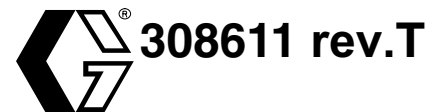


# INSTRUCTIONS—PARTS LIST



*First choice when  
quality counts.™*



This manual contains important  
warnings and information.  
**READ AND KEEP FOR REFERENCE.**

INSTRUCTIONS

**Hydraulic, Stainless Steel**

## RoadLazer® Line Striper System

*2000 psi (138 bar) Maximum Working Pressure*

**Model 231378, Series A: 3-pump, 2-color system**

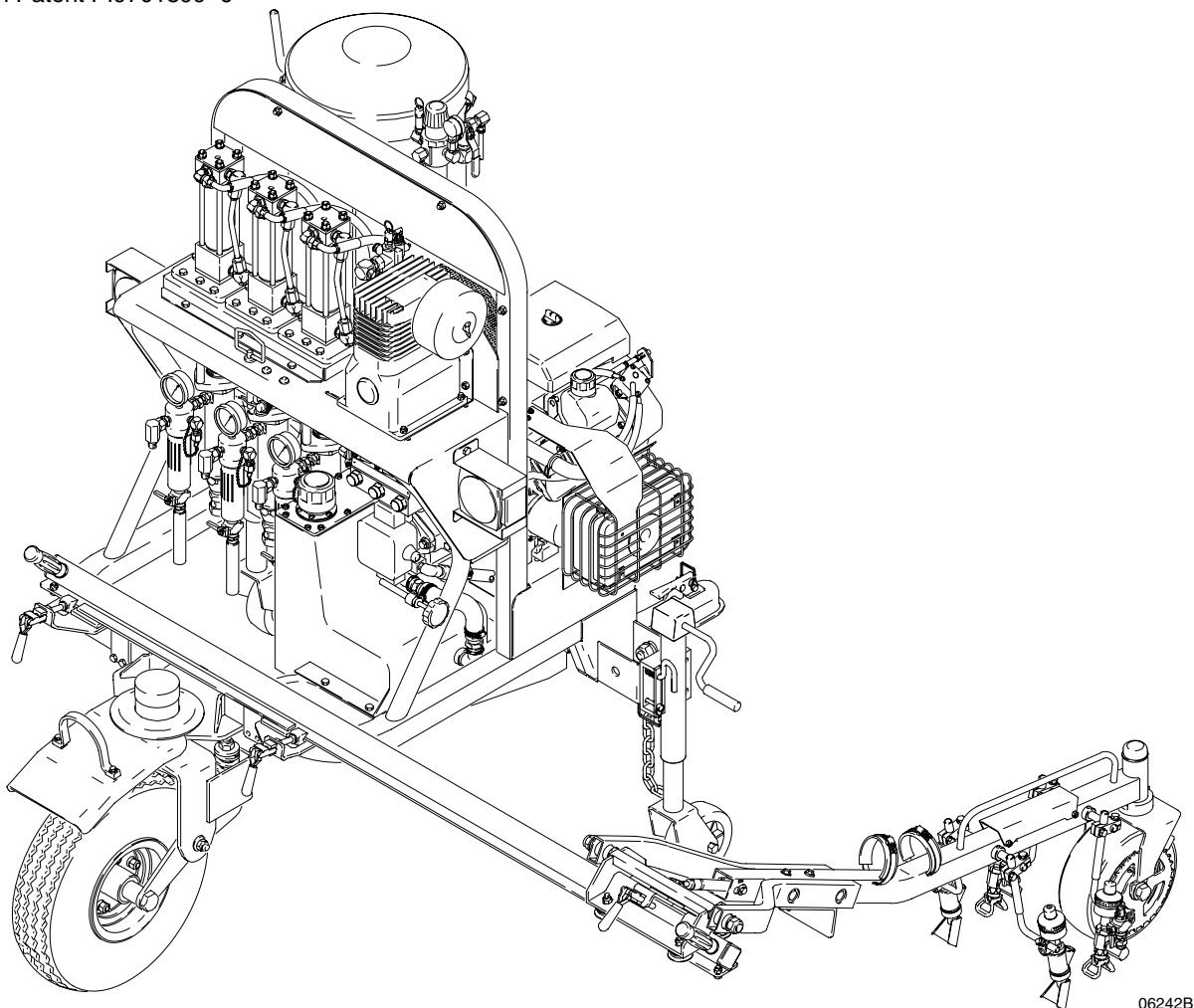
**Model 231572, Series A: 2-pump, 1-color system**

**Model 231571, Series A: 1-pump, 1-color system**

United States Patents 5,368,232 and 5,947,385

Chinese Patent ZL97111289.4

Brazilian Patent PI9701899-6



06242B

**GRACO INC. P.O. BOX 1441 MINNEAPOLIS, MN 55440-1441**

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## Symbols

### Warning Symbol



This symbol alerts you to the possibility of serious injury or death if you do not follow the instructions.

### Caution Symbol



This symbol alerts you to the possibility of damage to or destruction of equipment if you do not follow the instructions.

## ! WARNING



### INSTRUCTIONS

#### EQUIPMENT MISUSE HAZARD

Equipment misuse can cause the equipment to rupture or malfunction and result in serious injury.

- This equipment is for professional use only.
- Read all instruction manuals, tags, and labels before you operate this equipment.
- Use the equipment only for its intended purpose. If you are not sure, call your distributor.
- Do not alter or modify this equipment. Use only genuine Graco parts and accessories.
- Check equipment daily. Repair or replace worn or damaged parts immediately.
- Do not exceed the maximum working pressure of the lowest-rated system component. See **Technical Data** on page 53 for the maximum working pressure of this equipment.
- Use fluids and solvents that are compatible with the equipment wetted parts. See the **Technical Data** section of all equipment manuals. Read the fluid and solvent manufacturer's warnings.
- Do not use 1,1,1-trichloroethane, methylene chloride, other halogenated hydrocarbon solvents or fluids containing such solvents in pressurized aluminum equipment. Such use could result in a chemical reaction, with the possibility of explosion.
- Do not use hoses to pull equipment.
- Route hoses away from traffic areas, sharp edges, moving parts, and hot surfaces. Do not expose Graco hoses to temperatures above 65°C (150°F) or below -40°C (-40°F).
- Comply with all applicable local, state, and national fire, electrical, and safety regulations.
- Do not raise the RoadLazer with a portable jack unless the RoadLazer is connected to a tow vehicle.
- Wear ear and eye protection when you operate this equipment.

# WARNING



## SKIN INJECTION HAZARD

Spray from the gun, leaks, or ruptured components can inject fluid into your body and cause extremely serious injury, including the need for amputation. Fluid splashed in the eyes or on the skin can also cause serious injury.

- Fluid injected into the skin is a serious injury. The injury might look like just a cut, but it is a serious injury. Get immediate surgical treatment.
- Do not point the gun at anyone or at any part of the body.
- Do not put your hand or fingers over the spray tip.
- Do not stop or deflect leaks with your hand, body, glove or rag.
- Do not “blow back” fluid; this is not an air spray system.
- Always have the tip guard and the trigger guard on the gun when spraying.
- Check the gun diffuser operation weekly. See the gun manual.
- Be sure the gun ball valves and stencil gun trigger safety operate before you spray.
- Lock the stencil gun trigger safety when you stop spraying.
- Close the gun ball valves when you stop spraying.
- Follow the **Pressure Relief Procedure** on page 16 if the spray tip clogs and before you clean, check, or service this equipment.
- Tighten all fluid connections before you operate this equipment.
- Check the hoses, tubes, and couplings daily. Replace worn or damaged parts immediately. Do not repair high-pressure couplings; you must replace the entire hose.
- Fluid hoses must have spring guards on both ends to help protect them from rupture caused by kinks or bends near the couplings.

# WARNING



## FIRE AND EXPLOSION HAZARD

Improper grounding, poor ventilation, open flames, or sparks can cause a hazardous condition and result in a fire or explosion and serious injury.



- If there is any static sparking, or if you feel an electric shock while using this equipment, **stop spraying immediately**. Do not use the equipment until you identify and correct the problem.
- Provide fresh air ventilation to avoid the buildup of flammable fumes from solvents or the fluid being sprayed.
- Keep the spray area free of debris, including solvent, rags, and gasoline.
- If spraying indoors, electrically disconnect all equipment in the spray area.
- Extinguish all open flames or pilot lights in the spray or clean-up area.
- Do not smoke in the spray area.
- Do not turn on or off any light switch in the spray area while operating or if fumes are present.
- Ground the equipment and the object being sprayed. See Step 1 in **Flushing the System** on page 14.



## EXHAUST HAZARD

The engine exhaust contains poisonous carbon monoxide, which is colorless and odorless. Do not operate this equipment in a closed building.



## TOXIC FLUID HAZARD

Hazardous fluid or toxic fumes can cause serious injury or death if splashed in the eyes or on the skin, inhaled, or swallowed.

- Know the specific hazards of the fluid you are using. Read the fluid manufacturer's warnings.
- Store hazardous fluid in an approved container. Dispose of hazardous fluid according to all local, state, and national guidelines.
- Always wear protective eyewear, gloves, clothing, and respirator as recommended by the fluid and solvent manufacturer.

# Introduction and General Information

## INTRODUCTION

This manual and those listed below provide pre-setup requirements, parts lists, setup, operation, and maintenance instructions for the RoadLazer system. This manual includes parts lists and instructions for a 3-pump system. For 1- and 2-pump systems, all parts remain the same with the exception of plugged parts for missing pumps.

- 308612: Bead Spray Gun
- 308613: Paint Spray Gun
- 308616: Programmable Skipline Controller
- 309008: RoadLazer Guidance System
- 308618: Viscount I Hydraulic Motor
- 308650: Displacement Pump
- 308674: Viscount I Hydraulic Motor and Displacement Pump
- 308670: Hitch Receiver Kit
- 308671: Unpacking Instructions

## GENERAL INFORMATION

The RoadLazer is attached to a tow vehicle and is used to stripe up to two stripes in one or two colors with glass beading.

The RoadLazer consists of a Programmable Skipline Controller, a Front Mechanical Guidance System, three Viscount I Hydraulic Motors, three Displacement Pumps, two Paint Spray Guns, and two Bead Spray Guns.

### Programmable Skipline Controller

The Programmable Skipline Controller consists of the control box and a 30 ft cable. It is the main control for the RoadLazer system and turns the spray guns and accessories on and off.

### Front Mechanical Guidance System

The Front Mechanical Guidance System provides the operator with a bore sight view for alignment on either the left or right side of the tow vehicle. See manual 309008.

## Video Guidance System™ (optional)

The Video Guidance System provides the operator with video of a bore sight view for alignment on either the left or right side of the tow vehicle. The system consists of a 6 in. x 5.5 in. monitor, interfacing cables, video camera and mounting bracket.

## Viscount I Hydraulic Motors

The Viscount I Hydraulic Motors power the displacement pumps to supply paint to the spray guns. There are three hydraulic motors. Two hydraulic motors power the yellow-paint displacement pumps, and one powers the white-paint displacement.

## Displacement Pumps

The Displacement Pumps supply paint to the spray guns. There are three displacement pumps. Two displacement pumps provide paint to the two yellow-paint spray guns, and one provides paint to the white-paint spray gun.

## Paint Spray Guns

The Paint Spray Guns are pneumatically triggered to spray paint stripes when commanded by the Programmable Skipline Controller.

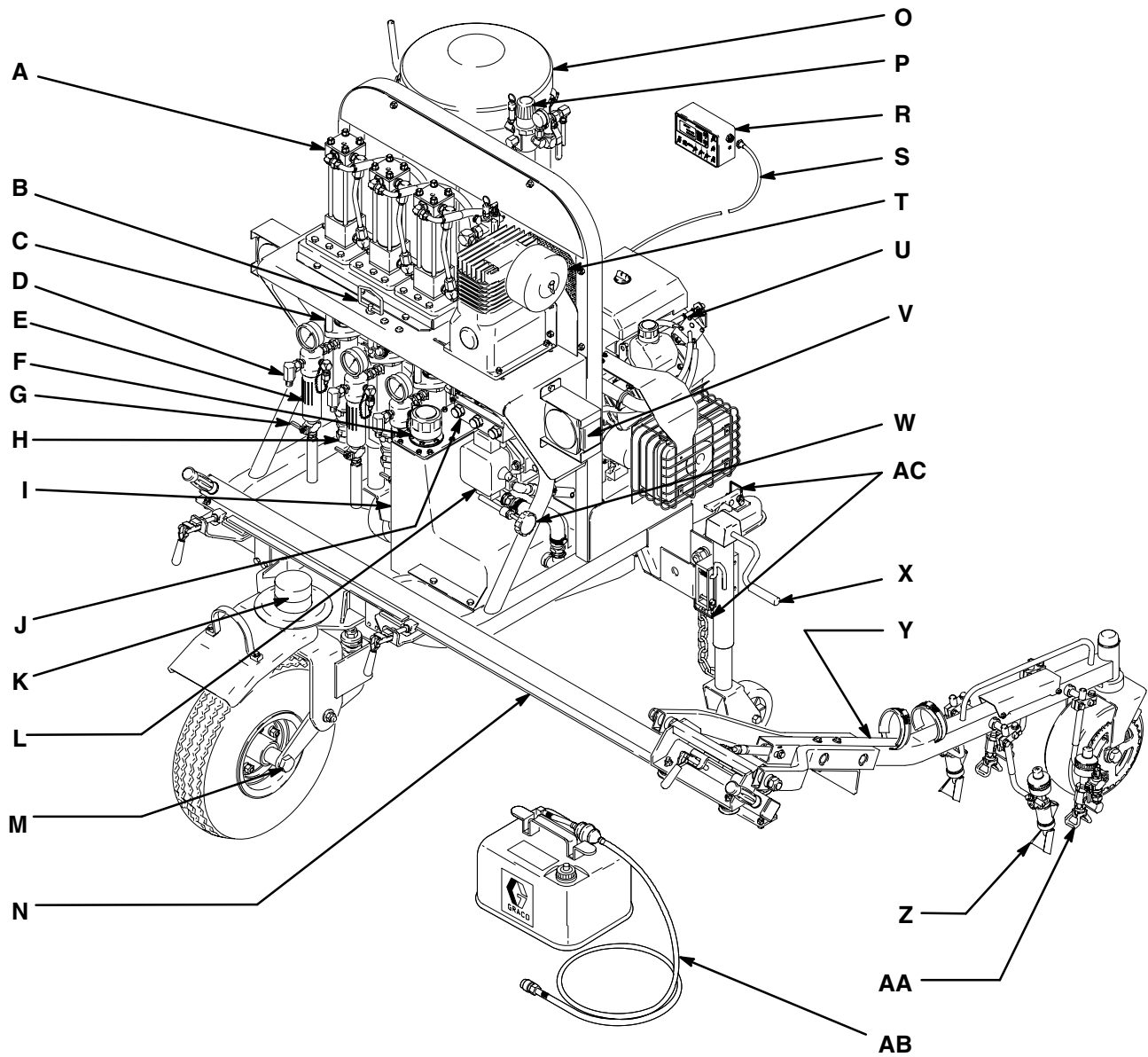
## Bead Spray Guns

The Bead Spray Guns are pneumatically triggered to spray glass beads when commanded by the Programmable Skipline Controller.

## Receivers

The two clamp-on receivers are mounted on the installed trailer hitch to provide receptacles for 2 in. ball mounts. See manual 308670 for receiver mounting instructions.

# Component Identification and Function



06242B

# Component Identification and Function

<b>A</b>	Viscount I Hydraulic Motor	Powers the displacement pump
<b>B</b>	Boom Arm Hitch Pin	Secures the spray gun boom arm when the RoadLazer is in transport
<b>C</b>	Displacement Pump	Provides fluid to be sprayed through the spray gun
<b>D</b>	Fluid Outlet	Supplies fluid from the displacement pump to the stencil spray gun (stencil spray gun is not shown)
<b>E</b>	Fluid Filter	Filters fluid between the fluid source and the spray gun
<b>F</b>	Breather Cap	Provides a means for hydraulic reservoir ventilation, oil check, and fill
<b>G</b>	Pressure Drain Valve	Relieves the fluid pressure when it is open
<b>H</b>	Fluid Inlet	Displacement pump entry for fluid from the paint drums (paint drums are not shown)
<b>I</b>	Hydraulic Reservoir	Holds 12 gallons (45 liters) of hydraulic oil for the hydraulic pump
<b>J</b>	Hydraulic Select/Hydraulic Bypass Valve	Selects displacement pumps for guns 1 & 2, or 3; or by-passes all guns
<b>K</b>	Swivel Hub	Allows the trailer wheel to swivel
<b>L</b>	Hydraulic Pump	Creates hydraulic pressure for the hydraulic power supply system
<b>M</b>	Wheel Hub	Supports and allows free rotation of the trailer wheel
<b>N</b>	Main Beam	Supports the spray gun boom arm
<b>O</b>	Bead Tank	Holds up to 300 lb (136 kg) of glass beads for continuous spraying
<b>P</b>	Air Regulator	Allows regulation of the bead tank air pressure
<b>R</b>	Programmable Skipline Controller	Allows the operator to program the operation of the RoadLazer
<b>S</b>	I/O Cable	Carries electronic control signals from the Programmable Skipline Controller to the RoadLazer
<b>T</b>	Compressor	Provides an air supply to switch paint spray gun and bead spray gun on and off as directed by the Programmable Skipline Controller
<b>U</b>	18 HP Gasoline Engine*	Powers the hydraulic pumps and the air compressor
<b>V</b>	Tail Light	Standard tail light set that includes brake lights and turn signals
<b>W</b>	Hydraulic Pressure Control Knob	Provides adjustment of hydraulic pressure (clockwise increases pressure), setting can be locked with inner lock knob
<b>X</b>	Jack	Used to roll the RoadLazer into place for connection to the tow vehicle and to hold RoadLazer upright when disconnected from tow vehicle and stored
<b>Y</b>	Spray Gun Boom Arm	Allows striping on either side of the tow vehicle at adjustable distances
<b>Z</b>	Bead Spray Gun	Sprays beads when commanded by the Programmable Skipline Controller
<b>AA</b>	Paint Spray Gun	Sprays fluid when commanded by the Programmable Skipline Controller
<b>AB</b>	Fuel Tank	Holds 6 gallons (23 liters) of 86 octane gasoline
<b>AC</b>	Safety Pins	Safety devices used with the ball coupler and jackstand for safe operation.
	Engine Choke*	Enriches air/gasoline mixture for cold starting
	Engine Throttle*	Adjusts the engine speed for large- or small-orifice spray tips
	Engine Switch*	Enables/disables engine operation
*	For more detailed explanations of these controls, see the Kohler® engine manual; supplied	

# Pre-Setup Requirements

## Tow Vehicle Recommendations and Requirements

- Graco recommends a tow vehicle wheelbase of at least 130 in. (305 cm) for normal highway use.
- The tow vehicle must have 1/2 ton or greater carrying capacity.
- The tow vehicle must have a minimum payload capacity of 1400 lb (635 kg).

**NOTE:** This minimum payload capacity is for a RoadLazer trailer with a full bead tank only. The payload capacity must be increased by the weight of striping paint, additional glass beads, cargo in the truck, and passengers other than the driver. See Fig. 1.

- The tow hitch must have a minimum rated capacity of 750 lb (340 kg) TW, 7500 lb (3402 kg) GTW.

**NOTE:** This is the minimum rated capacity as defined by SAE Standard J684 Class 4 hitch requirements for a Gross Trailer Weight (GTW) of 7500 lb (3402 kg). Recommended hitch manufacturers available upon request.

### Calculating Tow Vehicle Payload Capacity

Use the sample calculation below to determine the minimum payload capacity requirement for the RoadLazer tow vehicle:

RoadLazer with full tank of beads				1400 lb
Striping paint	(15 lb per gal.) †	_____ gal. x 15	=	_____ lb
+ Additional glass beads	(50 lb per bag) †	_____ bags x 50	=	_____ lb

Tow vehicle minimum payload capacity: 1400 lb + ( \_\_\_\_\_ lb) + ( \_\_\_\_\_ lb) = \_\_\_\_\_ lb

**Example:** One 55-gallon drum of waterborne striping paint and 2 extra bags of beads:

Tow vehicle minimum payload capacity: 1400 lb + (15 x 55) + (50 x 2) = 2325 lb

† Calculation assumes waterborne traffic paint and 50 lb bags of glass beads. Actual numbers could vary, depending on the paint or beads used.

Fig. 1

The tow vehicle must have the following additional equipment:

- Warning lights and/or sign board per federal, state, and local regulations. Reference **Part IV of the Manual on Uniform Traffic Control Devices (MUTCD)** by the U.S. Department of Transportation, Federal Highway Administration, for federal regulations.
- Securing device for paint supply containers that can be sealed during transport.
- Standard trailer light connector.
- DRAW-TITE® Class IV Ultra Frame Hitch with two Graco clamp-on receivers that are 32 in. (81 cm) on center.
- 2 in. x 2 in. front receiver (not provided by Graco).
- I/O cable access from the tow vehicle cab to the RoadLazer.



# Pre-Setup Requirements

## Hitch

Have a DRAW-TITE Class IV Ultra Frame receiver installed on your vehicle (DRAW-TITE Series 419XXX). See manual 308670 for additional instructions.

Choose a ball mount that allows the RoadLazer to travel level to the ground with an average payload. A recommended option is two DRAW-TITE adjustable 2-in. ball mounts. See Fig. 5. The ball mount must have a 2-in. by 2-in. insert with at least a 1-in. diameter ball mount hole. The ball mount hole and shank diameter must match. The ball mount must have a rating of at least 5000 lb (227 kg) GTW, 500 lb (227 kg) TW.

## Receivers

Two Graco clamp-on receivers must be mounted 32 in. (81 cm) on center on the installed DRAW-TITE Class IV Ultra Frame Hitch. See manual 308670 for mounting instructions. See Fig. 2.

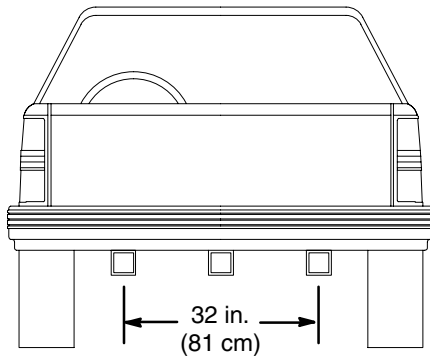


Fig. 2

06196B

## Paint Drum Bracket

### **WARNING**

Paint drums are heavy and could shift from side to side when the tow vehicle is cornering. The paint drums could fall from the vehicle and cause injury or death. Secure the drums when the vehicle is in transport or spraying.

It is recommended that the paint drums be secured with a paint drum bracket. Graco does not provide the paint drum bracket with the RoadLazer.

## Front Mechanical Guidance System

The Front Mechanical Guidance System (see manual 309008) is mounted on a trailer hitch installed on the front of the tow vehicle. The receiver is a single 2-in. x 2-in. as shown in Fig. 3. Graco does not provide the receiver.

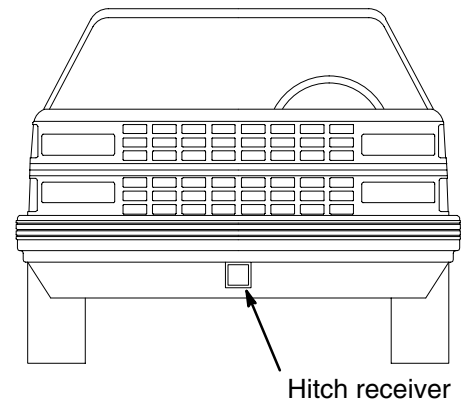


Fig. 3

06243B

## Programmable Skipline Controller

The Programmable Skipline Controller is installed in the cab of the tow vehicle. Select a position for ease of operation. This control system connects to the RoadLazer with an I/O cable, so there must be a cable access from the tow vehicle cab to the RoadLazer. See manual 308616.

# Setup

**NOTE:** Reference numbers and letters in parentheses in the text refer to Fig. and Parts Drawings callouts.

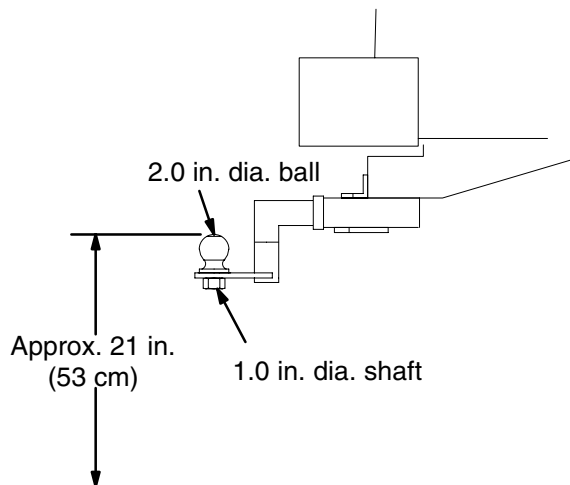
## Charge Battery

If the battery is newly purchased or has not been used for a long time, charge it before you use it. See **Battery** on page 18.

## Level Draw Bar with RoadLazer

Use the following procedure to assure level operation of the RoadLazer. Fig. 4.

1. Empty tow vehicle of any payload.
2. Install draw bar to measure approximately 21 in. (53 cm) from top of ball mount to ground.



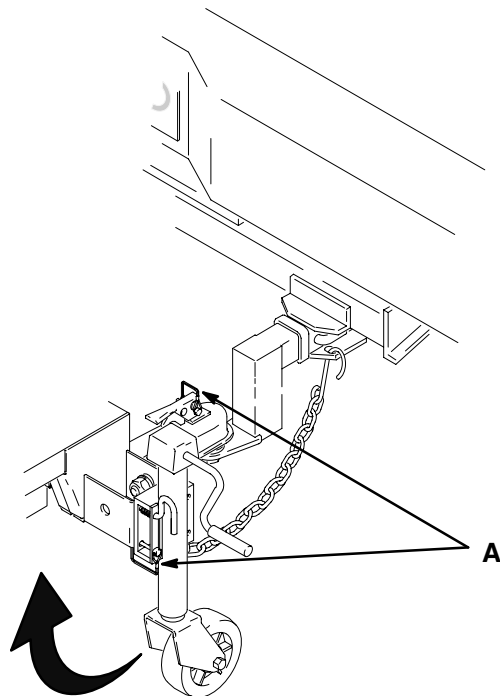
**Fig. 4** 06244

## Connect RoadLazer To Vehicle

1. Install two ball mounts in hitch receivers:
  - a. Slide ball mount into hitch receiver.
  - b. Insert pin.
  - c. Insert clip.
2. Connect RoadLazer to ball mounts:
  - a. Roll RoadLazer to vehicle, and align RoadLazer trailer arms with ball mounts.
  - b. Crank trailer arm jacks to clear ball mounts.

- c. Roll RoadLazer forward, and align RoadLazer trailer arms over ball mounts.
  - d. Crank trailer arm jacks to lower RoadLazer trailer arms onto ball mounts.
  - e. Rotate jack to horizontal position. Snap retaining handles in place to secure jacks.
  - f. Secure safety pins (A) for both trailer arm couplers and trailer arm jacks.
  - g. Connect safety chains.
3. Shorten each safety chain:
    - a. Unscrew nut fastening chain to RoadLazer.
    - b. Refasten chain to RoadLazer so it hooks up to tow vehicle with minimum slack.
  4. Connect control cable to RoadLazer Programmable Skipline Controller.

**NOTE:** When you unhook the RoadLazer from the tow vehicle, replace the safety pins (A) as shown in Fig. 5.



**Fig. 5** 06245A

# Setup

## Loading and Unloading Paint

### **WARNING**

Paint drums are heavy and could shift from side to side when the tow vehicle is cornering. The paint drums could fall from the vehicle and cause injury or death. Secure the drums when the vehicle is in transport or spraying.

### **CAUTION**

Paint could splash from the paint drum bung adapters when the paint drums are full and the vehicle is moving. Do not overfill the paint drums.

1. Use fork lift to install full 55-gallon paint drums, or use transfer pump to fill already installed drums.
2. Secure paint drums.

## Insert Fluid Lines

There are three suction lines; one white and two yellow. Insert the lines into their respective paint drums.

## Install and Align Front Mechanical Guidance System

See manual 309008.

## Install and Align Video Guidance System

See manual 309008.

# Operation

## EMERGENCY SHUT OFF

To shut down the entire RoadLazer system, set POWER ON/OFF on the Programmable Skipline Controller to the OFF position.

## Load Glass Beads

1. Set POWER ON/OFF on Programmable Skipline Controller to OFF.
2. Set RoadLazer engine ignition key to OFF. Fig. 7.
3. Relieve air pressure.
4. Remove cover from bead tank.
5. Screen glass beads to prevent debris from entering tank.
6. Load bead tank with glass beads.

## Set Up Boom and Guns

1. Pull boom to left or right side of vehicle. Lock boom clamps.
2. Remove gun arm from upright stowed position, and slide to end of boom. Slowly lower gun arm, and lock into position with clamp.

3. Open the paint gun ball valves on guns to be used.  
**NOTE:** Never open both ball valves on the two-color gun at the same time. Paint color contamination could result.
4. Fill a 5-gallon pail with water or compatible solvent, and place paint suction hose in pail.
5. Place an empty pail under the drain valves to catch drainage from drain valves.

## Prepare System to Paint

### Initial Settings

1. Ground RoadLazer ground strap to earth ground. See Fig. 8 on page 14.
2. Turn on Programmable Skipline Controller.  
**NOTE:** Engine does not start with control off.
3. Set hydraulic bypass valve to BYPASS position. Fig. 6.
4. Turn pump levers (A) clockwise 1/4 turn to OFF position.
5. Turn bead system valve to OFF position.

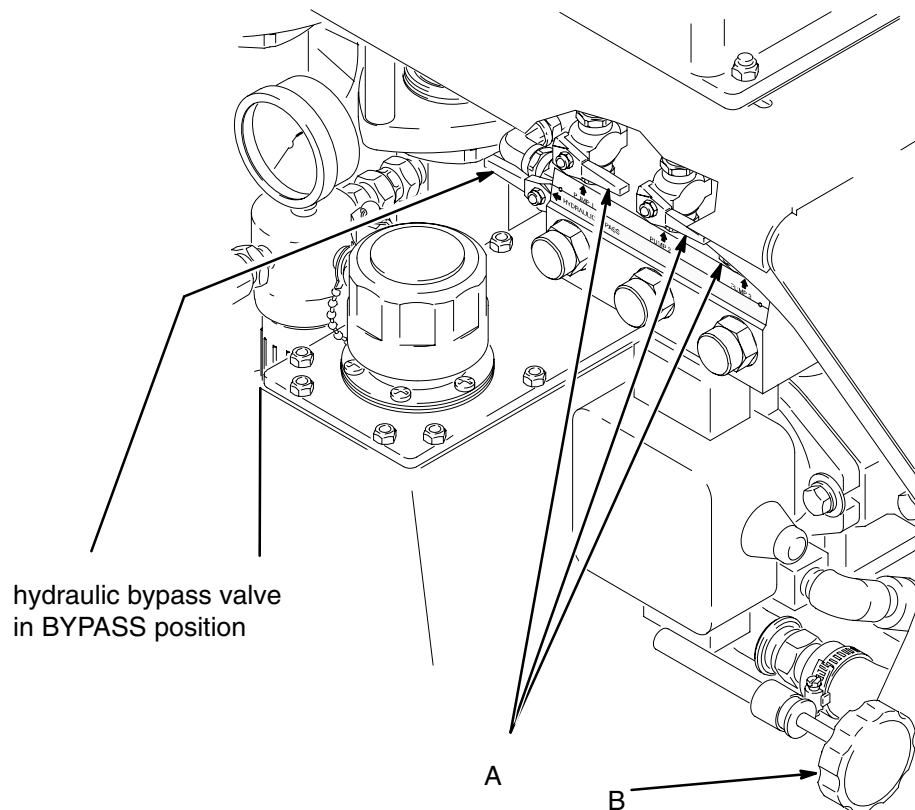


Fig. 6

06249A

# Operation

## Prepare System to Paint (Cont.)

### Start Engine

1. Set POWER ON/OFF on Programmable Skipline Controller to ON.
2. Set hydraulic bypass valve to BYPASS position. Fig. 6.

## WARNING



### FIRE AND EXPLOSION HAZARD

Gasoline is extremely flammable and explosive under certain conditions. Fuel could spray from the fuel line connector when it is disconnected from engine.

Fuel could come in contact with the hot muffler and cause fire or explosion. To reduce the risk of fire or explosion, always vent the fuel tank and allow engine muffler to cool before you disconnect the fuel line.

3. Carefully connect RoadLazer fuel tank (AB on page 6) fuel line to engine (U on page 6).
4. Open fuel tank vent.
5. Prime fuel line.
6. Pull choke out.
7. Set throttle.
8. Turn key. Fig. 7.

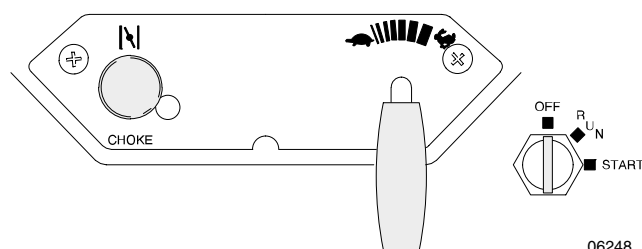


Fig. 7

9. After engine starts, push choke in.
10. Set throttle to lowest setting.

### Select/Prime Pumps

1. Turn pump lever(s) (A) to select desired paint pump(s).
2. Set throttle to half speed.
3. Open all drain valves.
4. Place paint suction hoses in drums of solvent/water.

5. Close hydraulic bypass valve to activate pumps.
6. When water or solvent comes out of drain valves, set hydraulic bypass valve to BYPASS position
7. Place suction hoses in paint drums.
8. Close hydraulic bypass valve to activate pumps.
9. When paint comes out of drain valves, set hydraulic bypass valve to BYPASS position
10. Close all drain valves

### Prime Guns

1. Open only spray gun ball valves corresponding to paint pumps or color used. **NOTE:** Never open both ball valves on the two-color gun at the same time. Paint color contamination could result.
2. Turn guns on with Programmable Skipline Controller.
3. Place an empty pail under spray guns to catch drainage from spray guns.
4. Close hydraulic bypass valve to activate pumps.
5. When paint comes out of spray gun, set hydraulic bypass valve to BYPASS position.
6. Turn off guns with Programmable Skipline Controller.
7. Set hydraulic pressure control knob to maximum or slightly lower.
8. Select air pressure on pressure tank regulator.

### Turn on Bead System

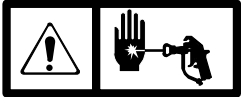
1. Turn bead system valve to ON position. Set desired bead tank pressure.
2. Remove and secure ground strap from earth ground.
3. System is now ready for painting. Select guns 1 or 2 with the Programmable Skipline Controller.

## Begin to Spray

Select appropriate procedure from menu on RoadLazer control system. See manual 308616.

# Operation

## Flushing the System

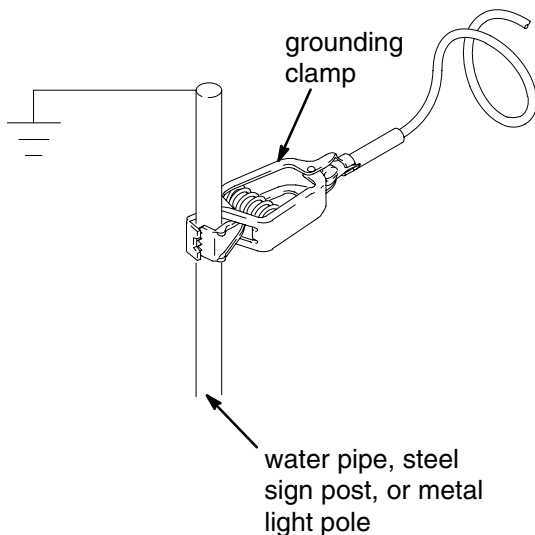


**Relieve the pressure**  
(see page 16) before you  
proceed with flushing.

Flush the system with compatible solvent. Check the system under pressure for leaks. If any are found, **relieve the pressure**, and repair the leaks. Pressurize the system again, and check for leaks.

1. Ground RoadLazer with grounding clamp (A) to earth ground. Fig. 8.

**NOTE:** The grounding clamp and ground strap (see **Ground Strap** on page 18) are both required for safe RoadLazer operation. The grounding clamp is for stationary use. The ground strap is for mobile operation.



**Fig. 8**

06250

2. Set hydraulic bypass valve to BYPASS position. Fig. 6.
3. Fill a 5-gallon pail with water or compatible solvent. Place paint suction hose in pail of water.
4. Place empty pail under paint drain valves to catch drainage.
5. Open all paint pump drain valves.
6. Turn on Programmable Skipline Controller.
7. Start engine as follows:
  - a. Pull choke out.
  - b. Set throttle.
  - c. Turn key.
  - d. After engine starts, push choke in.
  - e. Set throttle to half speed.

## **WARNING**



### **FIRE AND EXPLOSION HAZARD**

To reduce static sparking and splashing, always remove the spray tip from the gun, and hold a metal part of the gun firmly to the side of a grounded metal pail during flushing.

8. Place empty pail under spray guns to catch drainage from spray guns.
9. Turn pump lever(s) to select paint pump(s).
10. Close hydraulic bypass valve to activate pumps.
11. When water or solvent comes out of paint drain valves, set hydraulic bypass valve to BYPASS position.
12. Open only spray gun ball valves corresponding to paint pumps or color used. **NOTE:** Never open both ball valves on the two-color gun at the same time. Paint color contamination could result.
13. Turn guns on with Programmable Skipline Controller.
14. Place an empty pail under spray guns to catch drainage from spray guns.
15. Close hydraulic bypass valve to activate pumps.
16. When paint comes out of spray gun, set hydraulic bypass valve to BYPASS position.
17. Turn off guns with Programmable Skipline Controller.
18. Shut off engine.
19. Turn pump levers (A) to off position. Fig. 6.
20. Leave paint pump drain valves and spray gun ball valves open.
21. Turn off Programmable Skipline Controller.
22. Remove and secure ground strap from earth ground.

# Operation

## Prepare the RoadLazer for Transport

### CAUTION

Never transport the RoadLazer while the paint gun ball valves are open, the system is under pressure, and the engine is running, as this could cause damage to components.

1. Unlock all three red-handle clamps (A) on main beam.
2. Lift spray gun arm (C) up from ground, and push in to center of RoadLazer. See Fig. 9.
3. Pull gun arm hitch pin (D) out of frame.
4. Push spray gun arm in to frame.
5. Put gun arm hitch pin back in frame, and secure with clip (E).
6. Center main beam on RoadLazer.
7. Lock three red-handle clamps (A) on main beam (B). See Fig. 9.

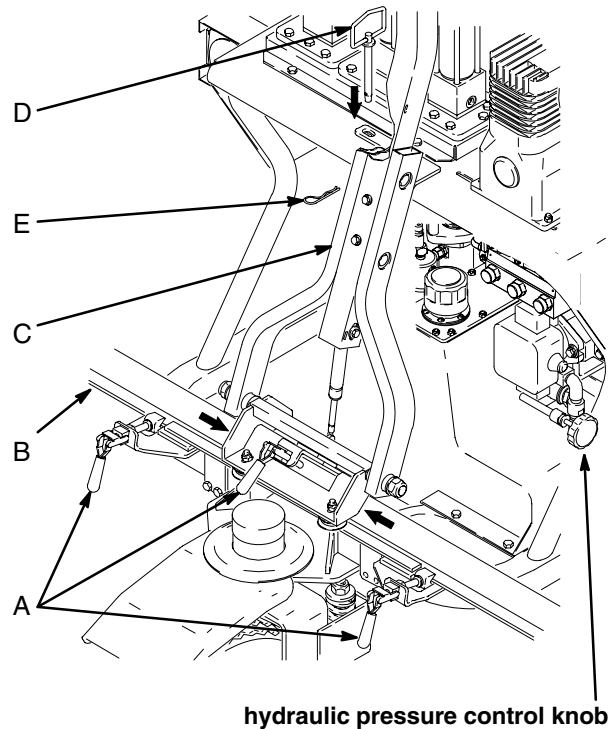


Fig. 9

06251A

### WARNING



#### FIRE AND EXPLOSION HAZARD



Gasoline is extremely flammable and explosive under certain conditions. Fuel could spray from the fuel line connector when it is disconnected from engine. Fuel could come in contact with the hot muffler and cause fire or explosion. To reduce the risk of fire or explosion, always vent the fuel tank and allow engine muffler to cool before you disconnect the fuel line.

8. After engine muffler has cooled, vent fuel tank (AB on page 6), carefully disconnect fuel tank fuel line from engine (U on page 6), and store securely.

# Operation

## Pressure Relief Procedure

### **WARNING**



#### **INJECTION HAZARD**

The system pressure must be manually relieved to prevent the system from starting or spraying accidentally. Fluid under high pressure can be injected through the skin and cause serious injury. To reduce the risk of an injury from injection, splashing fluid, or moving parts, follow the **Pressure Relief Procedure** whenever you

- Are instructed to relieve the pressure
- Stop spraying
- Check or service any of the system equipment
- Install or clean the spray tip

1. Set hydraulic bypass valve to BYPASS position.
  2. Run engine at 1/2 throttle.
  3. Place empty pail under paint guns to catch drainage.
  4. Relieve hose pressure through guns:  
Use Programmable Skipline Controller to trigger each gun for at least 3 seconds each.
- NOTE: Always relieve pressure with the guns — not with the filter drain valves.**
5. Close paint gun ball valves.
  6. Place empty pail under paint drain valves to catch drainage.
  7. Open all drain valves, one at a time.
  8. Close valves immediately to prevent paint from drying in system.
  9. Relieve beads system pressure by turning bead system valve to OFF position

If you suspect that the spray gun or hose is completely clogged, or that pressure has not been fully relieved after following the steps above, **very slowly** loosen the hose end coupling, and relieve pressure gradually. Then loosen it completely. Then clear the valve or hose.

## Removing RoadLazer from Vehicle

### **WARNING**

A free-standing RoadLazer could become unstable when being moved without a tow vehicle.

To reduce the risk of injury and equipment damage

- Disconnect RoadLazer from the tow vehicle only on hard, level surfaces.
- Ensure RoadLazer is level by adjusting jacks.
- Lock jacks with safety pin.

**FAILURE TO FOLLOW THIS WARNING CAN RESULT IN DEATH OR SERIOUS INJURY.**

1. Park on level concrete surfaces.
2. Remove safety pins, and rotate jacks clockwise to vertical position. Snap retaining handles in place to secure jacks.
3. Crank trailer arm jacks to raise RoadLazer trailer arms from ball mounts.
4. Disconnect safety chains.
5. Roll RoadLazer backward and clear of ball mounts.
6. Park RoadLazer on concrete slab when it is disconnected from tow vehicle.
7. Crank jacks down equally to bring RoadLazer to level position for storage.



# Application Data

## Paint and Bead Guns

PAINT LINE WIDTH PER GUN						
MPH (KPH)		4 in. (10 cm)	6 in. (15 cm)	8 in. (20 cm)	10 in. (25 cm)	12 in. (30 cm)
3–4 (5–7)	Paint Tip	221433	221439	GHD539	GHD839	GHD843
	PSI (bar)	2000 (137)	2000 (137)	2000 (137)	2000 (137)	2000 (137)
	Bead Nozzle	0.234	0.234	0.234	0.234	0.234
	PSI (bar)	20 (1.4)	30 (2.1)	40 (2.8)	50 (3.4)	60 (4.1)
5–6 (8–10)	Paint Tip	221439	221443	221543		
	PSI (bar)	2000 (137)	2000 (137)	2000 (137)		
	Bead Nozzle	0.234	0.234	0.234		
	PSI (bar)	30 (2.1)	40 (2.8)	50 (3.4)		
7–8 (11–13)	Paint Tip	221443	GHD445			
	PSI (bar)	2000 (137)	2000 (137)			
	Bead Nozzle	0.234	0.234			
	PSI (bar)	40 (2.8)	50 (3.4)			
9–10 (14–16)	Paint Tip	GHD445				
	PSI (bar)	2000 (137)				
	Bead Nozzle	0.234				
	PSI (bar)	50 (3.4)				
<b>These settings produce approximately a 15-mil wet line with 6 lb of glass beads per gallon paint. Different materials can produce different results. See Bead Gun manual for additional application rate information.</b>				For GHDXXX paint tips use 222674 tip holder. For 221XXX paint tips use 237859 tip holder.		

### Filter Information

Filters of 30 mesh are recommended for most applications. For smaller tips or if frequent tip plugging occurs, use 60-mesh filters.

Always use a 30-mesh stainless steel paint screen 167024 in the high-pressure filter bowls.

### Spray Tip Information

Recommended spray tip for stencil hand gun painting is 221425.

To spray 36 in. (91 cm) wide lines, install third gun kit, and use three GHD839 or three GHD843 spray tips.

# Maintenance

## Daily Cleaning

### CAUTION

To avoid clogging the system fluid passages, be sure the solvent you use is compatible with the fluid being dispensed.

An important part of the care and maintenance of the RoadLazer system is proper flushing. Flush the valves daily with a compatible solvent until all traces of fluid are removed from the system passages. See **Flushing the System** on page 14.

### CAUTION

Never immerse the system components in solvent. Immersing in solvent removes lubricants and could damage packings.

To clean the outside surfaces of the system, wipe with a soft cloth dampened with a compatible solvent.

## Ground Strap

The ground strap (464, page 44) should always be in contact with the road.

Replace the ground strap before it wears out and no longer has road contact.

**NOTE:** The ground strap and grounding clamp are both required for safe RoadLazer operation. The ground strap is for mobile operation. The grounding clamp is for stationary use. See Fig. 8 on page 14.

## Fuel Filter

Replace the fuel filter after each year of operation.

## Engine

Check the engine oil level daily.

See the Kohler engine manual for proper care and maintenance of the engine.

## Air compressor

Check the air compressor oil level daily.

Check the belt tension. See Fig. 16 on page 22.

See the air compressor manual for proper care and maintenance of the air compressor.

## Displacement Pumps

Keep the packing nut/wet cup full of throat seal liquid (TSL) at all times.

## Battery

Check the battery fluid level every 3 months. Top off with water. If the battery is newly purchased or has not been used for a long time, charge it before you use it. The battery self discharges during storage and gradually loses its capacity. Periods of time over which the battery can be stored without requiring charging are shown below for various storage temperatures:

- Below 68°F (20° C): 9 months
- 68°F to 86°F (20°C to 30°C): 6 months
- 86°F to 104°F (30°C to 40°C): 3 months

## Trailer Tire

Replace trailer tire when

- Tire is damaged
- Tread on tire is 3/32 in. (2.4 mm) or less

## Refueling

### WARNING



#### FIRE AND EXPLOSION HAZARD

Gasoline is extremely flammable and explosive under certain conditions. To reduce the risk of a fire or explosion, always follow these refueling guidelines.

- Shut off engine before you refuel.
- Refuel in well-ventilated area.
- Do not smoke or allow flames or sparks in refuel area or gasoline storage area.
- Do not overfill fuel tank (AB on page 6). Close filler cap securely after you refuel.
- Remove any spilled fuel before you start engine.
- Secure fuel tank to prevent tipping during operation and transport.

## Hydraulic Supply System

### CAUTION

Dust or dirt in the hydraulic system could damage the hydraulic system components. Do not allow dust or dirt to get into the hydraulic system when you service the system.

1. Check hydraulic oil level weekly.
2. Change return line filter (428) every 500 hours or 6 months of operation.
3. Change hydraulic oil every 2000 hours or 12 months of operation. See **Service**.

# Maintenance

## Trailer Swivel Hub

### ⚠ CAUTION

Improper torque on castle nut of trailer swivel hub could leave trailer swivel hub free of restriction and cause the swivel wheel to wobble. A wobbling swivel wheel could cause serious damage.

Fig. 10. It is normal for the swivel wheel to turn hard (restricted). After every 3 months of operation

1. Turn trailer swivel hub castle nut (A) until tight and spring washers (B) are completely compressed.
2. Loosen nut 1/2 turn (180°), and secure with cotter pin (C). Do not lubricate.

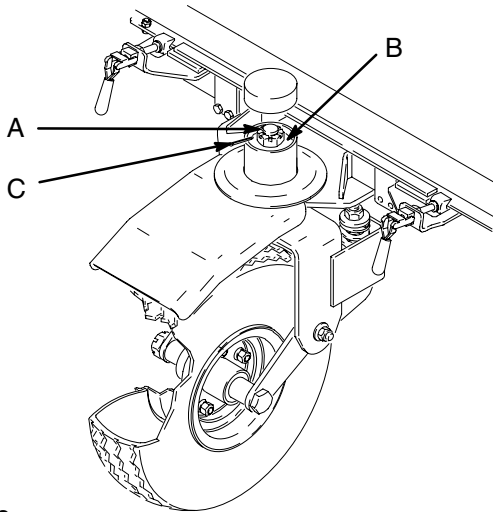


Fig. 10

06252A

## Boom Arm Swivel Hub and Wheel Hub

Fig. 11. After every 3 months of operation, torque boom arm swivel hub (A) until tight; then loosen 1/8 turn. After every 3 months of operation, torque boom arm wheel hub (B) until tight; then loosen 1/4 turn.

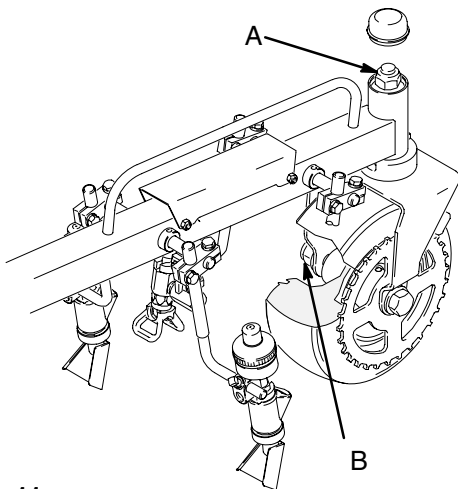


Fig. 11

06253

## Main Beam and Boom Arm Clamps

### ⚠ CAUTION

The main beam and boom arm clamps are capable of exerting great pressures due to their design. If the clamps are over tightened, the pressures exerted can bend the brackets attaching the clamps to the main beam or boom arm. Do not overtighten the clamps.

Check daily that main beam and boom arm clamps are capable of securing main beam and boom arm without bending attaching brackets. Adjust as necessary.

## Gun Arm Distance Sensor Adjustment

Fig. 12. Check and adjust every 3 months of operation.

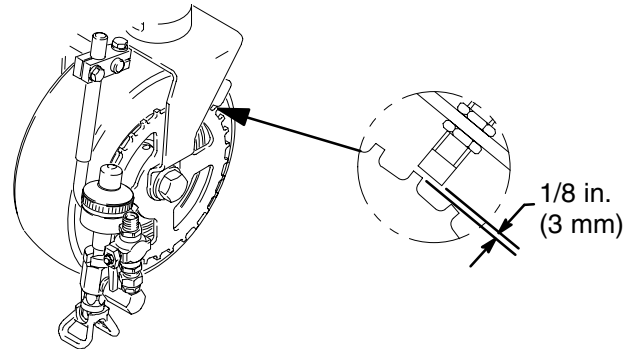


Fig. 12

09102

## Gun Arm Safety Sensor Adjustment

Fig. 13. Clean face of sensor every 6 months of operation.

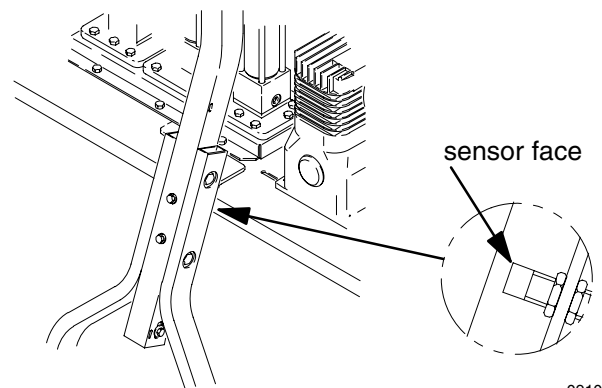


Fig. 13

09103

# Service



Discard all locknuts upon removal, and replace with new ones.

## Hydraulic Supply System Oil Change

### CAUTION

Dust or dirt in the hydraulic system can damage the hydraulic system components. Do not allow dust or dirt to get into the hydraulic system when you service the system.

Change the hydraulic oil as follows:

1.   **Relieve the pressure.**  
See page 16.
2. Place 15-gallon waste pail under hydraulic reservoir drain plug.
3. Remove O-ring (438) and drain plug (439), and drain reservoir.
4. Replace O-ring (438) and drain plug (439).
5. Remove nuts (405), gasket (425), and reservoir cover (426).
6. Remove return line filter (436). Install new return line filter.
7. Inspect inlet filter. Replace if necessary.
8. Install nuts (405), gasket (425), and reservoir cover (426).
9. Fill reservoir with 12 gallons (45.4 liters) of Graco Hydraulic Oil. Install fill cap.
10. Run RoadLazer, and cycle pumps for a few seconds to fill hydraulic motors with hydraulic oil. Recheck hydraulic oil level. Do not overfill.

## Trailer Tire Removal

Fig.14.

### WARNING



#### FALLING OBJECT HAZARD

A free-standing RoadLazer could become unstable when raised by a portable jack.

To reduce the risk of injury and equipment damage

- Connect RoadLazer to tow vehicle before raising with jack.
- Follow instructions in this manual.

**FAILURE TO FOLLOW THIS WARNING CAN RESULT IN DEATH OR SERIOUS INJURY.**

1. Connect RoadLazer to tow vehicle.
2. Raise rear of RoadLazer with hydraulic jack.
3. Place blocks under RoadLazer as precaution against jack failure or slippage.
4. Remove cotter key (528) from axle castle nut (527).
5. Remove axle castle nut, axle bolt (531), and spacers (530).
6. Remove lug nuts (A) and wheel.

**NOTE:** Any service station can repair a RoadLazer flat tire.

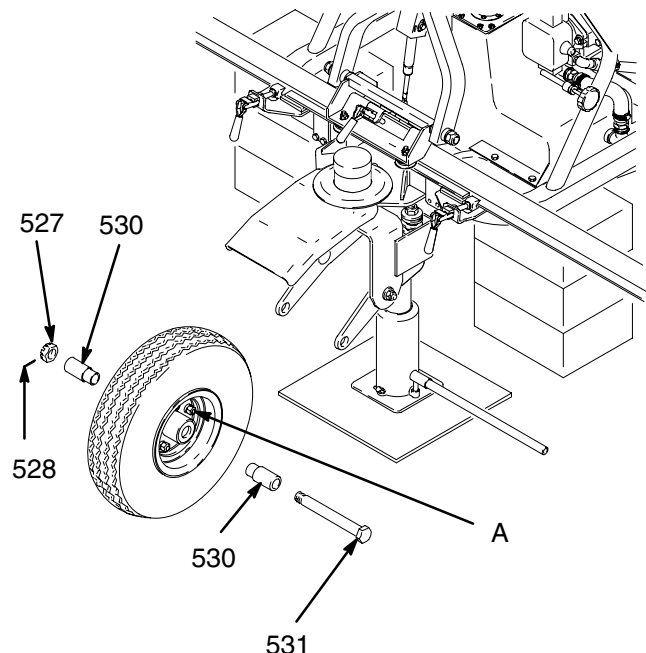


Fig. 14

06254A

# Service

## Trailer Tire Replacement

1. Install wheel and lugs nuts (A). Fig. 14.
2. Tighten five lug nuts. Torque to 60 to 70 ft-lb (81 to 95 N•m).

### ⚠ CAUTION

Serious damage will occur to trailer wheel and axle assemblies if the spacers are not installed.

3. Install spacers (530), axle bolt (531), and axle castle nut (527).

### ⚠ CAUTION

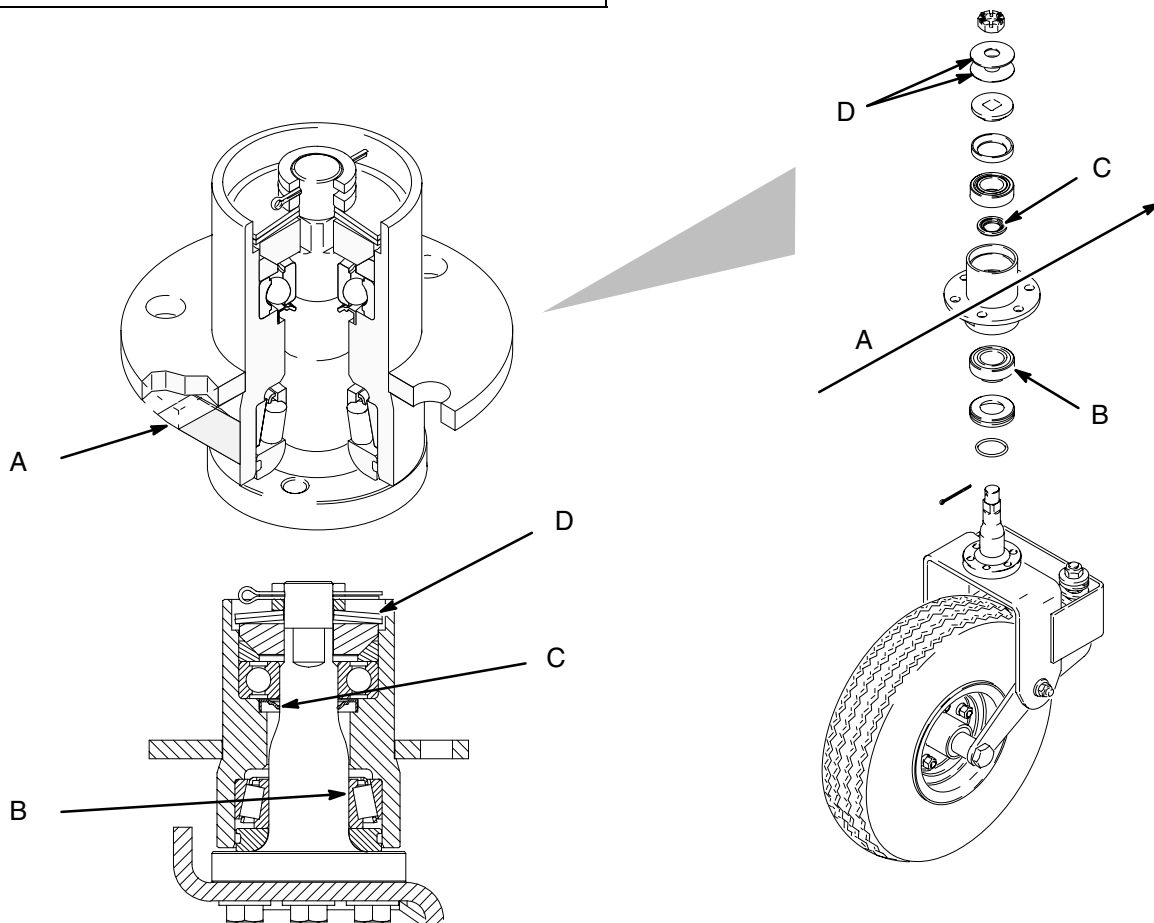
Overtightening trailer wheel hub castle nut could cause wheel bearings to overheat and cause extreme bearing wear and short bearing life.

4. Tighten axle castle nut (527). Loosen axle castle nut until it spins freely. Turn axle castle nut hand tight, and secure with cotter pin (528).
5. Remove blocks under RoadLazer.
6. Lower rear of RoadLazer with hydraulic jack.

## Trailer Wheel Swivel Hub

The trailer wheel swivel hub might require service over the life of the RoadLazer. Service includes replacing worn or damaged parts and repacking lower roller bearings. Fig.15.

**NOTE:** See **Trailer Swivel Hub** on page 19 for tightening swivel hub castle nut.



06950

Fig. 15

# Service

## Trailer Wheel Swivel Hub (Cont.)

The Parts Section of this manual includes part identification and quantity information. See Fig. 15 for orientation of parts.

1. Remove trailer wheel hub from RoadLazer. Note that hub gussets (A) are aligned front to rear RoadLazer.
2. Remove or replace worn or damaged parts as needed.
3. Assemble swivel hub components with spring washers (D) oriented as shown.

### CAUTION

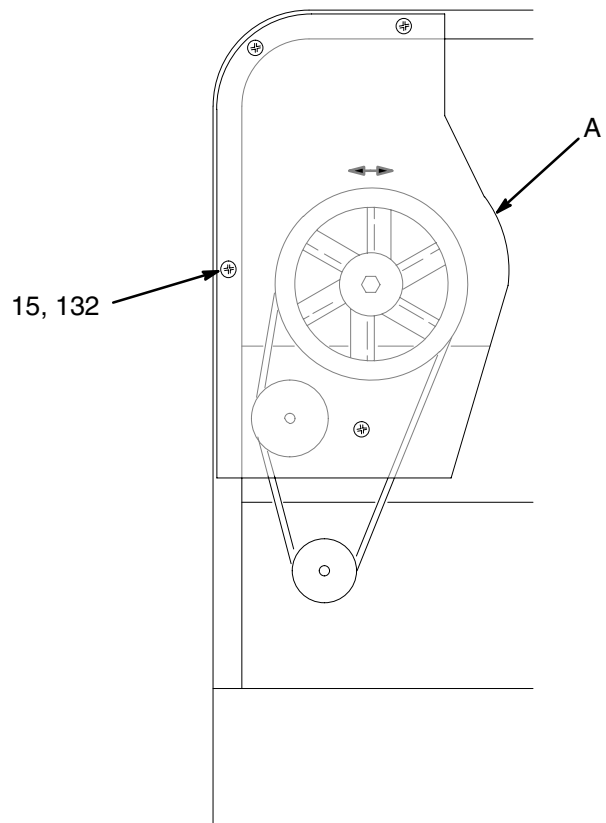
Improper lubrication of trailer wheel swivel hub assembly could leave trailer swivel hub free of restriction and cause the swivel wheel to wobble. A wobbling swivel wheel could cause serious damage.

4. Repack roller bearings (B). Do not lubricate any item above seal (C) in upper hub assembly.
5. Install trailer wheel hub in RoadLazer with hub gussets aligned front to rear in RoadLazer.

## Air Compressor Belt Replacement

1. Loosen four nuts (24) and bolts (23) at base of air compressor.
2. Slide compressor to right to remove tension on belt.
3. Remove four nuts (15) and bolts (132) from rear plate (A) on hitch side of frame. Remove plate.
4. Remove two bolts (30) and washers (31 and 32) from left and right sides of hydraulic pump.
5. Remove two bolts (13 and 115) from plate (108) behind pump. Remove plate.
6. Pull hydraulic pump back, and remove belt.

7. Push down new belt from top. Push hydraulic pump in, and install belt. Thread belt around idler and bottom drive pulley, and install on compressor pulley. Fig. 16.
8. Push hydraulic pump back into place, aligning coupler with mating half on engine.
9. Install plate (108) behind pump with two bolts (13 and 115).
10. Install two bolts (30) and washers (31 and 32) to left and right sides of hydraulic pump.
11. Slide compressor to left to tension belt. **Adjust belt tension for 1/2 in. (13 mm) total play.**
12. Tighten four nuts (24) and bolts (23) at base of air compressor.
13. Install rear plate. Secure plate on hitch side of frame with four nuts (15) and bolts (132).





06255B

Fig. 16

# Service

## Air Compressor Replacement

### Disassembly

1.   **Relieve the pressure.**  
See page 16.
2. Set POWER ON/OFF on Programmable Skipline Controller to OFF.
3. Remove four nuts (24) and bolts (23) at base of air compressor (22).
4. Slide compressor to right to remove tension on vee belt (19).
5. Remove four nuts (15) and bolts (132) from rear plate (109) on hitch side of frame. Remove plate.
6. Remove two bolts (30) and washers (31 and 32) from left and right sides of hydraulic pump.
7. Remove two bolts (13 and 115) from plate (108) behind pump. Remove plate.
8. Pull hydraulic pump back and remove belt.
9. Disconnect two air lines from compressor (22):
  - a. Use flat side of 7/16 in. open-end wrench.
  - b. Push up on base of air fitting, and pull down on air line.
10. Remove air compressor.

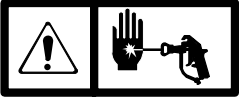
### Assembly

1. Place air compressor (22) over slots on cart for compressor. Loosely install four nuts (24) and bolts (23) to base of compressor.
2. Push down new belt from top. Push hydraulic pump in, and install belt. Thread belt around idler and bottom drive pulley, and install on compressor pulley. Fig. 16.
3. Install plate (108) behind pump with two bolts (13 and 115).
4. Install two bolts (30) and washers (31 and 32) to left and right sides of hydraulic pump.
5. Slide compressor to left to tension belt. **Adjust belt tension for 1/2 in. (13 mm) total play.**
6. Tighten four nuts (24) and bolts (23) at base of air compressor.
7. Install rear plate. Secure plate on hitch side of frame with four nuts (15) and bolts (132).
8. Connect two air lines to air compressor:
  - a. Use flat side of 7/16 in. open-end wrench.
  - b. Push up on base of air fitting, and insert air line.

# Service

## Hydraulic Vane Pump Replacement

### Disassembly

1.  **Relieve the pressure.**  
See page 16.
2. Set POWER ON/OFF on Programmable Skipline Controller to OFF.
3. Remove two bolts (30) and washers (31 and 32) from left and right sides of hydraulic pump.
4. Remove two bolts (13 and 115) from plate (108) behind pump. Remove plate.

### CAUTION

Dust or dirt in the hydraulic system can damage the hydraulic system components. Do not allow dust or dirt to get into the hydraulic system when you service the system.

5. Disconnect three hydraulic fittings (90 and 91) on top of reducer (valve manifold) (84).
6. Loosen clamp (94), and remove hydraulic by-pass hose (95) at rear of reducer (valve manifold) (84).
7. Loosen clamp (67), and remove hydraulic inlet hose (89) from hydraulic vane pump (33).
8. Loosen clamp (94), and remove hydraulic return hose (98) from hydraulic vane pump (33).
9. Remove hydraulic vane pump (33), reducer (valve manifold) (84), and half of coupler (16).
10. Remove nipple (82), and remove reducer (valve manifold) (84) from hydraulic vane pump (33).
11. Remove elbow (105), adapter (106), elbow (140), and insert (141) from hydraulic vane pump (33).

### Assembly

1. Install elbow (105), adapter (106), elbow (140), and insert (141) on hydraulic vane pump (33).
2. Install nipple (82), and install reducer (valve manifold) (84) on hydraulic vane pump (33).
3. Install hydraulic vane pump (33), reducer (valve manifold) (84), and half of coupler (16). If coupler half has been removed, install coupler half on hydraulic vane pump shaft to dimension in Fig. 17.

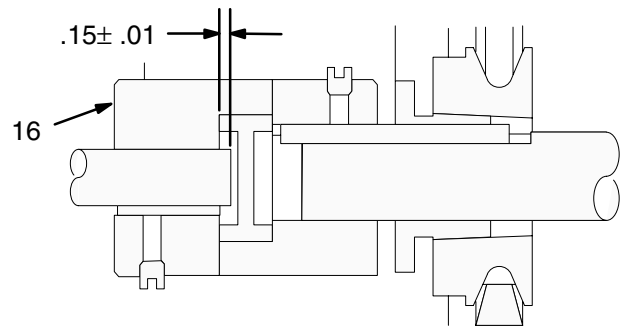


Fig. 17

06256



4. Install hydraulic return hose (98), and clamp (94) to hydraulic vane pump (33). Tighten clamp.
5. Install hydraulic inlet hose (89), and clamp (67) to hydraulic vane pump (33). Tighten clamp.
6. Install hydraulic by-pass hose (95) at rear of reducer (valve manifold) (84). Tighten clamp (94).
7. Connect three hydraulic fittings (90 and 91) on top of reducer (valve manifold) (84).
8. Install plate (108) behind hydraulic vane pump (33) with two bolts (13 and 115).
9. Install two bolts (30) and washers (31 and 32) to left and right sides of hydraulic vane pump.



# Service

## Engine Replacement

### Disassembly

1.   **Relieve the pressure.**  
See page 16.
2. Set POWER ON/OFF on Programmable Skipline Controller to OFF.
3. Loosen four nuts (24) and bolts (23) at base of air compressor.
4. Slide compressor to right to remove tension on belt.
5. Remove four nuts (15) and bolts (132) from rear plate (110) on hitch side of frame. Remove plate.
6. Remove two bolts (30) and washers (31 and 32) from left and right sides of hydraulic vane pump (33).
7. Remove two bolts (13 and 115) from plate (108) behind hydraulic vane pump (33). Remove plate.
8. Pull back hydraulic vane pump (33).
9. Disconnect I/O cable from Programmable Skipline Controller.
10. Disconnect battery cable from starter.
11. Tag and disconnect ignition switch and power wires located on inboard side of engine.
12. Disconnect fuel line at fuel pump.
13. Remove four screws of lower muffler mounting bracket. Remove lower muffler mounting bracket.
14. Remove four locknuts (15), eight washers (21), and four capscrew (14).
15. Remove vee belt (19) from engine pulley.
16. Remove engine from main base.

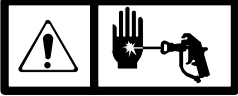
### Assembly

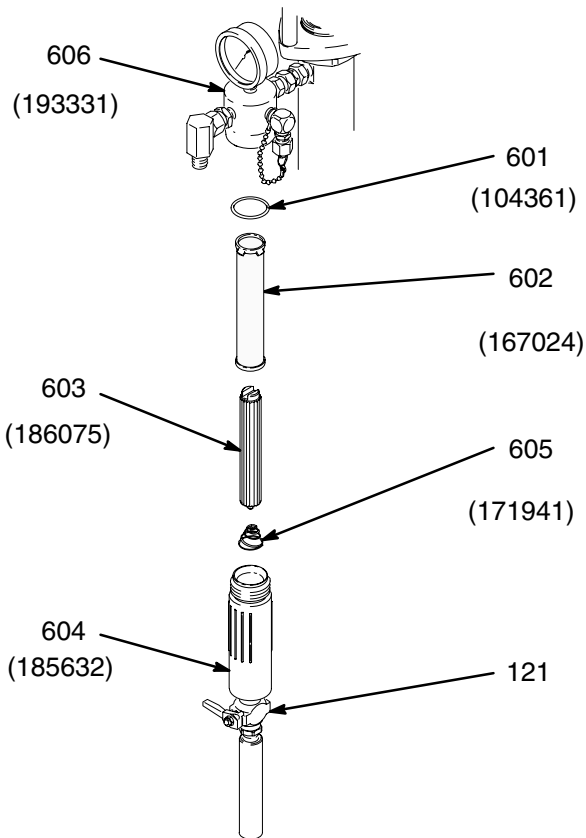
1. Place engine on main base.
2. Be sure vee belt (19) is in place. Thread belt around idler and bottom drive pulley (see Fig. 16 on page 22). Push engine in, and install to other half of coupler (16) on hydraulic vane pump.
3. Install four locknuts (15), eight washers (21), and four capscrews (14).
4. Install lower muffler mounting bracket with four screws.
5. Connect fuel line at fuel pump.
6. Connect ignition switch and power wires located on inboard side of engine.
7. Connect battery cable to starter.
8. Connect I/O cable from Programmable Skipline Controller.
9. Push in hydraulic vane pump (33).
10. Install plate (108) behind hydraulic vane pump (33). Install with two bolts (13 and 115).
11. Install two bolts (30) and washers (31 and 32) to left and right sides of hydraulic vane pump (33).
12. Install rear plate (110) on hitch side of frame with four nuts (15) and bolts (132).
13. Slide compressor to left to increase tension on belt.
14. Tighten four nuts (24) and bolts (23) at base of air compressor.

# Service

## Paint Filter Replacement

### Disassembly

1. Do **Flushing the System** procedure on page 14.
2.  **Relieve the pressure.**  
See page 16.
3. Set POWER ON/OFF on Programmable Skipline Controller to OFF.
4. Set engine ignition key to OFF.
5. Remove paint outlet hose from ball valve (121).
6. Unscrew filter bowl (604) from filter housing (606).
7. Remove screen (602) from filter bowl (604).
8. Remove filter support (603) from filter bowl (604).
9. Remove spring (605) from filter bowl (604).
10. Remove O-ring (601).



### Assembly

1. Install new O-ring (601).
  2. Install spring (605) into filter bowl (604).
  3. Install filter support (603) and screen (602) into filter bowl (604).
- NOTE:** Order 167025 if screen (602) is damaged. Order 104361 for new O-ring.
4. Screw filter bowl (604) into filter housing (606).

## Displacement Pump Service

See manual 308650.

## Viscount I Hydraulic Motor Service

See manual 308618.

## Bead Spray Gun Service

See manual 308612.

## Paint Spray Gun Service

See manual 308613.

## Stencil Spray Gun Service

See manual 308235.

## Air Compressor

If the air compressor needs service, replace it.

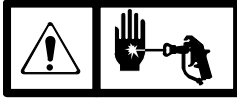
## Hydraulic Power Supply

If the hydraulic power supply needs service, replace it.

Fig. 18

06257

# Troubleshooting



**Relieve the pressure** (see page16) before you proceed with troubleshooting.

Check everything in the troubleshooting tables before you disassemble any equipment.

Paint Guns and Bead Guns		
PROBLEM	CAUSE	SOLUTION
Paint guns not spraying	Clogged tips	Clean tips.
	Fuse (20A) is blown	Check 20A fuse between engine and solenoid air valve connector.
	Gun arm safety sensor	<ol style="list-style-type: none"> <li>1. Start RoadLazer engine.  <b>NOTE:</b> With gun arm away from sensor (145), sensor yellow LED light is ON. With gun arm stowed, light is OFF. Sensor green LED ON indicates sensor has power.</li> <li>2. Replace sensor if necessary. (Be sure to plug new sensor into correct wiring socket).</li> </ol>
	Air compressor and unloader valve	<ol style="list-style-type: none"> <li>1. Turn silver toggle switch at top of unloader (41) to horizontal.  <b>NOTE:</b> Unloader bypasses air when system pressure reaches approximately 100 psi (7 bar).</li> <li>2. Turn off bead tank air valve (47) to isolate system.</li> <li>3. If no leaks, check paint gun actuation airline</li> </ol>
	Paint gun actuation airline	<ol style="list-style-type: none"> <li>1. Remove paint gun actuation airline (338) from paint gun</li> <li>2. Trigger skipline controller</li> <li>3. If air flows from airline, repair paint gun. Manual 308613. If air does not flow check solenoid valves.</li> </ol>
	Solenoid valves	<ol style="list-style-type: none"> <li>1. Remove solenoid valve cover (319)</li> <li>2. Check for broken wiring or damaged plug (See <b>Schematics</b> on pages 49 to 51.)</li> <li>3. Check for 12V DC between red wire and ground.             Note: If all solenoids fail, there is a broken wire; replace wire. If some solenoid operate and some fail; replace failed solenoids.</li> </ol>
	Programmable Skipline Controller	<ol style="list-style-type: none"> <li>1. Inspect wiring and plugs for damage.</li> <li>2. Replace any damaged wiring or plugs. Manual 308616.</li> </ol>

# Troubleshooting

## Paint Guns and Bead Guns (continued)

PROBLEM	CAUSE	SOLUTION
Bead guns not spraying	Paint guns and bead guns	If paint guns and bead guns or not working, check paint guns first.
	Bead tank air valve	Turn bead tank valve ON
	Nozzles plugged	<ol style="list-style-type: none"> <li>1. Turn off air pressure.</li> <li>2. Remove nozzles and clean out any plugging</li> <li>3. If paper or other debris is constantly plugging nozzles use a filter when loading bead tank (standard window screen works fine).</li> <li>4. With nozzles removed, apply air to bead tank. Spray beads into dry container</li> <li>5. Check if beads are wet. If beads are wet, remove beads from bead tank and replace with dry beads.</li> </ol>
	Solenoid valves	<ol style="list-style-type: none"> <li>1. Remove solenoid valve cover (319)</li> <li>2. Check for broken wiring or damaged plug (See <b>Schematics</b> on pages 49 to 51.)</li> <li>3. Check for 12V DC between red wire and ground.</li> </ol> <p>Note: If all solenoids fail, there is a broken wire; replace wire. If some solenoid operate and some fail; replace failed solenoids.</p>
	Programmable Skipline Controller	<ol style="list-style-type: none"> <li>1. Inspect wiring and plugs for damage.</li> <li>2. Replace any damaged wiring or plugs. Manual 308616.</li> </ol>
Actual line length not matching programmed line length	Out of calibration	<ol style="list-style-type: none"> <li>1. Follow calibration procedure in Programmable Skipline Controller manual 308616.</li> <li>2. Spray one or two test skips and measure actual length. If actual length is longer than programmed length, increase Paint Gun ON delay. If actual length is shorter than programmed length, increase Paint Gun OFF delay.</li> </ol>
Actual cycle not matching programmed cycle	Out of calibration	Follow calibration procedure in Programmable Skipline Controller manual 308616.

# Troubleshooting

## Paint Guns and Bead Guns (continued)

PROBLEM	CAUSE	SOLUTION
Bead guns not synchronizing with paint guns	Out of calibration	<ol style="list-style-type: none"> <li>1. Follow calibration procedure in Programmable Skipline Controller manual 308616.</li> <li>2. If beads start before paint, add delay time to Bead ON Delay. If paint starts before beads, add equal delay time to both Paint ON and Paint OFF Delays (this does not affect paint skip line length). Usually 0.01 to 0.08 sec. time delays are all that is needed with RoadLazer.</li> <li>3. If beads end before paint, add delay time to Bead OFF Delay. If beads end after paint, add equal delay time to both Paint ON, Paint OFF and Bead ON Delays. This shifts every thing forward. Usually 0.01 to 0.08 sec. time delays are all that is needed with RoadLazer.</li> </ol>
Paint guns not turning off immediately or at all	Valve needle	<ol style="list-style-type: none"> <li>1. Spray needle with light coat of WD-40®. Use air hose or water hose to break up and remove solidified beads from tank.</li> <li>2. Replace needle, seat and packings. Repair kit 238339.</li> </ol>
Gun arm wobbling or hopping excessively	Swivel nut	<p>Gun arm wobbles</p> <ol style="list-style-type: none"> <li>1. Remove dust cap (348)</li> <li>2. Tighten boom arm swivel nut (304) until swivel has slight restriction</li> </ol> <p>Gun arm hops</p> <ol style="list-style-type: none"> <li>1. Lower air pressure in gun arm wheel</li> <li>2. Replace damaged gas shock (307)</li> </ol>
Excessive overspray on gun arm wheel	Paint guns out of position	<ol style="list-style-type: none"> <li>1. Angle paint guns back 15 to 20°</li> <li>2. Coat wheel and gun arm parts with non-stick cooking oil, light oil, silicon, or Auto Mask ZEP to prevent paint from sticking to them.</li> </ol>
Pulsation in spray pattern	Low or erratic pressure in paint pump	<ol style="list-style-type: none"> <li>1. Check paint supply and suction inlet screens.</li> <li>2. Replace spray tips.</li> <li>3. Check outlet filter.</li> <li>4. Remove nylon suction line (68) from pump inlet and remove pump foot valve (18, manual 308650).</li> <li>5. Stroke pump so that piston is down. Look up into pump and remove all paint debris.</li> <li>6. Check nipple (116) for plugging.</li> <li>7. Replace packings. Clean and service intake valve and piston valve.</li> </ol>

# Troubleshooting

## Programmable Skipline Controller

PROBLEM	CAUSE	SOLUTION
Controller not turning on	Fuse, battery, or wiring	<ol style="list-style-type: none"> <li>1. Check fuse located next to 12V RoadLazer battery</li> <li>2. Check battery voltage. Replace if necessary.</li> <li>3. Inspect wiring at battery for corrosion. Inspect control cable for damage.</li> </ol>
Controller shutting down or cutting out during striping	Battery or wiring	<ol style="list-style-type: none"> <li>1. Check battery voltage. A weak battery can drop voltage low enough to cause intermittent shut down.</li> <li>2. Check wiring</li> <li>3. Ground control box to vehicle chassis</li> </ol>
System Delay not turning on	System not configured for striping or is shut off	<ol style="list-style-type: none"> <li>1. Remove gun arm from stowed position, and start up engine. System delay will not turn on unless you are ready to stripe.</li> <li>2. System Delay must be turned back on after engine is turned off or gun arm is returned to stowed position.</li> </ol>
Controller not displaying MPH (KM/H), or readout is erratic	Gun arm sensor or sensor wiring	<ol style="list-style-type: none"> <li>1. Check sensor (324) located on gun arm wheel assembly. Set sensor approximately 1/8 in. (3 mm) from target plate.</li> <li>2. Check sensor head for damage. Replace if damaged.</li> <li>3. Check sensor wiring by removing solenoid valve cover (319).</li> </ol>
System Delay actual distance not precisely matching programmed distance	Programmed distance needs fine tuning	<ol style="list-style-type: none"> <li>1. This is usually true. Get it as close as possible, then spray one additional test line trying to hit start point.</li> <li>2. Measure difference between start point and where paint guns turn on. If paint guns turn on before start point, add measured difference to current system delay distance. If paint guns turn on after start point, subtract measured difference.</li> </ol>

# Troubleshooting

Air and Bead System		
PROBLEM	CAUSE	SOLUTION
Belts squealing during engine startup	Compressor belt needs tightening or replacing.	See <b>Air Compressor Belt Replacement</b> on page 22.
Paint guns not spraying when bead tank is empty	All of air supplied by air compressor is rushing out of bead gun nozzles. In turn, system air pressure cannot build enough to trigger guns. This is normal.	Fill bead tank with beads.
No system pressure	Compressor bypassing air continuously	<ol style="list-style-type: none"> <li>1. Check that silver switch on top of unloader valve (41) is turned on its side</li> <li>2. Lift up and down silver switch on top of unloader valve (41). This might loosen a sticky valve.</li> <li>3. Replace unloader valve (41)</li> </ol>
Beads not dispensing properly	Excessive water or moisture in bead tank	<ol style="list-style-type: none"> <li>1. Replace old shower cap style bead tank cover with new plastic cover (129). Old covers leak water.</li> <li>2. Only pressurize glass beads when dispensing. Small air leaks at gun nozzle or air fittings cause continuous moisture to be pumped into tank.</li> <li>3. For areas of extreme humidity a Bendix air dryer or equivalent may be installed in air line to bead tank. Typically when beads are used continuously, they do not spend enough time in tank to collect enough moisture to be a problem. Usually it is continuous stencil painting for long periods of time with little bead consumption and high humidity that can cause problems.</li> </ol>
Low system pressure	Excessive air leaks	<ol style="list-style-type: none"> <li>1. Fix all air leaks before they become a problem. Air leaks can eventually starve systems air supply. RoadLazer will supply enough air to spray 4 bead guns at 30 psi (207 kPa).</li> <li>2. Most air leaks occur at bead tank outlet fitting. If fitting leaks air, completely remove it, and use thread tape and liquid thread liquid sealant when you reinstall it.</li> </ol>
No beads dispensing	Beads have solidified	<ol style="list-style-type: none"> <li>1. Never store RoadLazer with glass beads in tank for long periods of time.</li> <li>2. Remove aluminum fitting from bottom of tank. Flush out solidified beads</li> <li>3. Use air hose or water hose to break up and remove solidified beads from tank</li> </ol>

# Troubleshooting

## Kohler Engine

PROBLEM	CAUSE	SOLUTION
Engine not starting	Programmable Skipline Controller is shut off, or engine is out of fuel.	<ol style="list-style-type: none"> <li>1. Turn on Programmable Skipline Controller. Engine will not start with control off.</li> <li>2. Check fuel supply</li> <li>3. See Kohler engine instruction manual</li> </ol>
Engine stalling	Engine fuel tank is empty or not breathing, or engine oil level is low.	<ol style="list-style-type: none"> <li>1. Check fuel supply. Open breather on fuel tank. Check engine oil level.</li> <li>2. See Kohler engine instruction manual</li> </ol>

## Hitch Receiver Kit

PROBLEM	CAUSE	SOLUTION
DRAW-TITE receiver hitch not lining up with Graco hitch kit	Wrong Receiver Kit	<ol style="list-style-type: none"> <li>1. See instruction manual 308670.</li> <li>2. Graco offers a Straight Hitch Receiver Kit and Angled Hitch Receiver Kit. Call your distributor for an exchange</li> </ol>
Graco hitch kit fitting loosely	Wrong hitch installation	<ol style="list-style-type: none"> <li>1. See instruction manual 308670.</li> <li>2. Graco hitch kit must be installed on a 3-in. x 3-in. cross tube only. Replace hitch with a DRAW-TITE Ultra Frame Hitch.</li> </ol>
Graco hitch kit receivers not spreading to 32 in. (81 cm)	Too-narrow vehicle frame	<ol style="list-style-type: none"> <li>1. Some late model vehicles have a narrow frame. Install Graco Hitch Kit and spread apart as far as possible.</li> <li>2. If still too narrow, have a custom drawbar fabricated by a Certified DRAW-TITE dealer.</li> </ol>

## Paint Pumps

PROBLEM	SOLUTION
Pumps wearing prematurely	<p>Reduce premature pump wear and costly down time with the following tips:</p> <ul style="list-style-type: none"> <li>• Keep piston throat full of TSL: Remove black cap, fill with TSL, replace black cap.</li> <li>• If possible, shorten suction lines to reduce pump back pressure</li> <li>• Use Graco strainer 240499 at pump inlet to filter out dried paint and debris</li> <li>• Inspect internal suction hoses for paint buildup, which can cause pump starving.</li> <li>• Replace pump packings seasonally to increase piston and sleeve life.</li> <li>• Always keep hydraulic reservoir full to reduce heat build up.</li> </ul>



# Troubleshooting

Paint and Paint Manufacturers	
PROBLEM	SOLUTION
Do not know what type of paint to use	<p>When ordering paint from manufacturer:</p> <ul style="list-style-type: none"> <li>• Inform paint suppliers of type of equipment to be used (RoadLazer), filter screen sizes (30 mesh) and tip sizes (33 to 45 thousands).</li> <li>• Require that paint must pass through a 30-mesh filter with minimal filter plugging.</li> </ul> <p>Things to know about waterborne paint and striping equipment:</p> <ul style="list-style-type: none"> <li>• Flush waterborne paints from system if system is not used on a regular basis. Waterborne paints do not dilute easily. Use warm soapy water to flush system.</li> <li>• Waterborne paints will not redissolve. Dried paint film in paint containers or paint suction lines must be removed. Graco offers a Suction Line Strainer Kit 240499 that should be installed at least 2 ft from pump inlet to remove contamination. Strainers must be cleaned regularly to avoid pump starving or cavitation.</li> <li>• Waterborne paints cannot freeze or tolerate temperatures above 120°F (49°C). Consult paint manufacturer.</li> <li>• Use only Graco 300 grade stainless steel wetted replacement parts. Other metallurgic choices will have serious compatibility and corrosion problems, such as system plugging. Most plastics and epoxy coatings used for paint transfer and paint storage are chemical compatible. Consult paint manufacturer.</li> <li>• With age, waterborne paint pigments settle to bottom of container. Never use settled paint without agitating. It is important to order fresh paint. Require paint manufacturers to supply manufactured dates and stagger shipments throughout striping season.</li> </ul>

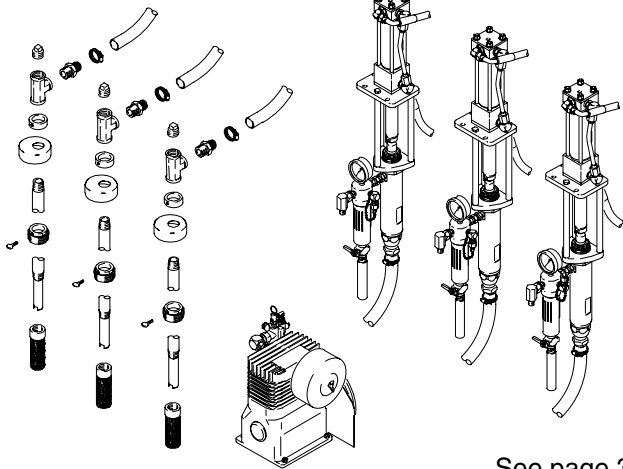
# Maintenance Schedule

Component	Daily	Weekly	3 Months or 100 Hours	6 Months or Seasonally	Comments
<b>Engine</b>					
Oil	Check				Change break-in oil after 5 hr, then every 100 hr;10w30.
Air Filter			Replace		
Pre Element		Clean every 25 hr			
Fuel Filter				Replace	
Spark Plug					Check gap every 200 hr
<b>Compressor</b>					
Oil	Check			Change every 100 hr	Use compressor oil SAE 20w. Do not use motor oil.
Belt				Check belt tension	Replace as needed
<b>Battery</b>			Check water level		
<b>Hydraulics</b>	Check for Leaks			Change oil and filter	ISO VG No. 40 hydraulic oil
<b>Paint Pumps</b>					
TSL	Fill				
Packings		Check for wear and adjust		Replace	
Hoses		Check for damage			
<b>Paint Guns</b>					
Needle	Oil				
Tips	Clean after use				Replace as needed
<b>Bead Guns</b>					
Nozzle	Check for clogs				Replace as needed
Needle					Replace as needed
<b>Stencil Gun</b>					Replace as needed
<b>Trailer Wheel</b>					
Swivel Hub			Adjust hub castle nut		
Wheel Hub				Pack with bearing grease	
<b>Gun Arm Wheel</b>					
Swivel Hub					
Wheel Hub			Adjust axle nut, and grease		
<b>Distance Sensor</b>		Check for damage	Check gap 1/8 in. (3 mm)		Adjust as needed
<b>Safety Sensor</b>		Check for damage			
<b>Gallon sensors</b>		Check for damage	Check gap 3/16 in. (4.7 mm)		Adjust as needed

# Parts

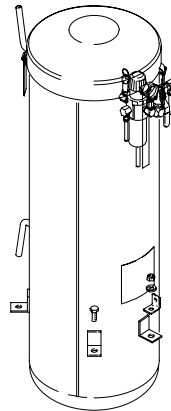
## RoadLazer Line Striper Components

Pump Systems



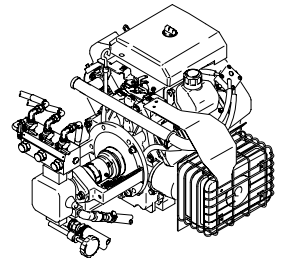
See page 36

Bead Tank Assembly



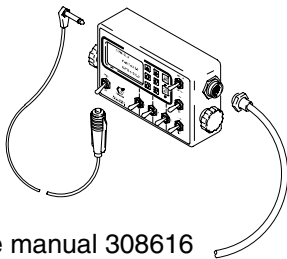
See page 38

Engine System



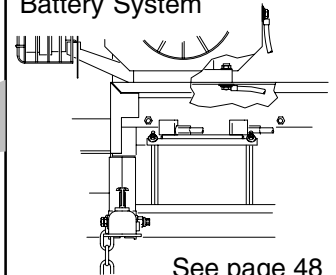
See page 40

238050  
Programmable Skipline Controller

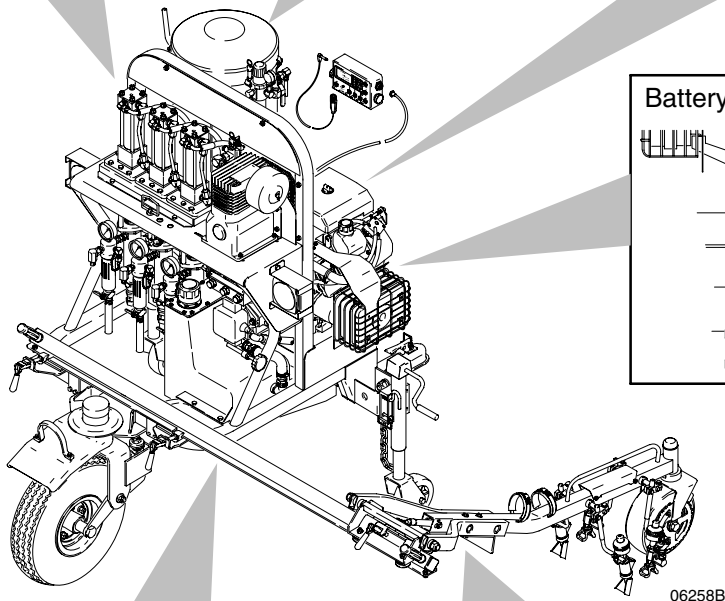


See manual 308616

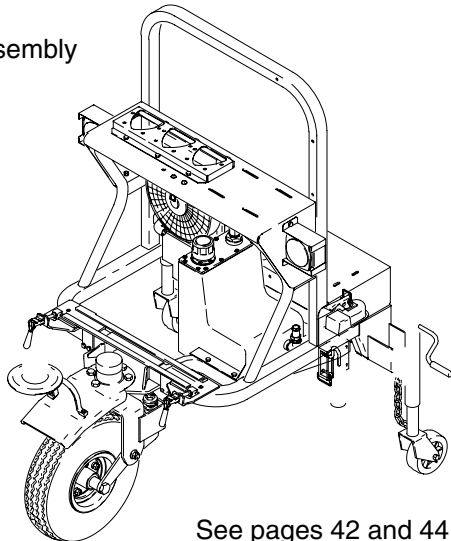
Battery System



See page 48

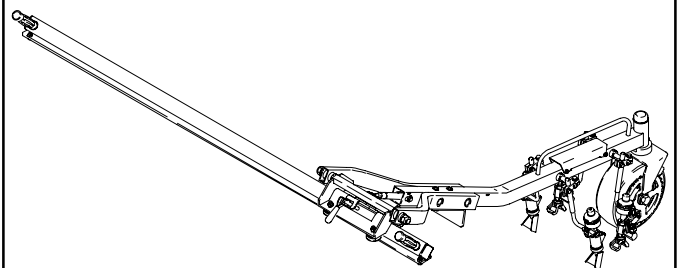


238346  
Main Base Assembly



See pages 42 and 44

238357  
Boom Arm Assembly



See page 46

# Parts

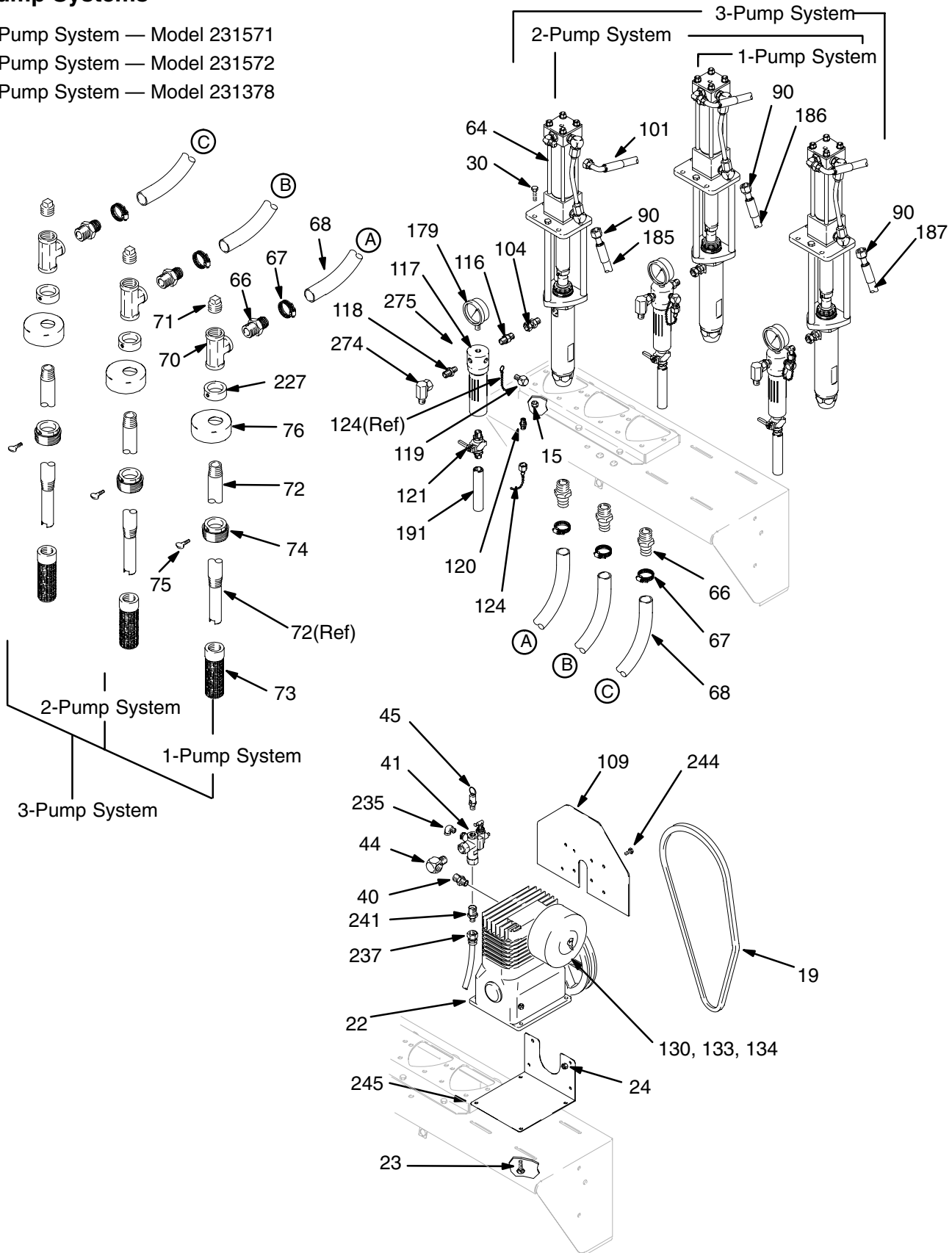
## RoadLazer Line Striper

### Pump Systems

1-Pump System — Model 231571

2-Pump System — Model 231572

3-Pump System — Model 231378



TI0649A

# Parts

## RoadLazer Line Striper

### Pump Systems

1-Pump System — Model 231571

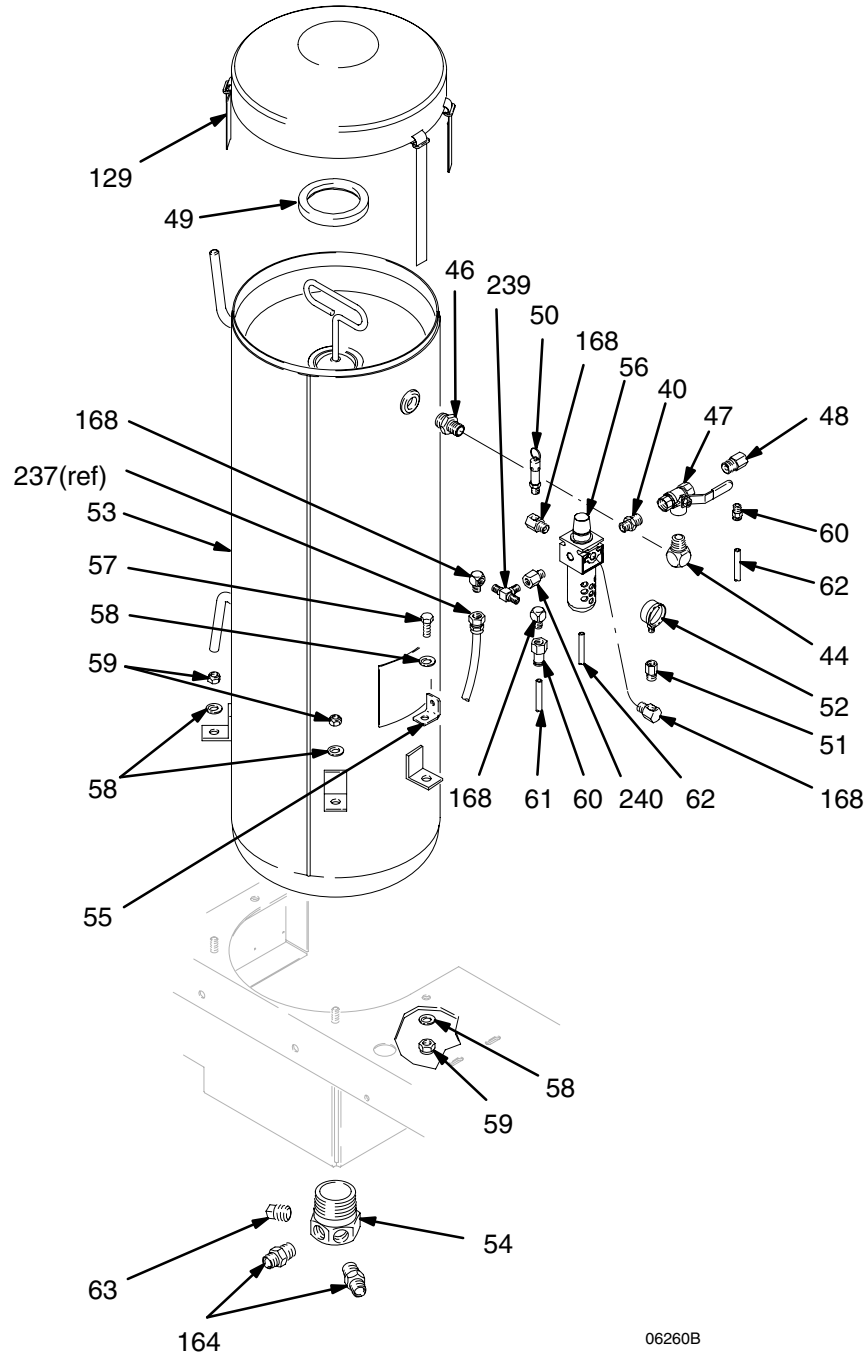
2-Pump System — Model 231572

3-Pump System — Model 231378

Ref. No.	Part No.	Description	Qty.	Ref. No.	Part No.	Description	Qty.
15	101566	LOCKNUT, nylon, 3/8–16	24	104	235208	UNION, adapter, swivel, 3/8 in. npt(m) x 3/8 in. npsm(f)	3
19	113300	BELT, vee	1	109	191688	GUARD, belt, compressor	1
22	112796	COMPRESSOR, air	1	116	166469	NIPPLE, 3/8 in. x 3/8 in., sst	3
23	107129	BOLT, rnd hd, grade 5; 5/16–18 unc–2a, 1 in. (25 mm) long	5	117	238782	FILTER, fluid, sst	3
24	111040	NUT, lock, nylock, 5/16–18; grade 5	8	118	501684	CHECK VALVE, 3/8 in. x 3/8 in., sst	3
30	100004	CAPSCREW, hex hd, grade 5 3/8–16 unc–2a, 1-1/4 in. (32 mm) long	14	119	166866	ELBOW, 90°, sst, 1/4 npt x 1/4 npt, 1-11/32 in. (34 mm) long	3
40	159239	NIPPLE, reducing, 1/2 in. npt x 3/8 in. npt, 1-5/8 in. (41 mm) long	2	120	166846	NIPPLE, 1/4 in. npt x 1/4 in. npsm, 1-3/16 in. (31 mm) long, sst	3
41	112795	REGULATOR, unloader	1	121	238967	VALVE, ball	3
44	158683	ELBOW, 90°, 1/2–14 npt(f) x 1/2–14 npt(m)	2	124	220285	CAP	3
45	113286	VALVE, safety	1	130	113687	FILTER, intake	1
64	238349	PUMP, paint (includes 64a and 64b) <i>Includes 64a and 64b</i>	3	133	113784	BRACKET	1
64a	238348	PUMP, displacement, sst	3	134	113785	GASKET	1
64b	238356	MOTOR, hydraulic, Viscount I	3	179	102814	GAUGE, pressure, fluid	3
66	113607	FITTING, barb 1 in., 1/2 npt	6	185	054163	TUBE, polyolefin, shrinkable	1
67	116953	CLAMP, hose	8	186	054747	TUBE, polyolefin, shrinkable	1
68	191627	HOSE, suction	3	187	054748	TUBE, polyolefin, shrinkable	1
70	113606	TEE, 1 in.	3	191	191731	PIPE, pump, extension, 3/8–18 npt x 5 in. (127 mm)	3
71	113561	PLUG, pipe, 1 in., 1/2 npt	3	227	113797	COLLAR, screw, set	2
72	191624	TUBE, suction	3	235	100286	ELBOW, street; 3/8 in. npt	1
73	191635	STRAINER, inlet	3	237	206966	HOSE, coupled	1
74	176684	ADAPTER, bung	3	241	162449	NIPPLE, reducing	1
75	100220	SCREW, thumb, grade 5	3	244	109468	SCREW, cap, hex hd, grade 5	4
76	191641	CAP, splash	3	245	239022	BRACKET, compressor	1
90	191645	HOSE, coupled, 29.5 in.	3	246	113687	FILTER	1
101	191647	HOSE, coupled, 27.0 in	3	247	113784	BRACKET	1
				248	113785	GASKET	1
				274	112026	ELBOW, street, 3/8 npt	1
				275	101748	PLUG, 3/8 npt	1

# Parts

## RoadLazer Line Striper Bead Tank Assembly



06260B

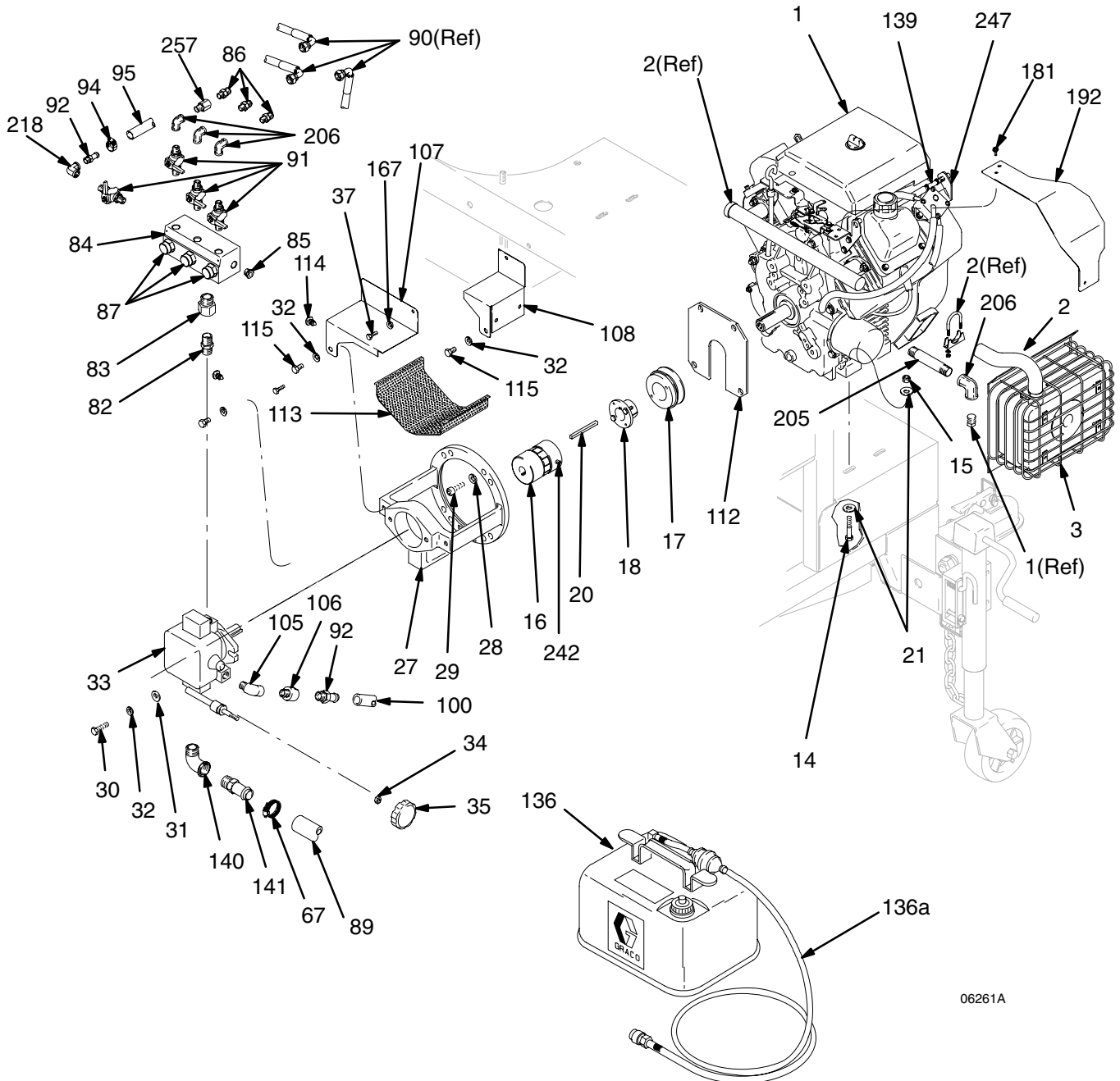
# Parts

## RoadLazer Line Striper Bead Tank Assembly

Ref. No.	Part No.	Description	Qty.	Ref. No.	Part No.	Description	Qty.
40	159239	NIPPLE, reducing, 1/2 in. npt x 3/8 in. npt, 1-5/8 in. (41 mm) long	REF	57	100017	CAPSCREW, hex hd, grade 5, 1/2-13 unc-2a, 1-1/2 in. (38 mm) long	2
44	158683	ELBOW, 90°, 1/2-14 npt(f) x 1/2-14 npt(m)	REF	58	109570	WASHER, plain	8
46	157191	NIPPLE, reducing, 3/4 in. npt x 1/2 in. npt, 1-7/8 in. (46 mm) long	1	59	801020	NUT, lock, hex, 1/2-13 unc-2b, grade 5	4
47	113292	VALVE, ball, 3-way	1	60	113319	FITTING, air, 3/8 OD x 1/4-18 npt	1
48	166999	ELBOW, street reducing, 90°, 1/4 in. npt(f) x 1/2 in. npt(m)	1	62	191643	HOSE, air, 3/8 in. x 44 in. (112 cm)	2
49	15A552	SEAL	1	63	104663	PLUG, pipe, 3/4 in. npt(m)	1
50	108124	VALVE, safety	1	129	240135	COVER, bead tank, includes straps	1
51	100030	BUSHING	1	164	111834	NIPPLE, pipe, hex, 3/4-14 npt, 3/4-11.5 nhr	2
52	104655	GAGE	1	168	100840	ELBOW, street, 1/4-18 npt	4
53	238299	TANK, bead, 23 gallon	1	238	112790	CONNECTOR, tube, 1/4-18 npt	1
54	191222	FITTING, bead tank	1	239	113548	TEE, 1/4-18 npt	1
56	113291	REGULATOR, air	1	240	159841	ADAPTER, 1/4-18 npt(f) x 3/8-18npt(m)	1

# Parts

## RoadLazer Line Striper Engine System



06261A



# Parts

## RoadLazer Line Striper Engine System

Ref. No.	Part No.	Description	Qty.	Ref. No.	Part No.	Description	Qty.
1	113287	ENGINE, Kohler, 18 HP	1	87	113703	REGULATOR, hydraulic flow	3
2*		MUFFLER, side mounting kit	1	89	191648	HOSE, 1 in. ID	1
3*		GUARD, muffler	1	90	191645	HOSE, coupled, 29.5 in. (75 cm)	REF
14	102638	CAPSCREW, hex hd 2 in., grade 5, 3/8-16 unc-2a	4	91	210658	VALVE, ball	REF
15	101566	LOCKNUT, nylon, 3/8-16	REF	92	107050	INSERT, hose, beaded	4
16	106063	COUPLING, flexible	1	94	102473	CLAMP, hose	2
17	113295	SHEAVE, 1 groove, 'B'	1	95	191649	HOSE, 0.63 in. ID, 15 in. (38 cm)	1
18	801376	BUSHING, H-1.125	1	100	238346	HOSE, 0.63 in. ID, 19 in. (48 cm)	1
20	605358	KEY, sprocket	1	105	107032	ELBOW, 90°, 3/8-18 npt	1
21	100132	WASHER, flat	11	106	156022	ADAPTER, 3/8 in. npt x 1/2 in. npt, 1-1/2 in. (38 mm) long	1
27	191620	SUPPORT, pump	1	107	191686	GUARD, top, left	1
28	100052	WASHER, lock	4	108	191687	GUARD, top, right	1
29	107143	CAPSCREW, soc hd, grade 5, 7/16- 14 unc-3a; 1.25 in. (31 mm) long	4	112	191695	GUARD, motor, front	1
30	100004	CAPSCREW, hex hd, grade 5; 3/8-16 unc-2a; 1.25 in. (31 mm) long	REF	113	191696	GUARD, belt, lower	1
31	100023	WASHER, flat	2	114	113609	BUMPER, nylon	4
32	100133	WASHER, lock, 3/8 in.	4	115	100575	CAPSCREW, hex hd, grade 5, 3/8-16 unc-2a, 5/8 in. (16 mm) long	2
33	191253	PUMP, vane	1	136	238681	TANK, fuel	1
34	100187	NUT, grade 5, 5/16-24	1	136a	113371	HOSE, fuel	1
35	219099	KNOB, pump	1	139	113372	COUPLING, fuel line	1
37	100022	CAPSCREW, hex hd, grade 5, 1/4-20 unc-2a, 3/4 in. (19 mm) long	4	140	100549	ELBOW, street, pipe, 90°	1
44	158683	ELBOW, 90°, 1/2-14 npt(f) x 1/2-14 npt(m)	REF	141	107049	INSERT, hose, beaded	1
67	101818	CLAMP, hose	REF	142	113681	SPRING, compression (not shown)	1
82	158491	NIPPLE, 1/2 in. npt x 1/2 npt, 1-5/8 in. (41 mm) long	1	167	100015	NUT, hex, grade 5, 1/4-20 unc-2b	2
83	113613	ADAPTER, female pipe, 1/2-14 npt(f) x 1 1/16-12 unf-2a	1	181	112179	SCREW, mch, grade 5, M5 x 12	2
84	192045	MANIFOLD, valve	1	192	191863	GUARD, hose	1
85	104813	PLUG, pipe; 3/8-18 npt	1	205	100195	NIPPLE, pipe; 3/8-18 npt	1
86	110311	NIPPLE, straight; 3/8-18 npt(f) x 3/4-16 unf	3	206	165472	ELBOW, pipe, 90°; 3/8 npt(f)	1
				218	107053	ELBOW, street, 3/8-18 npt(f) x 1/2-14 npt(f)	1
				242	100421	SCREW, set, grade 5; 5/16-18 unc-3a, 0.375 in. (10 mm) long	2
				247	192228	BRACKET, fuel coupler	1
				257	150286	ADAPTER, 3/8 in.	1

\* Parts available from Kohler.

## RoadLazer Line Striper

### Main Base Assembly (1 of 2)



# Parts

## RoadLazer Line Striper

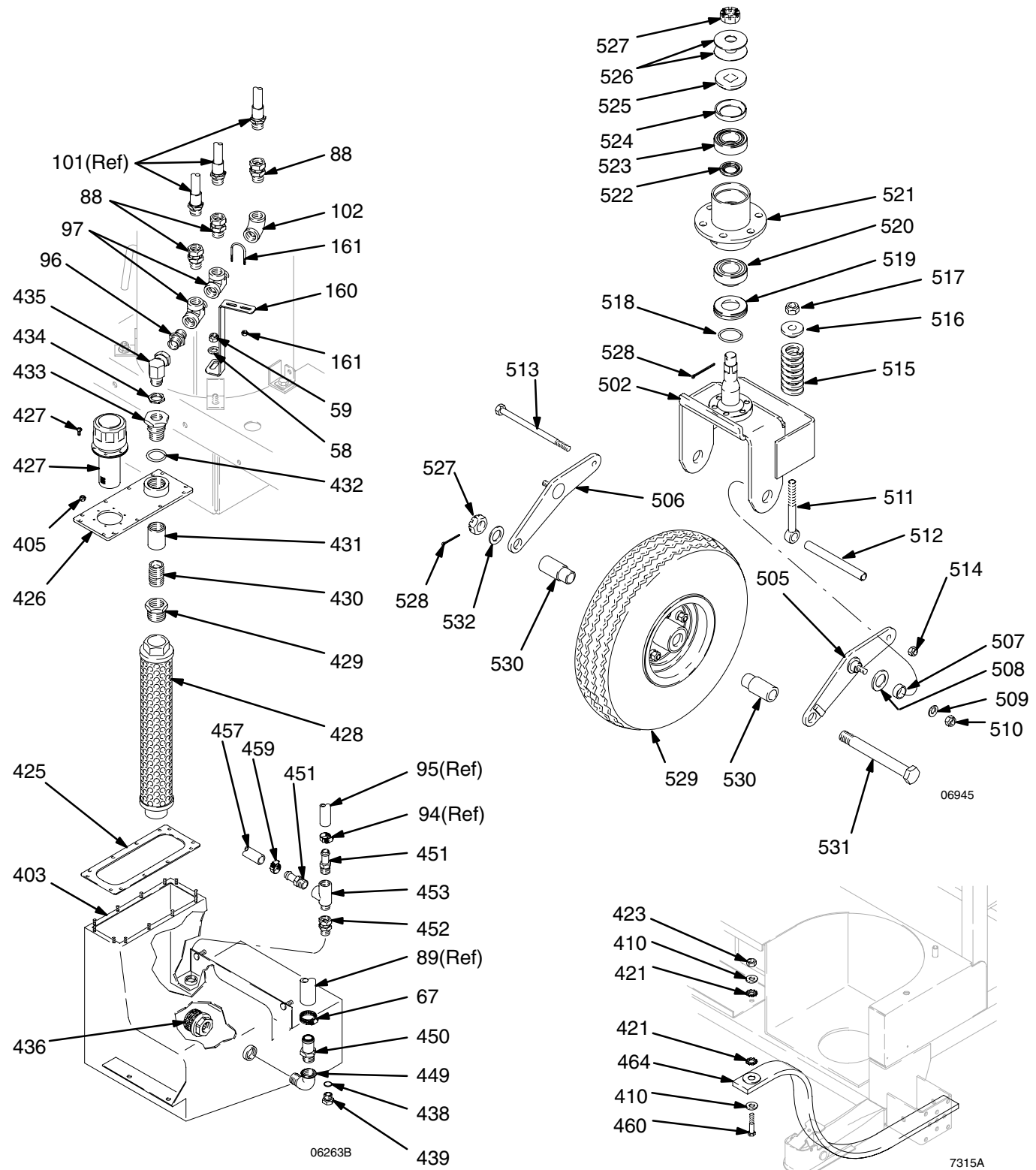
### Main Base Assembly (1 of 2)

Ref. No.	Part No.	Description	Qty.	Ref. No.	Part No.	Description	Qty.
13	102040	NUT, lock, hex, grade 5, 1/4–20 unc–3b	9	413	191248	BASE, pump mount	1
15	101566	LOCKNUT, nylon, 3/8–16	REF	414	238806	FENDER, tire, painted	1
25	113619	IDLER, vee, pulley	1	415	113820	BOLT, hex hd, 5/8–11, grade 8	6
26	111803	CAPSCREW, hex hd, grade 5, 3/8–16 unc–2a, 2 in. (51 mm) long	1	416	113980	NUT, lock, 5/8–11, grade 8	6
110	191690	GUARD, belt, front	1	417	113597	COOLER, oil	1
111	191697	GUARD, belt, side	1	417a	240798	KIT, motor and fan replacement	1
132	100531	CAPSCREW, hex hd, grade 5, 3/8–16 unc–2a, 2.5 in. (63.5 mm) long	5	418	100424	SCREW	4
145	115501	SENSOR, proximity	1	419	801020	NUT, lock, hex, grade 5, 1/2–13 unc–2b	4
146	113686	KIT, tail light (2 lights)	1	420	238301	BRACKET, guide	1
159	107257	SCREW, thd forming, hex, washer hd, grade 5, 1/4–20 unc–3a, 0.50 in. (13 mm) long	2	421	100639	WASHER, lock, external tooth	6
169	100985	WASHER, lock, ext	5	422	100454	CAPSCREW, hex hd, grade 5, 3/8–16 unc–2a, 7/8 in. (22 mm) long	4
182	113693	CORD, shock	1	423	101566	LOCKNUT, grade 5	20
171	113491	CLAMP, wire (not shown)	2	424	113304	CLAMP, push pull	2
184	100014	SCREW, cap, hex hd, grade 5, 1/4–20 unc–2a, 1.25 in. (32 mm)	2	440	113451	WASHER, wave	4
189	290271	LABEL, RoadLazer	1	441	191099	WEDGE, clamp	2
198	054749	HARNESS, wire	1	442	113467	CAPSCREW, soc hd, grade 5, 5/16–18 unc–2a, 1.5 in. (38 mm) long	2
212	110755	WASHER, plain	2	444	191676	BRACKET, tail light	2
213	237686	GROUNDING CLAMP ASSEMBLY	1	445	100680	CAPSCREW, hex hd, grade 5, 3/8–16 unc–2a, 3/4 in. (19 mm) long	4
215	102258	TERMINAL, electrical, insulated	1	446	109099	BUSHING, snap	2
249	192164	BRACKET, license	1	447	113667	BUSHING, nylon	1
400	238346	MAIN BASE ASSEMBLY (includes 401 to 462) <i>See also</i> pages 44 and 45.		448	111040	NUT, lock, nylock, 5/16–18	2
401	238337	BASE, main	1	451	107050	INSERT, hose, beaded	4
404	113609	BUMPER, nylon	2	454	111841	WASHER, plain, 5/8 in.	6
406	113301	JACK, trailer	2	456	113603	CAP, hub	1
408	113591	CHAIN, safety	2	457	191650	HOSE, 0.63 in. ID, 14 in. (36 cm)	1
409	100531	CAPSCREW, hex hd, grade 5, 3/8–16 unc–2a, 2.5 in. (64 mm) long	2	458	191651	HOSE, 0.63 in. ID, 19 in. (48 cm)	1
410	100731	WASHER	6	459	102473	CLAMP, hose	4
412	100469	CAPSCREW, hex hd, grade 5, 3/8–16 unc–2a, 3/4 in. (19 mm) long	5	460	111803	SCREW, cap, hex hd, grade 5, 3/8–16 unc–2a, 2.0 in. (51 mm)	3
				461	113696	PIN, safety	4
				462	191965	RING, rubber	1
				500	238327	SWIVEL CASTER ASSEMBLY (See 501 to 532 on page 45)	

# Parts

## RoadLazer Line Striper

### Main Base Assembly (2 of 2)



# Parts

## RoadLazer Line Striper

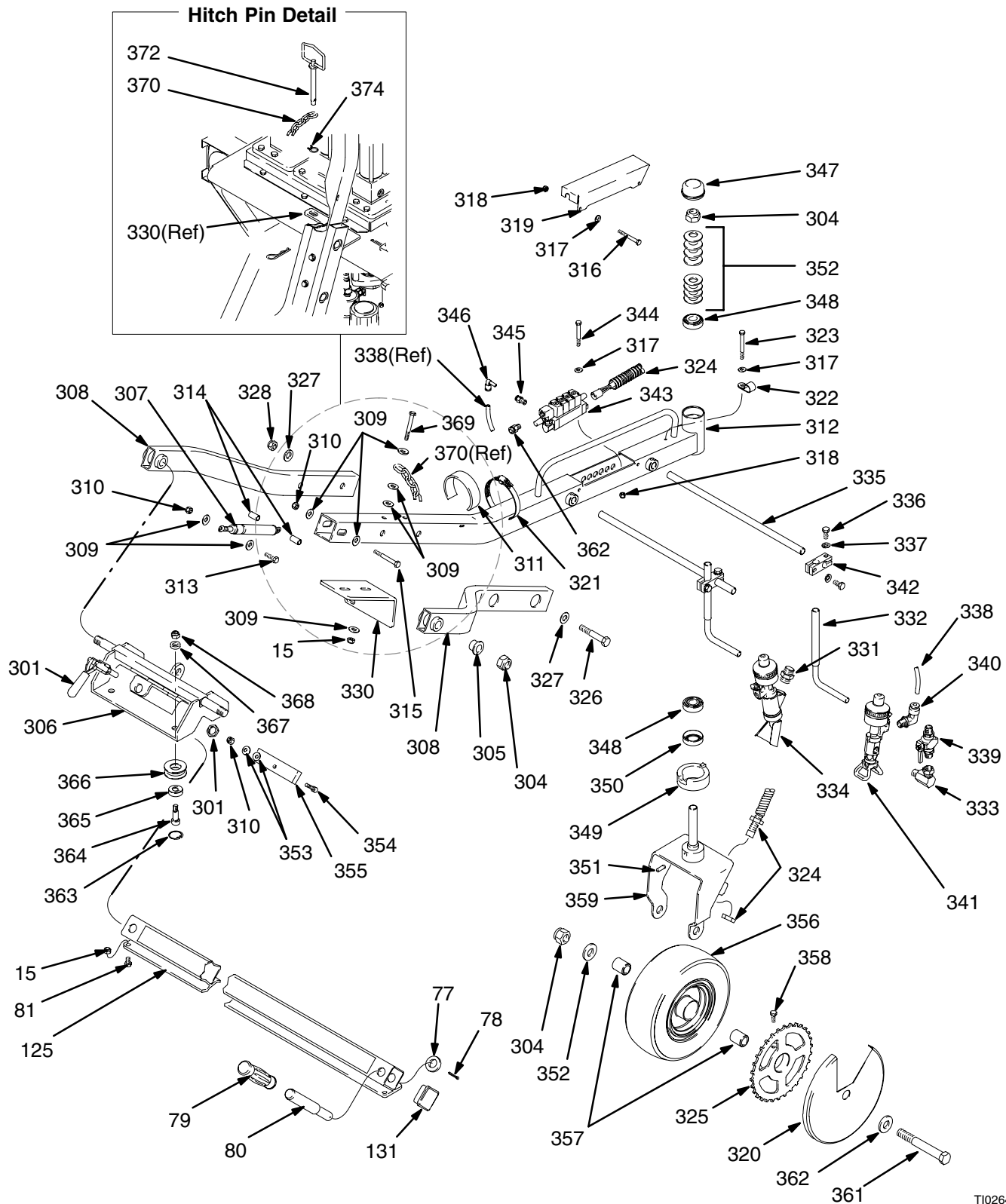
### Main Base Assembly (2 of 2)

Ref. No.	Part No.	Description	Qty.	Ref. No.	Part No.	Description	Qty.
58	109570	WASHER, plain	REF	500	238327	SWIVEL CASTER ASSEMBLY (includes items 501 to 532)	
59	801020	NUT, lock, hex, grade 5, 1/2–13 unc–2b	REF	501†	238324	FORK, caster (not shown)	1
67	101818	CLAMP, hose	REF	502†	191182	SPINDLE, fork	1
88	157785	UNION, swivel; 3/4 npt(m) x 3/4 npsm(f); carbon steel	3	503†	113961	SCREW, cap, hex hd, grade 8, 1/2–13 unc–2a, 1.0 in. (26 mm) long (not shown)	6
96	160032	NIPPLE, 3/4–14 npt(m)	1	504†	113962	WASHER, hardened, sae (not shown)	6
97	111337	TEE, street, 3/4–14 npt(f)	2	505	238325	ARM, pivot, left hand	1
102	113671	ELBOW, 3/4–14 npt(f)	1	506	238326	ARM, pivot, right hand	1
160	191656	BRACKET, manifold	1	507	113460	BEARING, bronze	2
161	106265	U-BOLT, grade 5, 2 x 1/4–20 unc–2a	1	508	113586	WASHER, thrust	2
400	238346	MAIN BASE ASSEMBLY (includes items 401 to 462) <i>See also</i> pages 42 and 43.		509	101044	WASHER, plain	2
403	238787	RESERVOIR, hydraulic	1	510	101926	NUT, lock, grade 5,	2
405	102040	NUT, lock, hex, grade 5, 1/4–20 unc–3b	12	511	191221	BOLT, swing, grade 5,	2
425	191634	GASKET, reservoir	1	512	191178	SPACER, fork	1
426	238818	COVER, reservoir	1	513	113590	CAPSCREW, hex hd, grade 5 1/2–13 unc–2a, 8.5 in. (216 mm) long	1
427	107074	BREATHER	1	514	801020	NUT, lock, hex, grade 5, 1/2–13 unc–2b	1
428	178794	FILTER, fluid	1	515	113458	SPRING, compression	2
429	500054	BUSHING, hex hd, 1–11.5 npt(f) x 1–1/4–11.5 npt(m)	1	516	191220	SPACER, spring	2
430	100485	NIPPLE, pipe	1	517	101712	NUT, lock, grade 5, 5/8–11 unc–2b	2
431	100474	COUPLING, pipe	1	518	162440	PACKING, O-ring	1
432	107067	PACKING, O-ring	1	519	192042	SPACER, bearing	1
433	178750	FITTING, return, 1–11.5 npt(m) x 3/4–14 npt(f)	1	520	113960	BEARING, cup/cone	1
434	105429	NUT, seal, grade 5,	1	521	238323	HUB, caster	1
435	160327	UNION, angle adapter, 3/4–14 npsm x 3/4–14 npt(f)	1	522	113959	SEAL, oil	1
438	104444	PACKING, O-ring	1	523	113588	BEARING, roller	1
439	104126	PLUG, boss	1	524	191176	BEARING, cone, Delrin®	1
449	100549	ELBOW, street, pipe, 90°	1	525	191186	SPACER, bearing, cone	1
450	107049	INSERT, hose, beaded	1	526	113457	WASHER, belleville	2
451	107050	INSERT, hose, beaded	REF	527	113461	NUT, slotted, hex, grade 5, 1–14 uns	2
452	101353	NIPPLE, 1/2–4 npt, 4 in. (102 mm) long	1	528	113701	PIN, cotter	2
453	103475	TEE, pipe, 1/2–14 npt(f)	1	529	239029	WHEEL, pneumatic caster kit (includes wheel and hub)	1
455	106114	STRAINER, inlet	1	530	191177	SPACER, wheel	2
457	191650	HOSE, 0.63 in. ID, 14 in. (36 cm)	REF	531	191180	BOLT, axle, grade 5,	1
459	102473	CLAMP, hose	REF	532	158884	WASHER, plain	1
464	114032	STRAP, ground	1				

† These parts are not repairable. To replace, order Wheel Fork Replacement kit, Graco Part No 239423.

# Parts

## RoadLazer Line Striper Boom Arm Assembly



T10264b

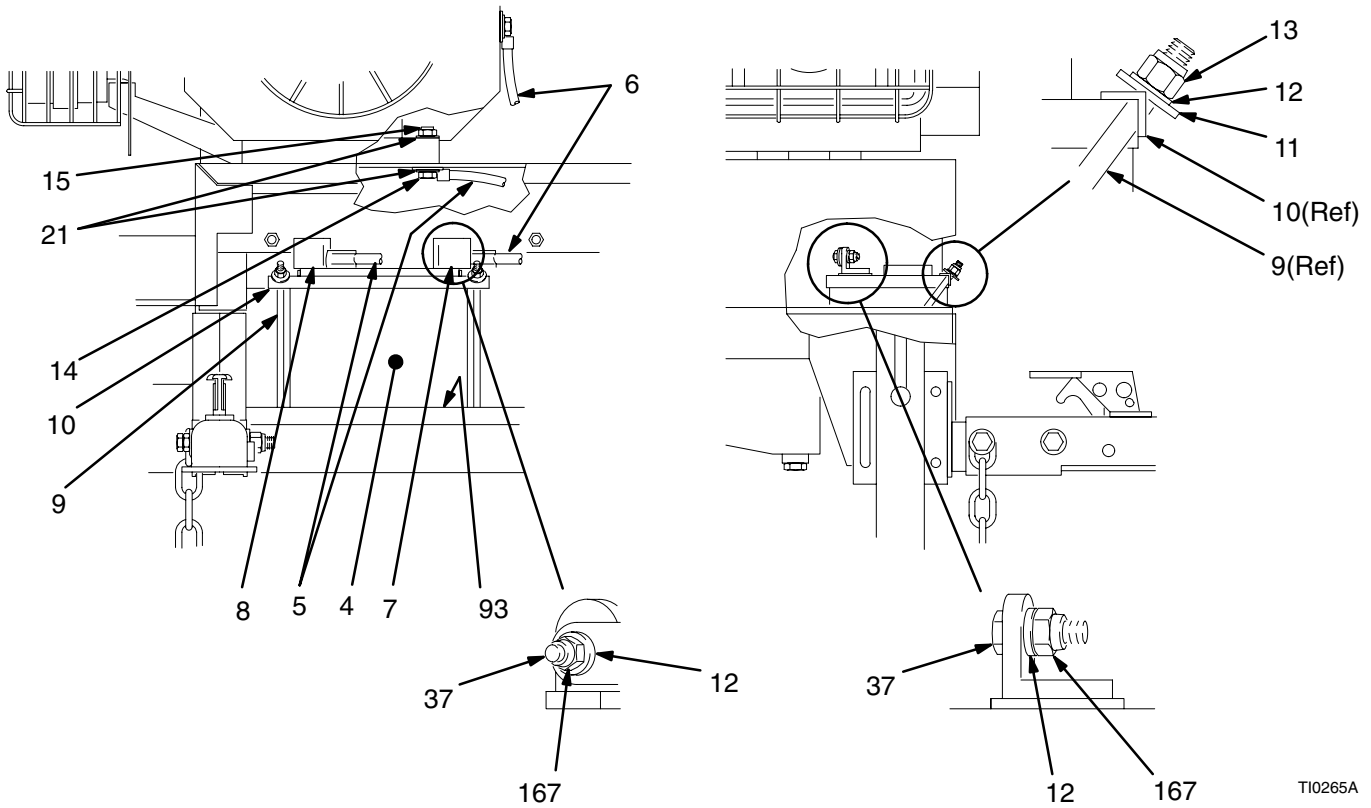
# Parts

## RoadLazer Line Striper Boom Arm Assembly

Ref. No.	Part No.	Description	Qty.	Ref. No.	Part No.	Description	Qty.
15	101566	LOCKNUT, nylon, 3/8–16	REF	335	191163	ARM, pivot, gun	2
77	160641	WASHER, packing	2	336	100101	CAPSCREW, hex hd, grade 5, 3/8–16 unc–2a, 1.0 in. (25 mm) long	8
78	108450	PIN, cotter	2	337	100133	WASHER, lock, 3/8 in.	8
79	108063	GRIP, handle	2	338	191191	HOSE, air, 1/4 in. OD, 12 in. (305 mm) long	4
80	191089	HANDLE, beam	2	339	238694	VALVE, ball	3
81	100469	CAPSCREW, hex hd, grade 5, 3/8–16 unc–2a, 3/4 in. (19 mm) long	2	340	113321	FITTING, elbow, tube, 1/4–18 npt(f) x 1/4 in. npt(m) pipe	4
125	238295	BEAM, main	1	341	238332	GUN, spray, auto <i>See manual 308613 for parts</i>	2
131	113682	PLUG, tubing	2	342	191218	CLAMP, support, arm	4
147	238357	BOOM ARM ASSEMBLY (includes items 301 to 362)		343	112794	VALVE, air, solenoid	1
301	113304	CLAMP, push-pull	1	344	102313	CAPSCREW, hex hd, grade 5, 1/4–20 unc–2a, 1.75 in. (44 mm) long	2
304	112405	NUT, lock, nylon, 3/4–16 unf–2b	4	345	113320	FITTING, air, 1/8–27 npt(f) x 1/8 npt(m) pipe	4
305	113454	BEARING, oilite	4	346	113318	FITTING, elbow, plug-in, 1/4 OD female tube x 1/4 male stud elbow	4
306	238309	BRACKET, traverse	1	347	113453	CAP, dust	1
307	113600	SHOCK, gas	1	348	113485	BEARING, cup/cone	2
308	238321	ARM, wishbone	2	349	191102	COLLAR, stop	1
309	100023	WASHER, flat, 3/8 in.	10	350	113484	SEAL, grease	1
310	111040	NUT, lock, nylock 516–18	1	351	107211	PIN, dowel	1
311	178861	PAD, foam	2	352	112825	WASHER, belville	10
312	238320	BEAM, boom	1	353	113451	WASHER, wave	2
313	801941	BOLT, hex hd, grade 5, 5/16–18 unc–2a, 1 in. (25 mm) long	1	354	113467	CAPSCREW, soc hd, grade 5, 5/16–18 unc–2a, 1.5 in. (38 mm) long	1
314	191264	SPACER, gas, spring	2	355	191114	CLAMP, retaining	1
315	113664	CAPSCREW, hex hd, grade 5, 5/16– 18 unc–2a, 2.75 in. (70 mm) long	3	356	113479	WHEEL, pneumatic	1
316	113469	PIN, clevis	2	357	191111	SPACER, wheel	2
317	110755	WASHER, plain	10	358	100057	CAPSCREW, hex hd, grade 5, 5/16– 18 unc–2a, 0.75 in. (19 mm) long	1
318	102040	NUT, lock, hex, grade 5, 1/4–20 unc–3b	5	359	238308	FORK, caster	1
319	191119	COVER, access	1	361	113471	CAPSCREW, hex hd, grade 5, 3/4–16 unc–2a, 5.5 in. (140 mm) long	1
320	195442	SHIELD	1	362	113319	FITTING, air, 1/4–18 npt(f) x 1/4 npt(m) pipe	1
321	113695	CLAMP, hose, 5 in. (127 mm)	2	363	113598	SNAP RING	4
322	113491	CLAMP, wire	1	364	114986	SHOULDER SCREW	4
323	103547	CAPSCREW, hex hd, grade 5, 1/4–20 unc–2a, 2.75 in. (70 mm) long	1	365	113326	BEARING	4
324	113303	SENSOR, proximity, 12 mm	1	366	191112	WHEEL, traverse	4
325	238306	SPROCKET, timing	1	367	194491	SPACER	8
326	101147	CAPSCREW, hex hd, grade 5, 1/2–13 unc–2a, 3.0 in. (76 mm) long	2	368	114987	NUT, lock	4
327	109570	WASHER, plain	4	369	115618	CAPSCREW, hex hd, grade 5, 3/8–16 unc–2a, 3.25 in.	1
328	801020	NUT, lock, hex, grade 5, 1/2–13 unc–2b	2	370	186812	CHAIN, 15 in. (38 cm)	1
330	191628	BRACKET, gun arm	1	371	M71635	CLAMP	1
331	111834	NIPPLE, pipe, hex	2	372	115473	PIN, hitch	1
332	191164	ARM, mounting, gun, 90°	4				
333	207123	UNION, swivel, 90°, 3/8 in. npsm(f) x 3/8 in. npt(m)	3				
334	238329	GUN, spray, bead <i>See manual 308612 for parts</i>	2				

# Parts

## RoadLazer Line Striper Battery System

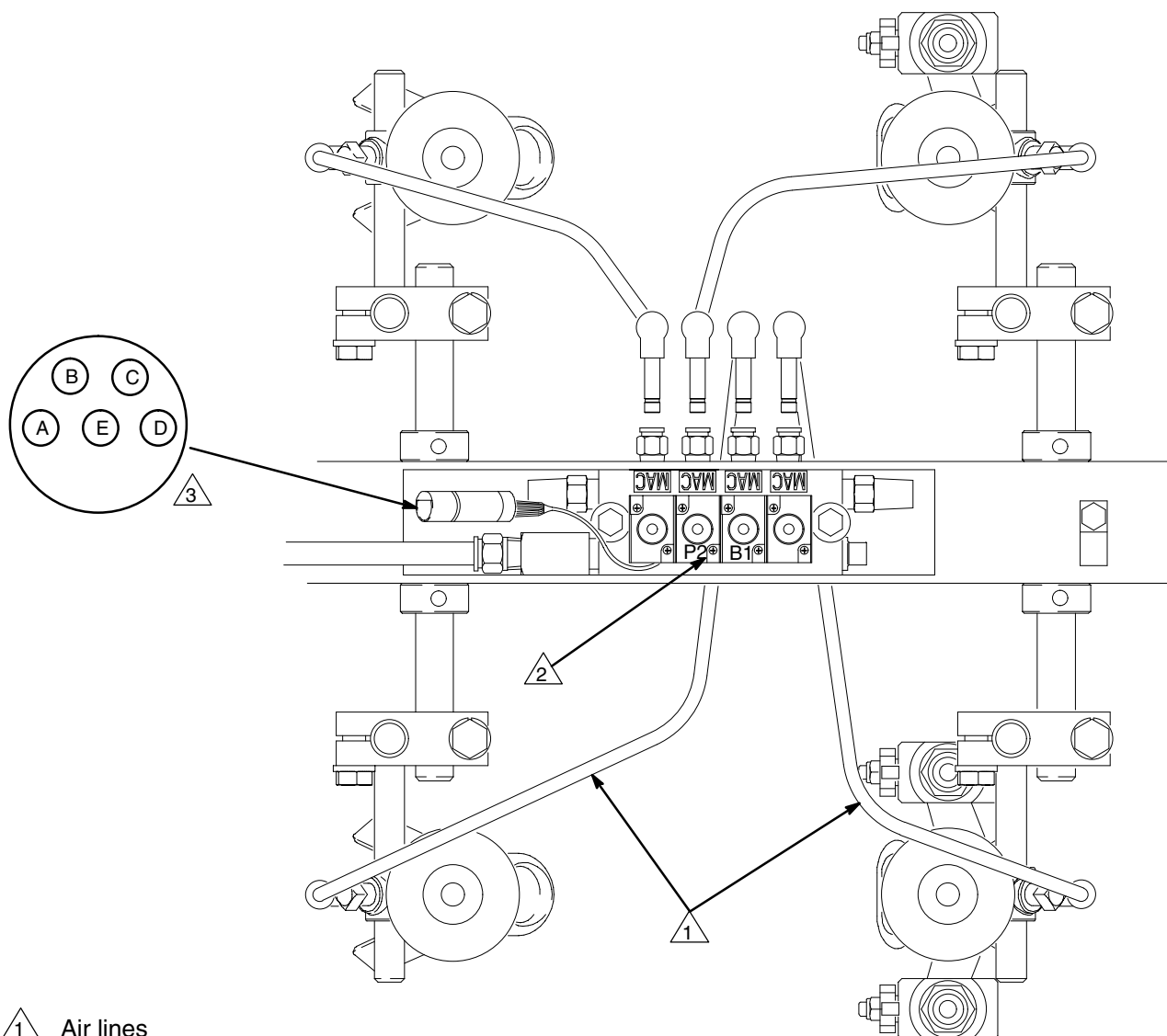


Ref. No.	Part No.	Description	Qty.	Ref. No.	Part No.	Description	Qty.
4	115753	BATTERY, 12V	1	14	102638	CAPSCREW, hex hd, grade 5, 3/8-16 unc-2a, 2 in. (51 mm) long	REF
5	107072	CABLE, electric, negative	1	15	101566	LOCKNUT, nylon, 3/8-16	REF
6	107073	CABLE, electric, positive	1	21	100132	WASHER, flat	REF
7	801958	PROTECTOR, terminal, red	1	37	100022	CAPSCREW, hex hd, grade 5, 3/8-16 unc-2a, 2 in. (51 mm) long	2
8	801959	PROTECTOR, terminal, black	1	93	801972	PAD, battery	1
9	803525	BOLT, battery	2	167	100015	NUT, hex, mscr, grade 5, 1/4-20 unc-2b	REF
10	107069	CLAMP, battery	1				
11	100527	WASHER, wrought	4				
12	100016	WASHER, lock	5				
13	102040	NUT, lock, hex, grade 5, 1/4-20 unc-3b	REF				



# Schematics

## Solenoid Air Valves



△1 Air lines

△2 Solenoid air valve

△3 Electronic control from Programmable Skipline Controller

Ⓐ Paint gun (1)

Ⓑ Paint gun (2)

Ⓒ Bead gun (1)

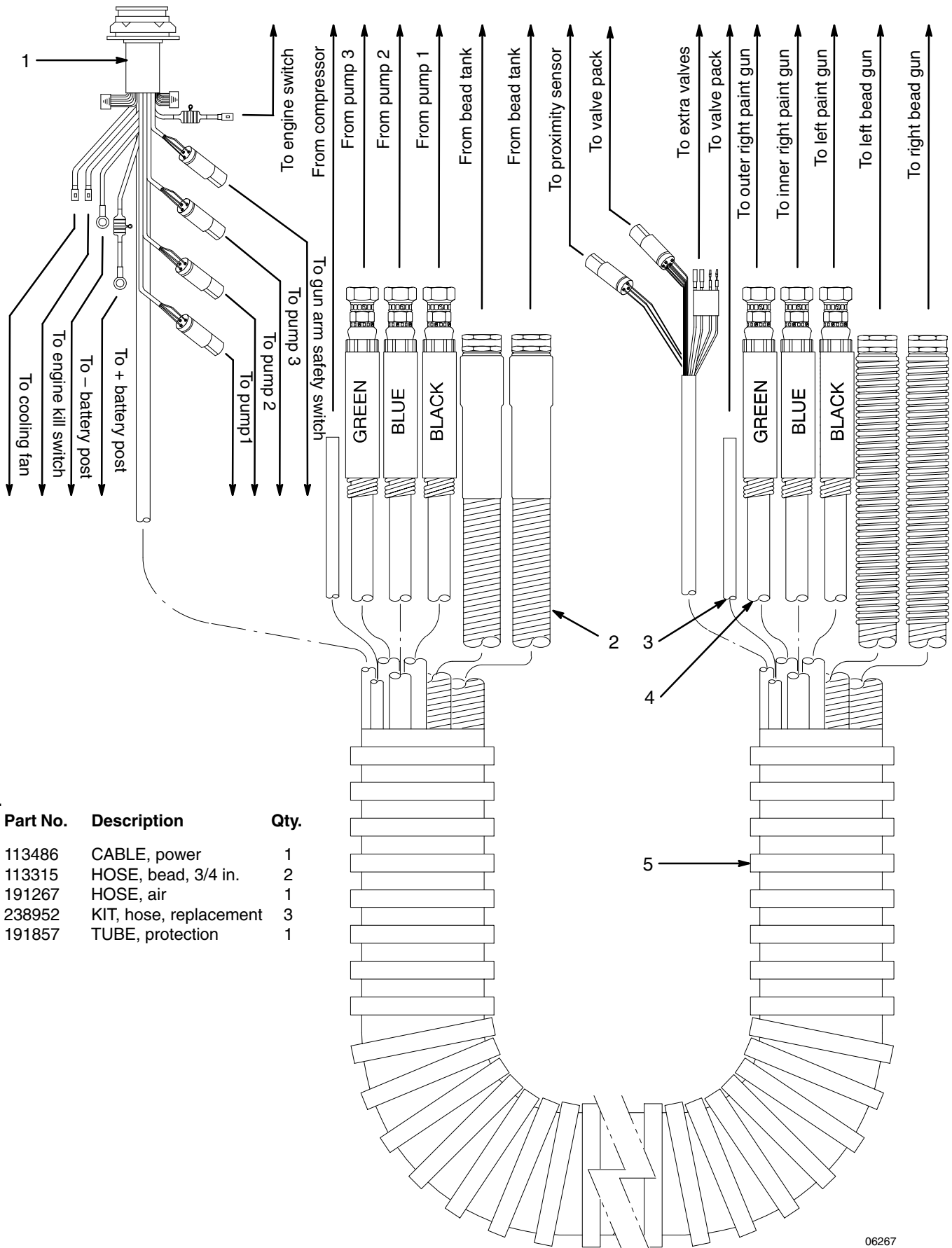
Ⓓ Bead gun (2)

Ⓔ + 12V DC

06266

# Schematics

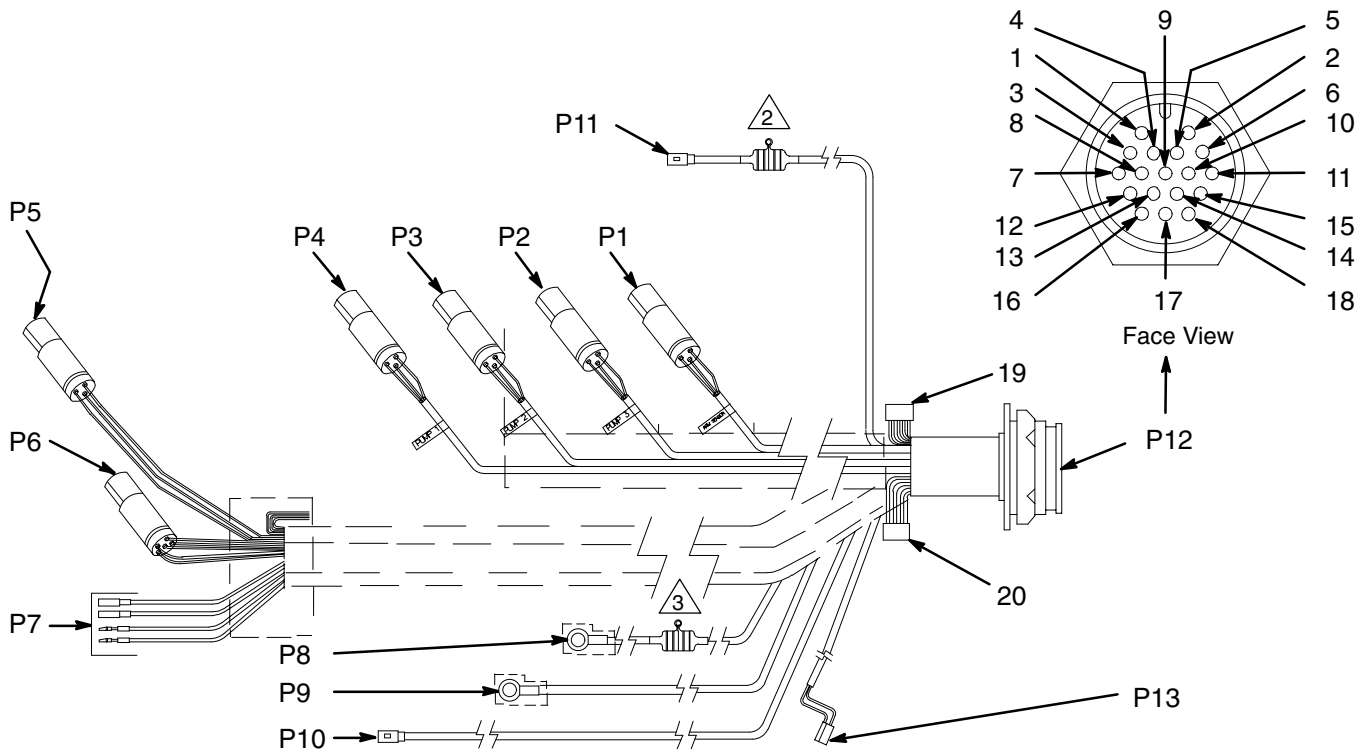
## Main Harness 238680



Ref. No.	Part No.	Description	Qty.
1	113486	CABLE, power	1
2	113315	HOSE, bead, 3/4 in.	2
3	191267	HOSE, air	1
4	238952	KIT, hose, replacement	3
5	191857	TUBE, protection	1

# Schematics

## Power Cable



Polarity: P11 connects to engine 12V (switched); P8 connects to battery 12V; P9 connects to battery ground; P10 connects to engine safety shutdown.

Connector													
	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	P13
	A B C	A B C	A B C	A B C	A B C	A B C D E	A B C D	A	A	A	A	13 14 15 16	A B
Wire Color Code	R B G	R B G	R B G	R B G	R B W G	O B W B R R G O B	R R G O B	R	B	G	R	B B B B	BL B
Connects To	19 20 3	19 20 16	19 20 5	19 20 4	19 20 2 6	9 7 10 19	19 19 11 8	1	20	12	19	20	19 20



R = Red  
B = Black  
W = White  
G = Green  
O = Orange  
BL = Blue

W  
B = White/black  
B  
B = Blue/black  
R  
B = Red/black

R  
W = Red/white  
G  
B = Green/black  
O  
B = Orange/black



Fuse: 20A, 32V, type AGC protects the following:

- Fan, P13
- Solenoid air valves, P6
- Proximity sensors for the pump, skip timer and gun arm stowed safety, P1 – P4



Fuse: 4A, 32V, type AGC protects the Programmable Skipline Controller, P12

# Accessories

## Throat Seal Liquid

Nonevaporating liquid for wet-cup. Helps prevent paint buildup on the rod and throat packings to reduce premature wear. Available in these quantities:

<b>8 oz</b>	<b>206994</b>
<b>32 oz</b>	<b>206995</b>
<b>128 oz</b>	<b>206996</b>

## Flex Gun Repair Kit 235474

Includes needle, gaskets, diffuser/seat, and insertion tool.

## Paint Spray Gun Repair Kit 238339

See parts content in manual 308613.

## Bead Spray Gun Repair Kit 238340

See parts content in manual 308612.

## Video Guidance System 238683

Includes video camera, video monitor, and mounting hardware. Manual 308617.

## Displacement Pump Repair Kit 238793

See parts content in manual 308650.

## Sleeve Removal Tool 238943

Includes sleeve removal tool. Manual 308665.

## Hitch Receiver Kit (straight tube) 238944

Includes left and right hitch receivers and hardware. Manual 308670.

## Gallon Meter Kit 238954

Includes one sensor and brackets. Manual 308682.

## Third Gun Kit 244275

Includes paint spray gun, bead spray gun, paint hose, bead hose, 3-wide bead gun deflectors, 3 Heavy-Duty RAC™ tip guards, 3 Heavy-Duty RAC V tips, and two solenoid air valves. Manual 308678.

## Hand Gun Bead Accessory 238957

Includes deflector, tube, ball valve, 3/8 in. nylon hose, and tank fitting. Manual 308679.

## Second Stencil Gun Kit 238958

Includes Flex Airless Spray Gun, 50 ft hose, and clamp assembly. Manual 308681.

## Remote Digital Speed Indicator 238963

Includes LCD display and output cable. Manual 308680.

## Spare Tire Kit 239029

Includes tire, wheel, and hub assembly.

## Pump Kit 239041

Includes everything needed to upgrade from 1 to 2 pumps or from 2 to 3 pumps. Manual 308699.

## Hitch Receiver Kit (bent tube) 239692

Includes left and right hitch receivers and hardware. Manual 308670.

## Wide Beam Kit 239747

For flatbed trucks and one-ton, dual-wheeled trucks.

## Paint Transfer Kit 239934

Includes double diaphragm pump, transfer hoses, and Auxiliary Air Kit 240496. Manual 308796.

## Agitator Kit 239935

Includes 55-gallon drum, stainless steel agitator, and Auxiliary Air Kit 240496. Manual 308795.

## Auxiliary Air Kit 240496

Includes hoses and fittings to add an air line quick coupler to RoadLazer. Manual 308831.

## Suction Line Strainer Kit 240499

Includes one polypropylene Y-strainer with 1 in. hose fittings and removable stainless steel filter element. Manual 308835.

## Spanish Kit 240500

Includes labels and manuals in Spanish. Manual 308836.

## Motor and Fan Replacement Kit 240798

Includes 12V motor, fan blades, and fan guard.

# Technical Data

## Maximum working pressure

Paint .....	2000 psi (138 bar)
Hydraulics .....	1500 psi (103 bar)
Glass bead system .....	75 psi (5 bar)

Maximum flow ..... 2.5 gpm/pump @ 2000 psi (138 bar)

## Operating pressure of air-actuated trigger

Minimum .....	50 psi (3 bar)
Maximum .....	200 psi (12 bar)

## Sound levels — measured at 3.1 ft (1 m) under maximum operating conditions per ISO-3744

Sound power level .....	99.4 dB(A)
Sound pressure level .....	81.5 dB(A)

## Weight (empty / full)

Gross trailer weight .....	1090 / 1415 lb (494 / 641 kg)
Gross tongue weight (each) .....	380 / 470 lb (172 / 213 kg)
Gross axle weight .....	430 / 480 lb (195 / 218 kg)

Towing height (boom arm raised) ..... 7.5 ft (2.3 m)

Engine ..... Kohler® 18 HP

Fluid connections (paint) ..... two 3/8 npt(f) ports

Air connections ..... 1/4 npt(f) air inlets

Hydraulic oil reservoir capacity ..... 12 gallons (45 liters)

Glass bead capacity ..... 300 lb (136 kg)

Wetted parts ..... tungsten carbide; 303, 316, & 416 series stainless steel; PTFE; acetal homopolymer; leather

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*DRAW-TITE® is a registered trademark of the Draw-Tite Corporation.*

*WD-40® is a registered trademark of the WD-40 Company.*

# Graco Standard Warranty

Graco warrants all equipment manufactured by Graco and bearing its name to be free from defects in material and workmanship on the date of sale by an authorized Graco distributor to the original purchaser for use. With the exception of any special, extended, or limited warranty published by Graco, Graco will, for a period of twelve months from the date of sale, repair or replace any part of the equipment determined by Graco to be defective. This warranty applies only when the equipment is installed, operated and maintained in accordance with Graco's written recommendations.

This warranty does not cover, and Graco shall not be liable for general wear and tear, or any malfunction, damage or wear caused by faulty installation, misapplication, abrasion, corrosion, inadequate or improper maintenance, negligence, accident, tampering, or substitution of non-Graco component parts. Nor shall Graco be liable for malfunction, damage or wear caused by the incompatibility of Graco equipment with structures, accessories, equipment or materials not supplied by Graco, or the improper design, manufacture, installation, operation or maintenance of structures, accessories, equipment or materials not supplied by Graco.

This warranty is conditioned upon the prepaid return of the equipment claimed to be defective to an authorized Graco distributor for verification of the claimed defect. If the claimed defect is verified, Graco will repair or replace free of charge any defective parts. The equipment will be returned to the original purchaser transportation prepaid. If inspection of the equipment does not disclose any defect in material or workmanship, repairs will be made at a reasonable charge, which charges may include the costs of parts, labor, and transportation.

**THIS WARRANTY IS EXCLUSIVE, AND IS IN LIEU OF ANY OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO WARRANTY OF MERCHANTABILITY OR WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE.**

Graco's sole obligation and buyer's sole remedy for any breach of warranty shall be as set forth above. The buyer agrees that no other remedy (including, but not limited to, incidental or consequential damages for lost profits, lost sales, injury to person or property, or any other incidental or consequential loss) shall be available. Any action for breach of warranty must be brought within two (2) years of the date of sale.

Graco makes no warranty, and disclaims all implied warranties of merchantability and fitness for a particular purpose in connection with accessories, equipment, materials or components sold but not manufactured by Graco. These items sold, but not manufactured by Graco (such as electric motors, switches, hose, etc.), are subject to the warranty, if any, of their manufacturer. Graco will provide purchaser with reasonable assistance in making any claim for breach of these warranties.

In no event will Graco be liable for indirect, incidental, special or consequential damages resulting from Graco supplying equipment hereunder, or the furnishing, performance, or use of any products or other goods sold hereto, whether due to a breach of contract, breach of warranty, the negligence of Graco, or otherwise.

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## **ADDITIONAL WARRANTY COVERAGE**

Graco does provide extended warranty and wear warranty for products described in the "Graco Contractor Equipment Warranty Program".

# Graco Phone Number

**TO PLACE AN ORDER**, contact your Graco distributor, or call this number to identify the distributor closest to you:  
**1-800-690-2894 Toll Free**

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