CRAFCO®
PRESERVATION PRODUCTS

EZ PATCHER

For November 2026 & Newer EZ PATCHER's
Machine Manual – 49754N
Revision D

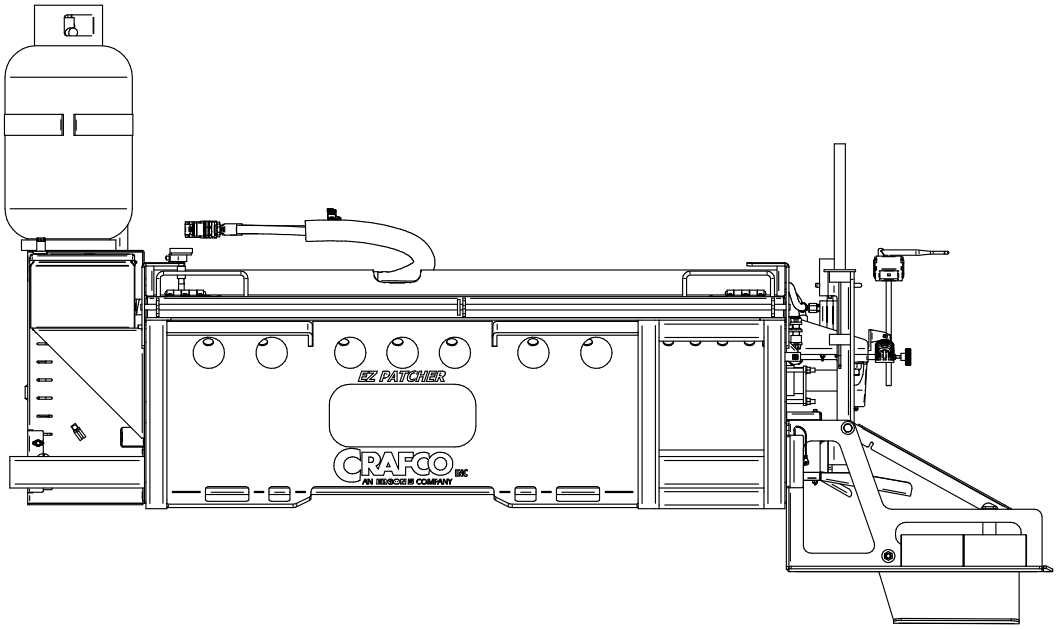
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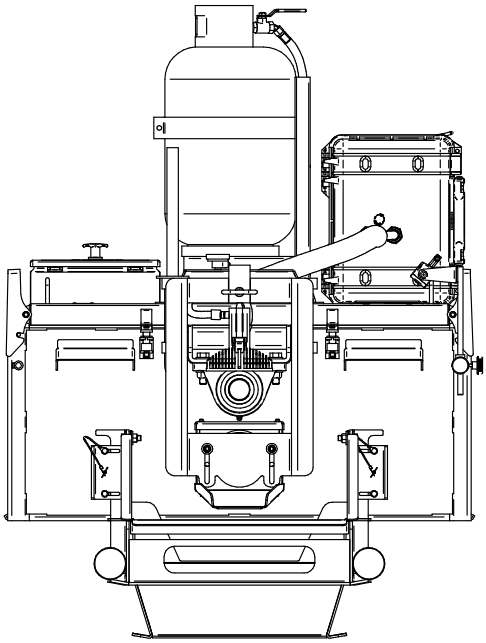
Revisions

Revision	Description	Date
0	FIRST RELEASE	02/2024
A	Updated schematic, Fig 8-3. Updated quick release pin P/N, Table 9-4. Updated thumb screw P/N, Table 9-2.	12/2024
B	Added hour meter. Updated wire schematic, Figure 8-3. Updated Figure 9-11 and Table 9-8	08/2025
C	Updated Corporate Address.	03/2026
D	Updated description for part number 49702N in Table 9-2, was 10psi. Updated Logo. Updated copyright date. Updated warranty. Updated section 9.1	11/2026

EZ Patcher Manual

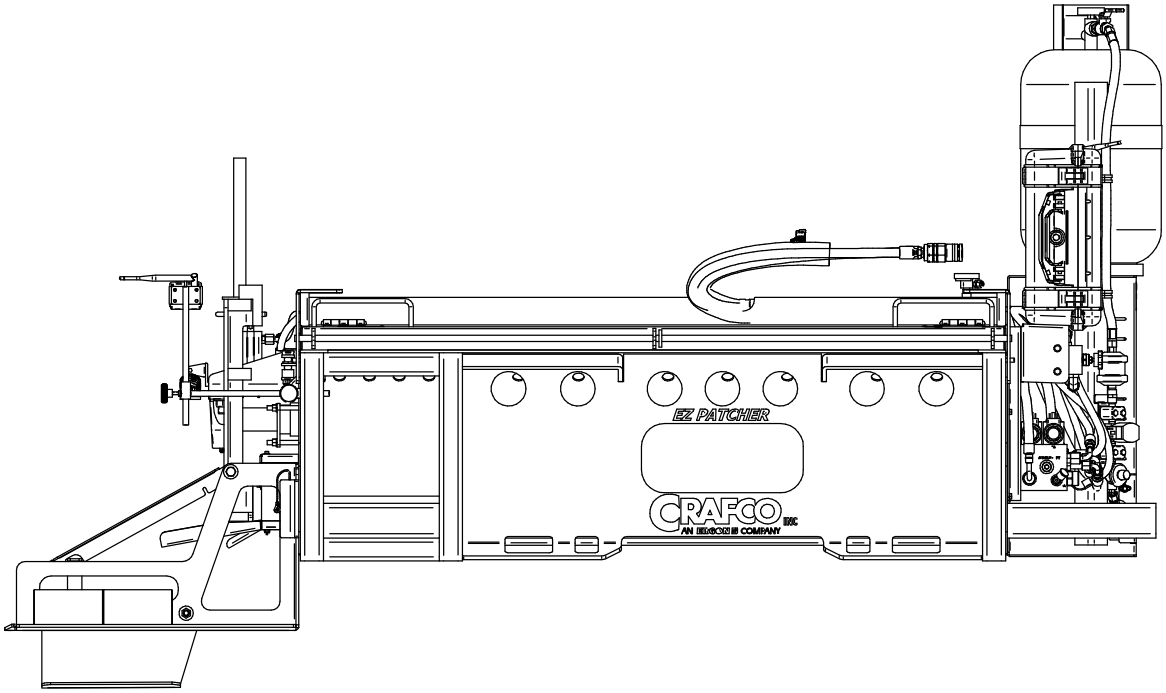
Machine Views

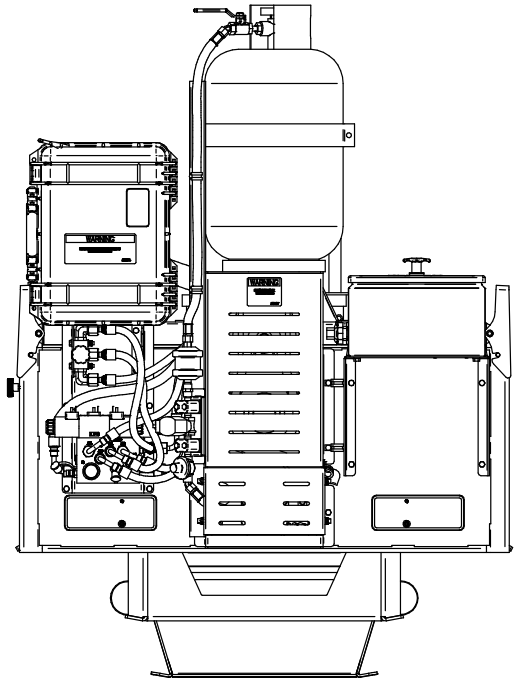




EZ Patcher Manual

Machine Views





EZ Patcher Manual

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Chapter 1 Introduction

1.0 About This Manual

This manual is supplied with each new Crafco EZ Patcher. The manual assists your machine operators with the proper use of the EZ Patcher and provides information about the machine's mechanical functions.

Your Crafco EZ Patcher is specially made to provide excellent service and save maintenance expense. However, as with all specially engineered equipment, you will get the best results at minimum cost if you:

- Operate your machine as instructed in this manual.
- Maintain your machine regularly as stated in this manual.

1.1 How to use this Manual

This manual is formatted to start each new chapter on the right page. There may be a blank page on the left page if the previous chapter ends on the right page.

If you are viewing this in a digital format (PDF) the following features are available:

1. The Table of Contents, List of Tables, and List of Figures are all hyperlinks, when left mouse clicked on section, table, or figure you will be sent to that page.
2. The blue highlighted text throughout the manual is a hyperlink, when left mouse clicked you will be sent to that page, table, or figure.
3. The panel to the left in the PDF is a bookmarks panel, if you left mouse click on any section/heading in the bookmarks panel you will be sent to that page.
4. There is an attachments icon (paper clip) to the left of the bookmarks, this is where you will find full size prints of the control box, electrical, and hydraulic schematics if available.

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Chapter 2 Safety Precautions

2.0 Safety Precautions

For more in-depth safety information, please see Safety Manual (PN 26221) which comes with the machine. Or contact your nearest authorized Crafco Distributor at crafco.com/Distributors.

2.1 General Safety

- Crafco assumes no liability for an accident or injury incurred through improper use of the machine.
- Read this manual thoroughly before operating the machine.
- Obey all CAUTION and WARNING signs posted on the machine.
- Make sure an operator fully knows how to operate the machine before using the machine.

2.2 Personal Safety

- The high operating temperatures of this machine and the material it contains requires that protective clothing, gloves, hard-soled shoes, and safety glasses or a face shield be worn at all times by operators of the machine.
- Pay attention to the surfaces you walk and work on, and look out for hazards like uneven ground, spills, other equipment, and debris. Keep your vision clear and the working area clear of obstructions.
- Bodily contact with hot material or heat transfer oil can cause severe burns.
- If the mixer is not stopped before adding solid material, hot material can get on an operator's body and cause severe burns.
- Keep hands, feet, and clothing away from all moving parts.
- Never attempt to clean out tank with machine on and engine running.
- Never operate the machine without guards in place.
- When maintaining, cleaning, or repairing machine, make sure the battery/power source is disconnected to prevent accidental energizing and operation of machine, and have a second person or guarding available to monitor and prevent access to the machine.
- Do not operate the machine when there is a chance of lightning discharge in the atmosphere.

2.3 Equipment or Operational Safety

- Do not operate the machine in buildings or work areas that do not have sufficient airflow.
- Make sure the mixer stops before adding solid material to the material tank.
- Always keep a correctly maintained fire extinguisher near the machine and know how to use it.
- Follow the operating instructions for starting and shutting down the burner.
- Calibrate the temperature control knobs after each 50 hours of machine operation. Refer to Figure 6-1 Temperature Control Calibration
- Replace any hoses which show signs of wear, fraying or splitting.
- Make sure all fittings and joints are tight and do not leak each time the machine is used.
- Do not leave the machine unattended while the burner is lit.
- Tighten all bolts and screws every 100 hours of machine operation.

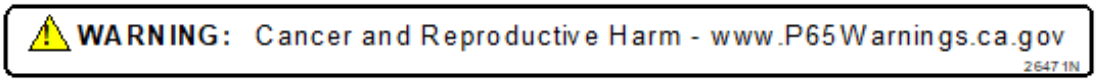
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Chapter 2 Safety Precautions

2.4 California Proposition 65

The state of California currently maintains a list of chemicals that can cause cancer, birth defects or other reproductive harm. Your Crafco equipment comes with the following warnings:

2.4.1 All Crafco Equipment



2.5 Transporting with Burner On

The burner in your Crafco machine is designed for operation only while the unit is attached to a skid steer loader that is stationary or moving slowly while applying sealant at a jobsite. When transporting this machine, the burner shall be turned off. Operating the burner when transporting the machine is a violation of The Code of Federal Regulations, CFR Title 49, Part 392, Subpart G, 392.67 and may cause damage to the burner and/or machine.

CAUTION
The burner in your Crafco machine is designed for operation only while the unit is attached to a skid steer loader that is stationary or moving slowly while applying sealant at a jobsite. **When transporting this machine, the burner shall be turned off**.

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Chapter 2 Safety Precautions

2.6 Safety Symbols and Notices

Important safety symbols and notices are marked on the machine and in this manual. Failure to comply could result in equipment damage, operational malfunction, serious injury, or death. Please read and comply with all symbols and notices. The table below includes the most commonly used symbols and notices.

Table 2-1 Safety Symbols and Notices

Symbol	Item	Remarks
WARNING	Warning	Refers to possible bodily injury or death.
CAUTION	Caution	Refers to possible equipment damage or operational malfunction.
	Severe Burn Hazard	Hot material can cause severe burns.
	Protective Shoes	Wear hard-soled work shoes.
	Protective Gloves	Wear heat resistant gloves.
	Protective Face or Eye Wear	Wear face shield or safety glasses.
	Body Crush Hazard	Do not stand between machine and skid steer loader when attaching machine to loader. Do not stand between machine and rear of Patcher II or 4 machine when approaching for filling of machine.

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Chapter 2 Safety Precautions

Table 2-2 Safety Symbols and Notices (continued)

Symbol	Item	Remark
	Crush Hazard	Keep feet and legs clear.
	Pinch Hazard	Keep hands and feet clear.
	Moving Machinery	Never reach into moving machinery.
	Exhaust Hazard	Avoid breathing engine exhaust.
	Noise Hazard	Ear protection is advisable.
	Read Manual	Read and understand operator and safety manuals before operating machine.

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Chapter 3 Warranty Information

3.0 Limited Warranty

Crafco (Manufacturer), or one of its affiliated distributors, will replace for the original purchaser free of charge any parts found upon examination by the Manufacturer, to be defective in material or workmanship. This warranty is for a period **two years** from the invoice date, but excludes engine or components, tires, and battery as these items are subject to warranties issued by their manufacturers.

Crafco shall not be liable for parts that have been damaged by accident, alteration, abuse, improper lubrication/maintenance, normal wear, or other cause beyond our control.

The warranty provided herein extends only to the repair and/or replacement of those components on the equipment covered above and does not cover labor costs. The warranty does not extend to incidental or consequential damages incurred as a result of any defect covered by this warranty.

All transportation and labor costs incurred by the purchaser in submitting or repairing covered components must be borne by the purchaser. Crafco specifically disavows any other representation, warranty, or liability related to the condition or use of the product.

The warranty is valid only for parts which have been supplied or recommended by Crafco.

CAUTION
Use of replacement parts other than genuine Crafco parts may impair the safety or reliability of your equipment and nullifies any warranty.

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Chapter 3 Warranty Information

3.1 Warranty Claim Instructions

Crafco warrants parts and machinery purchased through Crafco, or one of its affiliated distributors, for two years from the invoice date. Wear items are not covered under the Crafco limited warranty. A wear item is defined as but not limited to: material pumps, sealing tips, tires, etc.

If parts fail to function within two years of invoice date, a return authorization number (RA) must be obtained. If the part was purchased through Crafco please contact Crafco returns department at Returns@Crafco.com for an RA number or if purchased through a Crafco distributor please contact your distributor.

Note: if the part has a serial number associated with it, for example; a machine or electric hose or wand, this must be furnished when requesting the RA number. The customer will be emailed an RA form with all instructions to return the item to Crafco. If the part is found to be within the two year warranty period and has not been abused or modified, a credit will be issued to the customer's account or credit card. The customer may request the part be replaced instead of a credit, if desired.

Note: All engine warranties are covered through the engine manufacturer. If you need information for a distributor in your area please contact us and we will direct you to the closest engine distributor.

All parts returned are tested and evaluated. If the part has been modified in any way without prior consent from a Crafco representative, warranty is void.

Please follow the instructions stated below when calling in a Warranty Claim. Failure to follow these procedures may be cause to void the warranty.

Call your local Crafco Distributor. If you do not know who your local distributor is, call a Crafco Customer Service Representative at 602-276-0406 or email CustomerService@Crafco.com for the name, location and telephone number.

On contacting the distributor, be prepared to identify the serial number, model number, engine number, engine manufacturer, and the date of purchase if available.

Should the cause of the malfunction be a defective part, the Distributor will advise you of the procedure to follow for a replacement.

For expedited service, you can purchase the failed part at the time of setting up the return RA, so the part can be delivered to you sooner. Once we receive the failed part back and inspect it, we can credit you for the part if it was found to be defective.

If you have any additional questions regarding warranty repairs and parts, please do not hesitate to call 480-655-8333 or email Returns@Crafco.com.

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Chapter 4 Machine Specifications

For Warranty:
Crafco
25527 South Arizona Avenue
Chandler, AZ 85248
Phone: (480) 655-8333
Returns@Crafco.com

For all other inquiries:
CustomerService@Crafco.com

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Chapter 4 Machine Specifications

4.0 Machine Specifications

Table 4-1 Machine Specifications

Specification	PN 49500N
Vat capacity	65 gallons max (245 L)
Tank construction	Direct fire, tubular burner with flame spreader
Tank opening size	2 material openings 11-3/8” x 56-1/4” (28.9 x 142.9 cm)
Maximum heat input	76,500 BTU/HR
Burner and temperature control	Propane fired, hot air jacket, thermostatic control
Drive Mechanism	All hydraulic, chain drive, forward (dispense) and timed automatic reversing (mix mode)
Mixer	Horizontal shaft with 8 angled auger paddles
Shipping Weight	Approximately 1,550 lbs. (703 kg.)
Max Weight Full Material Tank	Approximately 2,550 lbs. (1,157 kg)
Propane Tank Size	30 Lbs.
Hydraulic Oil Input	Max Input Flow – 25 Gpm (94.6 Lpm)

4.1 Skid Steer Requirements/Specifications

Table 4-2 Skid Steer Requirements/Specifications

Minimum Operating Capacity	2,550 lbs. (1,157 kg)
Attachment System	Universal Skid Steer Quick Attach (Bob-Tach)
Auxiliary Hydraulic Power	Standard Flow Note: Can be used on Skid Steers that can be Switched between Standard Flow and High Flow when operated in Standard Flow.
Auxiliary Voltage Port	12 Vdc, “Cigarette Lighter” port. Note: If not equipped, a plug adapter will need to be ordered. See Figure 10-2 12V Plug Adapter for Direct Battery Hook-Up: P/N 49757N
In Cab Control Mounting	ROPS cage needed. Note: If windows are mounted inside of ROPS cage, you will need to order a Suction Cup Base. See Figure 10-1 Window Mount Assembly for In-Cab Control System: P/N 49749N

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Chapter 5 Operating Instructions

5.0 Operating Instructions

5.1 Introduction

The Crafco EZ Patcher was developed to melt Crafco TechCrete, Mastic One and Mastic One Type 2 materials.

Note: DO NOT attempt to operate the machine without using these and all other instructions.

5.2 Preparing the Machine for Start Up

Table 5-1 Preparing the Machine for Start Up

Step	Action
1	Fill the propane tank with propane.
2	Check the material tank for accumulated water. If water is found pooled on old sealant, it must be drained.
3	The EZ Patcher can be attached to the loader on either side such that material is dispensed to the roadway on either the left-hand or right-hand side of the loader. Attach the EZ Patcher machine to the skid steer loader using the loader boom/bucket controls. Make sure the EZ Patcher is locked securely to the loader. Refer to your loader's manual for further details.
4	Connect the hydraulic lines from the EZ Patcher's umbilical to the loader's quick release hydraulic fittings on the boom arm. Refer to your loader's manual for further details.
5	Install the EZ Patcher cab control system in the loader. Hang the switch pod/monitor on the ROPS cage of the loader near the right-hand joystick. Be sure it does not interfere with full range movement of the joystick. Connect the harness from the cab control system to main harness in the umbilical of the EZ Patcher. Plug the 12V plug ("cigarette lighter plug") into the 12V socket in the cab of the loader. Route the harness along the frame of the loader and secure using the magnetic mounts on the cab system harness. Be sure to route and secure the harness such that it does not present a trip hazard or obstruct the operator's range of motion in any way.
6	Make sure discharge gate is in the closed position, and the emergency release pin is in place. See Figure 5-1 Discharge Gate
7	Grease both front and rear mixer bearings weekly. See Figure 5-2 Mixer Bearings

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Chapter 5 Operating Instructions

	WARNING
	The safe operation of this machine is the operator's responsibility. Use extreme care when operating this machine; safety is the result of being careful and paying attention to details. Remember the propane flame is approximately 3,500°F. Some exposed parts of the machine exceed 400°F and the material 400°F. Always put on protective clothing, gloves, hard-soled shoes, and safety glasses or a face shield. Be sure that all joints and fittings are tight and leak proof. Immediately replace any hose, which shows any signs of wear, fraying, or splitting. Tighten all bolts, nuts, and screws every 100 hours.

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Chapter 5 Operating Instructions

Figure 5-1 Discharge Gate

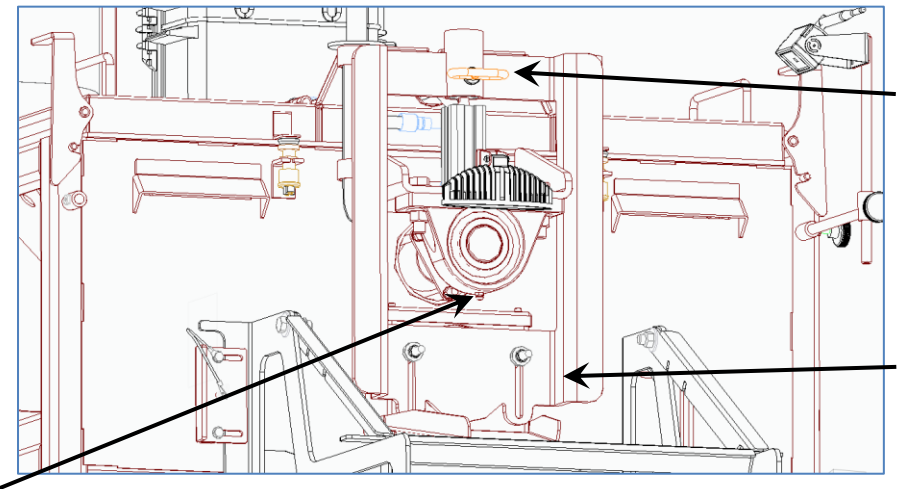
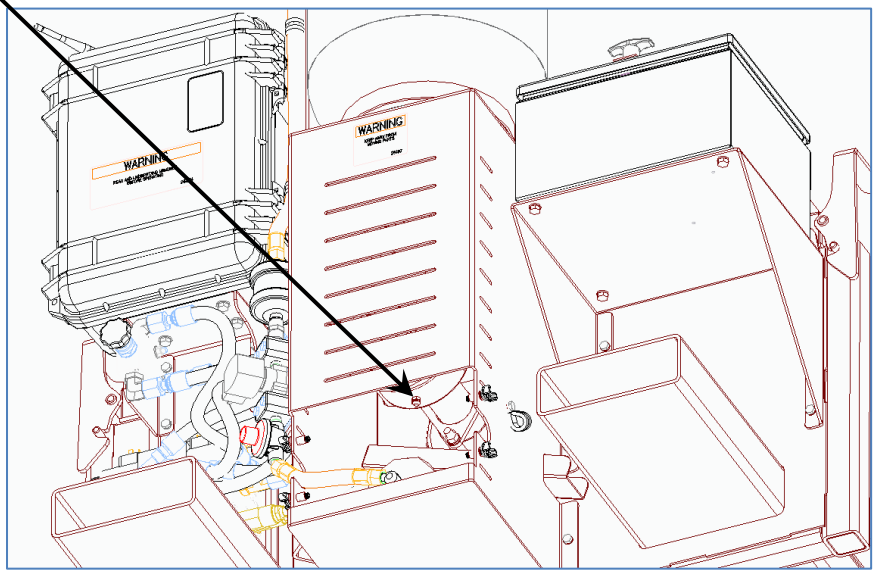


Figure 5-2 Mixer Bearings



*Shown with Flame Inspection Cover removed for access to bearing

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Chapter 5 Operating Instructions

5.3 Start-Up

Table 5-2 Start-Up

Step	Action
1	Start the loader engine and allow it to idle while the EZ Patcher pre-heats.
2	Open the propane tank valve and the propane hose valve to allow gas flow.
3	Open EZ Patcher control box, turn burner on, and set tank temperature to 500F and material temperature to 380F. Verify burner ignition by viewing the flame through the slots in the lower burner inspection cover. See Figure 5-6
4	When tank temperature reaches approximately 400F or above, turn on mixer to “Mix-Melt” mode. To do this, you must activate the auxiliary attachment hydraulics on the loader. The steps to do this vary from brand to brand of loader, but generally, an aux hydraulics enable button must be pushed, and a rocker switch on the right joystick must be pressed to the right and held while a trigger button on the right joystick is pressed to engage continuous FORWARD auxiliary hydraulic flow. Some brands of loaders require the operator to be seated to activate a safety interlock in the seat. Consult your loader’s operator manual for the specific steps required to activate continuous forward auxiliary attachment hydraulic flow.
5	Continue “Mix-Melt” mode as pre-heating continues. Verify auger shaft is turning while lids are closed. The auger will reverse direction approximately every 60 seconds. If the material tank is empty, the EZ Patcher can be filled from a Patcher II or Patcher 4 machine once the EZ Patcher’s tank temperature reaches 500F. If the EZ Patcher already has cold material from previous use, it must be melted fully and allowed to reach 380F before dispensing material to the roadway.
	CAUTION
	If the burner fails ignition after 5 seconds, the burner will lock-out. To reset burner, turn the burner switch off, wait 5 seconds then turn the burner on again. If the burner still does not ignite, refer to Table 8-1 Burner Basic Visual Troubleshooting to determine the cause of the malfunction.
	Important: The solid material in the tank melts first around the walls and bottom of the tank. The material temperature sensor is located by the wall; therefore, it is possible that at the beginning of the melting process the indicated temperature reaches operating value, but material stuck to the auger shaft is still solid. Also, during pre-heat, the tank temperature will reach its set point before the material temperature does. This is normal.

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Chapter 5 Operating Instructions

Figure 5-3 Main Control Panel

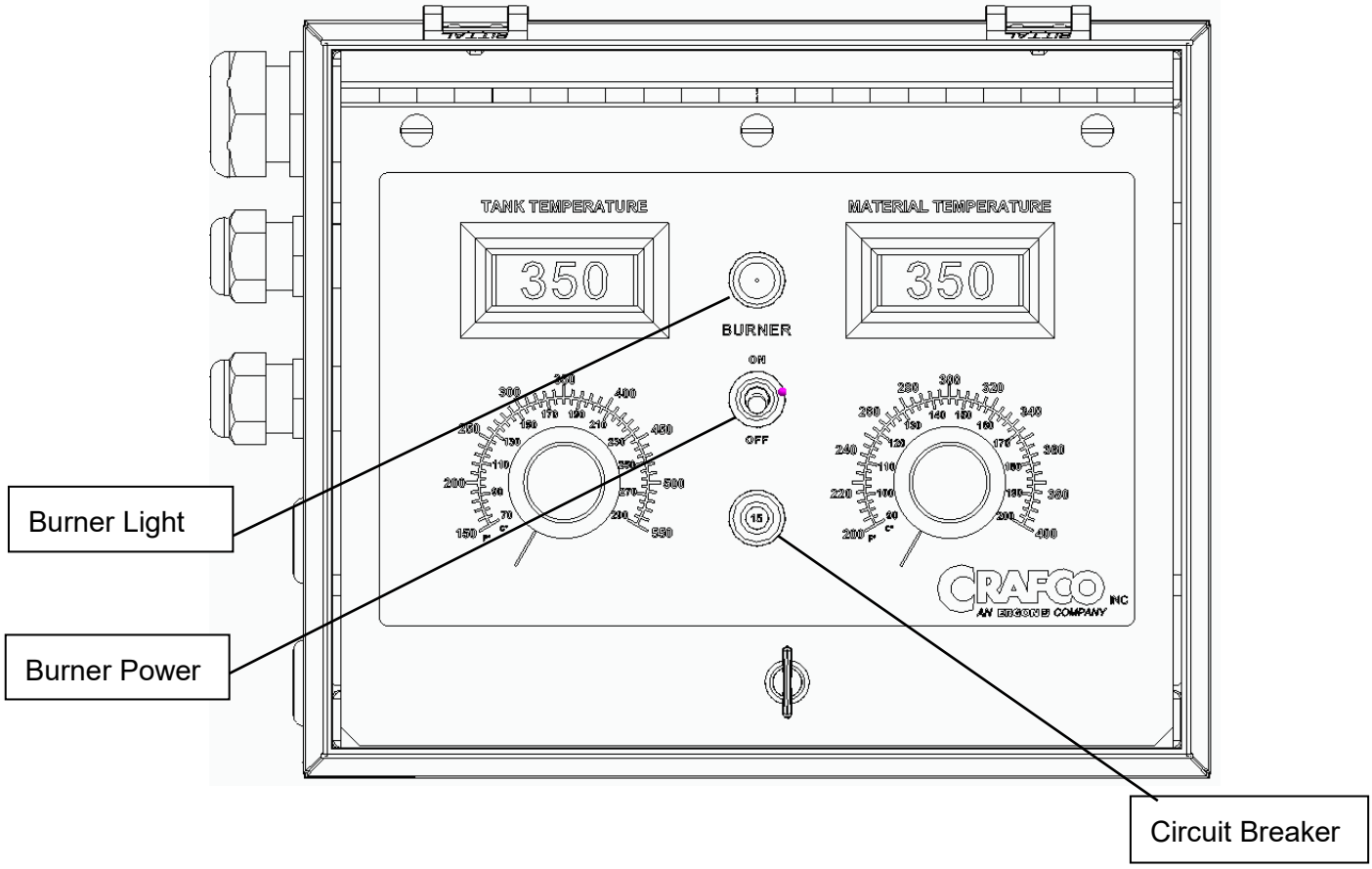
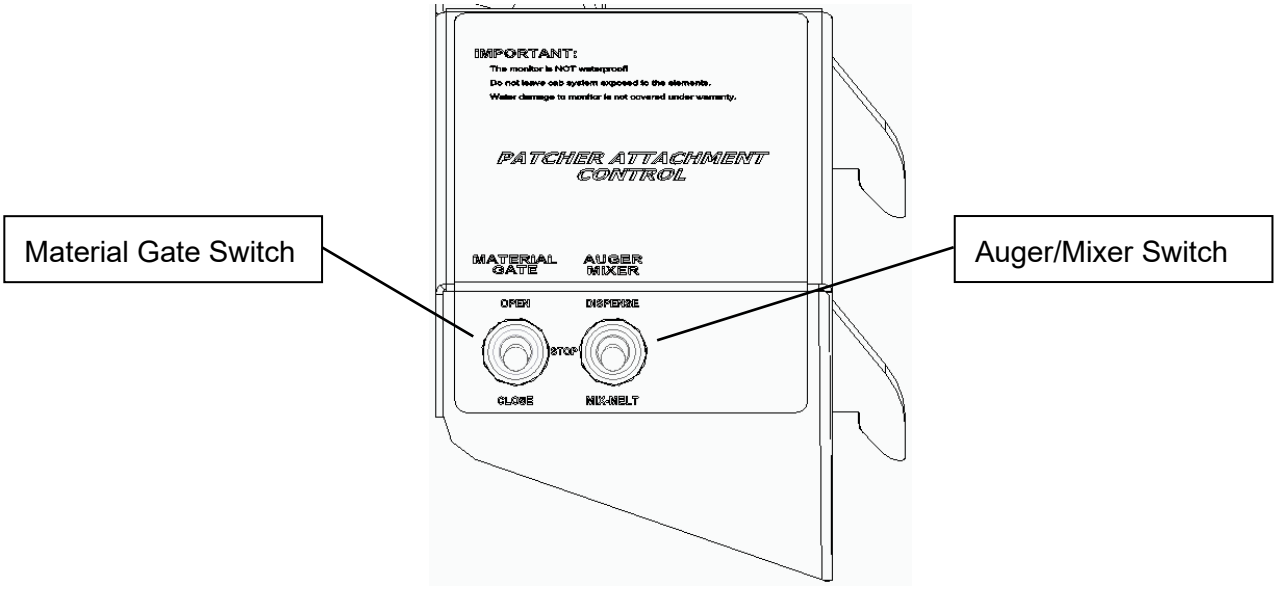


Figure 5-4 Cab System Switch Pod



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5.4 Loading Material into Material Tank

This unit is equipped with a safety interlock system on the loading door. This system disables the mixer hydraulic system when the lid is open. This is a safety feature for the operator and should never be disabled for any reason.

WARNING
Personal injury could occur if this safety system is disabled.

Table 5-3 Loading Material into the Material Tank

Step	Action
	**WARNING**
	Following this procedure prevents hot material from getting on operators and causing severe burns.
1	To load material into the material tank, first unlock and open the lid. Note: The mixer stops when the lid is opened to load solid material into the material tank.
2	With the drag box suspended off the ground, flip the hopper up and lock using the lock bar.
3	Lower the EZ Patcher fully to the ground (it will be tilted down in the front) and carefully drive it under the material discharge chute of the Patcher II or Patcher 4 machine.
	CAUTION
	If the Patcher II or Patcher 4 being used to fill the EZ Patcher has a heated chute attached to it, the heated chute must be removed prior to driving the EZ Patcher under the material discharge chute (Refer to Patcher II or 4 manual for temporary removal of the heated chute). To prevent damage to the Patcher II or Patcher 4's hot oil valves and hot oil pump, the Bumper Bar that came with the EZ Patcher must be attached to the Patcher II or Patcher 4. Refer to Figure 5-5 Bumper Bar P/N 49120N.
	WARNING
	Personal injury could occur if the Bumper Bar is not used and the valves, hoses and/or pump are damaged during loading of the EZ Patcher!
4	Have an assistant fill the EZ Patcher with material from the Patcher II or Patcher 4.
5	When the material tank is filled to desired level, back away from the Patcher II or Patcher 4, and level the EZ Patcher. Have an assistant close and lock the lid.
6	Raise the EZ Patcher high enough off the ground to allow the hopper in the drag box to be lowered and locked in the down (dispensing) position using the lock bar.

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Chapter 5 Operating Instructions

Figure 5-5 Bumper Bar P/N 49120N.

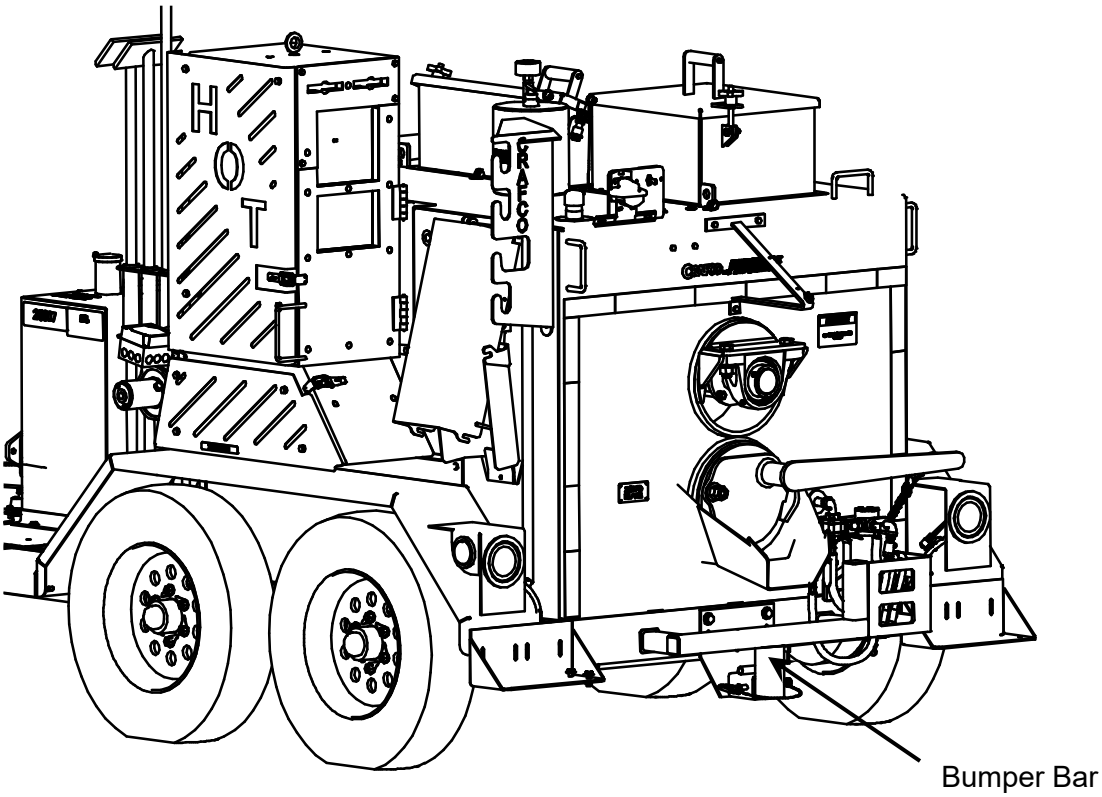
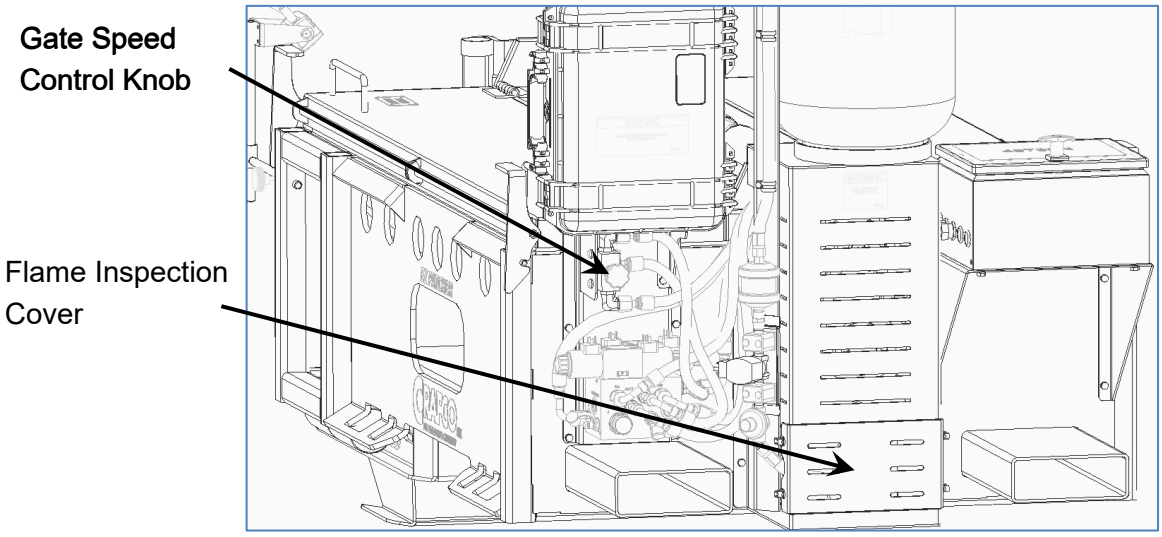


Figure 5-6 Gate Speed Control Knob



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5.5 Dispensing the Material

Table 5-4 Dispensing the Material

Step	Action
	WARNING
	Put on protective clothing, gloves, hard-soled shoes, and face shield or safety glasses when operating or filling this machine. Read the entire manual before operating the machine. Hot material can cause severe burns.
1	Once the machine is full of material at application temperature, prepare the machine for application: a) Raise the machine off the ground, unlock the hopper in the drag box from its stowed position to the application position and lock in place. b) Lower the machine to about 6” above the ground such that the drag box is “floating” (level to road and following the surface of the road) c) With an assistant (wearing proper PPE) test open the material gate using the material gate switch on the switch pod in the cab. If the gate opens too quickly or too slowly, adjust the Gate Speed Control Knob for desired speed. d) It may be necessary to use included scraper tool to clear the material discharge tube of excess solids to allow material to flow freely into drag box
2	Adjust camera position to give a clear view of the inside of the drag box as well as the crack/defect in the road approaching the drag box. It may be necessary to adjust monitor brightness and contrast to yield the best image to see both the material in the drag box as well as the visual details of the area to be repaired on the roadway.
3	Position drag-box hopper over crack to be filled. Open material gate and allow some material to pool in the bottom of the hopper.
4	Begin driving forward following the crack. Balance the amount of material in the hopper against the rate of material usage by bumping the material gate more open/closed as needed.
Important: The material temperature sensor is located by the wall where the heat is coming from. Because of this factor, the material temperature readout on the control panel could be reading higher or lower than what the majority of the material is actually at. The readout should only be used as a guide. A handheld non-contact infrared thermometer should be used on a sample of dispensed material to determine if appropriate application temperature has been achieved. If the application temperature has not been reached, continue heating until it does.	

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Chapter 5 Operating Instructions

5.6 Shutting Down and Cleaning Out the Machine

When shutting down the machine for the day, Crafco recommends emptying all, if not most of the material before shutting down the machine. It will result in faster start up times in the morning, help keep the aggregate from settling at the bottom and offer better material performance by using fresh material.

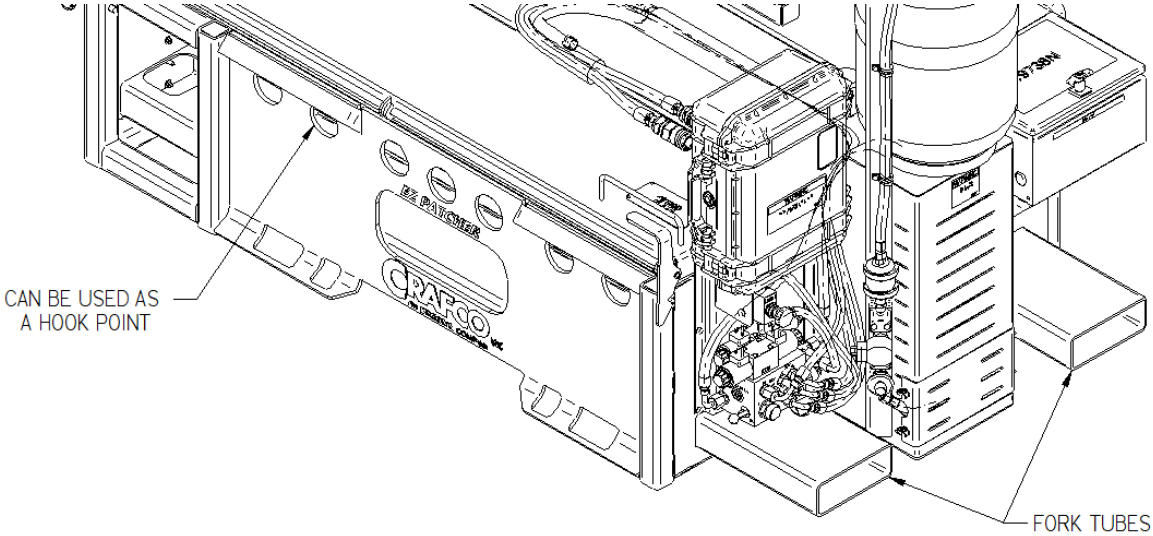
Table 5-5 Shutting Down and Cleaning Out the Machine

Step	Action
1	With the burner still on, set mixer to “Dispense” mode.
2	With the lids still closed, open the material gate full and drain unused material.
3	When material is barely flowing out of material gate, open the lid (mixer will stop) and residual material can be scraped and pushed towards discharge.
	**WARNING**
	DO NOT put the tank scraper tool into the discharge pipe with mixer running. Serious damage and personal injury will result.
4	When material tank is empty, turn off mixer and burner. Lock the drag box hopper in the up (stowed) position.
5	Close propane valves (tank and hose).

5.7 Transporting the Machine

Machine can be transported either attached or separated from the Skid Steer Loader. To move the machine without the presence of a Skid Steer, use a Forklift and Fork Tubes on one end of the EZ Patcher. Use a minimum of two straps over the top of the unit or 4 straps using the cutout holes in the sides of the unit as hook points to secure unit to trailer. Refer to Figure 5-7 Fork Tubes

Figure 5-7 Fork Tubes



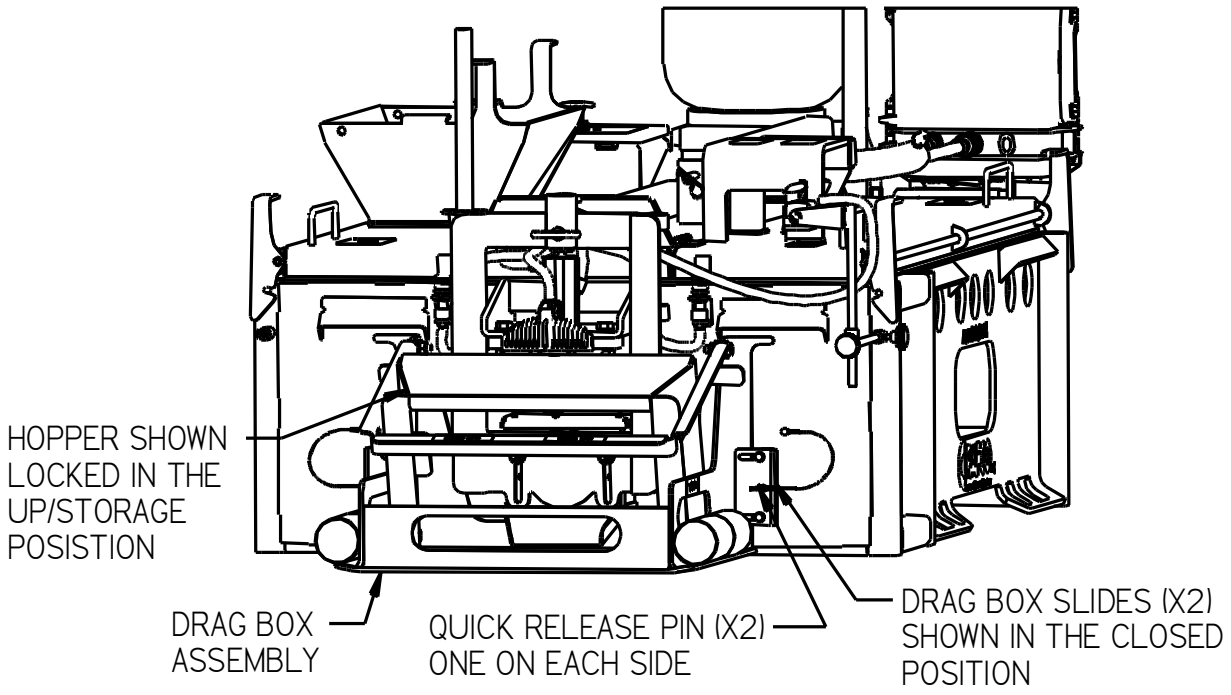
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5.8 Installation/Removal of the Floating Drag Box Assembly

Table 5-6 Drag Box Installation/Removal

Step	Action
1	Machine should be positioned so that the drag box assembly is resting on the ground and the EZ Patcher raised 3 or 4 inches off of the ground to allow the drag box assembly to clear the tank spout during removal/installation. Note: The hopper should be locked in the “up/storage” position.
2	Pull out the two quick pins that hold the drag box slides in place.
3	Pull both drag box slides to the “open/outward” position.
4	Drag box assembly can then be pulled out and away from machine. Refer to Figure 5-8 Drag Box Installation/Removal
	CAUTION
	The EZ Patcher should never be set all the way down on the ground with the hopper in the “down” position. Machine damage will occur. Always lock the hopper in the “up/storage” position prior to lowering the machine all the way down to the ground.
5	Installation is the reverse of the preceding.

Figure 5-8 Drag Box Installation/Removal



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Chapter 5 Operating Instructions

5.9 Storing the Machine

Store the machine in an area where moisture cannot enter the material tank. Make sure the control box lid is closed and locked. Store the in-cab control system in the waterproof storage box on the machine next to the propane tank. The video monitor in the in-cab control system is NOT waterproof. If left in a loader cab that is open to the elements, water will damage the monitor, which is not covered under any warranty.

Before initial startup after storing the machine for an extended period of time, Crafco recommends checking the material tank and remove any water/moisture that may have collected. Then heat the machine to 300°F for one to two hours to evaporate any moisture that could be left in the material tank, even if none was noticed upon inspection. Failure to follow this procedure could cause the material to overflow the tank, resulting in possible machine damage and/or personal injury.

Store the machine for longer periods with the material tank empty.

5.10 Hot Applied Patching Material Placement

Prior to the material application, you will need to move the equipment to the work area. The items needed are:

1. Compressor
2. Saw to cut out repair area
3. Pneumatic hammer
4. Broom and shovels to clean up area
5. Broom or sweeper (if required to remove FOD)
6. EZ Patcher machine, material, and application tools
7. Dressing stone
8. Heat lance
9. Primer
10. “Hudson” sprayer for the primer
11. Paint brushes
12. Small paint cans
13. Rags
14. 1 or 2 gallons of water (to speed up cooling process if required)
15. Gloves, heavy welder gloves and standard leather gloves
16. Cloth duct tape
17. Reference materials

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Chapter 5 Operating Instructions

5.11 Application Steps

Table 5-7 Application Steps

Step	Action
1	Locate area to be repaired.
2	Calculate the amount of material needed for the repairs.
3	Place bags or cubes of material into the mixer and heat. Start the agitator as soon as possible to break up the bags. The heat up time is usually within 60-90 minutes. Care should be taken not to overheat the material. If material temperature is too high, lower the burner material temperature control and/or open the lid
4	Mark the areas to be cut out. Make sure you cut out enough of the pavement to remove all cracking around the patch area. If the repair area extends to both sides of a joint, the repair area must be a minimum of 4” on each side of the joint.
5	Cut with either a wet or dry saw. The saw should cut a minimum of 1-1/2” to 2” deep.
6	Remove the remaining material with a chipping or jack hammer to a minimum depth of 1-1/2 to 2”.
7	After the repair area has all the loose material removed, use the hot air lance to clean and dry the pavement.
8	Apply tape 1/4” from the edge of the prepared area.
9	Prime the area with the Primer using the “Hudson” sprayer or paint brushes. If spraying the primer on repair areas, you may need to do some touch-up with a paint brush. When touching up, you want to cover any missed spots and spread any pooled primer. Allow the primer to set up, which takes about 10-12 minutes. DO NOT DRY WITH A TORCH.
10	Have the tools needed for the repair heating in Patcher II or Patcher 4 heated toolbox.
11	Remove at least two pails of product and pour back into the melter. This will ensure a good flow of material when you start the application.
12	Apply the first lift of material to the repair. Apply adequate material so you get material within 1” of surface.
13	Allow the material to cool for a period of time, allowing air bubbles to move to the surface of the product. The bubbles are generated from uncured primer, air, or moisture. When the bubbles stop rising to the surface (usually within 15-20 minutes), flash surface with hand torch to “pop” bubbles.
14	Apply the next level and float surface of the material with the hot irons. Seal the edges of the repair by pulling liquid to the edge, and then remove the duct tape. The main portion of the material will self-level, but you may need to do some smoothing with the hot iron to ensure a level surface.

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Table 5-8 Application Steps Continued

Step	Action
15	Allow this material to cool similar to the first lift - you may not experience as many bubbles this time, but some may appear. When they do, flash them with the torch.
16	If applicable, dry the aggregate dressing prior to placing the material, as wet or damp dressing will not adhere. Smooth the aggregate dressing material over the patched area with your gloved hand. This will ensure coverage of the whole surface of the material.
	CAUTION
	If you apply the aggregate dressing material too soon the bubbles will continue to rise to the surface and pop, leaving a pock marked surface. If this occurs, adjust your timing to allow more bubbles to break the surface.
17	Shut down the EZ Patcher and clean up the repaired area. If the cooling time of the material needs to be shortened, broadcast some water over the surface.
18	Sweep excess aggregate dressing material from the surface of the repair and finish clean up.
	CAUTION
	The Patcher II and Patcher 4 heated toolbox are only meant to heat up the tools. Do not use the heated toolbox to clean the tools. Before inserting the tools into the heated toolbox, use the hand torch to clean off excess material. This will help keep material from building up in the bottom of the heated toolbox.

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Chapter 6 Maintenance Instructions

6.0 Maintenance Instructions

This chapter contains all normal maintenance instructions to properly maintain your machine.

6.1 Hydraulic System

Check hydraulic hoses and fittings daily.

6.2 Mixer Packing Gland Seals

Tighten gland while machine is hot at 50 hr. intervals. Do not overtighten. If material is leaking from the seals, they either need to be tightened or more gland packing added, and then tightened.

6.3 Mixer Shaft Bearings

Lubricate weekly using Crafco Part No. 56860 high temperature bearing grease.

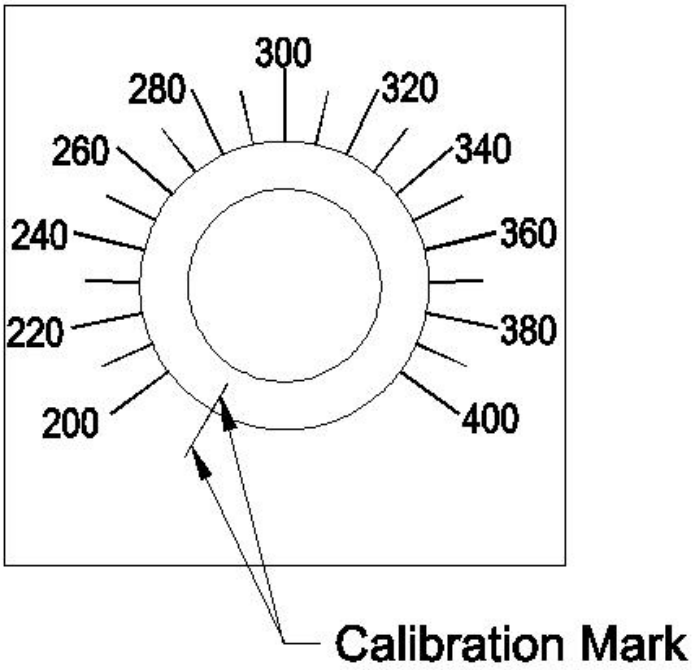
6.4 Material Sensor Tube

Check for heat transfer oil in tube every 50 hours of operation. 2 ounces required.

6.5 Temperature Control Calibration

Check the control knob calibration weekly. Calibrate by turning the knob counterclockwise. If the marks do not align, loosen screw in knob and align the line on the control knob with the calibration mark on the scale plate. See Figure 6-1 Temperature Control Calibration

Figure 6-1 Temperature Control Calibration



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Chapter 6 Maintenance Instructions

6.6 Maintenance Chart

Table 6-1 Maintenance Chart

		Hours			
Location	**Procedure**	**8**	**50**	**250**	**500**
Material Sensor Tube	Check for Heat Transfer Oil		X		
	Add	As needed			
Auger Drive Chain	Check	X			
	Lubricate				X
Burner	Check Electrodes, and Head				X
	Replace burner nozzle				X
Mixer Shaft Packing	Tighten when hot at 50 hour intervals. Do not overtighten.		X		
Mixer Shaft Bearings	Grease using Crafco Part No. 56860 Hi-Temp grease.		X		
Material Tank	Scrape out tank to remove all old material.				X
Material Sensor Guard	Scrape out built up material around guard.				X
Adjusting Discharge Gate	Check and adjust if leaking		X		

See **Table 6-3 General Maintenance Parts** for more info on part numbers.

6.7 Service Instructions

Table 6-2 Service Instructions

Step	Action
1	Do a general inspection of the machine at least once a week.
2	Replace all worn or damaged parts. **Note: Keep** regular replacement items in stock for emergency repairs to prevent costly downtime. See Table 6-4 Recommended Spare Parts
3	Make necessary adjustments and tighten all loose nuts or screws.
4	Watch for leaks. Tighten fittings or repair as necessary.
5	Clean the external surfaces of the machine at regular intervals. **Note: Refer** to the material manufacturer's instructions for recommendations.
6	Follow the recommended maintenance per Table 6-1 Maintenance Chart

For service, find a list of authorized Distributors and service centers at Crafco.com/how-to-purchase/

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Chapter 6 Maintenance Instructions

6.8 General Maintenance Parts

Table 6-3 General Maintenance Parts

Recommended Quantity	Description	Part No.
8.25” ea., 4 per location	Packing, Mixer Shaft	32226

6.9 Recommended Spare Parts

Table 6-4 Recommended Spare Parts

Recommended Quantity	Description	Part No.
1	Autostop Lid Switch	39608
1	Burner Control Module	25278
1	Temp Controller, Material	57863
1	Temp Controller, Hot Oil	43391
1	Spark Ignitor	43153

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6.10 Adjusting the Discharge Gate

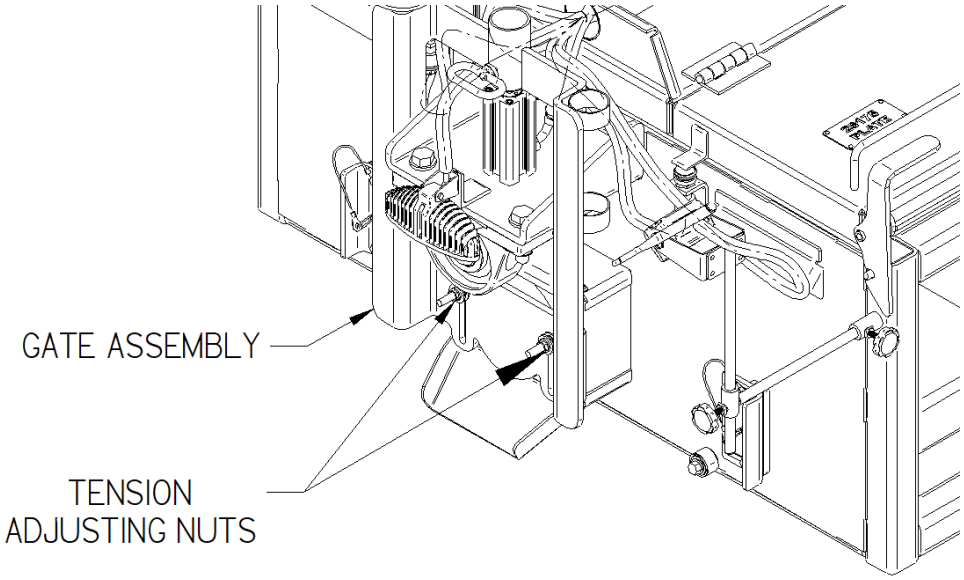
Due to normal wear and tear, the discharge gate will need periodic adjustment to keep it sealed. It features a set of spring washers and nut tightening system. If the gate is leaking material excessively, you will need to adjust the spring tension so the gate can re-form a seal when closed.

Table 6-5 Adjusting the Discharge Gate

Step	Action
	**WARNING**
	The material in the material tank is extremely hot. Bodily contact with hot material can cause severe burns. The high operating temperatures of this machine and the material it contains require that protective clothing, gloves, hard-soled shoes, and safety glasses or a face shield be worn at all times while maintaining the machine.
1	While the machine is at operating temperature, pull out the gate emergency release pin so that the gate can be opened and closed by hand. Refer to Figure 5-1 Discharge Gate
2	Open and close the discharge gate a few times to clean off the sealing surfaces.
	Note: If there is material in the machine, make sure to place a bucket below the chute to collect any material that comes out. You may also want to use a torch to clean off any built up material from the discharge gate area.
3	As you open and close the gate, it should take less force as the sealing surfaces clean themselves.
4	Open and close the gate a few more times, making sure the gate operates smoothly, and the sealing surfaces are clean of any aggregate.
5	Once the sealing surfaces are clean, tighten the tension adjusting nuts evenly so that the gate operates smoothly with a little resistance. Refer to Figure 6-2 Discharge Gate Adjustment It should not be loose and should be able to hold itself in the open position yet should be able to close the gate by hand.
7	The gate should operate smoothly and not allow any excessive material to leak. The spring washers should not need to be fully depressed to keep tension on the gate. If so, they and/or the gate may need to be replaced.
	CAUTION
	Over tightening the adjusting nuts could deform the gate and prevent a proper seal and not allow the gate to open and close properly.
8	Replace the emergency holding pin for normal operation.

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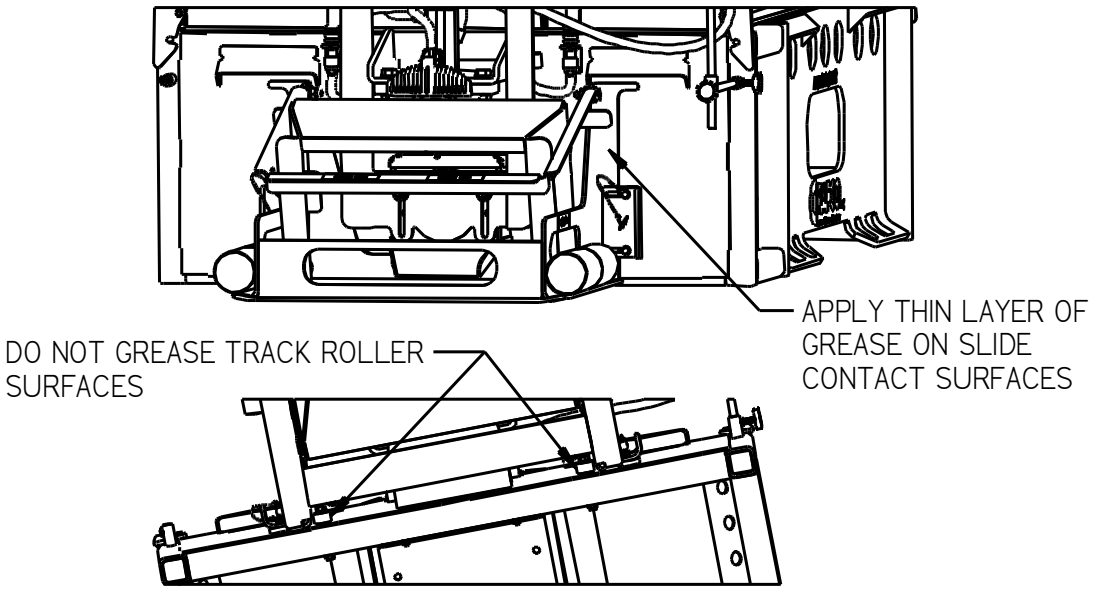
Figure 6-2 Discharge Gate Adjustment



6.11 Greasing Drag Box Slides

To facilitate ease of movement of the drag box assembly, a thin layer of grease can be applied to the contact surfaces of the slide with a brush or gloved finger. Keep in mind that grease will attract dust and other debris, when this happens the old grease should be wiped clean and fresh grease applied. Do this as often as necessary. Do Not grease surfaces of the track rollers. Refer to Figure 6-3 Greasing Drag Box Slides

Figure 6-3 Greasing Drag Box Slides



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6.12 Adjusting and Replacing Mixer Shaft Packing

Table 6-6 Adjusting and Replacing Mixer Shaft Packing

Step	Action
1	Bring the EZ Patcher to temperature as preparation to drain the material tank below the mixer shaft level.
2	Drain material until the level is below the mixer shaft so material will not leak out during replacement.
	**WARNING** The material in the material tank is extremely hot. Bodily contact with hot material can cause severe burns. The high operating temperatures of this machine and the material it contains require that protective clothing, gloves, hard-soled shoes, and safety glasses or a face shield be worn at all times by operators of the machine.
3	Set the tank temperature to 150 degrees and let it cool down to that temperature.
4	Start with the seal area first above the material discharge chute.
5	Remove the 3 nuts that hold the packing gland assembly in place and slide the packing gland assembly back to the bearing to access the seal cup.
6	Cut the rope seal to 8.25” long. Wrap the new packing seal around the shaft with the seam at least 90° from the existing seam seal and push it into the seal cup. You can use the packing gland assembly to help push it in. When the machine is new, it has four of the 8.25” wraps in each seal area.
7	Align the packing gland assembly with the studs and slide it into place. Tighten down the 3 nuts in a cross pattern until they are reasonably tight.
9	Go to the drive end of the machine. Disconnect and remove the propane tank. Remove the drive/burner cover to expose the bearing shaft and drive assembly. Loosen the packing gland assembly nuts. Then slide the gland towards the bearing to access the seal cup.
10	Wrap the new packing seal around the shaft and push it into the cup as you did before.
11	Align the packing gland assembly with the studs and slide it into place. Tighten down the 3 nuts in a cross pattern until they are reasonably tight. Reassemble the drive/burner cover and propane tank.
12	Heat up and use the machine as normal. You may need to tighten the packing gland assembly nuts after some use, or if they were not tightened enough after replacement. There should not be any material leaking from the packing seal area.
13	Run the mixer shaft and check for any leaking. If it leaks, you need to tighten the nuts in a cross pattern until the leaking stops. Make sure not to overtighten the packing or premature wear of the shaft could result.

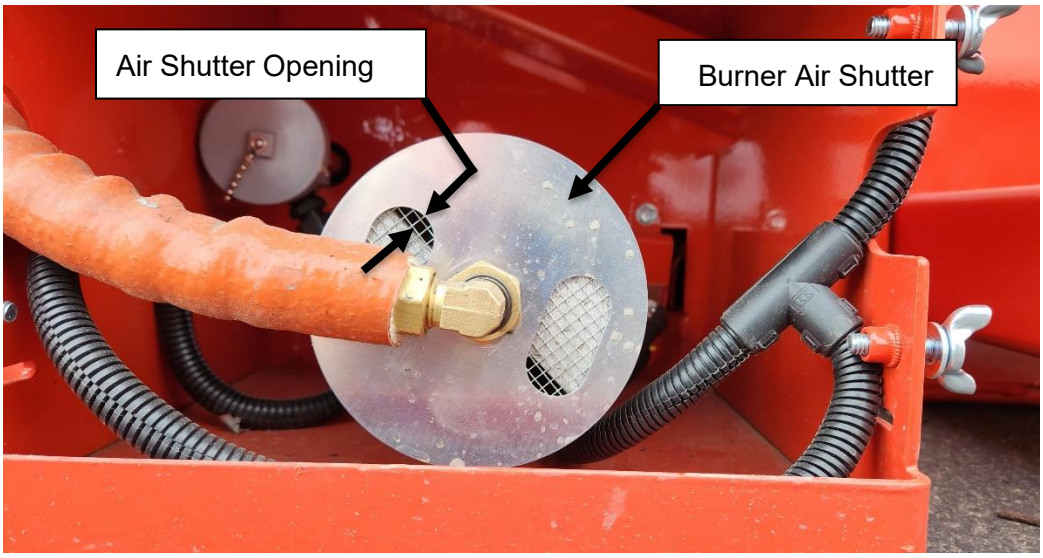
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6.13 Burner Adjustment

The Burner Air Shutter is Factory set with the air shutter opening at approximately 1/8” gap on the top opening/notch. This may not be the best setting for the area/altitude that the machine is being operated in and should be adjusted so that the flame is nearly all blue in color and only a small amount of yellow flame. Too much air will cause the flame to “walk” away from the burner, “huffing” or blow out the flame.

To adjust the air setting, turn the shutter counterclockwise to increase air, and clockwise to decrease air. Refer to Figure 6-4 Burner Air Shutter

Figure 6-4 Burner Air Shutter



6.1 Cleaning Material Tank and Sensor Area

The material tank needs to be cleaned every year or as needed for proper operation. As the machine is used, material builds up around the tank walls and sensor guard. The built up material prevents heat from getting to the fresh material and causes longer heat up times. The built up material will also prevent the material temperature sensor from reading as accurately because it becomes insulated from the fresh material. The coked material needs to be scraped or chipped from the tank walls. The area between the sensor and sensor guard needs to be cleaned also for proper temperature sensing. An air chisel with various sized blades usually works best to break up the material and remove it from the walls. Once the walls and sensor guard areas are cleaned, remove all the loose chunks from the tank, and vacuum out any smaller pieces.

6.2 Cleaning the Machine

We recommend using Orange-Sol industrial cleaner for cleaning the exterior of the machine. The cleaner can be found at the following website; https://www.orange-sol.com/industrial-formula/.

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Chapter 7 How to Use a Multimeter

7.0 How to Use a Multimeter

Crafco machines use 12-volt direct current (DC) to power the burners, and hydraulic valves. The DC power is from a 12-volt battery.

12-volt DC power has little danger of electrical shock. Care must still be taken when dealing with DC power systems because it is capable of producing large amounts of current.

7.1 Checking DC Voltage with a Multimeter

Connect the probes to the meter.

Set the range to a position that includes 12-volts or higher.

Touch the red probe to the positive side of accessory and black probe to ground. If the item you are checking has a ground wire attached then use that ground or you can use a non-painted surface on the frame.

7.2 Checking Resistance (Ohms)

Connect the probes to the meter. See Figure 7-1 Standard Multimeter

Note: When checking Ohms, the circuit cannot be completed. This means one end of the wire will need to be disconnected.

7.2.1 How to Check Wire Continuity

Set the meter to “Audible Continuity”. Now touch the probe to each end of the wire in question. The meter will read “0” on the screen and make an audible beep if the wire has continuity from end to end.

7.2.2 How to Check RTD Sensor

Set dial to Ohms Ω. If your meter has different ranges, set to 2k or 2000 ohm range. Touch one probe to each screw or wire of the sensor. The meter will read X.XX if in the 2k range or XXX.X if in the 2000 range.

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Chapter 7 How to Use a Multimeter

7.3 Checking Amperage

The Multimeter can be used to check amperages under 10 amps in AC or DC current.

Figure 7-1 Standard Multimeter



Audible Continuity
- Wire connections

Ohms Ω
- Sensors
- Hydraulic Coils

DC Voltage

Use these ports. Do not use the fuse port, it is for amps

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Chapter 7 How to Use a Multimeter

Figure 7-2 Clamp-On Amp Meter/Multimeter



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Chapter 8 Troubleshooting

8.0 Troubleshooting

8.1 Burner Troubleshooting

8.1.1 Symptom: Burner will Not Ignite

Table 8-1 Burner Basic Visual Troubleshooting

Step	Possible Cause	If . . .
1	Start Troubleshooting at the control box. Is the cab control system connected to the machine and the 12V power plug (“Cigarette Lighter Plug”) plugged into a “live” power socket in the skid steer loader?	• Yes, go to Step 2. • No, connect the cab system and insert power plug into a “live” power socket.
2	Is the "BURNER" toggle switch in the "ON" position?	• Yes, go to Step 3. • No, turn the toggle switch to the "ON" position
3	Are both the Material and Tank temperature dials set to proper operating temperatures?	• Yes, go to Step 4. • No, set the Material according to the type of material you are using and the Tank 100°F above the Material set point.
4	Are both the Material and Tank temperature displays reading a three digit positive number?	• Yes, go to Step 5. • No, go to Table 8-2 Burner Electrical Troubleshooting Step 4
5	Is the red "Burner" light "ON"?	• Yes, go to Step 6. • No, go to Table 8-2 Burner Electrical Troubleshooting, Step 4
6	Is the propane tank full?	• Yes, go to Step 7. • No, fill your tank or make sure you have enough propane for the day.
7	Is your burner working properly, but it seems like it takes a lot to reach operating temperature?	• Yes, go to Table 8-6 Material is Heating Slowly • No, Call Crafco and speak to a customer service technician.

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Chapter 8 Troubleshooting

Table 8-2 Burner Electrical Troubleshooting Part 1

Step	Possible Cause	If . . .
1	Is the "BURNER" toggle switch in the "ON" position?	• Yes, go to Step 1a. • No, turn the BURNER switch to the "ON" position.
1a	Is the output voltage at the "BURNER" toggle switch 12Vdc? (Refer to the Figure 8-2 Control Box Schematic)	• Yes, go to Step 2. • No, Step 1b.
1b	Is the circuit breaker tripped?	• Yes, reset the circuit breaker by pushing in the button which has popped out. • No, go to Step 1c.
1c	Is the output voltage at the circuit breaker 12Vdc?	• Yes, go to Step 2. • No, see below. • No, on the red wire between the circuit breaker and the power toggle switch and Yes on the red wire between the circuit breaker and the battery, replace the circuit breaker. • No, on the red wire between the circuit breaker and the battery, go to Step 1d.
1d	Is the main power voltage at the 12V plug in the skid steer loader cab 12Vdc?	• Yes, check for broken wires or poor wire crimp at the battery and circuit breaker. • No, troubleshoot the power socket in the skid steer loader… if you have voltage above 5VDC but below 10VDC, your battery does not have sufficient charge. Either charge or replace the battery in the skid steer loader.

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Chapter 8 Troubleshooting

Table 8-2 Burner Electrical Troubleshooting Part 1 (continued)

Step	Possible Cause	If . . .
2	Are both the Material and tank readouts displaying a three-digit number?	• Yes, go to Table 8-3 Burner Electrical Troubleshooting Part 2. • No, go to Step 2a.
2a	Is the voltage 12Vdc between the power and the ground on the PAKSTAT for which the display is not reading? (material; check terminals #3 and #5) (tank; check terminals #3 and #5.)	• Yes, go to Step 2b. • No, check for broken wires or poor wire crimp on the power and the ground. • Still No, replace PAKSTAT.
2b	Does the readout display a -1? **Note:** This occurs only when there is a short in the sensor circuit.	• Yes, check the RTD sensor for water or condensation under the cap or corrosion causing a short. • No, go to Step 2c.
2c	Does the readout display a 1? **Note:** This occurs only when the sensor circuit is not completed.	• Yes, this means there is a break in the two wires between the RTD sensor and the PAKSTAT. Start at the sensor and work your way back to the control box, checking for broken wires. • No, go to Step 2d.
2d	Is the readout display blank? (Take note of the direction the red stripe on the ribbon cable is pointing before you move it.)	• Yes, move the ribbon cable which is plugged into the back of the readout which is blank to a readout next to it. If the readout displays a three digit number, the blank readout is bad and needs to be replaced. If the readout remains blank, go to Step 2e.
2e	Readout is still blank	• Use the other ribbon cable to go between both the first blank readout and the PAKSTAT for that readout. If the readout displays a three digit number, the original ribbon cable is bad and needs to be replaced. If the readout is still blank, the PAKSTAT is bad and needs to be replaced.

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Chapter 8 Troubleshooting

Table 8-3 Burner Electrical Troubleshooting Part 2

Step	Possible Cause	If . . .
1	Is there 12Vdc between the red and yellow wires at the plug on the burner control module?	• Yes, go to Step 2. • No, go to step 3.
2	Is there 12Vdc between the brown and yellow wires at the plug on the burner control module?	• Yes, check for 12VDC at the propane fuel valve solenoid DIN plug. If 12VDC is good but valve is not opening, replace solenoid valve.. NOTE: The burner control module will only attempt to light the burner for 5 seconds. If flame is not sensed within 5 seconds, the burner control module will "lockout" and close the fuel valve. To perform this troubleshooting step, you must check voltage within 5 seconds of turning the burner switch on after off. Repeat burner switch off-on cycle as needed to troubleshoot. If 12VDC is good at the fuel valve solenoid and the valve is opening, but flame is not igniting, go to step 7. • No, replace burner control module.
3	Is there 12VDC on the green wire at the tank PAKSTAT on the front panel?	• Yes, there is a circuit break between the output of the tank PAKSTAT and the input of the burner control module (green wire spliced to yellow wire in burner control module plug.) • No, go to step 4
4	Is there 12VDC on the grey wire at the tank PAKSTAT on the front panel?	• Yes, verify tank temperature knob is set higher than current tank temperature. If yes, then replace tank PAKSTAT. • No, go to step 5.
5	Is there 12VDC on the gray wire at the material PAKSTAT on the rear panel?	• Yes, there is a break in the grey circuit between the material pakstat and the tank PAKSTAT. • No, verify the material temperature knob is set higher than the current material temperature…if it is, then go to step 6.

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Table 8-4 Burner Electrical Troubleshooting Part 2 (continued)

6	Is there 12VDC on the orange wire along the top at the material PAKSTAT on the rear panel?	• Yes, replace material PAKSTAT. • No, if there is power at the orange wire at the bottom of the material PAKSTAT and there is a tank temperature showing, then there is a break in the orange circuit between the bottom of the material PAKSTAT and the top of the material PAKSTAT.
7	With tank and material temperature knobs both set higher than current temperature, turn the burner switch off then back on while observing the ignitor next to the burner. Is it sparking for 5 seconds after burner switch is turned on?	• Yes. If fuel valve is opening and ignitor is sparking but flame is not lighting, reposition the ignitor closer to the holes in the burner and try again. • Yes. If flame is igniting, but ignitor continues to spark for a few seconds then flame goes out, then flame sensor is not detecting confirmation of burner ignition. Go to Table 8-5 Burner Lights but Shuts Down After 5 Seconds. • No, check high voltage cable at burner control module and at ignitor. Verify that ignitor frame has a good ground to machine ground.

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8.2 Burner Lights but Shuts Down After 5 Seconds

Table 8-5 Burner Lights but Shuts Down After 5 Seconds

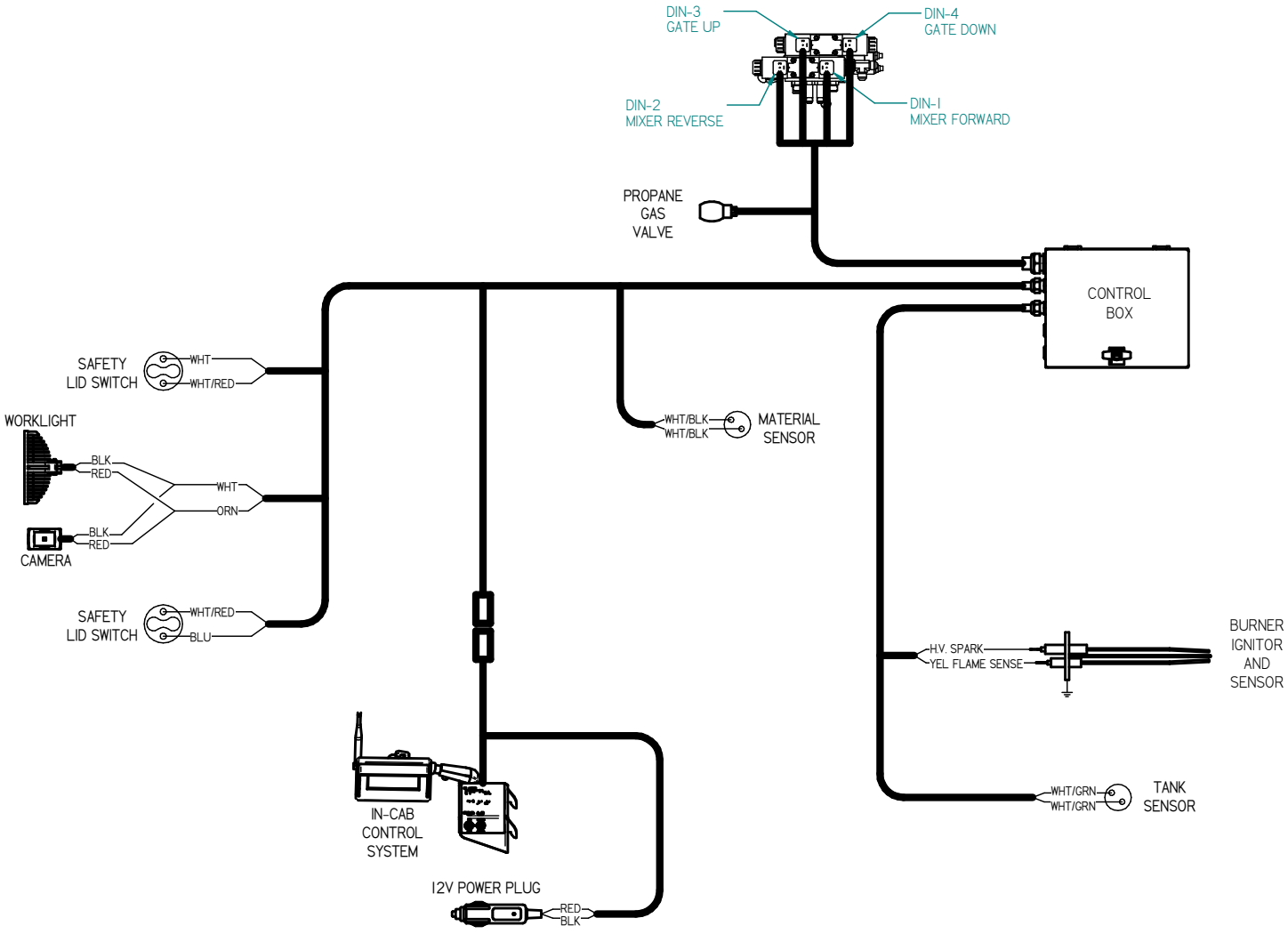
Step	Possible Cause	If . . .
1	Is there continuity between the yellow wire at the ignitor assembly (flame sensor) and the black wire at the burner control module plug in the control box?	• Yes, go to step 2. • No, there is a break in the yellow flame sense circuit between the ignitor and the burner control module.
2	Is the frame of the ignitor assembly well-grounded to the machine frame?	• Yes, go to step 3. • No, clean the metal contact surfaces between the ignitor frame, machine frame and mounting hardware.
3	Are the tips of the flame sensor probe as well as the center ground probe both engulfed by flame?	• Yes, replace the burner control module. • No, reposition the ignitor assembly so the flame sensor probe and ground probe are both “covered” in flame.

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Chapter 8 Troubleshooting

8.3 Electrical Schematic

Figure 8-1 Electrical Schematic

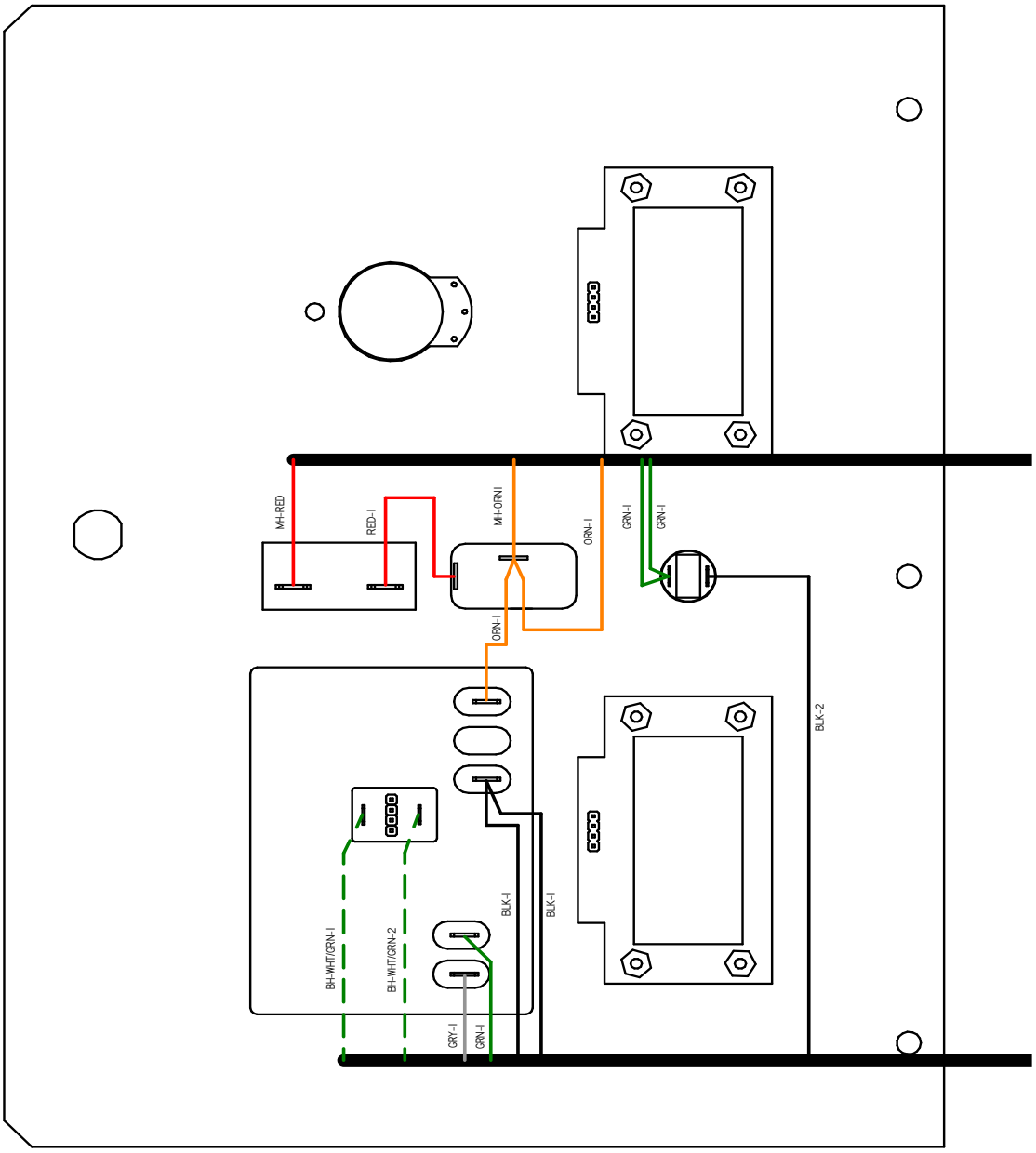


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Chapter 8 Troubleshooting

8.4 Control Box Schematic

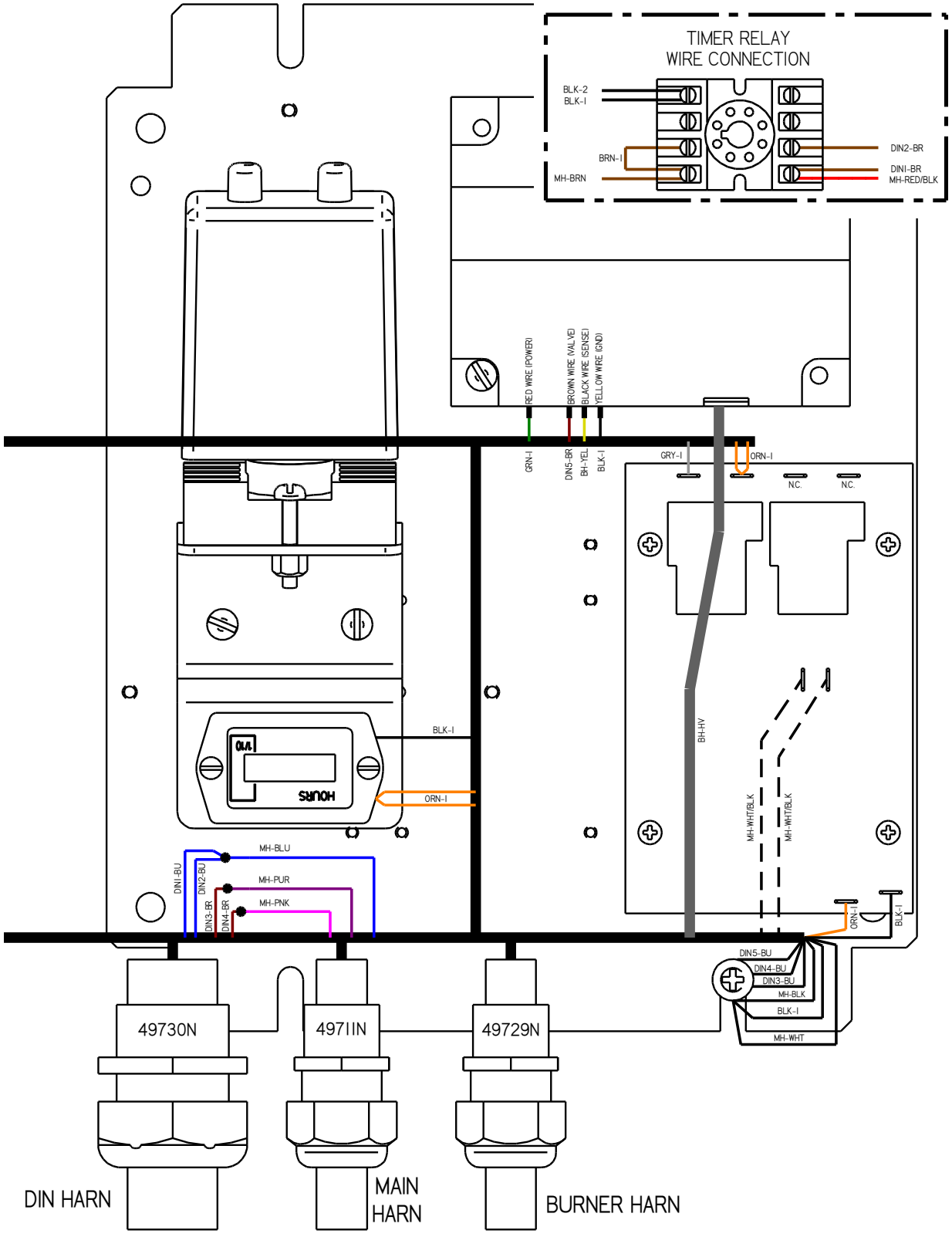
Figure 8-2 Control Box Schematic



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Chapter 8 Troubleshooting

Figure 8-3 Control Box Schematic



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8.5 Material is Heating Slowly

Table 8-6 Material is Heating Slowly

Step	Material is Heating Slowly
1	With the material level half or less, open the loading lid and inspect the inside edge of the material tank. Check if there is a buildup of old, dried out and hardened material along the top half of the material tank.
2	If this is the case, you will need to drain out (use up) the rest of the material inside the tank. When the tank is empty, use an air chisel to remove this built-up material. Remove as much as possible all around the tank including the roof of the material tank. Remove all the old material chunks from the bottom of the material tank. This should be done every 500 hours or as conditions require.
3	Verify the burner is fully lit and the flame is mostly blue with only small amounts of yellow flame. If the flame is “huffing” or not mostly blue, adjust the air shutter disk on the end of the burner to correct the air/fuel ratio to achieve fully, stable, blue flame down the full length of the burner.
4	Many Crafco service centers can perform these service steps for you if you cannot. Call your local service center to learn more.

8.6 Mixer Troubleshooting

8.6.1 Symptom: Mixer Does Not Rotate

Table 8-7 Mixer Basic Visual Troubleshooting

Step	Possible Cause	If . . .
1	Start Troubleshooting at the mixer switch in the cab. Is the Mixer Control Switch in the OFF position?	• No, go to Step 2. • Yes, flip switch to desired rotation.
2	Are both loading doors closed?	• Yes, go to Step 3. • No, shut the loading doors (both must be closed).
3	Is the mixer moving (end of mixer shaft turning)?	• Yes, mixer is working properly. • No, go to step 4.
4	Are both lid switches depressed by the tabs on the lids?	• Yes, go to Table 8-8 Mixer Electrical Troubleshooting. • No, adjust the lid switch position(s) such that the lids depress the switches when the lids are closed.

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Chapter 8 Troubleshooting

Table 8-8 Mixer Electrical Troubleshooting

Step	Possible Cause	If . . .
1	Does the lid make full contact with the switch?	• Yes, go to Step 1a. • No, adjust the switch location so the lid activates the switch.
2	The lid switches are wired to ground (not +12VDC). With both lids closed, do all 4 screw posts on the 2 lid switches show continuity to ground?	• Yes, go to step 3. • No, replace the lid switch(es) that do not have ground on both terminals with the lid(s) closed.
3	Is there 12VDC on the red wire on the mixer switch in the cab control module?	• Yes, go to step 4. • No, verify there is no circuit break in the string of red wire double-crimps at the in-cab control module switched and monitor power crimps. Verify there is 12VDC at the main power plug for the machine (“cigarette lighter” type power plug).
4	Set the mixer switch to Mix-Melt mode. Is there 12VDC on the brown wire on the mixer switch in the cab control?	• Yes, go to step 5. • No, replace mixer switch.
5	Set the mixer to Dispense mode. Is there 12VDC on the red/blk wire on the mixer switch in the cab control?	• Yes, go to step 6. • No, replace mixer switch.
6	Unplug the timer relay from its socket on the rear panel in the control box. Are the wires connected per the control box schematic in section 8.4?	• Yes, go to step 7. • No, correct connections to match the wiring diagram in section 8.4 control box schematic.
7	In the control box, verify that the 2 blue wires from 2 of the DIN cables are still connected to the blue wire from the main harness with a butt splice connector in the control box.	• Connection is good, replace the timer relay if mixer works in dispense mode but not mix-melt mode. Goto step 8. • Connection is bad, repair/replace the butt splice connection.

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Table 8-9 Mixer Electrical Troubleshooting (continued)

Step	Possible Cause	If . . .
8	Referring to figure 8-5, for mixing dispense mode (mixer forward) and mix-melt mode (mixer reverse), verify the LED in the DIN plug is lit (note: the LED is not very bright and is difficult to see in bright daylight so you may need to cup your hand over it to see it). Do the DIN plug LEDs light up to their corresponding function?	• Yes, if the function is not working but the DIN plug LED is lit properly, then go to. Table 8-10 Mixer Hydraulic Troubleshooting • No, go to step 9.
9	Unscrew the din plug center screw so you can pull the din plug up about 1/4", so you can check for voltage. Is there 12Vdc from side post to side post? (Refer to Figure 8-4 Checking Din Plug Voltage)	• Yes, the electrical system for the mixer is working properly, go to Table 8-10 Mixer Hydraulic Troubleshooting. • No, recheck the din plug light, if the light comes "ON" and you do not have 12Vdc then replace the din plug.

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Chapter 8 Troubleshooting

Figure 8-4 Checking Din Plug Voltage



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8.7 Mixer Hydraulic Troubleshooting

Table 8-10 Mixer Hydraulic Troubleshooting

Step	Possible Cause	If . . .
1	Does the coil magnetize when the din plug green light is "ON"?	• Yes, go to Step 2. • No, remove the din plug, then remove the coil by unscrewing the nut on the end of the coil. With the coil removed, re-attach the din, and place a metal screwdriver in the center of the coil and move it toward the side of the coil to see if the coil is magnetic. If it is not, recheck the din plug is plugged into the coil, and the green light is "ON". If it is still not magnetic, replace the coil.
2	Is the relief pressure set correctly? (Refer to Figure 8-5 Hydraulic Pressure Adjustment Location for pressure settings.)	• Yes, go to Step 3. • No, first turn "OFF" the skid steer loader, then remove the hose from port “AB” on the hydraulic valve assembly. Cap the hose. Connect a 3,000 PSI gauge with the proper JIC fitting to port “AB”. Start the skid steer loader, turn "ON" the burner in the control box, move the "Mixer" toggle switch to the "dispense" position and read the pressure gauge. If the pressure needs to be adjusted (see figure 8-4), use the pressure relief valve labeled "RVA", loosen the jam nut and adjust the pressure with the allen screw at the end of the relief. Turn clockwise to increase pressure and counterclockwise to reduce pressure, then tighten the jam nut to lock the pressure. Next turn "OFF" the skid steer loader, then remove the pressure gauge from port “AB”, remove the cap from the hose, and reattach the hose into port “AB”.
3	Is the hydraulic flow correct from the hydraulic pump in the skid steer loader?	• Yes, call Crafco and speak to customer service. • No, call a local hydraulic shop to see if they can run a hydraulic pump flow test, using the information in Figure 8-5 Hydraulic Pressure Adjustment Location

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Figure 8-5 Hydraulic Pressure Adjustment Location

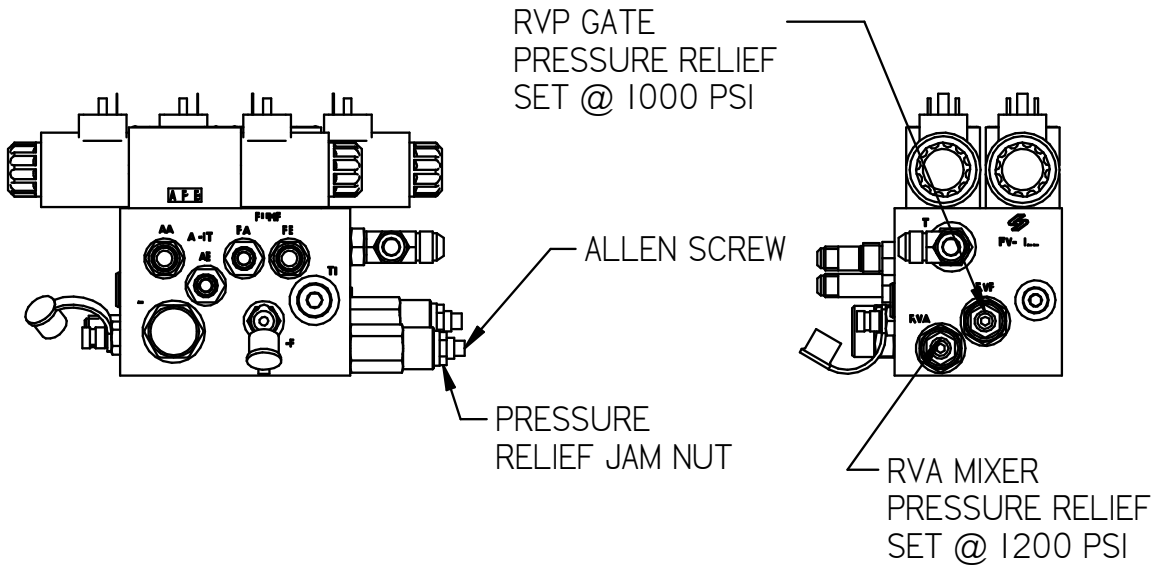
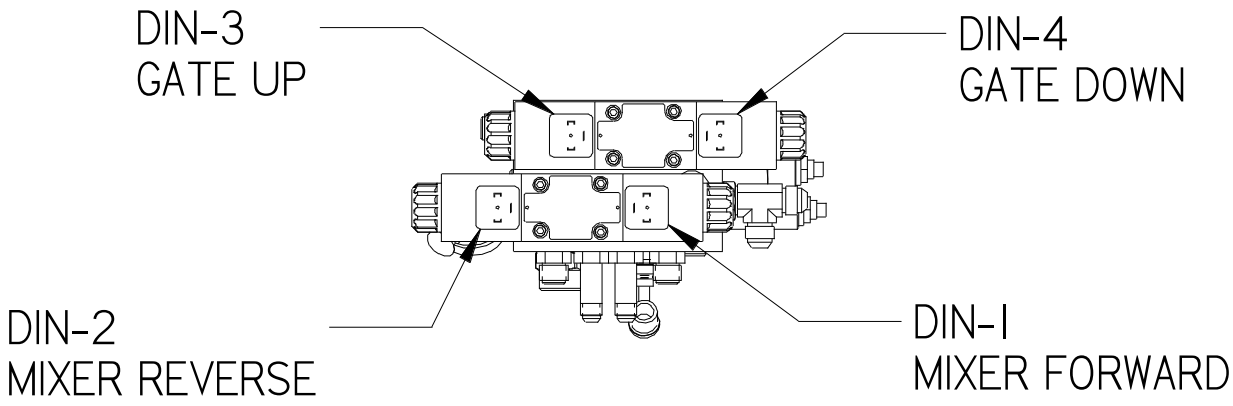


Figure 8-6 Din Plug Layout



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8.8 Gate Troubleshooting

8.8.1 Symptom: Gate Does not Open or Close

Table 8-11 Gate Basic Visual Troubleshooting

Step	Possible Cause	If . . .
1	Does the Hydraulic cylinder appear to try to move the gate at all?	• Yes, try adjusting the gate speed control valve and/or adjusting the tension on the gate clamp bolts. • No, go to Step 2.
2	Are the auxiliary hydraulics activated in the FORWARD position and latched in the skid steer loader?	• Yes, go to Table 8-12 Gate Electrical Troubleshooting • No, refer to skid steer loader manual for steps to activate and latch auxiliary hydraulics on in the FORWARD direction.

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Table 8-12 Gate Electrical Troubleshooting

Step	Possible Cause	If . . .
1	Is there 12VDC on the red wire on the gate switch in the cab control module?	• Yes, go to step 2. • No, verify there is no circuit break in the string of red wire double-crimps at the in-cab control module switched and monitor power crimps. Verify there is 12VDC at the main power plug for the machine (“cigarette lighter” type power plug).
2	Is there 12VDC on the purple wire on the gate switch in the cab control module when the gate switch is held to the OPEN position?	• Yes, go to step 3. • No, replace the gate switch.
3	Is there 12VDC on the pink wire on the gate switch in the cab control module when the gate switch is held to the CLOSE position?	• Yes, go to step 4. • No replace the gate switch
4	Is the DIN plug LED for gate OPEN (DIN #3, see figure 8-5) lighting when the gate switch is help in the OPEN position? (note: the LED is not very bright and is difficult to see in bright daylight so you may need to cup your hand over it to see it).	• Yes, go to step 5. • No, check the connection of the purple to brown DIN wire in the control box.
5	Unscrew the din plug center screw so you can pull the din plug up about 1/4", so you can check for voltage. Is there 12Vdc from side post to side post? (Refer to Figure 8-4 Checking Din Plug Voltage)	• Yes, the electrical system for the gate is working properly, go to Table 8-13 Gate Hydraulic Troubleshooting • No, recheck the din plug light, if the light comes "ON" and you do not have 12Vdc then replace the din plug.

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8.9 Gate Hydraulic Troubleshooting

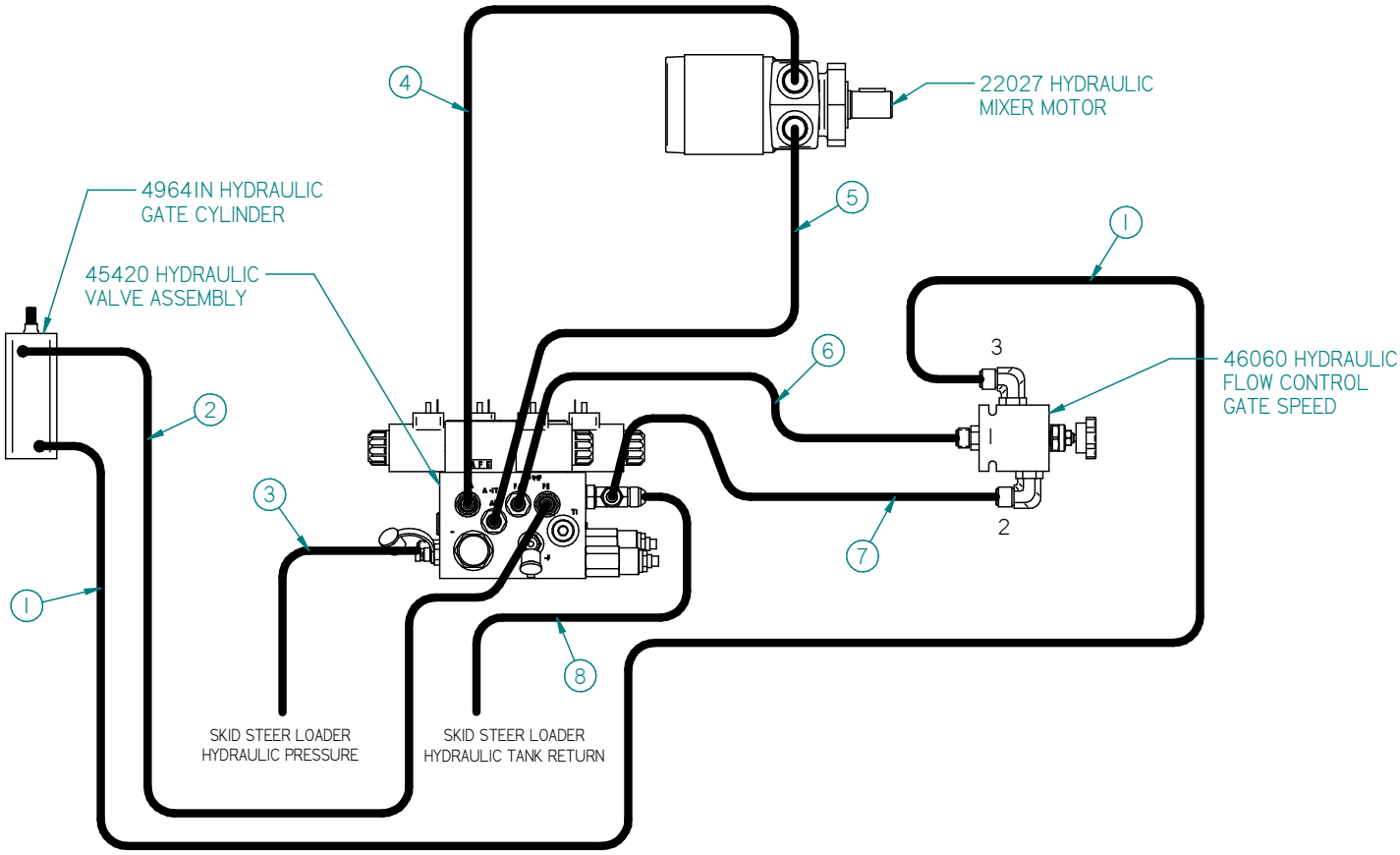
Table 8-13 Gate Hydraulic Troubleshooting

Step	Possible Cause	If . . .
1	Does the coil magnetize when the din plug green light is "ON"?	• Yes, go to Step 2. • No, remove the din-plug, then remove the coil by unscrewing the nut on the end of the coil. With the coil removed, re-attach the din-plug, and place a metal screwdriver in the center of the coil and move it toward the side of the coil to see if the coil is magnetic. If it is not, re-check the din-plug is plugged into the coil and the green light is "ON". If it is still not magnetic, replace the coil.
2	Is the relief pressure set correctly? (Refer to Figure 8-5 Hydraulic Pressure Adjustment Location for pressure settings.)	• Yes, go to Step 3. • No, first turn "OFF" the skid steer loader, then remove the hose from port “PB” on the hydraulic valve assembly. Cap the hose. Connect a 3,000 PSI gauge with the proper JIC fitting to port “PB”. Start the skid steer loader, turn "ON" the burner in the control box, move the "Mixer" toggle switch to the "dispense" position and read the pressure gauge. If the pressure needs to be adjusted (see figure 8-4), use the pressure relief valve labeled "RVP", loosen the jam nut and adjust the pressure with the allen screw at the end of the relief. Turn clockwise to increase pressure and counterclockwise to reduce pressure, then tighten the jam nut to lock the pressure. Next turn "OFF" the skid steer loader, then remove the pressure gauge from port “AB”, remove the cap from the hose, and reattach the hose into port “PB”.
3	Is the hydraulic flow correct from the hydraulic pump in the skid steer loader?	• Yes, call Crafco and speak to customer service. • No, call a local hydraulic shop to see if they can run a hydraulic pump flow test, using the information in Figure 8-5 Hydraulic Pressure Adjustment Location

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8.10 Hydraulic Schematic

Figure 8-7 Hydraulic Schematic



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8.11 RTD Sensor Ohms vs. Temperature

Table 8.15 below shows what the ohm reading should be for a given temperature. The following are the instructions for using the table.

1. Measure the resistance (ohms) of the sensor in question with an ohm meter.
2. Find the reading in the chart (columns 0 through 9).
3. Follow the row to the left and get the temperature in 10°F increments, then follow the column up to get the 1°F increment. (For example, 1391 Ohms = 215°F)

Table 8-14 RTD Sensor Ohms vs. Temperature

°F	0	1	2	3	4	5	6	7	8	9
0	930.3	932.5	934.7	936.9	939.1	941.3	943.4	945.6	947.8	950.0
10	952.2	954.3	956.5	958.7	960.9	963.0	965.2	967.4	969.6	971.8
20	973.9	976.1	978.3	980.5	982.6	984.8	987.0	989.1	991.3	993.5
30	995.7	997.8	1000.0	1002.2	1004.3	1006.5	1008.7	1010.9	1013.0	1015.2
40	1017.4	1019.5	1021.7	1023.9	1026.0	1028.2	1030.4	1032.5	1034.7	1036.9
50	1039.0	1041.2	1043.4	1045.5	1047.7	1049.8	1052.0	1054.2	1056.3	1058.5
60	1060.7	1062.8	1065.0	1067.1	1069.3	1071.5	1073.6	1075.8	1077.9	1080.1
70	1082.2	1084.4	1086.6	1088.7	1090.9	1093.0	1095.2	1097.3	1099.5	1101.6
80	1103.8	1106.0	1108.1	1110.3	1112.4	1114.6	1116.7	1118.9	1121.0	1123.2
90	1125.3	1127.5	1129.6	1131.8	1133.9	1136.1	1138.2	1140.4	1142.5	1144.7
100	1146.8	1149.0	1151.1	1153.2	1155.4	1157.5	1159.7	1161.8	1164.0	1166.1
110	1168.3	1170.4	1172.5	1174.7	1176.9	1179.0	1181.1	1183.3	1185.4	1187.5
120	1189.7	1191.8	1194.0	1196.1	1198.2	1200.4	1202.5	1204.6	1206.8	1208.9
130	1211.0	1213.2	1215.3	1217.5	1219.6	1221.7	1223.9	1226.0	1228.1	1230.3
140	1232.4	1234.5	1236.7	1238.9	1240.9	1243.0	1245.2	1247.3	1249.4	1251.6
150	1253.7	1255.8	1258.0	1260.1	1262.2	1264.3	1266.5	1268.6	1270.7	1272.8
160	1275.0	1277.1	1279.2	1281.3	1283.5	1285.6	1287.7	1289.8	1292.0	1294.1
170	1296.2	1298.3	1300.4	1302.6	1304.7	1306.8	1308.9	1311.0	1313.2	1315.3
180	1317.4	1319.5	1321.6	1323.8	1325.9	1328.0	1330.1	1332.2	1334.3	1336.5
190	1338.6	1340.7	1342.8	1344.9	1347.0	1349.1	1351.2	1353.4	1355.5	1357.6
200	1359.7	1361.8	1363.9	1366.0	1368.1	1370.2	1372.4	1374.5	1376.6	1378.7
210	1380.8	1382.9	1385.0	1387.1	1389.2	1391.3	1393.4	1395.5	1397.6	1399.7
220	1401.8	1403.9	1406.0	1408.1	1410.3	1412.4	1414.5	1416.6	1418.7	1420.8
230	1422.9	1425.0	1427.1	1429.2	1431.3	1433.4	1435.5	1437.6	1439.6	1441.7
240	1443.8	1445.9	1448.0	1450.1	1452.2	1454.3	1456.4	1458.5	1460.6	1462.7
250	1464.8	1466.9	1469.0	1471.1	1473.2	1475.3	1477.3	1479.4	1481.5	1483.6
260	1485.7	1487.8	1489.9	1492.0	1494.1	1496.1	1498.2	1500.3	1502.4	1504.5

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Table 8-15.1 RTD Sensor Ohms vs. Temperature (continued)

°F	0	1	2	3	4	5	6	7	8	9
270	1506.6	1508.7	1510.8	1512.8	1514.9	1517.0	1519.1	1521.2	1523.3	1525.3
280	1527.4	1529.5	1531.6	1533.7	1535.7	1537.8	1539.9	1542.0	1544.1	1546.1
290	1548.2	1550.3	1552.4	1554.5	1556.5	1558.6	1560.7	1562.8	1564.8	1566.9
300	1569.0	1571.1	1573.1	1575.2	1577.3	1579.4	1581.4	1583.5	1585.6	1587.7
310	1589.7	1591.8	1593.9	1595.9	1598.0	1600.1	1602.2	1604.2	1606.3	1608.4
320	1610.4	1612.5	1614.6	1616.6	1618.7	1620.8	1622.8	1624.9	1627.0	1629.0
330	1631.1	1633.2	1635.2	1637.3	1639.3	1641.4	1643.5	1645.5	1647.6	1649.7
340	1651.7	1653.8	1655.8	1657.9	1660.0	1662.0	1664.1	1666.1	1668.2	1670.2
350	1672.3	1674.4	1676.4	1678.5	1680.5	1682.6	1684.6	1686.7	1688.7	1690.8
360	1692.9	1694.9	1697.0	1699.0	1701.1	1703.1	1705.2	1707.2	1709.3	1711.3
370	1713.4	1715.4	1717.5	1719.5	1721.6	1723.6	1725.7	1727.7	1729.8	1731.8
380	1733.9	1735.9	1737.9	1740.0	1742.0	1744.1	1746.1	1748.2	1750.2	1752.3
390	1754.3	1756.3	1758.4	1760.4	1762.5	1764.5	1766.6	1768.6	1770.6	1772.7
400	1774.7	1776.8	1778.8	1780.8	1782.9	1784.9	1786.9	1789.0	1791.0	1793.1
410	1795.1	1797.1	1799.2	1801.2	1803.2	1805.3	1807.3	1809.3	1811.4	1813.4
420	1815.4	1817.5	1819.5	1821.5	1823.6	1825.6	1827.6	1829.6	1831.7	1833.7
430	1835.7	1837.8	1839.8	1841.8	1843.8	1845.9	1847.9	1849.9	1851.9	1854.0
440	1856.0	1858.0	1860.0	1862.1	1864.1	1866.1	1868.1	1870.2	1872.2	1874.2
450	1876.2	1878.2	1880.3	1882.3	1884.3	1886.3	1888.3	1890.4	1892.4	1894.4
460	1896.4	1898.4	1900.5	1902.5	1904.5	1906.5	1908.5	1910.5	1912.6	1914.6
470	1916.6	1918.6	1920.6	1922.6	1924.6	1926.6	1928.7	1930.7	1932.7	1934.7
480	1936.7	1938.7	1940.7	1942.7	1944.7	1946.8	1948.8	1950.8	1952.8	1954.8
490	1956.8	1958.8	1960.8	1962.8	1964.8	1966.8	1968.8	1970.8	1972.8	1974.8
500	1976.8	1978.8	1980.8	1982.9	1984.9	1986.9	1988.9	1990.9	1992.9	1994.9
510	1996.9	1998.9	2000.9	2002.9	2004.9	2006.9	2008.8	2010.8	2012.8	2014.8
520	2016.8	2018.8	2020.8	2022.8	2024.8	2026.8	2028.8	2030.8	2032.8	2034.8
530	2036.8	2038.8	2040.8	2042.8	2044.7	2046.7	2048.7	2050.7	2052.7	2054.7
540	2056.7	2058.7	2060.7	2062.7	2064.6	2066.6	2068.6	2070.6	2072.6	2074.6
550	2076.6	2078.5	2080.5	2082.5	2084.5	2086.5	2088.5	2090.4	2092.4	2094.4

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Chapter 9 Illustrated Parts List

9.0 Illustrated Parts List

The Illustrated Parts List (IPL) is designed to help technical service or maintenance personnel correctly identify orderable replacement parts.

The figure and table titles reference the part number (PN) to which they apply. The PN's for each of the EZ Patcher models are as follows:

EZ Patcher PN 49500N

Illustrations and pictures are designed to show general shape and size of a part and the relationship that part has with other parts. Actual size and shape of parts or components may differ or vary from the actual part or component.

9.1 Ordering Crafco Parts

Crafco distributors and Crafco Pavement Preservation Supply Centers are strategically located throughout the United States. Parts can be ordered from your local Crafco distributor or directly from Crafco if a distributor is not available in your area.

When ordering parts, provide the following information:

- Part Number
- Machine Model
- Serial Number

Call or Email Crafco at the following:

Crafco Customer Service

Phone: (602) 276-0406

CustomerService@Crafco.com

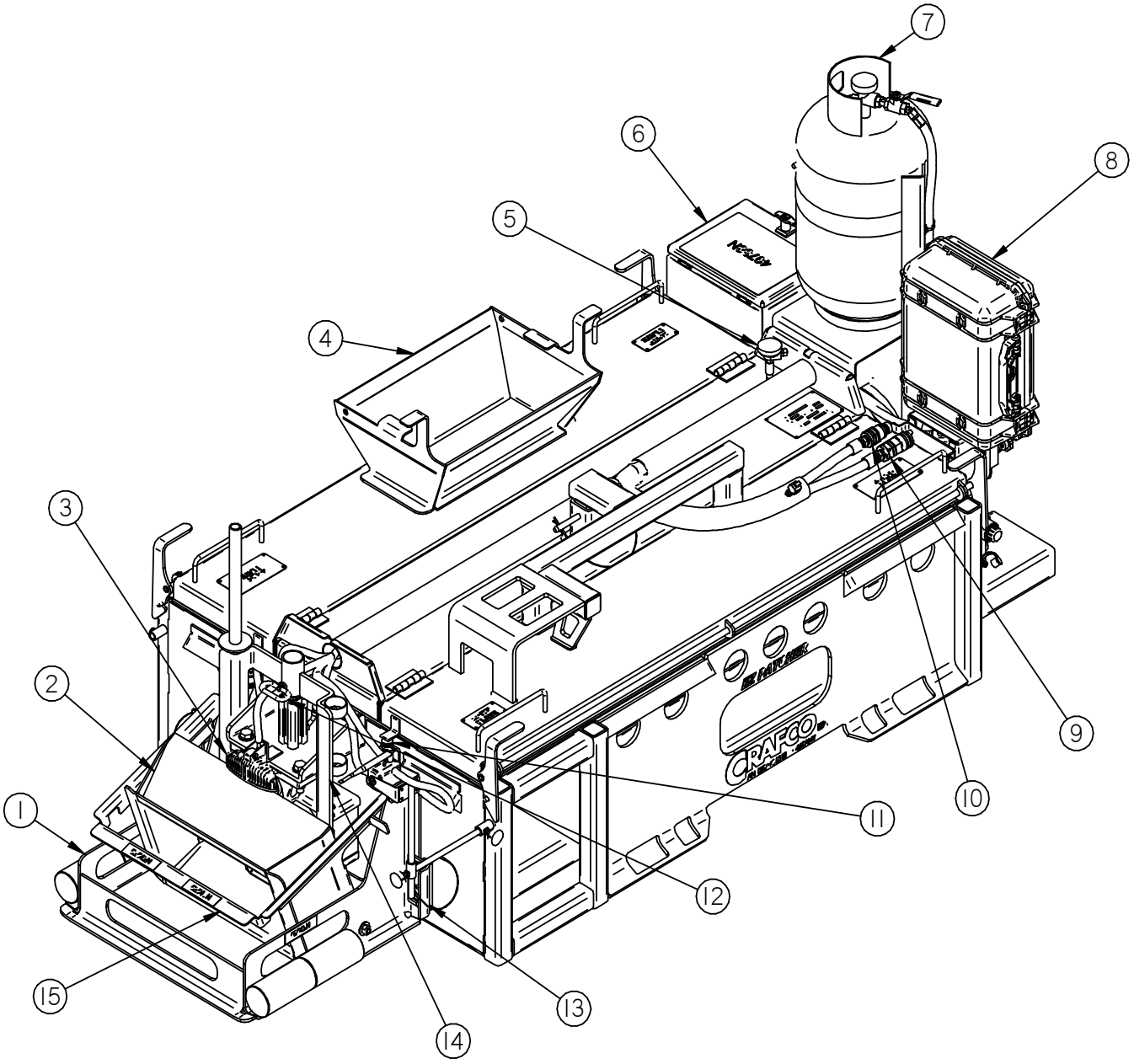
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Chapter 9 Illustrated Parts List

9.2 EZ Patcher Parts List

Figure 9-1 Right ISO View



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Chapter 9 Illustrated Parts List

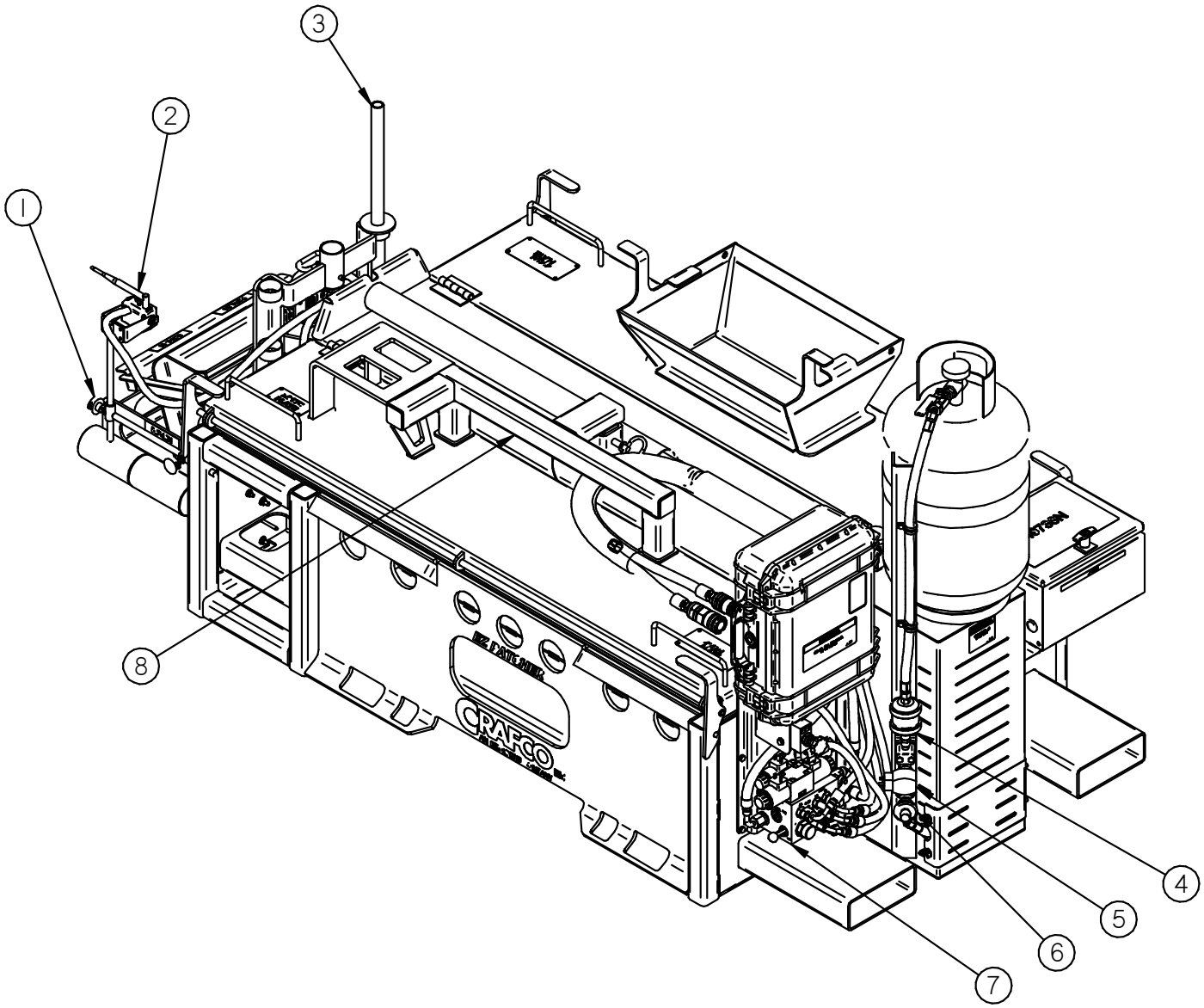
Table 9-1 Right ISO View Parts List

FIG.	ITEM	PART NO.	DESCRIPTION	QTY
Figure 9-1	1	49532N	Drag Box Assembly, includes 10” hopper & lock bar	1
	2	49682N	10” Hopper	1
	3	49690N	Work light	1
	4	49744N	6” Hopper	1
	5	58720N	RTD Sensor, 14”	2
	6	49536N	Control Box with Harnesses	1
	7	42964	30 lb. Propane Tank	1
	8	49691N	Storage Box for In-Cab Control System	1
	9	49726N	Hydraulic Quick Coupler – Female	1
	10	49725N	Hydraulic Quick Coupler – Male	1
	11	39608	Lid Switch	2
	12	49755N	Quick Release Pin – Material Gate	1
	13	49667N	Slide, Drag Box	2
	14	49535N	Material Gate	1
	15	49689N	Lock-Bar, Drag Box	1

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Chapter 9 Illustrated Parts List

Figure 9-2 Left ISO View



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Chapter 9 Illustrated Parts List

Table 9-2 Left ISO View Parts List

FIG.	ITEM	PART NO.	DESCRIPTION	QTY
Figure 9-2	1	31409	Thumbscrew	2
	2	Incl w/ 49705N	Camera	1
	3	49692N	Material Tool	1
	4	55399	LP Fuel Filter	1
	5	25236	LP Solenoid Fuel Valve	1
	6	49702N	LP Pressure Regulator (20 PSI, Fixed)	1
	7	45420	Hydraulic Valve Assembly	1
	8	49120N	Bumper Bar	1

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Chapter 9 Illustrated Parts List

Figure 9-3 Chain Drive View

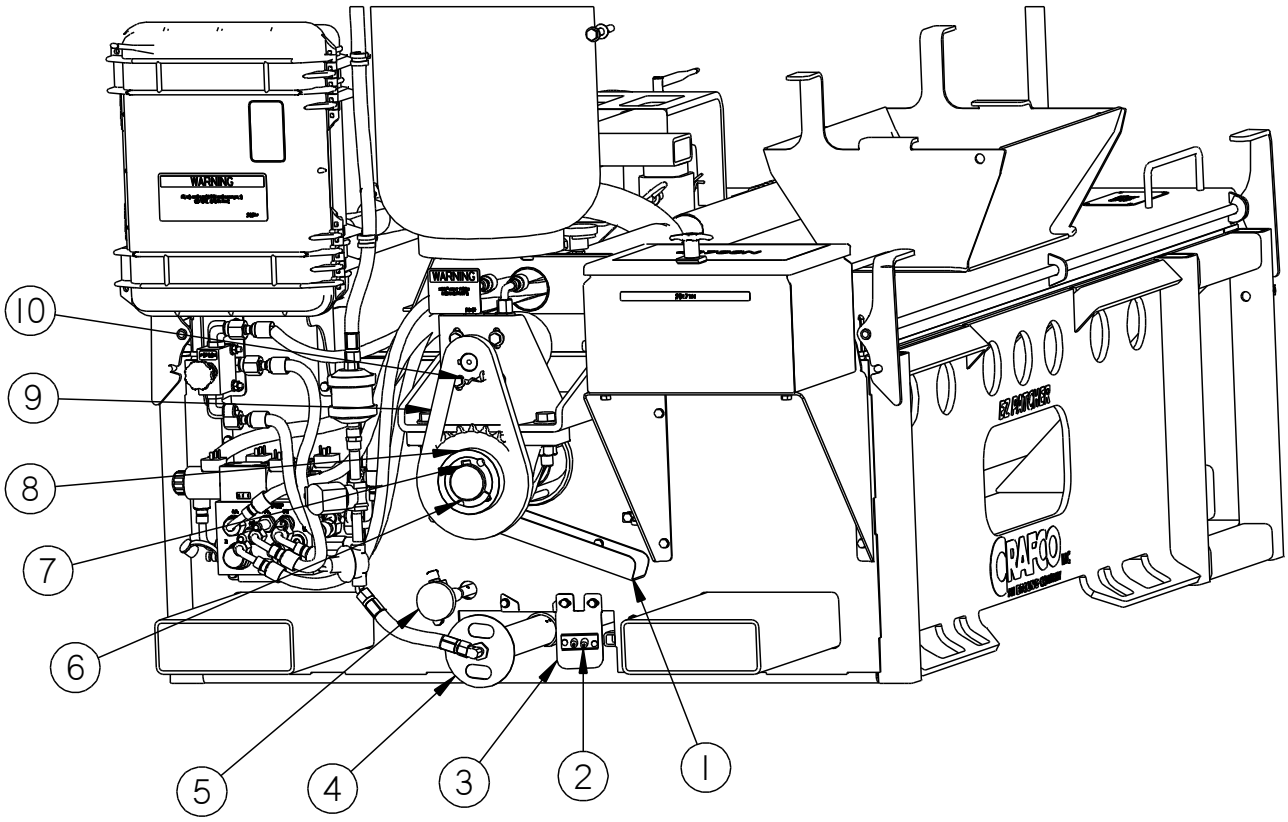


Table 9-3 Chain Drive View Parts List

FIG.	ITEM	PART NO.	DESCRIPTION	QTY
Figure 9-3	1	49722N	DRIP PAN – PACKING GLAND	1
	2	43153	IGNITER	1
	3	49720N	IGNITER BRACKET	1
	4	49639N	PROPANE BURNER TUBE	1
	5	58720N	RTD SENSOR, 14”	2
	6	49648N	BUSHING, TAPER LOCK	1
	7	49651N	KEY, 1/2 X 1/2 X 7/8”	1
	8	49671N	CHAIN SPROCKET, 24 TOOTH	1
	9	49650N	#60 CHAIN (includes connecting link)	1
	10	70239	CHAIN SPROCKET, 9 TOOTH	1

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Chapter 9 Illustrated Parts List

Figure 9-4 Material Chute View

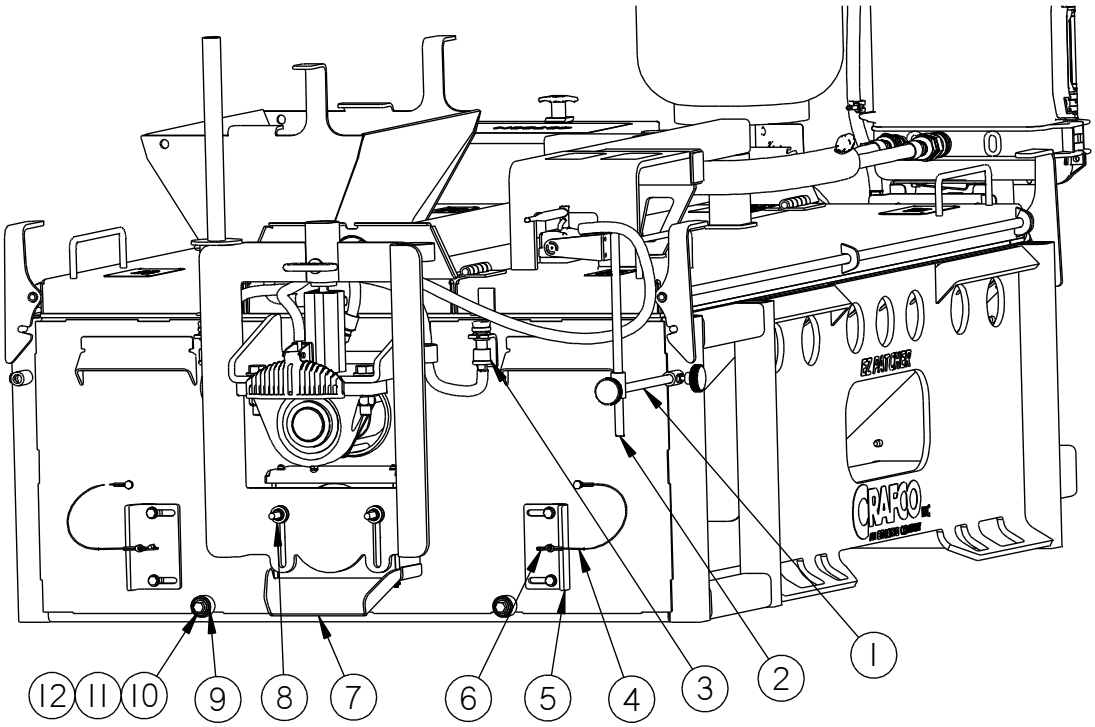


Table 9-4 Material Chute View Parts List

FIG.	ITEM	PART NO.	DESCRIPTION	QTY
Figure 9-4	1	49696N	LOWER CAMERA MOUNT ASSEMBLY	1
	2	49697N	UPPER CAMERA MOUNT ASSEMBLY	1
	3	39608	AUTOSTOP SWITCH	2
	4	44157	PIN ATTACHMENT CABLE	2
	5	49667N	SLIDE, DRAG BOX	2
	6	26104	QUICK RELEASE PIN	2
	7	49678N	MATERIAL CHUTE	1
	8	49644N	SPRING WASER DISC, HIGH TEMP	8
	9	49756N	ROLLER, FLAT TRACK	2
	10	28729	3/8”-16 x 3-1/2” BOLT	2
	11	28538	3/8”-16 UPSET NUT	2
	12	28672	3/8” FLAT WASHER	8

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Chapter 9 Illustrated Parts List

Figure 9-5 Mixer Auger View

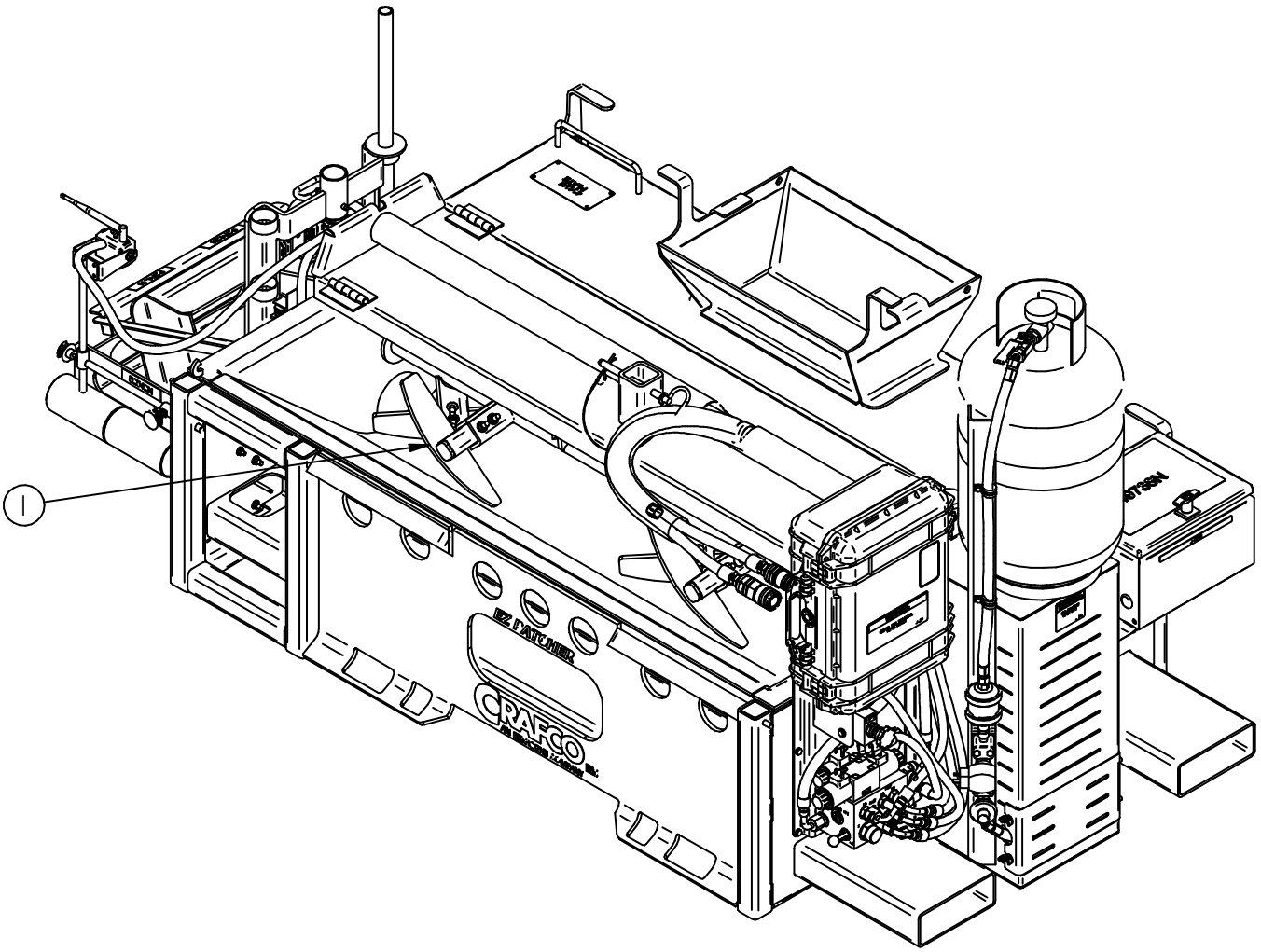


Table 9-5 Mixer Auger View Parts List

FIG.	ITEM	PART NO.	DESCRIPTION	QTY
Figure 9-5	1	49531N	Mixer/Auger Paddle	8

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Chapter 9 Illustrated Parts List

Figure 9-6 Packing Gland View

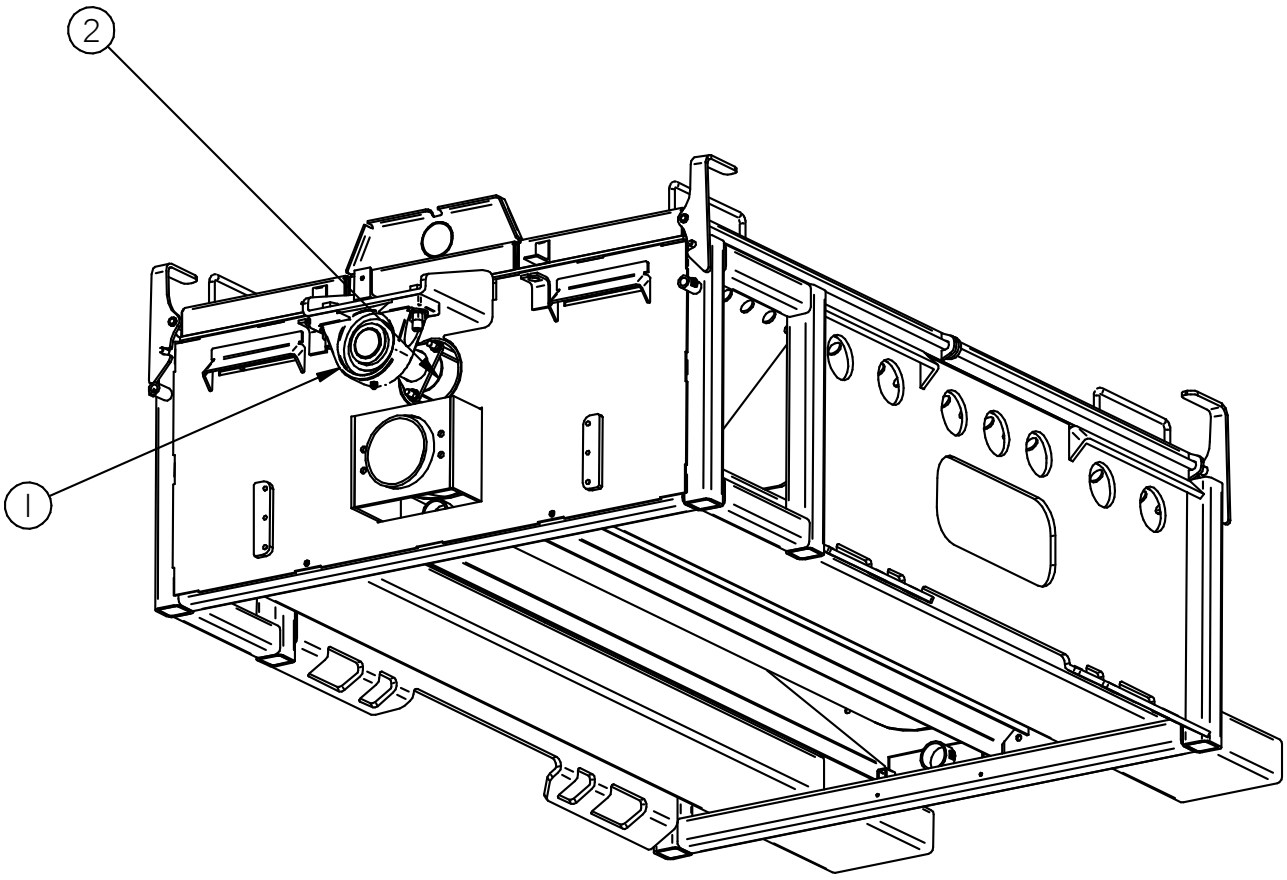


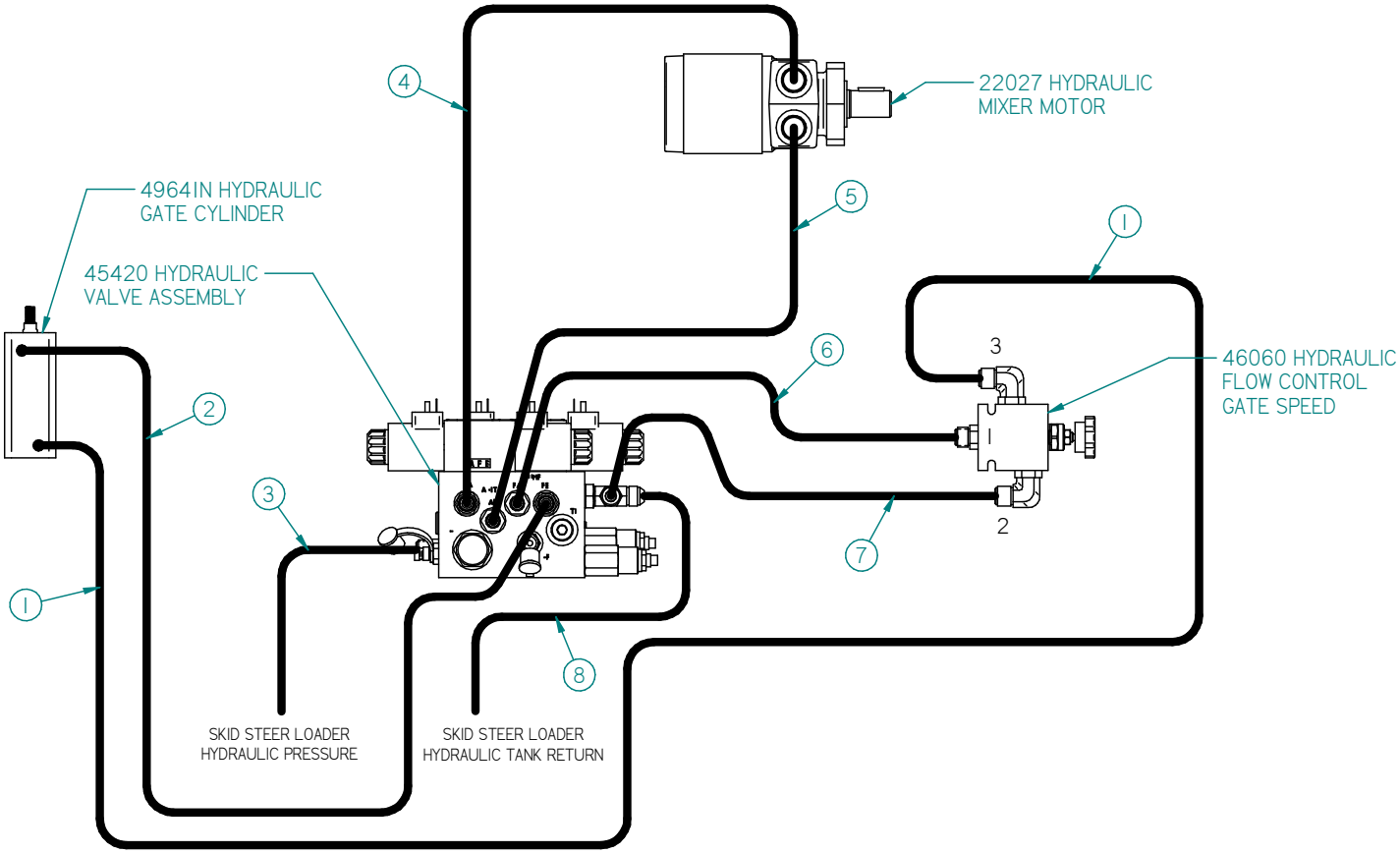
Table 9-6 Packing Gland Parts List

FIG.	ITEM	PART NO.	DESCRIPTION	QTY
Figure 9-6	1	49626N	Mixer/Auger Shaft Bearing	2
	2	32226	Packing Gland, Cut to 8.25” Long	8

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9.3 Hydraulic Schematic and Parts List

Figure 9-7 Hydraulic Schematic



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Chapter 9 Illustrated Parts List

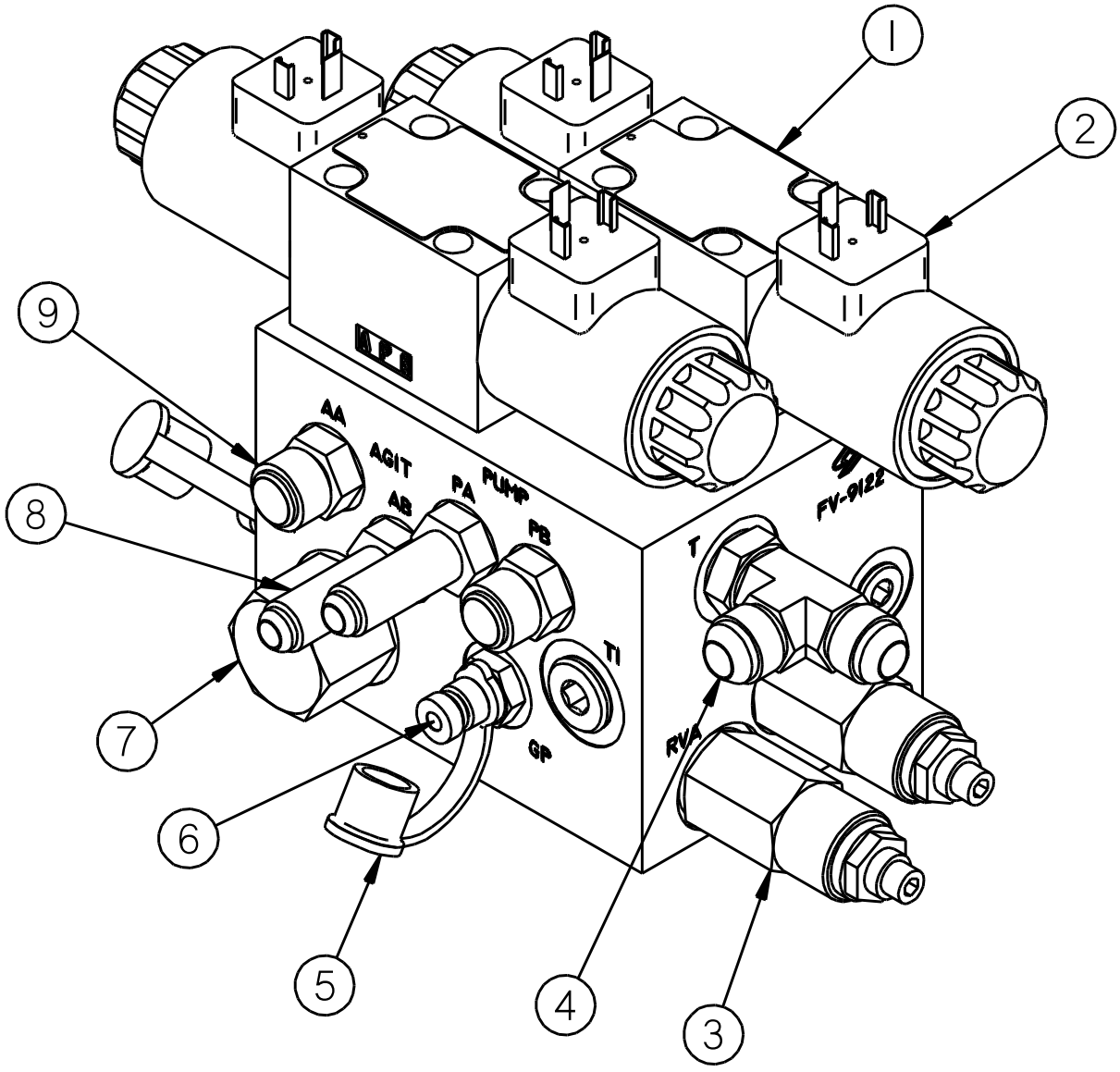
Table 9-7 HYDRAULIC PARTS LIST

FIG.	ITEM	PART NO.	DESCRIPTION	QTY
Figure 9-7	**1**	**FLOW CONTROL VALVE "3" TO GATE CYLINDER "BOTTOM" PORT**		
		49727N	ADAPTER, 1/8" NPT X #6 JIC	REF
		6M3K 6G-8FJX 6G-6FJX90S 84.5	HYDRAULIC HOSE	1
		29896	FITTING, #8 ORB X #8 JIC	REF
	2	**GATE CYLINDER "TOP" PORT TO HYDRAULIC VALVE "PB" PORT**		
		29919	FITTING, #6 ORB X #8 JIC	REF
		6M3K 6G-6FJX90S 6G-6FJX90S 99.5	HYDRAULIC HOSE	1
		49727N	ADAPTER, 1/8" NPT X #6 JIC	REF
	3	**HYDRAULIC VALVE "P" PORT TO SKID STEER PRESSURE PORT**		
		29897	FITTING, #8 ORB X #8 JIC	REF
		86M3K 8G-8FJX90S 8G-8MP 117.5	HYDRAULIC HOSE	1
		49725N	FITTING, MALE HYD QUICK COUPLER	REF
	4	**HYDRAULIC VALVE "AA" PORT TO MIXER MOTOR PORT**		
		29919	FITTING, #6 ORB X #8 JIC	REF
		6M3K 6G-6FJX90S 6G-8FJX90S 37.25	HYDRAULIC HOSE	1
		22029	FITTING, #10 ORB X #6 JIC	REF
	5	**HYDRAULIC VALVE "AB" PORT TO MIXER MOTOR PORT**		
		40311	FITTING, #6 ORB X #6 JIC ELBOW	REF
		6M3K 6G-6FJX90S 6G-6FJX90S 37	HYDRAULIC HOSE	1
		22029	FITTING, #10 ORB X #6 JIC	REF
	6	**FLOW CONTROL VALVE "1" TO HYDRAULIC VALVE "PA" PORT**		
		29897	FITTING, #8 ORB X #8 JIC	REF
		6M3K 6G-6FJX90S 6G-8FJX 24.5	HYDRAULIC HOSE	1
		40311	FITTING, #6 ORB X #6 JIC	REF
	7	**FLOW CONTROL VALVE "2" TO HYDRAULIC VALVE "T" PORT**		
		29932	FITTING, #8 ORB RUN TEE	REF
		6M3K 6G-8FJX 6G-8FJX 14.5	HYDRAULIC HOSE	1
		29896	FITTING, #8 ORB X #8 JIC	REF
	8	**HYDRAULIC VALVE "T" PORT TO SKID STEER RETURN PORT**		
		29932	#8 ORB RUN TEE	REF
		8M3K 8G-8JX90S 8G-8MP 107.5	HYDRAULIC HOSE	1
		49726N	FITTING, FEMALE HYD QUICK COUPLER	REF

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9.4 Hydraulic Valve Parts List

Figure 9-8 Hydraulic Valve Assembly (P/N 45420)



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Chapter 9 Illustrated Parts List

Table 9-8 Hydraulic Valve Assembly: (P/N 45420)

FIG.	ITEM	PART NO.	DESCRIPTION	QTY.
Figure 9-8	1	45418	VALVE, DIRECTIONAL REXROTH	2
	2	45436	COIL, DIRECTIONAL VALVE REXROTH	4
	3	45417	VALVE RELIEF	2
	4	29897	FITTING, #8 ORB X #8 MALE JIC STR	1
	5	45413	DUST CAP	2
	6	45414	FITTING, TEST PORT	2
	7	45416	FLOW CONTROL, PRIORITY	1
	8	40308	FITTING, #6 ORB X #6 MALE JIC STR	2
	9	29919	FITTING, #6 ORB X #8 MALE JIC STR	2

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9.5 Gate Speed Flow Control Valve Assembly: PN 46060

Figure 9-9 Gate Speed Control Assembly (P/N 46060)

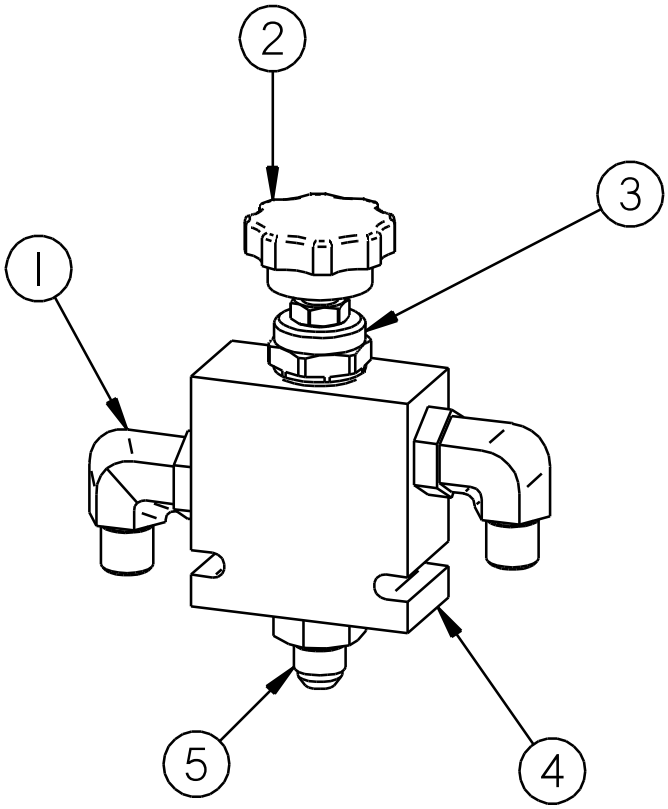


Table 9-7 Gate Speed Control Assembly: (P/N 46060)

FIG.	ITEM	PART NO.	DESCRIPTION	QTY.
Figure 9-9	1	29869	3/8” TUBE X 1/2” O-RING ELBOW	2
	2	46077	KNOB ONLY	1
	3	45431	CARTRIDGE, FLOW CONTROL (WITH KNOB)	1
	4	46060	HYDRAULIC FLOW CONTROL (NO FITTINGS)	1
	5	29998	3/8” TUBE X 1/2” O-RING ADAPTOR	1

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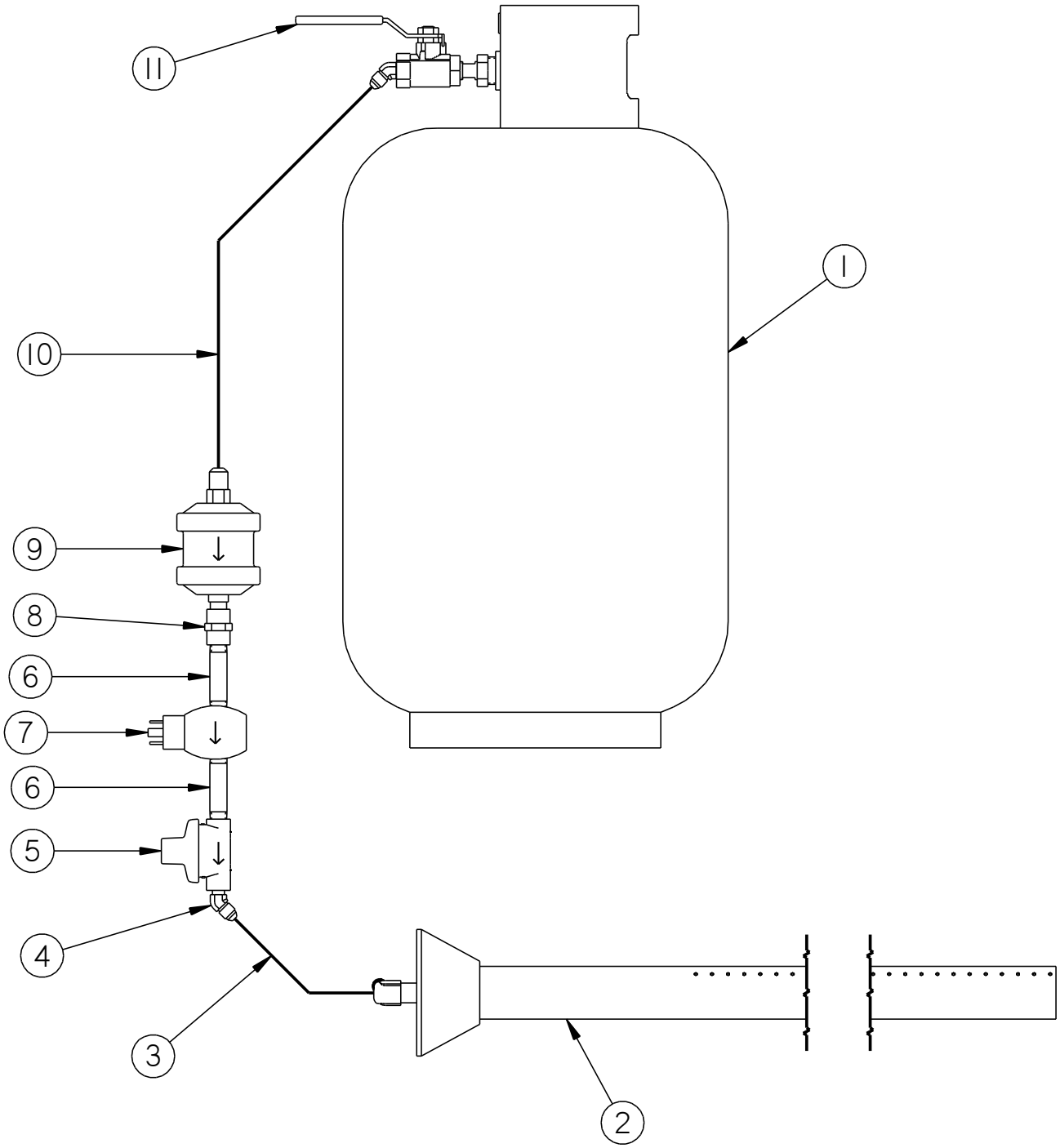
Chapter 9 Illustrated Parts List

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Chapter 9 Illustrated Parts List

Figure 9-10 LP Schematic / Parts List



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Chapter 9 Illustrated Parts List

Table 9-9 LP Schematic / Parts List

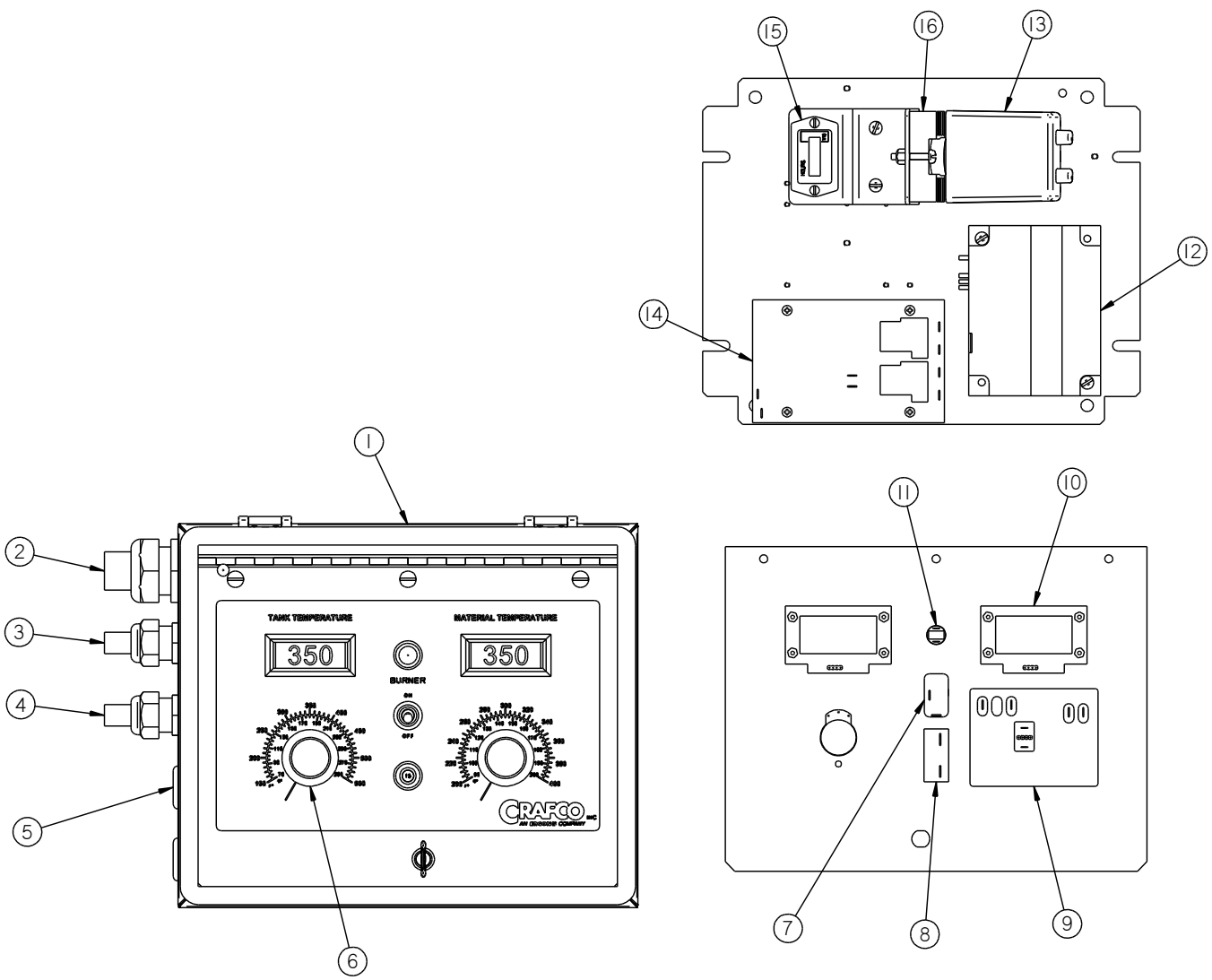
FIG.	ITEM	PART NO.	DESCRIPTION	QTY.
Figure 9-10	1	42964	LP BOTTLE, 30#	1
	2	49639N	PROPANE BURNER, 68” PIPE	1
	3	LP6-S-30	LP HOSE WITH SILICONE SLEEVE, 30”	1
	4	29857	ELBOW – 45 DEGREE, 6MX/4MP	1
	5	49702N	GAS REGULATOR	1
	6	28024	1/4” PIPE NIPPLE	2
	7	25236	BURNER SERVO VALVE	1
	8	28232N	COUPLER, 1/4" HEX FEMALE	1
	9	55399	LP FUEL FILTER	1
	10	LP6-S-7	LP HOSE WITH SILICONE SLEEVE, 7”	1
	11	25074	TANK SPUD/VALVE ASSEMBLY	1

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Chapter 9 Illustrated Parts List

9.6 Control Box Parts List

Figure 9-11 Control Box (P/N 49536N)



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Chapter 9 Illustrated Parts List

Table 9-8 Control Box Parts List (P/N 49536N)

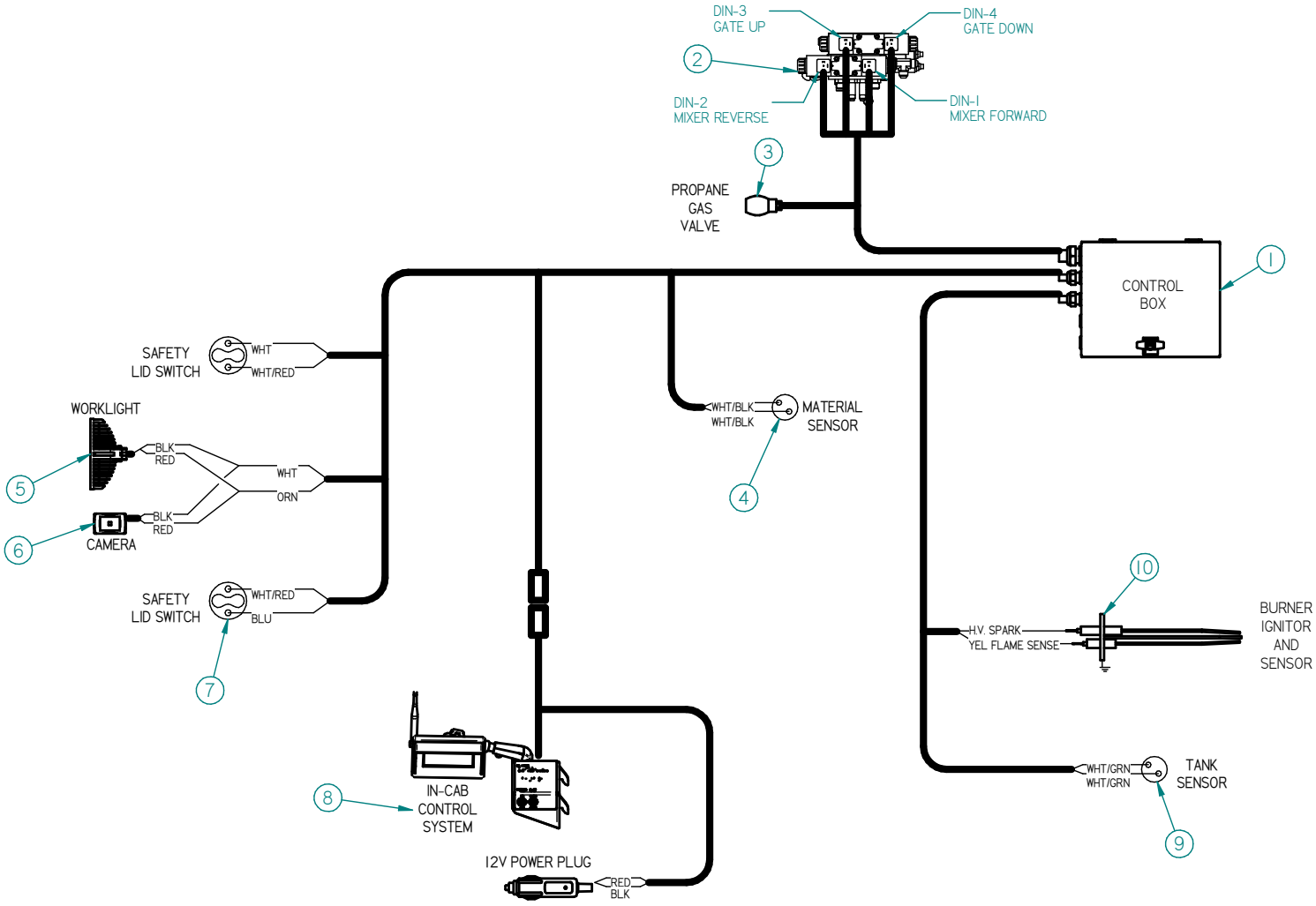
FIG.	ITEM	PART NO.	DESCRIPTION	QTY
Figure 9-11	1	49536N	Control Box Assembly with Harnesses	1
	2	49730N	Harness, DIN Cables	1
	3	49711N	Harness, Main	1
	4	49729N	Harness, Burner	1
	5	49717N	Hole Plug, Rubber	2
	6	50593	Knob	2
	7	50719	Toggle Switch, SPST ON/OFF	1
	8	51665	Circuit Breaker, 15A	1
	9	43391	Temperature Controller, Tank	1
	10	50251	LCD Display Module	2
	11	51651	LED Indicator	1
	12	25278	Burner Control Module	1
	13	49719N	Timer Relay, 0.03-3 minute	1
	14	51672	Temperature Controller, Material	1
	15	49538N	Hour Meter	1
	16	49718N	Relay Base, Round Socket	1

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Chapter 9 Illustrated Parts List

9.7 Electrical Schematic Parts List

Figure 9-12 Electrical Schematic Parts List



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Chapter 9 Illustrated Parts List

Table 9-9 Electrical Schematic Parts List

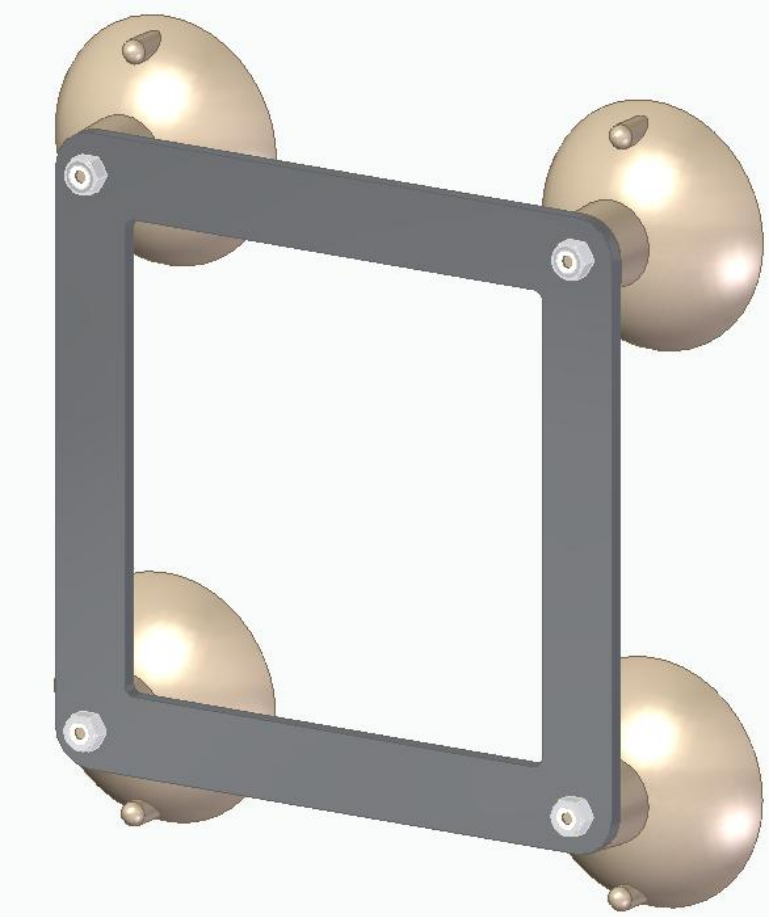
FIG.	ITEM	PART NO.	DESCRIPTION	QTY
Figure 9-12	1	49536N	Control Box with Harnesses	1
	2	45420	Hydraulic Valve Assembly	1
	3	25236	LP Solenoid Fuel Valve	1
	4	58720N	RTD Sensor, 14”	2
	5	49690N	Work Light	1
	6	Incl w/ 49705N	Camera	1
	7	39608	Lid Switch	2
	8	49705N	In-Cab Control System	1
	9	58720N	RTD Sensor, 14”	1
	10	43153	Burner Ignitor	1

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Chapter 10 Tools and Accessories

10.0 Tools and Accessories

Figure 10-1 Window Mount Assembly for In-Cab Control System: P/N 49749N



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Chapter 10 Tools and Accessories

Figure 10-2 12V Plug Adapter for Direct Battery Hook-Up: P/N 49757N



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