - The lift arms stop their movement at the arm stops.

WARNING **The side door must be closed before you start a packer operation. Serious injury or death may occur if a person is inside the body or hopper. Make sure no one is inside the hopper or body before you close the door and begin a packer function.**

Packer/Eject Panel & Cylinders - The packer/eject panel is inside the hopper (at the front of the hopper) and has two functions:

- The packer function compacts the loaded refuse from the hopper into the body (packer mode)
- The eject function pushes the loaded refuse out of the body (eject mode) through the open tailgate.

During the PACKER mode, you EXTEND the packer/eject panel cylinders to push the packer panel towards the rear of the body, which COMPACTS the load. You must allow the packer panel cylinders to move the packer panel to its FULLY RETRACTED POSITION, which is at the front of the hopper, before you dump additional refuse into the hopper. Normal operation of the AutoPack™ feature consists of one extension and retraction of the packer panel.

During the EJECT mode, you use the packer/eject panel and cylinders to remove the refuse from the body.

- In the eject and service hoist models when the tailgate is open, the EJECT mode lets the packer/eject panel travel further than during the packer mode. This extra travel of the panel removes ALL of the refuse from the body. You do not need to raise the body with an eject or service hoist body model to remove the refuse

- In the dump model, the packer/eject panel during the EJECT mode does not travel far enough to remove all of the refuse in the body.

Hydraulic Oil Tank - The tank is the reservoir for the hydraulic oil which operates all hydraulic cylinders described above.

Hydraulic Pump - The unit's hydraulic pump(s) provides the oil pressure for the hydraulic system. It is located either in front of the unit's engine or underneath the unit (powered by the transmission through a Power Take-Off (PTO). With a front-mount pump, the operator turns the pump ON and OFF as needed with the PUMP ON switch located on the in-cab control panel. With a PTO pump, the operator engages the PTO then turns the pump on with the in-cab pump-on switch.

⚠ WARNING **Close the hopper cover and lock-out the unit before you climb on the roof. You may get part of your body caught by the hopper cover or the cylinders if the cover moves or the cover door opens. Serious injury or death may occur if a person is on the roof when the door opens.**

NOTICE **The hopper cover must be open when you pack the trash. You can cause damage to the unit if you compact the trash with the cover closed. You must close the hopper cover to eject or dump the trash.**

Hopper Cover & Cylinder - The unit has a hopper cover (sliding top door) which the operator OPENS and CLOSES with a hydraulic cylinder. You OPEN the cover to dump refuse into the hopper. You CLOSE the cover when the body is full of refuse, when you are traveling between collection routes or you are traveling to the refuse station or landfill.

⚠ WARNING **The side door must be closed before you start a packer operation. Serious injury or death may occur if a person is inside the body or hopper. Make sure no one is inside the hopper or body before you close the door and begin a packer function.**

Side Access Door - Use this door to enter the body when required for cleaning or other maintenance tasks. **MAKE SURE** the unit is in lock-out condition and the keys removed from the ignition and in the operator's control BEFORE you enter through the side door.

The door has a proximity switch that the PLC uses to DISABLE the hydraulic system unless the door is CLOSED.

⚠ DANGER **Always prop the tailgate when you leave it raised for maintenance, service or cleaning procedures. Any part of your body between the unit's body and the tailgate while you prop the tailgate or when the tailgate is propped is dangerous. Serious injury or death may occur if any part of your body is between the tailgate and the body if the tailgate suddenly closes.**

Tailgate Props – Always use both tailgate props, one on each side of the unit, when you raise the tailgate for maintenance or service procedures.

Tailgate Lock Cylinders - Heil's patented **Shur-Lock™** system uses tailgate lock cylinders to UNLOCK the tailgate before you RAISE the tailgate and to LOCK the tailgate after you LOWER the tailgate.

A "flag" at the back of each side of the body lets the operator see whether the tailgate is locked or unlocked. The flag is UP when the tailgate is LOCKED and DOWN when the tailgate is UNLOCKED.

Tailgate Cylinders - You use these cylinders to RAISE the tailgate before you unload the compacted refuse at the landfill. After you unload the refuse, you use the cylinders to LOWER the tailgate.

A red light and an alarm inside the cab let the operator know when the tailgate is RAISED. The red light illuminates (is ON) and the alarm sounds when the tailgate is RAISED. The light is OFF and the alarm stops when the tailgate CLOSED.

⚠ DANGER A tailgate in motion is dangerous. Serious injury or death may occur if a person is struck by a moving tailgate or becomes trapped between the tailgate and the body. Clear the area near the tailgate of all unnecessary people before you lower the tailgate.

⚠ DANGER Always prop the tailgate when you leave it raised for maintenance, service or cleaning procedures. Any part of your body between the unit's body and the tailgate while you prop the tailgate or when the tailgate is propped is dangerous. Serious injury or death may occur if any part of your body is between the tailgate and the body if the tailgate suddenly closes.

Tailgate – Raise the tailgate at the landfill or transfer station to unload the refuse.

A red light and an alarm inside the cab let the operator know when the tailgate is raised. The red light illuminates (is ON) and the alarm sounds when the tailgate is RAISED. The light is OFF and the alarm stops when the tailgate is CLOSED.

NOTE: You must use the tailgate lock cylinder (described previously) to unlock the tailgate in order to raise the tailgate or to fully close (lock) the tailgate.

DANGER **Any part of your body between the unit's body and the chassis or cylinders while you raise the body is dangerous. Serious injury or death will occur if the unit's body suddenly lowers and traps a part of your body. Keep all parts of your body out from underneath the unit's body and away from the cylinders during this procedure.**

DANGER **Do not raise a body that has refuse while you do maintenance or service procedures. Refuse in the body can make the unit unstable. Always unload refuse from the body before you raise it for maintenance or service procedures. Always use the body props when you raise the body for maintenance or service procedures.**

WARNING **Raising the body with the tailgate closed can damage the underride bumper. The underride bumper can hit the ground when the tailgate is not fully raised before you raise the body. Serious injury or death may occur and also cause damage to the unit.**

Body Raise Cylinders - (Dump units only.) You use these two cylinders to RAISE the body and unload compacted refuse out through the raised, open tailgate. After you unload the refuse, you use these cylinders to LOWER the body. LOWER the body until it rests on the chassis.

NOTE: For non-dump (eject or service hoist) units, you unload the refuse by opening the tailgate and fully extending the packer panel cylinder, which pushes the refuse out the rear of the body.

DANGER **Any part of your body between the unit's body and the chassis or cylinders while you raise the body is dangerous. Serious injury or death will occur if the unit's body suddenly lowers and traps a part of your body. Keep all parts of your body out from underneath the unit's body and away from the cylinders during this procedure.**

DANGER **Do not raise a body that has refuse while you do maintenance or service procedures. Refuse in the body can make the unit unstable. Always unload refuse from the body before you raise it for maintenance or service procedures. Always use the body props when you raise the body for maintenance or service procedures.**

WARNING **Raising the body with the tailgate closed can damage the underride bumper. The underride bumper can hit the ground when the tailgate is not fully raised before you raise the body. Serious injury or death may occur and also cause damage to the unit.**

Service Hoist Cylinders - (Service Hoist units only) You use these two cylinders to RAISE the body for service or maintenance procedures. When you complete the service or maintenance procedures, you use these cylinders to LOWER the body.

The body does not raise as far off the chassis as it does with a dump unit. The body raises sufficiently to perform service or maintenance procedures.

ALWAYS use the body props when you raise the body with the Service Hoist cylinders.

Glossary

TERM	DEFINITION
accident	An incident that results in unintended harm
AutoLevel™	A feature on Residential units that allows an operator to lift and dump a refuse container without manual adjustment of the forks to level a refuse container during the pick-up, lift, dump and return container to the ground
AutoLift™	A feature on Residential units that allows an operator to start a cycle to automatically lift and unload a refuse container without manual adjustment of the lift arms

TERM	DEFINITION
AutoPack™	A feature on all units that allows an operator to press one button to automatically complete one extend and retract cycle of the packer to compress the refuse
bin	The refuse collection container
body	The complete body assembly or the area of the body where the refuse is stored
boiling	Refuse material rising from a compacted base to the unit's roof
bridge	Refuse material densely compacted on a bottom layer with refuse material loose or lightly compacted on a top layer
CAUTION	Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury
collapsed position	The fully retracted position of a cylinder
Commercial Unit	A standard unit – it does not have the AutoLift™ feature (non-AutoLift™)

TERM	DEFINITION
DANGER	Indicates a hazardous situation which, if not avoided, will result in death or serious injury
Extend/EXTEND	Make a cylinder rod move out its base / Command to move the packer panel towards the body
fall-back	Material loaded in the body that drops from its initial compacted position into the hopper
FEL	Front End Loader
fouling	Damage to the lid(s) of the refuse bins (containers) that interferes with unloading the refuse
FULLY RETRACTED POSITION	The packer/extend cylinder is fully retracted and the packer panel is all the way to the front of the hopper. May also be referred to as "Home Position" or "Front Head"
harm	An action that causes death, injury or property damage
hazard	A potential source of harm

TERM	DEFINITION
hopper	The loading chamber of the unit in front of the packer panel where you dump the refuse material
Hopper Cover	This sliding door (top door) covers and uncovers the hopper. The cover is closed during transit and must be open during loading of refuse in the hopper.
illuminate	Make a lamp shine light (the lamp is ON)
incident	An unintended and undesired event that has the potential to harm
interlock	A safety mechanism that disables a function or action
LATCHED	The side access door is secured closed
LOCK	Command to use the tailgate lock/unlock switch and lock the tailgate lock cylinders
lower/LOWER	Move the lift arms, forks, body or tailgate down. / Command to move the lift arms, forks, body or tailgate down

TERM	DEFINITION
may	You are allowed to do the action, but it is not mandatory. It is understood to be permissive
must	The action is mandatory
NOTICE	Alerts you to practices not related to personal injury, such as damage to the unit or other equipment
off/OFF	When a light or lamp does not illuminate / The position of a switch or other control to stop a function
on/ON	When a light or lamp illuminates / The position of a switch or other control to start a function
PLC	Programmable Logic Controller
PN	Part Number
raise/RAISE	Move the lift arms, forks, body or tailgate up / Command to move the lift arms, forks, body or tailgate up

TERM	DEFINITION
Residential Unit	A unit with AutoLift™ as a standard feature
retract/RETRACT	Make a cylinder rod go into its base / Command to move the packer panel towards the hopper
RPM	Revolutions Per Minute
should	The action is advised
Standard Unit	A unit that does not have AutoLift™ as a standard feature
unit	The Heil Half/Pack® Front Loader refuse collection vehicle referred to in this manual
UNLATCHED	The side access door is not secured closed
UNLOCK	Command to use the tailgate lock/unlock switch and unlock the tailgate lock cylinders
WARNING	Indicates a hazardous situation, which if not avoided, could result in death or serious injury

2. Safety Messages and Decals

Preview

Read this section to learn:

- About general safety precautions and safety precautions for the safe operation and maintenance of the unit
- About the safety precautions for **NOT** towing another vehicle or machine.
- Information about the safety and informational decals on the unit.

Section Contents

Important Safety Precautions

Read this entire manual and **ESPECIALLY** this safety section **BEFORE** you operate the vehicle. Failure to follow these precautions could result in serious injury, death, or property damage.

This safety alert symbol indicates important safety messages in this manual and in safety decals attached to the equipment. Make sure you read all of these messages and follow the instructions and precautions.

In the general text of the manual and in the safety labels attached to the product, signal words indicate the type and seriousness of risk that you could encounter if you do not follow the precautions. Below are the signal words and their definitions:

DANGER — **DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.**

WARNING — **WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury**.

CAUTION — **CAUTION indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.**

NOTICE — **NOTICE addresses practices not related to personal injury, such as property damage or damage to the equipment.**

The following pages provide a summary of some of the more important safety precautions that are in this manual. There are additional safety precautions in other sections of this manual that are not contained in this section. You must also read, understand and follow those messages.

General Safety Precautions

- **DO NOT** operate the unit under the influence of alcohol or drugs or when extremely tired or when you are not alert, as this may result in an accident that can cause serious injury or death.
- **DO NOT** operate the unit unless you have the proper training and vehicle operator license.
- **ALWAYS** carry and maintain a fire extinguisher and first aid kit in the unit**. MAKE SURE** you know how to use them.
- **CLEAN AS NECESSARY** any safety decals that you cannot read at a safe viewing distance from the hazard because of dirt. If any decals are illegible from damage or wear, **REPLACE** them **IMMEDIATELY**. Get decals from your Heil dealer or Heil.
- **DO NOT** use this refuse collection vehicle to TOW another vehicle or equipment. It **IS NOT DESIGNED** nor equipped to tow another vehicle or other equipment. Towing another vehicle or equipment may result in injury or death to the operator or other people or damage to the unit.
- **MAKE SURE** all individuals are clear of any moving parts, mechanisms or components of the unit before you operate the controls.
- **DISENGAGE** the PTO or PUSH the pump switch so the pump shuts off when you are not using the unit, when you are repairing the unit, when you are working on the unit, or when traveling in the unit for longer than two minutes.
- Engage the PTO or PULL the System Power switch ONLY when you are on route OR as necessary to perform repairs.
- When the unit is stored or not in use, you **MUST** do the following:
- - SET ALL cylinders in the collapsed position EXCEPT the TAILGATE LOCK CYLINDERS and the ARM RAISE CYLINDERS. KEEP the TAILGATE LOCK CYLINDERS in the LOCKED position. KEEP the ARM RAISE CYLINDERS in the LOWERED position.
- - For units with manual transmissions, **DISENGAGE** the PTO and PUSH the pump switch so it shuts off the pump
- - For units with automatic transmissions PUSH the pump switch so the pump shuts off
- - **REMOVE** the key from the ignition. This helps prevent tampering by unauthorized persons.
- - Refer to “Locking Out the Half/Pack®” on page 70.

General Safety Precautions - Continued

- **YOU MUST BE ATTENTIVE** at all times while you operate the controls and be ready to stop or reverse the function if necessary.

Before Operating the Equipment

- **DO NOT** operate or service this machine until you are fully trained and have read and understand this entire manual.
- **NEVER** operate the unit **UNLESS** you are fully knowledgeable of all control functions. (See Section 3 of this manual.)
- **MAKE SURE BEFORE** you operate the vehicle or its controls that all individuals are at a safe distance.
- **DO NOT** operate the unit when it needs service or repair.
- **DO A VISUAL CHECK** at the beginning of each shift of the unit and run it through several cycles to find fluid leaks, broken, missing or malfunctioning, and excessively worn components (including hoses). See Section 7 of this manual. If you find leaks, broken, missing or malfunctioning parts, immediately stop and get the condition repaired or serviced.

Use Personal Protective Equipment

- **ALWAYS WEAR** the proper safety equipment, such as hard hats, safety shoes, protective eye wear, reflective clothing and gloves. Confirm with the owner/operator that you are using proper safety equipment.
- **WEAR PROPER EYE PROTECTION** and avoid contact with oil if possible whenever you work on or about hydraulic lines or components. **NEVER** check for oil leaks with your **BARE** hands.

Beware of Overhead Obstructions

- **KNOW** the clearance required for **ALL** overhead obstructions (such as viaducts and bridges) that you may encounter when you drive the unit. The unit is approximately 12’ 6” to 13’ (depending on chassis) in height with the arms and forks in the DOWN position. A unit with a carrycan has a higher in-transit height. See the decal in the chassis cab for your unit’s overall height.
- **NEVER** drive the unit under any overhead obstruction of unknown height clearance with the arms and forks in the UP position as the height of the unit may be too high.

Beware of Overhead Obstructions - Continued

- **CHECK** the height of the unit after you do any modifications to the chassis suspension. Any chassis suspension modification may change the height of the unit.
- **LOOK UP AND LIVE**. **MAKE SURE** there is enough clearance (see Table 1) between a lowered or raised container and overhead power lines. It is not necessary for the unit or container to touch the electric cable for the electricity to pass through the unit.
- **STAY IN THE CAB AND KEEP AWAY FROM ALL METAL PARTS OF THE UNIT IF THE UNIT DOES TOUCH A POWER LINE. STAY IN THE UNIT UNTIL HELP ARRIVES.**

NOTE: Table 1 is in accordance with OSHA 29CFR 1910.333. (Also refer to ANSI Standard B.30.5-1994, 5-3.4.5.) If local rules and laws require more clearance, you must obey them.

Table 1. Overhead Clearances

Voltage of Electric Line	Minimum Clearance from Electric Cables When Operating the Unit	Minimum Clearance from Electric Cables When Driving the Unit
50,000 or less	10 feet (3 m)	4 feet (1.2 m)
Above 50,000 to 200,000	15 feet (4.6m)	10 feet (3 m)
Above 200,000 to 350,000	20 feet (6.1 m)	15 feet (4.6 m)
Above 350,000 to 500,000	25 feet (7.6 m)	20 feet (6.1 m)
Above 500,000 to 750,000	35 feet (10.7 m)	30 feet (9.1 m)
Above 750,000 to 1,000,000	45 feet (13.7 m)	40 feet (12.2 m)

Loading Refuse into the Unit

- **YOU MUST BE ATTENTIVE** at all times when you load refuse and be ready to stop or reverse the function in use if necessary.
- **MAKE SURE** the unit's hopper cover is fully opened **BEFORE** you raise a container.
- **ALL PERSONS MUST STAND CLEAR** at all times when the container and arms are in motion – on or off the ground. **NO ONE** should stand under raised arms.
- **LOOK UP AND LIVE**. Make sure there is enough clearance between a raised container and overhead power lines. Refer to Table 1.
- **PRACTICE** leveling the forks manually while you raise a loaded container with the lift arms before you go on your first route. You must keep the container level to the ground except when you are ready to tip the container (rotate the forks) to unload the refuse from the container into the hopper. (The lift arms are at the lift arm stops.)

  Keeping the container level to the ground helps prevent spillage of the refuse before you tip the container to dump the refuse.

  The AutoLift™ system automatically raises and lowers the lift arms. You must level the container manually during the AutoLift™ operations.

  The AutoLift™ function has an AutoLevel™ feature that, when enabled, adds a "pause" while raising the arms and rotates the forks to level the container to the ground. The AutoLift function then continues its operation.

Compacting the Load

- **MAKE SURE** the side access door is CLOSED when the packer pump is in operation and in motion. The packer pump will not operate if the side door is open.
- **DO NOT** compact refuse when the unit is in congested traffic. **YOU MUST** pay attention to driving when you pack on-the-move.
- Operating the packer on-the-move **REDUCES POWER** available for vehicle acceleration.

Dumping the Load

- **MAKE SURE** the dump area is clear of all personnel.
- **ALL PERSONS MUST STAND CLEAR** when the tailgate is in motion and during the unloading cycle. **MAKE SURE** no one stands under or crosses under a raised tailgate.
- While you raise the body be attentive at all times and be ready to stop or reverse the function if necessary.

When Working On, In, or Around the Vehicle

- If the unit has a washout option, **RELIEVE** the air pressure in the wash-out tank **BEFORE** you open the cap.
- **DO NOT** use the cab windshield guard as a ladder.
- **MAKE SURE** the unit is in the LOCK-OUT and SHUT-DOWN conditions **BEFORE** you climb or stand on the ladder, body or roof. See "Locking Out the Half/Pack®" on page 70.
- **BE CAREFUL** at all times when you use the ladder. Maintain good balance with two feet and one hand, or one foot and two hands, firmly in place.
- **NEVER** put any part of your body between a raised body and the chassis frame unless the frame is securely propped up. Read and follow the instructions for body propping on page 72.
- **DO NOT** go under the chassis or enter the body area unless the unit is locked-out. To lock-out the unit, stop the engine, apply the brakes and make sure the brakes hold and work properly, chock all wheels, remove the keys from the cab, and insert a lock-out tag on the steering wheel. See "Locking Out the Half/Pack®" on page 70.
- **DO NOT** use the hopper opening and tailgate opening as an entrance or exit to the body or hopper. **ONLY USE** the side access door as an entrance or exit to the body.

Towing of Any Equipment

Heil **DOES NOT** recommend that you tow any kind of equipment with the unit. The unit **was NOT DESIGNED** nor intended for towing.

Decals

The following paragraphs show the DANGER, WARNING and CAUTION decals and list the reflective safety materials that are on the vehicle. Refer to the Parts and Maintenance/Adjustments (Service) Manual for the location and part number of all decals on the unit.

Important: Replace any decal with a new decal if the old decal is lost, destroyed, painted over or cannot be read.
When you replace a part that had a decal(s), make sure you install a new decal(s) (see below or Parts Manual for part numbers) on each new part.
You can get decals from your Heil dealer or from the Heil Co., 4301 Gault Avenue North, Fort Payne, AL 35967.

- Figure 4 shows two WARNING decals that are also two of the **MOST IMPORTANT** decals. They are WARNING decals that tell you to **READ** and **UNDERSTAND** the Operator's Manual (this manual) **BEFORE** you operate or service the unit.
- Figure 5 shows two different size DANGER decals about an elevated (raised) body.
- Figure 6 shows two different size DANGER decals about the tailgate in motion.
- Figure 7 shows a DANGER decal about going under the chassis.
- Figure 8 shows two different size DANGER decals about towing.
- Figure 9 shows a DANGER decal about when a container is off the ground.
- Figure 10 shows a DANGER decal about the access door.
- Figure 11 shows a DANGER decal about climbing on the ladder, body or roof.
- Figure 12 shows the remaining WARNING decals:
  - Sheet 1 shows the WARNING decal about the unit's overall height.
  - Sheet 2 shows a WARNING decal about riding on the bumper.
  - Sheet 3 shows a WARNING decal about the windshield guard.
  - Sheet 4 shows a WARNING decal about the battery disconnect switch.
  - Sheet 5 shows a WARNING decal about the washout system
  - Sheet 6 shows a WARNING decal about the service hoist and a NOTICE alert for lowering a body.

Decals - Continued

- Figure 13 shows all the CAUTION decals.
  - Sheet 1 shows the CAUTION decal about the side access door.
  - Sheet 2 shows the CAUTION decal about going into the body.
  - Sheet 3 shows the CAUTION decal about when the (packer) panel moves.
  - Sheet 4 shows the CAUTION label about using the ladder correctly.
  - Sheet 5 shows the CAUTION decal about the sump doors.
- Figure 14 shows the DANGER and CAUTION labels about the body props.

There are informational decals on the unit's body or in the unit's cab. They are not illustrated in this manual. Refer to the Parts and Maintenance/Adjustments (Service) Manual for the location of these decals. These decals give information about:

212-0983	Lifting Capacity
212-1329	Body Props
212-1601	Washout system (optional)
212-1782	Hydraulic Oil
212-1841	ANSI Compliance
212-1915	Warranty
212-1918	Backup Alarm
212-2183	Arms Above Transit
212-2228	Proximity Switch Adjustment
212-2235	Lubrication
212-2275	Oil Level
212-2384	Packer/Ejector Adjustment
212-2408	EOS
212-2689	U.S. Flag and ISO Certification

Decal Installation Kit

- You can order one kit (PN 212-1617) for all the decals located on the body and in the cab of the unit (except for those decals that are on in-cab controls or for optional equipment). You must order separately the decals on in-cab or optional outside controls.
- Order decal kit PN 212-1617 or individual decals from your Heil dealer or from the Heil Co., 4301 Gault Avenue North, Fort Payne, AL 35967.

Figure 4. Read Ops Manual Warning Decal, PN 212-0735 (Sheet 1 of 2)

Figure 4. Read Ops Manual Warning Decal, PN 212-1783 (Sheet 2 of 2)

Figure 5. Body Elevated Danger Decal, PN 212-1103 (Sheet 1 of 2)

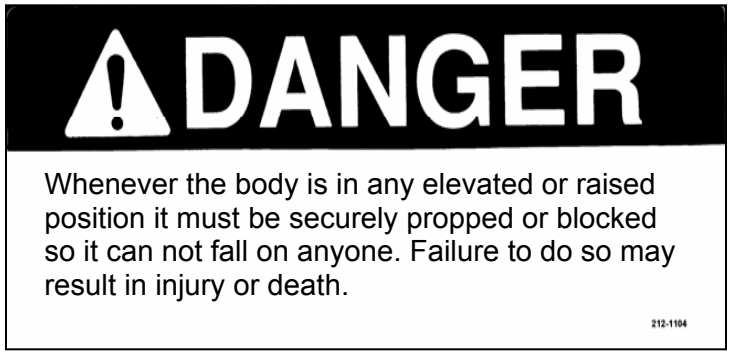


Figure 5. Body Elevated Danger Decal, PN 212-1104 (Sheet 2 of 2)

Figure 6. Tailgate Danger Decal, PN 212-1634 (Sheet 1 of 3)

Figure 6. Tailgate Danger Decal, (PN 212-1801) (Sheet 2 of 3)

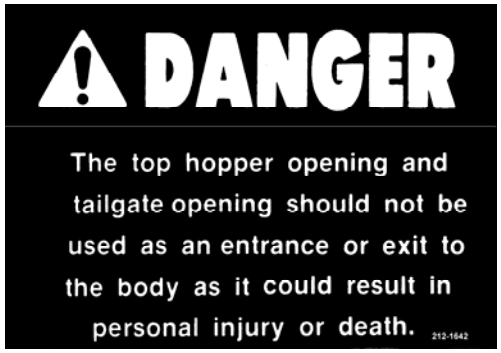


Figure 6. Hopper and Tailgate Danger Decal, (PN 212-1642) (Sheet 3 of 3)

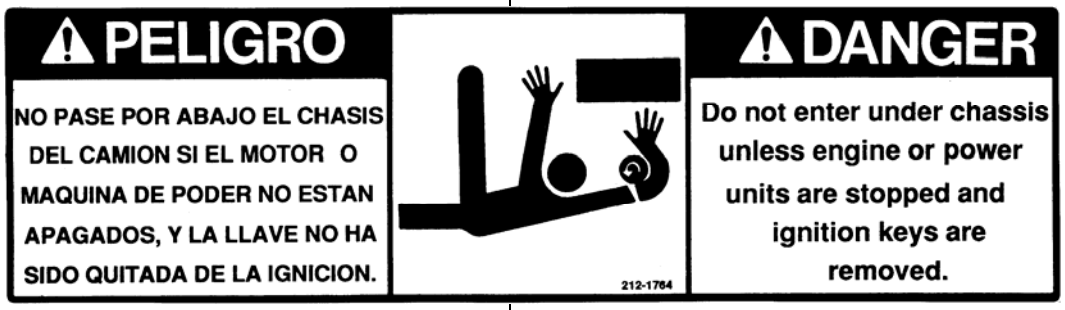


Figure 7. Under Chassis Danger Decal, PN 212-1764

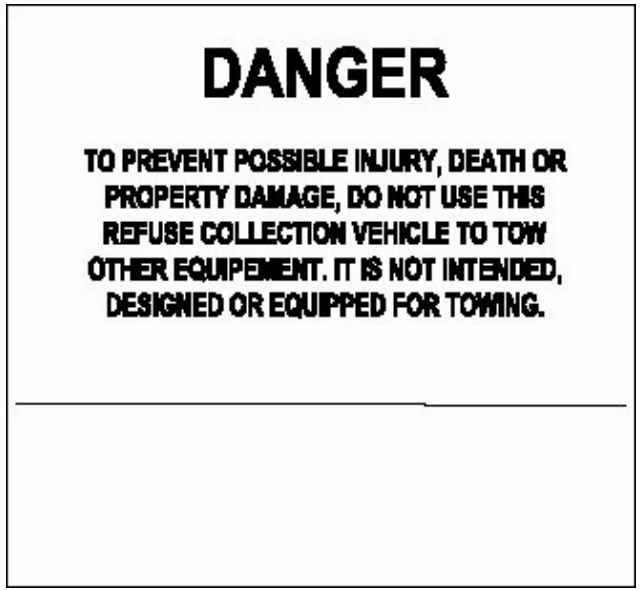


Figure 8. Towing Danger Decal, PN 212-1819 (Sheet 1 of 2)

Figure 8. Towing Danger Decal, PN 212-1820 (Sheet 2 of 2)

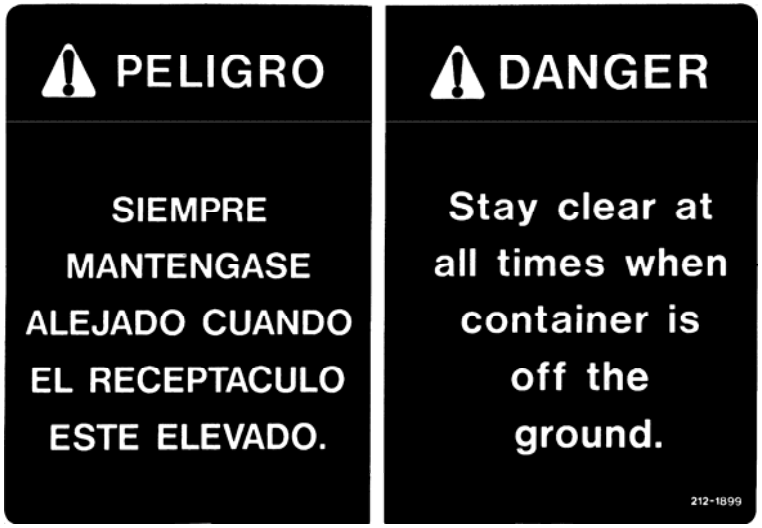


Figure 9. Container off Ground Danger Decal, PN 212-1899

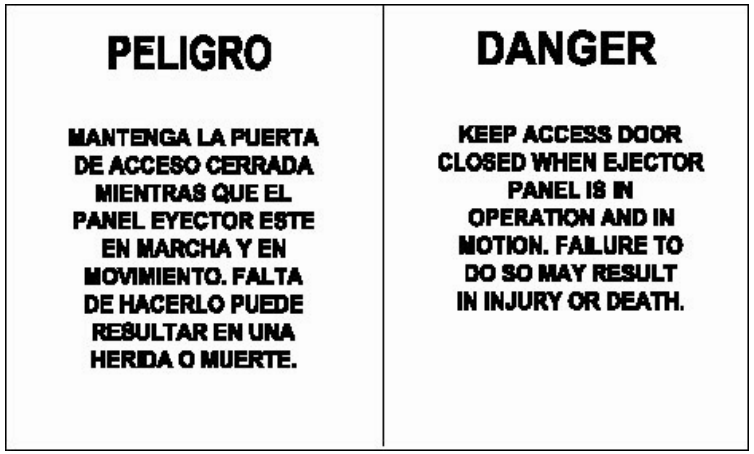


Figure 10. Access Door Danger Decal, PN 212-1907

Figure 11. Standing Danger Decal, PN 212-2394

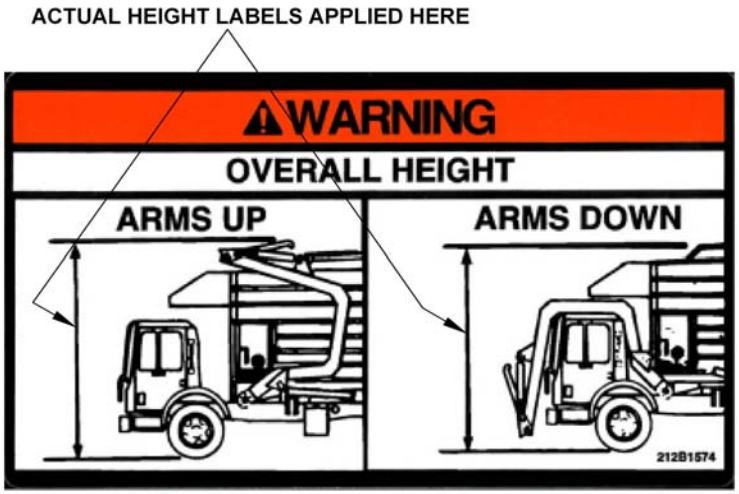


Figure 12. OverallHeight Warning Decal, PN 212-1574 with Height Labels (Warning Decals, Sheet 1 of 6)

Figure 12. Bumper Warning Decal, PN 212-1631 (Warning Decals, Sheet 2 of 6)

Figure 12. Battery Disconnect Warning Decal, PN 212-2875 (Warning Decals, Sheet 3 of 6)

Figure 12. Windshield Guard Warning Decal, PN 212-2611 (Warning Decals, Sheet 4 of 6)

Figure 12. Washout Relieve Pressure Warning Decal, PN 212-0730 (Warning Decals, Sheet 5 of 6)

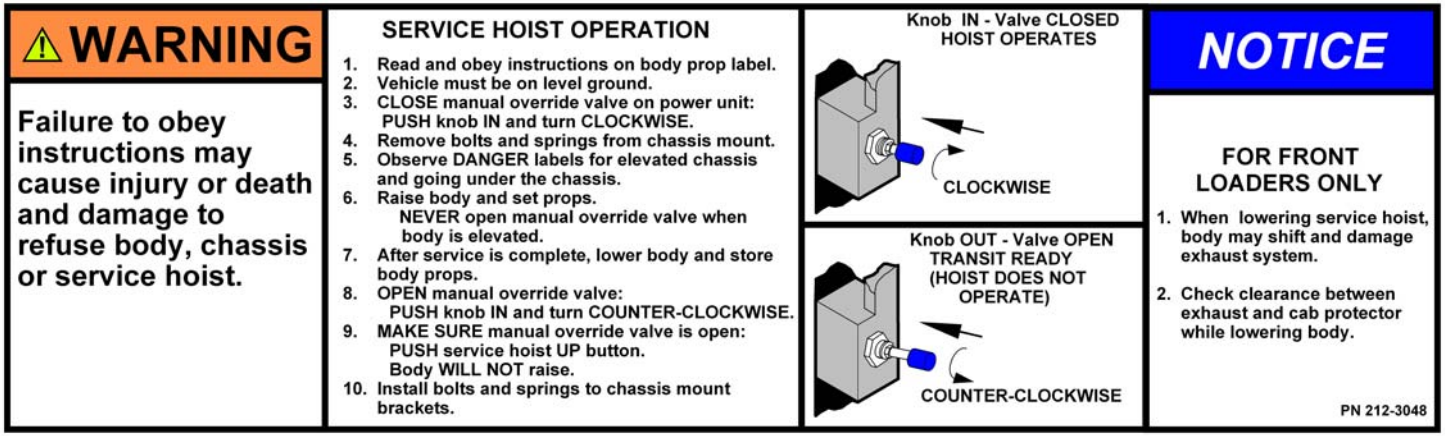


Figure 12. Service Hoist Operation Decal, PN 212-0730 (Warning Decals, Sheet 6 of 6)

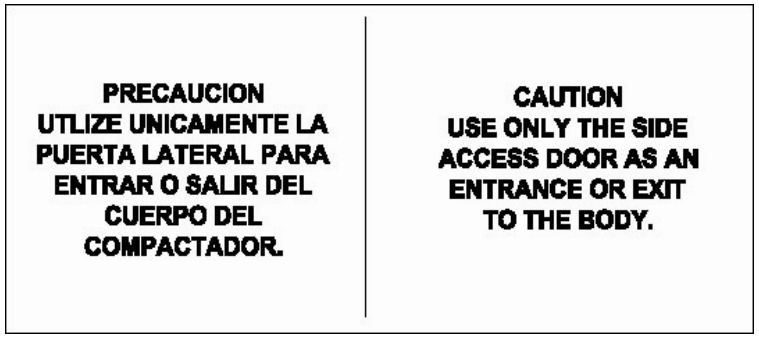


Figure 13. Side Door Caution Decal, PN 212-1780 (Caution Decals, Sheet 1 of 5)

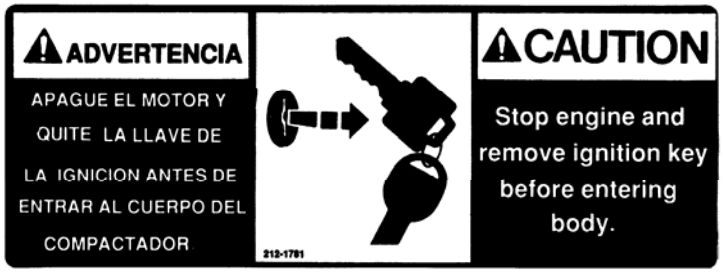


Figure 13. Entering Body Caution Decal, PN 212-1781 (Caution Decals, Sheet 2 of 5)

Figure 13. Panel in Motion Caution Decal, PN 212-1911 (Caution Decals, Sheet 3 of 5)

Figure 13. Ladder Caution Decal, PN 212-1914 (Caution Decals, Sheet 4 of 5)

Figure 13. Sump Doors Caution Decal, PN 212-2067 (Caution Decals, Sheet 5 of 5)

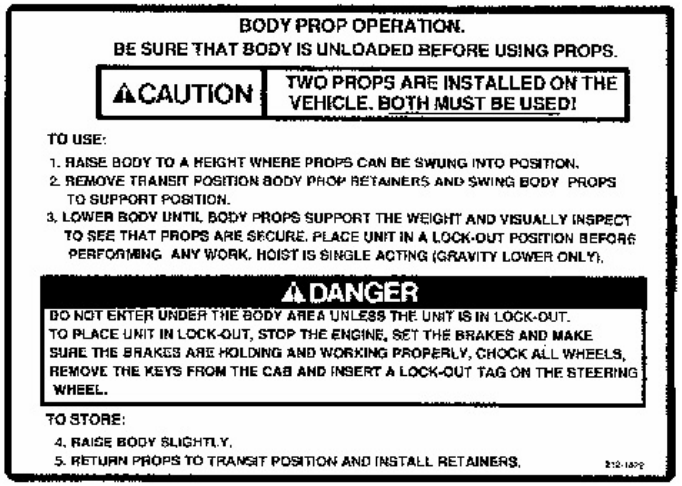


Figure 14. Body Prop Danger and Caution Decal, PN 212-1329

Reflective Safety Materials

- Refer to the Parts and Maintenance/Adjustment (Service) Manual for the location and PNs of the reflective safety materials on the unit.

Important: Replace any safety material with new safety material if the old safety material is lost, destroyed, painted over or cannot be seen.

When you replace a part that had safety material on it, make sure you install new safety material on the new replacement part. See the Parts and Maintenance/Adjustments (Service) Manual for all part numbers and location of the safety materials.

You can get replacement safety material from your Heil dealer or from the Heil Co., 4301 Gault Avenue North, Fort Payne, AL 35967. You can also visit us on the Web at www.heil.com.

Care of Decals

It is important that the decals are properly cleaned to make sure that they are readable and do not come off the unit. Use the following steps to clean the decals.

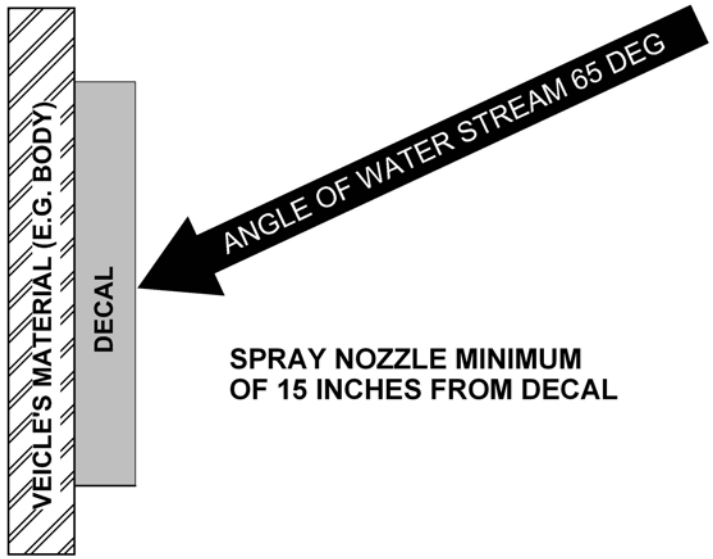
General Instructions

- Wash the decals with a blend of mild car wash detergent and clean water.
- Rinse with clean water.
- Let the vehicle air-dry or dry with a micro-fiber cloth.
- Do not allow fuels to stay in contact with the decal for an extended period of time. Remove the fuel contamination as quickly as possible.
- Do not use carnauba-based wax over the decals.
- Do not use a mechanical brush while washing the decals.

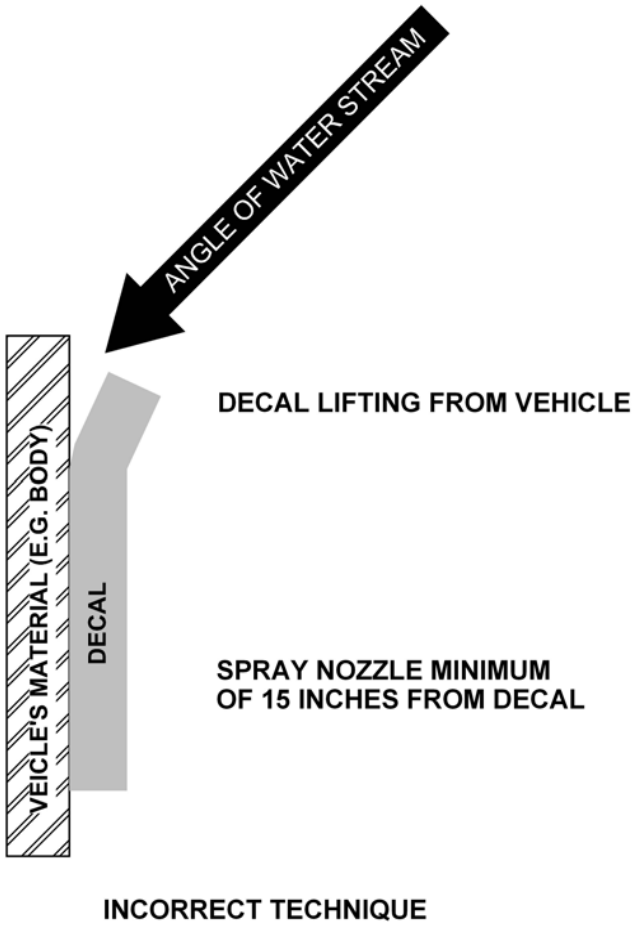
Care of Decals - Continued

Pressure Washer Precautions

- Pressure washing can cause damage to decals. It can cause the edges of the decals to lift and peel the decal away from the unit. Over time, the decal can fade, crack or chip away.
- See the following figures for correct and incorrect methods of pressure washing.
- Use pressure washing only when other cleaning methods are not effective. If you use a pressure washer, use the following precautions.
    - Spray nozzle opening: 40° wide pattern
    - Spray angle: 65° from vehicle' s body
    - Distance of nozzle to decal: 15" minimum
    - Water pressure: <= 800 psi
    - Length of time: not more than 30 sec.
    - Do not use sharp angles to clean the decals – this can lift the decals from the unit.
    - NEVER use a "turbo pressure nozzle".



RECOMMENDED TECHNIQUE



When normal cleaning procedures do not remove difficult debris from the decals, try the following:

WARNING **Isopropyl alcohol is flammable and is harmful to eyes and skin. Keep isopropyl alcohol away from heat or open sources of ignition. Flush eyes and skin with water for 15 minutes after contact. Seek immediate medical help.**

- Spot clean the decal with Isopropyl Alcohol and a micro-fiber cloth (rag).
- If these methods do not work on a problem area, call a Heil Dealer or Heil Customer Service.

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3. In-Cab Controls, Switches and Indicator Lights and Outside Controls

Preview

Read this section to learn about the operation of the cab controls, switches and indicator lights. This section tells you:

- The in-cab controls and switches available at the time this manual was written
- How the in-cab controls work
- The in-cab indicator lights available
- The outside controls and how they work.

NOTE: The location and appearance of the controls may be different than those shown in this manual. Make sure you know the location of the controls and the how you operate the controls on your unit before you use the vehicle.

Section Contents

AutoPack™ Feature

The AutoPack™ Feature is a hydraulic system that is standard on all units and provides automatic pack/return of the packer panel when you compact the load. The system is always ON until you use the packer override switch and use the packer manually.

In the auto mode, when you PRESS the PACKER EXTEND button, the packer extends to the end of the first cylinder stage and retracts automatically to the FULLY RETRACTED POSITION, ready for the next cycle. The packer retracts automatically when:

- It reaches its travel limit with the tailgate closed
- The compacted refuse does not allow the packer to fully extend and the pressure limit is reached
- It reaches its maximum cycle time.

The packer will not function when the operator raises or lowers a carrycan so that hydraulic power is available for the lift arms.

When the packer extends, the PACKER EXTEND indicator light is ON.

You can manually retract the packer at any time by pressing the PACKER RETRACT button.

When the packer retracts, the PACKER RETRACT indicator light is ON.

The packer will not retract past its switch setting for retract.

The tailgate must be closed for AutoPack™ to operate. When the tailgate is open, AutoPack™ does not operate, and the operator must PRESS and HOLD the PACKER EXTEND and PACKER RETRACT switches to extend or retract the packer panel.

Refer to “In-Cab Main Control Panel Switches and Indicator Lights”, starting on page 54 for operation of the switches and indicator lights.

AutoLift™ Feature

The AutoLift™ feature is standard on Residential models, although you can get one without the AutoLift™ system. It is an option on Standard (Commercial) models.

When enabled, the system automatically controls raising and lowering the container with the lift arms. The operator rotates the forks of the unit during the raise and lower operations to level the container during the raise operation, to tip the container to dump the refuse and to set the container on the ground. See “In-Cab AutoLift™ System” starting on page 61 for the controls that operate the AutoLift™ system and the indicator lights. The rocker switches have ON and OFF positions marked on the switches.

The AutoLift™ feature also has an AutoLevel™ feature. You enable this feature to add a “pause” when raising the lift arms to automatically level the container to the ground.

In-Cab Main Control Panels

There are two basic main control panels for different models of truck chassis. See Figure 15. The controls and indicator lights that are not on these panels are in other locations in the cab. One control panel has one panel for the controls and looks similar to the 1-panel control panel shown in Figure 15. The other control panel has the controls on three panels. (The joystick control or 2-lever control can be located in various areas of the cab, either as a separate control or attached to a main control panel.)

The control panels have labels or markings that identify each function and its operations. Make sure you are familiar with the control panel in your unit.

The labeling/marking scheme is straight-forward and identifies a function and its operations. For example, Figure 16 shows a portion of a panel that includes the TAILGATE function and its RAISE operation. The marking identifies the function (TAILGATE) and its operation (RAISE). When you want to raise the tailgate, for example, you MOVE the TAILGATE switch (not shown in the figure) to the RAISE position and HOLD it there until the tailgate is at the position you want, then RELEASE the switch.

Similarly, the following instructions tell you to MOVE a switch toggle or rocker) to a position (as given with the panel's label/marking).

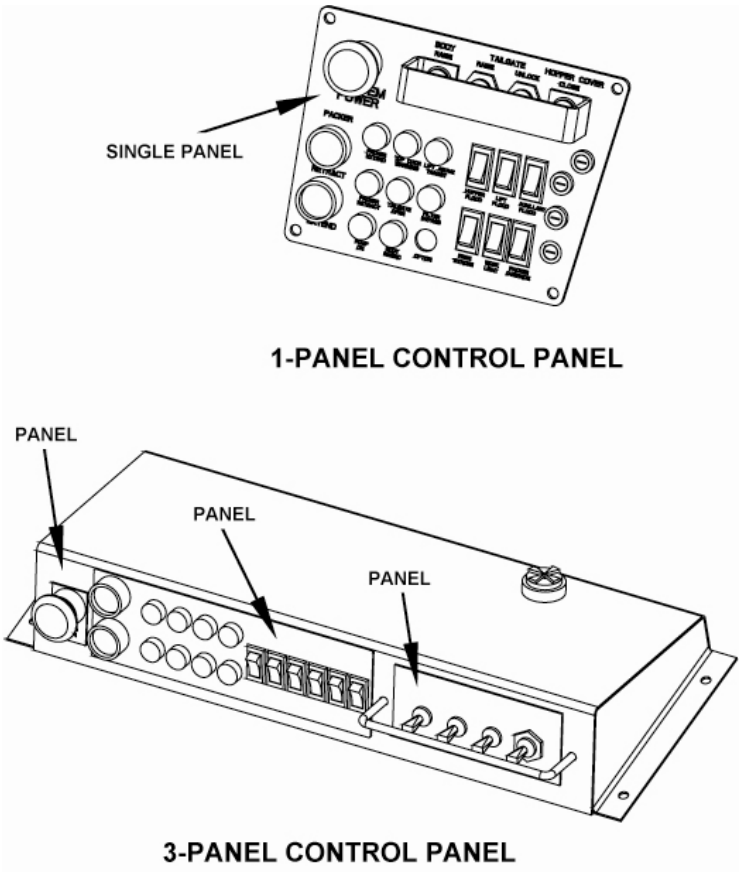

Figure 15. In-Cab Main Control Panels

In-Cab Main Control Panel Switches and Indicator Lights

Use the switches and indicator lights described below to operate the unit's hydraulic functions.

Air Toggle Switches

The air toggle switches are behind a guard bracket. They may be in different locations in the cab depending on the type of chassis manufacturer. The label/markings for the switches will look similar to that shown in Figure 16. Find this label/marking in your cab to use the switches that control the functions described below. (The switches are not shown in the illustrations that follow so that you can see the markings.)

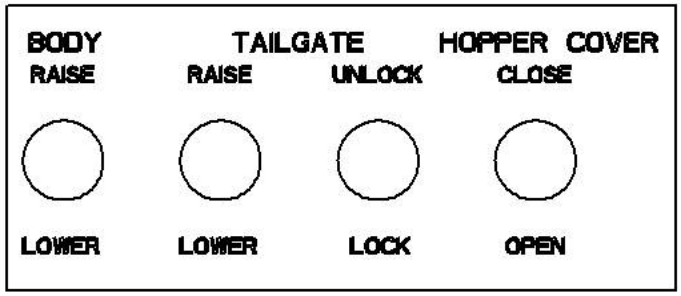

Figure 16. Markings for Air Toggle Switches

The function (such as BODY) continues an operation (such as RAISE or LOWER) for as long as you keep the switch at the operation's (such as RAISE or LOWER) position. The switch will go to the NEUTRAL (or OFF) position when you RELEASE the switch.

A. Tailgate Lock and Unlock – This switch controls the locking and unlocking of the tailgate:

- MOVE the switch to the UNLOCK position to unlock the tailgate.

NOTE: You must UNLOCK the tailgate before you RAISE the tailgate.

- MOVE the switch to the LOCK position to lock the tailgate.

NOTE: You must completely LOWER and CLOSE the tailgate before you can LOCK the tailgate.

- RELEASE the switch and it goes back to the neutral OFF position.
- A flag indicator on each rear side of the truck body falls DOWN when its cylinder rod retracts and unlocks its side of the tailgate.
- Each cylinder rod pushes its flag indicator UP when it locks in the side of the tailgate.
- See Figure 51.

Air Toggle Switches - Continued

DANGER **A tailgate in motion is dangerous. Serious injury or death may occur if a person is struck by a moving tailgate or becomes trapped between the tailgate and the body. Clear the area near the tailgate of all unnecessary people before you raise or lower the tailgate.**

B. Tailgate Raise and Lower – This switch controls raising and lowering of the tailgate:
   - MOVE the switch to the RAISE position to raise the tailgate.
   - MOVE the switch to the LOWER position to lower the tailgate.
   - RELEASE the switch to stop a RAISE or LOWER operation at any time or when the tailgate is fully raised or lowered.
   - An in-cab light comes ON when the tailgate is OPEN and goes OFF when it is CLOSED.

DANGER **Any part of your body between the unit's body and the chassis or cylinders while you raise the body is dangerous. Serious injury or death will occur if the unit's body suddenly lowers and traps a part of your body. Keep all parts of your body out from underneath the unit's body and away from the cylinders during this procedure.**

DANGER **Do not raise a body that has refuse while you do maintenance or service procedures. Refuse in the body can make the unit unstable. Always unload refuse from the body before you raise it for maintenance or service procedures. Always use the body props when you raise the body for maintenance or service procedures.**

WARNING **Raising the body with the tailgate closed can damage the underride bumper. The underride bumper can hit the ground when the tailgate is not fully raised before you raise the body. Serious injury or death may occur and also cause damage to the unit.**

C. Body Raise and Lower (Dump Units ONLY) – This switch controls the raising and lowering of the body:
   - MOVE the switch to the RAISE position to raise the body.
   - MOVE the switch to the LOWER position to lower the body.
   - RELEASE the switch to stop the RAISE or LOWER operation at any time or when the body is fully raised or lowered.
   - LOWER the body until it mates with the chassis.

NOTE: You must LOWER the tailgate AFTER you LOWER the body.

Air Toggle Switches - Continued

D. Body Raise (Service Hoist Units) – There is no in-cab switch for the Body Raise function on a Service Hoist unit. The Service Hoist unit has two switches on an outside control box, which is on the outside of the cab. These switches control the raising and lowering of the body for service and maintenance operations. See Body Raise (Service Hoist Units) on page 67.

WARNING **Close the hopper cover before you climb on the roof. You may get part of your body caught by the hopper cover or the cylinders if the door closes. Serious injury or death may occur if a person is on the roof when the hopper cover closes.**

NOTICE **The hopper cover must be open when you pack the refuse. You can cause damage to the unit if you compact the refuse with the hopper cover closed. You must close the hopper cover to eject or dump the refuse.**

E. Hopper Cover Open and Close – This switch controls the opening and closing of the hopper cover:
   - MOVE the switch to the CLOSE position and HOLD it there to CLOSE the hopper cover.
   - MOVE the switch to the OPEN position and HOLD it there to OPEN the hopper cover.
   - RELEASE the switch to stop the CLOSE or OPEN operation at anytime or after the hopper cover is fully CLOSED or OPEN and the switch goes back to neutral OFF position.
   - The hopper cover (top door) light is OFF when the hopper cover is fully open. It is ON at all other times.
   - The hopper cover opens slower than it closes.

Push-Pull and Push-Button Switches

The following paragraphs describe the push-pull and push-button switches that may be on your unit, depending on whether the unit is a dump, eject or service hoist model and what options are included with the unit. The current version has illuminated push-buttons for the packer functions. The previous version had indicator lights for the packer functions.

While the control panel may be in different locations in different cabs, the panel and its label/markings will look similar to the panels and labels/markings shown in Figure 16. (The switches are not shown in the illustrations that follow so that you can see the markings.)

Find the panel in your cab to control the functions described below.

For a push-pull switch, the directions will tell you to PUSH or PULL the switch for the desired operation. For push-buttons, the instructions will tell you to PRESS the switch to do a function.

Push-Pull and Push-Button Switches - Continued

A. System Power – This red, illuminated push-pull switch activates the hydraulic system which is made up of Heil-installed electrical and hydraulic components. It has a large, red push-pull knob that the operator can use to quickly shut down the hydraulic system in an emergency (it is the equivalent of an Emergency Stop switch or E-Stop). The switch breaks the signals to the pump, which stops all hydraulic functions. It also sends a signal to the PLC that the switch is OFF and that prevents other functions from working. (The switch's light can be ON and the pumps are not on. There are other factors involved for turning the pumps on or off.) It has a label or marking of SYSTEM POWER. See Figure 17.
   - PULL the knob to turn the hydraulic system ON.
   - The switch's red light turns ON.
   - PUSH the knob to turn the hydraulic system OFF.
   - The switch's red light turns OFF.

B. Hydraulic Pump – This red, illuminated push-button switch (marked or labeled PUMP ON) engages and disengages the hydraulic pump, which creates the hydraulic pressure for operation of the unit's hydraulic functions. See Figure 17.

NOTE: When you have a unit with a manual transmission, the pump is driven by the transmission through a PTO. Find the control in the cab to engage the PTO while you depress and hold the clutch pedal. Release the clutch pedal when the PTO is engaged.

- PRESS the push-button switch once to turn ON the pump.
- The push-button's light turns ON.
- PRESS the push-button switch again to turn OFF the pump.
- The push-button's light turns OFF.

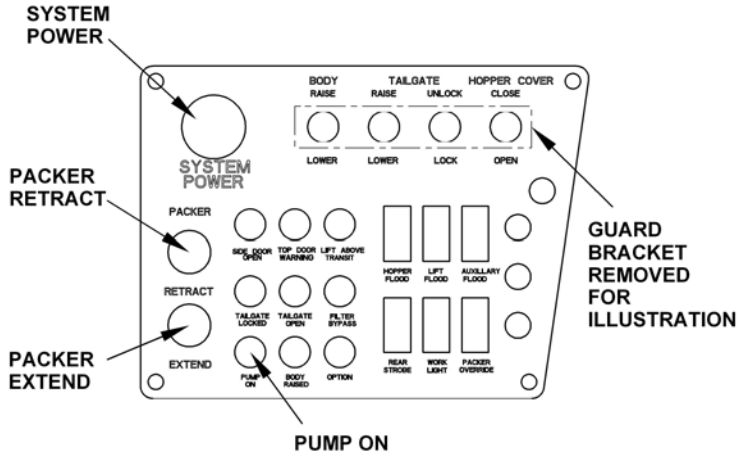

Figure 17. Push-Pull and Push-Button Switches

Push-Pull and Push-Button Switches - Continued

C. Packer Start/Extend Button (Green) – This button controls extending the packer panel:
   - In the automatic mode, you PRESS and RELEASE button to EXTEND and RETRACT the panel automatically for one extend/retract cycle.
   - In the manual mode, you PRESS and HOLD the button to EXTEND the panel.
   - The packer panel extends until the end of the cylinder first stage to compact the load, then automatically retracts to the FULLY RETRACTED POSITION and stops.

D. Packer Retract Button (Yellow) – This button controls retracting the packer panel in the manual mode:
   - PRESS and RELEASE the button to RETRACT the packer panel.
   - The packer panel will move to its FULLY RETRACTED POSITION.
   - Reverse – You can reverse the direction of the packer panel movement while the cycle is in either direction:
     - o To momentarily reverse the panel during panel extend – PRESS and RELEASE the RETRACT button.
     - o To momentarily reverse the panel during panel retract – PRESS and RELEASE the EXTEND button.
     - o If you want to continuously reverse the direction of the packer panel, you simply PRESS and HOLD the button. The reversing operation stops when you RELEASE the button.

Rocker Switches

Six rocker switches operate five optional functions, some of which are described in the following paragraphs, and the packer override function. Your control panel may have different functions. Become familiar with the control panel and its rocker switches in your unit. (The switches are not shown in the illustrations that follow so that you can see the markings.)

Each rocker switch has an ON and OFF position. Press the rocker switch to the ON position to activate a function and to OFF to deactivate a function. See Figure 18. The following directions tell you to PRESS a switch to a position as indicated by the label on the control panel.

The functions controlled by the rocker switches include:

A. Operation of optional lights when you work in minimal light or darkness. These lights include:
   - Lift Flood
   - Auxiliary Flood
   - Work Light
   - Rear Strobe
   - Hopper Work Light.

Rocker Switches - Continued

B. Packer Override – Use this rocker switch to override the packer logic on a unit when you want to use the packer with the lift arms above the cab protector. This allows an operator:

- To manually operate the packer with the arms raised
- To extend the packer, get in the hopper and clean behind the packer.

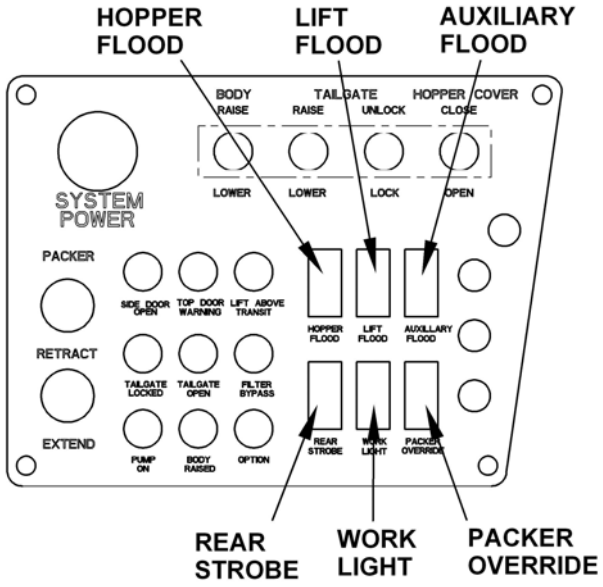

Figure 18. Rocker Switches

Indicator Lights

The following paragraphs describe the eight indicator lights that may be on your unit, depending on the options and whether the unit is a dump, eject or service hoist model. See Figure 19 for locations of the lights on the control panel. (The lights are not shown in the illustrations that follow so that you can see the markings.)

1. Top Door Warning (Red) – This light is ON when the hopper cover (top door) is not fully open. The light is OFF when hopper cover is fully open.
2. Lift Above Transit (Red) – This light is ON when the lift arms go above the top of the body. The light goes OFF when the lift arms go below the top of the windshield.
3. Filter Bypass (Red) – This light is ON when the filter is in the bypass condition and you need to change the filter element.

   The light will flash ON and OFF indicating how many hours the pump has been in bypass. See "Hydraulic Pump Shutdown" on page 126.
4. Tailgate Open (Red) – This light is ON when the tailgate is open. The light goes OFF when tailgate is fully closed.

   An in-cab alarm will also sound to indicate the tailgate is open.

Indicator Lights - Continued

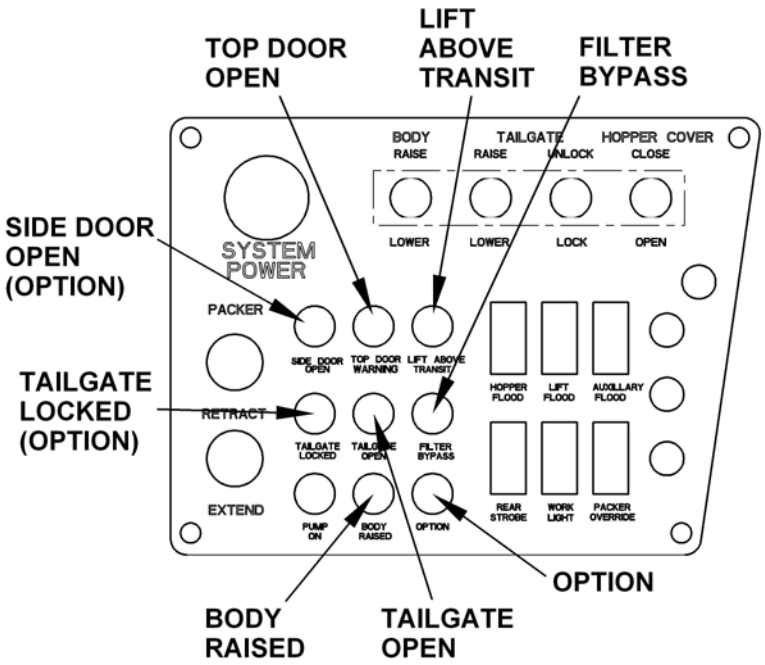

Figure 19. Indicator Lights

5. Body Raised (Red – Dump units only) – This light is ON when the body is RAISED (not fully down and resting on the chassis). The light is OFF when the body is fully DOWN. An in-cab alarm will sound to indicate the body is raised.

   This light may be an option in an eject or service hoist unit and a label will identify the option light.
6. Tailgate Locked (Option) – This light is ON when the tailgate lock cylinders are in the LOCKED position. The light is OFF when the tailgate is UNLOCKED. (Previous versions of panel the light was Packer Extend.)
7. Side Door Open (Option) – This light is ON when the side door is NOT CLOSED. This light is OFF when the side door is CLOSED. (Previous versions of panel the light was Packer Retract.)
8. Option –If your unit has an option with an indicator light, it may be in this position. A label will identify the option light.

In-Cab AutoLift™ System

The AutoLift™ feature is standard on Residential models, although you can get one without the AutoLift™ system. It is an option on Standard (Commercial) models. The system automatically controls lifting and lowering the container with the arms of the unit. Figure 20 shows the in-cab control and its switches that operate the AutoLift™ system and its indicator lights. The rocker switches have ON and OFF positions marked on the switches.

WARNING **Moving equipment can be dangerous to bystanders. Serious injury or death can occur if a person is in the wrong area or is not attentive to the operations. Clear the area of all people before you operate the controls.**

WARNING **Clear all people of the area before you lift a refuse container. Make sure the refuse is secure in the refuse container before you lift the container. Loose refuse can fall and cause serious injury or death.**

A. AutoLift™ Enable Switch – PRESS this rocker switch to ON to activate and to OFF to de-activate the AutoLift™ system. When you PRESS the switch to ON, the green AutoLift™ light (B) turns ON. When you PRESS the switch to OFF, the light turns OFF.

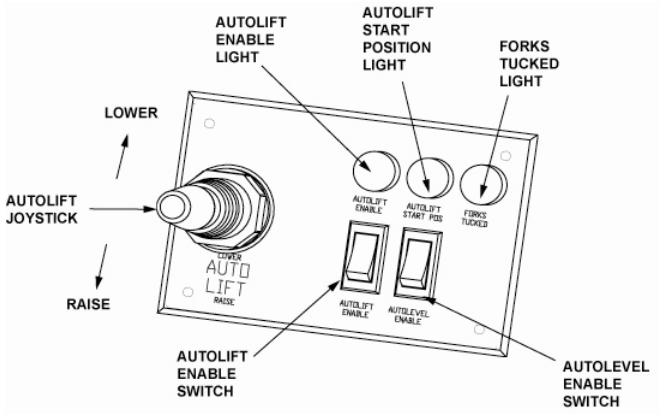

Figure 20. AutoLift™ Controls

B. AutoLift™ Joystick – After you enable the AutoLift™ feature:
   - Use the standard joystick or 2-lever controls and put the arms and forks in the container's pockets for the forks and RELEASE the control. The AUTOLIFT START light will turn ON when the forks are at the AUTOLIFT START POSITION.
   - MOVE the AutoLift™ joystick to the RAISE direction to start the automatic raise operation. The lift arms raise until you release the joystick. (Unless you have AutoLevel™ enabled, you must keep the container level to the ground with the forks control.) You rotate the container with the forks control to dump the refuse into the hopper.

In-Cab AutoLift™ System - Continued

- MOVE the AutoLift™ joystick to the LOWER direction to start the lower operation. Release the joystick when the container is on the ground. Rotate the forks during this operation to remove the container from the hopper and to return the forks to the level position (AUTOLIFT START position) to put the container on the ground.

C. AutoLevel™ Switch – PRESS this switch to ON to automatically level the container once during the AutoLift™ operation. As the forks cross shaft nears the top of the cab, the AutoLevel™ feature "pauses" the raise operation and levels the container to the ground. The AutoLift™ system then continues to raise the arms to the lift arms stops. (You can use the forks control any time to rotate the forks.)

D. AutoLift™ Enable Light – This green indicator light is ON when you PRESS the AutoLift™ enable switch to ON. The light goes OFF when you PRESS the AutoLift™ enable switch to OFF.

E. Start Position Light – This green indicator light is ON when the fork cross shaft is more than 20 inches off the ground. The light is OFF when the cross shaft is less than 20 inches off the ground.

F. Forks Tucked Light – This green indicator light is ON when the forks are in the fully tucked position. The light is OFF when the forks are not fully tucked.

In-Cab Joystick and 2-Lever Controls for Lift Arms and Forks

Read all of this section for the descriptions of the joystick and the 2-lever air control options for the lift arms and forks functions. Your unit may be equipped with either of the controls and will look similar to the controls shown in Figure 21. The joystick control or 2-lever control can be located in various areas of the cab, either as a separate control or attached to a main control panel.

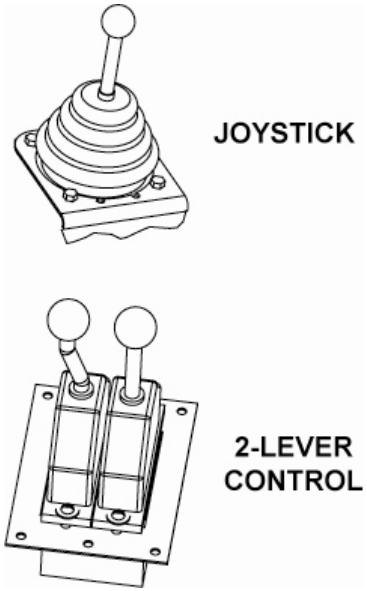

Figure 21. Joystick and 2-Lever Controls

Joystick Air Controls

The joystick controls the operation of two components – the lift arms and the forks - in two directions – up (RAISE) or down (LOWER). The joystick has decals that show you where to push/pull (move) the joystick for each function and direction. The operation continues until you move the joystick back to the CENTER or NEUTRAL position or let go of the control, as it is self-centering. (The joystick can control both the arms and the forks by moving the joystick halfway between functions. This action reduces the speed of the operations, as the hydraulic flow is divided between both functions.)

For example, if you want to raise the lift arms, you move the joystick to the ARMS RAISE position and hold it there until the lift arms are at the height you need, then release the lever.

WARNING **Moving equipment can be dangerous to bystanders. Serious injury or death can occur if a person is in the wrong area or is not attentive to the operations. Clear the area of all people before you operate the controls.**

A. Raise and Lower Arms:

- MOVE the joystick towards the ARMS RAISE position to raise the lift arms.
- MOVE the joystick towards the ARMS LOWER position to LOWER the lift arms.

B. Raise and Lower Forks:

- MOVE the joystick towards the FORKS RAISE position to raise the forks.
- MOVE the joystick towards the FORKS LOWER position to lower the forks.

2-Lever Air Controls

Each lever controls the operation of one component – the lift arms or the forks - in two directions – up (RAISE) or down (LOWER). You must move a lever back to the CENTER or NEUTRAL position or let go of the lever (each is self-centering) before you can go in a different direction with the same function. As with the joystick, you can operate both levers at the same time, operating both the lift arm and the forks, but the speed is slower.

The lever closest to the driver controls the arms and the other lever controls the forks. Make sure you are familiar with the function of each lever in your unit

For example, when you select the ARMS lever and PUSH the lever towards the LOWER position, the arms will continue to lower until you release the lever.

2-Lever Air Controls - Continued

WARNING **Moving equipment can be dangerous to bystanders. Serious injury or death can occur if a person is in the wrong area or is not attentive to the operations. Clear the area of all people before you operate the controls.**

A. Arms Raise and Lower – Controls raising and lowering of the lift arms :
   - MOVE the lever towards the ARMS RAISE position to RAISE the lift arms.
   - MOVE lever to towards the ARMS LOWER position to LOWER the lift arms.

B. Forks Raise and Lower – Controls raising and lowering of the forks:
   - MOVE the lever towards the FORKS RAISE position to RAISE the forks.
   - MOVE the lever towards the FORKS LOWER position to LOWER the forks.

Adjustable Forks Switch

This switch is optional. See Figure 22. If the unit has this option, the operator can adjust the width of the forks with this switch. You will find the control in the unit's cab. The switch controls the IN and OUT movement of the forks for various size refuse containers:

WARNING **Moving equipment can be dangerous to bystanders. Serious injury or death can occur if a person is in the wrong area or is not attentive to the operations. Clear the area of all people before you operate the controls.**

- MOVE the toggle switch to OUT, which moves the forks OUTWARD. MOVE the switch back to the CENTER position to STOP movement of the forks.
- MOVE the toggle switch to IN, which moves the forks INWARD. MOVE the switch back to the CENTER position to STOP the movement of the forks.

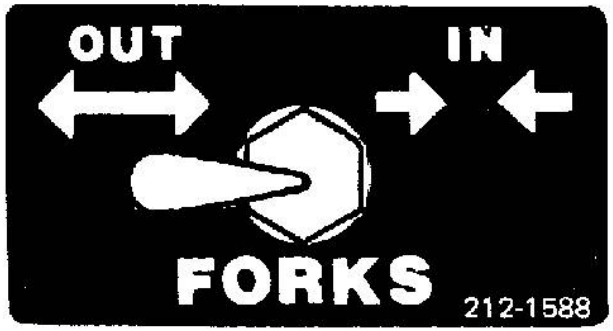

Figure 22. Optional Adjustable Forks Switch

Optional Outside Controls

If included on your unit, optional outside controls are on the street side of the unit. The optional outside controls include a control assembly for the AutoPack™ feature and controls for the lift arms and forks. They are mounted on or near the chassis fender or behind the chassis cab.

Outside Control Box - AutoPack™

Refer to Figure 23 for the control box.

A. Ignition Key – The key controls the power to the control box.
   - Put the key in the ignition switch when you are ready to operate the controls outside of the cab.
   - Turn the key to ON to operate the outside controls.
   - Turn the key to OFF and REMOVE the key when you complete the outside-of-cab operation of the controls.

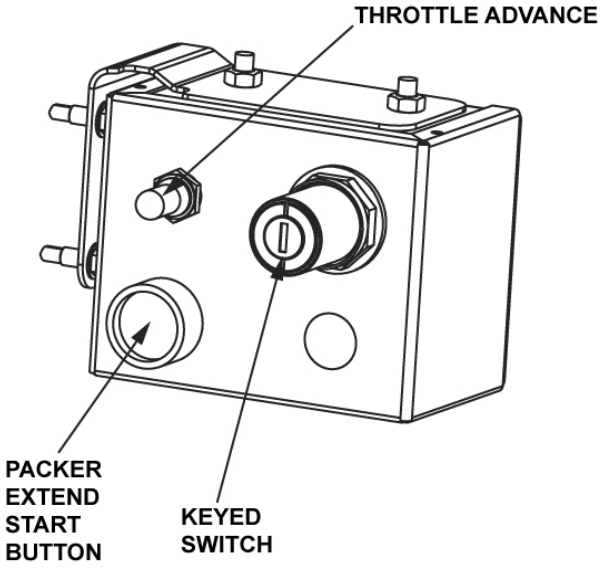

Figure 23. AutoPack™ Outside Controls (optional)

Outside Control Box - AutoPack™ - Continued

WARNING **The packer/eject mechanism is dangerous when a person is inside the hopper or body. Serious injury or death may occur if a person is inside the body or hopper. The side door must be closed before you start a packer operation. Make sure no one is inside the hopper or body before you operate a packer function.**

NOTICE **A carrycan or bin in the hopper is a dangerous condition. You can cause damage to the unit and/or container when the container is in the hopper while you extend the packer. Do not extend the packer when the container or carrycan is in the hopper.**

B. Packer Start/Extend Switch – Use this green switch to control extending the packer panel:
   - PRESS and RELEASE the switch to extend the packer panel to the end of the cylinder first stage.
   - The panel extends to compact the load, then automatically returns to the FULLY RETRACTED POSITION and stops.

C. Throttle Advance Toggle Switch – This switch controls the engine's governor speed. Use this switch when you use the packer, arms and forks functions.
   - You MOVE this switch to ON to control the engine's governor speed.
   - MOVE the switch to OFF when you do NOT need the hydraulic functions.

Outside Controls – Lift Arms and Forks

There are two versions or types of outside controls – joystick and 2-lever – for the operation of the lift arms and forks, similar to the in-cab arms and forks controls. They operate the same as the in-cab joystick and 2-lever controls. Refer to "

In-Cab Joystick and 2-Lever Controls for Lift Arms and Forks" on page 62.

The joystick and 2-lever controls work with the outside control box for AutoPack™ functions.

Body Raise (Service Hoist Units)

The Service Hoist model has an outside control assembly that controls the raising and lowering of the body for service and maintenance operations by service personnel only.

The control is part of the service hoist pump and looks similar to the control in Figure 24 on page 68. Refer to "Propping the Body (Dump Units and Service Hoist Units)" on page 72.

DANGER **Any part of your body between the unit's body and the chassis or cylinders while you raise the body is dangerous. Serious injury or death will occur if the refuse body suddenly lowers and traps a part of your body. Keep all parts of your body out from underneath the refuse body during this procedure. Always use the body props when you must leave the body raised for maintenance or cleaning operations.**

Operate the outside service hoist control as follows:

- Empty the body of refuse.
- Make sure the vehicle is on firm, level ground.
- CLOSE the manual override valve on the power unit – PUSH the valve in and turn it CLOCKWISE.

NOTE: Units manufactured after April 2009 have the manual override valve. If you have not experienced problems with the service hoist, you may not need the override valve. If you have experienced problems with the service hoist, contact your Heil dealer or Heil.

- Remove the bolts and springs from the chassis mounting brackets.
- Observe and obey the DANGER labels for an elevated chassis.
- PRESS and HOLD the UP button to RAISE the body.
- RELEASE the UP button when the body is at the height you want.
- Release the prop handles and LOWER the body props, then PRESS the DOWN button to lower the body onto the lugs.
- **NEVER** open the override valve when the body is elevated.
- Perform the maintenance or service procedures.
- PRESS the UP button until the body is not resting on the body props.
- RAISE the body props and store the handles.
- Press and hold the DOWN button to lower the body.

Body Raise (Service Hoist Units) - Continued

- Release the DOWN button when the body is completely down and resting on the chassis.
- OPEN the manual override valve – PUSH the knob IN and turn it COUNTER-CLOCKWISE.
- Make sure the manual override valve is open – PUSH the service hoist UP button. The body will not raise.
- Install the bolts and springs to the chassis mounting brackets.

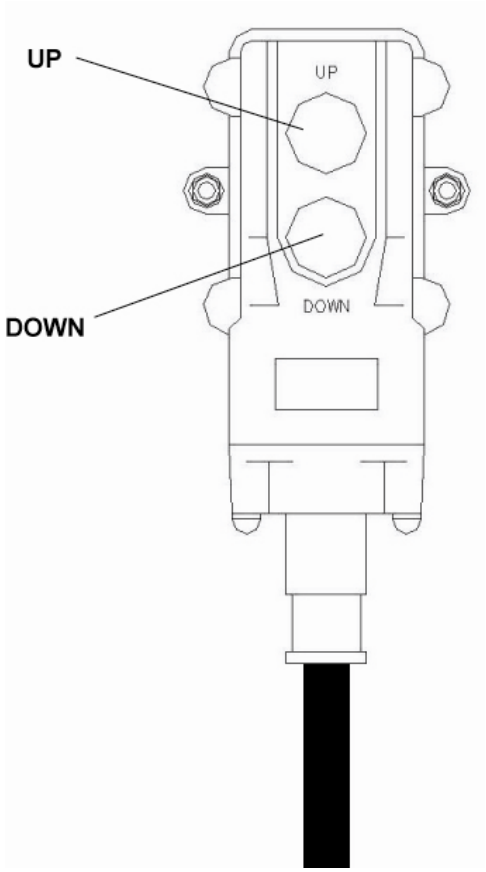

Figure 24. Service Hoist Control

4. Lock-out Procedures

Preview

Read this section to learn about the proper lock-out procedures. You **MUST** lock-out a unit **BEFORE**:

- You enter the body
- Stand on the body
- Do maintenance or repair procedures.

Section Contents

Locking Out the Half/Pack®

WARNING **If the unit is not in the lock-out mode when you are in or on the unit, you may suffer injury or death. Put the unit in the lock-out condition before you do any of the following procedures.**

Put the Half/Pack® unit in a lock-out condition:

- **BEFORE** you enter the unit's body.
- **BEFORE** you climb or stand on the ladder, body or roof.
- **BEFORE** you do maintenance or repair procedures on the unit.

Obey any lock-out procedures required by the owner that are in addition to the following procedures.

► Follow These Steps:

1. TURN the ignition switch to OFF.
2. APPLY the brakes. **MAKE SURE** the brakes do not let the unit move and they work properly.
3. CHOCK all wheels.
4. REMOVE the ignition key from the cab.
5. Put a LOCK-OUT TAG (Figure 25) onto the STEERING WHEEL.

NOTE: You can order lock-out tags (Part No. 212-1586) through your Heil dealer or through Heil.

Figure 25. Lock-out (Do Not Operate) Tag

5. Body and Tailgate Props

Preview

Read this section to learn about:

- The body and tailgate props
- Alternate body and tailgate props
- Setting the Body Props
- Setting the Tailgate Props.

Section Contents

Propping the Body (Dump Units and Service Hoist Units)

Operators **MUST KNOW** how to **SAFELY** prop up the unit's body. You may need to prop the body up when you clean the inside of the body or for maintenance or repair procedures.

Use the factory-supplied props or alternate body props to prop the body as described below.

Observe and obey the following DANGER and WARNING notices while you prop the body with either the factory body props or with alternate props.

DANGER The unit may roll when you raise the body on unstable or uneven ground and cause serious injury or death to you or bystanders. Do not prop the body while the unit is on unstable or uneven ground. Clear the area of all people not necessary for this procedure and set the unit on stable or even ground before you start this procedure.

DANGER Any part of your body between the unit's body and the chassis or cylinders while you raise the body is dangerous. Serious injury or death will occur if the unit's body suddenly lowers and traps a part of your body. Keep all parts of your body out from underneath the unit's body during this procedure.

WARNING The extra weight from the refuse or carrycan is dangerous while you work around the unit with the body raised. The extra weight can make the unit unstable. Serious injury or death or damage to the unit can occur if you do not remove the extra weight. Do not leave refuse or the carrycan in the body while you prop the body. Remove the refuse and/or the carrycan from the body before you raise the body.

Factory Body Props

The factory-supplied body props are located on both sides under the body and forward of the rear wheels. Refer to Figure 26 and the following paragraphs for proper body propping procedures.

► Follow These Steps:

1. To lower the body props:
   a. RAISE the body sufficiently to operate the body props.
   b. REMOVE the handle from the chain (located on left hand street side of the unit) and ROTATE the interconnected body props down. (There are no gears, the body props are gravity-assisted.)

Factory Body Props - Continued

c. LOWER the body so that the props MATE with their rest points and you REMOVE the load from the body raise cylinders.

2. To store the body props:

a. RAISE the body sufficiently to REMOVE the load from the body props.

b. ROTATE the props, RETURN the props to the transit position and re-install the handle in the chain.

c. LOWER the body completely on the chassis.

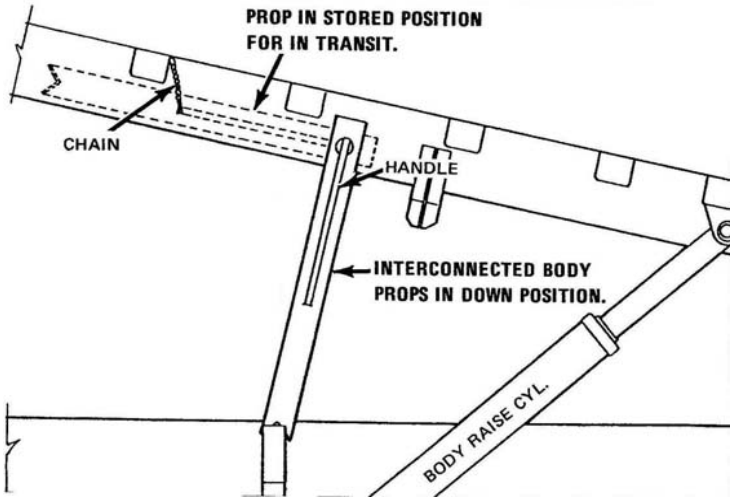

Figure 26. Factory Body Props

Alternate Body Props

There is an ALTERNATE method you can use when the body is in a position where you CANNOT use the factory props. Refer to Figure 27. **MAKE SURE** you securely brace the timbers against the body crossmembers.

If the proper equipment is not available or if you are **INEXPERIENCED** in performing the above, **DO NOT** attempt to lower the body or do repairs. In either case, get experienced help and proper equipment before proceeding. You can contact your Heil dealer or Heil.

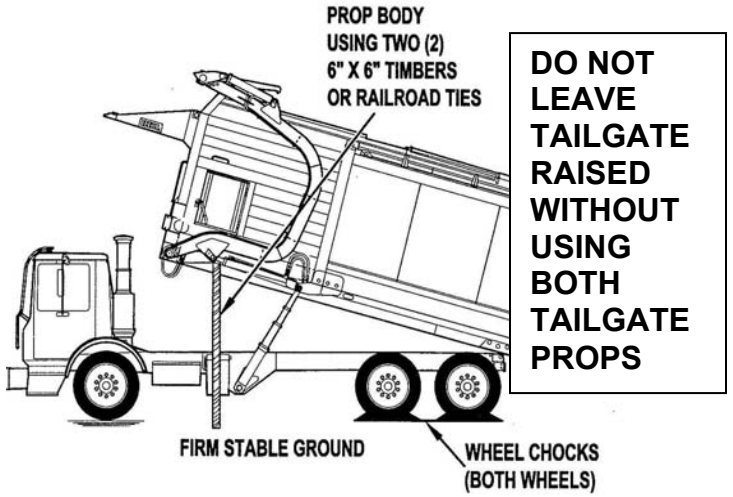

Figure 27. Alternate Body Propping

Propping the Tailgate

YOU MUST prop the tailgate when you open it for service or maintenance. Use the instructions that follow and prop the tailgate with either the factory-installed tailgate props or a tailgate prop built specifically for your unit.

Observe and obey the following DANGER and WARNING notices while you prop the body with either the factory body props or with alternate props.

DANGER **A tailgate is dangerous while you raise or lower it. A prop may fail and cause the tailgate to close suddenly which can result in serious injury or death if you become trapped between the tailgate and the body. Do not walk under or go between the body and the tailgate when the tailgate is in motion, while you prop the tailgate or while the tailgate is propped.**

Factory Tailgate Props

YOU MUST USE BOTH of the two support props at the rear of each unit whenever you open the tailgate for service or maintenance.

Refer to Figure 28 for proper tailgate propping procedures.

► Follow These Steps:

1. **MAKE SURE** the unit is on flat, stable ground and apply the parking brake and chock the wheels.
2. UNLOCK the tailgate.
3. Make sure the tailgate unlock flags are down.

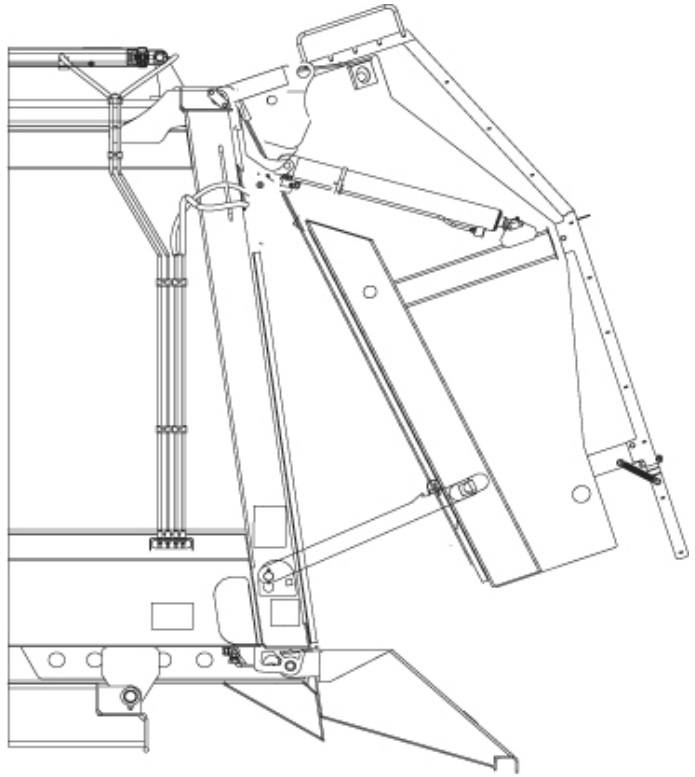

Figure 28. Factory Tailgate Props

Factory Tailgate Props - Continued

4. Use the tailgate air toggle switch and RAISE the tailgate enough to RELEASE and ROTATE the props so that you can SECURE each prop on its prop pin on each side of the tailgate.
5. LOWER the tailgate until you can SECURE each prop on its pin.
6. Turn OFF the engine and REMOVE the ignition key.
7. Put the unit in the lockout/tagout position. Refer to “Locking Out the Half/Pack®” on page 70.
8. When you FINISH using the props, take the unit out of the lock out/tagout position, insert the ignition key and start the engine.
9. RAISE the tailgate enough so that you can remove each prop bar from its pin, then ROTATE each prop so that you can put the props in the stored position.
10. SECURE each prop with a pin.
11. LOWER the tailgate until it is completely CLOSED.
12. LOCK the tailgate.

Building an Alternate Tailgate Prop

You can build a tailgate prop to the specifications shown in Figure 29.

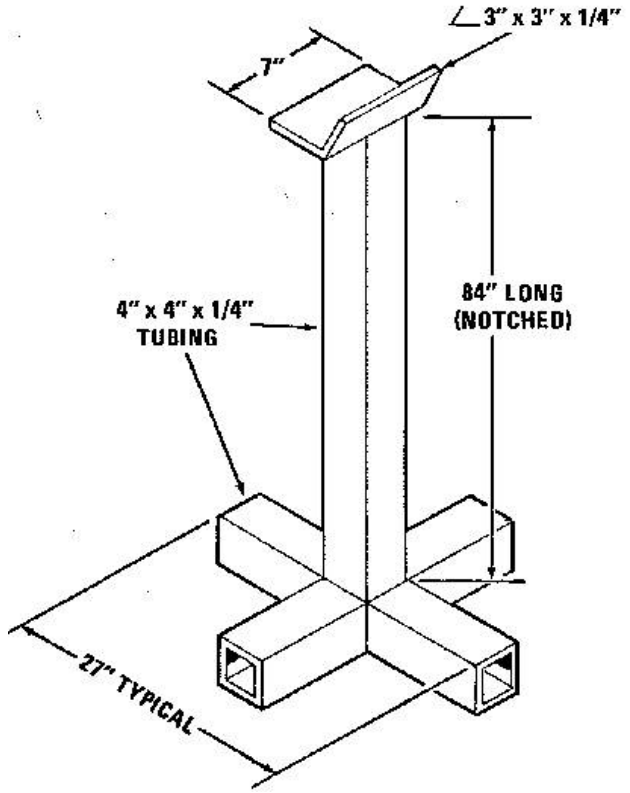

Figure 29. Alternate Tailgate Prop Guidelines

Using the Alternate Tailgate Prop Tailgate

DANGER **A tailgate is dangerous while you raise or lower it. A prop may fail and cause the tailgate to close suddenly which can result in serious injury or death if you become trapped between the tailgate and the body. Do not walk under or go between the body and the tailgate when the tailgate is in motion, while you prop the tailgate or while the tailgate is propped.**

Use this procedure and refer to Figure 30 to prop up the tailgate with a prop similar the one shown in Figure 29:

► **Follow These Steps:**

1. **MAKE SURE** the unit is on flat, stable ground and apply the parking brake and chock the wheels.
2. UNLOCK the tailgate then use the tailgate control and RAISE the tailgate.
3. Locate the prop in the center of tailgate. See Figure 31.
4. LOWER the tailgate until it rests on the prop.
5. Turn OFF the engine and REMOVE the ignition key.
6. Put the unit in the lockout/tagout position. Refer to “Locking Out the Half/Pack®” on page 70.
7. When you FINISH using the props, take the unit out of the lock out/tagout position, insert the ignition key and start the engine.
8. RAISE the tailgate enough so that you can remove the alternate body prop.
9. LOWER the tailgate until it is completely CLOSED.
10. LOCK the tailgate.

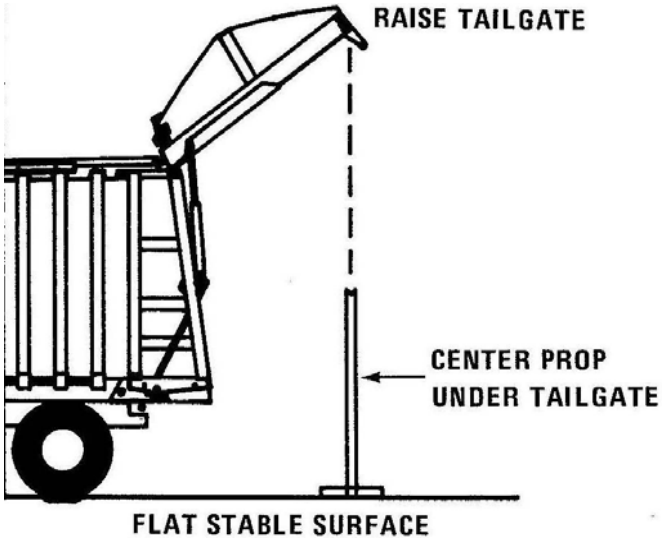

Figure 30. Positioning Alternate Tailgate Prop in Place

Using the Alternate Tailgate Prop Tailgate - Continued

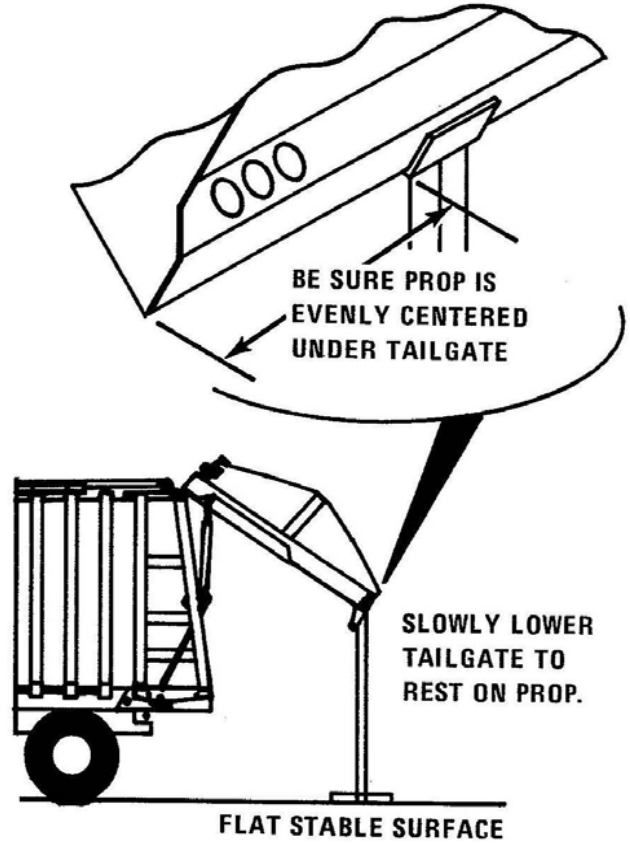

Figure 31. Setting the Alternate Tailgate Prop

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6. Lowering/Raising a Body with Inoperative Controls or with Mechanical Problems

Preview

Read this section to learn how to lower or raise a body when:

- The controls do not operate
OR
- There is a mechanical malfunction.

Section Contents

6. Lowering/Raising a Body with Inoperative Controls or Mechanical Problems

Lowering a Raised Body with Inoperative Controls

Use the following procedure to lower a raised body if the in-cab operating controls are inoperative or if the raised body will not lower for any other reason. Observe all DANGER and WARNING notices while you perform this procedure. See Figure 32.

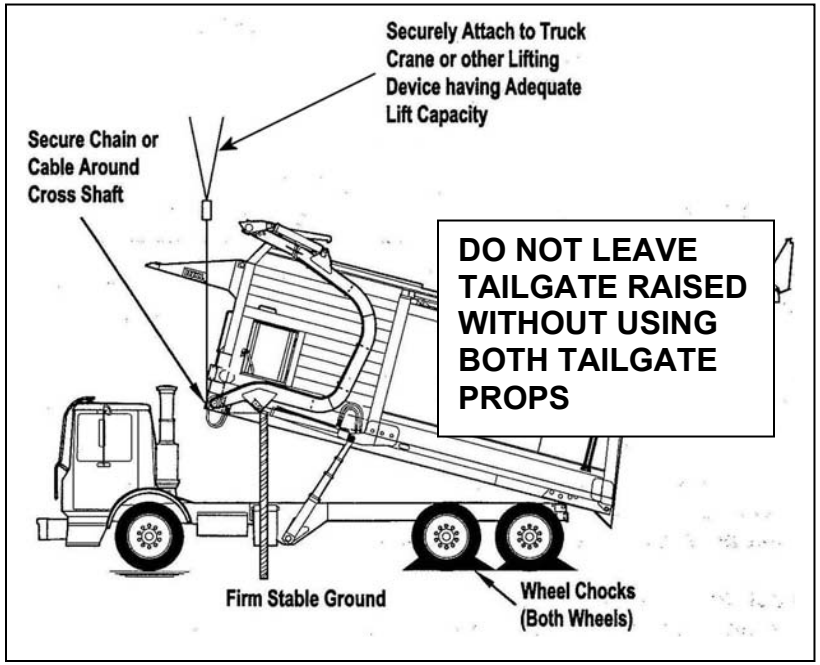


Figure 32. Lowering Raised Body with Inoperative Controls

Lift Capacity Requirements:

Half/Pack® bodies weigh up to 17,500 pounds. Common refuse materials weigh approximately 1,000 pounds/cubic yard. Make sure that the equipment used to raise the body is of adequate capacity to lift the load safely.

DANGER **This procedure is dangerous if not performed correctly. Serious injury or death may occur from equipment falling or breaking. Clear the area of all people not necessary for the procedures and correctly perform the procedure.**

DANGER **Do not put any part of your body between the unit's body and the chassis or cylinders while you raise the body. Serious injury or death will occur if the unit's body suddenly lowers and traps a part of your body. Keep all parts of your body out from underneath the unit's body during this procedure.**

► **Follow These Steps:**

1. **MAKE SURE ALL PERSONS NOT INVOLVED** in this procedure are **AT LEAST 30 FEET AWAY** from the vehicle.

Lowering a Raised Body with Inoperative Controls - Continued

2. APPLY the vehicle parking brake and CHOCK or BLOCK the wheels SECURELY so the vehicle cannot move.

   If the parking brake DOES NOT HOLD, **STOP WORK IMMEDIATELY** and get the parking brake repaired **BEFORE** you proceed.

DANGER **A full or partially full load of refuse is dangerous while you lower the body with inoperative controls. Refuse in the body can make the unit unstable and cause it to overturn. Serious injury or death may occur if the unit overturns due to instability caused by the loaded refuse. REMOVE the refuse before you block the body.**

3. The body must be empty of refuse. If necessary, use a backhoe or front end loader to remove the load.

DANGER **Always prop the tailgate when you leave it raised for maintenance, service or cleaning procedures. Any part of your body between the unit's body and the tailgate while you prop the tailgate or when the tailgate is propped is dangerous. Serious injury or death may occur if any part of your body is between the tailgate and the body if the tailgate suddenly closes.**

4. If the tailgate is open, make sure you use both tailgate props.
5. Block the raised body at its position with two 6" x 6" timbers (minimum size) of sufficient length or use railroad ties as shown in Figure 31 to support the body
6. If possible, release the body props. If possible rotate the props in place.

DANGER **Lifting equipment that does not have sufficient lifting capability is dangerous. Equipment may fail and cause serious injury or death to the operator or bystanders. Make sure the lifting equipment has sufficient lifting capability and ALL persons not involved with the procedure are clear of the area.**

7. Connect a chain or cable sling to an overhead crane, truck crane or other lifting device that has ADEQUATE CAPACITY to SAFELY raise, hold and lower the body (and the load if it cannot be removed).
8. Attach the chain or cable device with hooks, all of sufficient lift rating, to the cross tube as shown in Figure 32.
9. Use the crane and REMOVE the SLACK in the sling WITHOUT relieving the pressure from the body - supporting timbers.

Lowering a Raised Body with Inoperative Controls - Continued

10. With the chocks and timber blocks in place, use the body lower switch and LOWER the body until it rests on the body-supporting timbers.

    If the controls are inoperative, use the following procedures. See the following figures.

    a. IF the switch doesn't lower the body, you can use an external 100 psi air supply connected to the body control valve to lower the body. When you apply the air pressure, the body should lower.

    b. IF the body still does not lower, the body control valve may need replacement. In this case, you can loosen (crack open) the bleeder valve on a body raise cylinder as follows:

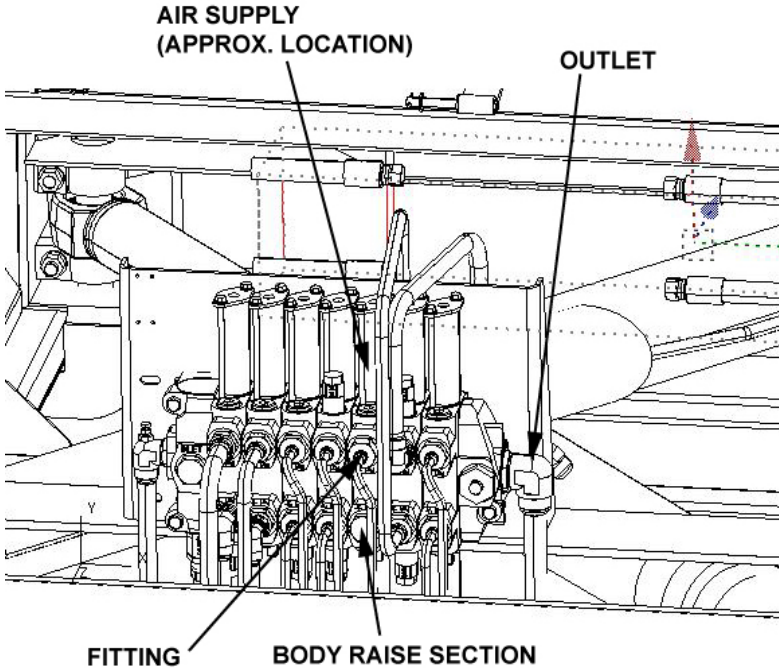
DANGER **Keep all parts of your body away from pinch points while you do this procedure. When the body lowers, a part of your body can get between the lift arms and another part of the unit or between the body and the chassis or other parts of the unit. Serious injury or death can occur if a part of your body gets caught in a pinch point.**

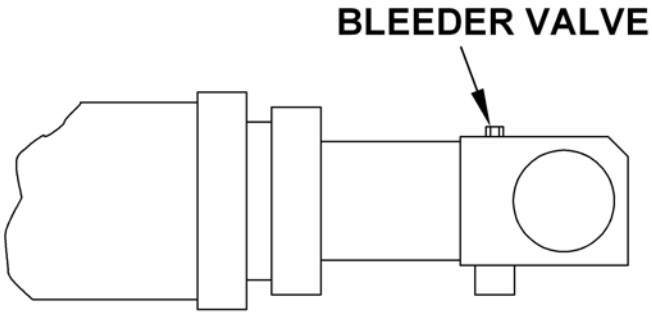
WARNING **The hydraulic fluid may be under pressure and may spray from the connection. Hydraulic fluid may cause damage to your eyes, hands or skin. Wear protective eye glasses, gloves and other clothing as necessary to protect you from the hydraulic fluid.**

1. Get a container to collect the hydraulic fluid.
2. Use a ladder if necessary to reach the hydraulic connection on the cylinder. **BE CAREFUL** at all times when you use the ladder. Maintain good balance with two feet and one hand, or one foot and two hands, firmly in place.
3. Set the container to collect the hydraulic fluid at the base of each body cylinder when you open the bleeder valve.
4. To relieve the pressure, slowly open the valve sufficiently so that the hydraulic oil slowly leaks from the connection and doesn't spray.
5. When the body lowers onto the timbers, close and tighten the bleeder valve.
6. Safely dispose of the hydraulic fluid.
7. Check the level of the fluid in the hydraulic oil tank. Add hydraulic fluid as necessary.

Lowering a Raised Body with Mechanical Problem - Continued

11. If you are inexperienced or have any questions about the following steps, call your Heil dealer or Heil.





ROD END BODY RAISE CYLINDER

DANGER **This procedure is dangerous if not performed correctly or equipment fails. Serious injury or death may occur from equipment falling or breaking. Clear the area of all people not necessary for the procedures and correctly perform the procedure. Do not go under the chassis during this procedure.**

12. Use the lifting device and:
    a. SLIGHTLY raise the Half/Pack® body until you relieve the pressure from the body-supporting timbers.

Lowering a Raised Body with Inoperative Controls - Continued

b. **MAKE SURE** the lifting device is **SECURELY** attached to the body and that both the crane and body are stable **BEFORE** you remove the body-supporting timbers.

DANGER **The lifting equipment may fail. Serious injury or death may occur if the lifting equipment breaks and the body falls or the unit rolls over. Do not place your body or limbs between the unit's body and chassis while you remove the body-supporting timbers. Be attentive and prepared to move quickly away from the unit in the event there is an equipment failure.**

c. Remove the body-supporting timbers.

13. Use the lifting-device and LOWER the body in a CONTROLLED MANNER until you set the body props.
14. Do the repair(s) or replacement(s) necessary to correct the control mechanism failure, or other malfunction, by qualified and trained personnel, such as your authorized Heil dealer.

DANGER **Do not put any part of your body between the unit's body and the chassis or cylinders while you raise the body. Serious injury or death will occur if the unit's body suddenly lowers and traps a part of your body. Keep all parts of your body out from underneath the unit's body during this procedure.**

15. Raise the body sufficiently to rotate and store the body props, then lower the body onto the chassis.
16. Cycle the unit's hydraulics for two or three (2 or 3) cycles.

Lowering a Raised Body with Mechanical Problem

Use the following procedure to lower a raised body if the unit has a mechanical failure that prevents lowering the body, for example, the body has a bent body cylinder rod. Observe all DANGER notices while you perform this procedure.

► **Follow These Steps:**

1. Do Steps 1 thru 9 of "Lowering a Raised Body with Inoperative Controls".
2. You need to relieve the pressure from one of the hydraulic body cylinders at its bleeder valve. If you are inexperienced or have any questions about the following steps, call your Heil dealer or Heil.

   a. Get a container to collect the hydraulic fluid.

Lowering a Raised Body with Mechanical Problem - Continued

b. Use a ladder if necessary to reach the hydraulic connection on the cylinder. **BE CAREFUL** at all times when you use the ladder. Maintain good balance with two feet and one hand, or one foot and two hands, firmly in place.

c. Set the container to collect the hydraulic fluid at the base of a body cylinder when you open the bleeder valve.

WARNING **The hydraulic fluid may be under pressure and may spray from the connection. Hydraulic fluid may cause damage to your eyes, hands or skin. Wear protective eye glasses, gloves and other clothing as necessary to protect you from the hydraulic fluid.**

d. To relieve the pressure, slowly open the bleeder valve so that the hydraulic oil slowly leaks from the connection and doesn't spray.

e. When the pressure is relieved, close and tighten the bleeder valve.

f. Safely dispose of the hydraulic fluid.

g. Check the level of the fluid in the hydraulic oil tank. Add hydraulic fluid as necessary.

h. Fix the mechanical problem.

3. Raise the body sufficiently to rotate and store the body props, then lower the body onto the chassis.
4. Cycle the unit's hydraulics for two or three (2 or 3) cycles.

Raising a Body with Inoperative Controls or Mechanical Problem

Use the following procedure to raising a body if the unit has an inoperative control or a mechanical failure that prevents raising the body. Observe all DANGER notices while you perform this procedure.

► **Follow These Steps:**

1. Do Steps 1 thru 3 of "Lowering a Raised Body with Inoperative Controls".
2. Do Steps 6 thru 9 of "Lowering a Raised Body with Inoperative Controls".
3. Use the lifting device and raise the body until you can rotate and set the body props.
4. Do the repair(s) or replacement(s) necessary to correct the inoperative control or other mechanical problem by qualified and trained personnel, such as your authorized Heil dealer.

Raising a Body with Inoperative Controls or Mechanical Problem - Continued

DANGER **Do not put any part of your body between the unit's body and the chassis or cylinders while you raise the body. Serious injury or death will occur if the unit's body suddenly lowers and traps a part of your body. Keep all parts of your body out from underneath the unit's body during this procedure.**

5. Raise the body sufficiently to rotate and store the body props, then lower the body onto the chassis.
6. Cycle the unit's hydraulics for two or three (2 or 3) cycles.

7. Before Going On Route

Preview

Read this section to learn proper procedures for:

- Checking the unit each day
- Starting the unit in cold weather
- Setting the unit up for the route
- Removing power to the unit during periods of not using the unit.

Section Contents

Daily Checklist

WARNING **A unit that needs service or repair can malfunction and create a dangerous condition. A part failure during operation can cause serious injury or death to a person or damage to the unit. Repair or replace any failed or defective part immediately.**

See Appendix A for the daily checks and procedures checklist. Make a copy of the check list, either from Appendix A or of the long-version copy delivered with the truck.

Cold Weather Warm-up Procedure

When air temperatures are cold, it may be necessary to warm up the unit's hydraulic oil before you start your daily route operation.

► **Follow These Steps:**

1. Start the truck and let the engine idle.
2. APPLY the parking brake and **MAKE SURE** it HOLDS.
3. Engage the hydraulic pump for approximately five minutes.

WARNING **Moving equipment can be dangerous. Serious injury or death may occur if a person is in the wrong area or is not attentive to the operations. Clear the area of all unnecessary people before you operate the controls.**

4. **MAKE SURE** the area around the unit is clear of all people before you operate the controls.
5. Operate the lift and body hydraulic functions through 10 (ten) cycles at engine idle. This warms the hydraulic oil.
6. Check for fluid leaks again. Repair if necessary.
7. The unit is now ready to go on route.

WARNING **A unit that needs service or repair can malfunction and create a dangerous condition. A part failure during operation can cause serious injury or death to a person or damage to the unit. Repair or replace any failed or defective part immediately.**

Before Starting a Route

Before you start a route, do the following:

- ☐ Do an inspection of the unit with the daily checklist. (See page 88.)
- ☐ Check the Hydraulic Oil Tank. (See page 89.)
- ☐ Cycle all Hydraulic Functions. (See page 91.)
- ☐ Close the Side Access Door. (See page 91.)
- ☐ Close the Hopper Cover (Sliding Top Door). (See page 91.)
- ☐ Check the "In-transit" Settings. (See page 92.)

Use the Daily Checklist to Inspect the Unit

It is the operator's responsibility to do a visual inspection of the unit and make sure the unit is in good operating condition before you start a route.

The requirements for the daily checks are given in Appendix A. Make sure you complete the inspections on the checklist and you make all entries, including your signature.

Check the Hydraulic Oil Tank

The oil tank should be filled to the FULL level as indicated on the sight gauge decal (see Figure 33) with the unit in the following position:

A. The unit is on level ground.
B. The Arms and Forks are in the UP position.
C. The Hopper Cover is OPEN.
D. The Body is fully DOWN.
E. The Packer Panel is at the front of the body (FULLY RETRACTED POSITION).
F. The Tailgate is DOWN and LOCKED.

► Follow These Steps:

1. Operate the lift arm, fork, hopper cover, packing panel, body and tailgate functions two or three times each. (See Section 3 for proper operation of controls.)
2. Put the unit back in the position described above and check the oil level again.
3. Add oil if necessary. See the "Recommended Hydraulic Oil" chart. Refer to the Parts and Maintenance/Adjustments (Service) Manual for filling the oil tank.

Check the Hydraulic Oil Tank - Continued

Important: Contamination is the worst enemy of any hydraulic system. **DO NOT** let dirt enter the system. Use a clean rag and remove dirt or other contamination that is around any system component before you disconnect or remove it. While you fill the reservoir, filter the oil through a 200 mesh (or finer) screen. **NEVER** use a cloth to filter the oil.

Recommended Hydraulic Oil	
The following oils by brand name are approved for use in the hydraulic system on this equipment and considered to be all-temperature hydraulic fluids:	
• Penzoil Pennzbell AWX MV 32 • Mobil DTE 13M	• Shell Tellus T 32 • Texaco Rando HDZ 32
NOTE: Cold weather operation requires special oil considerations. Viscosity should not exceed 7500 SSU at lowest startup temperature. Continuous operation should range between 40–1000 SSU for all temperature ranges.	

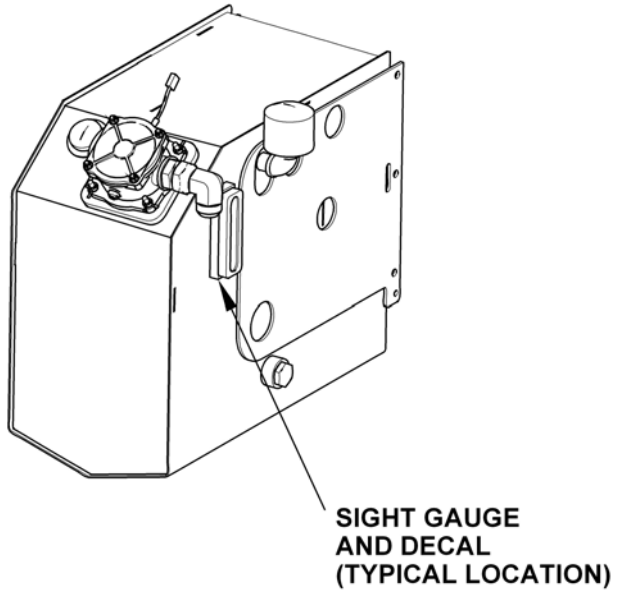


Figure 33. Hydraulic Oil Tank

Cycle all Hydraulic Functions

Check the operation of all hydraulic controls on the unit. See Section 3 for proper operation of controls.

► Do These Steps:

1. Hopper Cover Cycle:
   OPEN and CLOSE the hopper cover several times.
2. Lift Arm and Fork Cycles
   Do several LOAD and UNLOAD cycles.
3. Packing Cycle
   Do several EXTEND and RETRACT cycles of the packer panel.
4. Body Raise Cycle (Dump units only)
   If the body is not full of refuse, do several of the body RAISE and LOWER cycles. DO NOT raise the body when it is full with refuse.
5. Tailgate Raise Cycle
   If the body is empty, do several tailgate RAISE and LOWER cycles. DO NOT raise the tailgate with refuse in the body.
6. Tailgate Lock Cycle
   Do several tailgate LOCK and UNLOCK cycles.

Close the Side Access Door

A side access door (see Figure 34) is on the street side of the body. Use this door as the **ONLY** access to the hopper area. **MAKE SURE** the door is closed and latched when you are not in the body.

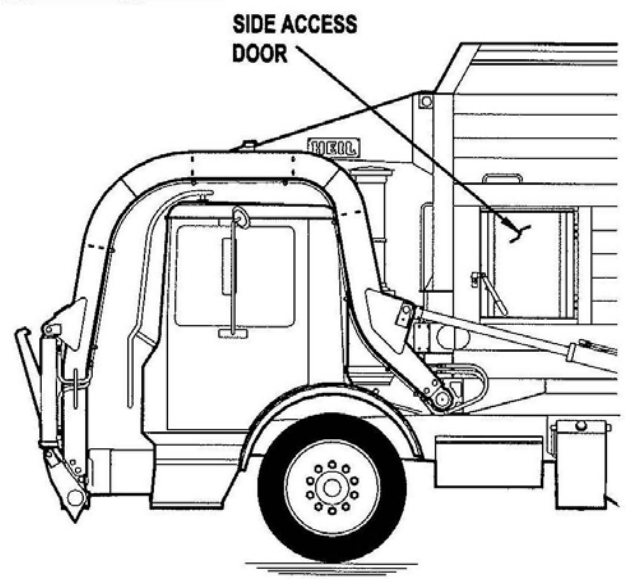


Figure 34. Close the Side Access Door

Hopper Cover (Sliding Top Door)

MAKE SURE you CLOSE the hopper cover before you go on a route. See Figure 35. See Section 3 for proper operation of the controls. Keep the hopper cover CLOSED until the first stop on your route, then OPEN the door. Keep the hopper cover CLOSED except when on route picking up refuse.

NOTICE **The hopper cover is not designed to be closed while packing the load. You may cause damage to the unit if you operate the packer with the hopper cover closed. Never pack the load with the hopper cover closed. Do not close the hopper cover until you have completed your route or you are ready to empty the load.**

When you are on route, leave the hopper cover OPEN until the unit is full or you have completed your route and you are ready to empty your load. CLOSE the hopper cover when the body is full or you are on route to empty the load. A closed hopper cover prevents refuse from "flying" out of the body.

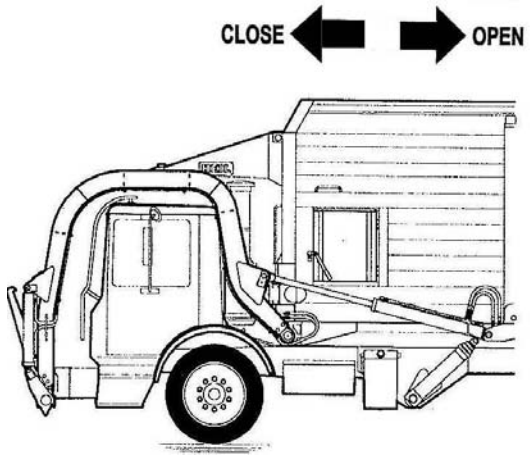


Figure 35. Hopper Cover

Check the Traveling or "In-transit" Position

When you travel to and from the landfill or transfer station, make sure the unit is in the IN-TRANSIT mode as follows (see Figure 36):

A. For a Standard (Commercial) Unit:
   - The tailgate is DOWN and LOCKED
   - SET the fork crosshaft in a position slightly **ABOVE** the cab windshield.

B. For a Residential Unit make sure:
   - The tailgate is DOWN and LOCKED
   - Put the carrycan in the hopper.

Check the Traveling or "In-transit" Position - Continued

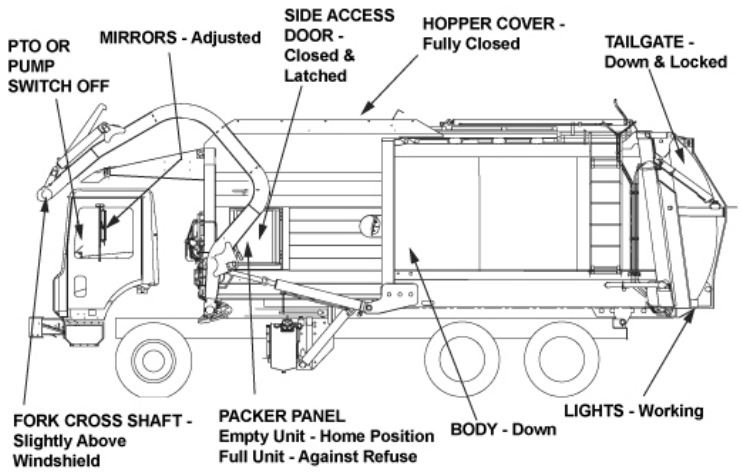


Figure 36. In-transit Position (Sheet 1 of 2 - Standard Unit)

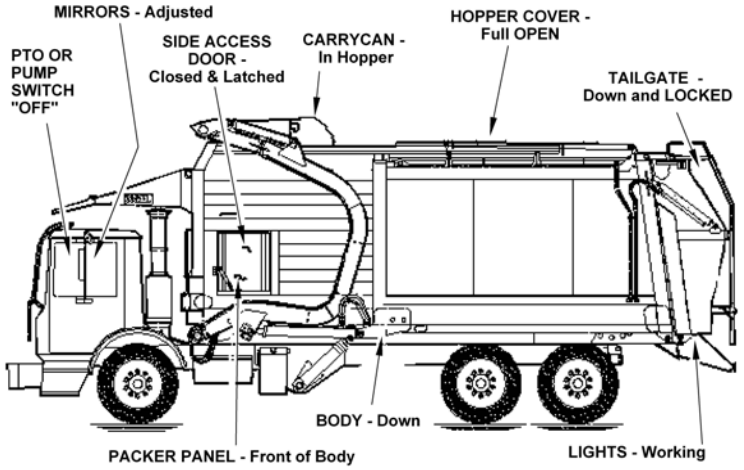


Figure 36. In-transit Position (Sheet 2 of 2 – Carrycan)

7

Check the Traveling or "In-transit" Position - Continued

C. The Hopper Cover is:

For Standard Units is CLOSED.

For Residential Carrycan Units:

- OPEN and the Carrycan is in hopper.

D. The body is fully LOWERED. Check the BODY RAISED light in the cab. It should be OFF.

E. The Packer Panel is:

- For an Empty unit at the front of body/hopper.
- For a unit with refuse in the body, it is up tight against refuse.

F. The Pump Switch is OFF.

G. The PTO is DISENGAGED.

H. The Mirrors are properly adjusted and clean.

I. The Side Access Door is CLOSED and LATCHED.

J. All outside lights operate.

Tilting the Chassis Cab

NOTICE **Do not tilt the cab before you raise the hinged cab protector. The hinged cab protector in its normal position is in the way of tilting the cab for service or maintenance. You may cause damage to the unit if you tilt the cab with the hinged cab protector in its normal position. Always move the hinged cab protector to the UP position before you tilt the cab.**

BEFORE you tilt the chassis cab to get at the engine and related parts, **MAKE SURE** you:

- Use a ladder to access the turnbuckles. Make sure you keep two hands and a foot or one hand and two feet firmly in place.
- LOOSEN the cab protector turnbuckles and SWING the hinged cab protector extension up and out of the way to allow clearance of the tilting chassis cab.
- TIGHTEN the turnbuckles.
- AFTER you tilt the cab back to its normal position, LOOSEN the turnbuckles, LOWER the cab protector and TIGHTEN the turnbuckles. See Figure 37.

Tilting the Chassis Cab - Continued

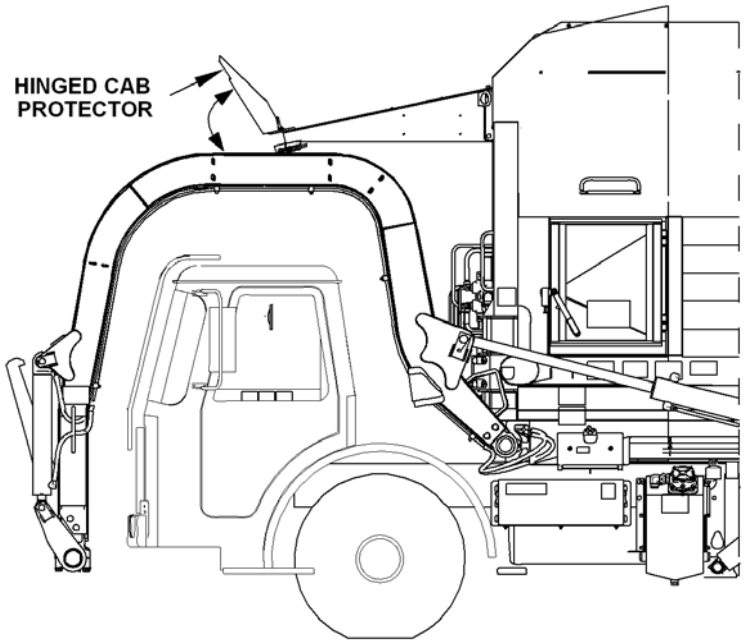


Figure 37. Moving the Cab Protector

Using the Battery Disconnect Switch

You MUST turn the battery disconnect switch to the OFF position whenever the Half/Pack® unit is shut off for any length of time – especially when the unit will be left unattended. Figure 38 shows the location on a Mack chassis. The location may be different for other chassis. MAKE SURE you know the location of this switch on your unit's chassis.

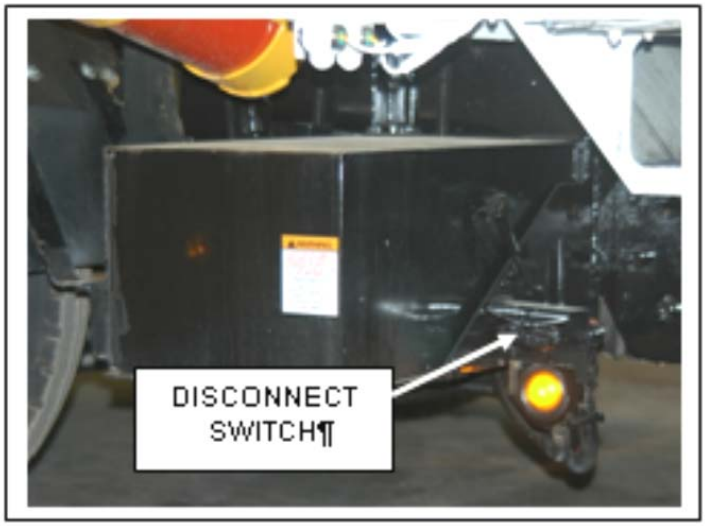


Figure 38. Battery Disconnect Switch

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8. On-Route Operation Procedures

Preview

Read this section to learn about:

- Setting up the unit for a route
- Loading refuse
- Packing the load
- Packing on-the-move
- Washout systems
- Setting up the unit for the landfill or transfer station.

Section Contents

8

Quick Reference – Loading/Unloading Sequence

The following six steps show the basic procedures to pick up a commercial refuse container, dump it into the hopper, set the container back down and compact the load. See Figure 39.

Use these quick-reference illustrations for overview purposes only. Each operator must be properly trained and qualified, and must read and understand this entire section of the manual before the operator actually operates the Half/Pack® unit.

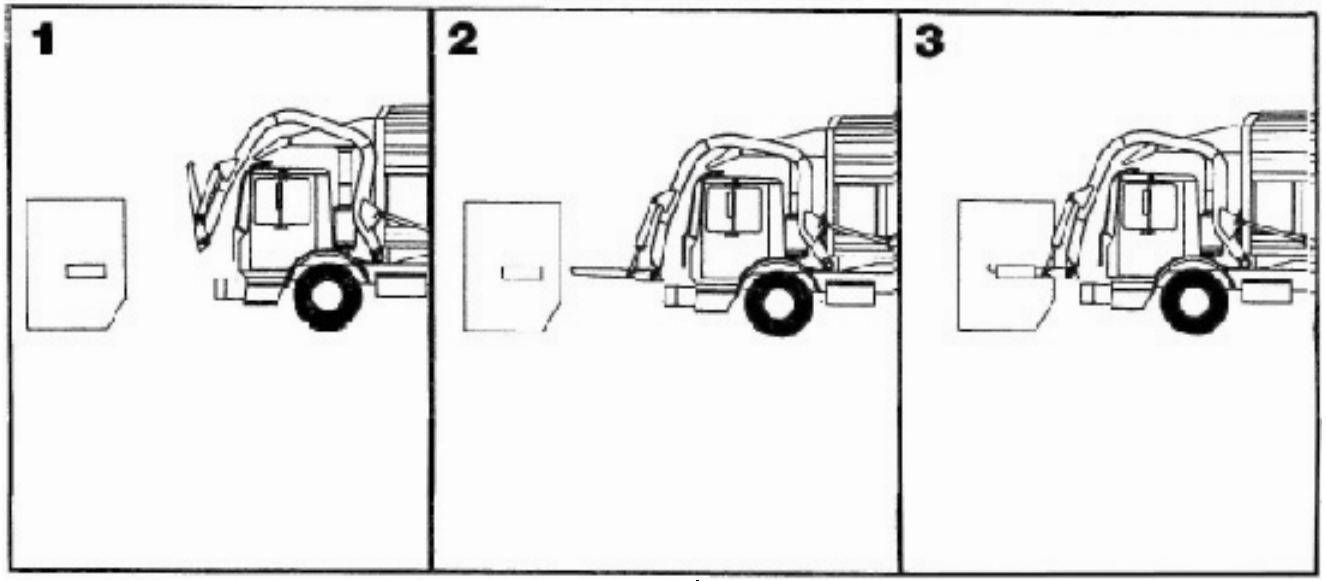

Figure 39. Loading and Unloading Process (1 of 2)

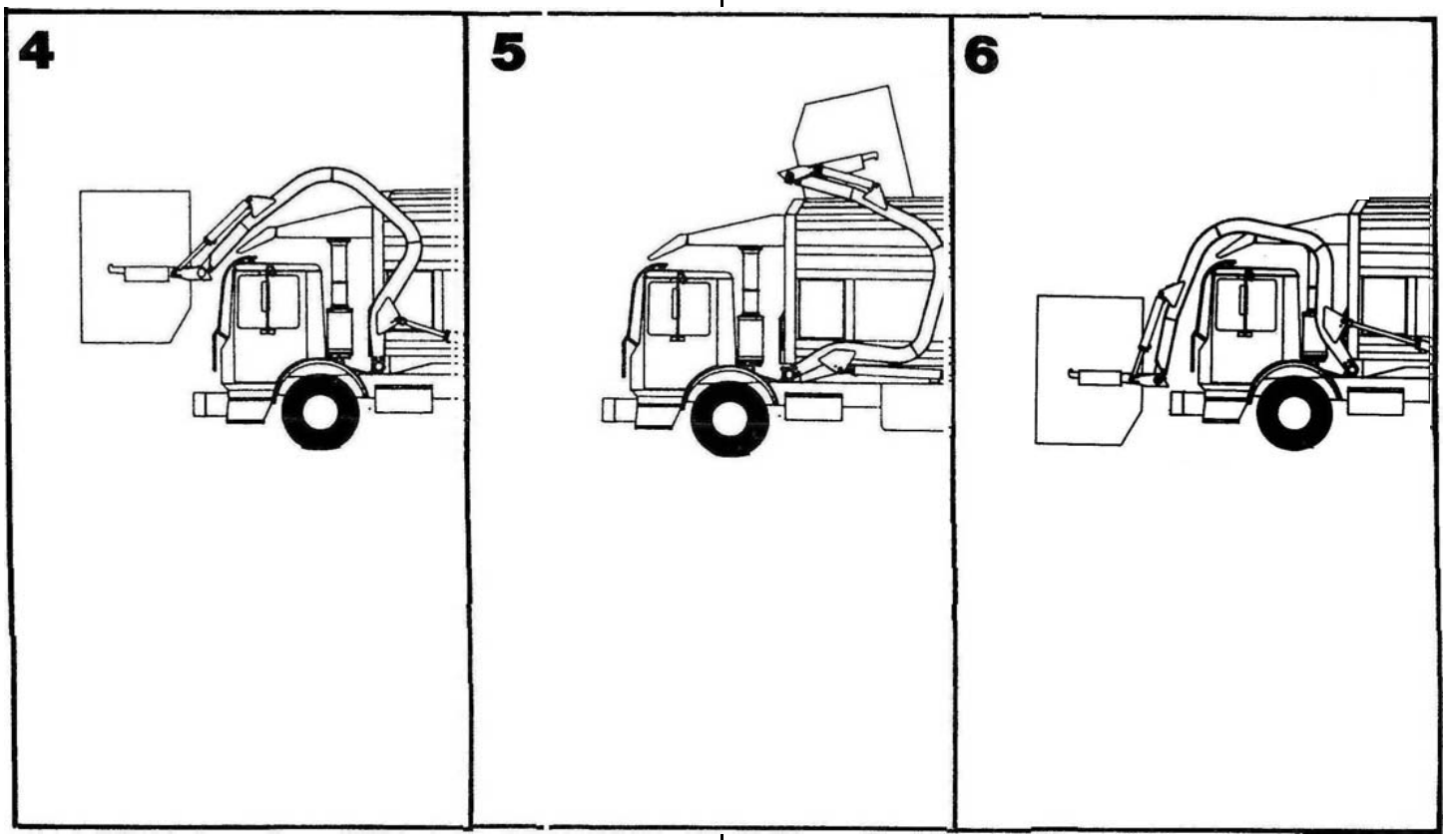

Figure 39. Loading and Unloading Process (2 of 2)

Driving to Pick-up Locations

Whenever you drive the Half/Pack® unit to and from a route, along the route, to the landfill, etc., make sure the unit is set up as follows:

A. The body is fully LOWERED.

B. The tailgate is DOWN and LOCKED.

C. Put the arms and forks in the TRANSIT POSITION.

D. The Hopper Cover is:
- For a unit before it is on-route – CLOSED
- For an on-route unit – is OPEN
- For a full unit or a not on-route unit – is CLOSED

E. The packer panel is:
- Empty Unit – FULLY RETRACTED POSITION
- Full Unit – up tight against refuse

F. The PTO or pump switch is OFF.

G. The mirrors are properly adjusted and clean.

H. ALL body lights turn ON and OFF.

Lifting and Loading Refuse

Use the following procedure at each stop along the route to load refuse into the Half/Pack® unit. Observe the DANGER and WARNING notices

► **Follow These Steps:**

1. MAKE SURE the side door is CLOSED.

NOTICE **Loading refuse with the hopper cover CLOSED will cause damage to the unit. Make sure the hopper cover is OPEN before you load refuse.**

2. **MAKE SURE** the hopper cover is OPEN.
3. Approach the container squarely and stop a few feet from the container. Engage the PTO or MOVE the pump switch to ON.
4. Use the lift arm control and LOWER the arms to the same height as the pick-up sleeves on the container then RELEASE the control. See Figure 40.
5. Use the fork control and ROTATE the forks to a horizontal position then RELEASE the control. See Figure 41.

Lifting and Loading Refuse – Continued

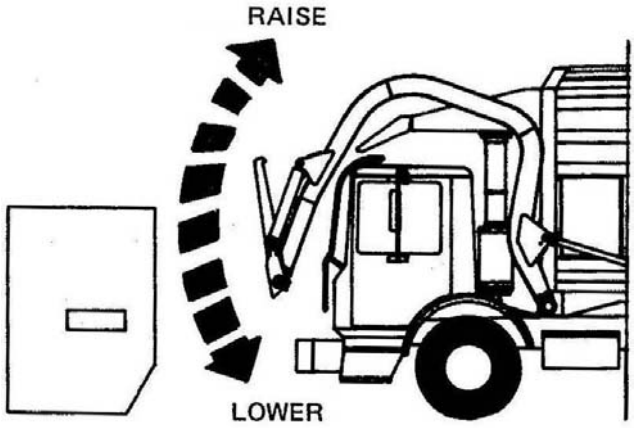

Figure 40. Lower Lift Arms

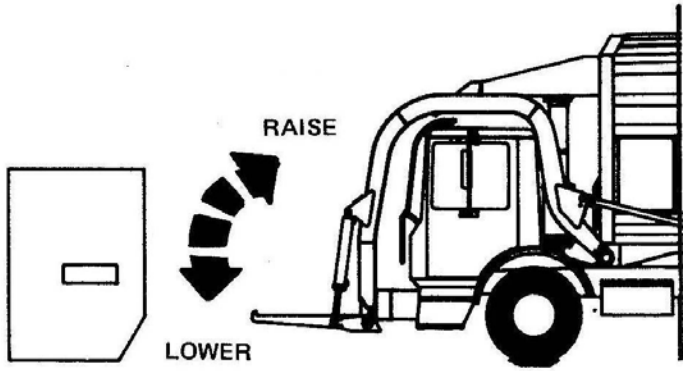

Figure 41. Rotate Forks to Horizontal Position

6. Move the unit forward SLOWLY until both forks are in the container pick-up sleeves. After the forks are fully inserted, use the arm control and cradle the container on the forks and arms. Release the control. See Figure 42.

Figure 42. Fully Insert Forks into Container Pick-up Sleeves

Lifting and Loading Refuse – Continued

DANGER **Contact of the unit with overhead electric lines is dangerous. Serious injury or death may occur. Make sure there is adequate overhead clearance before you raise the container. Refer to Table 1 on page 29. If the unit does make contact with overhead electric lines do not touch metal in the cab. Stay in the unit until help arrives.**

NOTE: If local rules and laws require more clearance, you must follow them.

7. ADJUST the container spot mirror for BEST overhead vision of the hopper cover area while you raise container.

WARNING **Be careful when raising an over-filled container or a container with refuse protruding from the top or side may cause the refuse to fall while lifting or dumping the refuse. Falling refuse is dangerous and may cause injury or death or damage to the unit. Keep your hands and arms inside the cab and clear the area of all unnecessary people while you raise a container.**

NOTICE **If the arms will not raise the container, the container may exceed the lifting capacity of the unit. Contact your supervisor for instructions before you try to lift the container again. You may cause damage to the unit.**

8. If the unit does not have the AutoLevel™ feature, raise the container, alternating operation of the lift arm and fork controls to keep container level to the ground while you raise the lift arms over the cab. ONLY trained and experienced operators should level the forks during an ARM RAISE operation. See Figure 43.

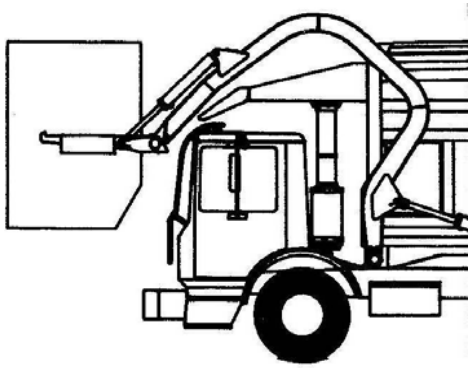

Figure 43. Raise Container With Arm and Fork Controls

9. When the LIFT ARMS make CONTACT with the ARM STOPS, use the fork control lever and rotate the container to its full dump position. See Figure 44.

Lifting and Loading Refuse – Continued

Figure 44. Dump Container into Hopper

10. RELEASE the lever and allow all refuse to drop out of the container.
11. When the container is empty, use the fork control lever and rotate the container to its full vertical position. Release the lever.
12. Set the container gently on the ground with partial movements of the arm control lever. See Figure 45.

Figure 45. Rotate Container Back Before Lowering

Manual Packer Override

NOTICE **Operation of the packer while you dump refuse in the hopper can cause damage to the unit. Do not use the packer override switch for the manual packer when you dump the refuse from the container into the hopper. Use the packer override switch only when the refuse container is not in the hopper.**

Use the manual override when you need to pack the refuse while the lift arms are raised.

MAKE SURE the refuse container IS NOT in the hopper, then PRESS the Manual Override Switch to ON.

Cycle the packer.

Move the manual override switch to OFF, then dump more refuse into the hopper.

Compacting the Load

When there is an appropriate amount of refuse in the hopper, use the packer panel and compact the load into the unit's body. See Figure 46.

Many factors affect how often you need to compact the load, including the operator's experience. See "

Achieving Packing Payloads" on page 105 for helpful information and guidelines to be followed.

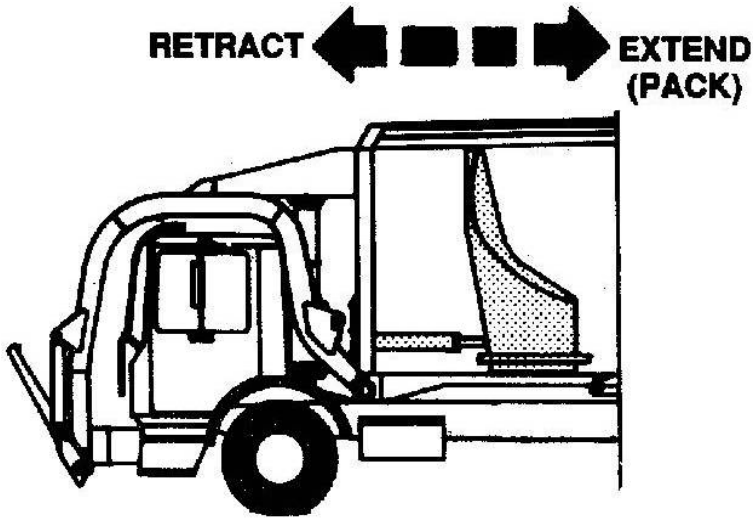

Figure 46. Compact the Load

AutoPack™

Use the following procedure to compact the load with the unit's AutoPack™ function.

NOTE: To attain maximum efficiency in loading and unloading, the unit should have a packing cycle time (empty body) between 18 and 23 seconds.

► Follow These Steps:

1. The lift arms must be lowered or in the transit position.
2. If the hydraulic system is not activated, pull the System Power switch UP to the ON position.
3. PRESS and RELEASE the PUMP ON button. The PUMP ON light will turn ON.
4. PRESS and RELEASE the start/extend button of the packing mechanism. See Figure 47.

   The panel will extend approximately 81" to move the refuse into the body and clear the hopper and automatically return to the front of the hopper.
5. When the auto-cycle is completed, the packer panel will be in position for the next load.
6. If you want to do another cycle, PRESS and RELEASE the start/extend button again.

AutoPack™ - Continued

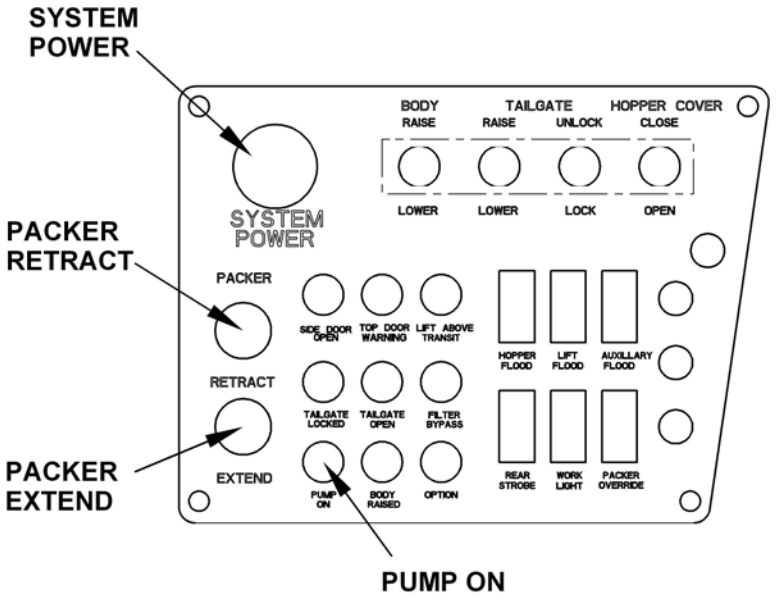

Figure 47. AutoPack™ Controls

Packing On-The-Move

Heil Half/Pack® units can pack on-the move. This means you can operate the packing mechanism while the vehicle is moving, as well as when it is stationary.

Achieving Packing Payloads

Read this section for advice and tips on how to pack the most efficient loads with your Heil Half/Pack® unit.

Payloads in any refuse/waste handling vehicle will vary greatly, depending on the type of material loaded. Dry bulk cardboard and reconstruction/building materials, foam packing materials, loose plastic, etc. cannot be compressed and packed as effectively as wet, soft, garbage type materials. If dry materials can be mixed with some wet material, more effective payloads can be achieved.

The Half/Pack® is designed to pack material into the body with a relatively short packer panel movement – “half pack.” The packing stroke of the multi-stage cylinder in eject models is set to extend on the first stage. (Dump models have single stage packing cylinders.) The first stage of the cylinder develops the most force and thus packs the densest load. The "extra” stages are used to eject the load at the landfill or transfer station.

Basic Packing Techniques

Follow these techniques to attain greater efficiency in packing the load in your Half/Pack® unit:

1. After you load the first two or three bins, move the material from the hopper into the body by cycling the packer panel. Very little packing occurs until the body starts to fill.

If you are loading small bins (2–3 cubic yard capacity), you can empty two bins in the hopper at this stage and effectively move the refuse back into the body. If you are loading large bins (8–10 yard), you must cycle the packer after you empty every bin.

2. After you empty the first few bins, the body begins to fill and material can begin to "fall back" into the hopper as the packer is retracted. This is normal. Cycle the panel again to move this material back into the body.
3. The packer panel is shaped with a vertical lower surface and a sloping, curved top portion. See Figure 48. (You can see this by looking into the back of the body with the tailgate up.)

   While the curved portion does some packing, you should think of this section as a 'spill shield." The most effective packing is done by the vertical lower portion of the panel.

   The lower portion of the packer panel travels further into the body on the packing stroke. With the shape of the panel, it is easy to see how material can fall back into the hopper as the panel retracts. (Again, this is normal.) Cycle the panel again to move this material back into the body.
4. For approximately the first half of the load, cycle the packer panel AT LEAST TWO TIMES after you empty each bin to effectively clear the hopper of the fall-back material. Larger bins (8–10 yards) may require additional packer cycles.
5. **VERY IMPORTANT.** After you load a bin into the hopper, it is important to watch the packer panel as it moves rearward and compacts the material. Watch for material that may be 'boiling up' or about to spill over the top of the packer panel.

   When you see this happening, reverse the packer panel all the way using the auto retract and allow the material to 'fall back' into the hopper. Then start the packer cycle again.

   In some cases you may have to cycle the panel three or four times to clear the hopper of material that falls back into the hopper.

   Material that "boils up" can get jammed between the top of the packer panel and body roof and cause extensive damage to your unit. It can also spill over the top and get trapped behind the packer blade which will require you to remove it at the landfill. The larger capacity bin you unload, the more likely this is to happen.

Basic Packing Techniques - Continued

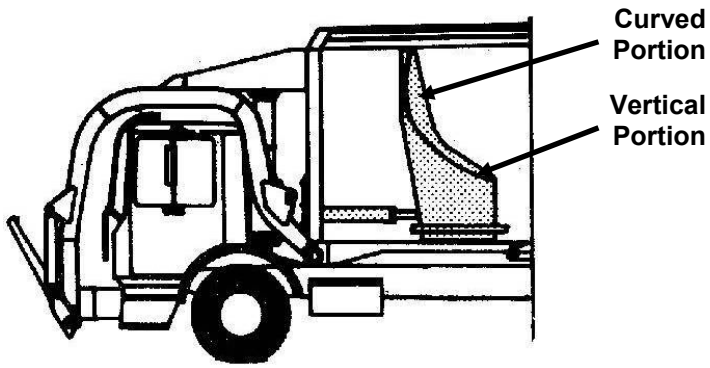

Figure 48. Packer Panel Surfaces

6. As the body fills, it is more and more important to watch for the 'boiling up' of material. With large bins, it may be necessary to cycle the packer a foot or two, reverse it, cycle it a few feet, reverse it, partially cycle it, reverse it, etc., until the material is effectively packed.
7. As the body fills, even if you don't see the material 'boiling up', it is good practice to cycle the packer two or three times to repack any fall back material which might occur.
8. When the body begins to fill, a condition called "bridging" can occur. Bridging is the build-up of compacted material in the bottom of the body. The material at the top of the body may still be relatively un-compacted. See Figure 49.

When bridging occurs, the packer panel will not complete its automatic stroke cycle. That is, the panel may stop before it automatically reverses. In many cases, you do not have a full load at this time.

To break the bridge, cycle the panel repeatedly until it completes a full cycle. See Figure 50. This will usually break the bridge and allow you to load considerably more material. It is important to attempt to break the bridge as soon as the panel cannot complete the automatic cycle.

This helps to pack any fall back material and compact more effectively.

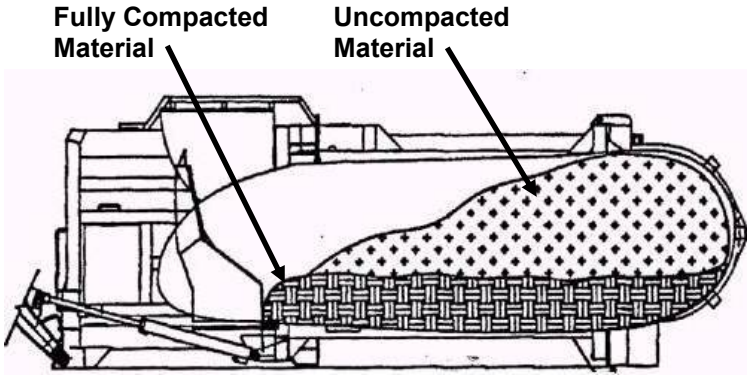

Figure 49. Occurance of "Bridging" Condition

Basic Packing Techniques - Continued

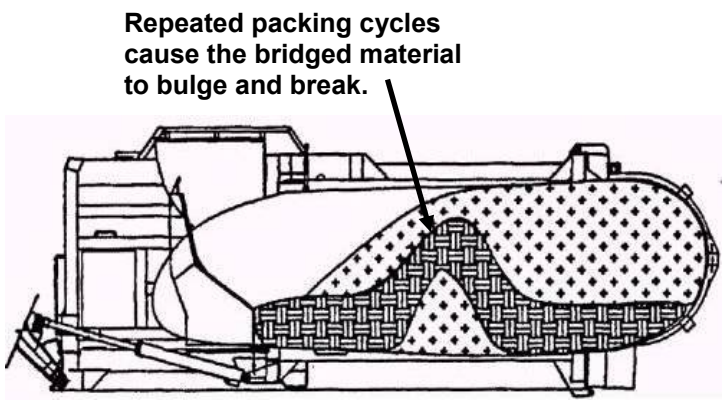

Figure 50. Breaking a "Bridge"

9. As the body fills, it is very important that you cycle the packer more often to keep the hopper clear.
10. With experience on a given route, you will soon develop a feel for the load and material to determine when you have a full load or if bridging is occurring.

    You can help develop this skill by observing the number of bins loaded, noting how full the bins are and the type of material in the bins.
11. If the route allows, mix some wet bins in with dry bins. This helps compact the dry material more. Wet material also helps lubricate the body, which results in better packing.

    Of course some routes will not let you selectively pick up bins. (It is not wise to drive long distances just to mix wet material with dry material.)
12. As the body gets very full, the material in the hopper is more likely to "boil up" as you pack it.

    You will have to decide at what point loading another bin before you go to the landfill is worth the additional packer cycling that will be required to pack the material.

    It has been observed that some operators load one or two smaller bins (2 to 3 yard size) at this point to make packing easier. Again, if the route permits, select heavier, wet bins to load after the smaller bins, as this can significantly add to the payload capacity.

NOTICE **Packing the load with the hopper cover closed can cause damage to the unit. Keep the hopper cover open until you have completed your route or are to ready drive to the landfill or transport station.**

13. The hopper cover is not designed to assist in packing. It is a closure for traveling long distances, and it must be kept open throughout the loading and packing process.
14. A key operation to get effective payloads is pack, pack, pack and pack again – especially as the body fills. Always watch for material "boiling up" to prevent spillage over the packer panel and possible jamming of the packer panel.

Basic Packing Techniques - Continued

15. All units have a standard packer override switch. (Earlier production DuraPack® machines have a manual packer air toggle switch.) When you MOVE the Packer Override switch to ON, it lets you manually operate the packer panel with the packer extend and retract buttons when the container is in the hopper

    Under certain circumstances, you can use this feature very effectively. For instance, there may not be enough room in the hopper to empty an overfull, very large bin into the hopper or if the hopper has not been totally cleared before you empty the bin.

    Normally, the bin must be lowered to use the AutoPack™ button. Lowering a partly empty bin can spill material on the cab protector, etc.

    An alternate procedure is to rotate the forks and level the bin to make sure it is out of the hopper, then use the override switch and operate in the manual packer mode to partially pack the material already in the hopper creating enough room to load more refuse.

    Watch the top of the packer panel and make sure material does not fall from the bin and go behind the panel or the material in the hopper does not "boil over" the top. Cycle the packer panel back and forth with the Extend and Retract push buttons to move material rearward and make more room in the hopper.

    When you have made enough room and the packer is fully retracted, you can try to empty the bin again. Make sure that you have made enough room to prevent fouling of bin lids. Another caution is that the bin can be "kicked off" the forks if the bin lids hit material already in the hopper or the packer panel if it is not fully retracted.

REMEMBER THE MACHINE HAS BEEN DESIGNED TO PACK FULL LOADS AS A "HALF PACK."

NOTE: The current production Heil Half/Pack® has a timer in the PLC that individually times the duration of the packer extend and packer retract cycle. If a pack cycle is more than 24 seconds, the packer panel will return to the FULLY RETRACTED POSITION and the buzzer will be beep code #4.

Summary of Packing Techniques

Step 1: With the first half of the load, cycle the packer panel twice for each bin loaded. When loading large bins (8–10 yards) a third pack may be necessary.

Step 2: Always watch the packer panel for material "boiling up" which could cause jamming or spillage. If this occurs, reverse the panel all the way and pack again. Repeat as necessary.

Step 3: As the body fills, you may need to do additional packing cycles to clear the "fall-back" material and effectively clear the hopper.

Summary of Packing Techniques - Continued

Step 4: If "bridging" occurs (the packer will not automatically complete its cycle, repeatedly cycle the packer manually to break the bridge. When the automatic cycle returns you can load more bins. By breaking the bridging material, you can significantly increase payloads.

Step 5: As the body fills, pack more often to keep the hopper clear of fall back material and pack more effectively.

Step 6: The key to achieving effective payloads is pack, pack, pack!

Step 7: Always operate your machine safely and wisely.

Leaving the Route for the Landfill/Transfer Station

At the end of the route, or when the unit has a full load, prepare the unit to go to the landfill. See "Driving to Pick-up Locations" on page 100 of this section and make sure the unit is properly set up for travel.

B. The body is fully LOWERED.

C. The tailgate is DOWN and LOCKED.

D. Put the arms and forks in the TRANSIT POSITION.

E. The top door is CLOSED.

F. The packer panel is:

- Empty Unit – at the FULLY RETRACTED POSITION
- Full Unit – up tight against refuse

G. The PTO or pump switch is OFF.

H. The mirrors are properly adjusted and clean.

I. ALL body lights turn ON and OFF.

9. Landfill/Transfer Station Procedures

Preview

Read this section to learn about:

- Setup conditions to dump the refuse
- Unloading the refuse
- Using the sump and (optional) washout system
- Preparing the unit to return to route.

Section Contents

Setting Up the Unit for Dumping

After you position the unit on firm ground for dumping at the landfill, set it up properly before dumping.

► Follow These Steps:

1. Shift the transmission to NEUTRAL.
2. APPLY the parking brake and make sure it is holds.
3. For manual transmission, engage the PTO and MOVE the Pump Switch to ON. For automatic transmissions just MOVE the pump switch to ON.

Unlocking and Raising the Tailgate

Unlocking the Tailgate

► Follow These Steps:

1. MOVE the tailgate air toggle switch to the UNLATCH position. HOLD the tailgate toggle switch in the UNLATCH position until both of the tailgate locked indicators FALL DOWN to indicate the tailgate is unlocked. See Figure 51.
2. RELEASE the tailgate air toggle switch.

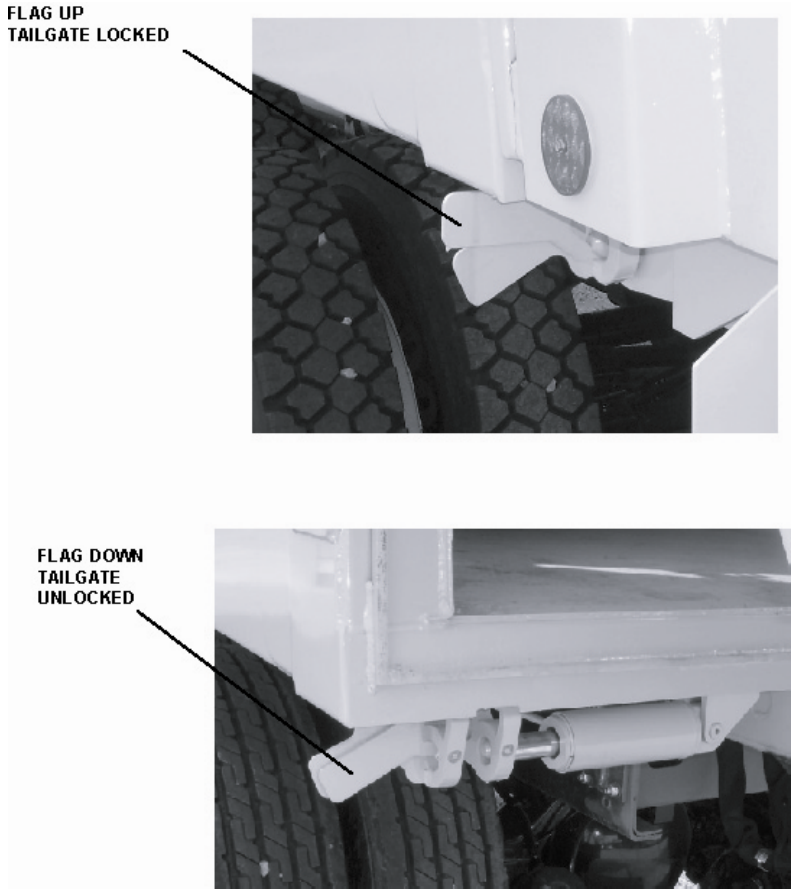

Figure 51. Tailgate Locked/Unlocked Flags

Raising the Tailgate

1. MOVE the tailgate raise air toggle switch to RAISE and HOLD the toggle switch until the tailgate is COMPLETELY raised, which is 30 º above the body. See Figure 52.
2. RELEASE the switch.

NOTE: The tailgate OPEN light turns ON and the in-cab alarm will sound to indicate the tailgate is raised.

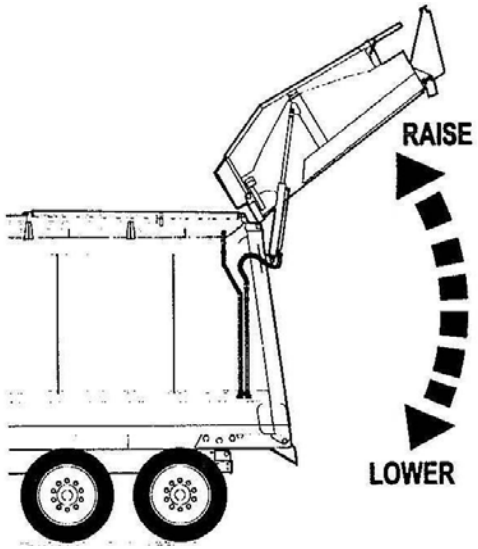

Figure 52. Raising the Tailgate

Unloading Refuse – Eject and Service Hoist Models

Follow These Steps for an Eject or Service Hoist Unit

Step 1: Set the Half/Pack® unit in position for dumping.

Step 2: UNLOCK and RAISE the tailgate.

Step 3: EJECT (remove) the refuse by fully extending the eject panel.

Step 4: RETRACT the ejector after you unload the refuse.

Step 5: LOWER and LOCK the tailgate.

Step 6: Prepare the unit to return to the route.

Reminder: The location of the controls on your unit may be different than those shown in this manual. Make sure you know your unit's control pattern before you operate the Half/Pack®.

Unloading Refuse – Dump Model without Carrycan

Before Raising the Body

WARNING **Improper dumping of the refuse may cause the unit to tip or rollover. Serious injury or death may occur if the unit rolls or tips over. Empty as much refuse as you can with the ejector panel before you raise the body.**

► Follow These Steps for a Commercial Dump Unit Without a Carrycan (Refer to Figure 53):

1. EXTEND the packer panel FULLY to empty the body of as much refuse as you can.

   Any refuse left in the body adds weight to the front of the body and makes the center of gravity of the body higher when the body is raised, which makes the body more susceptible to tipping.

2. Leave the packer panel fully extended.
3. MOVE the arms and forks with the forks and arms controls so that the forks are below the in-transit position BEFORE you raise the body.

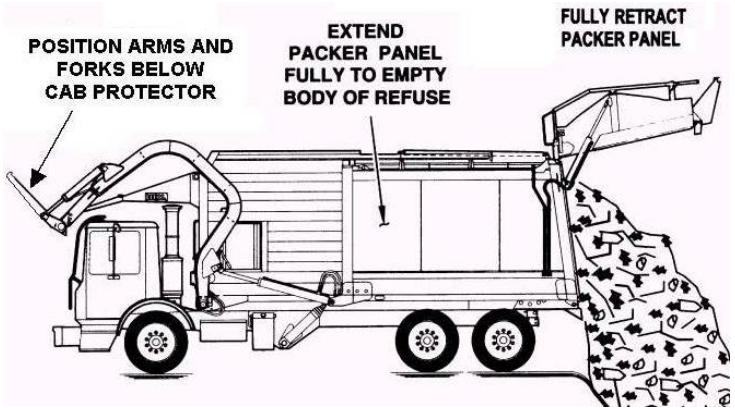

Figure 53. Before Raising Body (Standard Unit)

Raising the Body

► Follow These Steps:

1. MOVE the BODY air toggle switch to RAISE and HOLD the switch until the body is COMPLETELY raised.

   NOTE: The body UP warning light will illuminate and an alarm will sound to indicate body is raised.

2. When the body is completely raised, RELEASE the switch. See Figure 54.

Raising the Body - Continued

WARNING **Do not move the unit forward or backwards excessively fast (lurch) to dump the refuse load. Excessively fast movements with the body raised may make the body unstable and tip or roll the unit over. This may result in injury or death to the operator and damage the unit. Use only sufficient movement to loosen the load so that it will leave the body.**

NOTICE **Do not move the unit forward or backwards excessively fast (lurch) to dump the refuse load. Excessively fast movements with the body raised puts a very high load on the body raise cylinders and could damage one or both cylinders and make the body unstable or unable to lower. Inspect the cylinders after you dump each load and replace if necessary.**

3. When the refuse stops falling out of the body, **SLOWLY BUT SUDDENLY** move the unit FORWARD a short distance and then STOP to allow more refuse to fall out of the body. Experience will teach you how fast to move safely forward or backward before you apply the brakes.
4. If necessary, do step 3 again but go BACKWARD and then STOP to allow more refuse to fall out of the body.
5. Do steps 3 and 4 as necessary to remove all of the refuse from the body.

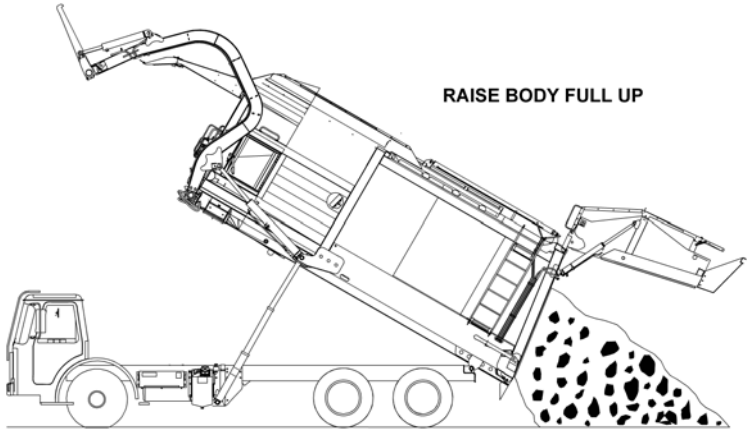

Figure 54. Raising the Body (Standard Unit)

Unloading Refuse – Dump Model with Carrycan

Before Raising the Body

NOTICE **A carrycan in the hopper while you EXTEND the packer can cause damage to the unit. Do not operate the packer before you lower the carrycan below the cab windshield. Remove the carrycan from the hopper and lower it to a position below the cab windshield.**

► Follow These Steps (see Figure 55):

1. Use the joystick or 2-lever control and LOWER the forks with the carrycan and LOWER the forks BELOW the cab windshield.
2. Operate the packer panel and fully EXTEND it to empty the body of as much refuse as possible.
3. After you empty the body of refuse, operate the packer panel and fully RETRACT the packer panel to the FULLY RETRACTED POSITION.

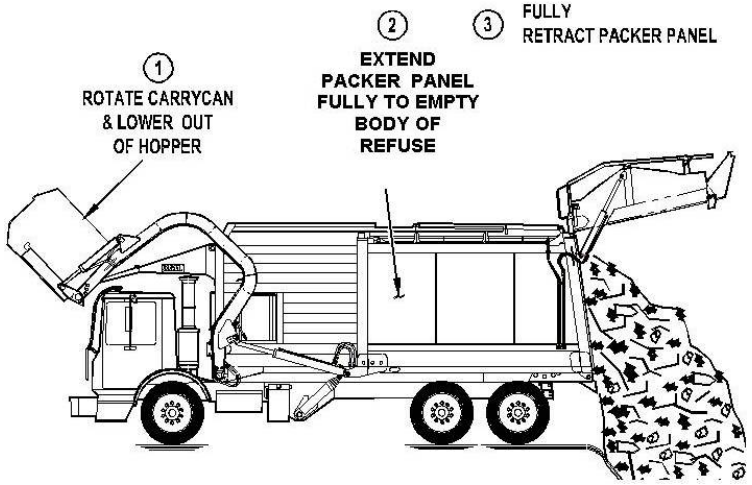

Figure 55. Before Raising Body (Carrycan Unit)

Raising the Body

► Follow These Steps:

1. MOVE the body raise air toggle switch to RAISE and HOLD it there until the body is COMPLETELY raised. See Figure 56.
2. When the body is completely raised, RELEASE the switch.

Raising the Body - Continued

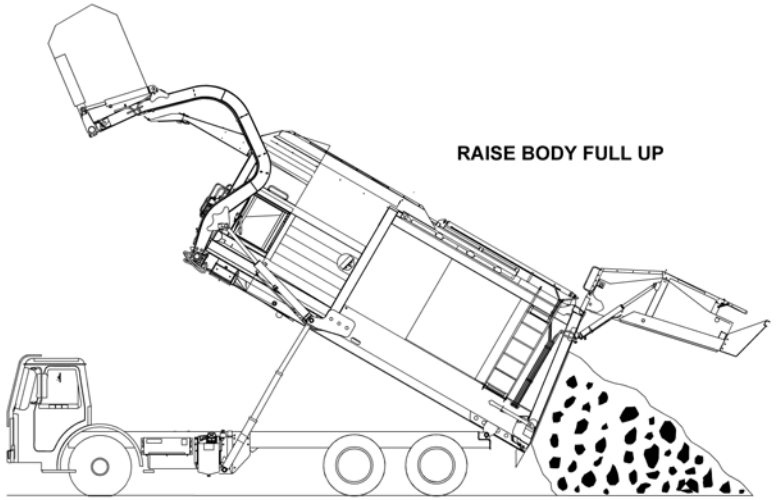

Figure 56. Raising the Body (Carrycan Unit)

WARNING **Do not move the unit forward or backwards excessively fast (lurch) to dump the refuse load. Excessively fast movements with the body raised may make the body unstable and tip or roll the unit over. This may result in injury or death to the operator and damage the unit. Use only sufficient movement to loosen the load so that it will leave the body.**

NOTICE **Do not move the unit forward or backwards excessively fast (lurch) to dump the refuse load. Excessively fast movements with the body raised puts a very high load on the body raise cylinders and could damage one or both cylinders and make the body unstable or unable to lower. Inspect the cylinders after you dump each load and replace if necessary.**

3. When the refuse stops falling out of the body, **SLOWLY BUT SUDDENLY** move the unit FORWARD a short distance and then STOP to allow more refuse to fall out of the body. Experience will teach you how fast to move safely forward or backward before you apply the brakes.
4. If necessary, do step 3 again but go BACKWARD and then STOP to allow more refuse to fall out of the body.
5. Do steps 3 and 4 as necessary to remove all of the refuse from the body.

NOTE: The body UP warning light will turn ON and the alarm will sound to indicate the body is raised.

Raising the Body (additional information)

Important: If a body raise cylinder hangs up for any reason as you raise the body, RELEASE the switch **IMMEDIATELY** so the body stops raising. Refer to instructions on Lowering a Raised Body with Inoperative Controls" on page 80.

Some suspensions allow more movement in the chassis than others. Always stop the unit on the most stable, hard, dry and level surface you can find before you raise the body.

A dump unit with a tag axle may be unstable during dumping. ALWAYS lower the tag axle BEFORE you raise the body.

Lowering the Body

ALWAYS lower the body BEFORE you lower the tailgate. If you used body props, **MAKE SURE** they are in the stored position **BEFORE** you attempt to lower the body.

Important: If a body raise cylinder hangs up for any reason as you lower the body, RELEASE the switch **IMMEDIATELY** so the body stops lowering. Refer to instructions on Lowering a Raised Body with Inoperative Controls" on page 80.

► **Follow These Steps:**

1. MOVE the body control switch to the LOWER position.
2. HOLD the switch UNTIL the body mates with the chassis. When the body is COMPLETELY lowered, RELEASE the switch.

NOTE: The body UP warning light will go OFF and the alarm will stop sounding when the body is FULLY down.

Lowering the Tailgate

Clean and Inspect the Tailgate Seal

DANGER **A tailgate in motion is dangerous. Serious injury or death may occur if a person is struck by a moving tailgate or becomes trapped between the tailgate and the body. Clear the area near the tailgate of people before you lower the tailgate.**

1. **BEFORE** you lower the tailgate, **MAKE SURE** the area where tailgate seal mates with the body is **CLEAN AND FREE** of any refuse and debris. Inspect the seal for possible wear or damage and replace if necessary.

Clean and Inspect the Tailgate Seal - Continued

2. To lower the tailgate, MOVE the tailgate control air toggle switch to the LOWER position. HOLD the switch until the tailgate is COMPLETELY down, then RELEASE the switch.

Lock the Tailgate

You **MUST LOCK** the tailgate after you lower it.

1. MOVE the tailgate lock air toggle switch to the LATCH position.
2. HOLD the switch until both sides of the tailgate locked indicators are UP to indicate the tailgate is locked, then RELEASE the switch.

Clean Behind the Packer Panel

► **Important:** After you remove refuse from the body at the landfill or transfer station, REMOVE refuse and other materials that may be behind the packer panel BEFORE you leave the landfill or transfer station.

Follow These Steps:

1. PRESS and RELEASE the PACKER EXTEND switch and EXTEND the packer panel FULLY to the rear of the hopper area.
2. Move the packer override switch to ON.
3. Use the joystick or 2-lever controls and RAISE the arms and forks to the full UP position.
4. PRESS and RELEASE the pump switch to turn the pump OFF.
5. Lock-out the unit. Turn the ignition key to the OFF position and REMOVE the ignition key.
6. OPEN the access door and clean behind the packer panel. You can push refuse into the sump and then remove the refuse through the sump doors. Be careful and do not cause damage to the packer cylinder rods by standing on them or hitting them with the cleanout tool.

   A plastic cleanout shovel is recommended and is offered by Heil.
7. INSPECT the packer panels and hopper floor for excessive wear or possible damage. If there is excessive wear or other damage, report the wear or damage to your supervisor get the damage repaired or parts replaced as soon as possible.
8. Exit the body, close and latch the side access door, close and latch the sump door(s).
9. Start the vehicle's engine engage the PTO (if equipped) then PULL the System Power switch UP and PRESS and RELEASE the PUMP ON button.
10. PRESS and RELEASE the PACKER RETRACT switch and RETRACT the packer panel FULLY to the front of the body to the FULLY RETRACTED POSITION.

Clean Behind the Packer Panel - Continued

11. **MAKE SURE** the packer panel is at the FULLY RETRACTED POSITION.
12. Use the packer switches and do one more cycle of EXTEND and RETRACT. **MAKE SURE** the packer travels fully forward during the EXTEND operation and travels fully to the FULLY RETRACTED POSITION during the retract operation.
13. CLOSE and LATCH the access door.

Remove Refuse from the Engine and Exhaust Areas

IMPORTANT! Inspect unit for refuse on or about the engine or exhaust components. **Remove all refuse to prevent a fire.**

Sump and Washout Systems

Sump Compartment

A sump compartment with a door is on both sides of the FULLY RETRACTED POSITION of the unit. See Figure 57 and Figure 58.

The sump compartment is below the hopper area and collects liquids that drain out of the collected and compacted refuse that is inside the unit body. See Figure 58 .

You can open the door and clean out the sump compartment. Keep the sump doors closed at all times except when you clean out the compartment.

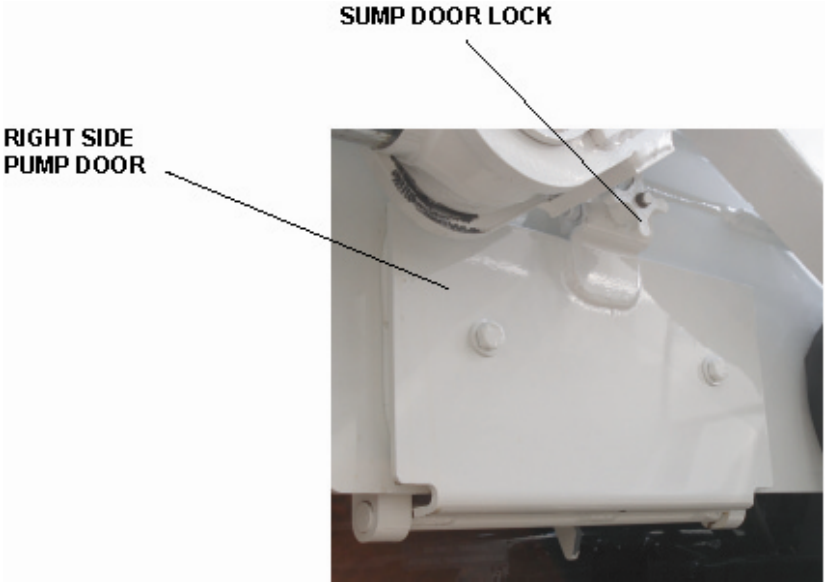

Figure 57. Sump Door

Sump Compartment - Continued

Figure 58. Inside Sump Compartment

Washout System

If your unit has an optional washout system, use it to clean out the sump area, the hopper or body interior, or the outside of the unit. This is typically done at the end of a work day.

Preparing to Return to Route

MAKE SURE before you leave the landfill or transfer station:

A. The body on dump units is fully DOWN.

B. On an empty unit, the packer panel is in the FULLY RETRACTED POSITION to the front of the body.

C. If for some reason you leave the transfer station or landfill with refuse in the body, the packer panel is EXTENDED up tight against the refuse.

D. The tailgate is DOWN and LOCKED.

E. For a Standard (Commercial) unit, the hopper cover is CLOSED.

   For a Residential unit, the hopper cover is OPEN.

F. The fork cross shaft is in the correct transit position:

   - For a Standard (Commercial) unit, put the fork cross shaft slightly ABOVE the cab windshield.

   - For a Residential unit, put the carrycan in the hopper.

G. CLOSE and LATCH the side access door.

H. The body lights function and turn ON and OFF properly.

I. You DISENGAGE the PTO (manual transmissions).

J. MOVE the pump switch to OFF.

K. You properly ADJUST and CLEAN the mirrors.

L. MAKE SURE the sump doors are CLOSED.

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10. PLC Controls

Preview

Read this section to learn about:

- Troubleshooting the PLC controls
- Operational specifications
- Residential unit with EOS and HOC pump systems.

Section Contents

PLC Electronic Controls Troubleshooting

The units have electronic controls with the control box in the cab. The control box monitors various functions and illuminates lights and controls the number of buzzer warnings for various functions. It checks and makes sure that the unit can operate correctly.

Warning Buzzer Codes

A warning buzzer sounds when any of the modes or functions items controlled or monitored by the PLC is in error. Use the following table to find the reason why PLC makes the warning buzzer sounds. (See the buzzer code decal in the cab.)

NOTE: Buzzer will sound constantly when the tailgate is not closed or the body is not fully down. See note on lower part of decal.

Electronic Controls Self-Diagnostics Warning Buzzer Codes	
No. of Buzzes:	**Description of Problem:**
1	Engine OVER SPEED while pump ON
2	Tailgate CLOSED while ejecting
3	Switch indicates packer FULLY RETRACTED while HOLDING packer retract switch down.
4	Packer Full Extend proximity switch NOT DETECTED or body FULL.
5	Arms Interlock – Attempted to RAISE arms while packer was EXTENDED.
6	Packer Interlock – Attempted to EXTEND packer panel while arms are above body.
7	AutoPack™ enable is not ON.

Electronic Controls Self-Diagnostics Warning Buzzer Codes	
No. of Buzzes:	**Description of Problem:**
8	Side door OPEN when pressing PUMP ON or AUTOPACK™ switches– Side access door must be CLOSED TO START PUMP OR AUTOPACK.
9	Packer Full Extend switch ON while trying to AUTOPACK.
10	Packer Full Retract switch NOT DETECTED while RETRACTING.
11	AutoPack™ and retract signals are BOTH ON at the same time.
12	Tried to AUTOPACK™ while PUMP SWITCH was turned OFF.
13	Hydraulic filter has been in BYPASS for 6 hours or longer.

Hydraulic Pump Shutdown

The unit's pump shutdown system turns OFF the hydraulic pump when the return line filter becomes blocked (clogs) which starts the filter bypass system.

The sequences 1 thru 3 occur after the filter clogs and bypass begins.

CAUTION A FILTER BYPASS CONDITION ALLOWS YOU TO OPERATE THE HYDRAULIC PUMP WHEN THE RETURN LINE FILTER IS BLOCKED WITH SEDIMENT AND OTHER MATERIALS. YOU CAN CAUSE DAMAGE TO HYDRAULIC COMPONENTS IF YOU OPERATE THE UNIT WITH A BLOCKED HYDRAULIC OIL FILTER. CHANGE THE FILTER AS SOON AS YOU CAN.

1. START OF BYPASS TO END OF FIRST (1st) HOUR – The bypass light does not come on and the PLC does not beep.
2. SECOND (2ND) HOUR THRU FIFTH (5TH) HOUR OF BYPASS – The filter bypass light flashes ON and OFF after the first full hour of bypass. The number of ON flashes indicates the number of full hours of bypass. The time the flash is OFF starts at about 5 seconds (for the first full hour of bypass) and decreases about 1 second for each full hour of bypass beginning with the second full hour of bypass the OFF time. For example, during the third hour of bypass (two complete hours of bypass), the light flashes ON twice and is OFF for approximately 4 seconds and the cycle repeats.
3. SIXTH (6TH) HOUR AND AFTER – The pump will function for three minutes. The filter bypass light comes ON solid. The PLC beeps 13 times in a minute, pauses and the cycle repeats until you change the filter.
4. UNTIL YOU CHANGE FILTER - You can operate the pump for three (3) minutes at a time until you change the filter. You can turn the pump OFF then turn it back ON.

After Hydraulic Filter Change

1. The PLC alarm continues to beep until the filter is clear for 15 minutes, then stops and the filter bypass light goes OFF.
2. To start the hydraulic system after you change the filter:

   - MAKE SURE the SYSTEM POWER switch is ON.
   - PRESS the PUMP ON switch.
3. The filter must stay clean for 15 minutes before the PLC resets the shutdown timer and normal operation resumes.

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11. Index

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APPENDIX A – DAILY CHECKLIST

If you do not have access to the long-version of the daily checklist that came with the vehicle, you can make a copy of the checklist in this Appendix. There is no difference between the two versions other than length of each checklist. This checklist is longer due to the format of this manual. The long-version is easier to use as it is on normal 8.5”x11” paper in a portrait format.

FOLLOW ALL APPLICABLE LOCKOUT/TAGOUT PROCEDURES	**REFUSE VEHICLE DAILY INSPECTION**	**DATE**	_____/_____/_____
		UNIT NO.	_____
	Enter one of the following codes in the Inspection Results Code Column: Use a √ to indicate inspected and no repair, service or adjustment is necessary Use an **R** to indicate repair, service or adjustment is necessary Use an **N** to indicate vehicle not equipped		
	Printed Operator's Name: _____		
Refer to Preventative Maintenance Chart and Lubrication Guide for additional information and requirements	I certify with the signature that follows that I performed a complete inspection in accordance with the following check list on the date given above. Signature of Operator: _____		

CHECKS AND INSPECTIONS	INSPECTION RESULTS CODE (√/R/N)
INSPECT PER APPLICABLE MANUFACTURER MANUAL	
Cab/Drive	
Wheels and Tires	
Tractor and Chassis Electrical	
Chassis	
Engine & Transmission & Fluid Levels	
Tractor, 5th Wheel and Chassis Lubrication	

CHECKS AND INSPECTIONS	INSPECTION RESULTS CODE (√/R/N)
REFUSE COLLECTION SYSTEMS AND COMPONENTS	
CAB OUTSIDE AREA	
Check air pressure of tire. Add air if air pressure lower than recommended on any tire before going on route	
Check wear of tire tread. Replace any tire worn below tire manufacturer's recommendation or state requirement before going on route	
Check tires for damage. Replace any damaged tire before going on route	
Inspect forks and lift arms for damage and wear	
Inspect pump for leaks	
Inspect pump for damage or loose hardware	
Inspect lift arm cylinders, mounts and pins for damage, leaks and loose hardware	
Inspect decals on forks, lift arms, bumper and cab for damage and readability	
Check forks and lift arms for:	
Play	
Cylinder and hose leaks	
Sufficient lubrication	
Hose damage or wear	
Cracks or other damage to welds	
Loose lift arm clamp hardware	
Inspect condition of cab protector for damage. Remove all refuse on or about the cab protector	
Inspect unit for refuse on or about the engine and exhaust components. **Remove all refuse to prevent a fire**	

CHECKS AND INSPECTIONS	INSPECTION RESULTS CODE (√/R/N)
REFUSE COLLECTION SYSTEMS AND COMPONENTS - Continued	
BODY AND CHASSIS CURB SIDE INSPECTION	
Sump door is closed and latched	
Inspect decals on curb side body for damage and readability	
Inspect decals on body prop for damage and readability	
Inspect body structure for damage, loose or missing nuts and bolts and for cracked welds and metal	
Inspect body mounting brackets for cracked welds, missing bolts or nuts or movement	
Inspect lift arm pad for damage	
Inspect level of hydraulic oil if tank is mounted on curb side. It must be full. **Add recommended oil as necessary**	
Check air pressure of tires. Add air to any tire with air pressure lower than recommended before going on route	
Check wear of tire treads. Replace any tire worn below tire manufacturer's recommendation or state requirements before going on route	
Check tires for damage. Replace any damaged tire before going on route	
Inspect tailgate raise components	
Cylinder, hoses and fittings for leaks	
Hoses for wear and damage	
Cylinder for damage	
Loose or missing mounting hardware	

CHECKS AND INSPECTIONS	INSPECTION RESULTS CODE (√/R/N)
REFUSE COLLECTION SYSTEMS AND COMPONENTS - Continued	
BODY AND CHASSIS CURB SIDE INSPECTION - Continued	
Inspect tailgate lock components	
Cylinder, hoses and fittings for leaks	
Hoses for wear and damage	
Cylinder for damage	
Loose or missing mounting hardware	
Tailgate is locked	
TAILGATE AND TOP ACCESS DOOR	
Inspect decals on tailgate and underride bumper for damage and readability	
Inspect access ladder for loose rails and steps	
Make sure access ladder steps and rails are clean and safe	
Inspect tailgate seal does not have visible damage	
Top access door is closed	
Top access door components	
Cylinder, hoses and fittings for leaks	
Hoses for wear and damage	
Cylinder for damage	
Loose or missing mounting hardware	
Damage to top door and rails	
Inspect underride bumper for damage and loose components	

CHECKS AND INSPECTIONS	INSPECTION RESULTS CODE (√/R/N)
REFUSE COLLECTION SYSTEMS AND COMPONENTS - Continued	
BODY AND CHASSIS STREET SIDE INSPECTION	
Tailgate is locked	
Inspect tailgate lock components	
Cylinder, hoses and fittings for leaks	
Hoses for wear and damage	
Cylinder for damage	
Loose or missing mounting hardware	
Inspect tailgate raise components	
Cylinder, hoses and fittings for leaks	
Hoses for wear and damage	
Cylinder for damage	
Loose or missing mounting hardware	
Check air pressure of tires. Add air to any tire with air pressure lower than recommended before going on route	
Check wear of tire treads. Replace any tire worn below tire manufacturer's recommendation or state requirements before going on route	
Check tires for damage. Replace any damaged tire before going on route	
Inspect decals on curb side body for damage and readability	
Inspect decals on body prop for damage and readability	
Inspect body structure for damage, loose or missing nuts and bolts and for cracked welds	
Inspect body mounting brackets for cracked weld, missing bolts or nuts or movement	
Inspect lift arm pad for damage	
Inspect level of hydraulic oil if tank is mounted on streetside. It must be full. **Add recommended oil as necessary**	

CHECKS AND INSPECTIONS	INSPECTION RESULTS CODE (√/R/N)
REFUSE COLLECTION SYSTEMS AND COMPONENTS - Continued	
BODY AND CHASSIS STREET SIDE INSPECTION - Continued	
Sump door is closed and latched	
Battery disconnect switch is turned to OFF then:	
Check wiring and battery cables from the battery box to the engine starter for wear and other damage. **IMMEDIATELY REPLACE WORN OR DAMAGED WIRING**	
Check wiring and cables for loose connections. **IMMEDIATELY TIGHTEN LOOSE CONNECTIONS**	
OPERATION OF UNIT - ***Skip this section if the unit will not be operated today***	
Make sure the air tank drain valve is closed	
Turn battery disconnect to ON	
Apply parking brake	
Make sure the starter interlock operates – make sure unit will not start in gear	
Start the engine	
Indicator lights and gauges show normal operation of engine	
Make sure the parking brake does not allow the vehicle to move forward or reverse at idle	
Make sure the throttle advance operates only in neutral	
Check all cab, body and tailgate lights for proper operation	
Make sure the backup alarm and light operate	

CHECKS AND INSPECTIONS	INSPECTION RESULTS CODE (√/R/N)
REFUSE COLLECTION SYSTEMS AND COMPONENTS - Continued	
OPERATION OF UNIT - CONTINUED	
Make sure all people not necessary and any hazards are clear of the area and then:	
Pull the System Power knob – the switch's red light is ON	
Press the pump on button or engage the PTO and press the pump on button – the pump on light is ON	
The forks and lift arms operate correctly	
Set the lift arms and forks in the transit position	
Operate the packer in the auto mode – the packer extends and automatically retracts	
Operate the packer in the manual mode – manually extend and retract the packer	
Make sure the packer fully extends	
Make sure the packer fully retracts	
Press the packer extend button and before the packer fully extends:	
Press the packer retract button	
The packer should stop extending and start to retract	
While the packer retracts, press the packer extend button	
The packer should stop retracting and start to extend	
Press the packer retract button and fully retract the packer	
Open the side access door	
The side access door light is ON	
Try to start the packer with AutoPack - it should not operate	
Try to start manual extend and retract packer operations – it should not operate	
Close and latch the side access door – the side door light is OFF	

CHECKS AND INSPECTIONS	INSPECTION RESULTS CODE (√/R/N)
REFUSE COLLECTION SYSTEMS AND COMPONENTS - Continued	
OPERATION OF UNIT - CONTINUED	
Set the lift arms and forks so that the forks cross shaft is above the cab windshield (not in transit position)	
Start an auto pack mode – the packer should not operate and the arms above transit light is ON	
Set the packer override switch to ON and start an auto pack mode – the packer should operate.	
Return the lift arms and forks to the transit position. The lift arms above transit light is OFF	
If the body does not have refuse:	
Unlock the tailgate and open the tailgate	
The tailgate light and alarm are ON with the tailgate open	
Set the tailgate props	
Inspect the tailgate seal for damage	
Inspect the packer tracks and hopper floor for excessive wear or damage. Report wear and damage	
Remove the tailgate props and raise the tailgate completely	
Raise the body. The body raise light must be ON,	
Make sure the body props rotate fully down, then store the body props	
Lower the body completely	
The body raise light is OFF	
Close the tailgate	
The tailgate open light is OFF and the alarm is OFF	
Lock the tailgate	

CHECKS AND INSPECTIONS	INSPECTION RESULTS CODE (√/R/N)
REFUSE COLLECTION SYSTEMS AND COMPONENTS - Continued	
OPERATION OF UNIT - CONTINUED	
If the body does have refuse:	
Raise the body slightly – the body raise light is ON	
Lower the body completely – the body raise light is OFF	
Open the top access door. The door open light is ON	
Close the top access door. The door open light is OFF	
IN-CAB INSPECTION	
Inspect all in-cab decals for damage and readability	
Make sure the following lights are OFF:	
Body Raise	
Tailgate Open	
Top Door Open	
Arms Above Transit	
Filter Bypass	
If equipped, check the operation of each camera	
FINAL INSPECTION	
While you walk completely around the vehicle, look for:	
Fluid leaks	
Cracked or damaged welds and metal	
Loose or missing bolts, nuts and clamps	

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APPENDIX B – PREVENTATIVE MAINTENANCE

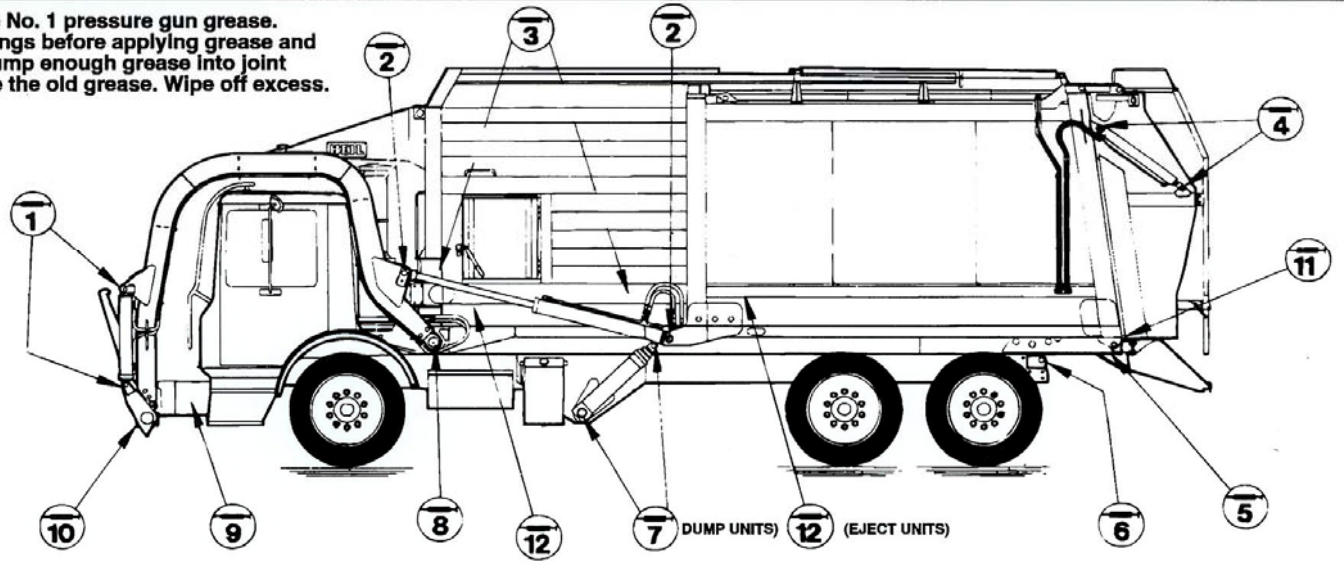
		* HOURS OF OPERATION					
REF.	**COMPONENT/SYSTEM**	**8**	**40**	**200**	**1000**	**2000**	**SERVICE/CHECK**
1	Hydraulic System	**X**					Check oil level – add if necessary.
			X				Check cylinders, pumps and system for leaks. Repair or replace if necessary
			X				Check control valve seals for leaks. Repair or replace if necessary.
					X		**Replace oil filter element.
					X		**Replace tank breather/filter.
						X	Drain, flush, and refill. Change filter element.
2	Wiring & Battery Cables	**X**					Check wiring and battery cables. See note below.
3	Operator's Controls	**X**					Check for proper operation.
4	Throttle Stop Device				**X**		Check and adjust if necessary.
5	Grease Fittings		**X**				Lubricate as shown on Lube Chart
*	Daily = 8 hrs. Weekly = 40 hrs. Monthly = 200 hrs. 6 Months = 1000 hrs. Yearly = 2000 hrs.						
**	Replace filter after first 30 days of operation, then every 6 months or 1000 hrs of operation OR when filter bypass light is ON. Replace tank/breather/filter every time you replace filter element.						
Maintenance intervals are based on an 8-hour work day and average operating conditions.. Severe use or adverse conditions require more frequent maintenance than given in this chart.							

NOTE: Arrangement of component/system different from Service Manual to fit this format.

		* HOURS OF OPERATION					
REF.	**COMPONENT/SYSTEM**	**8**	**40**	**200**	**1000**	**2000**	**SERVICE/CHECK**
6	Front Mount Pump or Power Take-Off		**X**				Check seals for leaks and operation. Replace if necessary.
			X				Check driveline for smooth operation. Replace if necessary.
			X				Check setscrews for tightness. Check that keys are in place. Make sure safety wires are in place.
7	Control Linkage		**X**				Check and make sure all pins are in place. Replace if necessary.
8	Packing Mechanism, Tailgate, and Body	**X**					Check and remove any accumulation of refuse in front of packer panel.
		X					Check body structure, brackets, and welds for cracks, stress, deformation, bending etc. Check for excessive structural rust. Repair/replace if necessary.
			X				Check tailgate seal for damage. Replace if necessary.
			X				Check pivot pins retaining bolts and collars for tightness.
*	Daily = 8 hrs. Weekly = 40 hrs. Monthly = 200 hrs. 6 Months = 1000 hrs. Yearly = 2000 hrs.						
**	Replace filter after first 30 days of operation, then every 6 months or 1000 hrs of operation OR when filter bypass light is ON. Replace tank/breather/filter every time you replace filter element.						
***	**FAILURE TO LUBRICATE FEMALE PILOT OF PTO AS GIVEN MAY CAUSE DAMAGE TO THE PUMP SHAFT.**						

Half/Pack LUBRICATION GUIDE

Note: Use No. 1 pressure gun grease.
Clean fittings before applying grease and always pump enough grease into joint to remove the old grease. Wipe off excess.



REF NO	DESCRIPTION	QTY.
1	Fork Cylinders	4
2	Arm Cylinders	4
3	Packer/Ejector Cylinders	4
4	Tailgaer Cylinders	4
5	SHUR-LOCK Tailgate Cylinder Bracket	2
6	Reat Body Hinge	2
7	Body Raise Cylinders (Dump Units)	4
8	Arm Cross Shaft	4
9	Pump Drive Shaft	3

Grease Weekly/ Every 40 Hours

REF NO	DESCRIPTION	QTY.
10	Fork Cross Shaft	2
11	Tailgate to Body Turnbuckle	2
12	Packer Panel Tracks	2

Grease Weekly/ Every 40 Hours

Lubricate Moveable Mechanical Parts Withour Fittings Every 60 Days with Non-Deterfent Engine Oil.

Grease Monthly/ Every 200 Hours

212-2235

Heil Environmental Warranty Statement

The Heil Co. d/b/a Heil Environmental ("Heil") warrants its solid waste collection equipment to be free from defects in material and workmanship under normal single-shift use for a period of six (6) months or 1250 hours of operation (whichever comes first) from the date of equipment In-Service or during the period of coverage offered by an extended warranty program, when operated in accordance with its *Operator's Manual* and proper service and maintenance as described in Heil *Service Bulletins* and *Parts & Service Manuals* are performed. The standard or extended equipment warranty is not transferable except for sales demonstration units.

This warranty is expressly limited to the repair or replacement of any component or part thereof, of any such refuse or recycling collection body manufactured by Heil that is proven to Heil's satisfaction to have been defective in material or workmanship. Such components or parts shall be repaired or replaced at Heil's option without cost to the standard purchaser for parts and labor provided such unit is returned to an authorized Heil Dealer for replacement or repair. The repair or replacement must be made during the standard or extended warranty coverage period.

Before any warranty can be allowed on new equipment, a validated warranty registration form must be on file with Heil's Customer Service Department within sixty (60) days of the equipment's In-Service date. Wear items are excluded from warranty coverage.

All OEM service parts sold by Heil have a six (6) month warranty from the date of purchase. Aftermarket parts purchased from Heil are supported by a 90-day warranty. The parts warranty covers parts only, providing that factory inspection reveals a defect in material or workmanship. Labor, troubleshooting, equipment downtime, etc. is not covered under the parts warranty policy.

HEIL MAKES NO OTHER WARRANTY, EXPRESSED OR IMPLIED, AND MAKES NO WARRANTY OF MERCHANTABILITY OR OF FITNESS FOR ANY PARTICULAR PURPOSE. HEIL DOES NOT ASSUME ANY LIABILITY OR ACCEPT CLAIMS FOR LOSS OF PROFITS, PRODUCT DOWN TIME OR ANY OTHER DIRECT, INCIDENTAL OR INDIRECT CONSEQUENTIAL LOSSES, COSTS, DAMAGES OR DELAYS.

Any improper use, operation beyond rated equipment or component capacity, substitution of parts that are not Heil-approved, or any alteration or repair by others in such a manner as in Heil's sole judgment affect the product operation or integrity shall void the warranty.

Other than the extension of the standard warranty period purchased under a supplemental *Heil Extended Warranty Program*, no employee or representative is authorized to modify this warranty in any way nor shall any other warranties be granted. No dealer-supplied warranty program is endorsed or supported by Heil.

Heil retains the right to modify its factory warranty program prospectively at any time.

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