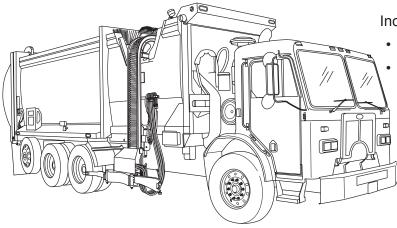


**OPERATOR'S MANUAL** 

An Oshkosh Corporation Company

# Zero Radius<sup>™</sup>



Includes information for:

- ZR 6 ft. Reach
- ZR 12 ft. Extended Reach

Publication No. 1416362 Rev. 0918

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#### **Disclaimer:**

This manual must not be used to repair your vehicle. Repair information is available by calling McNeilus Customer Service at (888) 686-7278.

The information in this Operator's Manual will be your guide to operation and operator maintenance for this equipment.

All information, illustrations, and specifications in this manual are based on the information available at the time this manual was published. The illustrations used in this manual are intended as representative reference views only. Because of our continuous product improvement policy, we may modify information, illustrations, and/or specifications to explain and/or exemplify a product, service, or maintenance improvement. We reserve the right to make any change at any time without notice. Go to www.streetsmartparts.com for current information.

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For assistance in ordering the Waste Collection Vehicle Safety Guide, contact: National Waste and Recycling Association 1550 Crystal Drive • Suite 804 Arlington, VA 22202 Telephone: 800-424-2869 • Fax: 202-966-4824

For assistance in ordering OSHA Publications, contact: U.S. Department of Labor/OSHA OSHA Publications P.O. Box 37535 Washington, D.C. 20210 Telephone: 202-693-1888 • Fax: 202-693-2498

#### **1.0 Identification Plate**

A McNeilus Truck and Manufacturing, Inc. identification plate (Figure 1) is located on the left front side of the refuse vehicle body. The identification plate contains the Model Number and Serial Number of your refuse vehicle system.

To serve you better, please fill out the following information and have it ready when calling McNeilus Truck and Manufacturing, Inc. for parts or product information:

Date of Purchase:\_\_\_\_\_

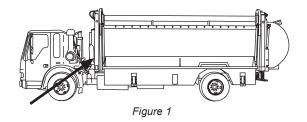
McNeilus Branch:

Model Number of Refuse Vehicle:

Serial Number of Refuse Vehicle:

VIN\* \_\_\_\_\_

\*Refer to chassis manufacturer literature for location.



#### Foreword



# 2.0 Complete Vehicle Document Decal

The Complete Vehicle Document decal (Figure 2, Item 1) documents the axle load and tire ratings as the vehicle left the McNeilus production line. This decal is located inside the cab and may be placed on the driver's door, doorjamb, or the seat riser.

This decal includes information such as the maximum rated weight per axle (Item 2), Gross Vehicle Weight (GVW) (Item 3), chassis manufacturer (Item 4), chassis build date (Item 5), vehicle (chassis) ID number (Item 6), tire and rim size and tire pressure specifications (Item 7), and the refuse vehicle system build date (Item 8).

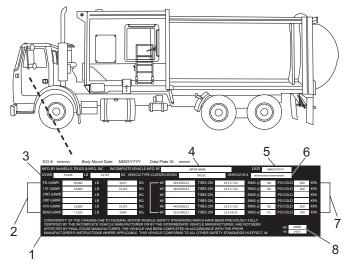


Figure 2

#### 3.0 Purpose of Manual

This Operator Manual provides operation and operator maintenance instructions for the Zero Radius<sup>™</sup> Side Loader refuse collection system manufactured by McNeilus Truck and Manufacturing, Inc.

The information in this operator manual will be your guide to operation and operator maintenance for this equipment.

Keep this manual with the vehicle at all times.

# A WARNING

The operator of this vehicle must be properly licensed and trained to operate this vehicle.

If you do not have the proper training and licensing to operate this vehicle, you are putting yourself and others at risk of serious injury or death.

If you are uncertain how to operate this Packer, inform your supervisor or contact McNeilus Truck and Manufacturing, Inc. at 888-686-7278.

### NOTE

This manual is limited to the operation and light maintenance of the refuse collection system only.

This manual does not include the operation or maintenance of the chassis vehicle upon which the refuse collection system is mounted.

### 4.0 Scope

This manual provides information for use by the equipment operator under the following headings:

- 1. **Safety.** Includes important safety information.
- 2. General. Includes equipment identification.
- 3. **Operation.** Includes control functionality and normal equipment operation.
- 4. **Preventive Maintenance.** Includes basic preventive maintenance information for the operator.
- 5. **Troubleshooting.** Includes basic troubleshooting information for the operator.

To order a replacement manual or safety signs, call the McNeilus parts and service number listed in the Foreword of this manual.

#### Foreword

#### 5.0 Parts and Service

Contact your McNeilus Parts and Service branch locations to order parts, receive service information, or for other assistance.

Contact by phone or visit www.streetsmartparts.com. We have factory owned parts and service centers near you.

State

OH

OH

PA

TX

ТΧ

UT

WI

City

Cincinnati Columbus

Hutchins

Oshkosh

Morgantown Houston

West Valley City

#### **Phone Number**

888-686-7278

State	City
CA	Colton
CT	East Granby
FL	Tampa
GA	Villa Rica
IL	Sugar Grove
IN	Fort Wayne
MN	Dodge Center
NY	Bronx

#### Canada

Ontario and Western Provinces	800-265-1089
Quebec and Maritime Provinces	800-996-4937

#### 4.0 Corporate Headquarters

Contact McNeilus Truck and Manufacturing, Inc. directly at our corporate headquarters at the following address, phone number, and website.

McNeilus Truck and Manufacturing, Inc.

524 County Road 34 East

Dodge Center, MN 55927

Telephone: 507-374-6321

Corporate Website: www.mcneiluscompanies.com

Parts and Service Website: www.streetsmartparts.com

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#### **1.0 Important Safety Information**

READ AND UNDERSTAND THIS ENTIRE MANUAL BEFORE OPERATING, REPAIRING, OR ADJUSTING YOUR MCNEILUS EQUIPMENT.

THOSE WHO USE AND MAINTAIN THIS EQUIPMENT MUST BE THOROUGHLY TRAINED AND FAMILIAR WITH THE PRODUCT.

# IF INCORRECTLY USED OR MAINTAINED, THIS EQUIPMENT CAN CAUSE SEVERE INJURY.

Always keep this manual in a location where it is readily available for persons who operate or maintain the product. Additional copies of this manual are available from McNeilus Truck and Manufacturing, Inc. Please contact McNeilus Truck and Manufacturing, Inc. if you require additional manuals of if you have any questions about the information in this manual, this product, or safe operating procedures.

# THESE SAFETY PROCEDURES ARE FOR YOUR OWN PROTECTION.

Do not operate this equipment until you have read its contents thoroughly. Read and understand the Waste Collection Vehicle Safety Guide and all other material provided with the truck. Please contact McNeilus Truck and Manufacturing, Inc, if you require assistance.

Should operators of this equipment have a reading or learning disability, dyslexia, or other such condition, they must be assigned a mentor/trainer to read and explain to them the entire contents of this manual as well as the safety guidelines,

danger, caution, and warning safety signs on this unit. Such individuals should not be allowed to operate this equipment until they thoroughly understand all of these materials. Failure to do so can result in serious injury or death.

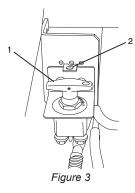
Refer to your company's safety rules and procedures. Safety and safe working procedures must be followed at all times.

Perform your company's Lockout/Tagout procedure. If your company does not have a Lockout/Tagout procedure, follow OSHA 1910.147 and 1910.146 Confined Space as appropriate.

#### 1.1 Battery Disconnect

If your vehicle is equipped with a BATTERY DISCONNECT switch, it is located near the battery box. Use the BATTERY DISCONNECT switch when performing any maintenance so the vehicle cannot be accidently started.

Turn the BATTERY DISCONNECT switch (Figure 3, Item 1) counterclockwise so the hole on the switch aligns with the hole in the bracket (Figure 3, Item 2). NOTE: Figure 3 represents a typical switch.



#### 1.1.1 Battery Cable Disconnect

If the vehicle is not equipped with a battery disconnect switch, disconnect the negative (black) battery cable first, then disconnect the positive (red) cable.

### 

For trucks without a battery disconnect switch, to prevent accidental vehicle start-up, which could cause death or serious injury, disconnect battery cables (negative cable first) before proceeding.

Disconnect negative (-) battery cable first. If positive (+) cable should contact ground with negative (-) cable connected, the resulting sparks can cause a battery explosion, which could result in death or serious injury.

#### 1.2 Safety Equipment

Some McNeilus refuse vehicles come equipped with a five pound Fire Extinguisher, which has a rating of B:C, and a Reflective Warning Triangle Kit containing three triangles.

The fire extinguisher may already be mounted to the body, otherwise it is temporarily placed into the cab of your truck along with the reflective triangle kit.

If you are supplying your own fire extinguisher, it must comply with DOT FMCSA regulation 173.309 and 393.95 for rating and placement on the vehicle.

You are responsible for permanent mounting of this equipment. The fire extinguisher is required to be securely mounted to prevent sliding, rolling, or vertical movement. The placement and mounting location of the reflective triangles are at your discretion.

#### 1.3 Reporting Safety Defects

If you believe that your vehicle has a defect which could cause a crash or could cause injury or death, you should immediately inform the National Highway Traffic Safety Administration (NHTSA) in addition to notifying McNeilus Truck and Manufacturing, Inc., and the chassis manufacturer.

If NHTSA receives similar complaints, it may open an investigation, and if it finds that a safety defect exists in a group of vehicles, it may order a recall and remedy campaign. However, NHTSA cannot become involved in individual problems between you, your dealer, McNeilus Truck and Manufacturing, Inc., or the chassis manufacturer.

To contact NHTSA, you may call the Vehicle Safety Hotline toll-free at 1-888-327-4236 (TTY: 1-800-424-9153); go to http://www.safercar.gov; or write to: Administrator, NHTSA, 400 Seventh Street, SW., Washington, DC 20590. You can also obtain other information about motor vehicle safety from http://www.safercar.gov.

3

#### Safety

#### 2.0 Safety Notices

Safety notices are one of the primary ways to call your attention to potential hazards.



THIS SAFETY SYMBOL INDICATES IMPORTANT SAFETY MESSAGES IN THIS MANUAL.

WHEN YOU SEE THIS SYMBOL, CAREFULLY READ THE MESSAGE THAT FOLLOWS.

BE ALERT TO THE POSSIBILITY OF PERSONAL INJURY OR DEATH.

The following safety notices are used throughout this manual.

### \Lambda DANGER

Danger indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury. Danger is used in the most extreme situations.

### A WARNING

Warning indicates a potentially hazardous situation which, if not avoided, could result in serious injury or death.

# 

Caution indicates a situation that might result in property damage.

# SAFETY NOTICE

# **OPERATOR'S INSTRUCTION**

The signal words of DANGER, WARNING, and CAUTION have specific meanings to alert you to the relative level of hazard.

Take the safety warnings seriously. If you do not understand them or have questions about them, call McNeilus Truck and Manufacturing, Inc.

#### 3.0 Product Safety Information

Read, understand, and follow the safety guidelines and heed dangers and warnings listed below and contained in this manual as well as on the vehicle itself to promote reliable operation and prevent serious personal injury.

Contact McNeilus Truck and Manufacturing, Inc. if you require assistance or have questions.

#### 3.1 Safety

### **WARNING**

Safety decals must be replaced anytime they are damaged, missing, or cannot be read clearly. Failure to have proper decals in place can result in serious injury or death. If you require safety decals, please contact McNeilus Truck and Manufacturing, Inc. at 888-686-7278.

### A WARNING

Operators must comply with Employee Responsibilities as outlined in ANSI Z245 and state, federal, and other safety and transportation regulations (e.g. OSHA, DOT, Motor Carrier, and FMVSS) when operating this refuse vehicle. Failure to comply may result in serious personal injury or death.

# 

Operating, servicing, and maintaining this vehicle or equipment can expose you to chemicals including exhaust, carbon monoxide, phthalates, and lead, which are known to the state of California to cause cancer and birth defects or other reproductive harm. To minimize exposure, avoid breathing exhaust, do not idle the engine except as necessary, service your vehicle or equipment in a well ventilated area and wear gloves or wash hands frequently when servicing. For more information, go to www.p65warnings.ca.gov.

### 

The Packer must not be modified in any way without authorization from McNeilus Truck and Manufacturing, Inc. Modifications may not comply with safety standards, including ANSI safety standards, and may result in serious personal injury. Please contact McNeilus Truck and Manufacturing, Inc. at 888-686-7278 if you require assistance.

#### 3.2 Cab Operation

### A WARNING

No passenger is allowed in the cab unless a manufacturer's approved passenger seat and seat belt are provided. Serious injury or death can result.

### DANGER

If the Packer comes into contact or close proximity with a power line or there is any arcing, stay in the truck cab and keep away from the metal parts of the unit. Do not let anyone come close to the truck. Do not attempt to jump clear of the truck. Stay in the cab. The power company must disconnect the power before you can safely leave the cab.

Minimum clearance from power lines:50,000 Volts or Less4 Feet50,000 + Volts10 Feet345,000 - 750,000 Volts16 Feet

Know the clearance of overhead obstructions. Never drive the Packer under any overhead obstruction. Failure to do so may result in damage to the Packer body or truck, and may result in serious personal injury or death.

# A DANGER

If chassis is equipped with a stand-up drive position, use stand-up position only during refuse pick-up or collection activities for distances of less than 2/10 mile (0.32 km). Failure to heed this warning may result in serious personal injury or death.

### 

DO NOT operate vehicle in excess of 20 MPH from stand-up position. Failure to do so can result in serious personal injury or death.

# 

Always drive defensively. Never exceed posted speeds. Use lower speeds when going around curves, corners, or freeway on/off ramps. You are carrying a high center of gravity load. Failure to comply can lead to a roll over or other loss of control of the vehicle resulting in serious personal injury or death.

# A WARNING

All owners and supervisors should make sure all drivers, operators, and maintenance personnel have read and thoroughly understand the decals affixed to this Packer as well as the safety information and instructions in the McNeilus Operator Manual. Owners and supervisors must comply with ANSI Z245.1 Regulations.

# A WARNING

At the landfill or when operating off-road, use the lowest transmission gear and proceed at low speed (3 mph maximum). Failure to comply can cause serious injury.

It is important that the pump ON indicator light be working. No damage will be done to the hydraulic system if the Packer is driven with the pump in the ON position. However, the controls will function if accidentally bumped. This can cause serious injury.

# **A**CAUTION

Always check indicator lights in cab or at the control panel at the front of the Packer. Replace bulbs or lights when required. (Note: Some models may not have indicator lights.) Failure to inspect indicator lights may lead to more serious conditions.

# A WARNING

If equipped with optional camera or object detection system, do not rely exclusively on the camera or object detection system. Follow all other safe driving procedures. Failure to heed this warning may result in serious personal injury or death.

#### 3.3 Outside Operation

# A WARNING

Wear Personal Protective Equipment (PPE) such as hard hats, safety glasses or goggles, sturdy gloves, hearing protection, steel toed boots, and snug fitting sturdy long-sleeve shirt and long pants when operating or maintaining the Packer. Reflective clothing is recommended for drivers and employees while packing during hours of darkness. Serious injury can result without proper PPE.

### A DANGER

Never attempt to clear a jammed Packer or container lift, enter a body or open an access door unless power is shut down, LOCKOUT/TAGOUT procedures have been complied with, and the employee is authorized, trained, and competent to perform such activities. Failure to comply may result in serious personal injury or death.

# 

Keep access door closed when in operation. Do not open access door unless:

- 1. Engine is stopped.
- 2. Key is removed from ignition
- 3. Hydraulic pressures are relieved.
- 4. OSHA LOCKOUT/TAGOUT Regulations are complied with.

Failure to heed these instructions/warnings may result in serious personal injury or death.

### A WARNING

Never walk or stand behind vehicle while it is backing up. Failure to heed these instructions/warnings

may result in serious personal injury or death.

# 

Never climb on windshield guard (if equipped). This is not a ladder. If equipped, use the ladder provided on the body to access the top of the vehicle. Failure to comply may result in serious personal injury or death.

Be sure all non-operator personnel are clear of the area around the truck before operating the Packer. Remain attentive at all times when operating the controls. Watch the mirrors for activity. Never back up the Packer unless and until you are completely sure it is safe. Use a spotter/observer and/or get out and check yourself, if necessary, to ensure it is safe to do so. Thoroughly understand the controls before operating the Packer. Failure to heed this warning may result in serious personal injury or death.

# **WARNING**

The Packer and chassis should never be overloaded. Do not exceed the manufacturer's recommended gross vehicle weight. Do not overload the Packer and chassis. Gross weights must meet federal, state, and local laws. Failure to comply can cause serious injury.

### A WARNING

Always keep hands and feet and other parts of your body clear of revolving or moving parts. Failure to comply can cause serious injury.

# WARNING

Never operate the hydraulic system if a leak is present. Serious injury may result.

# SAFETY NOTICE

If chassis is equipped with a battery shut-off switch, it must be turned off anytime the equipment is parked overnight, in a shop, or out of service for any extended period of time. Failure to do so may result in a fire and personal injury or property damage.

#### 3.4 Maintenance

### 

LOCKOUT/TAGOUT procedures must be followed when working on this equipment including, but not limited to, cylinders being changed or maintained. Failure to heed these instructions/warnings can result in serious personal injury or death.

### 

If the hydraulic or electrical system on the Packer fails to operate for any reason, call a competent technician to repair the problem. Never let any untrained or incompetent personnel attempt to fix any problems or malfunctions that may occur. If you are not trained or do not have the competence, never attempt to fix any problems or malfunctions that may occur. Never alter the original equipment manufacturer's design.

### 

Auxiliary pusher or tag axles must be supported with jack stands, blocks, or similar devices while being serviced or maintained to prevent serious personal injury or death if auxiliary axle drops unexpectedly. Failure to do so may result in serious personal injury or death.

# 

Use the three-point rule when climbing the ladder. Failure to heed may cause serious personal injury.

### A DANGER

Never attempt to use extraneous sources of power or extraneous machines to overcome a malfunctioning system.

Never override with overhead cranes, forklifts, jacks, etc. or alter or modify systems or equipment that may be malfunctioning.

Failure to heed these instructions/warnings can result in serious personal injury or death.

# A WARNING

Daily inspections should be performed on the Packer. This includes proper operation of the controls, hydraulics, lockout systems, electrical systems, auto neutral and neutral interlock systems, optional cameras are clean and working, camera lens is clean, lighting system including turn signals, back-up alarm, brake lights, clearance lights, head lamps, tail lamps, safety equipment, and work lights.

The truck's air system must operate properly and have no leaks. Water and moisture should be drained from the truck's air system daily.

Failure to ensure all systems are operating properly can result in serious injury. Call McNeilus Truck and Manufacturing, Inc. at 888-686-7278 for assistance.

Do not wear watches, rings, and jewelry while working with electrical and mechanical equipment. These items can be hazardous and can cause serious and painful injuries if they come into contact with electrical wires, moving parts, or hydraulic equipment.

# **A** WARNING

Use only the access door for entry to the Packer. Remember to follow the LOCKOUT/TAGOUT procedures when entering the Packer body. Only exit the Packer body through the access door.

### A WARNING

When working on the Packer, the wheels must be blocked, the parking brake on, LOCKOUT/TAGOUT procedures in effect, and the keys out of the truck's ignition. Failure to do so may result in serious personal injury or death.

# A WARNING

Electrical wiring, battery wiring, and electrical cable must be inspected on a daily basis for cuts, abrasions, damage, aging, improper clearance and along the frame for hidden damage. If you find electrical wiring or electrical cable with any such adverse conditions or damage, they must be replaced with electrical wiring or electrical cable of equivalent specifications before the Packer is returned to service. Failure to properly inspect and maintain your Packer may result in serious personal injury or death.

Anytime a tailgate is raised in the shop or for maintenance, the tailgate must be supported to prevent the tailgate from coming down unexpectedly. Never allow anyone to work around or enter the tailgate area unless the tailgate is supported! Failure to follow this procedure can result in serious injury or death. Call McNeilus Truck and Manufacturing, Inc. at 888-686-7278 if you have any questions or require assistance supporting the tailgate.

# **A**CAUTION

Disconnect battery before welding on body. Failure to do so might result in personal injury or damage to property or equipment.

# A WARNING

Do not repair or weld steel or aluminum water tanks. Inspect the water tank for rust or corrosion every 30 days. Inspect the water tank under the straps, on the exterior, and on the interior by removing the flopper. If any rust or corrosion is found, replace the water tank with an OEM water tank from McNeilus. Failure to maintain water tanks may result in serious personal injury or death.

# A WARNING

If equipped with optional camera, camera lens must be kept clean at all times to help achieve good monitor pictures. Failure to heed this warning may result in serious personal injury or death.

#### 3.5 Hydraulics

Call McNeilus Truck and Manufacturing, Inc. anytime you have questions concerning hydraulic hoses, tubes, or pipes.

# 

Hydraulic systems operate under very high pressure. Hydraulic fluid escaping from a pressurized system can penetrate unprotected body tissue. Never inspect for hydraulic leaks with bare hands or other exposed body parts. As a minimum, wear leather gloves and use cardboard or wood to inspect for leaks. If leaks are present, relieve pressure and allow system to cool prior to servicing. If injured by escaping hydraulic oil, contact a physician immediately. Serious complications may arise if not treated immediately.

# A WARNING

Hydraulic hoses and tubing must be inspected on a daily basis for leaks, cuts, abrasions, damage, aging, improper clearance, and along the frame for hidden damage. If you find hoses with any such adverse conditions or damage, they must be replaced before the vehicle is returned to service! Failure to properly inspect and maintain your vehicle may result in serious personal injury or death.

# A WARNING

Hydraulic systems are hot. DO NOT TOUCH! Serious personal injury or death may result from hot oil. When you have completed working on the hydraulic systems, thoroughly clean any spilled oil from the equipment. Do not spill any hydraulic fluid on the ground. Clean any hydraulic fluid from your skin as soon as you have completed your maintenance and repairs. Dispose of used oil and filters as required by law.

Use correct hoses, fittings, and adapters with the correct SAE rating when replacing hoses to prevent possible serious injury. Always replace hoses, fittings, and adapters with replacements that have a proper, suitable, working pressure rating. Replacement hoses must be of the correct length and must comply with the hose manufacturer's installation guidelines and recommendations. Consult hose and fitting manufacturers for correct specifications or contact McNeilus at 888-686-7278.

### A WARNING

The hydraulic cylinders can be holding a function in a certain position when the engine is OFF. An example of this would be a function being held in the lift or partial lift position by the cylinders. If a hydraulic line is removed or the hydraulic circuits or controls are being worked on, gravity may allow the function being held in position to drop. All workers and personnel must remain clear of these areas when working on or operating the McNeilus equipment. Block and secure all applicable devices and functions before beginning work or operation. Failure to comply with this can result in serious injury or death.

Any hydraulic tubing that is replaced must conform to SAE J1065 specifications. If incorrect hydraulic tubing is installed, the hydraulic system may fail, serious injury or death can result. Damage or leaking tubing must be replaced before the Packer is returned to service.

# A WARNING

Do not heat hydraulic tubing. The carbon content of this steel tube is such that if heated for bending, and either water or air is quenched, the tubing may lose its ductility and thereby be subject to failure under high pressure or hydraulic shock conditions. Serious injury can result. Damaged or leaking tubing must be replaced before the Packer is returned to service. Please contact McNeilus Truck and Manufacturing, Inc. at 888-686-7278 if you require assistance or have questions.

# A WARNING

All hydraulic pressures must be relieved from the hydraulic system prior to removing any components from the system to prevent oil from spraying or functions or systems from falling. Failure to follow this procedure can result in serious personal injury or death.

# 

All hydraulic pressure must be relieved from the hydraulic system prior to removing any components from the system. To relieve the hydraulic pressure from the hydraulic system, turn the chassis engine OFF and operate the Packer controls with the key in the ON position. This will allow the spools to shift and relieve the hydraulic pressure. Failure to comply can result in serious injury or death.

Hydraulic systems operate under high pressure. Only qualified, experienced people properly trained in hydraulic system maintenance should attempt repairs or troubleshoot hydraulic systems. Use the proper tools and equipment when servicing the hydraulic system. Failure to comply can cause serious injury. Please contact McNeilus Truck and Manufacturing, Inc. at 888-686-7278 if you require assistance.

# **A** WARNING

When performing hydraulic test procedures, use the proper hydraulic gauges. Installing an incorrect test gauge could result in serious injury or death if the gauge fails. Use properly rated hydraulic hoses with adequate length to allow the test gauge to be used far enough away from moving parts and functions.

# A WARNING

Increasing hydraulic pressure beyond the recommendations may result in serious damage to the Packer or serious personal injury or death and may void the Packer Warranty.

# A WARNING

Do not steam clean or pressure wash the pump or hydraulic hose. Cleaning the pump with a high pressure washer or steam cleaning may damage the pump's seals and allow water to enter the hydraulic system. Cleaning the hydraulic hose with a high pressure washer or steam cleaning will damage the hose's outer covering and steel braid and lead to premature failure. The pump and hydraulic hose should be wiped with a clean lint-free cloth rather than washed.

The tailgate cylinders and body lift cylinders have orifices installed in the barrel end ports. These orifices limit the amount of hydraulic flow, which controls the speed of the cylinders. The orifices must remain in the cylinders. If a cylinder is changed, the replacement cylinder must have an orifice installed to ensure safe and proper operation. Removal of the orifice can cause rapid retraction of the cylinder. This can cause severe injury or death. Check all replacement cylinders to ensure the orifice is in place before installation and operation.

#### 3.6 Electrical

# A WARNING

Proximity switches must remain functional for safe operation of the Packer. If a switch does not work, it must be replaced immediately with an OEM switch before the Packer returns to service. Failure to comply can result in serious injury or death. Contact McNeilusTruck and Manufacturing, Inc. at 888-686-7278 for assistance if required.

# **A** WARNING

Hydraulic components can be heavy. Use caution while lifting these components. Serious personal injury can be avoided with proper handling of the components.

#### Safety

### 4.0 Safety Signs

The following safety signs are found on your refuse collection system and warn of hazards related to the use of this equipment. Read and understand all safety signs before operating this equipment.

### NOTE

Depending on the Packer configuration and optional equipment, the actual location of decals and/or placards may vary slightly from the examples shown.

If any safety signs on the equipment are not clearly readable, contact McNeilus Parts and Service at 888-686-7278 or www.streetsmartparts.com to order replacements. Use only McNeilus replacement safety signs.

The table below contains part numbers for the individual safety signs. See the Figures in this section for safety sign locations.

### NOTE

Specifications, appearance, and part numbers for safety decals are subject to change without notice.

No.	Part Number	Qty.	Comments
1	1523421	1	If front mounted pump is installed, place one sign on front bumper. If rear mounted pump is installed, place one sign on either side of truck at pump.
2	1466637	1	
3	1523442	2	
4	1523422	2	
5	1538022	1	
6	1523431	1	
7	1523426	1	
8	1523427	2	
9	1523425	2	
10	1526758	1	
11	1523435	1	
12	1523438	1	
13	1523447	1	
14	1523450	2	If tool box is equipped in the middle, place one sign on each side. If no tool box is equipped, place one sign only in the middle of the bumper.

No.	Part Number	Qty.	Comments
15	1523817	1	
16	1523431	1	
17	1524503	1	
18	1523436	1	
19	1523479	1	
20	1523440	1	
21	1523443	1	
22	1523439	1	
23	1523433	2	
24	1523446	1	
25	1523445	1	
26	1523448	1	
27	1523451	1	
28	1527015	1	
29	1525226	1	
30	1525227	1	
31	1523444	1	
32	1518818	1	
33	1537820	1	
34	1537821	1	
35	1523534	1	

No.	Part Number	Qty.	Comments
36	1265704	Varies	
37	1260913	Varies	
38	1260914	Varies	

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#### 4.1 Safety Sign Locations

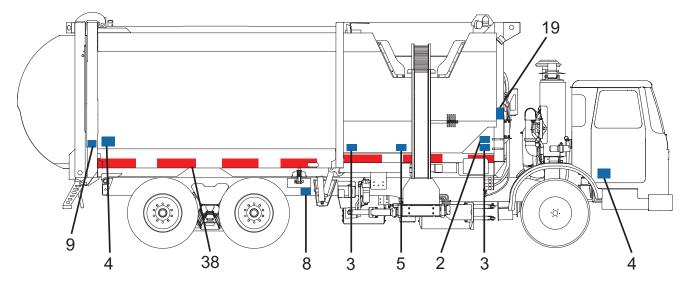
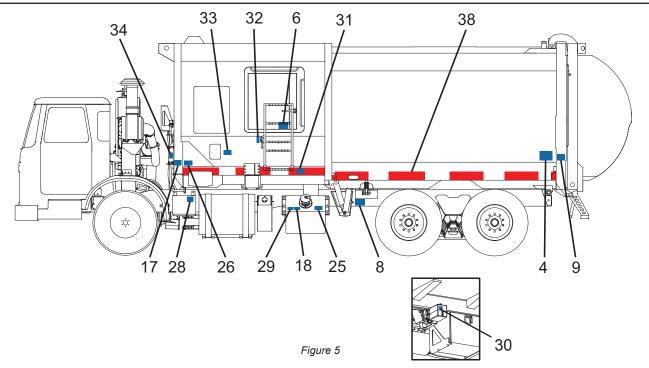
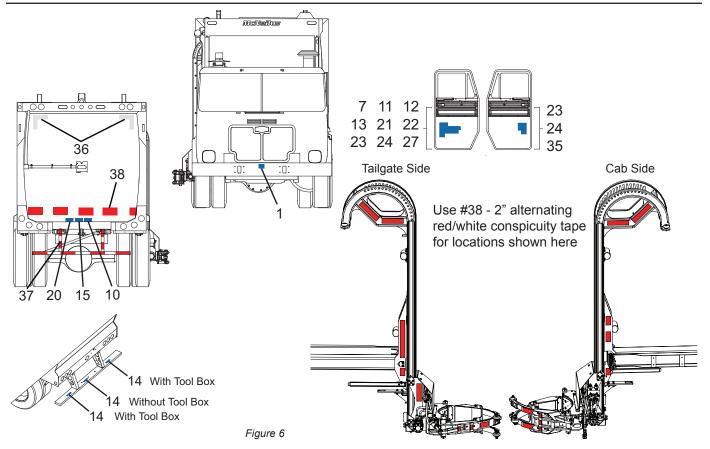


Figure 4

Safety





# **1.0 Exterior Systems Arrangement**

1.1 Curb Side View

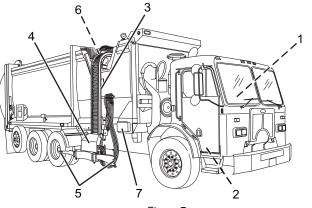


Figure 7

Ref. No.	System Description	
1	Cab Control Box and Joystick	
2	Arm and Grabber Remote Control Box	
3	Arm Assembly	
4	Grabber Assembly	

Ref. No.	System Description
5	Grabber Fingers
6	Top Door
7	Clean Out Door

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#### **1.2 Street Side View**

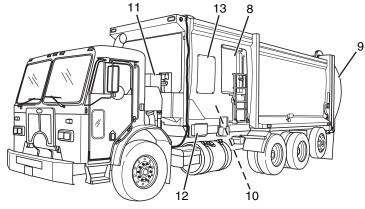


Figure 8

Ref. No.	System Description	
8	Side Access Door	
9	Tailgate	
10	Packing Panel	
11	Hydraulic Oil Reservoir	
12	Clean Out Door	
13	Access Panel	

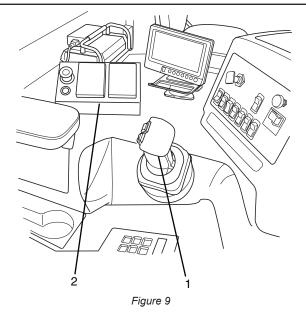
### **1.0 Instruments and Controls**

The following figures and tables identify and describe the controls used on the control box. Not all of the instruments and controls shown here are on your equipment. Items covering various models and options are illustrated.

To make sure you understand proper operating procedures, read this section and carefully practice with the controls and instruments to learn how to safely operate the equipment.

### 1.1 Cab Controls

The in-cab controls consist of a joystick (Figure 9, Item 1) and control box (Figure 9, Item 1). The control box can be mounted externally to the dash as shown or mounted in the dash. No matter which way it is mounted, the icons and the buttons are the same.

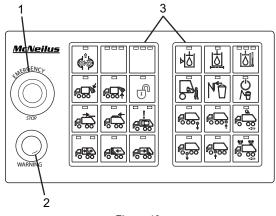




#### 1.1.1 Control Box

The control box (Figure 10) contains the E-STOP (emergency stop) button, red LED warning light, buttons for the refuse vehicle functions, lights, pumps, and options.

No.	Description	Normal Use or Reading
1	E-STOP Button	Disables all Hydraulic and Electric refuse vehicle functions.
2	Red LED Warning Light	If light is on or flashing, it indicates an unsafe condition. Look at the LED lights on the control box to determine what the unsafe condition is. Under normal operating conditions, the light will be off.
3	Switches and LED Lights	Controls refuse vehicle functions, lights and options, and displays error codes and status of operations.





#### 1.1.1 Refuse Vehicle Button Functions

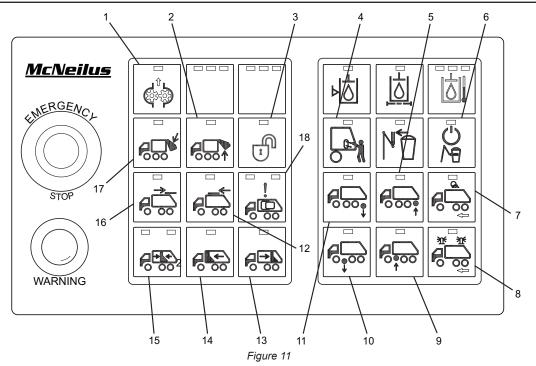
Refuse vehicle functions, lights, some accessories and options are operated by the buttons on the control box (Figure 11). Accessories and options vary depending on your model.

No.	Description	Normal Use or Reading
1	PUMP Button	Press to activate Hydraulic functions. Press again to disable Hydraulic functions.
2	TAILGATE OPEN Button	Press and hold the button to open the tailgate. You must also press and hold the ACTIVATE button while holding the TAILGATE OPEN button.
3	ACTIVATE Button	Press and hold the ACTIVATE button to enable the Tailgate functions or the Arm functions.
4	REMOTE Button	Press the REMOTE button to enable the remote control button panel. Press the button again to disable the remote control button panel.
5	TAG AXLE RAISE Button (OPTIONAL)	Press the button to raise the tag axle.
6	ARM ON Button	Press and hold the enable the Arm functions. You must also press and hold the ACTIVATE button while holding the ARM ON button.

No.	Description	Normal Use or Reading
7	WORK LIGHT Button (OPTIONAL)	Press the button to turn on the work lights. Press the button again to turn off the work lights. The truck must be moving less than 10 mph for the work lights to come on.
8	STROBE LIGHT Button (OPTIONAL)	Press the button to turn on the strobe lights. Press the button again to turn the strobe lights off. With the "strobes on with pump" option, the button will not turn the strobe lights off when the pump is on.
9	PUSHER AXLE RAISE Button (OPTIONAL)	Press the button to raise the pusher axle.
10	PUSHER AXLE LOWER Button (OPTIONAL)	Press the button to lower the pusher axle.
11	TAG AXLE LOWER Button (OPTIONAL)	Press the button to lower the tag axle.
12	TOP DOOR CLOSE Button	Press and hold the button to close the top door.

No.	Description	Normal Use or Reading
13	EJECTOR PANEL EXTEND Button	Press this button to extend the ejector panel. Pressing the button will stop the auto pack mode if active.
14	EJECTOR PANEL RETRACT Button	Press this button to retract the ejector panel to the HOME position.
15	AUTO PACK Button	Press this button to start the auto pack cycle.
16	TOP DOOR OPEN Button	Press and hold the button to open the top door.
17	TAILGATE CLOSE Button	Press and hold button to close the tailgate. You must also press and hold the ACTIVATE button while holding the TAILGATE CLOSE button.
18	SIDE DOOR Button	This button is non functional. It is a warning light for an open or closed side door. See the LED indicator light functions pages for more information.

Operation



#### 1.1.3 LED Indicator Light Functions

The LED indicator lights are used to display the status of various functions and operations (Figure 12). When the ignition switch is first turned on, the lights will perform a self-test, which will light all the lights for a few seconds.

No.	Description	Normal Use or Reading
1	Pump On LED	The LED will be green when the pump is on and operational. If there is a pump fault such as, but not limited to, low hydraulic oil, high oil temperature or a clogged filter, the light will flash and the pump will not be operational.
2	Tailgate Open LED	The green LED will be lighted when the tailgate is fully closed.
3	Error Code LED	There are six LEDs that will be on or off depending on the error code. If any of these LEDs are lighted, refer to your Zero Radius Service Manual.
4	Activate LED	If a button is pressed that requires the ACTIVATE button to be pressed, the LED will flash, indicating the ACTIVATE button must also be pressed.

No.	Description	Normal Use or Reading
5	Remote Switch LED	The LED will be green when the REMOTE button is activated. The remote button panel is now operational.
6	Hydraulic Oil Level LED	If the LED is off, the hydraulic oil is at the proper level. If the red LED is on, the oil level is low and the hydraulic pump will be shut off. When the red LED is on, you can press and hold the low oil level icon for 30 seconds to allow Hydraulic functions to stow the arm and grabber assemblies and put the refuse vehicle in a condition for road travel.
7	Hydraulic Oil Filter Bypass LED	If the light comes on during operation, the oil filter is being bypassed and needs to be serviced immediately.
8	Arm Stowed LED	When the light is off, the arm is in the STOWED (HOME) position.

No.	Description	Normal Use or Reading
9	Hydraulic Oil Temperature LEDs	There are three oil temperature LEDs. If the first one (blue) is lit, it indicates that the oil is cold. If the second one (amber) is lit, it indicates the oil is warmer than recommended. If the three one (red) is lit, it indicates that the oil is too hot and immediate service is required. If none of the lights are lit, the oil is at the correct operating temperature.
10	Arm On LED	The arm on LED will be green when the arm is activated.
11	Work Light LED	The green LED will be lighted when the work lights are on.
12	Strobe Light LED	The green LED will be lit when the strobe lights are on.
13	Tag Axle Up LED	The red LED will be lit when the tag axle is in the fully RAISED position.
14	Pusher Axle Up LED	The red LED will be lit when the pusher axle is in the fully RAISED position.

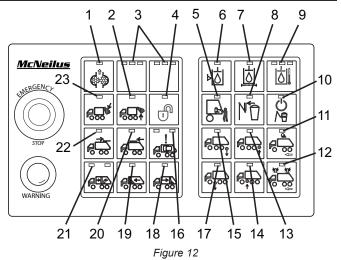
No.	Description	Normal Use or Reading
15	Tag Axle Down LED	The red LED will be lit when the tag axle is in the fully DOWN position.
16	Side Door LEDs	When the side door is fully closed, both LEDs will be off. When the side door is opened, it activates the E-STOP, shuts off the hydraulic pump and the two red LEDs will flash.
17	Pusher Axle DOWN LED	The red LED will be lit when the pusher axle is in the fully DOWN position.
18	Ejector Panel Extend LED	The red LED will light when the ejector panel is extended. The ejector panel will not extend to the full eject mode unless the tailgate is fully open.
19	Ejector Panel Retract LED	The green LED will be lit when the ejector panel is retracted into the HOME position.
20	Top Door Close LED	The red LED will flash when the top door is not closed in the HOME position. The LED will be on when the top door is not in the OPEN position.

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No.	Description	Normal Use or Reading
21	Auto Pack LEDs	The two red LEDs will flash when the ejector panel is in the auto pack mode.
22	Top Door Open LED	The green LED will be lit when the top door is fully open.
23	Tailgate Open/ Closed LED	The LED will be red when the tailgate is fully open. The light will flash if the tailgate is not fully closed.



# **1.2 Remote Control Box Buttons** (Optional)

The Arm Assembly functions can also be operated from the remote control box when the operator is outside the cab (Figure 13). The remote control box is normally located inside the curb side door of the chassis cab. The OUTSIDE CONTROL button in the cab must be activated to enable the use of the remote control box.

### NOTE

The LED lights on the remote control box buttons work the same way as the buttons on the control box in the cab.

No.	Position	Normal Use or Reading
1	AUTO PACKING Button	Press this button to start the auto packing cycle.
2	GRABBER OPEN Button	Press and hold button to open grabber fingers.
3	EJECTOR PANEL RETRACT Button	Press this button to retract the ejector panel to the HOME position.

No.	Position	Normal Use or Reading	
4	EJECTOR PANEL EXTEND Button	Press this button to extend the ejector panel. Pressing the button will stop the auto pack mode if active.	
5	GRABBER CLOSE Button	Press and hold button to close grabber fingers.	
6	E-STOP Button	Disables all Hydraulic and Electric functions.	
7	ARM DOWN Button	Press and hold button to lower arm.	
8	TAILGATE CLOSE Button	Press and hold button to close the tailgate. You must also press and hold the ACTIVATE button.	
9	TAILGATE OPEN Button	Press and hold button to open the tailgate. You must also press and hold the ACTIVATE button.	
10	ARM UP Button	Press and hold button to raise arm.	
11	ACTIVATE Button	Press and hold the ACTIVATE button to enable the Tailgate functions.	
12	ARM ON Button	Press to enable the Arm functions.	

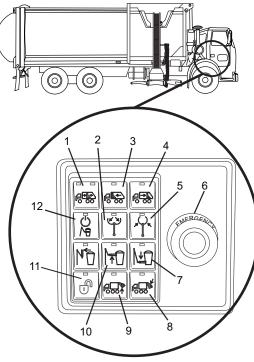


Figure 13

### **1.3 Arm and Grabber Controls**

Control of the Arm Assembly functions are combined into a single joystick. All functions of the joystick are momentary.

# 

Be sure all non-operator personnel are at least 20 feet (6 meters) away from all areas of the Packer.

Serious personal injury or death may occur.

# 

Make sure the area above the vehicle is clear of objects and power lines before raising the arm.

Serious personal injury or death may occur.

# 

Use caution when raising the arm assembly with a container.

#### 1.3.1 Joystick Control

The single-lever joystick (Figure 14) controls the in-and-out and up-and-down movement of the arm and the opening and closing of the grabber fingers. The joystick can also control the Auto Pack function if it is equipped with the optional AUTO PACK button on the joystick.

The OPERATOR PRESENCE switch must be depressed to allow any Arm functions with the joystick.

# NOTE

Joystick functions are disabled if the OPERATOR PRESENCE switch is pressed and held for more than 60 seconds. Release the switch and press it again to enable the Arm functions.

The joystick is spring-loaded and will automatically return to the middle (NEUTRAL) position when released.

No.	Position	Normal Use or Reading
1	Joystick - FORWARD	Lowers arm assembly
2	Joystick - BACK	Raises arm assembly
3	Joystick - RIGHT	Extends arm assembly out
4	Joystick - LEFT	Retracts arm assembly in
5	OPERATOR PRESENCE Switch	Must be pressed and held to enable Arm functions

No.	Position	Normal Use or Reading
6	Thumb Wheel	Rolling the wheel up will open the grabber fingers. Rolling the wheel down will close the grabber fingers. The farther you move the wheel, the faster the grabbers will open or close. When released, the wheel will go back to the NEUTRAL position.
7	THUMB Switch - BOTTOM	Activates the Auto Load functions, if equipped. Function is to raise and dump the container. Use the joystick to return container to ground.
8	THUMB Switch - TOP	Activates the Auto Pack functions, if equipped. Auto Pack packs the refuse for 1 to 2 cycles, depending on pack count programming.



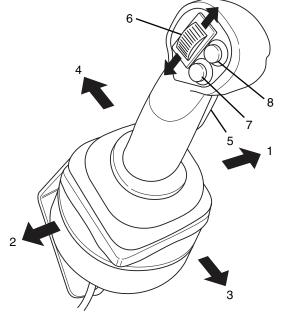


Figure 14

### <u>McNeilus</u>

#### 1.4 Fuse Block

The fuse block protects the refuse vehicle electrical system from an overloaded condition.

Identify and replace fuses as required (Figure 15). If fuses are continually blowing, check for an electrical problem.

No.	Amp	Description
F1	25	E-Stop Body Function Power
F2	10	Option Power
F3	10	Body Function Power
F4	10	Fan
F5	10	Not Used
F6	2	Sensor Power
F7	10	Cab/HMI Power
F8	20	Tailgate Module
F9	10	Option Power
F10	10	Option Power
F11	10	Option Power
F12	10	Option Power
F13	10	Option Power
F14	10	Option Power
F15	10	Option Power
F16	10	Main Control Module Power

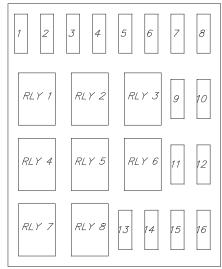


Figure 15

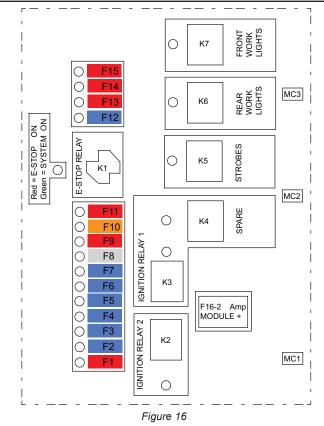


#### 1.4.1 Fuse Block (Legacy)

The fuse block protects the refuse vehicle electrical system from an overloaded condition.

Identify and replace fuses as required (Figure 16). If fuses are continually blowing, check for an electrical problem.

No.	Amp	Description
F1	5	Spare E-Stop
F2	15	Side Lights
F3	15	Front Work Lights
F4	15	Front Lights
F5	15	Tailgate Work Lights
F6	15	Tailgate Strobe Lights
F7	15	Tailgate Lighting
F8	2	Sensor Power
F9	10	Arm Packer
F10	5	Axles/Chassis
F11	10	Cab Power
F12	15	E-Stop Power
F13	10	Chassis E-Stop
F14	10	Body E-Stop
F15	10	Body E-Stop
F16	2	Module Power



### 2.0 Control Functions

### 2.1 E-STOP (Emergency Stop) Function

Press any of the E-STOP buttons (Figure 17) to IMMEDIATELY DISABLE refuse vehicle and Hydraulic functions.

The E-STOP button is a safety function.

Pressing the red E-STOP button disables all refuse vehicle Electrical, Pneumatic, and Hydraulic functions.

# NOTE

The E-STOP button remains in a locked DOWN position until it is manually released.

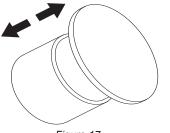


Figure 17

#### 2.1.1 In-Cab Control Box E-STOP Button

Pull up on the button to release the in-cab control box E-STOP button (Figure 18, Item 1).

#### 2.1.2 Arm Remote Control Box E-STOP Button

Pull up on the button to release the arm remote control box E-STOP button (Figure 18, Item 2).

### NOTE

All E-STOP buttons must be in the UP position before the refuse vehicle functions can be restored.

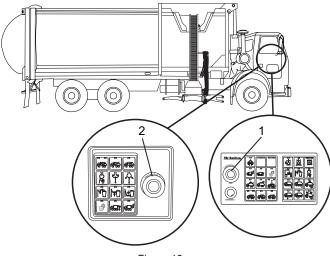
### NOTE

If Packer functions are not operational, reset the controls by pulling up ALL of the E-STOP buttons and turning the pump back on.

### NOTE

The E-Stop will not be illuminated if the side door is opened or the remote E-Stop is pushed.







#### 2.1.3 E-STOP on Diagnostic Display



#### Description

This screen appears when the E-STOP circuit is triggered by a software interlock OR by the operator pressing either one of the E-STOP buttons. This function will disable all of the hydraulic functions and shut the load sense solenoids OFF.

#### Navigation

The Cont. button jumps to the "HOME" screen

### 2.2 Packing Functions

The packing functions are controlled by buttons located on the cab control box. Automatic cycling of the packing panel functions is controlled by the Auto Packing button. The Auto Packing function will begin to operate after dumping refuse in the hopper, depending on what the pack count is set to. Manual cycling of the packing functions is controlled by the EXTEND and RETRACT buttons. Pressing the EXTEND or RETRACT buttons during an automatic packing cycle will stop the Auto Packing function.

### **WARNING**

Be sure all non-operator personnel are at least 20 feet (6 meters) away from all areas of the Packer.

Serious personal injury or death may occur.

#### 2.2.1 Automatic Cycling of Packing Panel

#### Conditions

- Tailgate closed LED light must be green
- · Side door LED lights must be off
- Engine speed must be below 1700 rpm
- Top door must be up (open)
- · Grabber must not be in the STOWED position

### NOTE

If the packing panel is not in the HOME position, press the RETRACT button to retract it to the HOME position to start the cycle.

### NOTE

The automatic packing cycle can be interrupted by pressing any of the E-STOP buttons.

Press and hold AUTO PACKING button (for 1 second) to activate automatic cycling of the packing panel functions. When activated, the packing panel extends from the HOME position (Figure 19, Item 1) into the hopper until it reaches the EXTEND position (Figure 19, Item 2). The packing panel then reverses direction and retracts until it returns to the HOME position.

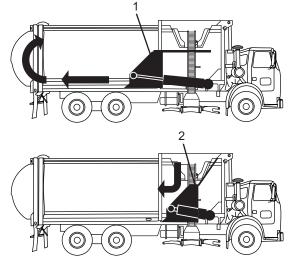


Figure 19

#### 2.2.2 Setting Pack Count

Your refuse vehicle has a factory set pack count of one. This setting can be changed to two. To change the pack count:

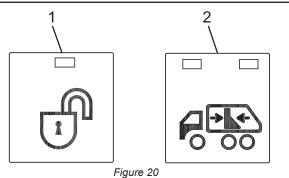
- 1. Turn the IGNITION switch to the ON position. You do not have to start the engine.
- 2. Hold the ACTIVATE button (Figure 20, Item 1) and the AUTOMATIC button (Figure 20, Item 2) on the main control box.
- In approximately 5 seconds, the automatic packing button LEDs will flash, indicating that the system is in calibration mode.

### NOTE

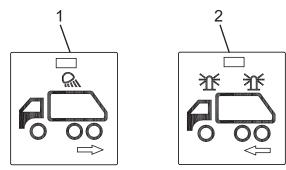
To remain in calibration mode, the AUTOMATIC PACK and SWEEP switch must be released before the ACTIVATE switch is released.

4. Release the AUTOMATIC PACKING button first, then the ACTIVATE button.

#### Operation



 Push the WORK LIGHT button (Figure 21, Item 1) to increase the pack count and push the STROBE LIGHT button (Figure 21, Item 2) to decrease the pack count.





- 6. The pack count is displayed by the number of LEDs that are lighted on the error code display (Figure 22, Item 1).
- 7. Press the AUTOMATIC PACKING button to save the current pack count and return to work mode.

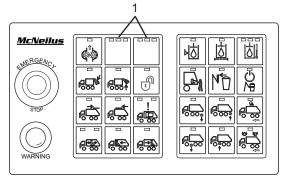


Figure 22



#### 2.2.3 Manual Cycling of Packing Panel

Manual cycling of the packing functions is controlled by the EXTEND/RETRACT button located on the cab control box. With the tailgate closed, the packing panel can only travel to the EXTEND position (Figure 23, Item 1).

### Conditions

- · Tailgate closed LED light must be green
- · Side door LED lights must be off
- · Engine speed must be below 1700 rpm
- Top door must be up (open)
- Grabber must not be in the STOWED position

#### 2.2.3.1 Extend Packing Panel

Press the EXTEND switch to manually control the extend movement of the packing panel. When the packing panel reaches the EXTEND PROXIMITY switch, it will stop at the EXTEND position. The red LED will be lighted when the packing panel is extended.

2.2.3.2 Retract Packing Panel

Press the RETRACT switch to retract the packing panel. The packing panel will retract to the HOME position (Figure 23, Item 2). The green LED will be lighted when the packing panel is retracted in the HOME position.

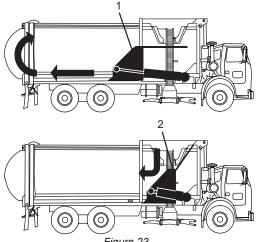


Figure 23

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### 2.3 Top Door/Hopper Assist Panel Functions

The Top Door functions are used to close off the refuse hopper during travel to keep the trash from blowing out of the hopper. The Top Door functions are controlled by the TOP DOOR OPEN and CLOSE buttons.

# **A** WARNING

Be sure all non-operator personnel are at least 20 feet (6 meters) away from all areas of the Packer.

Serious personal injury or death may occur.

### Conditions

- Side door LED lights must be off
- Engine speed must be below 1700 rpm

# NOTE

Use the top door only to seal off the hopper area when traveling. The top door should not be used as a pack assist panel when using the Pack and Sweep function. Damage to the top door may result if used as a pack assist panel.

#### 2.3.1 Open Top Door

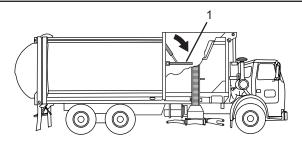
Press and hold TOP DOOR OPEN button to open the top door (Figure 24, Item 2). The green LED light will be lit when the top door is fully open.

#### 2.3.2 Close Top Door

Press and hold TOP DOOR CLOSE button to close the top door (Figure 24, Item 1). The orange LED will flash when the top door is not closed in the HOME position.

### ΝΟΤΕ

An optional alarm will sound if vehicle speed is over 25 mph and the top door, if equipped, is not closed.



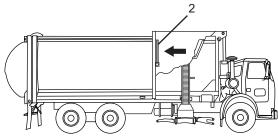


Figure 24

#### 2.4 Arm Functions

The Arm functions are controlled from the joystick in the chassis cab or the remote control box.

You must press and hold the ARM ON switch to enable the joystick in the cab. The green LED will be lighted when the arm is enabled.

You must press the REMOTE switch to enable the remote control switch panel. The green LED will be lighted when the REMOTE switch is activated.

### A WARNING

Be sure all non-operator personnel are at least 20 feet (6 meters) away from all areas of the Packer.

Serious personal injury or death may occur.

# 

Make sure the area above the vehicle is clear of objects and power lines before raising the arm.

Serious personal injury or death may occur.

# **A**CAUTION

Use caution when raising the arm assembly with a container.

#### 2.4.1 Arm Assembly Extend and Retract Functions

The extend and retract movements of the arm assembly are controlled by the joystick. See Figure 25.

# A WARNING

Be sure all non-operator personnel are at least 20 feet (6 meters) away from all areas of the Packer.

Serious personal injury or death may occur.

### Conditions

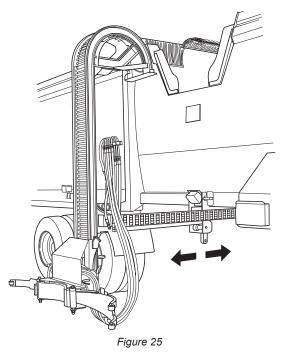
- Truck travel speed must be less than 7 mph
- Engine speed must be below 1700 rpm
- Green Arm On LED must be lighted
- Green Pump On LED must be lighted
- OPERATOR PRESENCE switch on joystick or outside ACTIVATE switch must be pressed

• 2.4.1.1 Extend Arm Assembly

Move the joystick to the right to extend the arm assembly.

#### • 2.4.1.2 Retract Arm Assembly

Move the joystick to the left to retract the arm assembly.





#### 2.4.2 Arm Assembly Raise and Lower Functions

The raise and lower movements of the arm assembly are controlled by the joystick (Figure 26).

# 

Be sure all non-operator personnel are at least 20 feet (6 meters) away from all areas of the Packer.

Serious personal injury or death may occur.

#### Conditions

- The top door open green LED must be lit to raise arm to the DUMP position
- · Truck travel speed must be less than 7 mph
- Engine speed must be below 1700 rpm
- · Green arm on LED must be lighted
- Green pump on LED must be lighted
- OPERATOR PRESENCE switch on joystick must be pressed
- 2.4.2.1 Raise Arm Assembly

Pull the joystick back to raise the arm assembly

• 2.4.2.2 Lower Arm Assembly

Push the joystick forward to lower the arm assembly

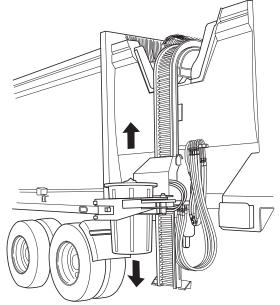


Figure 26 Arm Assembly Raise and Lower Functions

### 2.5 Grabber Functions

The open and close motion of the grabber is controlled by the thumb wheel on the joystick.

# **A** WARNING

Be sure all non-operator personnel are at least 20 feet (6 meters) away from all areas of the Packer.

Serious personal injury or death may occur.

### Conditions

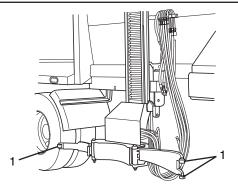
- Truck travel speed must be less than 7 mph
- · Engine speed must be below 1700 rpm
- Green Arm On LED must be lighted
- Green Pump On LED must be lighted
- OPERATOR PRESENCE switch on joystick must be pressed

#### 2.5.1 Open Grabber Fingers

Roll the thumb wheel up to open the grabber fingers (Figure 27, Item 1).

#### 2.5.2 Close Grabber Fingers

Roll the thumb wheel down to close the grabber fingers (Figure 27, Item 2).



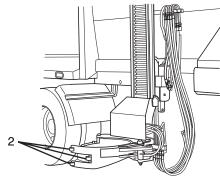


Figure 27

### 2.6 Tailgate Functions

The Tailgate functions are controlled by the TAILGATE OPEN and CLOSE switches and the ACTIVATE switch on the cab control box.

# A WARNING

Be sure all non-operator personnel are at least 20 feet (6 meters) away from all areas of the Packer.

Serious personal injury or death may occur.

# 

Make sure the area above the vehicle is clear of objects and power lines before raising or opening the tailgate. Serious personal injury or death may occur.

# NOTE

The warble alarm sounds when the tailgate is opening and remains on until the tailgate is closed.

The alarm does not sound if the ignition switch is OFF or any of the E-STOP buttons are pressed down.

### Conditions

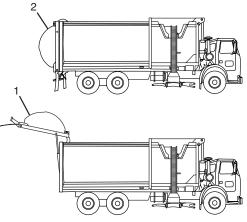
• Engine speed must be below 1700 rpm

#### 2.6.1 Open Tailgate

Press and hold the ACTIVATE and the OPEN TAILGATE switches at the same time to open the tailgate (Figure 28, Item 1).

#### 2.6.2 Close Tailgate

Press and hold the ACTIVATE and the CLOSE TAILGATE switches at the same time to close the tailgate (Figure 28, Item 2).



### 3.0 Operating Procedures

### 

Be sure all non-operator personnel are at least 20 feet (6 meters) away from all areas of the Packer.

Serious personal injury or death may occur.

# A WARNING

Do not leave the truck unattended until the parking brake has been securely set and all reasonable precautions have been taken to prevent the movement of the truck. The operator must chock the truck wheels anytime he is away from the vehicle for an extended period of time. Wheel chocks are available for purchase from McNeilus Truck and Manufacturing, Inc. by calling 888-686-7278.

Failure to comply may result in serious personal injury or death or damage to equipment.

### NOTE

Turn the pump ON and idle the truck for a minimum of five minutes before operating the hydraulic functions when the air temperature is 50° F (10° C) or below.

#### 3.1 Start-Up Procedure

Before starting the vehicle, make certain that:

- 1. BATTERY switch is ON.
- 2. Daily checks have been completed and verified.

### 3.2 Warm-Up Procedure

At start-up of the equipment each morning, it is important to cycle through each of the main hydraulic circuits to be certain each circuit is functioning properly. Cycling through each operation also helps ensure that the hydraulic fluid is up to operating temperature and is present throughout the system.

# **A**CAUTION

If you detect a problem with any control function, it must be repaired immediately.

DO NOT operate the Packer with malfunctioning controls.

Damage to property or equipment may occur.

- 1. Start the vehicle and idle for 5 minutes with the pump turned off. (Do not attempt to run any functions during this period.)
- 2. Turn the pump on to activate the heater function for 5 minutes.

a. For the heater to work, which operates the Tailgate Close solenoid and Top Door open, these conditions need to be met:

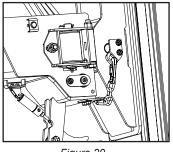
- i. Pump needs to be on.
- ii. All other functions need to be off.
- iii. Auto Heater needs to be set to Enabled. See Zero Radius Service Manual for Enable parameters.
- iv. Oil temperature needs to be below 109°F.
- v. Tailgate must be closed.
- 3. Cycle through each of the following operations:
  - a. Packing Functions Cycle three (3) times.
  - b. Top Door Functions Cycle three (3) times.

- c. Grabber and Arm Functions Cycle five (5) times.
- After completing the cycle tests, inspect the refuse vehicle for any hydraulic leaks. If the leaks are detected, correct them BEFORE the refuse vehicle is placed into actual operation.

### 3.3 Traveling Procedure

Before beginning travel to the next site, be sure that all Hydraulic functions are in their HOME positions. This means:

1. That the arm assembly is retracted to its STOWED position and is secured in place with the hook and with the arm transit latch chain (Figure 29 for arm transit latch chain). Stowed means that the arm is retracted into the body and the grabber is in the hopper with the fingers closed. The hook will automatically latch when the ARM switch is pressed off; the arm transit latch chain is manually latched.



### Operation

# NOTE

Arm assembly must first be retracted and then the top door fully closed in order to place arm assembly in the STOWED position.

- 2. That the top door is fully closed.
- That the grabber fingers (Figure 30, Item 1) are in their fully CLOSED position and in the fully RAISED/STOWED position in the hopper. When the arm and grabber assembly are properly stowed, the arm stowed LED light will be off.
- 4. That the tailgate is fully closed.
- 5. That the PUMP switch is off.
- 6. Push any of the E-STOP buttons to disable all refuse vehicle functions.
- 7. Refer to your company's policy on the use of safety lights.

### NOTE

Alarm will sound if grabber is not in the stowed position when truck is driven over 7 mph.

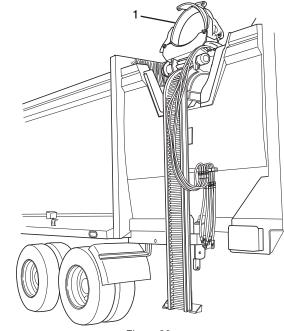
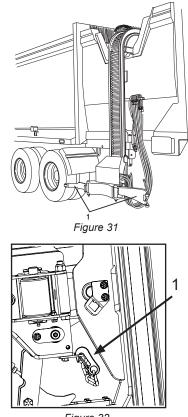


Figure 30

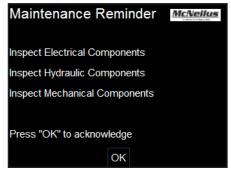


#### 3.4 Preparation Before Starting Route

- 1. If necessary, turn work lights on to enhance vision.
- 2. Activate all E-STOP buttons.
- 3. Press PUMP switch to activate the hydraulics.
- 4. Lower the grabber assembly from the STOWED position in the hopper.
- 5. Open the grabber fingers (Figure 31, Item 1).
- 6. Open the top door.
- 7. Disconnect the arm transit latch from the arm, and stow the chain by hooking the clip to the larger hole on the boom retainer plate (Figure 32, Item 1). If the operator attempts to extend the arm with the chain still latched, the chain will break and it will need replacing.



#### 3.5 Daily Maintenance Reminder Screen



Daily Maintenance Reminder Screen

#### Description

This screen displays reminders to the Operator to perform daily checks on:

- Inspect Electrical Components
- Inspect Hydraulic Components
- Inspect Mechanical Components

Operator should press the "OK" button upon completion of vehicle inspection to continue to the Home Screen.

### 3.6 Refuse Loading Procedure

Loading a refuse container quickly with the arm assembly involves minimum work on the part of the operator. See Figure 33.

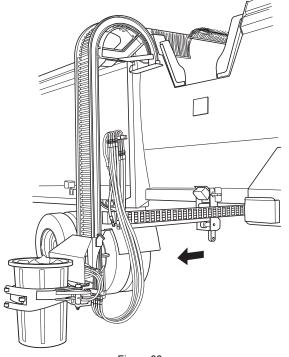
# 

Be sure all non-operator personnel are at least 20 feet (6 meters) away from all areas of the Packer. Serious personal injury or death may occur.

- Position the vehicle properly at the collection site, staying close to the curb side to achieve a distance of 3-6 ft (1-2 m).
- 2. Maximum efficiency can be obtained when the containers are positioned 3-6 ft (1-2 m) from the truck and they are spread in a line.
- 3. Extend the arm assembly to grab the container.
- 4. Position the grabber fingers around the container.

### NOTE

To improve the ability to select an individual container, it may be necessary to partially close the grabber fingers before extending the arm assembly to the container.





### 3.7 Refuse Dumping Procedure

### WARNING

Be sure all non-operator personnel are at least 20 feet (6 meters) away from all areas of the Packer.

Serious personal injury or death may occur.

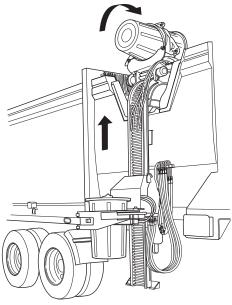
# ΝΟΤΕ

The grabber assembly will not raise to the full DUMP position unless the arm assembly is in the fully RETRACTED position.

- 1. Start raising the grabber assembly and at the same time, retract the arm assembly until the container is emptied (Figure 34).
- 2. Once the container is emptied, lower the grabber assembly and then extend the arm assembly.
- 3. Open the grabber fingers to release the container.
- 4. If additional containers are present at the same location, retract the arm assembly slightly, and move the vehicle as needed to load additional containers.
- 5. When finished at a site, retract the arm assembly and raise the grabber into the STOWED position.
- 6. Travel to next pickup site.

# A DANGER

The arm assembly and grabber MUST be stowed and secured while traveling when the arm assembly is not in use. Serious personal injury or death may occur.





### 3.8 Refuse Empty Procedure

### WARNING

Be sure all non-operator personnel are at least 20 feet (6 meters) away from all areas of the Packer. Serious personal injury or death may occur.

- 1. If equipped with a pusher axle, make sure the pusher axle is raised.
- 2. If equipped with a tag axle, make sure the tag axle is lowered.
- 3. Position rear of refuse vehicle as appropriate.
- 4. Open the tailgate fully.

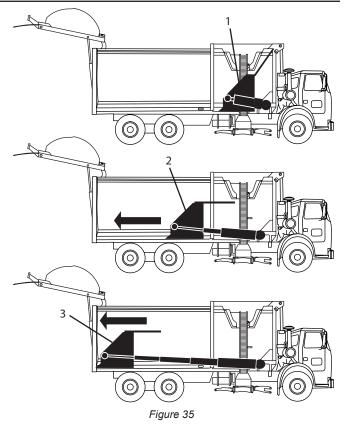
### NOTE

Do not extend the packing panel to the full EJECT position when moving the packing panel from the HOME position for the first time. Refuse may fall behind the packing panel causing the load not to be completely ejected.

- 5. Extend the packing panel from the HOME position (Figure 35, Item 1) to the middle of the body (Figure 35, Item 2).
- 6. Retract the packing panel to the HOME position. This will prevent refuse from falling behind the packing panel.



- 7. Once again, extend the packing panel from the HOME position to the middle of the body.
- 8. Retract the packing panel back to the HOME position.
- 9. Extend the packing panel to the fully EXTENDED position (Figure 35, Item 3) and move the truck forward to verify that the entire refuse load has been ejected.
- 10. Lower and prop the tailgate.
- 11. Inspect and clean the tailgate seal and sealing areas of the body, and then fully close the tailgate.



### Operation

### 3.9 End-of-Day Checks

At the end of the day, make certain that:

1. Packing panel is in the HOME position and the tailgate is fully closed.

### NOTE

Do not place packing panel in the HOME position during cold weather conditions.

2. Arm assembly is retracted to the STOWED position.

### 

The arm assembly and grabber MUST be stowed and secured while traveling when the arm assembly is not in use. Serious personal injury or death may occur.

- 3. Grabber fingers are in their fully CLOSED position and raised to the STOW position (Figure 36, Item 1).
- 4. Top Door is closed.
- 5. All equipment is properly shut down (see the Chassis Manual for more information on proper shutdown procedures for the engine).

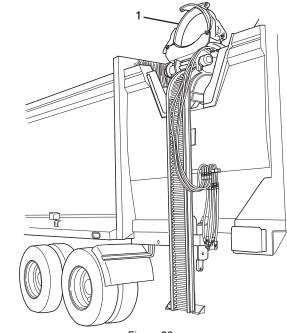


Figure 36

### 4.0 Optional Equipment

### 4.1 Pusher or Tag Axle

### NOTE

The following information is for auxiliary axles installed by McNeilus Truck and Manufacturing, Inc. Refer to chassis manufacturer information for axle installed by the chassis manufacturer or a third party.

The auxiliary axle down force is controlled by regulated air pressure to the axle suspension air springs. The regulated air pressure is preset at the factory to a common pressure setting. Determine the actual regulated air pressure by driving the vehicle over a truck scale at the various weights the vehicle will be operated at up to the GVWR as shown on the Final Stage Manufacturer Label located on the driver's side cab doorjamb (see Section 2 in the Foreword). Adjust the regulated air pressure according to the auxiliary axle manufacturer's pressure/weight chart located in the cab information packet supplied with the vehicle. The air pressure gauge is located in the cab of the vehicle and may also be located outside of the cab.

Always follow your company's policies and procedures when adjusting the air pressure. If you have any questions, call McNeilus Parts and Service branches at 888-686-7278. A tag axle is mounted behind the rear drive axle. A pusher axle is mounted in front of the rear drive axle. They are considered auxiliary axles. The pusher or tag axle is raised and lowered by switches located on the cab control box. When the vehicle is placed in reverse drive gear, the axles will raise.

### NOTE

Only lower the pusher or tag axle after you have started your route. Never lower the axles when the Packer is empty. When emptying the Packer the pusher axle must be in the RAISED position and the tag axle in LOWERED position.

#### 4.1.1 Lowering the Pusher or Tag Axle

- 1. Bring the truck to a complete stop and apply the parking brake (refer to the chassis manufacturer's procedure).
- 2. Press the PUSHER or TAG AXLE LOWER button.
- 3. Resume normal operations.

#### 4.1.2 Raising the Pusher or Tag Axle

- 1. Bring the truck to a complete stop and apply the parking brake (refer to the chassis manufacturer's procedure).
- 2. Press the PUSHER or TAG AXLE RAISE button.
- 3. Resume normal operations.

### 4.2 Preco Radar Systems

There is an optional integrated Preco radar system for CODE controlled refuse systems. Refer to the Preco manual that came with the vehicle or visit Preco.com for a product manual (Side Defender or Sentry systems). The following images describe the screens that will display on the CODE display system when the Preco radar system is installed and operational.

Vehicle Command	Image on CODE Display
Vehicle is placed in reverse and vehicle is approaching an object.	
Vehicle is placed in forward drive and vehicle is approaching an object.	

Vehicle Command	Image on CODE Display
Vehicle left turn signal is activated and object is detected on the left.	
Vehicle right turn signal is activated and object is detected on the right.	

### Operation

Vehicle Command	Image on CODE Display	Vehicle Command	Image on CODE	Display
Proximity of vehicle to an object (front and rear object detection). <b>NOTE:</b> This is not a screen on the CODE display, but a legend to the color patterns shown when an object is detected.	No object detected	If a Preco sensor has failed (is missing or has an error), a screen will display on the CODE control display system with the failure condition.	Missing Se Front/Rear Sensor E Front/Rear	ensor Consor Side

### 4.3 Water Tank

### 4.3.1 Water Tank Safety

### **A** WARNING

IMPORTANT ALUMINUM AND STEEL WATER TANK INFORMATION.

- 1. Inspect water tank on a daily basis for any damage including, but not limited to, dents, gouges in metal, or leaks.
- 2. Do not weld on or repair water tank. Instead, replace water tank with a new OEM water tank.
- 3. Never pressure test an empty water tank. Only pressure test a full water tank.
- 4. Never remove pressure regulator or pressure safety valve from tank.
- If regulator or safety valve is defective, it must be replaced before Packer is put into service.
- 5. Do not pressurize water tank beyond its working pressure.
- If pressure exceeds the working pressure, immediately depressurize water tank and replace pressure regulator and pressure safety valve.

### **A** WARNING

#### CONTINUED

- 6. Never drive the truck with the water tank pressurized.
- Depressurize water tank prior to transit to or from job site.
- Water tank should be pressurized only when being used.
- 7. Never modify water tank in any way.
- 8. Immediately replace safety decals with McNeilus decals if decals are missing or difficult to read.
- 9. Refer to the McNeilus Operator's Manual or contact McNeilus at 1-888-686-7278 if you have questions or require assistance.

### 4.3.2 Introduction

Your refuse vehicle may be equipped with a pressurized water tank. This tank is used to rinse debris off the refuse vehicle. Air pressure from the truck's brake system is used to provide pressure to the tank. Use these instructions for the safe operation and inspection of all McNeilus, Oshkosh, and London pressurized water tanks.

If your refuse vehicle is equipped with a non-pressurized water tank (a system that uses a water pump to provide pressure), refer to the instructions provided with the refuse vehicle.

### Operation

#### 4.3.3 Daily Inspection

- Inspect tank daily for damage or leaks.
- Replace (do not repair) damaged or leaking tank.
- Drain pressure before driving.
- · Do not weld or repair tank.
- Never exceed stated psi in tank.
- Bursting tank may injure or kill.
- 4.3.3.1 Tank Integrity

#### At the start of each shift:

- Inspect Interior: Drain the tank of water and use a flashlight to look into the tank through the fill opening. Look for signs of corrosion on the inside of the tank which may indicate that the tank has been weakened and is in need of replacement.
- Inspect Exterior without Pressure: If the interior inspection indicates that the tank is in good condition, fill the tank with water and inspect the exterior of the tank thoroughly for signs of leaks. Inspect the filler neck and fill opening. Look for signs of damage.
- **Inspect Exterior with Pressure:** If there are no signs of exterior leakage, pressurize the tank and repeat the inspection.

 Depressurize Tank: Release the pressure in the tank as soon as you are finished inspecting and before moving the truck.

**Replace Defective Tank:** Water tanks with any leak or significant signs of internal or external damage or corrosion should be replaced. DO NOT ATTEMPT TO REPAIR.

#### • 4.3.3.2 Pressure Regulator Valve

**Inspect Pressure Regulator:** The pressure regulator is used to reduce the air brake system pressure to a pressure that is safe to be used in the water tank. It must be undamaged and in proper working order. Look and listen for signs of leaking. Ensure that the valve and associated hoses and fittings are undamaged.

Adjust Pressure to Correct Setting: Many pressure regulators are set at the factory and cannot be adjusted. if your water tank has an adjustable regulator, set it to 50 psi. When setting the regulator, always begin by turning the adjusting knob counterclockwise first to reduce the pressure slightly. Then turn it clockwise slowly to bring the pressure up to the correct setting. Never continue to turn the valve past the correct setting.

**Replace Defective Regulator Valve:** Any water tank with a damaged or missing pressure regulator valve must be removed from service immediately. Do not pressurize the tank until a functioning pressure regulator valve has been installed.

#### • 4.3.3.3 Pressure Relief Valve

**Inspect the Relief Valve:** The pressure relief valve is a safety device that will release air or water from the tank if it is inadvertently pressurized over a relief setting. The relief setting on most water tanks is set at the factory and cannot be adjusted. Identify the pressure relief valve and ensure that it has not been damaged or tampered with.

**Replace Defective Relief Valve:** Any water tank with a damaged or missing pressure relief valve must be removed from service immediately. Do not pressurize the tank until a functioning pressure relief valve has been installed.

#### 4.3.4 Daily Operation

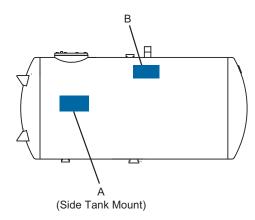
The water tank is designed to be used during stationary operation at the yard or the landfill site only. It is not necessary or beneficial for the tank to be pressurized while driving, and a pressurized tank is an added hazard in the event of a crash or a rollover.

#### 4.3.5 Vehicle Handling Characteristics

Safe operation of any vehicle is the responsibility of the driver. The water tank is a fluid load that can increase the rollover tendency if the truck is driven with the water tank partially full. To reduce the risk of rollover, only drive the truck with the water tank either completely full or completely empty. Avoid making sharp turns at excessive speeds and other abrupt maneuvers. In the event of a rollover or crash, an unbelted person is significantly more likely to become injured or die than a person wearing a seat belt. ALWAYS WEAR YOUR SEAT BELT.

#### 4.3.6 Water Tank Sign Identification

No.	Part Number	Qty.	Comments
А	1449162	1	Use if equipped with 55 psi tank.
А	1449165	1	Use if equipped with 95 psi tank.
А	1503949	1	Use if equipped with 120 psi tank.
В	1449164	1	





NOTES

### **1.0 Preventive Maintenance**

The unit must be checked or inspected each day or before each new shift of operation. Report any deficiencies to your Maintenance Department for correction by skilled service personnel.

### **A**CAUTION

Correct all identified deficiencies BEFORE operating the Packer. Failure to correct deficiencies may cause damage to equipment.

### 1.1 DOT Pre-Trip

Perform pre-trip inspection of chassis and refuse vehicle according to all federal, state, and local laws.

## 2.0 Preventive Maintenance Intervals

Performing preventive maintenance on your refuse vehicle will prolong the life of its equipment, help prevent expensive downtime, and minimize the potential for problems arising on the route.

The following Preventive Maintenance Chart summarizes the requirements to properly maintain your refuse vehicle.

The chart specifies the recommended interval when each item should be performed.

Intervals are listed in calendar and hours-of-use increments. Maintenance should be performed at the increment that occurs first.

The preventive maintenance intervals listed under the **Service** group heading are the maximum days or hours allowed for each maintenance procedure. Continue to repeat the maintenance procedures at the listed intervals.

### NOTE

If the Packer is operated more hours per day or double-shifted, the maintenance interval must be adjusted accordingly.

The Preventive Maintenance Chart identifies the responsibilities to be performed by both the operator and service personnel.

#### **Preventive Maintenance**

Some maintenance procedures are listed under both the **Operator** group heading and **Service** group heading.

The Daily Checks under the **Operator** group heading identify procedures that can be performed by either the operator or skilled service personnel.

All intervals listed under the **Service** group heading must be performed by skilled service personnel. Refer to the product Service Manual for maintenance procedures.

Maintenance procedures are listed under the system of the refuse vehicle that is affected. Refer to the product Service Manual for maintenance procedures.

Perform your company's Lockout/Tagout procedure. If your company does not have a Lockout/Tagout procedure, follow OSHA 1910.147 and 1910.146 Confined Space as appropriate.

LEGEND			Operator	/			rvice	
R Replace	P Perform				ON			
I Inspect	L Lubricate		checks (5)		Auled 15	Annua	ally ours)	nualurs
T Torque	C Clean	Dail	Checks Daily Hours	envours) of Hours Schu	aduled PM	Annual 250 Hours) 250 Hours)	ually hours)	nnual ours
Hydraulic Syster	m							
Hydraulic Oil Leve	el	Р		Р				
Hydraulic System	and Components	I		I				
Hydraulic Hoses	and Fittings	I		1		1		
Hydraulic Tubes a	and Fittings	1		1				
Breather Filter				I/R	R			
Return Line Filter					R			
Hydraulic Oil Test	:				Р			
Main Relief Valve	Setting				Р	1		
Hydraulic Oil					R	R		
Reservoir Drain F	lug				I/P	I/P		
Suction Line Strai	iner				R	R		
High Pressure Fil	ter (If Applicable)				R			
Hydraulic Cooler				I				

### **Preventive Maintenance**

LEGEND			perator /	/			rvice
R Replace P Perform					DN	, ai	
I Inspect L Lubricate		checks	5	W G	duled is	Annue	ally ours)
T Torque C Clean	Dail	Checks Dail	NHOUTS) REP	Hours) Sch	eduled PM	niAnnual 250 Hours) 250 Hours) Ann	ually hours) 500 Hours) 500 Hours)
Electrical System							
Lighting System	1			1			
Wire Harness	1			1			
Audible Backup Alarm	1				1		
Pneumatic System	Гн.	0			n		
Air Hoses and Fittings	1			1			
Coalescing Filter	Р			I/R	R		
Mechanical System							
Refuse Vehicle Body & Components	1			1			
Tailgate Seal Condition	1			1			
Tailgate Lock Clearance				I			
Packing Panel Assembly				1			
Top Door				I			
Arm Assembly		I			Ì		
Grabber Fingers and Wheels		I					
Pusher or Tag Axle Lug Nuts			Т				

LEGEND R Replace P Perform I Inspect L Lubricate T Torque C Clean	Dail	-XS	orator	Hours) And Some	duled PM	 ually hours	nuelous)
Operation							
Refuse Vehicle Controls	Р			Р			
Trash Behind Packing Panel	I/P			I/P			
Safety Signs	1						
Ladders and/or Associated Equipment	1						
Hinges and Latching Mechanisms				I			
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### **Preventive Maintenance**

# 3.0 Daily Preventive Maintenance Checks

### 3.1 Hydraulic System

### SAFETY NOTICE

Perform your company's Lockout/Tagout procedure. If your company does not have a Lockout/Tagout procedure, follow OSHA 1910.147 and 1910.146 Confined Space as appropriate.

### 3.1.1 Hydraulic Oil Level

• **Daily Checks** - The oil level is checked by the operator or skilled service personnel.

### NOTE

Check hydraulic oil level during start-up when the oil temperature is still cold.

Check the hydraulic oil level with all hydraulic cylinders in their fully RETRACTED position.

### • 3.1.1.1 Temperature / Level Sight Gauge

The gauge contains a thermometer which indicates the temperature of the hydraulic oil in the reservoir. The reservoir could have one of two gauges. The first type (Figure 37) is distinguished by the word "LOW" below the sight glass. The second type (Figure 38) does not have the word "LOW" on the gauge.

The hydraulic oil must be checked with all the hydraulic cylinders in the fully RETRACTED position.

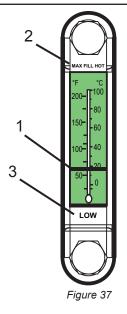
On a reservoir with a temperature/level sight gauge option (Figure 37), oil level at 60 - 70°F should be at the black line in the center of the green zone (Item 1). Oil should not be above the "Max Fill Hot" line (Figure 37, Item 2) when the system is at operating temperature. If there is too much oil in the reservoir (above the "Max Fill Hot" line), there is a possibility of the oil coming out of the breather at the top of the hydraulic reservoir. Do not operate the system with oil below the "low" line (Figure 37, Item 3) or damage to the system may result.

### 

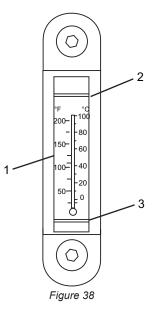
Do not operate the hydraulic system with oil below the "low" line on the temperature/level sight gauge.

Damage to the system may result.

#### **Preventive Maintenance**



The second type of temperature/level sight gauge (Figure 38, Item 1) will not have the word "LOW". Keep the oil level to the top of the black line (Full) (Figure 38, Item 2), but don't over fill. If the oil level gets to the red line (Figure 38, Item 3), oil must be added.



### 3.2 Electrical System

### SAFETY NOTICE

Perform your company's Lockout/Tagout procedure. If your company does not have a Lockout/Tagout procedure, follow OSHA 1910.147 and 1910.146 Confined Space as appropriate.

#### 3.2.1 Lighting System

• **Daily Checks** - The lighting system is inspected by the operator or skilled service personnel.

Check to ensure that all exterior lights on the refuse vehicle and chassis are functioning correctly. Replace any burned-out bulbs with the same type.

### 3.3 Pneumatic System

### SAFETY NOTICE

Perform your company's Lockout/Tagout procedure. If your company does not have a Lockout/Tagout procedure, follow OSHA 1910.147 and 1910.146 Confined Space as appropriate.

#### 3.3.1 Coalescing Filter

• **Daily Checks** - The coalescing filter is drained by the operator or skilled service personnel.

Locate the drain fitting (Figure 39, Item 1) on the bottom of the coalescing filter.

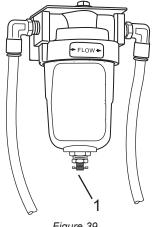


Figure 39

Drain the filter by turning the drain fitting counterclockwise. Turn the drain fitting clockwise after all moisture and contaminants have drained from the canister.

### 3.4 Mechanical System

### SAFETY NOTICE

Perform your company's Lockout/Tagout procedure. If your company does not have a Lockout/Tagout procedure, follow OSHA 1910.147 and 1910.146 Confined Space as appropriate.

#### 3.4.1 Refuse Vehicle Body and Components

• Daily Checks - The refuse vehicle body and components are inspected by the operator or skilled service personnel.

Inspect the body and all components for binding, damage, and loose or missing parts.

### 3.4.2 Tailgate Seal

• **Daily Checks** - The tailgate seal is inspected by the operator or skilled service personnel.

Inspect the tailgate seal for cuts, tears, damage, or excessive wear. Ensure that the seal is fully seated in the tailgate channel. Inspect the mounting straps to ensure they are secure.

### 3.5 Operation

### 

Be sure all non-operator personnel are at least 20 feet (6 meters) away from all areas of the Packer.

Serious personal injury or death may occur.

### 

Make sure the area above the vehicle is clear of objects and power lines before raising the body or opening the tailgate.

Serious personel injury or death may occur.

#### 3.5.1 Refuse Vehicle Controls

• **Daily Checks** - The refuse vehicle controls are checked for proper operation by the operator or skilled service personnel.

Operate all functions to validate they are operational. Verify that all indicator lights and alarms are operational.

### **Preventive Maintenance**

### 3.6 Trash Behind the Packing Panel

• **Daily Checks** - The refuse vehicle is inspected for trash behind the packing panel by the operator or skilled service personnel.

When the refuse vehicle is operated on the route, trash can pass by the packing panel. If the trash is not cleaned from behind the packing panel, the refuse vehicle can be damaged.

1. Shut the engine off and disable the refuse vehicle.

### **A** WARNING

Packer must be disabled by the following steps before proceeding.

- 1. Place transmission in NEUTRAL.
- 2. Apply chassis parking brake.
- 3. Shut engine OFF.
- 4. Remove chassis ignition key and maintain in personal possession.
- 5. Turn chassis BATTERY switch OFF.

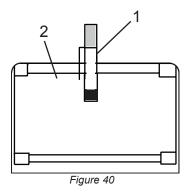
Failure to disable the Packer may result in serious personal injury or death.

 Perform your company's Lockout/Tagout procedure. If your company does not have a Lockout/Tagout procedure, follow OSHA 1910.147 and 1910.146 Confined Space as appropriate.

### NOTE

There are clean out doors on both sides of the refuse vehicle. Open each door to properly clean behind the packing panel.

- 3. Unhook the clamp (Figure 40, Item 1) holding the clean out door closed.
- 4. Open the clean out door (Figure 40, Item 2).



5. Inspect behind the packing panel (Figure 41, Item 1) for accumulation for trash.

- 6. Without reaching your arm into the refuse vehicle, remove the trash from behind the packing panel using the appropriate clean out tool.
- 7. After the trash is removed, close and secure the clean out door.

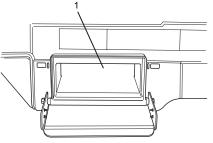


Figure 41

### 3.7 Safety Signs

• **Daily Checks** - A complete walk around of the vehicle to inspect the safety signs should be performed every day before operation. If any of the safety signs are damaged, illegible, or missing, they must be replaced before operation.

For the proper location and part numbers of the safety signs for the refuse vehicle, see "SAFETY SIGNS". If you are unable to determine the proper safety sign or its placement on the refuse vehicle, call McNeilus Truck and Manufacturing, Inc. 888-686-7278 for assistance. If any safety signs on the equipment are not clearly readable, contact McNeilus Parts and Service at 888-686-7278 or www.streetsmartparts.com to order replacements. Use only McNeilus replacement safety signs.

For information on any of the chassis safety signs, please contact the chassis manufacturer.

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### 4.0 Propping the Tailgate

When performing maintenance procedures that require the tailgate to be open, the following procedure must be followed to open and prop the tailgate.

### 

Be sure all non-operator personnel are at least 20 feet (6 meters) away from all areas of the Packer.

Serious personal injury or death may occur.

### 

Make sure the area above the vehicle is clear of objects and power lines before raising or opening the tailgate. Serious personal injury or death may occur.

### 4.1 Engaging the Tailgate Prop

- 1. Start the engine and raise the tailgate approximately 2.5-3 ft.
- 2. Shut the chassis engine off and disable the refuse vehicle.

### A WARNING

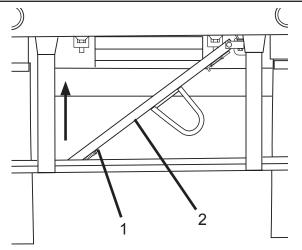
Packer must be disabled by the following steps before proceeding.

- 1. Place transmission in NEUTRAL.
- 2. Apply chassis parking brake.
- 3. Shut engine OFF.
- 4. Remove chassis ignition key and maintain in personal possession.
- 5. Turn chassis BATTERY switch OFF.

Failure to disable the Packer may result in serious personal injury or death.

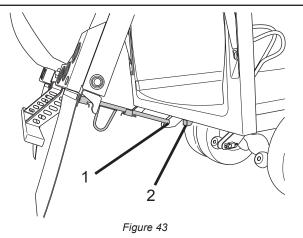
3. Standing behind the tailgate, release the pin (Figure 42, Item 1) and swing the prop (Figure 42, Item 2) toward the truck frame.

#### **Preventive Maintenance**





4. Position the end of the prop (Figure 43, Item 1) over the pocket (Figure 43, Item 2) and lock in place with spring-loaded pin.



5. Turn chassis BATTERY switch ON.

#### 

Verify that the tailgate props are properly seated in the pockets off the body compartment.

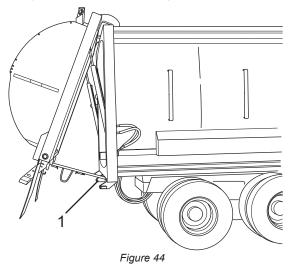
Serious personal injury or death may occur.

### A CAUTION

Do not POWER DOWN the tailgate against the props.

#### Damage may occur to the props.

6. Start chassis engine and lower the tailgate until the prop is fully seated in the pocket (Figure 44, Item 1).



7. Shut the chassis engine off and disable the refuse vehicle.

### 

Packer must be disabled by the following steps before proceeding.

- 1. Place transmission in NEUTRAL.
- 2. Apply chassis parking brake.
- 3. Shut engine OFF.
- 4. Remove chassis ignition key and maintain in personal possession.
- 5. Turn chassis BATTERY switch OFF.

Failure to disable the Packer may result in serious personal injury or death.

8. Perform your company's Lockout/Tagout procedure. If your company does not have a Lockout/Tagout procedure, follow OSHA 1910.147 and 1910.146 Confined Space as appropriate.

### 4.2 Disengaging the Tailgate Prop

After completing the maintenance procedures on the body that require the tailgate to be propped, the following procedure must be followed to disengage the prop and close the tailgate.

- Remove the Lockout/Tagout procedure from the refuse vehicle. If your company does not have a Lockout/ Tagout procedure, follow OSHA 1910.147 and 1910.146 Confined Space as appropriate.
- 2. Open the tailgate as needed to provide the necessary clearance to disengage the prop from the pocket in the body compartment.
- 3. Disable the refuse vehicle functions.

### A WARNING

Packer must be disabled by the following steps before proceeding.

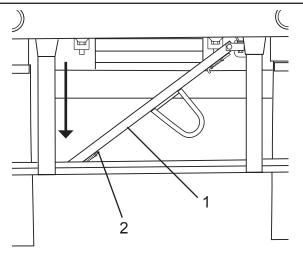
- 1. Place transmission in NEUTRAL.
- 2. Apply chassis parking brake.
- 3. Shut engine OFF.
- 4. Remove chassis ignition key and maintain in personal possession.
- 5. Turn chassis BATTERY switch OFF.

Failure to disable the Packer may result in serious personal injury or death.

4. Standing behind the tailgate, remove the prop from the pocket and swing the prop (Figure 45, Item 1) away from the chassis frame to the STORED position and install the retaining pin (Figure 45, Item 2).

### **Preventive Maintenance**







- 5. Turn chassis BATTERY switch ON.
- 6. Start the chassis engine.
- 7. Close the tailgate.

### 5.0 Lubrication

### 5.1 Daily Lubrication

Lubricate all the following points with a high-quality EP No. 2 lithium grease.

Daily lubrication intervals are based on a 10-hour day. If the refuse vehicle is operated more hours per day or double-shifted, the maintenance interval must be adjusted accordingly.

If your refuse vehicle is equipped with a tag axle, refer to the Operator's and Service Manuals supplied by the manufacturer for the proper lubrication and maintenance.

The lubrication charts in the following pages are divided between Zero Radius and Zero Radius Extended Reach. Refer to the appropriate illustrations for your model.

### SAFETY NOTICE

Perform your company's Lockout/Tagout procedure. If your company does not have a Lockout/Tagout procedure, follow OSHA 1910.147 and 1910.146 Confined Space as appropriate.

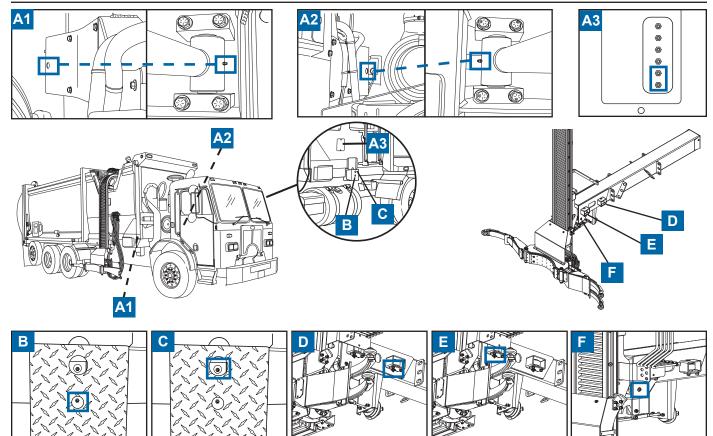
### A WARNING

Items G, H, I, J, K, and L must be greased with the grabber fully lowered on mast, or if raised, chocked with a jack stand or blocked to prevent the grabber from lowering. Failure to comply may injure or kill.

<u>McNeilus</u>	
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Ze	ro Radius 6 ft. Reach Daily Lubrication Points	Lubrica	te Daily or Every 10 Hours
Ref.	Description	No. of Fittings	Comments
A1	Packing Panel Cylinder - Curb Side - Rod End	1	
A2	Packing Panel Cylinder - Street Side - Rod End	1	
A3	Packing Panel Cylinders - Base End	2	Two Cylinders - One Per Side
В	Arm Cylinder - Base End	1	
С	Arm Rollers - Rear	1	
D	Arm Rollers - Mid	2	Two Rollers - One Per Side
E	Arm Rollers - Front	2	Two Rollers - One Per Side
F	Arm Rollers - Bottom	2	Two Rollers - One Per Side

### **Preventive Maintenance**



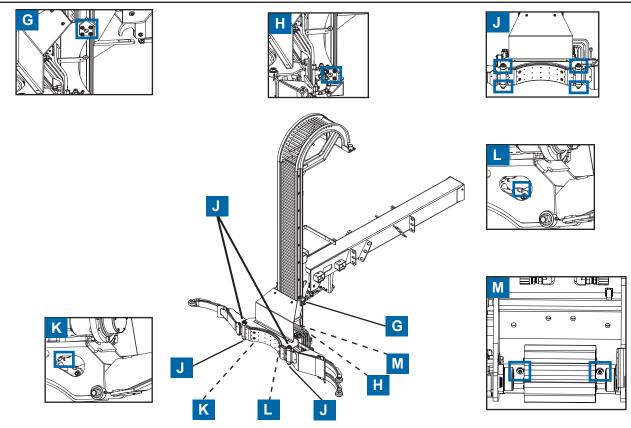
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Ze	ro Radius 6 ft. Reach Daily Lubrication Points	Lubrica	te Daily or Every 10 Hours
Ref.	Description	No. of Fittings	Comments
G	Grabber Assembly Rollers - Upper	2	Two Rollers - One Per Side
Н	Grabber Assembly Rollers - Lower	2	Two Rollers - One Per Side
J	Grabber Finger Pivots - Upper	2	Two Pivot Pins - One Per Side
J	Grabber Finger Pivots - Lower	2	Two Pivot Pins - One Per Side
K	Grabber Fingers Cylinders - Base End	2	Two Cylinders - One Per Side
L	Grabber Fingers Cylinders - Rod End	2	Two Cylinders - One Per Side
М	Grabber Roller Gear	2	Two Lubrication Locations

### **A** WARNING

Items G, H, I, J, K, and L must be greased with the grabber fully lowered on mast, or if raised, chocked with a jack stand or blocked to prevent the grabber from lowering. Failure to comply may injure or kill.

#### **Preventive Maintenance**

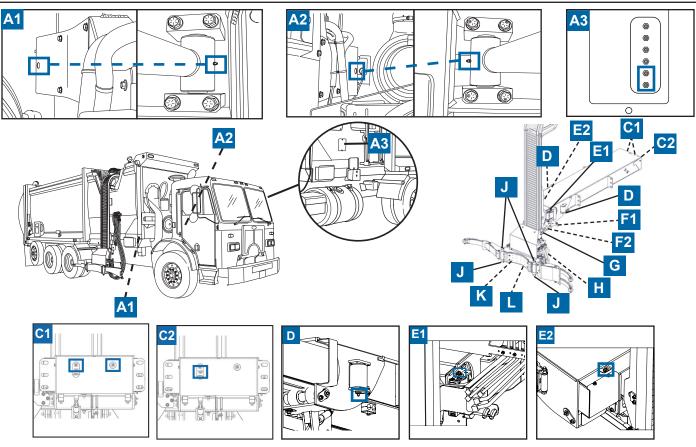


Zero	Radius Extended 12 ft. Reach Daily Lubrication Points	Lul	bricate Daily or Every 10 Hours
Ref.	Description	No. of Fittings	Comments
A1	Packing Panel Cylinder - Curb Side - Rod End	1	
A2	Packing Panel Cylinder - Street Side - Rod End	1	One Per Side
A3	Packing Panel Cylinders - Base End	2	Two Cylinders - One Per Side
C1	Top Rollers - Intermediate Boom	2	
C2	Top Rollers - Curb Side Boom	1	
D	Side Arm Rollers - Rear	2	Two Rollers - One Per Side
E1	Side Arm Rollers - Front - Cab Side	1	
E2	Side Arm Rollers - Front - Tailgate Side	1	
F1	Arm Rollers - Bottom - Truck Mounted Receiver	2	Two Rollers - Two Rollers per grease fitting
F2	Arm Rollers - Bottom - Intermediate Boom	2	Two Rollers - One Per Side
G	Grabber Assembly Rollers - Upper	2	Two Rollers - One Per Side
Н	Grabber Assembly Rollers - Lower	2	Two Rollers - One Per Side
J	Grabber Finger Pivots - Upper	2	Two Pivot Pins - One Per Side
J	Grabber Finger Pivots - Lower	2	Two Pivot Pins - One Per Side
К	Grabber Finger Cylinders - Base End	2	Two Cylinders - One Per Side
L	Grabber Finger Cylinders - Rod End	2	Two Cylinders - One Per Side
М	Grabber Roller Gear	2	Two Lubrication Locations

### **A** WARNING

Items G, H, I, J, K, and L must be greased with the grabber fully lowered on mast, or if raised, chocked with a jack stand or blocked to prevent the grabber from lowering. Failure to comply may injure or kill.

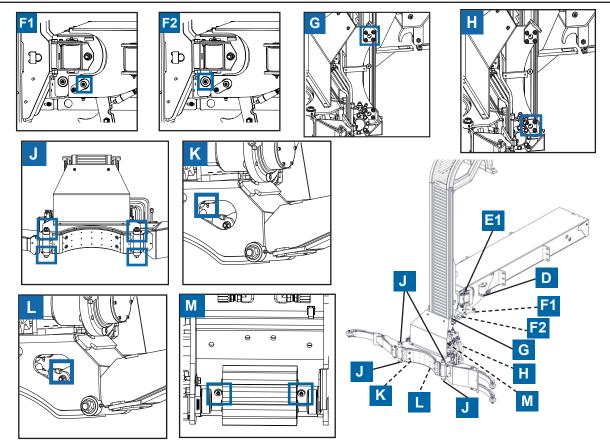
### **Preventive Maintenance**



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#### **Preventive Maintenance**





### 5.2 Scheduled PM Lubrication

#### 5.2.1 Zero Radius 6 ft. and Zero Radius 12 ft. Extended Reach Weekly Preventive Maintenance

Lubricate all the following points with a high-quality EP No. 2 lithium grease.

Scheduled lubrication intervals are based on weekly or every 50 hours. If the refuse vehicle is operated more hours or double shifted, the maintenance interval must be adjusted accordingly.

### SAFETY NOTICE

Perform your company's Lockout/Tagout procedure. If your company does not have a Lockout/Tagout procedure, follow OSHA 1910.147 and 1910.146 Confined Space as appropriate.

### 

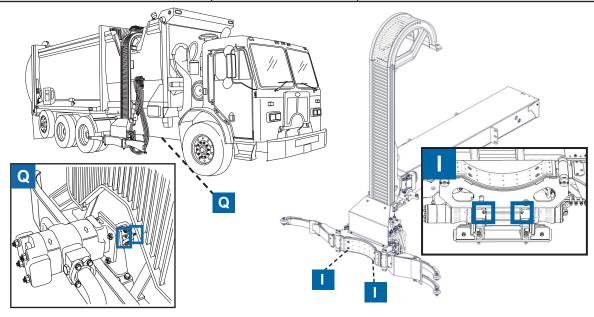
Items G, H, I, J, K, and L must be greased with the grabber fully lowered on mast, or if raised, chocked with a jack stand or blocked to prevent the grabber from lowering. Failure to comply may injure or kill.

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#### **Preventive Maintenance**

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Zero Radius and Zero Radius Extended Reach Weekly Lubrication Points		Lubricate Weekly or Every 50 Hours		
Ref.	Description	No. of Fittings	Comments	
I	Grabber Gear	4	Two fittings per spline hub - lubricate minimum one per hub	
Q	PTO Shaft U-Joints	3	Located underneath the body. Not shown under body for illustrative purposes only.	



#### 5.2.2 Zero Radius 6 ft. and Zero Radius 12 ft. Extended Reach Every 3 Weeks Preventive Maintenance

Lubricate all the following points with a high-quality EP No. 2 lithium grease.

Scheduled lubrication intervals are based on every 3 weeks or every 150 hours. If the refuse vehicle is operated more hours or double shifted, the maintenance interval must be adjusted accordingly.

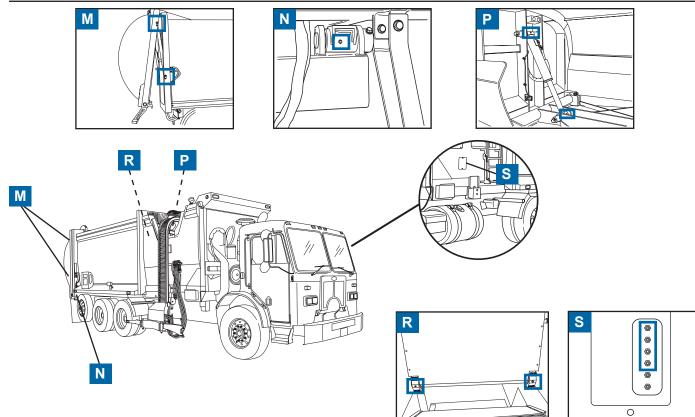
### SAFETY NOTICE

Perform your company's Lockout/Tagout procedure. If your company does not have a Lockout/Tagout procedure, follow OSHA 1910.147 and 1910.146 Confined Space as appropriate.

Zero	o Radius and Zero Radius Extended Reach Scheduled Preventive Maintenance Lubrication Points	Lubricate Every 3 Weeks or Every 150 Hours		
Ref.	Description	No. of Fittings	Comments	
М	Tailgate Cylinder - Base End	2	Two Cylinders - One Per Side	
М	Tailgate Cylinder - Rod End	2	Two Cylinders - One Per Side	
Ν	Body Pivot Pin	2	Two Pivot Pins - One Per Side	
Р	Top Door Cylinder - Base End	1		
Р	Top Door Cylinder - Rod End	1		
R	Top Door Pivot Pins	2		
S	Follower Hinge	4		

### **Preventive Maintenance**





### **1.0 Troubleshooting**

When a problem or malfunction occurs, follow these steps. The sequence below will help isolate the problem and often permit a quick repair. If further assistance is required, refer to the applicable section of this manual or call the McNeilus factory Service and Parts number at 888-686-7278.

### NOTE

## Isolate the problem before taking any remedial actions.

- 1. Unless further damage will occur, repeat the steps that caused the problem. Refer to the OPERATION section of this manual to be sure that the correct operating procedures have been followed. Often a simple step in the standard operating procedure has been forgotten.
- 2. Refer to the Troubleshooting Chart. It is designed to help you troubleshoot problems at your location, and is organized in a logical sequence. Look under the appropriate equipment section, and for the specific problem within the chart.
- 3. Perform the checkout procedure and remedial actions listed within the chart to isolate the problem.

- 4. If your particular problem is not listed, or the remedial actions provided do not resolve the problem, we suggest that you take the vehicle to a service shop, refer to the appropriate service manual or contact McNeilus Truck and Manufacturing, Inc. for service assistance.
- If you have questions or need help, please call the McNeilus factory Service and Parts number at 888-686-7278.

### **1.1 Troubleshooting Chart**

Problem		Probable Cause		Action
	1.	BATTERY DISCONNECT switch is off.	1.	Turn BATTERY DISCONNECT switch on.
	2.	IGNITION switch is off.	2.	Turn IGNITION switch on.
	3.	One or more E-STOP buttons is down.	3.	Release all E-STOP buttons.
All functions not working.	4.	PUMP switch is off.	4.	Turn PUMP switch on.
	5.	Side door is open.	5.	Close side door.
	6.	Clean out door is open.	6.	Close clean out door.
	7.	System problem.	7.	Requires shop service and repair.
	1.	Engine rpm too high.	1.	Reduce engine speed to below 900 rpm.
	2.	ARM ON switch not activated.	2.	Activate ARM ON switch.
	3.	OPERATOR PRESENCE switch not pressed.	3.	Press OPERATOR PRESENCE switch.
Joystick functions not working.	4.	Side door is open.	4.	Close side door.
Working.	5.	Clean out door is open.	5.	Close clean out door.
	6.	Truck travel speed is above 15 mph.	6.	Reduce speed to less than 15 mph.
	7.	System problem.	7.	Requires shop service and repair.

### Troubleshooting

Problem	Probable Cause		Action	
	1.	Engine rpm too high.	1.	Reduce engine speed to below 1700 rpm.
	2.	Tailgate is open.	2.	Close tailgate.
	3.	Side door is open.	3.	Close side door.
Automatia paaking	4.	Clean out door is open.	4.	Close clean out door.
Automatic packing functions not working.	5.	Packing Panel not in the HOME position.	5.	Retract Packing Panel to the HOME position.
	6.	Check packing panel proximity switches for proper operation.	6.	Requires shop service and repair.
	7.	System problem.	7.	Requires shop service and repair.
	1.	Engine rpm too high.	1.	Reduce engine speed to below 1700 rpm.
Packing panel stalls in any	2.	Side door is open.	2.	Close side door.
	3.	Clean out door is open.	3.	Close clean out door.
position other than HOME.	4.	Material preventing packing panel from returning to HOME position or completing auto pack cycle.	4.	Remove obstructions and manually retract packing panel.
	5.	System problem.	5.	Requires shop service and repair.
	1.	Engine rpm too high.	1.	Reduce engine speed to below 1700 rpm.
Manual packing functions	2.	Side door is open.	2.	Close side door.
not working.	3.	Clean out door is open.	3.	Close clean out door.
	4.	System problem.	4.	Requires shop service and repair.

### Troubleshooting

Problem		Probable Cause		Action
	1.	Engine rpm too high.	1.	Reduce engine speed to below 1700 rpm.
Tailgate functions not	2.	ACTIVATE button not pressed.	2.	Press ACTIVATE button while pressing TAILGATE button.
working.	3.	Clean out door is open.	3.	Close clean out door.
	4.	Side door is open.	4.	Close side door.
	5.	System problem.	5.	Requires shop service and repair.
	1.	Engine rpm too high.	1.	Reduce engine speed to below 900 rpm.
	2.	Arm assembly not retracted.	2.	Retract arm assembly.
Grabber assembly will not	3.	OPERATOR PRESENCE switch not pressed.	3.	Press OPERATOR PRESENCE switch.
dump.	4.	Top door is closed.	4.	Open top door.
	5.	Truck travel speed is above 15 mph.	5.	Reduce speed to less than 15 mph.
	6.	System problem.	6.	Requires shop service and repair.

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