

# Integrated Paving Concepts Inc.

## StreetHeat SR-20 Operations Manual

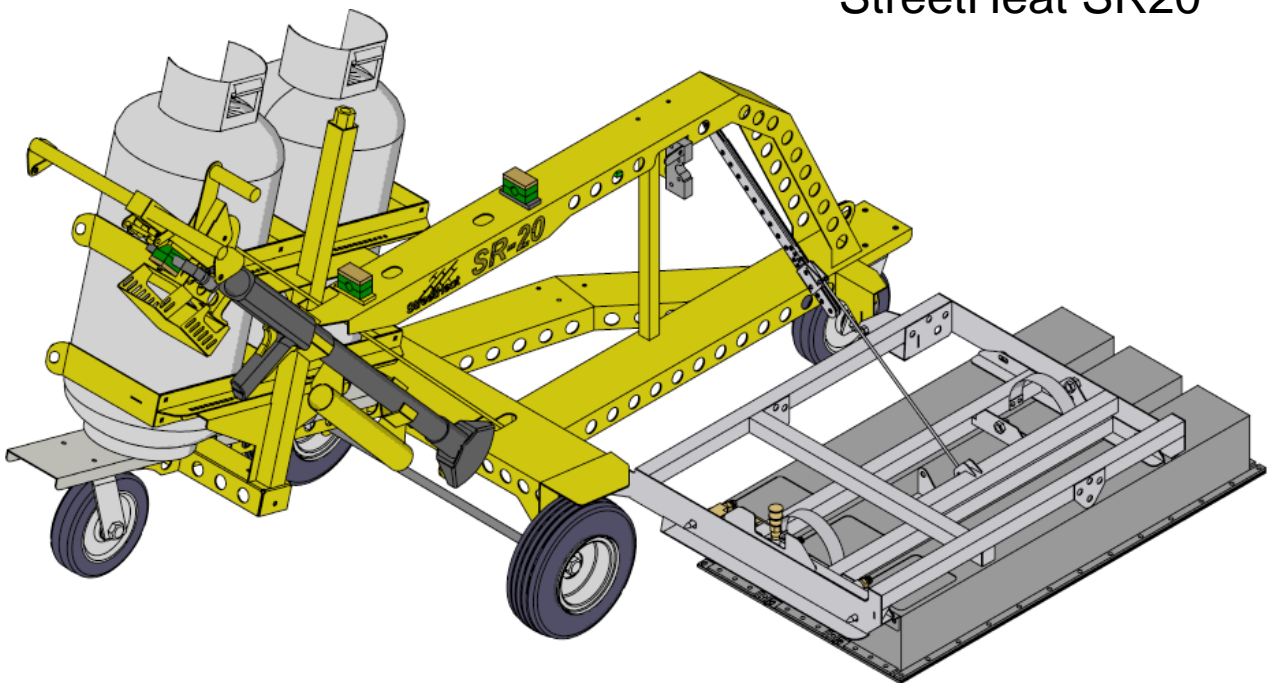


# Contents

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1. Safety
2. Main Operating Components
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StreetHeat SR20





# Safety



**WARNING:** Propane is **HIGHLY FLAMMABLE** and potentially **EXPLOSIVE!** Never smoke or allow an open flame when setting up, dismantling, or switching the propane tank on the equipment. **Ensure that everyone who operates this machine has read and understood this manual.**

**Safety Wear** – To avoid injury, always wear safety glasses, ear protection, long pants and steel toed boots when operating this equipment. Always keep a fire extinguisher nearby.

**Emergency Shutoff (a)** – If a fire is present or there is any risk simply let go of the lever and the safety valve will spring closed and shut off the heaters. Never mechanically fasten the valve lever in the open position!

**Main Propane Shutoff Valve (b)** – In case the safety valve lever fails to spring closed there is a second back up shut off valve on the left side of the handle that will shut off propane to the burners. NOTE: This will not shut off the propane to the Heat Torch

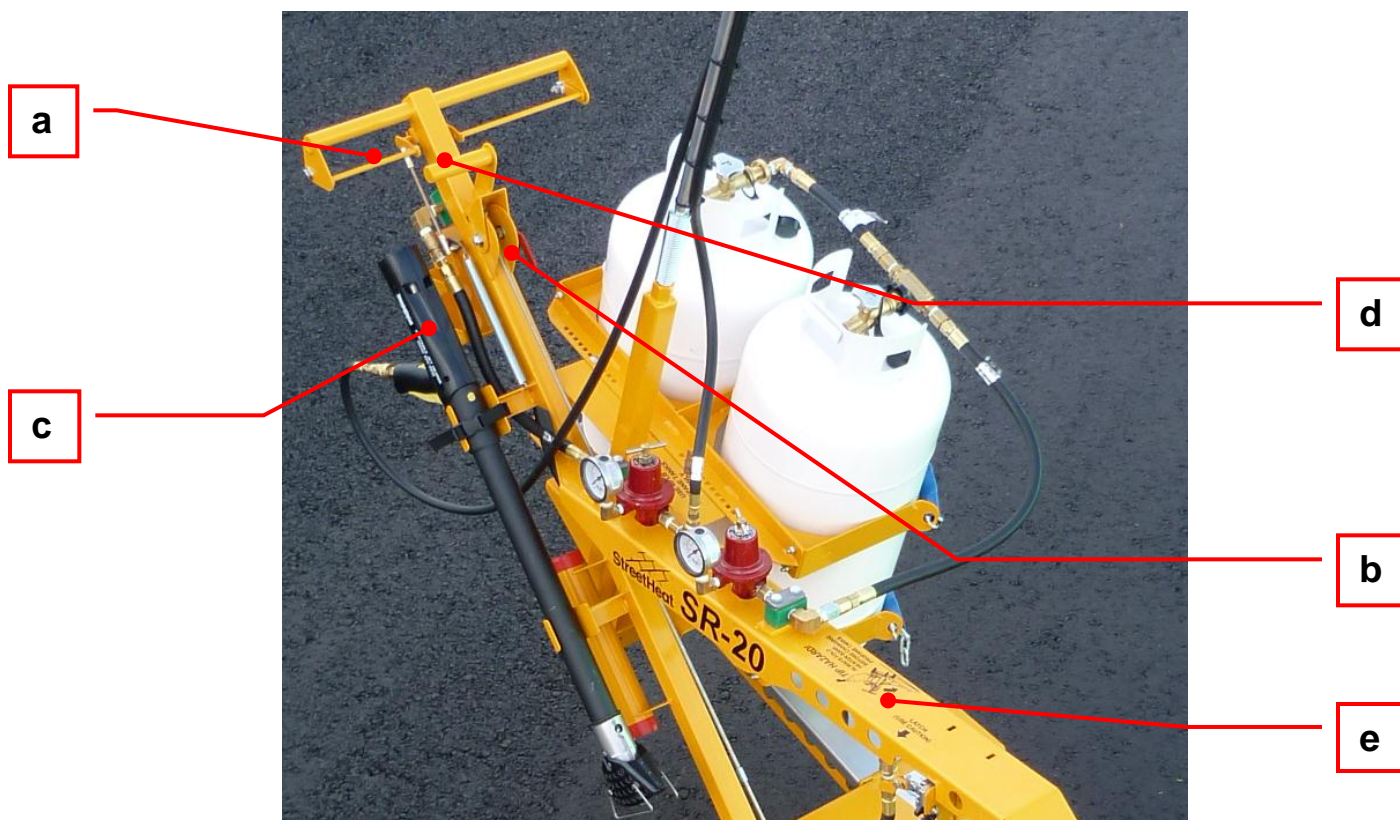
**StreetHeat Jet Heater Torch (c)** – Read the separate Operations Manual for the torch before using. To avoid risk of serious injury, take care when lighting the torch that it is pointed away from other people and the machine, especially the hoses and fittings. When heating the ground near the machine avoid heating close to the pneumatic tires to avoid overheating and bursting them.

**Risk of burn injuries** – the heat generated by the SR20 is enough to cause very serious burns. Use with extreme care.

**Operation** – never drive over any area that has just been heated. This could overheat and burst a tire causing serious injury. Never operate this equipment indoors. When the heaters are lit never leave the machine standing in one place, but always keep it moving. Rock the machine back onto its rear wheel when not in use so the heaters are elevated off the ground for cooling.

**Hand Brake (d)** - Always set the hand brake whenever the machine is left unattended. NOTE: breaking effectiveness is directly related to tire pressure. Always keep the main tires properly inflated.

**Tipping Hazard (e)** – The SR20 needs the propane tanks installed to be properly balanced. CAUTION: **Never remove the tanks with the heater bank extended** as the machine could tip over causing damage and potential serious injury (see warning label on the machine)



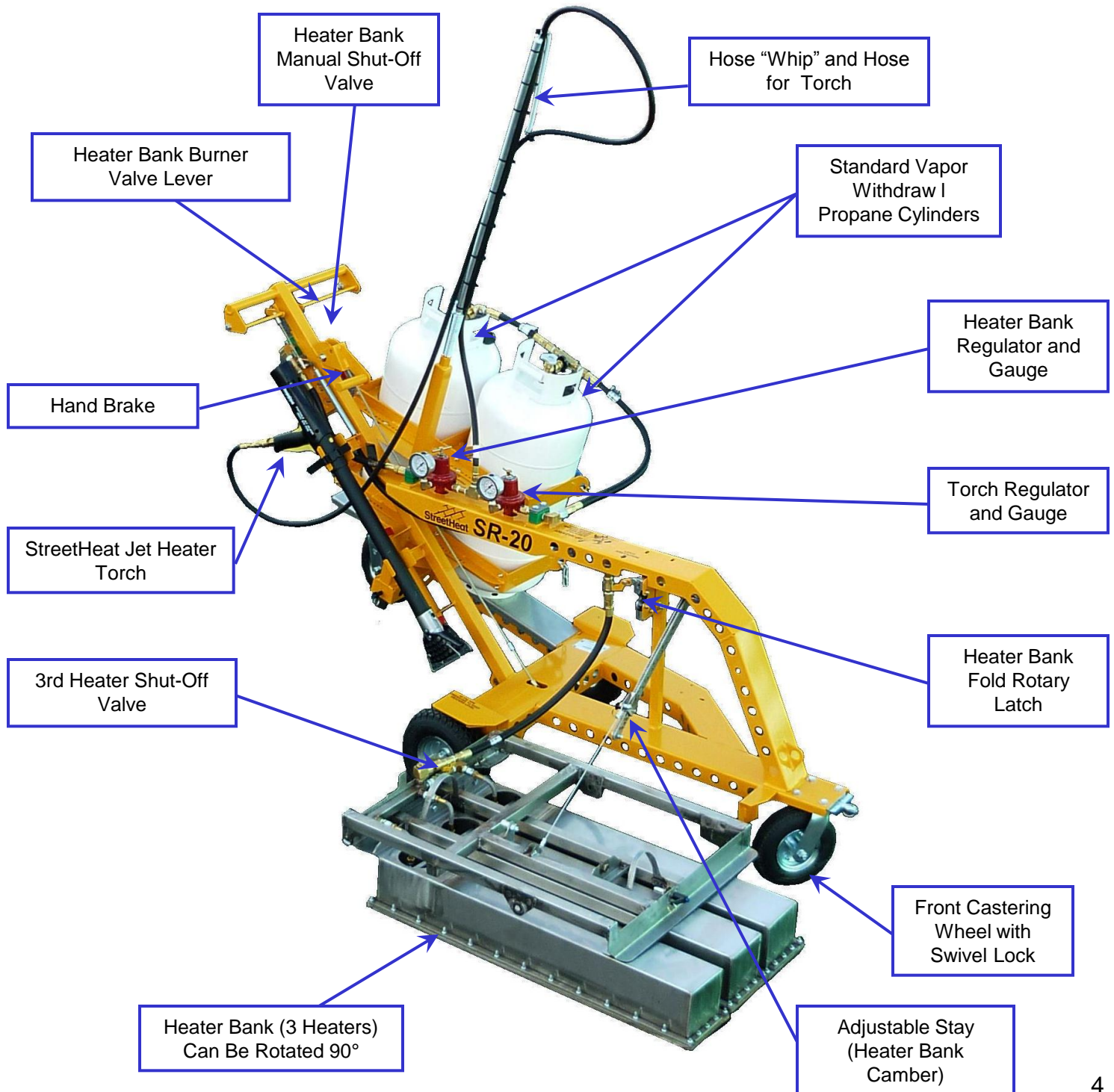


# Main Operating Components

## OPERATING PRINCIPLE

The StreetHeat SR20 Infrared Heater is a fully self contained infrared heating machine for use in reheating asphalt, installing preformed thermoplastic, drying and curing on asphalt surfaces, and other heating jobs. It is designed for maximum heating control because the heating motion is not static but the operator moves the machine back and forth so that the surface temperatures can be closely monitored and controlled.

Infrared heat is effective because much of the heat energy penetrates below the surface making it ideal for its intended use.

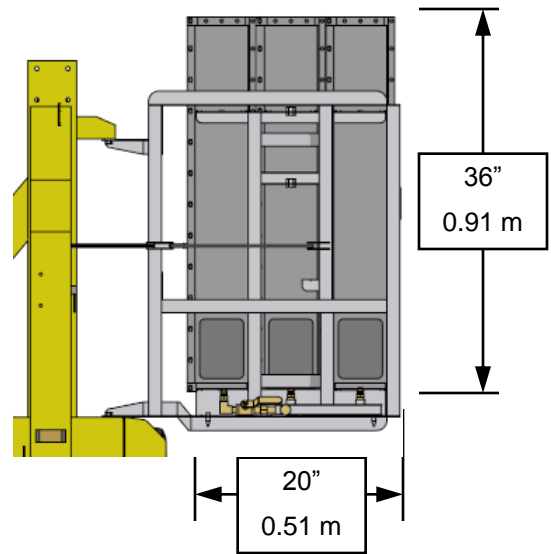


# Specifications and Dimensions

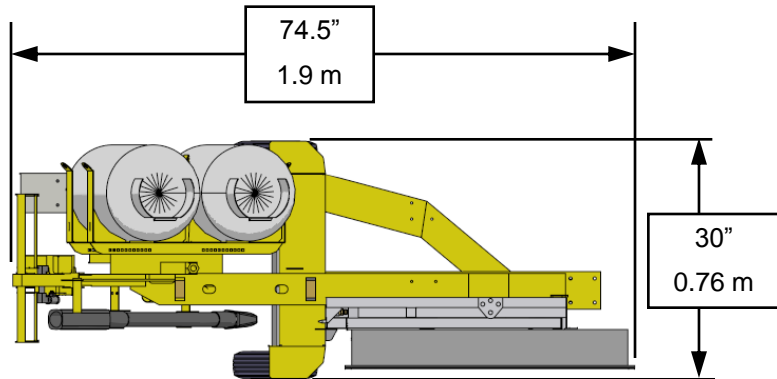
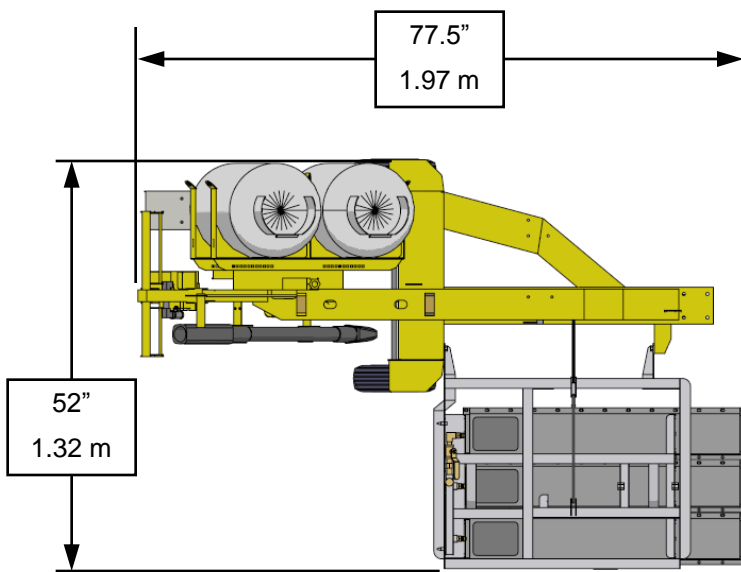
## SR20 Specifications

Infrared Heat Source	Propane
Machine Weight (Without Propane Cylinders)	260 lbs (118 kg)
Amount of Heat (SR20)	210,000 BTU-Hr (62 kW-Hr)
Amount of Heat (StreetHeat Jet Heater)	172,000 BTU-Hr (50 kW-Hr)

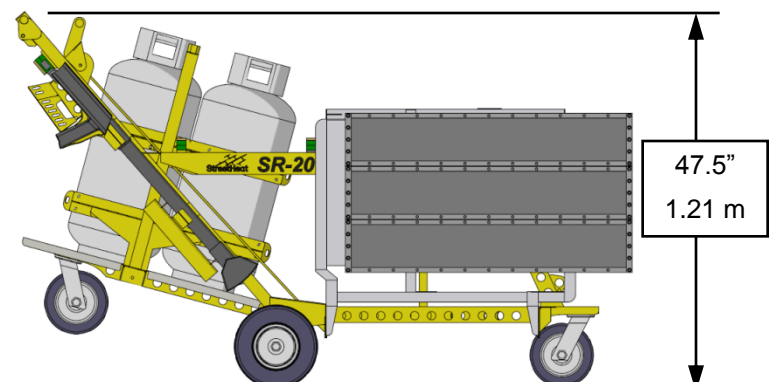
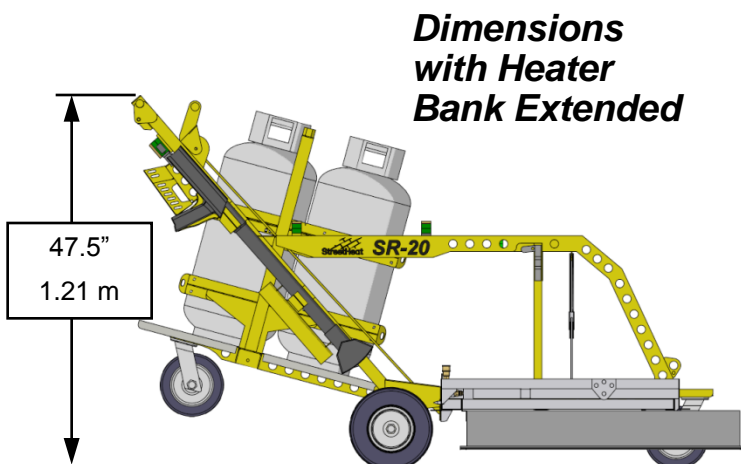
## Heater Bank Dimensions



## SR20 Heater Bank Rotated to Line or Border Heating Mode

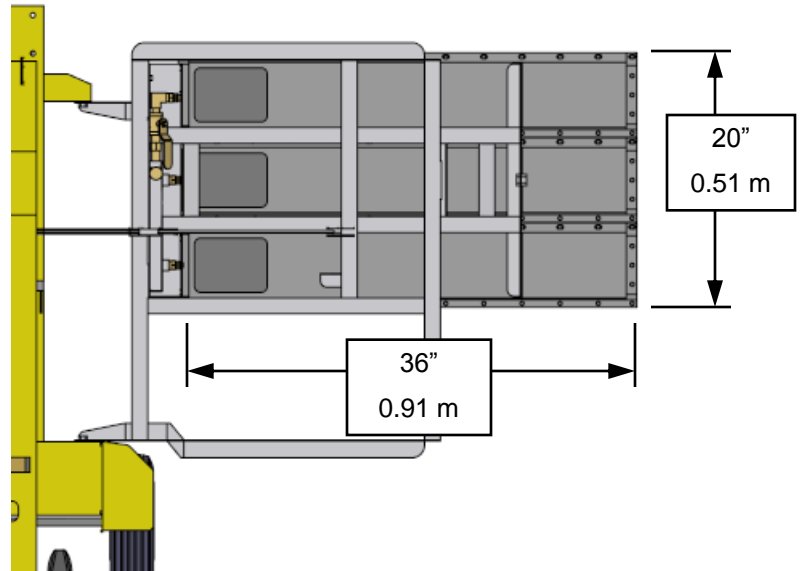


## Dimensions with Heater Bank Folded

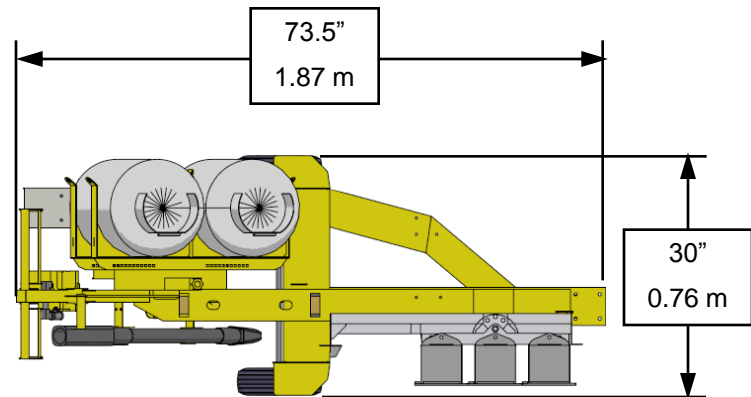
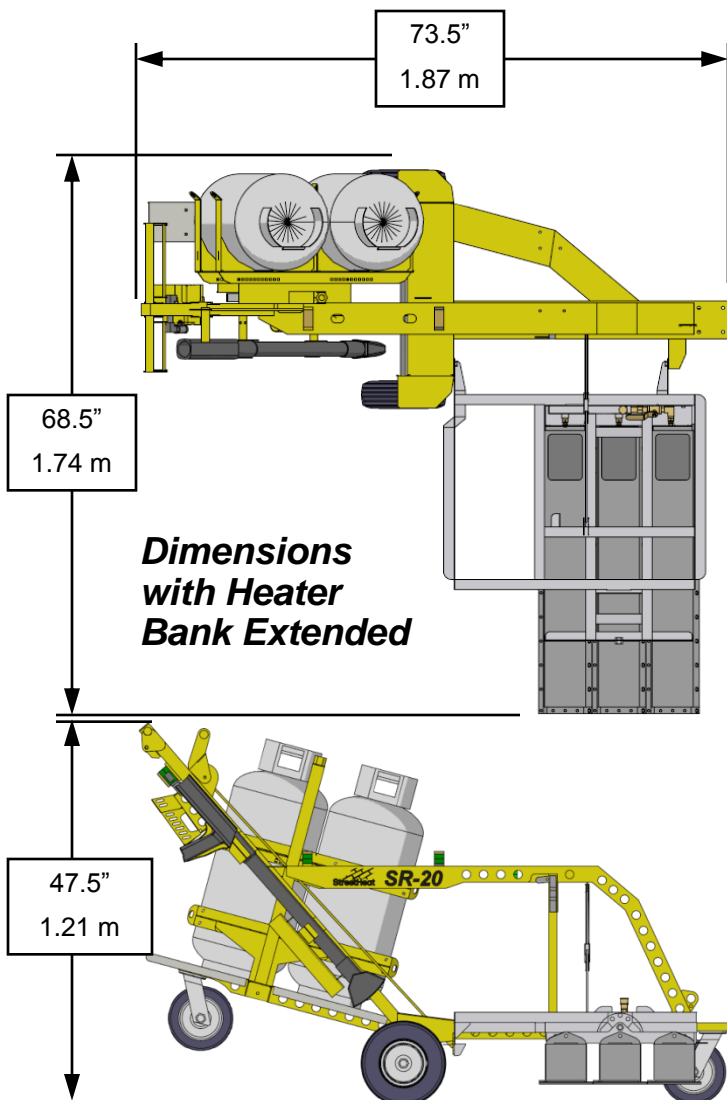


# Specifications and Dimensions

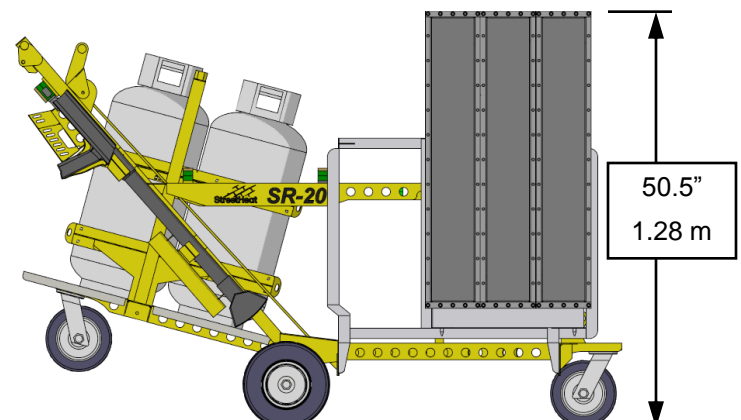
## Heater Bank Dimensions



## SR20 Heater Bank Rotated to Area Heating Mode



## Dimensions with Heater Bank Folded



# Preparing for Work



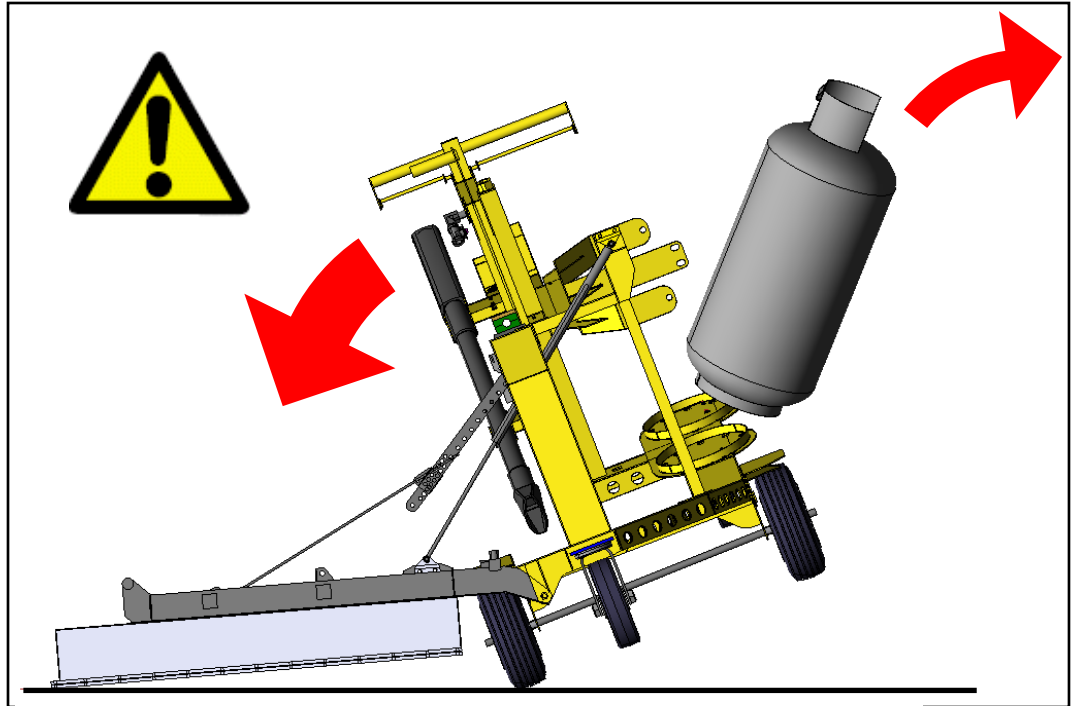
## CAUTION: TIP HAZARD!

**Never lower the heater bank without propane tanks on board and secured!** The machine is not balanced without the tanks and could tip over can cause serious injury

❑ Make sure the **heater bank is closed and latched in the up position** before changing propane tanks!

❑ Always set the **hand brake** before changing the propane tanks

❑ **CAUTION:** Machine may rock forward or backward unexpectedly!

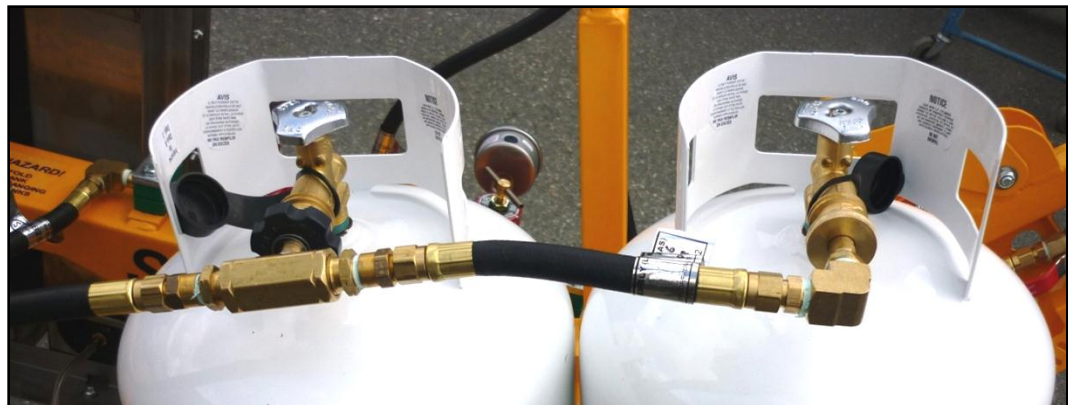


## Propane Tanks – North America

The SR20 and SR28 require two standard 40 lb propane tanks (not included). The SR-20 weight distribution is designed to balance with only 40lb tanks. Never use the SR-20 with the tanks lying on their side. It is advisable to purchase a second set of tanks to have as back up when needed.

Latch the bottles in place as shown. Never use or transport the tanks without ensuring the tanks are secure.

Attach the propane lines as shown turning the hand wheel POL fittings to the left. Open the tank valves slowly making sure there are no leaks



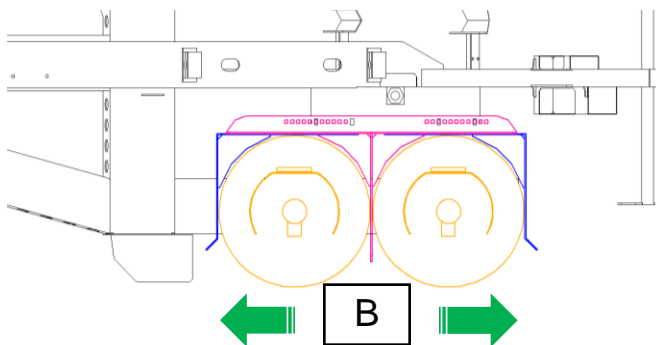
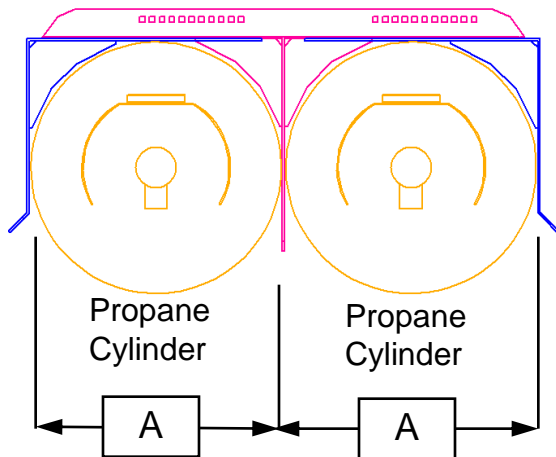


# Preparing for Work

## Propane Tanks – International

At the factory the ``cage`` has been preset to fit the standard 40lb propane cylinders in North America. For other regions the cage will need to be re-sized and re-positioned to fit different propane cylinder dimensions and weights

**IMPORTANT: Procure tanks with the capacity of between 15 kg and 18 Kg ONLY.** Tanks that are smaller or bigger may not enable the machine to be properly balanced



### 1. Size the ``Arms`` to the Cylinders

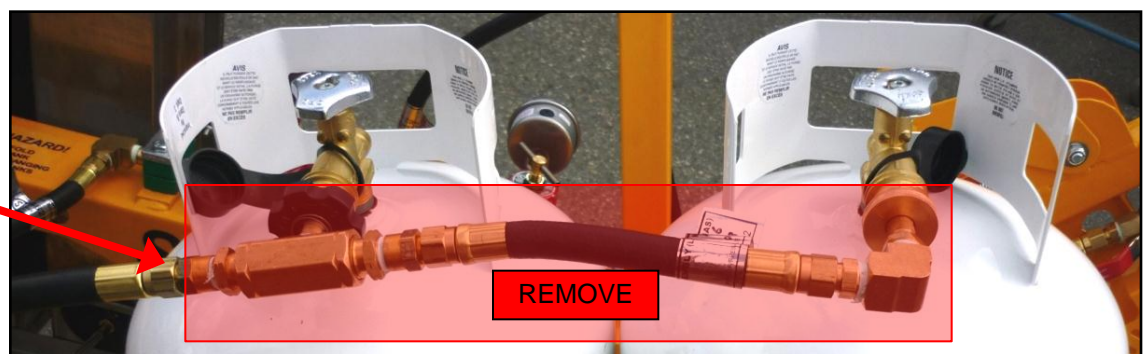
Before attaching the cage assembly to the machine, fasten the ``arms`` in position so that the cylinder fits fairly snugly (A). Make sure the bolts are oriented so that they do not interfere with the cylinders

### 2. Position the Cage Assembly

Position EMPTY cylinders (B) so that , WITH THE HEATER BANK EXTENDED, the machine will JUST stay rocked back on its rear wheel. If necessary, adjust the length of the four retaining chains to hold the cylinders in place securely

### 3. Replace Stock Fittings

Stock propane fittings will need to be removed back to the main propane hose. Install metric adapter (C) {included} on the hose and attach locally sourced propane fittings needed for your selected tanks.





# Preparing for Work – Cont'd

## Folding out the Heater Bank (SR20)



### CAUTION:

- ❑ Always set the brake before raising or lowering the heater bank!
- ❑ Never lower the heater bank without the propane bottles installed!
- ❑ Never attempt to lower the heaters when standing on the opposite side of the machine from the heaters! This could result in injury or damage the Machine!

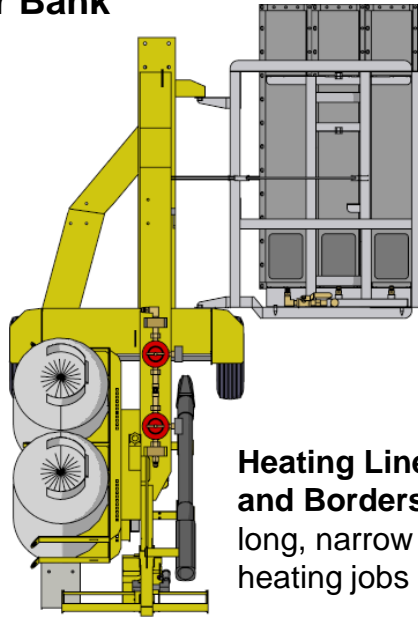


Make sure the brake is set and the propane cylinders are latched securely. Position yourself behind the heater bank on the heater side of the machine. Hold the heater bank frame with your right hand and unlatch the bank with your left hand, letting the bank down gently. **Caution: heater bank may be heavier than anticipated! NEVER LET THE HEATER BANK DROP ON ITS OWN!**

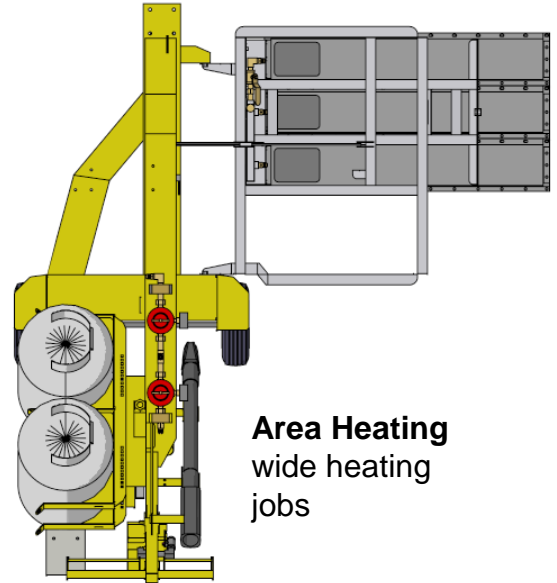
# Preparing for Work – Cont'd

## SR20: Rotating the Heater Bank

The kind of the work you need to do will determine which way the heater bank should be rotated



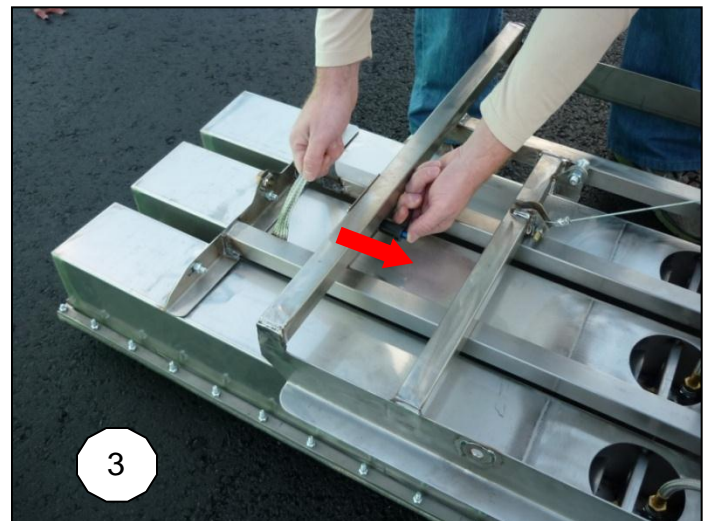
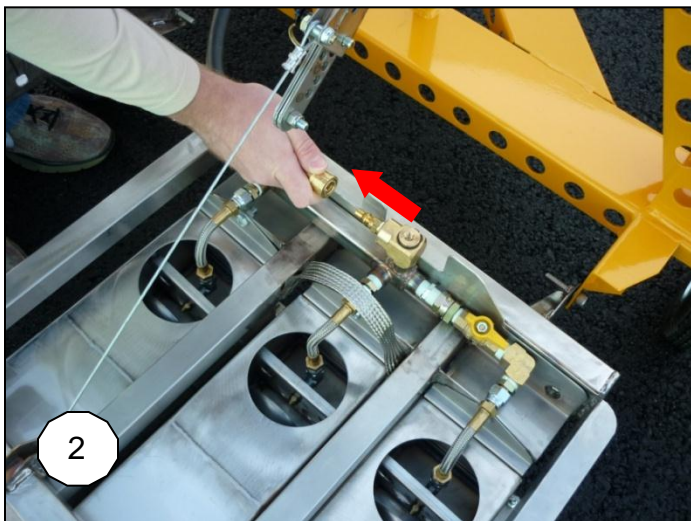
**Heating Lines and Borders**  
long, narrow heating jobs



**Area Heating**  
wide heating jobs



1. **C AUTION:** to prevent injury always deploy the “kick-stand” on the back of the machine and make sure the park brake is engaged
2. Detach the quick disconnect on the propane hose
3. Pulling up firmly on the braided strap to take the weight of the heaters, depress the button on the ball lock pin and remove the pin. Gently place the front of the heaters on the ground.

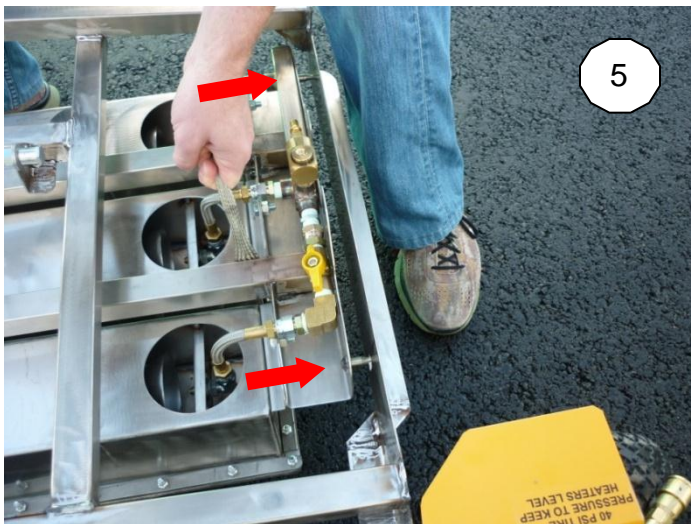
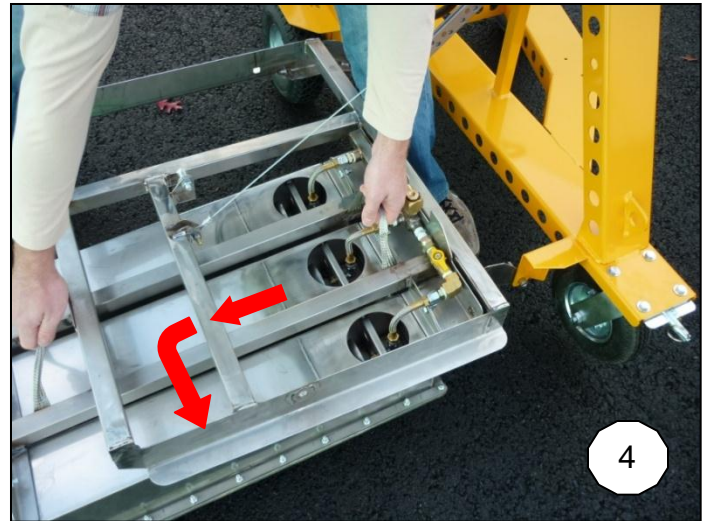




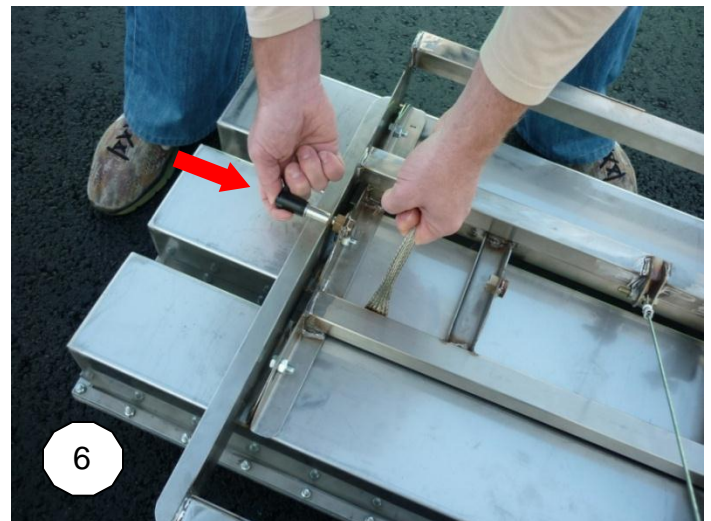
# Preparing for Work – Cont'd

## SR20: Rotating the Heater Bank (Cont'd)

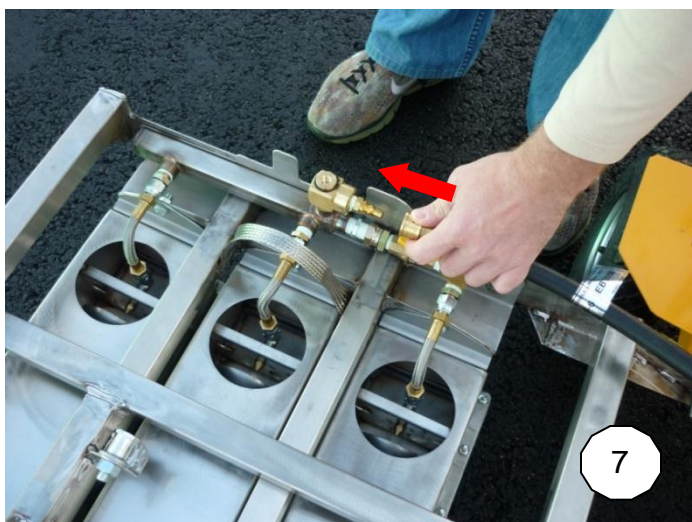
4. Take hold of both braided handles **and taking the weight of the heaters**, and carefully slide the heaters away from the inside frame. Rotate the heaters 90°



5. When the heaters have been rotated, first slide the two pins into the holes in the frame...



6. ...then lift up the heaters and install the ball lock pin. **Make sure it is engaged securely**



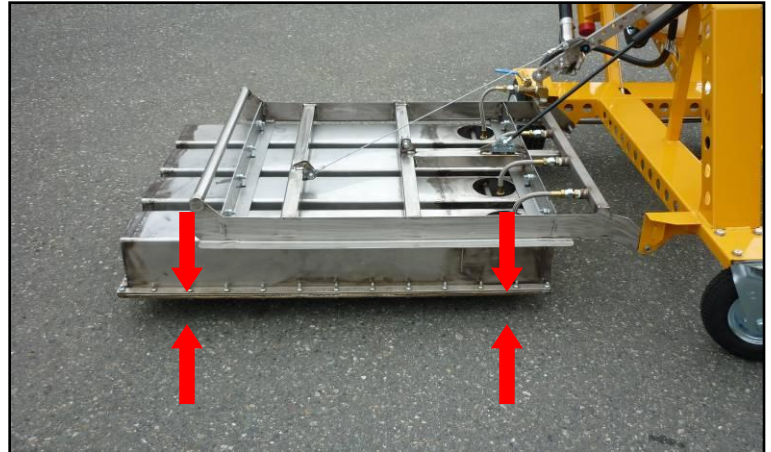
7. Reattach the propane hose.



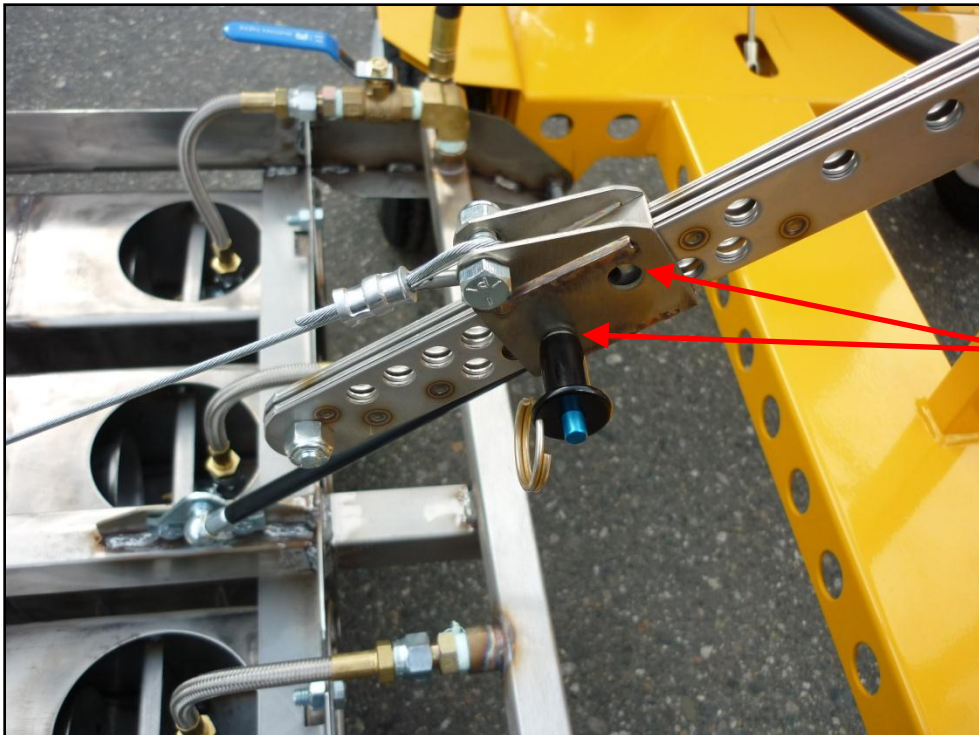
# Preparing for Work – Cont'd

## Leveling the Heaters

Leveling the heaters will ensure that you get the most effective and even heating results and at the same time prevent the heaters scraping the ground



First, ensure that the pressure on the main tires is at 40 psi (275 kPa), especially the right hand tire. (Note: Most of the weight of the entire machine rests on this wheel)



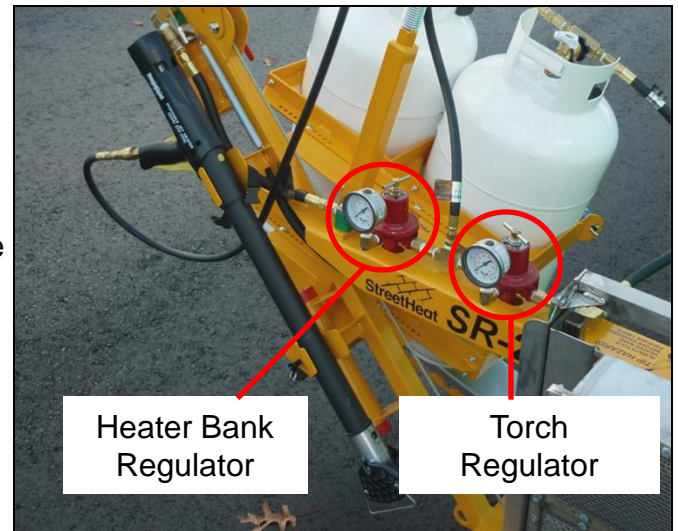
Then raise or lower the heater by adjusting the stay. By alternating inserting the ball lock pin between the upper and lower holes on the stay sleeve, the stay length can be adjusted in  $\frac{1}{4}$ " (13 mm) increments for very precise height control. Folding the heater bank makes it easier to make these adjustments.

# Operating Procedure

## Heat Torch

**IMPORTANT: READ THE SEPARATE STREETHEAT JET HEATER BEFORE OPERATING.** This heat torch is necessary for both lighting the infrared heaters and to manually heat areas which the SR20 cannot reach because of obstacles. Connect and mount the torch as shown using the quick connect coupler. There is no separate shut off valve for the torch, but if the torch is disconnected, the valve in the quick connect coupling will shut and prevent any gas flow.

The StreetHeat Jet Heater operates at 28 PSI (193 kPa). The pressure regulators and gauges for the torch and the heater bank are positioned as shown



## Lighting the Heaters

Once the propane bottles are installed and the heater bank lowered and leveled, open the valves on the propane tanks. Ensure that the pressure on the Heater Bank regulator (see above) is between 6 and 7 PSI (41 - 48 kPa). Rock the machine onto its front wheel. Check that the single heater shut-off valve is open if you want all heaters to light. Also check that the main manual shut-off valve to the left of the handle bar is open.

Open the burner valve by pulling the valve lever against the handlebar (upper red circle at right). While holding the valve open, light the torch (see the separate StreetHeat Jet Heater manual), then light the heaters by waving the torch back and forth under the heaters for about 5 seconds.



**CAUTION: To avoid lighting the heaters internally (which will damage them), always light from UNDERNEATH the heaters**

**To shut off the heaters simply let go of the valve lever**

**Tilt the machine onto its rear wheel to avoid burning the pavement surface as the heaters cool**



# Operating Procedure – Cont'd

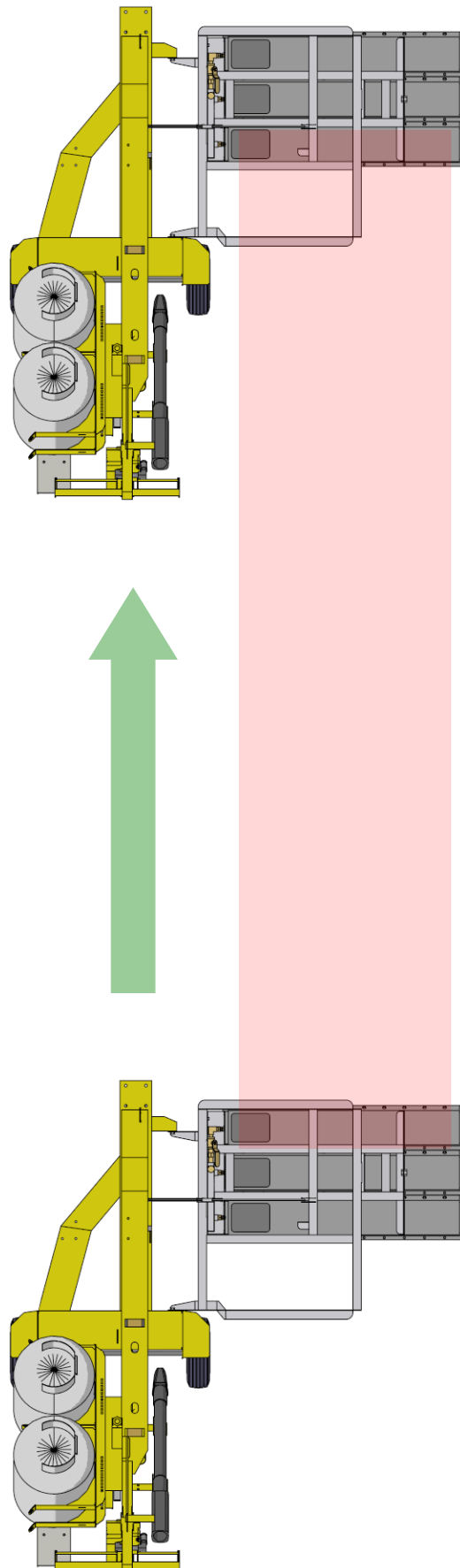


## Heating

The advantage of infrared heat is its ability to penetrate below the surface to heat at depth without overheating the surface. To do this effectively, begin heating by walking VERY SLOWLY forward about 10-20 feet (3 -5 m) per minute. After one “stroke” (see stroke lengths at right), rock the machine onto its back wheel and return quickly to the start line and repeat, walking a little faster each time (as the surface will reach maximum temperature more quickly) until the surface you are heating reaches the desired depth of heat. (Note: for heating, the handle height has be optimized for *pushing*, not pulling the machine; it is also easier to maintain a straight line by pushing the machine.)

Monitor the surface temperature with an IR thermometer. Try to bring the surface temperature up as high as possible with each stroke without exceeding the maximum allowable temperature of the material you are heating and causing it to burn.

To ensure that you have heated adequately along the entire length, start and end each stroke at least 2 heaters width at the start and end of the desired heating area.



Extend Stroke  
at least 2  
heaters width  
beyond desired  
heating area

### Desired Heat Area

Optimum heating stroke  
length:

- When doing “area heating” (as shown) 5-7 feet (1.5-2 meters)
- When doing “border heating” 10-12 feet (3-3.5 meters)

Start Stroke at  
least 2 heaters  
width before  
desired heating  
area

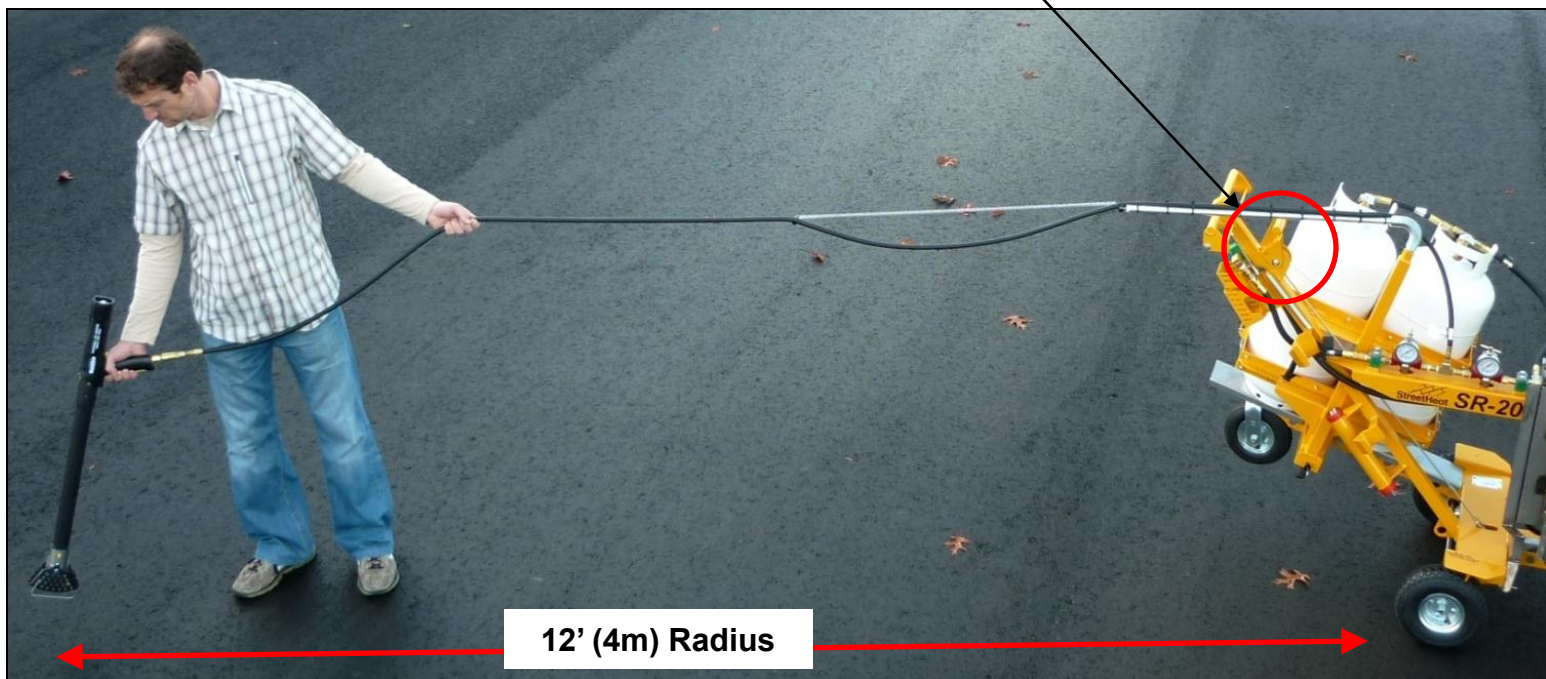


# Operating Procedure – Cont'd

## Heating with the StreetHeat Jet Heater

The Heat Torch can be operated in a 12' (4 meter) radius in all directions from the SR20 so you can heat those hard-to-get-at places. See the StreetHeat Jet Heater manual for best usage practice

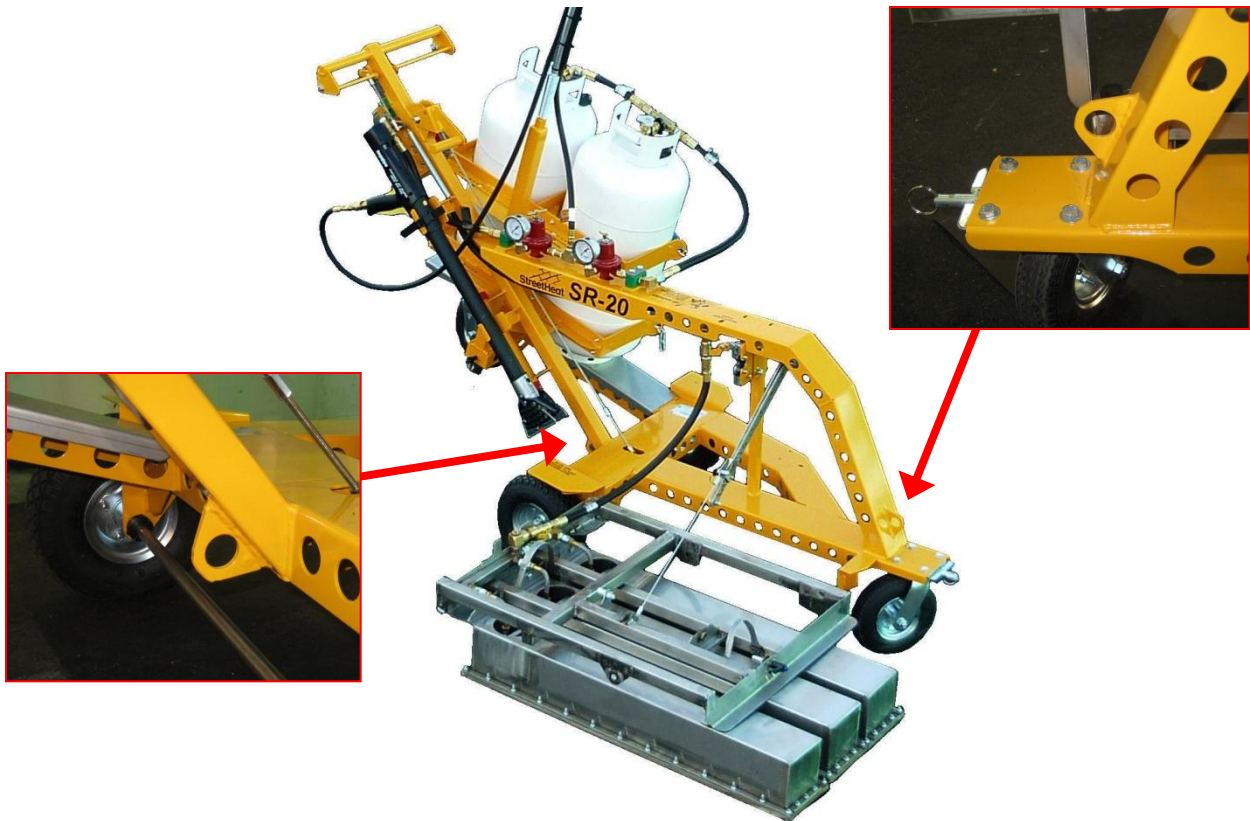
- ☐ Always make sure that the hand brake is set first.



- ☐ Only use moderate force when pulling on the hose or it could rupture and cause a dangerous propane leak.
- ☐ Take care when using the Heat Torch close to the machine that you do not overheat a tire and cause it to burst or cause a rupture in any propane hoses

# Preparing for Transport

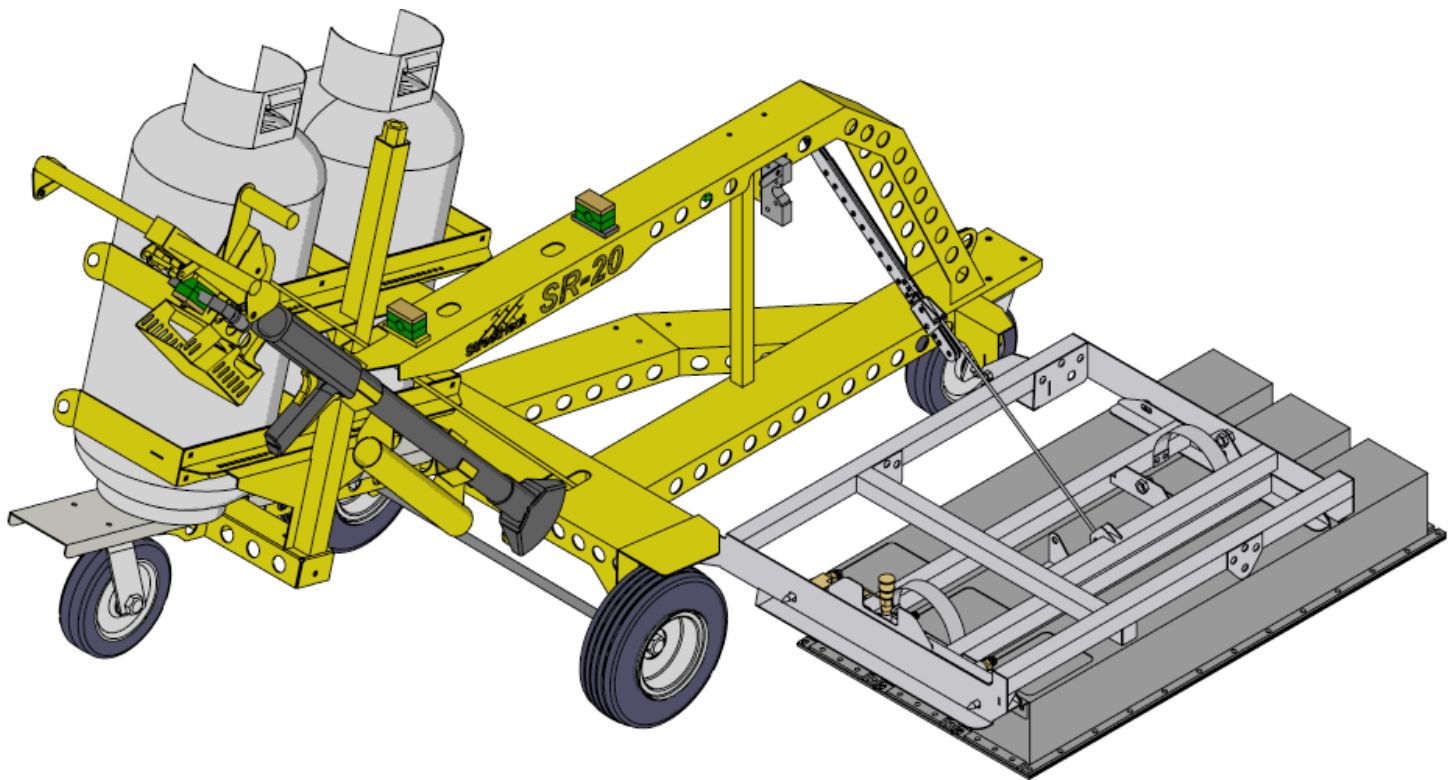
1. **Propane Tank – Caution EXPLOSION HAZARD!** Never transport the SR20 with the propane hose attached to the tanks! Never transport or store propane tanks inside an enclosed trailer! Make sure the shut off valve on the tank is closed tightly and that the tanks are securely latched to the machine or transport.
2. **Fold up the Heater Bank** - The heavy duty rotary latch will hold the heater bank in place securely for transportation. Make sure it is closed securely.
3. **Secure Heat Torch** – The heat torch should be either removed from the SR20 and stowed separately or held in its cradle securely using straps or bungee cords.
4. **Brake** – When transporting always set the hand brake.
5. **Strapping** – Strap the SR20 down so that it cannot move in any direction, nor rock from front to rear wheels. **Avoid placing strapping on to, or over, the heater bank.**



# Trouble-Shooting and Repair Contents

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1. Trouble-Shooting Guide
2. Parts List
3. Parts List Illustrations
4. Adjusting Brake
5. Leveling Heater Bank
6. Regular Maintenance
7. Service





# Trouble Shooting

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**Propane is burning inside the heater:** If you hear a continuous “whooshing” sound and the top of the heater is turning blue, it is because it is burning internally. Here are some things you can do:

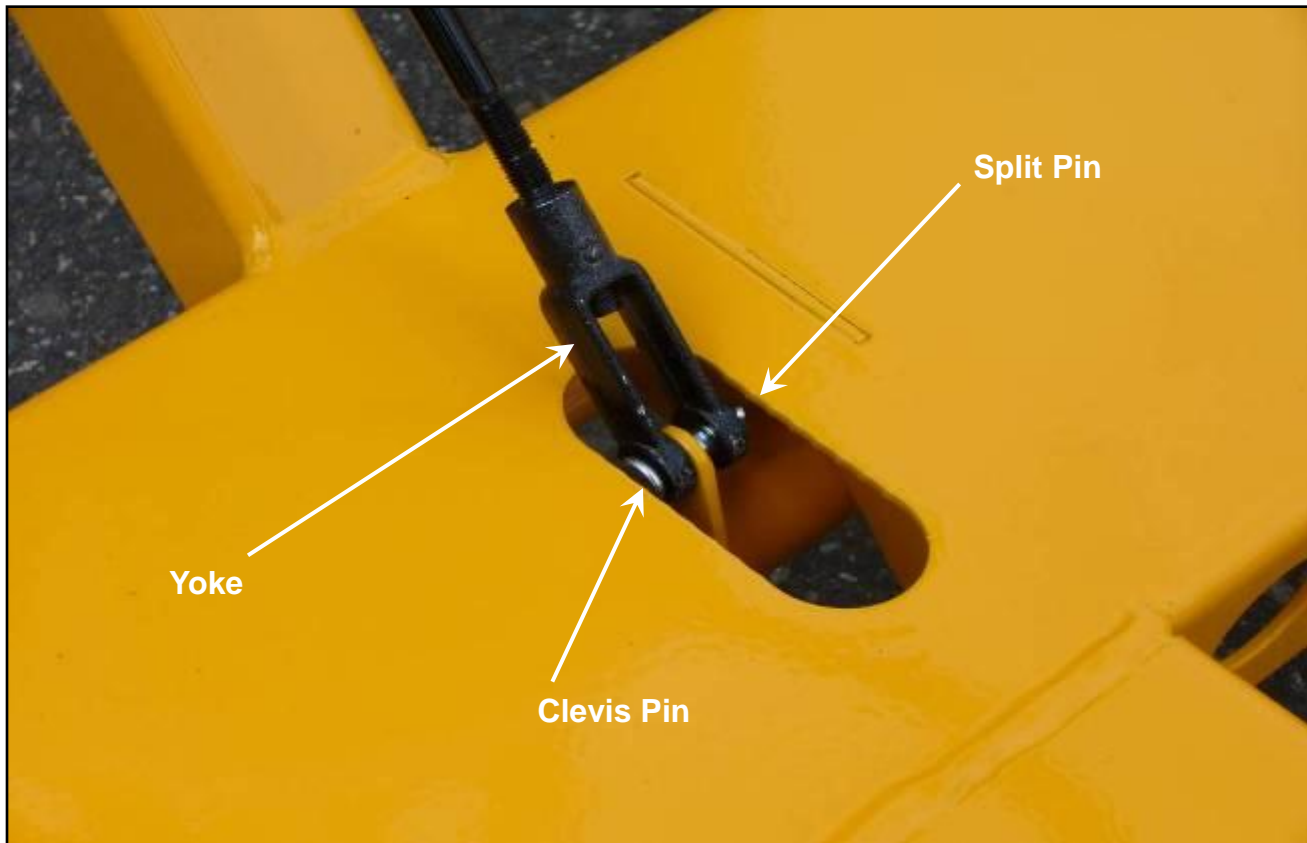
Check that the pressure is not set too high	Set to between 6 and 7 PSI (41-48 kPa). Too high pressure can cause gas to leak out of the bell, fall to the ground and ignite inside the heater.
Check for leaks in the tube running from the manifold to the heaters using soapy water and blowing compressed air into the system (DO NOT USE PROPANE; EXPLOSION HAZARD!)	Tighten or reseal and tighten flare fittings until leaks are sealed
Check that all the nuts and bolts around the perimeter of each heater are tightened.	Tighten Bolts. There is a ceramic gasket around the perimeter that must be sealed
Check for build up of dirt or asphalt on the screen	Use a pressure washer to clean the screen. Allow to dry before lighting
This can occur in high winds	Problem will correct itself when winds subside.

**Heater is lit but is not glowing red:** Here are some things to check for:

1. Check that there is no blockage in the orifice (the tip that injects the propane into the heater).	Use the supplied tip cleaner to clean out the orifice. To do this, blow compressed air into the system and run tip cleaner in and out while the air is blasting out (DO NOT USE PROPANE; EXPLOSION HAZARD!)
	If it is still blocked there may be a larger piece that necessitates the removal of the tip altogether (See the Maintenance Section of this manual for instructions).
2. Check that the pressure is not too low.	Set between 6 and 7 PSI (41-48 kPa).

# Adjusting Brake

The brake bar on the SR20 presses against the tire tread. Therefore brake effectiveness is related to tire pressure. Make sure the main wheels are kept at 40 psi (275 kPa) pressure.



Once the tire pressure is set properly the brake can be adjusted:

1. Remove the split pin and clevis pin on the Brake Rod
2. Screw Yoke on to tighten brake or off to loosen. Reassemble.

# Regular Maintenance

## Lubrication

At least once a season apply grease to all the rotation points on the SR20. Use a grease gun to apply grease to the grease nipples on the wheels and caster bearings and spray white lithium grease to lubricate the remaining points. (circled at right).

## Hoses and Fittings

Do a visual check **at least once a month** of all hoses and fittings to make sure there is no damage or risk of perforation. Replace any parts **BEFORE** they fail.

## Tires

Check tire pressures frequently. Check the tread, especially on the right hand 10" wheel that takes most of the weight of the machine. Replace the wheel if necessary.



## Heaters

Over time the heaters may begin to lose some of their original glow so that it takes longer to heat the asphalt. One way to prevent this is to keep the propane tips (orifices) clear of debris. The orifice is the small tip that injects the propane into the heater. Use the supplied tip cleaner to clean out the orifice.

To do this, attach compressed air onto the quick coupler on the hose leading into the heater bank. Run the tip cleaner in and out of the tip while air is blowing through it. **CAUTION: DO NOT USE PROPANE; EXPLOSION HAZARD!**

Once a year, using a 7/16" wrench and ratchet with an extension, check that all the bolts on the heater perimeter are tight. This will prevent propane leaking out the sides and causing internal combustion.





# Regular Maintenance –Cont'd

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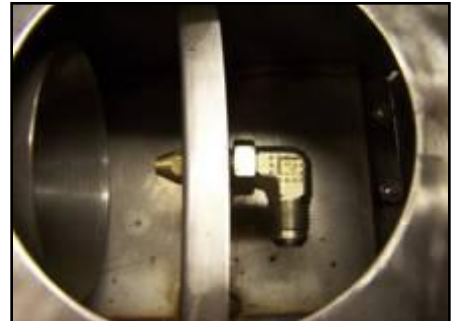
**Heaters (cont'd)** - If cleaning the tip still doesn't restore the glow on the heater, you may need to remove the whole fitting assembly on which the tip is mounted to dislodge any debris that has accumulated behind the tip.



1. Using a 11/16" wrench, loosen and disconnect the braided hose



2. Using a 3/4" wrench, loosen the backing bolt that keeps the tip assembly in place.



3. Once the backing nut is loose, you will be able to unscrew by hand.



4. Remove fitting and tip assembly from burner.



5. Using the tip cleaner or a welding tip cleaner, clean the tip. This will dislodge any debris that may be clogging the tip.



6. Blow compressed air through the tip to remove debris from behind the orifice.

Reverse steps for re-assembly. When fully assembled, apply soapy water, blow compressed air through system to check for leaks. Tighten any fitting that leaks.

# Parts and Service

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Integrated Paving Concepts Inc. is committed to providing the best possible after-market service. If you require parts or service, or have any other questions please call our Technical Assistance line or visit our website.

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